

MODEL 572
OSCILLOSCOPE
OPERATION MANUAL

印刷表紙使用のこと

KIKUSUI ELECTRONICS CORP.

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Synchronism

Inside (+ -)
Outside
Line Freq.

Calibration voltage

Output voltage 0.05V, 0.5V, 5V p-p square wave

Accuracy +5%

External brilliance modulation

Voltage 10 V p-p

Polarity Brilliance increases with positive signal

Input impedance Approx. 100 K Ω

Power

Voltage AC V 50 - 60 Hz

Power consumption Approx. 70VA

Weight

Approx. 14 Kg

Dimensions

(Largest part) 230(240)W x 310(340)H x 450(510)D mm

Accessories

- 957M Type low capacity probe 1
- 941B Type terminal adaptor..... 2
- Operation manual..... 1 copy
- Test table..... 1
- Short bar (short)..... 1

OPERATION PROCEDURE:

1. Operation of front panel knobs

INTENSITY (OFF)

This is a knob for adjustment of brilliance which also serves as power switch.

If this knob is turned clockwise from the position POWER OFF, power will be turned on and the pilot lamp, be lighted. Approx. 30 seconds, it will be put in action. If turned clockwise, brilliance will be increased.

FOCUS

This is a knob for focusing of electron beam for producing a sharp bright point. In the vicinity of center, the min. bright point will be produced.

VERT POSITION

This is a knob for moving of the bright line toward the vertical direction. . If turned clockwise, it will be moved upward.

HOR POSITION

This is a knob for moving of the bright line toward the horizontal direction. If turned clockwise, it will be moved to the right.

VERT SENSITIVITY

This is a double knob for adjustment of sensitivity of the vertical axis amplifier and the external part of the double knob, a change-over switch for attenuator of input of which frequency has been compensated. It has such 4 ranges as 1/1, 1/10, 1/100 and 1/1000.

The internal part of the double knob is for adjustment of gain of the amplifier. If turned clockwise, the gain will be increased continuously.

SWEEP RANGE

This is a double knob for adjustment of the oscillated frequency of the time base oscillator. The external part of the double knob has such 5 ranges as 1-10/100/1K/10K/100 K Hz and is used for changing over of TV, H.

The internal part of the double knob is for continuous changing of the frequency at respective frequency bands.

If turned clockwise, frequency will be increased.

TV.H (7875 Hz) is set at 10 - 100 range and the oscillated frequency, set at 30 Hz by the internal knob.

Then, it is changed over to TV.H.

SYNC SELECT

This is a knob for change-over of the synchronous input of the time base oscillator. 4 different synchronous inputs can be selected i.e. - INT, +INT, LINE, EXT. At respective position, the time base oscillator synchronizes negative and positive part of the observation wave form, power frequency and external frequency input.

HOR SENSITIVITY

This is for the change-over of sensitivity and input of the horizontal axis amplifier and same as VERT SENSITIVITY. When the external change-over knob is operated, the output of the time base oscillator will be the input of the horizontal axis amplifier at position SWEEP.

The internal part of the knob is for adjustment of gain for amplifier. If turned clockwise, the gain will be increased continuously.

CALIB

It is the square wave output of the power frequency to be used for calibration of deflection sensitivity and stabilized against fluctuation in power voltage.

Output voltages of 0.05, 0.5, 5V p-p are available with accuracy of $\pm 5\%$.

ILLUM

This is a change-over switch for brilliance of illuminating lamp for the CRT (Cathode Ray Tube) scale.

When this switch is located at position "2", the brilliance will be maximum. When it is located at position "1", the brilliance will be halved as compared with that at position "2".

EXT SYNC IN

This is an input terminal for external synchronism.

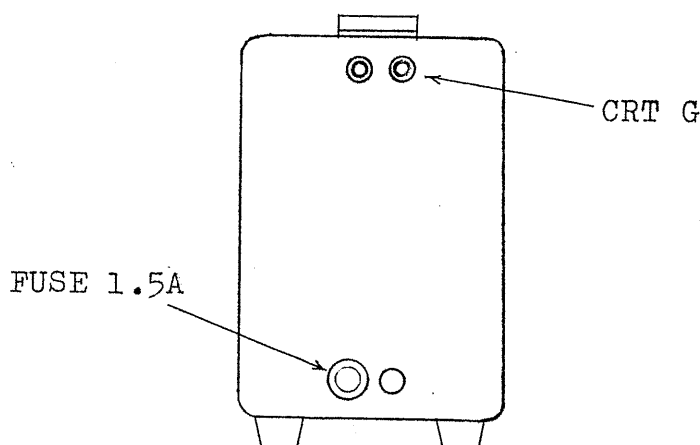
2. Description on Back Panel.

CRT G

This is a terminal for external brilliance modulation of CRT. Remove the short bar shortcircuiting among terminals and add a brilliance modulation signal. The voltage for the signal must be bigger than 10V p-p.

FUSE

This a fuse for power source. The current value is 1.5A.



Calibration

The adjustment has already been made at our shop. Readjustment must be made when the machine has changed its performance due to lapse of time or vacuum tubes have been exchanged for new ones.

Adjustment must be made after the machine has been put in action (aging) for 15 minutes at the least after turning on of power.

VERT DC BAL

The purpose of the adjustment lies in correction of the undesirable transfer of the bright line position when the internal knob of VERT SENSITIVITY is turned.

Adjustment Procedure

1. The vertical amplifier must be made at non-signal state.
2. The internal knob of the VERT SENSITIVITY must be turned counterclockwise to its full extent.
3. By adjusting the VERT POSITION, bright point or bright line must be positioned at center of CRT.
4. The internal knob for VERT SENSITIVITY must be turned clockwise to its full extent. If the bright line should be moved, the VERT DC BAL on the panel must be turned by a driver for returning the bright line to the central position.
5. The knob VERT SENSITIVITY must be turned counterclockwise to its full extent and the bright line, be returned to the center by VERT POSITION and HOR POSITION. Then, repeat the aforementioned procedure until the bright line is not moved at all when the internal knob of the VERT SENSITIVITY is turned.

HOR DC BAL

The same adjustment as the aforementioned VERT DC BAL must be made on the horizontal axis amplifier. Adjustment must be made in such a way that the bright line is not moved in

the horizontal direction when the internal knob of the HOR SENSITIVITY is turned.

ADJUSTMENT OF LOW CAPACITY PROBE

The 957 M Type Low Capacity Probe attached to the oscilloscope must be adjusted slightly once in a while, because the characteristics are changed when strong shocks or bigger voltage than specified are given to it.

Adjustment must be made by trimmer shown in Fig. A.

Quality square wave of approx. 1 KHz must be added to the probe and adjustment, be made in such a way that the linear part of the square wave is straight as shown in Fig. 1.

FIG.A

957M Type Low Capacity Probe

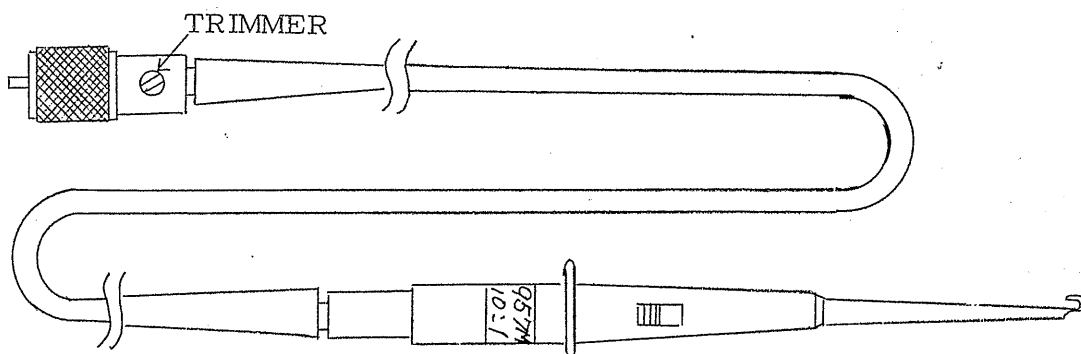
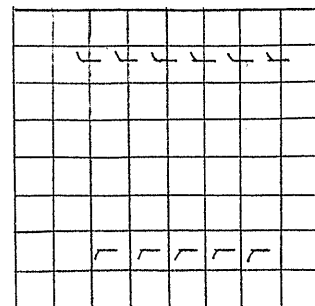
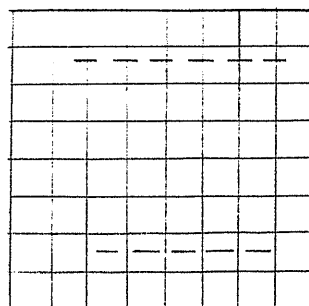
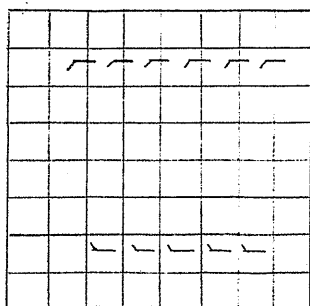


FIG.1

POOR

GOOD

POOR



ADJUSTMENT OF VERTICAL AXIS INPUT POTENTIAL DIVIDER

For adjustment, the left or right side face plate must be removed. For this purpose, turn the lock screws located at the upper part of the side plate counterclockwise in abt. 1 turn and pull the side plate to the outside. In this case, care must be taken because -1500V high tension wiring has been provided inside the machine.

1. Adjustment (High-pass Compensation)

The a-c and d-c switches for the input circuit of vertical axis must be changed over to the DC side and quality square wave of approx. 1 KHz, be added to the INPUT terminal.

If distortion is caused at trace in the respective ranges of 1/10, 1/100, 1/1000 of the switch SENSITIVITY, adjust the capacitor for high-pass compensation shown in Fig.2 and then, adjust the horizontal linear part of the square wave to be straight as shown in Fig.3 (GOOD).

Fig.2

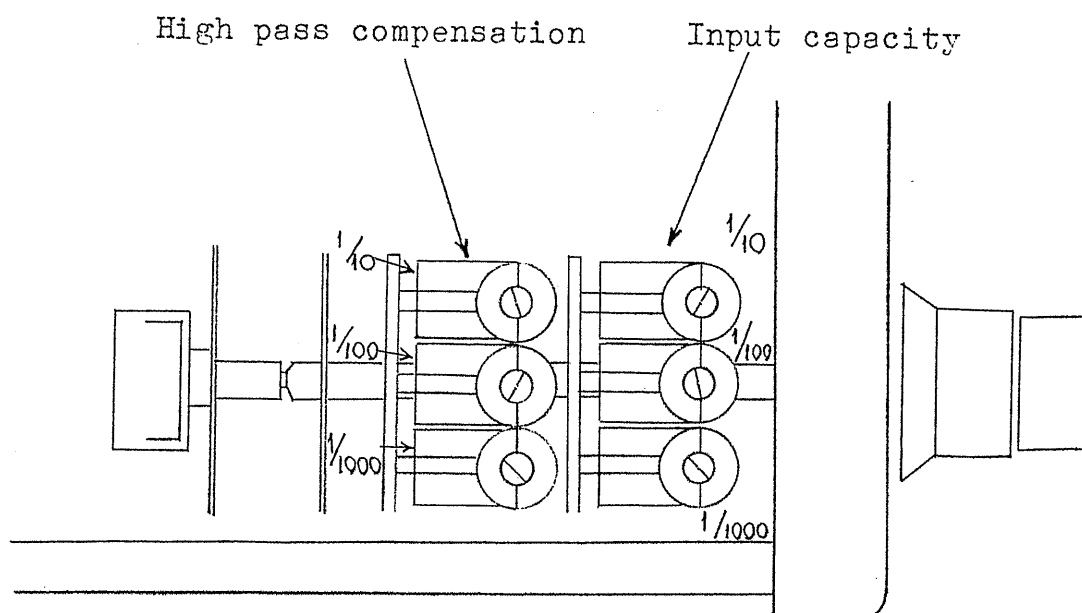
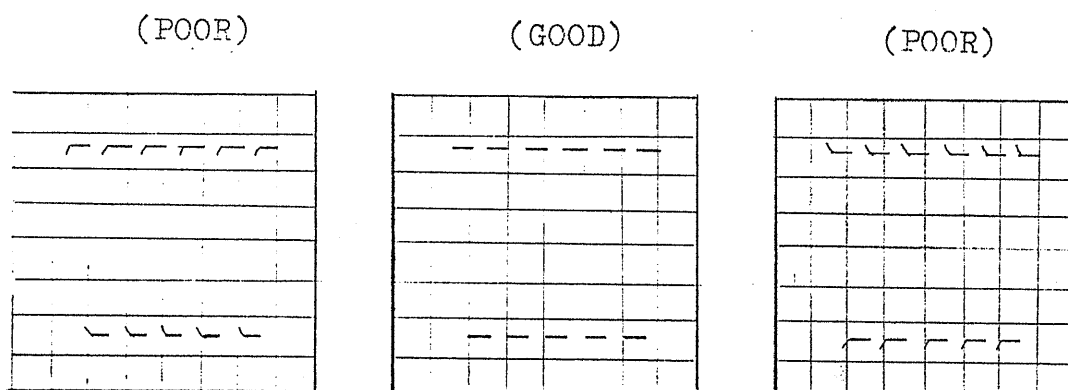


Fig.3



2. Adjustment (Input Capacity)

If the first stage V101 of the vertical axis is exchanged or the high-pass compensation is adjusted, it will be necessary to check the input capacity. If it does not meet the standard requirement, adjust it to be fixed at the respective ranges of the switch SENSITIVITY.

After adjustment on input capacity, adjustment must be made on high-pass compensation once again.

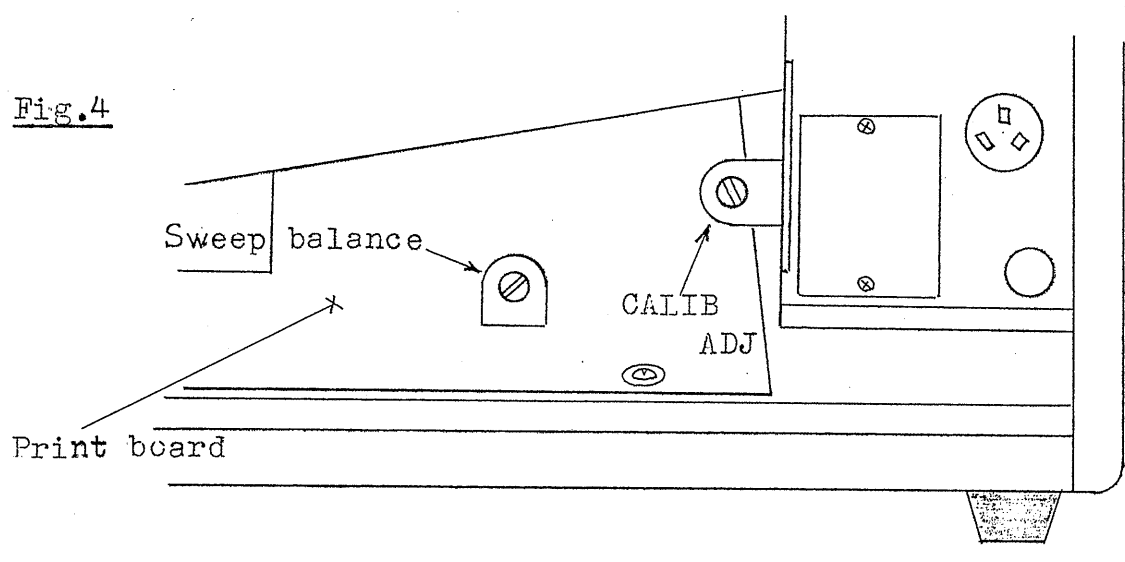
ADJUSTMENT OF SWEEP BALANCE

Adjustment of sweep balance must be made after adjustment of DC BAL of horizontal axis in Page 7.

In case internal sweep is employed, the trace width is adjusted by the variable knob. However, if the trace should not be changed symmetrically at both sides of the center, adjustment must be made.

Even if the adjustment has been made correctly on sweep balance, when synchronized, the length of the trace at right side will become short slightly, resulting in providing an apparent unbalancing condition. Therefore, adjustment must be made on sweep balance without synchronizing.

Fig.4



Adjustment of Calibration Voltage

Output voltage can be adjusted by CALIB. ADJ shown in Fig.4. By employing the oscilloscope of which sensitivity has been calibrated correctly, adjust it to be as specified by semi-fixed resistor of CALIBADJ, measuring the output voltage of CALIB on the panel.

Adjustment of Input Potential Divider for Horizontal Axis

1. High-pass Compensation

The a-c and d-c switch for input circuit of horizontal axis must be changed over to the d-c side and quality square wave of approx. 1 k Hz, be added to the input terminal.

Sweep signal (lacerated wave) must be added beforehand to the input terminal of the vertical axis so that the square wave of 1 K Hz of the horizontal axis input may be traced vertically.

If distortion is caused in trace at the respective ranges of 1/10, 1/100, 1/1000 of the switch SENSITIVITY, adjust the capacitor for high-pass compensation in Fig.5 and then, adjust the vertical line part of the square wave to be straight as shown in Fig.6.

Fig.5

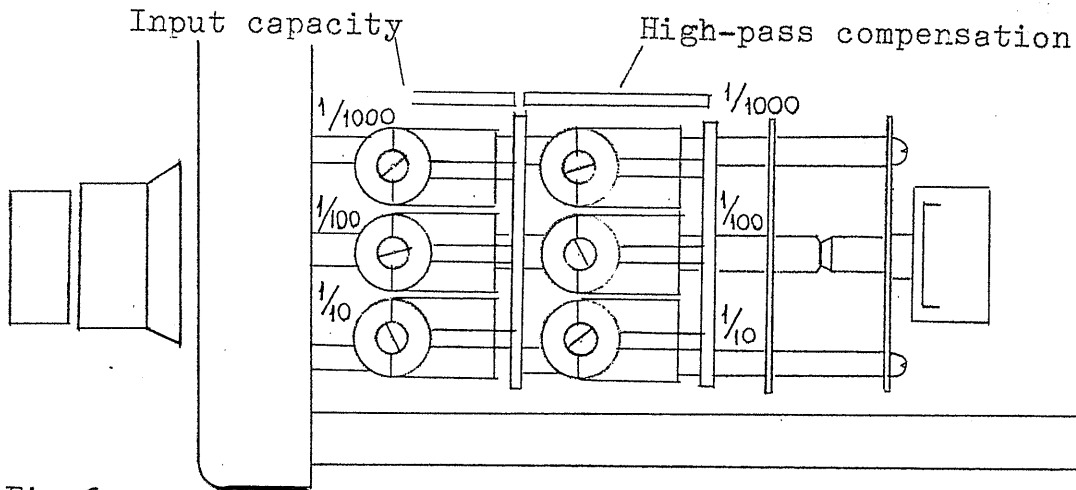
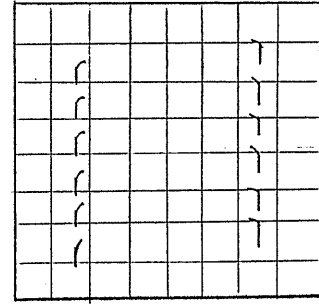
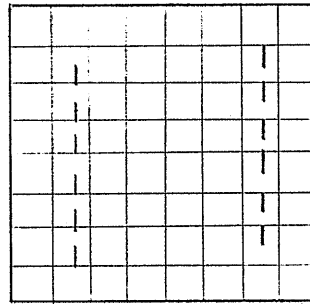
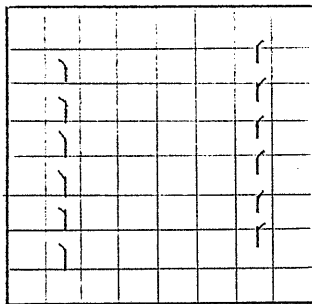


Fig.5

(POOR)

(GOOD)

(POOR)



2. Input Capacity

If the first stage V301 of horizontal axis is exchanged or the high-pass compensation is adjusted, check the input capacity. If it does not meet the standard requirement, adjust it to be fixed at the respective ranges of the switch SENSITIVITY. After adjustment of the input capacity, readjust the high-pass compensation once again.

Service Helps

Symptom	Remedy
1. No sweeping HOR POSITION is not moved.	Time base oscillator circuit Horizontal axis amplifier circuit
2. Not synchronized.	SYNC. SELECT switch circuit Time base oscillator circuit
3. No tracing at CRT	Power circuit, high tension circuit of C.R.T. tube Vertical or horizontal axis amplifiers are unbalanced much.
4. VERT POSITION is not moved.	Vertical axis amplifier circuit
5. No observation wave is produced with sweeping	Vertical axis amplifier circuit
6. The unit works but the trace is moved vertically when the VARIABLE knob of vertical axis is turned.	Deflection of DC BAL of vertical shaft. Adjust the DC BAL in such a way that the trace is not moved up or down when the VARIABLE is turned by shortcircuiting of input terminal.
7. Power is not turned on.	Fuse, power cord, power switch.