

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

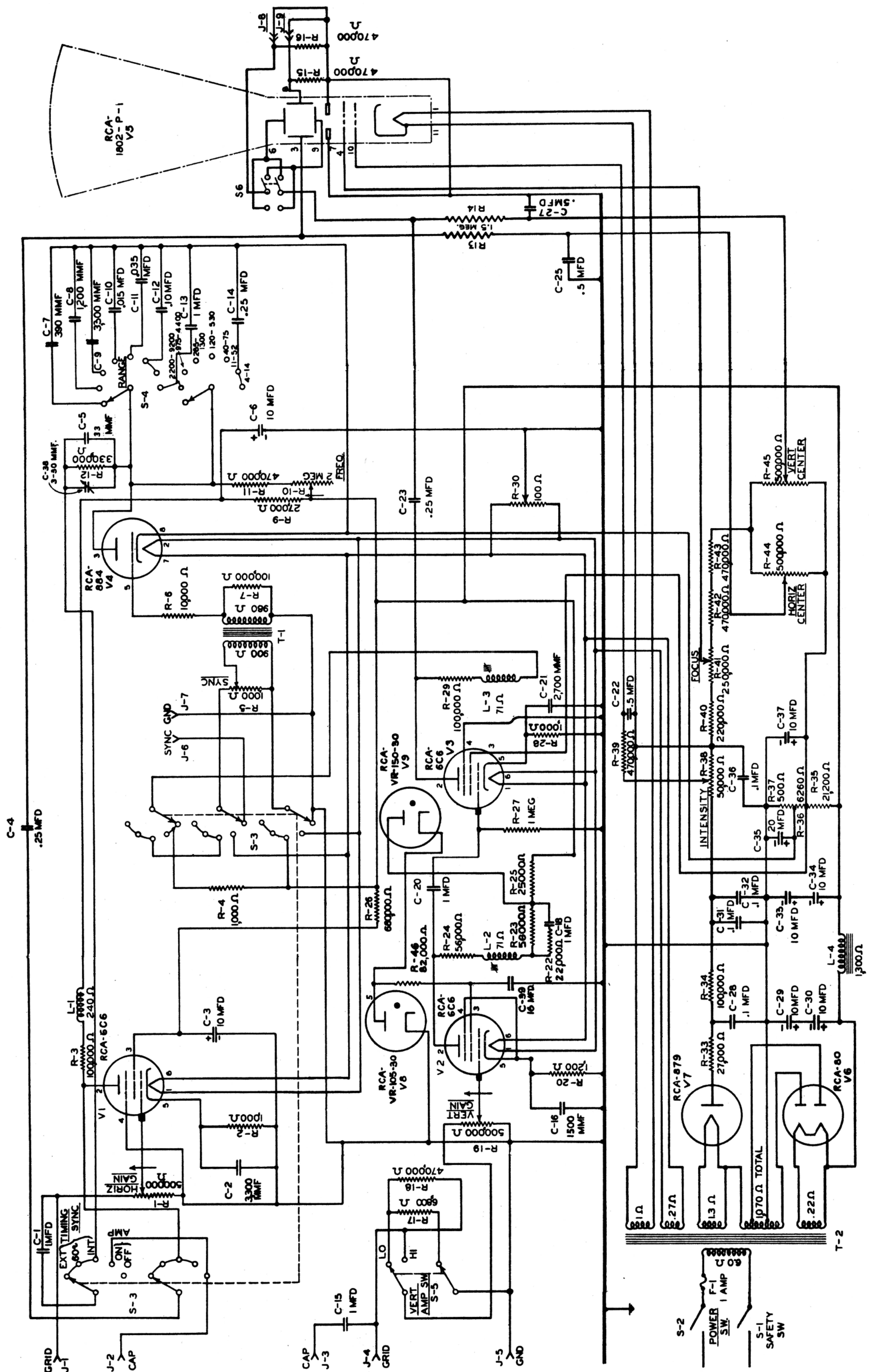
Vertical Amplifier 0.02 rms volts/inch
Vertical-Deflection Plates 29 rms volts/inch
Horizontal Amplifier 0.02 rms volts/inch
Horizontal-Deflection Plates 29 rms volts/inch

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.



Courtesy RCA

Fig. 22-56.—Schematic of RCA Model 160-B.