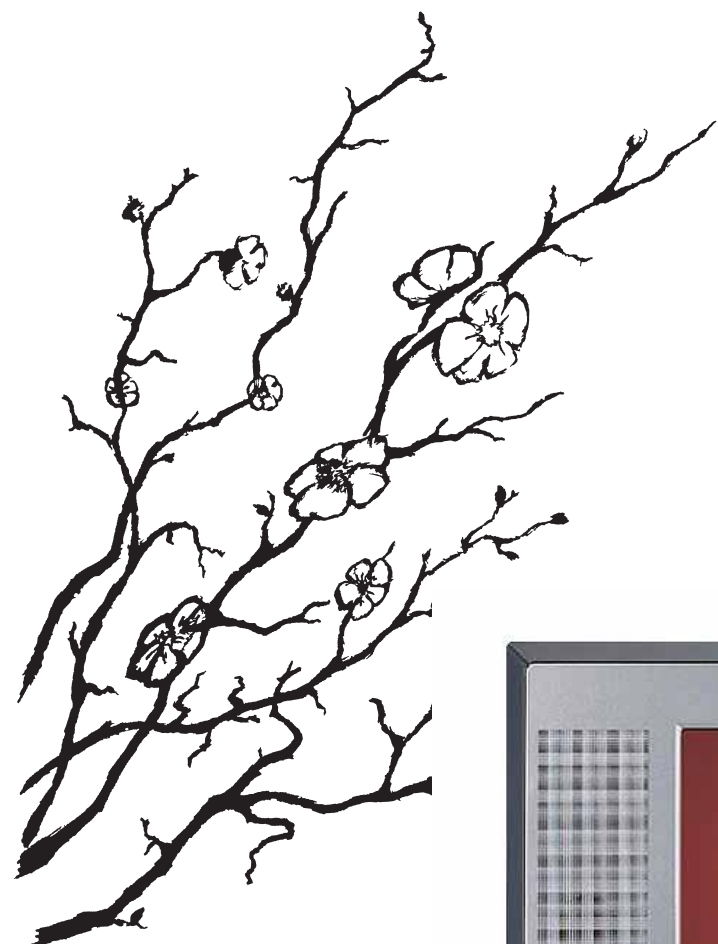


AKAI

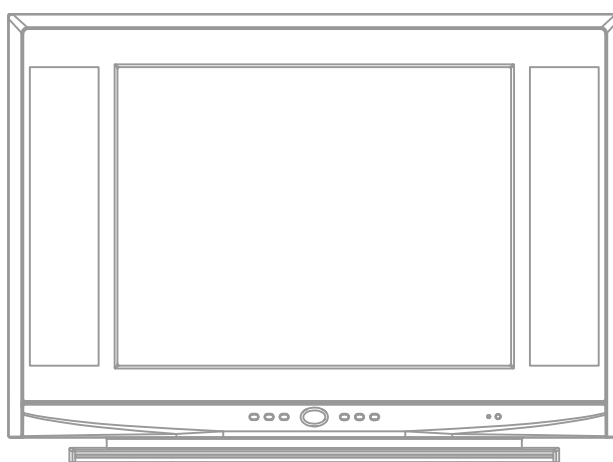
CRT COLOR TV SET

21CTU93BC



Service manual

SERVICE MANUAL



AKAI 21CTU93BC

This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product

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SER	DESCRIPTION		QTY	PCB NO.									
CABLE & SOCKET													
1	AV6-14		1	XS801									
2	CH5B-2.5-2DY		3	XS601	XS602	XS702							
3	CH5B-2.5-4DY		4	XS403	XS703	XS704	XS804						
4	CH5B-2.5-5DY		1	XS201									
5	CH7-10-1DY		1	K9N									
6	CH7-10-2DY		2	XS501	XS502								
7	CH7-8-10-4DY		1	XS402									
8	CH9-2.5-2DY-400-CH5B-W (卧式)		1	XS701									
9	CH9-2.5-4DY-400-CH5B-4W(卧式)(带屏蔽)		1	XS702									
10	CH9-2.5-4DY-450-CH5B		1	XP902									
11	CH9-2.5-4DY-550-CH5B		1	PA102									
12	CH9-2.5-5DY-500-CH5B		1	XP901									
13	H03VVH2-F0.75mmX2C (250MM) short power cord		1										
14	Power cord (2200mm)		1										
15	RCA-106A (red)		1	AV3									
16	RCA-106A (white)		1	AV2									
17	RCA-106A (yellow)		1	AV1									
CARBON RESISTOR													
18	RT-1/2W-1K Ω-J		1	R403									
19	RT-1/2W-220K Ω-J		1	R501									
20	RT-1/2W-220 Ω-J		1	R564									
21	RT-1/2W-22K Ω-J		1	R487									
22	RT-1/4W-1.8K Ω-J		1	R507									
23	RT-1/4W-150 Ω-J		1	R575									
24	RT-1/4W-1K Ω-J		2	R406	R457								
25	RT-1/4W-1 Ω-J		1	R302									
26	RT-1/4W-2.2 Ω-J		1	R304A									
27	RT-1/4W-2.7K Ω-J		1	R508									
28	RT-1/4W-220K Ω-J		1	R401									
29	RT-1/4W-27 Ω-J		1	R720									
30	RT-1/4W-33 Ω-J		2	L201	R940								
31	RT-1/4W-8.2 Ω-J		1	R511									
32	RT-1/4W-82 Ω-J		1	R562									
33	RT-1/6W-1.2K Ω-J		1	R105									
34	RT-1/6W-1.5K Ω-J		1	R706									
35	RT-1/6W-1.8K Ω-J		2	R301	R303								
36	RT-1/6W-100K Ω-J		5	R313	R554	R716	R802	R837					
37	RT-1/6W-100 Ω-J		18	R110 R712	R111 R714	R208 R715	R209 R823	R210 R824	R212 R825	R306 R826	R307 R838	R710 R723	R711 R811
38	RT-1/6W-10K Ω-J		18	R109 R812	R211 R815	R576 R817	R602 R821	R611 R836	R612 R912	R614 R922	R702 R932A		
39	RT-1/6W-12K Ω-J		1	R207									
40	RT-1/6W-150K Ω-J		2	R605	R700								
41	RT-1/6W-15K Ω-J		3	R725	R609	R610							
42	RT-1/6W-1K Ω-J		13	R553 R818	R558 R820	R565 R822	R566	R573	R713	R730	R803	R805	R816
43	RT-1/6W-2.7K Ω-J		1	R705									
44	RT-1/6W-220K Ω-J		2	R407	R226								
45	RT-1/6W-220 Ω-J		6	R101	R309	R806	R913	R923	R933				
46	RT-1/6W-22K Ω-J		2	R706	R221								
47	RT-1/6W-27K Ω-J		2	R402	R701								
48	RT-1/6W-3.3K Ω-J		3	R613	R703	R704							
49	RT-1/6W-3.9K Ω-J		1	R704									
50	RT-1/6W-330 Ω-J		3	R916A	R926	R936							
51	RT-1/6W-33K Ω-J		2	R205	R705								
52	RT-1/6W-390 Ω-J		1	R201									
53	RT-1/6W-39K Ω-J		4	R204	R222	R604	R603						
54	RT-1/6W-39 Ω-J		1	R103									
55	RT-1/6W-3K Ω-J		1	R559									
56	RT-1/6W-4.7K Ω-J		13	R104 R728	R108 R703	R213 R719A	R311	R707	R709	R718	R719	R721	R727
57	RT-1/6W-4.7 Ω-J		1	R217									
58	RT-1/6W-470 Ω-J		6	R102	R218	R219	R220	R312	R807				
59	RT-1/6W-47K Ω-J		3	R106	R726	R606							
60	RT-1/6W-47 Ω-J		6	R911	R914	R916	R924	R932	R934				
61	RT-1/6W-5.1K Ω-J		1	R414									
62	RT-1/6W-680 Ω-J		3	R202	R707	R719B							
63	RT-1/6W-8.2K Ω-J		1	R702									
CERAMIC CAPACITOR													
64	CT-1KV-1000pF-K(湿封装)		2	C504	C505								
65	CT-2KV-1000pF-K		1	C943									
66	CT-2KV-471pF-K		1	C553									
67	CT-2KV-680pF-K		2	C513	C511								
68	CT-500V-1000pF-K		1	C452									
69	CT-500V-3900pF-K		2	C451	C510								
70	CT-63V-0.01uF-Z		9	C104	C105	C106	C216	C569	C612	C613	C701	C711	
71	CT-63V-0.1uF-K		5	C220	C222	C223	C707	C713					
72	CT-63V-1000pF-J		6	C202	C203	C205	C206	C213	C214				
73	CT-63V-220pF-J		3	C313	C702	C703							
74	CT-63V-390pF-J		3	C921	C931	C911							
75	CT-63V-560pF-J		1	C225									
76	CT7-2E4-400VAC-3300pF-M		1	C517									

[illegible]

SER	DESCRIPTION	QTY	PCB NO.									
143	贴于场IC	1										
144	贴于电源管	1										
OXIDE FILM RESISTOR												
145	RF-2W-1.5 Ω-J	1	R451									
146	RY-1/2W-120K Ω-J	3	R503	R504	R555							
147	RY-1/2W-2.7K Ω-J	3	R918	R928	R938							
148	RY-1/6W-39K-G	1	R206									
149	RY-1W-180 Ω-J	1	R305									
150	RY-1W-1K Ω-J	1	R404									
151	RY-1W-1 Ω-J	1	R304									
152	RY-2W-0.47 Ω-J	1	R601									
153	RY-2W-12K Ω-J	3	R915	R925	R935							
154	RY-2W-15K Ω-J	1	R569									
155	RY-2W-2.2 Ω-J	1	R561									
156	RY-2W-270 Ω-J	1	R454									
157	RY-2W-4.7 Ω-J	1	R567									
158	RY-2W-47K Ω-J	1	R512									
159	RY-2W-5.6 Ω-J	1	R317									
160	RY-2W-8.2 Ω-J	1	R571									
PCB												
161	IU-2103KY-001	1										
162	IU-2103RE-001	1										
163	IVPH-002/21 ver1.1	1										
164	JS02-3AV-14 VER1.2	1										
POLYESTER CAPACITOR												
165	CL11-100V-0.0047uF-K	1	C522									
166	CL11-100V-0.0068uF-K	1	C215									
167	CL11-100V-0.015uF-K	1	C301									
168	CL11-100V-0.033uF-K	3	C404	C519	C559							
169	CL11-100V-0.047uF-K	2	C302	C310								
170	CL11-100V-0.1uF-K	8	C201	C209	C303	C458	C704	C705	C706	C520		
POLYPROPYLENE CAPACITOR												
171	CBB21-250V-0.22uF-J	1	C461									
172	CBB21-400V-0.3uF-K	1	C460									
173	CBB21-630V-0.027uF-K	1	C457									
174	CBB21-630V-0.068uF-J	1	C462									
175	CBB23A-250VAC-0.1μF-M	1	C501									
176	CBB81-1.6KV-2200PF-K	1	C454									
177	CBB81-1.6KV-8200pF-K	1	C456									
178	CBB81-1.6KV-9100PF-K	1	C455									
179	CL21X-63V-0.15uF-K	1	C207									
POWER SWITCH												
180	KDC-A04-001S	1										
PTC & NTC THERMISTOR												
181	8D-11	1	R502									
182	MZ73-9 Ω (3脚)	1	RT501									
SCREWS												
183	2.0 X 3.5MM	9	L441(短孔	T501(4)	T401(3)							
184	2.3 X 3.5MM	2	C507(2)									
185	TR 3×10 (with pad)	3	V303	N601(2)								
186	TR 3×10 (without pad)	3	N301	N502	V451							
TACT SWITCH												
187	KFC-A06-P5	6	SW1	SW2	SW3	SW4	SW5	SW6				
TRIODE												
188	2SA1015-Y	3	V563	V601	V803							
189	2SC1674	1	V101									
190	2SC1815-Y	9	V201	V202	V203	V311	V562	V602	V702	V801	V802	
191	2SC2383	4	V401	V561	V564	V565						
192	2SC2482	3	V911	V921	V931							
193	2SC5296	1	V451									
194	A940	1	V303									
195	BF421/BF423	3	V913	V923	V933							
TUNER												
196	EWE-5053-V8/ET-5K1E-EV100K	1	A101									
VARIABLE RESISTOR												
197	W206-2AL20K Ω-K	1	RP551									
ZENER DIODE												
198	MTZJ3V3/3C2	1	D703									
199	MTZJ3V6/4A2	1	D509									
200	MTZJ5V1/5C2	2	D801	D802								
201	MTZJ5V6/6B1	2	D567	D564								
202	MTZJ8V2	1	D941									
203	MTZJ8V2/9A2	1	D402									
204	MTZJ8V7/9B2	1	D561									

CE STANDARD COMPONENT

SER	DESCRIPTION	QTY	PCB NO.									
CERAMIC CAPACITOR												
1	CT-1KV-1000pF-K(湿封装)	+2	C503	C506								
2	CT7-2E4-400VAC-2200pF-M	+2	C515	C516								
3	CT7-2E4-400VAC-3300pF-M	-1	C517									
COIL, IN.LF.TFM												

SAFETY PRECAUTIONS

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

10. Isolation Check

(Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

11. The surface of the TV screen is coated with a thin film which can easily be damaged. Be very careful with it when handle the TV. Should the TV screen become soiled, wipe it with a soft dry cloth. Never rub it forcefully. Never use any cleaner or detergent on it.

(1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.

(...Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

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

(2) Leakage Current Check

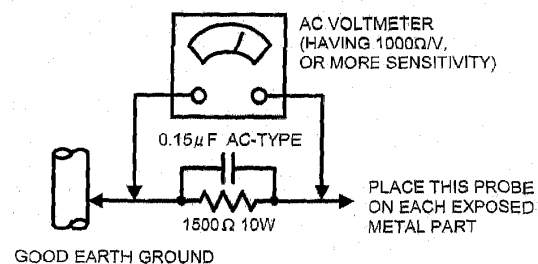
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known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

● Alternate Check Method

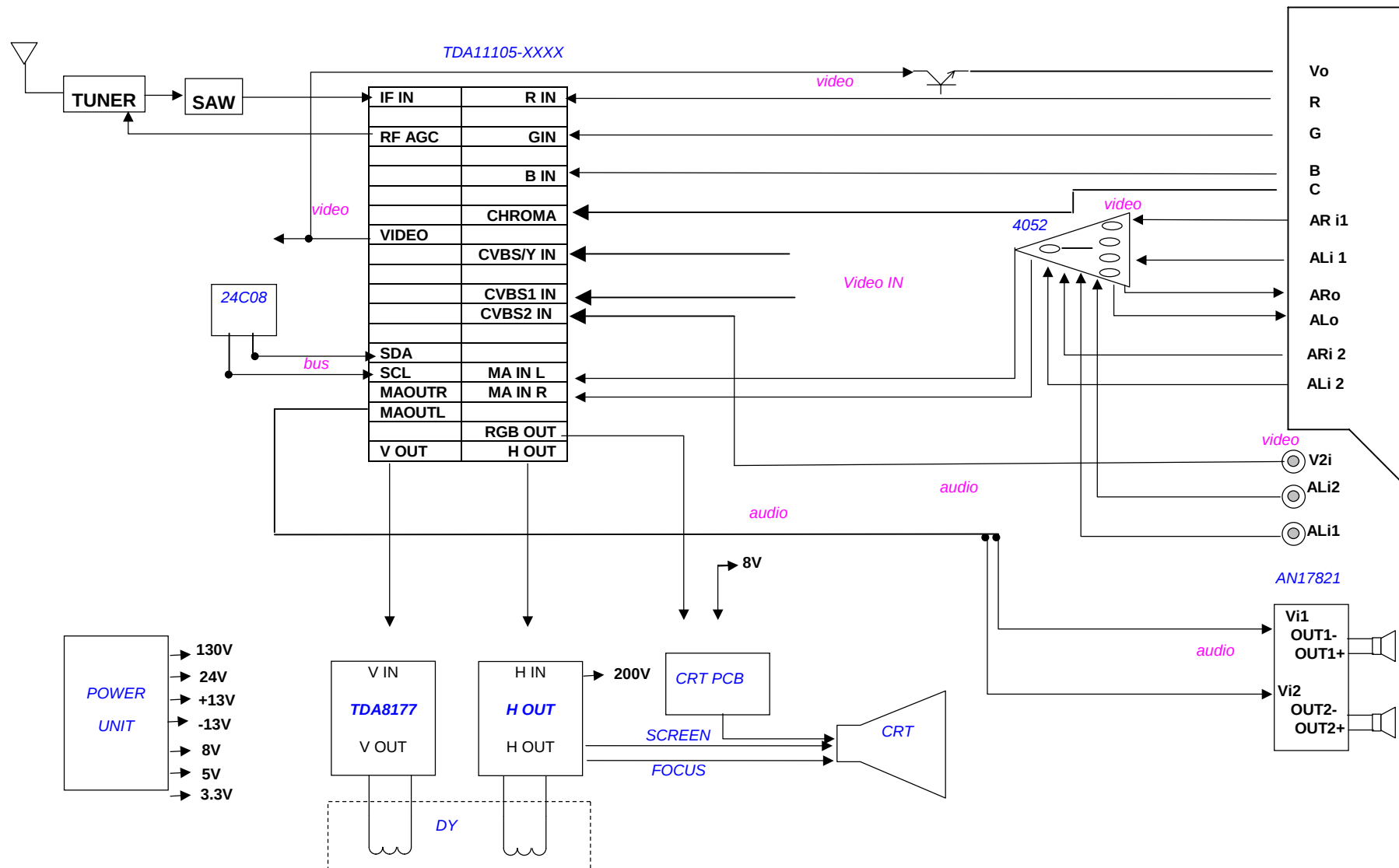
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500 Ω 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal 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.).

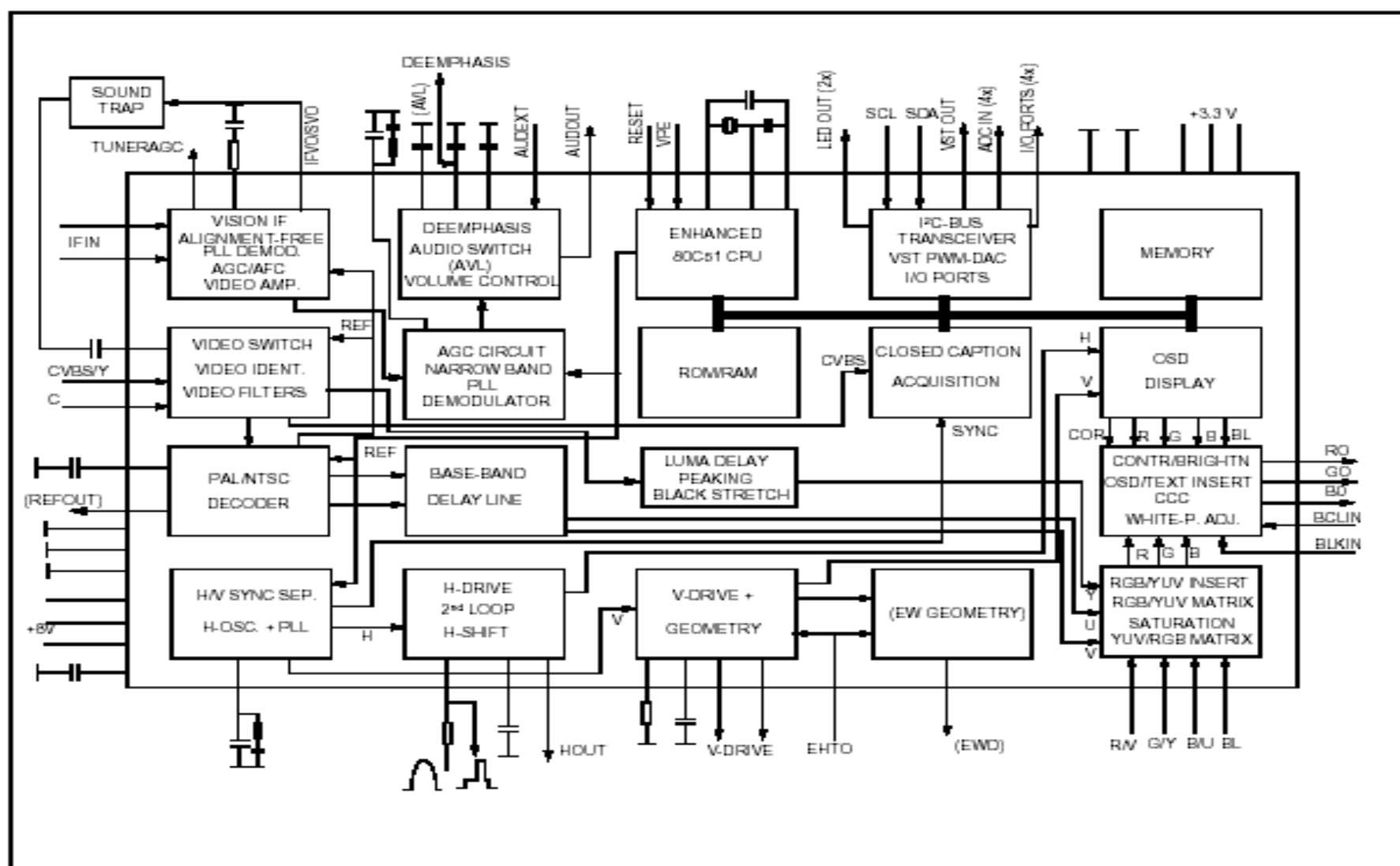
However, in tropical area, this must not exceed 0.3V AC (r.m.s.).

This corresponds to 0.2mA AC (r.m.s.)



TV Block diagram





BLOCK DIAGRAM

REPLACEMENT OF MEMORY IC

1. MEMORY IC.

This TV uses memory IC. In the memory IC are memorized data for correctly operating the video and deflection circuits.

When replacing memory IC, be sure to use IC written with the initial value of data.

2. PROCEDURE FOR REPLACING MEMORY IC

(1) Power off

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

(2) Replace IC

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

(3) Power On

Plug the power cord into the AC outlet and switch the power On.

(4) Check and set SYSTEM default value:

3. Note: enter a factory mode method

- 1) Factory remote control: Press the factory remote control up [PRESET], press again [TEST] key, appear on the television screen 'M'.
- 2) Customer remote control
- 3) Press [menu] key, appear the picture menu, press few character keys 6483, the screen appears M.
- 4) Press [standby] key, withdraw factory mode.
- 5) The "TEST" will be displayed on the screen.
- 6) Check the setting value of the SYSTEM default value of Table below. If the value is different, select items by [CH+]/[CH-] keys and set value by [VOL+]/[VOL-] keys.
- 7) Press "STANDBY" key again and return to the normal screen.

SERVICE ADJUSTMENT

B1 POWER SUPPLY

1. Receive normal colour bar signal.
2. Connect DC voltmeter to VD541- and isolated ground.
3. Adjust potentiometer in power unit to get the voltage as 110V $\pm$ 1.0V for 21 inch hereinafter,
130 $\pm$ 1.0V for 25 inch upwards.

FOCUS ADJUSTMENT

1. Receive a crosshatch signal.
2. While watching the screen, adjust the FOCUS VR to make the vertical and horizontal lines as fine and sharp as possible.

BUS CONTROL ADJUSTMENT

To enter BUS control mode, Press "TEST" key on the Remote control unit of factory. (Customer remote control press "MENU" key behind in a row press "6""4""8""3")

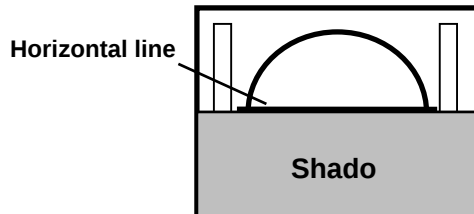
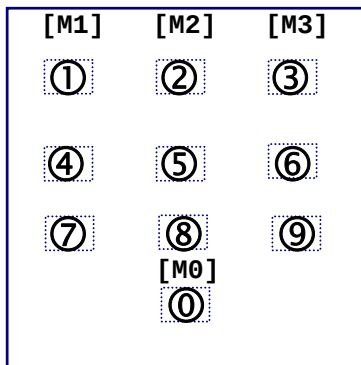
Choose a "SETUP SELECT" options in "M2" menu, one by one in order press the numerical key "6, 4, 8 and 3", press "MUTE" key again can depend on this get into "M3"~"M9" of design menu, general factory the

production doesn't need to carry on M 3~ adjustments of M9.

In "M0"~under"M9" appearance press" CALL" the key can get into "M" appearance.

At "M"under the appearance press "-/-" the key can get into "BUS OPEN" appearance, at "BUS OPEN under, press "-/-" the key recover factory appearance.

Remote Hand Unit keys



[M1] menu

MENU0 Geometrical adjustment

Receive PAL standard Complete pattern signal.

Adjustment steps:

- Adjust V. SLOPE, to the center horizontal line just appear from half bottom shadow.
- Adjust V. SIZE, to get 90% of vertical picture contents would be displayed on CRT.
- Adjust V. SHIFT, the center horizontal line correspond to CRT vertical center.
- Adjust H.SHIFT, to get the picture horizontal center correspond to CRT horizontal center.

Receive NTSC signal and repeat above [M0] and [M1] adjustment.

[M2] Menu

AGC Adjustment.

Receive 60dB μ (1mV) V_H colour bar pattern signal, adjust AGC value (voltage from high to low), to noise reduce gradually and just disappeared point.

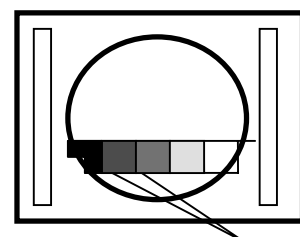
Select "shipping", push [V+] [V-]key to be shipped.

[M3] Menu

CRTcut off and white balance adjustment.

Receive white signal.

- CRT cut off adjustment.
 - Select "SC", then automatically vertical scan will be stopped.
 - Adjust SCREEN control on Flyback transformer to get the darkest single horizontal line (red, green, or blue, sometimes shows more yellow, more purple or more white).
- White balance adjustment.
 - Select RD/BD menu.
 - Adjust RD/BD to get colour temperature as x=281, y=311
- Sub-Brightness adjustment. (Use stair case signal)
 - Select SB menu.
 - Adjust SB to get the darkest step being cutoff.



I²C standard UOC for export bus control adjustment item default setting 2007-12-05

MI	Items	Variable		Preset	recommendation	
M0		50HZ	60HZ		50HZ	60HZ
	V. LOPE	63	+/-32	Picture vertical center adjustment	35	-01
	V. SIZE	63	+/-32	Vertical amplitude adjustment	20	+02
	V. SC	63	+/-32	Vertical S Correction Adjustment	25	-01
	V.LINE	63	+/-32	Vertical positions adjustment	18	+02
	V.SCR	63	+/-32	Vertical S Correction R	32	-01
	H.PSASE	15	+/-32	Horizontal position adjustment	40	0
	EW.W	63	+/-32	Horizontal amplitude adjustment	55	0
	EW.PW	63	+/-32	E/W amplitude adjustment	29	0
	EW.TC	63	+/-32	Picture trapezoid adjustment	31	0
	EW.UCP	63	+/-32	Picture top Cape adjustment	48	0
	EW.LCP	63	+/-32	Picture bottom Cape adjustment	45	0
	H.BOW	63	+/-32	Picture bow form adjustment	30	0
	H.PAR	63	+/-32	Picture parallelogram adjustment	31	0
	H.BLK.SW	ON/OFF		Horizontal blank switch	ON	
M1		TV /DVD				
	CL	0~15		Contrast level offset	13	
	BLOC	0~15		Black level offset course	6	
	R.BIA	0~63		R OUT Amplitude Adjustment	32	
	G.BIA	0~63	32	G OUT Amplitude Adjustment	32	-6
	B.BIA	0~63		B OUT Amplitude Adjustment	32	
	R.DRV	0~63		R OUT Amplitude Adjustment	32	
	G.DRV	0~63		G OUT Amplitude Adjustment	32	
	B.DRV	0~63		B OUT Amplitude Adjustment	32	
	SUB BRT	0~63		Brightness of screen line	32	
	VSD	0~1		Vertical Ramp Out Stop Selection		
	TEST.S	0~5				
M2		50HZ	60HZ			
	RF AGC	0~63		32 Tuner AGC Takeover Point Adjustment		
	OSD.V.POS	0~63	0~63	Vertical position of OSD	13	13
	OSD.H.POS	0~63		Horizital position of OSD	13	
	OSD BRT	0~15		OSD brightness	15	
	SHIPPING					
	SETUP SELECT	0~1		Select 1, press the MUTE key to M 3~ M9		
M3	SUB CONT	0~63		Sub contrast	63	
	SUB COLOR	0~63		Sub colour	63	
	SUB SHARP	0~63		Sub sharpness	63	
	SUB TINT	0~63		Sub tint	32	

	BTC	0~63		32
	COF	0~1	Cut-off control range 0:normal control range 1:extended control range	1
	CHINESE	ON/OFF	OSD language selection	ON
	THAI	ON/OFF	OSD language selection	ON
	VIETNAM	ON/OFF	OSD language selection	ON
	INDONESIA	ON/OFF	OSD language selection	ON
	ARABIC	ON/OFF	OSD language selection	ON
M4	VA	0~3	Vercital amplitude	0
	VAI	0~1	System I output signal amplitude correction 0:no correction 1:amplitude + 12%	1
	CBS	0~1	Control sequence of beam current limiting 0:normal operation(contrast—brightness) 1:control on contrast and brightness in parallel	1
	COR	0~1	Video dependent coring(peaking) 0:off 1:coring active between 0 and 20 IRE	0
	RPA	0~3	Ratio pre-and aftershoot	2
	RPO	0~3	Ratio of positive and negative peaks	2
	TCI2X	0~1	Top sync clamp current of the CVBS/Y input clamp 0: clamp current about 80 uA 1: clamp current about 160 uA	0
	BKS	ON/OFF	Baack stretch	ON
	BSD	0~1	Black stretch Depth 0:15IRE 1:30 IRE	0
	AAS	0~3	Black area to switch off the black stretch	0
	PWL	0~1	Peak white limiting 0:peak white limiting circuit not active 1:peak white limiting circuit active	
	SOC	0~1	Soft clip adjust	0
	PWLDAC	0~15	Peak white adjust	2
	CHSE	0~15	Color degree identifies an intelligent degree	2
	TFR	0~1	Transfer ratio 0:no black level shift due to video content 1:black level shift 10 IRE for a white picture	0
	DSK	0~1	Dynamic skin control on/off 0:off 1:on	0
	DSA	0~1	Dynamic skin tone angle 0:123 1:117	0
	WS	0~1		0
	BLS	0~1	Blue stretch mode 0:off 1:on	0
	S.IDENT	ON/OFF	S-VIDEO Identify switch	ON
M5	IF		Vision IF of RF (38/38.9/45.75/58.75) MHZ	38.9MHZ
	OIF	0~15	IF compensate	8
	FFI	0~1	Fast filter IF -PLL	0
	AGCS	0~3	AGC speed	1

	DCXO	0~3	Crystal load electric capacity compensate	2
	FSL	0~1	Forced slicing level for vertical sync	0
	SSL	0~1	Slicing level for horizontal sync separator 0:50% 1:30%,direction top sync	0
	GD	0~1	Group delay on CVBSI signal 0:no group delay correction 1: group delay correction switched on	0
	HP2	0~1	Sync hronization of OSD/TEXT display	0
	AKB	ON/OFF	Black current stabilization	OFF
	DFL	0~1	Disable flash protection from deflection timer 0:restart horizontal output,after flash protection,via slow start 1: restart horizontal output,after flash protection,with typical duty-cycle	0
	XDT	0~1	x-ray detection on/off	0
	FBC	0~1	Fixed beam current switch off	0
	ODT	0~1		0
	FBC1	0~1	Fixed beam curuent during switch off 0:fixed beam current is 1 mA 1:fixed beam current is 2 mA	0
	FSPS	0~1	Selection of left or right hand side in split-Screen mode	0
	FSPB	0~1	Blanking in split-screen mode	0
	FSPE	0~1	Enable split-screen mode for demonstration of features	0
	HCO	0~1	EHT tracking mode	0
	OSVE	0~1	Black current measuring lines in overscan(for vertical zoom setting <1)	0
	EVB	0~1	Extended vertical blanking	0
	IFS.RED	0~1	IF Intelligent degree	1
	PWM.VOL	ON/OFF		OFF
M6	CLF	0~1	Selection internal clamp speed 0:clamp slow 1:clamp 6 times faster	0
	BPB	0~1	Enable bypass of sound bandpass filter at mono mode 0:sound bandpass active for mono demodulator 1:sound bandpass filter bypassed	0
	BPB2	0~1	Bypass sound bandpass filter section 2 0:bandpass filter active 1:bandpass filter bypassed	0
	FMWS	0~3	Window select for FM demodulator	0
	AGN	0~1	Gain FM demodulator 0:normal operation 1:gain +6 dB	1
	AGNE	0~3	FM sound demodulator outopt signal amplitude	1
	AVL	ON/OFF	Auto volume levelling	OFF
	AVLE	0~1	AVL function on East-West output pin	0

	DSGLS	0~1	Extra gain selection loudspeaker outputs 0:+0 Db 1:+6 Db	0
	NRR	0~1	No red reduction during blue stretch	0
	AMLOW	0~1	Audio output signal for AM sound	0
	GSSIF	0~1	Extra gain-range SSIF for AM demodulation	0
	V.P1	0~100	V.P1 volume of VALUE	10
	V.P25	0~100	V.P25 volume of VALUE	45
	V.P50	0~100	V.P50 volume of VALUE	70
	V.P75	0~100	V.P75 volume of VALUE	85
	ON DL	0~16	On delay time	3
	OFF DL	0~7	Off delay time	1
	ON/OFF MODE	0~1		0
M7	NAT		N-USA/PAL N-JPN/PAL N-USA/PAL PAL MAT	
	ACL	0~1	Automatic color limiting 0:not active 1:active	0
	CB	0~1	Chroma bandpass center frequency	0
	SBO	0~1	SECAM B-Y blank level offset adjustment	0
	BPS	0~1	Bypass of chroma base-band delay line 0:active 1:bypassed	0
	FCO	0~1	Forced Color-on 0:on 1:off	0
	DTR	0~1	Chroma trap mode 0:single chroma trap 1:dual chroma trap,more suppression but less bandwidth	0
	Y.P	0~15	Y-delay adjustment for PAL signal	8
	Y.N	0~15	Y-delay adjustment for NTSC signal	8
	Y.AV	0~15	Y-delay adjustment for PAL signal in AV mode	8
	Y.SVHS	0~15	Y-delay adjustment for PAL signal in S-video mode	8
	PF.P	0~3	PAL Center frequency with postpone adjust	0
	PF.N	0~3	NTSC Center frequency with postpone adjust	0
	PF.AV	0~3	AV Center frequency with postpone adjust	0
	C.PHI.1			
M8	S.BRT	0~100	Standard Brightness in pp mode	50
	S.CONT	0~100	Standard Contrast in pp mode	75
	S.COLOR	0~100	Standard Color in pp mode	50
	S.SHARP	0~100	StandardSharpness in pp mode	50
	D.BRT	0~100	dynamic Brightness in pp mode	75
	D.CONT	0~100	dynamic Contrast in pp mode	100
	D.COLOR	0~100	dynamic Color in pp mode	75
	D.SHARP	0~100	dynamicSharpness in pp mode	75
	M.BRT	0~100	mild Brightness in pp mode	40
	M.CONT	0~100	mild Contrast in pp mode	40

	M.COLOR	0~100	mild Color in pp mode	40
	M.SHARP	0~100	mildSharpness in pp mode	40
	W.BRT	0~100	factory adjusts Brightness	50
	W.CONT	0~100	factory adjusts Contrast	75
	W.COLOR	0~100	factory adjusts Color	0
	SC BRT	0~100	Subsidiary Bright Adjustment	50
	COOL	0~63	Cool color adjustment	8
	WARM	0~63	Warm color adjustment	8
M9	AV2	ON/OFF	AV2 selection	ON
	SVHS	ON/OFF	S-VIDEO selection	ON
	DVD	ON/OFF	DVD (Y U V) selection	ON
	AUTO SOUND	ON/OFF	Auto sound system as auto search	ON
	BG	ON/OFF	Sound system of 6.0M selecting	ON
	I	ON/OFF	Sound system of 5.5M selecting	ON
	M	ON/OFF	Sound system of 4.5M selecting	ON
	DK	ON/OFF	Sound system of 6.5M selecting	ON
	SIF PRI	ON/OFF	Force sound system as auto search	ON
	POWER REST	0~3	AC power on start selection	1
	BANLANCE	ON/OFF	AV stereo selection (ON:AV STEREO OFF:MONO)	OFF
	HALFTONE	ON/OFF	Half tone select	OFF
	MENU BG	ON/OFF	Menu background selection	OFF
	IR OPT	SANYO/NEC	Remote control selection	SANYO
	KEY OPT	SANYO/MEK	KEY BOARD selection	SANYO
	CURTAIN	0~2	CURTAIN selection	2
	LOGO	ON/OFF	Logo selection	OFF
	TILT	ON/OFF	TILT selection	ON
	ASM OPT	0~1	Search speed selection	1
	V.MUTE P.OFF	ON/0~7	Select whether cutoff RGB ouput from solution whlie power off	ON

KEY BOARD: multiple-choice test(0/1)

0: Control keys input (Max. Limit voltage) ---(MEK KEY BOARD)

Function	POWER	MENU	TV/AV	V-	V+	P-	P+
Voltage	0	0.4125	0.825	1.2375	1.65	2.0625	2.475

1: Control keys input (Max. Limit voltage) -(SANYO KEY BOARD)

Function	POWER	MENU	TV/AV	V-	V+	P-	P+
Voltage		2.2	1.75	0.85	1.3	0.4	0.0

4 , LOGO EDIT

This software LOGO is a pair of pleased words and customer to edit 2 kinds, at the M_MODE, long press[P.P]the key can get into a pair of pleased words editor appearance.

(Operate

Press[1]/[2] keys: The LOGO perpendicular position adjust, [1] adjusts upward, [2] get down adjustment;

Press[3]/[4] keys: The LOGO level position adjust, [3] is to the left adjustment, [4] rightwards adjusts;

Press[REVIEW]key: Withdraw LOGO editor appearance, the LOGO information remembers EEPROM and return to M_MODE;

Press again[MENU]the key can get into and can edit LOGO appearance.

(Operate

Press[1]/[2] keys: The LOGO perpendicular position adjust, [1] adjusts upward, [2] get down adjustment;

Press[3]/[4] keys: The LOGO level position adjust, [3] is to the left adjustment, [4] rightwards adjusts;

Press[5]/[6] keys: The color choice of the LOGO character list, [5] regulate the first color, [6] regulate the second color;

Press[7]/[8] keys: The LOGO character list size adjust, [7] regulate the first size, [8] regulate the second size;

Press[0] keys:Delete the letter of alphabet of importation

Press[()/(]key: The LOGO character list choose(0~9;A~Z;a~z; ".:.-*/@", SPACE);

Press[()/(]key: Move cursor;

Press[REVIEW]key: Withdraw LOGO editor appearance, the LOGO information remembers EEPROM and return to M_MODE;

5. The ZOOM adjust.

At the M_MODE, press[ZOOM]key: Press when screen showed "ZOOM" or"16:9"[VOL+]/[VOL-]the key regulated ZOOM/16:9 of field.

ICs functional description

UOC TDA11105-XXXX/TDA11106-XXXX

SYMBOL	PIN	DESCRIPTION
IF VO	1	IF video output / selected CVBS output
VP2	2	2 ND Supply voltage TV processor(+5v)
VCC AUDIO	3	8 volt supply for audio switches(+5V~8V)
PLL IF	4	IF-PLL loop filter
GND2	5	Gaound 2 for TV processor
DECSDEM	6	decoupling sound demodulator or SIF input 2
FMDEMOUT	7	audio output /AM audio output (volume controlled)
EHTO	8	EHT/overvoltage protection input
AGC	9	Tuner AGC output
IREF	10	Reference current input
VSC	11	Vertical sawtooth capacitor
IF IN2	12	IF input 1
IF IN1	13	IF input 2
VDRA	14	Vertical drive A output
VDRB	15	Vertical drive B output
AVL/EW	16	Automatic volume leveling /EAST-WEST drive output
DECBG	17	Band gap decoupling
SECPLL	18	SECAM PLL decoupling
GND1	19	Ground 1 for TV-processor
PH1LF	20	Phase-1 filter
PH2LF	21	Phase-2 filter
VP1	22	1 st supply voltage TV-processor(+5V)
DECDIG	23	decoupling digital supply of TV-processor
XTALOUT	24	crystal oscillator output
XTALIN	25	crystal oscillator input
IR	26	Remote control signal input.
MUTE	27	Sound mute output
TILT/UHF	28	
KEY	29	Control keys input *3
BAND2	30	Tuner Band selection output
BAND1	31	Tuner Band selection output
TUNING	32	tuning Voltage (Vt) PWM output
VDDP	33	Supply to periphery-3.3V)
SDA	34	I ² C-bus data line
SCL	35	I ² C-bus clock line
AV1	36	TV/AV (AV1) / AV2 mode Control Output.
AV2	37	TV/AV (AV1) / AV2 mode Control Output.
STANDBY	38	In STAND BY mode, high level (Power OFF).For Power ON this pin will be reduced to low.
50/60	39	

VDDC	40	Supply(3.3V)
GND5	41	Ground 5
VPE	42	OPT programming Voltage
VDDA	43	Supply voltage(3.3V)
BOUT	44	Blue output
GOUT	45	Green output
ROUT	46	Red output
BLKIN	47	black current input / V-guard input
BCL IN	48	beam current limiter input
PB	49	B input / U (B-Y) input / Pb input
Y3/CVBS3	50	G input / Y input
PR/C3	51	R input / V (R-Y) input / Pr input
YOUT	52	Y-output(for YUV interface)
Y SYNC	53	Y-input for sync separator
VP3	54	Supply voltage(5V)
GND3	55	Ground connection
HOUT	56	Horizontal output
FBISO	57	Flyback input/sandcastle output
LSR	58	Audio output R
LSL	59	Audio output L
C2/C3/C4/AIN5R	60	S-VIDEO C IN
AIN3/IN1R	61	R AUDIO IN
CVBS2/Y2	62	AV2 VIDEO IN
AIN2/1INL	63	L AUDIO IN
CVBS/Y4/AIN5L	64	AV1 VIDEO IN

TDA7266SA

7W+7W DUAL BRIDGE AMPLIFIER

WIDE SUPPLY VOLTAGE RANGE (3.5-18V)

MINIMUM EXTERNAL COMPONENTS

- NO SWR CAPACITOR
- NO BOOTSTRAP
- NO BOUCHEROT CELLS
- INTERNALLY FIXED GAIN

STAND-BY & MUTE FUNCTIONS

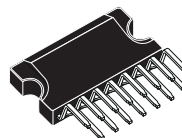
SHORT CIRCUIT PROTECTION

THERMAL OVERLOAD PROTECTION

DESCRIPTION

The TDA7266SA is a dual bridge amplifier specially designed for LCD Monitor, PC Motherboard, TV and Portable Radio applications.

TECHNOLOGY BI20II

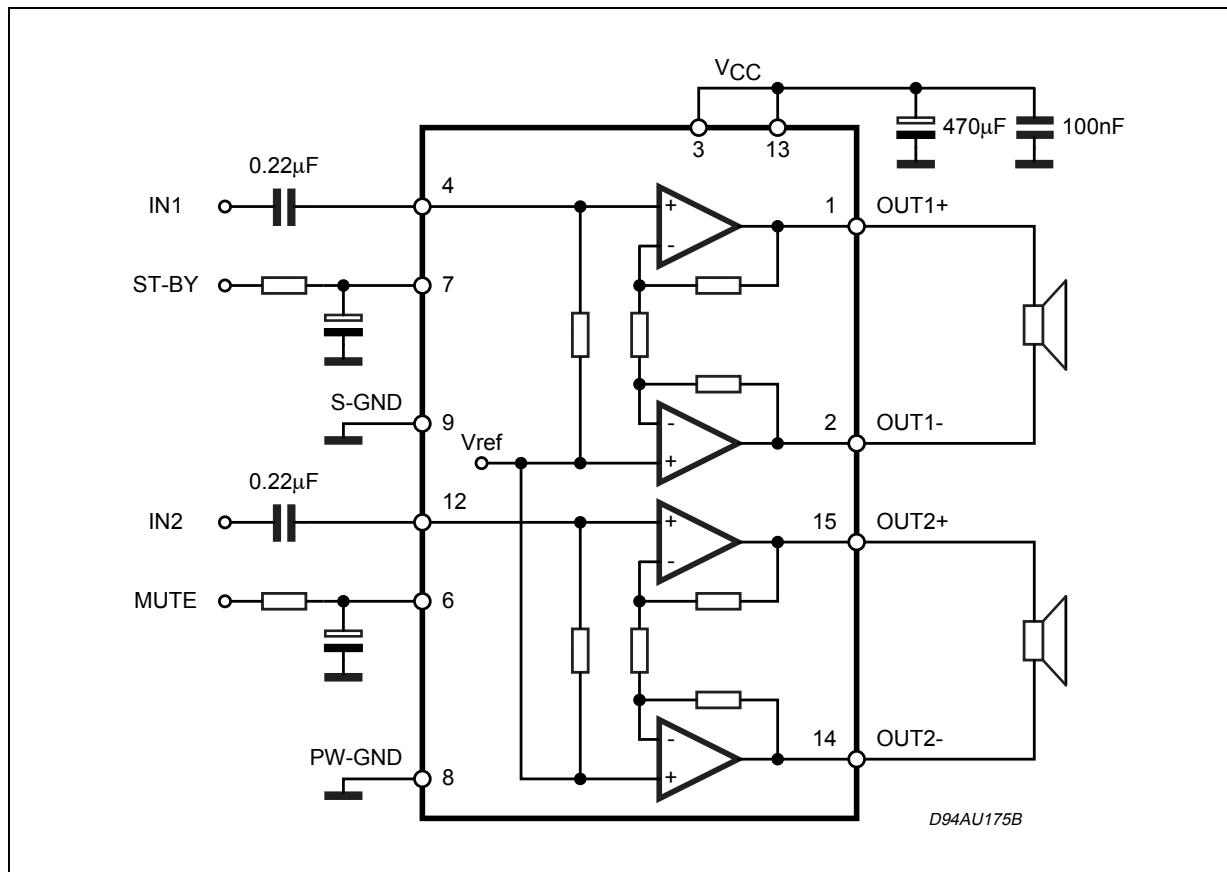


CLIPWATT15

ORDERING NUMBER: TDA7266SA

Pin to pin compatible with: TDA7266S, TDA7266, TDA7266M, TDA7266MA, TDA7266B, TDA7297SA & TDA7297.

BLOCK AND APPLICATION DIAGRAM TDA7266SA



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	20	V
I_O	Output Peak Current (internally limited)	2	A
P_{tot}	Total Power Dissipation ($T_{amb} = 70^\circ\text{C}$)	20	W
T_{op}	Operating Temperature	0 to 70	$^\circ\text{C}$
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	$^\circ\text{C}$

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j-case}$	Thermal Resistance Junction-case	Typ = 1.8; Max. = 2.5	$^\circ\text{C/W}$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	48	$^\circ\text{C/W}$

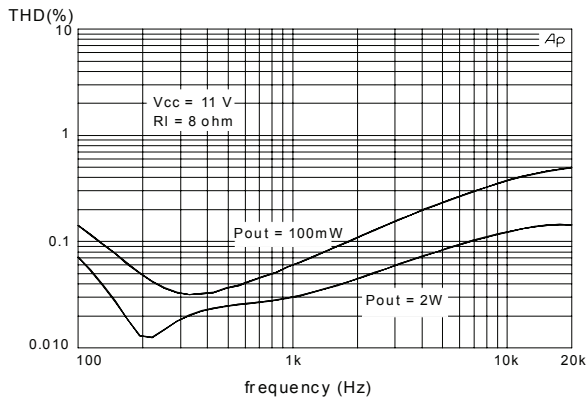
ELECTRICAL CHARACTERISTICS

($V_{CC} = 11\text{V}$, $R_L = 8\Omega$, $f = 1\text{KHz}$, $T_{amb} = 25^\circ\text{C}$ unless otherwise specified)

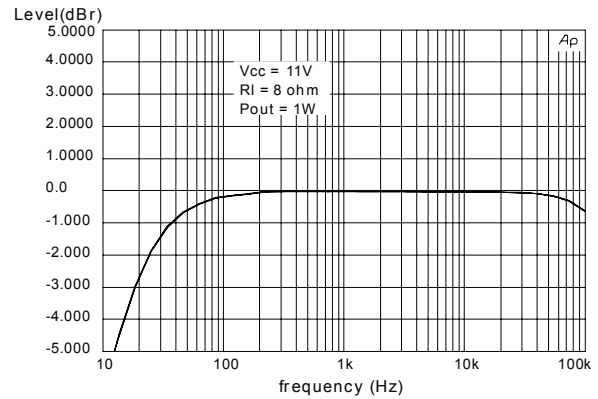
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{CC}	Supply Range		3	11	18	V
I_q	Total Quiescent Current			50	65	mA
V_{OS}	Output Offset Voltage				120	mV
P_O	Output Power	THD 10%	6.3	7		W
THD	Total Harmonic Distortion	$P_O = 1\text{W}$		0.05	0.2	%
		$P_O = 0.1\text{W to } 2\text{W}$ $f = 100\text{Hz to } 15\text{KHz}$			1	%
SVR	Supply Voltage Rejection	$f = 100\text{Hz}$, $VR = 0.5\text{V}$	40	56		dB
CT	Crosstalk		46	60		dB
A_{MUTE}	Mute Attenuation		60	80		dB
T_w	Thermal Threshold			150		$^\circ\text{C}$
G_V	Closed Loop Voltage Gain		25	26	27	dB
ΔG_V	Voltage Gain Matching				0.5	dB

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
R_i	Input Resistance		25	30		$K\Omega$
VT_{MUTE}	Mute Threshold	for $V_{CC} > 6.4V$; $V_o = -30dB$	2.3	2.9	4.1	V
		for $V_{CC} < 6.4V$; $V_o = -30dB$	$V_{CC}/2 - 1$	$V_{CC}/2 - 0.75$	$V_{CC}/2 - 0.5$	V
VT_{ST-BY}	St-by Threshold		0.8	1.3	1.8	V
I_{ST-BY}	St-by Current $V_6 = GND$				100	μA
e_N	Total Output Voltage	A Curve; $f = 20Hz$ to $20KHz$		150		μV

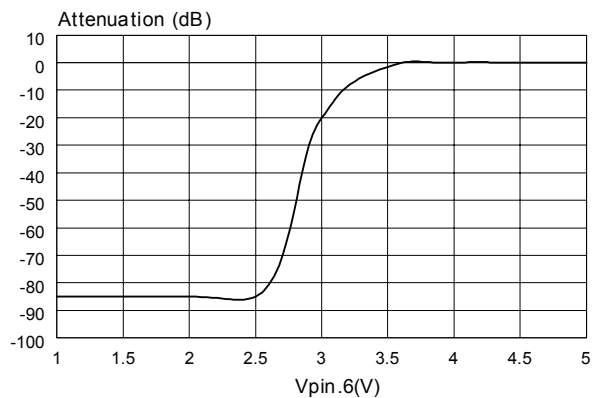
Distortion vs Frequency



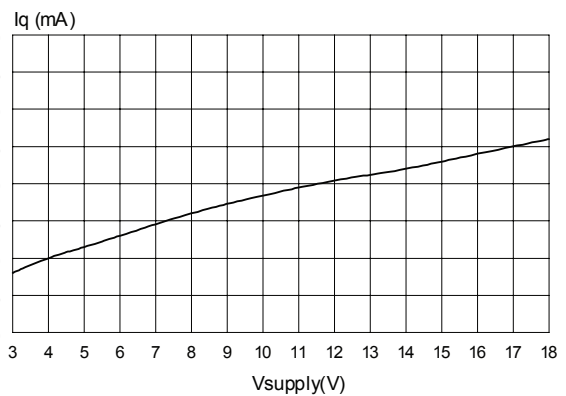
Gain vs Frequency



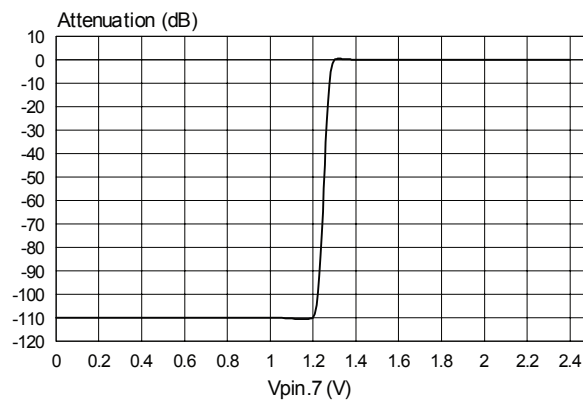
Mute Attenuation vs Vpin.8



Quiescent Current vs Supply Voltage



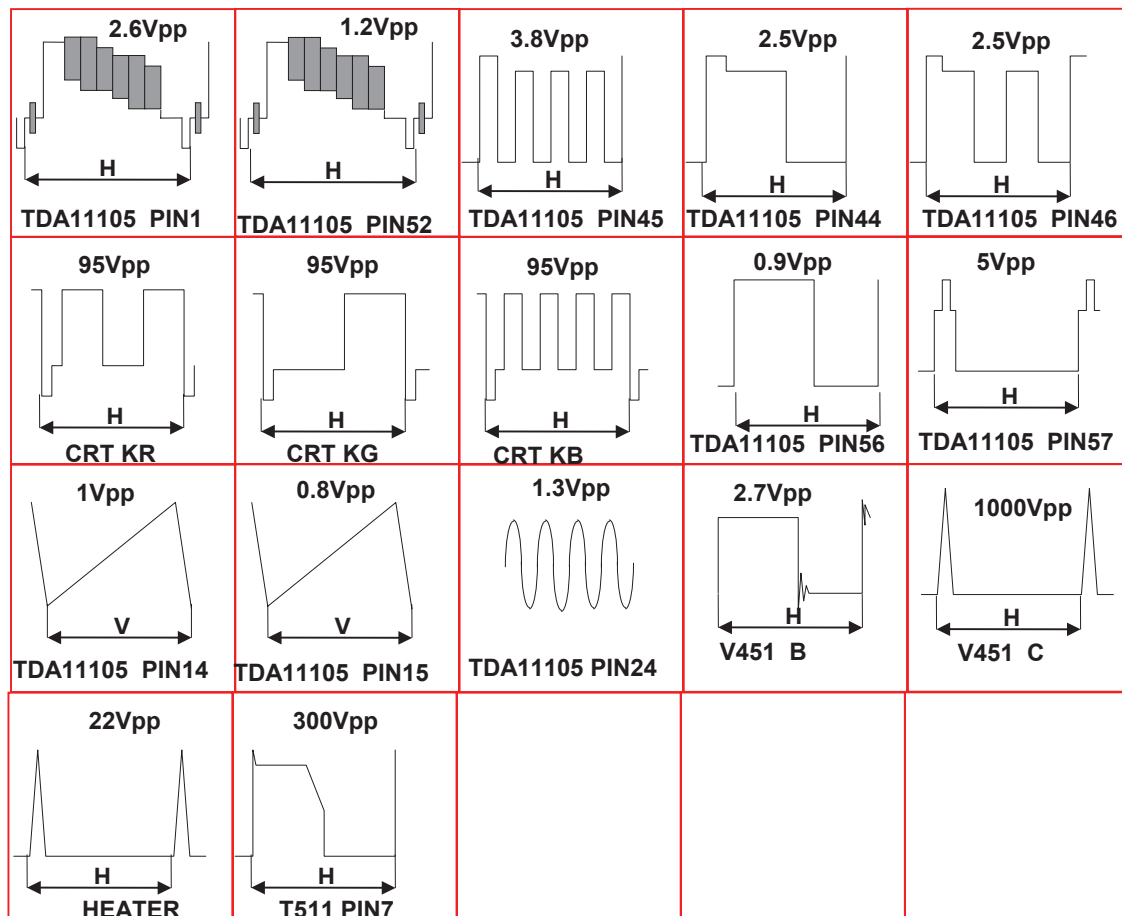
Stand-By attenuation vs Vpin 9



LA9302A/8177/LA78041/LA78040 Function : **vertical output**

Symbol	PIN	Function	Symbol	PIN	Function
INV IN	1	Input	V OUT	5	Vertical output
VCC1	2	Power	VCC2	6	Output power supply
PUMP UP	3	Pump up power	NON INV IN	7	Negative feedback
GND	4	Ground			

Test point Waveforms



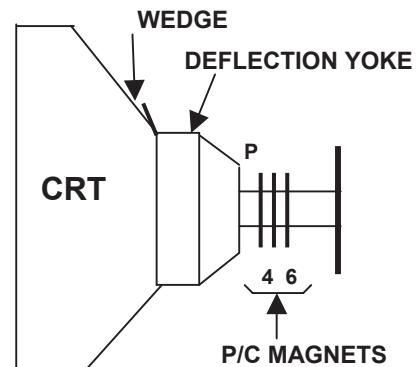
TDA8177 / ST9302/ LA78040 or LA78041

PIN	1	2	3	4	5	6	7
V	0.7	15	-12	-15	0.3	15.9	-0.07

PURITY / CONVERGENCE ADJUSTMENT

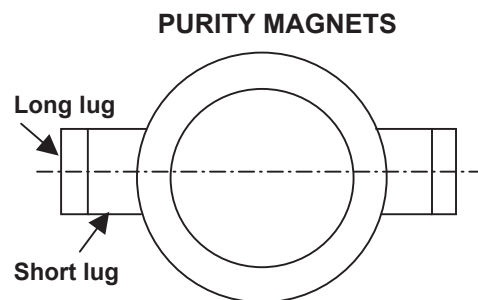
PURITY ADJUSTMENT

1. Demagnetize CRT with the demagnetizer.
2. Loosen the retainer screw of the deflection yoke.
3. Remove the wedges.
4. Input a green raster signal from the signal generator, and turn the screen to green raster.
5. Move the deflection yoke backward.
6. Bring the long lug of the purity magnets on the short lug and position them horizontally. (Fig2)
7. Adjust the gap between two lugs so that the GREEN RASTER will come into the center of the screen. (Fig. 3)
8. Move the deflection yoke forward, and fix the position of the deflection yoke so that the whole screen will become green.
9. Insert the wedge to the top side of the deflection yoke so that it will not move.
10. Input a crosshatch signal.
11. Verify that the screen is horizontal.
12. Input red and blue raster signals, and make sure that purity is properly adjusted.



P: PURITY MAGNET
 4: 4-POLES (convergence magnets)
 6: 6-POLES (convergence magnets)

Fig. 1



Bring the long lug over the short lug and position them horizontally.

Fig. 2

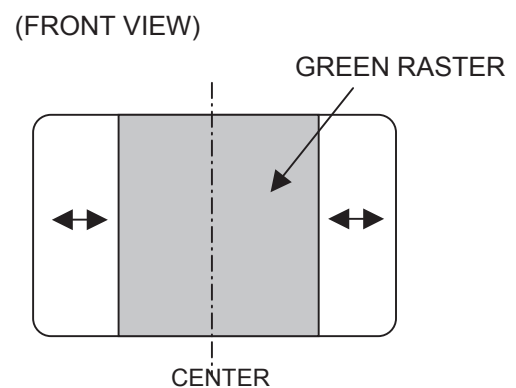


Fig. 3

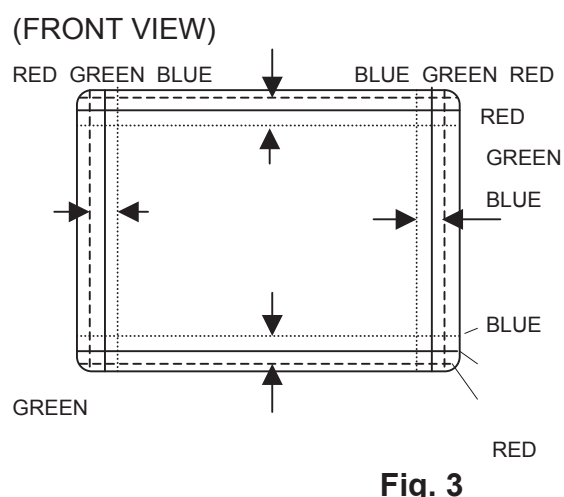
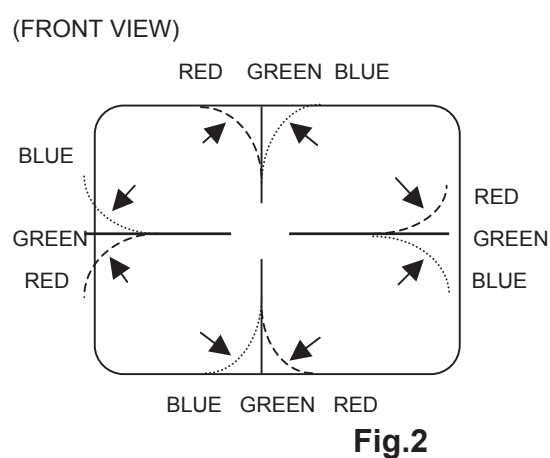
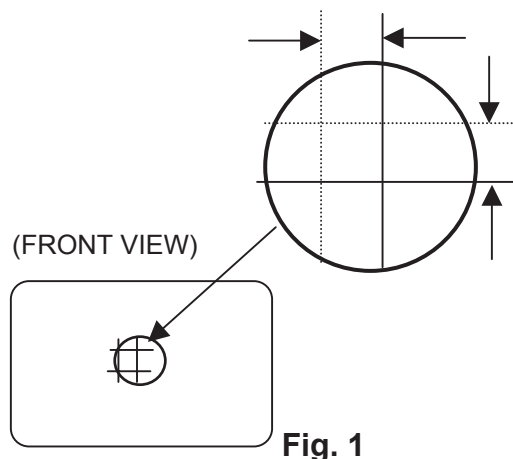
STATIC CONVERGENCE ADJUSTMENT

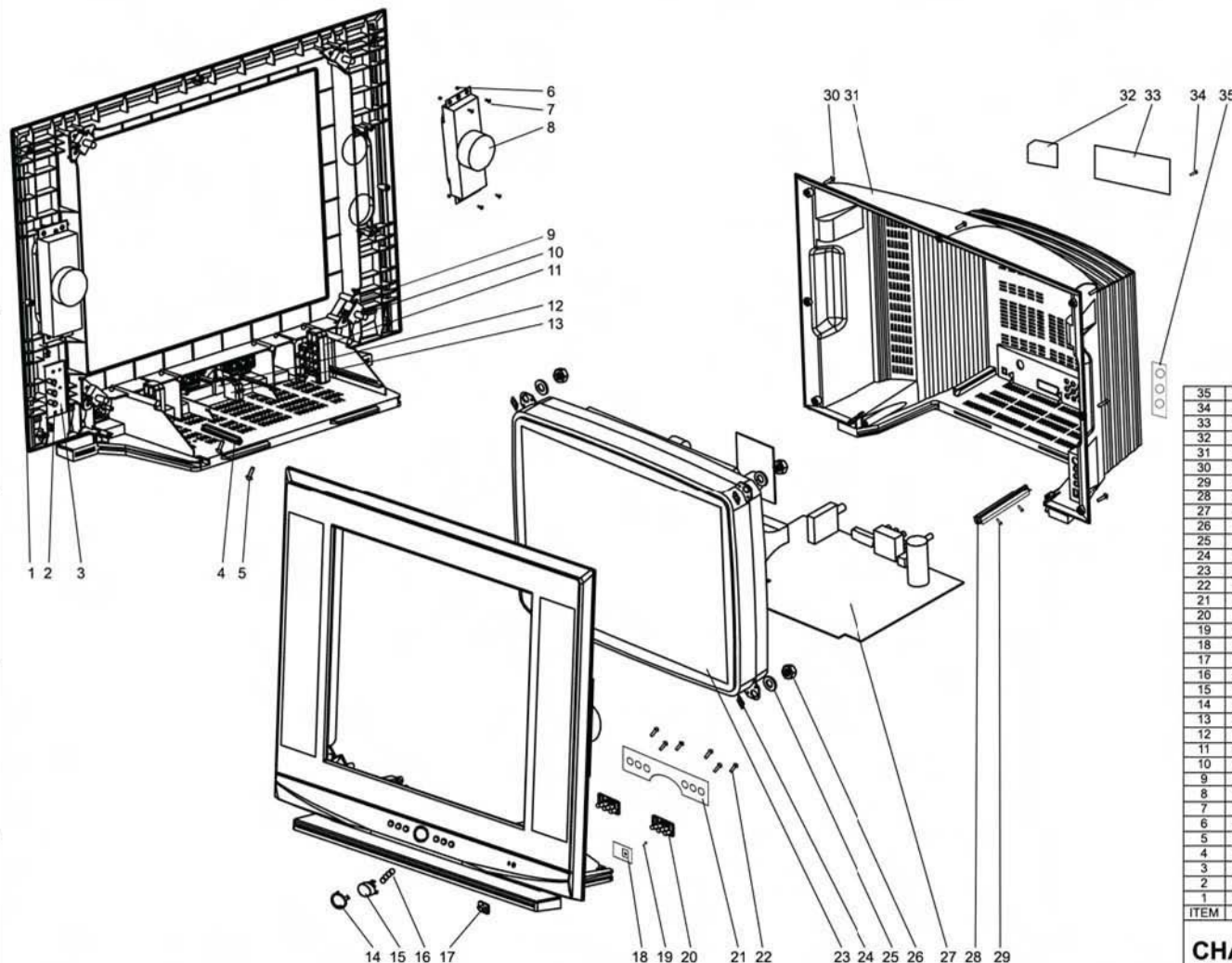
1. Input a crosshatch signal.
2. Using 4-pole convergence magnets, overlap the red and blue lines in the center of the screen (Fig. 1) and turn them to magenta (red/blue).
3. Using 6-pole convergence magnets, overlap the magenta (red/blue) and green lines in the center of the screen and turn them to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

DYNAMIC CONVERGENCE ADJUSTMENT

1. Move the deflection yoke up and down and overlap lines in the periphery. (Fig. 2)
2. Move the deflection yoke left to right and overlap the lines in the periphery. (Fig. 3)
3. Repeat 1 and 2 above, and make the best convergence.

After adjustment, fix the wedge at the original position.
Fasten the retainer screw of the deflection yoke.
Fix the 6 magnets with glue.





35	Side AV PVC Label	1	
34	Screw - Φ F3 $\times$ 12KB	4	
33	Rear AV PVC Label	1	
32	Rating Label	1	
31	Rear Cabinet	1	
30	Screw - Φ B4 $\times$ 12BTX	9	
29	Screw - Φ 4 $\times$ 8BT	2	
28	Card Notch (Rear)	1	
27	Chassis	1	
26	Metal Nut	4	
25	Metal Ring	4	
24	CRT Mounting Cushion	4	
23	Slim CRT Tube	1	
22	Screw - Φ 3 $\times$ 10PuA	6	
21	Function Knob PCB	1	
20	Function Knob	2	
19	Screw - Φ 3 $\times$ 10PA	1	
18	IR Receiver PCB	1	
17	IR Transparent Cover	1	
16	Spring	1	
15	Power Knob	1	
14	Power Knob Ring	1	
13	Power On/Off Switch	1	
12	Screw - Φ 3 $\times$ 12PuA	2	
11	CRT Support	2	
10	CRT Bracket	4	
9	Screw	12	
8	Speaker	2	
7	Screw - Φ 3 $\times$ 12PuA	8	
6	Speaker Rubber Cushion	8	
5	Screw - Φ 4 $\times$ 8BT	2	
4	Card Notch (Front)	1	
3	Side AV Jack PCB	1	
2	Screw - Φ 3 $\times$ 10PuA	2	
1	Front Cabinet	1	
ITEM	NAME	QTY	REMARK

CHASSIS : iVPH-002/21
MODEL NO : 21CTU93BC

