



# INSTRUCTIONS

GEI-50278A

Insert Booklet-GEI-50275

## PHASE DIRECTIONAL OVERCURRENT RELAYS

### TYPES

JBC51H

JBC52H

JBC53H

JBC77H

### INTRODUCTION

These instructions are a supplement to instruction book GEI-50275 which is included in this book. The combination of the two form instructions for the Type JBC51H, JBC52H, JBC53H and JBC77H.

### APPLICATION

Type JBC51H, JBC52H, JBC53H and JBC77H (H series) relays are similar to Type JBC51E, JBC52E, JBC53E and JBC77E (E series) relays respectively except for the addition of an auxiliary telephone relay (X) which is controlled by the directional unit. The contacts of this telephone relay are used for the torque control of the shading coil circuits of both the time and the instantaneous overcurrent unit.

The H series relays have instantaneous overcurrent units which can have a pickup setting less than maximum full load, for example, in the range of 2 to 5 amperes. The isolated control of the shading coil circuits by the X auxiliary in this relay prevents a sneak circuit which might otherwise result in the seal-in of the instantaneous unit on load. This could occur after a momentary pickup of the instantaneous unit on a current reversal during the clearing of an external fault. Such a condition would then produce a false trip on the next external fault which would close the directional unit contact.

These conditions are not present in the E series of relays since they are only furnished with instantaneous overcurrent units having pickup ranges greater than maximum full load, for example, 10 to 40 amperes.

### CONNECTIONS

The internal connection diagrams are shown in Figs. 1, 2, 3 and 4. Typical external connections are shown in Fig. 5. The outline and panel drilling dimensions diagram is shown in Fig. 21 of attached booklet.

*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.*

*To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.*

## POWER SYSTEMS MANAGEMENT DEPARTMENT

GENERAL  ELECTRIC

PHILADELPHIA, PA.

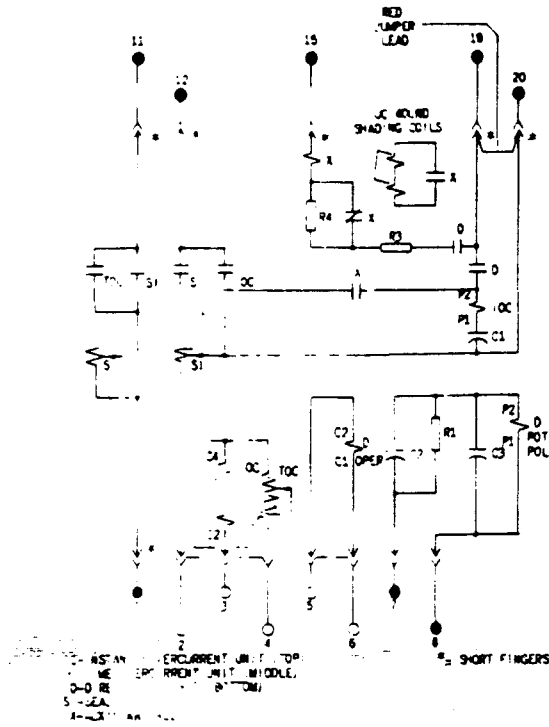


FIG. 1 (418A859-2) Sh. 1 INTERNAL CONNECTIONS DIAGRAM FOR THE TYPE JBC51H RELAY (FRONT VIEW)

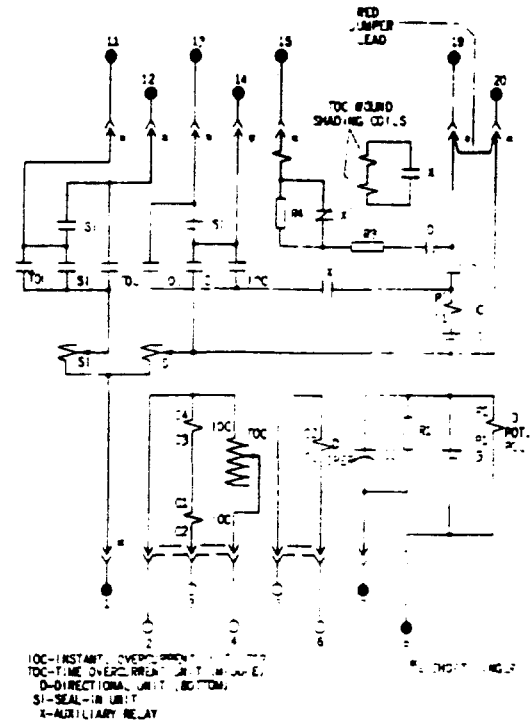


FIG. 2 (418A861-0) INTERNAL CONNECTIONS DIAGRAM FOR THE TYPE JBC52H RELAY (FRONT VIEW)

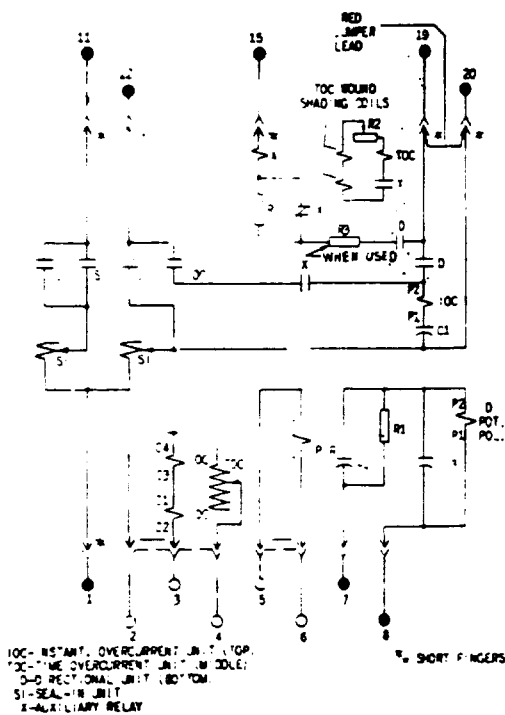


FIG. 3 (418A863-3) Sh. 1 INTERNAL CONNECTIONS DIAGRAM FOR THE TYPE JBC53H RELAY (FRONT VIEW)

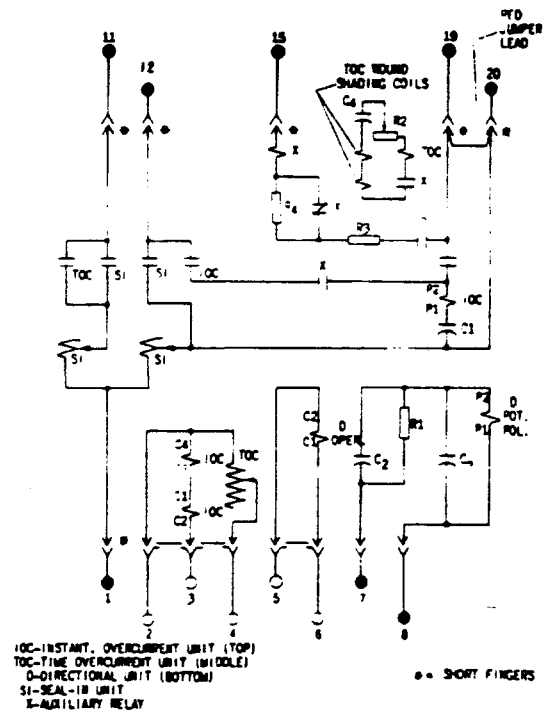


FIG. 4 (0165A7785-0) Sh. 1 INTERNAL CONNECTIONS DIAGRAM FOR THE TYPE JBC77H RELAY (FRONT VIEW)

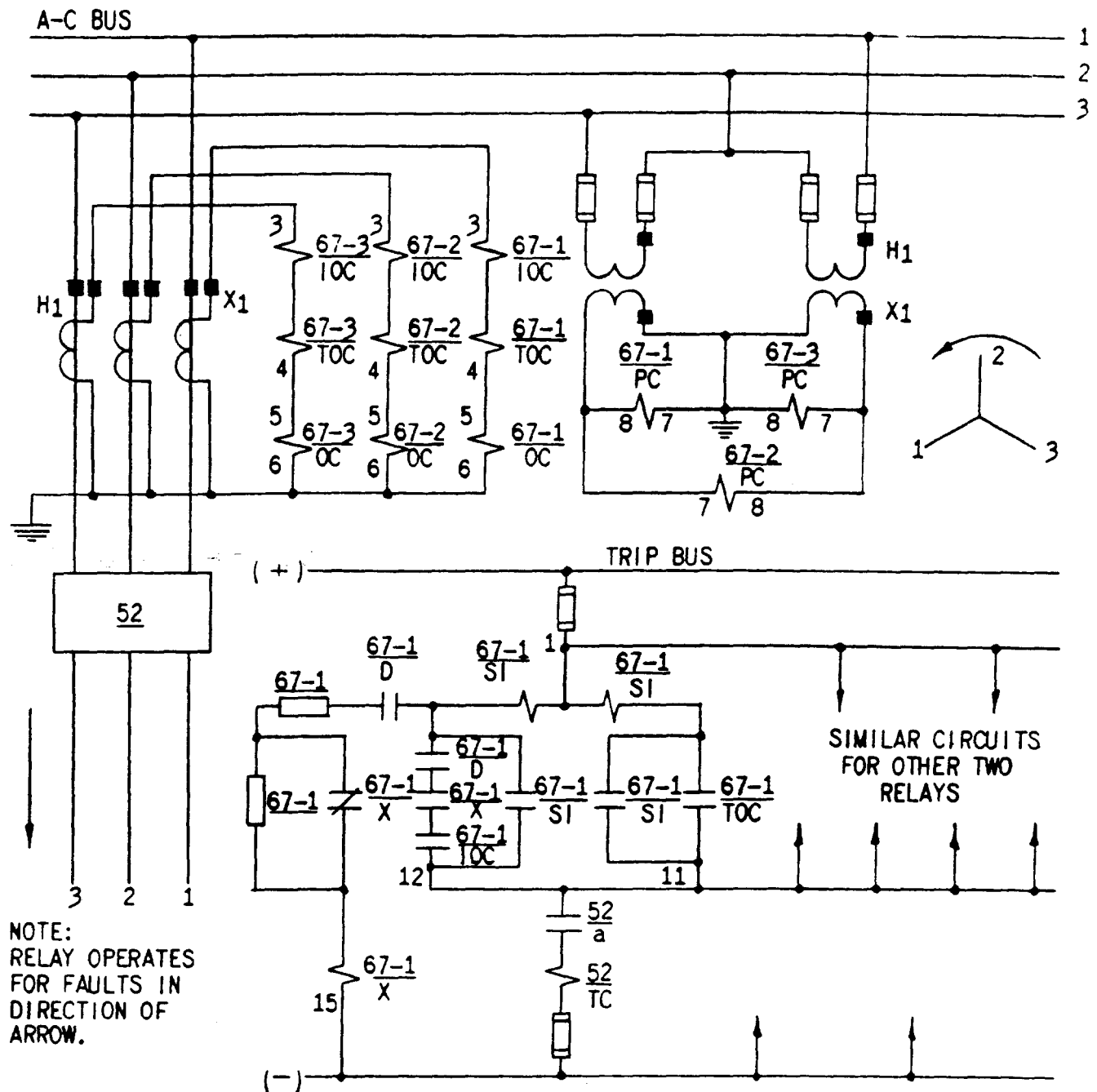


FIG. 5 (418A963-0) QUADRATURE CONNECTIONS OF THREE SINGLE PHASE TYPE JBC51H RELAYS FOR DIRECTIONAL PHASE FAULT PROTECTION OF A SINGLE LINE

