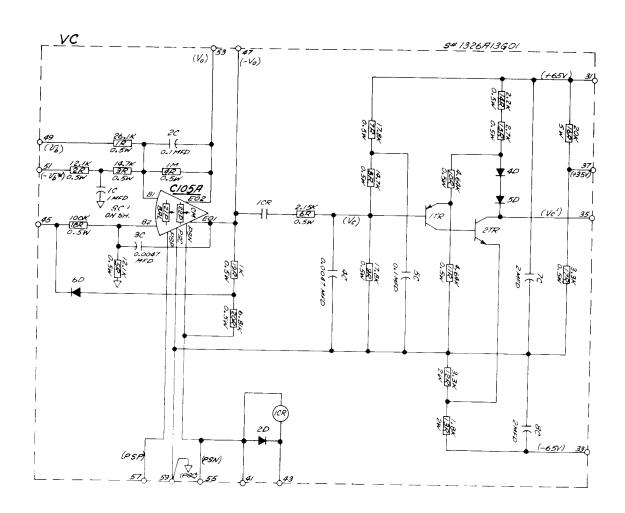
VOLTAGE CONTROLLER (SINGLE CONVERTER)

### I. DESCRIPTION

This module is an amplifier in the inner voltage loop of the C-56 Thyristor Power System basic regulator as described in I.L. 16-800-126. It receives a feedback signal  $(v_b)$  from a bus voltage sensor (VS) and a command signal  $(-v_b^*)$  from an outer loop, comparing and amplifying these signals in an operational amplifier featuring differential outputs. The output signal  $(-V_0)$  feeds into a fixed gain non-inverting amplifier of 1.66 whose output  $(V_C')$  is used to drive the gate pulse generators. This amplifier also incorporates a bias means such that the gate pulse generators (GPG) driven by it will produce pulses at a gating angle of 135° for zero input  $(V_C = 0)$ .

The output signal  $(-V_0)$  is fed through a voltage divider to diode 6D. When  $-V_0$  swings to approximately +4V at which point the GPG cuts off, the diode becomes conductive which reduces the gain of the differential amplifier to 1/10 its original value and makes available a signal (RS) on terminal 39 that is used to simulate reverse armature current as described in I.L. 16-800-126.

Relay 1CR is used to stop gate pulsing when sequencing the converter into and out of service. When 1CR is dropped out, the output voltage at terminal 35 ( $V_C^{\prime}$ ) will assume a value of approximately +14V, phasing out the GPG.



Voltage Controller Schematic Diagram

## II. ADJUSTMENTS

21P - Differential balance for the operational amplifier.

22P - Common mode balance for the operational amplifier.

# III. SPECIFICATIONS AND RATINGS

Transfer function:  $\frac{V_C'}{v_b} = \frac{64}{1 + p0.1}$ 

Bias: When  $v_b = -v_b^* = 0$ 

Then  $V_C' = +7V$ 

Output:

LOAD	OUTPUT SWING
C-56 GPG	$V_{c}' = +14V, -12V$
1.8K OHM	$V_C' = +14V, -13V$

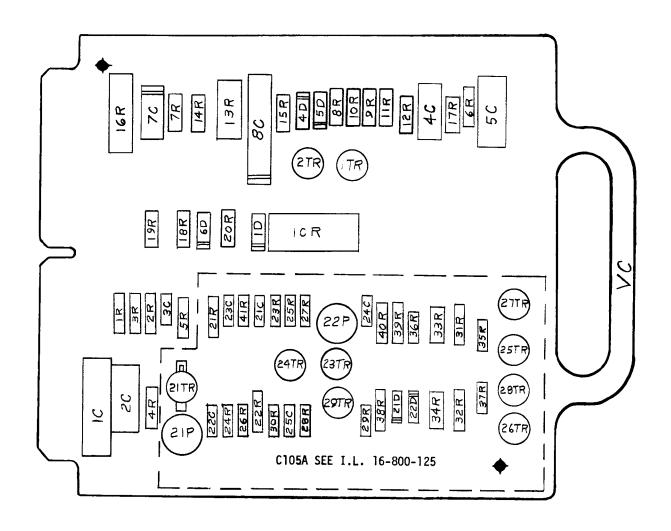
Ambient Temperature:

0 to 55°C

Power Requirements:

PSP: +24V +0.5V ... 30mA

PSN: -24V +0.5V ... 34mA



PC CARD (Front View)

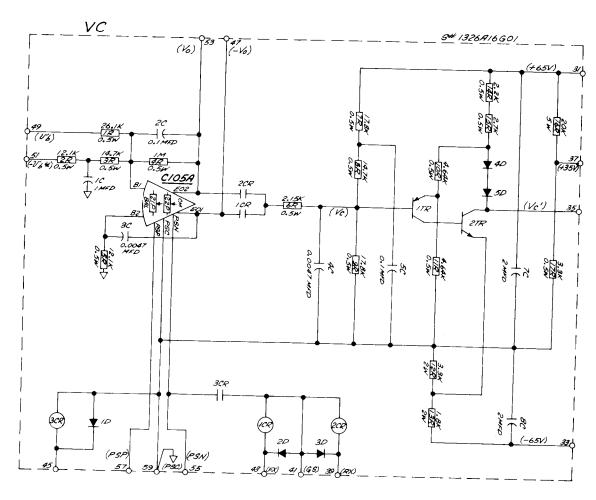
# VOLTAGE CONTROLLER (DUAL CONVERTER)

### I. DESCRIPTION

This module is an amplifier in the inner voltage loop of the C-56 Thyristor Power System basic regulator as described in I.L. 16-800-126. It receives a feedback signal  $(v_b)$  from a bus voltage sensor (VS) and a command signal  $(-v_b^*)$  from an outer loop, comparing and amplifying these signals in an operational amplifier featuring differential outputs. One output  $(-V_0)$  is used to control the reversing logic (RL) module.

Depending on the direction of the converter output current, the proper output signal of the voltage controller (VC) is chosen when relay 1CR or 2CR is picked up by the reversing logic (RL) to retain negative feedback. 1CR being energized for forward converter operation. This selected signal feeds into a fixed gain non-inverting amplifier of 1.66 whose output ( $V_C'$ ) is used to drive the gate pulse generators. This amplifier also incorporates a bias means such that the gate pulse generators (GPG) driven by it will produce pulses at a gating angle of 135° for zero input ( $V_C = 0$ ).

Relay 3CR is used to stop gate pulsing when sequencing the converter into and out of service. When 3CR is dropped out, the selecting relay (1CR or 2CR) drops out causing the output voltage at terminal 35 ( $V_C'$ ) to assume a value of approximately +14V, phasing out the GPG. Simultaneously, GS is removed from PSN turning off the pulse distributing transistors in the RL module.



Voltage Controller Schematic Diagram

## II. ADJUSTMENTS

21P - Differential balance for the operational amplifier.

22P - Common mode balance for the operational amplifier.

# III. SPECIFICATIONS AND RATINGS

Transfer function:  $\frac{V_c'}{v_b} = \frac{64}{1 + p0.1}$ 

Bias: When  $v_b = -v_b^* = 0$ 

Then  $V_C' = +7V$ 

Output:

LOAD	OUTPUT SWING
C-56 GPG	$V_{c}' = +14V, -12V$
1.8K OHM	$V_{C}' = +14V, -13V$

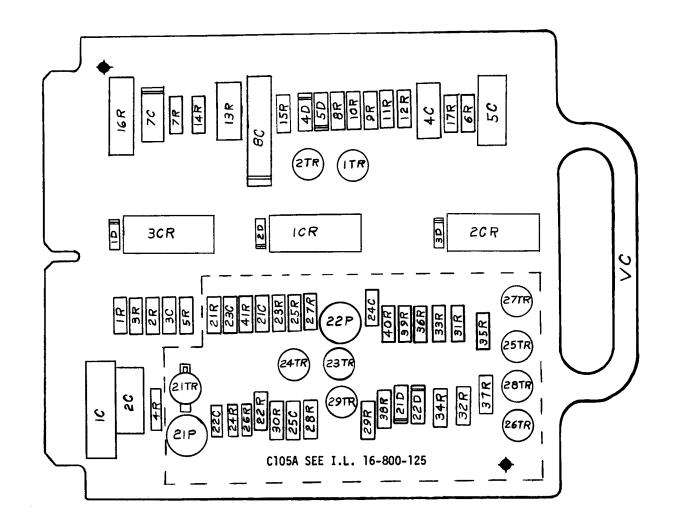
Ambient Temperature:

0 to 55°C

Power Requirements:

PSP: +24V +0.5V ... 30mA

PSN: -24V +0.5V ... 34mA



PC CARD (Front View)