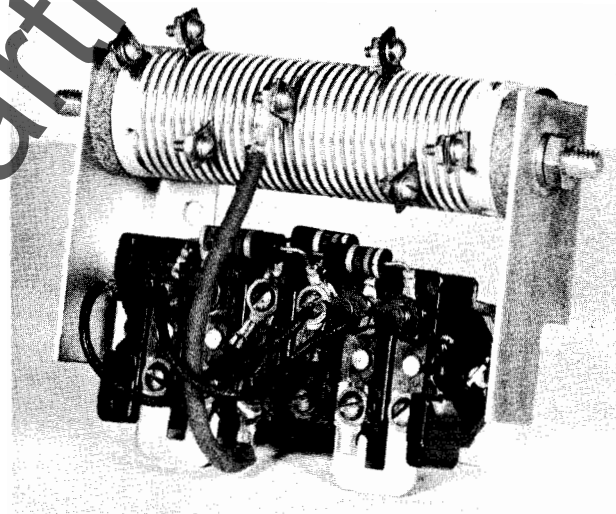
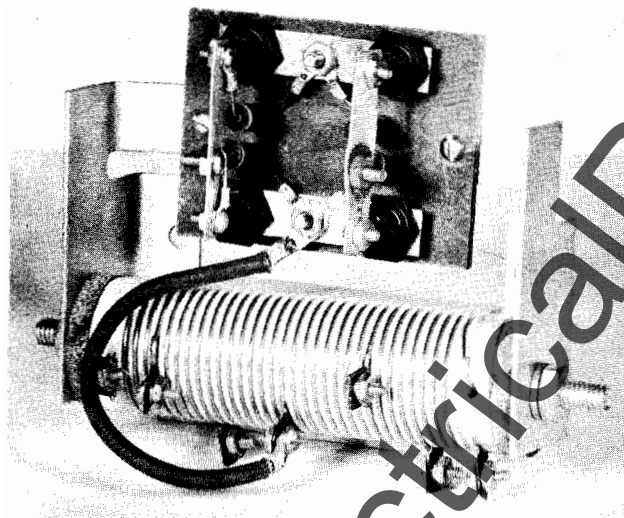




INSTRUCTIONS
AND
RENEWAL PARTS

GEI-77007C
SUPERSEDES GEI-77007B

SILICON RECTIFIERS FOR CIRCUIT BREAKER CLOSING SERVICE



SWITCHGEAR DEPARTMENT

GENERAL  ELECTRIC

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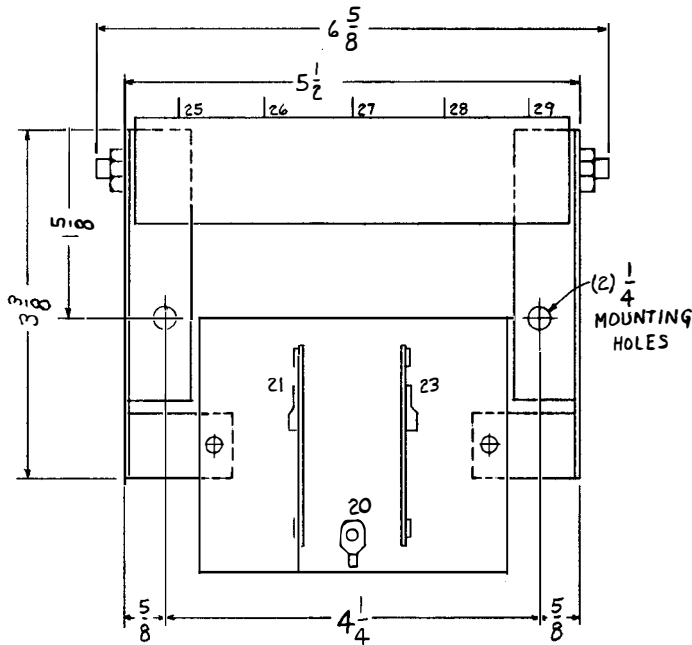


Fig. 1 Schematic of Rectifier Assembly

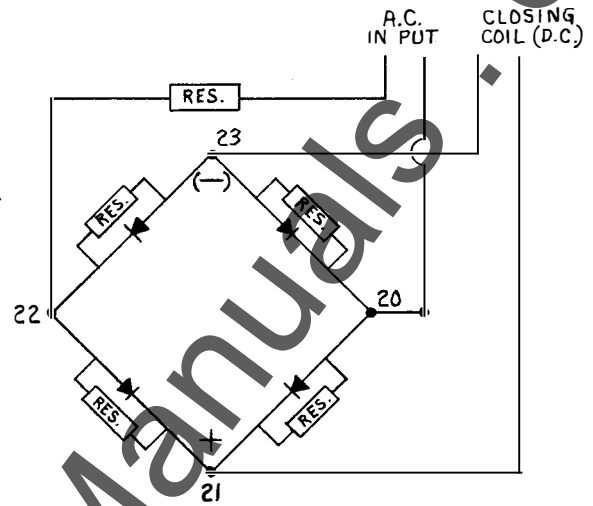


Fig. 2 Rectifier Wiring Diagram

Closing Coil	Closing Coil Resistance Ohms ± 10% at 25°C	Breaker	Resistor Setting In Ohms	Rectifier 0962C0670 G-0003	Drawing 0105C3009 G-0003
WSF 3121578	1.25	AM-5-100, -150	1.0	X	
WSF 3121585	2.05	AM-5-150	2.0		X
WSF 3121887	2.4	AM-5-100	2.25		X
WSF 3128713	.92	AM-7.5-250; AM-15-250; AM-15-500	.75	X	
3128949	5.90	FK-33	4.00		X
3192508	4.53	FK-142	4.00		X
3192507	2.39	FK-143	4.00		X
6174510 G-3	2.47	AM-5-50	2.5		X
6275005 G-4	2.25	FK-255-20	2.75		X
6275006 G-13	1.25	FK-255-28	1.75	X	
6306720 G-1	.92	AM-7.5-250; AM-15-250; AM-15-500	.75	X	
6306720 G-5	.95	AM-7.5-250; AM-15-150, -250	.75	X	
6306733 G-1	.63	AM-15-500	1.0	X	
6306733 G-2	.560	AM-15-250; AM-7.5-250, -500	.625	X	
6306734 G-1	2.0	AM-5-50	2.0		X
6306734 G-2	2.0	AM-5-50; AM-4.16-75	2.0		X
6306764 G-1	.92	AM-5-250; AM-5-100	.75	X	
6306764 G-3	.92	AM-5-100, -150, -250	.75	X	
6375521 G-2	.93	AM-7.2-250, -500; AM-2.4/4.16-100/150 AM-13.8-150, -250, -500, -750	.75	X	
6375521 G-6	1.58	AM-4.16-150, -250; AM-13.8-150, -250 AM-13.8-500	1.25		X
6375522 G-2	.513	AM-4.16-350	.375	X	
		AM-7.2-250, -500; AM-13.8-750	.625		
6375522 G-4	.66	AM-7.2-250, -500	.5	X	
802B799 G-1	.9	AM-4.16-150, -250; AM-7.2-250, -500 AM-13.8-150, -250, -500	.75	X	
802B799 G-2	1.58	AM-4.16-150, -250 AM-13.8-150, -250, -500	1.25		X

Fig. 3

Fig. 1 (899B791)

Fig. 2 (899B791)

Cover (8030495) & (8030496)

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SILICON RECTIFIERS FOR CIRCUIT BREAKER CLOSING SERVICE

INTRODUCTION

Silicon rectifier assemblies for circuit breaker closing service are made up of one or more full wave rectifier units and several resistors. The rectifiers are de-

signed for intermittent duty and should only be used on the specific circuit application where their characteristics apply. (See Fig. 3). These rectifiers are of the button

type and are hermetically sealed units. When the rectifiers are used outdoors, they should be installed in a weatherproof housing. For indoor use they should be installed in a suitable enclosure.

DESCRIPTION

The silicon rectifier unit assembly for closing service consists of two half wave forward polarity rectifiers and two half wave reversed polarity rectifiers, four 470

ohm one watt resistors and one 2 ohm or one 4 ohm power resistor, all mounted inside a metal box. Fig. 1 shows a schematic view of the rectifier assembly with the physical

positions denoted to correspond to the positions shown on the rectifier wiring diagram Fig. 2. For each breaker closing service one rectifier box assembly is required.

ADJUSTMENTS

DO NOT MAINTAIN VOLTAGE ON THE RECTIFIER ANY LONGER THAN IT TAKES TO ELECTRICALLY CLOSE THE BREAKER (20 CYCLES MAXIMUM) OR SERIOUS DAMAGE TO THE RECTIFIER MAY

RESULT. For specific breaker application, reference should be made to Fig. 3 and resistor taps Fig. 4 & 5. When the resistance value has been selected and the proper connection made no additional

adjustments to the rectifier unit assembly should be made. These units have been tested at the factory and unlike rectifiers of previous design are affected very little by ambient temperature changes.

Fig. 4 (8026938)

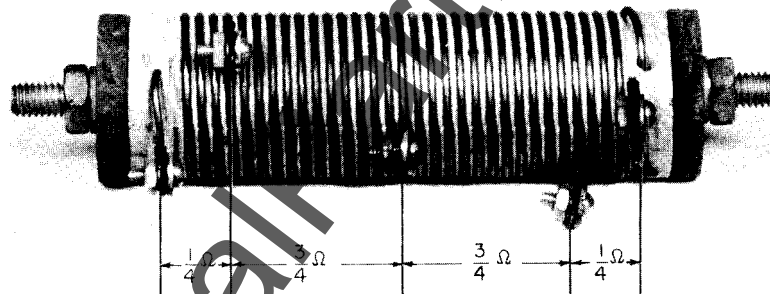


Fig. 4 2 Ohm Resistor

Fig. 5 (8026938)

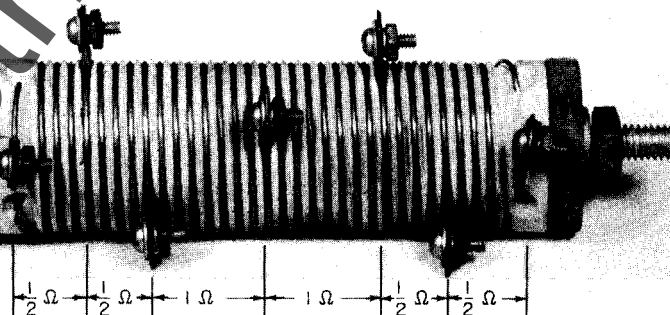


Fig. 5 4 Ohm Resistor

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.

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.

ORDERING INSTRUCTIONS

1. ALWAYS SPECIFY THE COMPLETE NAMEPLATE DATA OF THE RECTIFIER BOX ASSEMBLY.
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.
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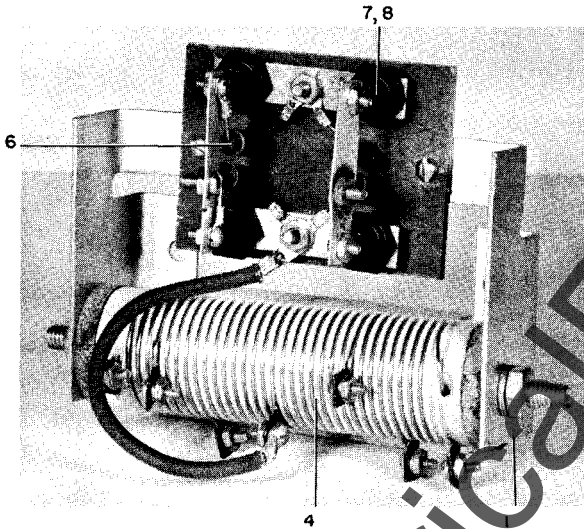


Fig. 6

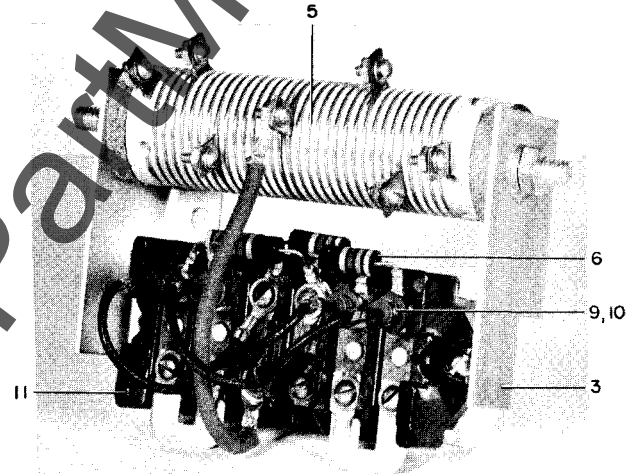


Fig. 7

NO.	DRAWING NUMBER	FIG.	QUAN./BOX	DESCRIPTION
1	0962C0670 G-0003*	6	1	Rectifier Box Assembly with a 2 Ω Resistor
3	0105C3009 G-0003*	7	1	Rectifier Box Assembly with a 4 Ω Resistor
4	0107B9580 G-0001	6	1	2 Ω Resistor
5	0107B9580 G-0002	7	1	4 Ω Resistor
6	0105C3009 P-0010	6, 7	4	470 Ω Resistor
7	4JA36BX16	6	2	Rectifier Forward Polarity
8	4JA37BX16	6	2	Rectifier Reverse Polarity
9	4JA20BX8	7	2	Rectifier Forward Polarity
10	4JA21BX8	7	2	Rectifier Reverse Polarity
11	0684C0642 G-0001	7	1	Terminal Board

* This rectifier includes a drip shield and an adapter plate for existing copper oxide rectifier installations.

Fig. 6 (8030495)

Fig. 7 (8030496)



INSTRUCTIONS

GEI-88760A
SUPERSEDES GEI-88760

CAPACITOR TRIP DEVICE

SWITCHGEAR DEPARTMENT

GENERAL  ELECTRIC

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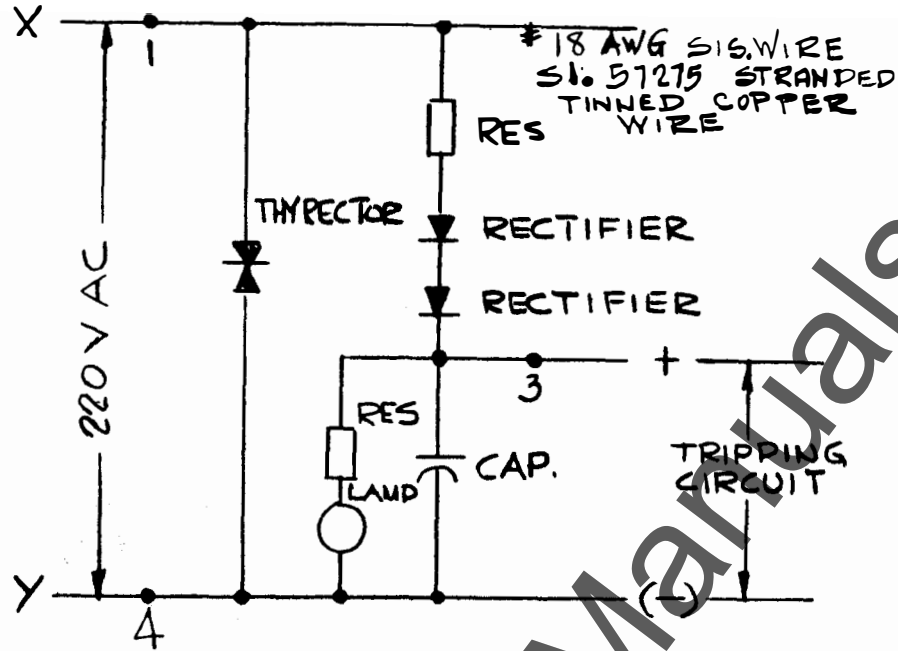


Fig. 1 Elementary Diagram

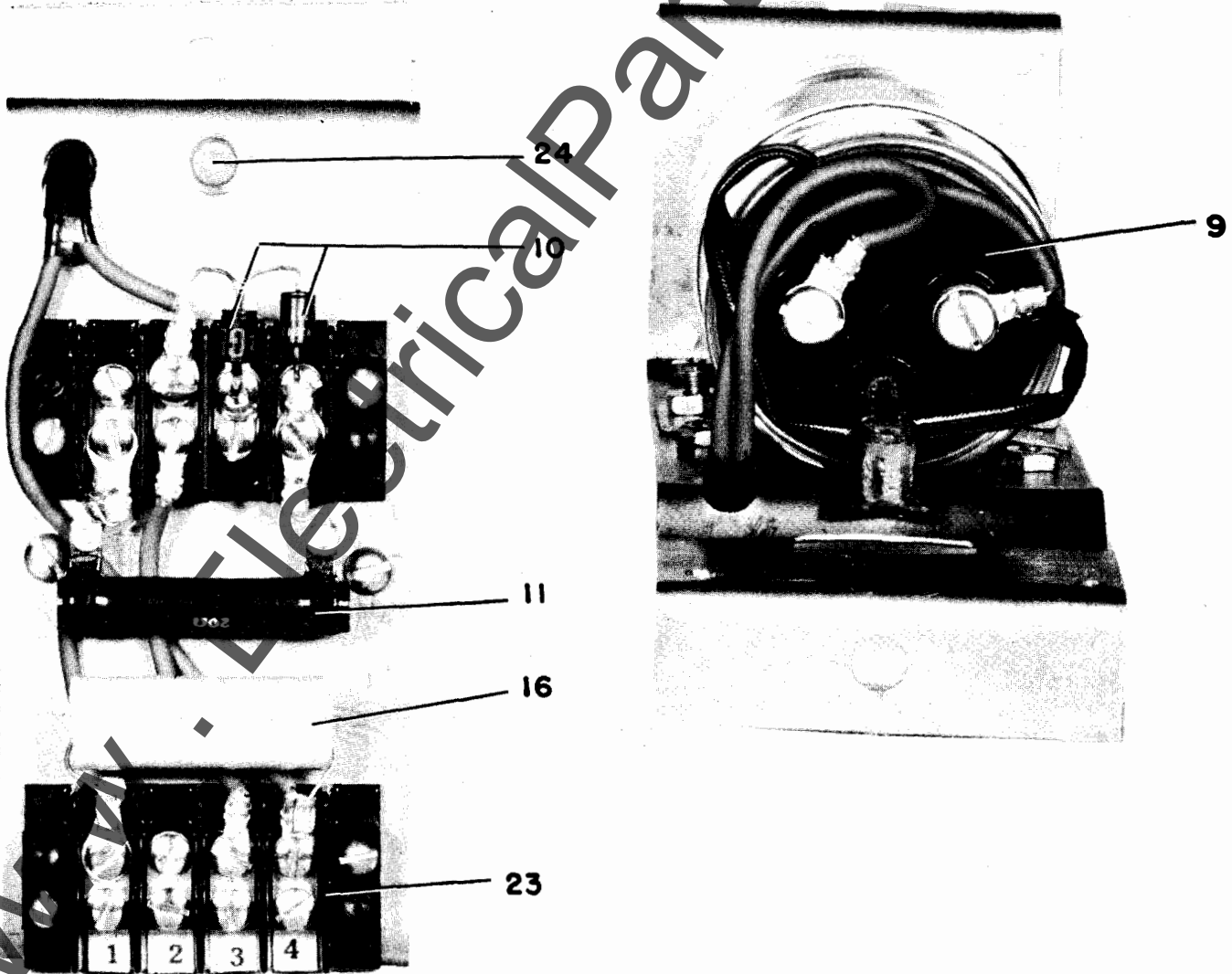


Fig. 2 Capacitor Trip Device

CAPACITOR TRIP DEVICE

INTRODUCTION

The capacitor trip device is a device designed for use in tripping the operating mechanism of a circuit breaker, its purpose being to provide sufficient electrical energy to operate the trip coil of the mechanism.

The device is primarily for use with circuit breakers which require some form of a-c power for their closing operation, i.e. circuit breakers having either a stored

energy closing mechanism with an a-c operated release coil or an a-c solenoid operated closing mechanism. It may also be used with circuit breakers employing other means of closing. However it might be necessary to observe certain operating procedures as outlined under "Operation and Checking".

In addition to circuit breaker tripping, the unit may be used to operate hand or

electric reset devices such as lockout relays.

It is recommended that each circuit breaker or other device be provided with its individual capacitor trip device. Exceptions to these recommendations are particular combinations of circuit breakers and lockout relays which tests have indicated can be operated reliably from a single tripping unit.

OPERATION AND CHECKING

The unit is connected directly to the 230 volt a-c source through the input terminals 1 and 4, and the leads to the trip circuit from terminals 3 and 4.

The operation of the unit is completely automatic and requires only an occasional check to determine if it is functioning normally. A neon light is supplied near the top of the unit. This light is energized continuously and will glow if the voltage across the capacitor is above the minimum tripping voltage. This shows the readiness

of the unit to trip the breaker and does not indicate if the a-c source is available. A constant visible check of the a-c line is available by the indicating lamp on the metal-clad door or panel.

NOTE: The energy storage capacitor used in this unit is a special high grade, low leakage, industrial type electrolytic capacitor. One characteristic of electrolytic capacitors is that they tend to unform when left de-energized for extended periods. Although these units have been completely

formed at the factory, they may have been idle for a considerable period of time. It is therefore recommended that immediately prior to putting a unit into operation, it is energized from the 230 volt a-c source for a period of at least two (2) hours or more.

NOTE: During testing of the unit with its associated circuit breaker, do not have the tripping circuit completed when applying a-c voltage to a discharged unit. Also, supervision of the trip coil in the usual manner with the red indicating light should be avoided.

MAINTENANCE

Voltage measurements should be made with a vacuum tube voltmeter to assure accuracy. The unit should be energized with a-c power for at least one hour before any measurements are attempted.

1. The a-c input voltage can be measured at terminals 1 and 4 and should be from 190v to 250v a-c.
2. The d-c output voltage should be

measured at terminals 3 and 4. With the a-c line energized, the output voltage should be from 260v to 350v d-c.

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.

ORDERING INSTRUCTIONS

1. ALWAYS SPECIFY THE COMPLETE NAMEPLATE DATA.

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.

PART NUMBERS

(Ref. to Figures 1 and 2)

Ref. No.	Catalog No.	Description
9	0456A0864 P102	Capacitor
10	0456A0864 P128	Rectifier
11	0456A0864 P034	Resistor
16	0456A0864 P106	Thyrector
23	0456A0864 P032	Terminal Board
24	0456A0864 P109	Indicator Light

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