

JVC

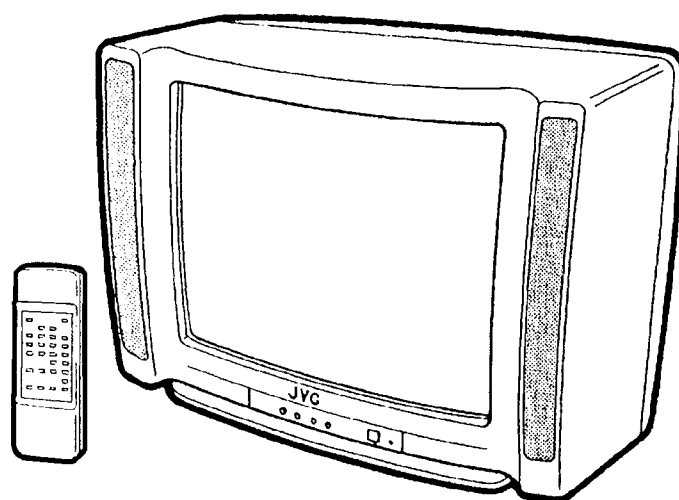
SERVICE MANUAL

55cm (21") COLOUR TELEVISION

C-21ZE

BASIC CHASSIS
MZ ²

C-21ZE(-A)



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SPECIFICATIONS

Item	Content
Dimensions	60.3cm(W) × 45.5cm(H) × 48.2cm(D)
Mass	23.5kg
TV RF System	B, G, I, D, K, K ₁
Colour System	PAL, SECAM (*NTSC Playback possible in Video mode.)
Receiving Frequency	
VHF low band (VL)	46.25MHz ~ 168.25MHz
VHF high band (VH)	175.25MHz ~ 463.25MHz
UHF band (U)	471.25MHz ~ 863.25MHz
Cable TV	Mid (X-Z, S1-S10) Super (S11-S20) and Hyper (S21-S41) bands can be received.
Intermediate Frequency	
VIF Carrier	38.0MHz
SIF Carrier	32.5MHz (5.5MHz), 31.5MHz(6.5MHz) 32.0MHz (6.0MHz), 33.5MHz(4.5MHz)
Colour Sub Carrier	PAL : 4.43MHz SECAM : 4.40625MHz, 4.25MHz NTSC : 3.58MHz, 4.43MHz
Antenna Input Impedance	75Ω unbalanced, Aerial-type
Power Input	
Rated Voltage	120V to 240V AC, 50Hz / 60Hz
Operating Voltage	90V to 260V AC, 50Hz / 60Hz
Power Consumption	110W (Max.), 80W (Avg.)
Picture Tube	21" (Tube size : 55cm, Visible size : 51cm), measured diagonally
Viewable Picture Size	40.7cm (W) × 30.5cm (H)
High Voltage	28kV ± 1kV (at zero beam current)
Speaker	5 × 9cm oval × 2(mono sound)
Audio Power Output	Music power : 5.5W Audio power : 3W
Video Input	1Vp-p, 75Ω, RCA pin jack
Video Output	1Vp-p, 75Ω, RCA pin jack
Audio Input	500mVrms (-4dBs), high impedance, RCA pin jack
Audio Output	500mVrms (-4dBs), Low impedance, RCA pin jack
Tube	1
ICs	18 (In TV), 1 (In Remote control unit)
Transistors	44 (In TV), 2 (In Remote control unit)
Remote control unit	RM-C462-1H(AA/R6/UM-3 dry battery × 2)

Design & specification subject to change without notice.

SAFETY PRECAUTIONS

- 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.
- 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.
- 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.
- 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) : (---) 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.
- 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).
- 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.
- 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 Ω 2W resistor to the anode button.
- 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 1500 Ω 10W resistor paralleled by a 0.15 μ 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.).

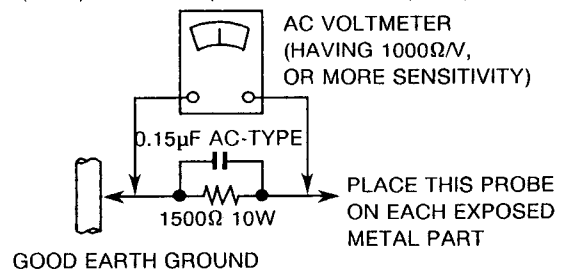
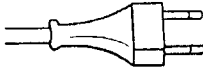
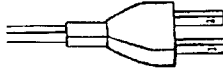


Fig.A

FEATURES

- New chassis design enables use of an interactive on-screen control.
- Wide operating range voltage (90V~260V) AC power input.
- With AUDIO.VIEDO INPUT & OUTPUT terminal.
- "Mute Button" can reduce the audio level to zero instantly.
- Functional remote control to operate TV set (for channel, volume, power ON/OFF, etc.) from a distance.
- I²C bus control utilizes single chip ICs for IF and V/C.

DIFFERENCE LIST BETWEEN C-21ZE AND C-21ZE(-A) MODELS

⚠	Ref. No.	Part No.		Part Name	Description
		C-21ZE	C-21ZE(-A)		
		SMZ-1010A-H2	SMZ-1019A-H2	MAIN PW BOARD	
⚠	10	QMP4060-200JG 	QMP7370-200J3 	POWER CORD	
	10	—	CEMK002-001	ADAPTOR PLUG	PACKING PART LIST
	24	CM22905-001	←	RATING LABEL	

(C-21ZE)
(RATING LABEL)

JVC	MODEL	C-21ZE
RATED VOLTAGE 120V TO 240V~ (Operating Voltage 90V to 260V~)		
50/60Hz	MAX	AVG
	W	W
WARNING HIGH VOLTAGE INSIDE. BEFORE REMOVING COVERS, RECEIVER MUST BE DISCONNECTED FROM MAINS.		
SERIAL No.		
	CM22905-001	

(C-21ZE(-A))
(RATING LABEL)

JVC	MODEL	C-21ZE
RATED VOLTAGE 120V TO 240V~ (Operating Voltage 90V to 260V~)		
50/60Hz	MAX	AVG
	W	W
WARNING HIGH VOLTAGE INSIDE. BEFORE REMOVING COVERS, RECEIVER MUST BE DISCONNECTED FROM MAINS.		
SERIAL No.		
	C-21ZE-A MADE IN THAILAND CM22905-001	

INDICATED MODEL No. C-21ZE-A

INSTRUCTIONS

Thank you for purchasing this JVC colour TV.
Read all instructions to ensure complete understanding.
Keep instructions in a safe place for future reference.

**TO ENSURE PERSONAL SAFETY,
OBSERVE THE FOLLOWING RULES
REGARDING THE USE OF THIS
UNIT:**

WARNING:

- **TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**
- AVOID DAMAGING THE AC PLUG AND POWER CORD.
- IN THE EVENT OF A FAULT, UNPLUG THE UNIT AND CALL A SERVICE TECHNICIAN. DO NOT ATTEMPT TO REMOVE THE REAR COVER OR REPAIR THE UNIT YOURSELF.

CAUTION:

- Operate only from the power source specified on the unit.
- Avoid improper installation and never position the unit in poorly ventilated places.
- Do not allow objects or liquid into the cabinet openings.
- When you do not use this TV set for a long period of time, be sure to disconnect the power plug from the AC outlet.

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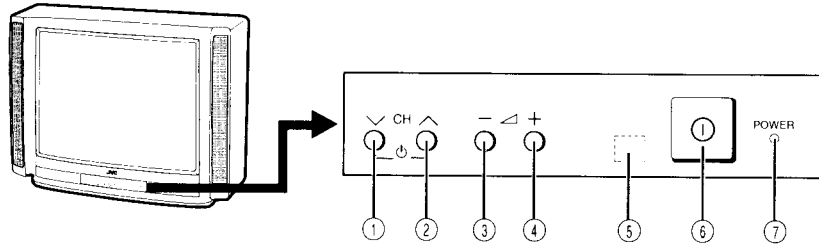
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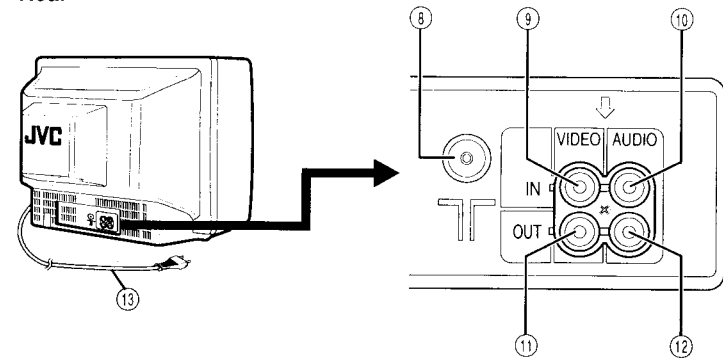
● CONTROLS, TERMINALS

For remote keys, see page 15.
For operation, see specified pages.

■ Front



■ Rear



■ Front

① CH ∨ (descending channel selection) button	p. 7, 8
② CH ^ (ascending channel selection) button	p. 7, 8
③ ∇ - (decreasing volume control) button	p. 7, 8
④ ∇ + (increasing volume control) button	p. 6, 7, 8
⑤ Remote control sensor	—
⑥ Main power button	p. 5
⑦ POWER indicator	p. 5

■ Rear

⑧ Aerial socket	p. 3, 4
⑨ VIDEO INPUT terminal	p. 4, 5, 9
⑩ AUDIO INPUT terminal	p. 4, 5, 9
⑪ VIDEO OUTPUT terminal	p. 4, 9
⑫ AUDIO OUTPUT terminal	p. 4, 9
⑬ Power cord	p. 4, 9

PREPARATIONS

1. Aerial, power cord connections

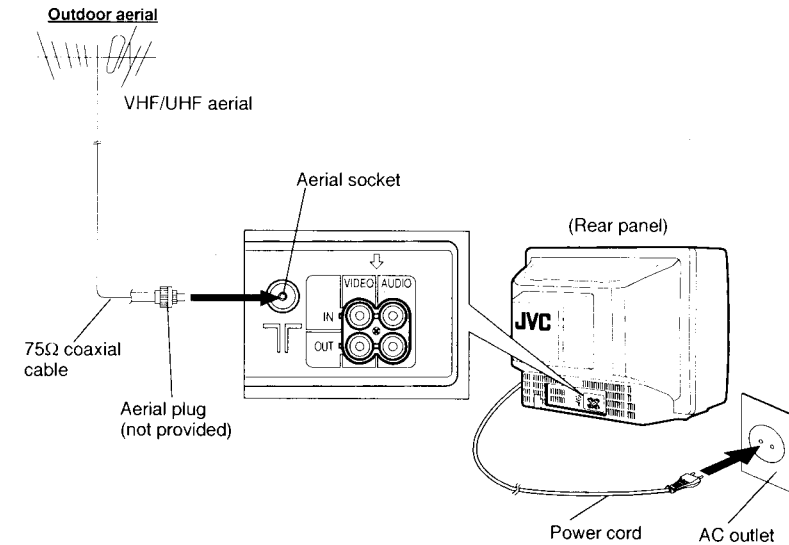
Precondition:

- You must use a 75Ω coaxial cable to connect the aerial (not supplied with this TV).

To connect to a VCR:

See page 4 (also refer to VCR instructions).

[Example]



2. Remote battery installation

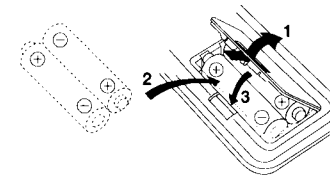
Precondition:

- Prepare two AA/R6/UM-3 dry batteries.

- Press and lift up the cover to remove.
- Install batteries.

Be sure to insert the - pole on each battery first, then insert the + pole.

- Replace the cover.



CAUTION:

- Follow caution on batteries.

Notes:

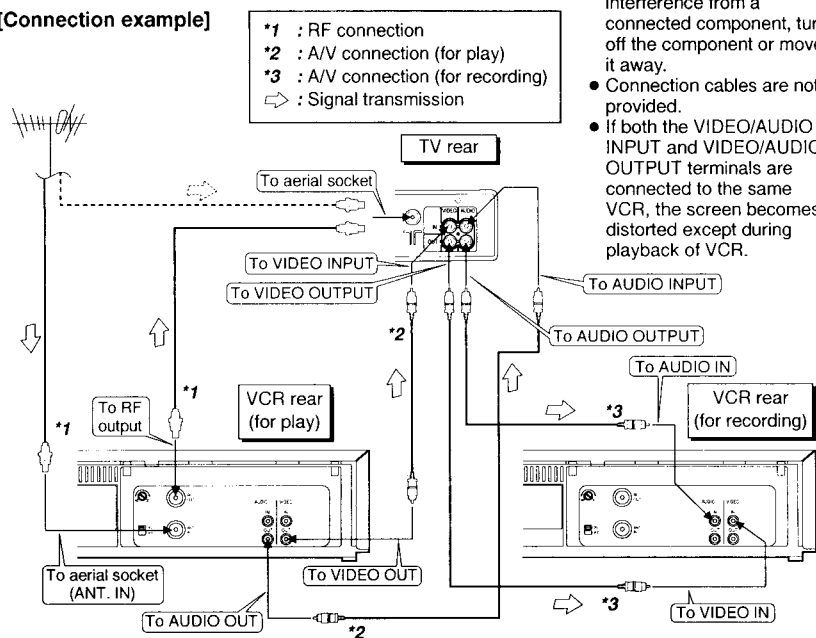
- Correctly install batteries observing + and - polarities.
- Duration of battery use is about 6 months to 1 year, depending on frequency of use.
- Replace batteries if operation becomes erratic.
- Provided batteries are for remote-unit testing after purchase, not for regular use.

3. External connection

Preconditions:

- Before connection, turn off or unplug the TV.
- Before playing a connected component, activate TV or VIDEO mode according to which connection is active. See pages 5 and 9.

[Connection example]



Without making external connection:

Proceed to the next section.

Notes:

- Also refer to component instructions.
- If noise occurs due to interference from a connected component, turn off the component or move it away.
- Connection cables are not provided.
- If both the VIDEO/AUDIO INPUT and VIDEO/AUDIO OUTPUT terminals are connected to the same VCR, the screen becomes distorted except during playback of VCR.

Via	Application (example)
TV aerial socket	Aerial (for reception) or VCR (for play)
TV VIDEO/AUDIO INPUT terminals	VCR, camcorder or videodisc player (for play each)
TV VIDEO/AUDIO OUTPUT terminals	VCR (for recording) or video monitor (for monitoring)

VCR:

Video cassette recorder

RF connection:

Radio-frequency (high frequency conforming to a broadcast signal) signal connection

A/V connection:

Video- and audio-signal direct connection

4. Turning on

1. Press front main power button.



POWER indicator glows red to indicate the main power is on (the TV is in standby mode).

2. Press remote POWER standby key.



The picture appears.



To turn on using front button (in standby mode):
Press CH ∇ or \blacktriangle button.

To turn on using other remote key (in standby mode):
Press TV/VIDEO or numeric key.

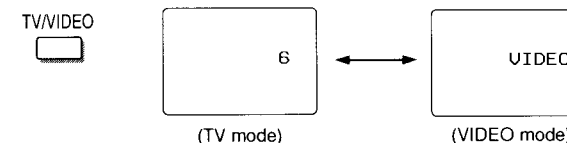
To turn off:

Press remote POWER standby key (main power is on).
or
Press front main power button (main power is off).

5. Input selection

1. Press remote TV/VIDEO key.

With each press, the input alternates between:



- The mode disappears after about 3 seconds.

TV mode:

To view broadcasts or play an RF-connected component via TV aerial socket.

VIDEO mode:

To play an A/V-connected component via TV VIDEO INPUT and AUDIO INPUT terminals.

Selection and input:

Mode selection	Input
TV mode	Via TV aerial socket
VIDEO mode	Via TV VIDEO/AUDIO INPUT terminals

6. Station presetting

Before viewing programmes, preset broadcast stations.

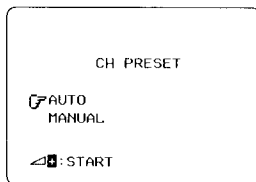
Preconditions:

- Activate TV mode (see page 5).
- Pick either AUTO or MANUAL presetting.

To preset all stations automatically

— CH PRESET-AUTO

1. Turn on the TV, and press remote CH PRESET key.

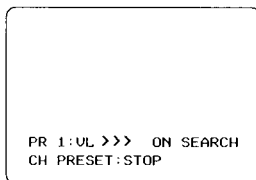


CH PRESET menu (with AUTO selected) appears.

2. Press remote VOLUME + (increasing volume control) key.



(You can also use front + (increasing volume control) button.)



>>> ON SEARCH appears to indicate a station starts to be searched for.

Station searching begins from Channel Position 1 (PR 1). After being located, the station is automatically preset and Channel Position advances. The procedure for all stations to be preset is completed after about 4 minutes.

• Now setting is complete.

Repeat pressing remote CH PRESET key to exit menu.

Notes:

- Presetting is not possible in VIDEO mode.
- Storage of up to 60 stations is possible.

AUTO

(automatic presetting):

Automatically presets all stations available where the TV is used.

MANUAL

(manual presetting):

Allows a user to preset manually each required station to a desired Channel Position.

To stop searching:

Press remote CH PRESET key.

Notes:

- Each station's colour and sound systems are automatically identified (see page 10).
- Channel Positions where no station is preset are automatically skip-programmed (see right on page 7).

PR 1:

Channel Position 1.

VL/VH/U:

Receiving frequency wave bands

VL = Low-frequency VHF stations

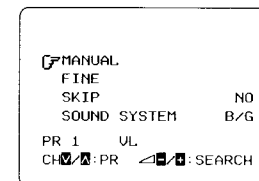
VH = High-frequency VHF stations

U = UHF stations

To preset required stations manually

— CH PRESET-MANUAL

1. Turn on the TV, and press remote CH PRESET key twice to select MANUAL.



MANUAL PRESET menu appears.

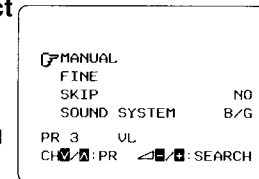
- With each press, the selection changes:

AUTO → MANUAL → FINE → SKIP → SOUND SYSTEM → (No selection)

2. Press remote CHANNEL or (descending or ascending channel selection) key to select a Channel Position.



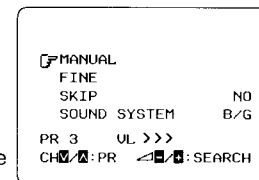
(You can also use front CH or (descending or ascending channel selection) button.)



3. Press remote VOLUME + (increasing volume control) or – (decreasing volume control) key.



(You can also use front + (increasing volume control) or – (decreasing volume control) button.)



>>> or <<< appears to indicate a station is being scanned.

After reaching a station, scanning stops.

Press remote VOLUME + or – key to repeat scanning until a required station is reached.

- Repeat steps 2 and 3 to preset all required stations.

• Now setting is complete.

Repeat pressing remote CH PRESET key to exit menu.

To fine-tune a station being poorly received:

1. Press remote CH PRESET key to select FINE (fine-tuning).
2. Press remote VOLUME – or + key (or front – or + button) to fine-tune the station.

While being pressed, > or < appears to indicate fine-tuning is occurring. After fine-tuning, AFC OFF appears to the right of FINE to indicate automatic fine-frequency control is deactivated.

To skip-programme Channel Positions:

1. Press remote CH PRESET key to select SKIP (skip-programming).
2. Press remote VOLUME – or + key (or front – or + button) to activate. YES: activated NO: deactivated

When selecting preset channels, skip over skip-programmed Channel Positions, including those where no station is preset (see right on page 6), by pressing remote CHANNEL or key (or front CH or button).

To stop scanning:

Press a remote key or front button.

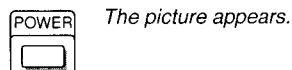
To switch sound system when sound is poor or signal is being poorly received:

1. Press remote CH PRESET key to select SOUND SYSTEM.
2. Press remote VOLUME – or + key (or front – or + button) to switch to other setting.

To switch sound system in other cases, it is more convenient to press remote SOUND SYSTEM key (see page 10).

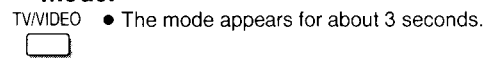
PROGRAMME VIEWING

1. Press remote POWER standby key.



The picture appears.

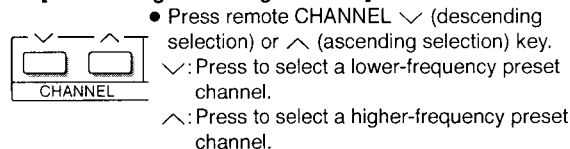
2. Press remote TV/VIDEO key to activate TV mode.



The mode appears for about 3 seconds.

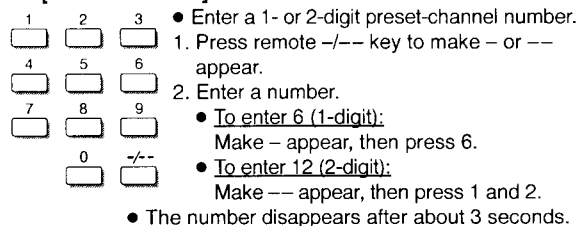
3. Select a preset channel:

[Descending/ascending selection]



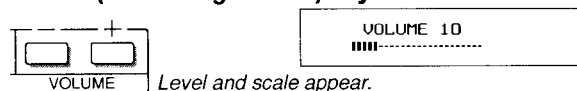
- Press remote CHANNEL ∇ (descending selection) or \blacktriangle (ascending selection) key.
- ∇ : Press to select a lower-frequency preset channel.
- \blacktriangle : Press to select a higher-frequency preset channel.

[Direct selection]



- Enter a 1- or 2-digit preset-channel number.
- 1. Press remote $-/--$ key to make $-$ or $--$ appear.
- 2. Enter a number.
 - To enter 6 (1-digit): Make $-$ appear, then press 6.
 - To enter 12 (2-digit): Make $--$ appear, then press 1 and 2.
- The number disappears after about 3 seconds.

4. Press remote VOLUME – (decreasing control) or + (increasing control) key.



Level and scale appear.

- $-$: Press to decrease the level. The scale becomes shorter to left.
- $+$: Press to increase the level. The scale becomes longer to right.
- The number disappears after about 3 seconds.

5. Press remote POWER standby key.



The picture disappears.

- The TV goes into standby mode (main power is on).

Note:

- If main power is off, remote POWER standby key does not function.

To turn on using front button (in standby mode): Press CH ∇ or \blacktriangle button.

If already in TV mode after TV is turned on: Step 2 is not necessary.

To play a connected component: See page 9.

To select preset channels in sequential order using front button: Press CH ∇ or \blacktriangle button.

AV: Indicates Channel Position 0.
 $-$: Indicates a 1-digit number can be entered.
 $--$: Indicates a 2-digit number can be entered.

Note:
 • With channel selection, each preset channel's colour and sound systems are selected automatically. If an inappropriate system is selected, change it by pressing remote COLOUR SYSTEM or SOUND SYSTEM keys (see page 10).

Volume range can vary between: 0 and 50.

To adjust the volume using front button: Press \blacktriangle $-$ or $+$ button.

To turn the main power off: Press front main power button.

VIDEO PLAY/PROGRAMME RECORDING

Precondition:

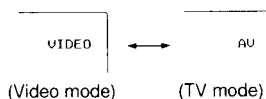
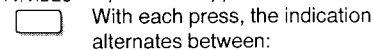
- Connect to an external video component such as a VCR (see page 4).

Video play

To play, connect to a video component via TV aerial socket or VIDEO/AUDIO INPUT terminals. Then activate TV or VIDEO mode according to which connection is active.

1. Press remote TV/VIDEO key to select an input.

Input mode appears.



- The indication disappears after about 3 seconds.

TV connection and mode selection:

TV connection	Mode selection
Via aerial socket	TV mode
Via VIDEO/AUDIO INPUT terminals	VIDEO mode

To play an RF-connected component:

After presetting the component's RF channel in the TV's Channel Position AV (0), select the preset channel on the TV.

Notes:

- Also read and follow component instructions carefully.
- Sound system switching is not possible in VIDEO mode.

If picture is not clear or no colour appears:

Change colour system (see page 10).

If sound is not clear or no sound is heard:

Change sound system (see page 10).

Programme recording

Connect to a VCR via TV VIDEO/AUDIO OUTPUT terminals. TV broadcasts can be recorded on a connected VCR even if the VCR does not incorporate a tuner.

1. Make a source programme appear on the TV screen (if necessary, after pressing remote TV/VIDEO key to activate TV mode).

2. Make operations required to record the programme on the connected VCR.

VIDEO/AUDIO OUTPUT terminals on the TV:

Output video picture and audio sound signals being monitored on the TV.

Note:

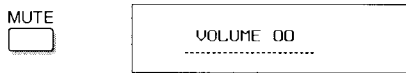
- Also read and follow component instructions carefully.

SOUND/PICTURE CONTROLS

MUTE (sound muting)

Sound can be muted instantly. Convenient when answering a phone or receiving visitors.

1. Press remote MUTE key.
Level and scale appear.



- The display disappears after about 3 seconds.
- Press again to restore the sound.

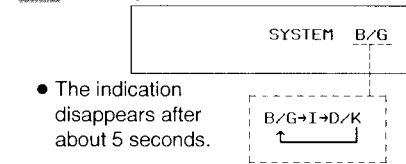
To restore sound by other means of control:
Press front \triangleleft - or + button, or remote VOLUME - or + key.

Sound system switching

Each time a station is preset or a preset channel is selected, sound system is automatically selected. If sound is not clear or no sound is heard using that system, sound system can be changed manually.

1. Press remote SOUND SYSTEM key.

Sound system appears.
With each press, the system changes:



- The indication disappears after about 5 seconds.

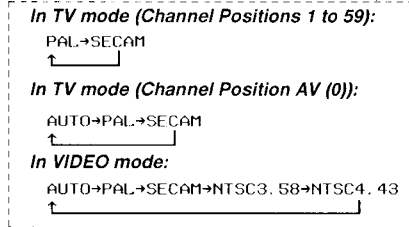
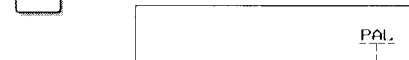
Note:
• Sound system switching is not effective for VIDEO mode.

Colour system switching

Each time a station is preset or a preset channel is selected, colour system is automatically selected. If reception is weak, picture is not clear or no colour appears using that system, colour system can be changed manually.

1. Press remote COLOUR SYSTEM key.

Colour system appears.
With each press, the system changes:



- The indication disappears after about 3 seconds.

PAL : PAL broadcasts.
SECAM : SECAM broadcasts.
NTSC 3.58 : NTSC video playback.
NTSC 4.43 : NTSC video playback (depending on component type).
AUTO : Auto selection. (The indication appears in the centre of the screen.)

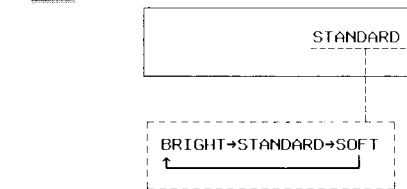
Notes:
• AUTO cannot be selected when tuned to TV mode preset channels 1 to 59.
• AUTO does not function properly for poorly received broadcasts or abnormally recorded sources. If AUTO selection prevents normal picture colour reproduction, switch to PAL, SECAM, NTSC 3.58 or NTSC 4.43.
• NTSC 3.58 or NTSC 4.43 can be selected only in VIDEO mode.

Picture mode selection

Choose from among three preset picture modes (BRIGHT, STANDARD, SOFT) for instant picture settings.

1. Press remote PICTURE MODE key.

Picture mode appears.
With each press, the mode changes:



- The indication disappears after about 3 seconds.

BRIGHT: Heightens contrast and sharpness.
STANDARD: Standardises picture adjustments.
SOFT: Softens contrast and sharpness.

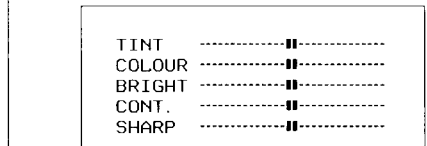
Notes:
• Each mode settings cannot be adjusted.
• See right for user picture adjustments.

User picture adjustments

Picture tone can be adjusted to the viewer's liking.

1. Press remote PICTURE ADJUST key.

Scales appear.
PICTURE ADJUST - key
PICTURE ADJUST + key
PICTURE ADJUST key



2. Repeat pressing to select a scale (item).
Then press PICTURE ADJUST - or + to adjust the level.
Repeat step 2 to make required adjustments.



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

- Now setting is complete.
Scales disappear after about 3 seconds.

Note:
• TINT (tint) is only available for NTSC 3.58 or 4.43 sources.

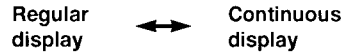
OTHER CONTROLS

Display status

Continuous display of a preset channel number or VIDEO mode indication is possible.

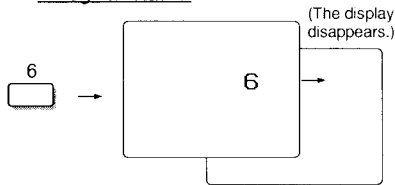
1. Press remote DISPLAY key.

DISPLAY With each press, status alternates between:



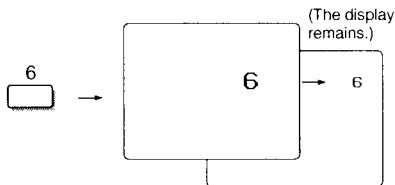
Example: When tuned to preset channel 6

In regular status:



- The number is displayed, then disappears after about 3 seconds.

In continuous status:



- The number is displayed and remains on screen thereafter.

Note:

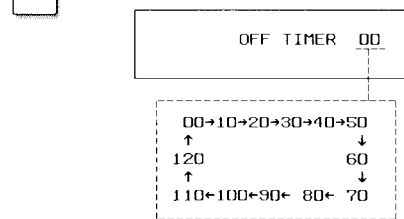
- Continuous display is only possible for either indication of a currently tuned-to channel number or VIDEO mode.

Off-timer setting

Programmes the TV to turn off automatically at a specified time, so the viewer can doze off without worrying about leaving the TV on all night.

1. Repeat pressing remote OFF TIMER key.

OFF TIMER OFF TIMER time appears. Select a required setting time.



With each press, the number of minutes indicated increases by another 10-minute interval.

- Selection is displayed, then disappears after about 3 seconds. OFF TIMER activates automatically.

To display OFF TIMER remaining time:

With no indication on screen, press OFF TIMER key once.

To cancel OFF TIMER:

Repeat pressing OFF TIMER key until the display reads 00.

Notes:

- One minute before the switch-off time is reached, GOOD NIGHT ! appears on screen.
- OFF TIMER does not turn the main power off.
- Each time OFF TIMER turns the power off, its setting is automatically released.

TROUBLESHOOTING

Users may mistakenly believe the TV does not work normally, although the problem may be as simple as the TV not being plugged in or the aerial being misdirected. Before calling for service, be sure to check the following:

IMPORTANT:

Be sure to review all instructions at first. Then check according to the following chart:

TRY THIS	Is the TV plugged in? Check AC outlet and wires?	Check aerial (connections and wires). Move aerial in different directions.	Select proper colour system.	Select proper sound system.	If other channels tune in well, try fine-tuning the channel. question: If reception remains poor, there may be a station broadcast problem. Is it a black-and-white broadcast?	Adjust COLOUR BRIGHT or TINT (for NTSC only) controls.	
Picture rolls vertically.							<p>THEN, CALL FOR SERVICE PERSONNEL. Be sure to unplug the TV; never try to service it yourself.</p> <p>Important: A high-quality outdoor aerial system in fine condition is recommended to minimise service problems.</p>
Noise bars on screen.	NO	NO					
Picture blurred.							
Lines or streaks in picture.							
Weak reception.							
Wrong colours.							
No colour.	NO	NO	NO				
Sound OK but picture poor.							
Sound OK but no picture.							
Picture OK but sound poor.							
No picture or sound.	NO	NO	NO	NO			
Erratic or inoperable remote control.							
	Turn the main power off and on, then turn the power on and check remote operation. If the problem remains, replace batteries and check again.						

Note:

- In rare cases, the TV might become inoperable normally due to noise or interference from external equipment. If this occurs, turn the main power off and unplug the TV. Then plug it in and turn the main power on again to operate.

The following are normal and are NOT TV malfunctions:

- When touching the screen surface, you might feel a slight charge of harmless static electricity generated by the picture tube.
- The TV may emit a crackling sound due to a sudden change in temperature. This may pose no problem as far as picture or sound is concerned.
- When a bright still image (of a white dress, e.g.) appears on screen, the image may be coloured. This problem occurs in all picture tubes. As the bright image disappears, the colouration disappears.

SPECIFICATIONS

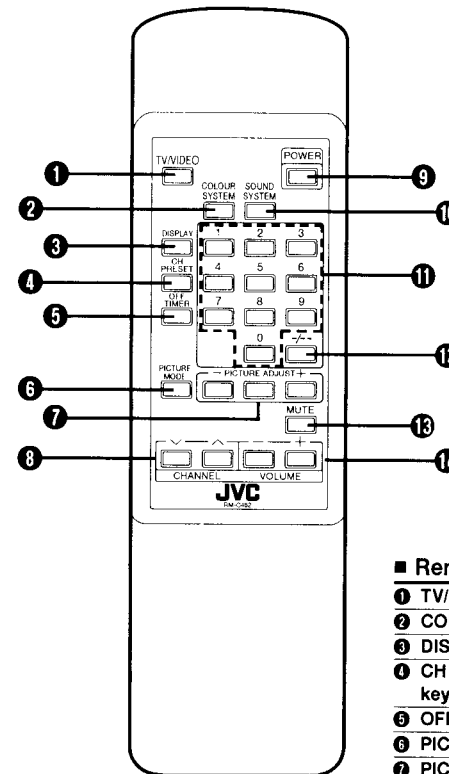
Model	C-21ZE
TV RF systems	B, G, I, D, K, K1
Colour systems	PAL, SECAM * NTSC playback possible in VIDEO mode
Channels and frequencies	VHF low channel (VL): 46.25 – 168.25 MHz VHF high channel (VH): 175.25 – 463.25 MHz UHF channel (U): 471.25 – 863.25 MHz ■ Receives cable channels of mid band (X – Z, S1 – S10), super band (S11 – S20) and hyper band (S21 – S41).
Power requirements	120 – 240 V AC, 50/60 Hz (operating: 90 – 260 V AC, 50/60 Hz)
Power consumption	110 W maximum 80 W average
Screen size (measured diagonally)	Picture tube: 55 cm Visible area: 51 cm
Audio power output	Music power: 5.5 W Effective: 3 W (monaural)
Speaker size	5 x 9 cm oval (Number of speaker : 2 pieces)
RF input	Aerial (VHF/UHF) socket: 75Ω unbalanced
External inputs/outputs	■ VIDEO INPUT terminal (RCA pin) x 1 ■ AUDIO INPUT terminal (RCA pin) x 1 ■ VIDEO OUTPUT terminal (RCA pin) x 1 ■ AUDIO OUTPUT terminal (RCA pin) x 1
External dimensions (W x H x D)	603 x 455 x 482 mm
Mass	23.5 kg
Provided accessories	■ Remote control unit (RM-C462) x 1 ■ AA/R6/UM-3 dry battery (for remote-unit testing) x 2

E. & O.E. Design and specifications subject to change without notice.

● REMOTE KEYS

For controls and connectors, see page 2.
For operation, see specified pages.

■ Remote control



■ Remote control

1 TV/VIDEO key	p. 5, 8, 9
2 COLOUR SYSTEM key	p. 10
3 DISPLAY key	p. 12
4 CH PRESET (station presetting) key	p. 6, 7
5 OFF TIMER key	p. 12
6 PICTURE MODE key	p. 11
7 PICTURE ADJUST (picture adjustment) keys	p. 11
8 CHANNEL ∇/\wedge (descending/ascending channel selection) keys	p. 8
9 POWER standby key	p. 5, 8
10 SOUND SYSTEM key	p. 7, 10
11 Numeric keys	p. 8
12 $-/-$ key	p. 8
13 MUTE (sound muting) key	p. 10
14 VOLUME $-/+$ (decreasing/increasing volume control) keys	p. 8

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Unplug the power supply cord.
2. Remove the six screws marked (A) and one screw marked (B) as shown in Fig. 1.

* When reinstalling the rear cover, carefully push it inward after inserting the main board into the rear cover groove.

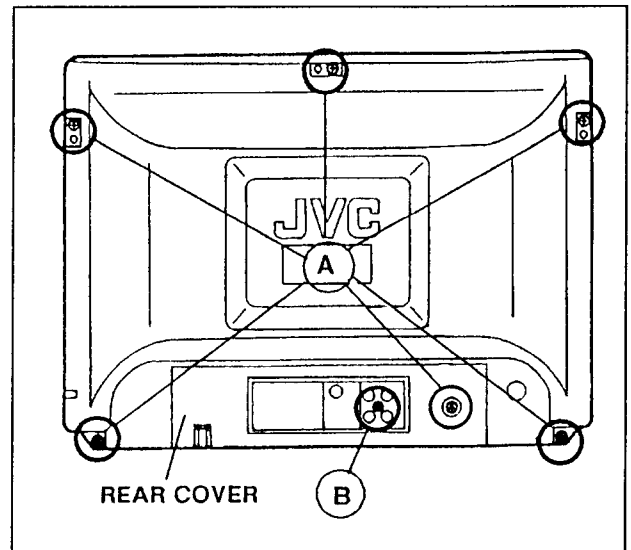


Fig. 1

REMOVING THE MAIN P.W.BOARD

- After removing the rear cover.
1. Withdraw the MAIN P.W.board backward along the rail. (Fig. 2)
(If necessary, take off the wire clamp and connectors, etc.)
- When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket P.W.board and the MAIN P.W.board.

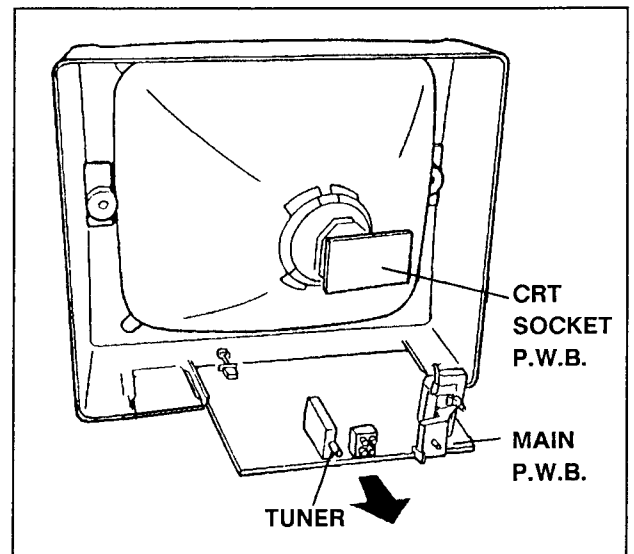


Fig. 2

SETTING UP THE CHASSIS FOR CHECK / REPAIR

- * As shown in Fig. 3, set the removed chassis upright.
- When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT socket P.W.board and the MAIN P.W.board.

WIRE CLAMPING AND CABLE TIES

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.

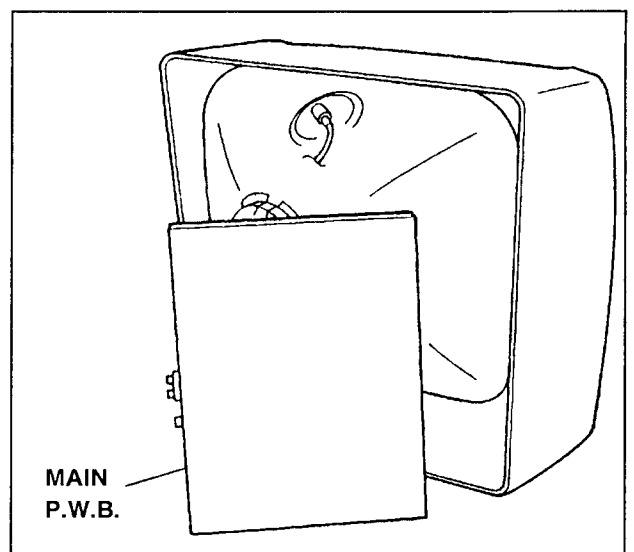


Fig. 3

MEMORY IC REPLACEMENT

1. Memory IC

This model uses a memory (EEPROM) IC.

The memory IC stores data for proper operation of the video and deflection circuits.

When replacing, be sure to use an IC containing this (initial value) data.

2. Memory IC replacement procedure

Procedure	Screen display															
(1) Switch off the power and disconnect the power cord from the outlet.																
(2) Replace the memory IC. Initial value must be entered into the new IC.																
(3) Connect the power cord to the outlet and switch on the power.																
<p>(4) System constant check and setting</p> <ol style="list-style-type: none"> 1) Simultaneously press the DISPLAY key and PICTURE MODE key of the remote control unit. 2) The SERVICE MENU screen of Fig. 1 is displayed. 3) While the SERVICE MENU is displayed, again simultaneously press the DISPLAY and PICTURE MODE keys to display the Fig. 2 SYSTEM CONSTANT screen. 4) Refer to the SYSTEM CONSTANT table and check the setting items. Where these differ, select the setting item with the PICTURE ADJUST key and adjust the setting with the PICTURE ADJUST + / - keys. 5) After setting the items, press the OFF TIMER key to store the setting values. 6) Press the MUTE key twice to return the normal screen. 	<div data-bbox="943 913 1318 1182" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>SERVICE MENU</p> <p>1. VSM PRESET 2. SUB VSM 3. IF V/C</p> </div> <p style="text-align: center;">Fig. 1</p> <div data-bbox="943 1227 1318 1496" style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">SYSTEM CONSTANT</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">☞</td> <td>COLOUR</td> <td>TRIPLE</td> </tr> <tr> <td></td> <td>SOUND</td> <td>MONO</td> </tr> <tr> <td></td> <td>AFC [H]</td> <td>3.593</td> </tr> <tr> <td></td> <td>AFC [L]</td> <td>1.718</td> </tr> <tr> <td></td> <td>SD</td> <td>IC</td> </tr> </table> </div> <p style="text-align: center;">Fig. 2</p>	☞	COLOUR	TRIPLE		SOUND	MONO		AFC [H]	3.593		AFC [L]	1.718		SD	IC
☞	COLOUR	TRIPLE														
	SOUND	MONO														
	AFC [H]	3.593														
	AFC [L]	1.718														
	SD	IC														
(5) Receive channel setting Refer to the OPERATING INSTRUCTIONS (USER GUIDE) and set the receive channels (Channels Preset) as described.																
(6) User settings Check the user setting items According to Table 2. Where these do not agree, refer to the OPERATING INSTRUCTIONS (USER GUIDE) and set the items as described.																
(7) SERVICE MENU setting Check the items according to Table 3. Where necessary, refer to SERVICE ADJUSTMENTS and set the items as described.																

TABLE 1 (System Constant settings)

Setting item	Setting content	Setting value
1. COLOUR	TRIPLE / PAL / MULTI	TRIPLE
2. SOUND	STEREO / MONO	MONO
3. AFC [H]	AFC voltage 3.593 / 2.961	3.593
4. AFC [L]	AFC voltage 2.031 / 1.718	1.718
5. SD	IC / PORT	IC

TABLE 2 (User setting values)

Setting item	Setting value
1. SUB POWER	ON
2. CHANNEL	1 POSITON
3. CHANNEL PRESET	Set it Item 2.(5) Receive channel setting. (Page 6)
4. VOLUME	20
5. TV / VIDEO	TV
6. ON SCREEN DISPLAY	POSITION DISPLAY
7. OFF TIMER	00
8. PICTURE MODE	BRIGHT

TABLE 3 (Service Menu setting items)

Service Menu	Setting item
1. VSM PRESET	BRIGHT, STANDARD, SOFT
2. SUB VSM	TV → PAL → SECAM →
	TV (AV position(0 CH)) → AUTO → PAL → SECAM →
	VIDEO → AUTO → PAL → SECAM → NTSC 3.58 → NTSC 4.43 →
3. IF V/C	1. NOISE ADJ
	2. VCO ADJ
	3. AUDIO ATT
	4. DL TIME ADJ
	5. DRIVE (R)
	6. DRIVE (B)
	7. CUT OFF (R)
	8. CUT OFF (G)
	9. CUT OFF (B)
	10. H-CENTER
	11. PEAK ACL
	12. AFC GAIN
	13. DOUBLE TRAP
	14. TRAP FINE ADJ

Do not adjust

Do not adjust

SERVICE ADJUSTMENTS

BEFORE STARTING ADJUSTMENTS

- Adjustments of this model are performed by using the remote control unit and in the conventional manner by using adjustable parts.
- Adjustments using the remote controller are performed on the basis of the initial setting values.
However, where an adjustment results in the optimum picture, it may differ from the initial setting value.
- Before adjusting, switch ON the power of the set and measuring equipment and allow these to warm up at least 30 minutes.
- Confirm the correct (AC220V) power is supplied.
- Where the received or input signal is not specified, use the optimum signal for the adjustment.
- Use care not to disturb adjustable parts (variable resistors, transformers, capacitors, etc.) not specifically mentioned in these adjustment steps.
- Presetting before adjustment

Unless otherwise indicated in the adjustment steps, use the remote control unit to preset as follows.

• PICTURE MODE	BRIGHT
----------------	--------

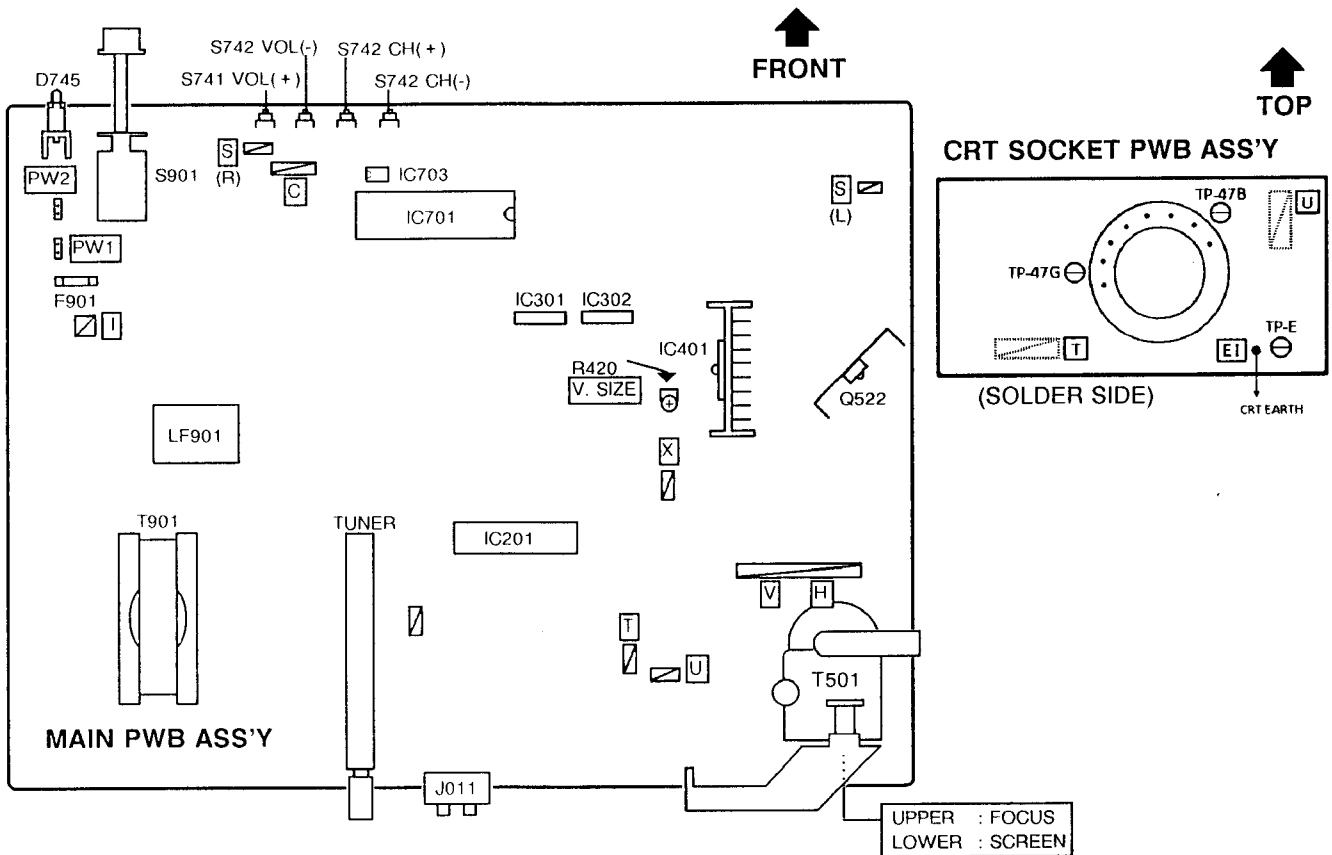
MEASURING EQUIPMENT AND FIXTURES

- DC voltmeter (or digital voltmeter)
- Oscilloscope
- Signal (pattern) generator (PAL, SECAM, NTSC)
- Remote control unit

ADJUSTMENT ITEMS

Adjustment item	Adjustment item
■ ADJUSTMENTS I 1. B1 VOLTAGE CHECK 2. VERTICAL SIZE 3. HORIZONTAL CENTER 4. NOISE (RF AGC) 5. FOCUS 6. CHROMA TRAP	7. WHITE BALANCE (Low Light) 8. WHITE BALANCE (High Light) 9. VSM PRESET 10. VIDEO / CHROMA CIRCUIT ■ ADJUSTMENTS II

ADJUSTMENT LOCATIONS



SERVICE MENU BASIC OPERATION

1. The remote control unit is used for SERVICE MENU operation.
2. SERVICE MENU settings(adjustments) are performed in the following three broad categories.
 - (1) 1. VSM (Video Status Memory) PRESET
BRIGHT, STANDARD and SOFT value settings.
 - (2) 2. SUB VSM
SUB VSM value settings for each colour system
 - (3) 3. IF V/C
IF, VIDEO and CHROMA circuit adjustment value settings.

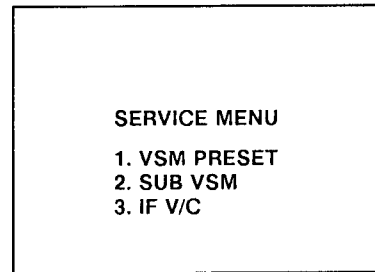


Fig. 1 (SERVICE MENU Screen)

3. SERVICE MENU basic operation

(1) SERVICE MENU entry

Simultaneously press the DISPLAY and PICTURE MODE keys of the remote control unit. The SERVICE MENU screen indicated in Fig. 1 is displayed.

(2) SUB MENU screen selection

1) Press the 1, 2 or 3 key of the remote control unit to select the SUB MENU screen within the SERVICE MENU.

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

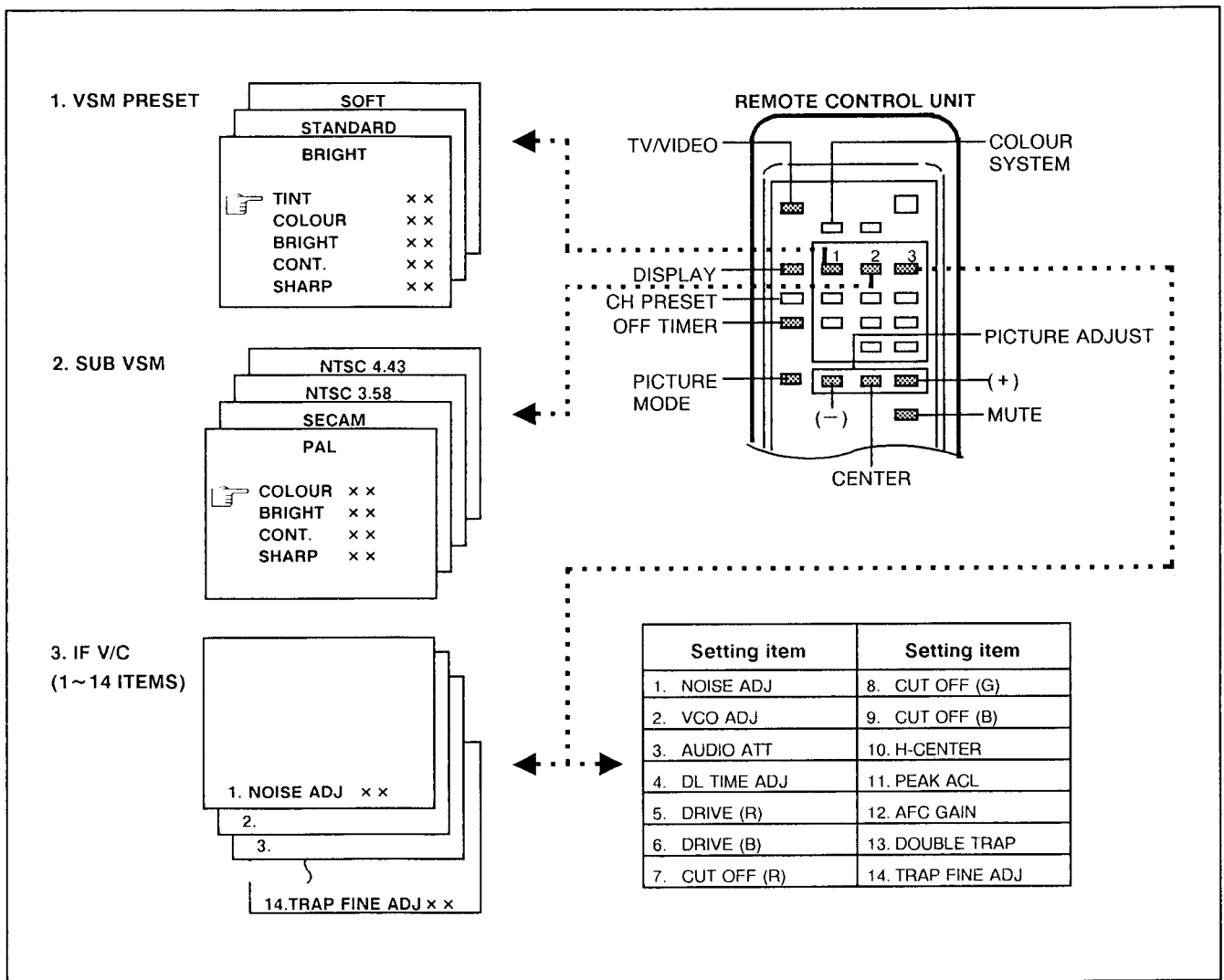


Fig. 2 SUB MENU SCREEN

(3) Setting method

1) 1. **VSM PRESET**

- ① Press the PICTURE MODE key and select BRIGHT, STANDARD or SOFT.
- ② Press the PICTURE ADJUST CENTER key to select the setting item.
- ③ Set the adjustment value for the selected item by pressing the PICTURE ADJUST + / - keys.
- ④ After adjusting, release the PICTURE ADJUST + / - key to store the setting value.
- ⑤ To perform setting in succession, repeat steps ①-③.
- ⑥ Press the MUTE key to return the SERVICE MENU screen.

2) 2. **SUB VSM**

- ① Press the COLOUR SYSTEM key and select PAL, SECAM, NTSC 3.58 or NTSC 4.43.
- ② Press the PICTURE ADJUST CENTER key to select the setting item.
- ③ Set the adjustment value for the selected item by pressing the PICTURE ADJUST + / - keys.
- ④ After adjusting, release the PICTURE ADJUST + / - key to store the setting value.
- ⑤ To perform setting in succession, repeat steps ①-③.
- ⑥ Press the MUTE key to return the SERVICE MENU screen.

3) 3. **IF V/C**

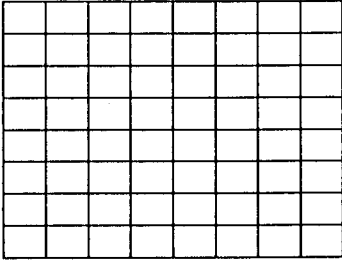
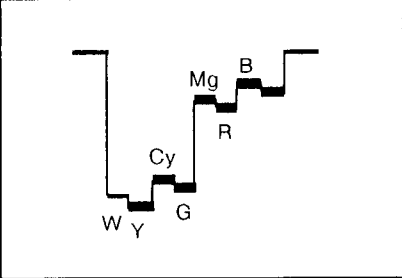
- ① Press the PICTURE ADJUST CENTER key to select the setting item.
- ② Set the adjustment value for the selected item by pressing the PICTURE ADJUST + / - keys.
- ③ After adjusting, release the PICTURE ADJUST + / - key to store the setting value.
- ④ To perform setting in succession, repeat steps ①-②.
- ⑤ Press the MUTE key to return the SERVICE MENU screen.

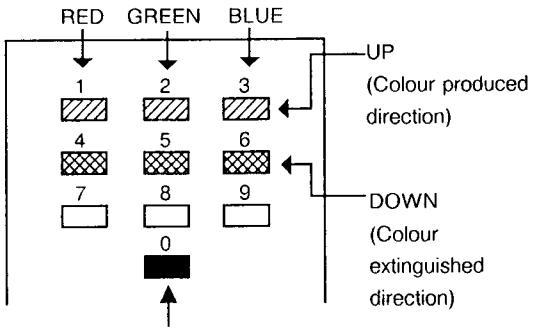
(4) SERVICE MENU release

After completing the settings, return the SERVICE MENU, then again press the MUTE key.

ADJUSTMENTS I

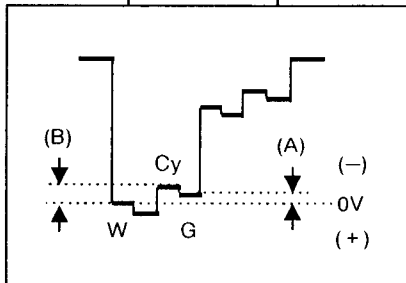
Item	Measuring instrument	Test point	Adjustment part	Description						
1. B1 voltage check	• DC Voltmeter	TP-B1(TP-91) TP-E (↕)		<ol style="list-style-type: none"> 1. Receive a black and white signal (colour off). 2. Connect the DC voltmeter to TP-B1(TP-91) and TP-E (↕). 3. Confirm that the voltage is DC 114V ± 2V. 						
2. VERTICAL SIZE adjustment	• Signal generator		V. SIZE VR (R428) [MAIN PWB]	<ul style="list-style-type: none"> • PICTURE MODE : STANDARD <ol style="list-style-type: none"> 1. Receive a crosshatch signal. 2. Adjust the V. SIZE VR to set the screen size to 92%. 						
3. HORIZONTAL CENTER adjustment	• Signal generator • Remote control unit		10. H. CENTER	<ol style="list-style-type: none"> 1. Receive a 50Hz vertical frequency circle pattern signal. 2. From the SERVICE MENU, select 3. IF V/C. 3. Select 10. H-CENTER. 4. Refer to the figure and use the PICTURE ADJUST + / - keys to equalize the widths of portions A and B (A = B). 5. Receive a 60Hz vertical frequency circle pattern signal. 6. In the same manner, equalize the widths of portions A and B (A = B). <table border="1" data-bbox="836 1592 1445 1742"> <thead> <tr> <th>Setting (Adjustment) item</th> <th>Variable range</th> <th>Initial setting value</th> </tr> </thead> <tbody> <tr> <td>10. H-CENTER</td> <td>0~ 15</td> <td>50Hz : 2 60Hz : 7</td> </tr> </tbody> </table>	Setting (Adjustment) item	Variable range	Initial setting value	10. H-CENTER	0~ 15	50Hz : 2 60Hz : 7
Setting (Adjustment) item	Variable range	Initial setting value								
10. H-CENTER	0~ 15	50Hz : 2 60Hz : 7								

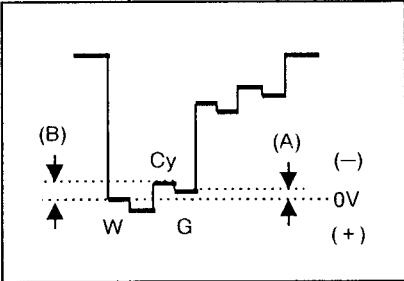
Item	Measuring instrument	Test point	Adjustment part	Description						
4. NOISE (RF AGC) adjustment	<ul style="list-style-type: none"> • Remote control unit 		1. NOISE ADJ	<ol style="list-style-type: none"> 1. Receive a broadcast signal. 2. From the SERVICE MENU, select 3. IF V/C. 3. Select 1. NOISE ADJ. 4. Use the PICTURE ADJUST + / - keys and adjust to eliminate noise from the picture. * When noise disappears, release + / - keys. 5. Check the other channels and confirm absence of abnormality. <table border="1" data-bbox="807 562 1417 696" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Setting (Adjustment) item</th> <th style="width: 20%;">Variable range</th> <th style="width: 30%;">Initial setting value</th> </tr> </thead> <tbody> <tr> <td>1. NOISE ADJ</td> <td>0~63</td> <td>32</td> </tr> </tbody> </table>	Setting (Adjustment) item	Variable range	Initial setting value	1. NOISE ADJ	0~63	32
Setting (Adjustment) item	Variable range	Initial setting value								
1. NOISE ADJ	0~63	32								
5. FOCUS adjustment	<ul style="list-style-type: none"> • Signal generator 		FOCUS VR [built-in HVT]	<ol style="list-style-type: none"> 1. Receive a crosshatch signal. 2. Refer to the figure and set the control to the most counterclockwise position (to decrease the voltage) where the vertical and horizontal lines are as thin and clear as possible. 3. Darken the screen and check for correct focus. * The final adjustment of the CONVERGENCE should always be done after focus adjustment. <div style="text-align: center; margin: 10px 0;">  </div>						
6. CHROMA TRAP adjustment	<ul style="list-style-type: none"> • Signal generator • Remote control unit • Oscilloscope 	TP-47G	14. TRAP FINE ADJ	<ol style="list-style-type: none"> 1. Receive a PAL full field colour bar signal (75% white). 2. Connect an oscilloscope to TP-47G (Green cathode of CRT). 3. From the SERVICE MENU, select 3. IF V/C. 4. Select 14. TRAP FINE ADJ. 5. Use the PICTURE ADJUST + / - keys to switch between HIGH and LOW so as to further reduce the waveform chroma component (Y~B). 6. Input an NTSC Video full field colour bar signal (75% white). 7. In the same manner, repeat steps 5. <div style="text-align: center; margin: 10px 0;">  </div> <table border="1" data-bbox="863 1682 1347 1816" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Setting (Adjustment) item</th> <th style="width: 50%;">Setting value</th> </tr> </thead> <tbody> <tr> <td>14. TRAP FINE ADJ</td> <td>HIGH / LOW</td> </tr> </tbody> </table>	Setting (Adjustment) item	Setting value	14. TRAP FINE ADJ	HIGH / LOW		
Setting (Adjustment) item	Setting value									
14. TRAP FINE ADJ	HIGH / LOW									

Item	Measuring instrument	Test point	Adjustment part	Description																											
<p>7. WHITE BALANCE (Low Light) adjustment</p>	<ul style="list-style-type: none"> • Signal generator • Remote control unit 		<p>7. CUT OFF (R) 8. CUT OFF (G) 9. CUT OFF (B) SCREEN VR</p>	<ol style="list-style-type: none"> 1. Receive a black and white signal (colour off). 2. From the SERVICE MENU, select 3. IF V/C. 3. Select 7. CUTOFF(R), 8.CUTOFF (G) and 9. CUTOFF (B), and set each value to 128. 4. Select one of the modes of above step 3 and press the 0 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 or green colour is faintly visible. 6. Use keys 1-6 of the remote control unit and adjust the other two 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 0 key to return the normal screen. <table border="1" data-bbox="842 757 1449 936"> <thead> <tr> <th>Setting (Adjustment) item</th> <th>Variable range</th> <th>Initial setting value</th> </tr> </thead> <tbody> <tr> <td>7. CUTOFF (R)</td> <td>0~255</td> <td>128</td> </tr> <tr> <td>8. CUTOFF (G)</td> <td>0~255</td> <td>128</td> </tr> <tr> <td>9. CUTOFF (B)</td> <td>0~255</td> <td>128</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • When an irregular screen is caused by pressing a wrong key, turn off the MAIN POWER SW and turn it on again to restart adjustment. 	Setting (Adjustment) item	Variable range	Initial setting value	7. CUTOFF (R)	0~255	128	8. CUTOFF (G)	0~255	128	9. CUTOFF (B)	0~255	128															
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<p style="text-align: center;">REMOTE CONTROL UNIT</p> 	<p>8. WHITE BALANCE (High Light) adjustment</p>	<ul style="list-style-type: none"> • Signal generator • Remote control unit 	<p>5. DRIVE (R) 6. DRIVE (B)</p>	<ol style="list-style-type: none"> 1. Receive a black and white signal (colour off). 2. From the SERVICE MENU, select 3. IF V/C. 3. Select 5. DRIVE (R) and 6. DRIVE (B). 4. Use the PICTURE ADJUST + / - keys to produce a white screen. <table border="1" data-bbox="842 1285 1449 1429"> <thead> <tr> <th>Setting (Adjustment) item</th> <th>Variable range</th> <th>Initial setting value</th> </tr> </thead> <tbody> <tr> <td>5. DRIVE (R)</td> <td>0~63</td> <td>32</td> </tr> <tr> <td>6. DRIVE (B)</td> <td>0~63</td> <td>32</td> </tr> </tbody> </table>	Setting (Adjustment) item	Variable range	Initial setting value	5. DRIVE (R)	0~63	32	6. DRIVE (B)	0~63	32																		
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6. DRIVE (B)	0~63	32																													
<p>9. VSM PRESET adjustment</p>	<ul style="list-style-type: none"> • Remote control unit 		<p>TINT COLOUR BRIGHT CONT. SHARP</p>	<ol style="list-style-type: none"> 1. From the SERVICE MENU, select 1. VSM Preset. 2. Select BRIGHT. 3. Refer to the table and use the PICTURE ADJUST + / - keys to set the setting values from TINT to SHARP as indicated. 4. In the same manner, select and perform settings for the STANDARD and SOFT VSM modes. <table border="1" data-bbox="751 1697 1453 1966"> <thead> <tr> <th rowspan="2">Setting item</th> <th colspan="3">VSM MODE (PICTURE MODE)</th> </tr> <tr> <th>BRIGHT</th> <th>STANDARD</th> <th>SOFT</th> </tr> </thead> <tbody> <tr> <td>TINT SETTING VALUE</td> <td>30</td> <td>30</td> <td>30</td> </tr> <tr> <td>COLOUR SETTING VALUE</td> <td>15</td> <td>15</td> <td>15</td> </tr> <tr> <td>BRIGHT SETTING VALUE</td> <td>15</td> <td>15</td> <td>15</td> </tr> <tr> <td>CONT. SETTING VALUE</td> <td>30</td> <td>24</td> <td>17</td> </tr> <tr> <td>SHARP SETTING VALUE</td> <td>20</td> <td>15</td> <td>10</td> </tr> </tbody> </table> <p style="text-align: center;">VSM Preset setting values</p>	Setting item	VSM MODE (PICTURE MODE)			BRIGHT	STANDARD	SOFT	TINT SETTING VALUE	30	30	30	COLOUR SETTING VALUE	15	15	15	BRIGHT SETTING VALUE	15	15	15	CONT. SETTING VALUE	30	24	17	SHARP SETTING VALUE	20	15	10
Setting item	VSM MODE (PICTURE MODE)																														
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Item	Measuring instrument	Test point	Adjustment part	Description																																																																				
10. VIDEO and CHROMA CIRCUITS adjustment	• Remote control unit		TINT COLOUR BRIGHT CONT. SHARP																																																																					
(1) SUB VSM SETTING				<ul style="list-style-type: none"> From the PICTURE(VSM) MODE, select [BRIGHT]. From the SERVICE MENU, select 2. SUB VSM. Set the COLOUR SYSTEM key to TV PAL mode. 																																																																				
<table border="1"> <thead> <tr> <th colspan="2" rowspan="2">SETTING ITEM</th> <th colspan="4">COLOUR SYSTEM</th> </tr> <tr> <th>PAL</th> <th>SECAM</th> <th>NTSC 3.58</th> <th>NTSC 4.43</th> </tr> </thead> <tbody> <tr> <td rowspan="2">TINT INITIAL SETTING VALUES</td> <td>TV</td> <td>—</td> <td>—</td> <td>[41]</td> <td>—</td> </tr> <tr> <td>VIDEO</td> <td>—</td> <td>—</td> <td>+ 2</td> <td>- 4</td> </tr> <tr> <td rowspan="2">COLOUR INITIAL SETTING VALUES</td> <td>TV</td> <td rowspan="2">33</td> <td rowspan="2">33</td> <td>—</td> <td>—</td> </tr> <tr> <td>VIDEO</td> <td>30</td> <td>(+ 0)</td> </tr> <tr> <td rowspan="2">BRIGHT INITIAL SETTING VALUES</td> <td>TV</td> <td rowspan="2">17</td> <td rowspan="2">←</td> <td>—</td> <td>—</td> </tr> <tr> <td>VIDEO</td> <td>←</td> <td>←</td> </tr> <tr> <td rowspan="2">CONT. INITIAL SETTING VALUES</td> <td>TV</td> <td rowspan="2">30</td> <td rowspan="2">←</td> <td>—</td> <td>—</td> </tr> <tr> <td>VIDEO</td> <td>←</td> <td>←</td> </tr> <tr> <td rowspan="2">SHARP INITIAL SETTING VALUES</td> <td>TV</td> <td rowspan="2">3</td> <td rowspan="2">←</td> <td>—</td> <td>—</td> </tr> <tr> <td>VIDEO</td> <td>9</td> <td>←</td> <td>←</td> </tr> </tbody> </table> <p style="text-align: center;">SUB-VSM initial setting values</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">SYSTEM CONSTANT</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>COLOUR</td> <td>TRIPLE</td> </tr> <tr> <td>SOUND</td> <td>MONO</td> </tr> <tr> <td>AFC [H]</td> <td>3.593</td> </tr> <tr> <td>AFC [L]</td> <td>1.718</td> </tr> <tr> <td>SD</td> <td>IC</td> </tr> </table> <p style="text-align: center; margin-top: 10px;"> → TRIPLE → PAL → MULTI </p> </div>				SETTING ITEM		COLOUR SYSTEM				PAL	SECAM	NTSC 3.58	NTSC 4.43	TINT INITIAL SETTING VALUES	TV	—	—	[41]	—	VIDEO	—	—	+ 2	- 4	COLOUR INITIAL SETTING VALUES	TV	33	33	—	—	VIDEO	30	(+ 0)	BRIGHT INITIAL SETTING VALUES	TV	17	←	—	—	VIDEO	←	←	CONT. INITIAL SETTING VALUES	TV	30	←	—	—	VIDEO	←	←	SHARP INITIAL SETTING VALUES	TV	3	←	—	—	VIDEO	9	←	←	COLOUR	TRIPLE	SOUND	MONO	AFC [H]	3.593	AFC [L]	1.718	SD	IC	<p>[PAL / SECAM / NTSC 3.58 (COLOUR)]</p> <ol style="list-style-type: none"> Use the PICTURE ADJUST + / - keys to set the PAL system COLOUR, BRIGHT, CONT. and SHARP initial setting values as indicated in the table. In the same manner, next set the SECAM system COLOUR initial setting value. Press the TV / VIDEO key to switch from the TV to VIDEO mode. In the Video Mode, set the PAL system SHARP and NTSC 3.58 COLOUR initial setting values. <p>[SYSTEM CONSTANTS]</p> <ol style="list-style-type: none"> Press the TV / VIDEO key to change from the Video Mode to the TV Mode. Press the MUTE Key to change from the 2. SUB VSM screen to the SERVICE MENU screen. Simultaneously press the DISPLAY and PICTURE MODE keys to produce the SYSTEM CONSTANT screen. Use the PICTURE ADJUST + / - keys to change COLOUR from TRIPLE to MULTI. Press the OFF TIMER key to store the setting. Press the MUTE Key to return the SERVICE MENU screen. <p>[NTSC 3.58 (TINT)]</p> <ol style="list-style-type: none"> From the SERVICE MENU, select 2. SUB VSM. With the COLOUR SYSTEM key, select NTSC 3.58 (TV mode). As indicated in the table, set the NTSC 3.58 (TV mode) TINT initial setting value to [41]. Press the MUTE key to change from the 2. SUB VSM screen to the SERVICE MENU screen. Simultaneously press the DISPLAY and PICTURE MODE keys to produce the SYSTEM CONSTANT screen. Use the PICTURE ADJUST + / - keys to change COLOUR from MULTI to TRIPLE. Press the OFF TIMER Key to store the setting. Press the MUTE Key twice to return the normal screen. <p>* Items in parentheses () are automatically set to +0 when the NTSC 3.58 COLOUR and TINT are set. * Arrows indicate the SECAM and NTSC initial setting values are the same as PAL.</p>
SETTING ITEM		COLOUR SYSTEM																																																																						
		PAL	SECAM	NTSC 3.58	NTSC 4.43																																																																			
TINT INITIAL SETTING VALUES	TV	—	—	[41]	—																																																																			
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Item	Measuring instrument	Test point	Adjustment part	Description
(2) BRIGHT setting			BRIGHT	1. If BRIGHT is not optimum at the SUB VSM initial setting value, fine adjust so that optimum is obtained with the SUB VSM BRIGHT.
(3) CONT. setting			CONTRAST	1. If CONTRAST is not optimum at the SUB VSM initial setting value, fine adjust so that optimum is obtained with the SUB VSM CONT.
(4) COLOUR setting	<ul style="list-style-type: none"> • Signal generator • Oscilloscope • Remote control unit 	TP-47G	COLOUR (PAL~NTSC 3.58)	[Adjustment without measuring instruments] 1. If COLOUR is not optimum at the SUB VSM initial setting value, fine adjust so that optimum is obtained with the SUB VSM COLOUR.
			PAL COLOUR	[Adjustments using test instruments] <ul style="list-style-type: none"> • Press the TV / VIDEO key to switch from the TV to VIDEO mode. (PAL COLOUR) 1. Input the VIDEO signal (PAL full field colour bar 75% white) to the VIDEO INPUT Terminal. 2. Set the SUB VSM PAL COLOUR initial setting value as indicated in the table. 3. Connect an oscilloscope to TP-47G (Green cathode of CRT). 4. Refer to the figure and adjust the SUB VSM PAL COLOUR so that value (A) is -5V(W-G).
			SECAM COLOUR	(SECAM COLOUR) 5. Input the VIDEO signal (SECAM full field colour bar 75% white) to the VIDEO INPUT Terminal. 6. Set the SUB VSM SECAM COLOUR initial setting value as indicated in the table. 7. Refer to the figure and adjust the SUB VSM SECAM COLOUR so that value (A) is -5V(W-G).
			NTSC 3.58 COLOUR (VIDEO)	(NTSC 3.58 COLOUR) 8. Input the VIDEO signal (NTSC 3.58 full field colour bar 75% white) to the VIDEO INPUT Terminal. 9. Set the SUB VSM NTSC 3.58 COLOUR initial setting value as indicated in the table. 10. Refer to the figure and adjust the SUB VSM NTSC 3.58 COLOUR so that value (A) is -9V(W-G).
				(NTSC 4.43 COLOUR) This is automatically set when NTSC 3.58 COLOUR is set.



Item	Measuring instrument	Test point	Adjustment part	Description
(5) TINT setting	<ul style="list-style-type: none"> • Signal generator • Oscilloscope • Remote control unit 	TP-47G	NTSC 3.58 TINT 4.43 TINT (VIDEO)	<ol style="list-style-type: none"> 1. Press the TV / VIDEO key to select the TV mode. 2. Simultaneously press the DISPLAY and PICTURE MODE Keys twice to produce the SYSTEM CONSTANT screen. <ul style="list-style-type: none"> • Refer to (1) SUB VSM SETTING items 10 - 19 and set the NTSC 3.58 TINT (TV mode) initial setting value to [41] as indicated in the table. 3. Press the MUTE Key once to produce the SERVICE MENU screen, then select 2. SUB VSM. 4. Press the TV / VIDEO key to change from the TV to the VIDEO mode. <p>[Adjustments without measuring instruments]</p> <p>(NTSC 3.58 TINT)</p> <p>(5) Select NTSC 3.58 with the COLOUR SYSTEM Key (VIDEO mode).</p> <p>(6) If TINT is not optimum at the SUB VSM initial setting value, fine adjust with SUB VSM NTSC 3.58 TINT for the optimum setting.</p> <p>(NTSC 4.43 TINT)</p> <p>(7) Select NTSC 4.43 with the COLOUR SYSTEM Key (VIDEO mode).</p> <p>(8) If TINT is not optimum at SUB VSM initial setting value, fine adjust with SUB VSM NTSC 4.43 TINT for the optimum setting.</p>
 <div style="border: 1px solid black; padding: 5px; margin-top: 10px; width: fit-content;"> <p>NTSC 4.43 TINT setting value (Y) = NTSC 3.58 TINT setting value (X) - 6</p> </div> <p style="text-align: center; margin-top: 10px;">[TABLE 1]</p>			NTSC 3.58 TINT 4.43 TINT (VIDEO)	<p>[Adjustments using test instruments]</p> <p>(NTSC 3.58 TINT)</p> <p>(5) Supply an NTSC 3.58 VIDEO signal (NTSC 3.58 full field colour bar 75% white) to the VIDEO Input terminal (VIDEO mode).</p> <p>(6) Connect an oscilloscope to TP-47G (Green cathode of CRT).</p> <p>(7) Adjust SUB VSM NTSC 3.58 TINT so that the value (B) in the figure (W-Cy) is -10V. Make a note of the NTSC 3.58 TINT setting value (X) displayed on the screen.</p> <p>(NTSC 4.43 TINT)</p> <p>(8) Supply an NTSC 4.43 VIDEO signal (NTSC 4.43 full field colour bar 75% white) to the VIDEO Input terminal (VIDEO mode).</p> <p>(9) Adjust SUB VSM NTSC 4.43 TINT to obtain the setting value (Y) as indicated table 1.</p>

■ ADJUSTMENTS II

Ordinarily, avoid changing the items indicated in the table.

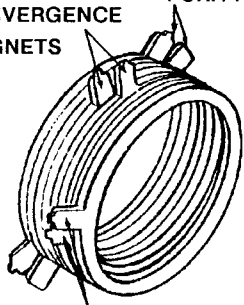
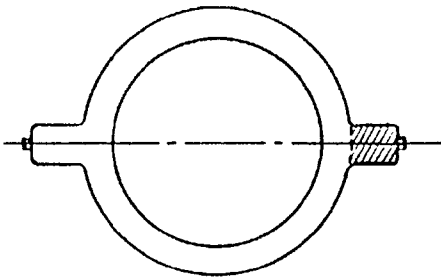
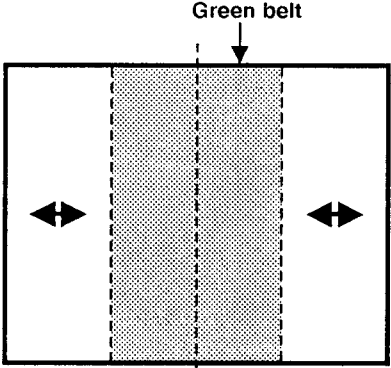
Service Menu 3. IF V/C setting items

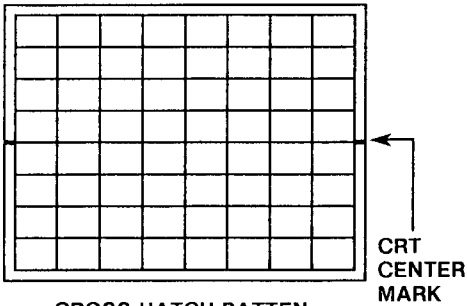
Setting item	Setting content / range	Fixed value
2. VCO ADJ	0~63	32
3. AUDIO ATT	0~127	73
11. PEAK ACL	150IRE / 120 IRE	150IRE
12. AFC GAIN	NORMAL / HIGH	HIGH
13. DOUBLE TRAP	SINGLE / DOUBLE	SINGLE

Setting item	Setting range	TV / VIDEO	Fixed value			
			PAL	SECAM	NTSC 3.58	NTSC 4.43
4. DL TIME ADJ	0~7	TV	4	2	—	—
		VIDEO	4	7	4	4

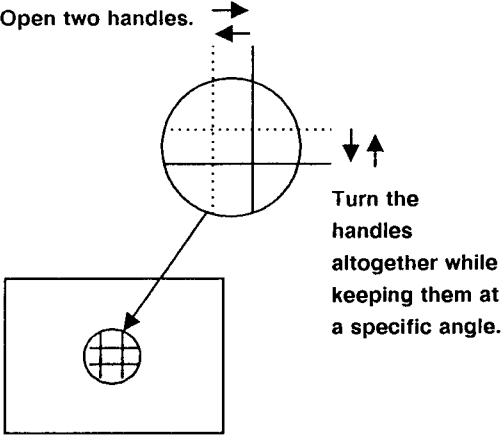
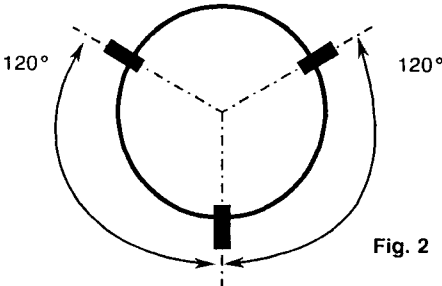
PURITY, CONVERGENCE

1. ADJUSTMENT OF PURITY

Adjustment Part	Description	Remarks
<p>WEDGE</p> <p>PURITY MAGNET</p> <p>DEF. YOKE</p>	<p>Prior to starting adjustment, perform the following items:</p> <ol style="list-style-type: none"> Remove a wedge inserted into the DEF. YOKE. At this time, clean the portion from which the wedge has been removed. Peel adhesive used to fix six magnets with a tip of screw driver so that the magnets can be turned freely. Input the white raster with the pattern generator. Demagnetize the CRT with a demagnetizer. Set the brightness and picture to slightly higher than the standard values, and warm up for about 20 ~ 30 minutes. <p>Adjustment method</p> <ol style="list-style-type: none"> Input the green raster with the pattern generator. After loosening the set screw of the DEF. YOKE, draw the yoke to the rear side to let irregular colour of a vertical belt form appear on the screen. Mutually pile up two PURITY MAGNETS, and set them to a horizontal position as initial magnets (Fig. 2). While opening and closing or turning the handles of PURITY MAGNETS, let green vertical belts appear on the center of the screen (Fig. 3). Push out the DEF. YOKE to the front side, and set the position of the DEF. YOKE so that the entire screen becomes totally green (Fix the DEF. YOKE temporarily with a WEDGE so that the yoke is not moved). 	<p>4 POLES CONVERGENCE MAGNETS</p> <p>PURITY MAGNET</p>  <p>6 POLES CONVERGENCE MAGNETS</p> <p>Fig. 1</p> <p>Align two purity magnets horizontally.</p>  <p>Fig. 2</p> <p>Green belt</p>  <p>Shift the green belt to the center</p> <p>Fig. 3</p>

Adjustment Part	Description	Remarks
	<ol style="list-style-type: none"> 6. Receive cross-hatch pattern. 7. With the DEF. YOKE, make the line horizontal and let the line be further closer to the vertical center position (In this case, do not change the front and rear positions of the DEF. yoke). 8. Change the initial picture appear on the screen. 9. Make sure that the purity has been obtained regarding the red, blue and white raster. 10. Lightly tighten the set screws so that the DEF. YOKE is not moved back and forth. 	 <p style="text-align: center;">CROSS-HATCH PATTEN Fig. 4</p>


2. CONVERGENCE

Adjustment Part	Description	Remarks
<p>CONVERGENCE MAGNET</p> <p>DEF. YOKE</p>	<p>Adjustment method</p> <ol style="list-style-type: none"> 1. Receive cross-hatch pattern. <p>[STATIC CONVERGENCE]</p> <ol style="list-style-type: none"> 2. With the 4-POLE CONVERGENCE MAGNETS, overlap the red and blue lines at the center of the screen and turn the colour to magenta (red/blue). 3. Next, overlap magenta (red/blue) and green lines at the center of the screen using the 6-POLE CONVERGENCE MAGNETS. 4. By repeating the steps 2 and 3 above, align the convergence of vertical line to that of the horizontal line at the center of the screen. <p>[DYNAMIC CONVERGENCE]</p> <ol style="list-style-type: none"> 5. Move the DEF. YOKE up, down, right, or left so as to make the convergence around screen the best. 6. Make sure that the convergence of whole screen is the best. 7. Insert the removed WEDGE into the initial position and fix it. (Fig. 2) 8. Firmly tighten the set screws of the DEF. YOKE with an appropriate torque. 9. Fix the six magnets using adhesive. 	<p>Open two handles.</p>  <p style="text-align: center;">Fig. 1</p>  <p style="text-align: right;">Fig. 2</p>

C-21ZE / C-21ZE(-A) STANDARD CIRCUIT DIAGRAM

NOTE ON USING CIRCUIT DIAGRAMS

1. SAFETY

The components identified by the  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 Color 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 : Uninflammable 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]
AC indicated : AC withstand voltage[V]

* Electrolytic Capacitors

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



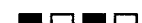

• Type

- 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



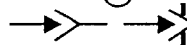
-  : B1(114V)
 : B2(12V)
 : 8V
 : 5V

* 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

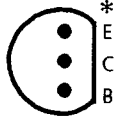
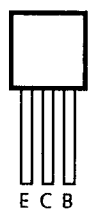
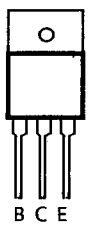
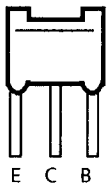
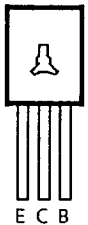
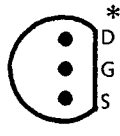
This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : () side GND and the ISOLATED (NEUTRAL) : () side GND. Therefore, care must be taken for the following points.

- (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.

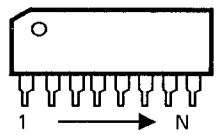
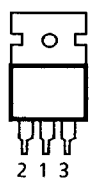
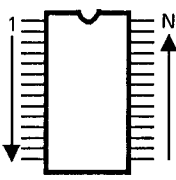
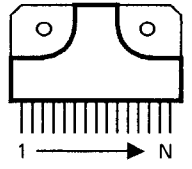
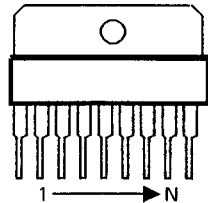
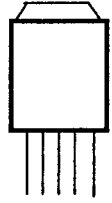
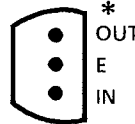
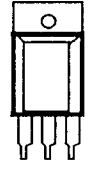
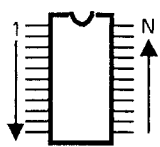
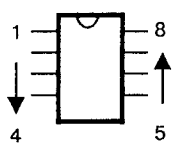
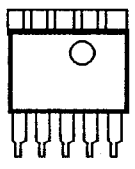
◇ Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

SEMICONDUCTOR SHAPES (* = Bottom view)

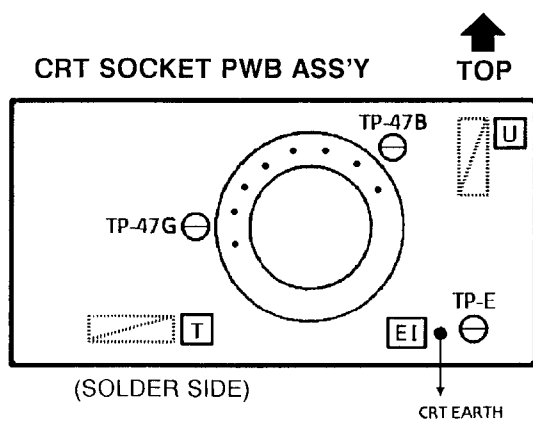
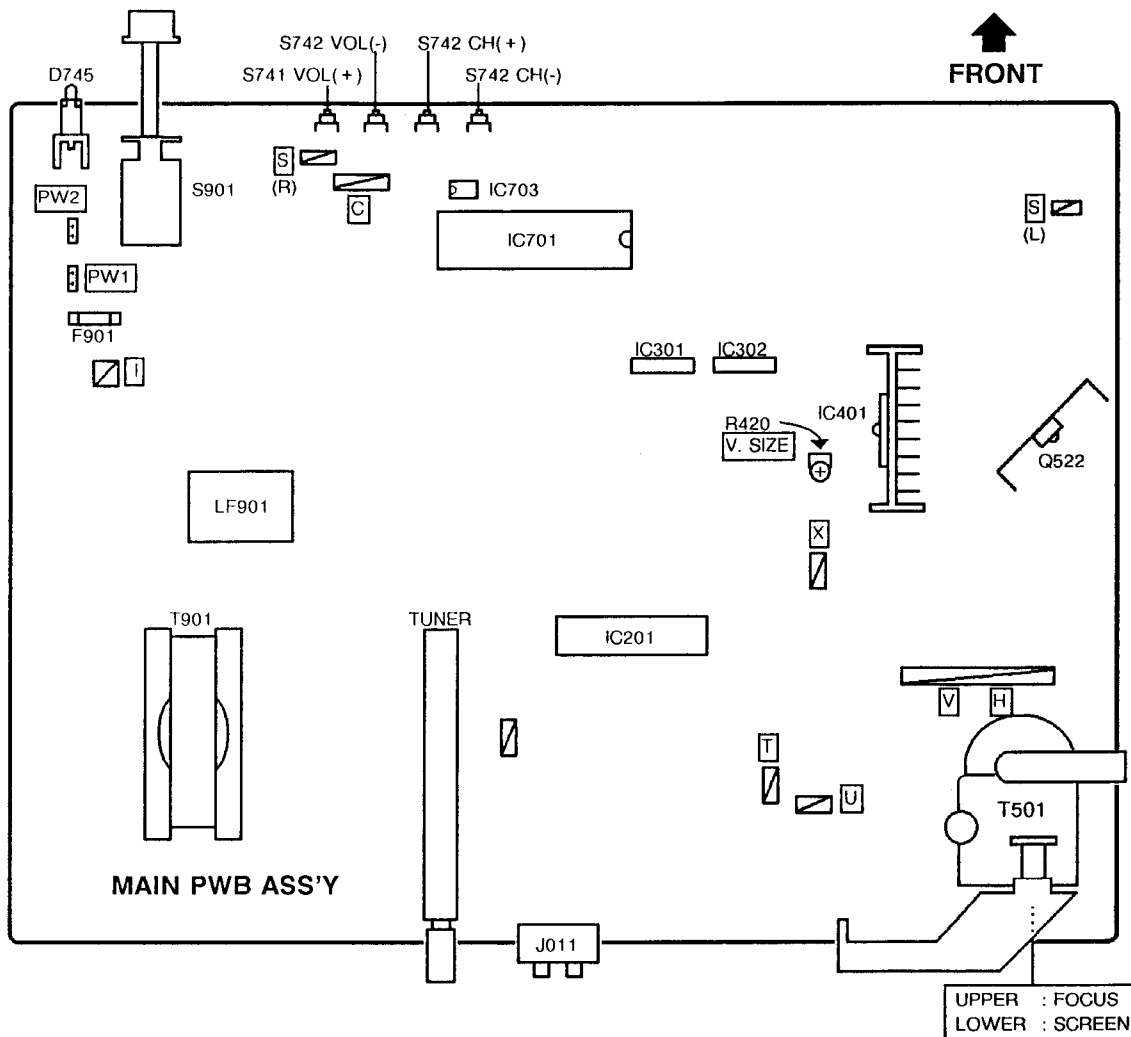
TRANSISTORS

 <p>2SA562TM(Y) 2SA673(C) 2SC2655(Y) 2SC1360 2SC1959 2SC1906 2SC2482(C1) 2SA949(Y)C1 2SA966(0Y)-T 2SB774(RS) 2SC4722(NP) 2SC1815(YG)</p>	 <p>2SA933AS(QR) 2SA933S(QR) 2SC1740S(QR) 2SC2785(JH) DTC124ESA-T</p>	 <p>2SD1554-C1 2SD1878-YD</p>
 <p>2SC4502</p>	 <p>2SC2371(MLK) 2SC3271(NP)</p>	 <p>2SK301(P)</p>

ICs

 <p>LA7016</p>	 <p>S1854-C1</p>	 <p>TA8725N-J TA8601BNV MN152121JGM2 CXA1124AS TA8725AN MN1872013JGU3 TA8801AN MN1873237JKH6 M52343SP M37102M8-C41SP</p>	
 <p>LA7838 UPC1488H LA7837</p>	 <p>AN5265</p>	 <p>L78LR05E-MA</p>	 <p>KIA78L08BP</p>
 <p>AN78N12 AN78M05</p>	 <p>U3660M-B M52325P BU4066BC</p>	 <p>ST93C46AB1 AT93C56-10PC XL24C04P-21ME</p>	 <p>STR-S6707</p>

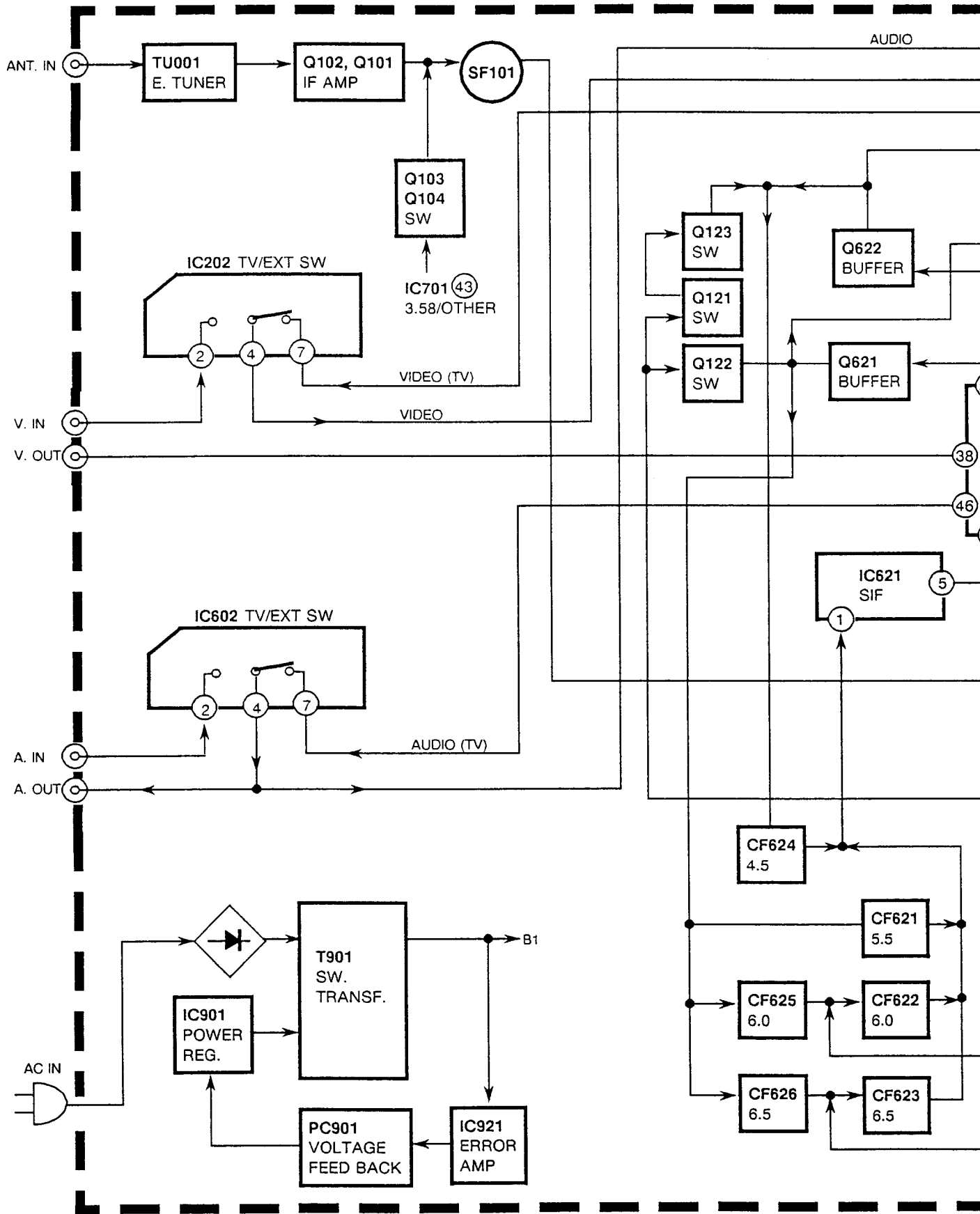
MAIN PARTS LOCATION AND ALIGNMENTS LOCATION

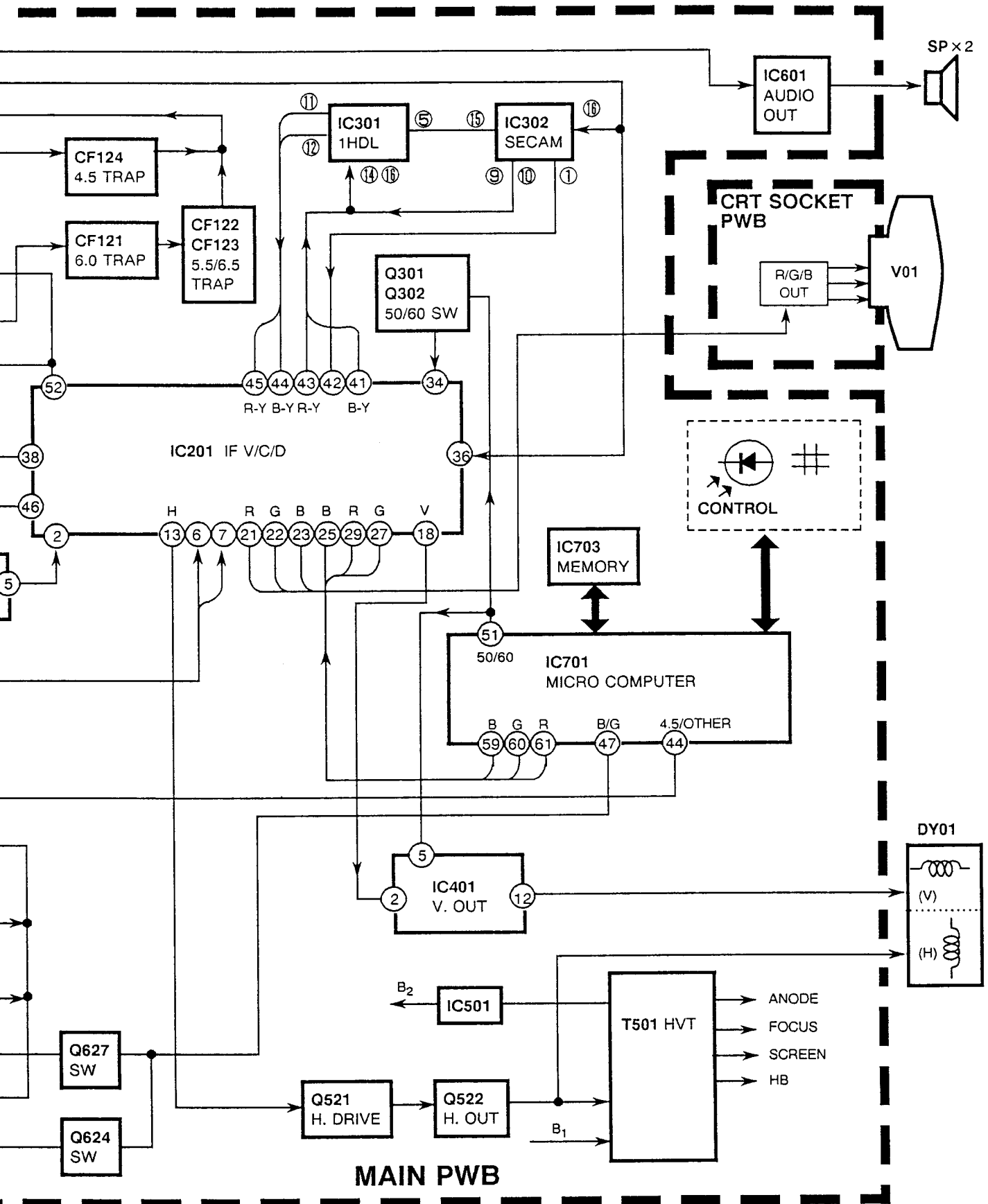


WIRING LIST

P.W.BOARD or PART NAME	CONNECTOR NAME	WIRING	CONNECTOR NAME	P.W.BOARD or PART NAME
MAIN PWB ASS'Y	T	↔	T	CRT SOCKET PWB ASS'Y
MAIN PWB ASS'Y	U	↔	U	CRT SOCKET PWB ASS'Y
MAIN PWB ASS'Y	I	↔	WIRE	DEG. COIL
MAIN PWB ASS'Y	H	↔	WIRE	DEF. YOKE
MAIN PWB ASS'Y	V	↔	WIRE	DEF. YOKE
MAIN PWB ASS'Y	S	↔	WIRE	SPEAKER 01, 02
MAIN PWB ASS'Y	PW1/PW2	↔	—	POWER CORD
CRT SOCKET PWB ASS'Y	CRT EARTH	↔	EARTH WIRE	CRT(BRAIDED ASS'Y)

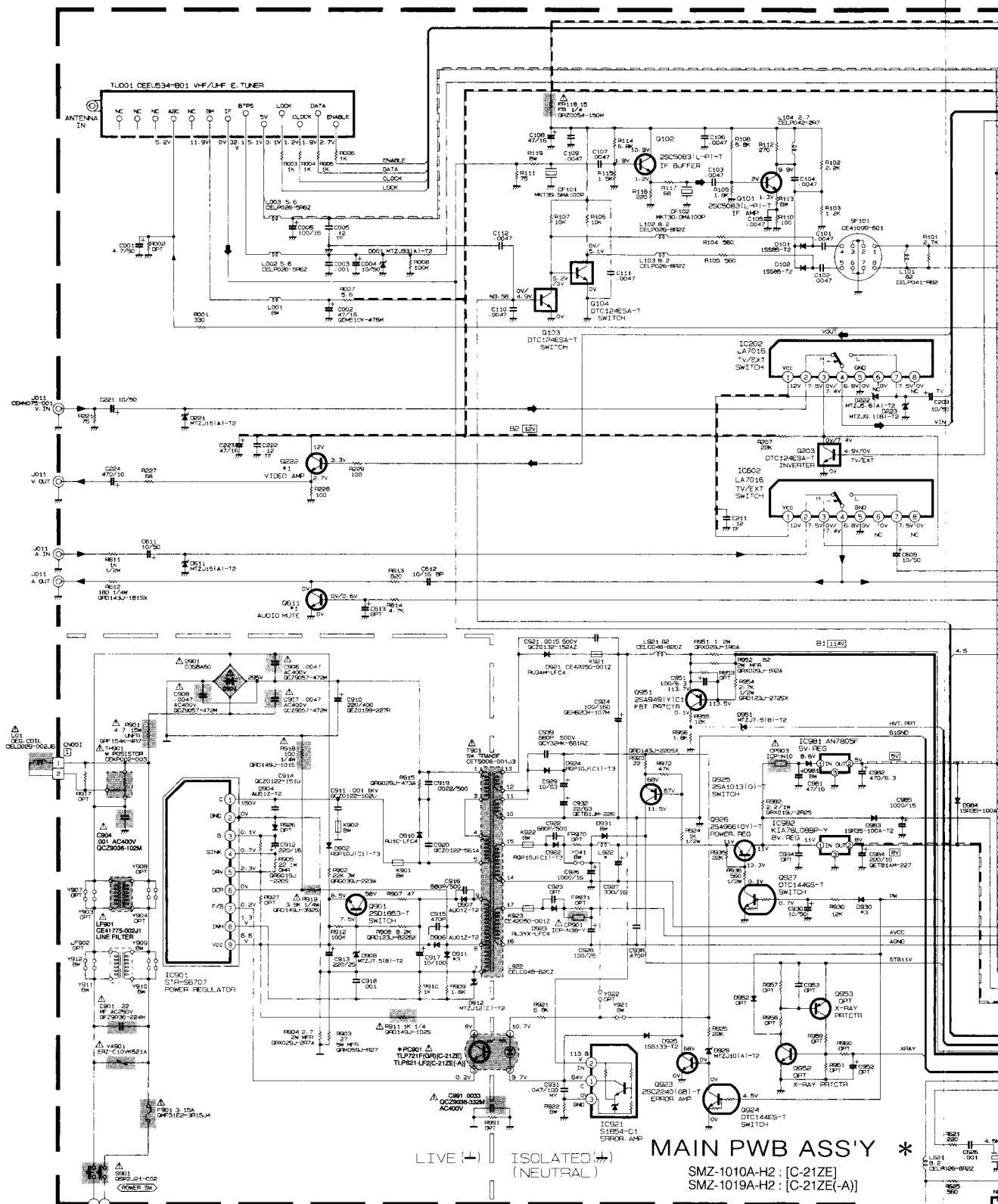
BLOCK DIAGRAM





CIRCUIT DIAGRAMS AND PWB PATTERNS

MAIN PWB, CRT SOCKET PWB CIRCUIT DIAGRAMS



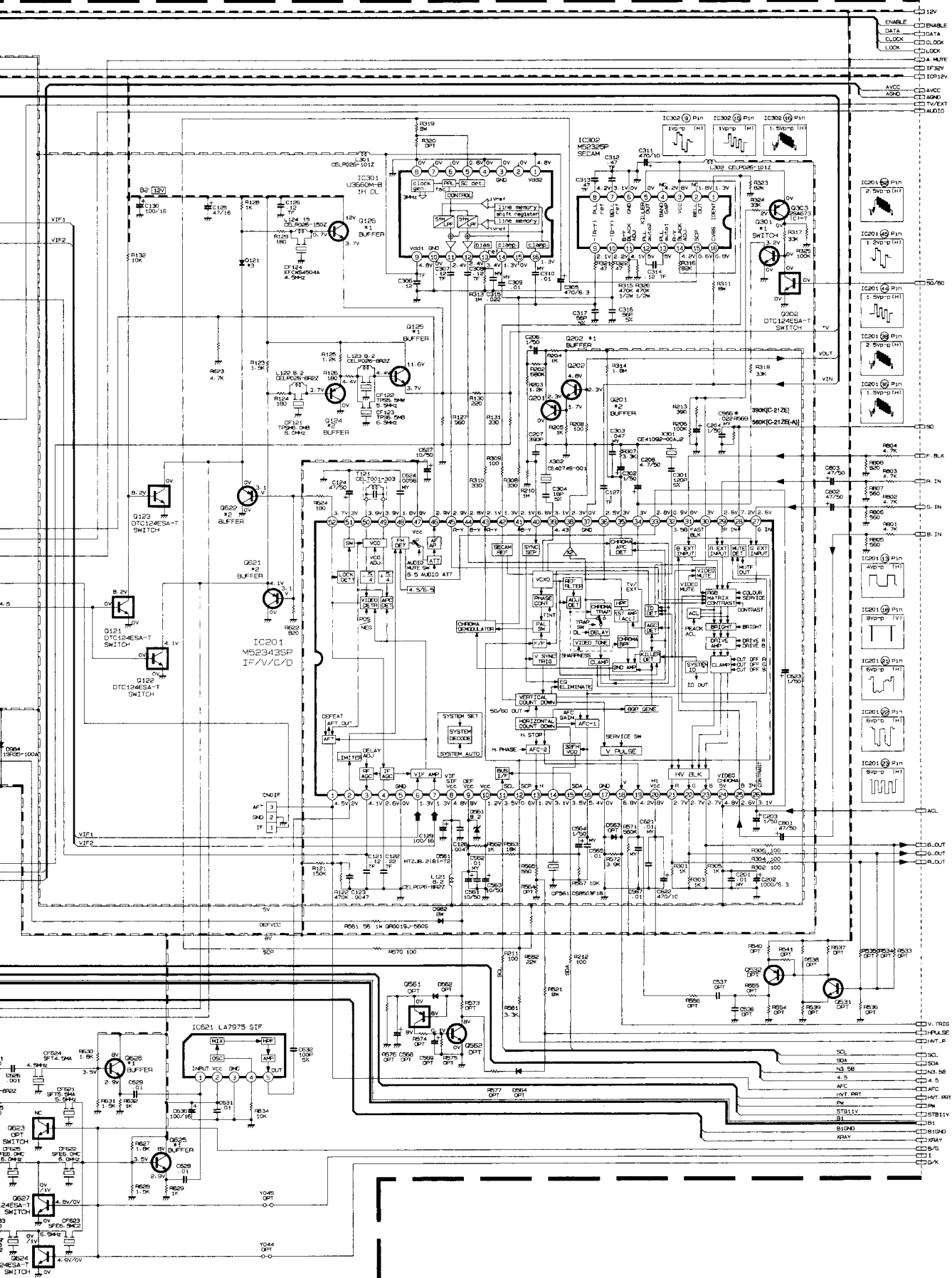
MAIN PWB ASS'Y *
 SMZ-1010A-H2: [C-21ZE]
 SMZ-1019A-H2: [C-21ZE(A)]

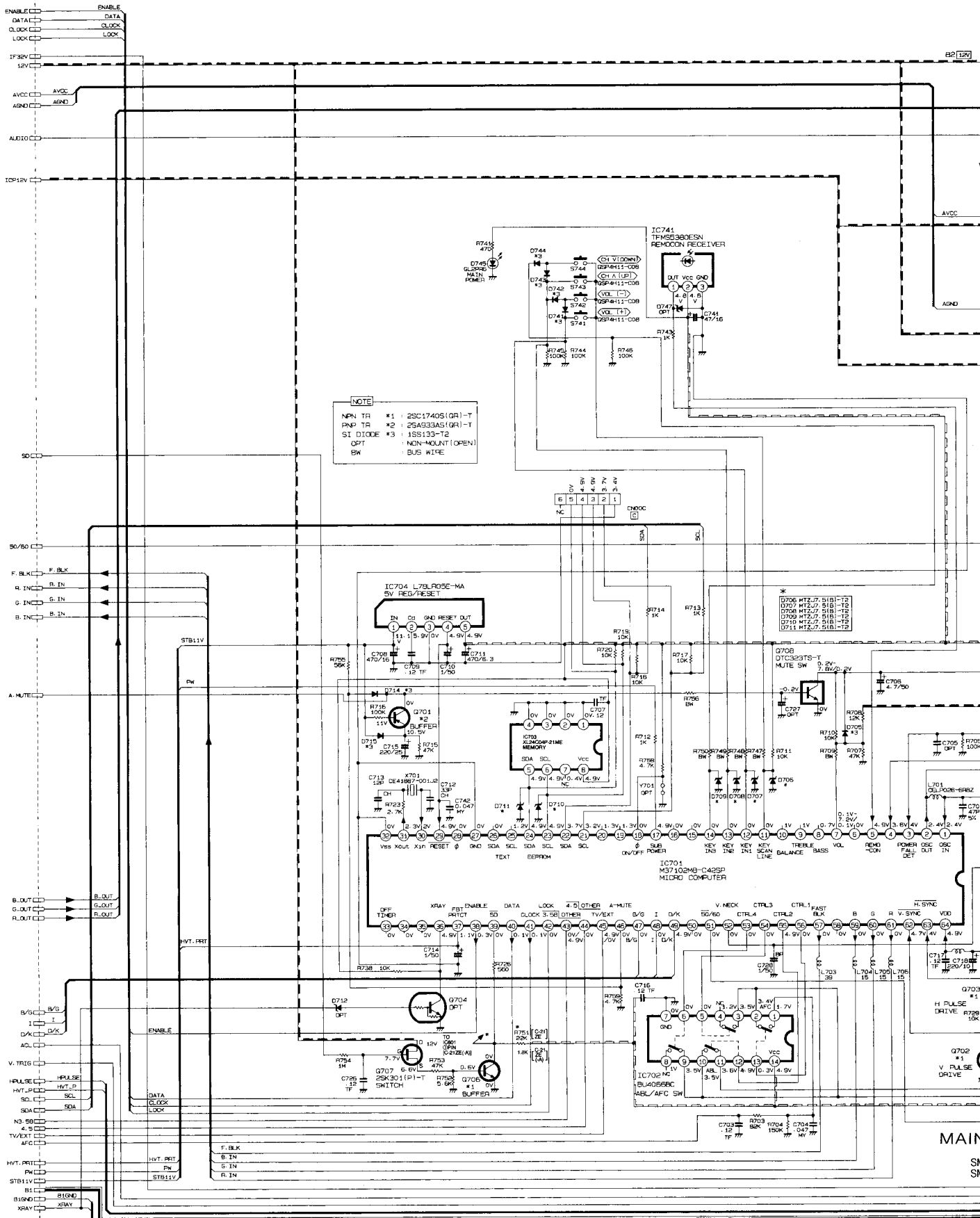
*** DIFFERENCE LIST**

	MAIN PWB ASSY	Δ POWER CORD	Δ PC1901 PHOTO COUPLER	R1569	R1751	CHT12AA0-12-BH (UL VINYL WIRE)
C-21ZE	SMZ-1010A-H2	OMP4060-200JG	TLP21F(IGR)	QRD161J-394Y	QRD161J-223Y	
C-21ZE (A)	SMZ-1019A-H2	OMP7370-200JG	TLP21-LP2	QRD161J-564Y	QRD161J-182Y	IC6013:PIN → Q706 ©

NOTE
 NPN TR *1: 2SC1740G1(QR1-T)
 PNP TR *2: 2SA933A51(QR1-T)
 SI DIODE *3: 1SS133-T2
 OPT : NON-MOUNT (OPEN)
 BW : BUS WIRE

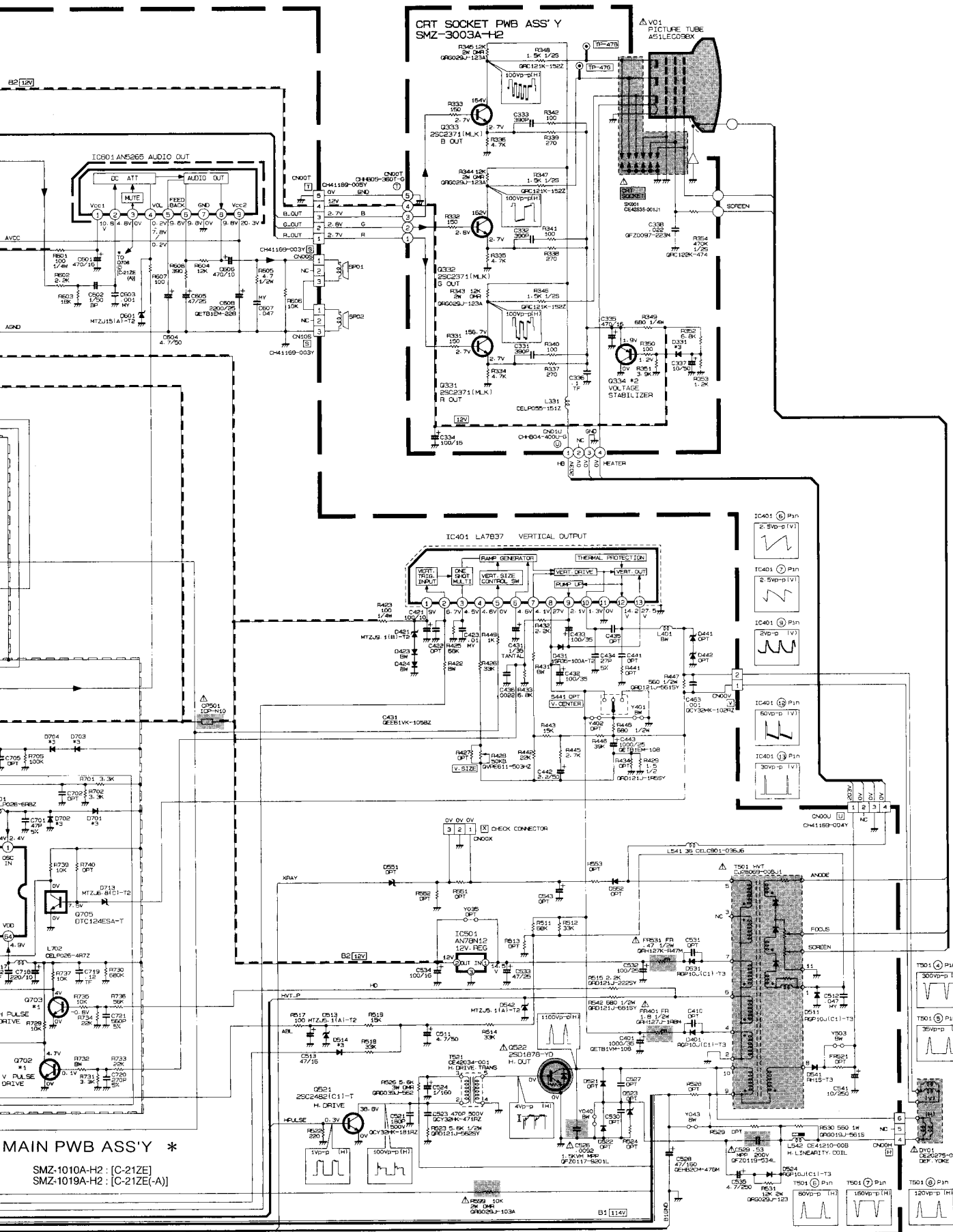
POWER CORD
 ACTION: 240V 50/60Hz
 OMP4060-200JG(C-21ZE)
 OMP7370-200JG(C-21ZE(A))





NOTE
 NPN TR #1 2SC1740S(QR)-T
 PNP TR #2 2SA933AS(QR)-T
 SI DIODE #3 1SS133-T2
 OPT NON-MOUNT(OPEN)
 SW BUS WIRE

Refer to the following PWB pattern. : MAIN PWB PATTERN 2-11, 12page, CRT SOCKET PWB PATTERN 2-13 page.



MAIN PWB PATTERN

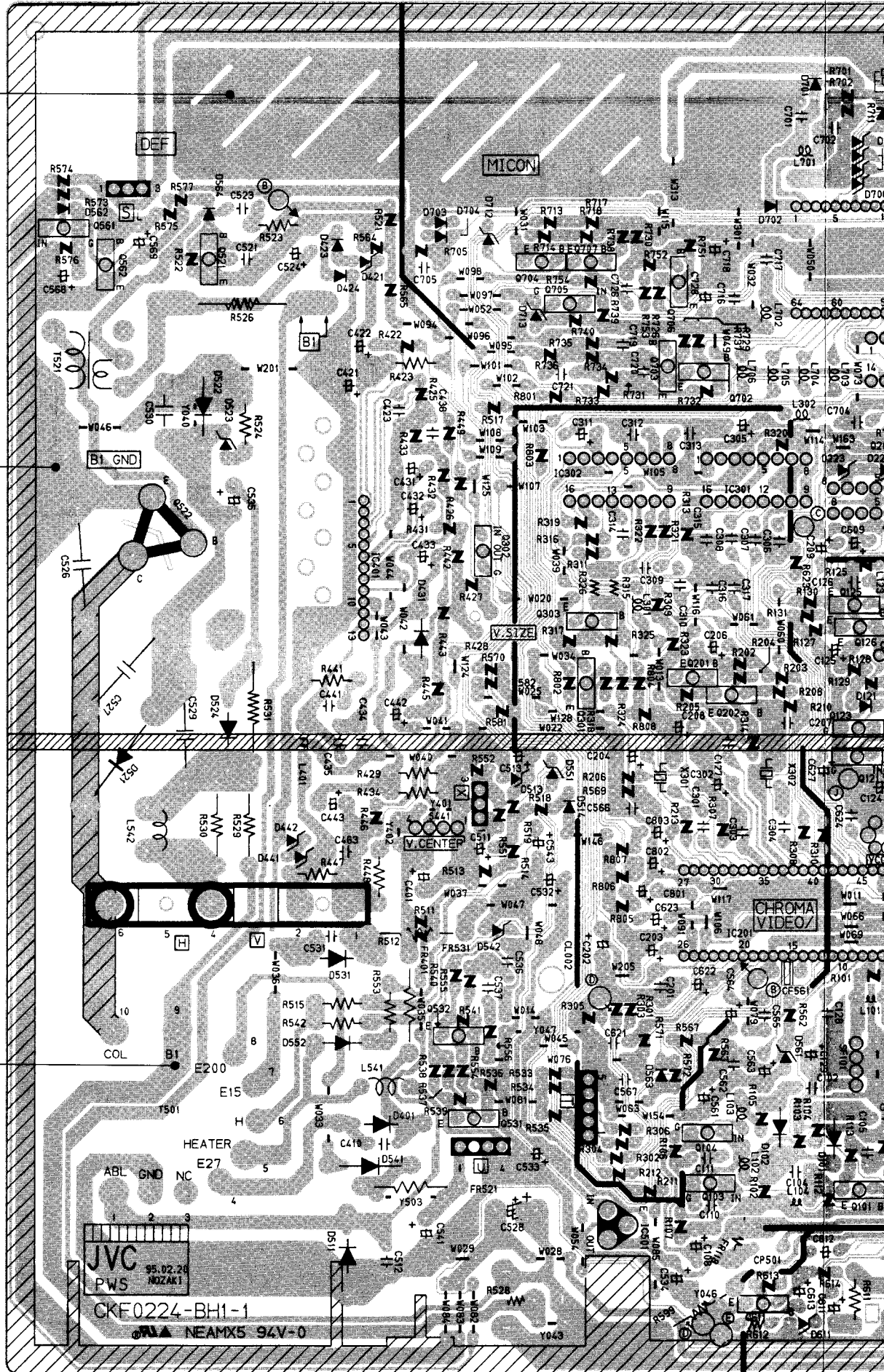
(SMZ-1010A-H2[C-21ZE]/SMZ-1019A-H2[C-21ZE(-A)])

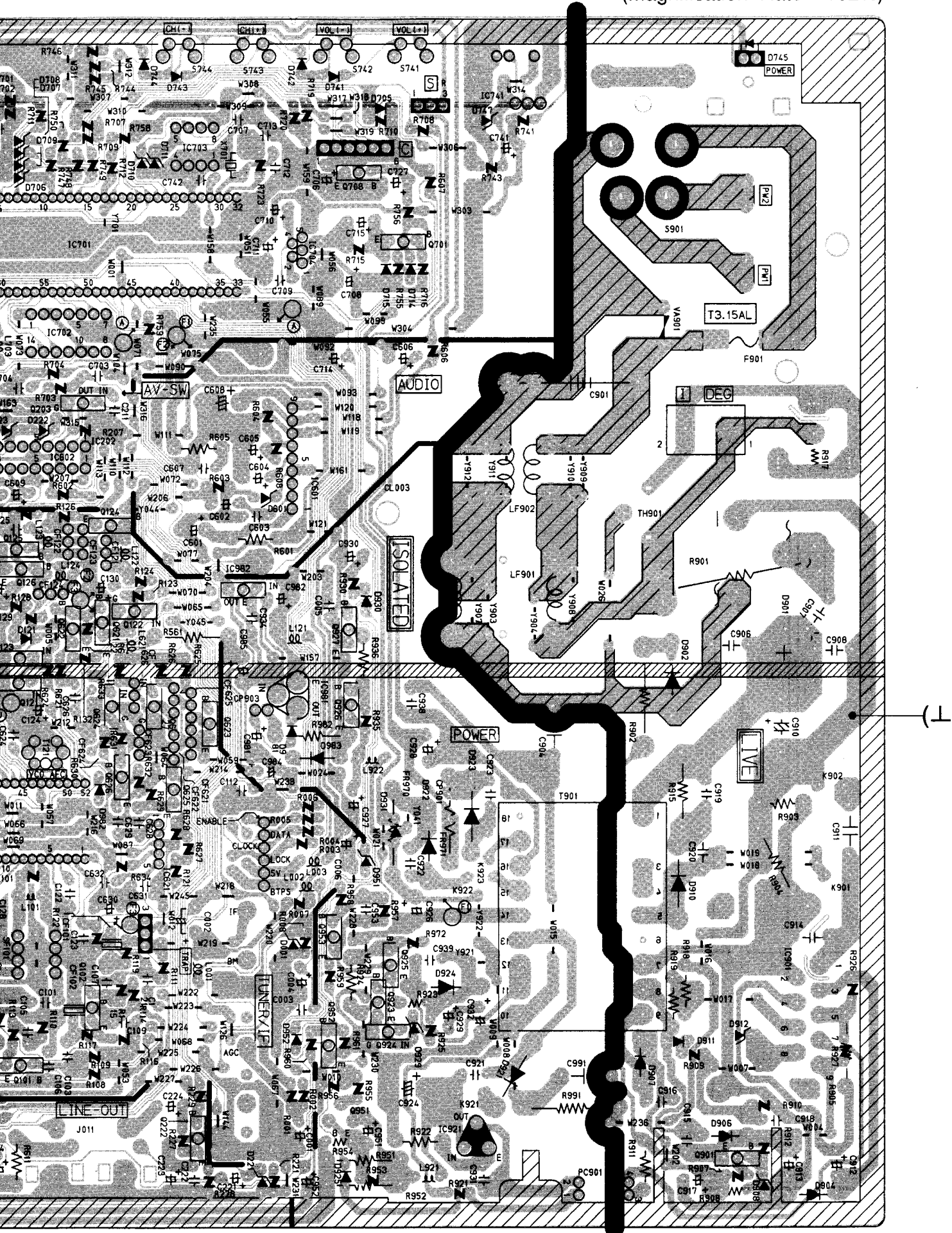
(//)

FRONT

(//)

TP-91
(TP-B1)

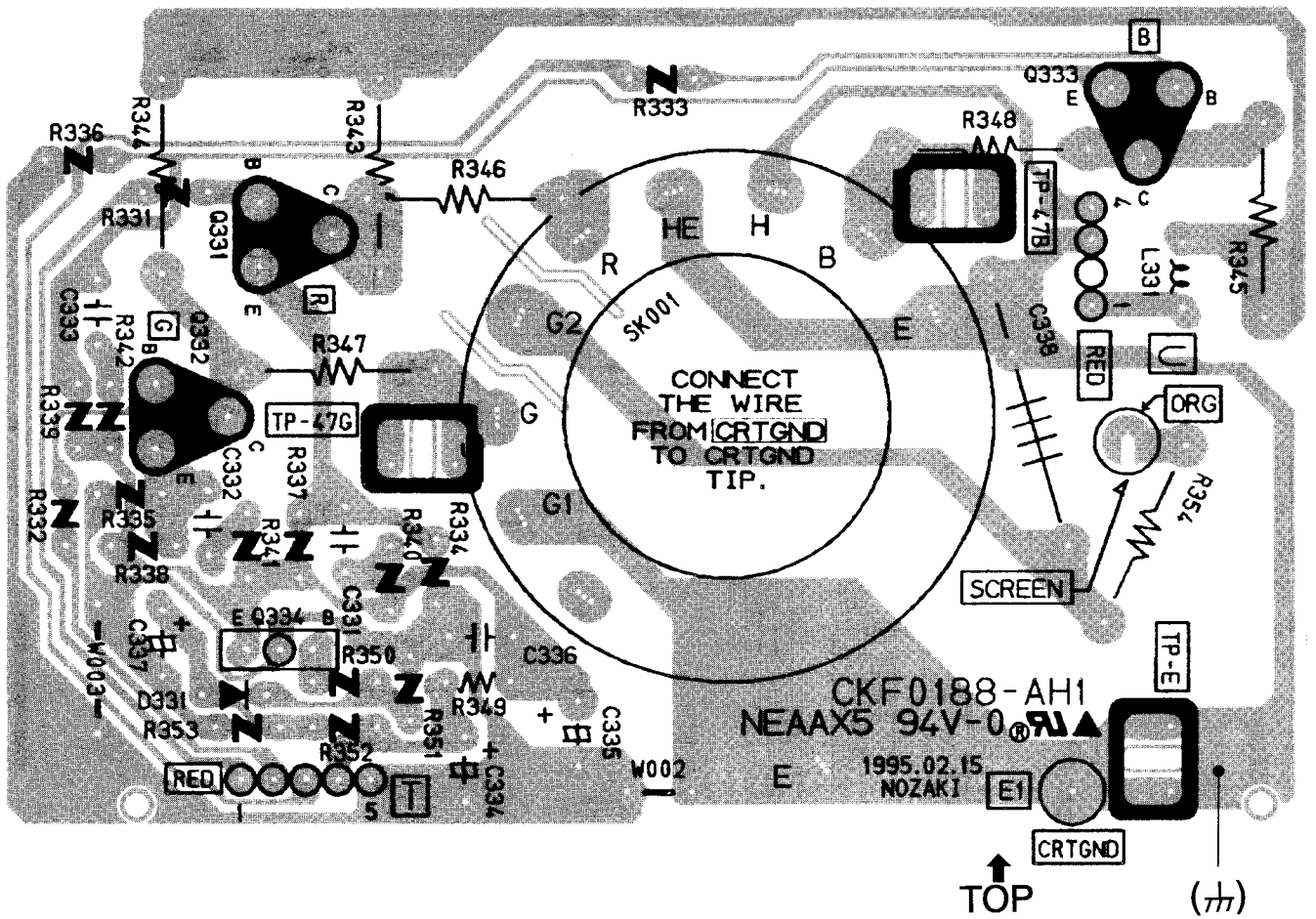


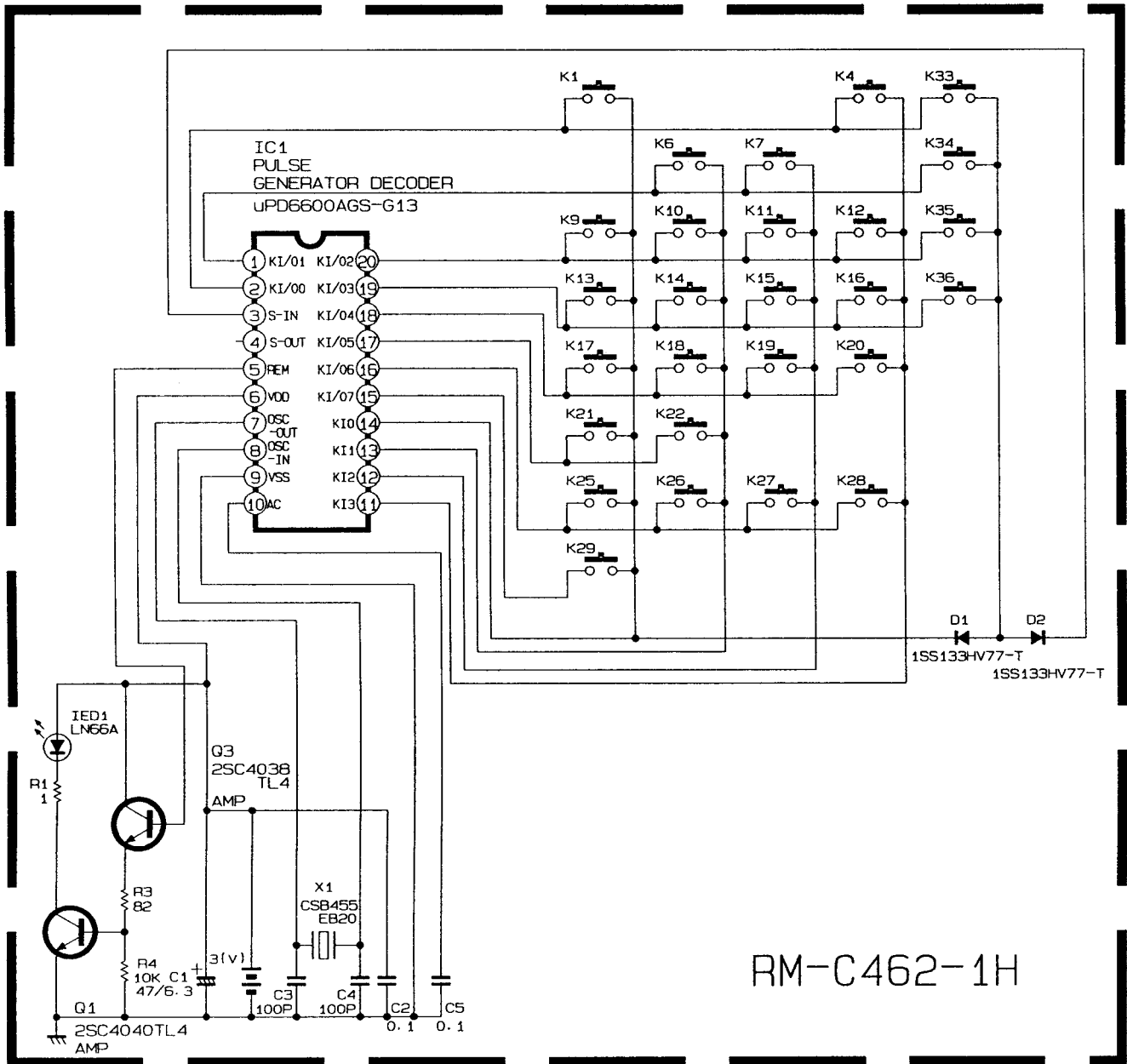


CRT SOCKET PWB PATTERN

[SMZ-3003A-H2]

(Magnification Rate 176%)





RM-C462-1H

KEY NO.	FUNCTION	KEY NO.	FUNCTION	KEY NO.	FUNCTION	KEY NO.	FUNCTION
1	POWER	10	2	19	7	28	PICTURE MODE
2		11	1	20	OFF TIMER	29	MUTE
3		12	DISPLAY	21	- / - -	30	
4	TV/VIDEO	13	6	22	0	31	
5		14	5	23		32	
6	SOUND SYSTEM	15	4	24		33	VOLUME +
7	COLOUR SYSTEM	16	CH PRESET	25	+ (FUNCTION)	34	VOLUME -
8		17	9	26	PICTURE ADJUST	35	CHANNEL +
9	3	18	8	27	- (FUNCTION)	36	CHANNEL -

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" .

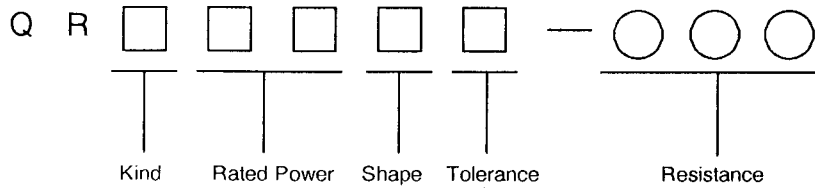
ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

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
± 1%	± 2%	± 5%	± 10%	± 20%	± 30%	+ 30%	+ 50%	+ 80%	+ 100%
						- 10%	- 10%	- 20%	- 0%

HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



Symbol	Part Name
C	COMP.R
D	C R
S	CH MG R

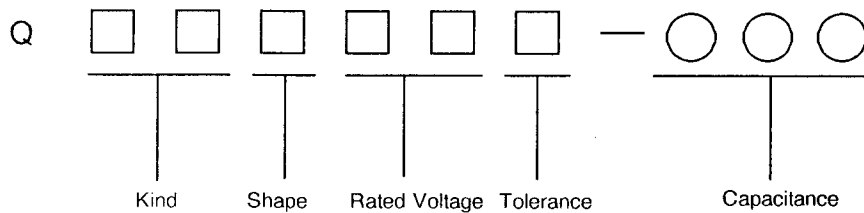
Symbol	Rated Power
0 1	1 w
1 2	1/2 w
1 4	1/4 w
1 6	1/6 w
1 8	1/8 w

Symbol	Shape
1	Straight lead
8	Chip

Indicate with first two-figure expressed by Ω and following 0.
 please note that, in case of resistance less than 10Ω , a letter "R" will be effective as point.

EX.
 $2.2 \Omega = 2R2$
 $470 \Omega = 47 \times 10^1 \rightarrow 471$
 $150k\Omega = 15 \times 10^4 \rightarrow 154$

■ CAPACITOR



Symbol	Part Name
CS	C CAP.
CS	CH C CAP.
ET	E CAP.
FM	M CAP.

	5Figure	0	1	2
	6Figure	A		10V
	C		16V	160V
	D			200V
	E		25V	250V
	H		50V	500V
	J	6.3V	63V	
	V		35V	

Indicate with first two-figure expressed by pF and following 0.
 Please note that, in case of capacitance less than 10 pF a letter "R" will be effective as point.

EX
 $5 \text{ pF} = 5R0$
 $1000 \text{ pF} = 10 \times 10^2 \rightarrow 102$
 $47 \mu\text{F} = 47 \times 10^6 \rightarrow 476$

Symbol	Shape
1	Straight lead
1	Leads in the same direction
8	Chip
A	Leads in the same direction (compact part)

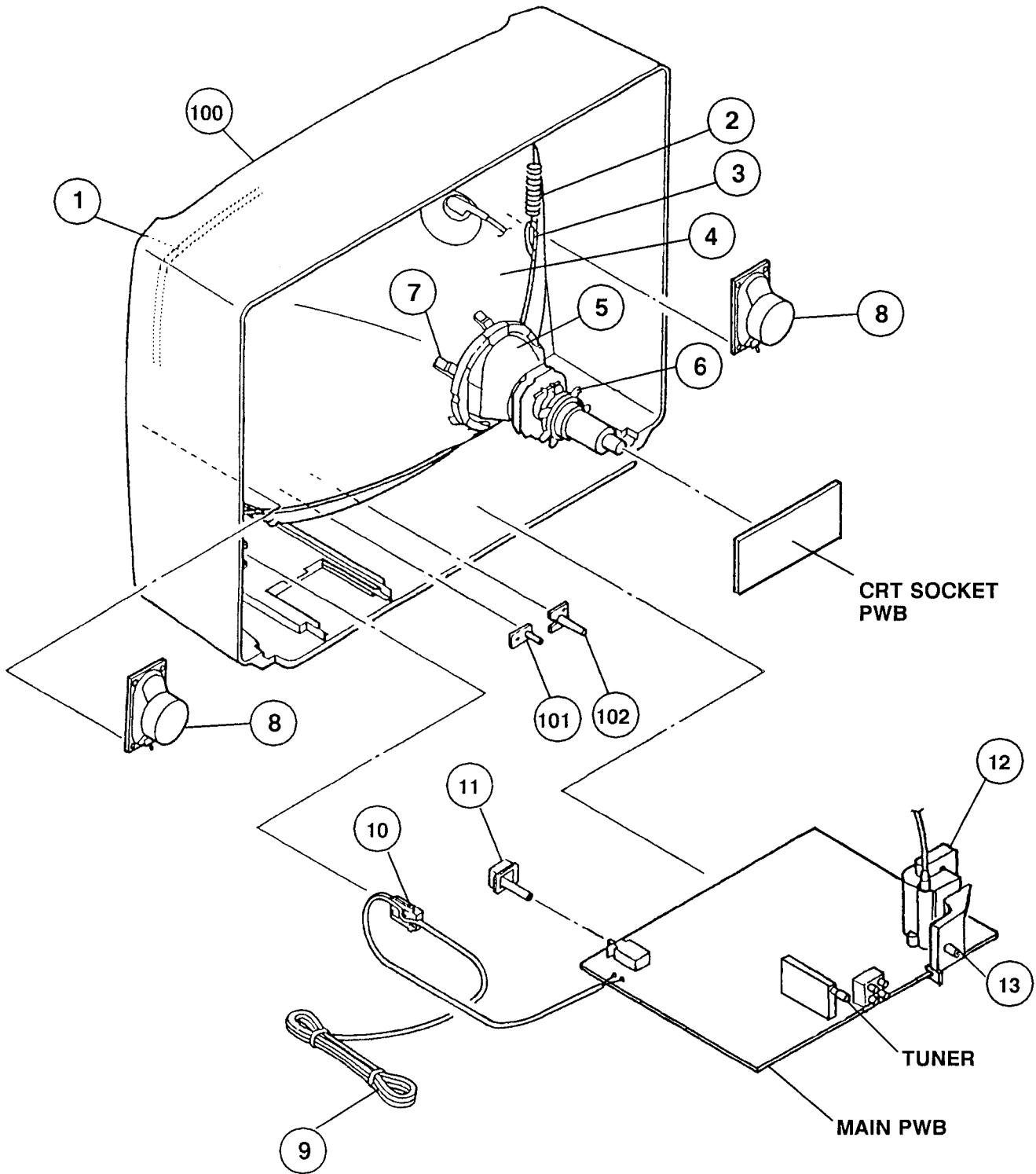
USING P.W. BOARD

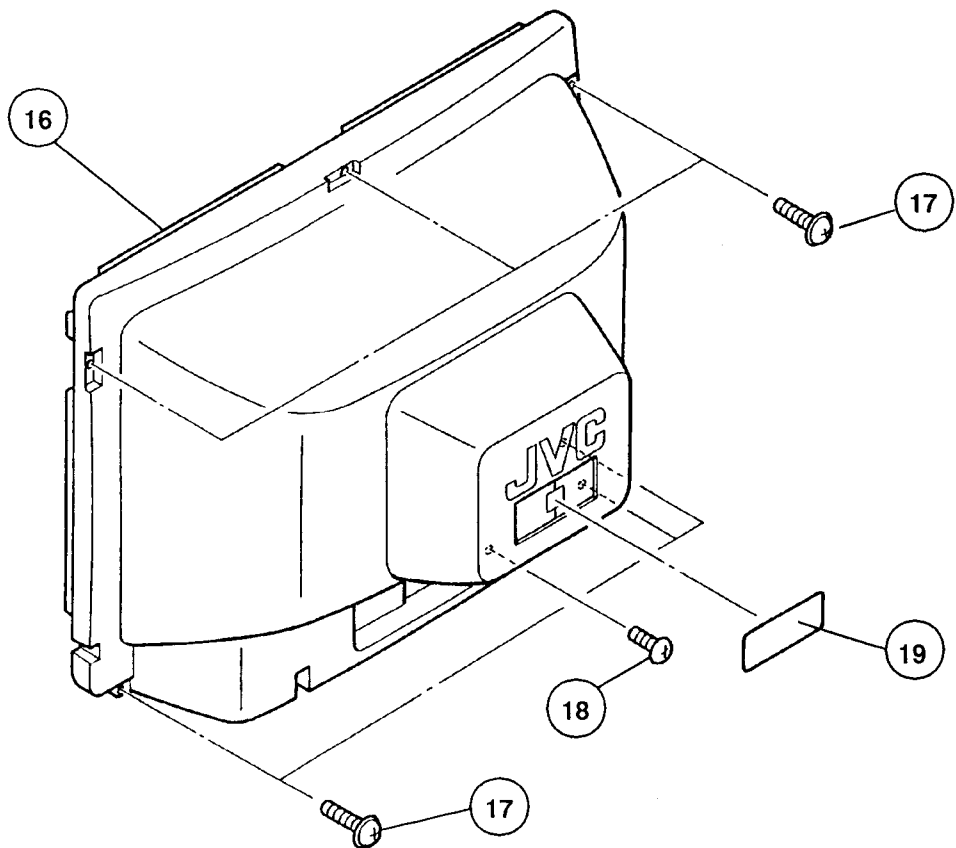
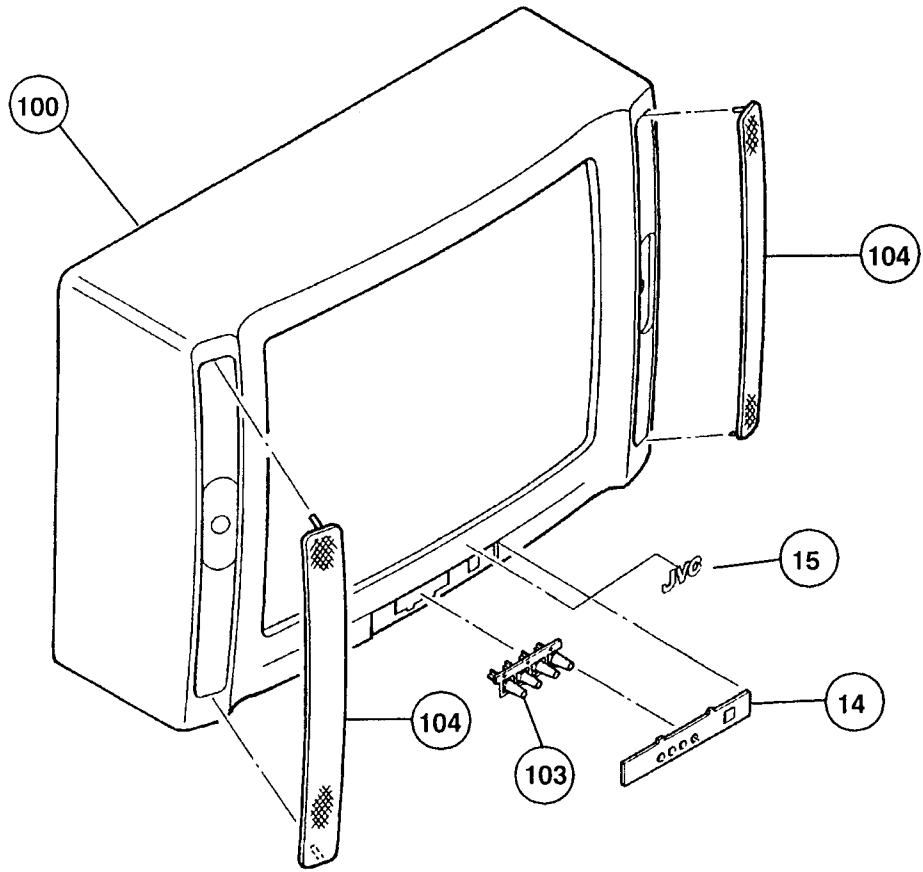
P.W.B ASS'Y	Model	C-21ZE	C-21ZE(-A)
	MAIN P.W.B ASS'Y		SMZ-1010A-H2
CRT SOCKET P.W.B ASS'Y		SMZ-3003A-H2	←

EXPLODED VIEW PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
△ 1	CELD029-002J6	DEG.COIL	L01	
2	A48457-3-H	SPRING		
3	CHGB0016-0B-FH	BRAIDED ASSY		
△ 4	A51LEC098X	PICTURE TUBE(C)	V01	
△ 5	CE20275-00A	DEF YOKE	DY01	
6	CE42378-00A	P.C.MAGNET		
7	CE40764-00A	WEDGE ASSY	(×3)	
8	CEBSF09D-02KJ4	SPEAKER	(×2)SP01,SP02	
△ 9	QMP4060-200JG	POWER CORD	[C-21ZE]	
△ 9	QMP7370-200J3	POWER CORD	[C-21ZE(-A)]	
10	CM47005-A01-H	CORD CLAMP		
11	CM47866-A01-H	POWER KNOB		
△ 12	CJ28069-00BJ1	HVT	T1501	
13	CM36219-A01-VH	HVT HOLDER		
14	CM22704-A01-H	CLEAR WINDOW		
15	CM46880-B01-H	JVC MARK		
△ 16	CM12482-002-VH	REAR COVER		
17	GBSB4016Z-H	W TAP SCREW	(×6)	
18	SBSF3012M-H	TAP SCREW		
19	CM22905-001	RATING LABEL		
100	CM12480-DOA-H	FRONT CABI.ASSY	Inc.No.101~105	
101	CM47869-B01-H	L.E.D.LENS		
102	CM47868-A01-H	REMOCON LENS		
103	CM47867-A01-H	CHANNEL KNOB		
104	CM12483-A01-H	PUNCHING METAL	(×2)	

EXPLODED VIEW





PRINTED WIRING BOARD PARTS LIST

Regarding the main PW Board Ass'y [SMZ-1019A-H2] for the model for C-21ZE(-A), refer to page 30.

MAIN PW BOARD ASS'Y (SMZ-1010A-H2) [C-21ZE]

△ Symbol No.	Part No.	Part Name	Description	Local
VARIABLE RESISTOR				
R1428	QVPE611-503HZ	V R(V.SIZE)	50k Ω B	
RESISTOR				
R1315	QRD123J-474SX	C R	470k Ω 1/2W	J
R1326	QRD123J-474SX	C R	470k Ω 1/2W	J
R1526	QRG039J-562	OM R	5.6k Ω 3W	J
R1530	QRG019J-561S	OM R	560 Ω 1W	J
R1531	QRG029J-123	OM R	12k Ω 2W	J
R1561	QRG019J-560S	OM R	56 Ω 1W	J
△ R1599	QRG029J-103A	OM R	10k Ω 2W	J
△ R1901	QRF154K-4R7	UNF R	4.7 Ω 15W	J
R1902	QRG039J-223A	OM R	22k Ω 3W	J
R1903	QRM059J-R27	MP R	0.27 Ω 5W	J
R1904	QRX029J-2R7A	MF R	2.7 Ω 2W	J
R1905	QRG019J-220S	OM R	22 Ω 1W	J
R1908	QRD123J-822SX	C R	8.2k Ω 1/2W	J
△ R1911	QRD149J-102S	C R	1k Ω 1/4W	J
R1915	QRG029J-473A	OM R	47k Ω 2W	J
△ R1918	QRD149J-101S	C R	100 Ω 1/4W	J
△ R1919	QRD149J-392S	C R	3.9k Ω 1/4W	J
R1951	QRX029J-1R0A	MF R	1.0 Ω 2W	J
R1952	QRX029J-1R2A	MF R	1.2 Ω 2W	J
R1954	QRD123J-272SX	C R	2.7k Ω 1/2W	J
R1982	QRX019J-2R2S	MF R	2.2 Ω 1W	J
CAPACITOR				
C1002	QEM51CK-476M	E CAP.	47 μ F 16V	K
C1005	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1121	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1122	QFV71HJ-224MZ	TF CAP.	0.22 μ F 50V	J
C1126	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1127	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V	J
C1201	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1202	QETCOJM-108Z	E CAP.	1000 μ F 6.3V	M
C1211	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1222	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1303	QFLC1HJ-473MZ	M CAP.	0.047 μ F 50V	J
C1305	QETCOJM-477Z	E CAP.	470 μ F 6.3V	M
C1306-08	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1309-10	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1312-13	QFV71HJ-474MZ	TF CAP.	0.47 μ F 50V	J
C1314	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1315	QFLC1HJ-223MZ	M CAP.	0.022 μ F 50V	J
C1401	QETB1VM-108	E CAP.	1000 μ F 35V	M
C1423	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1431	QEE61VK-105BZ	TAN. CAP.	1 μ F 35V	K
C1432-33	QETC1VM-107Z	E CAP.	100 μ F 35V	M
C1512	QFLC1HJ-473MZ	M CAP.	0.047 μ F 50V	J
C1524	QETC2CM-105Z	E CAP.	1 μ F 160V	M
△ C1526	QFZ0117-9201L	MPP CAP.	9200 p F 1.5kVH ± 2.5%	
C1528	QEHB2CM-476M	E CAP.	47 μ F 160V	M
△ C1529	QFZ0119-534L	MPP CAP.	0.53 μ F 200V ± 3%	
C1535	QETC2EM-475Z	E CAP.	4.7 μ F 250V	M
C1541	QETC2EM-106Z	E CAP.	10 μ F 250V	M
C1562	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1565	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1566	QFLC1HJ-223MZ	M CAP.	0.022 μ F 50V	J
C1567	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1602	QEN61HM-105Z	BP E CAP.	1 μ F 50V	M
C1603	QFN31HJ-102ZJ1	M CAP.	1000 p F 50V	J

△ Symbol No.	Part No.	Part Name	Description	Local
C A P A C I T O R				
C1607	QFLC1HJ-473MZ	M CAP.	0.047 μ F 50V	J
C1612	QEN61CM-106Z	BP E CAP.	10 μ F 16V	M
C1621	QFLC1HJ-103MZ	M CAP.	0.01 μ F 50V	J
C1624	QFN31HJ-562ZJ1	M CAP.	5600 p F 50V	J
C1703	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1704	QFLC1HJ-473MZ	M CAP.	0.047 μ F 50V	J
C1707	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1709	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1711	QETC0JM-477Z	E CAP.	470 μ F 6.3V	M
C1712	QCT25CH-330AZ	C CAP.	33 p F 50V	J
C1713	QCT25CH-120AZ	C CAP.	12 p F 50V	J
C1716-17	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1719	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1726	QFV71HJ-124MZ	TF CAP.	0.12 μ F 50V	J
C1728	QEN61HM-105Z	BP E CAP.	1 μ F 50V	M
C1742	QFLC1HK-473MZ	M CAP.	0.047 μ F 50V	K
△ C1901	QFZ9036-224M	MF CAP.	0.22 μ FAC250V	M
△ C1904	QCZ9036-102M	C CAP.	1000 p FAC400V	M
△ C1906	QCZ9057-472M	C CAP.	4700 p FAC400V	Z
△ C1907	QCZ9057-472M	C CAP.	4700 p FAC400V	Z
△ C1908	QCZ9057-472M	C CAP.	4700 p FAC400V	Z
C1910	QEZ0199-227R	E CAP.	220 μ F 400V	
C1911	QCZ0122-102U	C CAP.	1000 p F 2000V	K
C1914	QCZ0122-151U	C CAP.	150 p F 2000V	K
C1917	QETC2AM-106Z	E CAP.	10 μ F 100V	M
C1920	QCZ0122-561A	C CAP.	560 p F 2000V	K
C1921	QCZ0132-152AZ	C CAP.	1500 p F 500V	K
C1924	QEH2CM-107M	E CAP.	100 μ F 160V	M
C1929	QETC1JM-106Z	E CAP.	10 μ F 63V	M
C1931	QFLC2AK-473MZ	M CAP.	0.047 μ F 100V	K
C1932	QETB1JM-226	E CAP.	22 μ F 63V	M
C1951	QETC0JM-107Z	E CAP.	100 μ F 6.3V	M
C1982	QETC0JM-477Z	E CAP.	470 μ F 6.3V	M
△ C1991	QCZ9036-332M	C CAP.	3300 p FAC400V	K
T R A N S F O R M E R				
T1121	CELT001-303	C.WAVE TRANSF.		
△ T1501	CJ28069-00BJ1	HVT		
T1521	CE42034-001J1	HOR DRIVE TRANS		
△ T1901	CETS006-001J3	SWITCH.TRANSF.		
C O I L				
L1002-03	CELP026-5R6Z	PEAKING COIL	5.6 μ H	
L1101	CELP041-R82	PEAKING COIL	0.82 μ H	
L1102-03	CELP026-8R2Z	PEAKING COIL	8.2 μ H	
L1104	CELP042-2R7	PEAKING COIL	2.7 μ H	
L1121-23	CELP026-8R2Z	PEAKING COIL	8.2 μ H	
L1124	CELP026-150Z	PEAKING COIL	15 μ H	
L1301-02	CELP026-101Z	PEAKING COIL	100 μ H	
L1541	CELC901-036J6	HEATER CHOKE		
L1542	CE41210-00B	LINEARITY COIL		
L1621	CELP026-8R2Z	PEAKING COIL	8.2 μ H	
L1701	CELP026-6R8Z	PEAKING COIL	6.8 μ H	
L1702	CELP026-4R7Z	PEAKING COIL	4.7 μ H	
L1703	CELP026-390Z	PEAKING COIL	39 μ H	
L1704-06	CELP026-150Z	PEAKING COIL	15 μ H	
L1921-22	CELC048-820Z	CHOKE COIL		
D I O D E				
D1001	MTZJ33(A)-T2	ZENER DIODE		
D1101-02	1SS85-T2	SI.DIODE		
D1121	1SS133-T2	SI.DIODE		
D1221	MTZJ15(A)-T2	ZENER DIODE		
D1222	MTZJ5.6(A)-T2	ZENER DIODE		
D1223	MTZJ9.1(B)-T2	ZENER DIODE		
D1401	RGF10J(C1)-T3	SI.DIODE		
D1421	MTZJ9.1(B)-T2	ZENER DIODE		

Symbol No.	Part No.	Part Name	Description	Local
D I O D E				
D1431	1SR35-100A-T2	SI.DIODE		
D1511	RGP10J(C1)-T3	SI.DIODE		
D1513	MTZJ5.1(A)-T2	ZENER DIODE		
D1514	1SS133-T2	SI.DIODE		
D1524	RGP10J(C1)-T3	SI.DIODE		
D1531	RGP10J(C1)-T3	SI.DIODE		
D1541	RH1S-T3	SI.DIODE		
D1542	MTZJ5.1(A)-T2	ZENER DIODE		
D1561	MTZJ8.2(B)-T2	ZENER DIODE		
D1601	MTZJ15(A)-T2	ZENER DIODE		
D1611	MTZJ15(A)-T2	ZENER DIODE		
D1701-05	1SS133-T2	SI.DIODE		
D1706-11	MTZJ7.5(B)-T2	ZENER DIODE		
D1713	MTZJ6.8(C)-T2	ZENER DIODE		
D1714-15	1SS133-T2	SI.DIODE		
D1741-44	1SS133-T2	SI.DIODE		
D1745	GL2PR6	L.E.D.(RED)		
△ D1901	D3SBA60	DIODE BRIDGE		
D1902	RGP10J(C1)-T3	SI.DIODE		
D1904	AU01Z-T2	SI.DIODE		
D1906-07	AU01Z-T2	SI.DIODE		
D1908	MTZJ7.5(B)-T2	ZENER DIODE		
D1910	RU1C-LFC4	SI.DIODE		
D1911	1SS133-T2	SI.DIODE		
D1912	MTZJ12(C)-T2	ZENER DIODE		
D1921	RU3AM-LFC4	SI.DIODE		
D1922	RGP10J(C1)-T3	SI.DIODE		
D1923	RU3YX-LFC4	SI.DIODE		
D1924	RGP10J(C1)-T3	SI.DIODE		
D1925	1SS133-T2	SI.DIODE		
D1929	MTZJ10(A)-T2	ZENER DIODE		
D1930	1SS133-T2	SI.DIODE		
D1951	MTZJ7.5(B)-T2	ZENER DIODE		
D1983-84	1SR35-100A-T2	SI.DIODE		
T R A N S I S T O R				
Q1101-02	2SC5083(L-P)-T	SI.TRANSISTOR		
Q1103-04	DTC124ESA-T	DIGI TRANSISTOR		
Q1121-23	DTC124ESA-T	DIGI TRANSISTOR		
Q1124	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1125-26	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1201	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1202	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1203	DTC124ESA-T	DIGI TRANSISTOR		
Q1222	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1301	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1302	DTC124ESA-T	DIGI TRANSISTOR		
Q1303	2SA673(C)-T	SI.TRANSISTOR		
Q1521	2SC2482(C1)-T	SI.TRANSISTOR		
△ Q1522	2SD1878-YD	SI.TRANSISTOR	H.OUT	
Q1611	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1621-22	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1624	DTC124ESA-T	DIGI TRANSISTOR		
Q1625-26	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1627	DTC124ESA-T	DIGI TRANSISTOR		
Q1701	2SA933AS(QR)-T	SI.TRANSISTOR		
Q1702-03	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1705	DTC124ESA-T	DIGI TRANSISTOR		
Q1706	2SC1740S(QR)-T	SI.TRANSISTOR		
Q1707	2SK301(P)-T	F.E.T.		
Q1708	DTC323TS-T	DIGI.TRANSISTOR		
Q1901	2SD1853-T	SI.TRANSISTOR		
Q1923	2SC2240(GB)-T	SI.TRANSISTOR		
Q1924	DTC144ES-T	DIGI.TRANSISTOR		
Q1925	2SA1013(O)-T	SI.TRANSISTOR		

Symbol No.	Part No.	Part Name	Description	Local
T R A N S I S T O R				
Q1926	2SA966(OY)-T	SI. TRANSISTOR		
Q1927	DTC144GS-T	DIGI TRANSISTOR		
Q1951	2SA949(Y)C1	SI. TRANSISTOR		
I C				
IC1201	M52343SP	I.C. (MONO-ANA)		
IC1202	LA7016	I.C. (MONO-ANA)		
IC1301	U3660M-B	I.C. (MONO-ANA)		
IC1302	M52325P	I.C. (MONO-ANA)		
IC1401	LA7837	I.C. (MONO-ANA)		
IC1501	AN78N12	I.C.		
IC1601	AN5265	I.C.		
IC1602	LA7016	I.C. (MONO-ANA)		
IC1621	LA7975	I.C. (MONO-ANA)		
IC1701	M37102M8-C42SP	I.C. (MICRO-COMP)		
IC1702	BU4066BC	I.C. (DIGI-MOS)		
IC1703	XL24C04P-21ME	I.C. (MEMORY-OTH)		
IC1704	L78LR05E-MA	I.C. (MONO-ANA)		
IC1741	TFMS5380ESN	IFR DETECT UNIT		
IC1901	STR-S6707	I.C. (HYBRID)		
IC1921	S1854-C1	I.C.		
IC1981	AN7805F	I.C. (MONO-ANA)		
IC1982	KIA78L08BP-Y	I.C. (MONO-ANA)		
O T H E R S				
	CM46978-A01-H	L.E.D.HOLDER		
CF1101	MKT39.5MA100P	CERAMIC FILTER		
CF1102	MKT30.0MA100P	CERAMIC FILTER		
CF1121	TPSH6.0MB	CERAMIC FILTER		
CF1122	TPS5.5MW	CERAMIC FILTER		
CF1123	TPS6.5MB	CERAMIC FILTER		
CF1124	EFCWS4504A	CERAMIC FILTER		
CF1561	CSB503F18	CER. RESONATOR		
CF1621	SFT5.5MA	CERAMIC FILTER		
CF1622	SFE6.0MC	CERAMIC FILTER		
CF1623	SFE6.5MC2	CERAMIC FILTER		
CF1624	SFT4.5MA	CERAMIC FILTER		
CF1625	SFE6.0MC	CERAMIC FILTER		
CF1626	SFE6.5MC2	CERAMIC FILTER		
△ CP1501	ICP-N10	I.C. PROTECT		
△ CP1901	ICP-N38-Y	I.C. PROTECT		
△ CP1903	ICP-N10	I.C. PROTECT		
△ F1901	QMF51E2-3R15J4	FUSE	3.15A	
△ FR1118	QRZ0054-150M	F R	15 Ω	1/4W J
△ FR1401	QRH127J-1R8M	F R	1.8 Ω	1/2W J
△ FR1531	QRH127K-R47M	F R	0.47 Ω	1/2W K
J1011	CEMN075-001	PIN JACK		
K1921	CE42050-001Z	CORE		
K1923	CE42050-001Z	CORE		
△ LF1901	CE41775-002J1	LINE FILTER		
△ PC1901	TLP721F(GR)	PHOTO COUPLER		
S1741	QSP4H11-C08	PUSH SWITCH	VOL(+)	
S1742	QSP4H11-C08	PUSH SWITCH	VOL(-)	
S1743	QSP4H11-C08	PUSH SWITCH	CH+(UP)	
S1744	QSP4H11-C08	PUSH SWITCH	CH-(DOWN)	
△ S1901	QSP2J21-C02	PUSH SWITCH	POWER SW	
SF1101	CE41099-601	SAW FILTER		
△ TH1901	CEKP002-003	W.P.THERMISTOR		
TU1001	CEEU534-B01	VHF/UHF TUNER		
△ VA1901	ERZ-C10VK621A	VARIATOR		
X1301	CE41092-00AJ2	CRYSTAL		
X1302	CE40749-001J2	CRYSTAL		
X1701	CE41887-001J2	CRYSTAL		

MAIN PW BOARD ASS'Y(SMZ-1019A-H2) [C-21ZE(-A)]

Regarding the parts list for the main PW board ass'y [SMZ-1019A-H2] of the model for C-21ZE(-A), only the different parts from those of the model [SMZ-1010A-H2] are described. For further details regarding the other parts, refer to the parts list of the model [SMZ-1010A-H2] described on page 26 through page 29.

△	Symbol No.	Part No.		Part Name	Description
		C-21ZE SMZ-1010A-H2	C-21ZE(-A) SMZ-1019A-H2		
	R1569	QRD161J-394Y (390kΩ 1/6W J)	QRD161J-564Y (560kΩ 1/6W J)	C R	
	R1751	QRD161J-223Y (22kΩ 1/6W J)	QRD161J-182Y (1.8kΩ 1/6W J)	C R	
△	PC1901	TLP721F(GR)	TLP621-LF2	PHOTO COUPLER	
		_____	CHT12AA0-12-BH	UL VINYL WIRE	

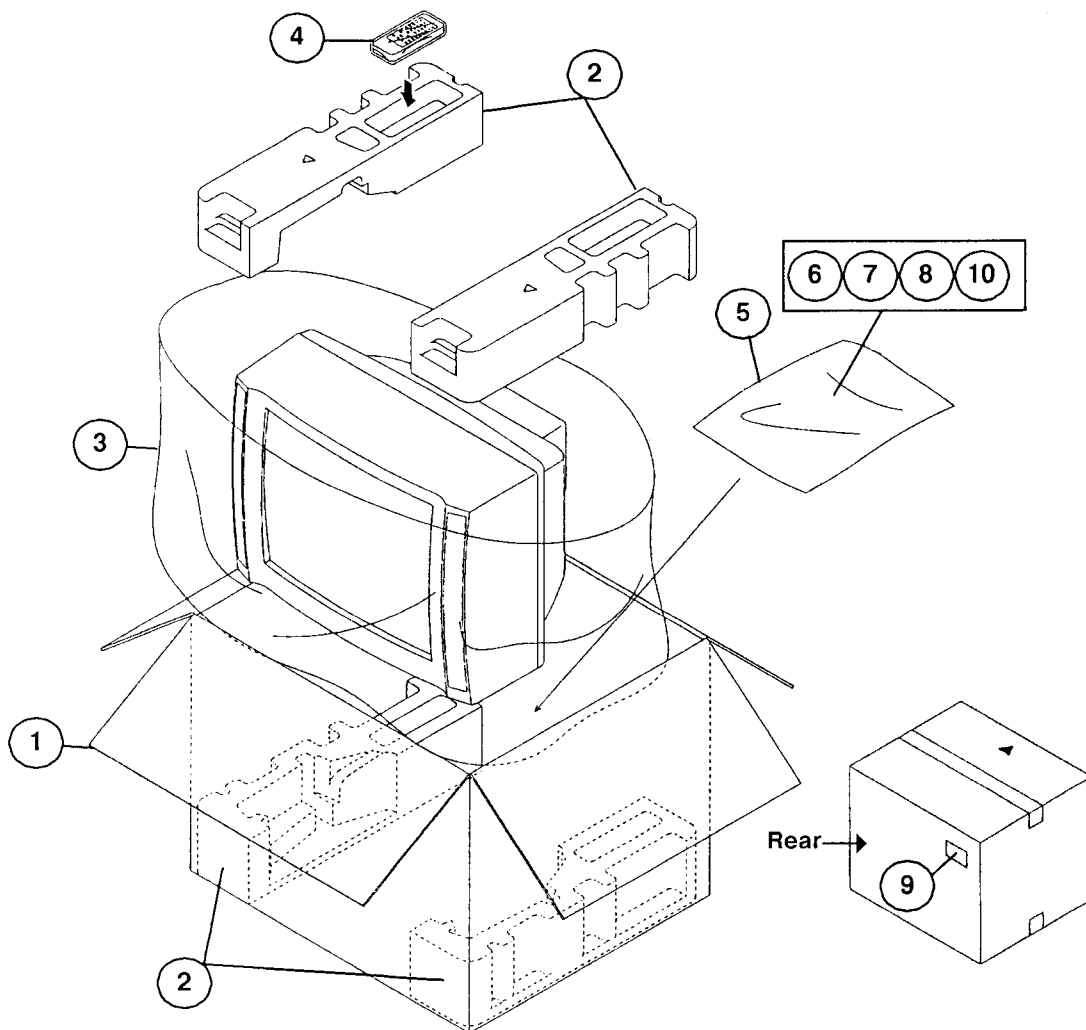
CRT SOCKET PW BOARD ASS'Y(SMZ-3003A-H2)

△	Symbol No.	Part No.	Part Name	Description	Local
	R E S I S T O R				
	R3343-45	QRG029J-123A	OM R	12k Ω 2W J	
	C A P A C I T O R				
	C3336	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V J	
	C3338	QFZ0097-223M	M M CAP.	0.022 μ F	
	C O I L				
	L3331	CELP055-151Z	PEAKING COIL	150 μ H	
	D I O D E				
	D3331	1SS133-T2	SI.DIODE		
	T R A N S I S T O R				
	Q3331-33	2SC2371(MLK)	SI.TRANSISTOR		
	Q3334	2SA933AS(QR)-T	SI.TRANSISTOR		
	O T H E R S				
△	SK3001	CE42535-001J1	CRT SOCKET		

REMOTE CONTROL UNIT (RM-C462-1H)

△	Ref.No.	Part No.	Part Name	Description	Local
		BAS11M201A	BATTERY COVER		

PACKING



PACKING PARTS LIST

△ Ref.No.	Part No.	Part Name	Description	Local
1	CP11036-049-H	PACKING CASE		
2	CP11279-A0B-H	CUSHION ASSY	4pcs in 1set	
3	QPGA025-03505H	POLY BAG		
4	RM-C462-1H	REMOCON UNIT		
5	CP30697-005-H	POLY BAG		
6	CQ40009-001-H	DIGEST MANUAL		
△ 7	CQ40008-001-H	INST BOOK		
8	CQ40030-001-H	INST SHEET		
9	CM47385-00A	POS, SERIAL LABEL		
10	CEMK002-001	ADAPTOR PLUG	[C-21ZE(-A)]	



JVC

VICTOR COMPANY OF JAPAN, LIMITED

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C-21ZE-H #4
C-21ZE-A-H #9999



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