

KV-20M10/20S10/MT2000/ST2050

RM-Y116 RM-Y116 RM-Y123 RM-Y123

KV-21R10/21RS10/2180R/2190RS

RM-Y116 RM-Y116 RM-Y123 RM-Y123

SERVICE MANUAL

US Model

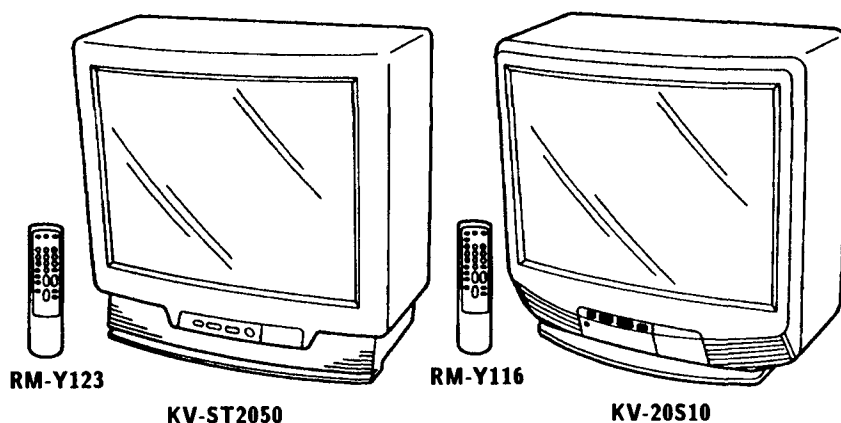
KV-20M10 Chassis No. SCC-G92B-A
KV-20S10 Chassis No. SCC-G92C-A

Canadian Model

KV-20M10 Chassis No. SCC-G94D-A
KV-20S10 Chassis No. SCC-G94F-A
KV-MT2000 Chassis No. SCC-G94C-A
KV-ST2050 Chassis No. SCC-G94E-A

E Model

KV-21R10 Chassis No. SCC-G93E-A
KV-21RS10 Chassis No. SCC-G93F-A
KV-2180R Chassis No. SCC-G93B-A
KV-2190RS Chassis No. SCC-G93C-A



BA-2 CHASSIS

MODELS OF THE SAME SERIES

KV-20M10/20S10/MT2000/ST2050	
KV-21R10/21RS10/2180R/2190RS	
KV-13M10/MT1300/14R10/1460R	

SPECIFICATIONS

Television system
American TV standard
Channel coverage
VHF: 2-13
UHF: 14-69
CATV: 1-125
Antenna
75-ohm external antenna terminal for
VHF/UHF
Picture tube
Trinitron® tube
Power requirements
120 V, 60 Hz

■ KV-20M10/MT2000/21R10/2180R
Screen size
20 in.
Inputs
1 video, 1 audio (KV-20M10/21R10 only)
Speaker output
2 W
Power consumption
97 W when in use
4 W in standby

Sony Corporation Printed in U.S.A.

— Continued on page 2 —



TRINITRON® COLOR TV
SONY®

KV-20M10/20S10/MT2000/ST2050

RM-Y116 RM-Y116 RM-Y123 RM-Y123

KV-21R10/21RS10/2180R/2190RS

RM-Y116 RM-Y116 RM-Y123 RM-Y123

Dimensions (W/H/D)*KV-20M10/21R10:* 522 × 475 ×
471.2 mm (20⁵/₈ × 18³/₄ × 18⁵/₈ in.)*KV-MT2000/2180R:* 526 × 488 ×
477.5 mm (20³/₄ × 19¹/₄ × 18⁷/₈ in.)**Mass**

21.7 kg (47 lb 14 oz)

Supplied accessories

Size AA batteries (2)

KV-20M10/21R10: Remote commander

RM-Y116 (1), Dipole antenna (1),

Antenna connector (1)

KV-MT2000: Remote commander

RM-Y123 (1)

KV-2180R: Remote commander

RM-Y123 (1), Dipole antenna (1),

Antenna connector (1)

■ KV-20S10/ST2050/21RS10/2190RS**Screen size**

20 in.

Inputs1 video, 2 audio (*KV-20S10/21RS10
only*)**Speaker output**

2 W + 2 W

Power consumption

100 W when in use

4 W in standby

Dimensions (W/H/D)*KV-20S10/21RS10:* 522 × 475 ×
471.2 mm (20⁵/₈ × 18³/₄ × 18⁵/₈ in.)*KV-ST2050/2190RS:* 526 × 488 × 477.5
mm (20³/₄ × 19¹/₄ × 18⁷/₈ in.)**Mass**

21.8 kg (48 lb 10 oz)

Supplied accessories

Size AA batteries (2)

KV-20S10/21RS10: Remote commander

RM-Y116 (1), Dipole antenna (1),

Antenna connector (1)

KV-ST2050: Remote commander

RM-Y123 (1)

KV-2190RS: Remote commander

RM-Y123 (1), Dipole antenna (1),

Antenna connector (1)

Design and specifications are subject to
change without notice.

SAFETY CHECK-OUT

(US model only)

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 0.5mA (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 0.75V, 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)

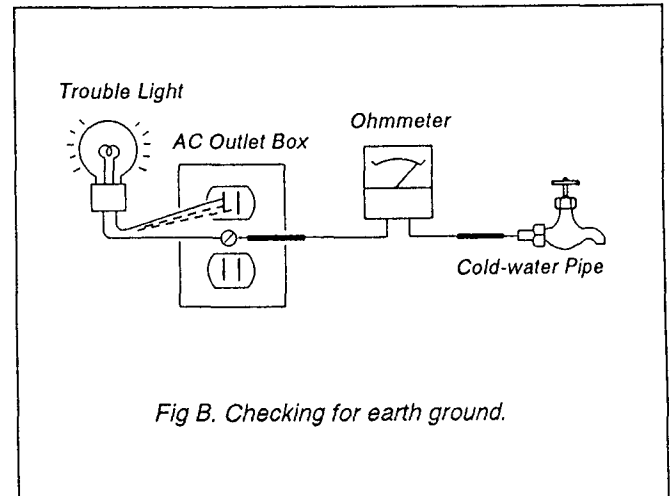
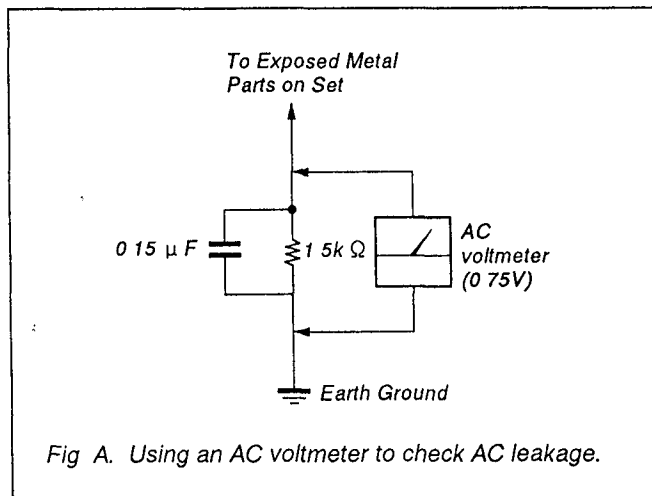


TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1. GENERAL			4. SAFETY RELATED ADJUSTMENT		18
	Connections	5	5. CIRCUIT ADJUSTMENTS		
	Setting Cable TV on or off	5	5-1	Electrical Adjustment by Remote Commander	20
	Presetting Channels	6	5-2	A Board Adjustments	22
	Functions	7	6. DIAGRAMS		
	Setting the Language Preference	8	6-1	Block Diagrams	25
	Adjusting the Picture	9	6-2	Circuit Boards Location	29
	Displaying Caption Vision	10	6-3	Printed Wiring Boards and Schematic Diagrams	29
	Specifying Stereo or Bilingual Programs (MTS)	10		• A Board	30
	Customizing the Channel Number Buttons	11		• C Board	37
	Listening with Headphones	11	6-4	Semiconductors	38
2. DISASSEMBLY			7. EXPLODED VIEW		
2-1	Rear Cover Removal	12	7-1	Chassis	39
2-2	A Board Removal (KV-20M10/21R10/20S10/ 21RS10 only)	12	8. ELECTRICAL PARTS LIST		40
2-3	Service Position	12			
2-4	Picture Tube Removal	13			
3. SET-UP ADJUSTMENTS					
3-1	Beam Landing	14			
3-2	Convergence	15			
3-3	Focus	17			
3-4	Screen (G2)	17			
3-5	Method of Setting the Service Adjustment Mode	17			
3-6	White Balance Adjustment	17			

(CAUTION)

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

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 Δ 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.

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

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MAPQUE Δ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIÈCES CONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIÉS DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

SECTION 1 GENERAL

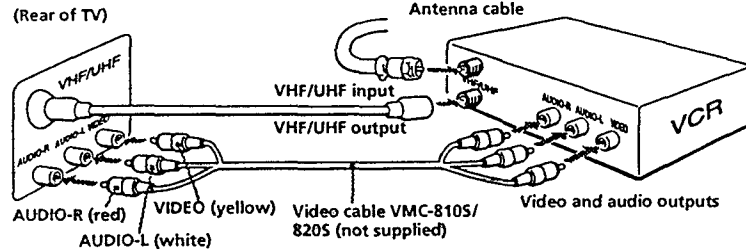
The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

Connections

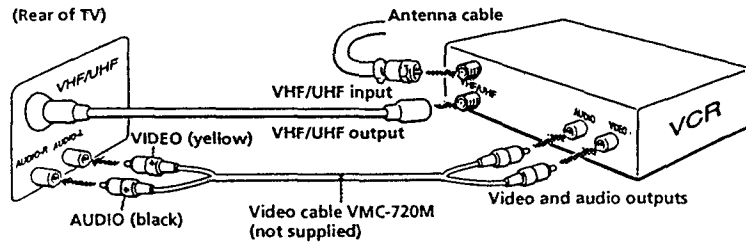
Connecting to a VCR

To connect the VCR to the TV, first check the model number of the TV and select the appropriate connection diagram below. For details on connection, see the instruction manual of the VCR. Before making the connection, disconnect the AC power cords of equipment being used.

■ For KV-20S10/21R510



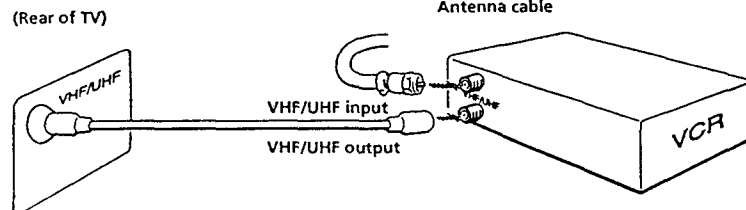
■ For KV-20M10/21R10



To watch video tapes

Press the TV/VIDEO button until "VIDEO" appears on the screen.

■ For KV-MT2000/ST2050/2180R/2190RS



To watch video tapes

- 1 On the TV: Preset channel 3 or 4, whichever is not used in your area, following the instructions for adding channels in "Presetting channels" (page 13).
- 2 On the VCR: Set the channel to the same channel as chosen above. Then begin viewing the video tape.

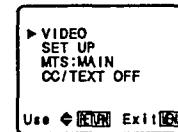
Setting cable TV on or off

If the TV is connected to a cable TV system, then the factory setting CABLE ON is correct. If the TV is not connected, set CABLE to OFF.

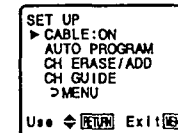
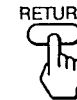
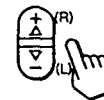
Note

If more than 90 seconds elapse after you press a button, the menu disappears automatically.

- 1 Press MENU.
The main menu appears.



- 2 Press Δ + or ∇ - on the remote commander to move the cursor (\blacktriangleright) on the screen to SET UP. To select that function, press RETURN.
The SET UP menu appears.

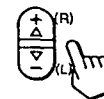


Note

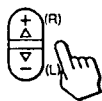
If CABLE appears in black, the TV is set to video input and CABLE cannot be selected. Press TV/VIDEO so that a channel number appears.

- 3 Set CABLE to ON or OFF.

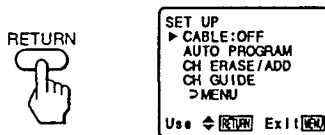
- (1) If the cursor is not beside CABLE, press Δ + or ∇ - to move the cursor and press RETURN.



(2) Press Δ + or ∇ -, to select ON or OFF.



(3) Press RETURN.



4 Press MENU to return to the original screen.

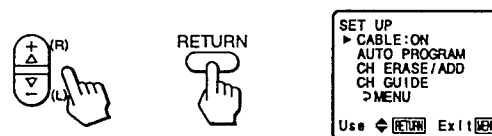


Presetting channels

TV channels can be preset easily: first store all the receivable channels automatically, following the procedure below. Next, erase unwanted channels or add additional channels. Preset channels during the day rather than late at night, when some channels may not be broadcasting.

1 Press MENU.

2 Press Δ + or ∇ - on the remote commander to move the cursor (\blacktriangleright) on the screen to SET UP and press RETURN.
The SET UP menu appears.



Note

If AUTO PROGRAM appears in black, the TV is set to video input and AUTO PROGRAM cannot be selected. Press TV/VIDEO so that a channel number appears.

3 Select AUTO PROGRAM.

(1) Press Δ + or ∇ - to move the cursor (\blacktriangleright) to AUTO PROGRAM.



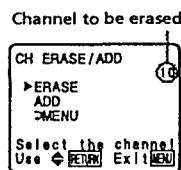
(2) Press RETURN.



"AUTO PROGRAM" appears on the screen and the TV starts scanning and presetting channels automatically. When all the receivable channels are stored, "AUTO PROGRAM" disappears and the lowest numbered channel is displayed.

Erasing or adding channels

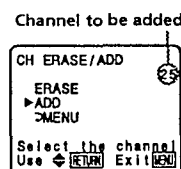
- 1 Press MENU.
- 2 Press Δ + or ∇ - to select SET UP and press RETURN.
- 3 Press Δ + or ∇ - to select CH ERASE/ADD and press RETURN.
- 4 To erase an unwanted channel:
 - (1) Press CH +/- to select the channel you want to erase.
 - (2) Make sure the cursor (\blacktriangleright) is beside ERASE.



- (3) Press RETURN.
The indication "-" appears beside the channel number, showing that the channel is erased from the preset memory.

To add a channel that you want:

- (1) Press 0-9 buttons to select the channel you want to add and press ENTER.
- (2) Press Δ + or ∇ - to select ADD.



- (3) Press RETURN.
The indication "+" appears beside the channel number, showing that the channel is added to the preset memory.

- 5 To erase and/or add other channels, repeat step 4.
- 6 When finished, press MENU.

Note

If you erase or add a VHF or UHF channel, the cable TV channel with the same number is also erased or added, and vice versa.

Available Features

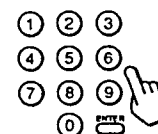
Functions

Note

If "VIDEO" appears on the screen, press TV/VIDEO so that a channel number appears.

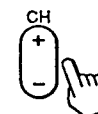
Selecting a channel directly

Press the 0-9 buttons to select a channel. Or press ENTER after entering the channel for immediate selection.



To scan through channels

Press CH +/- until the channel you want appears.



Switching quickly between two channels

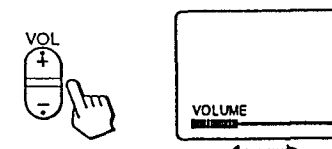
Press JUMP.

The channel you watched previously appears. Pressing JUMP again switches back to the previous channel.



Adjusting the volume

Press VOL +/- to adjust the volume.



Muting the sound

Press MUTING.

"MUTING" appears on the screen.



To restore the sound, press MUTING again, or press VOL +.

Displaying on-screen information

Use this feature to check your channels and MTS mode.

Press DISPLAY.



To cancel the display, press DISPLAY again.

Setting the Sleep Timer

The TV stays on for the length of time specified and then shuts off automatically.

Press SLEEP repeatedly until the time (minutes) wanted appears. Each time you press SLEEP, the time changes as follows: 30 → 60 → 90 → OFF.



To cancel the Sleep Timer, press SLEEP repeatedly until "SLEEP OFF" appears, or turn the TV off.

Note

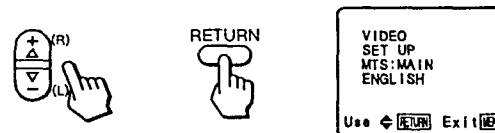
If DISPLAY or MUTING is pressed with Caption Vision selected, the channel or muting display will disappear after a few seconds.

Setting the language preference

■ For models KV-21R10/21RS10/2180R/2190RS

If Spanish is preferred to English, the menu language can be changed.

- 1 Press MENU.
- 2 Press Δ+ or ∇- to move the cursor (▶) to ENGLISH and press RETURN.



- 3 Press Δ+ or ∇- to select SPANISH and press RETURN.



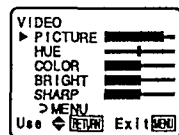
- 4 Press MENU to return to the normal screen.



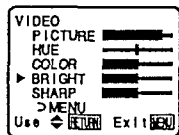
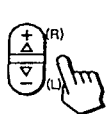
Adjusting the picture

When watching TV programs, the quality of the picture can be adjusted to suit your taste.

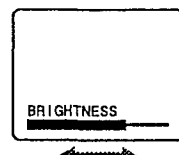
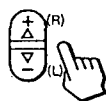
- 1 Press MENU.
- 2 Make sure the cursor (►) is beside VIDEO and press RETURN.



- 3 Select the item to adjust. See following chart for details on results of adjustments. For example:
To adjust brightness, press $\Delta+$ or $\nabla-$ to select BRIGHT and press RETURN.



- 4 Adjust the selected item:
(1) Press $\Delta+$ or $\nabla-$ to adjust the item.



- (2) Press RETURN.
The new setting appears in the VIDEO menu.

- 5 To adjust other items, repeat steps 3 and 4 above.

Description of adjustable items

Item	Adjustment	
	Press $\Delta+$ to	Press $\nabla-$ to
PICTURE	Increase picture contrast for vivid color	Decrease picture contrast for soft color
HUE	Make skin tones become greenish	Make skin tones become purplish
COLOR	Increase color intensity	Decrease color intensity
BRIGHT	Brighten the picture	Darken the picture
SHARP	Sharpen the picture	Soften the picture

To restore the factory settings

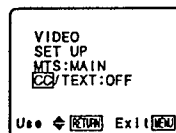
Press RESET while the VIDEO menu is displayed. All the settings except PICTURE are restored to factory settings.

Displaying Caption Vision

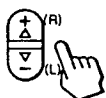
■ USA and Canadian models only

Some programs are broadcast with Caption Vision. To display Caption Vision, select either CC1, CC2, TEXT1, or TEXT2 from the menu. CC1 or CC2 shows you a caption, that is a printed version of the dialog or sound effects of a program. (The mode should be set to CC1 for most programs.) TEXT1 or TEXT2 shows you text, that is information presented using half of the screen. It is not usually related to the program.

- 1 Press MENU.
- 2 Press Δ + or ∇ - to select **CC** /TEXT and press RETURN.



- 3 Press Δ + or ∇ - to select the caption type and press RETURN.



Notes

- Captions disappear for a few seconds when you press the DISPLAY or MUTING button.
- Captions may appear with a white box or other errors instead of a certain word. Poor reception of TV programs can also cause errors in captions.

Specifying stereo or bilingual programs (MTS)

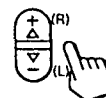
■ For models KV-20S10/ST2050/21RS10/2190RS

The Multichannel TV Sound (MTS) feature allows you to enjoy stereo sound (MAIN) or Second Audio Programs (SAP) at your choice. The initial setting is stereo sound (MAIN).

- 1 Press MENU.
- 2 Make sure the cursor (\blacktriangleright) is beside MTS and press RETURN.



- 3 Press Δ + or ∇ - to select MAIN, SAP, or MONO and press RETURN.



MTS mode	Sound source
MAIN	Listen to stereo sound.
SAP	Listen to bilingual programs. The sound of non-SAP programs will be muted when SAP is selected.
MONO	Reduce noise during stereo broadcasts.

Customizing the channel number buttons

Up to 12 channels can be assigned to a specific channel number. This feature allows the easy selection of your favorite channels using the on-screen menu. For example, channel number button 2 can be assigned to channel 124.

Assigning a channel number button to a favorite channel

- 1 Press MENU.
- 2 Press Δ + or ∇ - to select SET UP and press RETURN.
- 3 Press Δ + or ∇ - to select CH GUIDE and press RETURN.

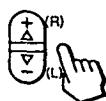
CH GUIDE			
1	2	3	
4	5	6	
7	8	9	
D	0	E	

- 4 Press RETURN again.



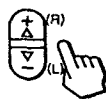
CH GUIDE			
1	2	3	
4	5	6	
7	8	9	
D	0	E	

- 5 Press Δ + or ∇ - to select a customized channel number (chosen number will appear in red) and press RETURN. Numbers 0-9 and DISPLAY and ENTER are available for use as a customized channel number. DISPLAY and ENTER are shown as D and E respectively on the screen. The channel number button selected will be the one you press to call up your favorite channel.



CH GUIDE			
1	2	3	
4	5	6	
7	8	9	
D	0	E	

- 6 Press Δ + or ∇ - to select the channel and press RETURN.



CH GUIDE			
1	2	3	
4	5	6	
7	8	9	
D	0	E	

- 7 Repeat steps 5 and 6 to set other channels.

To cancel a setting

Select the channel you want to cancel in step 5, then press RESET.

Using the customized channel number buttons

- 1 Press CH GUIDE.
The CHANNEL GUIDE menu appears showing channel number buttons and the corresponding channels.
- 2 Press a channel number button, DISPLAY or ENTER on the commander to select the channel you want.

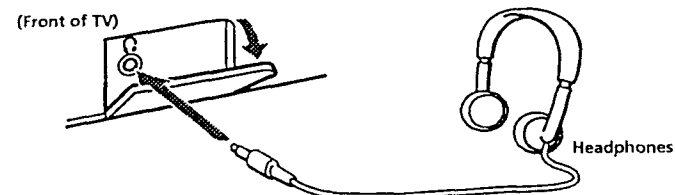
To cancel the CHANNEL GUIDE menu

Press CH GUIDE while the CHANNEL GUIDE menu is displayed.

Listening with headphones

■ For models KV-20M10/20S10/21R10/21RS10/21M10

Plug the headphones into the headphones jack.

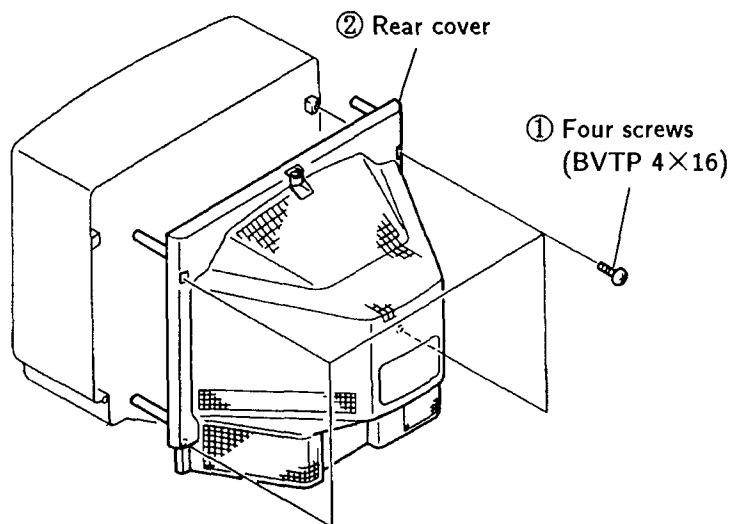


Notes

- To prevent hearing damage due to sudden or prolonged excessive volume, do not raise the headphones volume too high while listening.
- Using the headphones jack will turn off the sound to TV speakers.
- If your TV is a monaural TV, the monaural sound will be heard from both headphones.

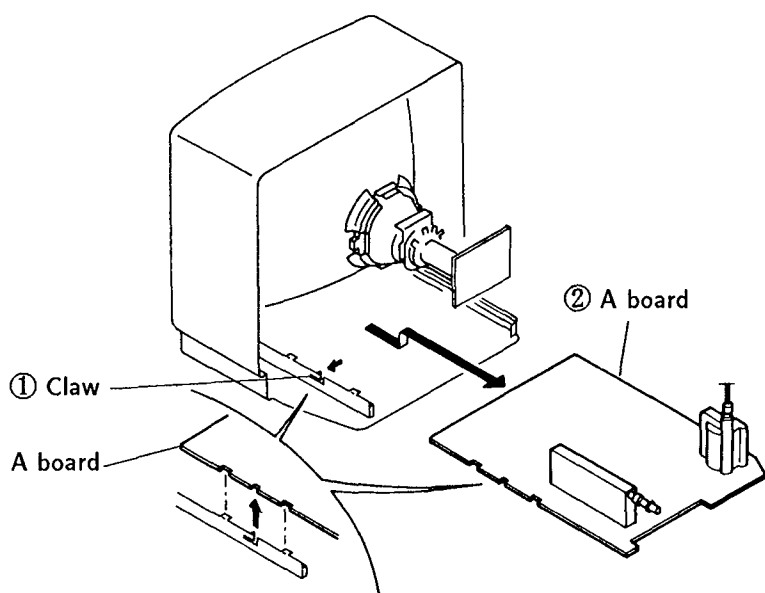
SECTION 2 DISASSEMBLY

2-1. REAR COVER REMOVAL



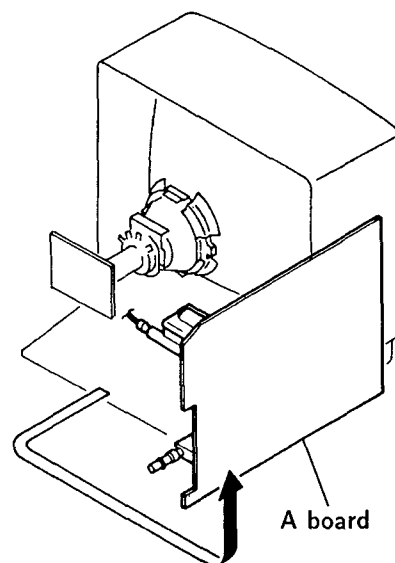
KV-MT2000/ST2050/2180R/2190RS

2-2. A BOARD REMOVAL



KV-20M10/21R10/20S10/21RS10 only

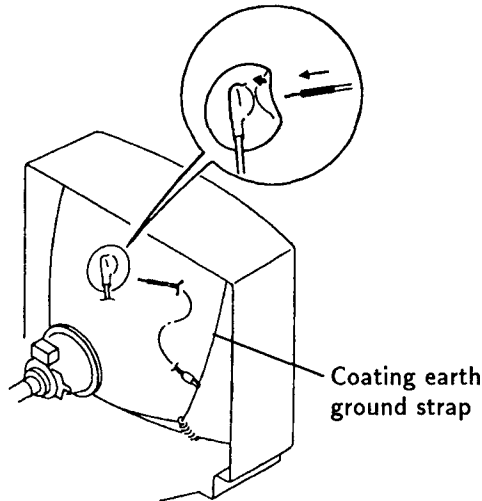
2-3. SERVICE POSITION



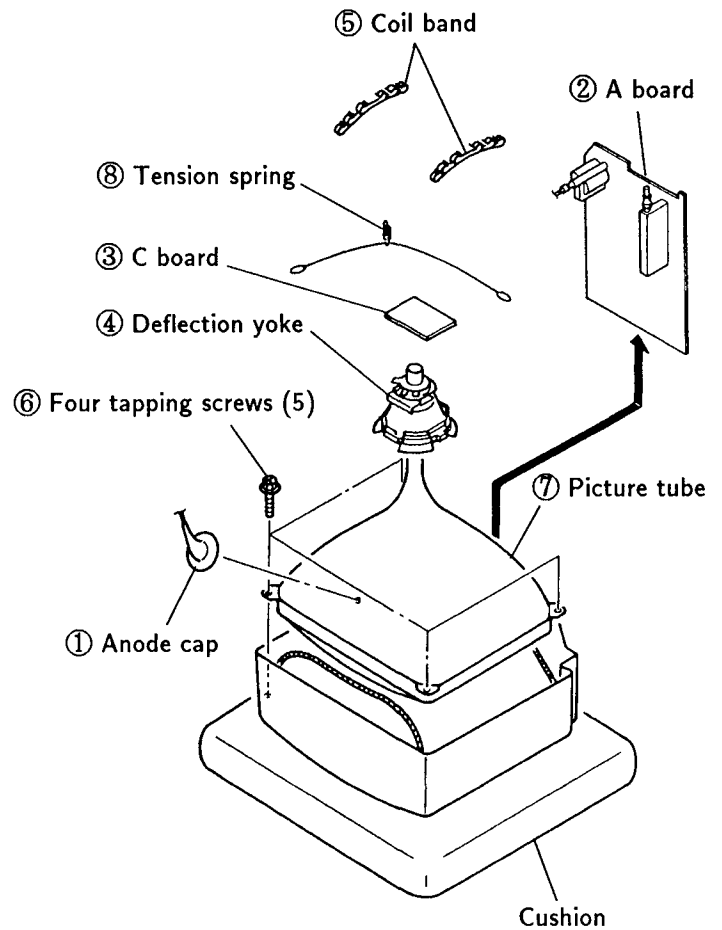
WARNING: Before removing anode cap

H. V. remains in the CRT even after the power is disconnected.

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



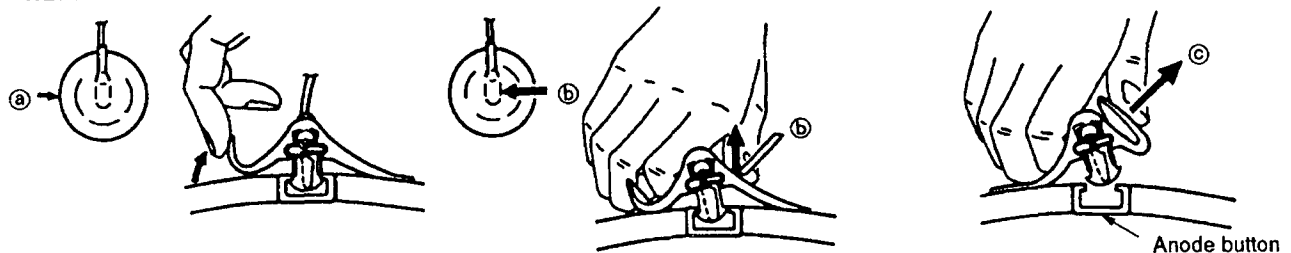
2-4. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

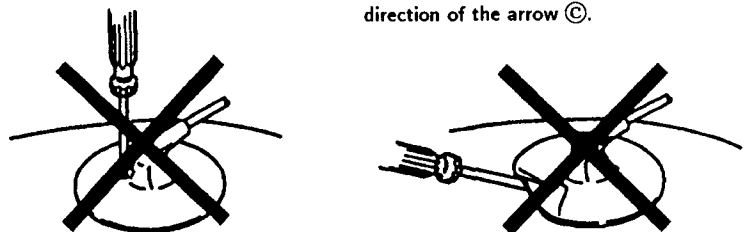
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon painted on the CRT, after removing the anode.

• REMOVING PROCEDURES



• HOW TO HANDLE AN ANODE-CAP

- ① Don't hurt the surface of anode-caps with sharp shaped material!
- ② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.
- ③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt 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

Preparation:

- Feed in the white pattern signal.
- Before starting, degauss the entire screen.

3-1. BEAM LANDING

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are at the sides evenly.(Fig.3)
5. Move the deflection yoke forward, and adjust so that the entire screen becomes green. (Fig.1)
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. (Fig.4)

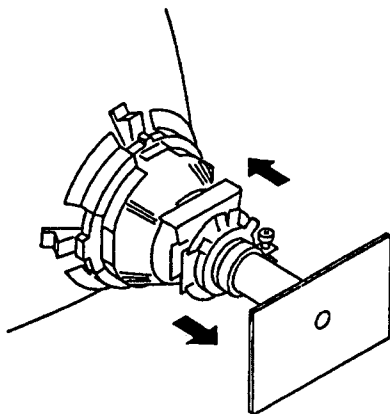


Fig.1

Perform the adjustments in order as follows:

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

Note: Test Equipment Required.

1. Color bar Pattern Generator
2. Degausser
3. DC Power Supply
4. Digital multimeter

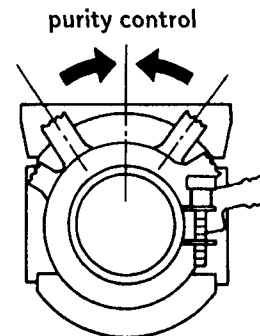


Fig.2

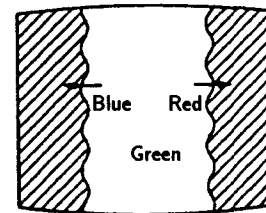


Fig.3

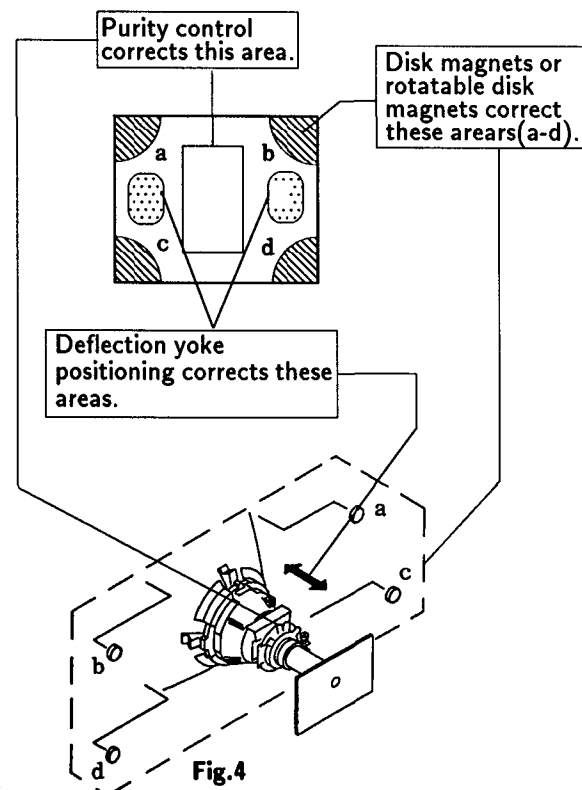


Fig.4

3-2. CONVERGENCE

Preparation:

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

(1) Vertical Static Convergence

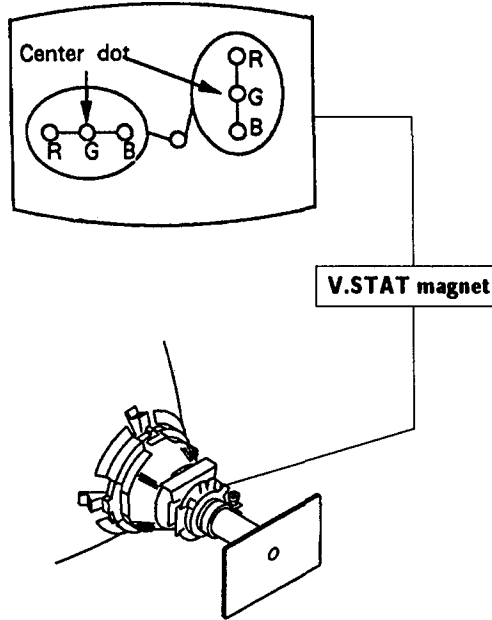
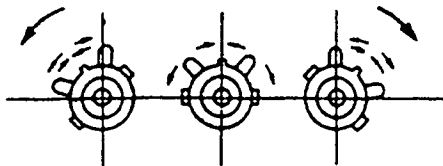
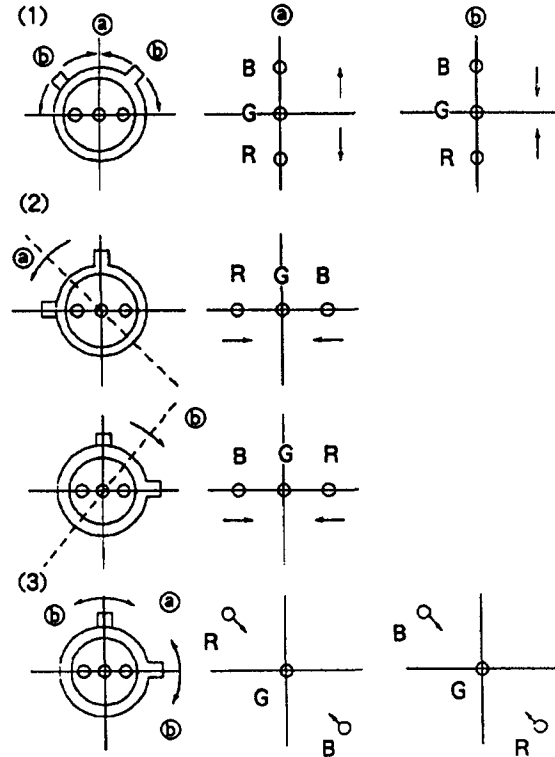


Fig.5

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



If the blue dot does not converge with red and green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H.static convergence.

Rotate BMC magnet (b) to correct insufficient V.static convergence.

In either case, repeat Beam Landing Adjustment.

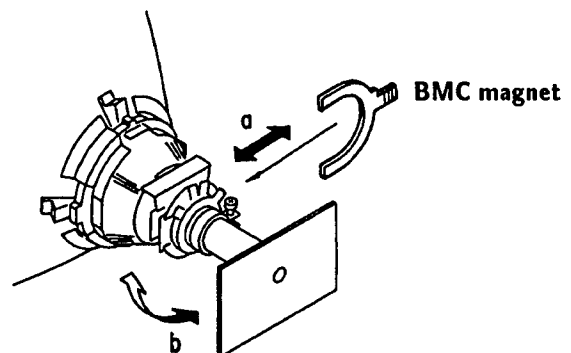


Fig.6

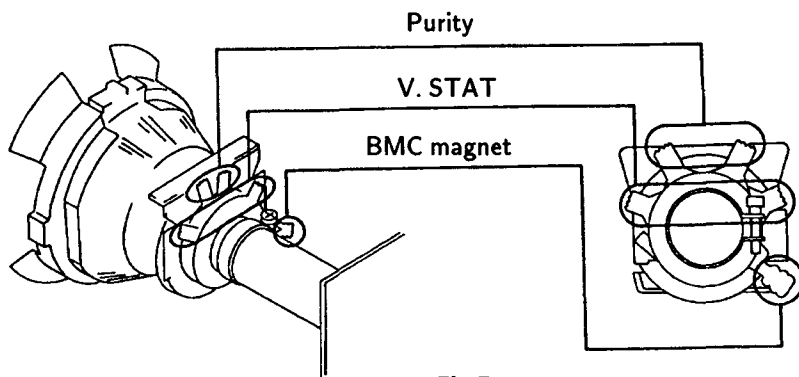


Fig. 7

(2) Dynamic Convergence Adjustment

Preparation:

- 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.

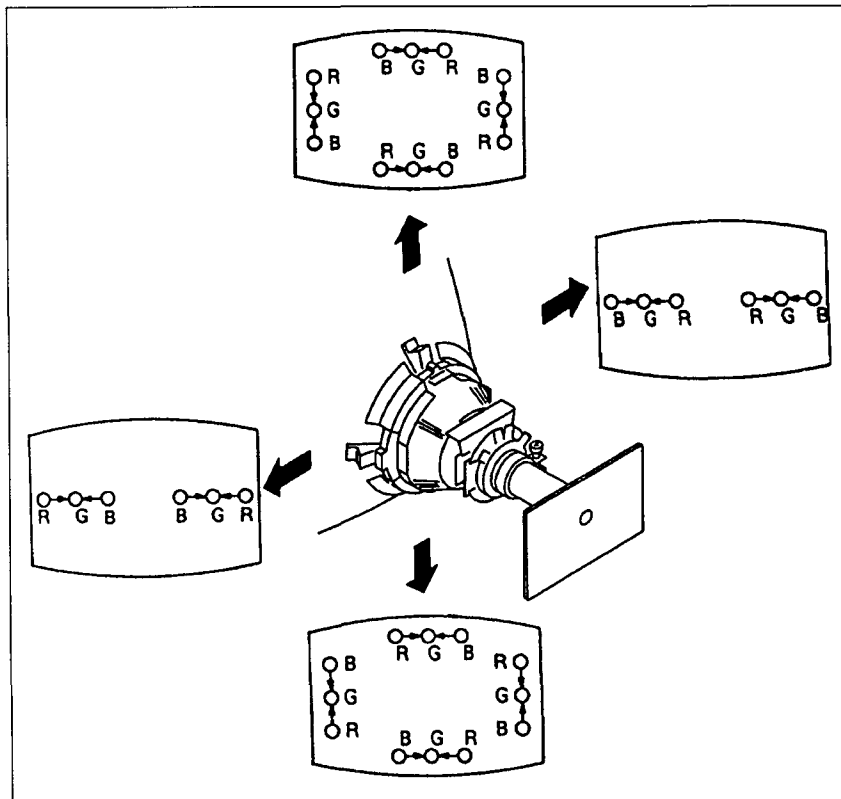


Fig. 8

(3) Screen-corner Convergence

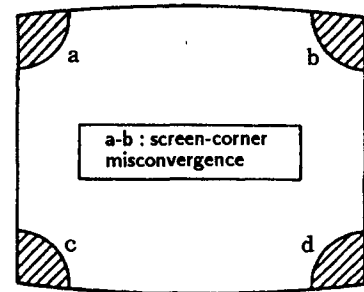
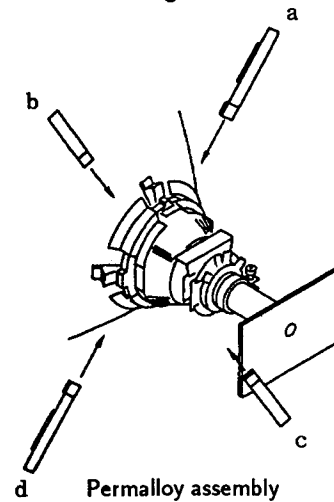


Fig. 9

Affix a Permalloy ass'y corresponding to the misconverged areas



Permalloy assembly

3-3. FOCUS

Adjust FOCUS control for best picture.

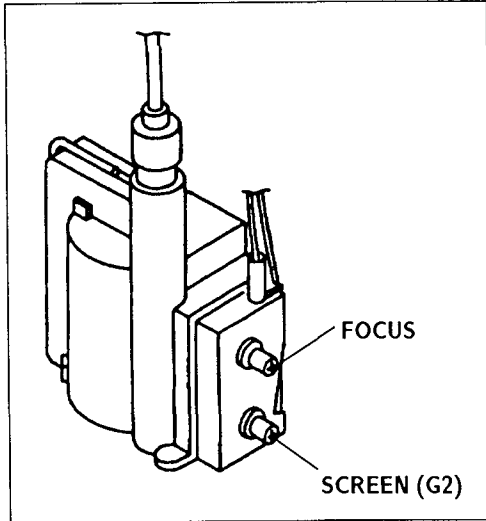


Fig.10

3-4. SCREEN (G 2)

1. Input a dots pattern.
2. Set the PIC, BRT controls at minimum and COLOR control at normal.
3. Adjust S BRT, G CUT, B CUT in service mode so that voltages on the red, green and blue cathodes are 170V dc with an oscilloscope as shown in Fig.11.
4. Observe the screen and adjust SCREEN (G2) VR to obtain the faintly visible background of dot signal.

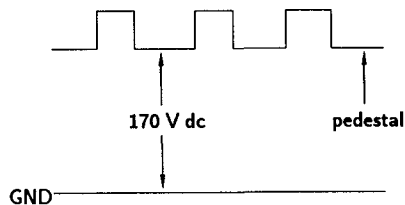


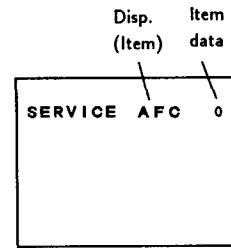
Fig.11

3-5. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

SERVICE MODE PROCEDURE

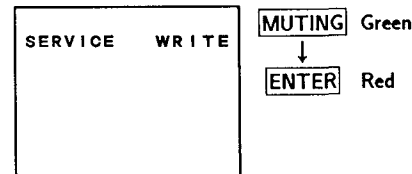
1. Standby mode.(Power off)
2. **DISPLAY** → **5** → **VOL (+)** → **POWER** on the Remote Commander. (Press each button within a second.)

SERVICE ADJUSTMENT MODE IN



3. The CRT displays the item Being adjusted.
4. Press **1** or **4** on the Remote Commander to select the item.
5. Press **3** or **6** on the Remote Commander to change the data.
6. Press **MUTING** then **ENTER** to write into memory.

SERVICE ADJUSTMENT MODE MEMORY



7. Turn set off and on to exit.

3-6. WHITE BALANCE ADJUSTMENTS

1. Input an entire white signal.
2. Set to service adjustment mode.
3. Set the PICTURE and BRIGHT to minimum.
4. Adjust with SBRT if necessary.
5. Select G CUT and B CUT with **1** and **4**.
6. Adjust with **3** and **6** for the best white balance.
7. Set the PICTURE and BRIGHT to maximum.
8. Select GAMP and BAMP with **1** and **4**.
9. Adjust with **3** and **6** for the best white balance.
10. Write into the memory by pressing **MUTING** then **ENTER**.

SECTION 4 SAFETY RELATED ADJUSTMENTS

A BOARD

☒ R525 CONFIRMATION METHOD (HV HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with ☒ on the schematic diagram).

IC502, IC601, Q554, Q555, D505, D506, D507, D510, DY, C511, C513, C528, C531, R511, R519, R520, R523, R525, R527, R557, R558, R559, R560, R617, R618, T504 (FBT)

1. Preparation before confirmation

- 1) Turn the POWER switch ON, and receive entirely white signal and set the PICTURE and BRIGHT controls to maximum.
- 2) Confirm that the voltage of the check terminal of TP85 is more than 90VDC when the set is operating normally with 120.0 ± 2.0 VAC supply.

2. Hold-down operation confirmation

- 1) Connect the currentmeter between the 7th pin of FBT (T504) and the land of it with connect polarity.
- 2) Receive White Signal and adjust the ABL current to follows with the PICTURE and the BRIGHT controls.
 $1440 \pm 100 \mu A$
- 3) Confirm the voltage of A board TP-91 is 115.0 ± 0.5 VDC.
- 4) Connect the Digital Voltmeter and DC power Supply via ISS 119 to TP-85.
- 5) Increase the DC power voltage gradually until the Picture just blanks out.
- 6) Read the digital voltmeter indication.
- 7) Turn DC power Source off immediatery.

STANDARD

Less or equal to 134.0 VDC

- 8) Receive Dot Signal and adjust the ABL current to follows, with the PIX and the BRT controls.

$140 + 100 / -50 \mu A$

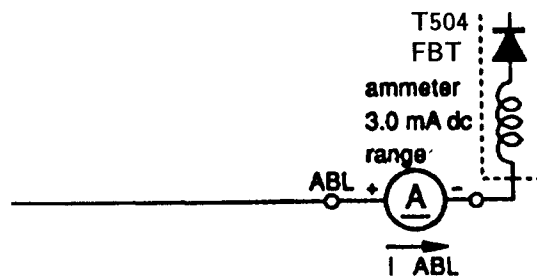
- 9) Repeat steps from (3) to (7).

STANDARD

Less or equal to 134.0 VDC

3. Hold-down readjustment

When step 2 is not satisfied, readjustment should be performed by altering the resistance value of R525 (a component marked with ☒).

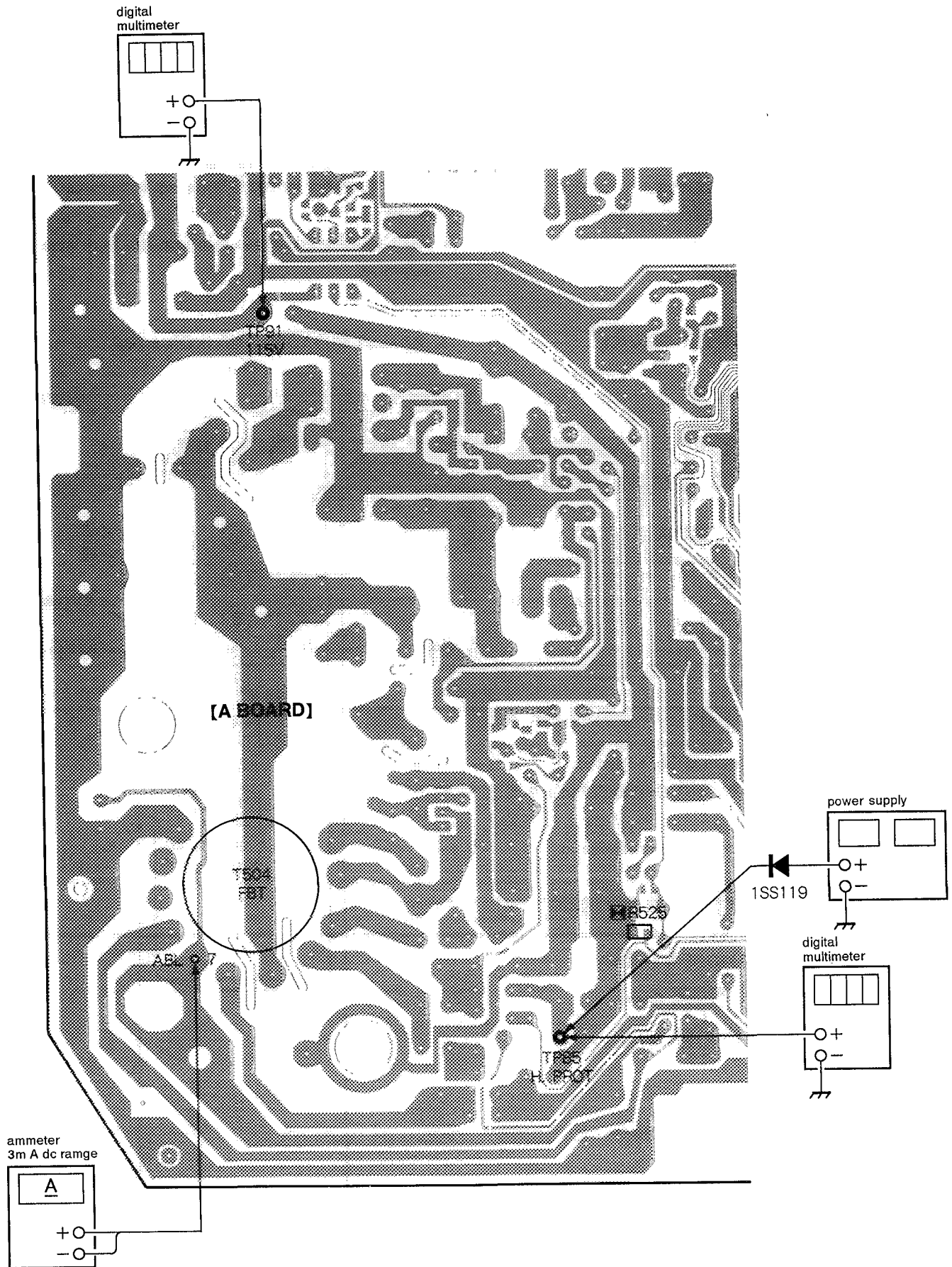


B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

The following adjustments should always be performed when replacing the following components. (marked with ☒ on the schematic diagram).

IC101, IC601, Q609, R030, R617, R618, R629, R630, R636, R637

- 1) Supply $130 \pm 2\%$ V AC to with variable autotrans-former.
- 2) Input an entirely monoscope signal.
- 3) Set the PICTURE control and the BRIGHT controls in to initial reset.
- 4) Set to Service adjustment Mode.
- 5) Select PADJ with [1] and [4].
- 6) Adjust with [6] for the 63 level.
- 7) Confirm the voltage of A BOARD TP-91 is less than 123.0V DC.
- 8) If step 7) is not satisfied, replace the components repeat above steps.
- 9) Supply 120 ± 2.0 VAC to with variable auto trans former.
- 10) Adjust with [3] and [6] for the 115 ± 0.5 V DC.
- 11) Write into the memory by pressing **MUTING** then **ENTER**.



SECTION 5 CIRCUIT ADJUSTMENTS

5-1. ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use of Remote Commander (RM-Y116) can be performed circuit adjustments about this model.

NOTE : Test Equipment Required.

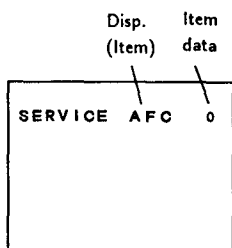
1. Pattern Generator
2. Frequency counter
3. Digital multimeter
4. Audio OSC

1. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

SERVICE MODE PROCEDURE

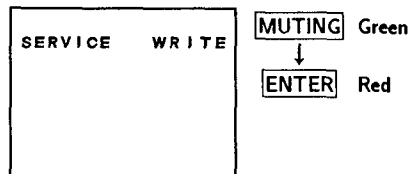
1. Standby mode.(Power off)
2. **DISPLAY** → **5** → **VOL (+)** → **POWER** on the Remote Commander. (Press each button within a second.)

SERVICE ADJUSTMENT MODE IN

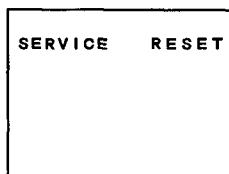


3. The CRT displays the item Being adjusted.
4. Press **1** or **4** on the Remote Commander to select the item.
5. Press **3** or **6** on the Remote Commander to change the data.
6. Press **MUTING** then **ENTER** to write into memory.

SERVICE ADJUSTMENT MODE MEMORY



7. Press **8** then **ENTER** on the Remote Commander to initialize.



Carry out step 7) when adjusting IDs 0 to 4 and when replacing and adjusting IC102.

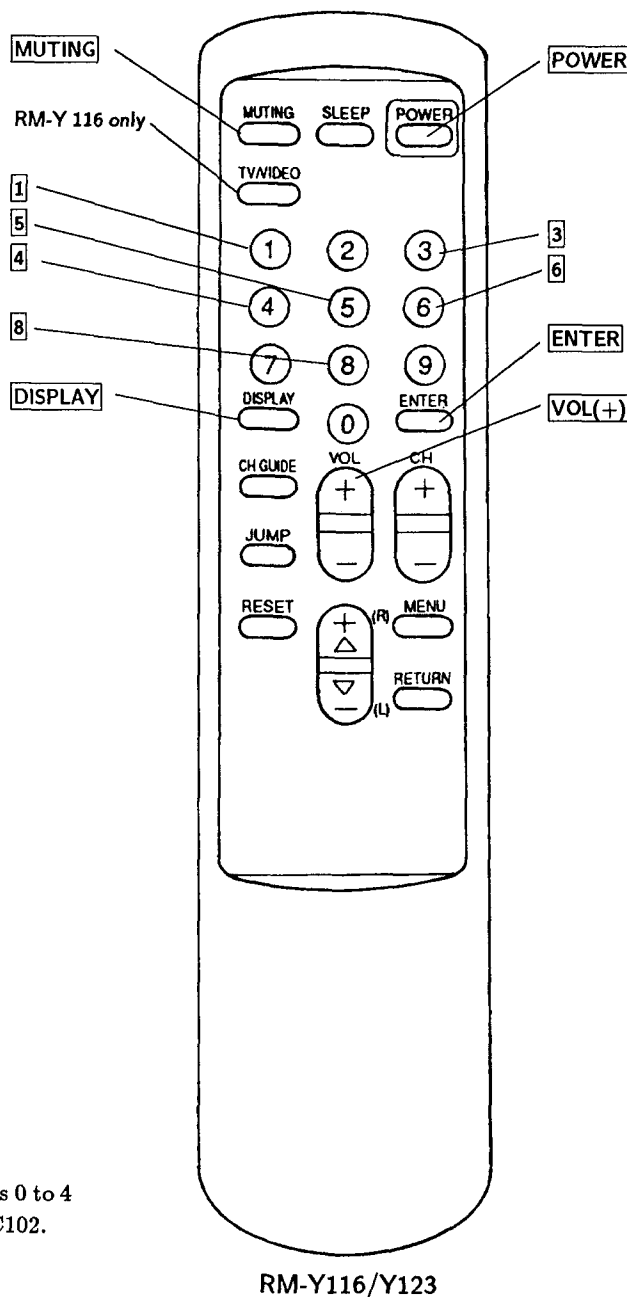
Factory original setting

8. Turn set off and on to exit.

2. MEMORY WRITE CONFIRMATION METHOD

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

3. ADJUST BUTTONS AND INDICATOR

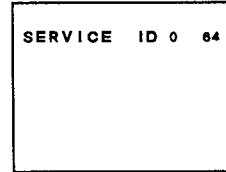


RM-Y116/Y123

4. AN ITEM OF ADJUSTMENTS

No.	Disp.	Item	Data range	Ave. data
1	AFC	AFC Loop Gain	0~3	* 0
2	HFRE	H. Frequency	0~127	78
3	VFRE	V. Frequency	0~31	15
4	VPOS	V. Center	0~31	20
5	VSIZ	V. Size	0~63	31
6	VLIN	V. Linearity	0~15	8
7	VSCO	V. Correction	0~15	6
8	HPOS	H. Center	0~15	6
9	VCOM	V. Compensation	0~7	* 2
10	GAMP	Green Amp	0~31	21
11	BAMP	Blue Amp	0~31	16
12	GCUT	Green Cut Off	0~15	6
13	BCUT	Blue Cut Off	0~15	7
14	CROM	Chroma Trap	0~63	26
15	SPIX	Sub Contrast	0~63	32
16	SHUE	Sub Hue	0~63	25
17	SCOL	Sub Color	0~63	30
18	SBRT	Sub Bright	0~63	34
19	SVOL	Sub Volume	0~15	* 0
20	SHAP	Sharpness	0~15	* 7
21	VSMO	V Pull in Range	0, 1	* 0
22	REF	Reference line	0~3	* 2
23	ROFF	Red Out	0, 1	—
24	G OFF	Green Out	0, 1	—
25	BOFF	Blue Out	0, 1	—
26	ABLM	ABL Mode	0, 1	* 0
27	NOTC	Notch On/Off	0, 1	—
28	DRGB	OSD intensity	0, 1	* 0
29	DISP	Display Position	0~63	4
30	PADJ	Plus B Adjust	0~63	43
31	ID-0	Model ID	0~127	by Model
32	ID-1	Model ID	0~127	by Model
33	ID-2	Model ID	0~127	by Model
34	ID-3	Model ID	0~127	by Model
35	ID-4	Model ID	0~127	by Model

Note : No. from 1 to 35 is to show adjusment order.



Note : IC101 of the A circuit board inputs a V sync signal to pin ⑤, and is always in operation. If on V sync signal is input to pin ⑤, there will be a waiting period of 2-4 seconds, and the power is shut off. When entering the service mode, the above function is cancelled and operation is possible.

* : Set-up value

Please adjust the function values as shown below when IC 102 on A board was replaced.

KV-20M10

No.	Disp.	Data
31	ID-0	64
32	ID-1	8
33	ID-2	64
34	ID-3	1
35	ID-4	16

KV-20S10

No.	Disp.	Data
31	ID-0	64
32	ID-1	9
33	ID-2	64
34	ID-3	1
35	ID-4	16

KV-MT2000

No.	Disp.	Data
31	ID-0	0
32	ID-1	8
33	ID-2	64
34	ID-3	1
35	ID-4	16

KV-ST2050

No.	Disp.	Data
31	ID-0	0
32	ID-1	9
33	ID-2	64
34	ID-3	1
35	ID-4	16

KV-21R10

No.	Disp.	Data
31	ID-0	64
32	ID-1	8
33	ID-2	32
34	ID-3	1
35	ID-4	16

KV-21RS10

No.	Disp.	Data
31	ID-0	64
32	ID-1	9
33	ID-2	32
34	ID-3	1
35	ID-4	16

KV-2180R

No.	Disp.	Data
31	ID-0	0
32	ID-1	8
33	ID-2	32
34	ID-3	1
35	ID-4	16

KV-2190RS

No.	Disp.	Data
31	ID-0	0
32	ID-1	9
33	ID-2	32
34	ID-3	1
35	ID-4	16

5-2. A BOARD ADJUSTMENTS

RF AGC ADJUSTMENT (IF BLOCK VR)

1. Input a color-bar signal.
2. Adjust AGC VR of TU 101 so that snow noise and cross-modulation disappear from the picture.
3. Confirm them at every channel.

H.FREQUENCY ADJUSTMENT (HFRE)

1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Connect a frequency counter to base of Q 550 (TP-86 H.DRIVE).
4. Call the item of AFC, set to 3 level (free run).
5. Select HFRE with **[1]** and **[4]**.
6. Adjust with **[3]** and **[6]** for the 15734 ± 60 Hz.
7. Call the item of AFC again, adjust the level "0".
8. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

V.FREQUENCY ADJUSTMENT (VFRE)

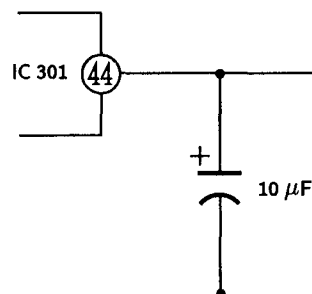
KV-20M10/20S10/21R10/21RS10 only

1. Select video 1 with no connecting the signal.
2. Set to Service adjustment Mode.
3. Connect the frequency counter across connector VDY (+) (CN501) connector and ground.
4. Select VFRE with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the 55 ± 0.5 Hz.
6. Write the memory by pressing **[MUTING]** then **[ENTER]**.

V.FREQUENCY ADJUSTMENT (VFRE)

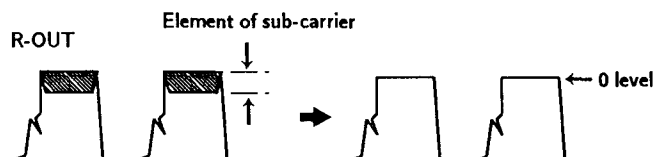
KV-MT2000/ST2050/2180R/2190RS only

1. Connect a capacitor ($10 \mu\text{F}$) across pin ④ of IC 301 (V. SYNC) and ground.
2. Set to Service adjustment Mode.
3. Connect the frequency counter across connector VDY (+) (CN501) connector and ground.
4. Select VFRE with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the 55 ± 0.5 Hz.
6. Write the memory by pressing **[MUTING]** then **[ENTER]**.
7. Disconnect a capacitor from IC 301.



CROMA TRAP ADJUSTMENT (CROM)

1. Input a red signal
2. Set to Service adjustment Mode.
3. Connect an oscilloscope CN703 Pin ① (R OUT) of C board ground.
4. Select CROM with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the 0 level.



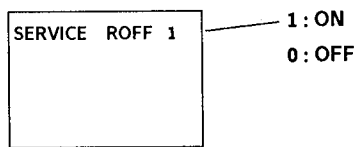
6. Write the memory by pressing **[MUTING]** then **[ENTER]**.

SUB CONTRAST ADJUSTMENT (SPIX)

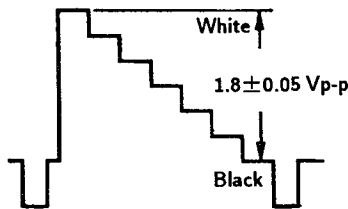
1. Input a color-bar signal.
2. Set to Service adjustment Mode.
3. Set the conditions as follows.

PICTURE MAX
 COLOR MIN
 BRIGHT CENTER

R OFF ON (1)
 G OFF OFF (0)
 B OFF OFF (0)



4. Connect an oscilloscope to CN703 Pin① (R OUT) of C board and ground.
5. Select SPIX with **[1]** and **[4]**.
6. Adjust with **[3]** and **[6]** for the 1.8 ± 0.05 Vp-p.

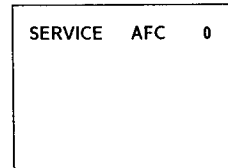


7. Write the memory by pressing **MUTING** then **ENTER**.
8. Return the following back to normal after adjustment.

PICTURE MAX
 BRIGHT CENTER
 COLOR CENTER
 R OFF ON
 G OFF ON
 B OFF ON

DISPLAY POSITION ADJUSTMENT (DISP)

1. Input a color-bar signal.
2. Set to service adjustment Mode.
3. Select DISP with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the bar center.
5. Write the memory by pressing **MUTING** then **ENTER**.
6. Check if the text is displayed on the screen.

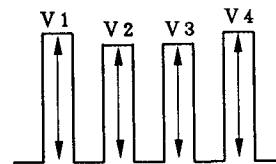


SUB BRIGHT ADJUSTMENT (SBRT)

1. Input a cross-hatch signal.
2. Set to service adjustment mode.
3. Set the PICTURE and BRIGHT to minimum.
4. Select SBRT with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for obtain a faintly visible cross-hatch.
6. Write into the memory by pressing **MUTING** then **ENTER**.

SUB HUE, SUB COLOR ADJUSTMENT (SHUE, SCOL)

1. Input a color-bar signal.
2. Set to service adjustment Mode.
3. Connect an oscilloscope to CN703 Pin③ (B OUT) of C board.
4. Select SHUE and SCOL with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the $V1=V4$ (SCOR) and $V2=V3$ (SHUE).



6. Write into the memory by pressing **MUTING** then **ENTER**.

V.SIZE ADJUSTMENT (VSIZ)

1. Input a cross-hatch 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]**.

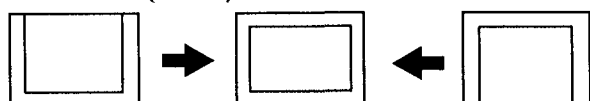
V. SIZE (VSIZ)



V.CENTER ADJUSTMENT (VPOS)

1. Input a cross-hatch 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. CENTER (VPOS)

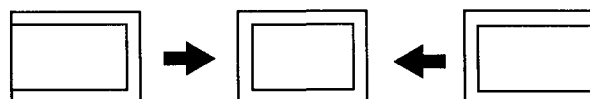


H.CENTER ADJUSTMENT (H POS)

Note: Perform this adjustment after H.FREQUENCY ADJUSTMENT (HFRE).

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

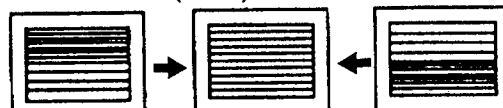
H. CENTER (HPOS)



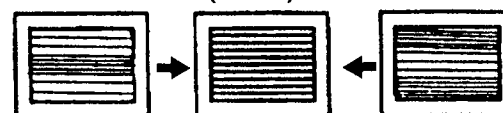
V LINEARITY (VLIN) AND V CORRECTION (VSCO) ADJUSTMENTS

1. Input a cross-hatch signal.
2. Set to Service adjustment Mode.
3. Select VLIN and VSCO with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best picture.
5. Write the memory by Pressing **[MUTING]** then **[ENTER]**.

V LINEARITY (VLIN)



V CORRECTION (VSCO)

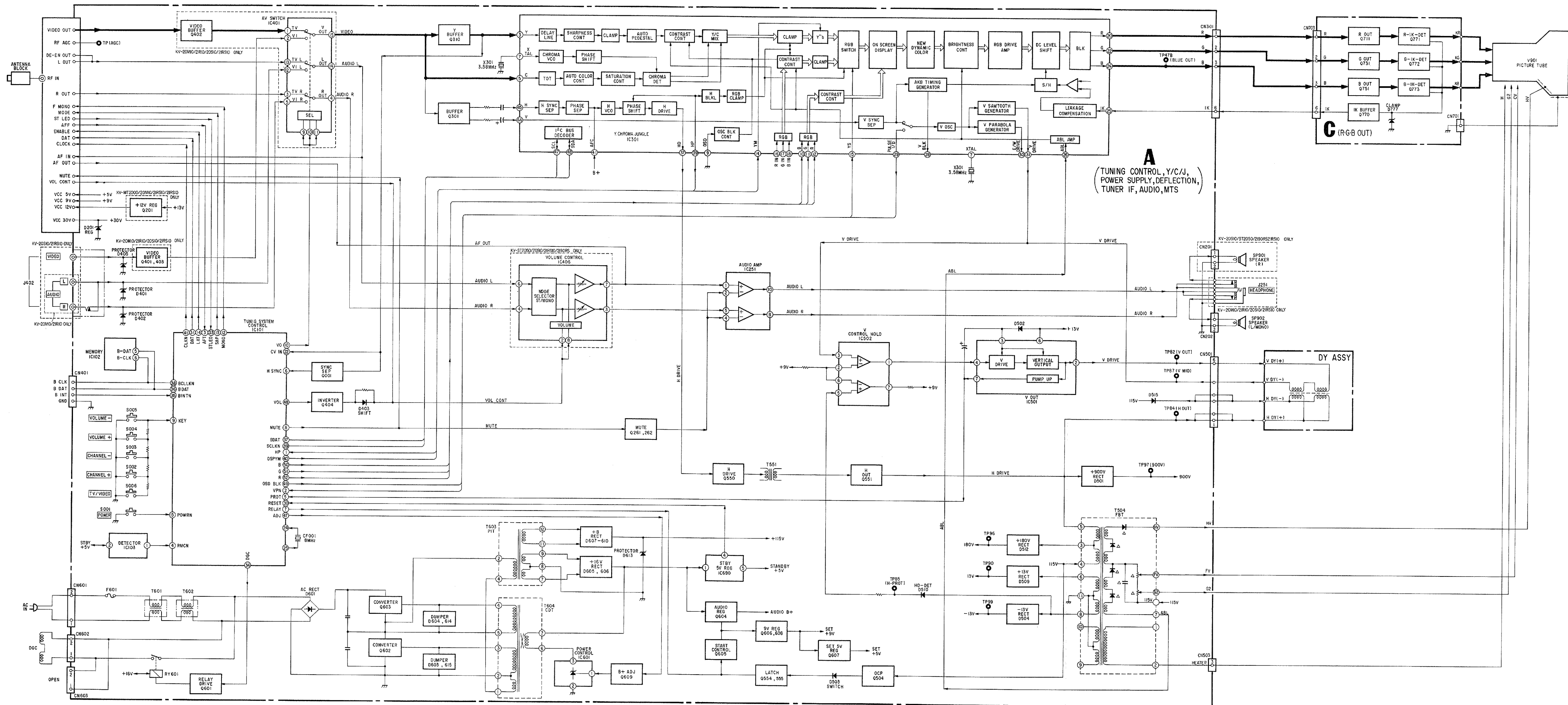


SECTION 6

DIAGRAMS

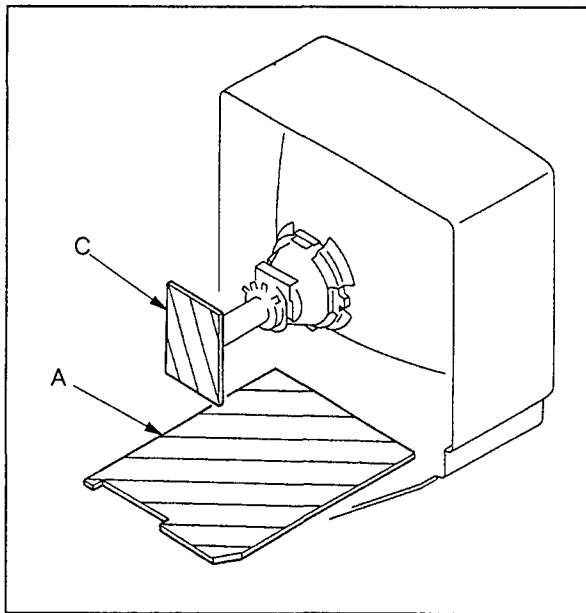
KV-20M10/20S10/MT2000/ST2050	KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123	RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS	KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123	RM-Y116 RM-Y116 RM-Y123 RM-Y123

KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123



KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123

6-2. CIRCUIT BOARDS LOCATION



6-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note:

- All capacitors are in μF unless otherwise noted. pF , μF 50WV or less are not indicated except for electrolytic and tantalums
- All electrolytics are in 50V unless otherwise specified
- Indication of resistance, which does not have one for rating electrical power, is as follows

Pitch. 5 mm
 Rating electrical power 1/4W

- All resistors are in ohms.
 $\text{k}\Omega=1000\Omega$, $\text{M}\Omega=1000\text{K}\Omega$
- : nonflammable resistor.
- : internal component
- : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by and repeat the adjustment until the specified value is achieved.
 (Refer to R525 on Page 18, 19.)
- When replacing the part in below table be sure to perform the related adjustment

Part replaced ()	Adjustment ()
IC502, IC601, Q554, Q555, D505, D506, D507, D510, DY, C511, C513, C528, C531, R511, R519, R520, R523, R525, R527, R557, R558, R559, R560, R617, R618, T504(FBT)	HV HOLD-DOWN (R525)
IC101, IC601, Q609, R030, R617, R618, R629, R630, R636, R637	B+ VOLTAGE CONFIRMATION

- All voltages are in V
- Voltage are dc with respect to ground unless otherwise noted
- Readings are taken with a 10 M Ω digital multimeter
- Readings are taken with a color-bar signal input
- Voltage variations may be noted due to normal production tolerance
- Circled numbers are waveform references

: B+ Line.

: signal path.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: *	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The symbol display is on the component side.

The components identified by shading and mark are critical for safety. Replace only with part number specified.

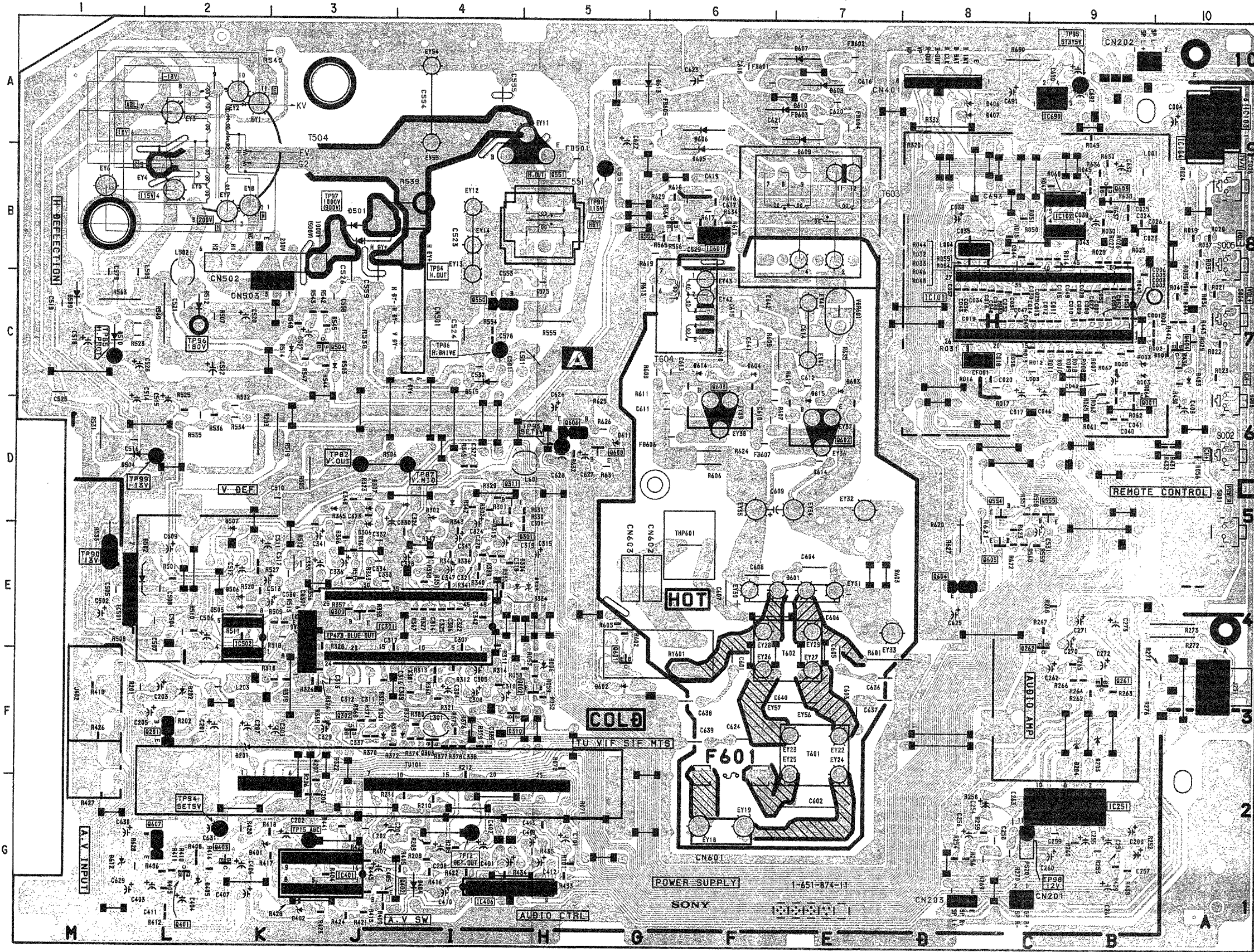
The symbol indicate fast operating fuse. Replace only with fuse of same rating as marked.

Note: Les composants identifiés par un tramé et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Le symbole indique une fusible à action rapide. Doit être remplacée par une fusible de même valeur, comme marqué.

A TUNING CONTROL, Y/C/J,
POWER SUPPLY, DEFLECTION,
TUNER/IF, AUDIO MTS

- A BOARD -

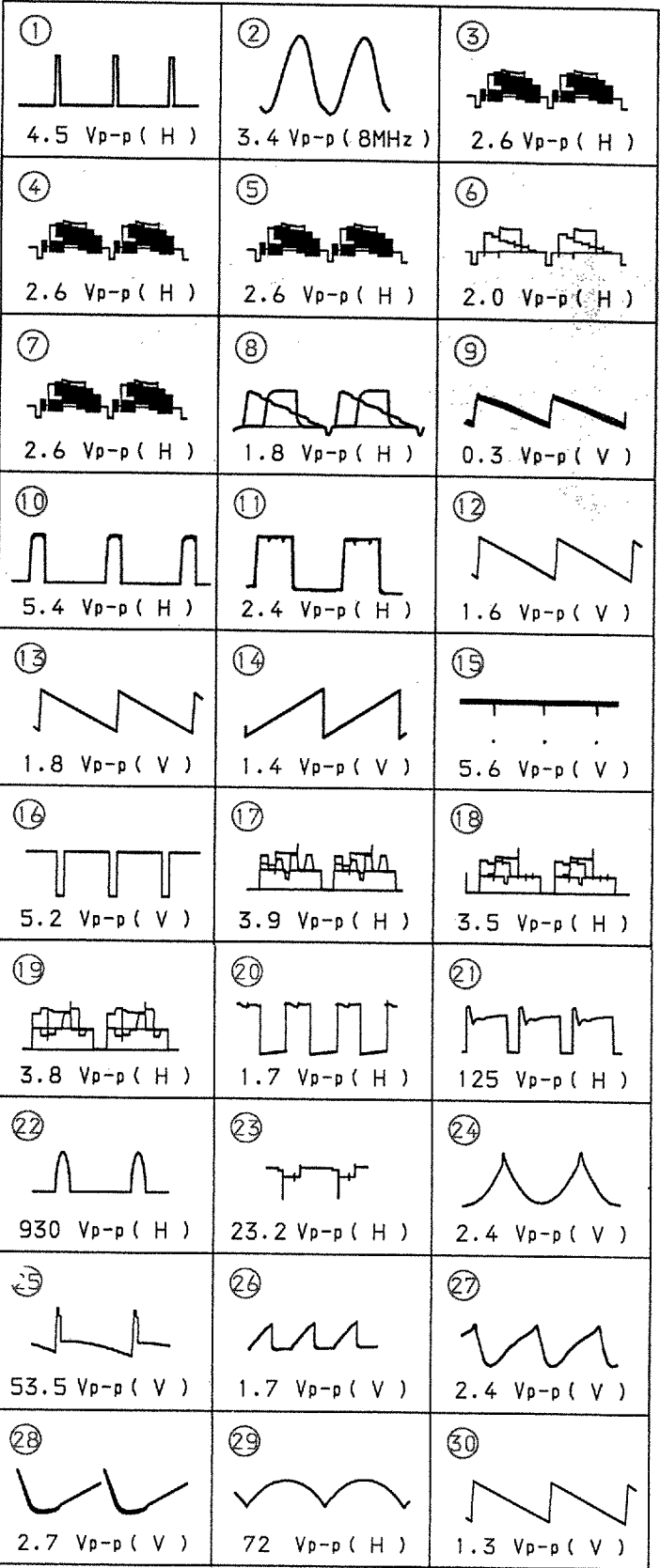


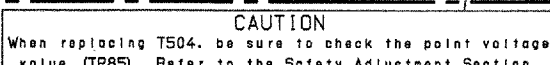
KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123

KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123

IC		DIODE	
IC101	C-8	D001	C-9
IC102	B-9	D003	C-9
IC103	A-10	D201	F-2
IC251	G-9	D302	D-4
IC301	E-3	D401	G-2
IC401	G-3	D403	C-10
IC501	E-1	D405	G-2
IC502	E-2	D501	B-3
IC601	B-6	D502	E-2
IC690	A-9	D503	C-3
TRANSISTOR		D504	D-1
Q001	C-9	D505	E-2
Q201	F-2	D507	E-2
Q261	F-9	D509	C-1
Q262	E-9	D510	C-1
Q301	D-4	D512	C-2
Q310	F-4	D514	C-3
Q401	G-2	D515	C-4
Q402	G-3	D601	E-7
Q403	G-2	D602	F-5
Q404	C-10	D603	C-7
Q504	C-3	D604	C-6
Q550	C-4	D605	A-6
Q551	A-5	D606	A-6
Q554	D-8	D607	A-7
Q555	D-9	D608	A-7
Q601	F-5	D609	A-7
Q602	D-7	D610	A-7
Q603	C-6	D611	D-5
Q604	E-8	D612	G-1
Q605	E-8	D613	A-6
Q606	D-5	D614	C-6
Q607	G-2	D615	C-7
Q608	D-5		

• A BOARD WAVEFORMS



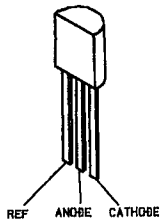


Ref. No.	Location	KV-MT2000	KV-SCM10	KV-2IR10	KV-ST2550	KV-20S10	KV-21RS10	KV-21SR0	KV-2190RS
R009	F-3	-	220	220	220	220	-	-	-
R010	F-2	-	F-2	-	10x	10x	10x	-	10x
R011	F-2	-	-	-	10x	10x	10x	-	10x
R016	G-3	470	470	-	470	470	-	-	-
R017	G-3	1M	1M	-	1M	1M	-	-	-
R038	F-3	1x	1x	-	1x	1x	-	-	-
R039	G-3	15x	15x	-	15x	15x	-	-	-
R051	F-5	-	-	-	220	220	220	-	220
R070	E-2	-	-	-	4.7x	4.7x	4.7x	-	4.7x
R071	E-2	-	-	-	4.7x	4.7x	4.7x	-	4.7x
R201	B-1	JW (5MM)	JW (5MM)	JW (5MM)	-	-	-	JW (5MM)	-
R202	B-1	680	680	680	-	-	-	680	-
R205	B-3	4.7x	-	-	-	-	-	4.7x	-
R208	C-3	-	4.7x	4.7x	-	-	-	-	-
R209	B-3	6.8x	6.8x	6.8x	-	-	-	6.8x	-
R210	C-3	220	220	220	-	-	-	220	-
R211	B-3	1x	1x	1x	-	-	-	1x	-
R212	B-2	-	-	-	4.7x	4.7x	4.7x	-	4.7x
R252	B-10	-	-	-	8.8x	8.8x	8.8x	-	8.8x
R253	B-10	4.7x	4.7	4.7x	5.8x	5.8x	5.8x	4.7x	6.8x
R256	B-11	-	-	-	9x	9x	9x	-	9x
R259	B-11	-	-	-	1.2x	1.2x	1.2x	-	1.2x
R260	B-11	0	0	0	-	-	-	0	-
R262	C-11	-	-	-	12x	12x	12x	-	12x
R269	B-11	-	-	-	2.2	2.2	2.2	-	2.2
R271	C-11	-	1x	1x	-	1x	1x	-	-
R272	C-11	-	330	330	-	330	330	-	-
R273	C-11	-	330	330	-	330	330	-	-
R276	C-11	-	-	-	1x	1x	1x	-	-
R405	A-5	-	15x	15x	-	15x	15x	-	-
R408	A-5	-	5.0x	5.0x	-	5.0x	5.0x	-	-
R407	B-5	100	-	-	100	-	-	100	100
R408	B-6	-	0	0	-	0	0	-	-
R409	B-6	-	0	0	-	0	0	-	-
R410	B-6	-	1x	1x	-	1x	1x	-	-
R411	A-6	-	470	470	-	470	470	-	-
R412	B-6	-	470	470	-	470	470	-	-
R413	B-6	-	100x	100x	-	100x	100x	-	-
R414	B-6	-	100x	100x	-	100x	100x	-	-
R415	B-6	-	0	0	-	220	220	-	-
R418	B-6	-	-	-	220	-	-	-	220
R418	A-7	-	1x	1x	-	1x	1x	-	-
R419	A-7	-	82	82	-	82	82	-	-
R420	C-7	-	1x	1x	-	1x	1x	-	-
R421	C-8	-	-	-	220	-	-	-	220
R422	B-7	0	0	0	-	-	-	0	-
R423	B-7	-	1x	1x	-	1x	1x	-	-
R424	B-8	-	-	-	220	220	220	-	-
R425	B-7	-	3.3x	3.3x	-	3.3x	3.3x	-	-
R426	A-7	-	470x	470x	-	470x	470x	-	-
R427	A-7	-	-	-	-	470x	470x	-	-
R428	B-7	0	0	0	-	0	0	-	-
R429	D-6	3.3x	3.3x	3.3x	10x	10x	10x	3.3x	10x
R432	D-6	-	-	-	10x	10x	10x	-	-
R436	D-5	2.2x	2.2x	2.2x	6.8x	6.8x	6.8x	2.2x	6.8x
R438									

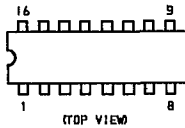
[illegible]

6-4. SEMICONDUCTONS

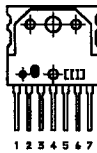
AN1431T



BU4053BC
HC14053BFP
MC14053BCP
μP04053BC



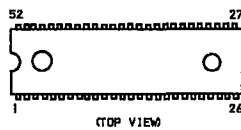
LA7830



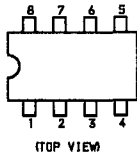
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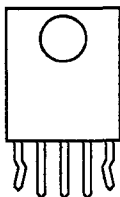
M37265M4-SV4812



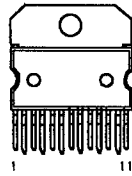
RC4558P
ST24C01B1
μPC4558P



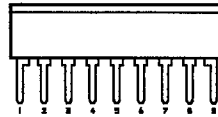
SBX1790-51



T0A2009A



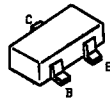
μPC1406HA



2SA1091-0



2SA1037K
2SA1162-G/2SA
2SB709A-QRS-TX
2SB601A-Q



2SA1175
2SA1309A

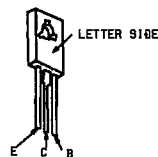
Letter side



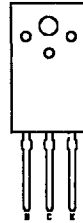
2SB564
2SB733-34
2SC3209LK
2SD774-34



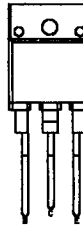
2SC2611
2SC3271F-N



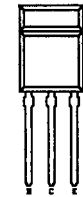
2SC4663NPR-F



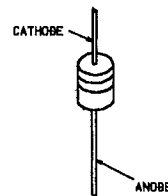
2SD1877S-SONY-CA



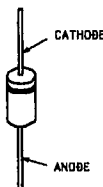
2SD2137-OP



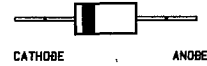
01N20R R03.9ESB2
R010ESB2 R05.1ESB1
R013ESB1 R05.6ESB2
R013ESB2 R06.8ESB2
R030ESB2 1SS119
R030ESB4 1SS119T0
R036ESB2



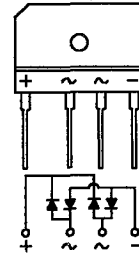
01NL20
EL1Z
GP080
RGP02-17PKG23



02S4MF



03SB60F



SECTION 7 EXPLODED VIEW

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

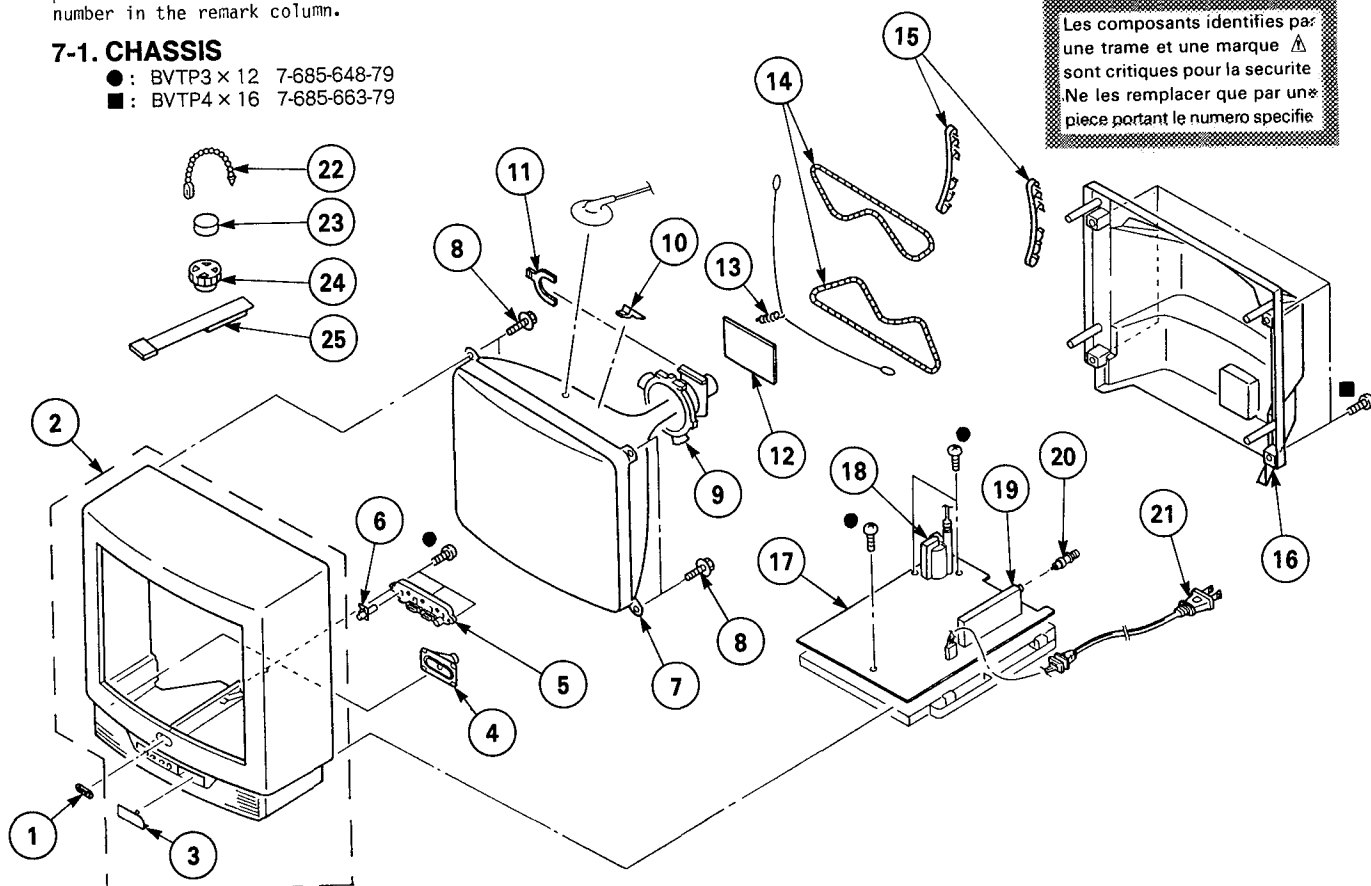
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark Δ are critical for safety.
Replace only with part number specified

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié

7-1. CHASSIS

- : BVTP3 \times 12 7-685-648-79
- : BVTP4 \times 16 7-685-663-79



REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
1	4-394-072-01	EMBLEM (NO.8), SONY		10	4-041-361-01	SPACER, DY	
2	X-4031-910-1	CABINET ASSY (WITH BEZEL ASSY) 3		11	1-452-277-00	MAGNET, BMC	
		(KV-2190RS)		12	*A-1331-336-A	C BOARD, COMPLETE	
	X-4031-919-1	CABINET ASSY (WITH BEZEL ASSY) 3		13	*4-375-394-01	SPRING, TENSION	
		(KV-20M10)		14	Δ 1-403-107-31	COIL, REMAGNETIZATION	
	X-4031-920-1	CABINET ASSY (WITH BEZEL ASSY) 3		15	*4-369-319-00	BAND, COIL	
		(KV-20S10)		16	4-044-645-01	COVER, REAR	
	X-4031-932-1	CABINET ASSY (WITH BEZEL ASSY) 3			(KV-MT2000/ST2050/2180R/2190RS)		
	X-4031-934-1	CABINET ASSY (WITH BEZEL ASSY) 3			4-044-723-01	COVER, REAR	
		(KV-21RS10)			(KV-20M10/20S10/21R10/21RS10)		
	X-4031-962-1	CABINET ASSY (WITH BEZEL ASSY) 3		17	*A-1297-262-A	A BOARD, COMPLETE (KV-20S10)	
		(KV-MT2000/2180R)			*A-1297-294-A	A BOARD, COMPLETE (KV-2190RS)	
	X-4031-964-1	CABINET ASSY (WITH BEZEL ASSY) 3			*A-1297-308-A	A BOARD, COMPLETE (KV-2180R)	
		(KV-ST2050)			*A-1297-309-A	A BOARD, COMPLETE (KV-20M10)	
3	4-039-576-01	PANEL (KV-MT2000/ST2050/2180R/2190RS)			*A-1297-310-A	A BOARD, COMPLETE (KV-21R10)	
	4-044-734-01	DOOR, CONTROL			*A-1297-312-A	A BOARD, COMPLETE (KV-21RS10)	
		(KV-20M10/20S10/21R10/21RS10)			*A-1297-362-A	A BOARD, COMPLETE (KV-ST2050)	
					*A-1297-363-A	A BOARD, COMPLETE (KV-MT2000)	
4	1-504-311-11	SPEAKER (9X5CM)		18	Δ 8-598-938-00	TRANSFORMER ASSY, FLYBACK (X-1661/A4E)	
	(KV-20M10/MT2000/21R10/2180R/2190RS)			19	Δ 8-598-047-00	TUNER STP-L4401	
	1-504-607-11	SPEAKER (9X5CM) (KV-20S10/ST2050/21RS10)			(KV-20M10/MT2000/21R10/2180R)		
5	4-039-595-01	BUTTON, MULTI			Δ 8-598-254-00	TUNER STP-#4402	
	(KV-MT2000/ST2050/2180R/2190RS)				(KV-20S10/ST2050/21RS10/2190RS)		
	4-044-879-01	BUTTON, MULTI		20	1-766-374-11	PLUG, F-PIN	
	(KV-20M10/20S10/21R10/21RS10)			21	Δ 1-765-486-11	CORD, POWER (WITH CONNECTOR) 10-0A/125V	
6	4-044-616-01	FILTER, REMOTE		22	4-308-870-00	CLIP, LEAD WIRE	
	(KV-MT2000/ST2050/2180R/2190RS)			23	1-452-032-00	MAGNET, DISK; 10MM ϕ	
	4-044-877-01	FILTER, REMOTE		24	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
	(KV-20M10/20S10/21R10/21RS10)			25	X-4308-815-0	PERMALLOY ASSY, CONVERGENCE	
7	Δ 8-738-763-05	PICTURE TUBE (A51LDG30X)					
8	4-041-267-01	SCREW (5) TAPPING					
9	Δ 8-451-440-11	DEFLECTION Yoke (Y21NXA)					

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SECTION 8 ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark **A** are critical for safety
Replace only with part number specified

Les composants identifiés par une trame et une marque **A** sont critiques pour la sécurité
Ne les remplacer que par une pièce portant le numéro spécifié

• Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

• All resistors are in ohms
• F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS

• MF : μ F, PF : μ F

COILS

• MMH : mH, UH : μ H

• The components identified by **A** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
*A-1297-262-A		A BOARD, COMPLETE (KV-20S10) *****		C040	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
*A-1297-294-A		A BOARD, COMPLETE (KV-2190RS) *****		C041	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V	
*A-1297-308-A		A BOARD, COMPLETE (KV-2180R) *****		C042	1-124-903-11	ELECT 1MF 20% 50V	
*A-1297-309-A		A BOARD, COMPLETE (KV-20M10) *****		C043	1-216-295-91	METAL GLAZE 0 5% 1/10W	
*A-1297-310-A		A BOARD, COMPLETE (KV-21R10) *****		C045	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V (KV-20M10/20S10/MT2000/ST2050)	
*A-1297-312-A		A BOARD, COMPLETE (KV-21RS10) *****		C046	1-104-664-11	ELECT 47MF 20% 25V (KV-20M10/20S10/MT2000/ST2050)	
*A-1297-362-A		A BOARD, COMPLETE (KV-ST2050) *****		C047	1-163-125-00	CERAMIC CHIP 220PF 5% 50V (KV-20M10/20S10/MT2000/ST2050)	
*A-1297-363-A		A BOARD, COMPLETE (KV-MT2000) *****		C048	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V (KV-20M10/20S10/MT2000/ST2050)	
1-533-223-11		CLIP, FUSE		C050	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
4-382-854-11		SCREW (M3X10), P, SW (+)		C051	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
				C052	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
				C053	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
				C101	1-124-927-11	ELECT 4.7MF 20% 50V	
				C201	1-126-934-11	ELECT 220MF 20% 16V (KV-20M10/MT2000/21R10/2180R)	
				C202	1-126-964-11	ELECT 10MF 20% 50V	
				C204	1-126-933-11	ELECT 100MF 20% 16V	
				C205	1-126-233-11	ELECT 22MF 20% 50V (KV-20M10/MT2000/21R10/2180R)	
				C206	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
				C208	1-124-903-11	ELECT 1MF 20% 50V (KV-20M10/MT2000/21R10/2180R)	
				C209	1-124-925-11	ELECT 2.2MF 20% 50V (KV-20M10/MT2000/21R10/2180R)	
				C251	1-124-925-11	ELECT 2.2MF 20% 50V (KV-20S10/ST2050/21RS10/2190RS)	
				C254	1-126-933-11	ELECT 100MF 20% 16V	
				C255	1-126-233-11	ELECT 22MF 20% 50V	
				C256	1-126-933-11	ELECT 100MF 20% 16V (KV-20S10/ST2050/21RS10/2190RS)	
				C257	1-124-925-11	ELECT 2.2MF 20% 50V (KV-20S10/ST2050/21RS10/2190RS)	
				C258	1-136-169-00	FILM 0.22MF 5% 50V (KV-20S10/ST2050/21RS10/2190RS)	
				C259	1-136-173-00	FILM 0.47MF 5% 50V	
				C260	1-126-964-11	ELECT 10MF 20% 50V	
				C261	1-126-952-11	ELECT 1000MF 20% 16V (KV-20S10/ST2050/21RS10/2190RS)	
				C262	1-124-925-11	ELECT 2.2MF 20% 50V	
				C263	1-136-169-00	FILM 0.22MF 5% 50V	
				C270	1-126-964-11	ELECT 10MF 20% 50V (KV-20M10/20S10/21R10/21RS10)	
				C271	1-126-964-11	ELECT 10MF 20% 50V (KV-20S10/21RS10)	
				C272	1-126-935-11	ELECT 470MF 20% 16V	
				C273	1-126-935-11	ELECT 470MF 20% 16V (KV-20S10/ST2050/21RS10/2190RS)	
				C301	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	

The components identified by shading and mark **Δ** are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque **Δ** sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123

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REF.NO	PART NO	DESCRIPTION	REMARK	REF.NO	PART NO.	DESCRIPTION	REMARK
C304	1-126-964-11	ELECT 10MF 20% 50V		C513	1-126-964-11	ELECT 10MF 20% 50V	
C305	1-124-903-11	ELECT 1MF 20% 50V		C514	1-104-664-11	ELECT 47MF 20% 25V	
C306	1-163-035-00	CERAMIC CHIP 0.047MF 50V		C515	1-126-941-11	ELECT 470MF 20% 25V	
C307	1-163-125-00	CERAMIC CHIP 220PF 5% 50V		C516	1-102-244-00	CERAMIC 220PF 10% 500V	
C308	1-124-902-00	ELECT 0.47MF 20% 50V		C517	1-126-935-11	ELECT 470MF 20% 16V	
C309	1-163-099-00	CERAMIC CHIP 18PF 5% 50V		C518	1-126-941-11	ELECT 470MF 20% 25V	
C310	1-126-233-11	ELECT 22MF 20% 50V		C519	1-102-244-00	CERAMIC 220PF 10% 500V	
C311	1-137-399-11	FILM 0.1MF 5% 50V		C520	1-107-652-91	ELECT 10MF 20% 250V	
C312	1-137-399-11	FILM 0.1MF 5% 50V		C521	1-102-244-00	CERAMIC 220PF 10% 500V	
C313	1-137-399-11	FILM 0.1MF 5% 50V		C522	1-123-024-21	ELECT 33MF 160V	
C314	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V		C523	1-136-105-00	FILM 0.33MF 5% 200V	
C315	1-126-934-11	ELECT 220MF 20% 16V		C525	1-106-387-00	MYLAR 0.068MF 10% 200V	
C318	1-163-125-00	CERAMIC CHIP 220PF 5% 50V		C527	1-126-233-11	ELECT 22MF 20% 50V	
C319	1-124-902-00	ELECT 0.47MF 20% 50V		C528	1-107-635-91	ELECT 4.7MF 20% 160V	
C320	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V		C530	1-104-664-11	ELECT 47MF 20% 25V	
C321	1-163-005-11	CERAMIC CHIP 470PF 10% 50V		C531	1-104-664-11	ELECT 47MF 20% 25V	
C322	1-163-011-11	CERAMIC CHIP 0.0015MF 10% 50V		C553	1-102-228-00	CERAMIC 470PF 10% 500V	
C323	1-163-007-11	CERAMIC CHIP 680PF 10% 50V		C554 Δ	1-106-882-11	FILM 0.0057MF 3% 2KV	
C324	1-124-903-11	ELECT 1MF 20% 50V		C558	1-106-371-00	MYLAR 0.015MF 10% 100V	
C325	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V		C559 Δ	1-162-115-91	CERAMIC 330PF 10% 2KV	
C326	1-137-370-11	FILM 0.01MF 5% 50V		C575	1-106-371-00	MYLAR 0.015MF 10% 200V	
C327	1-163-125-00	CERAMIC CHIP 220PF 5% 50V		C579 Δ	1-108-421-91	MYLAR 0.01MF 10% 200V	
C328	1-124-902-00	ELECT 0.47MF 20% 50V		C601 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C330	1-163-007-11	CERAMIC CHIP 680PF 10% 50V		C602 Δ	1-136-311-51	FILM 0.47MF 20% 125V	
C332	1-136-169-00	FILM 0.22MF 5% 50V		C603 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C333	1-136-169-00	FILM 0.22MF 5% 50V		C605 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C334	1-137-372-11	FILM 0.022MF 5% 50V		C609	1-104-759-11	ELECT 470MF 20% 200V	
C335	1-124-903-11	ELECT 1MF 20% 50V		C610	1-164-625-11	CERAMIC 680PF 10% 500V	
C336	1-126-964-11	ELECT 10MF 20% 50V		C611	1-164-625-11	CERAMIC 680PF 10% 500V	
C341	1-124-902-00	ELECT 0.47MF 20% 50V		C612	1-136-169-00	FILM 0.22MF 5% 50V	
C342	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V		C613	1-136-169-00	FILM 0.22MF 5% 50V	
C345	1-126-933-11	ELECT 100MF 20% 16V		C614	1-129-719-91	FILM 0.027MF 10% 630V	
C347	1-126-933-11	ELECT 100MF 20% 16V		C615	1-164-625-11	CERAMIC 680PF 10% 500V	
C348	1-163-129-00	CERAMIC CHIP 330PF 5% 50V		C616	1-165-127-11	CERAMIC 470PF 10% 500V	
C401	1-124-903-11	ELECT 1MF 20% 50V	(KV-20S10/ST2050/21RS10/2190RS)	C617	1-137-366-11	FILM 0.0022MF 5% 50V	
C402	1-124-903-11	ELECT 1MF 20% 50V	(KV-20M10/20S10/ST2050/21R10/21RS10)	C618	1-165-127-11	CERAMIC 470PF 10% 500V	
C403	1-126-964-11	ELECT 10MF 20% 50V	(KV-20M10/20S10/21R10/21RS10)	C619	1-106-367-00	MYLAR 0.01MF 10% 200V	
C404	1-126-933-11	ELECT 100MF 20% 16V	(KV-20M10/20S10/21R10/21RS10)	C620	1-165-127-11	CERAMIC 470PF 10% 500V	
C406	1-124-903-11	ELECT 1MF 20% 50V	(KV-20M10/20S10/21R10/21RS10)	C621	1-165-127-11	CERAMIC 470PF 10% 500V	
C407	1-124-903-11	ELECT 1MF 20% 50V	(KV-20S10/21RS10)	C622	1-126-952-11	ELECT 1000MF 20% 16V	
C408	1-126-964-11	ELECT 10MF 20% 50V		C623	1-123-024-21	ELECT 33MF 160V	
C409	1-126-964-11	ELECT 10MF 20% 50V		C624 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C410	1-126-964-11	ELECT 10MF 20% 50V		C625	1-126-933-11	ELECT 100MF 20% 16V	
C412	1-126-964-11	ELECT 10MF 20% 50V	(KV-20S10/ST2050/21RS10/2190RS)	C628	1-104-664-11	ELECT 47MF 20% 25V	
C501	1-137-399-11	FILM 0.1MF 5% 50V		C631	1-104-664-11	ELECT 47MF 20% 25V	
C502	1-126-233-11	ELECT 22MF 20% 50V		C632	1-126-964-11	ELECT 10MF 20% 50V	
C504	1-130-489-00	FILM 0.033MF 5% 50V		C636 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C505	1-164-058-11	CERAMIC 33PF 5% 50V		C637 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C506	1-126-233-11	ELECT 22MF 20% 50V		C638 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C507	1-102-038-00	CERAMIC 0.001MF 500V		C639 Δ	1-161-741-71	CERAMIC 0.0010MF 10% 400V	
C508	1-102-038-00	CERAMIC 0.001MF 500V		C640 Δ	1-136-311-51	FILM 0.47MF 20% 125V	
C509	1-126-948-11	ELECT 100MF 20% 35V		C641	1-137-374-11	FILM 0.047MF 5% 50V	
C510	1-108-702-11	MYLAR 0.068MF 10% 100V		C642	1-137-374-11	FILM 0.047MF 5% 50V	
C511	1-124-927-11	ELECT 4.7MF 20% 50V		C690	1-124-902-00	ELECT 0.47MF 20% 50V	
C512	1-164-096-11	CERAMIC 0.01MF 50V		C691	1-126-935-11	ELECT 470MF 20% 16V	
				C692	1-104-664-11	ELECT 47MF 20% 25V	
				C693	1-136-173-00	FILM 0.47MF 5% 50V	
				<FILTER>			
				CF001	1-579-952-21	VIBRATOR, CERAMIC	

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The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.


REF.NO.	PART NO.	DESCRIPTION	REMARK	REF.NO.	PART NO.	DESCRIPTION	REMARK
<CONNECTOR>				FB604	1-412-911-11	INDUCTOR, FERRITE BEAD	
CN201	1-564-505-11	PLUG, CONNECTOR 2P (KV-20S10/ST2050/21RS10/2190RS)		FB605	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
CN202	1-564-505-11	PLUG, CONNECTOR 2P		FB606	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
CN301	*1-564-509-11	PLUG, CONNECTOR 6P		FB607	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH	
CN401	*1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P		<IC>			
CN501	*1-580-798-11	CONNECTOR PIN (DY) 6P		IC101	8-759-274-78	IC M37265M4-A11SP	
CN503	*1-564-507-11	PLUG, CONNECTOR 4P		IC102	8-759-280-75	IC ST24C01CB1	
CN601	*1-580-843-11	PIN, CONNECTOR (POWER)		IC103	8-741-790-11	IC SBX1790-11	
CN602	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P		IC251	8-759-980-43	IC TDA2009A	
CN603	1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P		IC301	8-752-059-67	IC CXA1465AS	
<DIODE>				IC401	8-759-140-53	IC UPD4053BC (KV-20M10/20S10/21R10/21RS10)	
D001	8-719-109-84	DIODE RD5.1ESB1		IC406	8-759-145-27	IC UPC1406HA (KV-20S10/ST2050/21RS10/2190RS)	
D003	8-719-911-19	DIODE 1SS119		IC501	8-759-801-98	IC LA7830	
D201	8-719-110-72	DIODE RD30ESB2		IC502	8-759-145-58	IC UPC4558C	
D202	8-719-110-35	DIODE RD13ESB1 (KV-20M10/MT2000/21R10/2180R)		IC601	8-759-198-31	IC UPC10931-1-3	
D302	8-719-109-84	DIODE RD5.1ESB1		IC690	8-759-805-37	IC L78LR05D-MA	
D306	8-719-109-97	DIODE RD6.8ESB2		<JACK>			
D307	8-719-911-19	DIODE 1SS119		J251	1-568-267-21	JACK (KV-20M10/20S10/21R10/21RS10)	
D401	8-719-110-36	DIODE RD13ESB2 (KV-20M10/20S10/21R10/21RS10)		J402	1-695-239-11	JACK BLOCK, PIN 2P (KV-20M10/21R10)	
D402	8-719-110-36	DIODE RD13ESB2 (KV-20S10/21RS10)			1-695-585-11	JACK BLOCK, PIN (L TYPE) 3P (KV-20S10/21RS10)	
D403	8-719-911-19	DIODE 1SS119		<COIL>			
D405	8-719-110-36	DIODE RD13ESB2 (KV-20M10/20S10/21R10/21RS10)		L001	1-408-409-00	INDUCTOR 10UH	
D502	8-719-908-03	DIODE GP08D		L002	1-408-421-00	INDUCTOR 100UH	
D503	8-719-911-19	DIODE 1SS119		L003	1-408-421-00	INDUCTOR 100UH (KV-20M10/20S10/MT2000/ST2050)	
D504	8-719-302-43	DIODE EL1Z		L202	1-408-408-00	INDUCTOR 8.2UH	
D505	8-719-911-19	DIODE 1SS119		L501	1-412-553-11	INDUCTOR 3.3MMH	
D506	8-719-110-08	DIODE RD8.2ESB2		L502	1-410-669-31	INDUCTOR 33UH	
D507	8-719-911-19	DIODE 1SS119		L503	1-412-531-61	INDUCTOR 33UH	
D509	8-719-302-43	DIODE EL1Z		L551	1-412-533-21	INDUCTOR 47UH	
D510	8-719-302-44	DIODE EL1Z-V1		L602	1-410-670-31	INDUCTOR 39UH	
D512	8-719-302-43	DIODE EL1Z		<IC LINK>			
D514	8-719-911-19	DIODE 1SS119		PS201	1-532-637-91	LINK IC 1.6A	
D515	8-719-908-03	DIODE GP08D		<TRANSISTOR>			
D601	8-719-510-51	DIODE D3SB60F		Q001	8-729-216-22	TRANSISTOR 2SA1162-G	
D602	8-719-911-19	DIODE 1SS119		Q201	8-729-140-96	TRANSISTOR 2SD774-34 (KV-20M10/MT2000/21R10/2180R)	
D603	8-719-510-48	DIODE D1N20R		Q261	8-729-216-22	TRANSISTOR 2SA1162-G	
D604	8-719-510-48	DIODE D1N20R		Q262	8-729-422-27	TRANSISTOR 2SD601A-Q	
D605	8-719-022-97	DIODE D2S4MF		Q301	8-729-216-22	TRANSISTOR 2SA1162-G	
D606	8-719-022-97	DIODE D2S4MF		Q310	8-729-422-27	TRANSISTOR 2SD601A-Q	
D607	8-719-510-26	DIODE D1NL20		Q401	8-729-216-22	TRANSISTOR 2SA1162-G (KV-20M10/20S10/21R10/21RS10)	
D608	8-719-510-26	DIODE D1NL20		Q402	8-729-216-22	TRANSISTOR 2SA1162-G (KV-20M10/20S10/21R10/21RS10)	
D609	8-719-510-26	DIODE D1NL20		Q403	8-729-216-22	TRANSISTOR 2SA1162-G (KV-20M10/20S10/21R10/21RS10)	
D610	8-719-510-26	DIODE D1NL20		Q404	8-729-422-27	TRANSISTOR 2SD601A-Q	
D611	8-719-110-17	DIODE RD10ESB2		Q504	8-729-105-08	TRANSISTOR 2SA1330-06	
D612	8-719-109-90	DIODE RD5.6ESB3		Q550	8-729-140-96	TRANSISTOR 2SD774-34	
D613	8-719-303-49	DIODE R2M		Q551	8-729-810-49	TRANSISTOR 2SD1877S-SONY-CA	
D614	8-719-510-48	DIODE D1N20R					
D615	8-719-510-48	DIODE D1N20R					
<FUSE>							
F601	1-576-193-11	FUSE 6.3A/125V					
<FERRITE BEAD>							
FB501	1-410-396-41	FERRITE BEAD INDUCTOR 0.45UH					
FB601	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB602	1-412-911-11	INDUCTOR, FERRITE BEAD					
FB603	1-412-911-11	INDUCTOR, FERRITE BEAD					


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REF NO	PART NO	DESCRIPTION	REMARK	REF NO	PART NO	DESCRIPTION	REMARK
Q554	8-729-216-22	TRANSISTOR 2SA1162-G		R051	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
Q555	8-729-422-27	TRANSISTOR 2SD601A-Q		R052	1-216-295-91	METAL GLAZE 0 5% 1/10W	
Q601	8-729-422-27	TRANSISTOR 2SD601A-Q		R054	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
Q602	8-729-025-77	TRANSISTOR 2SC4663NPR-F		R056	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q603	8-729-025-77	TRANSISTOR 2SC4663NPR-F		R057	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q604	8-729-140-93	TRANSISTOR 2SB733-34		R058	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q605	8-729-422-27	TRANSISTOR 2SD601A-Q		R060	1-216-295-91	METAL GLAZE 0 5% 1/10W	
Q606	8-729-423-99	TRANSISTOR 2SD2137-OP		R061	1-216-045-00	METAL GLAZE 680 5% 1/10W	
Q607	8-729-140-96	TRANSISTOR 2SD774-34		R062	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
Q608	8-729-216-22	TRANSISTOR 2SA1162-G		R063	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
Q609	8-729-422-27	TRANSISTOR 2SD601A		R064	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
<RESISTOR>				R065	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R001	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		R067	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R002	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R070	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R003	1-216-033-00	METAL GLAZE 220 5% 1/10W		R071	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R004	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R101	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R005	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R202	1-249-415-11	CARBON 680 5% 1/4W (KV-20M10/MT2000/21R10/2180R)	
R007	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R203	1-215-899-11	METAL OXIDE 15K 5% 2W F	
R008	1-216-033-00	METAL GLAZE 220 5% 1/10W		R205	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-MT2000/2180R)	
R009	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R206	1-216-689-11	METAL GLAZE 39K 5% 1/10W	
R010	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)		R207	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R011	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)		R208	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-20M10/21R10)	
R012	1-216-033-00	METAL GLAZE 220 5% 1/10W		R209	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R013	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R210	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R014	1-216-033-00	METAL GLAZE 220 5% 1/10W		R211	1-216-049-00	METAL GLAZE 1K 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R015	1-216-033-00	METAL GLAZE 220 5% 1/10W		R212	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R016	1-216-041-00	METAL GLAZE 470 5% 1/10W (KV-20M10/20S10/MT2000/ST2050)		R252	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R017	1-216-121-00	METAL GLAZE 1M 5% 1/10W (KV-20M10/20S10/MT2000/ST2050)		R253	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R018	1-216-049-00	METAL GLAZE 1K 5% 1/10W			1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R019	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		R254	1-216-015-00	METAL GLAZE 39 5% 1/10W	
R020	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W		R256	1-216-015-00	METAL GLAZE 39 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R021	1-216-045-00	METAL GLAZE 680 5% 1/10W		R258	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R022	1-216-047-00	METAL GLAZE 820 5% 1/10W		R259	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R023	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R260	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R025	1-216-033-00	METAL GLAZE 220 5% 1/10W		R262	1-216-075-00	METAL GLAZE 12K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R026	1-216-033-00	METAL GLAZE 220 5% 1/10W		R263	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R027	1-216-033-00	METAL GLAZE 220 5% 1/10W		R264	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R028	1-216-041-00	METAL GLAZE 470 5% 1/10W		R265	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R029	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R266	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R030	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R267	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R031	1-216-045-00	METAL GLAZE 680 5% 1/10W		R268	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R032	1-216-033-00	METAL GLAZE 220 5% 1/10W		R269	1-249-385-11	CARBON 2.2 5% 1/4W (KV-20S10/ST2050/21RS10/2190RS)	
R033	1-216-033-00	METAL GLAZE 220 5% 1/10W		R270	1-249-385-11	CARBON 2.2 5% 1/4W	
R034	1-216-295-91	METAL GLAZE 0 5% 1/10W		R271	1-249-417-11	CARBON 1K 5% 1/4W (KV-20M10/20S10/21R10/21RS10)	
R036	1-216-295-91	METAL GLAZE 0 5% 1/10W		R272	1-249-411-11	CARBON 330 5% 1/4W (KV-20M10/20S10/21R10/21RS10)	
R038	1-216-049-00	METAL GLAZE 1K 5% 1/10W (KV-20M10/20S10/MT2000/ST2050)					
R039	1-216-077-00	METAL GLAZE 15K 5% 1/10W (KV-20M10/20S10/MT2000/ST2050)					
R041	1-216-073-00	METAL GLAZE 10K 5% 1/10W					
R044	1-216-033-00	METAL GLAZE 220 5% 1/10W					
R045	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W					
R046	1-216-033-00	METAL GLAZE 220 5% 1/10W					
R047	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W					
R048	1-216-025-00	METAL GLAZE 100 5% 1/10W					
R049	1-216-089-91	METAL GLAZE 47K 5% 1/10W					
R050	1-216-073-00	METAL GLAZE 10K 5% 1/10W					

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Les composants identifiés par
une trame et une marque 
sont critiques pour la sécurité
Ne les remplacer que par une
pièce portant le numéro spécifique.

The components identified by
shading and mark 
are critical for safety
Replace only with part number
specified.

REF. NO	PART NO	DESCRIPTION	REMARK	REF. NO	PART NO	DESCRIPTION	REMARK
R273	1-249-411-11	CARBON 330 5% 1/4W (KV-20M10/20S10/21R10/21RS10)		R419	1-216-023-00	METAL GLAZE 82 5% 1/10W (KV-20M10/20S10/21R10/21RS10)	
R276	1-249-417-11	CARBON 1K 5% 1/4W (KV-20S10/21RS10)		R420	1-249-417-11	CARBON 1K 5% 1/4W (KV-20M10/20S10/21R10/21RS10)	
R301	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W		R421	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-ST2050/2190RS)	
R302	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R422	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R311	1-216-678-11	METAL CHIP 13K 0.50% 1/10W		R423	1-216-049-00	METAL GLAZE 1K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)	
R312	1-216-079-00	METAL GLAZE 18K 5% 1/10W		R424	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20S10/21RS10)	
R313	1-216-653-11	METAL CHIP 1.2K 0.50% 1/10W		R425	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)	
R314	1-216-117-00	METAL GLAZE 680K 5% 1/10W		R426	1-216-113-00	METAL GLAZE 470K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)	
R315	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W		R427	1-216-113-00	METAL GLAZE 470K 5% 1/10W (KV-20S10/21RS10)	
R321	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R428	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R322	1-216-295-91	METAL GLAZE 0 5% 1/10W		R430	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R323	1-216-121-00	METAL GLAZE 1M 5% 1/10W			1-216-073-00	METAL GLAZE 10K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R324	1-216-025-00	METAL GLAZE 100 5% 1/10W		R431	1-216-295-91	METAL GLAZE 0 5% 1/10W	
R325	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R432	1-216-073-00	METAL GLAZE 10K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R326	1-216-025-00	METAL GLAZE 100 5% 1/10W		R433	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R327	1-216-077-00	METAL GLAZE 15K 5% 1/10W		R436	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W (KV-20M10/MT2000/21R10/2180R)	
R328	1-216-025-00	METAL GLAZE 100 5% 1/10W			1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R333	1-216-295-91	METAL GLAZE 0 5% 1/10W		R438	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (KV-20S10/ST2050/21RS10/2190RS)	
R334	1-216-295-91	METAL GLAZE 0 5% 1/10W		R439	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R336	1-216-121-00	METAL GLAZE 1M 5% 1/10W		R441	1-216-025-00	METAL GLAZE 100 5% 1/10W (KV-20M10/20S10/21R10/21RS10)	
R338	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R442	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R339	1-216-045-00	METAL GLAZE 680 5% 1/10W		R445	1-216-081-00	METAL GLAZE 22K 5% 1/10W (KV-20M10/21R10)	
R341	1-216-687-11	METAL CHIP 33K 0.50% 1/10W		R501	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R343	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W		R505	1-216-349-00	METAL OXIDE 1 5% 1W F	
R345	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R506	1-216-429-00	METAL OXIDE 270 5% 1W F	
R346	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W		R507	1-247-891-00	CARBON 330K 5% 1/4W	
R347	1-216-025-00	METAL GLAZE 100 5% 1/10W		R508	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R351	1-216-085-00	METAL GLAZE 33K 5% 1/10W		R509	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R356	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R510	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R360	1-216-041-00	METAL GLAZE 470 5% 1/10W		R511	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R363	1-216-073-00	METAL GLAZE 10K 5% 1/10W		R512	1-215-445-00	METAL 10K 1% 1/4W	
R364	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R513	1-216-645-11	METAL CHIP 560 0.50% 1/10W	
R366	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R515	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R367	1-216-109-00	METAL GLAZE 330K 5% 1/10W		R518	1-215-431-00	METAL 2.7K 1% 1/4W	
R405	1-216-077-00	METAL GLAZE 15K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R519	1-216-443-11	METAL OXIDE 56K 5% 1W F	
R406	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R520	1-216-647-11	METAL CHIP 680 0.50% 1/10W	
R407	1-216-025-00	METAL GLAZE 100 5% 1/10W (KV-MT2000/ST2050/2180R/2190RS)		R523	1-215-470-00	METAL 110K 1% 1/4W	
R408	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R525	 1-216-678-11	METAL CHIP 13K 0.50% 1/10W	
R409	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R527	1-216-678-11	METAL CHIP 13K 0.50% 1/10W	
R410	1-216-049-00	METAL GLAZE 1K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R531	1-216-349-00	METAL OXIDE 1 5% 1W F	
R411	1-216-041-00	METAL GLAZE 470 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R532	1-215-457-00	METAL 33K 1% 1/4W	
R412	1-216-041-00	METAL GLAZE 470 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R533	1-216-421-71	METAL OXIDE 12 5% 1W F	
R413	1-216-097-00	METAL GLAZE 100K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R534	1-215-457-00	METAL 33K 1% 1/4W	
R414	1-216-097-00	METAL GLAZE 100K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)		R536	1-216-667-11	METAL CHIP 4.7K 0.50% 1/10W	
R415	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-20S10/21R10)		R538	1-215-864-00	METAL OXIDE 150 5% 1W F	
	1-216-295-91	METAL GLAZE 0 5% 1/10W (KV-20M10/21R10)		R540	1-249-441-11	CARBON 100K 5% 1/4W	
R416	1-216-033-00	METAL GLAZE 220 5% 1/10W (KV-ST2050/2190RS)					
R418	1-216-049-00	METAL GLAZE 1K 5% 1/10W (KV-20M10/20S10/21R10/21RS10)					

- The components identified by  in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

KV-20M10/20S10/MT2000/ST2050
RM-Y116 RM-Y116 RM-Y123 RM-Y123
KV-21R10/21RS10/2180R/2190RS
RM-Y116 RM-Y116 RM-Y123 RM-Y123

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REF.NO.	PART NO.	DESCRIPTION	REMARK	REF NO.	PART NO.	DESCRIPTION	REMARK
R542	1-216-083-00	METAL GLAZE	27K 5% 1/10W	T501 Δ 1-437-935-00	TRANSFORMER ASSY. FLYBACK (X-1661//A4E)		
R543	1-218-764-11	METAL CHIP	330K 0.50% 1/10W	T551 1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE		
R544	1-216-056-11	METAL CHIP	1.6K 0.50% 1/10W	T601 Δ 1-423-895-11	TRANSFORMER, LINE FILTER (LFT)		
R545	1-216-097-00	METAL GLAZE	100K 5% 1/10W	T602 Δ 1-423-895-11	TRANSFORMER, LINE FILTER (LFT)		
R547	1-216-073-00	METAL GLAZE	10K 5% 1/10W	T603 Δ 1-426-819-11	TRANSFORMER, CONVERTER (PRT)		
R548	1-216-113-00	METAL GLAZE	470K 5% 1/10W	T604 Δ 1-423-906-31	TRANSFORMER, CONVERTER (PRT)		
R549	1-216-369-00	METAL OXIDE	1 5% 2W F	<THERMISTOR>			
R554	1-216-043-00	METAL GLAZE	560 5% 1/10W	THP601 Δ 1-810-511-21	THERMISTOR, POSITIVE		
R555	1-215-897-11	METAL OXIDE	6.8K 5% 2W F	<TUNER>			
R557	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	TU101 Δ 8-598-047-00	TUNER BTF-1A401		
R558	1-216-065-00	METAL GLAZE	1.7K 5% 1/10W	(KV-20M10/MT2000/21R10/2180R)			
R559	1-216-049-00	METAL GLAZE	1K 5% 1/10W	Δ 8-598-254-00	TUNER BTF-8A402		
R560	1-216-073-00	METAL GLAZE	10K 5% 1/10W	(KV-20S10/ST2050/21RS10/2190RS)			
R563 Δ	1-215-880-71	METAL OXIDE	10 5% 2W F	<VARISTOR>			
R601 Δ	1-282-892-91	SR110	4.7M 20% 1/2W	VDR601 1-810-551-21	VARISTOR		
R602	1-216-073-00	METAL GLAZE	10K 5% 1/10W	<CRYSTAL>			
R605	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	X301 1-760-190-41	VIBRATOR, CRYSTAL		
R606	1-260-288-11	CARBON	0.47 5% 1/2W	*****			
R607	1-247-889-00	CARBON	270K 5% 1/4W	*A-1331-336-A	C BOARD, COMPLETE		
R608	1-247-889-00	CARBON	270K 5% 1/4W	*****			
R609	1-216-355-11	METAL OXIDE	3.3 5% 1W F	<CAPACITOR>			
R610	1-216-355-11	METAL OXIDE	3.3 5% 1W F	C701 1-162-114-00	CERAMIC	0.0047MF	2KV
R611	1-247-889-00	CARBON	270K 5% 1/4W	C706 1-126-233-11	ELECT	22MF	20% 50V
R612	1-247-889-00	CARBON	270K 5% 1/4W	C712 1-164-083-11	CERAMIC	680PF	10% 50V
R613	1-249-409-11	CARBON	220 5% 1/4W	C732 1-164-083-11	CERAMIC	680PF	10% 50V
R614	1-247-891-00	CARBON	330K 5% 1/4W	C752 1-164-083-11	CERAMIC	680PF	10% 50V
R615	1-216-101-00	METAL GLAZE	150K 5% 1/10W	C771 1-164-083-11	CERAMIC	680PF	10% 50V
R616	1-216-073-00	METAL GLAZE	10K 5% 1/10W	C772 1-164-083-11	CERAMIC	680PF	10% 50V
R617 Δ	1-216-661-91	METAL CHIP	2.7K 0.50% 1/10W	C773 1-164-083-11	CERAMIC	680PF	10% 50V
R618 Δ	1-215-471-91	METAL	1.2K 1% 1/4W	<CONNECTOR>			
R619	1-247-811-31	CARBON	150 5% 1/4W	CN701 1-695-915-11	TAB (CONTACT)		
R620	1-249-430-11	CARBON	12K 5% 1/4W	CN703 *1-564-509-11	PLUG, CONNECTOR 6P		
R621	1-260-099-11	CARBON	1K 5% 1/2W	CN705 1-695-915-11	TAB (CONTACT)		
R622	1-216-073-00	METAL GLAZE	10K 5% 1/10W	CN706 *1-564-507-11	PLUG, CONNECTOR 4P		
R623	1-216-073-00	METAL GLAZE	10K 5% 1/10W	<DIODE>			
R625	1-216-355-11	METAL OXIDE	3.3 5% 1W F	D770 8-719-911-19	DIODE 1SS119		
R626	1-247-811-31	CARBON	150 5% 1/4W	D771 8-719-911-19	DIODE 1SS119		
R628	1-249-415-11	CARBON	680 5% 1/4W	D772 8-719-911-19	DIODE 1SS119		
R629	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	D773 8-719-911-19	DIODE 1SS119		
R630	1-216-687-11	METAL CHIP	33K 0.50% 1/10W	D777 8-719-109-72	DIODE RD3 9ESB2		
R631	1-249-431-11	CARBON	15K 5% 1/4W	D790 8-719-911-19	DIODE 1SS119		
R632	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D791 8-719-911-19	DIODE 1SS119		
R634	1-216-073-00	METAL GLAZE	10K 5% 1/10W	D792 8-719-911-19	DIODE 1SS119		
R635	1-212-857-00	FUSIBLE	10 5% 1/4W F	<JACK>			
R636	1-216-049-00	METAL GLAZE	1K 5% 1/10W	J701 Δ 1-251-182-11	SOCKET, PICTURE TUBE		
R637	1-216-073-00	METAL GLAZE	10K 5% 1/10W	<RELAY>			
R690	1-216-355-11	METAL OXIDE	3.3 5% 1W F	K5C018 1-755-018-11	RELAY		
<SWITCH>				<TRANSFORMER>			
S001	1-571-532-21	SWITCH, TACTIL					
S002	1-571-532-21	SWITCH, TACTIL					
S003	1-571-532-21	SWITCH, TACTIL					
S004	1-571-532-21	SWITCH, TACTIL					
S005	1-571-532-21	SWITCH, TACTIL					
S006	1-571-532-21	SWITCH, TACTIL					

Les composants identifiés par
 une trame et une marque Δ
 sont critiques pour la sécurité
 Ne les remplacer que par une
 pièce portant le numéro spécifié

The components identified by
 shading and mark Δ are critical
 for safety
 Replace only with part number
 specified

C

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
<COIL>							
L701	1-410-671-31	INDUCTOR 47UH		3-758-850-31		MANUAL, INSTRUCTION (KV-20S10(CND)/MT2000/ST2050/20M10(CND))	
<TRANSISTOR>				3-758-850-41		MANUAL, INSTRUCTION (KV-21R10/21RS10/2180R/2190RS)	
Q711	8-729-326-11	TRANSISTOR 2SC2611		*4-039-627-01		INDIVIDUAL CARTON (KV-MT2000/ST2050)	
Q731	8-729-326-11	TRANSISTOR 2SC2611		*4-039-628-01		CUSHION (UPPER) (ASSY) (KV-MT2000/ST2050/2180R/2190RS)	
Q751	8-729-326-11	TRANSISTOR 2SC2611		*4-039-629-01		CUSHION (LOWER) (ASSY) (KV-MT2000/ST2050/2180R/2190RS)	
Q770	8-729-119-76	TRANSISTOR 2SA1175-HFE		*4-040-688-03		INDIVIDUAL CARTON (KV-2180R/2190RS)	
Q771	8-729-200-17	TRANSISTOR 2SA1091-0		*4-041-254-01		BAG, PROTECTION	
Q772	8-729-200-17	TRANSISTOR 2SA1091-0		*4-044-875-01		CUSHION (UPPER) (ASSY) (KV-20M10/20S10/21R10/21RS10)	
Q773	8-729-200-17	TRANSISTOR 2SA1091-0		*4-044-876-01		CUSHION (LOWER) (ASSY) (KV-20M10/20S10/21R10/21RS10)	
<RESISTOR>				*0-513-790-00		INDIVIDUAL CARTON (KV-21R10/21RS10)	
R700	1-260-087-11	CARBON 100 5% 1/2W		*4-044-878-01		INDIVIDUAL CARTON (KV-20M10/20S10)	
R703	1-260-105-11	CARBON 3.3K 5% 1/2W		REMOTE COMMANDER			
R704	1-216-370-11	METAL OXIDE 1.2 5% 2W	F	1-466-966-11		REMOTE COMMANDER (RM-Y116) (KV-20M10/20S10 21R10/21RS10)	
R710	1-260-105-11	CARBON 3.3K 5% 1/2W		9-903-826-01		COVER, BATTERY (FOR RM-Y116) (KV-20M10/20S10 21R10/21RS10)	
R711	1-247-807-31	CARBON 100 5% 1/4W		1-467-738-11		REMOTE COMMANDER (RM-Y123) (KV-MT2000/ST2050/2180R/2190RS)	
R712	1-215-924-00	METAL OXIDE 15K 5% 3W	F	9-907-089-01		COVER, BATTERY (FOR RM-Y123) (KV-MT2000/ST2050/2180R/2190RS)	
R716	1-249-411-11	CARBON 330 5% 1/4W					
R717	1-249-393-11	CARBON 10 5% 1/4W					
R730	1-260-105-11	CARBON 3.3K 5% 1/2W					
R731	1-247-807-31	CARBON 100 5% 1/4W					
R732	1-215-924-00	METAL OXIDE 15K 5% 3W	F				
R736	1-249-411-11	CARBON 330 5% 1/4W					
R737	1-249-393-11	CARBON 10 5% 1/4W					
R750	1-260-105-11	CARBON 3.3K 5% 1/2W					
R751	1-247-807-31	CARBON 100 5% 1/4W					
R752	1-215-924-00	METAL OXIDE 15K 5% 3W	F				
R756	1-249-411-11	CARBON 330 5% 1/4W					
R757	1-249-393-11	CARBON 10 5% 1/4W					
R770	1-249-433-11	CARBON 22K 5% 1/4W					
R774	1-249-437-11	CARBON 47K 5% 1/4W					
R775	1-249-417-11	CARBON 1K 5% 1/4W					
R776	1-249-409-11	CARBON 220 5% 1/4W					
R790	1-249-417-11	CARBON 1K 5% 1/4W					
R791	1-249-413-11	CARBON 470 5% 1/4W					

MISCELLANEOUS							

Δ 1-408-707-31 COIL, DEMAGNETIZATION							
1-452-277-00 MAGNET, BMC							
1-504-311-11 SPEAKER (9X5CM)							
(KV-20M10/MT2000/21R10/2180R/2190RS)							
1-504-607-11 SPEAKER (9X5CM) (KV-20S10/ST2050/21RS10)							
Δ 1-765-486-11 COORD. POWER (WITH CONNECTOR) 10.0A/125V							
1-765-374-11 PLUG, F-PIN							
Δ 8-451-440-11 DEFLECTION YOKE (Y21NXA)							
V901 Δ 8-738-768-05 PICTURE TUBE (AS11DG50X)							

ACCESSORIES AND PACKING MATERIALS							

1-417-182-11		CONVERTER (EAC-25) (KV-20M10/20S10/21R10/21RS10/2180R/2190RS)					
1-501-372-41		ANTENNA, TELESCOPIC (KV-20M10/20S10/21R10/21RS10/2180R/2190RS)					
3-758-850-21		MANUAL, INSTRUCTION					