

JVC

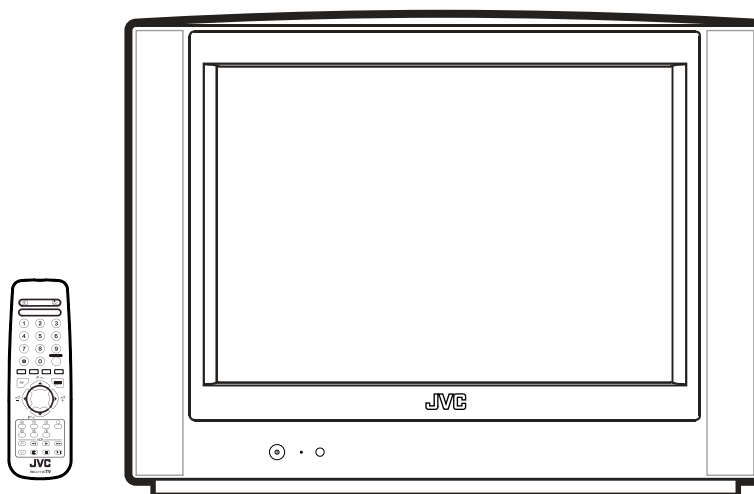
SCHEMATIC DIAGRAMS

COLOUR TELEVISION

AV-28KT1BUF /A, /B, /C,

AV-28KT1SUF /A, /B, /C

CD-ROM No.SML200310



AV-28KT1BUF /A/B/C

AV-28KT1SUF /A/B/C

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the \triangle symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

- | | |
|--|---|
| (1)Input signal | : Colour bar signal |
| (2)Setting positions of each knob/button and variable resistor | : Original setting position when shipped |
| (3)Internal resistance of tester | :DC 20k Ω /V |
| (4)Oscilloscope sweeping time | :H \Rightarrow 20 μ S/div
:V \Rightarrow 5mS/div
:Others \Rightarrow Sweeping time is specified |
| (5)Voltage values | :All DC voltage values |

* Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

No unit	: [Ω]
K	: [K Ω]
M	: [M Ω]

● Type

No indication	:Carbon resistor
OMR	:Oxide metal film resistor
MFR	:Metal film resistor
MPR	:Metal plate resistor
UNFR	:Uninflammable resistor
FR	:Fusible resistor

* Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

1 or higher	: [pF]
less than 1	: [μ F]

● Withstand voltage

No indication	:DC50[V]
Others	:DC withstand voltage [V]
AC indicated	:AC withstand voltage [V]

* Electrolytic Capacitors

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

● Type

No indication	:Ceramic capacitor
MM	:Metalized mylar capacitor
PP	:Polypropylene capacitor
MPP	:Metalized polypropylene capacitor
MF	:Metalized film capacitor
TF	:Thin film capacitor
BP	:Bipolar electrolytic capacitor
TAN	:Tantalum capacitor

(3)Coils

No unit	: [μ H]
Others	:As specified

4.NOTE FOR REPAIRING SERVICE

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

- (1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
- (2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

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

NOTE

- ◇ Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.
When ordering parts, please use the numbers that appear in the Parts List.

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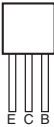
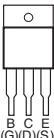
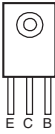
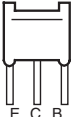
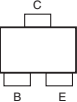
SIDE CONTROL PWB PATTERN ----- 2-24

LED PWB PATTERN ----- 2-25


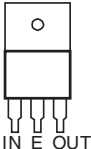
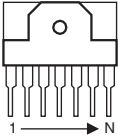
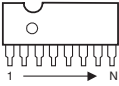
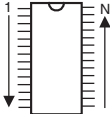
SWITCH PWB PATTERN ----- 2-26

SEMICONDUCTOR SHAPES

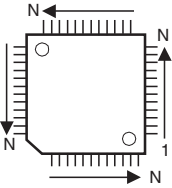
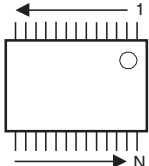
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

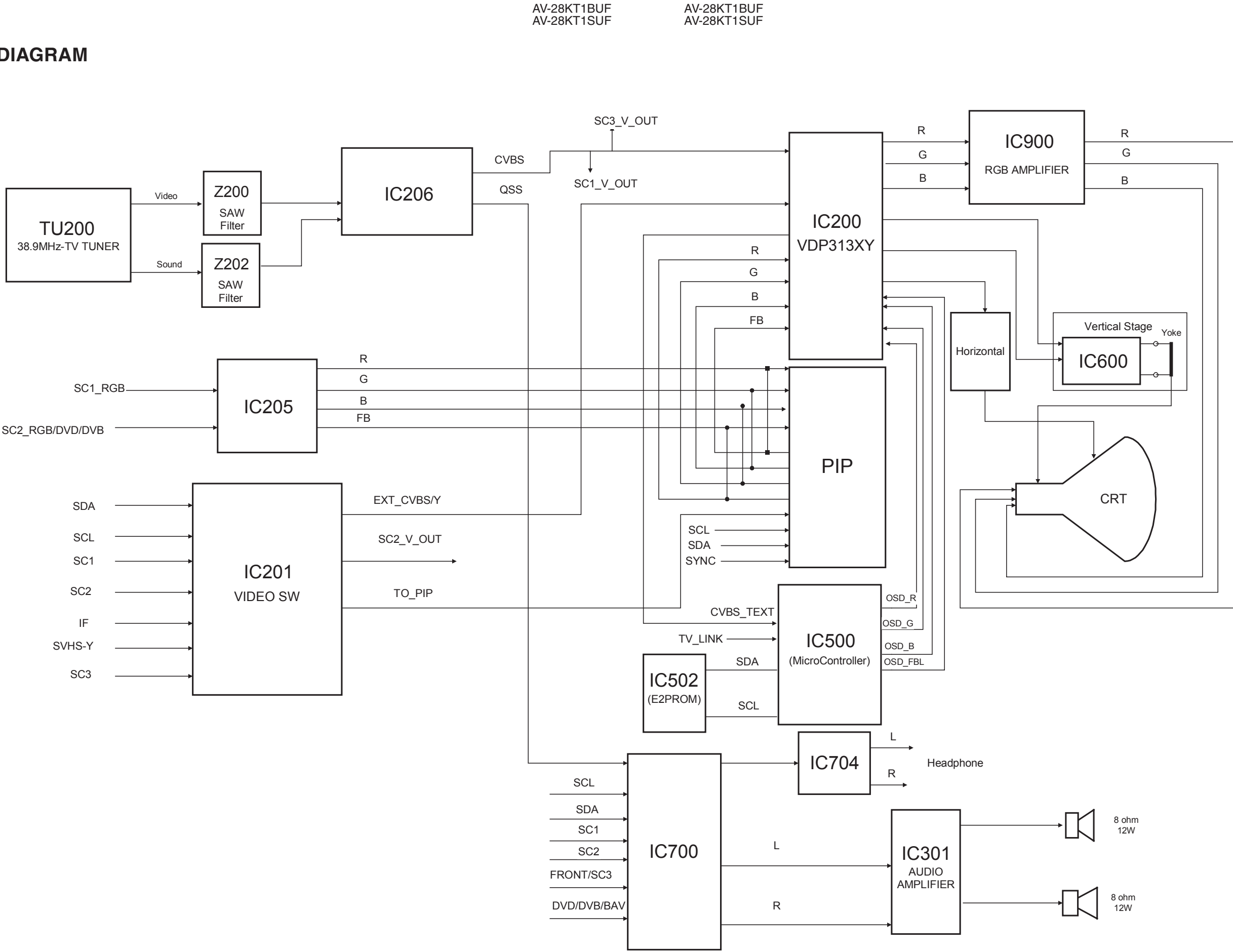
IC

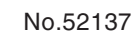
BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

TOP VIEW		
		

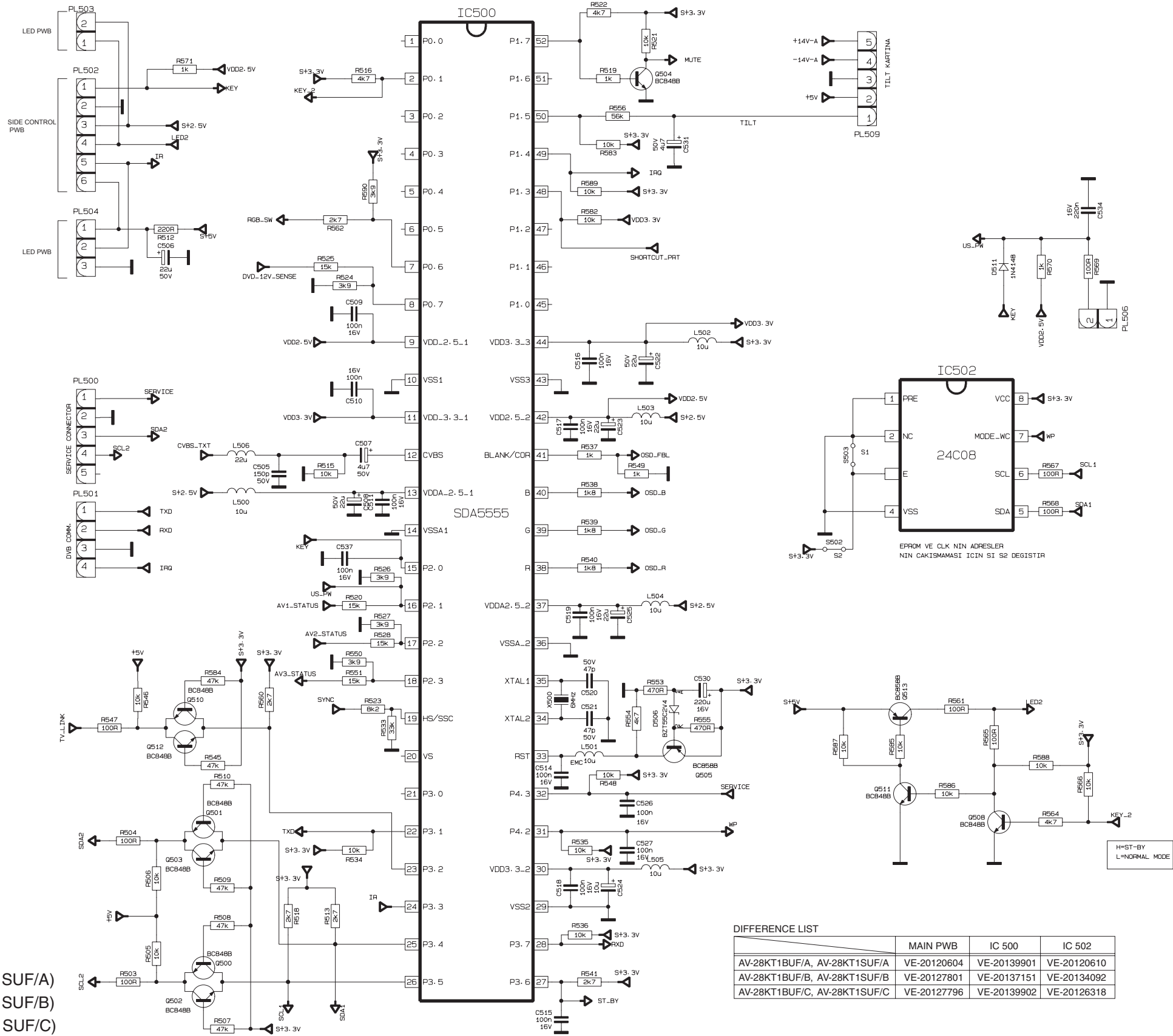
BLOCK DIAGRAM





MAIN PWB (2/5)

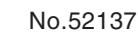
VE-20120604 (AV-28KT1BUF/A, AV-28KT1SUF/A)
VE-20127801 (AV-28KT1BUF/B, AV-28KT1SUF/B)
VE-20127796 (AV-28KT1BUF/C, AV-28KT1SUF/C)



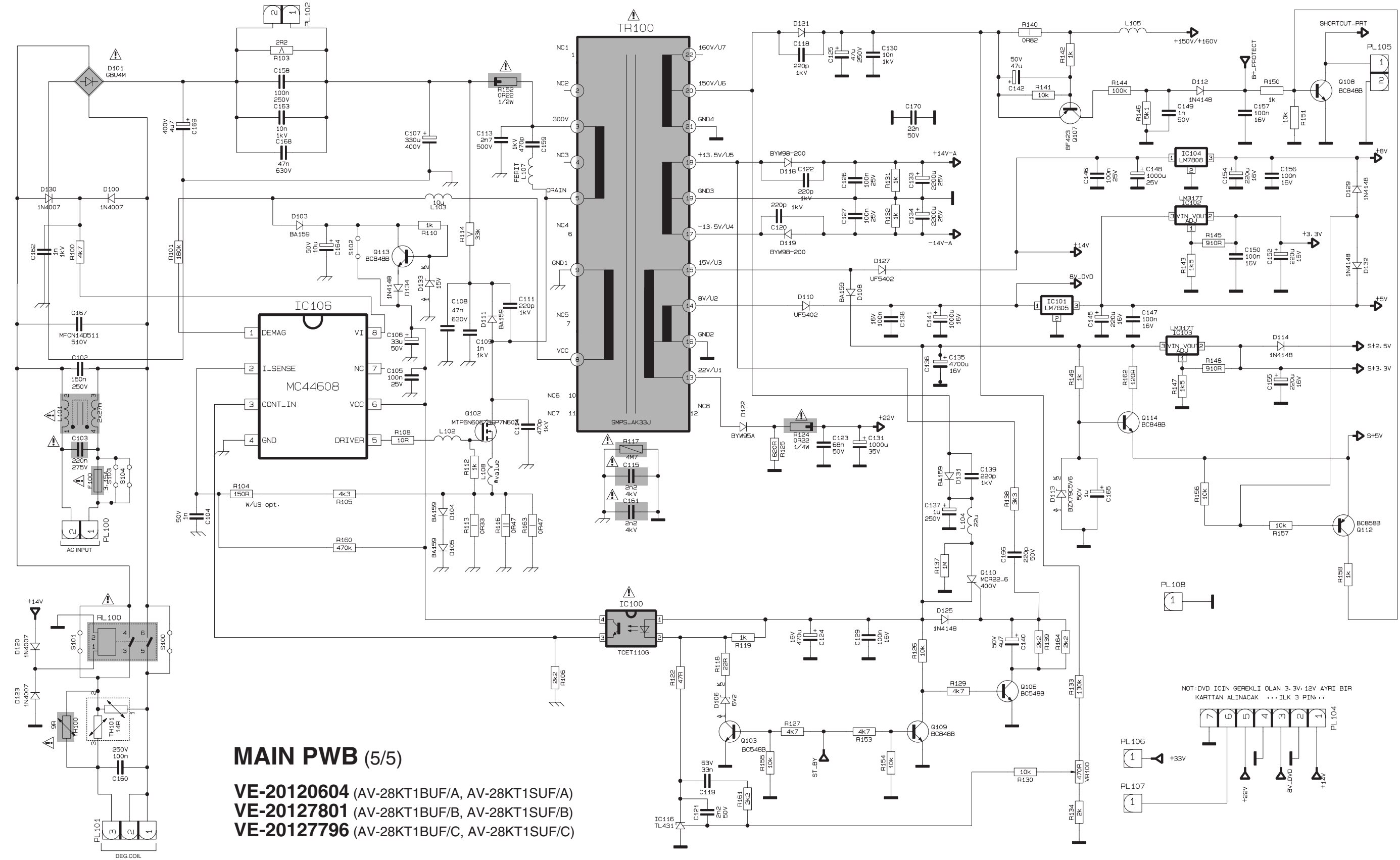
DIFFERENCE LIST			
	MAIN PWB	IC 500	IC 502
AV-28KT1BUF/A, AV-28KT1SUF/A	VE-20120604	VE-20139901	VE-20120610
AV-28KT1BUF/B, AV-28KT1SUF/B	VE-20127801	VE-20137151	VE-20134092
AV-28KT1BUF/C, AV-28KT1SUF/C	VE-20127796	VE-20139902	VE-20126318



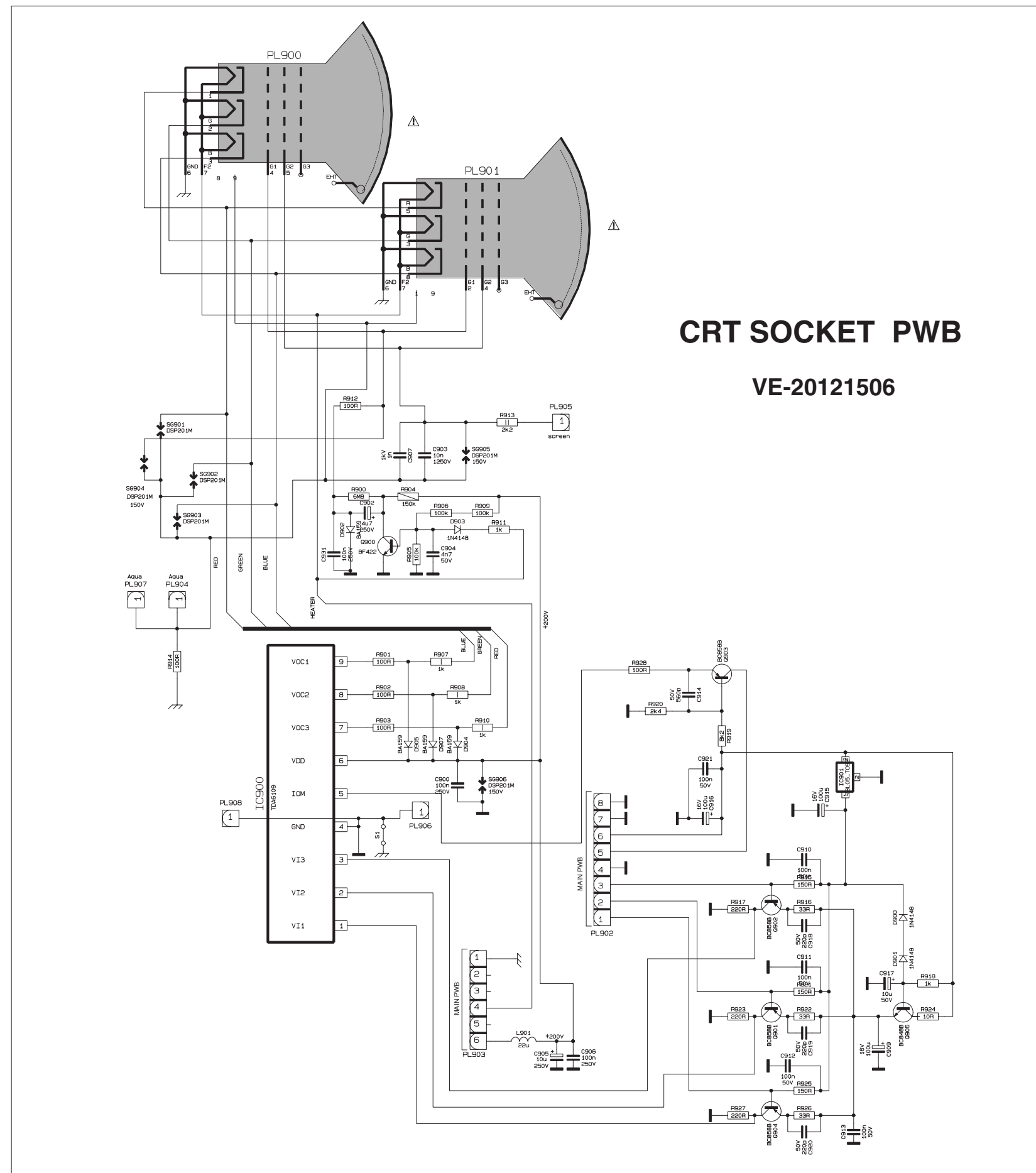
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VE-20127801 (AV-28KT1BUF/B, AV-28KT1SUF/B)
VE-20127796 (AV-28KT1BUF/C, AV-28KT1SUF/C)



MAIN PWB CIRCUIT DIAGRAM [5/5]

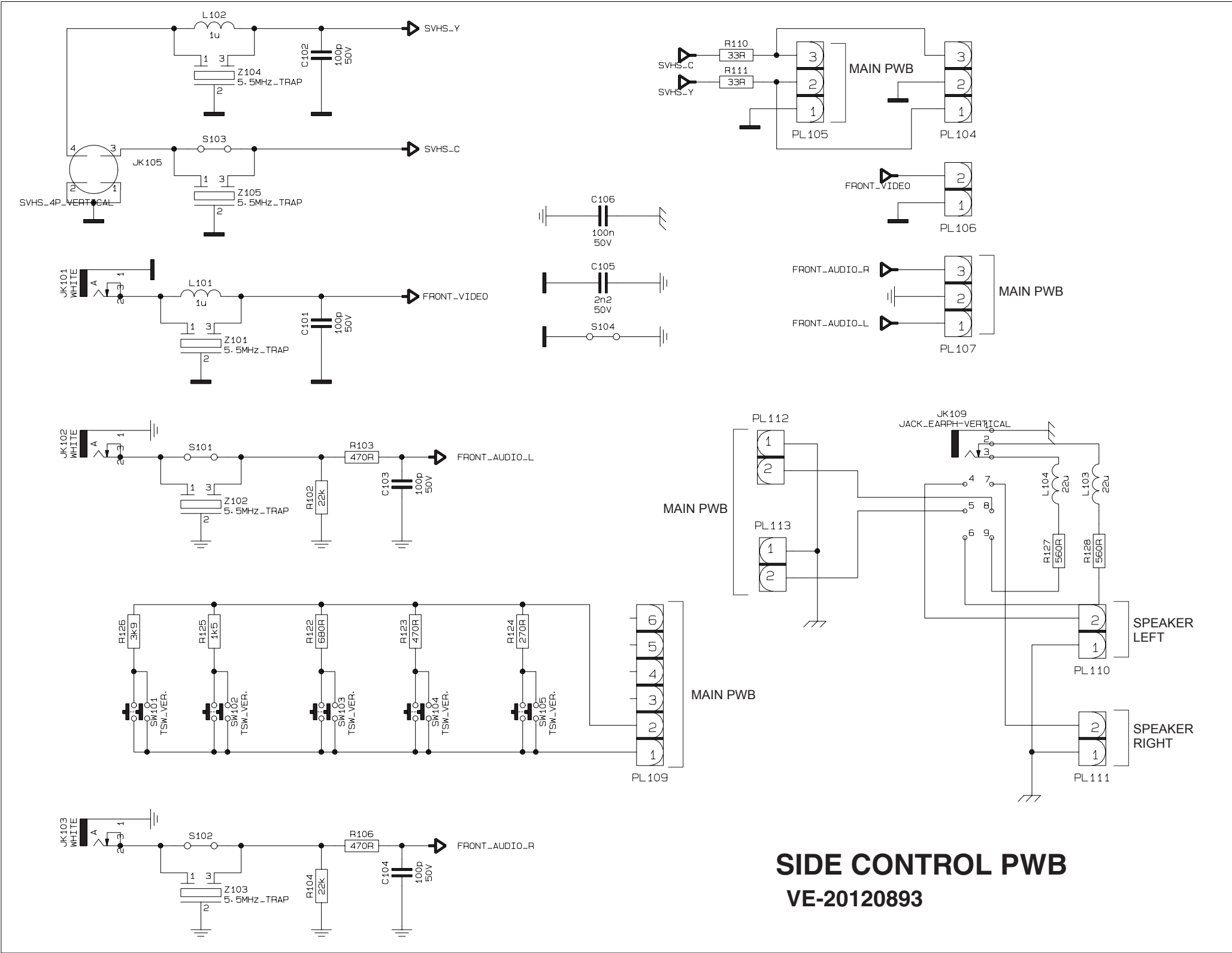


CRT SOCKET PWB CIRCUIT DIAGRAM



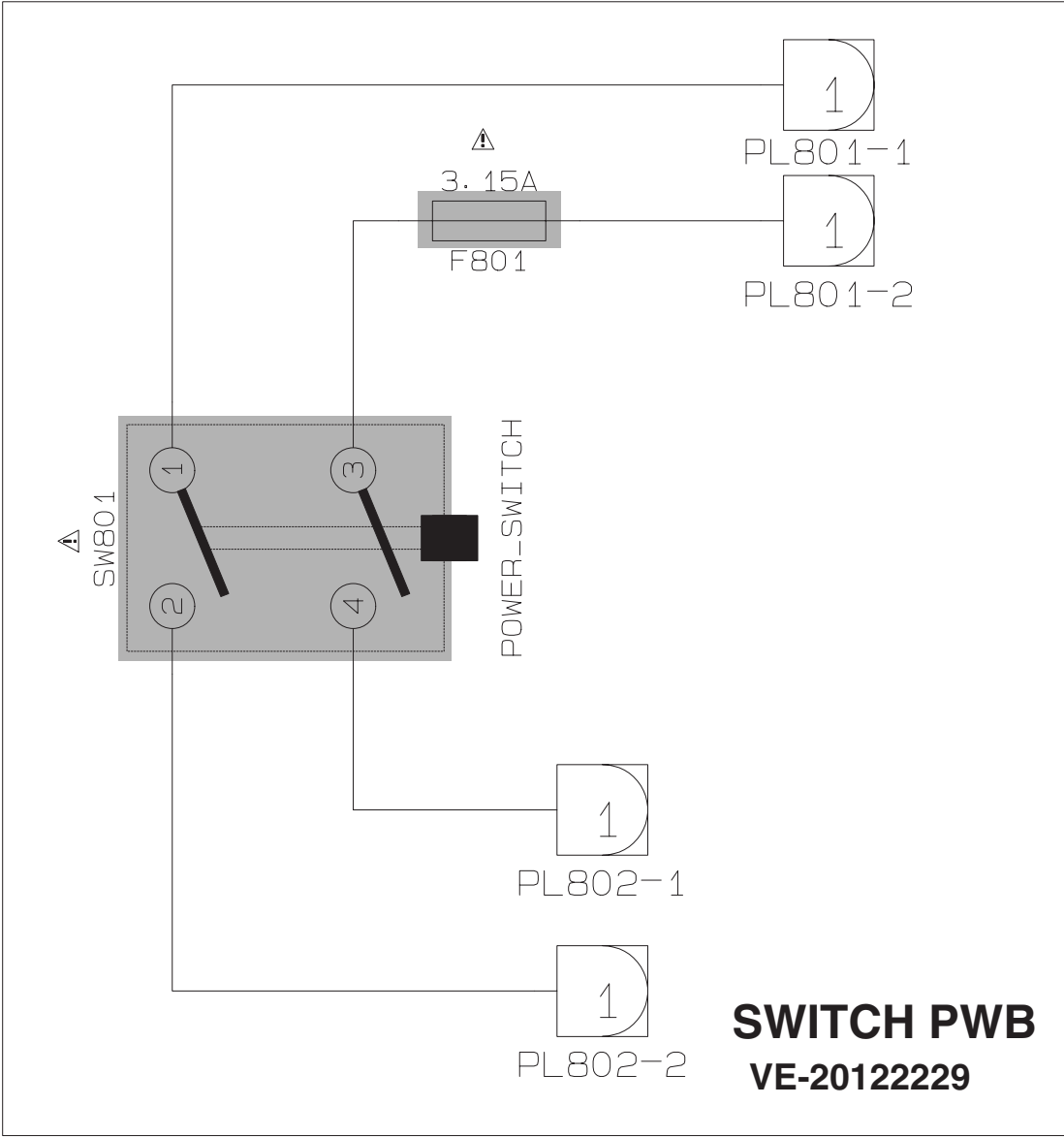
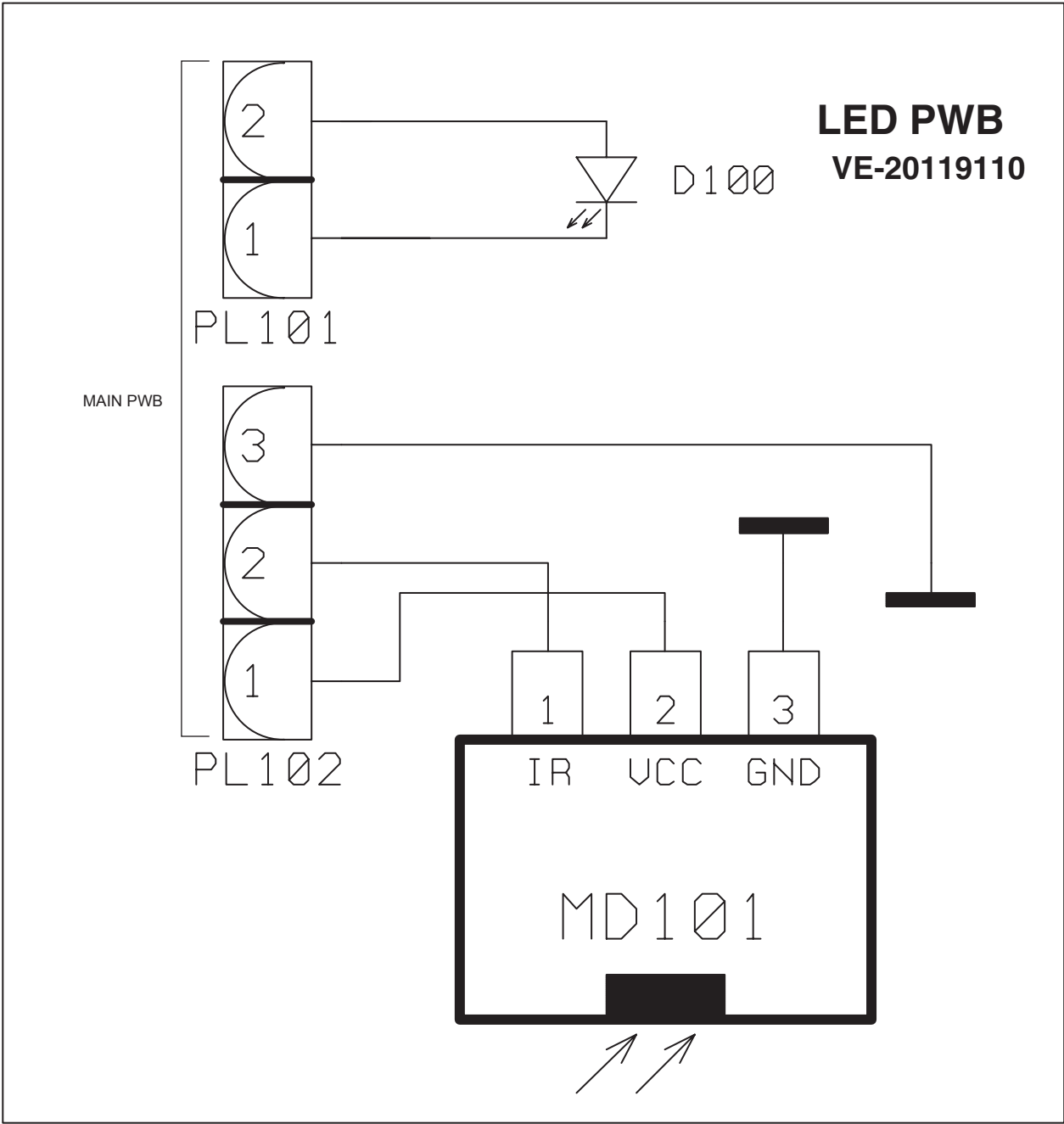
CRT SOCKET PWB
VE-20121506

SIDE CONTROL PWB CIRCUIT DIAGRAM



LED PWB CIRCUIT DIAGRAM

SWITCH PWB CIRCUIT DIAGRAM

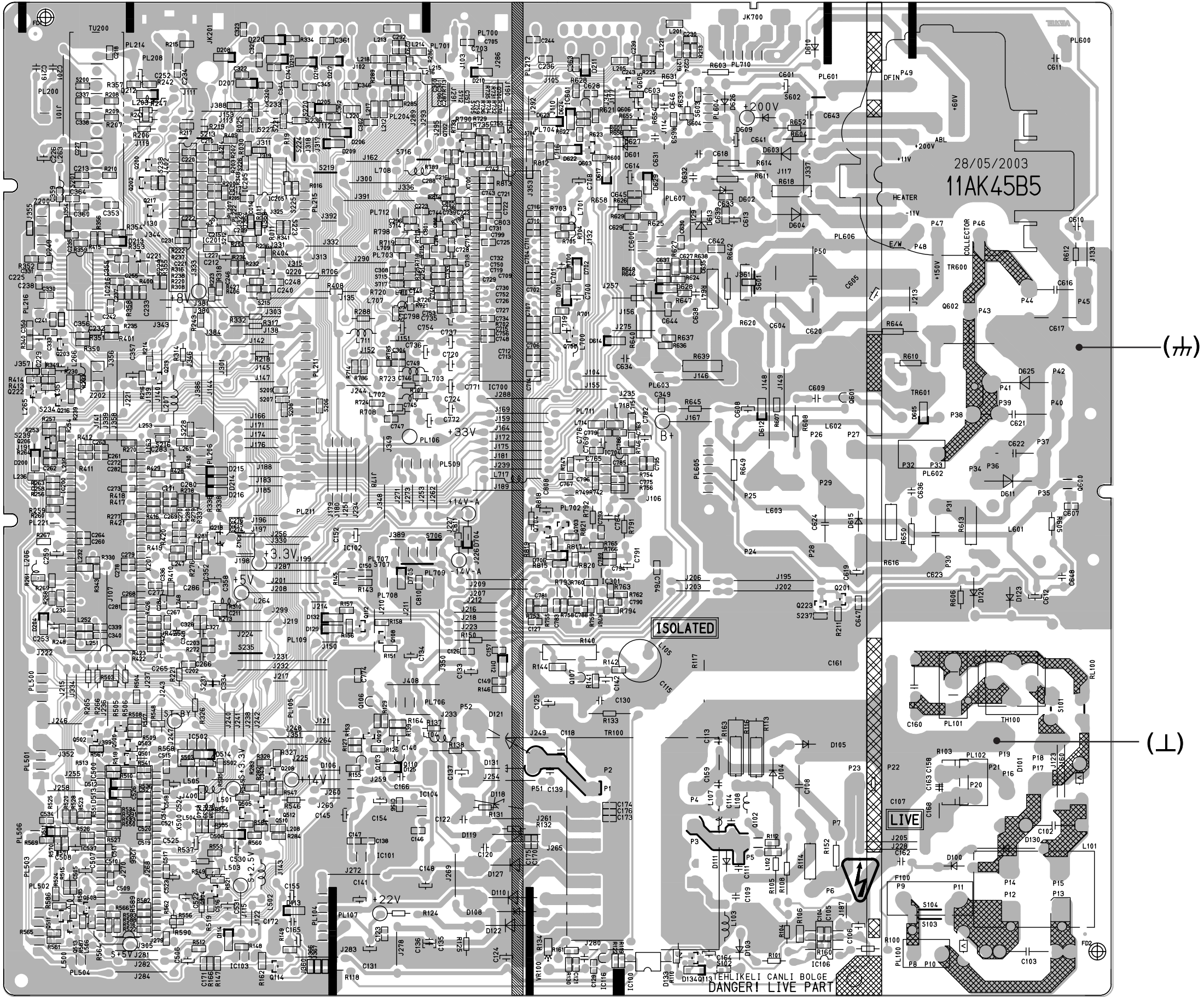


PATTERN DIAGRAMS MAIN PWB PATTERN

AV-28KT1BUF
AV-28KT1SU

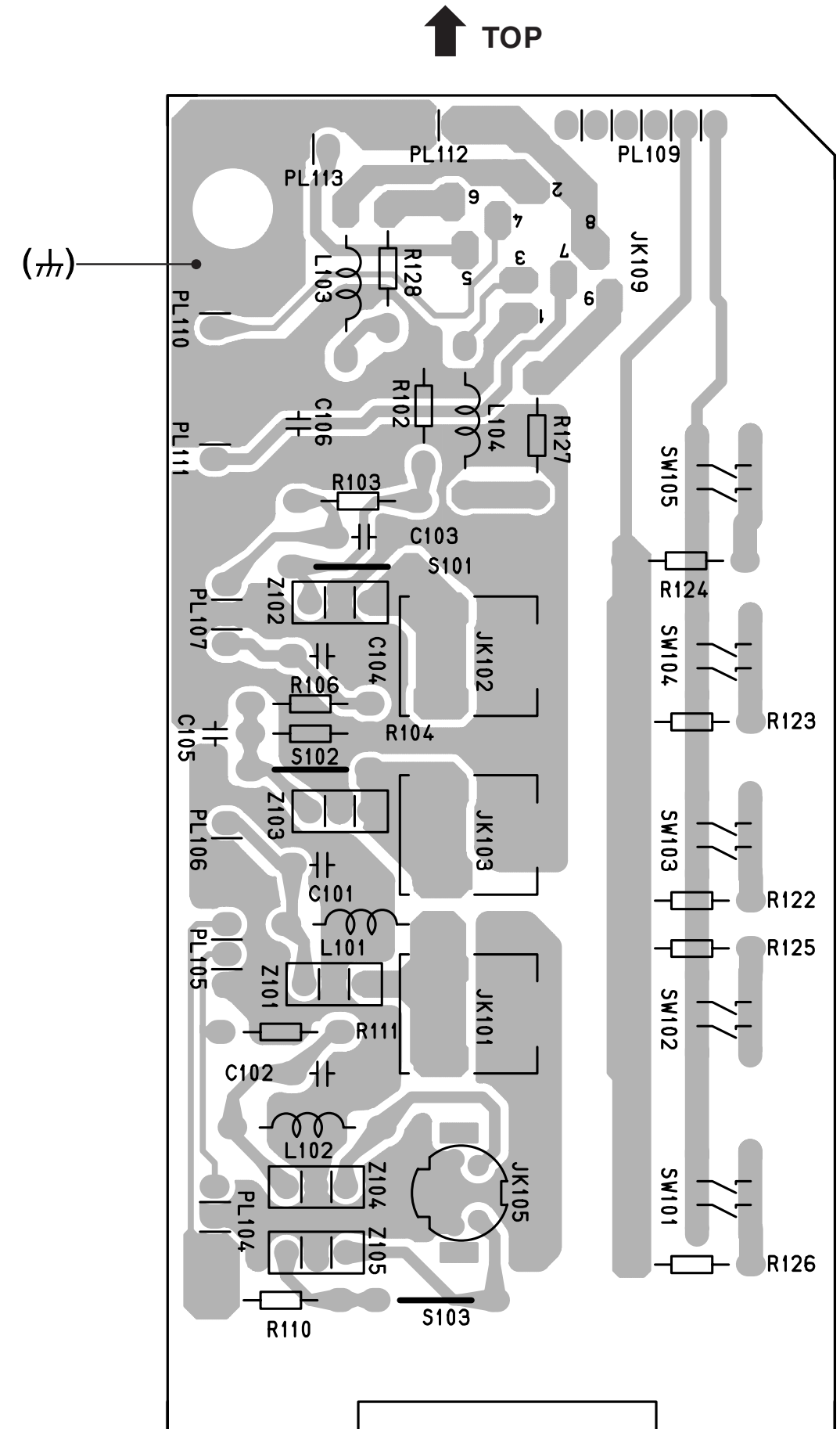
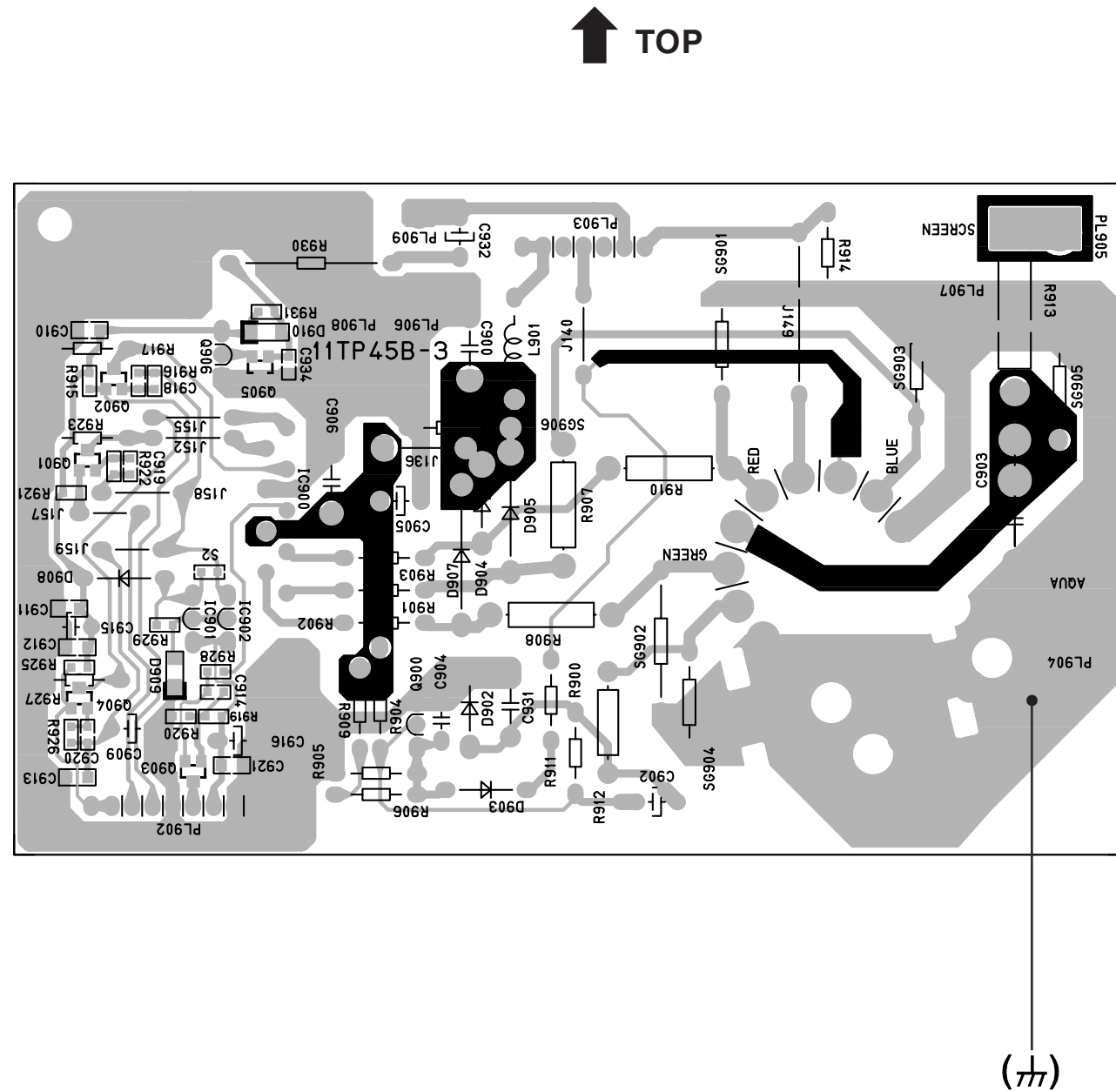
AV-28KT1BUF
AV-28KT1SU

FRONT

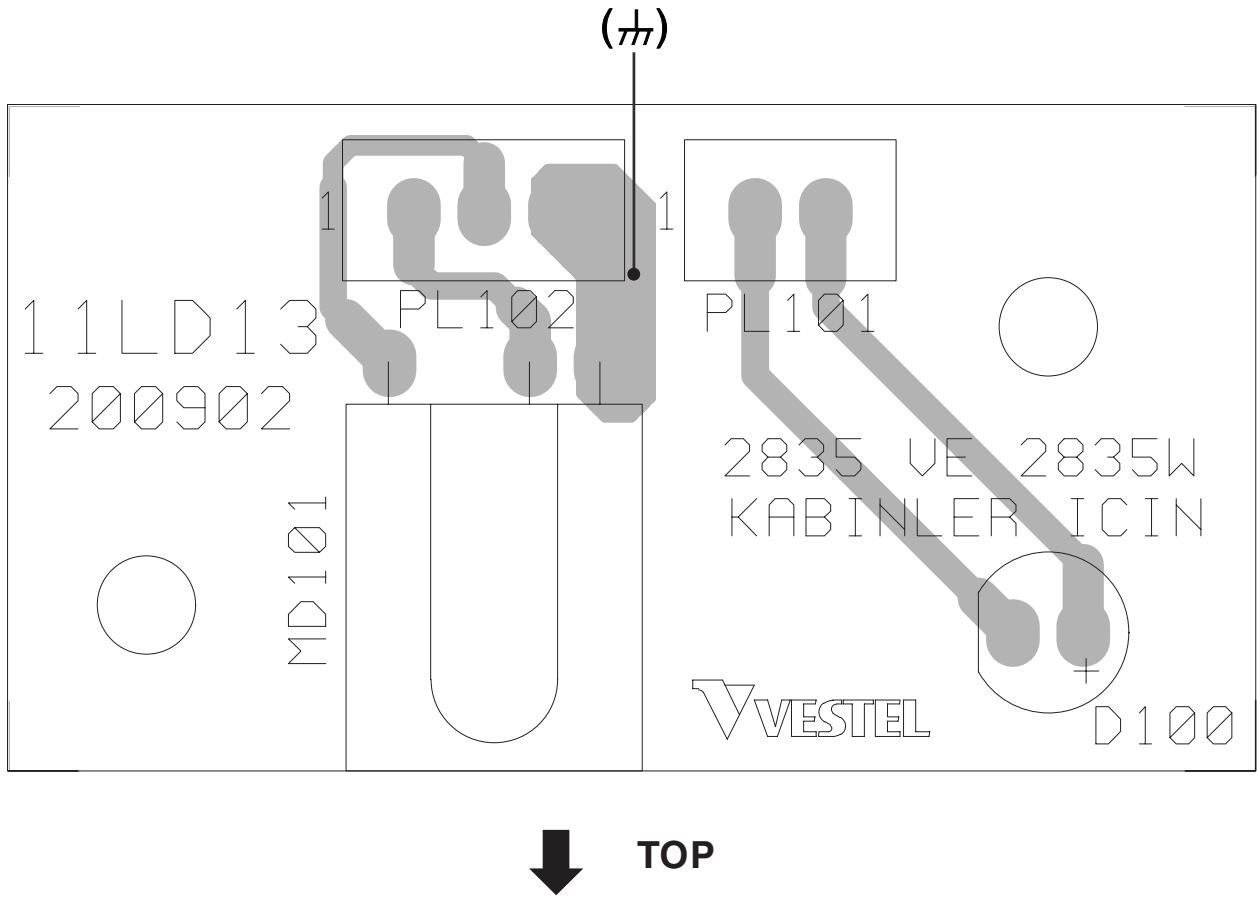


CRT SOCKET PWB PATTERN

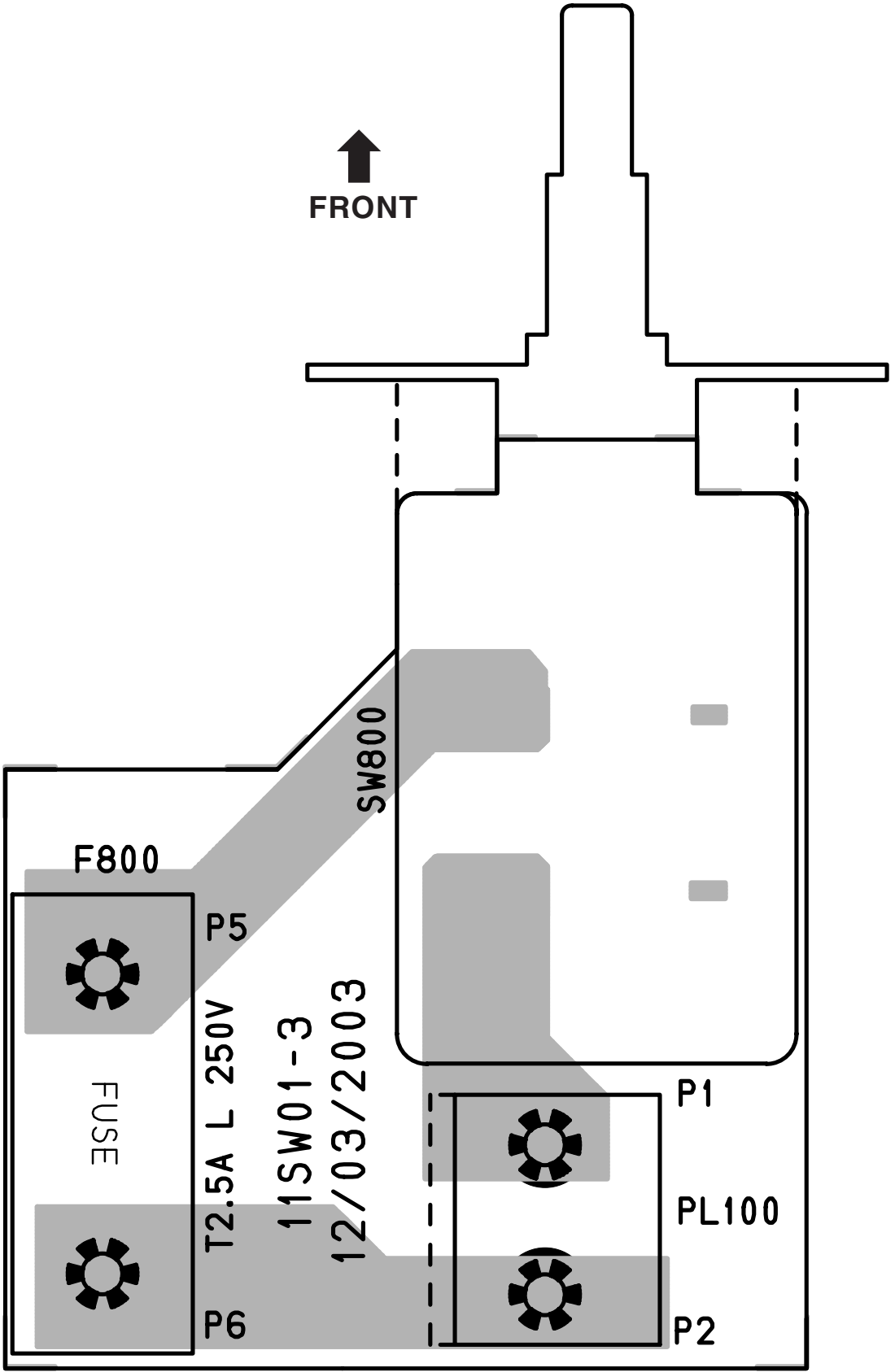
SIDE CONTROL PWB PATTERN



LED PWB PATTERN



POWER SWITCH PWB PATTERN



PARTS LIST

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USING PW BOARD & REMOTE CONTROL UNIT

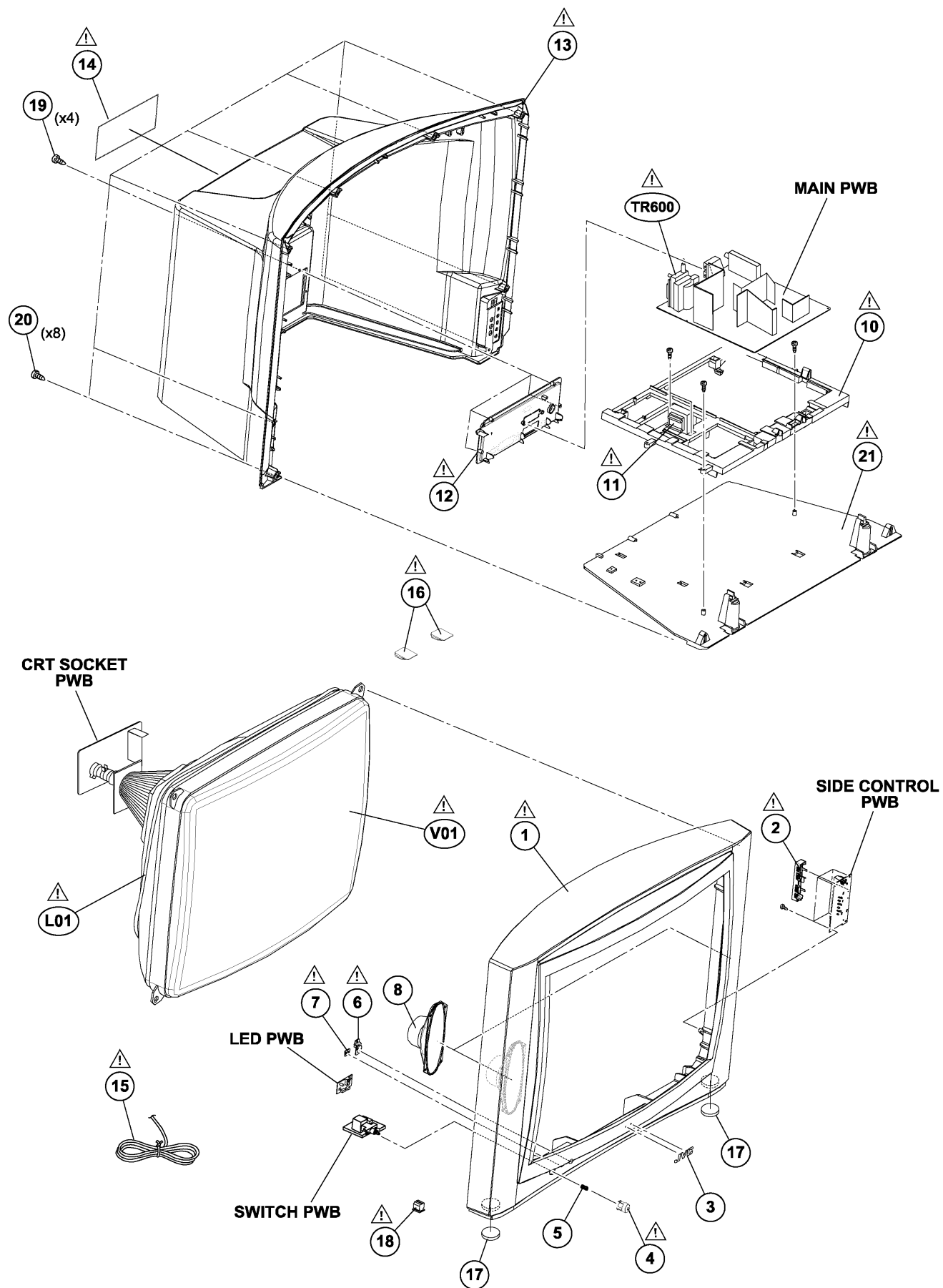
PWB ASS'Y \ Model	AV-28KT1BUF/A AV-28KT1SUF/A [A-VERSION]	AV-28KT1BUF/B AV-28KT1SUF/B [B-VERSION]	AV-28KT1BUF/C AV-28KT1SUF/C [C-VERSION]
MAIN PWB	VE-20120604	VE-20127801	VE-20127796
CRT SOCKET PWB	VE-20121506	←	←
SIDE CONTROL PWB	VE-20120893	←	←
LED PWB	VE-20129110	←	←
SWITCH PWB	VE-20122229	←	←
REMOTE CONTROL UNIT	VE-30017763 (RM-C1100)	←	←

EXPLODED VIEW PARTS LIST

△ Ref.No.	Part No.	Part Name	Description
[AV-28KT1BUF : BLACK model]			
△ V01	VE-30002751	PICTURE TUBE	Inc. DY, PC MAGNET
△ L01	VE-30002138	DEG COIL&EARTH	
△ TR600	VE-30021290	FB TRANSF.	Within MAIN PWB
△ 1	VE-20121492	FRONT CABINET	
△ 2	VE-20091798	FUNCTION BUTTON	
△ 3	VE-40013592	LOGO JVC	
△ 4	VE-20111864	ON/OFF BUTTON (POWER)	
△ 5	VE-35000013	SPRING (ON/OFF SWITCH)	
△ 6	VE-20094352	PRE-AMP LENS	
△ 7	VE-20056446	LED LENS	
△ 8	VE-30001946	SPEAKER	(x2) 8R 15W 57*160
△ 10	VE-20093231	CHASSIS FRAME	
△ 11	VE-30015614	PFC TRANSF.	
△ 12	VE-20108124	BACK DOOR	
△ 13	VE-20121494	BACK COVER	
△ 14	VE-20127842	LABEL	[A-VERSION]
△ 14	VE-20127843	LABEL	[A-VERSION]
△ 14	VE-20127874	LABEL	[B-VERSION]
△ 14	VE-20127871	LABEL	[C-VERSION]
△ 15	VE-30016513	POWER CORD (2.2MT)	
△ 16	VE-20110931	BACK COVER HOLDER	(x2)
△ 17	VE-40014391	FOOT RUBBER	(x2)
△ 18	VE-20004520	CABLE HOLDER	
△ 19	VE-35000211	SCREW (2.9*9.5)	(x4) For BACK DOOR
△ 20	VE-35004572	SCREW (4x20)	(x8) For BACK COVER
△ 21	VE-20081578	BASE	

△ Ref.No.	Part No.	Part Name	Description
[AV-28KT1SUF : SILVER model]			
△ V01	VE-30002751	PICTURE TUBE	Inc. DY, PC MAGNET
△ L01	VE-30002138	DEG COIL&EARTH	
△ TR600	VE-30021290	FB TRANSF.	Within MAIN PWB
△ 1	VE-20119985	FRONT CABINET	
△ 2	VE-20096498	FUNCTION BUTTON	
△ 3	VE-40013593	LOGO JVC	
△ 4	VE-20120046	ON/OFF BUTTON (POWER)	
△ 5	VE-35000013	SPRING (ON/OFF SWITCH)	
△ 6	VE-20094352	PRE-AMP LENS	
△ 7	VE-20056446	LED LENS	
△ 8	VE-30001946	SPEAKER	(x2) 8R 15W 57*160
△ 10	VE-20093231	CHASSIS FRAME	
△ 11	VE-30015614	PFC TRANSF.	
△ 12	VE-20120043	BACK DOOR	
△ 13	VE-20111863	BACK COVER	
△ 14	VE-20127776	LABEL	[A-VERSION]
△ 14	VE-20127777	LABEL	[A-VERSION]
△ 14	VE-20127841	LABEL	[B-VERSION]
△ 14	VE-20127894	LABEL	[C-VERSION]
△ 15	VE-30016513	POWER CORD (2.2MT)	
△ 16	VE-20110931	BACK COVER HOLDER	(x2)
△ 17	VE-40014391	FOOT RUBBER	(x2)
△ 18	VE-20004520	CABLE HOLDER	
△ 19	VE-35000211	SCREW (2.9*9.5)	(x4) For BACK DOOR
△ 20	VE-35004572	SCREW (4x20)	(x8) For BACK COVER
△ 21	VE-20081578	BASE	

EXPLODED VIEW



PRINTED WIRING BOARD PARTS LIST

[AV-28KT1BUF/A / AV-28KT1SUF/A]

■ MAIN P.W. BOARD ASS'Y (VE-20120604)

△ Symbol No.	Part No.	Part Name	Description
RESISTOR			
C202	VE-30012643	SMD R	1/16W 120R J
L240	VE-30000464	SMD R	1/10W 100R J
L241	VE-30000464	SMD R	1/10W 100R J
L242	VE-30000464	SMD R	1/10W 100R J
L268	VE-30000614	SMD R	1/10W 2.4K J
R100	VE-30000718	CF R	1/4W 4.7K J
R101	VE-30000896	MF R	1/4W 160K G
R105	VE-30000982	MF R	1/4W 4.7K J
R106	VE-30000593	SMD R	1/10W 2.2K J
R108	VE-30000452	CF R	1/4W 10R J
R110	VE-30012657	SMD R	1/16W 1K J
R112	VE-30012657	SMD R	1/16W 1K J
R114	VE-30007784	MO R	5W 33K J(RADIAL)
R116	VE-30001173	MO R	1W 0.47R J
R117	VE-30001257	MG R	1/2W 4.7H J
R118	VE-30000580	CF R	1/4W 22R J
R119	VE-30012641	SMD R	1/16W 10K J
R122	VE-30014032	SMD R	1/16W 47R J
R126	VE-30012641	SMD R	1/16W 10K J
R127	VE-30012692	SMD R	1/16W 4.7K J
R129	VE-30012692	SMD R	1/16W 4.7K J
R130	VE-30012641	SMD R	1/16W 10K J
R131	VE-30000466	CF R	1/4W 1K J
R132	VE-30000466	CF R	1/4W 1K J
R133	VE-30000513	CF R	1/4W 130K J
R134	VE-30000575	SMD R	1/10W 2K J
R137	VE-30000481	CF R	1/4W 1H J
R138	VE-30000660	CF R	1/4W 3.3K J
R139	VE-30000593	SMD R	1/10W 2.2K J
R140	VE-30015222	MO R	1W 0.75R J
R141	VE-30012641	SMD R	1/16W 10K J
R142	VE-30012657	SMD R	1/16W 1K J
R143	VE-30020455	SMD R	1/16W 1.5K F
R144	VE-30000480	SMD R	1/10W 100K J
R145	VE-30020457	SMD R	1/16W 910R F
R146	VE-30012697	SMD R	1/16W 5.1K J
R147	VE-30020455	SMD R	1/16W 1.5K F
R148	VE-30020457	SMD R	1/16W 910R F
R149	VE-30012657	SMD R	1/16W 1K J
R150	VE-30000466	CF R	1/4W 1K J
R151	VE-30012641	SMD R	1/16W 10K J
R152	VE-30001224	FUSE R	1/2W 0.22R J
R153	VE-30012692	SMD R	1/16W 4.7K J
R154	VE-30012641	SMD R	1/16W 10K J
R155	VE-30012641	SMD R	1/16W 10K J
R156	VE-30012641	SMD R	1/16W 10K J
R157	VE-30012641	SMD R	1/16W 10K J
R158	VE-30012657	SMD R	1/16W 1K J
R161	VE-30012657	SMD R	1/16W 1K J
R162	VE-30000494	SMD R	1/10W 120R J
R164	VE-30000593	SMD R	1/10W 2.2K J
R165	VE-30001159	MO R	1W 0.33R J
R166	VE-30012641	SMD R	1/16W 10K J
R200	VE-30012713	SMD R	1/16W 75R J
R201	VE-30012713	SMD R	1/16W 75R J
R202	VE-30012713	SMD R	1/16W 75R J
R203	VE-30012713	SMD R	1/16W 75R J
R204	VE-30012713	SMD R	1/16W 75R J
R205	VE-30012713	SMD R	1/16W 75R J
R206	VE-30000459	CF R	1/4W 100R J
R207	VE-30000459	CF R	1/4W 100R J
R208	VE-30012510	SMD R	1/16W 100R J
R209	VE-30012510	SMD R	1/16W 100R J
R210	VE-30012662	SMD R	1/16W 2.7K J
R211	VE-30012657	SMD R	1/16W 1K J
R215	VE-30012713	SMD R	1/16W 75R J
R219	VE-30000792	CF R	1/4W 75R J
R220	VE-30012641	SMD R	1/16W 10K J
R221	VE-30000792	CF R	1/4W 75R J
R222	VE-30012641	SMD R	1/16W 10K J
R230	VE-30012641	SMD R	1/16W 10K J
R231	VE-30000792	CF R	1/4W 75R J
R232	VE-30012713	SMD R	1/16W 75R J
R233	VE-30012657	SMD R	1/16W 1K J
R234	VE-30012702	SMD R	1/16W 560R J
R235	VE-30000655	CF R	1/4W 330R J
R236	VE-30012713	SMD R	1/16W 75R J
R237	VE-30012641	SMD R	1/16W 10K J
R238	VE-30012641	SMD R	1/16W 10K J
R239	VE-30012713	SMD R	1/16W 75R J
R241	VE-30012510	SMD R	1/16W 100R J
R242	VE-30012696	SMD R	1/16W 47K J
R247	VE-30000500	CF R	1/4W 12K J
R248	VE-30012641	SMD R	1/16W 10K J
R254	VE-30012657	SMD R	1/16W 1K J
R256	VE-30012655	SMD R	1/16W 180R J

△ Symbol No.	Part No.	Part Name	Description
RESISTOR			
R259	VE-30000593	SMD R	1/10W 2.2K J
R260	VE-30012669	SMD R	1/16W 22K J
R261	VE-30012677	SMD R	1/16W 3.3K J
R264	VE-30012705	SMD R	1/16W 6.8K J
R265	VE-30000459	CF R	1/4W 100R J
R266	VE-30000459	CF R	1/4W 100R J
R267	VE-30012657	SMD R	1/16W 1K J
R268	VE-30012641	SMD R	1/16W 10K J
R269	VE-30012641	SMD R	1/16W 10K J
R270	VE-30012641	SMD R	1/16W 10K J
R272	VE-30012713	SMD R	1/16W 75R J
R273	VE-30012713	SMD R	1/16W 75R J
R274	VE-30012702	SMD R	1/16W 560R J
R276	VE-30000593	SMD R	1/10W 2.2K J
R277	VE-30012679	SMD R	1/16W 3.9K J
R278	VE-30012713	SMD R	1/16W 75R J
R279	VE-30012713	SMD R	1/16W 75R J
R280	VE-30012713	SMD R	1/16W 75R J
R281	VE-30012679	SMD R	1/16W 270R J
R282	VE-30012668	SMD R	1/16W 220R J
R283	VE-30012707	SMD R	1/16W 680R J
R284	VE-30012684	SMD R	1/16W 330R J
R285	VE-30012707	SMD R	1/16W 680R J
R286	VE-30012707	SMD R	1/16W 680R J
R288	VE-30000770	CF R	1/4W 680R J
R289	VE-30012707	SMD R	1/16W 680R J
R299	VE-30012510	SMD R	1/16W 100R J
R308	VE-30012641	SMD R	1/16W 10K J
R310	VE-30012713	SMD R	1/16W 75R J
R316	VE-30012641	SMD R	1/16W 10K J
R317	VE-30000792	CF R	1/4W 75R J
R318	VE-30012657	SMD R	1/16W 1K J
R326	VE-30000815	CF R	1/4W 8.2K J
R327	VE-30000480	SMD R	1/10W 100K J
R330	VE-30012657	SMD R	1/16W 1K J
R334	VE-30012713	SMD R	1/16W 75R J
R336	VE-30000466	CF R	1/4W 1K J
R337	VE-30000466	CF R	1/4W 1K J
R338	VE-30000466	CF R	1/4W 1K J
R342	VE-30012657	SMD R	1/16W 1K J
R343	VE-30012692	SMD R	1/16W 4.7K J
R349	VE-30012641	SMD R	1/16W 10K J
R350	VE-30012510	SMD R	1/16W 100R J
R351	VE-30012510	SMD R	1/16W 100R J
R352	VE-30012698	SMD R	1/16W 5.6K J
R353	VE-30012685	SMD R	1/16W 33K J
R354	VE-30012677	SMD R	1/16W 3.3K J
R355	VE-30012643	SMD R	1/16W 120R J
R356	VE-30012707	SMD R	1/16W 680R J
R357	VE-30012644	SMD R	1/16W 12K J
R358	VE-30012655	SMD R	1/16W 180R J
R359	VE-30012669	SMD R	1/16W 22K J
R400	VE-30012669	SMD R	1/16W 22K J
R404	VE-30012692	SMD R	1/16W 4.7K J
R406	VE-30012650	SMD R	1/16W 15K J
R409	VE-30012713	SMD R	1/16W 75R J
R410	VE-30012713	SMD R	1/16W 75R J
R411	VE-30012657	SMD R	1/16W 1K J
R412	VE-30012657	SMD R	1/16W 1K J
R413	VE-30012713	SMD R	1/16W 75R J
R414	VE-30012713	SMD R	1/16W 75R J
R415	VE-30012679	SMD R	1/16W 3.9K J
R416	VE-30012695	SMD R	1/16W 470R J
R417	VE-30012695	SMD R	1/16W 470R J
R418	VE-30012695	SMD R	1/16W 470R J
R419	VE-30012695	SMD R	1/16W 470R J
R420	VE-30012695	SMD R	1/16W 470R J
R421	VE-30012695	SMD R	1/16W 470R J
R422	VE-30012695	SMD R	1/16W 470R J
R423	VE-30012695	SMD R	1/16W 470R J
R424	VE-30012695	SMD R	1/16W 470R J
R425	VE-30012695	SMD R	1/16W 470R J
R426	VE-30012695	SMD R	1/16W 470R J
R503	VE-30012510	SMD R	1/16W 100R J
R504	VE-30012510	SMD R	1/16W 100R J
R505	VE-30000471	CF R	1/4W 10K J
R506	VE-30000471	CF R	1/4W 10K J
R507	VE-30012696	SMD R	1/16W 47K J
R508	VE-30012696	SMD R	1/16W 47K J
R509	VE-30012696	SMD R	1/16W 47K J
R510	VE-30012696	SMD R	1/16W 47K J
R512	VE-30012668	SMD R	1/16W 220R J
R513	VE-30012662	SMD R	1/16W 2.7K J
R516	VE-30012692	SMD R	1/16W 4.7K J
R518	VE-30012662	SMD R	1/16W 2.7K J
R519	VE-30000466	CF R	1/4W 1K J

[AV-28KT1BUF/A / AV-28KT1SUF/A]

Symbol No.	Part No.	Part Name	Description
RESISTOR			
R520	VE-30012650	SMD R	1/16W 15K J
R521	VE-30012679	SMD R	1/16W 3.9K J
R522	VE-30012692	SMD R	1/16W 4.7K J
R523	VE-30012712	SMD R	1/16W 8.2K J
R524	VE-30012679	SMD R	1/16W 3.9K J
R526	VE-30012679	SMD R	1/16W 3.9K J
R527	VE-30012679	SMD R	1/16W 3.9K J
R528	VE-30012650	SMD R	1/16W 15K J
R533	VE-30012685	SMD R	1/16W 33K J
R535	VE-30012641	SMD R	1/16W 10K J
R537	VE-30000466	CF R	1/4W 1K J
R538	VE-30012508	SMD R	1/16W 1.8K J
R539	VE-30012508	SMD R	1/16W 1.8K J
R540	VE-30012508	SMD R	1/16W 1.8K J
R541	VE-30012662	SMD R	1/16W 2.7K J
R545	VE-30012696	SMD R	1/16W 47K J
R546	VE-30000471	CF R	1/4W 10K J
R547	VE-30012510	SMD R	1/16W 100R J
R548	VE-30012641	SMD R	1/16W 10K J
R549	VE-30012657	SMD R	1/16W 1K J
R550	VE-30012679	SMD R	1/16W 3.9K J
R553	VE-30012695	SMD R	1/16W 470R J
R554	VE-30012692	SMD R	1/16W 4.7K J
R555	VE-30012506	SMD R	1/16W 1.5K J
R560	VE-30012641	SMD R	1/16W 10K J
R561	VE-30012510	SMD R	1/16W 100R J
R564	VE-30012692	SMD R	1/16W 4.7K J
R565	VE-30012510	SMD R	1/16W 100R J
R566	VE-30012641	SMD R	1/16W 10K J
R567	VE-30000459	CF R	1/4W 100R J
R568	VE-30000459	CF R	1/4W 100R J
R571	VE-30012657	SMD R	1/16W 1K J
R582	VE-30012641	SMD R	1/16W 10K J
R584	VE-30012696	SMD R	1/16W 47K J
R585	VE-30012641	SMD R	1/16W 10K J
R586	VE-30012641	SMD R	1/16W 10K J
R587	VE-30012641	SMD R	1/16W 10K J
R588	VE-30012641	SMD R	1/16W 10K J
R589	VE-30012641	SMD R	1/16W 10K J
R590	VE-30012679	SMD R	1/16W 3.9K J
R600	VE-30012510	SMD R	1/16W 100R J
R601	VE-30000470	CF R	1/2W 10K J
R603	VE-30001244	FUSE R	1/2W 0.47R J
R604	VE-30001244	FUSE R	1/2W 0.47R J
R605	VE-30000665	CF R	1/4W 33K J
R607	VE-30012695	SMD R	1/16W 470R J
R608	VE-30001100	MO R	1W 150R J
R611	VE-30001244	FUSE R	1/2W 0.47R J
R612	VE-30000471	CF R	1/4W 10K J
R613	VE-30001232	FUSE R	1/4W 2.7R J
R614	VE-30001244	FUSE R	1/2W 0.47R J
R616	VE-30018904	MO R	5W 4.7K J
R621	VE-30012696	SMD R	1/16W 47K J
R622	VE-30012641	SMD R	1/16W 10K J
R623	VE-30012641	SMD R	1/16W 10K J
R624	VE-30012692	SMD R	1/16W 4.7K J
R625	VE-30000480	SMD R	1/10W 100K J
R626	VE-30012692	SMD R	1/16W 4.7K J
R627	VE-30000480	SMD R	1/10W 100K J
R628	VE-30012657	SMD R	1/16W 1K J
R629	VE-30012674	SMD R	1/16W 27K J
R630	VE-30000504	CF R	1/4W 120K J
R631	VE-30000504	CF R	1/4W 120K J
R632	VE-30012662	SMD R	1/16W 2.7K J
R636	VE-30012641	SMD R	1/16W 10K J
R637	VE-30012657	SMD R	1/16W 1K J
R638	VE-30012674	SMD R	1/16W 27K J
R639	VE-30001162	MO R	1W 390R J
R640	VE-30001134	MO R	2W 2.2R J
R644	VE-30000649	CF R	1/2W 33R J
R645	VE-30000580	CF R	1/4W 22R J
R646	VE-30012654	SMD R	1/16W 180K J
R647	VE-30012650	SMD R	1/16W 15K J
R648	VE-30012658	SMD R	1/16W 1M J
R649	VE-30001228	FUSE R	1/2W 2.2R J
R650	VE-30001082	MO R	1/2W 1K J
R651	VE-30000848	MF R	1/4W 1K F
R652	VE-30012686	SMD R	1/16W 36K J
R654	VE-30012674	SMD R	1/16W 27K J
R655	VE-30012641	SMD R	1/16W 10K J
R656	VE-30012641	SMD R	1/16W 10K J
R657	VE-30000466	CF R	1/4W 1K J
R658	VE-30000466	CF R	1/4W 1K J
R700	VE-30012695	SMD R	1/16W 470R J
R701	VE-30012695	SMD R	1/16W 470R J
R702	VE-30012657	SMD R	1/16W 1K J
R703	VE-30012510	SMD R	1/16W 100R J
R704	VE-30012510	SMD R	1/16W 100R J
R705	VE-30012510	SMD R	1/16W 100R J
R710	VE-30012657	SMD R	1/16W 1K J
R713	VE-30012510	SMD R	1/16W 100R J
R714	VE-30012510	SMD R	1/16W 100R J
R715	VE-30012657	SMD R	1/16W 1K J
R718	VE-30012657	SMD R	1/16W 1K J

Symbol No.	Part No.	Part Name	Description
RESISTOR			
R719	VE-30012657	SMD R	1/16W 1K J
R723	VE-30000459	CF R	1/4W 100R J
R724	VE-30012510	SMD R	1/16W 100R J
R725	VE-30012657	SMD R	1/16W 1K J
R726	VE-30012657	SMD R	1/16W 1K J
R753	VE-30014076	SMD R	1/16W 4.7R J
R755	VE-30014076	SMD R	1/16W 4.7R J
R759	VE-30012641	SMD R	1/16W 10K J
R760	VE-30012702	SMD R	1/16W 560R J
R762	VE-30012641	SMD R	1/16W 10K J
R763	VE-30012702	SMD R	1/16W 560R J
R765	VE-30012669	SMD R	1/16W 22K J
R766	VE-30012669	SMD R	1/16W 22K J
R793	VE-30012695	SMD R	1/16W 470R J
R794	VE-30012695	SMD R	1/16W 470R J
R798	VE-30000466	CF R	1/4W 1K J
R799	VE-30012657	SMD R	1/16W 1K J
R811	VE-30012641	SMD R	1/16W 10K J
R815	VE-30012644	SMD R	1/16W 12K J
R816	VE-30012649	SMD R	1/16W 150R J
R817	VE-30012641	SMD R	1/16W 10K J
R818	VE-30000723	CF R	1/4W 47K J
R819	VE-30000593	SMD R	1/10W 2.2K J
R820	VE-30012696	SMD R	1/16W 47K J
R821	VE-30012641	SMD R	1/16W 10K J
VR100	VE-30001064	ADJ. R	1/10W 470R VER (MAN)

CAPACITOR

△ C102	VE-30000084	MKT CAP.	150NF AC275V M
△ C103	VE-30000094	MKT CAP.	220NF AC275V M
C105	VE-30012603	SMD CAP.	100NF 25V K R
C106	VE-30000400	EL CAP.	47UF 50V M
C107	VE-30000421	EL CAP.	220UF 400V M
C108	VE-30000161	MKP CAP.	47NF 630V J
C111	VE-30007308	CER CAP.	220PF 1KV K (PULSE)
C113	VE-30006940	CER CAP.	2.7NF 1KV K B
C114	VE-30009208	CER CAP.	470PF 1KV K (PULSE)
△ C115	VE-30000440	CER CAP.	2.2NF 4KV M
C118	VE-30007308	CER CAP.	220PF 1KV K (PULSE)
C119	VE-30000090	MKT CAP.	22NF 100V J
C120	VE-30007308	CER CAP.	220PF 1KV K (PULSE)
C121	VE-30012560	SMD CAP.	100PF 50V J
C122	VE-30007308	CER CAP.	220PF 1KV K (PULSE)
C124	VE-30000375	EL CAP.	220UF 16V M
C125	VE-30000406	EL CAP.	47UF 250V M (HR)
C126	VE-30012603	SMD CAP.	100NF 25V K R
C127	VE-30012603	SMD CAP.	100NF 25V K R
C129	VE-30016654	SMD CAP.	100NF 16V K R
C130	VE-30000436	CER CAP.	10NF 1KV ZE
C133	VE-30000383	EL CAP.	2200UF 25V M
C134	VE-30000383	EL CAP.	2200UF 25V M
C135	VE-30000411	EL CAP.	4700UF 16V M
C137	VE-30000367	EL CAP.	1UF 250V M
C138	VE-30016654	SMD CAP.	100NF 16V K R
C140	VE-30000359	EL CAP.	3.3UF 50V M
C141	VE-30000359	EL CAP.	1000UF 16V M
C142	VE-30000387	EL CAP.	33UF 50V M
C145	VE-30000375	EL CAP.	220UF 16V M
C146	VE-30012603	SMD CAP.	100NF 25V K R
C147	VE-30016654	SMD CAP.	100NF 16V K R
C148	VE-30000360	EL CAP.	1000UF 25V M
C149	VE-30012581	SMD CAP.	1NF 50V K R
C150	VE-30016654	SMD CAP.	100NF 16V K R
C152	VE-30000375	EL CAP.	220UF 16V M
C154	VE-30000375	EL CAP.	220UF 16V M
C155	VE-30000375	EL CAP.	220UF 16V M
C156	VE-30016654	SMD CAP.	100NF 16V K R
C157	VE-30016654	SMD CAP.	100NF 16V K R
△ C160	VE-30000076	MKT CAP.	100NF AC275V M
△ C161	VE-30000440	CER CAP.	2.2NF 4KV M
C162	VE-30007708	CER CAP.	1NF 1KV R (PULSE)
C164	VE-30000345	EL CAP.	10UF 50V M
C165	VE-30000362	EL CAP.	1UF 50V M
C166	VE-30000225	CER CAP.	220PF 50V J SLO
C167	VE-30018085	VAR CAP.	510V K
C168	VE-30000161	MKP CAP.	47NF 630V J
C170	VE-30012566	SMD CAP.	22PF 50V J
C171	VE-30012590	SMD CAP.	47NF 50V F
C172	VE-30000313	CER CAP.	22NF 50V Z F
C173	VE-30018085	VAR CAP.	510V K
C201	VE-30000445	CER CAP.	4.7NF 1KV M E
C208	VE-30016126	SMD CAP.	220NF 16V K R
C209	VE-30016126	SMD CAP.	220NF 16V K R
C210	VE-30016126	SMD CAP.	220NF 16V K R
C212	VE-30000352	EL CAP.	100UF 16V M
C213	VE-30012609	SMD CAP.	68NF 50V K
C214	VE-30016126	SMD CAP.	220NF 16V K R
C215	VE-30016126	SMD CAP.	220NF 16V K R
C217	VE-30016126	SMD CAP.	220NF 16V K R
C218	VE-30012610	SMD CAP.	10NF 50V J

[AV-28KT1BUF/A / AV-28KT1SUF/A]

△ Symbol No.	Part No.	Part Name	Description
COIL			
J344	VE-30001996	FIXED COIL	22UH
L103	VE-30001992	FIXED COIL	10UH
L105	VE-30001450	FIXED COIL	22UH
L203	VE-30001996	FIXED COIL	22UH
L206	VE-30001979	FIXED COIL	1UH
L207	VE-30001979	FIXED COIL	1UH
L263	VE-30001979	FIXED COIL	1UH
L264	VE-30001979	FIXED COIL	1UH
L265	VE-30001979	FIXED COIL	1UH
L266	VE-30001987	FIXED COIL	4.7UH
L500	VE-30001992	FIXED COIL	10UH
L501	VE-30001992	FIXED COIL	10UH
L502	VE-30001992	FIXED COIL	10UH
L503	VE-30001992	FIXED COIL	10UH
L504	VE-30001992	FIXED COIL	10UH
L505	VE-30001992	FIXED COIL	10UH
L506	VE-30006770	FIXED COIL	0.22UH
L601	VE-30002031	INJECTION FIXED COIL	15MH
L700	VE-30001996	FIXED COIL	22UH
L701	VE-30001996	FIXED COIL	22UH
L702	VE-30001996	FIXED COIL	22UH
L703	VE-30001996	FIXED COIL	22UH
L711	VE-30001996	FIXED COIL	22UH
L717	VE-30001979	FIXED COIL	1UH

DIODE			
△ D100	VE-30001329	DIODE	1A/1000V 30A
△ D101	VE-20108354	BRIDGE DIODE	4A/1000V 150A(FORMLU)
D103	VE-30001318	DIODE	1A/800V 20A
D104	VE-30001318	DIODE	1A/800V 20A
D105	VE-30001318	DIODE	1A/800V 20A
D106	VE-30001344	ZENER DIODE	6.2V 1/2W
D108	VE-30001315	DIODE	1A/200V 20A
D110	VE-30001288	DIODE	2A/200V 50A
D111	VE-30001318	DIODE	1A/800V 20A
D112	VE-30001285	SMD DIODE	
D113	VE-30003720	SMD ZENER DIODE	3.3V
D114	VE-30001285	SMD DIODE	
D118	VE-30009366	DIODE	3A/200V 150A
D119	VE-30009366	DIODE	3A/200V 150A
D125	VE-30001285	SMD DIODE	
D127	VE-30001315	DIODE	1A/200V 20A
D129	VE-30001285	SMD DIODE	
D130	VE-30001329	DIODE	1A/1000V 30A
D131	VE-30001318	DIODE	1A/800V 20A
D132	VE-30001285	SMD DIODE	
D133	VE-30003720	ZENER DIODE	
D134	VE-30001285	SMD DIODE	
D200	VE-30001285	SMD DIODE	
D204	VE-30001285	SMD DIODE	
D212	VE-30001285	SMD DIODE	
D213	VE-30012411	SMD DIODE	
D214	VE-30007763	SMD ZENER DIODE	
D215	VE-30007763	SMD ZENER DIODE	
D216	VE-30007763	SMD ZENER DIODE	
D506	VE-30012412	SMD ZENER DIODE	2.4V
D601	VE-30001377	UZT ZENER DIODE	33V
D602	VE-30001318	DIODE	1A/800V 20A
D603	VE-30001299	DIODE	3A/400V 150A
D604	VE-30001299	DIODE	3A/400V 150A
D609	VE-30001318	DIODE	1A/800V 20A
D610	VE-30001318	DIODE	1A/800V 20A
D611	VE-30007681	DIODE	3A/800V 150A
D612	VE-30001285	SMD DIODE	
D613	VE-30001291	DIODE	1A/800V 30A
D614	VE-30007763	SMD ZENER DIODE	
D615	VE-30001318	DIODE	1A/800V 20A
D617	VE-30001285	SMD DIODE	
D622	VE-30001285	SMD DIODE	
D623	VE-30001285	SMD DIODE	
D624	VE-30001285	SMD DIODE	
D625	VE-30001320	DIODE	
D627	VE-30001284	DIODE	0.15A/100V 0.5A
D701	VE-30007761	SMD ZENER DIODE	
D702	VE-30001285	SMD DIODE	
D706	VE-30001285	SMD DIODE	
D707	VE-30001285	SMD DIODE	

TRANSISTOR			
Q102	VE-30001386	TRANSISTOR	
Q103	VE-30001454	TRANSISTOR	
Q106	VE-30001454	TRANSISTOR	
Q107	VE-30001428	TRANSISTOR	
Q108	VE-30001457	SMD TRANSISTOR	
Q109	VE-30001457	SMD TRANSISTOR	
Q110	VE-30001384	TRANSISTOR	
Q112	VE-30001458	SMD TRANSISTOR	
Q113	VE-30001457	SMD TRANSISTOR	

△ Symbol No.	Part No.	Part Name	Description
TRANSISTOR			
Q114	VE-30001457	SMD TRANSISTOR	
Q200	VE-30001457	SMD TRANSISTOR	
Q201	VE-30001457	SMD TRANSISTOR	
Q202	VE-30001457	SMD TRANSISTOR	
Q203	VE-30001457	SMD TRANSISTOR	
Q208	VE-30001457	SMD TRANSISTOR	
Q216	VE-30001457	SMD TRANSISTOR	
Q218	VE-30001458	SMD TRANSISTOR	
Q220	VE-30001457	SMD TRANSISTOR	
Q221	VE-30001457	SMD TRANSISTOR	
Q222	VE-30001457	SMD TRANSISTOR	
Q500	VE-30001457	SMD TRANSISTOR	
Q501	VE-30001457	SMD TRANSISTOR	
Q502	VE-30001457	SMD TRANSISTOR	
Q503	VE-30001457	SMD TRANSISTOR	
Q504	VE-30001457	SMD TRANSISTOR	
Q505	VE-30001458	SMD TRANSISTOR	
Q508	VE-30001457	SMD TRANSISTOR	
Q510	VE-30001457	SMD TRANSISTOR	
Q511	VE-30001457	SMD TRANSISTOR	
Q512	VE-30001457	SMD TRANSISTOR	
Q513	VE-30001458	SMD TRANSISTOR	
Q600	VE-30001429	TRANSISTOR	
Q601	VE-30001435	TRANSISTOR	
△ Q602	VE-30001441	TRANSISTOR	H.OUT
Q603	VE-30001458	SMD TRANSISTOR	
Q605	VE-30001458	SMD TRANSISTOR	
Q606	VE-30001458	SMD TRANSISTOR	
Q700	VE-30001458	SMD TRANSISTOR	
Q703	VE-30001458	SMD TRANSISTOR	
Q704	VE-30001457	SMD TRANSISTOR	

IC			
△ IC100	VE-30015087	I.C.	
IC101	VE-30001622	I.C.	
IC102	VE-30001668	I.C.	
IC103	VE-30001668	I.C.	
IC104	VE-30001500	I.C.	
IC106	VE-30011968	I.C.	
IC116	VE-30001506	I.C.	
IC200	VE-30019492	I.C.	
IC201	VE-30001619	I.C.	
IC206	VE-30021083	I.C.	
IC301	VE-30016113	I.C.	
IC500	VE-20139901	I.C. (MICOM)	[A-VERSION] PR. IC. 45-50A55XX FLASH JVC JA100
IC502	VE-20120610	I.C. (MEMORY)	[A-VERSION] IC 24C16 V00804313A01040100122
IC600	VE-30007793	I.C.	
IC601	VE-30001506	I.C.	
IC700	VE-30013658	I.C.	

OTHERS			
△ L101	VE-30018866	LINE FILTER	
L102	VE-30001971	FERRITE BEAD	
L212	VE-30001971	FERRITE BEAD	
L213	VE-30001971	FERRITE BEAD	
L214	VE-30001971	FERRITE BEAD	
L215	VE-30001971	FERRITE BEAD	
L216	VE-30001971	FERRITE BEAD	
L217	VE-30001971	FERRITE BEAD	
L218	VE-30001971	FERRITE BEAD	
L220	VE-30001971	FERRITE BEAD	
L227	VE-30001971	FERRITE BEAD	
L232	VE-30001971	FERRITE BEAD	
L236	VE-30001971	FERRITE BEAD	
L239	VE-30001971	FERRITE BEAD	
L247	VE-30001971	FERRITE BEAD	
L251	VE-30001971	FERRITE BEAD	
L252	VE-30001971	FERRITE BEAD	
L719	VE-30001968	FERRITE BEAD	
△ TH100	VE-30001270	PTC	9 OHM
△ TU200	VE-30009637	TUNER	
X200	VE-30002851	XTAL	4MHZ
X201	VE-30008778	XTAL	20.25MHZ
X500	VE-30006662	XTAL	6MHZ
X700	VE-30001756	XTAL	18.432MHZ
Z200	VE-30014261	SAW FILTER	
Z201	VE-30012545	SAW FILTER	

[AV-28KT1BUF/A / AV-28KT1SUF/A]

■ CRT SOCKET PW BOARD ASSY (VE-20121506)

△ Symbol No.	Part No.	Part Name	Description
RESISTOR			
C911	VE-30012707	SMD R	1/16W 680R J
C912	VE-30012707	SMD R	1/16W 680R J
R900	VE-30000788	CF R	1/4W 6.8K J
R901	VE-30000459	CF R	1/4W 100R J
R902	VE-30000459	CF R	1/4W 100R J
R903	VE-30000459	CF R	1/4W 100R J
R904	VE-30000535	CF R	1/2W 150K J
R905	VE-30000477	CF R	1/4W 100K J
R906	VE-30000477	CF R	1/4W 100K J
R907	VE-30023197	CC R	1W 1.5K K
R908	VE-30023197	CC R	1W 1.5K K
R909	VE-30000477	CF R	1/4W 100K J
R910	VE-30023197	CC R	1W 1.5K K
R911	VE-30000466	CF R	1/4W 1K J
R912	VE-30000459	CF R	1/4W 100R J
R913	VE-30021483	CC R	1W 2.2K K
R914	VE-30000459	CF R	1/4W 100R J
R915	VE-30012649	SMD R	1/16W 150R J
R916	VE-30014128	SMD R	1/16W 33R J
R917	VE-30000583	CF R	1/4W 220R J
R919	VE-30012712	SMD R	1/16W 8.2K J
R920	VE-30012661	SMD R	1/16W 2.4K J
R921	VE-30012649	SMD R	1/16W 150R J
R922	VE-30014128	SMD R	1/16W 33R J
R923	VE-30000583	CF R	1/4W 220R J
R925	VE-30012649	SMD R	1/16W 150R J
R926	VE-30014128	SMD R	1/16W 33R J
R927	VE-30000583	CF R	1/4W 220R J
R928	VE-30012510	SMD R	1/16W 100R J

CAPACITOR

C900	VE-30000075	MKT CAP.	100NF 250V K (DC)
C902	VE-30000415	EL CAP.	4.7UF 250V M
C903	VE-30000438	CER CAP.	2.2NF 2KV
C904	VE-30000287	CER CAP.	10NF 50V K B
C905	VE-30000350	EL CAP.	10UF 250V M
C906	VE-30000075	MKT CAP.	100NF 250V K (DC)
C909	VE-30000407	EL CAP.	470UF 16V M
C910	VE-30000294	SMD CAP.	100NF 50V K
C913	VE-30000294	SMD CAP.	100NF 50V K
C914	VE-30012577	SMD CAP.	560PF 50V J
C915	VE-30000407	EL CAP.	470UF 16V M
C916	VE-30000352	EL CAP.	100UF 16V M
C918	VE-30012577	SMD CAP.	560PF 50V J
C919	VE-30012577	SMD CAP.	560PF 50V J
C920	VE-30012577	SMD CAP.	560PF 50V J
C921	VE-30000294	SMD CAP.	100NF 50V K
C931	VE-30000075	MKT CAP.	100NF 250V K (DC)
S4	VE-30016654	SMD CAP.	100NF 16V K R

COIL

L901	VE-30001994	FIXED COIL	22UH J AXIAL
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DIODE

D902	VE-30001318	DIODE	1A/800V 20A
D903	VE-30001284	DIODE	0.15A/100V 0.5A
D904	VE-30001318	DIODE	1A/800V 20A
D905	VE-30001318	DIODE	1A/800V 20A
D907	VE-30001318	DIODE	1A/800V 20A
D908	VE-30014353	DIODE	
D909	VE-30001285	SMD DIODE	

TRANSISTOR

Q900	VE-30001427	TRANSISTOR	
Q901	VE-30001458	SMD TRANSISTOR	
Q902	VE-30001458	SMD TRANSISTOR	
Q903	VE-30001458	SMD TRANSISTOR	
Q904	VE-30001458	SMD TRANSISTOR	

IC

IC900	VE-30015857	I.C.	
IC901	VE-30014346	I.C.	

OTHERS

△ PL901	VE-30001855	CRT SOCKET	
SG901	VE-30000428	SPARK GAP	300V
SG902	VE-30000428	SPARK GAP	300V
SG903	VE-30000428	SPARK GAP	300V
SG904	VE-30000428	SPARK GAP	300V
SG905	VE-30021532	SPARK GAP	1500V

■ SIDE CONTROL PW BOARD ASSY(VE-20120893)

△ Symbol No.	Part No.	Part Name	Description
RESISTOR			
R102	VE-30000594	CF R	1/4W 22K J
R103	VE-30000712	CF R	1/4W 470R J
R104	VE-30000594	CF R	1/4W 22K J
R106	VE-30000712	CF R	1/4W 470R J
R122	VE-30000770	CF R	1/4W 680R J
R123	VE-30000712	CF R	1/4W 470R J
△ R124	VE-30000623	CF R	1/4W 270R G
R125	VE-30000526	CF R	1/4W 1.5K J
R126	VE-30000689	CF R	1/4W 3.9K J
R127	VE-30000655	CF R	1/4W 330R J
R128	VE-30000655	CF R	1/4W 330R J

CAPACITOR

△ C101	VE-30000190	CER CAP.	100PF 50V J CH
C103	VE-30000190	CER CAP.	100PF 50V J CH
C104	VE-30000190	CER CAP.	100PF 50V J CH
C105	VE-30000307	CER CAP.	2.2NF 50V K B

COIL

L101	VE-30001979	FIXED COIL	1UH
L103	VE-30001996	FIXED COIL	22UH
L104	VE-30001996	FIXED COIL	22UH

OTHERS

JK101	VE-30001884	RCA JACK	
JK102	VE-30001882	RCA JACK	
JK103	VE-30001883	RCA JACK	
JK109	VE-30020016	HEADPHONE JACK	
SW101	VE-30002181	TACT SWITCH	
SW102	VE-30002181	TACT SWITCH	
SW103	VE-30002181	TACT SWITCH	
SW104	VE-30002181	TACT SWITCH	
SW105	VE-30002181	TACT SWITCH	

■ LED PW BOARD ASSY (VE-20119110)

△ Symbol No.	Part No.	Part Name	Description
DIODE			
D100	VE-30001279	LED(RED/GREEN)	
D100	VE-20119034	LED HOLDER	

OTHERS

MD101	VE-30001670	PREAMPLIFIER	
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■ SWITCH PW BOARD ASSY (VE-20122229)

△ Symbol No.	Part No.	Part Name	Description
OTHERS			
△ F801	VE-30001731	FUSE	2.5A
△ SW800	VE-30022450	SWITCH(ON/OFF)	

[AV-28KT1BUF/B / AV-28KT1SUF/B]

■ MAIN P.W. BOARD ASS'Y (VE-20127801)

Regarding the parts list for the main PW board ass'y VE-20127801, only the different parts from those of the VE-20120604 are described, For further details regarding the other parts, refer to the parts list for the VE-20120604 described on page 4 through page 7.

△	Symbol No.	Part No.		Part Name	Description
		VE-20120604 [A-VERSION]	VE-20127801 [B-VERSION]		
	IC500	VE-20139901	VE-20137151	I.C. (MICOM)	[B-VERSION]
	IC502	VE-20120610	VE-20134092	I.C. (MEMORY)	[B-VERSION]

■ CRT SOCKET PW BOARD ASSY (VE-20121506)

Refer to PARTS LIST in page 8 for this P. W. board.

■ SIDE CONTROL PW BOARD ASSY(VE-20120893)

Refer to PARTS LIST in page 8 for this P. W. board.

■ LED PW BOARD ASSY (VE-20119110)

Refer to PARTS LIST in page 8 for this P. W. board.

■ SWITCH PW BOARD ASSY (VE-20122229)

Refer to PARTS LIST in page 8 for this P. W. board.

[AV-28KT1BUF/C / AV-28KT1SUF/C]

■ MAIN P.W. BOARD ASS'Y (VE-20127796)

Regarding the parts list for the main PW board ass'y VE-20127796, only the different parts from those of the VE-20120604 are described, For further details regarding the other parts, refer to the parts list for the VE-20120604 described on page 4 through page 7.

△	Symbol No.	Part No.		Part Name	Description
		VE-20120604 [A-VERSION]	VE-20127796 [C-VERSION]		
	IC500	VE-20139901	VE-20139902	I.C. (MICOM)	[C-VERSION]
	IC502	VE-20120610	VE-20126318	I.C. (MEMORY)	[C-VERSION]

■ CRT SOCKET PW BOARD ASSY (VE-20121506)

Refer to PARTS LIST in page 8 for this P. W. board.

■ SIDE CONTROL PW BOARD ASSY(VE-20120893)

Refer to PARTS LIST in page 8 for this P. W. board.

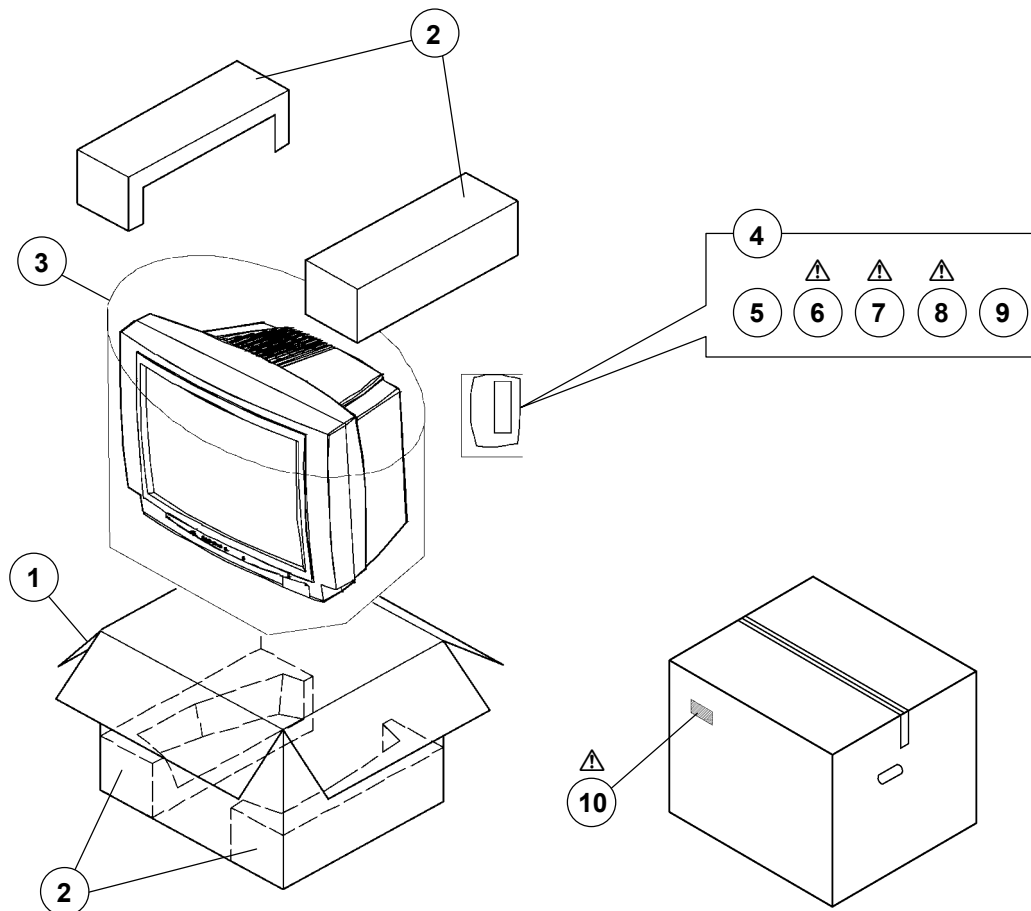
■ LED PW BOARD ASSY (VE-20119110)

Refer to PARTS LIST in page 8 for this P. W. board.

■ SWITCH PW BOARD ASSY (VE-20122229)

Refer to PARTS LIST in page 8 for this P. W. board.

PACKING



PACKING PARTS LIST

△ Ref.No. Part No. Part Name Description

[AV-28KT1BUF : BLACK model]

1	VE-50038917	CARTON BOX	[A-VERSION]
1	VMT-50038933	CARTON BOX	[B-VERSION]
1	VMT-50038949	CARTON BOX	[C-VERSION]
2	VMT-20116671	SNOW BOX ASSY	4 pcs in 1set
3	VMT-50026637	POLY BAG (1250*1000)	
4	VMT-70000587	POLY BAG	
5	VMT-30017763	REMOTE CONTROL UNIT	(RM-C1100)
△ 6	VMT-50038905	INST BOOK	[A-VERSION]
△ 7	VMT-50038931	INST BOOK	[B-VERSION]
△ 8	VMT-50038935	INST BOOK	[C-VERSION]
9	BT-54013-2TK	WARRANTY CARD	
△ 10	VMT-20127842	LABEL	[A-VERSION]
△ 10	VMT-20127843	LABEL	[B-VERSION]
△ 10	VMT-20127874	LABEL	[C-VERSION]
△ 10	VE-20127871	LABEL	

[AV-28KT1SUF : SILVER model]

1	VE-50038907	CARTON BOX	[A-VERSION]
1	VMT-50038932	CARTON BOX	[B-VERSION]
1	VMT-50038950	CARTON BOX	[C-VERSION]
2	VMT-20116671	SNOW BOX ASSY	4 pcs in 1set
3	VMT-50026637	POLY BAG (1250*1000)	
4	VMT-70000587	POLY BAG	
5	VMT-30017763	REMOTE CONTROL UNIT	(RM-C1100)
△ 6	VMT-50038905	INST BOOK	[A-VERSION]
△ 7	VMT-50038931	INST BOOK	[B-VERSION]
△ 8	VMT-50038935	INST BOOK	[C-VERSION]
9	BT-54013-2TK	WARRANTY CARD	
△ 10	VMT-20127776	LABEL	[A-VERSION]
△ 10	VMT-20127777	LABEL	[B-VERSION]
△ 10	VMT-20127841	LABEL	[C-VERSION]
△ 10	VE-20127894	LABEL	

SPECIFICATION

Items		Contents
Dimensions (W × H × D)		76cm × 57cm × 47.3cm
Mass		33kg
TV RF System		B/G, D/K, L/L'
Colour System	TV Mode	PAL / SECAM
	Video Mode	PAL / SECAM / NTSC 3.58 / NTSC 4.43
Sound System		NICAM / A2 (Germany system)
Teletext System		FLOF (Fastext) / TOP (German system)
Tuning System		Frequency synthesizer tuning system
Number of CH memory position		100 ch
Receiving Frequency	VHF Low	46.25MHz ~ 168.25MHz
	VHF High	175.25MHz ~ 463.25MHz
	UHF	471.25MHz ~ 863.25MHz
	CATV	S01-S41 & S75-S79
Intermediate Frequency	VIF	38.9MHz (B/G, D/K, L) / 33.9MHz (L')
	SIF	33.4MHz (5.5MHz:B/G) / 32.9MHz (6.0MHz:D/K) / 32.4MHz (6.5MHz:L) / 40.4MHz (6.5MHz:L')
Colour Sub Carrier Frequency		PAL (4.43MHz), SECAM (4.43MHz), NTSC (3.58MHz/4.43MHz)
Power Input		AC220V ~ AC240V, 50Hz
Power Consumption		120W(Max), 3W(Standby)
Aerial Input Terminal		75Ω unbalanced, coaxial
Picture Tube		Visible size : 66cm (Measured diagonally)
High Voltage		30kV
Speaker		Main:5.7cm × 16cm oval type × 2
Audio Output		10W + 10W
Input	Video	1V(p-p) 75Ω
	S-Video	Y : 1V(p-p) positive
		C : 0.286V(p-p)
	Audio (L/R)	500mV(rms) (-4dBs), High impedance (RCA pin jack × 2)
Output	Video	1V(p-p) 75Ω
	Audio (L/R)	500mV(rms), Low Impedance
Input Terminal	Rear Side	EXT-1 (Video / Audio / RGB)
		EXT-2 (Video / Audio / RGB / S-VHS)
	Right Side	EXT-3 (Video / Audio)
Output Terminal	Rear Side	EXT-1 (Video / Audio)
		EXT-2 (Video / Audio)
	Right Side	Headphone Jack (Stereo mini jack Ø3.5mm × 1)
Remote Control Unit		VE-30017763 (RM-C1100), (AA/R06 dry battery × 2)

Design & specifications are subject to change without notice.

SECTION 1

PRECAUTION

1.1 SAFETY PRECAUTIONS

- (1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
- (2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
- (3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.
- (4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (\perp) side GND, the ISOLATED (NEUTRAL) : (\equiv) side GND and EARTH : (\oplus) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.
- (5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See B1 POWER SUPPLY check).
- (6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
- (7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10k Ω 2W resistor to the anode button.

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

- (9) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

This method of test requires a test equipment not generally found in the service trade.

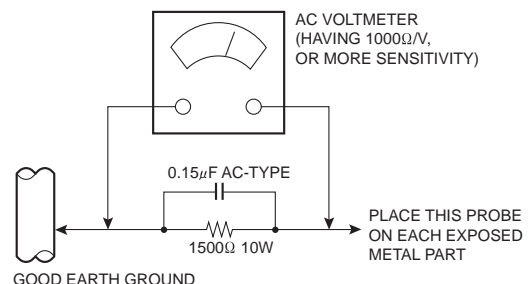
b) Leakage Current Check

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.). However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 Ω per volt or more sensitivity in the following manner. Connect a 1500 Ω 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



SECTION 2

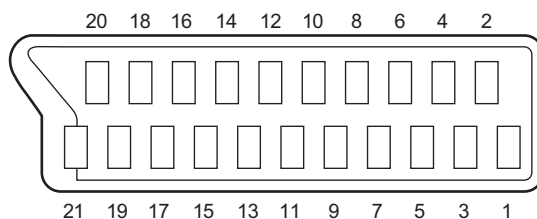
SPECIFIC SERVICE INSTRUCTIONS

2.1 21-pin Euro connector (SCART) : EXT-1 / EXT-2

Pin No.	Signal Designation	Matching Value	EXT-1	EXT-2
1	AUDIO R output	500mV(rms) (Nominal), Low impedance	Used	Used
2	AUDIO R input	500mV(rms) (Nominal), High impedance	Used (R1)	Used (R2)
3	AUDIO L output	500mV(rms) (Nominal), Low impedance	Used	Used
4	AUDIO GND	---	Used	Used
5	GND (B)	---	Used	Used
6	AUDIO L input	500mV(rms) (Nominal), High impedance	Used (L1)	Used (L2)
7	B input	700mV(B-W), 75 Ω	Used	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V, High : 8V-12V, High impedance	Used	Used
9	GND (G)	---	Used	Used
10	SCL / T-V LINK	---	Not used	Used (SCL / TV-LINK)
11	G input	700mV(B-W), 75 Ω	Used	Used
12	SDA3	---	Not used	Not used
13	GND (R)	---	Used	Used
14	GND (YS)	---	Used	Used
15	R / C input	R : 700mV(B-W), 75 Ω C : 300mV _(P-P) , 75 Ω	Used (R)	Used (C2/R)
16	Ys input (FAST SW)	Low : 0V-0.4V, 75 Ω High : 1V-3V, 75 Ω	Used	Used
17	GND (VIDEO output)	---	Used	Used
18	GND (VIDEO input)	---	Used	Used
19	VIDEO output	1V _(P-P) (Negative sync), 75 Ω	Used	Used
20	VIDEO / Y input	1V _(P-P) (Negative sync), 75 Ω	Used	Used
21	COMMON GND	---	Used	Used

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]



2.2 FEATURES

- It is a remote controlled color television.
- 100 programs from VHF, UHF bands or cable channels can be preset.
- It can tune cable channels.
- Controlling the TV is very easy by its menu driven system.
- It has two Euroconnector sockets for external device (such as video recorder, video games, audio set, etc.)
- Side AV Input (EXT-3) available.
- Stereo sound systems (German + Nicam) are available.
- Full function Teletext (Fastext, Toptext).
- It is possible to connect headphone.
- Direct channel access.
- APS (Automatic Programming System).
- All programs can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child Lock.
- Blue Background
- T-V Link
- Automatic sound mute when no transmission.
- 5 minutes after the broadcasting (close down), the TV switches itself automatically to stand-by mode.
- WSS (Wide Screen Signaling)
- NTSC Playback.

2.3 MAIN DIFFERENCE LIST

⚠	Part Name	AV-28KT1BUF	AV-28KT1SUF
	MODEL COLOUR	BLACK MODEL	SILVER MODEL
⚠	FRONT CABINET	VE-20121492	VE-20119985
⚠	BACK COVER	VE-20121494	VE-20111863
⚠	BACK DOOR	VE-20108124	VE-20120043
⚠	FUNCTION BUTTON	VE-20091798	VE-20096498
⚠	POWER BUTTON	VE-20111864	VE-20120046
	JVC LOGO	VE-40013592	VE-40013593
	CARTON BOX	VE-50038917	VE-50038907

2.4 DIFFERENCE LIST BY ELECTRONICS

Part Name	AV-28KT1BUF/A AV-28KT1SUF/A	AV-28KT1BUF/B AV-28KT1SUF/B	AV-28KT1BUF/C AV-28KT1SUF/C
MAIN PWB	VE-20120604	VE-20127801	VE-20127796
IC500 (MI-COM)	VE-20139901	VE-20137151	VE-20139902
IC502 (MEMORY)	VE-20120610	VE-20134092	VE-20126318

2.5 DIFFERENCE LIST BY OSD LANGUAGE

Part Name	AV-28KT1BUF/A AV-28KT1SUF/A	AV-28KT1BUF/B AV-28KT1SUF/B	AV-28KT1BUF/C AV-28KT1SUF/C
OSD LANGUAGES	ENG, GER, FRE, ITA SPA, DUT, POR, TUR	ENG, GER, FRE, SWE NOR, DAN, FIN, GRE	ENG, GER, CZE, POL HUN, BUL, ROM, CRO

SECTION 3

DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

3.1.1 REMOVING THE REAR COVER

- (1) Unplug the power cord.
- (2) Remove the 8 screws [A] as shown in the Fig. 1.
- (3) Remove the 4 screws [B].
- (4) Withdraw the REAR COVER toward you.

3.1.2 REMOVING THE BACK DOOR

- Remove the REAR COVER
 - (1) Remove the 2 screws [C].
 - (2) Withdraw the BACK DOOR toward you.

3.1.3 REMOVING THE SPEAKER

- Remove the REAR COVER.
 - (1) Remove the 4 screws [I], and remove the SPEAKER.
 - (2) Remove the other hand SPEAKER in the same steps.

3.1.4 REMOVING THE MAIN PWB

- Remove the REAR COVER.
- Remove the BACK DOOR.
 - (1) Remove the 4 screws [D].
 - (2) Slightly raise the both sides of the MAIN PWB by hand and withdraw the MAIN PWB backward.

CAUTION:

If necessary, take off the wire clamp, connectors etc.
Be careful enough when developing a MAIN PWB.

3.1.5 REMOVING THE SIDE CONTROL PWB

- Remove the REAR COVER.
 - (1) Remove the 4 screws [E].
 - (2) Remove the SIDE PWB.

3.1.6 REMOVING THE BASE

- Remove the REAR COVER.
 - (1) Remove the 2 screws [F].
 - (2) Remove the BASE.

NOTE:

Work after fixing so that a CRT screen may be placed upside down or it may not fall.

3.1.7 REMOVING THE POWER SWITCH PWB

- Remove the REAR COVER.
- Remove the BASE.
 - (1) Remove the 2 screws [G], and remove the POWER SWITCH PWB.

3.1.8 REMOVING THE LED PWB

- Remove the REAR COVER.
- Remove the BASE.
- Remove the POWER SWITCH PWB.
 - (1) Remove the 2 screws [H], and remove the LED PWB.

3.1.9 CHECKING THE PW BOARD

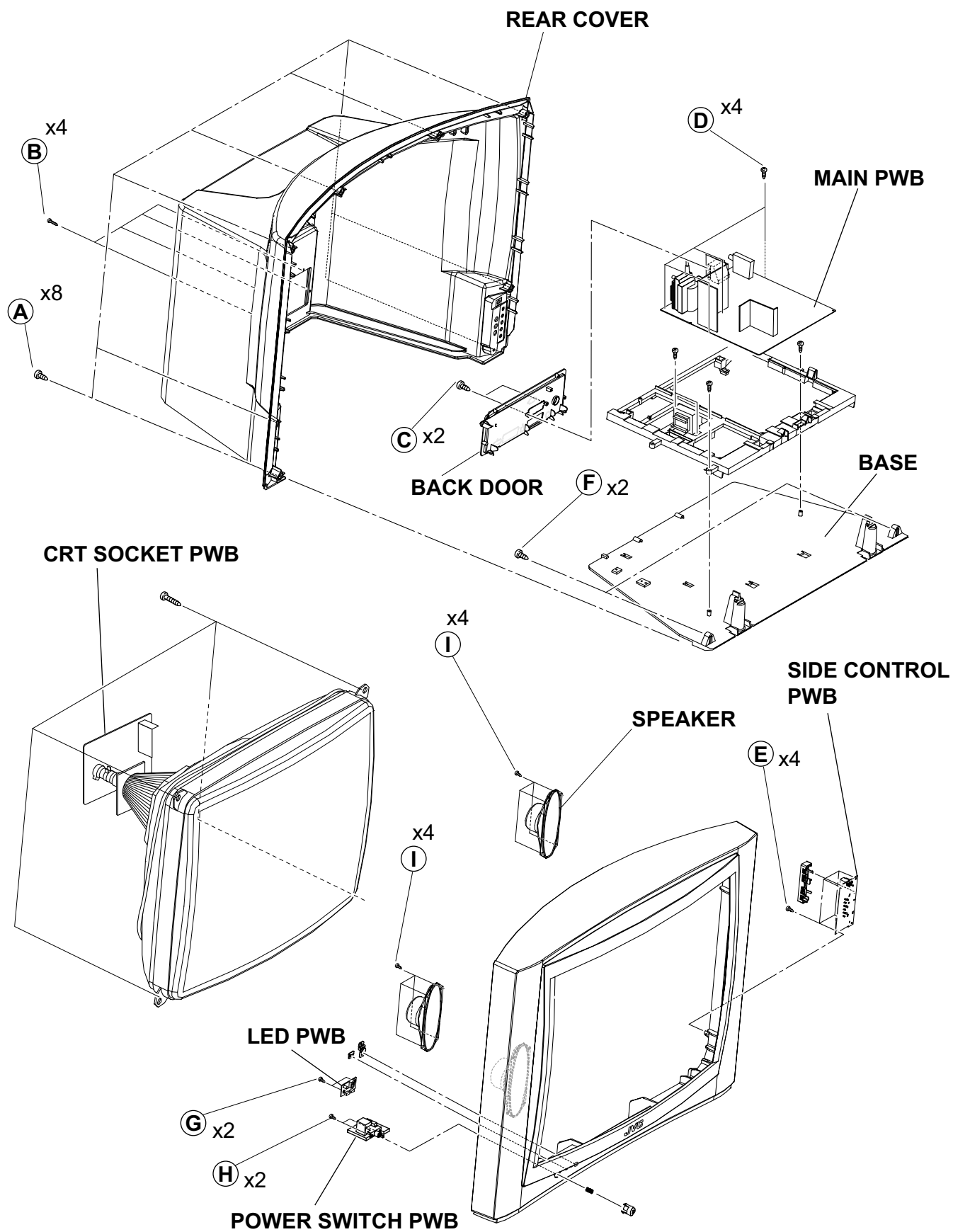
- To check the back side of the PW Board.
 - (1) Pull out the PW Board. (Refer to REMOVING THE MAIN PWB).
 - (2) Erect the PW Board vertically so that you can easily check the back side of the PW Board.

3.1.10 CAUTION

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

3.1.11 WIRE CLAMPING AND CABLE TYING

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



3.2 REPLACEMENT OF CHIP COMPONENT

3.2.1 CAUTIONS

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

3.2.2 SOLDERING IRON

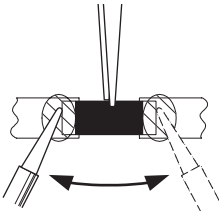
- (1) Use a high insulation soldering iron with a thin pointed end of it.
- (2) A 30w soldering iron is recommended for easily removing parts.

3.2.3 REPLACEMENT STEPS

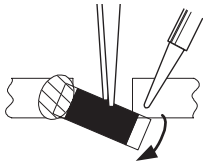
1. How to remove Chip parts

[Resistors, capacitors, etc.]

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



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

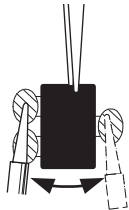


[Transistors, diodes, variable resistors, etc.]

- (1) Apply extra solder to each lead.



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



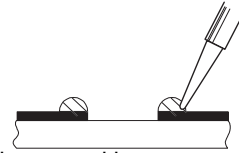
NOTE :

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

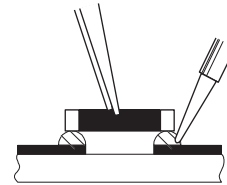
2. How to install Chip parts

[Resistors, capacitors, etc.]

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

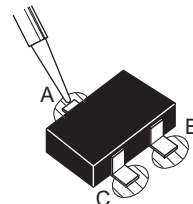


- (2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

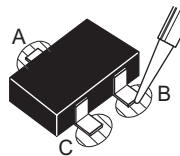


[Transistors, diodes, variable resistors, etc.]

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



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



3.3 SETTING OF THE LAST MEMORY FOR SHIPMENT

3.3.1 USER SETTING VALUES

Setting Item	Setting Value	Setting Item	Setting Value
SOUND MENU		FEATURE MENU	
BALANCE	CENTER	SLEEP TIMER	OFF
BASS	CENTER	CHILD LOCK	OFF
TREBLE	CENTER	LANGUAGE	ENGLISH
HYPER SOUND	OFF	EXT-2 OUTPUT	TV
PICTURE MENU		BLUE BACKGROUND	ON
BRIGHTNESS	These adjust are automatically restored when A.P.S. bit in Service menu is set. The procedure for setting APS bit is described bellow.	INSTALL. MENU	
CONTRAST		PROGRAMME	Refer to instruction book
COLOUR		BAND	
SHARPNESS		CHANNEL	
HUE (only NTSC)		STANDARD	
PICTURE MODE		COLOUR SYSTEM	
COLOUR TEMP	NORMAL	DECODER (EXT-2)	
ZOOM	AUTO	FINE TUNING	
		SEARCH	
		STORE	

3.3.2 SETTING A.P.S. (AUTO STORE)

- (1) Press [MENU] key on the remote control unit to display the main menu.
- (2) Press [▲/▼] keys to select PROGRAM item, then [◀/▶] keys to display the PROGRAM menu.
- (3) Press the [BLUE] key to enter the AUTOSTORE mode.
- (4) Press [▲/▼] keys to choose the COUNTRY, then press [◀/▶] keys to choose country you are now located.
- (5) Press [▲/▼] keys to choose the CONTINUE, then press [▶] key to start A.P.S. The following message appears.

NOTE:

- To cancel the A.P.S., press the [STANDARD] key.
- (6) After A.P.S. is finalized, the PROGRAM menu appears again.
 - (7) Press [STANDARD] key to exit main menu.

SECTION 4 ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

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

Setting Item	Setting value
BRIGHTNESS	CENTER
CONTRAST	
COLOUR	
SHARPNESS	
COLOUR TEMP	
ZOOM	AUTO

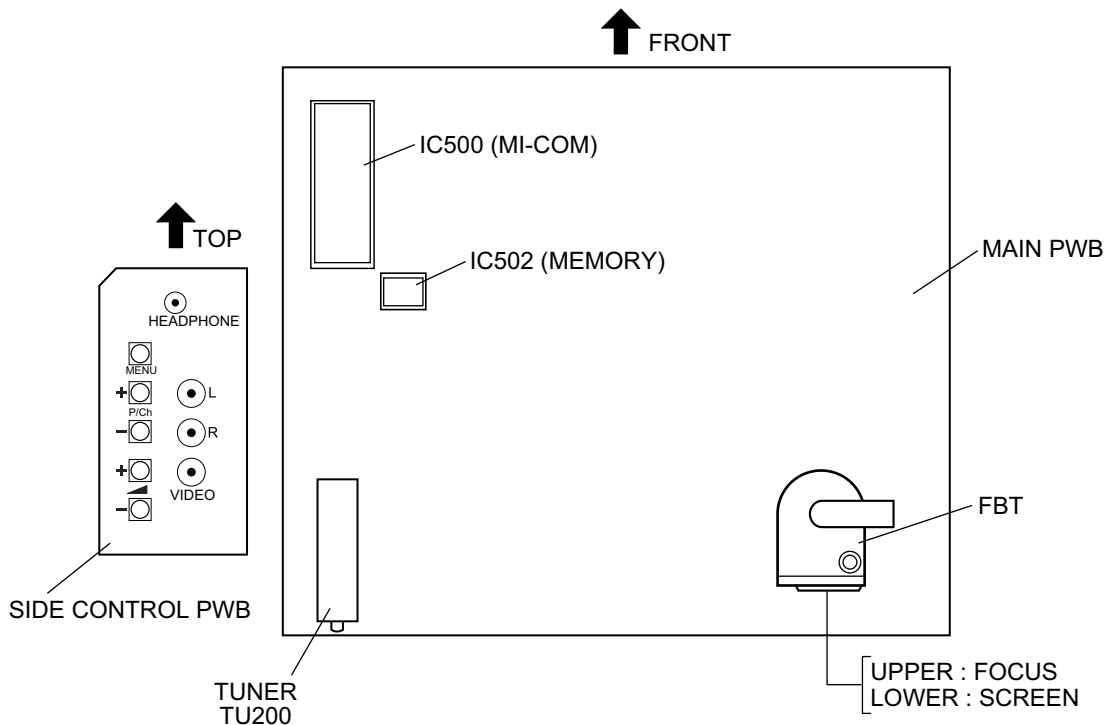
4.2 MEASURING EQUIPMENT

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

4.3 ADJUSTMENT ITEM

- SCREEN ADJUSTMENT
- DEFLECTION CIRCUIT ADJUSTMENT
- WHITE BALANCE ADJUSTMENT

4.4 ADJUSTMENT LOCATIONS



4.5 BASIC OPERATION OF SERVICE MENU

4.5.1 HOW TO ENTER THE SERVICE MENU

- (1) Press the [INFORMATION] key and [MUTING] key simultaneously in the main menu, and the SERVICE MENU screen (Fig.1) will be displayed.

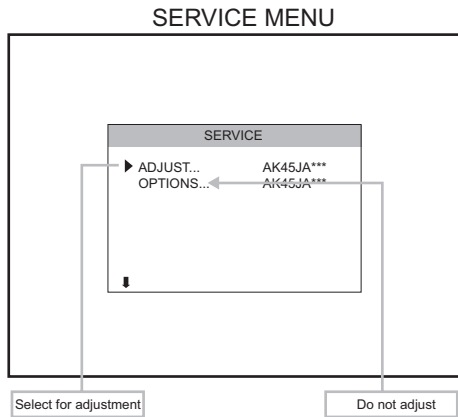


Fig.1

- (2) While the SERVICE MENU screen is displayed, press the [▲/▼] and [◀/▶] key and select the "ADJUST...", then ADJUST MENU screen (Fig.2) will be displayed.

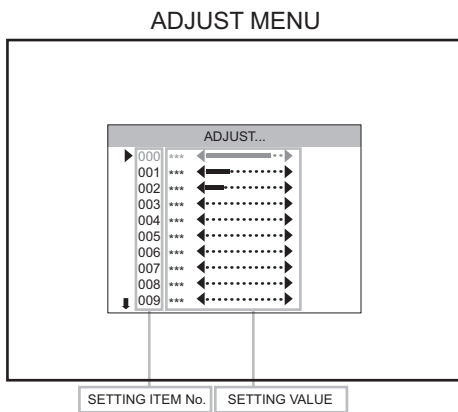
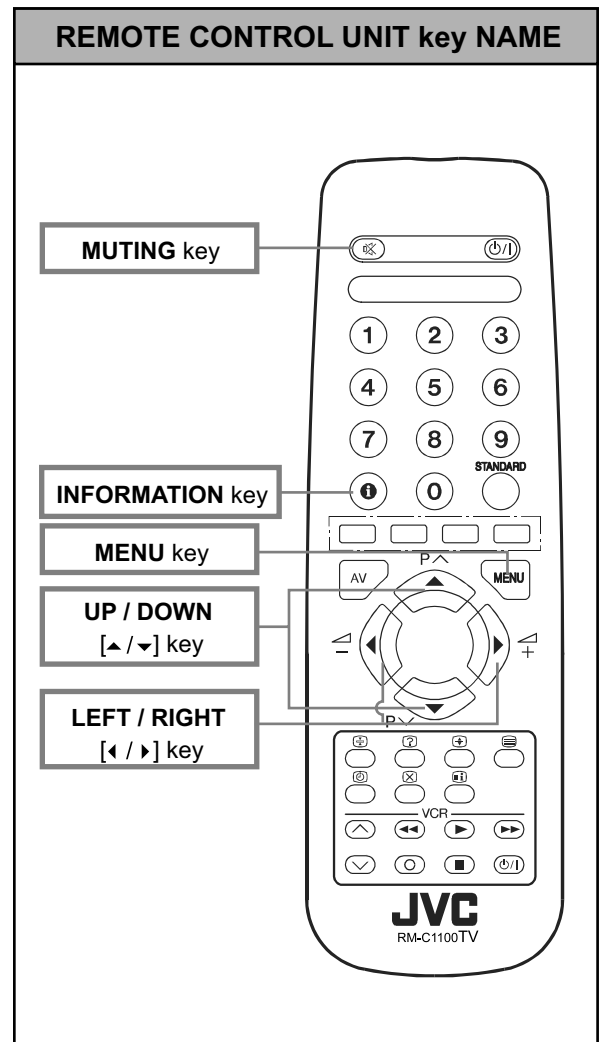


Fig.2



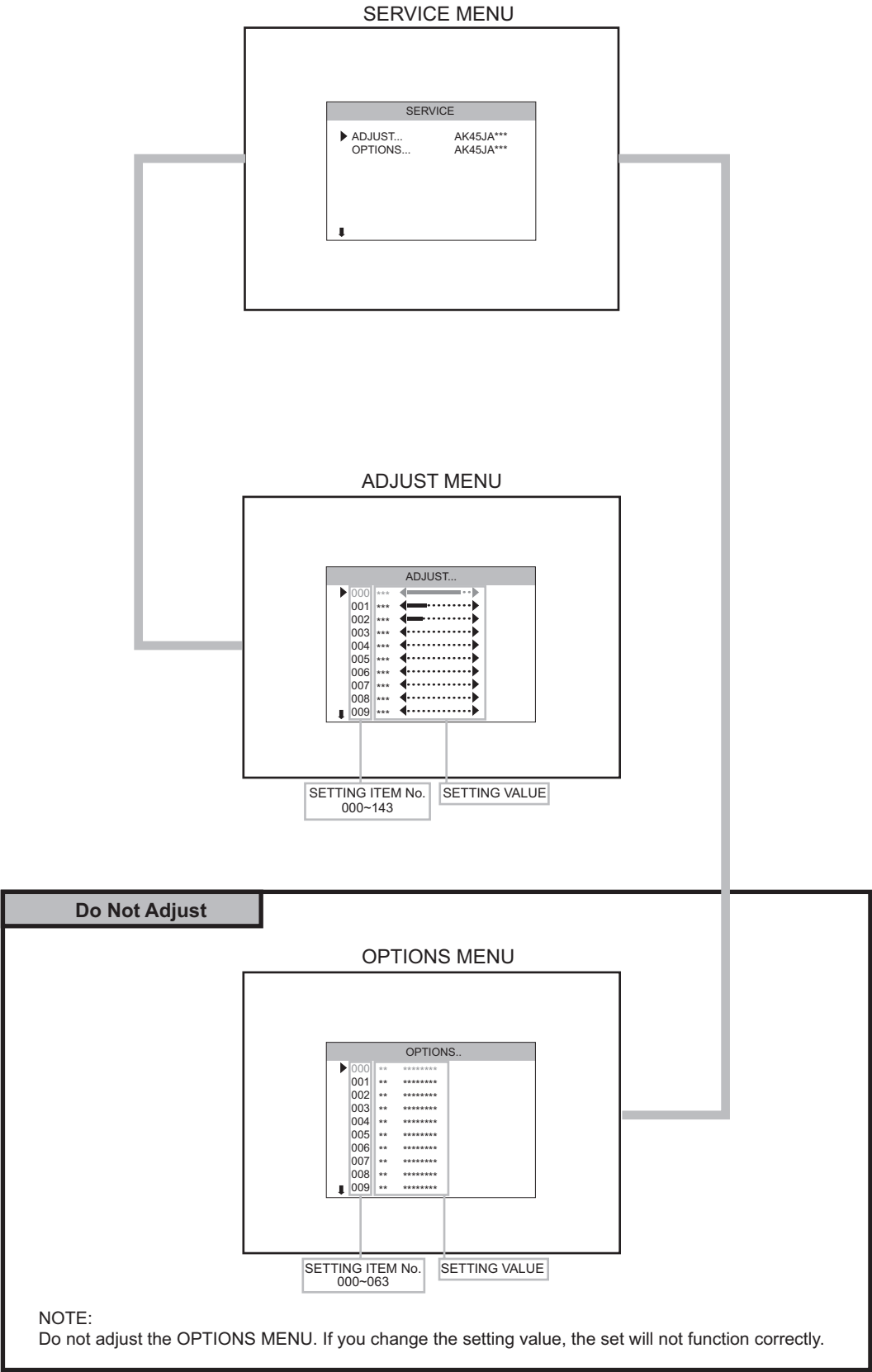
4.5.2 SELECTION OF ADJUSTMENT ITEMS

- (1) Enter the SERVICE MENU and select ADJUST.
- (2) Press the [▲/▼] key and select the ADJUSTMENT ITEM.
- (3) Press the [◀/▶] key and set the SETTING VALUE.
- (4) Changed values are stored automatically.

4.5.3 HOW TO EXIT SERVICE MODE

- (1) Press the [MENU] key.

4.5.4 SERVICE MENU SCREEN



ADJUSTMENT ITEM

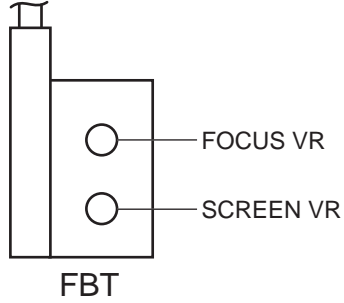
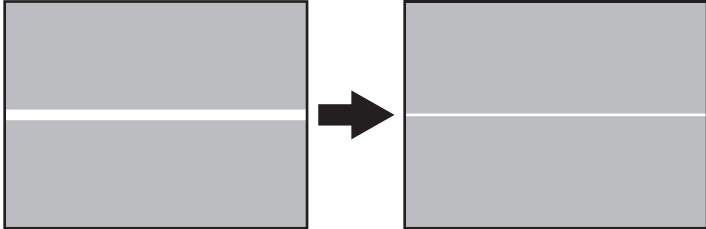
adjustment No.	adjustment part	description
000	White Point RED	Not used
001	White Point GREEN	Not used
002	Whit Point BLUE	Not used
003	AGC (Automatic Gain Control)	
004	IF-PLL Negative	Not used
005	IF-PLL Positive	Not used
006	Y-Delay	
007	Y-Delay SECAM	
008	Y-Delay NTSC	
009	Y-Delay OTHER	Not used
010	Vertical Position Offset	Fixed
011	Vertical Amplitude Offset	Fixed
012	Horizontal Position Offset	Fixed
013	Horizontal Amplitude Offset	Fixed
014	Vertical Blank Start (It will be used only at 4:3 tube for 16:9 mode adjustment)	
015	Vertical Blank Stop (It will be used only at 4:3 tube for 16:9 mode adjustment)	
016	Angle	
017	Bow	
018	4:3 Horz. Blank Start	Do not adjust
019	4:3 Horz. Blank Stop	Do not adjust
020	EHTV compensation	
021	EHTTM compensation	
022	EHTEW compensation	
023	WDR	Video processor adjust itself.
024	WDG	
025	WDB	
026	CR	
027	CG	
028	CB	
029	COR coring level	
030	REGULAR VERT_POS (Vertical Position)	
031	REGULAR VERT_AMPL (Vertical Amplitude)	
032	REGULAR VERT_SCOR (Vertical S Correction)	
033	REGULAR VERT_SSYM (Vertical S Symmetry)	
034	REGULAR TRAPEZE	
035	REGULAR CUSHION	
036	REGULAR HOR_COR_SYM(Horizontal Corner Symmetry)	
037	REGULAR HOR_CORNER (Horizontal Corner)	
038	REGULAR HORZ_POS (Horizontal Position)	
039	REGULAR HORZ_AMPL (Horizontal Amplitude)	
040	PANORAMIC VERT_POS	Not used
041	PANORAMIC VERT_AMPL	Not used
042	PANORAMIC VERT_SCOR	Not used
043	PANORAMIC VERT_SSYM	Not used
044	PANORAMIC TRAPEZE	Not used
045	PANORAMIC CUSHION	Not used
046	PANORAMIC HOR_COR_SYM	Not used
047	PANORAMIC HOR_CORNER	Not used
048	PANORAMIC HORZ_POS	Not used

adjustment No.	adjustment part	description
049	PANORAMIC HORZ_AMPL	Not used
050	14:9 ZOOM VERT_POS	Not used
051	14:9 ZOOM VERT_AMPL	Not used
052	14:9 ZOOM VERT_SCOR	Not used
053	14:9 ZOOM VERT_SSYM	Not used
054	14:9 ZOOM TRAPEZE	Not used
055	14:9 ZOOM CUSHION	Not used
056	14:9 ZOOM HOR_COR_SYM	Not used
057	14:9 ZOOM HOR_CORNER	Not used
058	14:9 ZOOM HORZ_POS	Not used
059	14:9 ZOOM HORZ_AMPL	Not used
060	16:9 ZOOM VERT_POS	Not used
061	16:9 ZOOM VERT_AMPL	Not used
062	16:9 ZOOM VERT_SCOR	Not used
063	16:9 ZOOM VERT_SSYM	Not used
064	16:9 ZOOM TRAPEZE	Not used
065	16:9 ZOOM CUSHION	Not used
066	16:9 ZOOM HOR_COR_SYM	Not used
067	16:9 ZOOM HOR_CORNER	Not used
068	16:9 ZOOM HORZ_POS	Not used
069	16:9 ZOOM HORZ_AMPL	Not used
070	16:9 ZOOM SUBTITLE VERT_POS	Not used
071	16:9 ZOOM SUBTITLE VERT_AMPL	Not used
072	16:9 ZOOM SUBTITLE VERT_SCOR	Not used
073	16:9 ZOOM SUBTITLE VERT_SSYM	Not used
074	16:9 ZOOM SUBTITLE TRAPEZE	Not used
075	16:9 ZOOM SUBTITLE CUSHION	Not used
076	16:9 ZOOM SUBTITLE HOR_COR_SYM	Not used
077	16:9 ZOOM SUBTITLE HOR_CORNER	Not used
078	16:9 ZOOM SUBTITLE HORZ_POS	Not used
079	16:9 ZOOM SUBTITLE HORZ_AMPL	Not used
080	OSD Position	
081	BCLTHR Beam current threshold	
082	BCLG Beam current loop gain	
083	ROTATION (TILT)	
084	LSLSA Luma soft limiter	Fixed
085	LSLSB Luma soft limiter	Fixed
086	LSL2 Luma soft limiter	Fixed
087	LSLTA Luma soft limiter	Fixed
088	LSLTB Luma soft limiter	Fixed
089	REFERENCE WDR RED (NORMAL)	
090	REFERENCE WDR GREEN (NORMAL)	
091	REFERENCE WDR BLUE (NORMAL)	
092	REFERENCE CUTOFF RED	Fixed
093	REFERENCE CUTOFF GREEN	Fixed
094	REFERENCE CUTOFF BLUE	Fixed
095	IBRM	
096	WDRV	
097	ACC_SAT (COLOUR OFFSET)	
098	G2_CUTOFF_REFERENCE	Fixed

adjustment No.	adjustment part	description
099	G2_WDR_REFERENCE	Fixed
100	POFS2 (RGB HORIZONTAL SHIFT)	
101	REFERENCE WDR RED COOL	
102	REFERENCE WDR GREEN COOL	
103	REFERENCE WDR BLUE COOL	
104	REFERENCE WDR RED WARM	
105	REFERENCE WDR GREEN WARM	
106	REFERENCE WDR BLUE WARM	
107	STANDARD MODE BRIGHTNESS	
108	STANDARD MODE COLOUR	
109	STANDARD MODE CONTRAST	
110	FULL VERT_POS (16:9 MODE)	
111	FULL VERT_AMPL	
112	FULL VERT_SCOR	
113	FULL VERT_SSYM	
114	FULL TRAPEZE	
115	FULL CUSHION	
116	FULL HOR_COR_SYM	
117	FULL HOR_CORNER	
118	FULL HORZ_POS	
119	FULL HORZ_AMPL	
120	BRIGHT MODE BRIGHTNESS	
121	BRIGHT MODE COLOUR	
122	BRIGHT MODE CONTRAST	
123	SOFT MODE BRIGHTNESS	
124	SOFT MODE COLOUR	
125	SOFT MODE CONTRAST	
126	PERSONAL MODE FACTORY SETTING BRIGHTNESS	Fixed
127	PERSONAL MODE FACTORY SETTING COLOUR	Fixed
128	PERSONAL MODE FACTORY SETTING CONTRAST	Fixed
129	SCINC FOR PANORAMIC MODE	
130	SCINC1 FOR PANORAMIC MODE	
131	VOLUME AFTER APS	
132	VERTICAL SCROLL	
133	14:9 HORIZONTAL START	Not used
134	14:9 HORIZONTAL STOP	Not used
135	4:3 RGB HORIZONTAL AMPLITUDE	
136	4:3 RGB CUSHION	
137	14:9 RGB HORIZONTAL AMPLITUDE	Not used
138	14:9 RGB CUSHION	Not used
139	PANAROMIC RGB HORIZONTAL AMPLITUDE	Not used
140	16:9 RGB HORIZONTAL AMPLITUDE	Not used
141	16:9 SUBTITLE RGB HORIZONTAL AMPLITUDE	Not used
142	FULL RGB HORIZONTAL AMPLITUDE	
143	TELETEXT HORIZONTAL POSITION	

4.6 ADJUSTMENT PROCEDURE

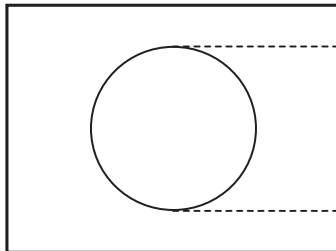
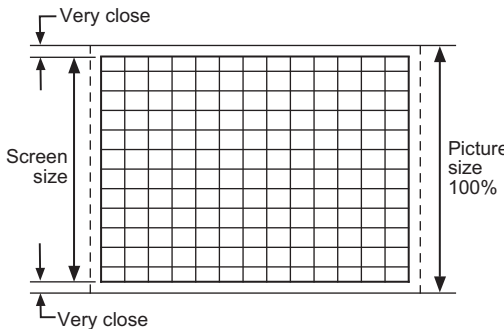
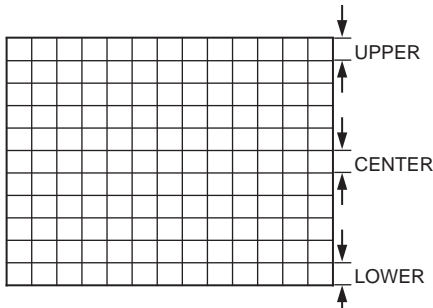
4.6.1 FOCUS / SCREEN ADJUSTMENT

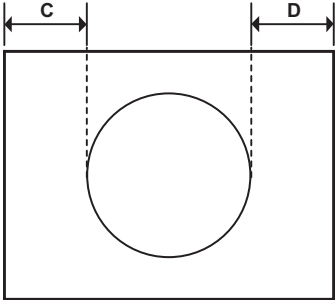
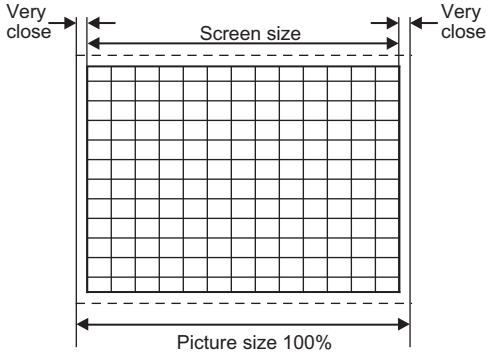
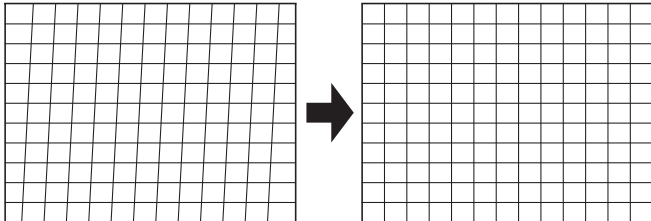
Item	Measuring instrument	Test point	Adjustment part	Description
FOCUS adjustment	Signal generator Remote control unit		FOCUS VR [On the FBT]	(1) Receive a PAL cross-hatch signal. (2) Adjust FOCUS VR on the FBT as thin as possible. 
SCREEN adjustment	Remote control unit		SCREEN VR [On the FBT]	(1) Enter the OPTIONS MENU. (2) Select option No.002 and change bit 6 from 0 to 1 disabling vertical scan. Then horizontal line appears. (3) Adjust horizontal line as thin as possible via screen adjust pot. (4) Press number 0 key to leave service menu.
				

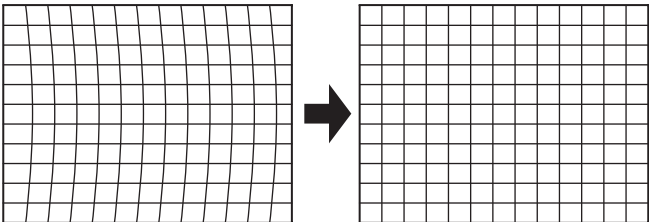
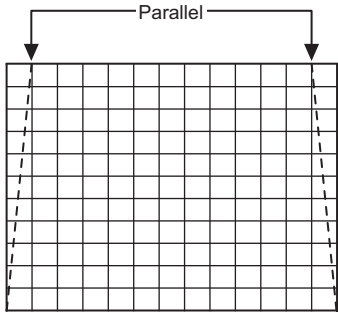
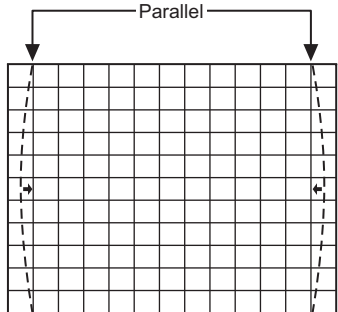
4.6.2 AGC ADJUSTMENT

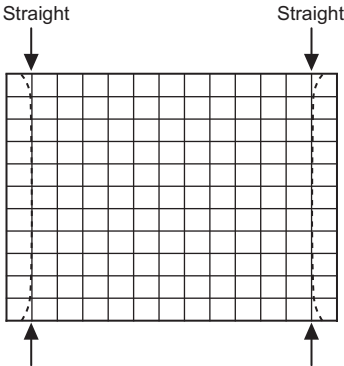
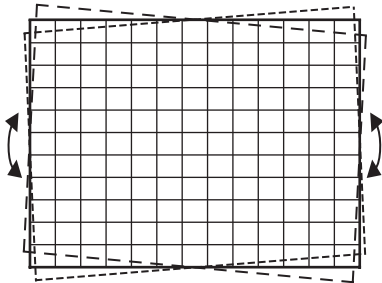
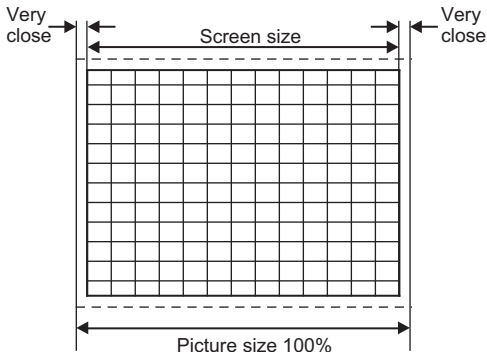
Item	Measuring instrument	Test point	Adjustment part	Description
AGC adjustment	Signal generator Remote control unit Volt meter		003	(1) Receive a PAL BG signal at 60dBμV RF signal level. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 003. (5) Adjust 003 by pressing till voltage at pin 1 of TUNER is equal to 3.0V.

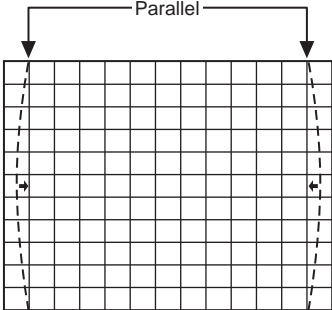
4.6.3 DEFLECTION CIRCUIT ADJUSTMENT

Item	Measuring instrument	Test point	Adjustment part	Description
VERTICAL POSITION adjustment	Signal generator		030	<div>(1) Receive a PAL circle pattern signal.</div> <div>(2) Enter the SERVICE MENU.</div> <div>(3) Select ADJUST MENU.</div> <div>(4) Select 030.</div> <div>(5) Adjust 030 to make A=B.</div> <div>(6) Check and readjust 030 item if the adjustment becomes improper after some other geometric adjustments are done.</div> <div>(7) Select 110 (16:9 mode).</div> <div>(8) Adjust 110 in the same procedure.</div>
	Remote control unit		110 (16:9 mode)	
				
VERTICAL SIZE adjustment	Signal generator		031	<div>(1) Receive a PAL cross-hatch signal.</div> <div>(2) Enter the SERVICE MENU.</div> <div>(3) Select ADJUST MENU.</div> <div>(4) Select 031.</div> <div>(5) Adjust 031 until horizontal black lines on both the upper and lower part of the cross-hatch pattern become very closeted the upper and lower horizontal sides of picture size and nearly about to disappear.</div> <div>(6) Check and readjust 031 item if the adjustment becomes improper after some other geometric adjustments are done.</div> <div>(7) Select 111 (16:9 mode).</div> <div>(8) Adjust 111 in the same procedure.</div>
	Remote control unit		111 (16:9 mode)	
				
VERTICAL S-CORRECTION & LINEARITY adjustment	Signal generator		032	<div>(1) Receive a PAL cross-hatch signal.</div> <div>(2) Enter the SERVICE MENU.</div> <div>(3) Select ADJUST MENU.</div> <div>(4) Select 032.</div> <div>(5) Adjust 032 till the size of squares on both the upper and lower part of cross-hatch pattern become equal to the squares laying on the vertical center of the cross-hatch pattern.</div> <div>(6) Check and readjust 032 item if the adjustment becomes improper after some other geometric adjustments are done.</div> <div>(7) Select 033.</div> <div>(8) Adjust 033 till all the size of squares of the cross-hatch pattern become in equal size from the top of the screen to its bottom of the whole screen.</div> <div>(9) Check and readjust 033 item if the adjustment becomes improper after some other geometric adjustments (especially after than S-COR adjustment) are done.</div> <div>(10) Select 112 (16:9 mode).</div> <div>(11) Adjust 112 in the same procedure as 5.</div> <div>(12) Select 113 (16:9 mode).</div> <div>(13) Adjust 113 in the same procedure as 8.</div>
	Remote control unit		033 112 (16:9 mode) 113 (16:9 mode)	
				

Item	Measuring instrument	Test point	Adjustment part	Description
HORIZONTAL POSITION adjustment	Signal generator		038	(1) Receive a PAL circle pattern signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 038. (5) Adjust 038 to make C=D. (6) Check and readjust 038 item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 118 (16:9 mode). (8) Adjust 118 in the same procedure.
	Remote control unit		118 (16:9 mode)	
				
HORIZONTAL SIZE adjustment	Signal generator		039	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 039. (5) Adjust 039 until vertical lines on both the left and right part of the cross-hatch will be visible nor screen will be so wide. (6) Check and readjust 039 item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 119 (16:9 mode). (8) Adjust 119 in the same procedure.
	Remote control unit		119 (16:9 mode)	
				
ANGLE adjustment	Signal generator		016	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 016. (5) Adjust 016 till the vertical lines of the cross-hatch pattern become straight. (6) Check and readjust 016 item if the adjustment becomes improper after some other geometric adjustments are done.
	Remote control unit			
				

Item	Measuring instrument	Test point	Adjustment part	Description
BOW adjustment	Signal generator		017	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 017. (5) Adjust 017 till the vertical lines become straight. (6) Check and readjust 017 item if the adjustment becomes improper after some other geometric adjustments are done. NOTE: In case where there is a bow-shaped distortion of images on the screen. (Figure)
	Remote control unit			
				
TRAPEZIUM adjustment	Signal generator		034	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 034. (5) Adjust 034 till vertical lines, especially lines at the sides of the picture frame become parallel to the both sides of picture tubes as close as possible. (6) Check and readjust 034 item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 114 (16:9 mode). (8) Adjust 114 in the same procedure.
	Remote control unit		114 (16:9 mode)	
				
SIDE PIN adjustment	Signal generator		035	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 035. (5) Adjust 035 till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube without any bending to left or to right side of the screen. (6) Check and readjust 035 item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 115 (16:9 mode). (8) Adjust 115 in the same procedure.
	Remote control unit		115 (16:9 mode)	
				

Item	Measuring instrument	Test point	Adjustment part	Description
CORNER adjustment	Signal generator		036	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 036. (5) Adjust 036 till vertical lines at the upper corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. (6) Check and readjust 036 item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 037. (8) Adjust 037 till vertical lines at the lower corners of the picture frame become vertical and parallel to vertical corner sides of picture tube. (9) Check and readjust 037 item if the adjustment becomes improper after some other geometric adjustments are done. (10) Select 116 (16:9 mode). (11) Adjust 116 in the same procedure as 5. (12) Select 117 (16:9 mode). (13) Adjust 117 in the same procedure as 8.
	Remote control unit		037 116 (16:9 mode) 117 (16:9 mode)	
				
ROTATION adjustment	Signal generator		083	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 083. (5) Adjust 083 to rotate the complete master clock-wise and counter clock-wise depending on the CRT. (6) Check and readjust 083 item if the adjustment becomes improper after some other geometric adjustments are done.
	Remote control unit			
				
NTSC HORIZONTAL SIZE adjustment	Signal generator		135	(1) Receive a NTSC cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 135. (5) Adjust 135 till vertical lines on both the left and right part of the cross-hatch will be visible nor screen will be so wide. (6) Check and readjust TRAPEZ item if the adjustment becomes improper after some other geometric adjustments are done. (7) Select 142 (16:9 mode). (8) Adjust 142 in the same procedure.
	Remote control unit		142 (16:9 mode)	
				

Item	Measuring instrument	Test point	Adjustment part	Description
NTSC SIDE PIN adjustment	Signal generator		136	(1) Receive a NTSC cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 136. (5) Adjust 136 till vertical lines close to the both sides of the picture frame become parallel to vertical sides of picture tube without any bending to left or to right side of the screen. (6) Check and readjust 136 item if the adjustment becomes improper after some other geometric adjustments are done.
	Remote control unit			
				
TELETEXT SCREEN adjustment	Signal generator		143	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 143. (5) Adjust 143 to adjust the proper vertical size of Teletext screen. (6) Check and readjust 143 item if the adjustment becomes improper after some other geometric adjustments are done.
	Remote control unit			

4.6.4 VIDEO CIRCUIT

Item	Measuring instrument	Test point	Adjustment part	Description
WHITE BALANCE adjustment	Signal generator Remote control unit		023 024 025	(1) Receive a PAL black & white signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 023, 024 and 025 respectively. (5) Adjust 023, 024 and 025 respectively, until the white part turns to pure white without any other colour.
COLOUR CUTOFF LEVEL adjustment	Signal generator Remote control unit		026 027 028	(1) Receive a PAL cross-hatch signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 026, 027 and 028 respectively. (5) Adjust 026, 027 and 028 respectively, until the black part turns to pure black without any other colour.
PAL Y DELAY adjustment	Signal generator Remote control unit		006	(1) Receive a PAL colour bar signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 006. (5) Adjust 006 till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other.
SECAM Y DELAY adjustment	Signal generator Remote control unit		007	(1) Receive a SECAM colour bar signal. (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 007. (5) Adjust 007 by pressing till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other.
NTSC Y DELAY adjustment	Signal generator Remote control unit		008	(1) Receive a NTSC colour bar signal from an external source (e.g. FRONT AV : EXT-3). (2) Enter the SERVICE MENU. (3) Select ADJUST MENU. (4) Select 008. (5) Adjust 008 by pressing till the colour transients on the colour bar pattern becomes as sharper and possible as colours between transients do not mix with each other.

SECTION 5

TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.



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