

INSTRUCTION MANUAL

Serial Number _____

454A / R454A OSCILLOSCOPE

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CHANGE INFORMATION

Abbreviations and symbols used in this manual are based on or taken directly from IEEE Standard 260 "Standard Symbols for Units", MIL-STD-12B and other standards of the electronics industry. Change information, if any, is located at the rear of this manual.

SECTION 1

454A/R454A SPECIFICATION

Change information, if any, affecting this section will be found at the rear of this manual.

Introduction

The Tektronix 454A Oscilloscope is a wide bandwidth, portable oscilloscope designed to operate in a wide range of environmental conditions. The light weight and compact design of the 454A allow it to be easily transported, while providing the performance necessary for accurate high-frequency measurements. The dual-channel, DC-to-150 megahertz vertical system provides calibrated deflection factors from 2 millivolts to 5 volts/division (bandwidth is reduced at the two lowest deflection factors). Channels 1 and 2 can be cascaded using an external cable to provide a 400 microvolt minimum deflection factor. A bandwidth limit switch allows low-frequency, low-level signals to be viewed with reduced interference from signals above about 20 megahertz.

The trigger circuits provide stable triggering over the full range of vertical bandwidth. Separate trigger controls are provided to select the desired triggering for the A and B sweeps. One of three sweep modes can be selected for A sweep; automatic triggering, normal triggering or single sweep. The horizontal deflection system provides calibrated sweep rates from five seconds to 0.02 microsecond/division. A X10 magnifier allows each sweep rate to be increased 10 times to provide a maximum sweep rate of two

nanoseconds/division in the .02 μ s position. The delayed and mixed sweep features allow the B Sweep to be delayed a selected amount from the start of A sweep to provide accurate relative-time measurements. Calibrated X-Y measurements can be made with Channel 2 providing the vertical deflection and Channel 1 providing the horizontal deflection (TRIGGER switch set to CH 1 ONLY, HORIZ DISPLAY switch set to X-Y). The regulated DC power supplies assure that instrument performance is not affected by variations in line voltage and frequency. Total power consumption of the instrument is about 115 watts.

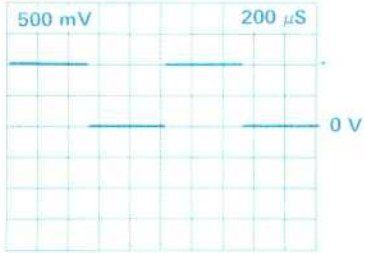
Information given in this instruction manual applies to the R454A also unless otherwise indicated. The R454A is electrically identical to the 454A, but it is adapted for mounting in a standard 19-inch rack. Rackmounting instructions and a dimensional drawing are given in section 6.

This instrument will meet the electrical characteristics listed in Table 1-1 following complete calibration as given in section 5. The following electrical characteristics apply over a calibration interval of 1000 hours and an ambient temperature range of -15°C to $+55^{\circ}\text{C}$, except as otherwise indicated. Warm-up time for given accuracy is 20 minutes.

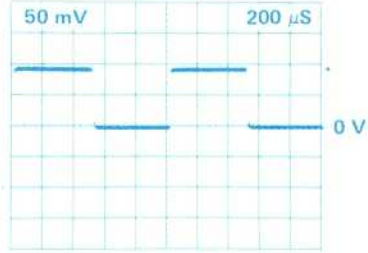
TABLE 1-1
ELECTRICAL

Characteristic	Performance	Supplemental
VERTICAL DEFLECTION SYSTEM		
Deflection Factor		
Channel 1 and 2 Calibrated Range	Two millivolts/division to five volts/division in eleven steps in a 1-2-5 sequence.	
Added Mode Calibrated Range	Between two millivolts/division and five volts/division.	
Channel 1 or 2, or Added Mode Accuracy (With or Without P6054 Probe)	Within 3% of indicated deflection with GAIN correctly adjusted at 20 mV/div.	

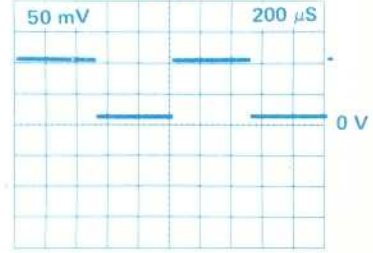
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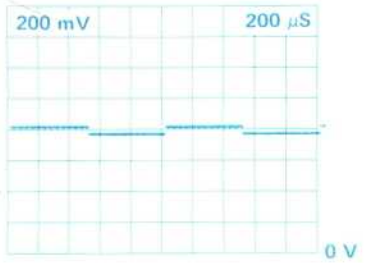
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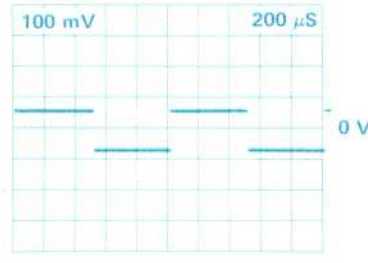
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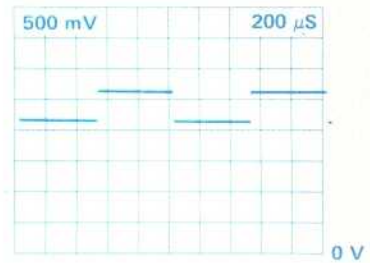
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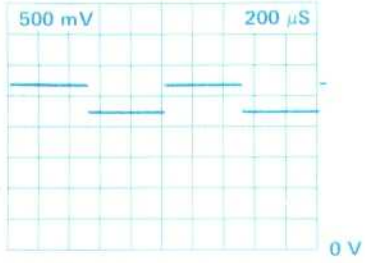
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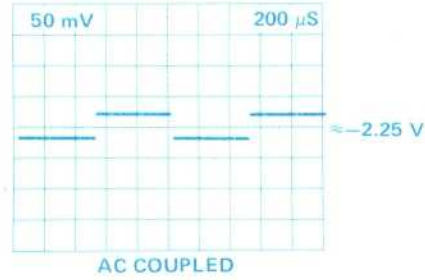
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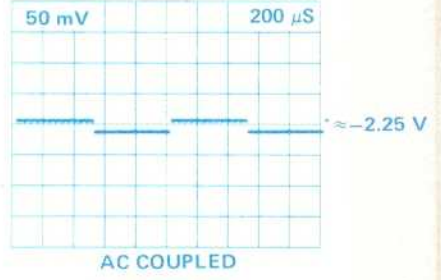
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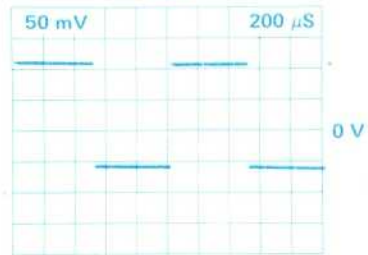
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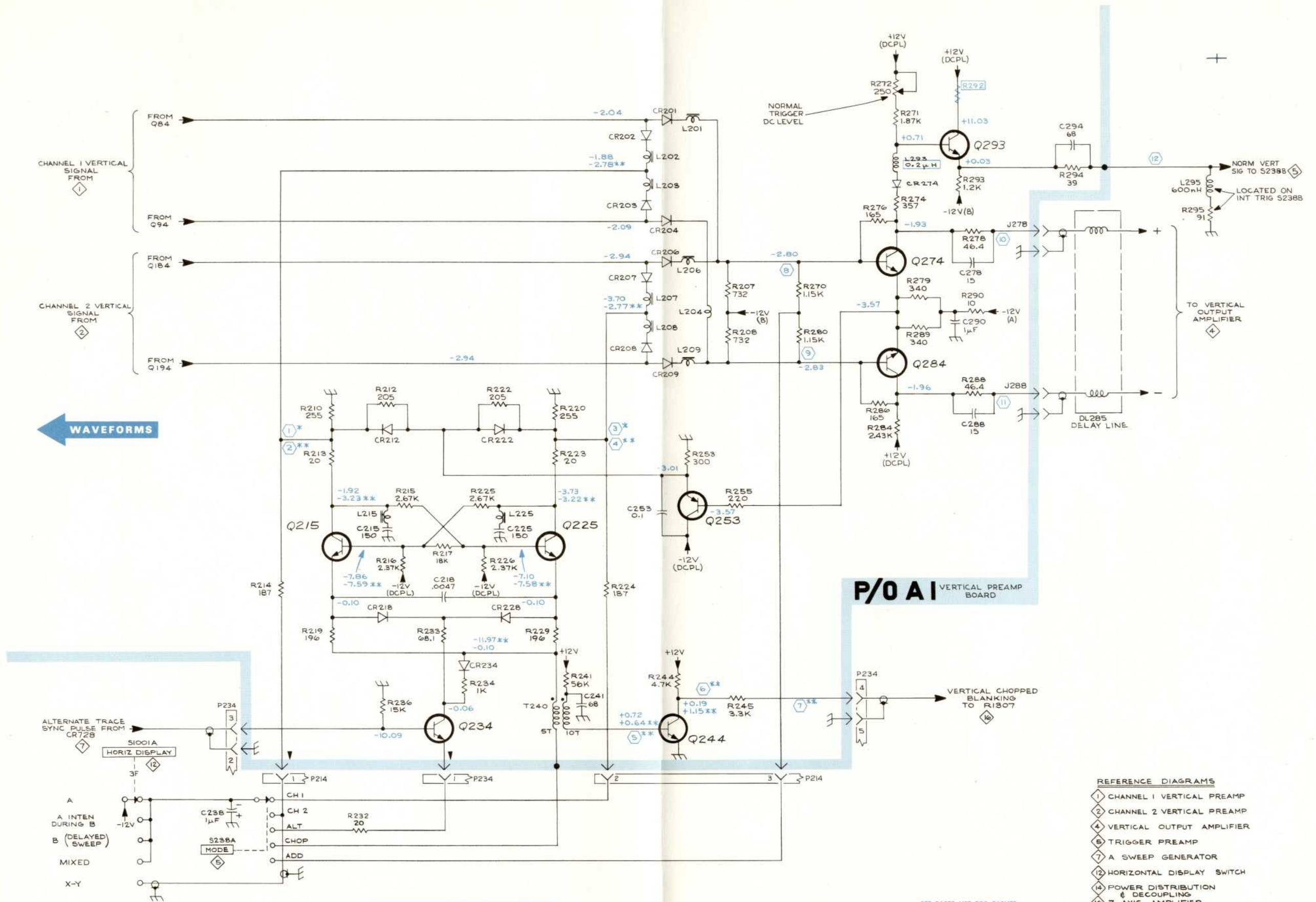


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← WAVEFORMS

P/O A1 VERTICAL PREAMP BOARD

ALTERNATE TRACE SYNC PULSE FROM CR728
S1001A HORIZ DISPLAY

A
A INTEN DURING B
B (DELAYED) SWEEP
MIXED
X-Y

CH 1
CH 2
ALT
CHOP
ADD

VOLTAGES and WAVEFORMS obtained under conditions given on page B-2 except as follows:
*MODE ALT
**MODE CHOP

SEE PARTS LIST FOR SEMICONDUCTOR TYPES

SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS MARKED WITH BLUE OUTLINE.

- REFERENCE DIAGRAMS
- ① CHANNEL 1 VERTICAL PREAMP
 - ② CHANNEL 2 VERTICAL PREAMP
 - ④ VERTICAL OUTPUT AMPLIFIER
 - ⑤ TRIGGER PREAMP
 - ⑦ A SWEEP GENERATOR
 - ⑫ HORIZONTAL DISPLAY SWITCH
 - ⑭ POWER DISTRIBUTION & DECOUPLING
 - ⑯ Z AXIS AMPLIFIER