

# KV-1970R/1971R

## RM-717

## SERVICE MANUAL

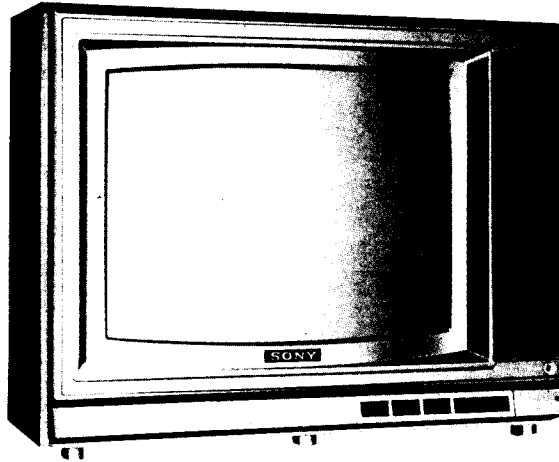
*US Model*

*KV-1970R*

*Chassis No. SCC-548A-A*

*KV-1971R*

*Chassis No. SCC-548B-A*



March, 1984

# P3 CHASSIS

### SPECIFICATIONS

Television system	American TV standards
Channel coverage	VHF: 2-13 UHF: 14-69 Cable TV: 1-125
Picture tube	Trinitron tube <b>19-inch picture measured diagonally</b> 20-inch picture tube measured diagonally
Hit (RF) connector	Auxiliary RF input for VHF channels 2-6 75-ohm (F-type)
Output	MPX output (phono jack) 77.5 mVrms Load impedance 10 kilohms (main channel, 1 kHz, 100% modulation)
Power requirements	120 V AC, 60 Hz
Power consumption	120 W (max.), 78 W (average) 6 W (in standby condition)
Dimensions	KV-1970R Approx. 609 × 479.5 × 472 mm (w/h/d) KV-1971R Approx. 625 × 487.5 × 472 mm (w/h/d)
Weight	KV-1970R Approx. 24.3 kg KV-1971R Approx. 25.1 kg
Accessories supplied	Remote Commander RM-717 with 2 size AA batteries Earphone Phono-F plug adaptor EAC-88

Design and specifications subject to change without notice.



# TRINITRON® COLOR TV

# SONY®

CTV


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**WARNING!!**

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

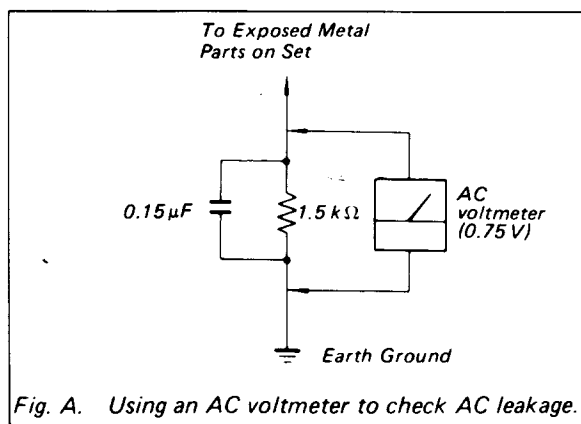
**SAFETY-RELATED COMPONENT WARNING !!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).  
Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.



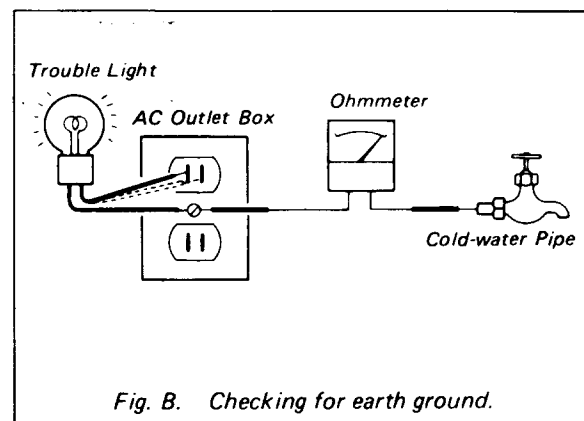
## LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

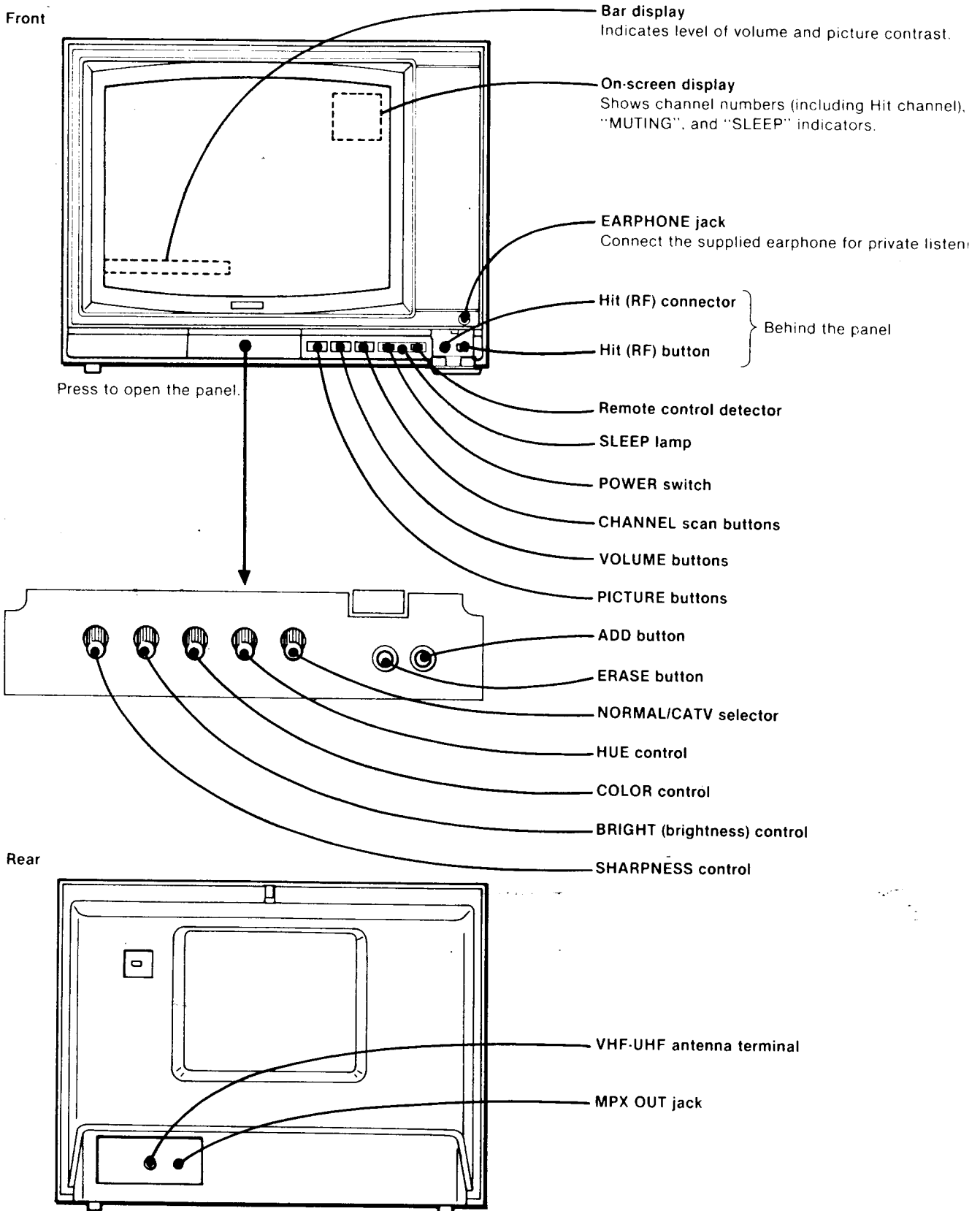
## HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)



**SECTION 1**  
**GENERAL**

**1-1. LOCATION OF CONTROLS**

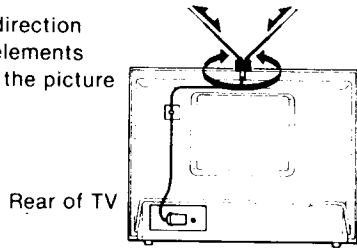


## 1-2. SET-UP

### INDOOR ANTENNA ADJUSTMENT

For VHF/UHF reception, use the attached telescopic dipole antenna.

Adjust the length, direction and angle of both elements symmetrically until the picture is clearest.



The indoor telescopic dipole antenna will provide good reception in most areas.

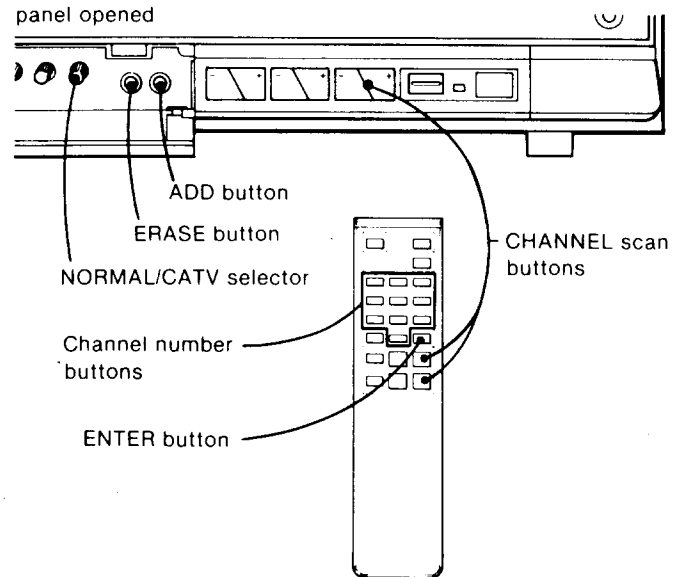
## 1-3. OPERATION

### PICTURE ADJUSTMENTS

Satisfactory results will usually be obtained with the controls set at the normal center or center detent position. If any adjustments are necessary, turn the controls as follows.



## 1-4. PRESETTING CHANNELS



Receivable channels of your set are:

VHF: 2-13

UHF: 14-69

CATV: 1-125

By adding and erasing channels, you can preset your TV so that only the desired channels appear in sequence when CHANNEL +/- is pressed.

### PREPARATION

1. Turn on TV.
2. Set the NORMAL/CATV selector to the proper mode.  
For VHF and UHF channels: NORMAL  
For cable TV channels: CATV

### ADDING CHANNELS

1. Select the channel to be added by pressing the channel number buttons and then ENTER.
2. Press ADD.  
A "+" indication will appear on the left of the channel display on the screen, indicating that the channel has been included in the proper numerical sequence when you press CHANNEL +/- . Repeat steps 1 and 2 for other channels to be added.

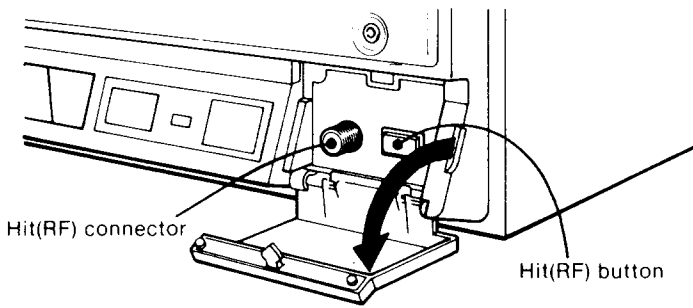
### ERASING CHANNELS

1. Select the channel to be erased.
2. Press ERASE.  
A "-" indication will appear on the left of the channel display on the screen, indicating that the channel has been erased. When CHANNEL +/- is pressed, you will see that the channel is skipped over in the numerical sequence. Repeat steps 1 and 2 for other channels to be erased. To add erased channels again, follow the steps in "ADDING CHANNELS".

#### Note

You cannot erase a VHF or UHF channel from the memory and retain the cable TV channel which has the same number, or vice versa. If either a VHF/UHF channel or a cable TV channel with the same number is to be kept in the memory, do not erase the number.

**1-5. HIT (RF) CONNECTOR USAGE**



**What is the Hit (RF) connector?**

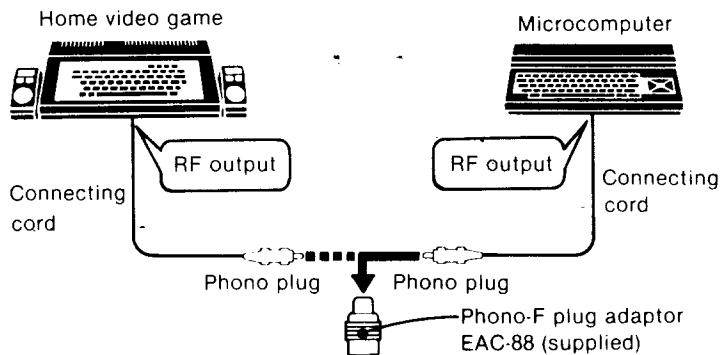
"Hit" is an abbreviation of Home Interface Terminal. Hit (RF) connector is an auxiliary RF input (F-type) which may be used for easy connection of a home video game, a portable VCR or a microcomputer. To view the picture generated by the connected equipment, simply press the Hit (RF) button. You can enjoy the TV set as a display terminal for the connected equipment.

**Caution**

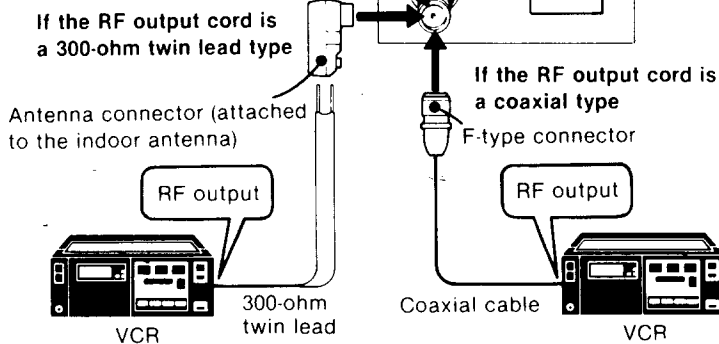
Unplug the TV and other equipment from the wall outlet before making the connections.

**CONNECTION**

**Connection of a home video game or a microcomputer**



**Connection of a portable VCR**



**Connection of a stationary VCR**

Connect the VCR to the antenna terminal of the TV and connect the outdoor antenna only to the VCR.

**Notes**

- Keep the VCR away from the TV, if the display or sound is affected.
- If the microcomputer has been placed on or too close to the TV set, noise will appear on the screen. Keep the microcomputer an appropriate distance away so that the picture appears clear.
- The connection of a microcomputer sometimes causes distorted and noisy pictures. In this case, readjust the controls located in the front panel. When you go back to watching a TV program, readjust the controls again.
- The picture quality obtained by connection to the Hit (RF) connector on the front of the TV and to the antenna terminal on the back is almost the same.
- While watching the TV, when the RF output of equipment connected to the Hit (RF) connector is too close to TV broadcasting frequencies, interference will occur. In this case, readjust the output frequency of the equipment.

**TO SET THE HIT CHANNEL**

The Hit (RF) connector is available for equipment that can deliver an RF signal between VHF channels 2 through 6. The first time the Hit (RF) button is pressed, VHF channel 3 is memorized to be selected. If the output channel of the equipment to be connected is not channel 3, add its own output channel following the instructions in "ADDING CHANNELS" on page 5.

**TO DISPLAY PICTURES FROM THE CONNECTED EQUIPMENT**

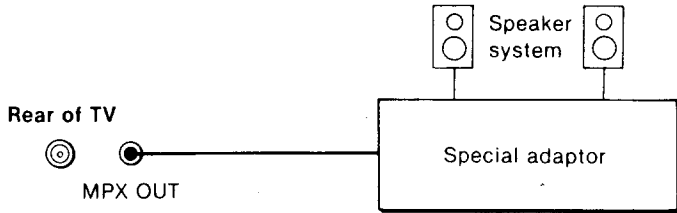
1. Press Hit (RF) button. "Hit" and channel indication will appear on the screen.
2. Select the Hit channel adjusted to match the output of the connected equipment.

To go back to TV programs, press Hit (RF) again.

**1-6. MPX OUT JACK USAGE**

**Caution**

Before connecting, make sure that the power to each piece of equipment is turned off.



Connect to the MPX OUT jack an optional special adaptor for any future multichannel TV sound (stereo or bilingual) broadcasts.

**1-7. OUTDOOR ANTENNA/CABLE CONNECTION**

If you cannot obtain satisfactory reception with the dipole antenna, using an outdoor antenna may be necessary.

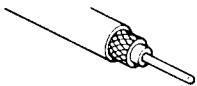
Cable TV reception is only possible by connecting a cable supplied by your local cable operator.

- 1 Remove the indoor antenna from the antenna terminal of the TV.
- 2 Prepare the antenna or cable end using the appropriate connector, and connect the antenna or cable to the antenna terminal of the TV. (See A or B below.)

**A Combination VHF/UHF antenna, \* VHF antenna, UHF antenna or CATV cable**

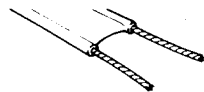
Select the proper connector according to the cable type.

**When the cable is a 75-ohm coaxial type (round)**

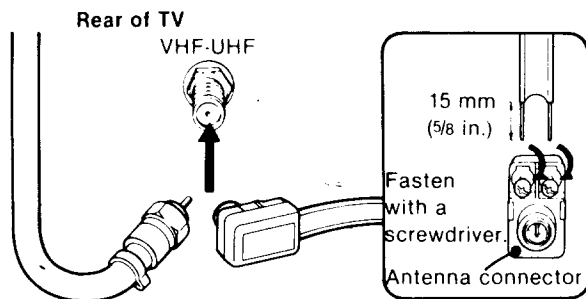


Use an optional F-type connector.

**When the cable is a 300-ohm ribbon type lead-in (flat)**



Attach the antenna connector which was fixed to the indoor antenna.

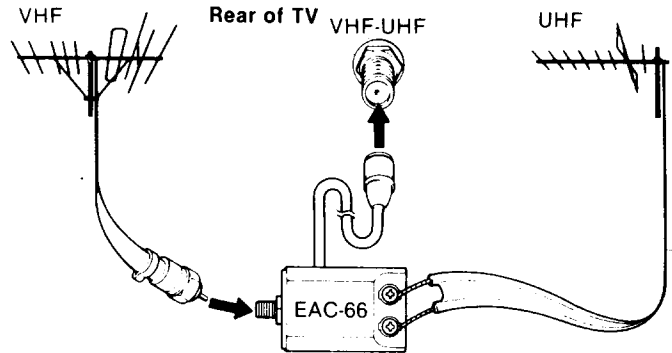


\* Most combination antennas are equipped with a signal splitter. Take off the splitter and attach the proper connector.

**B When both VHF and UHF antennas are connected**

Prepare the VHF antenna end using the appropriate connector as illustrated in A.

Attach an optional EAC-66 U/V mixer to the TV antenna terminal, and connect the cables to the U/V mixer.



**Note**

When the cable is connected to the TV with the U/V mixer, snow and noise may appear in the pictures of the cable TV channels over 37 (W + 1).