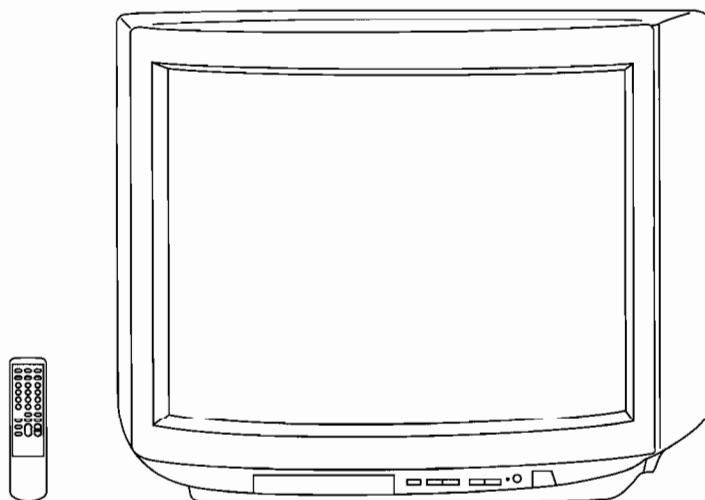


SERVICE MANUAL

BG-1L CHASSIS

<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>	<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>
<i>KV-J29MF1</i>	<i>RM-873</i>	<i>Thailand</i>	<i>SCC-K76D-A</i>				
<i>KV-J29MN2</i>	<i>RM-873</i>	<i>Thailand</i>	<i>SCC-K76B-A</i>				
<i>KV-J29SN21</i>	<i>RM-873</i>	<i>New Zealand</i>	<i>SCC-K89A-A</i>				
<i>KV-J29SZ2</i>	<i>RM-873</i>	<i>Australia</i>	<i>SCC-K86B-A</i>				



TRINITRON® COLOR TV
SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of TV	
Television system	B/G, I, D/K, M	KV-J29MF1/J29MN2
	B/G	KV-J29SN21/J29SZ2
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	KV-J29MF1/J29MN2
	PAL, PAL 60, NTSC4.43, NTSC3.58 (AV IN)	KV-J29SN21/J29SZ2
Stereo system	NICAM Stereo B/G, I; A2 Stereo (German) B/G	KV-J29MN2/J29SN21
	A2 Stereo (German) B/G	KV-J29SZ2
Teletext language	English, German, Swedish, Italian, French, Spanish	KV-J29SN21 only
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: Z1 to Z39, S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	KV-J29MF1/J29MN2 only
Antenna	75-ohm external antenna terminal for VHF/UHF	
Audio output (speaker)	5W × 2 + 15W (3D WOOFER)	KV-J29MN2/J29SN21/J29SZ2
	6W × 6W	KV-J29MF1
Number of terminal		
Video	Input: 3 Output: 1	Phono jacks; 1 V _{p-p} , 75 ohms
Audio	Input: 3 Output: 1	Phono jacks; 500 mV _{rms}
S-Video	Input: 1	Y : 1 V _{p-p} , 75 ohms, unbalanced, sync negative C : 0.286 V _{p-p} , 75 ohms
Headphone	Output: 1	Minijack
3D WOOFER	Output: 1	KV-J29MN2/J29SN21/J29SZ2
Picture tube	29 inch (Super Trinitron Plus)	
Tube size (cm)	72	Measured diagonally
Screen size (cm)	68	Measured diagonally
Dimension (w/h/d, mm)	780 × 601 × 542	KV-J29MN2/J29SN21/J29SZ2
	780 × 577 × 542	KV-J29MF1
Mass (kg)	46	KV-J29MN2/J29SN21/J29SZ2
	43	KV-J29MF1
Accessories		
Supplied	Remote commander (1) Size R6 (AA) battery (2)	
Optional	TV stand (SU-E29G)	
	TELETEXT ADAPTOR OPK-T300G	KV-J29SZ2 only

Design and specifications are subject to change without notice.

CAUTION

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

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK Δ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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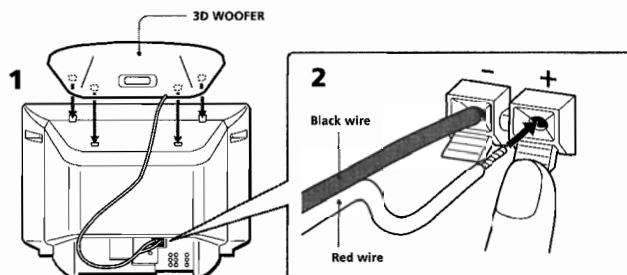
Getting Started

Connections

Connecting the 3D WOOFER

■ Except for KV-J29MF1

- 1 Attach the 3D WOOFER into the footholds on the top of the TV.
- 2 Connect the wires to the 3D WOOFER (8Ω) terminals at the rear of the TV.
The red wire should be connected to the ⊕ red terminal and the black wire to the ⊖ black terminal.

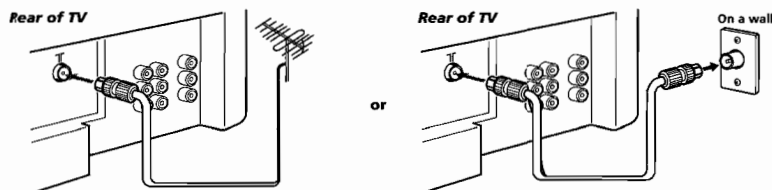


Notes

- Connect only the supplied 3D WOOFER; otherwise the TV may malfunction.
- Unplug the TV from the wall outlet when connecting the 3D WOOFER.
- Make sure that none of the 3D WOOFER wire strands stick out, making contact with the neighbouring speaker terminal, to prevent a malfunction caused by a short circuit of the terminals.

Connecting a VHF antenna or a combination VHF/UHF antenna — 75-ohm coaxial cable (round)

Attach an optional IEC antenna connector to the 75-ohm coaxial cable.
Plug the connector into the  (antenna) socket at the rear of the TV.



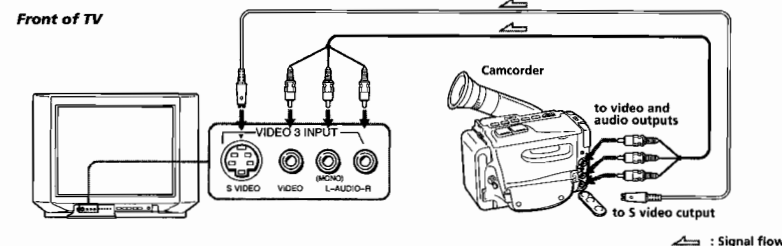
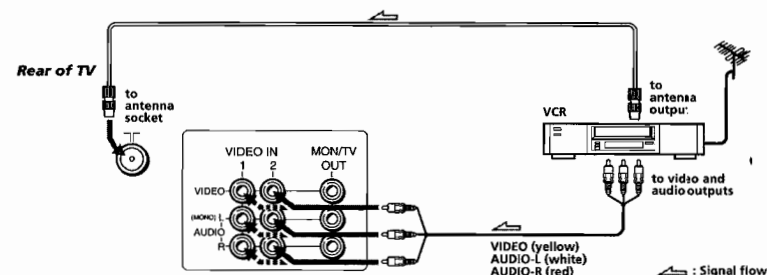
SECTION 1 GENERAL

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

Connecting optional equipment

You can connect optional audio/video equipment to your TV such as a VCR, multi disc player, camcorder, video game, or stereo system.

Connecting video equipment using video input jacks



When connecting a monaural VCR

Connect the yellow plug to VIDEO and the black plug to AUDIO-L (MONO).

When connecting a VCR to the (antenna) terminal

Preset the signal output from the VCR to the program position 0.

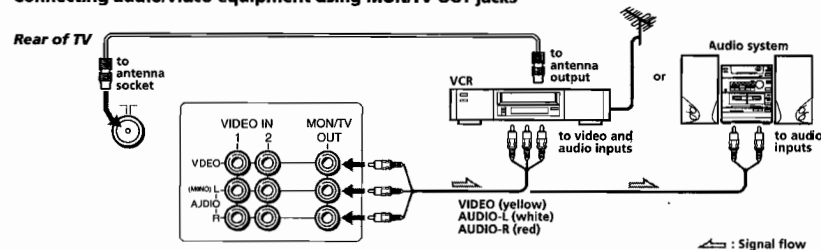
If both S Video and video signals are input simultaneously

The S Video input signal is selected. To view a video input signal, disconnect the S Video connection.

Note on the video input

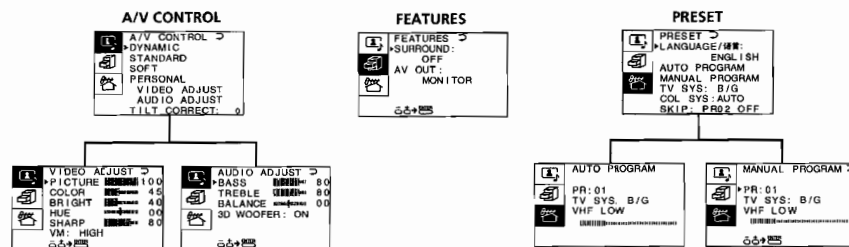
When no signal is input, the screen becomes blue.

Connecting audio/video equipment using MON/TV OUT jacks



Introducing the menus

You can preset TV channels, adjust the picture and sound qualities, and select some settings using the on-screen menus. You can use the buttons on both the remote commander and the TV to operate the menus.



Getting back to the previous menu (except for AUTO PROGRAM)

Press + or - to move the cursor (▶) to the first line (▷) of each menu, and press ENTER.

Cancelling the menu screen

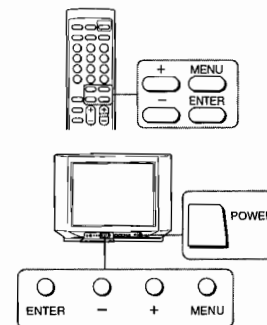
Press MENU.

Notes (except for AUTO PROGRAM)

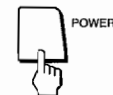
- When a menu is selected after pressing ENTER, the color of both the menu and the menu symbol change and the cursor (▶) appears beside the first item of the menu.
- When an item on the menu is selected after pressing ENTER, the color of the item changes.
- You can refer to the guide (遥控器) at the bottom of the menus (except for the A/V CONTROL and PRESET menus) for the basic operations of the menu.
- If more than approximately 60 seconds elapse after you press a button, the menu screen disappears automatically.

Changing the menu language

If you prefer Chinese to English, you can change the menu language. You can use buttons on the remote commander or the TV.



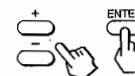
1 Press POWER to turn on the TV.



2 Press MENU.



3 Press + or - to move the cursor (▶) to the PRESET menu (PRESET), and press ENTER.



4 Make sure the cursor (▶) appears beside LANGUAGE/语言, and press ENTER.



All of the menus change to Chinese.

6 Press MENU to return to the normal screen.

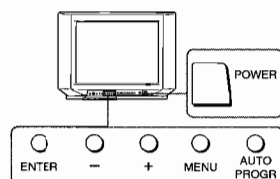


Presetting channels

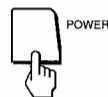
You can preset TV channels easily by storing all the receivable channels automatically. You can also preset channels manually or disable program positions (see page 11).

Presetting channels automatically

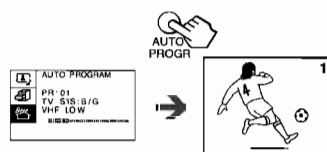
You can preset up to 100 TV channels in numerical sequence from the program position 1. You can preset channels automatically using the button on the TV or the menu.



1 Press POWER to turn on the TV.



2 Press AUTO PROGR.



The TV starts scanning and presetting channels automatically. When all of the receivable channels are stored, the first preset TV program appears on the screen.

To preset channels automatically using the menu

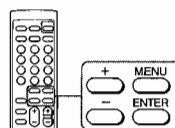
1 Press MENU.

2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.

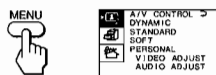
3 Press + or - to move the cursor (►) to AUTO PROGRAM, and press ENTER.

Presetting channels manually

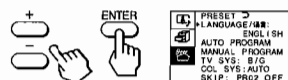
To change the program position for a channel or to receive a channel with a weak signal which you cannot receive by automatic presetting, preset the channel manually.



1 Press MENU.



2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.



3 Select your local TV system.

- (1) Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- (2) Press + or - until your local TV system appears on the menu, and press ENTER.

4 Press + or - to move the cursor (►) to MANUAL PROGRAM, and press ENTER.



5 Select the program position to which you want to preset a channel.

- (1) Make sure the cursor (►) appears beside PR, and press ENTER.
- (2) Press + or - until the program position you want appears on the menu, and press ENTER.

6 Select the desired channel.

- (1) Press + or - to move the cursor (►) to VHF LOW, and press ENTER.
- (2) Press + or - until the desired channel picture appears on the TV screen, and press ENTER.

7 Press MENU to return to the normal screen.

If the TV system is not properly selected

The picture color may be poor and/or the sound may be noisy. In this case, select the appropriate TV system.

- 1 Press PROG +/ - or the number buttons to select the program position.
- 2 Display the PRESET menu.
- 3 Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- 4 Press + or - until the appropriate TV system appears, and press ENTER.

Notes

- The TV system setting is memorized for each program position.
- If you do not know your local TV system, consult your nearest Sony dealer or authorized service center.

Disabling program positions

By disabling unused or unwanted program positions, you can skip those positions when you press PROGR +/ -.

1 Press MENU.

2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.

3 Press + or - to move the cursor (►) to SKIP, and press ENTER.

4 Press + or - until the unused or unwanted program position appears on the menu, and press ENTER.

5 Press + or - to select ON, and press ENTER.

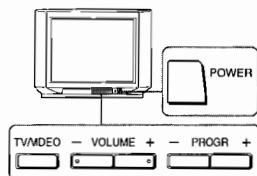
6 To disable other program positions, repeat steps 4 and 5.

7 Press MENU to return to the normal screen.

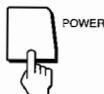
To cancel the skip setting

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to SKIP, and press ENTER.
- 3 Press + or - until the program position you want to cancel the skip setting appears, and press ENTER.
- 4 Press + or - to select OFF, and press ENTER.

Watching the TV



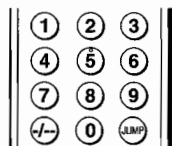
- 1 Press **POWER** to turn on the TV.



When the TV is turned on in the standby mode after pressing **POWER** on the TV, press **POWER** on the remote commander.

- 2 Select the TV program you want to watch.

To select a program position directly
Press the number button.

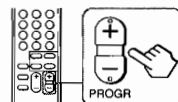


To select a two-digit program position, press “-/-” before the number buttons.
For example: to select program position 25, press “-/-,” then “2” and “5.”

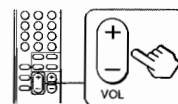


To scan through program positions

Press **PROGR +/-** on the remote commander or the TV until the program position you want appears.



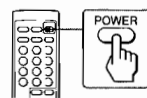
- 3 Press **VOL +/-** on the remote commander or **VOLUME +/-** on the TV to adjust the volume.



Turning off the TV

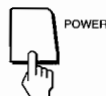
To turn off the TV temporarily

Press **POWER** on the remote commander. The standby indicator lights up.



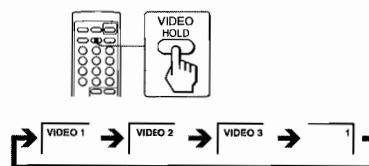
To turn off the TV completely

Press **POWER** on the TV.



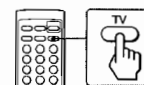
Watching the video input

Press **VIDEO/HOLD** on the remote commander or **TV/VIDEO** on the TV.



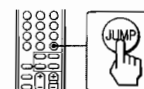
To watch TV

Press **TV** on the remote commander or **TV/VIDEO** on the TV.



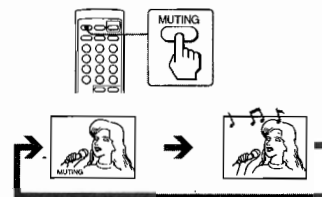
Switching back quickly to the previous channel

Press **JUMP**.



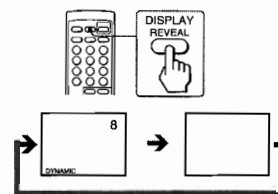
Muting the sound

Press **MUTING**.



Displaying the on-screen information

Press **DISPLAY/REVEAL**.



Note

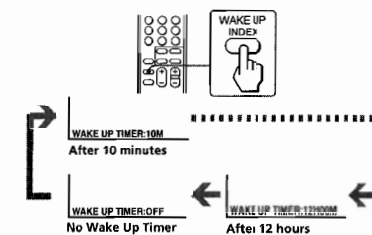
- The on-screen display shows the program position or the video mode and the picture and sound information. The on-screen display for the picture and sound information disappear after being displayed for approximately three seconds.

Setting the Wake Up Timer

You can set the TV to turn on automatically after the period of time you want.

- 1 Press **WAKE UP/INDEX** repeatedly to set the timer.

The on-screen display appears



- 2 If you want a particular TV program or video mode to be displayed using the Wake Up Timer, select the TV program or video mode.

- 3 Press **POWER** on the remote commander or set the Sleep Timer to turn off the TV in the standby mode.

The **WAKE UP** indicator lights up in amber color.

To cancel the Wake Up Timer, press **WAKE UP/INDEX** repeatedly until “**WAKE UP TIMER: OFF**” appears, or turn off the main power of the TV.

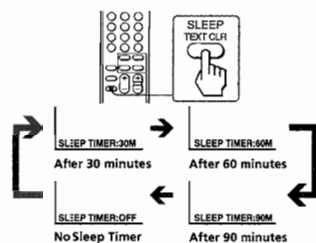
Notes

- The Wake Up Timer starts immediately after the on-screen display disappears.
- The last TV program position or video mode just before the TV turns into the standby mode will appear when the TV is turned on using the Wake Up Timer.
- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up Timer, the TV automatically turns into the standby mode. If you want to continue watching the TV, press any button or control on the TV or remote commander.

Setting the Sleep Timer

You can set the TV to turn off automatically after the period of time you want.

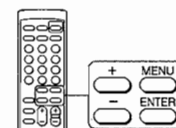
Press **SLEEP**.



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

Adjusting the picture and sound

Selecting the picture and sound modes



1 Press MENU.



2 Make sure the cursor (▸) appears in the A/V CONTROL menu (Ⓐ), and press ENTER.

3 Press + or - to move the cursor (▸) to DYNAMIC, STANDARD, SOFT, or PERSONAL, and press ENTER.



Select	To
DYNAMIC	Receive high contrast picture with powerful sound.
STANDARD	Receive normal contrast picture with medium listening sound.
SOFT	Receive mild picture with soft sound.
PERSONAL	Receive the last picture and sound settings that are adjusted using VIDEO ADJUST and AUDIO ADJUST.

4 Press MENU to return to the normal screen.



Adjusting the picture settings (VIDEO ADJUST)

You can adjust the picture settings to suit your taste with the VIDEO ADJUST option. The adjusted settings are stored in the PERSONAL option.

1 Press MENU.



2 Make sure the cursor (▸) appears in the A/V CONTROL menu (Ⓐ), and press ENTER.

3 Press + or - to move the cursor (▸) to VIDEO ADJUST, and press ENTER.



4 Press + or - to move the cursor (▸) to the item you want to adjust, and press ENTER.

5 Press + or - to adjust the selected item, and press ENTER.

For details on each item, see "Description of adjustable items" below.

6 To adjust other items, repeat steps 4 and 5.

7 Press MENU to return to the normal screen.

Description of adjustable items

Item	Press -	Press +
PICTURE	Decrease picture contrast.	Increase picture contrast.
COLOR	Decrease color intensity.	Increase color intensity.
BRIGHT	Darken the picture.	Brighten the picture.
HUE	Make picture tones become reddish.	Make picture tones become greenish.
SHARP	Soften the picture.	Sharpen the picture.
VM	Decrease emphasis on picture edges.	Increase emphasis on picture edges.

Note

- You can adjust HUE for the NTSC color system only.

If the picture is slightly snowy

You may try to improve the picture by changing the VM setting as described below:

- 1 Display the VIDEO ADJUST menu.
- 2 Press + or - to move the cursor (►) to VM, and press ENTER.
- 3 Press + or - to select LOW, and press ENTER.

If the picture color is abnormal when receiving programs through the ㊦ (antenna) terminal

Change the color system or the TV system from the PRESET menu as described below until the color becomes normal.

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to COL SYS or TV SYS, and press ENTER.
- 3 Press + or - to change the color system or the TV system until the color becomes normal, and press ENTER.

Note

- Normally set the color system (COL SYS) to AUTO.

Adjusting the sound settings (AUDIO ADJUST)

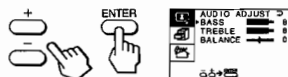
You can adjust the sound settings to suit your taste with the AUDIO ADJUST option. The adjusted settings are stored in the PERSONAL option.

1 Press MENU.



2 Make sure the cursor (►) appears in the A/V CONTROL menu (Ⓔ), and press ENTER.

3 Press + or - to move the cursor (►) to AUDIO ADJUST, and press ENTER.



4 Press + or - to move the cursor (►) to the item you want to adjust, and press ENTER.

5 Press + or - to adjust the selected item, and press ENTER.

For details on each item see "Description of adjustable items" below.

6 To adjust other items, repeat steps 4 and 5.

7 Press MENU to return to the normal screen.

Description of adjustable items

Item	Press -	Press +
BASS	Decrease the bass sound.	Increase the bass sound.
TREBLE	Decrease the treble sound.	Increase the treble sound.
BALANCE	Increase the left speaker's volume	Increase the right speaker's volume.

If the sound is distorted or noisy when receiving programs through the ㊦ (antenna) terminal

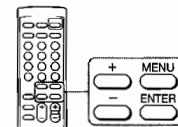
Change the TV system from the PRESET menu as described below until the sound becomes normal.

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- 3 Press + or - to change the TV system until the sound becomes normal, and press ENTER.

Listening to the woofer sound (3D WOOFER)

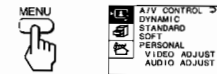
■ Except for KV-J29MF1

The 3D WOOFER enhances bold, dynamic and clear sounds that spread over a large area and lets you enjoy the thrills, horrors, and suspense of movies or music. The initial setting of the 3D WOOFER is ON, and it is ready for your listening when you turn on the TV.



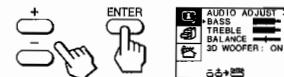
To turn off the woofer sound

1 Press MENU.



2 Make sure the cursor (►) appears in the A/V CONTROL menu (Ⓔ), and press ENTER.

3 Press + or - to move the cursor (►) to AUDIO ADJUST, and press ENTER.



4 Press + or - to move the cursor (►) to 3D WOOFER, and press ENTER.

5 Press + or - to select OFF, and press ENTER.

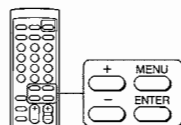
6 Press MENU to return to the normal screen.

Notes

- To listen to the woofer sound, make sure that the 3D WOOFER is properly connected to the TV (see page 6).
- You can also disconnect the 3D WOOFER from the TV to turn off the woofer sound.

Listening to the surround sound (SURROUND)

The SURROUND feature enables you to enjoy a surround sound effect that is like being in a large hall or live concert when receiving stereo signals.



1 Press MENU.

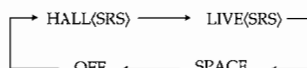


2 Press + or - to move the cursor (▶) to the FEATURES menu (), and press ENTER.



3 Make sure the cursor (▶) appears beside SURROUND, and press ENTER.

4 Press + or - to select HALL(SRS), LIVE(SRS), or SPACE, and press ENTER.



For details on each item, see "Description of adjustable items" below.

5 Press MENU to return to the normal screen.

Description of adjustable items

Select	To
HALL(SRS)	Listen to a sound that spreads out over a large area.
LIVE(SRS)	Listen to the sound that gives the feeling of being at a live concert.
SPACE	Listen to a monaural sound that gives a stereo-like effect.
OFF	Turn off the surround sound.

Note

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

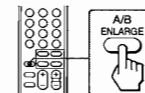
Selecting a stereo or bilingual program

■ Except for KV-J29MF1

You can enjoy stereo sound or bilingual programs of both NICAM and A2 (German) stereo systems (for KV-J29MN2/J29SN21) and A2 (German) stereo system (for KV-J29SZ2).

Press A/B/ENLARGE repeatedly until you receive the sound you want.

The on-screen display changes corresponding to the selected sound, and the STANDBY/STEREO/WAKE UP indicator also lights up.



■ KV-J29MN2/J29SN21

When receiving a NICAM program

Broadcasting	On-screen display (Selected sound)
NICAM stereo	NICAM (Stereo sound) → MONO (Regular sound)
NICAM bilingual	NICAM MAIN (Main sound) → NICAM SUB (Sub sound) → MONO (Regular sound)
NICAM monaural	NICAM MAIN (Main sound) → MONO (Regular sound)

When receiving an A2 (German) program

Broadcasting	On-screen display (Selected sound)
A2 (German) stereo	STEREO (Stereo sound)
A2 (German) bilingual	MAIN (Main sound) → SUB (Sub sound)

Receiving area for NICAM and A2 (German) programs

System	Receiving area
NICAM	Hong Kong, Singapore, New Zealand, etc.
A2 (German)	Australia, Malaysia, Thailand, etc.

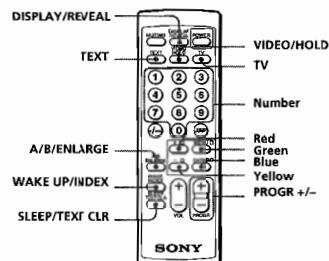
Notes

- If the signal is very weak, the sound becomes monaural automatically.
KV-J29MN2/J29SN21 only
- If the stereo sound is noisy when receiving a NICAM program, select "MONO." The sound becomes monaural, however, the noise will be reduced.

Viewing Teletext

■ KV-J29SN21 only

TV stations broadcast an information service called Teletext via a TV channel. Teletext service allows you to receive various information such as market shares, weather forecasts or news at any time. For the KV-J29SZ2 model, you need the Teletext adaptor OPK-T300G (not supplied) to view the Teletext broadcast. You can request your nearest authorized service center or dealer to install the Teletext adaptor into your TV.



Displaying Teletext

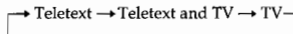
- 1 Select a TV channel that carries the Teletext broadcast you want to watch.**
- 2 Press TEXT to display the Teletext.**
A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, "100" is displayed at the top left corner of the screen.

To turn off Teletext
Press TV.

Superimposing a Teletext page on the TV picture

Press TEXT.

Each time you press TEXT, the screen changes as follows:



Checking the contents of a Teletext service (INDEX)

Press WAKE UP/INDEX to display an overview of the Teletext contents and page numbers.

Using FASTEXT

This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT program is broadcasted, the colored menus appear at the bottom of the screen. The colors of the menus correspond to the red (+), green (MENU) yellow (-), and blue (ENTER) color-coded buttons on the remote commander.

To access a FASTEXT menu

Press the color-coded button on the remote commander that corresponds to the colored menu which appears at the bottom of the screen. The menu page appears on the screen after several seconds.

Selecting a Teletext page

Press the number buttons to enter the three-digit page number of the Teletext page you want.

If you make a mistake, re-enter the correct page number.

To access the next or previous page
Press PROGR +/-.

You can also access a Teletext page of any page numbers that appear in the colored column at the bottom of the screen using the corresponding color-coded button on the remote commander.

Holding a Teletext page (HOLD)

A Teletext page may consist of several subpages. You can stop the page scrolling in order to read the text at your own pace.

Press VIDEO/HOLD.

The HOLD symbol "Ⓢ" appears at the top left corner of the screen.

To resume normal Teletext operation
Press VIDEO/HOLD again or TEXT.

Revealing concealed information (REVEAL)

The REVEAL option lets you disclose concealed information, such as an answer to a quiz that you find on some of the Teletext pages.

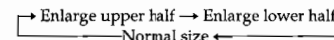
Press DISPLAY/REVEAL.

To conceal the information
Press DISPLAY/REVEAL again.

Enlarging the Teletext display (ENLARGE)

Press A/B/ENLARGE.

Each time you press A/B/ENLARGE, the Teletext display changes as follows:



Waiting for a Teletext page while watching a TV program (TEXT CLEAR)

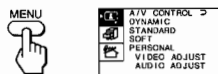
- 1 Key in the page number of the Teletext that you want to watch, then press SLEEP/TEXT CLR.**
- 2 When the page number is displayed on the screen, press TEXT to turn on the Teletext.**

Customizing the TV

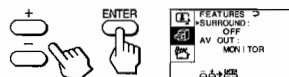
Using the AV OUT (advanced rec-out) terminal

You can select the output signal from the MON/TV OUT jacks at the rear of the TV. However, the signal of the Teletext broadcast cannot be output even though MONITOR is selected (for KV-J29SN21 only).

1 Press MENU.



2 Press + or - to move the cursor (▶) to the FEATURES menu (FEATURES), and press ENTER.



3 Press + or - to move the cursor (▶) to AV OUT, and press ENTER.

4 Press + or - to select the output signal, and press ENTER.

Select	To
TV	Output the signal of the TV broadcast.
MONITOR	Output the signal of the picture you are watching as a main picture.

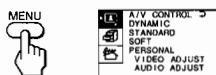
Note

- Do not change the channel while recording with a VCR through the MON/TV OUT jacks. If you change the channel, it also changes the channel you are recording.

Adjusting the picture tilt

You can adjust the picture tilt if it is not aligned to the TV screen. This may happen due to the direction of the earth's magnetic field in relation to the TV position.

1 Press MENU.



2 Make sure the cursor (▶) appears in the A/V CONTROL menu (A/V CONTROL), and press ENTER.

3 Press + or - to move the cursor (▶) to TILT CORRECT, and press ENTER.

4 Press + or - to select the most suitable value to adjust the picture tilt, and press ENTER.

TILT CORRECT:
-5 ← -4 ← -3 ← -2 ← -1 ← 0 → +1 → +2 → +3 → +4 → +5
Press - Press +

Additional Information

Troubleshooting

If you have any problems, read this manual again and check the countermeasure for each of the symptoms listed below.

If the problem persists after trying the methods below, contact your nearest Sony dealer or authorized service center.

Snowy picture Noisy sound



- Check the antenna.
- Check the antenna connection on the TV and on the wall.
- Check the TV system (TV SYS) setting.

Dotted lines or stripes



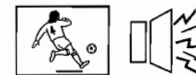
- This may be caused by local interference (e.g. cars, neon signs, hair dryers, etc.). Adjust the antenna for minimum interference.

Double images or "ghosts"



- This may be caused by reflections from nearby mountains or buildings. A highly directional antenna may improve the picture.

Good picture Noisy sound



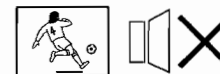
- Check the TV system (TV SYS) setting.

No picture No sound



- Press POWER.
- Press POWER to turn off the TV for about five seconds and then turn it on again.
- Check the power cord connection.
- Check the antenna connection.
- Check the VCR connections.

Good picture No sound



- Press VOL +.
- Press MUTE.
- Press A/B/ENLARGE.

No color



- Adjust the COLOR level in the VIDEO ADJUST menu of the PERSONAL option.
- Check the color system (COL SYS) setting.

No sound from 3D WOOFER (except for KV-J29MF1)



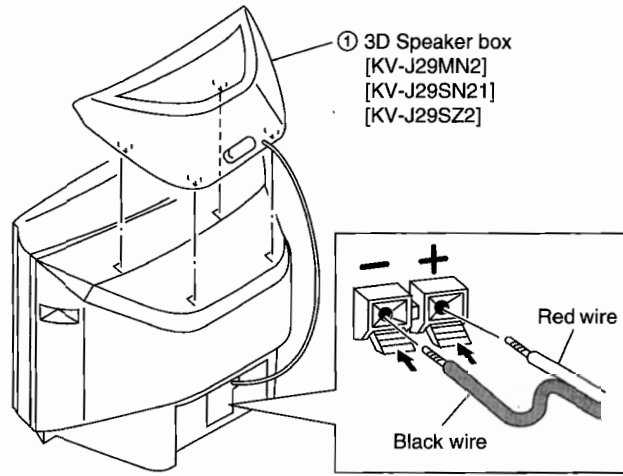
- Check the connection of the 3D WOOFER.
- Check that the setting of the 3D WOOFER is ON in the AUDIO ADJUST menu.

TV cabinet creaks

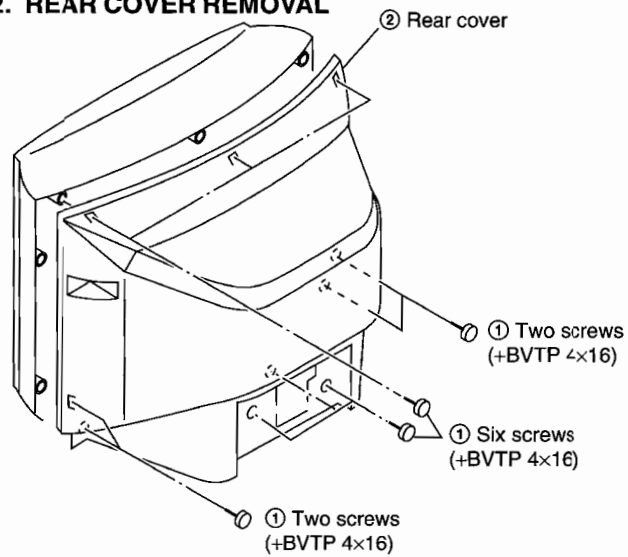
- Even if the picture or the sound is normal, changes in the room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.

SECTION 2 DISASSEMBLY

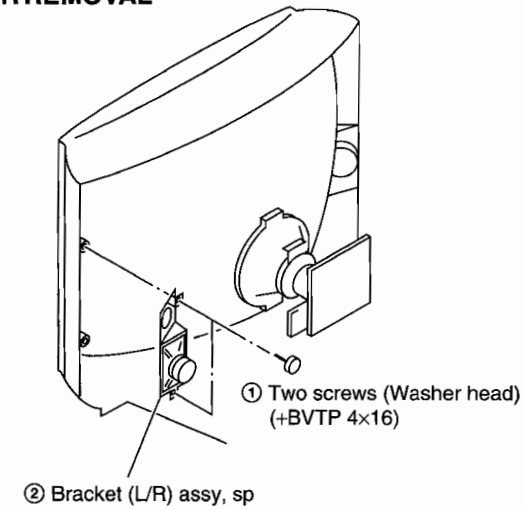
2-1. 3D SPEAKER BOX REMOVAL



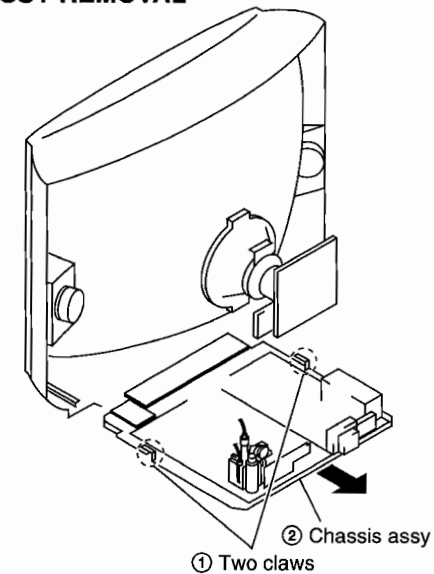
2-2. REAR COVER REMOVAL



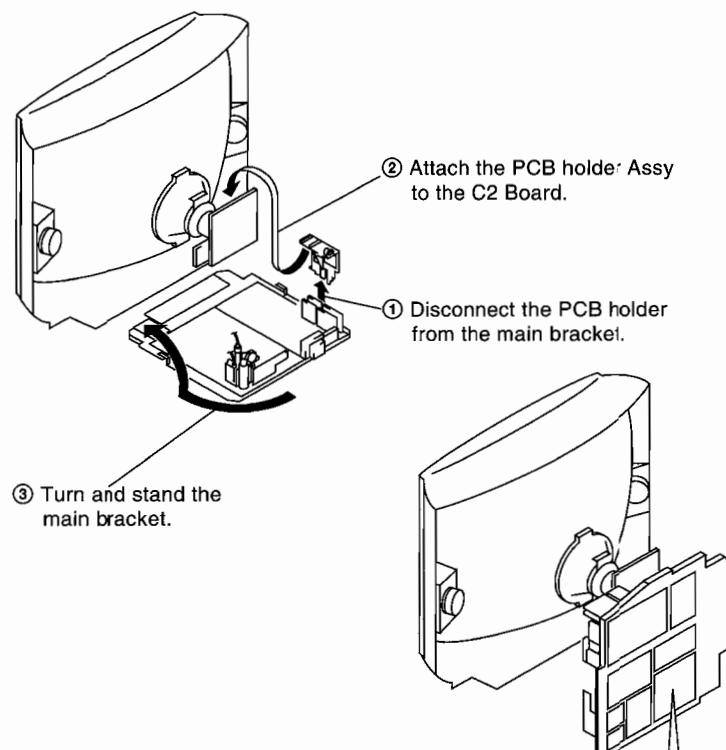
2-3. SPEAKER REMOVAL



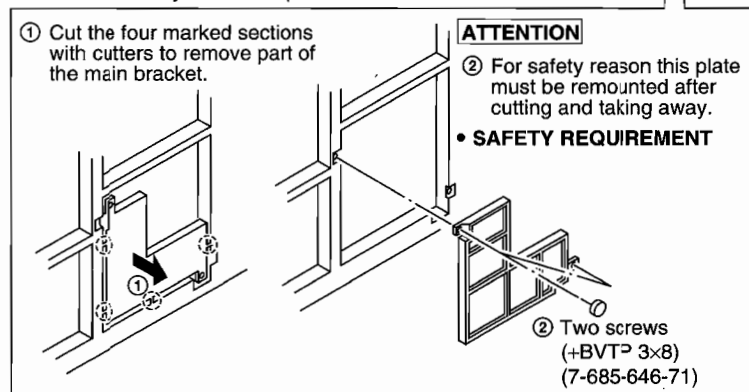
2-4. CHASSIS ASSY REMOVAL



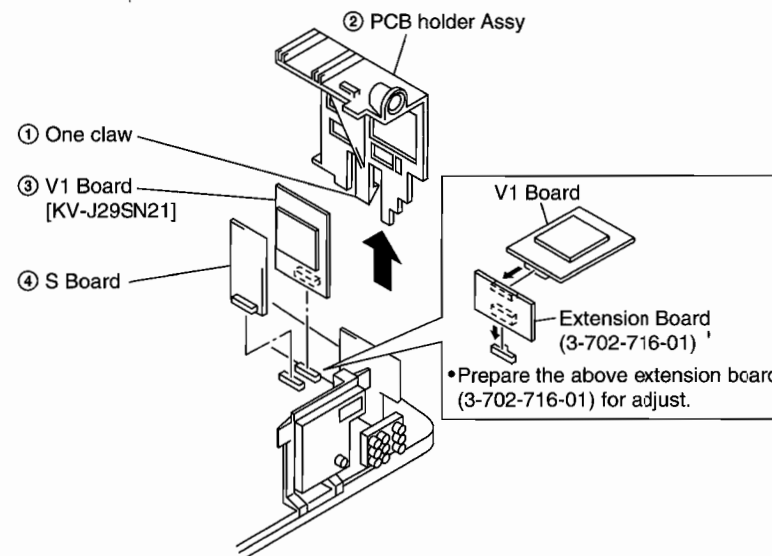
2-5. SERVICE POSITION



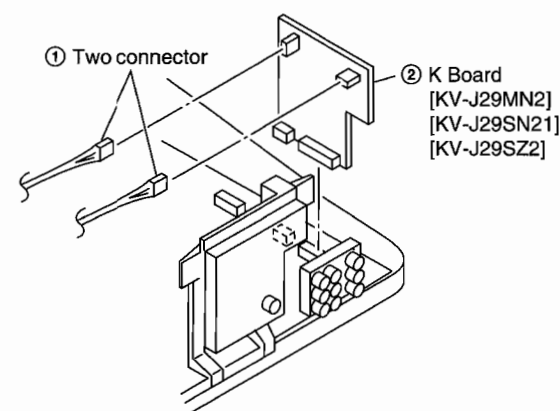
• When measuring the power supply voltage, just remove part of the main bracket as shown below.



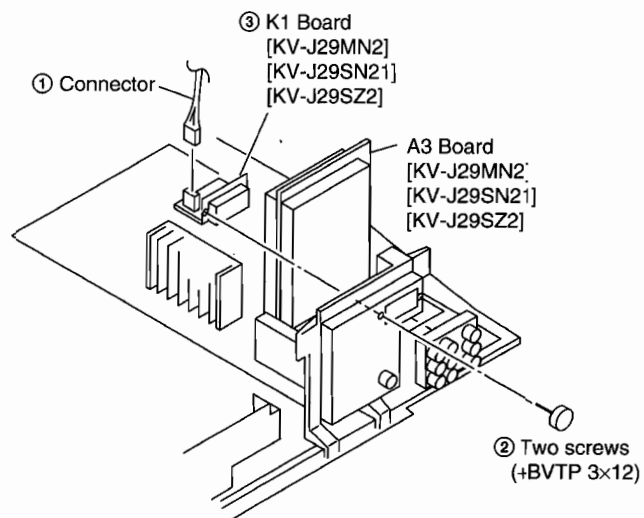
2-6. V1 BOARD REMOVAL



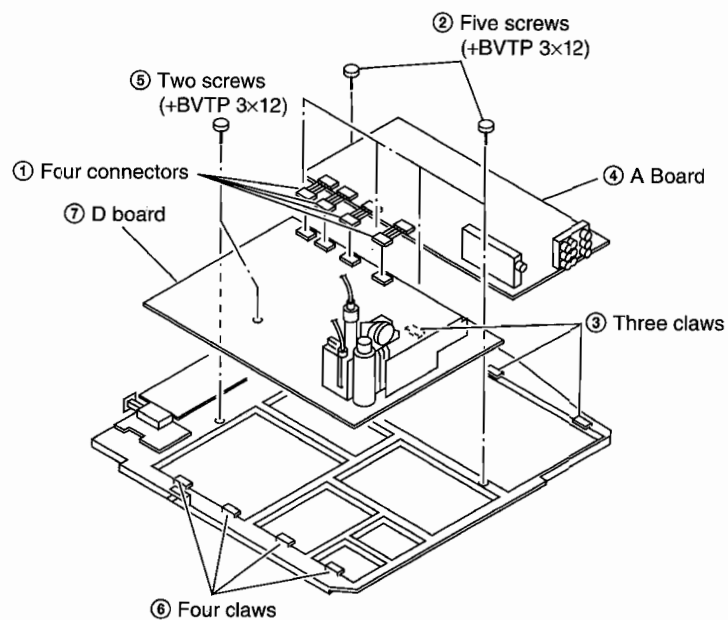
2-7. K BOARD REMOVAL



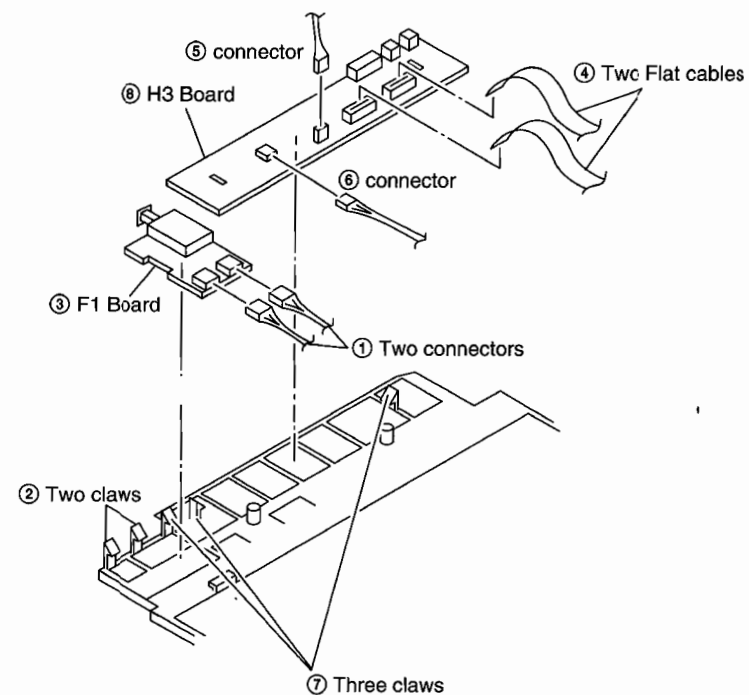
2-8. K1 BOARD REMOVAL



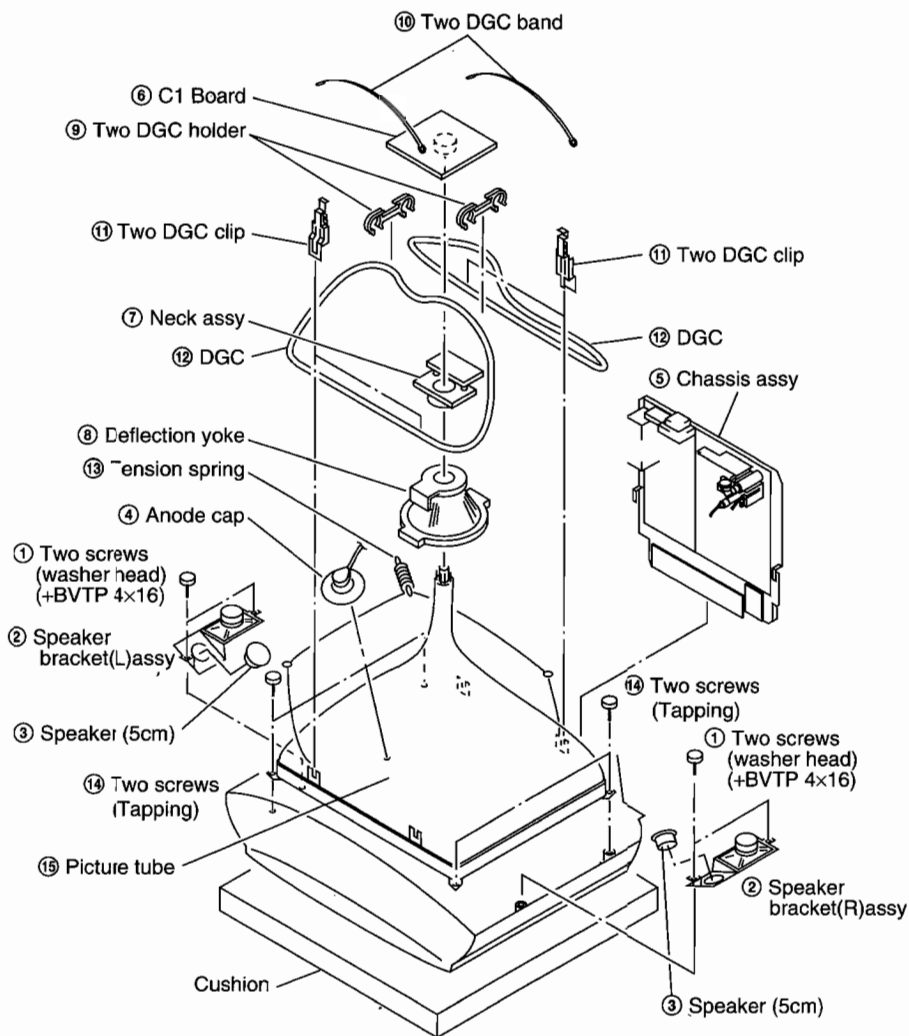
2-9. A AND D BOARDS REMOVAL



2-10. F1 AND H3 BOARDS REMOVAL



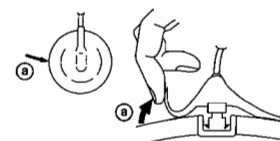
2-11. PICTURE TUBE REMOVAL



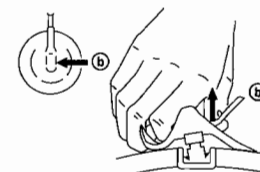
• REMOVAL OF ANODE-CAP

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

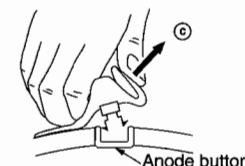
• REMOVING PROCEDURES



- ① Turn up one side of the rubber cap in the direction indicated by the arrow ①.



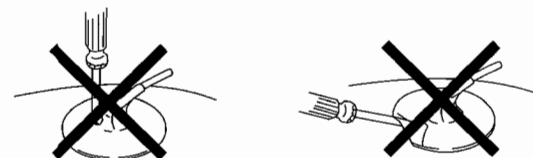
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②.



- ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ③.

• HOW TO HANDLE AN ANODE-CAP

- ① Do not damage the surface of anode-caps with sharp shaped objects.
- ② Do not press the rubber too hard so as not to damage the inside of anode-cap. A metal fitting called the shatter-hook terminal is built into the rubber.
- ③ Do not turn the foot of rubber over too hard. The shatter-hook terminal will stick out or damage the rubber.



SECTION 3

SELF DIAGNOSIS FUNCTION

KV-J29MF1/J29MN2
KV-J29SN21/J29SZ2
RM-873

When turning on the TV, a self diagnosis function is executed.

If no acknowledgement is returned from a device which is turned "ON", the device has a problem.

In this case, one of the LED's responding to the problem device will flicker a defined number of times.

The flickering frequency responding to each failed device is shown below.

Board name	A Board	A Board	A Board	A Board
Ref. No.	IC003	IC1201	IC104	IC206
Device	NONVOLATILE MEMORY	AV SWITCH (CXA1855S)	MAIN Y/C (CXA-2050S)	SURROUND PROCESSOR (TDA8424)
Flickering Frequency	1	2	3	6

All the devices are checked one after another from the left of the table.

If an error is found, the responding LED will start flickering.

So, if more than 1 device has failed, only the one on the left side will flicker.

SECTION 4

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.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control..... normal
BRIGHTNESS control..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

4-1. BEAM LANDING

1. Position neck ass'y as shown in Fig4-1.
2. Input a white signal with the pattern generator.
Contrast } normal
Brightness }
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
(See Figures 4-2 through 4-4.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 4-2.)
6. Switch the raster signal to blue, then to red and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
(See Figure 4-5.)

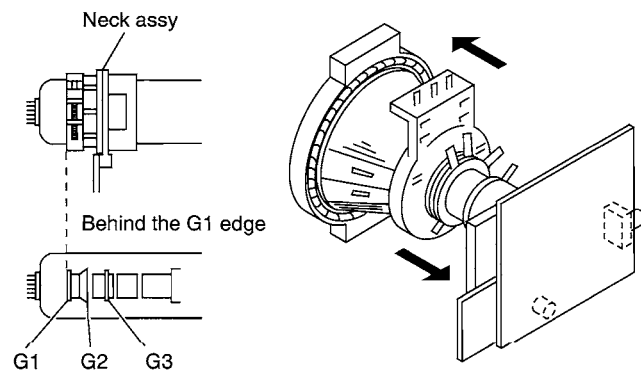


Fig. 4-1

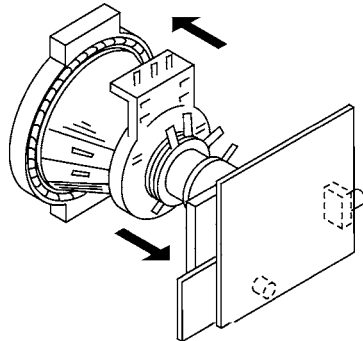


Fig. 4-2

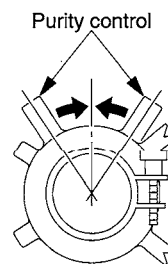


Fig. 4-3

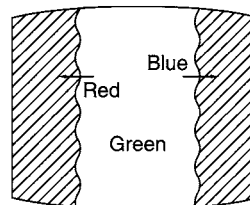


Fig. 4-4

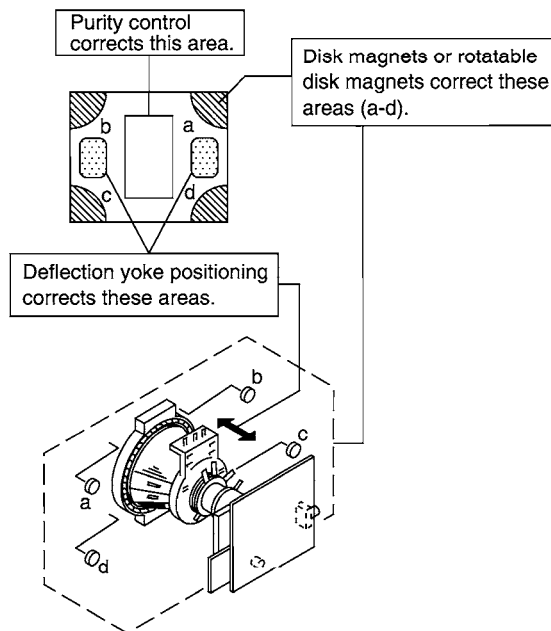


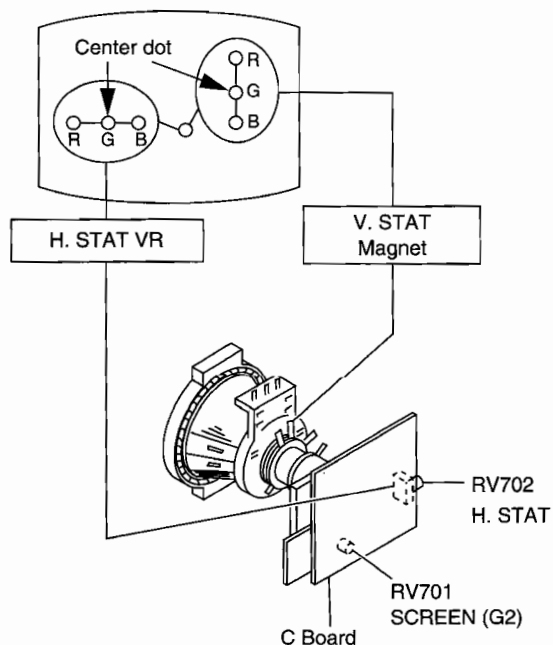
Fig. 4-5

4-2. CONVERGENCE

Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and Vertical Static Convergence

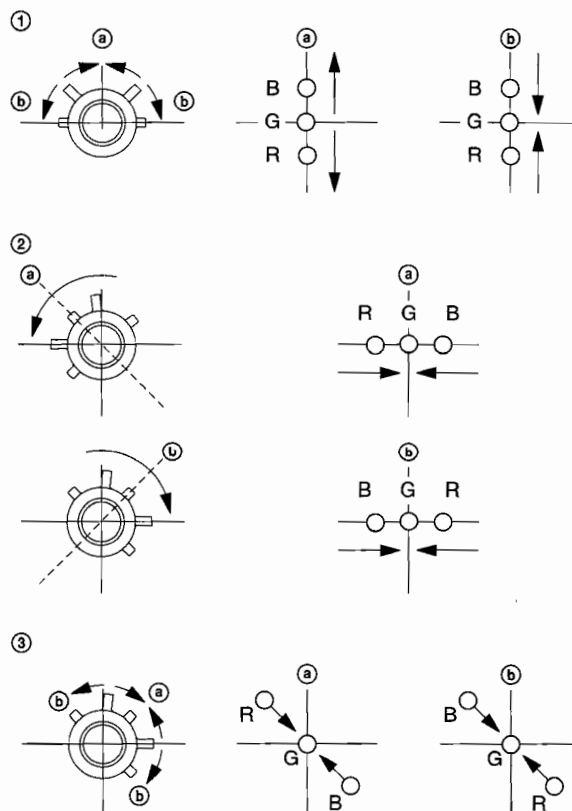


1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue points are on top of each other at the center of the screen.
3. If the red, green and blue points cannot come together at the center of the screen, adjust the convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.

(In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

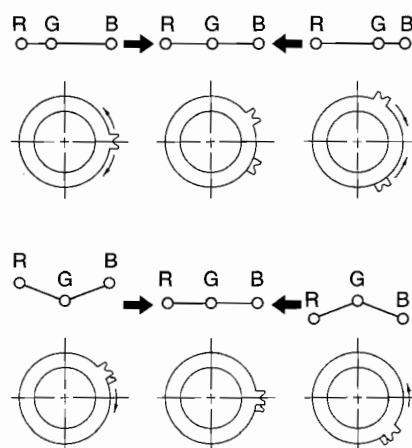
- Operation of V.STAT magnet.

If the V.STAT magnet is moved in the direction of the (a) and (b) arrows, the red, green and blue points move as shown below.



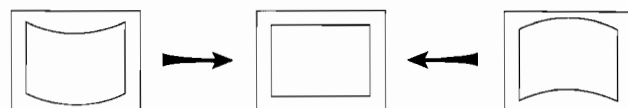
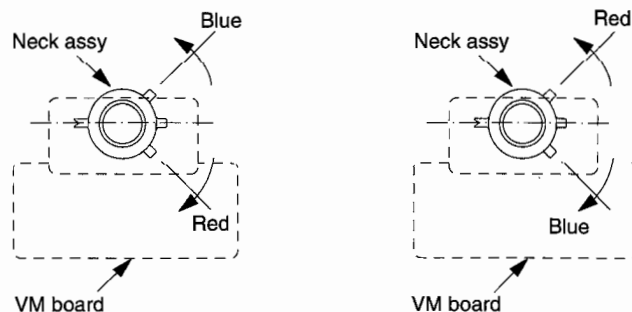
- Operation of BMC (Hexapole) Magnet.

If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.



- Y separation axis correction magnet adjustment.

1. Receive the cross hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD].
2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.



Note

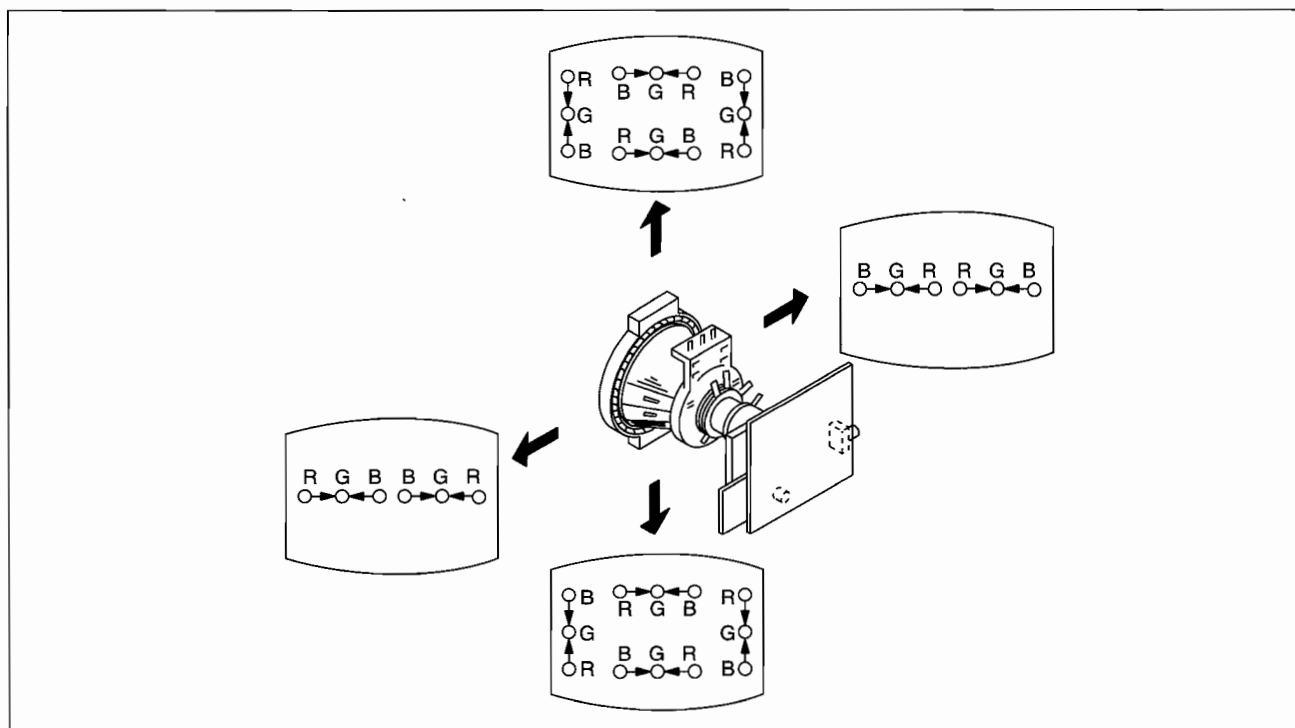
1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

(2) Dynamic Convergence Adjustment

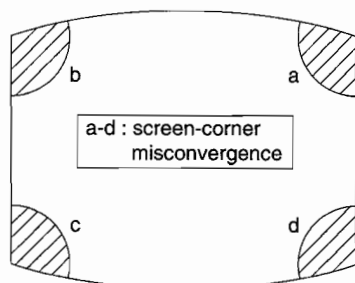
Preparation:

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence
1. Slightly loosen the deflection yoke screws.
 2. Remove the deflection yoke spacer.

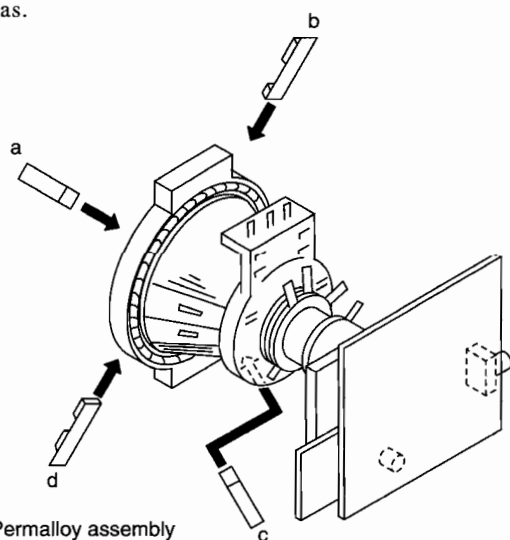
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the deflection yoke spacer.



(3) Screen-corner Convergence

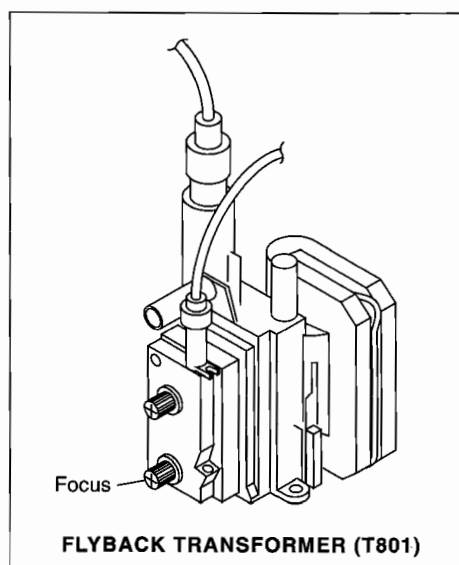


Affix a Permalloy assy corresponding to the misconverged areas.



4-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.



4-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

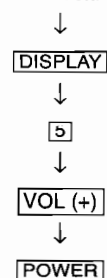
a. SOME ITEMS OF ADJUSTMENT

Item number	Adjustment item	Standard DATA		Note
		50Hz	60HZ	
35	SBR	17	17	SUB-BRIGHTNESS
37	GDR	2C		G. Drive
38	BDR	2C		B. Drive
39	GCF	07		G. Cut-off
3A	BCF	07		B. Cut-off

b. SERVICE MODE

Entering service mode

With the unit on standby



c. METHOD OF CANCELLATION FROM SERVICE MODE

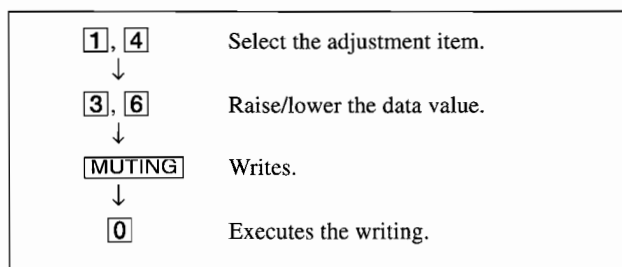
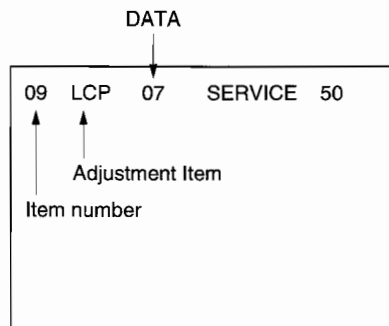
Set the standby condition (Press **[POWER]** button on the commander), then press **[POWER]** button again, hereupon it becomes TV mode.

d. METHOD OF WRITE INTO MEMORY

- 1) Set to Service Mode.
- 2) Press **[1]** (UP) and **[4]** (DOWN), select an item of adjustment.
- 3) Press **[MUTING]** button and it will indicate WRITE on the screen.
- 4) Press **[0]** button to write into memory.

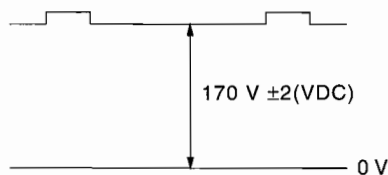
e. MEMORY WRITE CONFIRMATION METHOD

- 1) After adjustment, pull out the plug from AC outlet. and then plug into AC outlet again.
- 2) Turn the power switch ON and set to Service Mode.
- 3) Call the adjusted items again to confirm adjustments were made.



1. G2 (SCREEN) ADJUSTMENT (RV701)

- 1) Set the PICTURE and BRIGHTNESS to normal.
- 2) Put to VIDEO input mode without signals.
- 3) Set to Service Mode.
- 4) Change item number 8C BLU data from "01" to "00"
(To turn off Blue Back).
- 5) Press [MUTING] and [0] to write the data into the memory.
- 6) Connect R, G and B of the C board cathode to the oscilloscope.
- 7) Adjust G2 (RV701) volume to the value below.



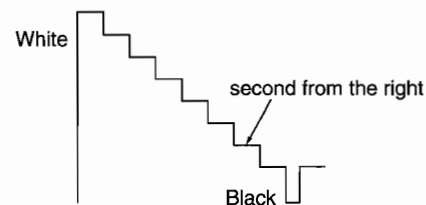
- 8) Re-set item number 8C BLU data from "00" back to "01".
- 9) Press [MUTING] and [0] to write the data into the memory.

2. WHITE BALANCE ADJUSTMENT

- 1) Set to Service Mode.
- 2) Input white raster signal.
- 3) Set the PICTURE to minimum.
- 4) Select 35 SBR with [1] and [4], and then set the level to minimum with [3] and [6].
- 5) Select 39 GCF and 3A BCF with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 6) Set the PICTURE to maximum.
- 7) Select 37 GDR and 38 BDR with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 8) Write into the memory by pressing [MUTING] then [0].

3. SUB BRIGHT ADJUSTMENT

- 1) Set to service mode.
- 2) Input a staircase signal of black to white from the pattern generator.
- 3) BRIGHTNESS 50%.
PICTURE minimum
- 4) Select 55 SBR with [1] and [4], and adjust SBR level with [3] and [6] so that the second stripe from the right is dimly lit.



SECTION 5

CIRCUIT ADJUSTMENTS

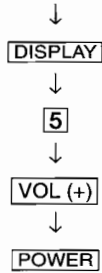
KV-J29MF1/J29MN2
KV-J29SN21/J29SZ2
RM-873

5-1. ADJUSTMENTS WITH COMMANDER-

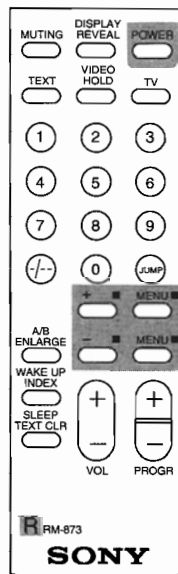
Service adjustments are made with the RM-873 that comes with this unit.

Entering service mode

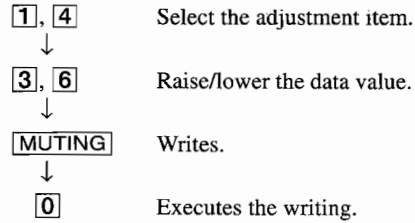
With the unit on standby



This operation sequence puts the unit into service mode.

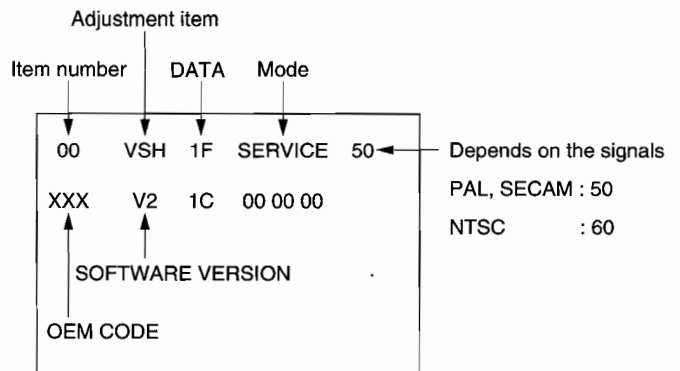


RM-873



- 7, 0 All the data becomes the values in memory.
- 8, 0 All user control goes to the standard state.
- 5, 0 Service data initialization (Be sure not to use usually.)
- 2, 0 Write 50Hz adjustment data to 60Hz, or vice versa.

The screen display is :

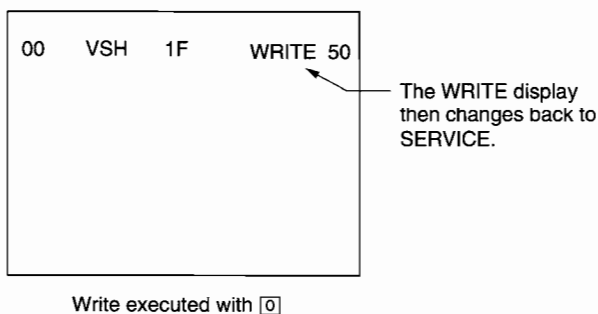
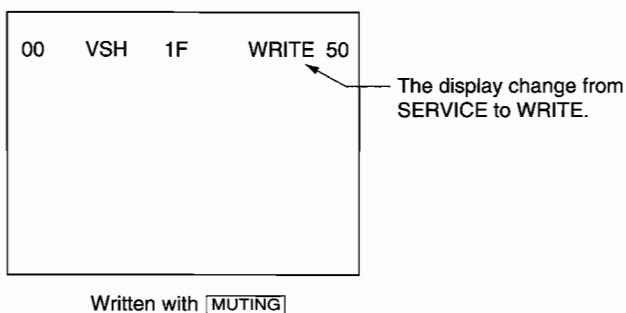
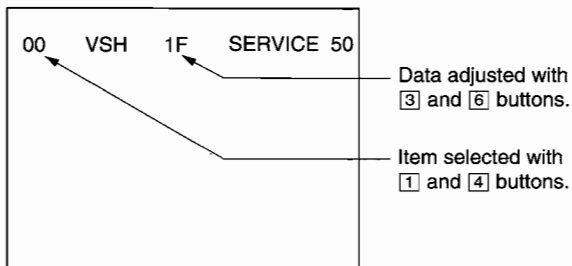


5-2. ADJUSTMENT METHOD

Item Number 00

This explanation uses V-Position as an example.

1. Select 00 VSH with the [1] and [4] buttons.
2. Raise/lower the data with the [3] and [6] buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the [MUTING] button. (The display changes to WRITE.)
5. Execute the writing with the [0] button. (The WRITE display will be changed back to SERVICE.)



Use the same method for Items Number 00-96. Use [1] and [4] to select the adjustment item, use [3] and [6] to adjust, write with [MUTING], then execute the write with [0].

- Note :**
1. For adjustment items that have different standard data between 50Hz or 60Hz and normal or wide, be sure to use the respective input signal while adjusting.
 2. In [WRITE], the data for all items are written into memory together.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
00	VSH	00-3F	1F	V Position	CXA2050S (Y/C/J)
01	VSZ	00-3F	1F	V Size	
02	HSZ	00-0F	07	H Position	
03	HSZ	00-3F	1F	H Size	
04	SCR	00-0F	07	S Correction	
05	VLN	00-0F	07	V Linearity	
06	PAP	00-3F	1F	Pin Comp	
07	PPH	00-0F	07	Pin Phase	
08	UCP	00-0F	07	Up Corner Pin	
09	LCP	00-0F	07	Low Corner Pin	
0A	BOW	00-0F	07	AFC-Bow	
0B	ANG	00-0F	07	AFC-Angle	
0C	VAP	00-3F	2F	V Aspect	
0D	VSC	00-3F	1F	V Scroll	
0E	ULN	00-0F	00	UP V Linearity	
0F	LLN	00-0F	00	LOW V Linearity	
10	EHH	00-03	00	EHT-H	
11	EHV	00-03	01	EHT-V	
12	HBS	00-01	01	H Blk Wid. ON/OFF	
13	LBK	00-0F	0F	L Blk Width	
14	RBK	00-0F	0F	R Blk Width	
15	JSW	00-01	00	Jump ON/OFF Sw	
16	VBW	00-03	02	V Blk Wid. Con.	
17	AFC	00-03	03	AFC-Mode	
18	FHH	00-01	00	FH-HI	
19	VFQ	00-03	00	V-Freq	
1A	VOF	00-01	00	V OFF	
1B	VMD	00-01	00	CD-Mode 2	
1C	CMD	00-01	00	CD-Mode	
1D	ITL	00-03	00	Inter lace	
1E	ZSW	00-01	00	ZOOM SW	
1F	POV	00-03	03	Pre-Over	
20	CT1	00-01	01	C-Trap(NTSC)	
21	CT2	00-01	01	C-Trap(PAL)	
22	CF0	00-0F	07	C-Trap f0 Adj	
23	SF0	00-01	01	Sharpness f0 Adj	
24	TOT	00-01	01	TOT Filter SW	
25	CSW	00-03	00	Color SW	
26	XTL	00-03	00	Xtal	
27	CV1	00-01	01	CV/YC Select(NTSC)	
28	CV2	00-01	01	CV/YC Select(PAL)	
29	VM	00-01	01	VM ON/OFF	
2A	YVM	00-01	00	YSI/VM SW(0:YSI)	
2B	DPC	00-01	01	D-Pic ON/OFF	
2C	DCO	00-01	01	Dynamic Color	
2D	GMM	00-03	01	Gamma	
2E	DTR	00-01	01	DC-Tran	
2F	DL1	00-07	01	Delay Ctrl.(PAL)	
30	DL2	00-07	03	Delay Ctrl.(NTSC)	
31	DL3	00-07	03	Delay Ctrl.(SECAM)	
32	SCN	00-0F	09	Sub-Contrast	
33	SCO	00-0F	0B	Sub-Color	
34	SHU	00-0F	05	Sub-Hue	
35	SBR	00-3F	17	Sub-Bright	
36	SSH	00-07	04	Sub-Sharpness	
37	GDR	00-3F	2C	G-Drive	
38	BDR	00-3F	2C	B-Drive	
39	GCF	00-0F	07	G-Cutoff	

Note:  Bold items are fixed data

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
3A	BCF	00-0F	07	B-Cutoff	CXA2050S (Y/C/J)
3B	RPO	00-03	01	Ref-Position	
3C	PON	00-01	01	Pic-ON	
3D	RON	00-01	01	R ON	
3E	GON	00-01	01	G ON	
3F	BON	00-01	01	B ON	
40	AKF	00-01	00	AKB ON/OFF SW	
41	ESY	00-01	00	Ext Sync Select	
42	AGG	00-01	00	Aging Mode ON/OFF	
43	ABL	00-01	01	ABL Pic/Pic&Brt SW(0:Pic only)	
44	LIM	00-01	00	RGB Limit ON/OFF(0:ON)	
45	PB	00-01	01	Picture Booster	TDA9170 (Picture Improve)
46	BOF	00-01	01	Black Offset	
47	UVG	00-3F	1F	User Var. Gamma	
48	ADG	00-3F	1F	Adaptive Gamma	
49	NLA	00-3F	0F	Non-linear Amp	
4A	WDS	00-02	00	Window Select	
4B	LST	00-0F	07	Window Line Start	
4C	LSP	00-0F	07	Window Line Stop	
4D	FST	00-0F	07	Window Field Start	
4E	FSP	00-0F	07	Window Field Stop	
4F	VA	00-01	01	V Aperture on/off	CXA1315 (V-AP)
50	VAW	00-03	02	V Aperture white	
51	VAB	00-03	00	V Aperture black	
52	VAC	00-0F	03	V Aperture core	
53	SHP	00-3F	0F	Sharpness	CXA1315 (LTI)
54	VML	00-3F	29	VM Limitter	
55	COR	00-3F	17	Coreing	
56	DOF	00-3F	15	DSC Offset	
57	DGA	00-3F	1F	DSC Gain	
58	DLT	00-01	01	Delay Time	
59	SDL	00-0F	00	SEL Pin Delay	SDA9189X (PinP)
5A	POH	00-FF	14	H Position(MSB8bit)	
5B	POV	00-FF	27	V Position	
5C	PMD	00-1F	00	Pinp Display Mode	
5D	WRP	00-0F	00	Write Position	
5E	HDL	00-1F	0B	HSI Delay	
5F	AMS	00-01	00	Decimation Filter	
60	VDL	00-1F	0B	VSI Delay	
61	VSP	00-1F	06	VSP Delay	
62	CON	00-0F	06	Contrast	
63	FRY	00-0F	09	Frame Y	
64	FRV	00-0F	00	Frame V	
65	FRU	00-0F	00	Frame U	
66	INF	00-01	01	Inner Frame	
67	FWV	00-03	02	Frame Width V	
68	FWH	00-07	07	Frame Width H	
69	PLL	00-03	02	PLL Loop Filter	
6A	PDV	00-0F	00	Pedestal V	
6B	PDU	00-0F	00	Pedestal U	
6C	DAT	00-01	00	DAC Stream Control	
6D	DAN	00-01	00	DAC Control	
6E	WIP	00-01	00	Wipe on/off	
6F	WSP	00-03	00	Wipe Speed	

Note: Bold items are fixed data.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
70	FAW	00-FF	08	NICAM FAW Thresh	MSP3410 (Audio Stereo Decoder)
71	CTM	00-FF	08	NICAM Error Bit(MONO)	
72	CTN	00-FF	50	NICAM Error Bit(NICAM)	
73	WCD	00-FF	0A	W.G.Change Data	
74	WST	00-FF	15	W.G.STEREO Threshold	
75	WTM	00-FF	50	W.G.Timer	
76	WBT	00-FF	EA	W.G.BILINGUAL Threshold	
77	ACG	00-01	01	AGC AUTO/CONST.	
78	CDB	00-3F	28	AGC GAIN CONST.	
79	FGP	00-7F	24	FM(BG,I,DK)Prescale	
7A	FMP	00-7F	40	FM(M) Prescale	
7B	WGP	00-7F	3C	W.G.Prescale	
7C	NIP	00-7F	7F	NICAM Prescale	
7D	CRM	00-01	00	Carrier Mute	
7E	CML	00-03	00	Carrier Mute Level	
7F	ACO	00-01	01	Audio Clock Out	
80	WAC	00-0F	01	W.G Agreement count	
81	DLY	00-FF	30	Stereo Search Delay	
82	DLG	00-FF	10	W.G. Search Delay	
83	TXP	00-0F	0E	Text Picture cont.	SAA 5281
84	MXP	00-0F	0F	Text Mix mode Pic.	
85	BB1	00-3F	1D	BBE control High	CXA1315 (BBE)
86	BB2	00-3F	1D	BBE control Middle	
87	BB3	00-3F	28	BBE control Low	
88	ATW	00-03	01	Auto Wide Ident Speed	CXP5068
89	BKP	00-FF	00	Blk off Picture	CXP85340 (MICRO CONTROLLER)
8A	OSH	00-3F	0A	OSD Position H	
8B	ODL	00-FF	00	Power On Delay	
8C	BLU	00-01	01	Blue Back on/off	
8D	ROC	00-0F	08	N/S Center Vol.	
8E	ROS	00-07	04	User Step	
8F	DKS	00-01	00	D/K Stereo Search	
90	MUT	00-01	01	No Sync. Mute	
91	DID	00-01	00	Disable Degauss	
92	DWZ	00-01	01	Disable Widezoom	
93	BCS	00-01	00	BASS Center Shift	
94	BVS	00-01	00	Basso Volume Shift	
95	OP0	00-FF	01	Option 0	
96	OP1	00-FF	3E	Option 1	

NOTE

- **Fixed items** are fixed data
- 50 ... 50Hz data, 60 ... 60Hz data
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.

ITEM INFORMATION.

No. 95 OP0

Item	-	-	-	-	-	-	-	Fastext
KV-J29SN21/SZ2	0	0	0	0	0	0	0	1
KV-J29MF1/MN2	0	0	0	0	0	0	0	0

No. 96 OP1

Item	Wide	Woofer	Tilt	VM	Comb type	Comb filter	SECAM	B/G only
KV-J29SN21/SZ2	0	1	1	1	0	0	0	1
KV-J29MF1	0	0	1	1	0	0	1	0
KV-J29MN2	0	1	1	1	0	0	1	0

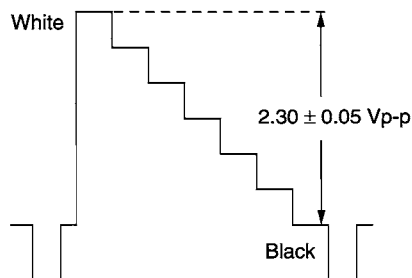
• 95 OP0, 96 OP1

- Fastext : 0 → Automatic mode, 1 → Fastext mode
B/G only : 0 → Multi system, 1 → B/G system only
Comb type : 0 → Glass comb filter, 1 → Digital comb filter
Wide : 0 → 4:3 model, 1 → 16:9 model

5-3. PICTURE QUALITY ADJUSTMENTS

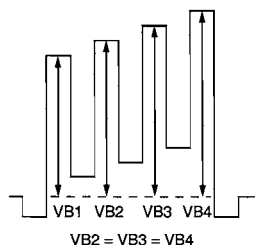
SUB CONTRAST ADJUSTMENT (SCN)

1. Receive a PAL color-bar.
2. Set service item 3E GON and 3F BON to data "00". Set the PICTURE 100%, BRIGHTNESS 50% and COLOR MIN.
3. Connect an oscilloscope to the pin ⑥ (R OUT) of CN117, A board.
4. Set to Service Mode and select 32 SCN using [1] and [4] of the commander, then adjust to $2.30 \pm 0.05V$ using [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Receive a NTSC color-bar and adjust 32 SCN as step 2 to 5.
7. Set service item 3E GON and 3F BON to data "01".



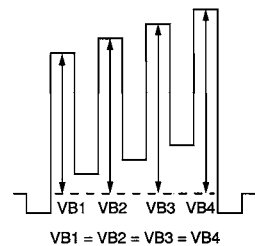
SUB COLOR ADJUSTMENT (SCO)

1. Input a PAL color-bar.
2. Set service item 49 NLA to data "00".
Set to the following condition:
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Set to Service Mode and select 33 SCO with [1] and [4] of the commander then adjust to $VB2=VB3=VB4$ with [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Adjust 33 SCO as step 2 to 5 when receiving NTSC color-bar.
7. Set service item 49 NLA to data "0F" and write the data.



SUB HUE ADJUSTMENT (SHU)

1. Receive a NTSC color-bar.
2. Set the following condition:
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%, HUE -0%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Select 34 SHU with [1] and [4] of the commander by setting to Service Mode and adjust to $VB1=VB2=VB3=VB4$ with [3] and [6].



5. Press [MUTING] → [0] of the commander to write the data.
6. Set to WIDE Mode by [MENU] button to write the same value as in step 4.

5-4. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.
2. Press commander buttons **[5]** and **[0]** (Data Initialize), and **[2]** and **[0]** (Data Copy) to initialize the data.
3. Call each item number and check if the respective screen shows the normal picture.
In cases where items are not well adjusted, rectify the items with fine adjustment.
Write the data per each item number (**[MUTING]** + **[0]**).
4. Select item numbers 95 OP0 and 96 OP1 and respectively set the bit per model with command buttons **[3]** and **[6]**.
5. Press commander buttons **[8]** and **[0]** (Test Normal) to return to the data that was set on the shipment from the factory.
(This will also cancel Service Mode.)

5-5. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

00 VSH(V POSITION)



01 VSZ(V SIZE)



02 HSH(H POSITION)



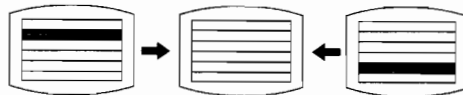
03 HSZ (H SIZE)



04 SCR(VERTICAL S-Correction)



05 VLN(V LINEARITY)



06 PAP (PIN AMP)

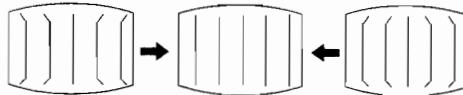


07 PPH(PIN PHASE)

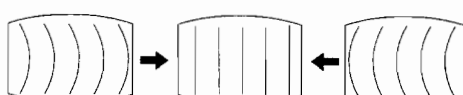


08 UCP(Upper Corner Pin)

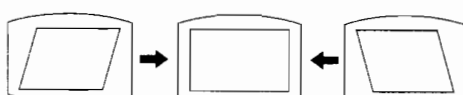
09 LCP(Lower Corner Pin)

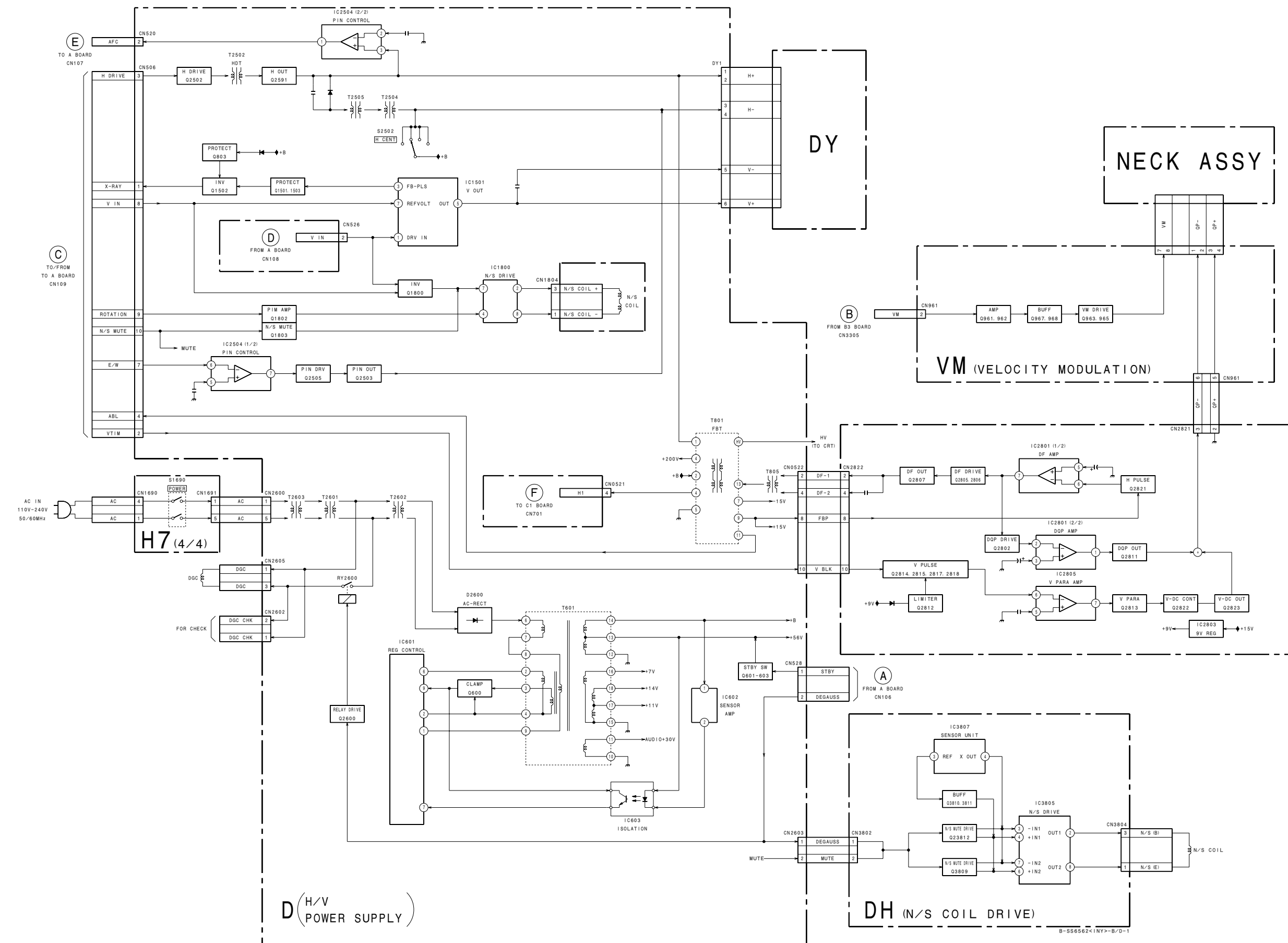


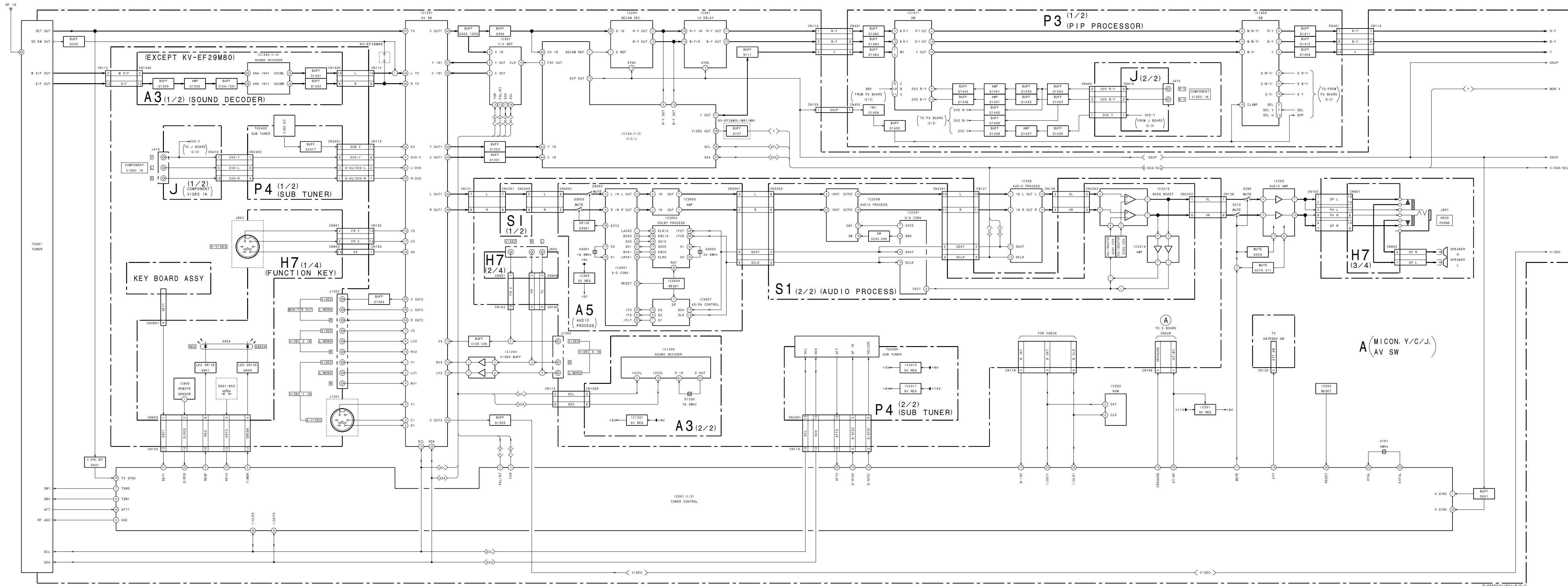
0A VBOW(AFC.BOW)

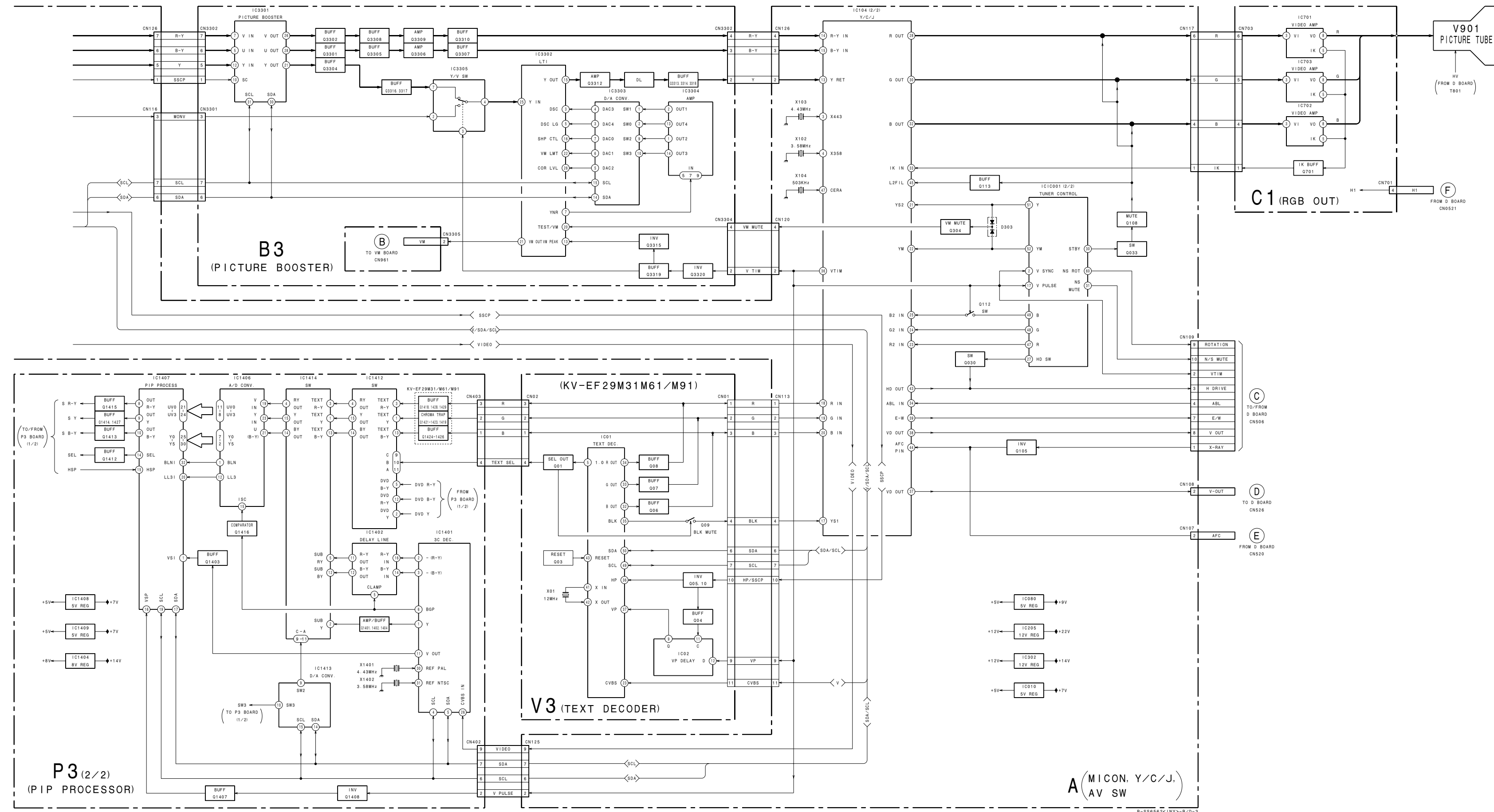


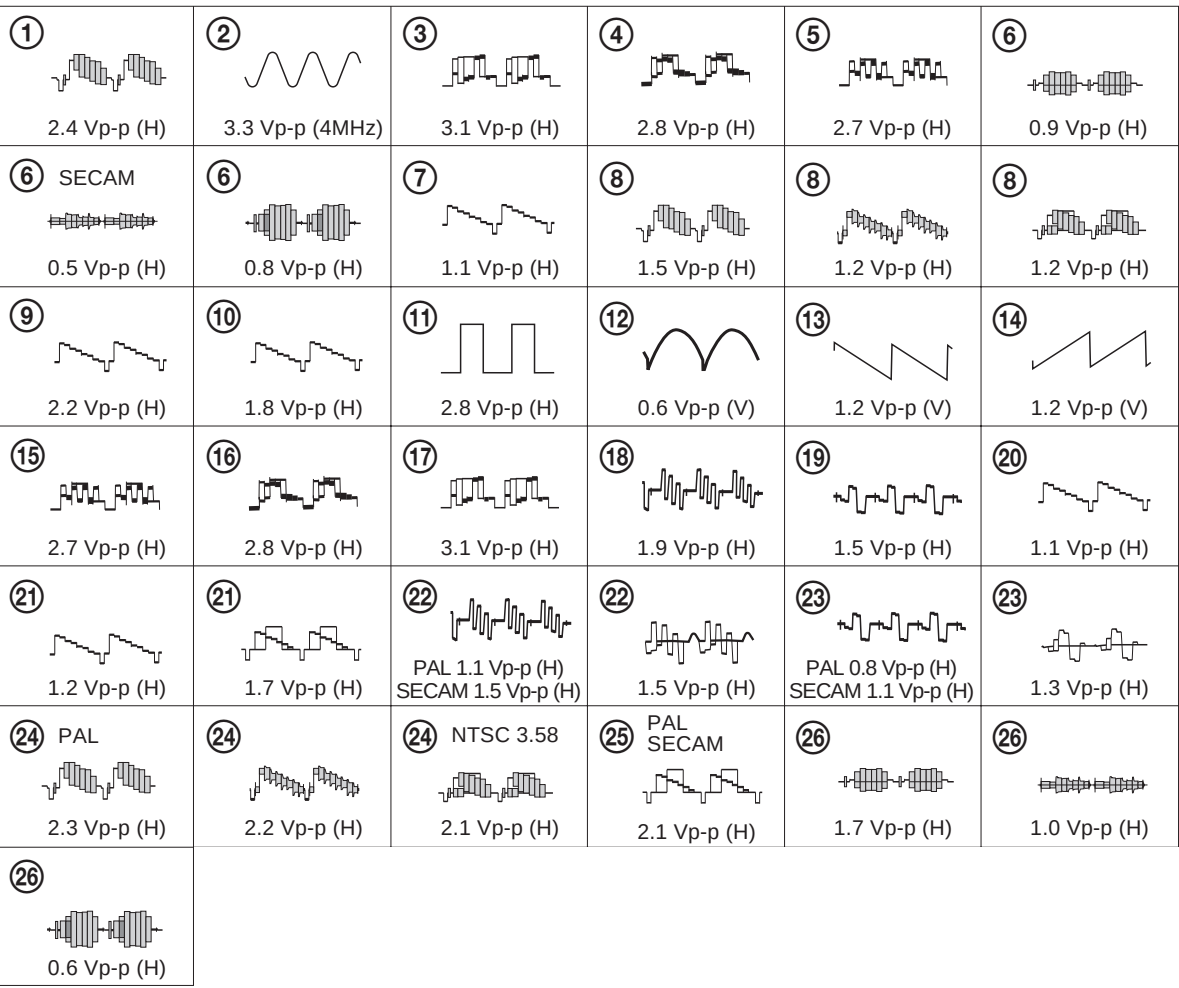
0B VAG(AFC.ANGLE)



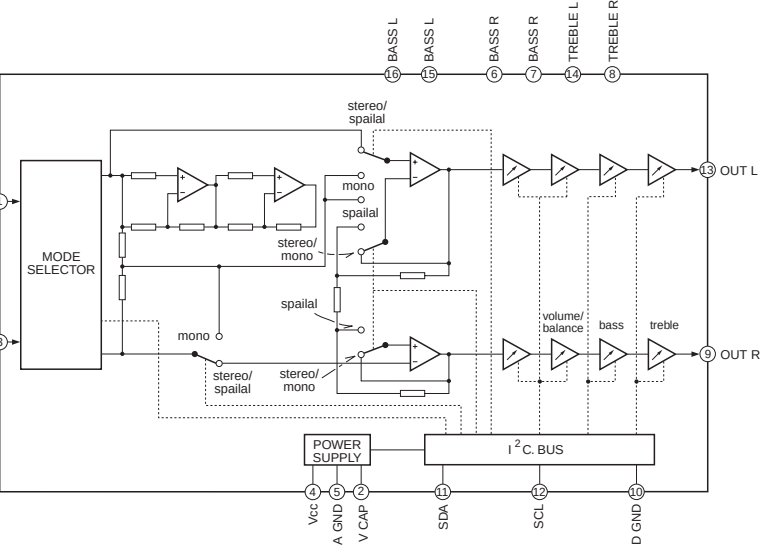




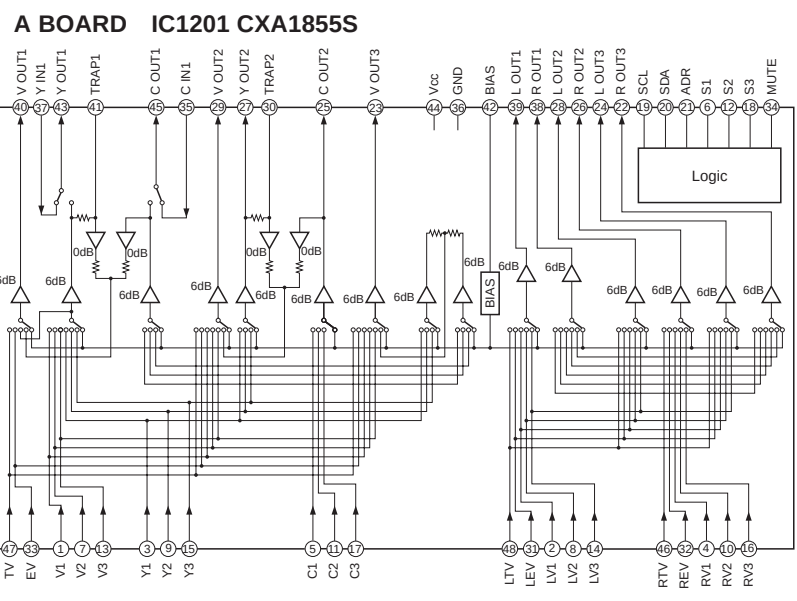
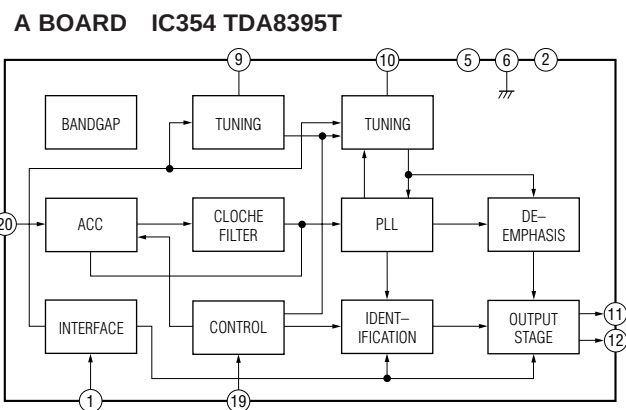
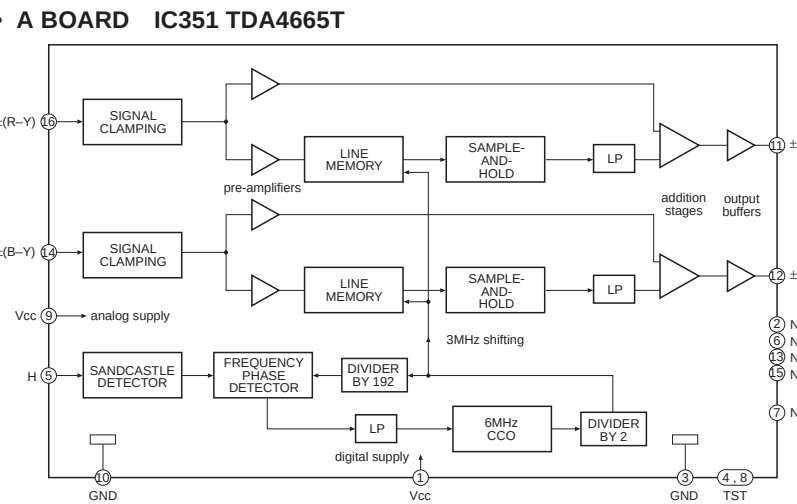




* A BOARD * MARK PARTS LIST						
Ref No	KV-EF29M31	KV-EF29M61	KV-EF29M80(JE)	KV-EF29M80(ME)	KV-EF29M90	KV-EF29M91
C055	100 16V	100 16V	470 16V	470 16V	100 16V	100 16V
C072	330 16V	330 16V	470 16V	470 16V	330 16V	330 16V
IC001	NOT USED	NOT USED	47 25V	47 25V	NOT USED	NOT USED
CN113	12P 10T0B	12P 10T0B	NOT USED	NOT USED	12P 10T0B	12P 10T0B
D110	15S355	15S355	NOT USED	NOT USED	NOT USED	15S355
IC001	CXP85452-090S	CXP85452-090S	CXP85452-090S	CXP85452-091S	CXP85452-090S	CXP85452-091S
JW017	10M	10M	NOT USED	NOT USED	NOT USED	NOT USED
JW131	10M	10M	NOT USED	NOT USED	NOT USED	NOT USED
JW158	22 2W RS	22 2W RS	JW(17.5)	JW(17.5)	22 2W RS	22 2W RS
JW164	NOT USED	NOT USED	10M	10M	NOT USED	NOT USED
JW165	10M	10M	NOT USED	NOT USED	10M	10M
JW172	10M	10M	NOT USED	NOT USED	10M	10M
Q107	25C2712	25C2712	NOT USED	NOT USED	NOT USED	25C2712
R060	10K CHIP	10K CHIP	NOT USED	NOT USED	10K CHIP	10K CHIP
R073	47K CHIP	47K CHIP	10K CHIP	10K CHIP	10K CHIP	47K CHIP
R131	0 CHIP	0 CHIP	NOT USED	NOT USED	NOT USED	0 CHIP
R136	0 CHIP	0 CHIP	NOT USED	NOT USED	NOT USED	0 CHIP
R140	470 CHIP	470 CHIP	NOT USED	NOT USED	NOT USED	470 CHIP
R151	NOT USED	NOT USED	560 CHIP	560 CHIP	560 CHIP	NOT USED



Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC001	1	0.6		54	4.5		38	3.2		15	5.9		31	4.0	
	2	0.8		55	4.9		39	4.3		16	5.8		32	4.0	
	3	p-cp(4-9)		56	4.3		40	4.2	IC301	2	6.6		33	4.0	
	4	0		57	1.3		41	4.9			3	4.0		34	4.0
	5	0		58	0		43	2.5		4	5.5		37	4.0	
	6	0		59	0.4		44	3.6		6	4.7		38	4.1	
	7	0		60	1.7		45	3.3		12	0.4		39	3.9	
	8	0	IC002				46	4.4		13	0.4-8+(0)		40	3.9	
	9	4.9		1	8.8		47	2.6		15	5.6		42	4.1	
	10	0		2	5.8		49	4.9		17	4.8		43	4.0	
	11	0		4	4.9		51	2.4		18	4.7		45	4.0	
	12	4.8					52	4.4	IC302	O	15.9		46	4.0	
	14	1.0		6	4.9		53	4.4			O	12.1		47	4.0
	15	4.9					54	5.0					48	4.1	
	16	0	IC010	1	7.0		55	6.4	IC351	5	0.7		49	4.8	
	17	0.8		O	4.9		56	4.7			11	2.9	IC402	2	2.4
	18	4.8					57	4.7			12	2.9			2
	19	0	IC080	O	9.0		58	3.7		14	1.4			3	2.4
	20	0		O	5.0		59	4.2		16	1.4		4	2.4	
	21	4.9					60	4.3	IC354	1	1.5		6	4.8	
	22	4.9	IC104	2	5.0		61	5.5			9	3.2	Q001	E	0.9
	23	0		3	2.7		62	4.3		10	10			C	0.6
	24	0		4	4.4		63	4.7		11	5.7			B	0.3
	25	0.6		6	5.6		64	4.4		12	5.7				
	26	4.8		7	15+5+2(15)	IC201	O	10.3	IC1201	1	4.1	Q031	E	8.8	
	27	0	9	9	5.7+3+2(5.7)		O	9.1			2		4.1		B
28	0.3	10	11	4.0	O		SW	4.5			3		4.0		C
29	4.8		12	0.9	IC203	1	1.4		4	4.0	Q033	C	0		
30	4.6		19	9.3			2	0		5		4.0		B	4.5
31	0		14	5.8			5	1.4		6		8.1			
33	1.2		15	5.8		7	16.4		7	4.0	Q105	C	3.5		
34	*		17	0		8	5.1		8	4.1			B	0.4	
35	2.1		18	5.8		11	4.2		9	4.0					
36	4.9		19	5.8		12	15.8		10	4.0	Q106	E	5.5		
37	0		20	5.8	IC205	O	16.0		12	8.1			B	4.8	
38	4.9		21	0			O	11.8		13		4.0	Q108	C	3.0
39	3.7		22	0						14	4.0			B	0
40	1.8		23	5.8	IC206	1	5.8		15	4.0					
41	4.9		24	5.8			2	11.7		16	4.0	Q111	E	3.2	
42	4.9		25	5.8			3	5.8		17	4.0			B	0
43	4.9		26	5.8		6	5.9		18	8.1	Q112		C	0	
44	4.9		27	1.8		7	5.9		19	4.5			B	0.8	
45	2.7		28	2.6		8	5.9		20	4.5					
46	2.7		29	1.8		9	5.8		23	3.9	Q113	E	2.9		
47	0		30	2.3		11	4.0		26	4.1			C	8.5	
48	0		31	2.1		12	4.6		28	4.1			B	2.4	
49	0		32	2.1		13	5.9		29	3.9	Q205	C	4.2		
50	0		33	5.6		14	5.9		30	4.0					
51	0		34	1.4											
52	0		35	8.2											
53	0		36	0.9											
54	3.9		37	3.1											

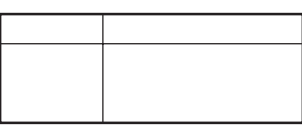


• A BOARD DESCRIPTION

Schematic diagram
← **A** board

Schematic diagrams

H7 **J**
P3 **P4** boards →



Ref.	Pin No.	Voltage [V]
IC900	1	5.0
Q900	E	0
	C	5.0
	B	0
Q901	E	0
	C	5.0
	B	0



Ref.	Pin No.	Voltage [V]
IC2410	I	8.9
	O	5.0
IC2411	I	14.9
	O	8.9
Q2417	E	2.7
	B	3.4



REF. NO.	
IC2410	5V REG
IC2411	9V REG
Q2417	BUFF

Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]
IC1401	1	2.3		IC1402	5	0.4	
	2	2.2			11	3.0	
	3	2.1					
	4	4.3					
	5	0.6					
	6	4.4					
	7	5.0					
	11	6.6					
	12	3.9					
	14	1.7					
	21	3.6					
	26	3.3					
	29	3.4					
	30	2.0					
IC1402	31	1.9					
	32	3.9					

①	②	③	④	⑤	⑥	⑦	⑧
1.1 Vp-p (H)	1.9 Vp-p (H)	1.6 Vp-p (H)	1.0 Vp-p (H)	1.9 Vp-p (H)	1.5 Vp-p (H)	1.6 Vp-p (H)	1.1 Vp-p (H)
⑨	⑩	⑪	⑫	⑬	⑭	⑮	
1.9 Vp-p (H)	1.1 Vp-p (H)	1.6 Vp-p (H)	1.6 Vp-p (H)	1.9 Vp-p (H)	1.9 Vp-p (H)	1.1 Vp-p (H)	

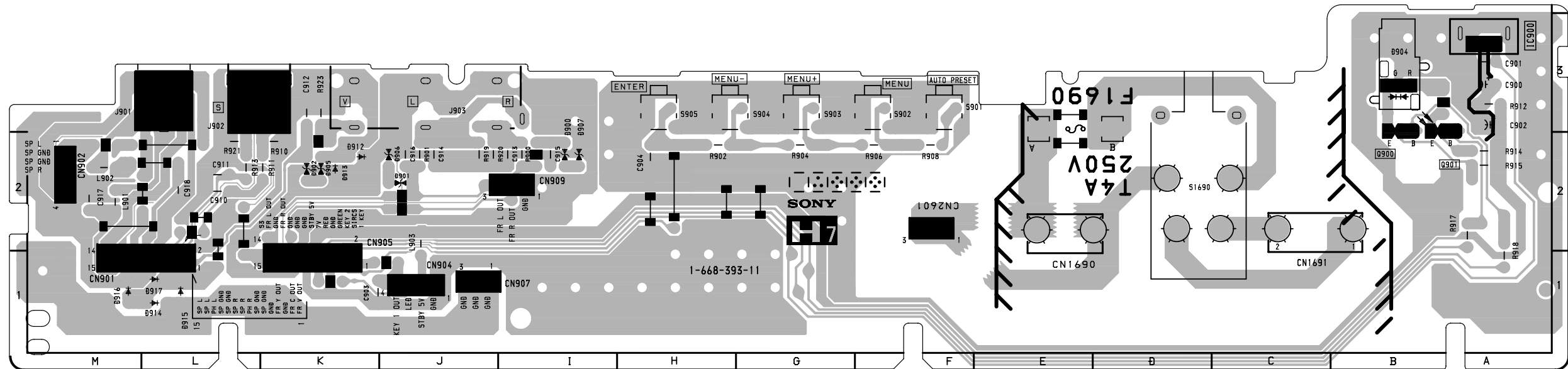


Ref No.	KV-EF29M31	KV-EF29M61	KV-EF29M80	KV-EF29M90	KV-EF29M91
C1478	116V F-CHIP	116V F-CHIP	NOT USED	NOT USED	116V F-CHIP
CN403	5P WHT -5-MICRO	5P WHT -5-MICRO	NOT USED	NOT USED	5P WHT -5-MICRO
Q1418	25A1162	25A1162	NOT USED	NOT USED	25A1162
Q1419	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1421	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1422	25A1162	25A1162	NOT USED	NOT USED	25A1162
Q1423	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1424	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1425	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1426	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1428	25C2712	25C2712	NOT USED	NOT USED	25C2712
Q1429	25C2712	25C2712	NOT USED	NOT USED	25C2712
R1422	390 CHIP	390 CHIP	NOT USED	NOT USED	390 CHIP
R1442	180 CHIP	180 CHIP	NOT USED	NOT USED	180 CHIP
R1443	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1465	820 CHIP	820 CHIP	NOT USED	NOT USED	820 CHIP
R1466	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1467	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1468	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1469	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1470	220K CHIP	220K CHIP	NOT USED	NOT USED	220K CHIP
R1471	150K CHIP	150K CHIP	NOT USED	NOT USED	150K CHIP
R1472	220 CHIP	220 CHIP	NOT USED	NOT USED	220 CHIP
R1473	220 CHIP	220 CHIP	NOT USED	NOT USED	220 CHIP
R1474	220 CHIP	220 CHIP	NOT USED	NOT USED	220 CHIP
R1485	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1491	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1492	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1493	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1494	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1496	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1497	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1498	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1499	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP
R1629	2.7K CHIP	2.7K CHIP	NOT USED	NOT USED	2.7K CHIP
R1630	1K CHIP	1K CHIP	NOT USED	NOT USED	1K CHIP

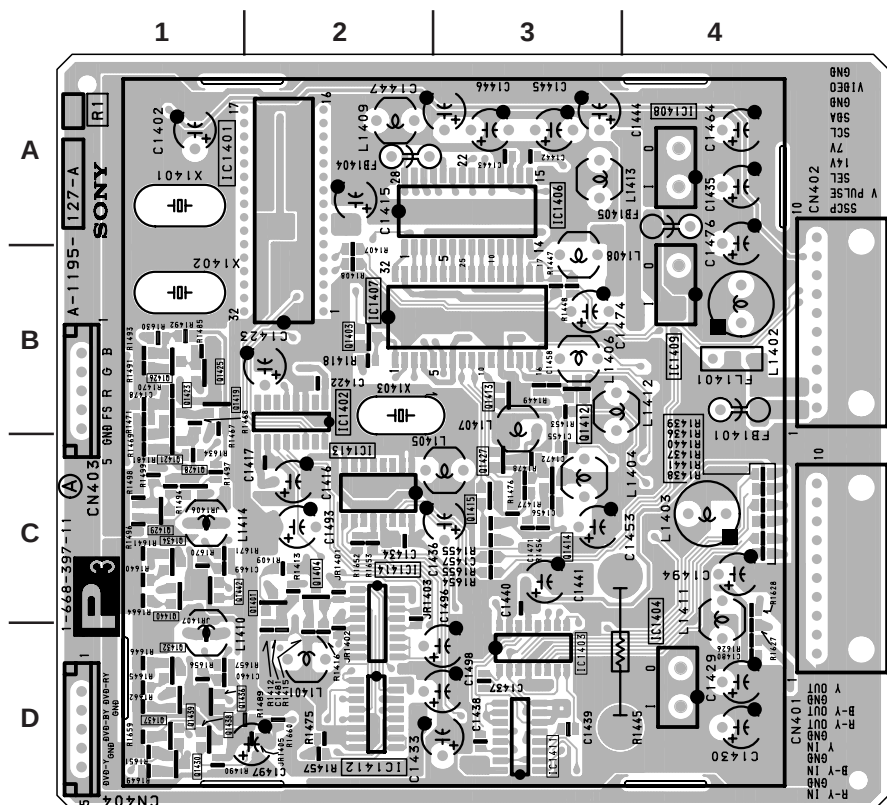
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[PIP PROCESSOR]

— H7 BOARD —



— P3 BOARD (Component Side) —

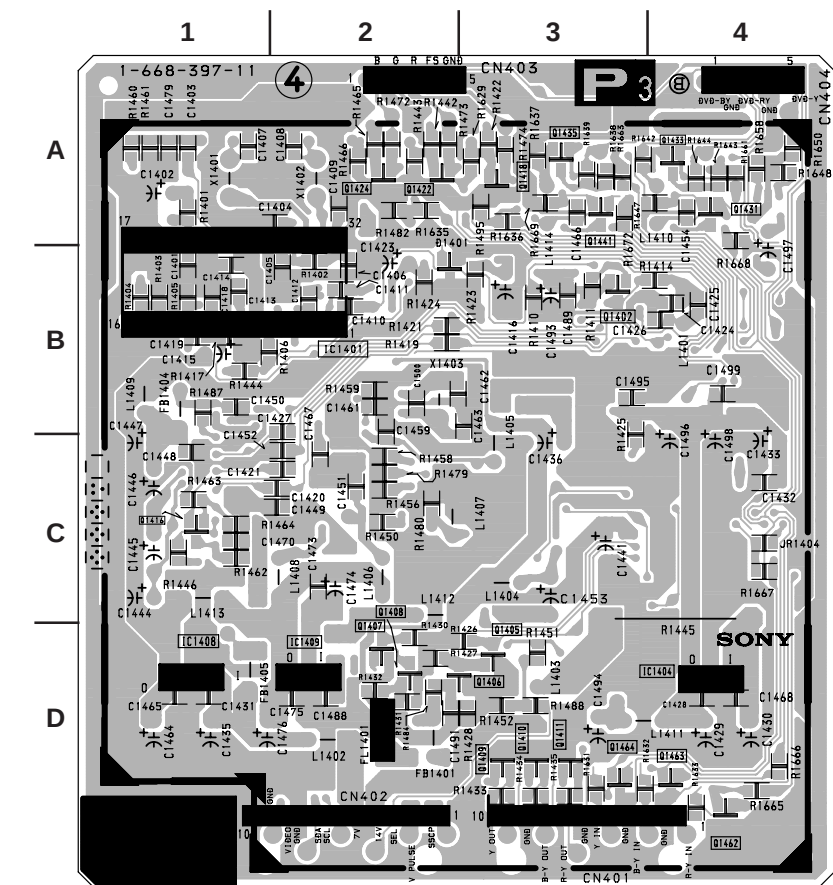


• P3 BOARD SEMICONDUCTOR LOCATION

IC	(Conductor Side) (Component Side)	
	(Conductor Side)	(Component Side)
IC1401	B-1	B-3
IC1402	B-3	C-1
IC1403	C-1	C-4
IC1404	D-4	B-3
IC1406	C-4	B-3
IC1407	B-3	C-1
IC1408	D-1	B-1
IC1409	D-2	B-3
IC1411	C-1	B-2
IC1412	B-1	
IC1413	B-3	
IC1414	B-2	
TRANSISTOR		
	(Conductor Side) (Component Side)	
	(Conductor Side)	(Component Side)
Q1401	B-2	②
Q1402	B-3	①
Q1403	B-3	②
Q1404	B-2	②
Q1405	D-3	①
Q1406	D-3	①
Q1407	D-2	①
Q1408	D-2	①
Q1409	D-3	①
Q1410	D-3	①
Q1411	D-3	①
Q1412	C-3	②
Q1413	C-3	②
Q1414	C-2	②
Q1415	C-2	②
Q1416	C-1	①
Q1418	A-3	①
Q1419	A-3	②
Q1421	A-2	②
Q1422	A-3	①
Q1423	A-3	①
Q1424	A-3	②
Q1425	A-3	②
Q1426	A-3	②
Q1427	C-2	②
Q1428	A-2	②
Q1429	A-2	②
Q1430	A-1	②
Q1431	A-4	①
Q1432	A-1	①
Q1433	A-4	①
Q1434	A-2	①
Q1435	A-3	①
Q1436	A-1	①
Q1437	A-1	②
Q1438	A-1	②
Q1439	A-1	②
Q1440	A-2	②
Q1441	A-3	①
Q1442	B-1	①
Q1462	D-4	①
Q1463	D-4	①
Q1464	D-3	①
CRYSTAL		
	(Conductor Side) (Component Side)	
	(Conductor Side)	(Component Side)
X1401	A-1	
X1402	A-2	
X1403	B-2	

※: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)

— P3 BOARD (Conductor Side) —



- Pattern from the side which enables seeing.
- Pattern of the rear side.

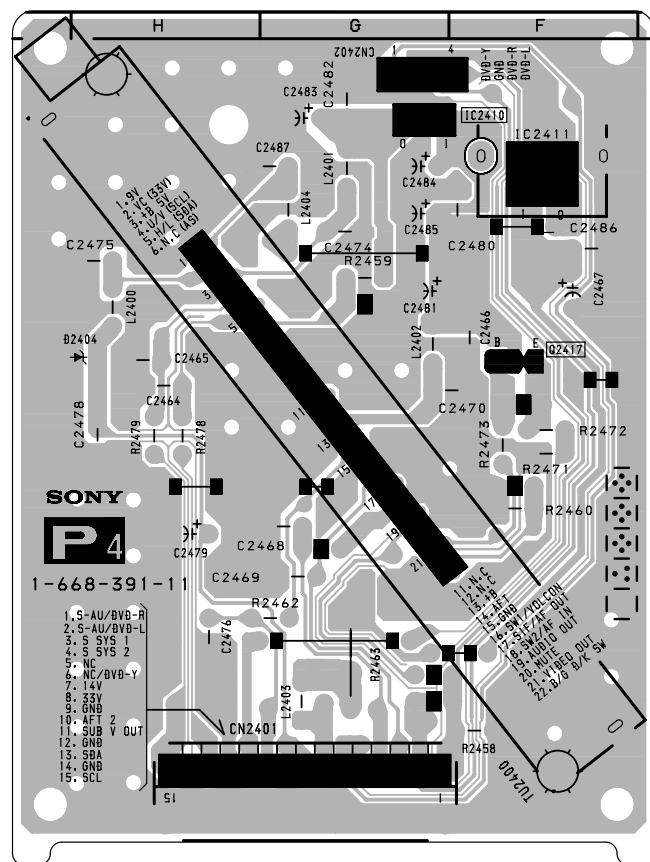
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[SUB TUNER]

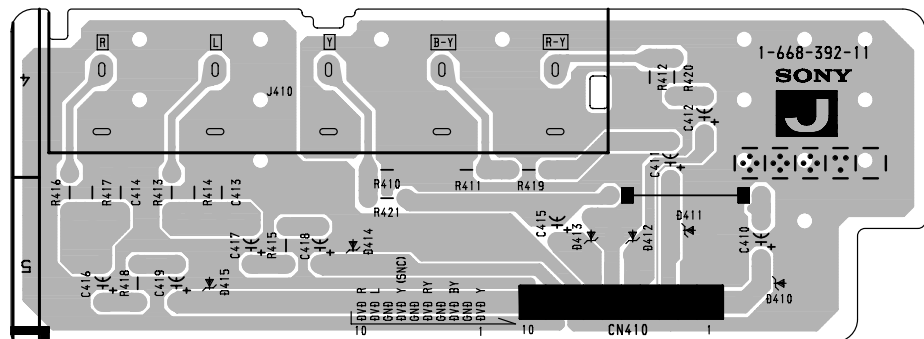
J

[COMPONENT VIDEO IN]

— P4 BOARD —



— J BOARD —



- Pattern from the side which enables seeing.
- Pattern of the rear side.

B3 BOARD
Terminal name of semiconductors
in silk screen printed circuit (*)

Ref.	*
Q3301, Q3302, Q3304-Q3310, Q3312-Q3320	①
D3301, D3302	④

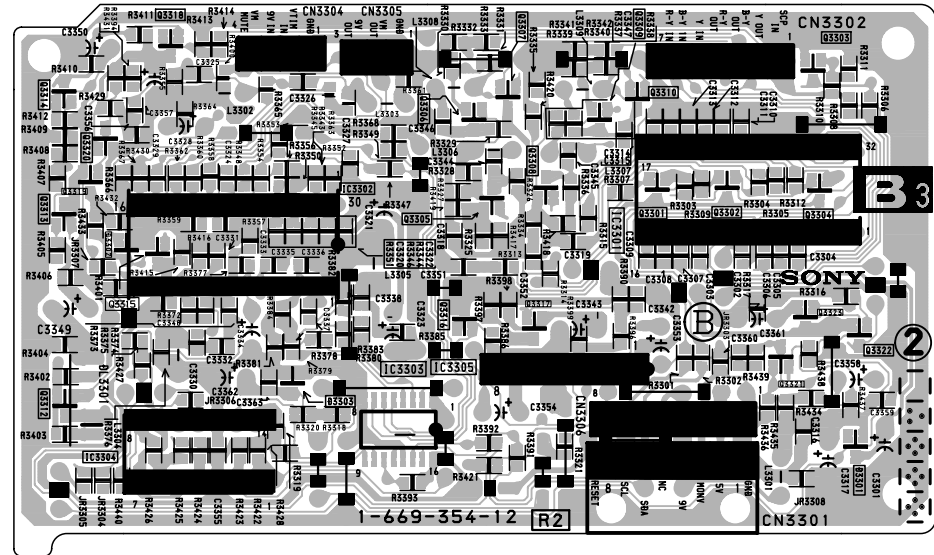
※: Refer to Terminal name of
semiconductors in silk screen
printed circuit (see page 55)

V3 BOARD
Terminal name of semiconductors
in silk screen printed circuit (*)

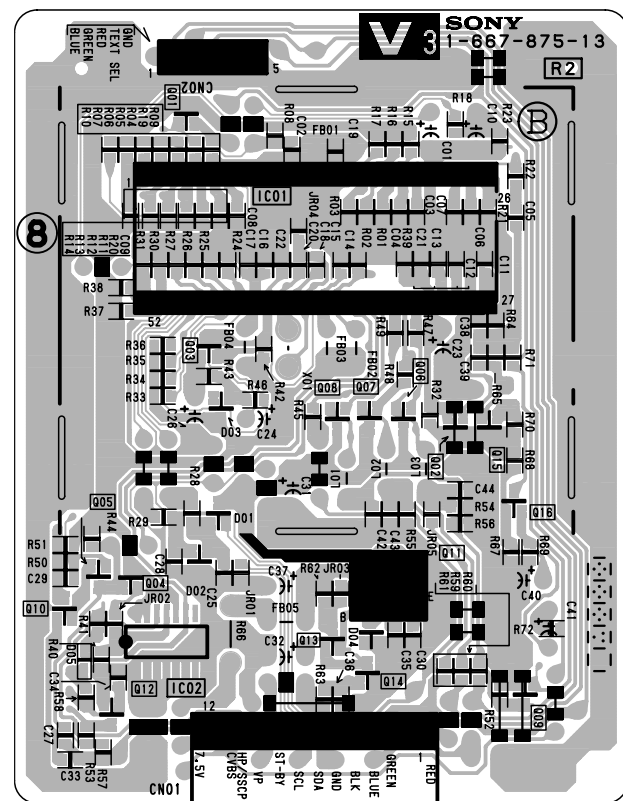
Ref.	*
Q01, Q03-Q10, Q12	①
D02	⑩
D03, D04	④
D05	③

※: Refer to Terminal name of
semiconductors in silk screen
printed circuit (see page 55)

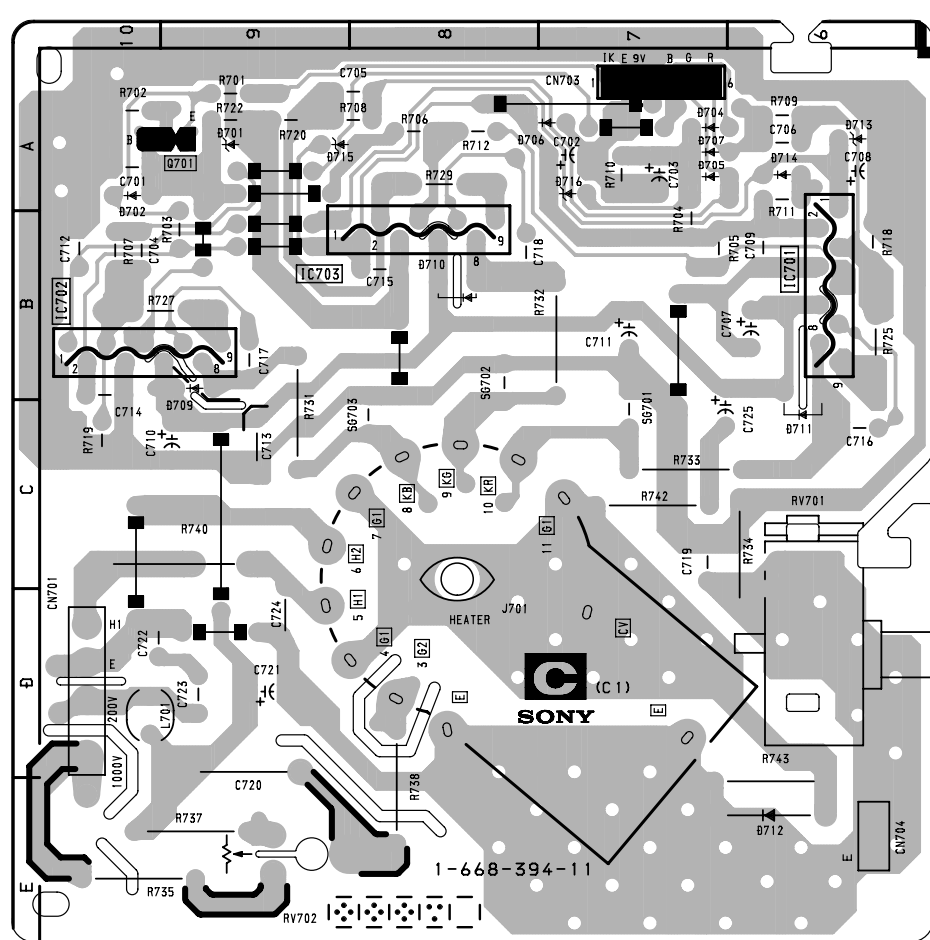
— B3 BOARD —



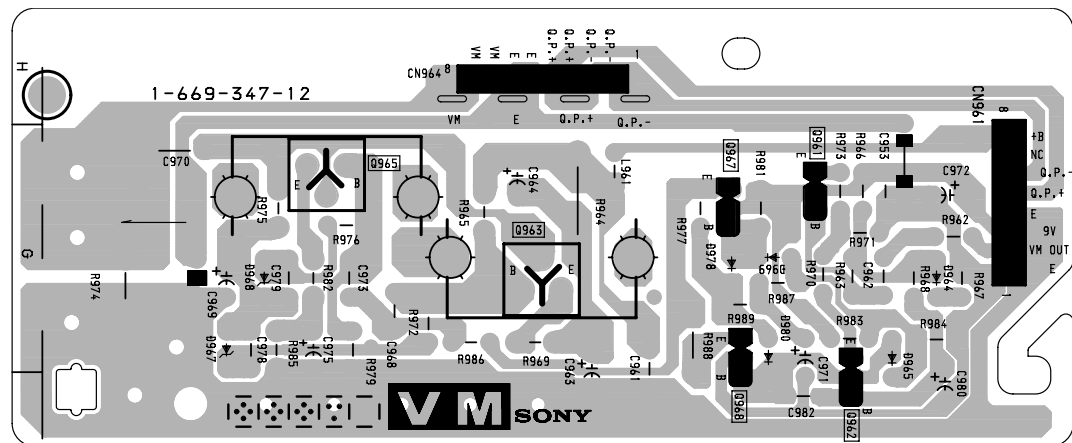
— V3 BOARD —



— C1 BOARD —

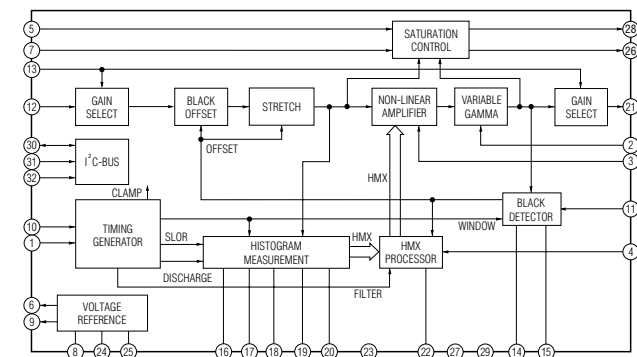


— VM BOARD —

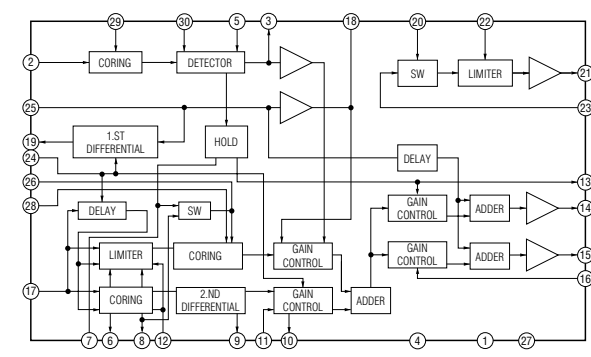


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

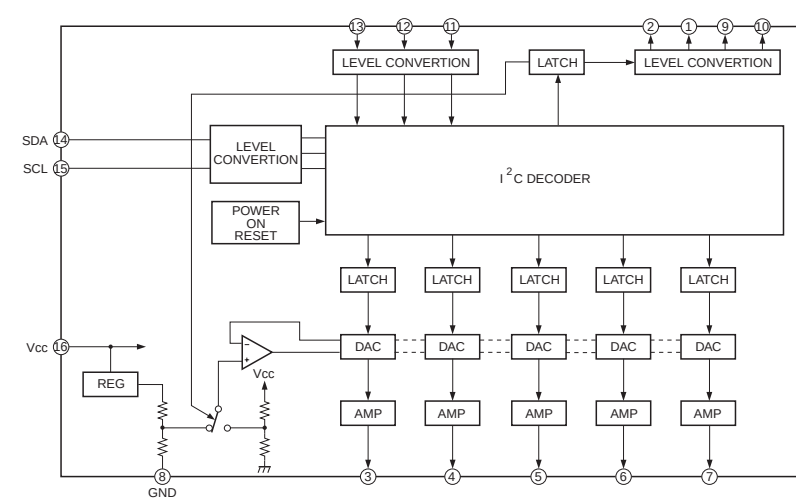
• B3 BOARD IC3301 TDA9170



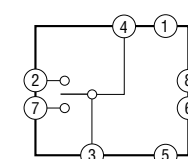
• B3 BOARD IC3302 AN5342K

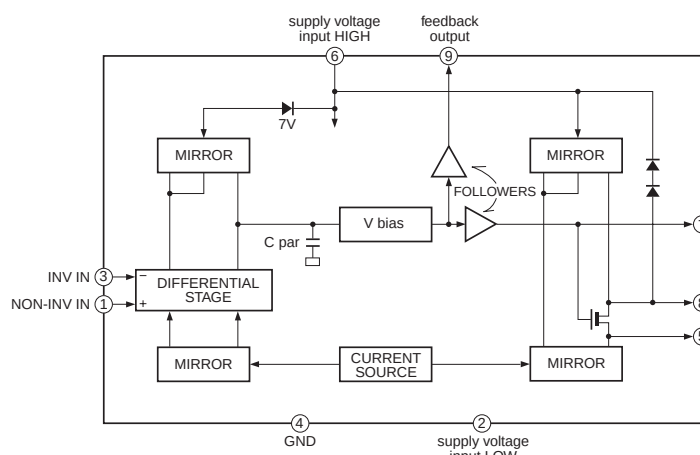
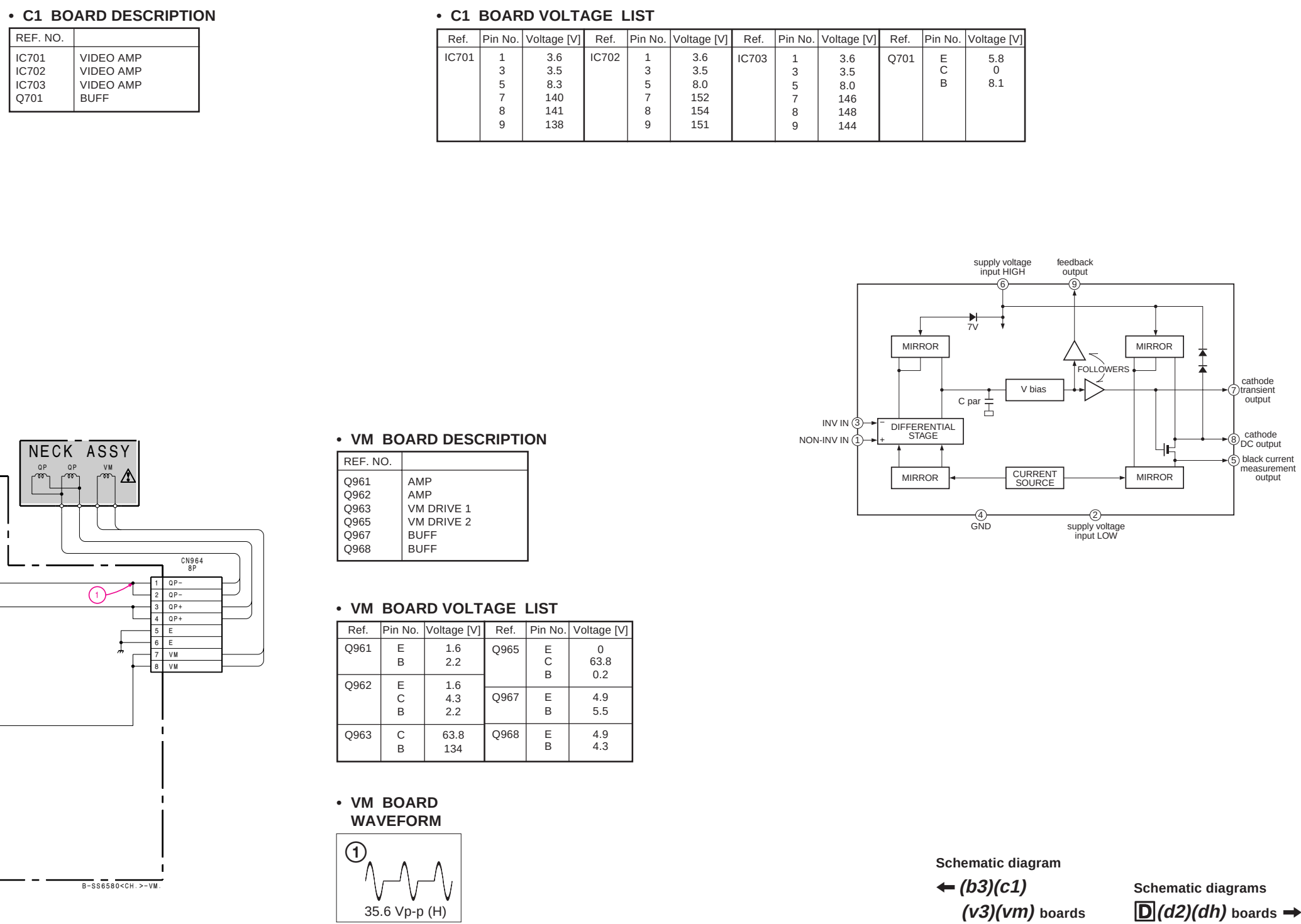
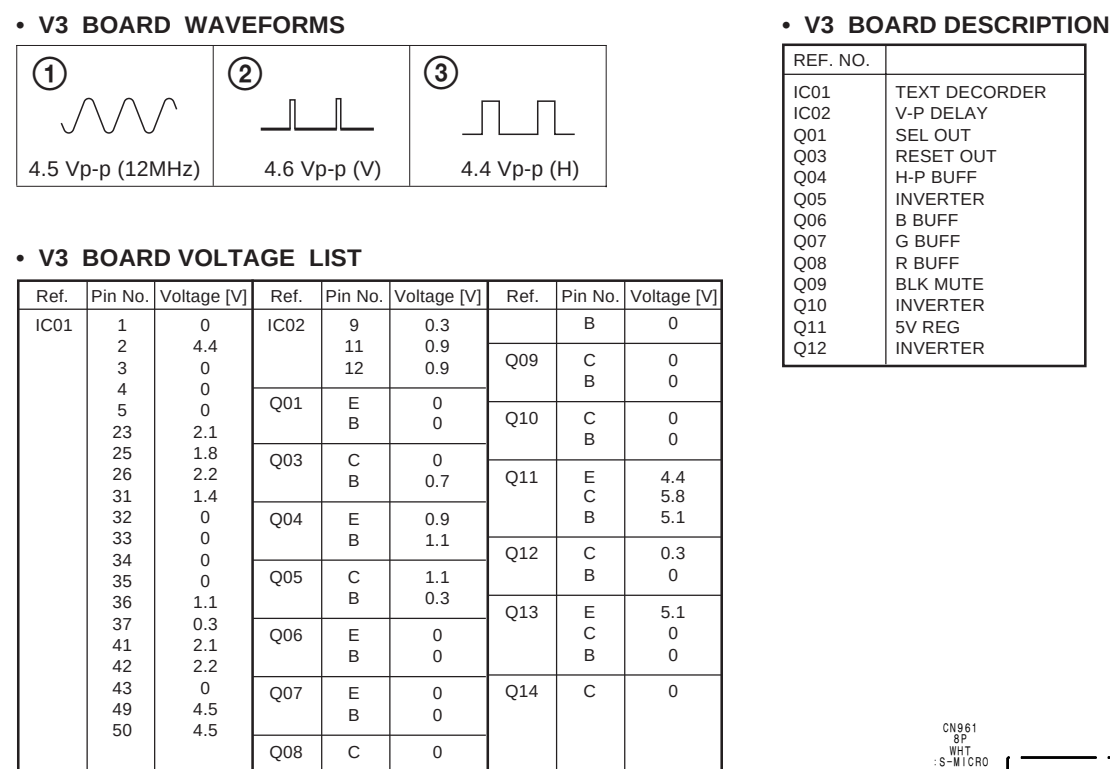
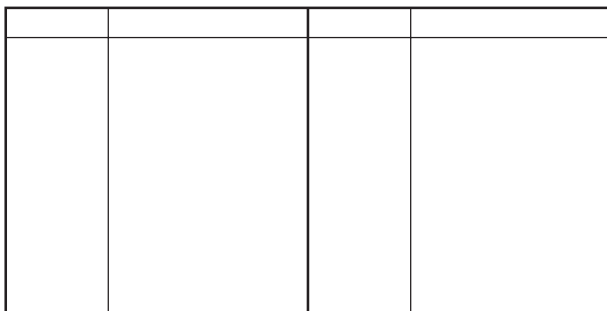
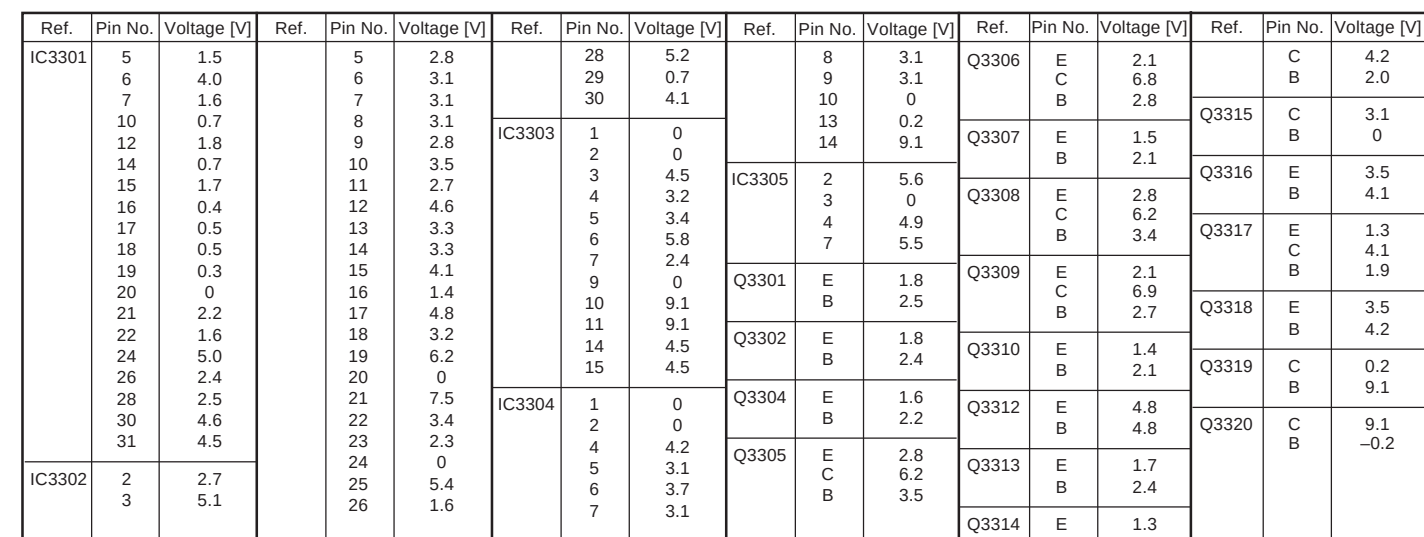


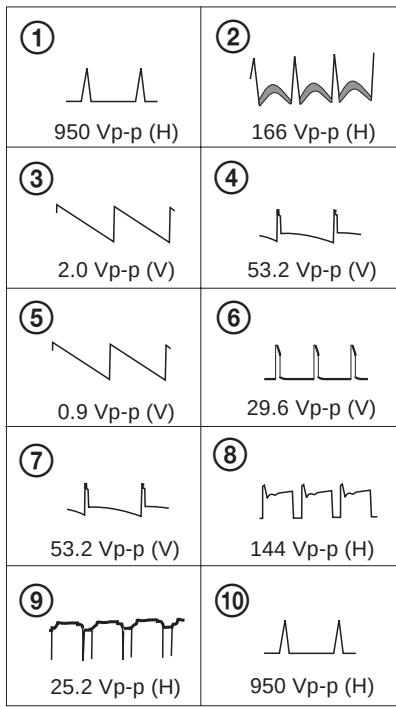
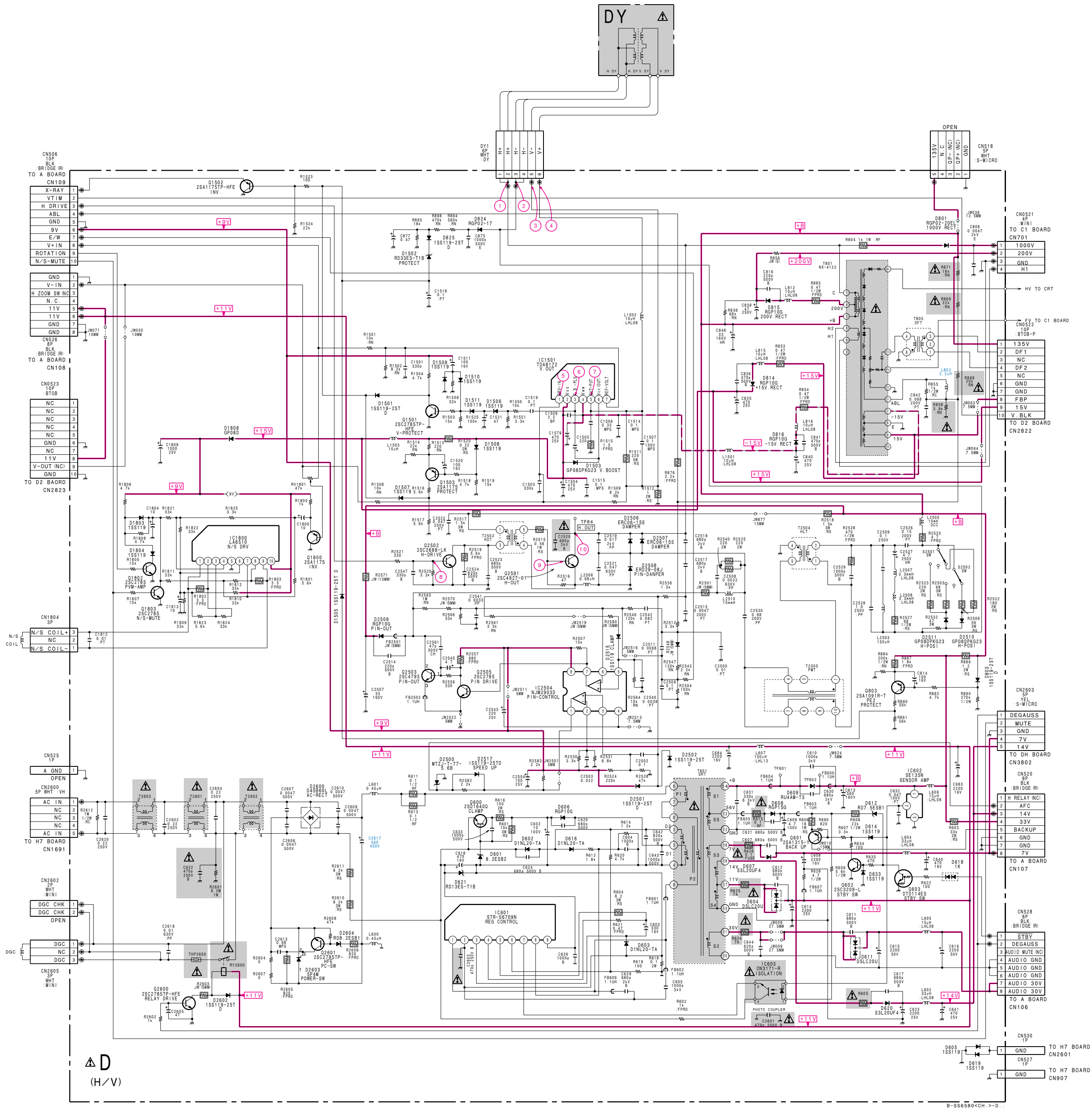
• B3 BOARD IC3303 CXA1315M



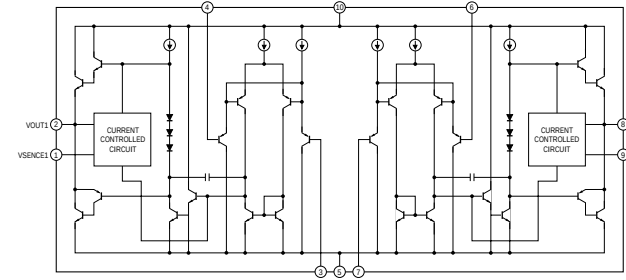
• B3 BOARD IC3305 LA7016



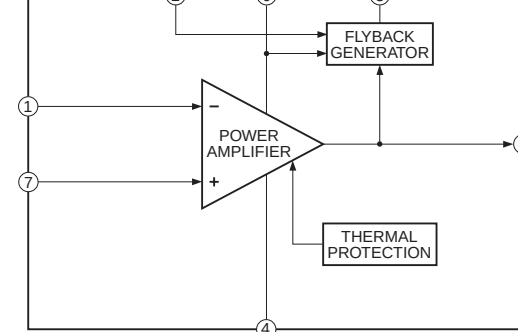




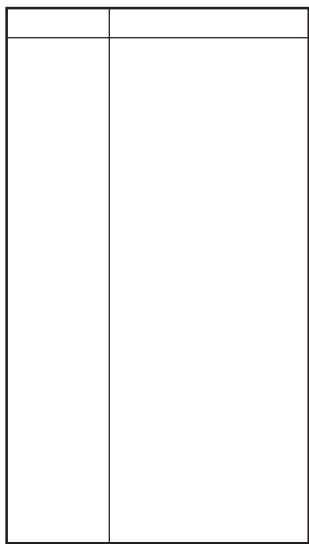
• DH BOARD IC3805 LA6510



• D BOARD IC1501 TDA8172



Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC601	1	289	Q803	B	4.1
	2	0		C	0
	3	0		B	134
	4	0.8		C	0
	5	1.3		B	0.6
	6	0		E	0.6
	7	1.6		B	0
	8	0.2		C	0.6
	9	8.4		B	0
IC602	2	64.7	Q1503	E	13.0
	1	65.6		C	0.2
	2	64.6		B	12.5
	3	0.2		E	4.1
IC603	1	65.6	Q1800	E	4.1
	2	64.6		B	3.5
	3	0.2		C	0.3
	4	8.2		B	0
IC1501	1	1.3	Q1802	C	4.1
	3	-13.5		B	0.3
	5	0.4		C	6.4
	7	1.3		B	0
IC1800	1	6.4	Q2502	C	68.6
	2	6.4		B	0
	3	6.4		C	0
	4	6.4		B	0
	6	6.4		C	19.3
	7	6.4		B	2.5
	8	6.3		C	2.5
	9	6.4		B	0
Q600	E	8.4	Q2591	C	-0.2
	B	8.2		B	0
Q601	E	70.9	Q2600	C	11.3
	B	10.2		B	0
Q602	C	70.8	Q2601	E	-0.3
	B	70.8		C	0
Q603	C	0			



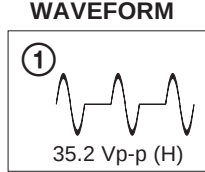
• D2 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC2801	1	6.1	Q2812	E	8.2
	2	6.5		C	8.2
	3	6.6		B	7.6
	5	6.6	Q2813	E	4.4
	6	6.5		C	8.1
	7	1.5		B	5.0
IC2803	I	13.2	Q2814	E	8.7
	O	9.0		C	0.8
IC2805	5	4.4	Q2815	C	3.5
	6	4.5		B	0
	7	4.5	Q2817	E	1.4
				B	0.8
Q2802	E	2.1	Q2818	E	-2.5
	B	1.5		B	
Q2805	E	1.5	Q2821	E	2.1
	C	8.3		C	7.3
	B	1.5		B	1.8
Q2807	C	42.6	Q2822	C	2.1
	B	-0.2		B	8.1
Q2811	E	2.1	Q2823	E	1.3
	C	7.3		B	2.1
	B	1.8			

• D2 BOARD DESCRIPTION

REF. NO.	IC2801	REF. NO.	Q2807	REF. NO.	Q2817
DF/DOP AMP	IC2803	DF OUT	Q2811	V PULSE	Q2818
9V-REG	IC2805	DOP OUT	Q2812	V PULSE	Q2821
V PARA AMP	Q2802	LIMITER	Q2813	H PULSE	Q2822
DOP DRIVE	Q2805	V PARA	Q2814	V-DC CONT	Q2823
DF DRIVE	Q2806	V PULSE	Q2815	V-DC CONT	

• D2 BOARD WAVEFORM



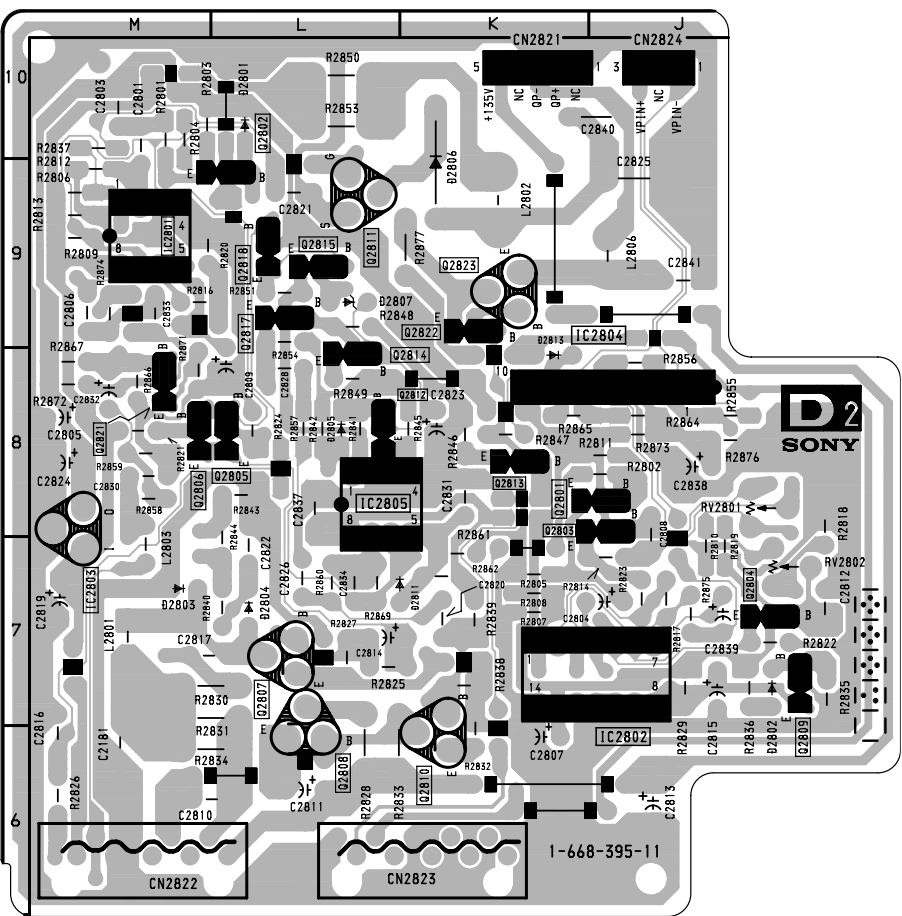
• DH BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC3805	1	2.4	Q3810	E	3.2
	2	2.7		B	2.6
	3	2.6		B	2.6
	4	2.7		E	3.2
	6	2.6		B	2.6
	7	2.6		B	3.2
	8	2.5		B	3.2
				B	3.2
IC3807	3	2.5	Q3812	E	2.6
	4	2.0		C	2.6
Q3809	E	2.6		B	0
				B	0

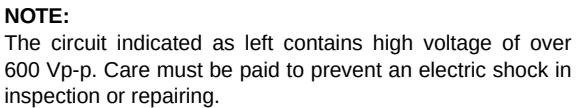
• DH BOARD DESCRIPTION

REF. NO.	
IC3805	N/S DRIVE
IC3807	SENSOR UNIT
Q3809	N/S DRIVE MUTE
Q3810	BUFF
Q3811	BUFF
Q3812	N/S DRIVE MUTE

— D2 BOARD —



IC		DIODE		D1506	F-8
IC601	C-5	D601	D-5	D1507	F-6
IC602	E-2	D602	D-4	D1508	F-7
IC603	E-5	D603	C-5	D1509	F-8
IC1501	D-8	D604	D-1	D1510	F-8
IC1800	G-6	D605	C-10	D1511	F-8
IC2504	F-5	D606	D-4	D1803	H-6
		D607	C-1	D1804	H-5
		D608	D-2	D1808	H-7
		D609	E-2	D2500	H-3
		D611	E-1	D2501	F-5
Q600	D-5	D612	E-2	D2502	F-4
Q601	E-3	D614	E-3	D2506	D-9
Q602	E-2	D615	D-5	D2507	D-9
Q603	G-1	D618	C-1	D2508	E-10
Q803	F-3	D619	G-10	D2509	F-6
Q1501	F-7	D620	C-2	D2510	G-7
Q1502	H-4	D621	D-6	D2511	G-8
Q1503	E-6	D623	E-2	D2515	G-5
Q1800	G-5	D805	D-8	D2517	F-4
Q1802	G-5	D803	F-4	D2600	A-5
Q1803	G-5	D814	B-7	D2602	B-1
Q2502	F-10	D815	C-8	D2603	A-6
Q2503	F-6	D816	C-7	D2604	B-6
Q2505	F-5	D824	G-8		
Q2591	D-10	D825	F-6		
Q2600	B-1	D1501	F-7		
Q2601	A-6	D1502	F-6		
		D1503	E-8		
		D1505	G-4		



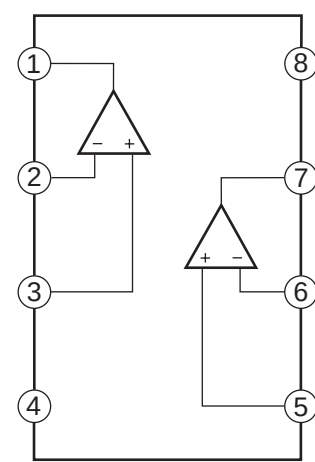


REF. NO.	
IC3001	A/D CONVERTER
IC3002	DOLBY PROCESSOR
IC3003	5V REG
IC3004	RESET
IC3005	AMP
IC3007	AD/DA CONTROL
Q3001	MUTE DRIVE
Q3002	MUTE L
Q3002	MUTE R

WAVEFORMS

①
6.0 Vp-p (16.9344MHz)

②
4.2 Vp-p (24.576MHz)



Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC3001	1	2.5		31	5.0		16	3.5		45	5.0	IC3005	1	4.5	
	2	0		32	5.0		17	3.0		47	0		2	4.5	
	5	2.8		5.0	33	5.0		19	3.7		48		4.9	3	4.5
	6	2.5		39	2.5		20	2.5		49	4.3		5	4.5	
	7	5.0		40	2.5		21	2.5		50	4.5		6	4.5	
	8	3.2		41	2.8		22	2.5		51	4.9		7	4.7	
	9	3.9		42	2.4		23	2.5		53	4.9				
	12	2.1		43	3.8		24	2.5		54	5.0		IC3007	1	5.0
	13	2.5		44	2.5		26	2.5		55	4.9			2	5.0
	14	3.0					27	2.5		56	5.0			9	5.0
16	5.0	IC3002	1	5.0		29	2.5		57	5.0	10	0			
17	2.4		2	5.0		30	2.5		58	5.0	14	4.5			
18	2.0		3	5.0		32	2.0		59	5.0	15	4.5			
19	5.0		6	5.0		33	2.3		60	5.0					
22	0		7	5.0		35	5.0				Q3001	C	-0.6		
24	5.0	8	5.0		36	5.0				B		5.0			
26	5.0		9	5.0		37	0	IC3003	I	9.0	Q3002	C	0		
28	0		10	5.0		39	5.0		O	5.0		B	-0.6		
29	5.0		11	5.0		42	5.0				Q3003	C	0		
30	0		15	5.0		43	4.9	IC3004	1	5.0		B	-0.6		
						44	4.9			2	GND				

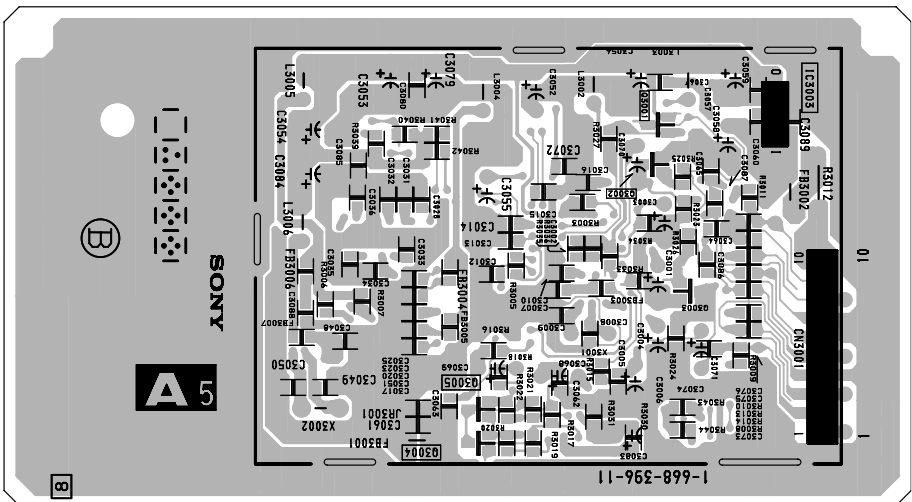
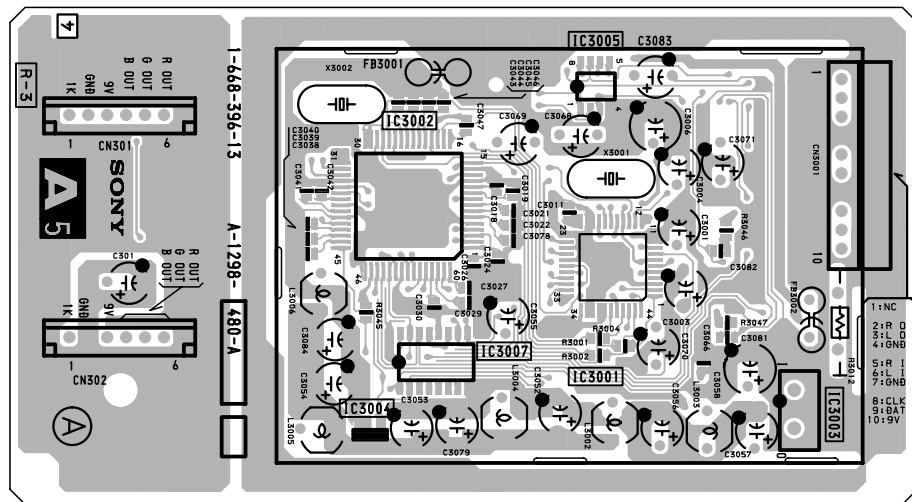


S1 BOARD VOLTAGE LIST																																																	
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]																																
IC2201	1	0.2	IC2208	15	4.5		10	5.7		20	5.7	IC2213	30	5.7		Q2205	E	11.8																															
	2	0.2			11		5.7			21	5.7		1	5.8				Q2203	C	11.5																													
	3	0.5					12			5.7				22					5.7	2	5.8		D	5.3																									
	4	4.6								13				5.7							23			5.7	3	5.8		S	5.6																				
	5	0.4												14							5.7					24			5.7	5	5.8		G	0.8															
	6	0.4																			15					5.7					25			5.7	6	5.8		C	B	0									
	7	8.6																								16					6.4					26			5.7	7	5.8	Q2201	E	4.7					
	9	3.7																													17					6.0					27		5.7		C	11.5	Q2204	S	5.7
	10	8.3																																		18					5.7								
14	4.5	9	5.7	19	5.7	29	5.7	2	7.0																																								

[illegible]

REF. NO.	
IC1330	SOUND DECODER
IC1331	5V REG
Q1330	BUFF
Q1331	BUFF
Q1332	BUFF
Q1333	AMP
Q1334	BUFF
Q1335	BUFF

① 
3.2 Vp-p (18.432MHz)

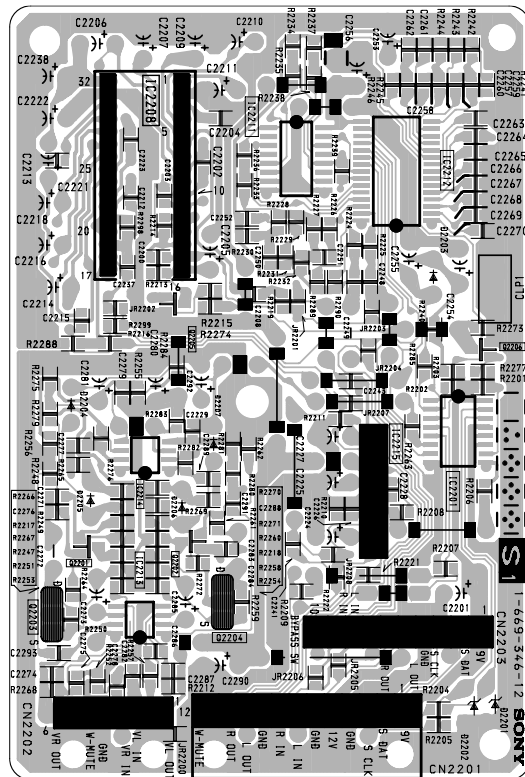


A5 BOARD

**Terminal name of semiconductors
in silk screen printed circuit (*)**

Ref.	*
Q3001-Q3003	①

***: Refer to Terminal name of
semiconductors in silk screen
printed circuit (see page 55)**

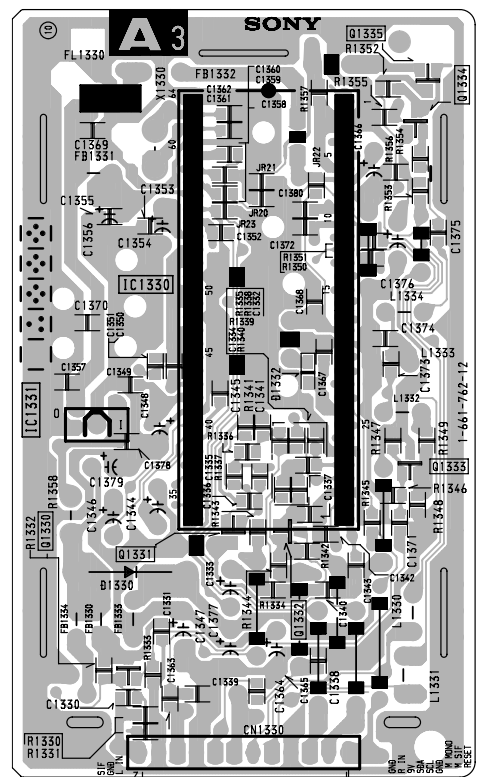


S1 BOARD

**Terminal name of semiconductors
in silk screen printed circuit (*)**

Ref.	*
Q2201, Q2202, Q2205-Q2207	①

***: Refer to Terminal name of
semiconductors in silk screen
printed circuit (see page 55)**



A3 BOARD

**Terminal name of semiconductors
in silk screen printed circuit (*)**

Ref.	*
D1332	③
Q1330-Q1335	①

***: Refer to Terminal name of
semiconductors in silk screen
printed circuit (see page 55)**

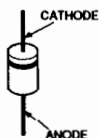
6-5. SEMICONDUCTORS

DIODE

DAN202K



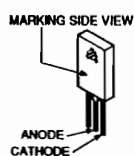
D1NL20
EGP20G
EL-1Z
GP08D
RGP02-17EL-6433
RGP02-20EL-6394



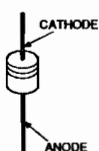
D4SB60L



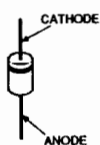
D5LC20U



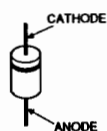
RD33ES-B2
RD39ES-B2
RD4.7ES-B2
RD5.1ES-B1
RD5.1ES-B2
RD5.6ES-B1
RD5.6ES-B2
RD7.5ES-B1
RD8.2ES-B2
RD9.1ES-B
RD9.1ES-L



ERC06-15S
RU4AM-T3
S3L20UF4



ERD29-08J



MC932



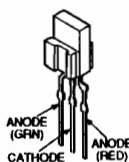
ON3171-R



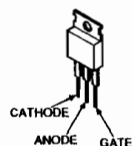
RD6.8M-B
RD8.2M-B1



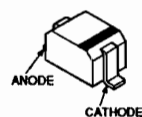
SPB-26MVWF



1SS355



5P6M



TRANSISTOR

DTA144EK
DTC114EK
DTC144EK
2SA1162-G
2SC2712-YG



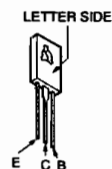
2SB733-34
2SC2958
2SD773-34



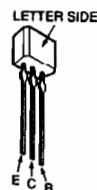
DTC144ES



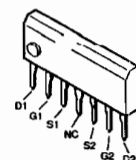
2SC2611
2SC2688-LK
2SC3601-E



DTD114ES
2SA1175-HFE
2SC2785-HFE



2SC4927-01



2SA1091-O
2SC2551-O



2SD1640Q, R



2SA1315-Y



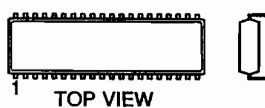
2SA1837
2SC4793
2SD2394-F



KV-J29MF1/J29MN2
KV-J29SN21/J29SZ2
RM-873

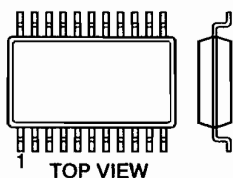
IC

CXA1855S (48PIN)
CXA2050S (64PIN)
CXP85332A-073S (64PIN)
M5216P (8PIN)
ST24C04CB1 (8PIN)
TDA4665T (16PIN)
TDA8395T (20PIN)
TDA8424 (20PIN)
μPC4558C (8PIN)



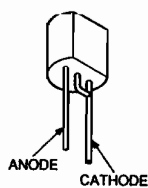
Dual In-line Package
Pin 6 ~ 98

CXA1315M (16PIN)
μPC4558G2 (8PIN)

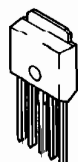


Small Outline L-leaded Package
Pin 8 ~ 98

μPC574J



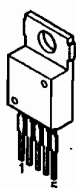
L78LR05D-MA



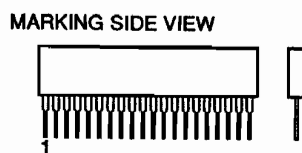
PQ09RF2



MC14052BF

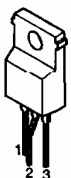


SBX1981-11 (3PIN)



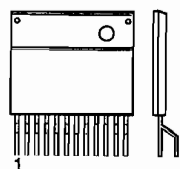
Single In-line Package
Pin 6 ~ 99

SE-135N



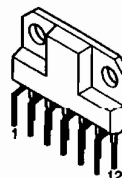
STR-S6708 (9PIN)
STR-S6709 (9PIN)

MARKING SIDE VIEW



Zig-zag In-line Package
Pin 6 ~ 99

TA8200AH



TDA8172



SECTION 7 EXPLODED VIEWS

KV-J29MF1/J29MN2
KV-J29SN21/J29SZ2
RM-873

NOTE:

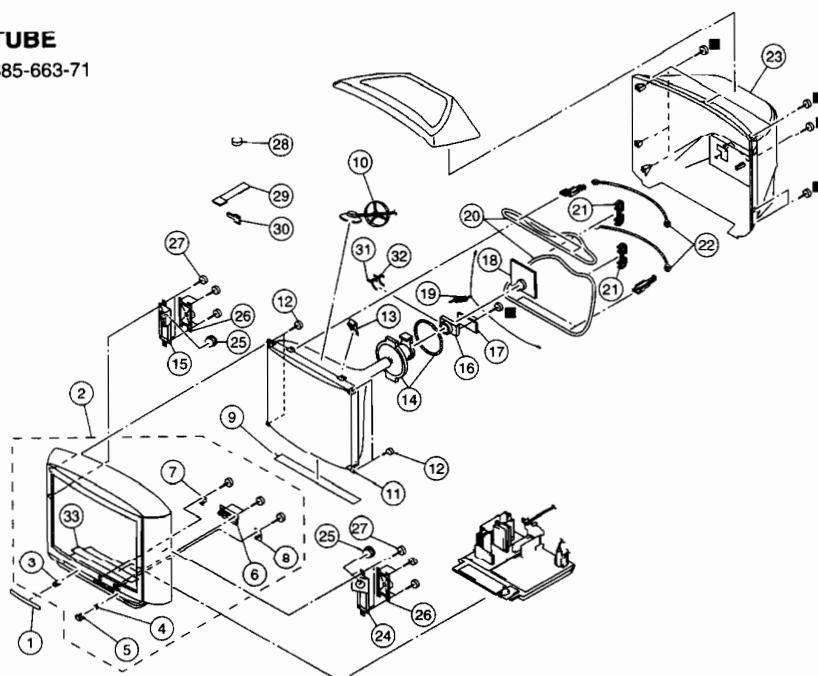
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

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

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

7-1. PICTURE TUBE

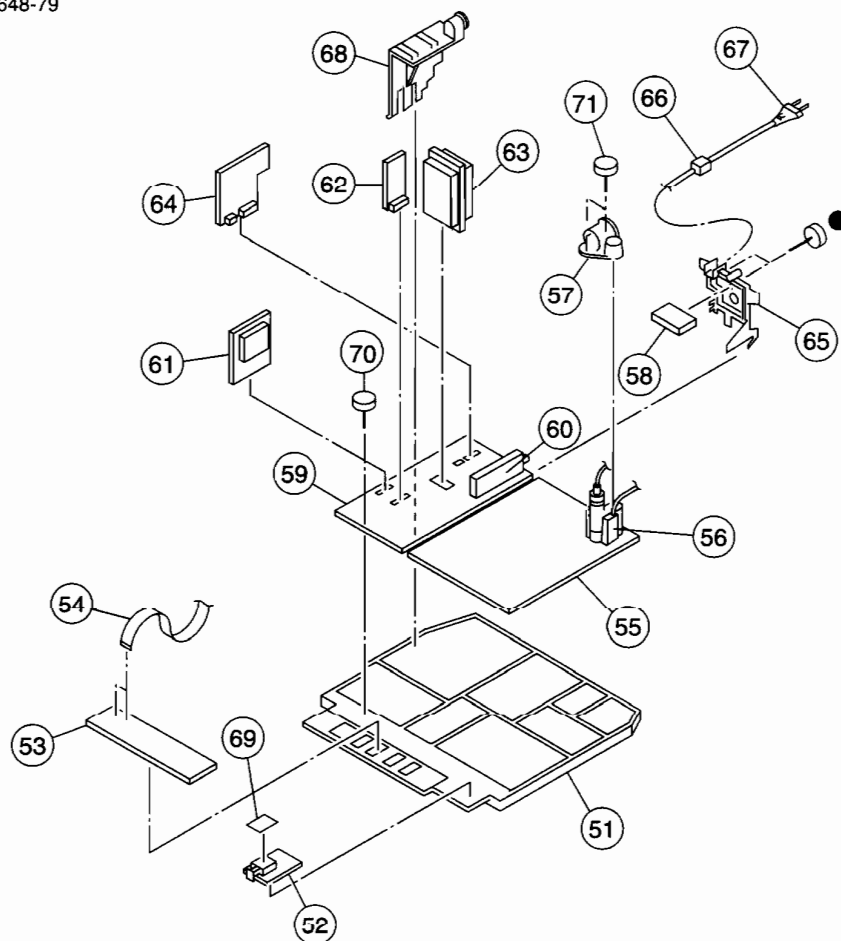
■: BVTP 4 × 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	4-054-485-21	DOOR, CONTROL (KV-J29MF1)		16	1-452-762-31	NECK ASSEMBLY NA294	
	4-054-485-11	DOOR, CONTROL (KV-J29MN2)		17	* A-1342-329-A	MOUNTED PCB (VAR), VM (KV-J29MF1/MN2)	
	4-054-485-51	DOOR, CONTROL (KV-J29SN21)			* A-1342-332-A	VM MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
	4-054-485-41	DOOR, CONTROL (KV-J29SZ2)		18	* A-1331-649-A	MOUNTED PCB (VAR), C2 (KV-J29MF1/MN2)	
2	X-4033-997-1	BEZNET ASSY (KV-J29MF1)	3-8		* A-1331-604-A	C2 MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
	X-4033-928-1	BEZNET ASSY (KV-J29MN2)	3-8	19	4-369-318-41	SPRING, TENSION (KV-J29MF1/MN2)	
	X-4034-275-1	BEZNET ASSY (KV-J29SN21/SZ2)	3-8,33		4-369-318-61	SPRING, TENSION (KV-J29SN21/SZ2)	
3	4-047-464-01	CATCHER, PUSH		20	Δ 1-403-672-31	COIL, DEMAGNETIZATION (KV-J29MF1/MN2)	
4	4-036-405-11	SPRING, COMPRESSION			Δ 1-403-672-11	COIL, DEMAGNETIZATION (KV-J29SN21/SZ2)	
5	4-054-486-01	BUTTON, POWER					
6	4-054-487-01	BUTTON, CONTROL		21	* 4-054-297-11	HOLDER, DEGAUSSING COIL (KV-J29MF1/MN2)	
7	* 4-054-488-01	GUIDE, LIGHT (R)			* 4-054-297-01	HOLDER, DGC (KV-J29SN21/SZ2)	
8	* 4-054-489-01	GUIDE, LIGHT (LED)		22	* 4-043-827-11	BAND, DEGAUSSING COIL (KV-J29MF1/MN2)	
9	4-385-725-51	SHEET, BLOTTING (KV-J29MF1/MN2)			1-900-700-10	DGC BAND (KV-J29SN21/SZ2)	
10	* 3-704-372-11	HOLDER, HV CABLE		23	4-054-484-01	COVER, REAR	
11	Δ 8-733-869-05	PICTURE TUBE (M68KZT71X) (KV-J29MF1/MN2)		24	* X-4033-931-1	BRACKET (R) ASSY, SP	
	Δ 8-733-868-05	PICTURE TUBE (M68KZT71X) (KV-J29SN21/SZ2)		25	1-505-489-11	SPEAKER (5CM)	
12	4-046-765-01	SCREW, TAPPING		26	1-505-503-11	SPEAKER (15X6.5CM)	
13	4-046-600-01	SPACER, DY (KV-J29MF1/MN2)		27	4-302-404-03	SCREW (WASHER HEAD) (+P 4X16)	
	4-046-600-11	SPACER, DY (KV-J29SN21/SZ2)		28	1-452-032-00	MAGNET, DISC	
14	Δ 8-451-467-31	DEFLECTION YOKE (Y29GXA2-S) (KV-J29MF1/MN2)		29	4-051-734-21	PIECE B(120), CONV. CORREC1	
	Δ 8-451-467-21	DEFLECTION YOKE (Y29GX2T) (KV-J29SN21/SZ2)		30	4-034-272-01	PLATE, CORRECTION, TLV	
					4-034-272-11	PLATE, CORRECTION, TLV	
15	* X-4033-930-1	BRACKET (L) ASSY, SP		31	1-452-278-32	MAGNET, PURITY	
				32	1-452-278-22	MAGNET, PURITY	
				33	4-058-025-01	CUSHION (29) BLOTTING (KV-J29SN21/SZ2)	

7-2. CHASSIS

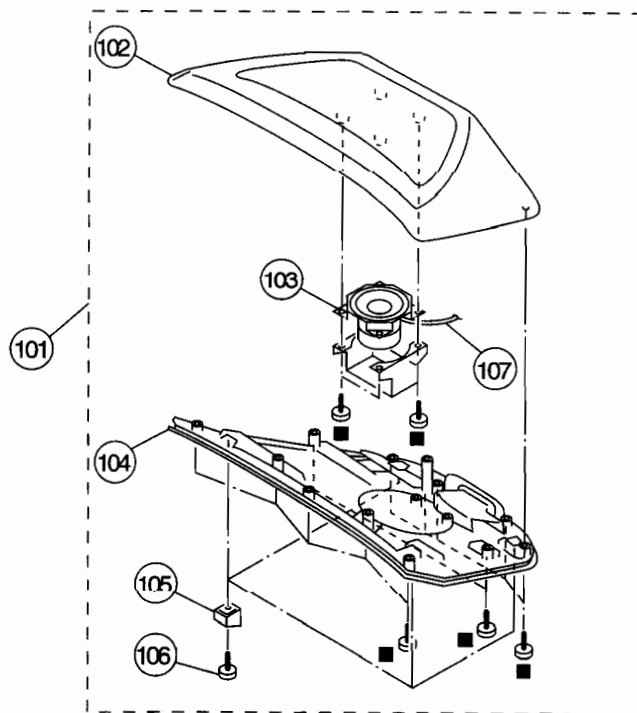
●: BVTP 3 × 12 7-685-648-79



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
51	* 4-055-140-01	BRACKET, MAIN		61	* A-1347-118-A	V1 COMPLETE PCB (KV-J29SN21)	
52	* A-1241-286-A	MOUNTED PCB, F1 (KV-J29MF1/MN2)		62	* A-1390-716-A	MOUNTED PCB (VAR), S (KV-J29MF1/MN2)	
	* A-1241-253-A	F1 MOUNTED PCB (KV-J29SN21/SZ2)			* A-1390-618-A	S MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
53	* A-1372-324-A	MOUNTED PCB, H3 (KV-J29MF1/MN2)		63	* A-1298-033-A	COMPLETE PCB, A3 (KV-J29MN2)	
	* A-1372-257-A	H3 MOUNTED PCB (KV-J29SN21/SZ2)			* A-1297-860-A	A3 COMPLETE PCB (KV-J29SN21/SZ2)	
54	1-777-353-11	CABLE, FLAT		64	* A-1380-537-A	MOUNTED PCB, K (KV-J29MN2)	
55	* A-1346-601-A	COMPLETE PCB, D (KV-J29MF1)			* A-1380-527-A	K MOUNTED PCB (KV-J29SN21/SZ2)	
	* A-1346-600-A	COMPLETE PCB, D (KV-J29MN2)		65	4-055-143-11	BRACKET, TERMINAL (KV-J29MF1)	
	* A-1346-577-A	D COMPLETE PCB (KV-J29SN21/SZ2)			4-055-143-01	BRACKET, TERMINAL (KV-J29MN2/SN21/SZ2)	
56	Δ 1-453-227-21	TRANSFORMER ASSY, FLYBACK (NX-4002/M314)		66	Δ 4-022-115-21	HOLDER, AC CORD (KV-J29MF1/MN2)	
57	* 4-056-796-01	HOLDER, FBT (KV-J29MF1/MN2)			Δ 4-022-115-00	HOLDER, AC CORD (KV-J29SN21/SZ2)	
	* 4-055-139-01	HOLDER, FBT (KV-J29SN21/SZ2)		67	Δ 1-575-023-31	CORD, POWER (WITH CONNECTOR) 6A/250V (KV-J29MF1/MN2)	
58	* A-1380-538-A	MOUNTED PCB, K1 (KV-J29MN2)			Δ 1-574-358-51	CORD, POWER (WITH CONNECTOR) 7.5A/250V (KV-J29SN21/SZ2)	
	* A-1380-526-A	K1 MOUNTED PCB (KV-J29SN21/SZ2)		68	* 4-056-795-01	HOLDER, ASSY PCB (KV-J29MF1/MN2)	
59	* A-1298-060-A	COMPLETE PCB, A (KV-J29MF1)			* 4-055-142-01	HOLDER, ASSY PCB (KV-J29SN21/SZ2)	
	* A-1298-056-A	COMPLETE PCB, A (KV-J29MN2)		69	* 4-055-447-11	SHEET, INSULATING (KV-J29MF1/MN2)	
	* A-1298-066-A	COMPLETE PCB, A (KV-J29SN21)			* 4-055-447-01	SHEET, INSULATING (KV-J29SN21/SZ2)	
	* A-1298-045-A	COMPLETE PCB, A (KV-J29SZ2)		70	4-046-797-01	SCREW (3X12), (+)BVTAP	
60	8-598-374-00	TUNER (BTV-FG431) (KV-J29MF1)		71	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	
	8-598-375-00	TUNER (BTV-FG441) (KV-J29MN2/SN21/SZ2)					

7-3. 3D SPEAKER (EXCEPT FOR KV-J29MF1)

■: BVTP 4 × 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK
101	A-1500-977-A	BOX ASSY (3D), SPEAKER	102-107
102	4-054-496-01	COVER, TOP	
103	1-544-363-11	SPEAKER (10CM)	
104	4-054-497-01	COVER, BOTTOM	
105	4-037-244-01	FOOT	
106	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	
107	1-900-224-27	LEAD ASSY, SPEAKER	