INSTRUCTIONS GEK-49803

TEST PLUGS
FOR
MOLDED CASE DRAWOUT RELAYS

TYPES

12XCA11A1 (4 Contacts)

12XCA11A2 (4 Contacts, Hard Wired)

12XCA28A1 (28 Contacts)

GENERAL ELECTRIC

TEST PLUGS

FOR

MOLDED CASE DRAWOUT RELAYS

TYPES

12XCA11A1
12XCA11A2
12XCA28A1

APPLICATION

The type XCA test plugs are used to test fourteen and twnety-eight point molded case drawout relays. The 12XCA11A1 dual test probe, Fig. 1, enables power to be applied to selected relay points from either a separate source or the source that feeds the equipment. The 12XCA11A2 dual test probe, Fig. 2, is hard wired and is used primarily for selected CT current measurements. The 12XCA28A1 test plug, Fig. 3, engages all fourteen relay points and enables power to be applied to the relay from either a separate source or the source that feeds the equipment.

RATINGS

	Continuous		One Second Surge Current, Symmetrical
	Voltage	Current	
12XCA11A1	600 VAC	15 Amps	240 Amps
12XCA11A2	600 VAC	15 Amps	240 Amps
12XCA28A1	600 VAC	15 Amps 15 Amps	240 Amps-banana plug connected 350 Amps-test clip connected

CONSTRUCTION

12XCA11A1

The 12XCA11A1 test probe, Fig. 1, is a two point, four contact test probe. It can be inserted into relay point pairs 1 and 2, 3 and 4, 5 and 6, etc., of the fourteen or twenty-eight point molded case drawout relays after the relay connection plug is removed. The test probe's construction is keyed to prevent accidental inverted insertion and insertion into incorrect relay point pairs 2 and 3, 4 and 5; etc. Access to this test probe is through four standard size banana jacks on its rear face. A CT shorting plug (0184B5461) is also supplied which can be used to short circuit the current transformer circuits when testing the relay.

This test probe is a riveted assembly and as such is not intended to be serviced. The internal part arrangement is shown in Fig. 4. The accompanying shorting plug consists of an encapsulated assembly of two banana plugs connected by a bus strip. The banana plugs are spaced to fit the case side test probe jacks but they will not fit the 12XCA28A1 test probe.

12XCA11A2

The 12XCA11A2 test probe, Fig. 2, is a two point, four contact, hard wired test probe. It can be inserted into any current transformer circuit of the fourteen or twenty-eight point, molded case, drawout relays after the relay connection plug is removed. The test probe construction is keyed to prevent accidental inverted insertion and insertion into incorrect relay point pairs 2 and 3; 4 and 5, etc. Two of the terminals of the probe consist of spade lugs on six foot long test leads hard wired to the brush strips which enter the even-numbered relay points. The other two contacts are hard wired together.

This test probe is a bolted assembly which can be serviced for broken test leads should the need arise. Fig. 5 shows an interval view.

12XCA28A1

The 12XCA28A1 test plug, Fig. 3, is a fourteen point, twenty-eight contact test plug. It can be inserted into any fourteen or twenty-eight point molded case, drawout relay after the relay connection plug has been removed. The test plug construction is keyed to prevent accidental inverted insertion. The terminals of the test plug consist of fourteen concentric binding posts. The larger, outside, red terminals provide access to the case terminal points while the smaller, black terminals provide connection to the relay connection points. In addition, the center of the black relay terminals contains a standard size banana jack. The concentric binding posts are numbered on the nameplate so that numbers 1 thru 14 are right side up and apply when the plug is used in the bottom of the relay case. If the relay has a connection system in the top of the case, inversion of the test plug will be required before it can be inserted. In this case, nameplate terminal numbers 15 thru 28 will appear upright and are applicable.

Accessory links, Fig. 6, are furnished with each 12XCA28A1 test plug and include through-connection and short-circuiting links and test clips. These accessory links can also be used with the XLA12 and XLA13 test devices.

This test plug is a bolted assembly. The twenty-eight brush strips are insulated from each other and terminate via internal wiring on one of the fourteen concentric binding posts, Fig. 7. All the brush strips on the relay side of the plug terminate on the inner binding posts (black thumb nuts). All the brushes on the case side of the plug terminate on the outer binding posts (red thumb nuts).

The 12XCA28A1 can be opened for servicing by first removing the five flat head, thread cutting screws which secure the nameplate, then the four machine screws located on the inside face of the housing. Further binding post disassembly is achieved by removing the hex nut which secures the relay side lead wire to the terminal post assembly of interest. The inner (black) binding post can then be unscrewed from the captive square nut which also releases the outer (red) binding post assembly from its hexagonal recess. Reverse the procedure for reassembly but only finger tighten the inner binding post assembly in its captive square nut. However, fully tighten the hex nut behind that, thus securing the concentric terminal assembly. When reattaching the nameplate, restart the thread cutting screws in the previously cut threads by turning the screws counterclockwise until they drop into their previously cut threads; then tighten to about four inch-pounds torque.

TESTING

Routine testing of fourteen or twenty-eight point, molded case, drawout relays can be accomplished by removing the relay cover and substituting the desired test plug for the connection plug.

CAUTION: BEFORE ANY OF THE TEST PROBES OR TEST PLUG ARE INSERTED INTO A RELAY, THEY SHOULD BE CAREFULLY INSPECTED TO INSURE THAT PROPER CONNECTIONS ARE MADE TO THEM AND THAT THESE CONNECTIONS ARE TIGHT. IT IS ESPECIALLY IMPORTANT THAT RELAYS WHICH RECEIVE CURRENT FROM CT SECONDARIES HAVE THESE CASE SIDE TEST TERMINALS SHORT CIRCUITED BEFORE THE TEST PLUG IS INSERTED.

12XCA11A1

This test probe can be used to provide convenient, standard banana jack connections to both relay and case terminals in point pairs such as points 1 and 2, 3 and 4, etc. It is supplied with a red CT shorting plug which can be inserted into the two case side banana jacks before the probe is inserted into a relay CT circuit so that the required short circuit is maintained on the CT. Several of these two point probes can be used in a relay at the same time, Fig. 8. They are keyed to prevent accidental inversion and incorrect point selection.

12XCA11A2

This hard wired test probe is designed for convenient testing of the current flowing in the CT circuits connected to a fourteen or twenty-eight point, molded case drawout relay. Its terminal lugs need only be connected to an ammeter before it is inserted into a relay CT circuit in order to measure the CT current, Fig. 9. Several of these two point probes can be used in a relay at the same time. They are keyed to prevent accidental inversion and incorrect point pair selection.

12XCA28A1

Several pieces of hardware are supplied with this test plug; Fig. 6. The U-shaped link is used to make through connections, relay stud to case terminal. Two sizes of corrugated end links are provided so that standard test clips can be used if desired. These links are also provided with a hole so that a secure bolted connection may be obtained. The long, open end link is used to short-circuit any current transformers and any normally closed contacts. This link must be inserted under the red thumb nuts before the test plug is inserted in the relay unit. The holes in the ends of the relay terminal studs are banana jacks, sized to receive standard banana plugs. They are a convenience when connecting to the relay side studs.

A conventional representation of test connections used in wiring diagrams is shown in Fig. 10. An outline of this plug is shown in Fig. 13.

More specific testing information can be obtained by referring to the appropriate relay instruction book.

SHIPPING-UNPACKING

Type 12XCA test plugs are shipped in individual cartons. All accessory hardware is packed with the plug in the individual carton.

Immediately upon receipt of the test plug, an examination should be made for any damage sustained in transit. If injury or rough handling is evident a damage claim should be filed at once with the transportation company and the nearest General Electric Sales Office should be notified.

RENEWAL PARTS

Orders for renewal parts should be addressed to the nearest Sales Office of the General Electric Company giving the name of part wanted, quantity required and complete nameplate data.

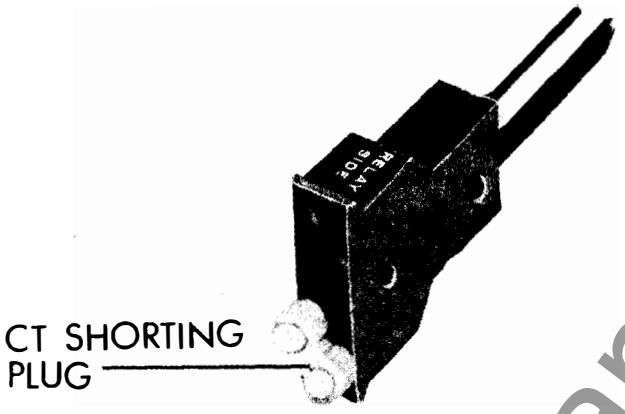

Fig. 1 (8043331) 12XCA11A1 Dual Test Probe with CT Shorting Plug

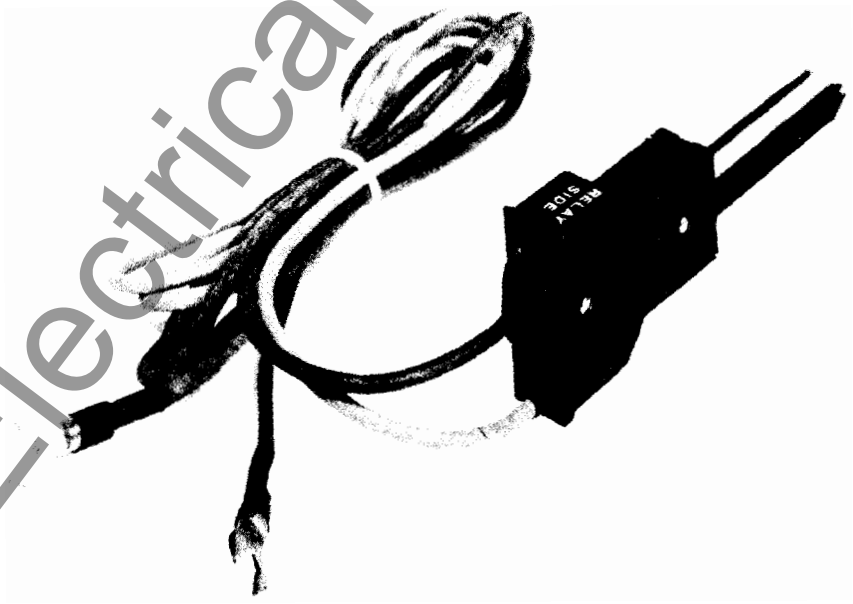

Fig. 2 (8043330) 12XCA11A2 - Hard Wired Dual Test Probe

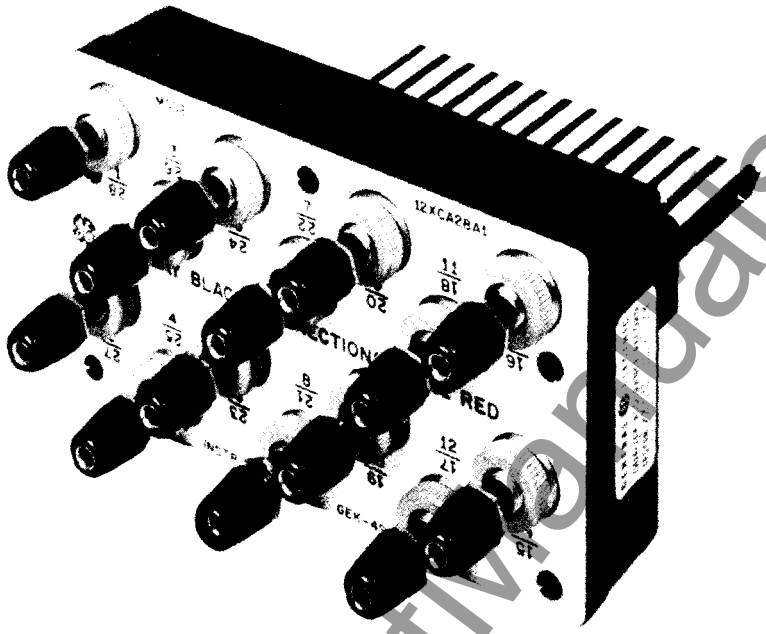

Fig. 3 (8043325) 12XCA28A1 - Test Plug

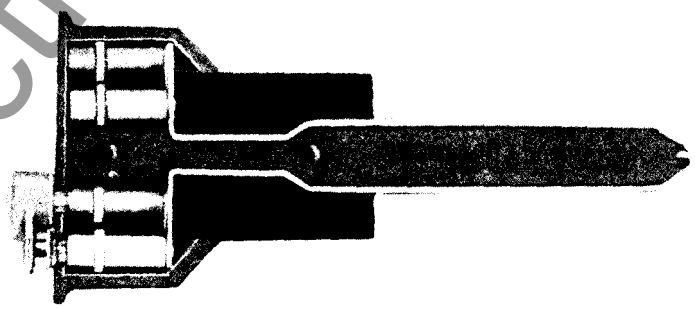

Fig. 4 (8043327) Sectional View of 12XCA11A1 Dual Test Probe and Shorting Plug

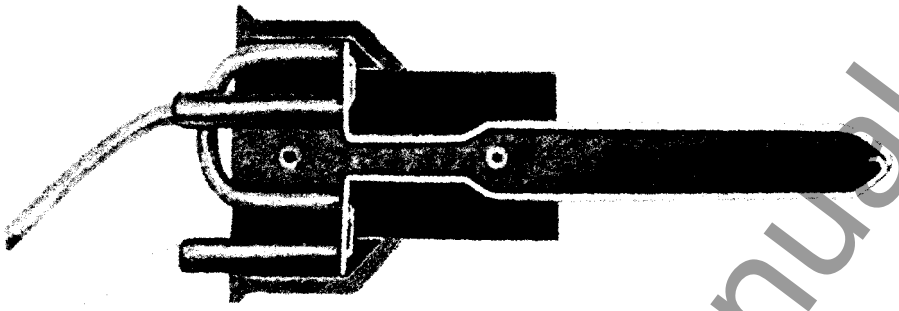

Fig. 5 (8043329) Sectional View of 12XCA11A2 Test Probe

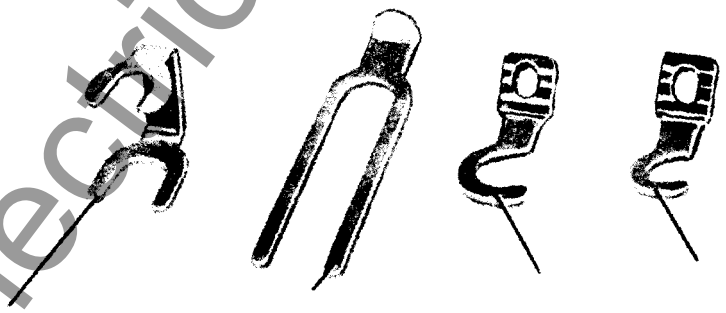

Fig. 6 (8043265) Accessory Links for the XCA and XLA Test Plugs

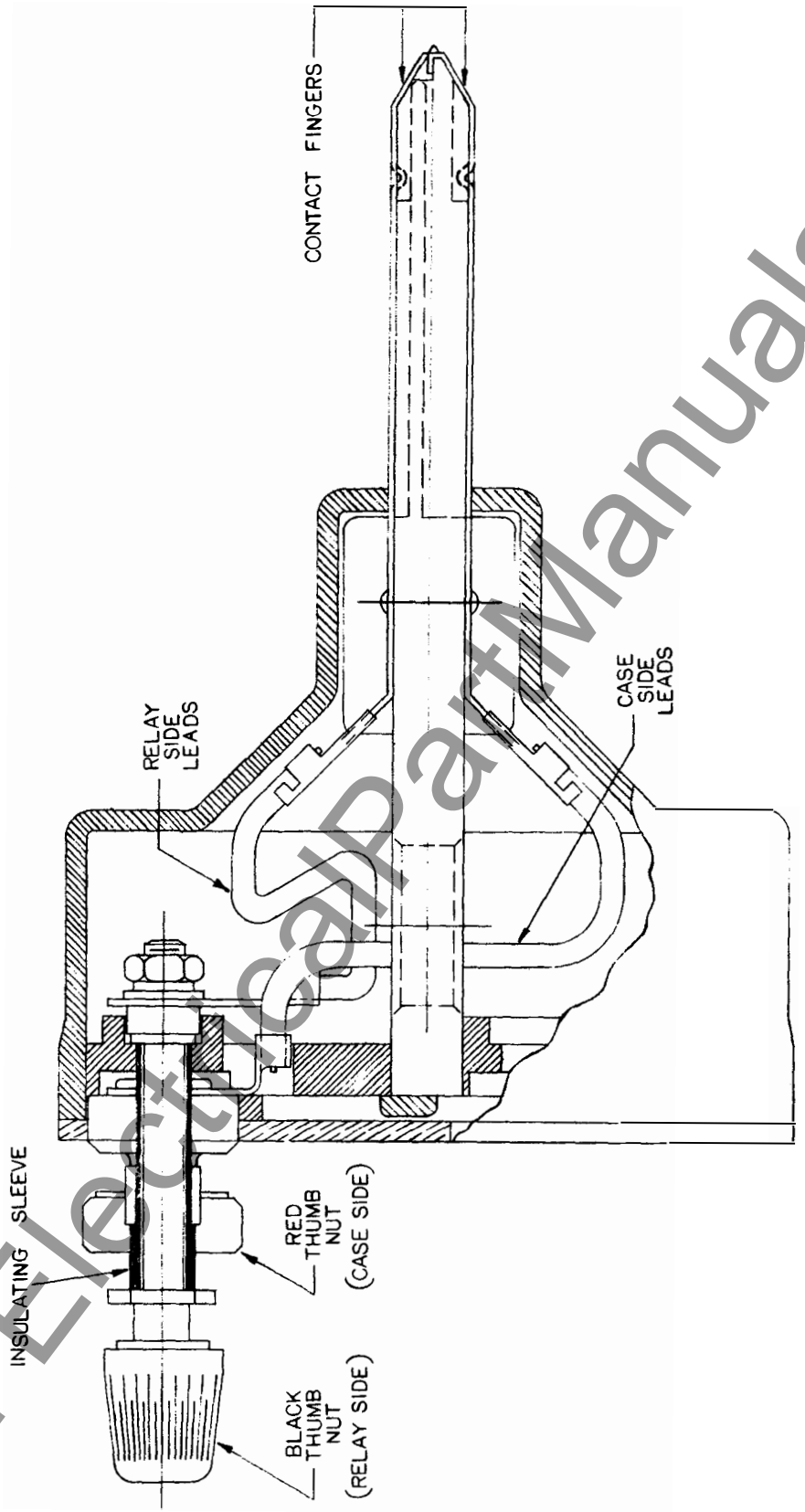

Fig. 7 (0108B9128-0) Sectional View of 12XCA28A1 Test Plug

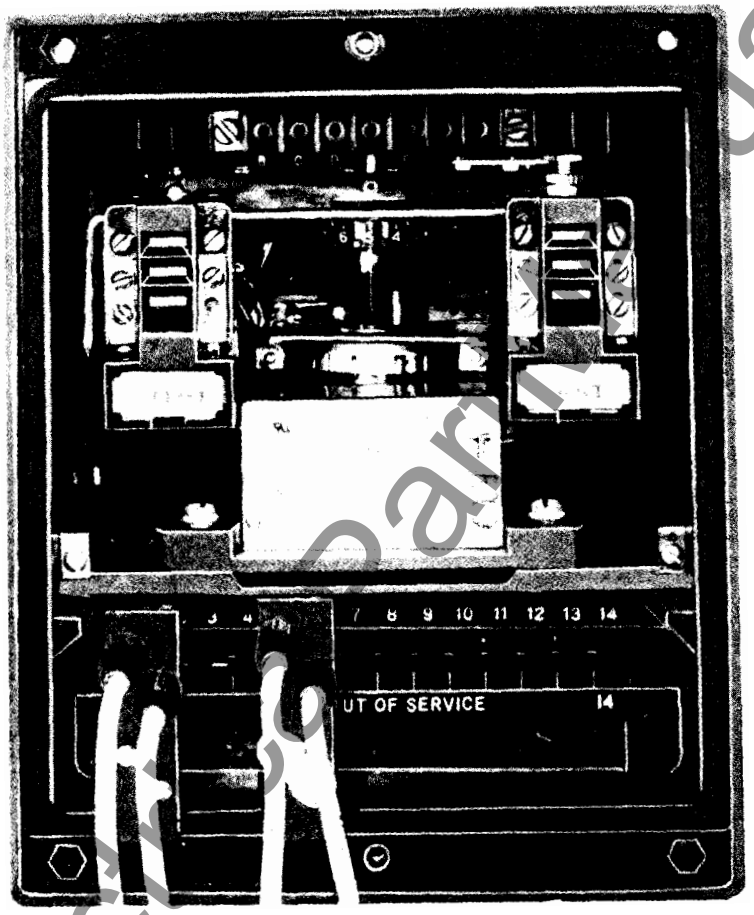

Fig. 8 (8043342) Relay Testing with Two 12XCA11A1 Test Probes - Note Use of CT Shorting Plug in CT Circuit

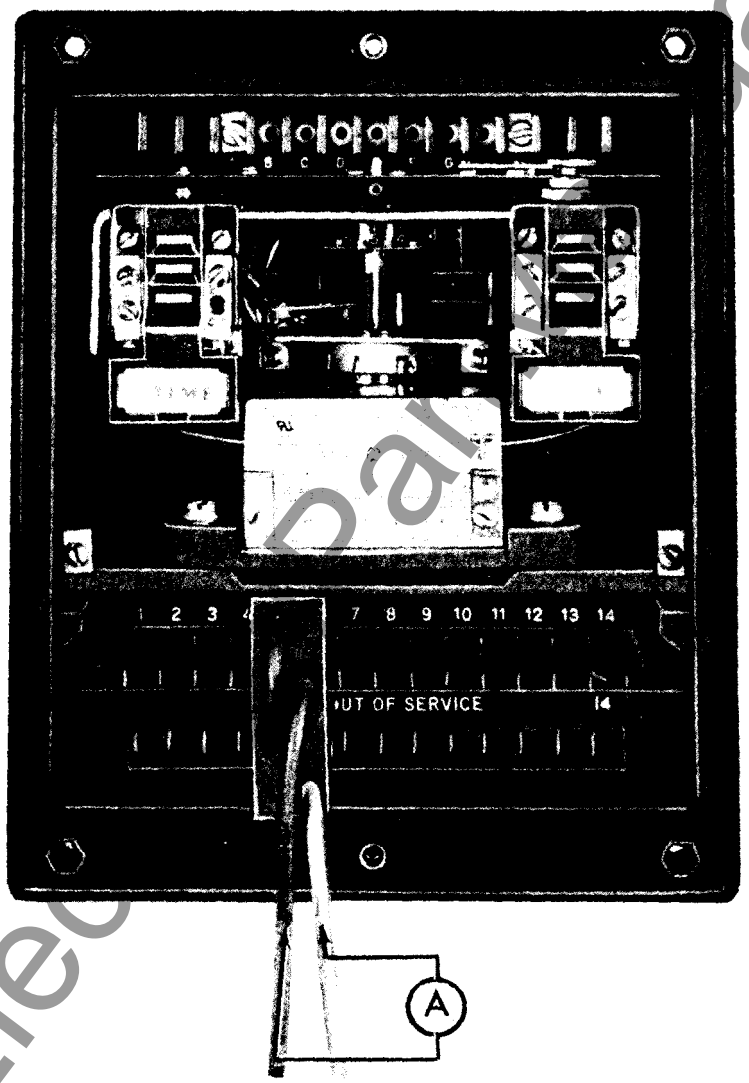

Fig. 9 (8043341) Relay CT Current Measurement with a 12XCA11A2 Test Probe

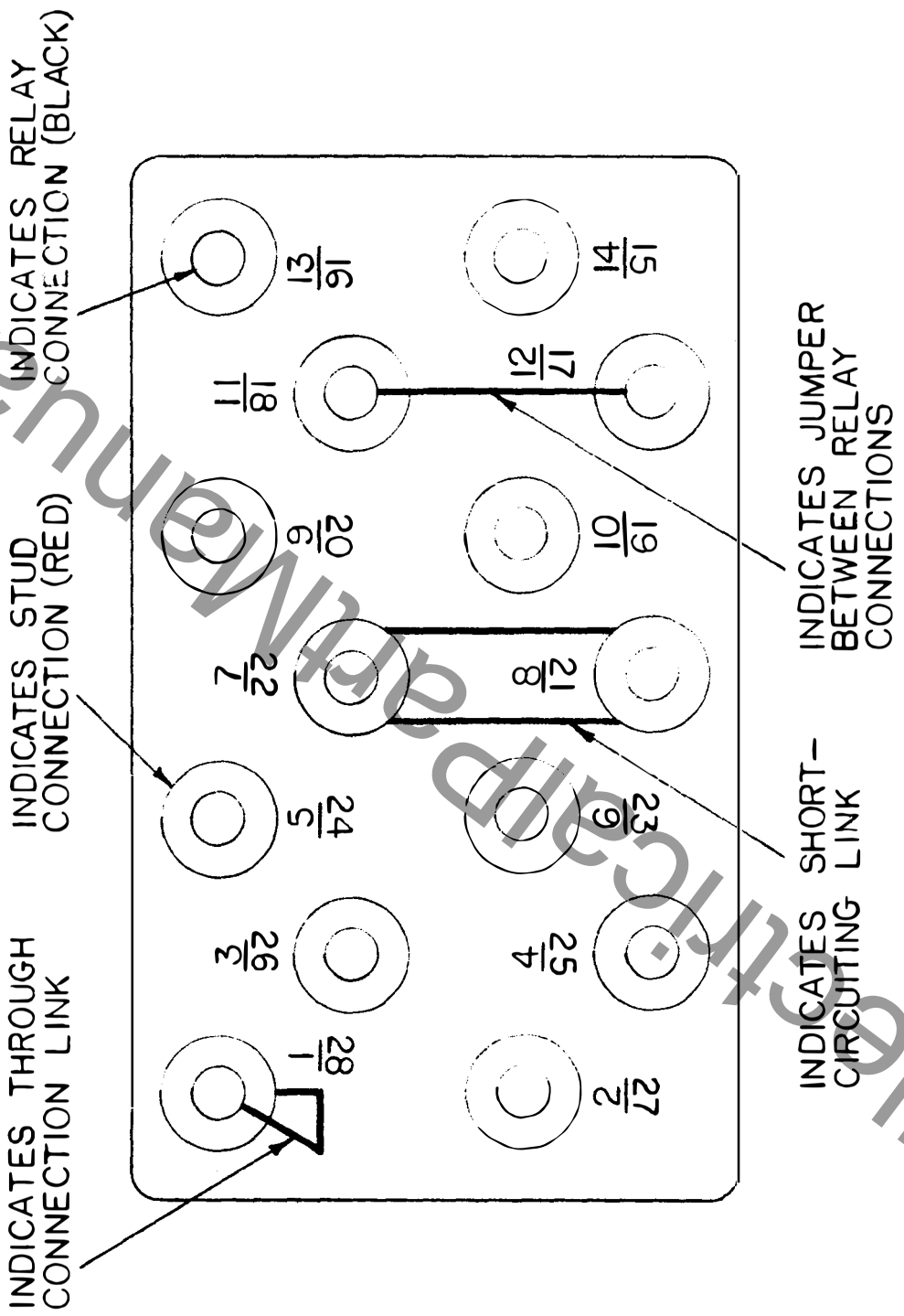

Fig. 10 (0273A9105-0) Conventional Representation of 12XCA28A1 Test Plug Connections

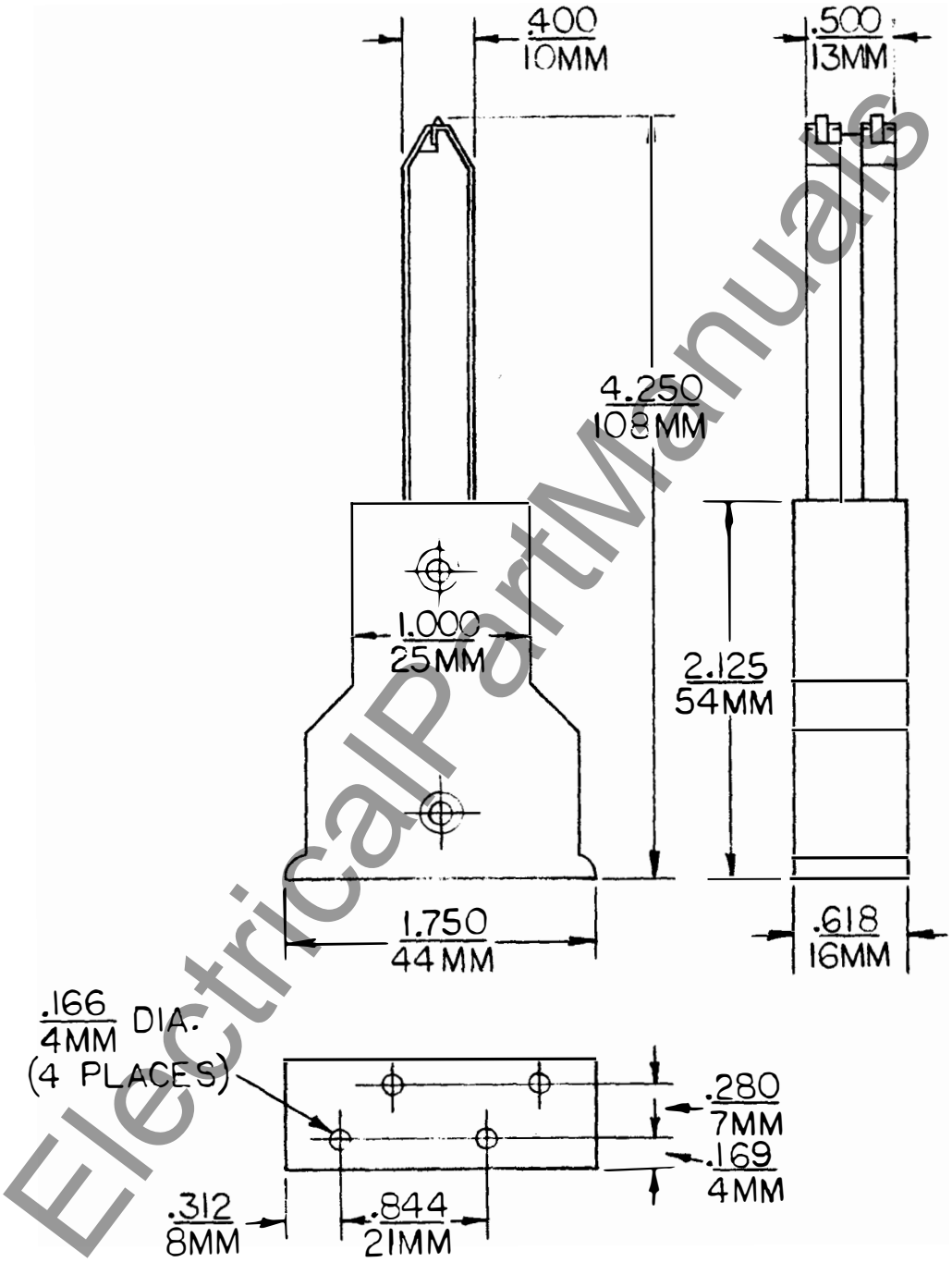

Fig. 11 (0269A1831-1) Outline of the 12XCA11A1 Test Probe

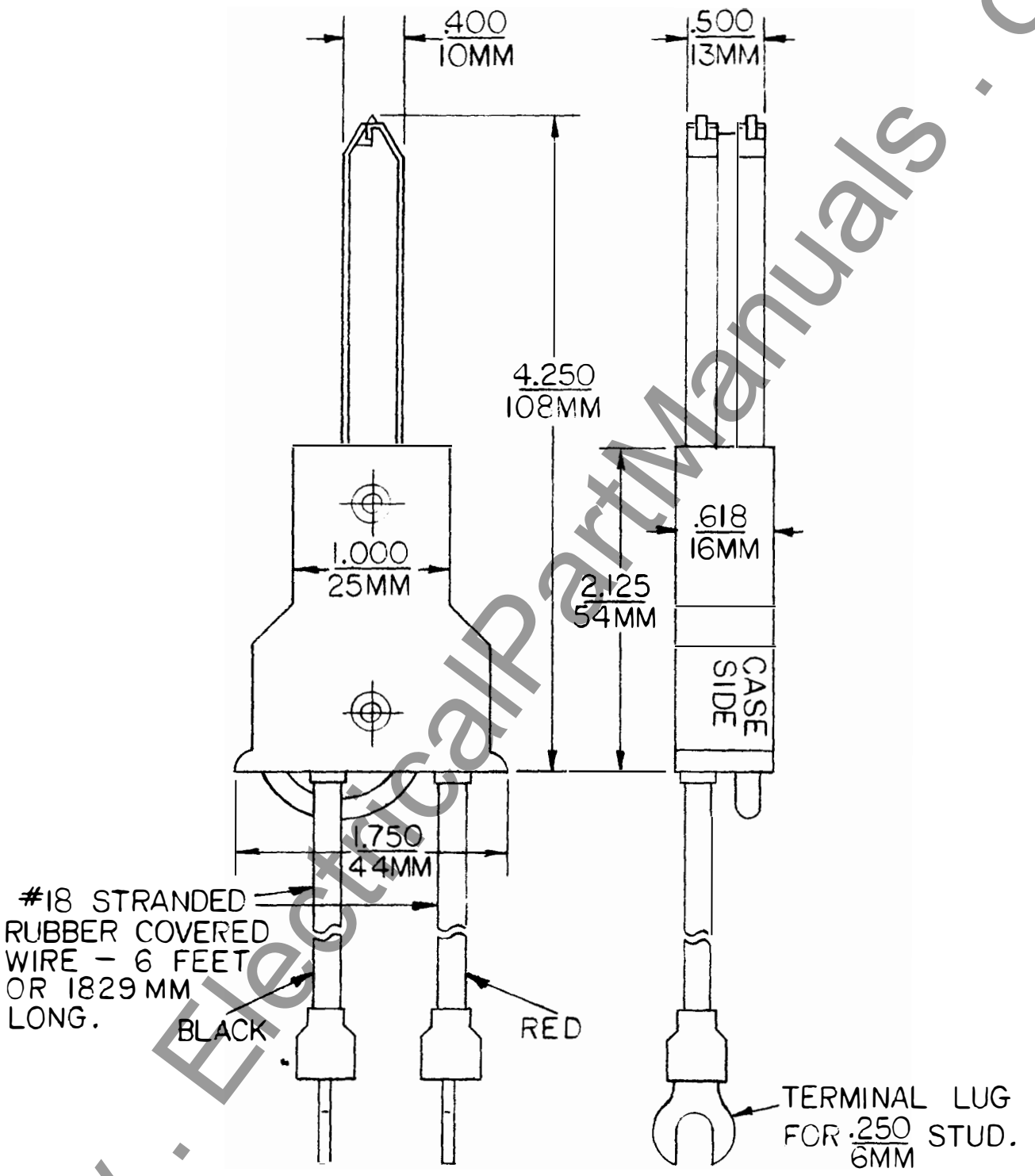

Fig. 12 (0269A1832-1) Outline of the 12XCA11A2 Test Probe

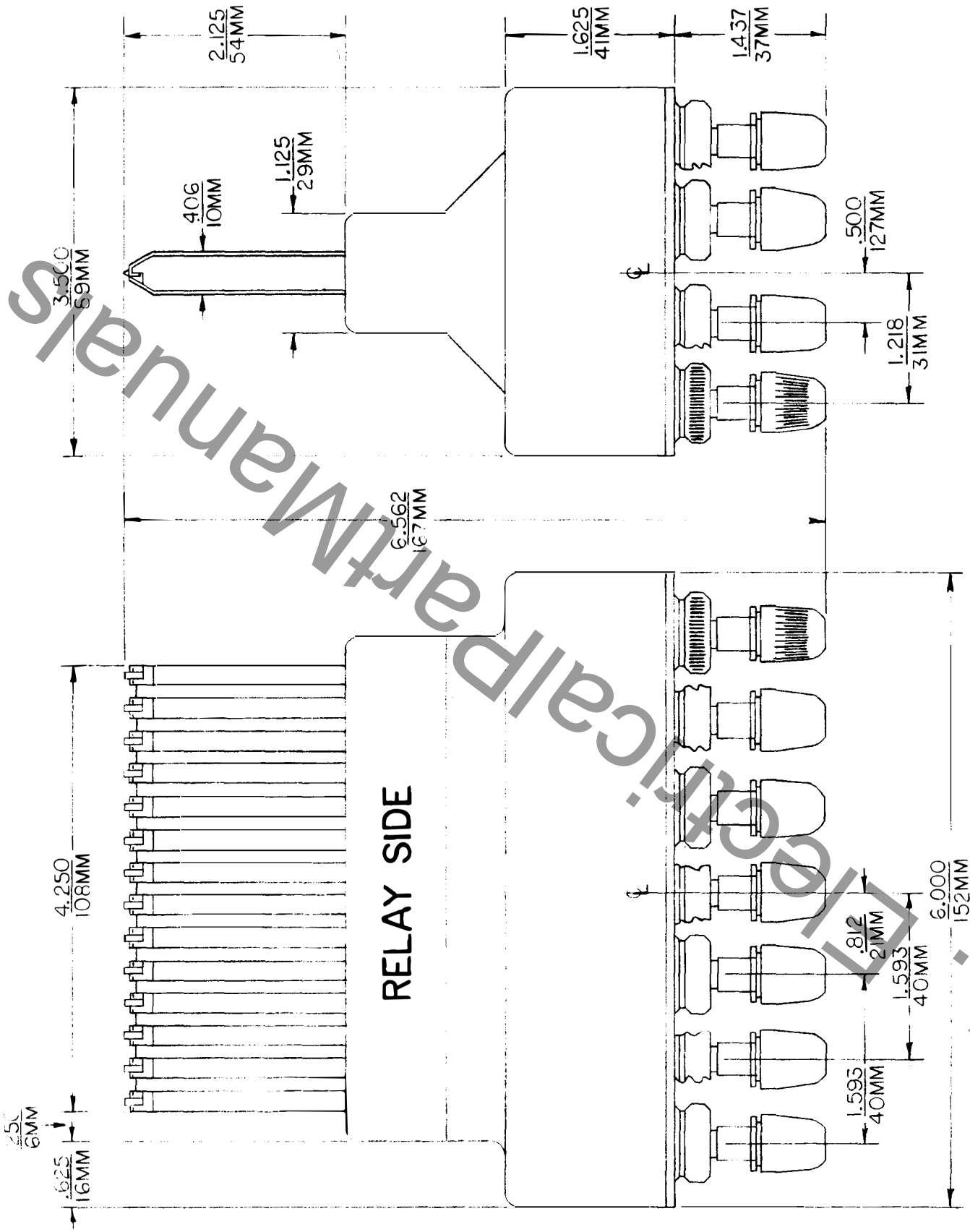

Fig. 13 (0184B5491-2) Outline of the 12XCA28A1 Test Plug

GENERAL ELECTRIC COMPANY
POWER SYSTEMS MANAGEMENT BUSINESS DEPT.
MALVERN, PA. 19355

GENERAL ELECTRIC

6-79

PRINTED IN U.S.A.