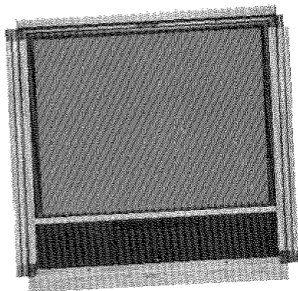


# PROJECTION COLOR TV

## CT5081K/CT5582K

### OPERATING GUIDE

Your new HITACHI PROJECTION COLOR TV incorporates a host of features designed to give you excellent performance if you follow the instructions in this manual. We recommend that you read the following instructions and "IMPORTANT SAFEGUARDS" notice before turning on your TV for the first time.



(CT5682K)

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## SAFETY PRECAUTIONS

- Do not attempt to open TV cabinet. There are no user serviceable parts inside.
- Model number and serial number are indicated on back side of the set.
- When the unit is not in use, turn off the power button.

This projection color TV is designed to operate on 120 volts 60 Hz, AC household current. Insert the power cord plug into a 120 volts 60Hz outlet.

**NEVER CONNECT THE TV TO OTHER THAN THE SPECIFIED VOLTAGE, TO 50Hz OR TO DIRECT CURRENT.**

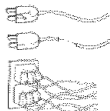
### POWER SUPPLY CORD

- This television set is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
- When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
- Do not overload wall outlets and extension cords as this can result in fire or electric shock.

#### • POLARIZED PLUG



#### • NO GOOD



**TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

**Note:** Never remove the back cover of the set as this can expose you to very high voltages and other hazards. If the set does not operate properly, unplug the set and call your dealer or service shop.

	<b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK</b> <b>DO NOT OPEN</b>	
<b>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE.</b>		
<b>REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</b>		

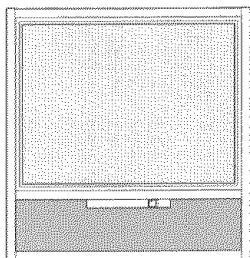


The lightning flash with arrowhead symbol, inside an equilateral triangle, alerts the user to the presence of uninsulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point inside an equilateral triangle is attached to alert the user to the presence of important operating and maintenance (servicing) instructions in the manuals and other literature that come with the unit.

# HOW TO GET THE MOST ENJOYMENT FROM YOUR NEW HITACHI PROJECTION COLOR TV

Your new HITACHI PROJECTION COLOR TV incorporates a host of features designed to give you excellent performance if you follow the instructions in this manual. We recommend that you read the following instructions and "IMPORTANT SAFEGUARDS" notice before turning on your TV for the first time.



(CT5081K)

## Features:

- Cable Compatible — 181 channels
- MTS Stereo
- On Screen Display
- Built-in Convergence Pattern
- 53 Button Programmable Remote
- S-VHS Input
- Video-Audio Inputs/Outputs
- Surround Sound

## ACCESSORIES

Check to make sure you have the following accessories before disposing of the packing material.

1. Antenna Adaptor  
(300-ohm to 75-ohm)
2. Remote Control Unit
3. Four "AA" size, 1.5V batteries  
(for Remote Control Unit)



## BEFORE INSTALLING THE RECEIVER

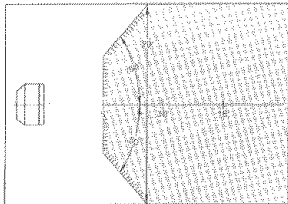
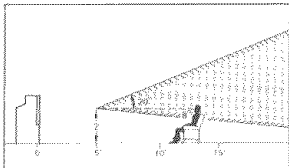
### SEATS IN THE ROYAL BOX

The major benefit of the Hitachi Projection Color Television receiver is its large viewing screen. To see this large screen at its best, test various locations in the room to find the best spot for viewing. The drawings give several suggestions.

The best picture is seen by sitting directly in front of the receiver and about 10-18 feet from the screen. Picture brightness decreases as the viewer moves to the left or right of the receiver.

During daylight hours, reflections from outside light may appear on the screen. If so, drapes or screens can be used to reduce the reflection or the receiver can be located in a different section of the room.

If the receiver's audio output will be connected to a Hi-Fi system's external speakers, the best audio performance will be obtained by placing the speakers equidistant from each side of the receiver cabinet and as close as possible to the height of the picture screen center. Differences in room size and acoustical environment will probably require experimentation with speaker location for best performance.



## ANTENNA CONNECTIONS

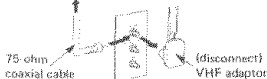
Your TV set is equipped with two antenna terminals to permit multiple antenna connections. The VHF/UHF is for standard or cable TV (CATV). The AUX can be used for standard or cable TV, too, but can also be used for an additional CATV cable or for scrambled CATV.

1.

### VHF (75Ω) antenna/CATV

When using a 75 ohm coaxial cable system, disconnect the VHF adaptor from the VHF 75 ohm receptacle and connect the outdoor antenna or CATV cable to the VHF 75 ohm receptacle. Select "VHF/UHF" with the "ANT" button.

[Rear of TV] To outdoor antenna or CATV cable



2.

### VHF (300Ω) antenna/UHF antenna

When using a 300 ohm twin lead from an outdoor antenna, disconnect the VHF or UHF indoor antenna leads from screws of the VHF or UHF adaptor, and connect outdoor VHF or UHF antenna leads to these screws of the VHF or UHF adaptor.

Select "VHF/UHF" with the "ANT" button.

To outdoor VHF or UHF antenna



3.

### When both VHF and UHF antennas are connected

Attach an optional ANT. MIXER UL to the TV antenna terminal, and connect the cables to the ANT. MIXER UL.

Select "VHF/UHF" with "ANT" button.

[Rear of TV] VHF/UHF To outdoor antenna or CATV station

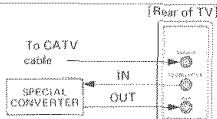


4.

### Cable with a special converter (decoder)

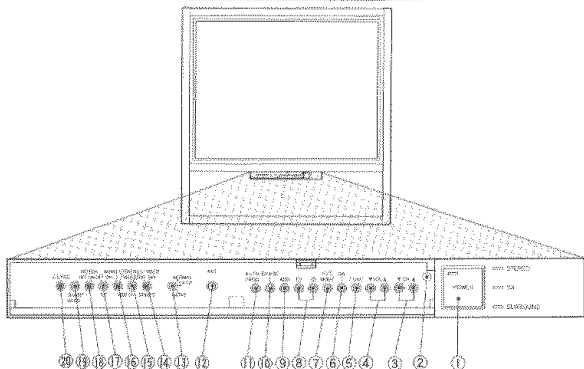
Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection. Connect the converter (decoder) with a 75-ohm coaxial cable (optional).

Select "AUX" with "ANT" button.



- Notes: 1. Consult your dealer or service store for the ANT. MIXER UL.  
2. The special converter (decoder) will be supplied by the cable company.

## LOCATION AND USE OF CONTROLS



- 1 POWER button**
  - Press this button to turn the receiver on or off.
- 2 Switch Adaptor**
  - Pull out this adaptor and use it to adjust SPKRS ON/OFF, STEREO/MONO, NOTCH and V. SYNC.
- 3 CHANNEL selection (▼ CH ▲)**
  - Press CH ▲ to select the next higher channel number that's been programmed into the Channel Scan Memory.
  - Press CH ▼ to select the next lower channel number that's been programmed into the Channel Scan Memory.
- 4 VOLUME control (▼ VOL ▲)**
  - Press VOL ▲ to increase the volume.
  - Press VOL ▼ to decrease the volume.
- 5 FUNCTION (FUNC)**
  - This button lets you switch from watching TV signals to watching signals from a video device connected to either the VIDEO1 or VIDEO2 inputs jacks on the back of the TV.
  - To see signals from a video device connected to the VIDEO1 jacks on the back of the TV, repeatedly press the FUNC button until "VIDEO1" appears on the TV screen.
  - To see signals from a video device connected to the VIDEO2 jacks on the back of the TV, repeatedly press the FUNC button until "VIDEO2" appears on the TV screen.
  - You can also view VIDEO1 or VIDEO2 signals by pressing the AVX button on the remote control.
- 6 SA button**
  - Press this button to turn on the SA light.
  - Press again to turn off the SA light.
  - Note:** The STEREO/MONO switch must be in the STEREO position before the SA light will come on.
- 7 P/S (Picture/Sound) MODE button**
  - To control P. MODE (PICTURE, TINT, COLOR, BLACK LEVEL) and S. MODE (BALANCE, BASS, TREBLE).
  - They are set to normal position when shipped from the factory.
- 8 +/- buttons**
  - During the video control mode, these control the levels of color, tint, black level and picture.
  - During the audio control mode, they control the bass and treble levels and balance.
- 9 ADD button**
  - This button lets you add channels to the Channel Scan Memory.
  - To add a channel to the Channel Scan Memory, press the CHANNEL SELECTOR BUTTONS (0-9 and 100) on the Remote Control transmitter to select the desired channel. Then press the ADD button.

### 10 ERASE button

- This button lets you erase channels from the Channel Scan Memory.
- To erase a channel from the Channel Scan Memory, press channel▲ or ▼ to select the unwanted channel. Then press ERASE.

### 11 AUTO PROGRAM button

- If the AUTO PROGRAM button is pressed, the TV signals supplied to VHF/UHF are programmed into the Channel Scan Memory automatically in sequence from the bottom channel number. (When the programming of the VHF/UHF input is completed, auto programming moves to the AUX input automatically.)

### 12 ANT button

- Press this button to switch between the VHF/UHF and AUX terminal on the back of the TV.
- If you're viewing signals from the VHF/UHF terminal, the screen displays will be green.
- If you're viewing signals from the AUX terminal, the screen displays will be yellow.

### 13 NORMAL/CATV switch

- Turn this switch to the CATV position if you connect a cable-TV system to your TV.
- Turn this switch to the NORMAL position if you do not connect a cable-TV system to your TV.

### 14 SPKRS ON/OFF switch

- This switch lets you turn the TV's internal speakers on and off. Normally you will want to leave the TV's internal speakers turned on unless you connect an amplifier (with its own set of speakers) to the appropriate jacks on the back of the TV.
- Turning this switch clockwise cuts off the built-in speakers and the sound is not output.
- Turning this switch counterclockwise turns on the built-in speakers and the sound is output.

### 15 VIDEOT VIDEO/S-VIDEO switch

- The VIDEOT switch can select the normal video input and S-VHS system VCR input. When a S-VHS system VCR is used, set this switch to S-VIDEO. (Refer to the "Component connections" for details.)

### 16 STEREO/MONO switch

- Activates the automatic stereo feature so that TV programs broadcast in stereo will be reproduced in true stereo.
- Rotary switch turned right for STEREO, turned left for MONO.
- The STEREO light will come on whenever stereo sound is received if this switch is in the STEREO position.
- The STEREO light will come on whenever stereo is received if this switch is in the STEREO position.

### 17 SIGNAL TRACKER (ST) switch

- The SIGNAL TRACKER (ST) feature automatically monitors and adjusts color to maintain constant color levels even after program or channel changes.
- Leave the SIGNAL TRACKER (ST) switch in the "on" position (turned right) for the best picture.

### 18 NOTCH switch

- When turned ON, this reduces roughness on character borders.

### 19 SHARPNESS knob

- Turn knob right to get a sharper picture.
- Turn knob left to get a softer picture.

### 20 V. SYNC knob

- If the picture moves up or down ("rolls"), adjust the V. SYNC control until the picture stops rolling.

## ADJUSTING FOR BEST PICTURE AND SOUND

What is pleasing to one person may not be to another. If the picture is not to your liking after you turn on your set, make the following adjustments.

**Note:** If the picture is blurry or if the red, blue, and green colors are separated on the screen, the color convergence controls may need to be adjusted as described later. (Refer to page F1.)

**CAUTION:** When using TV games, computers, and similar products with your TV, keep the **BLACK LEVEL** and **PICTURE** at low settings. If a fixed (non-moving) pattern is left on the screen for long periods of time at a high brightness or contrast setting, the image can be permanently imprinted into the screen.

These types of imprints are not covered by your warranty because they are the result of misuse.

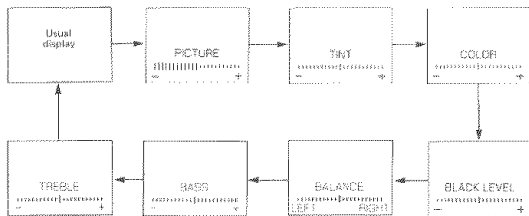
### Adjusting Color and Audio Controls

To control the **P. MODE** (**PICTURE**, **TINT**, **COLOR**, **BLACK LEVEL**) and **S. MODE** (**BALANCE**, **BASS**, **TREBLE**), follow the instruction below. The controls are set to the normal position when shipped from the factory.

#### P/S MODE BUTTON

Choose the required control, as seven kinds of control will be shown in the following order every time you press the **P/S MODE** **BUTTON**.

#### On-screen Display Order of P/S MODE



#### +BUTTON / -BUTTON

Use the **+** and **-** **BUTTONS** for control.

When you press the **+** **BUTTON**, the cursor moves to the right, and when you press the **-** **BUTTON**, the cursor moves to the left, as the state of control is changed (as for **PICTURE**, the number of color bars is increased or decreased.)

For best results, refer to the following **OPERATION**.



## Adjusting for picture

### 1. PICTURE

The PICTURE control is used to adjust contrast, the black level and color simultaneously.

When the + button is pressed (the cursor moves to the right), the black level is increased, contrast becomes greater and the color becomes denser.

### 2. TINT

When the - button is pressed (the cursor moves to the left), flesh tone will be tinted purple, and when the + button is pressed (the cursor moves to the right), it will be tinted green.

### 3. COLOR

The COLOR control sets the intensity of colors. Set this control to the position where the colors appear with normal intensity and brilliance.

### 4. BLACK LEVEL

Set the controls until portions of the picture you know to be black appear black.

### 5. SHARPNESS

Adjust the SHARPNESS knob for a pleasing level of picture sharpness.

- For normal viewing, turn the knob to mid-range.
- For sharper picture, turn the knob to the right.
- For weak signals, the picture may be more pleasing with the knob turned to the left.

## Adjusting the sound

### 1. BALANCE

Permits adjustment of the balance of the sound from the left and right speakers.

### 2. BASS

Press the + button (the cursor moves to the right) to increase low frequency sound, and press the - button to cut low frequency sound.

### 3. TREBLE

Press the + button (the cursor move to the right) to increase high frequency sound, and press the - button to cut high frequency sound.

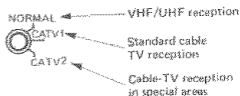
# CABLE-TV(CATV) OPERATION

Your new TV is designed to receive CATV channels.

To use this TV on a cable-TV system:

Place the NORMAL/CATV1/CATV2 switch, located behind the Control Door, in the CABLE1 or CABLE2 position.  
(This switch is placed in the NORMAL position at the factory.)

RECEPTION BAND		
NORMAL	CATV 1 or CATV 2	
	CATV CH	Indicated on the screen
VHF 2~13ch UHF 14~69ch	VHF 2~13	2~13
	Mid band A~I A-5~A-1	14~22 95~99
	Super band J~W	23~36
	Hyper band W+1~W+28	37~64
	Ultra band W+29~W+84	65~125



If your cable-TV company follows EIA/NCTA channel-identification standards, most of the channels on your cable-TV system will be identified by channel numbers that are identical to those of your TV. For example, if your cable-TV system has programs on cable-TV channel 20, you can choose this channel by selecting channel 20 on your TV.

CABLE-TV CHANNEL REFERENCE CHART													
Cable (CATV) Channel Select Channel Number	2	3	4	4+	5	6	7	8	9	10	11	12	13
Actual TV Station**	A	B	C	D	E	F	G	H	I	J	K	L	M
Cable (CATV) Channel Select Channel Number	A	B	C	D	E	F	G	H	I	J	K	L	M
Actual TV Station**	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Cable (CATV) Channel Select Channel Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Actual TV Station**	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM
Cable (CATV) Channel Select Channel Number	W+1	W+2	W+3	W+4	W+5	W+6	W+7	W+8	W+9	W+10	W+11	W+12	W+13
Actual TV Station**	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
Cable (CATV) Channel Select Channel Number	W+14	W+15	W+16	W+17	W+18	W+19	W+20	W+21	W+22	W+23	W+24	W+25	W+26
Actual TV Station**	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM
Cable (CATV) Channel Select Channel Number	W+27	W+28	W+29	W+30	W+31	W+32	W+33	W+34	W+35	W+36	W+37	W+38	W+39
Actual TV Station**	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ
Cable (CATV) Channel Select Channel Number	W+40	W+41	W+42	W+43	W+44	W+45	W+46	W+47	W+48	W+49	W+50	W+51	W+52
Actual TV Station**	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM
Cable (CATV) Channel Select Channel Number	W+53	W+54	W+55	W+56	W+57	W+58	W+59	W+60	W+61	W+62	W+63	W+64	W+65
Actual TV Station**	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM
Cable (CATV) Channel Select Channel Number	W+66	W+67	W+68	W+69	W+70	W+71	W+72	W+73	W+74	W+75	W+76	W+77	W+78
Actual TV Station**	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM
Cable (CATV) Channel Select Channel Number	W+79	W+80	W+81	W+82	W+83	W+84	W+85	W+86	W+87	W+88	W+89	W+90	W+91
Actual TV Station**	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM
Cable (CATV) Channel Select Channel Number	W+92	W+93	W+94	W+95	W+96	W+97	W+98	W+99	W+100	W+101	W+102	W+103	W+104
Actual TV Station**	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM

\* Only when the NORMAL/CATV1/CATV2 SWITCH is switched over to "CATV2".  
\*\* You may write in the actual station name or channel information supplied by your cable TV (CATV) company.

**Notes:** 1. In some areas there is a special channel (4+) between channel 4 and channel 5; this can be received when the NORMAL/CATV1/CATV2 switch is set to "CATV2" and channel No. 1 is selected.

2. If the reception of certain CATV channels is poor or not possible in the CATV1 position, set the band selector switch to CATV2.

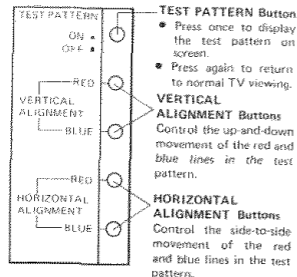
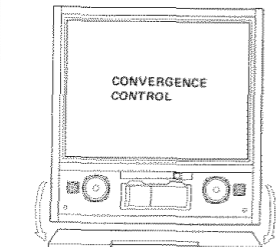
## COLOR CONVERGENCE ADJUSTMENTS

Your Projection TV has three color projection tubes—one for red, one for green, and one for blue. When mixed together in the proper proportion, the output of these three color tubes can produce any color. To produce these colors, however, the beams must be precisely aligned over each other so that the colors can be mixed. The process of aligning these picture beams is called "convergence".

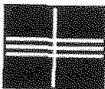
Over a period of time, the picture tubes can drift out of alignment due to normal bumps and vibrations or moving the TV. If you move your TV or if, after a time, you notice colored rings or halos around objects in the picture, you may want to converge (align) the colors.

To simplify convergence, a button is provided that allows you to display a test pattern of horizontal and vertical lines on the screen. Properly converged, the lines appear white, which is actually a combination of the outputs of the three color tubes. The output of green tube is stationary. The outputs of the red and blue tubes can be adjusted. When properly aligned, the outputs of all three tubes should be directly over each other to produce the white lines.

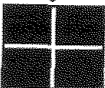
### Converging (Aligning) the Colors



1. Press the **POWER** button to turn on the TV.
2. Select a channel that is active in your area.
3. Remove the speaker covers by gently pulling them off as shown in the figure on the left.
4. Press the **TEST PATTERN** button to display the test pattern on the screen.



5. Adjust the **BLUE** and **RED VERTICAL ALIGNMENT** knobs until the red, blue, and green lines converge (align) to form a horizontal white bar across the screen.
6. Adjust the **BLUE** and **RED HORIZONTAL ALIGNMENT** knobs until the red, blue, and green lines converge (align) to form a vertical white bar across the screen.
7. Press the **TEST PATTERN** button again to place it in the **OFF** position. This will remove the test pattern from the screen and bring back the normal TV channel.



8. Replace the speaker cover by first inserting its tabs into the corresponding cabinet slots and then pushing it into place.



## 1. Turning TV ON and OFF

The channel No. is displayed on the screen for approx. 15 seconds.

Without Remote Control

- Press POWER button to turn on TV.
- Press POWER button again to turn off TV.

With Remote Control

- Press POWER button on the remote control to turn on TV.
- Press POWER button on the remote control to turn off TV.

## 2. Adjusting Volume

Variation of the volume is displayed at the upper part of the screen by a color bar.

Without Remote Control

- Press VOL ▲ button to increase volume.
- Press VOL ▼ button to decrease volume.

With Remote Control

- Press VOL ▲ button on the remote control to increase volume.
- Press VOL ▼ button on the remote control to decrease volume.

## 3. Programming Channels into Channel Scan Memory

When the AUTO PROG. button is used.

If the AUTO PROGRAM button is pressed, the TV broadcast signal connected to VHF/UHF or AUX is programmed into the Channel Scan Memory, automatically in sequence from the bottom channel number.

(When the programming of the VHF/UHF input is completed, auto programming moves to the AUX input automatically; programming is performed the same as for VHF/UHF.)

During the storing of programs, the indications shown below are displayed.

AUTO PROGRAM  
IN PROGRESS

CHANNEL

13

Selected channel number

When the ADD and ERASE button are used.

- After performing auto programming, when unused channels are erased from the Channel Scan Memory, follow the procedure shown below.

- (1) Press the Channel Selector button (▲ or ▼) to select the unwanted channel.
- (2) Press the ERASE button, and indication "ERASE" appears on the screen. Then the channel is erased from the Channel Scan Memory.
- (3) Repeat items (1) and (2) to erase other unwanted channels from Channel Scan Memory.

- To restore the channel erased from the Channel Scan Memory to memory again:

- (1) Press the Channel Selector button (0-9 and 100) on the Remote Control Transmitter to select desired channel.
- (2) Press the ADD button, and the indication "ADD" appears on the screen.
- (3) Repeat items (1) and (2) to store other channels in Channel Scan Memory.

## 4. Selecting Channels

Without Remote Control

- Press CH ▲ to select next higher channel in Channel Scan Memory.
- Press CH ▼ to select next lower channel in Channel Scan Memory.

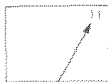
With Remote Control

- Press CHANNEL ▲ (right side) on the remote control, to select next higher channel in Channel Scan Memory.
- Press CHANNEL ▼ (left side) on the remote control, to select next lower channel in Channel Scan Memory.
- You can also select channels by using the number buttons labeled. "0" thru "9" and "100", re-number to press a zero before signal-digit channel numbers.

For example:

- Press "0" then "6" for channel "6".
- Press "2" then "0" for channel "20".
- Press "100", "1" then "4" for channel "114".
- If you make a mistake in pressing the CHANNEL SELECTOR buttons, wait for approx. 3 seconds and then press them again correctly.

- The channel No. selected is displayed for approx. 4 seconds after changing channels and disappears automatically.



Green indication

- When either a stereo broadcast or a second audio broadcast is received, "SA" or "MAIN" is indicated below the channel No.



Red indication

#### 5. Adjust for Best Color and Sound

Complete instructions are on page 8 and 21.

#### 6. Preparing TV to Receive Stereo Broadcasts

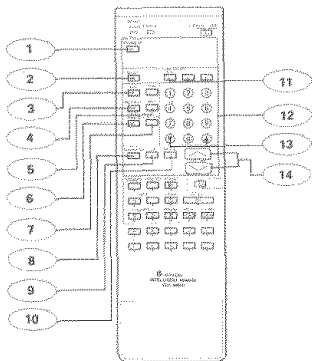
- (1) Turn the STEREO/MONO switch to the STEREO position (right).
- (2) The stereo light will come on whenever a stereo broadcast is being received.
- (3) Adjust the TREBLE, BASS and BALANCE to your preference.

#### 7. Preparing TV to Receive Secondary Audio Programs (SAP)

- (1) Turn the STEREO/MONO switch to the STEREO position (right).
- (2) Press the SA button to select the second audio channel.  
When the SA position is set, your TV is ready for second audio channel reception and SA is indicated at the upper right of the screen.

# REMOTE CONTROL OPERATION

## When operating the TV set

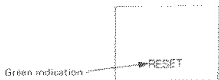


### 1 POWER BUTTON

Press the "POWER" button to turn the TV set on or off.

### 2 RESET BUTTON

When the RESET BUTTON is pressed, "RESET" is indicated on the screen, and TINT, COLOR, BLACK LEVEL, BALANCE, BASS and TREBLE are reset. (This means that the displayed cursor is in the centre factory settings.) PICTURE remains as selected, and is not reset.



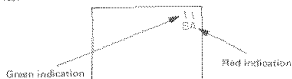
### 3 AVX BUTTON

Refer to "COMPONENT CONNECTIONS" on page 23.

### 4 RECALL BUTTON

When you want to know the channel being received, press the RECALL button. The number of the channel being received is displayed at the upper right side of the screen, and press again to turn off the channel indication on the screen.

• When either a stereo broadcast or a second audio broadcast is received, "MAIN" or "SA" is indicated below the channel No.



### 5 ANT BUTTON

Your TV can be connected to two kind of signal. For details of connecting antenna, see "ANTENNA CONNECTIONS", on page 5.

To select VHF/UHF or AUX terminal, press the ANT button. The selection changes between VHF/UHF and AUX every time the ANT button is pressed.

When VHF/UHF is selected, the color of the channel No. indication will change to green.

When AUX is selected, the color of the channel No. indication will change to yellow.

### 6 OFF TIMER BUTTON

Pressing the OFF TIMER button displays "OFF TIMER : : : :".

Use the channel select buttons to set the time in the blinking cursor position.

You can set the time from 1 minute "OFF TIMER 0 : 01" to 1 hour and 59 minutes "OFF TIMER 1 : 59". If you make a mistake in setting the off time, press the OFF TIMER button again. That returns the display to "OFF TIMER : : : :".

After setting the timer, OFF TIMER starts operating as soon as the OFF TIMER display disappears. To check the time remaining, press the OFF TIMER button.

The remaining time will be displayed on the screen.

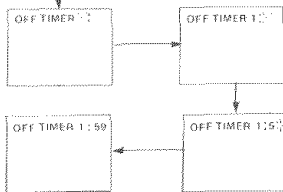
When the remaining time reaches 0:00, the TV will be turned OFF.

To release the OFF TIMER setting, press the OFF TIMER button again.

When the display returns to "OFF TIMER : : : :", the setting is released.

**Note:** If you do not start setting the time within approx. 4 seconds, the display "OFF TIMER : : : :" disappears automatically.

Yellow indication



## 7 LAST CHANNEL (LST-CH) BUTTON

When the LST-CH button is pressed, the TV returns to the channel viewed previously. For example, when this button is pressed while watching "22CH" after changing from "9CH", it returns to "9CH" and when the button is pressed again, it returns to "22CH".

## 8 SURROUND BUTTON

To turn ON, press the SURROUND button. The surround indicator on the front of the TV will light.

Press the button again to turn the surround sound off.

The indicator will also go off.

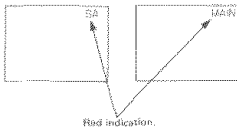
When your TV, VCR or Video Disc Player is reproducing stereo sound, turn on the SURROUND button for a surround effect.

## 9 SA BUTTON

When the SA indicator (red) of the TV set lights, the second audio channel can be heard by pressing the "SA" button.

(When the second audio channel is selected, "SA" is indicated at the upper right of the screen.)

Press the "SA" button again to return the normal audio. ("MAIN" is indicated at the upper right of the screen.)



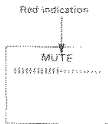
## 10 MUTE BUTTON

To turn the sound off instantly to answer the telephone, etc., just press the "MUTE" button. To restore the sound level, press the "MUTE" button again. The sound will return at the previous level.

Pressing the "VOLUME UP (▲)" or "VOLUME DOWN (▼)" button will also restore the sound.

When the MUTE button is pressed, the color bar changes to Red. (The color bar itself still remains visible.)

When it is pressed again, the color bar returns to green.



## 11 P/S MODE BUTTON / +BUTTON / -BUTTON

Refer to page 6

## 12 CHANNEL SELECTOR BUTTONS

Refer to "BASIC OPERATING GUIDE", on page 12.

## 13 CHANNEL BUTTONS

Channel selection may be performed by pressing either the CHANNEL BUTTONS UP (▲) or DOWN (▼).

When the right side (▲, UP) of CHANNEL BUTTONS is pressed, the next higher channel is selected. And when the left side (▼, DOWN) of the CHANNEL BUTTONS is pressed, the next lower channel is selected.

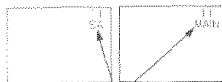
The No. of the channel to which the TV is tuned is displayed at the upper right side of the screen. The channel No. selected is displayed for approx. 4 seconds after changing channels and disappears automatically.

(When you turn the set ON, the channel No. is displayed on the screen for approx. 15 seconds.)

• When either a stereo broadcast or a second audio broadcast is received, "SA" or "MAIN" is indicated below the channel No.



Green indication

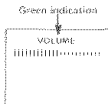


Red indication

## 14 VOLUME BUTTON

Press the "VOLUME UP (▲)" or "VOLUME DOWN (▼)" button until you obtain the desired sound level.

Variation of the volume is displayed at the upper part of the screen and by the color bar.

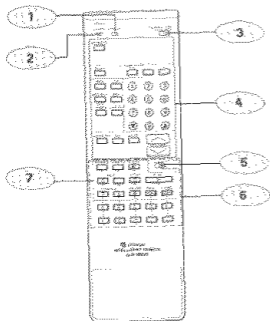


## How to use the learning function.

- This remote transmitter is provided with a learning function. It can control not only the TV set or the VCR, but also other manufacturer's equipment which has an Infra-Red remote transmitter, using the codes of their remote transmitters.
- Only infrared remote control codes can be stored in memory.

### Before starting the memory operation

- Since the infrared signals sent from the remote transmitter may be reflected by a wall, door, etc., even if the transmitter is not pointed directly at the device, it may operate. When storing the remote control codes of another device, turn off the power of the device. (VCR, Cable Converter, etc.) If you do not do this, the device may work unexpectedly; the power could be turned on, an important tape could be erased, the volume could increase too much, etc.



Intelligent remote transmitter

### 3 LEARN/USE select switch

This selects the memory (learn) mode and normal use mode.

Set this switch to "USE" position for normal use.

### 4 Exclusive TV buttons

These cannot "learn" the codes of other remote transmitters.

See page 17 for more detail.

### 5 SYSTEM 1/SYSTEM 2 select switch

### 6 Learnable buttons

These buttons can "learn" the codes of other remote transmitters. By selecting the SYSTEM 1/SYSTEM 2 select switch, 21 times 2 for a total of 42 remote control function codes can be stored in memory.

### 7 Buttons for VCR (Can be used for other equipment)

These buttons are recommended for use with VCR exclusively with both SYSTEM 1 and SYSTEM 2 modes. The specified control codes for the VCR have been stored in memory in the SYSTEM 1 mode. However, if your VCR cannot be operated by these codes, store the codes again using the learning function as shown on page 17 and after.

### 1 ERROR indication LED

Refer to page 17.

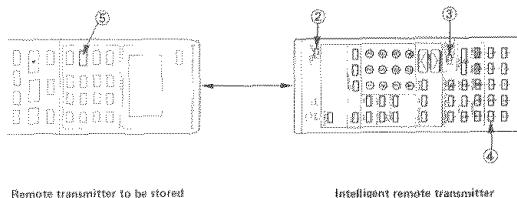
### 2 SEND/LEARN indication LED

Refer to page 17.



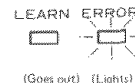
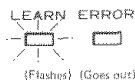
## Storing operation

1. Set the remote transmitters as shown below.  
(Distance should be 2-4 inches.)



2. Set the LEARN/USE select switch to "LEARN".
3. Set the SYSTEM 1/SYSTEM 2 select switch to either side.

4. One of the learnable buttons on the Intelligent remote transmitter.  
The LEARN indication LED flashes (for 7 seconds) at this time. Start step (5) while it is flashing. If the ERROR light is also on, it indicates a code is already memorized.



This means that a code has been stored in this key previously.  
If you wish to store a new code proceed with step 5.

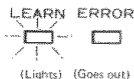
This means that a Non-learnable key has been pressed or that  
two or more keys have been pressed simultaneously.

5. Press the button the code of which is to be stored on the other remote transmitter.  
The LEARN and ERROR indicator LEDs light at this time.  
Press the key continuously until these go out then release the buttons.

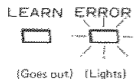


LED indication during storing  
(Press the key continuously until the LEDs go out.)

6. The LEARN LED will light for 2 seconds confirming that storing has been properly completed.



When storing has been performed correctly, the LEARN LED lights for about 2 seconds.



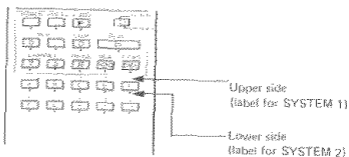
If the storing was not done correctly, the ERROR LED lights for about 2 seconds.

If the ERROR LED lights, repeat from step 4.

**Note:** If storing is not completed correctly after two attempts it is possible the remote control uses transmission codes which cannot be stored.

7. Set the LEARN/USE select switch to "USE" and check that the key to which the code is stored operates correctly.
8. Repeat steps 3 to 7 to store other keys.

9. To remember the stored codes, it is convenient to paste the provided labels (users label) on the keys. Use the labels with blue letters for SYSTEM 1 and with green letters for SYSTEM 2. If the code is stored in SYSTEM 1, select the label from those with blue letters and paste it on the upper side of the button. If the code is stored in SYSTEM 2, select the label from those with green letters and paste it on the lower side of the button. If you do this, the two systems can be differentiated easily. If the letters to be entered are not provided, it is possible to write these letters on the empty label with a ball-point pen, etc.



#### Caution on batteries

- This intelligent remote transmitter shows that it is operating by the SEND indicator LED lighting when a key is pressed.
- When a key is pressed, if the SEND indicator LED (in common with LEARN indicator LED) does not light or if the remote control operation becomes extremely slow, these show that the battery should be replaced.
- Even if the batteries are exhausted, do not take out them until you have new ones ready to put in.
- If the remote control is left with its batteries removed, the transmission codes stored in memory are erased within a few minutes. So, when the batteries are to be replaced, prepare new ones first.

## TRANSMITTER BATTERY INSTALLATION AND REPLACEMENT

Open the battery cover of the Remote Control unit by pushing the notched part of the cover with your finger.

- Push the batteries towards the springs and lift them out.
- Replace old batteries with four new "AA" size batteries.
- Match the (+) and (-) marks in the battery compartment.
- Replace the cover.



## CAUTIONS

- If your television set is to remain unused for a period of time, for instance, when you go on a vacation, unplug the television set from the wall outlet.
- Do not subject the Remote Control to shocks such as dropping it on the floor, etc. Precision parts may be damaged.
- Avoid placing the Remote Control in a place with high humidity or getting it wet. Don't leave it on or near a heater. Excess heat or moisture may cause the unit to cease operation.
- If the batteries become exhausted, Remote Control operation may become erratic or stop altogether. Replace the old batteries with four fresh "AA" batteries.

## NOTES

- When the power button is set to OFF, the OFF TIMER is released.
- To operate your TV, point the Remote Control unit at the remote sensor of the TV. To operate your VCR, point it at the remote sensor of the VCR.
- Refer to the instruction manual of the VCR for operation of the buttons exclusively for the VCR.
- Please keep the original remote control transmitter even when transmission codes have been stored in the intelligent remote control transmitter. If the intelligent remote control transmitter is left with its batteries removed, the transmission codes stored in its memory are erased.
- When the sound is disturbed by noise during stereo broadcasting, increase the relative level of low frequency sound using BASS/TREBLE controls, or turn OFF the SURROUND button.
- You cannot get the surround effect if the STEREO/MONO switch is set to MONO, even with a stereo broadcast, or if a monaural broadcast is received.

# STEREO SOUND

## Broadcast Stereo Sound

You're ready to enjoy this new dimension in television with your Projection TV. Your TV is fully capable of reproducing stereo sound from broadcast TV stations transmitting stereo sound in your area. No modifications are necessary. The TV's twin-amplifiers and built-in speaker system are designed to receive and process the full spectrum of broadcast TV stereo sound.

When the STEREO/MONO switch is in the STEREO position, the TV is ready for stereo reception. When a stereo program is received, the STEREO light will come on, and the TV will automatically produce true stereo.

In some fringe viewing areas, the stereo signal may not be strong enough for quality reception. The signal may drift or the reproduction may become noisy. Should that occur, place the STEREO/MONO switch in the MONO position to switch the circuitry to the monaural mode to produce cleaner sound. When the STEREO/MONO switch is in the MONO position, the STEREO, SA lights will go off.

## Second Audio Program (SAP)

- When stereo signals are transmitted, your TV has the provisions for true two-channel stereo plus a third sound channel (SAP). SAP audio is often used by TV stations to transmit bilingual sound tracks for foreign movies or include additional commentaries to programs.
- The SA switch can be preset so that whenever a Second Audio Program is being broadcast, the TV will automatically reproduce it.
- When the SA button is pressed with the STEREO/MONO switch set to the STEREO position, the TV is ready for SAP signal reception.
- The SA light will come on whenever a SAP signal is received. If a SAP signal is not being received, the SA light stays off, and the TV reproduces normal audio.



### STEREO/MONO switch

- Turn right for STEREO and SA reception.
- Turn left for MONO.

### SA button

- Push to activate. (SA light will come on, if SAP signal is present.)
- Push again to deactivate. (SA light will go off.)

### STEREO light on

STEREO/MONO switch is in STEREO position and stereo audio is being received.

### STEREO light off

Stereo audio is not being broadcast or STEREO/MONO switch is in MONO position.

### SURROUND light on

The surround button on the remote control transmitter is pressed to switch the light on. When a stereo broadcast is received, the sound from both the left and right is expanded to obtain the feeling of being surrounded by the sound.

### SURROUND light off

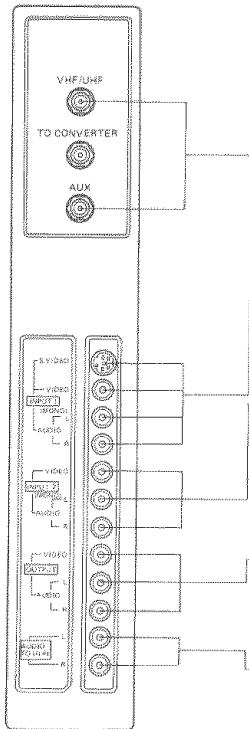
The SURROUND button on the remote control transmitter is pressed again to switch the light off. When there is a high level of noise during a stereo broadcast, turn it off.

### SAP light on

Second Audio Program (SAP) is being received.

### SAP light off

Second Audio Program (SAP) is not being broadcast, or STEREO/MONO switch is in MONO position.



### Multiple Antenna Inputs

Two separate 75-ohm RF antenna inputs (VHF/UHF and AUX) are addressable by remote control. Allow simple connection and switching among TV reception, video game, pay-TV decoder, etc. Information about using the jack labeled CONVERTER is on page 5.

### INPUT 1 Jacks

Provide for direct connection of video devices (like VCRs) or compatible home computers and TV games with video/audio outputs.

When an S-VHS system VCR is used, connect to the S-VIDEO terminal and set the VIDEO1. VIDEO/S-VIDEO switch on the control panel.

#### Note:

Video devices connected to INPUT1 jacks can be addressed by pressing the FUNC button (or AVX button on the remote control transmitter) on the TV until function mode VIDEO: 1 or VIDEO: 1 appears in the on-screen display. [S-IN]

### INPUT 2 Jacks

Provide for direct connection of video devices (like VCR's) or compatible home computers and TV games with video/audio outputs.

#### Note:

Video devices connected to INPUT2 jacks can be addressed by pressing the FUNC button on the TV until function mode VIDEO: 2 appears in the on-screen display.

### OUTPUT Jacks

Provide video and fixed-level audio output from whatever is displayed on the TV. Provide standard audio and video signals suitable for recording.

### AUDIO TO HI-FI

Feed variable audio output from whatever is displayed on the TV. Audio volume level can be controlled from TV or from Remote Control.

## Video and Audio Connectors

Most video/audio connections between components can be made with shielded video and audio cables that have phono connectors. For best performance, video cables should use 75-ohm coaxial shielded wire. Cables are available from electronics supply houses. Below are illustrations and names of common connectors.

Before purchasing any cables, be sure of the output and input connector types required by the various components. Also make sure how long the cable should be. The monitor audio and video inputs and outputs are all designed for phono connectors.



**"F"-Type 75-ohm Coaxial Antenna Connector**  
For connecting RF signals (antenna or cable TV) to the 75-ohm jack on the Monitor's antenna block.



**Phono Connector**  
Used on all standard video and audio cables which connect to inputs and outputs located on the Monitor's Interface Connection Panel.

### Before Operating External Video Source . . . . .

The input mode is changed over every time the "FUNC" button (or "AVX" button of the remote control) is pressed. "Channel No.," "VIDEO:1" or "VIDEO:2" is indicated on the screen. (Refer to Fig. 1.)



Fig. 1

## Computers and Other Equipment with Audio/Video Outputs

Your TV can also be used as a display device for many video games and home computers. If your game or computer has a normal NTSC (American Standard) VIDEO output, it can be connected directly to either the INPUT 1 or INPUT 2 jacks on the TV as shown here.

If the computer or other device has monaural audio output (only one AUDIO OUT jack instead of L and R), connect it to the TV's L/MONO jack. This will enable the TV to reproduce the sound through both the left and right speakers.

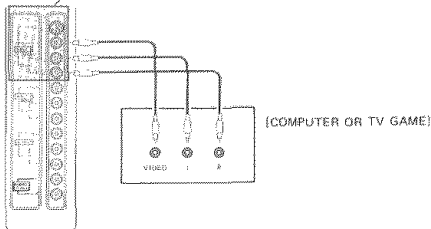
### To View Signals From Computer

If you connected the computer to the TV's INPUT 1 jacks, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 1" appears. This will switch the TV to the INPUT 1 jacks so you can see and hear whatever signals are coming from the computer.

If you connected the computer to the TV's INPUT 2 jacks, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 2" appears. This will switch the TV to the INPUT 2 jacks so you can see and hear whatever signals are coming from the computer.

The channel number "VIDEO: 1" disappears automatically after approx. 4 seconds.

If the INPUT 1 jacks already have another component connected to them, you can connect the computer to the INPUT 2 jacks.



[Back of TV]



## Surveillance Systems

The TV can also be used in home or business as a surveillance system to monitor the output of video cameras.

### Installation

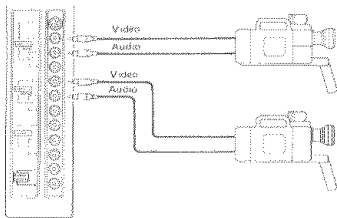
- If your camera has compatible cables, these will connect directly to the audio/video jacks on the TV. If the plugs are not compatible, adapters are available from electronic supply stores.
- Connect the output of each camera to the desired VIDEO jacks on the TV. Connect each camera's Audio cable to the corresponding audio jack labeled L/MONO so the sound will come through both channels.

### To View Signals From Cameras

If the camera is connected to the INPUT 1 jacks, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 1" appears.

If the camera is connected to the INPUT 2 jacks, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 2" appears.

The channel number "VIDEO: 1" disappears automatically after approx. 4 seconds.



[Back of TV]

## Audio Amplifier

- If your stereo amplifier is not part of a "system" that has its own remote, connect it to the TV as shown here.

**Note:** If the stereo amplifier is part of a system that has its own remote, you may choose to connect it to the TV using the OUTPUT "L" and "R" jacks.

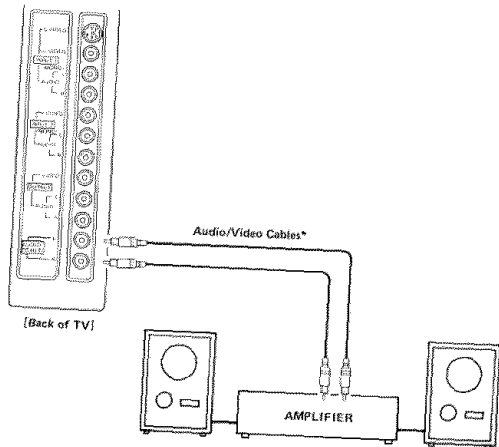
- With the connection shown here, you'll be able to change and mute volume with the TV's remote control.

### Connection:

- Connect the "L" and "R" AUDIO TO HI-FI jacks to the corresponding input jacks on the stereo amplifier. Do not connect the TV to the PHONO input jacks of your amplifier as this will result in distorted sound. If your amplifier is not stereo (mono), connect it to the TV's jack labeled "L".
- Consult the amplifier's owner's manual for the manufacturer's recommended hookup.

### Operation:

- Turn off TV's internal speakers.
- Adjust the amplifier for normal listening.
- Then control sound with the VOLUME and MUTE buttons on the TV's remote.



## COMPONENT CONNECTIONS

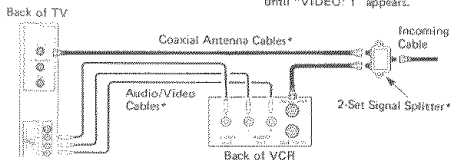
### VCR

#### Preferred Method

Shown here is the preferred method of connecting a VCR to your TV. This method uses a 2-set signal splitter to run separate signals to the VCR and TV. This way you can view either TV programs or VCR tapes and not be concerned about the position of the VCR's TV/VCR switch.

**Note:** The audio/video connections from the VCR to the TV are required in order for you to watch tapes being played by the VCR.

**Operation:**  
If the VCR is connected to INPUT 1 jacks as shown, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 1" appears.

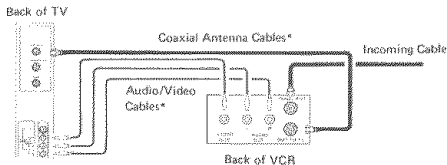


#### Alternative Method

Shown here is a simplified method of connecting a VCR to your TV. The preferred method (using a 2-set signal splitter) is shown above. On many VCRs, turning them on causes the VCR's TV/VCR switching to disconnect the antenna signals from the TV. By using a signal splitter to run separate signals to the VCR and TV, you can view TV programs or VCR tapes and not be concerned about the position of the VCR's TV/VCR switch.

**Note:** The audio/video connections from the VCR to the TV are optional; however, these additional connections usually produce a better-quality picture during VCR playback. These connections are required, however, for stereo playback from stereo VCRs.

**Operation:**  
If the VCR is connected to INPUT 1 jacks as shown, press the "FUNC" button on the TV (or "AVX" button of the remote control transmitter) until "VIDEO: 1" appears.



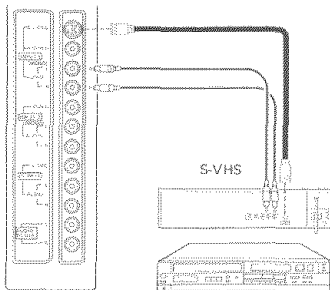
\* Optional accessories are available from electronic supply stores.

## CONNECTING TO S-VHS (High Quality picture VCR)

1. Connect the cable from the S-VIDEO OUT terminal on the S-VHS VCR to the S-VIDEO INPUT 1 socket on the back of the TV set.
2. Set the VIDEO 1 switch on the front of the TV set to "S-VIDEO".
3. Press the FUNC button (or AVX button on the remote control transmitter) on the front of the TV set to display function mode "VIDEO 1".  
[S-IN]
4. Press the FUNC button (or AVX button) several times to return to the previous channel.

The indication with automatically disappears after approx. 4 seconds.

[Back of TV]



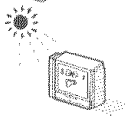
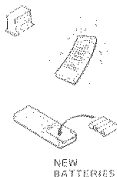
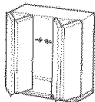
# CARE OF YOUR PROJECTION COLOR TV AND REMOTE CONTROL

## DO

- Dust the screen and cabinet with a soft cloth.
- Clean the screen with a soft cloth moistened in warm water. Dry with a soft cloth. (A mild soap may be used if the screen is extremely dirty.)
- Place your TV and remote control away from extreme heat, high humidity and extremely dusty places.

## DO NOT

- Do not clean your screen or cabinet with strong cleaners, polishes or chemically treated cloth.
- Do not place rubber or vinyl products or cellophane tape on your set.
- Do not touch the screen too often.
- For maximum protection, the doors should be closed when you go to bed or leaving the TV unattended.
- Do not subject the Remote Control to shocks such as dropping it on the floor, etc. Physical damage to the precision parts may result.
- Avoid placing the Remote Control in a high humidity place or getting it wet. Don't leave it on or near a heater. Excessive heat or moisture may cause the unit to cease operation.
- If the batteries become exhausted, remote operation may become erratic or stop altogether. Replace the old batteries with four fresh "AA" size batteries.
- Be careful not to bump your head, etc., against the doors or catch your fingers or hand when opening/closing the doors.
- Exposure of the viewing screen to prolonged direct sunlight or heat may cause the screen to permanently warp resulting in a distorted picture.



## RECEPTION PROBLEMS (external to the TV)



• **IGNITION NOISE:**

Black spots or horizontal streaks may appear, picture may flutter or drift. Usually caused by interference from automobile ignition systems, neon lamps, electrical drills and other electrical appliances.



• **GHOSTS:**

Ghosts are caused by the television signal following two paths. One is the direct path and the other is reflected from tall buildings, hills or some other objects. Changing the direction or position of the antenna may improve reception. Ghosting may also be caused by defects in the antenna system such as unshielded leads or connecting several sets to the same antenna without using multiple antenna couplers.



• **SNOW:**

If your receiver is located in the fringe area of a television station where the signal is weak, your picture may be marred by the appearance of small dots. When the signal is extremely weak, it may be necessary to install a special antenna to improve the picture.



• **RADIO FREQUENCY INTERFERENCE:**

The interference produces moving ripples or diagonal streaks, and in some cases, causes loss of contrast in the picture.