

# ENCYCLOPEDIA ON CATHODE-RAY OSCILLOSCOPES AND THEIR USES

## RCA MODEL 158 .

### FREQUENCY RESPONSE

Vertical Amplifier 15 cps to 200 kc,  $\pm 10\%$   
Horizontal Amplifier 10 cps to 30 kc,  $\pm 10\%$   
Sweep Circuit 4 cps to 18 kc

### DEFLECTION FACTORS

Vertical Amplifier 0.04 rms volts/inch  
Vertical Amplifier through Probe 0.4 rms volts/inch  
Horizontal Amplifier 0.75 rms volts/inch  
Horizontal-Deflection Plates 17.5 rms volts/inch

LINE RATING 105-125 volts, 50-60 cps

### TUBE COMPLEMENT

Type	Function
6C6 (V1)	Horizontal Amplifier
6SJ7 (V2)	Vertical Amplifier, First Stage
6AC7 (V3)	Vertical Amplifier, Second Stage
884 (V4)	Sawtooth-Sweep Oscillator
5BP1 or 5HPI (V5)	Cathode-Ray Tube
80 (V6)	Low-Voltage Rectifier
879 (V7)	High-Voltage Rectifier

The schematic circuit diagram for Model 158 is shown in Fig. 22-55. A special high-resistance frequency-compensated four-step attenuator is employed between the vertical-input terminals and the vertical amplifiers. A 10,000-ohm preset potentiometer *R-29* which is in the coupling circuit between the 6SJ7 and 6AC7 vertical amplifiers is used as a low-frequency adjustment.

## RCA MODEL 160-B

### FREQUENCY RESPONSE

Vertical Amplifier 15 cps to 12,000 cps  
Horizontal Amplifier 10 cps to 30,000 cps  
Sweep Circuit 4 cps to 18,000 cps

### DEFLECTION FACTORS

Vertical Amplifier 0.02 rms volts/inch  
Vertical-Deflection Plates 17.5 rms volts/inch  
Horizontal Amplifier 0.75 rms volts/inch  
Horizontal-Deflection Plates 17.5 rms volts/inch

LINE RATING 105-125 volts, 50-60 cps

### TUBE COMPLEMENT

Type	Function
6C6 (V1)	Horizontal Amplifier
6C6 (V2, V3)	Vertical Amplifiers
884 (V4)	Sweep Oscillator
5BP1/1802-P1 (V5) or 5HP1	Cathode-Ray Tube
80 (V6)	Low-Voltage Rectifier
879 (V7)	High-Voltage Rectifier
VR-105-30 (V8)	Voltage Regulator
VR-150-30 (V9)	Voltage Regulator

The schematic circuit diagram of Model 160-B is shown in Fig. 22-56. The circuit design is not particularly complex. A somewhat unusual feature is the use of two gaseous voltage regulator tubes, connected in series, to stabilize the screen potential of *V2*. A vertical-deflection reversing switch *S6* is connected to the vertical-deflection plates so that the polarity of vertical deflection may be changed at will. This is useful when observing resonance curves where the detector polarity may invert the curve.

## RCA MODEL 304-A

### FREQUENCY RESPONSE

Vertical Amplifier 4 cps to 100 kc  
Horizontal Amplifier 4 cps to 100 kc  
Sweep Circuit 4 cps to 18 kc

### DEFLECTION FACTORS

Vertical Amplifier 0.02 rms volts/inch  
Vertical-Deflection Plates 29 rms volts/inch  
Horizontal Amplifier 0.02 rms volts/inch  
Horizontal-Deflection Plates 29 rms volts/inch

LINE RATING 110-120 volts, 50-60 cps

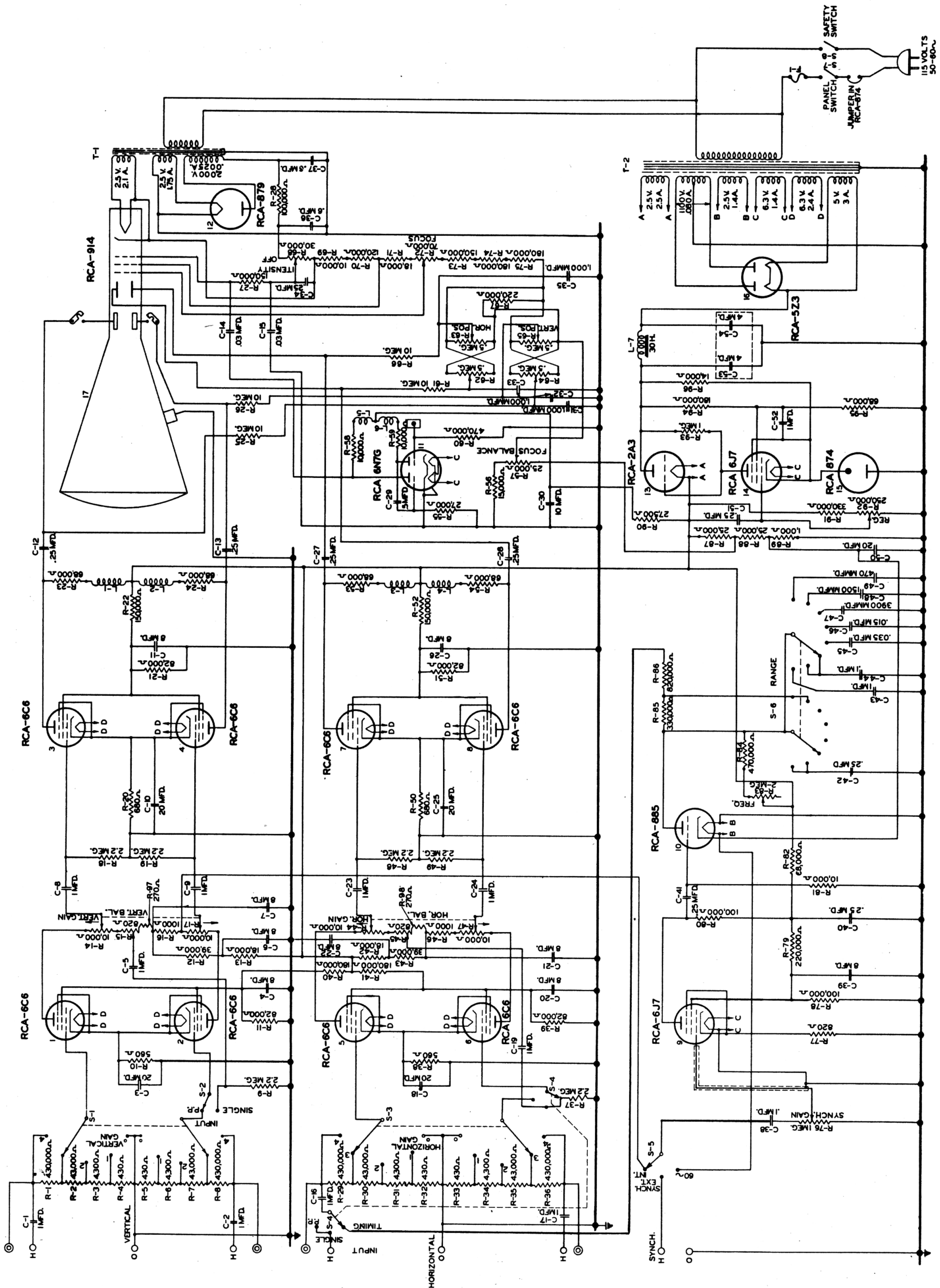
### TUBE COMPLEMENT

Type	Function
6C (1, 2)	Vertical Amplifier
6C6 (3, 4)	Vertical-Output Deflection
6C6 (5, 6)	Horizontal Amplifier
6C6 (7, 8)	Horizontal-Output Deflection
6J7 (9)	Sync Amplifier
885 (10)	Gaseous-Sweep Oscillator
6N7G (11)	Blanking Amplifier
879 (12)	High-Voltage Rectifier
2A3 (13)	Voltage Regulator
6J7 (14)	Control Tube
874 (15)	Voltage Regulator
5Z3 (16)	Low-Voltage Rectifier
914 (17)	Cathode-Ray Tube

The schematic circuit diagram for Model 304-A which employs a 9-inch cathode-ray tube, is shown in Fig. 22-57. Both deflection amplifiers are identical and each will accommodate either push-pull (three-wire, balanced to ground) or single-ended (two-wire, unbalanced) input circuits. A blanking circuit is employed, tube *11*, which operates as a two-stage clipping amplifier, the output of which is capacitance-coupled to the control grid of the cathode-ray tube. The output of this amplifier is used to change the bias on the cathode-ray tube, just as the intensity control does, and thus modulate the intensity of the beam, for time or frequency determination.



# COMMERCIAL OSCILLOSCOPES AND RELATED EQUIPMENT



Courtesy RCA

Fig. 22-57.—Schematic of RCA Model 304-A.