

MODEL 552 E OSCILLOSCOPE

INSTRUCTION MANUAL

This is an oscilloscope to observe directly the characteristics of equipment, combining with sweep generator, and contains a DC-coupled amplifier with high sensitivity in vertical axis. Thus it has not any error of measurement by sag. Working with 133 mm picture tube, this is small, light and less in consumption of power and is equipped with a special inclining stand.

Kikusui Electronics Corporation

S P E C I F I C A T I O N S

Power Supply volts 50/60 c/s. Approx. 29 VA

Dimensions 180 (W) x 260 (H) x 400 (D) mm
 (Max.) 185 (W) x 272 (H) x 438 (D) mm

Weight Approx. 9.2 kg

Tube used 1 - 6AQ8 (or 6DT8)
 2 - 12AX7
 1 - 6X4
 1 - 1X2B
 1 - 5UP1-F
 1 - NE-68
 1 - 12AU7

Items supplied with equipment

- 1 - Cable with 5/8" 27 connector
- 1 - Inclining Stand
- 1 - Instruction Manual
- 1 - Testing Data

Vertical Axis

Deflection Sensitivity More than 15 mVp-p / cm

Frequency Response DC coupled 0 to 50 kc
 (- 3 dB) AC coupled 1.7 c/s to 50 kc

Attenuator 1/1 , 1/10

Input Impedance 1 Megohm. Approx. 55 pF max.

Input Terminal 5/8" 27 connector

Horizontal Axis

Deflection Sensitivity More than 0.5 Vp-p / cm

Frequency Response 7 c/s to 20 kc (- 3 dB)

Input Impedance 1 Megohm. Approx. 55 pF max.

Calibration voltage (0 to 5 volts) x 0.1 ± DC
 (Semi-fixed, possibly calibrated and checked
 from outside.)

Inclining Stand 15° (easily equipped and removed.)

Internal Line Sweep Phase angle ; approx. 130° variable

FUNCTION OF CONTROLS AND TERMINALS

INTENSITY	This knob is a combined power switch and intensity control. Turning this knob clockwise from OFF position, power is turned on and pilot lamp lights on. As this knob is further turned clockwise, intensity of the spot increases.
FOCUS	This knob is to adjust the sharpness of the trace.
VERT POSITION	This knob is to move the spot or trace vertically on the screen. Turning this knob clockwise, the spot or trace moves upward. But the spot or trace moves in reverse by setting POLARITY switch at the leftside downward.
HOR POSITION	This knob is to move the spot or trace horizontally on the screen. Turning this knob clockwise, the spot or trace moves to right. But the spot or trace moves in reverse by setting POLARITY switch at the rightside downward.
VERT BAL	A semi-fixed resistor to adjust direct current balance of vertical amplifier. You can adjust the spot or trace to locate about at the center of the screen. The relation between turning direction of the resistor and moving direction of the spot or trace is the same with those of the VERT POSITION knob.
HOR ATTEN (black knob)	This is a knob to control the sensitivity of the horizontal amplifier. Turning it clockwise, the sensitivity increases.
CAL/VERT ATTEN	This is a knob to divide the input voltage of vertical amplifier, having 1 and 1/10 range. Turning this knob to CAL position, internal calibrated voltage connects to the amplifier through 1/10 attenuator.
VARIABLES	This is a knob to change vertical sensitivity continuously. Turning clockwise, input increases.
AC/DC	When this switch is in AC position, the signal is applied to the vertical amplifier through a blocking capacitor. In DC position, the signal is applied directly to the vertical amplifier.
VERT INPUT(GND)	Vertical input terminal
HOR INPUT (GND)	Horizontal input terminal.
PHASE (red knob)	Turning the knob clockwise from extreme counterclockwise position (HOR ON), the input of horizontal amplifier is disconnected from the horizontal input terminal and connected to internal line sweep supply. Turning it further clockwise, the phase of line sweep signal is lagged.

MAINTENANCE

VERT BALANCE

When the moving range of the spot or trace by VERT POSITION slips off conspicuously, it may be adjusted by the semi-fixed resistor of VERT BAL on the panel. It can be adjusted by a screw driver adjustment of VERT BAL, to bring the spot or trace around the center of the screen at center position of the knob of VERT POSITION. If unadjustable, there will very often be something wrong with the tube balance of the vertical amplifier. The balance will be strictly required by the tubes which is fitted nearer to the input. Usually, it is desirable to replace V_1 (12AX7) with new one.

Calibrated Voltage

When turning CAL/VERT ATTEN to CAL position, internal calibrated voltage is supplied to the input of the vertical amplifier through 1/10 attenuator and then the spot or trace moves in proportional width to deflection sensitivity set by VARIABLE red knob. Calibrated voltage is adjusted to 1 volt and can be adjusted from the outside of the case because of its changeability from 0 to approx 5 volts ($\times 1/10$). You can see the check of calibrated voltage (front) and a screw driver adjustable resistor (rear) by removing the rubber cover at leftside of the case. Adjust the calibrated voltage by turning the screw of the resistor after connecting DC voltmeter between the check point and GND. (In this case, turn the knob of CAL/VERT ATTEN in the panel to CAL position in order not to make any error.) It also is possible to fix the calibrated voltage by supplying the known voltage to VERT INPUT terminal and comparing the moving length of the spot or trace.

ASTIGMATISM

You can obtain the sharpest brightness of the spot or trace with a screw driver adjustable resistor which can be found by removing the rubber cover at rightside of the case as well as the knob of FOCUS.

INTEN MOD

An input terminal for CRT Intensity Modulation at rear side of the case, which is used with the GND terminal on the front panel. Brightness increases when the signal is positive.