INSTRUCTIONS

GEK- 45314
Insert Booklet GEK-45307

TRANSFORMER DIFFERENTIAL RELAY WITH PERCENTAGE AND HARMONIC RESTRAINT

TYPE STD26C

GENERAL ELECTRIC

TRANSFORMER DIFFERENTIAL RELAY WITH PERCENTAGE AND HARMONIC RESTRAINT

TYPE STD26C

INTRODUCTION

These instructions, together with instruction book GEK-45307 which is attached, form the instructions for the Type STD26C.

DESCRIPTION AND APPLICATION

The STD26 relay is a single phase harmonic restrained transformer percentage differential relay for the protection of high voltage three winding rectifier transformers. This relay is similar to the STD16 , except that the harmonic restraint is provided by the second harmonic only so that the normal odd harmonic flowing in a rectifier transformer will not reduce the relay sensitivity. This harmonic selection is accomplished by precisely tuned filters. However, the change in harmonic restraint does not change the application or setting calculation as outlined for the STD16, except the STD26C relay is so designed that the harmonic restraint may be set at 15% minimum.

Figure 1 illustrates the internal connections diagram for the STD26C relay.

Figures 8 and 9 of GEK-45307 illustrate the external wiring diagrams for the STD26C relay.

Figure 2 illustrates the test circuit for the STD26 relay. Note polarity when connecting DC sources.

TESTING INSTRUCTIONS

The STD26C relay may be tested per the instructions in the attached instruction book. In addition, since the harmonic restraint can be set at 15% by adjusting R1, this setting may be checked by adjusting the Id-c at 4.0 amps and the I_1 (current into relay) at 8.1 amps per the test circuit illustrated in Figure 14 with S2 switch closed to position "A".

A tolerance of $\pm$ 1% is acceptable, thus if the relay operated within 14 - 16% harmonic current restraint for the 15% calibration, no attempt should be made to obtain a more precise setting.

The following expression shows the relationship between the percent second harmonic, the d-c component, and the by-pass current.

$$\% \text{ SECOND HARMONIC} = \frac{.212Idc}{0.45I_1 + 0.5Idc} \times 100$$

By setting the Idc at 5.0 amps, and solving for the "% second harmonic" for 14 - 16%, the following by-pass current levels are required:

% H.R.	I_1
14%	9.1
15%	8.1
16%	7.3

This matter is discussed in more detail in the attached instruction book under the paragraph "Harmonic Current Restraint".

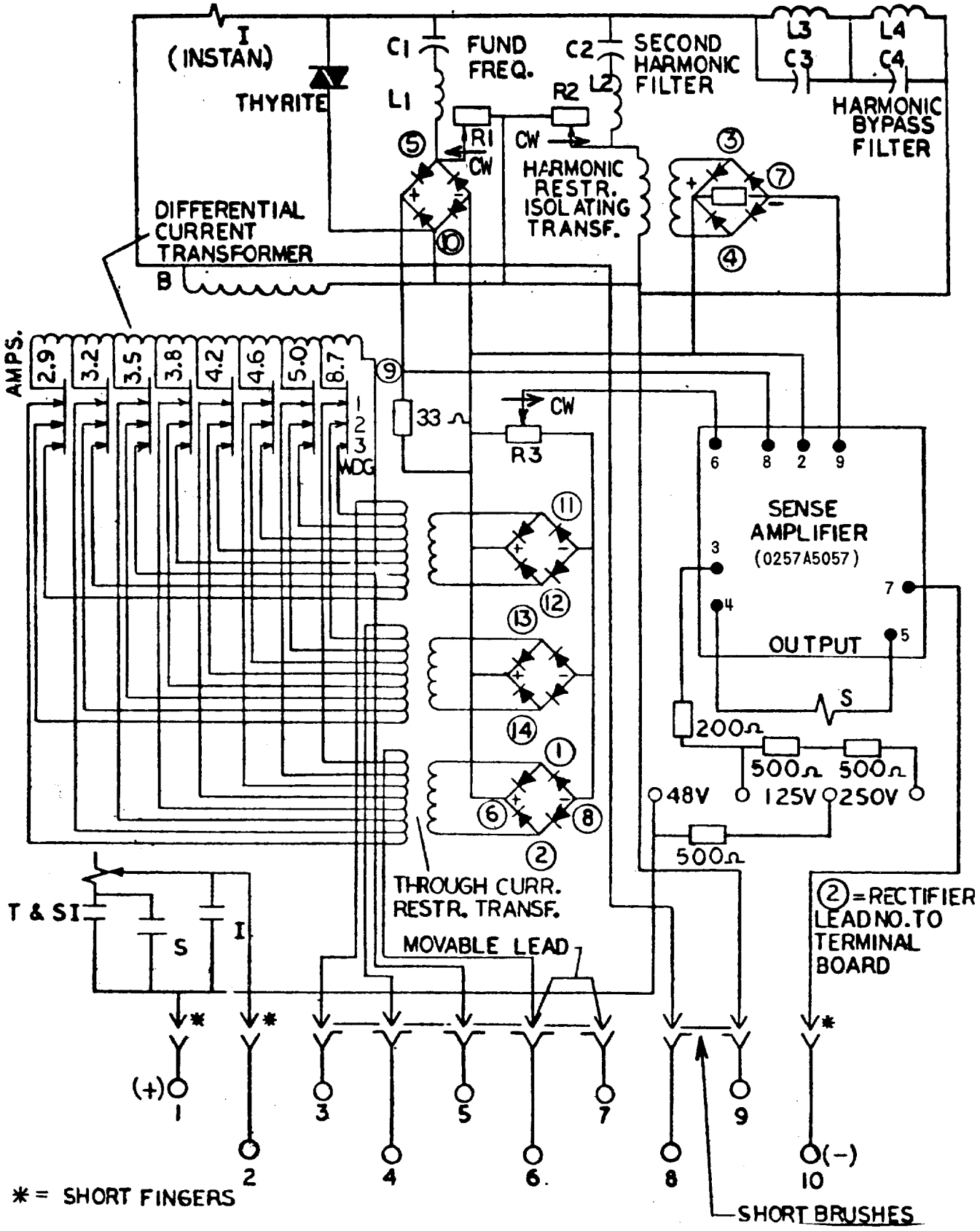
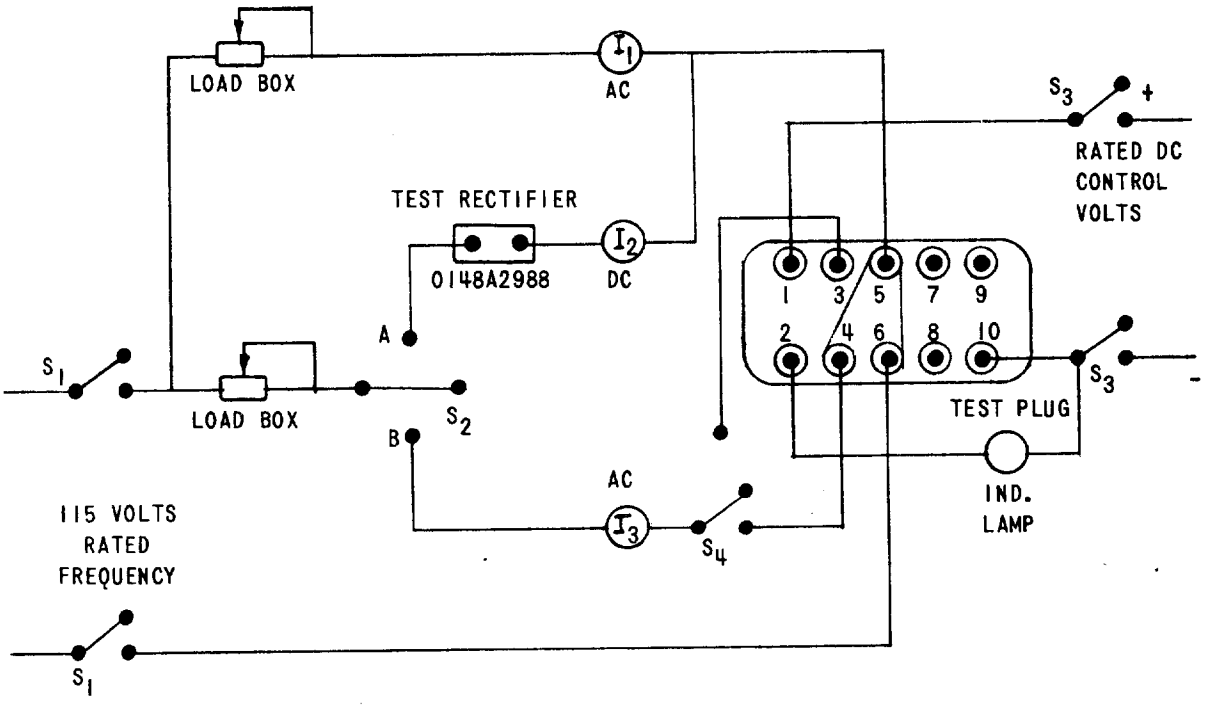


FIG. 1 (0257A5033-0) Internal Connections Diagram For The STD26C Relay (Front View)



TEST CIRCUIT FOR STD 26 RELAY

FIG. 2 (0148A771-0 SH. 13) Test Connections Diagram For The STD26C Relay

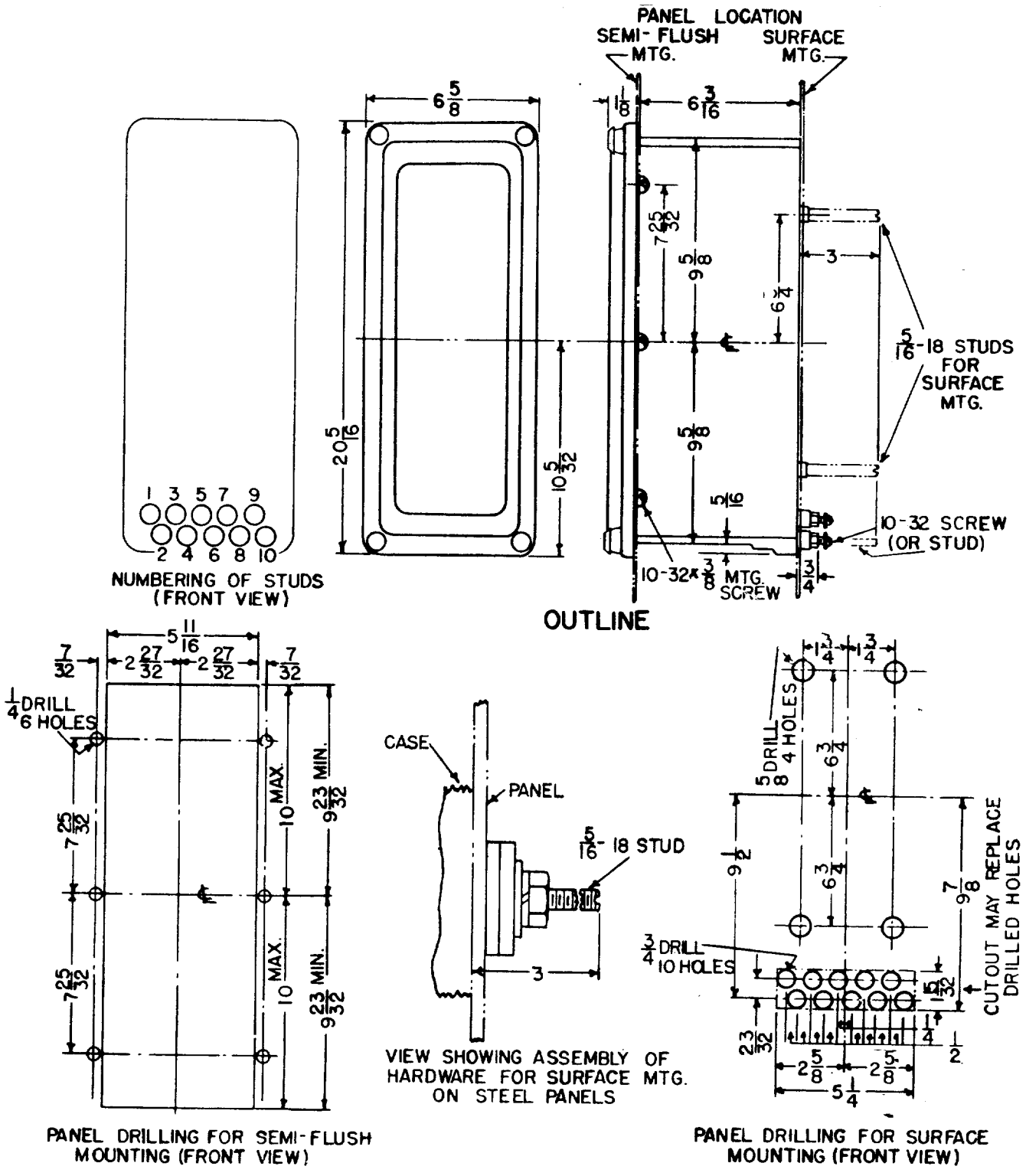


FIG. 3 (K-6209275-1) Outline And Panel Drilling Dimensions For The Lage, Single Ended (L1) Case

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