Specifications

1-1 GENERAL

The SS-5710 is an oscilloscope with a frequency bandwidth of DC to 60 MHz that can display 8 traces on 4 channels. The SS-5710 is useful in a wide range of applications for not only production lines and maintenance and service purposes but also for the research and development of a variety of electronic devices. The features of the SS-5710 are as follows:

- In addition to display of 8 traces on 4 channels, the SS-5710 has an ADD function for measuring the sum of two signals and CH 2 POLAR for measurement of the difference between two signals.
- Both CH 1 and CH 2 have a high deflection factor of 1 mV/div (in the x5 MAG function), which permits accurate measurement of lower voltages.
- The horizontal deflection system has sweep rates up to 5 nS/div (in the x10 MAG function) so that even high-speed phenomena can be measured with accuracy.

The SS-5710 has delayed sweep, single sweep, ALT sweep, and X-Y operation functions, and a TV synchronizing signal separator circuit so that television and other composite video signal waveforms can be observed.

1-2 ELECTRICAL SPECIFICATIONS

1-2-1 Cathode-Ray Tube (CRT)

Shape	Rectangular, 6 inches
Dispaly Area	8 div x10 div (1 div = 10 mm), with internal illuminated graticule of parallax-free type
Phosphor	B31 (Standard)
Accelerating Voltage	Approximately 15 kV

1-2-2 Vertical Deflection System

Modes	CH 1, CH 2, ALT, CHOP, ADD, QUAD (Quadruple) CHOP switching rate: 300 kHz ±40%

Channels 1 and 2

Deflection Factor	5 mV/div to 10 V/div, in 11 calibrated steps in a 1-2-5 sequence Accuracy: ±2% (at 10° C to 35° C) ±5% (at −10° C to 50° C) 5 mV/div to 25 V/div, continuously variable with the VARIABLE control x5 MAG: 1 mV/div to 2 V/div in 11 calibrated steps Accuracy: ±4% (at 10° C to 35° C) ±8% (at −10° C to +50° C)
Frequency Response	DC to 60 MHz, −3 dB (5 mV/div to 0.2 V/div) DC to 20 MHz, −3 dB (1 mV/div, 2 mV/div in the x 5 MAG made Notes • 10° C to 35° C • AC coupling: The lowest useable frequency is 4 Hz.
Rise Time	5.8 nsec (5 mV/div) or less
Pulse Response	Overshoot: 5% or less Sag (at 1 kHz): 1.5% or less Other distortions: 5% or less (5 mV/div, 10° C to 35° C)

Signal Delay	Delay cable supplied
Input Coupling	AC, DC, GND
Input RC	Direct: 1 MΩ ±2%//32pF ±3pF With probe: 10 MΩ ±2%//15pF ± 2pF
Maximum Input Voltage	Direct: 250 V (DC +peak AC) With probe: 600 V (DC +peak AC) (Refer to the instruction manual for the probe for the maximum input voltage where probe is used.)
Drift	0.5 div/hour (5 mV/div) or 2 div/hour (1 mV/div) 30 minutes after power is turned on (Standard)
Common Mode Rejection Ratio	5 mV/div 40 : 1 (1 kHz sine wave) 15 : 1 (5 MHz sine wave)
Polarity Inversion	CH 2 only

Channels 3 and 4

Deflection Factor	0.1 V/div, 1 V/div, selectable Accuracy: ±4% (at 10 °C to 35 °C)
Frequency Response	DC to 50 MHz, −3 dB Notes • 10 °C to 35 °C • AC coupling: The lowest usable frequency is 4 Hz.
Pulse Response	Overshoot: 10% Sag (at 1 kHz): 2% Other Distortions: 10%
Input Coupling	AC, DC
Input RC	Direct: 1 MΩ ± 3%//32 pF ± 3 pF With probe: 10 MΩ ±2%//15 pF ±2 pF
Maximum Input Voltage	Direct: 250 V (DC +peak AC) With probe: 600V (DC +peak AC)

1-2-3 Triggering

A-Triggering

Triggering Mode	AUTO, NORM, SINGLE/RESET
Signal Source	CH 1, CH 2, CH 3, LINE, NORM (External trigger can be used by selecting CH 3 with SOURCE switch.)
Coupling	AC, DC, HF REJ, LF REJ, FIX, TV-H, TV-V
Slope	Possitive-going (+), Negative-going (−)
Minimum Trigger Sensitivity	As shown in Table 1-1

Table 1-1 (at 10°C to 35°C)

Frequency Range	Sensitivity	
	CH 1, CH 2	CH 3, CH 4
DC to 1 kHz	1 div	1.5 div
1 kHz to 2 MHz	0.5 div	1 div
2 MHz to 20 MHz	1 div	1.5 div
20 MHz to 60 MHz	1.5 div	2 div

Note
- Fix: 1 div at 10 Hz to 2 MHz
  2 div at 2 MHz to 30 MHz
  Sine wave only
- TV-V, TV-H synchronizing signal level: 2.3 div or more on screen amplitude for a composite video signal

composed of 7 parts video signal and 3 parts synchronizing signal
- Trigger signals are attenuated in the following frequency ranges depending on coupling
  AC: 10 Hz or less
  HF REJ: 10 kHz or higher
  LF REJ: 10 kHz or lower
- AUTO sweep mode: The lowest useable frequency is 50 Hz.

B-Triggering

Signal Sources	RUNS AFTER DELAY, CH 1, CH 2, CH 4 (External trigger can be used by selecting CH 4 with SOURCE switch.)
Coupling	AC, DC, HF REJ, TV-H
Slope	Positive-going (+), negative-going (–)
Minimum Trigger Sensitivity	As showm in Table 1-1 However, Sensitivity of 20 MHz to 60 MHz is 2 div at CH 1, CH 2.

1-2-4 Horizontal Deflection System

Modes	A, A INTEN, ALT, B (DLT'D), X-Y

A-Sweep

Sweep Rates	50 nsec/div to 0.5 sec/div, in 22 calibrated steps in a 1-2-5 sequence 50 nsec/div to 1.25 sec/div, continuously variable with the VARIABLE control Accuracy I (Over center 8 divisions): ±3% at 50 nsec/div to 5 msec/div ±4% at 10 msec/div to 0.5 sec/div (at 10 °C to 35 °C) ±5% (at –10 °C to +50 °C) Accuracy II (Over any 2 of the center 8 divisions): ±5% (at –10° C to +50 °C)
Hold-Off Time	Variable with the HOLDOFF control

B-Sweep

Delay	Continuous delay (RUNS AFTER DELAY), triggered delay
Sweep Rates	50 nsec/div to 50 msec/div, in 19 calibrated steps in a 1-2-5 sequence Accuracy I (Over center 8 divisions): ±3% (at 10 ° C to 35° C) ±5% (at –10° C to +50 °C) Accuracy II (Over 2 of the center 8 divisions): ±5% (at –10° C to +50° C)
Time Difference Measurement	0.5 μsec/div to 5 sec/div Accuracy: ±2% of reading ±0.01 graduation (Minimum graduation of DELAY TIME MULT dial)
Delay Jitter	1/20,000 or less
Sweep Magnification	10 times (Maximum sweep rate: 5 nsec/div) Accuracy I of magnified sweep rate (Over center 8 divisions) ±5% at 50 nsec/div to 0.1 μ sec/div ±4% of 0.2 μsec/div to 0.5 sec/div (at 10° C to 35 ° C) Accuracy II of magnified sweep rate (Over any 2 of the center 8 divisions): ±10% at 50 nsec/div to 0.1 μsec/div

±6% at 0.2 μ sec/div to 0.5 sec/div (at 10° C to 35° C) (Except 25 nsec before and after sweep)

1-2-5 X-Y Operation

X Axis	(Same as CH 1 except for the following)
Deflection Factor	Same as that of CH 1 Accuracy: ±5% (at 10°C to 35°C) ±6% (at −10° C to +50 °C)
Frequency Response	DC to 2 MHz, −3 dB
Y Axis	same as CH 2
X-Y Phase Difference	3 ° or less (at DC to 50 kHz)

1-2-6 Z-Axis System

Sensitivity	0.5 Vp-p
Polarity	Positive decleases intensity, negative incleases intensity
Frequency Range	DC to 3 MHz
Input Resistance	5 k Ω±10%
Maximum Input Voltage	50 V (DC +peak AC)

1-2-7 Calibrator

Waveform	Square wave
Repetition Frequency	1 kHz Accuracy: ±30% (at 10 °C to 35 °C)
Duty Ratio	40% to 60%
Output Voltage	0.3 V Accuracy: ±1% (at 10°C to 35°C) ±2% (at −10 °C to +50 °C)
Output Current	10 mA Accuracy: ±2% (at 10° C to 35° C) ±3% (at −10° C to 50 °C)

1-2-8 Power Supply

Voltage Range	100V (90 to 110 V)/ 115V (103 to 128 V)/ 220V (195 to 242 V)/ 230, 240V(207 to 264 V)/ AC One of these voltage ranges can be selected with voltage selector plug
Frequency Range	50 to 440 Hz
Power Consumption	Approximately 50 W (at 100 VAC)

1-3 PHYSICAL CHARACTERISTICS

Weight	Approximately 8.5 kg (without panel cover and accessories bag)
Dimensions	320 ± 2 (W) x 160 ±2 (H) x 400 ± 2 (L) (mm) See Figure 1-1.

1-4 ENVIRONMENTAL CHARACTERISTICS

Operating Temperature	−10 °C to −50 °C
Operating Humidity	40°C, 90% Relative Humidity
Storage Temperature	−20°C to 70° C
Storage Humidity	70° C, 80% Relative Humidity

Altitude	Operating: 5,000 m maximum (atmospheric pressure 428 mm Hg) Non-operating: 15,000 m maximum (atmospheric pressure 87 mmHq)
Vibration	From 10 Hz to 55 Hz and back in 1 minute; double amplitude 0.63 mm; for 15 minutes each in vertical, horizontal, and longitudinal directions for a total of 45 minute
Impact	One side is raised to an elevation angle of 45° (10 cm maximum), and let fall on a piace of hard wood. Each side is put to this test 3 times.
Drop	A package ready for transpotation is dropped from a height of 60 cm.

1-5 ACCESSORIES

Power cord	1
Probe (SS-0011)	2
Fuse (FSA-1)	2
Panel cover	1
Dust cover	1
Instruction Manual	1
Accessories bag	1

For the method of removing the accessories bag, refer to Figure 1-2.

Figure 1-1. Dimensional Diagram

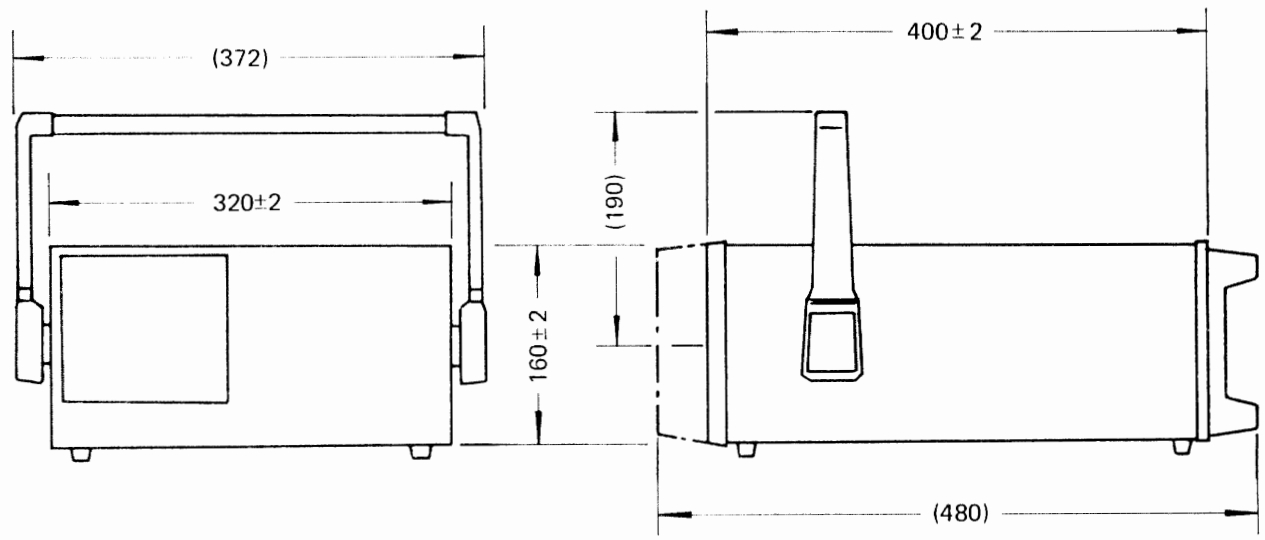
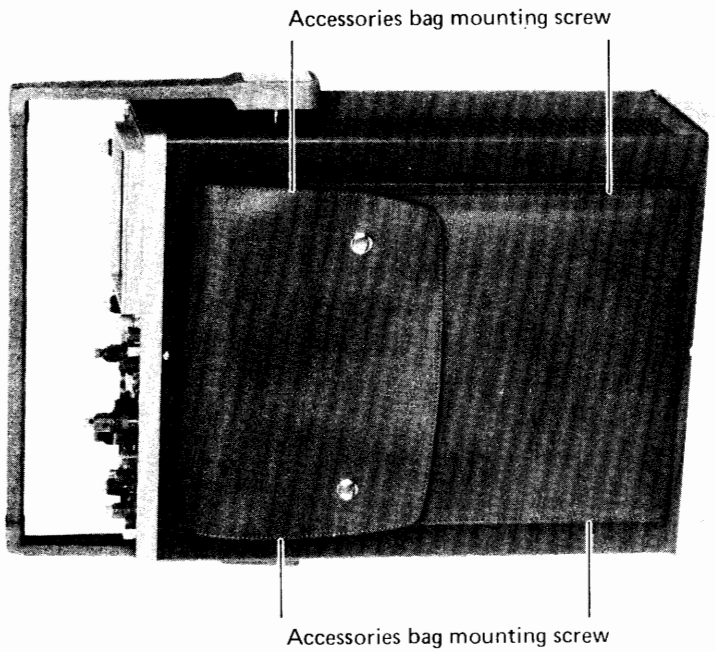


Figure 1-2. Accessories Bag



When removing the accessories bag form the upper cover of the SS-5710, remove the four accessories bag mounting screws shown in Figure 1-2.

Use the same screws for mounting the accessories bag on the upper cover again.