

# TYPE 105

# SQUARE-WAVE GENERATOR

# INSTRUCTION

# MANUAL



TEKTRONIX, INC.

MANUFACTURERS OF CATHODE-RAY AND VIDEO TEST INSTRUMENTS

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# GENERAL DESCRIPTION

The Tektronix Type 105 Square-Wave Generator is a compact, versatile instrument providing precision square waves at any desired frequency from 25 cycles to 1 megacycle. Short rise time, excellent waveform, variable amplitude control, accurate indication of frequency and many other features are combined to make the Type 105 an ideal instrument for development and production testing of amplifiers and other electronic equipment. Wide range and flexibility of operation qualify the Type 105 for highly specialized laboratory and research applications as well as general purpose uses.

## CHARACTERISTICS

### Frequency Range

25 cycles to 1 mc continuously variable.

### Rise and Fall Time (10% to 90%)

0.02 microseconds with 93-ohm output load.

### Output Amplitude

10 to 100 volts peak to peak across internal 600-ohm load.

1.5 to 15 volts peak to peak with 93-ohm external termination load.

### Output Current Available for External Load

16 to 160 ma.

### Accuracy of Frequency Indication

$\pm 3\%$  of full scale.

### Sync. Output Amplitude

5 volts.

### Sync. Input Requirement

Sine waves of 3 v to 45 v peak to peak. Pulses or square waves of 1 v to 10 v peak amplitude.

### Power Requirement

105-125 or 210-250 volts, 50-60 cycles, 250 watts.

### Dimensions

10" wide, 16½" high, 14" deep.

### Weight

35 lbs.

### Finish

Panel, photo-etched aluminum with black letters.

Cabinet, blue wrinkle.

### Accessories Included

Power Cord.

Output cable and terminating resistor.

Clip lead adapter.

Binding post adapter.

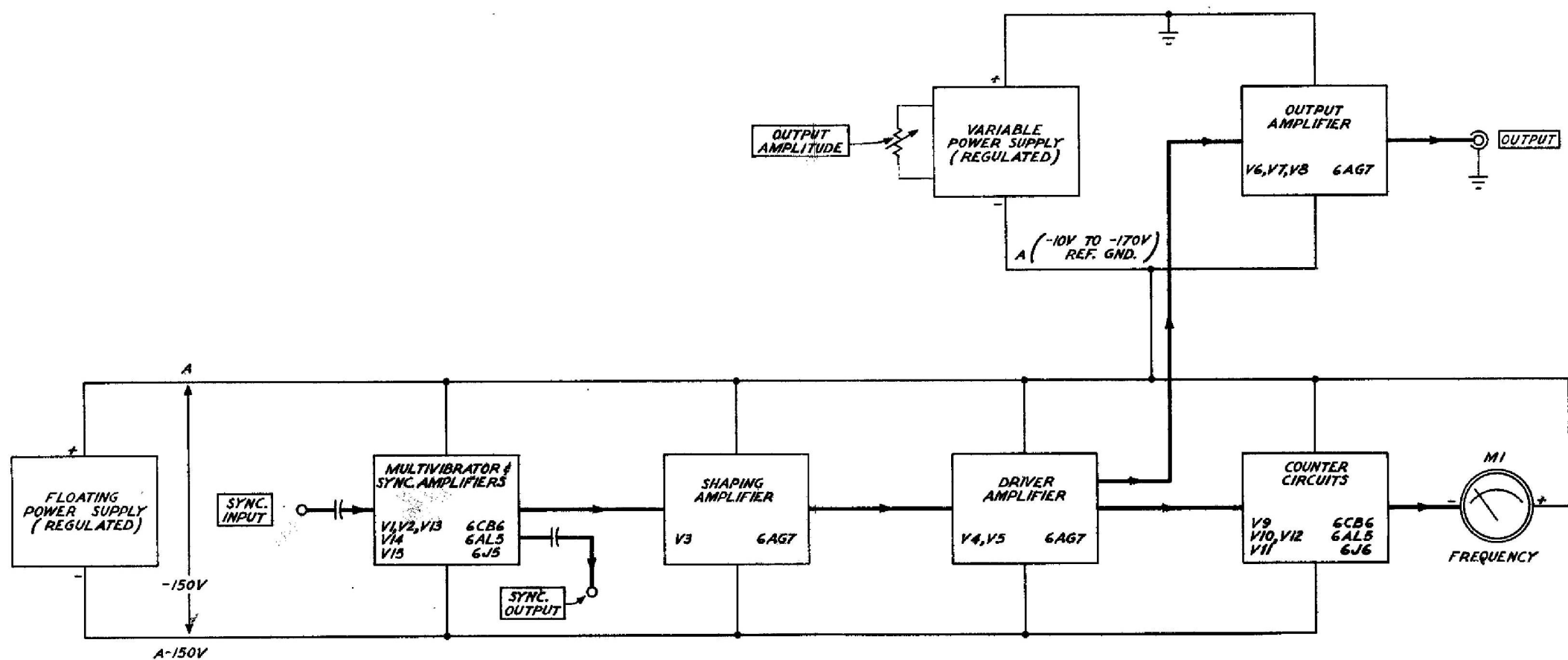
## OPERATING DESCRIPTIONS OF CONTROLS AND CONNECTORS

OUTPUT	Connector from the output stage plates. Internal load resistance, 600 ohms.
OUTPUT AMPL	Control to permit adjustment of output amplitude by varying the supply voltage of the output stage.
RANGE	Nine position switch which inserts suitable time-constant networks into the multi-vibrator and frequency-meter circuits, thus selecting the desired frequency range.



<b>FREQUENCY</b>	Potentiometer which varies the multivibrator grid return potential, allowing continuously variable adjustment of frequency between steps of the RANGE switch.
<b>SYMMETRY</b>	Dual potentiometer in the multivibrator screen circuit connected so that the screen voltage of V1 may be increased while that of V2 is decreased and vice versa thus varying the duration of the positive portion of the square-wave cycle with respect to the negative.
<b>AC</b>	On-off toggle switch in series with the ac supply line.
<b>DC</b>	On-off toggle switch in the dc supply circuits.
<b>SYNC INPUT AMPL</b>	Variable bias control in the sync amplifier to permit adjusting the amplitude of the sync signal applied to the multivibrator.
<b>SYNC INPUT</b>	Binding post connection to the input of the sync amplifier, V13. Allows the Type 105 to be synchronized with other equipment.
<b>SYNC OUTPUT</b>	Binding post connection from sync output cathode follower V15. Permits an oscilloscope or other instrument to be synchronized with the Type 105.
<b>GND</b>	Binding post connection to chassis.



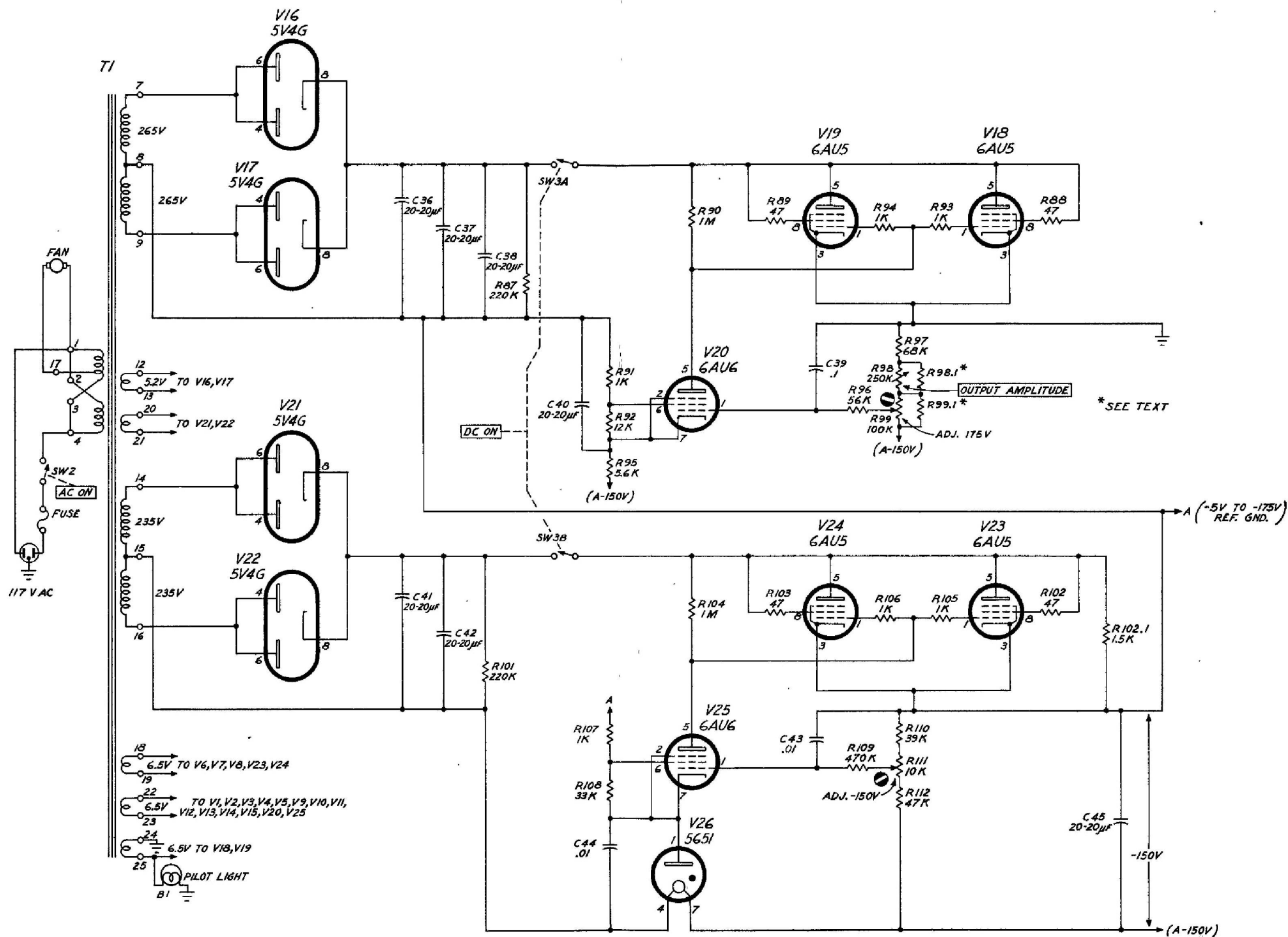


TYPE 105 SQUARE-WAVE GENERATOR

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BLOCK DIAGRAM

9-23-54  
KF



V1  
V2  
MULTIVIBRATOR

V14  
SYNC. COUPLING DIODE

V13  
SYNC. AMPLIFIER

V3  
SHAPING AMPLIFIER

V15  
SYNC. OUTPUT  
CATHODE FOLLOWER

V4  
V15  
DRIVER AMPLIFIER

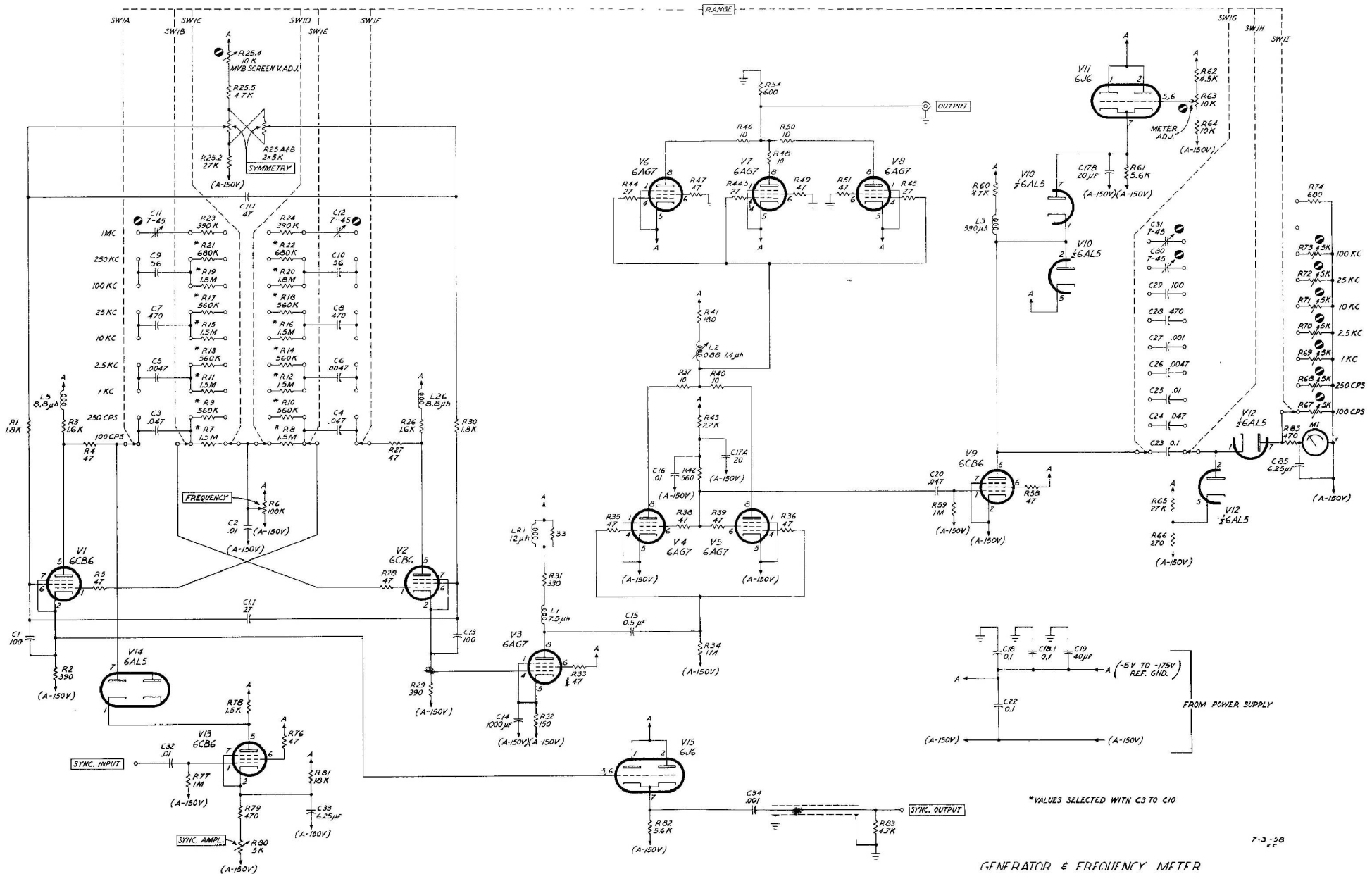
V6  
V7  
V8  
OUTPUT AMPLIFIER

V9  
METER AMPLIFIER

V10  
PLATE CATCHER &  
LIMITER DIODE

V11  
CATHODE FOLLOWER  
VOLTAGE REGULATOR

V12  
METER DIODE



GENERATOR & FREQUENCY METER