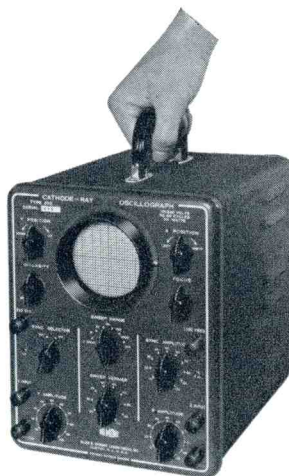


TYPE 292 CATHODE-RAY OSCILLOGRAPH

- Small, portable, for general-purpose duty
- Type 3RP-A flat-face Cathode-ray Tube
- Balanced deflection for both vertical and horizontal axes
- Vertical deflection factor, 0.4 rms volt per inch
- Vertical frequency response uniform within 30% from 5 to 100,000 cps



FUNCTION

The new Du Mont Type 292 is a small, compact instrument for use wherever a highly portable, general-purpose oscilloscope is required. The compact design of this instrument is made possible largely by the use of the new Du Mont Type 3RP-A Cathode-ray Tube which features unusually short overall length and a flat face. The flat face permits observation of wave forms with a minimum of error owing to parallax. The special electron-gun and deflection-plate construction of the Type 3RP-A overcome the problem of pin-cushion distortion usually associated with cathode-ray tubes

of short length and large deflection angle. Distortion of the trace is further minimized by the use of balanced signals for both the vertical and horizontal deflection.

Built with the same care and precision that characterize more expensive Du Mont instruments, this oscilloscope has been designed with emphasis upon combining simplicity and utility with economy. An ideal balance of these has been achieved, none having been sacrificed at the expense of another. The resultant instrument is one which sets a new high in performance, portability, and economy.

Cathode-ray Tube

The new Du Mont Type 3RP-A Cathode-ray Tube (see Figure 1) is employed in the Type

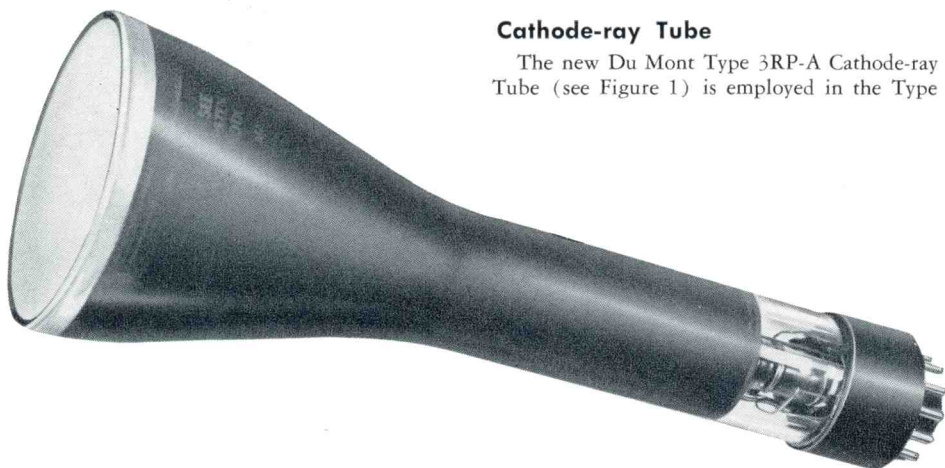


Figure 1. The Du Mont Type 3RP-A Cathode-ray Tube. Note the flat face

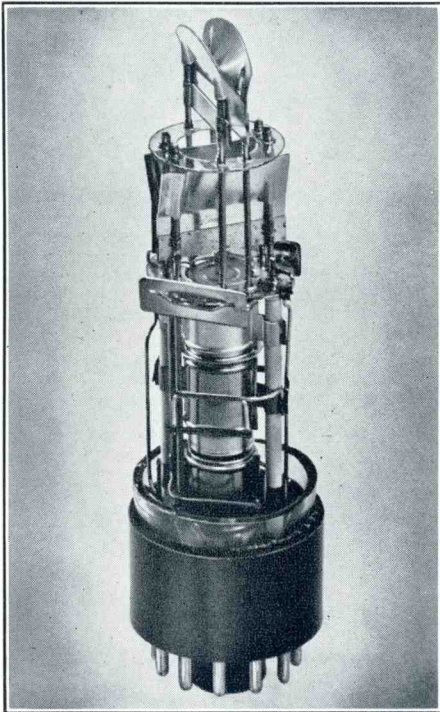


Figure 2. The electron-gun and deflection-plate assembly of the Type 3RP-A Cathode-ray Tube. Note the rounded vertical-deflection plates

292. The Type 3RP-A has a three-inch screen and high deflection sensitivity. It is capable of producing a fine brilliant spot even when operated at low accelerating potentials. As is apparent in Figure 2, the deflection plates of the Type 3RP-A are rounded to hold pin-cushion distortion to a minimum. The Type 3RP-A is supplied as standard with the medium-persistence, green P1 screen, which is generally considered the most efficient screen for visual observation.

Vertical Deflection

Signals for vertical deflection may be applied either through the vertical-input terminals on the front panel to the vertical amplifier or they may be connected to the terminal board at the rear of the instrument for direct coupling to the deflection plates. The vertical-deflection amplifier provides a deflection factor of 0.40 rms volts per inch. Sinusoidal frequency-response of the amplifier is uniform within 30% from 5 to 100,000 cps. Signals

beyond the frequency response of the amplifier may be applied directly to the deflection plates through the terminal board at the rear of the instrument.

Horizontal Deflection

The horizontal amplifier may be used to amplify either the output of the incorporated time-base generator or an external signal, by proper adjustment of the coarse-frequency-selector switch. Signals for horizontal deflection may be applied also to the terminal board at the rear of the instrument.

The deflection factor provided by the horizontal amplifier is 0.56 rms volts per inch. Otherwise the characteristics of the horizontal and vertical amplifiers are similar.

Linear Time Base

The time-base generator of the Type 292 provides linear sweeps variable in frequency from 8 to 30,000 cps. The direction of the sweep on the cathode-ray tube is from left to right. The rapid right-to-left return trace of the sweep, or "fly-back," is automatically blanked. Thus is eliminated the confusion of pattern which might result, were the fly-back visible on the screen.

Synchronization of Time Base

The frequency of the time-base generator may be synchronized from either an internal or an external signal. The internal synchronizing signal is obtained from the vertical amplifier. An external signal may be connected to a front-panel sync terminal.

Positioning

The trace on the screen of the cathode-ray tube may be moved to any portion of the screen by means of vertical and horizontal positioning controls located on the front panel. Three inches of positioning range are available both horizontally and vertically.

Test Signal

A sinusoidal test signal of power-line frequency and approximately 6.3 rms volts amplitude is provided at a front-panel terminal. This test signal is convenient for many troubleshooting applications, or as an external synchronizing signal to synchronize the time-base generator at power-line frequency.

(Specifications on Following Page)

DU MONT CATALOG

SPECIFICATIONS

CATHODE-RAY TUBE—Type 3RP1-A Cathode-ray Tube with four free deflection plates. Accelerating potential: 1000 volts.

VERTICAL DEFLECTION — Deflection factor: with amplifier at full gain, 0.40 rms volt/in.; direct 20 rms volts/in. $\pm 20\%$. **Undistorted deflection** with amplifier: 3 inches. **Sinusoidal frequency response:** uniform within 30% from 5 to 100,000 cps. **Input impedance:** through amplifier, 1 megohm paralleled by 70 $\mu\mu\text{f}$; direct, 4.7 megohms paralleled by 25 $\mu\mu\text{f}$.

HORIZONTAL DEFLECTION — Deflection factor: through amplifier at full gain 0.56 rms volt/in.; direct, 31 rms volts/in. $\pm 20\%$. **Undistorted deflection** with amplifier: 3 inches. **Sinusoidal frequency response** uniform within 30% from 5 to 100,000 cps. **Input impedance:** to amplifier 1 megohm, paralleled by 70 $\mu\mu\text{f}$; direct, 4.7 megohms paralleled by 25 $\mu\mu\text{f}$.

LINEAR TIME BASE — Continuously variable from 8 to 30,000 cycles. Direction of sweep from left to right. Return trace blanking included. Synchronization from either the vertical deflection signal or from externally supplied signal of 0.5 peak-to-peak (0.2 rms) volt amplitude.

POWER SOURCE—The Type 292 is available for operation from either 115-volt or 230-volt, 50-60 cps power, whichever is specified. Power consumption 50 watts. Fuse protection 1 ampere (115 volts) or .053 ampere (230 volts).

TUBE COMPLEMENT—2-12AX7; 1-884; 2-80.

PHYSICAL CHARACTERISTICS — Instrument housed in metal cabinet provided with carrying handle. **Overall dimensions:** height, 10 $\frac{7}{8}$ " (28 cm); width, 8 $\frac{1}{2}$ " (21 cm); depth, 11" (28 cm). Weight 17 $\frac{1}{4}$ lbs. (7.4 kg).

Catalog No.	Type No.	Description
1500-A	292	115 volt, 50-60 cps, with Type 3RP1-A Cathode-ray Tube.
1505-A	292	230 volt, 50-60 cps, with Type 3RP1-A Cathode-ray Tube.