

# SERVICE MANUAL

# AA-2W CHASSIS

<u>MODEL</u>	<u>DEST.</u>	<u>COMMANDER</u>	<u>CHASSIS NO.</u>
<b>KV-27FV15</b>	U.S.	RM-Y171	SCC-S32A-A
<b>KV-27FV15</b>	CND	RM-Y171	SCC-S33A-A
<b>KV-29FV10</b>	E	RM-Y168	SCC-S34D-A
<b>KV-29FV15</b>	E	RM-Y171	SCC-S34A-A
<b>KV-29FV15C</b>	E	RM-Y171	SCC-S34C-A
<b>KV-29FV15K</b>	KOREA	RM-Y149A	SCC-S31A-A



KV-29FV15



RM-Y171



TRINITRON® COLOR TV  
**SONY**®

## SPECIFICATIONS

	All Models Except KV-29FV10	KV-29FV10
Power requirements	120V, 60Hz (KV-27FV15 Only); Auto Volt	Auto Volt
Number of inputs/outputs:		
Video <sup>1)</sup>	3	3
S Video <sup>2)</sup>	2	2
Audio <sup>3)</sup>	3	3
Audio Out <sup>4)</sup>	1	1
Monitor Out	1	1
TV Out <sup>1) 3)</sup>	1	—
S-Link	2	—
RF Input	2	1
Speaker output (W)	15W x 2	15W x 2
Power Consumption (W):		
In use (max.)	165W	155W
In standby	2W	2W
Dimensions (W/H/D):		
(mm)	762 x 604 x 499 mm	762 x 604 x 499 mm
(in.)	30 x 23 <sup>3/4</sup> x 19 <sup>5/8</sup> in	30 x 23 <sup>3/4</sup> x 19 <sup>5/8</sup> in
Mass:		
(kg.)	50 kg	50 kg
(lbs.)	110 lbs	110 lbs

**Television system**

American TV standard (KV-27FV15), NTSC

**Channel coverage**

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

**Picture tube**

FD Trinitron® tube

**Visible screen size**

27-inch picture measured diagonally

**Actual screen size**

29-inch picture measured diagonally

**Antenna**

75 ohm external antenna terminal for VHF/UHF

**Supplied accessories**

Remote control RM-Y168 (KV-29FV10)  
 Remote control RM-Y171 (All Models Except  
 KV-29FV10, KV-29FV15K)  
 Remote Control RM-Y149A (KV-29FV15K)  
 Battery size AA (R6) w/2

**Optional accessories**

Connecting Cables:  
 RK-74A, RK-G69HG  
 VMC-10HG/30HG, VMC-720M,  
 VMC-810S/820S, YC-15V/30V,  
 TV Stand: SU-27A3  
 VHF/UHF Mixer: EAC-66

**Notes:**

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

**( ● ) ® 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.*

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
	Warnings and Caution .....	3			
	Safety Check Out Instructions .....	4			
<b>1. GENERAL</b>			<b>6. DIAGRAMS</b>		
	Connecting and Installing the TV .....	5	6-1. Block Diagram (1/3) .....		31
	Basic Set Up .....	7	6-2. Block Diagram (2/3) .....		34
	Using Your TV .....	7	6-3. Block Diagram (PIP 3/3) .....		37
	Using Your Menus .....	8	6-4. Circuit Boards Location .....		38
	Operating Video Equipment .....	11	6-5. Printed Wiring Boards and Schematic Diagrams .....		38
	Operating a Cable Box or DBS Receiver .....	12	• A Board .....		39
	Troubleshooting .....	12	• A Board Schematic Diagram .....		41
<b>2. DISASSEMBLY</b>			• AK Board .....		45
	2-1. Rear Cover Removal .....	13	• C Board .....		49
	2-2. Chassis Assembly Removal .....	13	• G Board .....		51
	2-3. Service Position .....	14	• GA Board .....		53
	2-4. Multi-Button Switch Removal.....	14	• HA Board .....		53
	2-5. Picture Tube Removal .....	15	• HB Board .....		54
<b>3. SET-UP ADJUSTMENTS</b>			• HX Board .....		55
	3-1. Beam Landing .....	16	• UY Main Board .....		57
	3-2. Convergence .....	17	• UY PIP Board .....		61
	3-3. Focus .....	18	• WA Board .....		63
	3-4. Screen (G2) .....	18			
	3-5. White Balance Adjustments .....	19	6-6. Semiconductors .....		65
<b>4. SAFETY RELATED ADJUSTMENTS</b>		20	<b>7. EXPLODED VIEWS</b>		
<b>5. CIRCUIT ADJUSTMENTS</b>		21	7-1. Chassis .....		66
	5-1. Electrical Adjustment by Remote Commander .....	21	7-2. Picture Tube .....		67
			<b>8. ELECTRICAL PARTS LIST</b>		
			• Parts Listings .....		69

## WARNINGS AND CAUTIONS

### **CAUTION!**

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

### **WARNING!!**

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

### **SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY SHADING AND MARK  $\triangle$  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.

## SAFETY CHECK-OUT

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

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

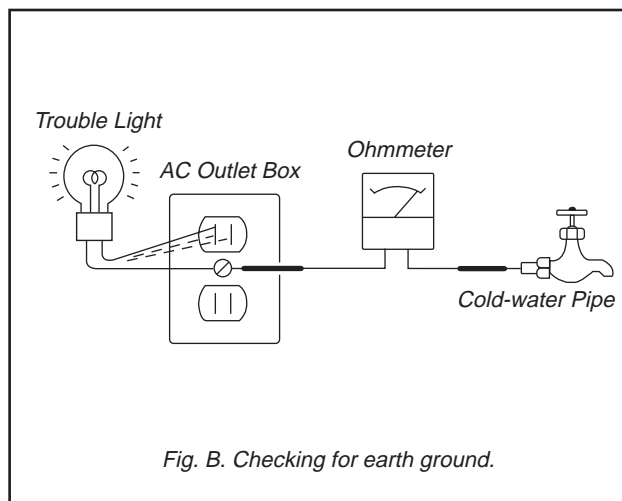
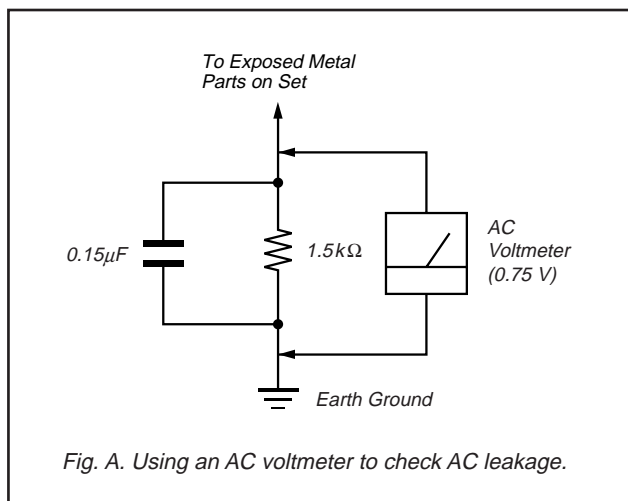
### LEAKAGE TEST

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

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

### HOW TO FIND A GOOD EARTH GROUND

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



# SECTION 1 GENERAL

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

## Connecting and Installing the TV

### Making Connections

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

If you will be connecting	See page
Cable or antenna only	3
Cable and antenna	3
Cable box	4
Cable box and cable to view scrambled channels	4
VCR and cable or antenna	5
VCR and cable box	5
Two VCRs for tape editing	6
Satellite Receiver	7
VCR and Satellite Receiver	7
DVD Player	8
DVD Player with component video output connectors	8
Audio system	9
Camcorder to view tapes	9
CONTROL S	10
VCR using S-Link	11
Satellite Receiver using S-Link	11

2

## Connecting and Installing the TV (continued)

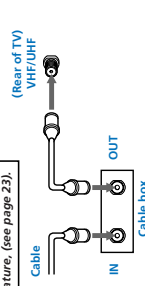
### Cable Box Connections

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

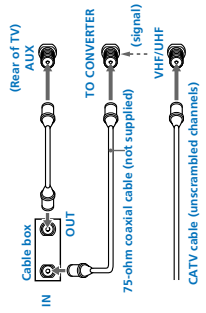
#### Cable box

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

If you will be controlling all channel selection through your cable box, you should consider using the CHANNEL FIX feature. (see page 23).



If you are connecting a cable box through the AUX input and would like to switch between the AUX and normal (CATV) input, you should consider using the CHANNEL FIX feature. (see page 23).



### Cable box and cable

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

#### Notes

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

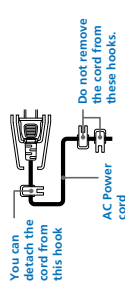
#### Tip

Pressing ANT switches between these inputs.

4

### Note about the AC Power Cord

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



### Cable and antenna

If your cable provider does not feature local channels, you may find this set up convenient.

- VHF only or VHF/UHF or Cable**
- VHF only or UHF only or VHF/UHF**
- VHF and UHF**

### Cable or Antenna Connections Connecting directly to cable or an antenna

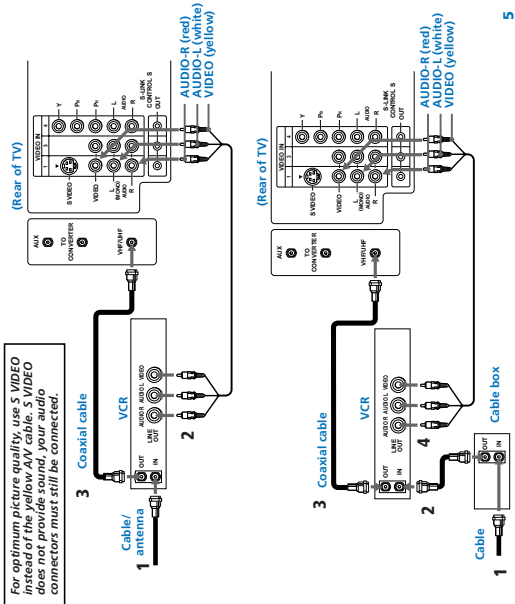
The connection you choose will depend on the cable found in your home. Newer homes will be equipped with standard coaxial cable (see **A**); older homes will probably have 300-ohm twin lead cable (see **B**); still other homes may contain both (see **C**).

### Note

In order to receive channels with an antenna, you will need to turn your CABLE to OFF and perform the AUTO PROGRAM function. (see page 23).

3

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



### VCR Connections Connecting an antenna/cable TV system with a VCR

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

#### Tip

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

### Connecting a VCR and TV with a cable box

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

5

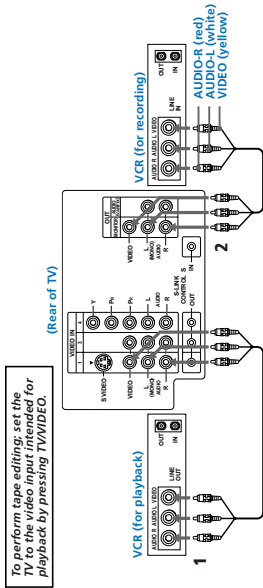
## Connecting and Installing the TV (continued)

### Connecting two VCRs for tape editing

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

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

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



To perform tape editing, set the TV to the video input intended for playback by pressing TV/VIDEO.

6

## Connecting and Installing the TV (continued)

### DVD Player Connections

#### Connecting a DVD Player

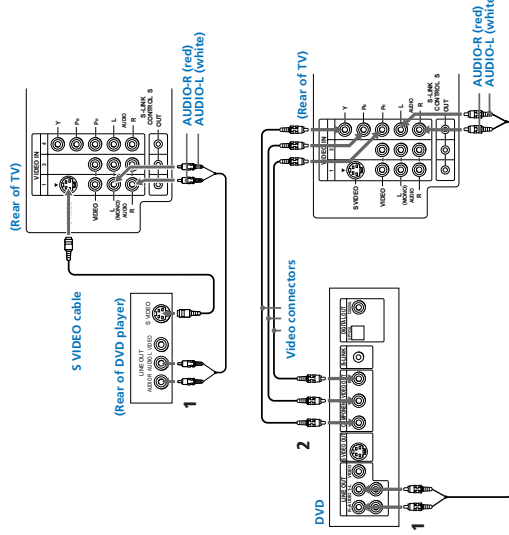
- 1 Using audio connectors, connect AUDIO OUT on your DVD player to AUDIO IN on your TV.
- 2 Using an S VIDEO cable, connect S VIDEO on your DVD player to S VIDEO on your TV.

#### Connecting a DVD Player with component video output connectors

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

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

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

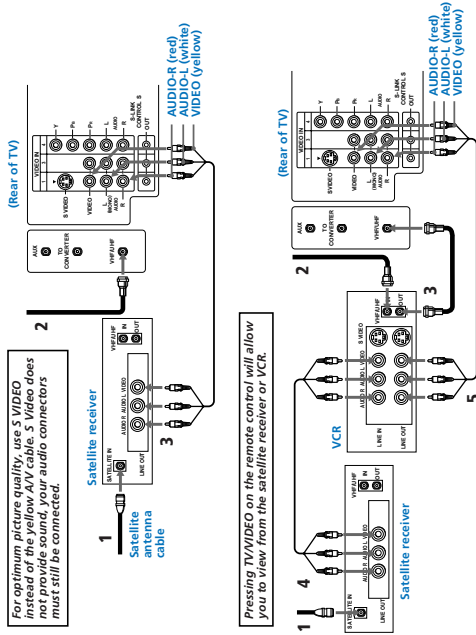


8

### Satellite Receiver Connections

#### Connecting a satellite receiver

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



For optimum picture quality, use S VIDEO when possible. S VIDEO does not provide sound, your audio connectors must still be connected.

Pressing TV/VIDEO on the remote control will allow you to view from the satellite receiver or VCR.

#### Connecting a satellite receiver and a VCR

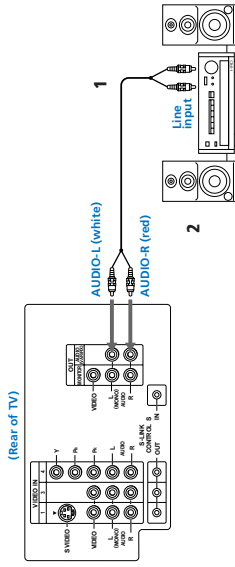
- 1 Connect the cable from your satellite antenna to SATELLITE IN on your receiver.
- 2 Attach the coaxial connector from your cable or antenna to IN on your VCR.
- 3 Using a coaxial connector, connect OUT on your VCR to VHF/UHF on your TV.
- 4 Using A/V connectors, connect AUDIO and VIDEO OUT on your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

### Additional Connections

#### Connecting an audio system

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

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



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

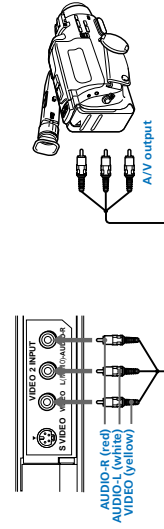
#### Connecting a camcorder

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

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

**Tip**

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



7

9

## Connecting and Installing the TV (continued)

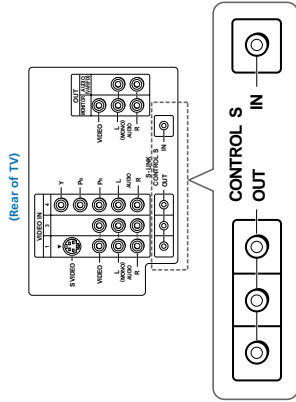
### Using Special Sony Features Using the CONTROL S feature

**KV-27FV15, 32FV15, 36FV15 only**  
CONTROL S allows you to control your TV and other Sony equipment with one remote control.

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

**Tip**

You can also program your remote control to operate other equipment, (see page 29).



### Connecting S-Link to a VCR

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

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

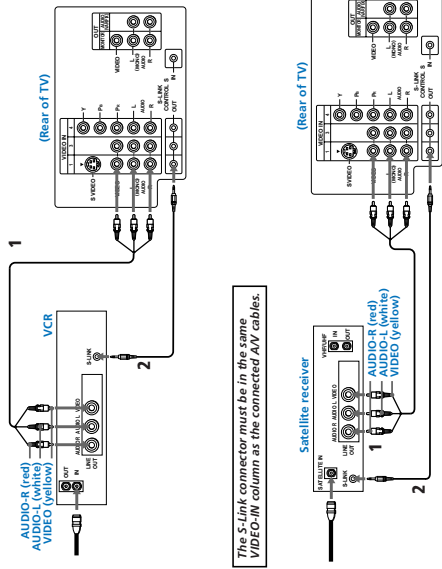
### Connecting S-Link to a satellite receiver

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

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

**Note**

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



## Basic Set Up

### Inserting batteries

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

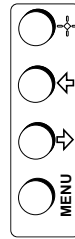


**Notes**

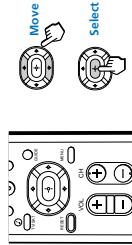
- Remove the batteries to avoid damage from possible battery leakage whenever you anticipate that the remote control will not be used for an extended period.
- Handle the remote control with care. Avoid dropping it, getting it wet, or placing it in direct sunlight, near a heater, or where the humidity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

### Front panel menu control

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



### Using the remote control move & select buttons



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

## Using Your New TV

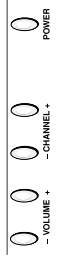
After you have finished connecting your TV, you will want to run AUTO PROGRAM to set up your channels.

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

**Tips**

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

Using the buttons on the top of the TV:



**1** Press POWER to turn on the TV.

The initial setup screen appears.

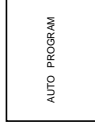
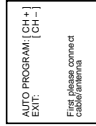


**2** Press CH + to run AUTO PROGRAM or press CH - to exit.



**Tip**

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



## Using Your New TV (continued)

### Watching the TV

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

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

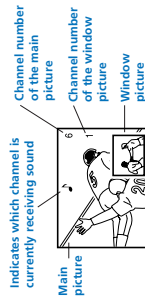
Using the White Labeled Buttons for TV Operations	
	Press when you want to turn connected equipment on and off.
	Press when you want to control connected equipment with your remote control. (see pages 29-31 for instructions on programming your remote control).
	Use for direct channel selection. Press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

14

## Using Your New TV (continued)

### Using Picture-in-Picture - PIP

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



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

16

### Using the White Labeled Buttons for TV Operations

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

15

## Using Your Menus

### Learning menu selection

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

- Press the MENU button. The main menu appears.



- Press ▲ or ▼ to highlight the desired menu (in this case SET UP), and press ◀ to select it.



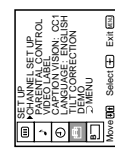
- Press ▲ or ▼ to move to the desired option and press ◀.



- Press ▲ or ▼ to move to the desired feature and press ◀. Options for your selection will be highlighted.



- Press ▲ or ▼ to make your selection and press ◀.



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

17



## Using Your Menus (continued)

### Quick start to the menus

The following is a guide to your menus:



### Note

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

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

18

## Using Your Menus (continued)

### Using the AUDIO menu



### To select the AUDIO menu:

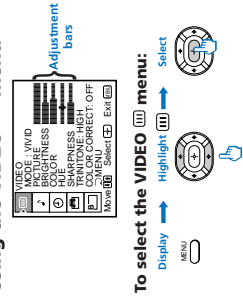


### Tips

- Press to cycle through your AUDIO options.
- Press MTS/SAP on your remote control to cycle through the MTS options.

20

### Using the VIDEO menu



### To select the VIDEO menu:



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

19

### Using the TIMER menu



### To select the TIMER menu:



### Tip

Set DAYLIGHT SAVING before setting the clock.

<p><b>DAYLIGHT SAVING</b></p>	<p><b>YES:</b> Select to compensate for Daylight Saving Time. <b>NO:</b> Select at the end of Daylight Saving Time.</p>
<p><b>CURRENT TIME SET</b> Necessary for the ON/OFF TIMER</p>	<p>With the <b>CURRENT TIME SET</b> menu open: 1 Press . 2 Press  or  until the current day is displayed. 3 Press  to select. 4 Press  or  until the current hour and AM/PM is displayed. Press  to select. 5 Press  or  until the current minute is displayed, and press .</p>
<p><b>ON/OFF TIMER</b> Wake up or scheduled viewing</p>	<p><b>CURRENT TIME SET must be programmed before you can use the ON/OFF TIMER.</b> With the <b>ON/OFF TIMER</b> menu open: 1 Choose the <b>ON/OFF TIMER</b> you would like to set and press .</p> <p>2 Press  or  until the desired day or range of days is displayed. Press  to select. 3 Indicate the time that you want the TV to turn on (hour, then minutes) by pressing  or  and then .</p> <p>4 Set the time duration (maximum of 6 hours) by pressing  or  to select. 5 Press  or  until you reach the desired channel. Press  to select. When you perform <b>AUTO PROGRAM</b>, all <b>ON/OFF TIMER</b> settings will be cleared.</p>

21

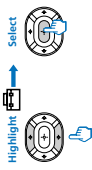
20

Using Your Menus (continued)

Using the SET UP menu



To select the SET UP menu:



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

<b>CHANNEL SET UP</b>	The CHANNEL SET UP menu is a submenu which provides further options for setting up your TV. (see page 23)
<b>PARENTAL CONTROL</b>	The PARENTAL CONTROL feature provides parents several options for programming the TV to block shows based on their rating. (see pages 25-28).
<b>VIDEO LABEL</b> <i>Label connected equipment for easy recognition</i>	<b>With the VIDEO LABEL window open:</b> 1 Press <b>▲</b> or <b>▶</b> to access the input you want to label and press <b>↵</b> . 2 Press <b>▲</b> or <b>▶</b> to choose the label and press <b>↵</b> . <b>VIDEO LABEL Options:</b> VIDEO 1/2/3: VHS, 8mm, BETA, LD, GAME, SAT, DVD, WEB, RECEIVER, DTV, SKIP VIDEO 4: DVD, DTV, SKIP If you select SKIP, your TV will skip this connection when you press the TV/VIDEO button.
<b>CAPTION VISION</b> <i>Closed Captioning and channel information</i>	<b>CC1, 2, 3 or 4:</b> Displays a printed version of the dialog or sound effects of a program. (the mode should be set to CC1 for most programs). <b>TEXT1, 2, 3 or 4:</b> Displays network/station information presented using either half or the whole screen. <b>XDS (Extended Data Service):</b> Displays network name, program name, program length, and time of the show if the broadcaster offers this service.
<b>LANGUAGE</b>	Select from available languages to display all menus in your language of choice.
<b>TILT CORRECTION</b>	Press <b>▲</b> or <b>▶</b> to correct any tilt of the picture between +5 and -5 and press <b>↵</b> .
<b>DEMO</b>	Select to run a demonstration of on-screen menus.

Using Your Menus (continued)

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

Using the CHANNEL SET UP menu



To select the CHANNEL SET UP menu:



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

<b>FAVORITE CHANNEL</b> <i>Quick access to favorite channels</i>	<b>Setting FAVORITE CHANNEL:</b> 1 Press <b>↵</b> and then <b>▲</b> or <b>▶</b> to select AUTO or MANUAL. (Selecting AUTO will display the last five channels chosen with the remote control's 0-9 buttons.) 2 Press <b>▲</b> or <b>▶</b> to move the cursor to 1, 2, 3, 4 or 5 and press <b>↵</b> . 3 Press <b>▲</b> or <b>▶</b> to access the desired channel and press <b>↵</b> . To preview your favorite channels in the window picture, set PREVIEW to ON. <b>Using FAVORITE CHANNEL:</b> 1 Exit all menus and press <b>↵</b> , your FAVORITE CHANNEL options will appear. 2 Press <b>▲</b> or <b>▶</b> to access the channel you want to watch. For KV-27FV15, 32FV15, 36FV15 only. If PREVIEW is set to ON, a window picture displays your favorite channels as you cycle through the options.
<b>CABLE</b>	<b>ON:</b> Select if you are receiving cable channels with a CATV cable. You will need to run AUTO PROGRAM after changing your CABLE settings. <b>OFF:</b> Select when you want to control all channel selection through a cable box. Select the appropriate channel number (usually 3 or 4) and use the cable box's remote control for selection. <b>AUX 2-6:</b> Select when a cable box is connected to the AUX input. (see page 4). <b>VIDEO:</b> Select from available video inputs when you have video equipment connected (e.g. satellite receiver) and you want your TV fixed to it.
<b>CHANNEL FIX</b> <i>Useful when you have a cable box or satellite receiver connected</i>	<b>AUTO PROGRAM</b> Instructs the TV to program all receivable channels.

The Parental Guideline Rating System

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

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

Notes

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

<b>TV RATINGS</b> <i>Block programs by their rating, content or both</i>	<b>Overview of the Ratings</b> <b>Age based options:</b> TV-Y: All children. TV-Y7: Directed to older children. TV-G: General Audience. TV-PG: Parental Guidance suggested. TV-14: Parents Strongly cautioned. TV-MA: Mature Audience only. <b>Content based options:</b> FV: Fantasy Violence. D: Suggestive Dialogue. L: Strong Language. S: Sexual situations. V: Violence.
<b>MOVIE RATINGS</b>	<b>MOVIE RATINGS</b> MP PG-13 R R+ X TV-14 TV-MA Select rating Movie Select Exit
<b>UNRATED</b> <i>Block programs or programs that are broadcast without a rating</i>	<b>CUSTOM MENU</b> MOVIE RATINGS VIEW ALL VIEW ALL BLOCK MOVIE BLOCK ALL Select category Movie Select Exit

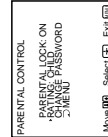
## Using Your Menus (continued)

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

## Using Your Menus (continued)

### Setting the TV's RATING

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



#### Note

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

<b>PARENTAL LOCK</b> <i>Turns ratings on/off</i>	<b>ON:</b> Select to activate the RATING. <b>OFF:</b> Turns off current ratings.
<b>RATING</b>	If you are not familiar with the Parental Guideline rating system, you should use one of the following preselcted categories to help simplify the rating selection. <b>CHILD:</b> TV-Y, G (U.S. models only). <b>YOUTH:</b> TV-Y, G (Canadian models only). <b>TV:</b> TV-PG, PG, PG (U.S. models only). <b>TV:</b> TV-PG, PG, 8 ans+ (Canadian models only). <b>YOUNG ADULT:</b> TV-14, PG-13 (U.S. models only). TV-14, 14+, 13 ans+ (Canadian models only). <b>CUSTOM:</b> If you prefer to set more restrictive ratings, highlight CUSTOM and press <b>CE</b> . See pages 25-26, for an overview of the rating systems available. <b>In the CUSTOM RATINGS menu:</b> <ol style="list-style-type: none"> <li>Select the desired rating category and press <b>CE</b>.</li> <li>Press <b>▲</b> or <b>▼</b> to select the maximum rating or content and press <b>CE</b>.</li> <li>Press <b>▲</b> or <b>▼</b> to block or unblock the rating or content and press <b>CE</b>.</li> </ol> Once you have blocked a rating or content, all higher ratings or contents will be automatically blocked. <b>To view a blocked program:</b> Press <b>ENTER</b> on the remote control; then use the <b>0-9</b> buttons to enter your password.
<b>CHANGE PASSWORD</b>	<b>To reset your password:</b> <ol style="list-style-type: none"> <li>Move the cursor to CHANGE PASSWORD press <b>CE</b>.</li> <li>Use the <b>0-9</b> buttons to create a new password, enter again to confirm.</li> </ol> In the event that you forget your password, see page 33.

### Using the PARENTAL CONTROL menu

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

- Press **MENU** and select the SET UP menu.

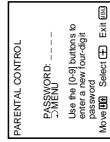


- Point the cursor to PARENTAL CONTROL and press **CE**.

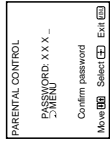


You will be asked to enter a 4-digit password for any future access into the PARENTAL CONTROL menu.

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



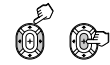
- Confirm your password by entering it again.



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

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

- Point the cursor at PARENTAL LOCK and press **CE**. Press **▲** or **▼** to ON and press **CE**.



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

#### Tip

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

## Operating Video Equipment

### Programming the remote

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

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

#### VCR code numbers

Manufacturer	Code
Sony	301, 302, 303
Admiral (M. Ward)	304, 305, 306
Anwa	338, 344
Audio Dynamic	314, 337
Broksonic	319, 317
Canon	309, 308
Chizen	302, 332
Critikon	302, 315
Curts Mathes	304, 338, 309
Daewoo	341, 312, 309
DBX	314, 336, 337
Dimensia	319, 316, 317
Emerson	330, 333
Finlux	330, 338
Funai	319, 320, 316, 317
General Electric	329, 304, 309
Go Video	322, 339, 340
Goldstar	322, 339, 340

Teac	314, 336, 338, 337
Technics	309, 308
Toshiba	312, 311
Wards	327, 328, 335, 331, 332
Zenith	314, 330, 336, 331

#### Operating a VCR

Buttons on the remote control	Function
Power	To turn on or off
Play	To select a channel directly
Stop	To change channels
Pause	To record
Fast Forward	To play
Fast Reverse	To stop
Stop	To rewind the tape
Play	To pause
Stop	To resume normal playback, press again or press <b>▲</b> or <b>▼</b> during playback.
Play	To resume normal playback, release the button.
Stop	To change input mode

## Operating Video Equipment (continued)

### Tips

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

**VHS VCR** 301  
(preset code for the supplied remote control)

**8 mm VCR** 302

**Beta, ED Beta VCRs** 303

### Laserdisc code numbers

Manufacturer	Code
Sony	701
Panasonic	704, 710
Pioneer	752
RCA	755
Toshiba	754

### DVD (Digital Versatile Disc) code numbers

Manufacturer	Code
Sony	751
Panasonic	753
Pioneer	752
RCA	755
Toshiba	754

### Buttons on the remote control

**Operating a Laserdisc**

To turn on or off Press VTR/DVD (POWER).

To play Press ▶.

To stop Press II.

To pause Press II.

To scan Press ▶▶ or ◀◀ during playback, or press ▶▶ or ◀◀ during playback.

To search the chapter forward or backward Press CH +/-.

To search the chapter forward or backward Press CH +/-.

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To search the chapter forward or backward Press CH +/-.

### Programming the remote control

You can program the supplied remote control to operate a cable box or satellite receiver.

1 Press CODE SET.

2 Press SAT/CABLE (FUNCTION).

3 Use the 0-9 buttons to key in the manufacturer's code number from the following chart.

4 Press ENTER.

For more details on operating the cable box or satellite receiver, refer to the operating instructions that were supplied with the equipment.

When you enter a new code number, the code number you previously entered at that setting is erased.

In some rare cases, you may not be able to operate your equipment with the supplied remote control. In this case, use the equipment's supplied remote control.

Whenever you remove the batteries the code numbers may revert to the factory setting.

### If the remote control doesn't work

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

**Tips**

If more than one code number is listed, try entering them one by one until you come to the correct code for your equipment.

If you enter a new code number, the code number you previously entered at that setting is erased.

In some rare cases, you may not be able to operate your equipment with the supplied remote control. In this case, use the equipment's supplied remote control.

Whenever you remove the batteries the code numbers may revert to the factory setting.

### Cable box code numbers

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

### For more details on operating the cable box or satellite receiver

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

When you enter a new code number, the code number you previously entered at that setting is erased.

In some rare cases, you may not be able to operate your equipment with the supplied remote control. In this case, use the equipment's supplied remote control.

Whenever you remove the batteries the code numbers may revert to the factory setting.

### Satellite receiver code numbers

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

## Troubleshooting

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

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

## Specifications

### Supplied accessories

Remote control RM-Y168 (KV-32FS10, 36PVS10 only), RM-Y171 (KV-27FV15, 32FV15, 36FV15 only)(1)  
Batteries size AA (R6) (2)

### Optional accessories

Connecting cables  
RK-74A, RK-G69HG, VMC-10HG,  
VMC-720M, VMC-810S/820S, YC-15V/  
30V  
TV Stand SU-27FD2, SU-32FD2, SU-36FD2  
UV mixer EAC-66

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

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) or (416) 499-SONY (7669)(Canadian residents only).

## SECTION 3 SET-UP ADJUSTMENTS

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

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

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

PICTURE control ..... normal

BRIGHTNESS control ..... normal

Perform the adjustments in order as follows:

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

**Note:** Test Equipment Required:

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

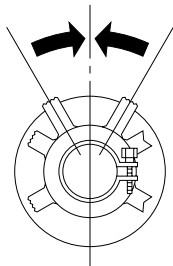
### 3-1. BEAM LANDING

**Preparation:**

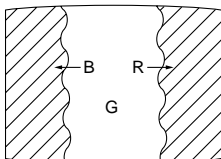
- Input a white pattern signal.
- Face the picture tube in an East or West direction to reduce the influence of geomagnetism.

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

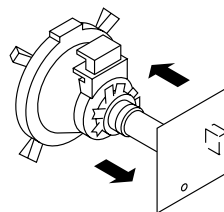
1. Input white pattern from pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown below:



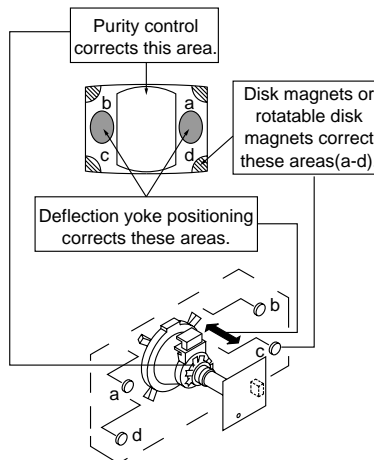
3. Input green pattern from pattern generator.
4. Move the deflection yoke backward, and adjust with the purity control so that green is in the center and red and blue are even on both sides.



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



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



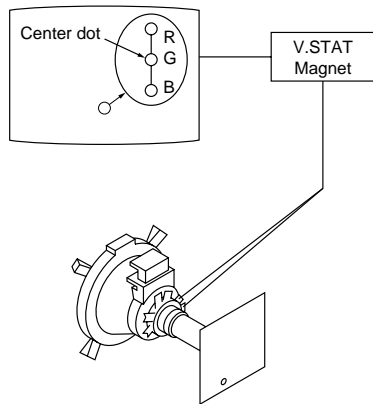
### 3-2. CONVERGENCE

**Preparation:**

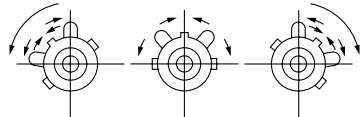
- Before starting, perform FOCUS, V. LIN and V. SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Input dot pattern.

#### (1) Vertical and Horizontal Static Convergence

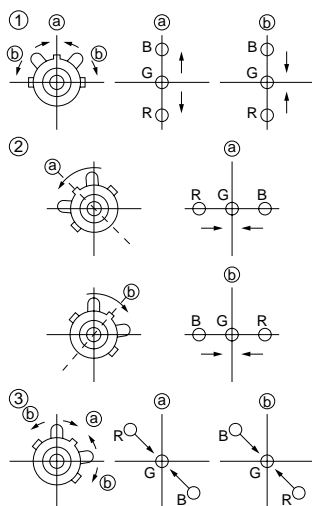
1. Adjust V. STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)



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



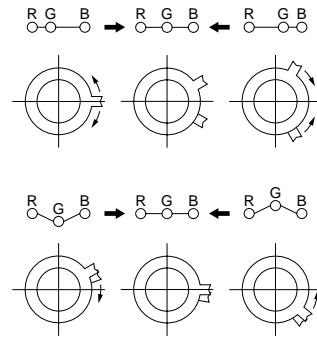
2. When the V. STAT magnet is moved in the direction of arrow (a) and (b), red, green, and blue dots move as shown below:



#### Operation of BMC (Hexapole) Magnet

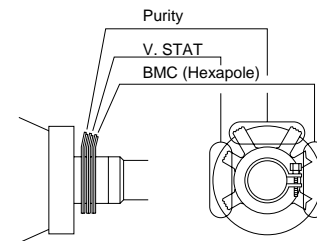
The respective dot positions resulting from moving each magnet interact, so perform adjustment while tracking.

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



#### Y Separation Axis Correction Magnet Adjustment

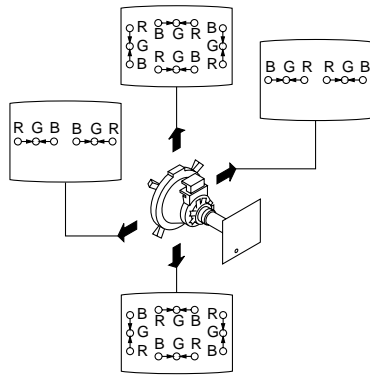
1. Input cross-hatch pattern, adjust PICTURE to minimum and BRIGHTNESS to normal.
2. Adjust the deflection yoke upright so it touches the CRT.
3. Adjust so that the Y separation axis correction magnet on the neck assembly is symmetrical from top to bottom (open state).



4. Return the deflection yoke to its original position.

**(2) Dynamic Convergence Adjustment**

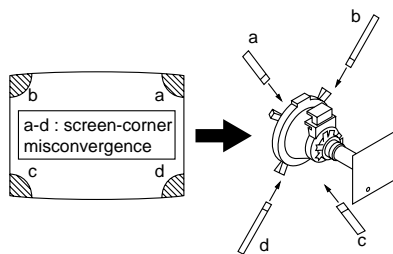
- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.
1. Slightly loosen deflection yoke screw.
  2. Remove deflection yoke spacers.
  3. Move the deflection yoke for best convergence as shown below:



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

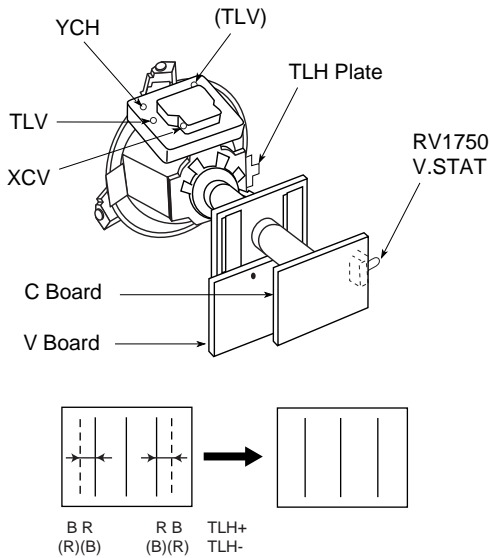
**(3) Screen-corner Convergence**

Affix a permalloy assembly corresponding to the misconverged areas:



**(4) TLH Plate Adjustment**

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

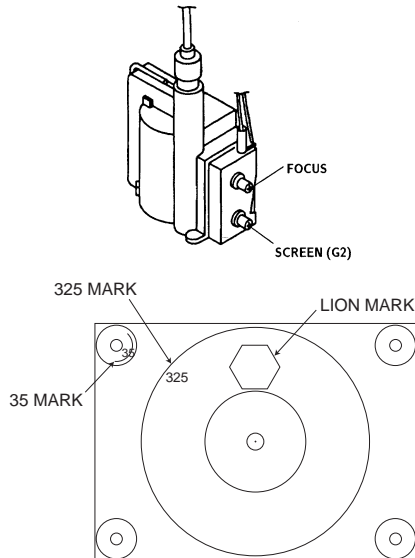


1. Adjust XCV core to balance X axis.
2. Adjust YCH VR to balance Y axis.
3. Adjust vertical red and blue convergence with V.TILT (TLV VR.)

Perform adjustments while tracking items 1 and 2.

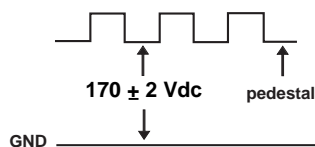
### 3-3. FOCUS

1. Input Monoscope signal.
2. Set user controls to normal.
3. Set Video mode to STANDARD.
4. Set the PICTURE to maximum.
5. Adjust FOCUS control for best picture at 325 MARK.



### 3-4. SCREEN (G2)

1. Input signal from the pattern generator.
2. Set the user controls to NORMAL.
3. Attach the G2-Jig to the C Board.
4. Adjust RCUT, GCUT, BCUT, and SBRT in service mode with an oscilloscope so that voltages on the red, green, and blue cathodes are  $170 \pm 2$  V DC.
5. Observe the screen and adjust SCREEN (G2) VR to obtain the fairly visible background of dot signal.
6. Push the TEST +JUMP (+ Channel) to cut off the signal, then the screen is bright or dark. Brightness of raster must be increased when adjusting.
7. Adjust screen VR until the screen is just cut off, or scarcely lights up. A signal cannot be seen when the brightness of the raster is high.
8. Push the JUMP again to release the cut off.



### 3-5. WHITE BALANCE ADJUSTMENTS

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

1. Input an entire white signal.
2. Set to Service adjustment Mode.
3. Set DCOL to "0"
4. Set the PICTURE and BRIGHT to minimum.
5. Adjust with SBRT if necessary.
6. Select GCUT and BCUT with **[1]** and **[4]**.
7. Adjust with **[3]** and **[6]** for the best white balance.
8. Set the PICTURE and BRIGHT to maximum.
9. Select GDRV and BDRV with **[1]** and **[4]**.
10. Adjust with **[3]** and **[6]** for the best white balance.
11. Reset DCOL to "1".
12. Write into the memory by pressing **[MUTING]** then **[ENTER]\*\***.



## SECTION 4 SAFETY RELATED ADJUSTMENTS

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

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

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

**G BOARD (KV-27V15):** IC643, R661  
**GA BOARD (KV-27V15 Excluded):** IC6003, R6088

#### Step 1 Preparation before Confirmation

Turn the POWER switch ON.

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

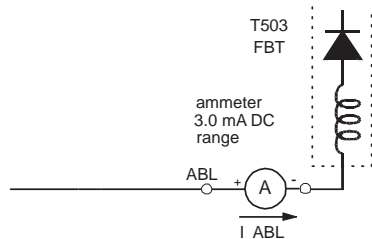
Confirm that, when the set is operating normally, the voltage at check terminal TP85 is more than 21.0 V DC.

At AC input:  $120.0 \pm 2.0$  VAC

#### Step 2

Input a white signal and verify that I ABL is within the specified range:  $1730 \pm -100$   $\mu$ A,  
+B =  $135.0 \pm 1.5$  VDC .

At AC input:  $120.0 \pm 2.0$  VAC



#### Step 3

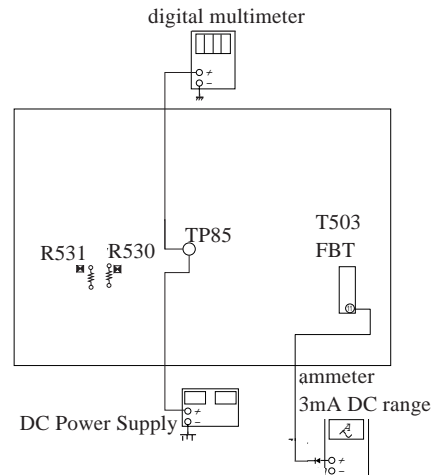
Record the voltage between TP85 and ground.

#### Step 4

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

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

Lower than  $26.95 \pm (-0.05)$  V DC.  
At AC input:  $120.0 \pm 2.0$  VAC



**A BOARD - CONDUCTOR SIDE**

#### Step 5

Confirm that a voltage appears between TP85 and ground, of more than 21.0 V DC.

At AC input:  $120.0 \pm 2.0$  VAC

### B+ VOLTAGE CONFIRMATION AND ADJUSTMENT

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

**G BOARD (KV-27FV15):** IC643, R661  
**GA BOARD (KV-27FV15 Excluded):** IC6003, R6088

- 1) Using Variac, apply AC input voltage:  $130.0 \pm 2.0$  VAC
- 2) Input a monoscope signal.
- 3) Set the PICTURE control and the BRIGHT control to initial reset value.
- 4a) (KV-27FV15 Only) Confirm the voltage of G Board CN641 between pin ① to ground on "G" PWB is less than  $136.5 \pm 1.0$  V DC.
- 4b) (KV-27FV15 Excluded) Confirm the voltage of GA Board CN6007, between pin ① to ground on "GA" PWB is less than  $136.5 \pm 1.0$  V DC.
- 5a) (KV-27FV15 Only) If step 4a is not satisfied, replace R661 and repeat the above steps.
- 5b) (KV-27FV15 Excluded) If step 4b is not satisfied, replace R6088 and repeat the above steps.

## SECTION 5 CIRCUIT ADJUSTMENTS

### ELECTRICAL ADJUSTMENT BY REMOTE COMMANDER

Use Remote Commander (RM-Y171) to perform the following circuit adjustments:

NOTE : Test Equipment Required:

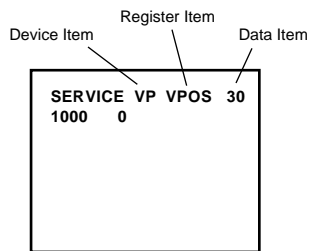
1. Pattern Generator
2. Frequency Counter
3. Digital Multimeter
4. Audio OSC

#### Method of Setting the Service Adjustment Mode

##### SERVICE MODE PROCEDURE

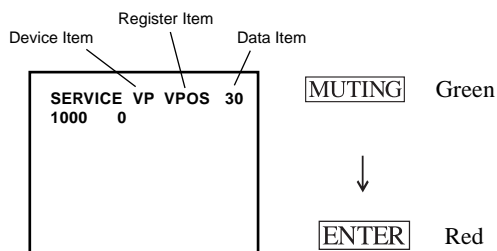
1. Standby mode. (Power off)
2. **DISPLAY** → **5** → **VOL (+)** → **POWER** on the Remote Commander.  
(Press each button within a second.)

##### SERVICE ADJUSTMENT MODE IN

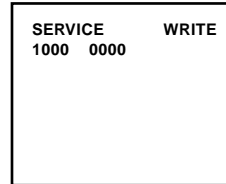


3. The CRT displays the item being adjusted.
4. Press **2** or **5** on the Remote Commander to select the device item.
5. Press **1** or **4** on the Remote Commander to select the item.
6. Press **3** or **6** on the Remote Commander to change the data.
7. If you want to recover the latest values press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

##### SERVICE ADJUSTMENT MODE MEMORY



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



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

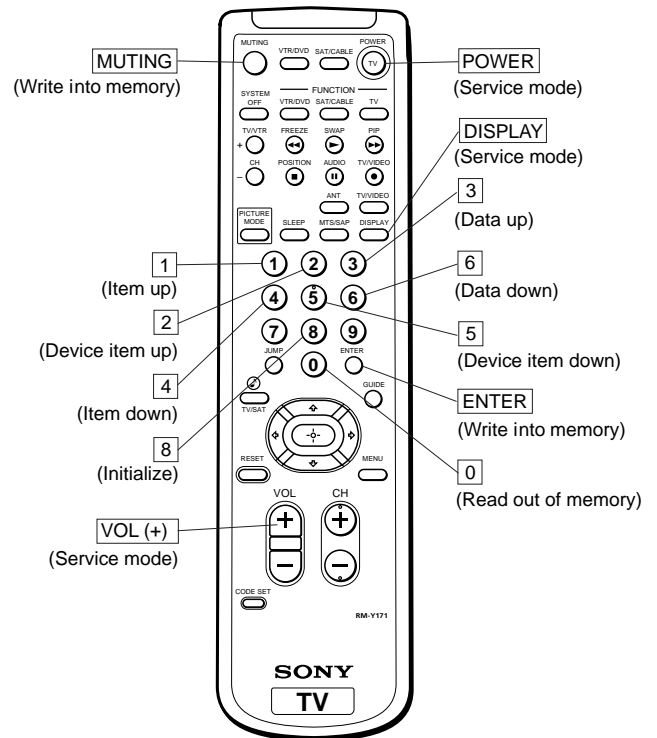
Factory original setting

10. Turn set off and on to exit.

#### Memory Write Confirmation Method

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

#### Adjust Buttons and Indicator



RM-Y171

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

## (4) Service Data

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

## Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**	Comments
						All Models	
<b>VP CXA2131S</b> <i>continued</i>							
60	AFC	AFC Loop Gain	0-3	Fix	0	0	
61	FIFR	Field Frequency	0-3	Fix	3	3	
62	REFP	REFP	0,1	Fix	0	0	
63	VBSW	VBW	0-3	Fix	0	0	
64	BMOF	Blk Off	0,1	Fix	0	0	
65	AGN2	Aging 2	0,1	Fix	0	0	
<b>AP B43868</b>							
66	BBLP	BBE Low Pass	0-15	Fix	0	0	
67	BBHP	BBE High Pass	0-15	Fix	0	0	
68	SVOL	Sub Volume	0-15	Fix	0	0	
69	SBAL	Sub Balance	0-15	Fix	7	7	
70	SBAS	Sub Bass	0-15	Fix	7	7	
71	STRE	Sub Treble	0-15	Fix	7	7	
<b>AP TDA7467</b>							
72	SPCA	SRS/Space Attenuation	0-63	Fix	0	0	
73	CENA	SRS/Center Attenuation	0-63	Fix	0	0	
74	INPA	Input Attenuation	0-127	Fix	3	0	
<b>3D UPD64081</b>							
75	HHDS	HH Off	0-3	Fix	0	1	
76	COU	Gain 1/BPF On	0-3	Fix	0	3	
77	YAPS	V Comp/Y Eaking On	0-3	Fix	0	3	
78	NSDS	Adaptive	0-3	Fix	1	0	
79	MSS	Adaptive	0-3	Fix	3	0	
80	DYC	Hi Impedence	0-3	Fix	1	2	
81	EXAD	Ext Ad Selected	0,1	Fix	0	1	
82	PECS	Standard	0-3	Fix	0	0	
83	EXCS	Use CSI Just In Case	0-3	Fix	1	1	
84	CPP	VTB = 1.25VPP	0-3	Fix	2	0	
85	HDP	H Phase +/- 0 $\mu$ sec	0-7	Fix	4	3	
86	CDL	Y/C Delay +/- 0 $\mu$ sec	0-7	Fix	1	4	
87	DYCO	Y Moving Coring	0-15	Fix	1	2	
88	DYGA	Y Moving Gain	0-15	Fix	12	10	
89	DCCO	C Moving Coring	0-15	Fix	2	2	
90	DCGA	C Moving Gain	0-15	Fix	12	9	
91	YNRK	Effect Small	0,1	Fix	0	1	
92	YNRI	Effect Small	0,1	Fix	0	0	
93	YNRL	Noise Limit	0-3	Fix	2	1	
94	CNRK	Effect Small	0,1	Fix	1	1	
95	CNRI	Effect Small	0,1	Fix	0	0	
96	CNRL	CNR Limit	0-3	Fix	1	1	
97	ID10	ID 1 Through	0,1	Fix	1	0	
98	ID1W	4:03	0,1	Fix	0	0	
99	ID1N	Normal	0,1	Fix	0	0	
100	CLK	Low Fix	0,1	Fix	1	1	
101	ST1S	Monitor Out	0-3	Fix	2	0	
102	ST0S	Monitor Out	0-3	Fix	1	1	
103	WSC	Coring	0-3	Fix	0	1	
104	VTRH	H Non Standard DET	0-3	Fix	1	1	
105	VTRR	H Non Standard DET	0-3	Fix	0	1	
106	LDSR	Frame	0-3	Fix	1	2	
107	PWRE	PWRE	0,1	Fix	0	0	
108	PDRE	PDRE	0-7	Fix	5	4	
109	PBRE	PBRE	0-15	Fix	6	8	
110	VAPG	V Apacon Gain	0-7	Fix	2	3	
111	VAPI	V Apacon	0-31	Fix	8	10	
112	TEST	Test	0,1	Fix	1	0	
113	YPFT	Y Peaking	0-3	Fix	2	3	

## Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**	Comments
						All Models	
<b>3D UPD64081</b> <i>continued</i>							
114	YFPG	Y Peaking Gain	0-15	Fix	10	10	
115	V1PS	Line Comb Dot H	0-3	Fix	0	2	
116	VEGS	Line Comb Dot V	0-3	Fix	3	2	
117	CC3N	C Width	0,1	Fix	1	0	
118	C0HS	C Delay On	0,1	Fix	0	0	
119	CLPH	Y-Ad Clamp Test	0,1	Fix	1	0	
120	SEL2	DC Sensitivity Small	0,1	Fix	0	0	
121	SEL1	DY Sensitivity Small	0,1	Fix	1	0	
122	YHCO	Coring Small	0-3	Fix	1	1	
123	YPCO	Coring On	0,1	Fix	0	0	
124	ED20	Standard	0,1	Fix	0	1	
125	OVST	Standard	0,1	Fix	0	0	
126	CSHD	Standard	0,1	Fix	1	0	
127	KCTT	Standard	0-3	Fix	0	0	
128	SHT1	Standard	0,1	Fix	1	0	
129	SHT0	Standard	0,1	Fix	0	0	
130	VCT	Standard	0,1	Fix	0	0	
131	OTT	Standard	0,1	Fix	1	0	
132	CGAT	Standard	0,1	Fix	0	0	
133	CGGT	Standard	0,1	Fix	0	0	
134	CGFT	Standard	0,1	Fix	0	0	
135	CGT	Standard	0,1	Fix	0	0	
136	HPLL	H PLL Fast	0,1	Fix	0	1	
137	BPLL	Burst PLL Fast	0,1	Fix	0	0	
138	FSCF	Burst Gain Large	0,1	Fix	0	0	
139	PLLF	PLL Loop Gain Large	0,1	Fix	0	1	
140	KILR	Killer Level	0-15	Fix	0	3	
141	HSSL	H Slice Level	0-15	Fix	9	12	
142	VSSL	V Slice Level	0-15	Fix	3	8	
143	BGPS	Start Burst Gate	0-15	Fix	12	4	
144	BGPW	Width of Burst Gate	0-15	Fix	8	10	
145	ADCL	ADC Clock	0-3	Fix	1	3	
146	ADPD	ADC Power Down On	0,1	Fix	0	1	
147	ADLT	Standard	0,1	Fix	0	0	
148	NRZO	Check On	0,1	Fix	A	0	
149	FSCO	Level Check On	0,1	Fix	0	0	
150	VTVH	Normal	0-3	Fix	2	0	
151	TST2	Standard	0,1	Fix	1	0	
152	HMEM	Use	0,1	Fix	1	1	
153	HINV	Polarity of Reset	0,1	Fix	1	1	
154	HTMG	Field Memory Address	0,1	Fix	0	0	
155	HCP	HH Carrier Phase	0-15	Fix	0	7	
156	TST3	Test	0,1	Fix	0	0	
157	HHMG	HH Moving Gain	0,1	Fix	1	1	
158	HHFG	HH	0-3	Fix	2	0	
159	HHTG	Max HH	0-15	Fix	7	5	
<b>PI TA1226N</b>							
160	SHPR	Picture Improvement Sharpness	0-127	Fix	89	59	
161	BLAD	Picture Improvement Black Area Detect	0-3	Fix	0	0	
162	SRTS	Picture Improvement SRT Start Pos	0-3	Fix	3	3	
163	YNR	Picture Improvement YNR	0,1	Fix	1	1	
164	GIRE	Picture Improvement Gamma Start Point	0-3	Fix	3	3	
165	DAC1	Picture Improvement DAC1	0,1	Fix	0	0	
166	DAC2	Picture Improvement DAC2	0,1	Fix	0	0	
167	GCUR	Picture Improvement Gamma Curve	0,1	Fix	0	0	
168	BLKC	Picture Improvement Black Compensation	0,1	Fix	1	1	
169	TEST	Picture Improvement Test	0-3	Fix	3	3	
170	RS	Picture Improvement RS	0-7	Fix	0	0	
171	RTC	Picture Improvement RTC	0-7	Fix	4	4	

## Service Data (cont.)

No.	Register Name	Description	Data Range	Adj/Fix	Initial Data	Average Data**		Comments
						All Models		
<b>DC CXA2060</b>								
172	DCSF	Dynamic Convergence DC Shift	0-63	Fix	40	40		
173	UYBW	Dynamic Convergence Upper YBOW	0-63	Fix	31	31		
174	LYBW	Dynamic Convergence Lower YBOW	0-63	Fix	31	31		
175	HAMP	Dynamic Convergence H. Amp	0-63	Fix	15	15		
176	UCBW	Dynamic Convergence U. CBOW	0-63	Fix	21	21		
177	LCBW	Dynamic Convergence L. CBOW	0-63	Fix	14	14		
178	UMBH	Dynamic Convergence U. MBH	0-15	Fix	15	15		
179	LMBH	Dynamic Convergence L. MBH	0-15	Fix	15	15		
180	PWM	Dynamic Convergence PWM	0-63	Fix	63	63		
181	HTLT	Dynamic Convergence H. Tilt	0-63	Fix	1	1		
182	UTLT	Dynamic Convergence U. Tilt	0-63	Fix	1	1		
183	LTLT	Dynamic Convergence L. Tilt	0-63	Fix	1	1		
184	HDTY	Dynamic Convergence H. Duty	0-3	Fix	3	3		
185	TOFF	Dynamic Convergence Tilt Off	0,1	Fix	1	1		
186	DAC0	Dynamic Convergence DAC0	0-255	Fix	192	192		
187	DAC1	Dynamic Convergence DAC1	0-255	Fix	7	7		
<b>SP SDA9288</b>								
188	PYSD	P in P (Siemens) YS Delay	0-15	Fix	2	2		
189	PIPH	P in P (Siemens) H-Position	0-127	Fix	78	78		
190	PIPV	P in P (Siemens) V-Position	0-63	Fix	18	18		
191	PYDL	P in P (Siemens) Y-Delay	0-7	Fix	0	0		
192	PIFX	P in P Inset Fixed	0-3	Fix	2	2		
193	PPFX	P in P Parent Fixed	0-3	Fix	2	2		
194	PCLI	P in P CLISW	0,1	Fix	1	1		
195	PAMS	P in P AMSEC	0,1	Fix	0	0		
196	PHDL	P in P (Siemens) H-Pulse Delay (Inset)	0-15	Fix	15	15		
197	PMVD	P in P (Siemens) V-Pulse Delay (Main)	0-31	Fix	11	11		
198	PIVD	P in P (Siemens) V-Pulse Delay (Inset)	0-31	Fix	18	18		
199	PCON	P in P (Siemens) Contrast Level (Inset)	0-15	Fix	3	7		
200	FRMY	P in P (Siemens) Frame Y	0-15	Fix	10	10		
201	CHRI	P in P (Siemens) Chroma Input Polarity	0,1	Fix	0	0		
202	CHRO	P in P (Siemens) Chroma Output Polarity	0,1	Fix	0	0		
203	MAT0	P in P (Siemens) MAT0	0,1	Fix	1	1		
204	MAT1	P in P (Siemens) MAT1	0,1	Fix	1	1		
205	MAT2	P in P (Siemens) MAT2	0,1	Fix	0	0		
206	IPEB	P in P (Siemens) Pedastel R-Y	0-15	Fix	0	0		
207	IPEB	P in P (Siemens) Pedastel B-Y	0-15	Fix	0	0		
208	PCPS	P in P (Siemens) CLP & HSIDEL	0,1	Fix	0	0		
209	PCPF	P in P (Siemens) CLP Cycles	0,1	Fix	0	0		
210	PSEL	P in P (Siemens) SELDOWN	0,1	Fix	1	1		
211	PPLL	P in P (Siemens) PLL Filter	0-3	Fix	0	0		
212	PVNR	P in P (Siemens) VSP Pulse Noise Red.	0,1	Fix	0	0		
<b>IPPX IC CXA2019</b>								
213	IDPX		0,1	Fix	0	0		
214	ICOL	Color	0-63	Fix	39	38		
215	ISHP	Sharpness	0-15	Fix	10	10		
216	ISCO	Sub Chroma Decoder Sub Cont	0-15	Fix	7	7		
217	ISCL	Sub Chroma Decoder Sub Color	0-15	Fix	8	12		
218	ISHU	Sub Chroma Decoder Sub Hue	0-15	Fix	7	7		
219	ITOT	Sub Chroma Decoder Tot On	0,1	Fix	0	0		
220	ITRP	Sub Chroma Decoder Trap On	0,1	Fix	1	1		
221	IAFC	AFC	0-3	Fix	1	1		
222	ITRA	Sub Chroma Decoder CTRAPADJ	0-15	Fix	7	7		
223	ICD2	Sub Chroma Decoder CD Mode2	0,1	Fix	1	1		
224	ISF0	SHF-F0	0,1	Fix	1	1		
225	IYDR	Sub Chroma Decoder Y Drive	0-31	Fix	24	24		
226	IVPE	Sub Chroma Decoder V Ped	0-15	Fix	0	0		
227	IUPE	Sub Chroma Decoder U Ped	0-15	Fix	0	0		
228	IRVP	Sub Chroma Decoder RV Ped	0-15	Fix	7	4		
229	IRUP	Sub Chroma Decoder RU Ped	0-15	Fix	7	4		

**Service Data (cont.)**

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

**(5) Feature ID Map**

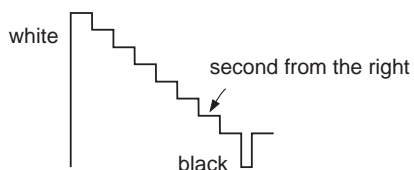
	ID 0	ID 1	ID 2	ID 3	ID 4	ID 5	ID 6	ID 7
KV-27FV15	89	55	175	96	203	181	6	0
KV-27FV15 CND	89	55	175	112	203	181	6	0
KV-29FV10	25	55	175	64	251	181	6	0
KV-29FV15, 15C	25	55	175	64	251	181	6	0
KV-29FV15K	137	55	175	64	219	181	6	0

SERVICE IDO 25

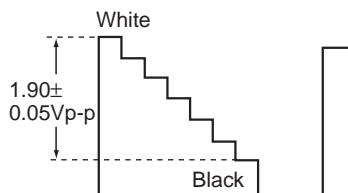
Note: Items 1-263 show adjustment order

**SUB BRIGHT ADJUSTMENT (SBRT)**

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

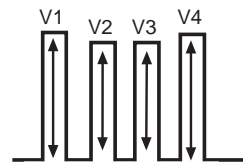
**SUB CONTRAST ADJUSTMENT (SCON)**

1. Input a 75% color-bar signal.
2. Set to VIDEO mode = STANDARD, COLOR = minimum, PICTURE = 100%.  
GON = 0 (OFF), BON = 0 (OFF).
3. Set to Service adjustment Mode and Connect an oscilloscope pin ① of CN351 on A Board.
4. Select SCON with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the  $1.90 \pm 0.05V_{p-p}$  of level.
6. Write into the memory by **[MUTING]** then **[ENTER]**.

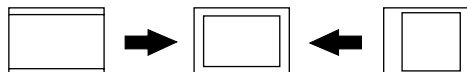
**SUB HUE, SUB COLOR ADJUSTMENT (SHUE, SCOL)**

1. Input a color bar signal.
2. Set to Service Adjustment Mode and set to VIDEO mode = STANDARD  
PICTURE = 100%  
COLOR = 50%  
HUE = 50%.
3. Connect an oscilloscope to CN351 Pin ③ of A Board.
4. Select SHUE and SCOL with **[1]** and **[4]**.
5. Adjust with **[3]** and **[6]** for the  $V1 = V4$  (SCOL) and  $V2 = V3$  (SHUE).

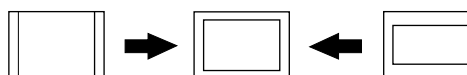
6. Write SHUE data 1 step down and SCOL data 2 steps up.
7. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

**H. SIZE ADJUSTMENT (HSIZ)**

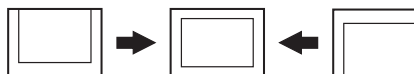
1. Input a monoscope signal.
2. Set to Service Adjustment Mode.
3. Select HSIZ with **[1]** and **[4]**.
4. Adjust with **[3]** and **[6]** for the best Horizontal size.
5. Write into the memory by pressing **[MUTING]** then **[ENTER]**.

**H. SIZE****V. SIZE ADJUSTMENT (VSIZ)**

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

**V. SIZE****V. POSITION ADJUSTMENT (VPOS)**

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

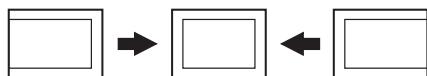
**V. POSITION**



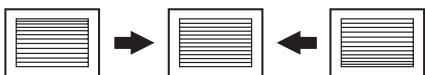
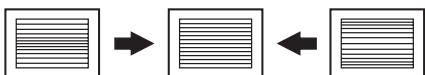
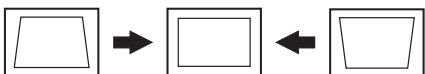
**H. POSITION ADJUSTMENT (HPOS)**

Perform this adjustment after H. FREQUENCY ADJ. (HFRE).

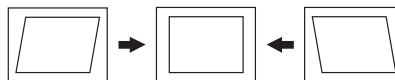
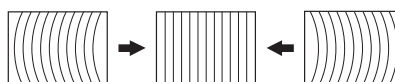
1. Input a monoscope signal.
2. Set the Service adjustment Mode.
3. Select HPOS with [1] and [4].
4. Adjust with [3] and [6] for the best horizontal center.
5. Write into the memory by pressing [MUTING] then [ENTER].

**H. POSITION****V LINEARITY (VLIN), V CORRECTION (VSCO), PIN AMP (PAMP) AND TRAPEZIUM (TRAP) ADJUSTMENTS**

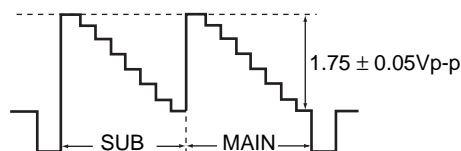
1. Input a cross-hatch signal.
2. Set to Service adjustment Mode.
3. Select VLIN, VSCO, PAMP, and TRAP with [1] and [4].
4. Adjust with [3] and [6] for the best picture.
5. Write the memory by Pressing [MUTING] then [ENTER].

**V LINEARITY (VLIN)****VS CORRECTION (VSCO)****PIN AMP (PAMP)****TRAPEZIUM (TRAP)****V ANGLE (VANG), V BOW (VBOW), UPPER PIN (UCPN) AND LOW PIN (LCPN) ADJUSTMENTS**

1. Input a cross hatch signal.
2. Set to Service Adjustment Mode.
3. Select VVANG, VBOW, UCPN, and LCPN with [1] and [4].
4. Adjust with [3] and [6] for the best picture.
5. Write the memory by Pressing [MUTING] then [ENTER].

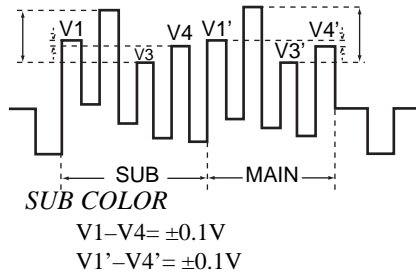
**V ANGLE (VANG)****V BOW (VBOW)****UPPER PIN (UCPN)****LOW PIN (LCPN)****P&P SUB CONTRAST ADJUSTMENT (MSCO, ISCO)**

1. Input a 75% color-bar signal.
2. Set: VIDEO mode = STANDARD  
PICTURE = 100%  
COLOR = minimum  
GON = 0 (OFF), BON = 0(OFF),  
TRINITONE = medium.
3. Set P&P mode.
4. Connect an oscilloscope to CN1103 pin ④ of A board and GND.
5. Set to Service Mode and select MSCO (main window) and ISCO (sub window) with [1] and [4].
6. Adjust with [3] and [6] for the  $1.75 \pm 0.05V_{p-p}$  of level.
7. Write into the memory by pressing [MUTING] then [ENTER].

**P&P SUB COLOR, SUB HUE ADJUSTMENT (MCOL, MSHU, ICOL, ISHU)**

1. Input a 75% Color-bar signal.
2. Set: VIDEO mode = STANDARD  
PICTURE = 100%  
COLOR = 50%  
HUE = 50%,  
TRITONE = medium.
3. Set P&P mode.
4. Connect an oscilloscope to CN1103 pin ⑤ of A board and GND.
5. Set to Service Mode and select MCOL, MSHU (main window) and ICOL, ISHU (sub window) with [1] and [4].

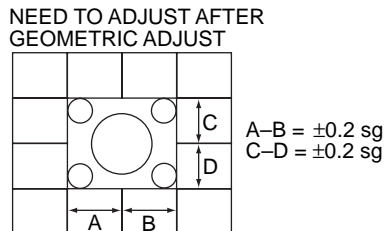
- Adjust with [3] and [6].
- After adjust write MSHU and ISHU data 1 step down.
- Write into the memory by pressing [MUTING] then [ENTER].



**SUB HUE**  
 $V3-V2 = \pm 0.1V \rightarrow 1 \text{ STEP DOWN}$   
 $V3'-V2' = \pm 0.1V \rightarrow 1 \text{ STEP DOWN}$

**P&P ACQUISITION ADJUSTMENT (MAHP, MAVP)**

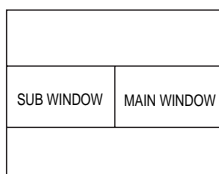
- Input a Monoscope signal.
- Set PICTURE = 100%.
- Set P&P mode and set CHANNEL INDEX mode.
- Set to Service Mode and select MAHP and MAVP with [1] and [4].
- Adjust with [3] and [6] for the best center (main window).
- Write the memory by pressing [MUTING] then [ENTER].



**P&P WHITE BALANCE ADJUSTMENT (IUPE, IVPE)**

- Input a 40 IRE white signal.
- Set to VIDEO mode = STANDARD.
- Set to P&P mode.
- Set to Service Mode and select IUPE IVPE (sub window) with [1] and [4].
- Adjust with [3] and [6] for white balance.
- Write into the memory by pressing [MUTING] then [ENTER].

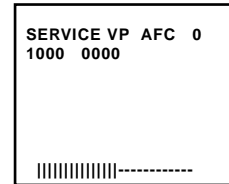
NEED TO ADJUST AFTER MAIN PICTURE (NOT P&P) W/B ADJUST



\*9300 degrees K +8 MPCD

**OSD POSITION ADJUSTMENT (DISP)**

- Input a color bar signal.
- Set to Service adjustment Mode.
- Select DISP with [1] and [4].
- Adjust with [3] and [6] for the bar center.
- Write into the memory by pressing [MUTING] then [ENTER].

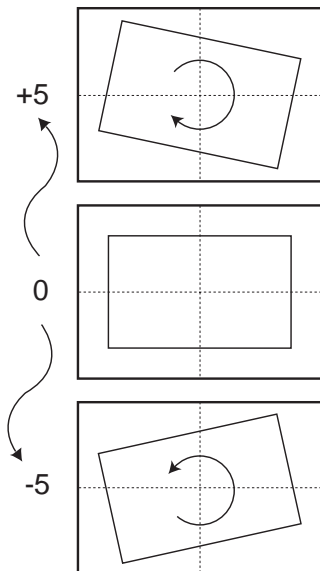


**ROTATION COIL ADJUSTMENT**

- Input a monoscope signal.
- Push Menu button on the Remote (RM-Y171).
- Select "Set Up" Mode.
- Select "Tilt Correction". Confirm that number (0) color changes to red.
- Push ↑ (+) on the Remote (RM-Y171). Confirm that number increases up to +5 and picture rotates clockwise.
- Push ↓ (-) on the Remote (RM-Y171). Confirm that number decreases up to -5 and picture rotates counterclockwise.
- Push ↑ (+) on the Remote (RM-Y171). Return to 0.

**SET-UP**

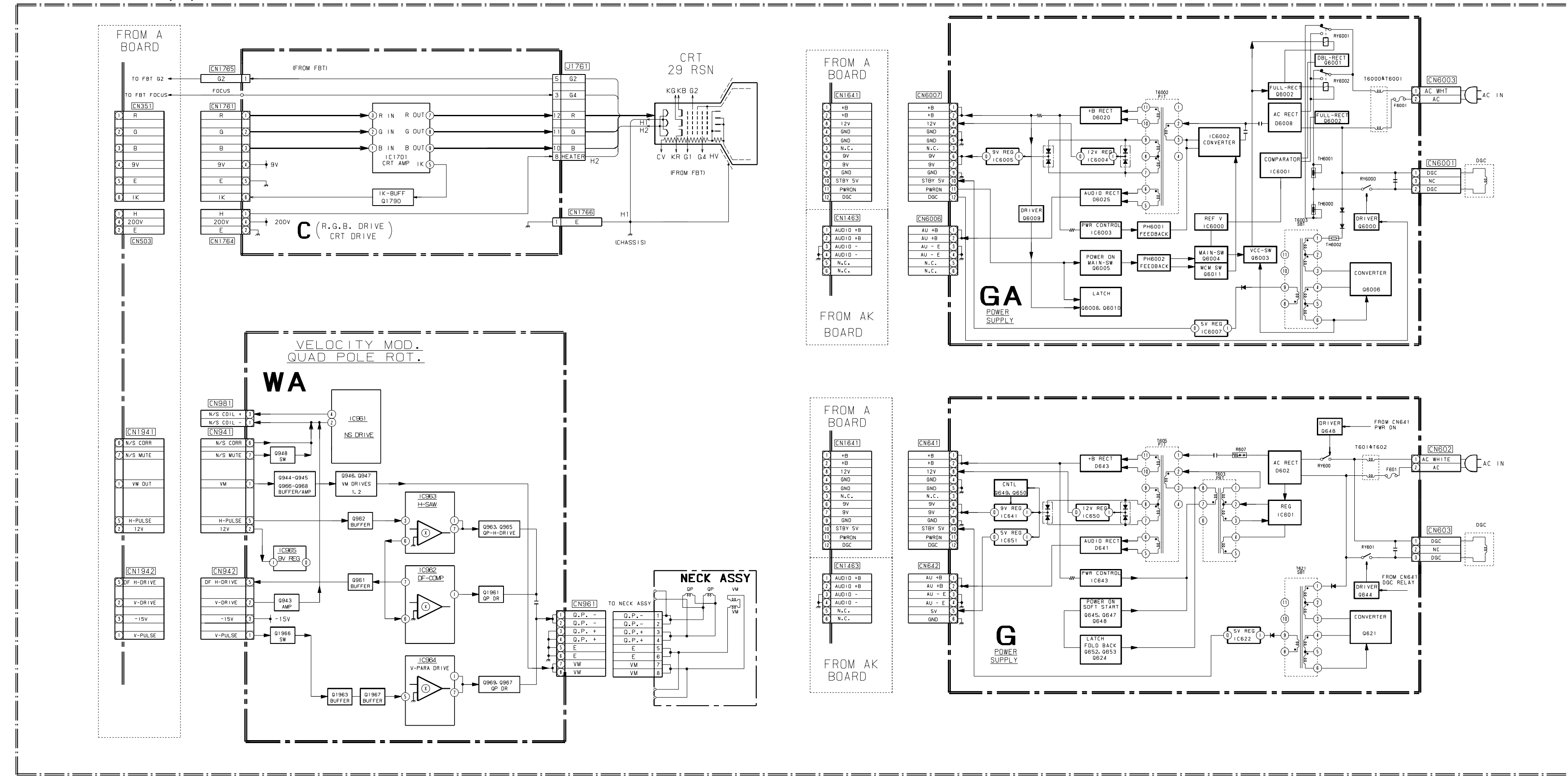
- Channel Set-up
- Favorite Channel
- Video Label
- Language: English
- Tilt Correction : 0
- Menu



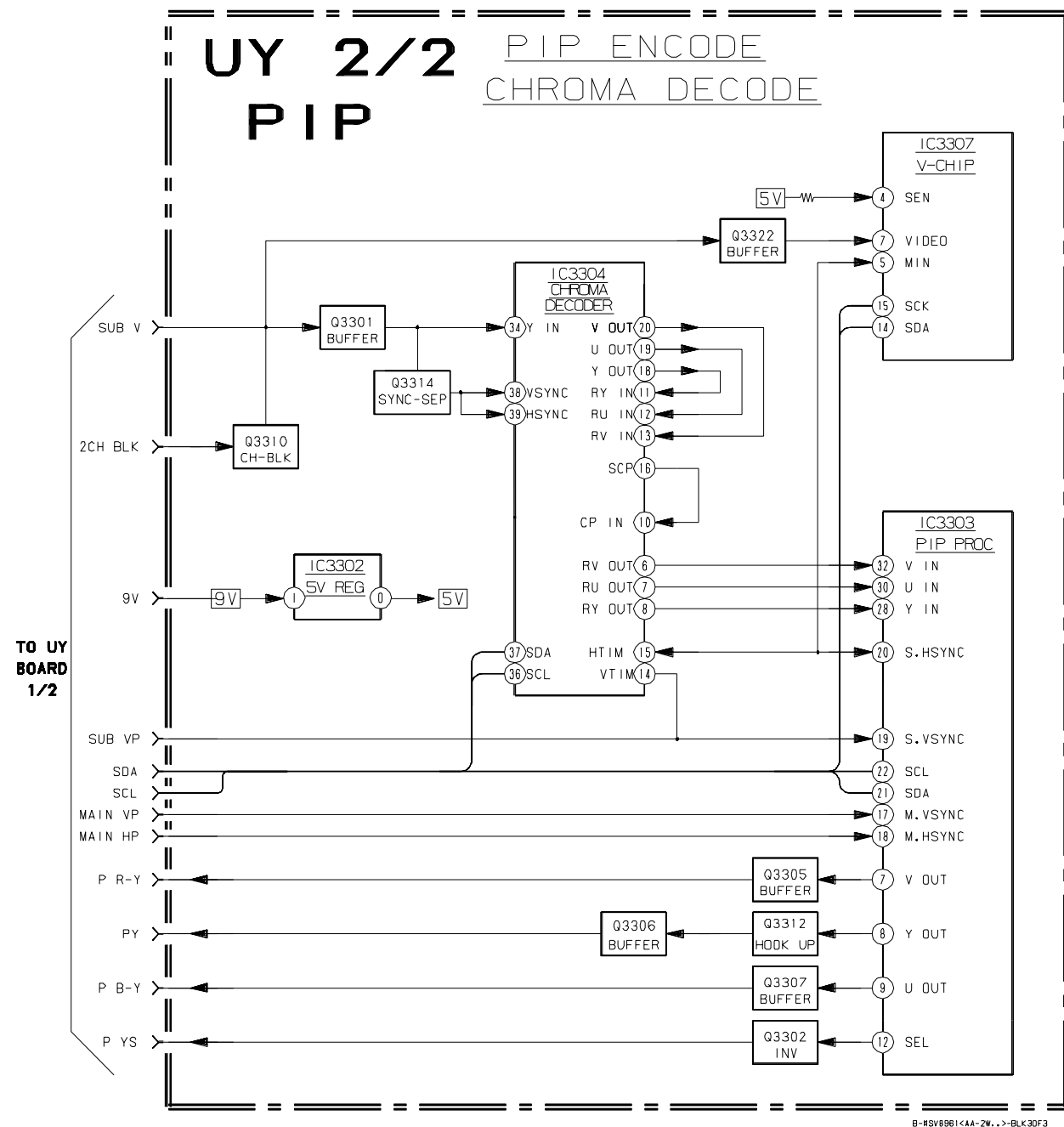
**\*\*CAUTION\*\***  
 Geom. adjustment condition must be 0.



6-2 BLOCK DIAGRAM (2/3)

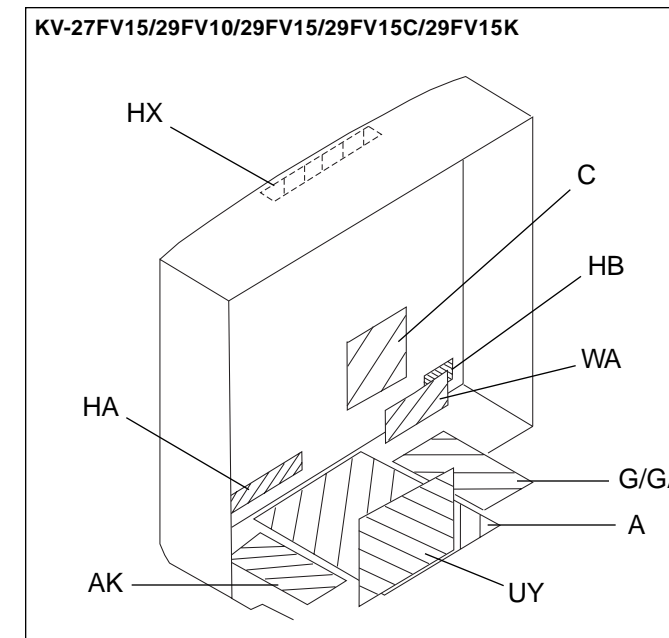


### 6-3 BLOCK DIAGRAM (3/3) (UY PIP BOARD - KV-29FV10 EXCLUDED)



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

### 6-4. CIRCUIT BOARDS LOCATION



### 6-5. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$  :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms.  
K = 1000, M = 1000k
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch : 5mm  
Rating electrical power :  $\frac{1}{4}\text{W}$

- $\frac{1}{4}\text{W}$  in resistance,  $\frac{1}{10}\text{W}$  and  $\frac{1}{8}\text{W}$  in chip resistance.
- $\square$  : nonflammable resistor.
- $\square$  : fusible resistor.
- $\Delta$  : internal component.
- $\square$  : panel designation and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by  $\blacksquare$  in this basic schematic diagram 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  $\blacksquare$ , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by  $\blacksquare$  and repeat the adjustment until the specified value is achieved. (Refer to R530 and R531 adjustment on Page 20.)
- When replacing the part in below table, be sure to perform the related adjustment.
- Readings are taken with a color-bar signal input.
- Readings are taken with a 10M digital multimeter.
- Voltages are DC with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.

Part replaced( $\blacksquare$ )	Adjustment( $\blacksquare$ )
IC355, IC501, D302, D519, D520, D521, C531, C532, Q301, R356, R359, R361, R387, R529, R530, R531, R532, R533, R550, T503 .....A BOARD IC643, R661 .....G BOARD (KV-27V15) IC6003, R6088 .....GA BOARD (KV-27V15 Excluded)	R530, R531

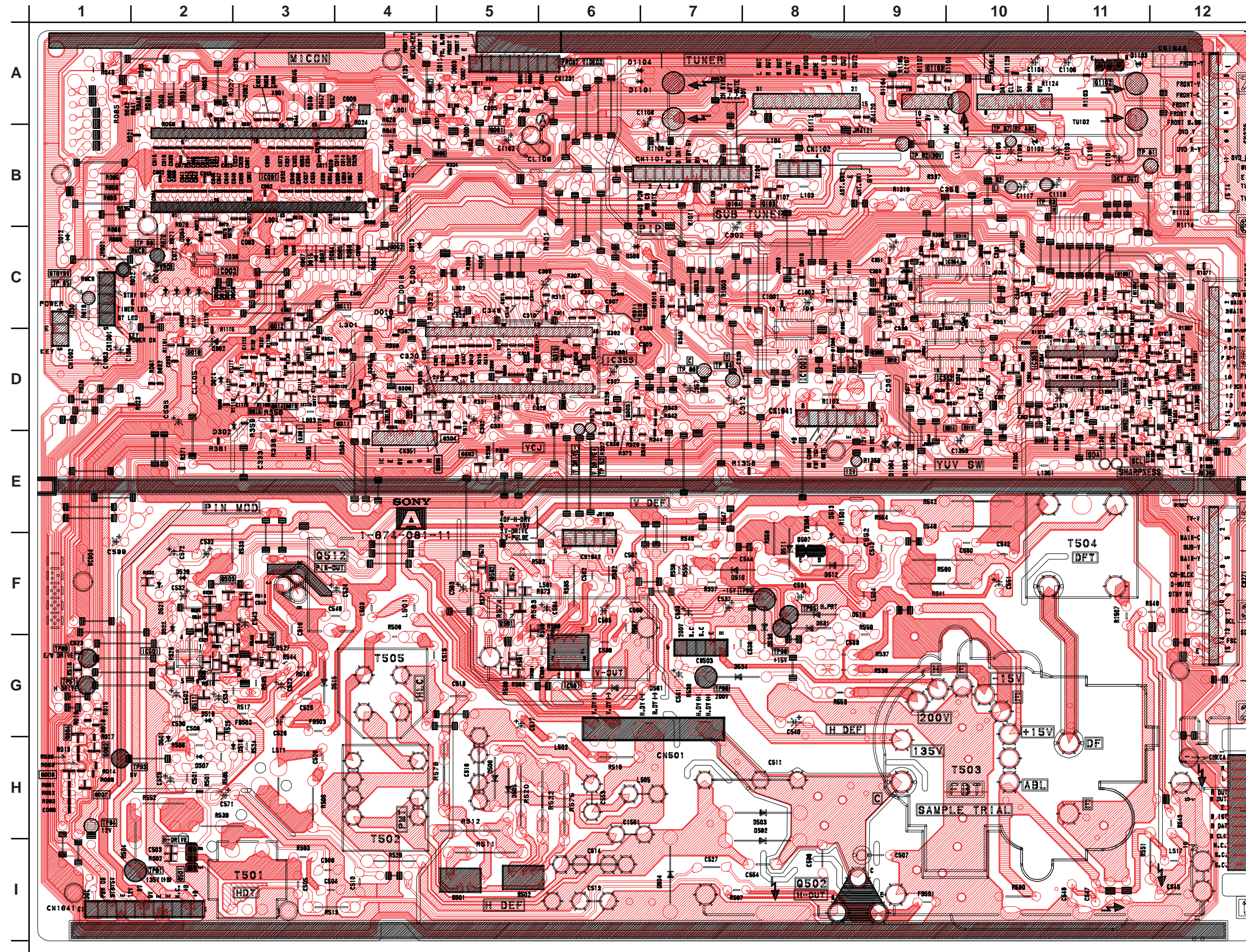
- All voltages are in V.
  - S : Measurement impossibility.
  - $\square$  : B+line.
  - $\square$  : B-line.  
(Actual measured value may be different).
  - $\square$  : signal path. (RF)
  - Circled numbers are waveform references.
- Reference information
- RESISTOR : RN METAL FILM  
: RC SOLID  
: FPRD NONFLAMMABLE CARBON  
: FUSE NONFLAMMABLE FUSIBLE  
: RW NONFLAMMABLE WIREWOUND  
: RS NONFLAMMABLE METAL OXIDE  
: RB NONFLAMMABLE CEMENT  
:  $\text{X}$  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

The symbol  $\square$  display is on the component side.  
The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.  
The symbol  $\square$  indicates a fast operating fuse.  
Replace only with fuse of same rating as marked.

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

**A**

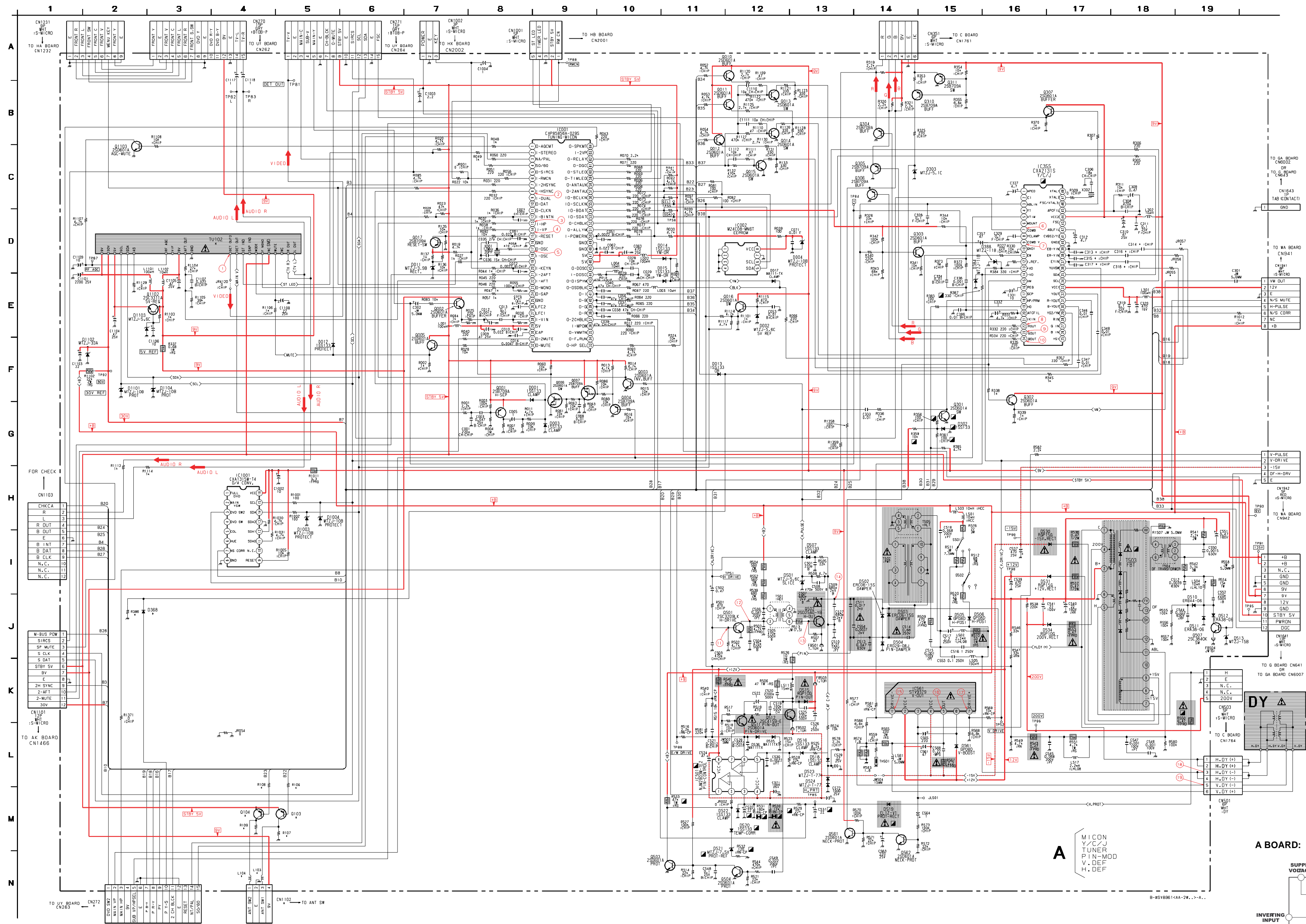
[ MICON, Y/C/J, TUNER, PIN-MOD, V-DEF, H-DEF ]



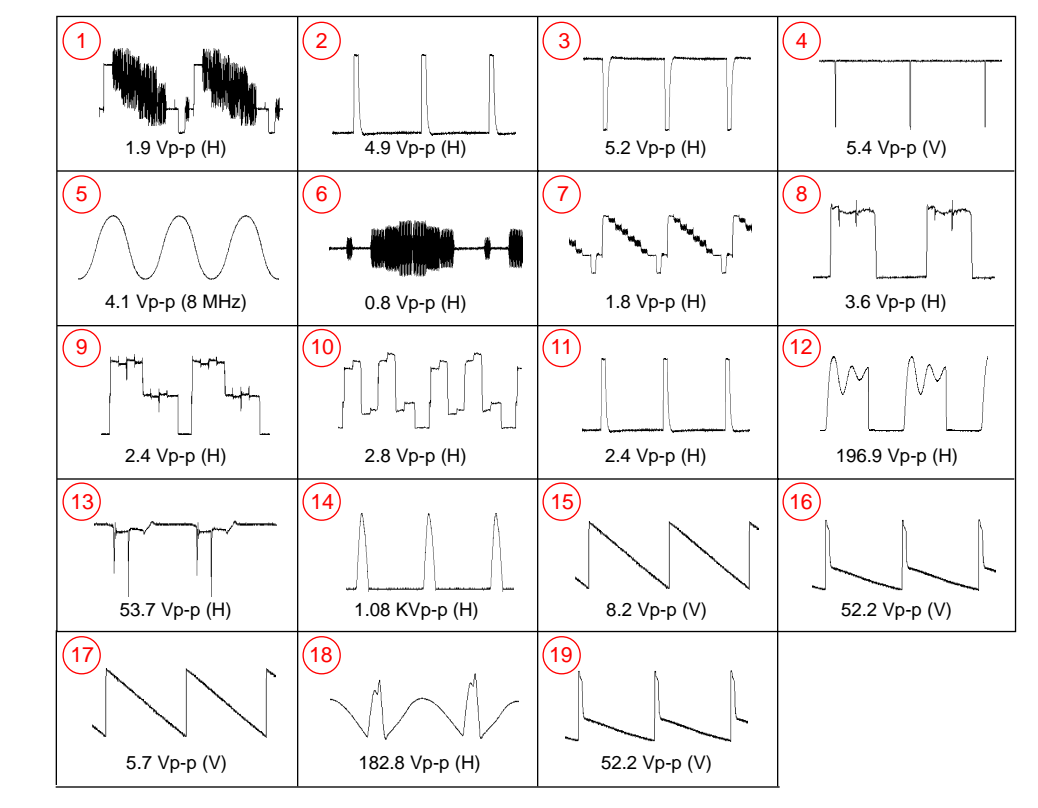
**A BOARD LOCATOR LIST**

DIODE	
D001	A-5
D002	D-2
D003	A-5
D004	C-2
D011	A-5
D012	C-1
D013	C-5
D014	D-3
D015	C-3
D017	D-3
D302	E-3
D303	D-4
D368	C-7
D384	F-6
D388	C-6
D501	H-2
D502	I-8
D503	I-8
D504	I-7
D505	I-6
D506	H-5
D507	H-2
D510	F-8
D511	F-9
D512	F-9
D513	F-9
D515	G-4
D516	H-2
D518	H-3
D519	G-9
D520	F-2
D521	F-2
D522	G-2
D530	G-8
D531	G-9
D534	G-8
D535	G-3
D536	G-3
D561	H-7
D1003	E-10
D1004	E-10
D1101	A-7
D1102	B-11
D1103	A-12
D1104	A-7
IC	
IC001	B-2
IC002	C-2
IC355	D-5
IC501	G-2
IC561	G-6
IC1001	D-8
TRANSISTOR	
Q001	A-5
Q002	C-4
Q003	H-1
Q004	H-1
Q005	B-5
Q006	H-1
Q007	I-1
Q010	D-3
Q011	D-3
Q012	D-3
Q013	D-3
Q014	D-3
Q015	D-3
Q016	D-2
Q017	A-5
Q103	B-8
Q104	B-8
Q301	E-3
Q302	E-5
Q303	E-7
Q304	E-5
Q305	E-5
Q306	E-5
Q307	C-6
Q310	E-4
Q311	E-4
Q315	D-6
Q501	I-2
Q502	J-9
Q503	G-3
Q504	G-3
Q507	F-9
Q511	H-2
Q512	F-3
Q561	G-6
Q562	F-5
Q1102	A-12
Q1103	A-10

A BOARD SCHEMATIC DIAGRAM



A BOARD WAVEFORMS



A BOARD TRANSISTOR VOLTAGE LIST

Table with 5 columns: Transistor ID, B, C, E voltages. Lists various transistors like Q001, Q002, etc.

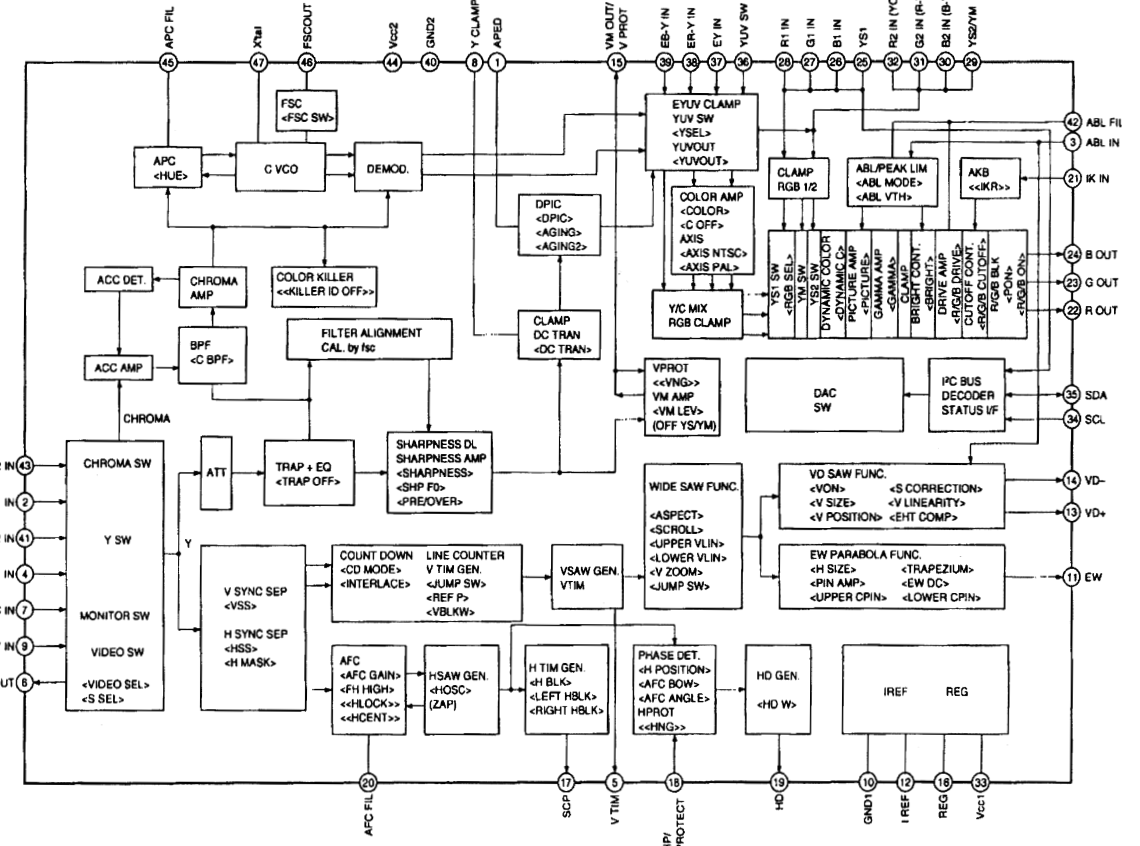
A BOARD IC VOLTAGE LIST

Table with 4 columns: IC number, pin, volt, and IC number. Lists voltage levels for various ICs like IC001, IC002, etc.

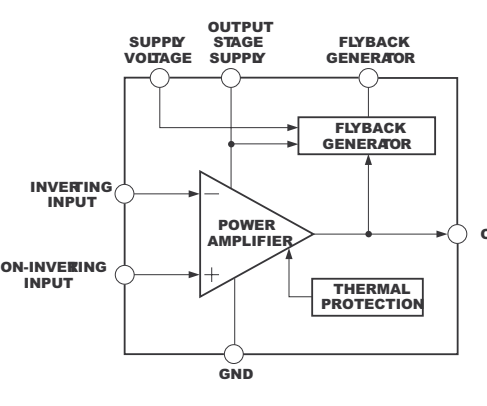
A BOARD (\*) MARK LIST

Table with 5 columns: REF. NO., LOCATION, and three KV29FV series part numbers. Lists specific component markings.

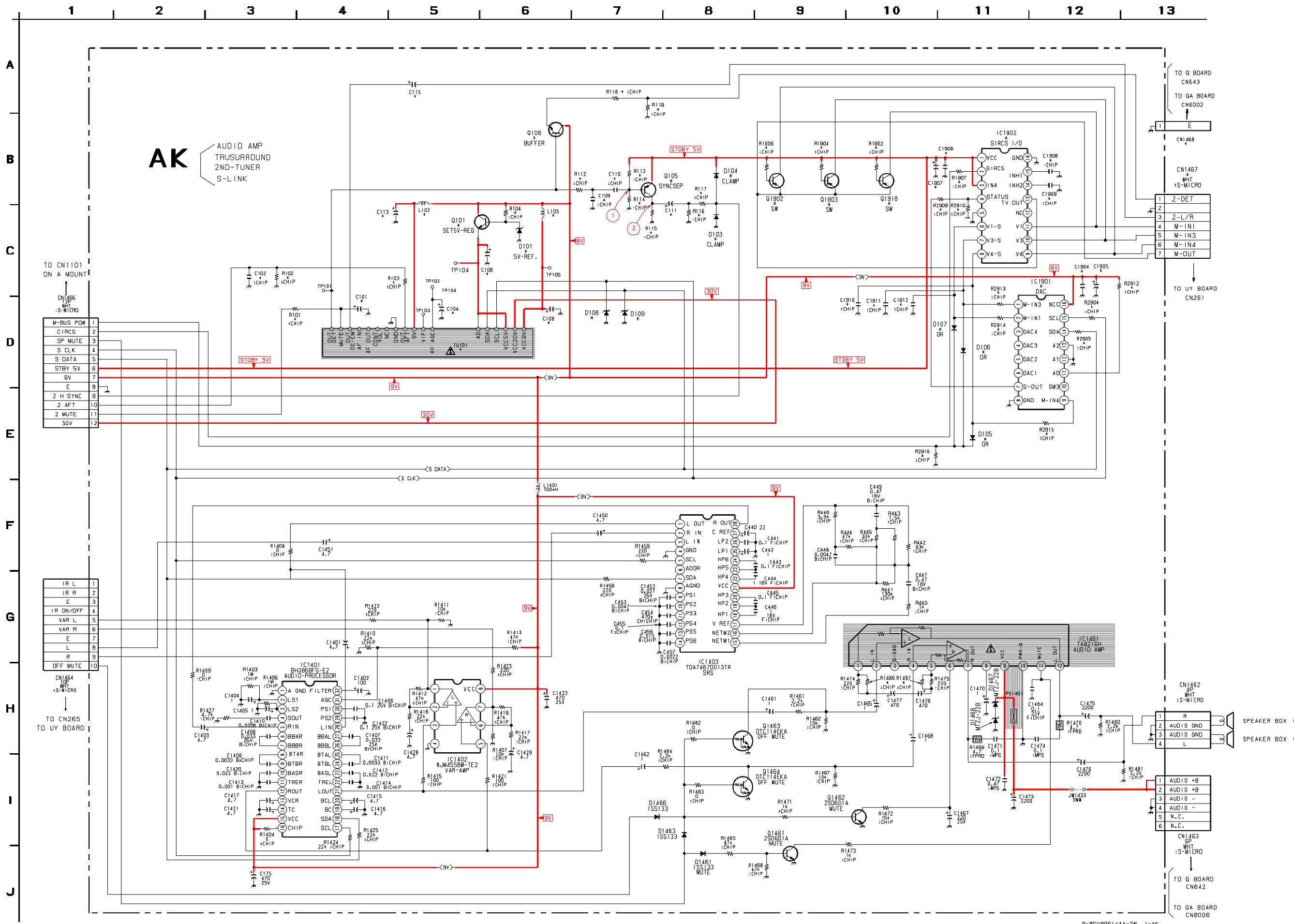
A BOARD: IC 355 CXA2131S



A BOARD: IC 561 STV9379



AK BOARD SCHEMATIC DIAGRAM



TO CN101	1
TO GND	2
TO GND	3
TO GND	4
TO GND	5
TO GND	6
TO GND	7
TO GND	8
TO GND	9
TO GND	10
TO GND	11
TO GND	12
TO GND	13
TO GND	14
TO GND	15
TO GND	16
TO GND	17
TO GND	18
TO GND	19
TO GND	20
TO GND	21
TO GND	22
TO GND	23
TO GND	24
TO GND	25
TO GND	26
TO GND	27
TO GND	28
TO GND	29
TO GND	30
TO GND	31
TO GND	32

AK BOARD LOCATOR LIST

DIODE	PHOTOSENSOR	TRANSISTOR
D101	A-2	PS1461
D103	A-6	
D104	A-9	Q101
D105	B-8	Q105
D106	B-8	Q106
D107	C-8	Q1481
D108	A-1	Q1462
D109	B-1	Q1463
D1461	B-3	Q1464
D1463	B-2	Q1902
D1466	B-2	Q1903
D1467	C-4	Q1918
D1468	C-4	
C		
IC1401	D-6	
IC1402	B-8	
IC1403	E-8	
IC1461	D-3	
IC1901	B-8	
IC1902	C-8	

AK BOARD (\*) MARK LIST

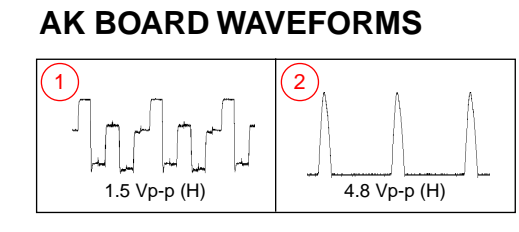
REF. NO.	LOCATION	KV-27FV15	KV-29FV15	KV-29FV10	KV-29FV15K
C101	D-4	1			
C102	C-3	0.0022	0.0022		0.0022
C104	D-5	10	10		10
C106	C-6	47	47		47
C108	D-8	1000	1000		1000
C109	B-7	220	220		220
C110	B-7	0.047	0.047		0.047
C111	C-7	1	1		1
C113	C-5	220	220		220
C115	A-5	1	1		1
C1904	C-12	0.01	0.01		0.01
C1905	C-12	10	10		10
C1906	B-11	0.01	0.01		0.01
C1907	B-10	10	10		10
C1908	B-12	0.001	0.001		0.001
C1909	B-12	0.001	0.001		0.001
C1910	D-10	0.001	0.001		0.001
C1911	D-10	0.001	0.001		0.001
C1912	D-10	0.001	0.001		0.001
CN1467	C-13	7P	7P		7P
CN1468	B-13	7AB	7AB		7AB
D101	C-6	RDS.6ESB2	RDS.6ESB2		RDS.6ESB2
D103	C-8	1SS1337-77	1SS1337-77		1SS1337-77
D104	B-8	1SS1337-77	1SS1337-77		1SS1337-77
D105	E-11	1SS1337-77	1SS1337-77		1SS1337-77
D106	D-11	1SS1337-77	1SS1337-77		1SS1337-77
D107	D-11	1SS1337-77	1SS1337-77		1SS1337-77
D108	D-7	RD10ESB2	RD10ESB2		RD10ESB2
D109	D-7	RD10ESB2	RD10ESB2		RD10ESB2
IC1901	D-12	CXA1315M	CXA1315M		CXA1315M
IC1902	B-11	NJM2145M	NJM2145M		NJM2145M
L102	C-5	100H	100H		100H
Q105	C-6	100H	100H		100H
Q101	C-6	2SC2785	2SC2785		2SC2785
Q105	B-7	2SA1162	2SA1162		2SA1162
Q106	B-6	2SD601A	2SD601A		2SD601A
Q1902	B-9	2SA1162	2SA1162		2SA1162
Q1903	B-9	2SA1162	2SA1162		2SA1162
Q1918	B-10	2SA1162	2SA1162		2SA1162
R101	D-4	4.7K	4.7K		4.7K
R102	C-3	27K	27K		27K
R103	C-5	39K	39K		39K
R104	C-6	1K	1K		1K
R112	B-7	2.2K	2.2K		2.2K
R113	B-7	100K	100K		100K
R114	B-7	1M	1M		1M
R115	C-7	10K	10K		10K
R116	C-8	10K	10K		10K
R117	C-8	4.7K	4.7K		4.7K
R118	A-7	470	470		470
R119	A-7	560	560		560
R1466	H-10	220	220		220
R1487	H-10	220	220		220
R1902	B-10	10K	10K		10K
R1904	B-9	10K	10K		10K
R1906	B-9	10K	10K		10K
R1907	B-11	220	220		220
R2904	D-12	220	220		220
R2905	D-12	220	220		220
R2909	C-11	10K	10K		10K
R2910	C-11	10K	10K		10K
R2912	C-12	4.7K	4.7K		4.7K
R2913	C-11	10K	10K		10K
R2914	D-11	10K	10K		10K
R2915	E-12	10K	10K		10K
R2916	E-10	10K	10K		10K
TU101	D-5	S-580-430-00	S-580-430-00		S-580-430-00

AK BOARD IC VOLTAGE LIST

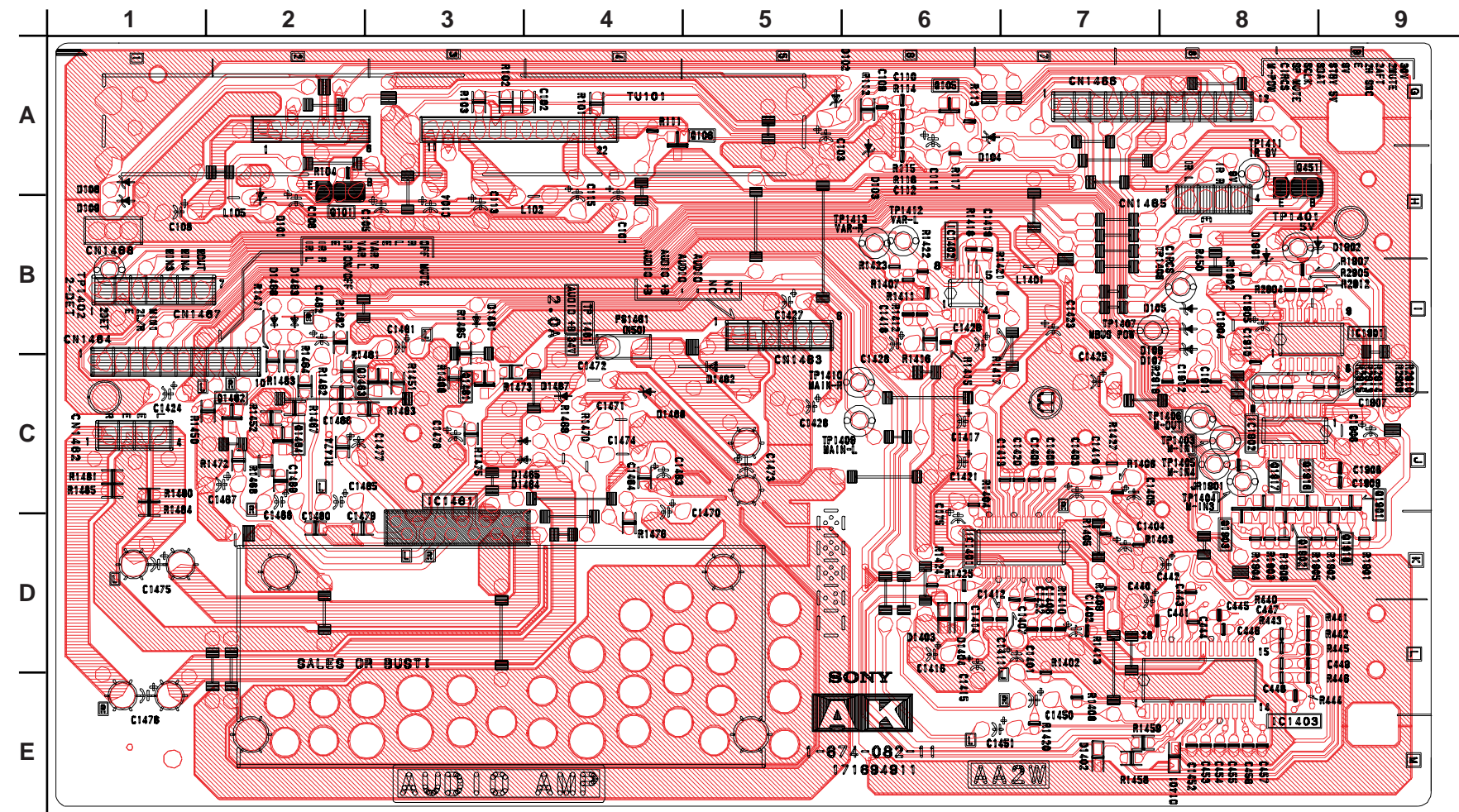
IC1401	IC1402	IC1461	IC1901	IC1902	IC1903
pin	volt	pin	volt	pin	volt
1	GND	1	4.5	24	4.6
2	0	2	4.6	25	4.6
3	0	3	4.6	26	4.6
4	4.6	4	GND	27	4.6
5	4.6	5	4.6	28	3.9
6	4.6	6	4.6	29	1.5
7	4.6	7	4.6	30	1.5
8	4.6	8	9.2	31	0
9	4.6	9	4.6	32	0
10	4.6	10	1.5	1	5.0
11	4.6	11	4.0	2	4.8
12	4.6	12	4.6	3	5.0
13	0.8	13	0.8	4	0.1
14	2.0	14	4	5	5.1
15	9.2	15	4.6	6	0
16	9.2	16	NC	7	0
17	4.6	17	4.6	8	0
18	4.6	18	GND	9	0
19	2.0	19	4.6	10	0
20	0.8	20	4.6	11	0
21	4.6	21	4.6	12	0
22	4.6	22	4.6	13	0
23	4.6	23	4.6	14	0.3
24	4.6	24	4.6	15	0.3
25	4.6	25	4.6	16	0
26	4.6	26	4.6	17	0
27	4.6	27	4.6	18	0
28	4.6	28	4.6	19	0
29	4.6	29	4.6	20	0
30	4.6	30	4.6	21	0
31	4.6	31	4.6	22	0
32	4.6	32	4.6	23	0

AK BOARD TRANSISTOR VOLTAGE LIST

Q101	B	C	E
Q101	5.7	9.4	5.1
Q105	5.0	0.8	5.0
Q106	4.8	9.4	4.2
Q1461	0	4.1	GND
Q1462	0	11.5	GND
Q1463	0	0	GND
Q1464	0	0	GND
Q1902	4.9	0	0
Q1903	4.9	0	0
Q1918	4.9	0	0



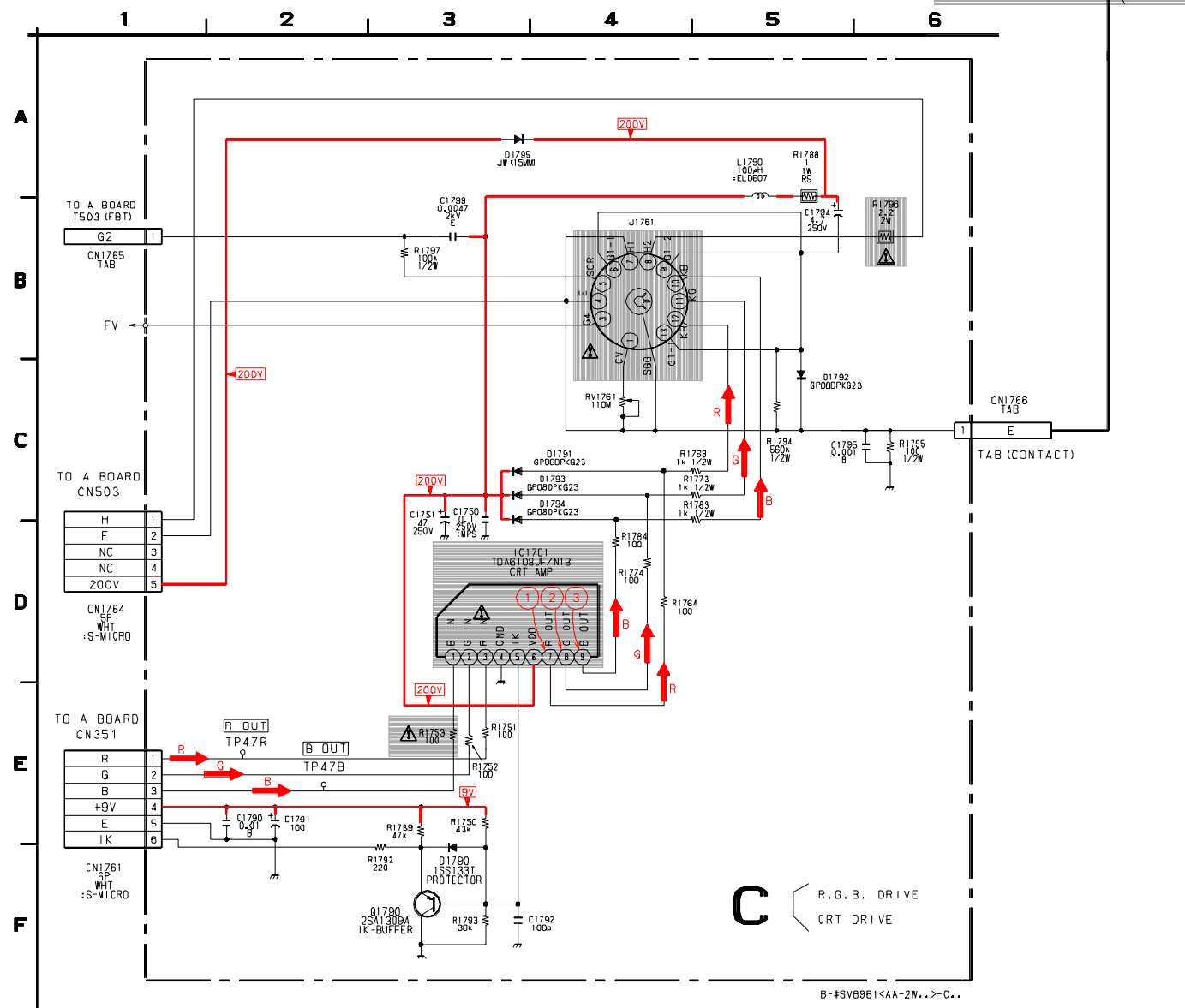
AK [AUDIO AMP, TRUSURROUND, 2ND TUNER, S-LINK]



Schematic diagrams  
 ← [A] board  
 [AK] board →



C BOARD SCHEMATIC DIAGRAM



G BOARD IC VOLTAGE LIST

IC6000		IC643	
pin	volt	pin	volt
RES	2.5	1	13.4
ANGDE	GND	2	NC
CATHODE	5.0	3	2.4
		4	8.8
IC601		IC650	
pin	volt	pin	volt
B-1	1.0	5	GND
B-2	150.5	pin	volt
C-1	151.5	IN	13.6
C-2	298.5	OUT	11.9
E-1	GND	GND	GND
E-2	151.7	IC651	
IC622		IC642	
pin	volt	pin	volt
IN	7.0	IN	12.1
OUT	4.9	OUT	4.9
GND	GND	GND	GND
IC642			
pin	volt		
IN	12.0		
OUT	9.5		
GND	0.4		

G BOARD TRANSISTOR VOLTAGE LIST

	B	C	E
Q622	0.5	1.7	GND
Q623	0.7	0	GND
Q624	12.8	0	11.8
Q644	0	12.0	GND
Q645	11.8	GND	8.8
Q646	6.3	7.0	7.0
Q647	0	11.7	GND
Q648	0.7	0.1	GND
Q649	12.0	0	12.3
Q650	0	2.3	GND
Q651	135.2	0	135.5
Q652	3.6	0	3.6
Q653	0	3.6	GND

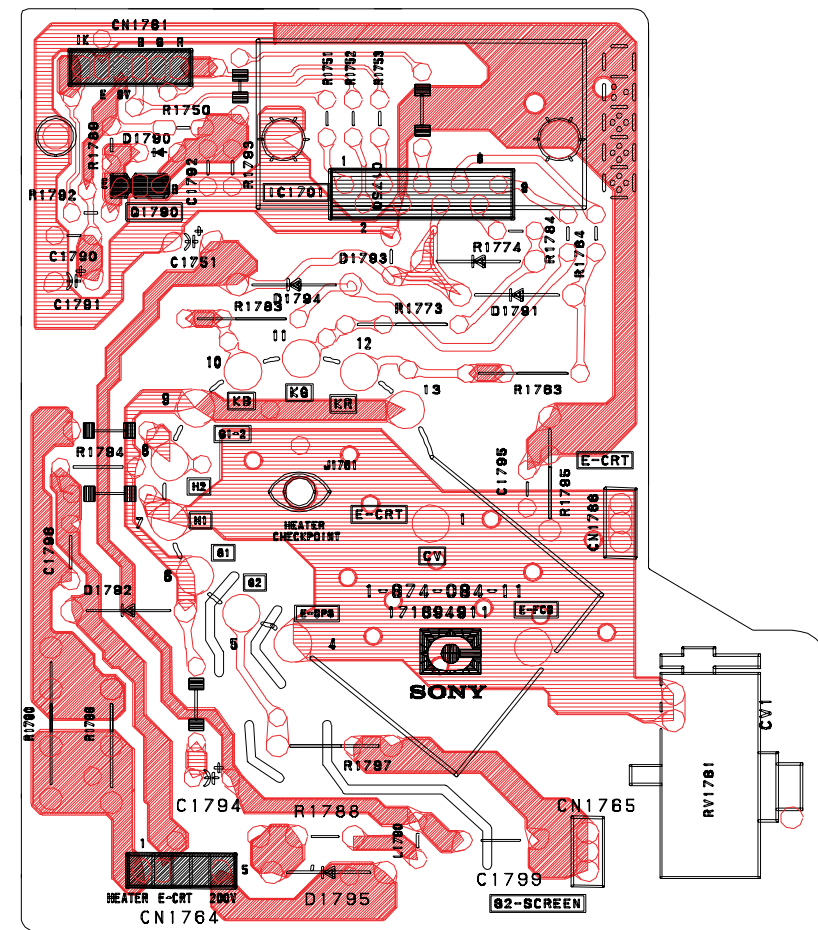
G BOARD TRANSISTOR VOLTAGE LIST

	D	G	S
Q621	147.7	1.7	0

G BOARD LOCATOR LIST

DIODE	IC	IC	IC
D600	A-5	IC601	D-5
D601	A-8	IC622	A-8
D602	C-3	IC641	D-10
D603	B-7	IC643	B-8
D604	E-7	IC650	B-10
D605	A-8	IC651	B-10
D606	A-9	TRANSISTOR	
D607	D-7	Q621	B-6
D608	E-7	Q622	B-5
D612	B-8	Q623	D-7
D613	A-7	Q624	A-9
D614	B-11	Q644	B-11
D621	B-5	Q645	B-9
D622	B-5	Q646	A-8
D623	B-6	Q647	A-8
D624	A-6	Q648	B-11
D625	A-8	Q649	C-10
D626	A-5	Q650	C-10
D627	A-6	Q651	D-7
D628	A-7	Q652	E-7
D629	E-3	Q653	E-7
D630	D-4		
D641	B-9		
D642	C-9		
D643	D-8		
D647	D-10		
D648	D-9		
D651	C-9		
D652	B-8		
D653	E-8		
D698	B-6		
D699	B-6		

C [RGB DRIVE, CRT DRIVE]



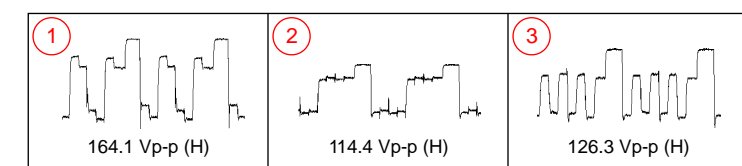
C BOARD TRANSISTOR VOLTAGE LIST

	B	C	E
O1790	4.7	GND	4.4

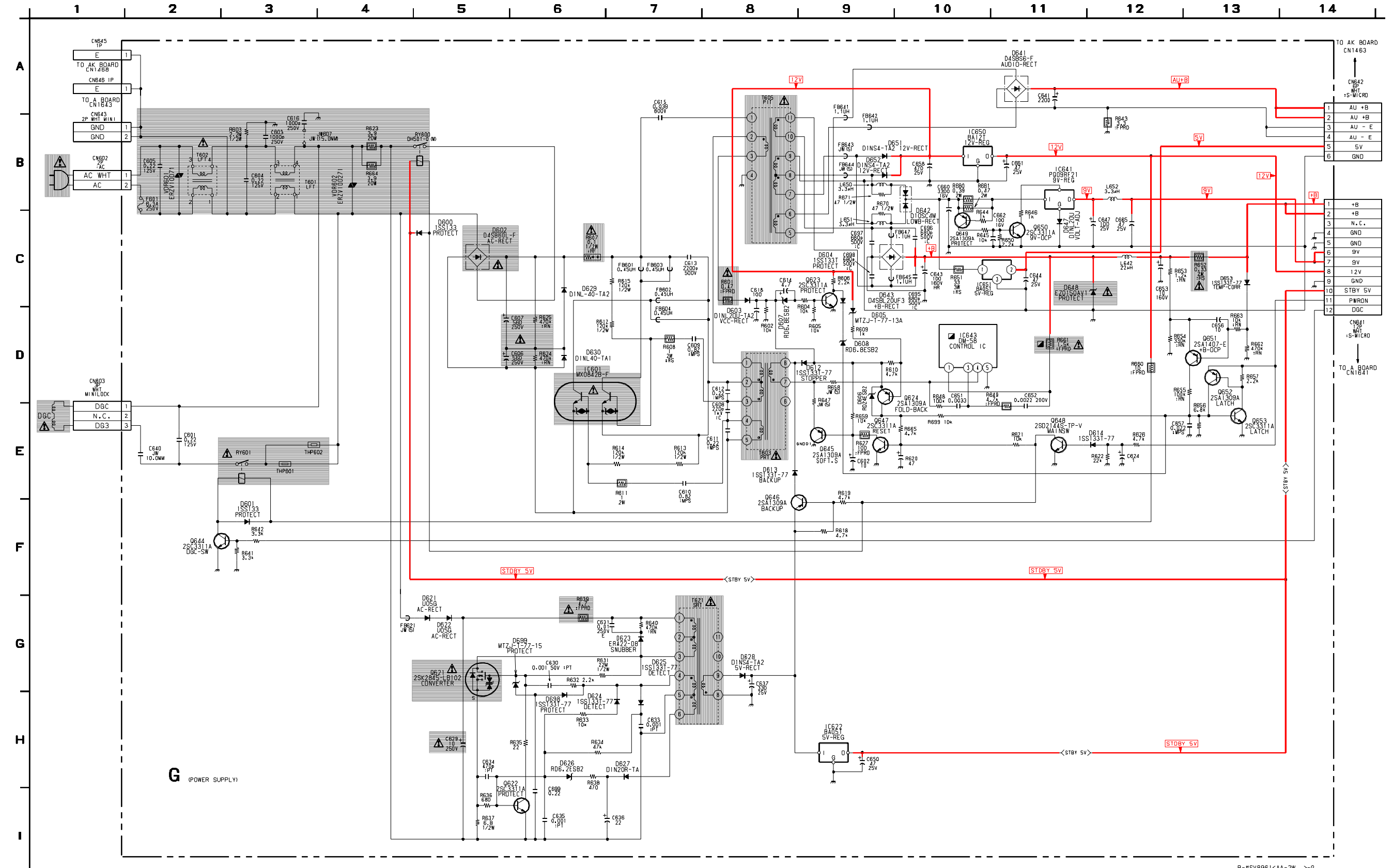
C BOARD IC VOLTAGE LIST

IC1701	
pin	volt
1	1.8
2	1.9
3	2.1
4	GND
5	4.7
6	205.5
7	139.6
8	149.8
9	152.2

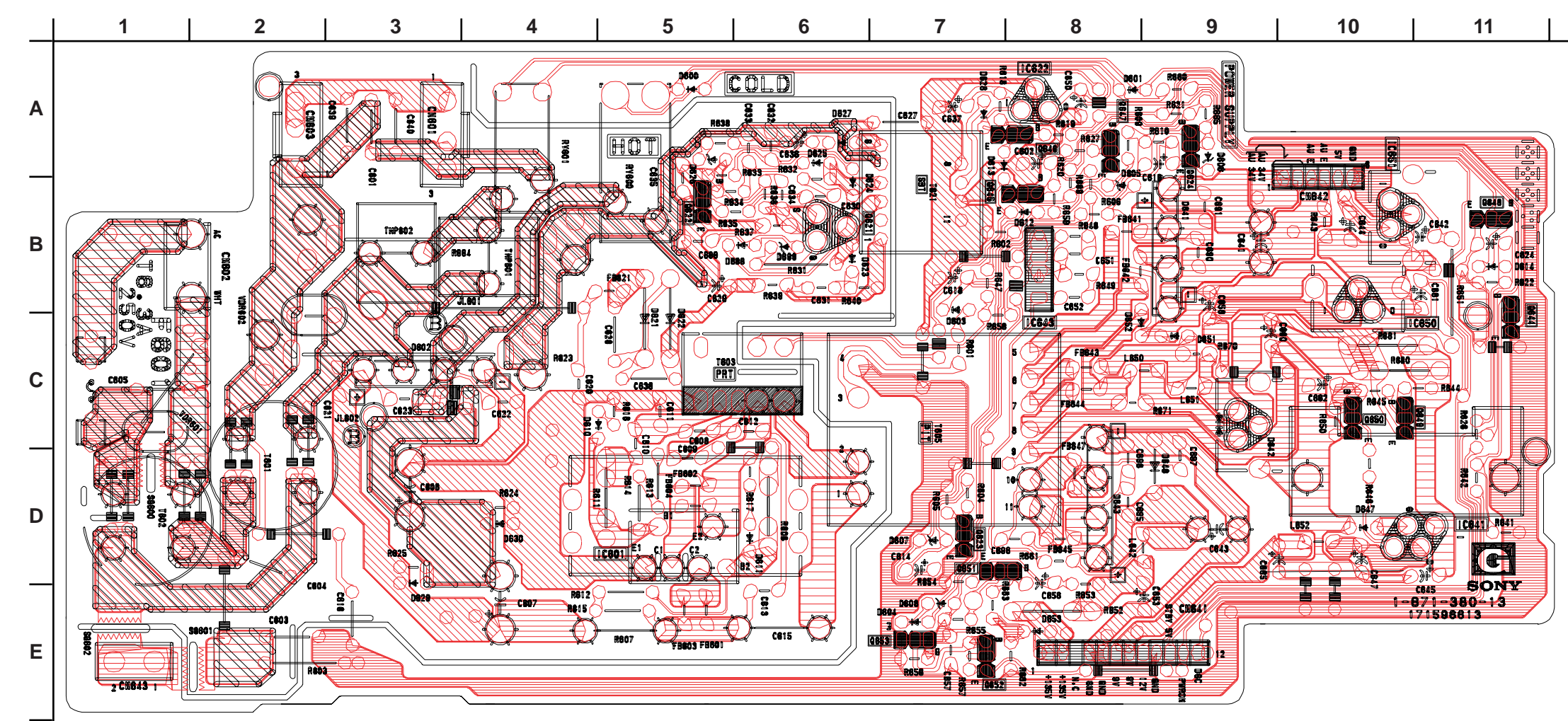
C BOARD WAVEFORMS



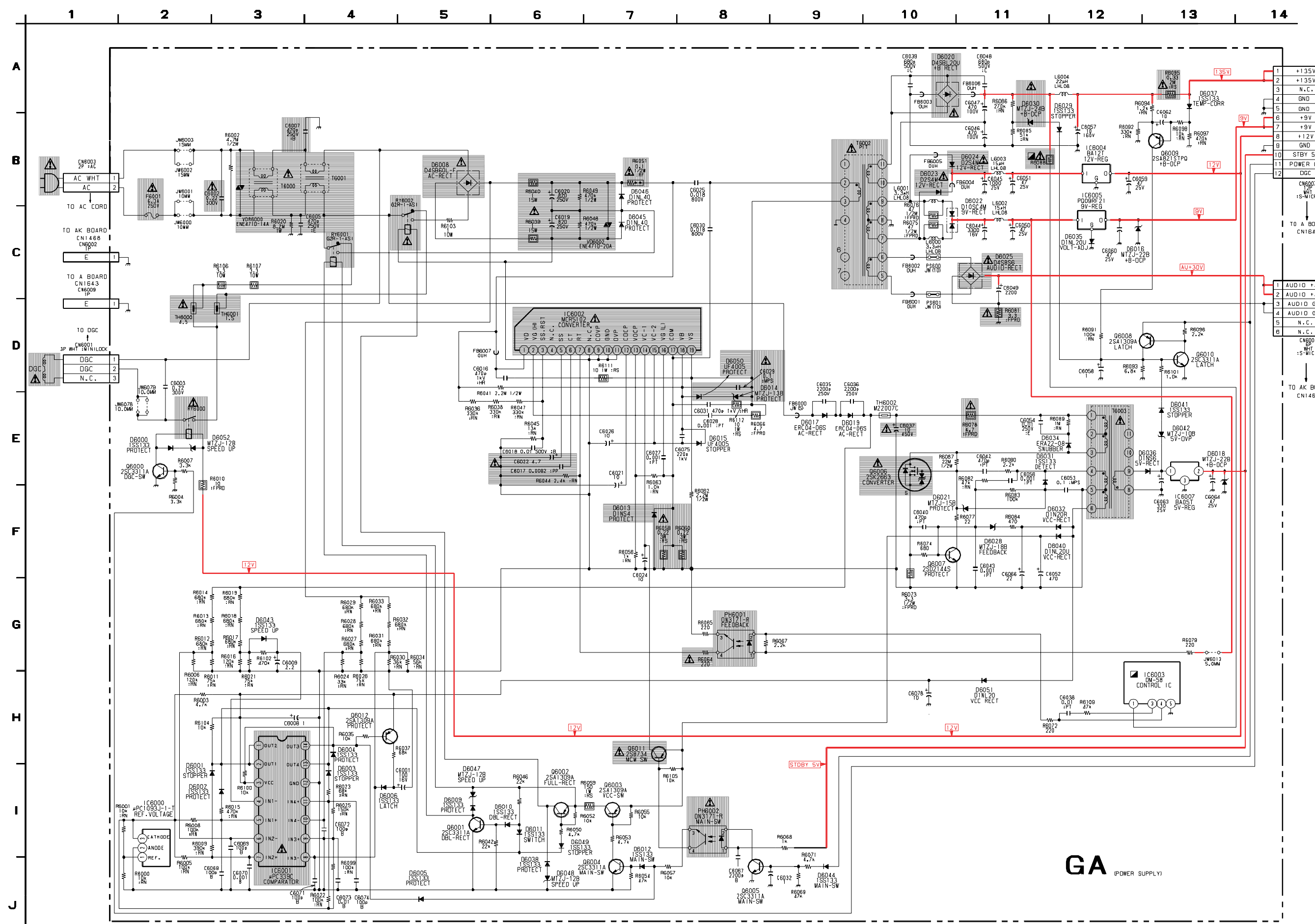
G BOARD SCHEMATIC DIAGRAM



G [AC-RECT, DC-DC CONV., LOW B REG]



GA BOARD SCHEMATIC DIAGRAM



GA BOARD IC VOLTAGE LIST

IC6000				IC6002				IC6003			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
REF	2.5	1	307.4	1	NC	1	134.0				
ANODE	GND	2	168.7	2	NC	2	NC				
CATHODE	5.0	3	3.9	3	NC	3	2.4				
IC6001				IC6004				IC6005			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
1	17.9	6	2.1	1	17.9	7	3.8	1	17.9	8	13.4
2	17.9	7	3.8	2	17.9	8	13.4	2	17.9	9	11.9
3	17.9	8	13.4	3	17.9	9	11.9	3	17.9	10	GND
4	3.2	9	GND	4	3.2	10	GND	4	3.2	11	GND
5	4.9	10	GND	5	4.9	11	GND	5	4.9	12	GND
6	3.3	11	GND	6	3.3	12	GND	6	3.3	13	17.9
7	4.3	12	0	7	4.3	13	17.9	7	4.3	14	17.9
8	3.2	13	0	8	3.2	14	17.7	8	3.2		
9	4.9	14	17.7	9	4.9			9	4.9		
10	3.4	15	10.8	10	3.4			10	3.4		
11	4.8	16	4.7	11	4.8			11	4.8		
12	GND	17	0	12	GND			12	GND		
13	17.9	18	173.5	13	17.9			13	17.9		
14	17.9	19	163.4	14	17.9			14	17.9		

GA BOARD TRANSISTOR VOLTAGE LIST

Q6000	B	C	E
Q6000	0	11.9	GND
Q6001	0.7	0.1	GND
Q6002	13.2	0	13.2
Q6003	16.9	17.6	17.8
Q6004	0.7	0	GND
Q6005	0.6	0	GND
Q6007	0.3	1.5	0
Q6008	3.6	0	3.6
Q6009	134.3	0	134.7
Q6010	0	3.8	GND
Q6011	17.1	17.7	17.8
Q6012	17.1	0	17.9

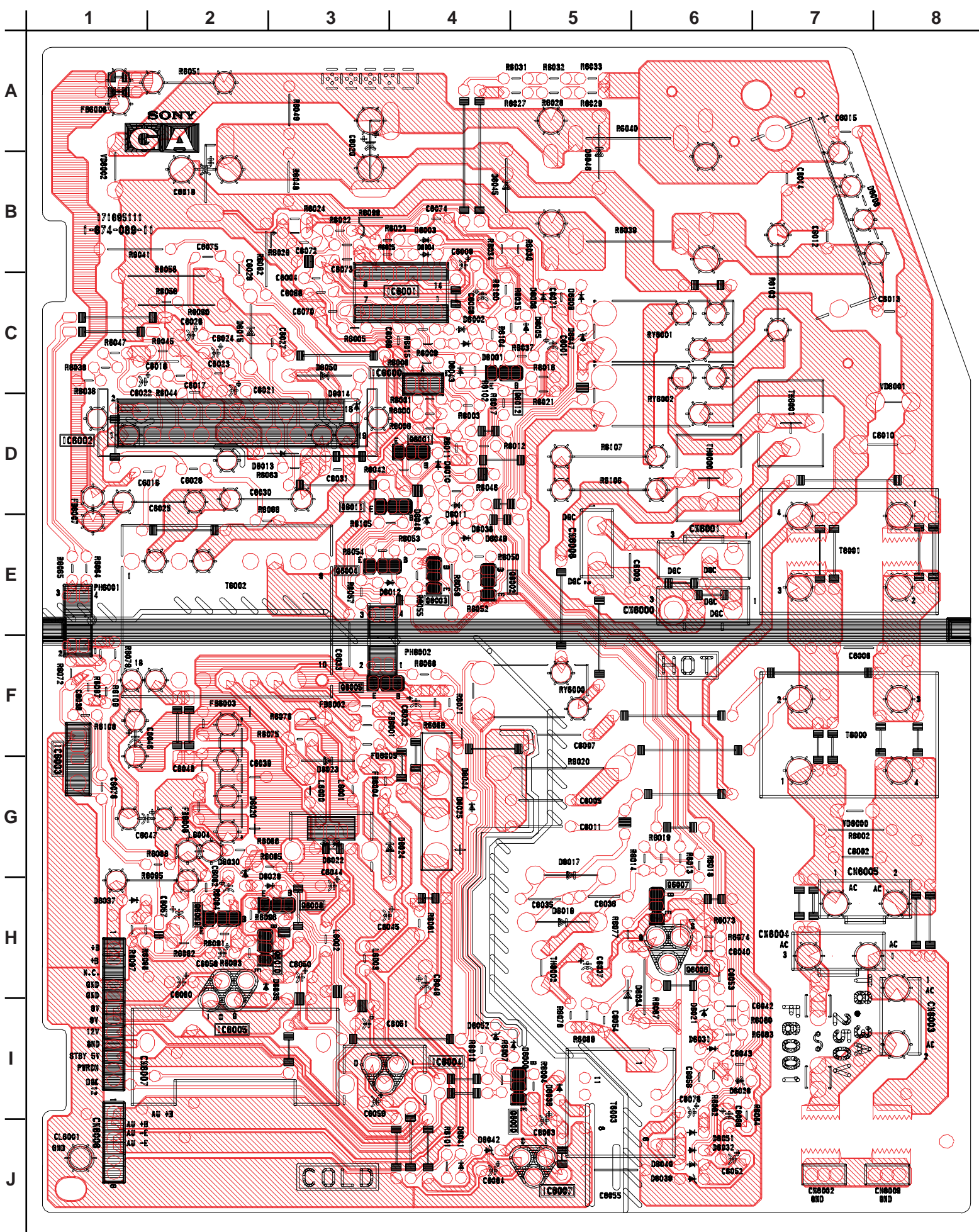
GA BOARD TRANSISTOR VOLTAGE LIST

Q6006	D	G	S
Q6006	150.0	1.5	GND

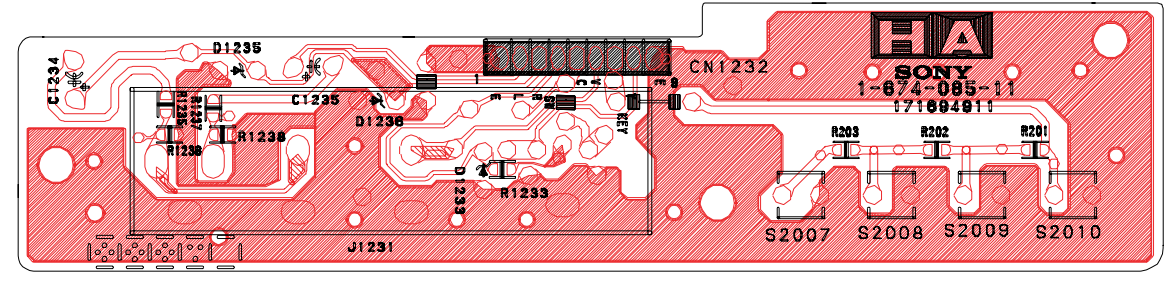
GA BOARD DIODE LIST

DIODE	D6041	J-4	
D6000	I-5	D6042	J-4
D6001	C-4	D6043	C-4
D6002	C-4	D6044	G-4
D6003	B-4	D6045	B-4
D6004	B-4	D6046	B-5
D6005	C-5	D6047	C-5
D6006	C-5	D6048	E-4
D6008	B-7	D6049	E-4
D6009	H-2	D6050	C-3
D6010	D-4	D6051	J-6
D6011	P-4	D6052	I-4
IC			
D6012	E-3	IC6000	C-4
D6013	D-3	IC6001	B-3
D6014	D-3	IC6002	D-1
D6015	C-2	IC6003	D-1
D6016	I-2	IC6003	F-1
D6017	H-5	IC6004	I-3
D6018	J-5	IC6005	H-2
D6019	H-5	IC6007	J-5
D6020	G-2	PH6001	E-1
D6021	I-6	PH6001	F-3
D6022	G-3	PH6002	F-3
TRANSISTOR			
D6023	G-3	Q6000	I-5
D6024	G-3	Q6001	I-5
D6025	G-4	Q6001	D-4
D6028	H-2	Q6002	E-4
D6029	H-2	Q6003	H-3
D6030	G-2	Q6004	E-3
D6031	I-6	Q6005	F-3
D6032	J-6	Q6006	H-6
D6034	H-5	Q6007	H-6
D6035	H-2	Q6008	H-3
D6036	I-5	Q6009	H-2
D6037	H-1	Q6010	H-2
D6038	E-4	Q6011	D-3
D6040	J-6	Q6012	C-4

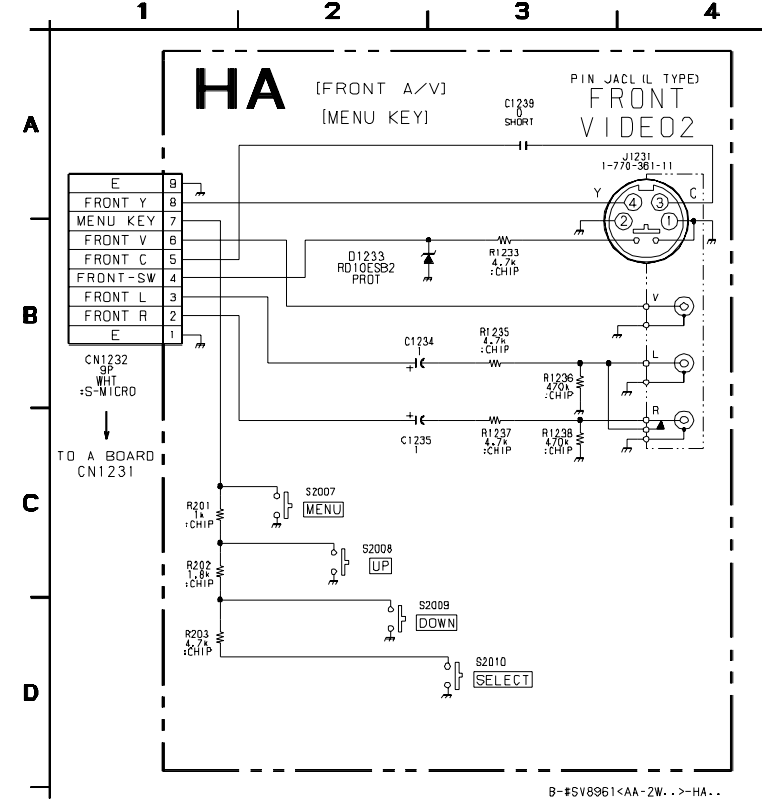
GA [POWER SUPPLY]



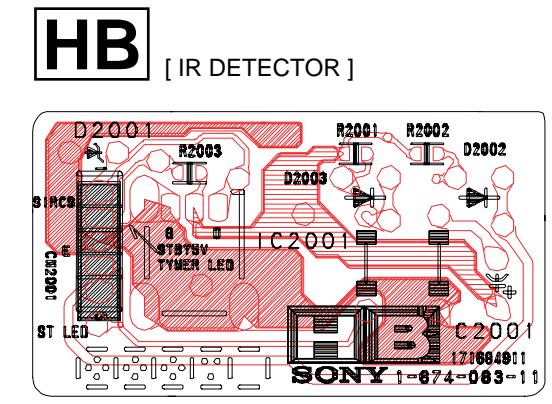
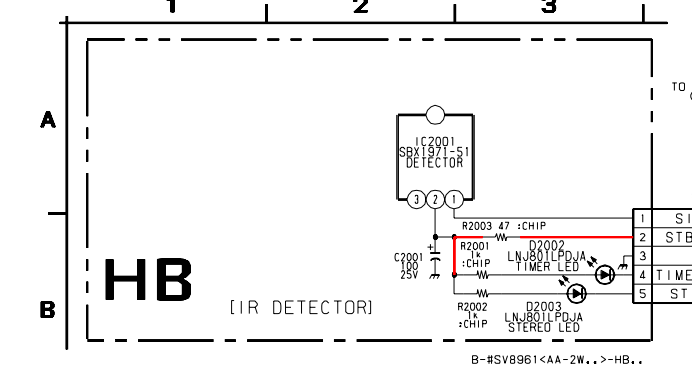
HA [FRONT AV - MENU KEY]



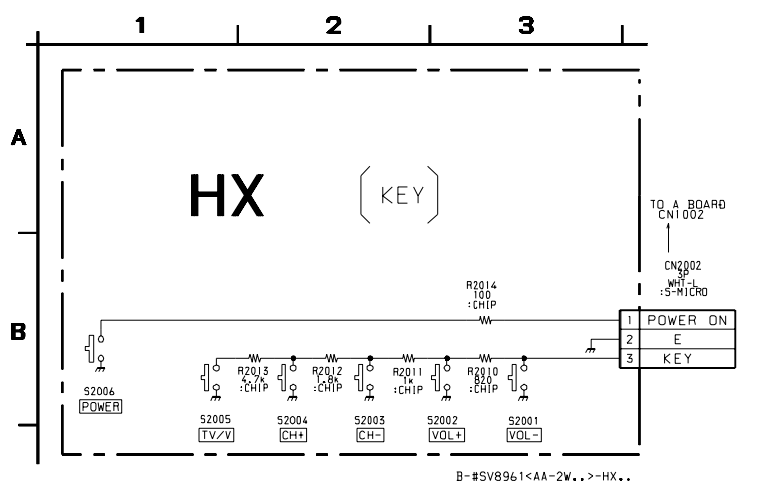
HA BOARD SCHEMATIC DIAGRAM



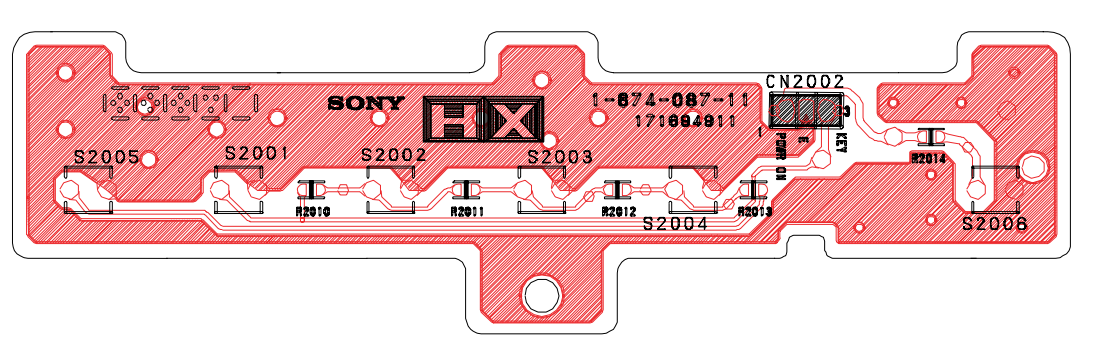
HB BOARD SCHEMATIC DIAGRAM



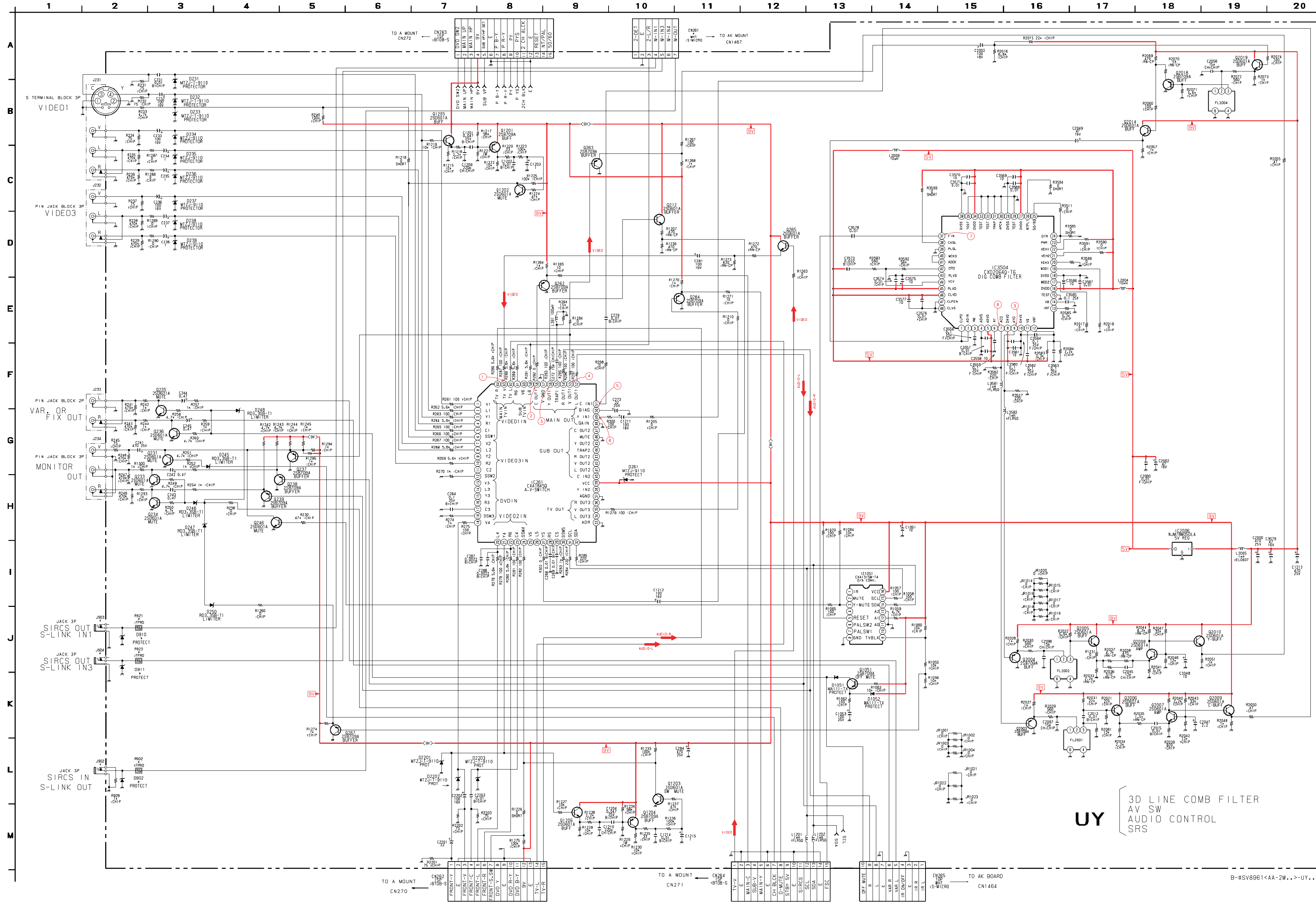
HX BOARD SCHEMATIC DIAGRAM



HX [KEY]



UY BOARD SCHEMATIC DIAGRAM (1/2)



UY (MAIN) BOARD IC VOLTAGE LIST

IC261				IC3504				IC1051			
pin	volt	pin	volt	pin	volt	pin	volt	pin	volt	pin	volt
1	4.6	31	4.6	61	4.7	1	1.6	31	GND	29	0
2	4.6	32	4.5	62	4.6	2	1.6	30	GND	30	GND
3	4.6	33	GND	63	4.6	3	0.5	32	GND	31	GND
4	4.6	34	NC	64	4.6	4	0	33	GND	32	GND
5	4.6	35	4.4	65	4.4	5	5.0	34	5.0	33	GND
6	4.6	36	NC	66	NC	6	2.6	35	GND	34	5.0
7	4.6	37	GND	67	NC	7	1.1	36	0	35	GND
8	4.6	38	NC	68	NC	8	5.0	37	2.3	36	0
9	NC	39	9.1	69	0.3	9	1.1	38	5.0	37	2.3
10	4.6	40	NC	70	NC	10	0	39	GND	38	5.0
11	NC	41	NC	71	5.3	11	2.7	40	2.0	39	GND
12	0	42	4.6	72	NC	12	2.0	41	2.0	40	2.0
13	4.6	43	NC	73	NC	13	2.0	42	2.0	41	2.0
14	NC	44	NC	74	GND	14	1.0	43	GND	42	2.0
15	NC	45	NC	75	0	15	GND	44	2.3	43	GND
16	NC	46	GND	76	NC	16	5.0	45	5.0	44	2.3
17	4.6	47	NC	77	GND	17	0.3	46	5.0	45	5.0
18	0	48	GND	78	NC	18	0	47	0	46	5.0
19	4.6	49	4.6	79	13	19	0.3	48	0	47	0
20	4.6	50	4.7	80	4.5	20	0	49	0	48	0
21	4.6	51	4.6	81	4.5	21	5.0	50	0	49	0
22	4.6	52	4.7	82	9.1	22	5.0	51	0	50	0
23	4.6	53	GND	83	4.6	23	0	52	0	51	0
24	4.4	54	4.7	84	pin	24	0	53	0	52	0
25	NC	55	4.6	85	N	25	0	54	0	53	0
26	NC	56	4.6	86	OUT	26	0	55	0	54	0
27	4.6	57	GND	87	GND	27	5.0	56	0	55	0
28	4.6	58	4.6	88	GND	28	5.0	57	0	56	0

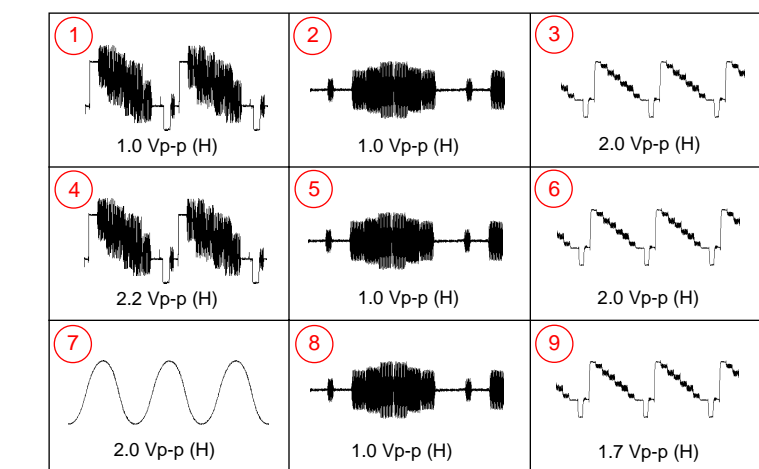
All voltages are in V

UY (MAIN) BOARD TRANSISTOR VOLTAGE LIST

Q	Vc	C	E
Q212	4.6	9.1	3.9
Q231	0	0.2	GND
Q233	-0.1	0	GND
Q234	-0.1	0	GND
Q235	-0.1	0	GND
Q236	-0.1	0	GND
Q237	4.6	GND	0.3
Q238	4.7	GND	5.3
Q239	4.7	GND	5.3
Q246	0.3	0.2	GND
Q262	4.6	GND	5.2
Q263	4.6	GND	5.2
Q264	4.4	GND	5.0
Q265	4.5	9.1	3.8
Q266	4.6	GND	5.2
Q267	0.2	GND	0.9
Q1051	9.1	-1.4	9.0
Q1201	8.6	0	9.1
Q1202	0	4.4	GND
Q1203	0	4.4	GND
Q1204	8.6	0	9.1
Q1205	4.6	9.1	4.0
Q1206	4.6	9.1	4.0
Q2003	1.1	GND	1.8
Q2004	1.1	GND	1.8
Q2005	4.5	9.1	3.8
Q2006	4.5	9.1	3.9
Q2007	2.3	4.4	1.7
Q2008	2.3	4.6	1.6
Q2009	4.4	9.1	3.7
Q2010	4.6	9.1	3.9
Q2014	5.1	9.1	4.4
Q2018	4.1	GND	4.8
Q2019	5.2	9.1	4.5

All voltages are in V

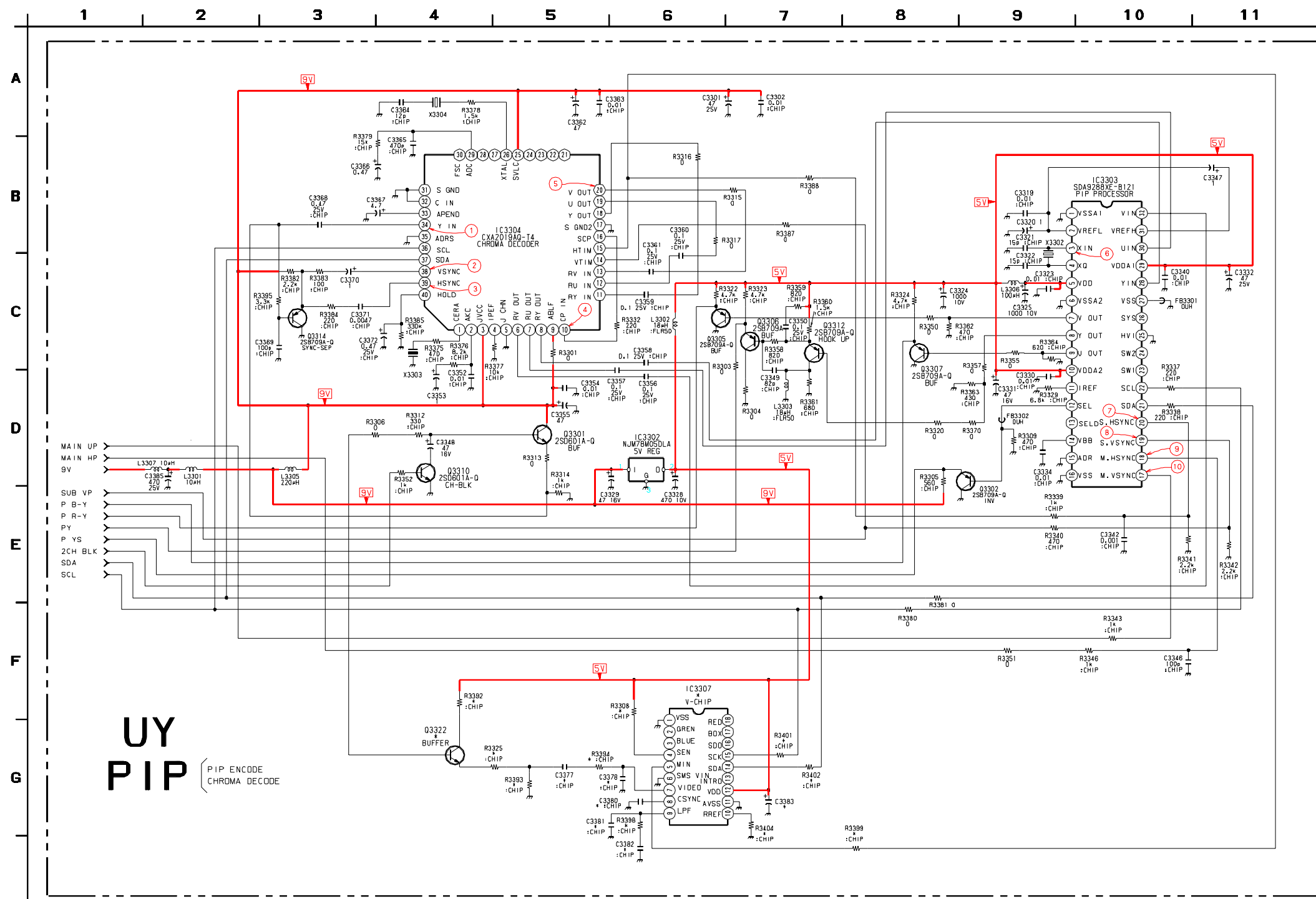
UY (MAIN) BOARD WAVEFORMS



UY MAIN BOARD (\*) MARK LIST

REF. NO.	LOCATION	KV27FV15	KV29FV15C	KV29FV10	KV29FV15K
CN261	A-10	7P	7P	#	7P
D902	L-2	MTZJ-T-9110	MTZJ-T-9110	#	MTZJ-T-9110
D910	J-2	MTZJ-T-9110	MTZJ-T-9110	#	MTZJ-T-9110
D911	J-2	MTZJ-T-9110	MTZJ-T-9110	#	MTZJ-T-9110
J902	L-2	3P	3P	#	3P
J903	J-2	3P	3P	#	3P
J904	J-2	3P	3P	#	3P
R902	L-2	100	100	#	100
R921	J-2	100	100	#	100
R922	J-2	100	100	#	100

UY BOARD SCHEMATIC DIAGRAM (2/2) (KV-29FV10 EXCLUDED)

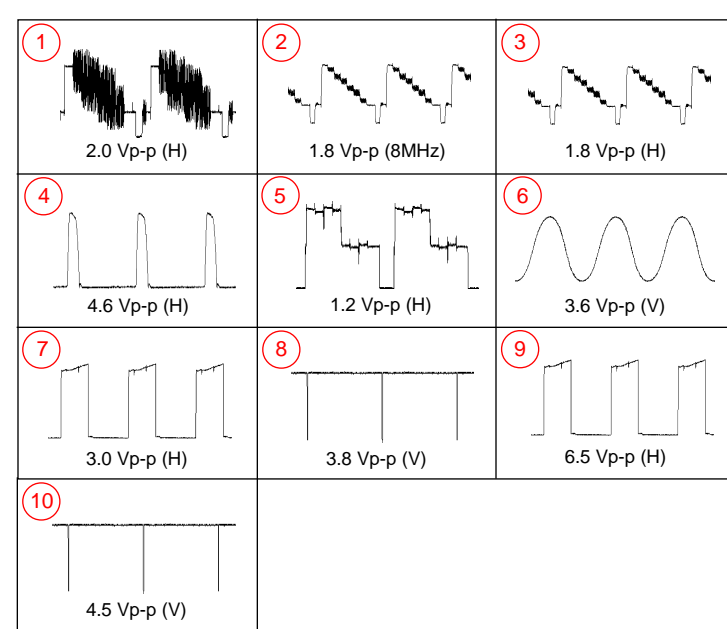


UY PIP  
PIP ENCODE  
CHROMA DECODE

UY (PIP) BOARD (\*) MARK LIST

REF. NO.	LOCATION	KV-27FV15	KV-29FV15C KV-29FV15K
C3377	G-5	0.1	#
C3378	G-6	560p	#
C3380	G-6	0.1	#
C3381	G-5	0.0068	#
C3382	G-6	0.068	#
C3383	G-7	0.1	#
IC3307	G-6	Z86130112SSC	#
Q3322	G-4	2SD601A	#
R3308	F-6	0	#
R3325	G-4	100	#
R3392	F-4	0	#
R3393	G-5	100	#
R3394	G-5	470	#
R3396	G-6	6.8K	#
R3399	G-8	100	#
R3401	G-7	100	#
R3402	G-7	100	#
R3404	G-7	10K	#

UY (PIP) BOARD WAVEFORMS



UY (PIP) BOARD IC VOLTAGE LIST

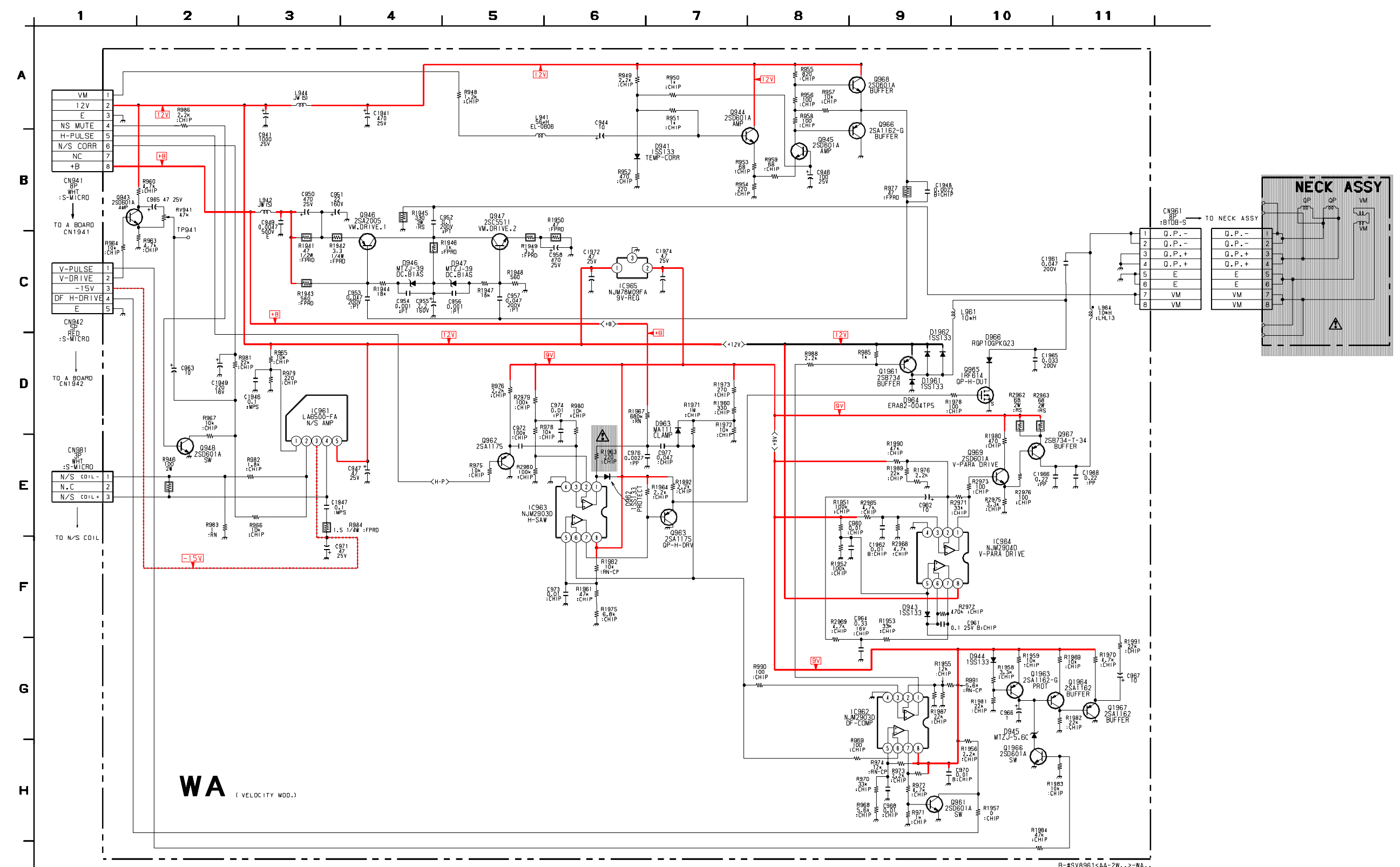
IC3302	18	0.2	8	2.9	14	1.4	38	3.8	
pin	volt	19	0.1	9	8.7	15	NC	39	3.1
N1	8.9	20	0.4	10	0.7	16	1.4	40	1.1
OUT	5.1	21	4.5	11	4.0	17	GND	IC3307	
GND	GND	22	4.5	12	4.2	18	3.4	pin	volt
IC3303	23	NC	15	4.3	19	NC	4	5.1	
pin	volt	24	NC	14	0.1	20	2.8	2	NC
GND	GND	25	GND	15	0.7	21	NC	3	NC
IC3305	26	NC	16	0.7	22	NC	4	5.1	
pin	volt	27	0	17	0.7	23	NC	5	0.7
GND	GND	28	2.0	18	2.0	24	NC	6	GND
IC3306	29	5.0	1	5.1	25	8.7	7	1.2	
pin	volt	30	2.3	2	NC	26	2.4	8	0
GND	GND	31	4.0	3	GND	27	NC	9	1.5
IC3307	32	2.3	4	GND	28	NC	10	1.1	
pin	volt	33	0.1	5	0.7	29	4.3	11	GND
GND	GND	34	1.7	10	GND	34	4.4	16	NC
IC3304	35	GND	11	3	35	GND	17	NC	
pin	volt	36	2.8	12	3	36	4.5	18	NC
GND	GND	37	2.8	13	NC	37	4.5		

UY (PIP) BOARD TRANSISTOR VOLTAGE LIST

Q3301	5.2	8.6	4.5
Q3302	0	0	0.7
Q3305	0	0	0.7
Q3306	0.6	0	1.2
Q3307	0.1	0	0.7
Q3310	0	4.9	GND
Q3312	0	0	0.6
Q3314	4.6	0	5.2
Q3322	5.2	6.1	6.6

All voltages are in V

WA BOARD SCHEMATIC DIAGRAM



WA (VELOCITY MOD.)

WA BOARD IC VOLTAGE LIST

IC961	IC962	IC963	IC964	IC965			
pin	volt	1	2.1	1	7.4	pin	volt
1	0.2	2	5.2	2	4.2	2	4.4
2	0.3	3	6.6	3	4.6	3	4.4
3	-13.0	4	GND	4	GND	4	GND
4	4.6	5	6.9	5	7.5	5	4.4
5	11.8	6	6.6	6	6.7	6	4.4
		7	3.5	7	6.1	7	4.4
		8	8.9	8	8.9	8	11.8

All voltages are in V

WA BOARD TRANSISTOR VOLTAGE LIST

Q943	3.5	8.3	2.9
Q944	2.6	11.9	1.9
Q945	2.6	8.0	1.9
Q946	134.0	67.5	134.6
Q947	0.9	67.5	0.3
Q948	0	1.7	GND
Q961	0.4	0.3	GND
Q962	0.4	GND	1.1
Q963	6.1	GND	6.2
Q966	8.0	GND	8.4
Q967	6.8	0.4	7.4
Q968	8.8	11.9	8.4
Q969	7.4	8.0	6.8
Q1961	11.7	2.4	11.8
Q1963	7.2	6.4	7.8
Q1964	6.4	4.2	7.0
Q1966	-2.0	3.5	GND
Q1967	4.2	GND	4.8

All voltages are in V

WA BOARD TRANSISTOR VOLTAGE LIST

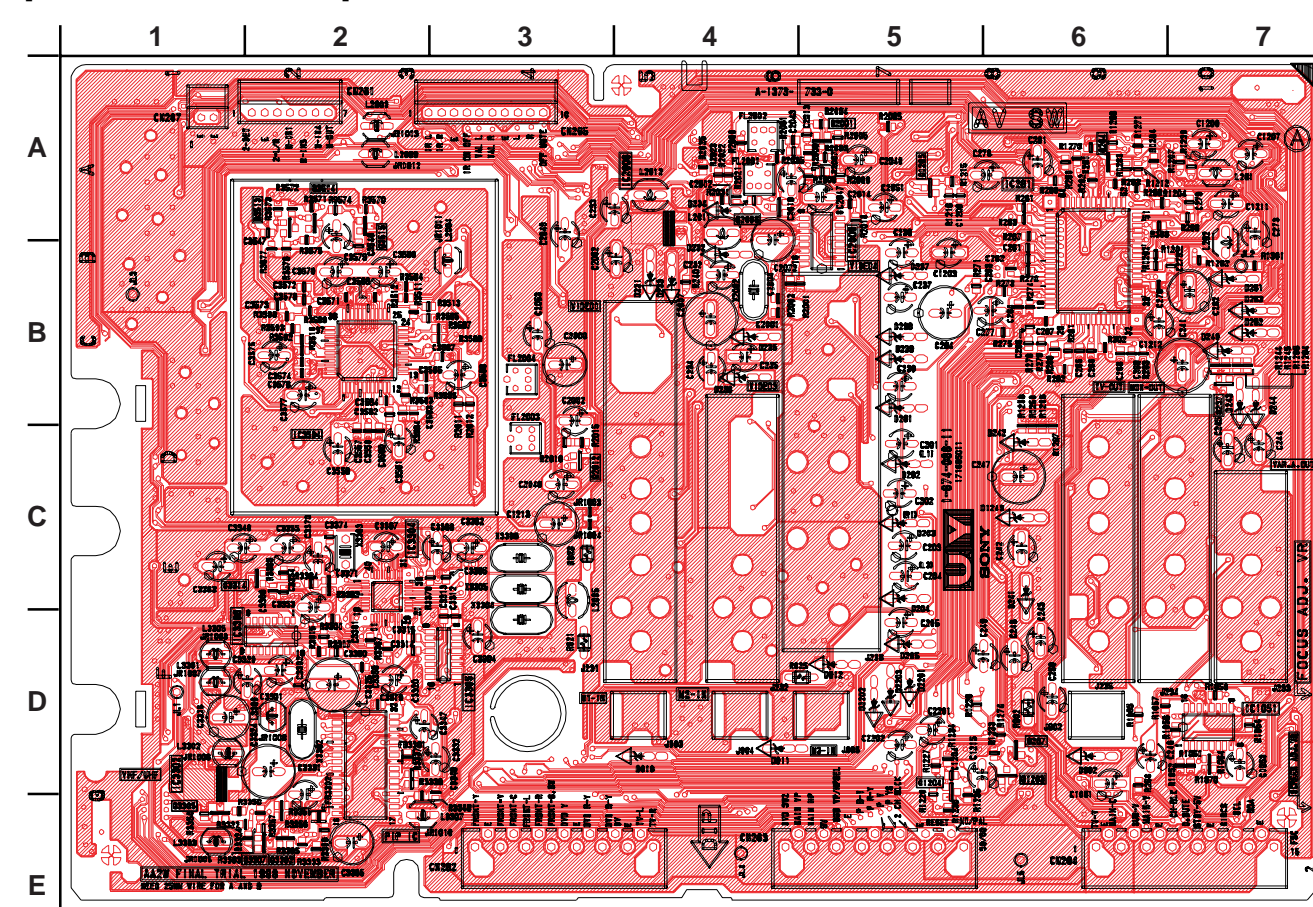
Q965	4.9	6.2	GND

All voltages are in V

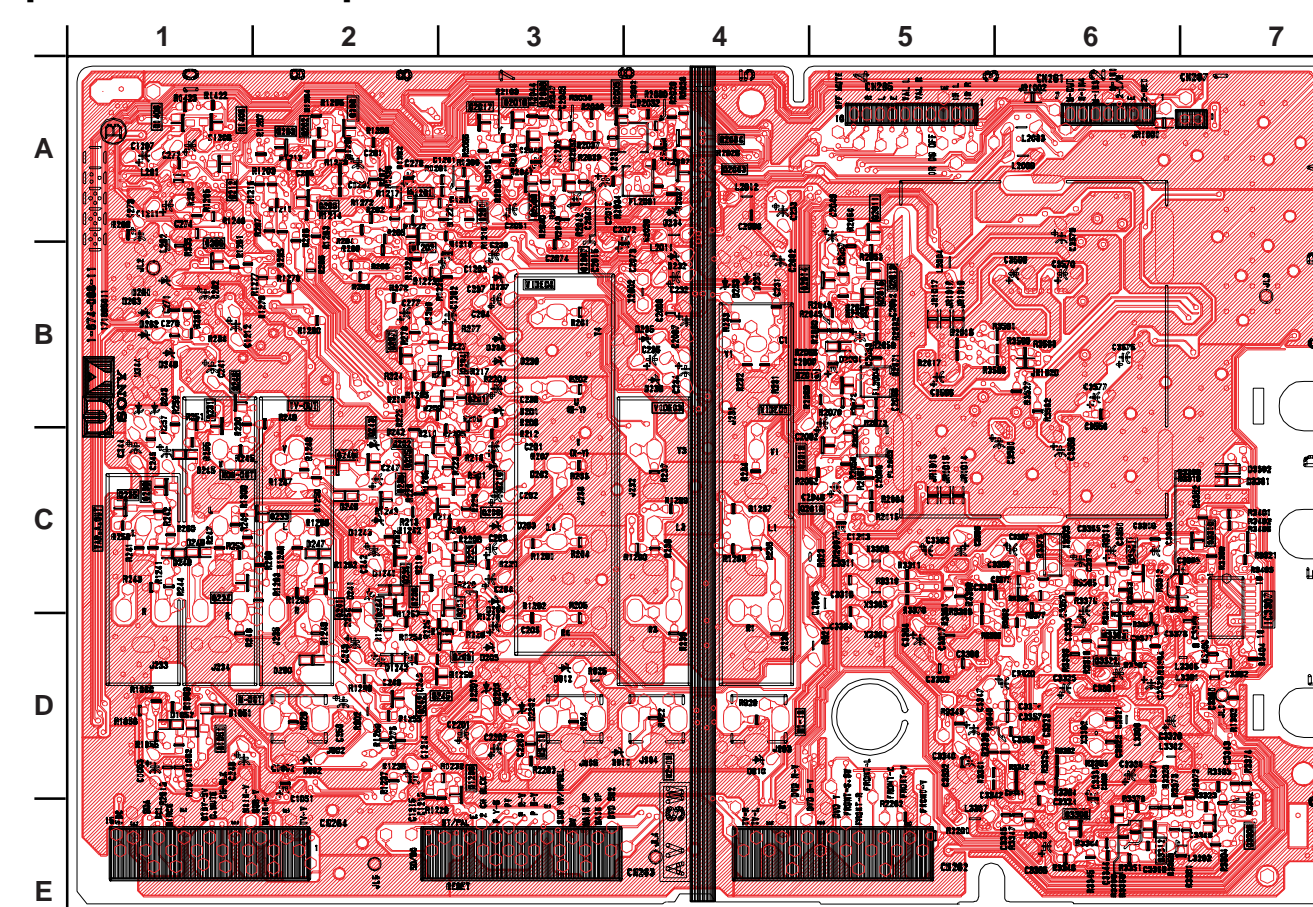
UY

[3D LINE, COMB FILTER, AV SW, AUDIO CONTROL, SRS]

[COMPONENT SIDE]



[CONDUCTOR SIDE]



UY BOARD LOCATOR LIST

DIODE	A	B	C	A	B
D231	B-4		IC281	A-6	O1201
D232	B-4		IC1061	D-7	O1202
D233	B-4		IC2006	A-4	O1203
D234	A-4		IC3302	D-1	O1204
D235	B-4		IC3303	D-2	O1205
D236	B-4		IC3304	C-3	O1206
D237	B-6		IC3305	D-3	O2003
D238	B-5		IC3307	D-7	O2004
D239	B-5		IC3504	B-2	O2005
D246		C-1			Q2006
D247		C-1	Q212	A-1	Q2007
D248		C-2	Q231		C-1
D250		D-2	Q234		C-1
D261	B-7		Q235		C-1
D262	D-6		Q236		C-1
D263	D-4		Q237	B-7	C-1
D264	D-4		Q238		C-2
D1051	D-1		Q239		C-2
D1062	D-1		Q240	B-1	C-2
D2201	D-5		Q262		A-2
D2202	D-6		Q263		A-2
D2203	D-5		Q264	A-9	A-2
			Q265		A-2
			Q266	B-1	C-1
			Q267	D-6	C-2