



# INSTRUCTIONS

GEK-24951A

## DISCRIMINATOR

193X297A\_G01

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*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 General Electric Company.*

**GENERAL**  **ELECTRIC**

## INSTRUCTION

### DISCRIMINATOR 193X297A\_G01

#### 1.0 GENERAL

This instruction provides basic information regarding the subject card. Refer to the system elementary diagram for information relating to the card function in the overall system operation.

#### 2.0 DESCRIPTION

This card discriminates the phase angle between a fixed AC reference signal and an AC input signal by providing a DC output voltage whose polarity and magnitude is proportional to the cosine of this phase angle. The magnitude of the output is also proportional to the magnitude of the reference and input voltages.

The discriminator is used for controlling the angular position of one rotating shaft with respect to another through a selsyn transmitter and transformer. The reference signal to the selsyn transmitter and the discriminator is usually 115V, 50/60 Hz while the discriminator input is provided by the output of the selsyn transformer. It is also used to discriminate linear position measured by a differential transformer and to discriminate in phase current measured with a current transformer.

With an output load resistor of 33K ohms or higher, a reference of 115V, 60 Hz and an input of 55V, 60 Hz, in phase with the reference results in an output voltage of at least +30V. For a phase angle of 90° zero output results and at 180° the output will exceed -30V.

With zero input, the output will be within a range of  $\pm 0.05$ V. The output is available either filtered or unfiltered. The filtered output will have less than 5% peak-to-peak ripple with a 60 Hz reference.

#### 3.0 ADJUSTMENTS

There is no on-card adjustment. If a polarity change is required inter-change either the reference or the input signal leads. Refer to the elementary diagrams for peripheral mechanical and/or electrical adjustments relating to the system operation.

#### 4.0 TROUBLESHOOTING

With a 115V, 60 Hz reference apply a 0-55V, 60 Hz input. The output should vary from zero to at least 30V DC (+ or -). With reversed input leads the output polarity should reverse.

#### 5.0 INPUTS:

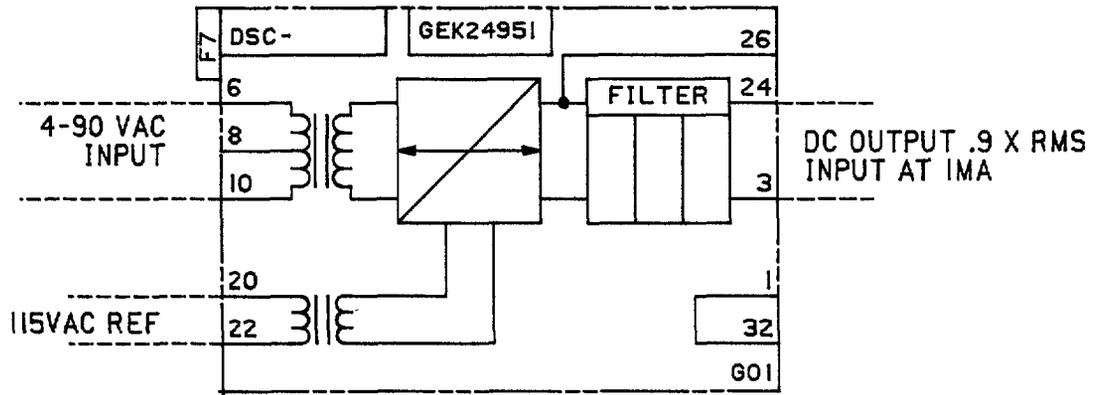
4-90 VAC, 50/60 Hz  
115 VAC, 50/60 Hz

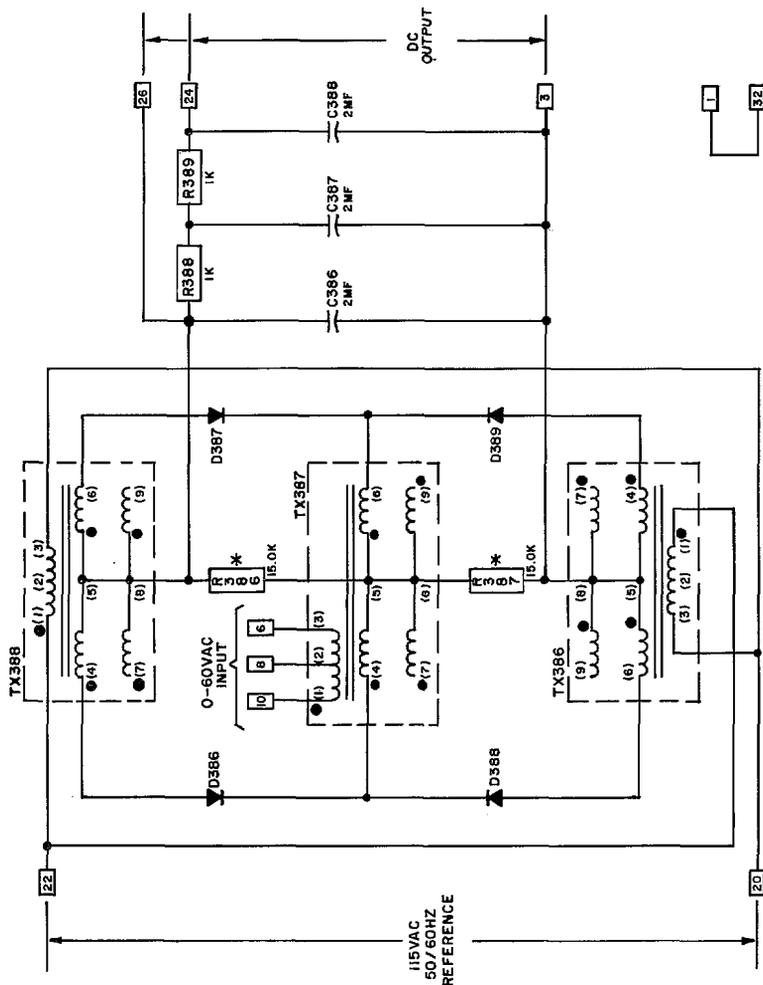
#### DC Output:

.9 times RMS input at 1MA load current.

FUNCTIONAL BLOCK DIAGRAM

DISCRIMINATOR

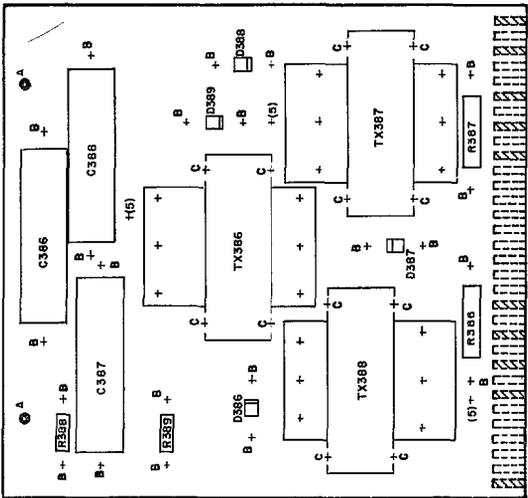




NOTES

- I. REFER TO THE INSTRUCTION BOOK FOR DETAILED OPERATION.
- II. NUMBERS INSIDE SMALL RECTANGLES INDICATE TAB NUMBERS WHICH CORRESPOND TO MATCHING RECEPTACLE NUMBERS.
- III. DOTS INDICATE POLARITY TO BE THE SAME AT ANY ONE INSTANT.
- IV. \* INDICATES 1% RESISTOR (50PPM).

FRONT VIEW SHOWING LOCATION OF COMPONENTS



SEE NOTE 1 & 2

- NOTE 1. INDICATED TAB NUMBERS CORRESPOND TO MATCHING RECEPTACLE NUMBERS.
2. CROSS HATCHED TABS INDICATE TABS USED.
3. CARD SIZE, 5.500" X 5.130" X 0.008"

FACTORY NOTE :

TRANSFORMER LEADS # 7 & # 9 ON TX386, 387 & 388 MUST BE CUT OFF BEFORE INSERTING THESE TRANSFORMERS ON THE BOARD.

GROUP	KEY LOCATIONS
601	26-27   12-13   2-3

**GENERAL ELECTRIC COMPANY  
SPEED VARIATOR PRODUCTS OPERATION  
ERIE, PENNSYLVANIA 16531**

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