M O D E L O V - 7 6

O S C I L L O S C O P E

The Model OV-76 Oscilloscope is a general purpose cathode-ray oscilloscope employing a big 7-inch cathode-ray tube and identical high-sensitivity DC-coupled amplifiers in both vertical and horizontal axis, and in addition to common applications, this equipment is particulary useful in measurement of phase characteristics of the electronic equipments.

SPECIFICATION

Power Requirement	100 volts, 50 to 60 cps, approx. 85 VA.
Size - Cabinet	240 W x 340 H x 410 D mm
Maximum	246 W x 352 H x 430 D mm
Weight	Approx. 15 kilograms

Tubes Used			
	Vertical Axis	2 - 6AU6	2 - 12AU7
	Horizontal Axis	2 - 6AU6	2 - 12AU7
	Sweep Oscillator	1 - 6DT6	1 - 12AU7
	Power Supply	1 - 6X4	1 - 1X2A
	Cathode-Ray Tube	1 - 7VP1	

Items Supplied with Equipment

1 - 951C Low-Capacitance Probe
  Input resistance approx. 10 megohms
  Input capacitance approx. 12 picofarads
  Length of cable 1 meter
  Weight approx. 350 grams
1 - Terminal Adaptor
1 - Operation Manual
1 - Test Data

Vertical and Horizontal Amplifiers

Deflection Sensitivity	At 1 kc. 30 millivolts p-p / cm
Frequency Response	In reference to 1 kc between 0 and 100 kc. Within ±0.5 db. At 600 kc. Within -3 db.
Input Impedance	In all ranges: 1 megohm shunted by 40 pF Using 951C Low Capacitance Probe: 10 megohms shunted by 12 pF.

Sweep Oscillator

Sweep Frequency	1 cps to 100 kc in 5 ranges and TV.V (30 cps) and TV.H (7875 cps).
Synchronization	Internal (positive and negative), external, and line.

Calibration Voltage	When line voltage is maintained at 100 volts. 3 volts p-p within ±10%

FUNCTIONS OF CONTROLS AND TERMINALS

INTENSITY OFF	Combined power switch and intensity control. Turning this knob clockwise from OFF position, power is applied and pilot lamp lights on. After 30 seconds of warm-up, the equipment is in operating condition. As this knob is further turned clockwise, the intensity of the trace increases.
FOCUS	An adjustment to obtain optimum focus. Maximum sharpness will be obtained around the center position.
VERT POSITION	An adjustment to move the trace vertically. Turning this knob clockwise, the trace moves upward.
HOR POSITION	An adjustment to move the trace horizontally. Turning this knob clockwise, the trace moves leftward.
VERT GAIN	A dual knob for gain control of vertical amplifier. External knob is to select the position of the frequency-compensated attenuator in 4 ranges; 1/1, 1/10, 1/100, and 1/1000. Internal knob is for fine adjustment of the gain. As this knob is turned clockwise, the gain increases.
HOR GAIN	A dual knob having same function as VERT GAIN for horizontal amplifier. In addition, external knob can be switched to LINE position where line voltage is applied to horizontal amplifier, and SEEP position where sweep signal from sweep oscillator is applied to horizontal amplifier.
SYNC	A dual knob for selection of synchronization signal and for control of it. External knob is to select one of 4 positions; -INT, +INT, LINE, and EXT, and at these positions, sweep frequency is synchronized to negative excusion of observed waveform, positive excursion of observed waveform, line frequency, and external signal respectively. Internal knob is to adjust the amplitude of synchronization signal to sweep oscillator, and as this knob is turned clockwise, the amplitude increases.
SWEEP	A dual knob for control of sweep frequency. External knob is to select the frequency range in 5 ranges: 1 - 10/100/1K/10K/100K or TV.V and TV.H. Internal knob is for fine adjustment of sweep frequency in each range. As this knob is turned clockwise, sweep frequency increases. However, when external knob is placed in TV.V or TV.H position, internal knob does not work as sweep frequency is fixed at these positions.

PHASE — An adjustment for control of the phase of line voltage, which is supplied to horizontal amplifier when HOR GAIN is placed in LINE position, and supplied to sweep oscillator when SYNC is placed in LINE position.

ADJUSTMENT

The equipment is supplied properly adjusted at the factory. However, readjustment is required when tubes and other components are replaced or any variation is recognized in the performace after long period of use. When making adjustment, the equipment should be allowed to warm-up at least for 15 minutes.

VERT BAL — This is to compensate the movement of the trace according to the setting of internal knob of VERT GAIN. This adjustment is to be re-adjusted when line voltage has changed ro when adjustment is made on R9 as described below.

1. No signal is applied to vertical amplifier .
2. Internal knob of VERT GAIN is turned fully counter clockwise.
3. Turning VERT POSITION, a spot or horizontal line on the screen is moved to the center of the screen.
4. Internal knob of VERT GAIN is then turned fully clockwise, and if spot or horizontal line moves vertically, it is returned to the center turning VERT BAL.
5. Internal knob of VERT GAIN is then again turned fully counter clockwise, and if spot or horizontal line moves vertically, it is returned to the center turning VERT POSITION. The above procedure is repeated untill spot or horizontal line does not move according to the setting of internal knob of VERT GAIN.

HOR BAL — The same procedure as described in adjustment of VERT BAL is followed in adjustment of HOR BAL. After this adjustment, a spot or line should not move horizontally according to the setting of internal knob of HOR GAIN.

Adjustment of R9 and R51

R9 and R51 are screw driver adjustment to set the operating point of vertical and horizontal amplifiers, respectively. These however affect also on gain, linearity, and stability of the amplifiers.

Linearity — Turning these counter clockwise, plate voltages of V1, V2 or V6, V7 are made at more than 40 volts. Then, good linearity is obtained.

Gain — As these are turned clockwise, the gain increases.

Stability — As these are turned clockwise, the stability increases.

These adjustments are therefore adjusted for optimum performance in particular application.

Power Requirements of this Product

Power requirements of this product have been changed and the relevant sections of the Operation Manual should be revised accordingly.
(Revision should be applied to items indicated by a check mark ☑.)

☐ Input voltage

The input voltage of this product is _____ VAC,
and the voltage range is _____ to _____ VAC. Use the product within this range only.

☐ Input fuse

The rating of this product's input fuse is _____A, _____VAC, and _____.

WARNING

- To avoid electrical shock, always disconnect the AC power cable or turn off the switch on the switchboard before attempting to check or replace the fuse.
- Use a fuse element having a shape, rating, and characteristics suitable for this product. The use of a fuse with a different rating or one that short circuits the fuse holder may result in fire, electric shock, or irreparable damage.

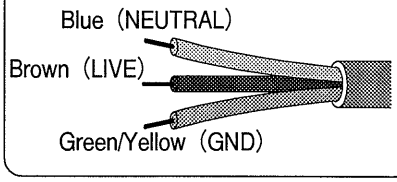
☐ AC power cable

The product is porvided with AC power cables described below. If the cable has no power plug, attach a power plug or crimp-style terminals to the cable in accordance with the wire colors specified in the drawing.

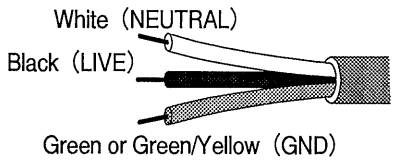
WARNING

- The attachment of a power plug or crimp-style terminals must be carried out by qualified personnel.

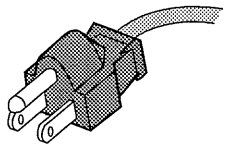
☐ Without a power plug



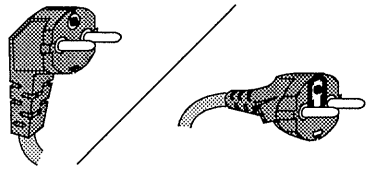
☐ Without a power plug



☐ Plugs for USA



☐ Plugs for Europe



☐ Provided by Kikusui agents

Kikusui agents can provide you with suitable AC power cable.
For further information, contact your Kikusui agent.

☐ Another Cable _____

 Kikusui Part No. Z9-000-027 IB001681

KIKUSUI