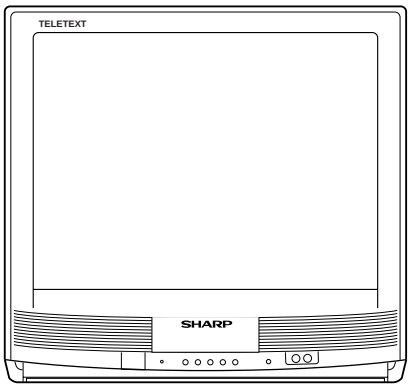
SHARP SERVICE MANUAL

S69J6CX51TXZ/



COLOUR TELEVISION

Chassis No. SP-80

MODEL CX51TXZ

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

FEATURE

- World Multi 21 Systems
- Full Auto Channel Preset and Auto Channel Skip
- 100 CH Program Memory
- CATV (Hyper Band) Ready
  〈Used Frequency Synthesizer Tuner〉
- Aperture Control Circuit
- Black Stretch Circuit
- Arabic/Chinese/English/French/Malay
  5 Language OSD
- On Timer/Sleep Timer/Reminder Timer
- Blue Back Noise Mute
- White Temp Adjustment
- Auto Picture Noise Reduction (TV)
- Front AV In & Rear AV In/Out Terminals
- NTSC Colour-Comb Filter
- Favorite Channel Function
- One Page Text (English)

CONTENTS

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis. To prevent electric shock, do not remove cover. No user – serviceable parts inside. Refer servicing to qualified service personnel.

SHARP CORPORATION

SPECIFICATIONS

Convergence	Self Converging System
Focus	Quadra-Potential Electrostatic
Sweep Deflection	Magnetic
Intermediate Frequencies	
Picture IF Carrier	38.9 MHz
Sound IF Carrier Frequency	
6.5 MHz	32.4 MHz
6.0 MHz	32.9 MHz
5.5 MHz	33.4 MHz
4.5 MHz	34.4 MHz
Colour Sub-Carrier Frequency	34.47 MHz
Power Input	110 - 240V AC 50/60 Hz
Power Consumption	81 W
Audio Power Output Rating	3.0 W (at Max.)
Speaker	
Size	5 × 9 cm (1 pc)
Voice Coil Impedance	16 ohms at 400 Hz
Aerial Input Impedance	
VHF/UHF	75 ohm Unbalanced
Receiving System	CCiR SECAM/PAL B, G, D, K, I NTSC 3.58/4.43 MHz

Receiving Channels

PAL-B/G, SECAM-B/G				
VHF		AU0	thru	AU12 ch
		NZ1	thru	NZ11 ch
		E2	thru	E12 ch
UHF		E21	thru	E69 ch
PAL-D/K, SECAM-D/K				
VHF		C1	thru	C12 ch
		R1	thru	R12 ch
UHF		C13	thru	C57 ch
		R21	thru	R69 ch
PAL-I				
VHF		B	thru	J ch
UHF	(H.K):	21	thru	69 ch
NTSC				
VHF	(US):	2	thru	13 ch
	(JAPAN):	1	thru	12 ch
UHF	(US):	14	thru	69 ch
	(JAPAN):	13	thru	62 ch
CATV		S1	thru	S20 ch
		S21	thru	S41 ch (Hyper)

Receiving Frequency

VHF	44.25	thru	463.25 MHz
UHF	471.25	thru	863.25 MHz

Dimensions	Width: 500 mm Height: 474 mm Depth: 475 mm Weight (approx.): 19.4 kg
Cabinet Material	All Plastics

Specifications are subject to change without prior notice.

IMPORTANT SERVICE NOTES

Maintenance and repair of this receiver should be done by qualified service personnel only.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10k ohm Resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord should be disconnected from AC outlet.)

1. **Picture tube in this receiver employs integral implosion protection.**
2. **Replace with tube of the same type number for continued safety.**
3. **Do not lift picture tube by the neck.**
4. **Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.**

X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed:

1. **When repairing the circuit, be sure not to increase the high voltage to more than 29.0 kV (at beam 0 µA) for the set.**
2. **To keep the set in a normal operation, be sure to make it function on 24.8 ± 1.5 kV (at beam 1,100 µA) in the case of the set. The set has been factory – Adjusted to the above-mentioned high voltage.**
   ∴ If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
3. **Do not substitute a picture tube with unauthorized types and/or brands which may cause excess X-ray radiation.**

BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety checks.

1. **Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.**
2. **Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.**

ADJUSTMENT PRECAUTION

This model's setting are adjusted in two different ways: though the I²C bus control and in the conventional analog manner. The adjustments via the I²C bus control include preset-only items and variable data.

1. Setting the service mode by the microprocessor.

① Short TP1001 and TP1002 to switch to the service mode position, and the microprocessor is in input mode. (Adjustment through the I²C bus control). (Use JWS Key to set as well).
② Press the CH DOWN / UP key on the remote controller to get ready to select the mode one by one.
③ Press the CH DOWN / UP key on the remote controller to select the modes reversibly one by one.
④ Using the VOLUME UP/ DOWN key on the remote controller, the data can be modified.
⑤ Disconnect TP1001 and TP1002 to switch to the normal mode (OFF) position and the microprocessor is in out of the service mode.

2. Factory Presetting.

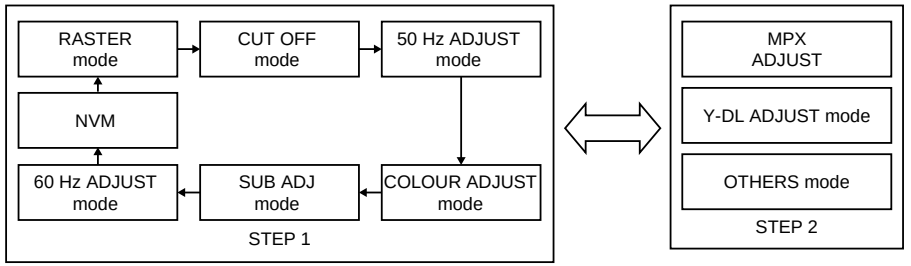
① Short TP1001 & TP1002 to switch to the service mode position and turn on the main power switch. Initial values are automatically preset, only when a new EEPROM is used (Judge with the first 4 bytes).
② The initial data are preset as listed in pages 4-6.
③ Make sure the data need modify or not (Initial data).

Note: Once the chassis has been assembly together and ready to be POWER ON for the FIRST TIME, make sure to short TP1001 and TP1002 to switch to the service mode position first and then turn on the main power switch. (See 2-① above).
Precaution: If haven't done this initiation, it may possibly generate excessive Beam current.

3. For reference please check with memory map (21SN Series type RH-IX3135CE Attachment)

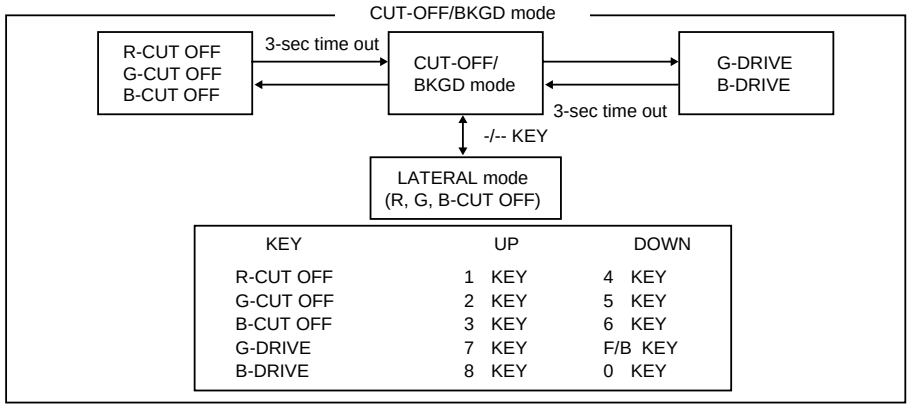
■ SERVICE MODE

(1) In the Service Mode, Key is used to select the mode in the following order.



FORWARD : CH DOWN key
REVERSE : CH UP key

MPX / STEP 2 SWITCH TO STEP 1 : LANG KEY (2 Sec)



KEY	UP	DOWN
R-CUT OFF	1 KEY	4 KEY
G-CUT OFF	2 KEY	5 KEY
B-CUT OFF	3 KEY	6 KEY
G-DRIVE	7 KEY	F/B KEY
B-DRIVE	8 KEY	0 KEY

50 Hz ADJUST mode

V-AMP 50 Hz (V-AMP50)
↓
V-LINE 50 Hz (V-LINE50)
↓
S-CORRECT 50 Hz (V S-CORR50)
↓
V-PHASE 50 Hz (V-CENTER50)
↓
H-PHASE 50 Hz (H-CENTER50)

FORWARD : CH DOWN key
REVERSE : CH UP key
* ( ) means OSD display.

COLOUR ADJUST mode

SECAM R-Y (R-Y)
↓
SECAM B-Y (B-Y)

4

SUB ADJUST mode
↓
SUB BRIGHT (SUB BRI)
↓
SUB COLOUR (SUB COL)
↓
SUB TINT (SUB TINT)

60 Hz ADJUST mode
↓
V-AMP 60 Hz (V-AMP60)
↓
V-LINE 60 Hz (V-LINE60)
↓
V S-CORRECT 60Hz (V S-CORR60)
↓
V-PHASE 60 Hz (V-CENTER60)
↓
H-PHASE 60 Hz (H-CENTER60)

FORWARD : CH DOWN key
REVERSE : CH UP key

* ( ) means OSD display.

Following MODES (STEP 2) can be switched by pressing LANG key (2 sec).

Press LANG Key for switch back STEP 1.

The data of STEP 2 is fixed, do not change without specific indication.

STEP 2

AGC SW (AGC)
↓
AGC GAIN (GAIN)
↓
WHITE TEMP (W.T.)
↓
FM LEVEL (FM LV)
↓
IGR LEVEL (IGR LV)
↓
NICAM B/G LEVEL(B/G LV)
↓
NICAM I LEVEL (I LV)
↓
NICAM D/K LEVEL(D/K LV)
↓
IGR GAIN (IGR)
↓
LOWER ERROR (LOW ERR)
↓
UPPER ERROR (UP ERR)
↓
INTERNAL/EXTERNAL FM (FM)
↓
AUTO MUTE (AM) →
IC SELECTION (IC)
↑
Y-DELAY PAL (DT PAL BG)
↑
Y-DELAY PAL (DT PAL IDK)
↑
Y-DELAY SECAM (DT SECAM BG)
↑
Y-DELAY SECAM (DT SECAM IDK)
↑
Y-DELAY NTSC (DT NTSC M)
↑
BASS SW (BASS SW)
↑
BASS LEVEL (BASS LEVEL)
↑
AGC SW (AGC SW)
↑
AGC LEVEL (AGC LEVEL)
↑
SEARCH SPEED (SEARCH)
↑
V-BLK START (V-BLK ST50)
↑
V-BLK STOP (V-BLK SP50)
↑
SUB CONTRAST (SUB CONT) →
SUB SHARPNESS (SUB SHARP)
↓
Y SUB CONTRAST (Y SUB CONT)
↓
V-BLK START (V-BLK ST60)
↓
V-BLK STOP (V-BLK SP60)
↓
COLOUR PAL PARAMETER (COL PAL)
↓
COLOUR SECAM PARAMETER (COL SECAM)
↓
COLOUR NTSC PARAMETER (COL NTSC)
↓
N358 SHARPNESS (SHARP N358)
↓
AV TINT PARAMETER (AV TINT)
↓
AV SHARPNESS PARAMETER(AV SHARP)
↓
ANR COLOUR STEP1 (ANR COL1)
↓
ANR COLOUR STEP2 (ANR COL2)
↓
ANR SHARPNESS STEP1 (ANR SHARP1)
↓
ANR SHARPNESS STEP2 (ANR SHARP2)

OPTION INITIAL SETTING

Use the two ports of Micro for OPTION setting.

PIN 31	PIN14	NICAM			AV	FAV. CH	BIL	C-SYS	S-SYS	AUTO SELECT	MODEL
		B/G	I	D/K							
L	L	ON	OFF	OFF	2	ON	OFF	PSN	ON	OFF	SN5
H	L	OFF	ON	OFF	2	OFF	OFF	PSN	ON	OFF	SN8
L	H	ON	ON	ON	2	OFF	OFF	PSN	ON	OFF	SN9
H	H	READ OUT EEPROM									
INITIAL EEP		ON	OFF	OFF	2	ON	ON	P	OFF	OFF	FREE

While Pins (31), (14) of Micro are at H/H status in service mode, MENU Key can be used for setting data.
Check OSD display the model name, after the factory initial setting at CH1.
(A3HE51TXZ: Please confirm “SN5”, but no NICAM and IGR.)

USER DATA IN SERVICE MODE

* While SERVICE mode ON, EEPROM DATA will switch to the service data.
  Also, once SERVICE mode OFF, EEPROM will switch back to previous USER DATA.
* In the service mode, the user data establish as below,

MODE	USER DATA
CONTRAST	MAX (64/64)
COLOUR	CENT (32/64)
BRIGHTNESS	CENT (32/64)
TINT	CENT (32/64)
SHARPNESS	CENT (32/64)
WHITE TEMP	CENT (32/64)
S-VOLUME	MIN (1/64)
BLUE BACK	OFF
C SYSTEM	AUTO
S SYSTEM	*1

*1 : For each CH, before changing service mode setting.

The flow of Mode lists as following,

* Direct Key-in Step1 Mode

MODE	KEY-IN KEY
H-CENTER*	PICTURE
V-CENTER*	TEXT
V-AMP*	INDEX
V S CORR*	RED
V-LINE*	GREEN
SUB COLOUR	TIMED PAGE
SUB BRIGHT	SIZE
SUB TINT	HOLD
R-Y	YELLOW
B-Y	CYAN

* Depend on reception signal 50/60 Hz.

Direct Key-in STEP 2 Mode

MODE	KEY-IN KEY
SEARCH SPEED	REVEAL
COLOUR PAL	RESET

* After short TP1001 & TP1002, and turn on the MAIN Power Switch, read data from EEPROM Address 00H~03H, and compare to the list below, if different, initialize the EEPROM.

Address		Data	Address		Data
00H	:	23H	02H	:	13H
01H	:	21H	03H	:	85H

EEPROM item (OSD Display)	Data length	Initial data	Remarks
(00H)	————	23H	
(01H)	————	21H	
(02H)	————	13H	
(03H)	————	85H	
R CUT OFF	0 ~ 255	0	
G CUT OFF	0 ~ 255	0	
B CUT OFF	0 ~ 255	0	
G DRIVE	0 ~ 255	127	
B DRIVE	0 ~ 255	127	
50Hz V-AMP	0 ~ 127	58	+1 *1
50Hz V-LINEARITY	0 ~ 31	16	–2 *1
50Hz S CORRECTION	0 ~ 127	67	+7 *1 *2
50Hz V-PHASE	0 ~ 7	5	–3 *1
50Hz H-PHASE	0 ~ 31	7	+5 *1
60Hz V-AMP	0 ~ 127	59	
60Hz V-LINEARITY	0 ~ 31	14	
60Hz S CORRECTION	0 ~ 127	74	*2
60Hz V-PHASE	0 ~ 5	2	
60Hz H-PHASE	0 ~ 31	12	
SECAM R-Y	0 ~ 15	10	
SECAM B-Y	0 ~ 15	6	
SUB-BRIGHT	0 ~ 255	127	
SUB-COLOUR	0 ~ 255	110	
SUB-TINT	0 ~ 127	70	
AFT/SKIP	0 ~ 1	ON/OFF	
C-SYSTEM	0 ~ 1	AUTO	
S-SYSTEM	————	B/G	
NVM	**When finish adjustments, DATA from 00H~03H differ from INITIAL DATA. Precaution, Once AC Power ON, all DATA will be initiated.**		

*1 : While 50 Hz mode has been adjusted, 60Hz mode's data automatically will be input. (But, while 60Hz mode has been adjusted, 50Hz mode's data won't be updated.)
*2 : Fixed DATA, do not change without specific indication.

STEP 2 IN SERVICE MODE
(Press LANG Key 2 seconds to switch from STEP 1)

Fixed DATA, do not change with out specific indication.

EEPROM item (OSD Display)	Data adjustable range	Data initial value	Remarks
AGC SW		ON	
AGC GAIN		0	
WT		HI (LO*)	
FM LEVEL		0dB	
IGR LEVEL		+2dB	
NICAM B/G LEVEL		–1dB	
NICAM I LEVEL		+4dB	
NICAM D/K LEVEL		–1dB	
LOWER ERROR		35	
UPPER ERROR		70	
IGR GAIN (TDA9873H)		0	
INTERNAL/EXTERNAL FM		INTERNAL	
AUTO MUTE		ON	
IC SELECT		PH	
Y-DELAY PAL B/G		2	
Y-DELAY PAL IDK		2	
Y-DELAY SECAM BG		4	
Y-DELAY SECAM IDK		4	
Y-DELAY NTSC M		2	
BASS SW		OFF	
BASS LEVEL		0	
AGC SW		ON	
AGC LEVEL		3	
SEARCH SPEED		550	
V-BLK ST50	0 ~ 63	63	
V-BLK SP50	0 ~ 127	25	
SUB CONTRAST	0 ~ 255	255	
SUB SHARPNESS	0 ~ 63	28	
Y SUB CONTRAST	0 ~ 31	18	
V-BLK ST60	0 ~ 63	63	
V-BLK SP60	0 ~ 127	20	
COLOUR PAL PARAMETER		+20	
COLOUR SECAM PARAMETER		+10	
COLOUR NTSC PARAMETER		+20	
N358 SHARPNESS		+10	
AV TINT PARAMETER		+3	
AV SHARPNESS PARAMETER		0	
ANR COLOUR STEP1		5	
ANR COLOUR STEP2		10	
ANR SHARPNESS STEP1		7	
ANR SHARPNESS STEP2		12	

EEPROM ITEMS' OSD DISPLAY	JUDGE → WT
INITIAL DATA	LOW → Hi

* "WT" (WHITE TEMP. LIMIT) follows Pin (29) of IC1001

WT	Pin (29) of IC1001	OSD
HI	L	5

INITIAL SETTING

(1) In service mode, After execute select POS 1, setting the following data in EEPROM.

MCL1			MCL2		
CH-NO	Fv (MHz)	Sound SYS	CH-NO	Fv (MHz)	Sound SYS
1	48.25	B/G	1	46.25	B/G
2	62.25	B/G	2	64.25	B/G
3	77.25	D/K	3	86.25	B/G
4	175.25	B/G	4	95.25	B/G
5	182.25	B/G	5	138.25	B/G
6	183.25	D/K	6	175.25	B/G
7	191.25	D/K	7	182.25	B/G
8	196.25	B/G	8	189.25	B/G
9	199.25	M	9	196.25	B/G
10	210.25	B/G	10	209.25	B/G
11	224.25	B/G	11	216.25	B/G
12	471.25	B/G	12		
13	487.25	I	13		
14	503.25	B/G	14		
15	575.25	B/G	15		
16	583.25	B/G	16		
17	599.25	B/G	17		
18	621.25	M	18	527.25	B/G
19	639.25	D/K	19	847.25	B/G
20	703.25	B/G	20	48.25	B/G
21	735.25	I	21	175.25	B/G
22	767.25	B/G	22	210.25	B/G
23	815.25	B/G	23	224.25	B/G
24	855.25	I	24	575.25	B/G
25	855.25	B/G	25	599.25	B/G
26	55.25	M	26	767.25	B/G
27	83.25	M	27	183.25	M
28	183.25	M	28	193.25	M
29	193.25	M	29	112.25	B/G
30	217.25	M	30	168.25	B/G
31	471.25	M	31		
32	477.25	M	32	294.25	B/G
33	693.25	M	33	463.25	B/G
34	885.25	M	34	174.25	B/G
35	112.25	B/G	35	175.25	B/G
36	168.25	B/G	36		
37			37		
38	294.25	B/G	38		
39	463.25	B/G	39		
40			38		
41	647.25	B/G	41		
42	663.25	B/G	42		
43	679.25	B/G	43		
44	174.95	B/G	44		
45	175.55	B/G	45		

SHIPPING SETTING AND CHECKING

(1) Just before pack the set, input setting, according to factory Initial setting 1~6 in EEPROM as below.

Items	Data Setting
SKIP	OFF
AFT	ON
C-SYSTEM	AUTO
S-SYSTEM	*1
LAST POWER	ON
LAST TV/AV	TV
DIGIT	1DIG
LANGUAGE	*1
BLUE BACK	ON
LAST POS	1
LAST FB POS	1
VOLUME	MIN
CONTRAST	MAX
COLOUR	CENT
BRIGHTNESS	CENT
TINT	CENT
SHARPNESS	CENT
WHITE TEMP	CENT
BASS/TRE/BAL	CENT
SPATIALIZER	OFF
SPAT. LEVEL	CENT
P-NR	AUTO(TV)/OFF (AV)

*1: Refer to M/M.
S-SYSTEM and LANGUAGE can be set to factory initial setting 1~6 at all CH.

FACTORY INITIAL SETTING	LANGUAGE	S- SYSTEM
1	CHINESE	D/K
2	CHINESE	I
3	ENGLISH	B/G
4	ARABIC	B/G
5	RUSSIAN	D/K
6	MALAY	B/G

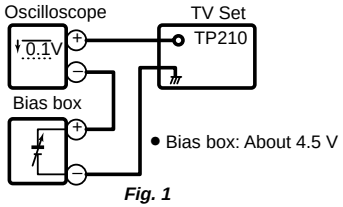
(2) Check OSD display the model name, after the factory initial setting at CH1.

MODEL	OSD
A3HE21SN5C	SN5
A3HE51TXZ	

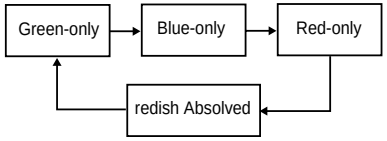
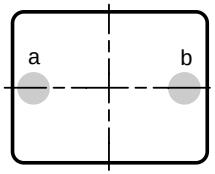
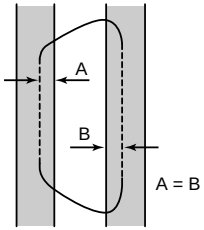
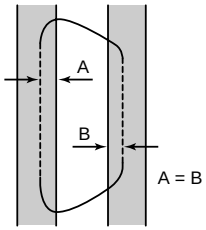
MODEL CLASSIFIED FACTORY SETTING/MAGNETIC FILED (REFERENCE)

MODEL	Magnetic Field (H,V) nT	Background	Lang.	S-SYS	Lang. QTY
Z	20,000 –50,000	12300K	ENGLISH	B/G	5

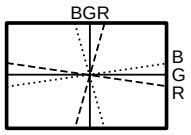
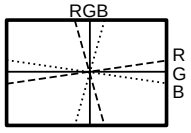
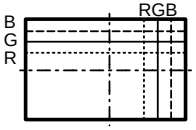
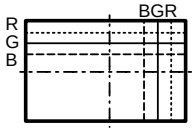
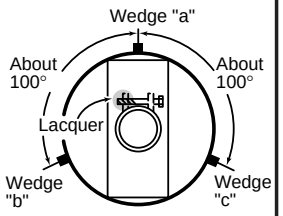
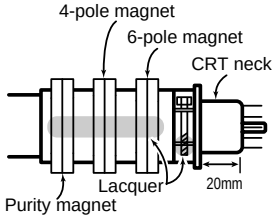
PIF ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**RF-AGC check cut in adjustment (PRE SETTED)**	1. Receive “PAL COLOUR BAR” signal. ● Signal Strength: 54 ± 1 dBµV (75 ohm open) 2. Connect the oscilloscope to TP210 (Tuner’s AGC Terminal) as shown in ***Fig. 1***.  ***Fig. 1*** 3. Drop Input Signal strength to 51 ±1 dBµV (75 ohm open). 4. Under 1. and 3. conditions, the output voltage should be no change or below +0.1 V. In addition, change input signal strength to 57 ±2 dBµV, the output voltage should be no less than -0.1 V. 5. Change the antenna input signal to 63~67 dBµV, and make sure there is no noise. 6. Turn up the input signal to 90~95 dBµV to be sure that there is no cross modulation beat.	**Note: For the 50 ohm signal strength gauge, when not using 50/75 impedance adapter, signal strength is 52 ±1 dBµV (50 ohm open), instead of 54 ±1 dBµV (75 ohm open). precaution: The loss of using impedance adapter.**

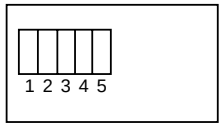
PURITY ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Purity adjustment**	1. Receive the GREEN-ONLY signal. Adjust the contrast control to have a beam current to 700 µA. 2. Degauss the CRT enough with the degausing coil. **Note: Follow the Job Instruction Sheet to adjust the magnetic field.** **Vertical Bv : -0.050 mT (-0.50 gauss)** **Horizontal Bh: +0.020 mT (0.20 gauss)** **(See page 12.)** 3. Maintain the purity magnet at the zero magnetic field and keep the static convergence roughly adjusted. 4. Observe the points “a” and “b” as shown in ***Fig. 2-1*** through the microscope. Adjust the landings to “A” rank requirements. 5. Orient the raster rotation to 0 eastward. 6. Tighten up the deflection coil screws. ● Tightening torque: 108 ± 20 N (11 ± 2 kgf) 7. Make sure the CRT corners landing meet the “A” rank requirements. If not, stick the magnet sheet to correct it. **Note: This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 700 µA.** **Note: Set the service mode by TP1001 and TP1002 (short) then press factory process R/C RGB key to change to RGB mono colour mode.** * For the following colours press R/C RGB key to change.  	 ***Fig. 2-1***  ***Fig. 2-2*** Rank "A" (on the right of the CRT)  ***Fig. 2-3*** Rank "A" (on the left of the CRT) * Press R/C RGB key for 1 second in NORMAL MODE, the colour will change to RGB mono colour mode. The TEXT Key “R. G. Cy” Key can be directly use to change to other colours screen.

CONVERGENCE ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Convergence adjustment (to be done after the purity adjustment)**	1. Receive the "Crosshatch Pattern" signal. 2. Using the remote controller, call NORMAL mode. **STATIC CONVERGENCE** 1. Turn the 4-pole magnet to a proper opening angle in order to superpose the blue and red colours. 2. Turn the 6-pole magnet to a proper opening angle in order to superpose the green colour over the blue and red colours. **DYNAMIC CONVERGENCE** 1. Adjust the convergence on the fringes of the screen in the following steps. **a) *Fig. 3-1*: Drive the wedge at point "a" and swing the deflection coil upward.** **b) *Fig. 3-2*: Drive the wedge at points "b" and "c" and swing the deflection coil downward.** **c) *Fig. 3-3*: Drive the "c" wedge deeper and swing the deflection coil rightward.** **d) Fig. 3-4: Drive the "b" wedge deeper and swing the deflection coil leftward.** 2. Fix all the wedges on the CRT and apply glass tape over them. 3. Apply lacquer to the deflection yoke lock screw, magnet unit (purity, 4-pole, 6-pole magnets) and magnet unit lock screw. Finally received the Red-only and Blue-only signals to make sure there is no other colours on the screen.	 ***Fig. 3-1***  ***Fig. 3-2***  ***Fig. 3-3***  ***Fig. 3-4***  ***Fig. 3-5***  ***Fig. 3-6***

CRT CUT-OFF, BACKGROUND AND SUB-CONTRAST ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**CRT cut-off adjustment I²C bus Control adjustment**	1. Receive the the "Monoscope Pattern" signal. 2. Press R/C to set Picture in Normal condition. 3. Call the Service mode and select the "Cut-off/Background" mode. 4. Set the screen control to 0 / 10 position. 5. Press "-/--" key on the remote controller to reach the horizontal centering mode. 6. Here one of the three colour will appear as a bright line when the screen controlis turned clockwise. Adjust the screen VR until the line can be seen slightly on the screen. 7. Use the control key in the R/C to adjust the quantity of the other two colours, thus touching off the bias control belonging to the first colour, until the horizontal raster becomes white. 8. Turn off the screen control (counter-clockwise) until the horizontal raster disappears. **Note: Before starting this adjustment , warm up the unit for 30 minutes or longer at a beam current of over 700 µA.** 9. Press the "-/--" key on the remote control to call the NORMAL mode. 10. Call "SUB-BRIGHT" in SERVICE mode. (Receive Crosshatch Signal with 5 black level window) 11. Adjust the "SUB BRIGHT" bus data in order that the line 1, 2 and 3 have the same darkness wherelse line 4 is slightly brighter than line 1, 2 and 3 and finally line 5 will be the brighter than line 4. 12. The range of the "SUB BRIGHT" must be between 107 and 157(127 +30, –20). (If the "SUB BRIGHT" is out of the range as mention above, please do adjust from step 1. to 11. again.) **Note: Steps 10. and 11. should be adjusted after WHITE BALANCE ADJUSTMENT.** **For the "SUB BRIGHT" out of range mention above, it will result in the different brightness of OSD.**	* Before adjustment , make sure that this adjustment with the initial bus data "R-CUT OFF", "G-CUT OFF", "B-CUT OFF", "B-DRIVE" & "G-DRIVE". **Note:** **R CUT OFF UP "1" KEY** **DOWN "4" KEY** **G CUT OFF UP "2" KEY** **DOWN "5" KEY** **B CUT OFF UP "3" KEY** **DOWN "6" KEY** **The data can be turned up and down with the above keys.**  Make sure all the 1st, 2nd and 3rd black portions are at the same black level.

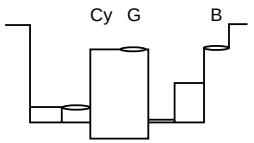
CRT CUT-OFF, BACKGROUND AND SUB-CONTRAST ADJUSTMENT
(Continued)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
2	**White balance Service mode adjustment** **I²C bus control adjustment**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Connect the DC miliammeter between TP602 (–) and TP603 (+). 4. Check Beam current should be around 1,100 µA. 5. Set it to service mode and adjust the "G-DRIVE", "B-DRIVE" data to have a colour temperature of 12,300°K. 6. When changed back to non-service mode, adjust the Contrast & Brightness control to have a beam current of 200µA. If the colour temperature is not at 12,300°K go back to No. 1. **Note: This adjustment must be done after warming up the unit for 30 minutes or longer with a beam current over 700 µA.**	Refer to Page 6. * 12300°K X : 0.272 Y : 0.275 (with colour temperature meter CA-100 (MINOLTA).) **Note:** **G-DRIVE UP "7" KEY** **DOWN "F/B" KEY** **B-DRIVE UP "8" KEY** **DOWN "0" KEY** **The data can be turned up and down with the above keys.**
3	**Maximum beam check**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Connect the DC miliammeter between TP603 (+) and TP602 (–). (Full Scale: 3 mA Range) 4. Beam current must be within 1,100 ± 100 µA.	

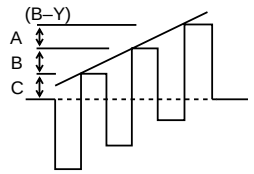
HORIZONTAL AND VERTICAL DEFLECTION LOOP ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**V-AMP 50**	1. Adjust V-AMP50 to set overscan of 9.5% typical. ("Monoscope Pattern" signal (50Hz)) Adjustment Spec 9.5% range +1% –0%.	( ) Mean reception channel
	V-LINEARITY-50 Hz	1. Adjust V-LIN to have the best vertical linearity.	
	V-S CORRECTION-50 Hz	1. Pre-set, NO NEED adjust. (Only if can't meet the specification (±10%) of vertical linearity, then adjust V-SCORRECTION.)	
	V-SHIFT 50 (V-CENTER)	1. Align the pattern's center with the CRT mechanical center.	
	H-SHIFT (50) (H-CENTER)	1. Adjust H-SHIFT until left and right overscan is same. For V-AMP 60, V-LINEARITY 60, V-SCORRECTION 60, V-SHIFT 60 (Data Range "0"~"5"), H-SHIFT 60, while 50 Hz mode has been adjusted automatically data will be input. * Please check the 60 Hz and re-adjust if there is necessary to adjust. Please check also the PAL 60 Hz in dark condition wether left side of the screen got blank or not and re-adjust when it happen.	
2	**Focus adjustment**	1. Receive the "Monoscope Pattern" signal. 2. Press R/C to set Picture NORMAL condition. 3. Adjust the focus control so that the screen be in good focus.	

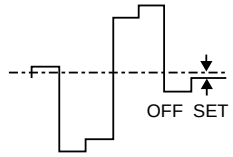
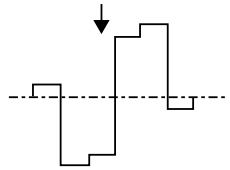
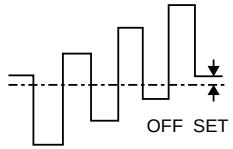
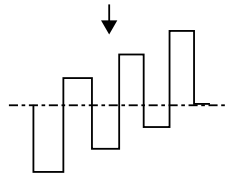
PAL CHROMA ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Sub-colour I²C bus adjustment**	1. Receive the "PAL Colour Bar" signal. 2. Press R/C to set Picture Normal condition. 3. Connect the oscilloscope to TP852 (Red cathode). ● Range : 20 V/div. (AC) (Using 10:1 probe) ● Sweep time : 10 µsec/div. 4. Using the R/C call "SUB COL" in SERVICE mode. Adjust SUB COLOUR bus data, so that the 75% White & Red portions of PAL Colour Bar be at the same level shown as ***Fig. 4***. 5. Clear the SERVICE mode.	 ***Fig. 4***

NTSC CHROMA ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Sub-tint I²C bus adjustment**	1. Receive the "NTSC3.58 Colour Bar" signal for SUB-TINT adjustment. 2. Connect the oscilloscope to TP801 (Pin (36) of IC801 (B-Y)). ● Range : 100 mV/div. (AC)(Use Probe 10:1) ● Sweep time : 10 µsec/div. 3. Call the "SUB-TINT" mode in service mode. Adjust the "SUB-TINT" bus data to obtain the waveform shown as ***Fig. 5***. 4. Clear the SERVICE mode.	 ***Fig. 5*** A=B=C

SECAM CHROMA ADJUSTMENT

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**SECAM black level (R-Y/B-Y) I²C bus adjustment**	1. Receive "SECAM COLOUR BAR" signal. 2. Set SECAM black level adjustment into R-Y mode. 3. Connect oscilloscope to TP802 (Pin (35) of IC801 (R-Y out)). ● Range : 100 mV/div. (AC)(Use 10:1 Probe) ● Sweep time : 10 µsec/div. 4. Adjust the offset of R-Y to minimum, shown in ***Fig. 6-1 (b)***. Adjust the offset of between no-signal line and signal line be minimum. 5. Call the SECAM black level adjustment into B-Y mode. 6. Connect again oscilloscope to TP801 (Pin (36) of IC801 (B-Y out)) with the similar condition as (3). 7. Adjust the offset of B-Y to minimum, shown in ***Fig. 6-2 (b)***. Adjust the offset of between no-signal line and signal line be minimum.	 ***Fig. 6-1 (a)***  ***Fig. 6-1 (b)***  ***Fig. 6-2 (a)***  ***Fig. 6-2 (b)***

PROTECTOR PERFORMANCE CHECK

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Beam protector**	1. Receive “Monoscope Pattern” signal. 2. Set the contrast control to maximum. 3. Set the brightness control to maximum. 4. Make a short circuit between the collector and emitter of Q851, Q852 or Q853 and make sure that the protector is activated and the stand-by mode is called.	* Short-circuit any of the Q851, Q852 and Q853.
2	**High-voltage protector**	1. Receive “Monoscope Pattern” signal. 2. Connect output of Bias Box to D607 cathode (R635 side). 3. Set voltage of Bias Box to 18V and make sure the protector is not work. 4. Set voltage of Bias Box to 27V, and make sure the protector is work.	
3	**Other protectors**	1. Once finish rectified Electrolytic Capacitor short testing in +B line, check all possible damaged components on +B line. (Use random selected set for inspection)	

A/V INPUT AND OUTPUT CHECK

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**Video and audio output check**	1. Receive the “PAL Colour Bar” signal (100% White Colour Bar, 400 Hz 100% modulation audio (±50 kHz Dev) 2. Terminate the Video output with a 75 ohm impedance. Make sure the output is as specified (1.0 Vp-p ±3 dB). 3. Terminate the Audio output with a 10k ohm impedance. Make sure the output is as specified (1.76 Vp-p ±3 dB).	
2	**Video and audio input check**	1. Using the TV/AV key on the remote controller, make sure that the modes change in the order of TV, AV1, AV2 and TV again and that the video and audio outputs are according to the input terminal for each mode.	

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
1	**CONTRAST key**	1. Receive “Monoscope Pattern” signal. 2. Select the Contrast on the P-MODE screen. 3. Press Volume Up/Down key to check whether the contrast effect is OK or not.	
2	**COLOUR key**	1. Receive “Colour Bar” signal. 2. Select the Colour on the P-MODE screen. 3. Press Volume Up/Down key to check whether the colour effect is OK or not.	
3	**BRIGHTNESS key**	1. Receive “Monoscope Pattern” signal. 2. Select the Brightness on the P-MODE screen. 3. Press Volume Up/Down key to check whether the Brightness effect is OK or not.	
4	**TINT key**	1. Receive the “NTSC Colour Bar” signal. 2. Select the Tint on the P-MODE screen. 3. Press Volume Up/Down key to check Tint, Up for green direction and down for purple direction whether is OK or not.	
5	**NORMAL key**	1. Once in PICTURE-Mode when the NORMAL key is pressed, all the settings will be present to normal setting. (Normal setting value for every mode). • Contrast : MAX • Colour : CENTER • Brightness : CENTER • Tint : CENTER • Sharpness : CENTER • White Temp : CENTER • Auto NR : AUTO (AV mode, NR off)	**Note: If nothing is display mean contrast, colour, bright, tint, sharpness are all in normal setting.**

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)
(Continued)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
6	**SHARPNESS key**	1. Receive “Monoscope Pattern” signal. 2. Select the Sharpness on the P-MODE screen. 3. Press Volume Up/Down key to check whether the Sharpness effect is OK or not.	
7	**CH display colour**	1. All the channel (1~99) will have an OSD display of the channel number in green colour under AFT ON condition.	
8	**WHITE TEMP**	1. Receive “Monoscope Pattern” signal. 2. Select the White temp on the P-MODE screen. 3. Press Volume Up/Down key to check WHITE TEMP, UP for more bluish direction changing, DOWN for more reddish direction changing.	
9	**COLOUR SYSTEM**	1. Receive the “PAL COLOUR BAR” signal, press the COLOUR SYSTEM key to select modes except PAL, check the COLOUR is not working properly. Then, select the “PAL” mode. Check again its colour so that it is working properly. 2. Receive “SECAM COLOUR BAR” signal, press COLOUR SYSTEM key to select modes except SECAM, check the COLOUR is not working properly. Then, select the “SECAM” mode. Check again its colour so that it is working properly. 3. Receive “NTSC 4.43 COLOUR BAR” signal, press COLOUR SYSTEM key to select modes except N4.43, check the COLOUR is not working properly. Then, select the “NTSC 4.43” mode. Check again its colour so that it is working properly. 4. Receive “NTSC 3.58 COLOUR BAR” signal, press COLOUR SYSTEM key to select modes except N3.58, check the COLOUR is not working properly. Then, select the “NTSC 3.58” mode. Check again its colour so that it is working properly.	

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)
(Continued)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
10	**SOUND SYSTEM**	1. Receive “PAL-D/K” signal, press the “SOUND SYSTEM” to select B/G, I, M. Check the sound output is not working properly. Select D/K and check the sound output to make sure it is working properly. 2. Receive “PAL-I” signal, press the “SOUND SYSTEM” to select B/G, D/K, M. Check the sound output is not working properly. Select I and check the sound output to make sure it is working properly. 3. Receive “PAL-B/G” signal, press the “SOUND SYSTEM” to select I, D/K, M. Check the sound output is not working properly. Select B/G and check the sound output to make sure it is working properly. 4. Receive “NTSC-M” signal, press the “SOUND SYSTEM” to select B/G, D/K, I, check the sound output is not working properly. Select M and check the sound output to make sure it is working properly.	
11	**Noise mute checking**	1. Receive “PAL COLOUR BAR” signal. 2. Turn up the volume control to maximum, make sure the sound is heard from the speakers. Then put the unit in no signal state. 3. Check the sound mute is effective. 4. Finally turn down the sound volume to minimum.	

FUNCTION OPERATION CHECKING (VIDEO AND AUDIO)

(Continued)

No.	Adjusting point	Adjusting procedure/conditions	Waveform and others
12	**Other (NICAM/IGR/ TEXT/FAV. CH)**	1. Check Normal operation of each model of different features. Model: CX51TXZ — NICAM: X — IGR: X — TEXT: O — FAV. CH: O	
13	**OSD Language quantity check**	1. Check OSD LANGUAGE quantity. Model: CX51TXZ — Quantity: 5 — English: O — Russian: X — Chinese: O — French: O — Arabic: O — Malay: O	

MEMORY MAP

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
000	PASS WORD “23“									23OUTSIDE	$23
001	PASS WORD “21“									21OUTSIDE	$21
002	PASS WORD “13“									13OUTSIDE	$13
003	PASS WORD “85“									85OUTSIDE	$85
004	PLL DATA (Higher rank)								CH0		
005	PLL DATA (Lower rank)										
006	PLL DATA (Higher rank)								CH1		
007	PLL DATA (Lower rank)										
008	PLL DATA (Higher rank)								CH2		
009	PLL DATA (Lower rank)										
00A	PLL DATA (Higher rank)								CH3		
00B	PLL DATA (Lower rank)										
00C	PLL DATA (Higher rank)								CH4		
00D	PLL DATA (Lower rank)										
00E	PLL DATA (Higher rank)								CH5		
00F	PLL DATA (Lower rank)										
010	PLL DATA (Higher rank)								CH6		
011	PLL DATA (Lower rank)										
012	PLL DATA (Higher rank)								CH7		
013	PLL DATA (Lower rank)										
014	PLL DATA (Higher rank)								CH8		
015	PLL DATA (Lower rank)										
016	PLL DATA (Higher rank)								CH9		
017	PLL DATA (Lower rank)										
018	PLL DATA (Higher rank)								CH10		
019	PLL DATA (Lower rank)										
01A	PLL DATA (Higher rank)								CH11		
01B	PLL DATA (Lower rank)										
01C	PLL DATA (Higher rank)								CH12		
01D	PLL DATA (Lower rank)										
01E	PLL DATA (Higher rank)								CH13		
01F	PLL DATA (Lower rank)										
020	PLL DATA (Higher rank)								CH14		
021	PLL DATA (Lower rank)										
022	PLL DATA (Higher rank)								CH15		
023	PLL DATA (Lower rank)										
024	PLL DATA (Higher rank)								CH16		
025	PLL DATA (Lower rank)										
026	PLL DATA (Higher rank)								CH17		
027	PLL DATA (Lower rank)										
028	PLL DATA (Higher rank)								CH18		
029	PLL DATA (Lower rank)										
02A	PLL DATA (Higher rank)								CH19		
02B	PLL DATA (Lower rank)										
02C	PLL DATA (Higher rank)								CH20		
02D	PLL DATA (Lower rank)										
02E	PLL DATA (Higher rank)								CH21		
02F	PLL DATA (Lower rank)										

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
030	PLL DATA (Higher rank)								CH22		
031	PLL DATA (Lower rank)										
032	PLL DATA (Higher rank)								CH23		
033	PLL DATA (Lower rank)										
034	PLL DATA (Higher rank)								CH24		
035	PLL DATA (Lower rank)										
036	PLL DATA (Higher rank)								CH25		
037	PLL DATA (Lower rank)										
038	PLL DATA (Higher rank)								CH26		
039	PLL DATA (Lower rank)										
03A	PLL DATA (Higher rank)								CH27		
03B	PLL DATA (Lower rank)										
03C	PLL DATA (Higher rank)								CH28		
03D	PLL DATA (Lower rank)										
03E	PLL DATA (Higher rank)								CH29		
03F	PLL DATA (Lower rank)										
040	PLL DATA (Higher rank)								CH30		
041	PLL DATA (Lower rank)										
042	PLL DATA (Higher rank)								CH31		
043	PLL DATA (Lower rank)										
044	PLL DATA (Higher rank)								CH32		
045	PLL DATA (Lower rank)										
046	PLL DATA (Higher rank)								CH33		
047	PLL DATA (Lower rank)										
048	PLL DATA (Higher rank)								CH34		
049	PLL DATA (Lower rank)										
04A	PLL DATA (Higher rank)								CH35		
04B	PLL DATA (Lower rank)										
04C	PLL DATA (Higher rank)								CH36		
04D	PLL DATA (Lower rank)										
04E	PLL DATA (Higher rank)								CH37		
04F	PLL DATA (Lower rank)										
050	PLL DATA (Higher rank)								CH38		
051	PLL DATA (Lower rank)										
052	PLL DATA (Higher rank)								CH39		
053	PLL DATA (Lower rank)										
054	PLL DATA (Higher rank)								CH40		
055	PLL DATA (Lower rank)										
056	PLL DATA (Higher rank)								CH41		
057	PLL DATA (Lower rank)										
058	PLL DATA (Higher rank)								CH42		
059	PLL DATA (Lower rank)										
05A	PLL DATA (Higher rank)								CH43		
05B	PLL DATA (Lower rank)										
05C	PLL DATA (Higher rank)								CH44		
05D	PLL DATA (Lower rank)										
05E	PLL DATA (Higher rank)								CH45		
05F	PLL DATA (Lower rank)										

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
060	PLL DATA (Higher rank)								CH46		
061	PLL DATA (Lower rank)										
062	PLL DATA (Higher rank)								CH47		
063	PLL DATA (Lower rank)										
064	PLL DATA (Higher rank)								CH48		
065	PLL DATA (Lower rank)										
066	PLL DATA (Higher rank)								CH49		
067	PLL DATA (Lower rank)										
068	PLL DATA (Higher rank)								CH50		
069	PLL DATA (Lower rank)										
06A	PLL DATA (Higher rank)								CH51		
06B	PLL DATA (Lower rank)										
06C	PLL DATA (Higher rank)								CH52		
06D	PLL DATA (Lower rank)										
06E	PLL DATA (Higher rank)								CH53		
06F	PLL DATA (Lower rank)										
070	PLL DATA (Higher rank)								CH54		
071	PLL DATA (Lower rank)										
072	PLL DATA (Higher rank)								CH55		
073	PLL DATA (Lower rank)										
074	PLL DATA (Higher rank)								Ch56		
075	PLL DATA (Lower rank)										
076	PLL DATA (Higher rank)								CH57		
077	PLL DATA (Lower rank)										
078	PLL DATA (Higher rank)								CH58		
079	PLL DATA (Lower rank)										
07A	PLL DATA (Higher rank)								CH59		
07B	PLL DATA (Lower rank)										
07C	PLL DATA (Higher rank)								Ch60		
07D	PLL DATA (Lower rank)										
07E	PLL DATA (Higher rank)								CH61		
07F	PLL DATA (Lower rank)										
080	PLL DATA (Higher rank)								CH62		
081	PLL DATA (Lower rank)										
082	PLL DATA (Higher rank)								CH63		
083	PLL DATA (Lower rank)										
084	PLL DATA (Higher rank)								CH64		
085	PLL DATA (Lower rank)										
086	PLL DATA (Higher rank)								CH65		
087	PLL DATA (Lower rank)										
088	PLL DATA (Higher rank)								CH66		
089	PLL DATA (Lower rank)										
08A	PLL DATA (Higher rank)								CH67		
08B	PLL DATA (Lower rank)										
08C	PLL DATA (Higher rank)								CH68		
08D	PLL DATA (Lower rank)										
08E	PLL DATA (Higher rank)								CH69		
08F	PLL DATA (Lower rank)										

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
090	PLL DATA (Higher rank)								CH70		
091	PLL DATA (Lower rank)										
092	PLL DATA (Higher rank)								CH71		
093	PLL DATA (Lower rank)										
094	PLL DATA (Higher rank)								CH72		
095	PLL DATA (Lower rank)										
096	PLL DATA (Higher rank)								CH73		
097	PLL DATA (Lower rank)										
098	PLL DATA (Higher rank)								CH74		
099	PLL DATA (Lower rank)										
09A	PLL DATA (Higher rank)								CH75		
09B	PLL DATA (Lower rank)										
09C	PLL DATA (Higher rank)								CH76		
09D	PLL DATA (Lower rank)										
09E	PLL DATA (Higher rank)								CH77		
09F	PLL DATA (Lower rank)										
0A0	PLL DATA (Higher rank)								CH78		
0A1	PLL DATA (Lower rank)										
0A2	PLL DATA (Higher rank)								CH79		
0A3	PLL DATA (Lower rank)										
0A4	PLL DATA (Higher rank)								CH80		
0A5	PLL DATA (Lower rank)										
0A6	PLL DATA (Higher rank)								CH81		
0A7	PLL DATA (Lower rank)										
0A8	PLL DATA (Higher rank)								CH82		
0A9	PLL DATA (Lower rank)										
0AA	PLL DATA (Higher rank)								CH83		
0AB	PLL DATA (Lower rank)										
0AC	PLL DATA (Higher rank)								CH84		
0AD	PLL DATA (Lower rank)										
0AE	PLL DATA (Higher rank)								CH85		
0AF	PLL DATA (Lower rank)										
0B0	PLL DATA (Higher rank)								CH86		
0B1	PLL DATA (Lower rank)										
0B2	PLL DATA (Higher rank)								CH87		
0B3	PLL DATA (Lower rank)										
0B4	PLL DATA (Higher rank)								CH88		
0B5	PLL DATA (Lower rank)										
0B6	PLL DATA (Higher rank)								CH89		
0B7	PLL DATA (Lower rank)										
0B8	PLL DATA (Higher rank)								CH90		
0B9	PLL DATA (Lower rank)										
0BA	PLL DATA (Higher rank)								CH91		
0BB	PLL DATA (Lower rank)										
0BC	PLL DATA (Higher rank)								CH92		
0BD	PLL DATA (Lower rank)										
0BE	PLL DATA (Higher rank)								CH93		
0BF	PLL DATA (Lower rank)										

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
0C0	PLL DATA (Higher rank)								CH94		
0C1	PLL DATA (Lower rank)										
0C2	PLL DATA (Higher rank)								CH95		
0C3	PLL DATA (Lower rank)										
0C4	PLL DATA (Higher rank)								CH96		
0C5	PLL DATA (Lower rank)										
0C6	PLL DATA (Higher rank)								CH97		
0C7	PLL DATA (Lower rank)										
0C8	PLL DATA (Higher rank)								CH98		
0C9	PLL DATA (Lower rank)										
0CA	PLL DATA (Higher rank)								CH99		
0CB	PLL DATA (Lower rank)										
0CC	LAST POWER									ON:AA OFF:55	AA
0CD	BLUE BACK				1DIGIT/2DIGIT				OFF/1DIG	ON:A OFF:5 / 1DIG:5 2DIG:A	55
0CE	AUTO SELECT				LANGUAGE				OFF/ENG	ON:A OFF:5 / E:0 R:1 C:2 A:3 F:4 M:5	50
0CF	LAST POSITION								POS1		01
0D0	LAST CONTRAST								60		3C
0D1	LAST COLOUR								±0		1E
0D2	LAST BRIGHT								±0		1E
0D3	LAST TINT								±0		1E
0D4	LAST SHARPNESS								±0		1E
0D5	LAST WHITE TEMP								±0		1E
0D6						NR(AV)		NR(TV)	OFF/AUTO	ON1:2 ON2:4 OFF:0 / AUTO:1 OFF:0	01
0D7	LAST TREBLE								±0		1E
0D8	LAST BASS								±0		1E
0D9	LAST SPATIALIZER MODE								OFF	ON1:1 ON2:2 OFF:0	00
0DA	LAST SPATIALIZER LEVEL								±0		1E
0DB	LAST BALANCE								±0		1E
0DC	LAST VOLUME								0		00
0DD	ON TIMER VOLUME								UNINSTAL		FF
0DE	LAST SERVICE MODE								SERVICE		00
0DF	LAST TV/AV MODE								TV	TV:1 AV1:1 AV2:2	00
0E0	CH7	CH6	CH5	CH4	CH3	CH2	CH1	CH0	AFT		FF
0E1	CH15	CH14	CH13	CH12	CH11	CH10	CH9	CH8	0 : OFF		FF
0E2	CH23	CH22	CH21	CH20	CH19	CH18	CH17	CH16	1 : ON		FF
0E3	CH31	CH30	CH29	CH28	CH27	CH26	CH25	CH24			FF
0E4	CH39	CH38	CH37	CH36	CH35	CH34	CH33	CH32			FF
0E5	CH47	CH46	CH45	CH44	CH43	CH42	CH41	CH40			FF
0E6	CH55	CH54	CH53	CH52	CH51	CH50	CH49	CH48			FF
0E7	CH63	CH62	CH61	CH60	CH59	CH58	CH57	CH56			FF
0E8	CH71	CH70	CH69	CH68	CH67	CH66	CH65	CH64			FF
0E9	CH79	CH78	CH77	CH76	CH75	CH74	CH73	CH72			FF
0EA	CH87	CH86	CH85	CH84	CH83	CH82	CH81	CH80			FF
0EB	CH95	CH94	CH93	CH92	CH91	CH90	CH89	CH88			FF
0EC					CH99	CH98	CH97	CH96			FF

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
0ED											
0EE											
0EF											
0F0	CH7	CH6	CH5	CH4	CH3	CH2	CH1	CH0	SKIP		00
0F1	CH15	CH14	CH13	CH12	CH11	CH10	CH9	CH8	0 : OFF		00
0F2	CH23	CH22	CH21	CH20	CH19	CH18	CH17	CH16	1 : ON		00
0F3	CH31	CH30	CH29	CH28	CH27	CH26	CH25	CH24			00
0F4	CH39	CH38	CH37	CH36	CH35	CH34	CH33	CH32			00
0F5	CH47	CH46	CH45	CH44	CH43	CH42	CH41	CH40			00
0F6	CH55	CH54	CH53	CH52	CH51	CH50	CH49	CH48			00
0F7	CH63	CH62	CH61	CH60	CH59	CH58	CH57	CH56			00
0F8	CH71	CH70	CH69	CH68	CH67	CH66	CH65	CH64			00
0F9	CH79	CH78	CH77	CH76	CH75	CH74	CH73	CH72			00
0FA	CH87	CH86	CH85	CH84	CH83	CH82	CH81	CH80			00
0FB	CH95	CH94	CH93	CH92	CH91	CH90	CH89	CH88			00
0FC					CH99	CH98	CH97	CH96			00
0FD											
0FE											
0FF											

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
100	S-SYSTEM				C-SYSTEM				CH0	B:0 I:1 D:2 M:3 / AU:0 PA:1 SE:2 N4:3 N3:4	00
101	S-SYSTEM				C-SYSTEM				CH1		00
102	S-SYSTEM				C-SYSTEM				CH2		00
103	S-SYSTEM				C-SYSTEM				CH3		00
104	S-SYSTEM				C-SYSTEM				CH4		00
105	S-SYSTEM				C-SYSTEM				CH5		00
106	S-SYSTEM				C-SYSTEM				CH6		00
107	S-SYSTEM				C-SYSTEM				CH7		00
108	S-SYSTEM				C-SYSTEM				CH8		00
109	S-SYSTEM				C-SYSTEM				CH9		00
10A	S-SYSTEM				C-SYSTEM				CH10		00
10B	S-SYSTEM				C-SYSTEM				CH11		00
10C	S-SYSTEM				C-SYSTEM				CH12		00
10D	S-SYSTEM				C-SYSTEM				CH13		00
10E	S-SYSTEM				C-SYSTEM				CH14		00
10F	S-SYSTEM				C-SYSTEM				CH15		00
110	S-SYSTEM				C-SYSTEM				CH16		00
111	S-SYSTEM				C-SYSTEM				CH17		00
112	S-SYSTEM				C-SYSTEM				CH18		00
113	S-SYSTEM				C-SYSTEM				CH19		00
114	S-SYSTEM				C-SYSTEM				CH20		00
115	S-SYSTEM				C-SYSTEM				CH21		00
116	S-SYSTEM				C-SYSTEM				CH22		00
117	S-SYSTEM				C-SYSTEM				CH23		00
118	S-SYSTEM				C-SYSTEM				CH24		00
119	S-SYSTEM				C-SYSTEM				CH25		00
11A	S-SYSTEM				C-SYSTEM				CH26		00
11B	S-SYSTEM				C-SYSTEM				CH27		00
11C	S-SYSTEM				C-SYSTEM				CH28		00
11D	S-SYSTEM				C-SYSTEM				CH29		00
11E	S-SYSTEM				C-SYSTEM				CH30		00
11F	S-SYSTEM				C-SYSTEM				CH31		00
120	S-SYSTEM				C-SYSTEM				CH32		00
121	S-SYSTEM				C-SYSTEM				CH33		00
122	S-SYSTEM				C-SYSTEM				CH34		00
123	S-SYSTEM				C-SYSTEM				CH35		00
124	S-SYSTEM				C-SYSTEM				CH36		00
125	S-SYSTEM				C-SYSTEM				CH37		00
126	S-SYSTEM				C-SYSTEM				CH38		00
127	S-SYSTEM				C-SYSTEM				CH39		00
128	S-SYSTEM				C-SYSTEM				CH40		00
129	S-SYSTEM				C-SYSTEM				CH41		00
12A	S-SYSTEM				C-SYSTEM				CH42		00
12B	S-SYSTEM				C-SYSTEM				CH43		00
12C	S-SYSTEM				C-SYSTEM				CH44		00
12D	S-SYSTEM				C-SYSTEM				CH45		00
12E	S-SYSTEM				C-SYSTEM				CH46		00

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
12F	S-SYSTEM				C-SYSTEM				CH47		00
130	S-SYSTEM				C-SYSTEM				CH48		00
131	S-SYSTEM				C-SYSTEM				CH49		00
132	S-SYSTEM				C-SYSTEM				CH50		00
133	S-SYSTEM				C-SYSTEM				CH51		00
134	S-SYSTEM				C-SYSTEM				CH52		00
135	S-SYSTEM				C-SYSTEM				CH53		00
136	S-SYSTEM				C-SYSTEM				CH54		00
137	S-SYSTEM				C-SYSTEM				CH55		00
138	S-SYSTEM				C-SYSTEM				CH56		00
139	S-SYSTEM				C-SYSTEM				CH57		00
13A	S-SYSTEM				C-SYSTEM				CH58		00
13B	S-SYSTEM				C-SYSTEM				CH59		00
13C	S-SYSTEM				C-SYSTEM				CH60		00
13D	S-SYSTEM				C-SYSTEM				CH61		00
13E	S-SYSTEM				C-SYSTEM				CH62		00
13F	S-SYSTEM				C-SYSTEM				CH63		00
140	S-SYSTEM				C-SYSTEM				CH64	B:0 I:1 D:2 M:3 / AU:0 PA:1 SE:2 N4:3 N3:4	00
141	S-SYSTEM				C-SYSTEM				CH65		00
142	S-SYSTEM				C-SYSTEM				CH66		00
143	S-SYSTEM				C-SYSTEM				CH67		00
144	S-SYSTEM				C-SYSTEM				CH68		00
145	S-SYSTEM				C-SYSTEM				CH69		00
146	S-SYSTEM				C-SYSTEM				CH70		00
147	S-SYSTEM				C-SYSTEM				CH71		00
148	S-SYSTEM				C-SYSTEM				CH72		00
149	S-SYSTEM				C-SYSTEM				CH73		00
14A	S-SYSTEM				C-SYSTEM				CH74		00
14B	S-SYSTEM				C-SYSTEM				CH75		00
14C	S-SYSTEM				C-SYSTEM				CH76		00
14D	S-SYSTEM				C-SYSTEM				CH77		00
14E	S-SYSTEM				C-SYSTEM				CH78		00
14F	S-SYSTEM				C-SYSTEM				CH79		00
150	S-SYSTEM				C-SYSTEM				CH80		00
151	S-SYSTEM				C-SYSTEM				CH81		00
152	S-SYSTEM				C-SYSTEM				CH82		00
153	S-SYSTEM				C-SYSTEM				CH83		00
154	S-SYSTEM				C-SYSTEM				CH84		00
155	S-SYSTEM				C-SYSTEM				CH85		00
156	S-SYSTEM				C-SYSTEM				CH86		00
157	S-SYSTEM				C-SYSTEM				CH87		00
158	S-SYSTEM				C-SYSTEM				CH88		00
159	S-SYSTEM				C-SYSTEM				CH89		00
15A	S-SYSTEM				C-SYSTEM				CH90		00
15B	S-SYSTEM				C-SYSTEM				CH91		00
15C	S-SYSTEM				C-SYSTEM				CH92		00
15D	S-SYSTEM				C-SYSTEM				CH93		00

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
15E	S-SYSTEM				C-SYSTEM				CH94		00
15F	S-SYSTEM				C-SYSTEM				CH95		00
160	S-SYSTEM				C-SYSTEM				CH96		00
161	S-SYSTEM				C-SYSTEM				CH97		00
162	S-SYSTEM				C-SYSTEM				CH98		00
163	S-SYSTEM				C-SYSTEM				CH99		00
164	C-SYSTEM				C-SYSTEM				AV1, 2		00
165	FAV CH 1								POS10		0A
166	FAV CH 2								POS20		14
167	FAV CH 3								POS30		1E
168	FAV CH 4								POS40		28
169											
16A											
16B											
16C											
16D											
16E											
16F											
170	CUT OFF (R)								0		00
171	CUT OFF (G)								0		00
172	CUT OFF (B)								0		00
173	DRIVE (G)								127		7F
174	DRIVE (B)								127		7F
175					TV H-CENTER (50Hz)				7		07
176					TV H-CENTER (60Hz)				12		0C
177	HBLK PHASE					V-CENTER (50Hz)			0/5	0 to 7 / 0 to 7	05
178	V-AMPLITUDE (50Hz)								58		74
179	VS-CORRECTION (50Hz)								67/50		86/64
17A	V-LINEALITY (50Hz)								16		80
17B					Y SUB CONTRAST				18		12
17C	SUB COLOUR								110		6E
17D	SUB BRIGHTNESS								127		7F
17E					SUB TINT				70		46
17F					SUB SHARPNESS				28		1C
180	DELAY PAL (AV)				DELAY PAL (TV) B/G				2/2		22
181					DELAY PAL (TV) I,D/K				2		22
182	DELAY SECAM (AV)				DELAY SECAM (TV) B/G				4/4		44
183					DELAY SECAM (TV) I,D/K				4		44
184	DELAY NTSC (AV)				ELAY NTSC (TV)				2/2		22
185	R-Y BLACK OFFSET				B-Y BLACK OFFSET				10/6		A6
186						V-CENTER (60Hz)			0/2		02
187	V-AMPLITUDE (60Hz)								59		59
188	VS-CORRECTION (60Hz)								74/57		E8/72
189	V-LINEALITY (60Hz)								14		14
18A					WIDE V-BLK START PHASE (50Hz)				63		3F
18B					WIDE V-BLK START PHASE (60Hz)				63		3F
18C					WIDE V-BLK STOP PHASE (50Hz)				25		19
18D					WIDE V-BLK STOP PHASE (60Hz)				20		14

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
18E	SUB CONTRAST								255		FF
18F					P/N GP	CL-L SW					00
190	CLL LEVEL		PN CD ATT								A0
191	BLACK STRETCH OFFSET			DC TRAN RATE			APACPN PEAK				EA
192	ABL POINT			ABL GAIN							04
193							COINCIDENT				01
194	S-FIELD	SCD ATT	DEMP F0	S GP	V-ID SW	S KIL	BELL				22
195	DTRSW								ON	ON:0 OFF:1	00
196	DISTINCTION SPEED								FAST	FAST:10 MIDIUM:01 SLOW:00	80
197											
198	TOF Q (AV)		TOF F0 (AV)		TOF Q (TV)		TOF F0 (TV)		PAL		8B
199	TOF Q (AV)		TOF F0 (AV)		TOF Q (TV)		TOF F0 (TV)		SECAM		8B
19A	TOF Q (AV)		TOF F0 (AV)		TOF Q (TV)		TOF F0 (TV)		N443		8B
19B	TOF Q (AV)		TOF F0 (AV)		TOF Q (TV)		TOF F0 (TV)		N358		8B
19C	C-TRAP Q (AV)		C-TRAP F0 (AV)		C-TRAP Q (TV)		C-TRAP F0 (TV)		PAL		66
19D	C-TRAP Q (AV)		C-TRAP F0 (AV)		C-TRAP Q (TV)		C-TRAP F0 (TV)		SECAM		66
19E	C-TRAP Q (AV)		C-TRAP F0 (AV)		C-TRAP Q (TV)		C-TRAP F0 (TV)		N443		66
19F	C-TRAP Q (AV)		C-TRAP F0 (AV)		C-TRAP Q (TV)		C-TRAP F0 (TV)		N358		66
1A0	COLOUR PAL PARAMETER (–31~+31)								+20		33 (+20)
1A1	COLOUR SECAM PARAMETER (–31~+31)								+10		29 (+20)
1A2	COLOUR NTSC PARAMETER (–31~+31)								+20		33 (+20)
1A3	N358 SHARPNESS (–31~+31)								+10		29 (+10)
1A4	AV TINT PARAMETER (–31~+31)								+3		22
1A5	AV SHARPESS (–31~+31)								±0		1F (0)
1A6	ANR COLOUR STEP1								5		05
1A7	ANR COLOUR STEP2								10		0A
1A8	ANR SHARPNESS STEP1								7		07
1A9	ANR SHARPNESS STEP2								12		0C
1AA											
1AB											
1AC	AGC GAIN								±0		0
1AD	FM LV								±0		1F
1AE	IGR LV								+2		11
1AF	B/G LV								–1		0E
1B0	I LV								+4		13
1B1	D/K LV								–1		DF
1B2	LOW ERROR								35		23
1B3	UP ERROR								70		46
1B4	IGR GAIN								0		6
1B5	AGC			AGC LEVEL	AGC SW	BASS SW	BASS LEVEL			ON:1 OFF:0 / 0 to 3 / ON:1 OFF:0 / ON:1 OFF:0 / 0 to 3	B6
1B6	IC	AM	SEARCH SPEED		FM			W-TEMP		P:0 I:1 / ON:1 OFF:0 / S:00 M:01 F:10 / N:0 OUT:1 / HI:0 LO:1	61/60
1B7	AUTO SEL	S-SYS	C=SYS		BI+	FAV	AV0/1/2			ON:0 OFF:1 / ON:1 OFF:0 / P:00 PN:01 PSN:10 / ON:1 OFF:0 / ON:1 OFF:0 / A0:00 A1:01 A2:10	0E
1B8						D/K	I	B/G		ON:1 OFF:0 / ON:1 OFF:0 / ON:1 OFF:0	01

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
1B9											
1BA	ROM CORRECT 1 ON/OFF										
1BB	ROM CORRECT 2 ON/OFF										
1BC	ROM CORRECT1 ADDRESS HIGHER RANK										
1BD	ROM CORRECT1 ADDRESS LOWER RANK										
1BE	ROM CORRECT2 ADDRESS HIGHER RANK										
1BF	ROM CORRECT2 ADDRESS LOWER RANK										
1C0	ROM CORRECT1 CODE										
1C1	ROM CORRECT1 CODE										
1C2	ROM CORRECT1 CODE										
1C3	ROM CORRECT1 CODE										
1C4	ROM CORRECT1 CODE										
1C5	ROM CORRECT1 CODE										
1C6	ROM CORRECT1 CODE										
1C7	ROM CORRECT1 CODE										
1C8	ROM CORRECT1 CODE										
1C9	ROM CORRECT1 CODE										
1CA	ROM CORRECT1 CODE										
1CB	ROM CORRECT1 CODE										
1CC	ROM CORRECT1 CODE										
1CD	ROM CORRECT1 CODE										
1CE	ROM CORRECT1 CODE										
1CF	ROM CORRECT1 CODE										
1D0	ROM CORRECT1 CODE										
1D1	ROM CORRECT1 CODE										
1D2	ROM CORRECT1 CODE										
1D3	ROM CORRECT1 CODE										
1D4	ROM CORRECT1 CODE										
1D5	ROM CORRECT1 CODE										
1D6	ROM CORRECT1 CODE										
1D7	ROM CORRECT1 CODE										
1D8	ROM CORRECT1 CODE										
1D9	ROM CORRECT1 CODE										
1DA	ROM CORRECT1 CODE										
1DB	ROM CORRECT1 CODE										
1DC	ROM CORRECT1 CODE										
1DD	ROM CORRECT1 CODE										
1DE	ROM CORRECT1 CODE										
1DF	ROM CORRECT1 CODE										
1E0	ROM CORRECT2 CODE										
1E1	ROM CORRECT2 CODE										
1E2	ROM CORRECT2 CODE										
1E3	ROM CORRECT2 CODE										
1E4	ROM CORRECT2 CODE										
1E5	ROM CORRECT2 CODE										
1E6	ROM CORRECT2 CODE										
1E7	ROM CORRECT2 CODE										
1E8	ROM CORRECT2 CODE										

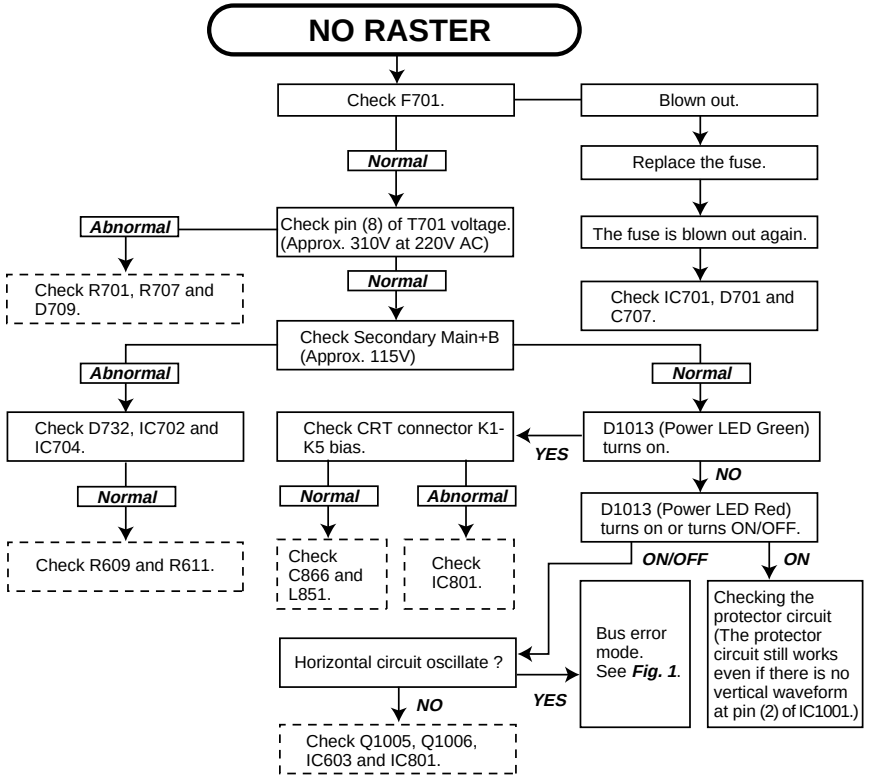
SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
1E9	ROM CORRECT2 CODE										
1EA	ROM CORRECT2 CODE										
1EB	ROM CORRECT2 CODE										
1EC	ROM CORRECT2 CODE										
1ED	ROM CORRECT2 CODE										
1EE	ROM CORRECT2 CODE										
1EF	ROM CORRECT2 CODE										
1F0	ROM CORRECT2 CODE										
1F1	ROM CORRECT2 CODE										
1F2	ROM CORRECT2 CODE										
1F3	ROM CORRECT2 CODE										
1F4	ROM CORRECT2 CODE										
1F5	ROM CORRECT2 CODE										
1F6	ROM CORRECT2 CODE										
1F7	ROM CORRECT2 CODE										
1F8	ROM CORRECT2 CODE										
1F9	ROM CORRECT2 CODE										
1FA	ROM CORRECT2 CODE										
1FB	ROM CORRECT2 CODE										
1FC	ROM CORRECT2 CODE										
1FD	ROM CORRECT2 CODE										
1FE	ROM CORRECT2 CODE										
1FF	ROM CORRECT2 CODE										
200	IGR				NICAM				CH0	ON:0 OFF:1 / ST:1 MO:0 / MA:0 SU:1 / ON:0 OFF:1 / N.M:1 M:0 / N.ST:1 MO:0 / M1:00 M2:01 MO:11	4C
201	IGR				NICAM				CH1		4C
202	IGR				NICAM				CH2		4C
203	IGR				NICAM				CH3		4C
204	IGR				NICAM				CH4		4C
205	IGR				NICAM				CH5		4C
206	IGR				NICAM				CH6		4C
207	IGR				NICAM				CH7		4C
208	IGR				NICAM				CH8		4C
209	IGR				NICAM				CH9		4C
20A	IGR				NICAM				CH10		4C
20B	IGR				NICAM				CH11		4C
20C	IGR				NICAM				CH12		4C
20D	IGR				NICAM				CH13		4C
20E	IGR				NICAM				CH14		4C
20F	IGR				NICAM				CH15		4C
210	IGR				NICAM				CH16		4C
211	IGR				NICAM				CH17		4C
212	IGR				NICAM				CH18		4C
213	IGR				NICAM				CH19		4C
214	IGR				NICAM				CH20		4C
215	IGR				NICAM				CH21		4C
216	IGR				NICAM				CH22		4C

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
217	IGR				NICAM				CH23		4C
218	IGR				NICAM				CH24		4C
219	IGR				NICAM				CH25		4C
21A	IGR				NICAM				CH26		4C
21B	IGR				NICAM				CH27		4C
21C	IGR				NICAM				CH28		4C
21D	IGR				NICAM				CH29		4C
21E	IGR				NICAM				CH30		4C
21F	IGR				NICAM				CH31		4C
220	IGR				NICAM				CH32		4C
221	IGR				NICAM				CH33		4C
222	IGR				NICAM				CH34		4C
223	IGR				NICAM				CH35		4C
224	IGR				NICAM				CH36		4C
225	IGR				NICAM				CH37		4C
226	IGR				NICAM				CH38		4C
227	IGR				NICAM				CH39		4C
228	IGR				NICAM				CH40		4C
229	IGR				NICAM				CH41		4C
22A	IGR				NICAM				CH42		4C
22B	IGR				NICAM				CH43		4C
22C	IGR				NICAM				CH44		4C
22D	IGR				NICAM				CH45		4C
22E	IGR				NICAM				CH46		4C
22F	IGR				NICAM				CH47		4C
230	IGR				NICAM				CH48		4C
231	IGR				NICAM				CH49		4C
232	IGR				NICAM				CH50		4C
233	IGR				NICAM				CH51		4C
234	IGR				NICAM				CH52		4C
235	IGR				NICAM				CH53		4C
236	IGR				NICAM				CH54		4C
237	IGR				NICAM				CH55		4C
238	IGR				NICAM				CH56		4C
239	IGR				NICAM				CH57		4C
23A	IGR				NICAM				CH58		4C
23B	IGR				NICAM				CH59		4C
23C	IGR				NICAM				CH60		4C
23D	IGR				NICAM				CH61		4C
23E	IGR				NICAM				CH62		4C
23F	IGR				NICAM				CH63		4C
240	IGR				NICAM				CH64	ON:0 OFF:1 / ST:1 MO:0 / MA:0 SU:1 / ON:0 OFF:1 / N.M:1 M:0 / N.ST:1 MO:0 / M1:00 M2:01 MO:11	4C
241	IGR				NICAM				CH65		4C
242	IGR				NICAM				CH66		4C
243	IGR				NICAM				CH67		4C
244	IGR				NICAM				CH68		4C

SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
245	IGR				NICAM				CH69		4C
246	IGR				NICAM				CH70		4C
247	IGR				NICAM				CH71		4C
248	IGR				NICAM				CH72		4C
249	IGR				NICAM				CH73		4C
24A	IGR				NICAM				CH74		4C
24B	IGR				NICAM				CH75		4C
24C	IGR				NICAM				CH76		4C
24D	IGR				NICAM				CH77		4C
24E	IGR				NICAM				CH78		4C
24F	IGR				NICAM				CH79		4C
250	IGR				NICAM				CH80		4C
251	IGR				NICAM				CH81		4C
252	IGR				NICAM				CH82		4C
253	IGR				NICAM				CH83		4C
254	IGR				NICAM				CH84		4C
255	IGR				NICAM				CH85		4C
256	IGR				NICAM				CH86		4C
257	IGR				NICAM				CH87		4C
258	IGR				NICAM				CH88		4C
259	IGR				NICAM				CH89		4C
25A	IGR				NICAM				CH90		4C
25B	IGR				NICAM				CH91		4C
25C	IGR				NICAM				CH92		4C
25D	IGR				NICAM				CH93		4C
25E	IGR				NICAM				CH94		4C
25F	IGR				NICAM				CH95		4C
260	IGR				NICAM				CH96		4C
261	IGR				NICAM				CH97		4C
262	IGR				NICAM				CH98		4C
263	IGR				NICAM				CH99		4C
264											
265											
266											
267											
268											
269											
26A											
26B											
26C											
26D											
26E											
26F											
270											
271											
272											
273											
274											

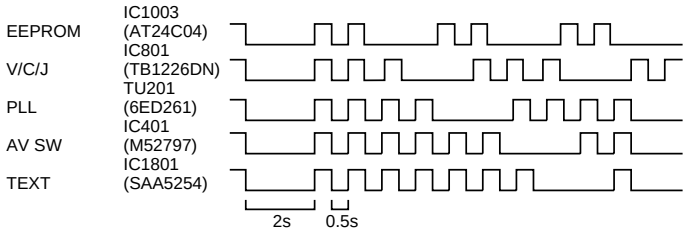
SUB ADDRESS	DATA 7	6	5	4	3	2	1	0	REMARKS	CRITERIA	FACTORY SETTING
275											
276											
277											
278											
279											
27A											
27B											
27C											
27D											
27E											
27F											

TROUBLE SHOOTING TABLE



1) In case of all I²C BUS transmission the transmission is continued three times if ACK is not given. If ACK is not given yet, the process proceeds to the next operation. If ACK is not given when this operation is repeated 10 times, the mode is changed to BUS ERROR MODE. (If one ACK is given during counting of 3 x 10 times, the counter is cleared.)
2) Upon occurrence of bus error the LED RED (pin 3) blinks as follows, and power-off is performed. At this time the power key remains valid.

Fig. 1



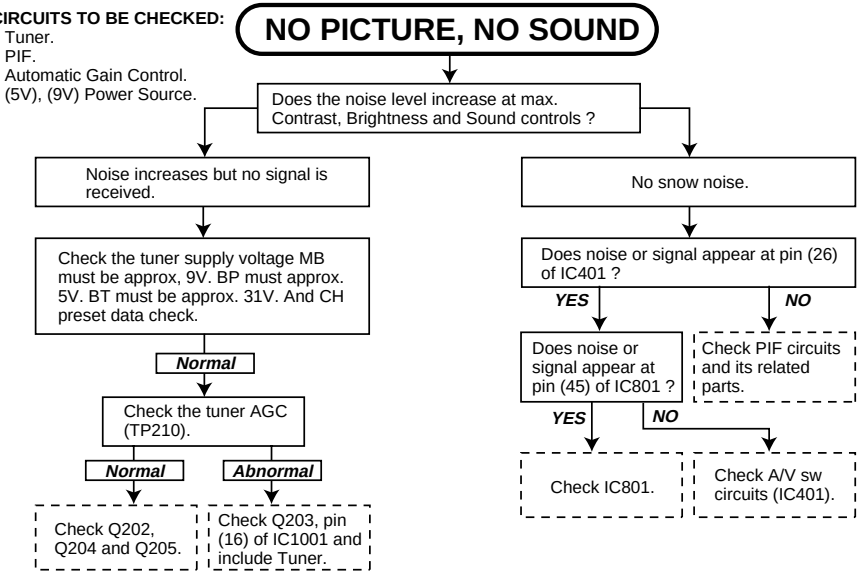
3) If bus error occurs in the SERVICE MODE, V/C/J read-out is inhibited.

Protector operation
1) The protector input (pin 3) is read with 20 ms intervals. If "H" appears successively three times, the mode is changed to the PROTECTOR MODE. (For 2 s after the POWER port is set to "H", the read-in is set to NOP.)
2) If the H, V, V-GUARD bit of V/C/J STATUS register is "0", the mode is changed to the PROTECTOR MODE.
3) If V-SYNC (pin 2) is not given for 300 ms, the mode is changed to the PROTECTOR MODE. However, this operation is not performed in the SERVICE MODE and EXTERNAL BUS MODE.
4) If LOW + BIN (pin 27) is not set to "H" for 3s when power is on, the mode is changed to the PROTECTOR MODE.

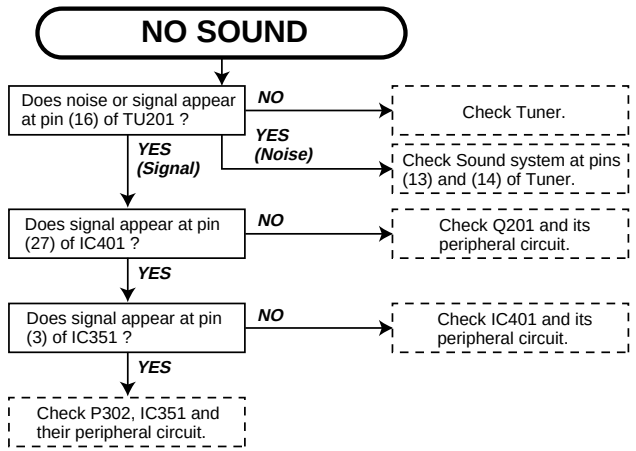
TROUBLE SHOOTING TABLE (Continued)

5) In the PROTECTOR MODE the next port is forcibly changed. At this time the POWER key is invalid. The test power is kept turned on. POWER-ON is not performed until resetting is made.
POWER(Pin 37) : "L"
POWER(Pin 15) : "H"
LED GREEN(Pin 4) : "H"
LED RED(Pin 3) : "L"

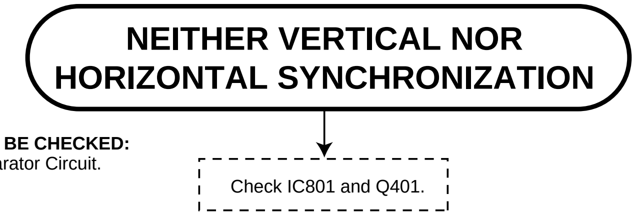
CIRCUITS TO BE CHECKED:
- Tuner.
- PIF.
- Automatic Gain Control.
- (5V), (9V) Power Source.



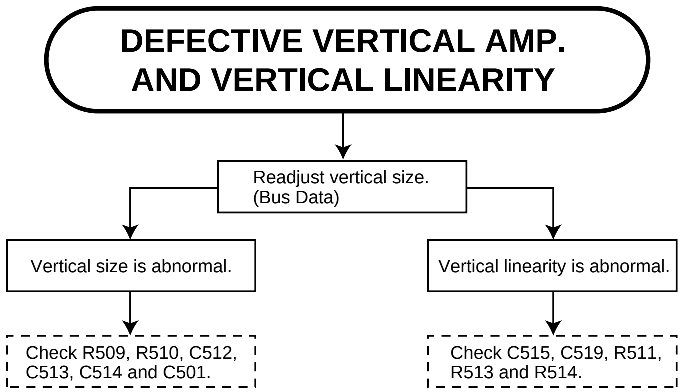
CIRCUITS TO BE CHECKED:
- Sound system (pins (13) and (14) of Tuner).
- Sound Detector Circuit.
- Sound Switch and Att. Control.
- Audio Output Circuit.

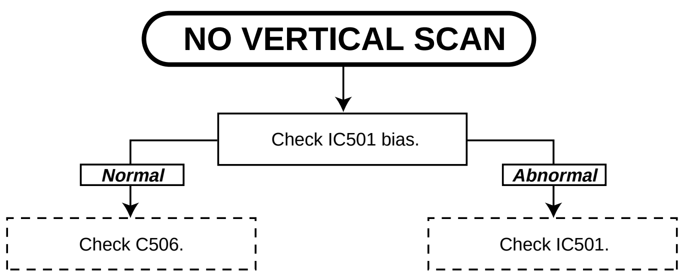


TROUBLE SHOOTING TABLE (Continued)

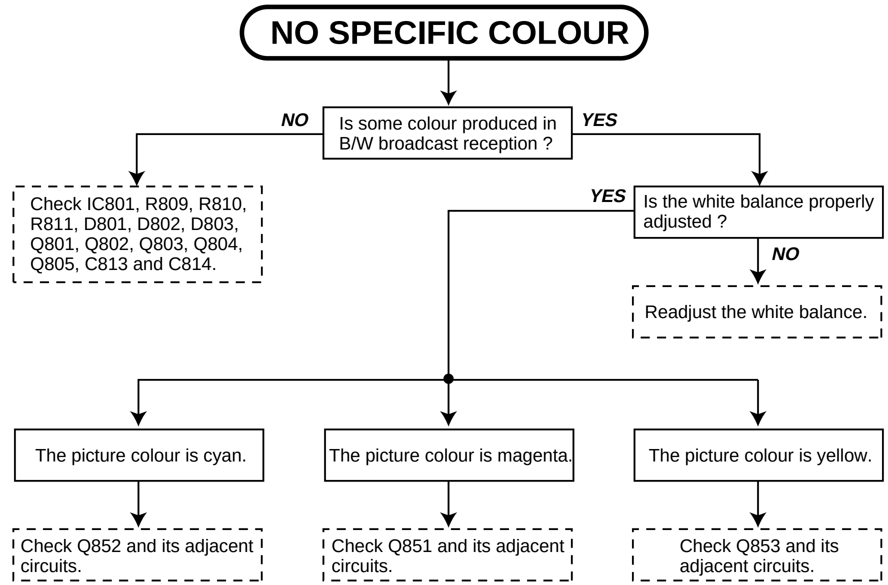


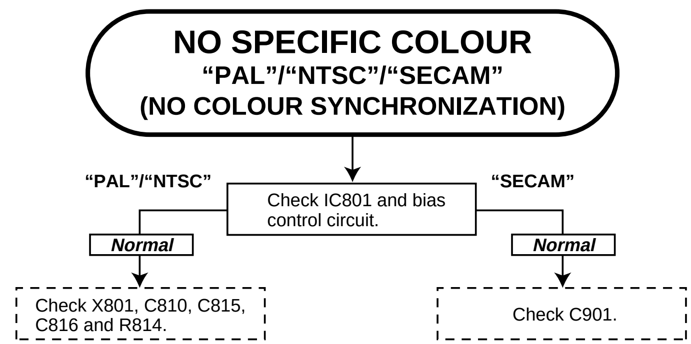
CIRCUIT TO BE CHECKED:
- Sync. Separator Circuit.





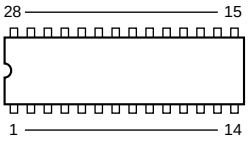
TROUBLE SHOOTING TABLE (Continued)





SOLID STATE DEVICE BASE DIAGRAM

TOP VIEW



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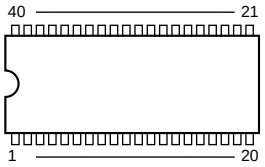

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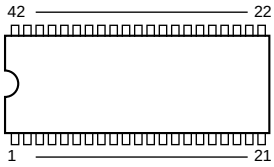

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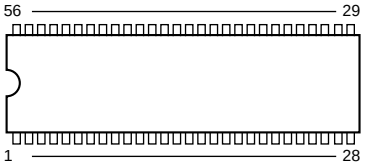

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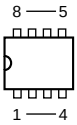

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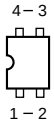
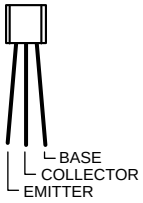


FX0008GE

SIDE VIEW



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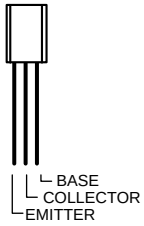

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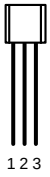

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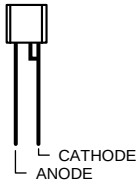

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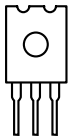

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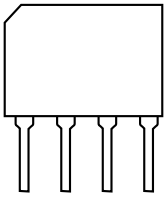

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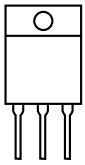

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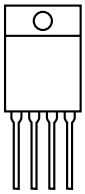

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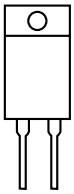

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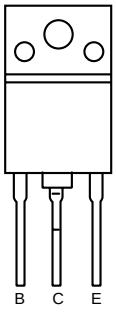

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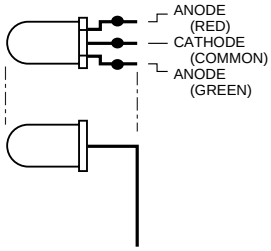

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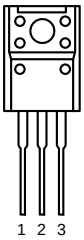

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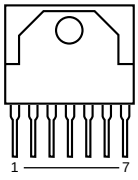

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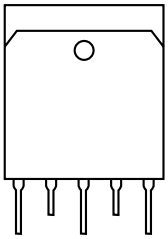

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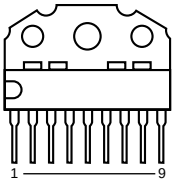
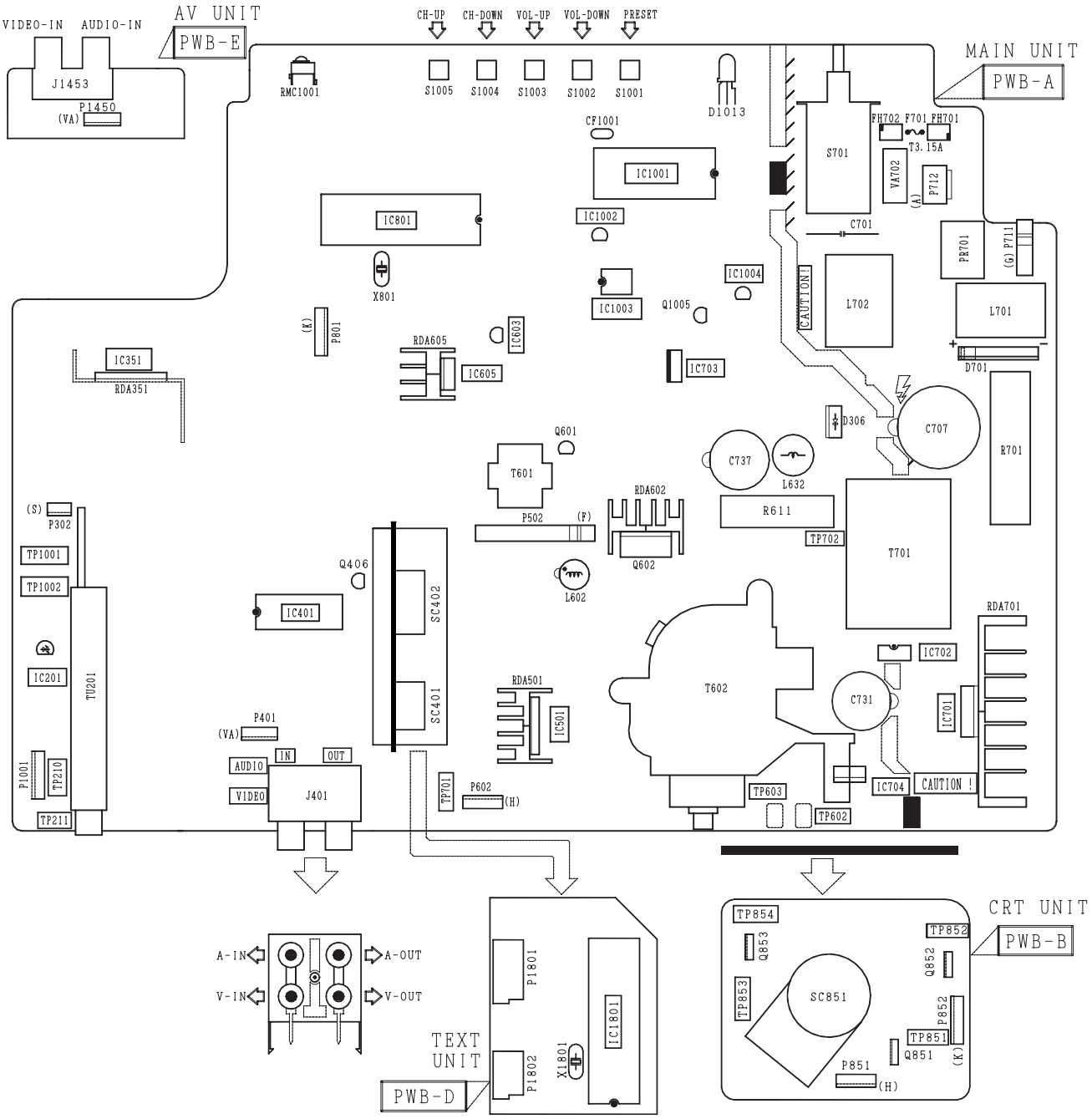
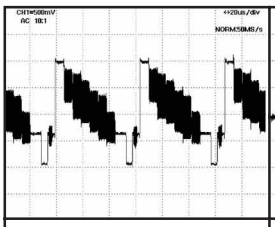


TDA7056A

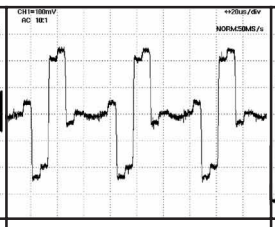
CHASSIS LAYOUT



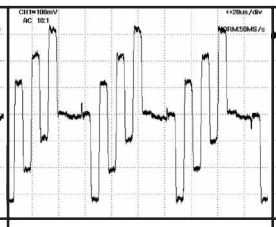
WAVEFORMS



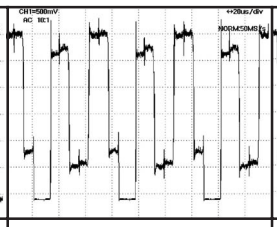
① 2.0 Vp-p (H)



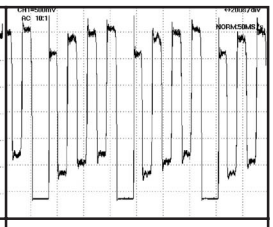
② 0.5 Vp-p (H)



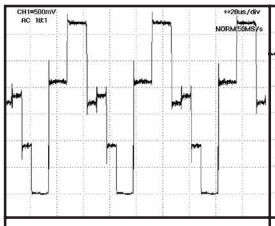
③ 0.7 Vp-p (H)



④ 3.5 Vp-p (H)



⑤ 3.5 Vp-p (H)



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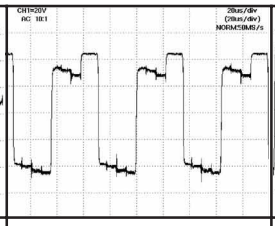
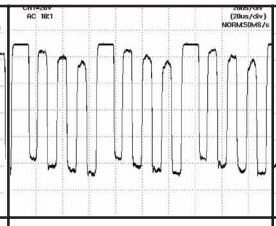


⑦ 99 Vp-p (H)



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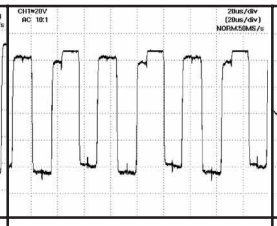
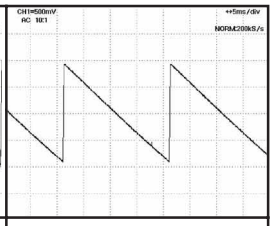
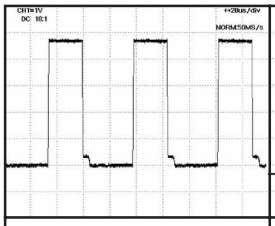


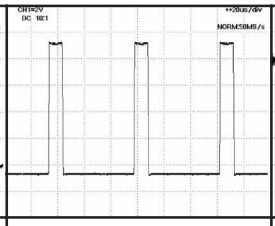
⑨ 92 Vp-p (H)



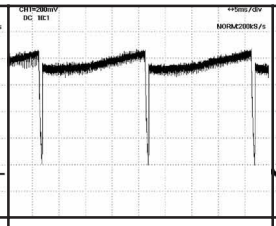
⑩ 1.8 Vp-p (H)



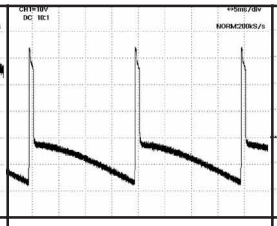
⑪ 4.6 Vp-p (H)



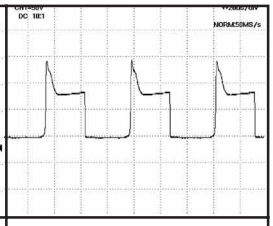
⑫ 9.3 Vp-p (H)



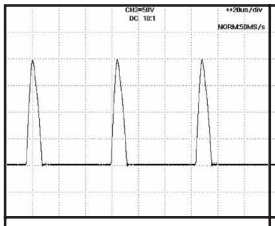
⑬ 0.85 Vp-p (H)



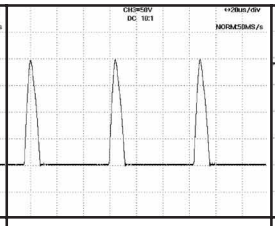
⑭ 55 Vp-p (H)



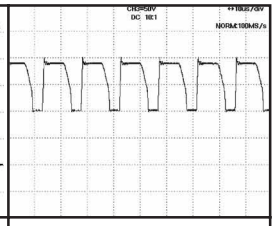
⑮ 145 Vp-p (H)



⑯ 1000 Vp-p (H)



⑰ 136 Vp-p (H)



⑱ 520 Vp-p (H)

DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "⚠" ( ) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (▬ ▬ ▬) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE.
WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

NOTES:

1. *The unit of resistance "ohm" is omitted. (K = 1000 ohms, M = Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μF, unless therwise noted. (P = μμF).*

VOLTAGE MEASUREMENT CONDITIONS:

1. *Voltage in parenthesis measured with no Signal.*
2. *Voltages without parenthesis measured with 3mV B & W or Colour-Signal.*
3. *All the voltages in each point are measured with VTVM.*

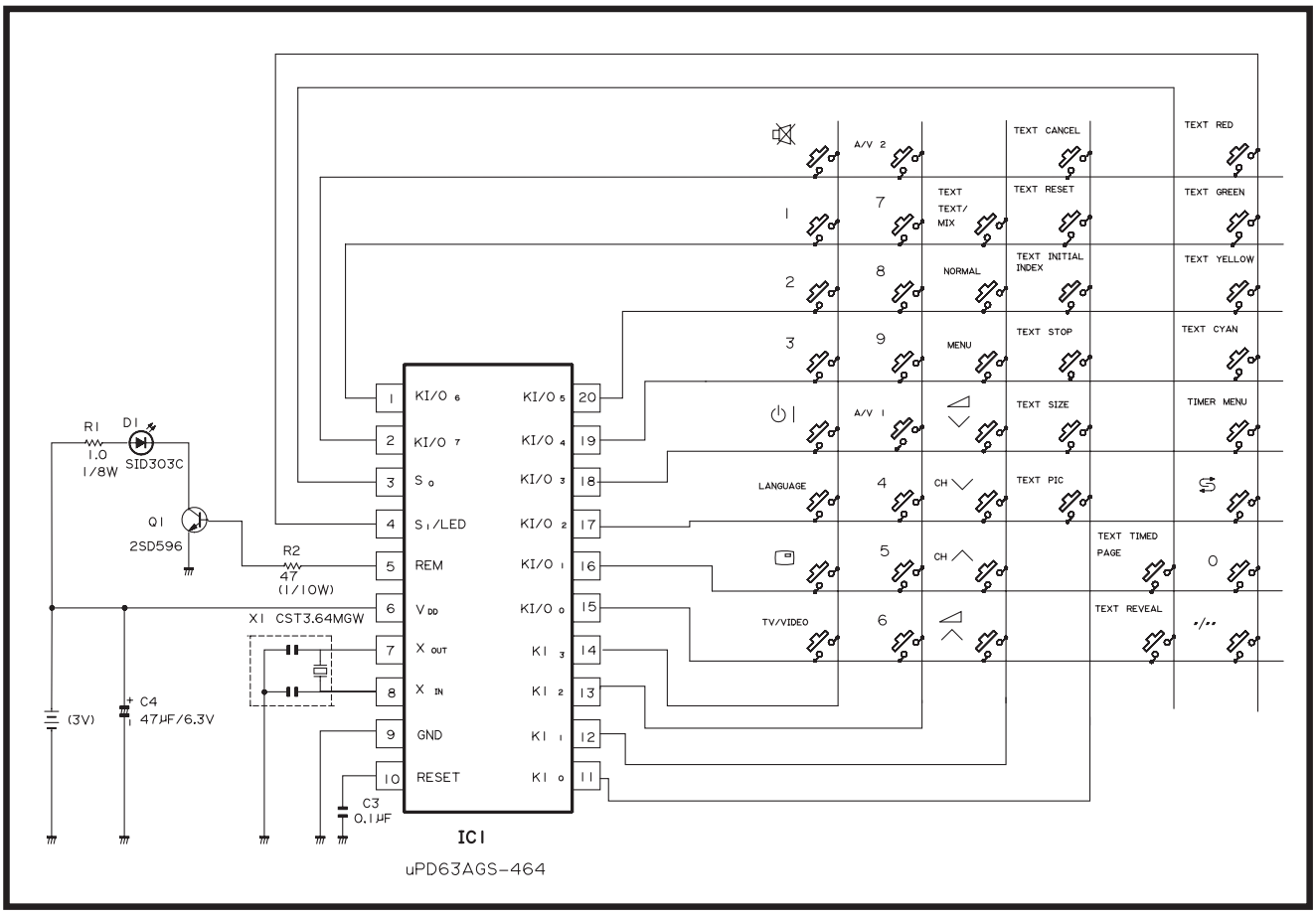
WAVEFORM MEASUREMENT CONDITIONS:

1. *Colour bar generator signal of 1.5V peak to peak applied at Base of Video Buffer Amp. Q202.*
2. *Approximately 4.0 V AGC bias.*

■ Infrared Remote Control Unit

RRMCG1440CESA

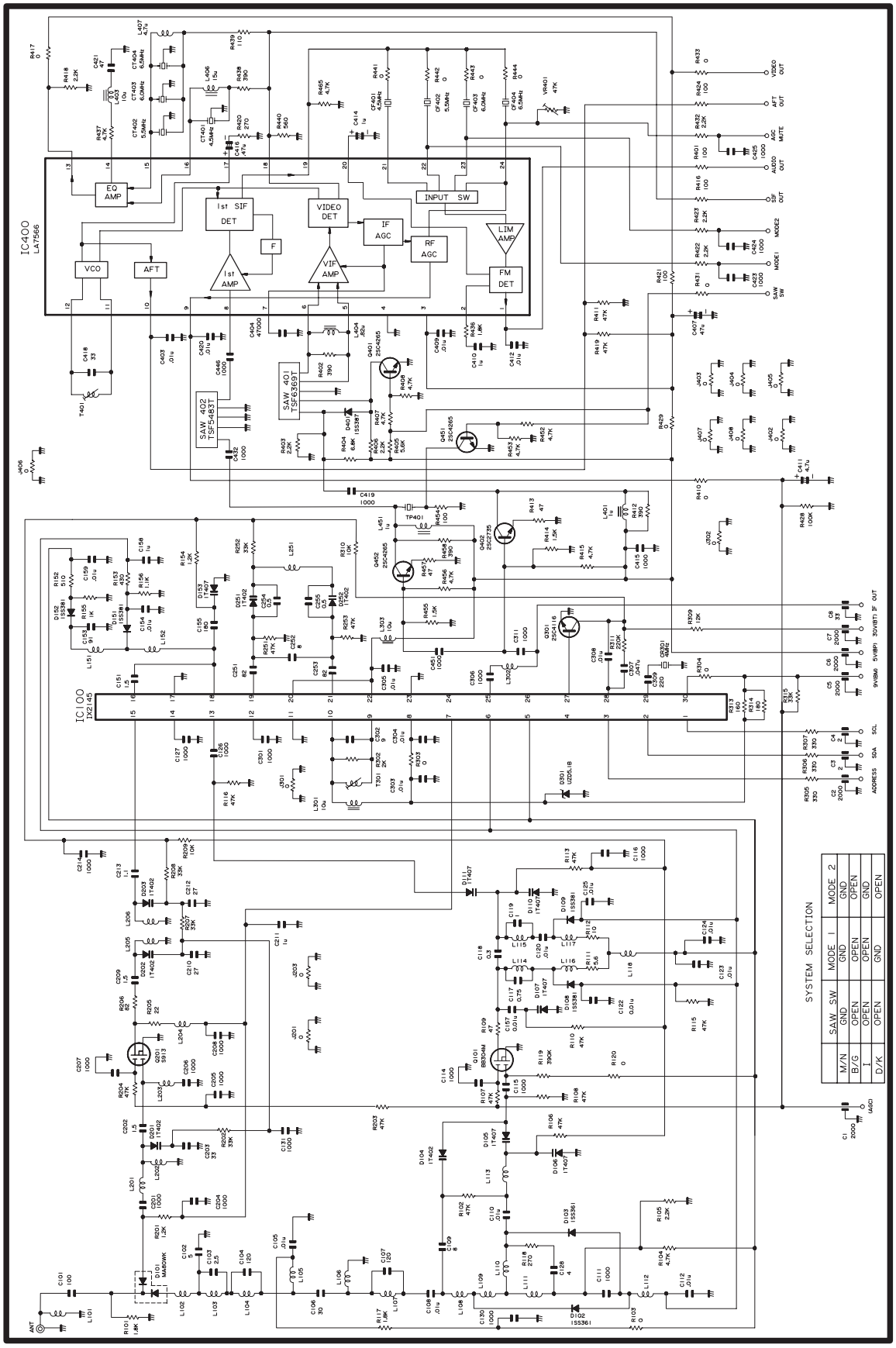
NOTE: The parts here shown are supplied as an assembly but not independently.



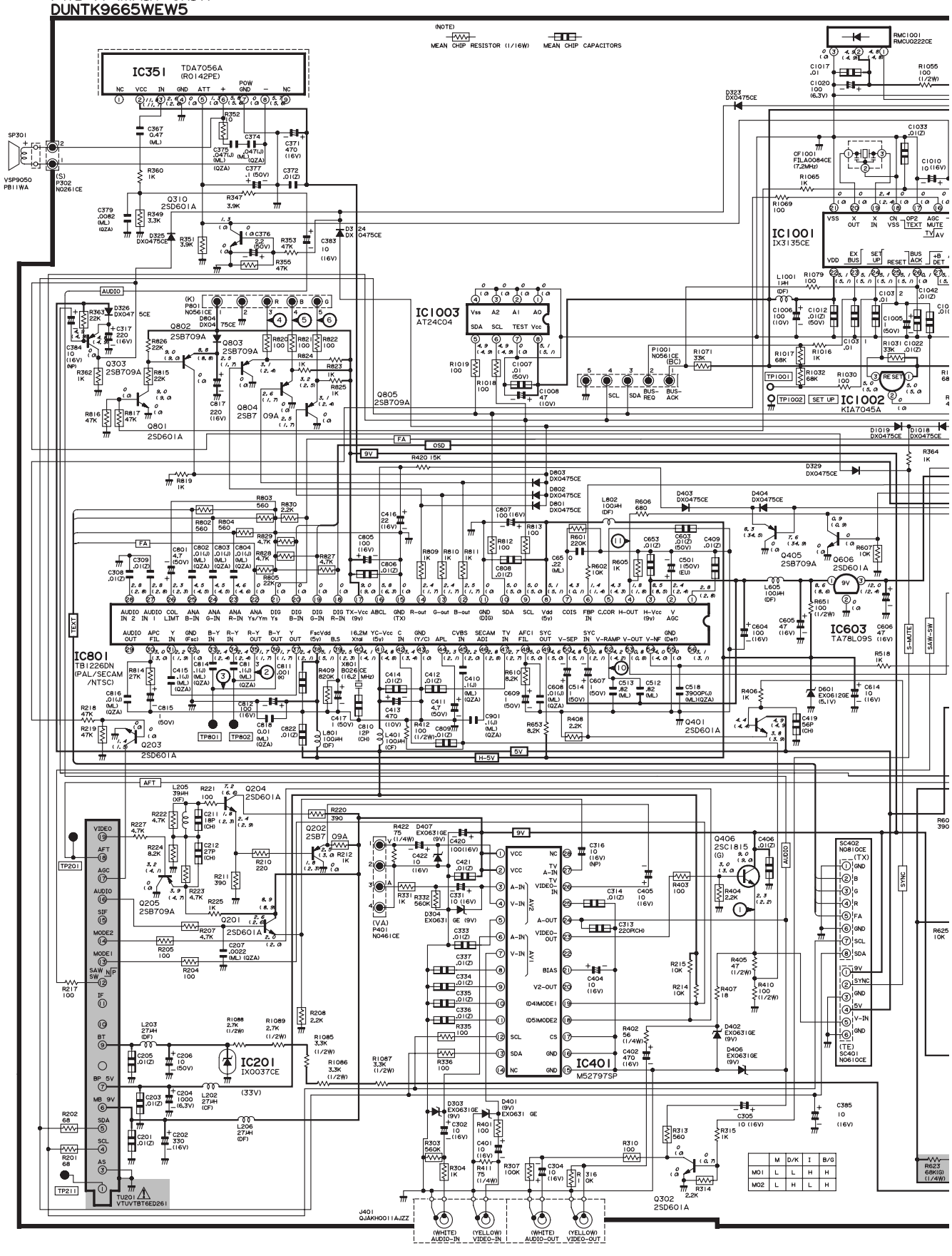
■ Tuner

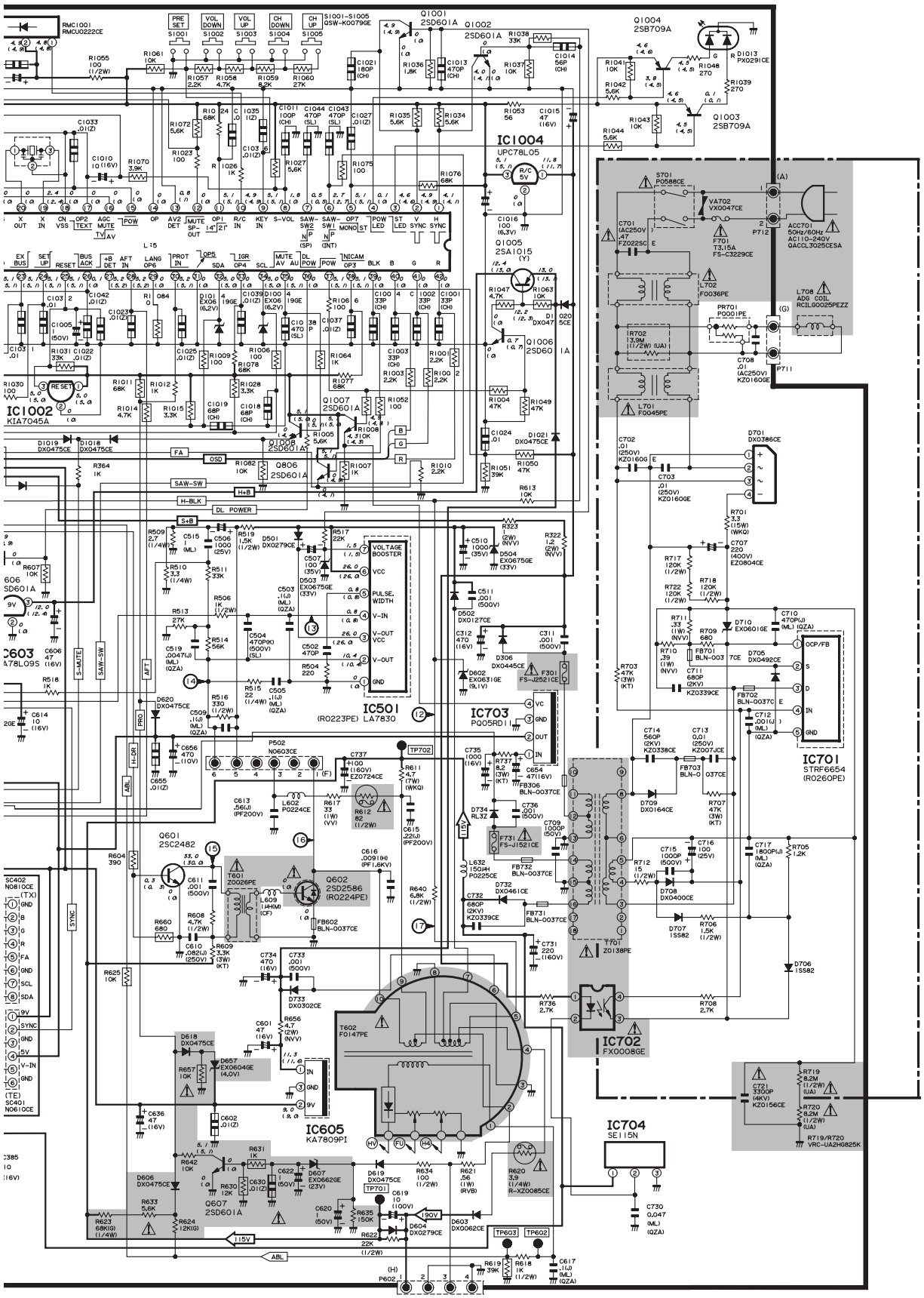
NOTE: The parts here shown are supplied as an assembly but not independently.

⚠ VTUVTBT6ED261



SCHEMATIC DIAGRAM: MAIN Unit

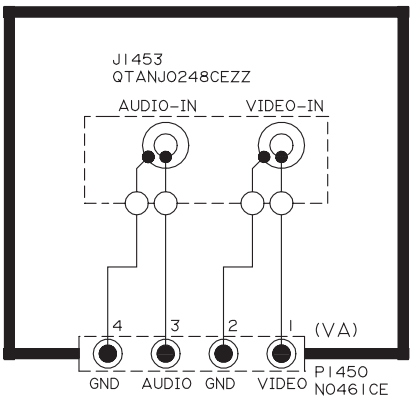




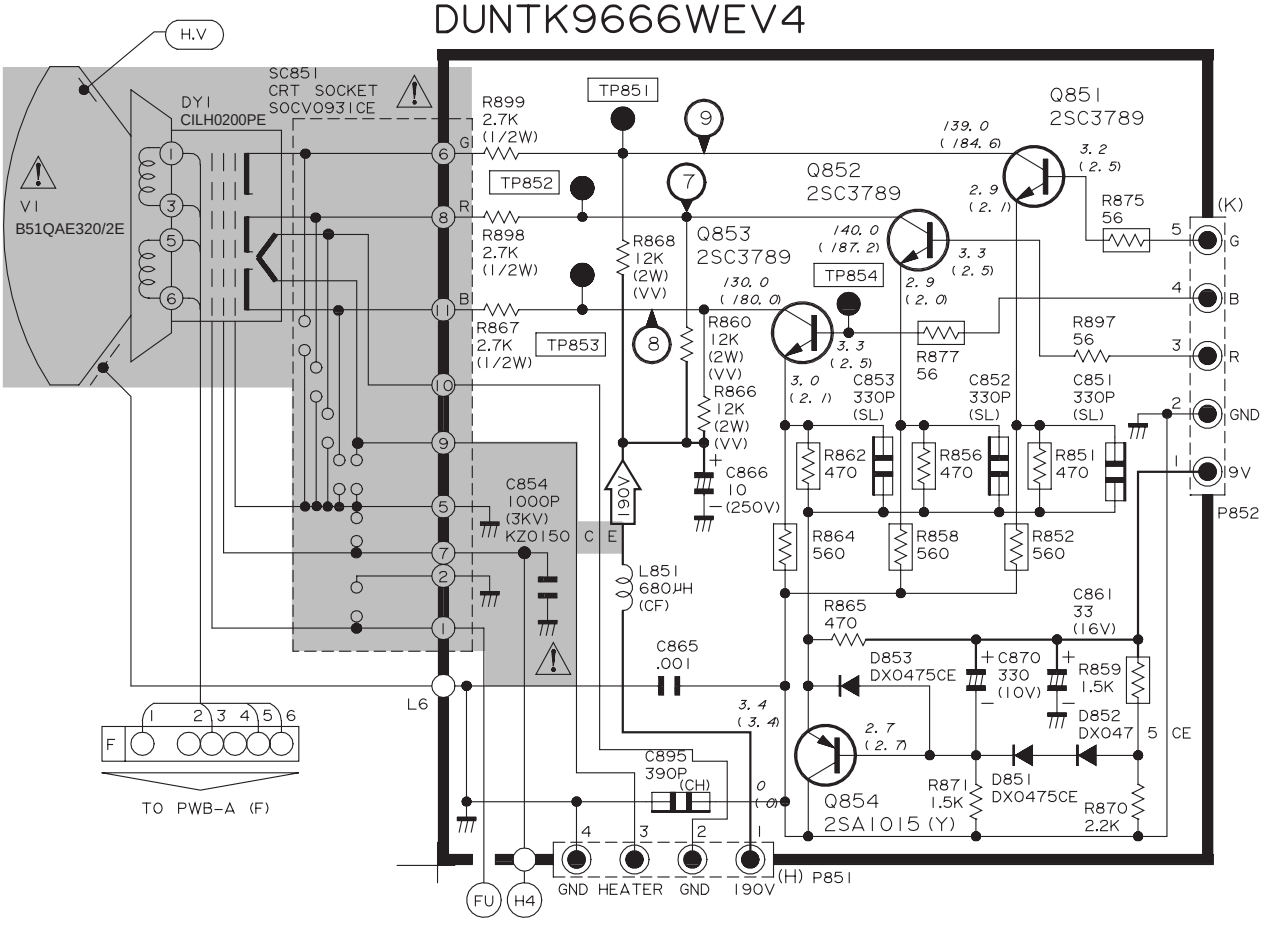
10	11	12	13	14	15	16	17	18	19

SCHEMATIC DIAGRAM: CRT and FRONT-AV Units

PWB-E (FRONT-AV UNIT) DUNTK9667WEV2

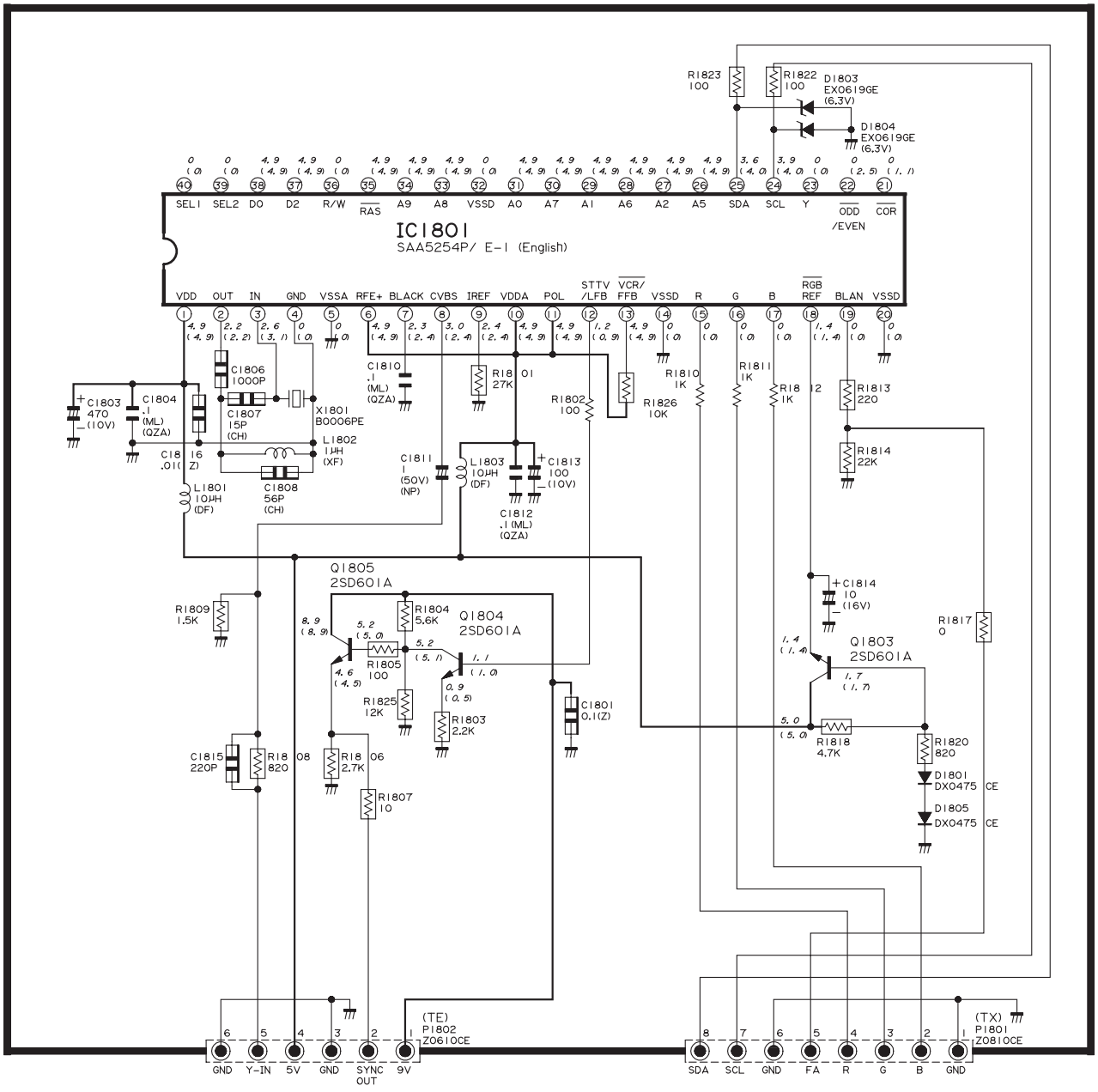


PWB-B (CRT UNIT) DUNTK9666WEV4



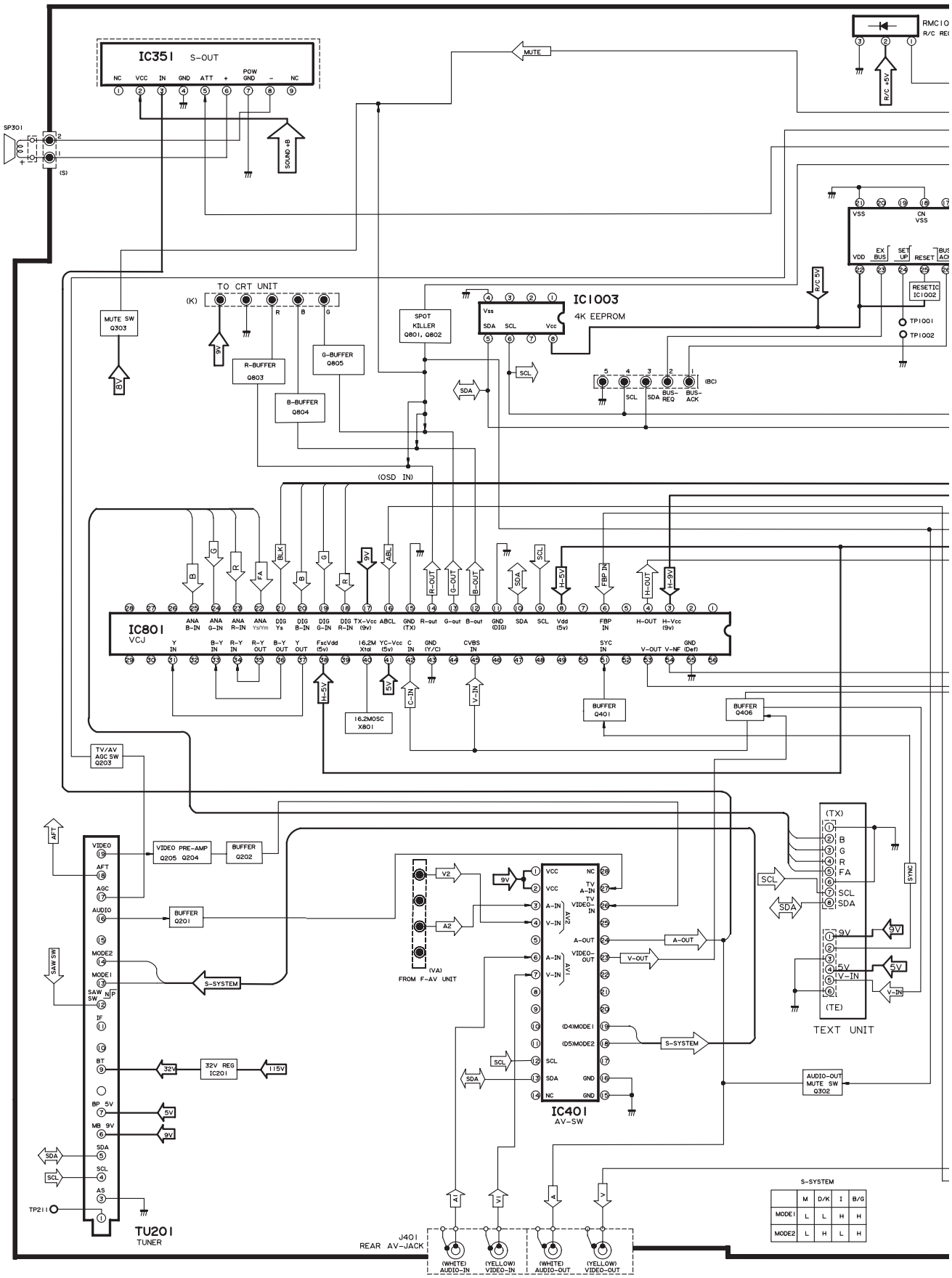
SCHEMATIC DIAGRAM: TEXT Unit

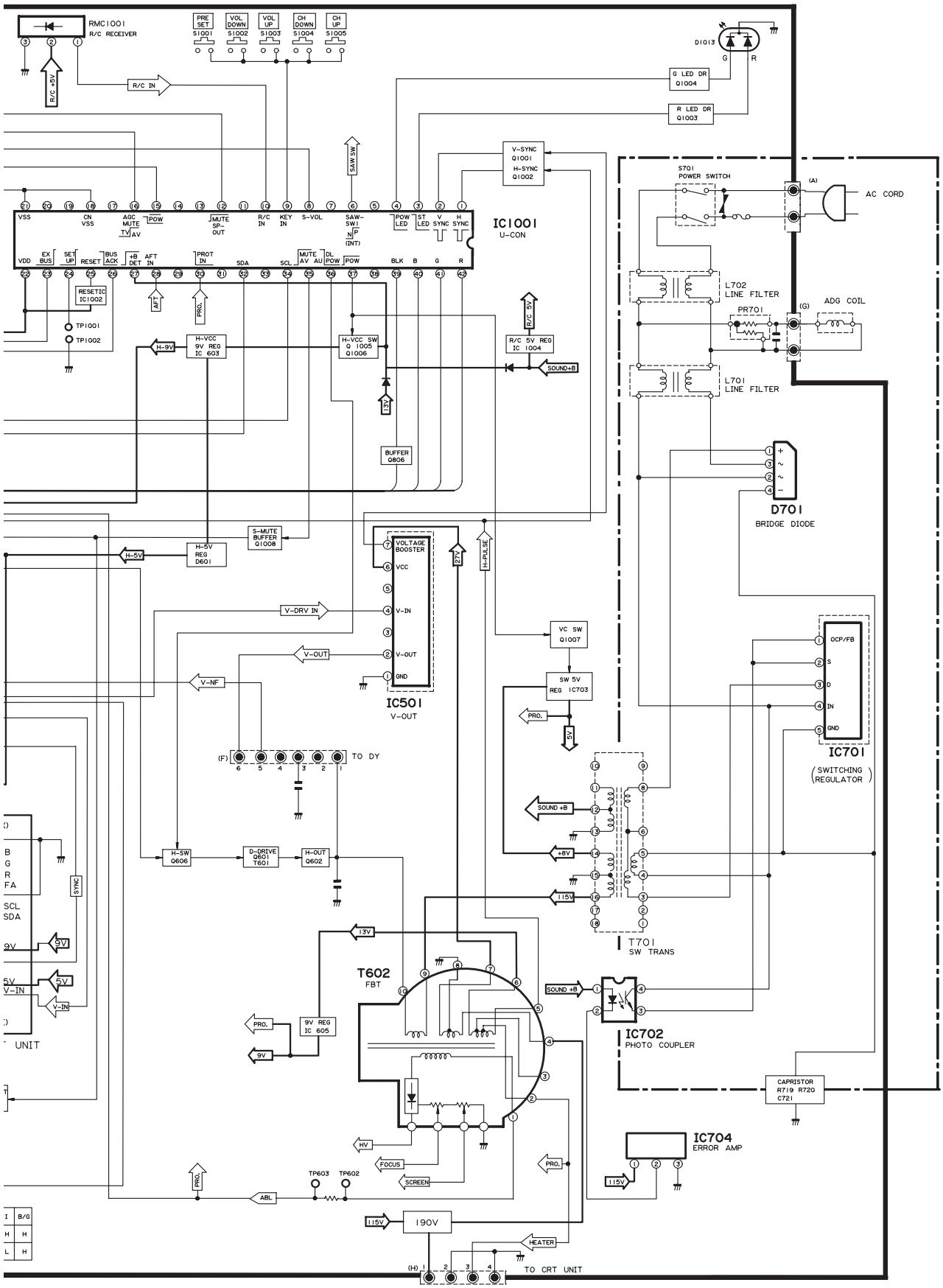
PWB-D (TEXT UNIT)
DUNTK9669WEV2



BLOCK DIAGRAM -1/3

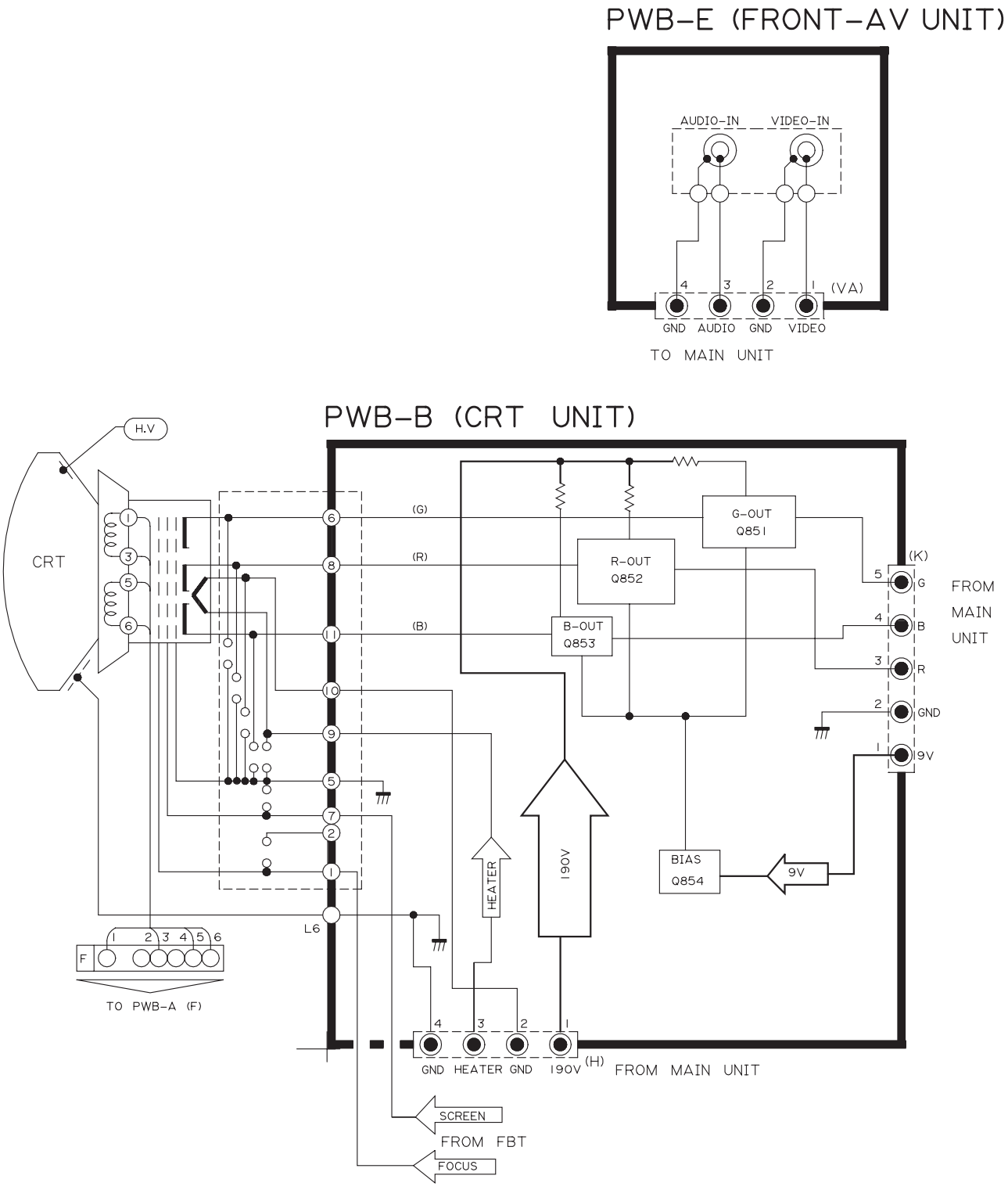
PWB-A (MAIN UNIT)





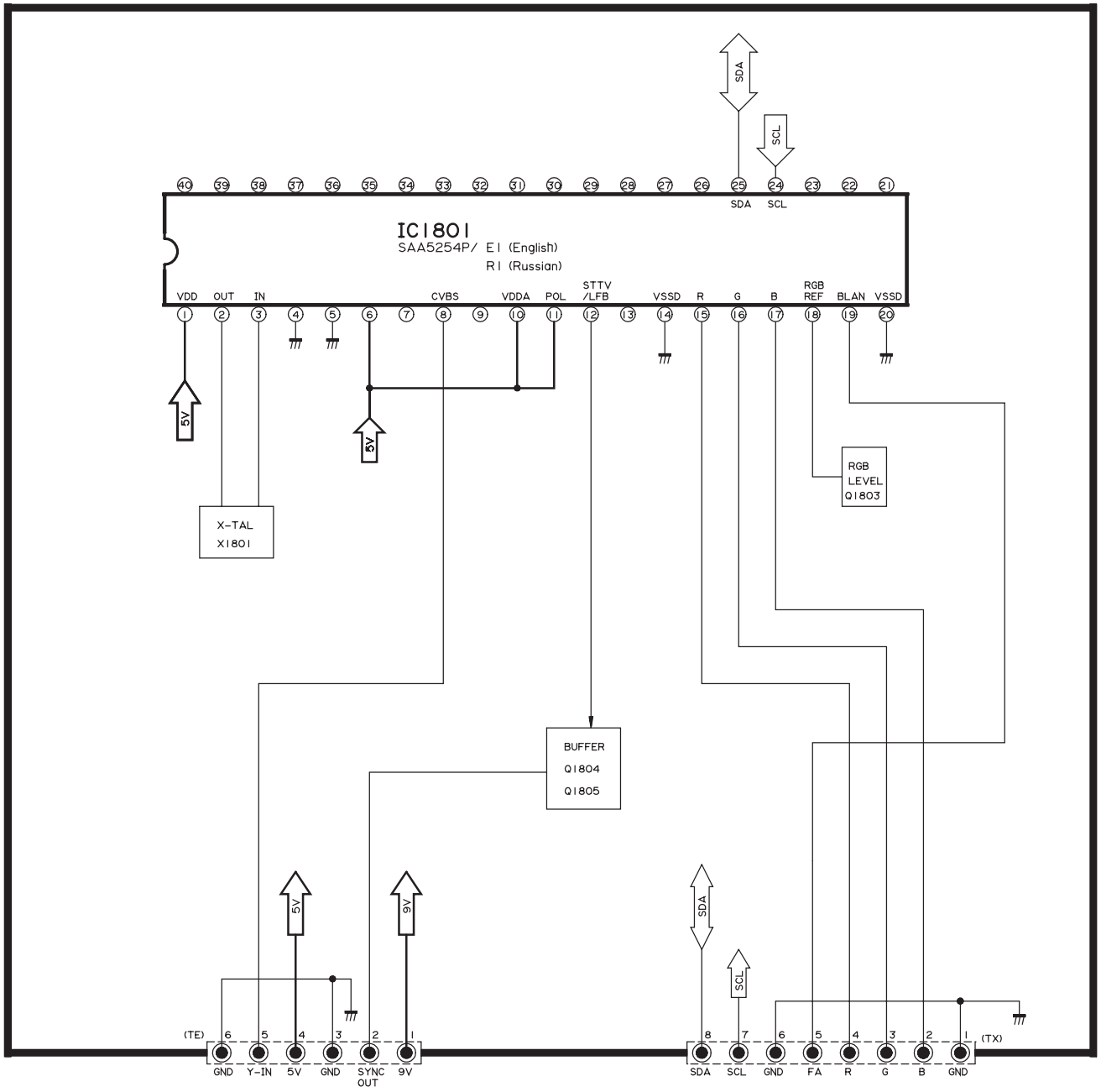
10	11	12	13	14	15	16	17	18	19

BLOCK DIAGRAM -2/3

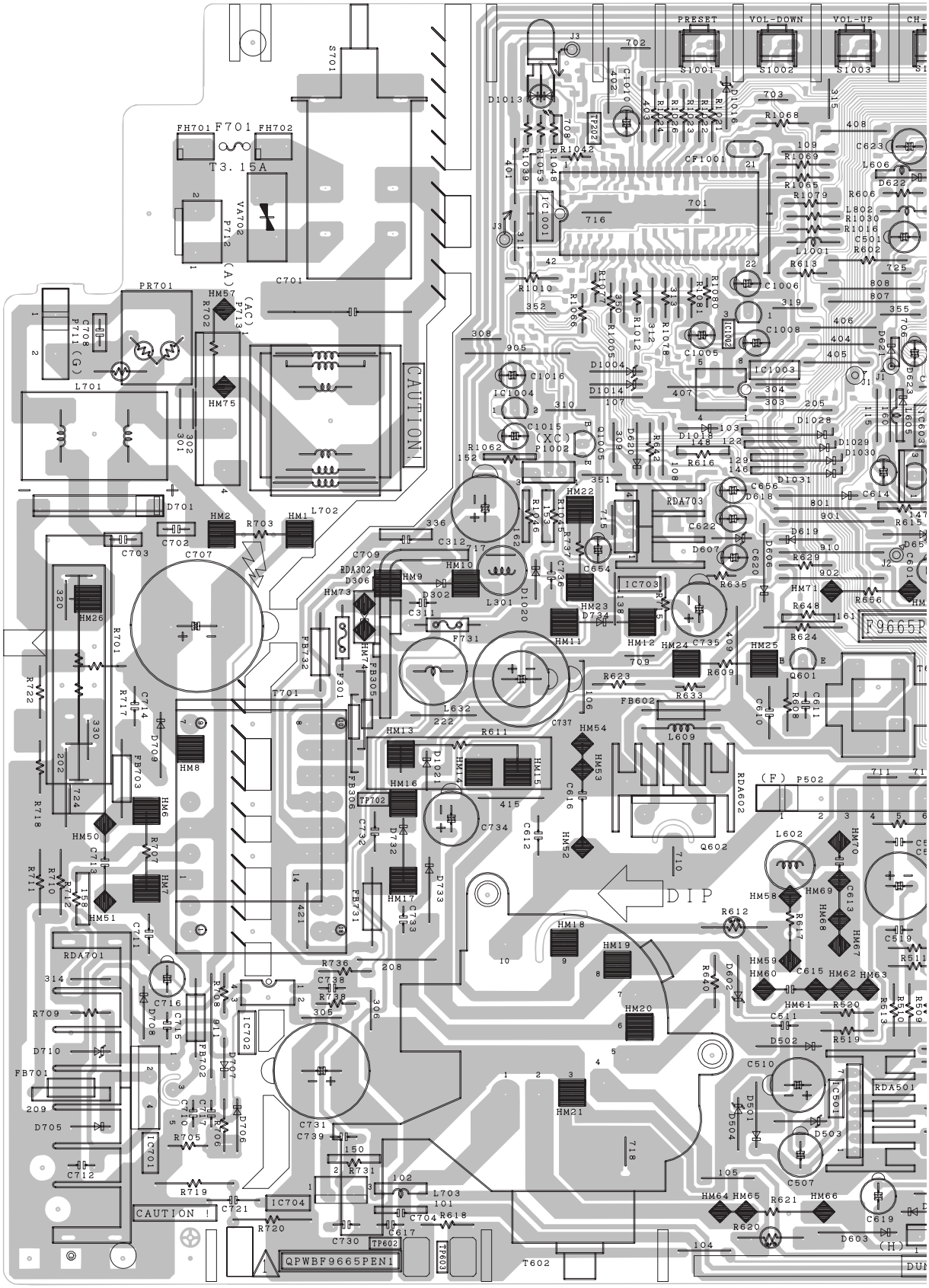


BLOCK DIAGRAM -3/3

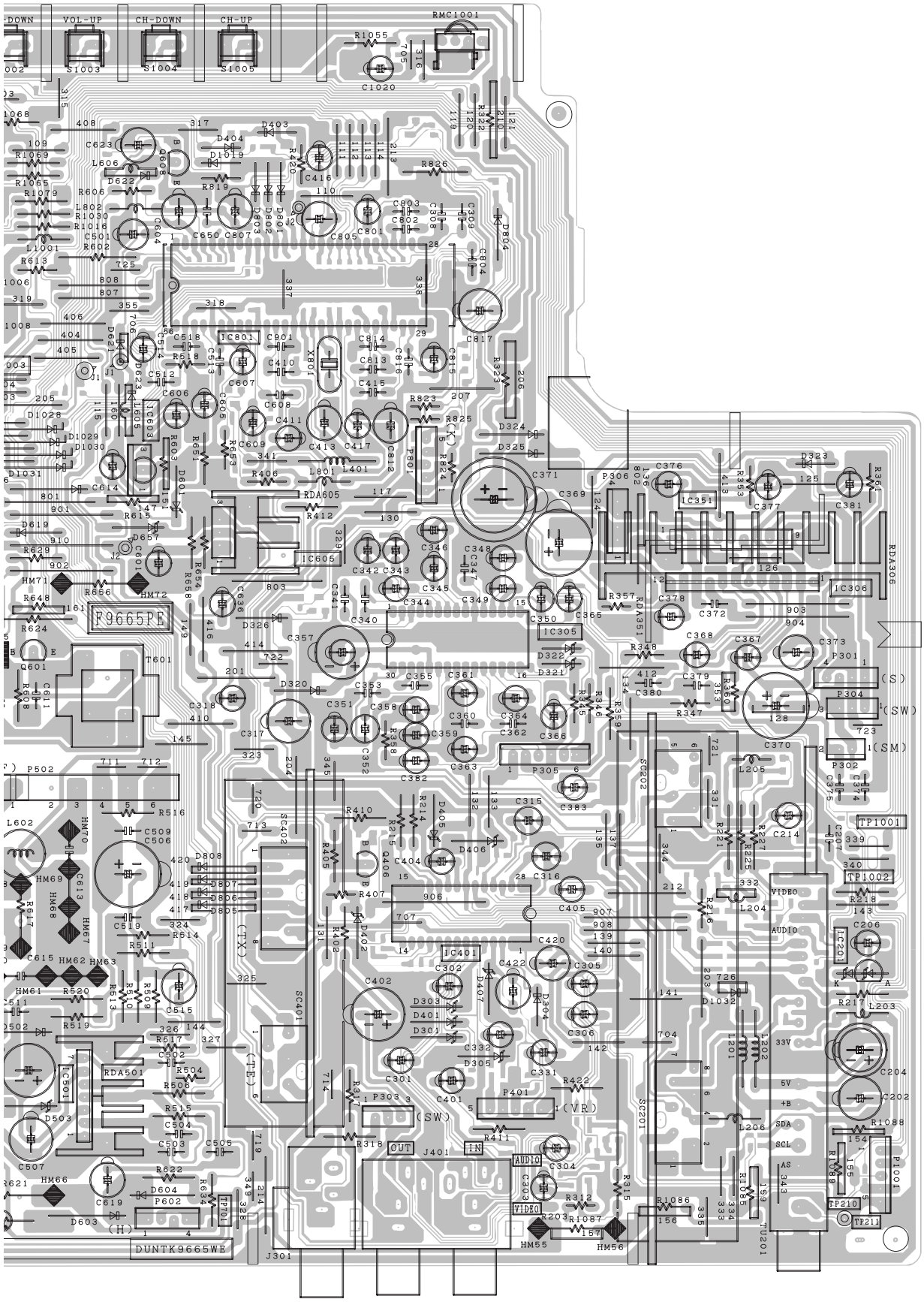
PWB-D (TEXT UNIT)



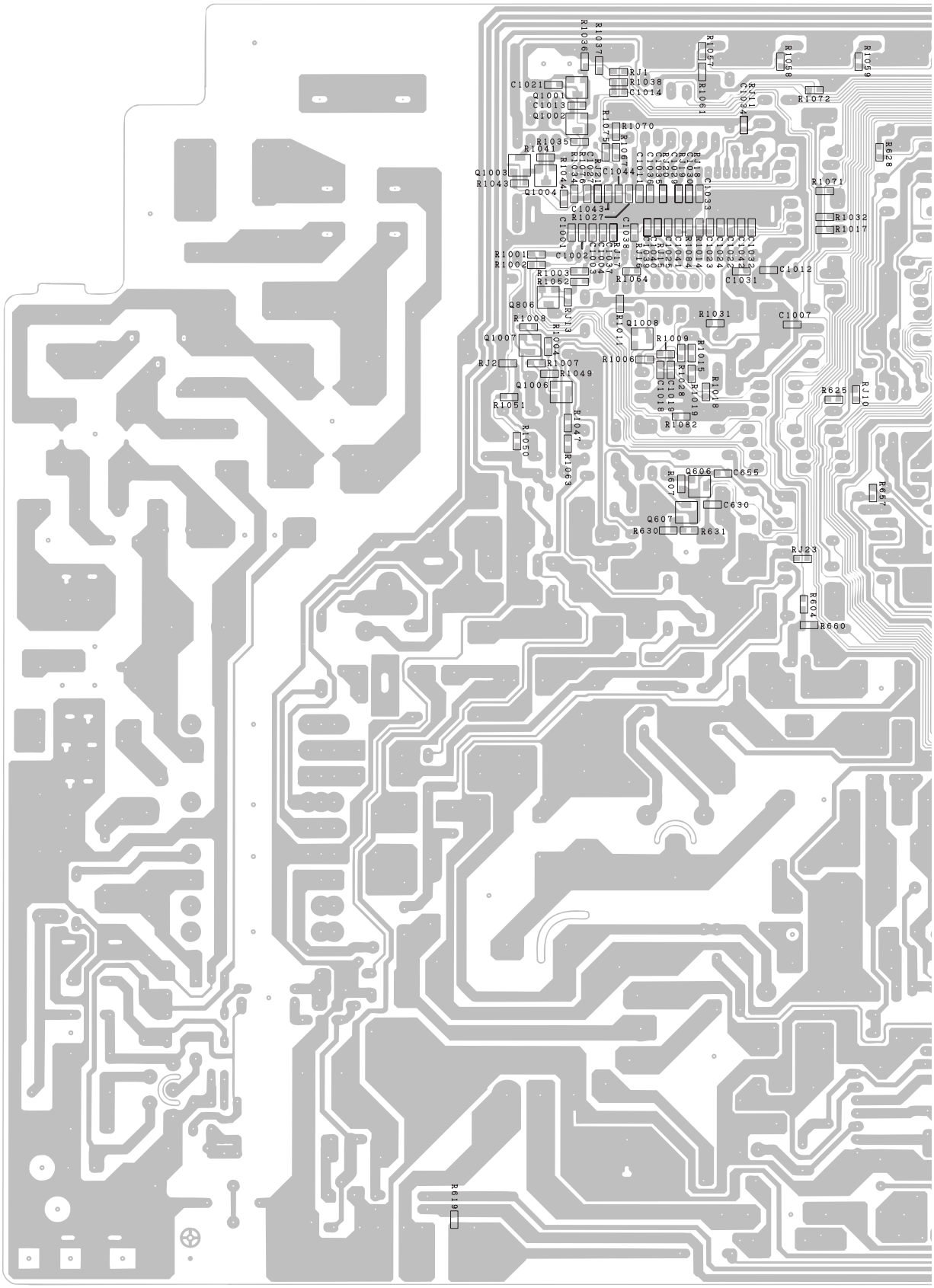
PRINTED WIRING BOARD ASSEMBLIES



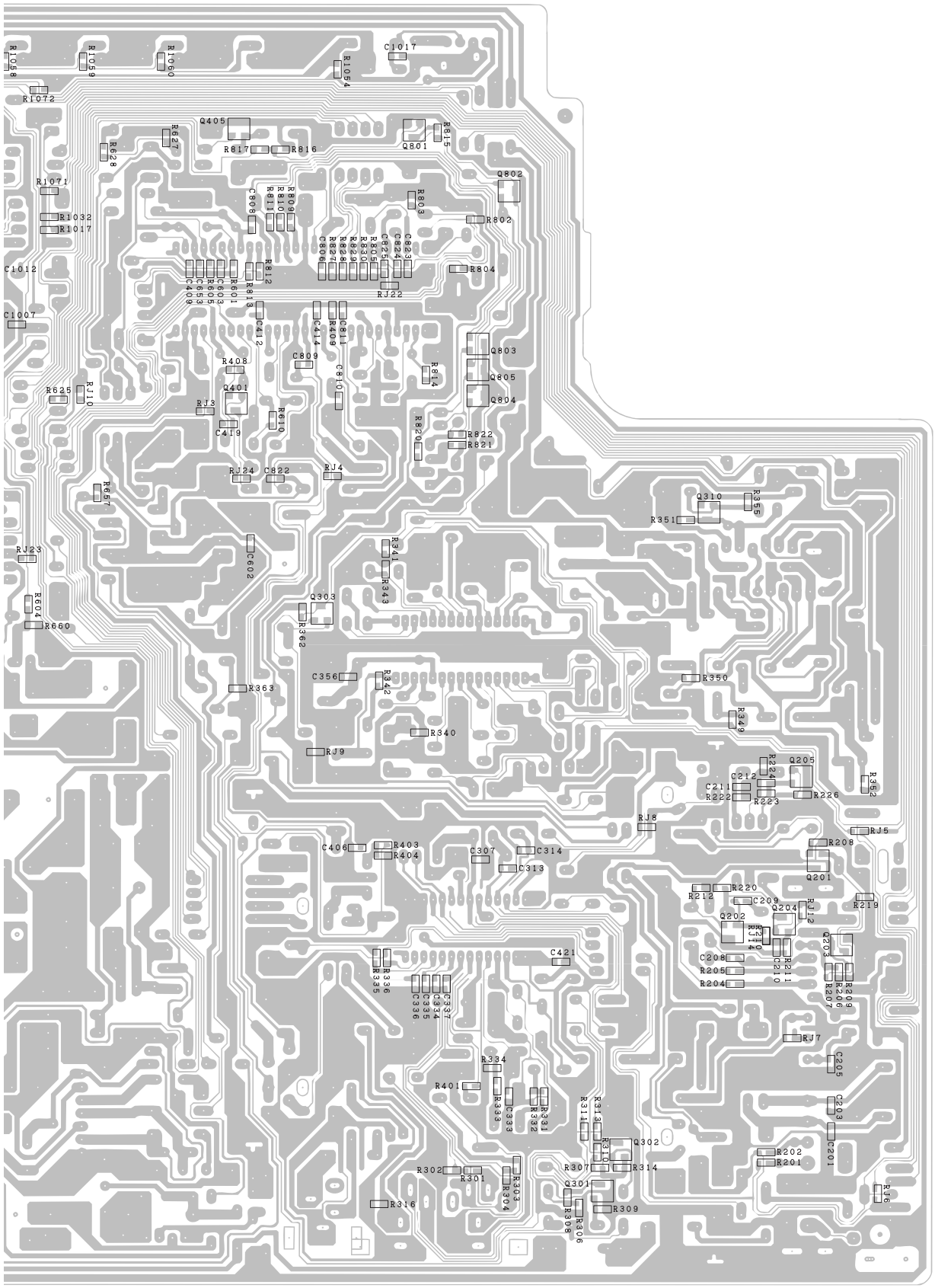
PWB-A: MAIN Unit (Wiring Side)



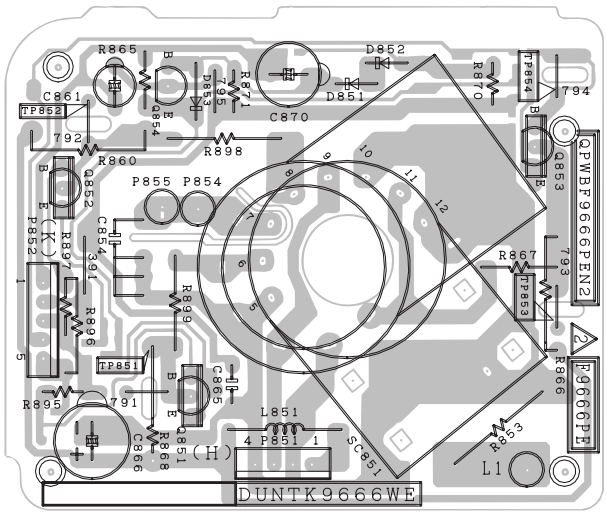
10	11	12	13	14	15	16	17	18	19



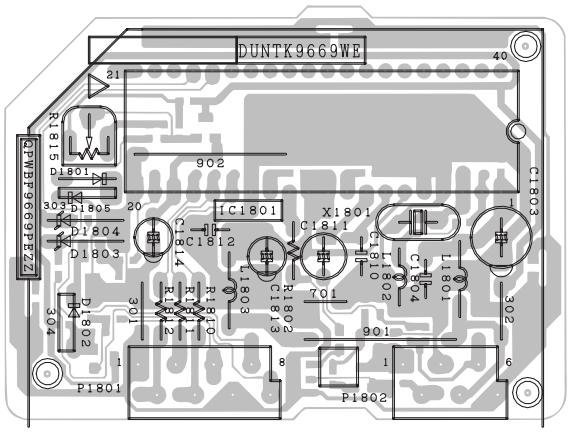
PWB-A: MAIN Unit (Chip Parts Side)



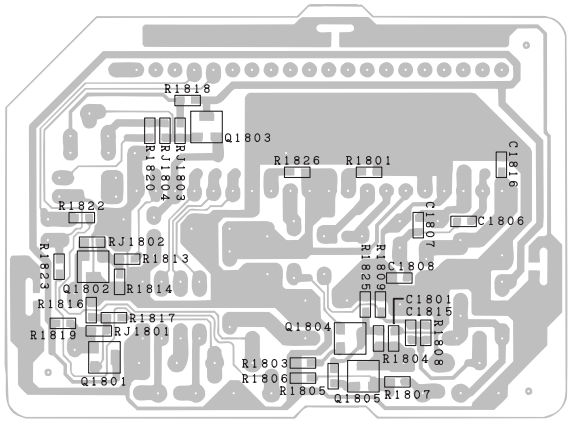
10	11	12	13	14	15	16	17	18	19



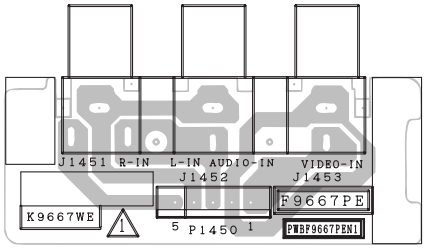
PWB-B: CRT Unit (Wiring Side)



PWB-D: TEXT Unit (Wiring Side)



PWB-D: TEXT Unit (Chip Parts Side)



PWB-E: FRONT-AV Unit (Wiring Side)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by "⚠" in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. CODE
6. QUANTITY

★ MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

⚠ V1	VB51QAE320X2E	R	Picture Tube	CD
⚠ DY1	RCiLH0200PEZZ	R	Deflection Yoke	BB
⚠ L708	RCiLG0025PEZZ	R	Degaussing Coil	AW
	LHLDW0003PEKZ	R	ADG Coil Holder, x4	AB
	LHLDW1075PEKZ	R	ADG Fix Holder	AC
	MSPRT0001PEFJ	R	Spring	AC
	PMAGF3003CEZZ	R	Magnet	AK
	QEARC2107PEZZ	R	Grouding Strap	AE

PRINTED WIRING BOARD ASSEMBLIES
(NOT REPLECEMENT ITEM)

PWB-A	DUNTK9665WEW5	–	MAIN Unit	—
PWB-B	DUNTK9666WEV4	–	CRT Unit	—
PWB-D	DUNTK9669WEV2	–	TEXT Unit	—
PWB-E	DUNTK9667WEV2	–	FRONT-AV Unit	—

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTK9665WEW5
MAIN UNIT

TUNER

Note: THE PARTS HERE SOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

⚠ TU201	VTUVTBT6ED261	R	VHF Tuner	BN

INTEGRATED CIRCUITS

IC201	RH-iX0037CEZZ	R	UPC574J	AF
IC351	VHiTDA7056A-1	R	TDA7056A	AP
IC401	VHiM52797SP-1	R	M52797SP	AP
IC501	VHiLA7830//-1	R	LA7830	AH
IC603	VHiTA78L09S-1	R	TA78L09S	AC
IC605	VHiKA7809Pi-1	J	KA7809PI	AE
IC701	VHiSTRF6654-1	R	STRF6654	AX
IC702	RH-FX0008GEZZ	R	PC123FY8	AE
IC703	VHiPQ05RD11-1	R	PQ05RD11	AG
IC704	VHiSE115N//-1	R	SE115N	AF
IC801	VHiTB1226DN-1	R	TB1226DN	BB
IC1001	RH-iX3135CEZZ	R	M37221M8	AX
IC1002	VHiKiA7045A-1	R	KIA7045A	AE
IC1003	VHiAT24C04/-1	R	AT24C04	AP
IC1004	VHiUPC78L05-4	R	UPC78L05J	AD

TRANSISTORS

Q201	VS2SD601A//-1	R	2SD601A	AC
Q202	VS2SB709A//-1	R	2SB709A	AA
Q203	VS2SD601A//-1	R	2SD601A	AC
Q204	VS2SD601A//-1	R	2SD601A	AC
Q205	VS2SB709A//-1	R	2SB709A	AA
Q302	VS2SD601A//-1	R	2SD601A	AC
Q303	VS2SB709A//-1	R	2SB709A	AA
Q310	VS2SD601A//-1	R	2SD601A	AC
Q401	VS2SD601A//-1	R	2SD601A	AC
Q405	VS2SB709A//-1	R	2SB709A	AA
Q406	VS2SC1815GW-1	R	2SC1815GW	AB
Q601	VS2SC2482//-1	R	2SC2482	AD
⚠ Q602	VS2SD2586//1E	R	2SD2586	AM
Q606	VS2SD601A//-1	R	2SD601A	AC
⚠ Q607	VS2SD601A//-1	R	2SD601A	AC
Q801	VS2SD601A//-1	R	2SD601A	AC
Q802	VS2SB709A//-1	R	2SB709A	AA
Q803	VS2SB709A//-1	R	2SB709A	AA
Q804	VS2SB709A//-1	R	2SB709A	AA
Q805	VS2SB709A//-1	R	2SB709A	AA
Q806	VS2SD601A//-1	R	2SD601A	AC
Q1001	VS2SD601A//-1	R	2SD601A	AC
Q1002	VS2SD601A//-1	R	2SD601A	AC
Q1003	VS2SB709A//-1	R	2SB709A	AA
Q1004	VS2SB709A//-1	R	2SB709A	AA
Q1005	VS2SA1015Y/1E	R	2SA1015(Y)	AC
Q1006	VS2SD601A//-1	R	2SD601A	AC
Q1007	VS2SD601A//-1	R	2SD601A	AC
Q1008	VS2SD601A//-1	R	2SD601A	AC

DIODES

D303	RH-EX0631GEZZ	R	Zener Diode	AA
D304	RH-EX0631GEZZ	R	Zener Diode	AA
D306	RH-DX0445CEZZ	R	Diode	AL
D323	RH-DX0475CEZZ	R	Diode	AB
D324	RH-DX0475CEZZ	R	Diode	AB
D325	RH-DX0475CEZZ	R	Diode	AB
D326	RH-DX0475CEZZ	R	Diode	AB
D329	RH-DX0475CEZZ	R	Diode	AB
D401	RH-EX0631GEZZ	R	Zener Diode	AA
D402	RH-EX0631GEZZ	R	Zener Diode	AA
D403	RH-DX0475CEZZ	R	Diode	AB
D404	RH-DX0475CEZZ	R	Diode	AB
D406	RH-EX0631GEZZ	R	Zener Diode	AA
D407	RH-EX0631GEZZ	R	Zener Diode	AA
D501	RH-DX0279CEZZ	R	Diode	AB
D502	RH-DX0127CEZZ	R	Diode	AC
D503	RH-EX0675GEZZ	R	Zener Diode	AB

PWB-A: DUNTK9665WEW5

MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
D504	RH-EX0675GEZZ	R	Zener Diode	AB
D601	RH-EX0612GEZZ	R	Zener Diode	AA
D602	RH-EX0631GEZZ	R	Zener Diode	AA
D603	RH-DX0062CEZZ	R	Diode	AD
D604	RH-DX0279CEZZ	R	Diode	AB
⚠ D606	RH-DX0475CEZZ	R	Diode	AB
⚠ D607	RH-EX0662GEZZ	R	Zener Diode	AB
D618	RH-DX0475CEZZ	R	Diode	AB
D619	RH-DX0475CEZZ	R	Diode	AB
D620	RH-DX0475CEZZ	R	Diode	AB
⚠ D657	RH-EX0604GEZZ	R	Zener Diode	AB
D701	RH-DX0386CEZZ	R	Diode	AG
D705	RH-DX0492CEZZ	R	Diode	AE
D706	VHD1SS82///1A	R	Diode	AC
D707	VHD1SS82///1A	R	Diode	AC
D708	RH-DX0400CEZZ	R	Diode	AC
D709	RH-DX0164CEZZ	R	Diode	AC
D710	RH-EX0601GEZZ	R	Zener Diode	AA
D732	RH-DX0461CEZZ	R	Diode	AG
D733	RH-DX0302CEZZ	R	Diode	AC
D734	VHDRL3Z////-1	R	Diode	AE
D801	RH-DX0475CEZZ	R	Diode	AB
D802	RH-DX0475CEZZ	R	Diode	AB
D803	RH-DX0475CEZZ	R	Diode	AB
D804	RH-DX0475CEZZ	R	Diode	AB
D1004	RH-EX0619GEZZ	R	Zener Diode	AA
D1013	RH-PX0291CEZZ	R	Photodiode	AC
D1014	RH-EX0619GEZZ	R	Zener Diode	AA
D1018	RH-DX0475CEZZ	R	Diode	AB
D1019	RH-DX0475CEZZ	R	Diode	AB
D1020	RH-DX0475CEZZ	R	Diode	AB
D1021	RH-DX0475CEZZ	R	Diode	AB
⚠ VA702	RH-VX0047CEZZ	R	Varistor	AF

PACKAGED CIRCUITS

PR701	RMPTP0001PEZZ	J	Packaged Circuit	AN
X801	RCRSB0260CEZZ	R	Crystal	AK

FILTER AND COILS

CF1001	RFiLA0084CEZZ	R	Ceramic Filter	AE
L202	VP-CF270K0000	R	Peaking 27µH	AB
L203	VP-DF270K0000	R	Peaking 27µH	AB
L205	VP-XF390K0000	R	Peaking 39µH	AB
L206	VP-DF270K0000	R	Peaking 27µH	AB
L401	VP-CF101K0000	R	Peaking 100µH	AB
L602	RCiLP0224CEZZ	R	Coil	AE
L605	VP-DF101K0000	R	Peaking 100µH	AB
L609	VP-CF1R0M0000	R	Peaking 1µH	AB
L632	RCiLP0225CEZZ	R	Coil	AF
⚠ L701	RCiLF0045PEZZ	J	Coil	AF
⚠ L702	RCiLF0036PEZZ	J	Coil	AN
L801	VP-DF101K0000	R	Peaking 100µH	AB
L802	VP-DF101K0000	R	Peaking 100µH	AB
L1001	VP-DF1R0K0000	R	Peaking 1µH	AB

TRANSFORMERS

⚠ T601	RTRNZ0026PEZZ	J	Transformer	AH
⚠ T602	RTRNF0147PEZZ	J	H-Volt Transformer	BC
⚠ T701	RTRNZ0138PEZZ	J	Transformer	AW

CAPACITORS

C201	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C202	VCEAGA1CW337M	R	330	16V	Electrolytic	AC
C203	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C204	VCEAGA0JW108M	R	1000	6.3V	Electrolytic	AC
C205	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C206	VCEAGA1HW106M	R	10	50V	Electrolytic	AC
C207	RC-QZA222TAYJ	R	0.0022	50V	Mylar	AB
C211	VCCCCY1HH180J	R	18p	50V	Ceramic	AA
C212	VCCCCY1HH270J	R	27p	50V	Ceramic	AA
C302	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C304	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C305	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C308	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C309	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C311	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C312	VCEAGA1CW477M	R	470	16V	Electrolytic	AC
C313	VCCCCY1HH221J	R	220p	50V	Ceramic	AA
C314	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C316	VCE9GA1CW106M	R	10	16V	Elect.(N.P)	AB
C317	VCEAGA1CW227M	R	220	16V	Electrolytic	AC
C331	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C333	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C334	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C335	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C336	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C337	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C367	VCFYSA1HB474J	R	0.47	50V	Mylar	AC
C371	VCEAGA1CW477M	R	470	16V	Electrolytic	AC
C372	VCKYPA1HF103Z	R	0.01	50V	Ceramic	AA
C374	RC-QZA473TAYJ	R	0.047	50V	Mylar	AB
C375	RC-QZA473TAYJ	R	0.047	50V	Mylar	AB
C376	VCEAGA1HW225M	R	2.2	50V	Electrolytic	AB
C377	VCEAGA1HW104M	R	0.1	50V	Electrolytic	AA
C379	RC-QZA822TAYJ	R	0.0082	50V	Mylar	AB
C383	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C384	VCE9GA1CW106M	R	10	16V	Elect.(N.P)	AB
C385	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C401	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C402	VCEAGA1CW477M	R	470	16V	Electrolytic	AC
C404	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C405	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C406	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C409	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C410	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C411	VCEAGA1HW475M	R	4.7	50V	Electrolytic	AB
C412	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C413	VCEAGA1AW477M	R	470	10V	Electrolytic	AC
C414	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C415	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C416	VCEAGA1CW226M	R	22	16V	Electrolytic	AB
C417	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C419	VCCCCY1HH560J	R	56p	50V	Ceramic	AA
C420	VCEAGA1CW107M	R	100	16V	Electrolytic	AB
C421	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C422	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C501	VCEACA1HC105M	R	1.0	50V	Electrolytic	AC
C502	VCKYPA1HB471K	R	470p	50V	Ceramic	AA
C503	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C504	VCCSPA2HL471K	R	470p	500V	Ceramic	AB
C505	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C506	VCEAGA1EW108M	R	1000	25V	Electrolytic	AD
C507	VCEAGA1VW107M	R	100	35V	Electrolytic	AC
C509	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C510	VCEAGA1VW108M	R	1000	35V	Electrolytic	AD
C511	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C512	VCFYSA1HB824J	R	0.82	50V	Mylar	AC
C513	VCFYSA1HB824J	R	0.82	50V	Mylar	AC
C514	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C515	VCFYHA1HA105J	R	1.0	50V		AE
C518	RC-QZA392TAYJ	R	3900p	50V	Mylar	AB
C519	RC-QZA472TAYJ	R	0.0047	50V	Mylar	AB
C601	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C602	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C603	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C604	VCEAGA1CW107M	R	100	16V	Electrolytic	AB
C605	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C606	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C607	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C608	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C609	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C610	VCFYSB2EB823J	R	0.082	250V	Mylar	AD
C611	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C613	VCFPPD2DB564J	R	0.56	200V	Polypro Film	AF
C614	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C615	VCQPSD2DA224J	R	0.22	200V	Mylar	AD
C616	VCFPPD3CA912H	R	9100p	1.6kV	Polypro Film	AE

PWB-A: DUNTK9665WEW5

MAIN UNIT (Continued)

Ref. No.	Part No.	★			Description	Code
C617	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C619	VCEAGA2AW106M	R	10	100V	Electrolytic	AC
⚠ C620	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
⚠ C622	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
⚠ C630	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C636	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C650	VCFYSA1HB224J	R	0.22	50V	Mylar	AB
C653	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C654	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C655	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C656	VCEAGA1AW477M	R	470	10V	Electrolytic	AC
⚠ C701	RC-FZ022SCEZZ	R	0.47	AC250V	Plastic	AG
C702	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C703	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C707	RC-EZ0804CEZZ	R	220	400V	Electrolytic	AU
C708	RC-KZ0160GEZZ	R	0.01	250V	Ceramic	AC
C709	VCKYD41HB102K	R	1000p	50V	Ceramic	AA
C710	RC-QZA471TAYJ	R	470p	50V	Mylar	AB
C711	RC-KZ0339CEZZ	R	680p	2kV	Ceramic	AD
C712	RC-QZA102TAYJ	R	0.001	50V	Mylar	AB
C713	RC-KZ007JCEZZ	R	0.01	250V	Ceramic	AC
C714	RC-KZ0338CEZZ	R	560p	2kV	Ceramic	AD
C715	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C716	VCEAGA1EW107M	R	100	25V	Electrolytic	AD
C717	RC-QZA182TAYJ	R	1800p	50V	Mylar	AB
⚠ C721	RC-KZ0156CEZZ	R	3300p	4kV	Ceramic	AG
C730	RC-QZA473TAYJ	R	0.047	50V	Mylar	AB
C731	VCEA4W2CN227M	R	220	160V	Electrolytic	AG
C732	RC-KZ0339CEZZ	R	680p	2kV	Ceramic	AD
C733	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C734	VCEAGA1CW477M	R	470	16V	Electrolytic	AC
C735	VCEAGA1CW108M	R	1000	16V	Electrolytic	AD
C736	VCKYPA2HB102K	R	1000p	500V	Ceramic	AA
C737	RC-EZ0724CEZZ	R	100	160V	Electrolytic	AG
C801	VCEAGA1HW475M	R	4.7	50V	Electrolytic	AB
C802	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C803	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C804	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C805	VCEAGA1CW107M	R	100	16V	Electrolytic	AB
C806	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C807	VCEAGA1CW107M	R	100	16V	Electrolytic	AB
C808	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C809	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C810	VCCCCY1HH120J	R	12p	50V	Ceramic	AA
C811	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C812	VCEAGA1CW107M	R	100	16V	Electrolytic	AB
C813	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C814	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C815	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C816	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C817	VCEAGA1CW227M	R	220	16V	Electrolytic	AC
C818	RC-QZA103TAYJ	R	0.01	50V	Mylar	AB
C822	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C901	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C1001	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1002	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1003	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1004	VCCCCY1HH330J	R	33p	50V	Ceramic	AA
C1005	VCEAGA1HW105M	R	1.0	50V	Electrolytic	AC
C1006	VCEAGA1AW107M	R	100	10V	Electrolytic	AB
C1007	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1008	VCEAGA1AW476M	R	47	10V	Electrolytic	AA
C1010	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C1011	VCCCCY1HH101J	R	100p	50V	Ceramic	AA
C1012	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1013	VCCCCY1HH471J	R	470p	50V	Ceramic	AA
C1014	VCCCCY1HH560J	R	56p	50V	Ceramic	AA
C1015	VCEAGA1CW476M	R	47	16V	Electrolytic	AB
C1016	VCEAGA0JW107M	R	100	6.3V	Electrolytic	AB
C1017	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1018	VCCCCY1HH680J	R	68p	50V	Ceramic	AA
C1019	VCCCCY1HH680J	R	68p	50V	Ceramic	AA
C1020	VCEAGA0JW107M	R	100	6.3V	Electrolytic	AB
C1021	VCCCCY1HH181J	R	180p	50V	Ceramic	AA
C1022	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1023	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1024	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1025	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1027	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1031	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1032	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1033	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1035	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1036	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1037	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1038	VCCSCY1HL471J	R	470p	50V	Ceramic	AA
C1039	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1042	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA
C1043	VCCSCY1HL471J	R	470p	50V	Ceramic	AA
C1044	VCCSCY1HL471J	R	470p	50V	Ceramic	AA

RESISTORS

RJ1	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ2	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ3	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ4	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ6	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ9	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ11	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ15	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ18	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ19	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ22	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ23	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ24	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
R201	VRS-CY1JF680J	R	68	1/16W	Metal Oxide	AA
R202	VRS-CY1JF680J	R	68	1/16W	Metal Oxide	AA
R204	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R205	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R207	VRS-CY1JF472J	R	4.7k	1/16W	Metal Oxide	AA
R208	VRS-CY1JF222J	R	2.2k	1/16W	Metal Oxide	AA
R210	VRS-CY1JF221J	R	220	1/16W	Metal Oxide	AA
R211	VRS-CY1JF391J	R	390	1/16W	Metal Oxide	AA
R212	VRS-CY1JF102J	R	1.0k	1/16W	Metal Oxide	AA
R214	VRD-RA2BE103J	R	10k	1/8W	Carbon	AA
R215	VRD-RA2BE103J	R	10k	1/8W	Carbon	AA
R217	VRD-RA2BE101J	R	100	1/8W	Carbon	AB
R218	VRD-RA2BE473J	R	47k	1/8W	Carbon	AA
R219	VRS-CY1JF473J	R	47k	1/16W	Metal Oxide	AA
R220	VRS-CY1JF391J	R	390	1/16W	Metal Oxide	AA
R221	VRD-RA2BE101J	R	100	1/8W	Carbon	AB
R222	VRS-CY1JF472J	R	4.7k	1/16W	Metal Oxide	AA
R223	VRS-CY1JF472J	R	4.7k	1/16W	Metal Oxide	AA
R224	VRS-CY1JF822J	R	8.2k	1/16W	Metal Oxide	AA
R225	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R227	VRD-RA2BE472J	R	4.7k	1/8W	Carbon	AA
R303	VRS-CY1JF564J	R	560k	1/16W	Metal Oxide	AA
R304	VRS-CY1JF102J	R	1.0k	1/16W	Metal Oxide	AA
R307	VRS-CY1JF104J	R	100k	1/16W	Metal Oxide	AA
R310	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R313	VRS-CY1JF561J	R	560	1/16W	Metal Oxide	AA
R314	VRS-CY1JF222J	R	2.2k	1/16W	Metal Oxide	AA
R315	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R316	VRS-CY1JF103J	R	10k	1/16W	Metal Oxide	AA
R322	VRN-VV3DB1R2J	R	1.2	2W	Metal Film	AA
R323	VRN-VV3DB1R0J	R	1.0	2W	Metal Film	AB
R331	VRS-CY1JF102J	R	1.0k	1/16W	Metal Oxide	AA
R332	VRS-CY1JF564J	R	560k	1/16W	Metal Oxide	AA
R335	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R336	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R347	VRD-RA2BE392J	R	3.9k	1/8W	Carbon	AA
R349	VRS-CY1JF332J	R	3.3k	1/16W	Metal Oxide	AA
R351	VRS-CY1JF392J	R	3.9k	1/16W	Metal Oxide	AA
R352	VRS-CY1JF100J	R	10	1/16W	Metal Oxide	AA
R353	VRD-RA2BE473J	R	47k	1/8W	Carbon	AA
R355	VRS-CY1JF473J	R	47k	1/16W	Metal Oxide	AA
R360	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R362	VRS-CY1JF102J	R	1.0k	1/16W	Metal Oxide	AA

PWB-A: DUNTK9665WEW5

MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
R363	VRS-CY1JF223J	R	22k 1/16W Metal Oxide	AA
R364	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R401	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R402	VRD-RA2EE560J	R	56 1/4W Carbon	AA
R403	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R404	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R405	VRD-RM2HD470J	R	47 1/2W Carbon	AA
R406	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R407	VRD-RA2BE180J	R	18 1/8W Carbon	AA
R408	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R409	VRS-CY1JF824J	R	820k 1/16W Metal Oxide	AA
R410	VRD-RM2HD101J	R	100 1/2W Carbon	AA
R411	VRD-RA2EE750J	R	75 1/4W Carbon	AA
R412	VRD-RM2HD101J	R	100 1/2W Carbon	AA
R420	VRD-RA2BE153J	R	15k 1/8W Carbon	AA
R422	VRD-RA2EE750J	R	75 1/4W Carbon	AA
R504	VRD-RA2BE221J	R	220 1/8W Carbon	AA
R506	VRD-RM2HD102J	R	1.0k 1/2W Carbon	AA
R509	VRD-RA2EE2R7J	R	2.7 1/4W Carbon	AA
R510	VRD-RA2EE3R3J	R	3.3 1/4W Carbon	AA
R511	VRD-RA2BE333J	R	33k 1/8W Carbon	AA
R513	VRD-RA2BE273J	R	27k 1/8W Carbon	AA
R514	VRD-RA2BE563J	R	56k 1/8W Carbon	AA
R515	VRD-RA2EE220J	R	22 1/4W Carbon	AA
R516	VRD-RM2HD331J	R	330 1/2W Carbon	AA
R517	VRD-RA2BE223J	R	22k 1/8W Carbon	AA
R518	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R519	VRD-RM2HD152J	R	1.5k 1/2W Carbon	AA
R601	VRS-CY1JF224J	R	220k 1/16W Metal Oxide	AA
R602	VRD-RA2BE103J	R	10k 1/8W Carbon	AA
R604	VRS-CY1JF391J	R	390 1/16W Metal Oxide	AA
R605	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R606	VRD-RA2BE681J	R	680 1/8W Carbon	AA
R607	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R608	VRD-RM2HD472J	R	4.7k 1/2W Carbon	AA
R609	VRS-KT3LB332J	R	3.3k 3.0W Metal Oxide	AC
R610	VRS-CY1JF822J	R	8.2k 1/16W Metal Oxide	AA
R611	VRW-KQ3NC4R7K	R	4.7 7.0W Cement	AE
⚠ R612	VRG-PD2HD820J	R	82 1/2W Fuse Resistor	AC
R613	VRD-RA2BE103J	R	10k 1/8W Carbon	AA
R617	VRS-VV3AB330J	R	33 1W Metal Oxide	AA
R618	VRD-RM2HD102J	R	1.0k 1/2W Carbon	AA
R619	VRS-CY1JF393J	R	39k 1/16W Metal Oxide	AA
⚠ R620	RR-XZ0085CEZZ	R	3.9 1/4W Fuse Resistor	AC
R621	VRN-RV3ABR56J	R	0.56 1W Metal Film	AB
R622	VRD-RM2HD223J	R	22k 1/2W Carbon	AA
⚠ R623	VRD-RA2EE683G	R	68k 1/4W Carbon	AB
⚠ R624	VRD-RA2BE123G	R	12k 1/8W Carbon	AA
R625	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
⚠ R630	VRS-CY1JF123J	R	12k 1/16W Metal Oxide	AA
⚠ R631	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
⚠ R633	VRD-RA2BE562J	R	5.6k 1/8W Carbon	AA
R634	VRD-RM2HD101J	R	100 1/2W Carbon	AA
⚠ R635	VRD-RA2BE154J	R	150k 1/8W Carbon	AA
R640	VRD-RM2HD682J	R	6.8k 1/2W Carbon	AA
⚠ R642	VRD-RA2BE103J	R	10k 1/8W Carbon	AA
R651	VRD-RM2HD101J	R	100 1/2W Carbon	AA
R653	VRD-RA2BE822J	R	8.2k 1/8W Carbon	AA
R656	VRN-VV3DB4R7J	R	4.7 2W Metal Film	AB
⚠ R657	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R660	VRS-CY1JF681J	R	680 1/16W Metal Oxide	AA
R701	VRW-KQ41C3R3K	R	3.3 15W Cement	AG
⚠ R702	VRC-UA2HG395K	R	3.9M 1/2W Solid	AA
R703	VRS-KT3LB473J	R	47k 3.0W Metal Oxide	AE
R705	VRD-RA2BE122J	R	1.2k 1/8W Carbon	AA
R706	VRD-RM2HD152J	R	1.5k 1/2W Carbon	AA
R707	VRS-KT3LB473J	R	47k 3.0W Metal Oxide	AE
R708	VRD-RA2BE272J	R	2.7k 1/8W Carbon	AA
R709	VRD-RA2BE681J	R	680 1/8W Carbon	AA
R710	VRN-VV3ABR39J	R	0.39 1W Metal Film	AA
R711	VRN-VV3ABR33J	R	0.33 1W Metal Film	AA
R712	VRD-RM2HD150J	R	15 1/2W Carbon	AA
R717	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
R718	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
⚠ R719	VRC-UA2HG825K	R	8.2M 1/2W Solid	AA
⚠ R720	VRC-UA2HG825K	R	8.2M 1/2W Solid	AA
R722	VRD-RM2HD124J	R	120k 1/2W Carbon	AA
R736	VRD-RA2BE272J	R	2.7k 1/8W Carbon	AA
R737	VRN-KT3LB8R2J	R	8.2 3.0W Metal Film	AC
R802	VRS-CY1JF561J	R	560 1/16W Metal Oxide	AA
R803	VRS-CY1JF561J	R	560 1/16W Metal Oxide	AA
R804	VRS-CY1JF561J	R	560 1/16W Metal Oxide	AA
R805	VRS-CY1JF223J	R	22k 1/16W Metal Oxide	AA
R809	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R810	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R811	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R812	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R813	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R814	VRS-CY1JF273J	R	27k 1/16W Metal Oxide	AA
R815	VRS-CY1JF223J	R	22k 1/16W Metal Oxide	AA
R816	VRS-CY1JF473J	R	47k 1/16W Metal Oxide	AA
R817	VRS-CY1JF473J	R	47k 1/16W Metal Oxide	AA
R819	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R820	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R821	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R822	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R823	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R824	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R825	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R826	VRD-RA2BE223J	R	22k 1/8W Carbon	AA
R827	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R828	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R829	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R830	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R1001	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R1002	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R1003	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R1004	VRS-CY1JF473J	R	47k 1/16W Metal Oxide	AA
R1005	VRD-RA2BE562J	R	5.6k 1/8W Carbon	AA
R1006	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1007	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R1008	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1009	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1010	VRD-RA2BE222J	R	2.2k 1/8W Carbon	AA
R1011	VRS-CY1JF683J	R	68k 1/16W Metal Oxide	AA
R1012	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R1014	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R1015	VRS-CY1JF332J	R	3.3k 1/16W Metal Oxide	AA
R1016	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R1017	VRS-CY1JF683J	R	68k 1/16W Metal Oxide	AA
R1018	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1019	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1023	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1024	VRD-RA2BE683J	R	68k 1/8W Carbon	AA
R1026	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R1027	VRS-CY1JF562J	R	5.6k 1/16W Metal Oxide	AA
R1028	VRS-CY1JF332J	R	3.3k 1/16W Metal Oxide	AA
R1030	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1031	VRS-CY1JF333J	R	33k 1/16W Metal Oxide	AA
R1032	VRS-CY1JF683J	R	68k 1/16W Metal Oxide	AA
R1034	VRS-CY1JF562J	R	5.6k 1/16W Metal Oxide	AA
R1035	VRS-CY1JF562J	R	5.6k 1/16W Metal Oxide	AA
R1036	VRS-CY1JF182J	R	1.8k 1/16W Metal Oxide	AA
R1037	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1038	VRS-CY1JF333J	R	33k 1/16W Metal Oxide	AA
R1039	VRD-RA2BE271J	R	270 1/8W Carbon	AA
R1041	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1042	VRD-RA2BE562J	R	5.6k 1/8W Carbon	AA
R1043	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1044	VRS-CY1JF562J	R	5.6k 1/16W Metal Oxide	AA
R1047	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R1048	VRD-RA2BE271J	R	270 1/8W Carbon	AA
R1049	VRS-CY1JF473J	R	47k 1/16W Metal Oxide	AA
R1050	VRS-CY1JF473J	R	47k 1/16W Metal Oxide	AA
R1051	VRS-CY1JF393J	R	39k 1/16W Metal Oxide	AA
R1052	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1053	VRD-RA2BE560J	R	56 1/8W Carbon	AA
R1055	VRD-RM2HD101J	R	100 1/2W Carbon	AA

PWB-A: DUNTK9665WEW5
MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
R1057	VRS-CY1JF222J	R	2.2k 1/16W Metal Oxide	AA
R1058	VRS-CY1JF472J	R	4.7k 1/16W Metal Oxide	AA
R1059	VRS-CY1JF822J	R	8.2k 1/16W Metal Oxide	AA
R1060	VRS-CY1JF273J	R	27k 1/16W Metal Oxide	AA
R1061	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1063	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1064	VRS-CY1JF102J	R	1.0k 1/16W Metal Oxide	AA
R1065	VRD-RA2BE102J	R	1.0k 1/8W Carbon	AA
R1066	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1069	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1070	VRS-CY1JF392J	R	3.9k 1/16W Metal Oxide	AA
R1071	VRS-CY1JF333J	R	33k 1/16W Metal Oxide	AA
R1072	VRS-CY1JF562J	R	5.6k 1/16W Metal Oxide	AA
R1075	VRS-CY1JF101J	R	100 1/16W Metal Oxide	AA
R1076	VRS-CY1JF683J	R	68k 1/16W Metal Oxide	AA
R1077	VRD-RA2BE683J	R	68k 1/8W Carbon	AA
R1078	VRD-RA2BE683J	R	68k 1/8W Carbon	AA
R1079	VRD-RA2BE101J	R	100 1/8W Carbon	AB
R1082	VRS-CY1JF103J	R	10k 1/16W Metal Oxide	AA
R1084	VRS-CY1JF000J	R	0 1/16W Metal Oxide	AA
R1085	VRD-RM2HD332J	R	3.3k 1/2W Carbon	AA
R1086	VRD-RM2HD332J	R	3.3k 1/2W Carbon	AA
R1087	VRD-RM2HD332J	R	3.3k 1/2W Carbon	AA
R1088	VRD-RM2HD272J	R	2.7k 1/2W Carbon	AA
R1089	VRD-RM2HD272J	R	2.7k 1/2W Carbon	AA

SWITCHES

⚠ S701	QSW-P0588CEZZ	R	Power	AP
S1001	QSW-K0079GEZZ	R	Preset	AB
S1002	QSW-K0079GEZZ	R	Vol-down	AB
S1003	QSW-K0079GEZZ	R	Vol-up	AB
S1004	QSW-K0079GEZZ	R	CH-down	AB
S1005	QSW-K0079GEZZ	R	CH-up	AB

MISCELLANOUS PARTS

⚠ F301	QFS-J2521CEZZ	R	Fuse	AF
⚠ F701	QFS-C3229CEZZ	R	Fuse T3.15A	AD
⚠ F731	QFS-J1521CEZZ	R	Fuse	AF
FB306	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB602	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB701	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB702	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB703	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB731	RBLN-0037CEZZ	R	Ferrite Bead	AB
FB732	RBLN-0037CEZZ	R	Ferrite Bead	AB
FH701	QFSHD1014CEZZ	R	Fuse Holder	AC
FH702	QFSHD1013CEZZ	R	Fuse Holder	AC
J401	QJAKH0011AJZZ	R	AV Jack	AK
P302	QPLGN0261CEZZ	R	Plug, 2-pin (S)	AB
P401	QPLGN0461CEZZ	R	Plug, 4-pin (VA)	AB
P502	QPLGN0603CEZZ	R	Plug, 6-pin (F)	AB
P602	QPLGN0461CEZZ	R	Plug, 4-pin (H)	AB
P711	QPLGN0207CEZZ	R	Plug, 2-pin (G)	AA
P712	QPLGN0269GEZZ	R	Plug, 2-pin (A)	AB
P801	QPLGN0561CEZZ	R	Plug, 5-pin (K)	AB
P1001	QPLGN0561CEZZ	R	Plug, 5-pin (BC)	AB
RMC1001	RRMCU0222CEZZ	R	R/C Receiver	AL
HM1	LX-GZ3001PEZZ	J	Screw	AB
HM2	LX-GZ3001PEZZ	J	Screw	AB
HM6	LX-GZ3001PEZZ	J	Screw	AB
HM7	LX-GZ3001PEZZ	J	Screw	AB
HM11	LX-GZ3001PEZZ	J	Screw	AB
HM12	LX-GZ3001PEZZ	J	Screw	AB
HM13	LX-GZ3001PEZZ	J	Screw	AB
HM15	LX-GZ3001PEZZ	J	Screw	AB
HM16	LX-GZ3001PEZZ	J	Screw	AB
HM17	LX-GZ3001PEZZ	J	Screw	AB
HM18	LX-GZ3001PEZZ	J	Screw	AB
HM19	LX-GZ3001PEZZ	J	Screw	AB
HM20	LX-GZ3001PEZZ	J	Screw	AB
HM21	LX-GZ3001PEZZ	J	Screw	AB
HM22	LX-GZ3001PEZZ	J	Screw	AB
HM23	LX-GZ3001PEZZ	J	Screw	AB
HM24	LX-GZ3001PEZZ	J	Screw	AB
HM25	LX-GZ3001PEZZ	J	Screw	AB
HM52	LX-GZ3002PEZZ	J	Screw	AB
HM54	LX-GZ3002PEZZ	J	Screw	AB
HM57	LX-GZ3002PEZZ	J	Screw	AB
HM58	LX-GZ3002PEZZ	J	Screw	AB
HM59	LX-GZ3002PEZZ	J	Screw	AB
HM60	LX-GZ3002PEZZ	J	Screw	AB
HM63	LX-GZ3002PEZZ	J	Screw	AB
HM65	LX-GZ3002PEZZ	J	Screw	AB
HM66	LX-GZ3002PEZZ	J	Screw	AB
HM67	LX-GZ3002PEZZ	J	Screw	AB
HM70	LX-GZ3002PEZZ	J	Screw	AB
HM71	LX-GZ3002PEZZ	J	Screw	AB
HM72	LX-GZ3002PEZZ	J	Screw	AB
HM73	LX-GZ3002PEZZ	J	Screw	AB
HM74	LX-GZ3002PEZZ	J	Screw	AB
HM75	LX-GZ3002PEZZ	J	Screw	AB
LB301	LX-BZ0007PEFD	J	Screw	AA
RDA351	PRDAR0142PEFW	J	Heat Sink, for IC351	AD
SLD1001	PSLDM0233PEFW	J	Shield	AC
TP211	QLUGP0102PEZZ	J	Lug	AA
	PRDAR0223PEFW	J	Heat Sink, for IC501	AF
	PRDAR0224PEFW	J	Heat Sink, for	AF
	PRDAR0259PEFW	J	Heat Sink, for	AE
	PRDAR0260PEFW	J	Heat Sink, for IC701	AH
	PSLDM0262PEFW	J	Shield	AD
	PSLDM0263PEFW	J	Shield	AC
	LHLDP1042PE00	J	Holder	AG
	LX-BZ0086TAFD	R	Screw	AA
	LX-BZ3100CEFD	R	Screw	AA
	LX-TZ3004CEFD	R	Screw	AA

Ref. No.	Part No.	★	Description	Code

PWB-B: DUNTK9666WEV4
CRT UNIT

TRANSISTORS

Q851	VS2SC3789//1E	J	2SC3789	AE
Q852	VS2SC3789//1E	J	2SC3789	AE
Q853	VS2SC3789//1E	J	2SC3789	AE
Q854	VS2SA1015Y/1E	J	2SA1015 (Y)	AC

DIODES

D851	RH-DX0475CEZZ	J	Diode	AB
D852	RH-DX0475CEZZ	J	Diode	AB
D853	RH-DX0475CEZZ	J	Diode	AB

COIL

L851	VP-CF681K0000	J	Peaking 680µH	AB

CAPACITORS

C851	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
C852	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
C853	VCCCCY1HH331J	J	330p	50V	Ceramic	AA
⚠ C854	RC-KZ0150CEZZ	J	1000p	3kV	Ceramic	AB
C861	VCEAGA1CW336M	J	33	16V	Electrolytic	AB
C865	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
C866	VCEAGA2EW106M	J	10	250V	Electrolytic	AC
C870	VCEAGA1AW337M	J	330	10V	Electrolytic	AB
C895	VCCCCY1HH391J	J	390p	50V	Ceramic	AA

RESISTORS

R851	VRS-CY1JF471J	J	470	1/16W	Metal Oxide	AA
R852	VRS-CY1JF561J	J	560	1/16W	Metal Oxide	AA
R856	VRS-CY1JF471J	J	470	1/16W	Metal Oxide	AA
R858	VRS-CY1JF561J	J	560	1/16W	Metal Oxide	AA
R859	VRS-CY1JF152J	J	1.5k	1/16W	Metal Oxide	AA
R860	VRS-VV3DB123J	J	12k	2W	Metal Oxide	AA
R862	VRS-CY1JF471J	J	470	1/16W	Metal Oxide	AA
R864	VRS-CY1JF561J	J	560	1/16W	Metal Oxide	AA
R865	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R866	VRS-VV3DB123J	J	12k	2W	Metal Oxide	AA
R867	VRD-RM2HD272J	J	2.7k	1/2W	Carbon	AA
R868	VRS-VV3DB123J	J	12k	2W	Metal Oxide	AA
R870	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R871	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R875	VRS-CY1JF560J	J	56	1/16W	Metal Oxide	AA
R877	VRS-CY1JF560J	J	56	1/16W	Metal Oxide	AA
R897	VRD-RA2BE560J	J	56	1/8W	Carbon	AA
R898	VRD-RM2HD272J	J	2.7k	1/2W	Carbon	AA
R899	VRD-RM2HD272J	J	2.7k	1/2W	Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0461CEZZ	J	Plug, 4-pin (H)	AB
P852	QPLGN0561CEZZ	J	Plug, 5-pin (K)	AB
⚠ SC851	QSOCV0931CEZZ	J	CRT Socket	AK

PWB-D: DUNTK9669WEV2
TEXT UNIT

INTEGRATED CIRCUIT

IC1801	VHiSAA5254E-1	R	SAA5254P	BF

TRANSISTORS

Q1803	VS2SD601A//-1	R	2SD601A	AC
Q1804	VS2SD601A//-1	R	2SD601A	AC
Q1805	VS2SD601A//-1	R	2SD601A	AC

DIODES

D1801	RH-DX0475CEZZ	R	Diode	AB
D1803	RH-EX0619GEZZ	R	Zener Diode	AA
D1804	RH-EX0619GEZZ	R	Zener Diode	AA
D1805	RH-DX0475CEZZ	R	Diode	AB

PACKAGED CIRCUIT

X1801	RCRSB0006PEZZ	J	Crystal	AK

COILS

L1801	VP-DF100K0000	R	Peaking 10µH	AB
L1802	VP-XF1R0K0000	R	Peaking 1µH	AB
L1803	VP-DF100K0000	R	Peaking 10µH	AB

CAPACITORS

C1801	VCKYCY1EF104Z	R	0.1	25V	Ceramic	AA
C1803	VCEAGA1AW477M	R	470	10V	Electrolytic	AC
C1804	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C1806	VCKYCY1HB102K	R	1000p	50V	Ceramic	AA
C1807	VCCCCY1HH150J	R	15p	50V	Ceramic	AA
C1808	VCCCCY1HH560J	R	56p	50V	Ceramic	AA
C1810	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C1811	VCE9GA1HW105M	R	1.0	50V	Elect.(N.P)	AB
C1812	RC-QZA104TAYJ	R	0.1	50V	Mylar	AC
C1813	VCEAGA1AW107M	R	100	10V	Electrolytic	AB
C1814	VCEAGA1CW106M	R	10	16V	Electrolytic	AA
C1815	VCKYCY1HB221K	R	220p	50V	Ceramic	AA
C1816	VCKYCY1HF103Z	R	0.01	50V	Ceramic	AA

RESISTORS

RJ1801	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ1802	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ1803	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
RJ1804	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
R1801	VRS-CY1JF273J	R	27k	1/16W	Metal Oxide	AA
R1802	VRD-RA2BE101J	R	100	1/8W	Carbon	AB
R1803	VRS-CY1JF222J	R	2.2k	1/16W	Metal Oxide	AA
R1804	VRS-CY1JF562J	R	5.6k	1/16W	Metal Oxide	AA
R1805	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R1806	VRS-CY1JF272J	R	2.7k	1/16W	Metal Oxide	AA
R1807	VRS-CY1JF100J	R	10	1/16W	Metal Oxide	AA
R1808	VRS-CY1JF821J	R	820	1/16W	Metal Oxide	AA
R1809	VRS-CY1JF152J	R	1.5k	1/16W	Metal Oxide	AA
R1810	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R1811	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R1812	VRD-RA2BE102J	R	1.0k	1/8W	Carbon	AA
R1813	VRS-CY1JF221J	R	220	1/16W	Metal Oxide	AA
R1814	VRS-CY1JF223J	R	22k	1/16W	Metal Oxide	AA
R1817	VRS-CY1JF000J	R	0	1/16W	Metal Oxide	AA
R1818	VRS-CY1JF472J	R	4.7k	1/16W	Metal Oxide	AA
R1820	VRS-CY1JF821J	R	820	1/16W	Metal Oxide	AA
R1822	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R1823	VRS-CY1JF101J	R	100	1/16W	Metal Oxide	AA
R1825	VRS-CY1JF123J	R	12k	1/16W	Metal Oxide	AA
R1826	VRS-CY1JF103J	R	10k	1/16W	Metal Oxide	AA

MISCELLANEOUS PARTS

P1801	QPLGZ0810CEZZ	R	Plug, 8-pin (TX)	AD
P1802	QPLGZ0610CEZZ	R	Plug, 6-pin (TE)	AB

PWB-E: DUNTK9667WEV2
FRONT-AV UNIT

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
J1453	QTANJ0248CEZZ	J	AV Terminal	AH
P1450	QPLGN0461CEZZ	J	Plug, 4-pin (VA)	AB

PACKING PARTS
(NOT REPLACEMENT ITEM)

Ref. No.	Part No.	★	Description	Code
	SPAKC6556PEZZ	–	Packing Case	—
	SPAKP0099PEZZ	–	Wrapping Paper	—
	SPAKX2655PEZZ	–	Buffer Material	—
	SSAKA0031PEZZ	–	Polyethylene Bag	—
	SSAKH0006PEZZ	–	Polyethylene Bag	—

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
ACC701	QACCL3025CESA	R	AC Cord	AR
SP301	VSP9050PB11WA	R	Speaker	AP
	QCNW-2127PEZZ	R	Connecting Cord	AG
	QCNW-2128PEZZ	R	Connecting Cord	AK
	QCNW-2163PEZZ	R	Connecting Cord	AE
	QCNW-2275PEZZ	R	Connecting Cord	AF
	TLABK0002PEZZ	R	Number Label	AB
	TLABM1535PEZZ	R	Label	AB
	TLABN0001PEZZ	R	Serial No. Label	AD
	TLABV0255PEZZ	R	Label	AB

CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA2512WEV0		Front Cabinet Ass'y	BD
1-1	*Not Available*	–	Front Cabinet	—
1-2	GC0VA0079PESA		LED Cover	AC
1-3	GC0VA0080PESA		R/C Cover	AD
1-4	HBDGB0019PESB		"SHARP", Badge	AD
1-5	JBTN-0273PESB		Button, Vol-up/down, Ch-up/down	AF
1-6	JBTN-0274PESB		Button, Power	AE
1-7	MSPRC0068CEFW		Spring, Power Button	AA
2	GCABB2363PEKA		Rear Cabinet	BB

SUPPLIED ACCESSORIES

ACCESSORIES

Ref. No.	Part No.	★	Description	Code
	RRMCG1440PESA	R	Infrared R/C Unit	AV
	TiNS-6759PEZZ	R	Operation Manual	AF

ACCESSORIES (NOT REPLACEMENT ITEM)

Ref. No.	Part No.	★	Description	Code
	TCAUA0002PEZZ	–	Caution Card	—