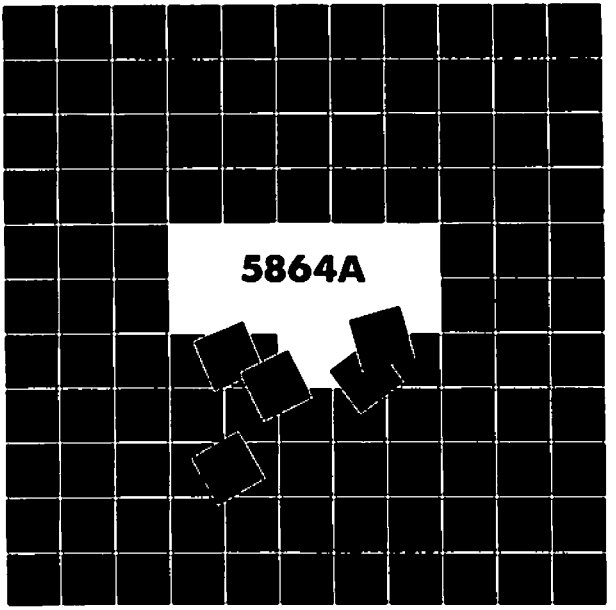
LEADER

VIDEO WAVEFORM MONITOR

INSTRUCTION MANUAL



LEADER ELECTRONICS CORP.

Thank you for purchasing our product. Cautions on operation appear in the instruction manual. Read the manual carefully to ensure correct operation.

This instruction manual describes only those operating procedures that differ from the 5864A. For other informations, refer to the 5864A instruction manual.

For Safety's Sake

⚠ WARNING

- Do not remove any cases or covers.
  The high-voltage section inside this instrument can cause electrical shock.
- Do not operate this instrument and connected units in a volatile or flammable atmosphere.
  An explosive can result.
- Do not insert metal objects(e.g.,wire,pin)into the vents.
  Otherwise, you may damage the instrument or suffer electrical shock.
- Connect this instrument to the rated power line voltage.
  Excessive voltage can cause fire.
- Do not touch the high-voltage section with hand directly when measuring it.
  You many suffer electrical shock.
- Do not connect this instrument to equipment whose chassis has electrical potential to ground (i.e.,transformerless equipment).
  Otherwise, you may damage the instrument or suffer electrical shock.

⚠ CAUTION

- Use only the fuse of correct type and rating for replacement.
  Before replacing the fuse, be sure to turn the power switch off and disconnect the power cord from the mains.

TABLE OF CONTENTS

1. INTRODUCTION

The 5864A Waveform Monitors provides a 2V/2H FLAT/IRE display and have selectable 1V/0.25V input sensitivity, H MAG, A/B INPUT switch, and valuable functions for use in field electronic news-gathering applications and in EFP applications as well.

The 5864A can also be conveniently used as a picture tester in checking the inter-equipment repeater cables in far-reading reporting applications involving telecast vans, as well as in studios.

2. SPECIFICATIONS

CRT

CRT size:	75mm rectangular
Acceleration voltage:	1.5kV
CRT effective display area:	52mm × 41.6mm
Beam rotator:	Adjustable by external preset
Graticule:	Internal

Vertical axis

Sensitivity:	1V ± 2%, 0.25V ± 4% full-scale range, selectable with front panel switch
Filter:	FLAT/IRE, selectable with front panel switch.
Frequency response:	25Hz to 5MHz ± 5% (FLT), 4.43MHz − 22dB (IRE)
Maximum input voltage:	±5V DC (1V, 0.25V full-scale range), AC, coupled
Input connectors:	Rear panel two BNC input connectors (loop-through) 2 connectors (for input A and B)
Input impedance:	0.25V full scale range

A, B input Changing switch	Input connector	
	A input	B input
At select A	15kΩ	60kΩ
At select B	60kΩ	15kΩ

1V full scale range 60kΩ

DC restoration: Clamped to TV-H back porch

Horizontal axis

2H sweep: Display of 2H waveforms

H MAG: Horizontal Sync section: approx. X5
Vertical Sync section: approx.X15

2V sweep: Display of 2V waveforms

Linearity: ±3% or less

Others

Supply voltage: +11V to+13.8V(Falling battery voltages below 10.5V are indicated by a pilot lamp flashing on and off), 800mA

Dimensions: 95(W)×74(H)×235(D)mm

Weight: Approx. 1.2kg

Operating Temperature: 0~40℃

Humidity: 0~80%RH(without Condensation)

Operating Environment: Indoor use

Operating Altitude: up to 2,000m

Overvoltage Category: II

Pollution degree: 2

Accessories:
DC plug (with 1m cable) 1
Instruction manual 1
Fuse, 1.6A, anti-rush.....1

Option (Separate order):
Battery attachment..... LA-2020
Joint Plate LA-2019
Ni-Cd battery pack..... NP-23
SONY AC pack and charger
(foe NP-23 size)..... ACP-1H
(100V AC only)
SONY battery charger (for BP-90)
.....BC-210(four batteries loade)

Operating time by battery pack NP-23: Approx. 130 minutes

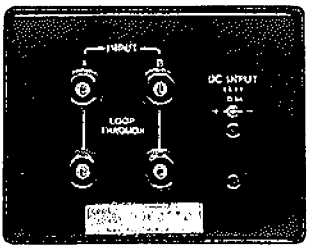
Combination external view

3. OPERATING NOTES

The 5864A is a CRT-based portable TV waveform and picture monitor. Take utmost care to protect the CRT and internal high-voltage circuitry against damage, such as falls and immersion in water.

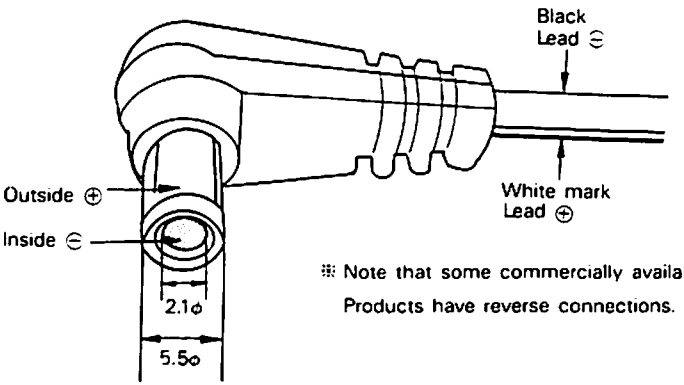
3.1 Observe DC Supply Voltage and Polarity

Connect DC power to the rear panel DC INPUT terminal using a DC plug.



Compatible plug

Manufacturer	Name	Leader part No.
Kawai Densen	DC plug L type, Lead length 1m	4332407 012



※ Note that some commercially available Products have reverse connections.

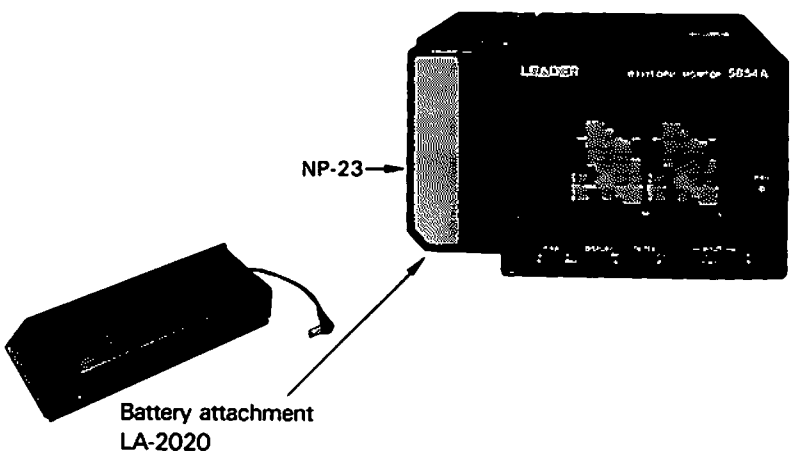
The external applied DC voltage must be from +11V to +13.8V.

Damage to the internal circuitry due to abnormal heating may result from excessive voltage input beyond +13.8V.

Ensure that the available supply voltage is 11V at least. Voltage input of +10.5V or less will flash the waveform monitor power pilot lamp (LED) on and off, indicating that the supply voltage is low. Low voltage input will result in fluctuating or contracted waveforms.

Battery operation

An optional battery attachment allows the 5864A to be operated from the Ni-Cd battery NP-23.



The optional SONY battery BP-90 has a DC plug to apply DC power to the DC INPUT terminal. The BP-90 provides four hours of continuous operation.

AC operation

Using the optional SONY AC pack ACP-1H with the battery attachment LA-2020 in place of the Ni-Cd battery NP-23 allows the 5864A to operate continuously from an AC power source.

3.2 Avoide Excessive Voltage Input

The permissible picture voltage for input to the waveform and picture monitors is 1Vp-p as a standard. Avoid voltage input higher than ± 5V DC.

Excessive voltage input may burn the internal circuitry.

3.3 Do Not Operate In a Strong Magnetic Field

Operating the 5864A in a strong magnetic field will cause the waveform on display to be fluctuated or the horizontal line to be largely inclined. Note especially when using the 5864A beside a device that incorporates a transformer with high power consumption.

3.4 Avoid Operation in a High-Temperature, Damp Place

The 5864A should be operated over the temperature range of 0°c to 40°C and relative humidity range of 10 to 90% to the extent possible. Operation in a rigid operating ambient will reduce the service life.

3.5 Note on the CRT

Burn-resistant phosphor used in the CRT could still be burnt if a luminescent spot or line were continuously drawn with increased brightness.

3.6 Note on Batteries (Option)

Take notice of the following instructions to get maximum performance out of the battery packs NP-23/BP-90:

- Charge the battery before use. Use a dedicated battery charger to recharge.
- The battery discharges naturally even though it is not used. Because natural discharge is more marked at higher temperatures, storage of batteries in a cool place is recommended.
- The battery may be slow to recover capacitance after prolonged periods of storage. It will restore to normal capacitance, however, after two or three cycles of use.

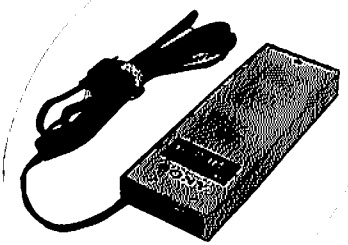
- The battery pack is limited in its useful life. The battery is dying if it runs out very rapidly even after being recharged properly.
- Never dispose of the battery pack in a fire or leave it exposed to a high temperature.
- Never short the battery pack connectors.
  - * Resultant large current flow would be very hazardous.
  - * Also, the battery pack might develop malfunctioning.
  - * Be careful to prevent the connectors from contact with a metallic object when moving or storing the battery pack.
  - * Battery handling temperature range

Recharging	10°C to 30°C
Operating	0°C to 40°C
Storage	– 20°C to 40°C
- Keep the connectors always clean. Wipe the connectors with a cloth if they are smeared.

■ BATTERY PACK

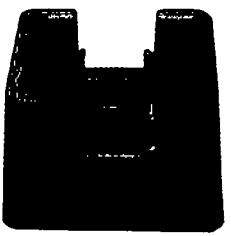
NP-23

■ BATTERY CHARGER (SONY) 100V only



ACP-1H

■ BATTERY CHARGE ADAPTER (SONY)



BCA-1H

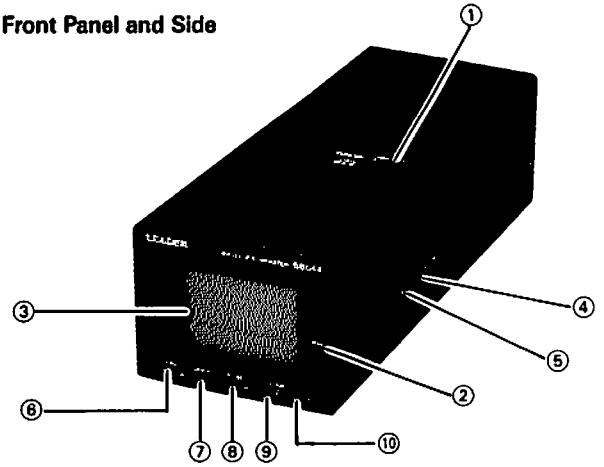
4. DESCRIPTION OF CONTROLS

The operation of the controls, input terminal, push switches, etc. are described below.

A screw hole on the bottom of the 5864A allows it to be secured to a camera tripod.

To install the 5864A in a rack of the like, tighten W1/4—20 x 3/8 screws with a 3/16 inch hexagonal wrench.

4.1 Front Panel and Side



(1) POWER switch ▲ ON/▼OFF

Power switch. Press to switch power on, and PWR lamp (2) will turn on. Press again to switch power off.

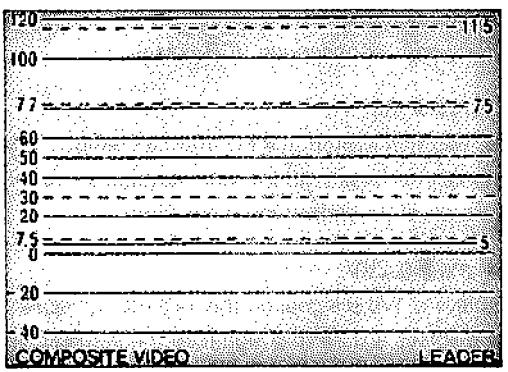
Structural design holds the switch within the enclosure when it is off to prevent inadvertent actuation.

(2) PWR lamp

The PWR pilot lmap turns on when power of 5864A is switched on. It begins flashing on and off to alert the operator when the supply voltage falls to 10.5V or below.

(3) Graticule

The direct internal graticule of the CRT assures precise measurement free from viewing error. The divisions are graduated in conforming to the IRE requirements. All IRE values, including divisions not indicated, are shown below.



④ **V-POS screw-driver control**

Is used adjust the vertical position of the waveform. The vertical position of the waveform is normally stabilized with the pedestal level being matched with 0 IRE within a few minutes of the power on time. Adjust this control when the zero level is found deviated to an inteleerable degree.

⑤ **ROTATION screw-driver control**

Depending on the direction (north, south, east and west), the picture on display may be inclined under the influence of ground magnetism. Adjust this control when the picture is found inclined to an intolerable degree.

⑥ **H MAG**

With reference level of X1, the horizontal Sync section is magnified approx. 5 times and the vertical Sync section is magnified approx. 15 times.

⑦ **DISPLAY ▬ 2H/▮2V**

▬ 2H displays two horizontal scanning periods; ▮2V displays two vertical scanning periods.

2V is often used for observing VCR noises, etc.

⑧ **FILTER ▬FLT/▮IRE**

Normally, use this switch at▬FLT (flat: all bands). When a chroma (color) signal interferes with the video level observation, set to ▮IRE (chroma removal) to apply a low-pass filter.

⑨ **INPUT ▬ 1V/▮0.25V**

▬ 1V displays a 1Vp-p signal on the 140 IRE full scale.

▮ 0.25V displays a 0.25Vp-p signal on the same scale.

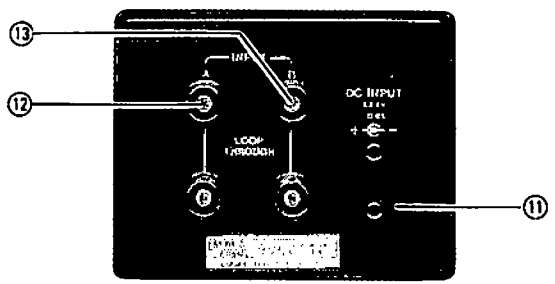
▮0.25V provides four times as much vertical gain as▬1V.

Switching from 1V to 0.25V during setup balance (black balance) adjustment magnifies the setup leak carrier around the pedestal clamp four times for clear observation, allowing more precise black balancing.

⑩ **INPUT A/B**

Switches A INPUT and B INPUT signals. "A" and "B" correspond to input connectors on rear panel respectively

4.2 Rear Panel



⑪ **DC INPUT +11 to +13.8V, 0.8A + —⊙— −**

Read the instructions given in Section 3.1.

⑫ **A INPUT connectors**

These two loop-through, BNC connectors adopt a 75Ω system. To observe signal input to this connector, select switch A ⑩ . For input sensitivity, 1Vp-p full-scale or 0.25Vp-p full-scale may be selected by switch ⑨

⑬ **B INPUT connectors**

These two loop-through, BNC connectors adopt a 75Ω system. To observe signal input to this connector, select switch B ⑩ . For input sensitivity, 1Vp-p full-scale or 0.25Vp-p full-scale may be selected by switch ⑨

5. OPERATING INSTRUCTIONS

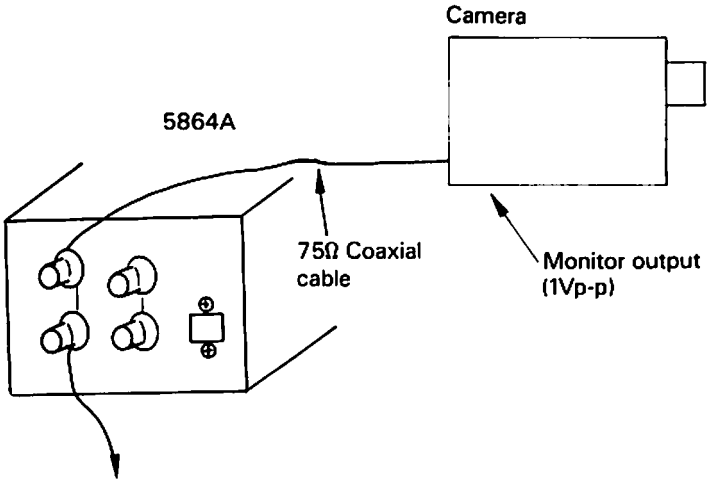
A full understanding of the signal connections explained below is a prerequisite to the proper functioning of the 5864A.

Monitor the waveform displayed for optimal video reproduction.

5.1 Applying Signals

The waveform monitor has dual-terminal input to loop input signals through.

Connect monitor output signals from a video cassette recorder or camera to the waveform monitor.



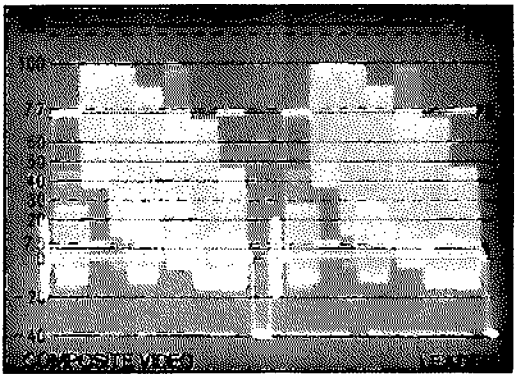
Use 75Ω coaxial cables as connecting cables (1.5C2V to 3C2V, etc.).

Connect a 75Ω terminator at the final termination of the input signals.

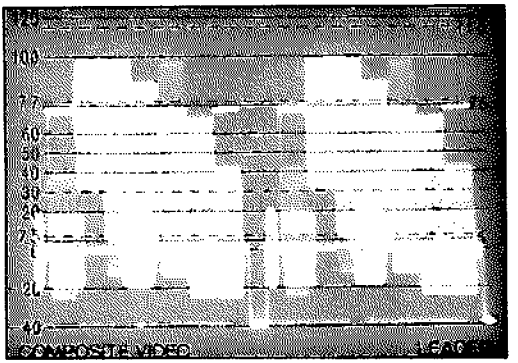
Improperly matched impedance will prevent a correctly calibrated display of the amplitude of video signals and harmonic components.

5.2 Display Waveforms and Graticule

[Waveform with setup 7.5 IRE]



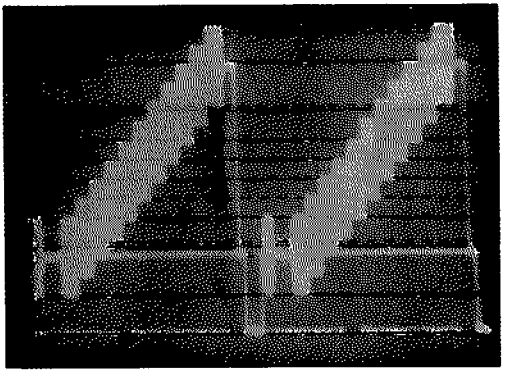
[Waveform with setup 0 IRE]



5.3 Waveform Observation

DISPLAY → 2H

FILTER → FLT ..... 25Hz to 5MHz, ±5%



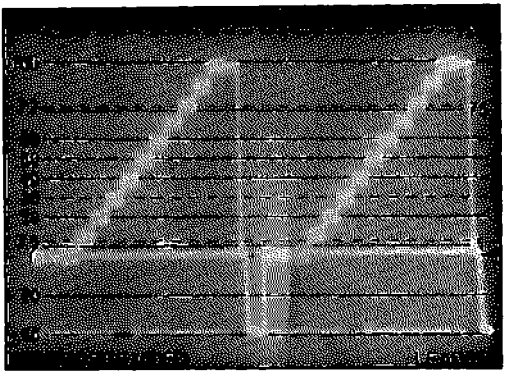
Normally, set INPUT to 1V, as the standard video signal level is 1V. The waveform is clamped at the pedestal level for stable display.

Example of setting INPUT to 0.25V

(1) The video signal is displayed and amplified in the vertical direction around the setup for easy black balancing. (Actually, it is amplified around the pedestal level.) A change from 1V to 0.25V is equivalent to a magnifier of 4.

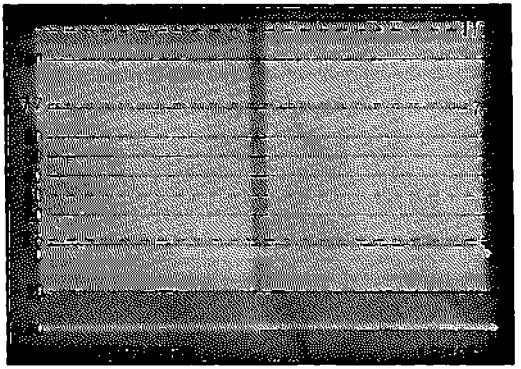
(2) The scale is calibrated to a 0.25V full scale when the standard video signal level is 0.25V

Display → 2H
Filter → IRE ... Attenuated 22dB or more at 4.43MHz in accordance with IRE STD23S-1 1958.



The IRE STD low-pass filter makes it easier to observe brightness levels for staircases, etc. by removing chroma components.

DISPLAY→2V



Two fields are displayed. This setting is used for observing VCR noises, etc.

6. MAINTENANCE

The well-designed 5864A operates stably in normal condition without sacrifying the performance. If they are misaligned because of aged parts or they do not operate properly, contact the sales shop you've perchased from or our Service Department for repair.

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