

**CALIBRATOR**

**Voltage Output** — Rectangular waveshape, positive-going from ground (dc voltage available when selected by internal jumper). Ranges are 40 mV, 0.4 V, 4 V into 1 M $\Omega$ ; 20 mV, 0.2 V, 0.4 V into 50  $\Omega$ . Amplitude accuracy is within 1% (+15°C to -35°C), within 2% (0°C to +50°C). Repetition rate is  $\sim$ 1 kHz.

**Current Output** — 40 mA dc or 40 mA rectangular waveshape with optional current-loop accessory (012-0259-00) connected between 4 V and gnd pin jacks.

**POWER REQUIREMENTS**

**Line Voltage Ranges** — 100, 110, 120, 200, 220, and 240 V ac  $\pm$  10%, internally selectable with quick change jumpers.

**Line Frequency** — 50-60 Hz

**Option 05, Line Frequency Change (50-400 Hz)** — Converts the 7633, R7633, 7623A and R7623A to 50-400 Hz operation.

**Max Power Consumption** — 180 W, 2.0 A at 115 V line, 60 Hz. Fan cooling is provided for both models.

**Included Accessories** — 20 in cable (two-pin-to-BNC), (175-1178-00). CRT filter, green (378-0625-00). The R7633 and R7623A include rackmounting hardware.

**Weights and Dimensions** — See page 153.

**For Recommended Cameras** — See page 154.

**For Recommended Plug-ins** — See page 152.

**ORDERING INFORMATION**  
(Plug-ins not included)

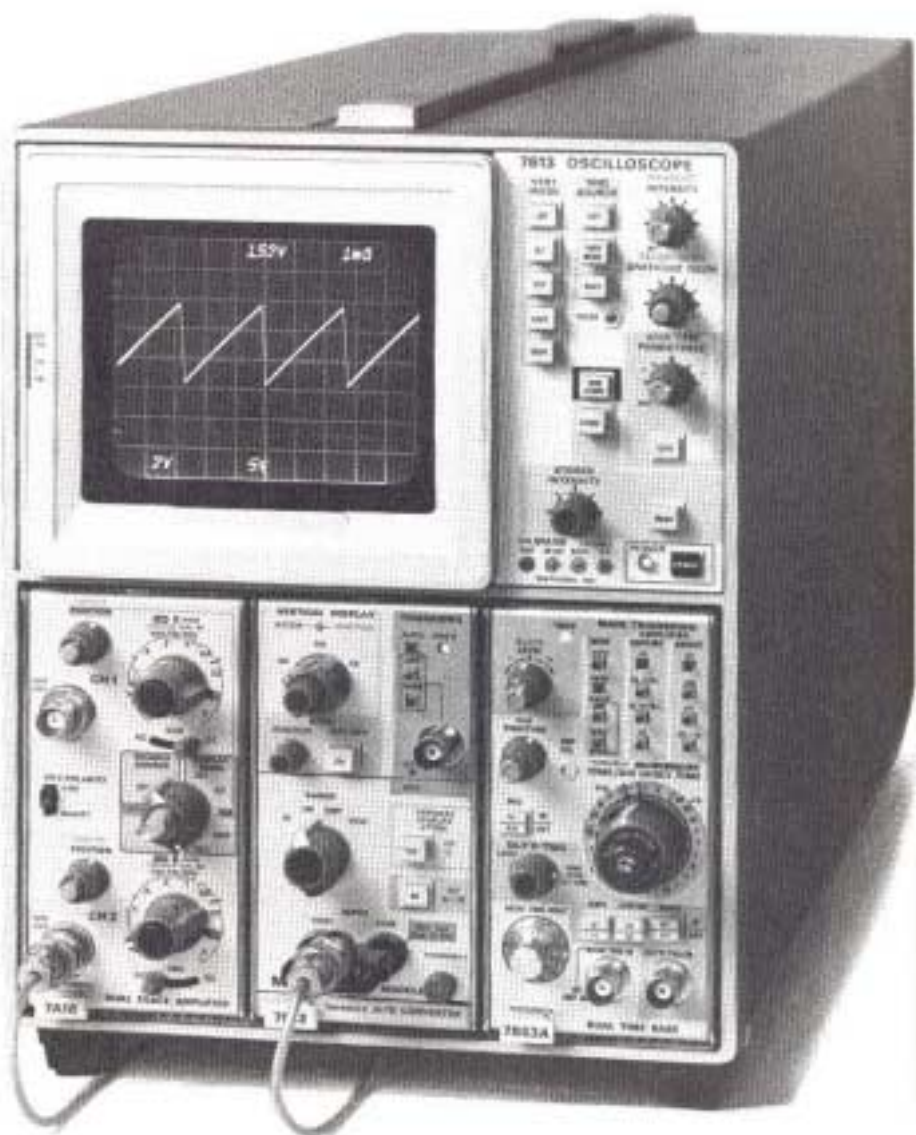
- 7633 Storage Oscilloscope
- R7633 Storage Oscilloscope
- 7623A Storage Oscilloscope
- R7623A Storage Oscilloscope

**OPTIONS**

- Option 01 without CRT Readout
- Option 03 Emc Modification
- Option 05 Line Freq Change (50-400 Hz)

**CONVERSION KITS**

- CRT Readout (040-0748-01 Cabinet)
- (040-0759-01 Rackmount)
- Emc Modification
- (040-0663-01 Cabinet)
- (040-0678-01 Rackmount)
- Sig Out/In (040-0629-01 Cabinet)
- (040-0633-00 Rackmount)
- Power Supply to Light Plug-in
- Pushbuttons (040-0686-01)



**7613**

**Variable Persistence Storage**

**4.5 cm/ $\mu$ s Stored Writing Speed**

**Dc to 100 MHz Bandwidth**

**5.25 in Rackmount Height**

**APPLICATIONS**

**Audio**

**Mechanical Transducers**

**Spectrum Analysis**

The TEKTRONIX 7613 Storage Oscilloscope offers variable persistence operation with a stored writing speed of 5 div/ $\mu$ s or non-storage operation. Stored traces may be viewed up to 60 minutes on a display area of 8 x 10 div (0.9 cm/div).

**VERTICAL SYSTEM**

**Channels** — Two left-hand plug-in compartments; compatible with all 7000 Series Plug-ins. Bandwidth determined by main frame and plug-in unit; see Vertical System Specification Chart.

**Modes of Operation** — LEFT, ALT, ADD, CHOP, INVERT.

**Chopped Mode** — Repetition rate is  $\sim$ 1 MHz.

**Delay Line** — Permits viewing leading edge of displayed waveform.

**HORIZONTAL SYSTEM**

**Channel** — One right-hand plug-in compartment; compatible with all 7000 Series Plug-ins.

**Fastest Calibrated Sweep Rate** — 5 ns/div.

**X-Y Mode** — The phase shift between vertical and horizontal channels is within 2° from dc to 35 kHz. Bandwidth is dc to at least 2 MHz.

## CRT AND DISPLAY FEATURES

**Variable Persistence Storage CRT** — Internal 8 x 10 div (0.9 inch) graticule with variable illumination.

**Phosphor** — P31

**Option 01** — No CRT readout

**Accelerating Potential** — 8.5 kV

**Nonstore Mode** — For displaying waveforms in the conventional (nonstorage) mode.

**Store Mode** — For displaying waveforms using the variable persistence storage feature.

**Max Stored Writing Speed** —  $\sim 4.5$  cm/ $\mu$ s

**View Time** — The view time is the amount of time the stored signal can be viewed before it fades away.

At the max writing speed the view time is 15 seconds or 0.25 minutes with the stored intensity control fully cw. Adjusting the stored intensity ccw will reduce the stored writing speed, but view time can be increased up to 5 minutes (see the chart below).



**Erase Time** — 0.5 s or less

**Persistence** — The persistence control also varies the view time. The persistence can be adjusted from almost instantaneous disappearance (fade away), to off, which provides the view time selected by the stored intensity control.

**Save** — Prevents erasure of the stored display and activates the save time control.

**Save Time Control** — Allows an extension of the view time (see Storage View Time Chart).

**External Z-Axis Input** — 2 V p-p for full intensity range from 20 to 2 MHz; intensity range diminished to 20% of full range at 12 MHz. A positive signal blanks the trace. Max input voltage is 10 V (dc, + peak ac) and p-p ac.

**Autofocus** — Reduces the need for additional manual focusing with changes in intensity after focus control has been set.

**Beam Finder** — Limits display within graticule area.

## OUTPUTS/INPUTS

**+Sawtooth** — Sawtooth starts 1 V or less from ground (into 1 M $\Omega$ ). Output voltage is 50 mV/div ( $\pm 15\%$ ) into 50  $\Omega$ , 1 V/div ( $\pm 10\%$ ) into 1 M $\Omega$ . Output R is 950  $\Omega$  within 2%.

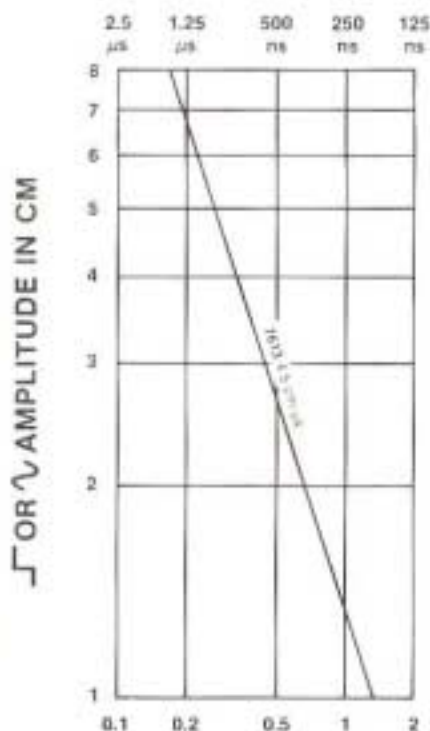
**+Gate** — Positive pulse of the same duration and coincident with sweep. Output voltage is 0.5 V ( $\pm 10\%$ ) into 50  $\Omega$ , 10 V ( $\pm 10\%$ ) into 1 M $\Omega$ . Rise time is 20 ns or less into 50  $\Omega$ ; output R is 950  $\Omega$  within 2%. Source is selectable from main, delay, or auxiliary gate.

**Sig Out** — Selected by TRIGGER SOURCE switch. Output voltage is 25 mV/div into 50  $\Omega$ , 0.5 V/div into 1 M $\Omega$ . Bandwidth depends upon vertical plug-in; see Vertical System Specifications Chart. Output R is 950  $\Omega$  within 2%.

**External Single-Sweep Reset** — Ground closure, rear panel BNC provides input to reset sweep.

**Remote Erase** — Ground closure, rear panel BNC provides input to erase stored trace.

## STEP RISE TIME



Graph showing the stored writing speed needed for a given sine wave or step rise time at a given amplitude.

## CAMERA POWER OUTPUT

Three-prong connector to the left of the CRT provides power, ground, and remote single-sweep reset access for the C-50 Series Cameras.

## CALIBRATOR

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**Current Output** — 40 mA dc or 40 mA rectangular waveform with optional current-loop accessory (#12-0255-00) connected between 4 V and grnd pin jacks.

**Line Voltage Ranges** — 100, 110, 120, 200, 220, and 240 V ac  $\pm 10\%$ , internally selectable with quick change jumpers.

**Line Frequency** — 50-60 Hz

**Option 05, Line Frequency Change (50-400 Hz)** — Converts the 7613 and R7613 to 50-400 Hz operation.

**Max Power Consumption** — 180 W, 2.0 A at 115 V line, 60 Hz. Fan cooling is provided for both models.

**Included Accessories (for 7613 and R7613)** — 20 in cable (two-pin to BNC), (#75-1178-00), CRT filter (gray, 378-0625-02). The R7613 includes rackmounting hardware.

**Dimensions and Weight** — See page 153.

**For Recommended Cameras** — See page 154.

**For Recommended Plug-ins** — See page 152.

## ORDERING INFORMATION

(Plug-ins not included)

7613 Storage Oscilloscope

R7613 Storage Oscilloscope

## 7613 OPTIONS

Option 01 without CRT Readout

Option 03 Emc Modification

Option 05 Line Freq Change (50-400 Hz)

Option 06 Special Int Graticule

(Spectrum Analyzer)

Option 08 Protective Panel Cover

## R7613 OPTIONS

Option 01 without CRT Readout

Option 03 Emc Modification

Option 05 Line Freq Change (50-400 Hz)

Option 06 Special Int Graticule

(Spectrum Analyzer)

## 7613 CONVERSION KITS

040-0656-02 CRT Readout

040-0663-01 Emc Modification

040-0718-00 X-Y Horizontal Comp

040-0628-02 Sig Out/In

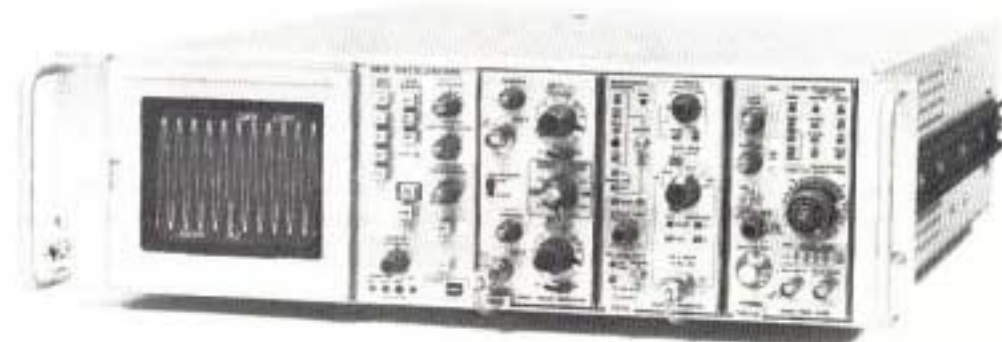
040-0686-01 Power Supply to Light Plug-in Pushbuttons

## R7613 CONVERSION KITS

040-0676-02 CRT Readout

040-0678-01 Emc Modification

040-0686-01 Power Supply to Light Plug-in Pushbuttons



The R7613 requires only 5 1/4 in of rack height in a standard 19 in rack. It is fan cooled and comes complete with slide-out chassis tracks.