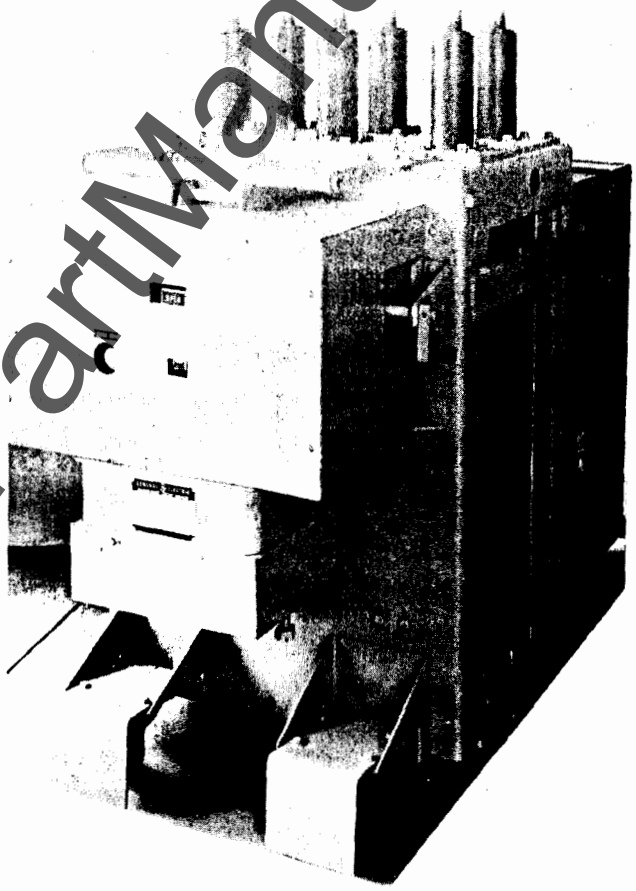
INSTRUCTIONS
AND
RENEWAL PARTS

GEH-2004A

MAGNE-BLAST CIRCUIT BREAKER



Types

AM-13.8-150-3
AM-13.8-150A-3
AM-13.8-250-3
AM-13.8-250A-3
AM-13.8-500-3
AM-13.8-500A-3
AM-13.8-500B-3
AM-13.8-500AB-3
With MS-13 Mechanism

MEDIUM VOLTAGE SWITCHGEAR DEPARTMENT

GENERAL ELECTRIC

PHILADELPHIA, PA.

MAGNE-BLAST CIRCUIT BREAKER
TYPE AM-13.8-3 WITH MS-13 MECHANISM

INTRODUCTION

The magne-blast circuit breaker is the removable interrupting element for use in vertical-lift metal-clad switchgear, to provide reliable control and protection of power systems. Among the many advantages of metal-clad switchgear are added protection to equipment and personnel, compactness, simplified installation and reduced maintenance. In keeping with these features the magne-blast breakers are designed for interchangeability and maneuverability, together with reliability and low maintenance requirements.

The magne-blast circuit breaker operates on the principle that an arc can be interrupted in air by sufficiently elongating and cooling it. This is accomplished by means of a strong magnetic field that lengthens the arc and forces it into intimate contact with cool dielectric material. A sturdy, reliable operating mechanism assures low maintenance and long life, and the use of Self-X insulation reduces fire hazards to a minimum.

The AM-13.8 magne-blast breaker is available in a number of current ratings. Refer to the breaker nameplate for the complete rating information of any particular breaker. The short circuit conditions to be imposed on the breaker must not exceed its rating, nor should it be called upon to operate at voltages or currents greater than those given on the nameplate. Since this book is written to cover several ratings of breakers that are of the same general design, all instructions will be of a general character and all illustrations will be typical, unless otherwise specified.

PROPER INSTALLATION AND MAINTENANCE ARE NECESSARY TO INSURE CONTINUED SATISFACTORY OPERATION OF THE BREAKER. The following instructions will provide complete information for placing the magne-blast breaker in service and for maintaining satisfactory operation.

RECEIVING, HANDLING AND STORAGE

RECEIVING AND HANDLING

Each breaker is carefully inspected and packed by workmen experienced in the proper handling and packing of electrical equipment. Immediately upon receipt of the circuit breaker, an examination should be made for any damage sustained in transit. If injury or rough handling is evident, a damage claim should be filed immediately with the transportation company and the nearest General Electric Sales Office should be notified.

It is expected that due care will be exercised during the unpacking and installation of the breaker so that no damage will occur from careless or rough handling, or from exposure to moisture or dirt. A nail puller should be used to open the crates, and care should be exercised to prevent tools from striking either the crate or any part of the breaker. Loose parts associated with the breaker are always included in the same crate. Check all parts against the packing list to be sure that no parts have been overlooked.

STORAGE

It is recommended that the breaker be put into service immediately in its permanent location. If this is not possible, the following precautions must be taken to insure the proper storage of the breaker:

1. The breaker should be carefully protected against condensation, preferably by storing it in a warm dry room, since water absorbtion has an adverse effect on the insulation parts. Circuit breakers for outdoor metal-clad switchgear should be stored in the equipment only when power is available and the heaters are in operation to prevent condensation.

2. The breaker should be stored in a clean location, free from corrosive gases or fumes; particular care should be taken to protect the equipment from moisture and cement dust, as this combination has a very corrosive effect on many parts.

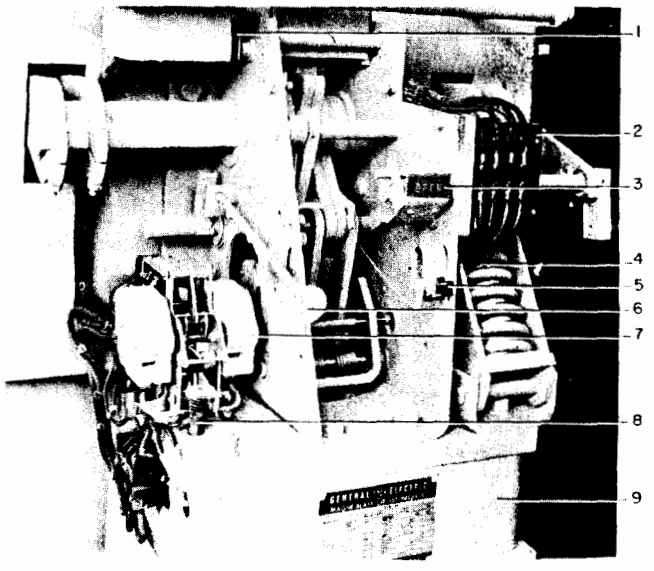
3. Machined parts of the operating mechanism, etc., should be coated with a heavy oil or grease to prevent rusting.

If the breaker is stored for any length of time, it should be inspected periodically to see that rusting has not started and to insure good mechanical condition. Should the breaker be stored under unfavorable atmospheric conditions, steps should be taken to dry out the breaker before it is placed in service.

DESCRIPTION

The magne-blast breaker is composed of two major parts, the breaker element and the operating mechanism. The breaker element comprises three similar pole units, each pole unit consisting of main and arcing contacts, an interrupter, and an enclosing box barrier that segregates the interrupting units from each other to provide insulation between phases as well as from each phase to ground. The primary connections to the associated metal-clad equipment are made through the primary disconnect studs.

The MS-13 operating mechanism shown in Fig. 1 is of the solenoid type designed to give high speed closing and opening. The closing operation is controlled by the control device (7). The control device also permits trip-free operation (tripping the breaker at any time during the closing operation) and prevents solenoid pumping (reclosing) after a trip-free operation. The breaker can be opened electrically, by remote control, or manually, by means of the manual trip device (6). All secondary connections from the breaker to the metal-clad unit are made through the coupler (1).



1. Secondary Coupler
2. Auxiliary Switch
3. Position Indicator
4. Opening Spring Unit
5. Operation Counter
6. Manual Trip
7. Control Device
8. Control Device Plunger Guide
9. Closing Solenoid

Fig. 1 MS-13 Operating Mechanism

Fig. 1 (8021743)

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 General Electric Company.

INTERLOCK SWITCH

To remove the interlock switch (4), Fig. 6, remove the two mounting screws and disconnect the lead wires. Reassemble in the reverse order and check the switch adjustments as explained under INSTALLATION, ADJUSTMENTS.

LATCH CHECKING SWITCH

To remove the latch checking switch (7), Fig. 6, (when furnished), remove the two mounting screws and disconnect the lead wires. Reassemble in the reverse order and check the switch adjustments as explained under INSTALLATION, ADJUSTMENTS.

CUT-OFF SWITCH

To remove the cut-off switch (1), Fig. 8, remove the two mounting bolts and disconnect the lead wires. When reassembling, check the cut-off switch adjustment as explained under INSTALLATION, ADJUSTMENTS.

RENEWAL PARTS

It is recommended that sufficient renewal parts be carried in stock to enable the prompt replacement of any worn, broken, or damaged parts. A stock of such parts minimizes service interruptions caused by breakdowns, and saves time and expense. When continuous operation is a primary consideration, more renewal parts should be carried, the amount depending upon the severity of the service and the time required to secure replacements.

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

NOTE: The listed terms "right" and "left" apply when facing the solenoid mechanism end of the breaker.

ORDERING INSTRUCTIONS

1. ALWAYS SPECIFY THE COMPLETE NAMEPLATE DATA OF BOTH THE BREAKER AND THE MECHANISM.
2. SPECIFY THE QUANTITY, CATALOG NUMBER (IF LISTED), REFERENCE NUMBER (IF LISTED), AND DESCRIPTION OF EACH PART ORDERED, AND THIS BULLETIN NUMBER.
3. STANDARD HARDWARE, SUCH AS SCREWS, BOLTS, NUTS, WASHERS, ETC., IS NOT LISTED IN THIS BULLETIN. SUCH ITEMS SHOULD BE PURCHASED LOCALLY.
4. FOR PRICES, REFER TO THE NEAREST OFFICE OF THE GENERAL ELECTRIC COMPANY.

ILLUSTRATION REFERENCE

PARTS RECOMMENDED FOR NORMAL MAINTENANCE

In the tabulation below are listed the parts of those breakers which are usually recommended for stock for normal maintenance. Other parts are listed on the following pages.

FIG. NO.	REF. NO.	RATING IN MVA	RATING IN AMPS	CAT. NO. FOR TYPE AM-13.8(MVA)-3	NO. PER BKR.	DESCRIPTION
25	9	ALL	ALL	263B292 P-2	3	Booster Cylinder
25	16	ALL	ALL	281B708 G-1	3	Operating Rod Assembly
28	165	(150, 250, 500 (150A, 250A, 500A	1200	236C791 P-8	12	Contact Finger
28	165	500B, 500AB	1200	236C791 P-8	24	Contact Finger
28	165	ALL	2000	236C791 P-8	24	Contact Finger
29	211	ALL	ALL	6496488 P-3	3	Movable Arcing Contact
28	156	ALL	ALL	236C790 G-9	3	Stationary Arcing Contact Assembly
29	212	(150, 250, 500 (150A, 250A, 500A	1200	6591644 P-7	3	Movable Primary Contact
29	212	500B, 500AB	1200	6591644 P-7	6	Movable Primary Contact
29	212	ALL	2000	6591644 P-7	6	Movable Primary Contact
29	213	(150, 250, 500 (150A, 250A, 500A	1200	6591644 P-8	3	Movable Primary Contact
29	213	500B, 500AB	1200	6591644 P-8	6	Movable Primary Contact
29	213	ALL	2000	6591644 P-8	6	Movable Primary Contact
28	160	(150, 250, 500 (150A, 250A, 500A	1200	414A180	12	Spring
28	160	500B, 500AB	1200	6509787 P-1	24	Spring
28	160	ALL	2000	6509787 P-1	24	Spring
27	143	ALL	ALL	414A194 P-1	6	(Mycalex) Upper
27	156	ALL	ALL	414A116 P-2	3	Insulation
27	167	ALL	ALL	802B702 P-1	6	(Mycalex) Lower Shield
28	155L	ALL	ALL	236C791 G-1	3	Flexible Connector
28	155R	ALL	ALL	236C791 G-4	3	Flexible Connector
28	159	ALL	ALL	6445087	3	Buffer
28	168	(150, 250, 500 (150A, 250A, 500A	1200	6557243 P-1	6	Clamp For Buffer
28	168	500A, 500AB	1200	6557243 P-2	6	Clamp For Buffer
28	168	ALL	2000	6557243 P-2	6	Clamp For Buffer
30	261	500	ALL	6375521 G-2	1	Closing Coil 125V. d-c or 230V. a-c
30	261	150 & 250	ALL	6375521 G-6	1	Closing Coil 125V. d-c or 230V. a-c
30	261	500	ALL	6375521 G-1	1	Closing Coil 250V. d-c
30	261	150 & 250	ALL	6375521 G-5	1	Closing Coil 250V. d-c
32	370	ALL	ALL	6174582 G-1	1	Potential Trip Coil 125V. d-c
32	370	ALL	ALL	6174582 G-2	1	Potential Trip Coil 250V. d-c
32	370	ALL	ALL	6174582 G-14	1	Potential Trip Coil 230V. a-c
32	370	ALL	ALL	6275070 G-1	1	Potential Trip Coil 24V. d-c
32	370	ALL	ALL	6275070 G-2	1	Potential Trip Coil 48V. d-c
36	663	ALL	ALL	6275017 G-19	1	Undervoltage Device Coil 125V. d-c
36	663	ALL	ALL	6275017 G-33	1	Undervoltage Device Coil 230V. a-c
36	663	ALL	ALL	6275017 G-20	1	Undervoltage Device Coil 250V. d-c
38	753	ALL	ALL	6275017 G-19	1	Control Device Coil 125V. d-c
38	753	ALL	ALL	6275017 G-33	1	Control Device Coil 230V. a-c (cont.)
38	753	ALL	ALL	6275017 G-20	1	Control Device Coil 250V. d-c
38	753	ALL	ALL	6275017 G-34	1	Control Device Coil 230V. a-c (intermittent)

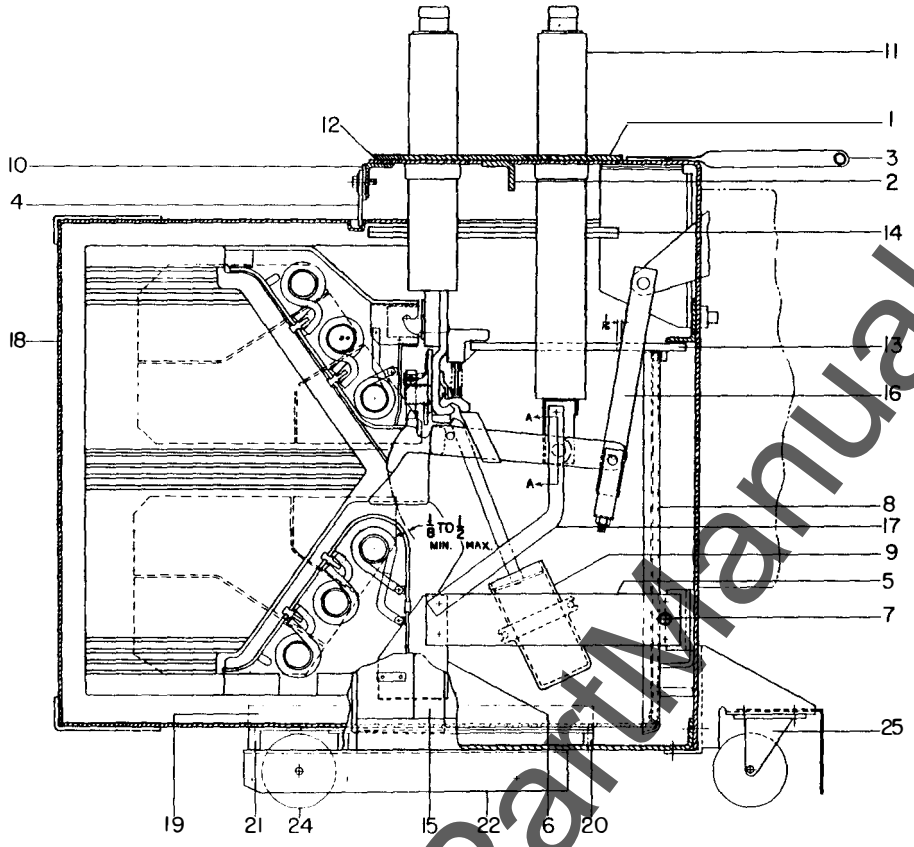


FIG. A

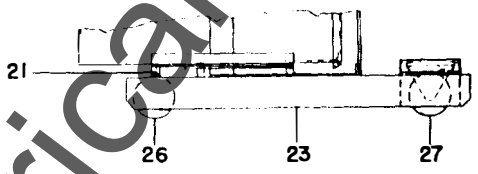


FIG. B

Fig. 25 Cross Section Type AM-13.8-3

Fig. 25 (2540739)

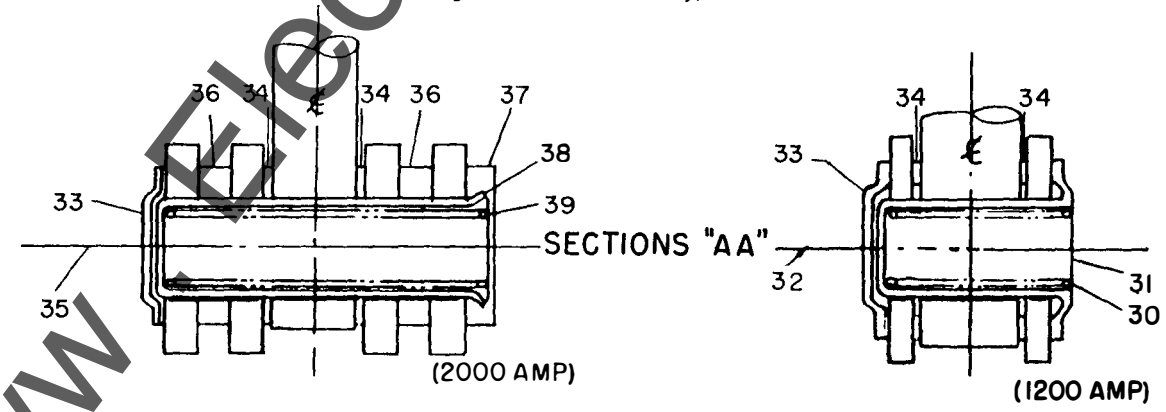


Fig. 26 Cross Section

Fig. 26 (236C792)

REF. NO.	MVA	AMPS.	CAT. NO. FOR AM 13.8 (MVA)-3	NO. REQ.	DESCRIPTION
1	ALL	1200	258C680 P-11	1	Top Plate
1	ALL	2000	258C680 P-10	1	Top Plate
2	ALL	1200	215D479 P-14	1	Angle
2	ALL	2000	215D479 P-23	1	Angle
3	ALL	ALL	281B764 G-1	1	Handle
4	ALL	ALL	265C151 P-28	3	Box Barrier Clamp
5	ALL	ALL	258C680 P-6	6	Arc Chute Support
6	ALL	ALL	258C619 G-6	3	Arc Chute Clamp
7	ALL	ALL	258C614 P-5	3	Block
8	ALL	ALL	456A329 G-1	3	Vertical Barrier
9	ALL	ALL	263B292 P-2	3	Booster Cylinder
10	ALL	ALL	265C151 P-30	*	Shim
11	ALL	1200	269C842 G-2	3	Bushing (Long)
11	ALL	2000	265C188 G-5	3	Bushing (Long)
12	ALL	ALL	6048229 P-1	*	Shim
13	ALL	1200	258C614 G-4	3	Horizontal Barriers (Lower)
13	ALL	2000	258C614 G-1	3	Horizontal Barriers (Lower)
14	ALL	1200	258C614 P-31	6	Horizontal Barriers (Upper)
14	ALL	2000	258C614 P-32	6	Horizontal Barriers (Upper)
15	ALL	ALL	265C162 P-17	2	Side Barrier
16	ALL	ALL	281B708 G-1	3	Operating Rod Assembly
17	ALL	ALL	265C160 P-22	3	Connection Bar
18	(150, 150A (250, 250A	ALL	265C176 G-2	3	Box Barrier Assembly
18	(500, 500A (500B, 500AB	ALL	265C176 G-1	3	Box Barrier Assembly
19	ALL	ALL	265C170 G-1	1	Box Barrier Guide
20	ALL	ALL	265C170 P-5	1	Box Barrier Guide Support
21	ALL	ALL	265C170 P-11	1	Box Barrier Guide Support
21	△	△	265C170 P-12	1	Box Barrier Guide Support
22	ALL	ALL	258C683 G-2	1	Wheel Assembly Complete
23	△	△	236C768 G-10	1	Wheel Assembly Complete
24	ALL	ALL	258C683 P-18	2	Wheel & Spanner Bushing
25	ALL	ALL	258C683 P-19	2	Front Wheel & Caster
26	△	△	6597296 P-7	2	Wheel
27	△	△	236C768 G-7	2	Front Wheel & Caster
30	ALL	1200	421A239 P-1	3	Spring
31	ALL	1200	6442371 P-1	3	Bearing
32	ALL	1200	414A106 P-4	3	Screw
33	ALL	ALL	6441617 P-1	3	Washer
34	ALL	ALL	236C792 P-2	6	Washer
35	ALL	2000	6442258 P-1	3	Stud
36	ALL	2000	6442246 P-1	6	Spacer
37	ALL	2000	6441630 P-1	3	Washer
38	ALL	2000	6442257 P-1	3	Bearing
39	ALL	2000	369A407 P-1	3	Spring

△ Those Breaker Model List Numbers With "W" Suffix.

* As Required.

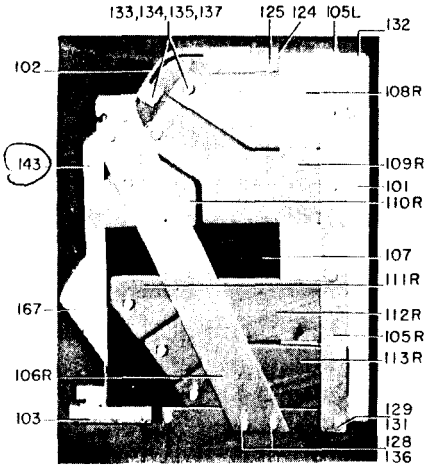


Fig. 27A Complete Assembly

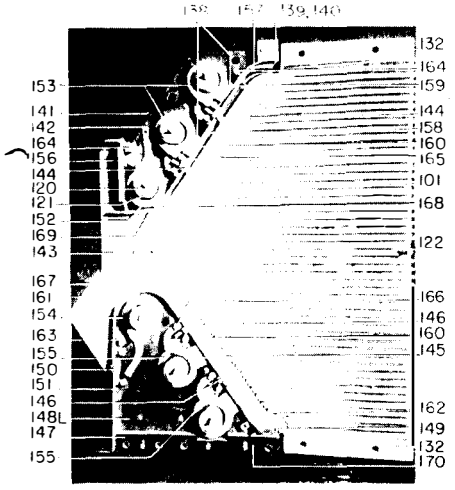


Fig. 27B Side Cover Removed

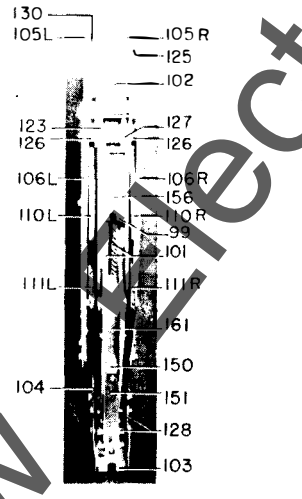


Fig. 27C Front View

Fig. 27 Arc Chute

PARTS REFERENCED IN FIGS. 27A, 27B & 27C FOR ALL RATINGS

REF. NO.	CAT. NO. FOR AM 13.8 (MVA)-3	NO. PER BREAKER	DESCRIPTION
100	215D491 G-1	3	Arc Chute Assembly, Complete
101	264B100 G-7	3	Arc Chute Sides
102	265C150 G-3	3	Upper Support
103	258C615 P-15	3	Lower Support
104	265C161 P-6	6	Lower Brace
105L	265C161 P-5	3	Rear Brace (Left)
105R	265C161 P-15	3	Rear Brace (Right)
106L	265C162 P-16	3	Side Brace (Left)
106R	265C162 P-26	3	Side Brace (Right)
107	265C163 P-4	6	Shield
108L	265C162 P-4	3	Upper Pole Piece
108R	265C162 P-7	3	Upper Pole Piece
109L	265C162 P-3	3	Upper Pole Piece
109R	265C162 P-6	3	Upper Pole Piece
110L	265C162 P-2	3	Upper Pole Piece
110R	265C162 P-5	3	Upper Pole Piece
111L	265C162 P-10	3	Lower Pole Piece
111R	265C162 P-13	3	Lower Pole Piece
112L	265C162 P-11	3	Lower Pole Piece
112R	265C162 P-14	3	Lower Pole Piece
113L	265C162 P-12	3	Lower Pole Piece
113R	265C162 P-15	3	Lower Pole Piece
120	258C615 P-29	18	Core
121	258C616 P-18	18	Core Insulating Tube
122	6176109 P-434	3	Spacer
123	258C615 P-11	3	Spacer
124	215D491 P-74	3	Gasket
125	414A102 P-6	3	Stud
126	6176109 P-81	12	Spacer
127	6176110 P-83	9	Spacer
128	6176109 P-93	24	Spacer
129	6176109 P-76	6	Spacer
130	6176109 P-85	6	Spacer
131	432249	6	Spacer
132	6442389 P-3	6	Spacer
133	215D491 P-92	6	Spacer
134	215D491 P-93	18	Spacer
135	215D491 P-94	18	Washer
136	6176109 P-78	12	Spacer
137	6176109 P-497	6	Spacer
138	265C150 P-15	6	Spacer
139	265C156 P-5	3	Block
140	265C156 P-6	3	Block
141	265C163 P-1	6	Coil Support
142	265C163 P-2	6	Barrier
143	414A194 P-1	6	(Mycalex) Upper Shield
144	414A196 P-1	6	Spacer
145	265C150 P-13	6	Spacer
146	414A196 P-2	6	Spacer
147	265C161 P-16	3	Spacer
148R	265C161 P-2	3	Lower Coil Support (Right)
148L	265C161 P-1	3	Lower Coil Support (Left)
149	414A198 P-1	3	Insulation Seal
150	258C616 P-11	3	Spacer
151	265C150 G-4	3	Connecting Strap
152	366A743 G-1	3	Coil (Upper) (C)
153	265C155 G-3	6	Coil (Upper) (A and B)
154	265C155 G-8	3	Coil (Lower) (D)
155	265C155 G-6	6	Coil (Lower) (E and F)
156	414A116 P-2	3	Insulation
157	414A197 P-1	3	Shim
158	414A197 P-2	3	Shim
159	265C154 G-3	3	Runner Assembly
160	265C154 G-5	6	Runner Assembly
161	265C154 G-1	3	Runner Assembly
162	265C154 G-9	3	Runner Assembly
163	6176109 P-25	9	Spacer
164	6176109 P-22	12	Spacer
165	6176109 P-17	24	Spacer
166	6176109 P-6	24	Spacer
167	802B702 P-1	6	(Mycalex) Lower Shield
168	215D491 P-91	3	Sleeve
169	619C400 G-6	3	Runner Assembly
170	265C161 P-17	3	Spacer

Fig. 27A (8022405) Fig. 27B (8022401) Fig. 27C (8022402)

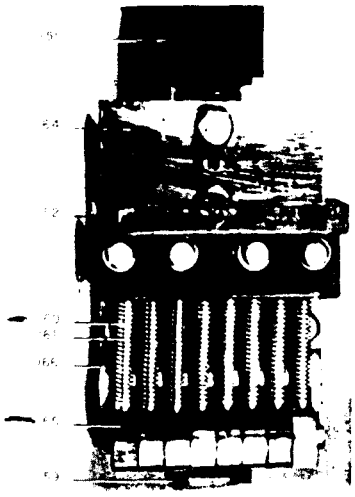


Fig. 28A Front View

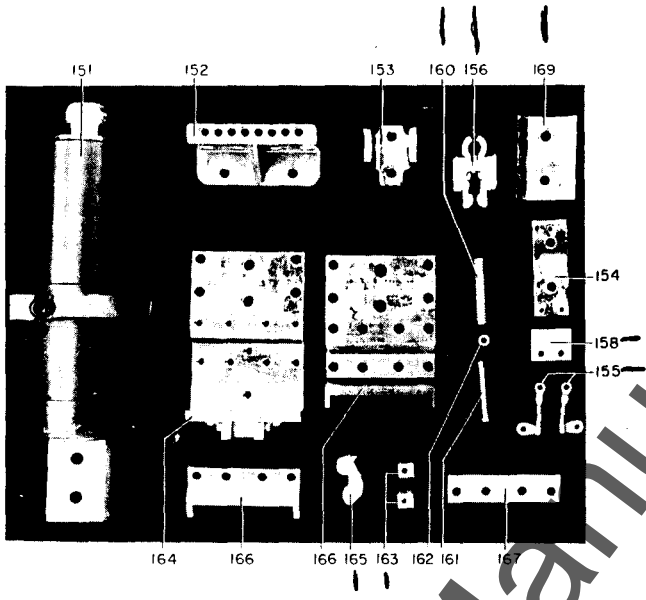


Fig. 28B Component Parts

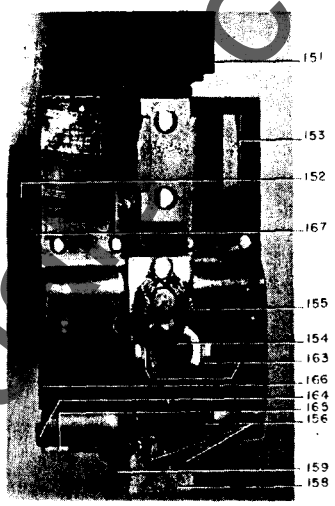


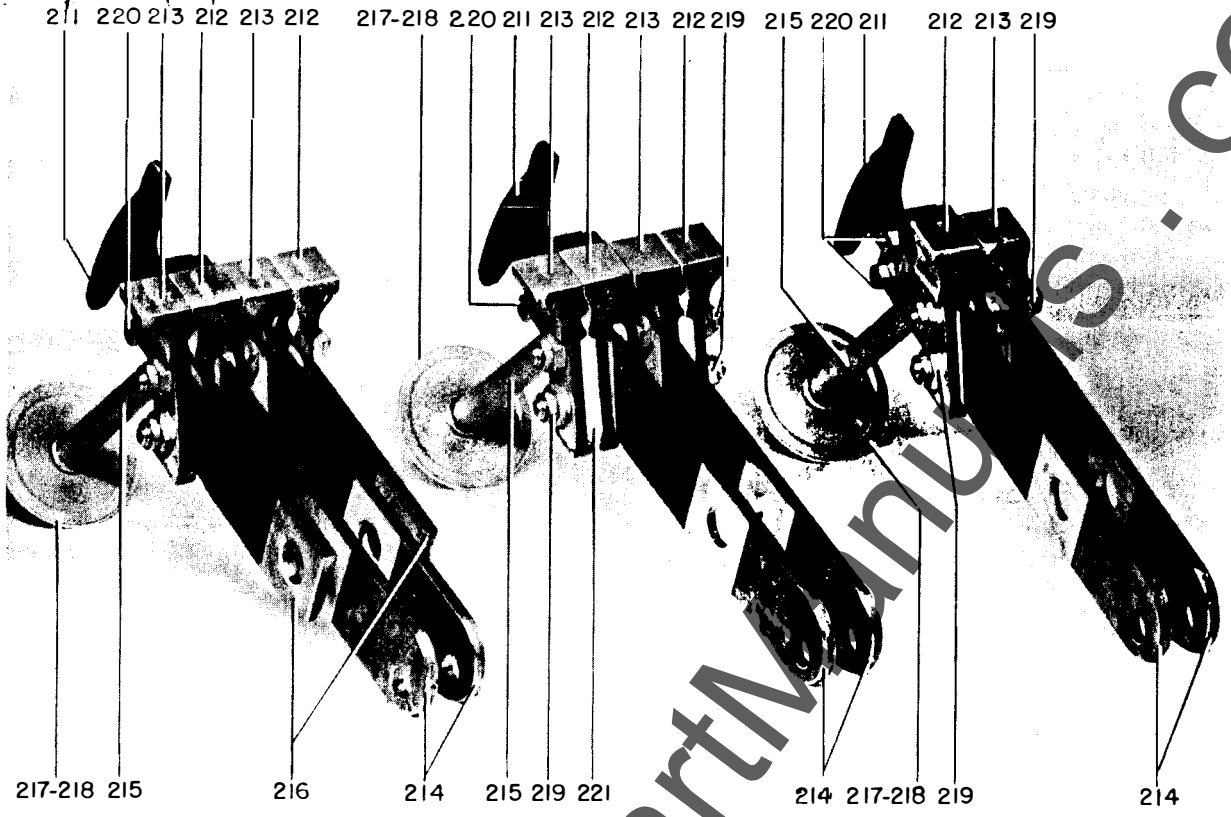
Fig. 28C Back View

Fig. 28 Rear Bushing Assembly (Ref. No. 150)

PARTS REFERENCED IN FIGS. 28A, 28B AND 28C FOR ALL RATINGS

REF. NO.	MVA.	AMPS.	CAT. NO. FOR AM 13.8(MVA)-3	NO. REQ.	DESCRIPTION
150	•	1200	236C790 G-6	3	Rear Bushing Assembly
150	500B, 500AB	1200	236C790 G-7	3	Rear Bushing Assembly
150	ALL	2000	236C790 G-8	3	Rear Bushing Assembly
151	ALL	1200	269C841 G-2	3	Rear Bushing
151	ALL	2000	265C187 G-5	3	Rear Bushing
152	•	1200	6592330 P-2	3	Spring Retainer
152	500B, 500AB	1200	6592331 P-2	3	Spring Retainer
152	ALL	2000	6592331 P-2	3	Spring Retainer
153	ALL	1200	236C791 P-9	3	Support
153	ALL	2000	236C791 P-19	3	Support
154	ALL	ALL	236C791 G-3	3	Arcing Contact Support
155	ALL	ALL	236C791 G-1	6	Flexible Connectors
156	ALL	ALL	236C790 G-4	3	Arcing Contact Assembly
158	ALL	ALL	414A116 P-4	3	Insulating Plate
159	ALL	ALL	6445087	3	Buffer
160	•	1200	414A180	12	Spring
160	500B, 500AB	1200	6509787 P-1	24	Spring
160	ALL	2000	6509787 P-1	24	Spring
161	•	1200	236C790 P-22	12	Spring Guide
161	500B, 500AB	1200	236C790 P-22	24	Spring Guide
161	ALL	2000	236C790 P-22	24	Spring Guide
162	•	1200	Nar. Wash. 1/4-20	12	Washer For Spring Guide
162	500B, 500AB	1200	Nar. Wash. 1/4-20	24	Washer For Spring Guide
162	ALL	2000	Nar. Wash. 1/4-20	24	Washer For Spring Guide
163	ALL	ALL	175V557 P-1	6	Lock Plate
164	•	1200	258C666 P-1	3	Contact Support
164	500B, 500AB	1200	258C666 P-3	3	Contact Support
164	ALL	2000	258C666 P-2	3	Contact Support
165	•	1200	236C791 P-8	12	Contact Finger
165	500B, 500AB	1200	236C791 P-8	24	Contact Finger
165	ALL	2000	236C791 P-8	24	Contact Finger
166	•	1200	258C666 P-5	3	Primary Contact Finger Retainer
166	500B, 500AB	1200	236C791 P-20	3	Primary Contact Finger Retainer
166	ALL	2000	236C791 P-4	3	Primary Contact Finger Retainer
166A	ALL	2000	236C791 P-3	3	Primary Contact Finger Retainer
167	500B, 500AB	1200	258C666 P-4	3	Spacer
168	•	1200	6557243 P-1	6	Clamp For Buffer
168	500B, 500AB	1200	6557243 P-2	6	Clamp For Buffer
168	ALL	2000	6557243 P-2	6	Clamp For Buffer

• = 150, 250, 500, 150A, 250A, 500A



Figs. 29A, 29B, 29C (8020383)

Fig. 29A For 2000 Amp. Breakers All Ratings

Fig. 29B For 1200 Amp. 500B, 500AB MVA Ratings

Fig. 29C For 1200 Amp., 150, 250, 500, 150A, 250A, 500A MVA Ratings

Fig. 29 Movable Contact Arm Assembly

PARTS REFERENCED IN FIGS. 29A, 29B AND 29C

REF. NO.	MVA.	AMPS.	CAT. NO. FOR AM 13.8 (MVA)-3	NO. BKR.	DESCRIPTION
210	(150, 250, 500 (150A, 250A, 500A	1200	236C792 G-12	3	Movable Contact Arm Assembly
210	500B, 500AB	1200	236C792 G-14	3	Movable Contact Arm Assembly
210	ALL	2000	236C792 G-13	3	Movable Contact Arm Assembly
211	ALL	ALL	6496488 P-3	3	Movable Arcing Contact
212	(150, 250, 500 (150A, 250A, 500A	1200	6591644 P-7	3	Movable Primary Contact
212	500B, 500AB	1200	6591644 P-7	6	Movable Primary Contact
212	ALL	2000	6591644 P-7	6	Movable Primary Contact
213	(150, 250, 500 (150A, 250A, 500A	1200	6591644 P-8	3	Movable Primary Contact
213	500B, 500AB	1200	6591644 P-8	6	Movable Primary Contact
213	ALL	2000	6591644 P-8	6	Movable Primary Contact
214	ALL	ALL	258C666 P-7	6	Contact Arm
215	ALL	ALL	236C792 G-15	3	Tube & Piston Assembly
216	ALL	2000	258C666 P-6	6	Contact Arm
217	ALL	ALL	421A248 P-1	3	Piston Ring
218	ALL	ALL	236C792 P-3	3	Piston Ring Equalizer
219	ALL	ALL	414A146 P-4	12	Flex Nut
220	ALL	ALL	414A146 P-3	6	Flex Nut
221	500B, 500AB	1200	258C619 P-2	6	Spacer

Fig. 30A (236C731)

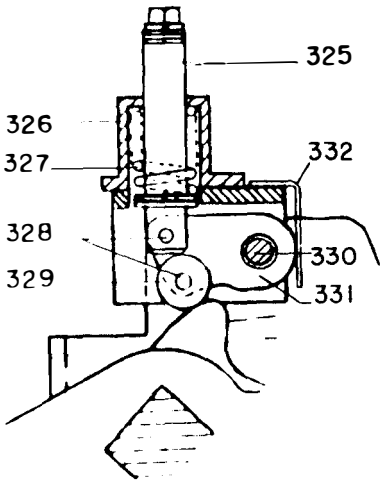


Fig. 30A Early Design

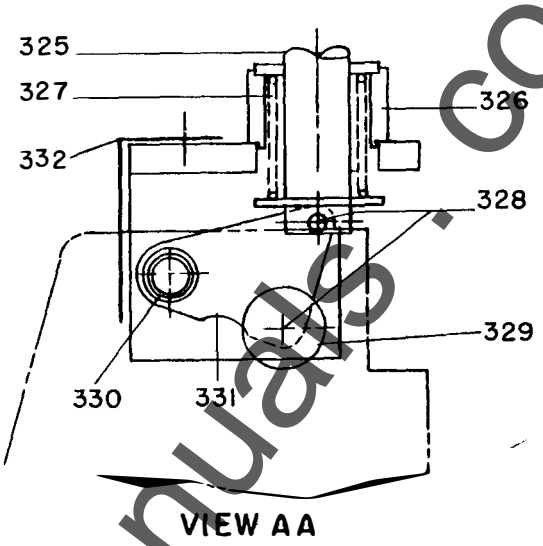


Fig. 30B Present Design

Figs. 30B & 30C (236C787)

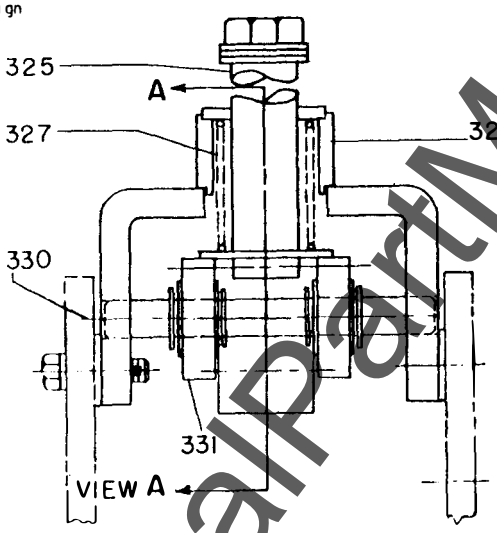


Fig. 30C Present Design

Fig. 30 Interlock Plunger

PARTS REFERENCED IN FIGS. 30A, 30B AND 30C FOR ALL RATINGS

REF. NO.	CATALOG NO. FOR TYPE AM-13.8-(MVA)-3 △	CATALOG NO. FOR TYPE AM-13.8-(MVA)-3 Ø	NO. PER MECHANISM	DESCRIPTION
324	236C769 G-1	236C787 G-1	1	Plunger interlock, complete
325	6442255 P-1	236C787 P-12	1	Plunger for interlock
326	236C769 G-2	236C787 G-2	1	Bracket for interlock
327	6509728 P-1	6509728 P-1	1	Spring for interlock
328	6477427 AA P-9	383A926 AD P-1	2	Pin
329	6443714	236C787 P-14	1	Roller
330	6477427 CA P-4	236C787 P-5	1	Pin
331	6597228 P-1	236C787 P-16	2	Crank
332	236C769 P-9	236C787 P-6	1	Front Guard

△ This plunger interlock frame is wider than the mechanism frame.

Ø This plunger interlock frame is more narrow than the mechanism frame.

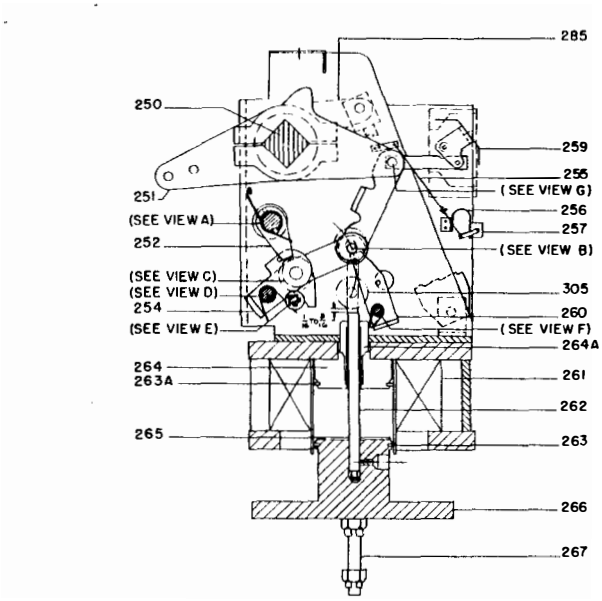


Fig. 31A Cross-section

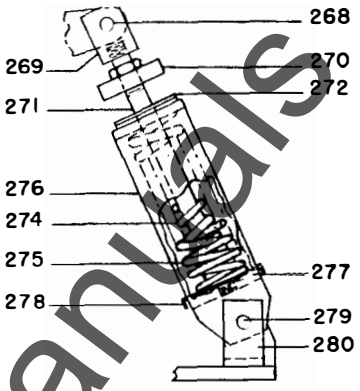


Fig. 31B Complete Spring Assembly (Ref. 273)

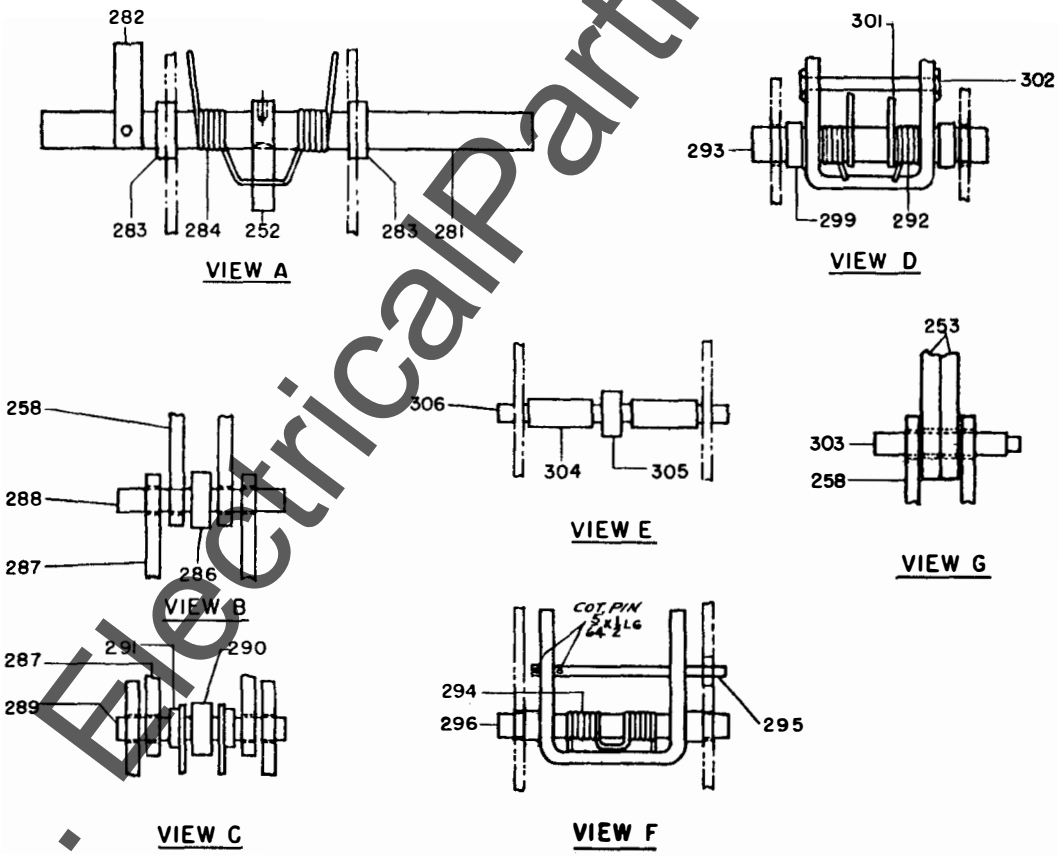


Fig. 31C Detailed Views

Fig. 31 MS-13 Mechanism for AM-13.8-3

Fig. 31A (258C688)

Fig. 31B (258C688)

Fig. 31C (215D470)

PARTS REFERENCED IN FIGS. 31A, 31B, & 31C

REF. NO.	CAT. NO. FOR AM 13.8 (MVA)-3	NO. PER MECHANISM	DESCRIPTION
250	6443518 P-1	1	Shaft
251	258C608 P-6	6	Crank
252	258C608 P-7	1	Latch
253	215D470 G-54	2	Crank
254	215D470 G-55	1	Link
255	6551742	1	Spring
256	258C604 P-8	1	Spring Clip
257	6192382 AB P-1	1	Veeder Counter
258	215D470 G-51	1	Link
259	281B711 G-1	1	Indicator Assembly
260	258C609 P-1	1	Prop
261	6375521 G-2	1	Closing Coil 125V. d-c or 230V. a-c 500 MVA
261	6375521 G-6	1	Closing Coil 125V. d-c or 230V. a-c 150 & 250 MVA
261	6375521 G-1	1	Closing Coil (250V. d-c) 500 MVA
261	6375521 G-5	1	Closing Coil (250V. d-c) 150 & 250 MVA
261	6375521 G-3	1	Closing Coil (220V. a-c) 500B MVA
261	6375521 G-4	1	Closing Coil (110V. a-c) 500B MVA
262	236C796 P-6	1	Plunger
263	6591632 P-1	2	Piston Ring AM 13.8-150A, 500B, 500AB 250A, 500, 500A
263	6591632 P-1	1	Piston Ring AM 13.8-150, 250
263A	6591632 P-2	1	Piston Ring AM 13.8-150, 250
264	236C795 P-4	1	Pole Piece AM 13.8-150A, 500B, 500AB 250A, 500, 500A
264	236C795 P-45	1	Pole Piece AM 13.8-150, 250
264A	236C796 P-12	1	Guide for Pole Piece AM 13.8-150A, 500B, 500AB 250A, 500, 500A
264A	236C796 P-14	1	Guide for Pole Piece AM 13.8-150, 250
265	414A109 P-4	1	Washer
266	236C796 G-2	1	Arm Plate
267	236C796 P-8	2	Stud
268	383A926 AE P-1	1	Pin
269	258C630 P-7	1	Clevis
270	258C630 G-3	1	Plate
271	258C630 P-8	1	Rod
272	414A109 P-2	2	Buffer
273	258C630 G-1	1	Complete Spring Assembly
274	369A411	1	Inner Spring
275	369A468	1	Outer Spring
276	258C630 P-3	1	Spring Retainer
277	258C630 P-5	1	Retaining Plate
278	258C630 P-4	1	Spring Base
279	383A926 AF P-20	1	Pin
280	258C630 P-9	1	Bracket
281	258C611 P-1	1	Latch Shaft
282	258C611 P-11	1	Stop Bar
283	414A111 P-1	2	Trip Shaft Bearing
284	6509765	1	Spring
285	258C690 P-4	1	Crank
286	215D470 G-53	1	Roller
287	215D470 G-52	2	Link
288	258C611 P-3	1	Prop Pin
289	414A110 P-1	1	Pin
290	414A112 P-1	1	Trip Roller Bearing
291	215D470 P-18	2	Spacer
292	6509799	2	Spring
293	414A110 P-3	1	Pin
294	6477097	1	Prop Spring
295	258C609 P-8	1	Pin
296	383A926 AF P-41	1	Pin
299	215D470 P-25	2	Spacer
301	258C608 P-3	1	Latch Guide
302	258C611 P-5	1	Pin
303	258C609 P-9	1	Pin
304	215D470 P-29	2	Spacer
305	258C609 P-6	1	Roller
306	383A926 AE P-39	1	Pin

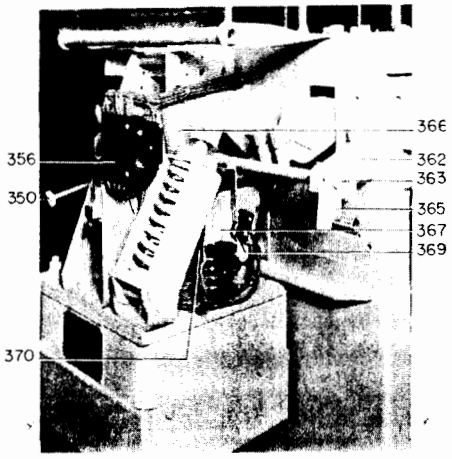


Fig. 32A Right Side View

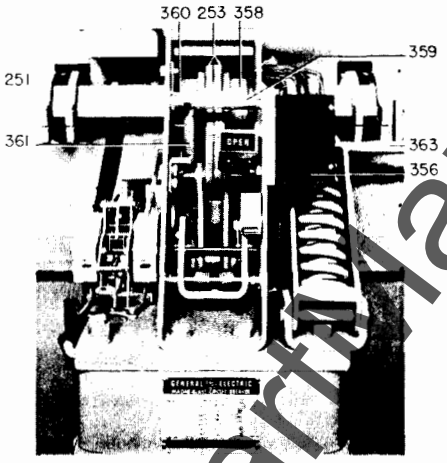


Fig. 32B Front View

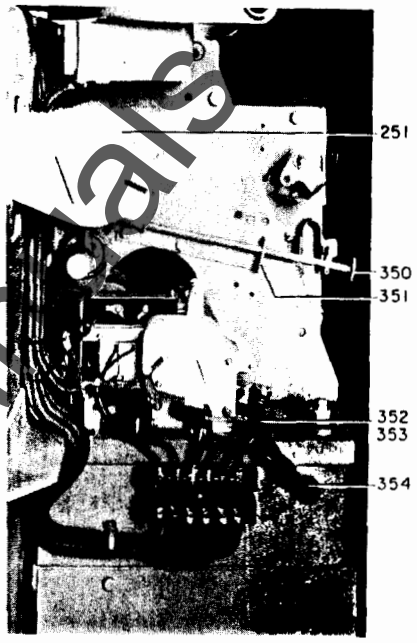


Fig. 32C Left Side View

Fig. 32 MS-13 Mechanism for Type AM 13.8-3 Breaker

Fig. 32A (8022400)

Fig. 32B (8022399)

Fig. 32C (8022403)

PARTS REFERENCED IN FIGS. 32A, 32B AND 32C FOR ALL RATINGS

REF. NO.	CAT. NO. TYPE AM 13.8 (MVA)-3	NO. PER MECHANISM	DESCRIPTION
350	258C604 G-3	1	Manual Trip Rod
351	258C604 P-2	1	Manual Trip Rod Support
352	236C795 P-40	1	Rod
353	174V394 P-1	1	Tube
354	6445059	1	Insulating Tube
356	415A489 G-1	1	Auxiliary Switch
358	215D470 P-43	2	Spacer
359	236C788 P-6	1	Interlock Prop Shaft
360	414A190	1	Spring
361	236C788 P-3	1	Interlock Prop
362	258C601 G-3	1	Bearing Bracket
363	258C601 P-15	1	Shaft
364	236C788 P-8	2	Link
365	236C788 P-7	1	Crank
366	258C601 P-16	1	Crank
367	236C788 P-30	1	Bracket
368	6351363 P-40	1	Latch Checking Switch
369	6351363 P-38	1	Interlock Switch
370	6174582 G-1	1	Potential Trip Coil (125V. d-c)
370	6174582 G-2	1	Potential Trip Coil (250V. d-c)
370	6174582 G-14	1	Potential Trip Coil (230V. a-c)
370	6275070 G-1	1	Potential Trip Coil (24V. d-c)
370	6275070 G-2	1	Potential Trip Coil (48V. d-c)

Fig. 33 (8022397)

Fig. 33 Secondary Disconnecting Device and Mechanism Parts for All Types

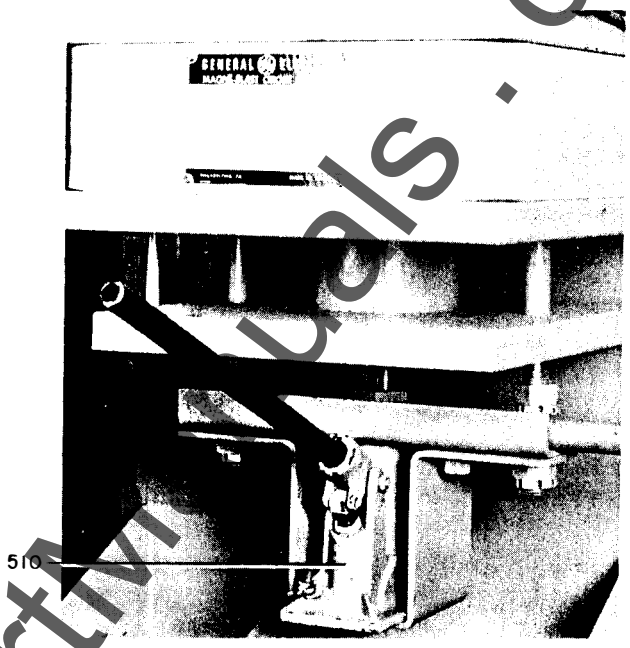


Fig. 34 (8022396)

Fig. 34 Maintenance Closing Device

PARTS REFERENCED IN FIGS. 33 & 34 FOR ALL RATINGS

REF. NO.	CAT. NO. FOR TYPE AM 13.8 (MVA)-3	NO. PER MECHANISM	DESCRIPTION
500	264B162 G-1	1	Secondary Disconnect Device, Complete: 16 point
500	264B173 G-1	1	Secondary Disconnect Device, Complete: 7 point
503	6319964 P-2	16	Plug
505	848768 P-1	16	Lock Washer for Plug
507	6505244 P-1	1	Socket
508	6557827 P-1	4	Shim
510	258C669 G-1	1	Maintenance Closing Device
511	K-3663094 P-38	3	Spacer
512	366A234 P-1	2	Contact Nut
512	366A234 P-2	14	Contact Nut

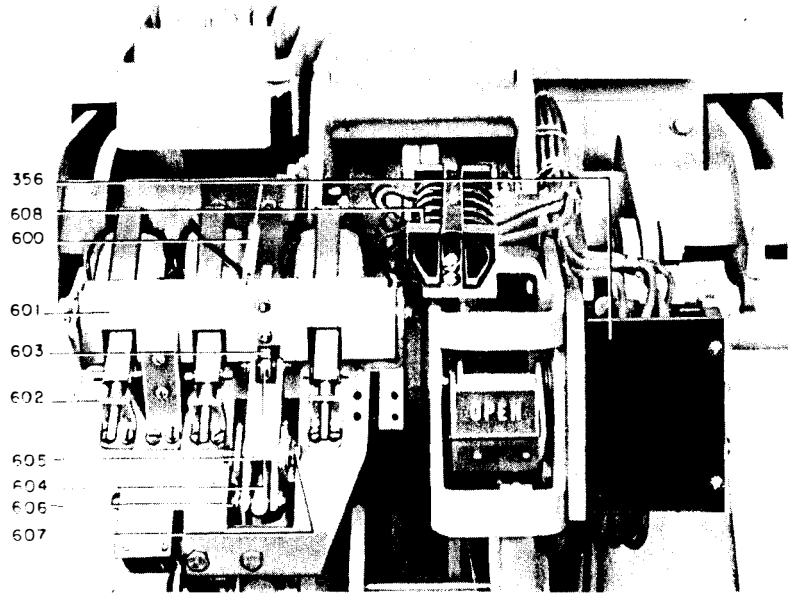


Fig. 35 Partial View of MS-13 Mechanism with Current Trip

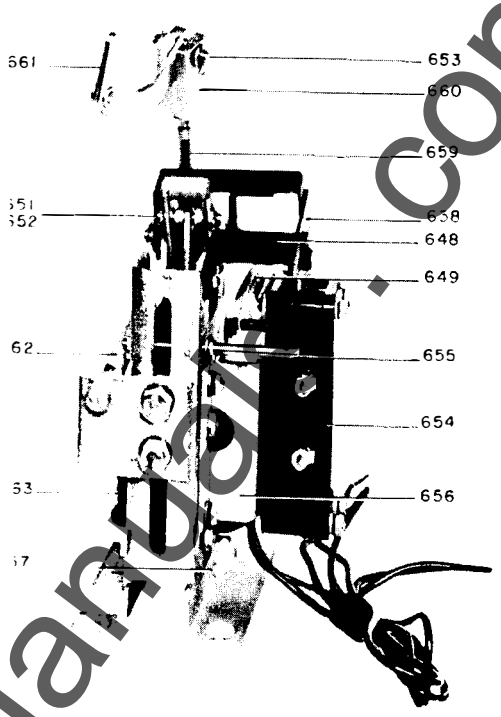


Fig. 36 Undervoltage Device (Ref. 647)

Fig. 35 (8020216)

Fig. 36 (8016105)

PARTS REFERENCED IN FIGS. 35 AND 36 FOR ALL RATINGS

REF. NO.	CAT. NO. FOR TYPE AM-13.8-(MVA)-3	NO. PER MECHANISM	DESCRIPTION
600	6551725	1	Spring
601	366A611	1	Trip Pan
602	6558748 P-1	1	Bracket
603	6558756 P-1	1	Trip Latch
604	6477418 AA P-10	1	Ball Bearing
605	366A600 P-1	1	Trip Arm
606	6076401 P-307	1	Pin
607	6477427 AA P-8	1	Pin
608	6293908 G-185	1	Terminal Board (4 Point)
608	6293908 G-168	1	Terminal Board (6 Point)
647	9915617 AA	1	Undervoltage Device Complete
648	175V574	1	Stop for d-c only
649	369A443	1	Spring for d-c only
650	6551726	1	Spring for a-c only
651	175V578	1	Pin for d-c only
652	6076401 P-309	1	Pin for a-c only
653	6076401 P-305	2	Pin
654	6418069 G-6	1	Switch
655	175V576	1	Pin
656	374A246 P-1	1	Bracket
657	175V562 P-1	1	Shim for d-c only
658	384A330 G-1	1	Link Arm Assembly for d-c only
659	6477414 AC P-20	1	Stud
660	6558711 P-1	2	Coupling
661	6558723 G-1	1	Trip Arm
662	6509798	2	Spring
663	6275017 G-19	1	Coil (125V. d-c)
663	6275017 G-33	1	Coil (230V. a-c)
663	6275017 G-20	1	Coil (250V. d-c)

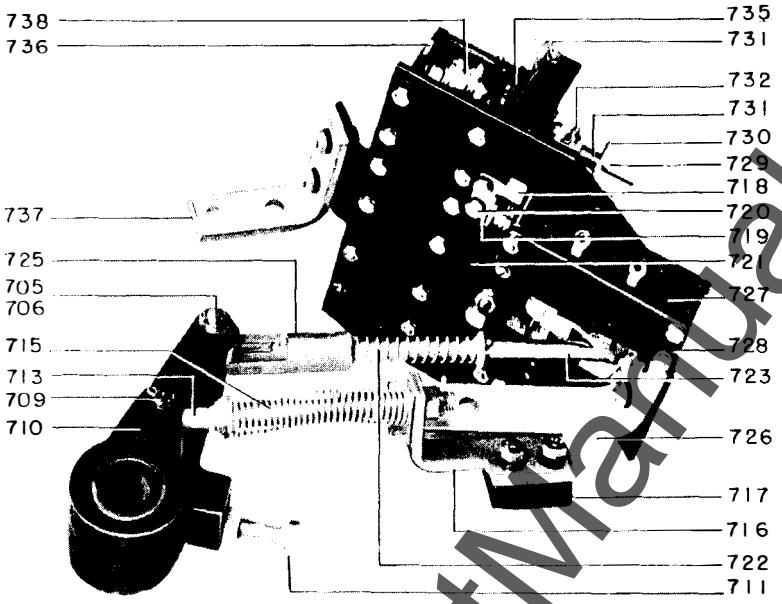


Fig. 37 (8016104)

Fig. 37 Impact Trip Device (Ref. 702)

PARTS REFERENCED IN FIG. 37 FOR ALL RATINGS

REF. NO.	CAT. NO. FOR TYPE AM-13.8-(MVA)-3	NO. PER MECHANISM	DESCRIPTION
702	6594553 AA	1	Impact Trip Device Complete
703	6591817 P-1	1	Lever
704	6591388 P-19	1	Locking Plate
705	6076403 P-315	1	Pin
706	6477425 BA P-8	1	Roller
709	6076403 P-311	1	Pin
710	6592554 G-1	1	Crank
711	6557106 P-1	1	Adjusting Screw
713	6558791 G-1	1	Eyebolt Assembly
715	6509706	1	Spring
716	6443516	1	Bracket
717	6557105 P-1	1	Spacer
718	6558746 P-1	1	Bracket
719	6558747 P-1	1	Trip Arm
720	6076401 P-315	1	Pin
721	6477401 AA P-3	2	Spacer
722	6509794	1	Spring
723	174V378	1	Rod
725	174V373	1	Coupling
726	6443666	1	Bracket
727	6418068 G-7	1	Switch
728	6592505 AA	1	Frame Assembly
729	6558752 G-1	1	Core Assembly
730	6558751 P-1	1	Angle
731	6049320	3	Felt Washer
732	6558755 P-2	1	Pin
734	6076401 P-385	1	Pin
735	2236575	2	Guide
736	176V965 P-1	1	Coil Frame
737	6443667	1	Bracket
738	6174599 G-2	3	Coil for Current Trip 3 Amp a-c
738	6174599 G-6	1	Coil for Capacitor Trip 230 V. a-c

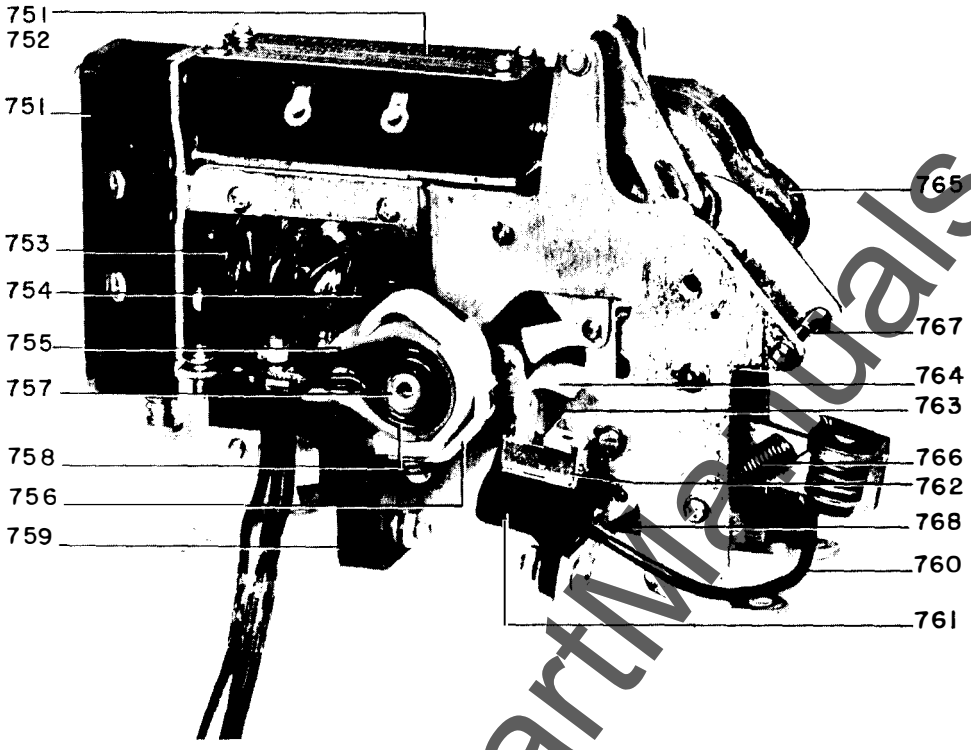


Fig. 38 (8011083)

Fig. 38 Control Device for all Mechanisms (Ref. 750)

PARTS REFERENCED IN FIG. 38 FOR ALL RATINGS

REF. NO.	CAT. NO. FOR TYPE AM 13.8 (MVA)-3	NO. PER MECHANISM	DESCRIPTION
750	6375988 G-5	1	Control Device, 125 Volt, d-c
750	403A128 G-1	1	Control Device, 230 Volt, a-c (continuous)
750	6375988 G-6	1	Control Device, 250 Volt, d-c
750	6375988 G-9	1	Control Device, 230 Volt, a-c
751	6418068 G-6	1	Auxiliary Switch, top or back
752	6418068 G-5	1	Auxiliary Switch, top, 230 Volt, a-c only
753	6275017 G-19	1	Coil, 125 Volt, d-c
753	6275017 G-33	1	Coil, 230 Volt, a-c (continuous)
753	6275017 G-20	1	Coil, 250 Volt, d-c
753	6275017 G-34	1	Coil, 230 Volt, a-c (intermittent)
754	6591455 P-1	2	Support for Contact Tip
755	6442392 P-1	2	Insulation
756	6591411 G-1	2	Support for Stationary Contact
757	6591450 P-1	2	Core
758	6412255 P-1	2	Blowout Coil
759	6412251 P-1	2	Support for Coil
760	6591440 G-1	1	Connector
761	6592161 P-1	2	Support for Movable Contact
762	6592162 P-1	2	Shield
763	6477041 P-1	2	Spring
764	6591412 G-1	2	Movable Contact
765	6591404 G-1	2	Arc Chute Assembly
766	6272844	1	Spring
767	365A451	1	Spring (d-c)
767	6370699	1	Spring (a-c)
768	6477063	1	Spring

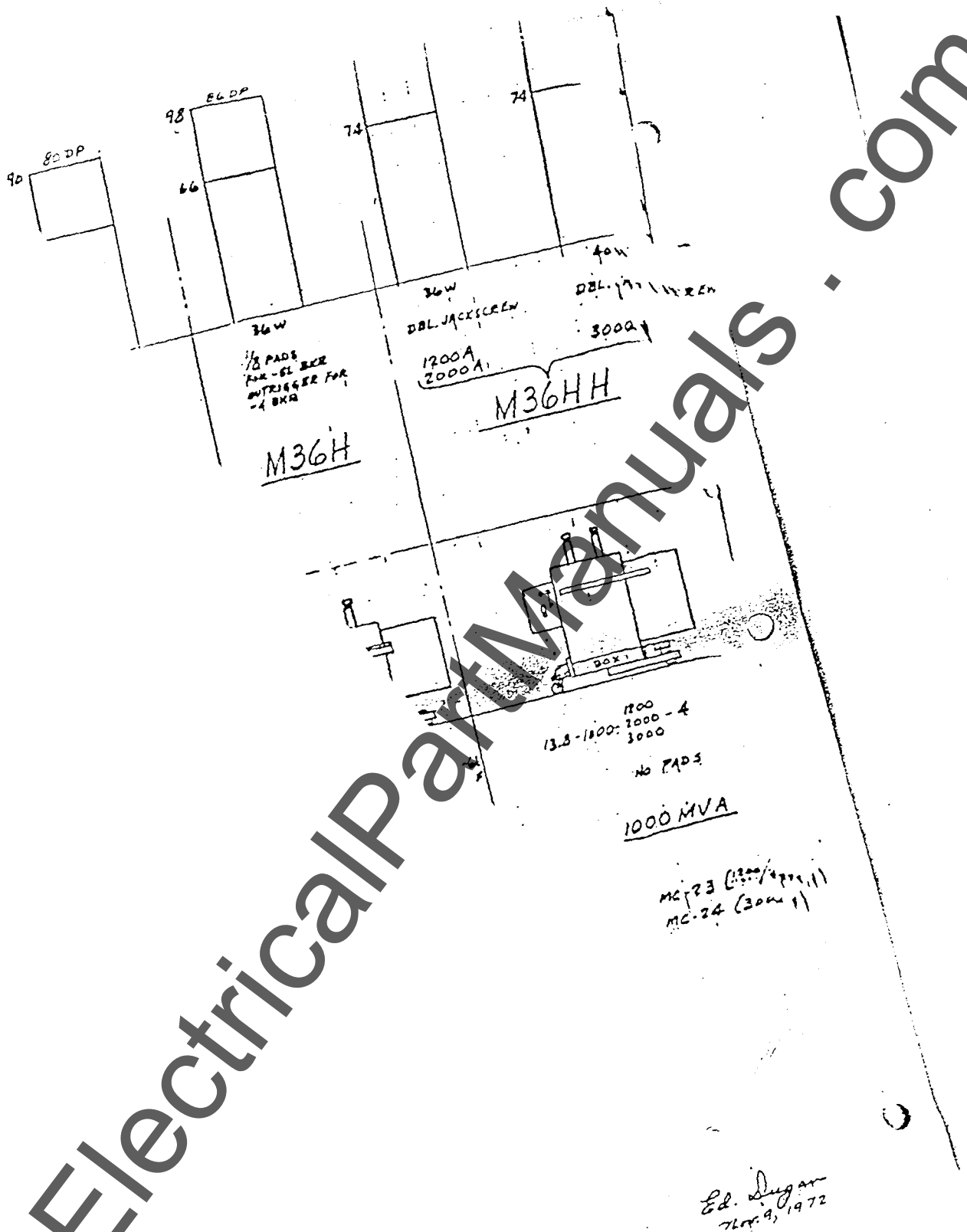


TABLE A-1—Magne-blast Power Circuit Breaker Characteristics (Symmetrical

Identification			Rated Values											
			Voltage		Insulation Level		Current							
					Rated Withstand Test Voltage									
ANSI Line Number	Nominal rms Voltage Class (kV)	Nominal 3-phase Class (MVA)	Rated Maximum rms Voltage (kV) (1)*	Rated Voltage Range Factor, K (2)	Low Frequency rms Voltage (kV)	Crest Impulse Voltage (kV)	Continuous rms Current Rating at 60 Hz (amperes)	Short-circuit rms Current Rating (at Rated Max kV) (kA) (3) (4)	Rated Interrupting Time (Cycles)	Rated Permissable Tripping Delay, Y (Seconds)	Voltage Divided by K (kV)	(5) K Times Rated Short-circuit rms Current (kA)		Rated Short-circuit rms Current (kA)
													(kA)	
3*	4.16	250	4.76	1.24	19	60	1200	29	5	2	3.85	36	36	58
4	4.16	250	4.76	1.24	19	60	2000	29	5	2	3.85	36	36	58
5	4.16	350	4.76	1.19	19	60	1200	41	5	2	4.0	49	49	78
5a	4.16	350	4.76	1.19	19	60	2000	41	5	2	4.0	49	49	78
6	4.16	350	4.76	1.19	19	60	3000	41	5	2	4.0	49	49	78
8	7.2	500	8.25	1.25	36	95	1200	33	5	2	6.6	41	41	66
9	7.2	500	8.25	1.25	36	95	2000	33	5	2	6.6	41	41	66
11	13.8	500	15	1.30	36	95	1200	18	5	2	11.5	23	23	37
12	13.8	500	15	1.30	36	95	2000	18	5	2	11.5	23	23	37
13	13.8	750	15	1.30	36	95	1200	28	5	2	11.5	36	36	58
14	13.8	750	15	1.30	36	95	2000	28	5	2	11.5	36	36	58
15	13.8	1000	15	1.30	36	95	1200	37	5	2	11.5	48	48	77
15a	13.8	1000	15	1.30	36	95	2000	37	5	2	11.5	48	48	77
16	13.8	1000	15	1.30	36	95	3000	37	5	2	11.5	48	48	77

High Close and Latch Capability Circuit Breakers (these ratings exceed ANSI-C37.06)

	4.16	250	4.76	1.24	19	60	1200 2000	29	5	2	3.85	36	36	78
	13.8	500	15	1.30	36	95	1200 2000	18	5	2	11.5	23	23	58
	13.8	750	15	1.30	36	95	1200 2000	28	5	2	11.5	36	36	77

*General Electric magne-blast circuit breakers are designated as Type AM-"kV"-"MVA". For example, this breaker is Type AM-4.16-250.

NOTES

1. Maximum voltage for which the breaker is designed and the upper limit for operation.

2. K is the ratio of rated maximum voltage to the lower limit of the range of operating voltage in which the required symmetrical and asymmetrical interrupting capabilities vary in inverse proportion to the operating voltage.

3. To obtain the required symmetrical interrupting capability of a circuit breaker at an operating voltage between 1/K times rated maximum voltage and rated maximum voltage, the following formula shall be used:

$$\text{Required Symmetrical Interrupting Capability} = \text{Rated Short-circuit Current} \times \frac{\text{(Rated Max. Voltage)}}{\text{(Operating Voltage)}}$$

For operating voltages below 1/K times rated maximum voltage, the required symmetrical interrupting capability of the circuit breaker shall be equal to K times rated short-circuit current.

4. With the limitation stated in 04-4.5 of ANSI C37.04, all values apply for polyphase and line-to-line faults. For single phase-to-ground faults, the specific conditions stated in 04-4.5.2.3 of ANSI C37.04 apply.

5. Current values in this column are not to be exceeded even for operating voltages below 1/K times rated maximum voltage. For voltages between rated maximum voltage and 1/K times rated maximum voltage, follow (3) above.

ANSI-C37.06 symmetrical rating basis is supplementary to ANSI-C37.6 (total current rating basis) and does not replace it. When a changeover from the total current basis of rating to the symmetrical basis of rating is effected the older standards will be withdrawn.

In accordance with ANSI-C37.06, users should confer with the manufacturer on the status of the various circuit breaker ratings.

6. Suffix Letter Explanation

A = Breaker equipped with two, 7 point secondary disconnect couplers & trip interlock. Design to be compatible with older type MI switchgear equipment.

B = Breaker designed for high momentary duty rating.

C = Breaker equipped with type "ML" (stored energy) operating mechanism but designed to be compatible (inter-

H = Breaker equipped with Herkovlite® primary bushings.

HH= Breaker equipped with Herkovlite® primary bushings designed for 13.8 kV application.

SH= Breaker equipped with standard or ML-13 (stored-energy) operating 6H mechanism.

R = Breaker designed for repetitive duty, such as arc furnace application.

HARDY

7 ARRAY 5A 50

$850 EA.

LA 50 A.
SINGLE
M.O. D.O.

AS-IS

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