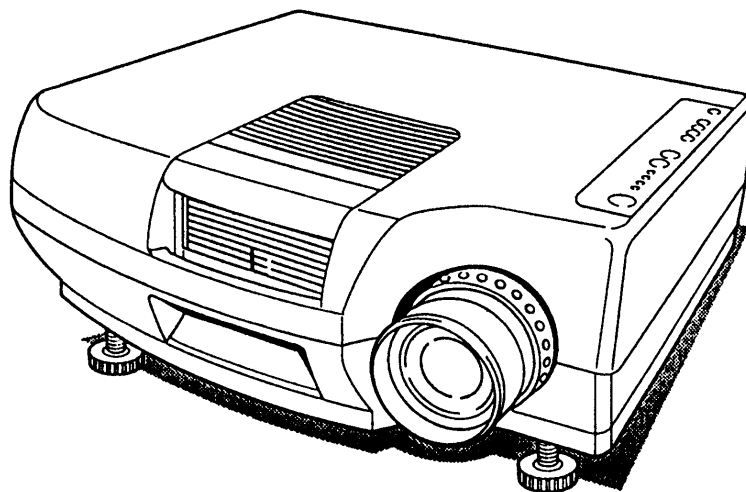


SANYO

Portable LCD Projector

MODEL PLV-20E



OWNER'S INSTRUCTION MANUAL

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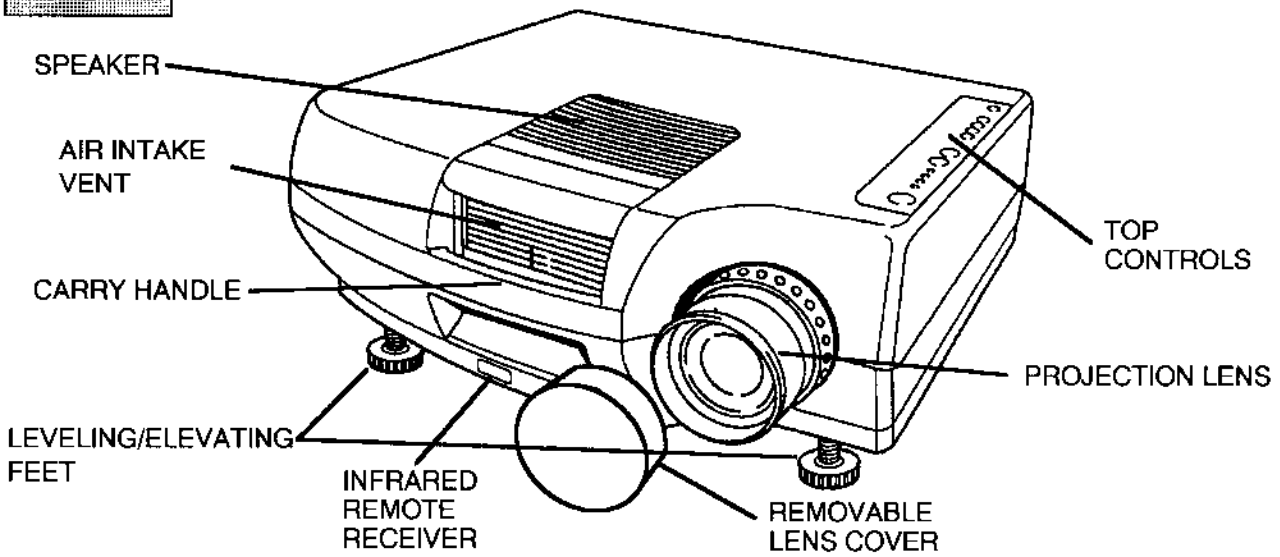
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POWER REQUIREMENTS

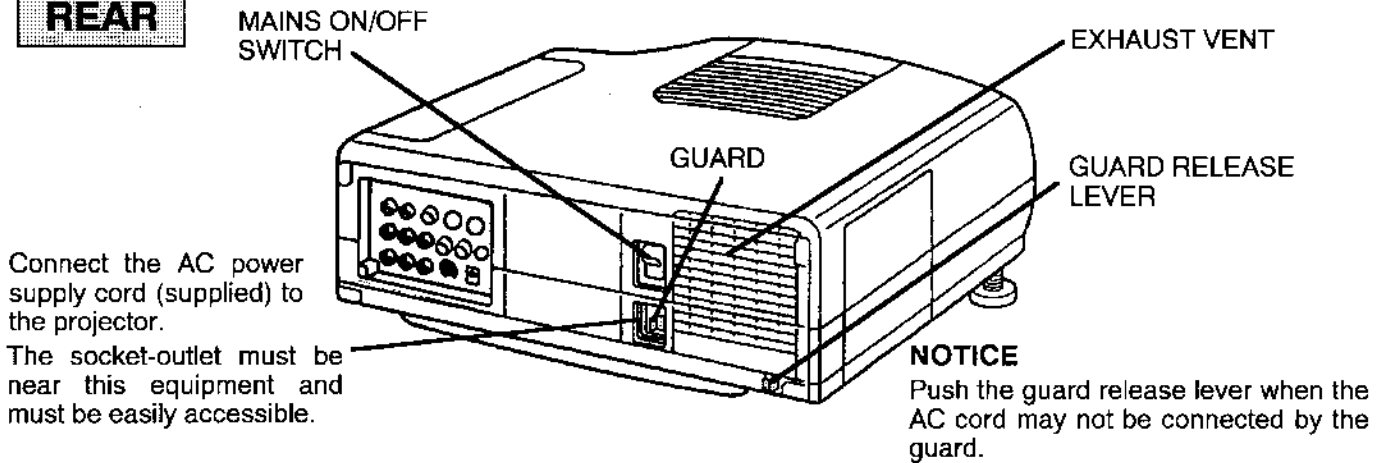
Your projector uses nominal input voltages of 220-240 VAC. The projector is designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electrical shock, do not plug into any other type of power system. Consult your authorized dealer or service station if you are not sure what type of power is supplied to your building.

DESCRIPTION

FRONT



REAR

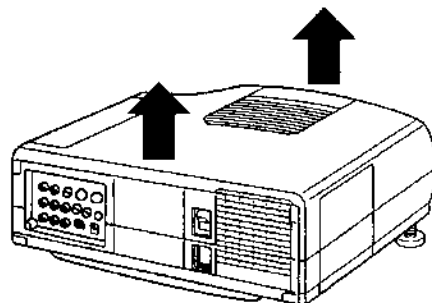
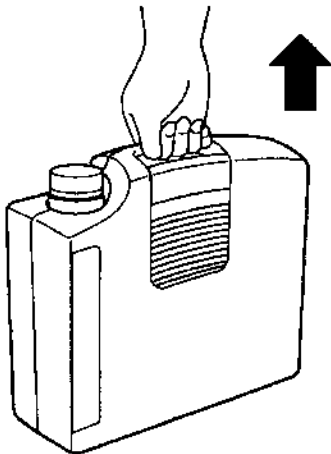


MOVING THE PROJECTOR

Use the carry handle when moving projector.
Replace the lens cover when moving the projector to prevent damage to the lens.

NOTE:

Do not hold the projector by the filter cover when moving.
You risk dropping the projector if the cover comes loose.



CONNECTING THE PROJECTOR

Your projector is equipped with various audio/video inputs and outputs including S-VHS video.

CONNECTING TO THE AV INPUT 1 JACKS

Connect to the video and audio outputs of a VCR, video disc player, video camera, satellite TV tuner or other AV equipment.

- Connect video/audio outputs from external sources to these input jacks.
- If the audio signal from the AV equipment is stereo, be sure to connect the right and left channels to the respective right and left audio input jacks.
- If the external audio signal is monaural, connect it to the left jack.
- Do not connect the video sources to the video input jack (PHONO TYPE) together with the BNC TYPE jack. Use one video input only for video input jack.

S-VHS FORMAT VCR CONNECTION

The AV 1 input includes an extra video input jack marked S-VIDEO to allow connection to an S-VHS format VCR that has separate Y/C video signals. The S-VIDEO jack has priority over the VIDEO (PHONO TYPE or BNC TYPE) jack.

CONNECTING TO THE AV INPUT 2 JACKS

Connect to the video and audio outputs of a VCR, video disc player, DVD player, video camera, satellite TV tuner or other AV equipment.

The AV2 video input can be selected 2 type of the input. One is "COMPOSITE VIDEO" and the other is COMPONENT VIDEO {Y, Cb (B-Y), Cr (R-Y)}.

When the video equipment with COMPOSITE VIDEO type output jack is used, to select the "COMPOSITE VIDEO" position by other function setting.

When the video equipment with COMPONENT VIDEO {Y, Cb (B-Y), Cr (R-Y)} type output jack is used, to select the "Y, Cb (B-Y), Cr (R-Y)" position. (See "OTHER FUNCTION SETTING" section on page 15).

- If the audio signal from the AV equipment is stereo, be sure to connect the right and left channels to the respective right and left audio input jacks.
- If the external audio signal is monaural, connect it to the left jack.

CONNECTING TO THE MONITOR OUTPUT JACKS

These jacks contain the audio/video information that is viewed on the screen.

- Connect video/audio inputs from AV equipment to these output jacks.
- If the audio input of the audio equipment is stereo, be sure to connect the right and left channels to the respective right and left jacks.
- If the audio input of the audio equipment is monaural, connect it to the left jack.
- Whenever the S-VIDEO signal source is viewed on the screen, the video signal available at the MONITOR OUTPUT jack will be in black and white (monochrome).
- Whenever the COMPONENT type video signal {Y, Cb (B-Y) and Cr (R-Y)} source is viewed on the screen, the video signal available at the MONITOR OUTPUT jack will be in black and white (monochrome).

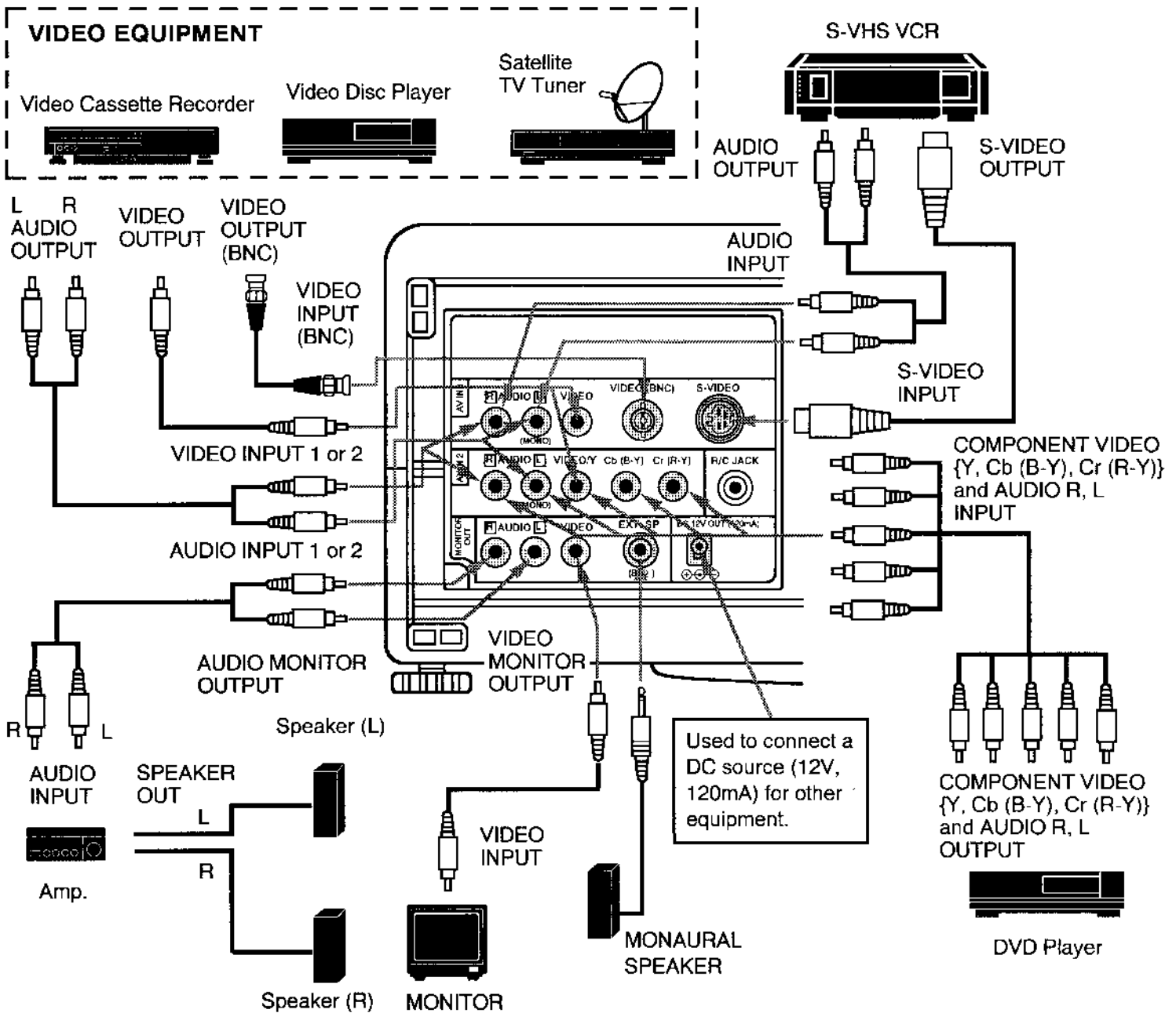
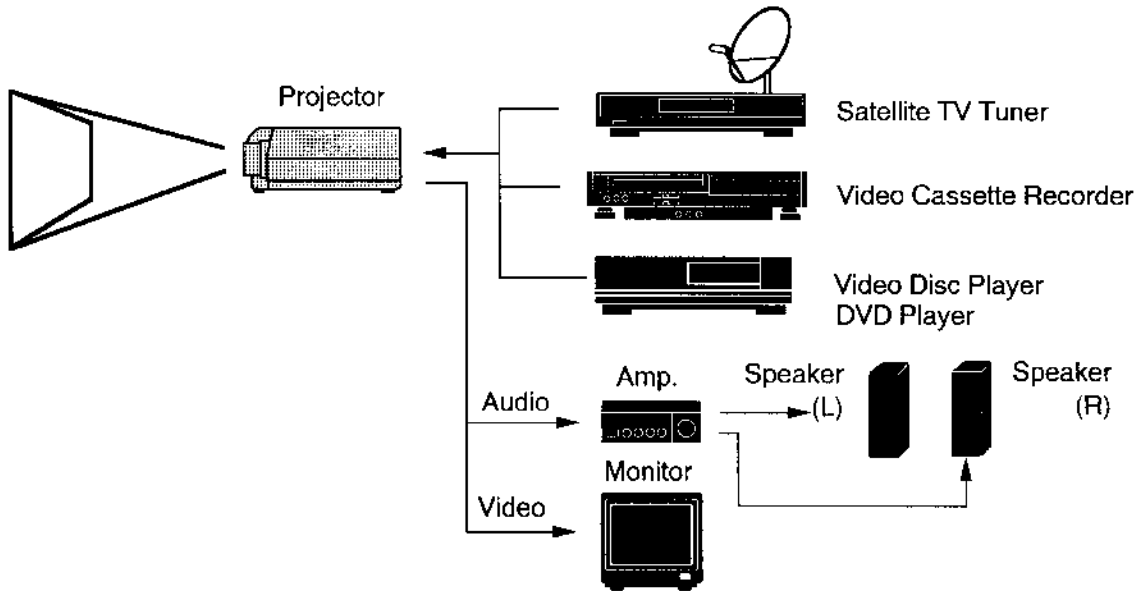
CONNECTING TO THE EXT. SP. JACK (3.5mm mini type)

This jack contain the audio information that is viewed on the screen. Use to connect a external monaural speaker system when using this jack, turn off the audio from the internal speaker.

CONNECTING TO THE DC 12V SOURCE

Used as a DC source for other equipment such as controllers electric screens.

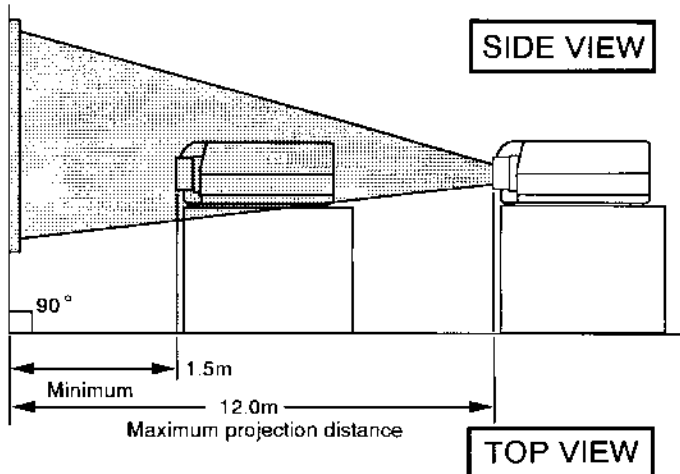
HOW TO CONNECT EXTERNAL AV EQUIPMENT



SETTING-UP THE PROJECTOR

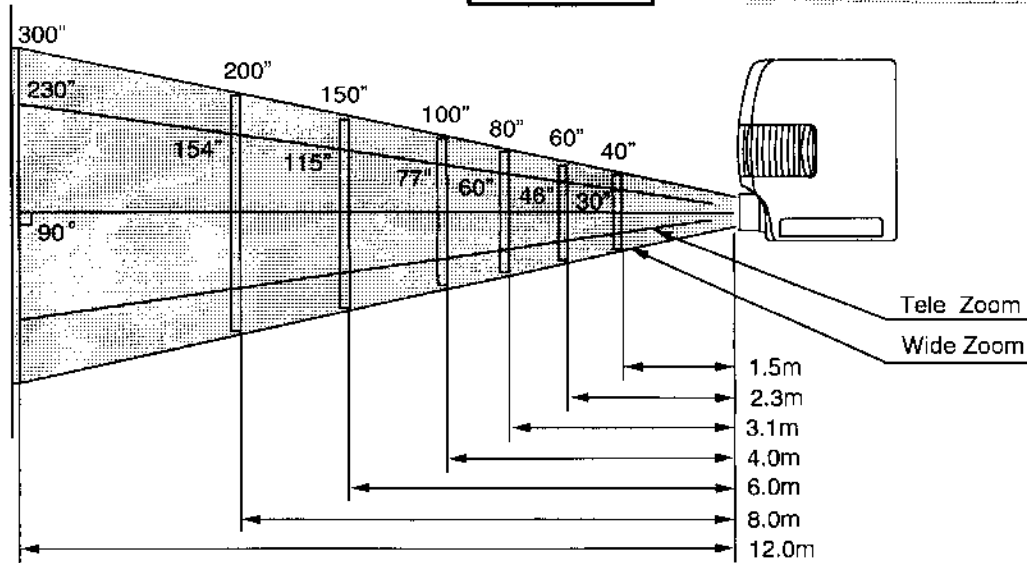
POSITIONING:

- This projector is basically designed to project on a flat projection surface.
- This projector can be focused from 1.5m ~ 12.0m.
- Use the illustration below as an example when positioning the projector to the screen.



ROOM LIGHT

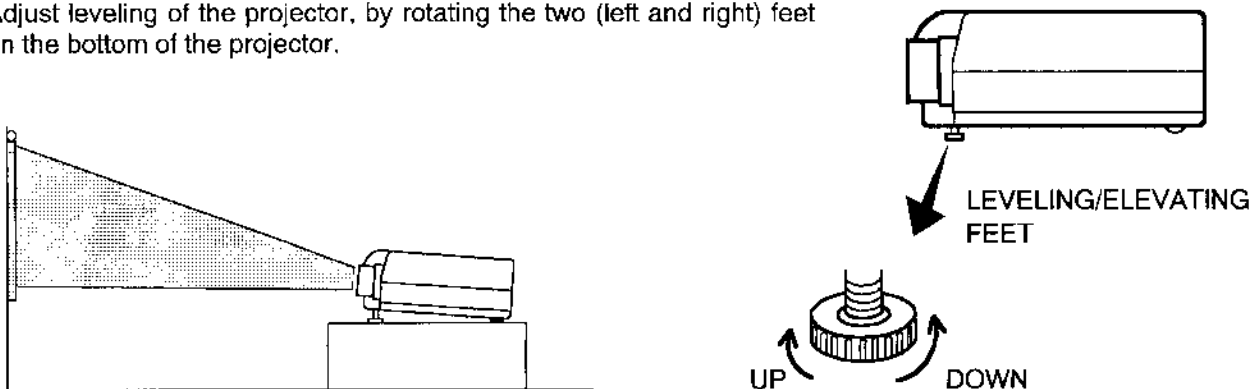
The projector should ideally be placed in a room with very limited light. Picture quality will be directly affected by lighting conditions.



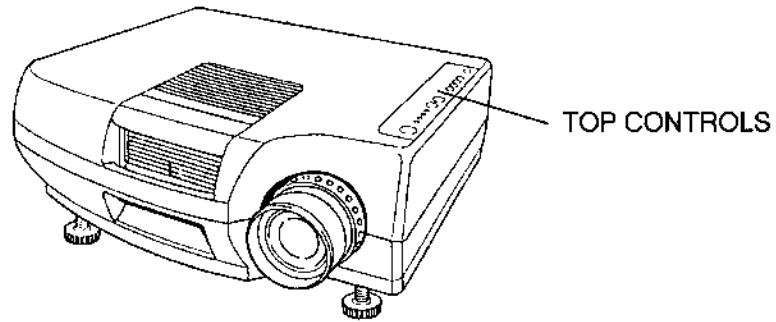
DIAGONAL IMAGE SIZES

LEVELING AND ELEVATING ADJUSTMENTS

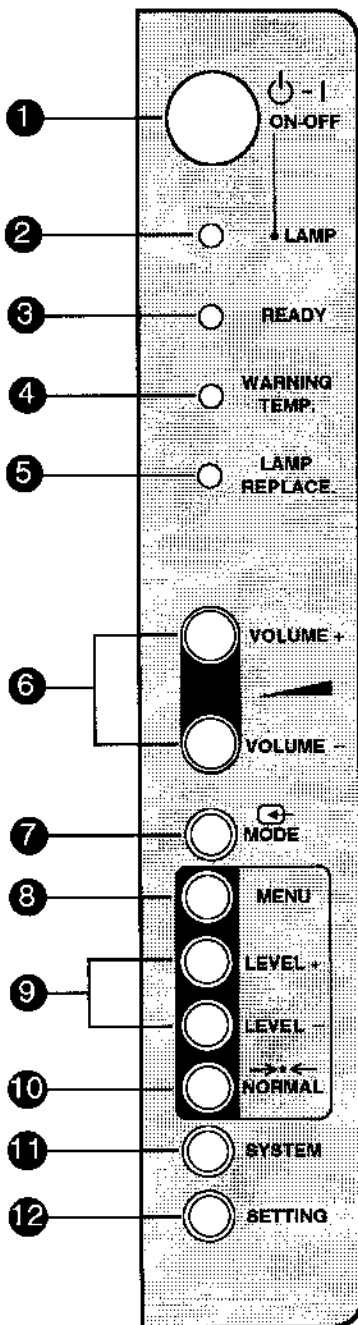
Picture adjustments can be made with the two leveling/elevating feet. Adjustments of 6° up are possible by rotating the feet on the bottom of the projector. Adjust leveling of the projector, by rotating the two (left and right) feet on the bottom of the projector.



OPERATION OF CONTROLS

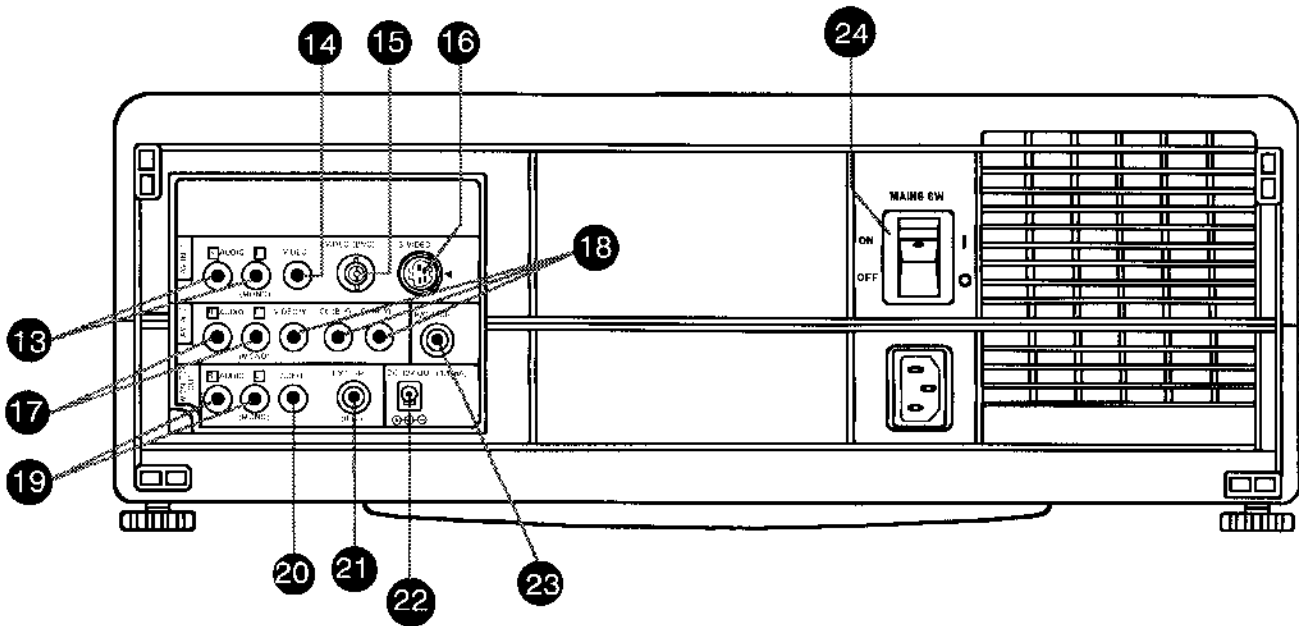


TOP CONTROLS



- 1 LAMP POWER ON/OFF BUTTON**
Used to turn projection lamp on or off.
- 2 LAMP POWER INDICATOR**
Lights dim when the projector is on.
Lights bright when the projector is stand-by position.
- 3 READY INDICATOR**
Lights green when projector lamp is ready to be turned on.
- 4 TEMPERATURE WARNING INDICATOR**
Flashes red when internal projector temperature is too high.
- 5 LAMP REPLACEMENT INDICATOR**
Lights orange when projection lamp is nearing end of service life.
- 6 VOLUME BUTTONS**
Used to adjust volume.
- 7 MODE BUTTON**
Used to select video source. (AV1 or AV 2 Input)
- 8 MENU BUTTON**
Used to select on-screen adjustment displays for colour, tint, contrast, brightness and sharpness. Press repeatedly to cycle.
- 9 LEVEL CONTROL BUTTONS**
Used to adjust colour, tint, contrast, brightness, sharpness, display, blue background, reverse R/L, reverse T/B and video input type select (AV Input 2) by pressing + or - button.
- 10 NORMAL BUTTON**
Used to reset to normal picture adjustment preset by factory.
- 11 SYSTEM BUTTON**
Used to select colour system.
- 12 SETTING BUTTON**
Used to select on-screen adjustment displays for focus setting pattern, display, blue background, reverse R/L, reverse T/B and video input type select (AV Input 2). Press repeatedly to cycle.

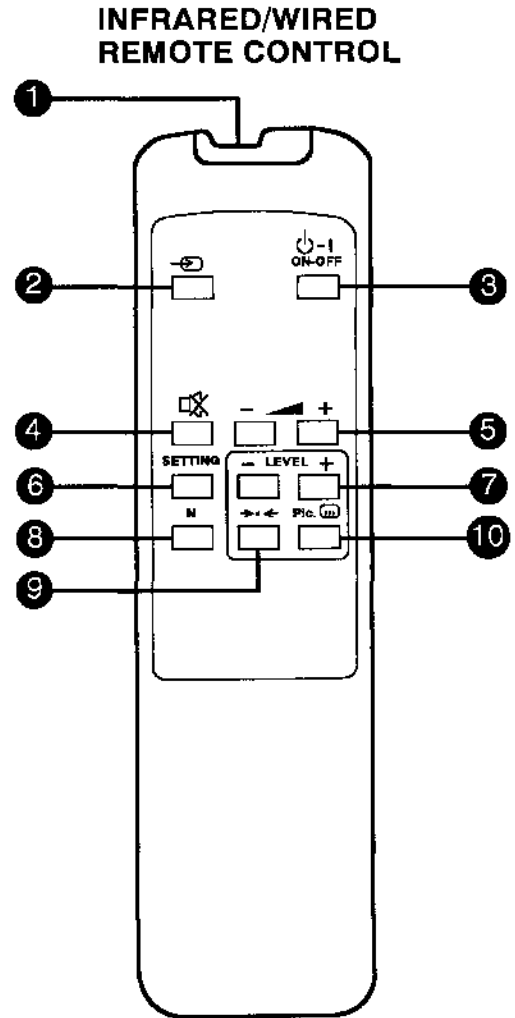
BACK OF THE PROJECTOR



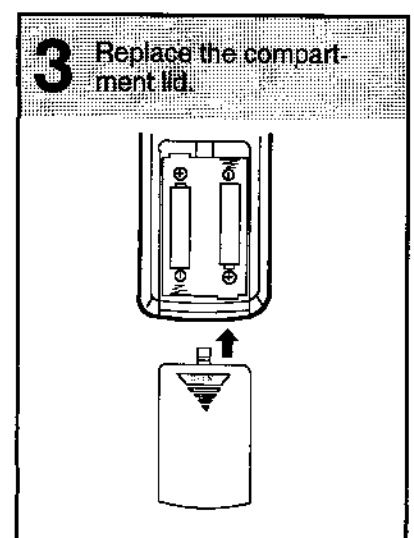
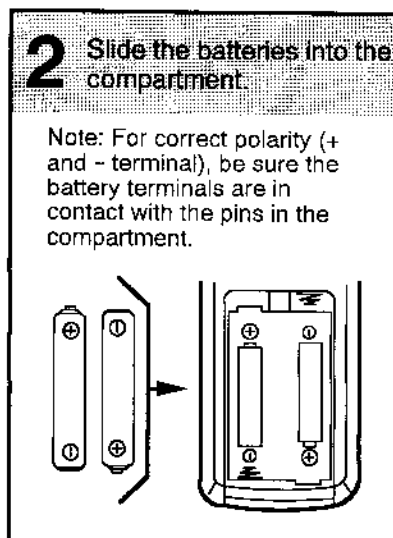
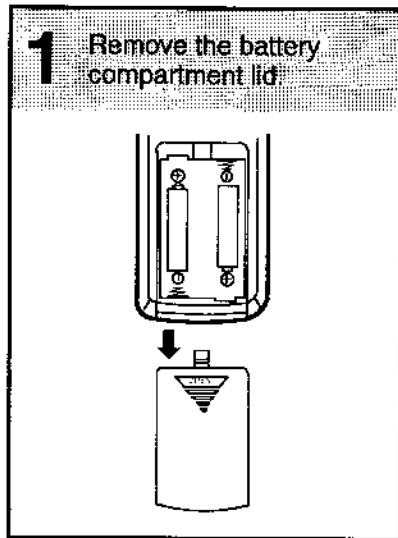
- 13** AUDIO INPUT 1 JACKS
Used to connect an audio input to the projector.
- 14** VIDEO INPUT 1 JACK
Used to connect a video source to the projector.
- 15** VIDEO INPUT (BNC) JACK
Used to connect a video source to the projector.
- 16** S-VIDEO INPUT JACK
Used to connect a S-VHS video source to the projector.
- 17** AUDIO INPUT 2 JACKS
Used to connect an audio input to the projector.
- 18** VIDEO INPUT 2 JACKS
Used to connect a video source to the projector.
- 19** AUDIO MONITOR OUTPUT JACKS
Permits audio connection to a monitor.
- 20** VIDEO MONITOR OUTPUT JACK
Permits video connection to a monitor.
- 21** EXT. SP. JACK (3.5 mm mini type)
Used to connect a external monaural speaker system.
- 22** DC 12V SOURCE
Used to connect a DC source (12V, 120mA) for other equipment.
- 23** WIRED REMOTE JACK
When using the wired remote control, connect the remote cable (supplied) to this jack.
- 24** MAINS ON/OFF SWITCH
Used to turn the projector on.

REMOTE CONTROL OPERATION

- 1 WIRED REMOTE JACK**
When using the wired remote control, connect the remote cable to this jack.
- 2 MODE BUTTON**
Used to select video source. (AV 1 or AV 2 Input)
- 3 LAMP POWER ON/OFF BUTTON**
Used to turn projection lamp on or off.
- 4 SOUND MUTE BUTTON**
Used to mute sound.
- 5 VOLUME BUTTONS**
Used to adjust volume.
- 6 SETTING BUTTON**
Used to select on-screen adjustment displays for focus setting pattern, display, blue background, reverse R/L , reverse T/B and video input type select (AV Input 2).. Press repeatedly to cycle.
- 7 LEVEL CONTROL BUTTONS**
Used to adjust colour, tint, contrast, brightness, sharpness, display, blue background, reverse R/L, reverse T/B and video input type select (AV Input 2) by pressing + or - button.
- 8 SYSTEM BUTTON**
Used to select colour system.
- 9 NORMAL BUTTON**
Used to reset to normal picture adjustment preset by factory.
- 10 MENU BUTTON**
Used to select on-screen adjustment displays for colour, tint, contrast, brightness and sharpness. Press repeatedly to cycle.



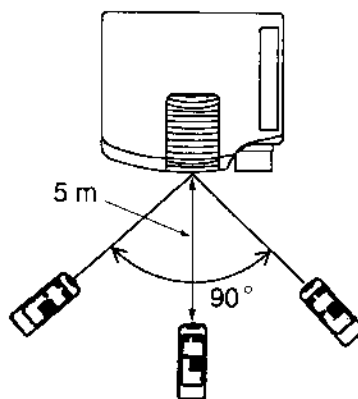
REMOTE CONTROL BATTERY INSTALLATION



The remote control unit can be used as wireless or wired remote control.

USING THE REMOTE CONTROL UNIT (wireless)

Point the remote control toward the projector (Receiver window) whenever pressing the buttons. Maximum operating range for the remote control is about 5m and 90° from the front of the projector.

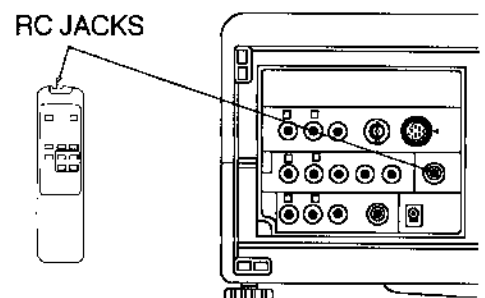


USING THE REMOTE CONTROL UNIT (wired)

Connect a remote control cable to RC jacks located on the remote control unit and the back of the projector.

To insure safe operation, please observe the following precautions:

- * Use (2) AA, UM3 or R06 type batteries.
- * Change two batteries at the same time.
- * Do not use a new battery with a used battery.
- * Avoid contact with water.
- * Do not drop the remote control unit.



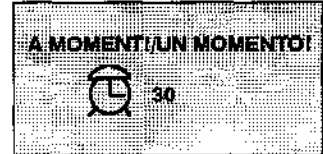
USING THE PROJECTOR

TO TURN ON THE PROJECTOR

Connect the projector to a video source (VCR, Video Camera, Video Disc Player, DVD player etc.) using the appropriate terminals on the rear of the projector (See page 6-7).

Connect the projector's AC power cord into a wall outlet and turn the MAINS ON/OFF switch (located on the back of the projector) to ON position. The LAMP POWER indicator will light RED and the READY indicator will light GREEN.

Press the LAMP POWER ON/OFF button on the projector or on the remote control unit to ON. The POWER indicator will light dim and the cooling fan will operate. The wait display (A MOMENT!/UN MOMENTO! and numeral 30) appears on the screen and the count-down starts (30-29-28-...1). The signal from the video source appears after 30 seconds.



CAUTION:

- THIS PROJECTOR USES A METAL-HALIDE ARC LAMP. IF YOU TURN ON THE LAMP, DO NOT TURN IT OFF FOR AT LEAST 5 MINUTES SO THAT ITS LIFE WILL NOT GET SHORTER.
- DO NOT UNPLUG THE PROJECTOR OR TURN THE MAINS ON/OFF SWITCH (LOCATED ON THE BACK OF THE PROJECTOR) TO OFF UNTIL THE COOLING FAN HAS STOPPED OPERATING.

NOTE 1: After you turn off the projector using the LAMP POWER ON/OFF button on the projector (or on the remote control unit) you must wait one minute before you can turn the projector on again.

NOTE 2: TEMPERATURE WARNING INDICATOR flashes red, the projector will automatically turn off. Wait at least 5 minutes before turning the projector on.

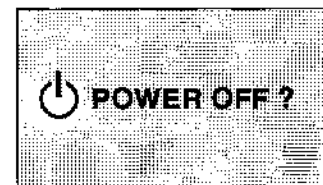
If the TEMPERATURE WARNING INDICATOR continues to flash, follow the procedures below:

- (1). Press LAMP POWER ON/OFF button to OFF.
- (2). Check the air filter for dust accumulation.
- (3). Remove dust with vacuum cleaner (See air filter care and cleaning on page 17.)
- (4). Press LAMP POWER ON/OFF button to ON.

If the TEMPERATURE WARNING INDICATOR still continues to flash, call your authorized distributor or dealer for service.

TO TURN OFF THE PROJECTOR

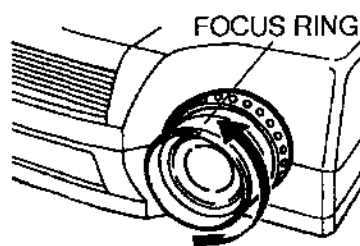
Press the LAMP POWER ON/OFF button on the projector or on the remote control unit. The "⏻ POWER OFF ?" appears on the screen. Press again the LAMP POWER ON/OFF button to OFF the projector. The cooling fan will operate for 50 seconds after the projector is turned off and LAMP POWER indicator will light bright. (During this "cooling down" period, the projector can not be turned on.) After 10 seconds, the READY indicator will light green again and the projector may be turned on by pressing the LAMP POWER ON/OFF button.



ADJUST THE PROJECTOR

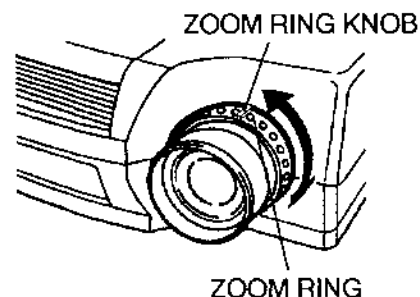
FOCUS ADJUSTMENT

Turn the focus ring using your fingers for sharper, crisper picture. When focusing, press setting button to select focus setting pattern. (See other function setting on page 14.)



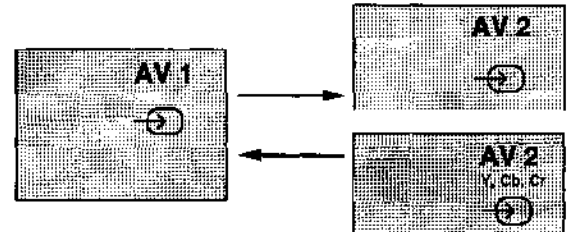
ZOOM ADJUSTMENT

Turn the zoom ring using zoom ring knob to obtain your desired picture size.



VIDEO MODE SELECT

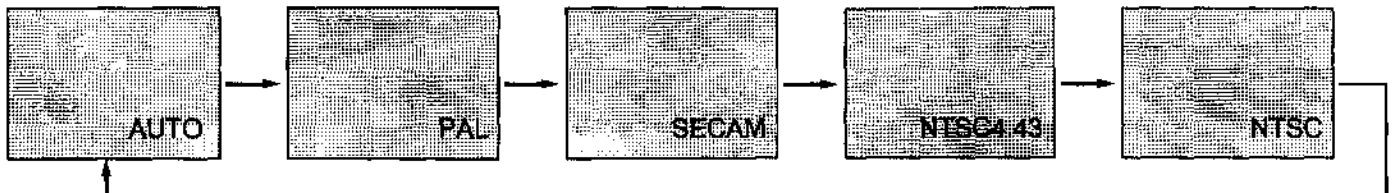
Press the **MODE** button (located on projector or remote control unit) to select AV 1 Input or AV 2 Input. The "AV1" or "AV2" display will appear on the screen.



COLOUR SYSTEM SELECT

Press the **SYSTEM** button (located on projector or remote control unit) to select AUTO, PAL, SECAM, NTSC4.43 or NTSC.

Each time the **SYSTEM** button is pressed, the colour system changes as follows:



When the colour system is set to "AUTO" position, this projector can receive colour programs from one of the 4 systems (PAL, SECAM, NTSC4.43 or NTSC), automatically.

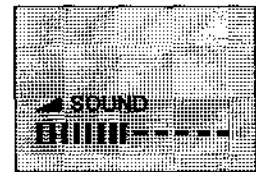
If the picture quality is poor, make sure the proper colour system is selected to match the video source.

VOLUME ADJUSTMENT

Press **VOLUME** buttons (located on projector or remote control unit) to adjust the volume. The screen display will appear.

Pressing (+) will increase volume and the green indicator will increase to the right on the screen.

Pressing (-) will decrease volume and the green indicator will decrease to the left on the screen.



SOUND MUTE ADJUSTMENT

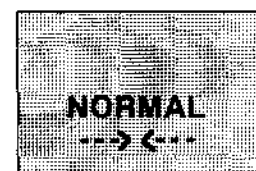
Pressing **SOUND MUTE** button on the remote control unit will mute audio and volume indicator will red. Press **SOUND MUTE** button again to restore audio to its previous level.



PICTURE ADJUSTMENT

The normal picture level is factory preset on the projector and can be obtained anytime by pressing the **NORMAL** button on the projector, or on the remote control unit. (The Normal display will appear for 5 seconds.)

Picture adjustments can be made by using the **MENU** and **LEVEL** buttons on the projector, or on the remote control unit. (See picture adjustment on page 16.)

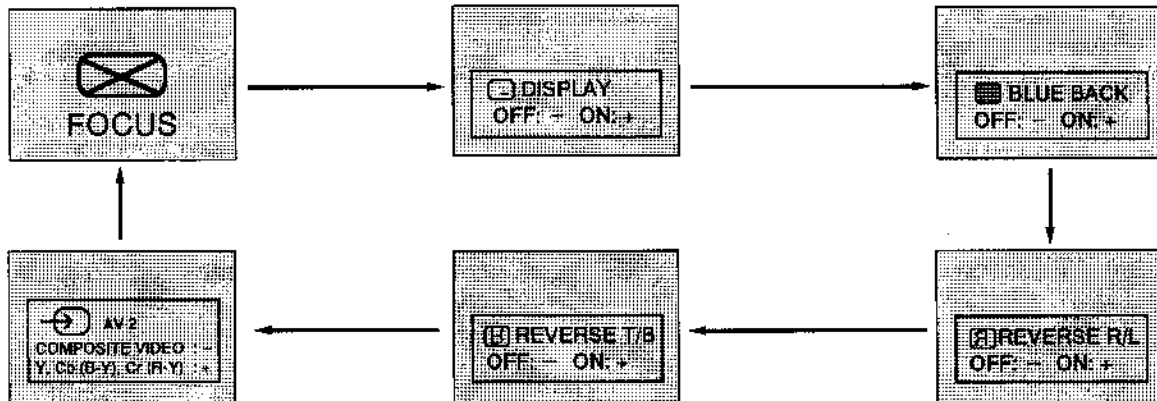


OTHER FUNCTION SETTING

This projector has other function settings; focus setting pattern, display, blue background, reverse R/L, reverse T/B or video input type select (AV Input 2). These setting by using SETTING and LEVEL buttons on the projector or on the remote control unit.

1. Press SETTING button to select the function.

Each time the SETTING button is pressed, the control function changes as follows:



2. Adjust the display, blue background, reverse R/L, reverse T/B and video input type select (AV Input 2) by pressing LEVEL (- and +) buttons.

3. The ON-SCREEN display will disappear automatically in 5 seconds.

FOCUS ADJUSTMENT PATTERN

This function lets you project an easier-to-focus picture on the screen. When focusing, select this function with the setting button. (The focus setting pattern will appear for 10 seconds.)

DISPLAY

When this function is "ON" position, the projector to see the on-screen display of all setting and adjustment will be appeared.

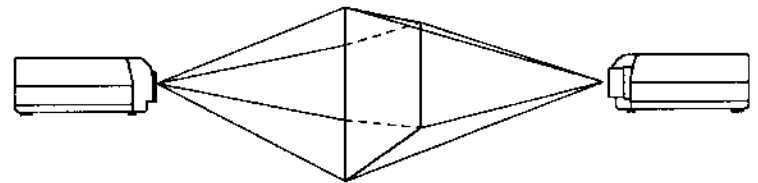
When this function is "OFF" position, the projector to see the on-screen display of any setting and adjustment (related of Picture Adjustment and Other function Setting) will be appeared.

BLUE BACK

When this function is in the "ON" position, the projector will project the blue image without video noise on the screen when the video source is unplugged or turned off.

REVERSE R/L

When this function is in the "ON" position, the left/right picture reverse capability lets you project onto a rear projection screen.



REVERSE T/B

When this function is in the "ON" position, the top/bottom picture reverse.

VIDEO INPUT TYPE SELECT (AV Input 2)

Press SETTING button (located on the projector or remote control unit) to select the video input type select function. Then press LEVEL buttons (located on the projector or remote control unit) to select the "COMPOSITE VIDEO" or "Y, Cb (B-Y), Cr (R-Y)".

Pressing (-) to select "COMPOSITE VIDEO" position.

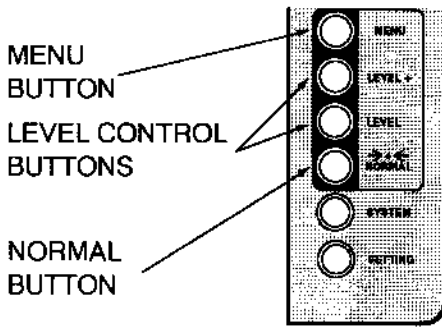
Pressing (+) to select "Y, Cb (B-Y), Cr (R-Y)" position.

The selected video input type {"COMPOSITE VIDEO" or "Y, Cb (B-Y), Cr (R-Y)"} is depending upon the video equipment. (See "CONNECTING TO THE AV INPUT 2 JACKS" section on page 6).

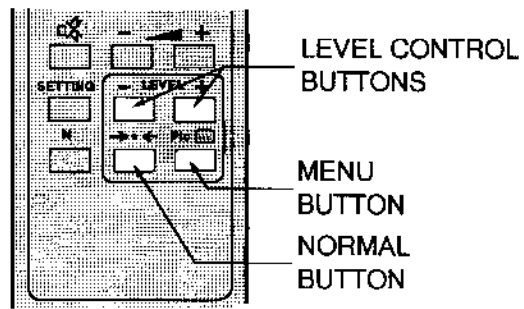
NOTE; This function have been preset at the factory to the "COMPOSITE VIDEO" position.

PICTURE ADJUSTMENTS

TOP CONTROLS OF THE PROJECTOR

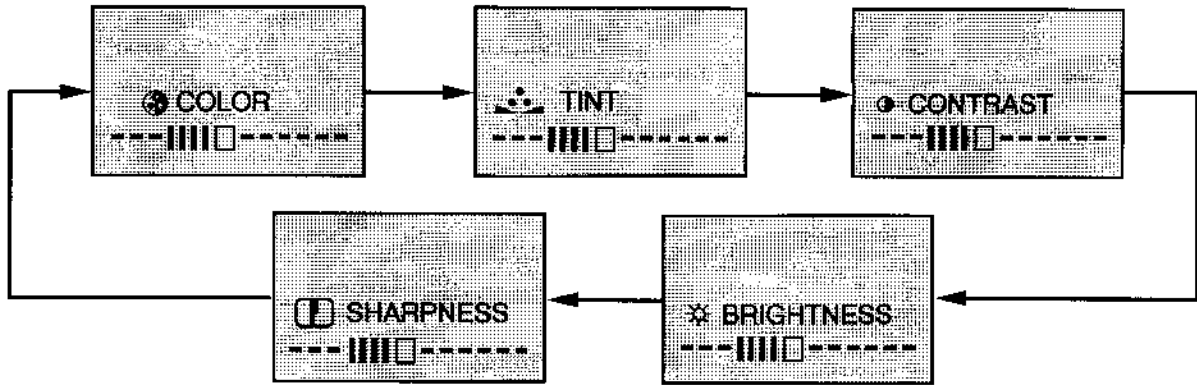


REMOTE CONTROL UNIT



Picture adjustments have been preset at the factory to our quality standards. The picture adjustments can be made by the MENU and LEVEL buttons on the projector or on the remote control unit.

1. Press the MENU button to select the picture adjustments function.
Each time the MENU button is pressed, the control function changes as follows:



NOTE: TINT will be skipped during in the PAL and SECAM mode.

2. Adjust the colour intensity, tint, contrast, brightness or sharpness by pressing the LEVEL (+ and -) buttons.
3. The ON-SCREEN display will disappear automatically in 5 seconds.

• Press the LEVEL CONTROL buttons to make adjustments. Refer to the control chart below.	
COLOUR	DECREASES ← → INCREASES
TINT	MORE PURPLE ← → MORE GREEN
CONTRAST	SOFTER ← → SHARPER
BRIGHTNESS	DARKER ← → BRIGHTER
SHARPNESS	SOFTER ← → SHARPER

NOTE: The projector is equipped with a built-in memory feature that can maintain the picture adjustment levels if the projector is turned off and AC power cord is disconnected. If the NORMAL button is pressed, the projector will return to factory preset level.

AIR FILTER CARE AND CLEANING

The removable air filter prevents dust from accumulating on the surface of the projection lens and projection mirror. Should the air filter become clogged with dust particles, it will reduce the cooling fan's effectiveness and may result in internal heat built up and reduce the life of the projection lamp.

The air filter should be cleaned about every 100 hours. Clean the air filter more often when the projector is used in a particularly dusty or smoky place.

When the air filter is blackened and beyond cleaning, it is time to change new air filter. Request service from an authorized dealer or service station.

Be sure to face the air filter in the correct direction when installing inside of the filter cover. Attach the air filter with the arrow on the "AIR FLOW" label facing towards the inside of the projector.

To clean the air filter, follow the cleaning procedures below:

1. Turn the LAMP POWER ON/OFF button OFF.
2. Remove the air filter cover from the side of the projector.
3. Remove the air filter and sponge from the filter cover.
4. Clean the air filter and sponge with a vacuum cleaner.
5. Replace the air filter and sponge. Make sure that air filter cover is fully inserted.



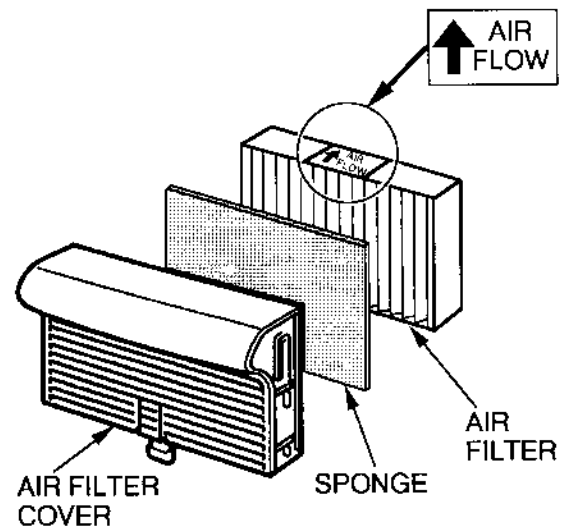
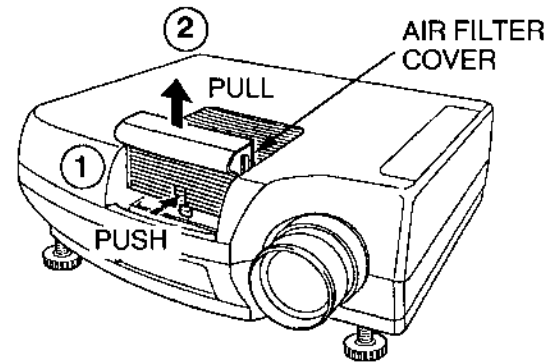
Do not clean with water. Doing so may damage the air filter.
Do not operate the projector with air filter removed.

RECOMMENDATION

TO ENJOY PICTURE IMAGE, USE THE PROJECTOR IN THE CLEAN ENVIRONMENT. USAGE IN THE CLEAN ENVIRONMENT IS RECOMMENDED.

When used under the dusty or smoky conditions, dust may accumulate on the liquid crystal panel and lens inside it, and may resultantly be projected on the screen together with the picture.

When the above symptoms are noticed contact the place where your purchased or the nearest service center for the cleaning.



LAMP REPLACEMENT & TEMPERATURE WARNING INDICATORS

LAMP REPLACEMENT INDICATOR

When the lamp nears the end of its service life, the picture quality and colour quality will deteriorate and the lamp replacement indicator will light orange.



DO NOT ATTEMPT TO REMOVE OR CHANGE THE PROJECTION LAMP. THE LAMP CAN ONLY BE CHANGED BY QUALIFIED SERVICE PERSONNEL.

TEMPERATURE WARNING INDICATOR

The TEMPERATURE WARNING INDICATOR flashes red when the internal temperature of the projector exceeds the normal temperature.

Possible causes for the temperature warning may be:

1. Ventilation slots at the front or rear of the projector are blocked. In such an event, reposition the projector so that ventilation slots are not obstructed.
2. Air filter is clogged with dust particles. Remove dust from the air filter by following instructions in the Air Filter Care and Cleaning section above.
If temperature warning indicator remains on after performing the checks listed above, cooling fan/internal circuits may be malfunctioning. Request service from an authorized dealer or service station.

HELPFUL HINTS-Problems and Solutions

Check the following chart before requesting service.

Problem:	Try these Solutions:
No power	<ul style="list-style-type: none"> ● Plug the projector into an AC outlet. ● Turn the MAINS ON/OFF switch to ON. ● Press the LAMP POWER ON/OFF button to ON. ● Check the READY INDICATOR light ON. ● One minute has not passed after the projector turned OFF. <p>NOTE: After pressing the LAMP POWER ON/OFF button to OFF , the projector functions as follows.</p> <ol style="list-style-type: none"> 1. The READY indicator will turn off. 2. The cooling fan will operate for 50 seconds after the projector is turned off and LAMP POWER indicator will light bright. (During this "cooling down period, the projector can not be turned on.) 3. After 10 seconds, the READY indicator will light green again and the projector may be turned on by pressing the LAMP POWER ON/OFF button.
No sound from built-in speaker	<ul style="list-style-type: none"> ● Press the VOLUME (+) and (-) to (+). ● Check audio cable connection from audio input source.
No colour	<ul style="list-style-type: none"> ● Check colour system.
Picture is reversed	<ul style="list-style-type: none"> ● Check REVERSE SCAN (R/L or T/B) Feature.
Picture blurred or color faded	<ul style="list-style-type: none"> ● Check the projection distance 1.5 m ~ 12.0 m. ● Adjust the FOCUS control. <p>NOTE: Moving the projector from a cool temperature location to a warm temperature location may result in moisture condensation on the lens. In such an event, leave the projector OFF and wait until condensation disappears.</p>

TECHNICAL SPECIFICATIONS

SPECIFICATIONS

Projector Type	Portable LCD Projector
Dimensions (H x W x D)	158 mm × 430 mm × 385 mm
Net Weight	11 kg
LCD Panel System	1.3" TFT Active Matrix type (Thin Film Transistor) × 3
Number of Pixels	921,600 (307,200 × 3)
Colour System	4 colour system (PAL, SECAM, NTSC4.43 and NTSC)
Projection Image Size (Diagonal)	76 cm to 762 cm (30 to 300 inch) Adjustable
Contrast Ratio	100 :1
Horizontal Resolution	550 TV lines
Projection Lens	F2.8 ~ 3.2 lens with f53 mm ~ 69 mm Manual zoom and focus
Lens Aperture	51.8 mm
Throw Distance	1.5 m ~ 12.0 m
Projection Lamp	Metal Halide, 200 watt type
Projection Mirror	Dichroic mirror system
AV Input 1 jacks	PHONO Type (Video, Audio R and L), BNC Type × 1 and DIN 4 pin (S-Video) × 1
AV Input 2 jacks	PHONO Type (Video/Y, Cb (B-Y), Cr (R-Y), Audio R and L)
Video Monitor Output Jack	PHONO Type × 1
Audio Monitor Output Jacks	PHONO Type × 1 (R and L)
Other Jacks	EXT. Speaker Jack × 1, Wired Remote Jack × 1 and External Power Supply (+12V DC, 120mA)
Built-in Speaker	INT. SP. Monaural, 3 watt RMS (T.H.D. 10%)
Image Elevation Adjustment	Up 6°
Voltage	220-240V AC, 50/60 Hz
Power Consumption	285 Watts
Operating Temperature	5 °C ~ 35 °C
Storage Temperature	- 10 °C ~ 60 °C
Remote Control Battery	AA, UM3 or R06 type × 2
Standard Accessories	Remote Control Unit, R/C Cable (1.5m), AC Power Supply Cord, Lens Cover and Owner's Instruction Manual

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SANYO Electric Co., Ltd