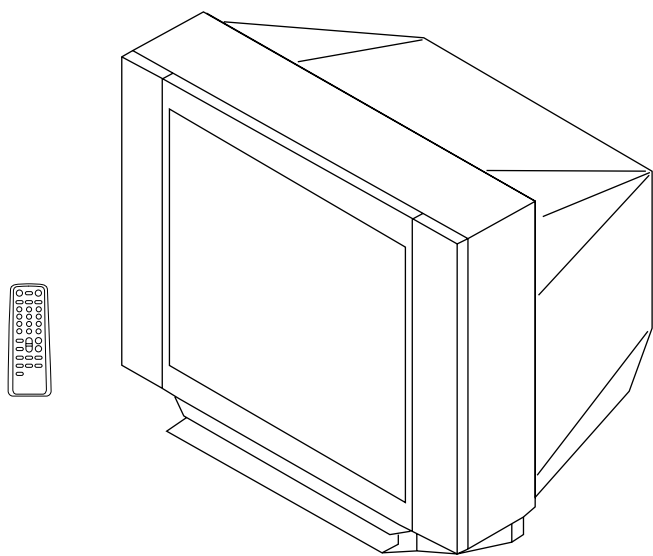


SERVICE MANUAL

BG-3S 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>
KV-XF21M31	RM-952	New Zealand	SCC-U26B-A				



TRINITRON® COLOR TV
SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, I, D/K, M	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	
Stereo/Bilingual system	NICAM Stereo/Bilingual B/G; I: A2 Stereo/Bilingual (German) B/G	
Teletext language	English, Arabic, French	
Channel coverage		
B/G	VHF: 1 to 11 / UHF: 21 to 69 / CATV: S01 to S03, S1 to S41	
I	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: S01 to S03, S1 to S4, Z1 to Z39	
M	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	
⌚ (Antenna)	75-ohm external terminal	
Audio output	5W + 5W	
Number of terminal		
📺 (Video)	Input: 2 Output: 1	Phono jacks; 1 V _{P-P} , 75 ohms
🎵 (Audio)	Input: 2 Output: 1	Phono jacks; 500 mV _{rms}
🎧 (Headphone)	Output: 1	Minijack
Picture tube	21 inch	
Tube size (cm)	54	Measured diagonally
Screen size (cm)	51	Measured diagonally
Dimension (w/h/d, mm)	640 × 456 × 498	
Mass (kg)	29	

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 ⚠ 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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SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.

The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

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

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

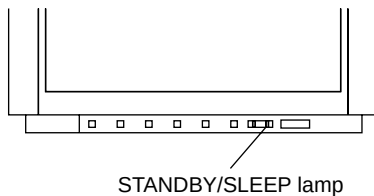
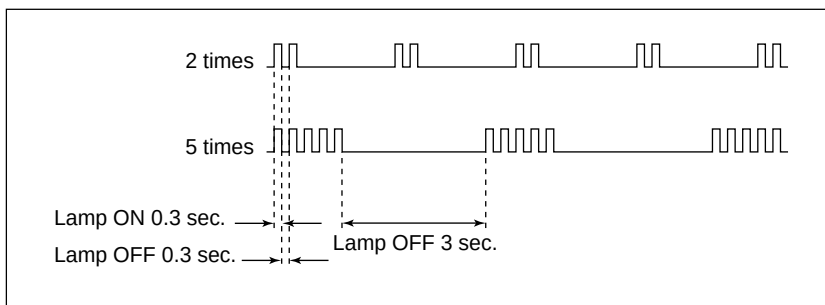
Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F4601 (F)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP) or overvoltage (OVP) • Vertical deflection stopped • Horizontal deflection overdrive	2 times	002:000 or 002:001~255 003:001~255 004:001~255 at the same time	• H.OUT Q511 is shorted. (A board) • IC1800 is shorted. (C5 board) • -13V is not supplied. (A board) • IC 503 faulty (A board) • IC 301 faulty (A board)	• Power does not come on. • Load on power line is shorted. • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~225	• G2 is improperly adjusted. (Note 2) • CRT problem. • Video OUT IC1800 is faulty. (C5 board) • IC301 is faulty. (A board) • No connection A board to C5 board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C5 Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

Note 1: If a + B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.

The symptom that is diagnosed first by the microcontroller is displayed on the screen.

Note 2: Refer to screen (G2) Adjustment in section 3-4 of this manual.

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT



<u>Diagnostic Item</u>	<u>Flash Count*</u>
+B overcurrent/overvoltage	2 times
Vertical deflection stopped	
White balance failure	5 times

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

3. STOPPING THE STANDBY/TIMER FLASH

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

4. SELF-DIAGNOSTIC SCREEN DISPLAY

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

[To Bring Up Screen Test]

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

Screen display ➡ channel 5 ➡ Sound volume - ➡ Power ON
↑

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

Self-Diagnosis screen display

SELF DIAGNOSTIC

002 : 000 ←

003 : 000

004 : 000

005 : 001 ←

101 : 000

Numeral "0" means that no fault has been detected.

Numeral "1" means a fault has been detected.

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

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

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

[Clearing the result display]

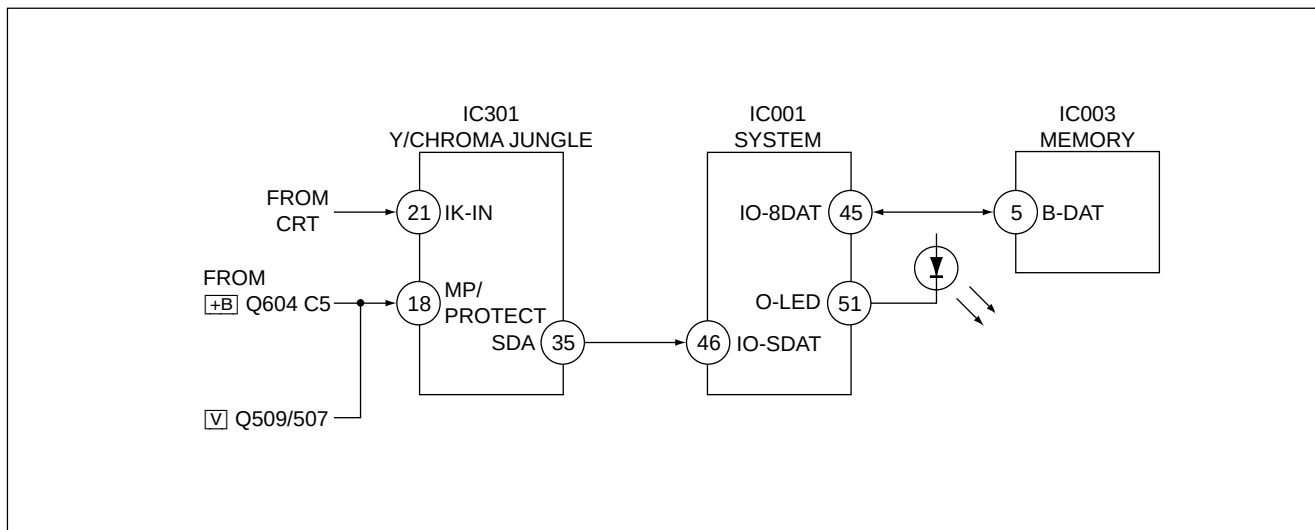
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel 8 ➡ 0

[Quitting Self-diagnostic screen]

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

6. SELF-DIAGNOSTIC CIRCUIT

**+B overcurrent (OCP)**

Occurs when an overcurrent on the +B(135) line is detected by Q604. If Q604 go to ON and the voltage to pin 18 of IC301 should go down when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.

Vertical deflection stopped

Occurs when an absence of the vertical deflection pulse is detected by Q509 and IC001 shut down the power supply.

Vertical deflection overcurrent

Occurs when an overcurrent on V drive line is detected by Q507. Power supply will be shut down when detect this by IC001.

White balance failure

If the RGB levels* do not balance or become low level within 5 seconds, this error will be detected by IC301. TV will stay on, but there will be no picture.

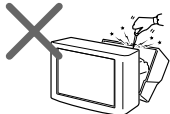
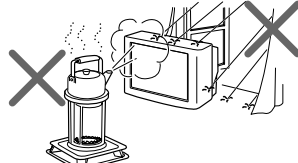
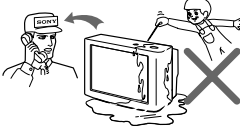
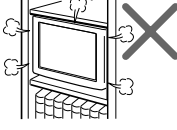
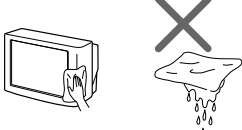
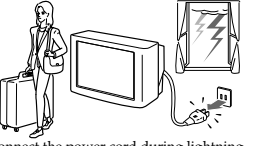
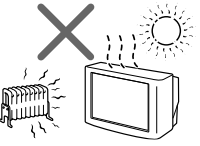
* (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

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

SECTION 1 GENERAL

WARNING

- Dangerously high voltages are present inside the TV.
- Operate the TV only between 110 – 240 V AC.

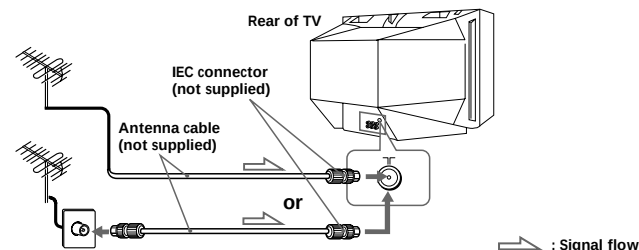
Using Your New TV

Getting Started

Step 1

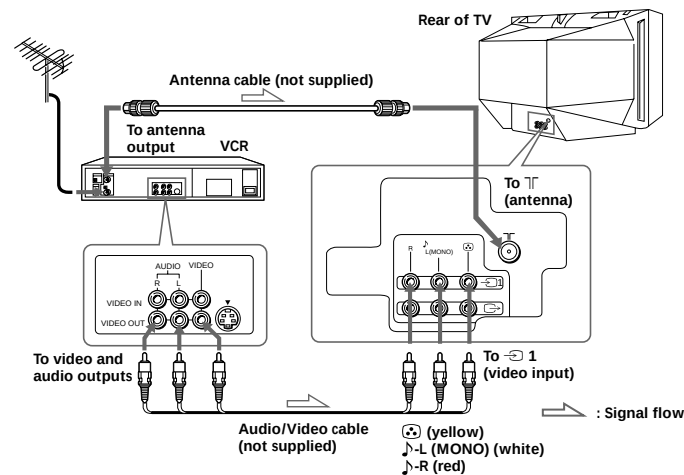
Connect the antenna

If you wish to connect a VCR, see the “Connecting a VCR” diagram below.



Connecting a VCR

To watch the video, press   (see page 12).



Notes

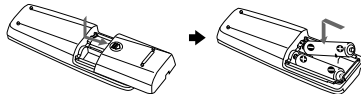
- If you connect a monaural VCR, connect the yellow plug to (yellow jack) and the black plug to L (MONO) (the white jack).
- If you connect a VCR to the 1 (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When no signal is input to the connected video equipment, the TV screen becomes blue.

CAUTION

Do not connect the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.

Step 2

Insert the batteries into the remote

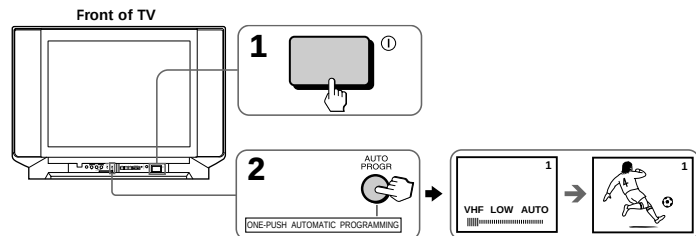


Note

- Do not use old batteries nor use different types of batteries together.

Step 3

Preset the channels automatically



Tips

- If you want to stop automatic channel presetting, press SELECT twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 9).

Now You Are Ready. . .

To watch your TV, see page 11.



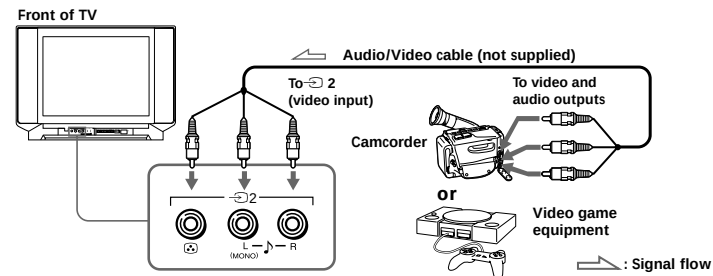
Using Your New TV | 5

Connecting optional components

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

To watch the picture of the connected equipment, press (see page 12).

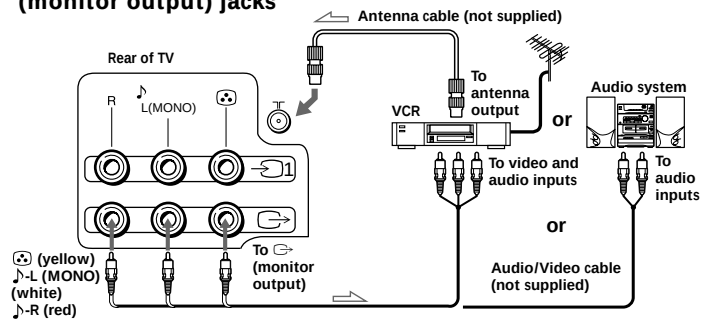
Connecting a camcorder/video game equipment using the 2 (video input) jacks



Note

- You can also connect video equipment to the 1 (video input) jacks at the rear of your TV.

Connecting audio/video equipment using the 1 (monitor output) jacks



Note

- When connecting a monaural VCR, connect the yellow plug to (yellow jack) and the black plug to L (MONO) (the white jack).

6 | Using Your New TV

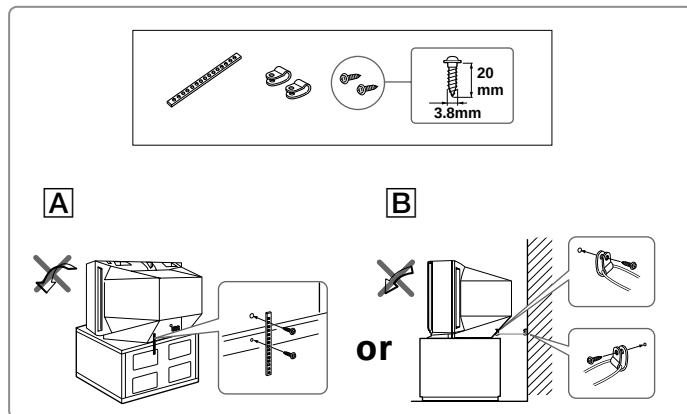
Securing the TV

To prevent the TV from falling, secure the TV using one of the following methods:

- A** With the supplied screws, attach the band to the TV stand and to the rear of the TV using the provided hole.

or

- B** Put the cord or chain through the clamps to secure the TV against a wall or pillar.



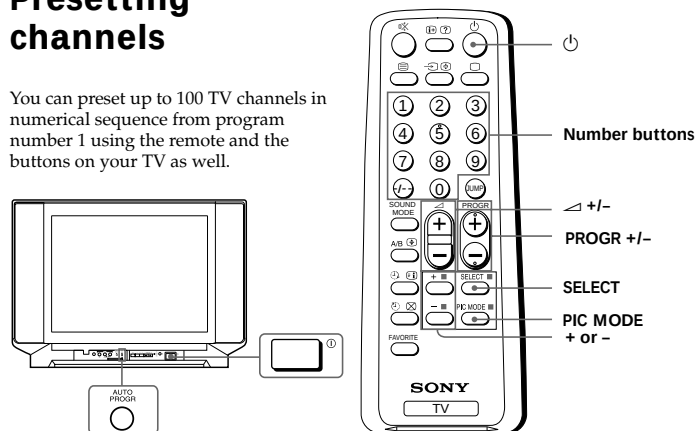
Note

- Use only the supplied screws. Use of other screws may damage the TV.

Using Your New TV

Presetting channels

You can preset up to 100 TV channels in numerical sequence from program number 1 using the remote and the buttons on your TV as well.

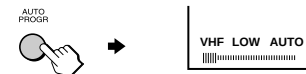


Presetting channels automatically

- 1** Press ① to turn on the TV.



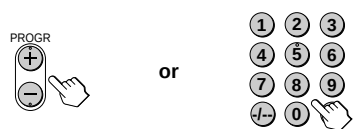
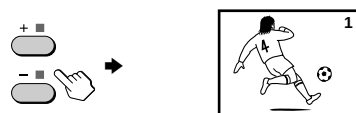
- 2** Press AUTO PROGR.



To preset channels automatically from a specified program number

- Press SELECT until "AUTO PROGRAM" appears.
- Press + or -.
The on-screen display will start flashing.
- Press PROGR +/- or the number buttons until the desired program number appears.
- Press + or -.

Presetting channels manually

- 1 Press SELECT until "MANUAL PROGRAM" appears.
 
- 2 Press + or -.
 
- 3 Press PROGR +/- or the number buttons until the desired program number appears.
 
- 4 Press + or - until the desired channel picture appears.
 
- 5 Press SELECT.
 

Using Your New TV

To change the TV system setting

If the picture or sound is abnormal when receiving programs through the ㄗ (antenna) terminal

- (1) Press SELECT until "TV SYS" appears.

TV SYS: B/G

- (2) Press + or - to select the appropriate TV system until the picture or sound quality is optimal.

B/G → I → D/K → M

continued

Using Your New TV | 9

Presetting channels (continued)

To change the color system setting

If the color is abnormal when receiving programs through the ㄗ (antenna) terminal or the ㄚ (video input) jack

- (1) Press SELECT until "COL SYS" appears.

COL SYS: AUTO

- (2) Press + or - to select the appropriate color system until the color is optimal.

AUTO → PAL → SECAM → NTSC 3.58 → NTSC 4.43

Tip

- Normally set "COL SYS" to "AUTO".

Skipping program numbers

- 1 Press PROGR +/- or the number buttons until the unused or unwanted program number appears.
- 2 Press SELECT until "MANUAL PROGRAM" appears.
- 3 Press + or -.
- 4 Press PIC MODE.
- 5 Press SELECT.

To preset the skipped program number again

Preset the channel automatically or manually.

Tip

- You can also use SELECT and ㄚ +/- on the TV to preset channels and skip program numbers.

To use the fine tuning (FINE) function

The fine tuning (FINE) function may help to reduce the following problems: double images and lines moving across the TV screen.

You can use the fine tuning function as below:

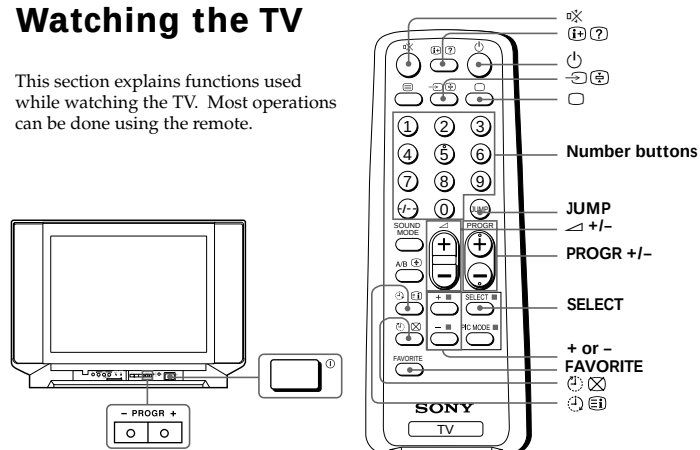
- (1) Select the program number you want to adjust.
- (2) Press SELECT until "MANUAL PROGRAM" appears on the screen.
- (3) Press + or - on the remote control once.
- (4) Press ㄚ ㄚ to display "FINE" on the screen.
- (5) Press + or - continuously until the above problems are minimized.

The + or - icon on the screen flashes while tuning.
- (6) Press SELECT to return to normal screen.

10 | Using Your New TV

Watching the TV

This section explains functions used while watching the TV. Most operations can be done using the remote.



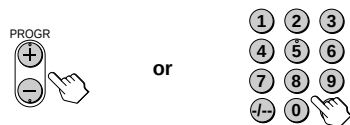
1 Press ① to turn on the TV.

When the TV is in the standby mode (the ① indicator on the TV is lit red), press ① on the remote or PROGR +/- on the TV.



2 Press PROGR +/- or the number buttons to select the TV program.

For double digit numbers, press +/-, then the number (e.g., for 25, press +/-, then 2 and 5).



3 Press ② +/- to adjust the volume.



Watching the TV (continued)

Additional tasks

To	Do this
Turn off temporarily	Press ①. The ① indicator on the TV lights up red.
Turn off completely	Press ① on the TV.
Mute the sound	Press ③.
Watch the video input (VCR, camcorder, etc.)	Press ④ ⑤ to select "VIDEO 1" or "VIDEO 2". To return to the TV program, press ①.
Jump back to the previous channel	Press JUMP.
Display the on-screen information*	Press ⑥ ⑦.
Adjust the volume of each TV program automatically	Press SELECT repeatedly until "INTELLIGENT VOL" appears, then press + or - to select "ON". To cancel, select "OFF".
Adjust the picture position when it is not aligned to the TV screen	Press SELECT repeatedly until "PIC ROTATION" appears, then press + or - to adjust the alignment of the picture position.

PIC ROTATION ⑥ ⑦

The ⑥ or ⑦ icon on the screen flashes while adjusting.

* The picture, sound, and either the program number or video mode are displayed. The on-screen display for the picture and sound information disappears after about 3 seconds.

Changing the on-screen display language

1 Press SELECT until "LANGUAGE / 语言: ENGLISH" appears on the screen.



2 Press + or - to select "中文".



Tip

- You can also use SELECT and ② +/- on the TV to select the on-screen display language.

continued

Setting the Wake Up timer

- Press until the desired period of time appears.
- Select the TV program or video mode you want to display when you wake up.
- Press or set the Sleep timer if you want the TV to turn off automatically.

The indicator on the TV lights up orange.

To cancel the Wake Up timer

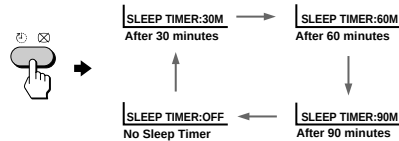
Press until "WAKE UP TIMER: OFF" appears or turn off the TV's main power.

Notes

- The Wake Up timer starts immediately after the on-screen display disappears.
- 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 goes into the standby mode. To continue watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press until the desired period of time appears.



To cancel the Sleep timer

Press until "SLEEP TIMER: OFF" appears or turn the TV off.

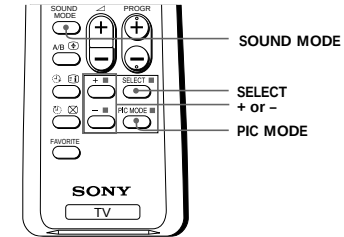
Using Your New TV

Advanced Operations

Customizing the picture and sound

You can customize the picture and sound by selecting the picture and sound modes or by adjusting its settings.

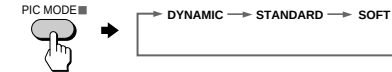
You can change the sound effect by selecting the surround mode.



Selecting the picture and sound modes

To select the picture mode

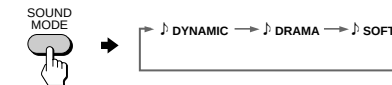
Press PIC MODE repeatedly until you get the desired picture mode.



Select	To
DYNAMIC	receive high contrast pictures.
STANDARD	receive normal contrast pictures.
SOFT	receive mild pictures.

To select the sound mode

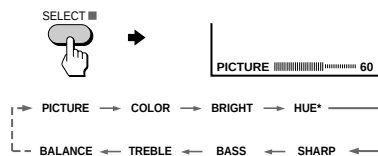
Press SOUND MODE repeatedly until you get the desired sound mode.



Select	To
DYNAMIC	listen to dynamic and clear sound that emphasizes the low and high sound.
DRAMA	listen to sound that emphasizes vocals and background music.
SOFT	receive soft sound.

Adjusting the picture and sound settings

- 1 Press SELECT until the desired setting appears.



Each time you press SELECT, the setting item will change as follows:

- 2 Press + or – to adjust the item.



- 3 To adjust other items, repeat steps 1 to 2.

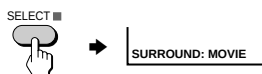
* "HUE" can be adjusted for the NTSC system only.

Notes

- When you select a picture or sound mode, the adjusted settings will be reset according to the selected mode.
- You can also use SELECT and Δ +/- on the TV to adjust the picture and sound settings.

Selecting the surround mode

- 1 Press SELECT repeatedly until "SURROUND" appears.



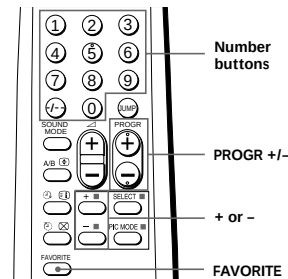
- 2 Press + or – to select the desired surround sound.



Select	To
MOVIE	listen to sound that spreads out over a large area, giving the feeling of being at a movie theatre.
MUSIC	listen to the sound that gives the feeling of being at a live concert.
OFF	turn off the surround sound.

Viewing your favorite channels

You can display six of your favorite channels for quick and easy selection. You can change the favorite channel setting as well.

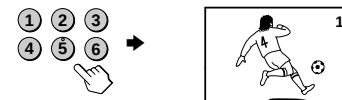


Selecting a favorite channel

- 1 Press FAVORITE.



- 2 Press the number button from 1 to 6 to select the desired channel.



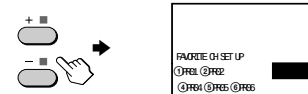
When you use the FAVORITE CH feature for the first time, six preset channels will appear.

Changing the favorite channel setting

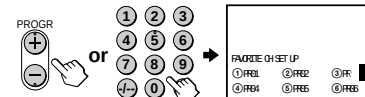
- 1 Press SELECT until "FAVORITE CH SET UP" appears.



- 2 Press + or – to select the favorite channel you want to change (e.g. ③ PR03).



- 3 Press PROG +/-, or number buttons to change the program number.

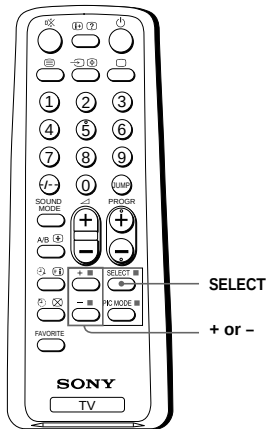


- 4 Repeat steps 2 and 3 to set other favorite channels.

- 5 Press SELECT.

Blocking the channels (CHILD LOCK)

You can prevent a child from watching certain programs by using the buttons on the remote control.



1 Select the TV program you want to lock.

2 Press SELECT until "CHILD LOCK" appears on the screen.



3 Press + or - to select "ON".

The symbol appears on the screen.

To unlock the channel, press + or - to select "OFF". The symbol disappears from the screen.

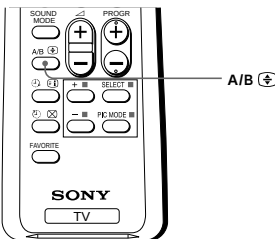


Note

- If you preset a locked channel, that particular channel will be unlocked automatically.

Selecting a stereo or bilingual program

You can enjoy stereo sound or bilingual programs of NICAM and A2 (German) stereo systems.



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

The on-screen display changes to show the selected sound and the indicator on the TV lights up red.



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	MONO (Regular sound) 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, Malaysia, Thailand, etc.
A2 (German)	Australia, Malaysia, Thailand, etc.

Notes

- If the signal is very weak, the sound becomes monaural automatically.
- If the stereo sound is noisy when receiving a NICAM program, select "MONO". The sound becomes monaural, but the noise is reduced.

If the sound is distorted or noisy when receiving a monaural program through the ㄐ (antenna) terminal

Press A/B ㄥ repeatedly until "MONO" appears on the screen.
To cancel the monaural sound setting, press A/B ㄥ again until "AUTO" appears on the screen.

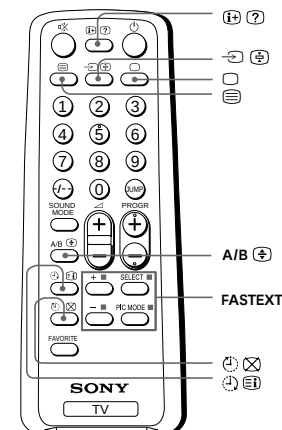


Notes

- The "MONO" or "AUTO" setting is memorized for each program position.
- You cannot receive stereo broadcast signal when the TV is in the "MONO" setting. Normally set the TV to "AUTO."

Viewing Teletext

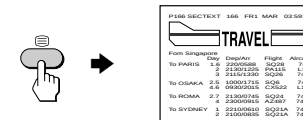
TV stations broadcast an information service called Teletext via some TV channels. Teletext allows you to receive various information, such as shares market or news.



Displaying Teletext

- Select a TV channel that carries the Teletext broadcast you want to watch.

- Press ㄥ to display the text.
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 ㄥ.

Additional Teletext tasks

To	Do this
display a Teletext page on the TV picture	Press . Each time you press , the screen changes as follows: Teletext → Teletext and TV → TV.
check the contents of a Teletext service	Press . An overview of the Teletext contents and page numbers appear on the screen.
select a Teletext page	Press the number buttons to enter the three-digit page number of the desired Teletext page.* If you make a mistake, reenter the correct page number. To access the next or previous page, press PROG +/-.
hold a Teletext page (stop the page from scrolling)	Press to display the symbol "Ⓢ" at the top left corner of the screen. To resume normal Teletext operation, press or .
reveal concealed information (e.g., an answer to a quiz)	Press . To conceal the information, press the button again.
enlarge the Teletext display	Press A/B . Each time you press A/B , the Teletext display changes as follows: Enlarge upper half → Enlarge lower half → Normal size.
wait for a Teletext page while watching a TV program	1 Enter the Teletext page number that you want to refer to, then press . 2 When the page number is displayed, press to show the text.

* You can also select a Teletext page of any page number that appears in the colored column at the bottom of the screen using the corresponding color-coded button on the remote.

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, yellow, and blue color-coded buttons on the remote.

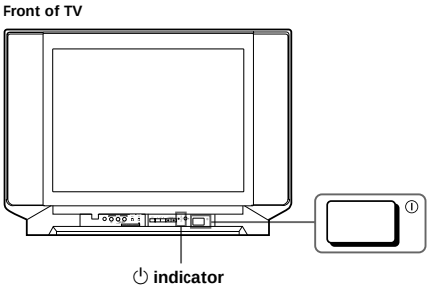
To access a FASTEXT menu

Press the color-coded button on the remote corresponding to the menu you want. The menu page appears on the screen after several seconds.

Additional Information

Self-diagnosis function

Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the indicator flashes red. The number of times the indicator flashes indicates the possible causes.



- 1 Check that the indicator flashes red a number of times between 3-second intervals.
- 2 Count the number of times the indicator flashes.
- 3 Press (main power) to turn off your TV.
- 4 Inform your nearest Sony service center about the number of times the indicator flashes.
Be sure to note the model name and serial number located on the rear of your TV.

Troubleshooting

If you find any problem while viewing your TV, please check the following guide. If any problem persists, contact your Sony dealer .

Symptom	Solutions	Possible cause
Snowy picture 	- Check the antenna cable and connection on the TV, VCR and on the wall. (page 4) - Press SELECT until "MANUAL PROGRAM" appears on the screen then preset the channel again. (page 9)	- Connection is loose or the cable is damaged. - Channel presetting is inappropriate or incomplete.
Noisy sound 	- Check the antenna type (VHF/UHF). Contact a Sony dealer for advice. - Adjust the antenna direction. Contact a Sony dealer for advice. - Try using a booster.	- The antenna type is inappropriate. - The antenna direction is inappropriate. - Signal transmission is low.
Distorted picture 	Turn off or disconnect the booster if it is in use.	Broadcast signals are too strong.
Noisy sound 		
Good picture 	- If the sound of all the channels are noisy, check the TV system (TV SYS) setting (page 9), then press AUTO PROGR to preset the channels again (page 8). - If the sound of some channels are noisy, select the channel, then select the appropriate TV system (TV SYS). (page 9)	The TV system setting or channel presetting is inappropriate or incomplete.
Noisy sound 		
No picture 	- Check the power cord, antenna and the VCR connections. - Press (power). - Press (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	- The power cord, antenna or VCR is not connected. - The TV is not turned on.
No sound 		

Additional Information

continued

Troubleshooting (continued)

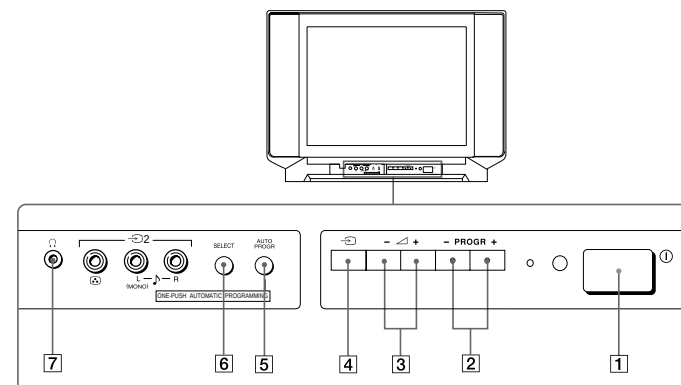
Symptom	Solutions	Possible cause
Good picture 	- Press $\triangle$ + to increase the volume level. - Press $\times$ to cancel the muting. - Press A/B (4) until a better sound is heard.	- The volume level is too low. - The sound is muted. - Broadcast signal has a transmission problem.
No sound 		
Dotted lines or stripes 	- Do not use a hair dryer or other equipment near the TV. - Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	There is local interference from cars, neon signs, hair dryers, power generators, etc.
Double images or "ghosts" 	- Use a highly directional antenna. - Use the fine tuning (FINE) function. (page 10) - Adjust the antenna direction. Contact a Sony dealer for advice. - Turn off or disconnect the booster if it is in use.	- Broadcast signals are reflected by nearby mountains or buildings. - The antenna direction is inappropriate. - Use of a booster is inappropriate.
No color 	- Press SELECT until "COLOR" appears on the screen, then press + or - to adjust the color level. (page 15) - Press SELECT until "COL SYS" appears on the screen, then check the color system setting (usually set this to "AUTO"). (page 10) - Adjust the antenna direction. Contact a Sony dealer for advice.	- The color level setting is too low. - The color system setting is inappropriate. - The antenna direction is inappropriate.
Abnormal color patches 	Keep external speakers or other electrical equipment away from the TV. Do not move the TV while the TV is turned on. Press (main power) on the TV to turn off the TV for about five minutes, then turn it on again.	The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.
TV cannot receive stereo broadcast signal	Press A/B (4) until "AUTO" appears on the screen.	The stereo reception setting is inappropriate.

Symptom	Solutions	Possible cause
Stereo broadcast sound switches on and off or is distorted. or The sound switches between monaural and stereo frequently.	- Check the antenna cable and connection on the TV, VCR and on the wall. (page 4) - Adjust the antenna direction. Contact a Sony dealer for advice. - Press A/B (⏻) until a better sound is heard.	- Connection is loose or the cable is damaged. - The antenna direction is inappropriate. - Broadcast signal has a transmission problem.
"100" appears on the top of the screen and there is no Teletext display.	—	The channel carries no Teletext broadcast.
Teletext display is incomplete (snowy picture or double images).	- Check the antenna cable and connection on the TV, VCR, and at the wall. (page 4) - Adjust the antenna direction. Contact a Sony dealer for advice. - Try using a booster. - Use the fine tuning (FINE) function. (page 11)	- Connection is loose or the cable is damaged. - The antenna direction is inappropriate. - Signal transmission is too low.
Picture slant 	Press SELECT until "PIC ROTATION" appears on the screen, then press + or - to align the picture to the TV screen. (page 12)	The terrestrial magnetism affects your TV set.
Lines moving across the TV screen.	Use the fine tuning (FINE) function. (page 10)	There is interference from external sources, e.g., heavy machineries, nearby broadcast station.
The ⏻ indicator on your TV flashes red a number of times between 3-second intervals.	Contact your nearest Sony service center. (page 22)	Your TV may need service.
TV cabinet creaks.	—	Changes in room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.
A "boom" sound is heard when the TV is turned on.	—	The TV's demagnetizing function is working. This does not indicate a malfunction.

Identifying parts and controls

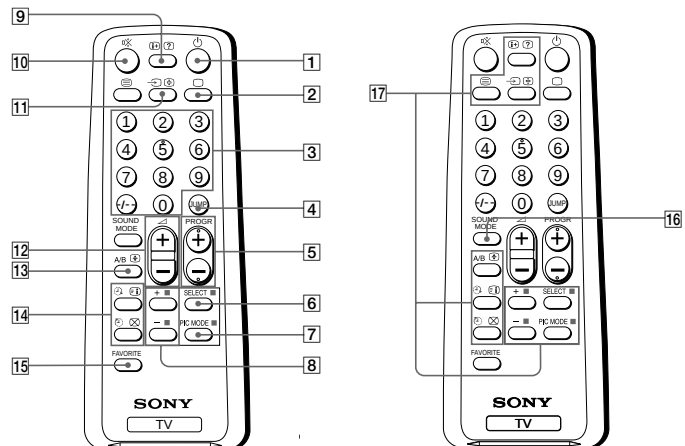
Refer to the pages indicated in parentheses () for details.

Front panel



- ① ① (main power) button (11)
- ② PROGR +/- (program) buttons (11)
- ③ +/- (volume) buttons (11)
- ④ TV/video button (12)
- ⑤ AUTO PROGR (program) button (5)
- ⑥ SELECT button (9)
- ⑦ (headphone) jack

Remote Control



- 1 (power) button (11)
- 2 (TV) button (12)
- 3 Number buttons (11)
- 4 JUMP button (12)
- 5 PROGR +/- buttons (11)
- 6 SELECT button (9)
- 7 PIC MODE button (14)
- 8 +/- buttons (9)
- 9 (display) button (12)
- 10 (muting) button (12)
- 11 (video) button (12)
- 12 +/- (volume) buttons (11)
- 13 A/B button (18)
- 14 Timer setting buttons (13)
 - (wake up timer)
 - (sleep timer)
- 15 FAVORITE button (16)

- 16 SOUND MODE button (14)
- 17 Teletext operation buttons (20, 21)
 - (text) (enlarge)
 - (reveal) (hold)
 - (index) (text clear)
 - (FASTEXT: red, green, yellow, blue)

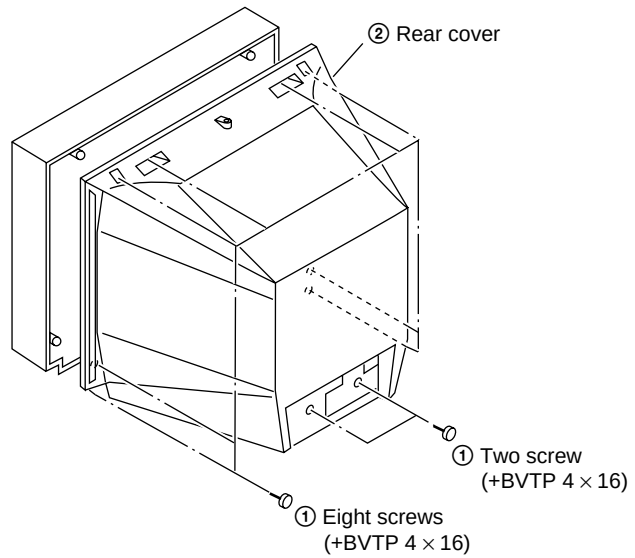
Names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

Label color	Button function
White	For general TV operations
Green	For Teletext operations

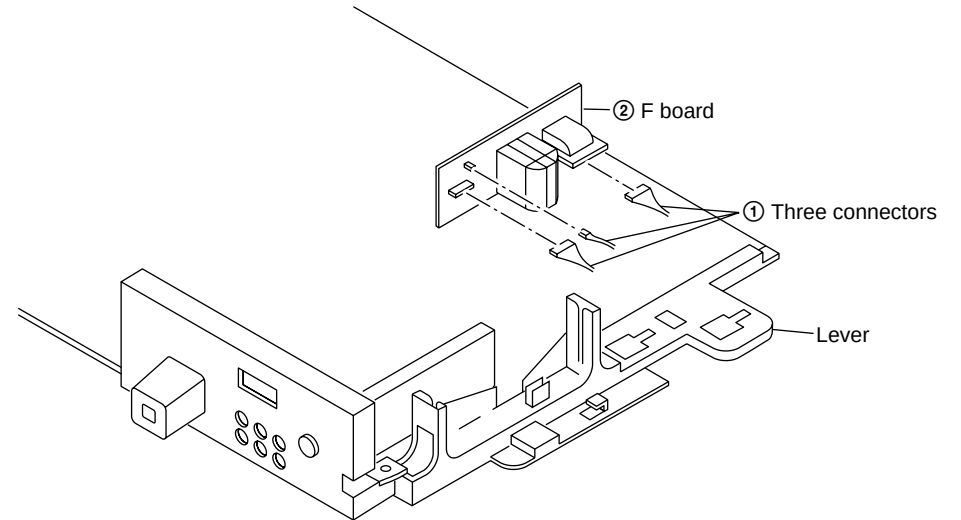
SECTION 2

DISASSEMBLY

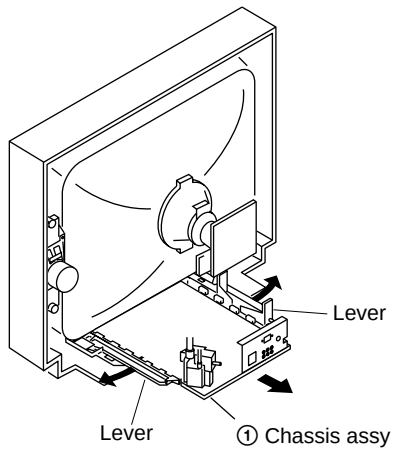
2-1. REAR COVER REMOVAL



2-3. F BOARD REMOVAL

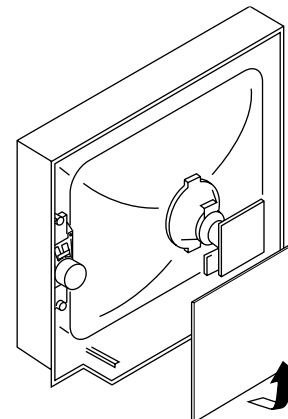


2-2. CHASSIS ASSY REMOVAL



2-4. SERVICE POSITION

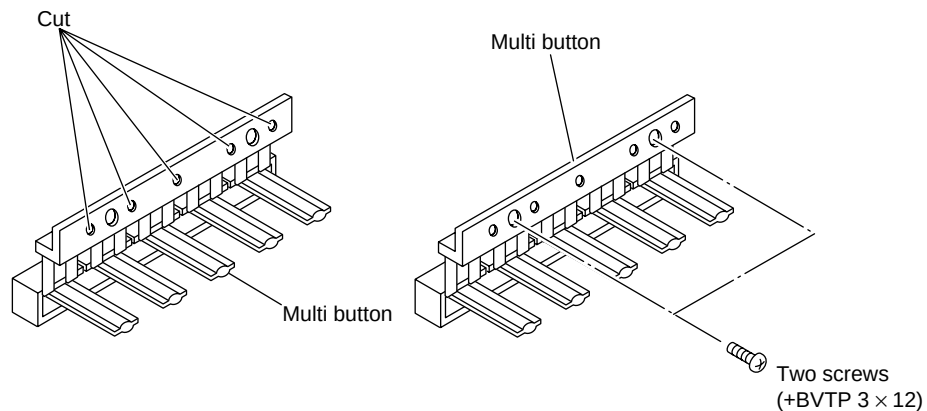
(Note: Remove F Board first.)



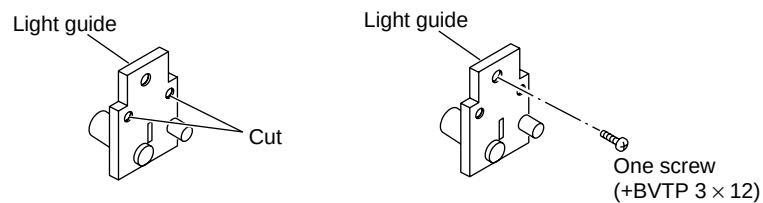
2-5. REPLACEMENT OF PARTS

For replacement of the Multi Button and Light Guide, cut the welded portions from them, exchange with the new parts, and fix them with screws (+BVTP) respectively.

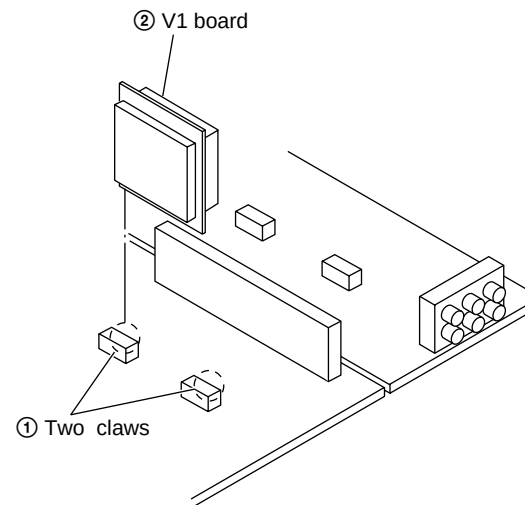
2-5-1. REPLACEMENT OF MULTI BUTTON



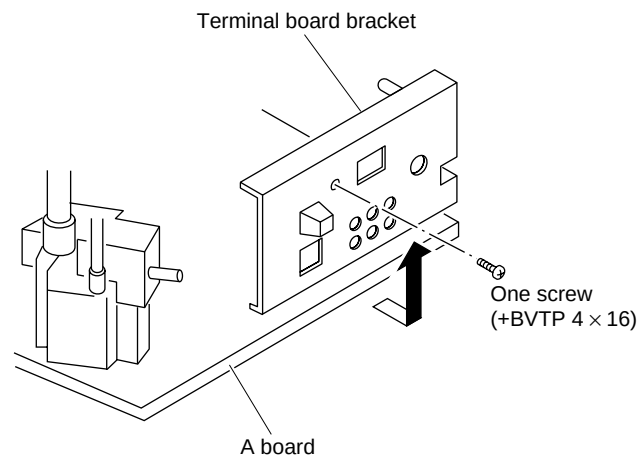
2-5-2. REPLACEMENT OF LIGHT GUIDE



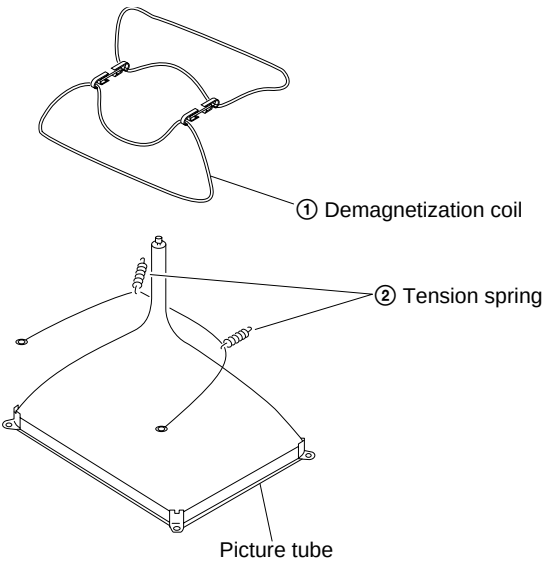
2-6. V1 BOARD REMOVAL



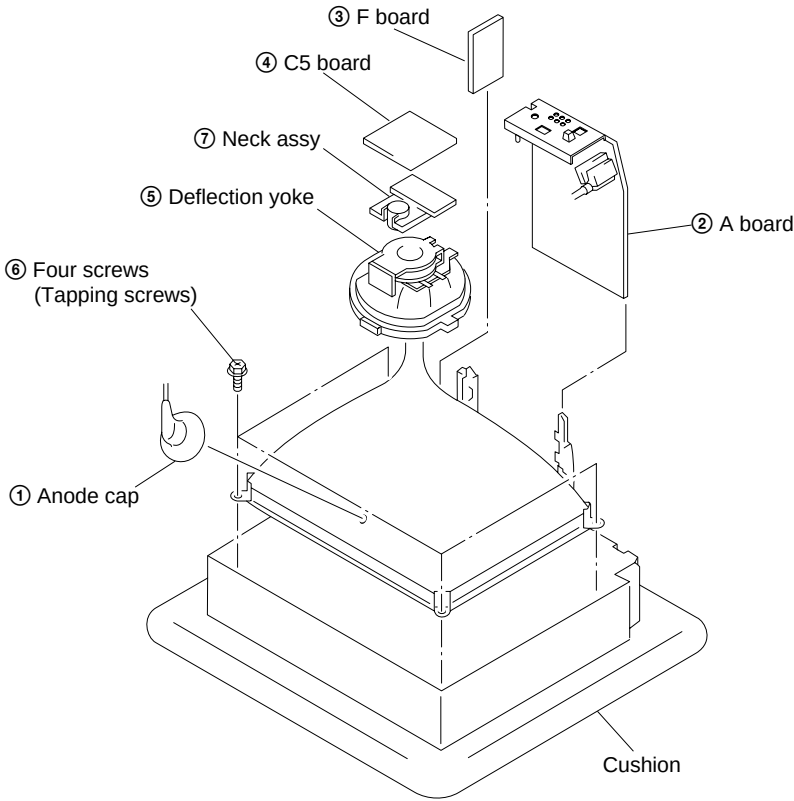
2-7. TERMINAL BRACKET REMOVAL



2-8. DEGAUSS COIL REMOVAL



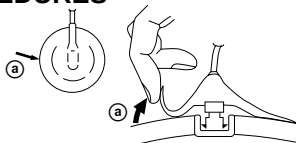
2-9. PICTURE TUBE REMOVAL



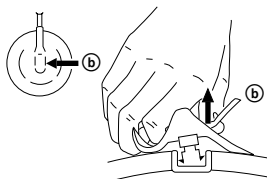
•REMOVAL OF ANODE-CAP

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

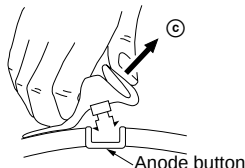
•REMOVING PROCEDURES



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



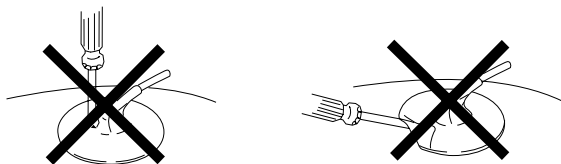
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ②.



- 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

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

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.

3-1. BEAM LANDING

1. Input a white signal with the pattern generator.

Contrast } normal
 Brightness }
2. Position neck assy as shown in Fig3-2.
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 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 3-1.)
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 3-4.)

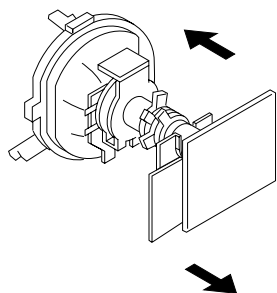


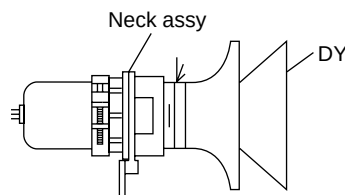
Fig. 3-1

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



Note:
Neck Assy is exactly behind
DY (no gap between Neck
Assy and DY)

Fig. 3-2

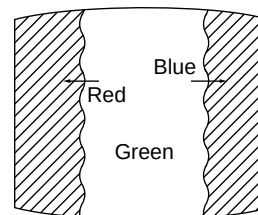


Fig. 3-3

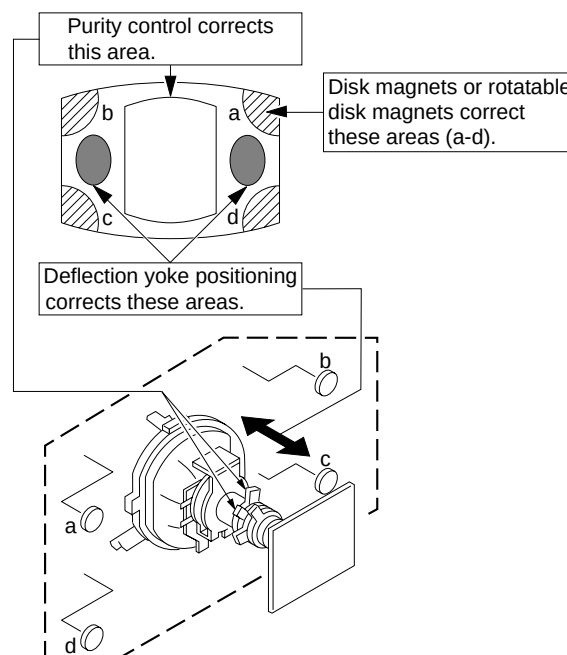


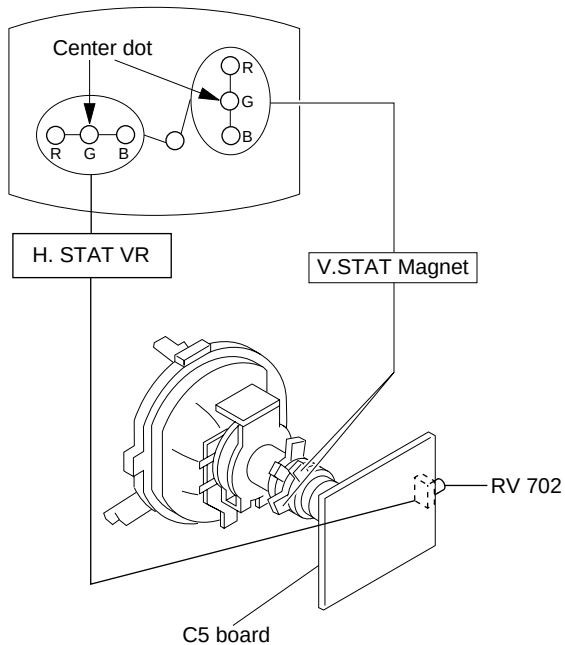
Fig. 3-4

3-2. CONVERGENCE

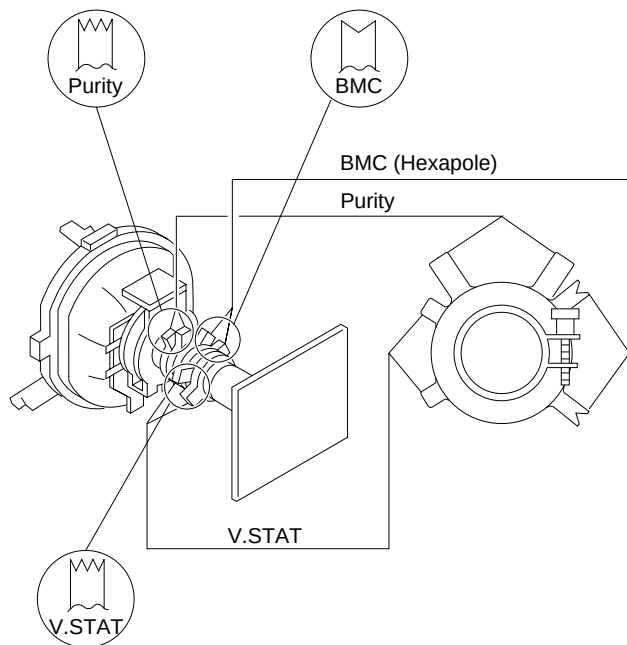
Preparation :

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

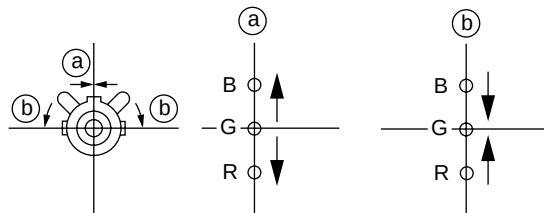
(1) Horizontal and Vertical Static Convergence



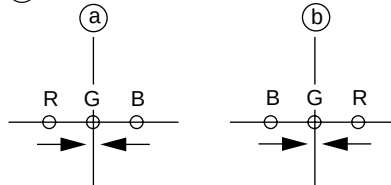
(Moving vertically), adjust the V. STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.



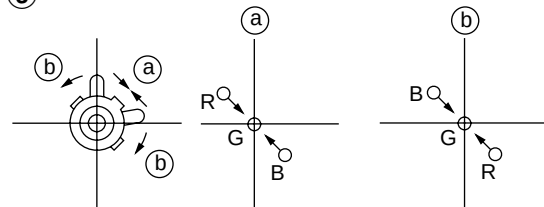
① V. STAT



② H. STAT VR

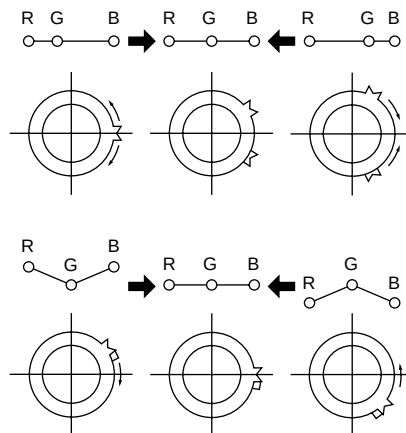


③



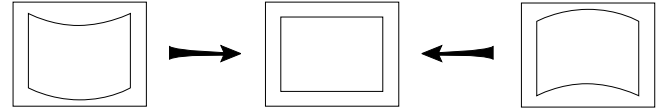
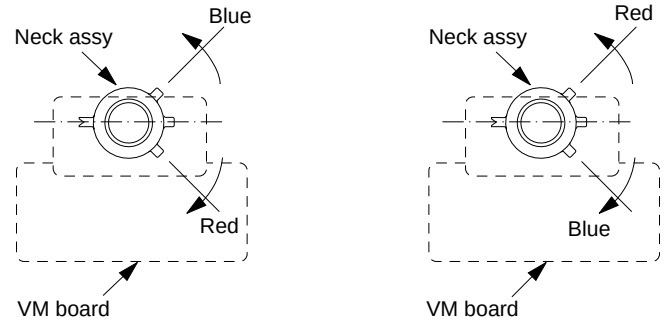
④ BMC (Hexapole) Magnet.

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



④ 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.



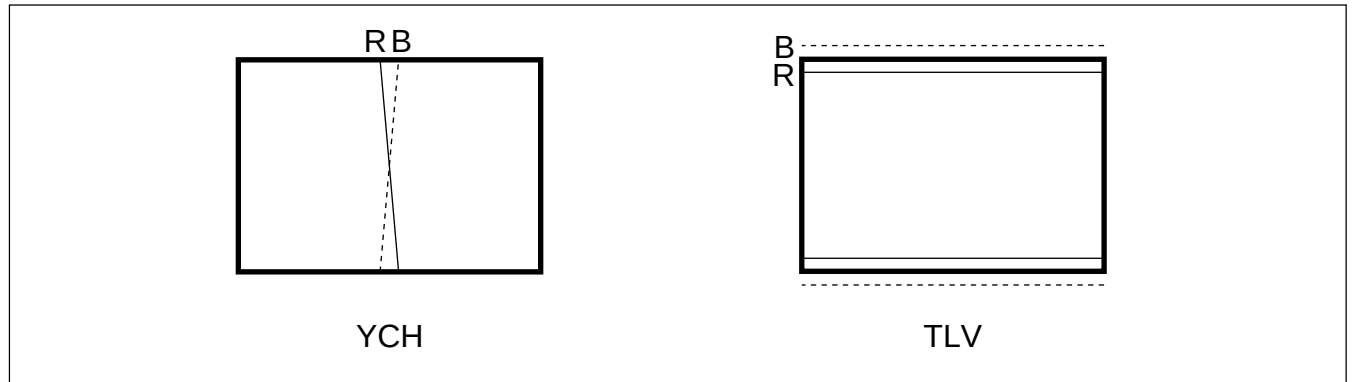
Note

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)

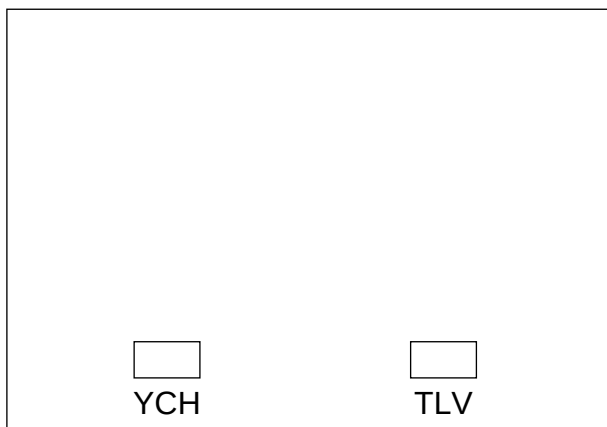
(2) Dynamic Convergence Adjustment

Preparation:

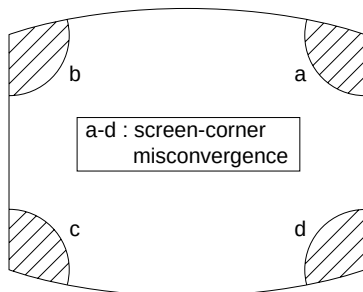
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence



on DY

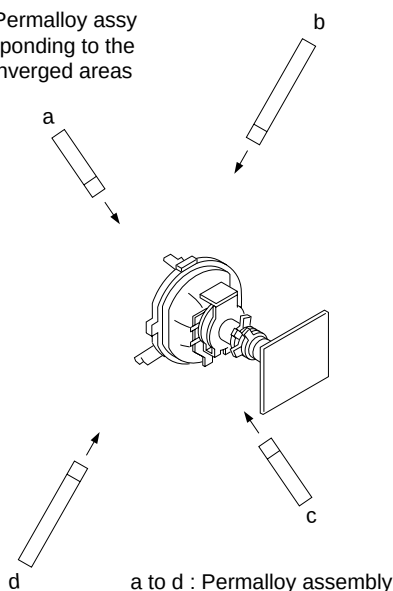


(3) Screen-corner Convergence



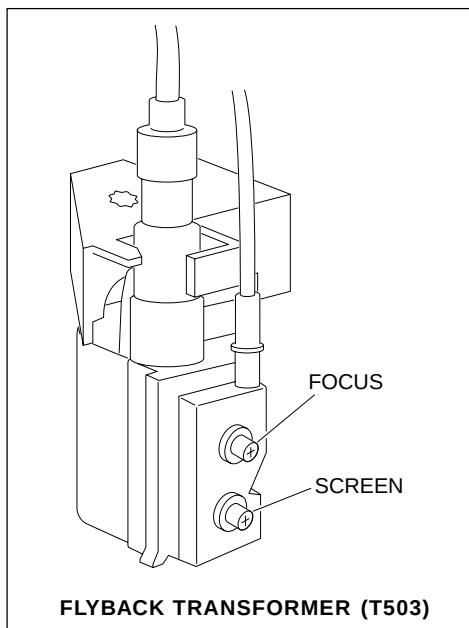
Fix a Permalloy assy corresponding to the misconverged areas.

Fix a Permalloy assy
corresponding to the
misconverged areas



3-3. FOCUS ADJUSTMENT

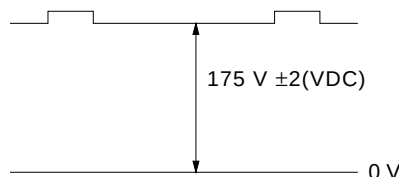
Adjust FOCUS control on the flyback transformer for the best focus.



3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

- 1) Set the PICTURE to normal.
- 2) Put to VIDEO input mode without signals.
- 3) Connect R, G and B of the C5 board cathode to the oscilloscope.
- 4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
- 5) Adjust G2 (Screen) on FBT until picture shows the point before cut-off.

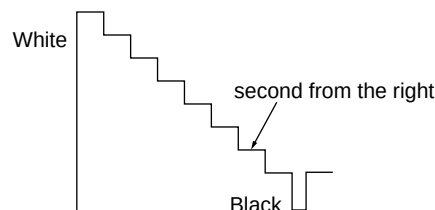


2. WHITE BALANCE ADJUSTMENT

- 1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
- 2) Input white raster signal.
- 3) Set the PICTURE to minimum.
- 4) Select GCT (WHB 4) and BCT (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 5) Set the PICTURE to maximum.
- 6) Select GDR (WHB 1) and BDR (WHB 2) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 7) 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 SBR (WHB7) with [1] and [4], and adjust SBR (WHB7) level with [3] and [6] so that the second stripe from the right is dimly lit.



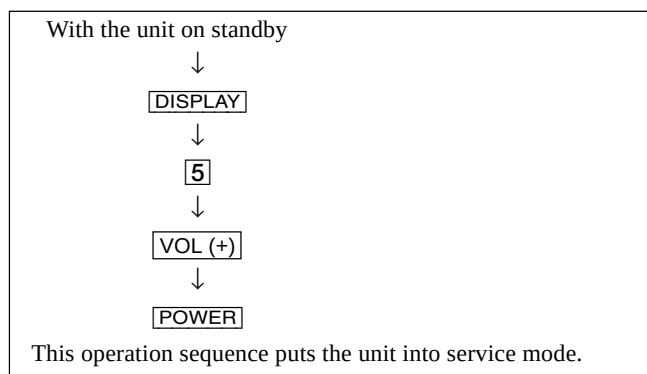
SECTION 4

CIRCUIT ADJUSTMENTS

4-1. ADJUSTMENTS WITH COMMANDER

Service adjustments are made with the RM-952 that comes with this unit.

a. ENTERING SERVICE MODE



b. 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.

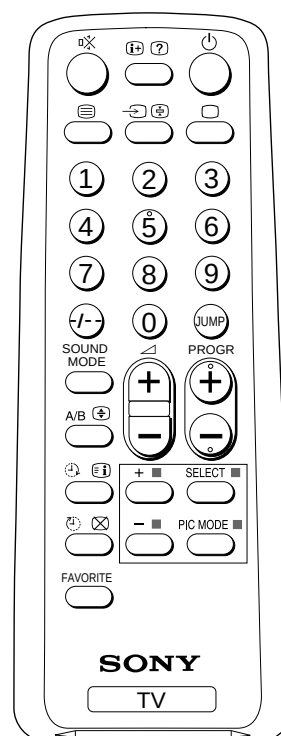
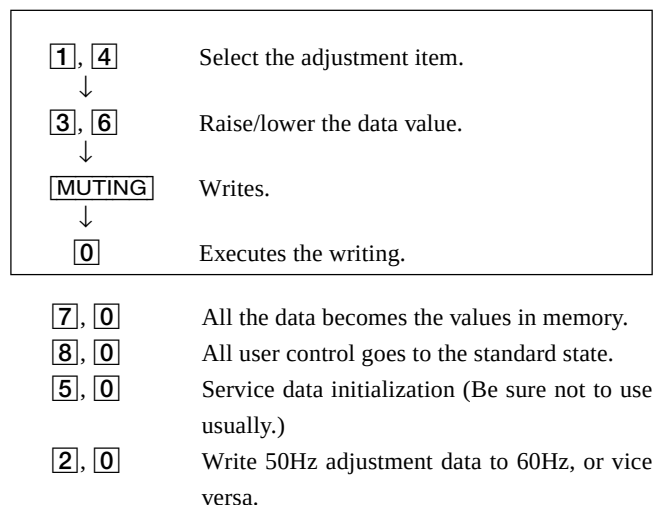
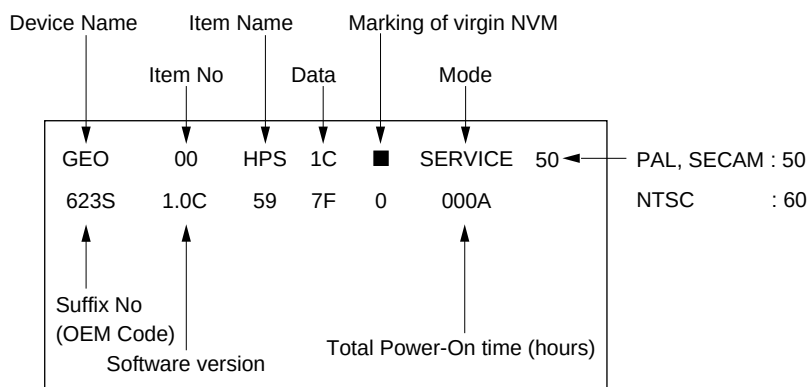
c. METHOD OF WRITE INTO MEMORY

- 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.

d. 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.

The screen display is :



RM-952

4-2. ADJUSTMENT METHOD

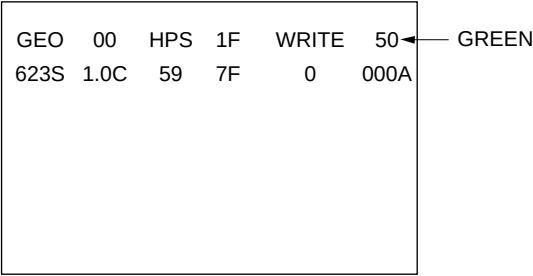
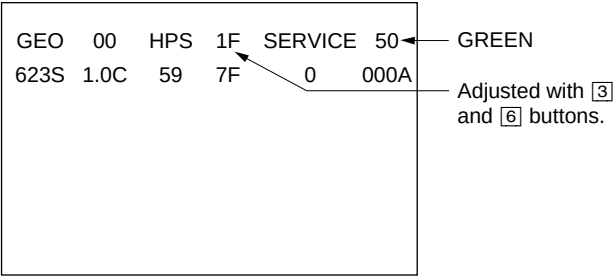
Item Number 00 of device GEO

This explanation uses H-Position as an example.

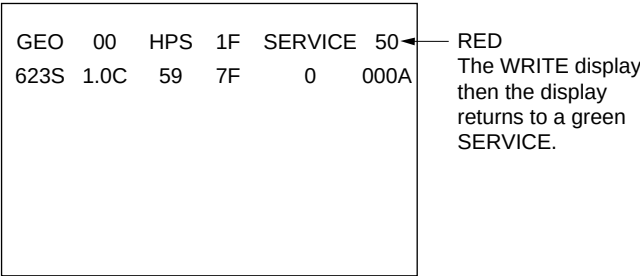
- 1. Select “GEO 00 HPS” with the [1] and [4] buttons.
- 2. Raise/lower the data with the [3] and [6] buttons.
- 3. Select the optimum state. (The standard is 1F for PAL reception.)
- 4. Write with the [MUTING] button. (The display changes to WRITE.)
- 5. Execute the writing with the [0] button. (The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

Use the same method for all Items. 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. In [WRITE], the data for all items are written into memory together.
 - 2. For adjustment items that have different standard data between 50Hz or 60Hz, be sure to use the respective input signal after adjustment.



Written with [MUTING]



Write executed with [0]

Adjustment Item Table

Device Name	Functionality		Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)
	No	Name							
GEO	0	HPS	1E/16	3F	H Position	50/60HZ	12 (7-2)	CXA2130S(88H)	82 (7-2)
	1	HSZ	1F	3F	H Size	50/60HZ	11 (7-2)		81 (7-2)
	2	PAP	1F	3F	Pin Amp	50/60HZ	13 (7-2)		83 (7-2)
	3	TLT	7	0F	Trapezium	50/60HZ	15 (7-4)		85 (7-4)
	4	VPS	1F	3F	V Position	50/60HZ	0F (7-2)		7F (7-2)
	5	VSZ	1F	3F	V Size	50/60HZ	0E (7-2)		7E (7-2)
	6	SCO	7	0F	S Correction	50/60HZ	10 (7-4)		80 (7-4)
	7	VLN	7	0F	V Linearity	50/60HZ	10 (3-0)		80 (3-0)
	8	BOW	7	0F	AFC Bow	50/60HZ	16 (7-4)		86 (7-4)
	9	AGL	7	0F	AFC/Angle	50/60HZ	16 (3-0)		86 (3-0)
	10	UPN	1F	3F	Upper Pin	50/60HZ	14 (7-2)		84 (7-2)
	11	LPN	2F	3F	Lower Pin	50/60HZ	18 (7-2)		88 (7-2)
	12	HBL	1	1	H Blanking on/off		18 (1)		67 (1)
	13	LBL	0F/0F	0F	Left H Blanking	50/60HZ	17 (7-4)		87 (7-4)
	14	RBL	0F/0F	0F	Right H Blanking	50/60HZ	17 (3-0)		87 (3-0)
WHB	0	RDR	25/2A	3F	R Drive	DYNAMIC/others	09 (7-2)	CXA2130S(88H)	8F (7-2)
	1	GDR	2A	3F	G Drive	DYNAMIC/others	0A (7-2)		90 (7-2)
	2	BDR	2A	3F	B Drive	DYNAMIC/others	0B (7-2)		91 (7-2)
	3	RCT	07	0F	R Cutoff	SECAM/others	07 (3-0)		93 (3-0)
	4	GCT	7	0F	G Cutoff	SECAM/others	08 (7-4)		94 (7-4)
	5	BCT	7	0F	B Cutoff	SECAM/others	08 (3-0)		94 (3-0)
	6	BMN	15	1F	Brightness Minimum Data				97
SAJ	7	SBR	28	3F	Sub Brightness Control			CXA2130S(88H)	98
	0	PMX	37	3F	Picture Maximum Data				96
	1	SHU	8	0F	Sub Hue Control	TV/Video			99
	2	SSH	0	0F	Sub Sharpness Control	TV/Video			9A
VP	3	SCL	1F	3F	Sub Color Control	NTSC/others		CXA2130S(88H)	9B
	0	EHT	07	0F	EHT Comp	50/60HZ	15 (3-0)		85 (3-0)
	1	GMA	0	03	Gamma Correction	Refer NVM map A4	0B (1-0)		1A3 (1-0)
	2	YDL	08/09/08	0F	Y Delay	PAL/SECAM/NTSC	0C (3-0)		8C (3-0)
	3	SST	1	03	SECAM ID Start Position		1B (1-0)		6A (1-0)
	4	SSP	1	03	SECAM ID Stop Position		1B (3-2)		6A (3-2)
	5	SLV	2	03	SECAM ID Level		1C (1-0)		6B (1-0)
	6	SBF	22	3F	SECAM BELL f0		1C (7-2)		6B (7-2)
	7	DYC	1	1	Dynamic Color on/off		0A (1)		59 (1)
	8	ABL	1	1	ABL Mode Switching	(STANDARD ALWAYS 0)	09 (1)		58 (1)
	9	VTH	1	1	ABL Detection Vth Switching		09 (0)		58 (0)
	10	SFO	01	1	FO Switching for Sharpness	NTSC/others	05 (1)		198 (1)
	11	DCX	1	1	DC Trans. Ratio Switching		06 (1)		55 (1)
	12	SHT	01	1	Pre-/Overshoot ratio Switch	NTSC/others	06 (0)		199 (0)

Adjustment Item Table

Device Name	Functionality		Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)	
	No	Name								
VP	13	HDW	0	1	H Drive Pulse Width Switch	TV/Video/Text	00 (6)		4F (6)	
	14	AFC	01	03	AFC Gain Control		0F (1-0)		8D (1-0)	
	15	HOS	7	0F	H Oscillation		0C (7-4)		5B (7-4)	
	16	HSS	0	1	Slice Level of H Sync Sep.		0D (1)		5C (1)	
	17	VSS	0	1	Slice Level of V Sync Sep.	50/60Hz	0D (0)		5C (0)	
	18	HMS	01	1	Macro Vision C/m off/on		0E (0)		7E (0)	
	19	YUV	1	1	YUV Switch Control		01 (0)		50 (0)	
	20	CDV	2	3	CD mode for Video		0D (5-4)		1A1 (5-4)	
	21	RON	1	1	R ON	Video only	01 (3)		50 (3)	
	22	GON	1	1	G ON	not memorized	01 (2)		50 (2)	
	23	BON	1	1	B ON	not memorized	01 (1)		50 (1)	
	24	PON	1	1	P ON	not memorized	00 (7)		4F (7)	
	25	BLK	0	1	BLK Off		12 (0)		61 (0)	
	26	VMC	0	1	VM Off		13 (0)		62 (0)	
AP	0	INF	5	3F	Input Attenuation When surround off		00 (5-0)	TDA7429	19F (5-0)	
	1	INS	0A	3F	Input Attenuation When surround on		02		1A0 (5-0)	
	2	PH1	3	3	Phase 1 Register Selection				76 (1-0)	
	3	PH2	0	3	Phase 2 Register Selection				76 (3-2)	
	4	PH3	0	3	Phase 3 Register Selection		#4 (3-0)		76 (5-4)	
	5	PH4	0	3	Phase 4 Register Selection				76 (7-6)	
	6	BCS	0	3	Bass Center Shift				1A8 (1-0)	
	7	TCS	0	3	Treble Center Shift		#5 (3-0)		1A9 (1-0)	
8	TRF	0	3	RF Treble Offset	#5 (3-0)	1A9 (5-4)				
MSP	0	WST	15	FF	W/G Stereo Threshold			MSP3415D (84H)	157 (7-0)	
	1	WBT	EC	FF	W/G Bilingual Threshold				158 (7-0)	
	2	WLL	5	FF	W/G Monaural Threshold				159 (7-0)	
	3	WAC	1	0F	W/G Agreement Count				15A (3-0)	
	4	WDL	30	FF	W/G Search Delay				15B (7-0)	
	5	NDL	20	FF	NICAM Search Delay				15C (7-0)	
	6	SDL	10	FF	Stereo status Read Delay				15D (7-0)	
	7	AGC	1	1	AGC Switch Auto/Constant		BB (7)		108 (7)	
	8	REL	28	3F	AGC Gain at Constant Mode		BB (6-1)		108 (6-1)	
	9	CRM	0	1	Carrier muting on/off		BB (9)		107 (1)	
	10	ACO	1	1	Audio Clock out on/off		83 (5)		10C (5)	
	11	FP	1B	7F	FM Prescale for non-M system		0E (7-0)		16C (6-0)	
	12	FPM	32	7F	FM Prescale for M system		0E (7-0)		16D (6-0)	
	13	FH	36	7F	FM Prescale for HDEV		0E (7-0)		16E (6-0)	
	14	FHM	65	7F	FM Prescale for HDEV and M		0E (7-0)		16F (6-0)	
	15	WGP	2A	7F	W/G Prescale		0E (7-0)		170 (6-0)	
	16	NIP	6D	7F	NICAM Prescale		10 (7-0)		138 (6-0)	
	17	ERR	50	FF	Auto FM switch Threshold		21 (10-3)		166 (7-0)	
18	VOL	6D	FF	Loud Speaker gain 7000h to 7ffoh	0000 (15-4)	1A7 (7-0)				

Adjustment Item Table

Device Name	Functionality		Note	Data Range	Function	Note for Different Data	Register No. (bit)	Slava Address	RAM Address (bit)
	No	Name							
TXT	0	TXH	1	3	Teletext Horizontal Position			(58H)	18D (1-0)
	1	TXV	0	3	Teletext Vertical Position				18D (6-4)
OPM	0	OSH	0A	3F	OSD H Position	Option-Misc			AC (7-2)
	1	COM	0	03	Comb Selection				A5 (7-6)
	2	APC	1	1	APC Switch				A4 (5)
	3	TSY	0	03	TV Sys at Auto TV Sys				A4 (4-3)
	4	MUT	0	1	No Signal Mute				A4 (0)
	5	AFM	1	1	Auto FM switch				A4 (1)
	6	RFB	0	3	C-BPF Control				A5 (5-4)
	7	TVO	0	7	Tilt to V-Angle Offset				A5 (2-0)
	8	DBL	0	1	Disable Blueback Function				A4 (2)
OPB	0	OP1	0	FF	Optional Bits 1 (see below)	Option-Bits			45
	1	OP2	0	FF	Optional Bits 2 (see below)				46
	2	OP3	0	FF	Optional Bits 3 (see below)				47

NOTE

- shaded items are fixed data.
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.
- Note for Different Data Those are the standard data values written on the microprocessor. Therefore, the data values of the modes and stored respectively in the memory.
In case of a device replacement, adjustment by rewriting the data value is necessary for some items.

KV-XF21M31

RM-952

ITEM INFORMATION.**No. OPB0 OP1**

Item	XTAL 4.43	XTAL 3.58	SECAM	2nd. Lang	B/G	I	D/K	M
KV-XF21M31	1	1	1	1	1	1	1	1

No. OPB1 OP2

Item	TOP	NICAM	HDEV	Thai Bil	Dis Fav	DVD Input	AV Input	
KV-XF21M31	0	1	1	0	0	0	1	1

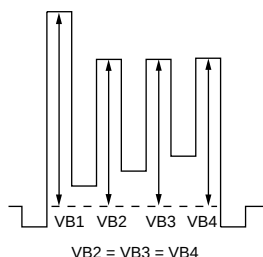
No. OPB2 OP3

Item	Pic Rot	2199 Curve	Auto PIC	Auto TV sys	US ST	AV Mono	11 KEY	Color SW
KV-XF21M31	1	0	1	1	0	0	0	0

4-3. PICTURE QUALITY ADJUSTMENTS

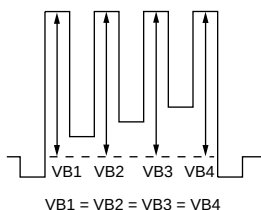
SUB COLOR ADJUSTMENT

1. Input a PAL color-bar.
2. Set to the following condition:
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
3. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
4. Set to Service Mode and select SAJ 3 'SCL' 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 SAJ 3 'SCL' as step 2 to 5 when receiving NTSC color-bar.



SUB HUE ADJUSTMENT

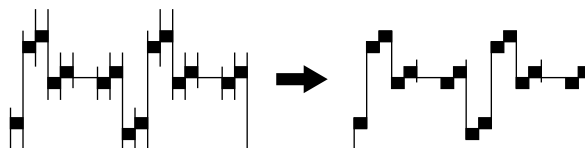
1. Select Video 1.
2. Input a NTSC color-bar, video into Video 1.
3. Set the following condition:
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
4. Connect an oscilloscope to pin ① (B OUT) of CN305, A board.
5. Select SAJ 1 'SHU' with [1] and [4] of the commander by setting to Service Mode and adjust to VB1=VB2=VB3=VB4 with [3] and [6].



6. Press [MUTING] → [0] of the commander to write the data.

BELL FILTER ADJUSTMENT

1. Input SECAM color-bar signal.
2. Connect the dual-trace oscilloscope to the pin ⑨ (R-Y) of CN303 (not mounted).
3. Adjust SERVICE MODE, ITEMS 'SBF' as shown below.



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

When replacing IC003 (MEMORY), be sure to change IC001 (μ-COM) to the following new IC at the same time.

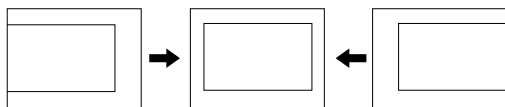
IC001(μ-CON):CXP86449-623S

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 "OPB0" (OP1), "OPB1" (OP2) and "OPB2" (OP3) 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.)

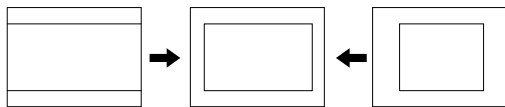
4-5. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

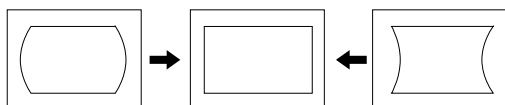
GEO 0 HSH (H POSITION)



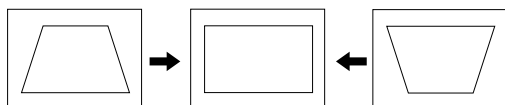
GEO 1 HSZ (H SIZE)



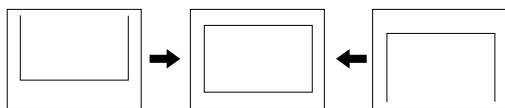
GEO 2 PAP (PIN AMP)



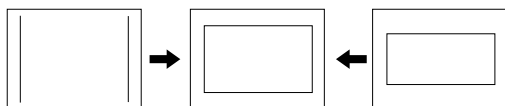
GEO 3 TILT (TRAPEZIUM)



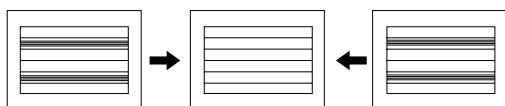
GEO 4 VSH (V POSITION)



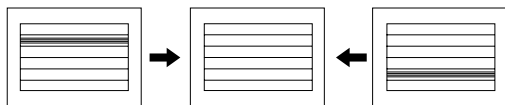
GEO 5 VSZ (V SIZE)



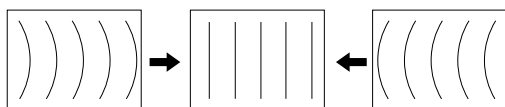
GEO 6 SCR (VERTICAL S-Correction)



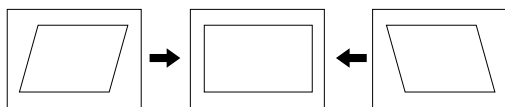
GEO 7 VLN (V LINEARITY)



GEO 8 VBOW (AFC.BOW)

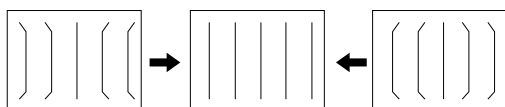


GEO 9 AGL (AFC.ANGLE)



GEO 0A UCP (UPPER CORNER PIN)

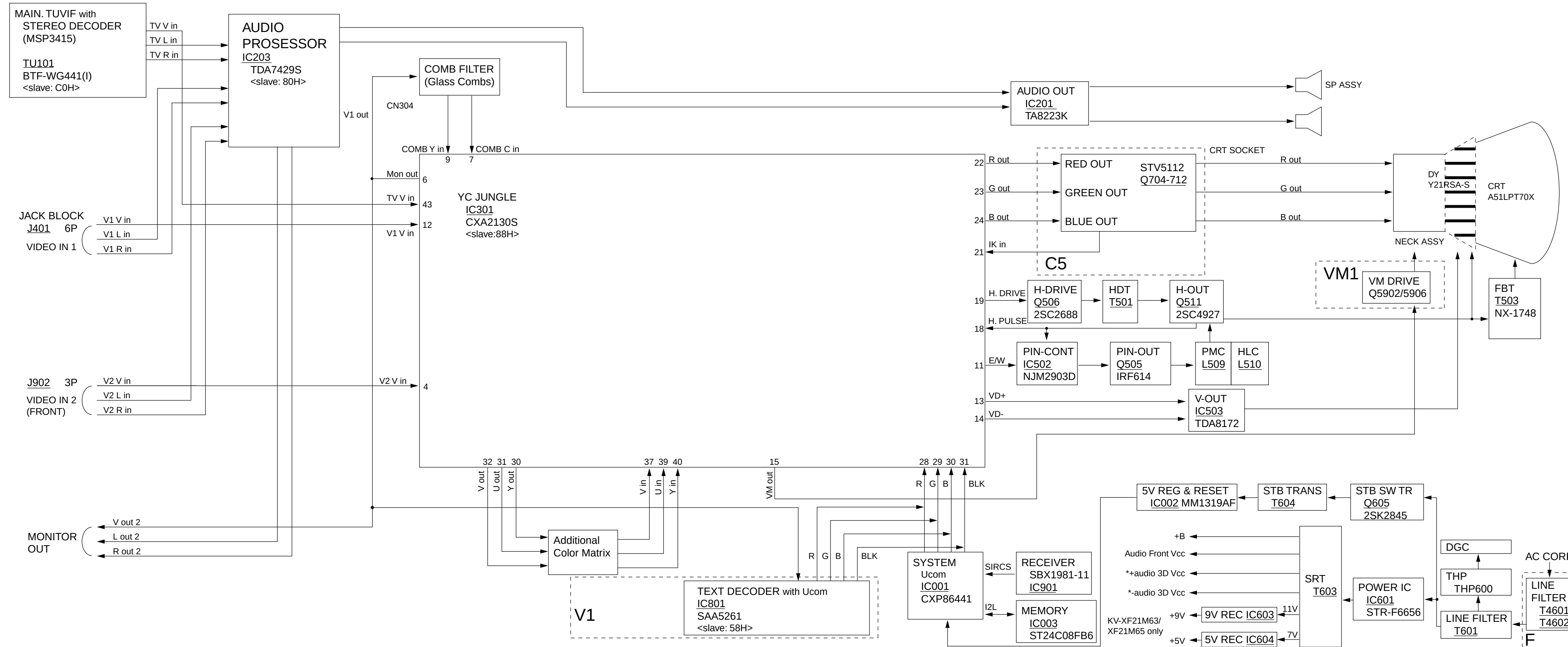
GEO 0B LCP (LOWER CORNER PIN)



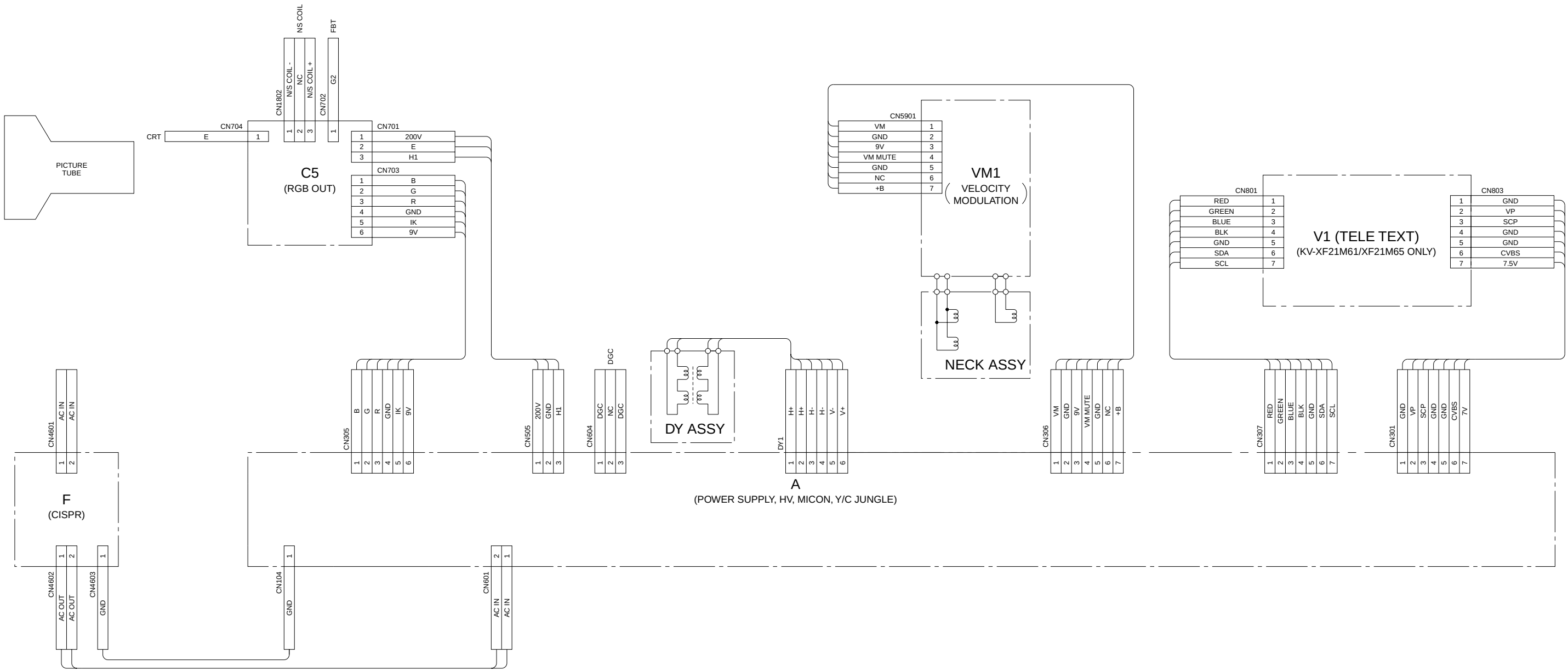
SECTION 5

DIAGRAM

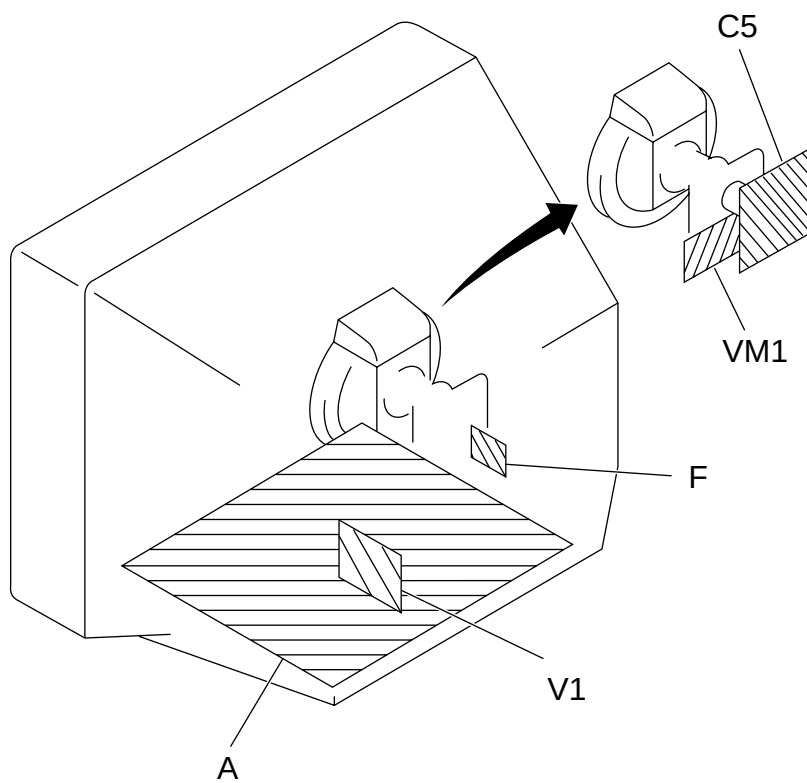
5-1. BLOCK DIAGRAM



5-2. FRAME SHEMATIC DIAGRAM



5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
 $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$
- Indication of resistance which does not have rating electrical power is as follows.

Pitch: 5 mm

Rating electrical power 1/4W (CHIP: 1/10W)

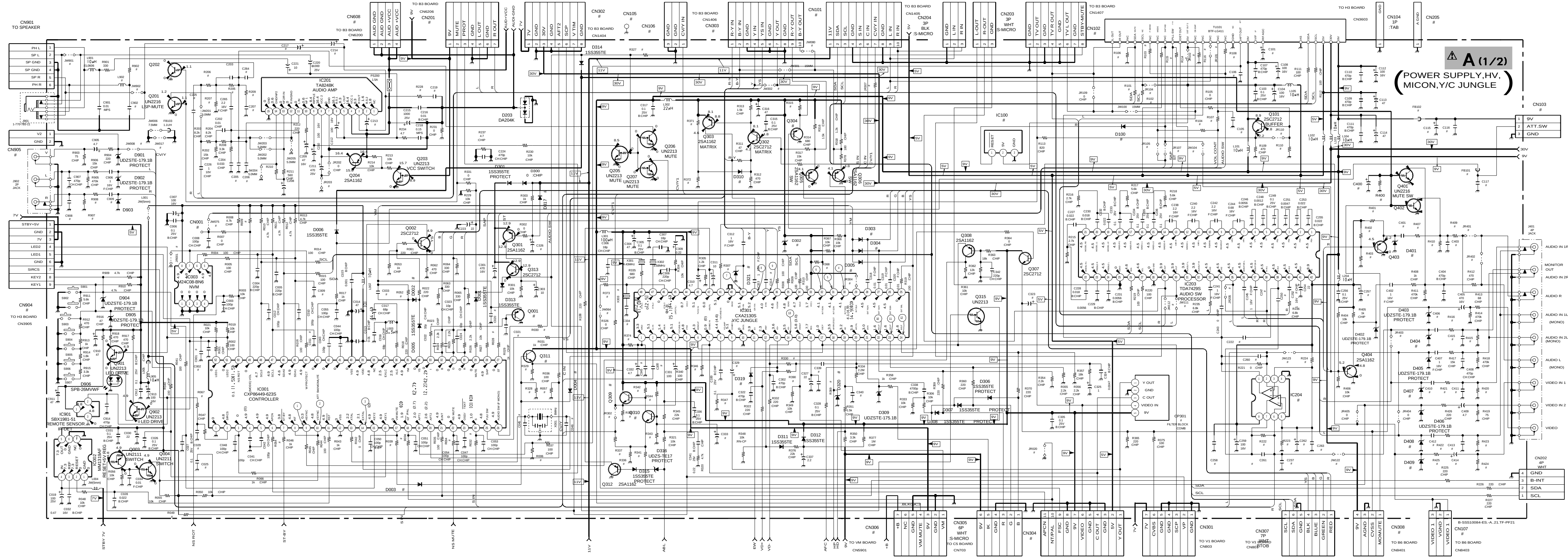
-  : nonflammable resistor.
-  : internal component.
-  : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
no mark : PAL
() : SECAM
[] : NTSC 3.58
« » : NTSC 4.43
- **Readings are taken with a 10 $\text{M}\Omega$ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltages are in V.**
- * : Cannot be measured.
- **Circled numbers are waveform references.**
-  : B + bus.
-  : B – bus.
-  : signal path.

Reference information

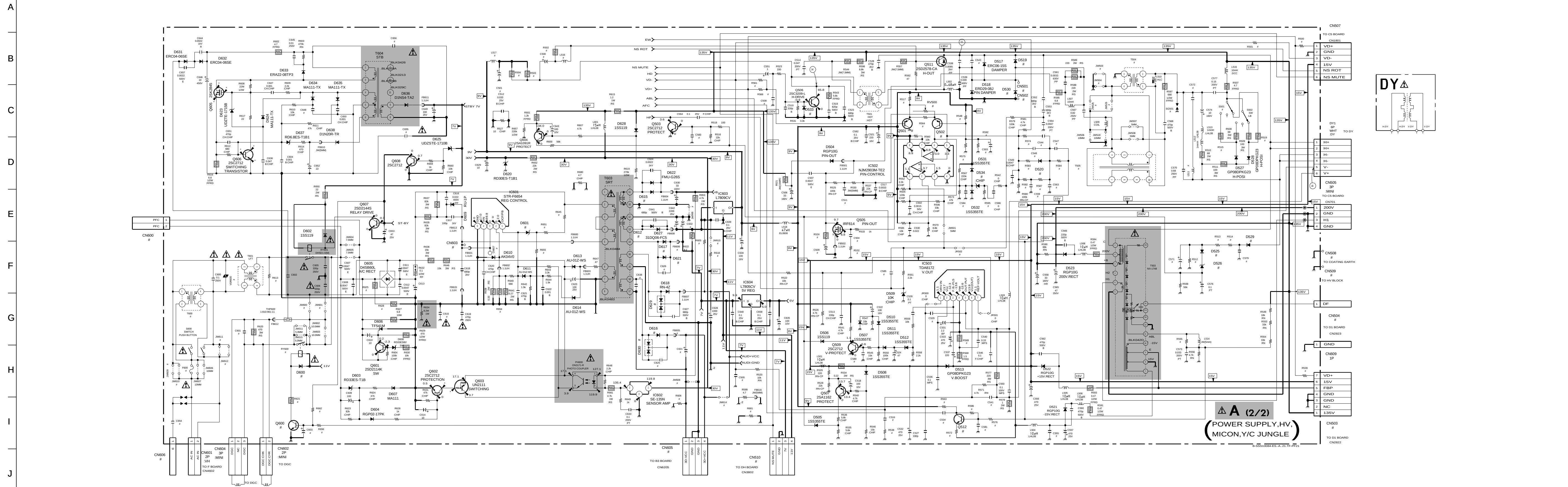
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
COIL	: *	ADJUSTMENT RESISTOR
	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR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

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

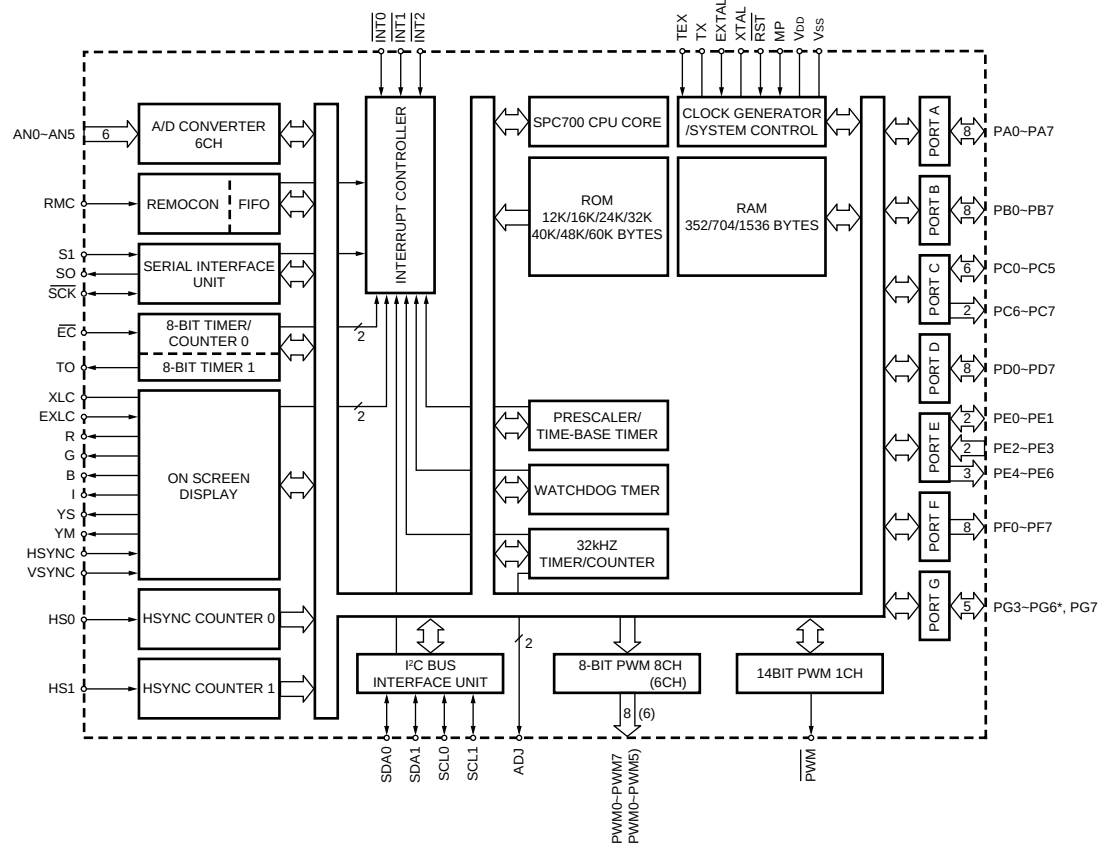
(1) Schematic Diagram of A (1/2) Board



(2) Schematic Diagram of A (2/2) Board



A BOARD IC001 CXP86449-623S



NOTE:

The circuit indicated at left contains high voltage of over 600 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.

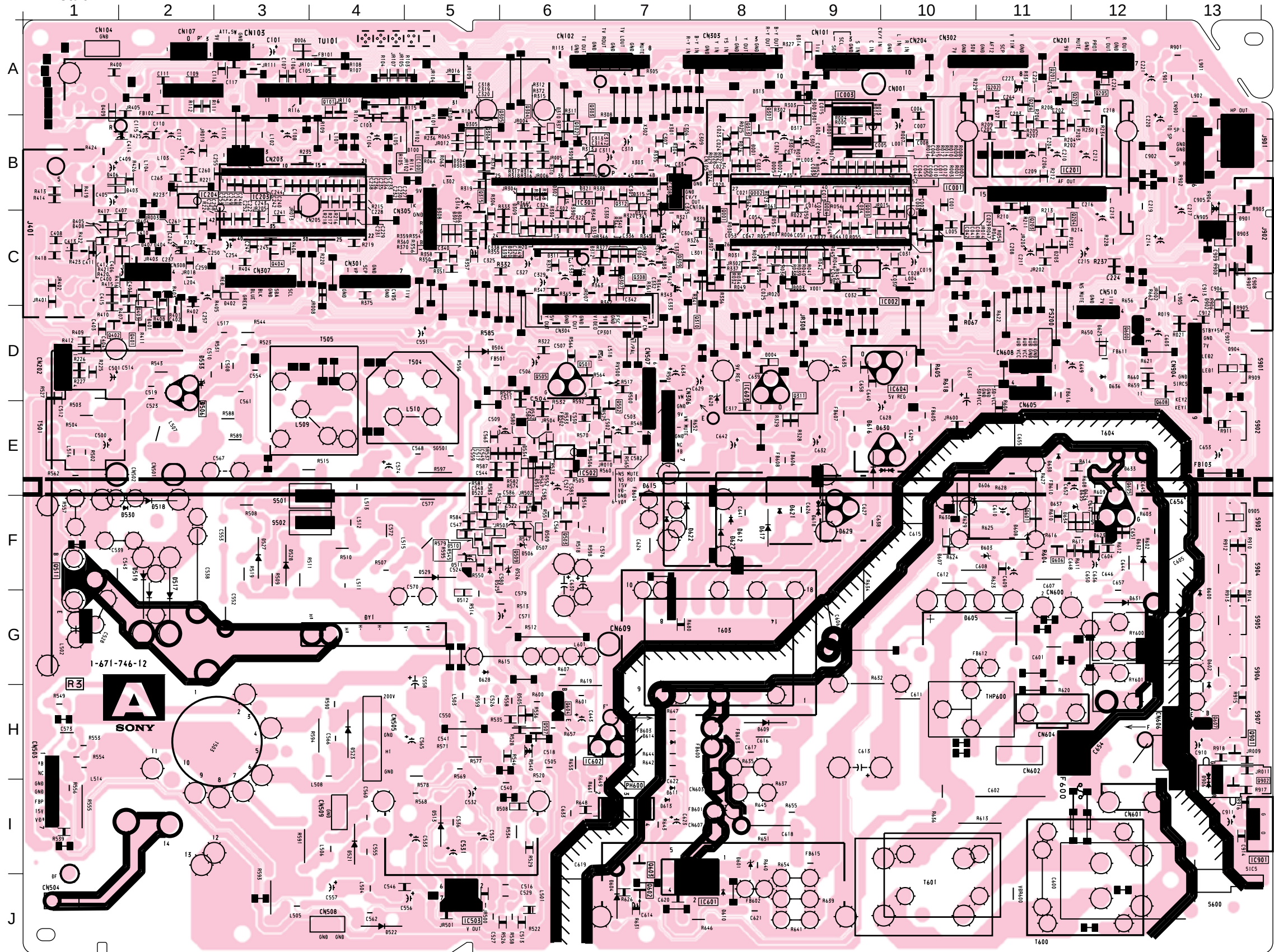
A BOARD

IC		D004	D-8	D614	H-7
IC001	B-10	D005	B-8	D615	E-7
IC002	C-9	D006	A-3	D616	E-9
IC003	A-9	D203	C-11	D617	F-8
IC100	B-5	D300	A-9	D618	F-9
IC201	B-11	D301	B-9	D620	D-8
IC203	C-3	D302	B-6	D621	F-8
IC204	B-2	D303	B-5	D622	F-7
IC301	B-6	D304	B-5	D623	F-12
IC502	E-6	D305	B-5	D624	F-12
IC503	J-5	D306	C-5	D625	D-12
IC601	I-8	D307	C-5	D627	F-8
IC602	H-6	D308	B-5	D628	G-5
IC603	D-8	D309	B-6	D629	F-9
IC604	D-10	D310	A-6	D630	E-9
IC901	I-13	D311	C-6	D631	G-12
PH600	H-7	D312	C-6	D632	F-12
TRANSISTOR		D313	A-8	D633	E-12
Q001	B-8	D315	B-7	D634	F-11
Q002	B-8	D316	C-7	D635	F-12
Q003	C-9	D317	B-9	D636	D-12
Q004	C-9	D314	A-9	D637	F-11
Q101	A-4	D319	C-6	D638	E-11
Q201	A-11	D320	C-6	D901	C-13
Q202	A-11	D321	B-6	D902	D-13
Q203	C-11	D401	D-2	D903	C-13
Q204	C-11	D402	C-3	D904	D-13
Q205	A-12	D403	B-1	D905	F-13
Q206	A-11	D404	C-2	D906	I-13
Q207	A-11	D405	C-1		
Q301	B-8	D406	B-1		
Q302	A-6	D407	C-2		
Q303	A-6	D408	C-1		
Q304	B-6	D409	A-1		
Q305	B-5	D504	D-5		
Q306	B-5	D505	H-6		
Q307	C-7	D506	F-6		
Q308	C-7	D507	F-6		
Q309	C-7	D508	I-5		
Q310	D-7	D509	E-6		
Q311	D-9	D510	F-5		
Q312	B-7	D511	F-5		
Q313	B-8	D512	G-5		
Q315	B-5	D513	I-5		
Q401	D-2	D517	F-2		
Q402	D-1	D518	F-2		
Q403	D-2	D519	F-2		
Q404	C-3	D520	E-5		
Q501	D-6	D521	I-4		
Q502	E-7	D522	J-4		
Q503	F-6	D525	F-5		
Q505	D-6	D526	F-6		
Q506	D-2	D527	F-3		
Q507	H-6	D528	F-3		
Q509	F-6	D529	F-5		
Q511	F-1	D530	F-2		
Q600	C-12	D531	E-6		
Q601	F-11	D532	E-6		
Q602	J-7	D533	D-2		
Q603	I-7	D534	E-6		
Q604	H-6	D600	G-13		
Q605	E-12	D601	I-8		
Q606	F-11	D602	G-13		
Q607	H-13	D603	F-11		
Q901	H-13	D604	J-7		
Q902	H-13	D605	G-10		
		D606	E-11		
		D607	F-10		
		D608	E-11		
		D609	H-8		
		D610	J-8		
		D611	I-7		
		D612	F-8		
		D613	I-7		
DIODE					
D001	B-8				
D002	C-8				
D003	C-9				

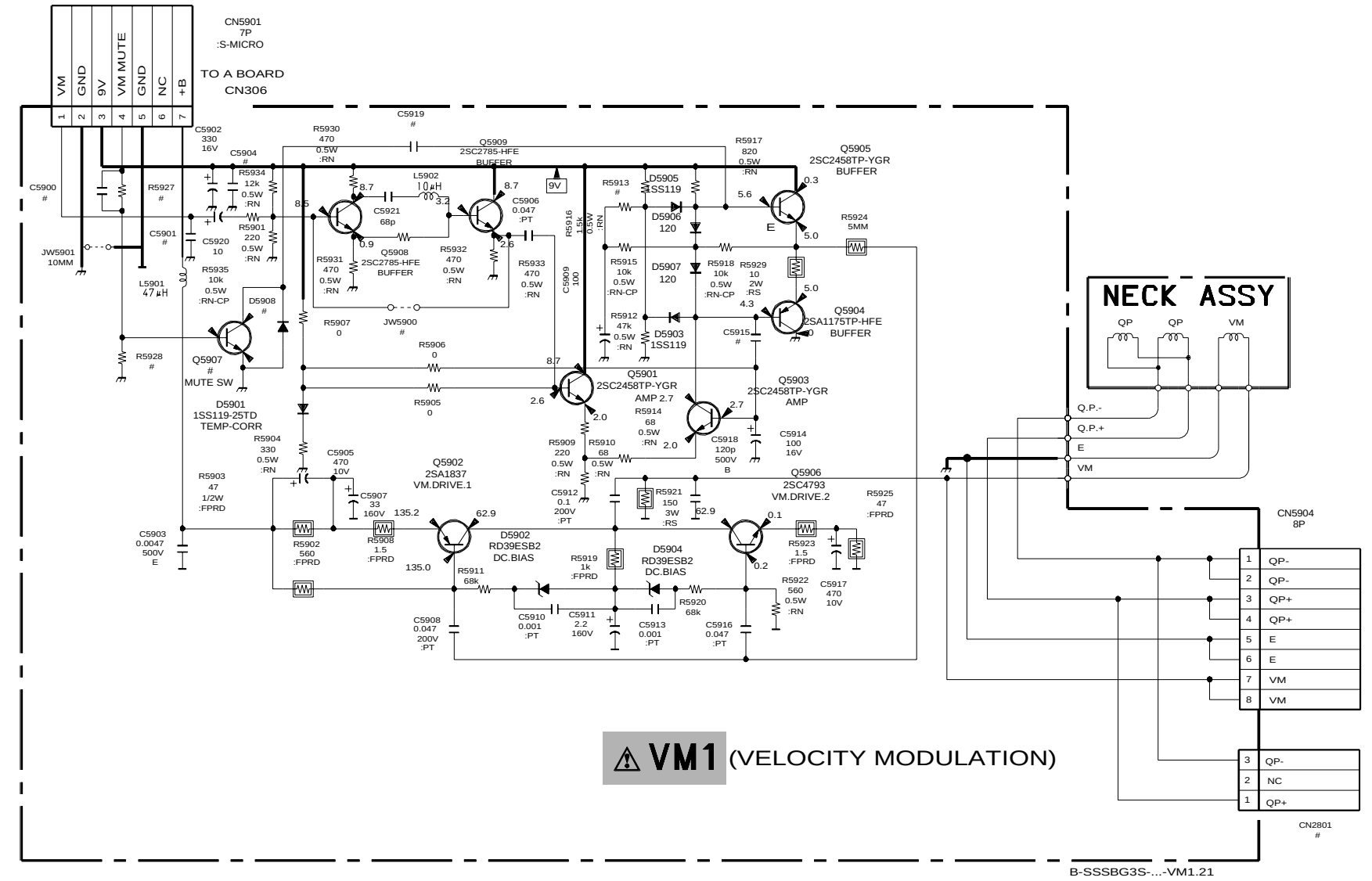
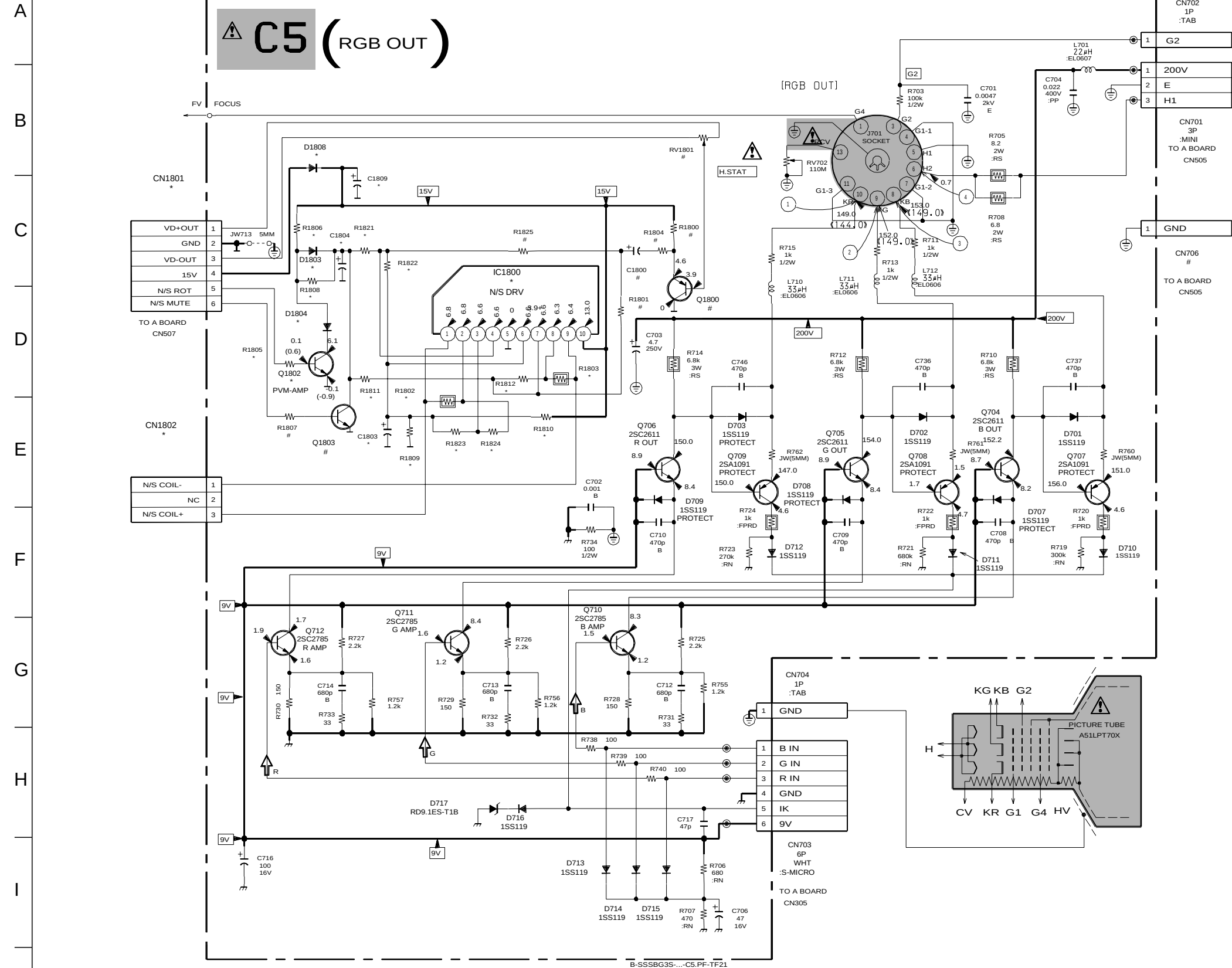
A [POWER SUPPLY, HV, MICON, Y/C JUNGLE]

PRINTED WIRING BOARD

- A Board -



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----

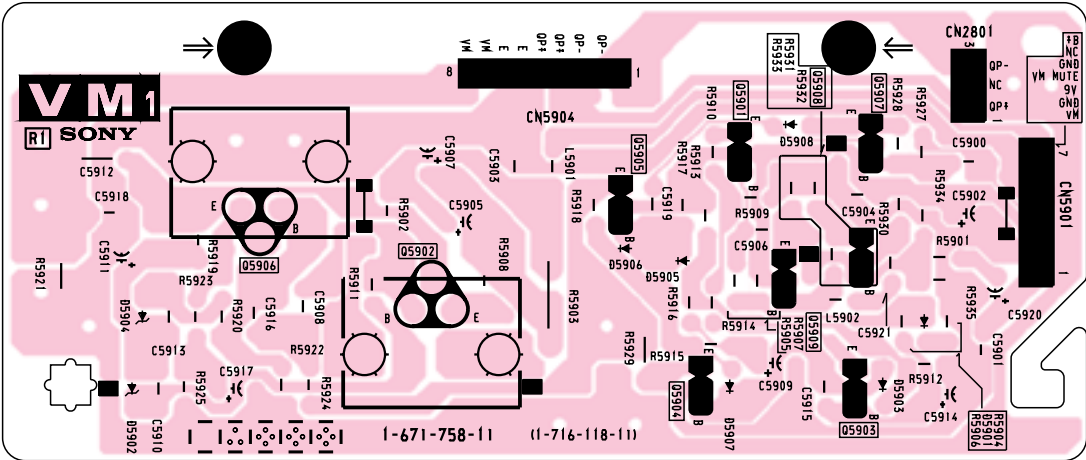


VM1 [VELOCITY MODULATION]

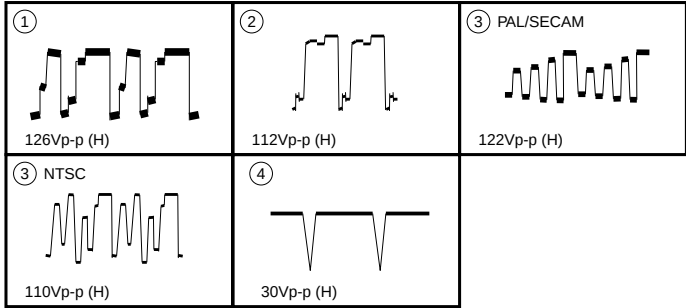
C5 [RGB OUT]

PRINTED WIRING BOARDS

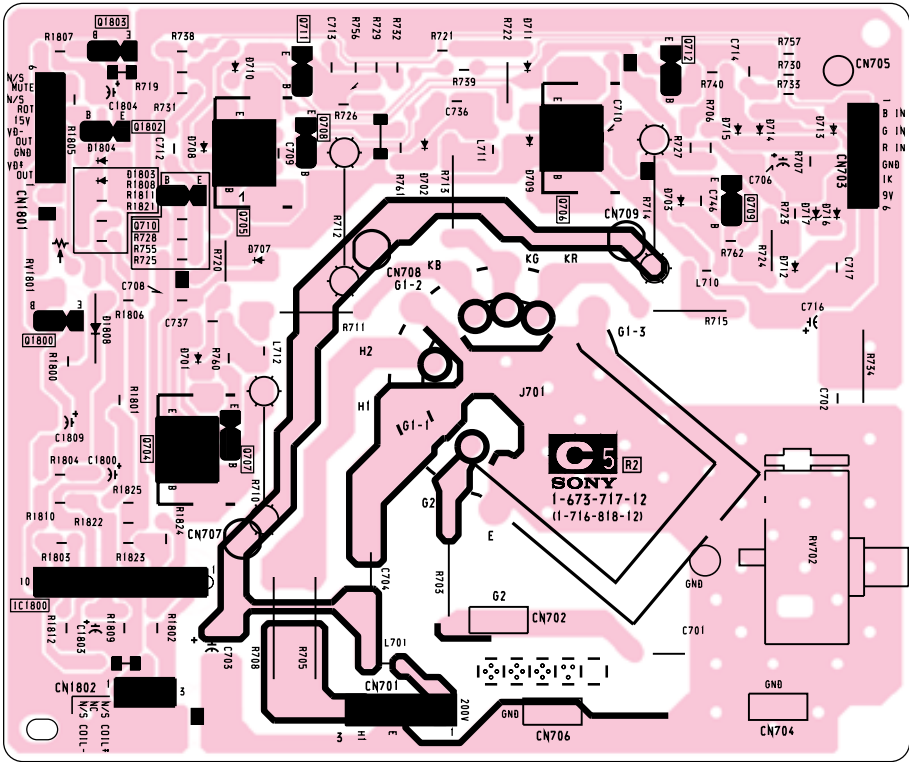
– VM1 Board –



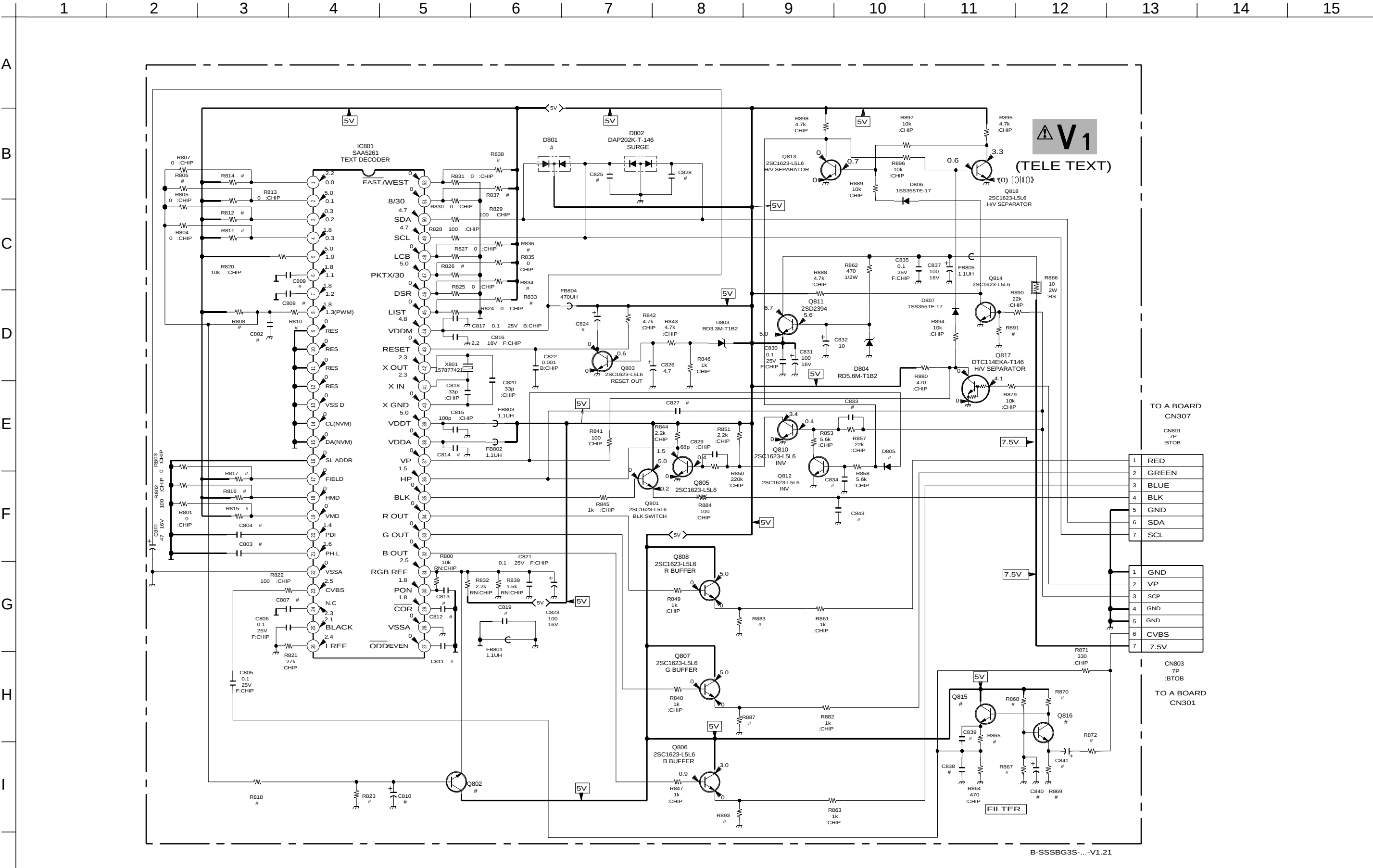
C5 BOARD WAVEFORMS



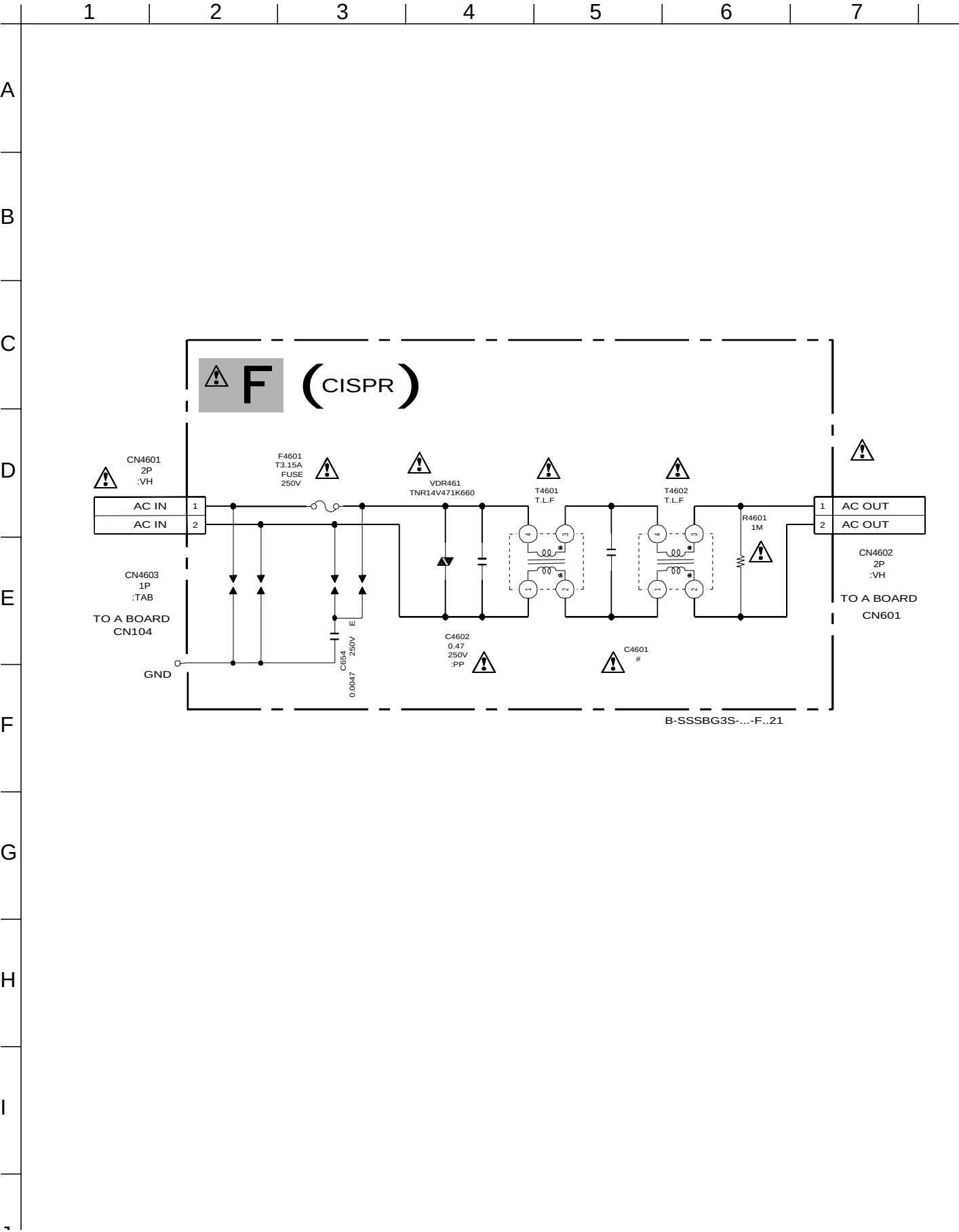
– C5 Board –



(4) Schematic Diagram of V1 board



(5) Schematic Diagram of F board

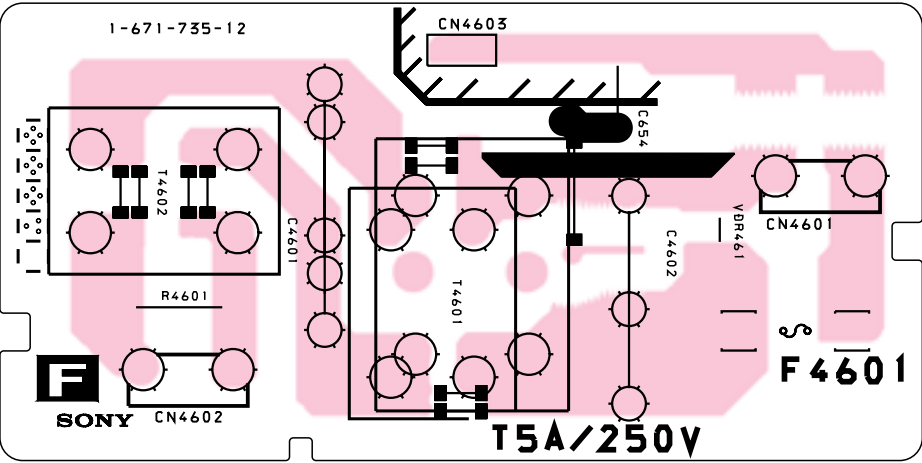


F [CISPR]

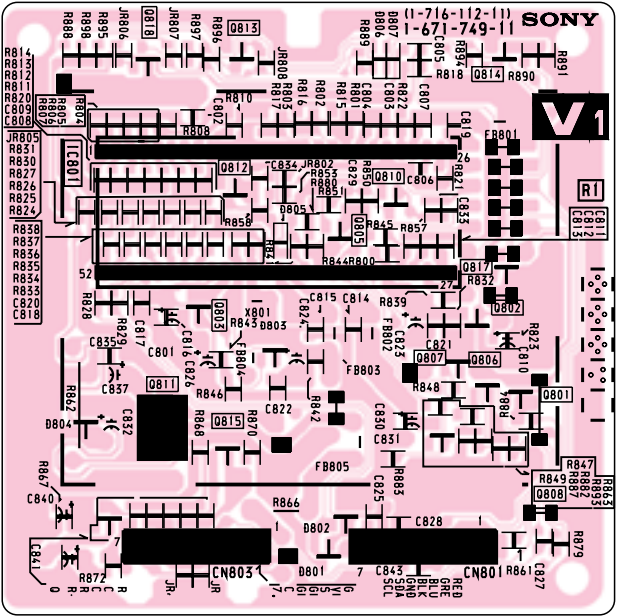
V1 [TELE TEXT]

PRINTED WIRING BOARD

– F Board –



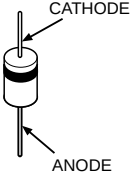
– V1 Board –



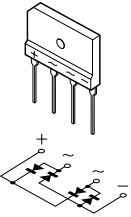
5-5. SEMICONDUCTORS

DIODE

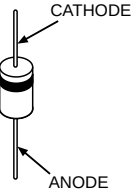
AU-01Z-V1
EL1Z
GP08D
RD33EB3T
RGP02-17EL-6433



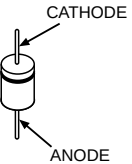
D4SB60L



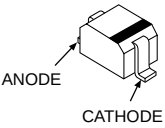
ERC04-06SE
ERC06-15S
RN4Z
RS3FS
31DQ06-FC5



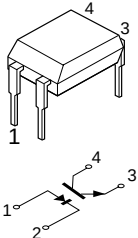
ERA22-08
ERD29-08J



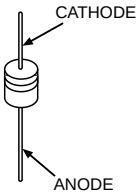
MA111-(K8).SO
1SS355TE-17



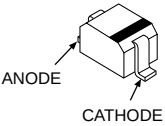
ON3171-R



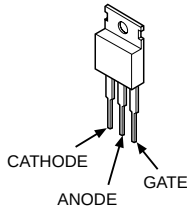
D1NS4
RD20ES-B2
RD30ESB2
RD39ES-B2
RD6.8ES-B1
RD9.1ES-L2
1SS119-25



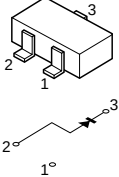
DTZ-TT11-15B
DTZ10B
UDZS-TE17-5.1B
UDZS-TE17-6.8B
UDZS-TE17-9.1B



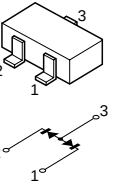
5P6M



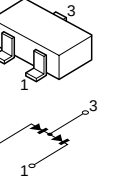
RD3.3M-B2
RD5.6M-B2



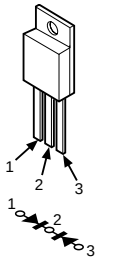
DAP202K



DA204K

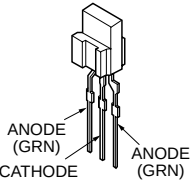


FMU-G26S



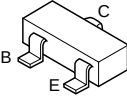
LED

SPB-26MVWF

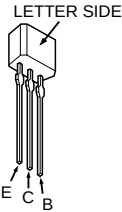


TRANSISTOR

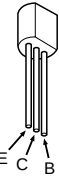
UN2111
UN2211
UN2213
DTC114EK
UN2216
2SA1162-G
2SC1623-L5L6
2SC2712-YG
2SD2114K



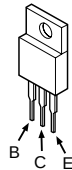
2SA1175-HFE
2SC2785-HFE



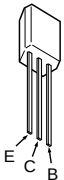
2SA1091-O



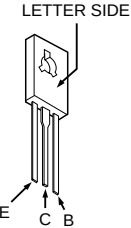
2SA1606-E
2SC4159-E
2SD2394-EF



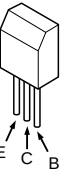
2SC2458-YGR
2SD2144S-UVW



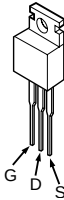
2SC2611



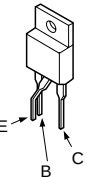
2SD774-34



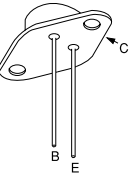
IRF614



2SK2845-LB102

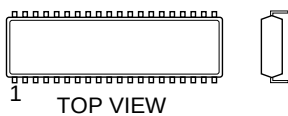


2SD2578-CA



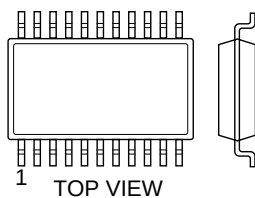


CXA2139S (48PIN)
CXPP86449-623S (64PIN)
SAA5261 (52PIN)
TDA7429S (42PIN)



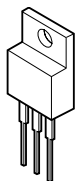
Dual In-line Package
Pin 6—98

MM1319AFBE (7PIN)
NJM2903M (8PIN)

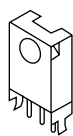


Single In -line Package
Pin 6—98

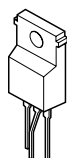
NJM78M09FA
TA7805S



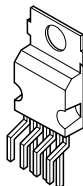
SBX1981-51P



SE-135N

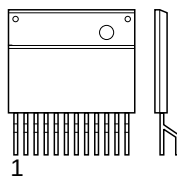


TDA8172



STR-F6654

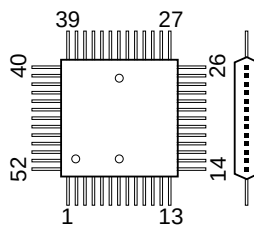
MARKING SIDE VIEW



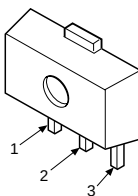
Zig-zag In -line Package
Pin 6—99

RU-1P

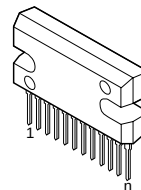
MARKING SIDE VIEW



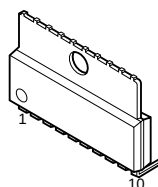
S-80743AL-A7-S



TA8223K



LA6510



SECTION 6
EXPLODED VIEW

KV-XF21M31
RM-952

KV-XF21M31
RM-952

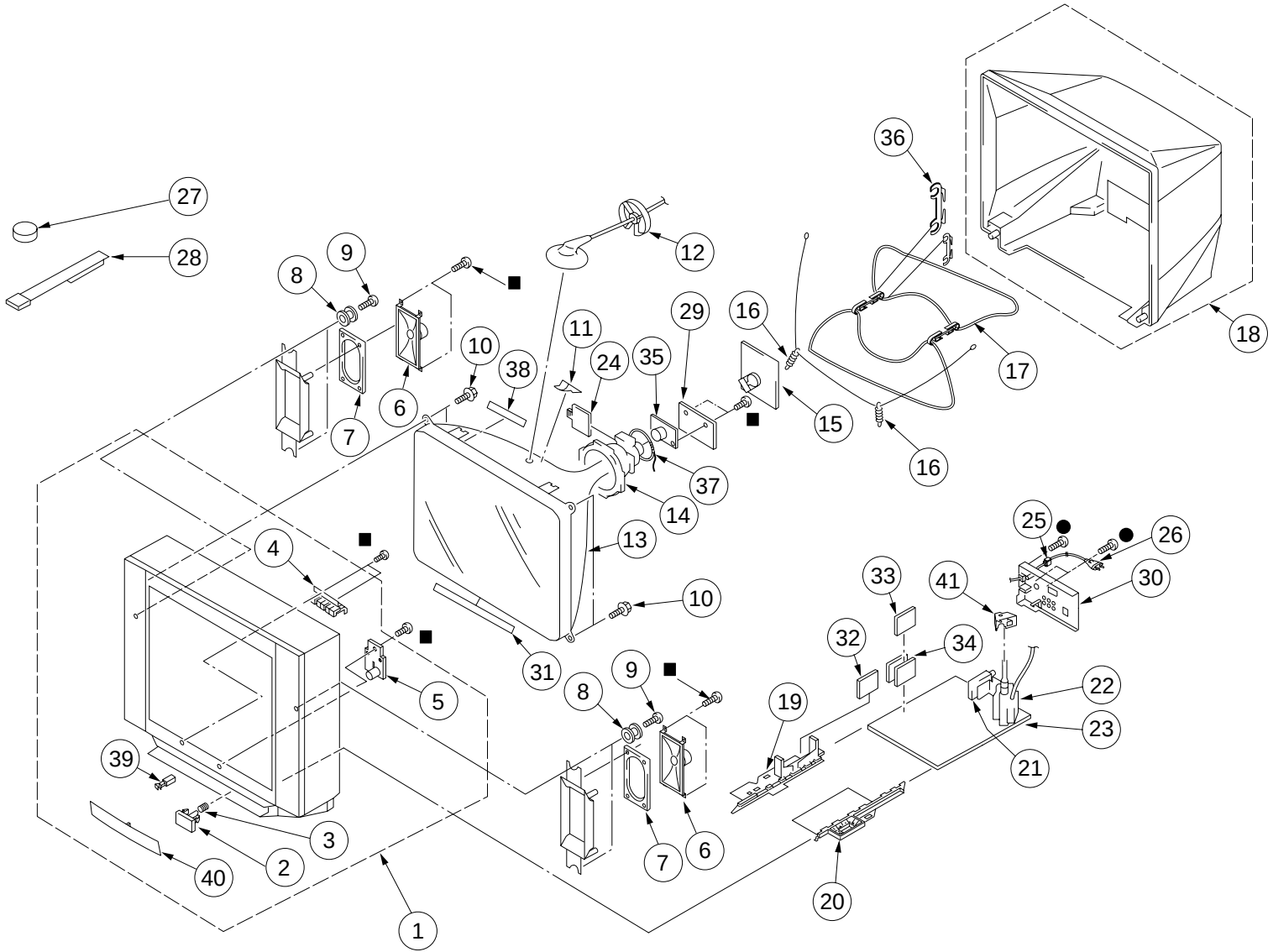
NOTE:

- 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 $\triangle$ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS

- : BVTP3 $\times$ 12 7-685-648-79
- : BVTP4 $\times$ 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK
1	X-4036-424-3	BEZNET ASSY	
2	4-067-183-01	BUTTON, POWER	
3	4-036-405-11	SPRING, COMPRESSION	
4	4-067-181-01	BUTTON, MULTI	
5	* 4-067-180-01	GUIDE, LIGHT	
6	1-529-125-11	SPEAKER (13X7CM)	
7	* 4-069-797-01	CUSHION, SPEAKER(S)	
8	4-374-745-21	CUSHION (A)	
9	4-302-404-03	SCREW (WASHER HEAD) (+P 4X16)	
10	4-365-808-01	SCREW (5), TAPPING	
11	4-072-365-11	SPACER, DY	
12	* 3-704-372-11	HOLDER, HV CABLE	
13	$\triangle$ 8-738-809-05	PICTURE TUBE (A51LPT70X)	
14	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
15	* A-1331-941-A	C5 BOARD MOUNTED	
16	4-369-318-61	SPRING, TENSION	
17	$\triangle$ 1-416-946-11	COIL, DEMAGNETIC	
18	$\triangle$ X-4036-465-2	REAR COVER ASSY	
19	* 4-067-189-01	PWB(L), GUIDE	
20	* 4-067-187-01	PWB(R), GUIDE	
21	8-598-451-20	TUNER, FSS BTF-WG441	
22	$\triangle$ 1-453-293-11	TRANSFORMER ASSY, FLYBACK (NX1748//M3A4)	
23	* A-1298-825-A	A BOARD COMPLETE	
24	4-057-714-01	PIECE ASSY, TLH CORRECTION	
25	4-022-115-00	HOLDER, AC CORD	
26	1-574-358-11	CORD, POWER (WITH CONNECTOR) 7.5A/250V	
27	1-452-032-00	MAGNET, DISC	
28	4-051-736-41	PIECE A(90), CONV, CORRECT	
29	* A-1342-453-A	VM1 BOARD MOUNTED	
30	4-067-167-01	BRACKET, TERMINAL	
31	4-069-651-03	BLOTTING SHEET	
32	* A-1241-355-A	F BOARD MOUNTED	
33	* A-1347-155-A	V1 BOARD COMPLETE	
34	* 4-068-953-02	BRACKET, V1	
35	8-453-011-31	NA299-S2	
36	4-064-883-11	HOLDER, DGC	
37	1-452-728-41	COIL, NA ROTATION (RT-154)	
38	4-069-652-02	CUSHION (HS BAND)	
39	4-047-464-01	CATHER, PUSH	
40	4-067-185-11	DOOR, CONTROL	
41	4-067-182-03	HOLDER, FBT	

SECTION 7

ELECTRICAL PARTS LIST

KV-XF21M31

RM-952



KV-XF21M31

RM-952



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

NOTE:

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

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

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

- All resistors are in ohms
 - F : nonflammable
- CAPACITORS
- MF : μ F, PF : μ μ F
- COILS
- MMH : mH, UH : μ H

REF.NO.	PART NO.	DESCRIPTION	REMARK			
* A-1298-825-A	A BOARD COMPLETE *****					
* 4-055-304-01	HOLDER, LED					
* 4-067-182-03	HOLDER, FBT					
4-382-854-11	SCREW (M3X10), P, SW (+)					
4-382-854-21	SCREW (M3X14), P, SW (+)					
7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3					
<CAPACITOR>						
C004	1-163-001-11	CERAMIC CHIP 220PF	10%	50V		
C005	1-163-001-11	CERAMIC CHIP 220PF	10%	50V		
C006	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C007	1-104-664-11	ELECT 47MF	20%	16V		
C008	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C010	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C012	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C013	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V		
C014	1-104-664-11	ELECT 47MF	20%	25V		
C015	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V		
C016	1-163-113-00	CERAMIC CHIP 68PF	5%	50V		
C017	1-163-113-00	CERAMIC CHIP 68PF	5%	50V		
C019	1-104-664-11	ELECT 47MF	20%	25V		
C022	1-163-227-11	CERAMIC CHIP 10PF	0.5PF	50V		
C023	1-163-227-11	CERAMIC CHIP 10PF	0.5PF	50V		
C024	1-163-227-11	CERAMIC CHIP 10PF	0.5PF	50V		
C026	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C027	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C028	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		
C030	1-126-965-11	ELECT 22MF	20%	50V		
C031	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C032	1-107-823-11	CERAMIC CHIP 0.47MF	10%	16V		
C034	1-163-031-11	CERAMIC CHIP 0.01MF		50V		
C041	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C042	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C043	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C044	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C047	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C048	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C050	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C051	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C053	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C054	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C055	1-163-251-11	CERAMIC CHIP 100PF	5%	50V		
C103	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C104	1-104-665-11	ELECT 100MF	20%	10V		
C107	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C108	1-104-664-11	ELECT 47MF	20%	16V		

REF.NO.	PART NO.	DESCRIPTION	REMARK			
C109	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C110	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C111	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C112	1-104-664-11	ELECT 47MF	20%	16V		
C113	1-104-664-11	ELECT 47MF	20%	25V		
C114	1-126-967-11	ELECT 47MF	20%	50V		
C202	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V		
C203	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V		
C204	1-136-164-00	FILM 0.082MF	5%	50V		
C205	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V		
C206	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V		
C207	1-136-164-00	FILM 0.082MF	5%	50V		
C208	1-126-964-11	ELECT 10MF	20%	50V		
C209	1-126-964-11	ELECT 10MF	20%	50V		
C210	1-126-933-11	ELECT 100MF	20%	16V		
C211	1-126-941-11	ELECT 470MF	20%	25V		
C212	1-126-933-11	ELECT 100MF	20%	16V		
C213	1-126-933-11	ELECT 100MF	20%	16V		
C214	1-126-942-61	ELECT 1000MF	20%	25V		
C215	1-126-942-61	ELECT 1000MF	20%	25V		
C216	1-163-021-91	CERAMIC CHIP 0.01MF	10%	50V		
C217	1-126-964-11	ELECT 10MF	20%	50V		
C218	1-136-167-00	FILM 0.15MF	5%	50V		
C219	1-136-167-00	FILM 0.15MF	5%	50V		
C220	1-126-942-61	ELECT 1000MF	20%	25V		
C221	1-126-964-11	ELECT 10MF	20%	50V		
C223	1-126-965-11	ELECT 22MF	20%	50V		
C224	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		
C225	1-109-982-11	CERAMIC CHIP 1MF	10%	10V		
C226	1-109-982-11	CERAMIC CHIP 1MF	10%	10V		
C227	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		
C228	1-163-024-00	CERAMIC CHIP 0.018MF	10%	50V		
C229	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V		
C230	1-163-024-00	CERAMIC CHIP 0.018MF	10%	50V		
C231	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V		
C232	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		
C233	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C234	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C235	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C236	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C238	1-164-505-11	CERAMIC CHIP 2.2MF		16V		
C240	1-164-505-11	CERAMIC CHIP 2.2MF		16V		
C241	1-164-346-11	CERAMIC CHIP 1MF		16V		
C242	1-164-505-11	CERAMIC CHIP 2.2MF		16V		
C243	1-216-295-91	SHORT 0				
C244	1-164-700-11	CERAMIC CHIP 0.68MF		16V		
C245	1-164-346-11	CERAMIC CHIP 1MF		16V		

REF.NO.	PART NO.	DESCRIPTION	REMARK			
C246	1-163-018-00	CERAMIC CHIP 0.0056MF	10%	50V		
C247	1-164-346-11	CERAMIC CHIP 1MF		16V		
C248	1-163-010-11	CERAMIC CHIP 0.0012MF	10%	50V		
C249	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C250	1-216-295-91	SHORT 0				
C251	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V		
C252	1-164-346-11	CERAMIC CHIP 1MF		16V		
C253	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		
C254	1-126-965-11	ELECT 22MF	20%	50V		
C255	1-163-037-11	CERAMIC CHIP 0.022MF	10%	50V		
C256	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C259	1-126-933-11	ELECT 100MF	20%	16V		
C264	1-164-505-11	CERAMIC CHIP 2.2MF		16V		
C265	1-164-505-11	CERAMIC CHIP 2.2MF		16V		
C301	1-126-935-11	ELECT 470MF	20%	16V		
C302	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C303	1-126-964-11	ELECT 10MF	20%	50V		
C304	1-126-967-11	ELECT 47MF	20%	50V		
C305	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C306	1-163-233-11	CERAMIC CHIP 18PF	5%	50V		
C307	1-163-233-11	CERAMIC CHIP 18PF	5%	50V		
C308	1-163-259-91	CERAMIC CHIP 220PF	5%	50V		
C309	1-126-957-11	ELECT 0.22MF	20%	50V		
C310	1-126-963-11	ELECT 4.7MF	20%	50V		
C311	1-126-964-11	ELECT 10MF	20%	50V		
C312	1-164-346-11	CERAMIC CHIP 1MF		16V		
C313	1-164-346-11	CERAMIC CHIP 1MF		16V		
C315	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C316	1-104-664-11	ELECT 47MF	20%	25V		
C317	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C318	1-163-031-11	CERAMIC CHIP 0.01MF		50V		
C319	1-163-031-11	CERAMIC CHIP 0.01MF		50V		
C320	1-163-031-11	CERAMIC CHIP 0.01MF		50V		
C322	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C323	1-126-965-11	ELECT 22MF	20%	50V		
C324	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V		
C325	1-126-960-11	ELECT 1MF	20%	50V		
C327	1-126-965-11	ELECT 22MF	20%	50V		
C328	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C329	1-126-965-11	ELECT 22MF	20%	50V		
C330	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C332	1-126-963-11	ELECT 4.7MF	20%	50V		
C335	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C336	1-164-004-11	CERAMIC CHIP 0.1MF	10%	25V		
C337	1-126-961-11	ELECT 2.2MF	20%	50V		
C338	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V		
C341	1-115-340-11	CERAMIC CHIP 0.22MF	10%	25V		
C342	1-163-259-91	CERAMIC CHIP 220PF	5%	50V		
C401	1-164-346-11	CERAMIC CHIP 1MF		16V		
C402	1-164-346-11	CERAMIC CHIP 1MF		16V		
C403	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C404	1-163-005-11	CERAMIC CHIP 470PF	10%	50V		
C405	1-126-935-11	ELECT 470MF	20%	16V		
C406	1-164-346-11	CERAMIC CHIP 1MF		16V		
C407	1-164-346-11	CERAMIC CHIP 1MF		16V		
C408	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		
C409	1-126-963-11	ELECT 4.7MF	20%	50V		
C415	1-163-133-00	CERAMIC CHIP 470PF	5%	50V		

REF.NO.	PART NO.	DESCRIPTION	REMARK		
C502	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C506	1-107-638-11	ELECT	33MF	20%	160V
C507	1-161-830-00	CERAMIC	0.0047MF		500V
C510	1-102-112-00	CERAMIC	330PF	10%	50V
C512	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C513	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C514	1-106-383-00	MYLAR	0.047MF	10%	200V
C517	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C518	1-104-665-11	ELECT	100MF	20%	10V
C519	1-102-212-00	CERAMIC	820PF	10%	500V
C521	1-126-934-11	ELECT	220MF	20%	16V
C522	1-126-933-11	ELECT	100MF	20%	16V
C523	1-102-002-00	CERAMIC	680PF	10%	500V
C524	1-126-967-11	ELECT	47MF	20%	50V
C526	1-130-495-00	MYLAR	0.1MF	5%	50V
C527	1-102-820-00	CERAMIC	330PF	5%	50V
C528	1-162-134-11	CERAMIC	470PF	10%	2KV
C530	1-137-372-11	FILM	0.022MF	5%	50V
C531	1-126-961-11	ELECT	2.2MF	20%	50V
C532	1-126-941-11	ELECT	470MF	20%	25V
C533	1-126-941-11	ELECT	470MF	20%	25V
C536	1-136-165-00	FILM	0.1MF	5%	50V
C537	1-126-969-11	ELECT	220MF	20%	50V
C538	1-136-076-00	FILM	0.0085MF	3%	2KV
C539	1-129-746-91	FILM	0.039MF	5%	400V
C540	1-136-171-00	FILM	0.33MF	5%	50V
C546	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C549	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C550	1-106-220-00	MYLAR	0.1MF	10%	100V
C551	1-126-960-11	ELECT	1MF	20%	50V
C552	1-162-116-00	CERAMIC	680PF	10%	2KV
C553	1-162-116-00	CERAMIC	680PF	10%	2KV
C554	1-137-417-11	MYLAR	0.0047MF	10%	200V
C556	1-126-941-11	ELECT	470MF	20%	25V
C557	1-126-941-11	ELECT	470MF	20%	25V
C558	1-123-024-21	ELECT	33MF		160V
C560	1-102-228-00	CERAMIC	470PF	10%	500V
C561	1-129-708-91	FILM	0.0033MF	5%	630V
C562	1-102-228-00	CERAMIC	470PF	10%	500V
C564	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C565	1-107-655-11	ELECT	47MF	20%	250V
C566	1-102-244-00	CERAMIC	220PF	10%	500V
C567	1-115-521-11	FILM	0.82MF	5%	250V
C568	1-102-228-00	CERAMIC	470PF	10%	500V
C570	1-115-520-11	FILM	0.68MF	5%	250V
C573	1-106-379-12	MYLAR	0.033MF	10%	200V
C574	1-107-636-11	ELECT	10MF	20%	160V
C576	1-130-495-00	MYLAR	0.1MF	5%	50V
C577	1-106-395-00	MYLAR	0.15MF	10%	200V
C582	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C586	1-216-295-91	SHORT	0		
C600	1-104-705-11	FILM	0.1MF	20%	250V
C602	△ 1-104-705-11	FILM	0.1MF	20%	250V
C604	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C605	△ 1-127-942-51	CERAMIC	330PF	10%	250V
C606	△ 1-127-942-51	CERAMIC	330PF	10%	250V
C607	1-161-830-00	CERAMIC	0.0047MF	99%	500V

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
D521	8-719-302-43	DIODE EL1Z		FB608	1-412-911-31	FERRITE	0UH
D522	8-719-302-43	DIODE EL1Z		FB611	1-410-397-21	FERRITE	1.1UH
D523	8-719-302-43	DIODE EL1Z					
D527	8-719-908-03	DIODE GP08D		FB613	1-410-397-21	FERRITE	1.1UH
D528	8-719-908-03	DIODE GP08D		FB615	1-410-397-21	FERRITE	1.1UH
D531	8-719-988-61	DIODE 1SS355TE-17					
D532	8-719-988-61	DIODE 1SS355TE-17				<IC>	
D534	1-216-295-91	SHORT	0				
D602	8-719-911-19	DIODE 1SS119-25		IC001	8-752-906-21	IC CXP86449-623S	
D603	8-719-150-92	DIODE RD33EB3T		IC002	8-759-371-21	IC MM1319AFBE	
D604	8-719-028-72	DIODE RGP02-17EL-6433		IC003	8-759-527-71	IC M24C08-BN6	
D605	8-719-510-53	DIODE D4SB60L		IC100	8-759-042-02	IC S-80743AL-A7-S	
D606	8-719-108-18	THYRISTOR 5P6M		IC201	8-759-336-30	IC TA8223K	
D607	8-719-073-01	DIODE MA111-(K8).S0		IC203	8-759-553-40	IC TDA7429S	
D608	8-719-110-53	DIODE RD20ESB2		IC301	8-752-090-41	IC CXA2139S	
D609	8-719-311-31	DIODE RU-1P		IC502	8-759-700-07	IC NJM2903M	
D610	8-719-210-21	DIODE 11EQS04		IC503	8-759-980-58	IC TDA8172	
D611	8-719-046-74	DIODE AU-01Z-V1		IC601	8-749-013-75	IC STR-F6654	
D613	8-719-046-74	DIODE AU-01Z-V1		IC602	8-749-920-61	IC SE-135N	
D614	8-719-046-74	DIODE AU-01Z-V1		IC603	8-759-701-59	IC NJM78M09FA	
D618	8-719-067-18	DIODE RN4Z		IC604	8-759-231-53	IC TA7805S	
D620	8-719-110-72	DIODE RD30ESB2		IC901	8-742-134-00	HYB IC SBX1981-51P	
D622	8-719-071-39	DIODE FMU-G26S				<JACK>	
D623	8-719-978-65	DIODE DTZ-TT11-15B		J401	1-779-850-11	JACK BLOCK, PIN 6P	
D624	8-719-073-01	DIODE MA111-(K8).S0		J901	1-770-786-11	JACK	
D625	8-719-977-28	DIODE DTZ10B		J902	1-770-329-11	JACK, PIN 3P	
D627	8-719-073-84	DIODE 31DQ06-FC5					
D628	8-719-911-19	DIODE 1SS119-25				<CHIP CONDUCTOR>	
D631	8-719-068-00	DIODE ERC04-06SE		JR001	1-216-295-91	SHORT	0
D632	8-719-068-00	DIODE ERC04-06SE		JR002	1-216-295-91	SHORT	0
D633	8-719-948-45	DIODE ERA22-08		JR003	1-216-295-91	SHORT	0
D634	8-719-073-01	DIODE MA111-(K8).S0		JR004	1-216-295-91	SHORT	0
D635	8-719-073-01	DIODE MA111-(K8).S0		JR005	1-216-295-91	SHORT	0
D636	8-719-510-02	DIODE D1NS4		JR006	1-216-295-91	SHORT	0
D637	8-719-109-96	DIODE RD6.8ESB1		JR007	1-216-295-91	SHORT	0
D638	8-719-024-99	DIODE 11ES2-NTA2B		JR008	1-216-295-91	SHORT	0
D901	8-719-069-60	DIODE UDZS-TE17-9.1B		JR009	1-216-295-91	SHORT	0
D902	8-719-069-60	DIODE UDZS-TE17-9.1B		JR010	1-216-295-91	SHORT	0
D903	8-719-069-60	DIODE UDZS-TE17-9.1B		JR011	1-216-295-91	SHORT	0
D904	8-719-069-60	DIODE UDZS-TE17-9.1B		JR012	1-216-295-91	SHORT	0
D905	8-719-069-60	DIODE UDZS-TE17-9.1B		JR013	1-216-295-91	SHORT	0
D906	8-719-045-19	DIODE SPB-26MVWF		JR014	1-216-295-91	SHORT	0
		<CONNECTOR>		JR015	1-216-295-91	SHORT	0
DY1	* 1-580-798-11	CONNECTOR PIN (DY) 6P		JR016	1-216-295-91	SHORT	0
		<FERRITE BEAD>		JR018	1-216-295-91	SHORT	0
FB501	1-410-397-21	FERRITE	1.1UH	JR019	1-216-295-91	SHORT	0
FB502	1-410-397-21	FERRITE	1.1UH	JR102	1-216-295-91	SHORT	0
FB600	1-410-397-21	FERRITE	1.1UH	JR107	1-216-295-91	SHORT	0
FB601	1-410-397-21	FERRITE	1.1UH	JR202	1-216-295-91	SHORT	0
FB602	1-410-397-21	FERRITE	1.1UH	JR301	1-216-295-91	SHORT	0
FB603	1-410-397-21	FERRITE	1.1UH	JR303	1-216-295-91	SHORT	0
FB604	1-412-911-31	FERRITE	0UH	JR401	1-216-295-91	SHORT	0
FB607	1-410-397-21	FERRITE	1.1UH	JR403	1-216-295-91	SHORT	0
				JR404	1-216-295-91	SHORT	0
				JR405	1-216-295-91	SHORT	0

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

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REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
JR500	1-216-295-91	SHORT	0	Q206	8-729-421-19	TRANSISTOR UN2213	
JR501	1-216-295-91	SHORT	0	Q207	8-729-421-19	TRANSISTOR UN2213	
JR503	1-216-295-91	SHORT	0	Q301	8-729-216-22	TRANSISTOR 2SA1162-G	
				Q302	8-729-230-49	TRANSISTOR 2SC2712-YG	
JR600	1-216-295-91	SHORT	0	Q303	8-729-216-22	TRANSISTOR 2SA1162-G	
		<COIL>					
L002	1-414-856-11	INDUCTOR	10UH	Q305	8-729-216-22	TRANSISTOR 2SA1162-G	
L003	1-414-180-11	INDUCTOR	3.3UH	Q306	8-729-216-22	TRANSISTOR 2SA1162-G	
L005	1-414-233-22	INDUCTOR CHIP	0UH	Q307	8-729-230-49	TRANSISTOR 2SC2712-YG	
L101	1-414-856-11	INDUCTOR	10UH	Q308	8-729-216-22	TRANSISTOR 2SA1162-G	
L102	1-414-856-11	INDUCTOR	10UH	Q312	8-729-216-22	TRANSISTOR 2SA1162-G	
L103	1-414-856-11	INDUCTOR	10UH	Q313	8-729-230-49	TRANSISTOR 2SC2712-YG	
L104	1-414-856-11	INDUCTOR	10UH	Q315	8-729-421-19	TRANSISTOR UN2213	
L105	1-414-856-11	INDUCTOR	10UH	Q401	8-729-424-67	TRANSISTOR UN2216	
L204	1-414-856-11	INDUCTOR	10UH	Q402	8-729-027-56	TRANSISTOR DTC143TKA-T146	
L301	1-414-189-31	INDUCTOR	100UH	Q402	8-729-424-67	TRANSISTOR UN2216	
L302	1-414-185-41	INDUCTOR	22UH	Q403	8-729-216-22	TRANSISTOR 2SA1162-G	
L501	1-412-525-31	INDUCTOR	10UH	Q404	8-729-216-22	TRANSISTOR 2SA1162-G	
L502	1-422-613-11	COIL, AIR CORE		Q503	8-729-230-49	TRANSISTOR 2SC2712-YG	
L503	1-412-525-31	INDUCTOR	10UH	Q505	8-729-931-45	TRANSISTOR IRF614	
L504	1-412-525-31	INDUCTOR	10UH	Q506	8-729-140-96	TRANSISTOR 2SD774-34	
L505	1-412-525-31	INDUCTOR	10UH	Q507	8-729-216-22	TRANSISTOR 2SA1162-G	
L506	1-412-525-31	INDUCTOR	10UH	Q509	8-729-230-49	TRANSISTOR 2SC2712-YG	
L507	1-459-111-00	INDUCTOR	10MMH	Q511	8-729-048-07	TRANSISTOR 2SD2578-CA	
L508	1-412-525-31	INDUCTOR	10UH	Q601	8-729-023-22	TRANSISTOR 2SD2114K	
L509	1-459-390-00	INDUCTOR	390UH	Q602	8-729-230-49	TRANSISTOR 2SC2712-YG	
L510	1-416-972-11	COIL, HORIZONTAL LINEARITY		Q603	8-729-424-08	TRANSISTOR UN2111	
L512	1-412-549-31	INDUCTOR	1MMH	Q604	8-729-200-17	TRANSISTOR 2SA1091-O	
L513	1-412-549-31	INDUCTOR	1MMH	Q605	8-729-044-30	TRANSISTOR 2SK2845-LB102	
L515	1-459-104-00	COIL, WITH CORE		Q606	8-729-230-49	TRANSISTOR 2SC2712-YG	
L518	1-414-187-11	INDUCTOR	47UH	Q607	8-729-922-37	TRANSISTOR 2SD2144S-UVW	
L601	1-412-527-11	INDUCTOR	15UH	Q608	8-729-230-49	TRANSISTOR 2SC2712-YG	
L901	1-408-603-31	INDUCTOR	10UH	Q901	8-729-421-19	TRANSISTOR UN2213	
L902	1-408-603-31	INDUCTOR	10UH	Q902	8-729-421-19	TRANSISTOR UN2213	
L905	1-414-856-11	INDUCTOR	10UH			<RESISTOR>	
		<PHOTO COUPLER>					
PH600 $\triangle$	8-749-010-64	PHOTO COUPLER PC123F2		R001	1-414-233-22	INDUCTOR CHIP 0UH	
				R002	1-216-025-91	RES,CHIP 100	5% 1/10W
				R003	1-216-073-00	RES,CHIP 10K	5% 1/10W
				R004	1-216-025-91	RES,CHIP 100	5% 1/10W
				R005	1-216-025-91	RES,CHIP 100	5% 1/10W
		<IC LINK>		R007	1-216-295-91	SHORT 0	
				R008	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
PS200	1-532-675-21	LINK, IC 1.5A/150V		R010	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
				R011	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
				R012	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
		<TRANSISTOR>		R013	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG		R014	1-216-025-91	RES,CHIP 100	5% 1/10W
Q003	8-729-424-08	TRANSISTOR UN2111		R015	1-216-025-91	RES,CHIP 100	5% 1/10W
Q004	8-729-421-22	TRANSISTOR UN2211		R017	1-216-049-91	RES,CHIP 1K	5% 1/10W
Q101	8-729-230-49	TRANSISTOR 2SC2712-YG		R018	1-216-033-00	RES,CHIP 220	5% 1/10W
Q201	8-729-424-67	TRANSISTOR UN2216					
				R019	1-216-073-00	RES,CHIP 10K	5% 1/10W
Q202	8-729-027-56	TRANSISTOR DTC143TKA-T146		R021	1-216-073-00	RES,CHIP 10K	5% 1/10W
Q202	8-729-424-67	TRANSISTOR UN2216		R022	1-216-033-00	RES,CHIP 220	5% 1/10W
Q203	8-729-421-19	TRANSISTOR UN2213		R024	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
Q204	8-729-216-22	TRANSISTOR 2SA1162-G		R025	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
Q205	8-729-421-19	TRANSISTOR UN2213					
				R026	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
				R027	1-216-073-00	RES,CHIP 10K	5% 1/10W



REF. NO.	PART NO.	DESCRIPTION			REMARK
R028	1-216-073-00	RES,CHIP	10K	5%	1/10W
R029	1-216-049-91	RES,CHIP	1K	5%	1/10W
R031	1-216-049-91	RES,CHIP	1K	5%	1/10W
R035	1-216-025-91	RES,CHIP	100	5%	1/10W
R036	1-216-025-91	RES,CHIP	100	5%	1/10W
R037	1-216-025-91	RES,CHIP	100	5%	1/10W
R040	1-216-025-91	RES,CHIP	100	5%	1/10W
R041	1-216-025-91	RES,CHIP	100	5%	1/10W
R042	1-216-295-91	SHORT	0		
R043	1-216-049-91	RES,CHIP	1K	5%	1/10W
R044	1-216-025-91	RES,CHIP	100	5%	1/10W
R045	1-414-233-22	INDUCTOR CHIP	0UH		
R046	1-216-049-91	RES,CHIP	1K	5%	1/10W
R047	1-414-233-22	INDUCTOR CHIP	0UH		
R048	1-216-073-00	RES,CHIP	10K	5%	1/10W
R050	1-216-073-00	RES,CHIP	10K	5%	1/10W
R053	1-216-049-91	RES,CHIP	1K	5%	1/10W
R055	1-216-073-00	RES,CHIP	10K	5%	1/10W
R056	1-216-073-00	RES,CHIP	10K	5%	1/10W
R061	1-216-033-00	RES,CHIP	220	5%	1/10W
R062	1-216-041-00	RES,CHIP	470	5%	1/10W
R063	1-216-037-00	RES,CHIP	330	5%	1/10W
R064	1-216-037-00	RES,CHIP	330	5%	1/10W
R065	1-216-037-00	RES,CHIP	330	5%	1/10W
R066	1-216-049-91	RES,CHIP	1K	5%	1/10W
R067	1-216-049-91	RES,CHIP	1K	5%	1/10W
R101	1-216-025-91	RES,CHIP	100	5%	1/10W
R102	1-216-025-91	RES,CHIP	100	5%	1/10W
R105	1-216-295-91	SHORT	0		
R109	1-216-041-00	RES,CHIP	470	5%	1/10W
R111	1-216-025-91	RES,CHIP	100	5%	1/10W
R112	1-216-025-91	RES,CHIP	100	5%	1/10W
R113	1-216-047-91	RES,CHIP	820	5%	1/10W
R202	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R203	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R204	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R205	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R206	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R207	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R208	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R209	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R210	1-216-029-00	RES,CHIP	150	5%	1/10W
R212	1-216-029-00	RES,CHIP	150	5%	1/10W
R213	1-216-073-00	RES,CHIP	10K	5%	1/10W
R214	1-216-073-00	RES,CHIP	10K	5%	1/10W
R215	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R216	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R217	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R218	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R219	1-216-025-91	RES,CHIP	100	5%	1/10W
R220	1-216-025-91	RES,CHIP	100	5%	1/10W
R221	1-216-295-91	SHORT	0		
R222	1-216-295-91	SHORT	0		
R225	1-216-033-00	RES,CHIP	220	5%	1/10W
R226	1-216-033-00	RES,CHIP	220	5%	1/10W
R227	1-216-033-00	RES,CHIP	220	5%	1/10W
R228	1-249-389-11	CARBON	4.7	5%	1/4W
R229	1-216-073-00	RES,CHIP	10K	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK
R230	1-216-073-00	RES,CHIP	10K	5%	1/10W
R231	1-216-295-91	SHORT	0		
R234	1-249-389-11	CARBON	4.7	5%	1/4W
R235	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R236	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R237	1-216-308-00	RES,CHIP	4.7	5%	1/10W
R301	1-216-073-00	RES,CHIP	10K	5%	1/10W
R302	1-216-295-91	SHORT	0		
R303	1-216-049-91	RES,CHIP	1K	5%	1/10W
R304	1-216-073-00	RES,CHIP	10K	5%	1/10W
R305	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R306	1-216-073-00	RES,CHIP	10K	5%	1/10W
R308	1-216-025-91	RES,CHIP	100	5%	1/10W
R309	1-216-025-91	RES,CHIP	100	5%	1/10W
R310	1-216-025-91	RES,CHIP	100	5%	1/10W
R311	1-216-017-91	RES,CHIP	47	5%	1/10W
R312	1-216-041-00	RES,CHIP	470	5%	1/10W
R313	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R314	1-216-045-00	RES,CHIP	680	5%	1/10W
R316	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R317	1-216-077-91	RES,CHIP	15K	5%	1/10W
R318	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R319	1-216-025-91	RES,CHIP	100	5%	1/10W
R320	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R321	1-216-073-00	RES,CHIP	10K	5%	1/10W
R322	1-216-033-00	RES,CHIP	220	5%	1/10W
R331	1-216-295-91	SHORT	0		
R332	1-216-033-00	RES,CHIP	220	5%	1/10W
R333	1-216-073-00	RES,CHIP	10K	5%	1/10W
R334	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R335	1-216-045-00	RES,CHIP	680	5%	1/10W
R338	1-216-033-00	RES,CHIP	220	5%	1/10W
R340	1-216-025-91	RES,CHIP	100	5%	1/10W
R345	1-216-081-00	RES,CHIP	22K	5%	1/10W
R346	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R347	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R348	1-208-806-11	RES,CHIP	10K	0.50%	1/10W
R349	1-216-073-00	RES,CHIP	10K	5%	1/10W
R350	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R351	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R354	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R355	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R356	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R357	1-216-079-00	RES,CHIP	18K	5%	1/10W
R358	1-216-049-91	RES,CHIP	1K	5%	1/10W
R359	1-216-033-00	RES,CHIP	220	5%	1/10W
R360	1-216-033-00	RES,CHIP	220	5%	1/10W
R361	1-216-073-00	RES,CHIP	10K	5%	1/10W
R362	1-216-075-00	RES,CHIP	12K	5%	1/10W
R363	1-216-079-00	RES,CHIP	18K	5%	1/10W
R364	1-216-295-91	SHORT	0		
R365	1-216-033-00	RES,CHIP	220	5%	1/10W
R366	1-216-073-00	RES,CHIP	10K	5%	1/10W
R367	1-216-073-00	RES,CHIP	10K	5%	1/10W
R370	1-216-033-00	RES,CHIP	220	5%	1/10W
R375	1-216-025-91	RES,CHIP	100	5%	1/10W
R376	1-216-081-00	RES,CHIP	22K	5%	1/10W

The components identified by shading
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REF. NO.	PART NO.	DESCRIPTION			REMARK	REF. NO.	PART NO.	DESCRIPTION			REMARK
R377	1-216-121-91	RES,CHIP	1M	5%	1/10W	R552	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R378	1-216-031-00	RES,CHIP	180	5%	1/10W	R553	1-215-457-00	METAL	33K	1%	1/4W
R401	1-216-049-91	RES,CHIP	1K	5%	1/10W						
						R554	1-215-457-00	METAL	33K	1%	1/4W
R402	1-216-073-00	RES,CHIP	10K	5%	1/10W	R556	1-215-437-00	METAL	4.7K	1%	1/4W
R403	1-216-073-00	RES,CHIP	10K	5%	1/10W	R558	1-249-421-11	CARBON	2.2K	5%	1/4W
R404	1-216-073-00	RES,CHIP	10K	5%	1/10W	R559	1-249-429-11	CARBON	10K	5%	1/4W
R405	1-216-049-91	RES,CHIP	1K	5%	1/10W	R560	1-216-073-00	RES,CHIP	10K	5%	1/10W
R406	1-216-073-00	RES,CHIP	10K	5%	1/10W						
						R562	1-249-401-11	CARBON	47	5%	1/4W
R407	1-216-049-91	RES,CHIP	1K	5%	1/10W	R565	1-216-073-00	RES,CHIP	10K	5%	1/10W
R408	1-216-049-91	RES,CHIP	1K	5%	1/10W	R567	1-216-105-91	RES,CHIP	220K	5%	1/10W
R409	1-216-041-00	RES,CHIP	470	5%	1/10W	R568	1-249-383-11	CARBON	1.5	5%	1/4W F
R410	1-216-113-00	RES,CHIP	470K	5%	1/10W	R570	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R411	1-216-113-00	RES,CHIP	470K	5%	1/10W						
						R571	1-215-437-00	METAL	4.7K	1%	1/4W
R412	1-216-041-00	RES,CHIP	470	5%	1/10W	R573	1-216-089-91	RES,CHIP	47K	5%	1/10W
R413	1-216-021-00	RES,CHIP	68	5%	1/10W	R577	1-215-913-11	METAL OXIDE	220	5%	3W F
R414	1-216-113-00	RES,CHIP	470K	5%	1/10W	R578	1-216-369-00	METAL OXIDE	1	5%	2W F
R415	1-216-113-00	RES,CHIP	470K	5%	1/10W	R579	1-216-097-91	RES,CHIP	100K	5%	1/10W
R416	1-216-077-91	RES,CHIP	15K	5%	1/10W						
						R580	1-208-830-11	RES,CHIP	100K	0.50%	1/10W
R417	1-216-077-91	RES,CHIP	15K	5%	1/10W	R581	1-208-798-11	RES,CHIP	4.7K	0.50%	1/10W
R418	1-216-113-00	RES,CHIP	470K	5%	1/10W	R585	1-249-391-11	CARBON	6.8	5%	1/4W F
R419	1-216-022-00	RES,CHIP	75	5%	1/10W	R588	1-215-888-00	METAL OXIDE	220	5%	2W F
R426	1-216-033-00	RES,CHIP	220	5%	1/10W	R589	1-215-888-00	METAL OXIDE	220	5%	2W F
R505	1-216-099-00	RES,CHIP	120K	5%	1/10W						
						R590	1-215-465-00	METAL	68K	1%	1/4W
R506	1-216-085-00	RES,CHIP	33K	5%	1/10W	R591	1-260-288-11	CARBON	0.47	5%	1/2W F
R507	1-249-389-11	CARBON	4.7	5%	1/4W F	R593	1-260-288-11	CARBON	0.47	5%	1/2W F
R508	1-215-910-00	METAL OXIDE	68	5%	3W F	R594	1-260-288-11	CARBON	0.47	5%	1/2W F
R509	1-215-911-11	METAL OXIDE	100	5%	3W F	R596	1-216-485-11	METAL OXIDE	5.6K	5%	3W F
R510	1-215-885-00	METAL OXIDE	68	5%	2W F						
						R597	1-247-750-11	CARBON	680	5%	1/2W F
R511	1-215-911-11	METAL OXIDE	100	5%	3W F	R598	1-249-438-11	CARBON	56K	5%	1/4W
R516	1-216-081-00	RES,CHIP	22K	5%	1/10W	R599	1-249-389-11	CARBON	4.7	5%	1/4W
R518	1-247-807-31	CARBON	100	5%	1/4W	R600	1-249-438-11	CARBON	56K	5%	1/4W
R520	1-215-445-00	METAL	10K	1%	1/4W	R601	1-249-418-11	CARBON	1.2K	5%	1/4W F
R522	1-208-806-11	RES,CHIP	10K	0.50%	1/10W						
						R602	1-249-389-11	CARBON	4.7	5%	1/4W F
R523	1-249-411-11	CARBON	330	5%	1/4W	R603	1-215-485-00	METAL	470K	1%	1/4W
R525	1-208-830-11	RES,CHIP	100K	0.50%	1/10W	R604	1-216-097-91	RES,CHIP	100K	5%	1/10W
R526	1-208-798-11	RES,CHIP	4.7K	0.50%	1/10W	R607	1-249-425-11	CARBON	4.7K	5%	1/4W
R527	1-216-001-00	RES,CHIP	10	5%	1/10W	R608	1-240-205-91	CARBON	22M	5%	1/2W
R528	1-208-814-91	RES,CHIP	22K	0.50%	1/10W						
						R609	1-216-057-00	RES,CHIP	2.2K	5%	1/10W
R529	1-208-766-11	RES,CHIP	220	0.50%	1/10W	R610	1-216-073-00	RES,CHIP	10K	5%	1/10W
R531	1-247-843-11	CARBON	3.3K	5%	1/4W	R611	1-216-089-91	RES,CHIP	47K	5%	1/10W
R533	1-249-417-11	CARBON	1K	5%	1/4W	R612	1-216-045-00	RES,CHIP	680	5%	1/10W
R534	1-216-361-00	METAL OXIDE	0.22	5%	2W F	R614	1-216-041-00	RES,CHIP	470	5%	1/10W
R535	1-216-067-00	RES,CHIP	5.6K	5%	1/10W						
						R615	1-216-350-11	METAL OXIDE	1.2	5%	1W F
R536	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	R616	1-260-302-51	CARBON	6.8	5%	1/2W F
R537	1-208-814-91	RES,CHIP	22K	0.50%	1/10W	R617	1-247-791-91	CARBON	22	5%	1/4W
R540	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R619	1-260-128-11	CARBON	270K	5%	1/2W
R541	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	R620	1-215-915-11	METAL OXIDE	470	5%	3W F
R542	1-216-295-91	SHORT	0								
						R622	1-216-400-11	METAL OXIDE	8.2	5%	3W F
R543	1-249-426-11	CARBON	5.6K	5%	1/4W F	R623	1-216-095-00	RES,CHIP	82K	5%	1/10W
R544	1-216-457-00	METAL OXIDE	1.2K	5%	2W F	R624	1-216-089-91	RES,CHIP	47K	5%	1/10W
R545	1-216-077-91	RES,CHIP	15K	5%	1/10W	R626	1-216-049-91	RES,CHIP	1K	5%	1/10W
R546	1-216-077-91	RES,CHIP	15K	5%	1/10W	R627	1-240-251-11	CMT,MELF	6.8	5%	10W
R547	1-216-085-00	RES,CHIP	33K	5%	1/10W						
						R629	1-247-747-11	CARBON	470	5%	1/2W F
R549	1-215-451-00	METAL	18K	1%	1/4W	R630	1-249-429-11	CARBON	10K	5%	1/4W F
R550	1-216-097-91	RES,CHIP	100K	5%	1/10W	R631	1-216-089-91	RES,CHIP	47K	5%	1/10W
R551	1-249-421-11	CARBON	2.2K	5%	1/4W	R632	1-202-933-61	FUSIBLE	0.1	10%	1/2W F
						R634	△ 1-218-265-11	METAL	8.2M	5%	1W

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REF. NO.	PART NO.	DESCRIPTION	REMARK
R635	1-216-492-11	METAL OXIDE 82K	5% 3W F
R636	1-215-924-00	METAL OXIDE 15K	5% 3W F
R637	1-216-492-11	METAL OXIDE 82K	5% 3W F
R639	1-216-363-00	METAL OXIDE 0.33	5% 2W F
R640	1-249-415-11	CARBON 680	5% 1/4W
R641	1-216-362-11	METAL OXIDE 0.27	5% 2W F
R642	1-249-419-11	CARBON 1.5K	5% 1/4W
R643	1-247-843-11	CARBON 3.3K	5% 1/4W
R644	1-249-419-11	CARBON 1.5K	5% 1/4W
R646	1-215-924-00	METAL OXIDE 15K	5% 3W F
R647	1-249-401-11	CARBON 47	5% 1/4W
R648	1-216-057-00	RES,CHIP 2.2K	5% 1/10W
R649	1-249-417-11	CARBON 1K	5% 1/4W
R650	1-215-882-00	METAL OXIDE 22	5% 2W F
R652	1-215-900-11	METAL OXIDE 22K	5% 2W F
R653	1-215-873-00	METAL OXIDE 4.7K	5% 1W F
R657	1-260-127-11	CARBON 220K	5% 1/2W
R659	1-216-049-91	RES,CHIP 1K	5% 1/10W
R660	1-216-073-00	RES,CHIP 10K	5% 1/10W
R661	1-215-873-00	METAL OXIDE 4.7K	5% 1W F
R680	1-216-308-00	RES,CHIP 4.7	5% 1/10W
R901	1-249-411-11	CARBON 330	5% 1/4W
R902	1-249-411-11	CARBON 330	5% 1/4W
R903	1-216-022-00	RES,CHIP 75	5% 1/10W
R904	1-216-033-00	RES,CHIP 220	5% 1/10W
R905	1-216-113-00	RES,CHIP 470K	5% 1/10W
R906	1-216-077-91	RES,CHIP 15K	5% 1/10W
R907	1-216-113-00	RES,CHIP 470K	5% 1/10W
R908	1-216-077-91	RES,CHIP 15K	5% 1/10W
R909	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
R910	1-216-065-91	RES,CHIP 4.7K	5% 1/10W
R911	1-216-067-00	RES,CHIP 5.6K	5% 1/10W
R912	1-216-041-00	RES,CHIP 470	5% 1/10W
R913	1-216-049-91	RES,CHIP 1K	5% 1/10W
R914	1-216-055-00	RES,CHIP 1.8K	5% 1/10W
R915	1-216-061-00	RES,CHIP 3.3K	5% 1/10W
R916	1-216-017-91	RES,CHIP 47	5% 1/10W
R917	1-216-041-00	RES,CHIP 470	5% 1/10W
R918	1-216-041-00	RES,CHIP 470	5% 1/10W
<RELAY>			
RY601 $\triangle$	1-755-299-11	RELAY	
<SWITCH>			
S502	1-572-707-11	SWITCH, LEVER	
S600	1-571-433-21	SWITCH, PUSH (AC POWER)	
S901	1-692-431-21	SWITCH, TACTILE	
S902	1-692-431-21	SWITCH, TACTILE	
S903	1-692-431-21	SWITCH, TACTILE	
S904	1-692-431-21	SWITCH, TACTILE	
S905	1-692-431-21	SWITCH, TACTILE	
S906	1-692-431-21	SWITCH, TACTILE	
S907	1-692-431-21	SWITCH, TACTILE	

REF. NO.	PART NO.	DESCRIPTION	REMARK
<TRANSFORMER>			
T501	1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE	
T503 $\triangle$	1-453-293-11	FBT ASSY, NX-1748//M3A4	
T601	1-424-682-11	TRANSFORMER, LINE FILTER	
T603 $\triangle$	1-433-513-31	TRANSFORMER, CONVERTER (SRT)	
T604 $\triangle$	1-431-852-11	TRANSFORMER, CONVERTER (SRT)	
<THERMISTOR>			
THP600	1-810-961-11	THERMISTOR, POSITIVE	
<TUNER>			
TU101	8-598-451-20	TUNER, FSS BTF-WG441	
<CRYSTAL>			
X001	1-579-125-11	VIBRATOR, CERAMIC	
X301	1-781-134-21	VIBRATOR, CRYSTAL	
X302	1-781-132-21	VIBRATOR, CRYSTAL	

* A-1331-941-A C5 BOARD MOUNTED			

7-682-948-01 SCREW +PSW 3X8			
<CAPACITOR>			
C701	1-115-350-51	CERAMIC 0.0047MF	2KV
C702	1-102-074-00	CERAMIC 0.001MF	10% 50V
C703	1-107-651-11	ELECT 4.7MF	20% 250V
C704	1-130-202-00	FILM 0.022MF	5% 400V
C706	1-104-664-11	ELECT 47MF	20% 16V
C708	1-102-114-00	CERAMIC 470PF	10% 50V
C709	1-102-114-00	CERAMIC 470PF	10% 50V
C710	1-102-114-00	CERAMIC 470PF	10% 50V
C712	1-102-116-00	CERAMIC 680PF	10% 50V
C713	1-102-116-00	CERAMIC 680PF	10% 50V
C714	1-102-116-00	CERAMIC 680PF	10% 50V
C716	1-126-933-11	ELECT 100MF	20% 16V
C717	1-101-880-00	CERAMIC 47PF	5% 50V
C736	1-102-114-00	CERAMIC 470PF	10% 50V
C737	1-102-114-00	CERAMIC 470PF	10% 50V
C746	1-102-114-00	CERAMIC 470PF	10% 50V
C1803	1-126-964-11	ELECT 10MF	20% 50V
C1804	1-126-964-11	ELECT 10MF	20% 50V
C1809	1-126-942-61	ELECT 1000MF	20% 250V
<CONNECTOR>			
CN701	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P	
CN702	1-695-915-11	TAB (CONTACT)	
CN703 *	1-564-509-11	PLUG, CONNECTOR 6P	
CN704	1-695-915-11	TAB (CONTACT)	
CN1801*	1-564-507-11	PLUG, CONNECTOR 4P	

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



REF. NO.	PART NO.	DESCRIPTION	REMARK			
<CAPACITOR>						
C654	△ 1-117-703-11	CERAMIC	0.0047MF	99%	250V	
C4602	△ 1-104-708-11	FILM	0.47MF	20%	250V	
<CONNECTOR>						
CN4601*	1-580-843-11	PIN, CONNECTOR (POWER)				
CN4602*	1-580-843-11	PIN, CONNECTOR (POWER)				
CN4603	1-695-915-11	TAB (CONTACT)				
<FUSE>						
F4601	△ 1-532-237-00	FUSE, TIME-LAG (BET) 3.15A/250V				
<RESISTOR>						
R4601	△ 1-202-719-00	SOLID	1M	10%	1/2W	
<TRANSFORMER>						
T4601	△ 1-424-682-11	TRANSFORMER, LINE FILTER				
T4602	△ 1-424-682-11	TRANSFORMER, LINE FILTER				
<VARISTOR>						
VDR461	1-801-073-31	VARISTOR TNR14V471K660				

* A-1342-453-A		VM1 BOARD MOUNTED	*****			
4-382-854-11		SCREW (M3X10), P, SW (+)				
<CAPACITOR>						
C5902	1-104-661-91	ELECT	330MF	20%	16V	
C5903	1-161-830-00	CERAMIC	0.0047MF		500V	
C5905	1-126-925-11	ELECT	470MF	20%	10V	
C5906	1-130-491-00	MYLAR	0.047MF	5%	50V	
C5907	1-107-638-11	ELECT	33MF	20%	160V	
C5908	1-106-383-00	MYLAR	0.047MF	10%	200V	
C5909	1-126-933-11	ELECT	100MF	20%	16V	
C5910	1-130-471-00	MYLAR	0.001MF	5%	50V	
C5911	1-107-949-11	ELECT	2.2MF	20%	160V	
C5912	1-104-999-11	MYLAR	0.1MF	10%	200V	
C5913	1-130-471-00	MYLAR	0.001MF	5%	50V	
C5914	1-126-933-11	ELECT	100MF	20%	16V	
C5916	1-130-491-00	MYLAR	0.047MF	5%	50V	
C5917	1-126-925-11	ELECT	470MF	20%	10V	
C5918	1-115-341-51	CERAMIC	120PF	10%	500V	
C5920	1-126-964-11	ELECT	10MF	20%	50V	
C5921	1-101-888-00	CERAMIC	68PF	5%	50V	

REF. NO.	PART NO.	DESCRIPTION	REMARK			
<CONNECTOR>						
CN5901 *	1-564-510-11	PLUG, CONNECTOR 7P				
CN5904*	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P				
<DIODE>						
D5901	8-719-911-19	DIODE 1SS119-25				
D5902	8-719-110-88	DIODE RD39ESB2				
D5903	8-719-911-19	DIODE 1SS119-25				
D5904	8-719-110-88	DIODE RD39ESB2				
D5905	8-719-911-19	DIODE 1SS119-25				
D5906	1-249-406-11	CARBON	120	5%	1/4W	
D5907	1-249-406-11	CARBON	120	5%	1/4W	
<COIL>						
L5901	1-414-187-11	INDUCTOR	47UH			
L5902	1-414-856-11	INDUCTOR	10UH			
<TRANSISTOR>						
Q5901	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5902	8-729-809-26	TRANSISTOR 2SA1606-E				
Q5903	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5904	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q5905	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5906	8-729-809-29	TRANSISTOR 2SC4159-E				
Q5908	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5909	8-729-119-78	TRANSISTOR 2SC2785-HFE				
<RESISTOR>						
R5901	1-247-815-91	CARBON	220	5%	1/4W	
R5902	1-249-414-11	CARBON	560	5%	1/4W	F
R5903	1-247-735-11	CARBON	47	5%	1/2W	F
R5904	1-249-411-11	CARBON	330	5%	1/4W	
R5905	1-249-417-11	CARBON	1K	5%	1/4W	
R5906	1-249-417-11	CARBON	1K	5%	1/4W	
R5907	1-249-417-11	CARBON	1K	5%	1/4W	
R5908	1-249-383-11	CARBON	1.5	5%	1/4W	F
R5909	1-247-815-91	CARBON	220	5%	1/4W	
R5910	1-249-403-11	CARBON	68	5%	1/4W	
R5911	1-249-439-11	CARBON	68K	5%	1/4W	
R5912	1-249-437-11	CARBON	47K	5%	1/4W	
R5914	1-249-403-11	CARBON	68	5%	1/4W	
R5915	1-249-429-11	CARBON	10K	5%	1/4W	
R5916	1-249-419-11	CARBON	1.5K	5%	1/4W	
R5917	1-249-416-11	CARBON	820	5%	1/4W	
R5918	1-249-429-11	CARBON	10K	5%	1/4W	
R5919	1-249-417-11	CARBON	1K	5%	1/4W	F
R5920	1-249-439-11	CARBON	68K	5%	1/4W	
R5921	1-215-912-11	METAL OXIDE	150	5%	3W	F
R5922	1-249-414-11	CARBON	560	5%	1/4W	
R5923	1-249-383-11	CARBON	1.5	5%	1/4W	F
R5925	1-249-401-11	CARBON	47	5%	1/4W	F
R5929	1-215-880-00	METAL OXIDE	10	5%	2W	F
R5930	1-249-413-11	CARBON	470	5%	1/4W	

VM₁V₁

REF. NO.	PART NO.	DESCRIPTION				REMARK	REF. NO.	PART NO.	DESCRIPTION				REMARK
R5931	1-249-413-11	CARBON	470	5%	1/4W			<CHIP CONDUCTOR>					
R5932	1-249-413-11	CARBON	470	5%	1/4W		JR801	1-216-295-91	SHORT	0			
R5933	1-249-413-11	CARBON	470	5%	1/4W		JR802	1-216-295-91	SHORT	0			
R5934	1-249-430-11	CARBON	12K	5%	1/4W		JR804	1-216-295-91	SHORT	0			
R5935	1-249-429-11	CARBON	10K	5%	1/4W		JR805	1-216-295-91	SHORT	0			
							JR806	1-216-295-91	SHORT	0			
*****							JR807	1-216-295-91	SHORT	0			
* A-1347-155-A V1 BOARD COMPLETE							JR808	1-216-295-91	SHORT	0			
*****							<TRANSISTOR>						
<CAPACITOR>							Q801	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C801	1-104-664-11	ELECT	47MF	20%	16V		Q803	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C805	1-163-038-91	CERAMIC CHIP	0.1MF		25V		Q805	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C806	1-163-038-91	CERAMIC CHIP	0.1MF		25V		Q806	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C815	1-163-251-11	CERAMIC CHIP	100PF	5%	50V		Q807	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C816	1-164-505-11	CERAMIC CHIP	2.2MF		16V		Q808	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C817	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V		Q810	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C818	1-163-239-11	CERAMIC CHIP	33PF	5%	50V		Q811	8-729-019-01	TRANSISTOR 2SD2394-EF				
C820	1-163-239-11	CERAMIC CHIP	33PF	5%	50V		Q812	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C821	1-163-038-91	CERAMIC CHIP	0.1MF		25V		Q813	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C822	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V		Q814	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C823	1-126-933-11	ELECT	100MF	20%	16V		Q817	8-729-900-53	TRANSISTOR DTC114EK				
C826	1-126-963-11	ELECT	4.7MF	20%	50V		Q818	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
C829	1-163-113-00	CERAMIC CHIP	68PF	5%	50V		<RESISTOR>						
C830	1-163-038-91	CERAMIC CHIP	0.1MF		25V		R800	1-208-806-11	RES,CHIP	10K	0.50%	1/10W	
C831	1-126-933-11	ELECT	100MF	20%	16V		R801	1-216-295-91	SHORT	0			
C832	1-126-964-11	ELECT	10MF	20%	50V		R802	1-216-025-91	RES,CHIP	100	5%	1/10W	
C835	1-163-038-91	CERAMIC CHIP	0.1MF		25V		R803	1-216-295-91	SHORT	0			
C837	1-126-933-11	ELECT	100MF	20%	16V		R804	1-216-295-91	SHORT	0			
<CONNECTOR>							R805	1-216-295-91	SHORT	0			
CN801	* 1-774-812-11	CONNECTOR, BOARD TO BOARD 7P					R807	1-216-295-91	SHORT	0			
CN803	* 1-774-812-11	CONNECTOR, BOARD TO BOARD 7P					R813	1-216-295-91	SHORT	0			
<DIODE>							R820	1-216-073-00	RES,CHIP	10K	5%	1/10W	
D802	8-719-914-44	DIODE DAP202K					R821	1-216-083-00	RES,CHIP	27K	5%	1/10W	
D803	8-719-105-46	DIODE RD3.3M-B2					R822	1-216-025-91	RES,CHIP	100	5%	1/10W	
D804	8-719-105-91	DIODE RD5.6M-B2					R824	1-216-295-91	SHORT	0			
D806	8-719-988-61	DIODE 1SS355TE-17					R825	1-216-295-91	SHORT	0			
D807	8-719-988-61	DIODE 1SS355TE-17					R827	1-216-295-91	SHORT	0			
<FERRITE BEAD>							R828	1-216-025-91	RES,CHIP	100	5%	1/10W	
FB801	1-410-397-21	FERRITE	1.1UH				R829	1-216-025-91	RES,CHIP	100	5%	1/10W	
FB802	1-410-397-21	FERRITE	1.1UH				R830	1-216-295-91	SHORT	0			
FB803	1-410-397-21	FERRITE	1.1UH				R831	1-216-295-91	SHORT	0			
FB804	1-410-682-31	INDUCTOR	470UH				R832	1-208-790-11	RES,CHIP	2.2K	0.50%	1/10W	
FB805	1-410-397-21	FERRITE	1.1UH				R835	1-216-295-91	SHORT	0			
<IC>							R839	1-216-655-11	RES,CHIP	1.5K	0.50%	1/10W	
IC801	8-759-476-87	IC SAA5261					R841	1-216-025-91	RES,CHIP	100	5%	1/10W	
							R842	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
							R843	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
							R844	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
							R845	1-216-049-91	RES,CHIP	1K	5%	1/10W	
							R846	1-216-049-91	RES,CHIP	1K	5%	1/10W	
							R847	1-216-049-91	RES,CHIP	1K	5%	1/10W	
							R848	1-216-049-91	RES,CHIP	1K	5%	1/10W	
							R849	1-216-049-91	RES,CHIP	1K	5%	1/10W	

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

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REF. NO.	PART NO.	DESCRIPTION	REMARK
R850	1-216-105-91	RES,CHIP	220K 5% 1/10W
R851	1-216-057-00	RES,CHIP	2.2K 5% 1/10W
R853	1-216-067-00	RES,CHIP	5.6K 5% 1/10W
R857	1-216-081-00	RES,CHIP	22K 5% 1/10W
R858	1-216-067-00	RES,CHIP	5.6K 5% 1/10W
R861	1-216-049-91	RES,CHIP	1K 5% 1/10W
R862	1-260-095-11	CARBON	470 5% 1/2W
R863	1-216-049-91	RES,CHIP	1K 5% 1/10W
R864	1-216-041-00	RES,CHIP	470 5% 1/10W
R866	1-215-880-00	METAL OXIDE	10 5% 2W F
R871	1-216-037-00	RES,CHIP	330 5% 1/10W
R879	1-216-073-00	RES,CHIP	10K 5% 1/10W
R880	1-216-041-00	RES,CHIP	470 5% 1/10W
R882	1-216-049-91	RES,CHIP	1K 5% 1/10W
R884	1-216-025-91	RES,CHIP	100 5% 1/10W
R888	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R889	1-216-073-00	RES,CHIP	10K 5% 1/10W
R890	1-216-081-00	RES,CHIP	22K 5% 1/10W
R894	1-216-073-00	RES,CHIP	10K 5% 1/10W
R895	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
R896	1-216-073-00	RES,CHIP	10K 5% 1/10W
R897	1-216-073-00	RES,CHIP	10K 5% 1/10W
R898	1-216-065-91	RES,CHIP	4.7K 5% 1/10W
		<CRYSTAL>	
X801	1-578-774-11	VIBRATOR, CRYSTAL	

REF. NO.	PART NO.	DESCRIPTION	REMARK

		MISCELLANEOUS	*****
$\triangle$ 1-416-946-21		COIL, DEMAGNETIC	
1-452-032-00		MAGNET,DISC	
1-452-728-41		COIL, NA ROTATION (RT-154)	
1-529-125-11		SPEAKER (13X7CM)	
$\triangle$ 1-574-358-11		CORD, POWER (WITH CONNECTOR) 7.5A/250V	
8-451-505-11		DEFLECTION YOKE (Y21RSA-S)	
8-453-011-31		NA299-S2	
$\triangle$ 8-738-809-05		PICTURE TUBE (A1LP70X)	

		ACCESSORIES AND PACKING MATERIALS	*****
3-701-910-00		SCREW, SPECIAL (DIA. 3.8X20)	
3-865-541-61		MANUAL, INSTRUCTION	
4-392-003-11		BAND, HOLD	
* 4-039-372-01		BAG, PROTECTION	
* 4-067-168-01		INDIVIDUAL CARTON	
* 4-067-169-01		CUSHION,(UPPER)(ASS'Y)	
* 4-067-170-01		CUSHION,(LOWER)(ASS'Y)	
4-392-004-11		CLIP	

		REMOTE COMMANDER	*****
1-418-163-11		REMOTE COMMANDER (RM-952)	
9-939-697-01		BATTERY COVER, REMOTE COMMANDER	