

# JVC

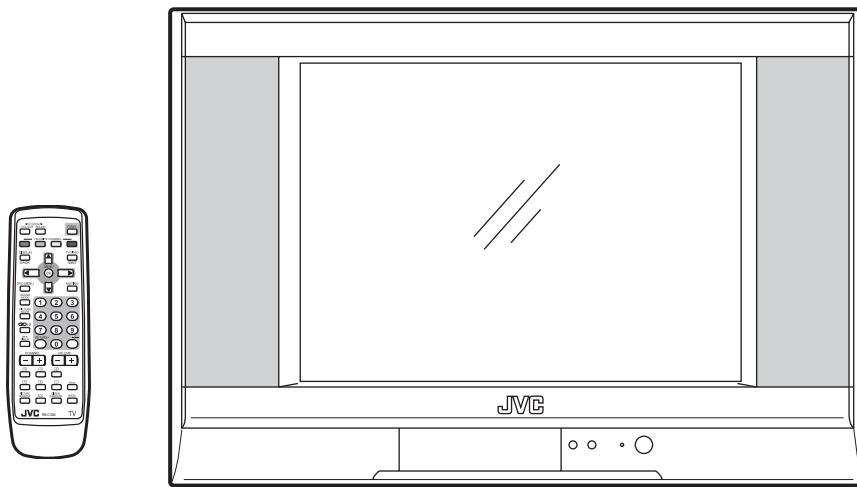
## SERVICE MANUAL

FLAT COLOUR TELEVISION

### AV-21MS30/N

BASIC CHASSIS

CW2



### TABLE OF CONTENTS

1	PRECAUTION .....	1-3
2	SPECIFIC SERVICE INSTRUCTIONS .....	1-4
3	DISASSEMBLY .....	1-6
4	ADJUSTMENT .....	1-12
5	TROUBLESHOOTING .....	1-29

# SPECIFICATION

Items		Contents
Dimensions (W × H × D)		64.9cm × 46.53cm × 46.92cm
Mass		23.5kg
TV RF System		B, G, I, D, K, M
Colour System	TV Mode Video Mode	PAL / SECAM / NTSC3.58 / NTSC4.43 PAL / SECAM / NTSC3.58 / NTSC4.43
Stereo System		A2 (B/G) / NICAM (B/G, I, D/K)
Teletext system		FLOF (Fastext) WST (World Standard Text)
Receiving Frequency	VHF Low VHF High UHF CATV	46.25MHz ~ 140.25MHz (AS0 ~ S6) 147.25MHz ~ 423.25MHz (S7 ~ S36) 431.25MHz ~ 863.25MHz (S37 ~ C57) Mid : X ~ Z, S1 ~ S10 Super: S11 ~ S20 Hyper: S21 ~ S41
Intermediate Frequency	VIF	38.0MHz
	SIF	D/K: 31.5MHz (6.5MHz) [NICAM: 32.15MHz (5.85MHz)] I: 32.0MHz (6.0MHz) [NICAM: 31.45MHz (6.55MHz)] B/G: 32.5MHz (5.5MHz) [A2: 32.26MHz (5.74MHz)] [NICAM: 32.15MHz (5.85MHz)] M: 33.5MHz (4.5MHz)
Colour Sub Carrier Frequency		4.43MHz (PAL), 4.40MHz/4.25MHz (SECAM), 3.58MHz/4.43MHz (NTSC)
Aerial Input Terminal		75Ω unbalanced, coaxial
Power Input		AC110V ~ AC240V, 50Hz / 60Hz
Power Consumption		112W (Max.) / 80W (Avg.)
Picture Tube		21-inch, aspect ratio 4:3, flat square face type, tinted
Screen Size		Visible size : 51.0cm (Diagonal) / 41.6cm × 31.5cm (H × V)
High Voltage		29kV±1.5kV (at zero beam current)
Speaker		6.5cm × 13cm, Oval type × 2
Audio Output		7W + 7W
Video / Audio Input (1/2/3)	S-Video [1]	Mini-DIN 4 pin × 1 Y: 1V(p-p), positive (negative sync provided), 75Ω C: 0.286V(p-p) (Burst signal), 75Ω
	Video [1/2/3]	1V(p-p), negative sync, 75Ω, RCA pin jack × 3
	Audio [1/2/3]	500mV(rms) (-4dBs), high impedance, RCA pin jack × 6
	Component Video [2]	RCA pin jack × 3 Y:1V(p-p), positive (negative sync), 75Ω Cb/Cr:0.7V(p-p), 75Ω
Video / Audio Output	Video	1V(p-p), 75Ω, RCA pin jack × 1
	Audio	500mV(rms)(-4dBs), Low impedance (400Hz when modulated 100%), RCA pin jack × 2
Headphone		3.5mm stereo mini jack × 1
Remote Control Unit		RM-C1286-1H (AA/R06/UM-3 battery × 2)

Design & specifications are subject to change without notice.

## **SECTION 2**

### **SPECIFIC SERVICE INSTRUCTIONS**

#### **2.1 FEATURES**

- New chassis design enables use of an interactive on-screen control.
- Pure flat CRT produces fine textured picture in every detail.
- Wide range voltage (110V ~ 240V) for AC power input.
- With AUDIO/VIDEO/S-VIDEO/COMPONENT input terminals.
- I<sup>2</sup>C bus control utilizes single chip ICs.
- By means of AUTO PROGRAM, the TV stations can be selected automatically and the TV channels can also be rearranged automatically.
- Built-in DIGITAL ECO MODE (ECONOMY, ECOLOGY).  
In accordance with the brightness in a room, the brightness and/or contrast of the picture can be adjusted automatically to make the optimum picture which is easy on the eye.
- Built-in OFF TIMER & RETURN +.

## 2.2 MAIN CPU [MAIN PWB : IC701] PIN FUNCTION

Pin No.	Pin name	I/O	Function
1	VssP2	-	GND
2	VssC4	-	GND
3	V1.8C4	I	1.8V (Digital)
4	V3.3A3	I	3.3V
5	VrefP_Sdac	I	3.3V (Positive)
6	VrefN_Sdac	-	GND
7	VrefP_Sdac	I	3.3V (Negative)
8	VrefN_Sdac	-	GND
9	VrefP_Sdac	I	3.3V (Positive)
10	Xtalln	I	24.576MHz for system clock
11	XtalOut	O	24.576MHz for system clock
12	VssA1	-	GND
13	NECK	I	V-guard input/ I/O switch
14	CONT	I	1.8V regulator control
15	V5P1	I	+5V
16	Ph2	-	Phase-2 filter
17	Ph1	-	Phase-1 filter
18	Gnd1	-	GND
19	SecPll	-	SECAM PLL decoupling
20	Dec8G	-	Bandgap decoupling
21	EW	O	East-West drive output
22	VDRB-	O	Vertical drive B output
23	VDRA+	O	Vertical drive A output
24	Vif1	I	Video IF input 1
25	Vif2	I	Video IF input 2
26	Vsc	-	Vertical sawtooth capacitor
27	Iref	I	Reference current input
28	GndIF	-	GND
29	Sif1	I	Sound IF input 1
30	Sif2	I	Sound IF input 2
31	AGC	O	Tuner AGC output
32	EHT	I	EHT/overvoltage protection input
33	Ssif/RefIn/Avl/RefOut	O	Automatic Volume Levelling/ sound IF input / subcarrier reference output / external reference signal input for I signalmixer for DVB operation
34	L3	I	Audio-L3 input (left signal)
35	R3	I	Audio-R3 input (right signal)
36	L-OUT	O	Audio L output
37	R-OUT	O	Audio R output
38	DecsDem	-	Decoupling sound demodulator
39	QssO/AmO/AudeEm	O	QSS intercarrier output / AM output / deemphasis / (front-end audio out)
40	Gnd2	-	GND
41	Plilf	-	IF-PLL loop filter
42	SifAgc	-	AGC sound IF
43	IfVo/FmRo/DvbO	O	Not used
44	NC	O	Not used
45	V8AudioSwitches	I	8V
46	AgcSsif	-	AGC capacitor second sound IF
47	V5P2	I	5V
48	V-OUT	O	Video output
49	L1	I	Audio-L1 input
50	R1	I	Audio-R1 input
51	V3	I	Video V3 input
52	C4	I	Not used
53	Audio2InL	I	Not used
54	Audio2InR	I	Not used
55	V2/Y	I	Video V2 input
56	L2	I	Audio L2 input (Left signal)
57	R2	I	Audio R2 input (right signal)
58	Y3/Cvbs	I	S-Video Y1 input
59	C1	I	S-Video C1 input
60	AudioLsL	O	Audio L output for audio power amplifier
61	AudioLsR	O	Audio R output for audio power amplifier
62	HP-L	O	Not used

Pin No.	Pin name	I/O	Function
63	HP-R	O	Not used
64	CVBSO/PIP	O	CVBS / PIP output
65	SVM	O	Not used
66	FbiSo	I	Flyback input/sandcastle output
67	Hout	O	Horizontal output
68	VssComb	-	GND
69	V5Comb	I	5V
70	Vin/R2/Pr	I	PIP R input
71	Uin/B2/Pb	I	PIP B input
72	Yin/G2/Y	I	PIP G input
73	Ysync	I	Not used
74	Yout	O	Not used
75	Uout/INSSW2	I	YUV insertion input
76	NC	O	Not used
77	INSSW3	I	YUV insertion input
78	R3/Pr	I	Component PR input (Video-2)
79	G3/Y	I	Component Y input (Video-2)
80	B3/Pb	I	Component PB input (Video-2)
81	Gnd3	-	GND
82	V5P3	I	5V
83	BCL	I	Beam current limiter input
84	BLKIN	I	Black current input
85	Rout	O	R output
86	Gout	O	G output
87	Bout	O	B output
88	V3.3A1	I	3.3V
89	RefAdN	-	GND
90	V3.3RefAdP	I	3.3V (Positive)
91	RefAd	I	3.3/2V
92	GndA	-	GND
93	V1.8A	I	1.8V
94	V3.3A2	I	3.3V
95	VssADC	-	GND
96	V1.8ADC	I	1.8V
97	REMOTE	I	Remote control
98	PW_LED	I	POWER LED control
99	PW_LED	I	POWER LED control
100	V1.8C2	I	1.8V
101	VssC2	-	GND
102	TIMER	-	Not used
103	TIMER	-	Not used
104	VER_PROTECT	O	X-ray protect
105	S_REDUCE	O	Sound control
106	P00/I2SDI1	O	Not used
107	POWER	O	SUB POWER control
108	SCL1	I	I2C bus clock
109	SDA1	I/O	I2C bus data
110	V3.3P	I	3.3V
111	ROTATION	O	Rotation
112	3.58/OTHER	O	NTSC 3.58 detection
113	A_MUTE	O	Audio muting
114	4.5/OTHER	O	NTSC 4.43 detection
115	PROT	I	Protect
116	ECO_IN	I	ECO sensor level detection
117	V1.8C1	I	1.8V (Digital)
118	DecV1V8	I	1.8V
119	KEY_IN	I	Key scan data
120	VDO-DET	I	Video DET input
121	VSSC1+P1	-	Digital GND
122	S_V_DET	I	S-Video DET input
123	P25/PWM4	O	GTVA_reset
124	V1.8C3	I	1.8V (Digital)
125	VssC3	-	GND
126	P12/Int2	I	External interrupt
127	SDA0	I/O	I2C bus data (for memory)
128	SCL0	I	I2C bus clock (for memory)

## **SECTION 3 DISASSEMBLY**

### **3.1 DISASSEMBLY PROCEDURE**

#### **3.1.1 REMOVING THE REAR COVER**

- Unplug the power cord.
  - (1) Remove the 2 screws **[A]** , 7 screws **[B]** and 4 screws **[C]** as shown in Fig.1.
  - (2) Withdraw the REAR COVER toward you.

#### **CAUTION:**

When reinstalling the rear cover, carefully push it inward after inserting the MAIN PWB into the REAR COVER groove.

#### **3.1.2 REMOVING THE MAIN PW BOARD**

- Remove the REAR COVER.
  - (1) Slightly raise the both sides of the MAIN PWB by hand.
  - (2) Withdraw the MAIN PWB backward.  
(If necessary, take off the wire clamp and connectors, etc.)

#### **3.1.3 REMOVING THE SPEAKER**

- Remove the REAR COVER.
  - (1) Remove the 2 screws **[D]** as shown in Fig.1.
  - (2) Follow the same steps when removing the other hand SPEAKER.

#### **3.1.4 CHECKING THE MAIN PW BOARD**

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

#### **CAUTIONS:**

- Before turning on power, make sure that the CRT earth wire and other connectors are properly connected.
- When repairing, connect the DEG. COIL to the DEG. connector on the MAIN PWB.
- When repairing, connect the DEG. COIL to the DEG. connector on the MAIN PWB.

#### **3.1.5 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.

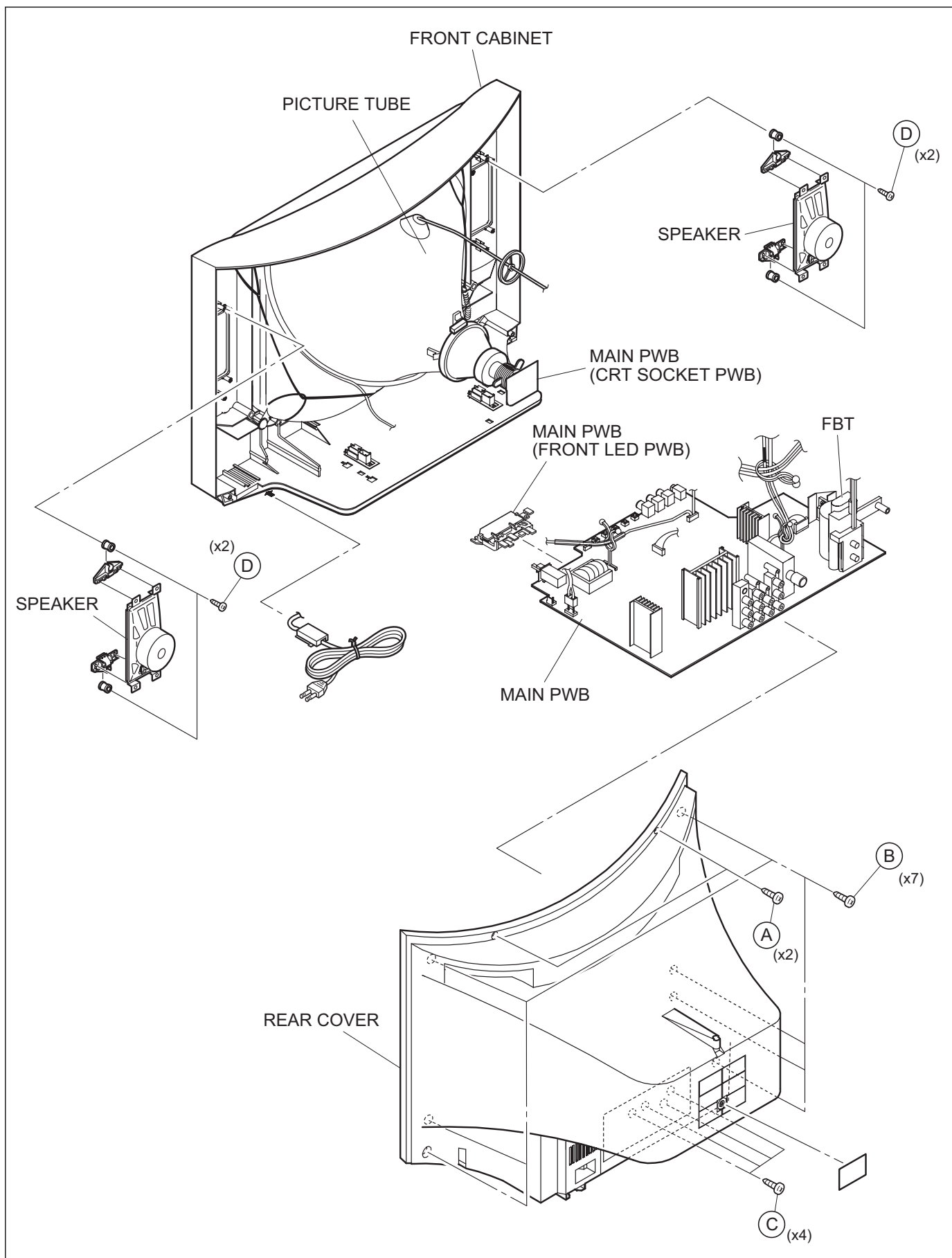


Fig.1

3.2 REPLACEMENT OF MEMORY IC

3.2.1 MEMORY IC

This TV uses the following memory IC.

Memory IC: IC702 on MAIN PWB

The memory IC memorizes data for correctly operating the video and deflection circuits. When replacing the memory IC, be sure to use the same type IC written with the initial values of data. In other words, use the specific IC listed in "PRINTED WIRING BOARD PARTS LIST". For its mounting location, refer to "ADJUSTMENT LOCATIONS".

3.2.2 PROCEDURE FOR REPLACING MEMORY IC

1. Power off

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

2. Replacing the memory IC

Replace the memory IC with new one. Be sure to use the memory IC written with the initial data values.

3. Power on

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

4. Check and setting of SYSTEM CONSTANT SET:

- (1) Press the [DISPLAY] key and the [PICTURE MODE] key on the remote control unit simultaneously.  
The SERVICE MENU screen will be displayed.(See Fig.1.)
- (2) In the SERVICE MENU, press the [DISPLAY] key and [PICTURE MODE] key simultaneously. Then, the SYSTEM CONSTANT SET screen will be displayed.(See Fig.2.)
- (3) Check whether the setting values of the SYSTEM CONSTANT SET are the same as those indicated in Table 1.  
If the value is different, select the setting item with the MENU [▲] / [▼] key, and set the correct value with the MENU [◀] / [▶] key.
- (4) Press the [DISPLAY] key twice to return to the normal screen.

5. Receive channel setting

Refer to the OPERATING INSTRUCTIONS and set the receive channels (channels preset).

6. User setting

Check the user setting values in Table 2 and Table 3. If setting value is different, set the correct value.  
For setting, refer to the OPERATING INSTRUCTIONS.

7. Setting of SERVICE MENU

Verify the setting for each setting item in the SERVICE MENU.(See Table 4.) If readjustment is necessary, perform adjustment referring to "ADJUSTMENTS PROCEDURE".

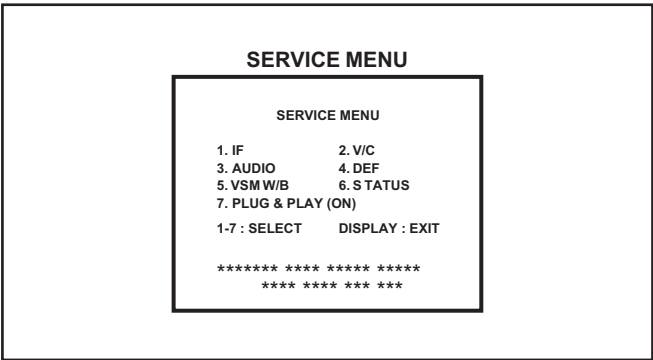


Fig.1

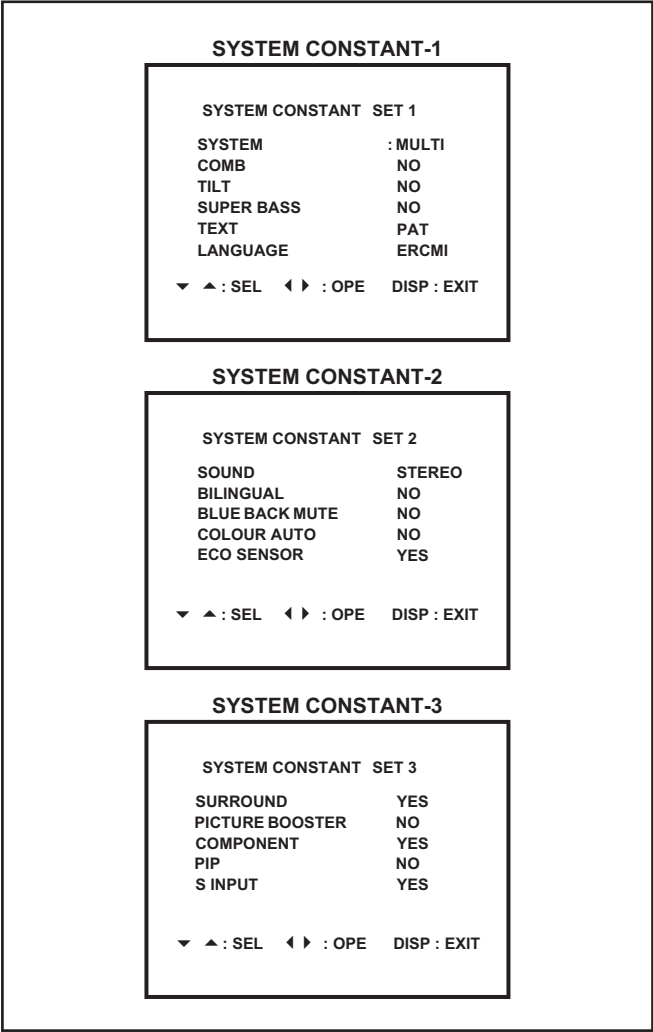
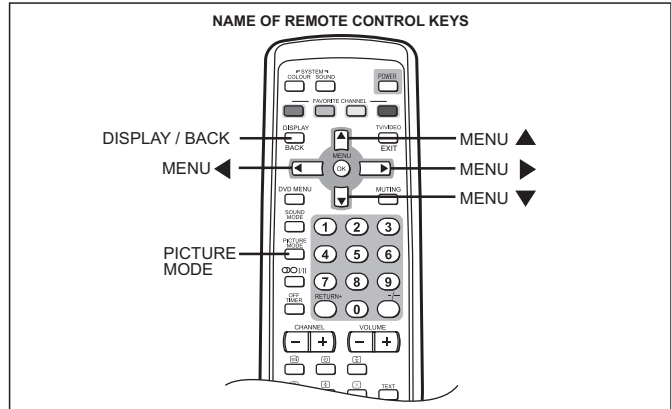


Fig.2



### 3.2.3 FACTORY SETTING VALUE

#### ■ SETTING OF SYSTEM CONSTANT SET

Setting item	Setting content	Setting value
SYSTEM	→ MULTI ↔ TRIPLE ↔ PAL ↔ THAI ←	MULTI
COMB	→ YES ↔ NO ←	NO
TILT	→ YES ↔ NO ←	NO
SUPER BASS	→ YES ↔ NO ←	NO
TEXT	→ SINGLE ↔ NO ↔ PAT ←	PAT
LANGUAGE	→ E/R/C/M/I ↔ E/C ←	E/R/C/M/I
SOUND	→ STEREO ↔ PB ↔ MONO ←	STEREO
BILINGUAL	→ YES ↔ NO ←	NO
BLUE BACK MUTE	→ YES ↔ NO ←	NO
COLOUR AUTO	→ YES ↔ NO ←	NO
ECO SENSOR	→ YES ↔ NO ←	YES
SURROUND	→ YES ↔ NO ←	YES
PICTURE BOOSTER	→ YES ↔ NO ←	NO
COMPONENT	→ YES ↔ NO ←	YES
PIP	→ YES ↔ NO ←	NO
S INPUT	→ YES ↔ NO ←	YES

**Table 1**



## ■ SETTING OF BASIC FUNCTIONS

Setting item	Setting value
POWER	Off
SUB POWER	On
VOLUME	15
INPUT	TV
COLOR SYSTEM	PAL
PICTURE MODE (VSM)	BRIGHT
CINEMA SURROUND (RF)	OFF
OFF TIMER	OFF
CHANNEL POSITION	PR01

Table 2

## ■ SETTING OF MENU SCREEN

Setting item	Setting value
VNR	AUTO
COMPRESS (16:9)	OFF
CHILD LOCK	OFF
BLUE BACK	ON
VIDEO-2 SET	COMPONENT
AUTO PROGRAM	Refer to OPERATING INSTRUCTIONS
EDIT / MANUAL	Refer to OPERATING INSTRUCTIONS
LANGUAGE	ENG
TEXT LANGUAGE	GROUP-1
WHITE BALANCE (RF)	COOL
BALANCE	Centre
SOUND MODE (RF)	MUSIC
AI VOLUME	OFF
FAVORITE CH RED	PR01
FAVORITE CH GREEN	PR02
FAVORITE CH YELLOW	PR03
FAVORITE CH BLUE	PR04
AI ECO SENSOR	OFF
AUTO SIGNAL DETECT	ON
DVD PICTURE MODE	OFF
TINT COLOR	Centre
WHITE BALANCE (DVD)	COOL
SOUND MODE (DVD)	MUSIC
CINEMA SURROUND (DVD)	OFF

Table 3

## ■ SERVICE MENU SETTING ITEMS

Setting item	Setting value
1. IF	1. VCO 2. DELAY POINT
2. V/C	1. SCREEN 2. CUTOFF(B/G) 3. WDR(R/G/B) 4. BRIGHT(TV/VDO 1/2/3) 5. CONT(TV/VDO 1/2/3/TV 16:9/VDO 16:9) 6. COLOUR(TV/VDO1/2/3/DVD) 7. TINT(TV/VDO 1/2/3) 8. SHARP [Do not adjust] 9. Y DELAY [Do not adjust] 10. TINT DVD [Do not adjust] 11. AMP T. SHARP 12. TWIN CONT.
3. AUDIO [Do not adjust]	1. DCXO ADJ 2. NICAM lower ERR LIM 3. NICAM upper ERR LIM 4. A2 ID THR 5. MENU EQUALIZER
4. DEF	1. V-SHIFT 2. V-SLOPE 3. V-SIZE 4. H-CENT 5. H-SIZE 6. TRAPEZ 7. EW-PIN 8. COR-UP 9. COR-LO 10. ANGLE 11. BOW 12. V-S.CR 13. V-LIN 14. V-ZOOM 15. V-SCROLL
5. VSM W/B (BRIGHT/STANDARD/SOFT)  (COOL/WARM/NORMAL)	1. BRIGHT 2. CONT 3. COLOUR 4. SHARP 5. HUE 1. R DRIVE 2. G DRIVE 3. B DRIVE
6. STATUS [Display only]	
7. PLUG & PLAY(ON) [Display only]	

Table 4

### 3.3 REPLACEMENT OF CHIP COMPONENT

#### 3.3.1 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.

#### 3.3.2 SOLDERING IRON

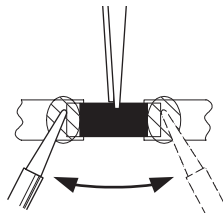
- (1) Use a high insulation soldering iron with a thin pointed end of it.
- (2) A 30w soldering iron is recommended for easily removing parts.

#### 3.3.3 REPLACEMENT STEPS

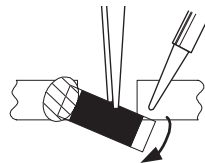
##### 1. How to remove Chip parts

[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 the tweezers and remove the chip part.

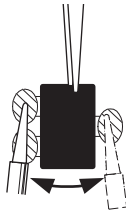


[Transistors, diodes, variable resistors, etc.]

- (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.



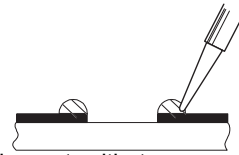
#### NOTE :

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

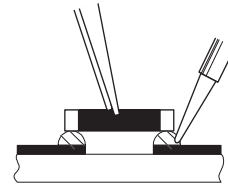
##### 2. How to install Chip parts

[Resistors, capacitors, etc.]

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

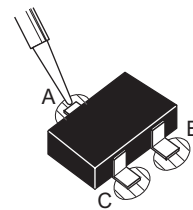


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

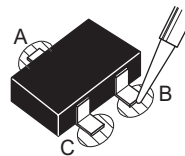


[Transistors, diodes, variable resistors, etc.]

- (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**.



# SECTION 4

## ADJUSTMENT

### 4.1 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 used for setting 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 variable resistors, transformers, trimmer capacitors, etc.

### 4.2 PRESETTING BEFORE ADJUSTMENT

Unless otherwise specified in the adjustment instructions, preset the following functions with the remote control unit.

#### ■ User mode setting position

Setting item	Setting value
PICTURE MODE (VSM)	BRIGHT
VNR	OFF
AI ECO SENSOR	OFF
BALANCE	Centre
CINEMA SURROUND	OFF
COMPRESS (16:9)	OFF

### 4.3 MEASURING INSTRUMENT AND FIXTURES

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

### 4.4 ADJUSTMENT ITEMS

#### ■ B1 VOLTAGE

#### ■ FOCUS ADJUSTMENT

#### ■ IF CIRCUIT ADJUSTMENTS

- IF VCO adjustment
- DELAY POINT (AGC TAKE-OVER) adjustment

#### ■ VIDEO CIRCUIT ADJUSTMENTS

- WHITE BALANCE (Low light) adjustment
- WHITE BALANCE (High light) adjustment
- SUB BRIGHT adjustment
- SUB CONTRAST adjustment
- SUB COLOUR 1 adjustment
- SUB COLOUR 2 adjustment
- SUB TINT 1 adjustment
- SUB TINT 2 adjustment

#### ■ AUDIO SETTING

#### ■ DEFLECTION CIRCUIT ADJUSTMENTS

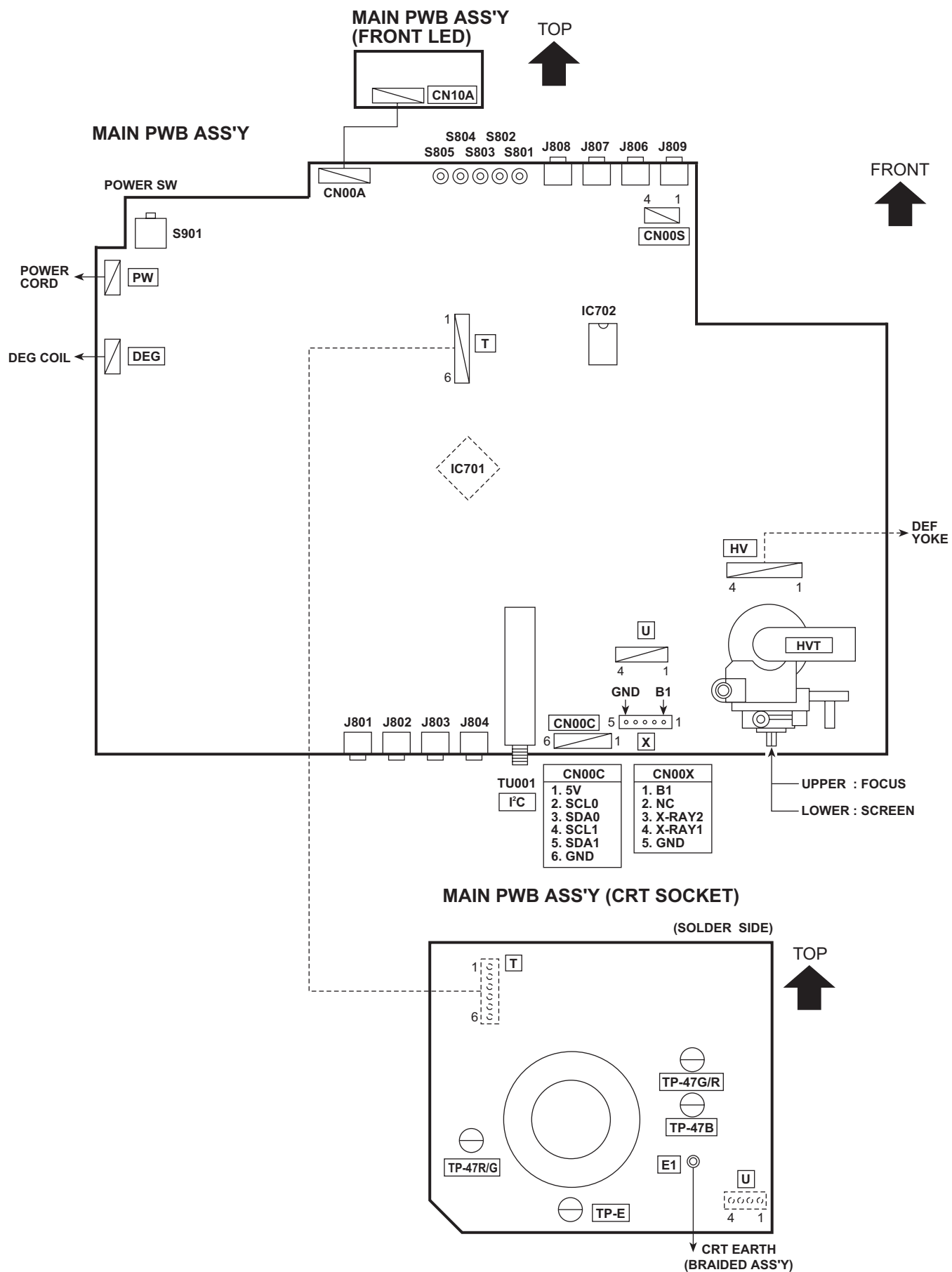
- V.SLOPE adjustment
- V.POSITION adjustment
- V.HEIGHT adjustment
- H.POSITION adjustment
- V. LINEARITY adjustment
- H. PARALLEL adjustment
- H.BOW adjustment

#### ■ VSM PRESET SETTING

#### ■ PURITY AND CONVERGENCE ADJUSTMENTS

- PURITY adjustment
- STATIC CONVERGENCE adjustment
- DYNAMIC CONVERGENCE adjustment

## 4.5 ADJUSTMENT LOCATIONS



## 4.6 BASIC OPERATION IN SERVICE MENU

Operate the SERVICE MENU with the remote control unit.

### 4.6.1 SERVICE MENU ITEMS

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

1. IF	For entering/adjusting the setting values (adjustment values) of the IF circuit.
2. V/C	For entering/adjusting the setting values (adjustment values) of the VIDEO circuit.
3. AUDIO	For entering/adjusting the setting values (adjustment values) of the AUDIO circuit.
4. DEF	For entering/adjusting the setting values (adjustment values) of the DEFLECTION circuit.
5. VSM W/B	For setting the values of STANDARD, SOFT, BRIGHT and COOL, NORMAL, WARM.
6. STATUS	This is not used for service.
7. PLUG & PLAY (ON)	This is not used for service.

### 4.6.2 BASIC OPERATION IN SERVICE MENU

#### 1. HOW TO ENTER SERVICE MENU

Press the [DISPLAY] key and the [PICTURE MODE] key on the remote control unit simultaneously.

The SERVICE MENU screen will be displayed. (See Fig. 1 on the next page.)

#### 2. SELECTION OF SUB MENU SCREEN

Press one of the keys 1 to 6 on the remote control unit, and select the SUB MENU SCREEN from the SERVICE MENU. (See Fig. 1 on the next page.)

SERVICE MENU → SUB MENU

- |          |                     |
|----------|---------------------|
| 1. IF    | 5. VSM W/B          |
| 2. V/C   | 6. STATUS           |
| 3. AUDIO | 7. PLUG & PLAY (ON) |
| 4. DEF   |                     |

#### 3. METHOD OF SETTING

##### NOTES:

- Once the setting values are set, they are memorized automatically.
- It must not be adjusted without inputting a signal.

##### (1) 1. IF

[1.VCO] : Under normal conditions, no adjustment is required.

(a) [1] key	Select <b>1. IF</b> .
(b) [1] key	Select <b>1. VCO</b> .
(c) [DISPLAY] key	When this is pressed twice, you will return to the SERVICE MENU.

[2.DELAY POINT]

(a) [1] key	Select <b>1. IF</b> .
(b) [2] key	Select <b>2. DELAY POINT</b> .
(c) MENU [◀] / [▶] key	Adjust the setting value.
(d) [DISPLAY] key	When this is pressed twice, you will return to the SERVICE MENU.

##### (2) 2. V/C, 3. AUDIO and 4. DEF

(a) [2] ~ [4] keys	Select one from <b>2. V/C</b> , <b>3. AUDIO</b> and <b>4. DEF</b>
(b) MENU [▲] / [▼] key	Select setting items.
(c) MENU [◀] / [▶] key	Adjust the setting values of the setting items. Use the number keys on the remote control unit for setting the WHITE BALANCE. For the setting, refer to each item concerned.
(d) [DISPLAY] key	When this is pressed, you will return to the SERVICE MENU.

##### (3) 5. VSM W/B

(a) [5] keys	Select <b>5. VSM W/B</b> .
(b) MENU [OK] key	Select preset items.
(c) MENU [▲] / [▼] key	Adjust setting items.
(d) MENU [◀] / [▶] key	Adjust the setting values of the setting items.
(e) [DISPLAY] key	When this is pressed, you will return to the SERVICE MENU.

##### (4) 6. STATUS

This is for display only.

##### (5) 7. PLUG & PLAY (ON)

This is not used for service.

#### 4. Release of SERVICE MENU

After completing the setting, return to the SERVICE MENU by pressing the [DISPLAY] key, then again press the [DISPLAY] key to return to the normal screen.

#### 4.6.3 SERVICE MENU FLOW CHART

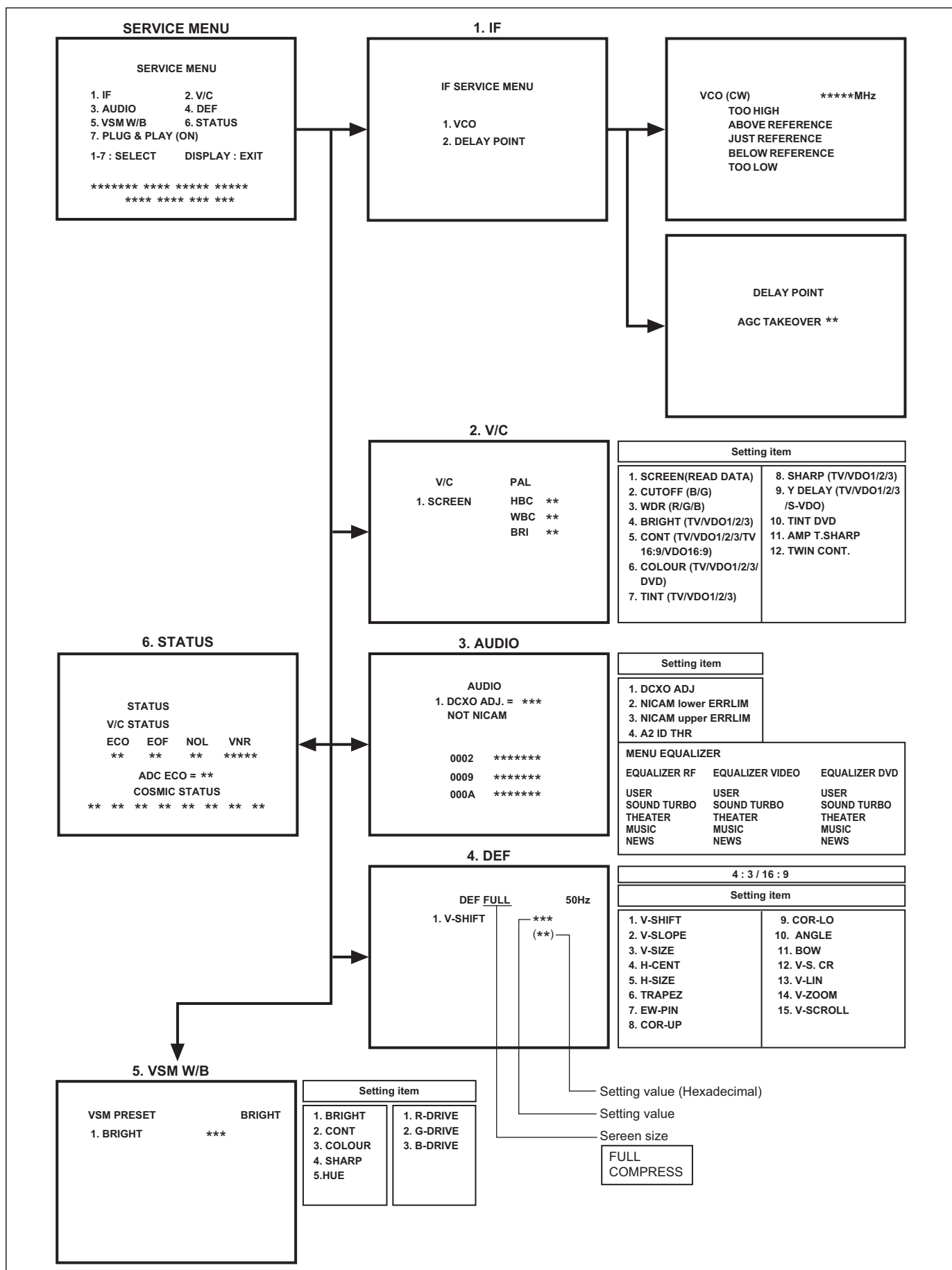


Fig.1

## 4.7 ADJUSTMENT PROCEDURE

### 4.7.1 B1 VOLTAGE

Item	Measuring instrument	Test point	Adjustment part	Description
<b>B1 VOLTAGE check</b>	Signal generator DC voltmeter	B1 (pin 1) GND (pin 5) [CN00X connector in MAIN PWB]		(1) Receive a PAL black and white signal. (2) Connect a DC voltmeter between B1 and GND (between pins 1 and 5 of the connector CN00X). (3) Make sure that the voltage is <b>DC134.5V ± 2V</b> .

### 4.7.2 FOCUS ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
<b>FOCUS adjustment</b>	Signal generator		FOCUS VR [In HVT]	<b>Notes:</b> <ul style="list-style-type: none"> <li>Set PICTURE MODE (VSM) to "BRIGHT".</li> <li>The final adjustment of CONVERGENCE must be done after the FOCUS adjustment. (CONVERGENCE is affected by the FOCUS adjustment.)</li> </ul> If any deviation in CONVERGENCE is found, PURITY must be adjusted to restore the convergence. <ol style="list-style-type: none"> <li>Receive a PAL crosshatch signal.</li> <li>Adjust the <b>FOCUS VR</b> so that the vertical and horizontal lines will be clear and in fine detail on the screen.</li> <li>Make sure that the picture is in focus even when the screen gets darkened.</li> </ol>

### 4.7.3 IF CIRCUIT ADJUSTMENTS

Item	Measuring instrument	Test point	Adjustment part	Description																			
IF VCO check	Remote control unit		[1. IF] 1. VCO (CW)	<b>Note:</b> <ul style="list-style-type: none"><li>Under normal conditions, no adjustment is required.</li></ul> <ol style="list-style-type: none"><li>Receive a PAL broadcast signal.</li><li>Select <b>1. IF</b> from the SERVICE MENU.</li><li>Select <b>1. VCO</b>.</li><li>Check the characters colour of the <b>JUST REFERENCE</b> displayed to <b>yellow</b>.</li><li>Press the [DISPLAY] key three times to return to normal screen.</li></ol>																			
<div><div>VCO (CW) ***.*** MHz ←</div><div>TOO HIGH ABOVE REFERENCE JUST REFERENCE ← BELOW REFERENCE TOO LOW</div><div>DISPLAY : EXIT</div></div> <div>Receiving frequency</div> <div>YELLOW</div>																							
DELAY POINT (AGC TAKE-OVER) adjustment	Remote control unit		[1. IF] 2. DELAY POINT	<ol style="list-style-type: none"><li>Receive a PAL black and white broadcast signal (colour off).</li><li>Select <b>1. IF</b> from the SERVICE MENU.</li><li>Select <b>2. DELAY POINT</b>.</li><li>Adjust in order to eliminate any noise or beat from the image. Any increase above the initial value produces the noise and any decrease below it produces the beat.</li><li>Press the [DISPLAY] key three times to return to the normal screen.</li><li>Turn to other channels and make sure that there are no irregularities.</li></ol>																			
		<table><tr><th rowspan="2">Adjustment item</th><th colspan="4">Initial setting value</th></tr><tr><th colspan="2">NTSC 3.58</th><th colspan="2">OTHERS</th></tr><tr><th></th><th>VHF</th><th>UHF</th><th>VHF</th><th>UHF</th></tr><tr><td>2. DELAY POINT (AGC TAKE-OVER)</td><td>28*</td><td>28*</td><td>28*</td><td>28*</td></tr></table>		Adjustment item	Initial setting value				NTSC 3.58		OTHERS			VHF	UHF	VHF	UHF	2. DELAY POINT (AGC TAKE-OVER)	28*	28*	28*	28*	
Adjustment item	Initial setting value																						
	NTSC 3.58		OTHERS																				
	VHF	UHF	VHF	UHF																			
2. DELAY POINT (AGC TAKE-OVER)	28*	28*	28*	28*																			

#### 4.7.4 VIDEO CIRCUIT ADJUSTMENTS

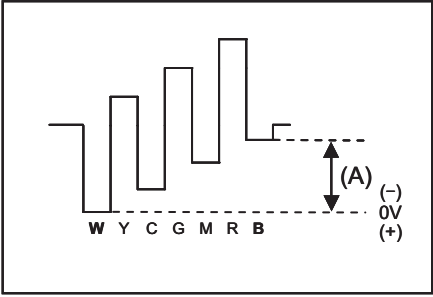
- The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
- The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- Do not change the initial setting values of the setting (adjustment) items not listed in "ADJUSTMENT PROCEDURE".
- The initial setting values in parenthesis ( ) are fixed offset values, needing no further adjustment.

Adjustment item		Variable range	Initial setting value					
			PAL	SECAM	NTSC3.58	NTSC4.43	COMPONENT (V-2)	
							525i	625i
1. SCREEN	BRI	0 ~ 63	31	31	31	31	31	31
2. CUTOFF	B	0 ~ 63(-32 ~ +31)	43	43	43	43	(+0)	(+0)
	G	0 ~ 63(-32 ~ +31)	28	28	28	28	(-3)	(-3)
3. WDR	R	0 ~ 63(-32 ~ +31)	35	35	35	35	(0)	(0)
	G	0 ~ 63(-32 ~ +31)	32	32	32	32	(0)	(0)
	B	0 ~ 63(-32 ~ +31)	40	40	40	40	(0)	(0)
4. BRIGHT	RF	0 ~ 63	34	34	34	34	---	---
	VIDEO 1(COMPOSITE/S)	(-32 ~ +31)	(+2)	(+2)	(+2)	(+2)	---	---
	VIDEO 2(COMPONENT)	(-32 ~ +31)	(+2)	(+2)	(+2)	(+2)	(+1)	(+1)
	VIDEO 3(COMPOSITE)	(-32 ~ +31)	(+2)	(+2)	(+2)	(+2)	---	---
5. CONT.	RF	0 ~ 63	18	18	18	18	---	---
	VIDEO	(-32 ~ +31)	(0)	(0)	(0)	(0)	(-2)	(-2)
6. COLOUR	RF	0 ~ 63(-32 ~ +31)	42	29	31	(-3)	---	---
	VIDEO	(-32 ~ +31)	(+2)	(-1)	(+1)	(-3)	(0)	(0)
7. TINT	RF	0 ~ 63(-32 ~ +31)	---	---	32	(+3)	---	---
	VIDEO	(-32 ~ +31)	---	---	(+0)	(+3)	---	---
8. SHARP	RF	0 ~ 63	53	53	53	53	---	---
	VIDEO	0 ~ 63	55	55	55	55	50	50
9. Y DELAY	RF	0 ~ 15	5	7	5	4	---	---
	VIDEO	0 ~ 15	6	9	7	7	---	---
	S-VIDEO	0 ~ 15	7	9	9	9	---	---
10. TINT DVD	RF	0 ~ 63(-32 ~ +31)	37	(+1)	(0)	(0)	---	---
	VIDEO	(-32 ~ +31)	(0)	(+1)	(0)	(0)	(+4)	(+1)
11. AMP T.SHARP	RF, VIDEO	0 ~ 63	0	0	0	0	0	0
12. TWIN CONT.	TWIN (RF)		-15	-15	-15	-15	---	---
	TWIN (VIDEO)		---	---	---	---	---	---

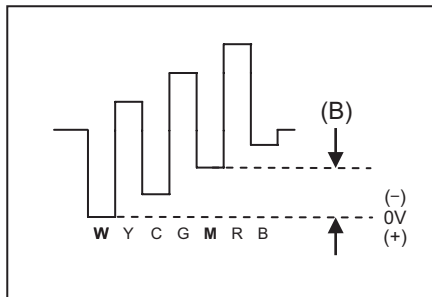


Item	Measuring instrument	Test point	Adjustment part	Description																			
WHITE BALANCE (Low light) adjustment	Signal generator		[2. V/C] 2. CUTOFF (B) 2. CUTOFF (G)	<b>Note:</b> <ul style="list-style-type: none"><li>Set PICTURE MODE (VSM) to "BRIGHT".</li></ul> <b>- COMPOSITE WHITE BALANCE -</b> <ol style="list-style-type: none"><li>Receive a PAL black and white signal (colour off).</li><li>Select <b>2. V/C</b> from the SERVICE MENU.</li><li>Select <b>2. CUTOFF (B)</b> and <b>(G)</b>.</li><li>Set each value to initial setting value with the <b>[4] / [7]</b> keys and <b>[5] / [8]</b> keys.</li><li>Turn the <b>SCREEN VR</b> fully counterclockwise, then slowly turn it clockwise to where a red, blue or green colour is faintly visible.</li><li>Use the <b>[4] / [7]</b> and <b>[5] / [8]</b> keys to adjust so that the other 2 colours appear white.</li><li>Turn the <b>SCREEN VR</b> to where the single horizontal line glows faintly.</li><li>Press the [DISPLAY] key twice to return to the normal screen.</li></ol> <b>- COMPONENT WHITE BALANCE -</b> <ol style="list-style-type: none"><li>Receive a PAL component black and white signal (colour off).</li><li>Select VIDEO-2 SET from the MENU and set VIDEO-2 SET to COMPONENT.</li><li>Adjust COMPONENT WHITE BALANCE in the same way as "COMPOSITE WHITE BALANCE".</li></ol> <table><thead><tr><th colspan="2">Adjustment Item</th><th>Variable range</th><th colspan="2">Initial setting value</th></tr><tr><th colspan="2"></th><th></th><th>COMPOSITE</th><th>COMPONENT</th></tr></thead><tbody><tr><td rowspan="2">2. CUT OFF</td><td>B</td><td>0 ~ 63 (-32~+31)</td><td>43</td><td>(+0)</td></tr><tr><td>G</td><td>0 ~ 63 (-32~+31)</td><td>28</td><td>(-3)</td></tr></tbody></table>	Adjustment Item		Variable range	Initial setting value					COMPOSITE	COMPONENT	2. CUT OFF	B	0 ~ 63 (-32~+31)	43	(+0)	G	0 ~ 63 (-32~+31)	28	(-3)
	Adjustment Item		Variable range		Initial setting value																		
			COMPOSITE	COMPONENT																			
2. CUT OFF	B	0 ~ 63 (-32~+31)	43	(+0)																			
	G	0 ~ 63 (-32~+31)	28	(-3)																			
	Remote control unit		SCREEN VR [In HVT]																				
<div><div><div>V/C 2. CUTOFF</div><div>PAL (B) ** (**) (G) ** (**)</div></div><div><div>REMOTE CONTROL UNIT</div><div><div><div>1</div><div>2</div><div>3</div></div><div><div>4</div><div>5</div><div>6</div></div><div><div>7</div><div>8</div><div>9</div></div></div><div><div>B CUTOFF (▲)</div><div>G CUTOFF (▲)</div><div>B CUTOFF (▼)</div><div>G CUTOFF (▼)</div></div></div></div>																							
WHITE BALANCE (High light) adjustment	Signal generator		[2. V/C] 3. WDR (R) 3. WDR (G) 3. WDR (B)	<b>Notes:</b> <ul style="list-style-type: none"><li>Proceed to the following adjustment after having completed the WHITE BALANCE (Low light) adjustment.</li><li>Set PICTURE MODE (VSM) to "BRIGHT".</li></ul> <ol style="list-style-type: none"><li>Receive a PAL black and white signal (colour off).</li><li>Select <b>2. V/C</b> from the SERVICE MENU.</li><li>Select <b>3. WDR (R)</b>, <b>(G)</b> and <b>(B)</b>.</li><li>Set each value to initial setting value with the <b>[4]</b> to <b>[9]</b> keys.</li><li>Use the <b>[4]</b> to <b>[9]</b> keys to produce a white screen.</li><li>Press the [DISPLAY] key twice to return to the normal screen.</li></ol> <table><thead><tr><th colspan="2">Adjustment Item</th><th>Variable range</th><th>Initial setting value</th></tr></thead><tbody><tr><td rowspan="3">3. WDR</td><td>R</td><td>0 ~ 63</td><td>35*</td></tr><tr><td>G</td><td>0 ~ 63</td><td>32</td></tr><tr><td>B</td><td>0 ~ 63</td><td>40*</td></tr></tbody></table>	Adjustment Item		Variable range	Initial setting value	3. WDR	R	0 ~ 63	35*	G	0 ~ 63	32	B	0 ~ 63	40*					
	Adjustment Item		Variable range		Initial setting value																		
3. WDR	R	0 ~ 63	35*																				
	G	0 ~ 63	32																				
	B	0 ~ 63	40*																				
	Remote control unit																						
<div><div><div>V/C 3. WDR</div><div>PAL (R) ** (**) (G) ** (**) (B) ** (**)</div></div><div><div>REMOTE CONTROL UNIT</div><div><div><div>1</div><div>2</div><div>3</div></div><div><div>4</div><div>5</div><div>6</div></div><div><div>7</div><div>8</div><div>9</div></div></div><div><div>R DRIVE (▲)</div><div>G DRIVE (▲)</div><div>R DRIVE (▼)</div><div>G DRIVE (▼)</div></div></div></div>																							

Item	Measuring instrument	Test point	Adjustment part	Description
<b>SUB BRIGHT adjustment</b>	Remote control unit		[2. V/C] 4. BRIGHT	<b>Notes:</b> <ul style="list-style-type: none"> <li>• Proceed to the following adjustment after having completed the WHITE BALANCE (Low light) and WHITE BALANCE (High light) adjustment.</li> <li>• Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <ol style="list-style-type: none"> <li>(1) Receive a PAL broadcast.</li> <li>(2) Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>(3) Select <b>4. BRIGHT</b>.</li> <li>(4) Set the initial setting value.</li> <li>(5) If the brightness is not best with the initial setting value, make fine adjustment until you get the best brightness.</li> <li>(6) Press the [DISPLAY] key twice to return to the normal screen.</li> </ol>
<b>SUB CONTRAST adjustment</b>	Remote control unit		[2. V/C] 5. CONT	<b>Notes:</b> <ul style="list-style-type: none"> <li>• Proceed to the following adjustment after having completed the SUB BRIGHT adjustment.</li> <li>• Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <ol style="list-style-type: none"> <li>(1) Receive a PAL broadcast.</li> <li>(2) Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>(3) Select <b>5. CONT</b>.</li> <li>(4) Set the initial setting value.</li> <li>(5) If the contrast is not best with the initial setting value, make fine adjustment until you get the best contrast.</li> <li>(6) Press the [DISPLAY] key twice to return to the normal screen.</li> </ol>
<b>SUB COLOUR 1 adjustment</b>	Remote control unit		[2. V/C] 6. COLOUR	<b>[Method of adjustment without measuring instrument]</b> <b>Notes:</b> <ul style="list-style-type: none"> <li>• Proceed to the following adjustment after having completed the SUB CONTRAST adjustment.</li> <li>• Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <p><b>- PAL COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a PAL broadcast.</li> <li>(2) Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>(3) Select <b>6. COLOUR</b>.</li> <li>(4) Set the initial setting value for PAL COLOUR.</li> <li>(5) If the colour is not best with the initial setting value, adjust until you get the best colour.</li> <li>(6) Press the [DISPLAY] key twice to return to the normal screen.</li> </ol> <p><b>- SECAM COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a SECAM broadcast.</li> <li>(2) Press the [COLOUR SYSTEM] key to select the SECAM colour system.</li> <li>(3) Adjust SECAM COLOUR in the same way as for "PAL COLOUR".</li> </ol> <p><b>- NTSC 3.58 COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a NTSC 3.58MHz broadcast.</li> <li>(2) Press the [COLOUR SYSTEM] key to select the NTSC 3.58 colour system.</li> <li>(3) Adjust NTSC 3.58 COLOUR in the same way as for "PAL COLOUR".</li> </ol> <p><b>- NTSC 4.43 COLOUR -</b></p> <p>When adjustment is done for NTSC 3.58 COLOUR, appropriate values are automatically set for NTSC 4.43 COLOUR.</p>

Item	Measuring instrument	Test point	Adjustment part	Description
<b>SUB COLOUR 2 adjustment</b>	Signal generator  Oscilloscope  Remote control unit	TP-47B TP-E [CRT SOCKET PWB]	[2. V/C] 6. COLOUR	<p><b>[Method of adjustment using measuring instrument]</b>  <b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Proceed to the following adjustment after having completed the SUB CONTRAST adjustment.</li> <li>• Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <p><b>- PAL COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a PAL colour bar signal (full field colour bar 75% white).</li> <li>(2) Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>(3) Select <b>6. COLOUR</b>.</li> <li>(4) Set the initial setting value of PAL COLOUR.</li> <li>(5) Connect the oscilloscope between TP-47B and TP-E.</li> <li>(6) Adjust PAL COLOUR to set the value <b>(A)</b> in the figure to <b>+29V</b>.</li> </ol> <p><b>- SECAM COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a SECAM colour bar signal (colour bar 75% white).</li> <li>(2) Press the [COLOUR SYSTEM] key to select the SECAM colour system.</li> <li>(3) Set the initial setting value of SECAM COLOUR.</li> <li>(4) Adjust SECAM COLOUR to set the value <b>(A)</b> in the figure to <b>+3V</b>.</li> </ol> <p><b>- NTSC 3.58 COLOUR -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white).</li> <li>(2) Press the [COLOUR SYSTEM] key to select the NTSC 3.58 colour system.</li> <li>(3) Set the initial setting value of NTSC 3.58 COLOUR.</li> <li>(4) Adjust NTSC 3.58 COLOUR to set the value <b>(A)</b> in the figure to <b>+29V</b>.</li> </ol> <p><b>- NTSC 4.43 COLOUR -</b>  When adjustment is done for NTSC 3.58 COLOUR, appropriate values are automatically set for NTSC 4.43 COLOUR.</p>
				
<b>SUB TINT 1 adjustment</b>	Signal generator  Remote control unit		[2. V/C] 7. TINT	<p><b>[Method of adjustment without measuring instrument]</b>  <b>Notes:</b></p> <ul style="list-style-type: none"> <li>• Proceed to the following adjustment after having completed the SUB CONTRAST adjustment.</li> <li>• Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <p><b>- NTSC 3.58 TINT -</b></p> <ol style="list-style-type: none"> <li>(1) Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white).</li> <li>(2) Press the [COLOUR SYSTEM] key to select the NTSC 3.58 colour system.</li> <li>(3) Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>(4) Select <b>7. TINT</b>.</li> <li>(5) Set the initial setting value of NTSC 3.58.</li> <li>(6) If you cannot get the best tint with the initial setting value, make fine adjustment until you get the best tint.</li> <li>(7) Press the [DISPLAY] key twice to return to the normal screen.</li> </ol> <p><b>- NTSC 4.43 TINT -</b>  When adjustment is done for NTSC 3.58 TINT, appropriate values are automatically set for NTSC 4.43 TINT.</p>

Item	Measuring instrument	Test point	Adjustment part	Description
<b>SUB TINT 2 adjustment</b>	Signal generator  Oscilloscope  Remote control unit	TP-47B TP-E [CRT SOCKET PWB]	[2. V/C] 7. TINT	<b>[Method of adjustment using measuring instrument]</b> <b>Notes:</b> <ul style="list-style-type: none"> <li>Proceed to the following adjustment after having completed the SUB CONTRAST adjustment.</li> <li>Set PICTURE MODE (VSM) to "BRIGHT".</li> </ul> <b>- NTSC 3.58 TINT -</b> <ol style="list-style-type: none"> <li>Receive a NTSC 3.58 colour bar signal (full field colour bar 75% white).</li> <li>Press the [COLOUR SYSTEM] key to select the NTSC 3.58 colour system.</li> <li>Select <b>2. V/C</b> from the SERVICE MENU.</li> <li>Select <b>7. TINT</b>.</li> <li>Set the initial setting value of NTSC 3.58.</li> <li>Connect the oscilloscope between TP-47B and TP-E.</li> <li>Adjust NTSC 3.58 TINT to set the value <b>(B)</b> in the figure to <b>+9V</b>.</li> <li>Press the [DISPLAY] key twice to return to the normal screen.</li> </ol> <b>- NTSC 4.43 TINT -</b> When adjustment is done for NTSC 3.58 TINT, appropriate values are automatically set for NTSC 4.43 TINT.



#### 4.7.5 AUDIO SETTING

This submenu is for display only, no adjustment is required.

Function	Item	Setting value
AUDIO	1. DC XO ADJ	04H
	2. NICAM LOWER ERR LIM	6FH
	3. NICAM UPPER ERR LIM	B0H
	4. A2 ID THR	00H

Function	MODE	Item	100Hz	300Hz	1kHz	3kHz	8kHz
MENU EQUALIZER	RF	SOUND TURBO	+12	+5	+3	+8	+9
		THEATER	+5	+4	-8	+3	+4
		MUSIC	+8	0	-1	+3	+4
		NEWS	+1	+5	+8	+3	-2
		USER	0	0	0	0	0
	VIDEO	SOUND TURBO	+12	+6	+4	+8	+12
		THEATER	+5	+4	-8	+3	+6
		MUSIC	+8	0	-1	+3	+6
		NEWS	+1	+5	+8	+3	-2
		USER	0	0	0	0	0
	DVD	SOUND TURBO	+12	+6	+4	+8	+12
		THEATER	+5	+4	-8	+3	+6
		MUSIC	+8	0	-1	+3	+6
		NEWS	+1	+5	+8	+3	-2
		USER	0	0	0	0	0

#### 4.7.6 DEFLECTION CIRCUIT ADJUSTMENTS

- The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
- The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
- When performing deflection circuit adjustment, adjusts PAL signal (fv: 50 Hz) in 4:3 mode and 16:9 mode respectively, and adjust the NTSC signal (fv: 60 Hz) similarly.

#### Note:

Proceed to the following adjustment after having completed the adjustments of SUB BRIGHT and SUB PICTURE.

#### ■ 4. DEF

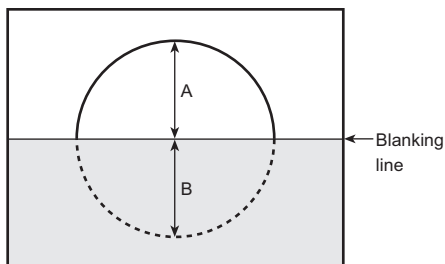
Adjustment item	Variable range		Initial setting value			
			4:3		COMPRESS (16:9)	
	4:3 50Hz	Others	50Hz	60Hz	50Hz	60Hz
1. V-SHIFT	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
2. V-SLOPE	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
3. V-SIZE	0 ~ 63	-32 ~ +31	+38*	0*	-14*	0*
4. H-CENT	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
5. H-SIZE	0 ~ 63	-32 ~ +31	0	0	0	0
6. TRAPEZ	0 ~ 63	-32 ~ +31	0	0	0	0
7. EW-PIN	0 ~ 63	-32 ~ +31	0	0	0	0
8. COR-UP	0 ~ 63	-32 ~ +31	0	0	0	0
9. COR-LO	0 ~ 63	-32 ~ +31	0	0	0	0
10. ANGLE	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
11. BOW	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
12. V-S.CR	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
13. V-LIN	0 ~ 63	-32 ~ +31	+32*	0*	0*	0*
14. V-ZOOM	0 ~ 63	-32 ~ +31	(+30~+37)	(0)	-13*	+3*
15. V-SCROLL	0 ~ 63	-32 ~ +31	(+32)	(0)	(0)	(0)

**NOTE:** The value with an asterisk \* is variable for adjustment. The values in parenthesis ( ) are fixed values.

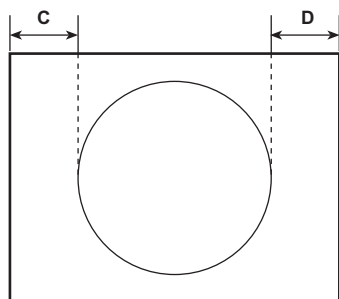
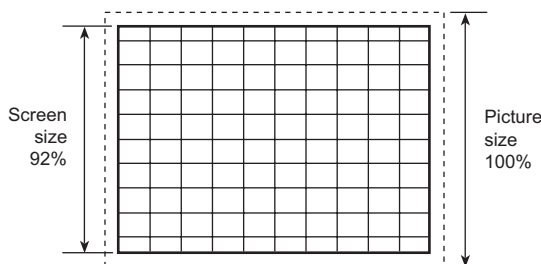
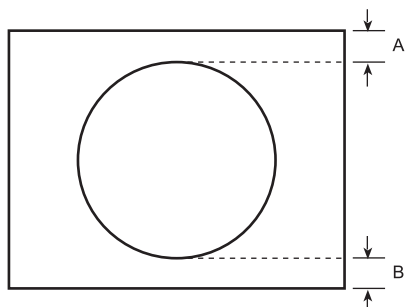
V-ZOOM DATA can adjust follow data range in case measurement line power on is appeared.

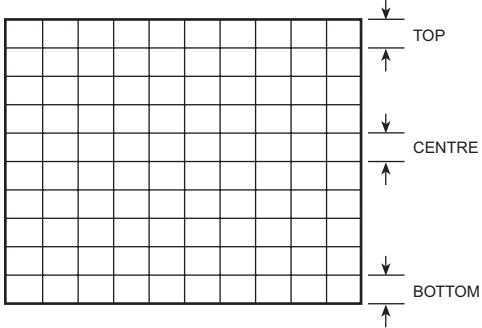
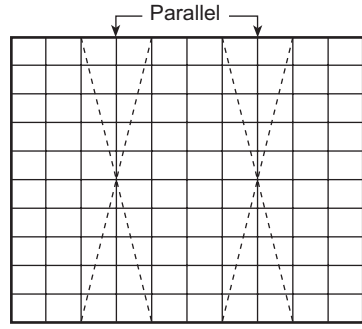
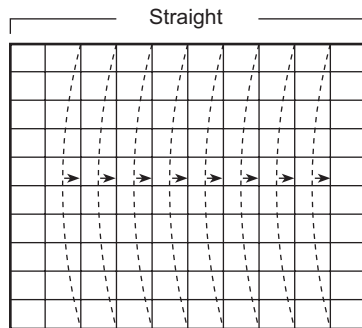
#### ■ COMPRESS: OFF (4:3)

Item	Measuring instrument	Test point	Adjustment part	Description
<b>V. SLOPE adjustment</b>	Signal generator		[4. DEF] 2. V-SLOPE	<b>- PAL V. SLOPE -</b> (1) Receive a PAL circle pattern signal of vertical frequency 50Hz. (2) Select <b>4. DEF</b> from the SERVICE MENU. (3) Select <b>2. V-SLOPE</b> . (4) Set the initial setting value of <b>2. V-SLOPE</b> . (5) Adjust <b>2. V-SLOPE</b> to make " <b>A = B</b> ". (6) Press the [DISPLAY] key to return to SERVICE MENU screen.  <b>- NTSC V. SLOPE -</b> (1) Receive a NTSC circle pattern signal of vertical frequency 60Hz. (2) Make similar adjustment of NTSC V-SLOPE in the same way as for "PAL V-SLOPE".
	Remote control unit			



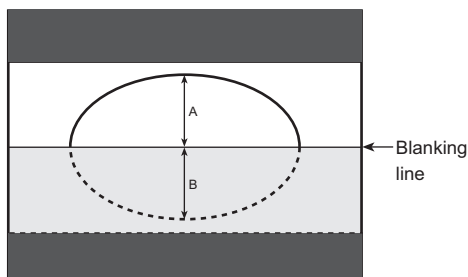
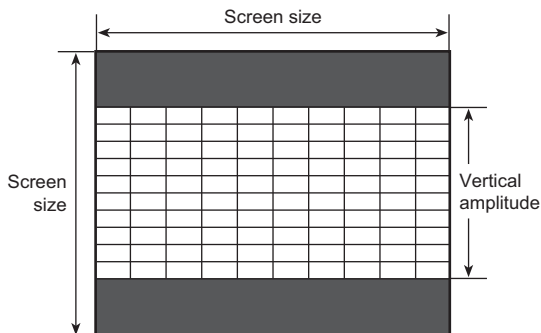
Item	Measuring instrument	Test point	Adjustment part	Description
<b>V. POSITION adjustment</b>	Signal generator		[4. DEF] 1. V-SHIFT	<b>- PAL V. POSITION -</b> (1) Receive a PAL circle pattern signal of vertical frequency 50Hz. (2) Select <b>1. V-SHIFT</b> . (3) Set the initial setting value of <b>1. V-SHIFT</b> . (4) Adjust <b>1. V-SHIFT</b> to make " <b>A = B</b> ".  <b>- NTSC V. POSITION -</b> (1) Receive a NTSC circle pattern signal of vertical frequency 60Hz. (2) Make similar adjustment of NTSC V. POSITION in the same way as for "PAL V. POSITION".
	Remote control unit			
<b>V. HEIGHT adjustment</b>	Signal generator		[4. DEF] 3. V-SIZE 14. V-ZOOM	<b>- PAL V. HEIGHT -</b> (1) Receive a PAL crosshatch signal. (2) Select <b>3. V-SIZE</b> . (3) Set the initial setting value of <b>3. V-SIZE</b> . (4) Select <b>14. V-ZOOM</b> . (5) Set the initial setting value of <b>14. V-ZOOM</b> . (6) Adjust <b>14. V-ZOOM</b> to make the vertical screen size to 92% of the picture size.  <b>- NTSC V. HEIGHT -</b> (1) Receive a NTSC crosshatch signal. (2) Make similar adjustment of NTSC V. HEIGHT in the same way as for "PAL V. HEIGHT".
	Remote control unit			
<b>H. POSITION adjustment</b>	Signal generator		[4. DEF] 4. H-CENT	<b>- PAL H. POSITION -</b> (1) Receive a PAL circle pattern signal. (2) Select <b>4. H-CENT</b> . (3) Set the initial setting value of <b>4. H-CENT</b> . (4) Adjust <b>4. H-CENT</b> to make " <b>C = D</b> ".  <b>- NTSC H. POSITION -</b> (1) Receive a NTSC circle pattern signal. (2) Make similar adjustment of NTSC H. POSITION in the same way as for "PAL H. POSITION".
	Remote control unit			



Item	Measuring instrument	Test point	Adjustment part	Description
<b>V.LINEARITY adjustment</b>	Signal generator		[4. DEF] 12. V-S. CR 13. V-LIN	<b>- PAL V. LINEARITY -</b> (1) Receive a PAL crosshatch signal. (2) Select <b>12. V-S.CR</b> . (3) Set the initial setting value of <b>12. V-S. CR</b> . (4) Select <b>13. V-LIN</b> . (5) Set the initial setting value of <b>13. V-LIN</b> . (6) Adjust <b>12. V-S. CR</b> and <b>13. V-LIN</b> so that the spaces of each line on TOP, CENTRE and BOTTOM become uniform.  <b>- NTSC V. LINEARITY -</b> (1) Receive a NTSC crosshatch signal. (2) Make similar adjustment of NTSC V-S. CR in the same way as for "PAL V-S. CR".
	Remote control unit			
				
<b>H. PARALLEL adjustment</b>	Signal generator		[4.DEF] 10. ANGLE	<b>- PAL H. PARALLEL -</b> (1) Receive a PAL crosshatch signal. (2) Select <b>10. ANGLE</b> . (3) Set the initial setting value of <b>10. ANGLE</b> . (4) Adjust <b>10. ANGLE</b> to optimize the trapezium distortion at the centre of the screen.  <b>- NTSC H. PARALLEL -</b> (1) Receive a NTSC crosshatch signal. (2) Make similar adjustment of NTSC H. PARALLEL in the same way as for "PAL H. PARALLEL".
	Remote control unit			
				
<b>H. BOW adjustment</b>	Signal generator		[4.DEF] 11. BOW	<b>- PAL H. BOW -</b> (1) Receive a PAL crosshatch signal. (2) Select <b>11. BOW</b> . (3) Set the initial setting value of <b>11. BOW</b> . (4) Adjust <b>11. BOW</b> to optimize the horizontal arc distortion.  <b>- NTSC H. BOW -</b> (1) Receive a NTSC crosshatch signal. (2) Make similar adjustment of NTSC H. BOW in the same way as for "PAL H. BOW". (3) Press the [DISPLAY] key twice to return to the normal screen.
	Remote control unit			
				

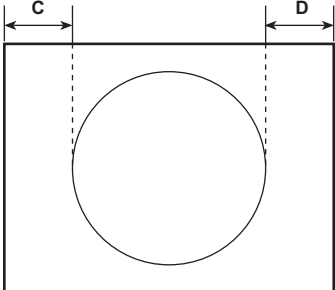
■ COMPRESS : ON (16:9)

Item	Measuring instrument	Test point	Adjustment part	Description
<b>V. HEIGHT adjustment</b>	Signal generator		[4.DEF] 14. V. ZOOM 3. V-SIZE	<b>- PAL V. HEIGHT -</b> (1) Receive a PAL crosshatch signal of vertical frequency 50Hz. (2) Press the [MENU] key and select <b>PICTURE</b> . (3) Select <b>PICTURE FEATURES</b> . (4) Select <b>COMPRESS (16 : 9)</b> and set COMPRESS to ON. (5) Select <b>4. DEF</b> from the SERVICE MENU. (6) Set the initial setting value of <b>14. V. ZOOM</b> . (7) Select <b>3. V-SIZE</b> . (8) Set the initial setting value of <b>3. V-SIZE</b> . (9) Adjust <b>3. V-SIZE</b> to set the vertical amplitude of the image to 240mm.  <b>- NTSC V. HEIGHT -</b> (1) Receive a NTSC crosshatch signal of vertical frequency 60Hz. (2) Make similar adjustment of NTSC V. HEIGHT in the same way as for "PAL V. HEIGHT".
	Remote control unit			
<b>V. SLOPE adjustment</b>	Signal generator		[4.DEF] 2. V-SLOPE	<b>- PAL V. SLOPE -</b> (1) Receive a PAL circle pattern signal of vertical frequency 50Hz. (2) Select <b>4. DEF</b> from the SERVICE MENU. (3) Select <b>2. V-SLOPE</b> . (4) Set the initial setting value of <b>2. V-SLOPE</b> . (5) Adjust <b>2. V-SLOPE</b> to make " <b>A = B</b> ". (6) Press the [DISPLAY] key to return to SERVICE MENU screen.  <b>- NTSC V. SLOPE -</b> (1) Receive a NTSC circle pattern signal of vertical frequency 60Hz. (2) Make similar adjustment of NTSC V-SLOPE in the same way as for "PAL V-SLOPE".
	Remote control unit			

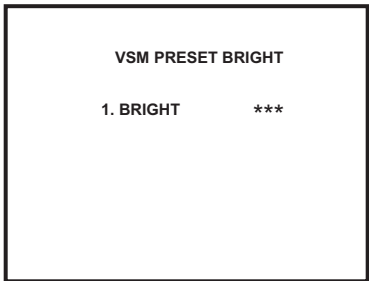




## ■ VIDEO - 2 SET: COMPONENT

Item	Measuring instrument	Test point	Adjustment part	Description
<b>H. POSITION adjustment</b>	Signal generator Remote control unit		[4. DEF] 4. H-CENT	(1) Receive a PAL circle pattern signal to VIDEO-2 component terminal. (2) Select VIDEO-2 SET from the MENU and set VIDEO-2 SET to COMPONENT. (3) Select <b>4. DEF</b> from the SERVICE MENU. (4) Select <b>4. H-CENT</b> . (5) Set the initial setting value of <b>4. H-CENT</b> . (6) Adjust <b>4. H-CENT</b> to make " <b>C=D</b> ". (7) Press the [DISPLAY] key twice to return to the normal screen.
				

### 4.7.7 VSM PRESET SETTING

Item	Measuring instrument	Test point	Adjustment part	Description																																																												
<b>VSM PRESET setting</b>	Remote control unit		[5. VSM W/B] 1. BRIGHT 2. CONT 3. COLOUR 4. SHARP 5. HUE 1. R-DRIVE 2. G-DRIVE 3. B-DRIVE	(1) Select <b>5. VSM W/B</b> from the SERVICE MENU. (2) Select BRIGHT with the MENU [OK] key. (3) Set the value of <b>1. BRIGHT ~ 5. HUE</b> to the values shown in the table. (4) Respectively select the VSM PRESET mode for SOFT and STANDARD. (5) Select COOL with the MENU [OK] key. (6) Set the values of <b>1. R-DRIVE ~ 3. B-DRIVE</b> to the value shown in the table. (7) Select the W/B preset for WARM and NORMAL, respectively. (8) Press the [DISPLAY] key twice to return to the normal screen.																																																												
<p><b>SUB MENU 5. VSM W/B</b></p> 				<p><b>[Setting Values for SUB 5. VSM W/B]</b></p> <table border="1"> <thead> <tr> <th colspan="2">VSM preset</th><th>BRIGHT</th><th>STANDARD</th><th>SOFT</th></tr> <tr> <th>Setting item</th><th></th><th></th><th></th><th></th></tr> </thead> <tbody> <tr> <td>1. BRIGHT</td><td></td><td>0</td><td>0</td><td>0</td></tr> <tr> <td>2. CONT</td><td></td><td>+15</td><td>+10</td><td>+5</td></tr> <tr> <td>3. COLOUR</td><td></td><td>0</td><td>-4</td><td>0</td></tr> <tr> <td>4. SHARP</td><td></td><td>0</td><td>-5</td><td>-10</td></tr> <tr> <td>5. HUE</td><td></td><td>0</td><td>0</td><td>0</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="2">W/B preset</th><th>COOL</th><th>NORMAL</th><th>WARM</th></tr> <tr> <th>Setting item</th><th></th><th></th><th></th><th></th></tr> </thead> <tbody> <tr> <td>1. R-DRIVE</td><td></td><td>0</td><td>0</td><td>+10</td></tr> <tr> <td>2. G-DRIVE</td><td></td><td>0</td><td>+2</td><td>-4</td></tr> <tr> <td>3. B-DRIVE</td><td></td><td>0</td><td>-10</td><td>-12</td></tr> </tbody> </table>	VSM preset		BRIGHT	STANDARD	SOFT	Setting item					1. BRIGHT		0	0	0	2. CONT		+15	+10	+5	3. COLOUR		0	-4	0	4. SHARP		0	-5	-10	5. HUE		0	0	0	W/B preset		COOL	NORMAL	WARM	Setting item					1. R-DRIVE		0	0	+10	2. G-DRIVE		0	+2	-4	3. B-DRIVE		0	-10	-12
VSM preset		BRIGHT	STANDARD	SOFT																																																												
Setting item																																																																
1. BRIGHT		0	0	0																																																												
2. CONT		+15	+10	+5																																																												
3. COLOUR		0	-4	0																																																												
4. SHARP		0	-5	-10																																																												
5. HUE		0	0	0																																																												
W/B preset		COOL	NORMAL	WARM																																																												
Setting item																																																																
1. R-DRIVE		0	0	+10																																																												
2. G-DRIVE		0	+2	-4																																																												
3. B-DRIVE		0	-10	-12																																																												

#### 4.7.8 PURITY AND CONVERGENCE

##### ■ PURITY ADJUSTMENT

###### Note:

The final adjustment of CONVERGENCE must be done after the FOCUS adjustment. (CONVERGENCE is changed by FOCUS adjustment.)  
When makes difference by FOCUS adjustment, should be reconfirming PURITY adjustment.

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

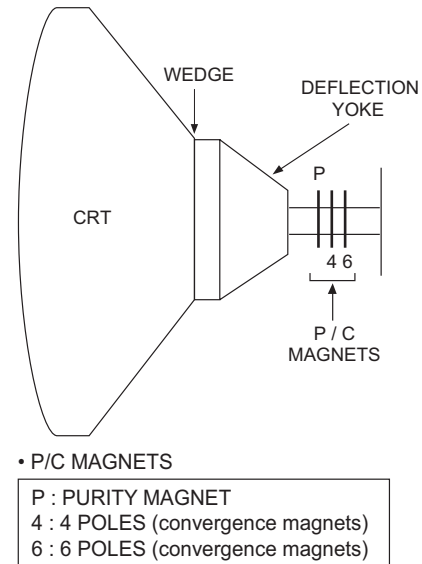


Fig.1

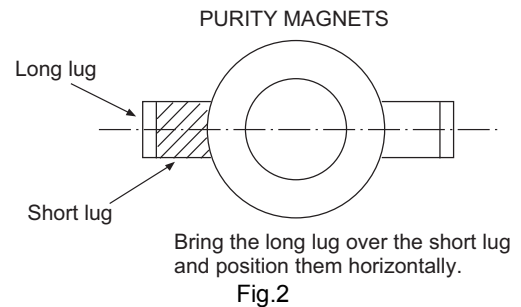


Fig.2

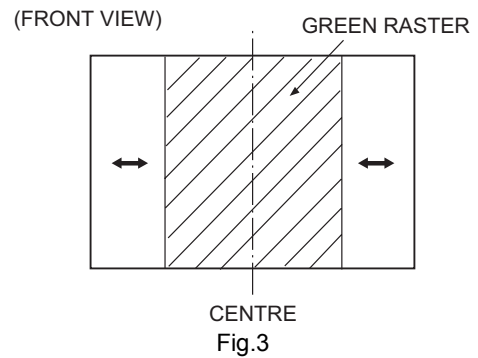
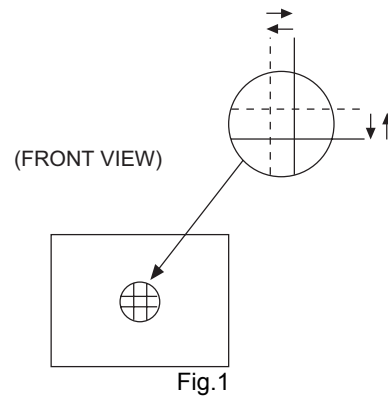


Fig.3

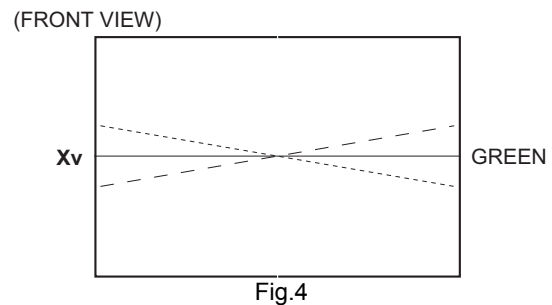
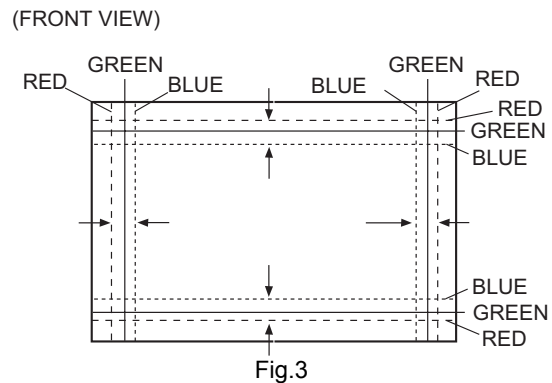
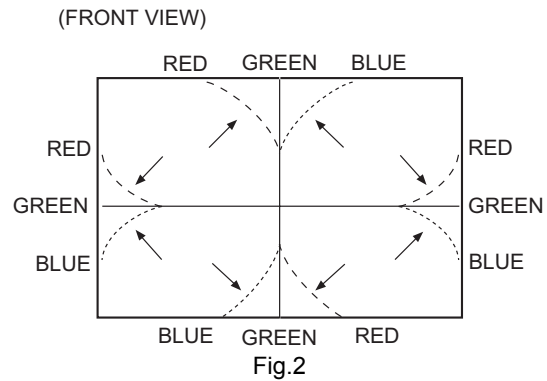
## ■ STATIC CONVERGENCE ADJUSTMENT

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



## ■ DYNAMIC CONVERGENCE ADJUSTMENT

- (1) Move the deflection yoke up and down and overlap the lines in the periphery. (Fig. 2)
  - (2) Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
  - (3) Repeat 1 and 2 above, and make best convergence.
  - (4) Adjust XV by XV coil. (Fig.4)
- After adjustment, fix the wedge at the original position. Fasten the retainer screw of the deflection yoke. Fix the P/C magnets with glue.



## SECTION 5 TROUBLESHOOTING

### 5.1 SELF CHECK FUNCTIONS

#### 5.1.1 OUTLINE

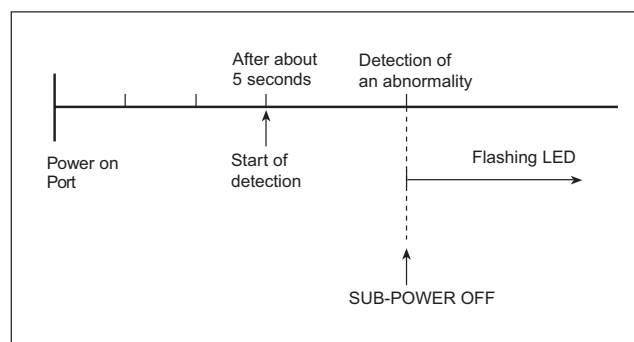
This model has self check functions given below. When an abnormality has been detected, the SUB POWER is turned off and POWER LED flashes to inform of the failure. An abnormality is detected by the signal input state of the control line connected to the microcomputer.

#### 5.1.2 SELF CHECK ITEMS

Check item	Details of detection	Method of detection	State of abnormality
B1 over-current protection	An over-current on the low B1 line is detected.	The main microcomputer detects the possible abnormality at 24-msec. intervals and judges the results in every 16 time. Of the 16 times, if NG is detected more than 9 times, it is judged that there is an abnormality.	When an abnormality has been detected, the SUB-POWER is turned off. While the SUB-POWER is being turned off, the POWER key on the remote control unit is not operational until the power cord is disconnected and connected again.
CRT neck broken protection	Operation of CRT neck protection circuit.		

#### 5.1.3 SELF CHECK INDICATING FUNCTION

When an abnormality has been detected at about 5 seconds after the power was turned on, the SUB POWER is turned off immediately and the POWER LED flashes.



#### [ INDICATION BY THE POWER LED]

Item	LED flashing intervals
B1 over-current protection / CRT neck broken protection	0.3 seconds

# JVC

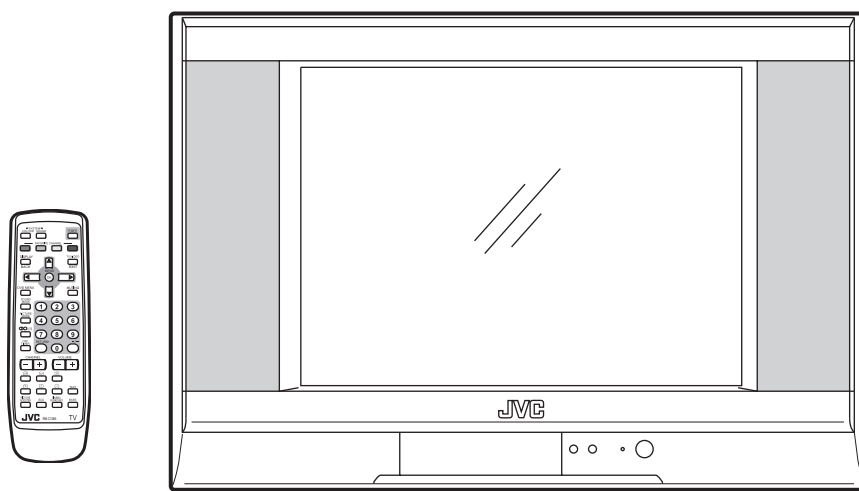
## SCHEMATIC DIAGRAMS

FLAT COLOUR TELEVISION

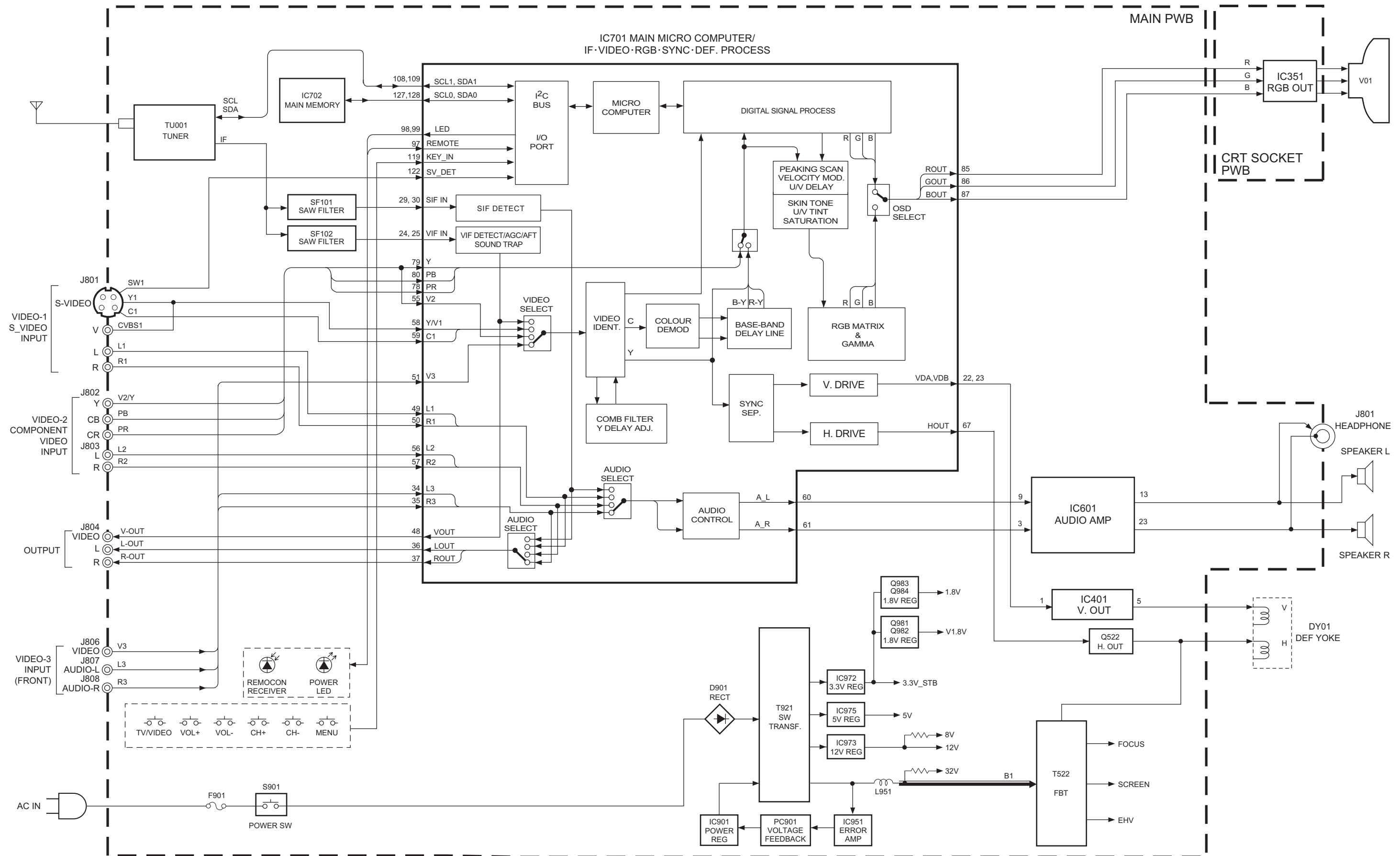
### AV-21MS30/N

CD-ROM No.SML200508

BASIC CHASSIS
CW2

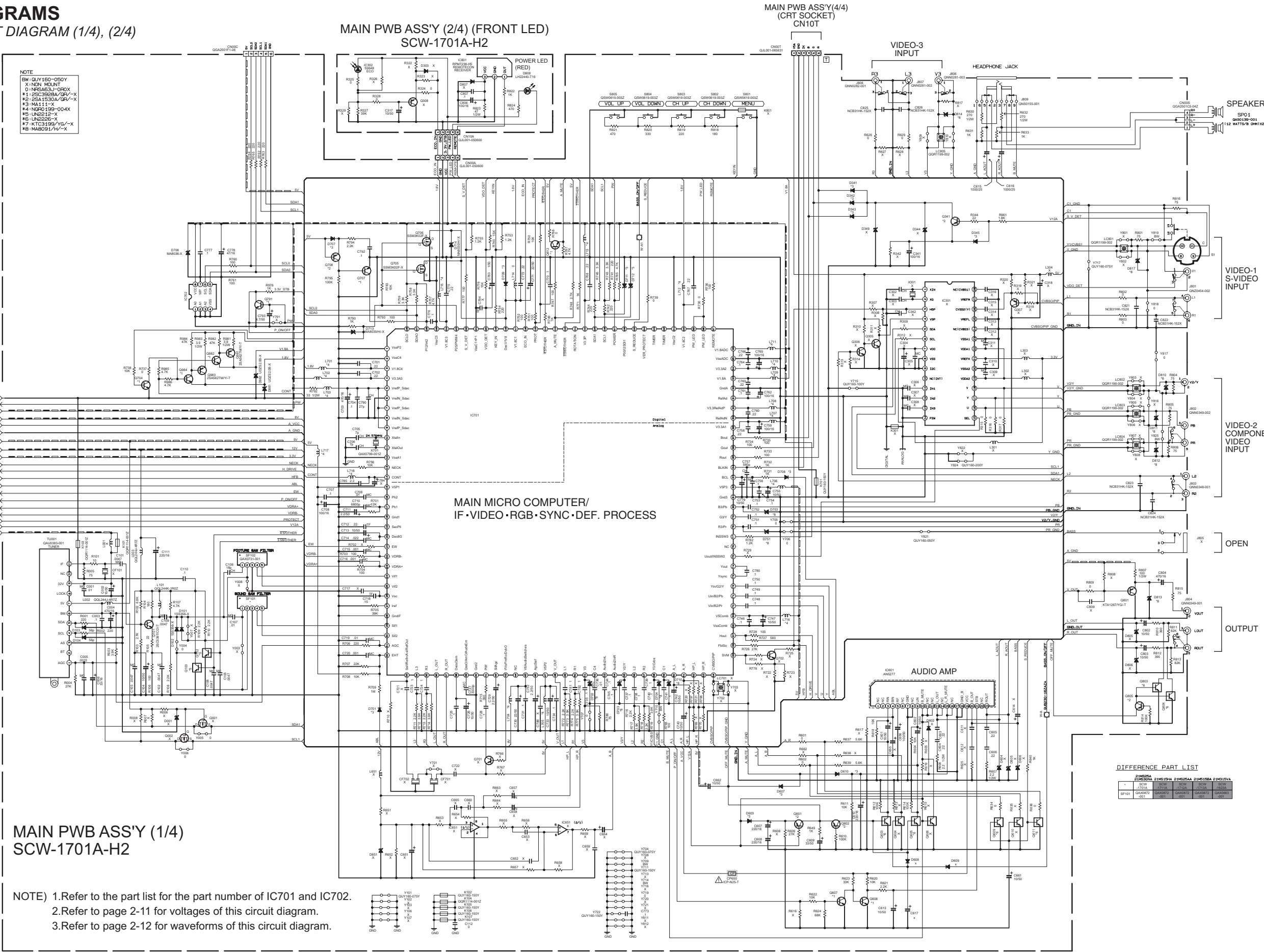


## BLOCK DIAGRAM



CIRCUIT DIAGRAMS

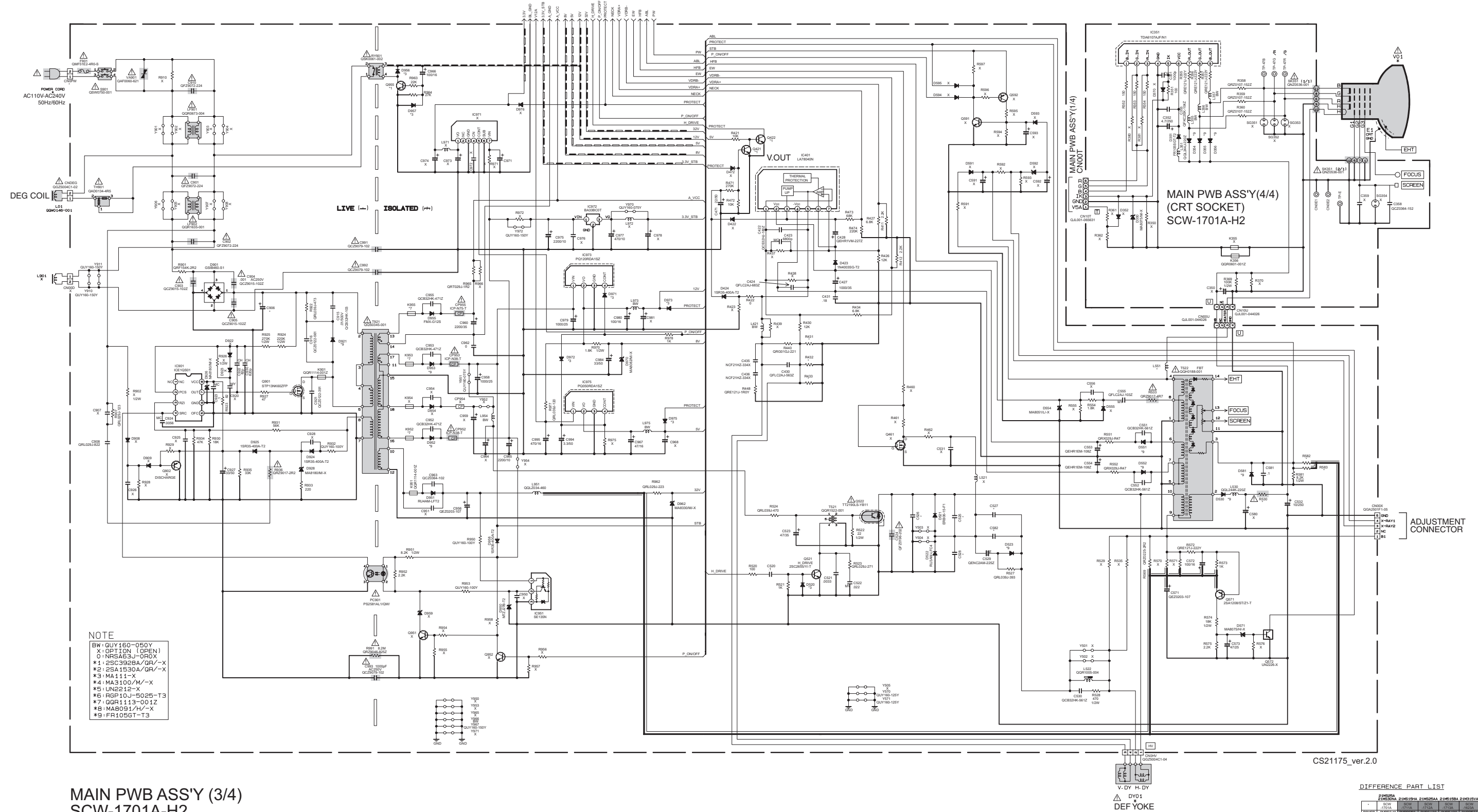
MAIN PWB CIRCUIT DIAGRAM (1/4), (2/4)



MAIN PWB ASS'Y (1/4)  
SCW-1701A-H2

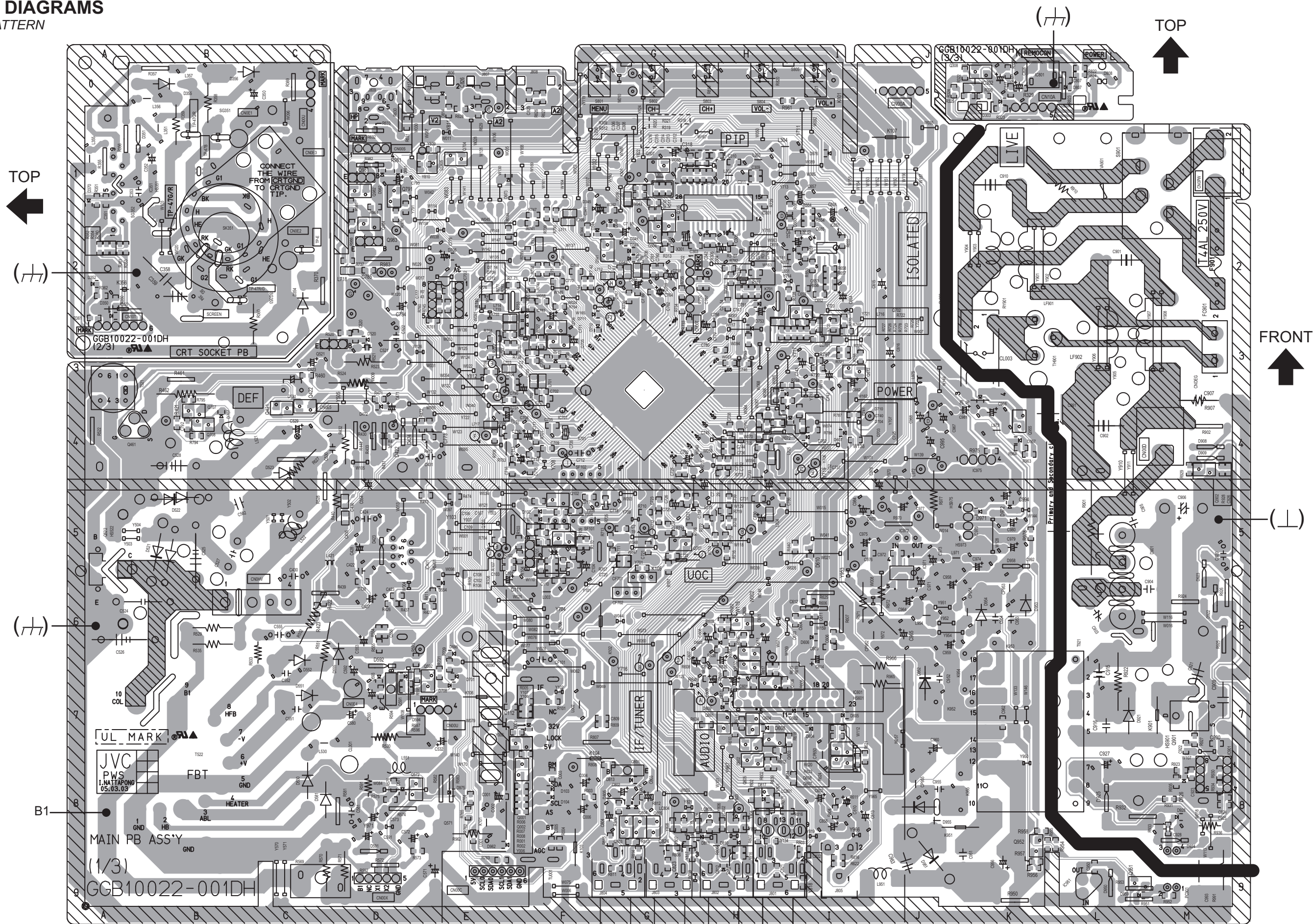
NOTE) 1.Refer to the part list for the part number of IC701 and IC702.  
2.Refer to page 2-11 for voltages of this circuit diagram.  
3.Refer to page 2-12 for waveforms of this circuit diagram.

MAIN PWB CIRCUIT DIAGRAM (3/4), (4/4)





MAIN PWB PATTERN



# VOLTAGE CHARTS

<MAIN PWB>

MODE PIN NO.	DC (V)
IC401	
1	0.5
2	13.3
3	-11.3
4	-13.4
5	0
6	13.5
7	0.5
IC601	
1	NC
2	NC
3	0
4	0
5	29.1
6	0
7	0
8	0
9	0
10	0.6
11	0.6
12	0.7
13	14.5
14	14.5
15	0.8
16	0.8
17	0
18	0
19	30.1
20	14.3
21	17.9
22	NC
23	14.3
IC701	
1	0
2	0
3	1.9
4	3.2
5	3.1
6	0
7	3.1
8	0
9	3.1
10	1.4
11	1.4
12	0
13	0
14	2.5
15	4.9
16	2.0
17	2.2
18	0
19	2.3
20	2.3
21	0
22	0
23	0.9
24	1.9
25	1.9
26	2.4
27	0
28	0
29	0.2
30	0.2
31	2.1
32	3.4
33	0.6
34	2.2
35	2.2
36	3.7
37	3.6
38	2.2
39	2.6
40	0
41	0
42	0.2
43	2.2
44	0.9
45	0
46	0
47	4.9
48	1.3
49	2.2
50	0
51	1.4
52	1.5
53	2.2
54	2.2
55	1.4
56	2.2
57	2.2
58	1.4
59	1.5
60	3.6
61	3.3
62	3.5
63	3.5
64	0.5

MODE PIN NO.	DC (V)
65	2.0
66	0.3
67	1.5
68	0
69	4.9
70	1.3
71	1.3
72	1.3
73	1.9
74	1.6
75	0.1
76	0
77	3.2
78	1.3
79	1.3
80	1.2
81	0
82	4.9
83	2.4
84	3.5
85	2.0
86	2.1
87	2.2
88	3.2
89	0
90	3.2
91	1.6
92	0
93	1.9
94	3.2
95	0
96	1.8
97	3.0
98	0
99	0
100	1.9
101	0
102	0.7
103	0
104	0
105	0
106	0
107	0
108	2.0
109	0
110	3.2
111	0
112	0
113	0
114	3.1
115	2.7
116	1.8
117	1.9
118	3.2
119	0
120	0
121	3.2
122	0
123	0
124	1.9
125	0
126	0
127	0
128	3.1
IC702	
1	0
2	0
3	0
4	0
5	3.2
6	3.2
7	0
8	3.2
IC901	
1	0
2	1.1
3	0.8
4	2.0
5	0
6	0
7	2.4
8	10.2
IC951	
1	134.1
2	11.3
3	0
IC972	
1	6.9
2	3.3
3	0
IC973	
1	14.9
2	12.0
3	0
4	2.5

MODE PIN NO.	DC (V)
IC975	
1	8.2
2	4.9
3	0
4	2.5
Q101	
E	1.1
C	11.9
B	1.8
Q341	
E	8.1
C	1.8
B	8.2
Q521	
E	0
C	10.6
B	0
Q522	
E	0
C	112.0
B	-0.1
Q571	
E	134.0
C	0
B	133.7
Q572	
E	0
C	3.1
B	-0.3
Q601	
E	8.2
C	0.2
B	8.2
Q602	
E	0.2
C	-0.4
B	0
Q603	
E	0
C	0
B	-0.4
Q605	
E	0
C	0
B	-0.4
Q607	
E	0
C	0
B	0.6
Q608	
E	0
C	20.3
B	0
Q609	
E	0
C	0
B	0
Q611	
E	0
C	0
B	0
Q612	
E	0
C	5.0
B	0
Q704	
E	0
C	2.5
B	0
Q705	
S	0
G	1.9
D	0
Q706	
S	0
G	1.9
D	0
Q707	
E	0
C	3.2
B	0
Q708	
E	4.7
C	0
B	4.9
Q791	
E	0
C	2.9
B	0
Q801	
E	2.1
C	0
B	1.3
Q803	
E	0
C	0
B	-0.5

MODE PIN NO.	DC (V)
Q804	
E	0
C	0
B	-0.4
Q805	
E	0.2
C	-0.4
B	0
Q901	
S	0
D	69.5
G	1.9
Q955	
E	0
C	12.0
B	0
Q981	
E	2.7
C	1.9
B	2.0
Q982	
E	2.0
C	2.0
B	2.5
Q983	
E	2.8
C	1.9
B	2.0
Q984	
E	1.9
C	2.0
B	2.5
TU001	
1	2.1
2	0
3	0
4	2.0
5	2.0
6	4.9
7	4.9
8	0
9	34.0
11	0

<MAIN PWB  
(FRONT LED)>

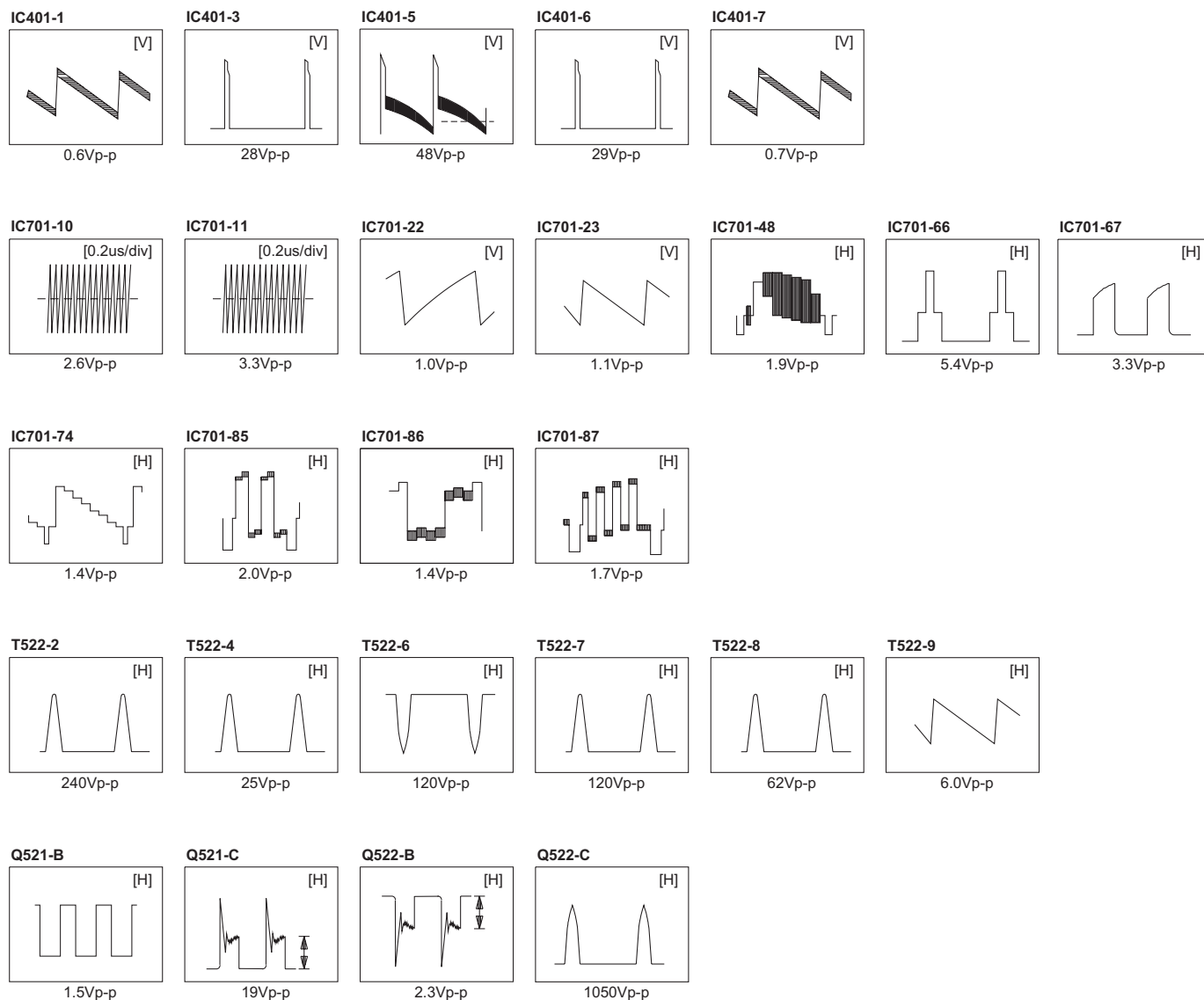
MODE PIN NO.	DC (V)
IC302	
1	2.6
2	3.2
IC801	
1	3.0
2	0
3	3.2

<MAIN PWB  
(CRT SOCKET)>

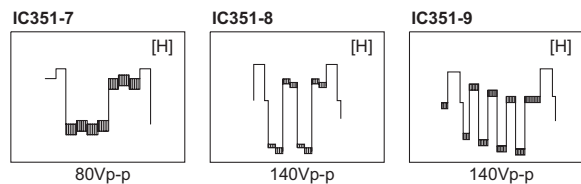
MODE PIN NO.	DC (V)
IC351	
1	2.3
2	2.1
3	2.1
4	0
5	4.8
6	190.0
7	119.0
8	120.1
9	108.6

# WAVEFORMS

## -MAIN PWB-



## -CRT SOCKET PWB-



# PARTS LIST

## CAUTION

- The parts identified by the  $\Delta$  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	
CR	Carbon Resistor	C CAP.	Ceramic Capacitor
FR	Fusible Resistor	E CAP.	Electrolytic Capacitor
PR	Plate Resistor	M CAP.	Mylar Capacitor
VR	Variable Resistor	CH CAP.	Chip Capacitor
HV R	High Voltage Resistor	HV CAP.	High Voltage Capacitor
MF R	Metal Film Resistor	MF CAP.	Metalized Film Capacitor
MG R	Metal Glazed Resistor	MM CAP.	Metalized Mylar Capacitor
MP R	Metal Plate Resistor	MP CAP.	Metalized Polystyrol Capacitor
OM R	Metal Oxide Film Resistor	PP CAP.	Polypropylene Capacitor
CMF R	Coating Metal Film Resistor	PS CAP.	Polystyrol Capacitor
UNF R	Non-Flammable Resistor	TF CAP.	Thin Film Capacitor
CH V R	Chip Variable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH MG R	Chip Metal Glazed Resistor	TAN. CAP.	Tantalum Capacitor
COMP. R	Composition Resistor	CH C CAP.	Chip Ceramic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
		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

RESISTORS									
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 ..... 3-3
- EXPLODED VIEW PARTS LIST -1 ..... 3-3
- EXPLODED VIEW -1 ..... 3-3
- EXPLODED VIEW PARTS LIST -2 ..... 3-4
- EXPLODED VIEW -2 ..... 3-5
  
- PRINTED WIRING BOARD PARTS LIST ..... 3-6
  - MAIN P.W. BOARD ASS'Y (SCW-1772A-H2) ..... 3-6
  
- PREMOTE CONTROL UNIT PARTS LIST (RM-C1286-1H) ..... 3-10
- PACKING ..... 3-10
- PACKING PARTS LIST ..... 3-10

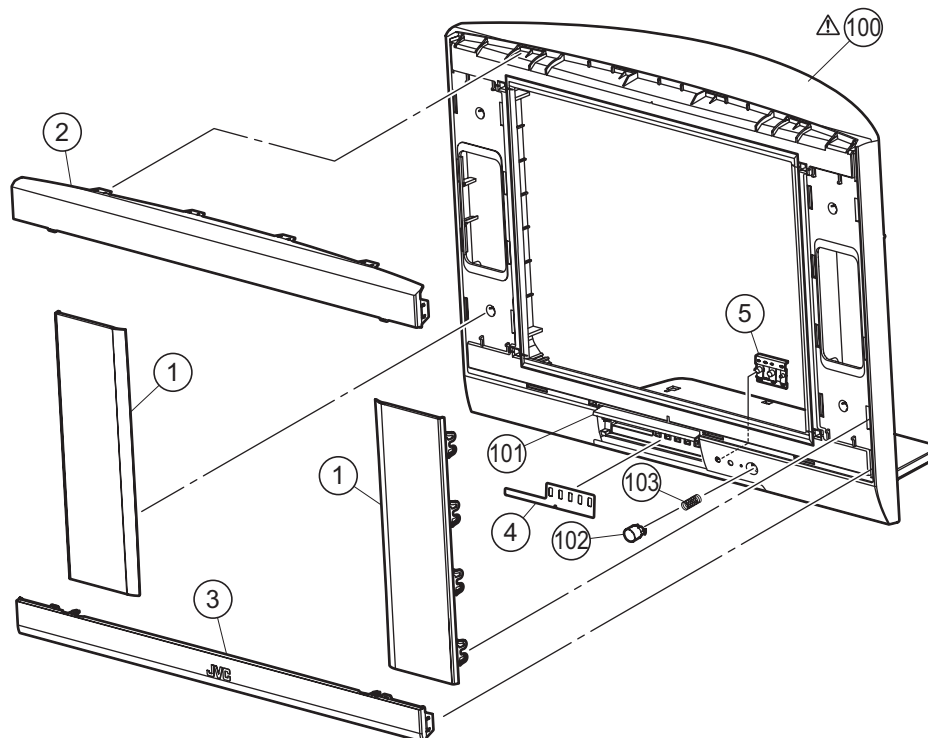
# USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y	AV-21MS30/N
MAIN P.W.B	SCW-1772A-H2
REMOTE CONTROL UNIT	RM-C1286-1H

## EXPLODED VIEW PARTS LIST -1

△ Ref.No.	Part No.	Part Name	Description	Local
1	GG10341-001B-H	SP PANEL	(x2)	
2	GG10340-001B-H	FRONT FRAME TOP		
3	GG10340-002B-H	FRONT FRAME BOT		
4	GG30117-001A-H	OPERATION SHEET		
5	GG30115-001B-H	LED LENS		
△ 100	GG10338-001C-H	FRONT CABINET ASS'Y	Inc. 101,102,103	
101	GG20082-001B-H	DOOR		
102	GG30114-001B-H	POWER KNOB		
103	CM35235-003-H	SPRING		

## EXPLODED VIEW -1

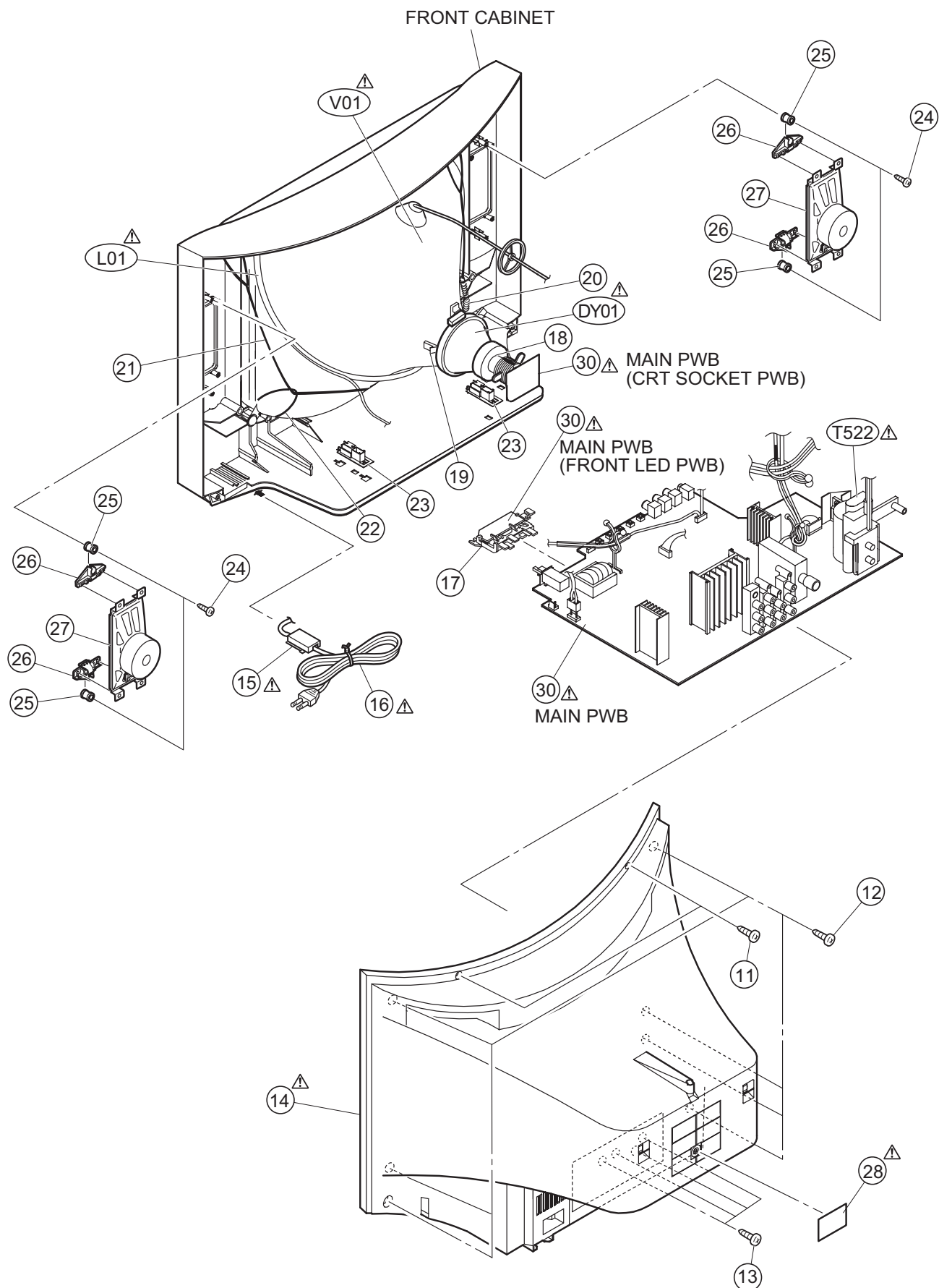


## EXPLODED VIEW PARTS LIST -2

△	Ref.No.	Part No.	Part Name	Description	Local
△	V01	A51QDX993X	PICTURE TUBE		
△	DY01	QQD0109-001	DEF YOKE		
△	L01	QQW0146-001	DEG COIL		
△	T522	QQH0188-001	FB TRANSF		
	11	QYSBSBG4016Z	TAP SCREW	M4 x 16mm(x2)	
	12	QYSBSFG4016ZA	TAP SCREW	M4 x 16mm(x7)	
	13	QYSBSF3010ZA	TAP SCREW	M3 x 10mm(x4)	
△	14	GG10187-218A-H	REAR COVER		
△	15	CM47005-A01-H	POWER CORD CLAMP		
△	16	QMPR340-165-K2	POWER CORD	1.65m BLACK	
	17	GG30119-001B-H	SUB PCB HOLDER		
	18	QAL0608-001	PC MAGNET		
	19	QAL0627-001	DY WEDGE	(x3)	
	20	A48457-3-H	SPRING		
	21	WJY0029-001A-E	BRAIDED ASS'Y		
	22	WJY0013-003A-E	BRAIDED SUB ASS'Y		
	23	CM36623-003-H	CHASSIS RAIL	(x2)	
	24	GG40046-001A-H	TAP SCREW	(x4)	
	25	LC40226-005A-H	SPACER	(x4)	
	26	GG20057-002A-H	SPEAKER HOLDER	(x4)	
	27	QAS0139-001	SPEAKER	(x2) SP01,SP02	
△	28	GG20024-001B-H	RATING LABEL		
△	30	SCW-1772A-H2	MAIN PWB		



# EXPLODED VIEW -2





# PRINTED WIRING BOARD PARTS LIST

## MAIN P.W. BOARD ASS'Y (SCW-1772A-H2)

△Ref No.	Part No.	Part Name	Description Local
IC302	S9648	PHOTO CONDUCTOR	
IC351	TDA6107AJF/N1	IC	
IC401	LA78040N	IC	
IC601	AN5277	IC	
IC701	TDA12021-ERCM1	IC(MCU)	(SERVICE)
IC702	AT24C16-21MS25	IC	(SERVICE)
IC801	RPM7238-H5	IR DETECT UNIT	
IC901	ICE1QS01	IC	
IC951	SE135N	IC	
IC972	BA33BC0T	REGULATOR IC	
IC973	PQ120RDA1SZ	IC	
IC975	PQ050RDA1SZ	IC	
Q101	2SC5397/CD/-T	TRANSISTOR	
Q102	UN2212-X	DIGI TRANSISTOR	
Q103	UN2212-X	DIGI TRANSISTOR	
Q341	2SA1530A/QR/-X	TRANSISTOR	
Q421	2SC3928A/QR/-X	TRANSISTOR	
Q422	2SC3928A/QR/-X	TRANSISTOR	
Q521	2SC2655/Y/-T	TRANSISTOR	
△Q522	TT2190LS-YB11	TRANSISTOR	
Q571	2SA1208/ST/Z1-T	TRANSISTOR	
Q572	UN2226-X	DIGI TRANSISTOR	
Q601	2SA1530A/QR/-X	TRANSISTOR	
Q602	2SA1530A/QR/-X	TRANSISTOR	
Q603	UN2226-X	DIGI TRANSISTOR	
Q605	UN2226-X	DIGI TRANSISTOR	
Q607	2SC3928A/QR/-X	TRANSISTOR	
Q608	2SC3928A/QR/-X	TRANSISTOR	
Q609	UN2226-X	DIGI TRANSISTOR	
Q611	UN2226-X	DIGI TRANSISTOR	
Q612	2SC3928A/QR/-X	TRANSISTOR	
Q704	2SC3928A/QR/-X	TRANSISTOR	
Q705	SSM3K02F-X	MOS FET	
Q706	SSM3K02F-X	MOS FET	
Q707	2SC3928A/QR/-X	TRANSISTOR	
Q708	2SA1530A/QR/-X	TRANSISTOR	
Q791	2SC3928A/QR/-X	TRANSISTOR	
Q801	KTA1267/YG/-T	TRANSISTOR	
Q803	UN2226-X	DIGI TRANSISTOR	
Q804	UN2226-X	DIGI TRANSISTOR	
Q805	2SA1530A/QR/-X	TRANSISTOR	
Q901	STP13NK60ZFP	POWER MOS FET	
Q955	2SC3928A/QR/-X	TRANSISTOR	
Q981	2SA562TM/Y/-T	TRANSISTOR	
Q982	2SC3928A/QR/-X	TRANSISTOR	
Q983	2SA562TM/Y/-T	TRANSISTOR	
Q984	2SC3928A/QR/-X	TRANSISTOR	
D101	1SS356-X	SI DIODE	
D102	1SS356-X	SI DIODE	
D103	NDC21HJ-560X	C CAPACITOR	56pF 50V J
D104	NDC21HJ-560X	C CAPACITOR	56pF 50V J
D341	MA111-X	SI DIODE	
D342	MA111-X	SI DIODE	
D343	MA111-X	SI DIODE	
D345	MA111-X	SI DIODE	
D350	MA8075/M/-X	Z DIODE	
D351	FR105SGT-T2	SI DIODE	
D354	FR105GT-T3	SI DIODE	
D355	FR105GT-T3	SI DIODE	
D356	FR105GT-T3	SI DIODE	
D423	1N4003SG-T2	SI DIODE	
D424	1SR35-400A-T2	SI DIODE	
D520	MA111-X	SI DIODE	
D521	ERB06-15-F1	SI DIODE	
D522	RU3AM-LFC4	SI DIODE	
D523	FR105GT-T3	SI DIODE	
D530	FR105GT-T3	SI DIODE	
D551	FR105GT-T3	SI DIODE	
D552	FR105GT-T3	SI DIODE	
D554	MA8051/L/-X	Z DIODE	
D571	MA8075/H/-X	Z DIODE	
D581	FR105GT-T3	SI DIODE	
D603	MA111-X	SI DIODE	
D607	MA111-X	SI DIODE	
D610	MA111-X	SI DIODE	
D701	MA111-X	SI DIODE	
D702	MA8091/H/-X	Z DIODE	
D703	MA8091/H/-X	Z DIODE	
D704	MA8091/H/-X	Z DIODE	
D706	MA8036-X	Z DIODE	

△Ref No.	Part No.	Part Name	Description Local
D707	MA111-X	SI DIODE	
D708	MA111-X	SI DIODE	
D709	MA111-X	SI DIODE	
D710	MA8091/H/-X	Z DIODE	
D711	MA111-X	SI DIODE	
D712	MA111-X	SI DIODE	
D713	MA8039/H/-X	Z DIODE	
D714	MA8030/H/-X	Z DIODE	
D751	MA8091/H/-X	Z DIODE	
D753	MA8091/H/-X	Z DIODE	
D808	LH22440-T16	LED	POWER(RED)
D810	MA8091/H/-X	Z DIODE	
D811	MA8091/H/-X	Z DIODE	
D812	MA8091/H/-X	Z DIODE	
D813	MA8091/H/-X	Z DIODE	
D814	MA8091/H/-X	Z DIODE	
D817	MA8091/H/-X	Z DIODE	
D901	GSIB460-S1	BRIDGE DIODE	
D921	FR105GT-T3	SI DIODE	
D924	1SR35-400A-T2	SI DIODE	
D925	1SR35-400A-T2	SI DIODE	
D926	MA8180/M/-X	Z DIODE	
D928	MA8180/M/-X	Z DIODE	
D950	MTZJ27B-T2	Z DIODE	
D951	RU4AM-LFT2	SI DIODE	
D952	FR105GT-T3	SI DIODE	
D953	FR105GT-T3	SI DIODE	
D955	FMX-G12S	SI DIODE	
D956	MA111-X	SI DIODE	
D957	MA111-X	SI DIODE	
D958	1SR35-400A-T2	SI DIODE	
D962	MA8330/M/-X	Z DIODE	
D970	MA8082/M/-X	Z DIODE	
D971	MA111-X	SI DIODE	
D972	MA111-X	SI DIODE	
D973	MA111-X	SI DIODE	
D975	MA111-X	SI DIODE	
D981	UDZS2.0B-X	Z DIODE	
D982	UDZS2.0B-X	Z DIODE	
C001	NCB31HK-103X	C CAPACITOR	0.01uF 50V K
C002	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C003	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C004	QETN1CM-477Z	E CAPACITOR	470uF 16V M
C005	NCB31HK-222X	C CAPACITOR	2200pF 50V K
C006	QETN1CM-336Z	E CAPACITOR	33uF 16V M
C101	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C102	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C103	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C104	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C105	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C106	NDC31HJ-180X	C CAPACITOR	18pF 50V J
C107	NCB31HK-103X	C CAPACITOR	0.01uF 50V K
C108	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C109	NCB31HK-472X	C CAPACITOR	4700pF 50V K
C110	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C111	QETN1CM-227Z	E CAPACITOR	220uF 16V M
C112	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C317	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C341	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C351	NDC31HJ-102X	C CAPACITOR	1000pF 50V J
C352	QETN2EM-475Z	E CAPACITOR	4.7uF 250V M
C353	QFKC2EK-104Z	MM CAPACITOR	0.1uF 250V K
C358	QCZ0364-222	C CAPACITOR	2200pF 2kV K
C422	QCS32HJ-180Z	C CAPACITOR	18pF 500V J
C423	NCB31HK-682X	C CAPACITOR	6800pF 50V K
C424	QFLC2AJ-683Z	M CAPACITOR	0.068uF 100V J
C427	QETM1VM-108	E CAPACITOR	1000uF 35V M
C428	QEHR1VM-227Z	E CAPACITOR	220uF 35V M
C430	QFLC2AJ-563Z	M CAPACITOR	0.056uF 100V J
C431	QFVF1HJ-184Z	MF CAPACITOR	0.18uF 50V J
C435	NCF21HZ-334X	C CAPACITOR	0.33uF 50V Z
C436	NCF21HZ-334X	C CAPACITOR	0.33uF 50V Z
C471	QETN1HM-226Z	E CAPACITOR	22uF 50V M
C520	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C521	QCB31HK-332Z	C CAPACITOR	3300pF 50V K
C522	QFLC1HJ-223Z	M CAPACITOR	0.022uF 50V J
C523	QETN1VM-476Z	E CAPACITOR	47uF 35V M
△C524	QFZ0196-202	MPP CAPACITOR	2000pF 1.5kV H
C525	QFZ0196-502	MPP CAPACITOR	5000pF 1.5kV H
C526	QFZ0196-152	MPP CAPACITOR	1500pF 1.5kV H
C528	QFP32GJ-563	PP CAPACITOR	0.056uF 400V J
C529	QENC2AM-225Z	BP E CAPACITOR	2.2uF 100V M
C530	QCB32HK-561Z	C CAPACITOR	560pF 500V K

△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
C532	QETN2EM-106Z	E CAPACITOR	10uF 250V M	C764	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C551	QCB32HK-561Z	C CAPACITOR	560pF 500V K	C765	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C552	QCB32HK-561Z	C CAPACITOR	560pF 500V K	C766	NCB31CK-224X	C CAPACITOR	0.22uF 16V K
C553	QEHR1EM-108Z	E CAPACITOR	1000uF 25V M	C767	NCB31CK-224X	C CAPACITOR	0.22uF 16V K
C554	QEHR1EM-108Z	E CAPACITOR	1000uF 25V M	C768	NCB31CK-224X	C CAPACITOR	0.22uF 16V K
C555	QFLC2AJ-103Z	M CAPACITOR	0.01uF 100V J	C770	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C571	QEZ0203-107	E CAPACITOR	100uF 160V M	C771	QETN1HM-226Z	E CAPACITOR	22uF 50V M
C572	QETN1CM-107Z	E CAPACITOR	100uF 16V M	C772	NCB31CK-224X	C CAPACITOR	0.22uF 16V K
C573	QETN1EM-476Z	E CAPACITOR	47uF 25V M	C773	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C581	QFVF1HJ-104Z	MF CAPACITOR	0.1uF 50V J	C775	NCB31CK-224X	C CAPACITOR	0.22uF 16V K
C582	QFZ0197-184	MPP CAPACITOR	0.18uF 250V J	C776	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C601	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C777	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C602	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C778	QETN1CM-476Z	E CAPACITOR	47uF 16V M
C603	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C779	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C604	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C780	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C605	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C781	NCB31CK-105X	C CAPACITOR	1uF 16V K
C606	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C782	NCB31CK-105X	C CAPACITOR	1uF 16V K
C607	QETN1CM-227Z	E CAPACITOR	220uF 16V M	C783	QETN1HM-105Z	E CAPACITOR	1uF 50V M
C608	QETN1CM-227Z	E CAPACITOR	220uF 16V M	C785	NCB30JK-225X	C CAPACITOR	2.2uF 6.3V K
C609	QETN1HM-336Z	E CAPACITOR	33uF 50V M	C790	NDC31HJ-270X	C CAPACITOR	27pF 50V J
C610	QETN1CM-227Z	E CAPACITOR	220uF 16V M	C792	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C613	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C793	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C615	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	C802	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C616	QETN1EM-108Z	E CAPACITOR	1000uF 25V M	C803	QETN1HM-106Z	E CAPACITOR	10uF 50V M
C656	QETN1HM-107Z	E CAPACITOR	100uF 50V M	C804	QETN1CM-477Z	E CAPACITOR	470uF 16V M
C661	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C806	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C662	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C807	NCB31CK-104X	C CAPACITOR	0.1uF 16V K
C701	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C821	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C702	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	C822	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C703	QETN1CM-477Z	E CAPACITOR	470uF 16V M	C823	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C704	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C824	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C705	NDC31HJ-7R0X	C CAPACITOR	7pF 50V J	C825	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C706	NDC31HJ-7R0X	C CAPACITOR	7pF 50V J	C826	NCB31HK-152X	C CAPACITOR	1500pF 50V K
C707	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	△C901	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
C708	QETN1CM-107Z	E CAPACITOR	100uF 16V M	△C902	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
C709	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	△C903	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
C710	NCB31HK-682X	C CAPACITOR	6800pF 50V K	△C904	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
C711	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	△C905	QCZ9015-102Z	C CAPACITOR	1000pF AC250V Z
C712	QFVF1HJ-224Z	MF CAPACITOR	0.22uF 50V J	C906	QEZO476-227	E CAPACITOR	220uF 400V H
C713	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C908	QRL029J-822	OMF RESISTOR	8.2kΩ 2W J
C714	NCB31HK-223X	C CAPACITOR	0.022uF 50V K	△C910	QFZ9072-224	MM CAPACITOR	0.22uF AC250V K
C715	NCB31HK-102X	C CAPACITOR	1000pF 50V K	C915	QCB32HK-103	C CAPACITOR	0.01uF 500V K
C716	NCB31HK-102X	C CAPACITOR	1000pF 50V K	C916	QCZO122-561	C CAPACITOR	560pF 2kV K
C718	QFVF1HJ-154Z	MF CAPACITOR	0.15uF 50V J	C921	QCZO122-391	C CAPACITOR	390pF 2kV K
C719	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	C922	NDC31HJ-820X	C CAPACITOR	82pF 50V J
C720	NCB31HK-102X	C CAPACITOR	1000pF 50V K	C923	NCB31HK-104X	C CAPACITOR	0.1uF 50V K
C723	NCB31CK-105X	C CAPACITOR	1uF 16V K	C924	NCB31HK-103X	C CAPACITOR	0.01uF 50V K
C724	NCB31CK-105X	C CAPACITOR	1uF 16V K	C927	QETN1HM-336Z	E CAPACITOR	33uF 50V M
C725	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C930	NDC31HJ-821X	C CAPACITOR	820pF 50V J
C726	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C952	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C727	NCB31HK-332X	C CAPACITOR	3300pF 50V K	C953	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C728	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C955	QCB32HK-471Z	C CAPACITOR	470pF 500V K
C729	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	C956	QEZO203-107	E CAPACITOR	100uF 160V M
C730	QETN1HM-226Z	E CAPACITOR	22uF 50V M	C958	QETN1EM-108Z	E CAPACITOR	1000uF 25V M
C731	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C960	QETM1VM-228	E CAPACITOR	2200uF 35V M
C732	QETN1HM-225Z	E CAPACITOR	2.2uF 50V M	C962	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
C733	QETN1HM-106Z	E CAPACITOR	10uF 50V M	C963	QCZO364-102	C CAPACITOR	1000pF 2kV K
C734	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C965	QETN1AM-228Z	E CAPACITOR	2200uF 10V M
C735	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C966	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C736	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	C967	QETN1CM-476Z	E CAPACITOR	47uF 16V M
C737	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C975	QETN1AM-228Z	E CAPACITOR	2200uF 10V M
C738	NCB31CK-105X	C CAPACITOR	1uF 16V K	C977	QETN1AM-477Z	E CAPACITOR	470uF 10V M
C739	NCB31CK-105X	C CAPACITOR	1uF 16V K	C979	QETN1EM-108Z	E CAPACITOR	1000uF 25V M
C740	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C980	QETN1CM-107Z	E CAPACITOR	100uF 16V M
C741	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C984	QETN1HM-336Z	E CAPACITOR	33uF 50V M
C742	QETN1HM-106Z	E CAPACITOR	10uF 50V M	△C991	QCZ9079-102	C CAPACITOR	1000pF AC250V M
C743	QETN1HM-106Z	E CAPACITOR	10uF 50V M	△C992	QCZ9079-102	C CAPACITOR	1000pF AC250V M
C744	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	△C993	QCZ9079-102	C CAPACITOR	1000pF AC250V M
C745	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C994	QETN1HM-335Z	E CAPACITOR	3.3uF 50V M
C746	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	C995	QETN1CM-477Z	E CAPACITOR	470uF 16V M
C747	QETN1HM-106Z	E CAPACITOR	10uF 50V M				
C748	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R001	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
C749	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R002	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
C750	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R003	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
C751	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R004	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J
C752	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R005	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
C753	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R101	NRSA63J-100X	MG RESISTOR	10Ω 1/16W J
C754	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R102	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J
C755	QETN1HM-106Z	E CAPACITOR	10uF 50V M	R103	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J
C756	NCB31HK-104X	C CAPACITOR	0.1uF 50V K	R104	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J
C757	NDC31HJ-561X	C CAPACITOR	560pF 50V J	R105	NRSA63J-220X	MG RESISTOR	22Ω 1/16W J
C758	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	R106	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
C759	QETN1CM-107Z	E CAPACITOR	100uF 16V M	R107	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
C760	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	R108	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
C761	NCB31CK-104X	C CAPACITOR	0.1uF 16V K	R109	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
C762	QETN1CM-107Z	E CAPACITOR	100uF 16V M	R110	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
C763	NCB31CK-224X	C CAPACITOR	0.22uF 16V K	R315	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J

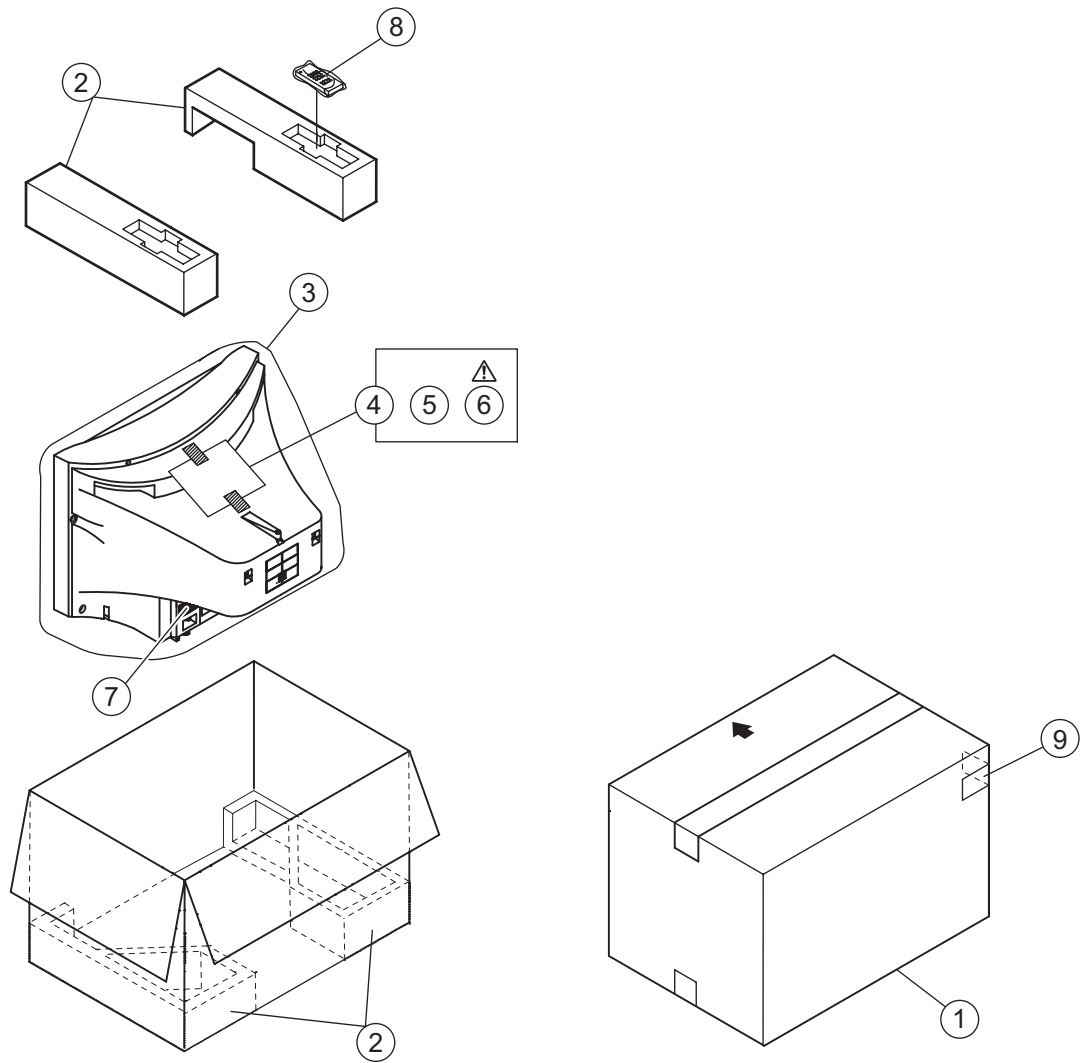
△Ref No.	Part No.	Part Name	Description Local	△Ref No.	Part No.	Part Name	Description Local
R316	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R707	NRSA63J-223X	MG RESISTOR	22kΩ 1/16W J
R317	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R708	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R324	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R709	NRSA63J-105X	MG RESISTOR	1MΩ 1/16W J
R325	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R711	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R327	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J	R712	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R328	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R713	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R344	NRSA63J-220X	MG RESISTOR	22Ω 1/16W J	R714	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R351	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	R715	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R352	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	R716	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R353	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	R717	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R354	NRSA63J-151X	MG RESISTOR	150Ω 1/16W J	R718	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R355	QRE121J-222Y	C RESISTOR	2.2kΩ 1/2W J	R719	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R356	QRE121J-222Y	C RESISTOR	2.2kΩ 1/2W J	R726	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J
R357	QRE121J-222Y	C RESISTOR	2.2kΩ 1/2W J	R727	NRSA63J-561X	MG RESISTOR	560Ω 1/16W J
R358	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K	R728	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R359	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K	R730	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R360	QRZ0107-152Z	C RESISTOR	1.5kΩ 1/2W K	R731	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R369	QRE121J-104Y	C RESISTOR	100kΩ 1/2W J	R732	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R411	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	R733	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R412	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	R734	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R421	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R735	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R422	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R736	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R426	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	R737	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R427	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	R738	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R430	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	R739	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R431	QRE121J-4R7Y	C RESISTOR	4.7Ω 1/2W J	R740	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R433	QRE121J-4R7Y	C RESISTOR	4.7Ω 1/2W J	R741	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R434	NRSA63J-682X	MG RESISTOR	6.8kΩ 1/16W J	R742	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R440	QRG01GJ-221	OMF RESISTOR	220Ω 1W J	R743	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R448	QRE121J-1R0Y	C RESISTOR	1Ω 1/2W J	R744	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R471	NRSA63J-274X	MG RESISTOR	270kΩ 1/16W J	R745	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R472	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R747	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R473	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J	R748	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J
R474	NRSA63J-224X	MG RESISTOR	220kΩ 1/16W J	R749	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R520	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	R750	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R521	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R751	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R522	QRE121J-220Y	C RESISTOR	22Ω 1/2W J	R752	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R523	QRL029J-271	OMF RESISTOR	270Ω 2W J	R753	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R524	QRL039J-470	OMF RESISTOR	47Ω 3W J	R754	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R527	QRL039J-393	OMF RESISTOR	39kΩ 3W J	R755	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R528	QRE121J-471Y	C RESISTOR	470Ω 1/2W J	R756	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
△R530	QRZ9017-4R7	FUSI RESISTOR	4.7Ω 1/4W J	R757	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
△R533	QRZ9017-4R7	FUSI RESISTOR	4.7Ω 1/4W J	R758	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R551	QRX029J-R47	MF RESISTOR	0.47Ω 2W J	R759	NRSA63J-332X	MG RESISTOR	3.3kΩ 1/16W J
R552	QRX029J-R47	MF RESISTOR	0.47Ω 2W J	R760	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R554	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	R761	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R569	QRZ0225-2R2	UNF RESISTOR	2.2Ω 7W K	R762	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R572	QRE121J-222Y	C RESISTOR	2.2kΩ 1/2W J	R763	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R573	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R764	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R574	QRE121J-183Y	C RESISTOR	18kΩ 1/2W J	R765	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R575	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	R768	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R581	QRE121J-822Y	C RESISTOR	8.2kΩ 1/2W J	R771	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R582	QRE121J-154Y	C RESISTOR	150kΩ 1/2W J	R772	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R583	QRE121J-124Y	C RESISTOR	120kΩ 1/2W J	R773	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R601	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R774	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R602	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R775	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J
R604	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R776	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J
R606	QRE121J-2R2Y	C RESISTOR	2.2Ω 1/2W J	R777	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R607	QRE121J-2R2Y	C RESISTOR	2.2Ω 1/2W J	R782	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J
R609	NRSA63J-273X	MG RESISTOR	27kΩ 1/16W J	R783	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J
R610	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	R785	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R611	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R786	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R612	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	R787	NRSA63J-472X	MG RESISTOR	4.7kΩ 1/16W J
R614	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J	R788	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R618	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R790	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J
R620	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R792	QRE121J-330Y	C RESISTOR	33Ω 1/2W J
R621	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J	R793	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J
R622	NRSA63J-103X	MG RESISTOR	10kΩ 1/16W J	R794	NRSA63J-222X	MG RESISTOR	2.2kΩ 1/16W J
R623	NRSA63J-333X	MG RESISTOR	33kΩ 1/16W J	R795	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R624	NRSA63J-683X	MG RESISTOR	68kΩ 1/16W J	R801	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R626	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R802	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R629	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R803	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R630	QRE121J-271Y	C RESISTOR	270Ω 1/2W J	R804	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R631	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R805	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R632	QRE121J-271Y	C RESISTOR	270Ω 1/2W J	R806	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R633	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R807	QRE121J-101Y	C RESISTOR	100Ω 1/2W J
R634	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R809	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J
R636	NRSA63J-0R0X	MG RESISTOR	0Ω 1/16W J	R810	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R637	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	R811	NRSA63J-823X	MG RESISTOR	82kΩ 1/16W J
R639	NRSA63J-562X	MG RESISTOR	5.6kΩ 1/16W J	R812	NRSA63J-391X	MG RESISTOR	390Ω 1/16W J
R640	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R813	NRSA63J-823X	MG RESISTOR	82kΩ 1/16W J
R649	NRSA63J-102X	MG RESISTOR	1kΩ 1/16W J	R814	NRSA63J-104X	MG RESISTOR	100kΩ 1/16W J
R701	NRSA63J-123X	MG RESISTOR	12kΩ 1/16W J	R815	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R703	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	R816	NRSA63J-750X	MG RESISTOR	75Ω 1/16W J
R704	NRSA63J-101X	MG RESISTOR	100Ω 1/16W J	R818	NRSA63J-181X	MG RESISTOR	180Ω 1/16W J
R705	NRSA63J-393X	MG RESISTOR	39kΩ 1/16W J	R819	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J
R706	NRSA63J-221X	MG RESISTOR	220Ω 1/16W J	R820	NRSA63J-331X	MG RESISTOR	330Ω 1/16W J

△Ref No.	Part No.	Part Name	Description	Local	△Ref No.	Part No.	Part Name	Description	Local
R821	NRSA63J-471X	MG RESISTOR	470Ω	1/16W J	K953	QQR1113-001Z	FERRITE BEADS		
R822	NRSA63J-102X	MG RESISTOR	1kΩ	1/16W J	K955	QQR1113-001Z	FERRITE BEADS		
R823	QRE121J-470Y	C RESISTOR	47Ω	1/2W J	LC801	QQR1199-002	EMI FILTER		
R824	NRSA63J-471X	MG RESISTOR	470Ω	1/16W J	LC802	QQR1199-002	EMI FILTER		
R901	QRF154K-2R2	UNF WW RESISTOR	2.2Ω	15W K	LC803	QQR1199-002	EMI FILTER		
R907	QRL029J-123	OMF RESISTOR	12kΩ	2W J	LC804	QQR1199-002	EMI FILTER		
R922	QRL039J-473	OMF RESISTOR	47kΩ	3W J	LC805	QQR1199-002	EMI FILTER		
R923	NRSA63J-820X	MG RESISTOR	82Ω	1/16W J	△LF901	QQR0673-004	LINE FILTER		
R924	QRE121J-224Y	C RESISTOR	220kΩ	1/2W J	△LF902	QQR1635-001	LINE FILTER		
R925	QRE121J-274Y	C RESISTOR	270kΩ	1/2W J	△RY901	QSK0061-002	RELAY		
R927	NRSA63J-470X	MG RESISTOR	47Ω	1/16W J	S801	QSW0619-003Z	TACT SWITCH		MENU
R930	NRSA63J-183X	MG RESISTOR	18kΩ	1/16W J	S802	QSW0619-003Z	TACT SWITCH		CH-
R931	NRSA63J-563X	MG RESISTOR	56kΩ	1/16W J	S803	QSW0619-003Z	TACT SWITCH		CH+
R933	NRSA63J-221X	MG RESISTOR	220Ω	1/16W J	S804	QSW0619-003Z	TACT SWITCH		VOL-
R934	NRSA63J-334X	MG RESISTOR	330kΩ	1/16W J	S805	QSW0619-003Z	TACT SWITCH		VOL+
R935	NRSA63J-333X	MG RESISTOR	33kΩ	1/16W J	△S901	QSW0750-001	PUSH SWITCH		POWER
△R936	QRZ9017-2R2	FUSI RESISTOR	2.2Ω	1/4W J	SF101	QAX0872-001	SAW FILTER		
R951	QRE121J-822Y	C RESISTOR	8.2kΩ	1/2W J	SF102	QAX0731-001	SAW FILTER		
R952	NRSA63J-222X	MG RESISTOR	2.2kΩ	1/16W J	△SK351	QNZ0536-001	CRT SOCKET		
R961	NRSA63J-182X	MG RESISTOR	1.8kΩ	1/16W J	△TH901	QAD0134-4R5	P THERMISTOR		4.5Ω
R962	QRL029J-223	OMF RESISTOR	22kΩ	2W J	TU001	QAU0383-002	TUNER		
R963	NRSA63J-223X	MG RESISTOR	22kΩ	1/16W J	△VA901	QAF0060-621	VARISTOR		620V
R964	NRSA63J-223X	MG RESISTOR	22kΩ	1/16W J	X701	QAX0799-001Z	CRYSTAL		
R965	QRT029J-1R2	MF RESISTOR	1.2Ω	2W J		GG30118-001A-H	LED HOLDER		
R970	QRE121J-182Y	C RESISTOR	1.8kΩ	1/2W J		GG30138-001A-H	EE HOLDER		
R976	NRSA63J-102X	MG RESISTOR	1kΩ	1/16W J					
R977	QRL039J-120	OMF RESISTOR	12Ω	3W J					
R978	NRSA63J-102X	MG RESISTOR	1kΩ	1/16W J					
R981	QRE121J-3R9Y	C RESISTOR	3.9Ω	1/2W J					
R982	NRSA63J-473X	MG RESISTOR	47kΩ	1/16W J					
R983	QRE121J-3R9Y	C RESISTOR	3.9Ω	1/2W J					
R984	NRSA63J-473X	MG RESISTOR	47kΩ	1/16W J					
R985	NRSA63J-472X	MG RESISTOR	4.7kΩ	1/16W J					
R986	NRSA63J-472X	MG RESISTOR	4.7kΩ	1/16W J					
△R991	QRZ9046-825Z	C RESISTOR	8.2MΩ	1/2W K					
L002	QQL244J-4R7Z	PEAKING COIL		4.7uH J					
L003	QQL244J-4R7Z	PEAKING COIL		4.7uH J					
L101	QQL244K-1R0Z	PEAKING COIL		1uH K					
L351	QQL244J-220Z	COIL		22uH J					
L522	QQR1005-004	LINEARITY COIL							
L530	QQL244K-220Z	PEAKING COIL		22uH K					
L551	QQLZ026-240	COIL		24uH ±7%					
L701	NQR0199-004X	FERRITE BEADS							
L702	NQR0199-004X	FERRITE BEADS							
L703	NQR0199-004X	FERRITE BEADS							
L704	NQR0199-004X	FERRITE BEADS							
L705	NQR0199-004X	FERRITE BEADS							
L706	NQR0199-004X	FERRITE BEADS							
L707	NQR0199-004X	FERRITE BEADS							
L708	NQR0199-004X	FERRITE BEADS							
L709	NQR0199-004X	FERRITE BEADS							
L710	NQR0199-004X	FERRITE BEADS							
L711	NQR0199-004X	FERRITE BEADS							
L712	NQR0199-004X	FERRITE BEADS							
L713	NQR0199-004X	FERRITE BEADS							
L714	NRSA02J-0R0X	MG RESISTOR		0Ω 1/10W J					
L715	NQR0199-004X	FERRITE BEADS							
L716	NQR0199-004X	FERRITE BEADS							
L717	NQR0199-004X	FERRITE BEADS							
L718	NQR0199-004X	FERRITE BEADS							
L951	QQLZ026-460	COIL		46uH ±7%					
T521	QQR1522-001	DRIVE TRANSF							
△T921	QQS0345-001	SW TRANSF							
△PC901	PS2581AL1/QW/	PHOTO COUPLER							
△CP650	ICP-N25-T	IC PROTECTOR		1.0A					
△CP952	ICP-N38-T	IC PROTECTOR		1.5A					
△CP953	ICP-N38-T	IC PROTECTOR		1.5A					
△CP955	ICP-N75-T	IC PROTECTOR		2.7A					
△F901	QMF51E2-4R0-S	FUSE		4A AC250V					
J801	QNZ0454-002	PIN JACK		VIDEO-1 IN					
J802	QNN0349-002	PIN JACK		VIDEO-2 COMP IN					
J803	QNN0348-001	PIN JACK		VIDEO-2 L/R IN					
J804	QNN0349-001	PIN JACK		OUTPUT					
J806	QNN0281-003	PIN JACK		VIDEO-3 V IN					
J807	QNN0281-002	PIN JACK		VIDEO-3 L IN					
J808	QNN0282-001	PIN JACK		VIDEO-3 R IN					
J809	QNS0155-001	3.5 JACK		HEADPHONE					
K101	QQR1114-001Z	FERRITE BEADS							
K103	QQR1114-001Z	FERRITE BEADS							
K104	QQR1114-001Z	FERRITE BEADS							
K356	QQR0601-001Z	COIL							
K901	QQR1114-001Z	FERRITE BEADS							
K951	QQR1114-001Z	FERRITE BEADS							
K952	QQR1113-001Z	FERRITE BEADS							

# PREMOTE CONTROL UNIT PARTS LIST (RM-C1286-1H)

⚠ Ref No.	Part No.	Part Name	Description	Local
	R25-8566	BATTERY COVER		

## PACKING



## PACKING PARTS LIST

⚠ Ref.No.	Part No.	Part Name	Description	Local
1	GG10285-002A-H	PACKING CASE		
2	GG10342-001B-H	CUSHION ASS'Y	4pcs in 1set	
3	GG30097-003A-H	POLY BAG		
4	GG30096-001A-H	POLY BAG		
5	-----	BATTERY	AA/R6 (x2)	
⚠ 6	GGT0097-001A-H	INST BOOK		
7	GG40042-001A-H	CORD CLAMP R/C		
8	RM-C1286-1H	REMOCON UNIT		
9	GG20025-005A-H	CORNER LABEL		