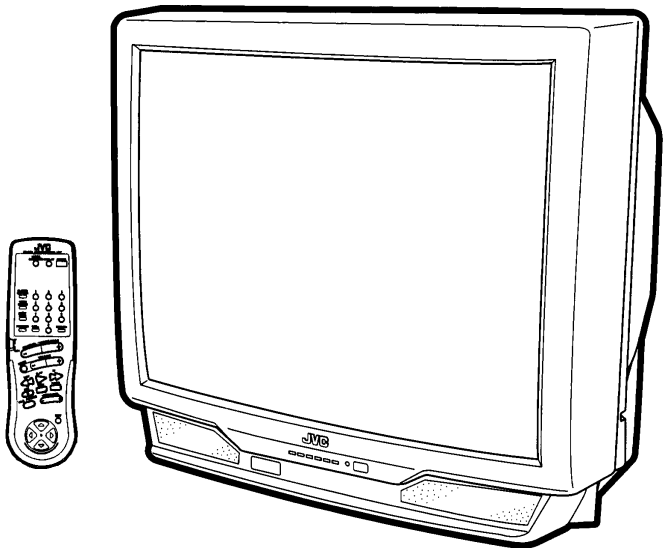
JVC

SERVICE MANUAL

COLOR TELEVISION

BASIC CHASSIS
GA

AV-29M201



CONTENTS

No.51731
May 2000

SPECIFICATIONS

Items	Content
Dimensions (W × H × D)	25-3/4" × 23-3/8" × 20-1/2" / 65.4cm × 59.1cm × 51.8cm
Mass	67.8lbs / 30.8kg
TV System and Color system	
TV RF System	CCIR(M)&(N)
Color System	NTSC / PAL-M / PAL-N
Sound System	BTSC (Multi Channel Sound)
TV Receiving Channels and Frequency	
VL Band	(02～06) 55.25MHz～83.25MHz
VH Band	(07～13) 175.25MHz～211.25MHz
UHF Band	(14～69) 471.25MHz～801.25MHz
ATV Receiving Channels and Frequency	
Low Band	(02～06)
High Band	(07～13)
Mid Band	(14～22)
Super Band	(23～36)
Hyper Band	(37～64)
Ultra Band	(65～94, 100～125)
Sub Mid Band	(01, 96～99)
	(55.25MHz～799.25MHz)
TV/CATV Total Channel	180 Channels
Intermediate Frequency	
Video IF Carrie r	45.75MHz
Sound IF Carrier	41.25MHz (4.5MHz)
Color Sub Carrier	NTSC : 3.579545MHz PAL-M : 3.57561149MHz PAL-N : 3.58205625MHz
Power Input	Rated Voltage : 120V～240V AC, 50Hz/60Hz Operating Voltage : 90V～260V AC, 50Hz/60Hz
Power Consumption	115W(max.), 85W(avg.)
Picture Tube	27" (68cm) measured diagonally, Full Square
High Voltage	29kV±1.3kV (at zero beam current)
Speaker	2" × 4-3/4" / 5 × 12cm Oval type × 2
Audio Power Output	5W+5W
Input (1, 2)	Video : 1Vp-p 75Ω (RCA pin jack) Audio : 500mVrms (-4dBs), High Impedance (RCA pin jack)
Variable Audio Output	More then 0～1550mVrms (+6dBs) Low Impedance (400Hz when modulated 100%) (RCA pin jack)
Antenna terminal	75Ω (VHF/UHF) Terminal, F-Type Connector
Accessories	Remote Control Unit RM-C765-1A(AAA/R03/UM-4 dry battery × 2)

Design & specifications are subject to change without notice.

SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

4. **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
   Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) 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.

5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).

6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

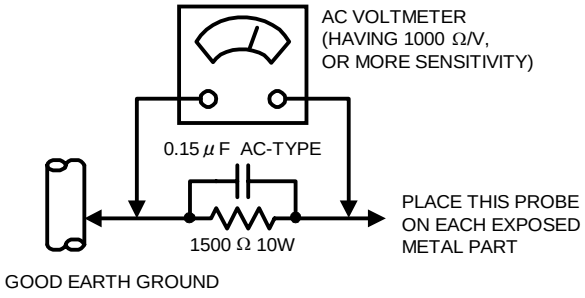
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

9. **Isolation Check**
   (Safety for Electrical Shock Hazard)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, 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.).
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.).

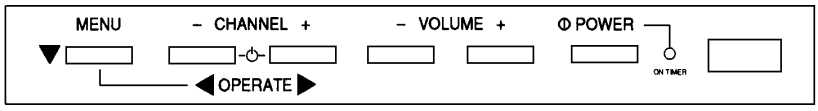


FEATURES

- New chassis design enables use of a main board with simplified circuitry.
- Provided with miniature tuner (TV/CATV).
- PLL synthesizer system TV/CATV totaling 180 channels.
- Multifunctional remote control permits picture adjustment.
- With AUDIO. VIDEO INPUT terminal.
- Variable audio output terminal.
- Adoption of the VIDEO STATUS function.
- Adoption of the ON/OFF TIMER function.
- With 75Ω V/U in common (F-Type) ANT Terminal.
- SLEEP TIMER for setting in real time.
- Wide range voltage (90V～260V) AC power input.

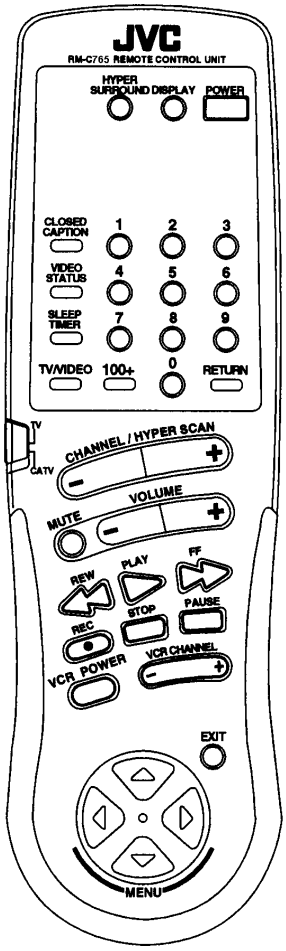
FUNCTIONS

■ FRONT CONTROL

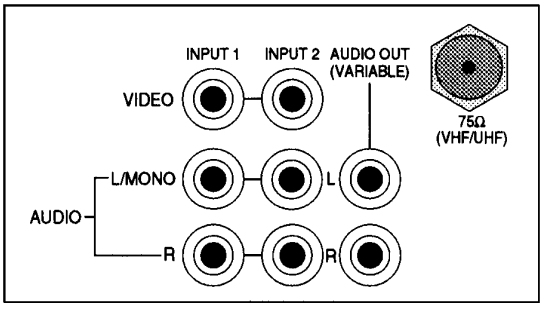


■ REMOTE CONTROL UNIT

(RM-C765-1A)



■ REAR VIEW



SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

REMOVING THE REAR COVER

1. Unplug the power supply cord.
2. Remove the 7 screws marked Ⓐ and 2 screws marked Ⓑ as shown in Fig.1.

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

REMOVING THE CHASSIS

- After removing the rear cover.

1. Slightly raise the both sides of the chassis by hand and remove the 2 claws under the both sides of the chassis from the front cabinet.
2. Draw the chassis backward along the rail in the arrow direction marked Ⓒ as shown in the Fig.1.
   (If necessary, take off the wire clamp, connectors etc.)

* When conducting a check with power supplied, be sure to confirm that the CRT earth wire is connected to the CRT SOCKET PWB and the MAIN PWB.

REMOVING THE SPEAKER

- After removing the rear cover and chassis.

1. Remove the 2 screws marked Ⓓ as shown in Fig.1.
2. Follow the same steps when removing the other hand speaker.

CHECKING THE MAIN PW BOARD

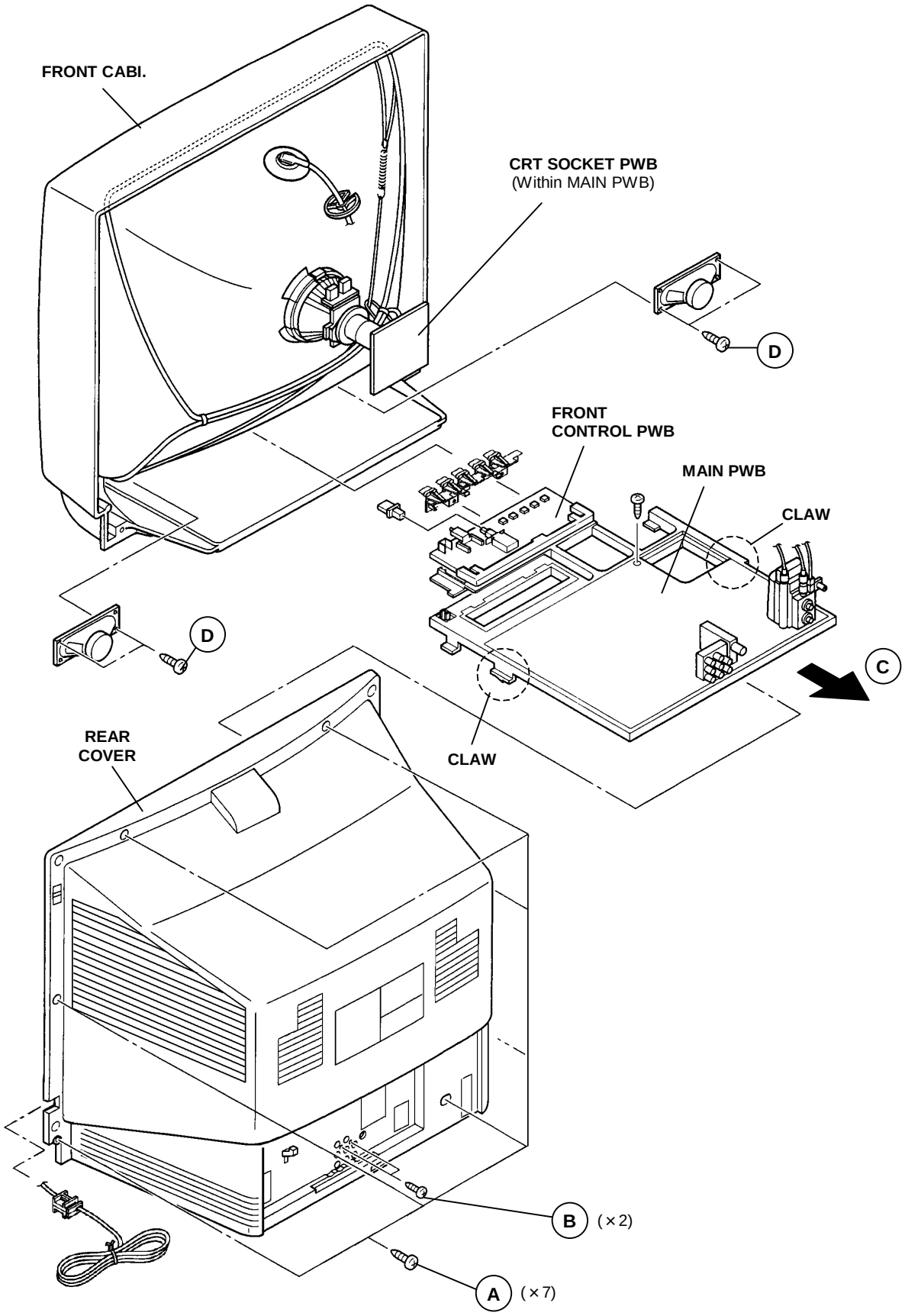
1. To check the back side of the MAIN PW Board.
   1) Pull out the chassis. (Refer to REMOVING THE CHASSIS).
   2) Erect the chassis vertically so that you can easily check the back side of the MAIN PW Board.

[CAUTION]

- When erecting the chassis, be careful so that there will be no contacting with other PWB.
- Before turning on power, make sure that the CRT earth wire and other connectors are properly connected.

WIRE CLAMPING AND CABLE TYING

1. Be sure 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.


FRONT CABI.
CRT SOCKET PWB
(Within MAIN PWB)
D
FRONT
CONTROL PWB
MAIN PWB
CLAW
D
C
REAR
COVER
CLAW
B (×2)
A (×7)

MEMORY IC REPLACEMENT

1. Memory IC

This model use a memory IC.
The memory IC stores data for proper operation of video and deflection circuits.
When replacing, be sure to use an IC containing this (initial value) data.

2. Memory IC replacement procedure

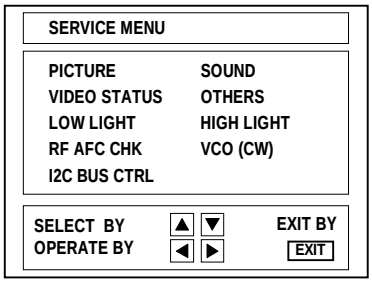
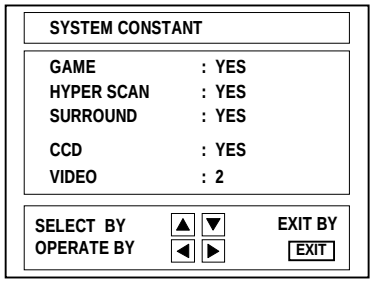
PROCEDURE	SCREEN DISPLAY
(1) Power off Switch off the power and disconnect the power cord from the outlet.	
(2) Replace the memory IC. Be sure to use memory ICs written with the initial data values.	
(3) Power on Connect the power cord to the outlet and switch on the power.	
(4) System constant check and setting - It must not adjust without signal. 1) Simultaneously press the DISPLAY key and VIDEO STATUS 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 VIDEO STATUS 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 MENU UP / DOWN key and adjust the setting with the MENU LEFT / RIGHT keys. (The letters of the selected item are displayed in yellow.) 5) After adjusting, release the MENU LEFT / RIGHT key to store the setting value. 6) Press the EXIT key twice to return the normal screen.	 Fig.1  Fig.2
(5) **Receive 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.	

TABLE 1 (System Constant Setting)

Setting item	Setting content	Setting value
GAME	YES → NO	YES
HYPER SCAN	YES → NO	YES
SURROUND	YES → NO	YES
CCD	YES → NO	YES
VIDEO	0 → 1 → 2	2

TABLE 2 (User setting value)

Setting item	Setting value
1. Setting of FUNCTION	
MAIN POWER	OFF
SUB POWER	ON
CHANNEL	CH 02
CHANNEL PRESET	Refer to OPERATING INSTRUCTIONS
VOLUME	10
TV/VIDEO	TV
DISPLAY	OFF
SLEEP TIMER	0
VIDEO STATUS	STANDARD
CLOSED CAPTION	OFF (CC1/T1)
HYPER SURROUND	OFF
2. Setting of MENU	
TINT	CENTER
COLOR	CENTER
PICTURE	CENTER
BRIGHT	CENTER
DETAIL	CENTER
BASS	CENTER
TREBLE	CENTER
BALANCE	CENTER
MTS	STEREO
TV SPEAKER	ON
SET CLOCK	Unnecessary to set
ON/OFF TIMER	NO
CHANNEL SUMMARY	Unnecessary to set
SET LOCK CODE	Unnecessary to set
AUTO TUNER SETUP	Unnecessary to set
TUNER MODE	AIR
NOISE MUTING	OFF
CLOSED CAPTION	OFF (CAPTION : CC1 TEXT : T1)
LANGUAGE	ENG.

REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

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

■ SOLDERING IRON

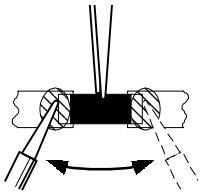
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

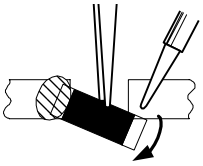
1. How to remove Chip parts

◆ **Resistors, capacitors, etc**

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

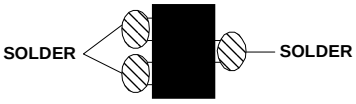


(2) Shift with tweezers and remove the chip part.

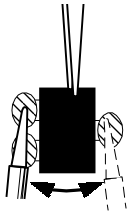


◆ **Transistors, diodes, variable resistors, etc**

(1) Apply extra solder to each lead.



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

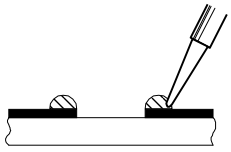


Note : After removing the part, remove remaining solder from the pattern.

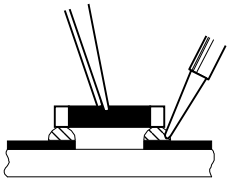
2. How to install Chip parts

◆ **Resistors, capacitors, etc**

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



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

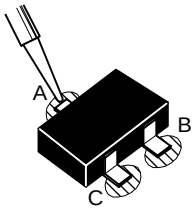


◆ **Transistors, diodes, variable resistors, etc**

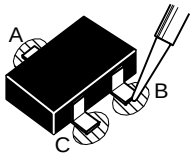
(1) Apply solder to the pattern as indicated in the figure.

(2) Grasp the chip part with tweezers and place it on the solder.

(3) First solder lead **A** as indicated in the figure.



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



SERVICE ADJUSTMENTS

ADJUSTMENT PREPARATION:

1. **You can make the necessary adjustments for this unit with either the remote control unit or with the adjustment equipment 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 turned on correctly.
4. Turn on the power for the 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 parts which are not specified in the list for this adjustment-variable resistors, transformers, condensers, etc.
7. Presetting before adjustment.
   Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit.

VIDEO STATUS	NORMAL
TINT, COLOR, PICTURE, BRIGHT, DETAIL	CENTER
BASS, TREBLE, BALANCE	CENTER
HYPER SURROUND	OFF

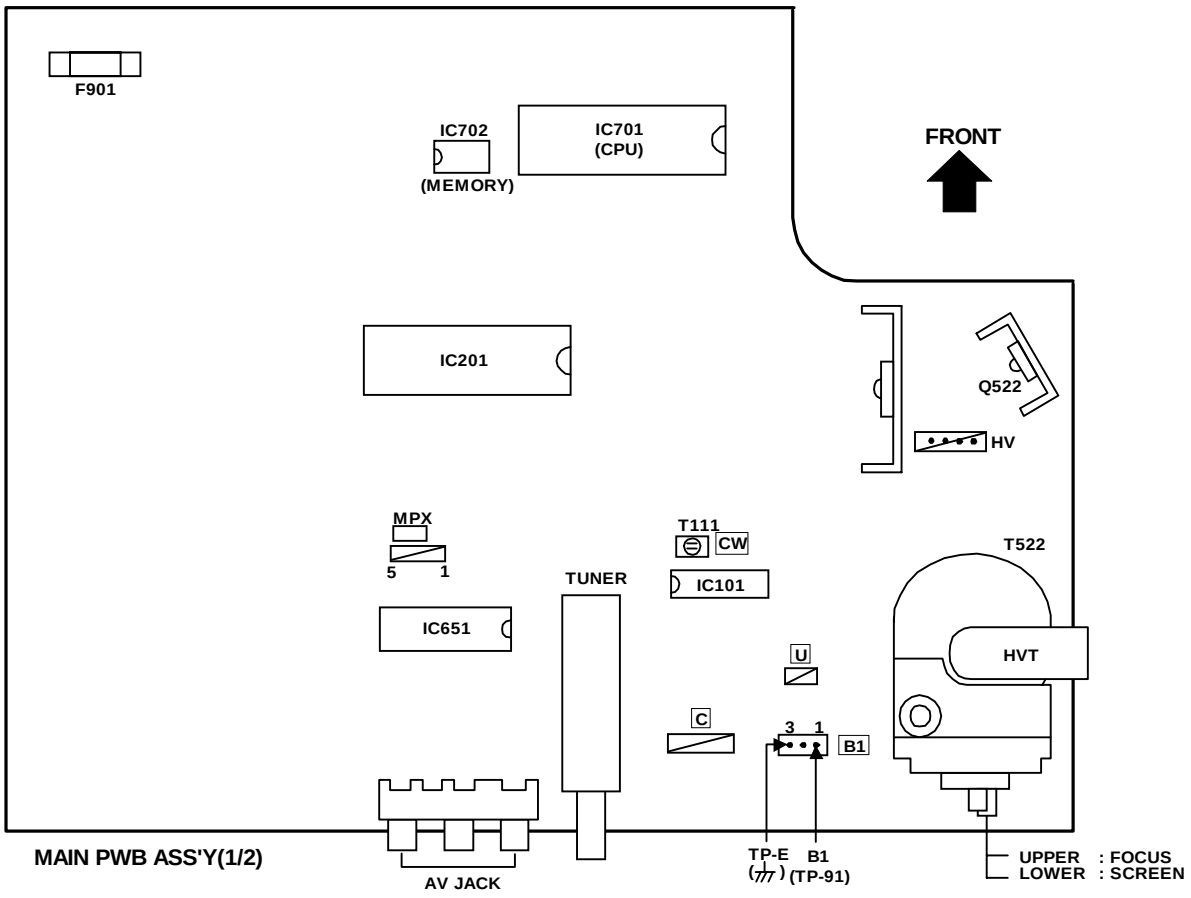
ADJUSTMENT EQUIPMENT

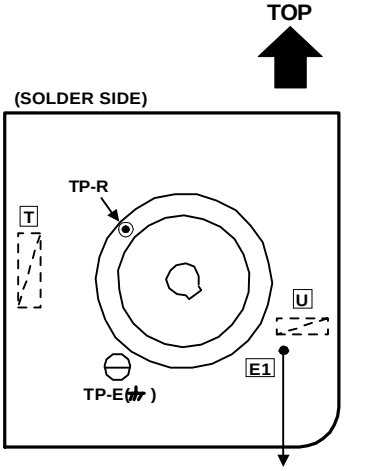
1. DC voltmeter(or digital voltmeter)
2. Oscilloscope
3. Signal generator (Pattern generator) [NTSC] [PAL-M] [PAL-N]
4. Remote control unit
5. TV audio multiplex signal generator
6. Frequency counter

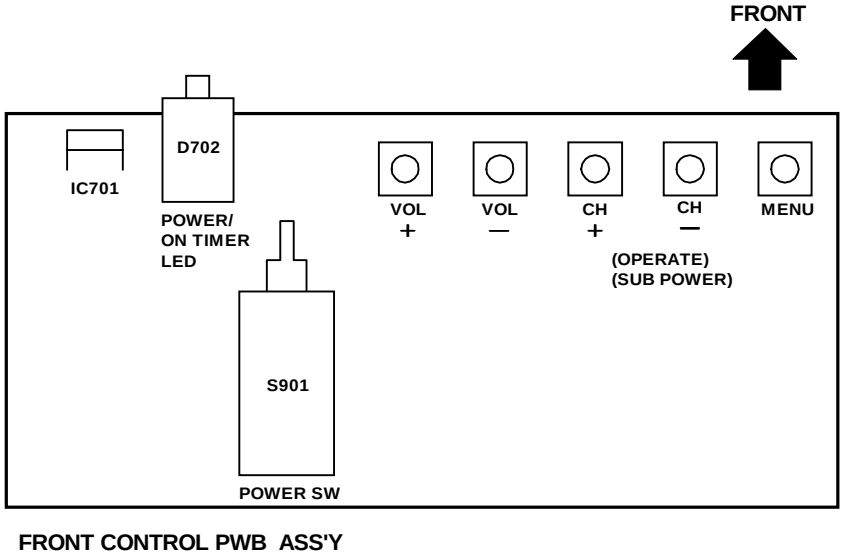
ADJUSTMENT ITEMS

- Check of B1 POWER SUPPLY
- IF VCO adjustment
- RF AGC adjustment
- FOCUS adjustment
- DEFLECTION adjustment
  V. HEIGHT, V. POSITION, V. LIN., V S CR adjustment
  H. POSITION adjustment
- VIDEO / CHROMA adjustment
  WHITE BALANCE (Low light) adjustment
  WHITE BALANCE (High light) adjustment
  SUB BRIGHT adjustment
  SUB CONTRAST adjustment
  SUB COLOR adjustment
  SUB TINT adjustment
- MTS circuit adjustment
  INPUT LEVEL check
  STEREO VCO adjustment
  SAP VCO adjustment
  FILTER check
  SEPARATION adjustment

ADJUSTMENT LOCATIONS







BASIC OPERATION OF SERVICE MENU

1. TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the REMOTE CONTROL UNIT.

2. SERVICE MENU ITEMS

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

(1) PICTURE ····· This sets the setting values (adjustment values) of the VIDEO/CHROMA and DEFLECTION circuits.
(2) SOUND ····· This sets the setting values (adjustment values) of the AUDIO circuit.
(3) VIDEO STATUS····· This is used when the THEATER and GAME MODE is adjusted.
(4) OTHERS····· This is used when the OTHERS MODE is adjusted.
(5) LOW LIGHT ····· This sets the setting values (adjustment values) of the WHITE BALANCE circuit.
(6) HIGH LIGHT····· This sets the setting values (adjustment values) of the WHITE BALANCE circuit.
(7) RF AFC CHK ····· This is used when the IF VCO is adjusted. **[Do not adjust]**
(8) VCO (CW) ····· This is used when the IF VCO is adjusted.
(9) I^2C BUS CTRL ····· This is used when ON/OFF of the I^2C BUS CTRL is set. **[Fixed ON]**

3. Basic Operations of the SERVICE MENU

(1) How to enter the SERVICE MENU.

Press the DISPLAY key and VIDEO STATUS key of the remote control unit at the same time to enter the SERVICE MENU screen ① shown in figure page later.

(2) SERVICE MENU screen selection

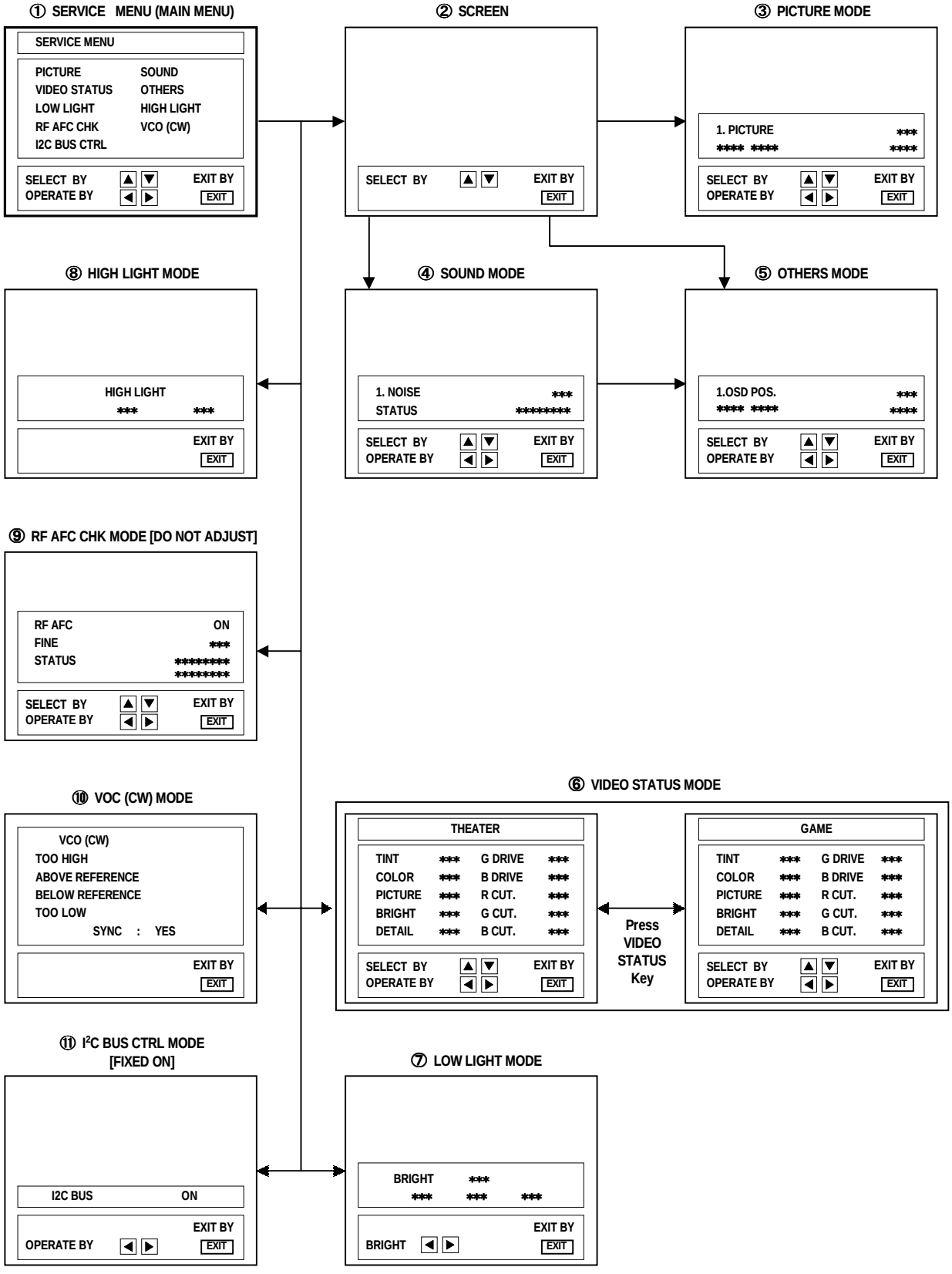
Press the UP / DOWN key of the MENU to select any of the following items.
(The letters of the selected items are displayed in yellow.)

- PICTURE
- SOUND
- VIDEO STATUS
- OTHERS
- LOW LIGHT
- HIGH LIGHT
- RF AFC CHK
- VCO (CW)
- I^2C BUS CTRL

(3) Enter the any setting (adjustment) mode

- **PICTURE, SOUND and OTHERS mode**
  1) If select any of PICTURE, SOUND or OTHERS items, and the LEFT / RIGHT key is pressed from SERVICE MENU (MAIN MENU), the screen ② will be displayed as shown in figure page later.
  2) Then the UP / DOWN key is pressed, the PICTURE mode screen ③ or the SOUND mode screen ④ or the OTHERS mode screen ⑤ is displayed, and the PICTURE, SOUND or OTHERS setting can be performed.

- **VIDEO STATUS, LOW LIGHT, HIGH LIGHT, RF AFC CHK, VCO (CW) and I^2C BUS CTRL mode**
  1) If select any of VIDEO STATUS / LOW LIGHT / HIGH LIGHT / RF AFC CHK / VCO (CW) / I^2C BUS CTRL items, and the LEFT / RIGHT key is pressed from SERVICE MENU (MAIN MENU), the screens ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ will be displayed as shown in figure page later.
  2) Then the settings or verifications can be performed.


① SERVICE MENU (MAIN MENU)
SERVICE MENU
PICTURE
SOUND
VIDEO STATUS
OTHERS
LOW LIGHT
HIGH LIGHT
RF AFC CHK
VCO (CW)
I2C BUS CTRL
SELECT BY
OPERATE BY
EXIT BY
EXIT
② SCREEN
SELECT BY
EXIT BY
EXIT
③ PICTURE MODE
1. PICTURE
SELECT BY
OPERATE BY
EXIT BY
EXIT
④ SOUND MODE
1. NOISE
STATUS
SELECT BY
OPERATE BY
EXIT BY
EXIT
⑤ OTHERS MODE
1.OSD POS.
SELECT BY
OPERATE BY
EXIT BY
EXIT
⑥ VIDEO STATUS MODE
THEATER
TINT
COLOR
PICTURE
BRIGHT
DETAIL
G DRIVE
B DRIVE
R CUT.
G CUT.
B CUT.
SELECT BY
OPERATE BY
EXIT BY
EXIT
Press VIDEO STATUS Key
GAME
TINT
COLOR
PICTURE
BRIGHT
DETAIL
G DRIVE
B DRIVE
R CUT.
G CUT.
B CUT.
SELECT BY
OPERATE BY
EXIT BY
EXIT
⑦ LOW LIGHT MODE
BRIGHT
BRIGHT
EXIT BY
EXIT
⑧ HIGH LIGHT MODE
HIGH LIGHT
EXIT BY
EXIT
⑨ RF AFC CHK MODE [DO NOT ADJUST]
RF AFC
ON
FINE
STATUS
SELECT BY
OPERATE BY
EXIT BY
EXIT
⑩ VOC (CW) MODE
VCO (CW)
TOO HIGH
ABOVE REFERENCE
BELOW REFERENCE
TOO LOW
SYNC : YES
EXIT BY
EXIT
⑪ I²C BUS CTRL MODE [FIXED ON]
I2C BUS
ON
OPERATE BY
EXIT BY
EXIT

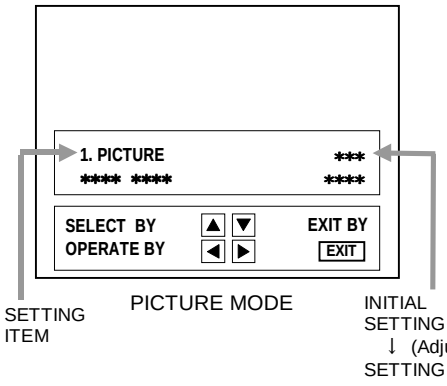
(4) Setting method

1) UP / DOWN key of the MENU
   Select the SETTING ITEM.

2) LEFT / RIGHT key of the MENU
   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.

[NOTE] (PICTURE MODE ONLY)
When the INTIAL SETTING VALUE is turned to yellow, you can adjust the values but you cannot adjust the values when it is turned to red (because the signal conditions, etc. are not met.)



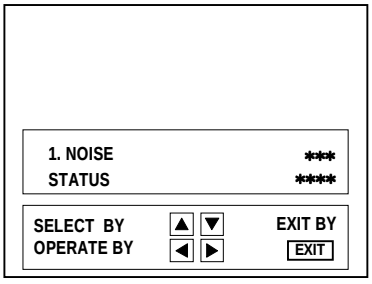
PICTURE MODE

(5) Releasing SERVICE MENU

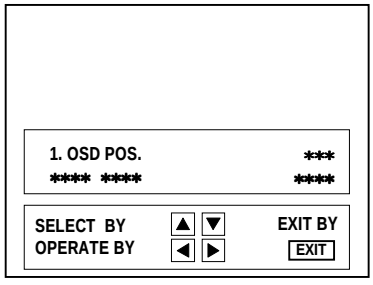
1) After returning to the SERVICE MENU upon completion of the setting (adjustment) work, press the EXIT key again.

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

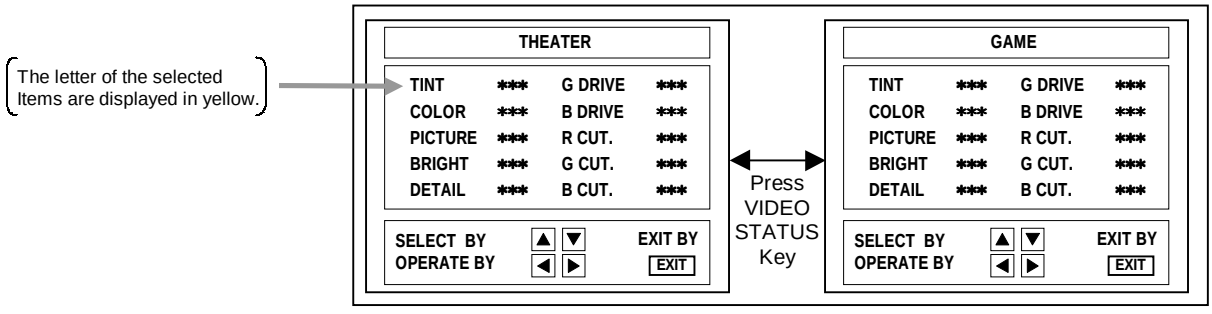
★ The setting for VCO(CW) are described in the IF VCO page of ADJUSTMENT.



SOUND MODE



OTHERS MODE



VIDEO STATUS MODE

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".**

- **PICTURE MODE**

✧ The four setting items in the video mode No.8 EXT PIC., No.9 EXT BRI., No.10 EXT COL., and No.11 EXIT TINT are linked to the items in the TV MODE No.1 PICTURE, No.2 BRIGHT, No.5 COL.NTSC and No.6 TINT, respectively. When the setting items in the TV mode are adjusted, the values in the setting items in the video mode are revised automatically to the same values in the TV mode.(The initial setting values given in ( ) are off-set values.)

✧ When the four items (No.8, 9, 10 and 11) are adjusted in the video mode, the setting values in each item are revised independently.

No.	Setting (Adjustment) item	Variable range	Initial setting value
1.	PICTURE	0～127	60
2.	BRIGHT	0～127	64
3.	COL. PALM	0～127	80
4.	COL. PALN	0～127	80
5.	COL. NTSC	0～127	95
6.	TINT	0～127	65
7.	TV DTL	0～63	33
8.	EXT PIC.	±25	(0)
9.	EXT BRI.	±25	(0)
10.	EXT COL.	±25	(+4)
11.	EXT TINT	±25	(+3)
12.	EXT DTL	0～63	30
13.	P/N KILL	0 / 1	0
14.	Y S CONT	0～31	31
15.	TV Y-DL	0～4	1
16.	EXT Y-DL	0～4	1
17.	WPL SW	0 / 1	0
18.	Y GAMMA	0 / 1	0
19.	P/N G P.	0 / 1	0
20.	COL. L SW	0 / 1	1
21.	COL. LMT.	0～3	1
22.	PN C. ATT	0～3	1
23.	OFST. SW	0 / 1	0
24.	OFST. B-Y	0～15	8
25.	OFST. R-Y	0～15	8
26.	C-TOF SW	0 / 1	1
27.	TV T FO	0～3	1
28.	TV T Q	0～3	0
29.	EXT T FO	0～3	0
30.	EXT T Q	0～3	0
31.	C-TRAP	0 / 1	0
32.	C-TR. FO	0～3	2
33.	C-TRAP Q	0～3	1
34.	FIX B/W	0 / 1	0
35.	APA P. FO	0～3	2
36.	DC TRAN.	0～7	4
37.	B. ST. SW	0 / 1	0
38.	B. ST. PO.	0～7	0
39.	ABL GAIN	0～7	4
40.	ABL PO.	0～7	0
41.	HALF T.	0～2	1
42.	DRV G SW	0 / 1	0
43.	NT. COMB	0 / 1	1
44.	COIN DET	0～3	3
45.	NOISE L.	0～3	3
46.	VCD MODE	0 / 1	0
47.	V AGC SP	0 / 1	0
48.	H POS. 50	0～31	6
49.	H BLK. 50	0～7	0
50.	V POS. 50	0～7	2

● **PICTURE MODE**

No.	Setting (Adjustment) item	Variable range	Initial setting value
51.	V SIZE50	0～127	71
52.	V S CR50	0～127	83
53.	V LIN. 50	0～31	4
54.	H POS. 60	0～31	10
55.	H BLK. 60	0～7	0
56.	V POS. 60	0～7	0
57.	V SIZE60	0～127	72
58.	V S CR60	0～127	99
59.	V LIN. 60	0～31	3
60.	RF AGC	0～255	160

● **SOUND MODE**

No.	Setting (Adjustment) item	Variable range	Initial setting value
1.	NOISE	0 / 1	1
2.	IN LEVEL	0～63	50
3.	FH MON.	0 / 1	0
4.	ST VCO	0～63	25
5.	PILOT	0 / 1	0
6.	FILTER	0～63	30
7.	LOW SEP.	0～63	22
8.	HI SEP.	0～63	23
9.	5FH MON.	0 / 1	0
10.	SAP VCO	0～63	26
11.	IN GAIN	0 / 1	0
12.	FIL. OFF.	0～10	0

● **VIDEO STATUS MODE**

Setting (Adjustment) item	Variable range	Initial setting value	
		THEATER	GAME
TINT	±20	0	0
COLOR	±20	-3	-3
PICTURE	-30～＋20	-10	-10
BRIGHT	±20	0	0
DETAIL	±15	0	-5
G DRIVE	-99～+50	-22	0
B DRIVE	-99～+50	-54	0
R CUT.	±10	0	0
G CUT.	±10	0	0
B CUT.	±10	0	0

● **OTHERS MODE**

No.	Setting (Adjustment) item	Variable range	Initial setting value
1.	OSD POS.	0～31	7
2.	LOCK DET	0 / 1	0
3.	SD SEL.	0～2	0
4.	H-CK SW	0 / 1	0

● **LOW LIGHT MODE**

Setting (Adjustment) item	Variable range	Initial setting value
R CUTOFF	0～255	20
G CUTOFF	0～255	20
B CUTOFF	0～255	20

● **HIGH LIGHT MODE**

Setting (Adjustment) item	Variable range	Initial setting value
G DRIVE	0～255	128
B DRIVE	0～255	128

● **RF AFC CHK MODE**

Setting (Adjustment) item	Variable range	Initial setting value
RF AFC	ON / OFF	ON (**DO NOT ADJUST**)
FINE	-77～+77	± × ×

● **I²C BUS CTRL MODE**

Setting (Adjustment) item	Variable range	Initial setting value
I²C BUS	ON / OFF	**[Fixed ON]**

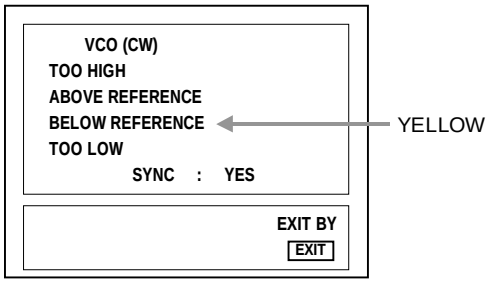
■ ADJUSTMENTS

B1 POWER SUPPLY

Item	Measuring instrument	Test point	Adjustment item	Description
Check of B1 POWER SUPPLY	**DC Voltmeter**	**B1 (B1 Connector 1 pin) (TP-91)** **TP-E(⏚) (B1 Connector 3 pin)**		1. Receive a black and white signal (color off). (NTSC) 2. Connect the DC voltmeter to B1 connector 1 pin (TP-91) and TP-E(⏚) (B1 connector 3 pin). 3. Confirm that the voltage is DC129.5V $^{+2}_{-2.5}$V.

ADJUSTMENT OF IF VCO

Item	Measuring instrument	Test point	Adjustment item	Description
IF VCO adjustment	**Signal generator**		**CW TRANSF. (T111)** **[VCO (CW)] mode**	・ Under normal conditions, no adjustment is required. and it must not adjust without signal. 1. Receive a NTSC broadcast. (use channels without offset frequency). 2. Select the VCO(CW) mode from the SERVICE MENU. 3. Confirm the color change (yellow) from "TOO HIGH" to "TOO LOW" by CW TRANSF. and "SYNC : YES" being shown on the screen. Then, adjust CW TRANSF. until "BELOW REFERENCE" mark turns yellow and confirm again " SYNC : YES" being shown on the screen.



ADJUSTMENT OF RF AGC

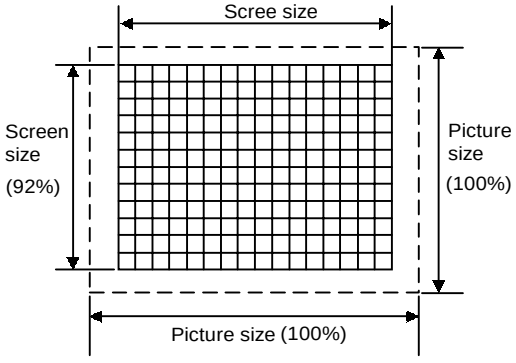
RF AGC adjustment			**No.60 RF AGC**	1. Receive a broadcast. 2. Select "No.60 RF AGC" of the PICTURE mode in SERVICE MENU. 3. Press the MUTING key and turn off color. 4. With the MENU LEFT key, get noise in the screen picture. (0 side of setting value) 5. Press the MENU RIGHT key and stop when noise disappears from the screen. 6. Change to other channels and make sure that there is no irregularity. 7. Press the MUTING key and get color out.

ADJUSTMENT OF FOCUS

FOCUS adjustment	**Signal generator**		**FOCUS VR [In HVT]**	1. Receive a crosshatch signal. 2. While looking at the screen, adjust FOCUS VR so that the vertical and horizontal lines will be clear and in fine detail. 3. Make sure that the picture is in focus even when the screen gets darkened.

ADJUSTMENT OF DEFLECTION CIRCUIT

Item	Measuring instrument	Test point	Adjustment item	Description
V. HEIGHT, V. POSITION, V. LIN. V. S CR adjustment	**Signal generator**		**No.56 V POS. 60** **No.57 V SIZE 60** **No.58 V S CR60** **No.59 V. LIN. 60**	**[60Hz]** 1. Receive a crosshatch signal.(NTSC or PAL-M) 2. Confirm that the value of PICTURE MODE “No.56 V POS. 60” is 0. 3. Confirm the initial setting value of the “No.57 V SIZE 60”, No.58 V S CR60” and “No.59 V LIN. 60”. 4. Adjust the vertical screen size to 92% with the PICTURE MODE “No.57 V SIZE60”. 5. Adjust the PICTURE MODE “No.59 L LIN. 60” and “No.58 V S CR60” to get the best vertical linearity. NOTE : 1. The PICTURE MODE “No.56 V POS. 60” is fixed on value 0. 2. Bottom of screen is to be located within the 85%～95% range.
			No.50 V POS.50 **No.51 V SIZE 50** **No.52 V S CR50** **No.53 V LIN.50**	**[50Hz]** 1. Receive a crosshatch signal. (PAL-N) 2. Confirm the initial setting value of the “No.50 V POS.50”, “No.51 V SIZE 50” , “No.52 V S CR 50” and “No.53 V LIN.50”. 3. Adjust the vertical screen size to 92% with the PICTURE MODE “No.51 V SIZE50”. 4. Adjust the PICTURE MODE “No.53 V LIN.50” and “No.52 V S CR50” to get the best vertical linearity. 5. Adjust the PICTURE MODE “No.50 V POS.50” so that the vertical center line comes close to the CRT vertical center as much as possible. ● Readjust V SIZE, V LIN., V S CR if necessary. NOTE : 1. Bottom of screen is to be located within the 85%～95% range.
H. POSITION adjustment	**Signal generator**		**No.54 H POS.60**	**[60Hz]** 1. Receive a crosshatch signal. (NTSC or PAL-M) 2. Select the “No.54 H POS. 60” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the "No.54 H POS. 60". 4. Adjust the “No.54 H POS. 60” until the screen will be horizontally centered.
			No.48 H POS.50	**[50Hz]** 1. Receive a crosshatch signal. (PAL-N) 2. Select the “No.48 H POS. 50” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the "No.48 H POS. 50". 4. Adjust the “No.48 H POS. 50” until the screen will be horizontally centered.



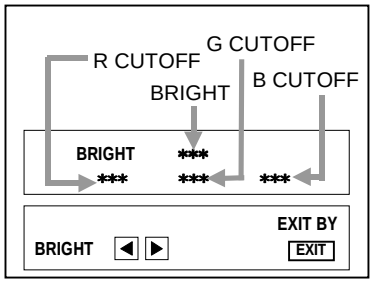
ADJUSTMENT OF VIDEO / CHROMA CIRCUIT

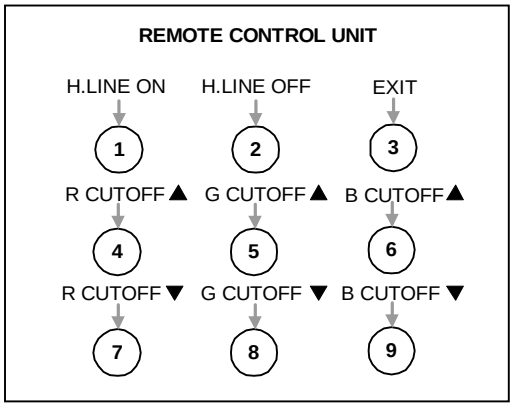
<table>
<tr><th>Item</th><th>Measuring instrument</th><th>Test point</th><th>Adjustment item</th><th>Description</th></tr>
<tr><td>WHITE BALANCE (Low Light) adjustment</td><td>Signal Generator

Remote control unit</td><td></td><td>BRIGHT

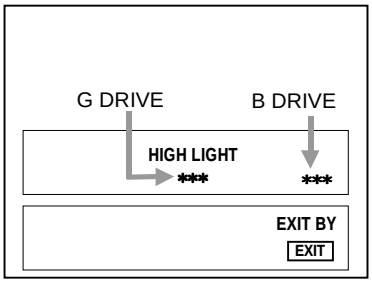
R CUTOFF
G CUTOFF
B CUTOFF

SCREEN VR</td><td>1. Receive a black-and-white signal.(Color off)
2. Select the【LOW LIGHT】MODE from the SERVICE MENU.
3. Set the initial setting value of BRIGHT with the LEFT / RIGHT key of the remote control unit.
4. Set the initial setting value of R CUTOFF, G CUTOFF and B CUTOFF with the ④ to ⑨ key of the remote control unit.
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 to where the single horizontal line glows faintly.
10. Press the ② key to return to the regular screen.

∗ The ③ EXIT key is the cancel key for the WHITE BALANCE.</td></tr>
<tr><td colspan="4">[LOW LIGHT] MODE
 

 
</td></tr>
<tr><td>WHITE BALANCE (High Light) adjustment</td><td>Signal Generator

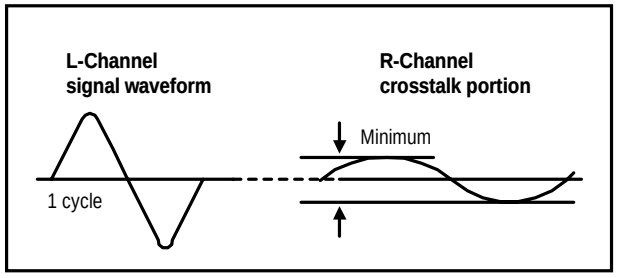
Remote control unit</td><td></td><td>G DRIVE
B DRIVE</td><td>1. Receive a black and white signal (color off). (NTSC)
2. Select the HIGH LIGHT mode in the SERVICE MENU.
3. Confirm the initial setting value of “G DRIVE” and “B DRIVE”.
4. Adjust the screen color to white with the⑤, ⑥, ⑧ and ⑨ keys of the remote control unit.

Remote Control Unit
① key : H.LINE ON
② key : H.LINE OFF
③ key : EXIT
⑤ key : G DRIVE ▲
⑥ key : B DRIVE ▲
⑧ key : G DRIVE ▼
⑨ key : B DRIVE ▼</td></tr>
<tr><td colspan="4">[HIGH LIGHT] MODE
 
</td></tr>
</table>

Item	Measuring instrument	Test point	Adjustment item	Description
SUB BRIGHT adjustment	**Remote control unit**		**No.2 BRIGHT**	1. Receive a NTSC broadcast. 2. Select “No.2 BRIGHT” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.2 BRIGHT” . 4. If the brightness is not the best with the initial setting value, make fine adjustment of the “No.2 BRIGHT” until you get the optimum brightness.
SUB CONTRAST adjustment	**Remote control unit**		**No.1 PICTURE**	1. Receive a NTSC broadcast. 2. Select “No.1 PICTURE” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.1 PICTURE”. 4. If the contrast is not the best with the initial setting value, make fine adjustment of the “No.1 PICTURE” until you get the optimum contrast.
SUB COLOR adjustment	**Remote control unit**		**No.3 COL. PALM** **No.4 COL. PALN** **No.5 COL. NTSC**	**[PAL-M]** 1. Receive a PAL-M broadcast. 2. Select “No.3 COL. PALM” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.3 COL. PALM”. 4. If the color is not the best with the initial setting value, make fine adjustment until you get the best color. **[PAL-N]** 1. Receive a PAL-N broadcast. 2. Select “No.4 COL. PALN” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.4 COL. PALN”. 4. If the color is not the best with the initial setting value, make fine adjustment until you get the best color. **[NTSC]** 1. Receive a NTSC broadcast. 2. Select “No.5 COL. NTSC” of the PICTURE mode in SERVICE MENU. 3. Confirm the initial setting value of the “No.5 COL. NTSC”. 4. If the color is not the best with the initial setting value, make fine adjustment until you get the best color.
SUB TINT adjustment	**Remote control unit**		**No. 6 TINT**	1. Receive a NTSC color bar signal. 2. Select “No. 6 TINT” of the PICTURE mode in SERVECE MENU. 3. Confirm the initial setting value of the “No. 6 TINT”. 4. If the tint is not the best with the initial setting value, make fine adjustment until you get the best tint.

ADJUSTMENT OF MTS CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
MTS INPUT LEVEL check			**No.2 IN LEVEL**	1. Select the "No.2 IN LEVEL" of the SOUND mode in SERVICE MENU. 2. Verify that the "No.2 IN LEVEL" is set at its initial setting value.
MTS STEREO VCO adjustment	**Signal generator** **Frequency counter**	**R OUT [AUDIO OUT]**	**No.3 FH MON** **No.4 ST VCO**	1. Receive a NTSC RF signal (non modulated sound signal) from the antenna terminal. 2. Select the "No.3 FH MON" of SOUND mode in SERVICE MENU, change the setting value from 0 to 1. 3. Connect the frequency connector to R OUT RCA pin of the AUDIO OUT. 4. Select the "No.4 ST VCO". 5. Confirm the initial setting value of the "No.4 ST VCO". 6. Adjust the "No.4 ST VCO" so that the frequency counter will display 15.73kHz±0.1kHz. 7. Select the "No.3 FH MON" of the SOUND mode, and reset the setting value from 1 to 0.
MTS SAP VCO adjustment	**Signal generator** **Frequency counter**	**MPX Connector** **4 pin SDA** **3 pin GND** **[MAIN PWB]** **R OUT [AUDIO OUT]**	**No.9 5FH MON.** **No.10 SAP VCO.**	1. Receive a NTSC RF signal (non modulated sound signal) from the antenna terminal. 2. Connect between pin 4 of MPX connector and GND (pin 3 of MPX connector) through 1MΩ resistor. 3. Select the "No.9 5FH MON." of the SOUND mode in SERVICE MENU, and reset the setting value from 0 to 1. 4. Connect the frequency connector to R OUT RCA pin of the AUDIO OUT. 5. Select the "No.10 SAP VCO". 6. Confirm the initial setting value of "No.10 SAP VCO". 7. Adjust the "No.10 SAP VCO" so that the frequency connector will display 78.67kHz±0.5kHz. 8. Select the "No.9 5FH MON." of the SOUND mode, and reset the setting value from 1 to 0.
MTS FILTER check			**No.6 FILTER**	1. Select the "No.6 FLTER" of the SOUND mode in SERVICE MENU. 2. Verify that the "No.6 FLTER" is set at its initial setting value.
MTS SEPARATION adjustment	**TV audio multiplex signal generator** **Oscilloscope**	**L OUT R OUT [AUDIO OUT]**	**No.7 LOW SEP.** **No.8 HI SEP.**	1. Input a stereo L signal (300Hz) from the TV Audio multiplex signal generator to the antenna terminal. (NTSC) 2. Connect an oscilloscope to L OUT RCA pin of the AUDIO OUT, and display one cycle portion of the 300Hz signal. 3. Change the connection of the oscilloscope to R OUT RCA pin of the AUDIO OUT, and enlarge the voltage axis. 4. Select the "No.7 LOW SEP." of the SOUND mode in SERVICE MENU. 5. Confirm the initial setting value of the "No.7 LOW SEP.". 6. Adjust the "No.7 LOW SEP." so that the stroke element of the 300Hz signal will become minimum. 7. Change the signal to 3kHz, and similarly adjust the "No.8 HI SEP.".



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 SW ON.
(2) As shown in Fig.2, set the resistor (between [X] connector [1] & [3]).
(3) Make sure that the screen picture disappears.
(4) Temporarily unplug the power cord.
(5) Remove the resistor (between [X] connector [1] & [3]).
(6) Again plug the power cord, make sure that the normal picture is displayed on the screen.

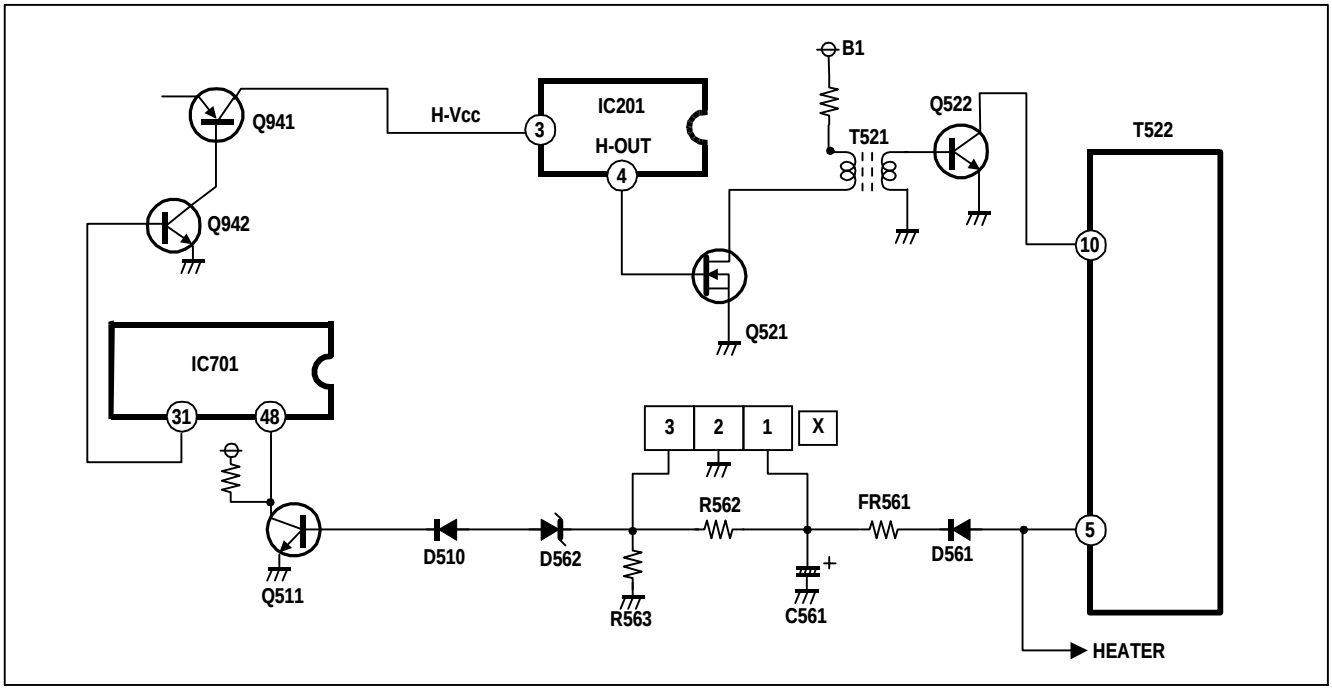


Fig. 1

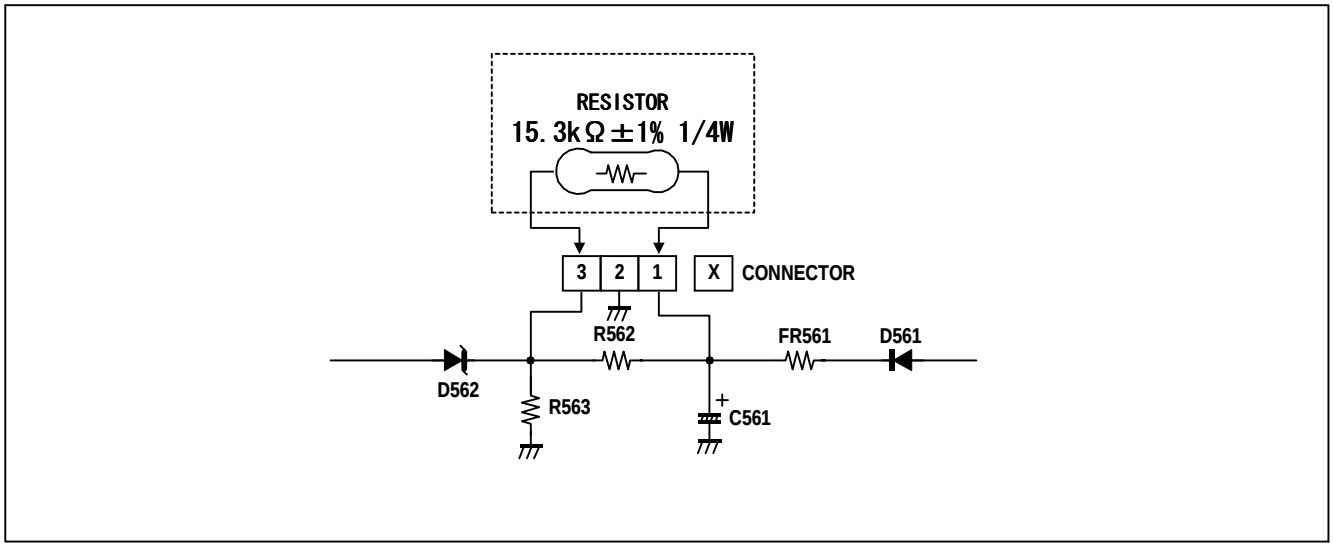


Fig. 2

SELF CHECK FUNCTIONS

1. Outline

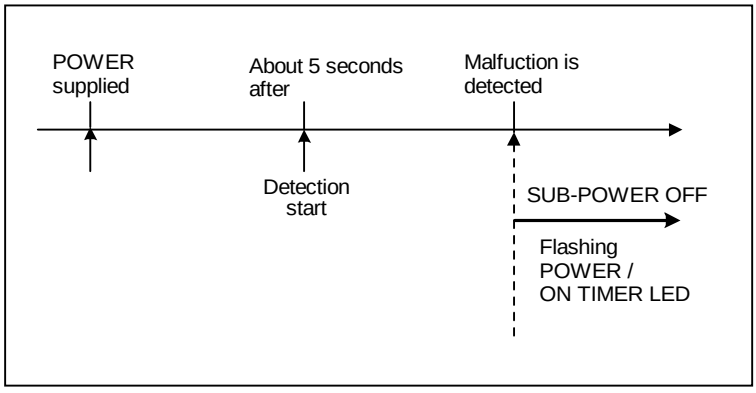
This model has self check functions given below. When a malfunction has been detdcted, the SUB-POWER is turned off and the LED flashes to inform of the failure. The malfunction is detected by the signal input state of the control line connected to the microcomputer.

2. Self check items

Check item	Detected contents	Detection method	Abnormality state
Over-current protector	Operation of over-current protection circuit	The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted.	During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted.
X-ray protector	Operation of X-ray protection circuit	The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted	During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted.
CRT NECK protector	When the vertical circuit S-correction capacitor C413 is shorted, detect the potential drop of the C413, and prevent the burn damage to the CRT NECK.	The microcomputer detects at 1 second intervals. If NG is detected for more than 1 ms, a malfunction is interpreted	During an abnormality the sub-power is cutoff. The remote controller power key operation is not recognized and sub-power off is maintained until the power cord is unplugged and reinserted.

3. Self check indicating function

The self check function begins detection about 5 seconds after power is supplied.
In the event a malfunction is detected, the sub-power is cutoff immediately.
At this time, the POWER/ON TIMER LED flashes to inform of the malfunction.



Item	LED flashing intervals	Priority of detection
OCP/X-ray	At 0.5 – second intervals	1
NECK	At 0.5 – second intervals	2

- Because OCP and X-ray protectors are inputted to the same pin in the microcomputer, the judgement will be logical sum (OR).

PARTS LIST

CAUTION

- The parts identified by the ⚠ 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.

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% -10%	+50% -10%	+80% -20%	+100% -0%

CONTENTS

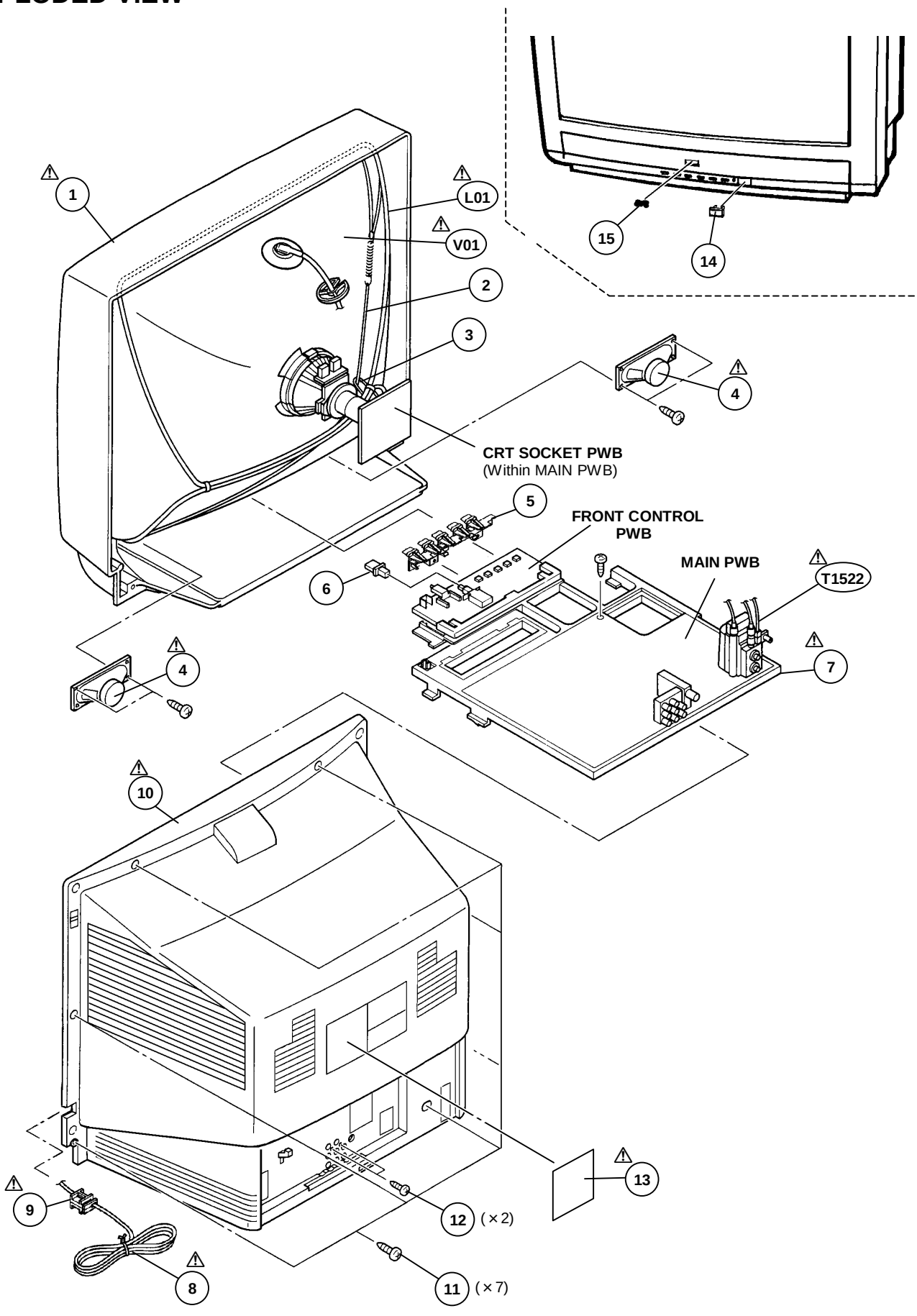
USING P.W. BOARD & REMOTE CONTROL UNIT

Model / P.W.B ASS'Y	AV-29M201
MAIN P.W.B (With CRT SOCKET PWB)	SGA-1017A-M2
FRONT CONTROL P.W.B	SGA-4006A-M2
REMOTE CONTROL UNIT	RM-C765-1A

EXPLODED VIEW PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
⚠	L01	CELD058-002J3	DEGAUSING COIL	
⚠	V01	A68ADT25X01	ITC TUBE(C)	(Inc.DY)
⚠	T1522	CE42674-001J1	H.V.TRANSF.	(Within MAIN PWB)
⚠	1	CM12919-008-MA	FRONT CABINET	
	2	CHGB0015-0B	BRAIDED WIRE	
	3	CHGB0016-0C	BRAIDED WIRE(SUB)	
⚠	4	CEBSS12D-04KJ2	SPEAKER	(×2)SP01,SP02
	5	CM36568-A02-A	PUSH KNOB	
	6	CM36652-001-A	POWER KNOB	
⚠	7	CM12985-002-VA	CHASSIS BASE	
⚠	8	QMPD290-200-JC	POWER CORD	
⚠	9	LC20106-001D-A	CORD CLAMP	
⚠	10	CM12920-B02-VA	REAR COVER	
	11	QYSBSFG4016Z	TAPPING SCREW	(×7)
	12	QYSBSB3010Z	TAPPING SCREW	(×2)
⚠	13	GQ30018-001A-A	RATING LABEL	
	14	CM35983-001-H	REMOCON WINDOW	
	15	CM48006-006-C	JVC MARK	

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

MAIN PW BOARD ASS'Y (SGA-1017A-M2)

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description	
	R1001	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1002-04	NRSA02J-561X	MG R	560Ω 1/10W	J
⚠	R1005	QRZ9017-4R7	F R	4.7Ω 1/4W	J
	R1006	NRSA02J-820X	MG R	82Ω 1/10W	J
	R1101	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1102	NRSA02J-182X	MG R	1.8kΩ 1/10W	J
	R1103	QRE121J-101Y	C R	100Ω 1/2W	J
	R1104	NRSA02J-180X	MG R	18Ω 1/10W	J
	R1105	NRSA02J-270X	MG R	27Ω 1/10W	J
	R1111	NRSA02J-394X	MG R	390kΩ 1/10W	J
	R1112	NRSA02J-334X	MG R	330kΩ 1/10W	J
	R1113	NRSA02J-101X	MG R	100Ω 1/10W	J
	R1116	NRSA02J-680X	MG R	68Ω 1/10W	J
	R1131	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1132	NRSA02J-331X	MG R	330Ω 1/10W	J
	R1133	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1134	NRSA02J-271X	MG R	270Ω 1/10W	J
	R1135	NRSA02J-471X	MG R	470Ω 1/10W	J
	R1161	NRSA02J-332X	MG R	3.3kΩ 1/10W	J
	R1162	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1163	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1164	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1165	NRSA02J-273X	MG R	27kΩ 1/10W	J
	R1166	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1167	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1168	NRSA02J-101X	MG R	100Ω 1/10W	J
	R1169	NRSA02J-561X	MG R	560Ω 1/10W	J
	R1170	NRSA02J-123X	MG R	12kΩ 1/10W	J
	R1201	NRSA02J-821X	MG R	820Ω 1/10W	J
	R1202	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1203	NRSA02J-821X	MG R	820Ω 1/10W	J
	R1204	NRSA02J-681X	MG R	680Ω 1/10W	J
	R1205	NRSA02J-152X	MG R	1.5kΩ 1/10W	J
	R1213	NRSA02J-391X	MG R	390Ω 1/10W	J
	R1215	NRSA02J-824X	MG R	820kΩ 1/10W	J
	R1216	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1217	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1220	NRSA02J-471X	MG R	470Ω 1/10W	J
	R1251-52	NRSA02J-750X	MG R	75Ω 1/10W	J
	R1301	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1303-04	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1307	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1308	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1309	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1311	NRSA02J-273X	MG R	27kΩ 1/10W	J
	R1312	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1314	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1341	NRSA02J-121X	MG R	120Ω 1/10W	J
	R1342-43	NRSA02J-333X	MG R	33kΩ 1/10W	J
	R1351-53	NRSA02J-151X	MG R	150Ω 1/10W	J
	R1354-56	NRSA02J-331X	MG R	330Ω 1/10W	J
	R1357-59	NRSA02J-101X	MG R	100Ω 1/10W	J
	R1360-62	QRZ0111-152	C R	1.5kΩ 1/2W	K
	R1363-65	QRG029J-123	OM R	12kΩ 2W	J
	R1366-68	NRSA02J-272X	MG R	2.7kΩ 1/10W	J
	R1401	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1402	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1403	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1404	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1405	NRSA02J-221X	MG R	220Ω 1/10W	J
	R1406-08	NRSA02J-472X	MG R	4.7kΩ 1/10W	J
	R1410	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1413	QRE121J-391Y	C R	390Ω 1/2W	J
	R1414	QRX01GJ-R68	MF R	0.68Ω 1W	J
	R1416	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1418	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1419	NRSA02J-183X	MG R	18kΩ 1/10W	J
	R1421-22	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J

RESISTOR

⚠	Symbol No.	Part No.	Part Name	Description	
	R1423	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1501	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1503	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1504	NRSA02J-104X	MG R	100kΩ 1/10W	J
	R1505	NRSA02J-822X	MG R	8.2kΩ 1/10W	J
	R1506	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1510	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1512	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1513	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1514	NRSA02J-333X	MG R	33kΩ 1/10W	J
	R1521	QRL039J-182	OM R	1.8kΩ 3W	J
	R1523	NRSA02J-222X	MG R	2.2kΩ 1/10W	J
	R1524	QRE121J-103Y	C R	10kΩ 1/2W	J
	R1525	QRG01GJ-561	OM R	560Ω 1W	J
	R1526	QRL029J-152	OM R	1.5kΩ 2W	J
	R1529	NRSA02J-621X	MG R	620Ω 1/10W	J
	R1532	QRL039J-182	OM R	1.8kΩ 3W	J
	R1533	QRE121J-220Y	C R	22Ω 1/2W	J
	R1544	QRL029J-223	OM R	22kΩ 2W	J
⚠	R1562	QRA14CF-6201Y	MF R	6.2kΩ 1/4W	F
⚠	R1563	QRA14CF-3741Y	MF R	3.74kΩ 1/4W	F
	R1581	QRE121J-273Y	C R	27kΩ 1/2W	J
	R1582	QRE121J-393Y	C R	39kΩ 1/2W	J
	R1584	QRE121J-223Y	C R	22kΩ 1/2W	J
	R1603	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1605	NRSA02J-821X	MG R	820Ω 1/10W	J
	R1607	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1609	NRSA02J-821X	MG R	820Ω 1/10W	J
	R1611	NRSA02J-223X	MG R	22kΩ 1/10W	J
	R1613	NRSA02J-333X	MG R	33kΩ 1/10W	J
	R1620	NRSA02J-183X	MG R	18kΩ 1/10W	J
	R1621	QRT039J-2R2	MF R	2.2Ω 3W	J
	R1622	NRSA02J-183X	MG R	18kΩ 1/10W	J
	R1626	NRSA02J-822X	MG R	8.2kΩ 1/10W	J
	R1631	NRSA02J-473X	MG R	47kΩ 1/10W	J
	R1651	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1652	NRSA02J-561X	MG R	560Ω 1/10W	J
	R1653	NRSA02J-272X	MG R	2.7kΩ 1/10W	J
	R1654	NRSA02J-333X	MG R	33kΩ 1/10W	J
	R1655	NRSA02J-332X	MG R	3.3kΩ 1/10W	J
	R1656	NRVA02D-152X	MF R	1.5kΩ 1/10W	D
	R1658	NRVA02D-153X	MF R	15kΩ 1/10W	D
	R1660	NRSA02J-512X	MG R	5.1kΩ 1/10W	J
	R1661	NRSA02J-473X	MG R	47kΩ 1/10W	J
	R1662-65	NRSA02J-123X	MG R	12kΩ 1/10W	J
	R1666-67	NRSA02J-562X	MG R	5.6kΩ 1/10W	J
	R1668	NRSA02J-473X	MG R	47kΩ 1/10W	J
	R1669-70	NRSA02J-471X	MG R	470Ω 1/10W	J
	R1671-72	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1673-74	NRSA02J-823X	MG R	82kΩ 1/10W	J
	R1675-76	NRSA02J-181X	MG R	180Ω 1/10W	J
	R1677	NRSA02J-682X	MG R	6.8kΩ 1/10W	J
	R1678-81	NRSA02J-223X	MG R	22kΩ 1/10W	J
	R1682	NRSA02J-683X	MG R	68kΩ 1/10W	J
	R1685-88	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1691-92	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1701	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1702	NRSA02J-223X	MG R	22kΩ 1/10W	J
	R1703	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1704	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1705	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1706	NRSA02J-563X	MG R	56kΩ 1/10W	J
	R1707	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1708	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	R1709	NRSA02J-103X	MG R	10kΩ 1/10W	J
	R1710	NRSA02J-102X	MG R	1kΩ 1/10W	J
	R1711	NRSA02J-124X	MG R	120kΩ 1/10W	J
	R1712	NRSA02J-184X	MG R	180kΩ 1/10W	J

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R1713	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1714	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1715	NRSA02J-183X	MG R	18kΩ 1/10W J
	R1716-17	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1721	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1722	NRSA02J-561X	MG R	560Ω 1/10W J
	R1724	NRSA02J-221X	MG R	220Ω 1/10W J
	R1725	NRSA02J-682X	MG R	6.8kΩ 1/10W J
	R1726	NRSA02J-221X	MG R	220Ω 1/10W J
	R1727	NRSA02J-682X	MG R	6.8kΩ 1/10W J
	R1728	NRSA02J-221X	MG R	220Ω 1/10W J
	R1729	NRSA02J-682X	MG R	6.8kΩ 1/10W J
	R1730	NRSA02J-221X	MG R	220Ω 1/10W J
	R1731-32	NRSA02J-682X	MG R	6.8kΩ 1/10W J
	R1734	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1735-36	NRSA02J-473X	MG R	47kΩ 1/10W J
	R1737	NRSA02J-683X	MG R	68kΩ 1/10W J
	R1738	NRSA02J-562X	MG R	5.6kΩ 1/10W J
	R1740	NRSA02J-101X	MG R	100Ω 1/10W J
	R1741	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1742	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1743	NRSA02J-392X	MG R	3.9kΩ 1/10W J
	R1744	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1745	NRSA02J-392X	MG R	3.9kΩ 1/10W J
	R1746	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1747	NRSA02J-392X	MG R	3.9kΩ 1/10W J
	R1748-49	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1750-52	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1754-55	NRSA02J-222X	MG R	2.2kΩ 1/10W J
	R1756	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1761	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1762	NRSA02J-153X	MG R	15kΩ 1/10W J
	R1764	NRSA02J-105X	MG R	1MΩ 1/10W J
	R1765	NRSA02J-122X	MG R	1.2kΩ 1/10W J
	R1766	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1771-72	NRSA02J-221X	MG R	220Ω 1/10W J
	R1773	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1774-75	NRSA02J-102X	MG R	1kΩ 1/10W J
	R1799	NRSA02J-333X	MG R	33kΩ 1/10W J
	R1801-03	NRSA02J-221X	MG R	220Ω 1/10W J
	R1811-13	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1815	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
⚠	R1901	QRF154K-4R7	UNF R	4.7Ω 15W K
	R1902	QRL039J-393	OM R	39kΩ 3W J
	R1905	QRF154J-680	UNF R	68 Ω 15W J
	R1910	QRE121J-564Y	C R	560kΩ 1/2W J
	R1911	QRN141J-183Y	C R	18kΩ 1/4W J
	R1921	QRE121J-681Y	C R	680Ω 1/2W J
	R1922-23	QRT029J-R22	MF R	0.22Ω 2W J
	R1924	QRE121J-103Y	C R	10kΩ 1/2W J
	R1925	QRE121J-102Y	C R	1kΩ 1/2W J
	R1926	QRE121J-152Y	C R	1.5kΩ 1/2W J
	R1929	QRE121J-332Y	C R	3.3kΩ 1/2W J
	R1932	QRE121J-4R7Y	C R	4.7Ω 1/2W J
	R1941	QRK129J-150	C R	15Ω 1/2W J
	R1942	NRSA02J-223X	MG R	22kΩ 1/10W J
	R1943	QRE121J-152Y	C R	1.5kΩ 1/2W J
	R1944	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1945	NRSA02J-332X	MG R	3.3kΩ 1/10W J
	R1946	NRSA02J-123X	MG R	12kΩ 1/10W J
	R1948	NRSA02J-152X	MG R	1.5kΩ 1/10W J
	R1949	NRSA02J-153X	MG R	15kΩ 1/10W J
	R1950	NRSA02J-103X	MG R	10kΩ 1/10W J
	R1951	NRSA02J-332X	MG R	3.3kΩ 1/10W J
	R1952	NRSA02J-472X	MG R	4.7kΩ 1/10W J
	R1959	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	R1961-62	QRT029J-1R2	MF R	1.2Ω 2W J
	R1964	QRE121J-272Y	C R	2.7kΩ 1/2W J
	R1965	QRE121J-473Y	C R	47kΩ 1/2W J
	R1966	QRE121J-223Y	C R	22kΩ 1/2W J

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
⚠	R1981	QRZ0057-825	C R	8.2MΩ 1W J
	CAPACITOR			
	C1001	QETN1HM-106Z	E CAP.	10µF 50V M
	C1007	QETN1CM-477Z	E CAP.	470µF 16V M
	C1008-09	QETN1EM-476Z	E CAP.	47µF 25V M
	C1011	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1101-02	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1104-05	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1111	QETN1EM-476Z	E CAP.	47µF 25V M
	C1112-14	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1116	QFV71HJ-224Z	MF CAP.	0.22µF 50V J
	C1117	QETN1EM-476Z	E CAP.	47µF 25V M
	C1118	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1119	NDC21HJ-681X	C CAP.	680pF 50V J
	C1120	QETN1HM-474Z	E CAP.	0.47µF 50V M
	C1123-24	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1161	QETN1HM-106Z	E CAP.	10µF 50V M
	C1163-64	NDC21HJ-470X	C CAP.	47pF 50V J
	C1165-66	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1202	QETN1CM-107Z	E CAP.	100µF 16V M
	C1205	NDC21HJ-680X	C CAP.	68pF 50V J
	C1207	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1208	QETN1HM-475Z	E CAP.	4.7µF 50V M
	C1209	QETN1CM-227Z	E CAP.	220µF 16V M
	C1210	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1211	NDC21HJ-681X	C CAP.	680pF 50V J
	C1212	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1213	QETN1HM-105Z	E CAP.	1µF 50V M
	C1214	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1215	QETN1HM-106Z	E CAP.	10µF 50V M
	C1251-52	QETN1HM-106Z	E CAP.	10µF 50V M
	C1255	QETN1HM-106Z	E CAP.	10µF 50V M
	C1256	QETN1CM-107Z	E CAP.	100µF 16V M
	C1291-92	QETN1CM-107Z	E CAP.	100µF 16V M
	C1294	QETN1CM-107Z	E CAP.	100µF 16V M
	C1296	QETN1CM-107Z	E CAP.	100µF 16V M
	C1301-02	NDC21HJ-150X	C CAP.	15pF 50V J
	C1303	NDC21HJ-120X	C CAP.	12pF 50V J
	C1304	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1305	NDC21HJ-120X	C CAP.	12pF 50V J
	C1306	QETN1EM-476Z	E CAP.	47µF 25V M
	C1307	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1308-09	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1311	QETN1HM-225Z	E CAP.	2.2µF 50V M
	C1312	QFLC1HJ-103Z	M CAP.	0.01µF 50V J
	C1313	QETN1HM-475Z	E CAP.	4.7µF 50V M
	C1342	QETN1HM-335Z	E CAP.	3.3µF 50V M
	C1354-55	NDC21HJ-271X	C CAP.	270pF 50V J
	C1356	NDC21HJ-331X	C CAP.	330pF 50V J
	C1357	QETN1CM-107Z	E CAP.	100µF 16V M
⚠	C1382	QCZ0121-102	C CAP.	1000pF 3kV Z
	C1401-02	QETN1HM-105Z	E CAP.	1µF 50V M
	C1403	QEM61EK-225Z	E CAP.	2.2µF 25V K
	C1405	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1406	QFLC1HJ-103Z	M CAP.	0.01µF 50V J
	C1410	QETN1VM-107Z	E CAP.	100µF 35V M
	C1411	QETN1VM-477Z	E CAP.	470µF 35V M
	C1412	QFLC2AK-563Z	M CAP.	0.056µF 100V K
	C1413	QETM1VM-228	E CAP.	2200µF 35V M
	C1414	QETN1HM-105Z	E CAP.	1µF 50V M
	C1415	QFN31HJ-152Z	M CAP.	1500pF 50V J
	C1501	QETN1CM-107Z	E CAP.	100µF 16V M
	C1503	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1505-06	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1507	QETN1HM-105Z	E CAP.	1µF 50V M
	C1511	QETN1HM-106Z	E CAP.	10µF 50V M
	C1521	QCB32HK-151Z	C CAP.	150pF 500V K
	C1522	QCB32HK-331Z	C CAP.	330pF 500V K

⚠	Symbol No.	Part No.	Part Name	Description
	CAPACITOR			
	C1523	QETN2CM-105Z	E CAP.	1µF 160V M
⚠	C1524	QFZ0117-1042	MPP CAP.	10400pF1.4kVH ±2.5%
⚠	C1525	QFZ0119-434	MPP CAP.	0.43µF 200V ±3%
⚠	C1526	QEZ0203-107	E CAP.	100µF 160V M
	C1541	QETM2EM-336	E CAP.	33µF 250V M
	C1542	QCB32HK-821Z	C CAP.	820pF 500V K
	C1543	QETM1VM-108	E CAP.	1000µF 35V M
	C1544	QCB32HK-821Z	C CAP.	820pF 500V K
	C1546	QETN1CM-227Z	E CAP.	220µF 16V M
	C1547	QETN1CM-108Z	E CAP.	1000µF 16V M
	C1548	QCZ0122-821	C CAP.	820pF 2kV K
	C1561	QETN1VM-107Z	E CAP.	100µF 35V M
	C1581	QFLC1HJ-473Z	M CAP.	0.047µF 50V J
	C1583	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1584	QFLC2AJ-104Z	M CAP.	0.1µF 100V J
	C1604	QENC1HM-474Z	BP E CAP.	0.47µF 50V M
	C1607	QENC1HM-474Z	BP E CAP.	0.47µF 50V M
	C1609	QETN1CM-107Z	E CAP.	100µF 16V M
	C1613	QETN1EM-108Z	E CAP.	1000µF 25V M
	C1615	QETN1EM-108Z	E CAP.	1000µF 25V M
	C1617	QETN1EM-108Z	E CAP.	1000µF 25V M
	C1618	QFV71HJ-224Z	MF CAP.	0.22µF 50V J
	C1622	QETN1HM-105Z	E CAP.	1µF 50V M
	C1623-24	QENC1HM-474Z	BP E CAP.	0.47µF 50V M
	C1631	QETN1EM-476Z	E CAP.	47µF 25V M
	C1637-38	NCB21HK-392X	C CAP.	3900pF 50V K
	C1651	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1652	QETN1CM-107Z	E CAP.	100µF 16V M
	C1653	QETN1EM-476Z	E CAP.	47µF 25V M
	C1654	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1655	QENC1HM-475Z	BP E CAP.	4.7µF 50V M
	C1656	QENC1HM-105Z	BP E CAP.	1µF 50V M
	C1657	QETN1HM-225Z	E CAP.	2.2µF 50V M
	C1658	NCB21HK-473X	C CAP.	0.047µF 50V K
	C1659	QETN1HM-474Z	E CAP.	0.47µF 50V M
	C1660-61	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1662	QBTC1CK-335Z	TAN.CAP.	3.3µF 16V K
	C1663	QETN1HM-105Z	E CAP.	1µF 50V M
	C1664	QBTC1CK-106Z	TAN.CAP.	10µF 16V K
	C1665-66	QETN1HM-105Z	E CAP.	1µF 50V M
	C1667	QETN1HM-336Z	E CAP.	33µF 50V M
	C1668	QETN1HM-105Z	E CAP.	1µF 50V M
	C1669-70	QENC1HM-105Z	BP E CAP.	1µF 50V M
	C1671	QETN1HM-225Z	E CAP.	2.2µF 50V M
	C1672	NCB21HK-222X	C CAP.	2200pF 50V K
	C1673	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1674	QETN1HM-225Z	E CAP.	2.2µF 50V M
	C1675	NCB21HK-222X	C CAP.	2200pF 50V K
	C1676	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1677	NCB21HK-223X	C CAP.	0.022µF 50V K
	C1679	QETN1HM-105Z	E CAP.	1µF 50V M
	C1680	QETN1EM-476Z	E CAP.	47µF 25V M
	C1682-83	QETN1HM-475Z	E CAP.	4.7µF 50V M
	C1684-86	QETN1HM-106Z	E CAP.	10µF 50V M
	C1691-92	QETN1HM-106Z	E CAP.	10µF 50V M
	C1693-94	NCB21HK-392X	C CAP.	3900pF 50V K
	C1701	NDC21HJ-102X	C CAP.	1000pF 50V J
	C1703	NCB21HK-102X	C CAP.	1000pF 50V K
	C1704	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1705	NDC21HJ-471X	C CAP.	470pF 50V J
	C1706	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1707	NDC21HJ-180X	C CAP.	18pF 50V J
	C1708	NDC21HJ-220X	C CAP.	22pF 50V J
	C1709	QETN1EM-476Z	E CAP.	47µF 25V M
	C1710	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1711	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1712-13	QETN1CM-107Z	E CAP.	100µF 16V M
	C1714	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1715	NDC21HJ-150X	C CAP.	15pF 50V J
	C1716	NDC21HJ-390X	C CAP.	39pF 50V J
	C1717	NDC21HJ-151X	C CAP.	150pF 50V J

⚠	Symbol No.	Part No.	Part Name	Description
	CAPACITOR			
	C1718	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	C1719	QETN1HM-106Z	E CAP.	10µF 50V M
	C1720	NDC21HJ-151X	C CAP.	150pF 50V J
	C1722	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1761	QETN1HM-105Z	E CAP.	1µF 50V M
	C1762	NDC21HJ-221X	C CAP.	220pF 50V J
	C1763	NCB21HK-102X	C CAP.	1000pF 50V K
	C1765	NDC21HJ-101X	C CAP.	100pF 50V J
	C1766	QENC1HM-474Z	BP E CAP.	0.47µF 50V M
	C1771	QETN1EM-476Z	E CAP.	47µF 25V M
	C1772	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1773	QETN1HM-105Z	E CAP.	1µF 50V M
	C1774-76	NCB21HK-102X	C CAP.	1000pF 50V K
	C1779	NDC21HJ-100X	C CAP.	10pF 50V J
	C1780-81	NRSA02J-0R0X	MG R	0.0Ω 1/10W J
	C1805	QETN1CM-227Z	E CAP.	220µF 16V M
	C1806	NCB21HK-103X	C CAP.	0.01µF 50V K
	C1811-13	NCB21HK-103X	C CAP.	0.01µF 50V K
⚠	C1901	QFZ9040-104	MF CAP.	0.1µFAC275V M
⚠	C1902	QFZ9040-104	MF CAP.	0.1µFAC275V M
⚠	C1903	QCZ9074-472	C CAP.	4700pFAC250V M
⚠	C1904	QCZ9074-472	C CAP.	4700pFAC250V M
⚠	C1905	QCZ9074-472	C CAP.	4700pFAC250V M
⚠	C1906	QEZ0371-337	E CAP.	330µF 400V M
	C1921	QCZ0325-222	C CAP.	2200pF 2kV K
	C1922	QCS31HJ-471Z	C CAP.	470pF 50V J
	C1924	QETN1VM-477Z	E CAP.	470µF 35V M
	C1925	QFN31HJ-102Z	M CAP.	1000pF 50V J
	C1926	QFN31HJ-222Z	M CAP.	2200pF 50V J
	C1928	QFLC1HJ-104Z	M CAP.	0.1µF 50V J
	C1931	QCZ0122-391	C CAP.	390pF 2kV K
	C1941	QCZ0325-561	C CAP.	560pF 2kV K
⚠	C1942	QEZ0203-107	E CAP.	100µF 160V M
	C1943	QCB32HK-561Z	C CAP.	560pF 500V K
	C1944	QETN1CM-477Z	E CAP.	470µF 16V M
	C1945	QETN1CM-108Z	E CAP.	1000µF 16V M
	C1946	QETN1EM-107Z	E CAP.	100µF 25V M
	C1947	QETN1HM-106Z	E CAP.	10µF 50V M
	C1952	QETN1EM-108Z	E CAP.	1000µF 25V M
	C1953	QCZ0122-561	C CAP.	560pF 2kV K
	C1957	QCB31HK-471Z	C CAP.	470pF 50V K
	C1961	QETN1CM-107Z	E CAP.	100µF 16V M
	C1962	QETN1HM-476Z	E CAP.	47µF 50V M
⚠	C1981	QCZ9075-471	C CAP.	470pFAC250V K
⚠	C1982	QCZ9075-222	C CAP.	2200pFAC250V M
⚠	C1983	QCZ9075-471	C CAP.	470pFAC250V K

⚠	Symbol No.	Part No.	Part Name
	TRANSFORMER		
	T1111	CELT001-209J3	C.WAVE TRANSF.
	T1521	CE42034-002	H.DRIVE TRANSF.
⚠	T1522	CE42674-001J1	H.V.TRANSF.
⚠	T1921	CETS090-001J8	SWITCH.TRANSF.

⚠	Symbol No.	Part No.	Part Name	Description
	COIL			
	L1001	QQL03BJ-150Z	PEAKING COIL	15µH
	L1003	QQL03BJ-4R7Z	PEAKING COIL	4.7µH
	L1101	QQLZ014-R22	PEAKING COIL	0.22µH
	L1131	QQL03BJ-220Z	PEAKING COIL	22µH
	L1161	QQL03BJ-220Z	PEAKING COIL	22µH
	L1205	QQL03BJ-4R7Z	PEAKING COIL	4.7µH
	L1301	QQL03BJ-390Z	PEAKING COIL	39µH
	L1381	QQL03BJ-390Z	PEAKING COIL	39µH
	L1501	QQL03BJ-4R7Z	PEAKING COIL	4.7µH
⚠	L1521	CELL009-003	LINEARITY COIL	
	L1701-02	QQL03BJ-4R7Z	PEAKING COIL	4.7µH
	L1704	QQL39BK-8R2Z	PEAKING COIL	8.2µH
	L1771	QQL03BJ-4R7Z	PEAKING COIL	4.7µH
	L1941-42	QQL42AK-820Z	CHOKE COIL	

DIODE

⚠	Symbol No.	Part No.	Part Name	Description
	D1001	MTZJ33A-T2	ZENER DIODE	
	D1201	1SS133-T2	SI.DIODE	
	D1202	MTZJ7.5B-T2	ZENER DIODE	
	D1253-56	MTZJ9.1C-T2	ZENER DIODE	
	D1341	1SS133-T2	SI.DIODE	
	D1401	1N4003-T2	SI.DIODE	
	D1402	MTZJ75-T2	ZENER DIODE	
	D1510	1SS133-T2	SI.DIODE	
	D1512	RH3G-F1	SI.DIODE	
	D1541	RH1S-T3	SI.DIODE	
	D1542-43	RGP10J-5025-T3	SI.DIODE	
	D1544	RH1S-T3	SI.DIODE	
	D1561	1SS81-T2	SI.DIODE	
⚠	D1562	MTZJ7.5S-T2	ZENER DIODE	
	D1581	RGP10J-5025-T3	SI.DIODE	
	D1582	MTZJ9.1B-T2	ZENER DIODE	
	D1631-34	1SS133-T2	SI.DIODE	
	D1656-57	MTZJ9.1C-T2	ZENER DIODE	
	D1691-92	MTZJ9.1C-T2	ZENER DIODE	
	D1701	1SS133-T2	SI.DIODE	
	D1703-04	1SS133-T2	SI.DIODE	
	D1710	MTZJ5.6A-T2	ZENER DIODE	
	D1712-13	1SS133-T2	SI.DIODE	
	D1771-72	MTZJ5.6A-T2	ZENER DIODE	
	D1801-03	MTZJ15B-T2	ZENER DIODE	
	D1805	MTZJ15B-T2	ZENER DIODE	
⚠	D1901	D3SBA60	DIODE BRIDGE	
	D1903	RGP10J-5025-T3	SI.DIODE	
	D1905	MTZJ6.8A-T2	ZENER DIODE	
	D1921-22	RGP10J-5025-T3	SI.DIODE	
	D1923	MTZJ15A-T2	ZENER DIODE	
	D1924	1SS133-T2	SI.DIODE	
	D1927-28	1SS133-T2	SI.DIODE	
	D1929	MTZJ15A-T2	ZENER DIODE	
	D1941	RU3AM-LFC4	SI.DIODE	

DIODE

D1942	RGP10J-5025-T3	SI.DIODE	
D1943	1SS133-T2	SI.DIODE	
D1945	MTZJ5.1B-T2	ZENER DIODE	
D1948	RU3YX-LFC4	SI.DIODE	
D1961	MTZJ7.5S-T2	ZENER DIODE	
D1962	1SS133-T2	SI.DIODE	

TRANSISTOR

⚠	Symbol No.	Part No.	Part Name	Description
	Q1101	2SC5083/L-P/-T	SI.TRANSISTOR	
	Q1131	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1161	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1201-02	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1301-02	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1341-42	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1351-53	2SC4544-LB	SI.TRANSISTOR	
	Q1401	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1511	2SC2785/JH/-T	SI.TRANSISTOR	
	Q1521	BSN304-T	F.E.T.	
⚠	Q1522	2SD2499-LB	SI.TRANSISTOR	H.OUT
	Q1601	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1603	DTC124EKA-X	DIGI.TRANSISTOR	
	Q1604-05	DTC323TK-X	DIGI.TRANSISTOR	
	Q1631	2SA1037AK/QR/-X	SI.TRANSISTOR	
	Q1651-54	DTC323TK-X	DIGI.TRANSISTOR	
	Q1701-02	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1703	DTC124EKA-X	DIGI.TRANSISTOR	
	Q1761	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1921	2SA933AS/QR/-T	SI.TRANSISTOR	
	Q1941	2SA966/OY/-T	SI.TRANSISTOR	
	Q1942-44	2SC2412K/QR/-X	SI.TRANSISTOR	
	Q1961	2SA949/Y/Z1-T	SI.TRANSISTOR	

IC

⚠	Symbol No.	Part No.	Part Name	Description
	IC1001	AN78L05-T	I.C.(MONO-ANA)	
	IC1101	M52342SP	I.C.(MONO-ANA)	
	IC1201	TB1230N	I.C.(DIGI-OTHER)	
	IC1251	BA7612N	I.C.(MONO-ANA)	
	IC1291	AN78N05	I.C.(M)	
	IC1292	AN78L09-T	I.C.(MONO-ANA)	
	IC1293	AN78L05-T	I.C.(MONO-ANA)	
	IC1401	LA7840	I.C.(MONO-ANA)	
	IC1541	AN7809F	I.C.(MONO-ANA)	
⚠	IC1601	LA4485	I.C.(MONO-ANA)	
	IC1651	UPC1851BCU	I.C.(MONO-ANA)	
	IC1652	BA15218N	I.C.(MONO-ANA)	
	IC1701	M37267M8-230SP	I C	
	IC1702	AT24C02-29M201	I.C.	(SERVICE)
	IC1703	L78LR05E-MA	I.C.(MONO-ANA)	
⚠	IC1921	STR-F6654	I.C.(HYBRID)	
⚠	IC1941	SE130N	I.C.(H)	

OTHERS

⚠					
		CM48271-001-A	SHIELD PLATE		
	CF1001	QAX0349-001	CERAMIC FILTER		
	CF1131	QAX0339-001	CERAMIC FILTER		
	CF1161	SFSH4.5MCB	CERAMIC FILTER		
	CL1002	QZW0028-002	WIRE CLAMP		
⚠	CP1941	ICP-N75-Y	I.C.PROTECT		
⚠	CP1942	ICP-N50-Y	I.C.PROTECT		
	EF1301	CE42142-222Z	EMI FILTER		
⚠	F1901	QMF51E2-3R15J4	FUSE	3.15A	
	FC1901-02	CEMG002-001Z	FUSE CLIP		
⚠	FR1542	QRZ9023-1R0	F R	1Ω 2W	J
⚠	FR1543	QRZ9023-2R2	F R	2.2Ω 2W	J
⚠	FR1561	QRZ9017-4R7	F R	4.7Ω 1/4W	J
⚠	FR1585	QRZ9022-R33	F R	0.33Ω 1W	K
⚠	FR1586	QRE121J-682Y	C R	6.8kΩ 1/2W	J
	J1001	QNN0086-001	PIN JACK		
	K1401	QQR0621-001Z	BEADS CORE		
	K1921	QQR0582-001Z	BEADS CORE		
	K1923	QQR0582-001Z	BEADS CORE		
	K1941-43	QQR0582-001Z	BEADS CORE		
⚠	LF1901	QQR0676-001	LINE FILTER		
⚠	PC1921	TLP621(GR)-LF2	I.C.(PH.COUPLER)		
	SF1101	QAX0324-002	SAW FILTER		
⚠	SK1351	CE42535-001J1	C.R.T.SOCKET		
⚠	TH1901	QAD0101-9R0	P.THERMISTOR		
⚠	TH1902	QAD0101-9R0	P.THERMISTOR		
⚠	TU1001	CEEK280-B02	TUNER		
⚠	VA1901	ERZV10V621CS	VARISTOR		
	W1009	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1028	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1043	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1053-56	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1060-61	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1063-65	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1067	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1073	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1121	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1201-05	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1327	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1330-31	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1340-41	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1344	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1368-69	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1378	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1380	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1386	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1388-90	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1394-95	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1397	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1399	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1404	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J
	W1409	NRSA02J-0R0X	MG R	0.0Ω 1/10W	J

⚠	Symbol No.	Part No.	Part Name	Description
	OTHERS			
	W1411-17	NRSA02J-0ROX	MG R	0.0Ω 1/10W J
	W1702	NRSA02J-0ROX	MG R	0.0Ω 1/10W J
	W1718	NRSA02J-0ROX	MG R	0.0Ω 1/10W J
	X1301	QAX0305-001Z	CRYSTAL	
	X1701	QAX0468-001Z	CRYSTAL	
	Y1201	NRSA02J-0ROX	MG R	0.0Ω 1/10W J
	Y1701	NRSA02J-0ROX	MG R	0.0Ω 1/10W J
	Y1703	NRSA02J-0ROX	MG R	0.0Ω 1/10W J

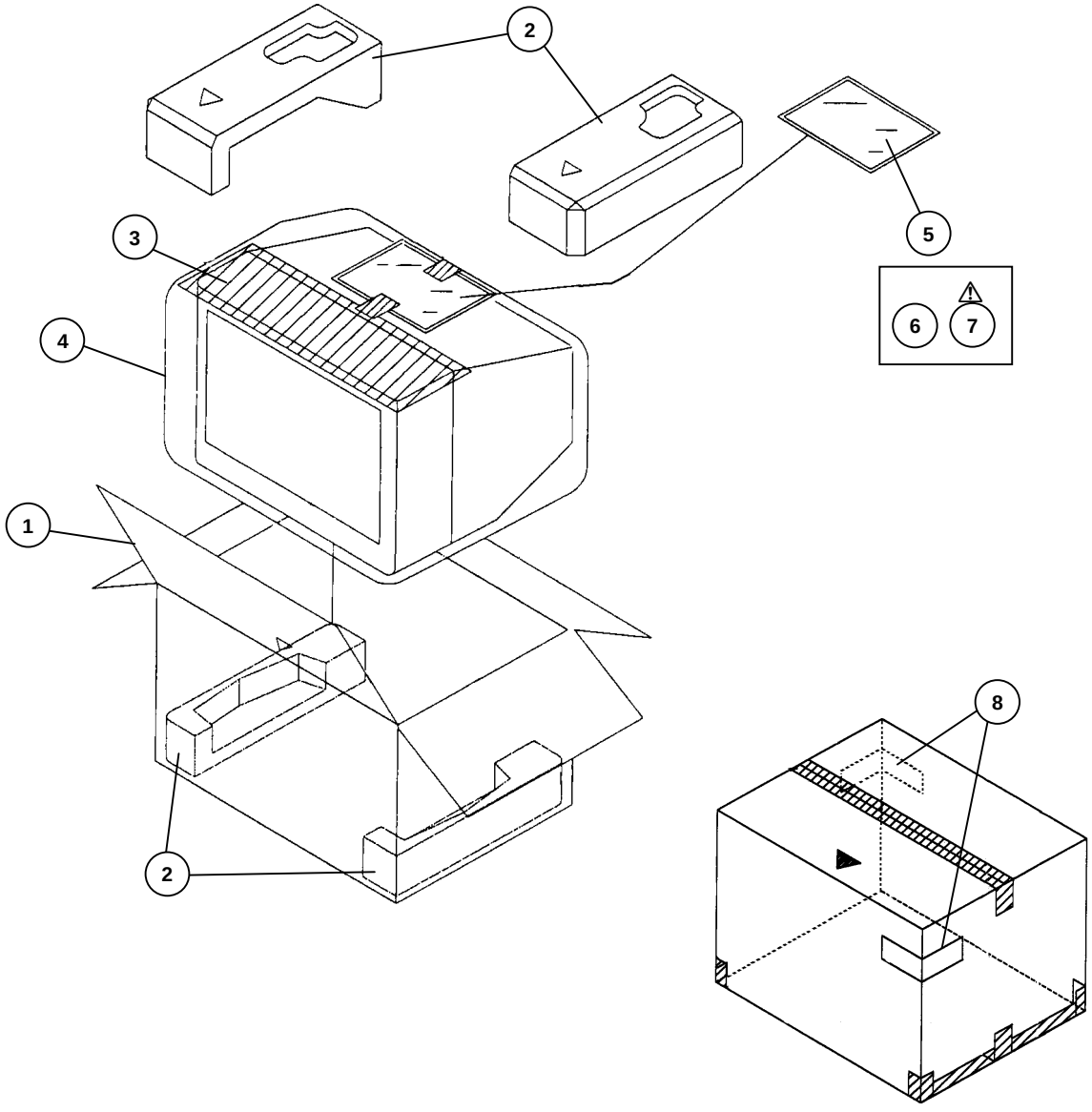
FRONT CONTROL PW BOARD ASS'Y (SGA-4006A-M2)

⚠	Symbol No.	Part No.	Part Name	Description
	RESISTOR			
	R4701	QRE121J-103Y	C R	10kΩ 1/2W J
	R4702	QRE121J-562Y	C R	5.6kΩ 1/2W J
	R4703-04	QRE121J-103Y	C R	10kΩ 1/2W J
	R4705	QRE121J-562Y	C R	5.6kΩ 1/2W J
	R4706	QRE121J-103Y	C R	10kΩ 1/2W J
	R4707-08	QRE121J-223Y	C R	22kΩ 1/2W J
	R4709	QRE121J-561Y	C R	560Ω 1/2W J
	R4710-11	QRE121J-223Y	C R	22kΩ 1/2W J
	R4712	QRE121J-561Y	C R	560Ω 1/2W J
	R4713	QRE121J-103Y	C R	10kΩ 1/2W J
	CAPACITOR			
	C4701	QETN1CM-476Z	E CAP.	47µF 16V M
	C4702	QCB32HK-561Z	C CAP.	560pF 500V K
	COIL			
	L4701	QQL03BJ-560Z	PEAKING COIL	56µH
	DIODE			
	D4702	SPR-39MVWF	L.E.D.	
	TRANSISTOR			
	Q4701	2SA933S(QR)-T	SI.TRANSISTOR	
	Q4702	2SC1740S/QR/-T	SI.TRANSISTOR	
	IC			
	IC4701	PIC-21043SR	IFR DETECT UNIT	
	OTHERS			
		CM36333-001-H	L.E.D.HOLDER	
		CM36334-001-H	L.E.D.LENS	
	S4701	QSW0707-001Z	TACT SWITCH	VOL +
	S4702	QSW0707-001Z	TACT SWITCH	VOL -
	S4703	QSW0707-001Z	TACT SWITCH	CH +
	S4704	QSW0707-001Z	TACT SWITCH	CH -
	S4705	QSW0707-001Z	TACT SWITCH	MENU
⚠	S4901	QSP4K21-C01	PUSH SWITCH	POWER

REMOTE CONTROL UNIT PARTS LIST (RM-C765-1A)

⚠	Ref.No.	Part No.	Part Name	Description
		163RRC-049-01AR	BATTARY COVER	

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description
	1	LC10181-019A-A	PACKING CASE	
	2	LC10083-004B-A	CUSHION ASSY	4pcs in 1set
	3	CP30055-001-A	TOP COVER	
	4	CP30056-008-A	POLY BAG	
	5	QPA02503505	POLY BAG	
	6	RM-C765-1A	REMOCON UNIT	
⚠	7	LCT0824-001A-A	INST BOOK	
	8	CM36616-001-A	CORNER LABEL	2pcs in 1set

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