

INSTRUCTIONS

Switchgear

Type IAC77R

TIME OVERCURRENT RELAY

GENERAL  ELECTRIC

NOTES

TIME OVERCURRENT RELAY TYPE IAC77R

INTRODUCTION

These instructions supplement instruction book GEH-1787 which is included in this book. The combination of the two forms complete instructions for the Type IAC77R relay.

The Type IAC77R relay is similar to the Type IAC77B relay except that it has a different seal-in unit and an a-c trip unit.

SEAL-IN UNIT

This seal-in unit is mounted in the same manner as the seal-in unit of the Type IAC77A and Type IAC77B relays. This unit has its coil in series with the breaker trip coil and its contacts in parallel with the induction-unit contacts such that when the induction-unit contacts close, the seal-in unit picks up and seals in. When the seal-in picks up, it raises a target into view which remains exposed until released by pressing the reset button beneath the lower-left corner of the cover.

RATINGS

CONTACTS

The contacts are rated at 30 amperes for voltages not exceeding 250 volts.

SEAL-IN COIL

The coil of the seal-in unit is rated at 3.5 amperes.

A-C TRIPPING UNIT

INTRODUCTION

The a-c tripping unit is a Type REA relay unit designed to energize a circuit-breaker trip coil from its associated current transformer upon the operation of the main unit of the Type IAC relay.

The tripping unit is mounted on the rear of the frame opposite the variable resistor of the induction unit (see Fig. 1). The operation of the unit is illustrated in Fig. 2. The secondary current circulates through the induction-unit current coil and the main coil of the Type REA auxiliary tripping unit, returning through the Type REA contacts to the current transformer. Normally, most of the flux generated by the main Type REA coil passes through the upper limb of the magnetic structure and holds the armature firmly against this limb. When the contacts of the induction unit close, the shorting coil of the Type REA is short-circuited and current flows in this coil by transformer action, causing a redistribution of flux which actuates the armature and the Type REA contacts. The opening of the Type REA contacts cause the secondary current to flow through the trip coil which trips the breaker.

APPLICATION

The a-c tripping unit is used in Type IAC re-

lays where a reliable direct-current tripping source is not available and it is necessary to trip the breaker from the current-transformer secondary.

RATINGS

The a-c tripping unit has a continuous rating of five amperes, but will operate on a minimum current of 3.5 amperes. They should be used with three-ampere trip coils. The contacts of these units will transfer current transformer secondary current up to 100 amperes. For applications where the secondary current exceeds 100 amperes, the Type REA11B relay, which has contacts rated 200 amperes, can be used in conjunction with the Type IAC overcurrent relays. The Type REA11B relays is not mounted inside the Type IAC relay case.

BURDENS

Burdens of the Type REA unit are given in the following table.

Frequency	Amp	Impedance Ohms	PF	Volt- Amperes
60	5	0.49	0.80	12.2
50	5	0.33	0.85	8.4
25	5	0.23	0.62	5.8

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.

INSTALLATION

MOUNTING

The outline and panel drilling dimensions are shown in Fig. 15 of the included instructions.

CONNECTIONS

The internal connection diagram for the Type IAC77R is shown in Fig. 3 of this supplement.

ADJUSTMENTS

The adjustments for the Type IAC77R relay are the same as those in the included book except the Type IAC77R relay uses Fig. 4 of this supplement. The adjustments for the a-c trip unit is described in the following paragraphs.

The a-c tripping unit should not require any attention other than occasional cleaning of the contacts. However, if the adjustment should be lost, it may be restored as follows:

CONTACT ADJUSTMENT

With the unit de-energized, the movable contact should lie against the stationary contact with enough tension to always insure a good closed circuit. The movable contact brush should be free of any kinks. Also this contact brush should not touch the compound bushing supported from the top of the armature. The brass backing strip should be adjusted to allow a 1/16-inch contact gap with the contacts open. The compound bushing support should be adjusted to allow the back of the movable contact to just touch the brass backing strip when the armature operates to open the contacts. The outer edge of the compound bushing should be approximately 1/32 - inch from the inner edge of the stationary contact supporting post.

ARMATURE ADJUSTMENT

Loosen the two screws which hold the armature-assembly bracket to the bottom of the frame. Slide the bracket in or out, which ever is necessary, until the armature just touches the pole face of the upper core. In this position, the armature should be about 1/32 inch from the pole face of the lower core. Next, slide the bracket in until the armature leaf spring assumes a vertical position and is spaced clear of both armature and the vertical tip of the bracket. With this setting, the armature should be flush against the pole face of both cores, and should put enough pressure on the armature to always return it flush against the pole face of the lower core after each operation of the unit. This alignment is important as a slight gap between armature and pole face of the lower core after the unit operates may cause contacts to open momentarily, dropping the relay target when the circuit breaker is reclosed. Under these conditions, the momentary opening of the contacts is due to the shock of the armature being pulled in against the pole face when the lower coil is energized. Excessive pressure on the armature, caused by the bracket being pushed in too far, will result in too high a pickup or chattering of the movable contact during operation of the unit. Tighten the bracket screws securely after the proper adjustment has been obtained.

Fig. 1 (8009863)

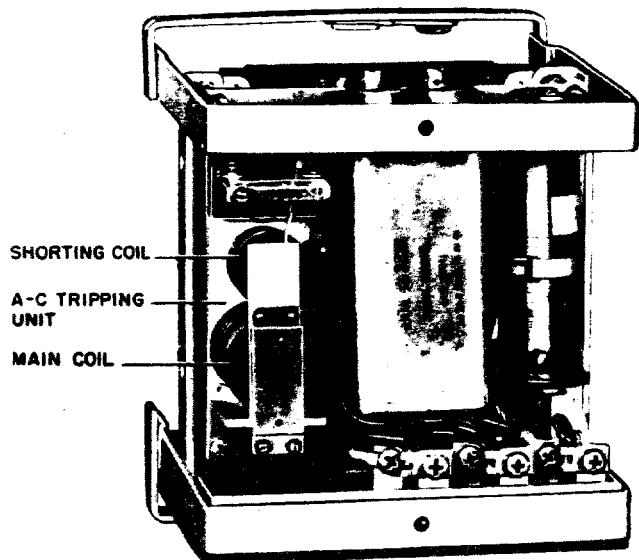


Fig. 2 (K-6154766)

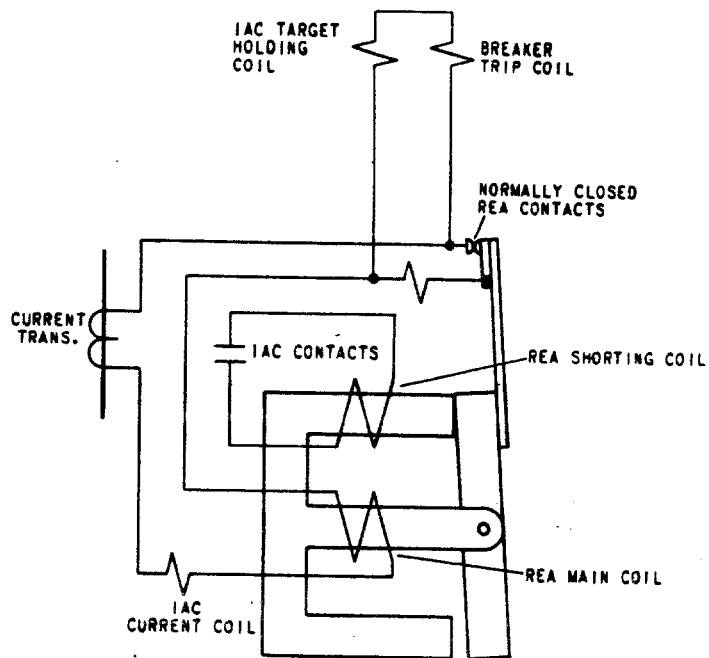


Fig. 1 Rear View Of Type IAC Relay, Showing The A-C Tripping Unit

Fig. 2 Diagram Illustrating The Operation Of The A-C Tripping Unit In The Type IAC Relays

Fig. 3 (376A932)

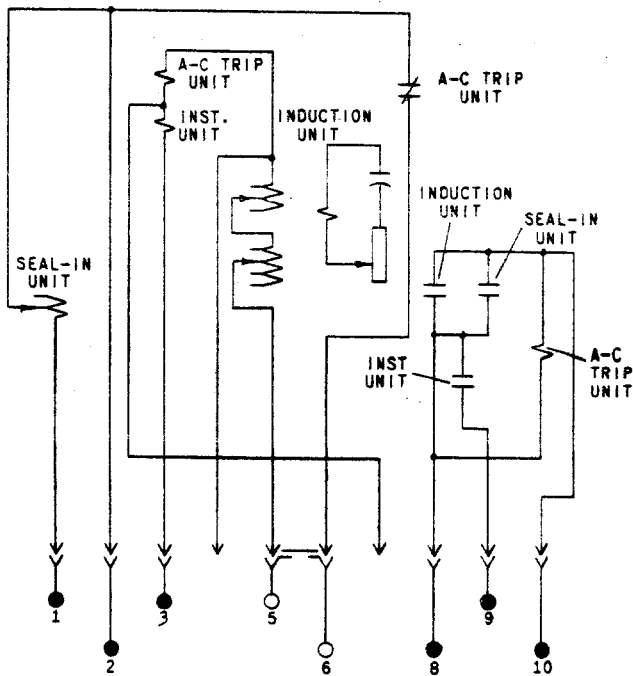


Fig. 4 (K-6L)

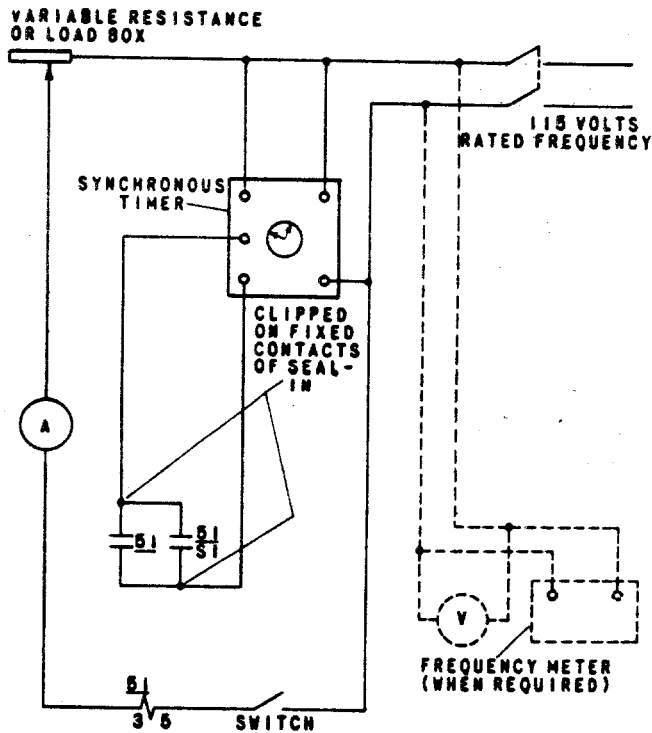


Fig. 3 Internal Connections Of The Type IAC77R Relay (Front View)

Fig. 4 Test Connections For The Type IAC77R Relay