

SERVICE MANUAL

AA-2W CHASSIS

<u>MODEL</u>	<u>DEST.</u>	<u>COMMANDER</u>	<u>CHASSIS NO.</u>
KV-32FS10	U.S.	RM-Y168	SCC-S32B-A
KV-32FS10	CND	RM-Y168	SCC-S33B-A
KV-36FS10	U.S.	RM-Y168	SCC-S32C-A
KV-36FS10	CND	RM-Y168	SCC-S33C-A
KV-32FV15	U.S.	RM-Y171	SCC-S32D-A
KV-32FV15	CND	RM-Y171	SCC-S33D-A
KV-34FV10	E	RM-Y168	SCC-S34E-A
KV-34FV15	E	RM-Y171	SCC-S34F-A
KV-34FV15C	E	RM-Y171	SCC-S34G-A
KV-34FV15K	KOREA	RM-Y149A	SCC-S31B-A
KV-34FV15T	TAIWAN	RM-Y171	SCC-S36A-A
KV-36FV15	U.S.	RM-Y171	SCC-S32G-A
KV-36FV15	CND	RM-Y171	SCC-S33G-A
KV-38FV15K	KOREA	RM-Y149A	SCC-S31C-A
KV-34FX250C	E	RM-Y170	SCC-S34H-A
KV-38FX250	E	RM-Y170	SCC-S34M-A
KV-38FX250C	E	RM-Y170	SCC-S34J-A
KV-38FX250T	TAIWAN	RM-Y170	SCC-S36B-A
KV-32XBR250	U.S.	RM-Y170	SCC-S32E-A
KV-32XBR250	CND	RM-Y170	SCC-S33E-A
KV-36XBR250	U.S.	RM-Y170	SCC-S32F-A
KV-36XBR250	CND	RM-Y170	SCC-S33F-A



KV-36XBR250



RM-Y170



TRINITRON® COLOR TV
SONY®

SPECIFICATIONS

	KV-32FS10	**KV-32FV15 *KV-32XBR250	**KV-34FV10 **KV-34FV15 **KV-34FV15C **KV-34FV15K **KV-34FV15T *KV-34FX250C	KV-36FS10	**KV-36FV15 *KV-36XBR250	**KV-38FV15K *KV-38FX250 *KV-38FX250C *KV-38FX250T
Power Requirements	120V,60Hz	120V,60Hz	120-220V,50/60Hz	120V,60Hz	120V,60Hz	120-220V,50/60Hz
Number of inputs/outputs						
Video 1)	3	3	3	3	3	3
S Video 2)	2	2	2	2	2	2
Y, PB, PR 3)	1	1	1	1	1	1
Audio 4)	3	3	3	3	3	3
Audio Out 5)	1	1	1	1	1	1
Monitor Out	1	1	1	1	1	1
TV Out 1) 4)	1	*1/**-	*1/**-	-	*1/**-	*1/**-
S-Link	-	YES	YES	-	YES	YES
Speaker output (W)	10W x 2	15W x 2	15W x 2	10W x 2	15W x 2	15W x 2
Power Consumption (W)						
In use (Max)	190W	200W	200W	190W	200W	200W
In Standby	2W	2W	2W	2W	2W	2W
Dimensions (W/H/D)						
(mm)	882 x 687 x 592 mm			975 x 757 x 633 mm		
(in)	34 3/4 x 27 x 23 1/4 in			38 3/8 x 29 13/16 x 24 15/16 in		
Mass						
(kg)	80 kg			107 kg		
(lbs)	176 lbs			236 lbs		

Television system

American TV standard, NTSC

Channel coverage

VHF:2-13 / UHF:14-69 / CATV:1-125

Picture tube

FD Trinitron® tube

Visible screen size

32-inch picture measured diagonally (KV-32FS10, 32FV15, 32XBR250, 34FV10, 34FV15, 34FV15C, 34FV15K, 34FV15T, 34FX250C)
36-inch picture measured diagonally (KV-36FS10, 36FV15, 36XBR250, 38FX250, 38FX250C, 38FX250T, 38FV15K)

Actual screen size

34-inch picture measured diagonally (KV-32FS10, 32FV15, 32XBR250, 34FV10, 34FV15, 34FV15C, 34FV15K, 34FV15T, 34FX250C)
38-inch picture measured diagonally (KV-36FS10, 36FV15, 36XBR250, 38FX250, 38FX250C, 38FX250T, 38FV15K)

Antenna

75 ohm external antenna terminal for VHF/UHF

Supplied accessories

Remote control RM-Y149A (KV-34FV15K, 38FV15K)
Remote control RM-Y168 (KV-32FS10, 34FV10, 36FS10)
Remote control RM-Y170 (KV-32XBR250, 34FX250C, 36XBR250, 38FX250, 38FX250C, 38FX250T)
Remote control RM-Y171 (KV-32FV15, 34FV15, 34FV15C, 34FV15T, 36FV15)
Battery size AA (R6) w/2

Notes:

- 1) 1 Vp-p 75 ohms unbalanced, sync negative
- 2) Y: 1 Vp-p 75 ohms unbalanced, sync negative
C: 0.286 Vp-p (Burst signal), 75 ohms
- 3) Y: 1.0 Vp-p, 75 ohms, sync negative; PB: 0.7 Vp-p, 75 ohms;
PR: Vp-p, 75 ohms
- 4) 500 mVrms (100% modulation), Impedance: 47 kilohms
- 5) More than 408 mVrms at the maximum volume setting (variable)
More than 408 mVrms (fix); Impedance (Output): 2 kilohms

Optional accessories

Connecting Cables:

RK-74A, VMC-810/820/830HG, VMC-10HG/30HG,
VMC-720M, VMC-810S/820S, YC-15V/30V,
YC-15/30HG, RK-G69HG, RKC-515HG
TV Stand: SU-32FD2, SU-36FD2, SU-32XBR2,
SU-36XBR2

UV Mixer: EAC-66

(●)® SRS (SOUND RETRIEVAL SYSTEM)

The (●) SRS (SOUND RETRIEVAL SYSTEM) is manufactured by Sony Corporation under license from SRS Labs, Inc. It is covered by U.S. Patent No. 4,748,669. Other U.S. and foreign patents pending.

The word 'SRS' and the SRS symbol (●) are registered trademarks of SRS Labs, Inc.

BBE and BBE symbol are trademarks of BBE Sound, Inc. and are licensed by BBE Sound, Inc. under U.S. Patent No. 4,638,258 and 4,482,866.

Design and specifications are subject to change without notice.

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WARNINGS AND CAUTIONS


CAUTION!

AFTER REMOVING THE ANODE, SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT.

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 FOR 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 FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.


ATTENTION!

APRES AVOIR DECONNECTE LE CAP DE L'ANODE, COURT-CIRCUITER L'ANODE DU TUBE CATHODIQUE ET CELUI DE L'ANODE DU CAP AU CHASSIS METALLIQUE DE L'APPAREIL, OU AU COUCHE DE CARBONE PEINTE SUR LE TUBE CATHODIQUE OU AU BLINDAGE DU TUBE CATHODIQUE.

ATTENTION!!

AFIN D'EVITER TOUT RESQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

LES COMPOSANTS IDENTIFIES PAR UNE TRAME ET PAR UNE MARQUE  SUR LES SCHEMAS DE PRINCIPE, LES VUES EXPLOSEES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMERO DE PIECE EST INDIQUE DANS LE PRESENT MANUEL OU DANS DES SUPPLEMENTS PUBLIES PAR SONY. LES REGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SECURITE DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRESENT MANUEL. SUIVRE CES PROCEDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT SUSPECTE.

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 cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. 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 microampere). 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 instructions.
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's 250 and Sanwa SH-63Trd are examples of passive VOMs that are 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)

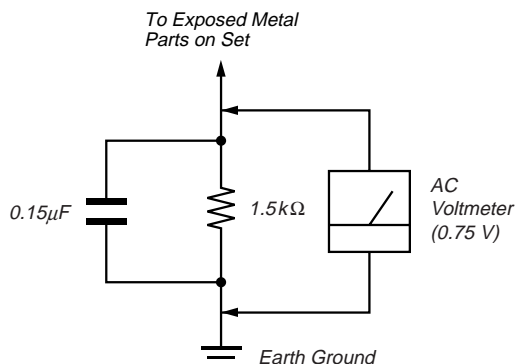


Fig. A. Using an AC voltmeter to check AC leakage.

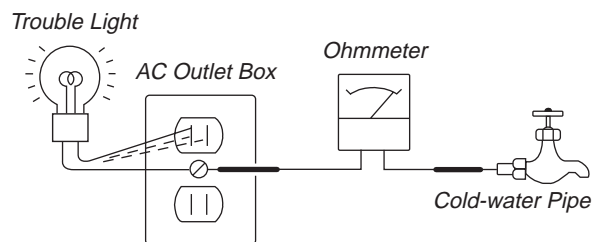


Fig. B. Checking for earth ground.

The instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers shown reflect those of the Operating Instruction Manual.

Connecting and Installing the TV

Making Connections

Refer to the table below, it will direct you to the diagram suitable to the equipment you will be connecting.

If you will be connecting	See page
Cable or antenna only	3
Cable and antenna	3
Cable box	4
Cable box and cable to view scrambled channels	4
VCR and cable or antenna	5
VCR and cable box	5
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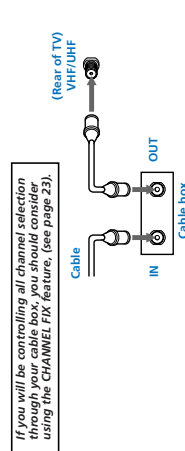
Connecting and Installing the TV (continued)

Cable Box Connections

Some pay cable TV systems use scrambled or encoded signals that require a cable box to view all channels.

Cable box

- 1 Connect the coaxial connector from your cable to the IN on your cable box.
- 2 Using a coaxial cable, connect OUT on your cable box to VHF/UHF on your TV.



Cable box and cable

For this set up, you can switch between scrambled channels (through your cable box), and normal (CATV) channels by pressing **ANT** on your remote control.

Notes

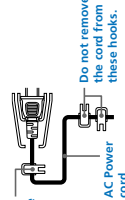
- Your Sony remote control can be programmed to operate your cable box (see page 31).
- When using PIP, you cannot view the AUX input in the window picture.



Tip

Pressing ANT switches between these inputs.

Note about the AC Power Cord

The AC power cord is attached to the rear of the TV with hooks. Use caution when removing the AC plug from its holder. Gently slide the cord in the upward direction, without removing the cord from the two lower hooks.



- A** • VHF only
• VHF/UHF
or
• Cable
- (Rear of TV)
VHF/UHF
- 75-ohm coaxial cable
- 
- B** • VHF only
• UHF only
or
• VHF/UHF
- (Rear of TV)
VHF/UHF
- 300-ohm twin lead cable
- Antenna connector
- 

Cable or Antenna Connections

Connecting directly to cable or an antenna

The connection you choose will depend on the cable found in your home. Newer homes will be equipped with standard coaxial cable (see **A**); older homes will probably have 300-ohm twin lead cable (see **B**); still other homes may contain both (see **C**).

VCR Connections

Connecting an antenna/cable TV system with a VCR

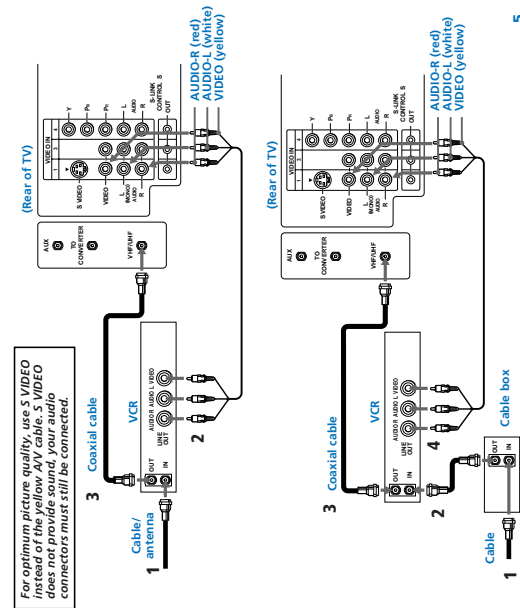
- 1 Attach the coaxial connector from your cable or antenna to IN on your VCR.
- 2 Using A/V connectors, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.
- 3 Using a coaxial connector, connect OUT on your VCR to VHF/UHF on your TV.

Tip The `get` method is used to retrieve the value of a property from an object.

If you are connecting a monaural VCR, connect only the single white audio output to the left input on your TV.

Connecting a VCR and TV with a cable box

- 1 Connect the coaxial cable from the wall to IN on your cable box.
- 2 Using a coaxial connector, connect OUT on your cable box to IN on your VCR.
- 3 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to VHF/UHF on your TV.
- 4 Using A/V connectors, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.

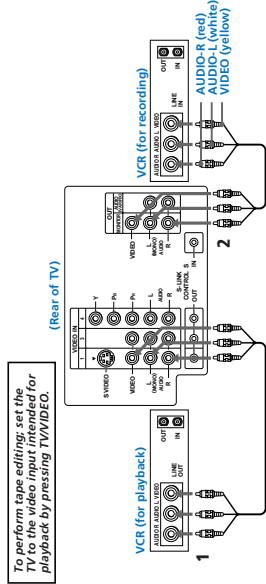


Connecting two VCRs for tape editing

MONITOR OUT gives you the ability to use a second VCR to record a program being played by the primary VCR or to perform tape editing and dubbing.

- 1 Connect the VCR intended for playback using the connection instructions on page 5 of this manual.
- 2 Using A/V connectors, connect AUDIO and VIDEO IN on your VCR intended for recording to MONITOR AUDIO and VIDEO OUT on your TV.

Note
You cannot record signals from equipment connected to the Y, Pb, Pr input.



Connecting and Installing the TV (continued)

DVD Player Connections

Connecting a DVD Player

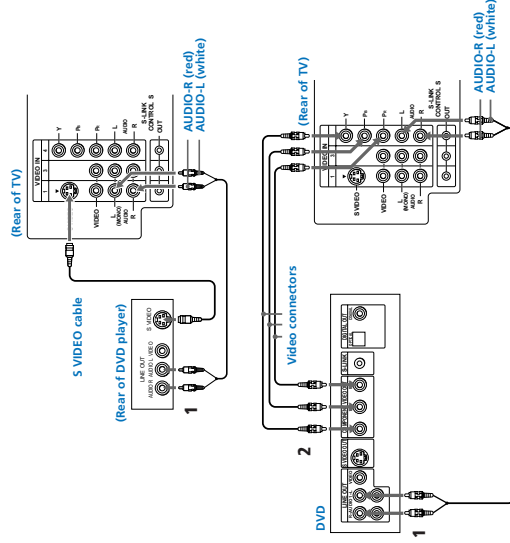
- 1 Using audio connectors, connect AUDIO OUT on your DVD player to AUDIO IN on your TV.
- 2 Using an S VIDEO cable, connect S VIDEO on your DVD player to S VIDEO on your TV.

Connecting a DVD Player with component video output connectors

Except KV-27FV15
This connection option offers the highest quality DVD picture.

- 1 Using AUDIO connectors, connect AUDIO R and L of the LINE OUT on your DVD player to AUDIO R and L on the VIDEO IN 4 panel at the rear of your TV.
- 2 Using three VIDEO connectors, connect Y, Pb, and Pr on the COMPONENT VIDEO OUT on your DVD player to Y, Pb, and Pr on the VIDEO IN 4 panel at the rear of your TV.

Note
Some DVD player terminals may be labeled Y, Cb, and Cr, or Y, B-Y, and R-Y. If so, connect them by matching the colors.



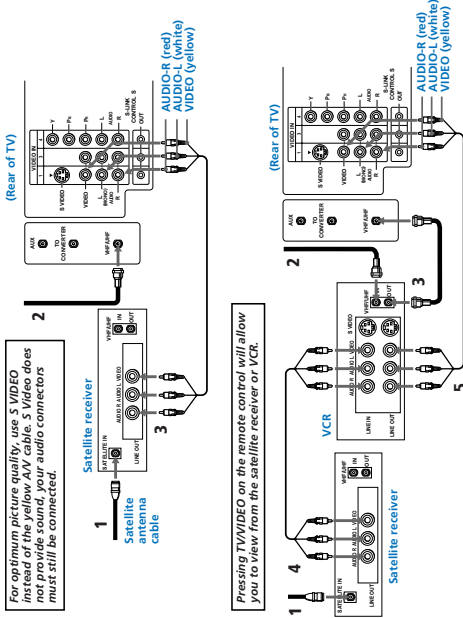
Satellite Receiver Connections

Connecting a satellite receiver

- 1 Connect the cable from your satellite antenna to SATELLITE IN on your receiver.
- 2 Attach the coaxial connector from your cable or antenna to VHF/UHF on your TV.
- 3 Using A/V connectors, connect AUDIO and VIDEO OUT on your receiver to AUDIO and VIDEO IN on your TV.

Connecting a satellite receiver and a VCR

- 1 Connect the cable from your satellite antenna to SATELLITE IN on your receiver.
- 2 Attach the coaxial connector from your cable or antenna to IN on your VCR.
- 3 Using a coaxial connector, connect OUT on your VCR to VHF/UHF on your TV.
- 4 Using A/V connectors, connect AUDIO and VIDEO OUT on your receiver to AUDIO and VIDEO IN on your VCR.
- 5 Using A/V connectors, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.



Additional Connections

Connecting an audio system

For an enhanced sound, connect your audio system to your TV.

- 1 Using AUDIO connectors, connect AUDIO OUT on your TV to one of the unused Line inputs (e.g. Tape-2, AUX1, etc.) on your stereo.
- 2 Set your stereo to the chosen Line input and use the AUDIO 2 menu to set your audio output. (see page 20).

Connecting a camcorder

This connection is convenient for viewing a picture directly from your camcorder.

Using A/V connectors, connect AUDIO and VIDEO OUT on your camcorder to AUDIO and VIDEO IN on your TV.

Tip ⚡

If you are connecting a monaural camcorder, connect only the single white audio output to the left input on your TV.

Connecting an AV receiver

- 1 Using A/V cables, connect TV OUT on your TV to TV IN on your A/V receiver.
- 2 Using A/V cables, connect A/V OUT on your receiver to VIDEO IN on your TV.

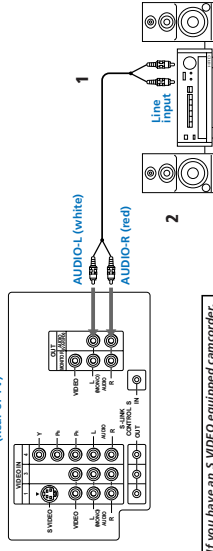
Note

If you will be connecting your A/V receiver to external speakers, you do not need to connect AUDIO OUT on your A/V receiver to AUDIO IN on your TV.

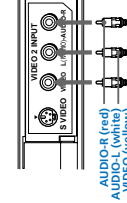
Tip ⚡

You may want to use CHANNEL FIX to fix your TV's input to the A/V receiver (VIDEO 1). (see "CHANNEL SET UP" on page 26)

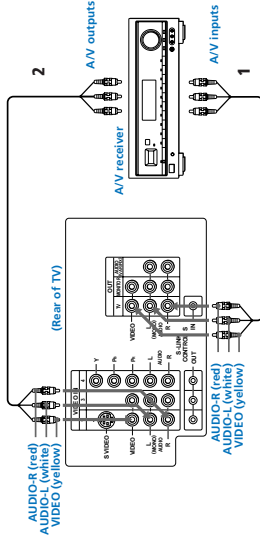
(Rear of TV)



If you have an S VIDEO equipped camcorder, you can use an S VIDEO cable for optimum picture quality.



9



9

Using Special Sony Features

Using the CONTROL S feature

CONTROL S allows you to control your TV and other Sony equipment with one remote control.

Using the supplied CONTROL S cable, connect CONTROL S IN on your Sony equipment (e.g. VCR) to CONTROL S OUT on your TV.



You can also program your remote control to operate other equipment (see page 34).

Using the Vertical Compression feature

These models use a feature called "vertical compression" to achieve maximum picture quality on widescreen sources, including selected DVDs. This feature compresses the height of each line for a higher resolution of the picture.

To enjoy this feature, set your Sony DVD player to 16:9 mode. The widescreen source will be automatically detected and displayed with maximum picture quality.

Basic Set Up

Inserting batteries

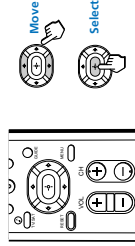
Insert two size AA (R6) batteries (supplied) by matching the + and - on the batteries to the diagram inside the battery compartment.



Notes

- Remove the batteries to avoid damage from possible battery leakage whenever you anticipate that the remote control will not be used for an extended period.
- Handle the remote control with care. Avoid dropping it, getting it wet, or placing it in direct sunlight, near a heater, or where the humidity is high.
- Your remote control can be programmed to operate most video equipment (see page 29).

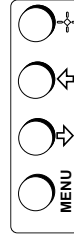
Using the remote control move & select buttons



The supplied remote control has "arrow" buttons (←, →, ↑, ↓) which allow for movement of the on-screen (▶) cursor. Pressing on the outer buttons will cause the cursor to *move* in the corresponding direction. Pressing the center-button (⊕) will *select* the item.

Front panel menu control

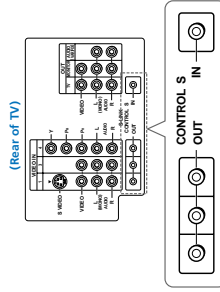
The front panel menu controls allow access to the on-screen menus without the use of a remote control. Pressing the MENU button will bring up the on-screen menus. The arrow buttons, (←, →) move the on-screen cursor in the menus and the (⊕) button selects the menu item.



Connecting S-Link to a VCR

KV-27FV15, 32FV15, 36FV15 only
S-Link automatically powers on the TV and switches to the correct video input when a tape is inserted in the VCR.

- Using A/V connectors, connect AUDIO and VIDEO OUT on your VCR to AUDIO and VIDEO IN on your TV.
- Using an S-Link connector (mono mini plug), connect S-LINK on your VCR to S-LINK/CONTROL S-OUT in the same VIDEO IN column on your TV.



Connecting S-Link to a satellite receiver

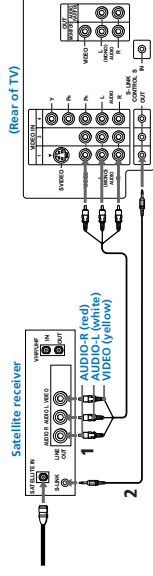
KV-27FV15, 32FV15, 36FV15 only
When you power on the satellite receiver, S-Link automatically powers on the TV and switches to the correct video input.

- Using A/V connectors, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your TV.
- Using an S-Link connector (mono mini plug), connect S-LINK on your satellite receiver to S-LINK/CONTROL S-OUT in the same VIDEO IN column on your TV.

Note

The S-Link feature will override the "SKIP" VIDEO LABEL input (see page 22).

The S-Link connector must be in the same VIDEO-IN column as the connected A/V cables.



11

11

Using Your New TV

Setting up the TV automatically

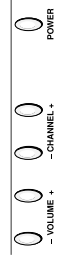
After you have finished connecting your TV, you will want to run AUTO PROGRAM to set up your channels.

The AUTO PROGRAM feature does not apply for installations that use a cable box for all channel selection.



- Perform this function during the day with the antenna and/or cable properly connected. To ensure that all available channels will be broadcasting and receivable.
- If your cable or antenna is connected to AUX, press ANT and AUX appears next to the channel number.

Using the buttons on the top of the TV:



- Press POWER to turn on the TV. The initial setup screen appears.



- Press CH + to run AUTO PROGRAM or press CH - to exit.



To reset your TV to factory settings, turn the TV on. Then, while pressing the RESET button on your remote control, press the POWER button on your TV. The TV will turn itself off, then back on.

12

13

Using Your New TV (continued)

Watching the TV

The following chart explains more advanced buttons on your remote control.

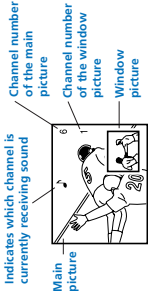
REFER TO THE ILLUSTRATION OF THE REMOTE CONTROL ON THE INSIDE FRONT COVER OF THIS MANUAL AS YOU REVIEW THIS CHART

Using the White Labeled Buttons for TV Operations	
POWER OFF (C)	Press when you want to turn connected equipment on and off.
FUNCTION (TV) (S)	Press when you want to control connected equipment with your remote control, (see pages 29-31 for instructions on programming your remote control).
VIDEO MODE (0-9)	Use for direct channel selection. Press 0-9 to select a channel. The channel will change after 2 seconds, or you can press ENTER for immediate selection.
ENTER (V)	Cycles through the VIDEO MODE settings: VIVID, SPORTS, MOVIE, STANDARD.
SWAP (M)	Alternates back and forth between the last two channels selected with the 0-9 keys.
MUTING (O)	Instantly turns off the sound. Press again or press VOL + to restore sound.
SLEEP (S)	Turns the TV off in approximately 30, 60, or 90 minutes. Cancel by pressing until SLEEP OFF appears.
RESET (R)	Press to return to factory settings while in the on-screen menus.

Using Your New TV (continued)

Using Picture-in-Picture – PIP

KV-27FV15, 32FV15, 36FV15 only
These models are equipped with dual tuners. This means that PIP is "ready to use".



Notes

- You must press TV (FUNCTION) before you can control PIP with the yellow labeled buttons.
- The AUX input cannot be viewed in the window picture.

REFER TO THE ILLUSTRATION OF THE REMOTE CONTROL ON THE INSIDE FRONT COVER OF THIS MANUAL AS YOU REVIEW THIS CHART



Use the Yellow Labeled Buttons for PIP Operations	
PIP (P)	Displays the window picture. Press again to decrease the size. To cancel, press until the window picture turns off.
TV/VIDEO (T)	Cycles through available video inputs: TV, VIDEO 1, VIDEO 2, VIDEO 3, VIDEO 4
AUDIO (A)	Alternates sound between the main picture and the window picture. A ♪ will appear to indicate which picture is receiving sound.
TV/TR + CH (C) - CH (C)	Changes the channel in the window picture.
POSITION (P)	Moves the location of the window picture.
FREEZE (F)	Press to freeze the window picture. Press again to restore the picture.
SWAP (S)	Switches the position of the main picture with the window picture.

Using the White Labeled Buttons for TV Operations

DISPLAY (D)	Press once to display current time (if set) and channel number. Press again to activate current CAPTION VISION setting. To cancel, press DISPLAY until DISPLAY OFF appears.
TV/VIDEO (T)	Press repeatedly to cycle through available video inputs: TV, VIDEO 1, VIDEO 2, VIDEO 3 and VIDEO 4
AUX (AUX input)	Press to change the VHF/UHF input to the AUX input.
TV/VR + (V)	Press when you are finished using a VCR and you want to switch to the TV input. Your VCR power will remain on.
MUSIC (M)	Cycles through the Multi-channel TV Sound (MTS) options: STEREO, SAP (Second Audio Program), MONO (see page 20).
SYSTEM OFF (S)	Powers off all Sony equipment at once. This feature may not work with older Sony equipment.
TV/VR (T)	Cycles through the available audio settings.

Using the Wireless Headphones

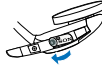
Setting Up the Headphones

Install the supplied size AA (R6) battery into the headphones.

- Open the battery compartment lid by pressing and sliding the lid as illustrated.



- Lift the cover and insert the battery into the compartment with the positive side up and then close the lid.



Notes

- When used continuously, the battery will last:
 - up to 40 hours with alkaline batteries.
 - up to 20 hours with manganese batteries.
- Replace the battery with a new one when the sound becomes weak.

Using the Headphones

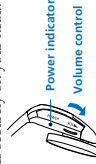
The 1 icon and channel number are displayed.



- Press 1. The 1 icon and channel number are displayed.



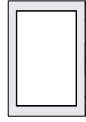
- Turn the power on by placing the headphones securely on your head.



- If you only want to listen to the sound from the cordless headphones, turn down the TV speaker volume, or press MUTE.
- To turn off the headphones, remove them from your head and press 1.

Tip

For optimal sound reception, do not cover the infrared transmitter on the TV or the infrared sensors on the headphones.

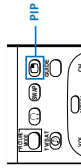


Notes

- To help prevent possible hearing damage due to sudden or prolonged excessive volume, do not set the headphone volume too high while using them.
- To prevent possible damage to the infrared transmitter in the television, please press the 1 to turn off the headphone feature when the headphones are not in use.

Listening to Sound from a Main/PIP Picture

If you want to listen to the sound from the main or window picture through your headphones, select the audio source.



- 1 Press **[OK]** to display a window picture.

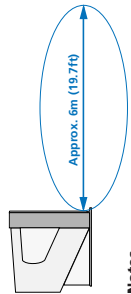


- 2 Press **[OK]**.
The **[i]** display and channel number appears for about three seconds.



Coverage Area of the Infrared Rays

This diagram illustrates the approximate area covered by the infrared rays emitted from the transmitter.



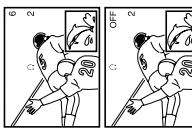
Notes

- If you use the headphones too far from the TV, you may hear a hissing noise.
- If something is between the headphones and the TV, the sound may be interrupted. These problems are inherent to IR communication and do not reflect a problem with the TV.

Notes

- Exiting from PIP will return the sound to the main picture.
- The audio to the headphones will be automatically turned off when the TV is powered off.

Press **[OK]** again to switch the audio to the window picture.



Window Picture audio

Headphones off

Using Your Menus (continued)

Quick start to the menus

The following is a guide to your menus.

To select a menu:



Note
Menus shown are for KV-36FV15; your menus may not look exactly like those illustrated.

	<p>The VIDEO menu will allow you to make adjustments to your picture settings. It will also allow you to customize the picture MODE based on the type of program you are viewing.</p>
	<p>The AUDIO menu offers enhanced audio options such as listening to second audio programming (SAP), or customizing the EFFECT of the sound on your TV.</p>
	<p>The TIMER menu sets the clock on your TV and allows you to program your TV for scheduled viewing using the ON/OFF TIMER.</p>
	<p>The SET UP menu provides several options for setting up your channels, labeling your TV/VIDEO inputs, and selecting the LANGUAGE of your menus.</p>
	<p>The CHANNEL SET UP menu is a sub-menu which provides further options for setting up your TV.</p>
	<p>The Basic Menu provides quick access to frequently used settings.</p>

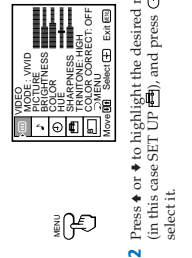
Using Your Menus

Learning menu selection

Use the MENU button to access a menu and use the arrow buttons (**[Left]** or **[Right]**) to alter settings. Use the following example, in which we activate the CABLE, to learn how to modify settings.

- 1 Press the MENU button.

The main menu appears.



Notes

- 2 Press **[Left]** or **[Right]** to highlight the desired menu (in this case SET UP **[OK]**), and press **[OK]** to select it.

- 3 Press **[Left]** or **[Right]** to move to the desired option and press **[OK]**.



- 4 Press **[Left]** or **[Right]** to move to the desired feature and press **[OK]**.
Options for your selection will be highlighted.



Tip

Pressing **MENU** on the remote control will allow you to exit from the menus at any time.

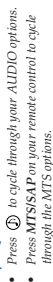
MODE <i>Customized picture viewing</i>	<p>VIVID: Select for enhanced picture contrast and sharpness.</p> <p>SPORTS: Select for a bright picture.</p> <p>MOVIE: Select for a finely detailed picture.</p> <p>STANDARD: Select to receive a standard picture.</p> <p>Press the PICTURE MODE button to access one of the above settings directly.</p>
PICTURE <i>Picture contrast</i>	<p>Adjust left to decrease picture contrast and soften the color.</p> <p>Adjust right to increase picture contrast and create more vivid color.</p>
BRIGHTNESS <i>Picture adjustment</i>	<p>Adjust left to darken the picture.</p> <p>Adjust right to brighten the picture.</p>
COLOR <i>Color saturation</i>	<p>Adjust left to decrease color intensity or saturation.</p> <p>Adjust right to increase color intensity or saturation.</p>
HUE <i>Color tones</i>	<p>Adjust left to increase the red tones.</p> <p>Adjust right to decrease the red tones.</p>
SHARPNESS <i>Picture detail</i>	<p>Adjust left to soften the picture detail.</p> <p>Adjust right to sharpen the picture detail.</p>
TRINITONE <i>White intensity adjustment</i>	<p>HIGH: Gives the white colors a blue tint.</p> <p>MEDIUM: Gives the white colors a neutral tint.</p> <p>NTSC STD: Gives the white colors a red tint.</p>
COLOR CORRECT <i>Color ratio adjustment</i>	<p>ON: Emphasizes reds and blues.</p> <p>OFF: Emphasizes greens.</p>

Adjustment bars

AUDIO TREBLE BASS BALANCE AUTO VOLUME EFFECT OFF SPK.ATTEN AUDIOOUT

MENU Select Exit

Display Highlight Select

20

Using the SET UP menu



Display → Highlight → Select



The FAVORITE CHANNEL feature is not available for the AUX input.

22

TIMER
DAYLIGHT SAVING: NO









Set DAYLIGHT SAVING before setting the clock.

21

21

CHANNEL SET UP

FAVORITE CHANNEL
• CABLE: ON
CHANNEL FIX: OFF
AUTO PROGRAM
CHANNEL SKIP/ADD
CHANNEL CAPTION
MENU

Move **40** Select **+** Exit **EXIT**

Display → Highlight → Select



Your remote control can be programmed to operate your cable box. (see page 31)

3

Using Your Menus (continued)

CHANNEL SKIP/ADD Label up to 12 channels with their call letters	With the CHANNEL SKIP/ADD window open: 1 Select the desired channel. 2 Press CH to SKIP or ADD (only one option will be available).	<div>CHANNEL SKIP/ADD 33</div> <div> ADD Use IP, CH or CH+1 to select the channel Move CH Select CH Exit CH </div>
CHANNEL CAPTION Label up to 12 channels with their call letters	With the CHANNEL CAPTION menu open: 1 Press CH and then CH or CH to access the desired channel, and press CH again. 2 Press CH or CH to display the first letter or number of the caption and press CH to select it. 3 Press CH to activate.	<div>CHANNEL CAPTION 33</div> <div> CHANNEL CAPTION Move CH Select CH Exit CH </div>

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Using Your Menus (continued)

ENGLISH RATINGS For Canadian programs that are broadcast in English	(Canadian models only) C: All children. CB+: Children 8 years and older. G: General programming. PG: Parental Guidance. 14+: Viewers 14 and older. 18+: Adult programming.	<div>ENGLISH RATINGS</div> <div> G+ PG 14+ 18+ Select Move CH Select CH Exit CH </div>
FRENCH RATINGS For Canadian programs that are broadcast in French	(Canadian models only) G: General programming. 13 ans+: Not recommended for young children. 13 ans+: Not recommended for ages under 13. 16 ans+: Programming restricted to adults.	<div>FRENCH RATINGS</div> <div> G 13 ans+ 16 ans+ 18 ans+ Select Move CH Select CH Exit CH </div>
U.S.A. RATINGS For programs from the United States	(Canadian models only) Please see TV RATINGS on page 25 for information on U.S.A. RATINGS.	

26

The Parental Guideline Rating System

This table provides a brief overview of the ratings systems available for the PARENTAL CONTROL feature.

For detailed information on how to change your TV rating, see pages 27-28.

Notes

- The content ratings will increase depending on the level of the age-based rating. For example, a program with a TV-PG V (Violence) rating may contain moderate violence, while a TV-14 V (Violence) rating may contain more intense violence.
- If you choose to block unrated TV programs, please be aware that the following programs may be blocked: emergency broadcasts, political programs, sports, news, public service announcements, religious programs and weather.

Overview of the Ratings		
TV RATINGS Block programs by their rating, content or both	Age based options: TV-Y: All children. TV-Y7: Directed to older children. TV-G: General Audience. TV-PG: Parents Strongly cautioned. TV-14: Mature Audience only. Content based options: FV: Fantasy Violence. D: Suggestive Dialogue. S: Strong Language. V: Sexual Situations. V: Violence.	TV RATINGS TV-Y TV-Y7 TV-G TV-PG TV-14 TV-18 Select Move CH Select CH Exit CH
MOVIE RATINGS	(U.S. models only) G: All children. TV-PG: Directed to older children. PG-13: General Audience. R: Parental Guidance suggested. NC-17: No one under 17 admitted. X: No one under 17 admitted.	MOVIE RATINGS PG PG-13 NC-17 Select Move CH Select CH Exit CH
UNRATED Block programs or movies that are broadcast without a rating	(U.S. models only) VIEW ALL: Allows all unrated programming. BLOCK TV: Blocks all unrated TV programs. BLOCK MOVIE: Blocks all unrated movies. BLOCK ALL: Blocks all unrated programming.	CUSTOM MENU TV RATINGS UNRATED VIEW ALL Select category Move CH Select CH Exit CH

25

Using the PARENTAL CONTROL menu

This section shows you how to access the PARENTAL CONTROL menu. After you follow the example below, the next section shows you how to adjust your TV's rating.

- Press MENU and select the SET UP menu.



- Point the cursor to PARENTAL CONTROL and press **CH**.



You will be asked to enter a 4-digit password for any future access into the PARENTAL CONTROL menu.

- Press **CH** and use the 0-9 buttons to enter your 4-digit password.



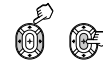
- Confirm your password by entering it again.



Once your password is set correctly, you will be taken into the PARENTAL CONTROL menu.

In order to change the RATING you will need to set PARENTAL LOCK to ON.

- Point the cursor at PARENTAL LOCK and press **CH**. Press **CH** or **CH** to ON and press **CH**.



See pages 25-26 for an overview of the Parental Guideline ratings.

Tip

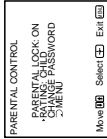
Keep this instruction manual in a safe place. In the event that you forget your password, please see page 33.

27

Using Your Menus (continued)

Setting the TV's RATING

This section provides information on how to set the TV's RATING and how to change your password.



Note

Entering your password to view a blocked program will temporarily turn PARENTAL LOCK to OFF. To reactivate your PARENTAL CONTROL settings, turn the TV off then back on; the TV will restore your rating settings.

PARENTAL LOCK <i>Turns ratings on/off</i>	ON: Select to activate the RATING. OFF: Turns off current ratings.
RATING	If you are not familiar with the Parental Guideline rating system, you should use one of the following prespecified categories to help simplify the rating selection. The following maximum ratings will be allowed: CHILD: TV-14, TV-13, G (U.S. models only), TV-14, TV-13, G (U.S. models only), YOUTH: TV-PG, PG (U.S. models only), TV-PG, PG, 8 ans+ (Canadian models only), YOUNG ADULT: TV-14, PG-13 (U.S. models only), TV-14, 14+, 13 ans+ (Canadian models only). CUSTOM: If you prefer to set more restrictive ratings, highlight CUSTOM and press ⏏ . See pages 25-26, for an overview of the rating systems available. In the CUSTOM RATINGS menu: 1 Select the desired rating category and press ⏏ . 2 Press ⬆ or ⬇ to select the maximum rating or content and press ⏏ . 3 Press ⬆ or ⬇ to block or unblock the rating or content. <i>all higher ratings or contents will be automatically blocked.</i> To view a blocked program: Press ENTER on the remote control, then use the 0-9 buttons to enter your password. To reset your password: 1 Move the cursor to CHANGE PASSWORD press ⏏ . 2 Use the 0-9 buttons to create a new password, enter again to confirm. <i>In the event that you forget your password, see page 33.</i>
CHANGE PASSWORD	

Operating Video Equipment (continued)

Laserdisc

- In some rare cases, you may not be able to operate your non-Sony video equipment with the supplied remote control. In this case, please use the equipment's own remote control.
- When you remove the batteries, the code number may revert to the factory setting.
- The code numbers for Sony VCRs are assigned at the factory as follows:

Manufacturer	Code
Sony	701
Panasonic	704, 710
Pioneer	702
RCA	752
Toshiba	754

Buttons on the remote control	Buttons on the remote control
To turn on or off	Press VTR/VIDEO (POWER).
To play	Press ▶ .
To stop	Press ■ .
To pause	Press II .
To scan	To resume normal playback, press ▶ or ▶▶ during playback.
To search the disc forward or backward	To resume normal playback, press ▶▶ or ▶▶▶ during playback.

Buttons on the remote control	Buttons on the remote control
To turn on or off	Press VTR/VIDEO (POWER).
To play	Press ▶ .
To stop	Press ■ .
To pause	Press II .
To scan	To resume normal playback, press ▶ or ▶▶ during playback.
To search the disc forward or backward	To resume normal playback, press ▶▶ or ▶▶▶ during playback.

Tip

If you will not be programming a satellite receiver or cable box into the SAT/CABLE function of your remote, you can use it to program other video equipment (e.g. DVD, MDP, or second VCR).

Operating Video Equipment

Programming the remote

You can use the supplied remote control to operate Sony or non-Sony video equipment.

- Press **CODE SET**.
- Press **VTR/VIDEO** (FUNCTION).
- Use the **0-9** buttons to key in the manufacturer's code number from the following chart.
- Press **ENTER**.

Manufacturer	Code
Sony	301, 302, 303
Admiral (M. Ward)	308, 309, 310
Alwa	338, 344
Audio Dynamic	314, 337
Brokonic	319, 317
Brionics	308, 332
Chizen	302, 332
Craig	302, 332
Criterion	315
Curtis Mathes	304, 338, 309
Daewoo	341, 312, 309
DiX	314, 356, 304
Dynalco	312, 313, 329
Emerson	319, 320, 316, 317, 318, 344
Fisher	338, 337
Funai	338
General Electric	329, 304, 309
Go Video	322, 339, 340
Goldstar	322, 339, 352

Hiachi	306, 304, 305, 338
Instant Replay	309, 305, 304, 330, 314, 339, 308
JVC	314, 336, 337, 345, 346, 347
Kenwood	314, 336, 337, 345, 346, 347
LXI (Sears)	332, 305, 330, 335, 338
Magnavox	308, 309, 310
Martinez	314, 336, 337
Mitsubishi	309, 332
Minolta	305, 304
Mitsubishi/MGA	323, 324, 325, 326
Multitech	325, 338, 321
NEC	314, 336, 337
Olympic	309, 308
Optimus	308, 309, 306, 307
Panasonic	308, 309, 306, 307
Pentax	305, 304
Philco	308, 309, 310
Philips	308, 309, 310
Pioneer	308, 309, 308
Quasar	308, 309, 306
RCAP/PROSCAN	304, 305, 312, 313, 329
Realistic	309, 330, 328, 335, 324, 338
Samsung	322, 313, 321
Sanyo	330, 335
Scott	312, 313, 321, 335, 323, 324, 325, 326
Shinano	327, 315
Signature 2000 (M. Ward)	338, 327
SV2000	308, 309, 338, 310
Sylvania	338
Synthetic	332
Taiyo	314, 336, 337

Buttons on the remote control	Buttons on the remote control
To turn on or off	Press VTR/VIDEO (POWER).
To select a channel directly	Press the 0-9 buttons.
To change channels	Press CH +/- .
To record	Press ▶ and ● simultaneously.
To play	Press ▶ .
To stop	Press ■ .
To fast forward	Press ▶▶ .
To rewind the tape	Press ◀◀ .
To pause	Press II .
To resume normal playback, press again or press ▶ .	
To scan	Press ▶▶ or ◀◀ during playback.
To resume normal playback, release the button.	
To change input mode	Press TV/VIDEO .

Operating a Cable Box or Satellite Receiver

Tips

- If more than one code number is listed, try entering them one by one until you come to the correct code for your equipment.
- If you enter a new code number, the code number you previously entered at that setting is erased.
- In some rare cases, you may not be able to operate your equipment with the supplied remote control. In this case, use the equipment's supplied remote control.
- Whenever you remove the batteries the code numbers may revert to the factory setting.

If the remote control doesn't work

First, try repeating the setup procedures using the other codes listed for your equipment.

- Press **CODE SET**.
- Press **SAT/CABLE** (FUNCTION).
- Use the **0-9** buttons to key in the manufacturer's code number from the following chart.
- Press **ENTER**.

For more details on operating the cable box or satellite receiver

Refer to the operating instructions that were supplied with the equipment.

Cable box code numbers

Manufacturer	Code
Hamlin/Regal	222, 223, 224, 225, 226
Jerrold/G. I.	201, 202, 203, 204, 205, 206, 207, 208, 218
Oak	227, 228, 229
Panasonic	219, 220, 221
Pioneer	214, 215
Scientific Atlanta	209, 210, 211
Tecum	216, 217
Zenith	212, 213

Satellite receiver code numbers

Manufacturer	Code
Sony	801 (preset code for remote control)
General Electric	802
Hiachi	805
Hughes	804
Panasonic	803
RCA/PROSCAN	802, 808
Toshiba	806, 807

Consult the table below; it suggests solutions to specific problems.

Problem	What it could be	What you can do
You want to restore the TV's factory settings		<ul style="list-style-type: none"> First, turn the TV on. Then while pressing the RESET button on the remote control, press the POWER button on the TV. The TV will turn itself off and then back on. When the TV turns on again, all settings will be reset, and the initial setup screen will appear. Call your local Sony service center.
A red light keeps flashing on the TV for more than a few seconds		
TV makes a noise when turned on	<ul style="list-style-type: none"> Your TV may need service. 	
Screen is not lit and there is no sound	<ul style="list-style-type: none"> This is a normal function of your TV. Power cord may not be plugged in. Remote control batteries may not be inserted correctly. TV VIDEO setting may be incorrect. Current program may exceed PARENTAL CONTROL settings. 	<ul style="list-style-type: none"> Check your power cord. Re-insert the batteries in your remote control. Press TV/VIDEO until you receive a channel. Check your PARENTAL CONTROL settings. (page 28).
Poor or no picture (screen lit), good sound	<ul style="list-style-type: none"> VIDEO menu settings may not be adjusted correctly. Antenna/cable connectors may be faulty. VIDEO LABEL inputs may be set to WEB. (This label darkens the screen for Ideal WebTV viewing) 	<ul style="list-style-type: none"> Readjust your VIDEO menu settings. (page 19). Check your VIDEO LABEL settings. (page 22).
Good picture, no sound	<ul style="list-style-type: none"> Sound may be set to MUTEING. Your TV may be set to SAP. SPEAKER may not be set correctly. 	<ul style="list-style-type: none"> Press MUTING. Check the MTS setting in the AUDIO menu. (page 20). Check your SPEAKER settings. (page 20).
No color	<ul style="list-style-type: none"> Color settings may not be adjusted correctly. 	<ul style="list-style-type: none"> Adjust the COLOR settings in the VIDEO menu. (page 19).
Only snow and noise appear on the screen	<ul style="list-style-type: none"> CABLE may not be set correctly in the CHANNEL SET UP menu. Antenna/cable connections may not be correct. TV may be set to AUX mode. 	<ul style="list-style-type: none"> Ensure that you have selected the correct CABLE mode in the CHANNEL SET UP menu. (page 23). Press ANT on your remote control to change the input mode. (page 15).

Supplied accessories

Remote control RM-Y168 (KV-32FS10, 36FS10 only), RM-Y171 (KV-27FV15, 32FV15, 36FV15 only)(1)
Batteries size AA (R6) (2)

Optional accessories

Connecting cables
RK-71A, RK-689HG, VMC-10HG,
VMC-720M, VMC-810S/820S, YC-15V/
30V
TV Stand SU-27FD2, SU-32FD2, SU-36FD2
U/V mixer EAC-66

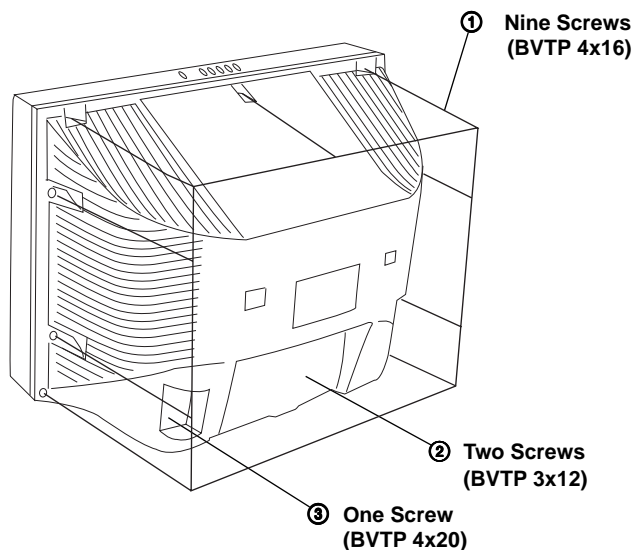
Problem	What it could be	What you can do
Cannot receive upper channels (UHF) when using an antenna		<ul style="list-style-type: none"> CABLE setting may not be correct in the CHANNEL SET UP menu. (page 23). Use AUTO PROGRAM to add receivable channels that are not presently in TV memory. (page 23).
Cannot receive any channels when using cable		<ul style="list-style-type: none"> CABLE setting may not be correct in the CHANNEL SET UP menu. (page 23). Use AUTO PROGRAM to add receivable channels that are not presently in TV memory. (page 23). Use the remote control supplied with the cable box.
Cannot gain enough volume when using a cable box		<ul style="list-style-type: none"> Volume may not be adjusted on your cable box. CHANNEL FIX settings may not be correct.
TV is fixed to one channel		<ul style="list-style-type: none"> Check your CHANNEL FIX settings. (page 23).
Lost password for PARENTAL CONTROL		<ul style="list-style-type: none"> In the password screen, enter the following master password: 4357. The master password cannot be used to unlock currently blocked channels.

If, after reading these operating instructions, you have additional questions related to the use of your product, please contact your nearest Sony service center at 1-800-222-SONY (6699)(U.S. residents only) or (416) 499-SONY (6699)(Canadian residents only).

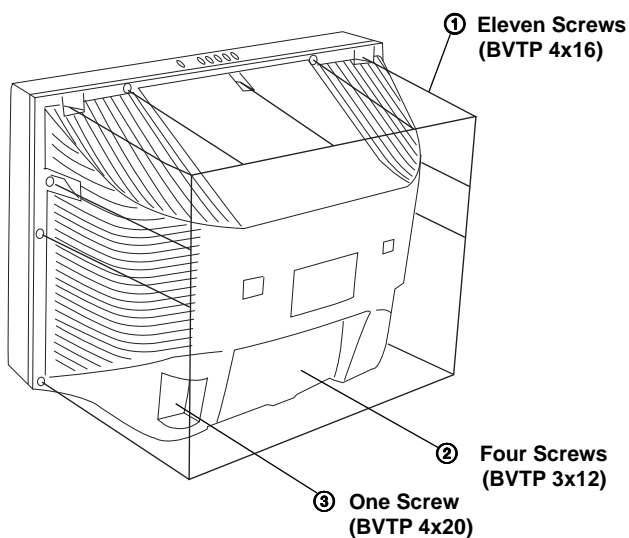
SECTION 2 DISASSEMBLY

2-1. REAR COVER REMOVAL

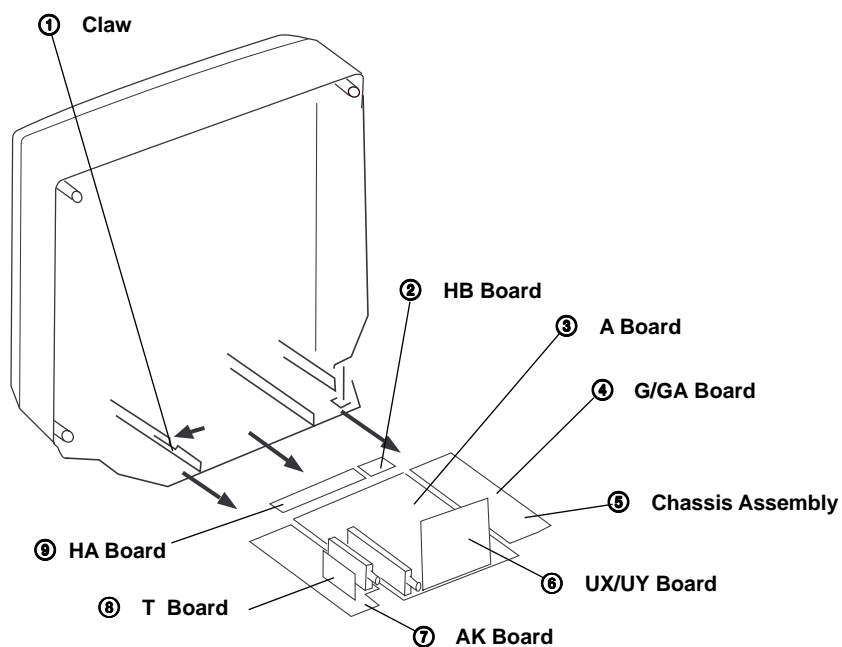
(KV-32FS10/32FV15/32XBR250/34FV10
34FV15/34FV15C/34FX250C/34FV15K/34FV15T)



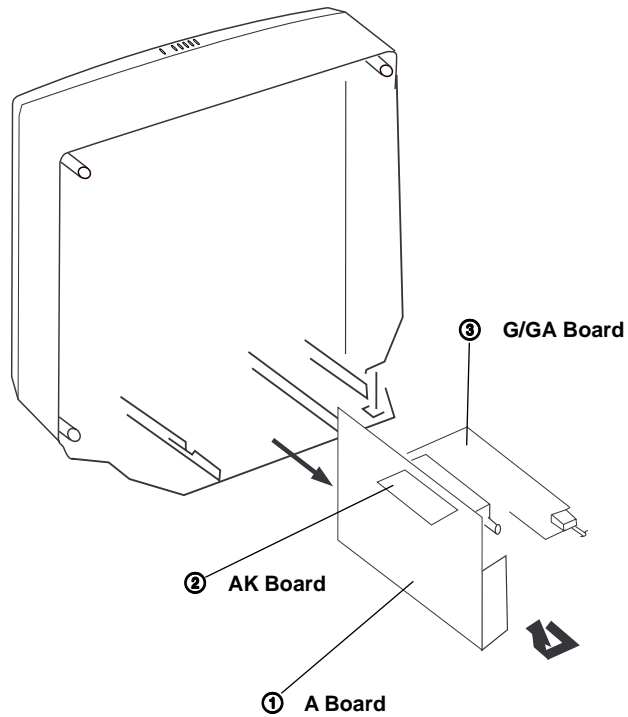
(KV-36FS10/36FV15/36XBR250
38FX250/38FX250C/38FX250T/38FV15K)



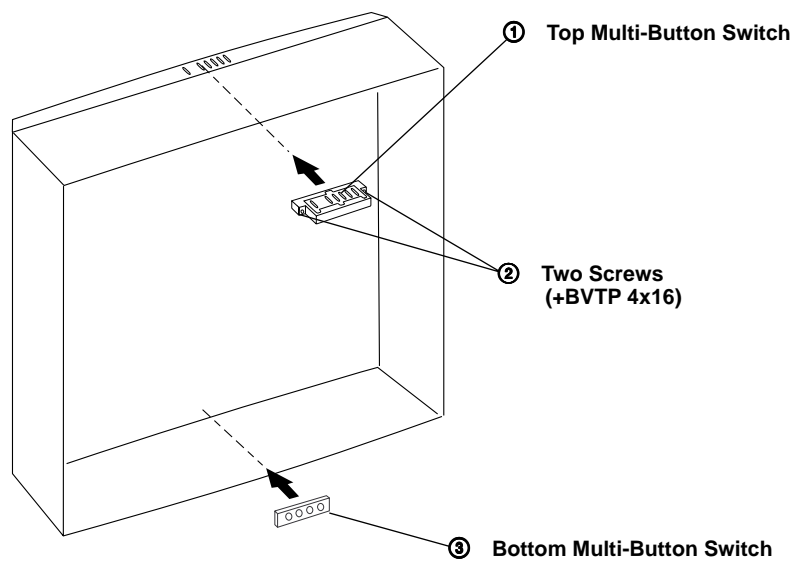
2-2. CHASSIS ASSEMBLY REMOVAL



2-3. SERVICE POSITION



2-4. MULTI-BUTTON SWITCH REMOVAL

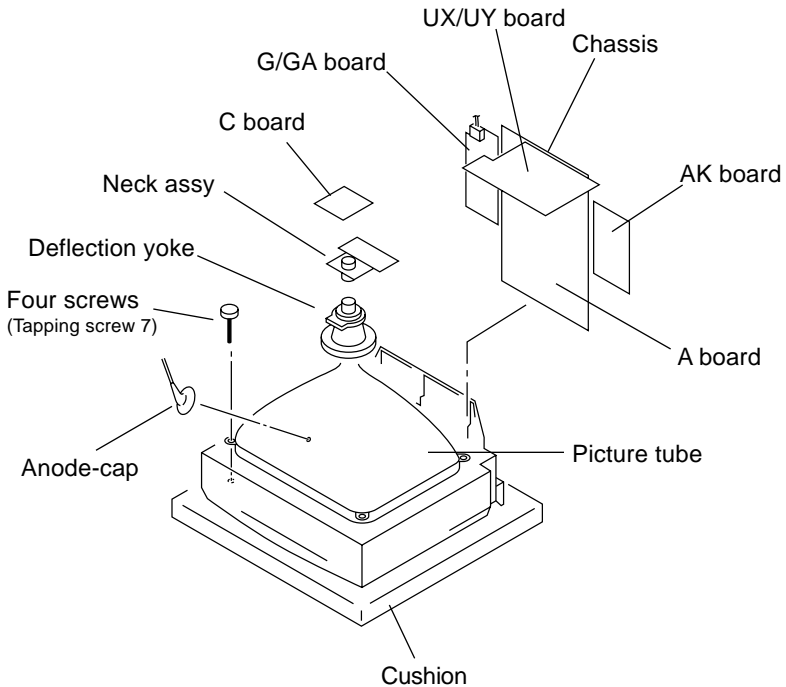
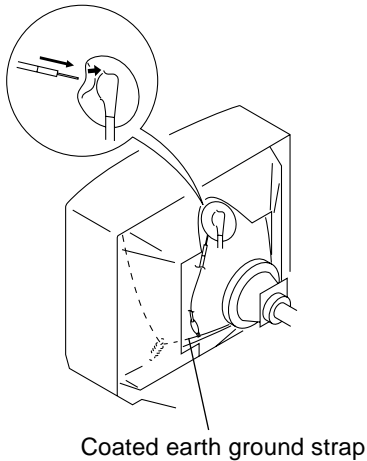


2-5. PICTURE TUBE REMOVAL

WARNING -- Before removing anode-cap:

High voltage remains in the CRT even after the power is disconnected.

To avoid electrical shock, discharge CRT before attempting to remove the anode-cap. Short between anode and coated earth ground strap of CRT.

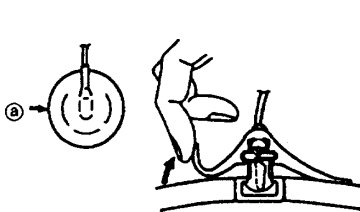


ANODE-CAP REMOVAL

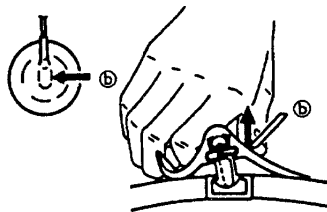
WARNING: High voltage remains in the CRT even after the power is disconnected. To avoid electrical shock, discharge CRT before attempting to remove the anode-cap. Short between anode and coated earth ground strap of CRT.

NOTE: After removing the anode, short circuit the anode of the picture tube and the anode cap to either the metal chassis, CRT shield, or carbon painted on the CRT.

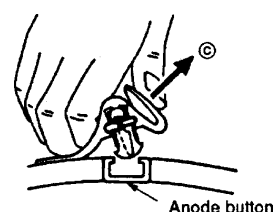
REMOVAL PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by arrow (a).



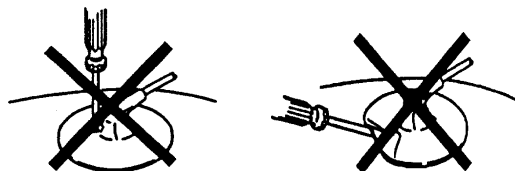
② Use your thumb to pull the rubber cap firmly in the direction indicated by arrow (b).



③ When one side of the rubber cap separates from the anode button, the anode-cap can be removed by turning the rubber cap and pulling it in the direction of arrow (c).

HOW TO HANDLE AN ANODE-CAP

- ① Do not use sharp objects which may cause damage to the surface of the anode-cap.
- ② Do not squeeze the rubber covering too hard to avoid damaging the anode-cap. A material fitting called a shatter-hook terminal is built into the rubber.
- ③ Do not force turn the foot of the rubber cover. This may cause the shatter-hook terminal to protrude and damage the rubber.



SECTION 3 SET-UP ADJUSTMENTS

The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

These adjustments should be performed with rated power supply voltage unless otherwise noted.

The controls and switch should be set as follows unless otherwise noted:

PICTURE control normal

BRIGHTNESS control normal

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. Screen (G2)/White Balance

Note: Test Equipment Required:

1. Color Bar Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital Multimeter
5. Oscilloscope
6. CRT Analyzer

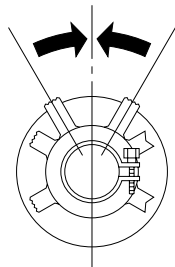
3-1. BEAM LANDING

Preparation:

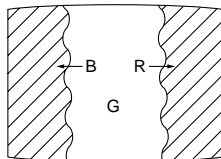
- Input a white pattern signal.
- Face the picture tube in an East or West direction to reduce the influence of geomagnetism.

NOTE: Do not use the hand degausser because it magnetizes the CRT .

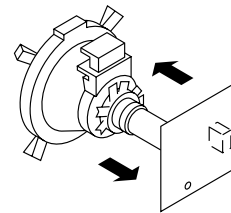
1. Input white pattern from pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown below:



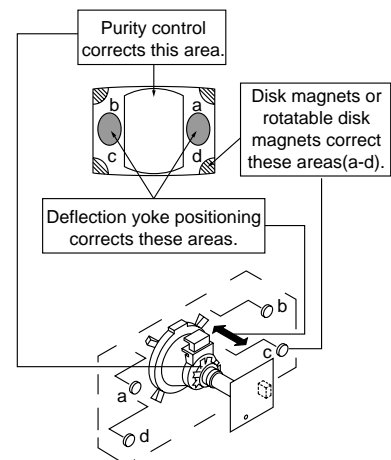
3. Input green pattern from pattern generator.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are even on both sides.



5. Move the deflection yoke forward, and adjust so that the entire screen becomes green.



6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets.



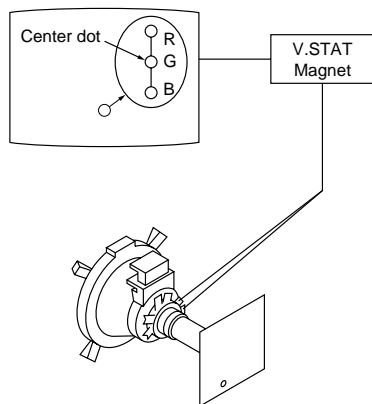
3-2. CONVERGENCE

Preparation:

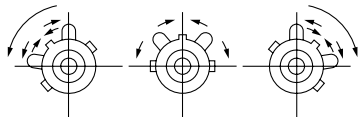
- Before starting, perform FOCUS, V. LIN and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Input dot pattern.

(1) Vertical and Horizontal Static Convergence

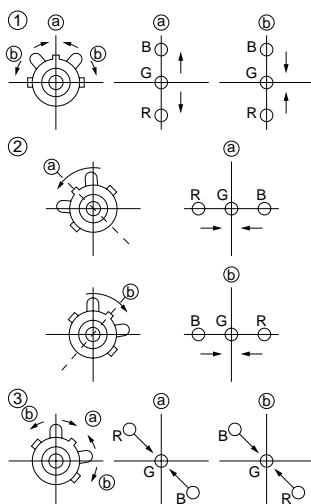
1. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)



Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.



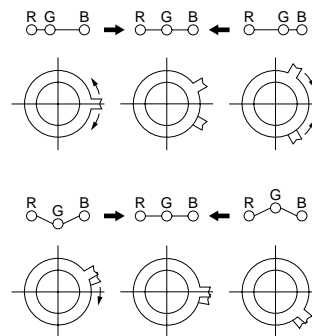
2. When the V. STAT magnet is moved in the direction of arrow (a) and (b), red, green, and blue dots move as shown below:



Operation of BMC (Hexapole) Magnet

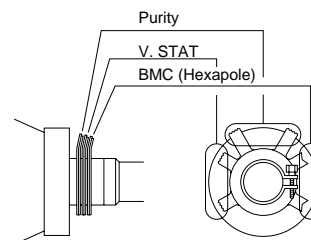
The respective dot positions resulting from moving each magnet interact, so perform adjustment while tracking.

Use the VSTAT tabs to adjust the red, green, and blue dots so they line up at the center of the screen (move the dots in a horizontal direction.)



Y Separation Axis Correction Magnet Adjustment

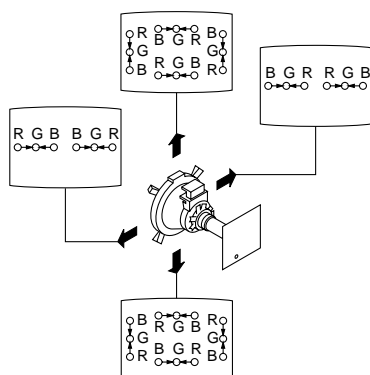
1. Input cross-hatch pattern, adjust PICTURE to minimum and BRIGHTNESS to normal.
2. Adjust the deflection yoke upright so it touches the CRT.
3. Adjust so that the Y separation axis correction magnet on the neck assembly is symmetrical from top to bottom (open state).



4. Return the deflection yoke to its original position.

(2) Dynamic Convergence Adjustment

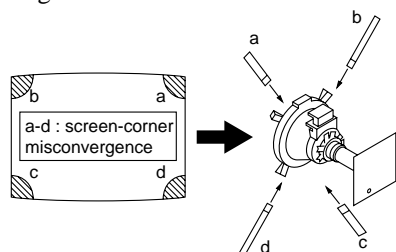
- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.
1. Slightly loosen deflection yoke screw.
 2. Remove deflection yoke spacers.
 3. Move the deflection yoke for best convergence as shown below:



4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

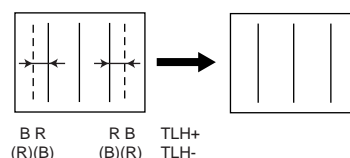
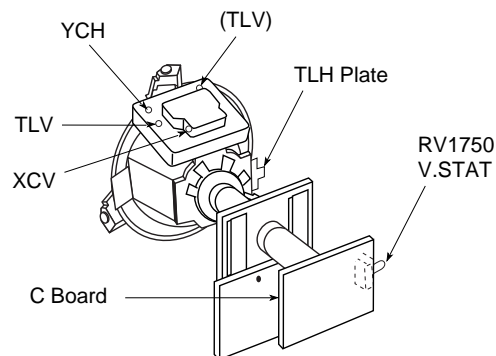
(3) Screen-corner Convergence

Affix a permalloy assembly corresponding to the misconverged areas:



(4) TLH Plate Adjustment

- Input crosshatch pattern
- Adjust PICTURE QUALITY to standard, PICTURE and BRIGHTNESS to 50%, and OTHER to standard.
- Adjust the Horizontal Convergence of red and blue dots by tilting the TLH plate on the deflection yoke.



1. Adjust XCV core to balance X axis.
2. Adjust YCH VR to balance Y axis.
3. Adjust vertical red and blue convergence with VTILT (TLV VR.)

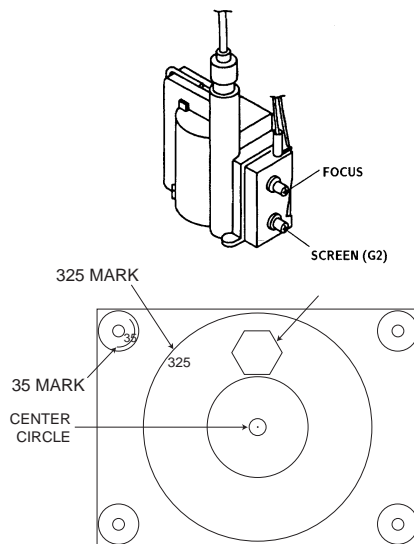
Perform adjustments while tracking items 1 and 2.

(5) H Center SW Adjustment

- Before adjusting H Center SW (S501, S502), make sure that HPOS data is "7".

3-3. FOCUS

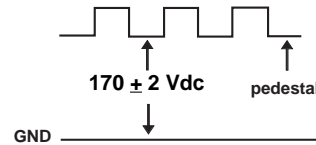
1. Input Monoscope signal.
2. Set user controls to normal.
3. Set Video mode to STANDARD.
4. Set the PICTURE to maximum.
5. Adjust FOCUS control for best picture at center circle.
6. Then receive an entire white signal. Make sure Magenta Ring is at acceptable level



3-4. SCREEN (G2)

1. Input signal from the pattern generator.
2. Set the user controls to NORMAL.
3. Attach the G2-Jig to the C Board.
4. Adjust RCUT, GCUT, BCUT, and SBRT in service mode with an oscilloscope so that voltages on the red, green, and blue cathodes are 170 ± 2 V DC.
5. Observe the screen and adjust SCREEN (G2) VR to obtain the fairly visible background of dot signal.
6. Push the TEST +JUMP (+ Channel) to cut off the signal, then the screen is bright or dark. Brightness of raster must be increased when adjusting.

7. Adjust screen VR until the screen is just cut off, or scarcely lights up. A signal cannot be seen when the brightness of the raster is high.
8. Push the JUMP again to release the cut off.



3-5. WHITE BALANCE ADJUSTMENTS

NO.	Disp.	Item	All Models
24	RDRV	Red Drive	31
25	GDRV	Green Drive	31
26	BDRV	Blue Drive	31
27	RCUT	Red Cut-off	7
28	GCUT	Green Cut-off	7
29	BCUT	Blue Cut-off	7
38	SBRT	Sub Bright	7

1. Set program palette to "STANDARD" and push "RESET.
2. Input an entire white signal.
3. Set to Service adjustment Mode.
4. Set the PICTURE and BRIGHT to minimum.
5. Adjust with SBRT if necessary.
6. Set RCUT to "14".
7. Select GCUT and BCUT with **[1]** and **[4]**.
8. Adjust with **[3]** and **[6]** for the best white balance.
9. Set the PICTURE and BRIGHT to maximum.
10. Select GDRV and BDRV with **[1]** and **[4]**.
11. Adjust with **[3]** and **[6]** for the best white balance.
12. Write into the memory by pressing **[MUTING]** then **[ENTER]** **.

NOTE:

White Balance should be adjusted after Sub Contrast because RDRV is also used in Sub Contrast adjustment. (See page 29)

SECTION 4

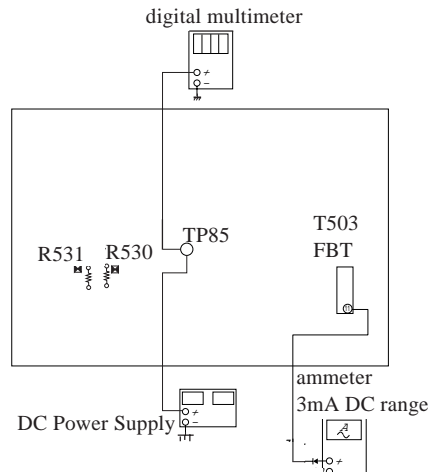
SAFETY RELATED ADJUSTMENTS

☑ R530, R531 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

Always perform the following adjustments when replacing the following components marked with a ☑ mark on the schematic diagram:

A BOARD: IC355, IC501, D302, D519, D520, D521, C531, C532, Q301, R356, R359, R361, R387, R529, R530, R531, R532, R533, R550, T503

G BOARD (KV-32FS10, 32FV15, 32XBR250, 36FS10, 36FV15, 36XBR250): IC643, R661
GA BOARD (KV-34FV10, 34FV15, 34FV15C, 34FV15K, 34FV15T, 34FX250C, 38FV15K, 38FX250, 38FX250C, 38FX250T): IC6003, R6088



Step 1 Preparation before Confirmation

Turn the POWER switch ON.

Input a white signal and set the PICTURE and BRIGHT controls to maximum.

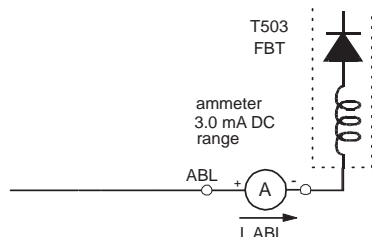
Confirm that, when the set is operating normally, the voltage at check terminal TP85 is more than 23.0 V DC.

At AC input: 120.0 ± 2.0 VAC

Step 2

Input a white signal and verify that I ABL is within the specified range: $2062.5 \pm 100 \mu\text{A}$,
+B = 135.5 ± 1 VDC .

At AC input: 120.0 ± 2.0 VAC



Step 3

Record the voltage between TP85 and ground.

Step 4

Using an external DC power supply, apply voltage between TP85 and ground.

Increase the voltage gradually and confirm that the holddown works (raster disappears) at lower than the voltage recorded in Step 3.

32" Lower than $26.95 \pm (-0.1)$ V DC.

At AC input: 120.0 ± 2.0 VAC

36" Lower than $22.05 \pm (-0.1)$ V DC.

At AC input: 120.0 ± 2.0 VAC

A BOARD - CONDUCTOR SIDE

Step 5

Confirm that a voltage appears between TP85 and ground, of more than 23.0 V DC.

At AC input: 120.0 ± 2.0 VAC

B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

Always perform the following adjustments when replacing the following components marked with ☑ on the schematic diagram:

G BOARD (KV-32FS10, 32FV15, 32XBR250, 36FS10, 36FV15, 36XBR250): IC643, R661
GA BOARD (KV-34FV10, 34FV15, 34FV15C, 34FV15K, 34FV15T, 34FX250C, 38FV15K, 38FX250, 38FX250C, 38FX250T): IC6003, R6088

- 1) Using Variac, apply AC input voltage: 130.0 ± 2.0 VAC
- 2) Input a monoscope signal.
- 3) Set the PICTURE control and the BRIGHT control to initial reset value.
- 4a) (G Board Models) Confirm the voltage of G Board CN641 between pin ① to ground on "G" PWB is less than 136.5 ± 1.0 V DC.
- 4b) (GA Board Models) Confirm the voltage of GA Board CN6007, between pin ① to ground on "GA" PWB is less than 136.5 ± 1.0 V DC.
- 5a) (G Board Models) If step 4a is not satisfied, replace R661 and repeat the above steps.
- 5b) (GA Board Models) If step 4b is not satisfied, replace R6088 and repeat the above steps.

SECTION 5 CIRCUIT ADJUSTMENTS

ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use Remote Commander (RM-Y149A, RM-Y168, RM-Y170, RM-Y171) to perform the following circuit adjustments:

NOTE : Test Equipment Required:

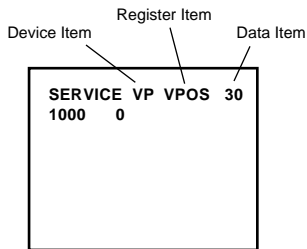
1. Pattern Generator
2. Frequency Counter
3. Digital Multimeter
4. Audio OSC

5-1. Method of Setting the Service Adjustment Mode

SERVICE MODE PROCEDURE

1. Standby mode. (Power off)
2. **DISPLAY** → **5** → **VOL (+)** → **POWER** on the Remote Commander.
(Press each button within a second.)

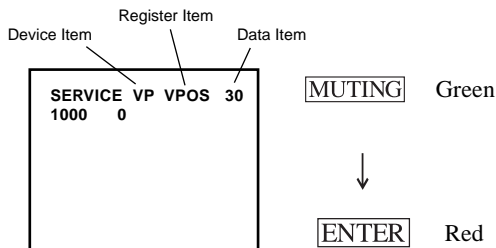
SERVICE ADJUSTMENT MODE IN



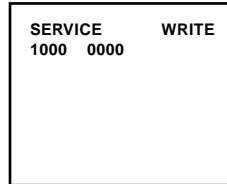
3. The CRT displays the item being adjusted.
4. Press **2** or **5** on the Remote Commander to select the device item.
5. Press **1** or **4** on the Remote Commander to select the item.
6. Press **3** or **6** on the Remote Commander to change the data.
7. If you want to recover the latest values press **0** then **ENTER** to read the memory.
8. Press **MUTING** then **ENTER** to write into memory**.

NOTE: If the NVM is replaced, perform test and reset, then download from microprocessor to NVM to prevent loss of picture.

SERVICE ADJUSTMENT MODE MEMORY



9. Press **8** then **ENTER** on the Remote Commander to reset.



Carry out step 9) when adjusting IDs 0 to 4 and when replacing and adjusting IC102.

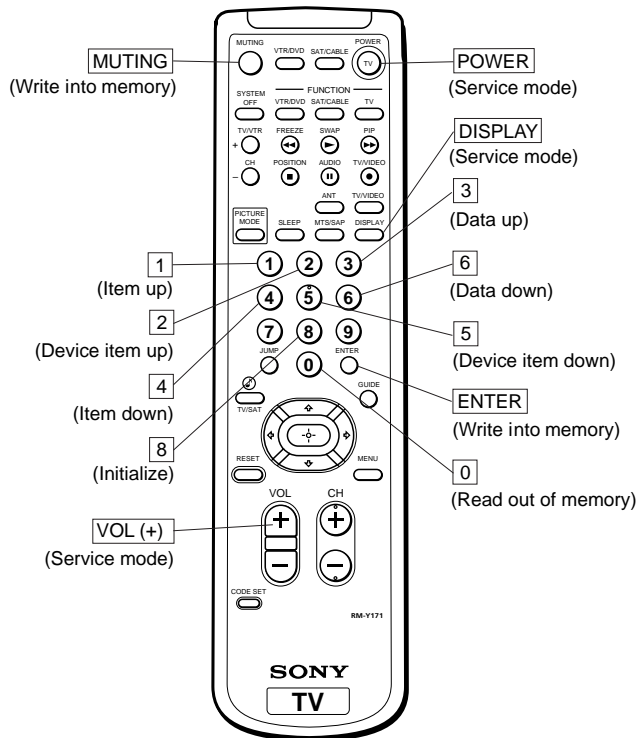
Factory original setting

10. Turn set off and on to exit.

5-2. Memory Write Confirmation Method

1. After adjustment, pull out the plug from the AC outlet, then replace the plug in the AC outlet again.
2. Turn the power switch ON and set to Service Mode.
3. Call the adjusted items again to confirm they were adjusted.

5.3. Adjust Buttons and Indicator



RM-Y171

****WARNING:** Do NOT turn off the power or AC immediately after pressing **MUTING** then **ENTER**. Wait at least 10 seconds.

5-4. Service Data

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**	Comments
						All Models	
VP CXA2131S							
1	HPOS	Horizontal Position Adjust	0-31	Fix	7	7	
2	HSIZ	Horizontal Amp Adjust	0-31	Fix	10	10	
3	VBOW	VRT Line Bowing Adjust	0-15	Fix	6	6	
4	VANG	VRT Line Bow Slant Adjust	0-15	Fix	5	5	
5	TRAP	Horizontal Trapezoid Adjust	0-15	Fix	6	6	
6	PAMP	Horizontal Pin Distort Adjust	0-63	Fix	32	32	
7	UCPN	Upper Pin	0-63	Fix	36	36	
8	LCPN	Lower Pin	0-63	Fix	36	36	
9	VSIZ	Vertical Amplitude Adjust	0-63	Fix	0	0	
10	VPOS	Vertical Position Adjust	0-63	Fix	31	31	
11	VLIN	Vertical Linearity Adjust	0-15	Fix	7	7	
12	VSCO	S-Correction	0-15	Fix	7	7	
13	VZOM	16:9 CRT Z Mode On/Off	0,1	Fix	0	0	
14	EHT	VRT High Volt Correction	0-15	Fix	4	4	
15	ASP	Aspect Ratio Control	0-63	Fix	47	47	
16	SCRL	16:9 CRT Z Mode Tran Scroll	0-63	Fix	31	31	
17	HBSW	HBLK SW	0,1	Fix	1	1	
18	LBLK	Left Screen H Blk Control	0-15	Fix	15	15	
19	RBLK	Right Screen H Blk Control	0-15	Fix	0	0	
20	HDW	H Drive Pulse Width	0,1	Fix	1	1	
21	EWDC	EW/DC Adjust	0,1	Fix	0	0	
22	LVLN	Screen Bottom VRT Lin Adjust	0-15	Fix	0	0	
23	UVLN	Screen Top VRT Lin Adjust	0-15	Fix	0	0	
24	RDRV	R Output Drive Control	0-63	Adj	31	31	
25	GDRV	G Output Drive Control	0-63	Adj	31	31	
26	BDRV	B Output Drive Control	0-63	Adj	31	31	
27	RCUT	R Output Cutoff Control	0-15	Adj	7	7	
28	GCUT	G Output Cutoff Control	0-15	Adj	7	7	
29	BCUT	B Output Cutoff Control	0-15	Adj	7	7	
30	RDR4	Video 4 R Output Drive Control	0-63	Adj	31	31	
31	GDR4	Video 4 G Output Drive Control	0-63	Adj	31	31	
32	BDR4	Video 4 B Output Drive Control	0-63	Adj	31	31	
33	RCU4	Video 4 R Output Cutoff Control	0-15	Adj	7	7	
34	GCU4	Video 4 G Output Cutoff Control	0-15	Adj	7	7	
35	BCU4	Video 4 B Output Cutoff Control	0-15	Adj	7	7	
36	SHUE	Sub Hue	0-31	Adj	15	15	
37	SCOL	Sub Color	0-31	Adj	15	15	
38	SBRT	Sub Brightness	0-63	Fix	15	15	
39	RON	R Output On/Off	0,1	Fix	1	1	
40	GON	G Output On/Off	0,1	Fix	1	1	
41	BON	B Output On/Off	0,1	Fix	1	1	
42	AXPL	Axis Pal	0,1	Fix	0	0	
43	CBPF	Chroma BPF On/Off	0,1	Fix	1	1	
44	COFF	Color On/Off	0,1	Fix	0	0	
45	KOFF	Set Color Killer	0,1	Fix	0	0	
46	SSHP	Sub Sharpness	0-15	Fix	7	7	
47	SHPF	Sharpness Circuit F0	0,1	Fix	1	1	
48	PREL	Pre/Over-Shoot Switching	0,1	Fix	1	1	
49	Y-DC	DC Trans Ratio Switching	0,1	Fix	1	1	
50	ABLM	ABL Mode Switching	0,1	Fix	1	1	
51	YDEL	Y Delay Time Control	0-15	Fix	7	7	
52	NCOL	No Color ID	0,1	Fix	1	1	
53	FSC	FSC Out On/Off	0,1	Fix	1	1	
54	K-ID	Killer ID	0,1	Fix	1	1	
55	HOSC	H VCO Oscillation Frequency	0-15	Fix	7	7	
56	VSS	V Sync Slice Level	0,1	Fix	0	0	
57	HSS	H Sync Slice Level	0,1	Fix	0	0	
58	HMSK	H Mask	0,1	Fix	1	1	
59	VTMS	Select Signal VTIM Pin	0-3	Fix	0	0	

Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data** All Models	Comments
VP CXA2131S <i>continued</i>							
60	AFC	AFC Loop Gain	0-3	Fix	0	0	
61	FIFR	Field Frequency	0-3	Fix	3	3	
62	REFP	REFP	0,1	Fix	0	0	
63	VBSW	VBW	0-3	Fix	0	0	
64	BKOF	Blk Off	0,1	Fix	0	0	
65	AGN2	Aging 2	0,1	Fix	0	0	
66	YSHU	Hue for YUV Models	0-63	Fix	31	31	
AP BH3868 (Group G,P - see table on page 28)							
67	BBLP	BBE Low Pass	0-15	Fix	5	5	
68	BBHP	BBE High Pass	0-15	Fix	3	3	
69	SVOL	Sub Volume	0-15	Fix	15	15	
70	SBAL	Sub Balance	0-15	Fix	7	7	
71	SBAS	Sub Bass	0-15	Fix	8	8	
72	STRE	Sub Treble	0-15	Fix	8	8	
AP BH3868 (Group I,J,M,R,V - see table on page 28)							
67	BBLP	BBE Low Pass	0-15	Fix	5	5	
68	BBHP	BBE High Pass	0-15	Fix	3	3	
69	SVOL	Sub Volume	0-15	Fix	7	7	
70	SBAL	Sub Balance	0-15	Fix	7	7	
71	SBAS	Sub Bass	0-15	Fix	8	8	
72	STRE	Sub Treble	0-15	Fix	8	8	
AP BH3868 (Group H,L,N,O,U,W,X - see table on page 28)							
67	BBLP	BBE Low Pass	0-15	Fix	5	5	
68	BBHP	BBE High Pass	0-15	Fix	3	3	
69	SVOL	Sub Volume	0-15	Fix	7	7	
70	SBAL	Sub Balance	0-15	Fix	7	7	
71	SBAS	Sub Bass	0-15	Fix	5	5	
72	STRE	Sub Treble	0-15	Fix	5	5	
AP TDA7467							
73	SPCA	SRS/Space Attenuation	0-63	Fix	0	0	
74	CENA	SRS/Center Attenuation	0-63	Fix	0	0	
75	INPA	Input Attenuation	0-127	Fix	3	3	
3D UPD64081							
76	HHDS	HH Off	0-3	Fix	1	1	
77	COUT	Gain 1/BPF On	0-3	Fix	3	3	
78	YAPS	V Comp/Y Eaking On	0-3	Fix	3	3	
79	NSDS	Adaptive	0-3	Fix	0	0	
80	MSS	Adaptive	0-3	Fix	0	0	
81	DYC	Hi Impedence	0-3	Fix	2	2	
82	EXAD	Ext Ad Selected	0,1	Fix	1	1	
83	PECS	Standard	0-3	Fix	0	0	
84	EXCS	Use CSI Just In Case	0-3	Fix	1	1	
85	CPP	VTB = 1.25VPP	0-3	Fix	0	0	
86	HDP	H Phase +/- 0 μ sec	0-7	Fix	3	3	
87	CDL	Y/C Delay +/- 0 μ sec	0-7	Fix	4	4	
88	DYCO	Y Moving Coring	0-15	Fix	2	2	
89	DYGA	Y Moving Gain	0-15	Fix	10	10	
90	DCCO	C Moving Coring	0-15	Fix	2	2	
91	DCGA	C Moving Gain	0-15	Fix	9	9	
92	YNRK	Effect Small	0,1	Fix	1	1	
93	YNRI	Effect Small	0,1	Fix	0	0	
94	YNRL	Noise Limit	0-3	Fix	1	1	
95	CNRK	Effect Small	0,1	Fix	1	1	
96	CNRI	Effect Small	0,1	Fix	0	0	
97	CNRL	CNR Limit	0-3	Fix	1	1	
98	ID10	ID 1 Through	0,1	Fix	0	0	
99	ID1W	4:03	0,1	Fix	0	0	
100	ID1N	Normal	0,1	Fix	0	0	
101	CLK	Low Fix	0,1	Fix	1	1	
102	ST1S	Monitor Out	0-3	Fix	0	0	
103	ST0S	Monitor Out	0-3	Fix	1	1	
104	WSC	Coring	0-3	Fix	1	1	
105	VTRH	H Non Standard DET	0-3	Fix	1	1	
106	VTRR	H Non Standard DET	0-3	Fix	1	1	
107	LDSR	Frame	0-3	Fix	2	2	
108	PWRE	PWRE	0,1	Fix	0	0	
109	PDRE	PDRE	0-7	Fix	4	4	
110	PBRE	PBRE	0-15	Fix	8	8	
111	VAPG	V Apacon Gain	0-7	Fix	3	3	
112	VAPI	V Apacon	0-31	Fix	10	10	
113	TEST	Test	0,1	Fix	0	0	
114	YPFT	Y Peaking	0-3	Fix	3	3	

Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**	Comments
						All Models	
3D UPD64081 <i>continued</i>							
115	YPFG	Y Peaking Gain	0-15	Fix	10	10	
116	V1PS	Line Comb Dot H	0-3	Fix	2	2	
117	VEGS	Line Comb Dot V	0-3	Fix	2	2	
118	CC3N	C Width	0,1	Fix	0	0	
119	C0HS	C Delay On	0,1	Fix	0	0	
120	CLPH	Y-Ad Clamp Test	0,1	Fix	0	0	
121	SEL2	DC Sensitivity Small	0,1	Fix	0	0	
122	SEL1	DY Sensitivity Small	0,1	Fix	0	0	
123	YHCO	Coring Small	0-3	Fix	1	1	
124	YPCO	Coring On	0,1	Fix	0	0	
125	ED2O	Standard	0,1	Fix	1	1	
126	OVST	Standard	0,1	Fix	0	0	
127	CSHD	Standard	0,1	Fix	0	0	
128	KCTT	Standard	0-3	Fix	0	0	
129	SHT1	Standard	0,1	Fix	0	0	
130	SHT0	Standard	0,1	Fix	0	0	
131	VCT	Standard	0,1	Fix	0	0	
132	OTT	Standard	0,1	Fix	0	0	
133	CGAT	Standard	0,1	Fix	0	0	
134	CGGT	Standard	0,1	Fix	0	0	
135	CGFT	Standard	0,1	Fix	0	0	
136	CGT	Standard	0,1	Fix	0	0	
137	HPLL	H PLL Fast	0,1	Fix	1	1	
138	BPLL	Burst PLL Fast	0,1	Fix	0	0	
139	FSCF	Burst Gain Large	0,1	Fix	0	0	
140	PLLF	PLL Loop Gain Large	0,1	Fix	1	1	
141	KILR	Killer Level	0-15	Fix	3	3	
142	HSSL	H Slice Level	0-15	Fix	12	12	
143	VSSL	V Slice Level	0-15	Fix	8	8	
144	BGPS	Start Burst Gate	0-15	Fix	4	4	
145	BGPW	Width of Burst Gate	0-15	Fix	10	10	
146	ADCL	ADC Clock	0-3	Fix	3	3	
147	ADPD	ADC Power Down On	0,1	Fix	1	1	
148	ADLT	Standard	0,1	Fix	0	0	
149	NRZO	Check On	0,1	Fix	0	0	
150	FSCO	Level Check On	0,1	Fix	0	0	
151	VTVH	Normal	0-3	Fix	0	0	
152	TST2	Standard	0,1	Fix	0	0	
153	HMEM	Use	0,1	Fix	1	1	
154	HINV	Polarity of Reset	0,1	Fix	1	1	
155	HTMG	Field Memory Address	0,1	Fix	0	0	
156	HCP	HH Carrier Phase	0-15	Fix	7	7	
157	TST3	Test	0,1	Fix	0	0	
158	HHMG	HH Moving Gain	0,1	Fix	1	1	
159	HHFG	HH	0-3	Fix	0	0	
160	HHTG	Max HH	0-15	Fix	5	5	
PI TA1226N							
161	SHPR	Picture Improvement Sharpness	0-127	Fix	59	59	
162	BLAD	Picture Improvement Black Area Detect	0-3	Fix	0	0	
163	SRTS	Picture Improvement SRT Start Pos	0-3	Fix	3	3	
164	YNR	Picture Improvement YNR	0,1	Fix	1	1	
165	GIRE	Picture Improvement Gamma Start Point	0-3	Fix	3	3	
166	DAC1	Picture Improvement DAC1	0,1	Fix	0	0	
167	DAC2	Picture Improvement DAC2	0,1	Fix	0	0	
168	GCUR	Picture Improvement Gamma Curve	0,1	Fix	0	0	
169	BLKC	Picture Improvement Black Compensation	0,1	Fix	1	1	
170	TEST	Picture Improvement Test	0-3	Fix	3	3	
171	RS	Picture Improvement RS	0-7	Fix	0	0	
172	RTC	Picture Improvement RTC	0-7	Fix	4	4	

Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**	Comments
						All Models	
DC CXA2060							
173	DCSF	Dynamic Convergence DC Shift	0-63	Fix	40	40	
174	UYBW	Dynamic Convergence Upper YBOW	0-63	Fix	31	31	
175	LYBW	Dynamic Convergence Lower YBOW	0-63	Fix	31	31	
176	HAMP	Dynamic Convergence H. Amp	0-63	Fix	15	15	
177	UCBW	Dynamic Convergence U. CBOW	0-63	Fix	21	21	
178	LCBW	Dynamic Convergence L. CBOW	0-63	Fix	14	14	
179	UMBH	Dynamic Convergence U. MBH	0-63	Fix	15	15	
180	LMBH	Dynamic Convergence L. MBH	0-63	Fix	15	15	
181	PWM	Dynamic Convergence PWM	0-63	Fix	63	63	
182	HTLT	Dynamic Convergence H. Tilt	0-63	Fix	1	1	
183	UTLT	Dynamic Convergence U. Tilt	0-63	Fix	1	1	
184	LTLT	Dynamic Convergence L. Tilt	0-63	Fix	1	1	
185	HDTY	Dynamic Convergence H. Duty	0-3	Fix	3	3	
186	TOFF	Dynamic Convergence Tilt Off	0,1	Fix	1	1	
187	DAC0	Dynamic Convergence DAC0	0-255	Fix	192	192	
188	DAC1	Dynamic Convergence DAC1	0-255	Fix	7	7	
SP SDA9288							
189	PYSD	P in P (Siemens) YS Delay	0-15	Fix	2	2	
190	PIPH	P in P (Siemens) H-Position	0-127	Fix	78	78	
191	PIPV	P in P (Siemens) V-Position	0-63	Fix	18	18	
192	PYDL	P in P (Siemens) Y-Delay	0-7	Fix	0	0	
193	PIFX	P in P Inset Fixed	0-3	Fix	2	2	
194	PPFX	P in P Parent Fixed	0-3	Fix	2	2	
195	PCLI	P in P CLISW	0,1	Fix	1	1	
196	PAMS	P in P AMSEC	0,1	Fix	0	0	
197	PHDL	P in P (Siemens) H-Pulse Delay (Inset)	0-15	Fix	15	15	
198	PMVD	P in P (Siemens) V-Pulse Delay (Main)	0-31	Fix	11	11	
199	PIVD	P in P (Siemens) V-Pulse Delay (Inset)	0-31	Fix	18	18	
200	PCON	P in P (Siemens) Contrast Level (Inset)	0-15	Fix	7	1	
201	FRMY	P in P (Siemens) Frame Y	0-15	Fix	10	10	
202	CHRI	P in P (Siemens) Chroma Input Polarity	0,1	Fix	0	0	
203	CHRO	P in P (Siemens) Chroma Output Polarity	0,1	Fix	0	0	
204	MAT0	P in P (Siemens) MAT0	0,1	Fix	1	1	
205	MAT1	P in P (Siemens) MAT1	0,1	Fix	1	1	
206	MAT2	P in P (Siemens) MAT2	0,1	Fix	0	0	
207	IPER	P in P (Siemens) Pedastel R-Y	0-15	Fix	0	0	
208	IPEB	P in P (Siemens) Pedastel B-Y	0-15	Fix	0	0	
209	PCPS	P in P (Siemens) CLP & HSIDEL	0,1	Fix	0	0	
210	PCPF	P in P (Siemens) CLP Cycles	0,1	Fix	0	0	
211	PSEL	P in P (Siemens) SELDOWN	0,1	Fix	1	1	
212	PPLL	P in P (Siemens) PLL Filter	0-3	Fix	0	0	
213	PVNR	P in P (Siemens) VSP Pulse Noise Red.	0,1	Fix	0	0	
Note: PIP Setting - IC SDA9288 continued							
		SERVICE MODE ITEM	Model Groups				
		IC (SDA9288)	32V / 34V / 36V / 38V				
		PHDL (HSI DELAY)	15				
		PMVD (VSP DELAY)	11				
		PIVD (VSI DELAY)	18				
		PCON (CONTRAST)	1				
IC CXA2019							
214	IDPX		0,1	Fix	0	0	
215	ICOL	Color	0-63	Fix	38	38	
216	ISHP	Sharpness	0-15	Fix	10	10	
217	ISCO	Sub Chroma Decoder Sub Cont	0-15	Fix	7	7	
218	ISCL	Sub Chroma Decoder Sub Color	0-15	Fix	12	8	
219	ISHU	Sub Chroma Decoder Sub Hue	0-15	Fix	7	7	
220	ITOT	Sub Chroma Decoder Tot On	0,1	Fix	0	0	
221	ITRP	Sub Chroma Decoder Trap On	0,1	Fix	1	1	
222	IAFC	AFC	0-3	Fix	1	1	
223	ITRA	Sub Chroma Decoder CTRAPADJ	0-15	Fix	7	7	
224	ICD2	Sub Chroma Decoder CD Mode2	0,1	Fix	1	1	
225	ISF0	SHP-F0	0,1	Fix	1	1	
226	IYDR	Sub Chroma Decoder Y Drive	0-31	Fix	24	24	
227	IVPE	Sub Chroma Decoder V Ped	0-15	Fix	0	0	
228	IUPE	Sub Chroma Decoder U Ped	0-15	Fix	0	0	
229	IRVP	Sub Chroma Decoder RV Ped	0-15	Fix	7	7	
230	IRUP	Sub Chroma Decoder RU Ped	0-15	Fix	4	7	

Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data** All Models	Comments
IC CXA2019 continued							
231	IDCT	Sub Chroma Decoder DC Tran	0-7	Fix	6	6	
232	IRYD	Sub Chroma Decoder RY Drive	0-31	Fix	19	19	
233	IPRE	Sub Chroma Decoder Pre Over	0-3	Fix	1	1	
234	IRUD	Sub Chroma Decoder RU Drive	0-31	Fix	8	8	
235	IRVD	Sub Chroma Decoder RV Drive	0-31	Fix	8	8	
236	IDLY	Sub Chroma Decoder Delay	0-3	Fix	0	0	
237	ISCR	Sub Chroma Decoder SCP BGR	0-3	Fix	1	1	
238	ISCF	Sub Chroma Decoder SCP BGF	0-3	Fix	1	1	
Note: PIP Setting - IC CXA2019 continued							
		SERVICE MODE ITEM	Model Groups				
		IC (CXA2019AQ)	32V / 34V / 36V / 38V				
		ICSL (SUB-COLOR)	8				
		IVPE (V PEDESTAL)	0				
		IUPE (U PEDESTAL)	0				
		IRVP (V PEDESTAL2)	7				
		IRUP (U PEDESTAL2)	7				
		IDCT (DC TRAN)	6				
DA CXA1315							
239	RTCO	D/A Converter N-S Correction	0-63	Fix	32	32	
240	2COL	Color	0-255	Fix	120	120	
241	4COL	Color	0-255	Fix	120	120	
242	2SHU	Sub Hue	0-31	Fix	15	15	
243	4SHU	Sub Hue	0-31	Fix	15	15	
D1 CXD2085							
244	XJGL	XJGLK	0,1	Fix	0	0	
245	LNJ1	LNJ1	0,1	Fix	0	0	
CC CXP85856A							
246	CRIL	CCD CRI Pulse Compare Data Low	0-15	Fix	2	2	
247	CFLD	CCD Caption Fixed-Field Count	0-15	Fix	5	5	
248	CCDI	CCD No CCD Interrupt	0-7	Fix	3	3	
249	CRIP	CCD CRI & Parity Error	0-7	Fix	4	4	
250	CRIT	CCD CRI Time Constant	0-3	Fix	0	0	
251	CSB1	CCD Sync Slice Bias 1	0-3	Fix	3	3	
252	CSB2	CCD Sync Slice Bias 2	0-7	Fix	4	4	
253	CREP	CCD CRI Signal End Position	0-256	Fix	142	142	
254	CSDS	CCD Data Start Delay	0-31	Fix	8	8	
255	CCDS	CCD Caption Data Threshold	0-31	Fix	9	9	
256	CHMK	CCD P8-HMASK	0-63	Fix	42	42	
257	CHSY	CCD P8-HSYC	0-255	Fix	136	136	
OP CXP85856A							
258	DISP	OSD Position	0-63	Adj	1	1	
ID MAP							
259	ID 0	NVM ID 0	0-255	Fix by model	89	89	See ID map
260	ID 1	NVM ID 1	0-255	Fix by model	55	55	See ID map
261	ID 2	NVM ID 2	0-255	Fix by model	175	175	See ID map
262	ID 3	NVM ID 3	0-255	Fix by model	96	96	See ID map
263	ID 4	NVM ID 4	0-255	Fix by model	203	203	See ID map
264	ID 5	NVM ID 5	0-255	Fix by model	181	181	See ID map
265	ID 6	NVM ID 6	0-255	Fix by model	6	6	See ID map
266	ID 7	NVM ID 7	0-255	Fix by model	9	9	See ID map

(5) Feature ID Map

	ID 0	ID 1	ID 2	ID 3	ID 4	ID 5	ID 6	ID 7
KV-32FS10	89	63	47	96	203	177	0	0
KV-32FS10CND	89	63	47	112	203	177	0	0
KV-34FV10	25	63	175	64	251	177	0	0
KV-32FV15	89	63	175	96	203	181	6	0
KV-32FV15CND	89	63	175	112	203	181	6	0
KV-34FV15	25	63	175	64	251	181	6	0
KV-34FV15C	25	63	175	64	251	181	6	0
KV-34FV15T	9	63	175	64	219	181	6	0
KV-34FV15K	137	63	175	64	219	181	6	0
KV-32XBR250	89	63	175	96	203	181	6	9
KV-32XBR250CND	89	63	175	112	203	181	6	9
KV-34FX250C	25	63	175	64	251	181	6	9
KV-36FS10	89	63	47	96	203	177	0	0
KV-36FS10CND	89	63	47	112	203	177	0	0
KV-36FV15	89	63	175	96	203	181	6	0
KV-36FV15CND	89	63	175	112	203	181	6	0
KV-38FV15K	137	63	175	64	219	181	6	0
KV-36XBR250	89	63	175	96	203	181	6	9
KV-36XBR250CND	89	63	175	112	203	181	6	9
KV-38FX250	25	63	175	64	251	181	6	9
KV-38FX250C	25	63	175	64	251	181	6	9
KV-38FX250T	9	63	175	64	219	181	6	9

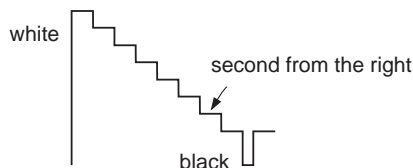
SERVICE IDO 25

Note: Items 1-266 show adjustment order

GROUP	FEATURES	NAME
G	32inchx120Vac	KV-32FS10 (8978(U)/8979(CND))
H	32inchxAUTO	KV-34FV10 (8980(E))
I	32inchx120VacxPIP	KV-32FV15 (8973(U)/8974(CND))
J	32inchx120VacxPIPxNO V Chip	KV-34FV15T (10189(WB))
K	32inchx120VacxPIPx3D	KV-32XBR250 (8969(U)/8970(CND))
L	32inchxAUTOxPIP	KV-34FV15 (8975(E), KV-34FV15C (8977(E))
M	32inchxAUTOxPIPxKOREA	KV-34FV15K (10188(K))
N	32inchxAUTOxPIPx3D	KV-34FX250C (8972(E))
P	36inchx120Vac	KV-36FS10 (8989(U)/8990(CND))
R	36inchx120VacxPIP	KV-36FV15 (8987(U)/8988(CND))
S	36inchx120VacxPIPx3D	KV-36XBR250 (8981(U)/8982(CND))
T	36inchx120VacxPIPx3DxNO V Chip	KV-38FX250T (10190(WB))
U	36inchxAUTOxPIPx3D	KV-38FX250 (8983(E), KV-38FX250C (8986(EW))
V	36inchxAUTOxPIP	KV-38FV15K (10191(K))

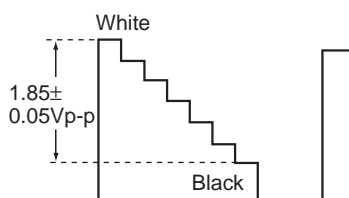
SUB BRIGHT ADJUSTMENT (SBRT)

1. Set to Service adjustment Mode.
2. Input a gray scale pattern signal.
3. Set the PICTURE to minimum, and BRIGHT to normal.
4. Select SBRT with **[1]** and **[4]**.
5. Adjust SUB BRIGHT level with **[3]** and **[6]** so that the stripe second from the right is faintly visible.
6. Write into the memory by pressing **[MUTING]** then **[ENTER]**.



SUB CONTRAST ADJUSTMENT (RDRV)

1. Input a 75% color-bar signal.
2. Set to VIDEO mode = STANDARD, COLOR = minimum, PICTURE = 100%.
GON = 0 (OFF), BON = 0 (OFF).
3. Set to Service adjustment Mode and Connect an oscilloscope pin ① of CN351 on A Board.
4. Select RDRV with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the $1.85 \pm 0.05V_{p-p}$ of level.
6. Write into the memory by **[MUTING]** then **[ENTER]**.

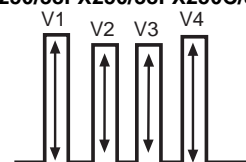


SUB HUE, SUB COLOR ADJUSTMENT (2SHU, 2COL, 4SHU, 4COL)

**NOTE: 4SHU and 4COL are for Video 4 input.
2SHU and 2COL are for all other inputs.**

1. Input a color bar signal.
2. Set to Service Adjustment Mode and set to
VIDEO mode = STANDARD
PICTURE = 100%
COLOR = 50%
HUE = 50%.
3. Connect an oscilloscope to CN351 Pin ③ of A Board.
4. Select SHUE and SCOL with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the $V1 = V4$ (2COL) and $V2 = V3$ (2SHU).
6. Write SHUE data 1 step down from even condition to NVM. 2COL is adjusted by 2SHU compensation.
7. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

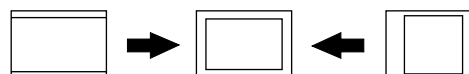
NOTE: Procedure for 4SHU and 4COL is same as above.



H. SIZE ADJUSTMENT (HSIZ)

1. Input a monoscope signal.
2. Set to Service Adjustment Mode.
3. Select HSIZ with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best Horizontal size.
5. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

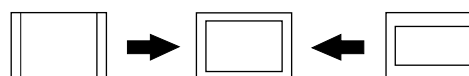
H. SIZE



V. SIZE ADJUSTMENT (VSIZ)

1. Input a monoscope signal.
2. Set to Service Adjustment mode.
3. Select VSIZ with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best vertical size.
5. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

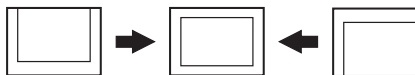
V. SIZE



V. POSITION ADJUSTMENT (VPOS)

1. Input a monoscope signal.
2. Set to Service Adjustment Mode.
3. Select VPOS with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best vertical center.
5. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

V. POSITION



H. POSITION ADJUSTMENT (HPOS)

HPOS data range is from 0~15.

1. Input a monoscope signal.
2. Set the Service adjustment Mode.
3. Select HPOS with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best horizontal center.
5. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

H. POSITION

