LV
VOL
22B

22-B

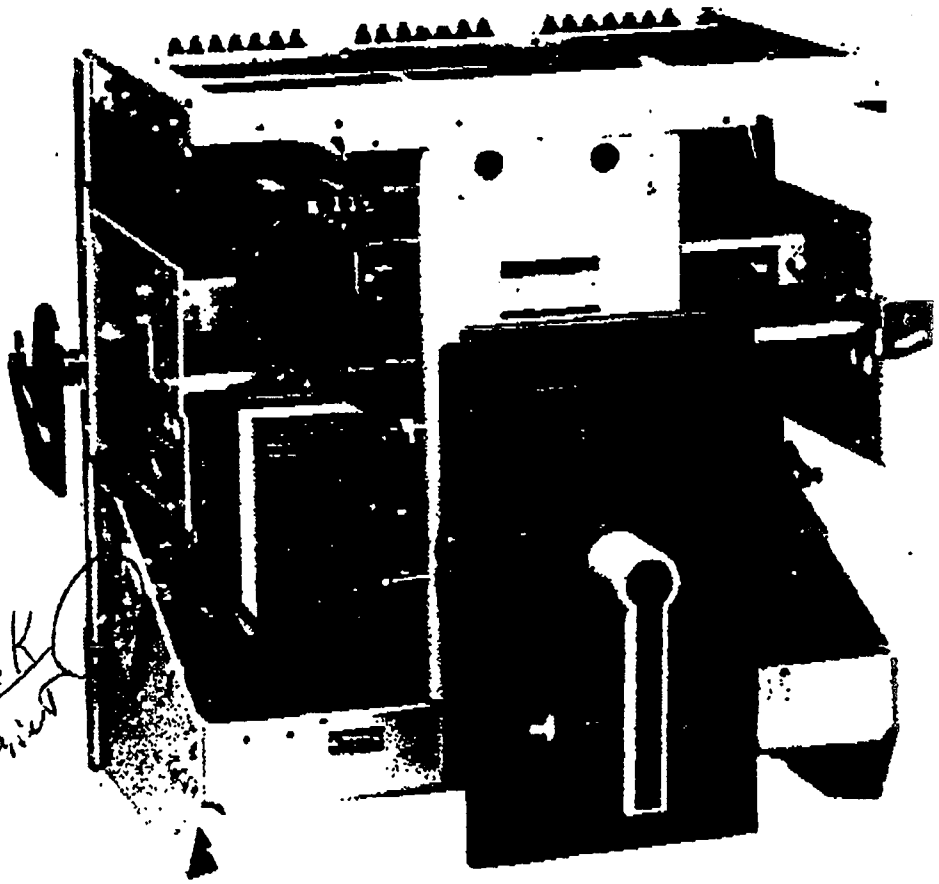
GENERAL ELECTRIC

GEF 4552 RENEWAL PARTS TYPE AKR-75 AND AKR-100

22B

Low Voltage Power Circuit Breakers

Type AKR-75 and AKR-100



Positive Interlock
See 161D6502 Page

INTRODUCTION

This manual provides a listing of the parts and assemblies that are available as replacement parts for low voltage circuit breakers, types AKR-75 and AKR-100.

Parts and assemblies included in this list are from the basic breaker. To order parts and assemblies for breaker accessories, refer to summary list or the breaker nameplate data.

Renewal parts which are furnished may not be identical to the original parts since, from time to time, design changes may be made. The parts supplied, however, will be interchangeable with the original parts.

INDEX OF RENEWAL PARTS COVERED BY THIS PUBLICATION

Figure No.	Quantity Required For 3-Pole Breaker		Catalogue Number		Description
	AKR-75	AKR-100	AKR-75	AKR-100	
1	1	1	See Table A		Bell Alarm Assembly
2	3	3	425D288G1	425D288G2	Upper Stud & Terminal Assembly
3	3	3	139C4470G1	139C4470G2	Lower Stud
4	1	1	See Table B		Shunt Trip Device
5	1	1	See Table C		Closing Solenoid
6	1	1	See Table D		Charging Motor, with driving pawl
7	1	1	See Table E		Closing Relay "X"
8	1	1	See Table E		Closing Relay "K"
9	1	1	See Table E		Anti-Pump Relay "Y"
10	1	1	425D385G1	425D384G1	MicroVersaTrip® Flux Shifter- 25" Wide
10	---	1	-----	425D385G2	MicroVersaTrip® Flux Shifter-33" Wide
11	1	1	See Table F		Current Transformer
12	1	1	139C4458G1	139C4458G1	Cut-Off Switch Assembly
13	1	1	425D291G31	425D291G32	Back Frame Assm., Complete--25" Wide
13	---	1	-----	425D291G33	Back Frame Assm., Complete--33" Wide
14, 14A	1	1	425D289G13	425D289G14	Electric Front Frame, Complete-25" Wide
14, 14A	---	1	-----	425D289G15	Electric Front Frame, Complete-33" Wide
15, 15A	1	1	425D287G1	425D287G3	Manual Front Frame, Complete-25" Wide
15, 15A		1	-----	425D287G2	Manual Front Frame, Complete-33" wide
16	1	1	242B7020G3	242B7020G4	Arc Chute*
17, 17A	1	1	See Table G		Static Timing Device
18	1	1	See Table H		Auxiliary Switch, SB-12
19	1	1	See Table I		Electroswitch
20	1	1	See Table J		Draw-Out Racking Mechanism
21	**	**	386A110G2	386A110G2	Secondary Disconnect Terminal Block (7pt.)
22	1	1	568B383P1	568B384P1	Primary Disconnect - Tube Type
23	2	2	568B450G1	568B450G2	Primary Disconnect - Finger Type
24	2	2	139C4549G3	139C4549G4	Upper Connectors and Fingers
24	1	1	569B622P3	569B622P4	Heat Sinks, Inner (All Phases)
24	2	2	569B622P1	569B622P2	Heat Sinks, Outer (Phase B Only)
25	1	1	121C2870G3	121C2870G4	Open Fuse Lock-out Device, Complete
26, 26A	1	1	TAK83FCB	TAK94FCB	Fuse Roll-out Element
27	1	1	***	***	MicroVersaTrip® RMS-9 Programmer
28	1	1	***	***	Epic MicroVersaTrip™ Programmer
29	1	1	192A7153P3	192A7153P3	Switchette (used in D.C. control only)
30	---	---	See Table K		Contacts and Spring
31	1	1	See Table L		Undervoltage Device
32	1	1	192A9717G3	192A9717G3	Push Button Closing Switch (will include insulator, mtg hardware, and label)
33	1	1	286A8096G2	286A8096G2	Closing Handle (Manual Breaker)
34	1	1	See Table M		Escutcheon

* As of January, 1989, the AKR 75/100 breaker design incorporates asbestos-free arc chute. Older models of these breakers will require an Asbestos-Free Replacement Kit: Drawing #0202B7020.

** Quantity is determined by control scheme.

*** Refer to side sticker on programmer unit for replacement information.

TABLE 1

FRAME SIZE (Amperes) 250V. Dc	FRAME SIZE (Amperes) 600V. Ac 50/60 Hz.	BREAKER DESIGNATION	MOUNTING TYPE: DRAWOUT AKD	AKD-5	AKD-6	AKD-8	Sub-Structure	Stationary	DEEP ESCUTCHEON	PRIMARY STUD TYPE	BREAKER WIDTH (Inches)
4000	3000	AKR-(*)-75						X		Bar	25
			X							Tube	
		AKR-(*)A-75		X	X					Tube	
	3200	AKR-(*)B-75					X		X	Fingers	
		AKR-(*)C-75			X					Fingers	
		AKR-(*)D-75				X			X	Fingers	
		AKR-(*)F-75					X		X	Fingers	
		AKR-(*)S-75						X		Bar	
6000	4000	AKR-(*)-100	X							Tube	33
		AKR-(*)A-100		X	X					Tube	
		AKR-(*)B-100					X		X	Fingers	25
		AKR-(*)C-100			X					Fingers	
		AKR-(*)D-100				X			X	Fingers	
		AKR-(*)F-100					X		X	Fingers	
		AKR-(*)S-100						X		Bar	
		AKR-(*)W-100						X		Bar	33
SPECIAL DC BREAKERS FOR FIELD SWITCHING											
4000		AKR-N-75F	X							Tube	25
		AKR-NB-75F					X		X	Fingers	
		AKR-ND-75F				X			X	Fingers	
		AKR-NF-75F					X		X	Fingers	
		AKR-NS-75F						X		Bar	
6000		AKR-N-100F	X							Tube	33
		AKR-NB-100F					X		X	Fingers	25
		AKR-ND-100F				X			X	Fingers	
		AKR-NF-100F					X		X	Fingers	
		AKR-NS-100F						X		Bar	
		AKR-NW-100F						X		Bar	33

Example: AKR-5B-75 identifies a drawout, substructure-mounted breaker equipped with the SST trip device. The EC trip devices are electro-mechanical, refer to GEI 86157 for detailed information.

BREAKER MODELS

(*) This digit identifies the trip device:
2 = EC-1 or EC-2A. Dc only
4 = ECS
5 = SST 50/60 Hertz only.
6 = Micro Versa Trip 50/60 Hertz only.
For detailed information on these trip devices refer to the following publication: GEI-86157

N = Non-automatic. In addition, all non-automatic 250V Dc breaker types carry the suffix letter D after the frame number, e.g., AKR-NB-75D

NOTE: AKR breakers equipped with SST programmers have not been offered since 1981. SST replacement programmers, phase/neutral current sensors, wiring harnesses, and associated renewal parts have been discontinued. Future requirements must be handled by converting AKR breakers to MicroVersaTrip® RMS-9 using the latest conversion kits described in Publication GEA-10678B.

AKR-75 and AKR-100, 2 pole DC Breakers are no longer available from the factory.

ORDERING INSTRUCTIONS

1. Furnish the complete nameplate data of the breaker.
2. Specify quantity, cat. no., item no. and description for each part, and state this bulletin no.
3. Standard hardware items (zinc dichormate-coated screws, grade 5 bolts, nuts, washers, etc.) are not listed in this bulletin. These items, or equivalent, should be obtained locally.
4. For pricing, proper installation and maintenance instructions, contact your local GE ED&C sales and/or service representative

Figure 1.
Bell Alarm Assembly

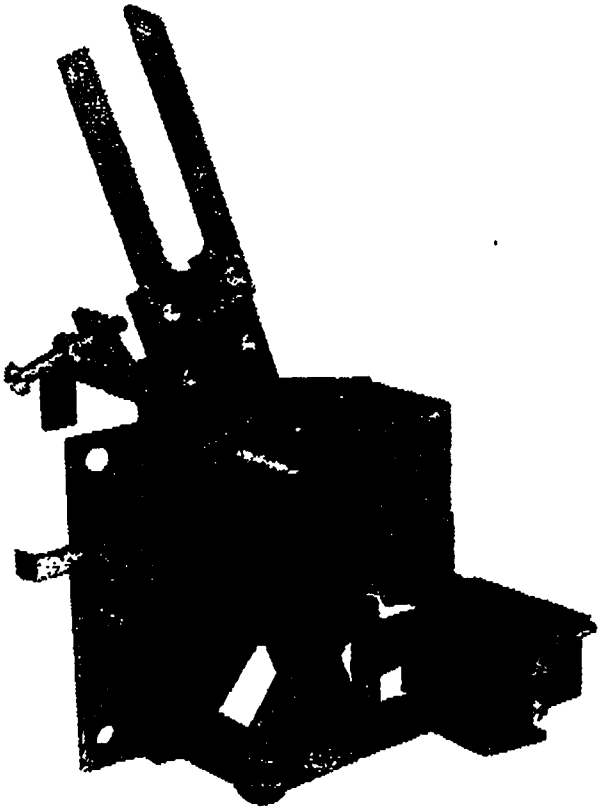


Table A. Bell Alarm (less mounting)

Catalog No. 425D304G-	Type
-G1	No Lockout - 1NO + 1 NC
-G2	No Lockout - 2NO
-G3	No Lockout - 2NC
-G4	W/Lockout - 1 NO + 1 NC
-G5	W/Lockout - 2NO
-G6	W/Lockout - 2NC

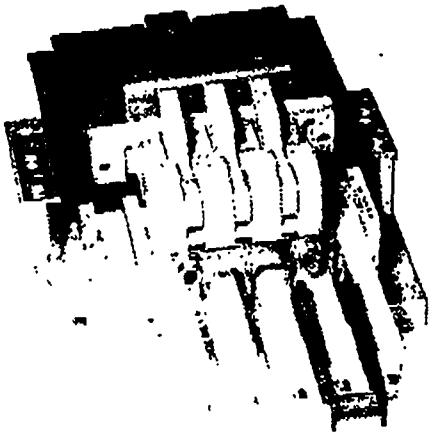


Figure 2. Upper Stud and Terminal Assembly

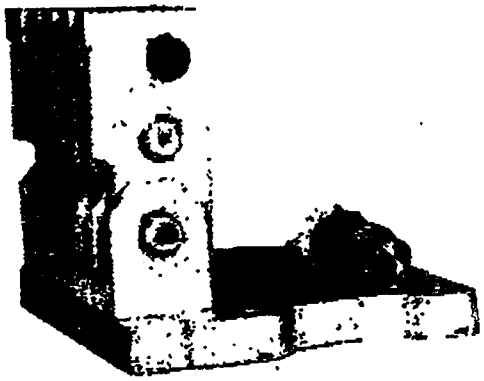


Figure 3. Lower Stud

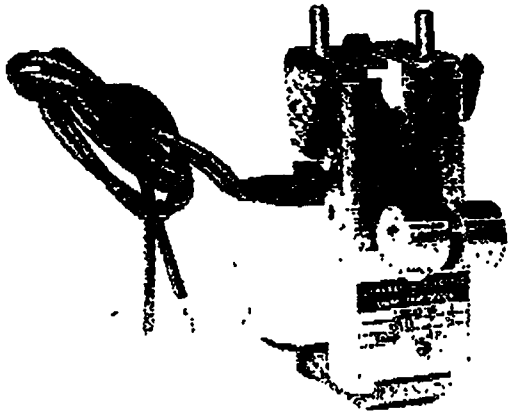


Figure 4. Shunt Trip Device

Table B. Shunt Trip Device

Volts	Hertz	Complete Cat. No.	Shunt Trip Cat. No.	Coil Only Cat. No.
24	DC	139C4454G1	139C4378G1	6275081G55
32	DC	G2	G2	G25
48	DC	G3	G3	G28
125	DC	G4	G4	G29
250	DC	G5	G5	G30
70	60	G6	G6	G62
120	60	G7	G7	G25
120	50	G8	G8	G56
208	60	G10	G10	G26
208	50	G11	G11	G26
240	60	G13	G13	G26
240	50	G14	G14	G26
240	40	G15	G15	G26
380	50	G17	G17	G27
480	60	G18	G18	G27
480	50	G19	G19	G4
575	60	G21	G21	G5
575	50	G22	G22	G6

Figure 5. Closing Solenoid

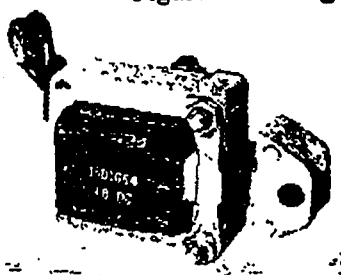


Table C. Closing Solenoid

Volts	Hertz	Closing Solenoid Cat. No. 192A9794P-
48	DC	-P11
125	DC	-P12
250	DC	-P13
120	60	-P14
120	50	-P15
208	60	-P21
208	50	-P23
240	60	-P16
240	50	-P17

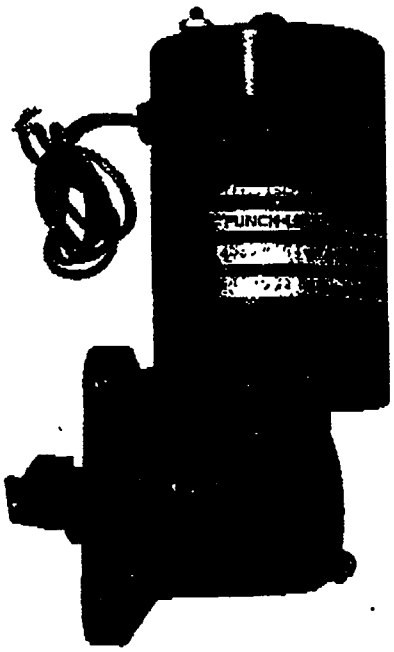


Figure 6. Charging Motor

Table D. Charging Motor (complete w/driving pawl)

Voltage	Cat. No. 568B596G-
48V DC	-G4
125V DC	-G5
250V DC	-G6
120V AC	-G5
208V AC	-G6
240V AC	-G6

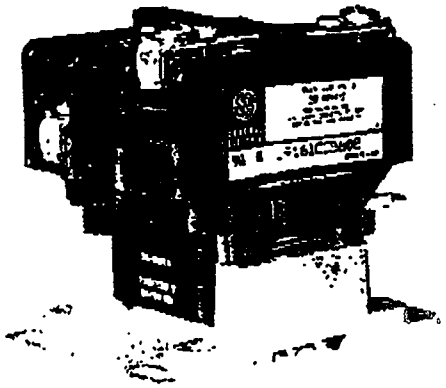


Figure 7. Closing Relay "X"

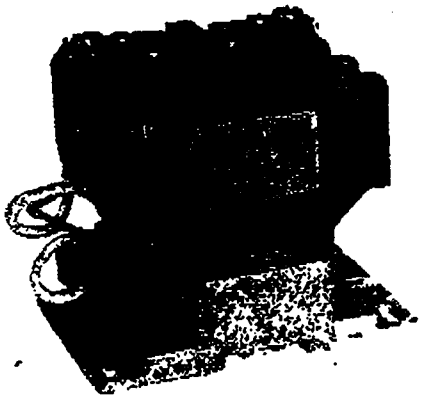


Figure 8. Closing Relay "K"

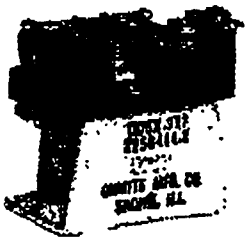


Figure 9. Anti-Pump Relay "W"

Table E. Relays

VOLTAGE	"X" Relay Cat. No. 192A9770P-	"W" (Anti-Pump) Relay Cat. No. 192A9771P-	"K" Relay Cat. No. 192A9770P-
48V DC	-P1	-P1	-P13
125V DC	-P2	-P2	-P14
250V DC	-P3	-P3	-P15
120V60 HZ	-P4	-P4	-P16
120V50 HZ	-P5	-P4	-P18
208V60 HZ	-P6	-P5	-P19
208V50 HZ	-P7	-P5	-P20
240V60 HZ	-P8	-P6	-P18
240V50 HZ	-P9	-P6	-P19

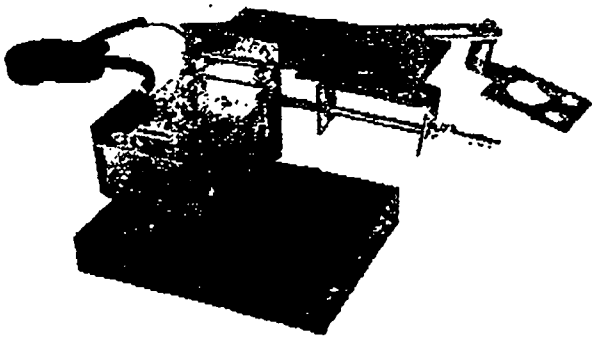


Figure 10. MicroVersaTrip® Flux Shifter

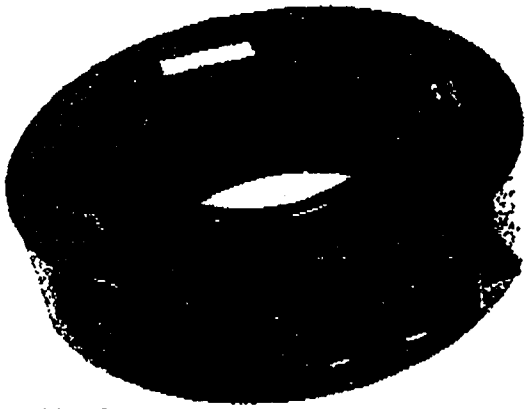


Figure 11. Current Transformer

Table E. Current Transformer

Amp Rating	AKR - 75		AKR - 100	
	Catalog No.	Rating Plug	Catalog No.	Rating Plug
1200	139C4970G38	TR32S1200	---	---
1600	139C4970G38	TR32S1600	139C4970G39	TR40S1600
2000	---	---	139C4970G39	TR40S2000
2400	139C4970G38	TR32S2400	---	---
2500	---	---	139C4970G39	TR40S2500
3000	---	---	139C4970G39	TR40S3000
3200	139C4970G38	TR3253200	---	---
4000	---	---	139C4970G39	TR40S4000

Figure 12. Cut-Off Switch Assembly

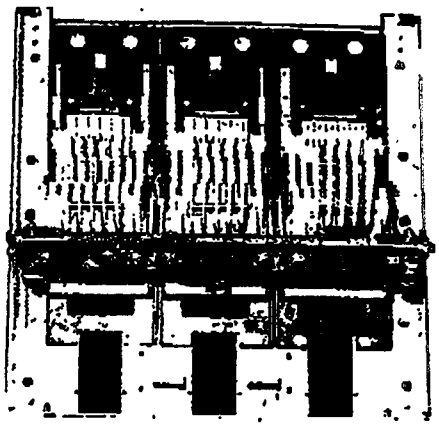


Figure 13. Back Frame Assembly

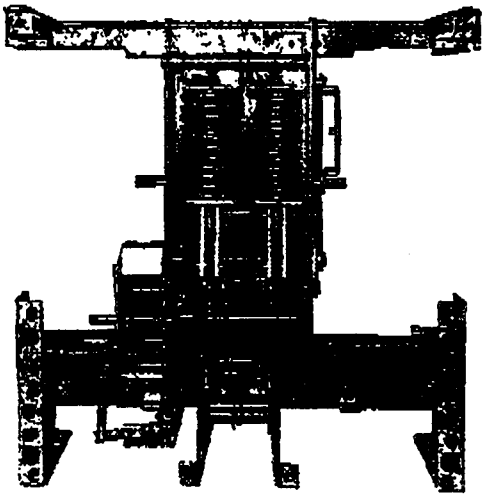


Figure 14. Electric Front Frame (back view)

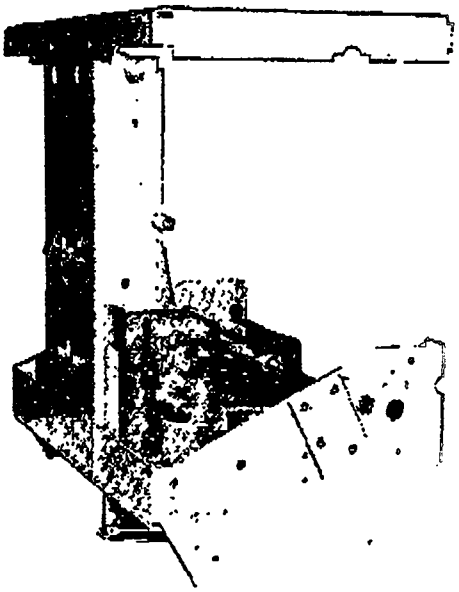


Figure 14A. Electric Front Frame (side view)

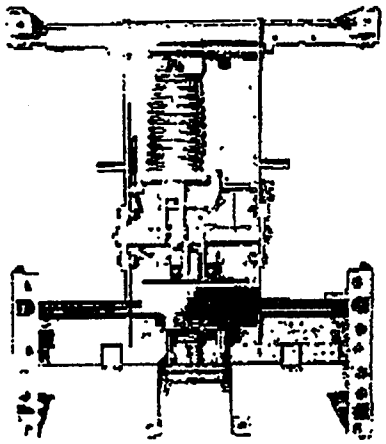


Figure 15. Manual Front Frame (back view)

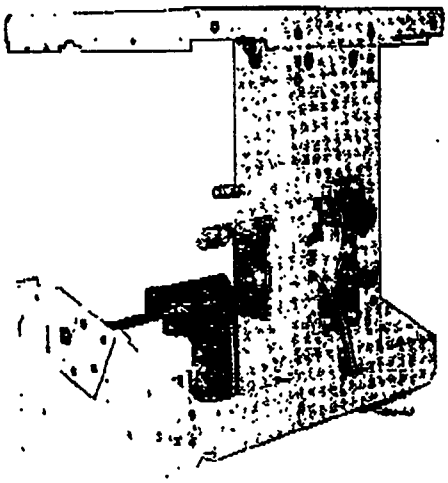


Figure 15A. Manual Front Frame (side view)

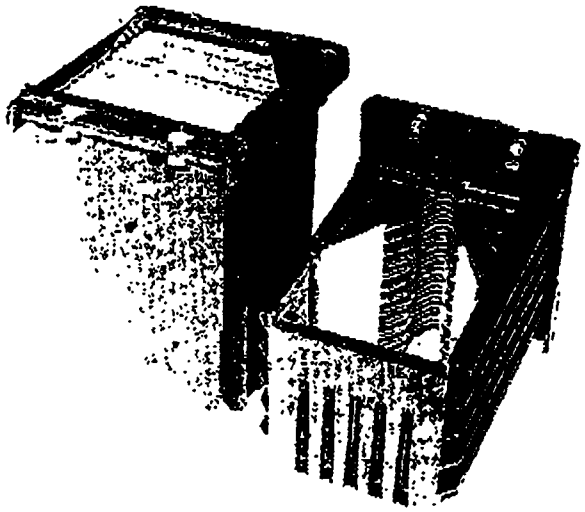


Figure 16. Arc Chute (Asbestos-free shown)

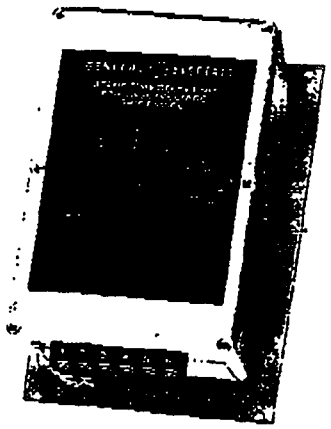


Figure 17. Static Timing Device

Table G. Static Timing Device

Voltage	Catalog Number
230V Hz	TAKYUVT - 3
125V DC	TAKYUVT - 1
250V DC	TAKYUVT - 2

Figure 18. Auxiliary Switch

Table H. Auxiliary Switch SB-1

Stages	Electrical Cat. No. 139C4526G-	Manual Cat. No. 139C4526G-
2	-G1	-G13
3	-G2	-G14
5	-G3	-G15
6	-G4	-G16

Figure 19. Electroswitch Auxiliary Switch

Table I. Electroswitch Auxiliary Switch

Cat. No.	Stages	Contact Arrangement					
242B7016P2	2	ab	ab				
242B7016P3	3	ab	ab	ab			
242B7016P5	5	ab	ab	ab	ab	ab	
242B7016P6	6	ab	ab	ab	ab	ab	ab

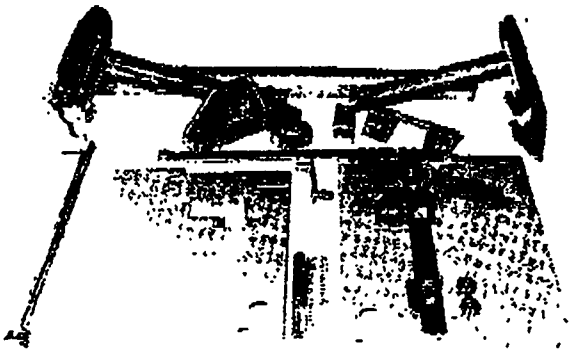


Figure 20. Draw-Out Racking Mechanism

Table J. Racking Mechanism

	AKR - 75		AKR - 100	
	Manual	Electrical	Manual	Electrical
AKD Equip.	425D293G5	425D293G2	425D293G6	
Substructure	425D293G4	425D293G1	425D293G4	425D293G1

Figure 21. Secondary Disconnect Terminal Block

Figure 22. Primary Disconnect (tube-type)

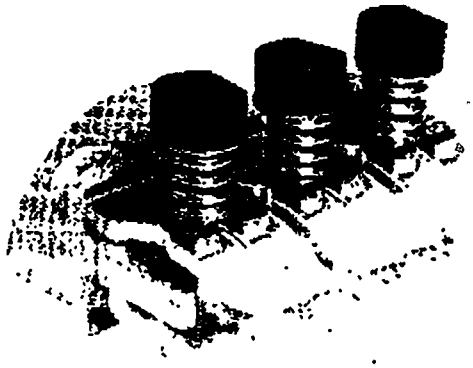


Figure 23. Primary Disconnect (finger-type)

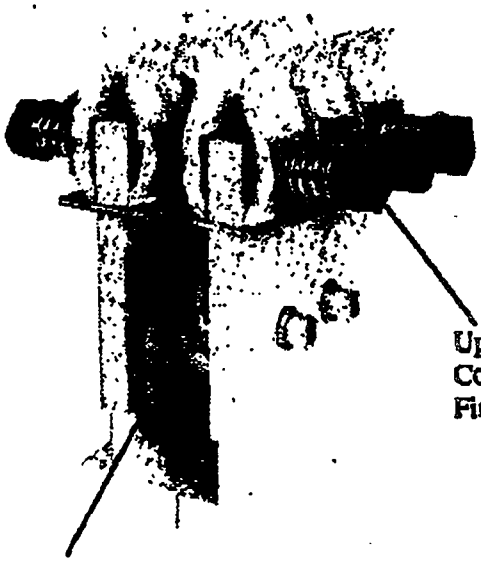


Figure 24. Upper Connector, Fingers, & Heat Sinks

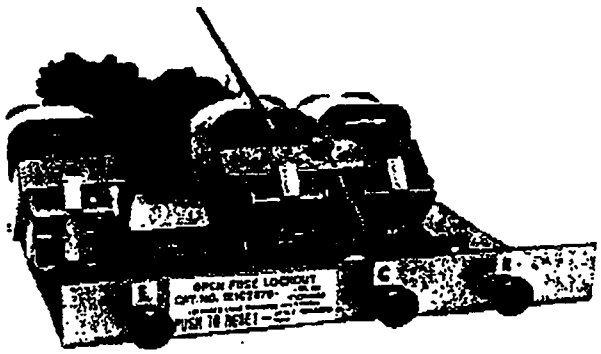


Figure 25. Open Fuse Lock-Out Device

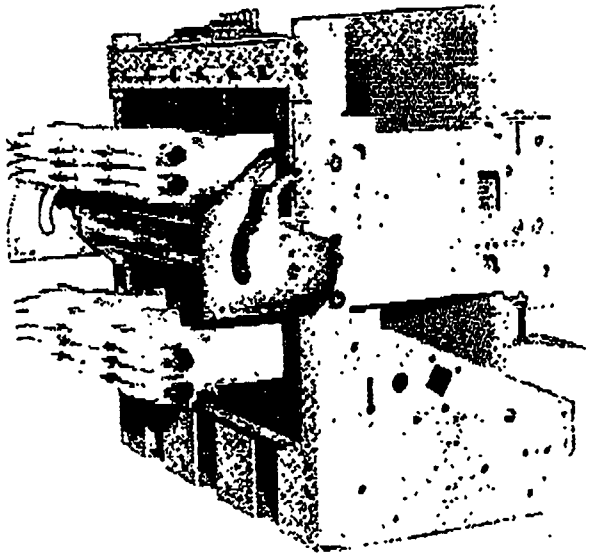


Figure 26. Fuse Roll-Out Element (side & back view)

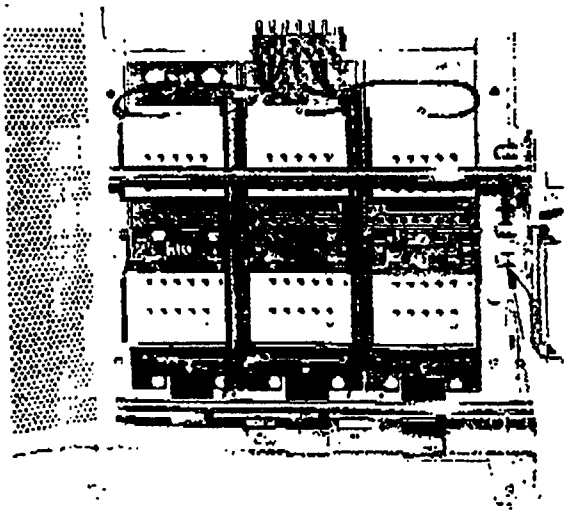


Figure 26A. Fuse Roll-Out Element
(front view/cage open)

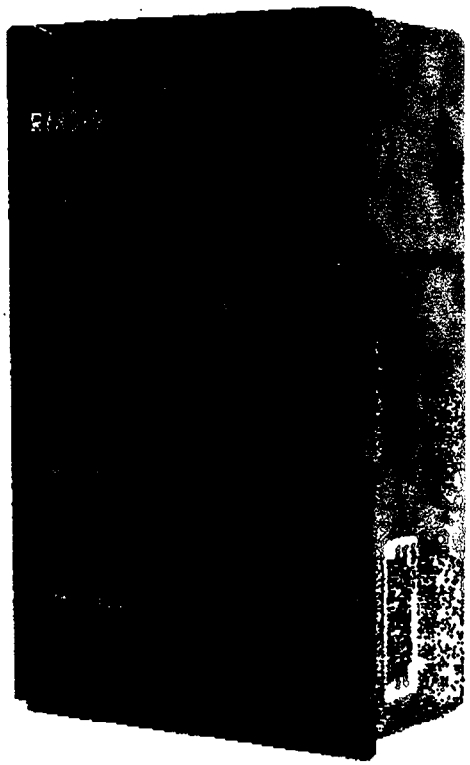


Figure 27. MicroVersaTrip® RMS-9 Programmer

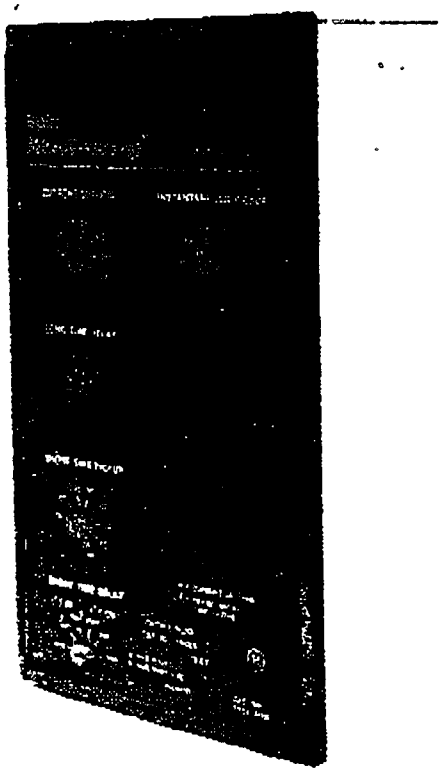


Figure 28. Epic MicroVersaTrip™ Programmer

Figure 25. Open Fuse Lock-Out Device

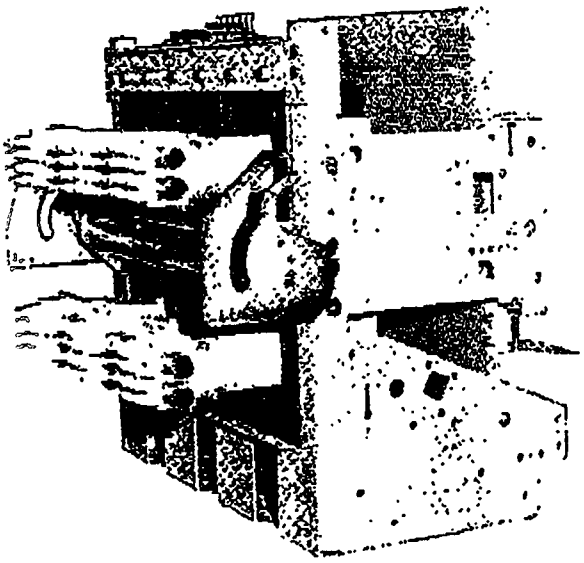


Figure 26. Fuse Roll-Out Element (side & back view)

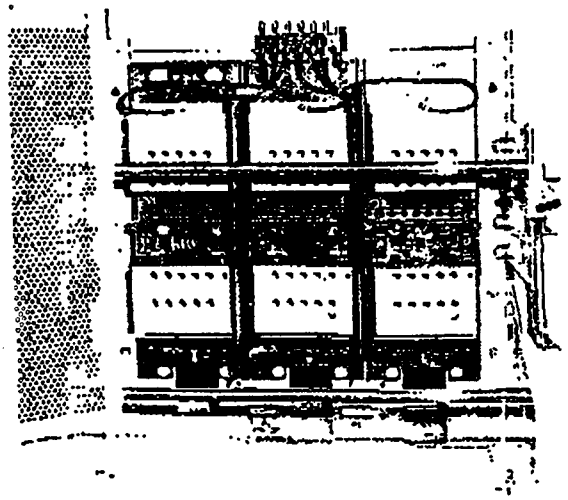


Figure 26A. Fuse Roll-Out Element
(front view/cage open)

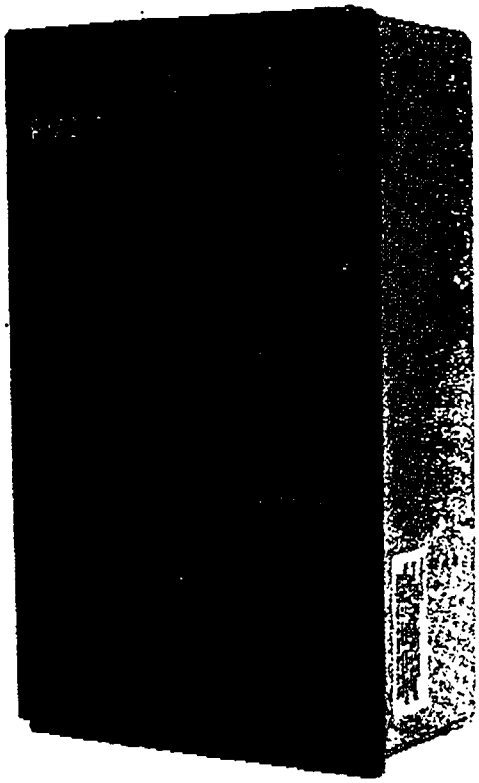


Figure 27. MicroVersaTrip® RMS-9 Programmer

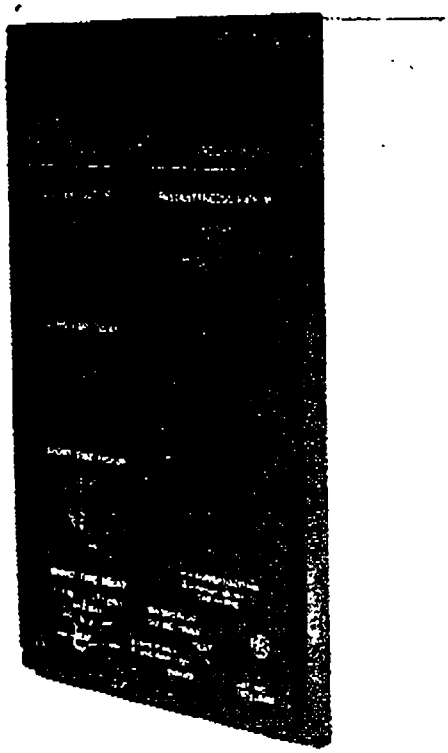


Figure 28. Epic MicroVersaTrip™ Programmer

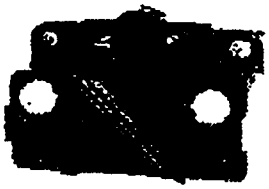


Figure 29. Switchette

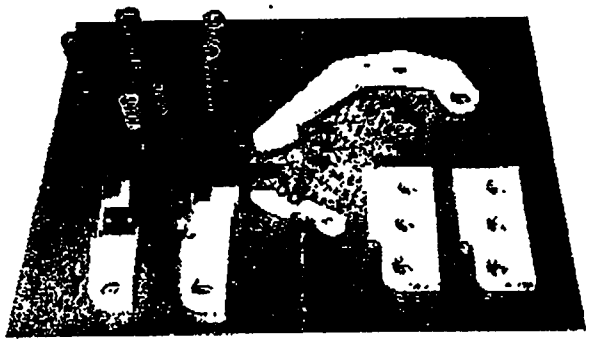


Figure 30. Contacts & Springs

Table K. Contacts and Springs

Qty Req. Per 3-Pole Brkr		Catalog Number		Description
AKR 75	AKR 100	ARK 75	AKR 100	
9	15	9921572G3	9921572G3	Moving Arcing Contact
3	3	193A1126G7	193A1126G7	Moving Interm. Contact
	3	-----	193A1126G9	Moving Interm Contact (L)
9	9	193A1126G10	193A1126G10	Moving Main Contact (L)
6	9	193A1126G8	193A1126G8	Moving Main Contact (R)
9	15	295B408G3	295B408G3	Stationary Arcing Contact
3	3	193A1127G1	193A1127G1	Stat. Interm. Contact (R)
	3	-----	193A1127G2	Stat. Interm. Contact (L)
6	9	193A1125G1	193A1125G1	Stat. Main Contact (R)
9	9	193A1125G2	193A1125G2	Stat. Main Contact (L)
9	15	6509858P1	6509858P1	Spring (Stat. Arcing Contact-Outer)
9	15	6509859P1	6509859P1	Spring (Stat. Arcing Contact-Inner)
18	24	412A288P1	412A288P1	Spring (Stat. Interm. Main Contact)

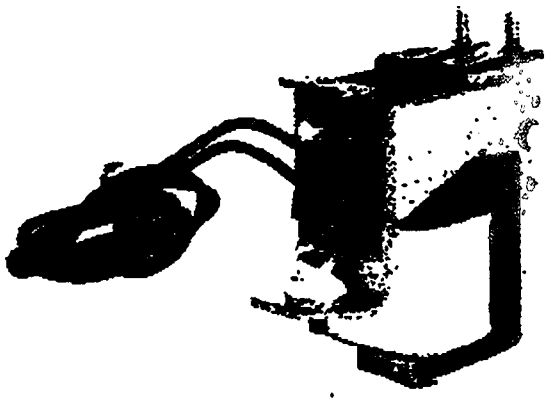


Figure 31. Undervoltage Device

Table L. Undervoltage Device

		Instantaneous UndervoltageDevice		Time-Delay Undervoltage Device	
Volts	Hertz	Complete W/Coil (less mtg) Cat. No. 568B309G-	Coil Only Cat. No. 6275081G-	Complete, W/Coil, (less mtg) Cat. No. 568B309G-	Coil Only Cat. No. 6275081G-
24	DC	-G1	-G15		
48	DC	-G2	-G9		
125	DC	-G3	-G18	-G5	-G61
250	DC	-G4	-G19	-G6	-G59
120	60	-G7	-G26		
120	50	-G8	-G4		
120	25	-G9	-G12		
208	60	-G10	-G27		
208	50	-G11	-G12		
208	25	-G12	-G10		
230	50	-	-	-G24	-G59
230	60	-	-	-G24	-G59
240	60	-G13	-G7		
240	50	-G14	-G12		
240	40	-G15	-G9		
240	25	-G16	-G10		
380	50	-G17	-G31		
480	60	-G18	-G31		
480	50	-G19	-G3		
480	25	-G20	-G17		
575	60	-G21	-G20		
575	50	-G22	-G8		
575	25	-G23	-G21		

Figure 32. Push Button Closing Switch

Final

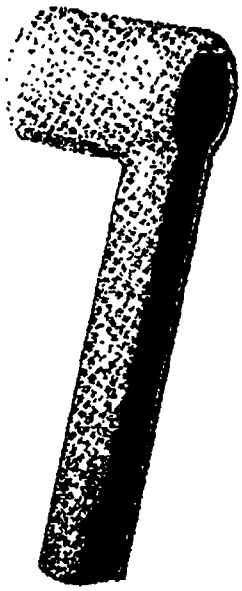


Figure 33. Closing Handle (Manual Breaker)

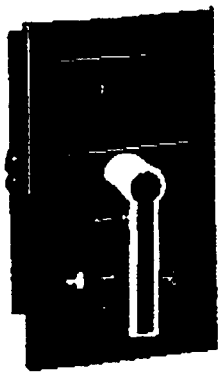


Figure 34. Escutcheon

Table M. Escutcheon

	Manual	Electric, w/switch	Electric, w/o switch
Type AKD-8, CODE D	568B446G8	568B446G4	568B446G6
NO CODE, CODE A, CODE C, Drawout Type	568B446G3	568B446G1	568B446G2
CODE F, Drawout Type, OEM Sub-Structure	568B446G9	568B446G7	568B446G8

NOTES

22B1

GENERAL ELECTRIC

RENEWAL PARTS
GEF-4379 ML-13 STORED ENERGY MECHANISM

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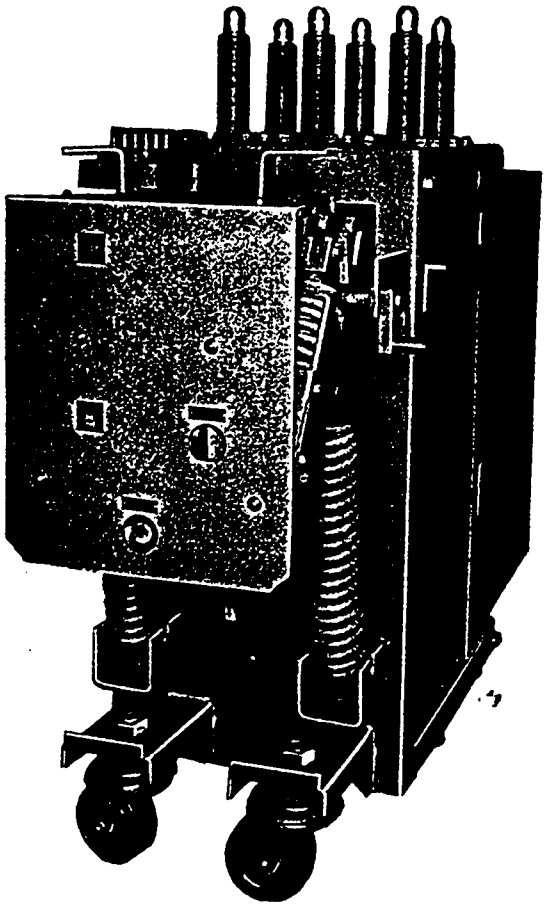
GEF-4379

RENEWAL PARTS

ML-13 STORED ENERGY MECHANISM

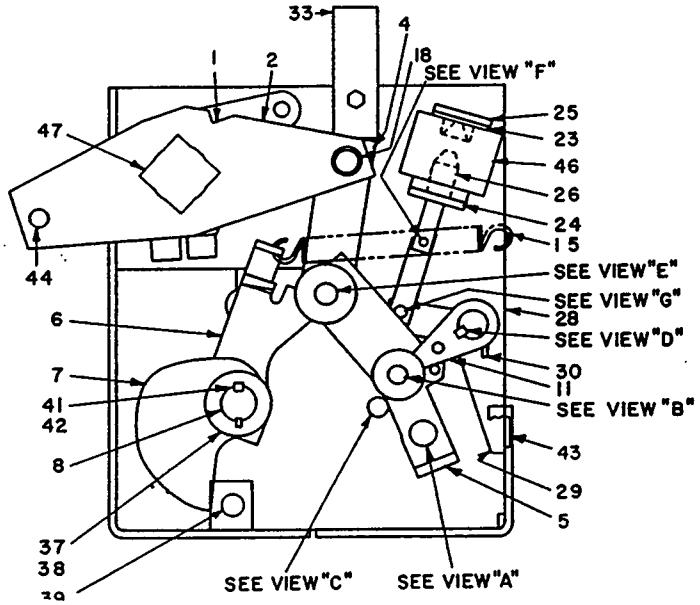


ing renewal parts, give quantity, catalog number, description of each item required, and complete nameplate reading.

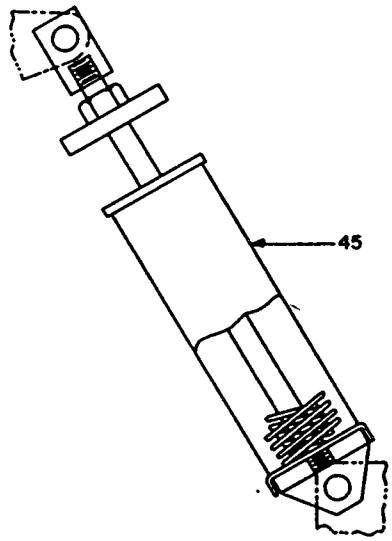
GENERAL ELECTRIC

tice.

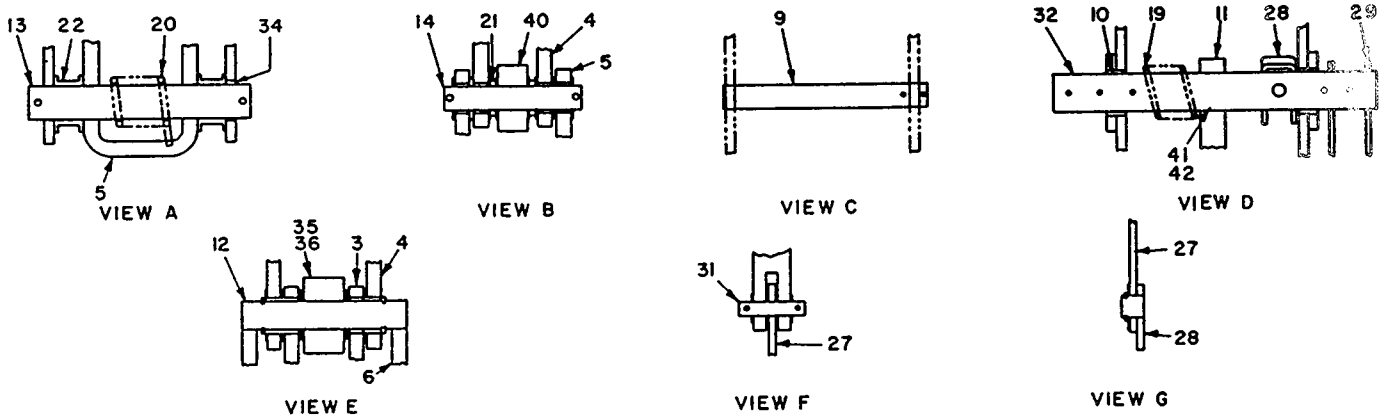
ML-13 STORED ENERGY MECHANISM



A. Sectional side view



B. Opening spring assembly



C. Detailed view

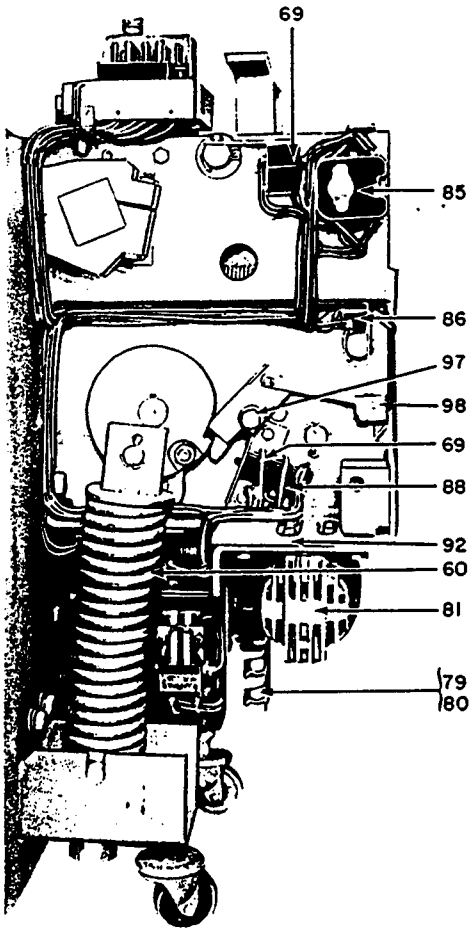
Fig. 1.

ML-13 STORED ENERGY MECHANISM

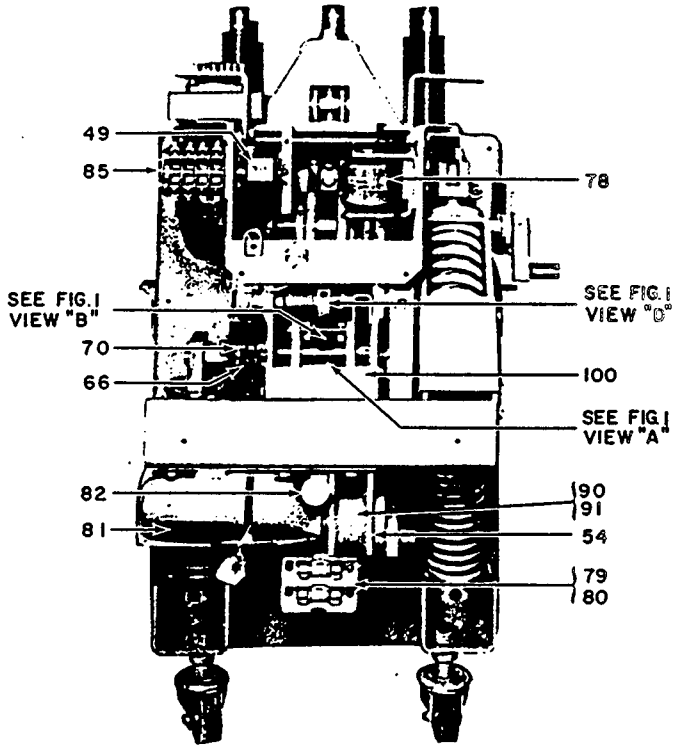
Ref. No.	Number Required for Type AM- 4.16 KV 250 MVA	4.16 KV 350 MVA	7.2 KV 500 MVA	13.8 KV 500 MVA	13.8 KV 750 MVA	13.8 KV 1000 MVA	Catalog Number	Description
1	4	4	4	4	4	4	134C3588P1	Crank
2	2	2	2	2	2	2	213X702G11	Crank
3	1	1	1	1	1	1	213X702G12	Link
4	2	2	2	2	2	-	213X702G20	Link
4	-	-	-	-	-	2	134C3585P3	Link
5	1	1	1	1	1	2	213X702G21	Link
5	-	-	-	-	-	1	213X702G19	Link
6	1	1	1	1	1	1	213X702G13	Prop
7	1	1	1	1	1	1	129C2575P1	Cam
8	1	1	1	1	1	1	134C3585P4	Cam shaft
9	1	1	1	1	1	1	105C9304P3	Stop pin
10	2	2	2	2	2	2	456A885P21	Bushing
11	1	1	1	1	1	1	105C9302G2	Latch
12	1	1	1	1	1	1	105C9302P4	Pin
13	1	1	1	1	1	1	105C9301P7	Pin
14	1	1	1	1	1	-	105C9301P8	Pin
14	-	-	-	-	-	1	134C3585P1	Pin
15	1	1	1	1	1	1	137A9252P1	Prop spring
⁂16	⁂	1	1	-	1	1	6071231P1	Prop spring No. 2
⁂17	⁂	1	1	-	1	1	108B5466G1	Support
18	1	1	1	1	1	1	105C9308P4	Shaft
19	1	1	1	1	1	1	137A9262P1	Latch spring
20	1	1	1	1	1	1	137A9261P1	Reset spring
21	2	2	2	2	2	-	456A876P134	Spacer
22	2	2	2	2	2	2	456A876P136	Spacer
23	1	1	1	1	1	1	114C5347P6	Pole piece
24	1	1	1	1	1	1	114C5347G1	Coil support (tripping)
25	1	1	1	1	1	1	105C9316P2	Coil support (tripping)
26	1	1	1	1	1	1	114C5347P4	Armature
27	1	1	1	1	1	1	105C9316P5	Link
28	1	1	1	1	1	1	105C9316G1	Crank
29	1	1	1	1	1	1	105C9316P8	Crank
30	1	1	1	1	1	1	105C9316P9	Paddle
31	1	1	1	1	1	1	6076402P5	Pin
32	1	1	1	1	1	1	114C5324P8	Trip shaft
33	1	1	1	1	1	1	161A4287G1	Handle
34	2	2	2	2	2	2	456A885P206	Bushing
35	1	1	1	1	1	1	414A112P52	Bearing (O.R.)
36	1	1	1	1	1	1	414A112P53	Bearing (I.R.)
37	2	2	2	2	2	2	414A112P94	Bearing (O.R.)
38	2	2	2	2	2	2	414A112P95	Bearing (I.R.)
39	2	2	2	2	2	2	414A112P61	Bearing (O.R.)
40	1	1	1	1	1	-	414A112P1	Bearing (O.R.)
40	-	-	-	-	-	1	414A112P54	Bearing (O.R.)
41	3	3	3	3	3	3	N3401P808	Woodruff key
42	1	1	1	1	1	2	105C9310P7	Square key
⁂⁂43	1	1	1	1	1	1	132C9317G1	Mechanism cover
44	3	3	3	3	3	3	619C478P19	Pin
45	ø1	-	-	-	-	-	213X505G17	Opening spring
45	†1	-	-	-	-	-	213X341G7	Opening spring
45	-	1	1	1	-	-	213X341G23	Opening spring
45	-	-	-	-	1	*1	213X341G24	Opening spring
45	-	-	-	-	-	δ1	213X341G3	Opening spring
46	1	1	1	1	1	1	6275070G1	Trip coil, 24 Vdc
46	1	1	1	1	1	1	6275070G3	Trip coil, 32 Vdc
46	1	1	1	1	1	1	7174582G34	Trip coil, 48 Vdc
46	1	1	1	1	1	1	6174582G1	Trip coil, 110-125 Vdc
46	1	1	1	1	1	1	6174582G15	Trip coil, 220 Vdc
46	1	1	1	1	1	1	6174582G2	Trip coil, 250 Vdc
46	1	1	1	1	1	1	6174582G13	Trip coil, 115 Vac
46	1	1	1	1	1	1	6174582G3	Trip coil, 230 Vac
47	1	-	-	-	-	-	6443518P2	Square shaft
47	-	1	1	1	1	‡1	6443518P1	Square shaft
⁂⁂48	1	††1	-	-	-	-	161A4283G1	Square shaft spacer
⁂⁂48	-	-	1	1	1	1	161A4283G2	Square shaft spacer

⁂ For Type "B" only
⁂⁂ Not illustrated
ø 1200 amp. only
† 2000 and 2500 amp. only
* 1200 and 2000 amp. only
δ 3000 and 3750 amp. only
‡ For 3000 and 3750 amp. order Cat. No. 6443518P3
†† For 3000 amp. order Cat. No. 161A4283G4

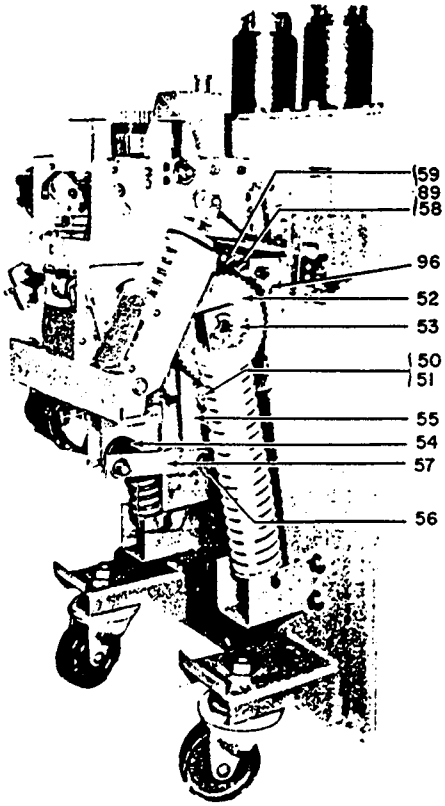
ML-13 STORED ENERGY MECHANISM



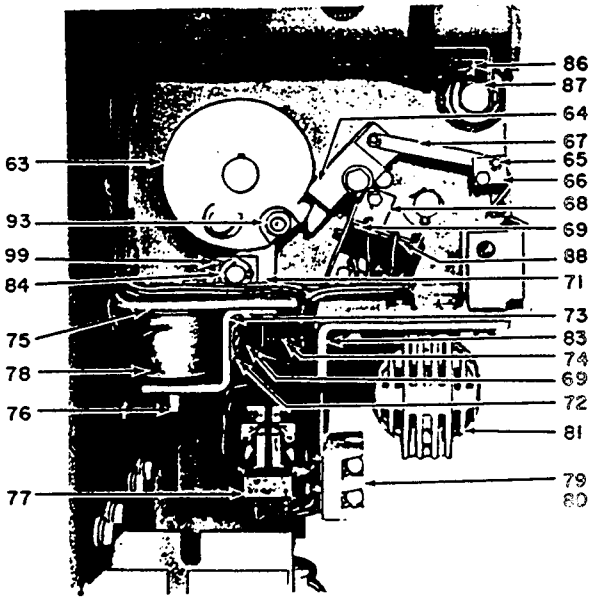
A. Left side view



B. Front view



C. Right side view



D. Left side (bottom) view

Fig. 2.

Ref. No.	Number Required for Type AM- 4.16 KV 250 MVA	4.16 KV 350 MVA	7.2 KV 500 MVA	13.8 KV 500 MVA	13.8 KV 750 MVA	13.8 KV 1000 MVA	Catalog Number	Description
49	1	1	1	1	1	1	105C9308G2	Indicator
50	1	1	1	1	1	1	213X702G16	Pawl
51	1	1	1	1	1	1	161A4241P1	Pawl spring
52	1	1	1	1	1	1	105C9310G1	Ratchet wheel
53	2	2	2	2	2	2	213X702G22	Bearing block
54	1	1	1	1	1	1	165B7926P1	Eccentric
55	1	1	1	1	1	1	213X702G17	Crank
56	1	1	1	1	1	1	105C9314P3	Pin
57	1	1	1	1	1	1	213X702G18	Link
58	1	1	1	1	1	1	213X702G14	Pawl (outside)
59	1	1	1	1	1	1	213X702G15	Pawl (inside)
60	2	-	-	2	-	-	114C5393G1	Closing spring [1]
60	2	-	-	-	-	-	114C5393G2	Closing spring [2]
60	-	-	2	2	2	-	114C5393G3	Closing spring [3]
60	-	-	-	-	2	2	114C5393G4	Closing spring [4]
60	-	-	-	-	-	2	114C5393G5	Closing spring [5]
60	-	-	-	-	-	2	114C5393G6	Closing spring [6]
60	-	2	2	-	2	-	114C5393G7	Closing spring [7]
60	2	-	-	-	-	-	114C5393G9	Closing spring [8]
60	-	-	-	-	2	-	114C5393G11	Closing spring [9]
63	1	1	1	1	1	1	105C9311G2	Cam
64	1	1	1	1	1	1	105C9311G3	Striker
65	1	1	1	1	1	1	6076402P10	Pin
66	1	1	1	1	1	1	105C9306G2	Indicator
67	1	1	1	1	1	1	105C9306P7	Link
68	1	1	1	1	1	1	105C9306P5	Switch plate
69	3	3	3	3	3	3	456A866P5	Switch (N.O.)
70	1	1	1	1	1	1	161A4230P1	Indicator spring
71	1	1	1	1	1	1	114C5342G1	Latch
72	1	1	1	1	1	1	105C9309P5	Switch plate
73	1	1	1	1	1	1	114C5347G2	Coil support
74	1	1	1	1	1	1	161A4231P1	Closing latch spring
75	1	1	1	1	1	1	114C5347P7	Pole piece
76	1	1	1	1	1	1	114C5347G3	Armature
77	1	1	1	1	1	1	‡‡137A7575P4	Relay, 48 Vdc
77	1	1	1	1	1	1	‡‡137A7575P1	Relay, 110-125 Vdc
77	1	1	1	1	1	1	‡‡108B5565G1	Relay, 220-250 Vdc
77	1	1	1	1	1	1	‡‡137A7575P5	Relay, 115 Vac
77	1	1	1	1	1	1	‡‡137A7575P2	Relay, 230 Vac
77	1	1	1	1	1	1	6174582G34	Closing coil, 48 Vdc
78	1	1	1	1	1	1	6074582G1	Closing coil, 110-125 Vdc
78	1	1	1	1	1	1	6174582G15	Closing coil, 220 Vdc
78	1	1	1	1	1	1	6174582G2	Closing coil, 250 Vdc
78	1	1	1	1	1	1	6174582G10	Closing coil, 115 Vac
78	1	1	1	1	1	1	6174582G14	Closing coil, 230 Vac
79	1	1	1	1	1	1	456A864P121	Fuse block
80	2	2	2	2	2	2	456A864P111	Fuse, 48 Vdc
80	2	2	2	2	2	2	456A864P123	Fuse, 110-125 Vdc
80	2	2	2	2	2	2	456A864P124	Fuse, 220-250 Vdc
80	2	2	2	2	2	2	456A864P123	Fuse, 115 Vac
80	2	2	2	2	2	2	456A864P124	Fuse, 230 Vac
81	1	1	1	1	1	1	105C9393P1	Motor, 48 Vdc
81	1	1	1	1	1	1	105C9393P2	Motor, 110 Vdc
81	1	1	1	1	1	1	105C9393P2	Motor, 125 Vdc
81	1	1	1	1	1	1	105C9393P3	Motor, 220 Vdc
81	1	1	1	1	1	1	105C9393P3	Motor, 250 Vdc
81	1	1	1	1	1	1	105C9393P2	Motor, 115 Vac
81	1	1	1	1	1	1	105C9393P3	Motor, 230 Vac
82	1	1	1	1	1	1	105C9306G1	Trip rod
83	1	1	1	1	1	1	105C9313G1	Motor mount

Refer to footnotes 1 thru 9

‡‡ If tropical finish is required, add "TF" after the catalog number

1 4.16-250 STD. MOM., 2000-2500 amp., 13.8-250/500 STD. MOM.
2 4.16-150/250 STD. MOM., 1200 amp.
3 7.2-500 STD. MOM., 13.8-500 HI. MOM., 13.8-750-5 STD. MOM.
4 13.8-750-2,3,4, HI. MOM., 13.8-1000-4, 1200-2000 amp.
5 13.8-1000-3, 1200-2000 amp., 13.8-1000-4-300-3750 amp.
6 13.8-1000-3, 3000-3750 amp.
7 4.16-350, 7.2-500 HI. MOM., 13.8-750-2,3,4 STD. MOM.
8 4.16-250 HI. MOM.
9 13.8-750-5 HI. MOM.

Item	Number Required for Type AM- 4.16 KV 250 MVA	4.16 KV 350 MVA	7.2 KV 500 MVA	13.8 KV 500 MVA	13.8 KV 750 MVA	13.8 KV 1000 MVA	Catalog Number	Description
84	1	1	1	1	1	1	105C9309P4	Shaft
85	1	1	1	1	1	1	‡‡137A9192G11	Auxiliary switch
86	1	1	1	1	1	1	161A4282G1	Latch checking switch
87	1	1	1	1	1	1	105C9311P2	Striker
88	1	1	1	1	1	1	456A866P6	Switch (N.C.)
89	2	2	2	2	2	2	161A5909P1	Pawl spring
90	2	2	2	2	2	2	414A112P59	Bearing
91	2	2	2	2	2	2	414A112P60	Bearing
92	1	1	1	1	1	1	456A864P138	Terminal board
93	1	1	1	1	1	1	414A112P58	Follower
⁂94	1	1	1	1	1	1	161A4289P2	Thrust race
⁂95	1	1	1	1	1	1	161A4289P3	Thrust race
96	1	1	1	1	1	1	105C9307P17	Spring support
97	1	1	1	1	1	1	456A876P141	Spacer
98	1	1	1	1	1	1	456A876P139	Spacer
99	1	1	1	1	1	1	456A876P140	Spacer
100	1	1	1	1	1	1	105C9304P13	Cover

‡‡ If tropical finish is required, add "TF" after the catalog number

⁂ Not illustrated

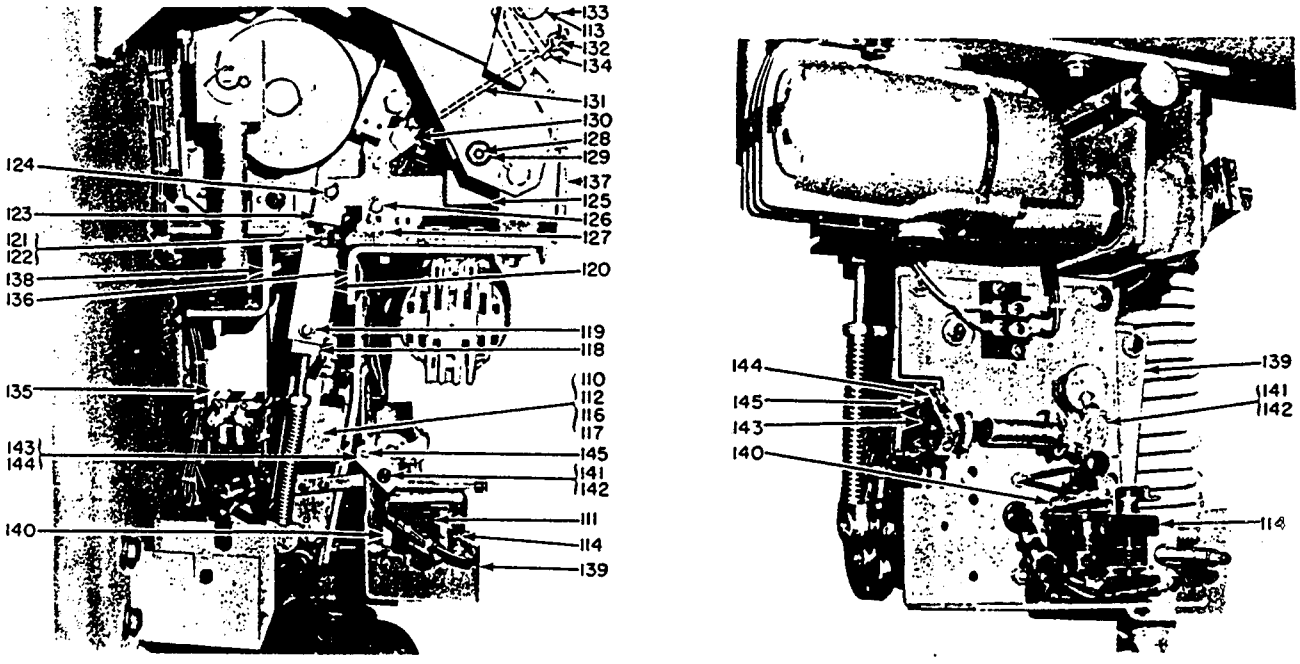


Fig. 3. Current trip and undervoltage device

ML-13 STORED ENERGY MECHANISM

CURRENT TRIP AND UNDERVOLTAGE DEVICE (See Fig. 3)

Ref. No.	Number Required for: Current Trip	Current Trip and U.D. (Time/Delay)	U.D. 48 Vdc (Inst.)	U.D. 125 Vdc (Inst.)	U.D. 250 Vdc (Inst.)	U.D. 230 Vac (Inst.)	U.D. 230 Vac (Time/Delay)	U.D. 115 Vac (Inst.)	Catalog Number	Description
110	3	3	-	-	-	-	-	-	6174599G2	Coil, 3A
111	-	-	1	-	-	-	-	-	6275017G45	Coil, 48 Vdc
111	-	-	-	1	-	-	-	-	6275017G15	Coil, 125 Vdc
111	-	-	-	-	1	-	-	-	WSF3241202	Coil, 250 Vdc
111	-	-	-	-	-	1	1	-	6275017G12	Coil, 230 Vac
111	-	-	-	-	-	-	-	1	6275017G16	Coil, 115 Vac
112	3	3	-	-	-	-	-	-	6116449G1	Instantaneous trip solenoid
113	1	1	1	1	1	1	1	1	114C5400P12	Shaft trip
114	-	-	1	1	1	-	-	-	6275259G2	Cutoff switch, dc
114	-	1	-	-	-	1	1	1	6275259G1	Cutoff switch, ac
ΔΔ115	-	-	1	-	-	-	-	-	161A5937G3	Resistor, 48 Vdc
ΔΔ115	-	-	-	1	-	-	-	-	161A5937G1	Resistor, 125 Vdc
ΔΔ115	-	-	-	-	1	-	-	-	161A5937G2	Resistor, 250 Vdc
116	1	-	-	-	-	-	-	-	114C5434G1	Current trip
116	-	1	1	1	1	1	1	1	114C5434G2	Current trip
117	1	1	1	1	1	1	1	1	6116526G2	Latch checking switch
118	1	1	1	1	1	1	1	1	134C3598P4	Head
119	1	1	1	1	1	1	1	1	6076403P17	Pin
120	1	1	1	1	1	1	1	1	134C3598P2	Yoke
121	1	1	1	1	1	1	1	1	134C3598P1	Piston
122	1	1	1	1	1	1	1	1	208A8097P1	Spring
123	1	1	1	1	1	1	1	1	114C5399P8	Clevis
124	1	1	1	1	1	1	1	1	114C5401P4	Pin
125	1	1	1	1	1	1	1	1	114C5399G4	Crank
126	1	1	1	1	1	1	1	1	6076404P9	Pin
127	1	1	1	1	1	1	1	1	114C5401P3	Bearing
128	1	1	1	1	1	1	1	1	114C5401P5	Pin
129	1	1	1	1	1	1	1	1	114C5400P10	Roller
130	1	1	1	1	1	1	1	1	114C5400P4	Clevis
131	1	1	1	1	1	1	1	1	114C5400G1	Rod
132	1	1	1	1	1	1	1	1	6076402P17	Pin
133	1	1	1	1	1	1	1	1	114C5400P7	Crank
134	1	1	1	1	1	1	1	1	114C5400P8	Paddle
135	1	1	1	1	1	1	1	1	108B5595G1	Plate relay mounting
136	1	1	1	1	1	1	1	1	114C5401G1	Motor mount
137	1	1	1	1	1	1	1	1	114C5399P1	Mechanism frame
138	1	1	1	1	1	1	1	1	114C5347G4	Coil support
139	-	-	1	1	1	1	-	1	114C5402P1	Undervoltage frame
139	-	1	-	-	-	-	1	-	114C5402P7	Undervoltage frame
140	-	-	1	1	1	1	-	1	6316605G23	Undervoltage device (dc instantaneous)
140	-	1	-	-	-	-	1	-	6316605G24	Undervoltage device (ac time delay)
141	-	-	1	1	1	1	-	1	114C5402G1	Crank and shaft
142	-	1	-	-	-	-	1	-	114C5402G2	Crank and shaft
143	-	1	1	1	1	1	1	1	114C5399P4	Clevis
144	-	1	1	1	1	1	1	1	414A112P40	Bearing
145	-	1	1	1	1	1	1	1	114C5399P5	Pin
ΔΔ146	-	1	-	-	-	-	1	-	114C5402G3	Cover

ΔΔ Not illustrated

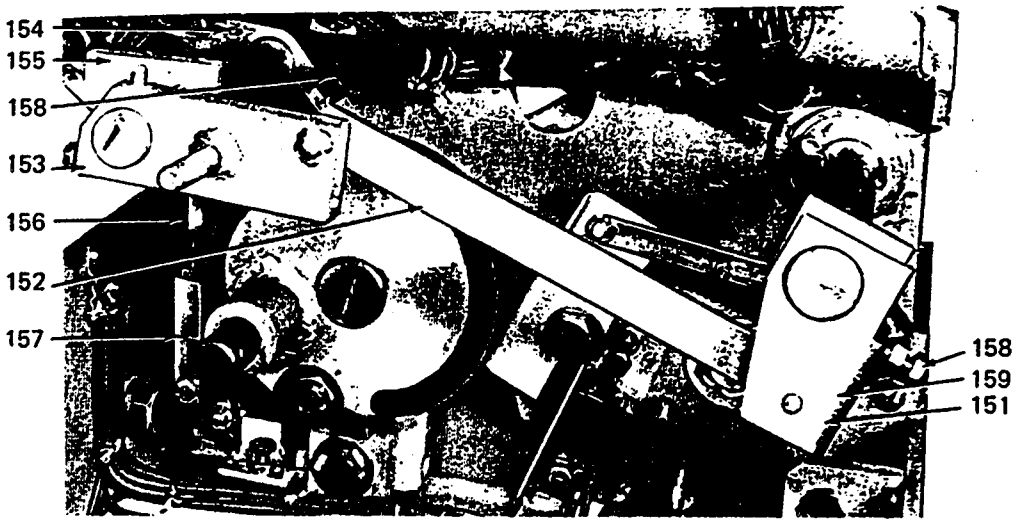


Fig. 4. Spring release

SPRING RELEASE (See Fig. 4)

Ref. No.	Ampere Rating	No. Required for Type AM- 4.16 KV 250 MVA	4.16 KV 350 MVA	7.2 KV 500 MVA	13.8 KV 500 MVA	13.8 KV 750 MVA	13.8 KV 1000 MVA	Catalog Number	Description
150	1200A 2000A	1	-	-	-	-	-	114C5413G1	Spring discharge assembly, complete
150	1200A 2000A	-	-	1	1	1	1	114C5413G2	Spring discharge assembly, complete
150	3000	-	-	-	-	-	1	114C5413G3	Spring discharge assembly, complete
150	1200	-	1	-	-	-	-	114C5413G4	Spring discharge assembly, complete
150	3000	-	1	-	-	-	-	114C5413G5	Spring discharge assembly, complete
151	All	1	1	1	1	1	1	114C5341P2	Crank
152	1200 2000	1	1	-	-	-	-	114C5341P11	Link
152	3000	-	-	-	1	-	-	114C5341P11	Link
152	1200 2000	-	-	1	1	1	1	114C5341P9	Link
152	3000	-	1	-	-	-	-	114C5341P10	Link
153	All	1	1	-	-	-	-	114C5343G2	Crank
153	All	-	-	1	1	1	1	114C5343G3	Crank
154	All	-	-	1	1	1	1	114C5343G2	Crank
155	All	1	1	1	1	1	1	114C5324P6	Clevis
156	All	1	1	1	1	1	1	114C5343P11	Rod
157	All	1	1	1	1	1	1	114C5342G4	Clevis
158	All	1	1	1	1	1	1	208A8068P1	Crank
*159	All	1	1	1	1	1	1	114C5341P8	Paddle

* Part not illustrated (position only incidated)

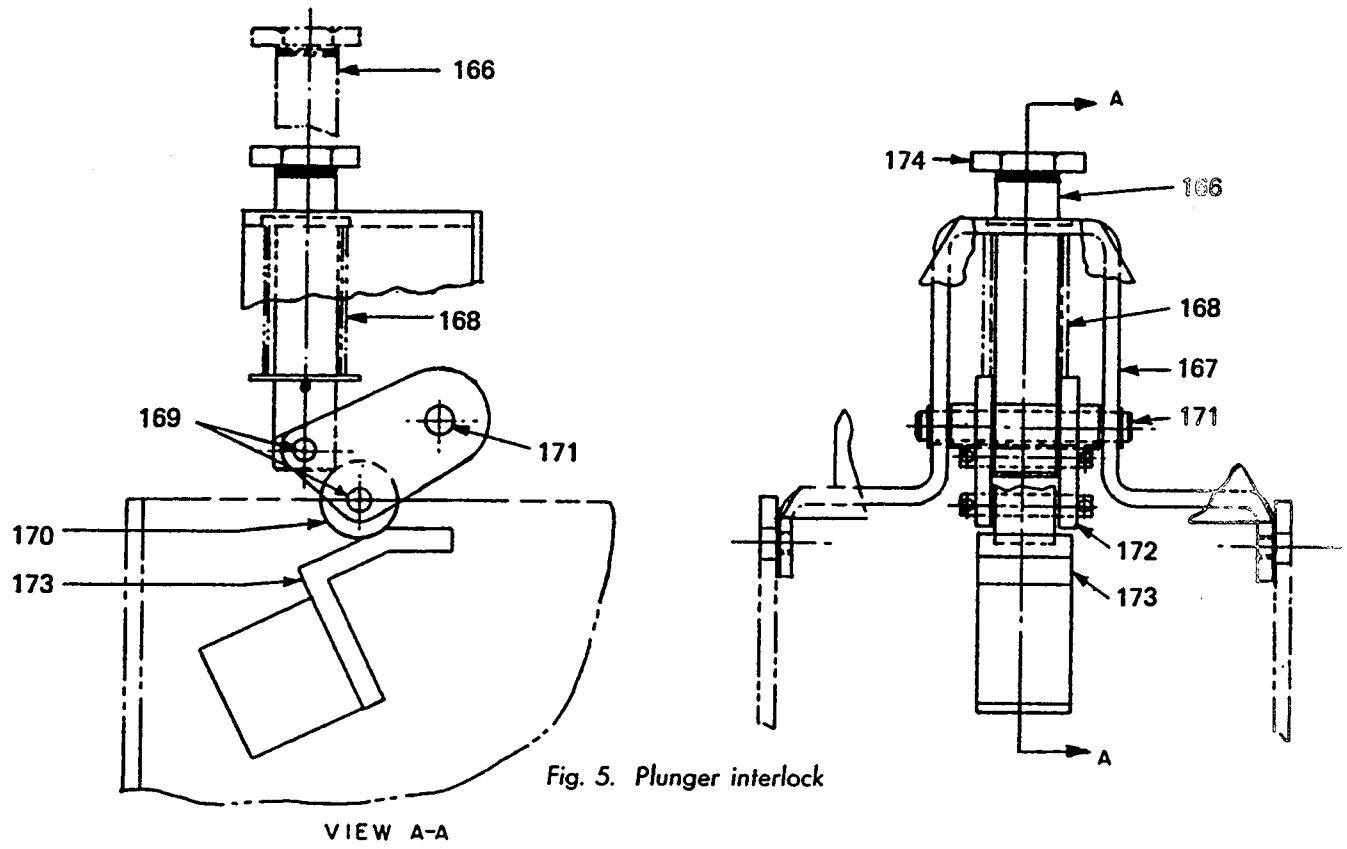


Fig. 5. Plunger interlock

Plunger Interlock for ML-13 Mechanism (See Fig. 5)

Ref. No.	Cat. No.	No. Reqd.	Description
165	0105C9305G001	1	Plunger interlock, complete
166	0236C0787P012	1	¶Plunger
167	0105C9305G002	1	Bracket assembly
167	0105C9305P003	1	Bracket
168	006509728P001	1	Spring
169	0137A6085P023	2	Pin
170	0236C0787P014	1	Roller
171	0414A0110P006	1	Pin
172	0105C9305P006	2	Crank
173	0105C9305P007	1	Clip
174	0161A5948P001	1	Bolt

¶For Type AM13.8-1000, 1200, and 2000 amps., order Cat. No. 0236C0787P27

Secondary Disconnect Device (See Fig. 6)

Ref. No.	Cat. No.	No. Reqd.	0237C0473G009 $380.00 0237 Description
180	0108B1931G005	1	Secondary disconnect device complete, 16 points $562.00
181	006319964P002	16	Contact plug
[illegible]	[illegible]	16	[illegible]
183	006505244P001	1	Contact socket, 16 point
184	0366A0234P001	†	Contact nut for No. 8 wire
184	0366A0234P002	†	Contact nut for No. 14 wire
184	0366A0234P003	†	Contact nut for No. 12 wire

† Total of 16 required. Order size and quantity to correspond with size and quantity of wires entering the secondary disconnect device.

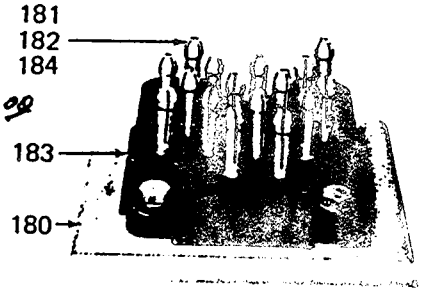


Fig. 6. Secondary disconnect device

ML-13 STORED ENERGY MECHANISM

PARTS RECOMMENDED FOR NORMAL MAINTENANCE

Ref. No.	Catalog Number	No. Req'd	Description
46	6275070G1	1	Trip coil, 24 Vdc
46	6275070G3	1	Trip coil, 32 Vdc
46	6174582G34	1	Trip coil, 48 Vdc
46	6174582G1	1	Trip coil, 110-125 Vdc
46	6174582G15	1	Trip coil, 220 Vdc
46	6174582G2	1	Trip coil, 250 Vdc
46	6174582G13	1	Trip coil, 115 Vac
46	6174582G3	1	Trip coil, 230 Vac
77	137A7575P4	1	Relay, 48 Vdc
77	137A7575P1	1	Relay, 110-125 Vdc
77	108B5565G1	1	Relay, 220-250 Vdc
77	137A7575P5	1	Relay, 115 Vac
77	137A7575P2	1	Relay, 230 Vac
78	6174582G34	1	Closing coil, 48 Vdc
78	6074582G1	1	Closing coil, 110-125 Vdc
78	6174582G15	1	Closing coil, 220 Vdc
78	6174582G2	1	Closing coil, 250 Vdc
78	6174582G10	1	Closing coil, 115 Vac
78	6174582G14	1	Closing coil, 230 Vac
81	105C9393P1	1	Motor, 48 Vdc
81	105C9393P2	1	Motor, 110 Vdc
81	105C9393P2	1	Motor, 125 Vdc
81	105C9393P3	1	Motor, 220 Vdc
81	105C9393P3	1	Motor, 250 Vdc
81	105C9393P2	1	Motor, 115 Vac
81	105C9393P3	1	Motor, 230 Vac
51	161A4241P1	1	Driving pawl spring
69	456A866P5	3	Switch (N.O.)
74	161A4231P1	1	Closing latch spring
85	137A9192G11	1	Auxiliary switch
88	456A866P6	1	Switch (N.C.)
89	161A5909P1	2	Latching pawl spring