

**INSTRUCTIONS**

# Switchgear

*Attachment  
GET 21902*

## RELAYS

**OVERPOWER AND UNDERPOWER RELAY**

**TYPE CFW11F**

**GENERAL  ELECTRIC**

# OVERPOWER AND UNDERPOWER RELAY TYPE CFW11F

## INTRODUCTION

These instructions supplement instruction book GEI-21902 which is included in this book. The combination of the two forms complete instructions for the Type CFW11F relay.

The Type CFW11F relay is a power relay designed to operate for very small amounts of power flow in the tripping direction. The Type CFW11F relay is similar to the Type CFW11E relay except that this relay was designed to use line-to-line voltage and either line current or delta current.

## APPLICATION

If line current is used in the current circuit, line-to-line voltage should be applied to studs 7-8 (see Fig. 2). If delta current is used in the current circuit, line-to-line voltage should be applied to studs 4-7 (see Fig. 3). With either of these connections, the relay has maximum torque at unity power factor - three phase.

The relay will open its right-hand contacts when the following conditions exist:

$$VI \cos(\theta - \phi) = 9.85$$

and will close its left-hand contacts when the following conditions exist:

$$VI \cos(\theta - \phi) = 10$$

Explanation of symbols:

V = voltage applied to relay

I = current through the current coil  
 $\theta$  = the angle, I leads V

If the potential circuit 7-8 is used,  $\phi = 30$  degrees. If the potential circuit 4-7 is used,  $\phi = 60$  degrees. If the left-hand term is less than 9.85, the right-hand contact is closed; if it is between 9.85 and 10, both contacts are open. For values of the left-hand over 10, the left-hand contact is closed.

## RATINGS

The ratings for the Type CFW11F relay are the same as those given in the included instructions except that the current circuit is rated at 8.7 amperes continuously.

## BURDENS

The potential circuit burdens at rated voltage are as follows:

Studs	Volts	Freq.	Volt Amps.	Watts	Vars
7-8	120	60	22.3	11.2	19.4
7-4	120	60	22.3	19.4	11.2*

\*Capacitive

The current circuit burdens at 5 amperes are as follows:

Studs	Amps	Volt Amps.	Watts	P.F.
5-6	5	4.6	1.75	0.38

## INSTALLATION

### MOUNTING

The outline and panel drilling dimensions are shown in Fig. 5 of the included instructions.

### CONNECTIONS

The internal and external connections diagrams are shown in Fig. 1, 2, and 3 of this supplement.

*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.*

GEI-33962 Type CFW11F Overpower and Underpower Relay

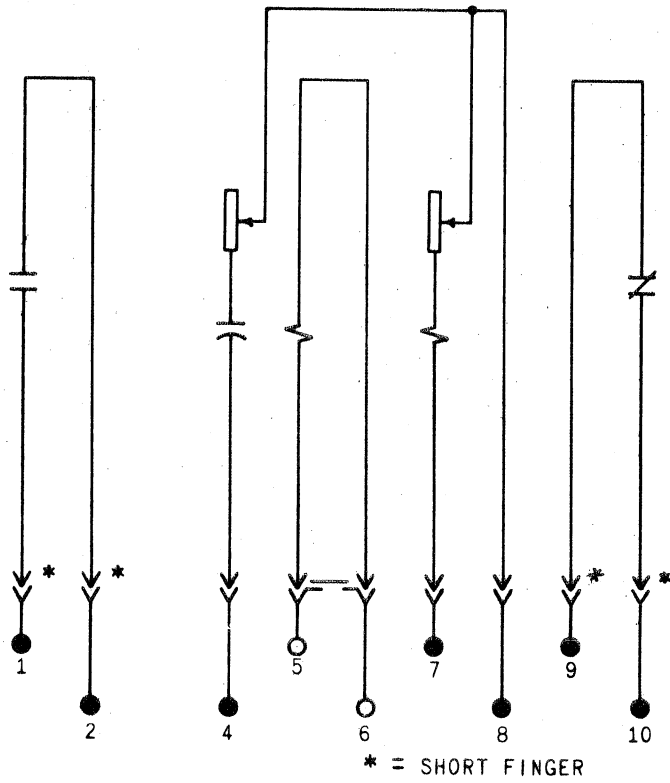


Fig. 1 Internal Connections for the Type CFW11F Relay. (Front View).

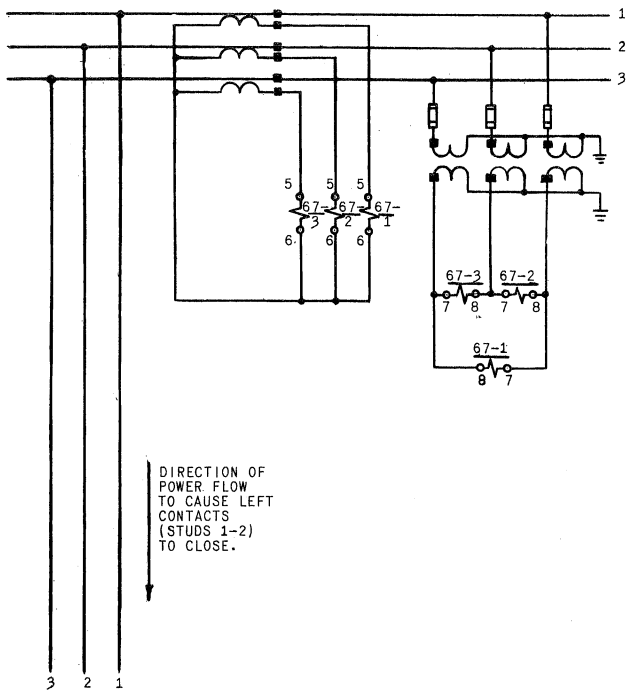


Fig. 2 External Connections for the Type CFW11F Relay.

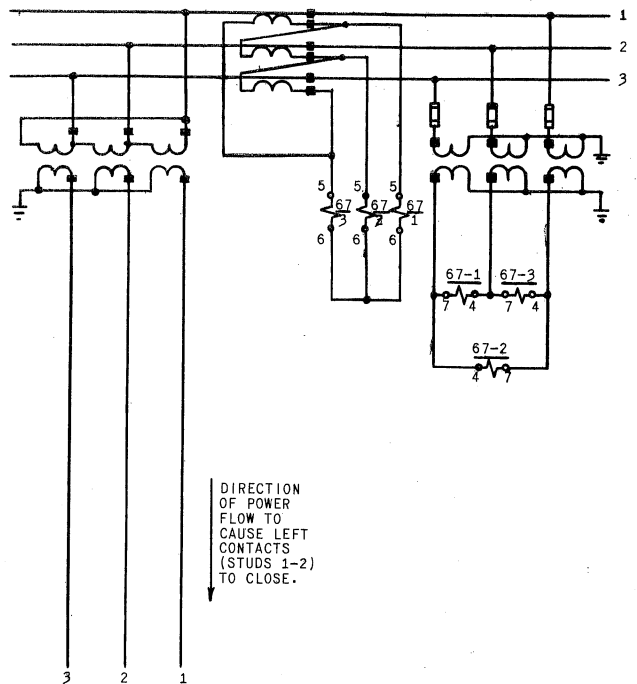


Fig. 3 External Connections When Line is Connected to Bus Through A Y-A Transformer.

Fig. 1 ( 580)

Fig. 2 (362A637)

Fig. 3 (362. )

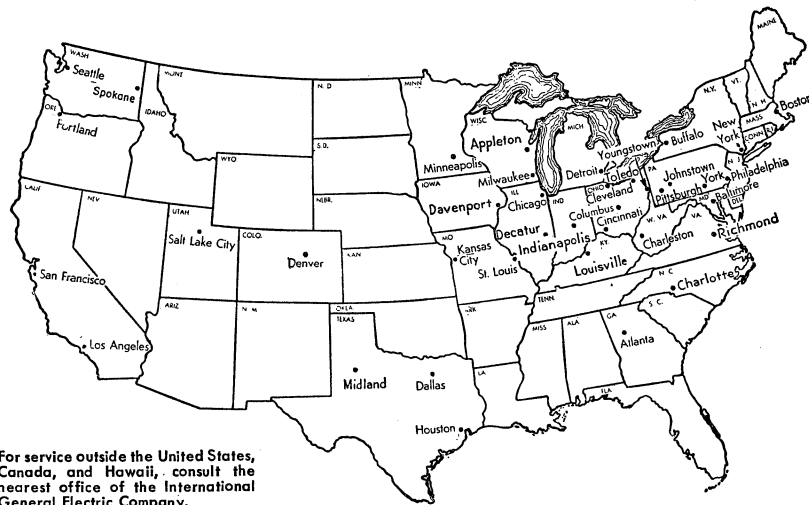
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