

INSTRUCTIONS

for
the Installation, Care and Operation
of Circuit Breakers and Accessories

FILE COPY

FALLSAFE TIME DELAY
ELECTRO-MAGNETIC LATCH SUPPLEMENT
FOR AIR MAGNETIC BREAKERS

BWX- 6653 - 2

These instructions are not intended to cover all details or variations that may be encountered in connection with the installation, operation, and maintenance of this equipment.
Should additional information be desired contact the Allis-Chalmers Mfg. Company.

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OPENING OF THE BREAKER Fig. 15

Opening of the breaker is accomplished either electrically or manually. Biased latch (9) has a clockwise moment about fixed pin (G) due to the restraining forces of the opening springs (7). Hook latch (13) attached to armature (16) prevents rotation of latch (9) when held in position by the magnetic force of holding magnet (15). Energization of trip coil (14) shunts the magnetic flux away from the trip armature (16) allowing it to rotate counterclockwise about pin (J). Hook latch (13) rotates with the armature and releases trip latch (9). Temporarily fixed center "E" is thereby released, enabling link (6) to rotate clockwise about center "F". Since the restraining force on opening springs (7) is now released, they act to rapidly open the breaker contacts. Reset spring (8) then acts to return the mechanism to the normal open position shown in Fig. 13. Manual tripping is as above except that the hook latch is rotated counterclockwise about fixed pin (K) by pulling on the chain attached to the magnetic trip unit.

The tripping action described above can take place at any time during a closing operation, either manual or electrical, and regardless of whether or not the armature is energized. Thus the mechanism is electrically and mechanically trip free in any position.

TRIPPING UNIT (Fig. 7)

On this application, the main operator latch is released by a special biased faced latch (Item 7) held in by the hook latch on the magnetic unit armature.

In proper adjustment, the latch unit is set by shims (Item 6) so that the latch bite (Dim. A) of latch (Item 7) is $1/16"$ on the latch roll when the breaker is closed and latched. It is further adjusted by loosening bolts (Item 9) to give $1/16"$ plus $1/32"$ minus $.0"$ bite, (Dim. B) on the hook latch surface.

The magnetic latch works on the principle of deflection of the hold in coil (1) magnet flux from its path thru the armature to a path through the coil gap when the tripping coil (14) is energized, thereby reducing the flux hold on the armature to the point where the biased latch (Item 7) forces the armature to drop away tripping the breaker.

Care should be taken to be sure the magnetic faces of armature and magnet are clean and free of foreign particles at all times to insure full holding power.

The lever (Item 17) is so shaped as to delay the resetting of the hook latch until the latch roll is reset.

To check proper operation of the lever-hold-hook-latch-forward-and-pull toggle roll (Fig. 4 Item 15) forward by pulling on pin ends throwing toggle in trip free position (Fig. 7-A). If lever slips by bolt (Fig. 7-B), add washer-under bolt to correct. Allowing linkage to slowly retract the lever (Item 17) should hold latch from recoupling on hook latch until bias latch is picked up by toggle roll (Fig. 7-C). If latch recouples (Fig. 7-D), bend end of lever to decrease angle x slightly to hold END off hook latch.

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The magnetic flux to hold latch in place is supplied by the hold in coil (Item 1) which is energized by the capacitor in the undervoltage unit. Loss of power from this capacitor allows the flux to decay releasing the latch to trip the breaker.

CAPACITOR UNDERVOLTAGE DEVICE (See Wiring Diagram 71-116-183-401)

This device forms the power source and time delay control for the hold in coil of the magnetic latch.

The coil is supplied by the capacitor which will hold the latch for 6 or 7 seconds. The resistor across the capacitor (a - 15000-ohm and a - 10,000 ohm adjustable) speed the bleed down of the capacitor. The 10,000 ohm resistor allows setting of from about 1/2 to 6 seconds.

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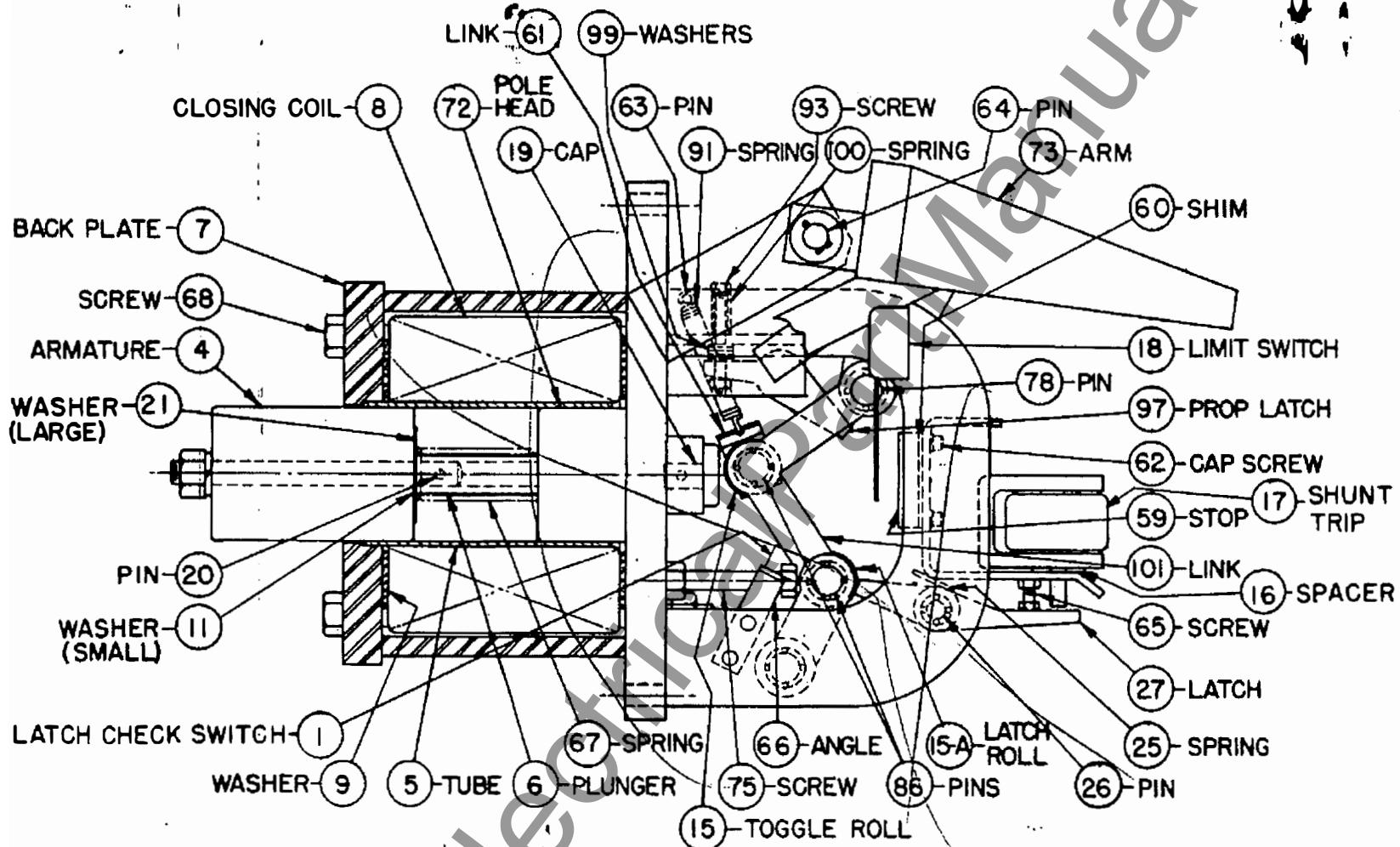


FIG. 4

TYPICAL OPERATOR ASSEMBLY

NOVEMBER 10, 1961

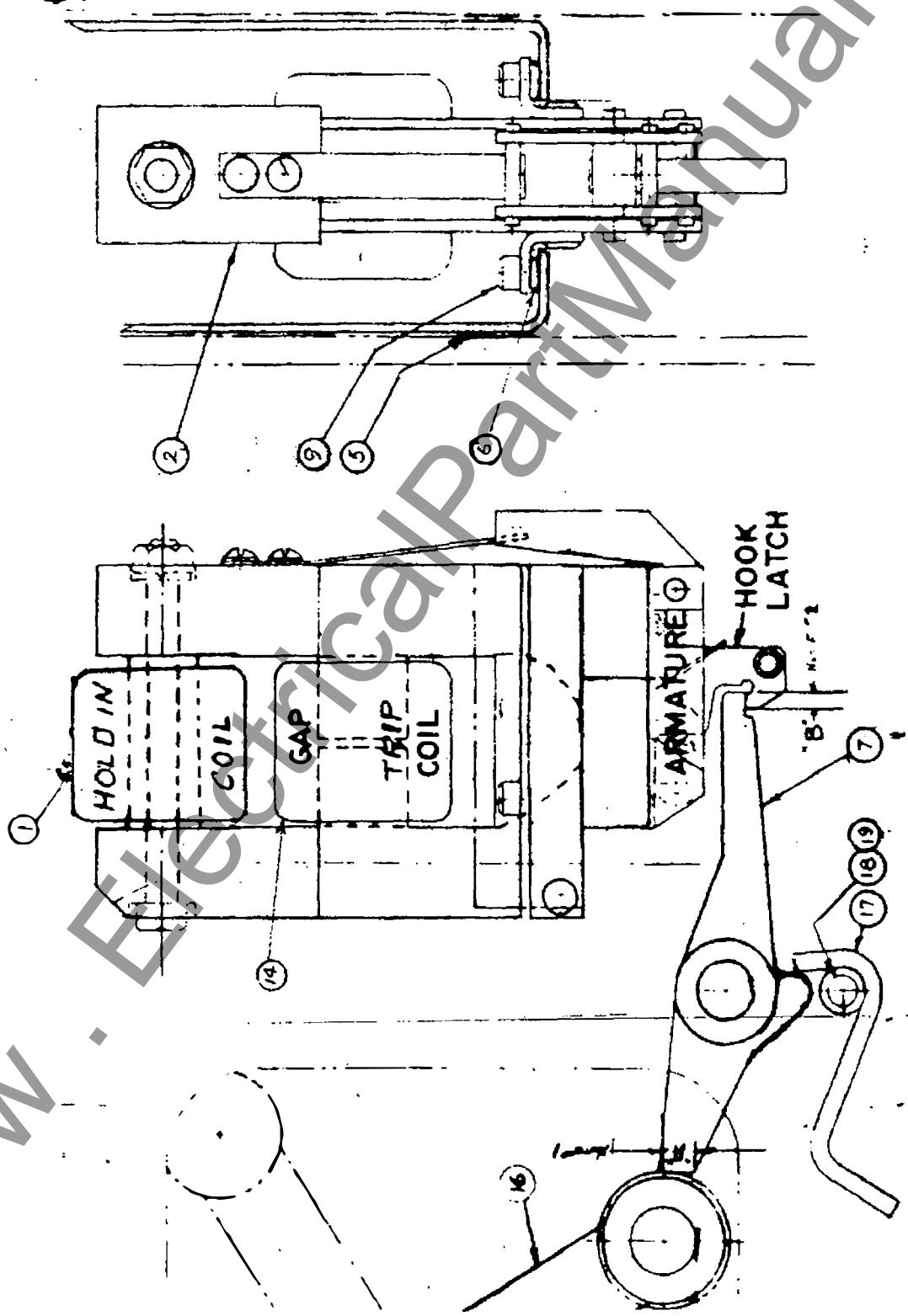
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TYPICAL MAGNETIC MOLDING ▲ TRIPPING UNIT

FIG. 7

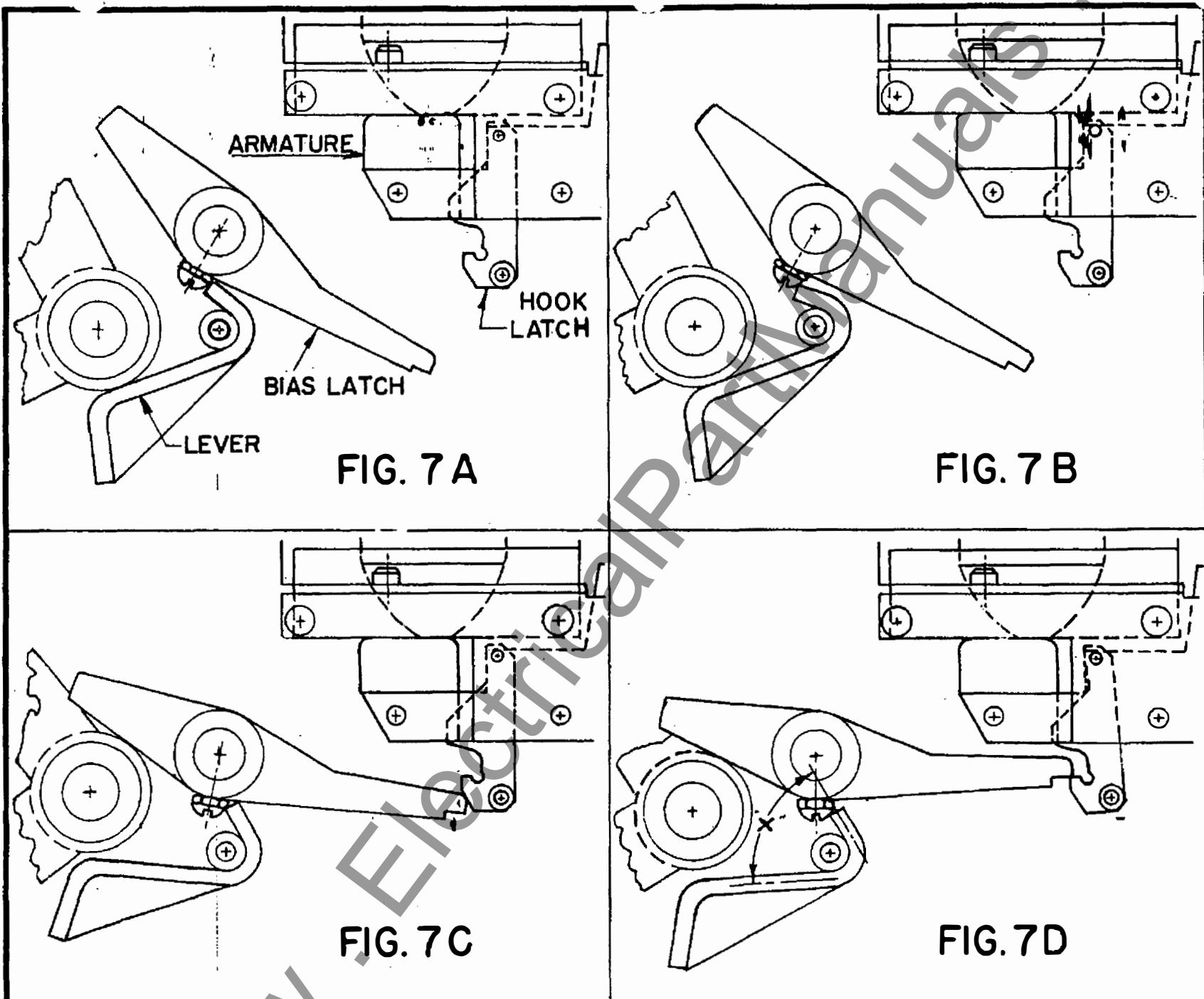


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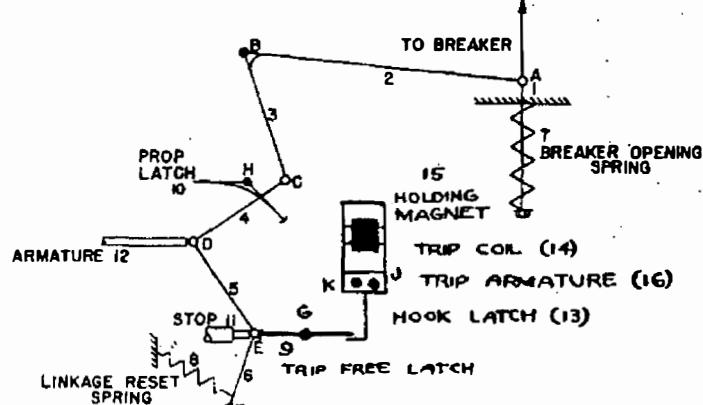
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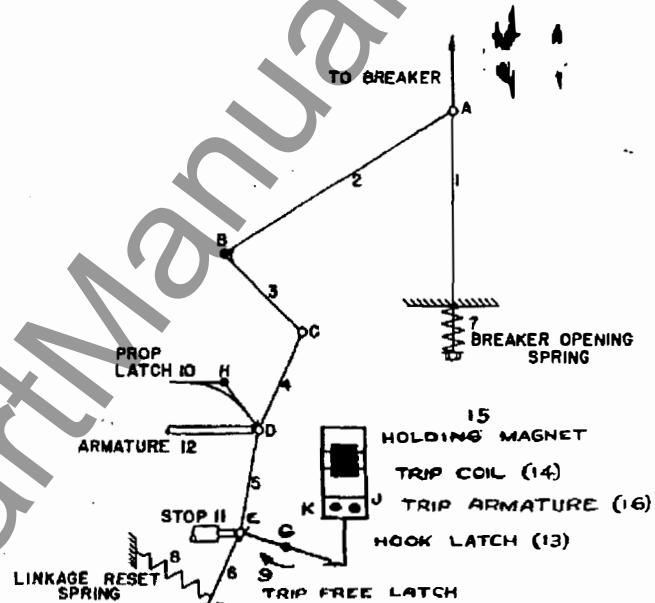
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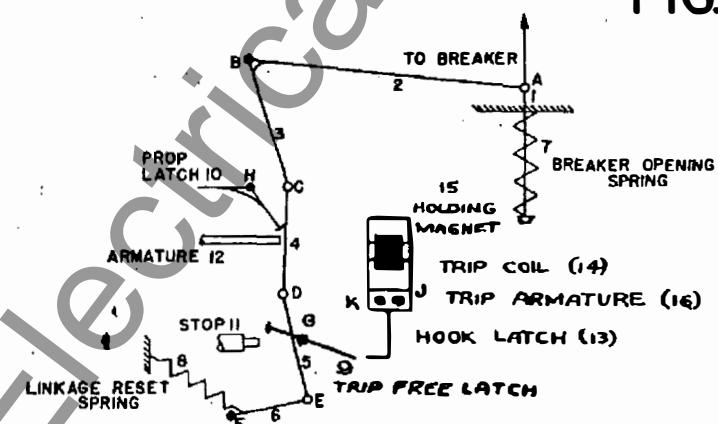
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OPEN
FIG. 13



CLOSED
FIG. 14

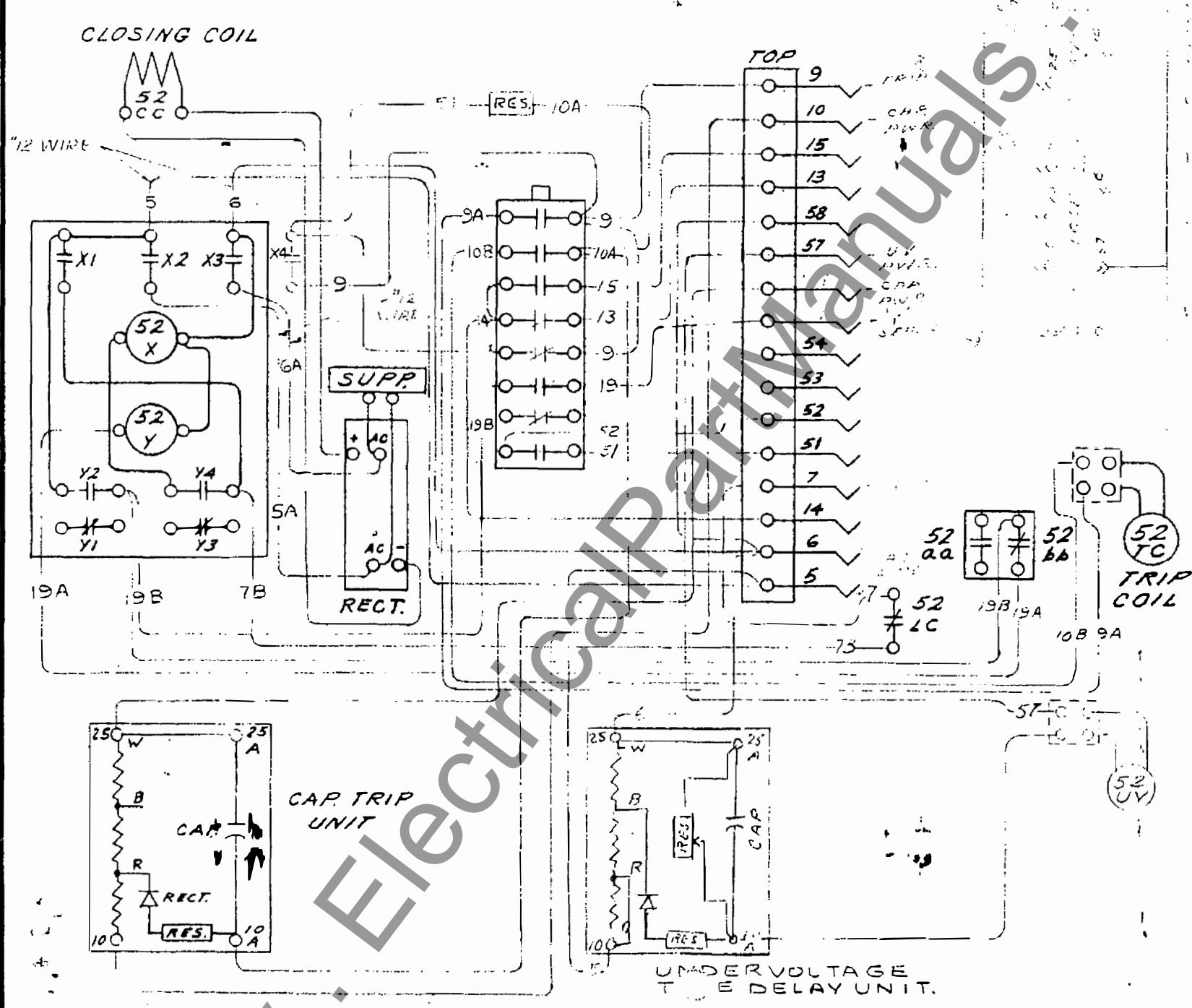


TRIP FREE
FIG. 15

TYPICAL OPERATOR LINKAGE DIAGRAM
SEPTEMBER 9, 1953

71-400-246-5

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MOVABLE PORTION
WIRING DIAGRAM
AC CLOSE S.A.P. TRIP

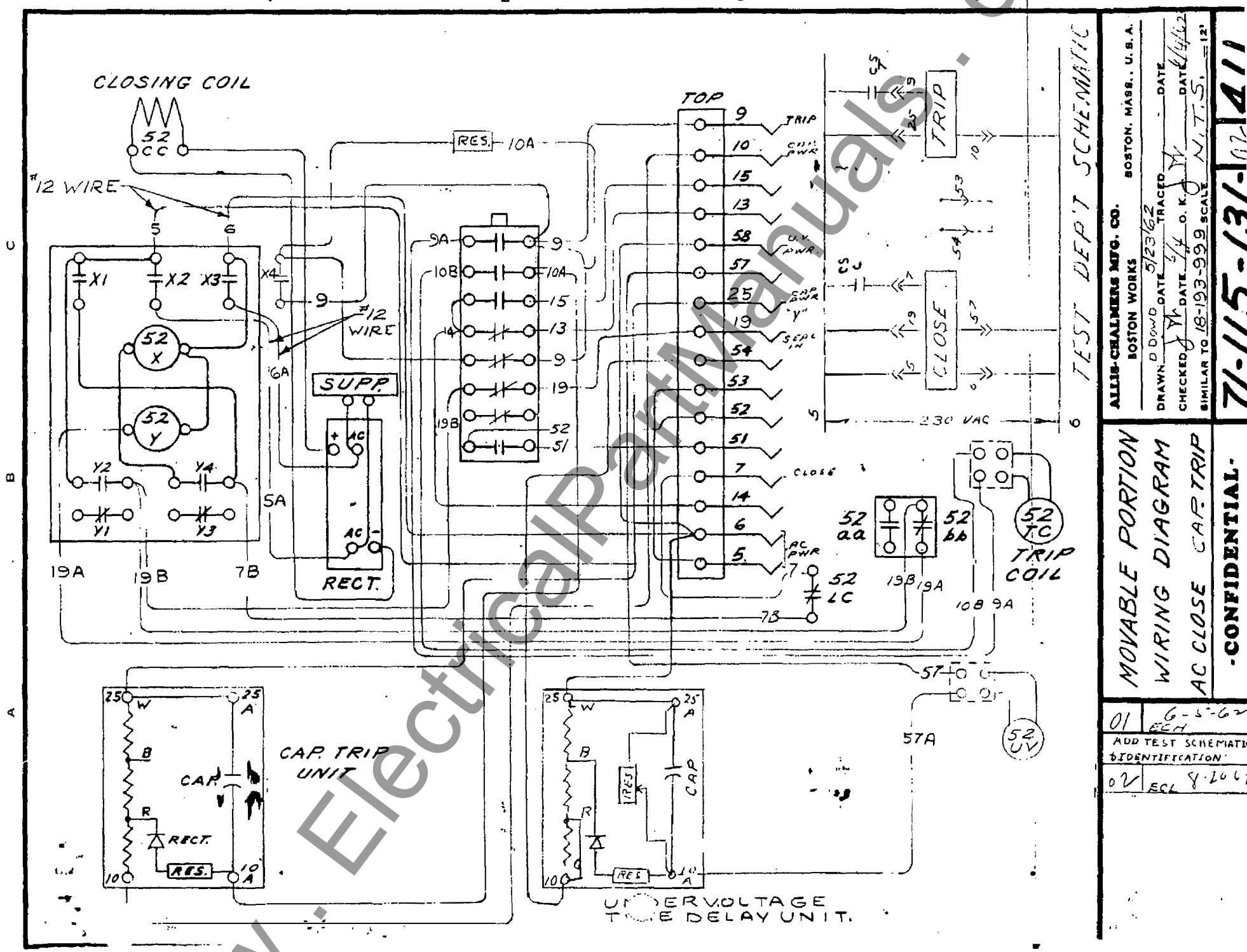
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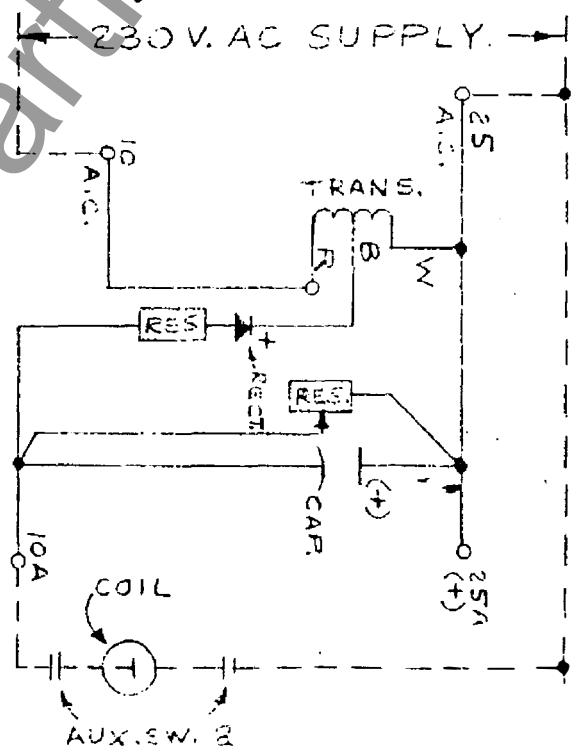
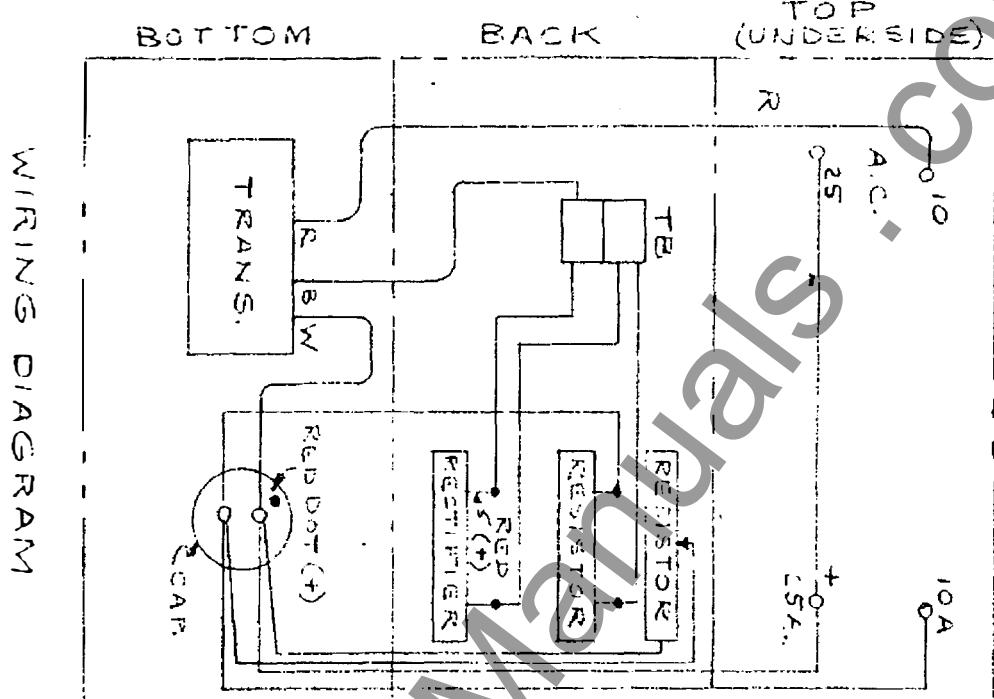
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U. V.	F-500	71-301550-505
APPLIC.	TYPE	USED ON

CONNECTION DIAGRAM CAP. TRIP DEVICE

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