

SERVICE MANUAL

BA-4C CHASSIS

Self Diagnosis
Supported model

<i>MODEL</i>	<i>COMMANDER</i>	<i>DEST</i>	<i>CHASSIS NO.</i>
KV-24FV10	RM-Y168	US	SCC-S22A-A
KV-24FV10	RM-Y168	CND	SCC-S24A-A
KV-25FV10	RM-Y168	E	SCC-S23A-A
KV-25FV10C	RM-Y168	E	SCC-S23C-A



KV-24FV10



RM-Y168



TRINITRON® COLOR TV
SONY®

SPECIFICATIONS

	KV-24FV10	KV-25FV10/10C
Power Requirements	120V, 60 Hz	Auto Volt (120–220 VAC)
Number of inputs/outputs		
Video Input ⁽¹⁾	2	2
S Video Input ⁽²⁾	1	1
Audio Input ⁽³⁾	2	2
Audio Output ⁽⁴⁾	1	1
Speaker Output (W)	10W x 2	10W x 2
Power Consumption (W)		
In Use (Max)	150W	150W
In Standby	1W	1W
Dimensions (W/H/D)		
(mm)	652 x 524.3 x 467.3 mm	652 x 524.3 x 467.3 mm
(in)	25 ³ / ₄ x 20 ¹¹ / ₁₆ x 18 ⁷ / ₁₆ in	25 ³ / ₄ x 20 ¹¹ / ₁₆ x 18 ⁷ / ₁₆ in
Mass		
(kg)	40 kg	40 kg
(lbs)	88 lbs. 3 oz.	88 lbs. 3 oz.

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

Television system

American TV standard/NTSC

Channel coverage

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

Visible screen size

24" picture measured diagonally

Actual screen size

25" picture measured diagonally

Antenna

75 ohm external terminal for VHF/UHF

Supplied AccessoriesRemote Commander RM-Y168 (all models)
Size AA (R6) batteries (2)**Optional Accessories**Dipole antenna
Connecting cables VMC-810S/820S, VMC-720M,
YC-15V/30V, RK74A
U/V mixer EAC-66
(●) SRS (SOUND RETRIEVAL SYSTEM)

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

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

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

Design and specifications are subject to change without notice.

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WARNINGS AND CAUTIONS

CAUTION

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

ATTENTION

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

ATTENTION!!

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

ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

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

SELF-DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER LED will automatically begin to flash. The number of times the LED flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER LED flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the Remote Commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

Diagnostic Test Indicators

When an error occurs, the STANDBY/TIMER LED will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the LED will identify the first of the problem areas.

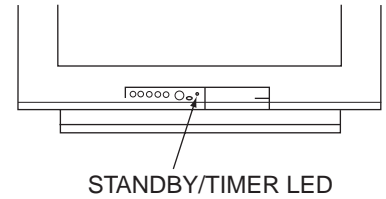
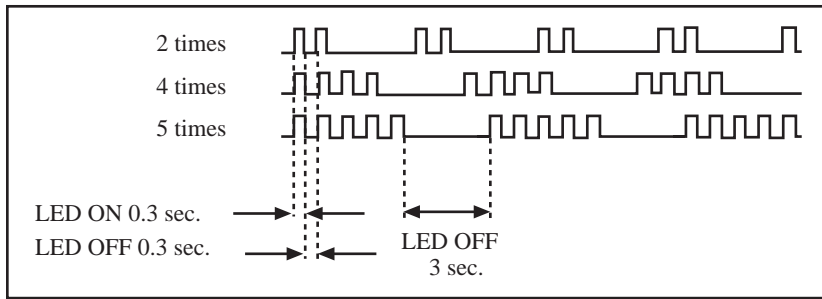
Results for all of the following diagnostic items are displayed on screen. No error has occurred if the screen displays a "0".

Diagnostic Item Description	No. of Times STANDBY/TIMER LED Flashes	Self-diagnostic Display/ Diagnostic Result	Probable Cause Location	Detected Symptoms
Power does not turn on	Does not light	—	<ul style="list-style-type: none"> • Power cord is not plugged in. • Fuse is burned out. (F600) (G Board) 	<ul style="list-style-type: none"> • Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
+B overcurrent (OCP)*	2 times	2:0 or 2:1	<ul style="list-style-type: none"> • H.OUT (Q502) is shorted. (A Board) • IC1751 is shorted. (C Board) 	<ul style="list-style-type: none"> • Power does not come on. • Load on power line is shorted.
Vertical deflection stopped*	4 times	4:0 or 4:1	<ul style="list-style-type: none"> • +13V is not supplied. (A Board) • IC541 is faulty. (A Board) 	<ul style="list-style-type: none"> • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
White balance failure (not balanced)	5 times	5:0 or 5:1	<ul style="list-style-type: none"> • Video OUT (IC541) is faulty. (A Board) • IC301 is faulty. (A Board) • Screen (G2) is improperly adjusted.** 	<ul style="list-style-type: none"> • No raster is generated. • CRT cathode current detection reference pulse output is small.

* If a +B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously. The symptom that is diagnosed first by the microcontroller is displayed on the screen.

** Refer to Screen (G2) Adjustments in Section 3-4 of this manual.

Display of Standby/Timer LED Flash Count



Diagnostic Item	Flash Count*
+B overcurrent	2 times
Vertical deflection stopped	4 times
White balance failure	5 times

*One flash count is not used for self-diagnostic.

Stopping the Standby/Timer LED Flash

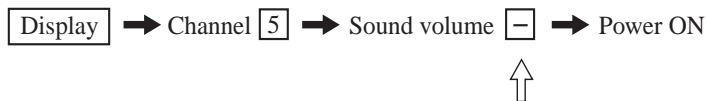
Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER LAMP from flashing.

Self-Diagnostic Screen Display

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurrences of failure on the screen for confirmation.

To Bring Up Screen Test

In standby mode, press buttons on the Remote Commander sequentially, in rapid succession, as shown below:



Note that this differs from entering the service mode (sound volume [+]).

Self Diagnostic Screen Display

SELF DIAGNOSTIC			
2:		0	← Numeral “0” means that no fault was detected.
3:	N/A	0	
4:		0	
5:		1	← Numeral “1” means a fault was detected one time only.
101:	N/A	0	

Handling of Self-diagnostic Screen Display

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

Clearing the Result Display

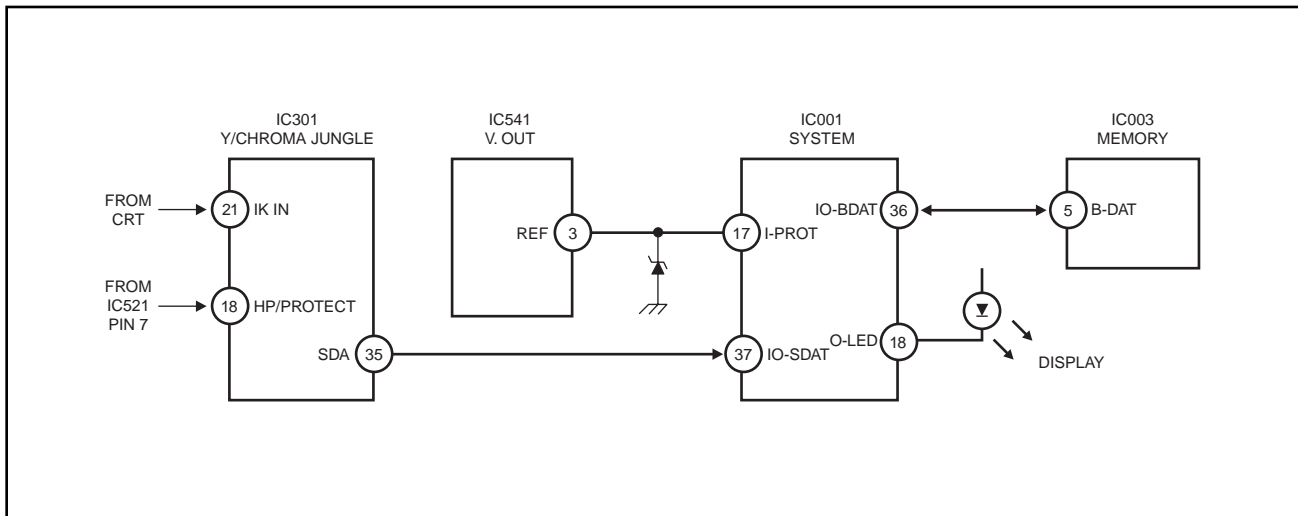
To clear the result display to “0”, press buttons on the Remote Commander sequentially when the diagnostic screen is displayed, as shown below:

Channel **8** → **ENTER**

Quitting the Self-Diagnostic Screen

To quit the entire self-diagnostic screen, turn off the power switch on the Remote Commander or the main unit.

Self-diagnostic Circuit



+B overcurrent (OCP)

Occurs when an overcurrent on the +B (115V) line is detected by pin 18 of IC301. If the voltage of pin 18 of IC 301 is less than 1V when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.

Vertical deflection stopped

Occurs when an absence of the vertical deflection pulse is detected by pin 17 of IC001. Power supply will shut down when waveform interval exceeds 2 seconds.

White balance failure

If the RGB levels* do not balance within 2 seconds after the power is turned on, this error will be detected by IC301. TV will stay on, but there will be no picture.

*(Refers to the RGB levels of the AKB detection Ref pulse that detects 1K.)

SAFETY CHECK-OUT

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

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 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 instructions.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63Trd are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).

How to Find a Good Earth Ground

A cold-water pipe is a 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- to 100-watt 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 on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).

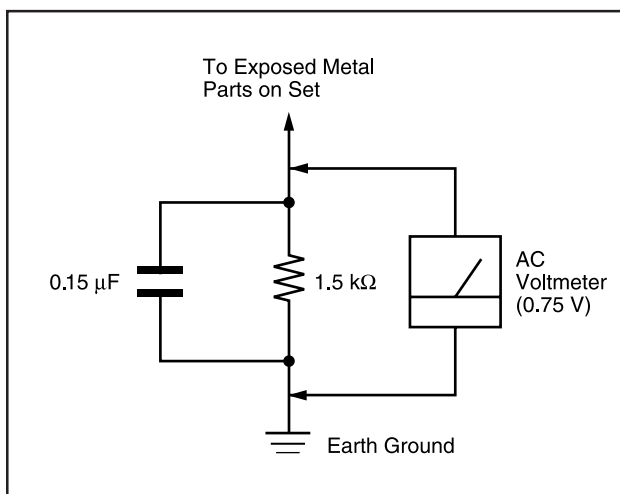


Figure A. Using an AC voltmeter to check AC leakage.

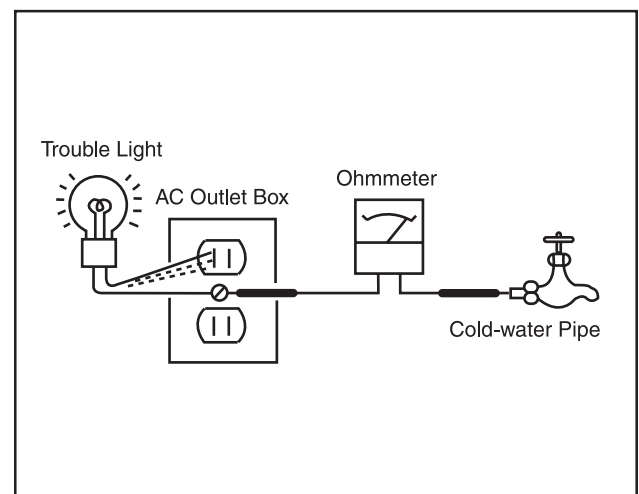


Figure B. Checking for earth ground.

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

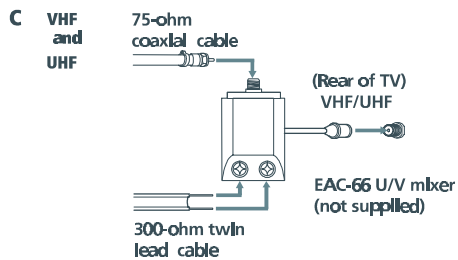
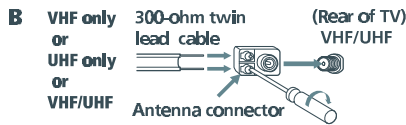
Connecting Your TV

Read this chapter before setting up your TV for the first time. This section covers basic connections in addition to any optional equipment you may be connecting.

Basic Connections

TV with indoor or outdoor antenna, or CATV cable

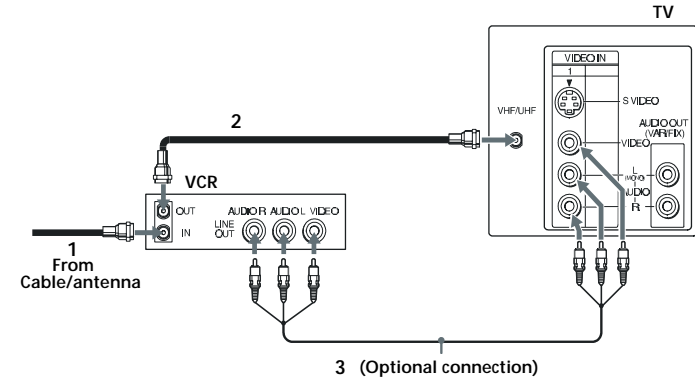
Depending on the cable available in your home, choose one of the connections below:



If you are connecting to an indoor or outdoor antenna, it will be necessary to adjust the orientation of the antenna for best reception.

Connecting Additional Equipment

TV and VCR



- 1 Connect the coaxial cable from your TV antenna or cable TV to the IN jack on your VCR.
- 2 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF/UHF IN jack on the TV.

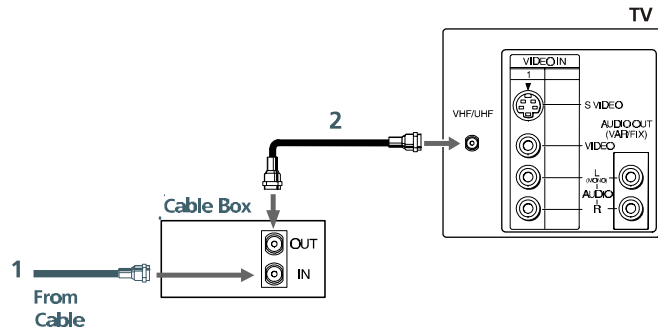
To watch video programs from your VCR, tune your TV to channel 3 or 4 (as set on the rear of your VCR).

(Optional connection)

- 3 If your VCR is equipped with video inputs, for better picture quality you should connect A/V cables from AUDIO and VIDEO OUT on your VCR to AUDIO/VIDEO IN on your TV. You can use the TV/VIDEO button to switch between the TV and VCR inputs.

For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, the audio cables must still be connected.

TV and Cable Box

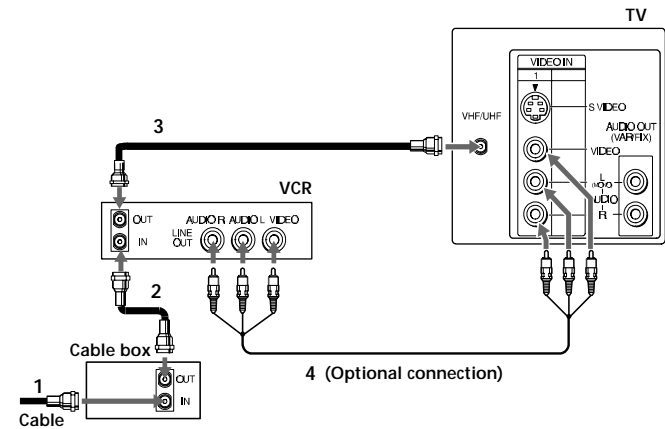


- 1 Connect the coaxial cable from the wall to the IN jack on your cable box.
- 2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the VHF/UHF IN jack on the TV.

To view channels from your cable box, tune your TV to channel 3 or 4 (as set on the rear panel of your cable box).

If you will be controlling all channel selection through your cable box, you should consider using the CHANNEL FIX feature on page 20.

TV, VCR, and Cable box



- 1 Connect the coaxial cable from the wall to the IN jack on your cable box.
- 2 Connect a coaxial cable (not supplied) from the OUT jack on your cable box to the IN jack on your VCR.
- 3 Connect a coaxial cable (not supplied) from the OUT jack on your VCR to the VHF/UHF IN jack on the TV.

If you will be controlling all channel selection through your cable box, you should consider using the CHANNEL FIX feature on page 20.

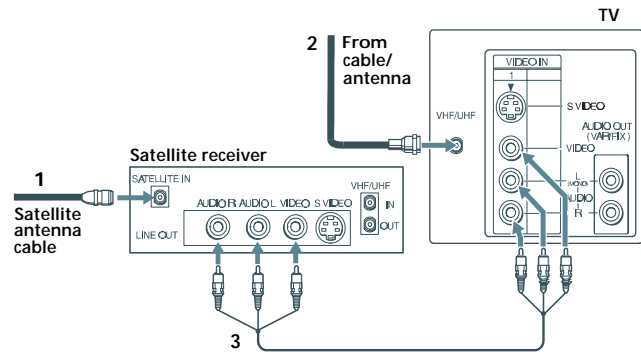
(Optional connection)

- 4 If your VCR is equipped with video inputs, for better picture quality you should connect A/V cables from AUDIO and VIDEO OUT on your VCR to AUDIO/VIDEO IN on your TV. You can use the button to switch between the TV and VCR inputs.

For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, the audio cables must still be connected.

Connecting Your TV

TV and Digital Satellite Receiver



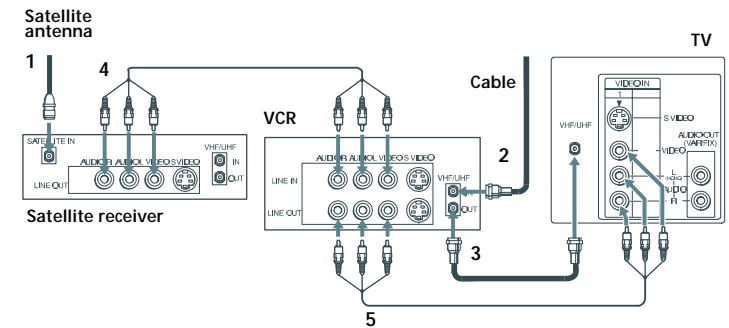
- 1 Connect the cable from your satellite antenna to SATELLITE IN on the satellite receiver.
- 2 Attach the coaxial connector from your cable or antenna to VHF/UHF IN on your TV.
- 3 Using A/V connectors, connect AUDIO and VIDEO OUT on your satellite receiver to AUDIO and VIDEO IN on your TV.

You can use the button to switch between the satellite receiver and TV.

For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, your audio connectors must still be connected.

User Guide

TV, Digital Satellite Receiver and VCR

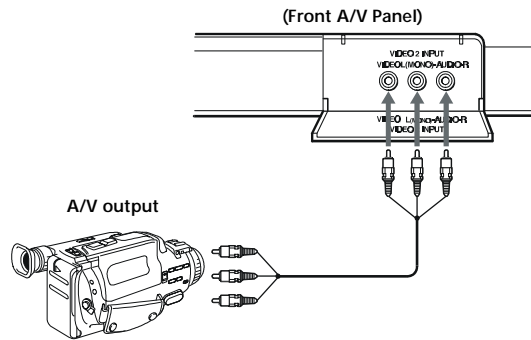


- 1 Connect the cable from your satellite antenna to SATELLITE IN on the satellite receiver.
- 2 Attach the coaxial connector from your cable or antenna to VHF/UHF IN on your VCR.
- 3 Using a coaxial cable, connect VHF/UHF OUT on your VCR to VHF/UHF IN on your TV.
- 4 Using A/V connectors, connect AUDIO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

To view from the satellite or VCR, select the video input to which your satellite receiver or VCR is connected by pressing on the remote control.

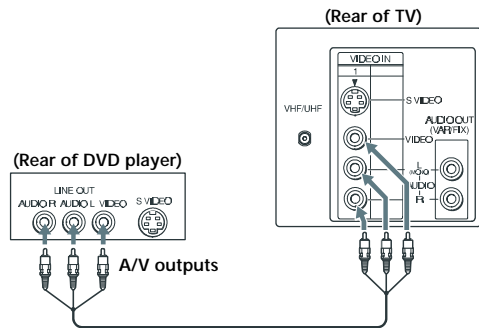
Connecting a Camcorder

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



Connecting a DVD Player

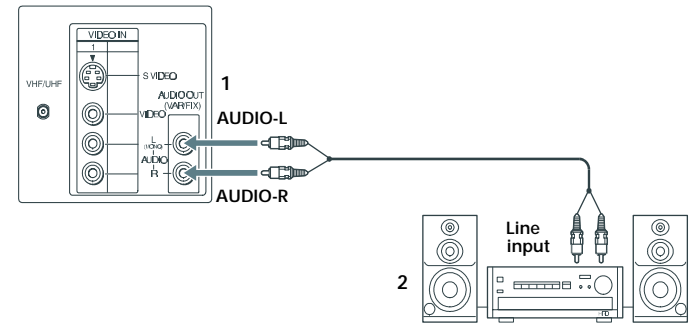
Using A/V connectors, connect LINE OUT on your DVD to VIDEO IN on your TV.



For optimum picture quality, use S VIDEO instead of the yellow A/V cable. S VIDEO does not provide sound, your audio connectors must still be connected.

Connecting an audio system

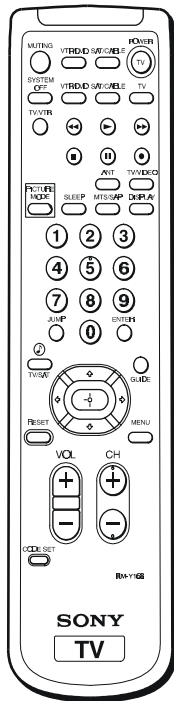
Using audio connectors, connect AUDIO OUT on your TV to one of the unused line inputs (e.g. TV, AUX, TAPE 2) on your stereo.





Set your stereo to the chosen line input. See page 16 for additional audio setup instructions.

Using the Remote Control and Basic Functions




This section shows you how to use more advanced buttons on the remote control and how to use the on-screen menus.



Button	Description
POWER	Press when you want to turn connected equipment on and off.
FUNCTION	Press when you want to control connected equipment with your remote control.
MUTING	Instantly turns off the sound. Press again or press  to restore sound.
SYSTEM OFF	Powers off all Sony equipment at once.
TV/VIDEO	Cycles through available video inputs.
	Moves the cursor in the on-screen menus. Press the arrow buttons to move the cursor, press the center button to select or access an option.
PICTURE MODE	Cycles through the available VIDEO MODE settings.
SLEEP	Turns the TV off automatically in approximately 30, 60 or 90 minutes. Cancel by pressing until SLEEP OFF appears.
MTS/SAP	Cycles through the Multi-channel TV Sound (MTS) options: STEREO, SAP (Second Audio Programming), MONO.
DISPLAY	Press once to show current time, (if set) and channel number. Press again to activate CAPTION VISION settings, if available. To cancel, press again until DISPLAY OFF appears.

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	Cycles through available AUTO VOLUME settings (see page 16).
JUMP	Alternates back and forth between the last two channels selected with the  -  buttons.
GUIDE	Brings up the custom guide of your satellite receiver.
MENU	Displays the on-screen menu. Press again to exit the menu at any time.
RESET	Press to return to factory settings while in the on-screen menu.
CODE SET	Use to program your remote control to operate connected video equipment, (see page 29).

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Troubleshooting

If you are having a problem with your TV, try the suggestions below. If the problem persists, contact your nearest Sony dealer.

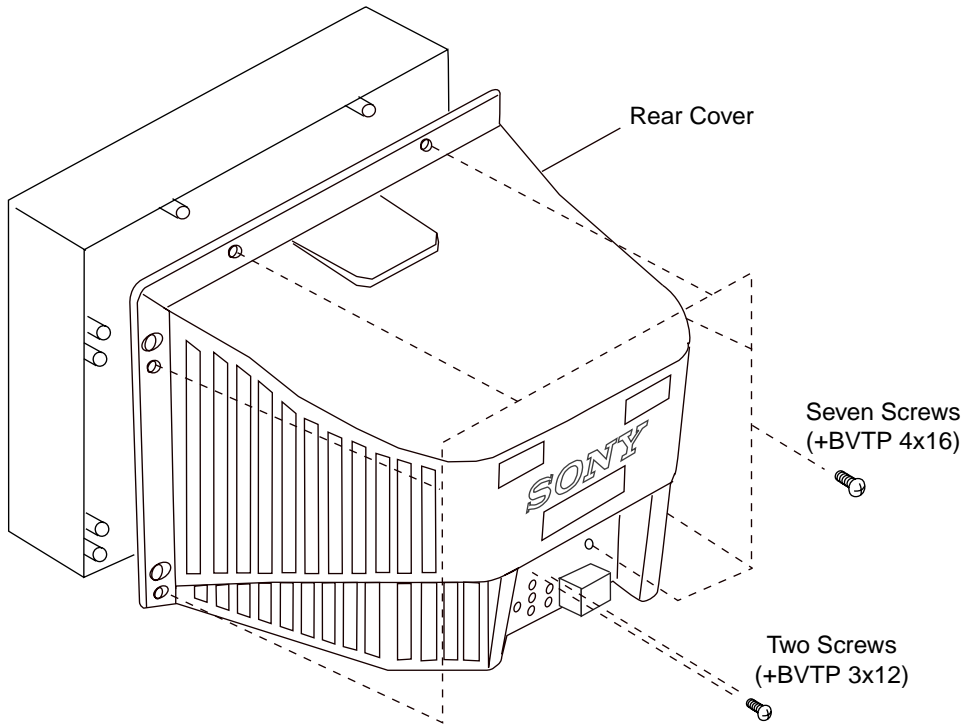
No picture, no sound	<ul style="list-style-type: none"> <input type="checkbox"/> Make sure the power cord is plugged in. <input type="checkbox"/> If a red light is flashing on the front of your TV for more than a few minutes, call your local service center. <input type="checkbox"/> Check your PARENTAL CONTROL settings, (pages 25-26). <input type="checkbox"/> Check the TV/VIDEO settings: when watching TV, set to TV; when watching video equipment, set to VIDEO (page 15). <input type="checkbox"/> Make sure the batteries have been inserted correctly into the remote control. <input type="checkbox"/> Try another channel, it could be station trouble.
Poor or no picture, good sound	<ul style="list-style-type: none"> <input type="checkbox"/> Adjust PICTURE in the VIDEO menu (page 15). <input type="checkbox"/> Adjust BRIGHTNESS in the VIDEO menu (page 15). <input type="checkbox"/> Check the antenna and/or cable connections (page 3).
Good picture, no sound	<ul style="list-style-type: none"> <input type="checkbox"/> Press MUTING so that MUTING disappears from the screen (page 11). <input type="checkbox"/> Check your AUDIO settings. Your TV may be set to SAP (page 16).
No color	<ul style="list-style-type: none"> <input type="checkbox"/> Adjust COLOR in the VIDEO menu (page 15).
Only snow appears on the screen	<ul style="list-style-type: none"> <input type="checkbox"/> Check the CABLE setting in the SET UP menu (page 20). <input type="checkbox"/> Check the antenna and/or cable connections (page 3). <input type="checkbox"/> Make sure the channel selected is currently broadcasting.
Dotted lines or stripes	<ul style="list-style-type: none"> <input type="checkbox"/> Adjust the antenna. <input type="checkbox"/> Move the TV away from other electronic equipment. Some electronic equipment can create electrical noise, which can interfere with TV reception.
Double images or ghosts	<ul style="list-style-type: none"> <input type="checkbox"/> Check your outdoor antenna or call your cable service.
Cannot receive higher number channels (UHF) when using an antenna	<ul style="list-style-type: none"> <input type="checkbox"/> Make sure CABLE is set to OFF in the SET UP menu (page 20). <input type="checkbox"/> Use AUTO PROGRAM to add channels that are not presently in the memory (page 20).

Cable stations don't seem to work	<ul style="list-style-type: none"> <input type="checkbox"/> Make sure CABLE is set to ON in the SET UP menu (page 20). <input type="checkbox"/> Use AUTO PROGRAM to add channels that are not presently in the memory (page 20).
Remote Control does not operate	<ul style="list-style-type: none"> <input type="checkbox"/> Batteries could be weak. Replace them (page 2). <input type="checkbox"/> Move the TV 3-4 feet away from fluorescent lights.
The TV needs to be cleaned	<ul style="list-style-type: none"> <input type="checkbox"/> Clean the TV with a soft dry cloth. Never use strong solvents such as thinner or benzine, which might damage the finish of the cabinet.
Lost password for PARENTAL CONTROL	<ul style="list-style-type: none"> <input type="checkbox"/> In the password screen, enter the following master password: 4357. After using the master password, you must create a new password.

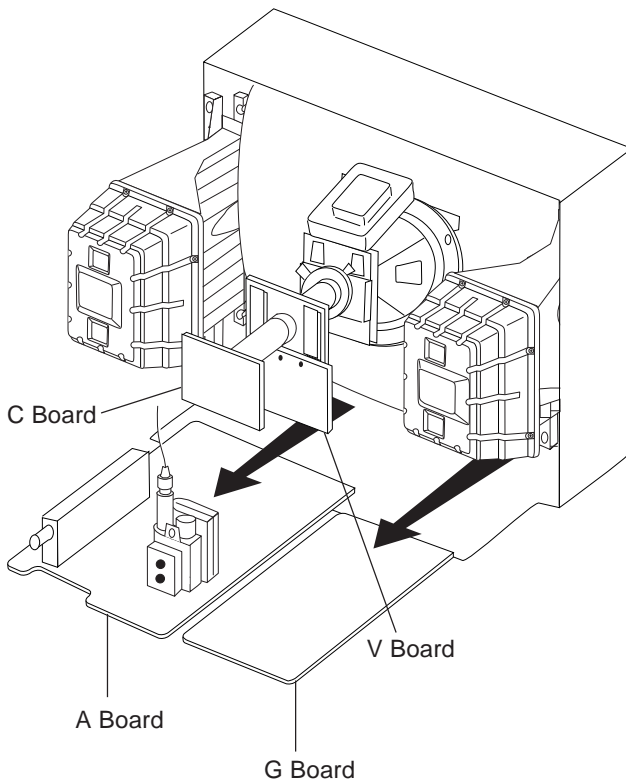
If, after reading these operating instructions, you have additional questions related to the use of your Sony television, please call our Direct Response Center at 1-800-222-SONY (7669) (U.S. residents only). (416) 499-SONY (7669) (Canadian residents only).

SECTION 2 DISASSEMBLY

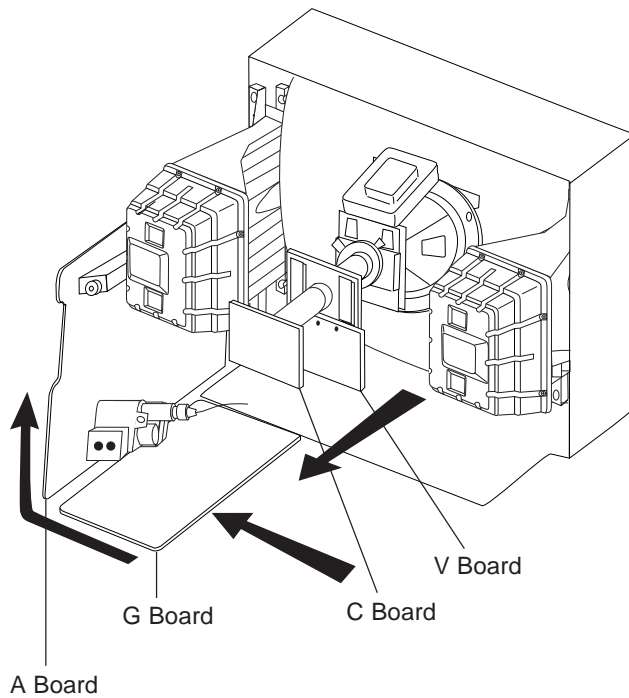
2-1. REAR COVER REMOVAL



2-2. A BOARD REMOVAL



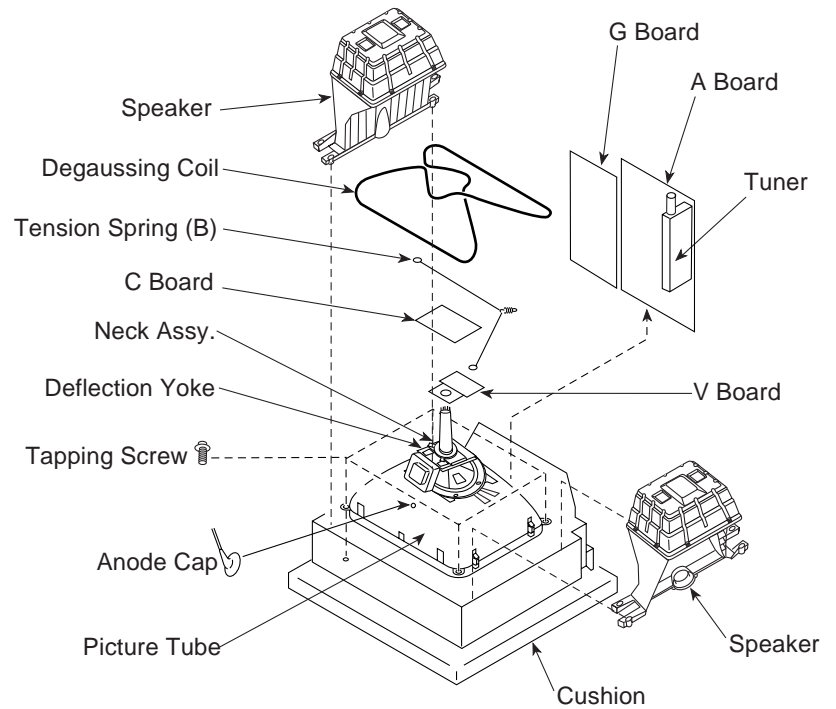
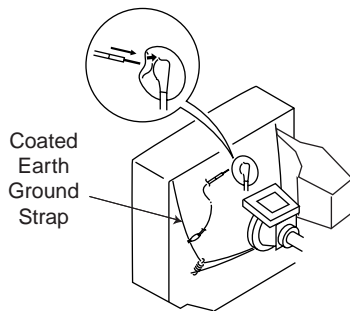
2-3. SERVICE POSITION



2-4. PICTURE TUBE REMOVAL

WARNING: BEFORE REMOVING THE ANODE CAP

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

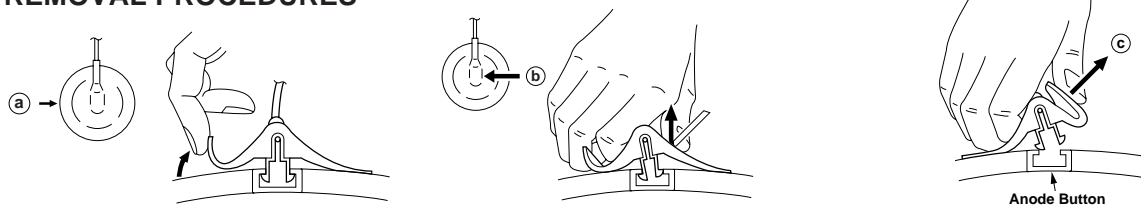


ANODE CAP REMOVAL

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

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

REMOVAL PROCEDURES



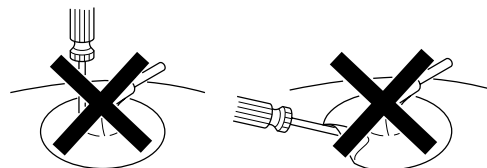
① Turn up one side of the rubber cap in the direction indicated by arrow (a).

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

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

HOW TO HANDLE AN ANODE CAP

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



SECTION 3 SET-UP ADJUSTMENTS

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

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

Set the controls as follows unless otherwise noted.

VIDEO MODE: STANDARD

PICTURE control: Normal

BRIGHTNESS control Normal

Perform the adjustments in order as follows:

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

Note: Test equipment required:

- Color bar pattern generator
- Degausser
- DC power supply
- Digital multimeter

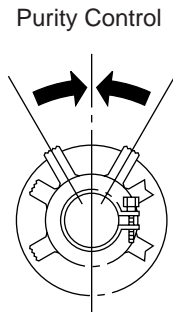
3-1. BEAM LANDING

Before beginning adjustment procedure:

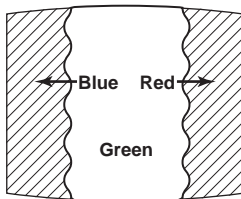
1. Degauss the entire screen.
2. Feed in the white pattern signal.

Adjustment Procedure

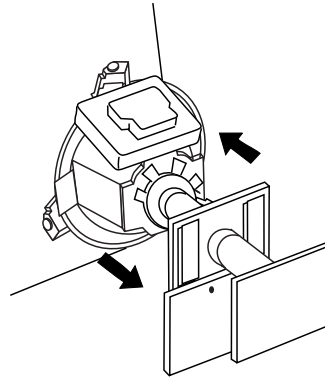
1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw and set the purity control to the center as shown below.



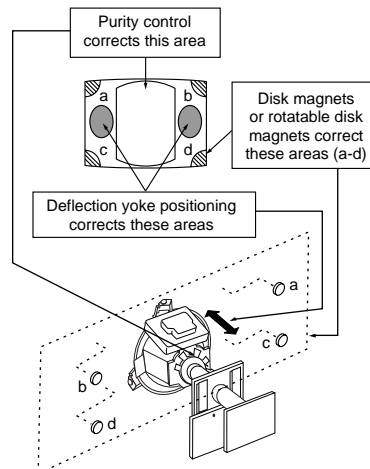
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward and adjust the purity control so that green is in the center and red and blue are at the sides evenly.



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



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



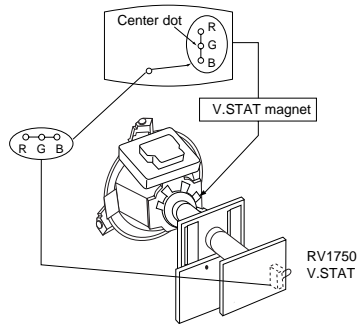
3-2. CONVERGENCE

Before starting convergence adjustments:

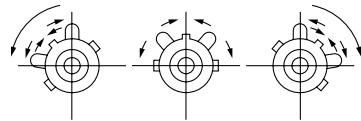
1. Perform FOCUS, V.LIN AND V.SIZE adjustments.
2. Set BRIGHTNESS control to minimum.
3. Feed in dot pattern.

Vertical Static Convergence

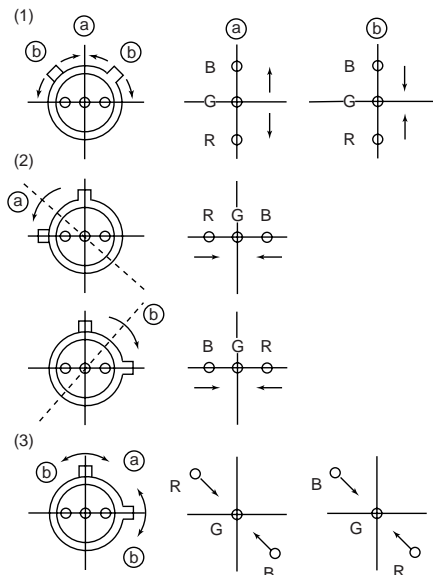
1. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement adjust V.STAT RV to converge.)



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



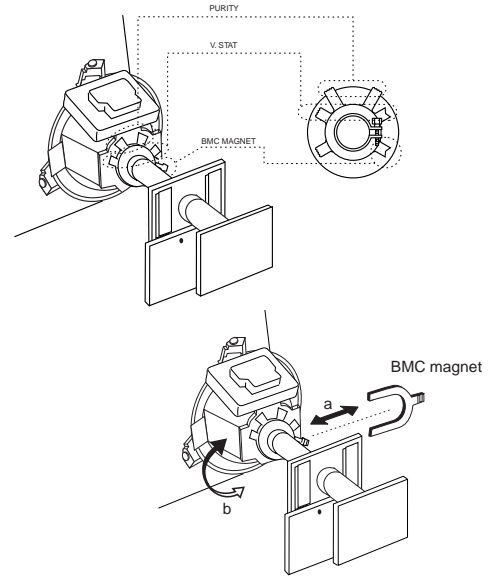
When the V.STAT magnet is moved in the direction of arrows a and b, red, green, and blue dots move as shown below:



Horizontal Static Convergence

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

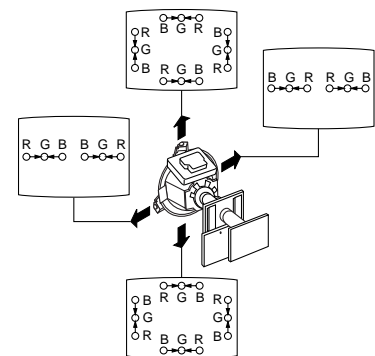
1. Move BMC magnet (a) to correct insufficient H. Static convergence.
2. Rotate BMC magnet (b) to correct insufficient V. Static convergence.
3. After adjusting the BMC magnet, repeat Beam Landing Adjustment.



Dynamic Convergence Adjustment

Before performing this adjustment, perform Horizontal and Vertical Static Convergence Adjustment.

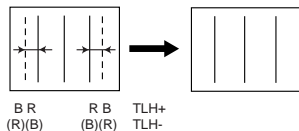
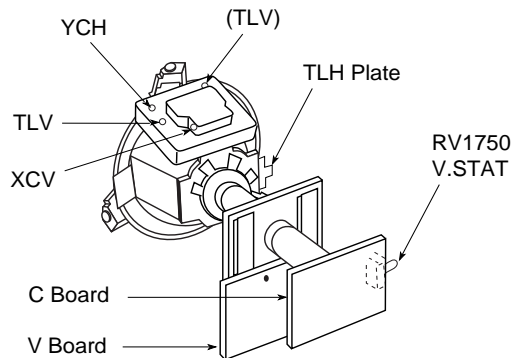
1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence, as shown below:



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

TLH Plate Adjustment

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

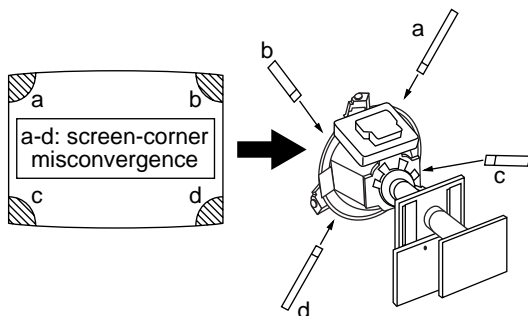


1. Adjust XCV core to balance X axis.
2. Adjust YCH VR to balance Y axis.
3. Adjust vertical red and blue convergence with V.TILT (TLV VR.)

Perform adjustments while tracking items 1 and 2.

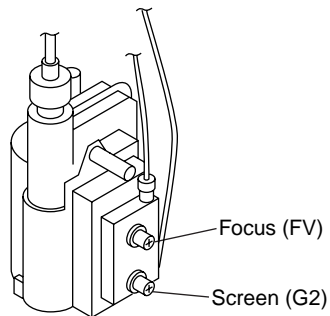
Screen-Corner Convergence

1. Affix a permalloy assembly corresponding to the misconverged areas.



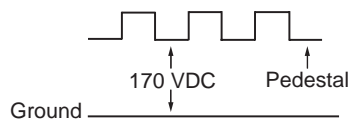
3-3. FOCUS

1. Adjust FOCUS control for best picture.



3-4. SCREEN (G2)

1. Input a dots pattern.
2. Set the PICTURE and BRIGHTNESS controls at minimum and COLOR control at normal.
3. Adjust SBRT, GCUT, BCUT in service mode with an oscilloscope as shown below so that voltages on the red, green, and blue cathodes are 170 VDC.



4. Observe the screen and adjust SCREEN (G2) VR in FBT to obtain the faintly visible background of dot signal.

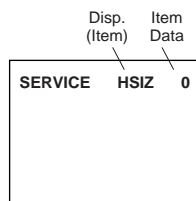
3-5. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

Service Mode Procedure

- Standby mode (power off).
- Display** → Channel **5** → Sound volume **+** → Power on the Remote Commander (press each button within a second).

Service Adjustment Mode In

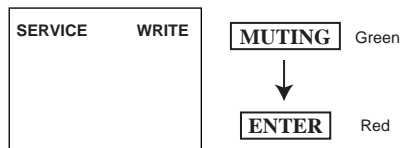
- The CRT displays the item being adjusted.



- Press **1** or **4** on the Remote Commander to select the item.
- Press **3** or **6** on the Remote Commander to change the data.
- Press **MUTING** then **ENTER** to save into the memory.

Service Adjustment Mode Memory

Turn set off then on to exit service adjustment mode.




3-6. WHITE BALANCE ADJUSTMENTS

- Input an entire white signal with burst.
- Set to Service Adjustment Mode.
- Set DCOL to "0".
- Set the PICTURE and BRIGHTNESS to minimum.
- Adjust with SBRT if necessary.
- Select GCUT and BCUT with **1** and **4**.
- Adjust with **3** and **6** for the best white balance.
- Set PICTURE and BRIGHTNESS to maximum.
- Select GDRV and BDRV with **1** and **4**.
- Adjust with **3** and **6** for the best white balance.
- Reset DCOL to "1".
- To write into memory, press **MUTING** then **ENTER**.

SECTION 4 SAFETY RELATED ADJUSTMENTS

4-1. R582 AND R584 CONFIRMATION METHOD (HV HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components which are marked with  on the schematic diagram:

A BOARD: DY, CRT, C507, C520, C573, C574, C575, D572, D573, D574, IC521, IC301, R578, R579, R582, R583, R584, R585, R586, R587, T504, T505


Preparation Before Confirmation

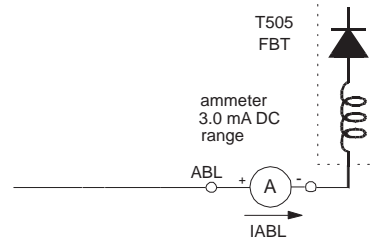
1. Using a Variac, apply AC input voltage: 120 ± 2 VAC (or $120-220 \pm 2$ VAC for KV-25FV10/10C only.)
2. Turn the POWER switch ON.
3. Input a white signal and set the PICTURE and BRIGHTNESS controls to maximum.
4. Confirm that the voltage between C574 (+) or TP503 and ground is more than 105 VDC.

Hold-down Operation Confirmation


1. Connect the current meter between Pin 11 of the FBT (T505) and the PWB land where Pin 11 would normally attach. (See Figure 1 on the next page.)
2. Input a dot signal and set PICTURE and BRIGHTNESS to minimum: $IABL = 100 \pm 100 \mu\text{A}$.
3. Confirm the voltage of A Board TP-600 is 135 ± 3 VDC.
4. Connect the digital voltmeter and the DC power supply via diode 1SS119 to C574 (+) and ground. (See Figure 1 on the next page.)
5. Increase the DC power voltage gradually until the picture blanks out.
6. Turn DC power source off immediately.
7. Read the digital voltmeter indication (standard: $138.0 \pm .3$ VDC).
8. Input a white signal and set PICTURE and BRIGHTNESS to maximum: $IABL = 1650 \pm 100 \mu\text{A}$.
9. Repeat steps 4 to 7.

Hold-down Readjustment

If the setting indicated in step 2 of Hold-down Operation Confirmation cannot be met, readjustment should be performed by altering the resistance value of R582 and/or R584 components marked with .



4-2. B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

Note: The following adjustments should always be performed when replacing the following components, which are marked with  on the schematic diagram on the G Board.

G BOARD: IC601, PH600

1. Using a Variac, apply AC input voltage: 130 ± 2 VAC (or $120-220 \pm 2$ VAC for KV-25FV10/10C only.)
2. Input a dot signal.
3. Set the PICTURE and BRIGHTNESS controls to minimum.
4. Confirm that the voltage of A Board TP-600 is 135 ± 3 VAC.
5. If step 3 is not satisfied, replace the components listed above, then repeat steps 1-3.

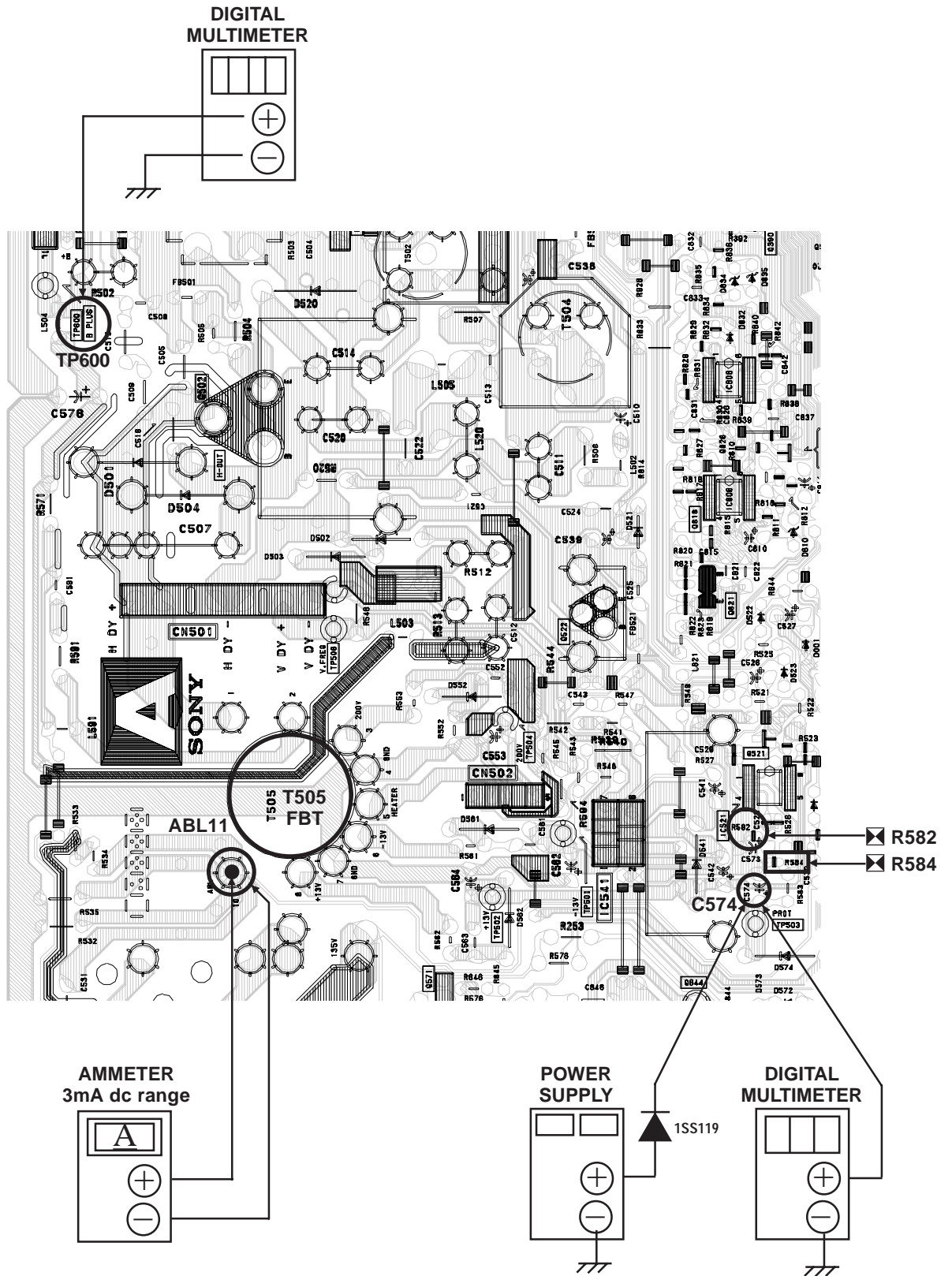


Figure 1

SECTION 5 CIRCUIT ADJUSTMENTS

ELECTRICAL ADJUSTMENTS BY REMOTE COMMANDER

Use the Remote Commander (RM-Y168) to perform the circuit adjustments in this section.

NOTE: Test Equipment Required:

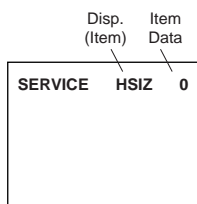
- Pattern generator
- Frequency counter
- Digital multimeter
- Audio oscillator

5-1. Setting the Service Adjustment Mode

1. Standby mode (power off).
2. **Display** → Channel **5** → Sound volume **+** → Power on the Remote Commander (press each button within a second).

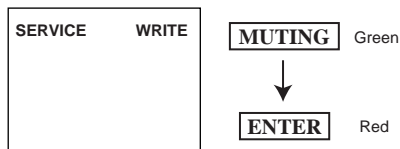
Service Adjustment Mode On

1. The CRT displays the item being adjusted.

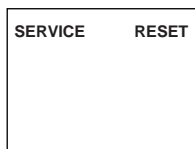


2. Press **1** or **4** on the Remote Commander to select an item.
3. Press **3** or **6** on the Remote Commander to change the data.
4. Press **MUTING** then **ENTER** to save into the memory.

Service Adjustment Mode Memory



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



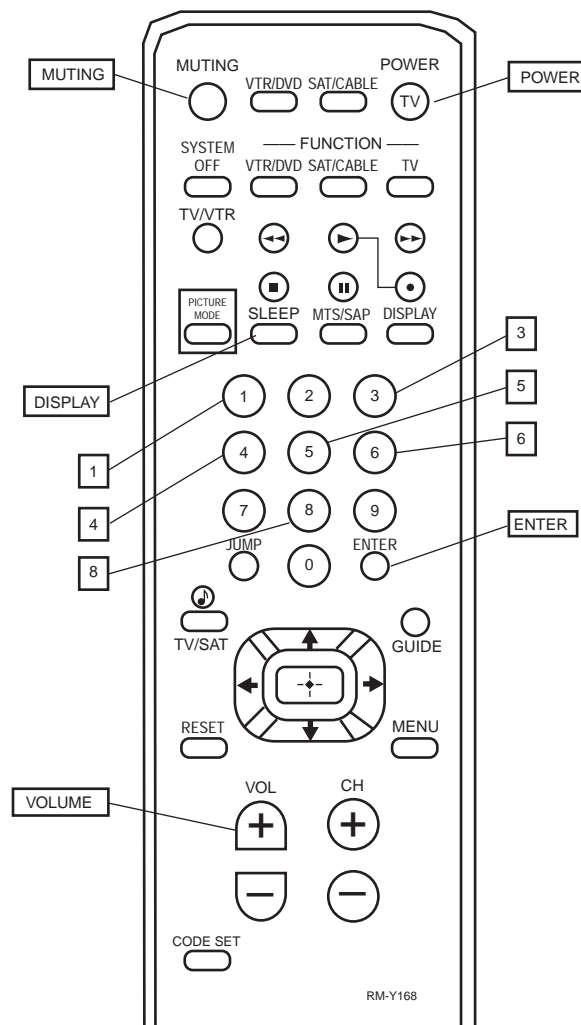
Carry out step 1 when adjusting IDs 0-4 and when replacing and adjusting IC003.

2. Turn set off then on to exit service adjustment mode.

5-2. Memory Write Confirmation Method

1. After adjustment, remove the power plug from the AC outlet, then plug it in again.
2. Turn the power switch ON and set to service mode.
3. Call the adjusted items again to confirm they were adjusted.

5-3. Adjustment Buttons and Indicators



Adjustment Items

NO.	ITEM	FUNCTION	DATA RANGE	INITIAL DATA			AVERAGE DATA
				NTSC	PALM/ PALN	VIDEO	
1	HSIZ	HORIZONTAL SIZE ADJ.	0-63	35	35		38
2	HPOS	HORIZONTAL POS. ADJ.	0-63	33	33		21
3	VBOW	VRT LINE BOWING ADJ.	0-15	5	5		9
4	VANG	VRT LINE BOW SLANT ADJ.	0-15	7	7		5
5	TRAP	HORIZ. TRAPEZOID ADJ.	0-15	7	7		7
6	PAMP	HORIZ. PIN DISTORTION ADJ.	0-63	7	7		32
7	UPIN	UPPER PIN DISTORTION ADJ.	0-63	36	36		39
8	LPIN	LOWER PIN DISTORTION ADJ.	0-63	36	36		39
9	BLK0	VERTICAL BLANKING ON/OFF	0, 1	0			0
10	VMLV	VELOCITY MODULATION LEVEL	0-3	Palette mode controls this register			2
11	AGN2	AGING 2	0, 1	0			0
12	REFP	REFERENCE PULSE POSITION	0, 1	0			0
13	VBLK	VERTICAL BLANKING ON/OFF	0, 1	0			0
14	JPSW		0, 1	0			0
15	VSIZ	VERTICAL SIZE ADJ.	0-63	47	47		49
16	VPOS	VERTICAL POSITION ADJ.	0-63	32	32		32
17	VLIN	VERTICAL LINEARITY ADJ.	0-15	6			6
18	SCOR	VERTICAL "S" CORRECTION ADJ.	0-15	8			8
19	VZOM	16:9 CRT Z MODE ON/OFF	0, 1	0			0
20	EHT	VRT HI-VOLT. CORRECTION	0-15	6			6
21	ASP	ASPECT RATIO CONTROL	0-63	47			47
22	SCRL	16:9 CRT Z MODE TRANS SCROLL	0-63	31			31
23	HBLK	HORIZONTAL BLANKING ON/OFF	0, 1	1			1
24	LBLK	LEFT BLANKING ADJ.	0-15	12			12
25	RBLK	RIGHT BLANKING ADJ.	0-15	5			5
26	VUSN	V SAW WAVEFORM COMPRESS	0, 1	0			0
27	HDW	H. DRIVE PULSE WIDTH	0, 1	1			1
28	EWDC	"PARABOLA" EW/DC ADJ.	0, 1	0			0
29	LVLN	LOWER SCREEN BTM VRT LIN ADJ.	0-15	0			0
30	UVLN	UPPER SCREEN BTM VRT LIN ADJ.	0-15	0			0
31	RDRV	R OUTPUT DRIVE CONTROL	0-63	31			36
32	GDRV	G OUTPUT DRIVE CONTROL	0-63	25			26
33	BDRV	B OUTPUT DRIVE CONTROL	0-63	25			25
34	RCUT	R OUTPUT CUTOFF CONTROL	0-15	10			8
35	GCUT	G OUTPUT CUTOFF CONTROL	0-15	7			6
36	BCUT	B OUTPUT CUTOFF CONTROL	0-15	6			7
37	DCOL	DYNAMIC COLOR ON/OFF	0, 1	0			1
38	SHUE	SUB HUE	0-31	14			15
39	SCOL	SUB COLOR	0-31	14	14		15
40	SBRT	SUB BRIGHTNESS	0-31	15			15
41	RON	R OUTPUT ON/OFF	0, 1	1			1
42	GON	G OUTPUT ON/OFF	0, 1	1			1
43	BON	B OUTPUT ON/OFF	0, 1	1			1
44	AXPL	AXIS PAL	0, 1	0			0
45	AXNT	AXIS NTSC	0, 1	0			0
46	CBPF	CHROMA BPF ON/OFF	0, 1	0			1
47	CTRP	Y TRAP FILTER ON/OFF	0, 1	1			1
48	COFF	COLOR ON/OFF	0, 1	0			0
49	KOFF	SET COLOR KILLER	0, 1	0			0
50	SSHP	SUB SHARPNESS	0-15	6			7
51	SHPF	SHARPNESS CIRCUIT F0	0, 1	1			1
52	PREL	PRE/OVR SHOOT SWITCHING	0, 1	1			1
53	Y-DC	DC TRANS RATIO SWITCHING	0, 1	1			1
54	GAMM	GAMMA CORRECTION AMNT	0-3	Palette mode controls this register			1
55	ABLM	ABL MODE SWITCHING	0, 1	1			1
56	VTH	ABL CD VHT SWITCHING	0, 1	1			1
57	YDEL	Y DELAY TIME CONTROL	0-15	7			7
58	NCOL	NO COLOR ID	0, 1	1			1
59	FSC	FSC OUT ON/OFF	0, 1	1			1
60	K-ID	KILLER ID CONTROL SW	0, 1	0			0
61	HOSC	H VCO OSCILLATION FREQ	0-15	7			7
62	VSS	V SYNC SLICE LEVEL	0, 1	1			0

NO.	ITEM	FUNCTION	DATA RANGE	INITIAL DATA			AVERAGE DATA
				NTSC	PALM/ PALN	VIDEO	
63	HSS	H SYNC SLICE LEVEL	0, 1	0			0
64	HMSK		0, 1	0			0
65	VTMS	SELECT SIGNAL VTIM PIN	0-3	0			0
66	CDMD	V CNT DWN MODE SWITCHING	0-3	0		3	0
67	AFC	AFC LOOP GAIN SWITCHING	0-3	0			0
68	FIFR	FIELD FREQUENCY	0-3	3	1		3
69	SBAL	SUB BALANCE	0-15	7			7
70	SBAS	SUB BASS	0-15	9			9
71	STRE	SUB TREBLE	0-15	9			9
72	BBEL	BBE LOW	0-15	12			12
73	BBEH	BBE HIGH	0-15	9			9
74	SRND	SURROUND	0-63	13			13
75	BBE	BBE ON/OFF	0, 1	1			1
76	DISP	O.S.D DISPLAY POSITION	0-63	22			15
77	TROT	TILT CORRECTION	0-63	31			31
78	HCLW	HORIZONTAL COUNT LOWER LIMIT	0-127	16		16	16
79	HCHG	HORIZONTAL COUNT HIGH LIMIT	0-127	64		64	64
80	ABL0		0, 1	0			1
81	ABL1		0-7	0			7
82	SYSC	COLOR SYSTEM	0-7	6			6
83	VENH	VERTICAL ENHANCEMENT	0-7	Palette mode controls this register			4
84	CBPC		0, 1	0			0
85	BYCF		0, 1	0			0
86	KILC		0, 1	0			0
87	LDOT		0, 1	0			0
88	CORE		0, 1	0			0
89	ID0		0-255	201			See ID Map
90	ID1		0-255	19			See ID Map
91	ID2		0-255	173			See ID Map
92	ID3		0-255	43			See ID Map
93	ID4		0-255	251			See ID Map
94	ID5		0-255	0			See ID Map
95	ID6		0-255	64			See ID Map

Notes:

No. 1–95 show the order that each adjustment mode may be selected while in service mode.

Data Range shows the range of possible settings for each adjustment mode.

Initial Data shows the standard settings for each adjustment mode.

SERVICE	ID0	25

Feature ID Map

MODEL	DEST.	ID-0	ID-1	ID-2	ID-3	ID-4	ID-5	ID-6
KV-24FV10	US	217	19	173	11	219	0	64
KV-24FV10	CND	217	19	173	43	219	0	64
KV-25FV10	E	145	19	173	83	251	0	64
KV-25FV10C	E	145	19	173	83	251	0	64

5-4. A BOARD ADJUSTMENTS

H. Frequency (Free Run) Check

1. Input a TV mode (RF) with no signal.
2. Connect a frequency counter to base of Q501 (TP-500 H. DRIVE).
3. Check H. Frequency for 15735 ± 200 Hz.

V. Frequency (Free Run) Check

1. Select video 1 with no signal input.
2. Set the conditions for a standard setting.
3. Connect the frequency counter on the A board to TP-508 (V OUT) or CN 501 pin ⑥ (V DY+) and ground.
4. Check that V. Frequency shows 60 ± 4 Hz.

Sub Contrast Adjustment (RDRV)

1. Input a color-bar signal and set the level to 75%.
2. In Standard mode, set PICTURE to maximum, COLOR to minimum, and BRIGHTNESS to center.
3. Activate the Service Adjustment Mode.
4. Set both GON and BON items. Using [3] and [6]; set each to the following values. Leave RON set to 1.

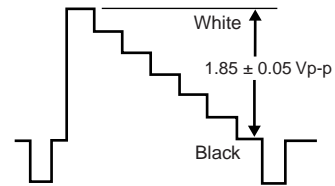
SERVICE	RON	1
---------	-----	---

1: ON
0: OFF

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

5. Select the item DCOL item and set it to 0.
6. Connect an oscilloscope probe to C board, CN1752 pin ③ TP47R (RED OUT).
7. Select RDRV with [1] and [4].

8. Adjust the value of RDRV with [3] and [6] for 1.85 ± 0.05 Vp-p.



9. Reset the item DCOL to 1.

10. Reset GON and BON values to 1.

R ON: ON (1)
G ON: ON (1)
B ON: ON (1)

11. Reset Picture, Color, and Bright to normal values:

PICTURE: MAX
COLOR: CENTER
BRIGHT: CENTER

12. Press [MUTING] then [ENTER] to save into the memory.

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 values of DISP with [3] and [6] to adjust characters to the center.
5. Write to memory by pressing [MUTING] then [ENTER].
6. Check to see if the text is displayed on the screen.

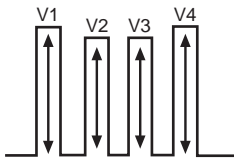
SERVICE	DISP	15
---------	------	----

Sub Bright Adjustment (SBRT)

1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Set the PICTURE and BRIGHTNESS to minimum.
4. Select the SBRT item with [1] and [4].
5. Adjust the values of SBRT with [3] and [6] to obtain a faintly visible crosshatch.
6. Press [MUTING] then [ENTER] to save into the memory.

Sub Hue, Sub Color Adjustment (SHUE, SCOL)

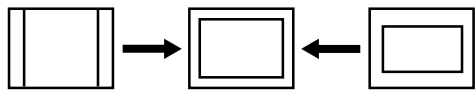
1. Input a color-bar signal.
2. Activate the Service Adjustment Mode.
3. Select the DCOL item and set the value to 0.
4. Connect an oscilloscope probe to C Board, CN1752 Pin ⑤ or TP47b (BLUE OUT).
5. Select the SHUE and SCOL item with [1] and [4] .
6. While showing the SHUE item, adjust the waveform with [3] and [6] until the second and third bars show the same level ($V2 = V3 \pm 0.15 V_{p-p}$).
7. While showing the SCOL item, adjust the waveform with [3] and [6] until the first and fourth bars show the same level ($V1 = V4 \pm 0.15 V_{p-p}$).



8. Select the DCOL item and reset to 1.
9. Press [MUTING] then [ENTER] to save into the memory.

V. Size Adjustment (VSIZ)

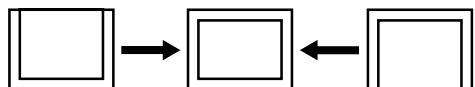
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VSIZ item with [1] and [4] .
4. Adjust value of VPOS with [3] and [6] for the best vertical center.
5. Press [MUTING] then [ENTER] to save into the memory.



V. Center Adjustment (VPOS)

Perform this adjustment after performing H. Frequency (Free Run) check.

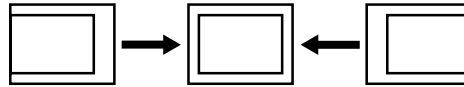
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the VPOS item with [1] and [4] .
4. Adjust value of VPOS with [3] and [6] for the best vertical center.
5. Press [MUTING] then [ENTER] to save into the memory.



H. Center Adjustment (HPOS)

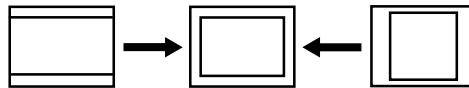
Perform this adjustment after performing H. Frequency (Free Run) check.

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select the HPOS item with [1] and [4] .
4. Adjust the value of HPOS with [3] and [6] for the best horizontal center.
5. Press [MUTING] then [ENTER] to save into the memory.



H.Size Adjustment (HSIZ)

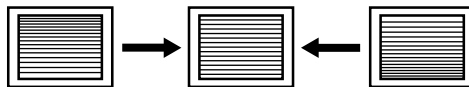
1. Input a monoscope signal.
2. Activate the Service Adjustment Mode.
3. Select HSIZ with [1] and [4] .
4. Adjust with [3] and [6] for the best Horizontal size.
5. Press [MUTING] then [ENTER] to save into the memory.



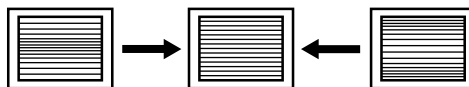
V. Linearity (VLIN), V Correction (VSCO), Pin Amp (PAMP) and Horizontal Trapezoid (TRAP) Adjustments

1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VLIN, VSCO, PAMP, and PPHA with with [1] and [4].
4. Adjust with [3] and [6] for the best Horizontal size.
5. Press [MUTING] then [ENTER] to save into the memory.

V LINEARITY (VLIN)



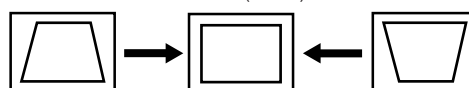
V CORRECTION (VSCO)



PIN AMP (PAMP)

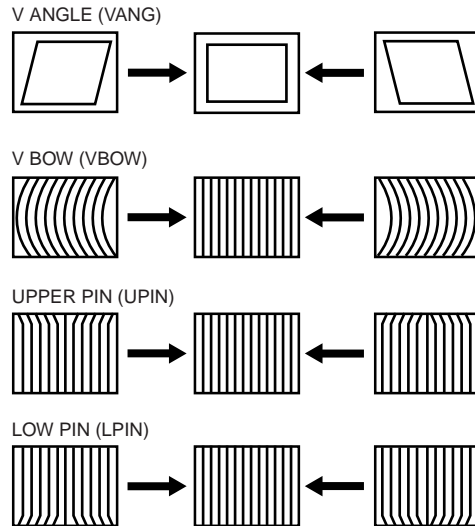


HORIZONTAL TRAPEZOID (TRAP)



V Angle (VANG), V Bow (VBOW), Upper pin (UPIN) and Low Pin (LPIN) Adjustments

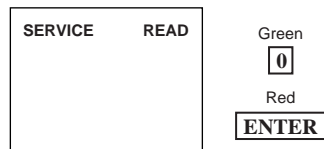
1. Input a crosshatch signal.
2. Activate the Service Adjustment Mode.
3. Select VANG, VBOW, UPIN, and LPIN with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best picture.
5. Press **[MUTING]** then **[ENTER]** to save into the memory.



Service Adjustment Mode Memory

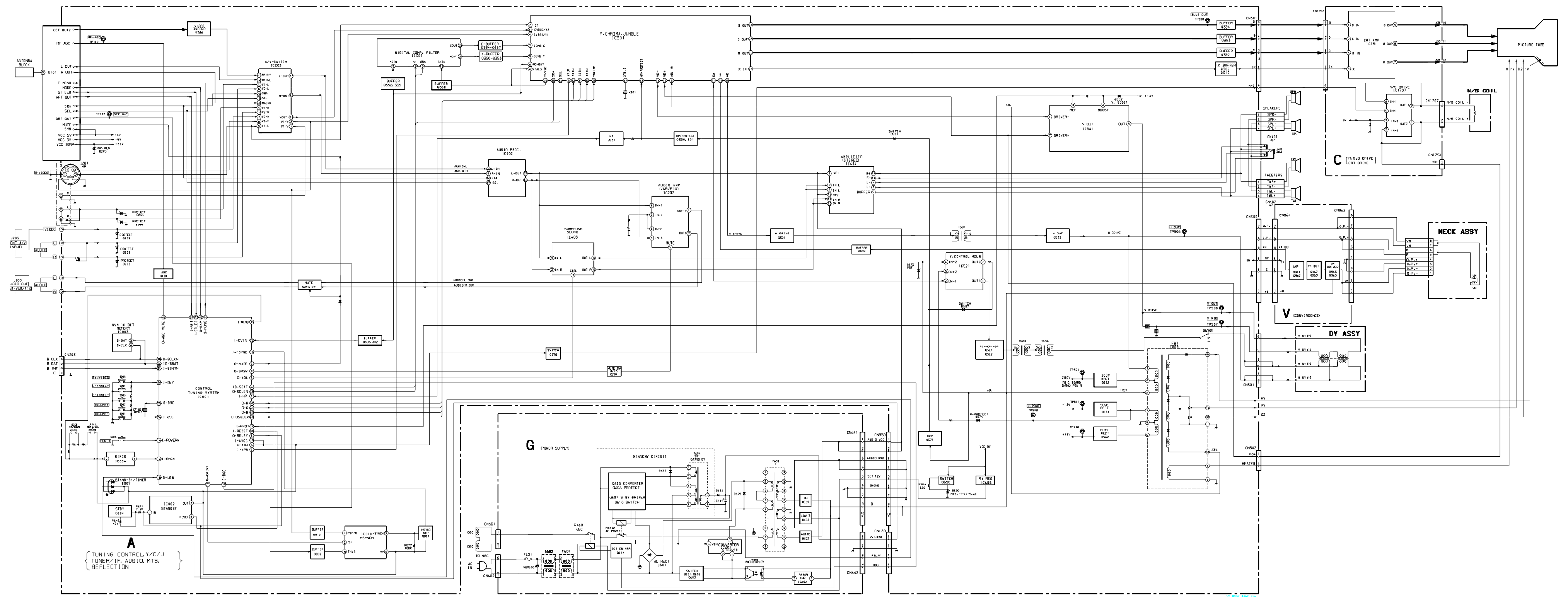
1. Change the value of the DCOL item to 1.
2. After completing all adjustments, press **[0]** then **[ENTER]**.

Read From Memory

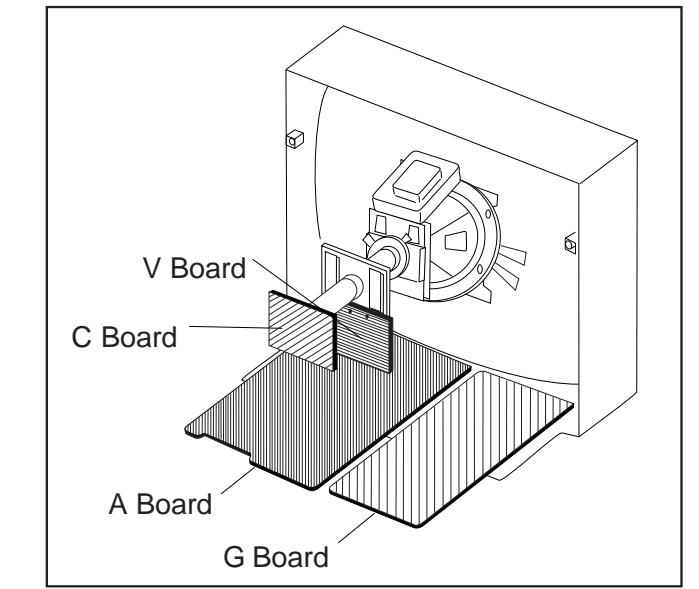


SECTION 6
DIAGRAMS

6.1 BLOCK DIAGRAM



6.2 CIRCUIT BOARD LOCATIONS



When replacing parts shown in the table below, be sure to perform the related adjustments.

Part Replaced ()	Adjustment ()
DY, CRT, C507, C520, C573, C574, C575, D572, D573, D574, IC521, IC301, R578, R579, R582, R583, R584, R585, R586, R587, T504, T505.....A Board	HV HOLD-DOWN (R582, R584)

IC601, PH600.....G Board	B+ VOLTAGE CONFIRMATION
--------------------------	-------------------------

- All voltages are in Volts
- Voltage is DC with respect to ground unless otherwise noted.
- Readings are taken with a 10MΩ 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.
- * : cannot be measured
- : B + Line
- - - : B - Line
- : Signal path

Reference Information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NON FLAMMABLE CARBON
	: FUSE	NON FLAMMABLE FUSIBLE
	: RW	NON FLAMMABLE WIREWOUND
	: RS	NON FLAMMABLE METAL OXIDE
	: RB	NON FLAMMABLE 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 components identified by shading and Δ mark are critical for safety. Replace only with the part number specified.
 The symbol (displayed on component side of the circuit board) indicates fast operating fuse. Replace only with fuse of the same rating as marked.

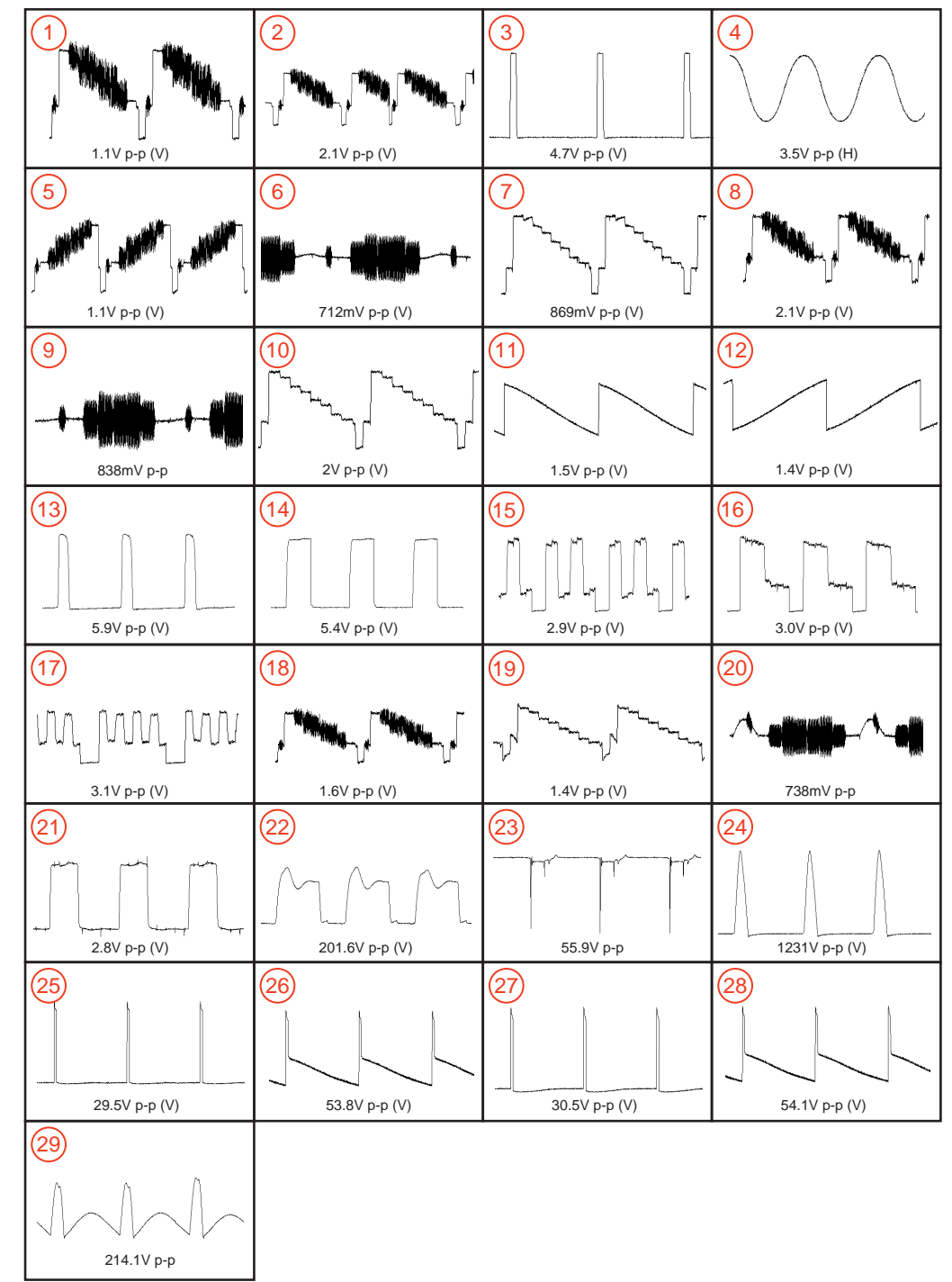
Les composants identifiés par un tramé et une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
 Le symbole indique une fusible à action rapide. Doit être remplacé par une fusible de même valeur, comme marqué.

6-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All electrolytics are 50V unless otherwise specified.
- Indication of resistance, which does not have one for rating electrical power, is as follows:
 Pitch: 5mm
 Rating electrical power 1/4W (CHIP: 1/10W)
 KΩ = 1000Ω MΩ = 1000KΩ
- All resistors are in ohms.
- : nonflammable resistor
- : fusible resistor
- △ : internal component
- : panel designation and adjustment for repair
- ⊥ : earth-ground
- ⊥ : earth-chassis

- 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 Safety Related Adjustments on page 20).

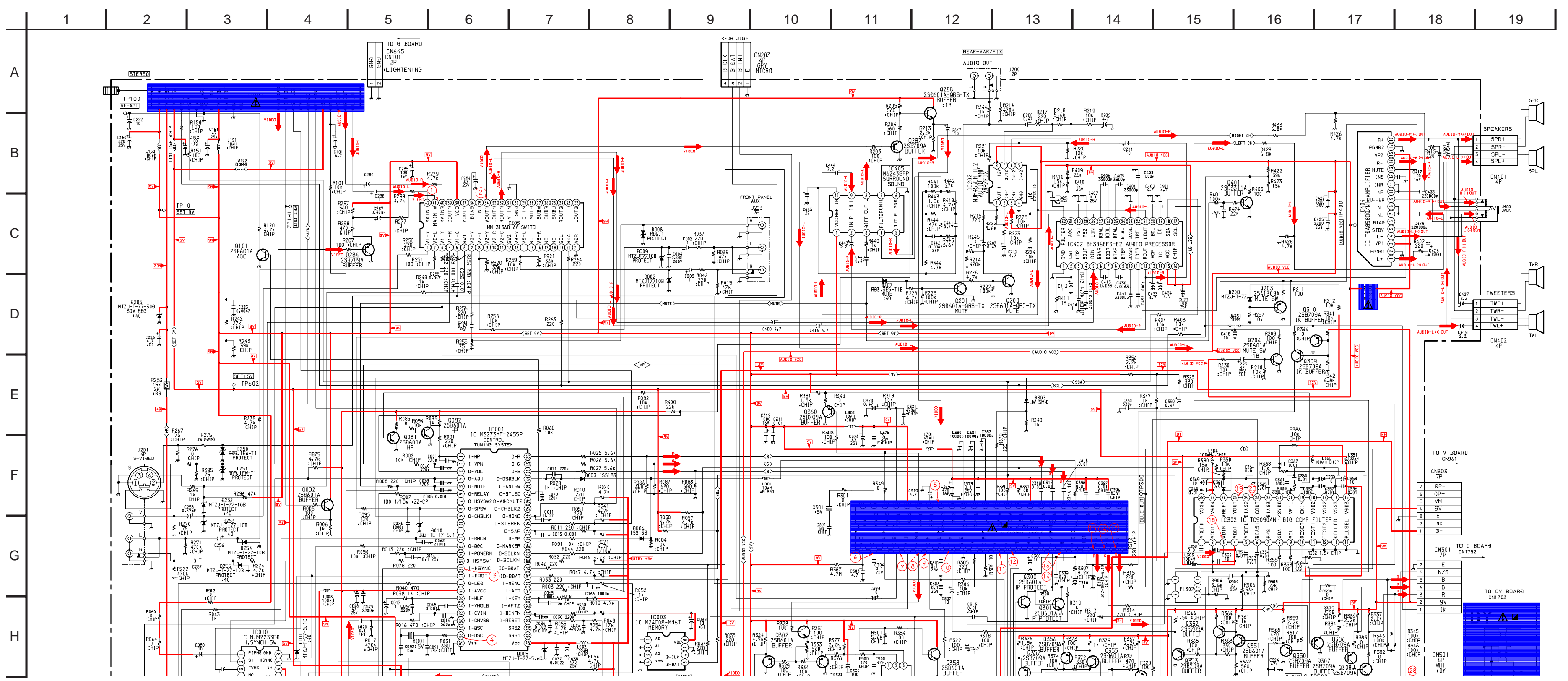
A BOARD WAVEFORMS



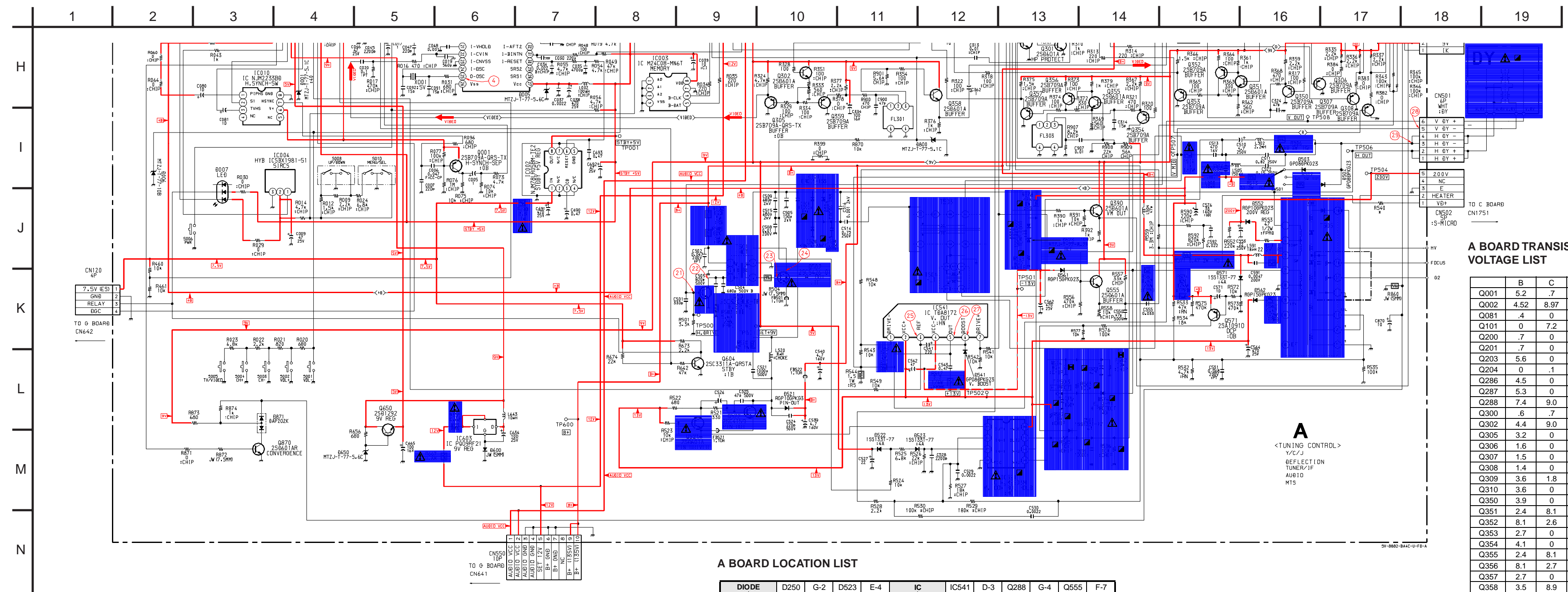
A BOARD IC VOLTAGE LIST

IC001	IC002	8	4.2	18	1.1	22	3.6	12	4.0
PIN VOLT	PIN VOLT	9	4.9	19	3.1	23	4.1	13	.1
1 1.0	1 7.4	10	4.2	20	2.6	24	1.7	14	7.1
2 4.8	2 0	11	4.9	21	1.8	25	4.0	15	14.2
3 0	3 5.4	12	0	22	1.4	26	3.1	16	0
4 .3	4 0	13	4.9	23	1.5	27	5.2	17	7.1
5 4.9	5 0	14	4.2	24	1.7	28	0		
6 0	6 5.0	15	0	25	.1				
7 0	7 0	16	4.2	26	4.3				
8 0	8 5.0	17	0	27	4.6				
9 0		18	0	28	4.6				
10 0		19	5.0	29	0				
11 0		20	5.0	30	4.6				
12 4.9		21	0	31	4.6				
13 0		22	4.2	32	4.6				
14 5.0		23	5.3	33	8.9				
15 4.9		24	4.2	34	5.0				
16 0		25	4.2	35	5.0				
17 -0.4		26	4.2	36	0				
18 4.9		27	4.9	37	4.6				
19 5.0		28	0	38	5.3				
20 1.8		29	4.9	39	5.3				
21 0.2		30	0	40	0				
22 2.2		31	4.9	41	5.2				
23 0		32	4.2	42	7.5				
24 2.4		33	4.2	43	5.2				
25 2.4		34	5.3	44	9.0				
26 0		35	0	45	5.4				
27 4.9		36	4.3	46	4.7				
28 0		37	3.6	47	1.8				
29 0		38	9.0	48	.1				
30 5.0		39	3.5						
31 5.0		40	4.2						
32 .1		41	5.4						
33 5.0		42	4.2						
34 2.4									
35 5.0									
36 5.0									
37 5.0									
38 5.0									
39 5.0									
40 0									
41 0									
42 .1									
43 5.0									
44 .1									
45 0									
46 0									
47 0									
48 0									
49 0									
50 0									
51 0									
52 0									

A BOARD SCHEMATIC DIAGRAM (TOP)



A BOARD SCHEMATIC DIAGRAM (BOTTOM)



A BOARD MARK (*) LIST

REF NO.	LOC.	KV-24FV10/25FV10	KV-25FV10C
R540	J-17	2.2K	JW (10MM)

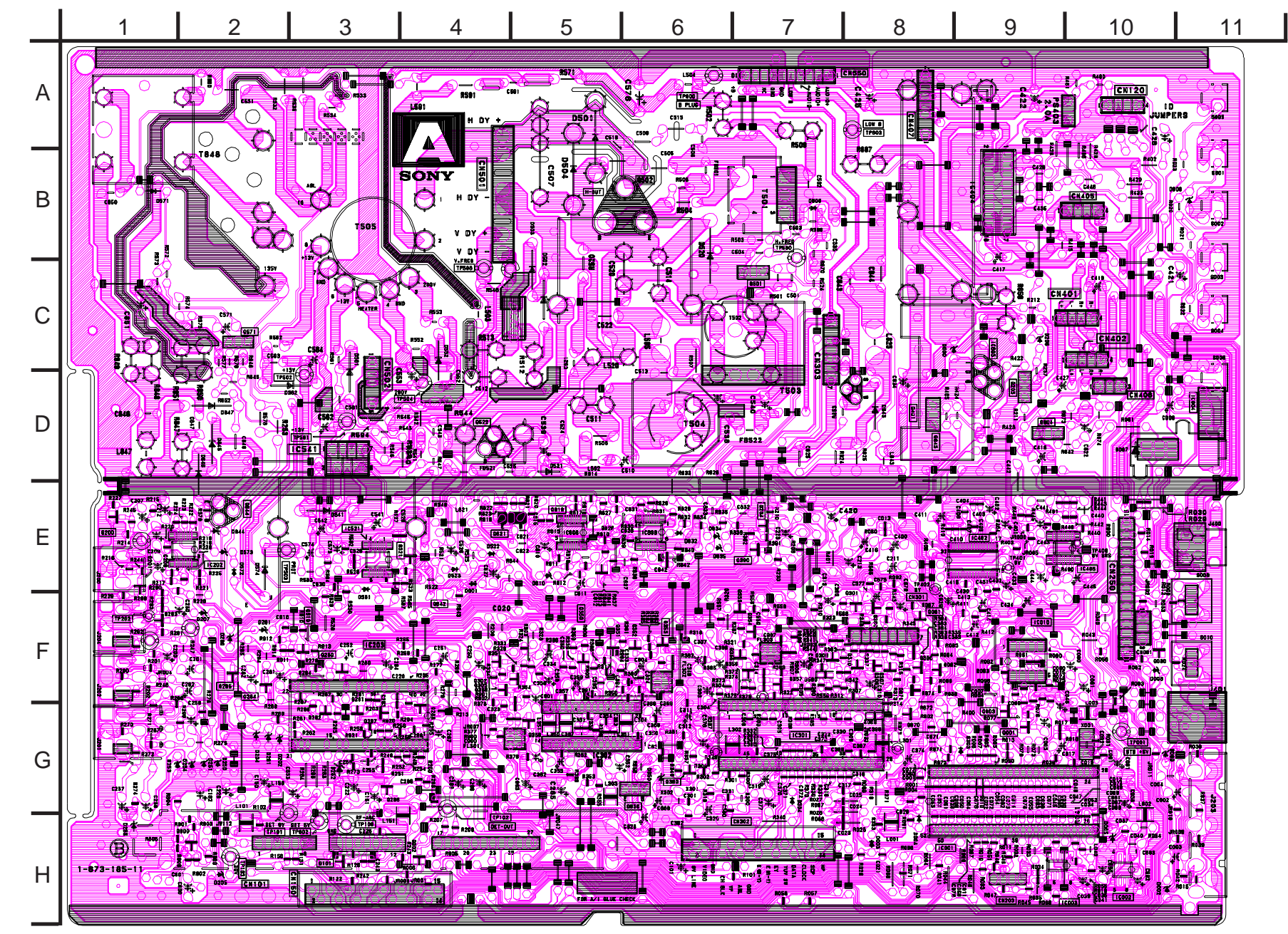
A BOARD LOCATION LIST

DIODE	D250	G-2	D523	E-4	IC	IC541	D-3	Q288	G-4	Q555	F-7
D001	E-4	D251	G-2	D541	E-3	IC001	G-9	IC603	D-9	Q300	F-8
D002	H-10	D252	G-3	D552	C-4	IC002	H-10	Q301	E-8	Q604	F-6
D003	H-8	D253	G-2	D561	D-3	IC003	H-9	Q001	G-9	Q302	F-4
D004	H-8	D254	G-2	D562	D-3	IC004	D-11	Q002	H-4	Q305	F-4
D005	H-11	D255	H-1	D571	B-1	IC010	F-9	Q081	F-8	Q306	F-8
D006	B-11	D302	G-8	D504	B-5	IC202	E-2	Q082	F-8	Q307	F-8
D007	D-10	D501	A-5	D572	E-2	IC203	F-3	Q101	H-3	Q308	F-8
D008	B-10	D502	C-5	D573	E-2	IC301	G-7	Q200	E-1	Q309	F-7
D009	G-10	D503	C-5	D574	E-2	IC302	G-5	Q201	E-1	Q310	F-8
D010	G-9	D504	B-5	D581	E-3	IC402	E-9	Q203	D-9	Q350	F-5
D205	H-2	D520	C-6	D650	G-6	IC404	B-9	Q204	E-7	Q351	F-6
D207	F-2	D521	D-5	D800	B-7	IC405	E-10	Q286	G-4	Q352	F-6
D208	C-9	D522	E-4	D871	F-8	IC521	E-3	Q287	G-3	Q354	F-7

A BOARD TRANSISTOR VOLTAGE LIST

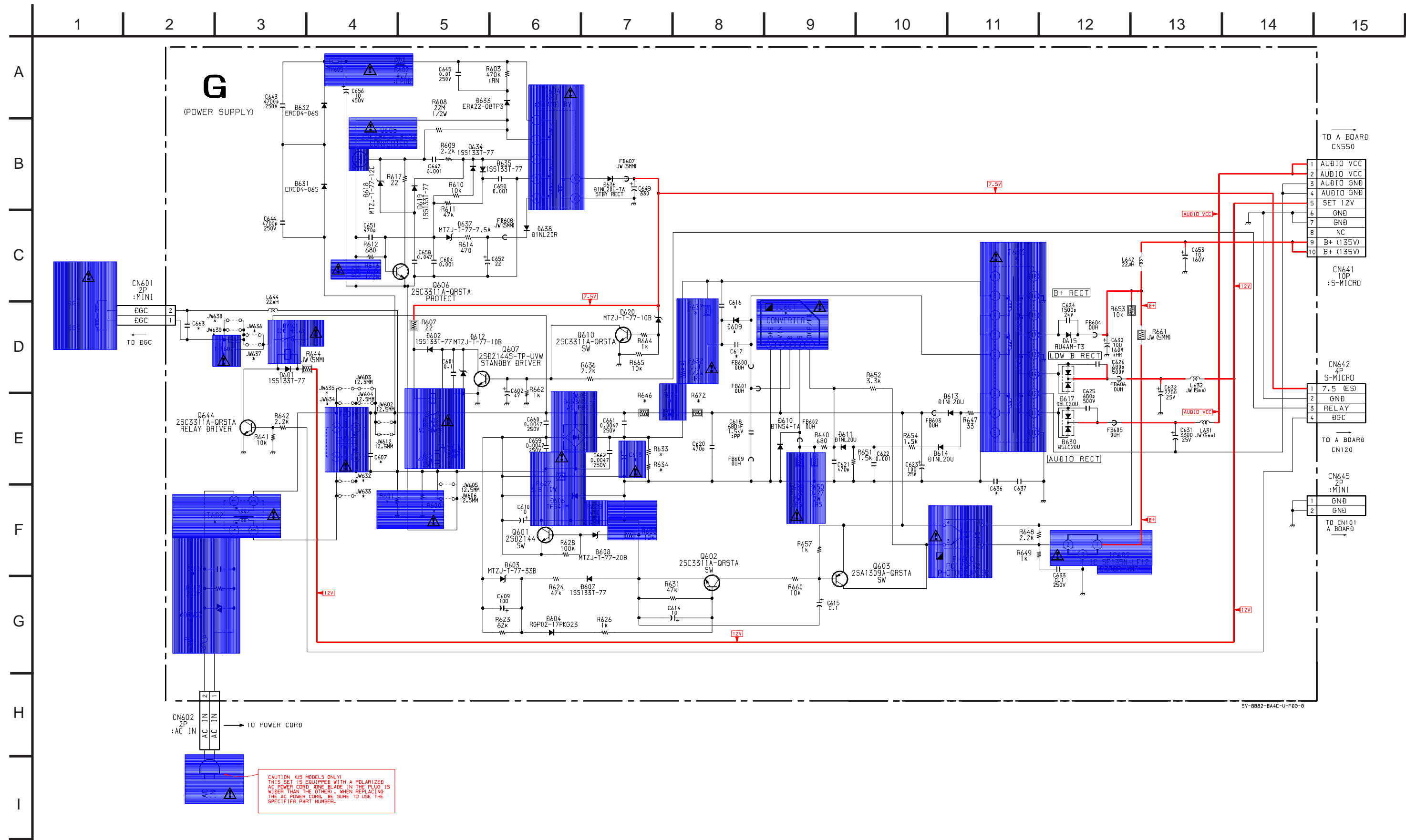
	B	C	E
Q001	5.2	.7	4.9
Q002	4.52	8.97	3.89
Q081	.4	0	.9
Q101	0	7.2	0
Q200	.7	0	0
Q201	.7	0	0
Q203	5.6	0	.1
Q204	0	-.1	0
Q286	4.5	0	5.2
Q287	5.3	0	5.9
Q288	7.4	9.0	6.8
Q300	.6	.7	0
Q302	4.4	9.0	3.8
Q305	3.2	0	3.8
Q306	1.6	0	2.3
Q307	1.5	0	2.1
Q308	1.4	0	2.0
Q309	3.6	1.8	3.7
Q310	3.6	0	3.7
Q350	3.9	0	4.6
Q351	2.4	8.1	1.8
Q352	8.1	2.6	8.7
Q353	2.7	0	3.3
Q354	4.1	0	4.7
Q355	2.4	8.1	1.8
Q356	8.1	2.7	8.7
Q357	2.7	0	3.3
Q358	3.5	8.9	2.9
Q359	3.2	0	3.8
Q360	4.7	0	5.3
Q390	5.0	9.0	4.3
Q401	.6	0	0
Q501	-.8	97.7	0
Q502	-.2	135.6	0
Q521	.1	3.4	0
Q522	.1	21.1	0
Q555	2.0	9.0	2.2
Q571	134.7	10.7	134.5
Q604	.1	4.1	0
Q650	5.8	9.0	5.2
Q870	.3	3.9	0

A [TUNING CONTROL, Y/C/J, DEFLECTION, TUNER/IF, AUDIO, MTS]



NOTE:
Portions of the circuit marked as shown are high voltage areas. Use care to prevent electric shocks during inspection or repair.

G BOARD SCHEMATIC DIAGRAM



G BOARD LOCATION LIST

DIODE	D614	A-7	IC		
D601	E-2	D615	C-8	IC601	B-6
D602	C-2	D617	B-9	IC602	D-7
D603	A-4	D618	D-5	TRANSISTOR	
D604	A-5	D619	D-5	Q601	A-4
D605	C-4	D620	E-1	Q602	A-5
D606	B-4	D630	A-9	Q603	A-7
D607	A-5	D631	D-3	Q605	D-5
D608	A-4	D632	D-4	Q606	D-4
D609	C-7	D633	D-6	Q607	D-1
D610	B-6	D634	D-5	Q610	D-1
D611	B-7	D635	D-5	Q644	D-1
D612	D-1	D637	D-4		
D613	A-7	D638	D-5		

G BOARD IC VOLTAGE LIST

IC601	
PIN	VOLT
1	-56.3
2	-58.0
3	101.4
4	-41.0
5	-58.1

IC602	
PIN	VOLT
1	134.9
2	123.1
3	0

All voltages are in V

G BOARD TRANSISTOR VOLTAGE LIST

G BOARD TRANSISTOR VOLTAGE LIST			
Q601	B	C	E
Q601	-58.1	-58.2	-58.5
Q602	-57.6	-40.8	-58.0
Q603	-40.8	-54.9	-40.8
Q606	.5	.8	.1
Q607	.7	.1	0
Q610	0	.7	0
Q644	0	13.6	0
Q605	1.8	154.3	.1

All voltages are in V

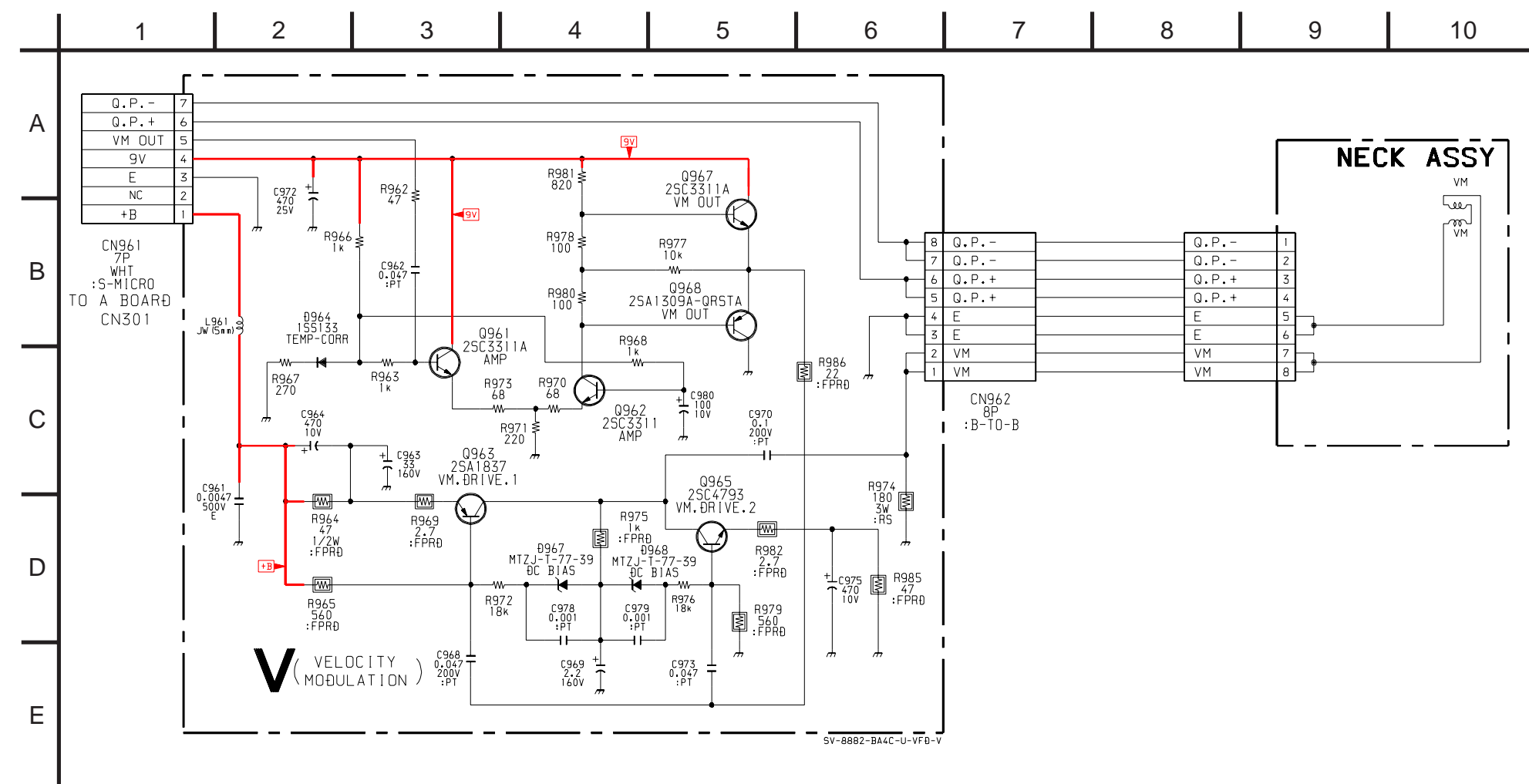
G BOARD MARK (*) LIST

REF NO.	LOC.	KV-24FV10	KV-25FV10/10C
C600	F-2	0.47 125V	0.47 300V
C607	E-4	0.47 125V	0.47 300V
C613	E-7	680 250V	560 400V
C616	C-8	#	0.022 400V
C617	D-8	#	220p 1KV
C636	E-11	.0047 250V	#
C637	E-11	.0047 250V	#
C663	D-2	.22 125V	.22 300V
D609	D-8	#	RU-1P
F600	G-2	6.3A 125V	6.3A 250V
IC601	D-9	STR-F6626	STR-F6656
JW632	E-4	#	10MM
JW633	F-4	#	10MM
JW634	E-4	#	10MM
JW635	D-4	#	10MM
JW636	D-3	7.5MM	#
JW637	D-3	7.5MM	#
JW638	D-2	#	5MM
JW639	D-2	#	5MM
R600	F-5	#	8.2M
R601	F-4	4.7M	#
R633	E-7	390K	270K
R634	E-7	JW 5MM	270K
R637	D-8	#	100K
R646	E-7	15MM	5.6K
R672	E-8	15MM	5.6K
R674	E-7	15K	5.6K
T601	E-4	1-426-717-11	#
T602	F-3	1-431-838-11	1-426-717-11
T603	D-11	1-433-806-11	1-433-807-11
THP601	D-3	1-809-539-11	1-803-540-11
VDR600	G-2	1-803-585-11	1-803-587-11

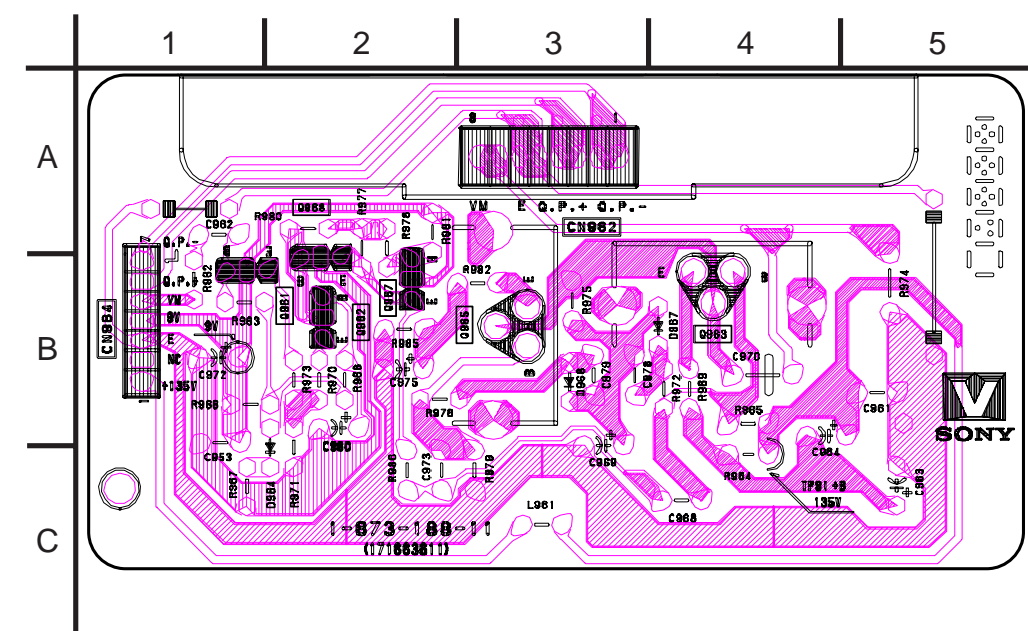
#: Not mounted



V BOARD SCHEMATIC DIAGRAM



V [VELOCITY MODULATION]

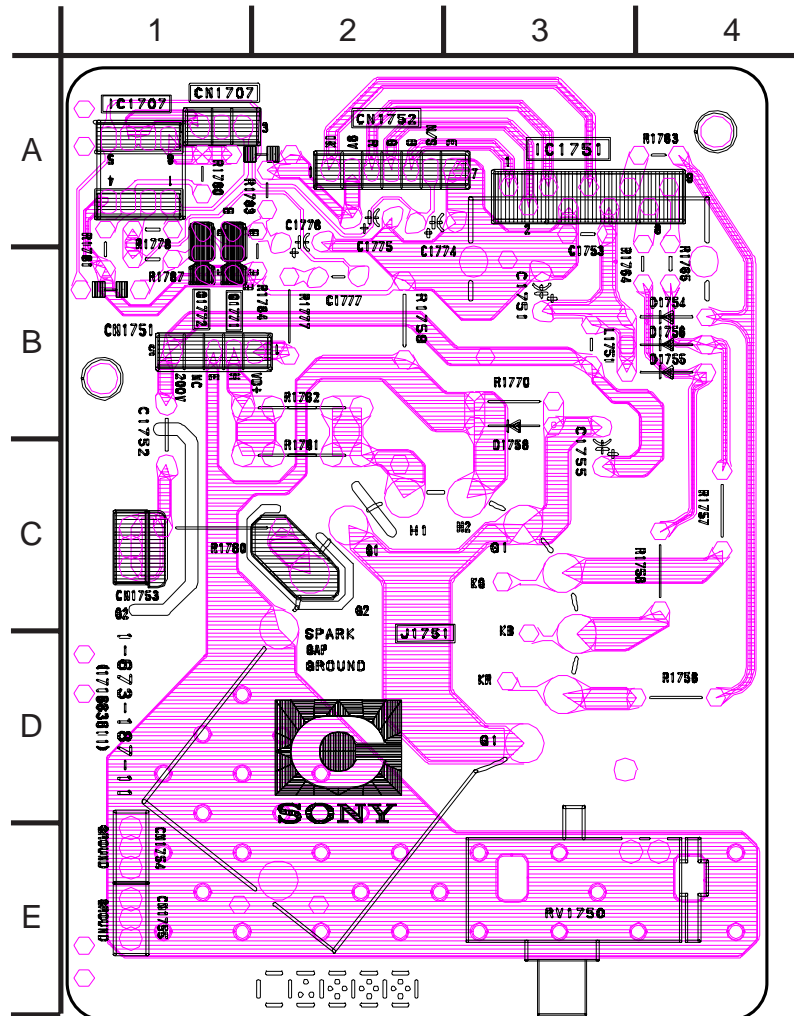


V BOARD TRANSISTOR VOLTAGE LIST

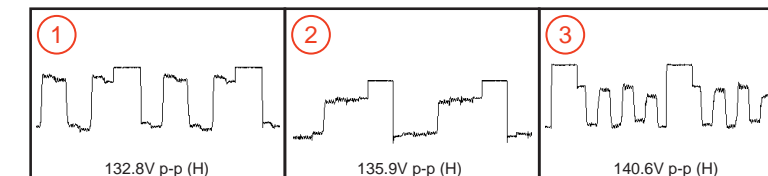
	B	C	E
Q961	2.4	9.0	1.8
Q962	2.4	5.5	1.8
Q963	134.4	83.7	134.8
Q965	.7	83.7	.1
Q967	6.2	9.0	5.9
Q968	5.5	0	5.9

All voltages are in V

C [CRT DRIVE, RGB DRIVE]

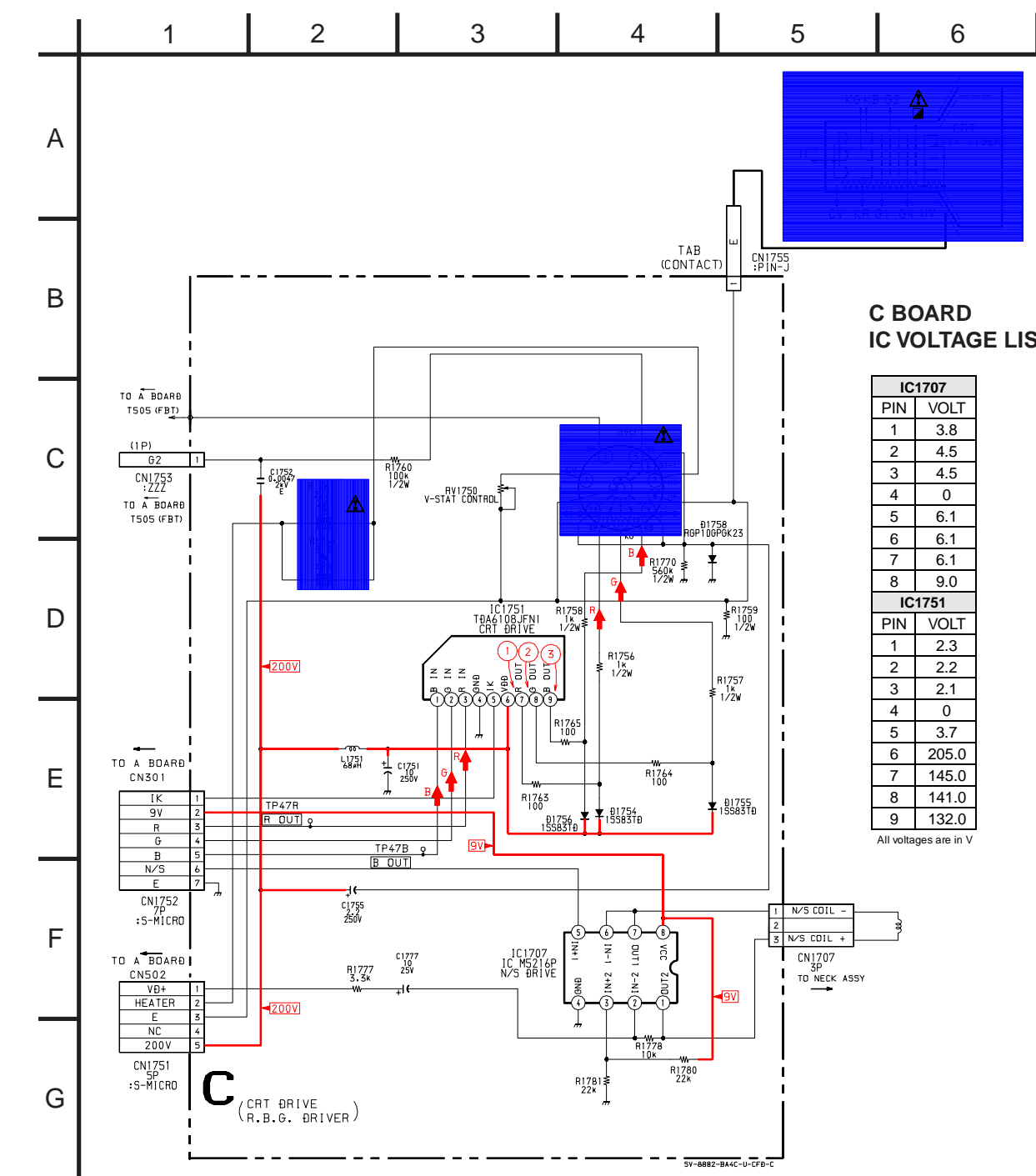


C BOARD WAVEFORMS



NOTE:
Portions of the circuit marked as shown are high voltage areas. Use care to prevent electric shocks during inspection or repair.

C BOARD SCHEMATIC DIAGRAM



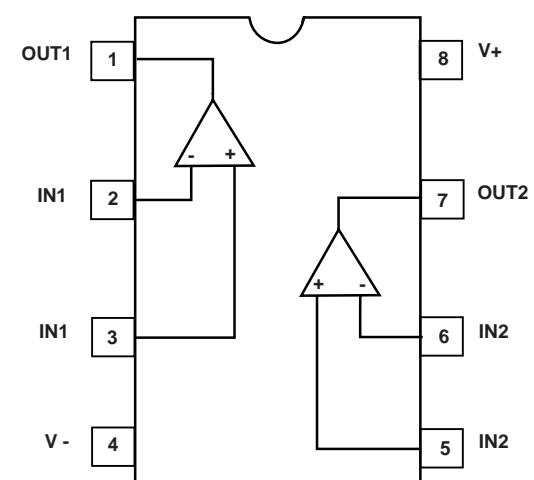
C BOARD IC VOLTAGE LIST

IC1707	
PIN	VOLT
1	3.8
2	4.5
3	4.5
4	0
5	6.1
6	6.1
7	6.1
8	9.0
IC1751	
PIN	VOLT
1	2.3
2	2.2
3	2.1
4	0
5	3.7
6	205.0
7	145.0
8	141.0
9	132.0

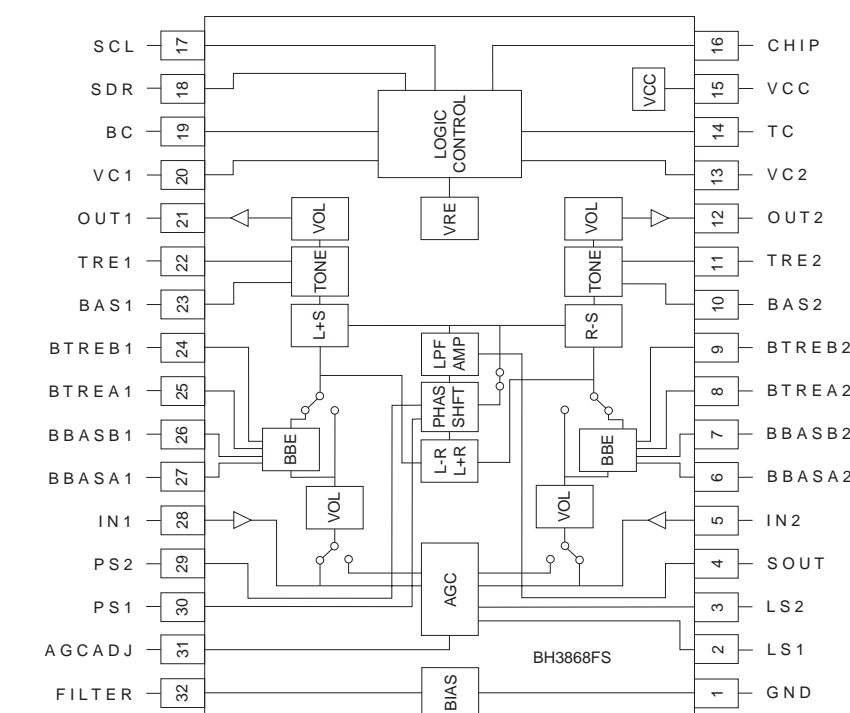
All voltages are in V

A BOARD IC BLOCK DIAGRAMS

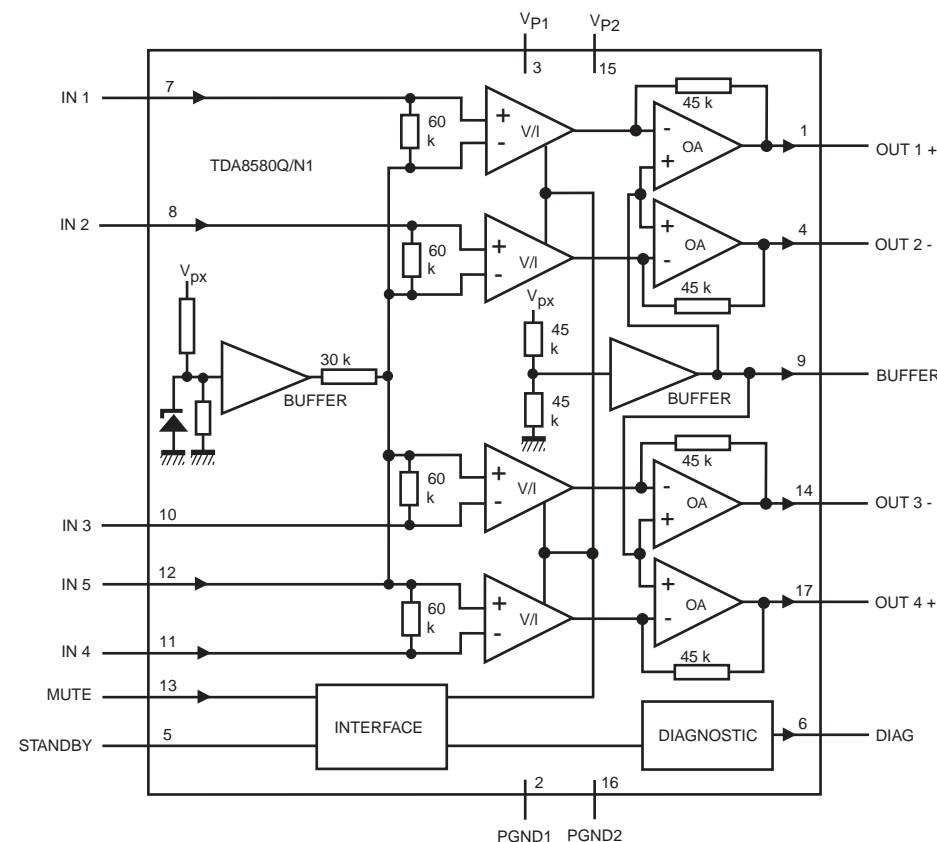
A BOARD: IC202 UPC4558M



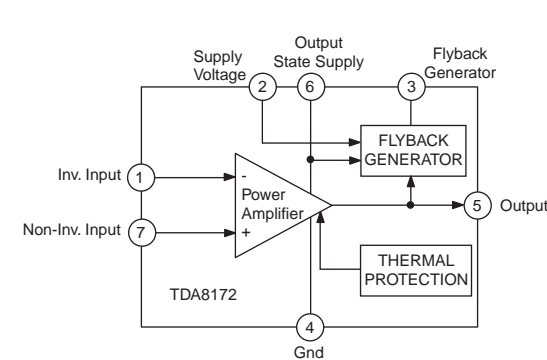
A BOARD: IC402 BH3868FS



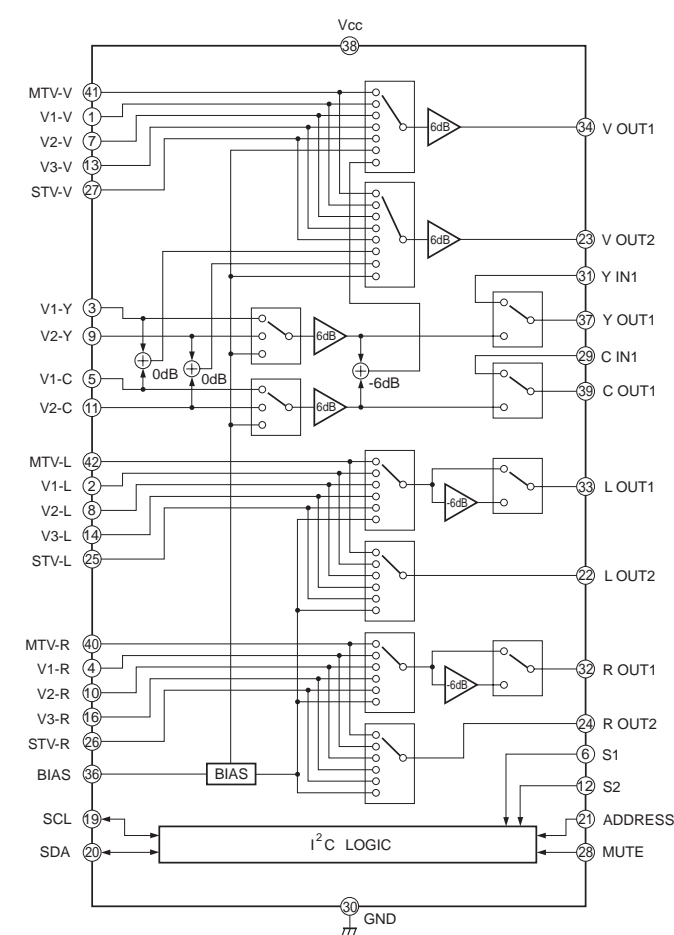
A BOARD: IC404 TDA8580Q/N1



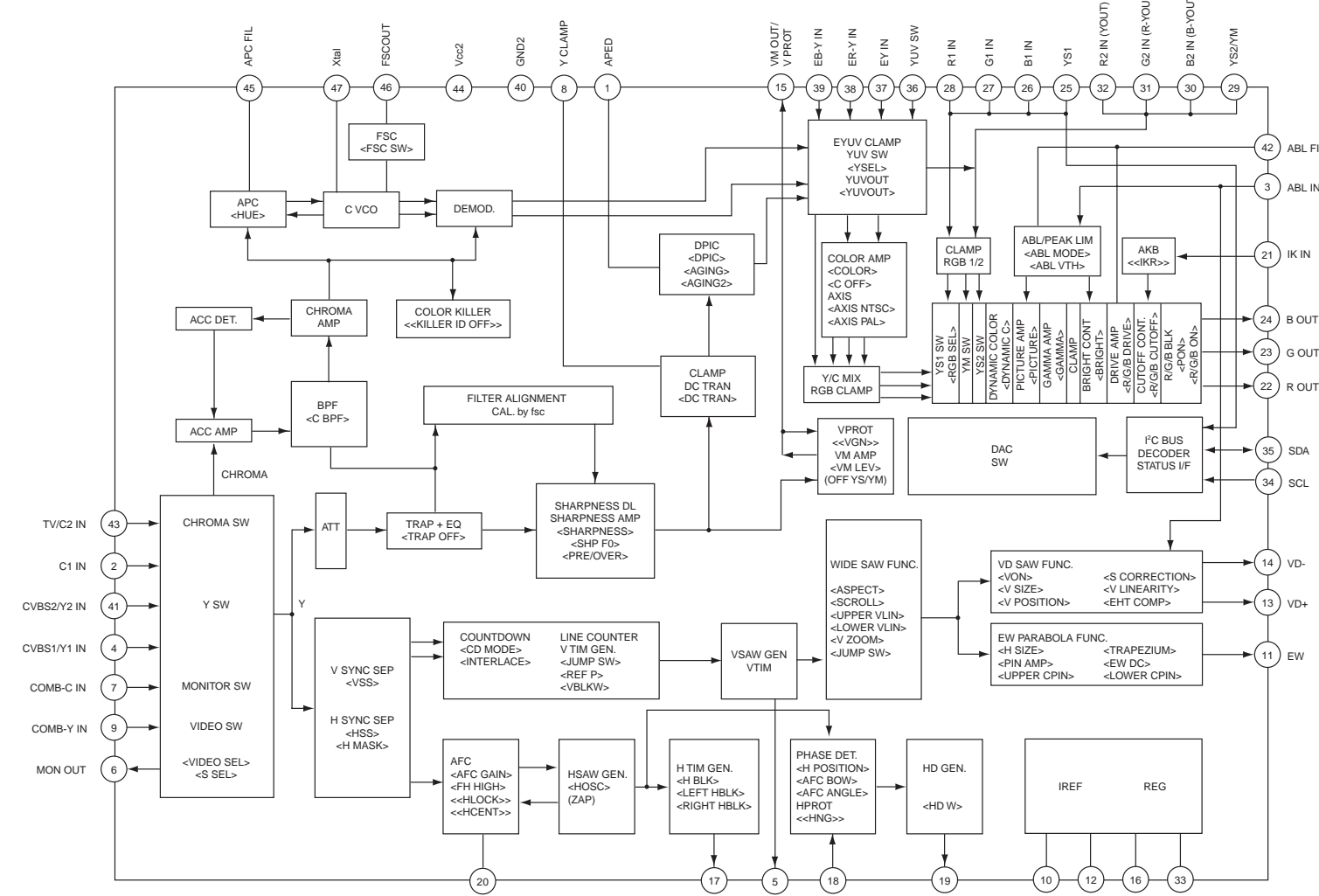
A BOARD IC541 TDA8172



A BOARD: IC203 MM1313AD

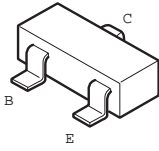


A BOARD: IC301 CXA2131S

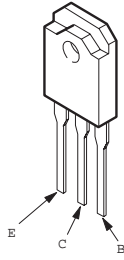


6-4. SEMICONDUCTORS

2SB709A
2SD601A



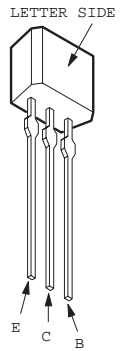
2SC5426-01



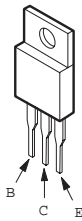
2SC3209LK-TP



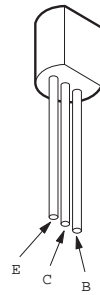
2SA1309A
2SC3311A
2SD2144S



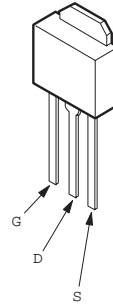
2SA1837
2SC4159-E



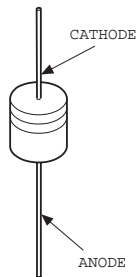
2SA10910-TPE2
2SD1292



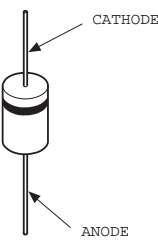
2SK2845



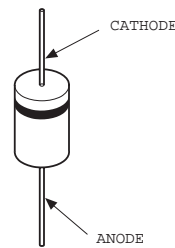
1SS133T-77
D1N2OR-TA
D1NS4-TA
MTZJ-T-7712C
MTZJ-T-77-20B
MTZJ-T-77-33B
MTZJ-T-77-39
RD3.3ES-T1B



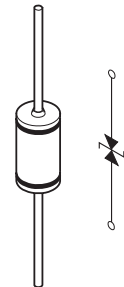
ERC04-06S
ERC06-15S
MTZJ-T-77-2.2A
MTZJ-T-77-5.1C
MTZJ-T-775.6C
MTZJ-T-77-7.5A
MTZJ-T-77-8.2B
MTZJ-T-77-10B
MTZJ-T-7730D
RU-1P



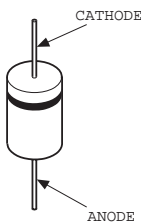
1SS83TD
D1NL2OU-TA
EL1Z-V1
ERA22-08TP3
GP08DPKG23
RGP02-17PKG23
RGP10GPKG3
RGP10GPKG23
RGP15GPKG23



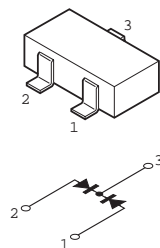
RD9.1EW-T1



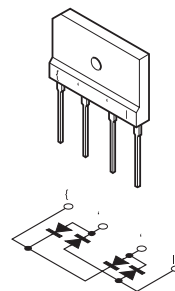
RU4AM-T3



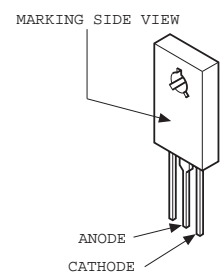
DAP202K-T-146



D4SB60L-F



D5LC20U



SECTION 7 EXPLODED VIEW

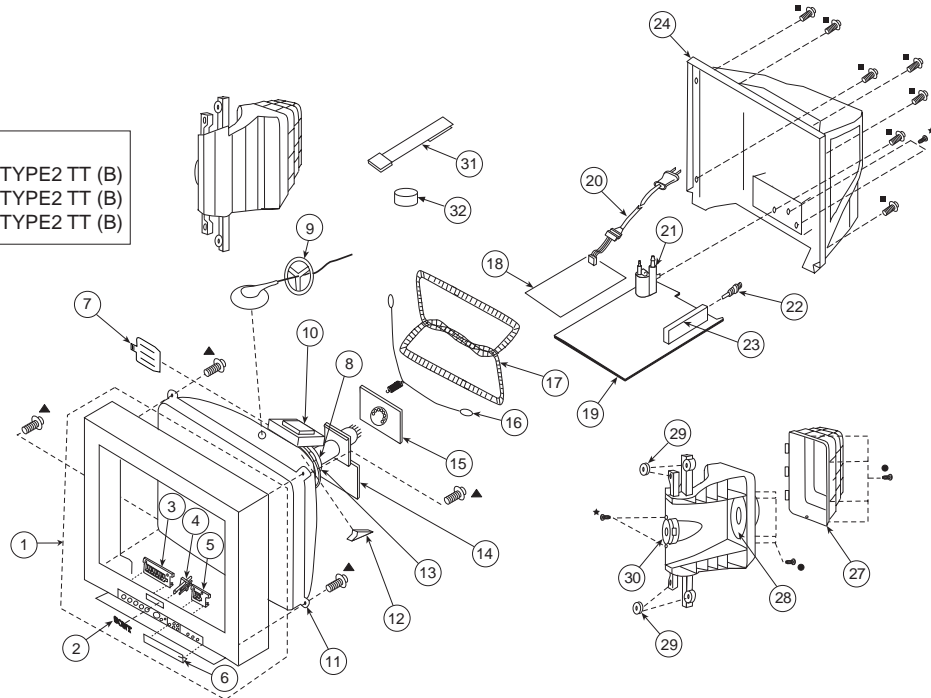
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The component parts of an assembly are indicated by the reference numbers in the remarks column.
- Items marked “ * ” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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

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

7-1. CHASSIS

- ▲ 4-041-268-01 SCREW (7) TAPPING
 ■ 7-685-663-79 SCREW +BVTP 4X16 TYPE2 TT (B)
 ● 7-685-661-91 SCREW +BVTP 4X12 TYPE2 TT (B)
 ★ 7-685-647-79 SCREW +BVTP 3X10 TYPE2 TT (B)



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	X-4036-358-1	BEZNET ASSY	2-6	18	* A-1311-754-A	G (VAR) MOUNTED PC BOARD (ALL EXCEPT KV-24FV10)	
2	4-046-160-01	EMBLEM (NO. 9), SONY		19	* A-1298-795-A	A COMPLETE PC BOARD (24FV10 ONLY)	
3	4-068-307-01	BUTTON, MULTI		19	* A-1298-920-A	A COMPLETE PC BOARD (ALL EXCEPT 24FV10)	
4	4-068-308-01	GUIDE, LED		20	\triangle 1-790-315-21	CORD. AC POWER (WITH CONNECTOR) 10A/125V (KV-24FV10 ONLY)	
5	4-068-309-01	BUTTON, FUNCTION		20	\triangle 1-751-057-21	CORD. POWER (WITH CONNECTOR) 10A/125V (KV-25FV10 ONLY)	
6	4-068-306-01	DOOR		20	\triangle 1-769-796-71	CORD. POWER (WITH CONNECTOR) 10A/125V (KV-25FV10C ONLY)	
7	4-057-714-01	PIECE ASSY, TLH CORRECTION		21	\triangle 1-453-306-11	FBT, NX4011//X4J4	
8	8-453-011-21	NECK ASSY (NA299-S)		22	1-766-374-11	PLUG, F-PIN	
9	3-704-372-31	HOLDER, HV CABLE		23	\triangle 8-598-431-00	TUNER, FSS BTF-WA411	
10	1-452-896-11	COIL, NA ROTATION (RT200)		24	4-068-303-01	COVER, REAR	
11	\triangle 8-733-250-05	CRT (25RSN/A60LPN70X)		27	* 4-068-305-01	BOX, SPEAKER	
12	4-053-005-01	SPACER, DY		28	1-529-334-11	SPEAKER (13X8CM)	
13	\triangle 1-451-475-11	DEFLECTION YOKE (Y25RSA)		29	4-374-745-31	CUSHION (A)	
14	* A-1342-465-A	V MOUNTED PC BOARD		30	1-529-333-11	4CM TWEETER	
15	* A-1331-898-A	C MOUNTED PC BOARD		31	4-062-047-01	PIECE A (110), CONV CORRECT	
16	4-036-329-01	SPRING (B). TENSION		32	1-452-032-00	MAGNET, DISC	
17	\triangle 1-419-104-11	COIL, ALUMINIUM DEMAGNETIZATION (ALL EXCEPT KV-24FV10)					
17	\triangle 1-416-925-11	COIL, ALUMINIUM DEGAUSSING (KV-24FV10 ONLY)					
18	* A-1311-737-A	G (VAR) MOUNTED PC BOARD (KV-24FV10 ONLY)					

SECTION 8 ELECTRICAL PARTS LIST

Note:

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

Note:

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

- The components identified by \triangle 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.

RESISTORS

- All resistors are in ohms
- F : nonflammable

CAPACITORS

- MF = μ F

INDUCTORS

- UH = μ H, MMH = mH

- 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.

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

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
A				C060	1-163-005-11	CERAMIC CHIP	470PF 10% 50V
* A-1298-920-A	A COMPLETE PC BOARD (KV-25FV10C ONLY)			C062	1-164-161-11	CERAMIC CHIP	0.0022MF 10% 50V
* A-1298-795-A	A COMPLETE PC BOARD (ALL EXCEPT KV-25FV10C)			C065	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V
4-382-854-11	SCREW (M3X10), P, SW (+)			C070	1-163-259-91	CERAMIC CHIP	220PF 5% 50V
4-070-495-01	HEAT SINK, AUDIO FD (IC404)			C076	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V
CAPACITOR				C080	1-126-964-11	ELECT	10MF 20% 50V
C001	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C081	1-126-964-11	ELECT	10MF 20% 50V
C002	1-126-960-11	ELECT	1MF 20% 50V	C091	1-163-231-11	CERAMIC CHIP	15PF 5% 50V
C003	1-126-960-11	ELECT	1MF 20% 50V	C092	1-163-231-11	CERAMIC CHIP	15PF 5% 50V
C004	1-106-343-00	MYLAR	0.001MF 10% 200V	C101	1-126-963-11	ELECT	4.7MF 20% 50V
C005	1-126-960-11	ELECT	1MF 20% 50V	C102	1-126-933-11	ELECT	100MF 20% 16V
C006	1-163-035-00	CERAMIC CHIP	0.047MF 50V	C150	1-126-941-11	ELECT	470MF 20% 25V
C007	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C151	1-104-664-11	ELECT	47MF 20% 25V
C008	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	C207	1-126-959-11	ELECT	0.47MF 20% 50V
C009	1-104-664-11	ELECT	47MF 20% 25V	C208	1-126-959-11	ELECT	0.47MF 20% 50V
C011	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	C209	1-126-963-11	ELECT	4.7MF 20% 50V
C012	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	C211	1-126-964-11	ELECT	10MF 20% 50V
C014	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V	C212	1-126-963-11	ELECT	4.7MF 20% 50V
C017	1-126-960-11	ELECT	1MF 20% 50V	C213	1-126-964-11	ELECT	10MF 20% 50V
C019	1-163-135-00	CERAMIC CHIP	560PF 5% 50V	C222	1-126-964-11	ELECT	10MF 20% 50V
C020	1-130-495-00	FILM	0.1MF 5% 50V	C223	1-104-664-11	ELECT	47MF 20% 25V
C021	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C225	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V
C028	1-163-005-11	CERAMIC CHIP	470PF 10% 50V	C226	1-126-963-11	ELECT	4.7MF 20% 50V
C030	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C255	1-104-760-11	CERAMIC CHIP	0.047MF 10% 50V
C034	1-163-037-11	CERAMIC CHIP	0.022MF 10% 50V	C256	1-126-960-11	ELECT	1MF 20% 50V
C035	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V	C257	1-126-960-11	ELECT	1MF 20% 50V
C036	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	C258	1-126-959-11	ELECT	0.47MF 20% 50V
C037	1-164-161-11	CERAMIC CHIP	0.0022MF 10% 50V	C259	1-163-021-91	CERAMIC CHIP	0.01MF 10% 50V
C038	1-126-941-11	ELECT	470MF 20% 25V	C284	1-104-664-11	ELECT	47MF 20% 25V
C039	1-126-964-11	ELECT	10MF 20% 50V	C285	1-126-933-11	ELECT	100MF 20% 16V
C045	1-164-161-11	CERAMIC CHIP	0.0022MF 10% 50V	C287	1-126-959-11	ELECT	0.47MF 20% 50V
C046	1-104-664-11	ELECT	47MF 20% 25V	C288	1-126-960-11	ELECT	1MF 20% 50V
C047	1-163-259-91	CERAMIC CHIP	220PF 5% 50V	C289	1-126-960-11	ELECT	1MF 20% 50V
C048	1-163-009-11	CERAMIC CHIP	0.001MF 10% 50V	C290	1-164-005-11	CERAMIC CHIP	0.47MF 25V
				C301	1-163-233-11	CERAMIC CHIP	18PF 5% 50V
				C303	1-126-963-11	ELECT	4.7MF 20% 50V
				C304	1-163-038-91	CERAMIC CHIP	0.1MF 25V
				C305	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V
				C306	1-164-004-11	CERAMIC CHIP	0.1MF 10% 25V

A

Note:

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

Note:

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

REF. NO.	PART NO.	DESCRIPTION	REMARK			REF. NO.	PART NO.	DESCRIPTION	REMARK		
C307	1-126-964-11	ELECT	10MF	20%	50V	C398	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C308	1-126-964-11	ELECT	10MF	20%	50V	C399	1-126-964-11	ELECT	10MF	20%	50V
C309	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C400	1-126-963-11	ELECT	4.7MF	20%	50V
C310	1-126-960-11	ELECT	1MF	20%	50V	C401	1-126-963-11	ELECT	4.7MF	20%	50V
C311	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C402	1-126-963-11	ELECT	4.7MF	20%	50V
C312	1-126-767-11	ELECT	1000MF	20%	16V	C403	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C313	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C404	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C314	1-163-231-11	CERAMIC CHIP	15PF	5%	50V	C405	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C316	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C406	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C317	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C407	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C318	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C410	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C319	1-126-963-11	ELECT	4.7MF	20%	50V	C411	1-126-933-11	ELECT	100MF	20%	16V
C320	1-126-959-11	ELECT	0.47MF	20%	50V	C412	1-126-960-11	ELECT	1MF	20%	50V
C321	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	C413	1-126-960-11	ELECT	1MF	20%	50V
C324	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	C414	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C330	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	C415	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C332	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C416	1-126-963-11	ELECT	4.7MF	20%	50V
C334	1-126-933-11	ELECT	100MF	20%	16V	C417	1-126-933-11	ELECT	100MF	20%	16V
C350	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C418	1-126-964-11	ELECT	10MF	20%	50V
C351	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C419	1-126-961-11	ELECT	2.2MF	20%	50V
C352	1-126-964-11	ELECT	10MF	20%	50V	C420	1-126-960-11	ELECT	1MF	20%	50V
C353	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C422	1-126-943-11	ELECT	2200MF	20%	25V
C354	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C425	1-126-943-11	ELECT	2200MF	20%	25V
C355	1-126-933-11	ELECT	100MF	20%	16V	C427	1-126-961-11	ELECT	2.2MF	20%	50V
C356	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C428	1-136-169-00	FILM	0.22MF	5%	50V
C357	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C430	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C358	1-126-964-11	ELECT	10MF	20%	50V	C431	1-163-034-00	CERAMIC CHIP	0.033MF		50V
C359	1-126-964-11	ELECT	10MF	20%	50V	C432	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C360	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C433	1-126-963-11	ELECT	4.7MF	20%	50V
C361	1-163-123-00	CERAMIC CHIP	180PF	5%	50V	C434	1-126-963-11	ELECT	4.7MF	20%	50V
C362	1-126-960-11	ELECT	1MF	20%	50V	C435	1-136-169-00	FILM	0.22MF	5%	50V
C364	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C440	1-137-194-81	FILM	0.47MF	5%	50V
C365	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C441	1-137-194-81	FILM	0.47MF	5%	50V
C366	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C442	1-162-114-00	CERAMIC	0.0047MF		2KV
C367	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C443	1-126-961-11	ELECT	2.2MF	20%	50V
C368	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C444	1-126-961-11	ELECT	2.2MF	20%	50V
C369	1-126-964-11	ELECT	10MF	20%	50V	C445	1-126-965-11	ELECT	22MF	20%	50V
C373	1-163-038-91	CERAMIC CHIP	0.1MF		25V	C501	1-102-112-00	CERAMIC	330PF	10%	50V
C374	1-126-941-11	ELECT	470MF	20%	25V	C502	1-106-383-00	MYLAR	0.047MF	10%	200V
C375	1-163-038-91	CERAMIC CHIP	0.1MF		25V	C503	1-102-212-00	CERAMIC	820PF	10%	500V
C376	1-104-664-11	ELECT	47MF	20%	25V	C504	1-102-002-00	CERAMIC	680PF	10%	500V
C377	1-126-964-11	ELECT	10MF	20%	50V	C505	1-162-129-00	CERAMIC	150PF	10%	2KV
C380	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C507 Δ	1-136-617-11	FILM	0.019MF	3%	2KV
C381	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C508	1-107-364-11	MYLAR	0.01MF	10%	200V
C382	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C509	1-162-116-00	CERAMIC	680PF	10%	2KV
C390	1-126-959-11	ELECT	0.47MF	20%	50V	C510	1-107-651-11	ELECT	4.7MF	20%	250V
C396	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C511	1-115-521-11	FILM	0.82MF	5%	250V
C397	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	C512 Δ	1-106-383-00	MYLAR	0.047MF	10%	200V

Note:

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REF. NO.	PART NO.	DESCRIPTION	REMARK			REF. NO.	PART NO.	DESCRIPTION	REMARK
C513	1-102-002-00	CERAMIC	680PF	10%	500V	CONNECTOR			
C514	1-117-813-21	FILM	0.75MF	5%	250V	CN101	* 1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P	
C515	1-162-116-00	CERAMIC	680PF	10%	2KV	CN120	* 1-564-507-11	PLUG, CONNECTOR 4P	
C516	1-117-214-11	CERAMIC	0.001MF	10%	2KV	CN203	* 1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P	
C520	Δ 1-130-895-00	FILM	0.056MF	10%	400V	CN301	* 1-564-510-11	PLUG, CONNECTOR 7P	
C521	1-164-645-11	CERAMIC	1000PF	10%	500V	CN303	* 1-564-510-11	PLUG, CONNECTOR 7P	
C522	1-117-661-21	FILM	0.15MF	5%	250V	CN401	* 1-564-507-11	PLUG, CONNECTOR 4P	
C524	1-102-244-00	CERAMIC	220PF	10%	500V	CN402	* 1-564-507-11	PLUG, CONNECTOR 4P	
C525	1-162-815-11	CERAMIC	47PF	5%	500V	CN501	* 1-580-798-11	CONNECTOR PIN (DY) 6P	
C526	1-126-960-11	ELECT	1MF	20%	50V	CN502	* 1-564-508-11	PLUG, CONNECTOR 5P	
C527	1-126-965-11	ELECT	22MF	20%	50V	CN550	* 1-564-513-11	PLUG, CONNECTOR 10P	
C528	1-164-690-91	CERAMIC CHIP	0.0022MF	5%	50V	DIODE			
C529	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	D001	8-719-921-44	DIODE MTZJ-5.1C	
C530	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V	D002	8-719-110-17	DIODE RD10ESB2	
C531	1-106-387-00	MYLAR	0.068MF	10%	200V	D003	8-719-991-33	DIODE 1SS133T-77	
C539	1-107-635-11	ELECT	4.7MF	20%	160V	D004	8-719-991-33	DIODE 1SS133T-77	
C540	1-107-635-11	ELECT	4.7MF	20%	160V	D005	8-719-109-89	DIODE RD5.6ESB2	
C541	1-126-969-11	ELECT	220MF	20%	50V	D006	8-719-110-17	DIODE RD10ESB2	
C542	1-126-967-11	ELECT	47MF	20%	50V	D007	8-719-074-84	DIODE LNK0120022G1	
C543	1-137-194-81	FILM	0.47MF	5%	50V	D008	8-719-108-12	DIODE RD9.1EW	
C550	1-162-815-11	CERAMIC	47PF	5%	500V	D009	8-719-110-17	DIODE RD10ESB2	
C553	1-107-662-11	ELECT	22MF	20%	250V	D010	8-719-976-99	DIODE DTZ5.1B	
C555	1-115-185-11	CERAMIC CHIP	0.033MF	10%	50V	D205	8-719-982-22	DIODE MTZJ-30D	
C562	1-126-941-11	ELECT	470MF	20%	25V	D207	8-719-109-66	DIODE RD3.3ESB2	
C564	1-126-941-11	ELECT	470MF	20%	25V	D208	8-719-110-08	DIODE RD8.2ESB2	
C571	1-126-964-11	ELECT	10MF	20%	50V	D250	8-719-108-12	DIODE RD9.1EW	
C573	Δ 1-126-963-11	ELECT	4.7MF	20%	50V	D251	8-719-108-12	DIODE RD9.1EW	
C574	Δ 1-107-635-11	ELECT	4.7MF	20%	160V	D252	8-719-110-17	DIODE RD10ESB2	
C575	Δ 1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	D253	8-719-110-17	DIODE RD10ESB2	
C576	1-123-024-21	ELECT	33MF		160V	D254	8-719-110-17	DIODE RD10ESB2	
C591	1-137-417-11	MYLAR	0.0047MF	10%	200V	D255	8-719-110-17	DIODE RD10ESB2	
C592	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	D302	8-719-976-99	DIODE DTZ5.1B	
C629	1-104-665-11	ELECT	100MF	20%	25V	D501	Δ 8-719-945-80	DIODE ERC06-15S	
C634	1-104-665-11	ELECT	100MF	20%	25V	D502	8-719-908-03	DIODE GP08D	
C665	1-126-933-11	ELECT	100MF	20%	16V	D503	8-719-908-03	DIODE GP08D	
C690	1-126-959-11	ELECT	0.47MF	20%	50V	D504	Δ 8-719-945-80	DIODE ERC06-15S	
C691	1-126-941-11	ELECT	470MF	20%	25V	D520	Δ 8-719-067-63	DIODE MDV04-600RL	
C692	1-104-664-11	ELECT	47MF	20%	25V	D521	8-719-302-43	DIODE EL1Z	
C693	1-137-194-81	FILM	0.47MF	5%	50V	D522	8-719-991-33	DIODE 1SS133T-77	
C870	1-107-906-11	ELECT	10MF	20%	50V	D523	8-719-991-33	DIODE 1SS133T-77	
C900	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	D541	8-719-908-03	DIODE GP08D	
C904	1-104-664-11	ELECT	47MF	20%	25V	D552	8-719-302-43	DIODE EL1Z	
C907	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	D561	8-719-979-85	DIODE EGP20G	
						D562	8-719-979-85	DIODE EGP20G	
						D571	8-719-991-33	DIODE 1SS133T-77	
						D572	Δ 8-719-991-33	DIODE 1SS133T-77	
						D573	Δ 8-719-110-08	DIODE RD8.2ESB2	

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
D574	Δ 8-719-302-43	DIODE EL1Z		JR007	1-216-295-91	SHORT	
D581	Δ 8-719-991-33	DIODE 1SS133T-77		JR008	1-216-295-91	SHORT	
D650	8-719-109-89	DIODE RD5.6ESB2		JR010	1-216-295-91	SHORT	
D800	8-719-921-44	DIODE MTZJ-5.1C		JR011	1-216-295-91	SHORT	
D871	8-719-914-44	DIODE DAP202K					
FERRITE BEAD				COIL			
FB501	1-410-397-21	FERRITE	1.1UH	L001	1-414-267-11	INDUCTOR	10UH
FB521	1-410-397-21	FERRITE	1.1UH	L002	1-414-273-11	INDUCTOR	100UH
FB522	1-410-397-21	FERRITE	1.1UH	L003	1-414-273-11	INDUCTOR	100UH
FILTER				L101	1-414-267-11	INDUCTOR	10UH
FL301	1-239-847-11	FILTER, LOW PASS		L150	1-414-273-11	INDUCTOR	100UH
FL302	1-239-847-11	FILTER, LOW PASS		L151	1-414-267-11	INDUCTOR	10UH
FL303	1-239-847-11	FILTER, LOW PASS		L301	1-414-271-11	INDUCTOR	47UH
IC				L302	1-414-267-11	INDUCTOR	10UH
IC001	8-759-594-76	IC M3273MF-245SP		L303	1-414-273-11	INDUCTOR	100UH
IC002	8-759-575-47	IC NJM78LR05BM-TE2		L304	1-414-273-11	INDUCTOR	100UH
IC003	8-759-527-76	IC M24C08-MN6T		L350	1-414-273-11	INDUCTOR	100UH
IC004	8-742-014-11	HYB IC SBX1981-51		L351	1-414-273-11	INDUCTOR	100UH
IC010	8-759-710-85	IC NJM2233BD		L502	1-412-552-11	INDUCTOR	2.2MMH
IC202	8-759-100-96	IC NJM4558M-TE2		L503	Δ 1-406-677-11	INDUCTOR	10MMH
IC203	8-759-534-81	IC MM1313AD/		L504	1-412-533-21	INDUCTOR	47UH
IC301	Δ 8-752-088-86	IC CXA2131S		L505	1-406-978-11	INDUCTOR	150UH
IC302	8-759-433-10	IC TC9090AN		L520	1-409-955-11	INDUCTOR	8MMH
IC402	8-759-578-88	IC BH3868FS-E2		L591	1-412-528-61	INDUCTOR	18UH
IC404	8-759-573-40	IC TDA8580Q/N1		L643	1-412-525-31	INDUCTOR	10UH
IC405	8-759-577-91	IC M62438FP-600D		IC LINK			
IC521	Δ 8-759-700-07	IC NJM2903M-TE2		PS403	Δ 1-532-984-11	LINK, IC	2A/90V
IC541	8-759-980-58	IC TDA8172		TRANSISTOR			
IC603	8-759-198-03	IC PQ09RF21		Q001	8-729-216-22	TRANSISTOR 2SA1162-G	
JACK				Q002	8-729-422-27	TRANSISTOR 2SD601A-Q	
J200	1-774-750-21	JACK BLOCK, PIN 2P		Q081	8-729-422-27	TRANSISTOR 2SD601A-Q	
J201	1-774-751-11	TERMINAL BLOCK, S		Q082	8-729-422-27	TRANSISTOR 2SD601A-Q	
J203	1-691-110-11	JACK, PIN 3P		Q101	8-729-422-27	TRANSISTOR 2SD601A-Q	
J400	1-568-267-21	JACK		Q200	8-729-422-27	TRANSISTOR 2SD601A-Q	
CHIP CONDUCTOR				Q201	8-729-422-27	TRANSISTOR 2SD601A-Q	
JR001	1-216-295-91	SHORT		Q203	8-729-119-76	TRANSISTOR 2SA1175-HFE	
JR003	1-216-295-91	SHORT		Q204	8-729-422-27	TRANSISTOR 2SD601A-Q	
JR004	1-216-295-91	SHORT		Q286	8-729-216-22	TRANSISTOR 2SA1162-G	
JR005	1-216-295-91	SHORT		Q287	8-729-216-22	TRANSISTOR 2SA1162-G	
JR006	1-216-295-91	SHORT		Q288	8-729-422-27	TRANSISTOR 2SD601A-Q	
				Q300	8-729-422-27	TRANSISTOR 2SD601A-Q	
				Q301	8-729-422-27	TRANSISTOR 2SD601A-Q	
				Q302	8-729-422-27	TRANSISTOR 2SD601A-Q	

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
Q305	8-729-216-22	TRANSISTOR 2SA1162-G		R018	1-216-049-91	RES,CHIP	1K 5% 1/10W
Q306	8-729-216-22	TRANSISTOR 2SA1162-G		R019	1-208-798-11	RES,CHIP	4.7K 0.50% 1/10W
Q307	8-729-216-22	TRANSISTOR 2SA1162-G		R020	1-249-415-11	CARBON	680 5% 1/4W
Q308	8-729-216-22	TRANSISTOR 2SA1162-G		R021	1-249-416-11	CARBON	820 5% 1/4W
Q309	8-729-216-22	TRANSISTOR 2SA1162-G		R022	1-249-421-11	CARBON	2.2K 5% 1/4W
Q310	8-729-216-22	TRANSISTOR 2SA1162-G		R023	1-249-427-11	CARBON	6.8K 5% 1/4W
Q350	8-729-216-22	TRANSISTOR 2SA1162-G		R024	1-216-069-00	RES,CHIP	6.8K 5% 1/10W
Q351	8-729-422-27	TRANSISTOR 2SD601A-Q		R025	1-249-426-11	CARBON	5.6K 5% 1/4W
Q352	8-729-216-22	TRANSISTOR 2SA1162-G		R026	1-249-426-11	CARBON	5.6K 5% 1/4W
Q353	8-729-216-22	TRANSISTOR 2SA1162-G		R027	1-249-426-11	CARBON	5.6K 5% 1/4W
Q354	8-729-216-22	TRANSISTOR 2SA1162-G		R028	1-216-049-91	RES,CHIP	1K 5% 1/10W
Q355	8-729-422-27	TRANSISTOR 2SD601A-Q		R029	1-216-295-91	SHORT	
Q356	8-729-216-22	TRANSISTOR 2SA1162-G		R030	1-216-295-91	SHORT	
Q357	8-729-216-22	TRANSISTOR 2SA1162-G		R031	1-216-045-00	RES,CHIP	680 5% 1/10W
Q358	8-729-422-27	TRANSISTOR 2SD601A-Q		R032	1-247-815-91	CARBON	220 5% 1/4W
Q359	8-729-216-22	TRANSISTOR 2SA1162-G		R033	1-247-815-91	CARBON	220 5% 1/4W
Q360	8-729-216-22	TRANSISTOR 2SA1162-G		R034	1-216-033-00	RES,CHIP	220 5% 1/10W
Q390	8-729-422-27	TRANSISTOR 2SD601A-Q		R035	1-216-033-00	RES,CHIP	220 5% 1/10W
Q401	8-729-119-78	TRANSISTOR 2SC2785-HFE		R037	1-216-033-00	RES,CHIP	220 5% 1/10W
Q501	Δ 8-729-140-50	TRANSISTOR 2SC3209LK		R038	1-216-049-91	RES,CHIP	1K 5% 1/10W
Q502	Δ 8-729-046-07	TRANSISTOR 2SD2578-YD		R039	1-216-089-91	RES,CHIP	47K 5% 1/10W
Q521	Δ 8-729-422-27	TRANSISTOR 2SD601A-Q		R040	1-249-413-11	CARBON	470 5% 1/4W
Q522	Δ 8-729-809-29	TRANSISTOR 2SC4159-E		R042	1-216-033-00	RES,CHIP	220 5% 1/10W
Q555	8-729-422-27	TRANSISTOR 2SD601A-Q		R043	1-249-417-11	CARBON	1K 5% 1/4W
Q571	8-729-200-17	TRANSISTOR 2SA1091-O		R044	1-247-815-91	CARBON	220 5% 1/4W
Q604	8-729-119-78	TRANSISTOR 2SC2785-HFE		R045	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
Q650	8-729-111-55	TRANSISTOR 2SD1312-K		R046	1-247-815-91	CARBON	220 5% 1/4W
Q870	8-729-422-27	TRANSISTOR 2SD601A-Q		R047	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
RESISTOR				R048	1-216-025-91	RES,CHIP	100 5% 1/10W
R001	1-216-033-00	RES,CHIP	220 5% 1/10W	R049	1-216-089-91	RES,CHIP	47K 5% 1/10W
R002	1-216-073-00	RES,CHIP	10K 5% 1/10W	R050	1-216-073-00	RES,CHIP	10K 5% 1/10W
R003	1-216-033-00	RES,CHIP	220 5% 1/10W	R051	1-216-033-00	RES,CHIP	220 5% 1/10W
R004	1-216-073-00	RES,CHIP	10K 5% 1/10W	R052	1-216-049-91	RES,CHIP	1K 5% 1/10W
R005	1-216-025-91	RES,CHIP	100 5% 1/10W	R054	1-249-425-11	CARBON	4.7K 5% 1/4W
R006	1-216-049-91	RES,CHIP	1K 5% 1/10W	R055	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R007	1-216-025-91	RES,CHIP	100 5% 1/10W	R056	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R008	1-216-033-00	RES,CHIP	220 5% 1/10W	R057	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R009	1-216-057-00	RES,CHIP	2.2K 5% 1/10W	R058	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R010	1-216-033-00	RES,CHIP	220 5% 1/10W	R060	1-216-295-91	SHORT	
R011	1-216-033-00	RES,CHIP	220 5% 1/10W	R064	1-216-295-91	SHORT	
R012	1-216-053-00	RES,CHIP	1.5K 5% 1/10W	R068	1-249-429-11	CARBON	10K 5% 1/4W
R013	1-216-081-00	RES,CHIP	22K 5% 1/10W	R070	1-249-425-11	CARBON	4.7K 5% 1/4W
R014	1-216-065-91	RES,CHIP	4.7K 5% 1/10W	R071	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R015	1-216-089-91	RES,CHIP	47K 5% 1/10W	R073	1-249-425-11	CARBON	4.7K 5% 1/4W
R016	1-216-041-00	RES,CHIP	470 5% 1/10W	R074	1-216-073-00	RES,CHIP	10K 5% 1/10W
R017	1-216-113-00	RES,CHIP	470K 5% 1/10W	R075	1-216-073-00	RES,CHIP	10K 5% 1/10W
				R076	1-216-121-91	RES,CHIP	1M 5% 1/10W
				R077	1-216-097-91	RES,CHIP	100K 5% 1/10W

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REF. NO.	PART NO.	DESCRIPTION	REMARK			REF. NO.	PART NO.	DESCRIPTION	REMARK		
R078	1-247-815-91	CARBON	220	5%	1/4W	R252	1-216-033-00	RES,CHIP	220	5%	1/10W
R085	1-216-049-91	RES,CHIP	1K	5%	1/10W	R253	1-215-899-11	METAL OXIDE	15K	5%	2W F
R086	1-216-045-00	RES,CHIP	680	5%	1/10W	R254	1-216-033-00	RES,CHIP	220	5%	1/10W
R087	1-216-045-00	RES,CHIP	680	5%	1/10W	R255	1-216-022-00	RES,CHIP	75	5%	1/10W
R088	1-216-045-00	RES,CHIP	680	5%	1/10W	R256	1-216-033-00	RES,CHIP	220	5%	1/10W
R089	1-216-049-91	RES,CHIP	1K	5%	1/10W	R257	1-249-429-11	CARBON	10K	5%	1/4W
R091	1-216-073-00	RES,CHIP	10K	5%	1/10W	R258	1-216-073-00	RES,CHIP	10K	5%	1/10W
R092	1-216-073-00	RES,CHIP	10K	5%	1/10W	R259	1-216-073-00	RES,CHIP	10K	5%	1/10W
R094	1-216-073-00	RES,CHIP	10K	5%	1/10W	R263	1-247-815-91	CARBON	220	5%	1/4W
R095	1-216-033-00	RES,CHIP	220	5%	1/10W	R264	1-247-815-91	CARBON	220	5%	1/4W
R096	1-216-045-00	RES,CHIP	680	5%	1/10W	R267	1-216-022-00	RES,CHIP	75	5%	1/10W
R101	1-216-073-00	RES,CHIP	10K	5%	1/10W	R269	1-216-049-91	RES,CHIP	1K	5%	1/10W
R120	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R270	1-216-022-00	RES,CHIP	75	5%	1/10W
R150	1-216-025-91	RES,CHIP	100	5%	1/10W	R271	1-216-113-00	RES,CHIP	470K	5%	1/10W
R151	1-216-025-91	RES,CHIP	100	5%	1/10W	R272	1-216-113-00	RES,CHIP	470K	5%	1/10W
R203	1-216-025-91	RES,CHIP	100	5%	1/10W	R273	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R204	1-216-043-91	RES,CHIP	560	5%	1/10W	R274	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R205	1-216-043-91	RES,CHIP	560	5%	1/10W	R276	1-216-295-91	SHORT			
R207	1-216-025-91	RES,CHIP	100	5%	1/10W	R277	1-216-295-91	SHORT			
R209	1-216-025-91	RES,CHIP	100	5%	1/10W	R279	1-249-425-11	CARBON	4.7K	5%	1/4W
R210	1-216-073-00	RES,CHIP	10K	5%	1/10W	R296	1-249-437-11	CARBON	47K	5%	1/4W
R211	1-247-807-31	CARBON	100	5%	1/4W	R297	1-216-043-91	RES,CHIP	560	5%	1/10W
R213	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R298	1-216-041-00	RES,CHIP	470	5%	1/10W
R214	1-216-113-00	RES,CHIP	470K	5%	1/10W	R299	1-249-425-11	CARBON	4.7K	5%	1/4W
R215	1-216-033-00	RES,CHIP	220	5%	1/10W	R301	1-216-295-91	SHORT			
R216	1-216-113-00	RES,CHIP	470K	5%	1/10W	R304	1-216-073-00	RES,CHIP	10K	5%	1/10W
R217	1-216-033-00	RES,CHIP	220	5%	1/10W	R305	1-216-033-00	RES,CHIP	220	5%	1/10W
R218	1-216-071-00	RES,CHIP	8.2K	5%	1/10W	R306	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R219	1-216-073-00	RES,CHIP	10K	5%	1/10W	R307	1-216-071-00	RES,CHIP	8.2K	5%	1/10W
R220	1-216-073-00	RES,CHIP	10K	5%	1/10W	R308	1-216-025-91	RES,CHIP	100	5%	1/10W
R221	1-216-073-00	RES,CHIP	10K	5%	1/10W	R310	1-216-049-91	RES,CHIP	1K	5%	1/10W
R222	1-216-071-00	RES,CHIP	8.2K	5%	1/10W	R312	1-216-033-00	RES,CHIP	220	5%	1/10W
R223	1-216-073-00	RES,CHIP	10K	5%	1/10W	R313	1-216-033-00	RES,CHIP	220	5%	1/10W
R224	1-216-073-00	RES,CHIP	10K	5%	1/10W	R314	1-216-033-00	RES,CHIP	220	5%	1/10W
R225	1-216-073-00	RES,CHIP	10K	5%	1/10W	R315	1-216-033-00	RES,CHIP	220	5%	1/10W
R226	1-249-425-11	CARBON	4.7K	5%	1/4W	R316	1-247-807-31	CARBON	100	5%	1/4W
R227	1-216-097-91	RES,CHIP	100K	5%	1/10W	R317	1-216-025-91	RES,CHIP	100	5%	1/10W
R228	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R318	1-216-025-91	RES,CHIP	100	5%	1/10W
R229	1-216-097-91	RES,CHIP	100K	5%	1/10W	R319	1-216-073-00	RES,CHIP	10K	5%	1/10W
R230	1-216-073-00	RES,CHIP	10K	5%	1/10W	R320	1-247-807-31	CARBON	100	5%	1/4W
R241	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R321	1-216-041-00	RES,CHIP	470	5%	1/10W
R242	1-216-083-00	RES,CHIP	27K	5%	1/10W	R322	1-216-025-91	RES,CHIP	100	5%	1/10W
R243	1-216-689-11	RES,CHIP	39K	5%	1/10W	R323	1-216-037-00	RES,CHIP	330	5%	1/10W
R244	1-216-049-91	RES,CHIP	1K	5%	1/10W	R324	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R245	1-216-049-91	RES,CHIP	1K	5%	1/10W	R328	1-247-807-31	CARBON	100	5%	1/4W
R248	1-216-049-91	RES,CHIP	1K	5%	1/10W	R329	1-216-025-91	RES,CHIP	100	5%	1/10W
R249	1-216-025-91	RES,CHIP	100	5%	1/10W	R330	1-216-025-91	RES,CHIP	100	5%	1/10W
R250	1-216-033-00	RES,CHIP	220	5%	1/10W	R331	1-216-025-91	RES,CHIP	100	5%	1/10W
R251	1-216-025-91	RES,CHIP	100	5%	1/10W	R333	1-216-043-91	RES,CHIP	560	5%	1/10W

Note:

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

Note:

Les composants identifiés per un trame et une marque Δ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

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REF. NO.	PART NO.	DESCRIPTION	REMARK			REF. NO.	PART NO.	DESCRIPTION	REMARK		
R334	1-216-025-91	RES,CHIP	100	5%	1/10W	R387	1-259-884-11	CARBON	4.7M	5%	1/4W
R335	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R390	1-216-049-91	RES,CHIP	1K	5%	1/10W
R336	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R391	1-216-073-00	RES,CHIP	10K	5%	1/10W
R337	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R392	1-216-049-91	RES,CHIP	1K	5%	1/10W
R338	1-216-073-00	RES,CHIP	10K	5%	1/10W	R395	1-216-022-00	RES,CHIP	75	5%	1/10W
R339	1-216-047-91	RES,CHIP	820	5%	1/10W	R398	1-216-295-91	SHORT			
R340	1-249-417-11	CARBON	1K	5%	1/4W	R399	1-216-295-91	SHORT			
R341	1-216-073-00	RES,CHIP	10K	5%	1/10W	R400	1-247-863-91	CARBON	22K	5%	1/4W
R342	1-216-069-00	RES,CHIP	6.8K	5%	1/10W	R401	1-249-441-11	CARBON	100K	5%	1/4W
R343	1-216-097-91	RES,CHIP	100K	5%	1/10W	R402	1-247-815-91	CARBON	220	5%	1/4W
R344	1-216-295-91	SHORT				R403	1-216-073-00	RES,CHIP	10K	5%	1/10W
R345	1-216-097-91	RES,CHIP	100K	5%	1/10W	R404	1-216-073-00	RES,CHIP	10K	5%	1/10W
R346	1-216-097-91	RES,CHIP	100K	5%	1/10W	R405	1-247-807-31	CARBON	100	5%	1/4W
R347	1-216-049-91	RES,CHIP	1K	5%	1/10W	R409	1-247-863-91	CARBON	22K	5%	1/4W
R348	1-216-295-91	SHORT				R410	1-216-077-00	RES,CHIP	15K	5%	1/10W
R349	1-216-295-91	SHORT				R411	1-247-903-00	CARBON	1M	5%	1/4W
R350	1-208-806-11	RES,CHIP	10K	0.50%	1/10W	R412	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R351	1-216-025-91	RES,CHIP	100	5%	1/10W	R415	1-247-815-91	CARBON	220	5%	1/4W
R352	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R422	1-249-436-11	CARBON	39K	5%	1/4W
R353	1-216-025-91	RES,CHIP	100	5%	1/10W	R423	1-249-431-11	CARBON	15K	5%	1/4W
R354	1-216-025-91	RES,CHIP	100	5%	1/10W	R424	1-247-863-91	CARBON	22K	5%	1/4W
R355	1-216-025-91	RES,CHIP	100	5%	1/10W	R426	1-249-425-11	CARBON	4.7K	5%	1/4W
R356	1-216-059-00	RES,CHIP	2.7K	5%	1/10W	R428	1-249-425-11	CARBON	4.7K	5%	1/4W
R359	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R429	1-249-427-11	CARBON	6.8K	5%	1/4W
R361	1-216-049-91	RES,CHIP	1K	5%	1/10W	R433	1-249-427-11	CARBON	6.8K	5%	1/4W
R362	1-216-043-91	RES,CHIP	560	5%	1/10W	R440	1-216-049-91	RES,CHIP	1K	5%	1/10W
R363	1-216-037-00	RES,CHIP	330	5%	1/10W	R441	1-216-097-91	RES,CHIP	100K	5%	1/10W
R364	1-216-025-91	RES,CHIP	100	5%	1/10W	R442	1-216-083-00	RES,CHIP	27K	5%	1/10W
R365	1-216-025-91	RES,CHIP	100	5%	1/10W	R443	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R366	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R444	1-216-089-91	RES,CHIP	47K	5%	1/10W
R367	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R445	1-216-062-00	RES,CHIP	3.6K	5%	1/10W
R368	1-216-041-00	RES,CHIP	470	5%	1/10W	R446	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R369	1-216-043-91	RES,CHIP	560	5%	1/10W	R448	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R370	1-216-033-00	RES,CHIP	220	5%	1/10W	R460	1-249-429-11	CARBON	10K	5%	1/4W
R372	1-216-037-00	RES,CHIP	330	5%	1/10W	R461	1-249-429-11	CARBON	10K	5%	1/4W
R373	1-216-025-91	RES,CHIP	100	5%	1/10W	R501	1-247-843-11	CARBON	3.3K	5%	1/4W
R374	1-216-025-91	RES,CHIP	100	5%	1/10W	R502 Δ	1-216-480-11	METAL OXIDE	820	5%	3W F
R375	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R503 Δ	1-249-426-11	CARBON	5.6K	5%	1/4W F
R376	1-216-049-91	RES,CHIP	1K	5%	1/10W	R506 Δ	1-215-885-00	METAL OXIDE	68	5%	2W F
R377	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	R507 Δ	1-260-099-11	CARBON	1K	5%	1/2W
R378	1-216-295-91	SHORT				R509 Δ	1-216-480-11	METAL OXIDE	820	5%	3W F
R379	1-216-049-91	RES,CHIP	1K	5%	1/10W	R512 Δ	1-215-910-00	METAL OXIDE	68	5%	3W F
R380	1-208-810-11	RES,CHIP	15K	0.50%	1/10W	R513 Δ	1-215-908-00	METAL OXIDE	33	5%	3W F
R381	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	R520 Δ	1-215-861-00	METAL OXIDE	47	5%	1W F
R382	1-216-295-91	SHORT				R521	1-249-411-11	CARBON	330	5%	1/4W
R383	1-216-295-91	SHORT				R522	1-249-415-11	CARBON	680	5%	1/4W
R384	1-216-295-91	SHORT				R523	1-216-073-00	RES,CHIP	10K	5%	1/10W
R386	1-216-073-00	RES,CHIP	10K	5%	1/10W	R524	1-249-429-11	CARBON	10K	5%	1/4W

A**Note:**

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

Note:

The components identified by \boxtimes 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
R525	1-249-427-11	CARBON	6.8K 5% 1/4W
R526	1-216-081-00	RES,CHIP	22K 5% 1/10W
R527	1-216-079-00	RES,CHIP	18K 5% 1/10W
R528	1-249-421-11	CARBON	2.2K 5% 1/4W
R529	1-216-103-00	RES,CHIP	180K 5% 1/10W
R530	1-216-097-91	RES,CHIP	100K 5% 1/10W
R532	1-215-437-00	METAL	4.7K 1% 1/4W
R533	1-215-461-00	METAL	47K 1% 1/4W
R534	1-215-451-00	METAL	18K 1% 1/4W
R535	1-249-441-11	CARBON	100K 5% 1/4W
R540	1-249-421-11	CARBON (ALL EXCEPT KV-25FV10C)	2.2K 5% 1/4W
R541	1-249-429-11	CARBON	10K 5% 1/4W
R542	1-249-429-11	CARBON	10K 5% 1/4W
R543	1-249-429-11	CARBON	10K 5% 1/4W
R544	1-216-351-00	METAL OXIDE	1.5 5% 1W F
R546	Δ 1-215-890-11	METAL OXIDE	470 5% 2W F
R547	Δ 1-249-385-11	CARBON	2.2 5% 1/4W F
R548	1-249-429-11	CARBON	10K 5% 1/4W
R549	1-249-429-11	CARBON	10K 5% 1/4W
R552	1-247-887-00	CARBON	220K 5% 1/4W
R553	1-260-312-11	CARBON	47 5% 1/2W
R556	1-216-113-00	RES,CHIP	470K 5% 1/10W
R557	1-216-085-00	RES,CHIP	33K 5% 1/10W
R558	1-216-073-00	RES,CHIP	10K 5% 1/10W
R559	1-216-133-00	RES,CHIP	3.3M 5% 1/10W
R561	Δ 1-249-377-11	CARBON	0.47 5% 1/4W F
R562	Δ 1-260-288-11	CARBON	0.47 5% 1/2W
R571	Δ 1-216-365-00	METAL OXIDE	0.47 5% 2W F
R572	1-249-429-11	CARBON	10K 5% 1/4W
R573	1-247-895-91	CARBON	470K 5% 1/4W
R574	Δ 1-249-416-11	CARBON	820 5% 1/4W F
R575	1-247-895-91	CARBON	470K 5% 1/4W
R576	1-249-441-11	CARBON	100K 5% 1/4W
R577	1-249-429-11	CARBON	10K 5% 1/4W
R578	Δ 1-215-902-11	METAL OXIDE	47K 5% 1W F
R579	Δ 1-208-777-11	RES,CHIP	620 0.50% 1/10W
\boxtimes R582	Δ 1-208-806-11	RES,CHIP	10K 0.50% 1/10W
R583	Δ 1-249-441-11	CARBON	100K 5% 1/4W
\boxtimes R584	Δ 1-208-828-11	RES,CHIP	82K 0.50% 1/10W
R585	Δ 1-216-073-00	RES,CHIP	10K 5% 1/10W
R586	Δ 1-216-073-00	RES,CHIP	10K 5% 1/10W
R587	Δ 1-216-073-00	RES,CHIP	10K 5% 1/10W
R588	1-216-295-91	SHORT	
R590	1-216-105-91	RES,CHIP	220K 5% 1/10W
R591	Δ 1-215-882-00	METAL OXIDE	22 5% 2W F
R592	1-216-119-00	RES,CHIP	820K 5% 1/10W
R642	1-249-437-11	CARBON	47K 5% 1/4W
R656	1-249-415-11	CARBON	680 5% 1/4W

REF. NO.	PART NO.	DESCRIPTION	REMARK
R659	Δ 1-216-387-11	METAL OXIDE	0.68 5% 3W F
R667	Δ 1-216-387-11	METAL OXIDE	0.68 5% 3W F
R673	1-249-421-11	CARBON	2.2K 5% 1/4W
R674	1-247-863-91	CARBON	22K 5% 1/4W
R690	Δ 1-216-355-11	METAL OXIDE	3.3 5% 1W F
R870	1-249-429-11	CARBON	10K 5% 1/4W
R871	1-216-295-91	SHORT	
R873	1-249-415-11	CARBON	680 5% 1/4W
R874	1-216-049-91	RES,CHIP	1K 5% 1/10W
R875	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R900	1-216-041-00	RES,CHIP	470 5% 1/10W
R901	1-216-067-00	RES,CHIP	5.6K 5% 1/10W
R904	1-216-067-00	RES,CHIP	5.6K 5% 1/10W
R905	1-216-081-00	RES,CHIP	22K 5% 1/10W
R906	1-216-091-00	RES,CHIP	56K 5% 1/10W
R907	1-216-071-00	RES,CHIP	8.2K 5% 1/10W
R908	1-216-081-00	RES,CHIP	22K 5% 1/10W
R909	1-216-091-00	RES,CHIP	56K 5% 1/10W
R912	1-216-295-91	SHORT	
R920	1-216-085-00	RES,CHIP	33K 5% 1/10W
R921	1-216-085-00	RES,CHIP	33K 5% 1/10W

SWITCH

S001	1-692-431-21	SWITCH, TACTILE	
S002	1-692-431-21	SWITCH, TACTILE	
S003	1-692-431-21	SWITCH, TACTILE	
S004	1-692-431-21	SWITCH, TACTILE	
S005	1-692-431-21	SWITCH, TACTILE	
S006	1-692-431-21	SWITCH, TACTILE	
S008	1-762-816-11	SWITCH, TACTILE	
S010	1-762-816-11	SWITCH, TACTILE	

SWITCH

SW501	1-572-707-11	SWITCH, LEVER	
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TRANSFORMER

T501	Δ 1-437-210-11	TRANSFORMER, HORIZONTAL DRIVE	
T503	Δ 1-426-981-11	TRANSFORMER, FERRITE (PMT)	
T504	Δ 1-431-693-11	TRANSFORMER, HORIZONTAL LINEAR	
T505	Δ 1-453-306-11	FBT ASSY NX-4011//X4J4	

TUNER

TU101	Δ 8-598-431-00	TUNER, FSS BTF-WA411	
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CRYSTAL

X001	1-767-487-11	VIBRATOR, CRYSTAL	
X301	1-567-505-11	OSCILLATOR, CRYSTAL	



Note:

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

Note:

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

REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
D615	8-719-312-10	DIODE RU4AM-T3		TRANSISTOR			
D617	8-719-510-37	DIODE D5LC20U		Q601	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
D618	8-719-110-31	DIODE RD12ESB2		Q602	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D619	8-719-991-33	DIODE 1SS133T-77		Q603	8-729-119-76	TRANSISTOR 2SA1175-HFE	
D620	8-719-110-17	DIODE RD10ESB2		Q605 Δ	8-729-044-30	TRANSISTOR 2SK2845-LB102	
D630	8-719-510-37	DIODE D5LC20U		Q606	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D631	8-719-911-55	DIODE U05G		Q607	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
D632	8-719-911-55	DIODE U05G		Q610	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D633	8-719-948-45	DIODE ERA22-08		Q644	8-729-119-78	TRANSISTOR 2SC2785-HFE	
D634	8-719-991-33	DIODE 1SS133T-77		RESISTOR			
D635	8-719-991-33	DIODE 1SS133T-77		R600 Δ	1-247-289-00	CARBON 8.2M 5% 1W	
D636	8-719-063-70	DIODE D1NL20U				(ALL EXCEPT KV-24FV10)	
D637	8-719-110-03	DIODE RD7.5ESB2		R601 Δ	1-219-513-11	CARBON 4.7M 5% 1/2W	
D638	8-719-510-48	DIODE D1N20R				(KV-24FV10 ONLY)	
FUSE				R602 Δ	1-249-389-11	CARBON 4.7 5% 1/4W	F
F600 Δ	1-576-193-11	FUSE 6.3A/125V (KV-24FV10 ONLY)		R603	1-215-485-00	METAL 470K 1% 1/4W	
F600 Δ	1-532-506-51	FUSE 6.3A/250V (ALL EXCEPT KV-24FV10)		R607	1-215-859-00	METAL OXIDE 22 5% 1W	F
FERRITE BEAD				R608	1-240-205-11	CARBON 22M 5% 1/2W	
FB600	1-412-911-11	FERRITE		R609	1-249-421-11	CARBON 2.2K 5% 1/4W	
FB601	1-412-911-11	FERRITE		R610	1-249-429-11	CARBON 10K 5% 1/4W	
FB602	1-412-911-11	FERRITE		R611	1-249-437-11	CARBON 47K 5% 1/4W	
FB603	1-412-911-11	FERRITE		R612	1-249-415-11	CARBON 680 5% 1/4W	
FB604	1-412-911-11	FERRITE		R613 Δ	1-219-512-11	CARBON 2.2M 5% 1/2W	
FB605	1-412-911-11	FERRITE		R614	1-249-413-11	CARBON 470 5% 1/4W	
FB606	1-412-911-11	FERRITE		R616 Δ	1-260-302-51	CARBON 6.8 5% 1/2W	
FB609	1-412-911-11	FERRITE		R617	1-247-791-91	CARBON 22 5% 1/4W	
IC				R623	1-249-440-11	CARBON 82K 5% 1/4W	
IC601 Δ	8-749-014-48	IC STR-F6656 (ALL EXCEPT KV-24FV10)		R624	1-249-437-11	CARBON 47K 5% 1/4W	
IC601 Δ	8-749-015-61	IC STR-F6626 (KV-24FV10 ONLY)		R626	1-249-417-11	CARBON 1K 5% 1/4W	
IC602 Δ	8-749-920-61	IC SE135N-LF12		R627 Δ	1-240-251-11	CMT,MELF 6.8 5% 10W	
COIL				R628	1-249-441-11	CARBON 100K 5% 1/4W	
L642	1-412-529-11	INDUCTOR 22UH		R629 Δ	1-260-324-11	CARBON 470 5% 1/2W	
L644	1-412-529-11	INDUCTOR 22UH		R630 Δ	1-249-429-11	CARBON 10K 5% 1/4W	F
PHOTO COUPLER				R631	1-249-437-11	CARBON 47K 5% 1/4W	
PH600 Δ	8-749-010-64	PHOTO COUPLER PC123FY2		R632 Δ	1-202-933-61	FUSIBLE 0.1 10% 1/2W	F
				R633	1-215-483-00	METAL 390K 1% 1/4W	
						(KV-24FV10 ONLY)	
				R633	1-215-479-00	METAL 270K 1% 1/4W	
						(ALL EXCEPT KV-24FV10)	
				R634	1-215-479-00	METAL 270K 1% 1/4W	
						(ALL EXCEPT KV-24FV10)	
				R636	1-249-421-11	CARBON 2.2K 5% 1/4W	
				R637 Δ	1-215-929-11	METAL OXIDE 100K 5% 3W	F
						(ALL EXCEPT KV-24FV10)	
				R639 Δ	1-216-361-21	METAL OXIDE 0.22 5% 2W	F
				R640	1-249-415-11	CARBON 680 5% 1/4W	

Note:

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

Note:

Les composants identifiés per un trame et une marque Δ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.



REF. NO.	PART NO.	DESCRIPTION	REMARK		
R641	1-249-429-11	CARBON	10K	5%	1/4W
R642	1-249-421-11	CARBON	2.2K	5%	1/4W
R646	1-216-485-11	METAL OXIDE (ALL EXCEPT KV-24FV10)	5.6K	5%	3W F
R647	1-249-399-11	CARBON	33	5%	1/4W
R648	1-249-421-11	CARBON	2.2K	5%	1/4W
R649	1-249-417-11	CARBON	1K	5%	1/4W
R650	Δ 1-216-362-11	METAL OXIDE	0.27	5%	2W F
R651	1-249-419-11	CARBON	1.5K	5%	1/4W
R652	1-247-843-11	CARBON	3.3K	5%	1/4W
R653	1-215-898-11	METAL OXIDE	10K	5%	2W F
R654	1-249-419-11	CARBON	1.5K	5%	1/4W
R657	1-249-417-11	CARBON	1K	5%	1/4W
R660	1-249-429-11	CARBON	10K	5%	1/4W
R662	1-249-417-11	CARBON	1K	5%	1/4W
R664	1-249-417-11	CARBON	1K	5%	1/4W
R665	1-249-429-11	CARBON	10K	5%	1/4W
R672	1-216-485-11	METAL OXIDE (ALL EXCEPT KV-24FV10)	5.6K	5%	3W F
R674	Δ 1-216-485-11	METAL OXIDE (ALL EXCEPT KV-24FV10)	5.6K	5%	3W F
R674	Δ 1-215-924-00	METAL OXIDE (KV-24FV10 ONLY)	15K	5%	3W F
RELAY					
RY601	Δ 1-755-018-11	RELAY			
RY602	Δ 1-755-266-11	RELAY, AC POWER			
TRANSFORMER					
T601	Δ 1-426-717-11	TRANSFORMER, LINE FILTER (LFT) (KV-24FV10 ONLY)			
T602	Δ 1-426-717-11	TRANSFORMER, LINE FILTER (ALL EXCEPT KV-24FV10)			
T602	Δ 1-431-838-11	TRANSFORMER, LINE FILTER (KV-24FV10 ONLY)			
T603	Δ 1-433-807-11	TRANSFORMER, REGULATOR (ALL EXCEPT KV-24FV10)			
T603	Δ 1-433-806-11	TRANSFORMER, REGULATOR (KV-24FV10 ONLY)			
T604	Δ 1-431-852-11	TRANSFORMER, CONVERTER (SRT)			
THERMISTOR					
TH605	Δ 1-803-586-11	THERMISTOR			
THP601	Δ 1-803-540-11	THERMISTOR (ALL EXCEPT KV-24FV10)			
THP601	Δ 1-809-539-11	THERMISTOR, POSITIVE (KV-24FV10 ONLY)			
VARISTOR					
VDR600	Δ 1-803-587-11	VARISTOR (ALL EXCEPT KV-24FV10)			
VDR600	Δ 1-803-585-11	VARISTOR (KV-24VF10 ONLY)			
C					
* A-1331-898-A C MOUNTED PC BOARD					
7-682-949-01 SCREW (M3X10), P, SW (+)					
CAPACITOR					
C1751	1-107-652-11	ELECT	10MF	20%	250V
C1752	1-162-114-00	CERAMIC	0.0047MF		2KV
C1755	1-107-649-11	ELECT	2.2MF	20%	250V
C1777	1-107-698-11	ELECT	10MF	20%	25V
CONNECTOR					
CN1707	* 1-564-506-11	PLUG, CONNECTOR 3P			
CN1751	* 1-564-508-11	PLUG, CONNECTOR 5P			
CN1752	* 1-564-510-11	PLUG, CONNECTOR 7P			
CN1753	1-695-915-11	TAB (CONTACT)			
CN1755	1-695-915-11	TAB (CONTACT)			
DIODE					
D1754	8-719-901-83	DIODE 1SS83			
D1755	8-719-901-83	DIODE 1SS83			
D1756	8-719-901-83	DIODE 1SS83			
D1758	8-719-302-43	DIODE EL1Z			
IC					
IC1707	8-759-603-37	IC M5216P			
IC1751	8-759-562-43	IC TDA6108JF/N1B			
JACK					
J1751	Δ 1-540-071-22	SOCKET, CRT			
COIL					
L1751	1-408-613-31	INDUCTOR	68UH		



REF. NO.	PART NO.	DESCRIPTION	REMARK		
RESISTOR					
R1756	1-260-099-11	CARBON	1K	5%	1/2W
R1757	1-260-099-11	CARBON	1K	5%	1/2W
R1758	1-260-099-11	CARBON	1K	5%	1/2W
R1759	1-260-087-11	CARBON	100	5%	1/2W
R1760	1-260-123-11	CARBON	100K	5%	1/2W
R1761	△ 1-216-373-11	METAL OXIDE	2.2	5%	2W F
R1762	△ 1-216-375-00	METAL OXIDE	3.3	5%	2W F
R1763	1-247-807-31	CARBON	100	5%	1/4W
R1764	1-247-807-31	CARBON	100	5%	1/4W
R1765	1-247-807-31	CARBON	100	5%	1/4W
R1770	1-260-132-11	CARBON	560K	5%	1/2W
R1777	1-247-843-11	CARBON	3.3K	5%	1/4W
R1778	1-249-429-11	CARBON	10K	5%	1/4W
R1780	1-247-863-91	CARBON	22K	5%	1/4W
R1781	1-247-863-91	CARBON	22K	5%	1/4W

VARIABLE RESISTOR

RV1750 1-241-714-11 RES, ADJ, METAL FILM 110M



- * A-1342-465-A V MOUNTED PC BOARD
7-682-949-01 SCREW (M3X10), P, SW (+)

CAPACITOR

C961	1-161-830-00	CERAMIC	0.0047MF		500V
C962	1-130-491-00	MYLAR	0.047MF	5%	50V
C963	1-107-638-11	ELECT	33MF	20%	160V
C964	1-126-925-11	ELECT	470MF	20%	10V
C968	1-106-383-00	MYLAR	0.047MF	10%	200V
C969	1-107-667-11	ELECT	2.2MF	20%	160V
C970	1-104-999-11	MYLAR	0.1MF	10%	200V
C972	1-126-941-11	ELECT	470MF	20%	25V
C973	1-130-491-00	MYLAR	0.047MF	5%	50V
C975	1-126-925-11	ELECT	470MF	20%	10V
C978	1-130-471-00	MYLAR	0.001MF	5%	50V
C979	1-130-471-00	MYLAR	0.001MF	5%	50V
C980	1-104-665-11	ELECT	100MF	20%	10V

CONNECTOR

CN961 * 1-564-510-11 PLUG, CONNECTOR 7P
CN962 * 1-770-723-11 CONNECTOR, BOARD TO BOARD 8P

REF. NO.	PART NO.	DESCRIPTION	REMARK		
DIODE					
D964	8-719-991-33	DIODE 1SS133T-77			
D967	8-719-110-88	DIODE RD39ESB2			
D968	8-719-110-88	DIODE RD39ESB2			
TRANSISTOR					
Q961	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q962	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q963	8-729-017-05	TRANSISTOR 2SA1837			
Q965	8-729-017-06	TRANSISTOR 2SC4793			
Q967	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q968	8-729-119-76	TRANSISTOR 2SA1175-HFE			

RESISTOR

R962	1-249-401-11	CARBON	47	5%	1/4W
R963	1-249-417-11	CARBON	1K	5%	1/4W
R964	1-260-312-11	CARBON	47	5%	1/2W
R965	1-249-414-11	CARBON	560	5%	1/4W F
R966	1-249-417-11	CARBON	1K	5%	1/4W
R967	1-249-410-11	CARBON	270	5%	1/4W
R968	1-249-417-11	CARBON	1K	5%	1/4W
R969	1-249-386-11	CARBON	2.7	5%	1/4W F
R970	1-249-403-11	CARBON	68	5%	1/4W
R971	1-247-815-91	CARBON	220	5%	1/4W
R972	1-249-432-11	CARBON	18K	5%	1/4W
R973	1-249-403-11	CARBON	68	5%	1/4W
R974	1-216-476-11	METAL OXIDE	180	5%	3W F
R975	1-249-417-11	CARBON	1K	5%	1/4W F
R976	1-249-432-11	CARBON	18K	5%	1/4W
R977	1-249-429-11	CARBON	10K	5%	1/4W
R978	1-247-807-31	CARBON	100	5%	1/4W
R979	1-249-414-11	CARBON	560	5%	1/4W F
R980	1-247-807-31	CARBON	100	5%	1/4W
R981	1-249-416-11	CARBON	820	5%	1/4W
R982	1-249-386-11	CARBON	2.7	5%	1/4W F
R985	1-249-401-11	CARBON	47	5%	1/4W F
R986	1-249-397-11	CARBON	22	5%	1/4W F

<u>REF. NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>REMARK</u>	<u>REF. NO.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>REMARK</u>
<u>ACCESSORIES AND PACKAGING</u>							
	1-418-387-11	REMOTE COMMANDER (RM-Y168)					
	4-978-977-01	BATTERY COVER (FOR REMOTE)					
	3-866-872-41	MANUAL, INSTRUCTION (KV-25FV10 ONLY)					
	3-866-075-41	MANUAL, INSTRUCTION (KV-25FV10C ONLY)					
	3-866-871-21	MANUAL, INSTRUCTION (KV-24FV10 ONLY)					
*	4-041-255-01	BAG, PROTECTION					
*	4-067-890-01	CARTON, INDIVIDUAL (KV-25FV10/10C ONLY)					
*	4-067-891-01	CARTON, INDIVIDUAL (KV-24FV10 ONLY)					
*	4-067-892-01	CUSHION ASSY, UPPER					
*	4-067-893-01	CUSHION ASSY, LOWER					
	1-501-730-41	ANTENNA, TELESCOPIC					
	1-417-182-11	CONVERTER (EAC 25)					

9-965-853-01

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Sony Technology Center
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Service Promotion Department

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SERVICE MANUAL

BA-4C CHASSIS

<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST</u>	<u>CHASSIS NO.</u>
KV-24FV10	RM-Y168	US	SCC-S22A-A
KV-24FV10	RM-Y168	CND	SCC-S24A-A
KV-25FV10	RM-Y168	E	SCC-S23A-A
KV-25FV10C	RM-Y168	E	SCC-S23C-A

SUPPLEMENT-1

SUBJECT: New Microprocessor Part Number

**Correct the service manual as shown.
File this supplement with the service manual.**

For models with the following serial numbers only:

- KV-24FV10(U) S/N 8010620 and below
- KV-24FV10(CND) S/N A800999 and below
- KV-25FV10 Units produced before July '99
- KV-25FV10C (IQUIQUE) S/N 8001902 and below
- KV-25FV10C (VALPARAISO) S/N 8002158 and below

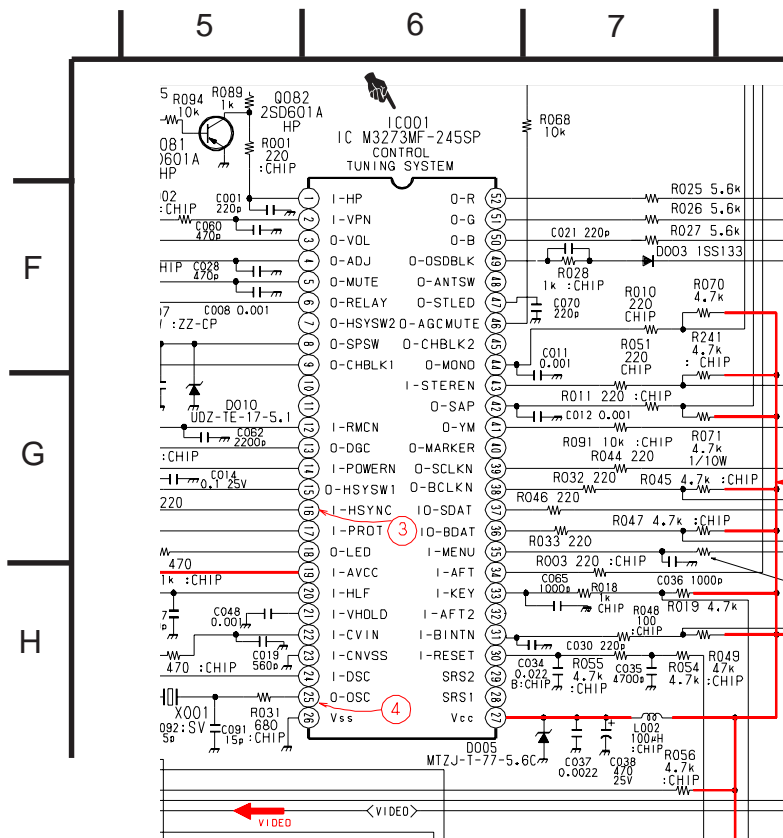
Section 8: ELECTRICAL PARTS LIST (Page 56)

Old				New			
REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
IC001	8-759-594-76	M37273MF-245SP		IC001	8-759-577-92	M37273MF-253SP	

Section 6: A BOARD SCHEMATIC DIAGRAM (Page 35)

 : Modified item

A BOARD PWB PART NO. 1-873-185-11



For models with the following serial numbers only:

- KV-24FV10(U) S/N 8010621 and up
- KV-24FV10(CND) S/N A801000 and up
- KV-25FV10 Units produced in July '99 and later
- KV-25FV10C (IQUIQUE) S/N 8001903 and up
- KV-25FV10C (VALPARAISO) S/N 8002159 and up

Section 8: ELECTRICAL PARTS LIST (Page 53-57)

Old				New			
REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
		Part Number missing -----> need to add		C040	1-163-229-11	CERAMIC CHIP 12PF	5% 50V
		Part Number missing -----> need to add		C041	1-163-229-11	CERAMIC CHIP 12PF	5% 50V
		Part Number missing -----> need to add		L040	1-410-463-11	INDUCTOR	2.7UH
		Part Number missing -----> need to add		R041	1-216-033-00	RES, CHIP	220 5% 1/10W

Section 6: A BOARD SCHEMATIC DIAGRAM (Page 35)

: Modified item

A BOARD PWB PART NO. 1-873-185-12

