DESCRIPTION • ADJUSTMENT • MAINTENANCE

INSTRUCTIONS

DynAC Brake*

The Alternating Current Dynamic Brake

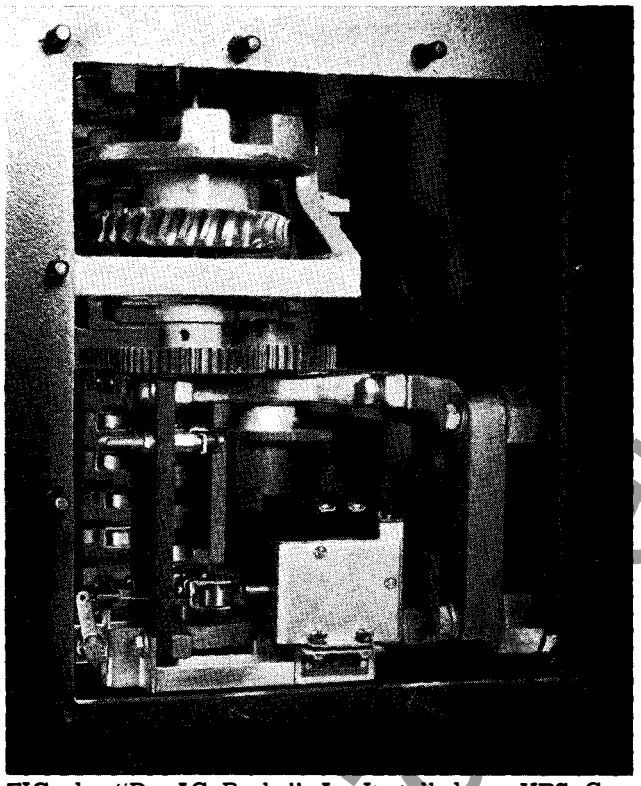

FIG. 1. "DynAC Brake" As Installed on URS Cam Switch Assembly

THE "DYNAC BRAKE" (pronounced "dine-ack") is a totally new means for the rapid deceleration of reversible capacitor type motors as used on tap changer drive mechanisms or other applications where quick acting electrical braking is required.

The "DynAC Brake" operates instantly when driving power is removed to give a smooth application of braking power with a minimum of strain on the motor shaft.

DESCRIPTION

The "DynAC Brake" is available in two styles: "Type M" where mechanical operation is desirable (see Fig. 2), and "Type E" solenoid-operated for other applications (Fig. 3).

The "Type M DynAC Brake" consists of the "DynAC" time delay relay complete with the mounting bracket, a cam operated brake arm, and brake resistors. The time delay relay and mounting bracket constitute one assembly and the resistors constitute another assembly. These assemblies are mounted in the cam switch compartment (air chamber) of the tap changer.

The "Type E DynAC Brake" consists of a solenoid operated time delay relay and its accompanying resistors mounted on a common base. It is normally mounted back of the control panel in the control compartment.

The basic mechanism of both types is the "DynAC" time delay relay (Fig. 4). This is a pneumatically controlled device which gives an application of power for braking of exactly the right duration. It has a built-in overtravel feature on the bellows operating plunger to ensure proper operation at all times, without necessity of exacting travel adjustments.

SEQUENCE OF OPERATION

The contacts of the "DynAC" time delay relay are closed mechanically or electrically by the cam switch assembly of the tap changer. This sets up the braking circuit which is completed by the closing of the back contacts of the motor control relay when the relay is de-energized. The "DynAC Brake" thus applies single-phase a-c power directly to both windings of the motor from the same supply leads for a sufficient length of time (as determined by the time delay setting) to permit the motor to come to rest. This braking power is removed by the "DynAC" time delay relay, after the mechanical or electrical force, which closed the contacts, has been removed by the proper positioning of the tap changer.

This gives alternating current dynamic braking action, bringing the motor to a quick, smooth stop.

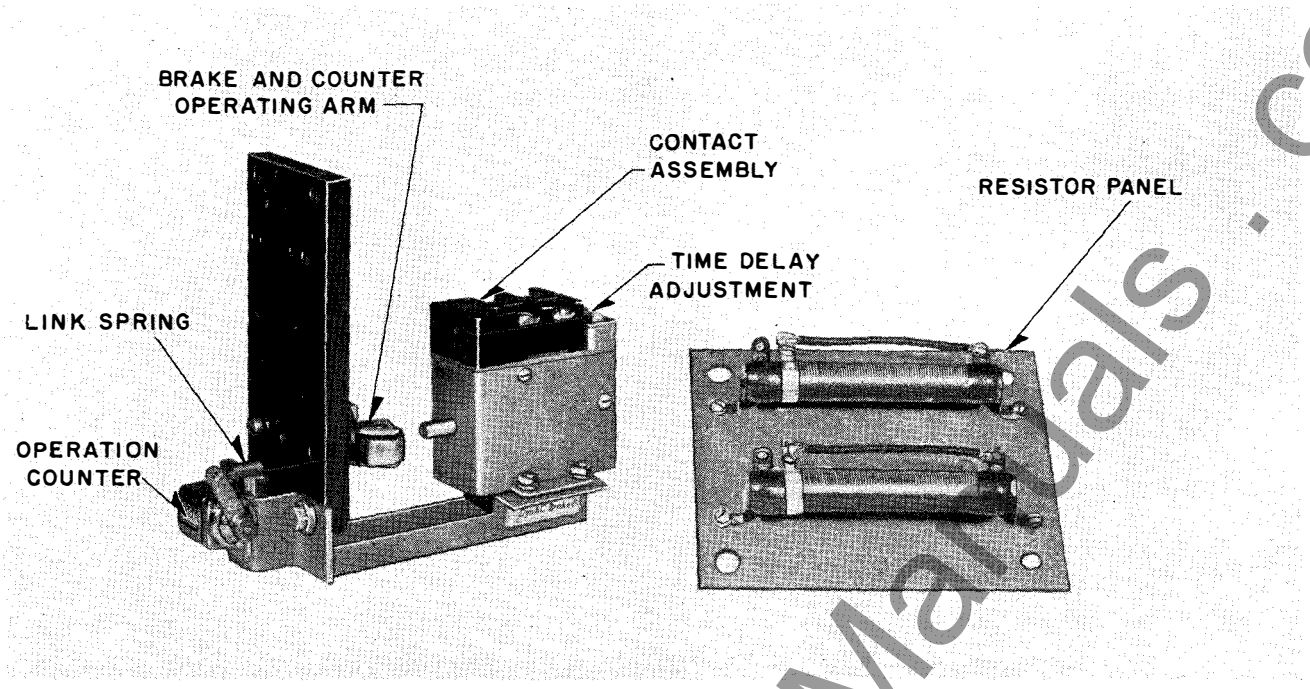

FIG. 2. "Type M DynAC Brake" for Mechanical Operation, with Mounting Bracket, Cam-Operated Brake Arm, and Brake Resistor Panel

ADJUSTMENT

The only major adjustment necessary is on the length of the time delay. The time from the removal of pressure from the plunger until the opening of the contacts of the "DynAC" time delay relay (snapping of the switch) should be approximately one half to one second. Turning the adjusting screw clockwise decreases the time delay, counter-clockwise increases the time delay. An approximate adjustment is made by turning the adjusting screw to the maximum delay setting and then reducing the delay by four full turns of the adjusting screw. See Fig. 4.

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Increasing the XL resistance (Fig. 5) decreases the braking torque applied as the motor is stopped after an operation in the "Lower" direction, hence the unit will stop with the "120" cam roller further onto the lobe of the "120" cam. Increasing the XR resistance gives the same effect in the raise direction. Since there is an interaction of the currents which pass through these resistors, it is sometimes necessary to readjust the XL resistance after the XR is adjusted, and vice versa.

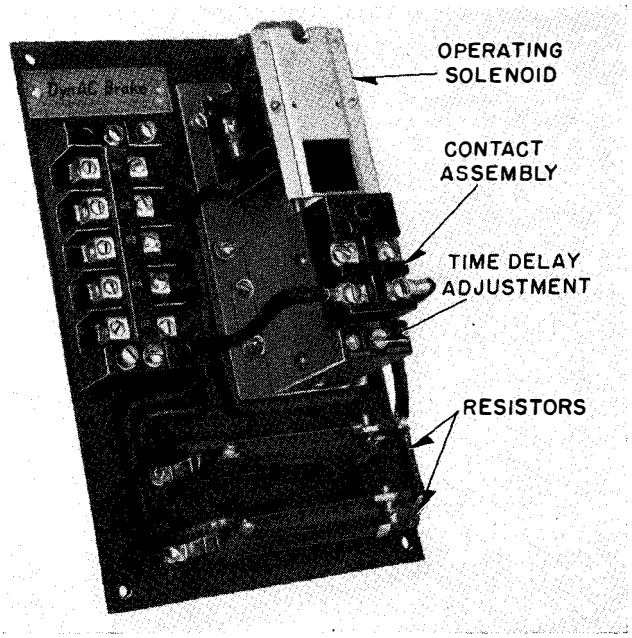
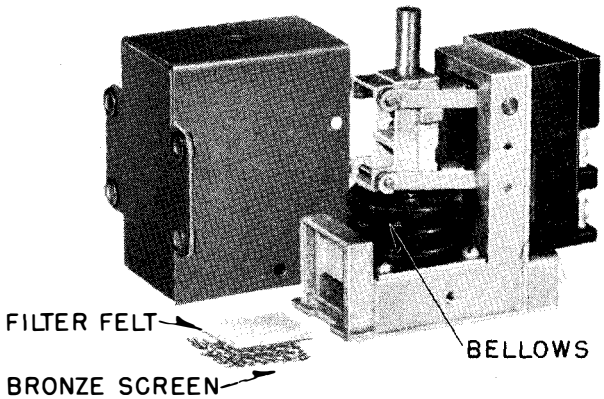
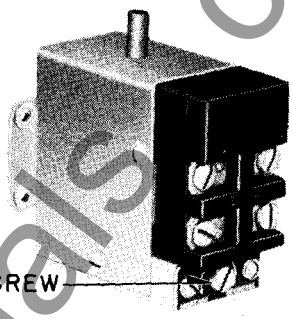


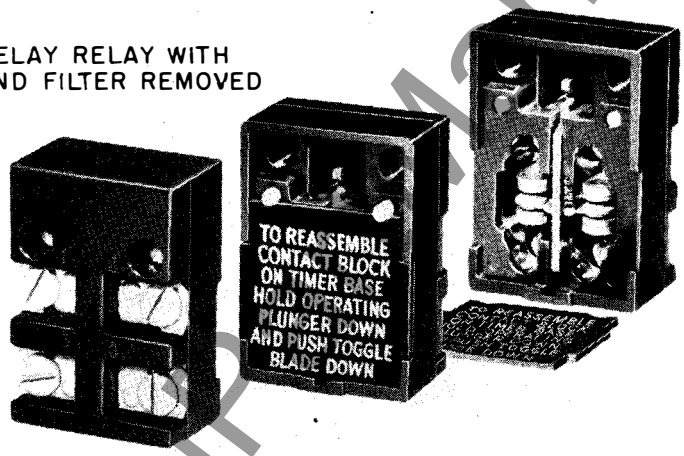
FIG. 3. "Type E DynAC Brake", Solenoid-Operated, with Brake Resistors on Common Base



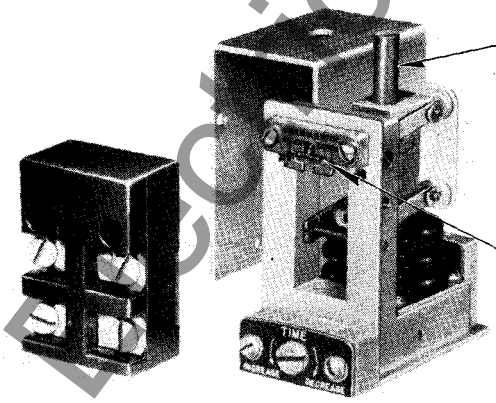
TIME DELAY RELAY WITH COVER AND FILTER REMOVED



TIME DELAY RELAY STYLE 1590708



CONTACT ASSEMBLY SHOWN IN THREE VIEWS STYLE 1608060



TIME DELAY WITH COVER AND CONTACT ASSEMBLY REMOVED WITH PLUNGER AND TOGGLE IN NORMAL POSITION

TIME DELAY ELEMENT OF RELAY SHOWN WITH PLUNGER AND TOGGLE DEPRESSED

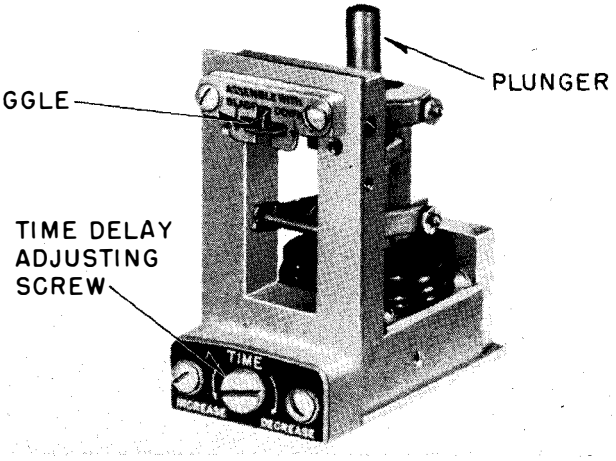


FIG. 4. Various Views of "DynAC Brake" Time Delay Relay and Contact Assembly

MAINTENANCE

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In extremely dusty locations the time delay mechanism should be removed from its case by the removal of the four screws, two on each side of the case, and the case thoroughly cleaned. The bronze screen should be removed from the recess and the filter felt cleaned with carbon tetrachloride prior to assembly (Fig. 4).

RENEWAL PARTS

The following renewal parts are available from the Sharon Works, Westinghouse Electric Corporation, through the nearest Westinghouse Sales Office:

Complete Solenoid Operated Time
Delay Relay (110 Volt Coil) . . S# 1590 746 (Fig. 7)
Time Delay Unit . . . . . S# 1590 708 (Fig. 4)
Contact Assembly . . . . . S# 1608 060 (Fig. 4)
Resistor . . . . . S# 1590 776 (Fig. 5)

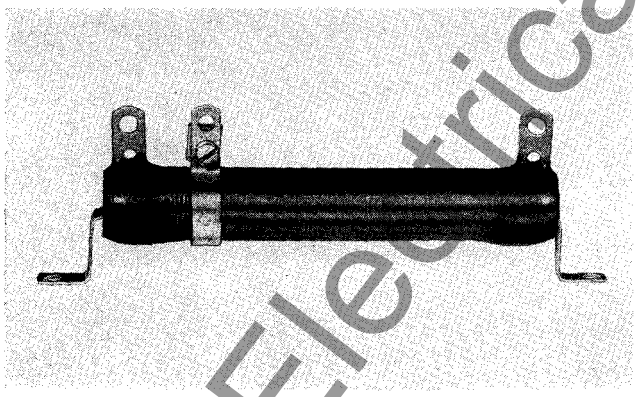

FIG. 5. Resistor S# 1590 776

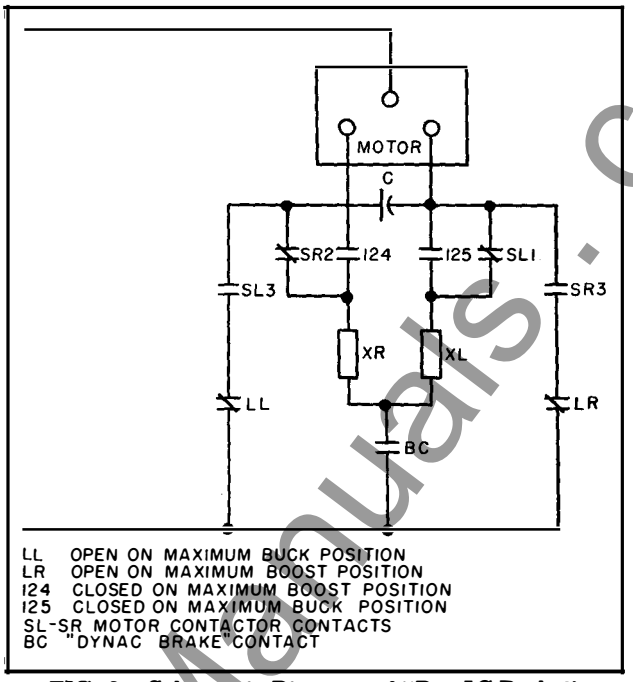

FIG. 6. Schematic Diagram of "DynAC Brake" Connections

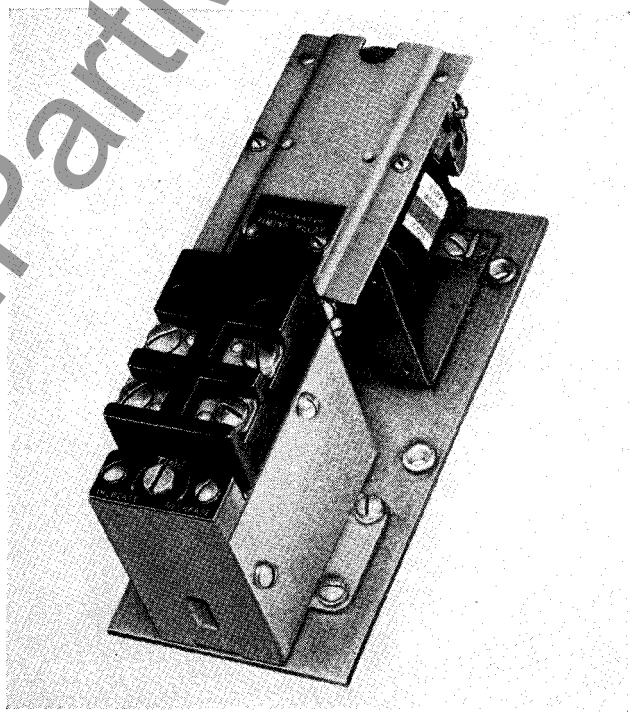

FIG. 7. Complete Solenoid Operated Time Delay (110 Volt Coil) S# 1590 746

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SHARON PLANT • TRANSFORMER DIVISION • SHARON, PA.
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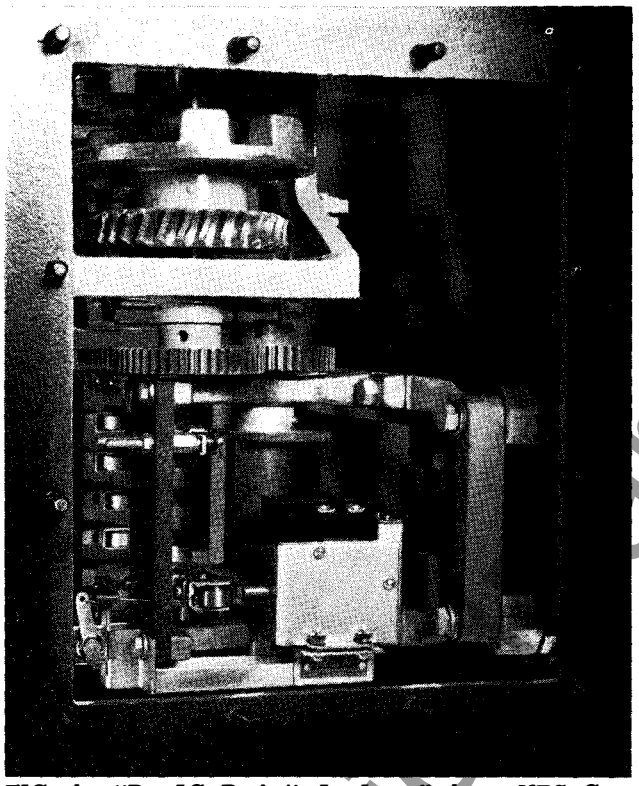
DESCRIPTION • ADJUSTMENT • MAINTENANCE

INSTRUCTIONS

DynAC Brake*

The Alternating Current Dynamic Brake



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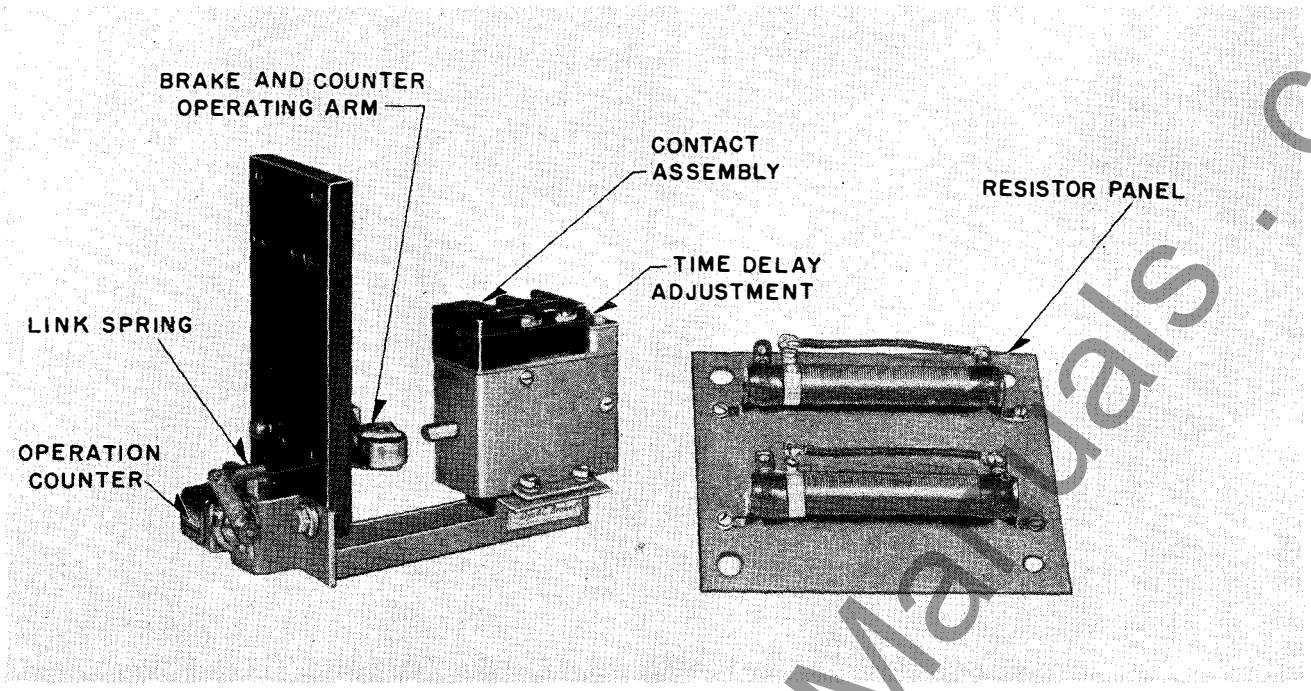

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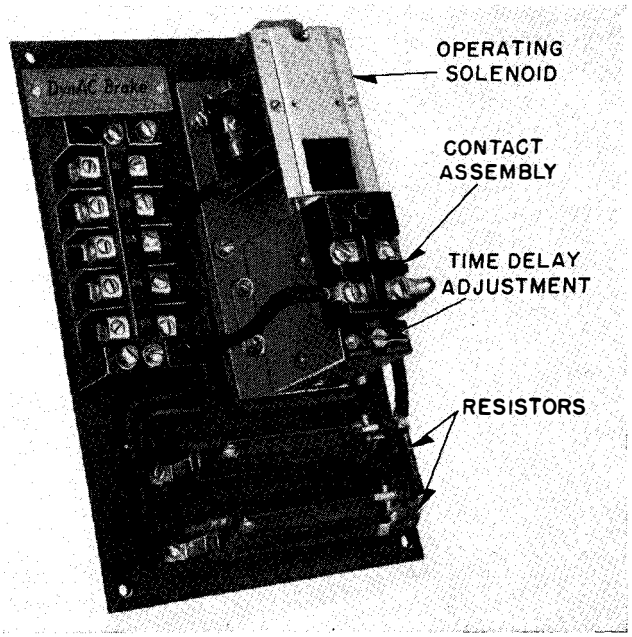
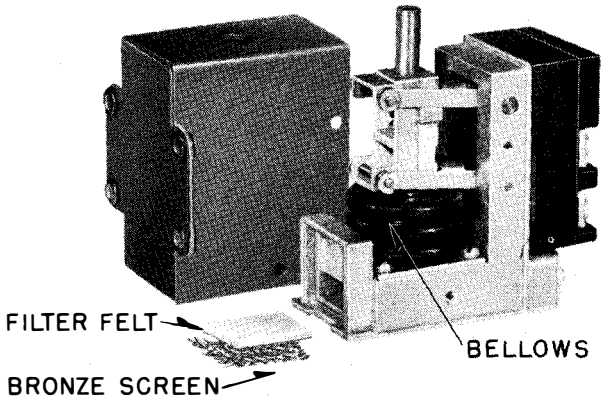
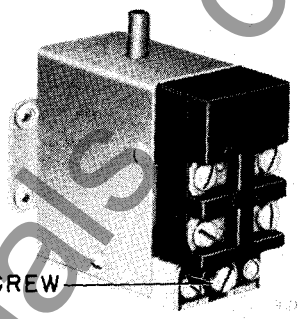


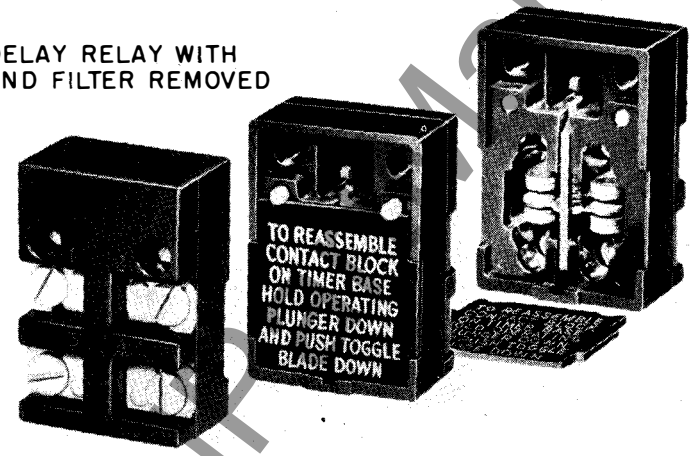
FIG. 3. "Type E DynAC Brake", Solenoid-Operated, with Brake Resistors on Common Base



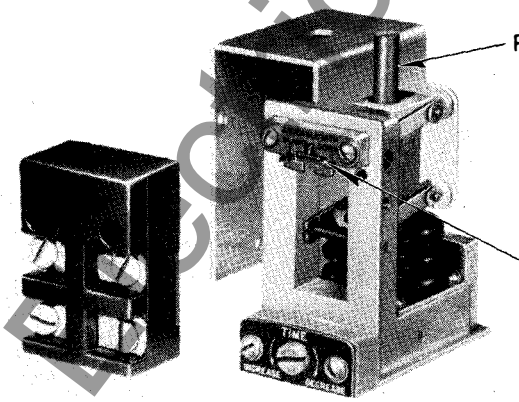
TIME DELAY RELAY WITH
COVER AND FILTER REMOVED



TIME DELAY RELAY
STYLE 1590708



CONTACT ASSEMBLY SHOWN IN THREE VIEWS
STYLE 1608060



TIME DELAY WITH COVER AND
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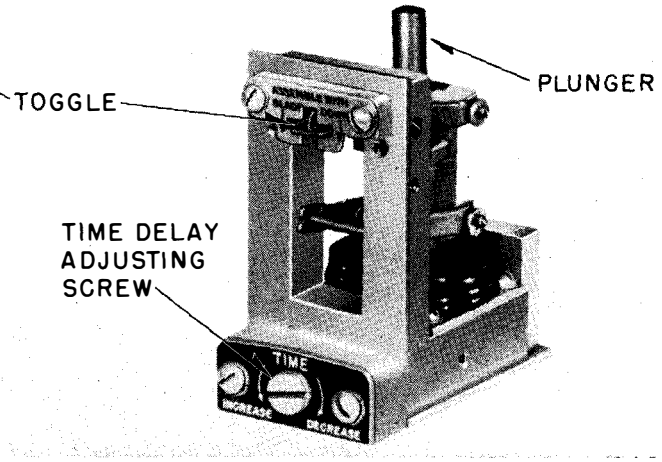

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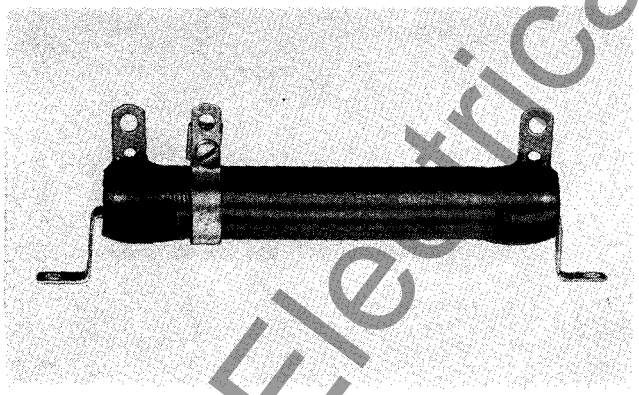

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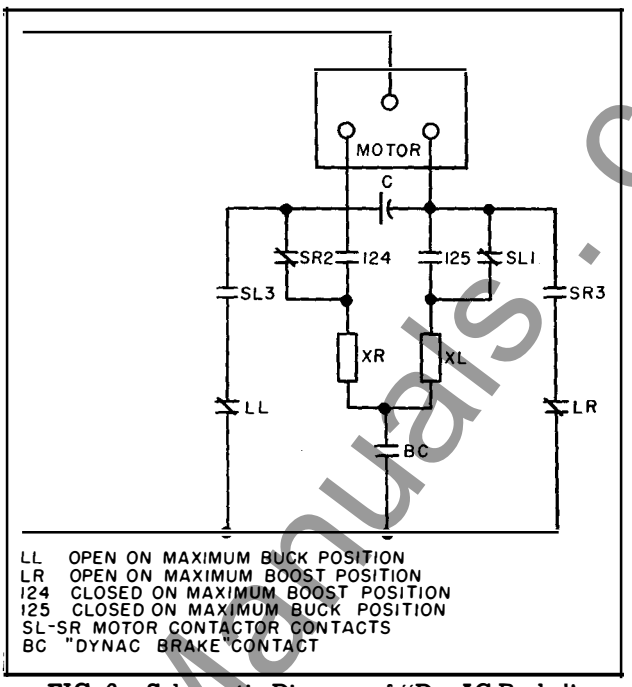

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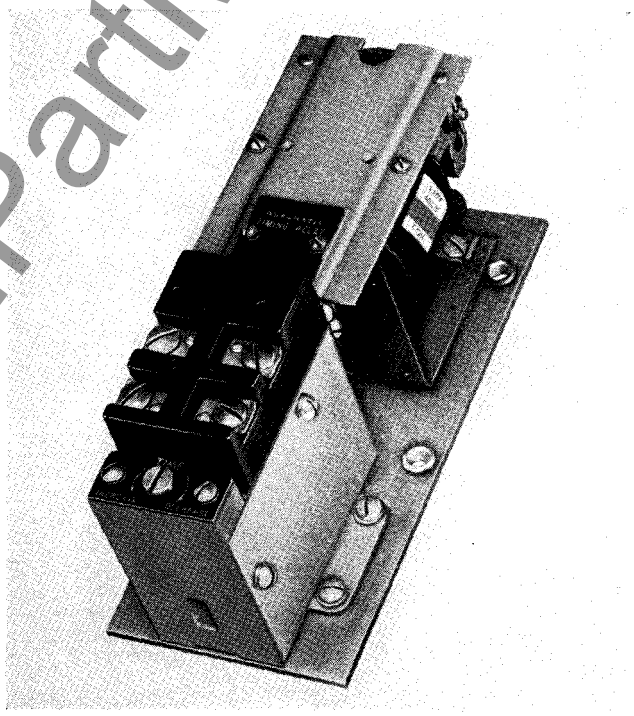

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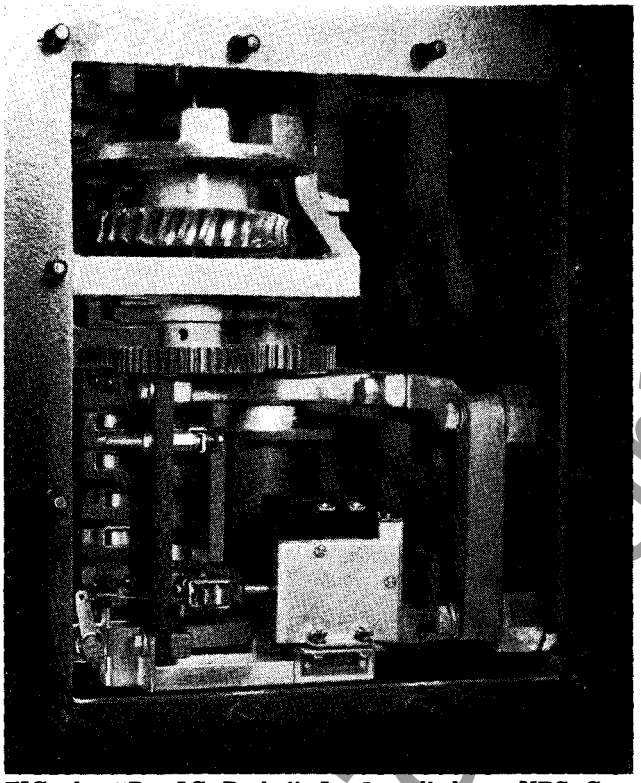

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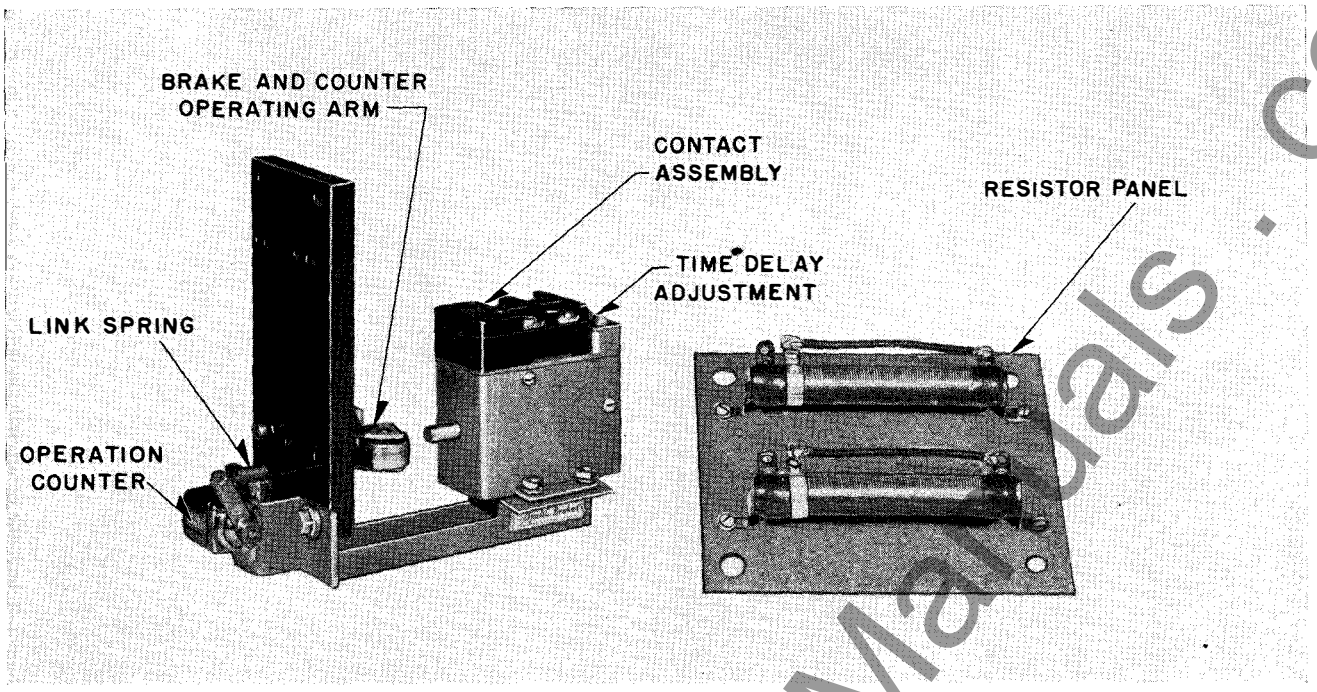

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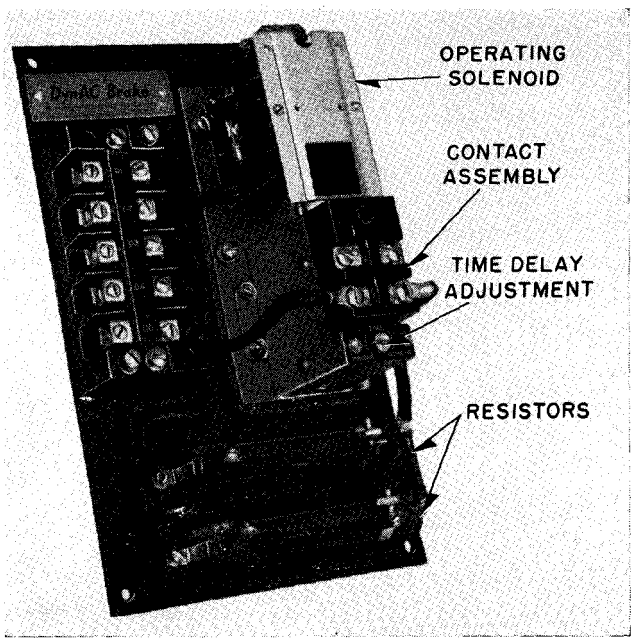

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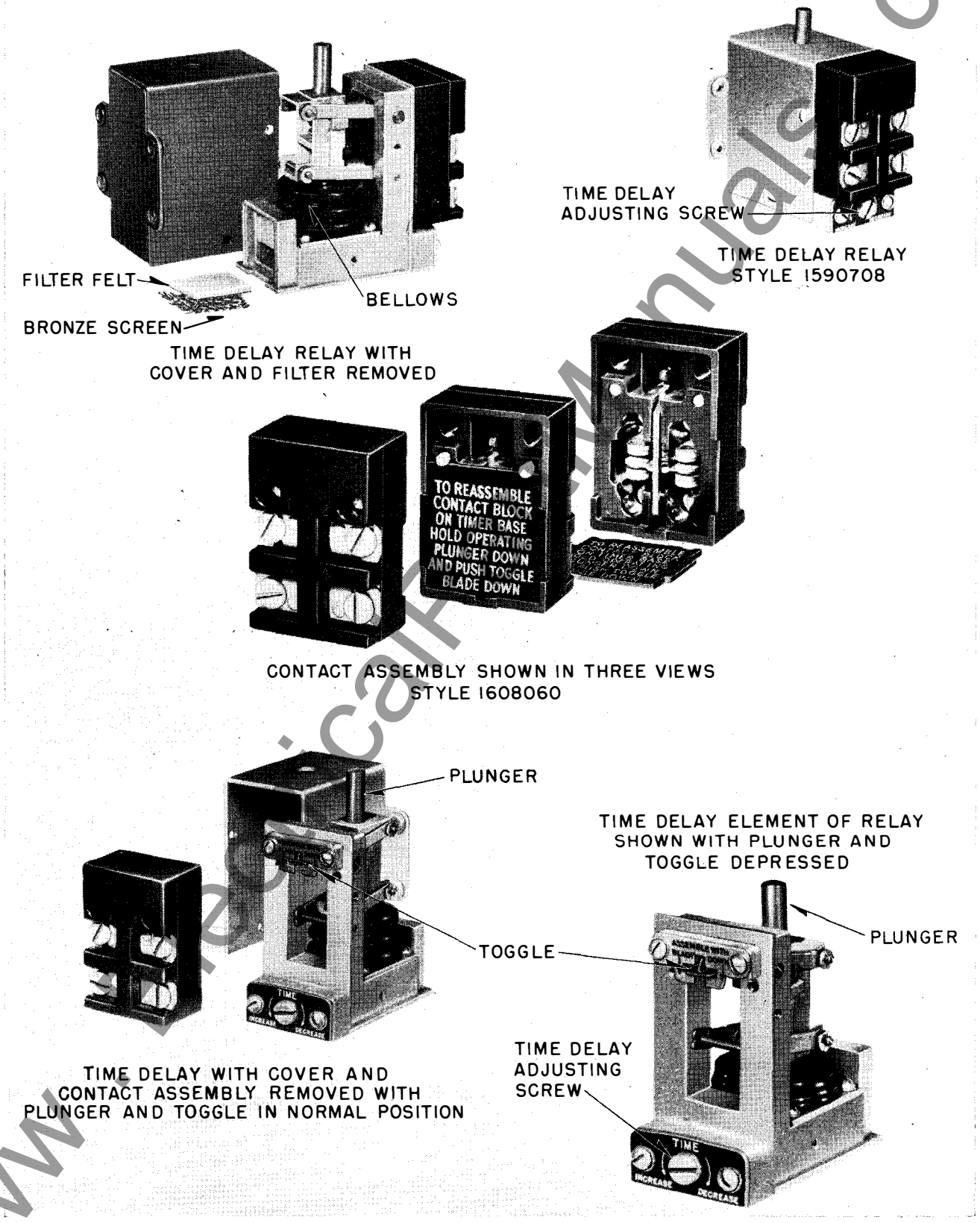

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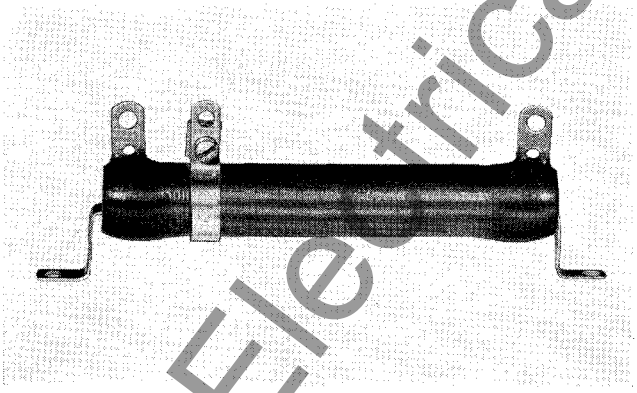

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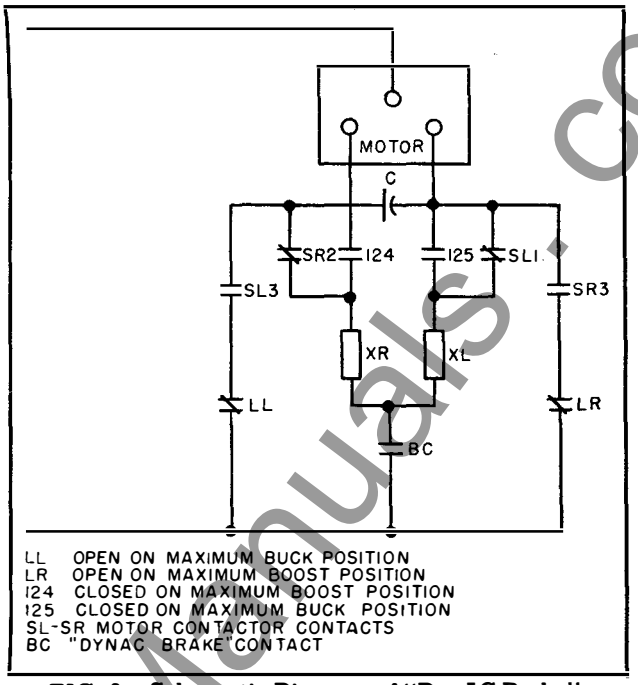

FIG. 6. Schematic Diagram of "DynAC Brake" Connections

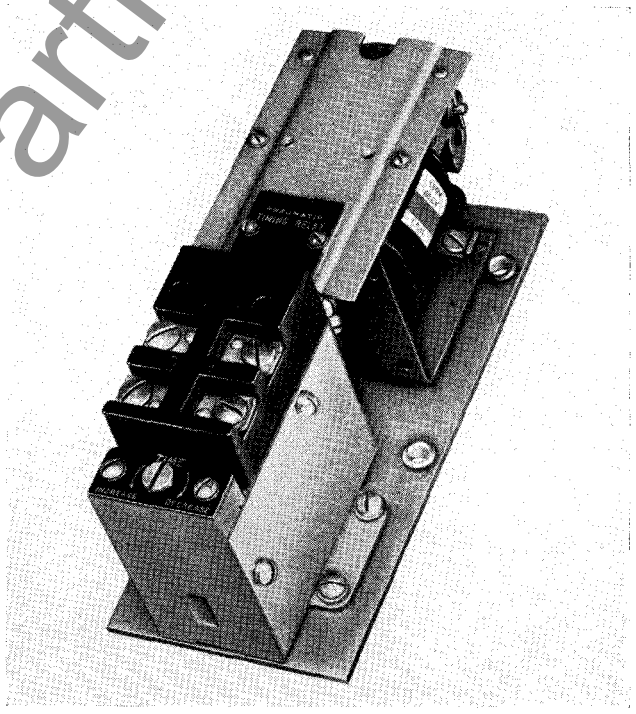

FIG. 7. Complete Solenoid Operated Time Delay (110 Volt Coil) S# 1590 746

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