

# ENCYCLOPEDIA ON CATHODE-RAY OSCILLOSCOPES AND THEIR USES

## SUPREME MODEL 546-A, 650, AND 655

### FREQUENCY RESPONSE

Sweep Circuit 15 cps to 30 kc

LINE RATING 110-125 volts, 50-60 cps

### TUBE COMPLEMENT

Type	Function
5CP1-A or 3AP1 (V1)	Cathode-Ray Tube
5Y3G (V2)	High-Voltage Rectifier
5Y3G (V3)	Low-Voltage Rectifier
6SJ7 (V4)	Vertical Amplifier
885 (V5)	Gaseous Sweep Oscillator
6SJ7 (V6)	Horizontal Amplifier

The circuits of Models 546-A, 650, and 655 are very much alike. The differences are chiefly in physical appearance and cathode-ray tube employed. In Fig. 22-62 appears the schematic for Model 546-A. The 546-A and 650 use a 3AP1 cathode-ray tube. Model 655 uses a 5CP1-A, a 5-inch cathode-ray tube. This necessitates use of 6.3-volt filament winding, in place of the 2.5-volt winding *B-B*, shown in Fig. 22-62. In addition, a 0.5- $\mu$ f bypass capacitor has been inserted from the variable arm of *R9* to ground, in Model 655.

## SUPREME MODEL 560-A

LINE RATING 117 volts, 60 cps

### TUBE COMPLEMENT

Type	Function
1852	Input Vertical Amplifier
1852	Vertical Amplifier
1852	Vertical Amplifier
6AG7	Vertical Output
906	Cathode-Ray Tube
6SJ7	Horizontal Amplifier
884	Timing-Axis (Sweep) Oscillator
80	Low-Voltage Rectifier
80	High-Voltage Rectifier
6J5	Vacuum-Tube Voltmeter

The schematic circuit diagram of Model 560-A is shown in Fig. 22-63. This instrument is not an oscilloscope in the ordinary meaning of the word, but a combination oscilloscope, signal tracer, and electronic voltmeter. The 6J5 is used in a standard vacuum-tube-voltmeter circuit. The 1852 at the upper left may be fed audio, video, r-f, or i-f signals. A variable-capacitance attenuator links the plate circuit of this stage to the grid circuit of the succeeding 1852. This is a high-frequency stage, the plate load being only a coil.

The output of the second stage is fed to the function-selector switch. The output of this stage may be shunted to ground, or, for a proper setting of the selector switch, may feed the third 1852 stage. The third stage can also be excited from the cathode circuit of the first tube which then functions as a cathode follower, eliminating the gain of the first two 1852 stages, if desired. The plate circuit of the first 1852 may be switched to a tuned *L-C* system, for increased gain, if desired. The gain obtained is a maximum at resonance.

## SUPREME MODEL 660

### FREQUENCY RESPONSE

Vertical Amplifier 5 cps to 5 Mc,  $\pm 2$  db

Horizontal Amplifier 5 cps to 1.5 Mc,  $\pm 2$  db

Z-Axis Amplifier 100 cps to 100 kc,  $\pm 2$  db

Sweep Circuit 7 cps to 150 kc

### DEFLECTION FACTORS

Vertical Amplifier through probe 0.2 rms volts/inch

Vertical Amplifier 0.1 rms volts/inch

Vertical-Deflection Plates 8.5 rms volts/inch

Horizontal Amplifier 0.14 rms volts/inch

Horizontal-Deflection Plates 9 rms volts/inch

LINE RATING 110-125 volts, 50-60 cps.

The schematic circuit diagram of Model 660 is shown in Fig. 22-64. The most novel feature of this oscilloscope is its utilization of a special probe tube which permits signal tracing in the high-frequency circuits of a-m, f-m, and television sets. However, the input potential to the tube must not exceed 25 volts peak to peak. Usually, in receiver circuits, the high frequency voltages are well within the above range. The probe tube is a 6C4 which feeds into the input circuit of *V1*, the 6J5 cathode-follower vertical-input tube. The cathode follower permits the use of a low-impedance vertical-gain control *R5* which reduces frequency distortion.

*V13* is a diode rectifier, not an amplifier. The signal, having passed from the probe tip *V13*, proceeds to *V1*, *V2*, *V3*, and *V4*. *V4* is the grounded-grid tube of the *V3-V4* push-pull vertical-output stage. This stage derives the vertical plates of the cathode-ray tube directly. There is a d-c path from each vertical plate to the corresponding plates of *V3* and *V4*.

## SYLVANIA MODEL 131

### FREQUENCY RESPONSE

Vertical Amplifier 10 cps to 100 kc, within 3 db

Horizontal Amplifier 10 cps to 100 kc, within 3 db

Sweep Circuit 15 cps to 40 kc

### DEFLECTION FACTORS

Vertical Amplifier 0.5 rms volts/inch

Vertical-Deflection Plates 17 rms volts/inch

Horizontal Amplifier 0.5 rms volts/inch

Horizontal-Deflection Plates 17 rms volts/inch

LINE RATING 105-125 volts, 50-60 cps

### TUBE COMPLEMENT

Type	Function
7C7 (V101)	Vertical Amplifier
7C7 (V102)	Horizontal Amplifier
884 (V103)	Sweep Oscillator
3AP1 (V104)	Cathode-Ray Tube
7Y4 (V105)	Low-Voltage Rectifier
5Y3GT (V106)	High-Voltage Rectifier

The schematic circuit diagram for Model 131 is shown in Fig. 22-65.

## SYLVANIA MODEL 132

### FREQUENCY RESPONSE

Vertical Amplifier 10 cps to 70 kc,  $\pm 20\%$

Horizontal Amplifier 10 cps to 55 kc,  $\pm 20\%$

Sweep Circuit 15 cps to 30 kc

### DEFLECTION FACTORS

Vertical Amplifier 0.21 rms volts/inch

Vertical-Deflection Plates 15 rms volts/inch

Horizontal Amplifier 0.25 rms volts/inch

Horizontal-Deflection Plates 18 rms volts/inch

LINE RATING 105-125 volts, 50-60 cps

### TUBE COMPLEMENT

Type	Function
7C7 (V101)	Vertical Input
7C7 (V102)	Vertical Output
7C7 (V103)	Horizontal Input
7C7 (V104)	Horizontal Output
884 (V105)	Sweep Oscillator
76P1 (V106)	Cathode-Ray Tube
2X2-A (V107)	High-Voltage Rectifier
7Y4 (108)	Full-Wave Rectifier

The schematic circuit diagram of Model 132 is shown in Fig. 22-66.



*Courtesy Supreme Inst. Corp.*

