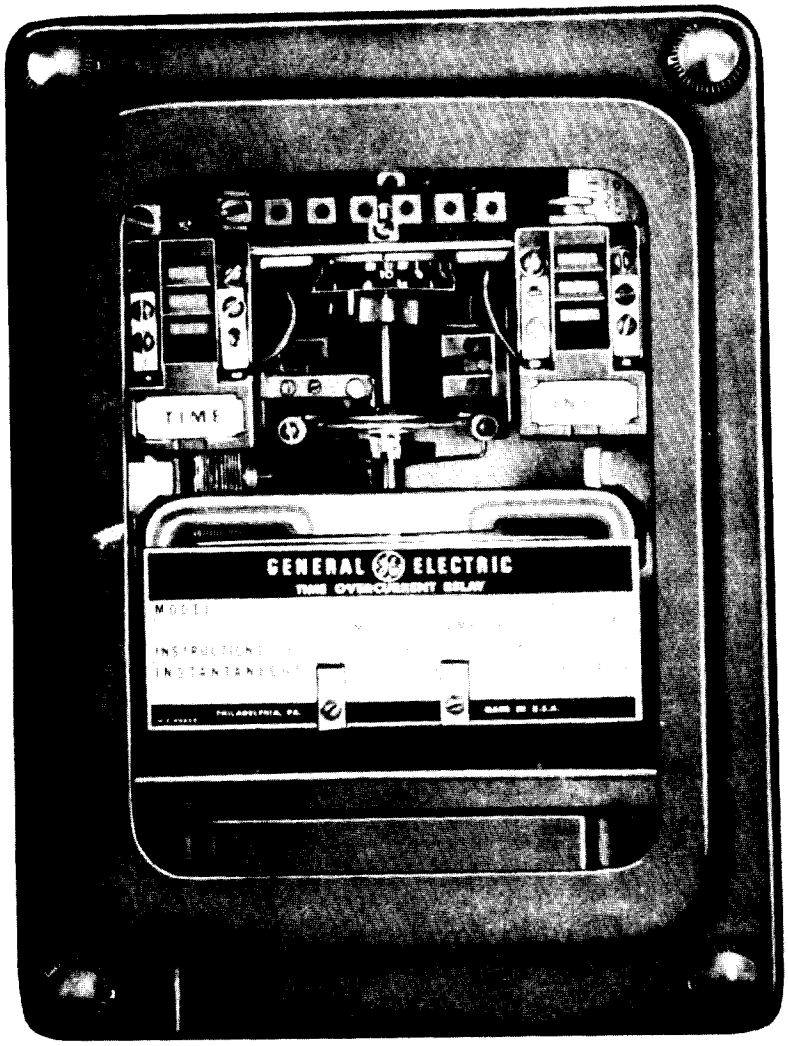
GEK-86054C

INSTRUCTIONS

TYPE IAC
TIME OVERCURRENT RELAYS

TYPES:

IAC66A
IAC66B
IAC66C



GENERAL ELECTRIC

CONTENTS

TIME OVERCURRENT RELAYS
TYPES: IAC66A, IAC66B, IAC66C

DESCRIPTION

The relays contain three units: a long time induction overcurrent unit, an instantaneous overcurrent unit, and a target and seal-in unit.

APPLICATION

The IAC66A, B, and C relays are used to protect a motor against two abnormal conditions. The time induction overcurrent unit (51/TOC) protects against motor overloads. The unit has a long-time inverse characteristic which is designed to coordinate with the motor heating characteristic. Application requires coordination to insure against false tripping on motor starting currents, and yet still provide adequate protection against motor overloads. The usual setting for pickup is 125 to 150 % of the motor rating.

The instantaneous overcurrent unit (50/IOC-A) provides fault protection. The pickup of this unit must be set higher than the maximum momentary motor inrush current, with an adequate margin, such as 50 % or more.

Typical pickup settings for the two overcurrent units are as below:

TABLE I

UNIT		PICKUP SETTING (MULTIPLES OF MOTOR FULL LOAD CURRENT)
Time overcurrent unit	51/TOC	1.15 to 1.4
Normal Dropout Instantaneous Overcurrent Unit	50/IOC-A	8 to 15

The IAC66C relay is similar to the IAC66A and IAC66B relays except that the time unit and instantaneous unit contacts are brought out separately.

The internal connections are:

TABLE II

Figure	Relay	Drawing No.
2A	IAC66A	6209658
2B	IAC66A, Forms 51 and up	0257A8339
3A	IAC66B	6209961
3B	IAC66B, Forms 51 and up	0285A6667
4A	IAC66C	6375694
4B	IAC66C, Forms 51 and up	0285A6747

The outline and panel drilling dimensions are shown in Figure 5.

RATINGS

INDUCTION UNIT

The induction unit coil is available in several ranges of pickup current. Table III lists ranges, tap values, continuous-current ratings and short time current ratings of the induction unit coil.

The induction unit contacts will close 30 amperes for voltages not exceeding 250 volts. The current carrying ratings are affected by the tap selected on the target and seal-in coil, as indicated in Table IV. If the tripping current exceeds 30 amperes, use an auxiliary relay that is connected such that the tripping current does not pass through either the contacts or the target and seal-in coils of the protective relay.

TABLE III
INDUCTION UNIT COIL RATINGS (FORMS 51 AND UP)

PICKUP RANGE (AMPS)	TAP VALUES (AMPS)	CONTINUOUS CURRENT (AMPS)	SHORT TIME (ONE SECOND) RATING (AMPS)
0.6/1.8	0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8	3	75
1.5/4.5	1.5, 2, 2.5, 3, 3.5, 4, 4.5	5	200
2.5/7.5	2.5, 3, 3.5 4, 5, 6, 7.5	5	300
4.0/12	4, 5, 6, 7, 8, 10, 12	10	400

Two taps are required to select pickup for IAC66 relays having forms 51 and up. The two taps required for the values shown in Table III are (from the lowest to highest pickup): A/L, B/K, C/J, D/H, D/G, E/G and F/G, respectively, as labelled on

the tap block. To obtain a tap value of 4.0 amps on the 2.5/7.5 amp relay, use taps D/H.

TABLE IV
RATINGS OF TARGET AND SEAL-IN COIL

CURRENT OPERATED		DUAL-RATED 0.2/2.0 AMP	
		0.2 AMP TAP	2.0 AMP TAP
Carry 30 amps for	(seconds)	0.05	2.2
Carry 10 amps for	(seconds)	0.45	2.0
Carry continuously	(amperes)	0.37	2.3
Minimum operating	(amperes)	0.2	2.0
Minimum dropout	(amperes)	0.05	0.5
DC resistance	(ohms)	8.3	0.24
60 hertz impedance	(ohms)	50	0.65
50 hertz impedance	(ohms)	42	0.54

STANDARD INSTANTANEOUS UNIT

The instantaneous unit is designed to use one of several coils. Table V lists the pickup range, continuous current ratings and short time rating of each of these coils for forms 1 through 50.

TABLE V
STANDARD INSTANTANEOUS UNIT COIL RATINGS

PICKUP RANGE (AMPS)	CONTINUOUS CURRENT (AMPS)	SHORT TIME (ONE SECOND) RATING (AMPS)
0.5 - 2	0.75	12
1 - 4	1.5	25
2 - 8	3.0	51
4 - 16	6.0	127
10 - 40	15.0	205
20 - 80	30.0	326
40 - 160	60.0	326

For forms 51 and up, the standard instantaneous unit has the following ratings, listed in Table VI:

TABLE VI
STANDARD INSTANTANEOUS UNIT COIL RATINGS - FORMS 51 AND UP

RANGE		SERIES OR PARALLEL	RATINGS CONTINUOUS	ONE SECOND ††
0.5 - 4.0	0.5 - 2.0	Series	0.75	25.0
	1.0 - 4.0	Parallel	1.5	50.0
2.0 - 16.0	2.0 - 8.0	Series	3.0	130.0
	4.0 - 16.0	Parallel	6.0	260.0
10.0 - 80.0	10.0 - 40.0	Series	15.0	400.0
	20.0 - 80.0	Parallel	25.0	600.0
20.0 - 160.0	20.0 - 80.0	Series	25.0	600.0
	40.0 - 160.0	Parallel	25.0	600.0

†† Higher currents (I) may be applied for shorter lengths of time (T) in accordance with the formula:

$$I = \sqrt{\frac{K}{T}} \qquad K = constant$$

The current-closing rating of the contacts is 30 amperes for voltages not exceeding 250 volts.

CHARACTERISTICS

INDUCTION UNIT

The induction unit consists of a conducting disk that passes through the poles of a permanent magnet and an electromagnet. The disk is free to rotate with a vertically suspended shaft, but is restrained in one direction by a spring. When energized with an alternating current of proper magnitude (set by the tap position), the electromagnet produces out of phase fluxes at its pole faces. These fluxes interact with induced currents in the disk to produce a torque on the disk. When this torque exceeds the restraining force of the spring, the disk begins to rotate at a speed determined by the magnetic dragging action of the permanent magnet. A post attached to the rotating shaft travels a specific distance (set by the time dial), and makes electrical contact with a fixed member.

Figure 6 gives the time for the induction unit to close its contacts for various multiples of pickup current and time dial settings. The time required for this unit to reset from contact closure to the Number 10 time dial position is approximately 60 seconds.

Burden data for induction unit coils is listed in Table VII. The impedance values are for the minimum tap. The impedance for other taps at pickup current (tap

rating) varies (approximately) inversely to the square of the current rating. The following equation illustrates this:

$$\text{Impedance of Any Tap at Tap Amps} = \left(\frac{\text{Minimum Tap Amps}}{\text{Tap Amps}}\right)^2 \times \left(\text{Impedance at Minimum Tap}\right)$$

TABLE VII
BURDENS OF INDUCTION UNIT COILS

PICKUP RANGE (AMPS)	FREQ. (Hz)	TAP	VOLT-AMPS AT FIVE AMPS CALCULATED FROM INPUT AT MINIMUM PICKUP (I^2Z)	WATTS	POWER FACTOR
1.0-3.0	60	1	118.4	15.2	0.13
	50	1	98.6	12.7	0.13
1.5-4.5	60	1.5	52.5	6.7	0.13
	50	1.5	43.7	5.6	0.13
2.5-7.5	60	2.5	18.8	2.5	0.13
	50	2.5	15.7	2.1	0.13
4.0-12	60	4	7.4	0.95	0.13
	50	4	6.2	0.79	0.13

For forms 51 and up, the burden of the induction unit is as shown in Table VIII:

TABLE VIII
BURDENS OF INDUCTION UNIT COILS - FORMS 51 AND UP

PICKUP RANGE (AMPS)	FREQ. (Hz)	TAP	VOLT-AMPS AT FIVE AMPS CALCULATED FROM INPUT AT MINIMUM PICKUP (I^2Z)	IMP. OHMS	POWER FACTOR
0.6 - 1.8	60	0.6	110.75	4.43	0.32
	50	0.6	48.0	1.92	0.33
1.5 - 4.5	60	1.5	17.75	0.71	0.35
	50	1.5	11.5	0.46	0.37
2.5 - 7.5	60	2.5	6.75	0.27	0.44
	50	2.5	5.75	0.23	0.47
4.0 - 12	60	4.0	4.48	0.18	0.52
	50	4.0	4.05	0.16	0.47

STANDARD INSTANTANEOUS UNIT

The standard instantaneous unit is an electromagnet that attracts a hinged armature when sufficient current is applied. The armature carries a "T" shaped moving contact that bridges two stationary contacts when the coil is energized. A target is displayed when the unit operates. Pressing the button in the lower left corner of the relay cover resets the target.

The pickup range can be adjusted continuously over a four to one range by using the adjustable pole piece. When the top of the core is lined up with the calibration stampings, an approximate value of pickup can be determined. Dropout is about 40 to 50 % of pickup.

Figure 7 shows the variation of operating time with applied current for this unit. Burden data of the standard instantaneous unit is tabulated in Table IX.

TABLE IX
BURDEN OF STANDARD INSTANTANEOUS UNIT

PICKUP RANGE (AMPS)	FREQ (HZ)	AMPS	VOLT-AMPS††	IMPEDANCE (OHMS)	POWER FACTOR
0.5 - 2	50	5	310	12.4	0.84
	60	5	330	13.2	0.78
1 - 4	50	5	94	3.75	0.77
	60	5	100	4.0	0.71
2 - 8	50	5	23	0.94	0.77
	60	5	25	1.0	0.71
4 - 16	50	5	5.8	0.23	0.77
	60	5	6.2	0.25	0.71
10 - 40	50	5	0.9	0.04	0.77
	60	5	1.0	0.04	0.71
20 - 80	50	5	0.23	0.01	0.77
	60	5	0.25	0.01	0.71
40 - 160	50	5	0.07	0.003	0.71
	60	5	0.07	0.003	0.71

†† Volt-amperes at 5 amps calculated from input at minimum pickup (I^2Z).

CONSTRUCTION

The IAC66A, B, and C relays are mounted in an S1 case (that does not have an upper contact block). The case is suitable for either semi-flush or surface mounting on panels up to two inches thick. Hardware is available for all panel thicknesses. To be sure that the proper hardware will be provided, panel thickness should be specified on the order for the relay. Outline and panel drilling dimensions are shown in Figure 5.

The relay components are mounted on a cradle assembly that can easily be removed from the relay case. The cradle is locked in the case by latches at the top and bottom. Electrical connections between case and cradle blocks are completed through removable connection plugs. Separate testing plugs can be inserted in place of the connection plugs to test the relay in its case. The cover is attached to the case from the front, and includes an interlock arm that prevents the cover from being replaced until the connection plug has been inserted.

The induction unit, consisting of a U-magnet, drag magnet and a disk assembly, is mounted on a metal frame. The pickup of the induction unit is set by a tap block located near the top of the relay. The time delay is adjusted by turning the molded time dial, located just below the tap block.

The standard instantaneous unit is mounted just above the drag magnet on the right hand side. The adjustable core can be raised or lowered to change the pickup of the unit.

The unit just above the drag magnet on the left is a target seal-in unit for the induction unit. This seal in unit does not have an adjustable core, but tap screws located on the right side of the unit can be used to change pickup.

Relay construction is illustrated in Figures 1A and 1B.

RECEIVING, HANDLING AND STORAGE

This relay, when not included as part of a control panel, will be shipped in a carton designed to protect it against damage. Upon receipt, immediately examine the relay for any damage sustained in transit. If damage from rough handling is evident, file a damage claim at once with the transportation company, and promptly notify the nearest General Electric Sales Office.

If the equipment is not to be installed immediately, it should be stored indoors in a location that is dry and protected from dust, metallic chips and severe atmospheric contaminants.

ACCEPTANCE TESTS

Immediately upon receipt of the relay an **INSPECTION AND ACCEPTANCE TEST** should be made to make sure that no damage has been sustained in shipment and that the relay calibrations have not been disturbed. If the examination or test indicates that readjustment is necessary, refer to the section on **SERVICING.**

These tests may be performed as part of the installation or as acceptance tests, at the discretion of the user.

Since most operating companies use different procedures for acceptance and for installation tests, the following section includes all applicable tests that may be performed on these relays.

VISUAL INSPECTION

Check the nameplate stamping to make sure that the model number and rating of the relay agree with the requisition.

Remove the relay from its case and check that there are no broken or cracked molded parts or other signs of physical damage, and that all screws are tight.

MECHANICAL INSPECTION

1. There should be no noticeable friction when the disk is rotated slowly clockwise. The disk should return by itself to its rest position.

2. Make sure the control spring is not deformed, nor its convolutions tangled or touching.

3. The armature and contacts of the seal-in unit, as well as the armature and contacts of the instantaneous unit, should move freely when operated by hand; there should be at least 1/32" wipe on the seal-in contacts.

4. The targets in the seal-in unit and in the instantaneous unit must come into view and latch when the armatures are operated by hand, and should unlatch when the target release lever is operated.

5. Make sure that the fingers and shorting bars agree with the internal-connections diagram.

CAUTION

Every circuit in the drawout case has an auxiliary brush. It is especially important on current circuits and other circuits with shorting bars that the auxiliary brush be bent high enough to engage the connecting plug or test plug before the main brushes do. This will prevent Current Transformer (CT) secondary circuits from being opened. See Figure 1.

ELECTRICAL TESTS

DRAWOUT RELAYS, GENERAL

Since all drawout relays in service operate in their cases, it is recommended that they be tested in their cases or an equivalent steel case. In this way, any magnetic effects of the enclosure will be accurately duplicated during testing. A relay may be tested without removing it from the panel by using a 12XLA13A test plug. This plug makes connections only with the relay and does not disturb any shorting bars in the case. The 12XLA12A test plug may also be used. Although this test plug allows greater testing flexibility, it requires C.T. shorting jumpers and the exercise of greater care, since connections are made to both the relay and the external circuitry.

POWER REQUIREMENTS, GENERAL

All devices operating on alternating current (AC) are affected by frequency. Since non-sinusoidal waveforms can be analyzed as a fundamental frequency plus harmonics of that fundamental frequency, it follows that alternating-current devices (relays) will be affected by applied waveforms. AC relays (and AC devices in general) are significantly affected by the application of non-sinusoidal waveforms.

Therefore, in order to test AC relays properly it is essential to use a test voltage and/or current waveform that is sinusoidal. The purity of the sine wave (i.e., its freedom from harmonics) cannot be expressed as a finite number for any particular relay; however, any relay using tuned circuits, RL or RC networks, or saturating electromagnets (such as time-overcurrent relays) would be especially affected by non-sinusoidal wave forms.

TIME-OVERCURRENT UNIT

Rotate the time dial slowly and check, by means of a lamp in the circuit, that the contacts just close at the zero (0) time-dial setting.

The point at which the contacts just close can be adjusted by running the stationary contact brush in or out by means of its adjusting screw. This screw should be held securely in its support.

With the contacts just closing at No. 0 time-dial setting, there should be sufficient gap between the stationary contact brush and its metal backing strip to ensure approximately 1/32" wipe.

The minimum current at which the contacts will just close is determined by the position of the tap screw in the tap block at the top of the relay.

When changing the current setting with the relay in its case, remove the connection plug, to short the current-transformer secondary circuit. Next, screw the tap screws into the tap marked for the desired current, and then replace the connection plug.

The pickup of the unit for any current tap is adjusted by means of a spring-adjusting ring just above the control spring. See Figure 1B. The ring may be turned by inserting a screw driver in the notches around the edge. By turning the ring, the operating current of the unit may be brought into agreement with the tap setting employed if, for some reason, this adjustment has been disturbed. This adjustment also permits any desired setting intermediate between the various tap settings to be obtained. The unit is adjusted at the factory to close its contacts from any time-dial position at a minimum current within five percent (5%) of the tap plug setting. The unit resets at 90% of the minimum closing value.

Time Setting

The setting of the time dial determines the length of time the unit requires to close its contacts when the current reaches a predetermined value. The contacts are just closed when the dial is set on 0. When the dial is set on 10, the disk must travel the maximum amount to close the contacts; therefore this setting gives the maximum time setting.

The primary adjustment for the time of operation of the unit is made by means of the time dial. However, further adjustment is obtained by moving the permanent magnet along its supporting shelf; moving the magnet toward the disk shaft decreases the time, while moving it away increases the time.

Pickup Test

Use rated frequency for both the pickup and time tests.

Set the relay at the 0.5 time-dial position and 2.0 ampere tap. Using the test connections in Figure 9, the main unit should close its contacts within ±2.0%

of tap value current. All other tap positions should pick up at tap value ±5% of tap value.

Time Test

Set the relay at No. 5 time-dial setting and minimum amp tap. Using the test connection in Figure 9, apply five times (5x)tap current to the relay. The relay should operate in 18.6 seconds ±0.9 second. All other tap, time-dial and multiples of pickup combinations should agree with the time-curve value ±7%.

INSTANTANEOUS UNIT

Make sure that the instantaneous unit is wired for the range in which it is to operate (see Internal-Connections Diagram, Figures 2 - 4) and connected as indicated in test circuit Figure 9. Whenever possible, use the higher range, since the higher range has a higher continuous rating.

Setting the Instantaneous Unit

Loosen the locknut and turn the pole piece toward the desired setting. See Figure 1A. Turning the pole piece up increases the pickup; turning the pole piece down decreases the pickup. Bring up the current slowly until the unit picks up. It may be necessary to repeat this operation until the desired pickup value is obtained. Once the desired pickup value is reached, tighten the locknut.

CAUTION

The instantaneous unit is rated 1.5 times minimum pick up. Do not leave the test current on too long, as it may damage the unit.

Pickup Test

With the unit connected for high-range operation (parallel connections) and the target in the "Down" position, check the pickup at the maximum calibration mark; the pickup should be within the limits in Table X.

TABLE X

UNIT RANGE AMPERES	MINIMUM AMPERES	CALIBRATION AMPERES	MAXIMUM AMPERES
0.5 - 4.0	3.6	4.0	4.5
2.0 - 16.0	14.4	16.0	17.7
10.0 - 80.0	72.0	80.0	89.0
20.0 - 160.0	144.0	160.0	177.0

TARGET AND SEAL-IN UNIT

The target and seal-in unit has an operating coil tapped at 0.2 and 2.0 amperes. The relay is shipped from the factory with the tap screw in the lower-ampere position. The tap screw is the screw holding the right-hand stationary contact. To change the tap setting, first remove one screw from the left-hand

stationary contact and place it in the desired tap. Next, remove the screw from the first, undesired, tap and place it on the left hand stationary contact where the first screw was removed. See Figure 1A. This procedure is necessary to prevent the right-hand stationary contact from getting out of adjustment. Screws should **never** be left in **both** taps at the same time.

Pickup and Dropout Test

1. Connect relay studs 1 and 2 (See Internal-Connections Diagram) to a DC source, ammeter and load box so that the current can be controlled over a range of 0.1 to 2.0 amperes.

2. Turn the time dial to the ZERO (0) TIME DIAL position.

3. Increase the current slowly until the seal-in unit picks up. See Table XI.

4. Move the time dial away from the ZERO TIME-DIAL position; the seal-in unit should remain in the picked-up position.

5. Decrease the current slowly until the seal-in unit drops out. See Table XI.

TABLE XI

TAP	PICK-UP CURRENT	DROPOUT CURRENT
0.2	0.15 - 0.195	.050 OR MORE
2.0	1.50 - 1.95	.55 OR MORE

INSTALLATION

The following tests are to be performed at the time of installation.

TIME-OVERCURRENT UNIT

1. Set the tap screw in the desired tap. Using the test circuit in Figure 9, apply approximately twice tap value until contacts just close. Reduce the current until the light in series with the contacts begins to flicker. This value of current is defined as pickup, and should be within 5% of tap value.

2. Check the operating time at some multiple of tap value. This multiple of tap value may be five times (5x) the tap rating, or the maximum fault current for which the relay must coordinate. The value used is left to the discretion of the user. The operating time should be the time shown on the time-current curve ±7%.

TARGET AND SEAL-IN UNIT

1. Make sure that the tap screw is in the desired tap.

2. Perform pickup and dropout tests, as outlined in the **ACCEPTANCE TESTS** section.

INSTANTANEOUS UNIT

1. Select the desired range by making the proper connections at the rear of the relay (See Internal-Connections Diagram). Whenever possible, be sure to select the higher range since it has a higher continuous rating.

2. Set the instantaneous unit to pick up at the desired current level. See SETTING THE INSTANTANEOUS UNIT in the **ACCEPTANCE TESTS** section.

All the tests described above under Installation Tests must be performed at the time of installation. In addition, if those tests described under the **ACCEPTANCE TESTS** section were not performed prior to installation, it is recommended they be performed at this time.

PERIODIC CHECKS AND ROUTINE MAINTENANCE

In view of the vital role of protective relays in the operation of a power system, it is important that a periodic test program be followed. It is recognized that the interval between periodic checks will vary depending upon environment, type of relay and the user's experience with periodic testing. Until the user has accumulated enough experience to select the test interval best suited to his individual requirements, it is suggested that the points listed below be checked at an interval of from one to two years.

These tests are intended to make sure that the relays have not deviated from their original setting. If deviations are encountered, the relay must be retested and serviced as described in this manual.

TIME-OVERCURRENT UNIT

1. Perform Pickup Test as described in the **ACCEPTANCE TESTS** section for the tap in service.

2. Perform the Time Test as described in the **ACCEPTANCE TESTS** section.

INSTANTANEOUS UNIT

1. Check that the instantaneous unit picks up at the desired current level, as outlined in the **ACCEPTANCE TESTS** section.

TARGET AND SEAL-IN UNIT

1. Check that the unit picks up at the values shown in table XI.

2. Check that the unit drops out at 30% or more of tap value.

CONTACT CLEANING

For cleaning relay contacts, a flexible burnishing tool should be used. This consists of a flexible strip of metal with an etch-roughened surface, resembling in effect a superfine file. The polishing action is so delicate that no scratches are left, yet it will clean off any corrosion thoroughly and rapidly. Its flexibility ensures the cleaning of the actual points of contact. Do not use knives, files, abrasive paper or cloth of any kind to clean relay contacts.

SYSTEM TEST

Although this Instruction Book is primarily written to check and set the IAC relay, overall functional tests to check the system operation are recommended at intervals based on the customer's experience.

SERVICING

TIME-OVERCURRENT UNIT

If it is found during installation or periodic testing that the time-overcurrent unit is out of limits, the unit may be recalibrated as follows:

Pickup Tests:

The pickup of the unit for any current tap is adjusted by means of a spring-adjusting ring. The ring may be turned by inserting a screw driver in the notches around the edge. By turning the ring, the operating current of the unit may be brought into agreement with the tap setting employed if, for some reason, this adjustment has been disturbed. This adjustment also permits any desired setting intermediate between the various tap settings to be obtained. The unit is adjusted at the factory to close its contacts from any time-dial position at a minimum current within five percent (5%) of the tap plug setting. The unit resets at 90% of the minimum closing value.

Rotate the time dial to the No. 0 time-dial setting and check, by means of a lamp in the circuit, that the contacts just close.

The point at which the contacts just close can be adjusted by running the stationary contact brush in or out by means of its adjusting screw. This screw should be held securely in its support.

With the contacts just closing at No. 0 time-dial setting, there should be sufficient gap between the stationary contact brush and its metal backing strip to ensure approximately 1/32" wipe.

Connect the operating-coil terminals to a source of the proper frequency and good wave form, having a voltage of 120 or more, with pure resistance load boxes for setting the current. See Test-Circuit Figure 9.

With the tap plug in the minimum amp tap and the time dial set where contacts are just open, adjust the control spring to just close the contacts within the limits given below, which are plus and minus 2 percent (±2%) of tap amps.

It should never be necessary to wind up the control-spring adjuster more than 30° (one notch) or unwind it more than 90° (three notches) from the factory setting to obtain the above pick up setting.

With the tap plug in the minimum amp tap and the time dial at No. 10 time setting, check the current required to just move the disk away from the stop arm. This current should be within ±10% of tap amperes. If the disk moves at the lower limit, check that the movement is not over one-half inch (1/2") measured along the perimeter of the disk.

Time Tests

With the tap plug in the minimum amp tap and the time dial at No. 5 time setting, apply five times (5x) tap current to the relay.

Adjust the drag magnet to obtain a closing time as near as possible to 18.6 seconds, but at least between 17.7 and 19.5 seconds. The magnet should be approximately in the middle of its travel. The magnet is adjusted by loosening the nut under the magnet shelf. Moving the magnet in decreases the time. Moving the magnet out increases the time.

When adjusting the drag magnet, be sure the outer edge of the magnet never extends out beyond the cutout in the disk. Be sure the screw clamping the drag magnet to its supporting shelf is tight before proceeding with other time checks. Make sure the drag magnet does not hit the counterweight at any position of the disk.

With the tap plug in the minimum amp tap and the time dial at the No.5 time setting, check the contact closings at 2 and 10 times tap value. These closing times must be within the limits shown on Table XII.

TABLE XII

	60HZ	
	MIN SEC.	MAX SEC.
2 × Tap	42.6	49.0
10 × Tap	10.7	12.3

INSTANTANEOUS UNIT

1. Both contacts should close at the same time.

2. The backing strip should be so formed that the forked end (front) bears against the molded strip under the armature.

3. With the armature against the pole piece, the cross member of the "T" spring should be in a horizontal plane and there should be at least 1/32 inch wipe on the contacts. Check this by inserting a 0.012 inch feeler gage between the front half of the shaded pole and the armature, with the armature held closed. The contacts should close with the feeler gage in place.

TARGET AND SEAL-IN UNIT

Check steps 1 and 2 as described under INSTANTANEOUS UNIT above.

To check the wipe of the seal-in unit, insert a 0.012 inch feeler gage between the plastic residual of the armature and the pole piece, with the armature held closed. The contacts should close with the feeler gage in place.

RENEWAL PARTS

It is recommended that sufficient quantities of renewal parts be carried in stock to enable the prompt replacement of any that are worn, broken, or damaged.

When ordering renewal parts, address the nearest Sales Office of the General Electric Company, specify the quantity required and the name of the part wanted, and the complete model number of the relay for which the part is required.

Since the last edition, changes have been made in Table III and the immediately following text, and in Figure 3A.

LIST OF FIGURES

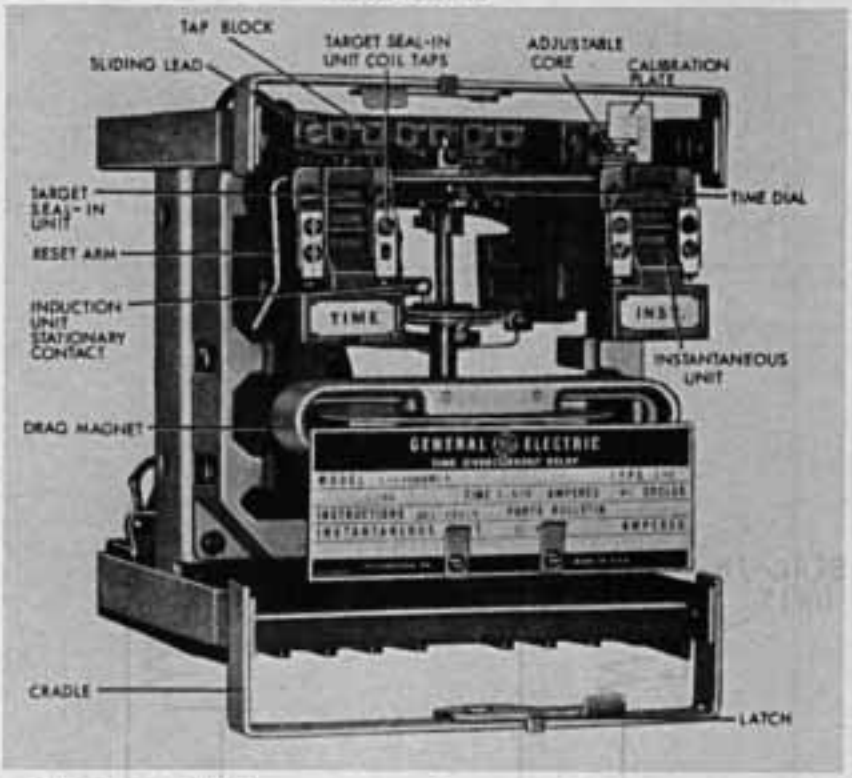


Figure 1A (8039978) Photograph: Type IAC66B Relay Out of Case (3/4 Front View)

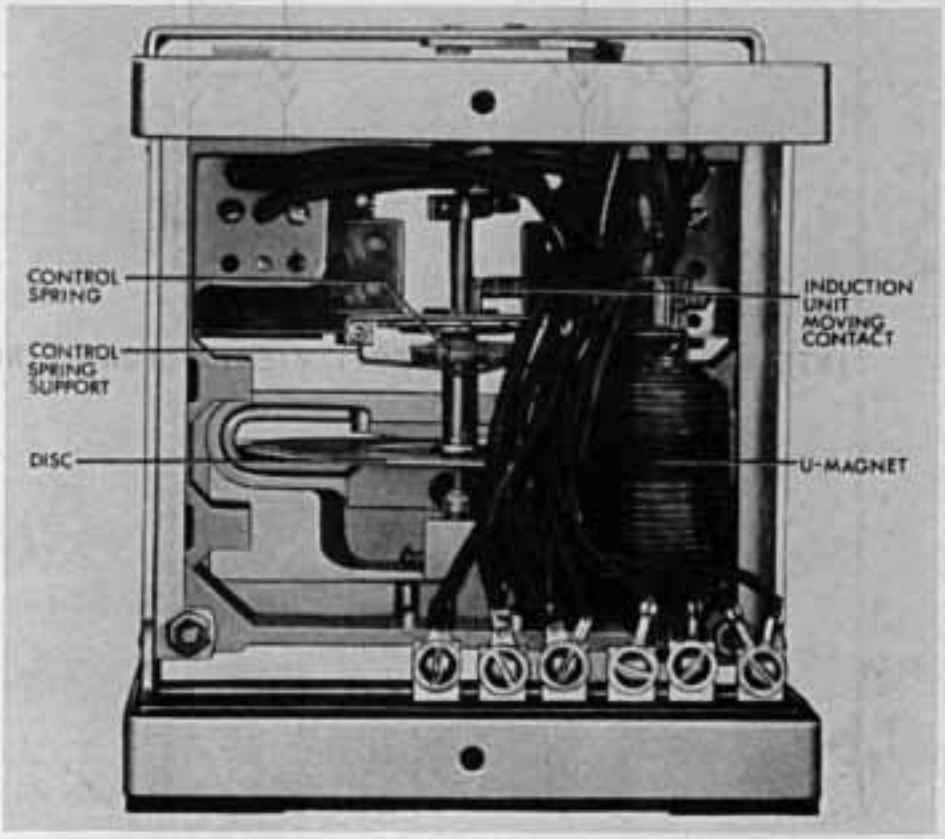
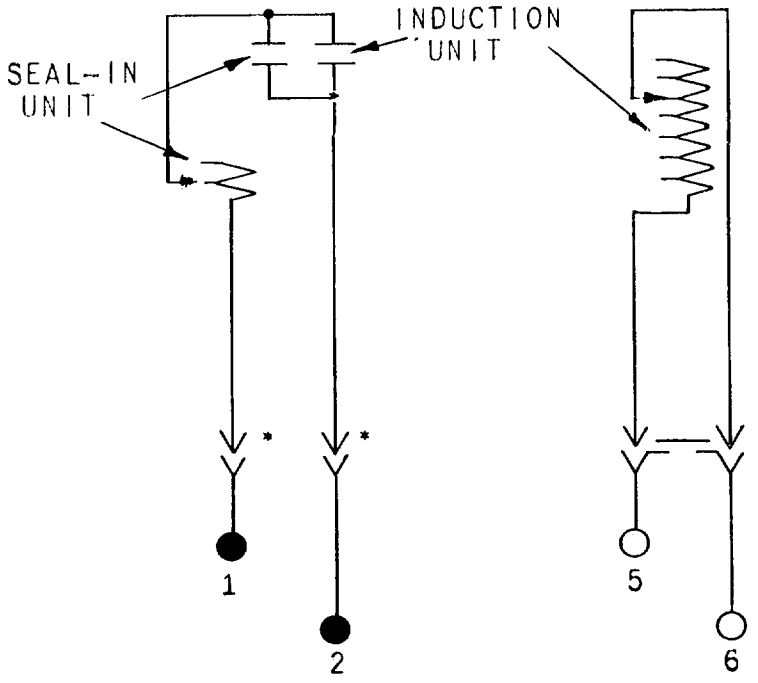


Figure 1B (8039981) Photograph: Type IAC66B Relay Out of Case (Rear View)



INTERNAL CONNECTIONS (FRONT VIEW) *=SHORT FINGER

Figure 2A (6209658-10) Internal Connections Diagram,
Type IAC66A Relay

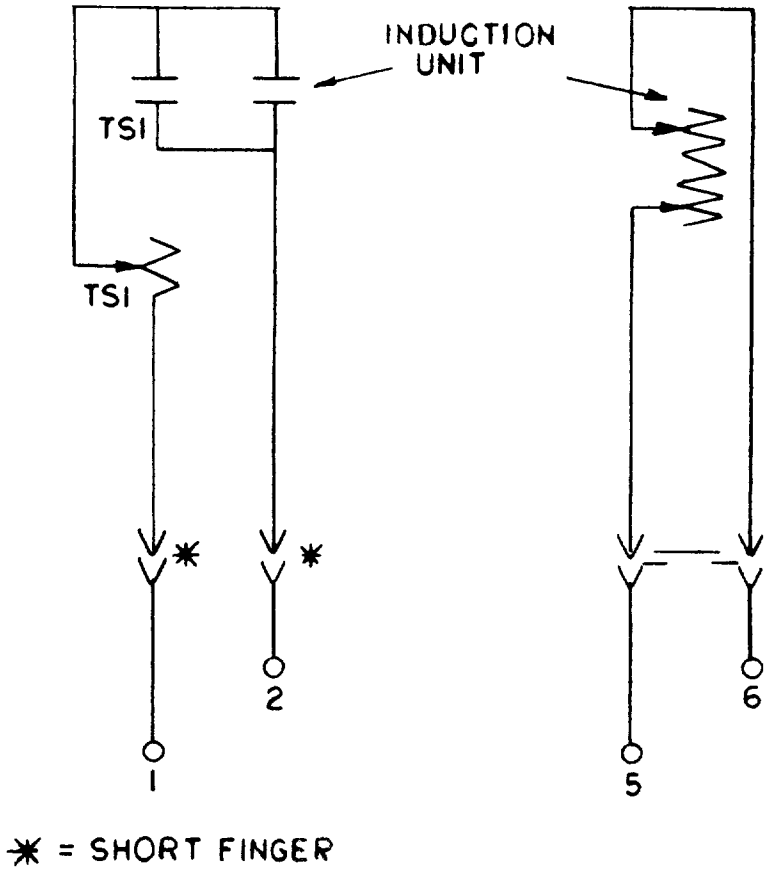


Figure 2B (0257A8339[5]) Internal Connections Diagram Type IAC66A, Forms 51 and up

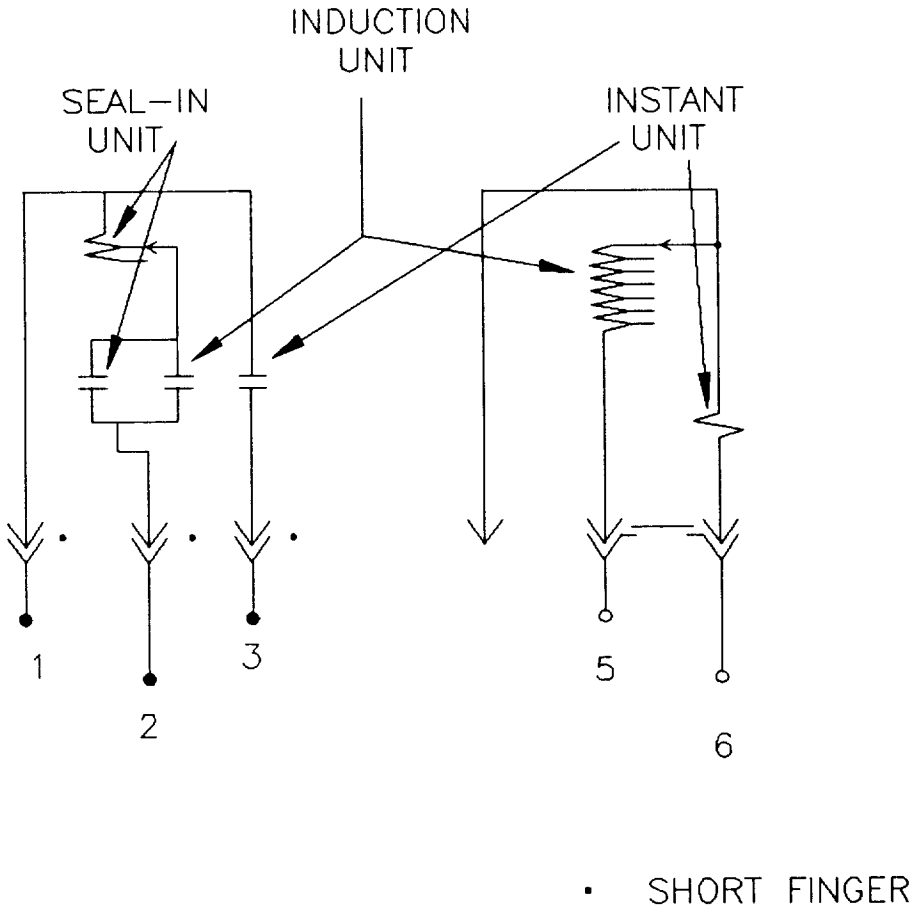


Figure 3A (6209661[11]) Internal Connections Diagram Type IAC66B

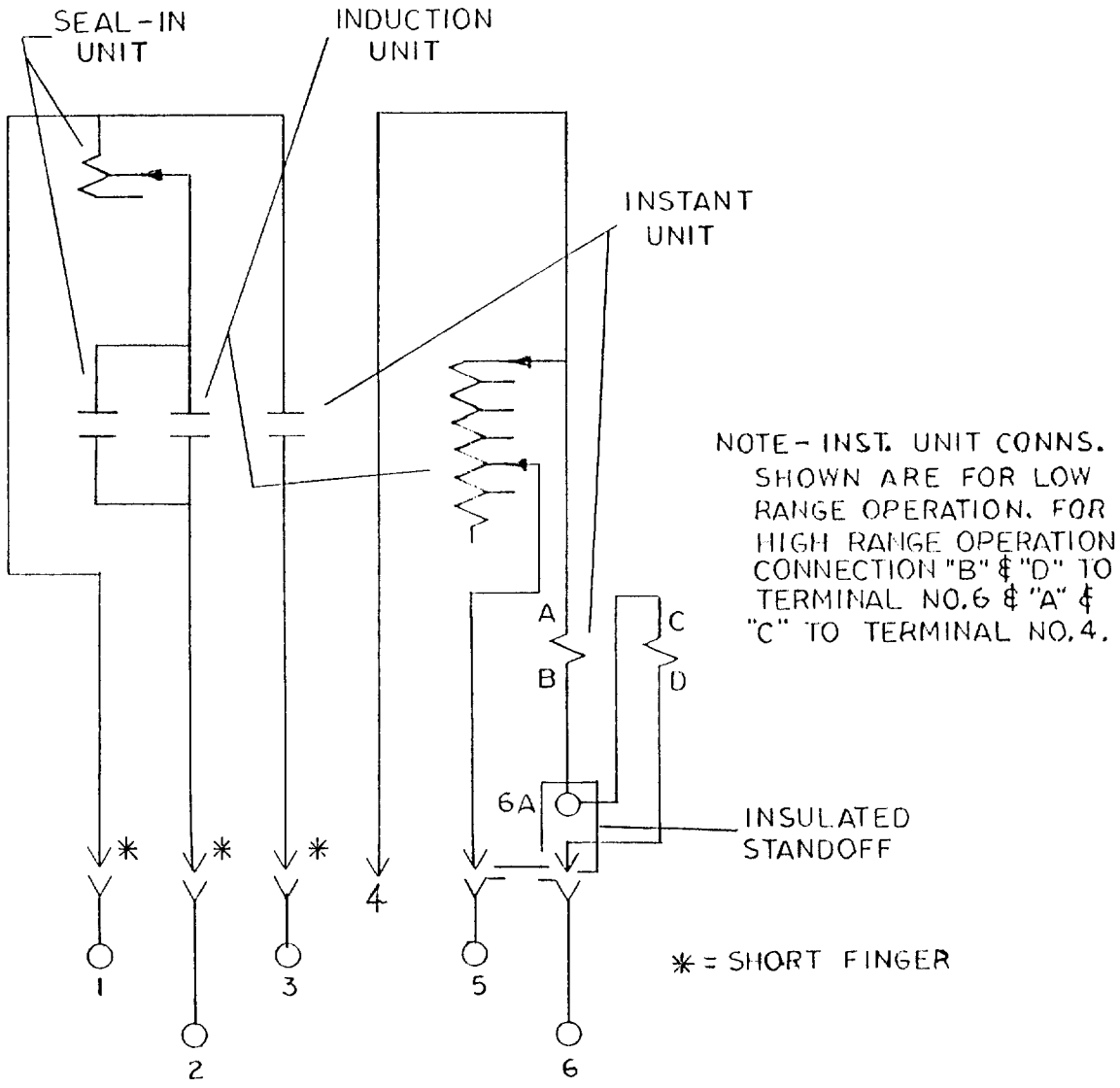
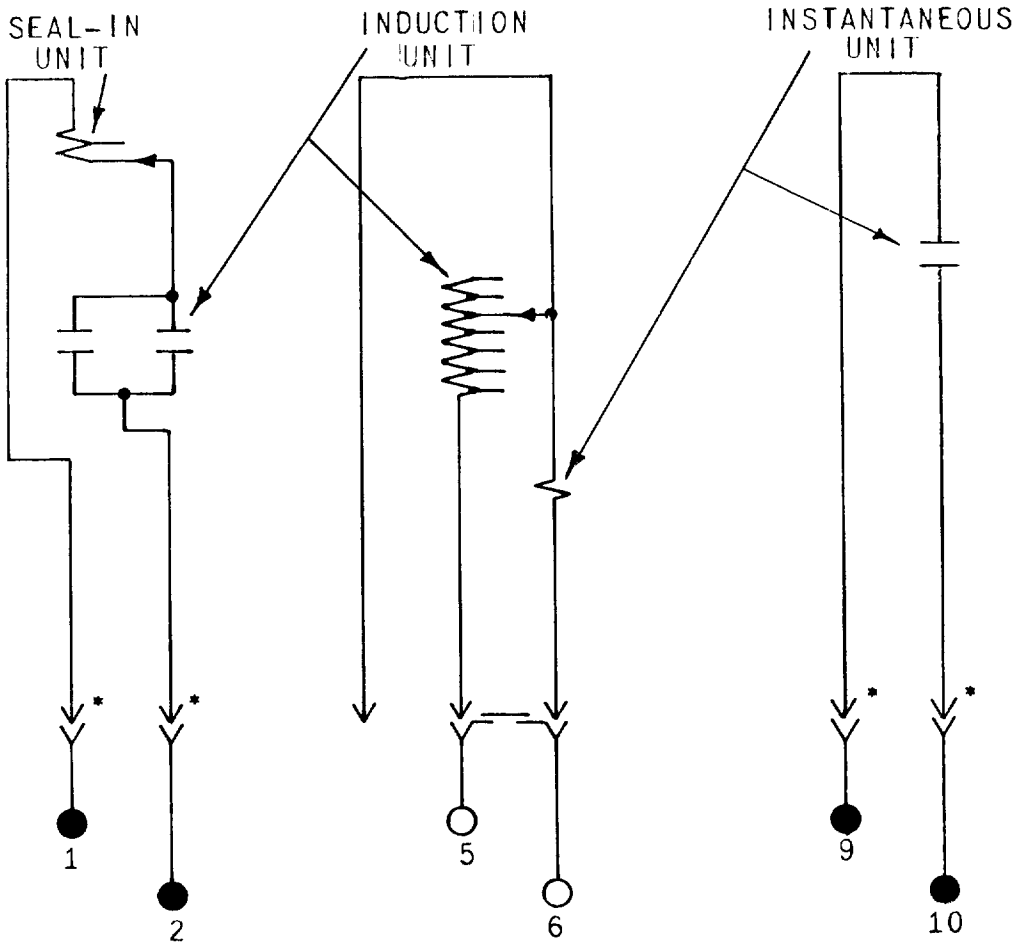


Figure 3B (0285A6667) Internal Connections Diagram Type IAC66B, Forms 51 and up



INTERNAL CONNECTIONS (FRONT VIEW) * = SHORT FINGER

Figure 4A (K-6375694-1) Internal Connections Diagram for Type IAC66C Relay (Front View)

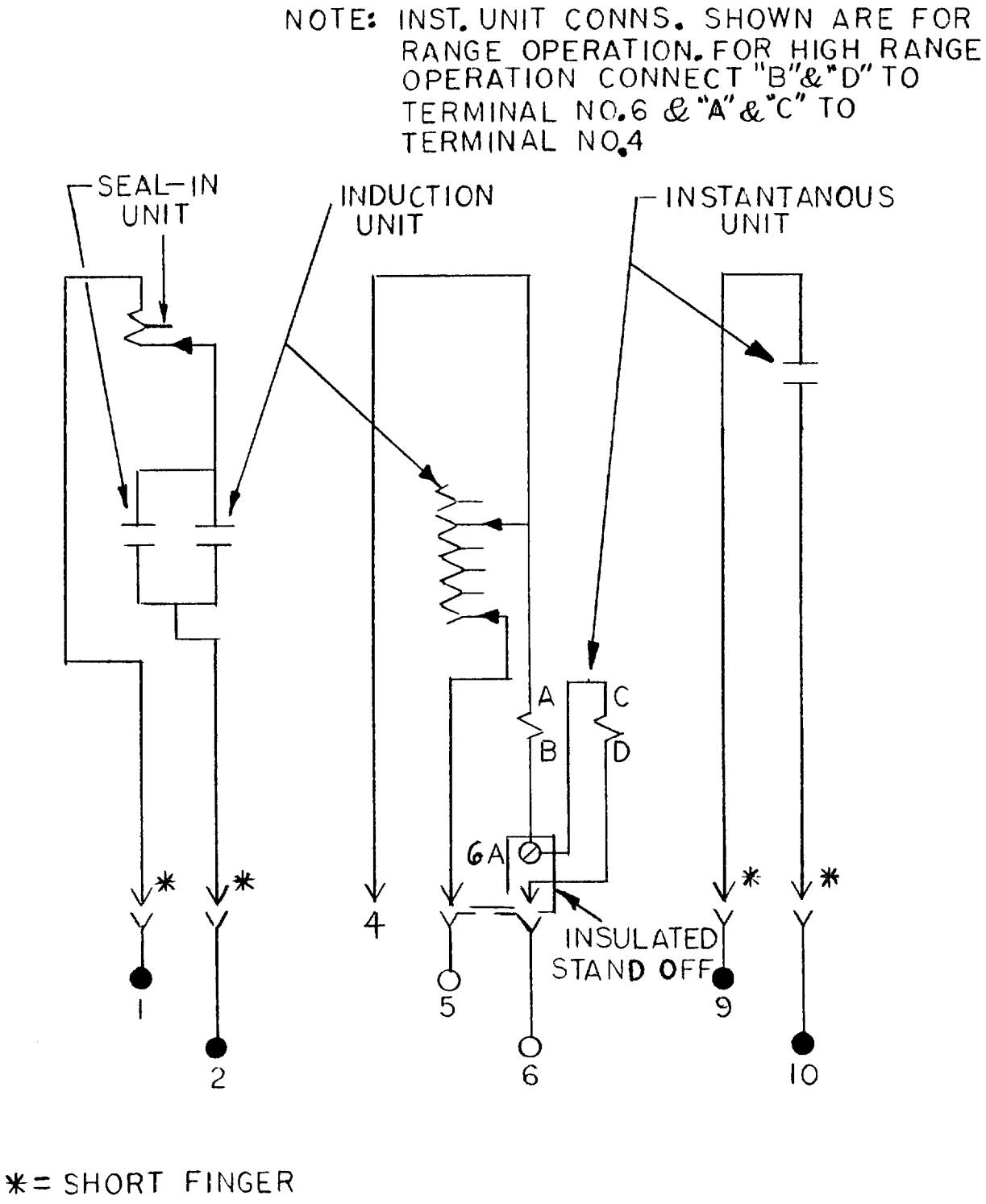


Figure 4B (0285A6747-0) Internal Connections Diagram Type IAC66C, Forms 51 and up

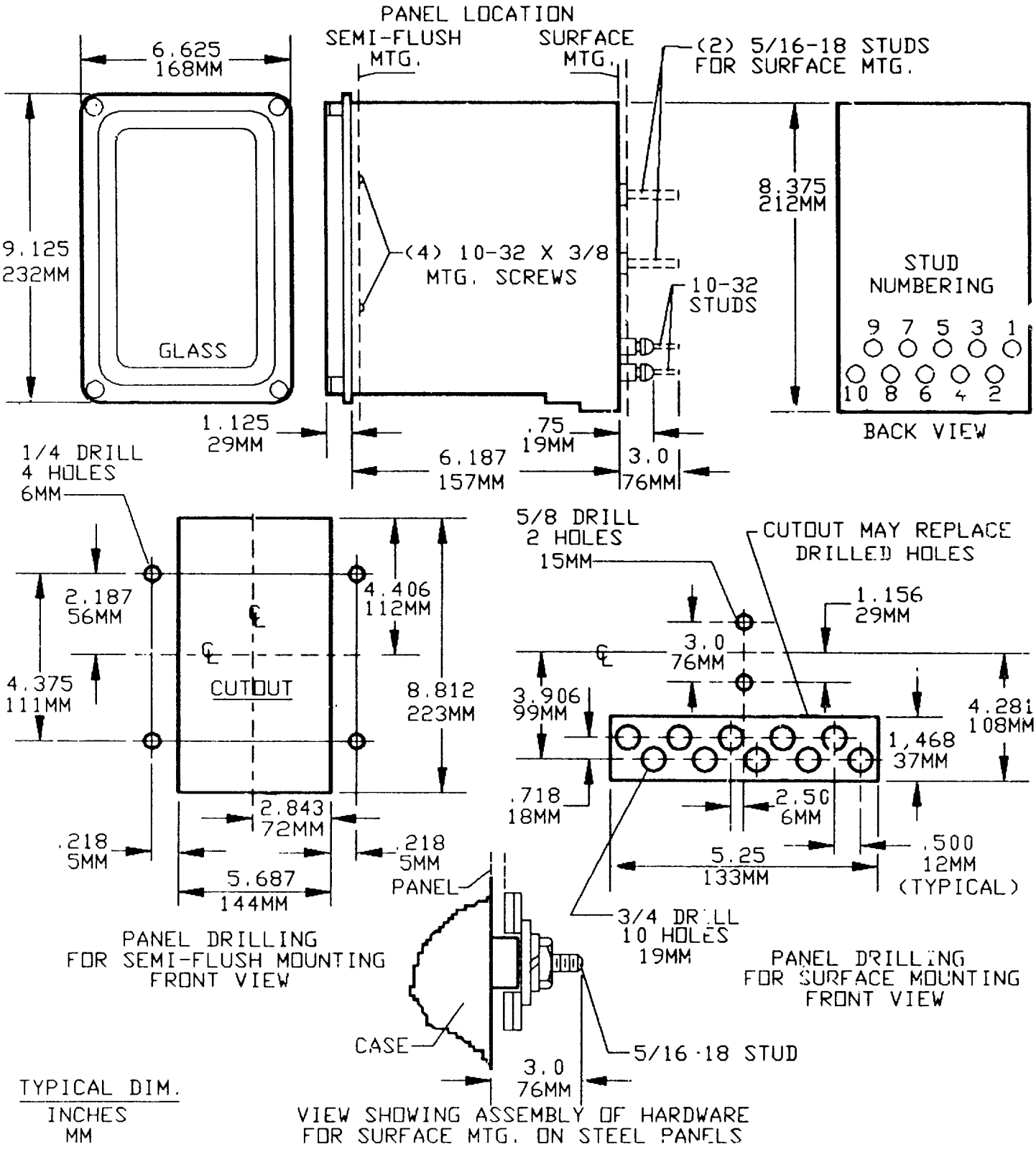


Figure 5 (6209271[8]) Outline and Panel Drilling Diagram,
Type IAC66 Relays

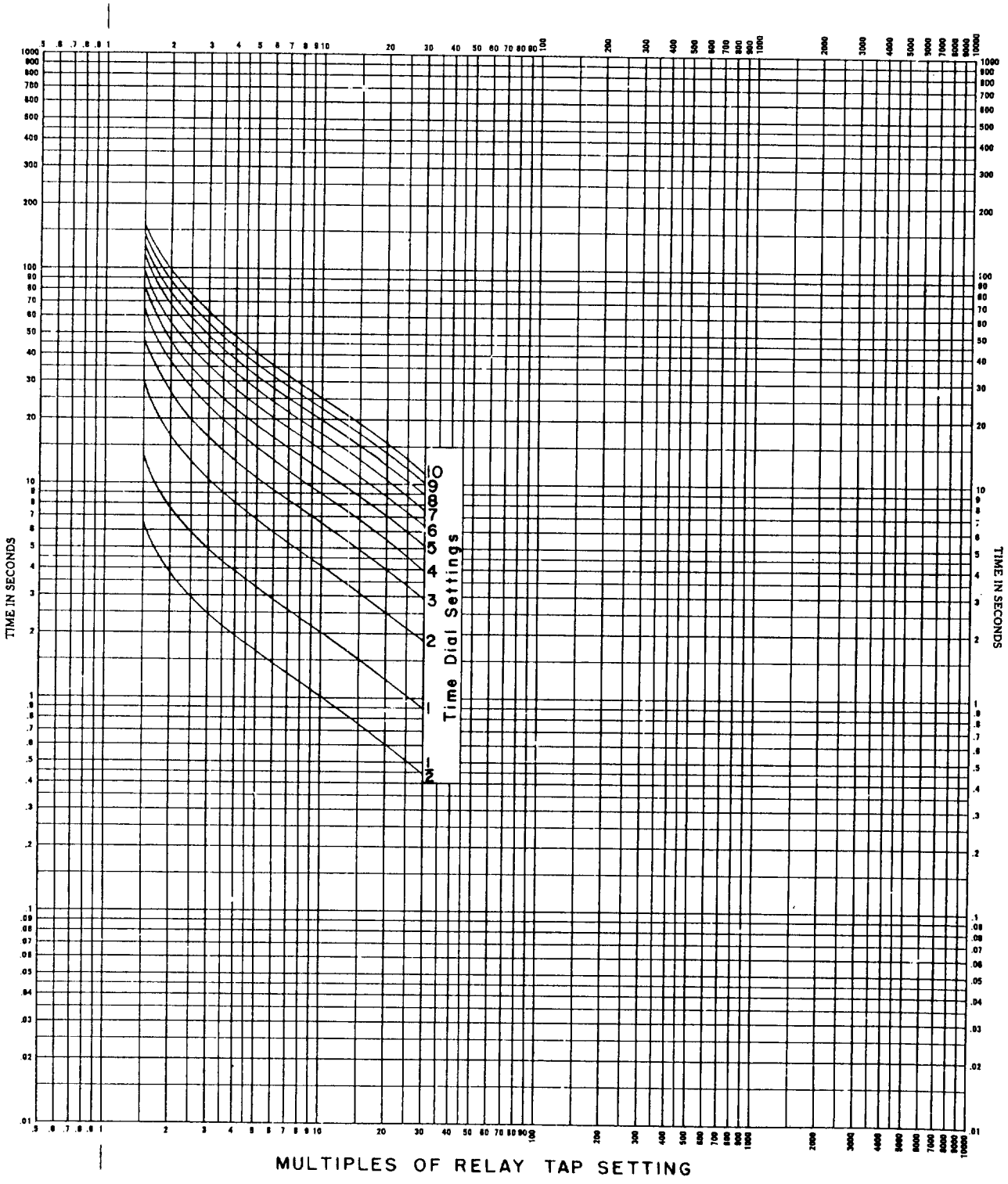


Figure 6 (0888B0273-0) Time Current Curve for the Long-time Overcurrent Unit

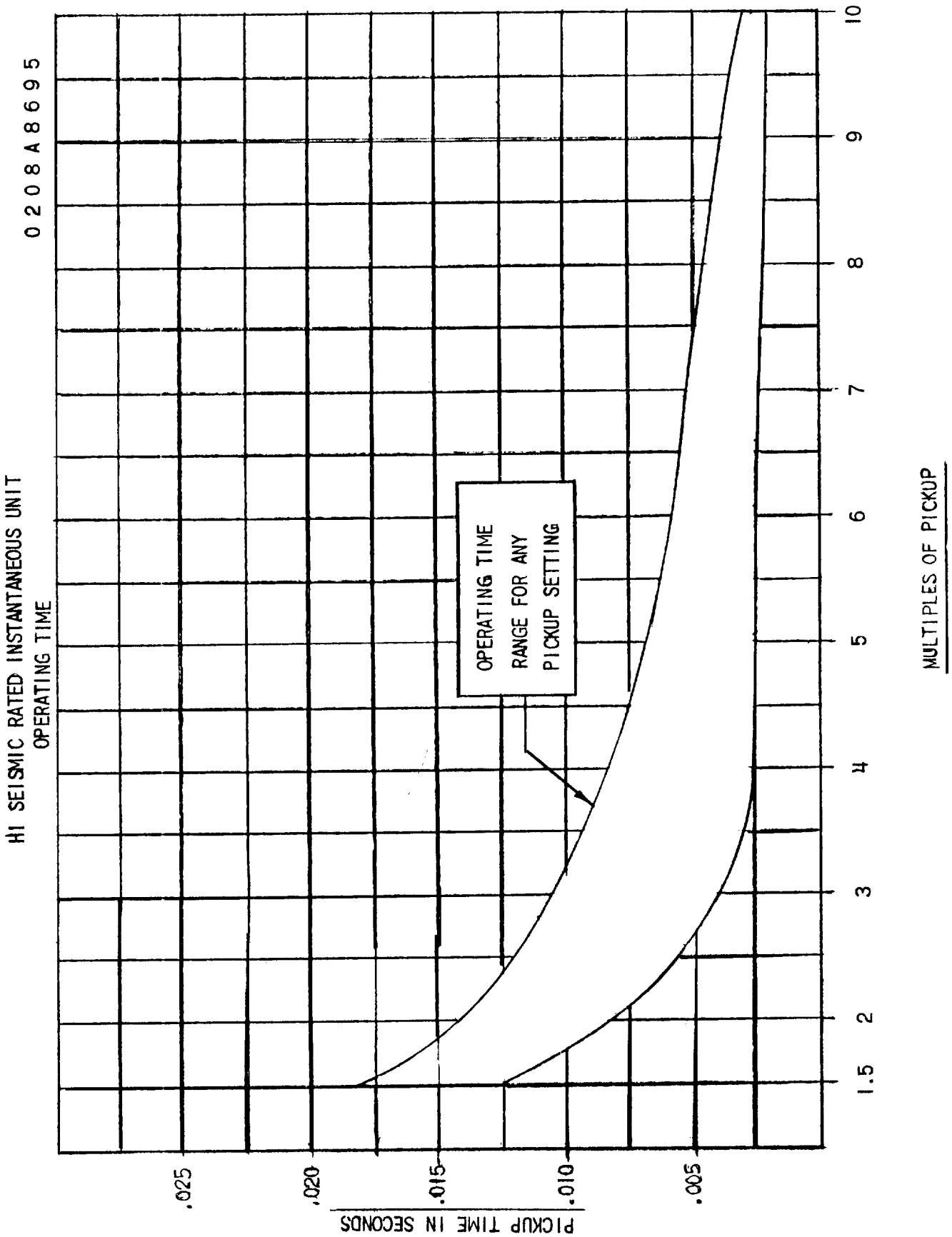
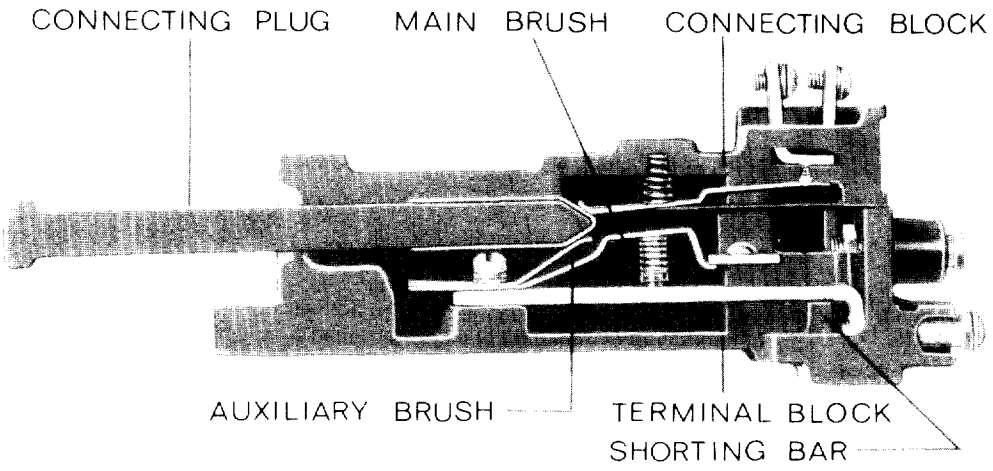


Figure 7 (0208A8695-1) Operating Time Versus Current for the Standard Instantaneous Unit



NOTE: AFTER ENGAGING AUXILIARY BRUSH CONNECTING PLUG TRAVELS 1/4 INCH BEFORE ENGAGING THE MAIN BRUSH ON THE TERMINAL BLOCK

Figure 8 (8025039) Photograph: Cross Section of Drawout Case Showing Position of Auxiliary Brushes

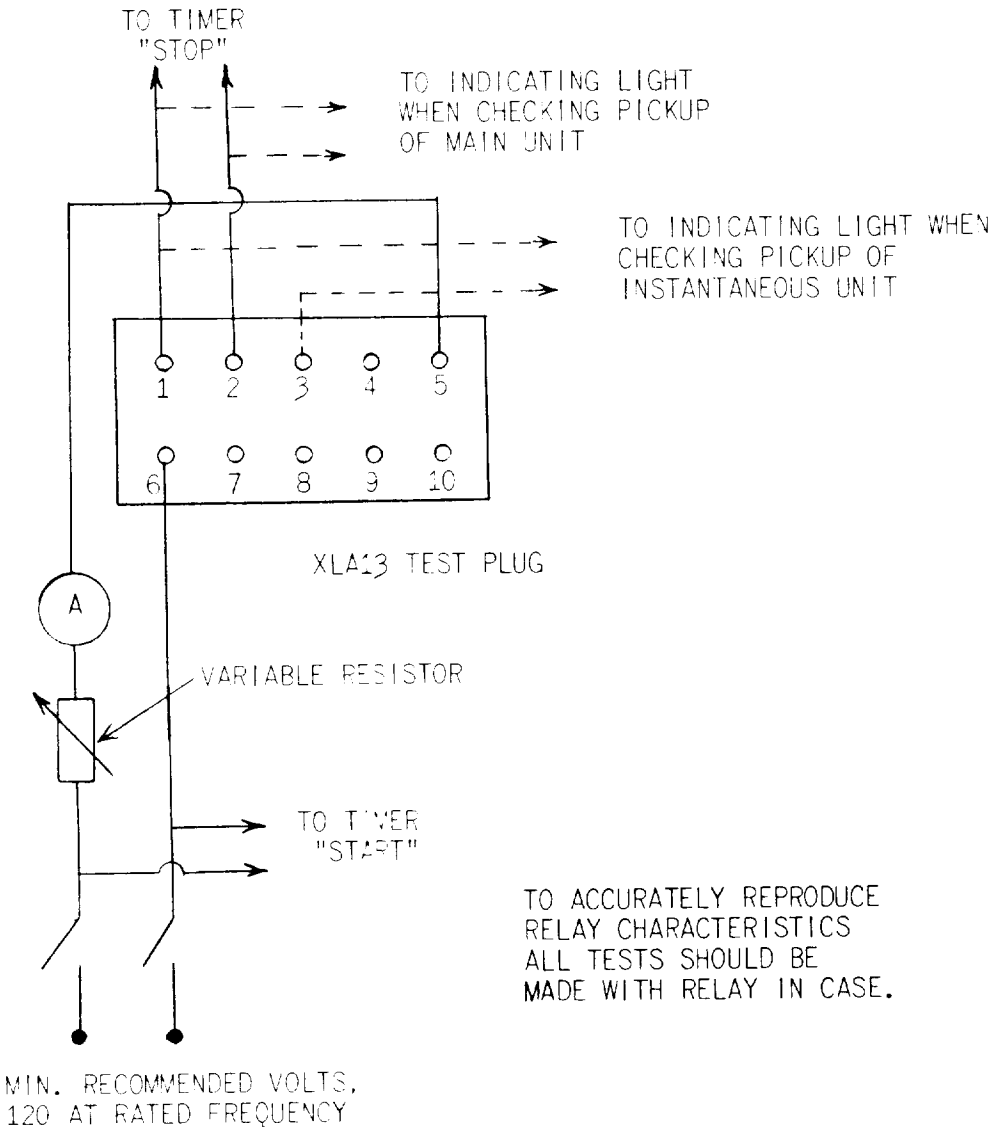


Figure 9 (6154399-7) Test connections for Testing Pickup & Time Curve of IAC Relays

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