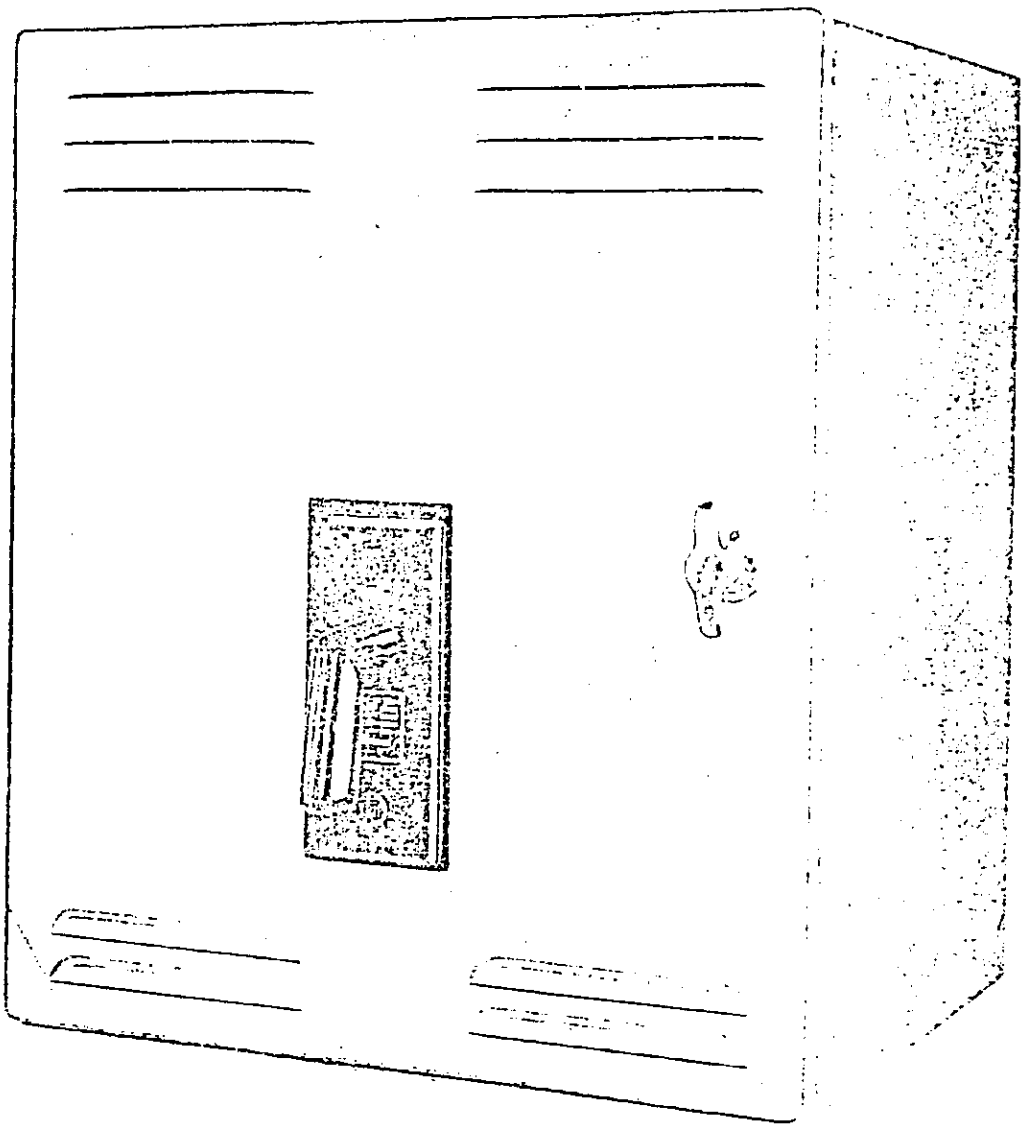
AIR CIRCUIT BREAKERS

FILE COPY

TYPE RS AIR CIRCUIT BREAKERS



ROLLER-SMITH CORPORATION, BETHLEHEM, PA.

TYPE RS AIR CIRCUIT BREAKERS

APPLICATION

The new RS-15 A and RS-25 A Air Circuit Breakers were developed to protect feeder circuits and for main breakers on low voltage systems. Dependability is a built in feature of these ruggedly, constructed breakers. Maintenance costs are low even under frequent operation.

Type	Poles	Interrupting Rating RMS Amperes	Standard Rating Volts	Standard Rating Amperes
RS-15 A	2-3	15,000	0-250 volt D.C. 0-600 volt A.C.	15 to 225 inclusive*
RS-25 A	2-3	25,000	0-250 volt D.C. 0-600 volt A.C.	35 to 600 inclusive*

* Standard Ampere ratings are as follows:-
15, 20, 25, 35, 50, 70, 90, 100, 125, 150, 175, 200, 225, 250, 300, 350, 400, 500 and 600.

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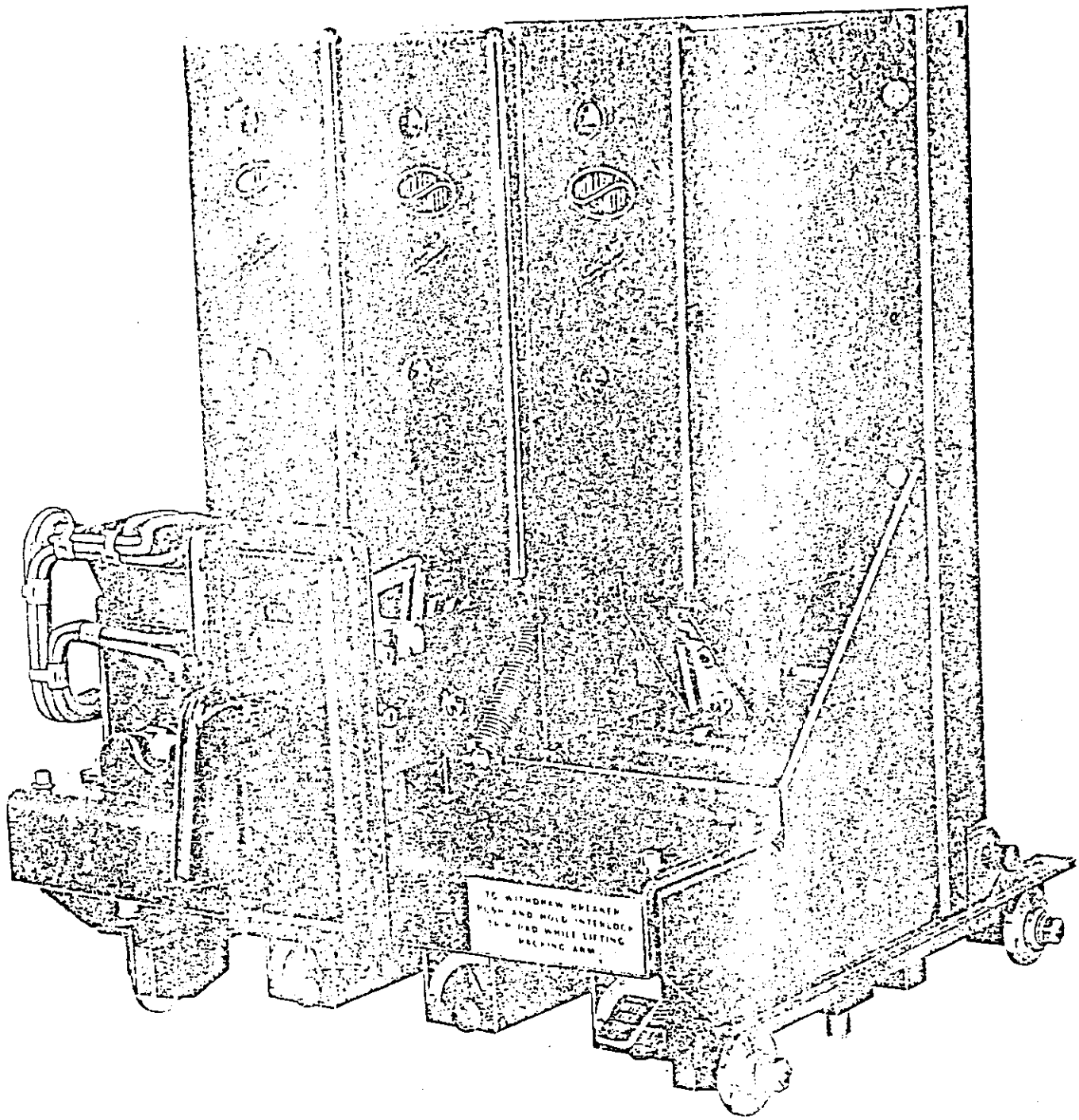


Front View of RS-15 and RS-25A Breakers.

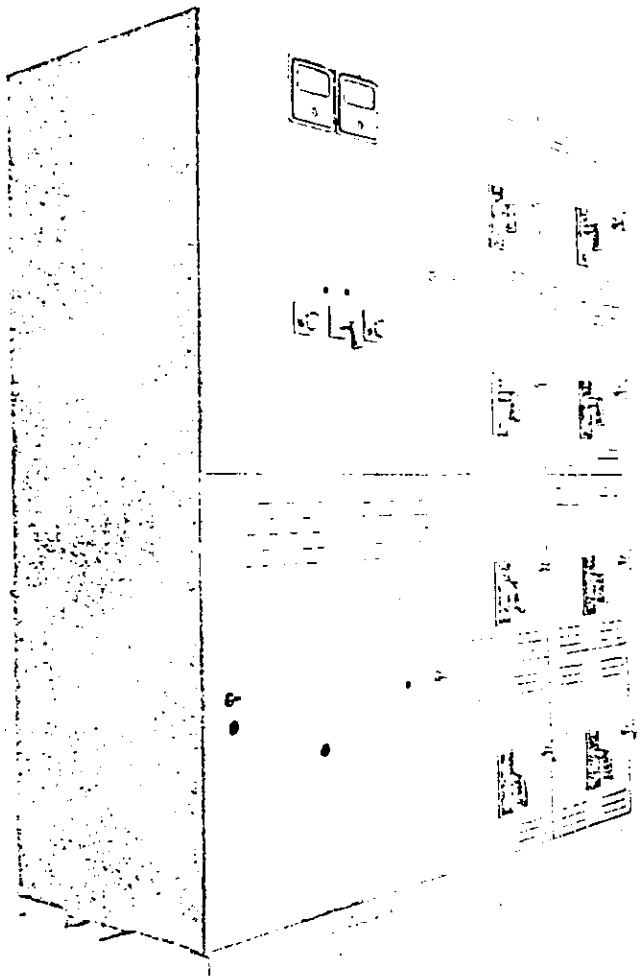


Figure 10—Front of Switchboard showing Rotary Handle.

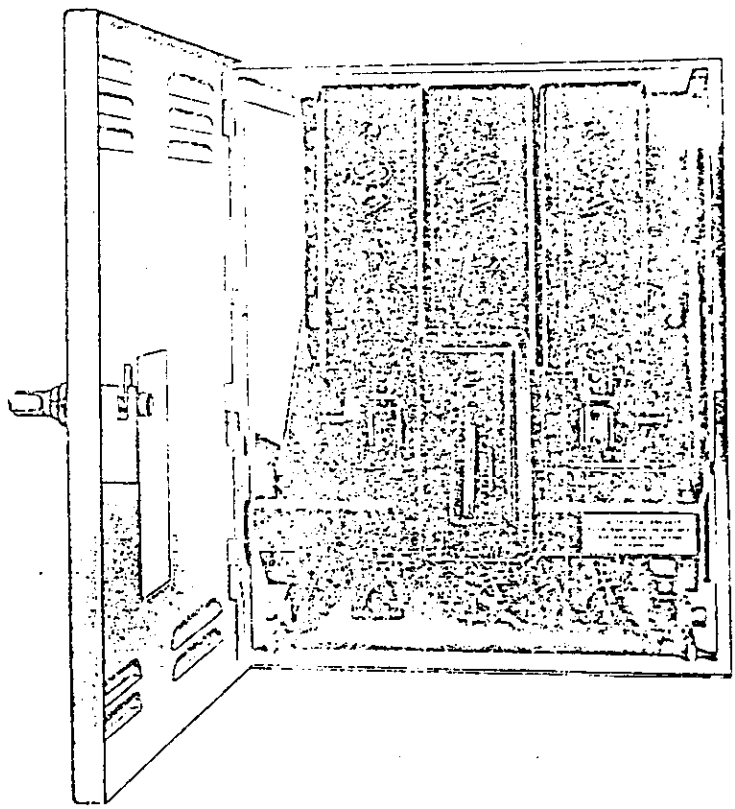
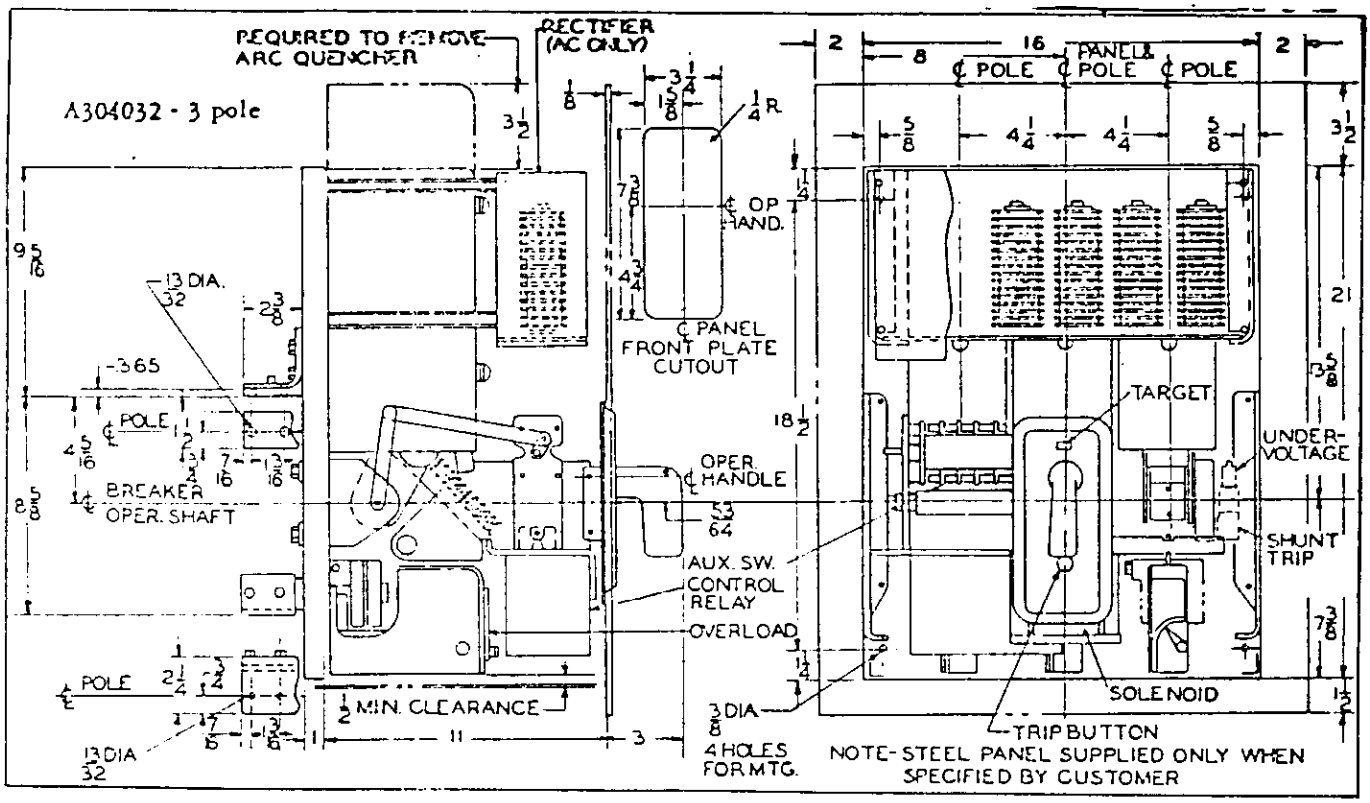
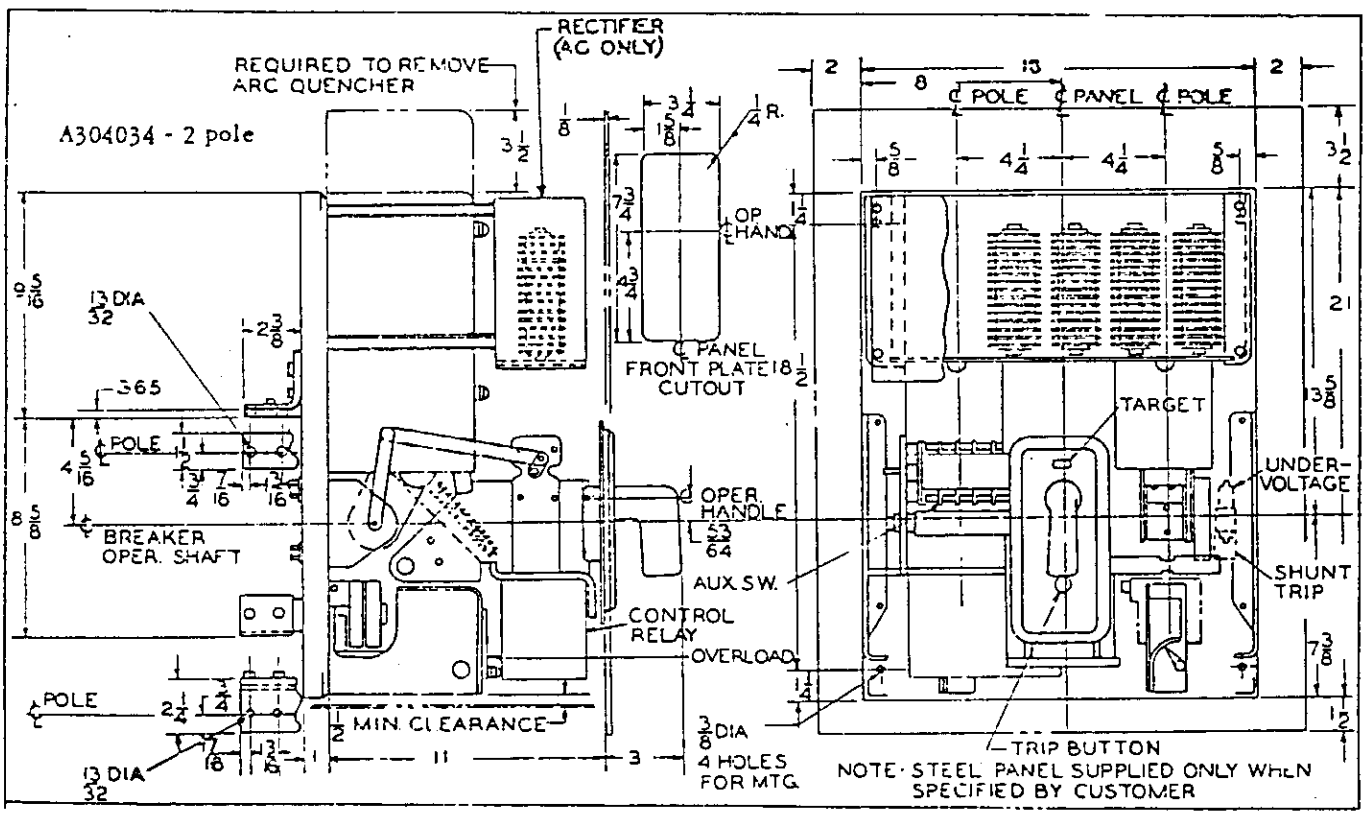


Figure 11—Drawout Type Breaker in Switchboard Compartment.

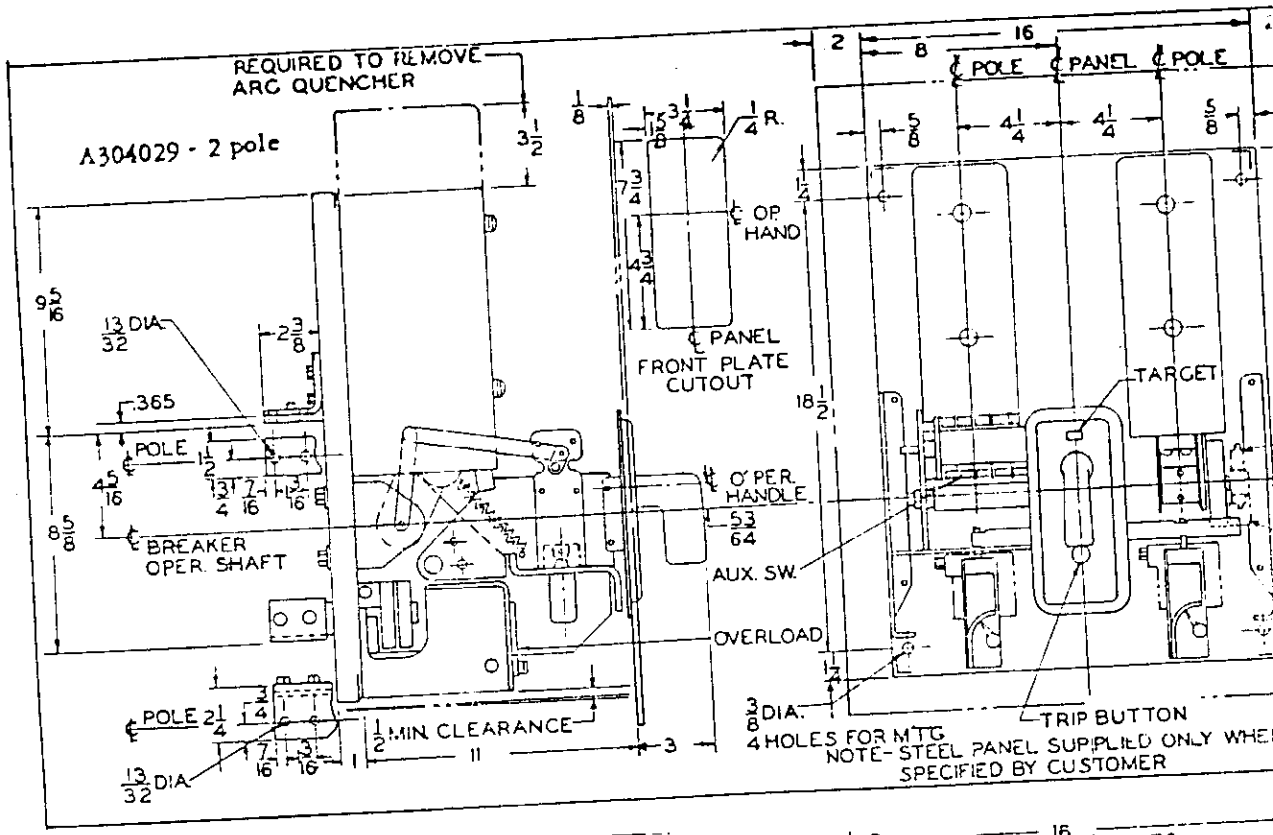
AIR CIRCUIT BREAKERS

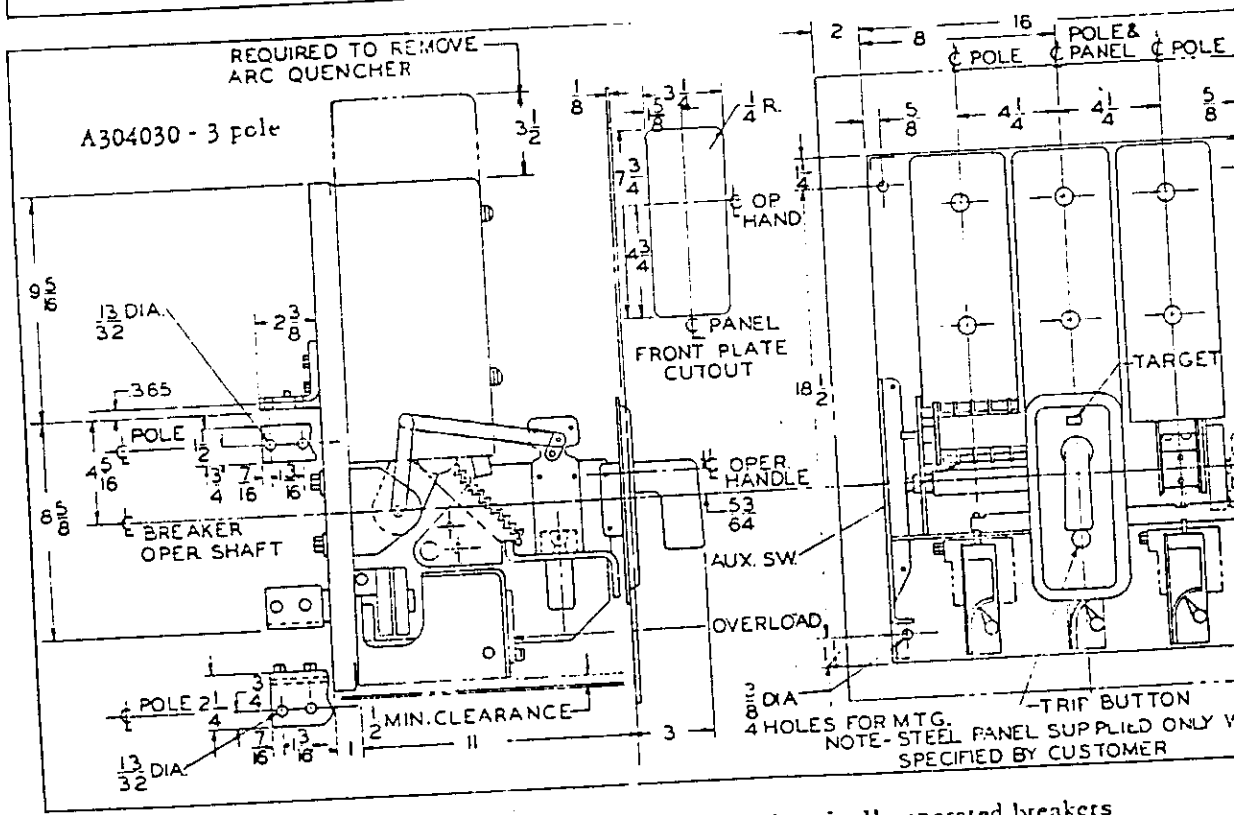




Figures 8 and 9 – Manually and Solenoid operated breakers
15 to 225 amperes 2 and 3 pole RS 15 A Dead Front
35 to 600 amperes 2 and 3 pole RS 25 A Dead Front
(Dimensions are for references only.

AIR CIRCUIT BREAKERS

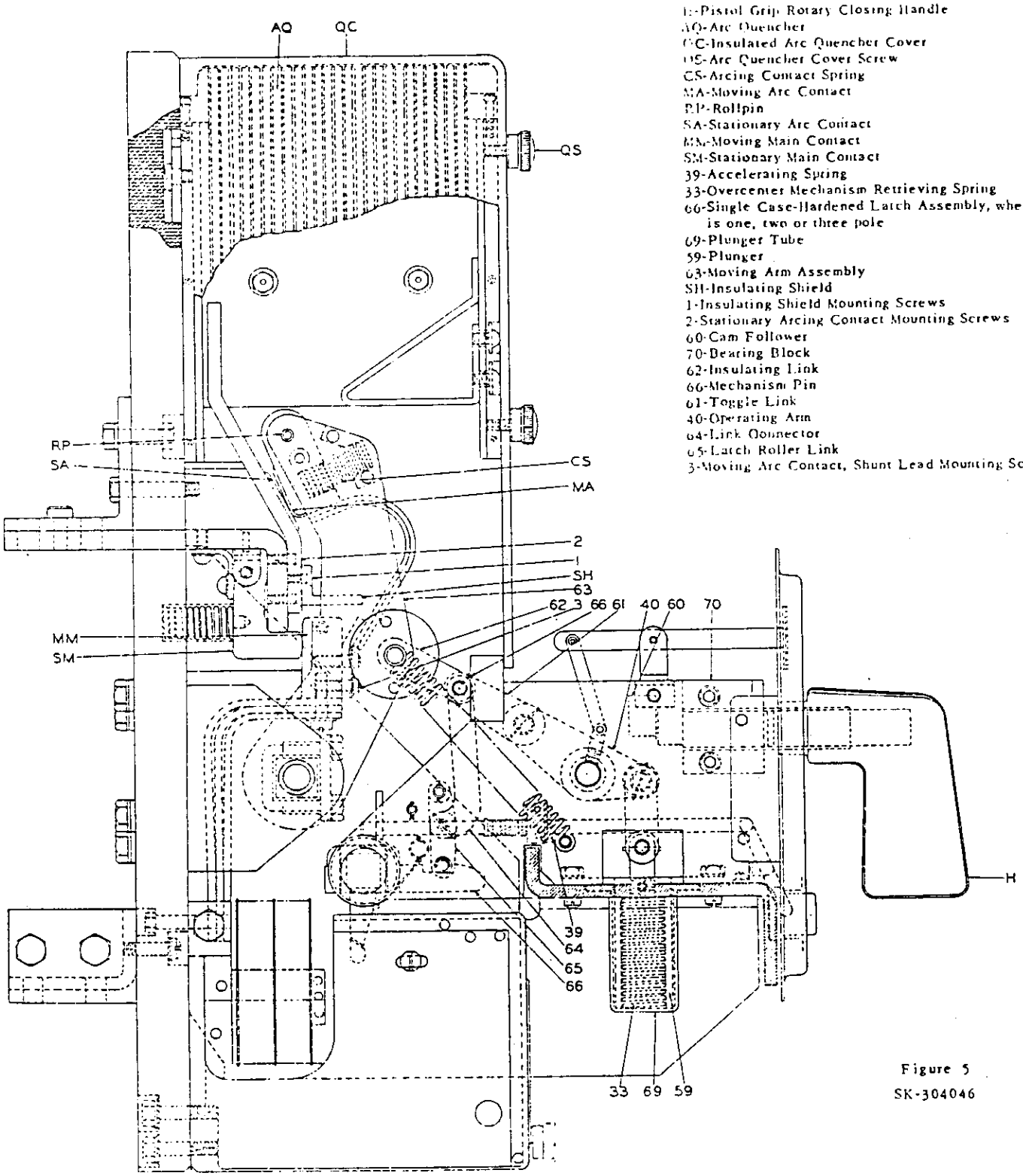




Figures 6 and 7 – Manually and Electrically operated breakers
15 to 225 amperes 2 and 3 pole RS 15 A Dead Front
35 to 600 amperes 2 and 3 pole RS 25 A Dead Front
(Dimensions are for references only.

AIR CIRCUIT BREAKERS

BASIC BREAKER - SIDE VIEW



I-Pistol Grip Rotary Closing Handle
AQ-Arc Quencher
QC-Insulated Arc Quencher Cover
QS-Arc Quencher Cover Screw
CS-Arcing Contact Spring
MA-Moving Arc Contact
RP-Rollpin
SA-Stationary Arc Contact
MM-Moving Main Contact
SM-Stationary Main Contact
39-Accelerating Spring
33-Overcenter Mechanism Retrieving Spring
66-Single Case-Hardened Latch Assembly, whether breaker is one, two or three pole
69-Plunger Tube
59-Plunger
63-Moving Arm Assembly
SH-Insulating Shield
1-Insulating Shield Mounting Screws
2-Stationary Arcing Contact Mounting Screws
60-Cam Follower
70-Bearing Block
62-Insulating Link
66-Mechanism Pin
61-Toggle Link
40-Operating Arm
64-Link Connector
65-Latch Roller Link
3-Moving Arc Contact, Shunt Lead Mounting Screw

Figure 5
SK-304046

ARC-MILL* ARC QUENCHER

The RS-15 A and RS-25 A Air Circuit Breakers utilize the arc-Mill arc quencher to extinguish the arc, at full or fractional interrupting capacity, without external flame with minimum noise. Fig. 1 shows the essential parts of the Quencher and breaker contacts.

When the breaker opens, the main contacts (A & B) part first, then the arcing contacts (C & D). The arc is first established between (C & D), then the arc moves upward from the moving contact(D) to the arc chopper (E).

Intensive magnetic forces are established by the current of the arc which are further amplified by the side irons (G & H). These magnetic forces drive the arc up the arc chopper (E) and the extended stationary contact (C) thereby rapidly lengthening the arc. The arc is forced up into the cooling fins (I), which are electrically insulated from the circuit and each other, thus breaking the arc into short arcs. These small arcs are rapidly cooled and extinguished. The small amount of gas resulting from the interruption is dissipated downward - there is no external flame.

*ARC-MILL - Denotes breaking the arc into small arcs, and by rapid cooling, extinguishes them quickly, (within the first cycle.)

DUAL MAGNETIC OVERLOAD

DUAL MAGNETIC OVERLOAD–(Reference figure 4 and Cross Section figure 5).

This overload calibrated to permit adjustable trip setting at 80, 100, 120, 140 and 160 percent of the specified coil rating. Instantaneous trip is factory set at 1000 percent unless otherwise specified, but a setting anywhere between 800% and 1500% may be supplied, if specified. For motor starting applications, a setting of 1500% is recommended in order to "rideout" the initial D.C. transients associated in such applications.

Details of the overload are shown in the cross sectional view of Figure 5. The moving armature, item 28, is coupled to the time delay oil dashpot mechanism by means of the instantaneous spring, item 29. For values of overcurrent below the instantaneous trip setting, the armature is pulled inward at the top and forces the movable cylinder of the dashpot mechanism upward. The time delay is inversely dependent on the amount of current flowing through the series coil–being long for low values of current and shorter for higher values of current. If the current exceeds the instantaneous setting of the overcurrent device, the armature bends the instantaneous spring and moves inward to strike the trip latch without causing any motion of the time delay assembly.

Easy interchangeability or replacement of overcurrent devices is permitted.

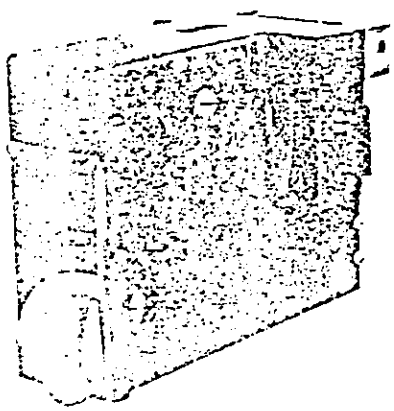


Fig. 4 RS-15 A and RS-25 A Dual Magnetic Overload Assembly.

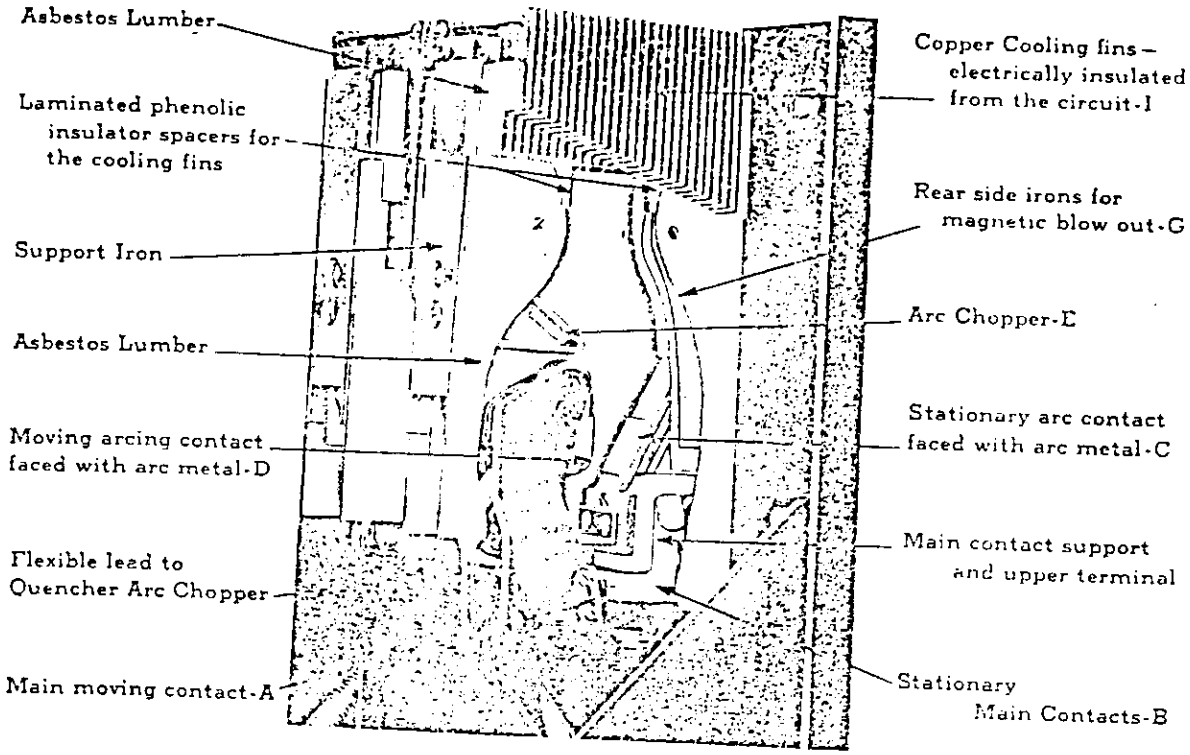


Fig. 1 Cut away view of Arc-Mill arc quencher of the RS-15A and RS-25A Air Circuit Breaker. The insulated quencher cover has been removed.

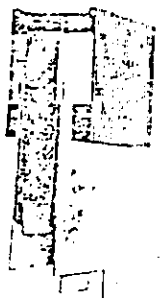


Fig. 3 Arc-Mill arc quencher assembly without insulated cover.

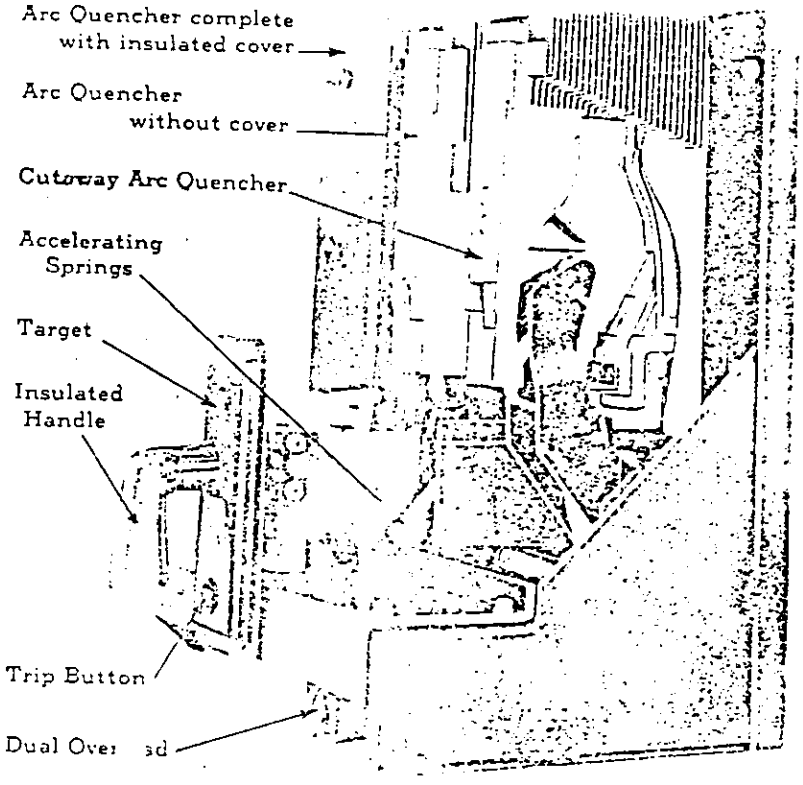


Fig. 2 RS-25A - 3 pole - 3 overload - Manually operated with cut-away Arc Quencher, Rigid Stationary Mounted Breaker in open position.