

SAFETY PRECAUTIONS

WARNING:

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

To reduce the risk of electric shock, do not remove cover.
Refer servicing to qualified service personnel.

FCC INFORMATION (U.S.A. only)

CAUTION: Changes or modifications not approved by PANASONIC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice (U.S.A. only)

This product utilizes both a Cathode Ray Tube (CRT) and other components that contain lead. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <<http://www.eiae.org>>

■ PRECAUTIONS

- Use only the power source specified on the unit. (120 V AC, 50 Hz/60 Hz or 12 V DC)
- Keep flammable material, water, and metal objects away from the unit — especially the interior of the unit.
- This unit incorporates high voltage circuitry. For your own safety and that of your equipment, do not attempt to modify or disassemble this monitor. There are no user-serviceable parts inside.
- Unplug the monitor when you're not going to be using it for a long period.

■ HANDLING

- Avoid shocks or vibrations. These may damage the unit and cause it to malfunction.
- Do not block the ventilation slots.
- Do not expose this unit to high temperatures. Extended exposure to direct sunlight or a heater could deform the cabinet or cause the performance of internal components to deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. These can generate picture noise and instability.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the finish and erase printed letters. When the unit is excessively dirty, use a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

SCREEN BURN

- Try to avoid displaying still images or extremely bright images on the screen for an extended period of time. If left on screen for too long the image will be permanently etched onto the CRT — a phenomenon known as "screen burn". Screen burn is not a problem when displaying moving pictures during video playback.

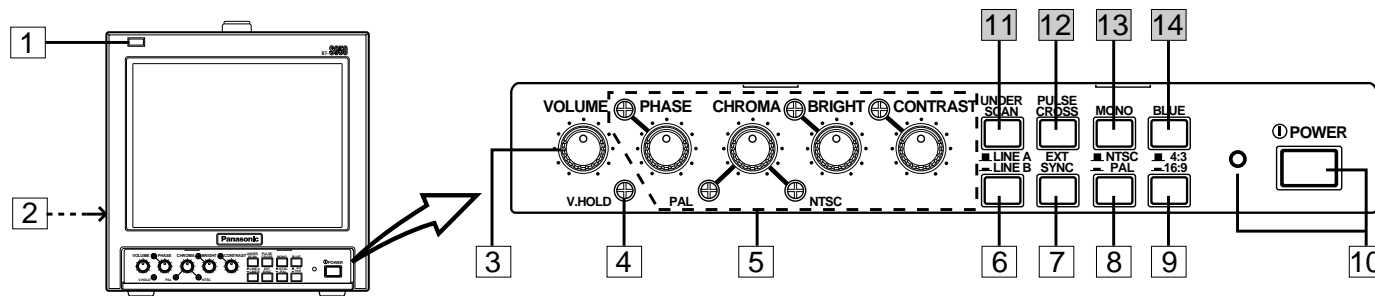
CONTENTS

SAFETY PRECAUTIONS	2
CONTROLS AND FEATURES	4
BASIC CONNECTION EXAMPLE	8
TROUBLESHOOTING	9
SPECIFICATIONS	10

I CONTROLS AND FEATURES

Front

<Front Panel>



1 Tally lamp

Indicates that a control signal is being received. The tally lamp functions when the control signal is input to the TALLY/REMOTE terminal on the rear panel.

2 Speaker

A built-in speaker is located inside the left side panel.

3 VOLUME control

Adjusts the speaker volume.

4 V.HOLD control

Use a small-bladed screwdriver to adjust the image's vertical stability.

5 Picture control section

PHASE, CHROMA, BRIGHT and CONTRAST controls are available.

The standard setting mode can be obtained by setting each control to the center click position. To adjust a setting, insert a small-bladed screwdriver into the space around the knob and turn it to the desired position.

When adjusting, use the small-bladed screwdriver and insert it into the control hole around the required control knob.

■ PHASE control

Adjusts picture hue.

■ CHROMA control

Adjusts picture color density.

■ BRIGHT control

Adjusts picture brightness.

■ CONTRAST control

Adjusts picture contrast.

Notes:

- * The PHASE control is effective only in the NTSC color system mode.
- * The standard CHROMA setting can be adjusted to suit the NTSC or PAL color system.

6 LINE A/B switch

Select the video signal input to the video input terminals on the rear panel.

- A (■)**: Selects the video signal input to LINE A terminal.
- B (■)**: Selects the video signal input to LINE B terminal.

Note:

- * LINE B terminals include both S-VIDEO (Y/C) and composite VIDEO terminals. S-VIDEO inputs have priority.

7 EXT SYNC switch

Selects internal sync or external sync.

When using with the external sync, input the sync signal to the EXT SYNC terminal on the rear panel.

- (■)**: Internal sync
- (■)**: External sync

8 NTSC/PAL switch

Selects the NTSC or PAL color system.

- NTSC (■)**: For NTSC color system.
- PAL (■)**: For PAL color system.

9 4 : 3/16 : 9 switch

Selects the aspect ratio (4:3 or 16:9) of the picture displayed on the screen.

- (■)**: 4:3
- (■)**: 16:9

Note:

- * When a 4:3 picture is viewed in the 16:9 mode, the size of the image is reduced vertically.

10 POWER switch/POWER indicator

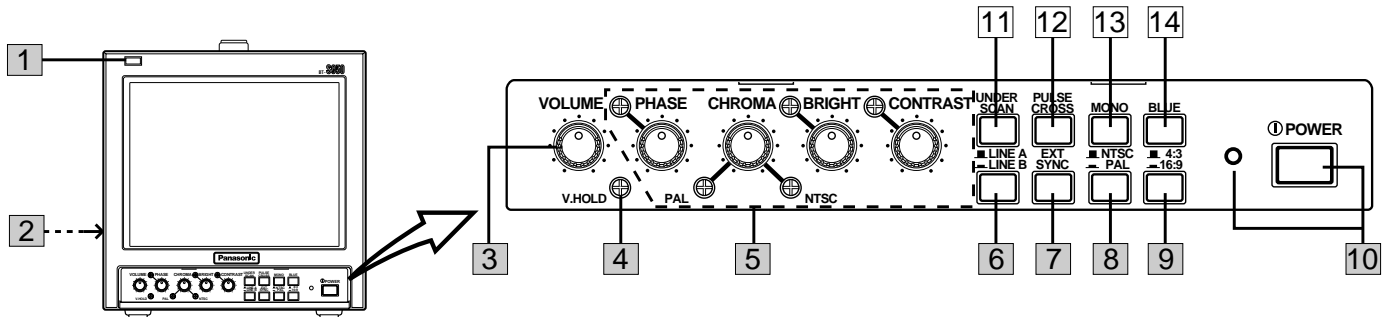
Press this switch to turn the power on or off.

- ON (■)**: Power is turned on and the power indicator lights.
- OFF (■)**: Power is turned off and the power indicator goes off.

Note:

- * If the battery expires while the monitor is operated with DC power supply (the voltage level drops), the green indicator changes to orange, then to red. When the POWER indicator changes to red, the power automatically goes off. Make sure you switch off the power before replacing the battery.

<Front Panel>



11 UNDER SCAN switch

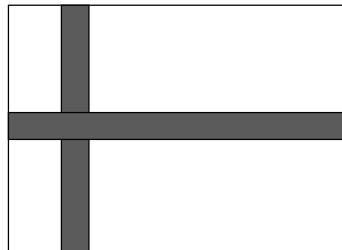
Selects the scanning mode (over scan screen or under scan screen).

- (■) : Over scan screen
- (□) : Under scan screen

12 PULSE CROSS switch

Checks the retrace period (sync signal) by delaying the input signal.

- (■) : Normal screen
- (□) : Retrace period display screen



13 MONO (color off) switch

Selects the screen mode (color or B/W). Useful when you want to check the white balance.

- (■) : Color screen
- (□) : B/W screen

14 BLUE (blue check) switch

Selects the screen mode (normal or monochrome blue screen). Useful when you want to check the chroma and phase adjustment.

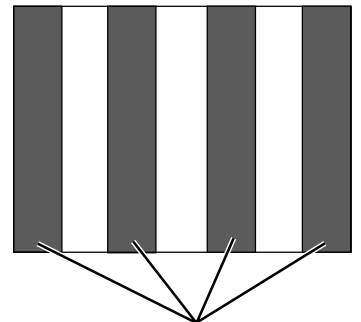
- (■) : Normal screen
- (□) : Monochrome blue screen

Note:

* The PHASE adjustment is effective only in the NTSC color system mode.

[How to adjust]

1. Select the monochrome blue screen mode and input color bar signals in the order of brightness.
2. Adjust the CHROMA and PHASE controls until the density and brightness of each blue bar are the same.



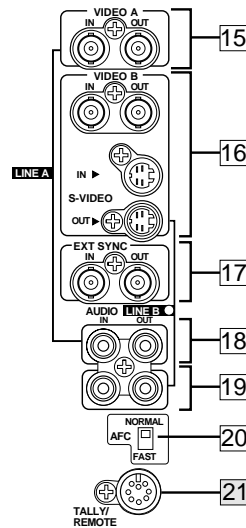
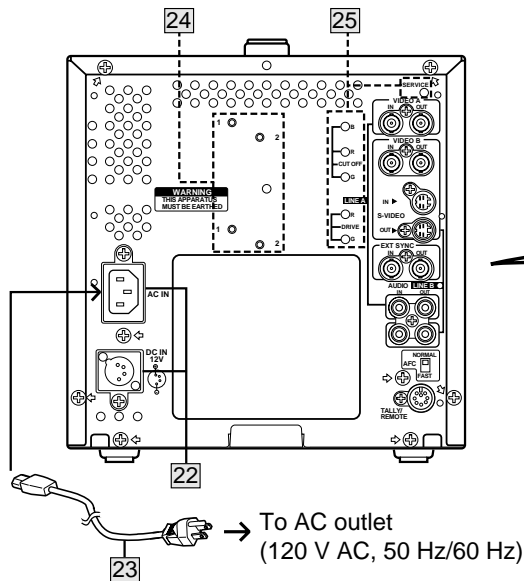
Adjust the blue bars to the same density and brightness.

(continued on the next page ➡)

CONTROLS AND FEATURES (cont'd)

Rear

< Rear Panel >



15 VIDEO A terminals

Video signal input (IN) and output (OUT) terminals. The output terminal is bridge-connected.
IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal

Notes:

- * For corresponding audio signals, use the AUDIO A terminals [18].
- * Also refer to the Basic Connection Example on page 8.

16 VIDEO B terminals

Video signal input (IN) and output (OUT) terminals for both composite and S-VIDEO (Y/C) terminals. Each output terminal is bridge-connected.

[BNC terminals]

IN : Video signal input terminal
OUT : Bridge-connected video signal output terminal

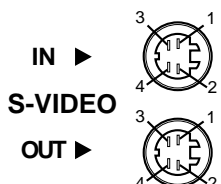
[S-VIDEO (mini-DIN 4-pin) terminals]

IN : S-VIDEO (Y/C) signal input terminal
OUT : Bridge-connected S-VIDEO signal output terminal

Notes:

- * For corresponding audio signals, use the AUDIO B terminals [19].
- * S-VIDEO (Y/C)- terminal has priority.
- * Also refer to the Basic Connection Example on page 8.

■ S-VIDEO terminal pin layout



Pin No.	Signal
1	GND (Y)
2	GND (C)
3	Y
4	C

17 EXT SYNC terminals

External sync signal input (IN) and output (OUT) terminals. The output terminal is bridge-connected.
IN : Input terminal for the external sync signal
OUT : Bridge-connected output terminal

Note:

- * Also refer to the Basic Connection Example on page 8.

18 AUDIO A terminals

Input (IN) and output (OUT) terminals for the audio signal corresponding to the VIDEO A terminals [15]. The output terminal is bridge-connected.
IN : Audio input terminal
OUT : Bridge-connected output terminal

Note:

- * For corresponding video signals, use the VIDEO A terminals [15].

19 AUDIO B terminals

Input (IN) and output (OUT) terminals for the audio signal corresponding to the VIDEO B terminals [16]. The output terminal is bridge-connected.
IN : Audio input terminal
OUT : Bridge-connected output terminal

Note:

- * For corresponding video signals, use the VIDEO B terminals [16].

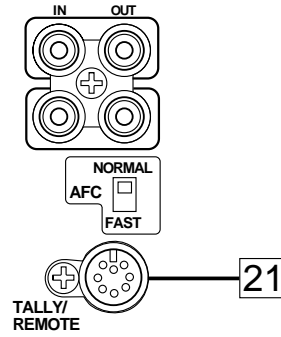
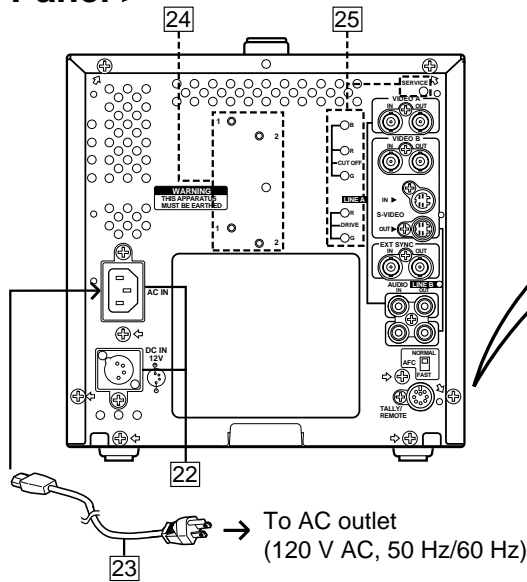
20 AFC switch

Selects the AFC (Automatic Frequency Control) time constant for the horizontal sync circuit. Correct the skewed portion of the picture.

NORM position : Normal mode

FAST position : Fast mode (fast: smaller time constant)

Rear Panel >



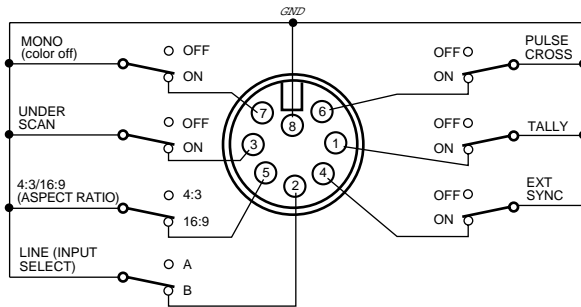
21 TALLY/REMOTE terminal

External control terminal (DIN 8-pin). Tally lamp, VIDEO A/B (input selection), Under Scan, External Sync, 4:3/16:9 (aspect ratio), Pulse Cross, and Color Off modes can be controlled from an external unit.

Note:

- * When you're controlling the monitor externally via the TALLY/REMOTE terminal, set all corresponding switches on the front panel to the OFF (●) position. (Whichever switch is pressed first has priority so remote switches may not function if the panel switches are ON (■) position.)

■ TALLY/REMOTE terminal pin layout



Pin No.	Signal	Signal
1	TALLY lamp	ON/OFF
2	LINE A/B (Input Select)	A/B
3	UNDER SCAN	ON/OFF
4	EXT SYNC (External Sync)	ON/OFF
5	4 : 3 / 16 : 9 (Aspect Ratio)	4 : 3 / 16 : 9
6	PULSE CROSS	ON/OFF
7	MONO (color off)	ON/OFF
8	GND	

22 Power input connector

Supply power to either the AC IN or DC IN 12 V connector.

[AC IN]

Connect the provided AC power cord between the AC IN connector and an AC outlet (120 V AC, 50 Hz/60 Hz).

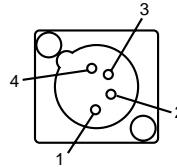
[DC IN 12 V]

Connect the 12 V DC power plug to the DC IN 12 V connector.

Notes:

- * See your dealer for more information on 12 V DC power supply.
- * When both AC IN and DC IN connectors are used, the AC input has priority.
- * The DC power supply does not automatically take over if an AC outlet is unplugged or the AC power is cut off when both AC and DC power supplies are connected. In this case, press the POWER switch to set to OFF, then press it again to turn the power ON.

■ DC IN 12 V connector pin layout



Pin No.	Signal
1	GND
2	—
3	—
4	12 V DC

23 Power cord

Connect the provided power cord (120 V AC, 50 Hz/60 Hz) to the AC IN connector.

24 External battery mounting holes

Attach an external battery to either pair of holes (1 or 2) to use 12 V DC power (depending on the type of battery).

Notes:

- * External batteries manufactured by Anton Bauer or PAG are available.
- * See your dealer for details.

25 Switch/control adjustment holes for service personnel

For adjustment of SERVICE switch, CUT OFF (B, R, G) control and DRIVE (R, G) control during servicing.

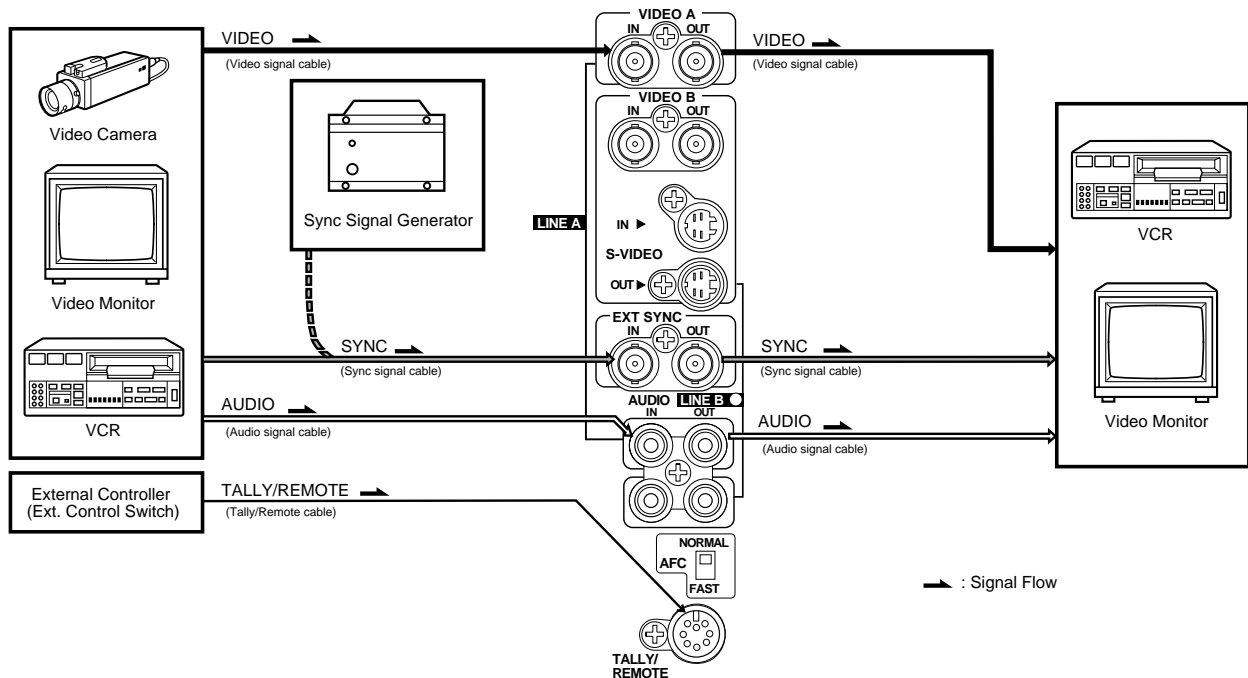
Note:

- * These controls are exclusively for the use of service personnel. Do not attempt to adjust them yourself.

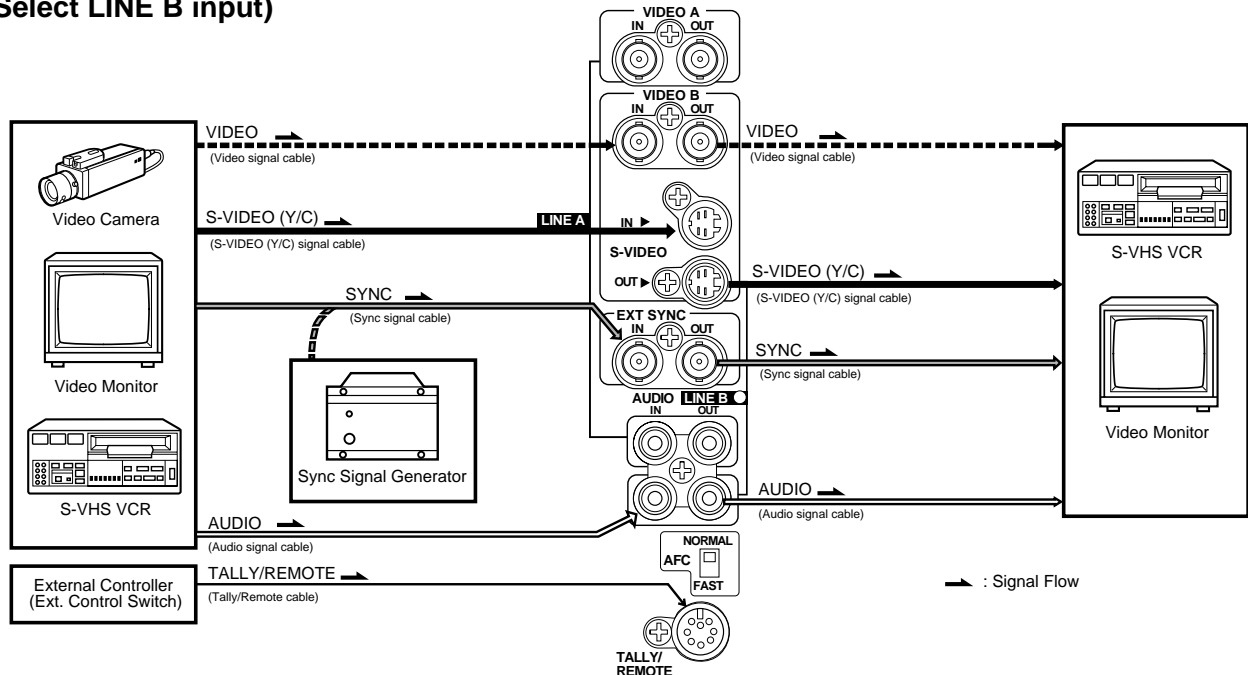
I BASIC CONNECTION EXAMPLE

- * Before connecting your system, make sure that all units are turned off.
- * The illustration below shows some examples of different connections. Terminal connections may differ depending on the component connected. Be sure to refer to the instructions provided with the unit(s) you are connecting.
- * Each pair of input (IN) and output (OUT) terminals are bridge-connected. Do not connect input and output terminals inversely.
- * If you're not connecting any equipment to a bridged output (OUT) terminal, be sure not to connect any other cables to the bridged output (OUT) terminal as this will cause the terminating resistance switch to open (auto terminate function).
- * When making a bridge connection, connect the input (IN) and output (OUT) terminals on the monitor to separate video components.
(For example, if both terminals are connected to the same VCR, resonance may occur except during playback. This is caused by the same video signal "looping" between the VCRs, and is not a malfunction.)
- * Select the video input (LINE A or LINE B) with the LINE A/B switch on the front panel.

VIDEO A Connection Example (Select LINE A input)



VIDEO B Connection Example (Select LINE B input)



TROUBLESHOOTING

Solutions to common problems related to your monitor are described here. If none of the solutions presented here solves the problem, unplug the monitor and consult a Panasonic-authorized dealer or service center for assistance.

Problems	Points to be checked	Measures
No power supply.	Is the AC or DC power plug loosened or disconnected?	Firmly insert the power plug.
	Is the battery fully charged (when using DC power)?	Charge the battery, or replace it with a charged battery. (Refer to the instructions provided with the battery.)
No picture with the power on.	Is the video signal output from the connected component?	Set the connected component correctly.
	Is the input signal selected properly?	Select the required video signal input with the LINE A/B switch. (See page 4.)
	Is the video cable disconnected?	Connect the video signal cable firmly. (See page 8.)
No sound.	Is the audio signal output from the connected component?	Set the connected component correctly.
	Is the volume output set at the minimum position?	Adjust the VOLUME control. (See page 4.)
	Is the audio cable disconnected?	Connect the audio signal cable firmly. (See page 8.)
Shaking picture.	Is the monitor close to a device generating a strong magnetic field (motor, transformer, etc.)?	Move the device away from the monitor until the picture stabilizes.
No color, wrong color, or dark picture.	Is the color system selected properly?	Set the color system correctly with the NTSC/PAL switch. (See page 4.)
	Is the MONO (color off) switch set properly?	Set the MONO (color off) switch to the OFF (■) position. (See page 5.)
	Has the picture control setting (CONTRAST, BRIGHT, CHROMA or PHASE) been changed?	Set each picture control to the standard setting (center) position. (See page 4.)
Unnatural, irregularly colored, or distorted picture.	Is the monitor close to a speaker, magnet or any other device generating a strong magnetic field?	Move the device away from the monitor and turn the monitor's power off. Wait at least 30 minutes, then turn the power on again.
Dark stripes at the top and bottom of the screen, picture vertically squeezed.	Is the aspect ratio set to 16:9 (■)?	Press the 4:3/16:9 switch to restore the normal 4:3 mode (■). (See page 4.)
Picture flows.	Is the EXT SYNC switch set properly?	Set the EXT SYNC switch properly. (See page 4.)
Front panel switches do not function.	Is the monitor being controlled by an external control unit via the TALLY/REMOTE terminal?	Set the control on the external unit of the same function as that on the monitor's front panel to the OFF (■) position, or disconnect the unit from the TALLY/REMOTE terminal. (See pages 7 and 8.)
External control not possible with the unit connected to TALLY/REMOTE terminal.	Is the switch on the front panel of the same function as that on the external control unit to the ON (■) position?	Set the control on the front panel of the same function as that on the external control unit to the OFF (■) position. (See pages 4, 5, 7 and 8.)

The following are not malfunctions:

- When a bright still image (such as a white cloth) is displayed for a long period, it may appear to be colored. This is due to the structure of the cathode ray tube and will be deleted when another image is displayed.
- You experience a mild electric shock when you touch the picture tube. This phenomenon is due to a normal buildup of static electricity on the CRT and is not harmful.
- The monitor emits a strange sound when the room temperature changes suddenly. This is only a problem if an abnormality appears on the screen as well.

SPECIFICATIONS

■ Type	: Color video monitor	■ External sync	: Composite sync 1 line, BNC connector x 2 1 – 4 Vp-p, 75 Ω (bridge connection possible, auto termination)
■ Color system	: NTSC, PAL	■ Tally/Remote	: 1 line, DIN 8-pin x 1
■ Picture tube	: 9" measured diagonally, flat-square type, 90° deflection, in-line gun, vertical line trio type (phosphor stripe pitch 0.5 mm)	■ Audio power output	: 1 W (monaural)
■ Effective screen size	: Width 6-7/8" (175 mm) Height 5-3/8" (137 mm) Diagonal 8-3/4" (222 mm)	■ Built-in speaker	: 3-3/16" (8 cm) round x 1 impedance of 8 Ω
■ Scanning frequency	: (H) 15.734 kHz (NTSC) 15.625 kHz (PAL) (V) 59.94 Hz (NTSC) 50 Hz (PAL)	■ Environmental conditions	: Operation temperature: 0 °C – 40 °C (32 °F – 104 °F) Operation humidity: 20% – 80% (non-condensing)
■ Horizontal resolution	: 280 TV lines or more (S-VIDEO (Y/C) input mode)	■ Power requirements	: 120 V AC, 50 Hz/60 Hz or 12 V DC
■ Input terminals		■ Power consumption	: 0.57 A (120 V AC) 3.3 A (12 V DC)
VIDEO A	: Composite video: 1 line, BNC connector x 2, 1 Vp-p, 75 Ω, negative sync (bridge connection possible, auto termination)	■ Dimensions	: Width 8-3/4" (222 mm) Height 9-3/8" (236 mm) Depth 12-1/2" (317 mm)
VIDEO B	: Composite video: 1 line, BNC connector x 2, 1 Vp-p, 75 Ω negative sync (bridge connection possible, auto termination) S-VIDEO: 1 line, mini-DIN 4-pin connector x 2 Y: 1.0 Vp-p, 75 Ω C: 0.286 Vp-p, 75 Ω (NTSC) 0.3 Vp-p, 75 Ω (PAL) (bridge connection possible, auto termination) * S-VIDEO priority when both connected	■ Weight	: Approx. 16.3 lbs (approx. 7.4 kg)
AUDIO A	: 1 line (monaural), RCA pin x 2 0.5 V rms, high-impedance (bridge connection possible)	■ Accessory	: AC power cord [approx. 7.9 ft (approx. 2.4 m)] x 1
AUDIO B	: 1 line (monaural), RCA pin x 2 0.5 Vrms, high-impedance (bridge connection possible)		

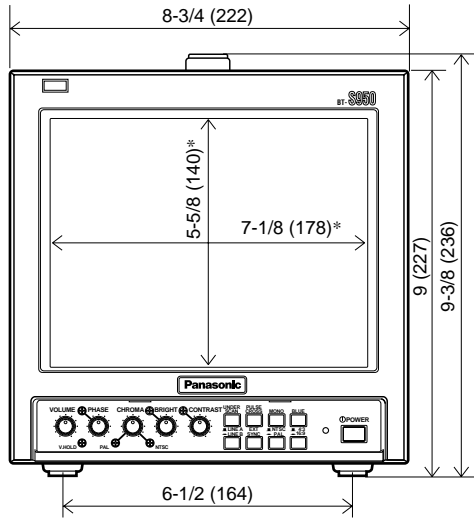
* Illustrations used in this manual are for explanatory purposes only. The appearance of the actual product may differ slightly.

* E. & O. E. Design and specifications subject to change without notice.

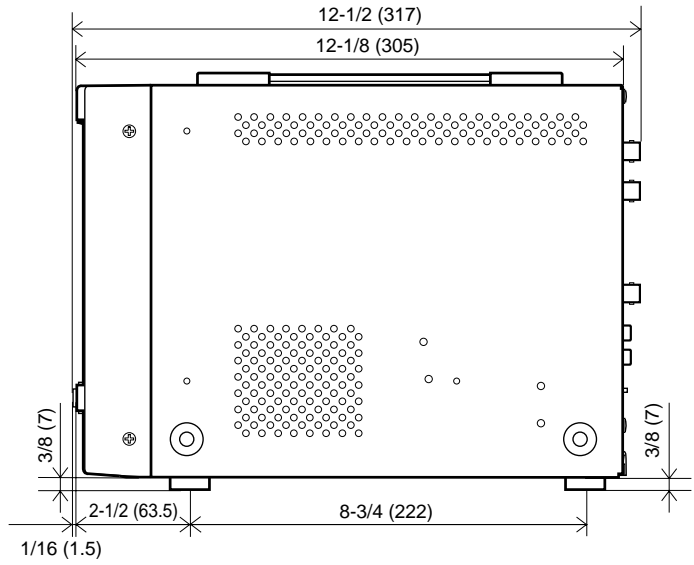
■ Dimensions

Unit : inch (mm)

< Front View >



< Side View >



* Asterisks (*) are used to indicate front panel dimensions.

Panasonic

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