

JVC

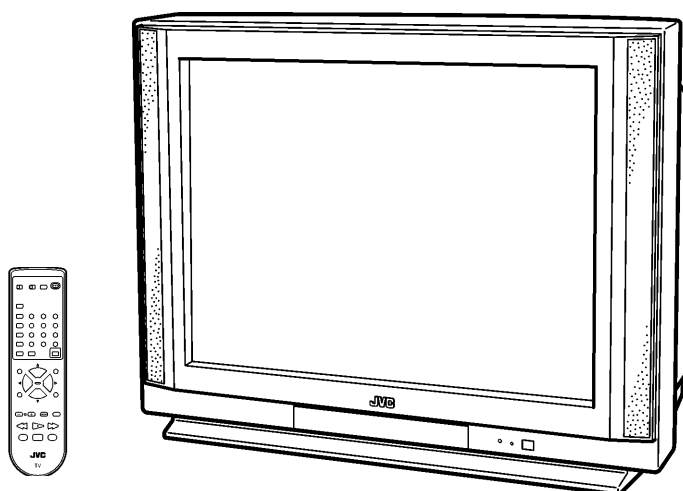
SERVICE MANUAL

COLOR TELEVISION

AV-N29703/s

BASIC CHASSIS

GJ



BBE

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SPECIFICATIONS

Items			Contents	
Dimensions (W × H × D)			758mm × 593mm × 500mm	
Mass			43.0 kg	
TV System and Color System	TV RF System		CCIR(M)	
	Color System		NTSC	
	Sound System		BTSC System (Multi-Channel Sound)	
TV Receiving Channels and Frequency	VL Band		(02~06) 54MHz~88MHz	
	VH Band		(07~13) 174MHz~216MHz	
	UHF Band		(14~69) 470MHz~806MHz	
CATV Receiving Channels and Frequency	Low Band		— (54MHz~804MHz)	(02~06, A-8) by (02~06&01)
	High Band			(07~13) by (07~13)
	Mid Band			(A~1) by (14~22)
	Super Band			(J~W) by (23~36)
	Hyper Band			(W+1~W+28) by (37~64)
	Ultra Band			(W+29~W+84) by (65~125)
	Sub Mid Band			(A8, A4~A1) by (01, 96~99)
TV/CATV Total Channel			180 Channels	
Intermediate Frequency	Video IF Carrier		45.75MHz	
	Sound IF Carrier		41.25MHz (4.5MHz)	
Color Sub Carrier			3.58MHz	
Power Input			120V AC, 60Hz	
Power Consumption			140W	
Picture Tube			29" (68cm) Measured Diagonally	
High Voltage			30.0kV± 1.3kV (at zero beam current)	
Speaker			5 × 12cm Oval type × 2	
Audio Power Output			5W + 5W	
Input terminals	Input 1 (Rear)	S-Video	Y : 1V(p-p) Positive (Negative sync provided, when terminated with 75Ω) C : 0.286V(p-p) (Burst signal, when terminated with 75Ω)	
		Video	1V(p-p), 75Ω	
		Audio(L/MONO, R)	500mV(rms) (-4dBs), High Impedance	
	Input 2 (Rear)	Video	1Vp-p, 75Ω	
		Component video	Y : 1V(p-p) Positive (Negative sync provided, when terminated with 75Ω) P _B , P _R : 0.7V(p-p), 75Ω	
		Audio(L/MONO, R)	500mV(rms) (-4dBs), High Impedance	
Input 3 (Front)	Video	1V(p-p), 75Ω		
	Audio(L/MONO, R)	500mV(rms) (-4dBs), High Impedance		
Fix Audio Output			500mV(rms) (-4dBs), LOW Impedance (400Hz when modulated 100%)	
AV compulink Ⅲ Input			3.5mm mini jack	
Antenna terminal			75Ω (VHF/UHF) Terminal, F-Type Connector	
Remote Control Unit			RM-C326G (AA/R6/UM-3 battery × 2)	

Design & specifications are 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.
- Use isolation transformer when hot chassis.**
The chassis and any sub-chassis contained in some products are connected to one side of the AC power line. An isolation transformer of adequate capacity should be inserted between the product and the AC power supply point while performing any service on some products when the HOT chassis is exposed.
- 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 : (⊥) side GND, the ISOLATED(NEUTRAL) : (⌋) side GND and EARTH : (⊕) 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 10kΩ 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.

10. 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 1100V 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.

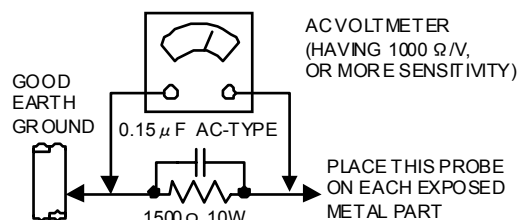
(2) Leakage Current Check

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.).

However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

● Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF 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 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



11. High voltage hold down circuit check.

After repair of the high voltage hold down circuit, this circuit shall be checked to operate correctly.

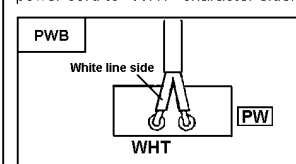
See item "How to check the high voltage hold down circuit".

This mark shows a fast operating fuse, the letters indicated below show the rating.



POWER CORD REPLACEMENT WARNING.

Connecting the white line side of power cord to "WHT" character side.

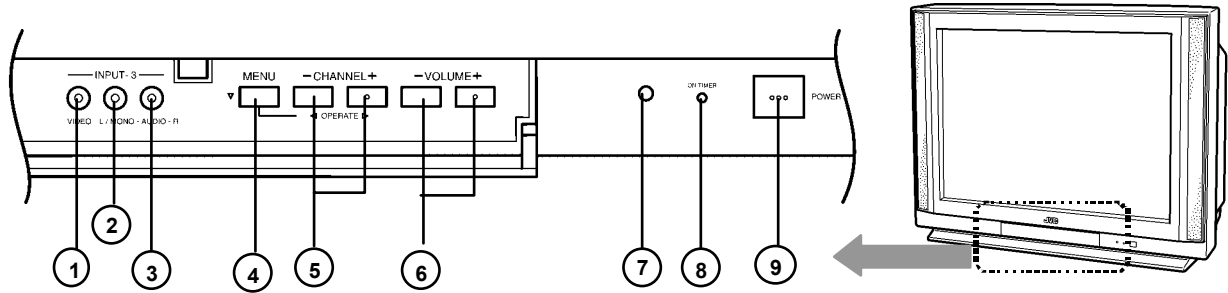


FEATURES

- New chassis design enables use of a single board with simplified circuitry.
 - Users can make fun to connect the DVD player with the component video signal input terminal.
 - Provided with miniature tuner (TV/CATV).
 - Multifunctional remote control permits picture adjustment.
 - Adoption of the CHANNEL GUARD function prevents the specific channels from being selected, unless the "ID number" is key in.
 - I²C bus control utilizes single chip ICs.
 - Adoption of the VIDEO STATUS / THEATER PRO. function.
 - Adoption of the ON/OFF TIMER and SLEEP TIMER function.
- Built-in V-CHIP system.
 - Closed-caption broadcasts can be viewed.
 - Built-in MTS system, BBE / HYPER-SURROUND system.
 - S-VIDEO input terminal for taking best advantage of Super VHS.
 - Digital Comb filter improved picture quality.

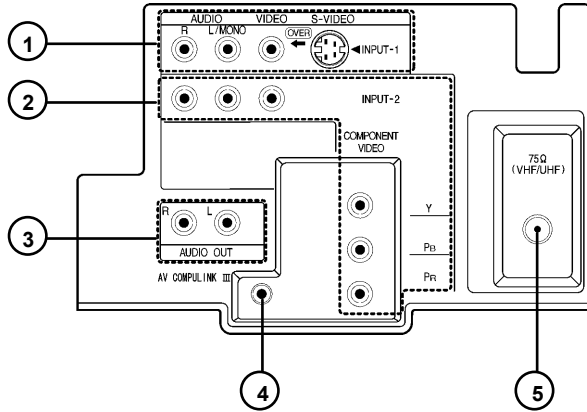
FUNCTIONS

FRONT CONTROL PANEL



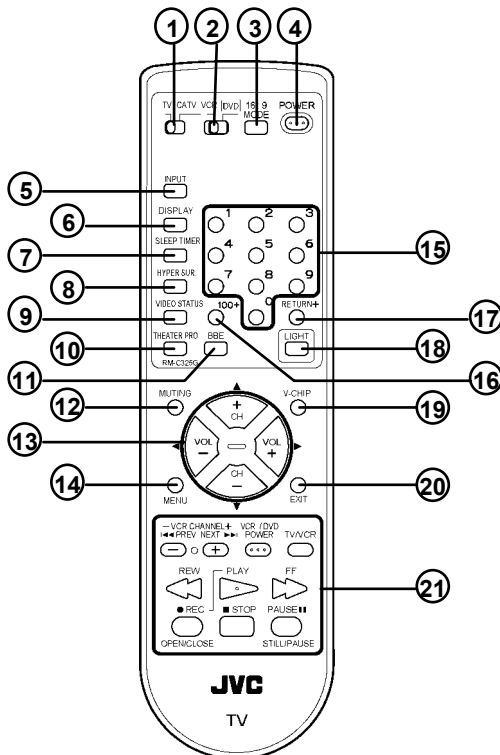
① INPUT3 VIDEO terminal	⑥ VOLUME -/+ buttons
② INPUT3 AUDIO L / MONO terminal	⑦ SENSOR REMOTE CONTROL
③ INPUT3 AUDIO R terminal	⑧ ON TIMER LED
④ MENU button (▼)	⑨ POWER button
⑤ CHANNEL +/- buttons OPERATE ◀/▶ buttons (use MENU screen)	

REAR TERMINAL



- ① INPUT 1 (S-VIDEO, V, L/MONO, R) terminals
- ② INPUT 2 (V, L/MONO, R) terminals
/ COMPONENT VIDEO(Y, Pb, Pr) terminals
- ③ AUDIO OUT(L, R) terminals
- ④ AV COMPULINK III
- ⑤ VHF / UHF terminal

REMOTE CONTROL UNIT



- ① TV / CATV switch
- ② VCR / DVD switch
- ③ 16 : 9 MODE Key
- ④ POWER Key
- ⑤ INPUT Key (TV VIDEO1 VIDEO2 VIDEO3)
- ⑥ DISPLAY Key
- ⑦ SLEEP TIMER Key (0 15 30165 180)
- ⑧ HYPER SUR. Key
- ⑨ VIDEO STATUS Key
- ⑩ THEATER PRO key
- ⑪ BBE key
- ⑫ MUTING Key
- ⑬ FUNCTION Key (CH +/- / VOL +/-)
The FUNCTION keys operate CHANNEL and VOLUME normally.
These keys are also used to navigate MENU system.
- ⑭ MENU Key
- ⑮ NUMBERS Key
- ⑯ 100+ Key
- ⑰ RETURN+ Key
- ⑱ LIGHT Key
- ⑲ V-CHIP Key
- ⑳ EXIT Key
- ㉑ VCR / DVD Keys

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Disconnect the power plug from AC outlet.
2. As shown in the Fig.1, remove the **12** screws marked **(A)**.
3. Withdraw the rear cover backward.

REMOVING THE TERMINAL BOARD

- After removing the rear cover.
1. As shown in Fig.1, remove the **4** screws marked **(B)**.
 2. Withdraw the terminal board toward you.

REMOVING THE CHASSIS

- After removing the rear cover and terminal board.
1. Slightly raise the both sides of chassis by hand and remove the **2** claws under the both sides of the chassis from the front cabinet.
 2. Withdraw the chassis backward.
(If necessary, remove the wire clamp, connectors etc.)

REMOVING THE SPEAKER

- After removing the rear cover.
1. As shown in Fig. 1, removing the **4** screws marked **(C)**, then remove the speaker with the front cabinet.
 2. Follow the same steps when removing the other hand speaker.

NOTE : When removing the **4** screws marked **(C)** of the speaker, remove the lower side screw first, and then remove the upper one.

REMOVING THE LED AND POWER SW PWB

- After removing the rear cover and terminal board.
1. Remove the **2** screws marked **(D)** as shown in Fig. 1.
 2. Withdraw the LED & POWER SW PWB toward you.
- * If necessary, remove the wire clamp, connector etc.

REMOVING THE FRONT CONTROL PWB

- After removing the rear cover & terminal board.
1. Remove the **2** screws marked **(E)** as shown in Fig. 1.
 2. Withdraw the FRONT CONTROL PWB toward you.
- * If necessary, remove the wire clamp, connector etc.

CHECKING THE CHASSIS

To check the PW Board from backside.

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

[CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PW Board.
- Before turning on power, make sure that the wire connector is properly connected.
- **When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS'Y) is connected to the CRT SOCKET PW board.**

WIRE CLAMPING AND CABLE TYING

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

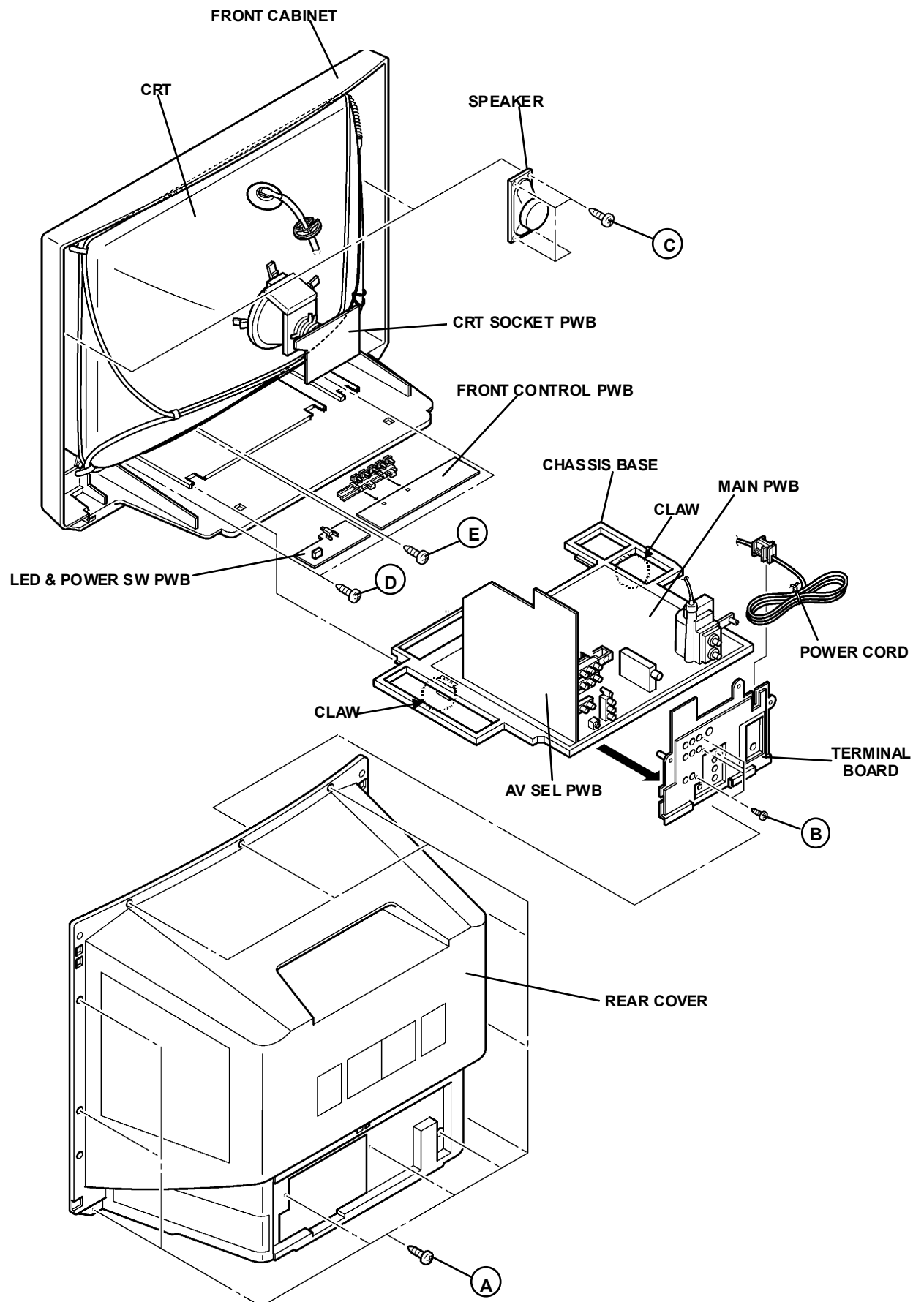


Fig.1

No.52058

MEMORY IC REPLACEMENT

1. Memory IC

This TV uses memory IC.

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

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

2. Memory IC replacement procedure

(1) Power off

Switch off the power and disconnect the power plug from the AC outlet.

(2) Replace the memory IC

Be sure to use a memory IC written with the initial setting data.

(3) Power on

Connect the power plug to the AC outlet and switch on the power.

(4) Confirm the system constant value

- Normally, do not adjust the 12.SYSTEM (SYS).
- Be sure to adjust with the signal input.

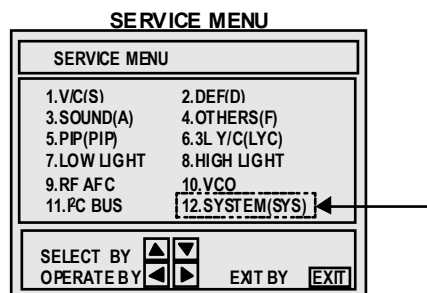


Fig.1

How to enter the SERVICE MENU.

- 1) Press the **SLEEP TIMER** key and set **SLEEP TIMER** for 「0 min」.
- 2) Before disappear the display of **SLEEP TIMER** settings, simultaneously press the **DISPLAY** key and **VIDEO STATUS** key of the remote control unit.
- 3) The **SERVICE MENU** screen will be displayed as shown Fig. 1.

How to enter the 12. SYSTEM(SYS).

- 4) While the SERVICE MENU is displayed, select the **12.SYSTEM(SYS)** item with FUNCTION (▼/▲) keys, and the FUNCTION (◀/▶) keys is pressed, the screen will be displayed as shown in Fig.2.
- 5) Refer to the SYSTEM (SYSTEM CONSTANT) TABLE 1 and check the setting items. If the value is different, select the setting item with the FUNCTION (▼/▲) keys and adjust the setting with the FUNCTION(◀/▶) keys. (The letters of the selected item are displayed in yellow.)
- 6) When adjustment has completed, the values store into memory IC automatically
- 7) Press the EXIT key to return the SERVICE MENU screen.
- 8) Then press the EXIT key again to return the normal screen.

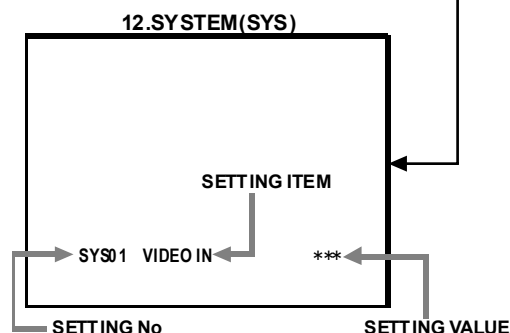


Fig.2

(5) Receive the channel setting

Refer to the OPERATING INSTRUCTIONS (USER'S GUIDE) and set the receive channels (Channels Preset) as described.

(6) User settings

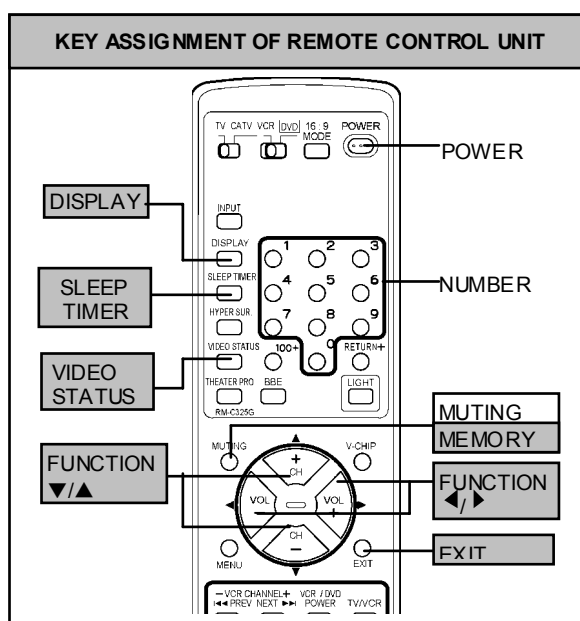
Check the user setting items according to TABLE 2.

Where these do not agree, refer to the OPERATING INSTRUCTIONS (USER'S GUIDE) and set the items as described.

(7) SERVICE MENU setting

Verify what to set in the SERVICE MENU, and set whatever is necessary(Fig.1) .

Refer to the SERVICE ADJUSTMENT for setting.



12.SYSTEM(SYS) 【System Constant setting】

No.	Setting item	Initial setting value	No.	Setting item	Initial setting value
SYS01	VIDEO IN	03	SYS13	HYP SURR	01
SYS02	PIP	00	SYS14	16:9 MD	01
SYS03	3D Y/C	00	SYS15	HYP SCAN	01
SYS04	Y CV	01	SYS16	EZ SURF	00
SYS05	CCD PCHK	01	SYS17	ID DISP	01
SYS06	PURITY	00	SYS18	COMPULINK	01
SYS07	VM	01	SYS19	CCD	01
SYS08	NOISE CR	00	SYS20	VCHIP	01
SYS09	CLR TEMP	01	SYS21	VCHIP CA	01
SYS10	THEATER	01	SYS22	JVC LOGO	01
SYS11	THEATER PRO	01	SYS23	CMP IN	01
SYS12	BBE	01	SYS24	CXA1875	00

Table 1

User setting

Setting item	Setting value	Setting item	Setting value
Use remote controller keys			
POWER	OFF	DISPLAY	OFF
CHANNEL	Cable-02	VIDEO STATUS	DYNAMIC
VOLUME	10	HYPER SURROUND	OFF
TV/VIDEO	TV	BBE	ON
Settings of MENU			
PICTURE MENU		INITIAL SETUP MENU	
STANDARD	CENTER	LANGUAGE	ENG
TINT		FRONT PANEL LOCK	OFF
COLOR		V2 COMPONENT-IN	NO
PICTURE		AUTO SHUT OFF	OFF
BRIGHT		CLOSED CAPTION	OFF (CC1 / T1)
DETAIL		AUTO TUNER SET UP	Unnecessary to set
COLOR TEMPERATURE		LOW	CHANNEL SUMMARY
NOISE MUTING	ON	V-CHIP	OFF
SOUND ADJUST MENU		SET LOCK CODE	(0000) Unnecessary to set
BASS	CENTER		
TREBLE	CENTER		
BALANCE	CENTER		
MTS	STEREO		
CLOCK / TIMERS MENU			
SET CLOCK	MANUAL		
	TIME ZONE : PACIFIC		
	D.S.T. : OFF		
ON / OFF TIMER	OFF		

Table 2

SERVICE ADJUSTMENTS

ADJUSTMENT PREPARATION

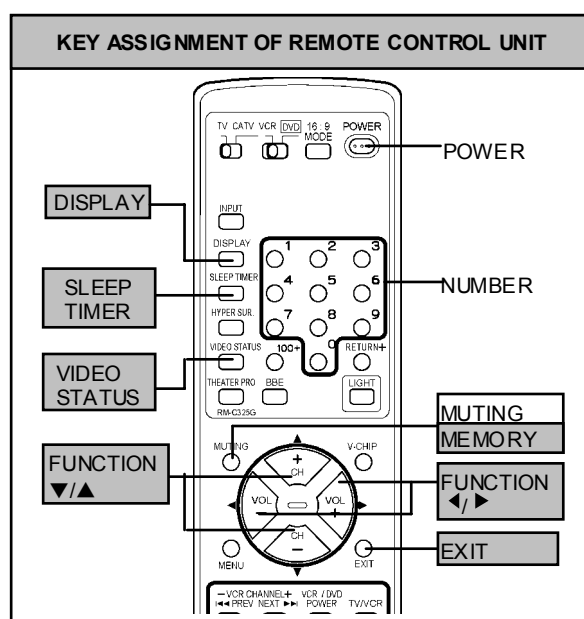
1. You can make the necessary adjustments for this unit with either the Remote Control Unit or with the adjustment tools and parts as given below.
2. Adjustment with the Remote Control Unit is made on the basis of the initial setting values, however, the new setting values which set the screen to its optimum condition may differ from the initial settings.
3. Make sure that AC power is supplied correctly.
4. Turn on the power for set and test equipment before use, and start the adjustment procedures after waiting at least 30 minutes.
5. Unless otherwise specified, prepare the most suitable reception or input signal for adjustment.
6. **Never touch any adjustment part** which are not specified in the list for this adjustment - variable resistors, transformers, initial setting value, etc.
7. Presetting before adjustment.
Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit:

User menu preset value

MENU ITEM	PRESET
VIDEO STATUS	STANDARD
BASS, TREBLE, BALANCE	CENTER
HYPER SURROUND	OFF
TINT, COLOR, PICTURE, BRIGHT, DETAIL	CENTER
MTS	STEREO

ADJUSTMENT EQUIPMENT

1. DC voltmeter (or digital voltmeter)
2. Oscilloscope
3. Signal generator (Pattern generator) [NTSC]
4. Remote control unit
5. TV audio multiplex signal generator.
6. Frequency counter



ADJUSTMENT ITEMS

CHECK OF B1 POWER SUPPLY

ADJUSTMENT OF VCO

MAIN VCO adjustment

RF. AGC adjustment

FOCUS adjustment

ADJUSTMENT DEF CIRCUIT

V. HEIGHT / V. CENTER(4:3) adjustment

V. HEIGHT / L. LIN(16:9) adjustment

H. POSI, H. SIZE & SIDE PIN [(4:3) & (16:9)] adjustment

ADJUSTMENT OF VIDEO / CHROMA CIRCUIT

WHITE BALANCE(High Light & Low Light) adjustment

SUB BRIGHT adjustment

SUB CONTRAST adjustment

SUB COLOR adjustment

SUB TINT adjustment

ADJUSTMENT OF MTS CIRCUIT

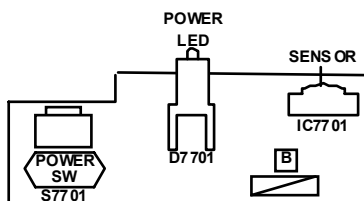
MTS INPUT LEVEL adjustment

MTS SEPARATION adjustment

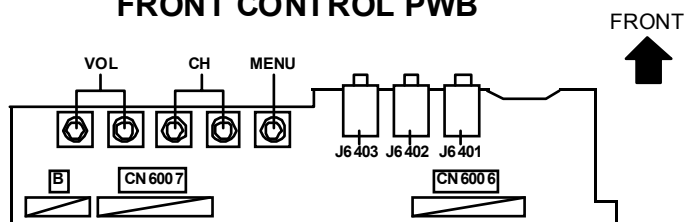
HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

ADJUSTMENT LOCATIONS

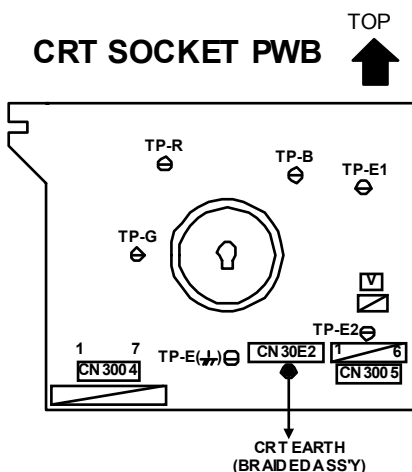
LED & POWER SW PWB



FRONT CONTROL PWB



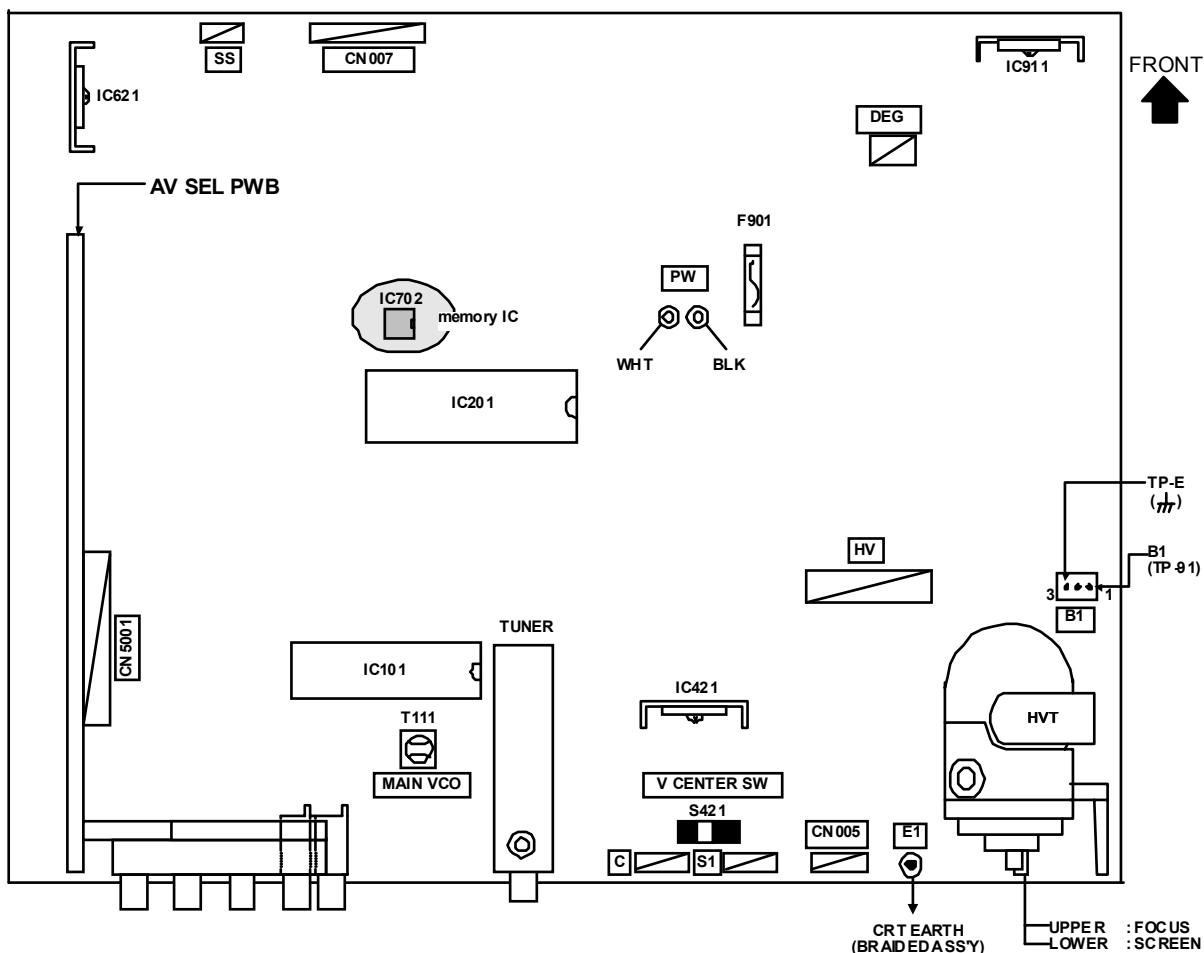
CRT SOCKET PWB



AV SEL PWB



MAIN PWB



REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

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

■ SOLDERING IRON

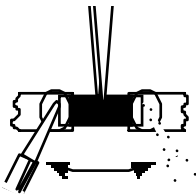
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

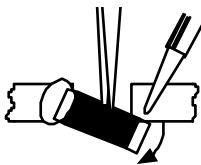
1. How to remove Chip parts

◆ Resistors, capacitors, etc

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



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

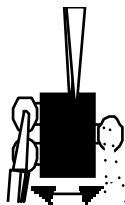


◆ Transistors, diodes, variable resistors, etc

- (1) Apply extra solder to each lead.



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

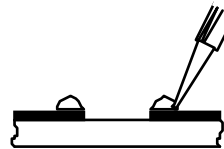


Note : After removing the part, remove remaining solder from the pattern.

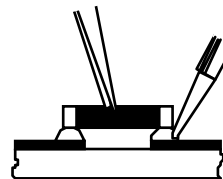
2. How to install Chip parts

◆ Resistors, capacitors, etc

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

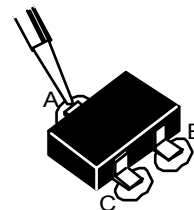


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

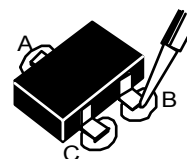


◆ Transistors, diodes, variable resistors, etc

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



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



BASIC OPERATION OF SERVICE MENU

1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

2. In general, basic setting (adjustments) items or verifications are performed in the SERVICE MENU.

- (1) V/C (S) This set the setting values (adjustment values) of the VIDEO/CHROMA circuits.
- (2) DEF (D) This set the setting values (adjustment values) of the DEFLECTION circuit.
- (3) SOUND (A) This set the setting values (adjustment values) of the AUDIO circuit.
- (4) OTHERS (F) This is used when the OTHERS MODE is verified. **[Do not adjust]**
- (5) PIP (PIP) This set the setting values(adjustment values) of the PICTURE-IN-PICTURE circuit.
(PIP is means as Picture In Picture. **Since this function is not mounted this model, do not adjust this mode.**)
- (6) 3L Y/C(LYC) This is used when the 3L Y/C MODE is verified. **[Do not adjust]**
- (7) LOW LIGHT This sets the setting values (adjustment values) of the WHITE BALANCE circuit.
- (8) HIGH LIGHT This sets the setting values (adjustment values) of the WHITE BALANCE circuit
- (9) RF AFC This is used when the RF AFC MODE is verified. **[Do not adjust]**
- (10)VCO This is used when the IF VCO is adjusted.
- (11)I²C BUS This is used when ON/OFF of the I²C BUS CTRL is set. **[Fixed ON]**
- (12)SYSTEM (SYS) This is used when the SYSTEM is verified. **[Fixed value]**

3. Basic Operations of the SERVICE MENU

(1) How to enter the SERVICE MENU.

Press the **SLEEP TIMER** key and set the **SLEEP TIMER** for 「0 MIN」.

Then press the **DISPLAY** key and **VIDEO STATUS** key of the remote control unit at the same time to enter the SERVICE MENU screen.(FIG.1)

(2) SERVICE MENU screen selection

In SERVICE MENU, press the FUNCTION (▼/▲) key to select any of the SUB MENU items.

(The letters of the selected items are displayed in yellow.)

SERVICE MENU

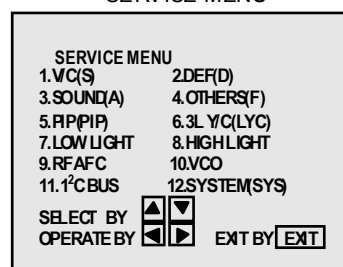
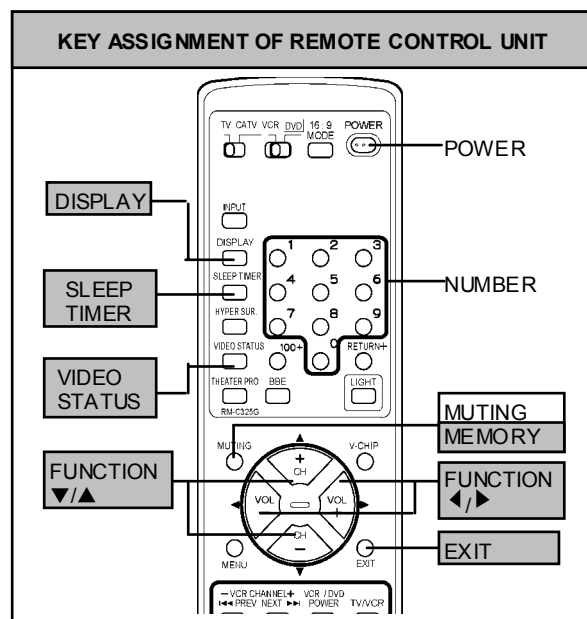


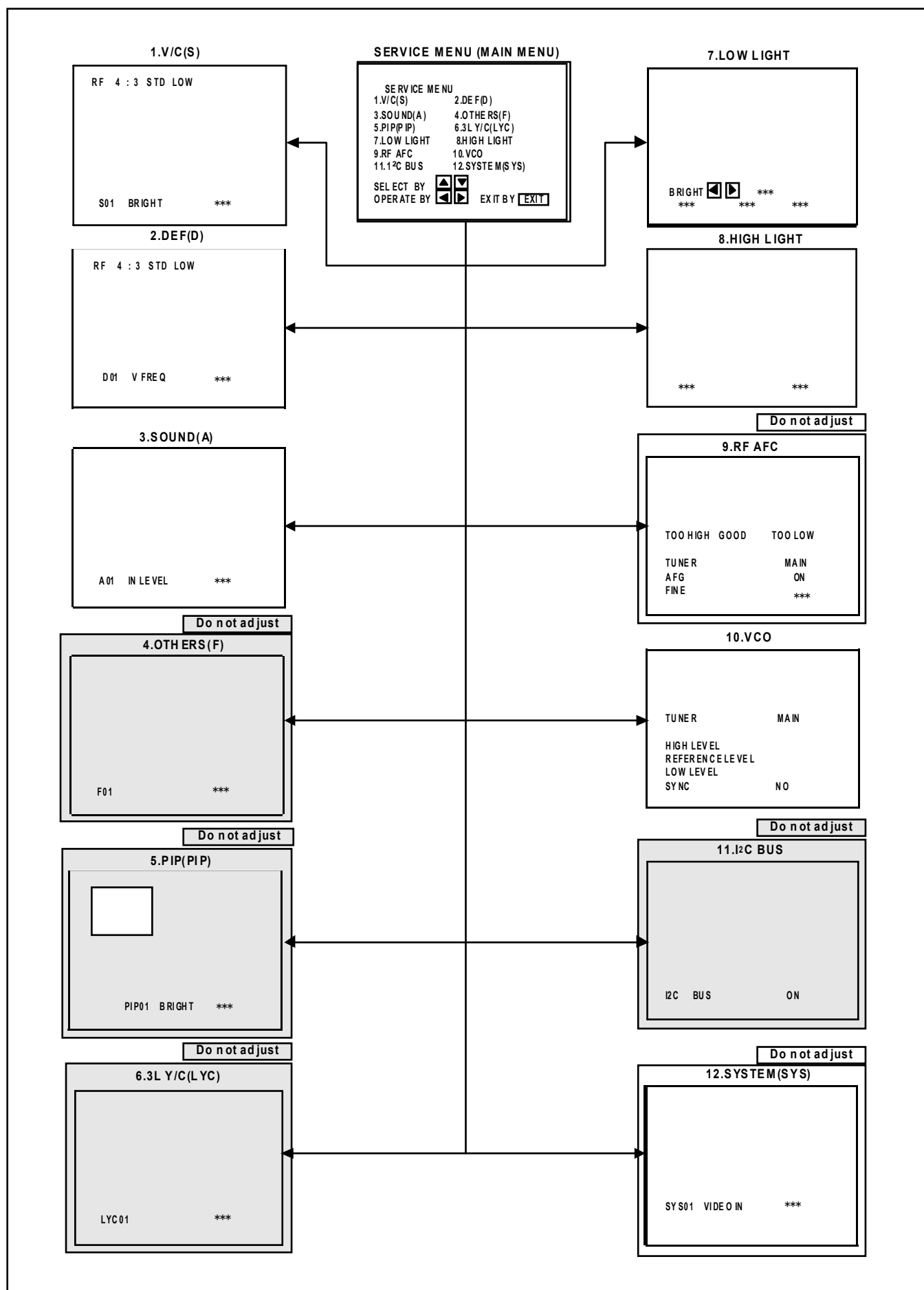
Fig.1

(3) Enter to the any setting (adjustment) mode

1. V/C(S), 2. DEF(D), 3. SOUND(A), 4. OTHERS(F),
6. 3L Y/C(LYC), 7. LOW LIGHT, 8. HIGH LIGHT,
9. RF AFC, 10. VCO and 12. SYSTEM(SYS) mode.

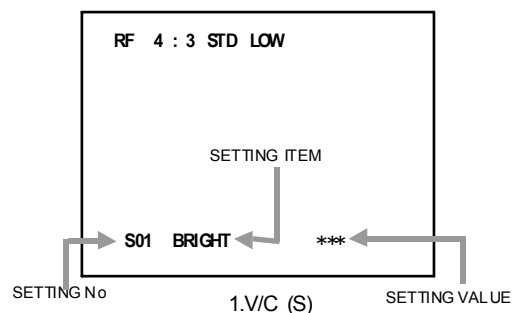
- 1) If select any of 1. V/C(S) / 2. DEF(D) / 3. SOUND(A) / 4. OTHERS(F) / 5. PIP(PIP) / 6. 3L Y/C(LYC) / 7. LOW LIGHT / 8. HIGH LIGHT / 9. RF AFC / 10. VCO / 11. I²C BUS / 12. SYSTEM(SYS) items, and the FUNCTION (◀/▶) key is pressed from SERVICE MENU (MAIN MENU), the each screens will be displayed as shown in figure page later.
- 2) Then the settings or verifications can be performed.





(4) Setting method

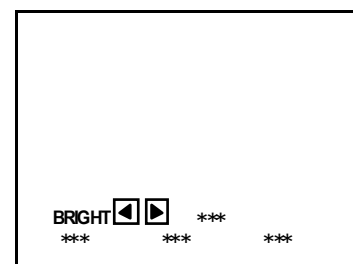
- 1) FUNCTION (▼/▲) key.
Select the SETTING ITEM.
- 2) FUNCTION (◀/▶) key
Setting (adjust) the SETTING VALUE of the SETTING ITEM.
When the key is released the SETTING VALUE will be stored (memorized).
- 3) EXIT key
Returns to the previous screen.



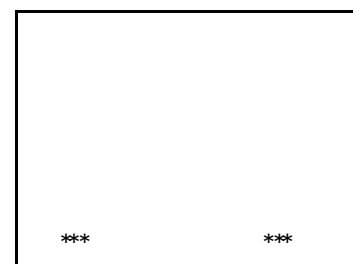
(5) Releasing SERVICE MENU

- 1) After returning to the SERVICE MENU upon completion of the setting (adjustment) work, press the EXIT key again.

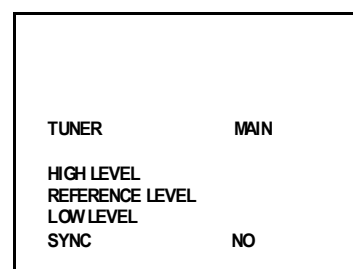
- ★ The settings for LOW LIGHT and HIGH LIGHT are described in the WHITE BALANCE page of ADJUSTMENT.
- ★ The setting for MAIN VCO are described in the VCO page of ADJUSTMENT.



7.LOW LIGHT



8.HIGH LIGHT



10.VCO

INITIAL SETTING VALUE OF SERVICE MENU

1. Adjustment of the SERVICE MENU is made on the basis of the initial setting values ; however, the new setting values which set the screen in its optimum condition may differ from the initial setting.
2. Do not change the initial setting values of the setting (adjustment) items not listed in "ADJUSTMENT".

V / C MODE

The item displayed "--" is impossible to adjust.

No.	Setting item	RF			STANDARD	
		STD(4:3)	STD(16:9)	THEATER (4:3)	EXTERNAL (S,CV)	COMPONENT
S01	BRIGHT	64	--	--	--	--
S02	PICTURE	60	--	--	--	--
S03	COLOR	50	--	--	--	46
S04	TINT	68	--	--	--	72
S05	DETAIL	33	--	--	35	40
S06	BRIGHT +-	--	±00	+01	-02	±00
S07	PICT+-	--	-08	-10	±00	±00
S08	COLOR+-	--	±00	-03	-02	--
S09	TINT+-	--	±00	-03	+05	--
S10	DETAIL+-	--	--	±00	--	--

No.	Setting item	Initial setting value							
		RF/EXT (S,CV)				COMPONENT			
		STANDARD		THEATER		STANDARD		THEATER	
		LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
S11	R CUT OFF	30	--	--	--	--	--	--	--
S12	G CUT OFF	30	--	--	--	--	--	--	--
S13	B CUT OFF	30	--	--	--	--	--	--	--
S14	R DRIVE	64	--	--	--	--	--	--	--
S15	B DRIVE	64	--	--	--	--	--	--	--
S16	R CUT+-	--	±00	±00	±00	-10	--	--	--
S17	G CUT+-	--	±00	±00	±00	±00	--	--	--
S18	B CUT+-	--	±00	±00	±00	-10	--	--	--
S19	R DRV+-	--	+05	+13	+07	±00	--	--	--
S20	B DRV+-	--	+06	-25	-09	±00	--	--	--
S21	NTSC MAT	03	03	01	01	02	02	01	01
S22	BLACK ST	02	--	02	--	--	--	--	--
S23	DCREST	01	--	01	--	--	--	--	--
S24	DCRSW	01	--	01	--	--	--	--	--

No.	Setting item	Initial setting value		
		RF	EXTERNAL	COMPONENT
S25	ASY SHRP	04	04	04
S26	BPF FO	00	00	--
S27	KILR OFF	00	00	--
S28	KILR SEN	01	01	--

No.	Setting item	Initial setting value	No.	Setting item	Initial setting value
S29	RGB MUTE	00	S39	Y MUTE	00
S30	BLUE B	00	S40	SVM GAIN	03
S31	VIDEO SW	03	S41	SVM PH	01
S32	CMP ABCL	00	S42	WPL	00
S33	OSD ABCL	00	S43	COL GMM	00
S34	OSD CONT	07	S44	V1 GAIN	04
S35	SUB CONT	05	S45	AGC ADJ	63
S36	ABL GAIN	00	S46	VMOFF DE	+03
S37	ABL PNT	03	S47	APC CLK	01
S38	Y GAMMA	01			

DEF MODE

The item displayed "--" is impossible to adjust.

No.	Setting item	Initial setting value			No.	Setting item	Initial setting value		
		RF (4:3)	RF (16:9)	EXT (4:3)			RF (4:3)	RF (16:9)	EXT (4:3)
D01	V FREQ	00	00	03	D18	WVMT BTM	00	01	00
D02	AFC GAIN	00	00	02	D19	EWCR TOP	12	--	12
D03	H POSI	20	--	20	D20	EWCR T+	--	00	--
D04	H POSI+-	--	00	--	D21	EWCR BTM	14	--	14
D05	V PHASE	00	--	00	D22	EWCR B+-	--	00	--
D06	V PH+-	--	00	--	D23	EW PARA	36	--	36
D07	V SIZE	75	--	75	D24	EW PARA+-	--	-15	--
D08	V SIZE+-	--	-30	--	D25	V EHT	00	--	00
D09	V CENTER	32	--	32	D26	V EHT+-	--	00	--
D10	V CENT+-	--	00	--	D27	H EHT	00	--	00
D11	V S CORR	09	--	09	D28	H EHT+-	--	00	--
D12	V S CO+-	--	00	--	D29	TRAPEZ	31	--	31
D13	V LIN	10	--	10	D30	TRAPEZ+-	--	00	--
D14	V LIN+-	--	00	--	D31	V AGC	00	00	00
D15	H SIZE	33	--	33	D32	BLANK SW	00	00	00
D16	H SIZE+-	--	00	--	D33	VRMP BI	00	00	00
D17	WVMT TOP	00	01	00					

SOUND MODE

No.	Setting item	Initial setting value
A01	IN LEVEL	10
A02	LOW SEP	32
A03	HI SEP	32
A04	SAPC	00
A05	BBE BASS	±00
A06	BBE TRE	-03

OTHERS MODE (Do not adjust)

Setting items are not displayed.

No.	Setting item	Initial setting value	No.	Setting item	Initial setting value
F01	OSD POSI	37	F15	VCSN 1	00
F02	OSD PREQ	90	F16	VCSN 2	10
F03	CCD POSI	39	F17	VCSN 3	20
F04	CCD FREQ	91	F18	VCSN STP	02
F05	CCD CONT	04	F19	VN DAT A	+08
F06	PURWBCK	00	F20	VM DAT B	-08
F07	PUR CONT	02	F21	VM DAT C	-20
F08	SN TYPE	02	F22	VM DAT D	-32
F09	YCSN TM	05	F23	VM DAT E	01
F10	YCSN E	05	F24	VMOFF TY	02
F11	YCSN F	16	F25	YC VMOFF	255
F12	YCSN G	32	F26	EZSF TM	40
F13	VNR CHK	03	F27	XDSID TM	15
F14	VCSN TM	05	F28	FM TRAP	01

3L Y / C MODE (Do not adjust)

No.	Setting item	Initial setting value
LYC01	MODE	04
LYC02	VENH	01
LYC03	PDSOFF	00
LYC04	CB	00
LYC05	VNLR	02
LYC06	GSEL0	00
LYC07	GSEL1	01
LYC08	COR	00
LYC09	TRAP	01
LYC10	CHTRAP	00
LYC11	CBPF	00
LYC12	ENHOFF	00

PIP MODE (Do not adjust)

No.	Setting item	Initial setting value	No.	Setting item	Initial setting value
PIP 01	BRIGHT	00	PIP 27	UVPOLAR	00
PIP 02	PICTURE	30	PIP 28	MAT	01
PIP 03	TINTI	42	PIP 29	YCOR	01
PIP 04	COLOR	06	PIP 30	XFREQF	01
PIP 05	R CUTOFF	00	PIP 31	WTCHDG	01
PIP 06	G CUTOFF	00	PIP 32	COLON	00
PIP 07	B CUTOFF	00	PIP 33	ACQNEW	00
PIP 08	R DRIVE	63	PIP 34	DSTDET	01
PIP 09	G DRIVE	65	PIP 35	CRIBEOK	00
PIP 10	B DRIVE	65	PIP 36	FCBEOK	00
PIP 11	L POSI	22	PIP 37	NOCRID	00
PIP 12	R POSI	15	PIP 38	NONSED	00
PIP 13	UPR POSI	12	PIP 39	PIP ADJ	04
PIP 14	LWR POSI	11	PIP 40	BRI EXT	00
PIP 15	PICT LCK	01	PIP 41	PCT EXT	00
PIP 16	SELDEL	00	PIP 42	TNT EXT	00
PIP 17	AGCFIX	01	PIP 43	COR EXT	00
PIP 18	AGCADST	00	PIP 44	R-D EXT	00
PIP 19	AGC	07	PIP 45	G-D EXT	00
PIP 20	BLKINVB	00	PIP 46	B-D EXT	00
PIP 21	BLKINVR	00	PIP 47	BRT COMP	00
PIP 22	VSPDEL	00	PIP 48	PCT COMP	00
PIP 23	VSPISQ	01	PIP 49	TNT COMP	40
PIP 24	RGBIN	00	PIP 50	COR COMP	05
PIP 25	FRSEL	01	PIP 51	R-D COMP	00
PIP 26	OUTFOR	00	PIP 52	G-D COMP	00
			PIP 53	B-D COMP	00

NOTE Although this model do not have PIP function, if memory data is out of range, occasionally some problems happen. Then we need to input these data.

ADJUSTMENTS

CHECK OF THE B1 POWER SUPPLY

Item	Measuring instrument	Test point	Adjustment part	Description
Check of B1 POWER SUPPLY	DC Voltmeter	【B1】 Connector (pin1 & pin3) TP-91(pin1) TP-E(⚡)(pin3)		1. Receive the black-and-white signal. (color off) 2. Connect the DC voltmeter to 【B1】 connector pin 【1】 (TP-91) and TP-E(⚡) (B1 connector pin 【3】). 3. Confirm that the voltage is DC134.5V±2V.

ADJUSTMENT OF VCO

Item	Measuring instrument	Test point	Adjustment part	Description
MAIN VCO adjustment	Signal generator Remote control unit		10:VCO MAIN VCO(T111) [MAIN PWB]	Be sure to input the signal. 1. Receive the color bars signal. 2. Enter to the SERVICE MENU mode. 3. Select the 10:VCO mode from the SERVICE MENU. 4. Push the FUNCTION ◀/▶ key, with the remote control unit and select the tuner to MAIN. 5. Confirm that the color change from HIGH LEVEL to LOW LEVEL by adjust the MAIN VCO at MAIN PWB, and check the SYNC is YES . 6. Adjust until REFERENCE LEVEL mark turns green. And then confirm that the SYNC is YES again. 7. Press the EXIT key to return to SERVICE MENU.

TUNER
 HIGH LEVEL
REFERENCE LEVEL
 LOW LEVEL

 SYNC:

MAIN

 YES

GREEN

ADJUSTMENT OF RF AGC

Item	Measuring instrument	Test point	Adjustment part	Description
RF. AGC adjustment	Signal generator Remote control unit		S45:AGC ADJ	1. Receive a black and white signal (color off). 2. Enter to the SERVICE MENU mode. 3. Select S45:AGC ADJ of the V/C MODE. 4. Press the MUTING key and turn off the color. 5. With the FUNCTION ◀ key to get the noise in the screen picture (zero side of setting value). 6. Press the FUNCTION ▶ key several times and step when noise disappears from the screen (at that time, not to increase the value too much). 7. Change to the other channels and make sure that there is no irregularity. 8. Press the MUTING key and turn the color on.

No.	Setting item	Variable range	Initial setting value
S45	AGC ADJ	0 ~127	63

ADJUSTMENT OF FOCUS

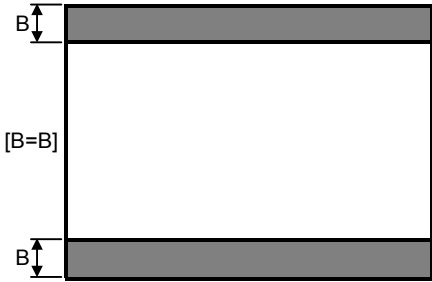
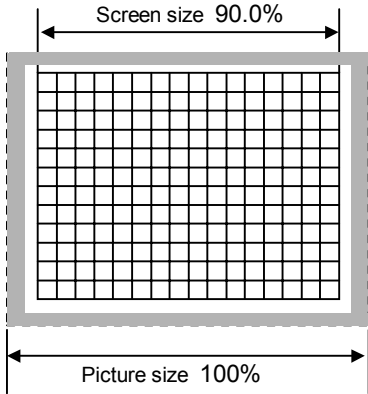
Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS adjustment	Signal generator		FOCUS VR [In HVT]	<ol style="list-style-type: none"> 1. Receive the crosshatch signal. 2. While looking at the screen, adjust the FOCUS VR to the vertical and horizontal lines will be thinnest and sharpest center horizontal line. 3. Then adjust the FOCUS VR2 to the vertical line looks so fine. 4. Make sure that the picture is in focus even when the screen gets darkened.

ADJUSTMENT OF DEFLECTION CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
V. HEIGHT V. CENTER adjustment (4:3)	Signal generator Remote control unit		D05:V PHASE D07:V SIZE D11:VS CORR. D13:V LIN. V CENTER SW (S1421) [MAIN PWB]	<ol style="list-style-type: none"> 1. Receive the crosshatch signal. 2. Enter to the SERVICE MENU. 3. Select the D05:V PHASE of the 2.DEF (D) item, and it checks that the value of D05:V PHASE is 0. 4. Adjust the vertical screen size of the visible screen top to 92.0% with the D07:V SIZE and V CENTER SW S1421. <p>(NOTE) Bottom is to be located with 85%~95% range. If vertical linearity is not even, adjust the D13: V LIN. and D11: VS CORR.</p>

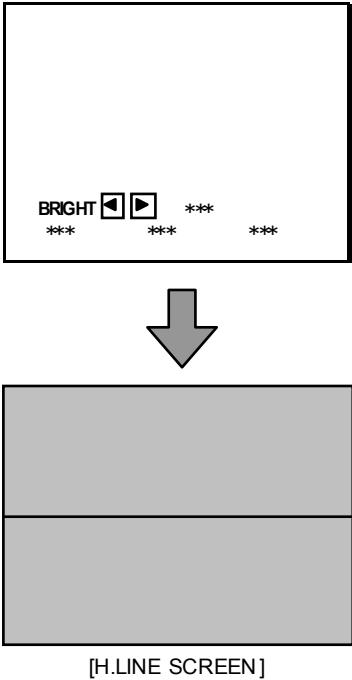
Screen size 92.0% Picture size 100%

No.	Setting item	Variable range	Initial setting value
D05	V PHASE	0~7	0
D07	V SIZE	0~127	75
D11	VS CORR	0~15	9
D13	V LIN	0~15	10

Item	Measuring instrument	Test point	Adjustment part	Description																								
V. HEIGHT V. LINEARITY adjustment (16:9)	Signal generator		D08:V. SIZE+ D14:V. LINE+-	V. HEIGHT and V. CENTER adjustment of in the 4:3 size should be finished.																								
	Remote control unit			5. Receive a black -and- white signal (color off). 6. Select 16:9 aspect mode with remote control unit. 7. Confirm that the V-blanking of the upper bottom is equal, and its width is about 67mm . 8. If the condition is not correct, enter to the SERVICE MENU. 9. Adjust the D08:V. SIZE+- and D14:V. LIN+- to become the blanking width to 67mm . 10. Press the EXIT key to twice to return the normal screen. (NOTE) When you change the vertical deflection adjustment value in the regular mode (4:3), readjust the 16:9 mode from beginning.																								
																												
<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>D08</td><td>V. SIZE+-</td><td>-128~127</td><td>-30</td></tr><tr><td>D14</td><td>V. LIN+-</td><td>-128~127</td><td>0</td></tr></table>					No.	Setting item	Variable range	Initial setting value	D08	V. SIZE+-	-128~127	-30	D14	V. LIN+-	-128~127	0												
No.	Setting item	Variable range	Initial setting value																									
D08	V. SIZE+-	-128~127	-30																									
D14	V. LIN+-	-128~127	0																									
H. POSITION H. SIZE & SIDE PIN adjustment (4:3)	Signal generator		D03:H.POSI. D15:H. SIZE D23:EW PARA D19:EWCR TOP D21:EWCR BMT	V. HEIGHT and V. POSITION adjustment of in the 4:3 size should be finished.																								
	Remote control unit			11. Receive a crosshatch signal. 12. Enter to the SERVICE MENU. 13. Select the D03: H. POSI from 2.DEF (D) item. 14. Adjust by D03:H. POSI to become same size at both side. 15. Then adjust the horizontal size of the visible screen at both side of right-and-left to 90% with the D15:H.SIZE . 16. And adjust the vertical line at both side to become straight line by D23:EW PARA . 17. Confirm that the linearity of vertical line and horizontal size. 18. If it is necessary, readjust 14~17. 19. Press the EXIT key twice to return to the normal screen. (NOTE) If it is not straight the vertical line at the upper and bottom corner, adjust the upper and bottom corner pin still more by D19:EWCR TOP and D21:EWCR BTM .																								
																												
<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>D03</td><td>H. POSI</td><td>0~31</td><td>20</td></tr><tr><td>D15</td><td>H. SIZE</td><td>0~63</td><td>33</td></tr><tr><td>D23</td><td>EW PARA</td><td>0~63</td><td>36</td></tr><tr><td>D19</td><td>EWCR TOP</td><td>0~31</td><td>12</td></tr><tr><td>D21</td><td>EWCR BMT</td><td>0~31</td><td>14</td></tr></table>					No.	Setting item	Variable range	Initial setting value	D03	H. POSI	0~31	20	D15	H. SIZE	0~63	33	D23	EW PARA	0~63	36	D19	EWCR TOP	0~31	12	D21	EWCR BMT	0~31	14
No.	Setting item	Variable range	Initial setting value																									
D03	H. POSI	0~31	20																									
D15	H. SIZE	0~63	33																									
D23	EW PARA	0~63	36																									
D19	EWCR TOP	0~31	12																									
D21	EWCR BMT	0~31	14																									

23

ADJUSTMENT OF VIDEO / CHROMA CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (Low Light) adjustment	Signal generator Remote control unit		S01: BRIGHT S11: R CUTOFF S12: G CUTOFF S13: B CUTOFF SCREEN VR [in HVT]	<div><div>[LOW LIGHT]</div><div></div><div>[H.LINE SCREEN]</div></div> <div><div>REMOTE CONTROL UNIT</div><div><div>H.LINE ON ① R CUTOFF ④ R CUTOFF ⑦</div><div>H.LINE OFF ② G CUTOFF ⑤ G CUTOFF ⑧</div><div>EXIT ③ B CUTOFF ⑥ B CUTOFF ⑨</div></div></div>

1. Receive the black and white signal (color off).

2. Enter to the SERVICE MENU mode.

3. Select the **LOW LIGHT** mode from the SERVICE MENU.

4. Confirm that the initial setting value of **S11: R CUTOFF**, **S12: G CUTOFF**, **S13: B CUTOFF** and **S01: BRIGHT**.

5. Display a single horizontal line by pressing the ① key of the remote control unit.

6. Turn the screen VR all the way to the left.

7. Turn the screen VR gradually to the right from the left until either one of the red, blue or green colors appears faintly.

8. Adjust the two colors which did not appear until the single horizontal line that is displayed becomes white using the ④ to ⑨ keys of the remote control unit.

9. Turn the screen VR until the single horizontal line is displayed faintly.

10. Press the ② key to cancel the single horizontal line mode.

11. Adjust the **S01: BRIGHT** to become the black component shines white slightly.

12. Confirm that whether the color ingredient of R, G, or B is visible to the black component, which shines white slightly

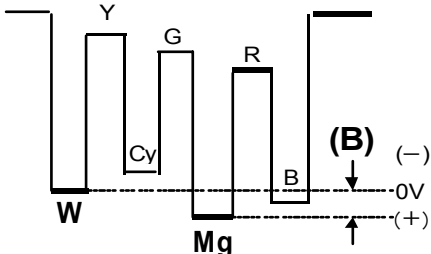
13. When the color ingredient can be seen, two colors other than a visible color are adjusted, and it is made to look white.

(NOTE)

The ③ EXIT key is the cancel key for the WHITE BALANCE.

No.	Setting item	Variable range	Initial setting value
S11	R CUT OFF	0~255	30
S12	G CUT OFF	0~255	30
S13	B CUT OFF	0~255	30
S01	BRIGHT	0~127	64

Item	Measuring instrument	Test point	Adjustment part	Description												
WHITE BALANCE (High Light) adjustment	Signal generator		S14:R DRIVE S15:B DRIVE	<div><div><div>1. Receive the black-and-white signal (color off).</div><div>2. Enter to the SERVICE MENU mode.</div><div>3. Select the HIGH LIGHT mode in the SERVICE MENU.</div><div>4. Set the initial setting value of S14:R DRIVE and S15:B DRIVE with the ④, ⑥, ⑦and ⑨ keys of the remote control unit.</div><div>5. Adjust the screen until it becomes white using the ④, ⑥, ⑦ and ⑨ keys of the remote control unit.</div></div><div>(NOTE)</div><div>The ③ EXIT key is the cancel key for the WHITE BALANCE.</div></div>												
	Remote control unit															
<div><div><div><div>***</div><div>***</div></div><div>[WHITE SCREEN]</div></div><div><div>REMOTE CONTROL UNIT</div><div><div><div>H.LINE ON</div><div>①</div><div>R DRIVE</div><div>④</div><div>R DRIVE</div><div>⑦</div></div><div><div>H.LINE OFF</div><div>②</div><div></div><div>⑤</div><div></div><div>⑧</div></div><div><div>EXIT</div><div>③</div><div>B DRIVE</div><div>⑥</div><div>B DRIVE</div><div>⑨</div></div></div></div></div>																
				<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>S14</td><td>R DRIVE</td><td>0~127</td><td>64</td></tr><tr><td>S15</td><td>B DRIVE</td><td>0~127</td><td>64</td></tr></table>	No.	Setting item	Variable range	Initial setting value	S14	R DRIVE	0~127	64	S15	B DRIVE	0~127	64
No.	Setting item	Variable range	Initial setting value													
S14	R DRIVE	0~127	64													
S15	B DRIVE	0~127	64													
SUB BRIGHT adjustment	Remote control unit		S01:BRIGHT	<div><div><div>1. Receive the broadcast and set the STANDARD mode.</div><div>2. Enter the SERVICE MENU.</div><div>3. Select S01:BRIGHT of the V/C(S) mode.</div><div>4. Set the initial setting value of the S01:BRIGHT with the FUNCTION ◀/▶ key.</div><div>5. If the brightness is not the best with the initial setting value, make fine adjustment of the S01:BRIGHT until you get the optimum brightness.</div></div></div> <table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>S01</td><td>BRIGHT</td><td>0~127</td><td>64</td></tr></table>	No.	Setting item	Variable range	Initial setting value	S01	BRIGHT	0~127	64				
No.	Setting item	Variable range	Initial setting value													
S01	BRIGHT	0~127	64													
SUB CONTRAST adjustment	Remote control unit		S02:PICTURE	<div><div><div>1. Receive the broadcast and set the STANDARD mode.</div><div>2. Enter the SERVICE MENU.</div><div>3. Select S02:PICTURE of the V/C(S) mode.</div><div>4. Set the initial setting value of the S02:PICTURE with the FUNCTION ◀/▶ key.</div><div>5. If the contrast is not the best with the initial setting value, make fine adjustment of the S02:PICTURE until you get the optimum contrast.</div></div></div> <table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>S02</td><td>PICTURE</td><td>0~127</td><td>60</td></tr></table>	No.	Setting item	Variable range	Initial setting value	S02	PICTURE	0~127	60				
No.	Setting item	Variable range	Initial setting value													
S02	PICTURE	0~127	60													

Item	Measuring instrument	Test point	Adjustment part	Description								
SUB TINT adjustment	Signal generator		S04:TINT	[Method of adjustment without measuring instrument] 1. Receive the broadcast. 2. Enter the SERVICE MENU. 3. Select S04:TINT of the V/C(S) mode. 4. Set the initial setting value of the S04:TINT with the FUNCTION ◀/▶ key. 5. If the tint is not the best with the initial setting value, make fine adjustment of the S04:TINT until you get the optimum tint.								
	Remote control unit											
<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>S04</td><td>TINT</td><td>0 ~ 127</td><td>68</td></tr></table>					No.	Setting item	Variable range	Initial setting value	S04	TINT	0 ~ 127	68
No.	Setting item	Variable range	Initial setting value									
S04	TINT	0 ~ 127	68									
	Signal generator	TP-B	S04:TINT	[Method of adjustment using measuring instrument] 1. Input the full field color bar signal (75% white). 2. Enter to the SERVICE MENU. 3. Enter to the 9.RF AFC mode and set the AFC to OFF. 4. Select S04:TINT of the V/C(S) mode. 5. Set the initial setting value of the S04:TINT with the FUNCTION ◀/▶ key. 6. Connect the oscilloscope between TP-B and TP-E . 7. Adjust S04:TINT and bring the value of (B) in the illustration to +26V . 8. Reset the RFAFC setting position from OFF to ON.								
	Oscilloscope	TP-E(↗) [CRT SOCKET PWB]										
	Remote control unit											
<div></div>												

ADJUSTMENT OF MTS CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description												
MTS INPUT LEVEL Adjustment	Sophometer	AUDIO OUT R pin	A01:IN LEVEL	1. Receive the cross-hatch signal (cross s-hatch / 400Hz)												
	Remote control unit			2. Enter the SERVICE MENU.												
				3. Select the A01:IN LEVEL of the 3:SOUND(A) MODE.												
				4. Verify that the A01:IN LEVEL is set at its initial setting value.												
				5. Connect the sophometer to AUDIO OUT R pin.												
				6. Adjust the MTS input level to 500mV(rms) by A01:IN LEVEL with remote control unit.												
				7. Press the EXIT key to return to the SERVICE MENU screen.												
				<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>A01</td><td>IN LEVEL</td><td>0~15</td><td>010</td></tr></table>	No.	Setting item	Variable range	Initial setting value	A01	IN LEVEL	0~15	010				
No.	Setting item	Variable range	Initial setting value													
A01	IN LEVEL	0~15	010													
MTS SEPARATION adjustment	TV audio multiplex signal generator	R OUT L OUT [AUDIO OUT]	A02:LOW SEP. A03:HI SEP.	1. Input the stereo L signal (300Hz) from the TV audio multiplex signal generator to the antenna terminal.												
	Oscilloscope			2. Connect an oscilloscope to R OUT pin of the AUDIO OUT, and display one cycle portion of the 300Hz signal.												
	Remote control unit			3. Enter the SERVICE MENU.												
				4. Select the A02:LOW SEP. of the 3:SOUND(A) mode.												
				5. Set the initial setting value of the A02:LOW SEP. with the FUNCTION (◀/▶) key.												
				6. Adjust the A02:LOW SEP. so that the stroke element of the 300Hz signal will become minimum.												
				7. Change the connection of the oscilloscope to L OUT pin of the AUDIO OUT, and enlarge the voltage axis.												
				8. Change the signal to 3kHz, and similarly adjust the A03:HI SEP.												
				9. Press the EXIT key to return to the SERVICE MENU screen.												
				<table><tr><th>No.</th><th>Setting item</th><th>Variable range</th><th>Initial setting value</th></tr><tr><td>A02</td><td>LOW SEP.</td><td>0~63</td><td>032</td></tr><tr><td>A03</td><td>HI SEP.</td><td>0~63</td><td>032</td></tr></table>	No.	Setting item	Variable range	Initial setting value	A02	LOW SEP.	0~63	032	A03	HI SEP.	0~63	032
No.	Setting item	Variable range	Initial setting value													
A02	LOW SEP.	0~63	032													
A03	HI SEP.	0~63	032													

L-Channel signal waveform

R-Channel crosstalk portion

1 cycle

Mnimum

HOW TO CHECK THE HIGH VOLTAGE HOLD DOWN CIRCUIT

1. HIGH VOLTAGE HOLD DOWN CIRCUIT

After repairing the high voltage hold down circuit shown in Fig. 1.
This circuit shall be checked to operate correctly.

2. CHECKING OF THE HIGH VOLTAGE HOLD DOWN CIRCUIT

- (1) Turn the power switch to on.
- (2) As shown in Fig. 1, set the resistor between [S1] connector [2] and [3] .
- (3) Make sure that the screen picture disappears.
- (4) Temporarily unplug the power plug.
- (5) Remove the resistor replaced [S1] connector [2] and [3] .
- (6) Again plug the power plug, make sure that the normal picture is displayed on the screen.

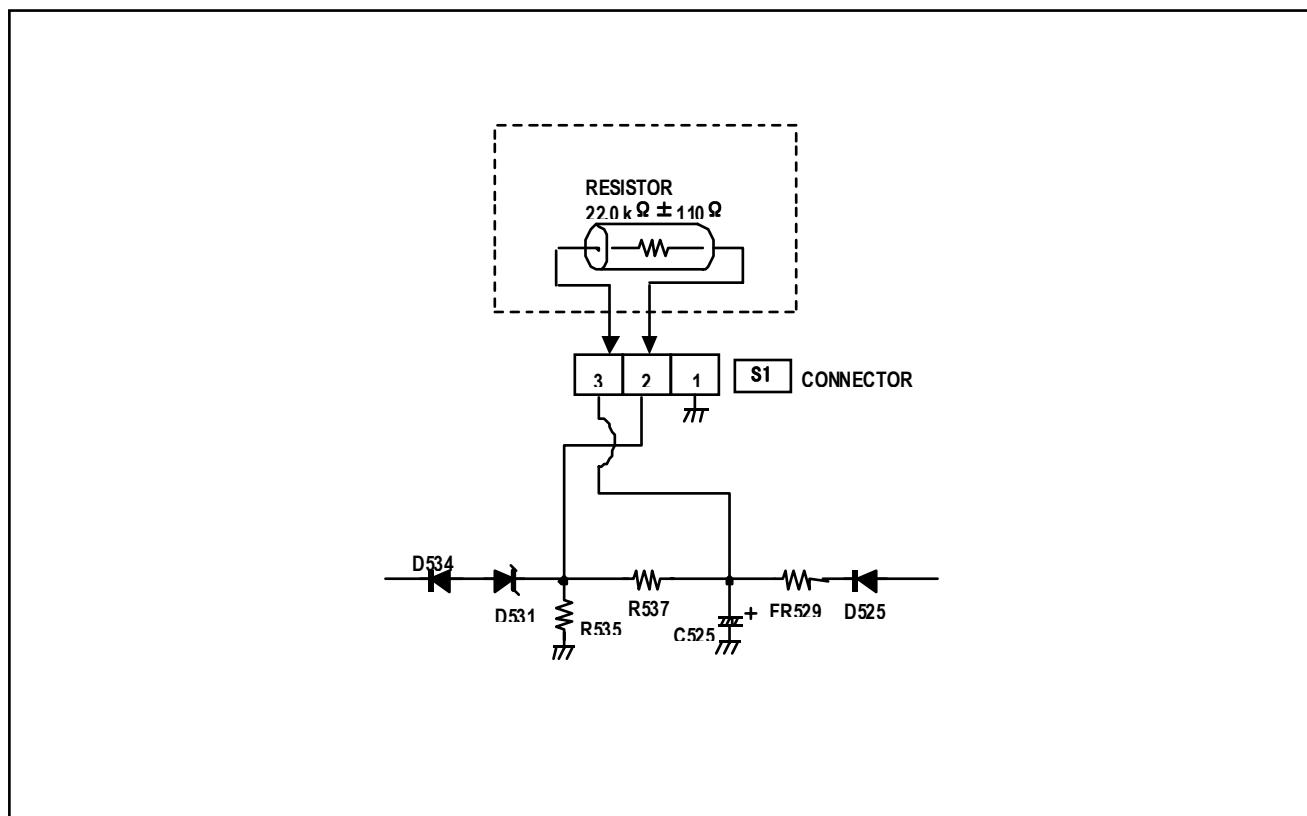


Fig. 1