

JVC

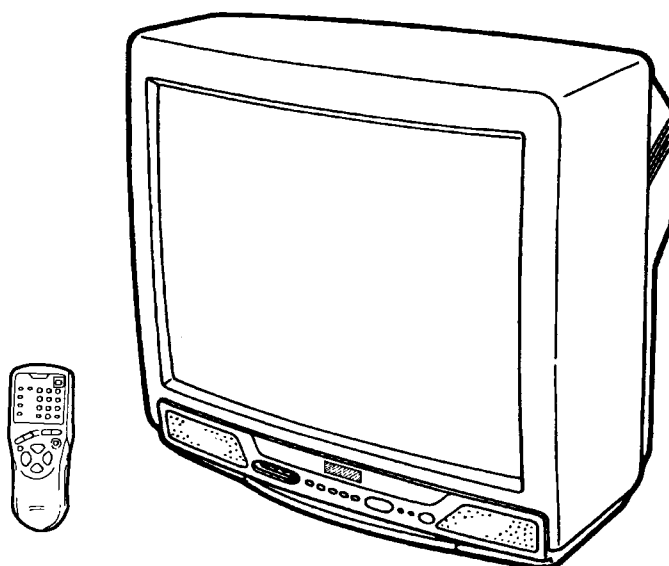
SERVICE MANUAL

COLOUR TELEVISION

BASIC CHASSIS

CL

AV-2110EE



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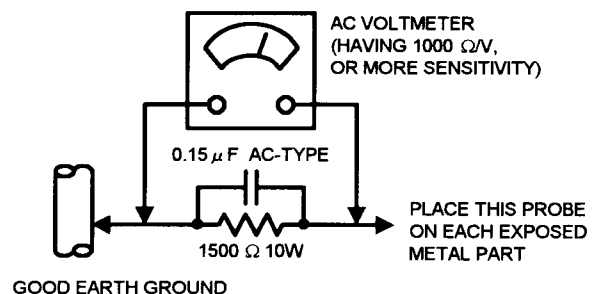
SPECIFICATIONS

Item		Content
Dimensions(W × H × D) Mass		50.2 cm × 45.1cm × 48.1cm 19.5kg
TV RF System Colour System	TV MODE VIDEO MODE	B / G, I, D / K, K1 PAL/SECAM PAL / SECAM / NTSC 3.58 / NTSC 4.43
Receiving Frequency		VHF (VL) 46.25MHz~168.25MHz VHF (VH) 175.25MHz~463.25MHz UHF 471.25MHz~863.25MHz CATV ● Cable TVs of Mid (X~Z, S1~S10) Super (S11~S20) & Hyper (S21~S41) bands receivable
Intermediate Frequency		VIF Carrier 38.0MHz SIF Carrier 32.5MHz (5.5MHz), 31.5MHz (6.5MHz) 32.0MHz (6.0MHz)
Colour Sub Carrier Frequency		PAL (4.43MHz), SECAM (4.40625MHz, 4.25MHz) NTSC (3.58MHz, 4.43MHz)
Aerial Input Terminal Power Input		75Ω Unbalanced
Rated Voltage Operating Voltage Power Consumption		AC120~240V, 50 / 60Hz AC90~260V, 50 / 60Hz 97W (Max.) / 67W (Avg.)
Picture Tube High Voltage		Visible size:51cm measured diagonally 26.5kV±1kV(at zero beam current)
Speaker Audio Output		5 × 9cm, Oval type 3W (monaural)
Video in Input	Video Audio	1Vp-p, 75Ω 500mVrms (-4dBs), High impedance
Line Out	Video Audio	1Vp-p, 75Ω (RCA Pin jack) 500mV rms (-4dBs), Low impedance (RCA Pin jack)
Remote Control Unit		RM-C498(Battery size : AA(R06/UM-3) × 2)

Design & specification are subject to change without notice.

SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
4. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (\perp) side GND, the ISOLATED(NEUTRAL) : (\downarrow) side GND and EARTH : (\oplus) side GND. Don't short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND or EARTH side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.
5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).
6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a $10k\Omega$ 2W resistor to the anode button.
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
9. **Isolation Check**
(Safety for Electrical Shock Hazard)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
 - (1) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.
(. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.
 - (2) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
• Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a $0.15\mu F$ AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).



FEATURES

- New chassis design enables use of an interactive on-screen control.
- Wide range voltage (90V~260V) AC power input.
- With AUDIO / VIDEO INPUT & OUTPUT terminal.
- MUTE button can reduce the audio level to zero instantly.
- Functional remote control to operate TV set (for channel select, volume control, power ON/OFF, etc.) from a distance.
- I²C bus control utilizes single chip ICs for IF, V/C and VSM.
- By means of AUTO PROGRAM, the TV stations can be selected automatically and the TV channels can also be rearranged automatically.

OPERATING INSTRUCTIONS [AV-1410EE/AV-2110EE/AV-2130EE]

JVC



COLOUR TELEVISION

AV-1410EE
AV-2110EE
AV-2130EE

INSTRUCTIONS

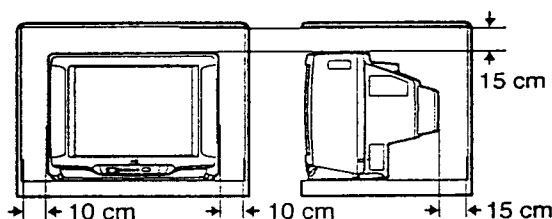
Thank you for purchasing this JVC colour television.
To ensure your complete understanding, please read this manual thoroughly before operation.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

- TO ENSURE PERSONAL SAFETY, OBSERVE THE FOLLOWING RULES REGARDING THE USE OF THIS TV.
- Operate only from the power source specified on the TV.
- Avoid damaging the power plug and power cord.
- Avoid improper installation and never position this TV where good ventilation is unattainable. When installing this TV distance recommendations must be maintained between the floor and wall, as well as installment in a tightly enclosed area or piece of furniture. Adhere to the minimum distance guidelines shown for safe operation.
- Do not allow objects or liquid into the cabinet openings.
- In the event of a fault, unplug this TV and call a service technician. Do not attempt to repair it yourself or remove the rear cover.
- When you don't use this TV for a long period of time, be sure to disconnect the power plug from the AC outlet.



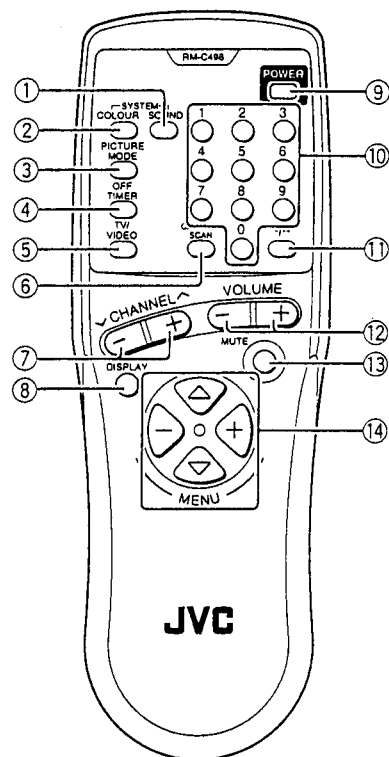
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LOCATIONS

Locations of remote control buttons

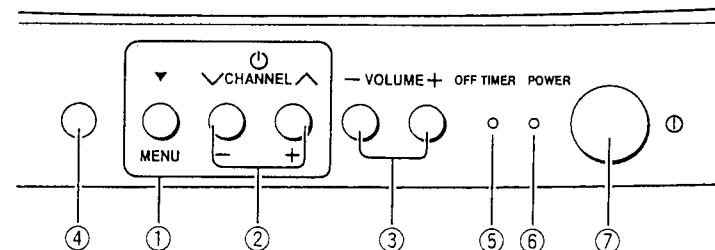


① SOUND SYSTEM button	p.15
② COLOUR SYSTEM button	p.15
③ PICTURE MODE button	p.15
④ OFF TIMER button	p.17
⑤ TV/VIDEO button	p.14
⑥ CHANNEL SCAN button	p.13
⑦ CHANNEL V/Λ buttons	p.12
⑧ DISPLAY button	p.17
⑨ POWER button	p.6,12
⑩ Number buttons	p.12
⑪ -/-- button	p.12
⑫ VOLUME -/+ buttons	p.13
⑬ MUTE button	p.13
⑭ MENU buttons	
• MENU ▲/▼ buttons	
• MENU -/+ buttons	

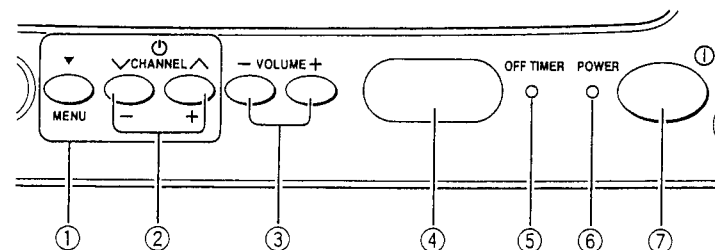
LOCATIONS

Locations of front panel buttons and lamps

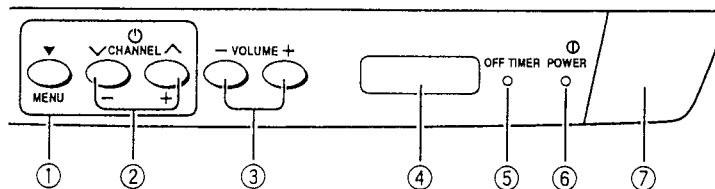
<AV-1410EE>



<AV-2110EE>



<AV-2130EE>



① MENU buttons	p.18
• MENU button	
• MENU -/+ buttons	
② CHANNEL V/Λ buttons	p.13
③ VOLUME -/+ buttons	p.13

④ Remote control sensor	
⑤ OFF TIMER lamp	p.17
⑥ POWER lamp	p.6,12,13
⑦ Main power button	p.6,12,13

PREPARATION

1. Connecting the aerial and external devices

Notes:

- For further details, refer to manuals provided with the devices you are connecting.
- Connecting cables are not supplied.
- The front and rear AUDIO/VIDEO input jacks are directly connected so that input to either jack is output through both. You cannot provide input to both the front and rear jacks at the same time. Disconnect one input, or use one of the jacks as an output jack only (for monitoring or recording).
- The rod aerial is supplied with the AV-1410EE.
- You can change the direction of the AV-1410EE. When setting it, note the following things.
 - When you change the direction of your TV, you need to adjust the length of the cables to prevent the power cord, aerial cable, or connecting cables from becoming disconnected.
 - Place the turnable table of your TV directly facing the front so that you can turn it within a 20° range to the left or right.

■ Connecting the aerial and VCR

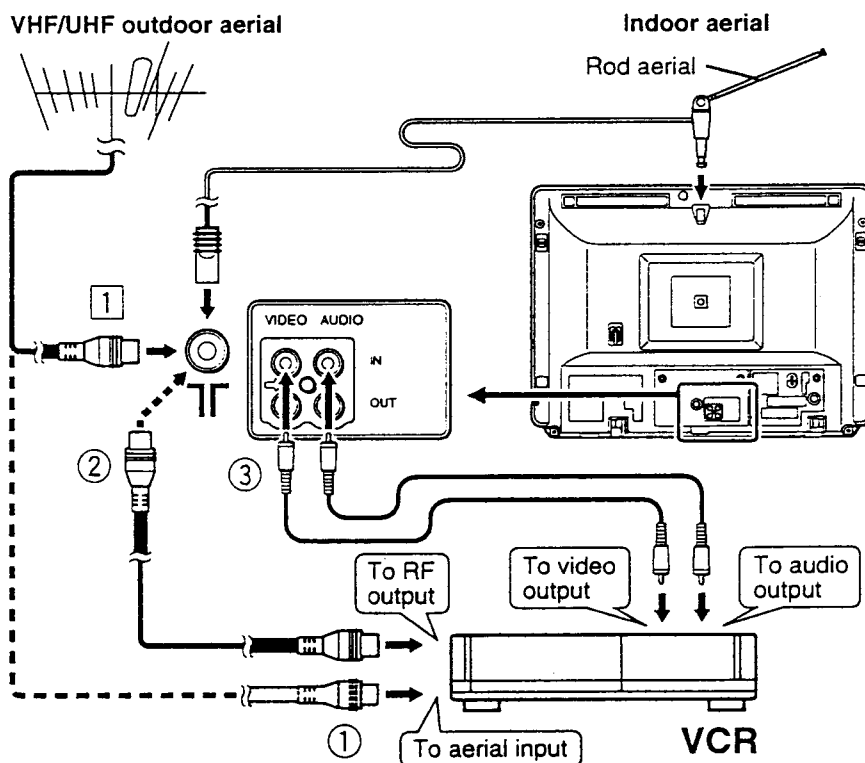
If not connecting a VCR (video cassette recorder), do ①.

If connecting a VCR, proceed ① → ② → ③.

- You can view images from the VCR without doing ③. For details, see "To view images from a VCR connected to the TV with only an aerial cable" on page 14.

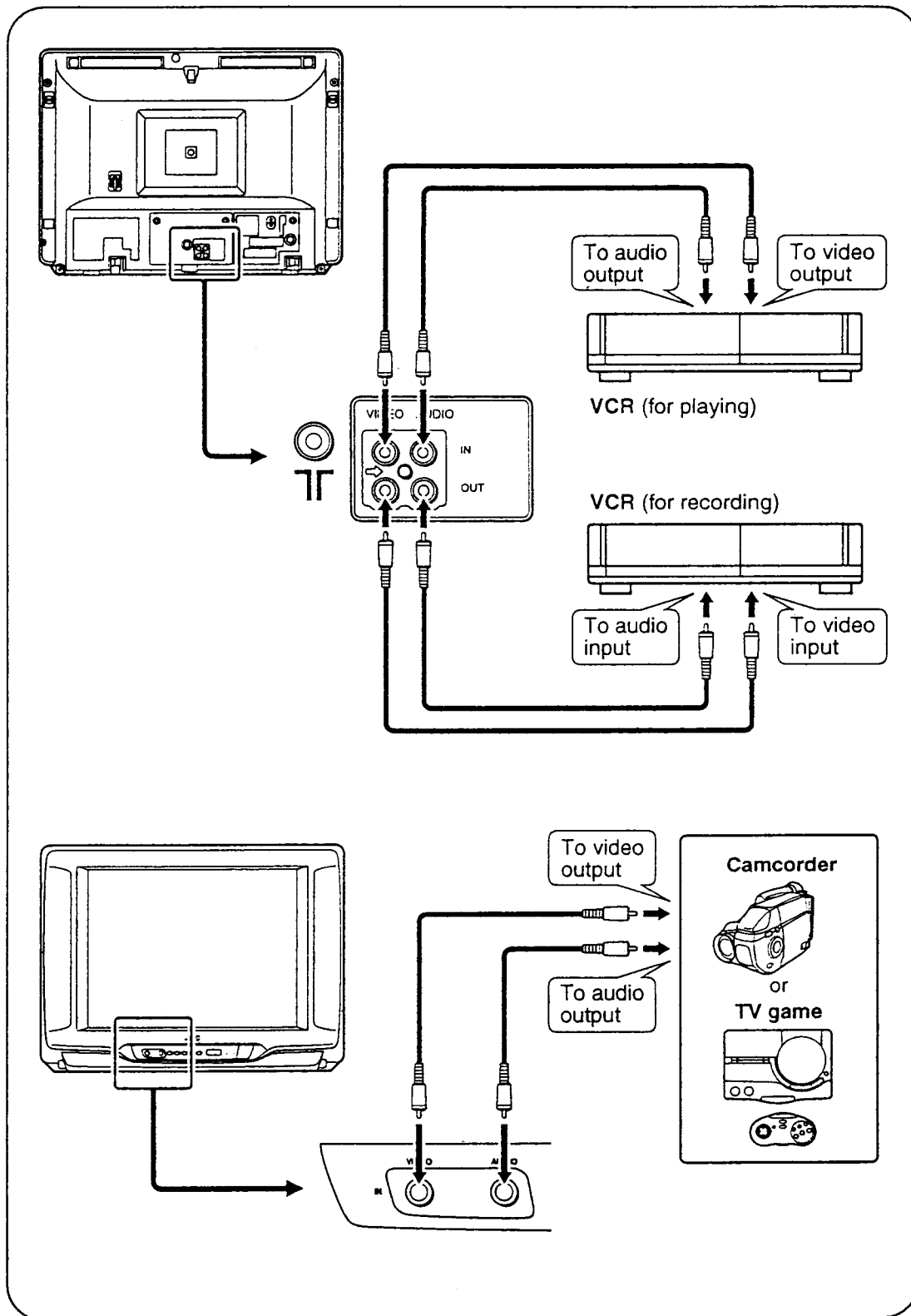
To install rod aerial:

Install into the top-rear aerial holder. Once installed, it cannot be removed.



PREPARATION

■ Connecting other external devices



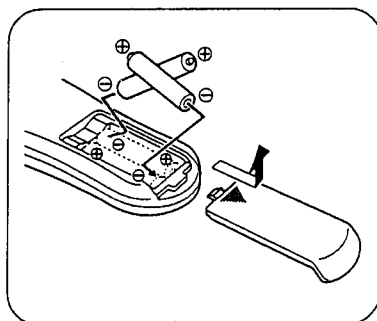
PREPARATION

2. Connecting the power cord

Insert the Power plug into an AC outlet.

3. Inserting batteries into the remote control

Correctly insert two batteries, observing the \oplus and \ominus polarities, inserting the \ominus end first.



CAUTION:.....
• Follow the cautions printed on the batteries.

Notes:
• Use AA/R6/UM-3 dry cell batteries.
• Battery life is approximately six months to one year depending on frequency of use.
• If the remote control operates erratically, replace the batteries.
• We recommend that you use the supplied batteries initially and replace them as soon as operation becomes erratic. The supplied batteries are for testing, not regular use.

4. Turning your TV on

1. Press the Main power button on the TV to turn the main power on.



The POWER lamp lights red (main power on).

If image does not appear:

Your TV is in the standby mode. Press the POWER button on the remote control to turn your TV on.

- You can also turn on your TV by pressing the CHANNEL \vee/\wedge button on your TV.

To turn your TV off:

Press the POWER button on the remote control. Your TV enters the standby mode.

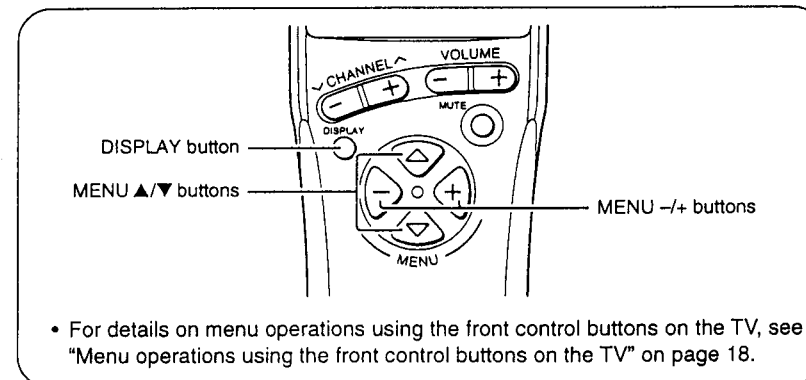
To turn the main power off:

Press the Main power button on the TV. The POWER lamp goes off.

PREPARATION

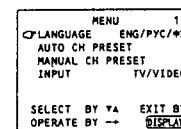
5. Selecting the on-screen language

You can select one of three languages for the on-screen display. The displayed menus on the screen are described in the selected language. In this manual, on-screen descriptions are given in English. Select ENG (English).

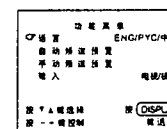


1. Press MENU $\blacktriangle/\blacktriangledown$ to display the following menu.

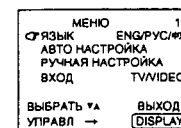
The following menu is displayed in one of three languages.



English



Chinese



Russian

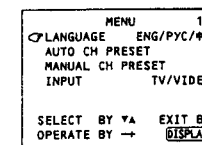
Note:
• If a different menu is displayed, repeatedly press the MENU $\blacktriangle/\blacktriangledown$ button until this menu is displayed.
• If the menu appears in English, the TV's on-screen language is already set to English, so you can skip steps 2 and 3.

2. Make sure that the topmost function in the menu is selected.

- If a different function is selected, press the MENU \blacktriangle button to select the topmost item.

3. Press MENU $-/+$ to select ENG (English).

The menu is displayed in English.



4. Proceed to "6. Presetting TV stations" on the following page.

- If you want to complete operations at this stage, press the DISPLAY button to turn the menu display off.

PREPARATION

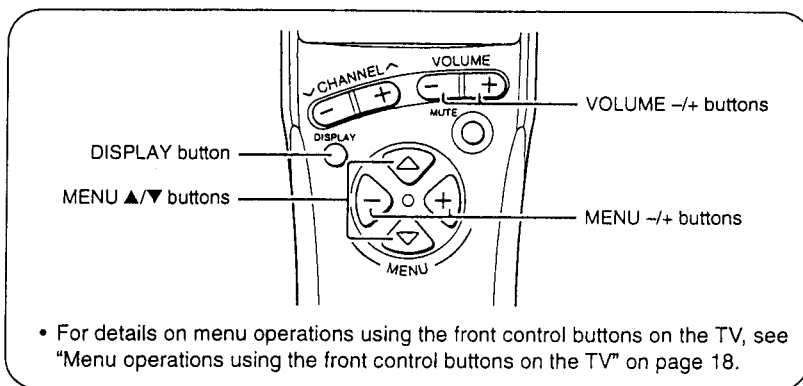
6. Presetting TV stations

To view a TV programme, you must first preset TV stations to channels on the TV. This TV has 100 channels (channel 1 to 99 and channel AV).

You can choose between two functions, AUTO CH PRESET and MANUAL CH PRESET and preset TV stations to channels on TV.

Note:

- After you have finished presetting, you can set undesired channels to be skipped over (see "SKIP" on page 11).



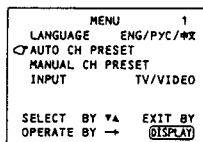
AUTO CH PRESET

You can automatically preset all TV stations that can be received on your TV to channels in a simple operation.

Note:

- When you use this function, no station is preset to the channel AV. Channel AV is offered for viewing images from a VCR connected to your TV with only an aerial cable. For more details, see "To view images from a VCR connected to the TV with only an aerial cable" on page 14.

- Press MENU $\blacktriangle/\blacktriangledown$ to select AUTO CH PRESET in the "MENU 1" menu.



To display this menu:

Repeatedly press MENU $\blacktriangle/\blacktriangledown$ button until it is displayed.

- Press MENU \rightarrow to start the AUTO CH PRESET function. " >>> ON SEARCH" is displayed on the screen.

PREPARATION

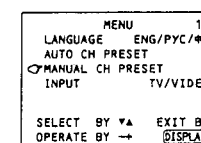
When you have finished presetting all TV channels that can be received on your TV, the display will go out and the AUTO CH PRESET function will end.

- To stop AUTO CH PRESET, press the MENU \rightarrow button.

MANUAL CH PRESET

You can manually preset the desired TV stations to the desired channels.

- Press MENU $\blacktriangle/\blacktriangledown$ to select MANUAL CH PRESET in the "MENU 1" menu.

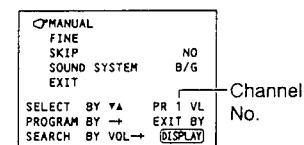


To display this menu:

Repeatedly press the MENU $\blacktriangle/\blacktriangledown$ button until it is displayed.

- Press MENU \rightarrow .

The sub-menu is displayed.



- The channel No. is displayed as a PR No. For example, channel 1 will be displayed as PR 1. However, channel AV will be displayed as AV.

- Press MENU \rightarrow to select the channel No. to be preset.

- Press VOLUME \rightarrow to start selection of the TV station. " >>> " or " <<< " is displayed on the screen.

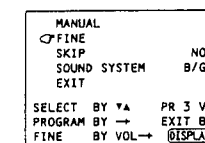
When a TV station is received, the " >>> " or " <<< " display goes out, and the TV station is preset to the currently selected channel No.

- If you have selected the wrong TV station for preset, repeatedly press the VOLUME \rightarrow button until the desired TV station is selected.
- To stop MANUAL CH PRESET, press any button other than the VOLUME \rightarrow button.

If the picture is not clear:

Use the FINE function to fine-tune the TV station.

- Press MENU $\blacktriangle/\blacktriangledown$ to select FINE.

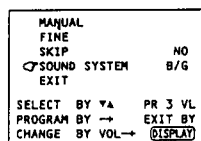


- Hold VOLUME \rightarrow down to fine-tune the TV station so that the best image is displayed on screen. " > " or " < " indicates that the TV station is being fine-tuned.

(Continued on next page)

PREPARATION

5. Press MENU ▲/▼ to select SOUND SYSTEM.



6. Press VOLUME -/+ to select the appropriate sound system.

- For the sound systems in each country or region, refer to the table below.

The Broadcasting Systems of Each Country or Region

Area	Country or Region	System	
		Colour	Sound
Asia, Middle East	Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Yemen, etc.	PAL	B/G
	Indonesia, Malaysia, Singapore, Thailand, India, etc.	PAL	B/G
	China, Vietnam, etc.	PAL	D/K
	Hong Kong, etc.	PAL	I
Europe	Islamic Republic of Iran, Lebanon, Saudi Arabia, etc.	SECAM	B/G
	Russia, etc.	SECAM	D/K
	Czech Republic, Poland, etc.	PAL	D/K
	Germany, Holland, etc.	PAL	B/G
Oceania	UK, etc.	PAL	I
	Australia, New Zealand, etc.	PAL	B/G
Africa	Republic of South Africa, etc.	PAL	I
	Nigeria, etc.	PAL	B/G
	Egypt, Morocco, etc.	SECAM	B/G

7. Press MENU ▲/▼ to select MANUAL.

8. Repeat steps 3 to 7 if you want to preset another TV station to a channel.

9. Press DISPLAY to turn the display off.

PREPARATION

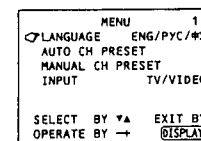
■ SKIP

You can set undesired channels to be skipped over.

Skip means that the channel cannot be selected by the CHANNEL V/Δ buttons nor the CHANNEL SCAN button.

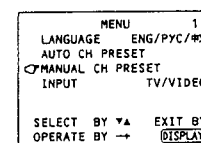
- Channels to which a station has not been preset are automatically set to skip.

1. Press MENU ▲/▼ to display the "MENU 1" menu.

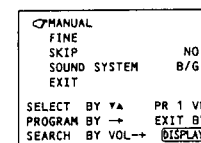


- If a different menu is displayed, repeatedly press the MENU ▲/▼ button until this menu is displayed.

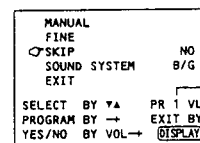
2. Press MENU ▲/▼ to select MANUAL CH PRESET.



3. Press MENU -/+.
- The sub-menu is displayed.



4. Press MENU ▲/▼ to select SKIP.



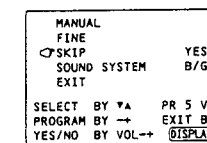
Channel No.

- The channel No. is displayed as a PR No. For example, channel 1 will be displayed as PR 1. However, channel AV will be displayed as AV.

5. Press MENU -/+ to select the channel you want to skip.

6. Press VOLUME -/+ to select YES.

The channel you selected is set to be skipped.



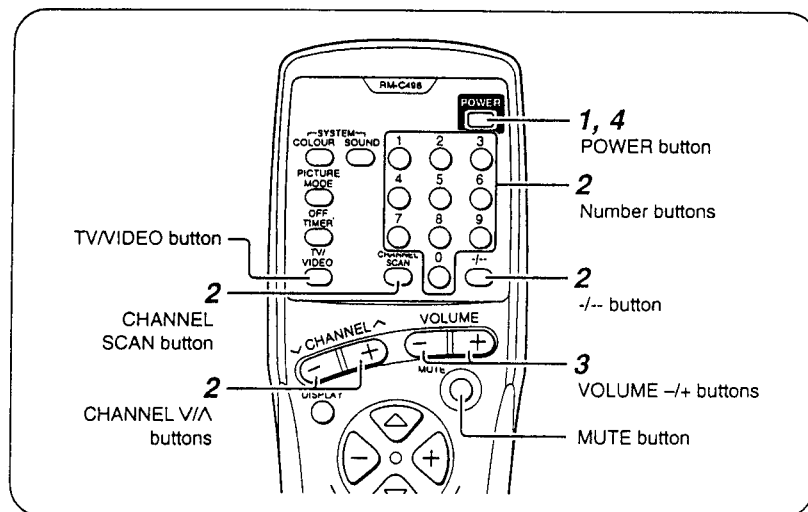
To cancel the channel skip: select NO.

7. Repeat steps 5 and 6 if you want to set another channel to skip.

8. Press DISPLAY to turn the display off.

VIEWING A TELEVISION PROGRAMME

Using the remote control



1. Press POWER to turn your TV on.

Notes:

- If your TV does not turn on, press the Main power button on the TV and press the POWER button again.
- You can also turn on your TV by pressing any of the following buttons;
 - the CHANNEL V/A buttons
 - the Number buttons
 - the TV/VIDEO button

2. Select a PR channel.

■ UP/ DOWN selection

Press CHANNEL V/A .

■ Direct selection

1. Repeatedly press the -/- - button to select the desired mode.

- : 1-digit mode

To select a channel with a 1-digit number.

-- : 2-digit mode

To select a channel with a 1-digit number or a 2-digit number.

2. Press the Number buttons to select a channel.

For 1-digit mode:

(example)

Channel 6 → Press 6.

For 2-digit mode:

(example)

Channel 6 → Press 0, 6.

Channel 16 → Press 1, 6.

- When you want to select channel AV, press 0 in 1-digit mode or 00 in 2-digit mode.

VIEWING A TELEVISION PROGRAMME

■ CHANNEL SCAN selection

You can search for the channel you want to view while scanning all of the channels that can be viewed on this TV.

1. Press CHANNEL SCAN.

Channels will be scanned in channel No. order.

2. When the channel that you want to view has been scanned, press CHANNEL SCAN again before the next channel is scanned.

Note:

- UP/DOWN and CHANNEL SCAN selections cannot be selected for channels to which channel skip has been set to YES. (See "SKIP" on page 11.)

If the colour is abnormal:

Repeatedly press the COLOUR SYSTEM button to select the appropriate colour system. For details, see "COLOUR SYSTEM" on page 15.

3. Press VOLUME +/- to adjust the sound.

To mute the sound temporarily:

Press the MUTE button.

- To return the sound, press the MUTE button again.

If the sound is abnormal:

Repeatedly press the SOUND SYSTEM button to select the appropriate sound system. For details, see "SOUND SYSTEM" on page 15.

4. To turn your TV off, press POWER.

Note:

- We recommend that you press the Main power button on the TV to turn the main power off if you do not plan to use your TV for a long time or if you wish to save energy.

Using the front panel buttons on the TV

1. Press CHANNEL V/A to turn your TV on.

Note:

- If your TV does not turn on, press the Main power button and then press the CHANNEL V/A button again.

2. Press CHANNEL V/A to select a channel.

3. Press VOLUME +/- to adjust the sound.

4. To turn your TV off, press the Main power button to turn the main power off.

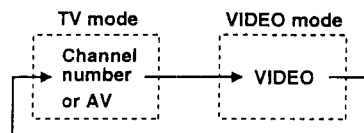
The POWER lamp goes off.

- If you press the Main power button again, your TV turns on immediately. Step 1 is no longer required.

VIEWING IMAGES FROM AN EXTERNAL DEVICE

You can view images from VCRs or other external devices connected to your TV.

1. Press TV/VIDEO to select the VIDEO mode.



TV mode:

This mode is for viewing TV programmes. Press the TV/VIDEO button, or press the CHANNEL V/A buttons, or press the number buttons to return to this mode.

To view images from a VCR connected to the TV with only an aerial cable:

Your VCR must be preset to the channel AV of this TV.

Thoroughly read the manual of your VCR, and preset your VCR to the channel AV using the MANUAL CH PRESET function on page 9.

As a result, you can view images from your VCR when you select the channel AV in the TV mode.

If the colour is abnormal:

Repeatedly press the COLOUR SYSTEM button to select the appropriate colour system. For details, see "COLOUR SYSTEM" on page 15.

To change TV mode to VIDEO mode using the front control buttons on the TV:

When not using the remote control, you can change TV mode to VIDEO mode using the MENU buttons on the TV.

1. Repeatedly press the MENU button on the TV to select INPUT from "MENU 1".

2. Press the MENU + button on the TV.

TV mode changes to VIDEO mode.

Note:

- For details on menu operations using the front control buttons on the TV, see "Menu operations using the front control buttons on the TV" on page 18.

SOUND AND PICTURE

COLOUR SYSTEM

If the colour is abnormal, select the appropriate colour system. Each press of the COLOUR SYSTEM button changes the colour system as follows.

In TV mode (channel 1 to 99):

→ PAL → SECAM →

In TV mode (channel AV):

→ AUTO → PAL → SECAM →

In VIDEO mode:

→ AUTO → PAL → SECAM →
NTSC4.43 ← NTSC3.58 ←

AUTO:

Automatic colour system selection

Notes:

- For the colour systems in each country or region, see the table "The Broadcasting Systems of Each Country or Region" on page 10.
- If the colour is abnormal even though you selected AUTO, change the appropriate colour system manually.

SOUND SYSTEM

If the sound is abnormal, select the appropriate sound system. Each press of the SOUND SYSTEM button changes the sound system as follows.

→ B/G → I → D/K →

Notes:

- For the sound systems in each country or region, see the table "The Broadcasting Systems of Each Country or Region" on page 10.
- You cannot select any sound system when in VIDEO mode.

PICTURE MODE

You can select one of three picture adjustment modes.

Repeatedly press the PICTURE MODE button to select the desired mode.

BRIGHT:

Heightens contrast and sharpness.

STANDARD:

Standardises picture adjustments.

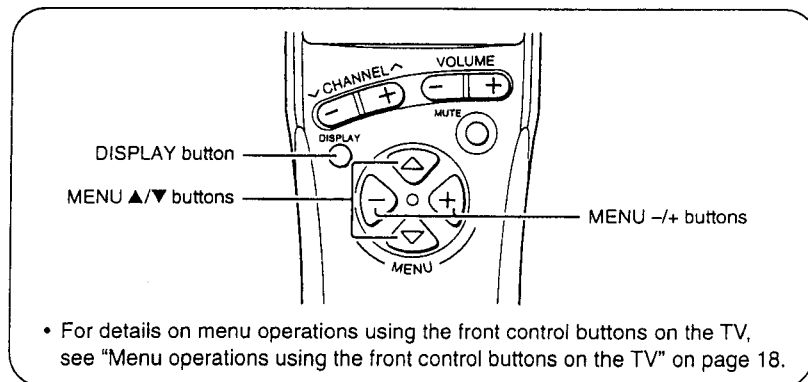
SOFT:

Softens contrast and sharpness.

SOUND AND PICTURE

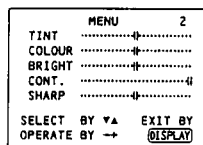
Picture Adjustment

You can adjust the picture as you like.



1. Press MENU ▲/▼ to display a menu.
2. Press MENU ▲/▼ repeatedly to display the desired menu.

Display the "MENU 2" menu.



3. Press MENU ▲/▼ to select an item and press MENU -/+ to adjust it.

-	Item	+
Reddish	TINT (tint)	Greenish
Lighter	COLOUR (colour depth)	Deeper
Darker	BRIGHT (brightness)	Brighter
Lower	CONT. (contrast)	Higher
Softer	SHARP (sharpness)	Sharper

Note:

- TINT (tint) is displayed only when viewing images from NTSC3.58 or NTSC4.43 colour systems.

4. Press DISPLAY to turn the display off.

OTHER FEATURES

DISPLAY

You can continuously display the current channel number or VIDEO on the screen.

Press the DISPLAY button.

To turn the display off, press the DISPLAY button again.

Note:

- When selecting a VIDEO mode with no input signal, indication of VIDEO mode becomes fixed on the screen.

OFF TIMER

You can set this TV to turn off automatically within a specified period of time.

Repeatedly press the OFF TIMER button to select the period of time.

The OFF TIMER lamp lights.

- You can set the period of time a maximum of 120 minutes in 10 minute increments.
- 1 minute before the Off Timer turns off the TV, "GOOD NIGHT!" displays.

To display the remaining time:

Press the OFF TIMER button once.

To cancel the Off Timer:

Press the OFF TIMER button to return the period of time to 00.

The OFF TIMER lamp goes off.

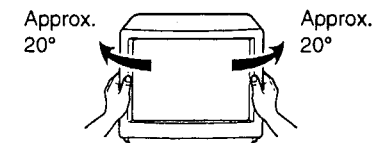
Note:

- The Off Timer does not turn off the main power.

TURNABLE TABLE

AV-1410EE only

You can change the direction of your TV to the left or right.



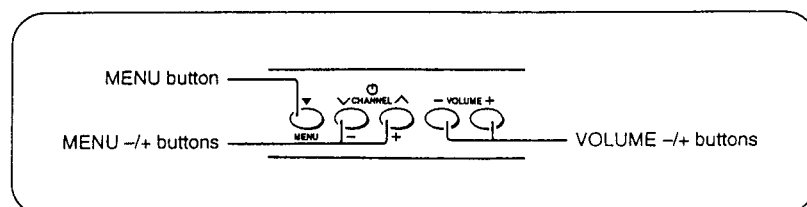
Notes:

- When you change the direction of your TV, colour distortion may appear on the screen. If this occurs, turn the TV power off and turn it back on again about 30 minutes later.
- When you change the direction of your TV, you need to adjust the length of the cables to prevent the power cord, aerial cable, or connecting cables from becoming disconnected.
- Place the turnable table of your TV directly facing the front so that you can turn it within a 20° range to the left or right.

OTHER FEATURES

Menu operations using the front control buttons on the TV

You can operate functions in menus using the front control buttons on the TV without having to use the remote control.



1. Press MENU to display the menu.

If the desired menu is not displayed:

Repeatedly press the MENU button until the desired menu is displayed.

2. Repeatedly press MENU to select the desired function or item.

To select a function or item above the currently selected function or menu:

Repeatedly press the MENU button to proceed to another menu, and then repeatedly press the MENU button again to return to the original menu. Then select the function or item.

3. Press MENU +/- or VOLUME +/- to carry out the desired operation.

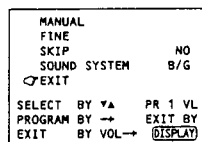
- For details, see the description for the respective function.

4. Press VOLUME +/- to turn the menu display off.

If the sub-menu is displayed:

The sub-menu cannot be turned off by the VOLUME +/- button when it is displayed. Follow the procedure below to turn the sub-menu display off.

1. Press MENU to select EXIT.



2. Press VOLUME +/- to turn the sub-menu display off.

TROUBLESHOOTING

Important: Review all the instructions in this manual.

Problem	Action
Cannot turn TV on	Press the Main power button (see p.6). Insert the power plug in an AC outlet.
No picture nor sound	Press the TV/VIDEO button to select the correct mode (see p.14). Check the aerial connections.
Remote control inoperable	Replace the batteries (see p.6).
The TV turns off automatically	Press the POWER button to turn the TV on again (see p.12).
Abnormal sound	Repeatedly press the SOUND SYSTEM button to select the appropriate system (see p.15).
Abnormal colour	Adjust the colour and brightness (see p.16). Repeatedly press the COLOUR SYSTEM button to select the appropriate system (see p.15). Repeatedly press the PICTURE MODE button to select STANDARD (see p.15).
Lines or streaks in picture (interference)	Move the components apart until the interference disappears. Reposition the aerial.
Spotted picture (crosstalk)	Move the aerial away from the source of interference. Replace the aerial cable with a coaxial cable, which is less prone to interference.
Double picture (ghost)	Reposition the aerial. Replace with an aerial with good directionality.
Snowy picture (image noise)	Check the aerial connection and aim it correctly. Replace or repair the aerial.
The screen turns blue	Broadcast not being received. Select another channel.

The following are normal occurrences and are not the result of TV malfunctions:

- When you touch the CRT surface, you might feel a slight charge of static electricity. This is because the CRT contains static electricity; it does not affect the human body.
- Your TV may emit a crackling sound due to a sudden change in temperature. There is no problem unless the picture or sound is abnormal.
- When a still bright image (of a white dress, for example) appears on the screen, the image may be coloured. This problem occurs in all CRTs, and when the bright image disappears, the colouration also disappears.
- This TV is equipped with a microcomputer that may operate abnormally due to interference from external devices. If this happens, press the Main power button to turn the main power off and disconnect the power plug from the AC outlet. Then, reconnect the power plug to the AC outlet and press the Main power button again.

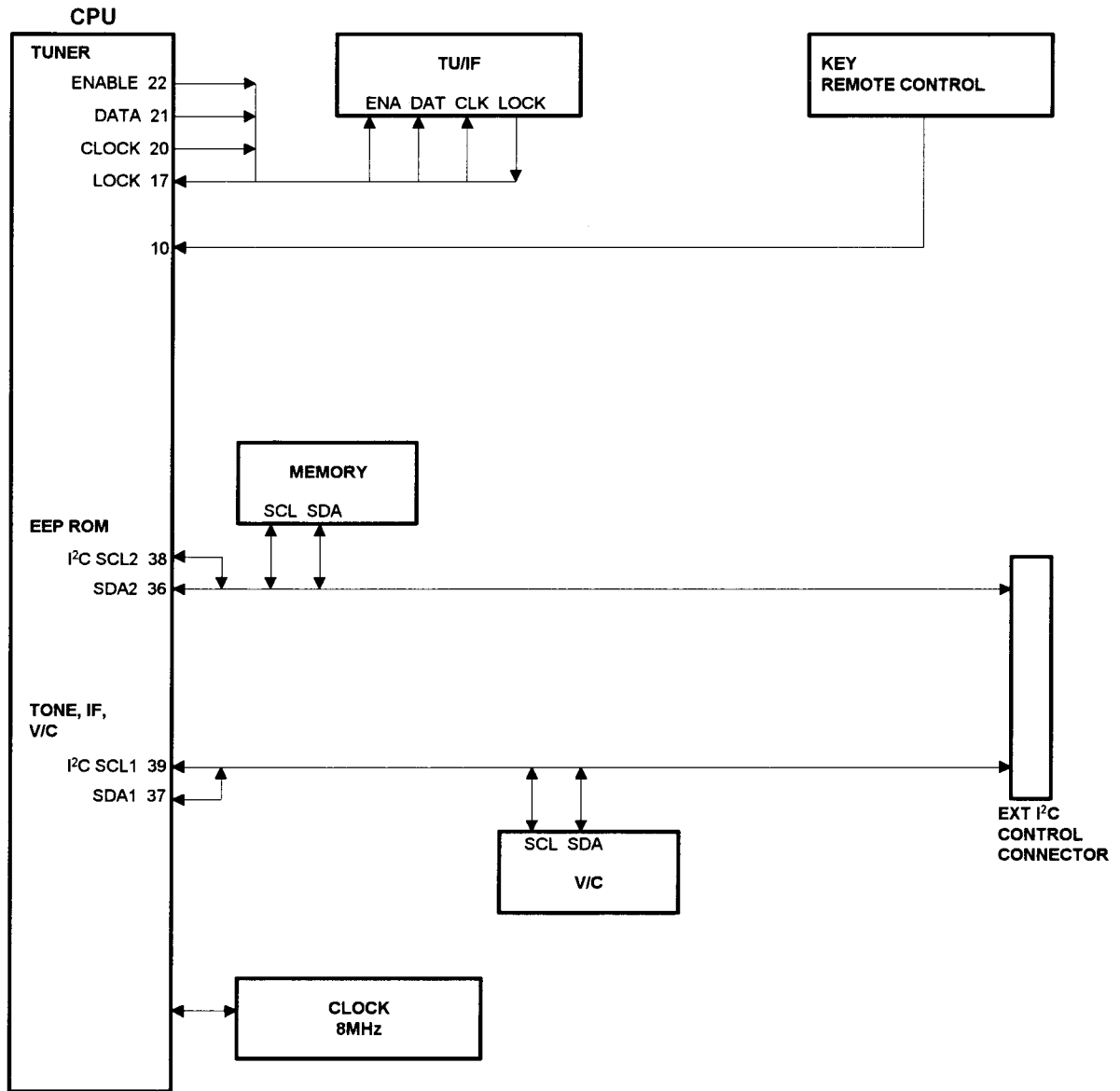
SPECIFICATIONS

Model	AV-1410EE	AV-2110EE	AV-2130EE
TV RF systems	B, G, I, D, K, K1		
Colour systems	PAL, SECAM, NTSC 3.58 / 4.43 MHz (in VIDEO mode only)		
Channel and frequencies	VHF low channel (VL) = 46.25 to 168.25 MHz VHF high channel (VH) = 175.25 to 463.25 MHz UHF channel (U) = 471.25 to 863.25 MHz ■ Receives cable channels in mid band (X to Z, S1 to S10), super band (S11 to S20) and hyper band (S21 to S41).		
Power input	AC120 to 240 V, 50 / 60 Hz (operating AC 90 to 260 V, 50 / 60 Hz)		
Power consumption	Maximum 75 W, Average 55 W	Maximum 97 W, Average 67 W	
Screen size (measured diagonally)	Picture tube 36 cm Visible area 34 cm	Picture tube 55 cm Visible area 51 cm	
Audio output (Rated power output)	2W (monaural)	3W (monaural)	
Speakers	8 cm round × 1	(5 × 9 cm) oval × 1	(5 × 12 cm) oval × 2
External input / output	VIDEO input (RCA) × 2 AUDIO input (RCA) × 2 VIDEO output (RCA) × 1 AUDIO output (RCA) × 1		
Dimensions (W × H × D)	366 mm × 323 mm × 375 mm	502 mm × 451 mm × 481 mm	603 mm × 454 mm × 474 mm
Weight	9.4 kg	19.5 kg	23 kg
Accessories	• Remote control unit: RM-C498 × 1 • AA/ R06 / UM-3 dry cell battery × 2 • Rod aerial × 1		

Design and specifications subject to change without notice.

JVC
VICTOR COMPANY OF JAPAN, LIMITED

■ SYSTEM BLOCK DIAGRAM



SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Unplug the power supply cord.
2. Remove the 7 screws marked **A&B** as shown in figure.
3. Withdraw the rear cover toward you.

REMOVING THE PW BOARD

- After removing the rear cover.
1. Slightly raise the both sides of the PW BOARD by hand.
 2. Withdraw the PW BOARD backward.
(If necessary, take off the wire clamp, connectors etc.)

REMOVING THE SPEAKER

- After removing the rear cover.
1. Remove the 2 screws marked **C** as shown in figure.
 2. Withdraw the speaker backward.

CHECKING THE PW BOARD

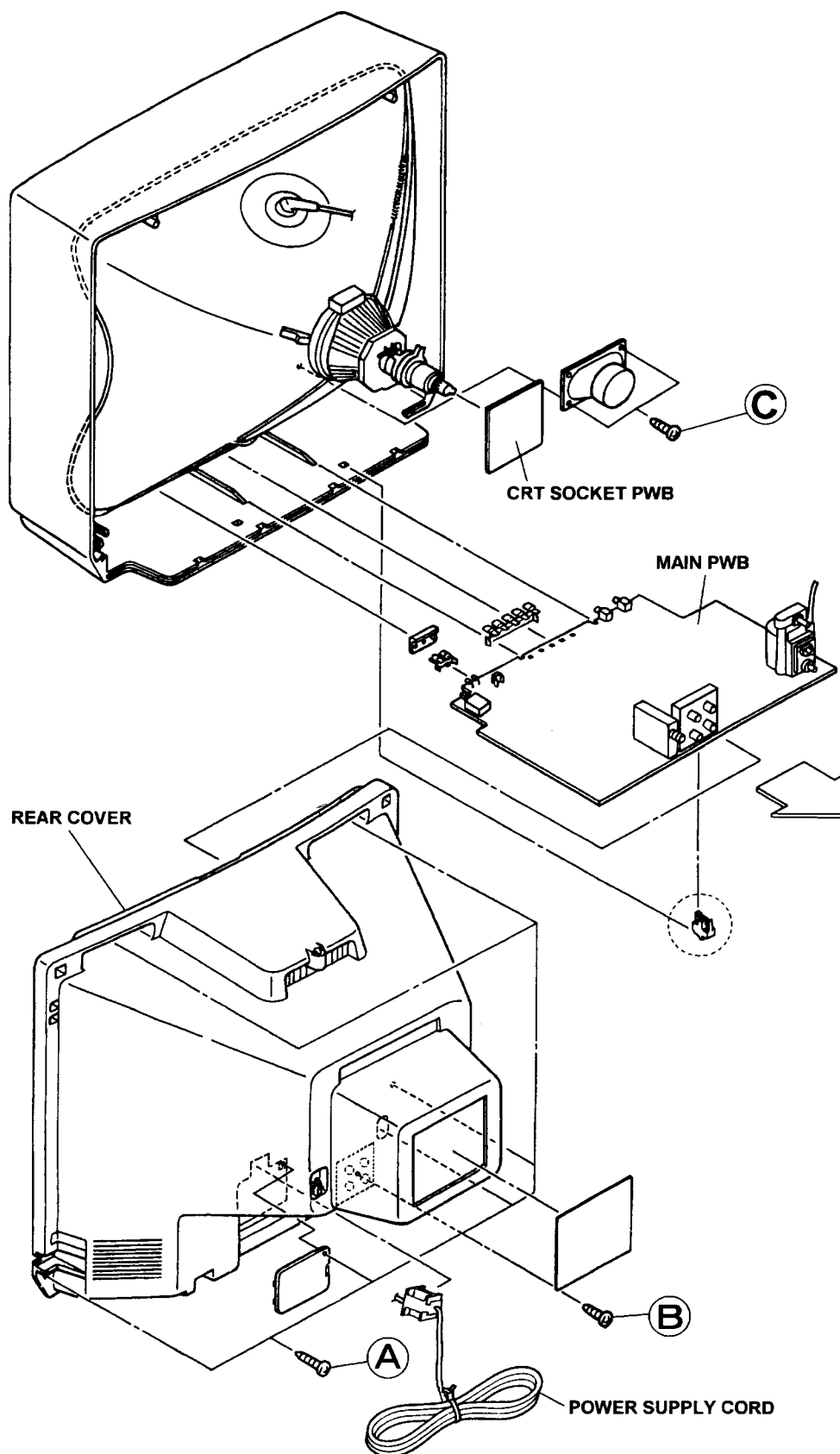
1. To check the back side of the PW Board.
 - 1) Pull out the chassis. (Refer to REMOVING THE PWB)
 - 2) Erect the chassis vertically so that you can easily check the back side of the PW Board.

[CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.

WIRE CLAMPING AND CABLE TYING

1. Be sure to clamp the wire.
2. Never remove the cable tie used for tying the wires together.
Should it be inadvertently removed, be sure to tie the wires with a new cable tie.



REPLACEMENT OF MEMORY ICs

1. Memory ICs

This TV uses memory ICs (EEP-ROM IC). In the memory ICs are memorized data for correctly operating the video and deflection circuits. When replacing memory ICs, be sure to use ICs written with the initial values of data.

2. Procedure for replacing memory ICs

■ PROCEDURE

(1) Power off

Switch the power off and unplug the power code from the wall outlet.

(2) Replace ICs

Be sure to use memory ICs written with the initial data values.

(3) Power on

Plug the power code into the wall outlet and switch the power on.

(4) Check and set SYSTEM CONSTANT SET:

- 1) Press the DISPLAY key and the PICTURE MODE key of the REMOTE CONTROL UNIT simultaneously.
- 2) The SERVICE MENU screen of Fig. 1 will be displayed.
- 3) While the SERVICE MENU on display, press the DISPLAY key and PICTURE MODE key simultaneously, and the SYSTEM CONSTANT SET screen of Fig. 2 will be displayed
- 4) Check the setting value of the SYSTEM CONSTANT SET of Table 1. If the value is different, select the setting item with the MENU Δ / ∇ key, and set the correct value with the MENU - / + key.
- 5) Press the DISPLAY key twice, and return to the normal screen.

(5) Receive channel of setting

Refer to the **OPERATING INSTRUCTIONS** and set the receive channels (channels preset) as described

(6) User Setting

Check the user setting value of Table 2, and if setting value is different, set the correct value.

For setting, refer to the **OPERATING INSTRUCTIONS**.

(7) Setting of SERVICE MENU

Verify the setting items of the SERVICE MENU of Table 3, and reset where necessary.

For setting, refer to the **SERVICE ADJUSTMENTS**.

SERVICE MENU

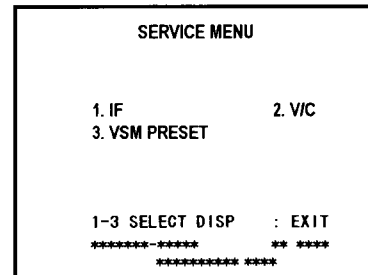
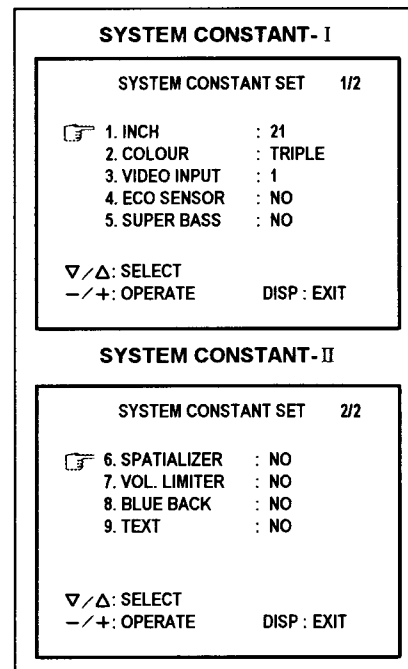


Fig. 1

SYSTEM CONSTANT- I



SYSTEM CONSTANT- II

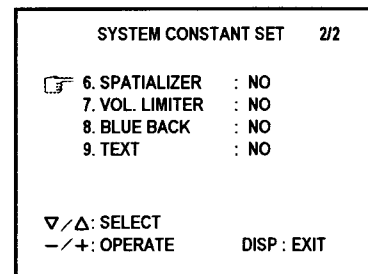
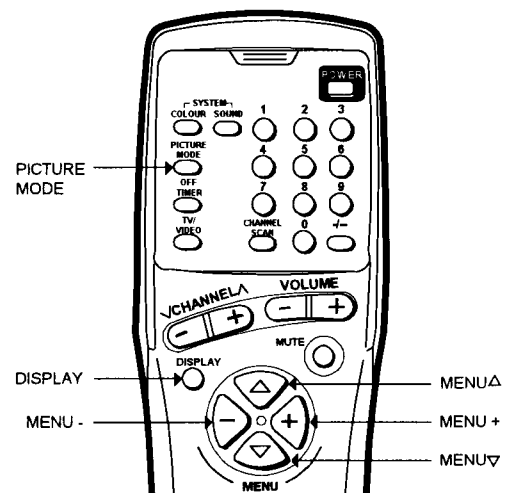


Fig. 2

REMOTE CONTROL KEY NAME



SETTING OF SYSTEM CONSTANT SET

Setting item	Setting content	Setting value
1. INCH	14 → 21 → 25 → 29	21
2. COLOUR	MULTI → TRIPLE → PAL	TRIPLE
3. VIDEO INPUT	1 → 3	1
4. ECO SENSOR	YES → NO	NO
5. SUPER BASS	YES → NO	NO
6. SPATIALIZER	YES → NO	NO
7. VOL. LIMITTER	YES → NO	NO
8. BLUE BACK	YES → NO	NO
9. TEXT	YES → NO	NO

Table 1

USER SETTING VALUES

Setting item	Setting value	Setting item	Setting value
SUB POWER	ON	ON SCREEN DISPLAY	POSITION NUMBER DISPLAY
CHANNEL	1 POSITION	LANGUAGE	ENGLISH
CHANNEL PRESET	Refer to OPERATING INSTRUCTION	SOUND SYSTEM	B / G
VOLUME	Appropriate sound volume	OFF TIMER	OFF
TV/VIDEO	TV	PICTURE MODE (VSM)	BRIGHT

Table 2

SERVICE MENU SETTING ITEMS

Service menu	Setting item	Service menu	Setting item
1. IF	1. VCO 2. DELAY POINT	2. V / C	1. CUT OFF(R / G / B) 2. DRIVE (R / B) 3. BRIGHT 4. CONT. 5. COLOUR (P / S / N) 6. TINT (N3 / N4) 7. BLACK OFFSET (R-Y / B-Y)
3. VSM PRESET (BRIGHT/STD/SOFT)	TINT COLOUR BRIGHT CONT. SHARP		8. SHARP 9. TEXT (R / G / B) CONT. 10. H. CENTER 11. V.HEIGHT 12. V. LIN. ← FIXED 13. V. S-CR ← 14. V. CENTER Do not adjust

Table 3

REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

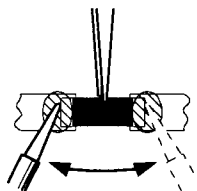
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

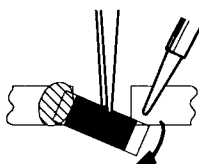
1. How to remove Chip parts

◆ Resistors, capacitors, etc.

- (1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



- (2) Shift with tweezers and remove the chip part.

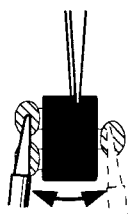


◆ Transistors, diodes, variable resistors, etc.

- (1) Apply extra solder to each lead.



- (2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

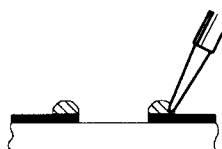


Note : After removing the part, remove remaining solder from the pattern.

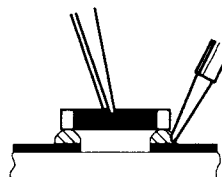
2. How to install Chip parts

◆ Resistors, capacitors, etc.

- (1) Apply solder to the pattern as indicated in the figure.

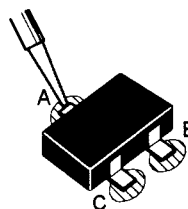


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

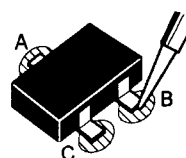


◆ Transistors, diodes, variable resistors, etc.

- (1) Apply solder to the pattern as indicated in the figure.
- (2) Grasp the chip part with tweezers and place it on the solder.
- (3) First solder lead **A** as indicated in the figure.



- (4) Then solder leads **B** and **C**.



SERVICE ADJUSTMENTS

BEFORE STARTING SERVICE ADJUSTMENT

1. There are 2 way of adjusting this TV: One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
2. The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
3. Turn on the power of the TV and measuring instrument for warming up for at least 30 minutes before staring adjustment.
4. Make sure that connection is correctly made to AC power source.
5. If the receive or input signal is not specified, use the most appropriate signal for adjustment.
6. Never touch parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.
7. Preparation for adjustment (presetting):
Unless otherwise specified in the adjustment items, preset the following functions with the REMOTE CONTROL UNIT.

(1) PICTURE MODE (VSM)	BRIGHT
(2) OFF TIMER	OFF

MEASUREMENT INSTRUMENT AND FIXTURES

1. DC voltmeter (or digital voltmeter)
2. Oscilloscope
3. Signal generator (Pattern generator) [PAL / SECAM / NTSC]
4. Remote control unit

ADJUSTMENT ITEMS

Adjustment item	Adjustment item
B1 Power Supply Check	VIDEO/CHROMA circuit Adjustment (With DEF adjust)
FOCUS adjustment	VSM adjustment
IF circuit adjustment	PURITY, CONVERGENCE

BASIC OPERATION OF SERVICE MENU

1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

2. SERVICE MENU ITEMS

With the SERVICE MENU, various settings (adjustments) can be made, and they are broadly classified in the following items of settings :

- **1. IF** For entering/adjusting the setting values (adjustment values) of the IF circuit.
- **2. V/C** For entering/adjusting the setting values (adjustment values) of the VIDEO/CHROMA circuit and DEFLECTION circuit.
- **3. VSM PRESET** For setting the values of STANDARD, SOFT and BRIGHT.
(VSM : video status memory)

3. BASIC OPERATION OF SERVICE MENU

(1) How to enter SERVICE MENU

Press the **DISPLAY** key and the **PICTURE MODE** key of the **REMOTE CONTROL UNIT** simultaneously.

The SERVICE MENU screen of Fig. 1 will be displayed.

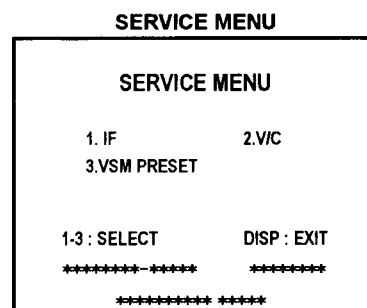


Fig. 1

(2) Selection of SUB MENU SCREEN

Press one of the keys 1 ~ 3 of the REMOTE CONTROL UNIT,
and select the SUB MENU SCREEN (See Fig.2)
from the SERVICE MENU.

SERVICE MENU SUB MENU 1. IF 2. V / C 3. VSM PRESET

SUB MENU SCREEN

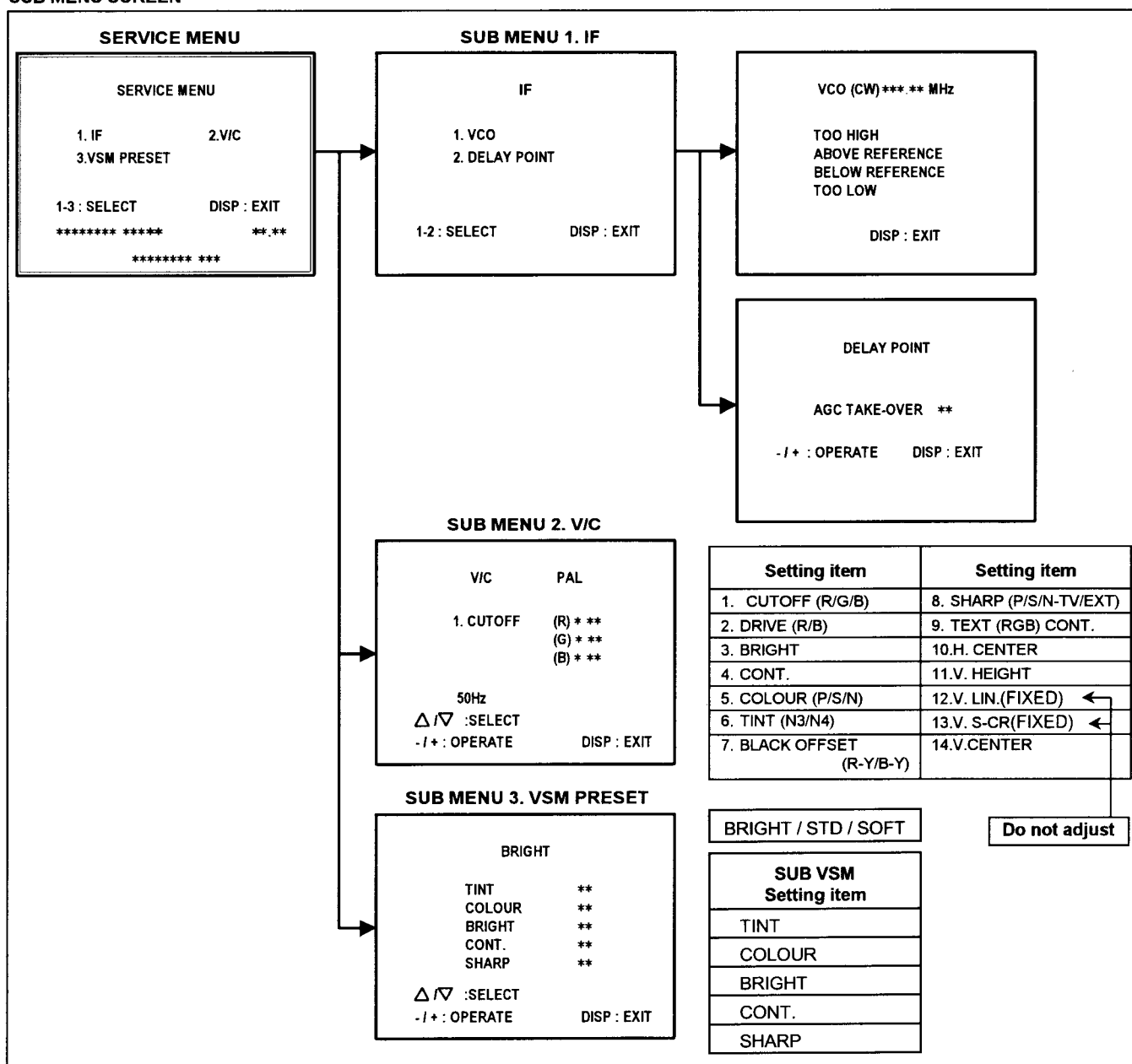


Fig. 2

(3) Method of Setting

* Once the setting values are set, they are memorized automatically.

1) 1. IF

[1. VCO]

- ① 1 Key Select 1. IF.
- ② 1 Key Select 1. VCO.(CW)
- ③ The VCO(CW) screen will be displayed in yellow when the AFC voltage is at a certain level and in blue when it is at other levels.
- ④ DISPLAY Key When this is pressed, you will return to the **SERVICE MENU**.

[2. DELAY POINT]

- ① 1 Key Select 1. IF.
- ② 2 Key Select 2. DELAY POINT.
- ③ MENU - / + Key Set (adjust) the setting values of the setting items.
- ④ DISPLAY Key When this is pressed twice, you will return to the **SERVICE MENU**.

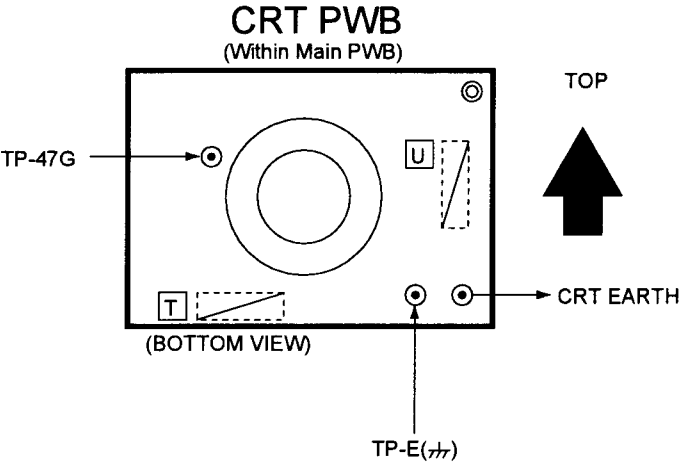
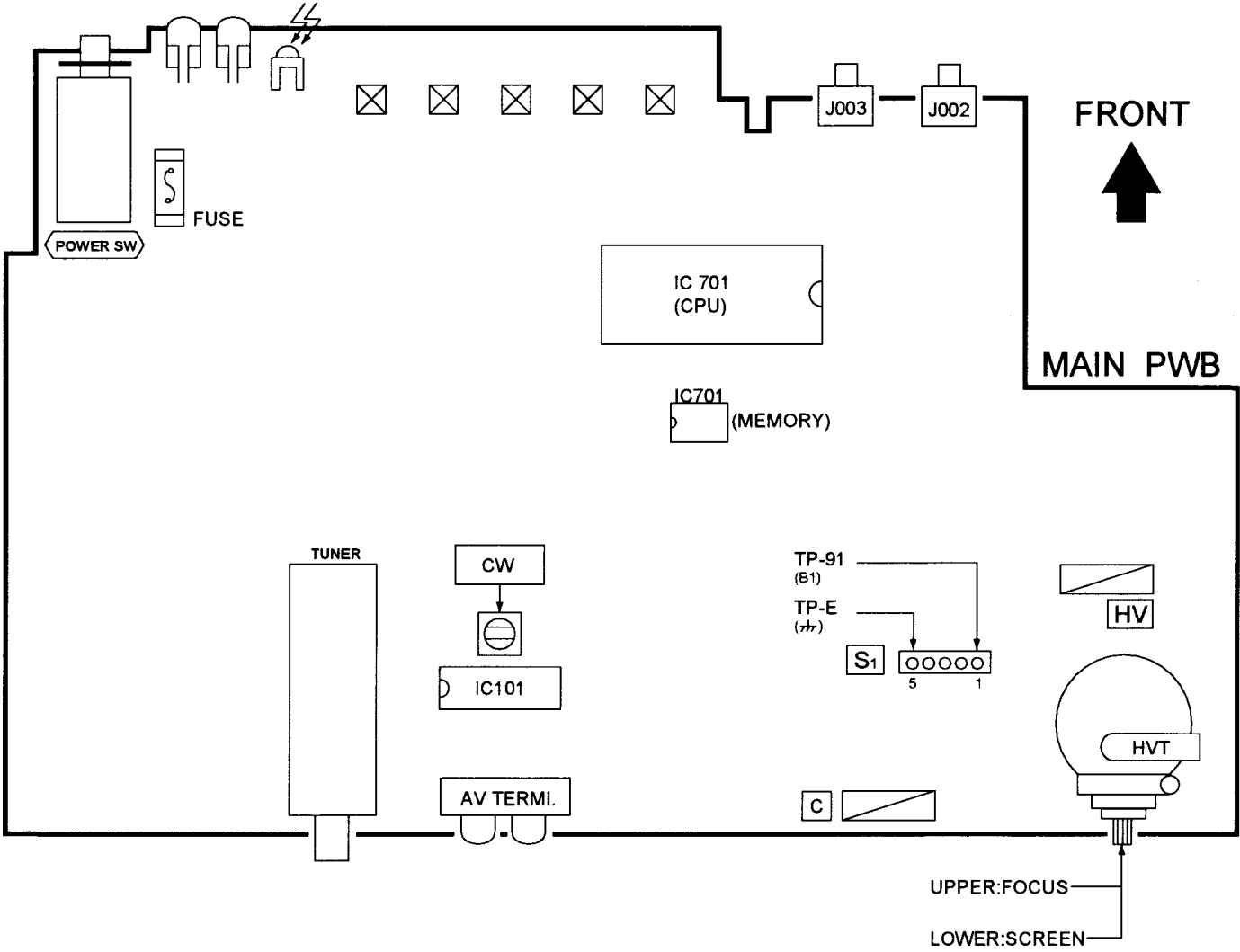
2) 2. V/C and 3. VSM PRESET

- ① 2 and 3 Keys Select one from 2. V/C and 3. VSM PRESET
- ② MENU Δ / ▽ key Select setting items.
- ③ MENU - / + Key Set (adjust) the setting values of the setting items.
- ④ DISPLAY Key When this is pressed twice, you will return to the **SERVICE MENU**.

(4) Release of SERVICE MENU

After completing the setting, return to the SERVICE MENU, then again press the DISPLAY key.

ADJUSTMENT LOCATIONS



ADJUSTMENTS

B1 POWER SUPPLY CHECK

Item	Measuring instrument	Test point	Adjustment part	Description
Check of B1 Voltage	Signal generator DC Volt-meter	TP-91(B1) TP-E (⌚)		<ol style="list-style-type: none"> 1. Receive a whole black signal. 2. Connect a DC voltmeter to TP-91 and TP-E (⌚). 3. Make sure that the voltage is $DC114.5 \pm 1.0$ V.

FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	Signal generator		FOCUS VR [In FBT]	<ol style="list-style-type: none"> 1. Receive a cross-hatch signal. 2. While watching the screen, adjust the FOCUS VR to make the vertical and horizontal lines as fine and sharp as possible. 3. Make sure that when the screen is darkened, the lines remain in good focus.

IF CIRCUIT ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of VCO	Remote control unit		VCO TRANSF.	<ol style="list-style-type: none"> 1. Select 1. IF from the SERVICE MENU. 2. Press the 1 key and select 1. VCO. 3. Select a receivable broadcast channel with the CHANNEL key. 4. Turn the core of VCO TRANSF. Until the colour of the characters TOO HIGH displayed on the screen changes from blue to yellow. (Step 1) 5. Then slowly turn the core of VCO TRANSF. to the left until the colour of the characters BELOW REFERENCE changes from blue to yellow. (Step 3) 6. Press the display key three times to return to normal screen. 7. Perform CHANNEL PRESET again, and make sure that each broadcast is being received properly.

Screen display	Step		
	1	2	3
TOO HIGH	Yellow	→ Blue	→ Blue
ABOVE REFERENCE	Blue	→ Yellow	→ Blue
BELOW REFERENCE	Blue	→ Blue	→ Yellow
TOO LOW	Blue	→	Blue

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of DELAY POINT (AGC)	Remote control unit		DELAY POINT (AGC TAKE-OVER)	<ol style="list-style-type: none"> 1. Receive a black and white signal (colour off). 2. Select 1. IF from the SERVICE MENU. 3. Select 2. DELAY POINT by pressing the 2 key on the remote control. 4. Adjust the MENU - or + key until video noise disappears. 5. Turn to other channels and make sure that there are not irregularities.
Setting (adjustment) item		Variable range	Initial setting value	
DELAY POINT (AGC TAKE-OVER)		0~63	20	

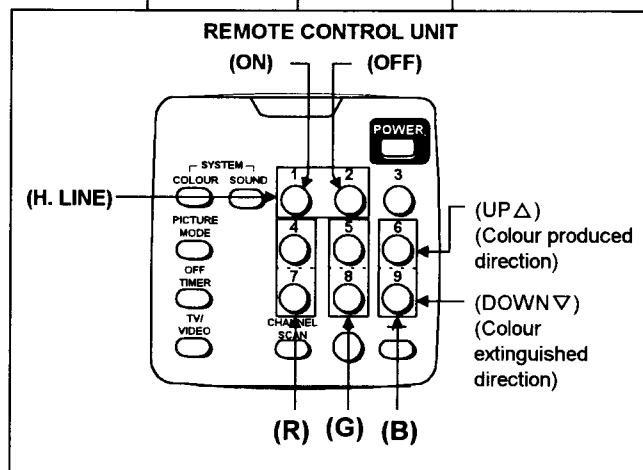
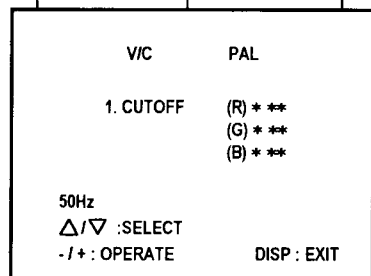
V / C CIRCUIT ADJUSTMENT (With DEF. Adjustment)

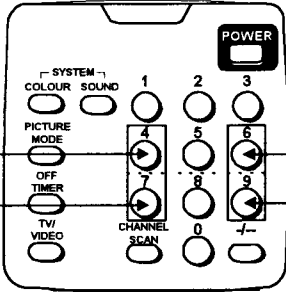
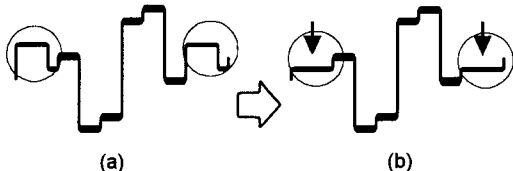
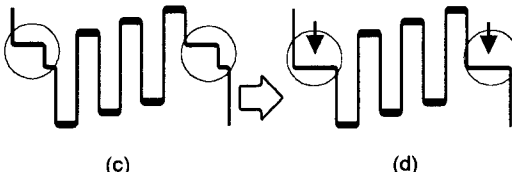
- There are 2 modes of adjustment — 50Hz mode and 60Hz mode — depending upon the kind of signals (VERTICAL FREQUENCY 50Hz / 60Hz).
- When adjusted in 50Hz mode, 60Hz mode will be automatically set.

The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

Colour system Setting item		Variable range	Initial setting value							
			PAL		SECAM		NTSC 3.58		NTSC 4.43	
1. CUT OFF (R / G / B)		-128~+127	0		←		←		←	
2. DRIVE (R / B)		-128~+127	0		←		←		←	
3. BRIGHT		-64~+64	-20		←		←		←	
4. CONT.		-58~+28	-3		←		←		←	
5. COLOUR		-60~+67	+7		+11		+12		-2	
6. TINT	TV / VIDEO	-48~+79	—		—		+20/+8		-4/0	
7. BLACK OFFSET (R-Y / B-Y)		-8~+7	+3/-6		←		←		←	
8. SHARP (DO NOT ADJ.)	TV / VIDEO	-32~+31	-8 / +2 (FIXED)		←		←		←	
9. TEXT (RGB) CONT. (DO NOT ADJ.)		-128~+47	+15		←		←		←	
10. H. CENTER		-16~+15	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
			-6	-1	←	←	←	←	←	←
11. V. HEIGHT		-64~+63	+2	0	←	←	←	←	←	←
12. V. LIN (Do not adjust)		-16~+15	0 (FIXED)	0 (FIXED)	←	←	←	←	←	←
13. V. S. CR (Do not adjust)		-64~+63	0 (FIXED)	0 (FIXED)	←	←	←	←	←	←
14. . CENTER		0~+127	0	0	←	←	←	←	←	←

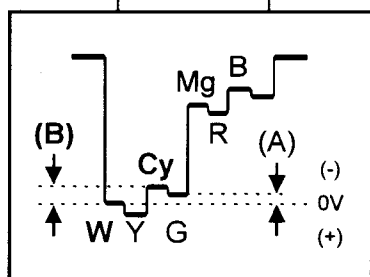
Item	Measuring instrument	Test point	Adjustment part	Description										
Adjustment of WHITE BALANCE (Low light)	<ul style="list-style-type: none">● Signal generator● Remote control unit		1. CUT OFF R. CUT OFF G. CUT OFF B. SCREEN VR (IN FBT)	<ol style="list-style-type: none">1. Receive a black and white signal (colour off).2. From the SERVICE MENU, select 2. V/C.3. Select 1. CUT OFF (R), (G) and (B), and set each value to 0.4. Press the 1 key of the remote control unit to produce a single horizontal line.5. Turn the SCREEN VR fully counter-clockwise, then slowly turn it clockwise to where a red, blue and green colour is faintly visible.6. Use keys 4~9 of the remote control unit and adjust the other 2 colours to where the single horizontal line appears white.7. Turn the SCREEN VR to where the single horizontal line glows faintly.8. Press the 2 key to return to 1. CUT OFF screen. <table><thead><tr><th>Setting (Adjustment) item</th><th>Variable range</th><th>Initial setting value</th></tr></thead><tbody><tr><td rowspan="3">1. CUT OFF</td><td>R</td><td>-128~+127</td></tr><tr><td>G</td><td>-128~+127</td></tr><tr><td>B</td><td>-128~+127</td></tr></tbody></table>	Setting (Adjustment) item	Variable range	Initial setting value	1. CUT OFF	R	-128~+127	G	-128~+127	B	-128~+127
Setting (Adjustment) item	Variable range	Initial setting value												
1. CUT OFF	R	-128~+127												
	G	-128~+127												
	B	-128~+127												
Adjustment of WHITE BALANCE (High light)	<ul style="list-style-type: none">● Signal generator● Remote control unit		2. DRIVE R. DRIVE B.	<ol style="list-style-type: none">1. Receive a black and white signal (colour off).2. From the SERVICE MENU, select 2. V/C.3. Select 2. DRIVE (R) / (B) and set each value to 0.4. Use the keys 4 and 7 or 6 and 9 to produce a white screen.5. Press the 2 key to return to 1. CUT OFF screen. <table><thead><tr><th>Setting (Adjustment) item</th><th>Variable range</th><th>Initial setting value</th></tr></thead><tbody><tr><td rowspan="2">2. DRIVE</td><td>R</td><td>-128~+127</td></tr><tr><td>B</td><td>-128~+127</td></tr></tbody></table>	Setting (Adjustment) item	Variable range	Initial setting value	2. DRIVE	R	-128~+127	B	-128~+127		
Setting (Adjustment) item	Variable range	Initial setting value												
2. DRIVE	R	-128~+127												
	B	-128~+127												



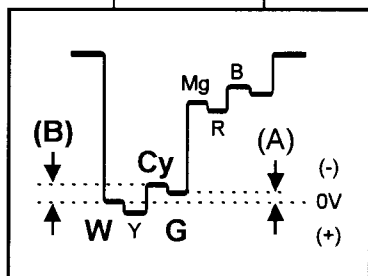
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of BLACK OFFSET- I (SECAM)	● Remote control unit		7. BLACK OFFSET (R-Y) (B-Y)	[Method of adjustment without measuring instrument] 1. Receive a SECAM broadcast. 2. Select 2. V/C from SERVICE MENU. 3. Select 7. BLACK OFFSET with the MENU Δ / ∇ key. 4. Set the initial setting value for BLACK OFFSET (R-Y) and (B-Y) with 4 and 7 or 6 and 9 keys of the remote control. 5. If the picture is not the best with the initial setting value, make fine adjustment until you get the best picture. 6. Press the DISPLAY key twice to return to the normal screen.
			<div><p>REMOTE CONTROL UNIT</p><p>R-Y (Δ) B-Y (Δ) R-Y (∇) B-Y (∇)</p></div>	
Adjustment of BLACK OFFSET- II (SECAM)	● Signal generator ● Oscilloscope ● Remote control unit	35 PIN (R-Y) 36 PIN (B-Y) IC 201 OF MAIN PWB	7. BLACK OFFSET (R-Y) (B-Y)	[Method of adjustment using measuring instrument] 1. Receive a SECAM COLOUR bar signal (full field colour bar 75% white). 2. Select 2. V/C from SERVICE MENU. 3. Select 7. BLACK OFFSET with the MENU Δ / ∇ key. 4. Connect the oscilloscope between 35 pin of IC 201 and TP-E. 5. By using 4 and 7 keys of the remote control, adjust the BLACK OFFSET (R-Y) so that it becomes the waveform changes from (a) to (b) shown in the figure. 6. Connect the oscilloscope between 36 pin of IC 201 and TP-E. 7. By using 6 and 9 keys of the remote control, adjust the BLACK OFFSET (B-Y) so that it becomes the waveform changes from (c) to (d) shown in the figure. 8. If the picture is not the best with the adjusted picture, make fine adjustment until you get the best picture. 9. Press the DISPLAY key twice to return to the normal screen.
			<div><p>[R-Y]</p><p>(a) (b)</p></div> <div><p>[B-Y]</p><p>(c) (d)</p></div>	

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB BRIGHT	● Remote control unit		3. BRIGHT	<ol style="list-style-type: none"> 1. Receive any broadcast. 2. Select 2. V/C from SERVICE MENU. 3. Select 3. BRIGHT with the MENU Δ / ∇ key. 4. Set the initial setting value with the MENU - or + key. 5. If the brightness is not the best with the initial set value, make fine adjustment until you get the best brightness
Adjustment of SUB CONT.	● Remote control unit		4. CONT.	<ol style="list-style-type: none"> 1. Receive any broadcast. 2. Select 2. V/C from SERVICE MENU. 3. Select 4. CONT. with the MENU Δ / ∇ key. 4. Set the initial setting value with the MENU - or + key. 5. If the contrast is not the best with the initial set value, make fine adjustment until you get the best contrast.
Adjustment of SUB COLOUR- I	● Remote control unit		5. COLOUR	[Method of adjustment without using measuring instrument]
			PAL COLOUR	(PAL COLOUR) <ol style="list-style-type: none"> 1. Receive a PAL broadcast. 2. Select 2. V/C from the SERVICE MENU. 3. Select 5. COLOUR with the MENU Δ / ∇ key. 4. Set the initial setting value for PAL COLOUR with the MENU - or + key. 5. If the colour is not the best with the initial set value, make fine adjustment until you get the best colour.
			SECAM COLOUR	(SECAM COLOUR) <ol style="list-style-type: none"> 6. Receive a SECAM colour bar signal. Make fine adjustment of SECAM COLOUR as previously.
			NTSC 3.58 COLOUR	(NTSC 3.58 COLOUR) <ol style="list-style-type: none"> 7. Input a NTSC 3.58MHz broadcast. 8. Make similar fine adjustment of NTSC 3.58 COLOUR as previously.
				(NTSC 4.43 COLOUR) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.

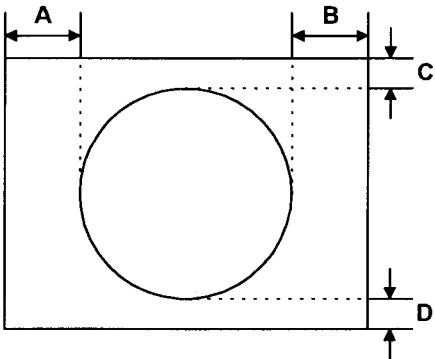
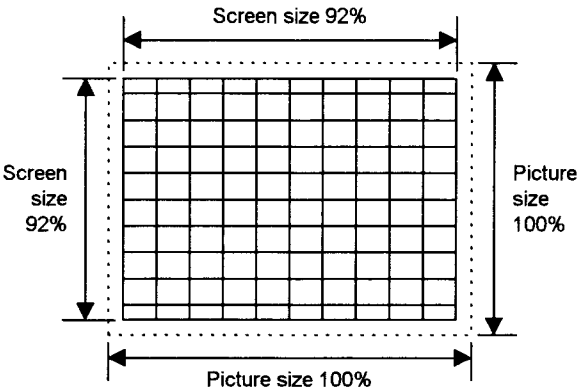
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment to SUB COLOUR- II	<ul style="list-style-type: none"> Signal generator Oscilloscope Remote control unit 	TP-47G TP-E (⌚) [CRT SOCKET PWB]	5. COLOUR	[Method of adjustment using measuring equipment]
			PAL COLOUR	(PAL COLOUR) 1. Receive a PAL full field colour bar signal (75% white). 2. Select 2. V/C from SERVICE MENU. 3. Select 5. COLOUR with the MENU Δ / ∇ key. 4. Set the initial setting value of PAL COLOUR with the MENU - or + key. 5. Connect the oscilloscope between TP-47G and TP-E. 6. Adjust PAL COLOUR and bring the value of (A) in the illustration to +7V (W & G).
			SECAM COLOUR	(SECAM COLOUR) 1. Receive a SECAM full field colour bar signal (75% white). 2. Set the initial setting value of SECAM COLOUR with the MENU - or + key. 3. Adjust SECAM COLOUR and bring the value of (A) in the illustration to +3V (W & G).
			NTSC 3.58 COLOUR	(NTSC 3.58 COLOUR) 1. Input a NTSC 3.58 full field colour bar signal (75% white). 2. Set the initial setting value of NTSC 3.58 COLOUR with the MENU - or + key. 3. Adjust NTSC 3.58 COLOUR and bring the value of (A) in the illustration to +12V (W & G).
				(NTSC 4.43 COLOUR) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment Of SUB TINT- I	● Remote control unit		6. TINT	[Method of adjustment without measuring instrument]
			NTSC 3.58 TINT	(NTSC 3.58 TINT) 1. Input a NTSC 3.58 colour bar signal (full field colour bar 75% white). 2. Select 2. V/C from SERVICE MENU. 3. Select 6. TINT with the MENU Δ / ∇ key. 4. Set the initial setting value of NTSC 3.58 with the MENU - or + key. 5. If you cannot get the best tint with the initial setting value, make fine adjustment until you get the best tint.
				(NTSC 4.43 COLOUR) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.
Adjustment of SUB TINT- II	● Signal generator ● Oscilloscope ● Remote control unit	TP-47G TP-E (\downarrow) [CRT SOCKET PWB]	6. TINT	[Method of adjustment using measuring instrument]
			NTSC 3.58 TINT	(NTSC 3.58 TINT) 1. Input a NTSC 3.58 colour bar signal (full field colour bar 75% white). 2. Select 2. V/C from SERVICE MENU. 3. Select 6. TINT with the MENU Δ / ∇ key. 4. Set the initial setting value of NTSC 3.58 with the MENU - or + key. 5. Connect the oscilloscope between TP-47G and TP-E. 6. Adjust NTSC 3.58 TINT to bring the value of (B) in the illustration to +10V (W & Cy).
				(NTSC 4.43 TINT) When NTSC 3.58 is set, NTSC 4.43 will be automatically set at the respective values.



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of V. HEIGHT			11. V. HEIGHT	<div>1. Receive a cross-hatch signal.</div> <div>2. Select 2. V/C from SERVICE MENU.</div> <div>3. Select 11. V. HEIGHT with the MENU Δ / ∇ key.</div> <div>4. Set the initial setting value with the MENU - / + key.</div> <div>5. Adjust V. HEIGHT and make the vertical screen size 92% of the picture size with the MENU + / - keys of remote control unit.</div>
Adjustment of H. CENTER & V. CENTER			10. H. CENTER 14. V. CENTER	<div>1. Receive a circle pattern signal.</div> <div>2. Select 2. V/C from SERVICE MENU.</div> <div>3. Select 10. H. CENTER with the MENU Δ / ∇ key.</div> <div>4. Set the initial setting value of 10. H. CENTER with the MENU - / + key.</div> <div>5. Adjut 10. H. CENTER to make $A=B$ with the - / + key of MENU.</div> <div>6. Select 14. V. CENTER with the MENU Δ / ∇ key.</div> <div>7. Set the initial setting value of 14. V. CENTER with the MENU - / + key.</div> <div>8. Adjut 14. V. CENTER to make $C=D$ with the - / + key of MENU.</div>



VSM ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
Setting of VSM PRESET	<ul style="list-style-type: none"> Remote control unit 		TINT COLOUR BRIGHT CONT. SHARP	(VSM PRESET) 1. Select 3. VSM PRESET from the SERVICE MENU. 2. Select BRIGHT with the PICTURE MODE key. 3. Adjust the MENU Δ / ∇ and MENU - or + key to bring the set values of TINT~SHARP to the values shown in the table. 4. Respectively select the VSM PRESET mode for SOFT, and STANDARD, and make similar adjustment as in 3 above.

BRIGHT

TINT

COLOUR

BRIGHT

CONT.

SHARP

**

**

**

**

**


Δ / ∇ :SELECT

-/+ : OPERATE

DISP : EXIT

<div> <div>VSM preset mode</div> <div>VSM Setting item</div> </div>	BRIGHT	STANDARD	SOFT
TINT SETTING VALUE	15	←	←
COLOUR SETTING VALUE	15	←	←
BRIGHT SETTING VALUE	15	←	←
CONT. SETTING VALUE	30	19	11
SHARP SETTING VALUE	15	←	12

SETTING VALUE OF VSM PRESET

BRIGHT			
	TINT	**	
	COLOUR	**	
	BRIGHT	**	
	CONT.	**	
	SHARP	**	
Δ/∇	:SELECT		
-/+	: OPERATE	DISP	: EXIT

PURITY, CONVERGENCE

PURITY ADJUSTMENT

1. Demagnetize CRT with the demagnetizer.
2. Loosen the retainer screw of the deflection yoke.
3. Remove the wedges.
4. Input a green raster signal from the signal generator, and turn the screen to green raster.
5. Move the deflection yoke backward.
6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig.2)
7. Adjust the gap between two lugs so that the GREEN RASTER will come into the center of the screen. (Fig.3)
8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
9. Insert the wedge to the top side of the deflection yoke so that it will not move.
10. Input a crosshatch signal.
11. Verify that the screen is horizontal.
12. Input red and blue raster signals, and make sure that purity is properly adjusted.

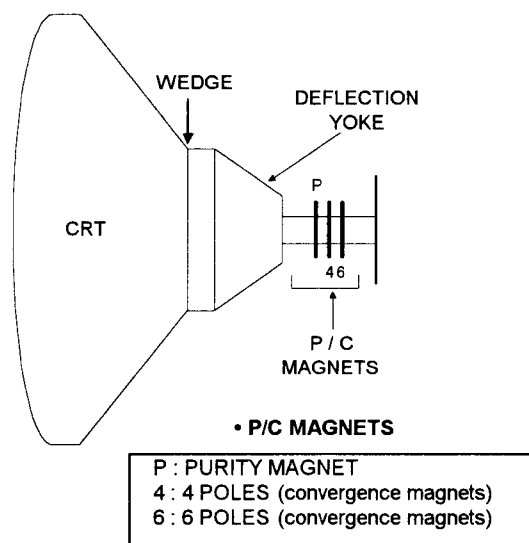


Fig.1

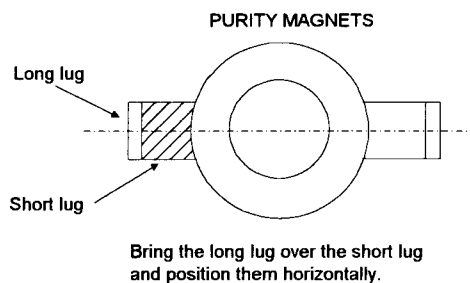


Fig.2

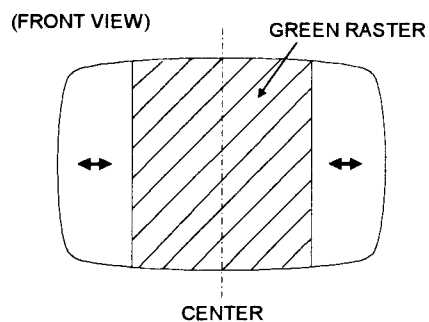


Fig.3

STATIC CONVERGENCE ADJUSTMENT

1. Input a crosshatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig.1) and turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the center of the screen and turn them to white.
4. Repeat 2 and 3 above, and make best convergence.

DYNAMIC CONVERGENCE ADJUSTMENT

1. Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
3. Repeat 1 and 2 above, and make best convergence.

- After adjustment, fix the wedge at the original position.
Fasten the retainer screw of the deflection yoke.
Fix the 6 magnets with glue.

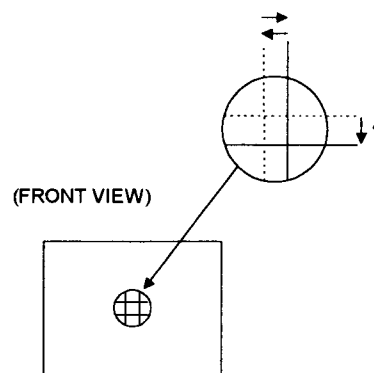


Fig.1

(FRONT VIEW)

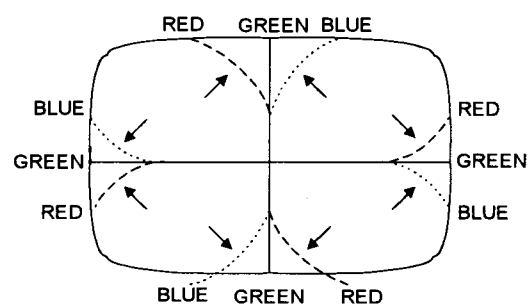


Fig.2

(FRONT VIEW)

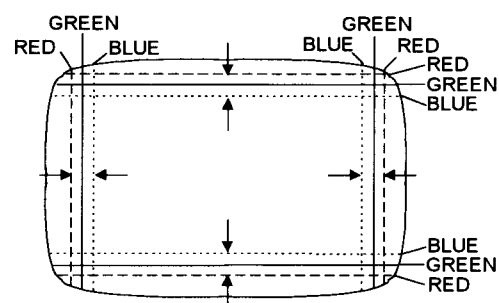


Fig.3

SELF CHECK FUNCTIONS

1. Outline

This model has two self check functions for over-current and X-ray protections. When an abnormality has been detected, the SUB POWER is turned off and the LED (OFF TIMER) turns on and off to inform of the failure. An abnormality is detected by the signal input state of the control line connected to the main microcomputer.

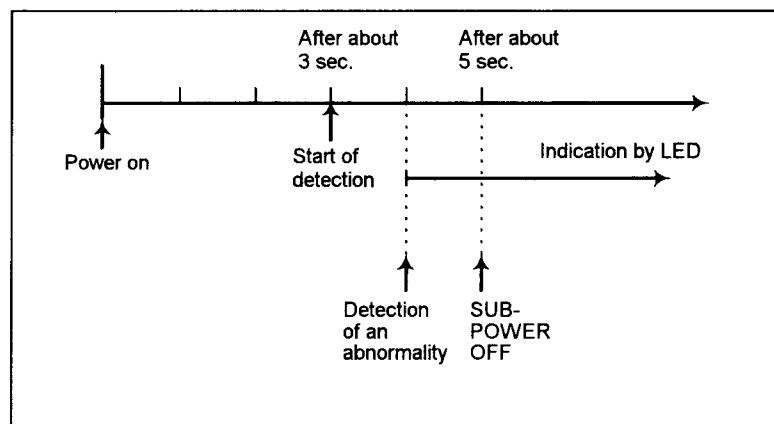
2. Self check indicating function

- At about three seconds after the power is turned on, the self-check function starts to detect over-current and X-ray protections.
In the case where an abnormality has been detected within the subsequent two seconds, the LED turns on and off, but the SUB-POWER is not turned off.
- When an abnormality has been detected at about five seconds after the power is turned on, the SUB POWER is turned off immediately and the LED (OFF TIMER) turns on and off.

[Indication by LED (OFF TIMER)]

Item	LED ON / OFF intervals	Priority of detection
① Over-current protection	Turning on and off 0.5-second intervals	1
② X-ray protection	Turning on and off 1-second intervals	2

Note : In case of ① + ②, the item ① is indicated.



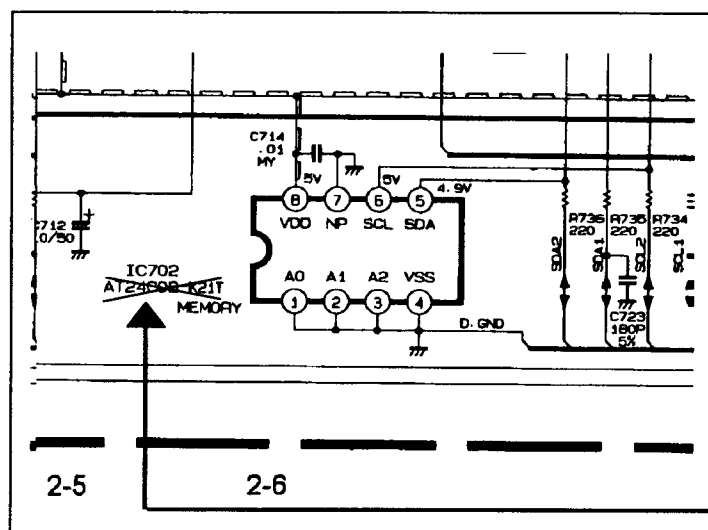
3. Self check items

Check item	Details of detection	Method of detection	State of abnormality
① Over-current protection	Operation of over-current protection circuit	The main microcomputer detects the possible abnormality at 30-msec. intervals and judges the results in every 16 time. Of the 16 times, if NG is detected more than 9 times, it is judged that there is an abnormality	When an abnormality has been detected, the SUB-POWER is turned off. While the SUB-POWER is being turned off, the power key of the remote controller is not operational until the power code is taken out and put in again.
② X-ray protection	Operation of X-ray protection circuit	DITTO	DITTO

CORRECTION

STANDARD CIRCUIT DIAGRAM

MAIN PWB CIRCUIT DIAGRAM [Tuner , micro computer & Front control] (Page.2-5~2-6)



INCORRECT
AT24C08-K21T



CORRECT
AT24C04-K21T



AV-2110EE STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the Δ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2. SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- (1) Input signal : PAL Colour bar signal
 - (2) Setting positions of each knob/button and variable resistor : Original setting position when shipped
 - (3) Internal resistance of tester : DC 20k Ω /V
 - (4) Oscilloscope sweeping time : H \Rightarrow 20 μ S/div
: V \Rightarrow 5mS/div
: Others \Rightarrow Sweeping time is specified
 - (5) Voltage values : All DC voltage values
- * Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3. INDICATION OF PARTS SYMBOL [EXAMPLE]

- In the PW board : R1209 \rightarrow R209

4. INDICATIONS ON THE CIRCUIT DIAGRAM

(1) Resistors

● Resistance value

- No unit : [Ω]
- K : [K Ω]
- M : [M Ω]

● Rated allowable power

- No indication : 1/6[W]
- Others : As specified

● Type

- No indication : Carbon resistor
- OMR : Oxide metal film resistor
- MFR : Metal film resistor
- MPR : Metal plate resistor
- UNFR : Uninflammbler resistor
- FR : Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2) Capacitors

● Capacitance value

- 1 or higher : [pF]
- less than 1 : [μ F]

● Withstand voltage

- No indication : DC50[V]
- Others : DC withstand voltage [V]

* Electrolytic Capacitors

47/50[Example]: Capacitance value [μ F]/withstand voltage[V]

● Type

- No indication : Ceramic capacitor
- MY : Mylar capacitor
- MM : Metalized mylar capacitor
- PP : Polypropylene capacitor
- MPP : Metalized polypropylene capacitor
- MF : Metalized film capacitor
- TF : Thin film capacitor
- BP : Bipolar electrolytic capacitor
- TAN : Tantalum capacitor

(3) Coils



- No unit : [μ H]
- Others : As specified

(4) Power Supply



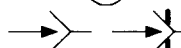
-  : B1
-  : B2(12V)
-  : 9V
-  : 5V

* Respective voltage values are indicated





(5) Test point

-  : Test point
-  : Only test point display

(6) Connecting method

-  : Connector
-  : Wrapping or soldering
-  : Receptacle

(7) Ground symbol

-  : LIVE side ground
-  : ISOLATED(NEUTRAL) side ground
-  : EARTH ground
-  : DIGITAL ground

5. NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (\perp) side GND and the ISOLATED(NEUTRAL) : (\nwarrow) side GND. Therefore, care must be taken for the following points.

- (1) Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2) Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

◇ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

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SEMICONDUCTOR SHAPES

BLOCK DIAGRAM

CIRCUIT DIAGRAMS AND PATTERN DIAGRAMS

MAIN PWB CIRCUIT DIAGRAM (SCL-1014A-H2)

MAIN PWB CIRCUIT DIAGRAM (Picture, CRT & Audio circuit)

MAIN PWB CIRCUIT DIAGRAM (Power & Deflection circuit)

MAIN PWB CIRCUIT DIAGRAM (Teletext Decoder circuit : Not used in this model)

MAIN PWB PATTERN (SCL-1014A-H2)

CRT SOCKET PWB PATTERN (Within Main PWB)

2-2

2-3

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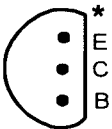
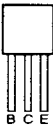

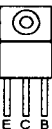

2-11

2-13

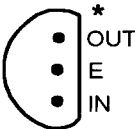
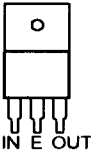
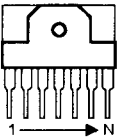
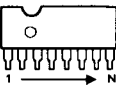
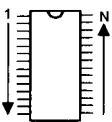
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SEMICONDUCTOR SHAPES

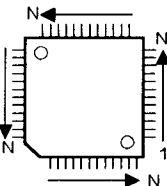
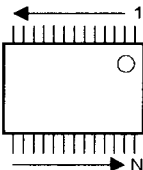
TRANSISTOR

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				CHIP TR 

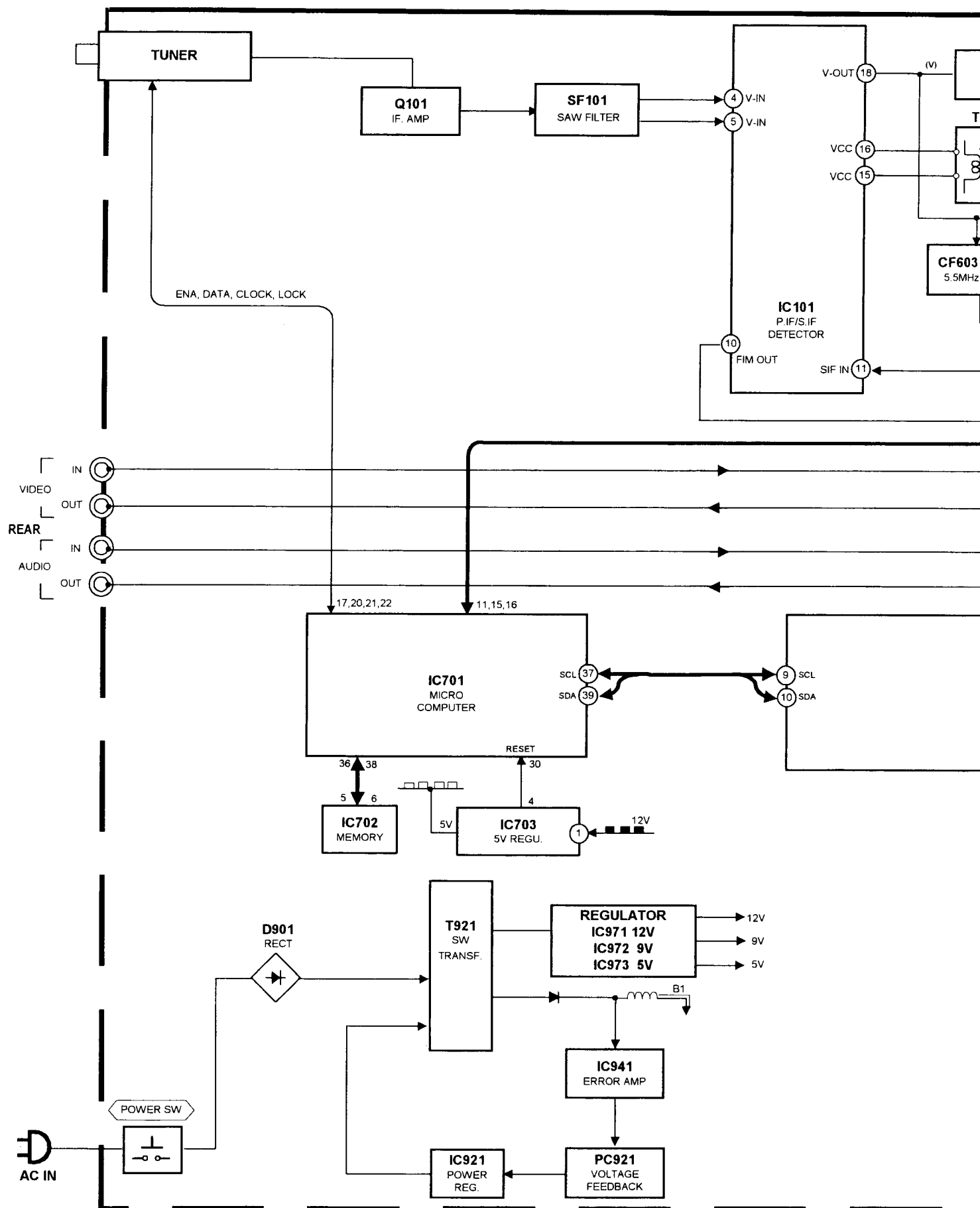
IC

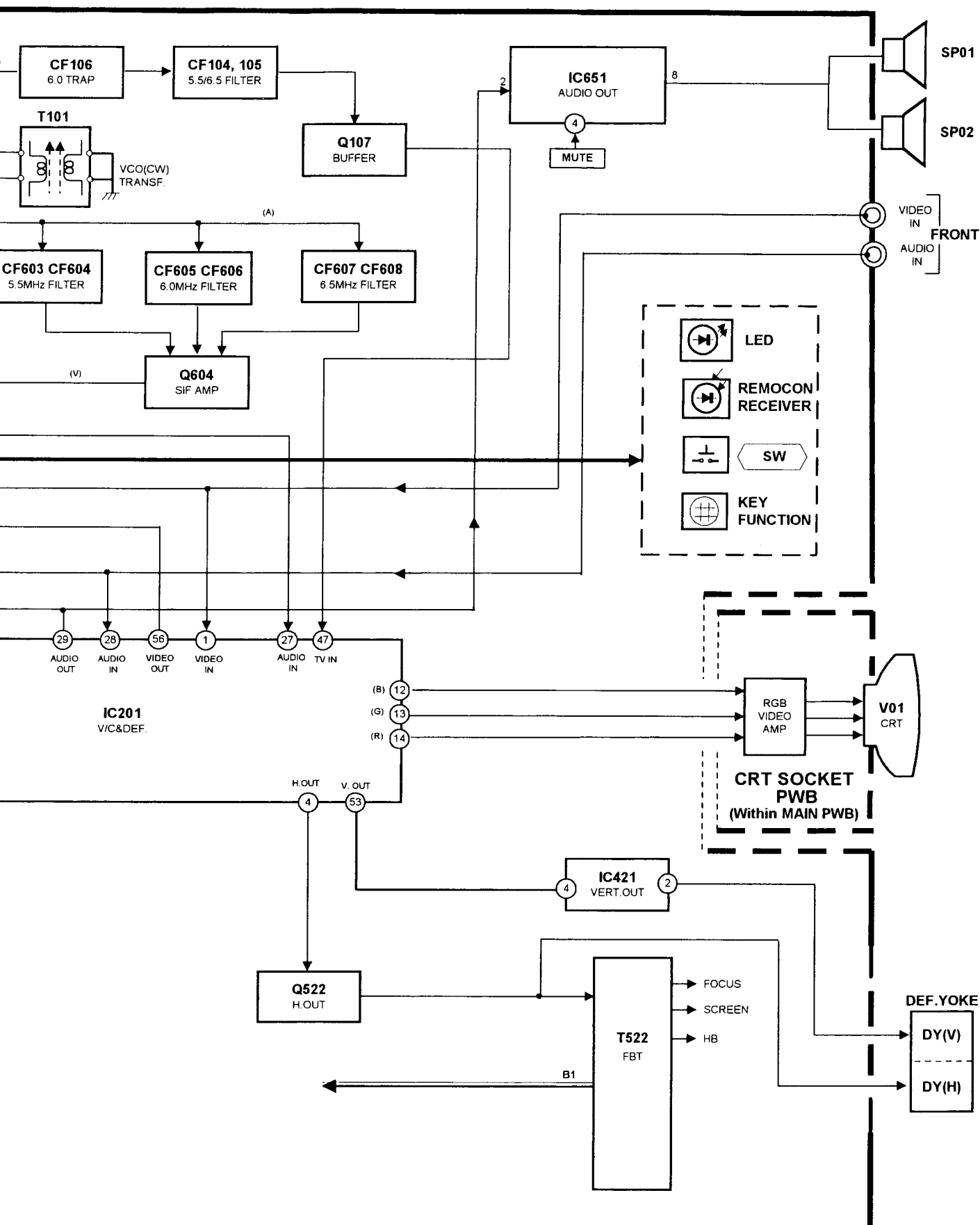
BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

TOP VIEW		
		

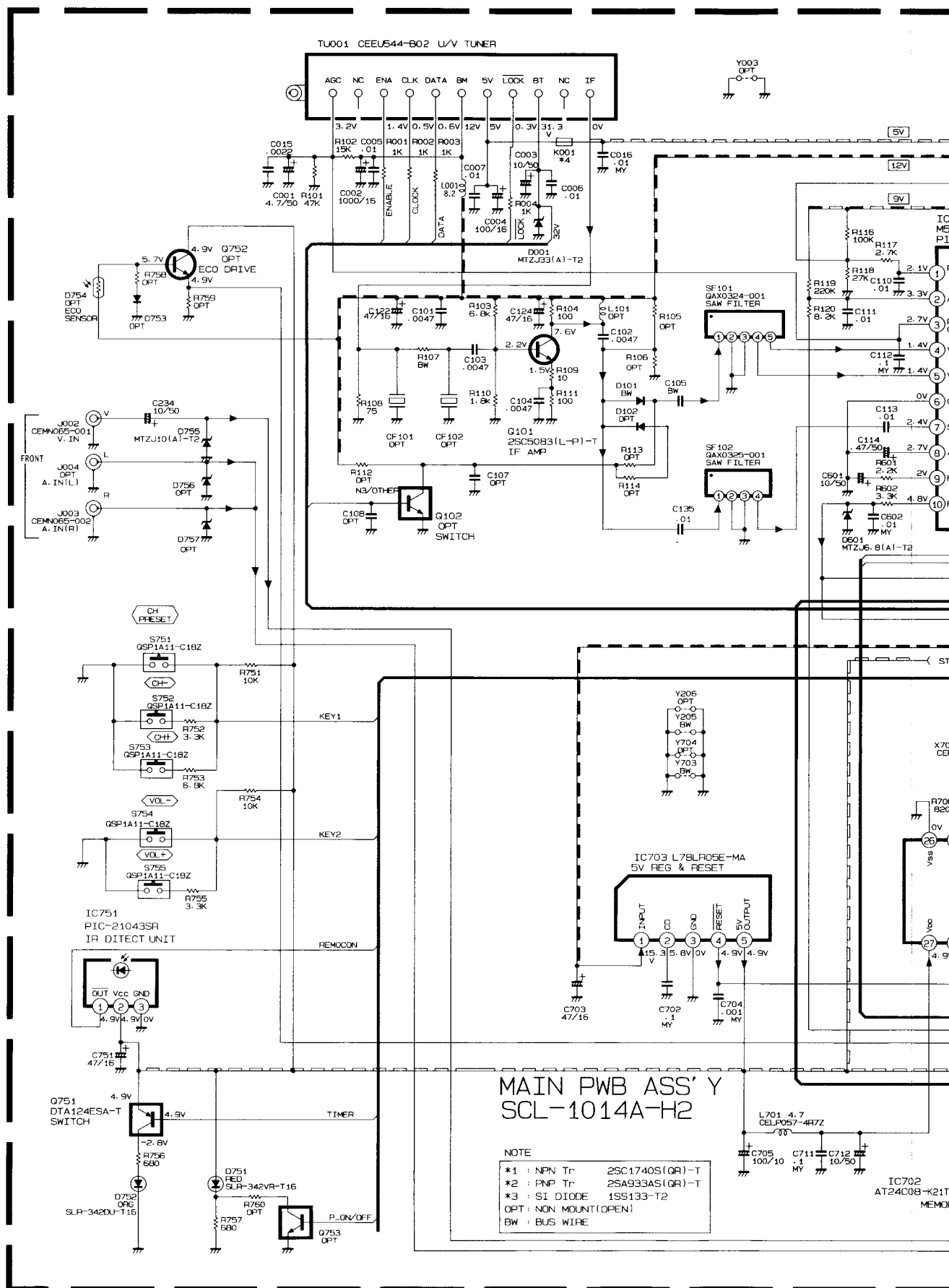
BLOCK DIAGRAM

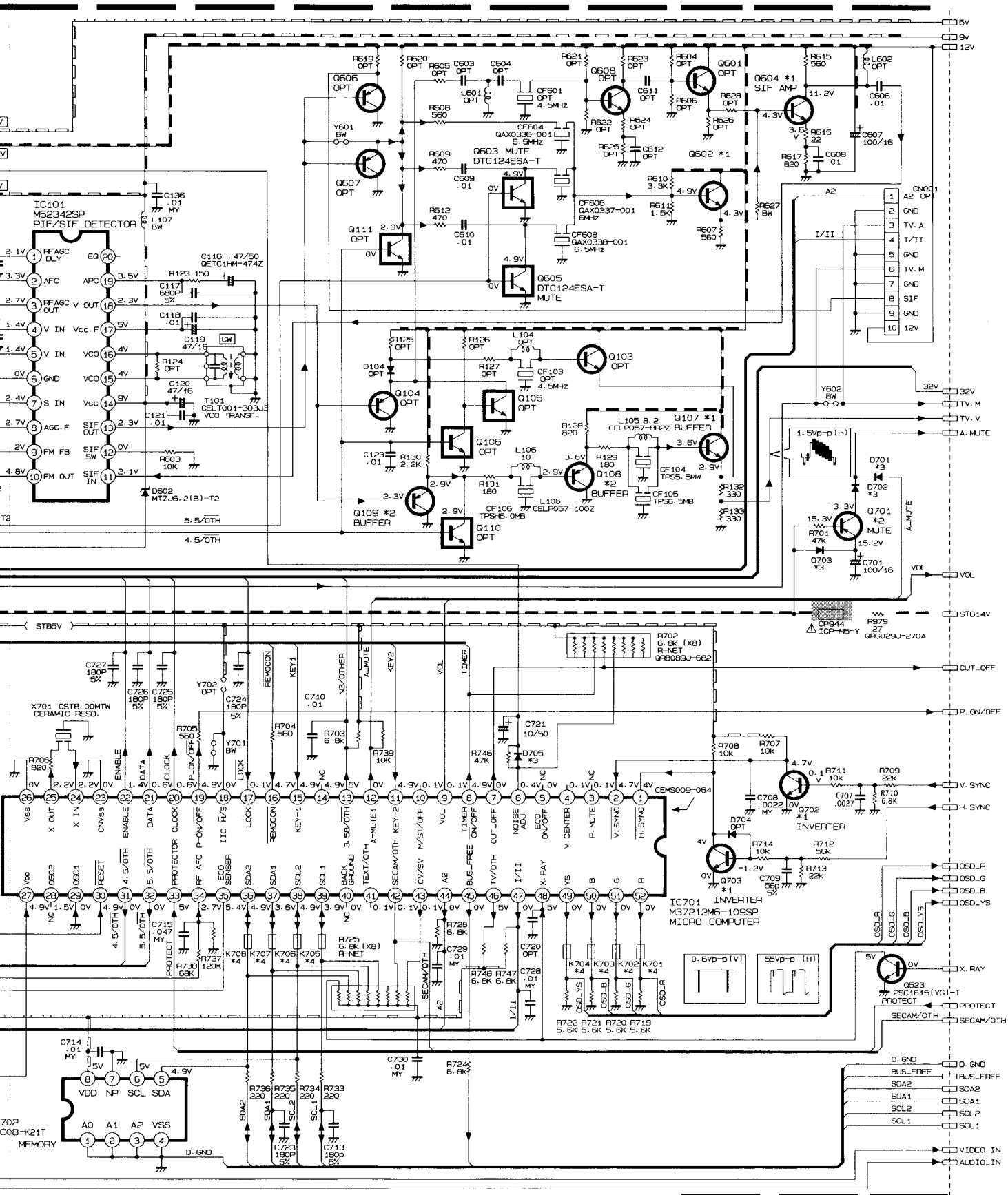




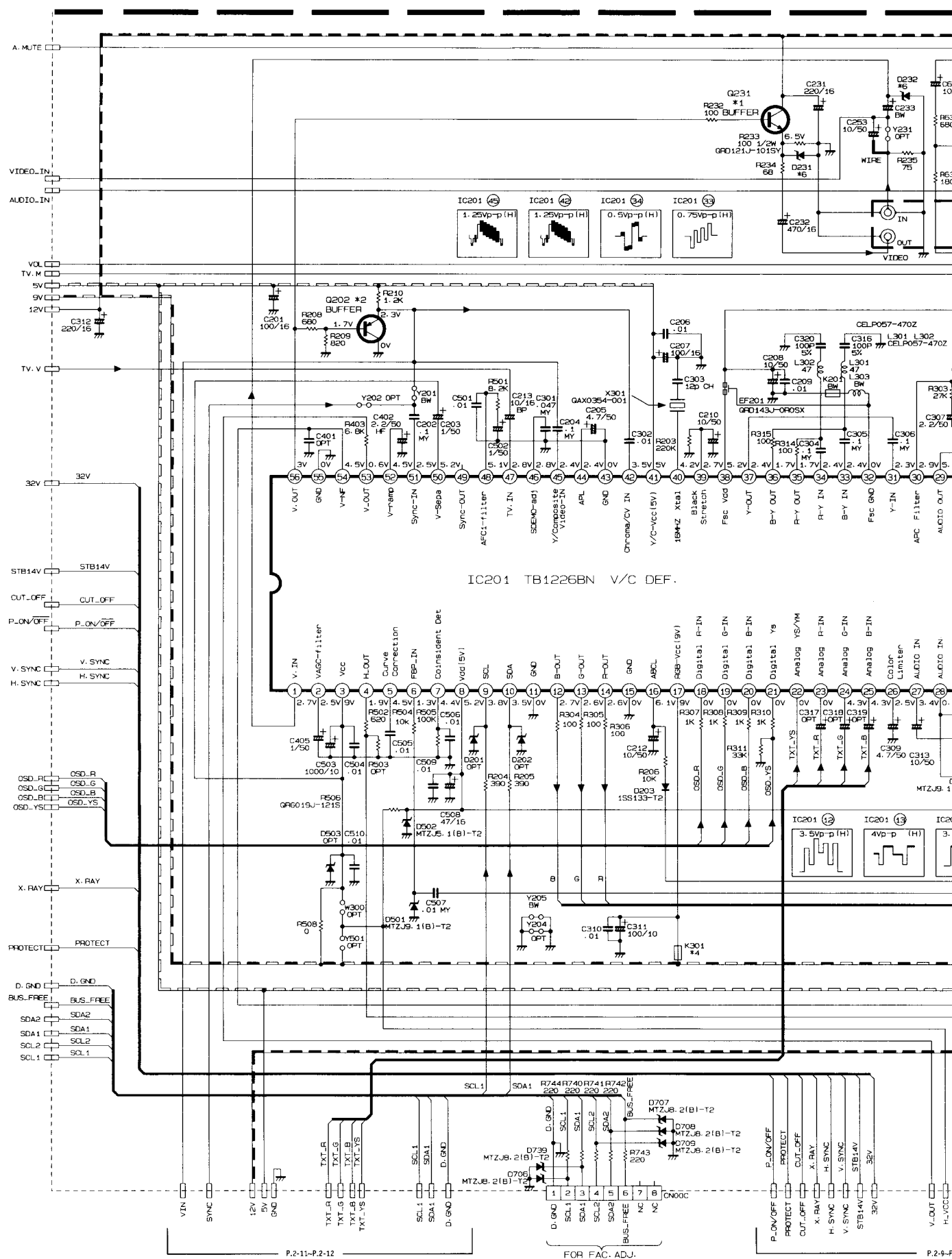
CIRCUIT DIAGRAMS AND PATTERN DIAGRAM

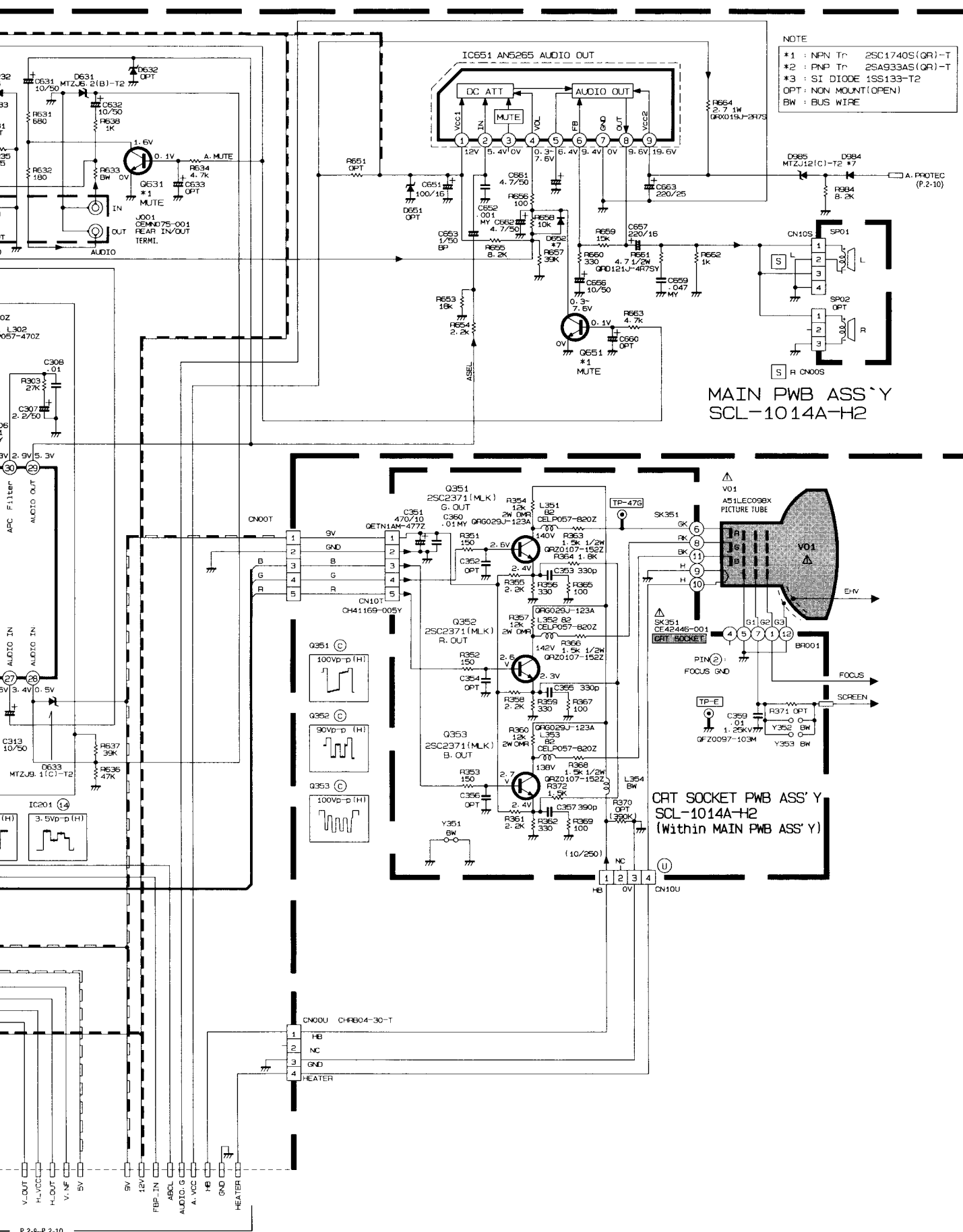
MAIN PWB CIRCUIT DIAGRAM [Tuner,micro computer & Front control (1/4)]



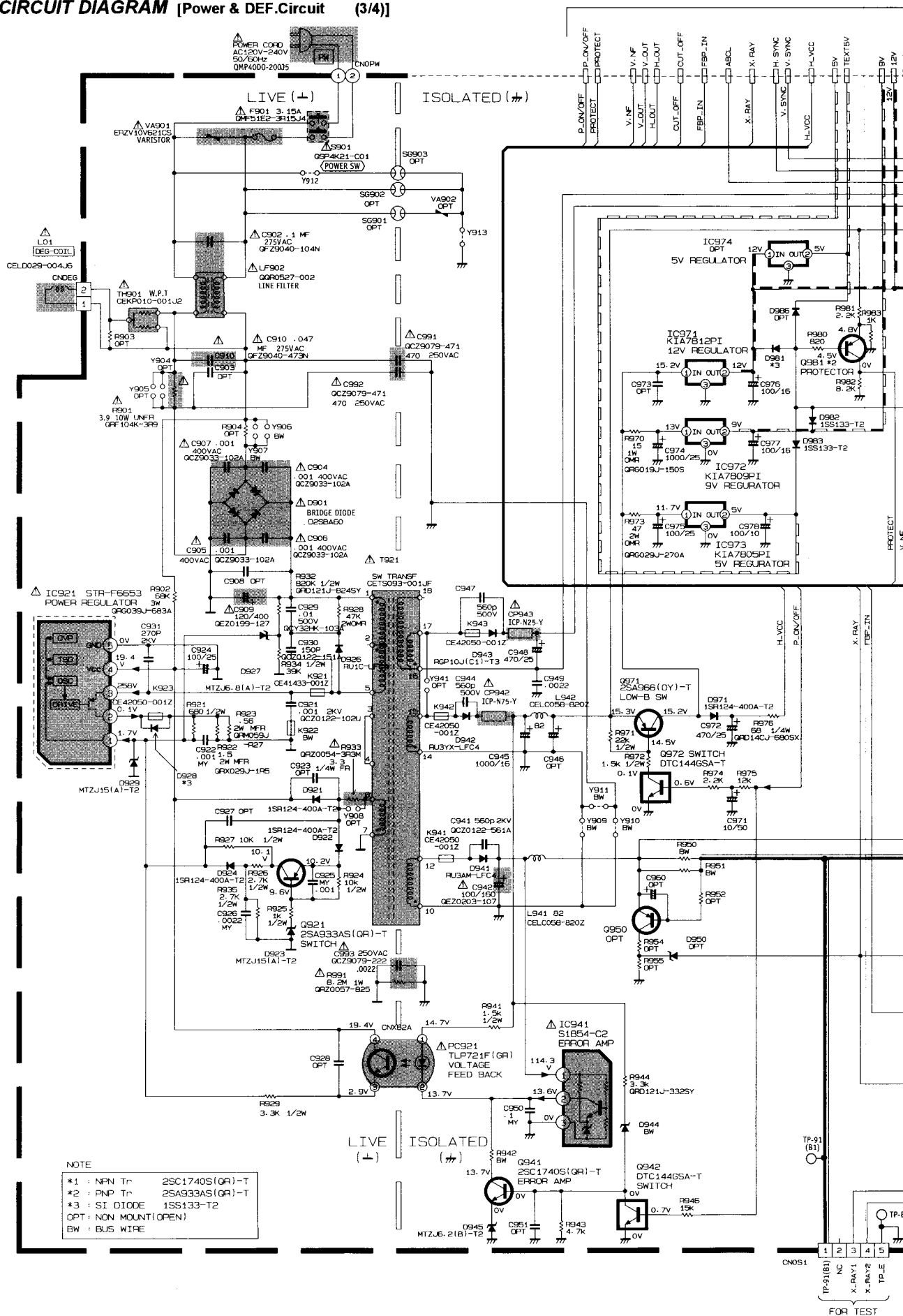


MAIN PWB CIRCUIT DIAGRAM [Picture, CRT & audio (2/4)]

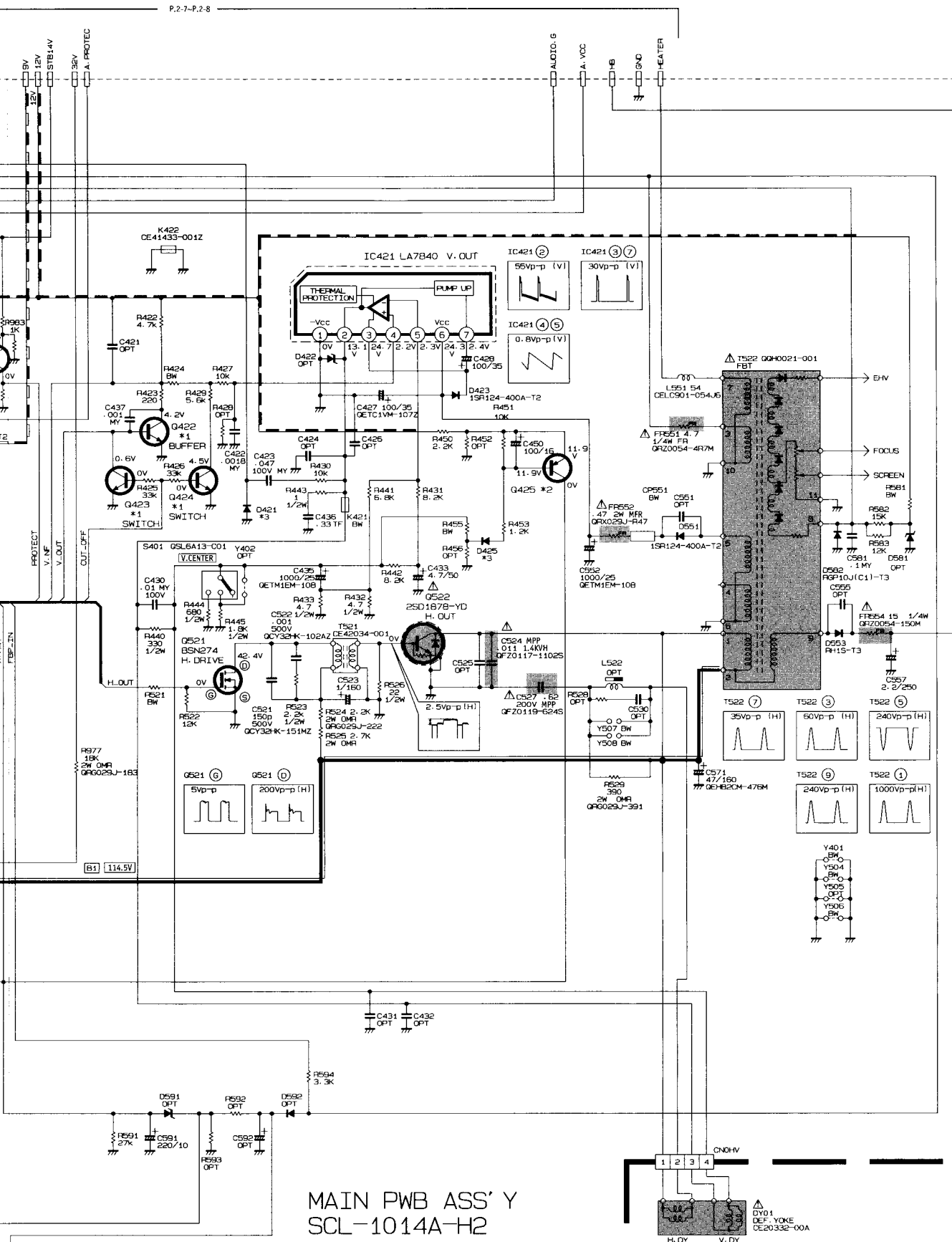




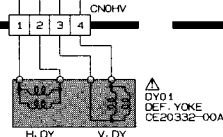
MAIN PWB CIRCUIT DIAGRAM [Power & DEF.Circuit (3/4)]



P.2-7-P.2-8



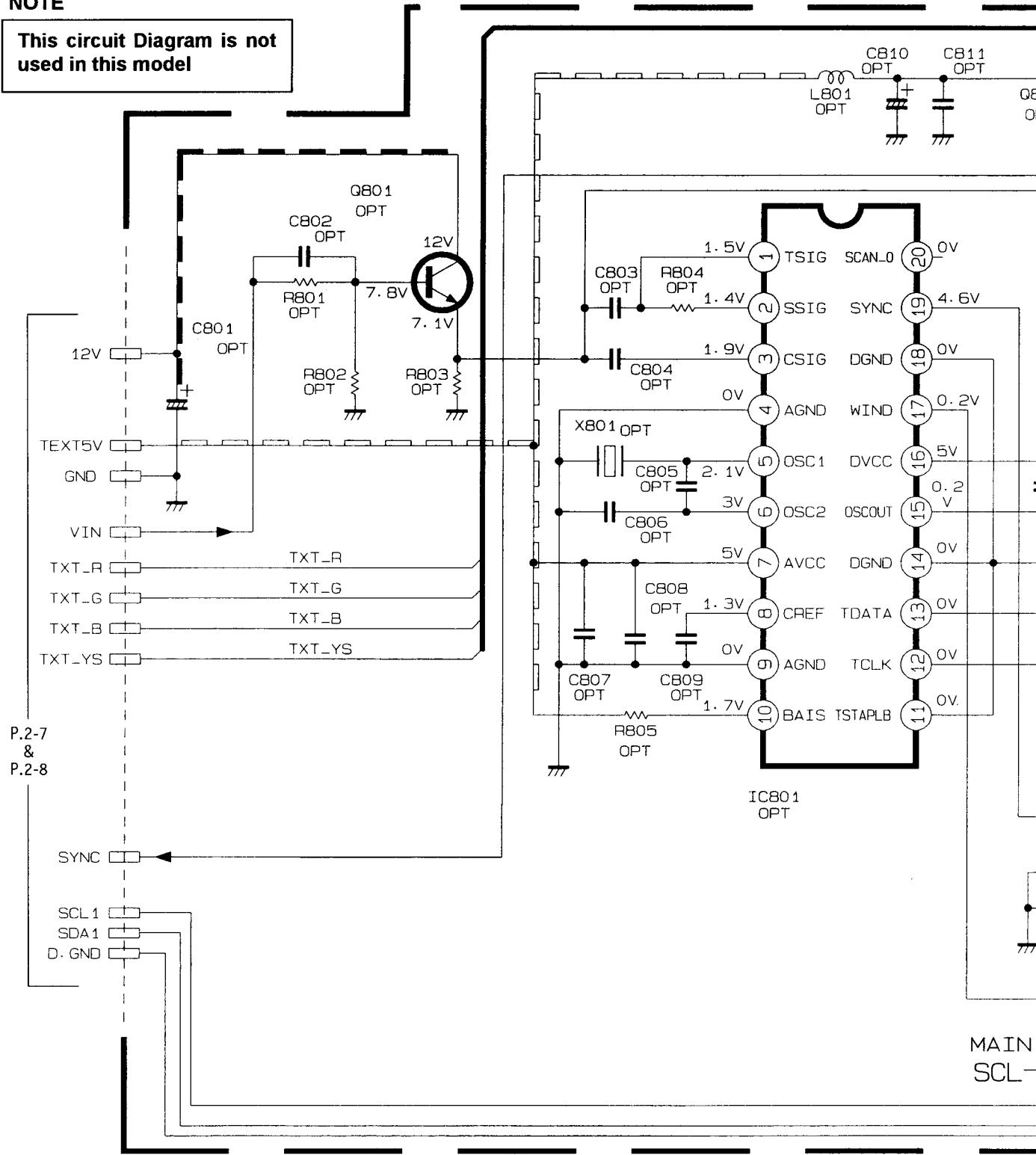
MAIN PWB ASS'Y
SCL-1014A-H2

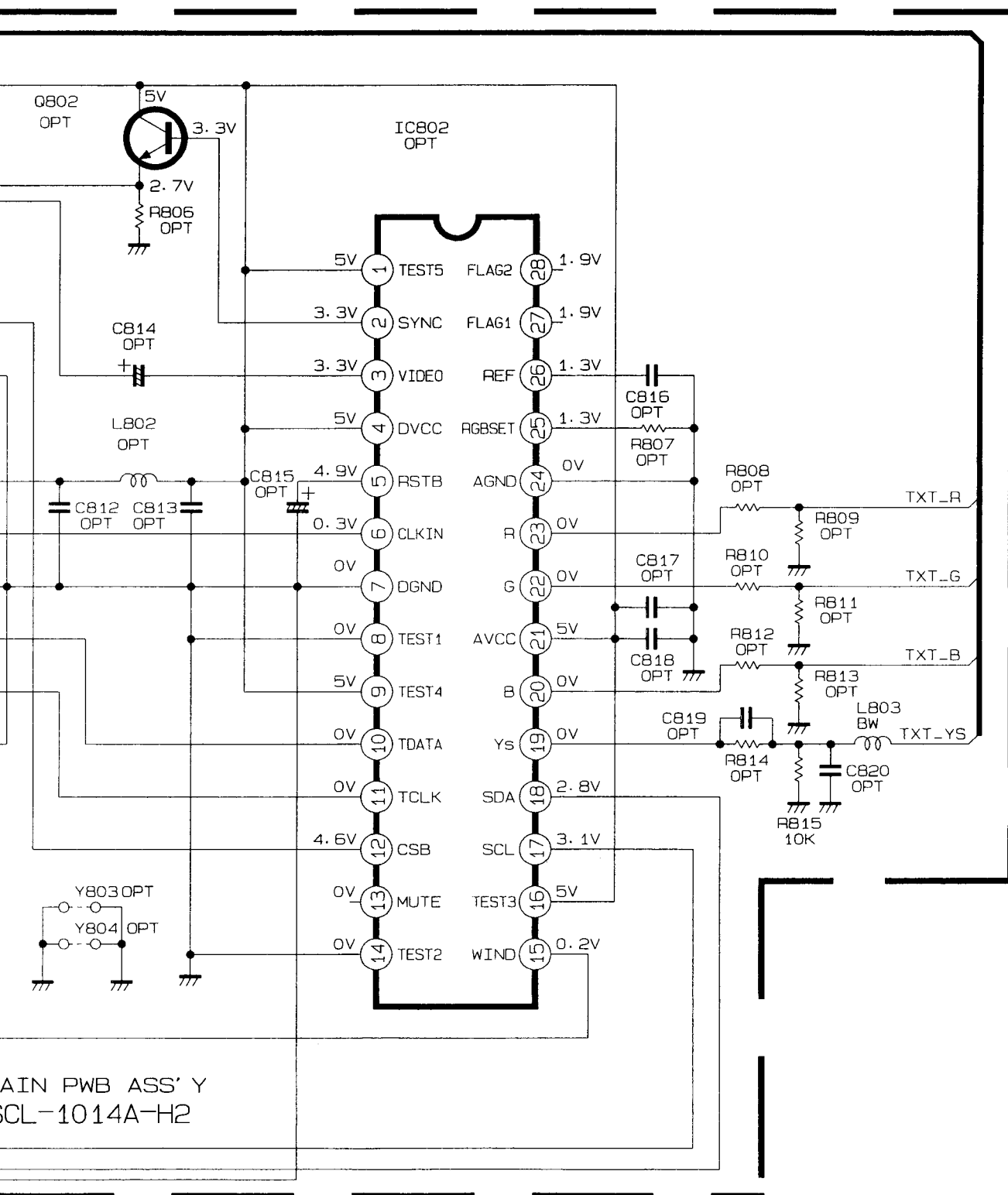


MAIN PWB CIRCUIT DIAGRAM [Teletext Decoder (4/4)]

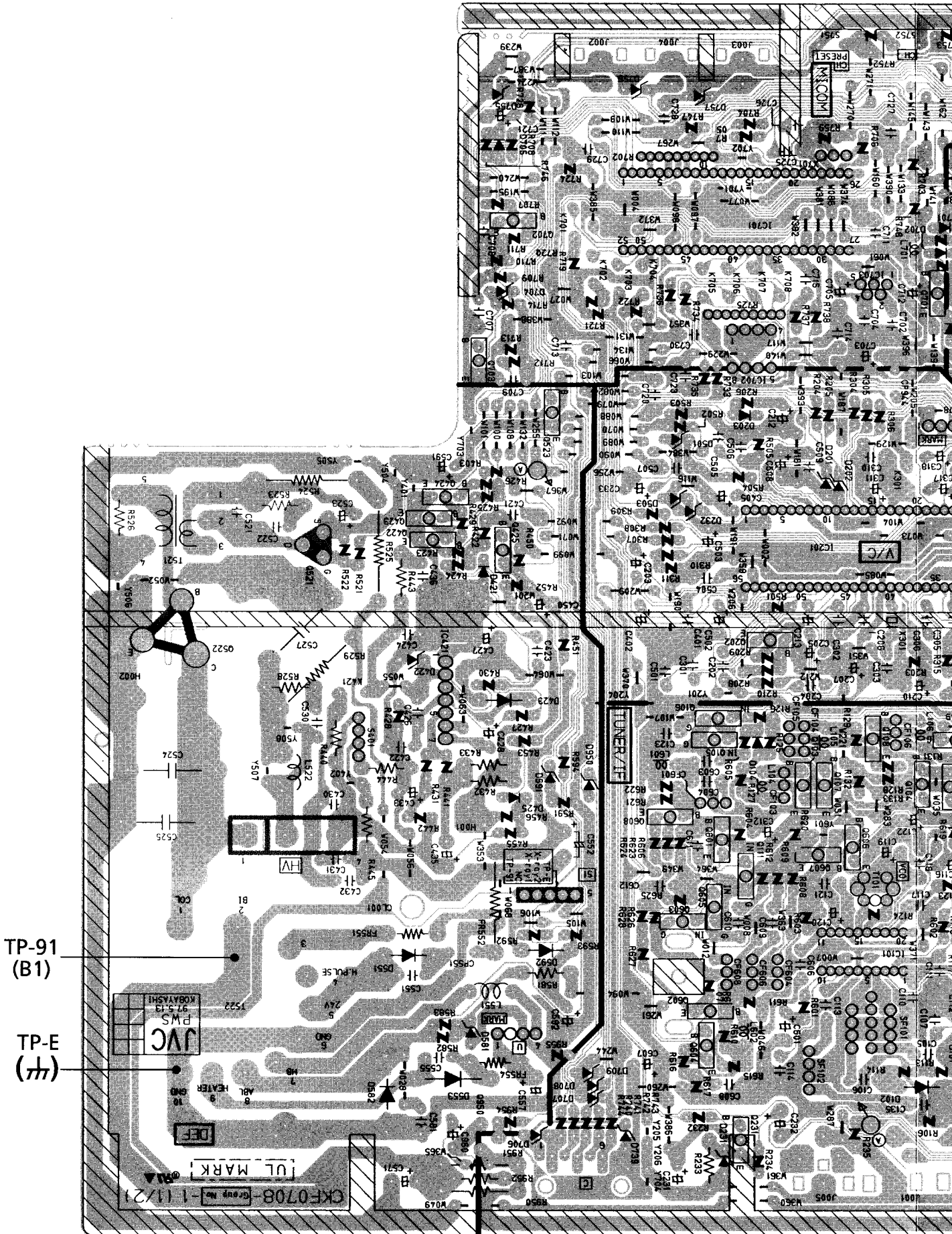
NOTE

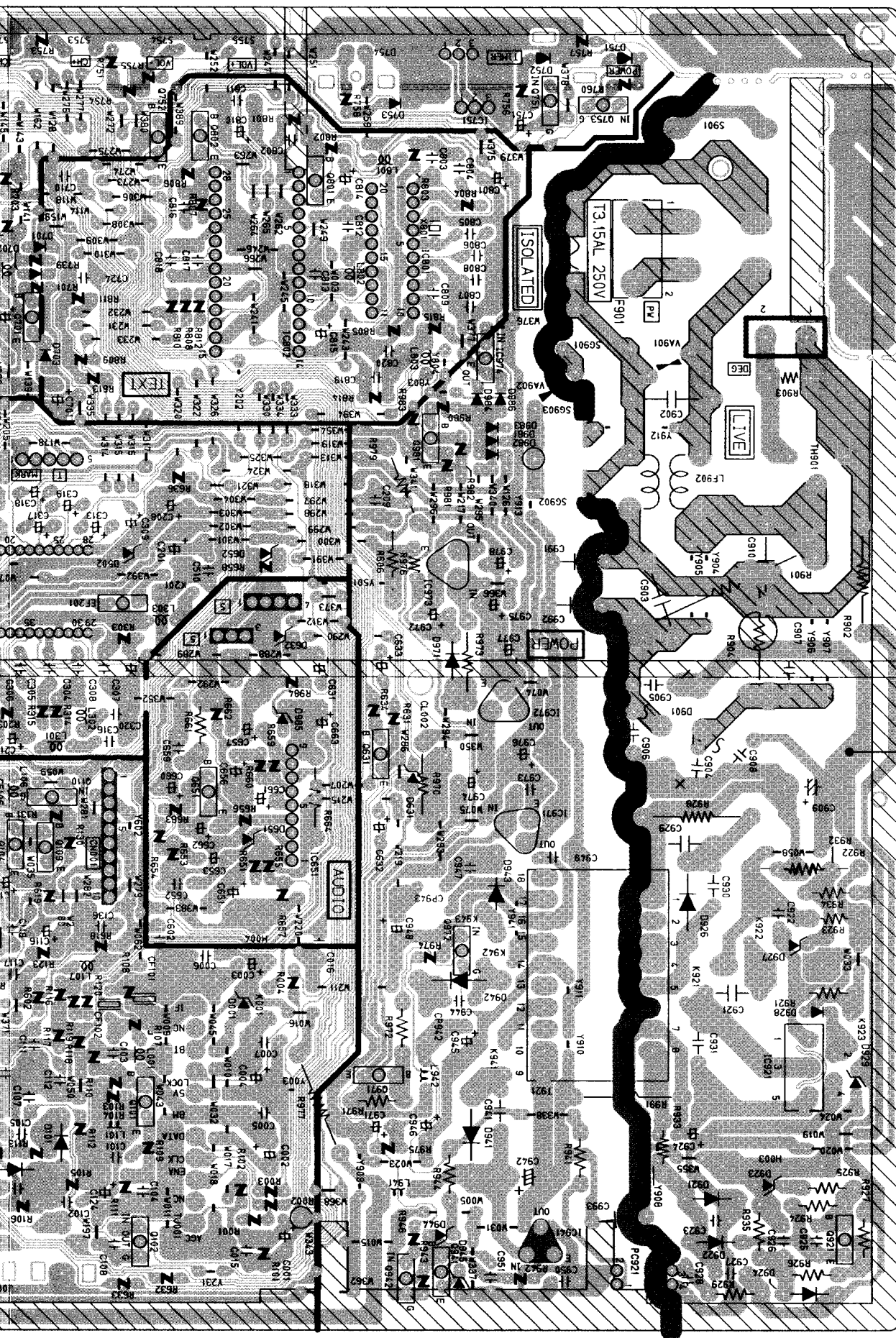
This circuit Diagram is not used in this model





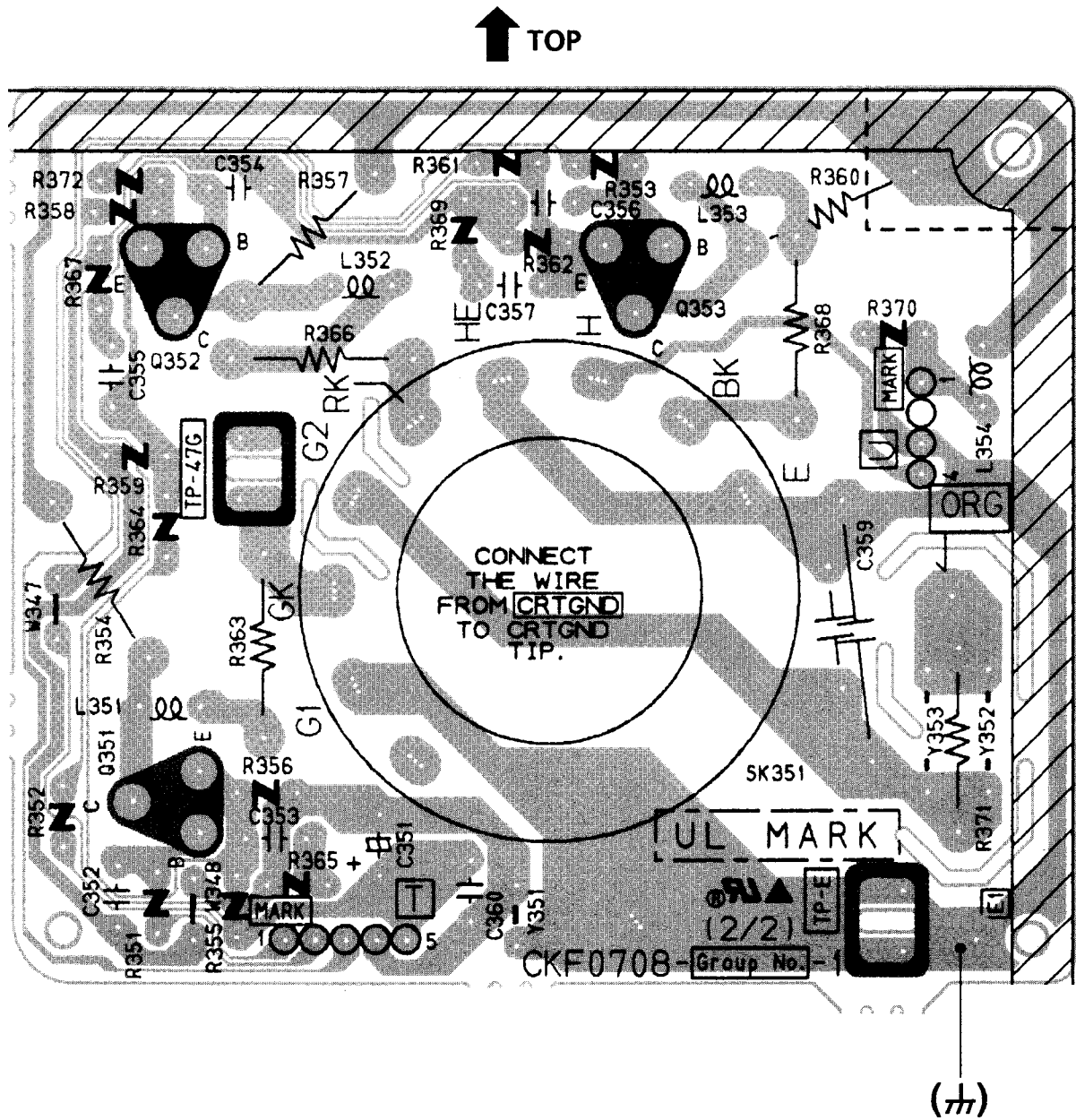
MAIN PWB PATTERN

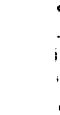




(T)

CRT SOCKET PWB PATTERN (Within MAIN PWB)





PARTS LIST

CAUTION

- The parts identified by the \triangle symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines — in the Parts No. columns will not be supplied .
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied .
- As a rule, the resistors and capacitors which are indicated as shown in "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" are not shown in the list of the parts on the board .

When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part No. indicated according to "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" .

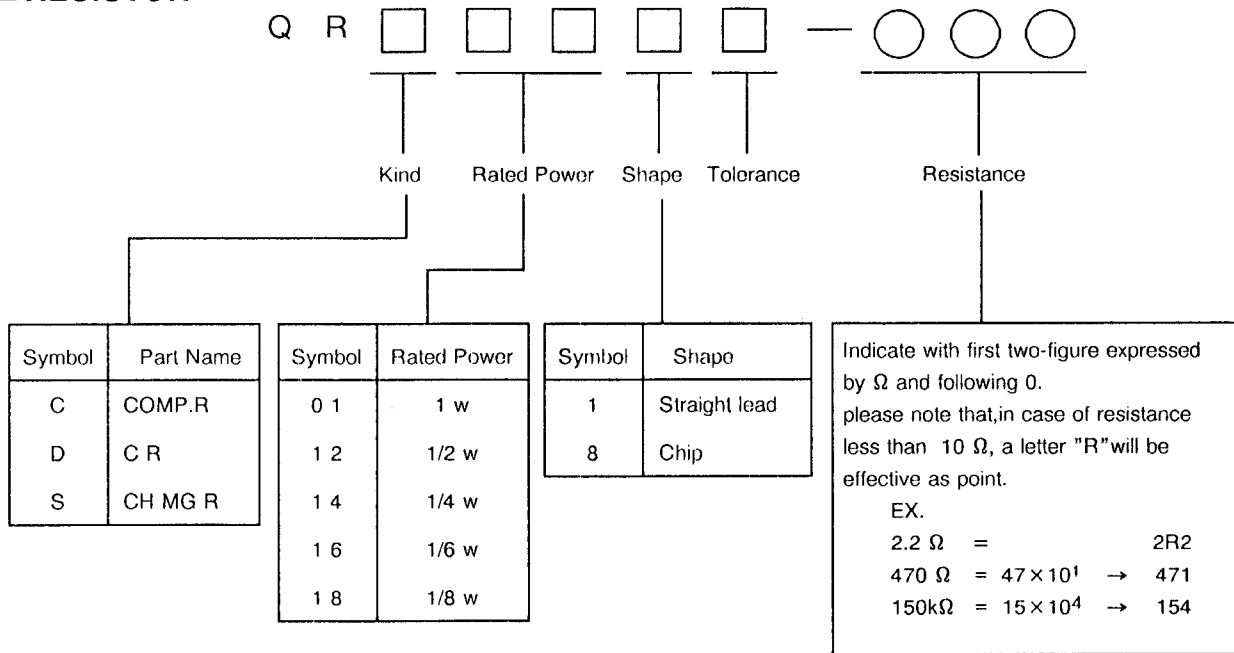
ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

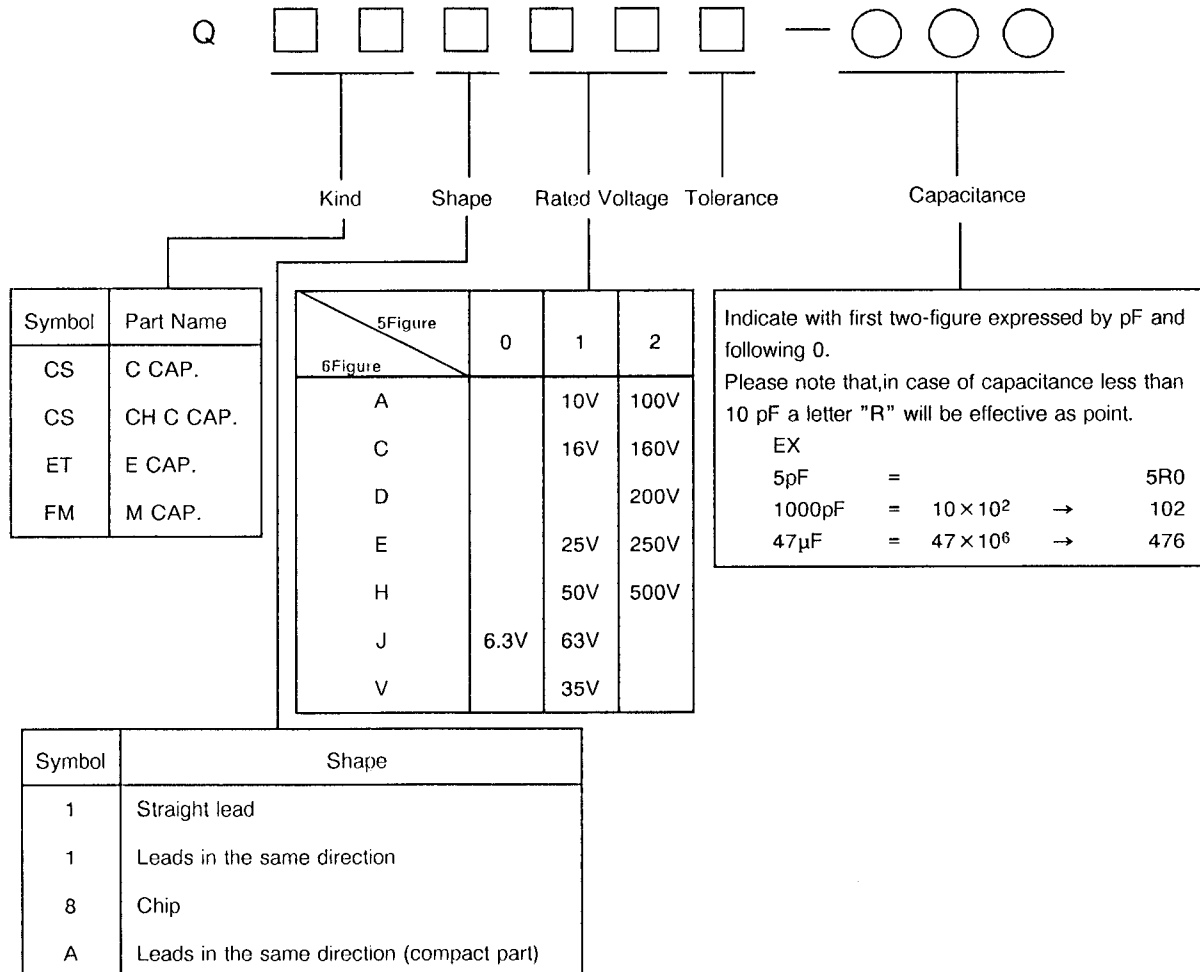
TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
$\pm 1\%$	$\pm 2\%$	$\pm 5\%$	$\pm 10\%$	$\pm 20\%$	$\pm 30\%$	+ 30% - 10%	+ 50% - 10%	+ 80% - 20%	+ 100% - 0%

HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



■ CAPACITOR



CONTENTS

■ REMOTE CONTROL UNIT	29
■ EXPLODED VIEW PARTS LIST & EXPLODED VIEW	30
■ PRINTED WIRING BOARD PARTS LIST	
MAIN PW BOARD ASS'Y	32
(With Front control & CRT socket PWB)	
■ PACKING	36
■ PACKING PARTS LIST	36

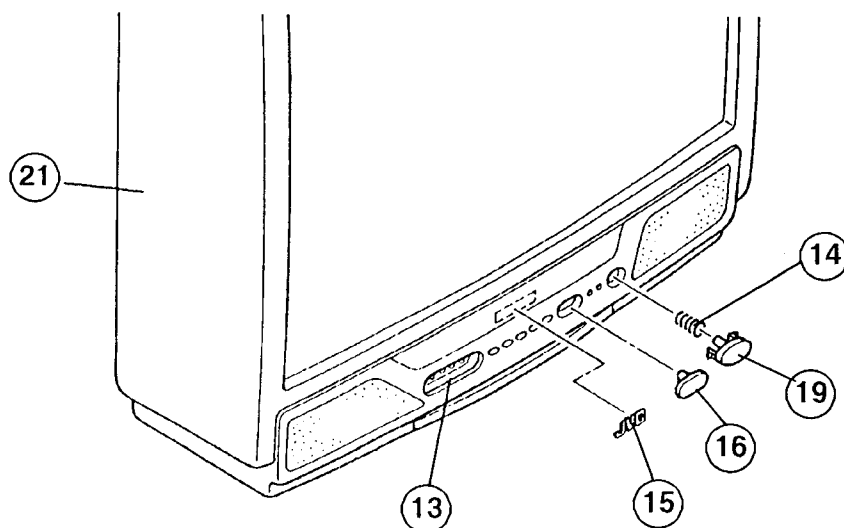
REMOTE CONTROL UNIT (RM-C498-1H)

△ Ref.No.	Part No.	Part Name	Description	Local
	UR52EC1149	BATTERY COVER		

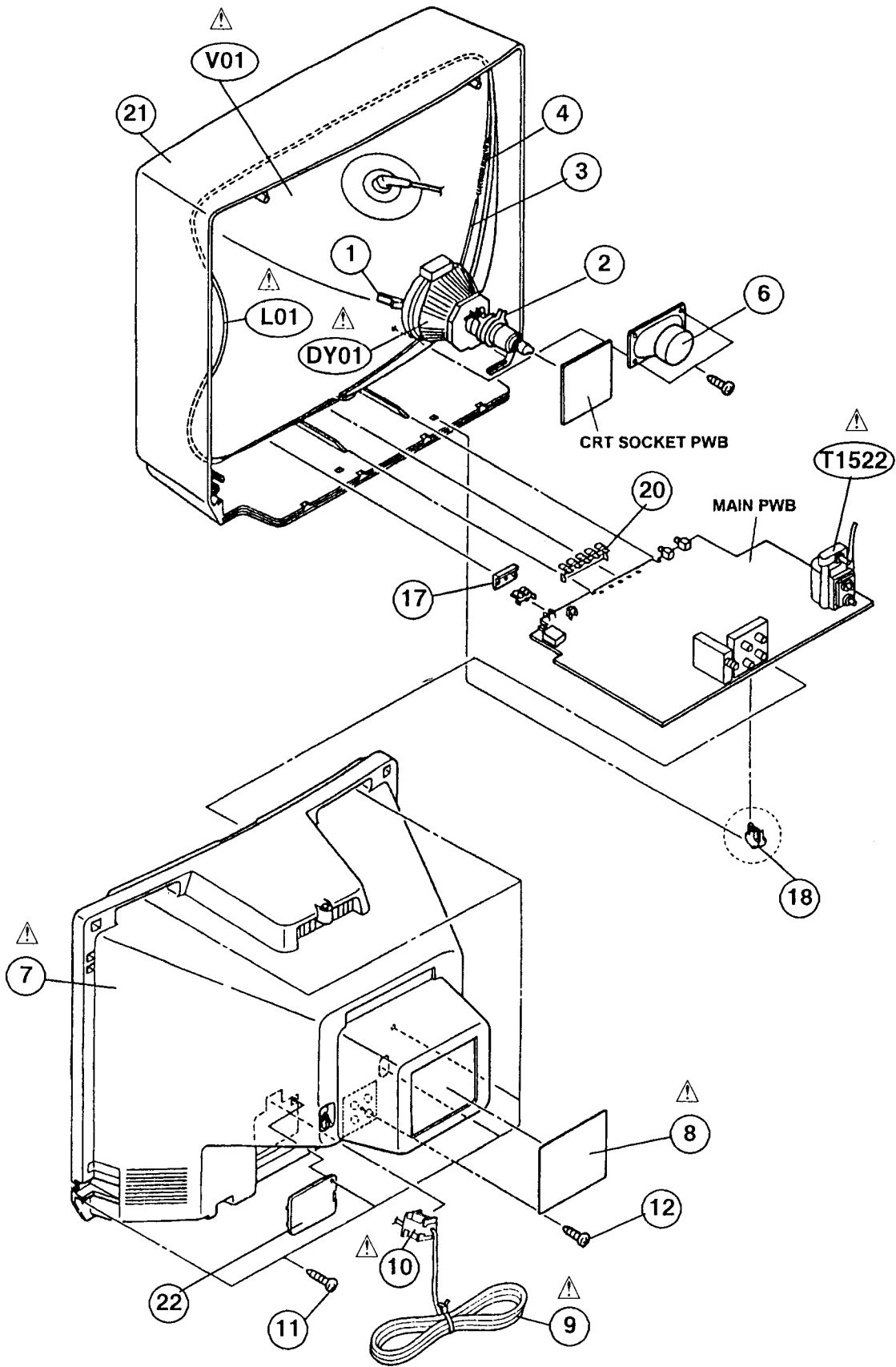
EXPLODED VIEW PARTS LIST

△ Ref. No.	Part No.	Part Name	Description	Local
△ V01	A51LEC098X	PICTURE TUBE(C)		
△ L01	CELD029-004J6	DEGAUSSING COIL		
△ DY01	CE20332-00A	DEFLECTION YOKE		
△ T1522	QQH0021-001	FBT		
1	CE40764-00A	WEDGE ASSY		
2	A75034-B	P.C.MAGNET		
3	CHGB0016-0B-FH	BRAIDED WIRE		
4	A48457-3-H	SPRING		
6	CEBSS09D-03KJ2	SPEAKER	SP01	
△ 7	CM12863-002-MH	REAR COVER		
△ 8	CM22925-006	RATING LABEL		
△ 9	QMP40D0-200J5	POWER CORD		
△ 10	CM23167-A01	POWER CORD CLAMP		
11	GBSF4016Z-H	TAPPING SCREW	(× 6)	
12	SBSF3010Z-H	TAPPING SCREW		
13	CM48274-001-H	AV SHEET		
14	CM35235-001-H	SPRING		
15	CM43094-006-H	JVC MARK		
16	CM36375-001-H	CDS WINDOW		
17	CM36518-001-H	L.E.D.LENS		
18	CM48144-002-H	P.W.B.STOPPER		
19	CM36516-002-H	POWER KNOB		
20	CM36517-A02-H	CONTROL KNOB		
21	CM12862-004-H	FRONT CABINET		
22	CM36617-B01	BACK BOARD		

EXPLODED VIEW



EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN PW BOARD ASS'Y (SCL-1014A-H2)

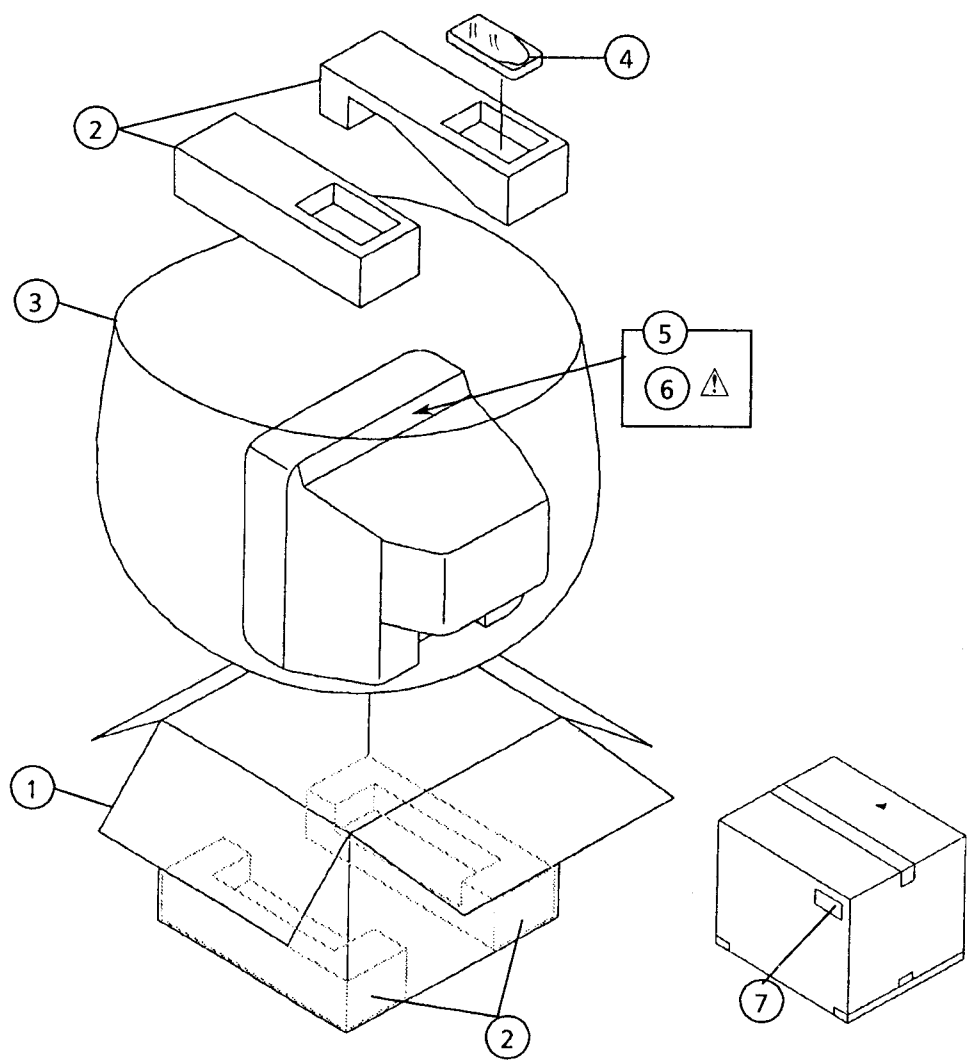
△ Symbol No.	Part No.	Part Name	Description	Local
R E S I S T O R				
	R1354	QRG029J-123A	OM R 12k Ω 2W J	
	R1357	QRG029J-123A	OM R 12k Ω 2W J	
	R1360	QRG029J-123A	OM R 12k Ω 2W J	
	R1363	QRZ0107-152Z	C R 1.5k Ω 1/2W K	
	R1366	QRZ0107-152Z	C R 1.5k Ω 1/2W K	
	R1368	QRZ0107-152Z	C R 1.5k Ω 1/2W K	
	R1506	QRG019J-121S	OM R 120 Ω 1W J	
	R1524	QRG029J-222	OM R 2.2k Ω 2W J	
	R1525	QRG029J-272	OM R 2.7k Ω 2W J	
	R1529	QRG029J-391	OM R 390 Ω 2W J	
	R1664	QRX019J-2R7S	MF R 2.7 Ω 1W J	
	R1702	QRB089J-682	NETW.R 6.8k Ω 8W J	
	R1725	QRB089J-682	NETW.R 6.8k Ω 8W J	
△	R1901	QRF104K-3R9	UNF R 3.9 Ω 10W K	
	R1902	QRG039J-683A	OM R 68k Ω 3W J	
	R1922	QRX029J-1R5	MF R 1.5 Ω 2W J	
	R1923	QRM059J-R27	MP R 0.27 Ω 5W J	
	R1928	QRG029J-473	OM R 47k Ω 2W J	
△	R1933	QRZ0054-3R3M	F R 3.3 Ω 1/4W J	
	R1970	QRG019J-150S	OM R 15 Ω 1W J	
	R1973	QRG029J-270A	OM R 27 Ω 2W J	
	R1976	QRD14CJ-680SX	C R 68 Ω 1/4W J	
	R1977	QRG029J-183	OM R 18k Ω 2W J	
	R1979	QRG029J-270A	OM R 27 Ω 2W J	
△	R1991	QRZ0057-825	C R 8.2M Ω 1W J	
C A P A C I T O R				
	C1016	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	
	C1112	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1136	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	
	C1202	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1204	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1213	QEN61CM-106Z	BP E CAP. 10 μ F 16V M	
	C1301	QFLC1HJ-473MZ	M CAP. 0.047 μ F 50V J	
	C1303	QCT25CH-120AZ	C CAP. 12 p F 50V J	
	C1304-06	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1359	QFZ0097-103M	M M CAP. 0.01 μ F 1250V K	
	C1360	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	
	C1402	QEM61HK-225MZ	E CAP. 2.2 μ F 50V K	
	C1422	QFN31HJ-182ZJ1	M CAP. 1800 p F 50V J	
	C1423	QFLC2AJ-473MZ	M CAP. 0.047 μ F 100V J	
	C1427	QETC1VM-107Z	E CAP. 100 μ F 35V M	
	C1428	QETC1VM-107Z	E CAP. 100 μ F 35V M	
	C1436	QFV71HJ-334MZ	TF CAP. 0.33 μ F 50V J	
	C1437	QFN31HJ-102ZJ1	M CAP. 1000 p F 50V J	
	C1507	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	
	C1523	QEH2CM-105MZ	E CAP. 1 μ F 160V M	
△	C1524	QFZ0117-1102S	MPP CAP. 0.011 μ F 1.4kVH \pm 2.5%	
△	C1527	QFZ0119-624S	MPP CAP. 0.62 μ F 200V \pm 3%	
	C1557	QETC2EM-225Z	E CAP. 2.2 μ F 250V M	
	C1571	QEH2CM-476M	E CAP. 47 μ F 160V M	
	C1581	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1602	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	
	C1652	QFN31HJ-102ZJ1	M CAP. 1000 p F 50V J	
	C1653	QEN61HM-105Z	BP E CAP. 1 μ F 50V M	
	C1659	QFLC1HJ-473MZ	M CAP. 0.047 μ F 50V J	
	C1702	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1704	QFN31HJ-102ZJ1	M CAP. 1000 p F 50V J	
	C1707	QFLC1HJ-272MZ	M CAP. 2700 p F 50V J	
	C1708	QFN31HJ-222ZJ1	M CAP. 2200 p F 50V J	
	C1711	QFLC1HJ-104MZ	M CAP. 0.1 μ F 50V J	
	C1714	QFLC1HJ-103MZ	M CAP. 0.01 μ F 50V J	

△ Symbol No.	Part No.	Part Name	Description	Local
C A P A C I T O R				
C1715	QFLC1HJ-473MZ	M CAP.	0.047 μ F 50V	J
C1728-30	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
△ C1902	QFZ9040-104N	MF CAP.	0.1 μ FAC275V	M
△ C1904	QCZ9033-102A	C CAP.	1000 p FAC400V	K
△ C1905	QCZ9033-102A	C CAP.	1000 p FAC400V	K
△ C1906	QCZ9033-102A	C CAP.	1000 p FAC400V	K
△ C1907	QCZ9033-102A	C CAP.	1000 p FAC400V	K
△ C1909	QEZO199-127	E CAP.	120 μ F 400V	M
△ C1910	QFZ9040-473N	MF CAP.	0.047 μ FAC275V	K
C1921	QCZO122-102U	C CAP.	1000 p F 2kV	K
C1922	QFN31HJ-102ZJ1	M CAP.	1000 p F 50V	J
C1925	QFN31HJ-102ZJ1	M CAP.	1000 p F 50V	J
C1926	QFN31HJ-222ZJ1	M CAP.	2200 p F 50V	J
C1930	QCZO122-151A	C CAP.	150 p F 2000V	K
C1931	QCZO122-271A	C CAP.	270 p F 2000V	K
C1941	QCZO122-561A	C CAP.	560 p F 2kV	K
△ C1942	QEZO203-107	E CAP.	100 μ F 160V	M
C1950	QFLC1HJ-104MZ	M CAP.	0.1 μ F 50V	J
△ C1991	QCZ9079-471	C CAP.	470 p FAC250V	K
△ C1992	QCZ9079-471	C CAP.	470 p FAC250V	K
△ C1993	QCZ9079-222	C CAP.	2200 p FAC250V	K
T R A N S F O R M E R				
T1101	CELT001-303J3	C.WAVE TRANSF.		
T1521	CE42034-001	H.DRIVE TRANSF.		
△ T1522	QQH0021-001	FB.TRANSF.		
△ T1921	CETS093-001JF	SW TRANSF.		
C O I L				
L1001	CELP057-8R2Z	PEAKING COIL	8.2 μ H	
L1105	CELP057-8R2Z	PEAKING COIL	8.2 μ H	
L1106	CELP057-100Z	PEAKING COIL	10 μ H	
L1301-02	CELP057-470Z	PEAKING COIL	47 μ H	
L1351-53	CELP057-820Z	PEAKING COIL	82 μ H	
L1551	CELC901-054J6	HEATER CHOKE		
L1701	CELP057-4R7Z	PEAKING COIL	4.7 μ H	
L1941-42	CELC058-820Z	CHOKE COIL		
D I O D E				
D1001	MTZJ33(A)-T2	ZENER DIODE		
D1203	1SS133-T2	SI.DIODE		
D1231-32	MTZJ13(B)-T2	ZENER DIODE		
D1421	1SS133-T2	SI.DIODE		
D1423	1SR124-400A-T2	SI.DIODE		
D1425	1SS133-T2	SI.DIODE		
D1501	MTZJ9.1(B)-T2	ZENER DIODE		
D1502	MTZJ5.1(B)-T2	ZENER DIODE		
D1551	1SR124-400A-T2	SI.DIODE		
D1553	RH1S-T3	SI.DIODE		
D1582	RGP10J(C1)-T3	SI.DIODE		
D1601	MTZJ6.8(A)-T2	ZENER DIODE		
D1602	MTZJ6.2(B)-T2	ZENER DIODE		
D1631	MTZJ6.2(B)-T2	ZENER DIODE		
D1633	MTZJ9.1(C)-T2	ZENER DIODE		
D1652	1SS133-T2	SI.DIODE		
D1701-03	1SS133-T2	SI.DIODE		
D1705	1SS133-T2	SI.DIODE		
D1706-09	MTZJ8.2(B)-T2	ZENER DIODE		
D1739	MTZJ8.2(B)-T2	ZENER DIODE		
D1751	SLR-342VR-T16	L.E.D.		
D1752	SLR-342DU-T16	L.E.D.(ORG)		
D1755	MTZJ10(A)-T2	ZENER DIODE		
△ D1901	D2SBA60	BRIDGE DIODE		
D1921-22	1SR124-400A-T2	SI.DIODE		
D1923	MTZJ15(A)-T2	ZENER DIODE		
D1924	1SR124-400A-T2	SI.DIODE		
D1926	RU1C-LFC4	SI.DIODE		
D1927	MTZJ6.8(A)-T2	ZENER DIODE		

△ Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
D1928	1SS133-T2	SI.DIODE		
D1929	MTZJ15(A)-T2	ZENER DIODE		
D1941	RU3AM-LFC4	SI.DIODE		
D1942	RU3YX-LFC4	SI.DIODE		
D1943	RGP10J(C1)-T3	SI.DIODE		
D1945	MTZJ6.2(B)-T2	ZENER DIODE		
D1971	1SR124-400A-T2	SI.DIODE		
D1981-84	1SS133-T2	SI.DIODE		
D1985	MTZJ12(C)-T2	ZENER DIODE		
T R A N S I S T O R				
Q1101	2SC5083(L-P)-T	SI.TRANSISTOR		
Q1107	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1108-09	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1202	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1231	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1351-53	2SC2371(MLK)	SI.TRANSISTOR		
Q1422-24	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1425	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1521	BSN274	F.E.T.		
△ Q1522	2SD1878-YD	SI.TRANSISTOR	H,OUT	
Q1523	2SC1815(YG)-T	SI.TRANSISTOR		
Q1602	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1603	DTC124ESA-T	DIGI.TRANSISTOR		
Q1604	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1605	DTC124ESA-T	DIGI.TRANSISTOR		
Q1631	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1651	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1701	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1702-03	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1751	DTA124ESA-T	DIGI.TRANSISTOR		
Q1921	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1941	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1942	DTC144GSA-T	DIGI TRANSISTOR		
Q1971	2SA966(OY)-T	SI.TRANSISTOR		
Q1972	DTC144GSA-T	DIGI TRANSISTOR		
Q1981	2SA933AS(QR)-T	SI.TRANSISTOR		
I C				
IC1101	M52342SP	I.C.(MONO-ANA)		
IC1201	TB1226BN	I.C.(DIGI-OTHER)		
IC1421	LA7840	I.C.(MONO-ANA)		
IC1651	AN5265	I.C.(MONO-ANA)		
IC1701	M37212M6-109SP	I.C.(MICRO-COMP)		
IC1702	AT24C04-K21T	I.C.	(SERVICE)	
IC1703	L78LR05E-MA	I.C.(MONO-ANA)		
IC1751	PIC-21043SR	IFR DETECT UNIT		
△ IC1921	STR-F6653	IC		
△ IC1941	S1854-C2	I.C.(MONO-ANA)		
IC1971	KIA7812PI	I.C.(MONO-ANA)		
IC1972	KIA7809PI	I.C.(MONO-ANA)		
IC1973	KIA7805PI	I.C.(MONO-ANA)		
O T H E R S				
	LC30114-001C-H	LED HOLDER		
CF1104	TPS5.5MW	CERAMIC FILTER		
CF1105	TPS6.5MB	CERAMIC FILTER		
CF1106	TPSH6.0MB	CERAMIC FILTER		
CF1604	QAX0336-001	CERAMIC FILTER		
CF1606	QAX0337-001	CERAMIC FILTER		
CF1608	QAX0338-001	CERAMIC FILTER		
△ CP1942	ICP-N75-Y	I.C.PROTECT		
△ CP1943	ICP-N25-Y	I.C.PROTECT		
△ CP1944	ICP-N5-Y	I.C.PROTECT		
△ F1901	QMF51E2-3R15J4	FUSE	3.15A	
FC1901	CEMG002-001Z	FUSE CLIP		
△ FR1551	QRZ0054-4R7M	F R	4.7 Ω 1/4W J	

△ Symbol No.	Part No.	Part Name	Description	Local
O T H E R S				
△ FR1552	QRX029J-R47	MF R	0.47 Ω 2W J	
△ FR1554	QRZ0054-150M	F R	15 Ω 1/4W J	
J1001	CEMN075-001	PIN JACK		
J1002	CEMN065-001	PIN JACK		
J1003	CEMN065-002	PIN JACK		
K1001	CE41433-001Z	BEADS CORE		
K1301	CE41433-001Z	BEADS CORE		
K1422	CE41433-001Z	BEADS CORE		
K1701-08	CE41433-001Z	BEADS CORE		
K1921	CE41433-001Z	BEADS CORE		
K1923	CE42050-001Z	CORE		
K1941-43	CE42050-001Z	CORE		
△ LF1902	QQR0527-002	LINE FILTER		
△ PC1921	TLP721F(GR)	I.C.(PH.COUPLER)		
S1401	QSL6A13-C01	LEVER SWITCH	V.CENTER	
S1751	QSP1A11-C18Z	PUSH SWITCH	CH PRESET	
S1752	QSP1A11-C18Z	PUSH SWITCH	CH -	
S1753	QSP1A11-C18Z	PUSH SWITCH	CH +	
S1754	QSP1A11-C18Z	PUSH SWITCH	VOL -	
S1755	QSP1A11-C18Z	PUSH SWITCH	VOL +	
△ S1901	QSP4K21-C01	PUSH SWITCH	POWER SW	
SF1101	QAX0324-001	SAW FILTER		
SF1102	QAX0325-001	SAW FILTER		
△ SK1351	CE42446-001	CRT SOCKET		
△ TH1901	CEKP010-001J2	W.P.THERMISTOR		
TU1001	CEEU544-B02	VHF/UHF TUNER		
△ VA1901	ERZV10V621CS	VARISTOR		
X1301	QAX0354-001	X TAL		
X1701	CST8.00MTW	CER.RESONATOR		

PACKING



PACKING PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
1	CP11613-032-H	PACKING CASE	4pcs in 1set	
2	CP11667-00B-H	CUSHION ASSY		
3	CP30697-005-H	POLY BAG		
4	RM-C498-1H	REMOCON UNIT		
5	QPGA025-03505H	POLY BAG		
△ 6	LCT0059-001A-H	INST.BOOK		
7	CM47385-00B-H	POS/SERIAL LABEL		

JVC

VICTOR COMPANY OF JAPAN,LIMITED
TELEVISION RECEIVER DIVISION 1106 Heta,Iwai-city,Ibaraki-prefecture,306-06,Japan

