



SERVICE MANUAL

CTM6845

68CM CTV

Brand	Factory	Model	Serial no. from	To
TEAC	Syber	CT-M6845	3600001-49	3603120-49
TEAC	Syber	CT-M6845	3603121-49	3606084-49
TEAC	Syber	CT-M6845	3606085-49	3610062-49
TEAC	Syber	CT-M6845	3800001-49	3802964-49
TEAC	Syber	CT-M6845	3Y00001-49	3Y02340-49
TEAC	Haier	CT-M6845	3Z00001-49	3Z02592-49
TEAC	Haier	CT-M6845	4200001-49	4202340-49

* 2 types of chassis please check serial number of unit to determine which CCT to use.

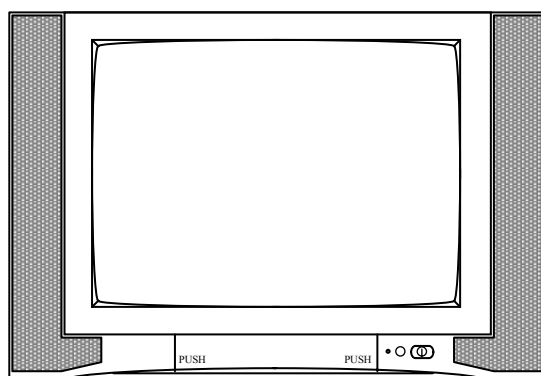
SECTION 1 – HAIER CHASSIS

SECTION 2 – SYBER CHASSIS

UOC TDA9373 SERIES

SERVICE MANUAL

COLOUR TELEVISION



CT-M6845

SECTION 1:

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1. SAFETY

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 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. manufacturer's replacement components.
10. Isolation Check

PRECAUTIONS

(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 periode 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.).

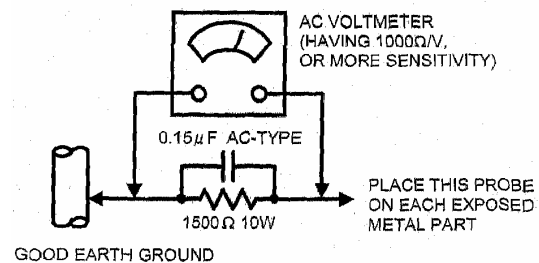
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method

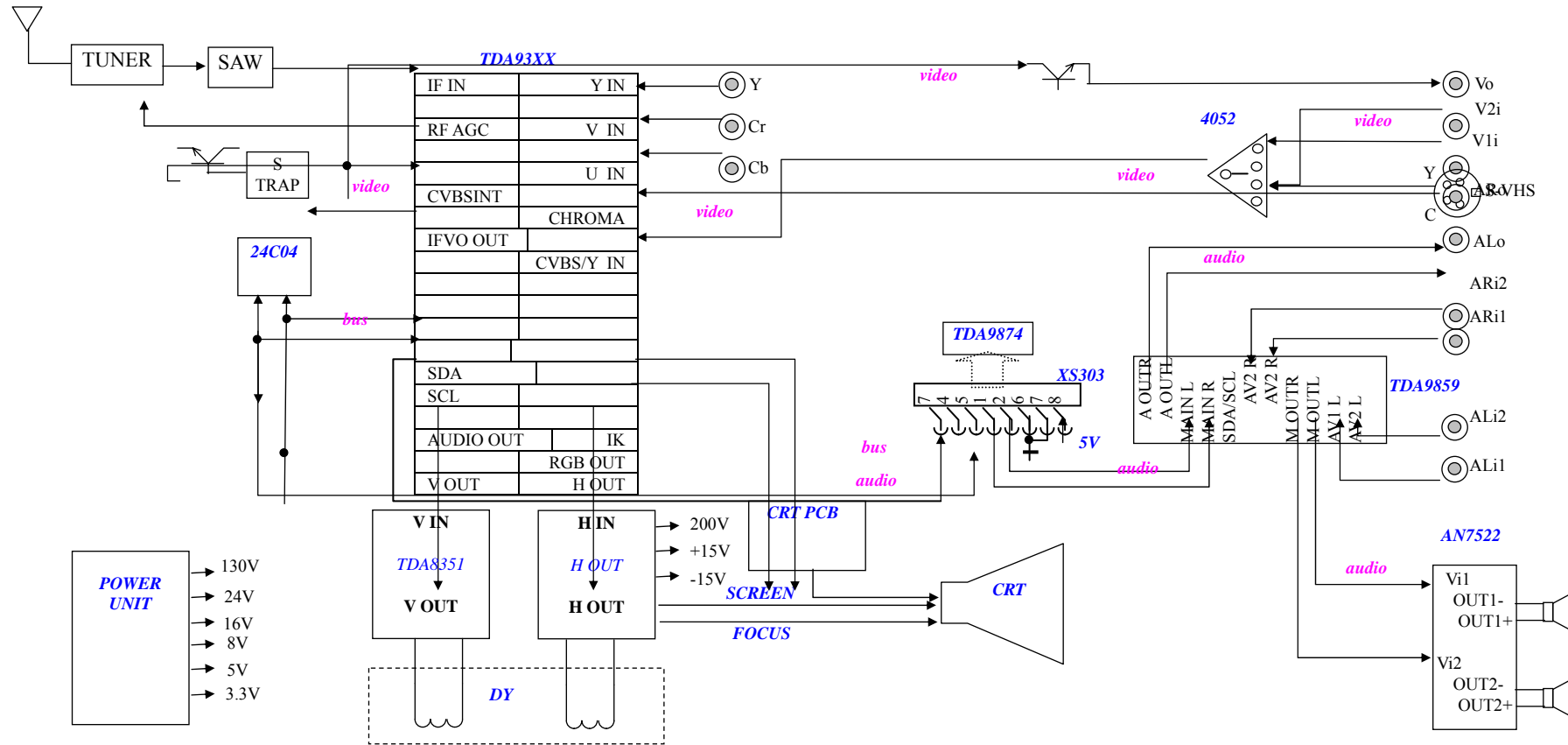
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500 10W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part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



2. TV Block diagram

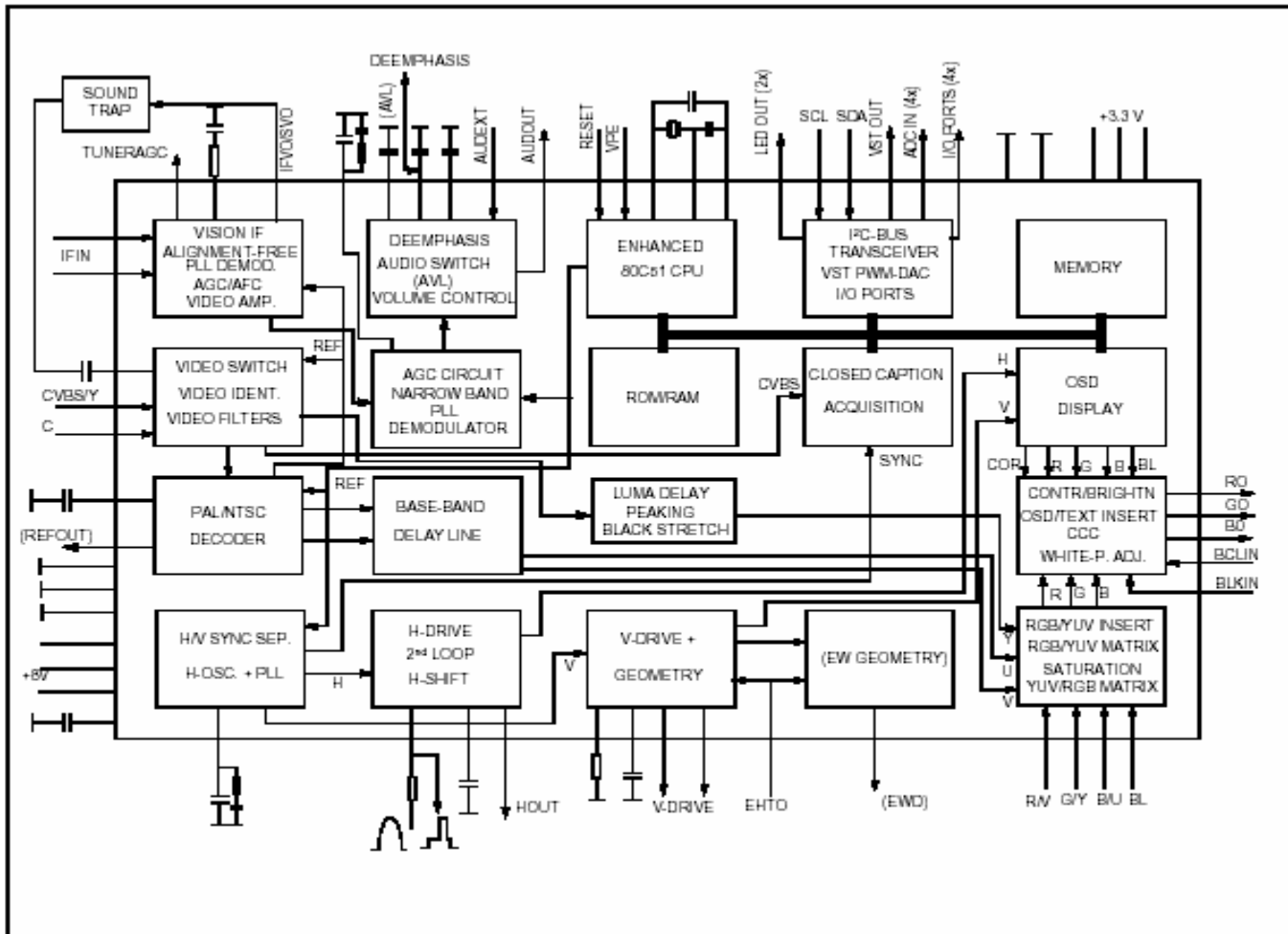


PHILIPS UOC FUNCTIONAL DIFFERENCE BETWEEN THE VARIOUS IC VERSIONS

IC VERSION	9350	9351	9352	9353	9360	9361	9362	9363	9364	9365	9366	9367	9380	9381	9382	9383	9384	9385	9386	9387	9388	9389	9370	9373	9375	9377	9378
TV rang	90	90	90	110	90	90	110	110	110	110	90	90	90	90	90	110	110	110	110	90	110	110	90	110	110	90	110
Mono inter-carrier multi-standard Sound demodulator (4.5-6.5MHz) With switch able centre frequency	√	√		√	√	√	√	√					√	√						√	√		√	√		√	√
Audio switch	√	√		√	√	√	√	√					√	√						√	√		√	√		√	√

Automatic volume leveling	√	√	√		√	√					√	√	√	√	√					√			√			√		
Automatic volume leveling or Subcarrier output (for comb filter applications)				√			√	√	√	√						√	√	√	√		√	√		√			√	
QSS sound IF amplifier with Separate input and AGC circuit			√					√	√	√	√			√			√	√		√			√					
AM sound demodulator without Extra reference circuit									√									√										
PAL decoder	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√				√	√	√			
SECAM decoder		√	√	√		√		√		√		√		√	√		√		√									
NTSC decoder	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Horizontal geometry(E-W)				√			√	√	√	√						√	√	√	√		√	√		√	√		√	
Horizontal and vertical zoom				√			√	√	√	√						√	√	√	√		√	√		√	√		√	
ROM size	32-64k	32-64k	32-64k	32-64k	64-128	64-128	64-128	64-128	64-128	64-128	64-128	64-128	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	32-55k	32-55k	32-55k	32-55k	32-55k	
User RAM size	1k	1k	1k	1k	2k	2k	2k	2k	2k	2k	2k	2k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	2.25	2.25	2.25	2.25	2.25
Teletext	1 p	1p	1p	1p	10p	10p	10p	10p	10p	10p	10p	10p																
Closed captioning	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Block diagram TDA93xX PS/N2 series with mono intercarrier sound demodulator



BLOCK DIAGRAM

3. 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:**
 - 1) Press "QV" key holding about 4 second and then press "MENU1" key on the Remote control unit.
Or Press "TEST" key on the Remote control unit for factory used.
 - 2) The "TEST" will be displayed on the screen.
 - 3) Press digital key, (Mkey) and corresponding on-screen display will be appeared.
Some time "PASSWORD" on-screen display will be appeared, you need to input 828.
 - 4) 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.
 - 5) Press "STANDBY" key again and return to the normal screen.

4. 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 ±1.0V for 21 inch hereinafter,

130 ±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

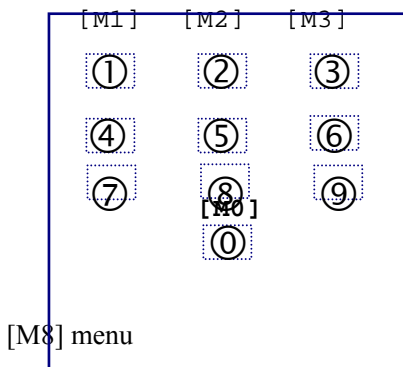
To enter BUS control mode, Press "TEST" key on the Remote control unit of factory.

Press "0" to "9" key, (Mkey) and corresponding on-screen display will be appeared.

On TV screen "TEST" will be indicated, this means entered bus control mode.

And press following key, each function will be available.

Remote Hand Unit keys



MENU8	
V	SLOPE
31	
V	SHIFT
31	
V	AMP
31	
V	SCOR
.	

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.

[M7] 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.

[M9] 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.

ICs Default Settings

1 . TDA9381(1.0) EK cord=NTDA9381----NG

MI	Items	Variable	Preset	MI	Items	Variable	Preset	
M0	AVL	ON/OFF	ON	M4	SUBCON	0~63	63	
	FSL	ON/OFF	ON		SUBCOL	0~63	63	
	FMWS	ON/OFF	OFF		SUBSHP	0~63	63	
	FFI	ON/OFF	OFF		SUBTINT	0~15	15	
	OSO	ON/OFF	ON		YDLY PAL	0~15	12	
	FCO	ON/OFF	OFF		YDLY NTSC	0~15	12	
	WOOFER	ON/OFF	OFF		YDLY SEC	0~15	12	
	DUAL OUT	0~1	0		YDLY AV	0~15	12	
	Volume mode	0~1	1		UOC VOL	ON/OFF	Off	
					CATHODE	0~15	15	
M1	BAND	0~2	2		SC BRI	0~63	10	
	AV CFG*	0~8	3					
	NTSC MX		USA	M5	OSD VPOS	0~63	53	
	VIDEO OUT		CVBS		OSD HPOS	0~59	15	
	PIN5		NTSC		WIDE	0~63	15	
	PRO	0~3	0		ZOOM	0~63	59	
					NENU TITLE	0~6	3	
M2	VISION IF		38.9M		E2PROM ADDRESS	0~33		
	DK	ON/OFF	OFF		E2PROM VALUE	0~95		
	BG	ON/OFF	ON		E2PROM WRITE			
	I	ON/OFF	OFF					
	M	ON/OFF	OFF	M8	FREQUENCY		50HZ	60HZ
	SIF PREFER		BG		VSLOPE	0~63	31	31
	AUTO SOUND	ON/OFF	ON		VSHIFT	0~63	31	31
					VAMP	0~63	31	31
M3	START ON	0~2	0		VSCOR	0~63	31	31
	ENGLISH	ON/OFF	ON		HSHIFT	0~63	31	31

	ARABIC	ON/OFF	OFF					
	PERSIAN	ON/OFF	OFF	M9	BT	0~63	48	
	TURKISH	ON/OFF	OFF		CT	0~63	48	
	FRANCE	ON/OFF	OFF		SC		OFF	
	RUSSIA	ON/OFF	OFF		RB	0~63	32	
					GB	0~63	32	
M6	SHIPMODE				RD	0~63	32	
	SEARCH SPEED	0~3	0		GD	0~63	32	
M7	AGC-TOP	0~63	25		BD	0~63	32	
	AGC-SPEED	0~3	2		SB	0~63	40	

2. TDA9361(1.1) EK cord=NTDA9361-----NF

MI	Items	Variable	Preset	MI	Items	Variable	Preset	
M0	AVL	ON/OFF	ON	M4	SUBCON	0~63	63	
	FSL	ON/OFF	ON		SUBCOL	0~63	63	
	FMWS	ON/OFF	OFF		SUBSHP	0~63	63	
	FFI	ON/OFF	OFF		SUBTINT	0~15	15	
	OSO	ON/OFF	ON		YDLY PAL	0~15	12	
	FCO	ON/OFF	OFF		YDLY NTSC	0~15	12	
	WOOFER	ON/OFF	OFF		YDLY SEC	0~15	12	
	DUAL OUT	0~1	0		YDLY AV	0~15	12	
	Volume mode	0~1	1		UOC VOL	ON/OFF	Off	
					CATHODE	0~15	15	
M1	BAND	0~2	2		SC BRI	0~63	10	
	AV CFG*	0~8	3					
	NTSC MX		USA	M6	LOGO	ON/OFF	ON	
	VIDEO OUT		CVBS		LOGO COLUR	0~7	0	
	PIN5		NTSC		LOGO POSITION	0~11	0	
	PRO	0~3	0		LOGO CHAR			
					SHIPMODE			
M2	VISION IF		38.9M		SEARCH SPEED	0~3	0	
	DK	ON/OFF	OFF					
	BG	ON/OFF	ON	M7	AGC-TOP	0~63	25	
	I	ON/OFF	OFF		AGC-SPEED	0~3	2	
	M	ON/OFF	OFF					
	SIF PREFER		BG	M8	FREQUENCY		50HZ	60HZ
	AUTO SOUND	ON/OFF	ON		VSLOPE	0~63	31	31
					VSHIFT	0~63	31	31
M3	START ON	0~2	0		VAMP	0~63	31	31
	ENGLISH	ON/OFF	ON		VSCOR	0~63	31	31
	ARABIC	ON/OFF	OFF		HSHIFT	0~63	31	31
	PERSIAN	ON/OFF	OFF					
	TURKISH	ON/OFF	OFF	M9	BT	0~63	48	
	FRANCE	ON/OFF	OFF		CT	0~63	48	
	RUSSIA	ON/OFF	OFF		SC		OFF	
	Spanish bit	0~1	0		RB	0~63	32	
	TXT DEF	0~3	0		GB	0~63	32	
					RD	0~63	32	
M5	OSD VPOS	0~63	53		GD	0~63	32	
	OSD HPOS	0~59	15		BD	0~63	32	
	WIDE	0~63	15		SB	0~63	40	
	ZOOM	0~63	59					
	NENU TITLE	0~6	3					

5. ICs functional description

UOC TDA93XX

SYMBOL	PIN	DESCRIPTION
STAND BY output.	1	In STAND BY mode, high level (Power OFF). For Power ON this pin will be reduced to low.
SCL	2	I ² C-bus clock line
SDA	3	I ² C-bus data line
TUNING	4	tuning Voltage (Vt) PWM output
P3.0/NTSC SW	5	Port 3.0 or NTSC output/SCART SW input, Forced NTSC selection, Low-level output, otherwise High output.
KEY	6	Control keys input *3
VOL	7	Sound Volume control PWM output
MUTE	8	Sound mute output
VSSC/P	9	Digit ground for μ -controller core and periphery
BAND1	10	Tuner Band selection output
BAND2	11	Tuner Band selection output
VSSA	12	Analog ground of teletext decoder and digital ground of TV-processor
SECPLL	13	SECAM PLL decoupling
VP2	14	2 nd supply voltage TV-processor(+8V)
DECDIG	15	decoupling digital supply of TV-processor
PH2LF	16	Phase-2 filter
PH1LF	17	Phase-1 filter
GND3	18	Ground 3 for TV-processor
DECBG	19	Band gap decoupling
AVL/EWD	20	Automatic volume leveling /EAST-WEST drive output
VDRB	21	Vertical drive B output
VDRA	22	Vertical drive A output
IFIN1	23	IF input 1
IFIN2	24	IF input 2
IREF	25	Reference current input
VSC	26	Vertical sawtooth capacitor
TUNER AGC	27	Tuner AGC output
AUDEEM/SIFIN1 *1	28	Audio deemphasis or SIF input
DECSDEM/SIFIN2	29	decoupling sound demodulator or SIF input 2
GND2	30	ground 2 for TV processor
SNDPLL/SIFAGC *1	31	narrow band PLL filter or AGC sound IF
AVL/SNDIF/REF0/ AMOUT *1	32	Automatic Volume Levelling / sound IF input / subcarrier reference output / audio deemphasis
HOUT	33	horizontal output
FBISO	34	flyback input/sandcastle output

AUDEXT/QSSO/ AMOUT *1	35	external audio output / QSS intercarrier out
EHTO	36	EHT/overvoltage protection input
PLL IF	37	IF-PLL loop filter
IFVO/SVO	38	IF video output / selected CVBS output
VP1	39	supply voltage TV processor
CVBS INT	40	internal CVBS input
GND1	41	ground for TV processor
CVBS/Y	42	CVBS/Y input
CHROMA	43	C input
AUDOUT/AMOUT *1	44	audio output /AM audio output (volume controlled)
INSSW2	45	2 nd RGB / YUV insertion input
R2/VIN	46	2 nd R input / V (R-Y) input / Pr input

G2/YIN	47	2nd G input / Y input
B2/UIIN	48	2nd B input / U (B-Y) input / Pb input
BCLIN	49	beam current limiter input
BLKIN	50	black current input / V-guard input
RO	51	Red output
GO	52	Green output
BO	53	Blue output
VDDA	54	analog supply of Closed Caption decoder and digital supply of TV-processor (3.3 V)
VPE	55	OTP Programming Voltage
VDDC	56	digital supply to core (3.3 V)
OSCGND	57	oscillator ground supply
XTALIN	58	crystal oscillator input
XTALOUT	59	crystal oscillator output
RESET	60	reset
VDDP	61	digital supply to periphery (+3.3 V)
P1.0/INT1	62	TV/AV (AV1) / AV2 /S-VHS mode Output.
P1.1/T0	63	TV/AV (AV1) / AV2 /S-VHS mode Output.
P1.2/INT0	64	Remote control signal input.

Note

1. The function of pin 20, 28, 29, 31, 32, 35 and 44 is dependent on the IC version (mono intercarrier FM demodulator /QSS IF amplifier and East-West output or not) and on some software control bits. The valid combinations are given in table 1.
2. the vertical guard function can be controlled via pin 49 or pin 50. the selection is made by means of the IVG bit in subaddress 2BH.

TABLE 1

IC version	FM-PLL version				QSS version					
	N		Y		N			Y		
East-West Y/N	N		Y		N			Y		
CMB1/CMB0 bits	00	01/10/11	00	01/10/11	00	01/10/11		00	01/10/11	
AM bits	-	-	-	-	-	0	1	-	0	1
Pin 20	AVL		EWD		AVL			EWD		
Pin 28	AUDEEM				SIFIN1					
Pin 29	DECSDEM				SIFIN2					
Pin 31	SNDPLL				SIFAGC					
Pin 32	SNDIF(1)	REFO(2)	AVL/SNDIF(1)	REFO(2)	AMOUT	REFO(2)		AMOUT	REFO(2)	
Pin 35	AUDEXT				AUDEXT	QSSO	AMOUT	AUDEXT	QSSO	AMOUT
Pin 44	AUDOUT				Controlled AM or audio out					

Note

1. When additional (external) selectivity is required for FM-PLL system pin 32 can be used as sound IF input. This function is selected by means of SIF bit in subaddress 28H.
2. the reference output signal is only available for the CMB1/CMB0 setting of 0/1. for the other settings this pin is a switch output(see also 5 table 67).

Pin No. 6: Control keys input (Max. Limit voltage)

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

AN7522/7523

Function : audio output

Symbol	PIN	Function	Symbol	PIN	Function
Vcc	1	Power supply	GND	7	ground
Out 1 (+)	2	Ch 1 output (+)	In 2	8	Ch 2 input
GND(out 1)	3	Ch 1Ground	VOL	9	Volume Control
Out 1 (-)	4	Ch 1 output (-)	Out 2 (-)	10	Ch 2 output (-)
Standby	5	Mute input	GND(out 2)	11	Ch 2 Ground
In 1	6	Ch 1 input	Out 2 (+)	12	Ch 2 output (+)

Note: AN7523 is pin 1 to 9, AN7522 is pin 1 to 12.

LA78040/78045

Function : vertical output

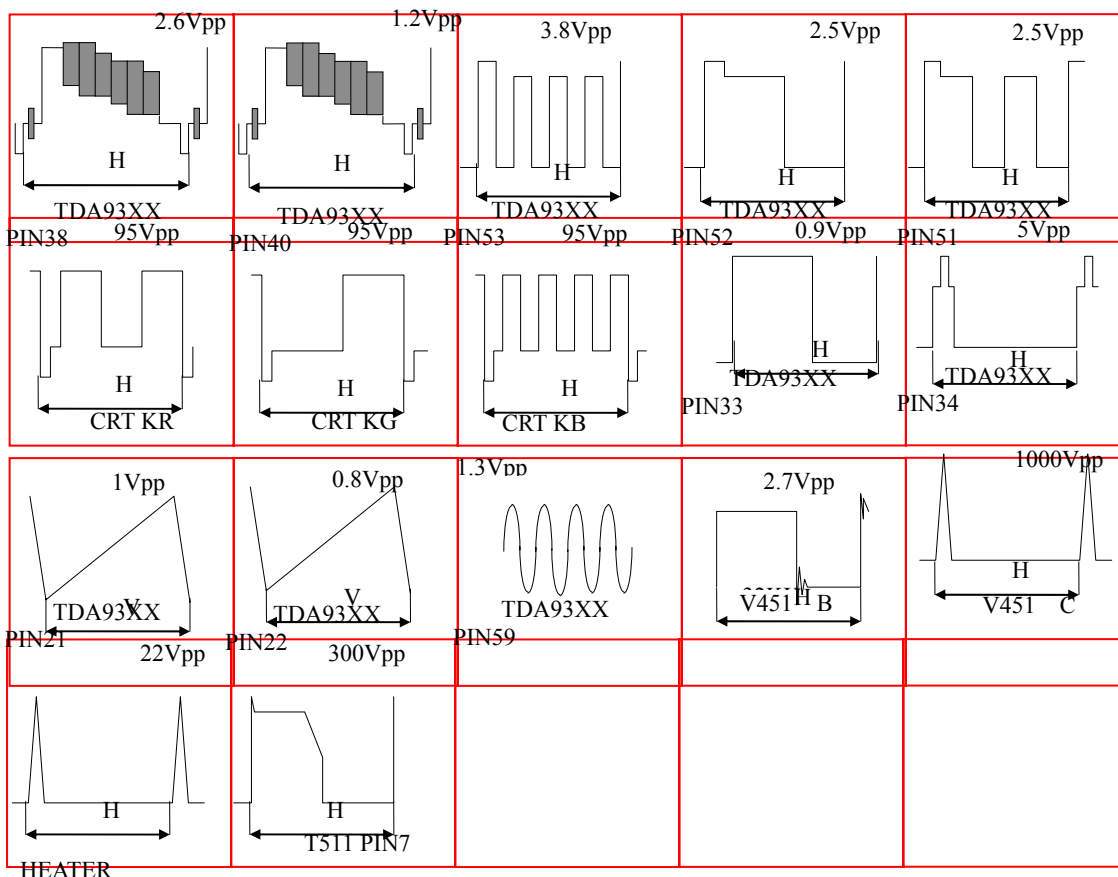
Symbol	PIN	Function	Symbol	PIN	Function
INV IN	1	Input	V OUT	5	Vertical output
VCC1	2	Power	VCC2	6	Output power supply
PUMP UP	3	Pump up power	NON INV IN	7	Negative feedback
GND	4	Ground			

TDA9859

Function : Universal Sound processor

Symbol	Pin	Function	Symbol	Pin	Function
AV1L	1	AV1 Audio Left input	AV1R	32	AV1 Audio input Right
P1	2	Not used	P2	31	Not used
MAINL	3	Main Audio Left input	AV2R	30	AV2 Audio input Right
CSMO	4	Smoothing Capacitor	CPS1	29	Pseudo stereo Cap. 1
MAINR	5	Main Audio Right input	AV2L	28	AV2 Audio input Left
VP	6	Power Supply	CPS2	27	Pseudo stereo Cap. 2
OUT R	7	Right Output	OUT L	26	Left Output
GND	8	Ground	MAD	25	Not used (GND)
LINOR	9	Line Output Right	LINOL	24	Line Output Left
LINIR	10	Line Input Right	LINIL	23	Line Input Left
CBR1	11	Bass Cap. Right 1	CBL1	22	Bass Cap. Left 1
CBR2	12	Bass Cap. Right 2	CBL2	21	Bass Cap. Left 2
Headphone R	13	Headphone-R output	Headphone L	20	Headphone-L output
CTR	14	Treble Cap. Right	CTL	19	Treble Cap. Left
MAINOR	15	Main Audio out Right	MAINOL	18	Main Audio out Left
SCL	16	I2C Bus clock	SDA	17	I2C Bus data

6. Test point Waveforms



7. IC voltages

TDA93XX

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	2.8	3.8	3.6	3.3	3.5	3.5	0.1	0.1	0	5.4	0.1	0	2.3	8	5	3
PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
V	4	0	4	0.9	0.7	0.8	1.9	1.9	3.9	3.8	1.6	3.2	3.4	0	2.4	0.1
PIN	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
V	0.6	0.5	3.7	1.7	2.4	3.1	8	3.8	0	3.4	1.5	3.6	2.3	2.6	2.6	2.6
PIN	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
V	2.3	7.2	2.7	2.7	2.7	3.5	0	3.5	0.1	1.7	1.8	0	3.5	0.1	0.1	5

LA76040

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

AN 7522

PIN	1	2	3	4	5	6	7	8	9	10	11	12	
V	12	7	0	7	3.3	1.4	0	1.4	0	7	0	7	

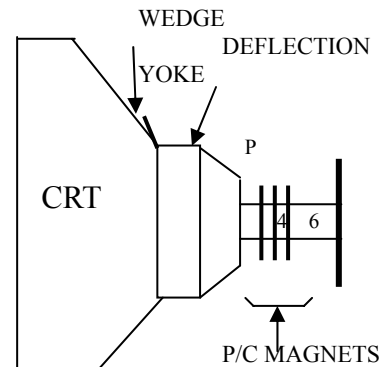
TDA9859

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	4.0	0	4.0	8.0	4.0	8.0	4.0	0	4.0	4.0	4.0	4.0	4.0	4.0
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28
V	4.0	4.5	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	4.0	4.0
PIN	29	30	31	32										
V	4.0	4.0	0	4.0										

8. PURITY / CONVERGENCE ADJUSTMENT

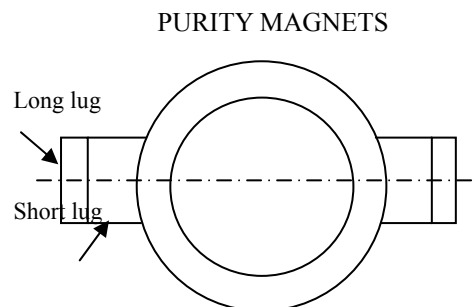
PURITY ADJUSTMENT

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

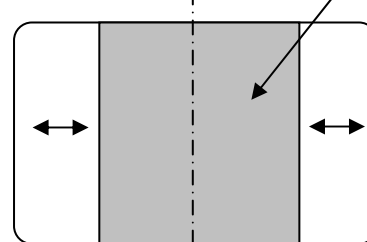


Bring the long lug over the short lug and position them horizontally.

Fig. 2

(FRONT VIEW)

GREEN RASTER

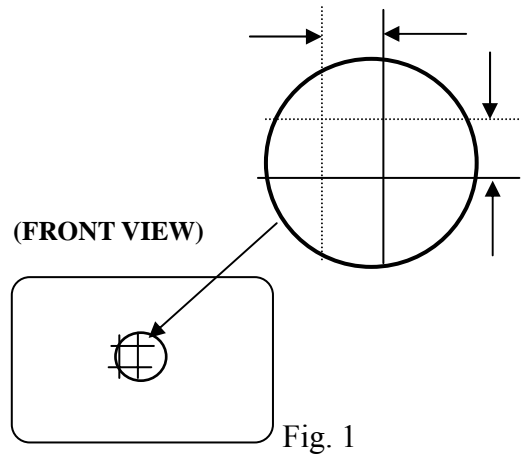


CENTER

Fig. 3

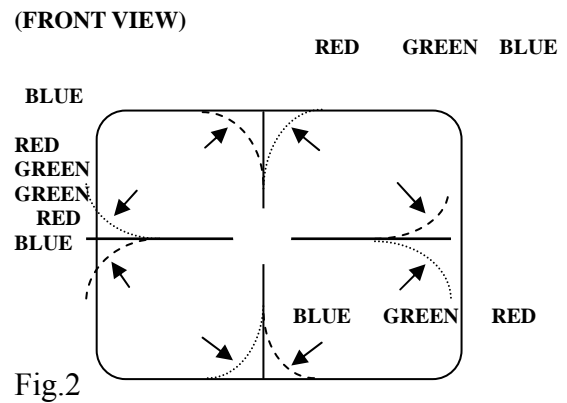
STATIC CONVERGENCE ADJUSTMENT

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.

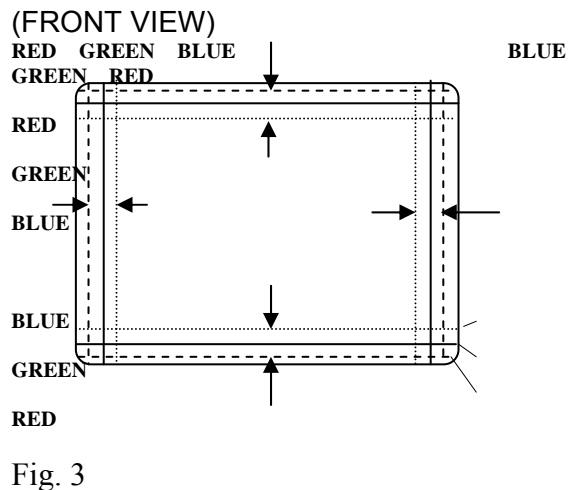


DYNAMIC CONVERGENCE ADJUSTMENT

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.



9. List of Parts

NAME	TYPE	Q'TY	REMARK
CU-2988 (AUSTRALIA)			
PC BOARD MODULE		1	
CRT BOARD MODULE		1	
KEY AND REMOTE CONTROL BOARD MODULE			
PRINTED CIRCUIT BOARD			
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
CARBON FILM RESISTOR	RT13-1/6W-470Ω-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-560Ω-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1.2KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1.8KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-390Ω-J-T52	1	
LED	BT205-L	1	
INRARED RECEIVER	HS0038A IMPORTATION	1	
WIRE	WIRE	1	
FRONT AV MODULE			
PRINTED CIRCUIT BOARD	FRONT AV BOARD	1	
AV SOCKET	AV3-8.35-6AK	1	
WIRE	WIRE	1	
FRONT FRAME MODULE	BJK4076----Q	1	
FRONT FRAME ASSEMBLY	MTAA4086AA--Q	1	
FRONT FRAME (ABS)	MTAA4098AA--Q	1	
LIGHT CONDUCTION COLUMN	MTAH4057AA--Q	1	
BOLT	SJ2825-87	ST3X8F	1
FUNCTION KEY	MTAH4055AA--Q		1
BOLT	SJ2825-87	ST3X8F	2
POWER BUTTON	MTAH4056AA--Q		1
SPRING	MTBH4090BC--Q		1
CRT TRESTLE	MTAH4058AA--Q		2
CRT BRACKET			4
BOLT	SJ2824-87	ST4X16F	20
SPEAKER	YDT0813-10W-8Ω-01		2
BOLT	SJ2824-87	ST4X12F	8
METAL SCUTCHEON	Haier 49mm	ARGENTINE	1
WIRE	WIRE		1
BACK COVER MODULE	BJH4075----Q		1
BACK COVER ASSEMBLY	MTAA4078AB--Q		1
BACK COVER	MTAA4092AB--Q		1

INTEGER MATERIEL MODULE	BJZ4078-----Q	1
RUBBER TRAY	H=3mm	4
DEGUASSING COIL TIE	MTAJ1001AG--Q	4
NUT	M6 ASSEMBLED NUT	4
101 HIGHVOLTAGE CLAMP	TEM101	1
411 CLAMPER	MTAJ3000AA--Q	2
POWER BUTTON CLAMPER	MTAH4060AA--Q	1
TERMINAL BOARD	MTAH4059AC--Q	1
POTHOOK	MTAH4059AA--Q	1
BOLT	SJ2824-87 ST4X12F	2
BOLT	SJ2825-87 ST3X12F	2
BOLT	SJ2824-87 ST4X16F	10
BOLT	SJ2824-87 ST4X16F	6
PAD (TOP)	MTEA4058----Q	1
PAD (BOTTOM)	MTEA4059----Q	1
WIRE	60mm	1
CRT	M68LWF188X50	1
DEGUASSING COIL		1
GROUNDING WIRE		1
GAUCHE CONNECTING WIRE		1
BRACKET MODULE	BXY4069-----Q	
BRACKET	MTAC4068AA--Q	1
BOLT	SJ2825-87 ST3X10F	
FBT TRANSFORMER TRESTLE	MTAC4072AC--Q	1
BOLT	SJ2824-87 ST4X12F	2
POWER CABLE PRE-WORKING MODULE		
POWER BUTTON CAP	MTAB0014AA--Q	1
POWER CABLE		1
POWER SWITCH		1
POWER TRANSMITTING WIRE		1
PACKING ARK MODULE		1
POWER CABLE PLASTIC BAG		1
WIRE	60mm	1
OPERATION INTRODUCTIONS (ENGLISH)		1
TEAC PROPAGANDIZE PAGE		1
POP STATIC FILM (ENGLISH)		1
BATTERY	5#	2
REMOTE CONTROL		1
OPERATION INTRODUCTIONS PLASTIC BAG		1
29"90 SERIES INTEGER PLASTIC BAG		1
PACKING ARK		1
ENCASEMENT NAIL		20
BACK COVER LABEL		1
TRANSPORT SCUTCHEON		2

Mainboard element list

r01n	r14	r02	ra
TF-0090----1J	1		T451
RCD152K-NACNH	3	1/2W 1.5K	R918 R928 R938
RDB100J-NAATD	3	1/6W 10	R312 R801 R871
RDB101J-NAATD	8	1/6W 100	R301 R302 R363 R365 R366 R381 R382 R383
	8		R401 R402 R452 R723 R724 R743 R815 R824
	2		R861 R862
RDB102J-NAATD	8	1/6W 1K	R128 R129 R369 R460 R464 R481 R531 R541
	8		R544 R712 R734 R802 R803 R807 R816 R818
	2		R825 R827
RDB103J-NAATD	8	1/6W 10K	R126 R127 R163 R380 R395 R396 R461 R543
	8		R548 R551 R704 R705 R706 R707 R709 R816A
	8		R818AR825AR827AR851AR852AR912 R922 R932
RDB104J-NAATD	5	1/6W 100K	R441 R444 R483 R802AR803A
RDB122J-NAATD	3	1/6W 1.2K	R305 R560 R713
RDB151J-NAATD	3	1/6W 150	R815AR848 R852
RDB152J-NAATD	2	1/6W 1.5K	R397 R732
RDB153J-NAATD	1	1/6W 15K	R331
RDB154J-NAATD	1	1/6W 150K	R318
RDB181J-NAATD	1	1/6W 180	R353
RDB182J-NAATD	3	1/6W 1.8K	R403 R405 R714
RDB183J-NAATD	1	1/6W 18K	R162
RDB220J-NAATD	3	1/6W 22	R914 R924 R934
RDB221J-NAATD	5	1/6W 220	R311 R442 R917 R927 R937
RDB222J-NAATD	6	1/6W 2.2K	R351 R371 R451 R540 R701AR804
RDB223J-NAATD	2	1/6W 22K	R384 R455
RDB242J-NAATD	1	1/6W 2.4K	R515
RDB272J-NAATD	2	1/6W 2.7K	R321 R512
RDB273J-NAATD	2	1/6W 27K	R484 R487
RDB274J-NAATD	1	1/6W 270K	R174
RDB301J-NAATD	3	1/6W 300	R913 R923 R933
RDB330J-NAATD	2	1/6W 33	R398 R806
RDB331J-NAATD	3	1/6W 330	R916 R926 R936
RDB332J-NAATD	8	1/6W 3.3K	R702 R721 R722 R728 R735 R736 R737 R741
	1		R742
RDB333J-NAATD	5	1/6W 33K	R171 R175 R317 R385 R434
RDB391J-NAATD	2	1/6W 390	R322 R775
RDB392J-NAATD	1	1/6W 3.9K	R462
RDB470J-NAATD	5	1/6W 47	R368 R708 R911 R921 R931
RDB471J-NAATD	2	1/6W 470	R308 R710
RDB472J-NAATD	7	1/6W 4.7K	R131 R133 R154 R158 R306 R443 R733

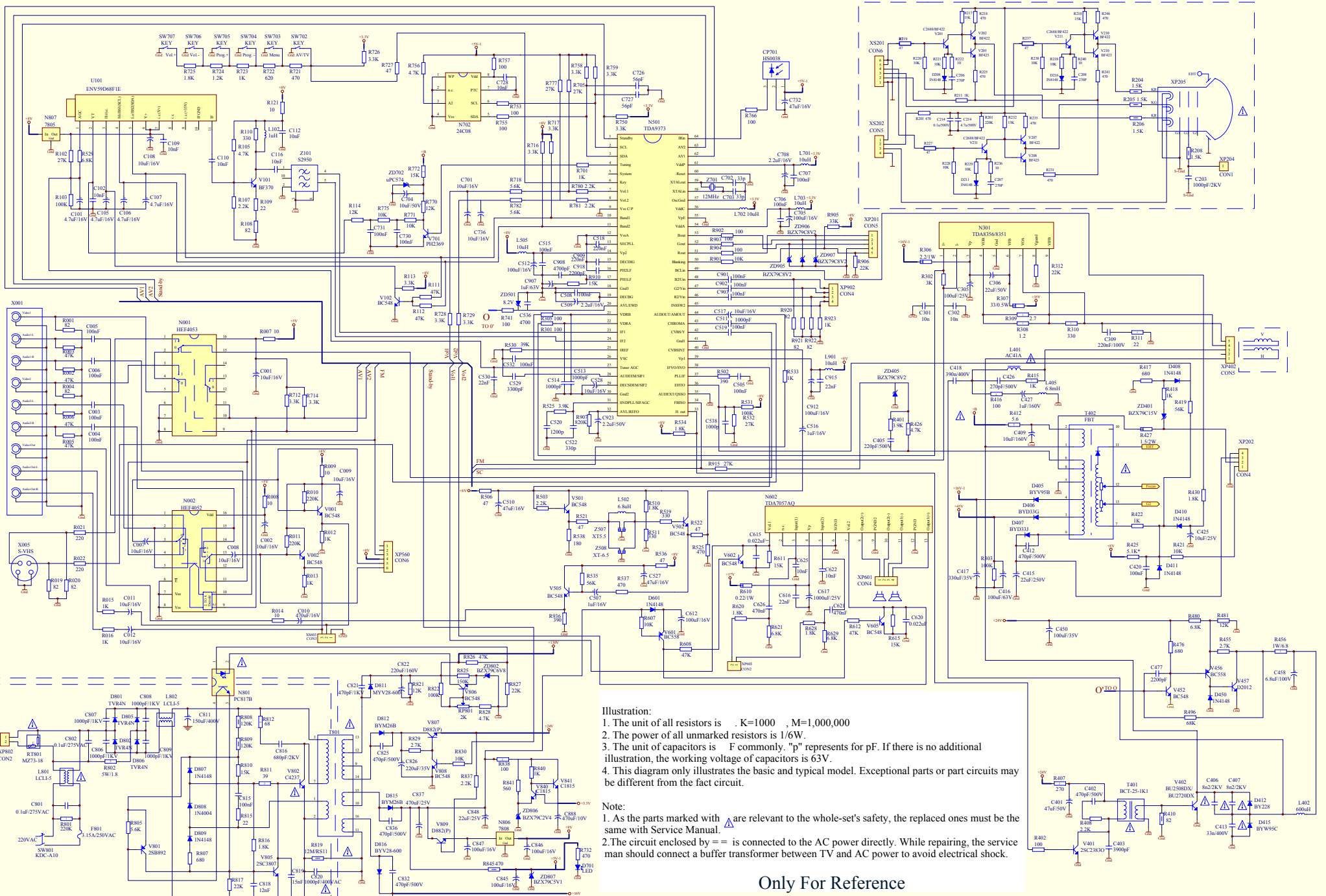
RDB473J-NAATD	3	1/6W 47K	R172	R732AR745					
RDB560J-NAATD	2	1/6W 56	R354	R355					
RDB561J-NAATD	1	1/6W 560	R711						
RDB562J-NAATD	2	1/6W 5.6K	R370	R701					
RDB564J-NAATD	1	1/6W 560K	R465						
RDB680J-NAATD	1	1/6W 68	R304						
RDB681J-NAATD	3	1/6W 680	R316	R463	R482				
RDB683J-NAATD	1	1/6W 68K	R173						
RDB750J-NAATD	1	1/6W 75	R805						
RDB820J-NAATD	1	1/6W 82	R313						
RDB822J-NAATD	3	1/6W 8.2K	R153AR157AR562						
RDC101J-NABTD	1	1/4W 100	R486						
RDC103J-NABTD	1	1/4W 10K	R485						
RDC1R0J-NABTD	1	1/4W 1.0	R404						
RDC222J-NABTD	1	1/4W 2.2K	R161						
RDC270J-NABTD	1	1/4W 27	R561						
RDC2R7J-NABTD	1	1/4W 2.7	R468						
RDC334J-NABTD	1	1/4W 330K	R942						
RDC513J-NABTD	2	1/4W 51K	R539	R539A					
RDC8R2J-NABTD	1	1/4W 8.2	R513						
RDD102J-NACTD	1	1/2W 1K	R453						
RDD683J-NACTD	2	1/2W 68K	R507	R508					
RFD1R0J4ACCNF	1	1/2W 1.0	R473B						
RFER27J5ACDNF	3	1W 0.27	R555	R565	R566				
RFER47J5ACDNF	3	1W 0.47	R165	R470	R472				
RGDX246K-03NZ	1	1/2W 24M	R519						
RJB393F-NAATD	1	1/6W 39K	R411						
RSE102J4ACCND	1	1W 1K	R466						
RSE1R5J4DCCND	1	1W 1.5	R406						
RSE1R8J4DCCND	1	1W 1.8	R408						
RSE220J5ACCND	1	1W 22	R300A						
RSF101J5ACDND	1	2W 100	R407						
RSF103J5ACDND	5	2W 10K	R467	R703	R915	R925	R935		
RSF223J7ACDND	1	2W 22K	R556						
RSF271J7ACDND	2	2W 270	R454	R546					
RSF2R0J7ACDND	1	2W 2.0	R480						
RSF2R2J5ACDND	1	2W 2.2	R445						
RSF560J5ACDND	1	2W 56	R530						
RSF5R6J5ACDND	1	2W 5.6	R941						
RSG473J7ACEND	1	3W 47K	R504						
RWH3R9K4AK-NS	1	5W 3.9	R458						
VDAAA203A001C	1	20KB	VR501						
CCF121J1CA-FC	2	50V120P	C701	C701A					
CCF330J1CA-FC	2	50V33P	C761	C762					
CKF102K1BA-FC	8	50V1000P	C308	C311	C340	C401	C402	C481	
CKF103Z1FA-FC	8	50V0.01u	C721	C861					
CKF222K1BA-FC	1	50V2200P	C162	C302	C309	C312	C313	C332	
CKF331K1BA-FC	3	50V330P	C362	C472					
	7		C475	C535	C703AC723	C744	C752		
			C756						
			C335						
			C911	C921	C931				

CKF471K1BA-FC	8	50V470P	C445	C513	C732	C803	C805	C812
	1		C814	C824				
			C826					
CKF472K1BA-FC	2	50V4700P	C324	C336				
CKF561K1BA-FC	1	50V560P	C381					
CKF821K1BA-FC	1	50V820P	C323					
CKMX102M301ND	1	AC400V1000P	C515					
CKMX471K301ND	2	AC400V470P	C515AC598					
CKP101K1BA-FC	1	500V100P	C482					
CKP102K1BA-FC	1	500V1000P	C452					
CKP221K1BA-NC	1	500V220P	C405					
CKP392K1BA-FC	1	500V3900P	C451					
CKW102K2BJ-ND	4	1KV1000P	C503	C504	C505	C506		
CKW471K2RA-ND	2	1KV470P	C523	C529				
CKX102P2EJ-ND	2	2KV1000P	C512	C943				
CKX221K2RA-ND	1	2KV220P	C509					
CKX471K2RA-ND	2	2KV470P	C521	C543				
CKX681K2RA-ND	1	2KV680P	C527					
CEB101MYACBNP	1	10V100u	C548					
			C163AC172	C301	C307	C322	C363	
CEC100MYACANP	8	16V10u	C364	C367				
	4		C751	C807	C841	C871		
CEC101MYACBNP	2	16V100u	C361	C743				
CEC220MYACANP	1	16V22u	C745					
			C116	C171	C333	C352	C561	
CEC470MYACANP	8	16V47u	C723AC811	C823				
CEC471MYACCNP	3	16V470u	C525	C532	C801			
CED101MYACBNP	5	25V100u	C406	C471	C471AC474	C474A		
CED102M1ACHNP	1	25V1000u	C522					
CED222M2ACKNP	1	25V2200u	C524					
CED471M1ACENP	1	25V470u	C161					
CEE331M1ACFNP	1	35V330u	C530					
CEE470MYACCNP	1	35V47u	C453					
			C153	C157	C163	C337	C804	C806
CEF1R0MYACANP	8	50V1u	C813	C815				
	3		C825	C827	C862			
CEF220MYACBNP	1	50V22u	C703					
CEF2R2MYACANP	2	50V2.2u	C339	C755				
CEF470MYACBNP	2	50V47u	C462	C517				
CEF4R7MYACANP	4	50V4.7u	C303	C304	C325	C464		
CEFR47MYACANP	4	50V0.47u	C121	C123	C372	C374		
CEH100M1ACENP	1	160V10u	C458					
CEH471M3AEBNK	1	160V470u	C528B					
CEH4R7MYBCCNP	1	160V4.7u	C466					
CEK100M1ACHNP	2	250V10u	C477	C941				
CEM331M3AEMNC	1	400V330u(30*40)	C507					
CPFX6R8MY01NP	1	50V6.8u(Non-polarity)	C446					
CAY104K1-H-FC	5	63V0.1u	C326	C338	C365	C411	C511	
CAY224K1-H-FC	2	63V0.22u	C331	C334				
CAY474K1-H-FD	2	63V-0.47u K	C404	C461				
CFG104K2-H-NW	4	100V0.1u	C460	C705	C706	C707		
CFG332K1-H-NW	1	100V3300P	C321					

CFG333K1-H-NW	3	100V0.033u	C403	C510	C544
CFG473K1-H-NW	1	100V0.047u	C443		
CFG562J1-H-NW	2	100V5600P	C154	C158	
CMLX224M901NE	1	AC300V0.22u M	C501		
CMM434J8-H-NL	1	400V0.43u	C467		
CMR103J5-H-NE	1	630V0.01u	C508		
CMZ822J7-H-NE	1	1.6KV8200p	C455		
CMZ912J7-H-NE	1	1.6KV9100P	C456		
LAD601K2---NJ	1	LGB-600uH(1.5A)	L441		
LBB100K----TG	5	10uH-K	L331	L361	L751 L752 L753
LBB1R0K----TG	1	1uH-K	L302		
LBB220K----TG	1	22uH-K	L401		
LBB3R9K----TG	1	3.9uH-K	L351		
LBB820K----TG	3	82uH-K	L911	L912	L913
LEA001-5---NJ	2	M-COIL	L450	L505	
LEE004-----NJ	2	6*5*1.5mm	ZD524AZD524B		
LF-013-3---NJ	1	LINE COIL	L452		
LG-013-----NL	1	LINE FILTER10*12.5	L501		
DH2120M001-NC	1	PTC12ohm	PS501		
DN14R7M001-NC	1	NTC4.7ohm	R502		
DLC42001---NA	1	FG314002E(LED)	VD775		
DR1N4148---TH	8	1N4148	VD171	VD461	VD462 VD482 VD511 VD544
	4		VD561	VD562	
			VD734	VD911	VD921 VD931
DRBAV21----NJ	3	BAV21	VD912	VD922	VD932
DRGP15M----ND	4	GP15M	VD503	VD504	VD505 VD506
			VD401	VD470	VD471 VD510 VD512 VD522
DRRGP10D---TD	7	RGP10D	VD525		
DRRGP10J---TD	3	RGP10J	VD436	VD472	VD513
DRRGP15D---ND	1	RGP15D	VD543		
DRRGP30D---ND	1	RGP30D	VD521		
DRRGP30J---ND	1	RGP30J	VD524		
DRTRU4C----NZ	1	TRU4C	VD452		
DRTRU4DS---NZ	1	TRU4DS	VD451		
DRTVR4J----NL	1	TVR4J	VD508		
DZHZ22-2---TL	1	HZ22-2	VD481		
DZHZ3C3----TL	1	HZ3C3	VD564		
DZHZ4A2----TL	1	HZ4A2	VD509		
DZHZ5C1----TL	1	HZ5C1	VD300A		
DZHZ7C1----TL	3	HZ7C1	VD381	VD382	VD383
DZHZ9A3----TL	5	HZ9A3	VD460	VD483	VD822 VD941 VD861A
NAN7522N---N-	1	AN7522N	N161		
NAT138A----N-	1	AT138A	U 701		
NAT24C08---N-	1	AT24C08	N702		
NCW574CS---N-	1	CW574CS	N703		
NHEF4052---BP	2	HEF4052	N121	N801	
NKA431AZ---F-	1	KA431AZ	V540		
NKA5Q1265RFN-	1	KA5Q1265RF	N501		
NLTV817B---N-	1	LTV817B	N504		
NMC7805CT--N-	1	MC7805CT	N505		
NMC7808CT--N-	1	MC7808CT	N503		
NTDA8177---N-	1	TDA8177	N401		

NTDA9373---N-	1	TDA9373	N301						
Q2PA1015-GNF-	1	2PA1015G	V171						
			V121	V122	V173	V351	V352	V395	
Q2PC1815-GNF-	8	2PC1815 G	V504	V801					
Q2SB1443--NN-	1	2SB1443 TV2 Q	V542						
Q2SD1886C-NN-	1	2SD1886C	V451						
QBF421----NN-	3	BF421	V913	V923	V933				
QBF422----NN-	3	BF422	V912	V922	V932				
QIRFS630A-NN-	1	IRFS630A	V432						
QKSC1674C-NN-	1	KSC1674C	V308						
QKSC2383-ONN-	1	KSC2383O	V450						
QKSC2688--NN-	3	KSC2688	V911	V921	V931				
QPH2369---NN-	1	PH2369	V701						
FBA3154S02C-A	1	FUSE 3.15A250V	F501						
KPW12HL002--D	1	POWERSWITCH(A20)	K 501						
KTA11HA090--Y	6	PUSH SWITCH(10.85mm)	SW701	SW702	SW703	SW704	SW705	SW706	
XFS043-----NB	1	SAW FILTER(K2966M D2901C)	Z301						
XTC008-----ND	1	T5.5M	Z354						
XX-021-----NV	1	CR.OSC(12M 18P)	X761						
GAHV2001----Y	2	2S SOCKET	XR502	XS501					
GABV2001----A	1	2S SOCKET	XS904						
GABV2001----N	1	2S SOCKET	XS502						
GABV5001----A	1	DY SOCKET DYa	XS403						
GACV4001----A	1	4S SOCKET	XS161						
GAGBD001-----	1	ICSOCKET1.78mm 64P	XS1						
GBAVL007----A	1	CRTSOCKET	XS901						
GBBA3-05----Y	1	AVSOCKET	XS803						
GBBB9-03----Y	1	AVSOCKET(AV9-8.4-04)	XS801						
GBCH5001----Y	1	S SOCKET	XS861						
JW4451-J001-A	1	4P LINE(450mm D2-D2)	XP402						
JW5431-J132-A	1	5P LINE(E3D 430mm)	XS903						
TD-0042----0L	1	H-DRIVERBCH-13	T450						
TM-0097----0N	1	CON.TRANS	T501						
BXATB066----X	1	TUNER(5V38.9)	A101						
M90X0003---91	1	INSULATED MAT18*13 D4.8	Z1						
MB0X0011---G8	2	FUSE SOCKET	F501AF501B						
MB1X0040---BF	1	12VRADIATOR	H-N505						
MB1X0101---BF	1	POWERRADIATOR(2SC4237)	H-N501						
MB1X0113---BF	1	VOCALITY RADIATOR	H-N161						
MB1X0114---BF	1	5VRADIATOR(CUBA)	H-N503						
MB1X0163---BG	1	RADIATOR(NIGRESCENCE)	H-V432						
MB1X0208---BF	1	H-RADIATOR	H-V451						
MG3X0036---D7	1	INSULATED WASHER(D9)	Z2						
MG3X0037---D7	1	INSULATED WASHER(D9)	Z3						
			zz120	zz121	zz122	zz124	zz125	zz126	
MN0X0004---G8	8	D1.6*3.0 RIVET	zz127	zz128					
			zz129	zz130	zz131	zz132	zz133	zz134	
	7		zz135						
			zz108	zz109	zz110	zz111	zz112	zz113	
MN0X0005---G8	8	D2.5*3.5 RIVET	zz114	zz115					
			zz116	zz117	zz118	zz119	zz143	zz148	
	8		zz149	zz150					

	1		zz152
PX20028----2C	1	MAIN+CRTPCB	zz060
SCA-25012FE-H	1	GB818 M2.5*12	SN401
SFAC30010FE1H	3	SJ2836-87(M3*10.I)	SN503 SN161ASN161B
SFAC30012FE1H	2	SJ2836-87(M3*12.I)	S-N501 S-V451
SKA-308R0FE-H	2	GB845-78 ST3*8	S-N505 S-V432
SXN1A25--FF-H	1	M2.5 NUT	zz360
SXN1A30--FF-H	5	M3(NUT)	N-N501 N-N503 N-V451 NN161ANN161B
SXW1A25--FE-H	1	GB97.1 D2.5 FLATWASHER	ZN401



- Illustration:
1. The unit of all resistors is Ω . $K=1000$, $M=1,000,000$
 2. The power of all unmarked resistors is 1/6W.
 3. The unit of capacitors is F commonly. "p" represents for pF. If there is no additional illustration, the working voltage of capacitors is 63V.
 4. This diagram only illustrates the basic and typical model. Exceptional parts or part circuits may be different from the fact circuit.

- Note:
1. As the parts marked with \triangle are relevant to the whole-set's safety, the replaced ones must be the same with Service Manual.
 2. The circuit enclosed by $=$ is connected to the AC power directly. While repairing, the service man should connect a buffer transformer between TV and AC power to avoid electrical shock.

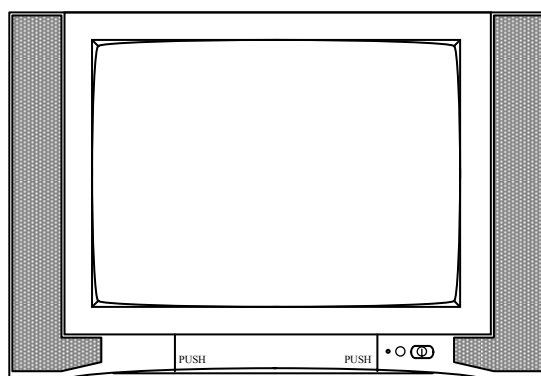
Only For Reference

25" 29" 34" TDA9373 Narrow Power Voltage Circuit Diagram

UOC TDA9373 SERIES

SERVICE MANUAL

COLOUR TELEVISION



CT-M6845

.

CONTENTS

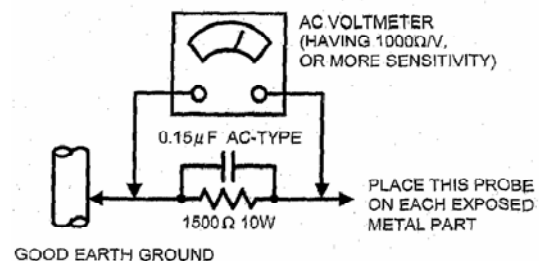
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1. SAFETY

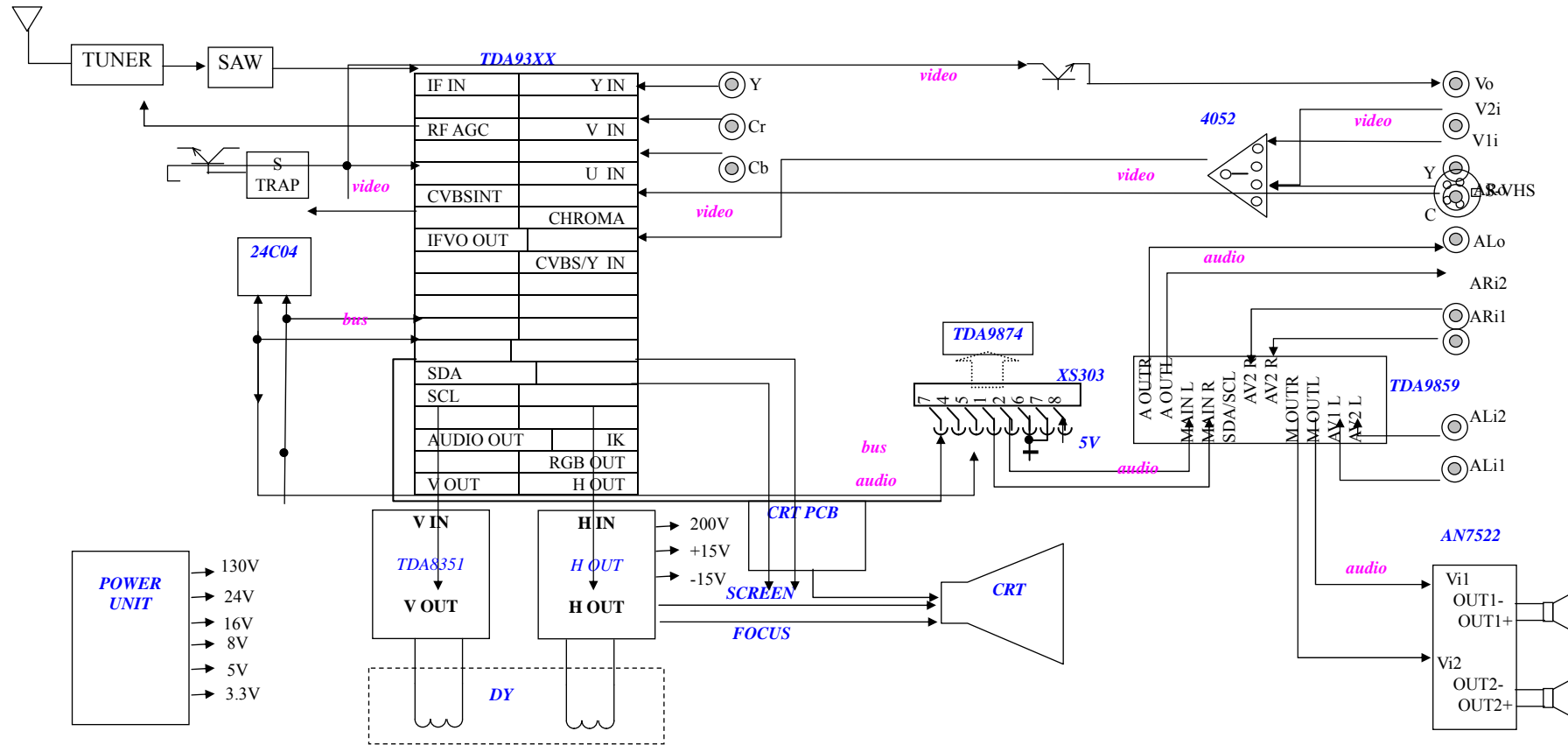
1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original 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 10kΩ 2W resistor to the anode button.
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.
9. manufacturer's replacement components.

PRECAUTIONS

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 periode of one second.)
This method of test requires a test equipment not generally found in the service trade.
 - (2) Leakage Current Check
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).
•Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.).
This corresponds to 0.2mA AC (r.m.s.)



2. TV Block diagram

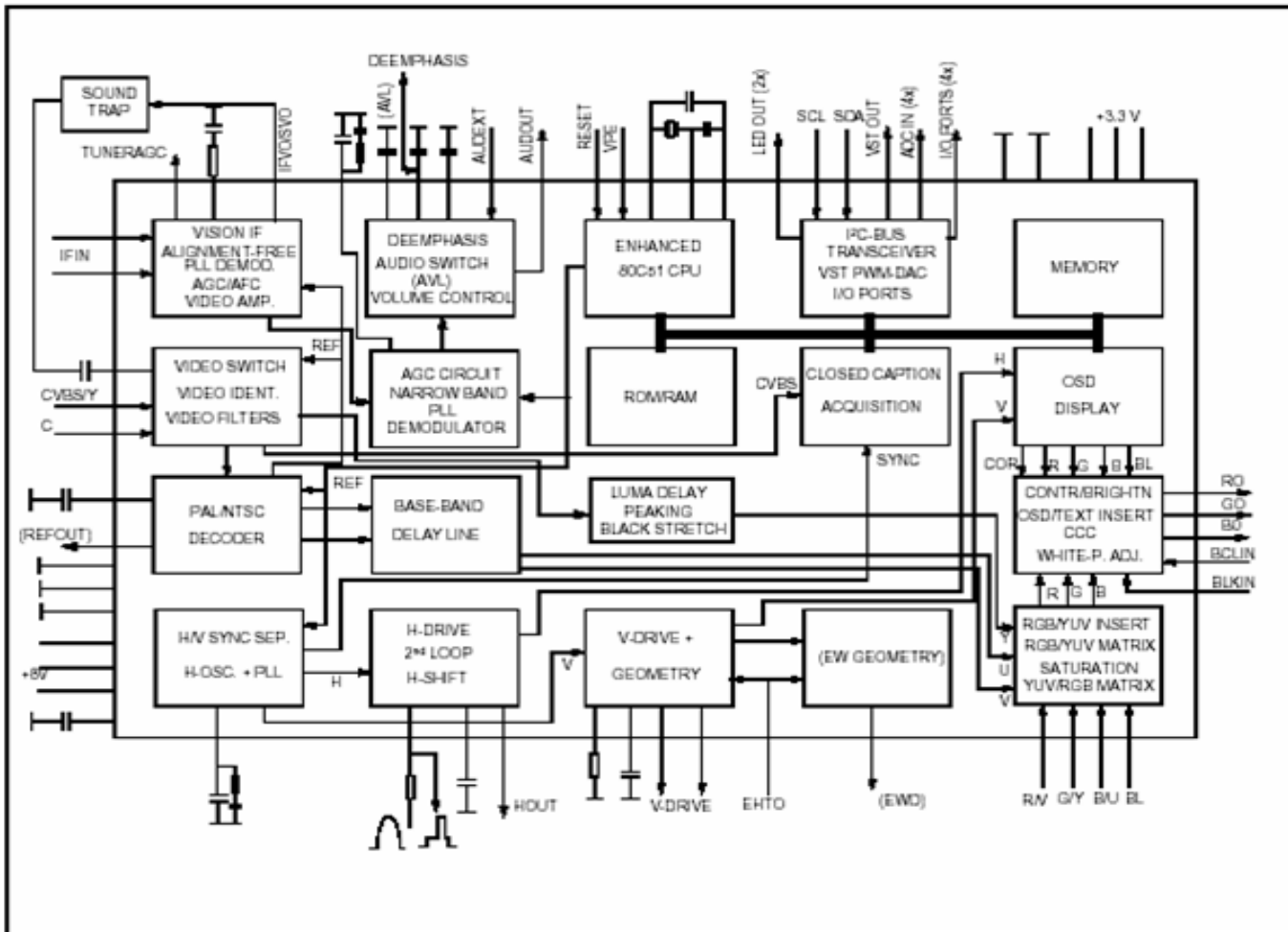


PHILIPS UOC FUNCTIONAL DIFFERENCE BETWEEN THE VARIOUS IC VERSIONS

IC VERSION	9350	9351	9352	9353	9360	9361	9362	9363	9364	9365	9366	9367	9380	9381	9382	9383	9384	9385	9386	9387	9388	9389	9370	9373	9375	9377	9378
TV rang	90	90	90	110	90	90	110	110	110	110	90	90	90	90	90	110	110	110	110	90	110	110	90	110	110	90	110
Mono inter-carrier multi-standard Sound demodulator (4.5-6.5MHz) With switch able centre frequency	√	√		√	√	√	√	√					√	√		√	√			√	√		√	√		√	√
Audio switch	√	√		√	√	√	√	√					√	√		√	√			√	√		√	√		√	√

Automatic volume leveling	√	√	√		√	√					√	√	√	√	√					√			√			√		
Automatic volume leveling or Subcarrier output (for comb filter applications)				√			√	√	√	√						√	√	√	√		√	√		√			√	
QSS sound IF amplifier with Separate input and AGC circuit			√					√	√	√	√				√			√	√		√			√				
AM sound demodulator without Extra reference circuit									√									√										
PAL decoder	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√				√	√	√			
SECAM decoder		√	√	√		√		√		√		√		√	√		√		√									
NTSC decoder	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Horizontal geometry(E-W)				√			√	√	√	√						√	√	√	√		√	√		√	√		√	
Horizontal and vertical zoom				√			√	√	√	√						√	√	√	√		√	√		√	√		√	
ROM size	32-64k	32-64k	32-64k	32-64k	64-128	64-128	64-128	64-128	64-128	64-128	64-128	64-128	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	16-64k	32-55k	32-55k	32-55k	32-55k	32-55k	
User RAM size	1k	1k	1k	1k	2k	2k	2k	2k	2k	2k	2k	2k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	1k	2.25	2.25	2.25	2.25	2.25
Teletext	1 p	1p	1p	1p	10p	10p	10p	10p	10p	10p	10p	10p																
Closed captioning	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Block diagram TDA93xX PS/N2 series with mono intercarrier sound demodulator



BLOCK DIAGRAM

3. 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:**
 - 1) Press "QV" key holding about 4 second and then press "MENU1" key on the Remote control unit.
Or Press "TEST" key on the Remote control unit for factory used.
 - 2) The "TEST" will be displayed on the screen.
 - 3) Press digital key, (Mkey) and corresponding on-screen display will be appeared.
Some time "PASSWORD" on-screen display will be appeared, you need to input 828.
 - 4) 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.
 - 5) Press "STANDBY" key again and return to the normal screen.

4. 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 ±1.0V for 21 inch hereinafter,

130 ±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

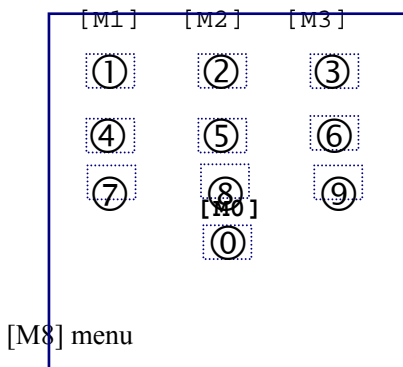
To enter BUS control mode, Press "TEST" key on the Remote control unit of factory.

Press "0" to "9" key, (Mkey) and corresponding on-screen display will be appeared.

On TV screen "TEST" will be indicated, this means entered bus control mode.

And press following key, each function will be available.

Remote Hand Unit keys



	MENU8
V	SLOPE
31	
V	SHIFT
31	
V	AMP
31	
V	SCOR
.	

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.

[M7] Menu

AGC Adjustment.

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

[M9] 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.

ICs Default Settings

1 . TDA9381(1.0) EK cord=NTDA9381----NG

MI	Items	Variable	Preset	MI	Items	Variable	Preset	
M0	AVL	ON/OFF	ON	M4	SUBCON	0~63	63	
	FSL	ON/OFF	ON		SUBCOL	0~63	63	
	FMWS	ON/OFF	OFF		SUBSHP	0~63	63	
	FFI	ON/OFF	OFF		SUBTINT	0~15	15	
	OSO	ON/OFF	ON		YDLY PAL	0~15	12	
	FCO	ON/OFF	OFF		YDLY NTSC	0~15	12	
	WOOFER	ON/OFF	OFF		YDLY SEC	0~15	12	
	DUAL OUT	0~1	0		YDLY AV	0~15	12	
	Volume mode	0~1	1		UOC VOL	ON/OFF	Off	
					CATHODE	0~15	15	
M1	BAND	0~2	2		SC BRI	0~63	10	
	AV CFG*	0~8	3					
	NTSC MX		USA	M5	OSD VPOS	0~63	53	
	VIDEO OUT		CVBS		OSD HPOS	0~59	15	
	PIN5		NTSC		WIDE	0~63	15	
	PRO	0~3	0		ZOOM	0~63	59	
					NENU TITLE	0~6	3	
M2	VISION IF		38.9M		E2PROM ADDRESS	0~33		
	DK	ON/OFF	OFF		E2PROM VALUE	0~95		
	BG	ON/OFF	ON		E2PROM WRITE			
	I	ON/OFF	OFF					
	M	ON/OFF	OFF	M8	FREQUENCY		50HZ	60HZ
	SIF PREFER		BG		VSLOPE	0~63	31	31
	AUTO SOUND	ON/OFF	ON		VSHIFT	0~63	31	31
					VAMP	0~63	31	31
M3	START ON	0~2	0		VSCOR	0~63	31	31

	ENGLISH	ON/OFF	ON		HSHIFT	0~63	31	31
	ARABIC	ON/OFF	OFF					
	PERSIAN	ON/OFF	OFF	M9	BT	0~63	48	
	TURKISH	ON/OFF	OFF		CT	0~63	48	
	FRANCE	ON/OFF	OFF		SC		OFF	
	RUSSIA	ON/OFF	OFF		RB	0~63	32	
					GB	0~63	32	
M6	SHIPMODE				RD	0~63	32	
	SEARCH SPEED	0~3	0		GD	0~63	32	
M7	AGC-TOP	0~63	25		BD	0~63	32	
	AGC-SPEED	0~3	2		SB	0~63	40	

2. TDA9361(1.1) EK cord=NTDA9361-----NF

MI	Items	Variable	Preset	MI	Items	Variable	Preset	
M0	AVL	ON/OFF	ON	M4	SUBCON	0~63	63	
	FSL	ON/OFF	ON		SUBCOL	0~63	63	
	FMWS	ON/OFF	OFF		SUBSHP	0~63	63	
	FFI	ON/OFF	OFF		SUBTINT	0~15	15	
	OSO	ON/OFF	ON		YDLY PAL	0~15	12	
	FCO	ON/OFF	OFF		YDLY NTSC	0~15	12	
	WOOFER	ON/OFF	OFF		YDLY SEC	0~15	12	
	DUAL OUT	0~1	0		YDLY AV	0~15	12	
	Volume mode	0~1	1		UOC VOL	ON/OFF	Off	
					CATHODE	0~15	15	
M1	BAND	0~2	2		SC BRI	0~63	10	
	AV CFG*	0~8	3					
	NTSC MX		USA	M6	LOGO	ON/OFF	ON	
	VIDEO OUT		CVBS		LOGO COLUR	0~7	0	
	PIN5		NTSC		LOGO POSITION	0~11	0	
	PRO	0~3	0		LOGO CHAR			
					SHIPMODE			
M2	VISION IF		38.9M		SEARCH SPEED	0~3	0	
	DK	ON/OFF	OFF					
	BG	ON/OFF	ON	M7	AGC-TOP	0~63	25	
	I	ON/OFF	OFF		AGC-SPEED	0~3	2	
	M	ON/OFF	OFF					
	SIF PREFER		BG	M8	FREQUENCY		50HZ	60HZ
	AUTO SOUND	ON/OFF	ON		VSLOPE	0~63	31	31
					VSHIFT	0~63	31	31
M3	START ON	0~2	0		VAMP	0~63	31	31
	ENGLISH	ON/OFF	ON		VSCOR	0~63	31	31
	ARABIC	ON/OFF	OFF		HSHIFT	0~63	31	31
	PERSIAN	ON/OFF	OFF					
	TURKISH	ON/OFF	OFF	M9	BT	0~63	48	
	FRANCE	ON/OFF	OFF		CT	0~63	48	
	RUSSIA	ON/OFF	OFF		SC		OFF	
	Spanish bit	0~1	0		RB	0~63	32	
	TXT DEF	0~3	0		GB	0~63	32	
					RD	0~63	32	
M5	OSD VPOS	0~63	53		GD	0~63	32	
	OSD HPOS	0~59	15		BD	0~63	32	
	WIDE	0~63	15		SB	0~63	40	
	ZOOM	0~63	59					
	NENU TITLE	0~6	3					

5. ICs functional description

UOC TDA93XX

SYMBOL	PIN	DESCRIPTION
STAND BY output.	1	In STAND BY mode, high level (Power OFF). For Power ON this pin will be reduced to low.
SCL	2	I ² C-bus clock line
SDA	3	I ² C-bus data line
TUNING	4	tuning Voltage (Vt) PWM output
P3.0/NTSC SW	5	Port 3.0 or NTSC output/SCART SW input, Forced NTSC selection, Low-level output, otherwise High output.
KEY	6	Control keys input *3
VOL	7	Sound Volume control PWM output
MUTE	8	Sound mute output
VSSC/P	9	Digit ground for μ -controller core and periphery
BAND1	10	Tuner Band selection output
BAND2	11	Tuner Band selection output
VSSA	12	Analog ground of teletext decoder and digital ground of TV-processor
SECPLL	13	SECAM PLL decoupling
VP2	14	2 nd supply voltage TV-processor(+8V)
DECDIG	15	decoupling digital supply of TV-processor
PH2LF	16	Phase-2 filter
PH1LF	17	Phase-1 filter
GND3	18	Ground 3 for TV-processor
DECBG	19	Band gap decoupling
AVL/EWD	20	Automatic volume leveling /EAST-WEST drive output
VDRB	21	Vertical drive B output
VDRA	22	Vertical drive A output
IFIN1	23	IF input 1
IFIN2	24	IF input 2
IREF	25	Reference current input
VSC	26	Vertical sawtooth capacitor
TUNER AGC	27	Tuner AGC output
AUDEEM/SIFIN1 *1	28	Audio deemphasis or SIF input
DECSDEM/SIFIN2	29	decoupling sound demodulator or SIF input 2
GND2	30	ground 2 for TV processor
SNDPLL/SIFAGC *1	31	narrow band PLL filter or AGC sound IF
AVL/SNDIF/REF0/ AMOUT *1	32	Automatic Volume Levelling / sound IF input / subcarrier reference output / audio deemphasis
HOUT	33	horizontal output
FBISO	34	flyback input/sandcastle output

AUDEXT/QSSO/ AMOUT *1	35	external audio output / QSS intercarrier out
EHTO	36	EHT/overvoltage protection input
PLL IF	37	IF-PLL loop filter
IFVO/SVO	38	IF video output / selected CVBS output
VP1	39	supply voltage TV processor
CVBS INT	40	internal CVBS input
GND1	41	ground for TV processor
CVBS/Y	42	CVBS/Y input
CHROMA	43	C input
AUDOUT/AMOUT *1	44	audio output /AM audio output (volume controlled)

INSSW2	45	2nd RGB / YUV insertion input
R2/VIN	46	2nd R input / V (R-Y) input / Pr input
G2/YIN	47	2nd G input / Y input
B2/UIIN	48	2nd B input / U (B-Y) input / Pb input
BCLIN	49	beam current limiter input
BLKIN	50	black current input / V-guard input
RO	51	Red output
GO	52	Green output
BO	53	Blue output
VDDA	54	analog supply of Closed Caption decoder and digital supply of TV-processor (3.3 V)
VPE	55	OTP Programming Voltage
VDDC	56	digital supply to core (3.3 V)
OSCGND	57	oscillator ground supply
XTALIN	58	crystal oscillator input
XTALOUT	59	crystal oscillator output
RESET	60	reset
VDDP	61	digital supply to periphery (+3.3 V)
P1.0/INT1	62	TV/AV (AV1) / AV2 /S-VHS mode Output.
P1.1/T0	63	TV/AV (AV1) / AV2 /S-VHS mode Output.
P1.2/INT0	64	Remote control signal input.

Note

1. The function of pin 20, 28, 29, 31, 32, 35 and 44 is dependent on the IC version (mono intercarrier FM demodulator /QSS IF amplifier and East-West output or not) and on some software control bits. The valid combinations are given in table 1.
2. the vertical guard function can be controlled via pin 49 or pin 50. the selection is made by means of the IVG bit in subaddress 2BH.

TABLE 1

IC version	FM-PLL version				QSS version					
	N		Y		N			Y		
East-West Y/N	N		Y		N			Y		
CMB1/CMB0 bits	00	01/10/11	00	01/10/11	00	01/10/11		00	01/10/11	
AM bits	-	-	-	-	-	0	1	-	0	1
Pin 20	AVL		EWD		AVL			EWD		
Pin 28	AUDEEM				SIFIN1					
Pin 29	DECSDEM				SIFIN2					
Pin 31	SNDPLL				SIFAGC					
Pin 32	SNDIF(1)	REFO(2)	AVL/SNDIF(1)	REFO(2)	AMOUT	REFO(2)		AMOUT	REFO(2)	
Pin 35	AUDEXT				AUDEXT	QSSO	AMOUT	AUDEXT	QSSO	AMOUT
Pin 44	AUDOUT				Controlled AM or audio out					

Note

1. When additional (external) selectivity is required for FM-PLL system pin 32 can be used as sound IF input. This function is selected by means of SIF bit in subaddress 28H.
2. the reference output signal is only available for the CMB1/CMB0 setting of 0/1. for the other settings this pin is a switch output(see also 5 table 67).

Pin No. 6: Control keys input (Max. Limit voltage)

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

AN7522/7523

Function : audio output

Symbol	PIN	Function	Symbol	PIN	Function
Vcc	1	Power supply	GND	7	ground
Out 1 (+)	2	Ch 1 output (+)	In 2	8	Ch 2 input
GND(out 1)	3	Ch 1Ground	VOL	9	Volume Control
Out 1 (-)	4	Ch 1 output (-)	Out 2 (-)	10	Ch 2 output (-)
Standby	5	Mute input	GND(out 2)	11	Ch 2 Ground

In 1	6	Ch 1 input	Out 2 (+)	12	Ch 2 output (+)
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Note: AN7523 is pin 1 to 9, AN7522 is pin 1 to 12.

LA78040/78045

Function : vertical output

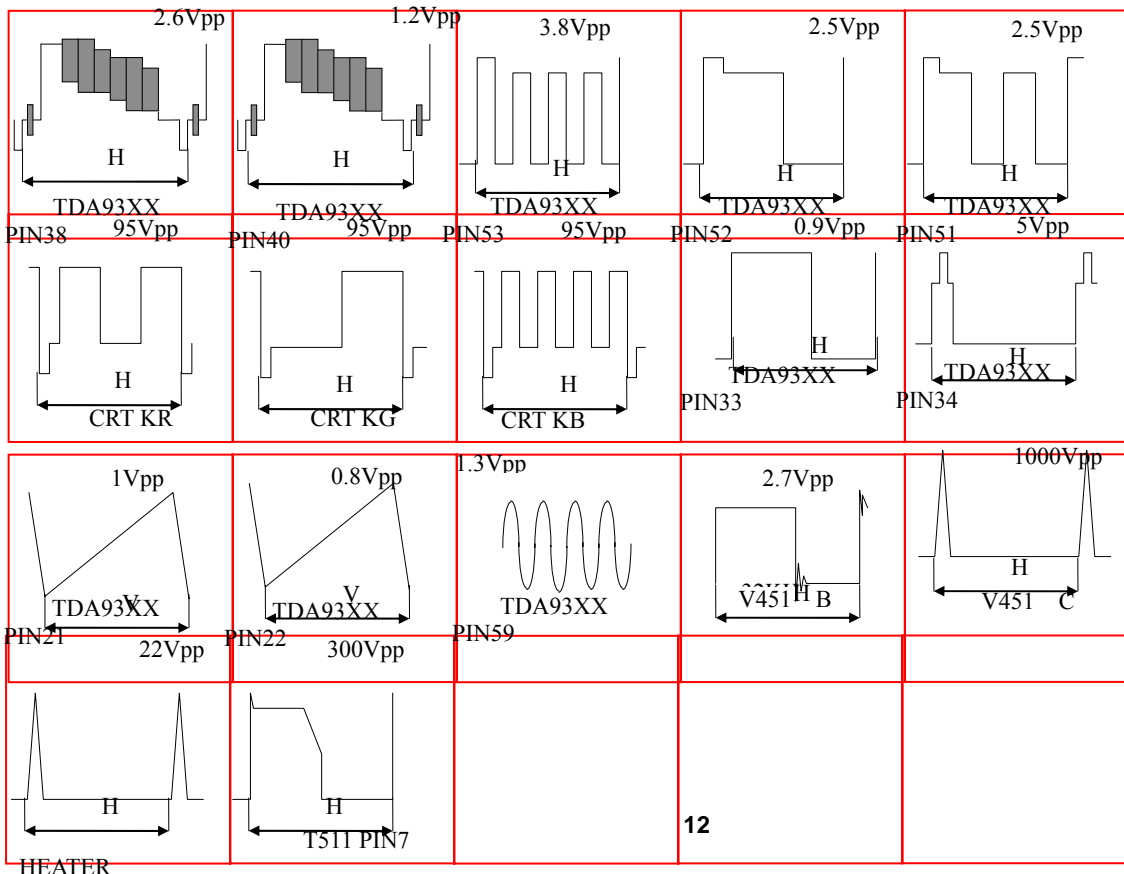
Symbol	PIN	Function	Symbol	PIN	Function
INV IN	1	Input	V OUT	5	Vertical output
VCC1	2	Power	VCC2	6	Output power supply
PUMP UP	3	Pump up power	NON INV IN	7	Negative feedback
GND	4	Ground			

TDA9859

Function : Universal Sound processor

Symbol	Pin	Function	Symbol	Pin	Function
AV1L	1	AV1 Audio Left input	AV1R	32	AV1 Audio input Right
P1	2	Not used	P2	31	Not used
MAINL	3	Main Audio Left input	AV2R	30	AV2 Audio input Right
CSMO	4	Smoothing Capacitor	CPS1	29	Pseudo stereo Cap. 1
MAINR	5	Main Audio Right input	AV2L	28	AV2 Audio input Left
VP	6	Power Supply	CPS2	27	Pseudo stereo Cap. 2
OUT R	7	Right Output	OUT L	26	Left Output
GND	8	Ground	MAD	25	Not used (GND)
LINOR	9	Line Output Right	LINOL	24	Line Output Left
LINIR	10	Line Input Right	LINIL	23	Line Input Left
CBR1	11	Bass Cap. Right 1	CBL1	22	Bass Cap. Left 1
CBR2	12	Bass Cap. Right 2	CBL2	21	Bass Cap. Left 2
Headphone R	13	Headphone-R output	Headphone L	20	Headphone-L output
CTR	14	Treble Cap. Right	CTL	19	Treble Cap. Left
MAINOR	15	Main Audio out Right	MAINOL	18	Main Audio out Left
SCL	16	I2C Bus clock	SDA	17	I2C Bus data

6. Test point Waveforms



7. IC voltages

TDA93XX

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	2.8	3.8	3.6	3.3	3.5	3.5	0.1	0.1	0	5.4	0.1	0	2.3	8	5	3
PIN	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
V	4	0	4	0.9	0.7	0.8	1.9	1.9	3.9	3.8	1.6	3.2	3.4	0	2.4	0.1
PIN	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
V	0.6	0.5	3.7	1.7	2.4	3.1	8	3.8	0	3.4	1.5	3.6	2.3	2.6	2.6	2.6
PIN	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
V	2.3	7.2	2.7	2.7	2.7	3.5	0	3.5	0.1	1.7	1.8	0	3.5	0.1	0.1	5

LA76040

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

AN 7522

PIN	1	2	3	4	5	6	7	8	9	10	11	12	
V	12	7	0	7	3.3	1.4	0	1.4	0	7	0	7	

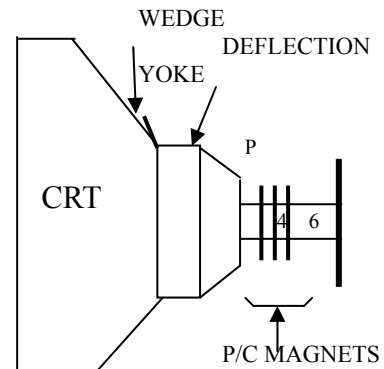
TDA9859

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
V	4.0	0	4.0	8.0	4.0	8.0	4.0	0	4.0	4.0	4.0	4.0	4.0	4.0
PIN	15	16	17	18	19	20	21	22	23	24	25	26	27	28
V	4.0	4.5	4.6	4.0	4.0	4.0	4.0	4.0	4.0	4.0	0	4.0	4.0	4.0
PIN	29	30	31	32										
V	4.0	4.0	0	4.0										

8. PURITY / CONVERGENCE ADJUSTMENT

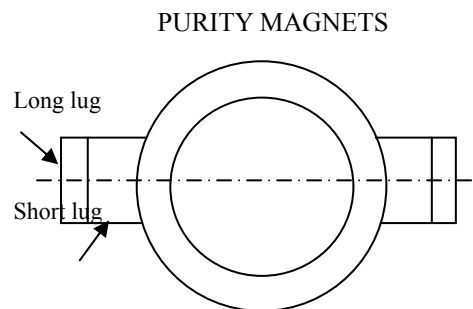
PURITY ADJUSTMENT

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

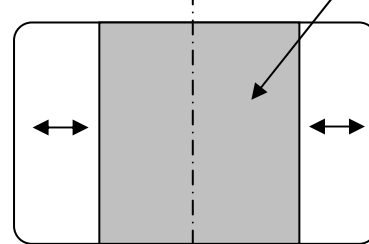


Bring the long lug over the short lug and position them horizontally.

Fig. 2

(FRONT VIEW)

GREEN RASTER

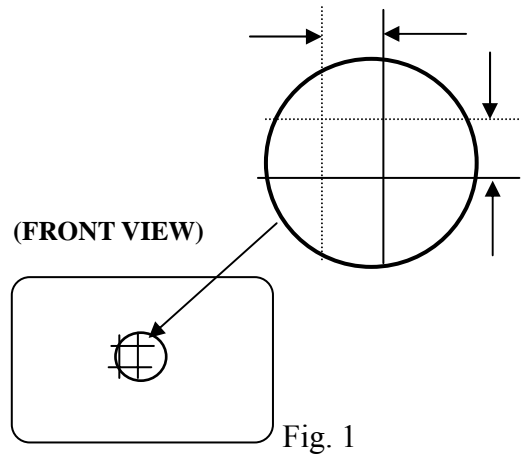


CENTER

Fig. 3

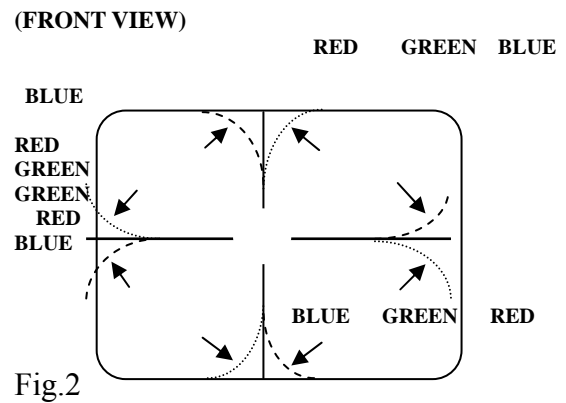
STATIC CONVERGENCE ADJUSTMENT

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.**

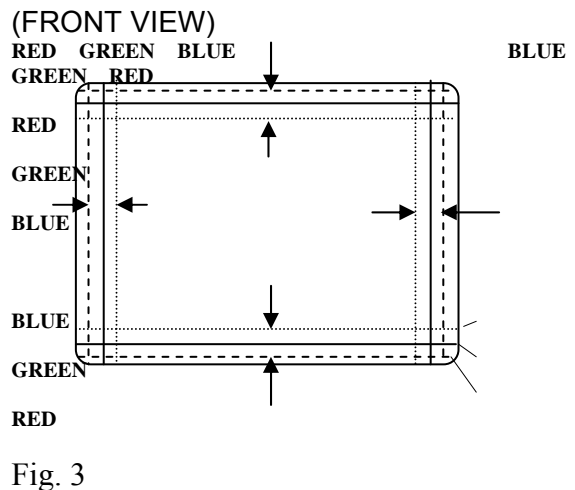


DYNAMIC CONVERGENCE ADJUSTMENT

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.**



9. List of Parts

NAME	TYPE	Q'TY	REMARK
CU-2988 (AUSTRALIA)			
PC BOARD MODULE		1	
CRT BOARD MODULE		1	
KEY AND REMOTE CONTROL BOARD MODULE			
PRINTED CIRCUIT BOARD			
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
TOUCH SWITCH	KFC-A06-21050	1	
CARBON FILM RESISTOR	RT13-1/6W-470Ω-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-560Ω-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1.2KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-1.8KΩ-J-T52	1	
CARBON FILM RESISTOR	RT13-1/6W-390Ω-J-T52	1	
LED	BT205-L	1	
INRARED RECEIVER	HS0038A IMPORTATION	1	
WIRE	WIRE	1	
FRONT AV MODULE			
PRINTED CIRCUIT BOARD	FRONT AV BOARD	1	
AV SOCKET	AV3-8.35-6AK	1	
WIRE	WIRE	1	
FRONT FRAME MODULE	BJK4076----Q	1	
FRONT FRAME ASSEMBLY	MTAA4086AA--Q	1	
FRONT FRAME (ABS)	MTAA4098AA--Q	1	
LIGHT CONDUCTION COLUMN	MTAH4057AA--Q	1	
BOLT	SJ2825-87	ST3X8F	1
FUNCTION KEY	MTAH4055AA--Q		1
BOLT	SJ2825-87	ST3X8F	2
POWER BUTTON	MTAH4056AA--Q		1
SPRING	MTBH4090BC--Q		1
CRT TRESTLE	MTAH4058AA--Q		2
CRT BRACKET			4
BOLT	SJ2824-87	ST4X16F	20
SPEAKER	YDT0813-10W-8Ω-01		2
BOLT	SJ2824-87	ST4X12F	8
METAL SCUTCHEON	Haier 49mm	ARGENTINE	1
WIRE	WIRE		1
BACK COVER MODULE	BJH4075----Q		1
BACK COVER ASSEMBLY	MTAA4078AB--Q		1
BACK COVER	MTAA4092AB--Q		1

INTEGER MATERIEL MODULE	BJZ4078-----Q	1
RUBBER TRAY	H=3mm	4
DEGUASSING COIL TIE	MTAJ1001AG--Q	4
NUT	M6 ASSEMBLED NUT	4
101 HIGHVOLTAGE CLAMP	TEM101	1
411 CLAMPER	MTAJ3000AA--Q	2
POWER BUTTON CLAMPER	MTAH4060AA--Q	1
TERMINAL BOARD	MTAH4059AC--Q	1
POTHOOK	MTAH4059AA--Q	1
BOLT	SJ2824-87 ST4X12F	2
BOLT	SJ2825-87 ST3X12F	2
BOLT	SJ2824-87 ST4X16F	10
BOLT	SJ2824-87 ST4X16F	6
PAD (TOP)	MTEA4058----Q	1
PAD (BOTTOM)	MTEA4059----Q	1
WIRE	60mm	1
CRT	M68LWF188X50	1
DEGUASSING COIL		1
GROUNDING WIRE		1
GAUCHE CONNECTING WIRE		1
BRACKET MODULE	BXY4069-----Q	
BRACKET	MTAC4068AA--Q	1
BOLT	SJ2825-87 ST3X10F	
FBT TRANSFORMER TRESTLE	MTAC4072AC--Q	1
BOLT	SJ2824-87 ST4X12F	2
POWER CABLE PRE-WORKING MODULE		
POWER BUTTON CAP	MTAB0014AA--Q	1
POWER CABLE		1
POWER SWITCH		1
POWER TRANSMITTING WIRE		1
PACKING ARK MODULE		1
POWER CABLE PLASTIC BAG		1
WIRE	60mm	1
OPERATION INTRODUCTIONS (ENGLISH)		1
TEAC PROPAGANDIZE PAGE		1
POP STATIC FILM (ENGLISH)		1
BATTERY	5#	2
REMOTE CONTROL		1
OPERATION INTRODUCTIONS PLASTIC BAG		1
29"90 SERIES INTEGER PLASTIC BAG		1
PACKING ARK		1
ENCASEMENT NAIL		20
BACK COVER LABEL		1
TRANSPORT SCUTCHEON		2

Mainboard element list

r01n	r14	r02	ra
TF-0090----1J	1		T451
RCD152K-NACNH	3	1/2W 1.5K	R918 R928 R938
RDB100J-NAATD	3	1/6W 10	R312 R801 R871
RDB101J-NAATD	8	1/6W 100	R301 R302 R363 R365 R366 R381 R382 R383
	8		R401 R402 R452 R723 R724 R743 R815 R824
	2		R861 R862
RDB102J-NAATD	8	1/6W 1K	R128 R129 R369 R460 R464 R481 R531 R541
	8		R544 R712 R734 R802 R803 R807 R816 R818
	2		R825 R827
RDB103J-NAATD	8	1/6W 10K	R126 R127 R163 R380 R395 R396 R461 R543
	8		R548 R551 R704 R705 R706 R707 R709 R816A
	8		R818AR825AR827AR851AR852AR912 R922 R932
RDB104J-NAATD	5	1/6W 100K	R441 R444 R483 R802AR803A
RDB122J-NAATD	3	1/6W 1.2K	R305 R560 R713
RDB151J-NAATD	3	1/6W 150	R815AR848 R852
RDB152J-NAATD	2	1/6W 1.5K	R397 R732
RDB153J-NAATD	1	1/6W 15K	R331
RDB154J-NAATD	1	1/6W 150K	R318
RDB181J-NAATD	1	1/6W 180	R353
RDB182J-NAATD	3	1/6W 1.8K	R403 R405 R714
RDB183J-NAATD	1	1/6W 18K	R162
RDB220J-NAATD	3	1/6W 22	R914 R924 R934
RDB221J-NAATD	5	1/6W 220	R311 R442 R917 R927 R937
RDB222J-NAATD	6	1/6W 2.2K	R351 R371 R451 R540 R701AR804
RDB223J-NAATD	2	1/6W 22K	R384 R455
RDB242J-NAATD	1	1/6W 2.4K	R515
RDB272J-NAATD	2	1/6W 2.7K	R321 R512
RDB273J-NAATD	2	1/6W 27K	R484 R487
RDB274J-NAATD	1	1/6W 270K	R174
RDB301J-NAATD	3	1/6W 300	R913 R923 R933
RDB330J-NAATD	2	1/6W 33	R398 R806
RDB331J-NAATD	3	1/6W 330	R916 R926 R936
RDB332J-NAATD	8	1/6W 3.3K	R702 R721 R722 R728 R735 R736 R737 R741
	1		R742
RDB333J-NAATD	5	1/6W 33K	R171 R175 R317 R385 R434
RDB391J-NAATD	2	1/6W 390	R322 R775
RDB392J-NAATD	1	1/6W 3.9K	R462
RDB470J-NAATD	5	1/6W 47	R368 R708 R911 R921 R931
RDB471J-NAATD	2	1/6W 470	R308 R710
RDB472J-NAATD	7	1/6W 4.7K	R131 R133 R154 R158 R306 R443 R733

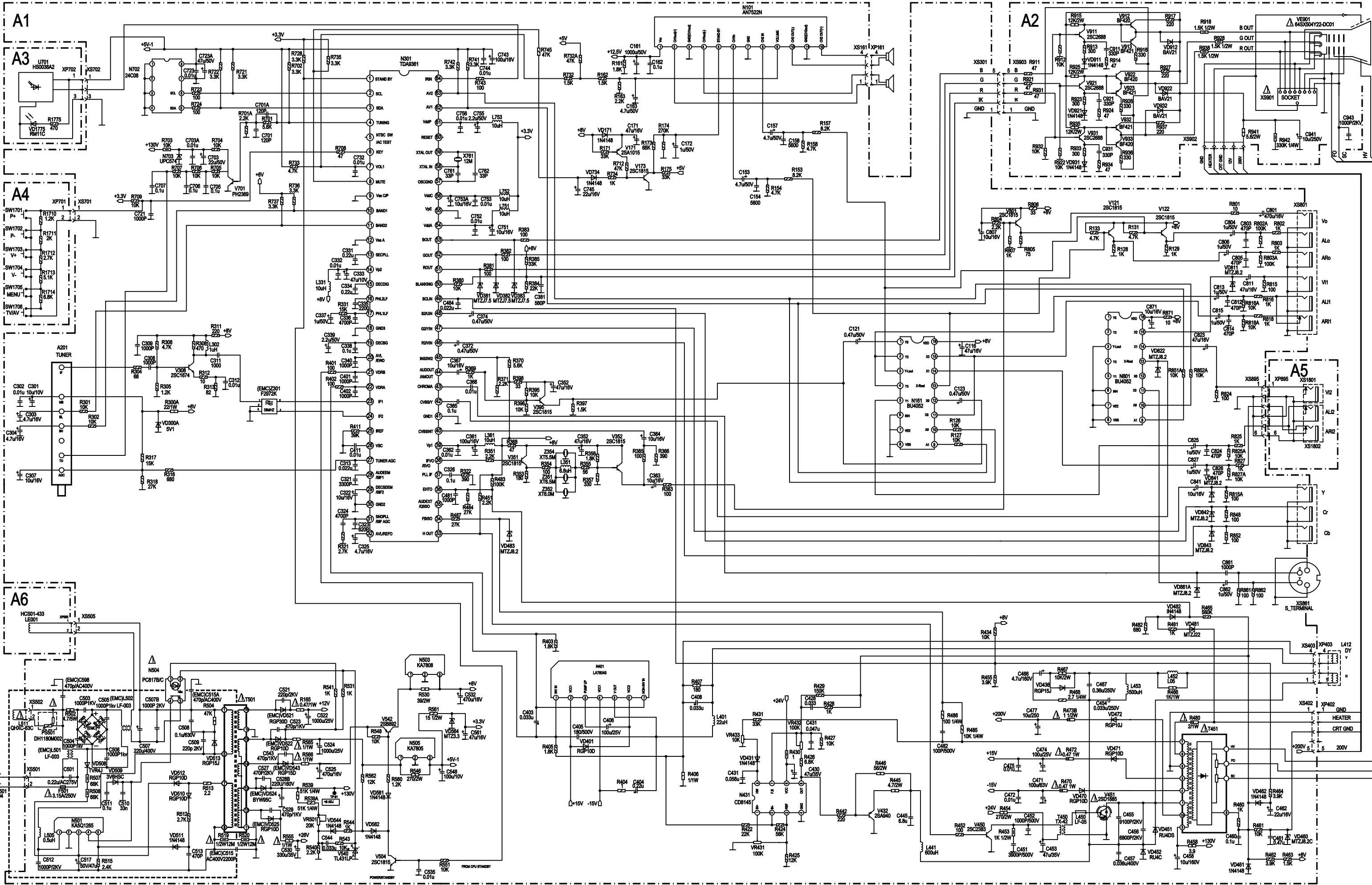
RDB473J-NAATD	3	1/6W 47K	R172	R732AR745					
RDB560J-NAATD	2	1/6W 56	R354	R355					
RDB561J-NAATD	1	1/6W 560	R711						
RDB562J-NAATD	2	1/6W 5.6K	R370	R701					
RDB564J-NAATD	1	1/6W 560K	R465						
RDB680J-NAATD	1	1/6W 68	R304						
RDB681J-NAATD	3	1/6W 680	R316	R463	R482				
RDB683J-NAATD	1	1/6W 68K	R173						
RDB750J-NAATD	1	1/6W 75	R805						
RDB820J-NAATD	1	1/6W 82	R313						
RDB822J-NAATD	3	1/6W 8.2K	R153AR157AR562						
RDC101J-NABTD	1	1/4W 100	R486						
RDC103J-NABTD	1	1/4W 10K	R485						
RDC1R0J-NABTD	1	1/4W 1.0	R404						
RDC222J-NABTD	1	1/4W 2.2K	R161						
RDC270J-NABTD	1	1/4W 27	R561						
RDC2R7J-NABTD	1	1/4W 2.7	R468						
RDC334J-NABTD	1	1/4W 330K	R942						
RDC513J-NABTD	2	1/4W 51K	R539	R539A					
RDC8R2J-NABTD	1	1/4W 8.2	R513						
RDD102J-NACTD	1	1/2W 1K	R453						
RDD683J-NACTD	2	1/2W 68K	R507	R508					
RFD1R0J4ACCNF	1	1/2W 1.0	R473B						
RFER27J5ACDNF	3	1W 0.27	R555	R565	R566				
RFER47J5ACDNF	3	1W 0.47	R165	R470	R472				
RGDX246K-03NZ	1	1/2W 24M	R519						
RJB393F-NAATD	1	1/6W 39K	R411						
RSE102J4ACCND	1	1W 1K	R466						
RSE1R5J4DCCND	1	1W 1.5	R406						
RSE1R8J4DCCND	1	1W 1.8	R408						
RSE220J5ACCND	1	1W 22	R300A						
RSF101J5ACDND	1	2W 100	R407						
RSF103J5ACDND	5	2W 10K	R467	R703	R915	R925	R935		
RSF223J7ACDND	1	2W 22K	R556						
RSF271J7ACDND	2	2W 270	R454	R546					
RSF2R0J7ACDND	1	2W 2.0	R480						
RSF2R2J5ACDND	1	2W 2.2	R445						
RSF560J5ACDND	1	2W 56	R530						
RSF5R6J5ACDND	1	2W 5.6	R941						
RSG473J7ACEND	1	3W 47K	R504						
RWH3R9K4AK-NS	1	5W 3.9	R458						
VDAAA203A001C	1	20KB	VR501						
CCF121J1CA-FC	2	50V120P	C701	C701A					
CCF330J1CA-FC	2	50V33P	C761	C762					
CKF102K1BA-FC	8	50V1000P	C308	C311	C340	C401	C402	C481	
CKF103Z1FA-FC	8	50V0.01u	C721	C861					
CKF222K1BA-FC	1	50V2200P	C162	C302	C309	C312	C313	C332	
CKF331K1BA-FC	3	50V330P	C362	C472					
	7		C475	C535	C703AC723	C744	C752		
			C756						
			C335						
			C911	C921	C931				

CKF471K1BA-FC	8	50V470P	C445	C513	C732	C803	C805	C812
	1		C814	C824				
			C826					
CKF472K1BA-FC	2	50V4700P	C324	C336				
CKF561K1BA-FC	1	50V560P	C381					
CKF821K1BA-FC	1	50V820P	C323					
CKMX102M301ND	1	AC400V1000P	C515					
CKMX471K301ND	2	AC400V470P	C515AC598					
CKP101K1BA-FC	1	500V100P	C482					
CKP102K1BA-FC	1	500V1000P	C452					
CKP221K1BA-NC	1	500V220P	C405					
CKP392K1BA-FC	1	500V3900P	C451					
CKW102K2BJ-ND	4	1KV1000P	C503	C504	C505	C506		
CKW471K2RA-ND	2	1KV470P	C523	C529				
CKX102P2EJ-ND	2	2KV1000P	C512	C943				
CKX221K2RA-ND	1	2KV220P	C509					
CKX471K2RA-ND	2	2KV470P	C521	C543				
CKX681K2RA-ND	1	2KV680P	C527					
CEB101MYACBNP	1	10V100u	C548					
			C163AC172	C301	C307	C322	C363	
CEC100MYACANP	8	16V10u	C364	C367				
	4		C751	C807	C841	C871		
CEC101MYACBNP	2	16V100u	C361	C743				
CEC220MYACANP	1	16V22u	C745					
			C116	C171	C333	C352	C561	
CEC470MYACANP	8	16V47u	C723AC811	C823				
CEC471MYACCNP	3	16V470u	C525	C532	C801			
CED101MYACBNP	5	25V100u	C406	C471	C471AC474	C474A		
CED102M1ACHNP	1	25V1000u	C522					
CED222M2ACKNP	1	25V2200u	C524					
CED471M1ACENP	1	25V470u	C161					
CEE331M1ACFNP	1	35V330u	C530					
CEE470MYACCNP	1	35V47u	C453					
			C153	C157	C163	C337	C804	C806
CEF1R0MYACANP	8	50V1u	C813	C815				
	3		C825	C827	C862			
CEF220MYACBNP	1	50V22u	C703					
CEF2R2MYACANP	2	50V2.2u	C339	C755				
CEF470MYACBNP	2	50V47u	C462	C517				
CEF4R7MYACANP	4	50V4.7u	C303	C304	C325	C464		
CEFR47MYACANP	4	50V0.47u	C121	C123	C372	C374		
CEH100M1ACENP	1	160V10u	C458					
CEH471M3AEBNK	1	160V470u	C528B					
CEH4R7MYBCCNP	1	160V4.7u	C466					
CEK100M1ACHNP	2	250V10u	C477	C941				
CEM331M3AEMNC	1	400V330u(30*40)	C507					
CPFX6R8MY01NP	1	50V6.8u(Non-polarity)	C446					
CAY104K1-H-FC	5	63V0.1u	C326	C338	C365	C411	C511	
CAY224K1-H-FC	2	63V0.22u	C331	C334				
CAY474K1-H-FD	2	63V-0.47u K	C404	C461				
CFG104K2-H-NW	4	100V0.1u	C460	C705	C706	C707		
CFG332K1-H-NW	1	100V3300P	C321					

CFG333K1-H-NW	3	100V0.033u	C403	C510	C544
CFG473K1-H-NW	1	100V0.047u	C443		
CFG562J1-H-NW	2	100V5600P	C154	C158	
CMLX224M901NE	1	AC300V0.22u M	C501		
CMM434J8-H-NL	1	400V0.43u	C467		
CMR103J5-H-NE	1	630V0.01u	C508		
CMZ822J7-H-NE	1	1.6KV8200p	C455		
CMZ912J7-H-NE	1	1.6KV9100P	C456		
LAD601K2---NJ	1	LGB-600uH(1.5A)	L441		
LBB100K----TG	5	10uH-K	L331	L361	L751 L752 L753
LBB1R0K----TG	1	1uH-K	L302		
LBB220K----TG	1	22uH-K	L401		
LBB3R9K----TG	1	3.9uH-K	L351		
LBB820K----TG	3	82uH-K	L911	L912	L913
LEA001-5---NJ	2	M-COIL	L450	L505	
LEE004-----NJ	2	6*5*1.5mm	ZD524AZD524B		
LF-013-3---NJ	1	LINE COIL	L452		
LG-013-----NL	1	LINE FILTER10*12.5	L501		
DH2120M001-NC	1	PTC12ohm	PS501		
DN14R7M001-NC	1	NTC4.7ohm	R502		
DLC42001---NA	1	FG314002E(LED)	VD775		
DR1N4148---TH	8	1N4148	VD171	VD461	VD462 VD482 VD511 VD544
	4		VD561	VD562	
			VD734	VD911	VD921 VD931
DRBAV21----NJ	3	BAV21	VD912	VD922	VD932
DRGP15M----ND	4	GP15M	VD503	VD504	VD505 VD506
			VD401	VD470	VD471 VD510 VD512 VD522
DRRGP10D---TD	7	RGP10D	VD525		
DRRGP10J---TD	3	RGP10J	VD436	VD472	VD513
DRRGP15D---ND	1	RGP15D	VD543		
DRRGP30D---ND	1	RGP30D	VD521		
DRRGP30J---ND	1	RGP30J	VD524		
DRTRU4C----NZ	1	TRU4C	VD452		
DRTRU4DS---NZ	1	TRU4DS	VD451		
DRTVR4J----NL	1	TVR4J	VD508		
DZHZ22-2---TL	1	HZ22-2	VD481		
DZHZ3C3----TL	1	HZ3C3	VD564		
DZHZ4A2----TL	1	HZ4A2	VD509		
DZHZ5C1----TL	1	HZ5C1	VD300A		
DZHZ7C1----TL	3	HZ7C1	VD381	VD382	VD383
DZHZ9A3----TL	5	HZ9A3	VD460	VD483	VD822 VD941 VD861A
NAN7522N---N-	1	AN7522N	N161		
NAT138A----N-	1	AT138A	U 701		
NAT24C08---N-	1	AT24C08	N702		
NCW574CS---N-	1	CW574CS	N703		
NHEF4052---BP	2	HEF4052	N121	N801	
NKA431AZ---F-	1	KA431AZ	V540		
NKA5Q1265RFN-	1	KA5Q1265RF	N501		
NLTV817B---N-	1	LTV817B	N504		
NMC7805CT--N-	1	MC7805CT	N505		
NMC7808CT--N-	1	MC7808CT	N503		
NTDA8177---N-	1	TDA8177	N401		

NTDA9373---N-	1	TDA9373	N301						
Q2PA1015-GNF-	1	2PA1015G	V171						
			V121	V122	V173	V351	V352	V395	
Q2PC1815-GNF-	8	2PC1815 G	V504	V801					
Q2SB1443--NN-	1	2SB1443 TV2 Q	V542						
Q2SD1886C-NN-	1	2SD1886C	V451						
QBF421----NN-	3	BF421	V913	V923	V933				
QBF422----NN-	3	BF422	V912	V922	V932				
QIRFS630A-NN-	1	IRFS630A	V432						
QKSC1674C-NN-	1	KSC1674C	V308						
QKSC2383-ONN-	1	KSC2383O	V450						
QKSC2688--NN-	3	KSC2688	V911	V921	V931				
QPH2369---NN-	1	PH2369	V701						
FBA3154S02C-A	1	FUSE 3.15A250V	F501						
KPW12HL002--D	1	POWERSWITCH(A20)	K 501						
KTA11HA090--Y	6	PUSH SWITCH(10.85mm)	SW701	SW702	SW703	SW704	SW705	SW706	
XFS043-----NB	1	SAW FILTER(K2966M D2901C)	Z301						
XTC008-----ND	1	T5.5M	Z354						
XX-021-----NV	1	CR.OSC(12M 18P)	X761						
GAHV2001----Y	2	2S SOCKET	XR502	XS501					
GABV2001----A	1	2S SOCKET	XS904						
GABV2001----N	1	2S SOCKET	XS502						
GABV5001----A	1	DY SOCKET DYa	XS403						
GACV4001----A	1	4S SOCKET	XS161						
GAGBD001-----	1	ICSOCKET1.78mm 64P	XS1						
GBAVL007----A	1	CRTSOCKET	XS901						
GBBA3-05----Y	1	AVSOCKET	XS803						
GBBB9-03----Y	1	AVSOCKET(AV9-8.4-04)	XS801						
GBCH5001----Y	1	S SOCKET	XS861						
JW4451-J001-A	1	4P LINE(450mm D2-D2)	XP402						
JW5431-J132-A	1	5P LINE(E3D 430mm)	XS903						
TD-0042----0L	1	H-DRIVERBCH-13	T450						
TM-0097----0N	1	CON.TRANS	T501						
BXATB066----X	1	TUNER(5V38.9)	A101						
M90X0003---91	1	INSULATED MAT18*13 D4.8	Z1						
MB0X0011---G8	2	FUSE SOCKET	F501AF501B						
MB1X0040---BF	1	12VRADIATOR	H-N505						
MB1X0101---BF	1	POWERRADIATOR(2SC4237)	H-N501						
MB1X0113---BF	1	VOCALITY RADIATOR	H-N161						
MB1X0114---BF	1	5VRADIATOR(CUBA)	H-N503						
MB1X0163---BG	1	RADIATOR(NIGRESCENCE)	H-V432						
MB1X0208---BF	1	H-RADIATOR	H-V451						
MG3X0036---D7	1	INSULATED WASHER(D9)	Z2						
MG3X0037---D7	1	INSULATED WASHER(D9)	Z3						
			zz120	zz121	zz122	zz124	zz125	zz126	
MN0X0004---G8	8	D1.6*3.0 RIVET	zz127	zz128					
			zz129	zz130	zz131	zz132	zz133	zz134	
	7		zz135						
			zz108	zz109	zz110	zz111	zz112	zz113	
MN0X0005---G8	8	D2.5*3.5 RIVET	zz114	zz115					
			zz116	zz117	zz118	zz119	zz143	zz148	
	8		zz149	zz150					

	1		zz152
PX20028----2C	1	MAIN+CRTPCB	zz060
SCA-25012FE-H	1	GB818 M2.5*12	SN401
SFAC30010FE1H	3	SJ2836-87(M3*10.I)	SN503 SN161ASN161B
SFAC30012FE1H	2	SJ2836-87(M3*12.I)	S-N501 S-V451
SKA-308R0FE-H	2	GB845-78 ST3*8	S-N505 S-V432
SXN1A25--FF-H	1	M2.5 NUT	zz360
SXN1A30--FF-H	5	M3(NUT)	N-N501 N-N503 N-V451 NN161ANN161B
SXW1A25--FE-H	1	GB97.1 D2.5 FLATWASHER	ZN401



A1

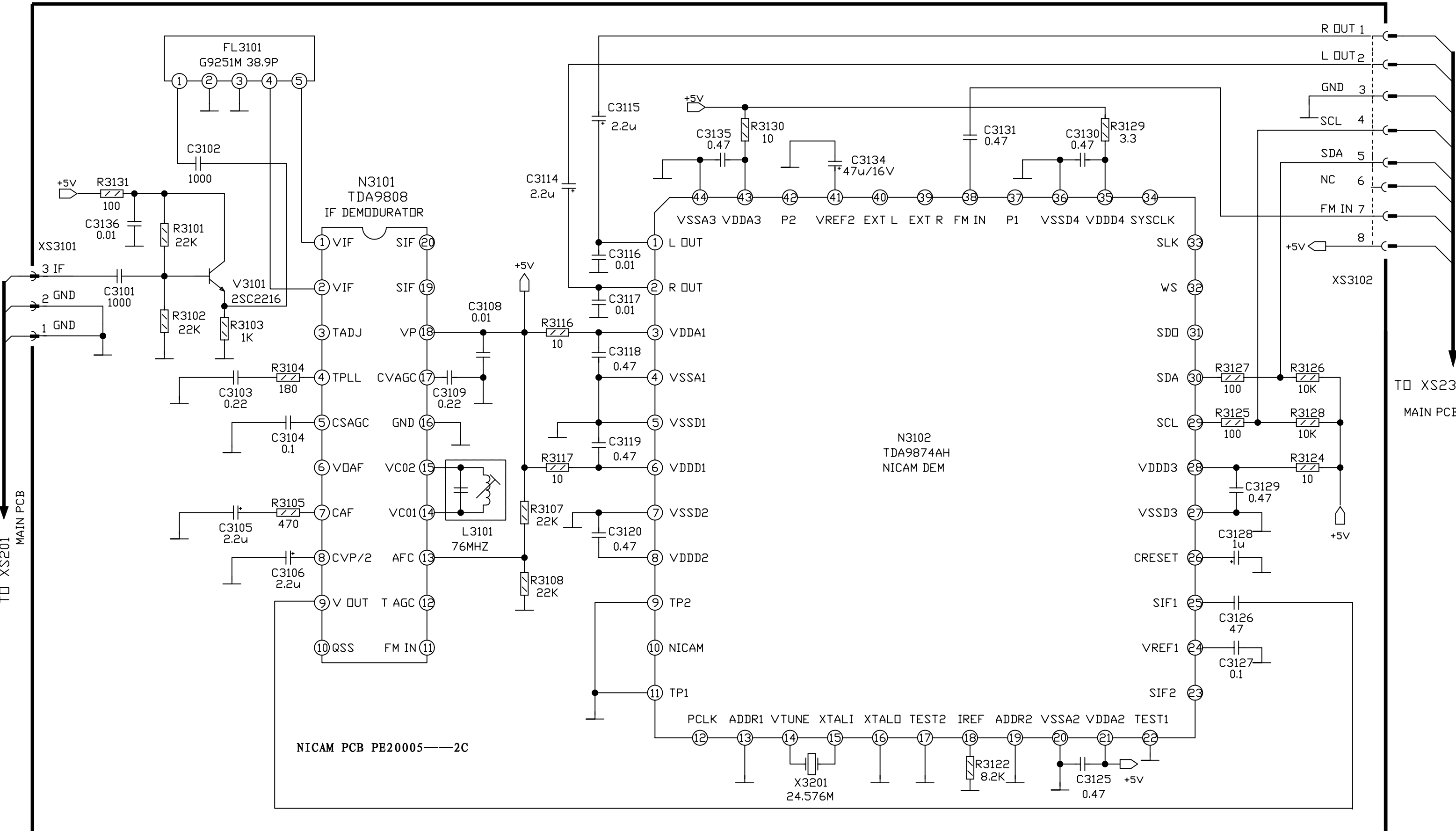
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SECTION 2:

COLOUR TV SERVICE MANUAL

彩电维修手册

OM8838/TDA8842 Multi-System Chassis OM8838/TDA8842 多制式彩电机芯
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目录		Contents	
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警告

该机电源部分带电，维修本机时，请使用隔离变压器。
为了防止电的危险，不要去拆下机盖。必须委托够格的维修人员来进行维修。

WARNING

The power part in this receiver is electrical .
Please use an isolative transformer in servicing.
To prevent electric shock don't remove cover,
Refer servicing to qualified service personnel.

Overall Configuration:

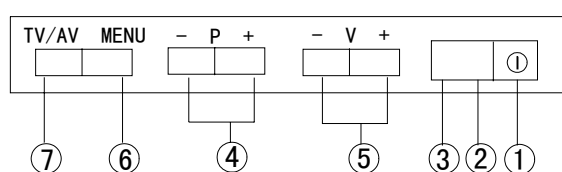
In this chassis, the single-chip IC OM8838/TDA8842 for color TV small signal processing with I²C bus control of the Phillips is used. It can be used on all models from 14" to 29". It has a number of expansion functions, and a series of color TV sets, from simple to high grade and of a number of systems, such as PAL, NTSC and SECAM can be made on a single PCB master board

Specification

TV system	TV, PAL, AV, PAL , NTSC
Power consumption	14" ≥ 65W、 21" ≥ 70W、 25" ≥ 110W、 29" ≥ 120W
Power supply range	AC/ 150V ----- AC/ 260V
Tuning range	Full frequency band: VHF, UHF, CATV
Medium band	38.0MHz, 38.9MHz or others
Wireless input impedance	75 Ω unbalanced
AV input	AV1 and AV2
AV output	1 channel
Audible output	>3W
Loudspeaker impedance	8 Ω

(Note: It may differ depending on types)

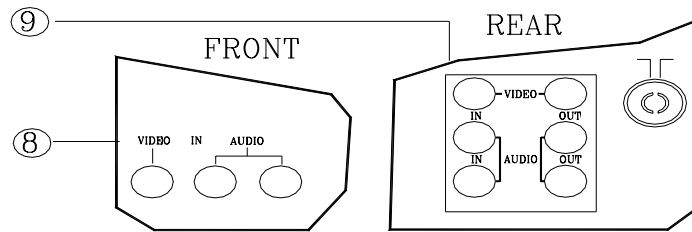
Control panel diagram



The adjusting buttons and some sockets are in the front of the TV, other sockets are in the rear of the TV.

- ① Main power switch
- ② Remote control sensor
- ③ Power indicator
- ④ Program number down (P-) and up (P+)
- ⑤ Volume decrease (V-) and increase (V+)
- ⑥ Menu button
- ⑦ TV/AV button

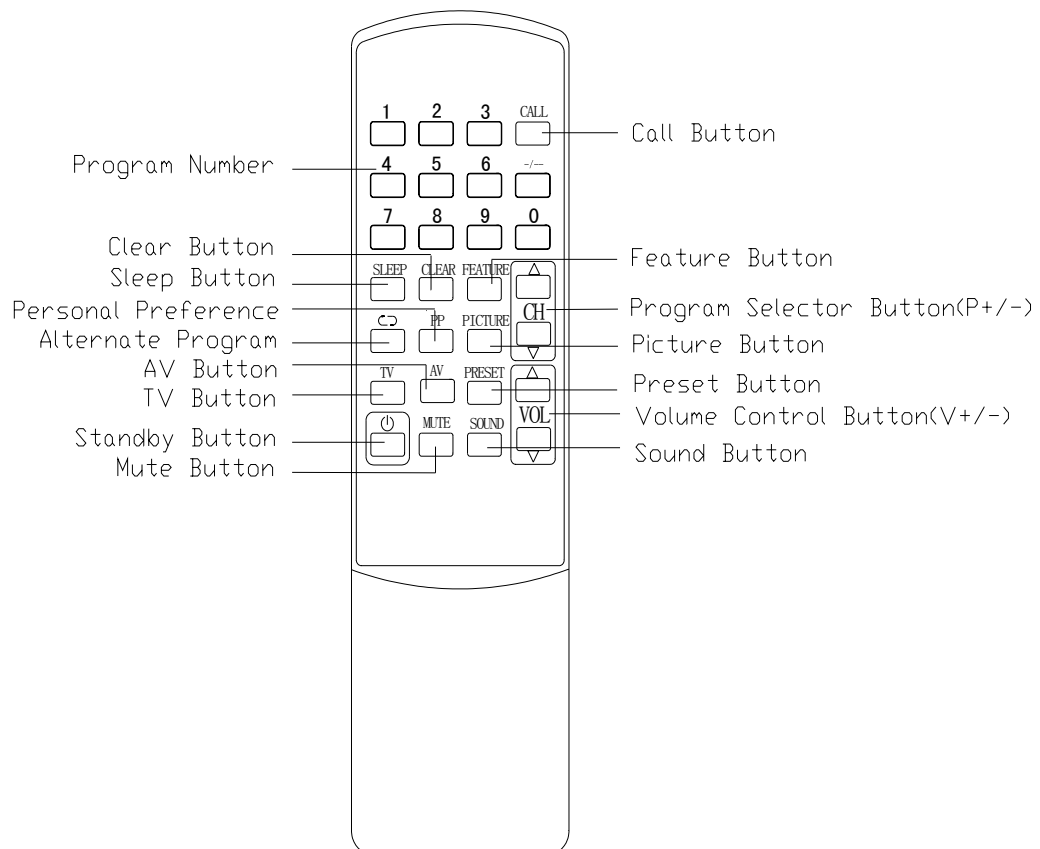
Rear view diagram



⑧ AV IN sockets

⑧ Antenna input and AV IN/OUT sockets

Remote controller diagram



—. Introduction to IC's

1. TDA8842 (OM8838) multi-system small signal processing IC

TDA8842 (OM8838) is the new type Video/Chroma/Deflection (V/C/D) processing chip developed by the Phillips in 1998, i.e., the Video/Chroma/Deflection small signal processing IC. By fully adopting the I²C bus control technique and integrating a number of unique circuits into the chip, it has greatly simplified the elements external to the IC and achieved overall improvement in the picture and sound quality of the popular model color TV sets.

TDA8842 (OM8838) was developed on the basis of its **TDA8362/8361** single-chip IC, therefore it has retained the main functional circuits in the ordinary single-chip IC **TDA8362/8361**, and it mainly includes: phase-locked loop (PLL) synchronized detection and picture intermediate frequency (PIF) signal processing module; the second sound intermediate frequency (SIF2) signal processing module centered with PLL frequency discrimination; the commissioning free scanning deflection indirect triggering pulse forming module with the dual PLL as the core; the brightness signal processing module with a number of measures to improve picture quality; the chroma signal decoding module suiting the selection of a number of systems; and the matrix circuit module satisfying the conversion and transfer of multi-channel basic color levels.

TDA8842 (OM8838) series IC's have introduced the I²C bus "Read/Write" technique, the frequency synthesis technique (FS), charge coupling switch capacitance network technique (CCD), and digital signal processing technique (DSP). Also inside the chip, circuits such as bus controlled matrix switch, 1H delay horizontal and comb filter are integrated. All functions traditionally accomplished by cooperation with external circuits can all be performed inside the chip, thus greatly increasing the signal processing ability of the chip, realizing the self-adapting adjustment for the control objects. Especially, the "Read" technique of I²C bus is used, so that the **TDA8842 (OM8838)** series IC's have advanced functions such as automatic fault diagnosis. The internal block diagram of **TDA8842 (OM8838)** series IC is as shown in Fig. 1.

(I) It mainly consists of the following function sections:

1. **Video intermediate frequency (VIF) unit circuit**

This circuit consists of the video intermediate amplification, adjustment free VCO, PLL demodulator, video buffer, automatic frequency control circuit AFC, automatic gain control circuit AGC and video signal identification circuit, as detailed in Fig. 2.

2. **Sound intermediate amplification unit circuit**

The sound intermediate amplifier consists of the PLL demodulator, preamplifier and muting circuit, volume control circuit and audio switch, as detailed in Fig. 3.

3. **Horizontal and vertical synchronization unit circuit**

The horizontal and vertical synchronization unit circuit consists of the horizontal synchronization separator, vertical synchronization separator, horizontal oscillation circuit and correction system, PHI-1 and PHI-2 detectors, sandcastle pulse generator, the horizontal output circuit with slow start and slow stop devices, noise detector and vertical frequency divider, as detailed in Fig. 4.

4. **Horizontal and vertical geometric correction and deflection driving unit circuit**

This unit circuit consists of four sections, i.e., vertical serrated wave generator, vertical geometric correction processor, horizontal (E-W) geometric correction processor, EHT follow-up and over-voltage protection circuit, as detailed in Fig. 5.

5. **Filter CVBS/Y/C switching unit circuit**

The filter CVBS/Y/C switching unit circuit has such main functions: selective filtering correction for input composite video signal CVBSINT, output composite video signal CVB-SEXT, CVB/Y and chroma signal C; chroma signal processing and brightness signal processing, as detailed in Fig. 6.

6. **Color decoder unit circuit**

The color decoder unit circuit consists of the PLL/VCXO circuit, PAL/NTSC identification circuit, SECAM identification circuit, (R-Y)/(B-Y) demodulator and automatic system manager ASM, as detailed in Fig. 7.

7. **RGB primary signal processor and control unit circuit**

This unit circuit mainly consists of two parts, the processing of YUV/RGB video component signal and primary signal, and RGB control, as detailed in Fig. 8.

(II) Main composition and functions of main pins

1. Main composition

This chassis is in standard single-board structure in the overall layout, the mature Sanyo power supply is used, and the position numbers are arranged to international standard. Its main IC's and their functions are as follows:

Position No. 0- AV unit

Position No. 1- small signal unit

Position No. 2- video amplification unit

Position No. 3- vertical unit

Position No. 4- horizontal unit

Position No. 5- intermediate amplification and decoding unit

Position No. 6- sound unit

Position No. 7- remote control unit

Position No. 8- power supply unit

Position No. 9- other units

①N701 MTV880C.V1.1 (CPU)

②N702 PCF8594/24C04 (E²PROM)

③N501 OM88388 (color single-chip small signal processor)

④N601 TDA7056B (single-channel power amplification)
N602 TDA7057AQ (stereo power amplification)

⑤N301 TDA8351 (large screen vertical module)
TDA8356 (small screen vertical module)

⑥N201 TDA6108JF/TDA6107JF (only for some models)

⑦N001 HEF4053 (AV switch, only for models with AV stereo)

⑧V101 ENV59D68F1G (38MHz)/ENV9D68FIE (38.9MHz)

⑨T402 FBT (flyback transformer)

2. Functions of main pins of ICs'

[1]CPU MTV880C.V1.1 (Note: 0—low level, 1— high level)

Pin ① Tuning voltage output (functioning only to VST tuner, and it has no output when the IIC bus has identified the presence of a FST tuner.)

Pin ② left channel volume control output

Pin ③ right channel volume control output (Note: Pins ② and ③ have PWM output only when there is no output from IIC)

Pin ④ woofer switch (Note: there is level output only when IIC has not identified the presence of the TDA9680 sound chip) 0=OFF 1=ON

Pin ⑤ sound system identification circuit input, can be used as automatic identification function for sound system (Note: not used in this machine)

Pin ⑥ video signal identification output, when there is video signal in the current program signal (including AV): 1=presence of video signal 0=no video signal (not used in this chassis)

Pin ⑦ 1=switching to S-VHS signal input at port 0=switching to other signal source (not used in this chassis)

Pin ⑧ for control of the working status of comb filter
0=NTSC 1=PAL/SECAM status

It is used in 25" and 29" models, for control of pillow distortion equalizing circuit in N system

Pin ⑨ local key

Pin ⑩ local key

Pin ⑪ not used

Pin ⑫ AV/TV status output 1=TV 0=AV

Pin ⑬ sound system output

Pin ⑭ sound system output mainly as follows:

(13) system	(14) system	Sound system
0	0	M
0	1	D/K
1	0	I
1	1	BG

Pin ⑮ mute (not used in this chassis as under mute status, the N701①② pin DC control level automatic output is 0)

1=no mute 0=mute

Pin ⑯ LED driven output

0=LED highly lit, indicating a stand-by status or is receiving remote control signal

1=LED slightly lit, indicating usual status

Pins ⑰ ⑱ Band control output, only to VST tuner

(17)	(18)	Band
0	0	VHF-L
1	0	VHF-H
1	1	UHF

Pin ⑲ AV3 status not used at present

1=AV3 status 0=other status

Pin ⑳ AV1 and AV2 status

1=AV1 TV/AV2=0

- Pin ⑳ Ground
- Pins ㉑ ㉒ ㉓ are respectively for B,G,R screen character display output (Note: the blue background in this machine is produced inside OM8838)
- Pin ㉔ blanking signal output
- Pin ㉕ horizontal synchronization signal input (positive polarity)
- Pin ㉖ vertical synchronization signal input (positive polarity)
- Pin ㉗ +5V
- Pin ㉘ ground
- Pin ㉙ not used in this machine
- Pins ㉚ ㉛ 12MHz
- Pin ㉜ reset 1=reset 0=general status
- Pin ㉝ vertical frequency identification output 1=60Hz 0=50Hz
- Pin ㉞ forced to AV2 when the level is changed from high to low
- Pin ㉟ forced to AV1 when the level is changed from low to high
- Pin ㊱ infrared remote signal input effective for high level
- Pin ㊲ factory production mode control (not used in this machine)
- Pin ㊳ clock line SCL
- Pin ㊴ data line SDA
- Pin ㊵ stand-by status (stand-by)
0=working status 1= stand-by status
- ㊶ Pin +5V power supply

[2] Memory block

PCF8594		24C04	
Pin ①	+5V	Pins ①②③④⑦	Ground
Pins ②③④	Ground		
Pin ⑤	Data line SDA	Pin ⑤	Data line SDA
Pin ⑥	Clock line SCL	Pin ⑥	Clock line SCL
Pin ⑦	NC not used		
Pin ⑧	+5V power supply	Pin ⑧	+5V power supply

[3] Color single chip small signal processing OM8838/TDA8842

The TDA8842/8838 pin functions are as follows

Pin No.	Sign	Function	DC voltage (V)		Ground resistance (K Ω)		Remarks
			With signal	No signal	Red pen grounding	Black pen grounding	
1	NDIF	Sound IF input (SIF)	0	0.31	14.5	9.5	
2	UDIOEXT	External sound input	3.63	3.63	14	9.5	
3	NC	Blank	0	0	8	8	
4	NC	Blank	0	0	8	8	
5	PLLIF	Loop filter of IF phase-locked loop	2.5	3.63	1.4	9	
6	IFVO	IF Video output	2.6	4.08	11	9.5	
7	SCL	(I ² C) serial clock	4.88	4.88	11	7.5	

		input					
8	SDA	(I ² C) serial data input and output	4.85	4.85	11	6	
9	DEC _{BGB}	Bandgap decoupling	6.7	6.67	12.5	8.5	
10	DHROMA	Chroma input	1.12	1.12	14	9.2	
11	CVBA/Y	External CVBS/Y input	3.35	3.35	14	9.0	
12	V _{P1}	Main power supply voltage (+8V)	7.80	7.80	1.8	1.8	
13	CVBSY	Internal CVBS input	3.35	3.35	14	9.0	
14	GND1	Ground1	0	0	0	0	
15	AUDIOOUT	Audio interface	2.98	2.98	14	9.2	
16	IC	Internal connection	0	0	8	8	
17	CVBS _{EXT}	External compound video signal input	3.35	3.35	14	9	
18	BLKIN	Black level current input	5.7	6.99	14	9	
19	B OUT	Blue primary color signal output	2.9	2.8	9.5	8.9	
20	G OUT	Green primary color signal output	2.82	2.84	14	8.9	
21	R OUT	Red primary color signal output	2.7	3.25	9.5	8.9	
22	BCL IN	Beam current limiter input/V protection input	3.58	3.58	14	8.5	
23	RIN	For red primary color input to be inserted into picture	3.5	3.54	14	9.2	Red primary color for character
24	GIN	For green primary color input to be inserted into picture	3.5	3.53	14	9.2	Green primary color for character
25	BIN	For blue primary color input to be inserted into picture	3.5	3.52	14	9.2	Blue primary color for character
26	RGBIN	RGB insertion input	0	3.56	2.5	2.5	
27	LUMIN	Internal connection	2.8	3.01	14	8.9	For adding VM
28	LUMOUT	Internal connection	2.8	3.01	14	8.9	For adding VM
29	BYO	Internal connection	2.3	2.22	13.5	8.9	
30	RYO	Internal connection	2.2	2.22	13.5	8.9	
31	BYIN	Internal connection	2.25	2.22	13.5	8.9	
32	RYIN	Internal connection	2.2	2.22	13.5	8.9	
33	REFO	subcarrier reference output	0.3	0.29	14.5	9	
34	XTAL1	3.58 MHz crystal connection port	2.47	2.47	14	9.2	
35	XTAL2	4.43MHz crystal	2.47	2.47	14	9.2	

		connection port					
36	DET	Loop filter phase detector	4.8	4.31	14	9.2	
37	V _{P2}	Second supply voltage (+8V)	7.8	7.83	1.8	1.8	
38	CVBSIO	CVBS-1 output	2.46	3.54	14	9.2	
39	DECDIG	Digital supply end decoupling	4.9	4.91	14	9.2	
40	H OUT	Horizontal output	0.41	0.41	3.5	3.5	
41	FBISO	Flyback input/sandcastle output	0.56	0.77	13	8.5	
42	PH2LF	Phase 2 filter	3.41	3.44	13.5	9	
43	PH1LF	Phase 1 filter	4.08	3.75	14	9	
44	GND2	Ground 2	0	0	0	0	
45	AVL	Automatic energy level control	0.04	0.04	14	8.9	8844/43 for EW function
46	VDRB	Vertical drive B output	2.23	2.33	14	8.9	
47	VDRA	Vertical drive A output	2.27	2.33	14	8.9	
48	IFIN	IF input 1	4.56	4.55	13	9.5	
49	IFIN2	IF input 2	4.56	4.55	13	9.5	
50	EHTO	EHT/over-voltage protection input	-0.28	-0.28	1.2	1.2	
51	VCS	Vertical sawtooth input	3.75	3.75	14	9.2	
52	I _{ref}	Reference current input	3.84	3.84	13	9.2	
53	DEC _{AGC}	AGC decoupling capacitor	4.43	1.18	14	9.2	
54	AGCOUT	Tuner AGC output	1.90	4.24	5.5	5.5	
55	AUDEEM	Audio deemphasis	2.88	2.86	14	9.2	
56	DECSDEM	Sound demodulator decoupling	2.54	2.50	14	9.2	

[4] Sound power amplification

TDA7057AQ (stereo)

Pin No.	Function
Pin ①	Sound volume DC level 1 control
Pin ②	Ground
Pin ③	Audio signal L input
Pin ④	Sound working voltage (+15V-18V)
Pin ⑤	Audio signal R input
Pin ⑥	Ground
Pin ⑦	Sound volume DC level 2 control
Pins ⑧⑩	Sound signal output (8 as positive and 10 as negative)
Pin ⑨	Ground

Pins ⑪ ⑬	Sound signal output (11 as positive and 13 as negative)
Pin ⑫	Ground

TDA7056 (mono)

Pin No.	Function
Pin ①	Blank
Pin ②	Sound working power supply (+14V-16V)
Pin ③	Audio signal input
Pin ④	Ground
Pin ⑤	Sound volume DC level control
Pins ⑥⑧	Loudspeaker output (6 as positive and 8 as negative)
Pin ⑦	Ground
Pin ⑨	Blank

[5] Vertical block TDA8356/TDA8351

Pin No.	Function
Pins ①②	Vertical drive signal input
Pin ③	Vertical working power supply (+16V negative pulse)
Pins ④⑦	Vertical output
Pin ⑤	Ground
Pin ⑥	Pump power supply (+45V negative pulse)
Pin ⑧	Vertical protection
Pin ⑨	Vertical feedback

The pins functions of 8356 and 8351 are all the same
only 8356 I=2A
8351 I=3A

[6] Video amplification TDA6107Q/TDA6108JF

Pin No.	Function
Pins ①②③	R,G and B input
Pin ④	Ground
Pin ⑤	Dark balance testing output
Pin ⑥	Working voltage +180V
Pins ⑦⑧⑨	R,G and B output

6107 and 6108 pins are all the same, 6107 has a bandwidth of 4.5MHz and 6108 has a bandwidth of 8MHz

[7] T402 Flyback transformer

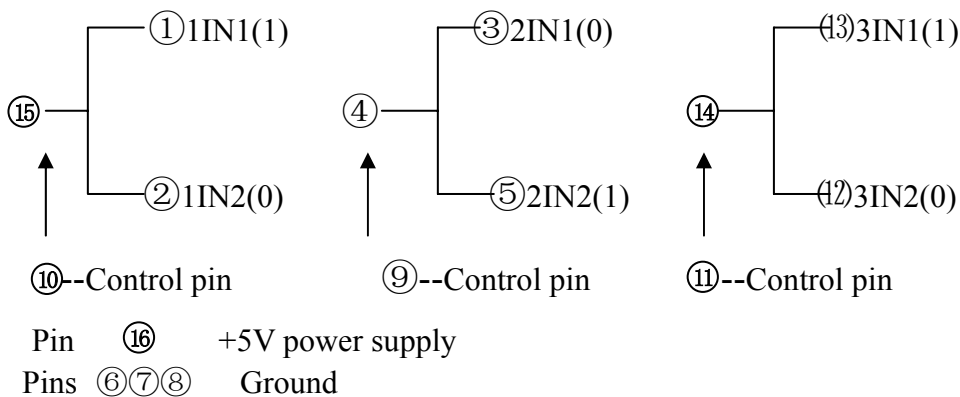
Pin No.	Function
Pin ①	Horizontal collector
Pin ②	+B
Pin ③	Vertical power supply (+45V)
Pin ④	Vertical power supply (+16V)
Pin ⑤	Ground
Pin ⑥	AFC $V_{p-p}=150V$
Pin ⑦	ABL
Pin ⑧	Heater

Pin ⑨	Video amplification voltage (+180V)
Pin ⑩	Blank

[8] Video switch HEF4053

Three sets of SPDT switches

Output 1



II. Description of adjustment

Factory status data for 8838/8842 chassis

A special remote controller for factory use must be used to enter the factory adjustment status of the 8838/8842 chassis, as detailed below:

You can enter the factory status by pressing continuously the “Maintenance” and “mute” keys on the factory remote controller. Now you can see the first menu display under factory status as follows:

MTV880C.		
OSDORGH	56	35-120
OSDORGV	13	0-45
OSDPLL	120	35-205

Remarks:

OSDORGH: for adjusting left and right positions of characters

OSDORGV: for adjusting up and down positions of characters

*OSDPLL: set value 120.

Note: The characters positions for PAL system signal and NTSC system signal should be adjusted separately.

Press the “Maintenance” key twice to enter the second menu under factory status, which gives the following display:

MTV880C.		
V-SLOPE	37	0-63
V-AMPL	20	0-63
V-S.CORR	17	0-63
V-SHIFT	29	0-63
V-ZOOM	25	0-63
V-SCROLL	31	0-63

Remarks:

V-SLOPE: Vertical semi-blanking adjustment, specifically as follows:

First receive the signal from the PHILIPS card to adjust this value, and adjust so that a horizontal line just appears in the center of the P card.

V-AMPL: vertical magnitude adjustment

V-S.CORR: vertical S-correction adjustment

V-SHIFT: vertical center adjustment

- *V-ZOOM: set value 25
- *V-SCORLL: set value 31

Note: The vertical adjustment for PAL system signal and NTSC system signal should be adjusted separately.

Press the “Maintenance” key three times to enter the third menu under factory status, which gives the following display:

MTV880C.		
H-SHIFT	36	0-63
H-WIDTH	31	0-63
H-PARAB	31	0-63
H-CORNER	31	0-63
H-TRAP	31	0-63

Remarks:

H-SHIFT: horizontal center position adjustment.

*H-WIDTH set value 31.

*H-PARAB set value 31.

*H-CORNER set value 31.

*H-TRAP set value 31.

Note: The horizontal center for PAL system signal and NTSC system signal should be adjusted separately.

Press the “Maintenance” key four times to enter the fourth menu under factory status, which gives the following display:

R-31
G-31
B-31
C-4

Remarks: R: brightness balance red gun adjustment

G: brightness balance green gun adjustment

B: brightness balance blue gun adjustment

C: set value is adjustable between 1-6, is determined by CRT driving voltage and has been set as a fixed value when leaving the factory.

Press the “Maintenance” key five times to enter the fifth menu under factory status, which gives the following display:

MTV880C.		
AGC-TAK	3	0-63
VOLUME-CON	40	0-63
Y-DELAY	7	0-15
IF-FRE	38.00	0-5
IN WINDOW ABOVE		

Remarks:

*AGC-TAK: set value 3

VOLUME-CON: set value 35-45 (This adjustment can change the volume, and has been set as a fixed value according to power requirement after leaving the factory)

*Y-DELAY: set value 7

*IF-FRE: set value 38 or 38.9 (set as a fixed value when leaving the factory)

IN WINDOW ABOVE: indicating MF is within the range.

Press the “Maintenance” key six times to enter the sixth menu, which gives the following display:

MTV880C .		
Y-CTI-DELAY	4	0-7
ADAP. BLACK	32	0-63
LUM. LINER	32	0-63
GAMMA	32	0-63
PEARING	32	0-63
STEEPNESS	32	0-63
CORE	32	0-63
LINE WIDTH	32	0-63

Remarks:

No item in this menu will function in the adjustment of this chassis.

Press the “Maintenance” key seven times to enter the seventh menu, which gives the following display:

OPTION 0	
WOOFER	1
WOOFER VOL	0
COMB FILTER	0
AUTO SOUND	0
DIRECT SWITCH	1
TUNE SPEED	0
STERO	1

Remarks: *WOOFER: set value 1 (0 for 21” and 14”)

*WOOFER VOL: set value 0

*COMB FILFER: set value 0

*AUTO SOUND: set value 0

*DIRECT SWITCH: set value 1

*TUNE SPEED: set value 0

*STERO: set value 1 (0 for machines with single audio channel)

Press the “Maintenance” key eight times to enter the level eighth menu, which gives the following display:

OPTION 1	
PAL 4.43	1
NTSC 3.58	1
NTSC 4.43	1
SECAM	0
DK	0
BG	0
I	0
M	0

Remarks:

*PAL 4.43: set value 1

*NTSC 3.58: set value 1

*NTSC 4.43: set value 1

*SECAM: set value 0 (it is a set value for 8842)

*DK: set value 0 (1 for full system)

*BG: set value 0 (1 for full system)

*I: set value 0 (1 for full system)

*M: set value 0 (1 for full system)

Press the “Maintenance” key nine times to enter the ninth menu, which gives the following display:

OPTION2	
AV1	1
AV2	1
AV3	0
SVHS	1
UI MODE	2
MESH MODE	0
IF	1
REVERSE SEARCH	0

Remarks:

- * AV1: set value 1
- *AV2: set value 1 (0 for one channel of AV input)
- *AV3: set value 0
- *SVHS: set value 1 (0 for 21” and 14”)
- *UI MODE: set value 2
- *MESH MODE: set value 0
- *IF: set value 1
- *REVERSE SEARCH: set value 0

Press the “Maintenance” key ten times to enter the tenth menu, which gives the following display:

OPTION3	
AV SOUND	
AV1	0
AV2	0
AV3	0
SVHS	0

Remarks: all being set value 0

Note:

1. Those with “*” are factory set values and must not be altered.
2. You can exit from the factory status by pressing the “TV” key on the remote controller in any level of factory menu.

III. Repair for common faults

1. Fault principle and analysis for video amplification section

① Characteristics and principle of automatic white balance adjustment of 8838/8842 series TV set

The primary colors R, G and B from the decoding circuit, after passing three independent video amplifiers, are applied to the cathodes of three independent electron guns, to control three independent electron beams, which are converged to hit the respective fluorescent materials. They should show white when mixed, but the luminous efficiency of the fluorescent materials cannot be the same due to the characteristics of elements in the three amplifiers and the electron emitting ability of the electron gun cathodes. Therefore balance adjustment must be performed to display a white color, hence it is referred to as white balance adjustment. In an ordinary color TV set, white balance is adjusted by adjusting the bias resistance of the video amplification, i.e., the static bias of video amplification pole and signal amplitude amplification ability, to control the balance of the three current beams. Despite careful adjustment before leaving the factory, after long-time service, any change in any parameter of the three independent channels will break the white balance, resulting in “color cast”. It can be restored to normal only after re-adjustment by specialized personnel. The

white balance is classified as “dark white balance” and “bright white balance”. Dark white balance means the white balance when the screen is in dark condition because of high cathode voltage of the electron gun and low electron beam current, it corresponds to the color cast resulted from different electron flow cut-off characteristics of the beams from three guns, therefore dark white balance adjustment is actually an adjustment of the static bias voltage of the video amplifier. The bright white balance is the white balance when the display screen is in bright status because of low cathode voltage of the electron gun and high electron beam current, it corresponds to the color cast resulted from different grid cathode transconductance characteristics of the three guns, therefore bright white balance adjustment is actually an adjustment of the output signal amplitude of the video amplifier.

In 8838/8842 series color TV set, the automatic white balance adjustment technique is adopted to achieve a good solution to the color cast problem. At the instance of each time when the machine is turned on, it automatically check and adjust the static bias voltage and output signal amplitude of the video amplification circuit, so that genuine, clear and bright colors can be maintained even after long time use of the TV set. The schematic diagrams of video amplification and white balance automatic check circuit of 8838/8842 color TV set is as shown in Fig. 9. Figs. 10 and 11 are the simplified schematics. The automatic adjustment method for white balance is: while the video amplifier and display with basically the same structure, bias and gain remaining fixed unchanged, the “dark voltage” and “bright voltage” permitting slight correction is fed respectively into the three independent amplifiers from the primary color R, G, B output ports of the TDA8842/8838, then the cathode current (electron beam current) of the three guns of the CRT is checked and compared with the same standard, to correct the output of R, G and B by negative feedback mode according to their difference, until the cathode current of the three guns are equalized (showing white). The entire adjustment is automatically performed under the control by the IIC bus.

With Figs. 9 and 10, we can analyze the automatic adjustment process of white balance. As the video amplifier is a horizontal amplifier, the grid cathode transconductance of the CRT electron guns after γ correction can be regarded as horizontal, because the respective cathode current is proportional to the driving voltages U_R , U_G and U_B . It can be known from Fig. 10 that, the cathode current of three electron guns is collected in the form of added sum. The cathode current of the three electron guns can only be checked with the “10-score method” respectively. Refer to Fig. 11, sandcastle pulse is generated according to horizontal return and vertical return pulses, and the leak current of the three guns are measured first with its timing control, which is completed during “LM” period, then the cathode current of dark white balance of the three electron guns for R, G and B is measured in turn, each for two scanning cycles, i.e., the “BM” period; with the same method, the respective cathode current is measured in turn during the “WM” period. The whole test takes 13 scanning cycles and is completed in 0.832ms.

The processing of the test results is as shown in Fig. 12, where only the comparison and adjustment principle block diagram for blue (B) is shown. The block diagrams for comparison and adjustment of R and G are identical and omitted. As the comparison standard for dark and bright is $V_{REF1} < V_{REF2}$, therefore the result of A1 is used to correct the output of bias circuit, and the comparison result of A2 used to correct the gain of the amplifier. Any time of test failure or adjustment beyond the specified range, R, G and B will output the blanking level.

② Main points in color cast and retrace fault repair in 8838/8842 series color TV

The traditional method to repair a color cast fault in color TV is to adjust the saturation, then observe if the picture turns to black and white after cutting off the saturation. If so, the fault is in the video amplification circuit or there is color cast in the CRT. With a color TV set with automatic white balance adjustment function, if the color cast remains after turning off the saturation, the check should be focused on the elements of video amplification circuit and the associated elements of 8838 main chips.

In case of a retrace fault, first analyze the cause of the fault according to the color of the retrace horizontal appearing. For example, if it is too blue, the video amplification circuit should be checked to see if the video amplification output voltage is too low, or any element such as the video amplification transistor is damaged. The video amplification circuit element for the color with problem should be checked. In most cases, it is damaged video amplification circuit element that lead to retrace and color cast, only in extreme few cases the CRT is damaged. In case of retrace fault without color cast, it is usually due to abnormality in the supply system for video amplification circuit and CRT acceleration pole voltage. Often open R215 or D490 and damaged D407 will result in retrace fault. Of course, sometimes the transistors in the video amplification circuit will damage at the same time.

2. Circuit analysis and maintenance for “three no’s” fault

The fault of “no picture, no sound and no power supply indication” (hereinafter referred to as “three no’s” fault) is a fault with high probability of occurrence in TDA8842/OM8838 series chassis. The following faults can be repaired using the methods described below:

① Indicator is not ON. The fault is mainly in the power supply circuit section.

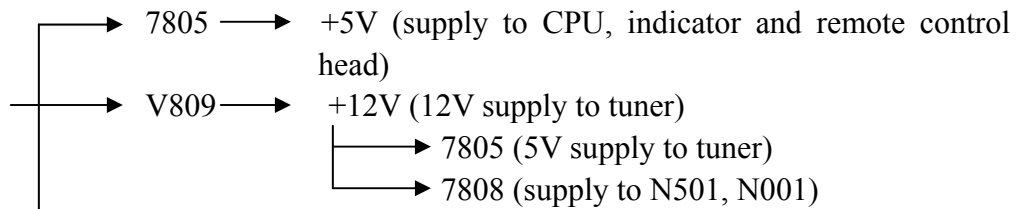
In this circuit, there are the following main voltage power supply systems:

● The power transformer T801 outputs the following voltage:

a. +B (main power supply)

b. +24V (power supply to horizontal drive and pillow distortion equalizing)

c. +15V



+5V (supply to CPU, indicator and remote control head)

+12V (12V supply to tuner)

7805 (5V supply to tuner)

7808 (supply to N501, N001)

d. +16V (sound power supply)

● Horizontal output transformer T402 outputs the following voltage:

a. +16V (vertical power supply)

b. +45V (vertical power supply)

c. +180V (video amplification voltage)

② The indicator is ON and the power supply output voltage is normal. The fault is mainly in the horizontal section, vertical section and video amplification section as follows:

In the fault automatic protection circuit in an ordinary color TV set, normally some external sampling circuits triggers a testing port of the thyristor or microprocessor, and after logic operation and determination by the microprocessor, a cut-off (waiting) signal level is output from a specific pin position of the microprocessor, to cut off the switching stabilized power supply +B voltage or horizontal scan triggering signal power supply output, to realize automatic protection cut-off for the main circuit of the color TV set.

OM8838/TDA8842 series color TV sets rely more on the “soft start and slow stop” function set inside the IC chip and the “automatic fault diagnosis” or logic protection function on some ports to realize protection for the circuit. In case of a fault in horizontal scanning, vertical scanning and video amplification circuits, the whole machine will be in the faulty status of “three no’s” fault.

The primary meaning of “soft start and slow stop” function is that, in case of oscillation stop in horizontal scanning output, excessive electron beam current, oscillation stop in vertical scanning output, it will immediately enter the “slow stop” process from the internal horizontal triggering output, and finally cut off the triggering output, resulting in the “three no’s” fault. Because of the internal protection provisions, even if the microcomputer-based monitoring system fails at this time, it will not damage other elements. Therefore for the repair of this “three no’s” fault in the chassis, it is permitted to cut off the power supply protection system of the microcomputer (CPU), then to monitor the change in voltage at various critical points quickly after “forced on”, so as to analyze the location of the fault. The “soft start” means in each turning on, there is a transition period from start to normal, without exception even for a TV set with fault. “Slow stop” means there is a transition period from normal to turning off once a fault functions. During the transition period, the voltage at a point without fault changes in the order of starting, normal and waiting, and the voltage at a point with fault changes in the order of starting, abnormal and waiting. Therefore each time after turning on again, check is started, the variation range of instrument measured values are observed in time within the valid time period, then any circuit or element with fault is determined according to the monitoring results during the transition period following turning on.

For the flow diagram of “three no’s” fault, see Fig. 13.

3. Quick checklist for common faults in TDA8842/OM8838 series color TV sets:

Fault symptom	Faulty unit circuit	Faulty element
Three no's, the indicator is not ON	Power supply section	Fuse F801 damaged, and resistor R802 damaged
Three no's, the indicator is not ON	Power supply section	Fuse F801 damaged, and diodes D801, D802, D805 and D806 damaged
Three no's, the indicator is not ON	Power supply section	Fuse F801 damaged, and transistors V802 and V805 damaged
Three no's, the indicator is ON	Horizontal section	V402 damaged, and C413 damaged
Three no's, the indicator is ON	Horizontal section	V402 damaged, and D412 damaged
Three no's, the indicator is ON	Power supply section	N807 damaged, and V809 damaged
Three no's, the indicator is not ON	Power supply section	N805 damaged
Top retrace horizontal	Vertical section	D406 damaged, and R307 damaged
Top retrace horizontal	Vertical section	N301 damaged, and R307 damaged
Three no's, the indicator is ON	Horizontal section	V401 damaged
Horizontal bright horizontal	Vertical section	R306 damaged, and D405 damaged
Three no's, the indicator is ON	Power supply section	V808 damaged
Three no's, the indicator is ON	Video amplification section	N201 damaged
No AV input	AV section	N001 damaged, and ZD001 damaged
Pillow distortion	Pillow distortion equalizing section	V452 radiator copper foil broken
Three no's, the indicator is ON	Power supply section	V801 damaged
Three no's, the indicator is ON	Video amplification section	V206, V201, V210 damaged

Parts No.	Description	Qty	Location
03000000	PARTS	0	
E9680030	GROUND LINE DISCRETENESS	1	
F6470290	POWER WIRE	1	
04000000	PART	0	
G0610760	RADIATING PIN(5V,8V)	1	
G0610760	RADIATING PIN(5V,8V)	1	
		2	
G0610790	RADIATING PIN(CUSION)	1	
G0610840	RADIATING PIN(12V)	1	
G0611140	RADIATING PIN(H.)	1	
G0611150	RADIATING PIN(R.)	1	
G0611160	RADIATING PIN(SOUND)	1	
G0611240	RADIATING PIN(POWER)	1	
G3600010	ISINGLASS PARCEL	1	
G7310000	FUSE CILP	2	
G7310050	REED	1	
G8203227	PCB BOARD(MAIN)	1	
G8203850	PCB BOARD(CRT)	1	
G8205381	PCB BOARD(KEY)	1	
G8205390	PCB BOARD(AV)	1	
G8440130	ISINGLASS PARCEL	1	
G8500000	WIRE COVER	1	
06000000	OUTSOURCING	0	
J2160003	COMPLETE SCREW M3x12I	1	
J2160003	COMPLETE SCREW M3x12I	2	
J2160003	COMPLETE SCREW M3x12I	2	
		5	
J2150004	COMPLETE SCREW M3x6	1	
J1010008	SCREW ST3x8C	1	
J1010008	SCREW ST3x8C	1	

J1010008	SCREW ST3x8C	1	
		3	
J3060001	RIVET 1.6x2.8	47	
J3060002	RIVET 2.5x3.5	21	
10000000	RESISTOR	0	
11000000	RT13-1/6W-10Ω±5%	1	R121
11000000	RT13-1/6W-10Ω±5%	1	R537
		2	
12200000	RT13-1/6W-22Ω±5%	1	R109
14700000	RT13-1/6W-47Ω±5%	1	R523
14700000	RT13-1/6W-47Ω±5%	1	R526
14700000	RT13-1/6W-47Ω±5%	1	R536
14700000	RT13-1/6W-47Ω±5%	1	R632
		5	
16800000	RT13-1/6W-68Ω±5%	1	R123
18200000	RT13-1/6W-82Ω±5%	1	R002
18200000	RT13-1/6W-82Ω±5%	1	R007
18200000	RT13-1/6W-82Ω±5%	1	R008
18200000	RT13-1/6W-82Ω±5%	1	R009
18200000	RT13-1/6W-82Ω±5%	1	R108
		6	
11001000	RT13-1/6W-100Ω±5%	1	R301
11001000	RT13-1/6W-100Ω±5%	1	R305
11001000	RT13-1/6W-100Ω±5%	1	R521
11001000	RT13-1/6W-100Ω±5%	1	R745
11001000	RT13-1/6W-100Ω±5%	1	R757
11001000	RT13-1/6W-100Ω±5%	1	R766
11001000	RT13-1/6W-100Ω±5%	1	R902
11001000	RT13-1/6W-100Ω±5%	1	R905
11001000	RT13-1/6W-100Ω±5%	1	R906
		9	
11501000	RT13-1/6W-150Ω±5%	1	R514
11801000	RT13-1/6W-180Ω±5%	1	R520
11801000	RT13-1/6W-180Ω±5%	1	R538
		3	
12701000	RT13-1/6W-270Ω±5%	1	R470
12701000	RT13-1/6W-270Ω±5%	1	R517
		2	

13301000	RT13-1/6W-330Ω±5%	1	R015
13301000	RT13-1/6W-330Ω±5%	1	R507
13301000	RT13-1/6W-330Ω±5%	1	R508
13301000	RT13-1/6W-330Ω±5%	1	R729
		4	
13901000	RT13-1/6W-390Ω±5%	1	R502
13901000	RT13-1/6W-390Ω±5%	1	R516
		2	
14701000	RT13-1/6W-470Ω±5%	1	R110
14701000	RT13-1/6W-470Ω±5%	1	R513
14701000	RT13-1/6W-470Ω±5%	1	R518
14701000	RT13-1/6W-470Ω±5%	1	R732
14701000	RT13-1/6W-470Ω±5%	1	R735
14701000	RT13-1/6W-470Ω±5%	1	R736
14701000	RT13-1/6W-470Ω±5%	1	R737
		7	
16801000	RT13-1/6W-680Ω±5%	1	R417
16801000	RT13-1/6W-680Ω±5%	1	R529
16801000	RT13-1/6W-680Ω±5%	1	R590
		3	
11002000	RT13-1/6W-1KΩ±5%	1	R418
11002000	RT13-1/6W-1KΩ±5%	1	R467
11002000	RT13-1/6W-1KΩ±5%	1	R479
11002000	RT13-1/6W-1KΩ±5%	1	R503
11002000	RT13-1/6W-1KΩ±5%	1	R505
11002000	RT13-1/6W-1KΩ±5%	1	R512
11002000	RT13-1/6W-1KΩ±5%	1	R525
11002000	RT13-1/6W-1KΩ±5%	1	R533
11002000	RT13-1/6W-1KΩ±5%	1	R535
11002000	RT13-1/6W-1KΩ±5%	1	R714
11002000	RT13-1/6W-1KΩ±5%	1	R746
		11	
11202000	RT13-1/6W-1.2KΩ±5%	1	R107
11202000	RT13-1/6W-1.2KΩ±5%	1	R468
11202000	RT13-1/6W-1.2KΩ±5%	1	R469
11202000	RT13-1/6W-1.2KΩ±5%	1	R780
11202000	RT13-1/6W-1.2KΩ±5%	1	R781
11202000	RT13-1/6W-1.2KΩ±5%	1	R916
		6	
11502000	RT13-1/6W-1.5KΩ±5%	1	R471
11802000	RT13-1/6W-1.8KΩ±5%	1	R104
11802000	RT13-1/6W-1.8KΩ±5%	1	R472

11802000	RT13-1/6W-1.8KΩ±5%	1	R519
11802000	RT13-1/6W-1.8KΩ±5%	1	R534
11802000	RT13-1/6W-1.8KΩ±5%	1	R620
11802000	RT13-1/6W-1.8KΩ±5%	1	R621
11802000	RT13-1/6W-1.8KΩ±5%	1	R628
11802000	RT13-1/6W-1.8KΩ±5%	1	R629
		9	
12202000	RT13-1/6W-2.2KΩ±5%	1	R522
12202000	RT13-1/6W-2.2KΩ±5%	1	R702
12202000	RT13-1/6W-2.2KΩ±5%	1	R837
		3	
12702000	RT13-1/6W-2.7KΩ±5%	1	R455
13002000	RT13-1/6W-3KΩ±5%	1	R481
13002000	RT13-1/6W-3KΩ±5%	1	R720
		3	
13302000	RT13-1/6W-3.3KΩ±5%	1	R509
13302000	RT13-1/6W-3.3KΩ±5%	1	R758
13302000	RT13-1/6W-3.3KΩ±5%	1	R759
13302000	RT13-1/6W-3.3KΩ±5%	1	R700
		4	
13902000	RT13-1/6W-3.9KΩ±5%	1	R401
13902000	RT13-1/6W-3.9KΩ±5%	1	R430
13902000	RT13-1/6W-3.9KΩ±5%	1	R480
		3	
14702000	RT13-1/6W-4.7KΩ±5%	1	R105
14702000	RT13-1/6W-4.7KΩ±5%	1	R312
14702000	RT13-1/6W-4.7KΩ±5%	1	R626
14702000	RT13-1/6W-4.7KΩ±5%	1	R635
14702000	RT13-1/6W-4.7KΩ±5%	1	R756
14702000	RT13-1/6W-4.7KΩ±5%	1	W1100
		6	
15102000	RT13-1/6W-5.1KΩ±5%	1	R721
15602000	RT13-1/6W-5.6KΩ±5%	1	R741
16802000	RT13-1/6W-6.8KΩ±5%	1	R476
16802000	RT13-1/6W-6.8KΩ±5%	1	R706
16802000	RT13-1/6W-6.8KΩ±5%	1	R712
16802000	RT13-1/6W-6.8KΩ±5%	1	R713
16802000	RT13-1/6W-6.8KΩ±5%	1	R715
16802000	RT13-1/6W-6.8KΩ±5%	1	R716
16802000	RT13-1/6W-6.8KΩ±5%	1	R717

16802000	RT13-1/6W-6.8KΩ±5%	1	R718
16802000	RT13-1/6W-6.8KΩ±5%	1	R750
16802000	RT13-1/6W-6.8KΩ±5%	1	R752
16802000	RT13-1/6W-6.8KΩ±5%	1	R753
16802000	RT13-1/6W-6.8KΩ±5%	1	R755
16802000	RT13-1/6W-6.8KΩ±5%	1	R782
		13	
11003000	RT13-1/6W-10KΩ±5%	1	R317
11003000	RT13-1/6W-10KΩ±5%	1	R421
11003000	RT13-1/6W-10KΩ±5%	1	R450
11003000	RT13-1/6W-10KΩ±5%	1	R465
11003000	RT13-1/6W-10KΩ±5%	1	R501
11003000	RT13-1/6W-10KΩ±5%	1	R506
11003000	RT13-1/6W-10KΩ±5%	1	R510
11003000	RT13-1/6W-10KΩ±5%	1	R511
11003000	RT13-1/6W-10KΩ±5%	1	R607
11003000	RT13-1/6W-10KΩ±5%	1	R638
11003000	RT13-1/6W-10KΩ±5%	1	R701
11003000	RT13-1/6W-10KΩ±5%	1	R705
11003000	RT13-1/6W-10KΩ±5%	1	R727
11003000	RT13-1/6W-10KΩ±5%	1	R728
11003000	RT13-1/6W-10KΩ±5%	1	R740
11003000	RT13-1/6W-10KΩ±5%	1	R771
11003000	RT13-1/6W-10KΩ±5%	1	R775
11003000	RT13-1/6W-10KΩ±5%	1	R777
11003000	RT13-1/6W-10KΩ±5%	1	R778
11003000	RT13-1/6W-10KΩ±5%	1	R830
11003000	RT13-1/6W-10KΩ±5%	1	R901
11003000	RT13-1/6W-10KΩ±5%	1	R722
		22	
11203000	RT13-1/6W-12KΩ±5%	1	R114
11203000	RT13-1/6W-12KΩ±5%	1	R708
11203000	RT13-1/6W-12KΩ±5%	1	R709
11203000	RT13-1/6W-12KΩ±5%	1	R770
		4	
11503000	RT13-1/6W-15KΩ±5%	1	R102
11503000	RT13-1/6W-15KΩ±5%	1	R103
11503000	RT13-1/6W-15KΩ±5%	1	R111
11503000	RT13-1/6W-15KΩ±5%	1	R112
11503000	RT13-1/6W-15KΩ±5%	1	R910
		5	
11803000	RT13-1/6W-18KΩ±5%	1	R452
11803000	RT13-1/6W-18KΩ±5%	1	R611
11803000	RT13-1/6W-18KΩ±5%	1	R615

		3	
12203000	RT13-1/6W-22K Ω \pm 5%	1	R320
12203000	RT13-1/6W-22K Ω \pm 5%	1	R738
		2	
12703000	RT13-1/6W-27K Ω \pm 5%	1	R915
13303000	RT13-1/6W-33K Ω \pm 5%	1	R504
13303000	RT13-1/6W-33K Ω \pm 5%	1	R532
13303000	RT13-1/6W-33K Ω \pm 5%	1	R723
13303000	RT13-1/6W-33K Ω \pm 5%	1	R724
		4	
13903000	RT13-1/6W-39K Ω \pm 5%	1	R478
13903000	RT13-1/6W-39K Ω \pm 5%	1	R725
		2	
14703000	RT13-1/6W-47K Ω \pm 5%	1	R001
14703000	RT13-1/6W-47K Ω \pm 5%	1	R005
14703000	RT13-1/6W-47K Ω \pm 5%	1	R006
14703000	RT13-1/6W-47K Ω \pm 5%	1	R608
14703000	RT13-1/6W-47K Ω \pm 5%	1	R612
14703000	RT13-1/6W-47K Ω \pm 5%	1	R627
14703000	RT13-1/6W-47K Ω \pm 5%	1	R637
14703000	RT13-1/6W-47K Ω \pm 5%	1	R785
14703000	RT13-1/6W-47K Ω \pm 5%	1	W907
		9	
15603000	RT13-1/6W-56K Ω \pm 5%	1	R451
16803000	RT13-1/6W-68K Ω \pm 5%	1	R903
16803000	RT13-1/6W-68K Ω \pm 5%	1	R904
		2	
11004000	RT13-1/6W-100K Ω \pm 5%	1	R475
11004000	RT13-1/6W-100K Ω \pm 5%	1	R625
11004000	RT13-1/6W-100K Ω \pm 5%	1	R636
11004000	RT13-1/6W-100K Ω \pm 5%	1	R912
		4	
11504000	RT13-1/6W-150K Ω \pm 5%	1	R531
12704000	RT13-1/6W-270K Ω \pm 5%	1	R477
14704000	RT13-1/6W-470K Ω \pm 5%	1	R742
15604000	RT13-1/6W-560K Ω \pm 5%	1	R419
11207001	RT14-1/4W-1.2 Ω \pm 5%	1	R308

12707001	RT14-1/4W-2.7Ω±5%	1	R309
12200001	RT14-1/4W-22Ω±5%	1	R815
14700001	RT14-1/4W-47Ω±5%	1	R219
14700001	RT14-1/4W-47Ω±5%	1	R222
14700001	RT14-1/4W-47Ω±5%	1	R227
14700001	RT14-1/4W-47Ω±5%	1	R236
14700001	RT14-1/4W-47Ω±5%	1	R237
14700001	RT14-1/4W-47Ω±5%	1	R240
		6	
11001001	RT14-1/4W-100Ω±5%	1	R402
12201001	RT14-1/4W-220Ω±5%	1	R218
12201001	RT14-1/4W-220Ω±5%	1	R235
12201001	RT14-1/4W-220Ω±5%	1	R246
		3	
13301001	RT14-1/4W-330Ω±5%	1	R221
13301001	RT14-1/4W-330Ω±5%	1	R225
13301001	RT14-1/4W-330Ω±5%	1	R229
13301001	RT14-1/4W-330Ω±5%	1	R231
13301001	RT14-1/4W-330Ω±5%	1	R239
13301001	RT14-1/4W-330Ω±5%	1	R241
		6	
11002001	RT14-1/4W-1KΩ±5%	1	R408
15101001	RT14-1/4W-510Ω±5%	1	R807
12702001	RT14-1/4W-2.7KΩ±5%	1	R816
12702001	RT14-1/4W-2.7KΩ±5%	1	R829
		2	
13302001	RT14-1/4W-3.3KΩ±5%	1	R425
13302001	RT14-1/4W-3.3KΩ±5%	1	R806
		2	
14702001	RT14-1/4W-4.7KΩ±5%	1	R220
14702001	RT14-1/4W-4.7KΩ±5%	1	R228
14702001	RT14-1/4W-4.7KΩ±5%	1	R238
14702001	RT14-1/4W-4.7KΩ±5%	1	R828
		4	
15602001	RT14-1/4W-5.6KΩ±5%	1	R805
11503001	RT14-1/4W-15KΩ±5%	1	R810

12203001	RT14-1/4W-22K Ω \pm 5%	1	R817
12203001	RT14-1/4W-22K Ω \pm 5%	1	R845
		2	
11004001	RT14-1/4W-100K Ω \pm 5%	1	R303
11504001	RT14-1/4W-150K Ω \pm 5%	1	R825
18200003	RT15S-1/2W-82 Ω \pm 5%	1	R410
11002003	RT15S-1/2W-1K Ω \pm 5%	1	R422
14703002	RT15-1/2W-47K Ω \pm 5%	1	R839
11204002	RT15-1/2W-120K Ω \pm 5%	1	R808
11204002	RT15-1/2W-120K Ω \pm 5%	1	R809
		2	
12204002	RT15-1/2W-220K Ω \pm 5%	1	R801
12204002	RT15-1/2W-220K Ω \pm 5%	1	
		2	
11800451	MZ73-18RM270 \square	1	RT801
14708207	RF10-1W-0.47 Ω \pm 10% \square	1	R209
14708207	RF10-1W-0.47 Ω \pm 10% \square	1	R490
		2	
12207207	RF10-1W-2.2 Ω \pm 10% \square	1	R306
11007208	RF10-2W-1 Ω \pm 10% \square	1	R427
11502303	RI40-1/2W-1.5K Ω \pm 10%	1	R206
11502303	RI40-1/2W-1.5K Ω \pm 10%	1	R207
11502303	RI40-1/2W-1.5K Ω \pm 10%	1	R208
		3	
11206301	RS11-1/2W-12M Ω \pm 10% \square	1	R819
11206301	RS11-1/2W-12M Ω \pm 10% \square	1	R820
		2	
11007101	RY16-1W-1 Ω \pm 5%	1	R911
13300101	RY16-1W-33 Ω \pm 5%	1	R307
11000103	RY26-1W-10 Ω \pm 5%	1	R456
11000103	RY26-1W-10 Ω \pm 5%	1	R466
		2	
12200103	RY26-1W-22 Ω \pm 5%	1	R311

11002103	RY26-1W-1K Ω \pm 5%	1	R415
14702103	RY26-1W-4.7K Ω \pm 5%	1	R426
11001104	RY27-2W-100 Ω \pm 5%	1	R416
11501104	RY27-2W-150 Ω \pm 5%	1	R310
11501104	RY27-2W-150 Ω \pm 5%	1	R407
		2	
11203104	RY27-2W-12K Ω \pm 5%	1	R772
11503104	RY27-2W-15K Ω \pm 5%	1	R210
11503104	RY27-2W-15K Ω \pm 5%	1	R217
11503104	RY27-2W-15K Ω \pm 5%	1	R232
		3	
15600102	RY17-2W-56 Ω \pm 5%	1	R811
11203102	RY17-2W-12K Ω \pm 5%	1	R821
13903603	RJ24-1/4W-39K Ω \pm 1%	1	R530
13002603	RJ24-1/4W-3K Ω \pm 1%	1	R302
11004601	RJ15-1/2W-100K Ω \pm 2%	1	R822
11807506	RX27-3-5-5W-1.8 Ω \pm 10%	1	R802
15607502	RX27-6W-5.6 Ω \pm 10%(卧式)	1	R412
11800401	RGCW5-5W-18 Ω \pm 10%	1	R812
12002704	WI06-2E-2K Ω \pm 20%	1	RP801
11003702	WI06-2E-10K Ω \pm 20%	1	RP450
15003702	WI06-2E-50K Ω \pm 20%	1	RP451
20000000	CAPACITOR	0	
21500002	CC1-06-63V-15pF \pm 5%-CH	1	C729
24700002	CC1-06-63V-47pF \pm 5%-CH	1	C507
24700002	CC1-06-63V-47pF \pm 5%-CH	1	C508
24700002	CC1-06-63V-47pF \pm 5%-CH	1	C715
		3	
25600002	CC1-06-63V-56pF \pm 5%-CH	1	C726
25600002	CC1-06-63V-56pF \pm 5%-CH	1	C727
		2	

21001006	CC1-08-63V-100pF±5%-CH	1	C702
21001006	CC1-08-63V-100pF±5%-CH	1	C705
21001006	CC1-08-63V-100pF±5%-CH	1	C706
21001006	CC1-08-63V-100pF±5%-CH	1	C707
21001006	CC1-08-63V-100pF±5%-CH	1	C708
21001006	CC1-08-63V-100pF±5%-CH	1	C723
21001006	CC1-08-63V-100pF±5%-CH	1	C724
		7	
22201335	CT1-06-63V-220pF±10%-2B4	1	C206
22701335	CT1-06-63V-270pF±10%-2B4	1	C207
23901335	CT1-06-63V-390pF±10%-2B4	1	C208
21002335	CT1-06-63V-1000pF±10%-2B4	1	C301
21002335	CT1-06-63V-1000pF±10%-2B4	1	C302
21002335	CT1-06-63V-1000pF±10%-2B4	1	C503
21002335	CT1-06-63V-1000pF±10%-2B4	1	C511
21002335	CT1-06-63V-1000pF±10%-2B4	1	C513
21002335	CT1-06-63V-1000pF±10%-2B4	1	C514
21002335	CT1-06-63V-1000pF±10%-2B4	1	C538
21002335	CT1-06-63V-1000pF±10%-2B4	1	C615
21002335	CT1-06-63V-1000pF±10%-2B4	1	C620
21002335	CT1-06-63V-1000pF±10%-2B4	1	C950
		10	
24702315	CT1-12-63V-4700pF±10%-2B4	1	C117
24702315	CT1-12-63V-4700pF±10%-2B4	1	C908
24702315	CT1-12-63V-4700pF±10%-2B4	1	C918
		3	
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C109
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C110
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C111
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C112
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C116
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C504
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C526
21003339	CT1-08-63V-0.01μF±10%-2F4	1	C728
		8	
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C007
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C008
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C510
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C515
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C530
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C622
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C625
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C901
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C902
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C905

22203339	CT1-08-63V-0.022μF±10%-2F4	1	C906
22203339	CT1-08-63V-0.022μF±10%-2F4	1	C915
		12	
22201313	CT1-06-500V-220pF±10%-2B4	1	C405
22701313	CT1-06-500V-270pF±10%-2B4	1	C426
24701313	CT1-06-500V-470pF±10%-2B4	1	C412
23902314	CT1-12-500V-3900pF±10%-2B4	1	C402
21002313	CT1-06-500V-1000pF±10%-2B4	1	C460
24701424	CT81-08-1KV-470pF±10%-2B4	1	C821
24701424	CT81-08-1KV-470pF±10%-2B4	1	C825
24701424	CT81-08-1KV-470pF±10%-2B4	1	C832
24701424	CT81-08-1KV-470pF±10%-2B4	1	C836
		4	
21002424	CT81-08-1KV-1000pF±10%-2B4	1	C806
21002424	CT81-08-1KV-1000pF±10%-2B4	1	C807
21002424	CT81-08-1KV-1000pF±10%-2B4	1	C808
21002424	CT81-08-1KV-1000pF±10%-2B4	1	C809
		4	
21002442	CT81-10-2KV-1000pF±10%-2B4	1	C205
21502401	CT81-12-2KV-1500pF±10%-2B4	1	C816
23303508	CBB21-400V-0.033μF±10%	1	C413
23904508	CBB21-400V-0.39μF±5%	1	C418
22204516	CBB62-250VAC-0.22μF±5%□	1	C801
22204516	CBB62-250VAC-0.22μF±5%□	1	C802
		2	
28202514	CBB81-1.6KV-8200pF±5%□	1	C406
28202514	CBB81-1.6KV-8200pF±5%□	1	C408
		2	
21503608	CH11-100V-0.015μF±5%	1	C818
22204204	CL11-50V-0.22μF±10%	1	C518
24704204	CL11-50V-0.47μF±10%	1	C621
22202201	CL11-100V-2200pF±10%	1	C006
22202201	CL11-100V-2200pF±10%	1	C525
22202201	CL11-100V-2200pF±10%	1	C716
		3	

23302201	CL11-100V-3300pF±10%	1	C529
23302201	CL11-100V-3300pF±10%	1	C911
		2	
24702220	CL11-100V-4700pF±5%	1	C812
21003201	CL11-100V-0.01μ±10%	1	C333
21503201	CL11-100V-0.015μF±10%	1	C819
21004206	CL11-63V-0.1μF±5%	1	C420
21004206	CL11-63V-0.1μF±5%	1	C505
21004206	CL11-63V-0.1μF±5%	1	C519
21004206	CL11-63V-0.1μF±5%	1	C532
21004206	CL11-63V-0.1μF±5%	1	C540
21004206	CL11-63V-0.1μF±5%	1	C627
21004206	CL11-63V-0.1μF±5%	1	C630
21004206	CL11-63V-0.1μF±5%	1	C815
21004206	CL11-63V-0.1μF±5%	1	C910
		9	
21004216	CL21X-50V-0.1μF±10%	1	C102
21004216	CL21X-50V-0.1μF±10%	1	C455
21004216	CL21X-50V-0.1μF±10%	1	C457
21004216	CL21X-50V-0.1μF±10%	1	C730
21004216	CL21X-50V-0.1μF±10%	1	C731
		5	
22204216	CL21X-50V-0.22μF±10%	1	C459
22204216	CL21X-50V-0.22μF±10%	1	
		2	
24704217	CL21X-63V-0.47μF±10%	1	C626
22204219	CL21X-100V-0.22μF-10%	1	C309
24701708	CT7-12-400VAC-470pF±10% □	1	C820
21002709	CT7-16-400VAC-1000pF±10% □	1	C805
24707108	CD110-6.3V-470μF±20%	1	C456
24704104	CD110-16V-0.47μF±20%	1	C718
22205104	CD110-16V-2.2μF±20%	1	C502
22205104	CD110-16V-2.2μF±20%	1	C509
22205104	CD110-16V-2.2μF±20%	1	C722
		3	
24705104	CD110-16V-4.7μF±20%	1	C701

24705104	CD110-16V-4.7μF±20%	1	C736
24705104	CD110-16V-4.7μF±20%	1	C105
24705104	CD110-16V-4.7μF±20%	1	C106
24705104	CD110-16V-4.7μF±20%	1	C107
		5	
21006104	CD110-16V-10μF±20%	1	C108
21006104	CD110-16V-10μF±20%	1	C517
21006104	CD110-16V-10μF±20%	1	C528
21006104	CD110-16V-10μF±20%	1	C624
21006104	CD110-16V-10μF±20%	1	C847
21006104	CD110-16V-10μF±20%	1	
		6	
24706104	CD110-16V-47μF±20%	1	C506
24706104	CD110-16V-47μF±20%	1	C523
		2	
21007104	CD110-16V-100μF±20%	1	C118
21007104	CD110-16V-100μF±20%	1	C452
21007104	CD110-16V-100μF±20%	1	C512
21007104	CD110-16V-100μF±20%	1	C521
21007104	CD110-16V-100μF±20%	1	C534
21007104	CD110-16V-100μF±20%	1	C732
21007104	CD110-16V-100μF±20%	1	C838
21007104	CD110-16V-100μF±20%	1	C912
		8	
24705105	CD110-25V-4.7μF±20%	1	C628
24705105	CD110-25V-4.7μF±20%	1	C633
		2	
21006105	CD110-25V-10μF±20%	1	C001
21006105	CD110-25V-10μF±20%	1	C616
21006105	CD110-25V-10μF±20%	1	C629
		3	
23306105	CD110-25V-33μF±20%	1	C425
24706105	CD110-25V-47μF±20%	1	C101
24706105	CD110-25V-47μF±20%	1	C631
		2	
21007105	CD110-25V-100μF±20%	1	C612
24707105	CD110-25V-470μF±20%	1	C417
24707105	CD110-25V-470μF±20%	1	C837
		2	
24707135	CD110X-25V-470μF±20%	1	C835

21008105	CD110-25V-1000 μ F \pm 20%	1	C617
22206106	CD110-35V-22 μ F \pm 20%	1	C848
24706106	CD110-35V-47 μ F \pm 20%	1	C401
24706106	CD110-35V-47 μ F \pm 20%	1	C450
		2	
23307106	CD110-35V-330 μ F \pm 20%	1	C826
21005107	CD110-50V-1 μ F \pm 20%	1	C516
21005107	CD110-50V-1 μ F \pm 20%	1	C520
21005107	CD110-50V-1 μ F \pm 20%	1	C536
21005107	CD110-50V-1 μ F \pm 20%	1	C717
21005107	CD110-50V-1 μ F \pm 20%	1	C907
21005107	CD110-50V-1 μ F \pm 20%	1	C909
		6	
21006107	CD110-50V-10 μ F \pm 20%	1	C451
21006107	CD110-50V-10 μ F \pm 20%	1	C703
		2	
22206107	CD110-50V-22 μ F \pm 20%	1	C306
21007107	CD110-50V-100 μ F \pm 20%	1	C305
21007109	CD110-63V-100 μ F \pm 20%	1	C416
21005133	CD114-16V-1 μ F \pm 20%	1	C533
21005119	CD288-160V-1 μ F \pm 20%	1	C427
24705120	CD288-250V-4.7 μ F \pm 20%	1	C214
22206120	CD288-250V-22 μ F \pm 20%	1	C415
24707119	CD288-160V-470 μ F \pm 20% □	1	C822
23307123	CD293-400V-330 μ F \pm 20%□	1	C811
24704130	CD71-50V-0.47 μ F \pm 20%	1	C222
26805125	CD71-100V-6.8 μ F \pm 20%	1	C458
30000000	INDUCTOR	0	
51110002	ZZ0006(3.5x5)	1	L701
31007001	LGA0307-1 μ H \pm 10%	1	L102

36807001	LGA0307-6.8μH±10%	1	L502
31000001	LGA0307-10μH±10%	1	L505
31200001	LGA0307-12μH±10%	1	L501
36802105	LGB-6800μH	1	L405
30000106	LGB1520-701K	1	L402
51090003	LCL-SH2A-2B <input type="checkbox"/>	1	L801
51090003	LCL-SH2A-2B <input type="checkbox"/>	1	L802
		2	
51030001	TLK-59097-2 <input type="checkbox"/>	1	
51020004	ALX31	1	L401
52040009	BCK-150-02A <input type="checkbox"/>	1	T801
52050003	BCT-25-1K1	1	T401
52030007	BSC27-3701E <input type="checkbox"/>	1	T402
40000000	SEMICONDUCTOR	0	
41010004	FW314055/FW314034S	1	D701
41020001	1N4148	1	D208
41020001	1N4148	1	D211
41020001	1N4148	1	D216
41020001	1N4148	1	D301
41020001	1N4148	1	D408
41020001	1N4148	1	D410
41020001	1N4148	1	D411
41020001	1N4148	1	D450
41020001	1N4148	1	D601
41020001	1N4148	1	D807
41020001	1N4148	1	D809
41020001	1N4148	1	D810
41020001	1N4148	1	D901
41020001	1N4148	1	D905
41020001	1N4148	1	D906
41020001	1N4148	1	D907
		16	
41020002	BAV21	1	D380
41040008	MTZJ3.6A(HZ4A2)	1	ZD701
41040006	MTZJ5.1B(HZ5C1)	1	ZD001
41040009	MTZJ6.8A(HZ7A1)	1	ZD802

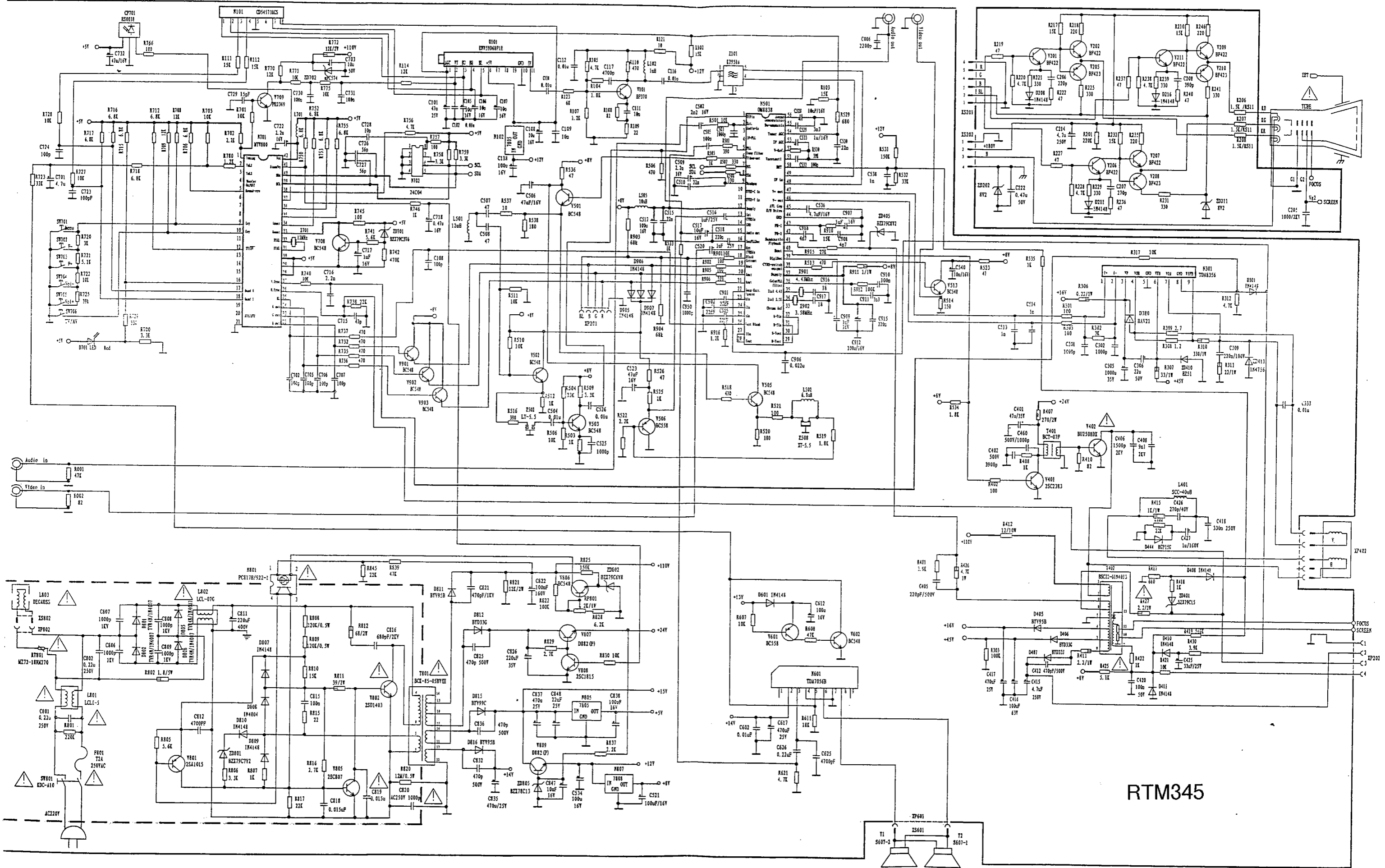
41040012	MTZJ7.5C(HZ7C2)	1	ZD801
41040007	MTZJ8.2C(HZ9A2)	1	ZD202
41040007	MTZJ8.2C(HZ9A2)	1	ZD211
41040007	MTZJ8.2C(HZ9A2)	1	ZD405
		3	
41040013	MTZJ13A(HZ12B2)	1	ZD805
41040026	MTZJ15C(HZ15-2)	1	ZD401
41040027	MTZJ22C	1	ZD820
41040001	HZ51	1	ZD410
41040001	HZ51	1	ZD411
		2	
41030030	GP15M/TVR4N	1	D801
41030030	GP15M/TVR4N	1	D802
41030030	GP15M/TVR4N	1	D805
41030030	GP15M/TVR4N	1	D806
		4	
41030011	1N4004	1	D808
41030029	3JH61	1	D811
41030016	BYV99C(2A)	1	D812
41030016	BYV99C(2A)	1	D815
		2	
41030009	FR305	1	D816
41030022	BYV95B	1	D405
41030023	BYD33G	1	D406
41030020	BYD33J	1	D407
41030031	BY228	1	D412
41030021	BYW95C	1	D415
42000011	2SA1015Y	1	V801
42000072	2SC4237 □	1	V802
42000019	2SC3807(CTV-YA)	1	V805
42000020	2SC2383O(R)	1	V401
42000056	2SD2012	1	V457
42000032	BC548(B)	1	V451
42000032	BC548(B)	1	V452

42000032	BC548(B)	1	V501
42000032	BC548(B)	1	V502
42000032	BC548(B)	1	V503
42000032	BC548(B)	1	V505
42000032	BC548(B)	1	V513
42000032	BC548(B)	1	V602
42000032	BC548(B)	1	V605
42000032	BC548(B)	1	V606
42000032	BC548(B)	1	V607
42000032	BC548(B)	1	V608
42000032	BC548(B)	1	V609
42000032	BC548(B)	1	V610
42000032	BC548(B)	1	V708
42000032	BC548(B)	1	V806
42000032	BC548(B)	1	V901
42000032	BC548(B)	1	V902
42000032	BC548(B)	1	V903
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42000033	BC558(B)	1	V450
42000033	BC558(B)	1	V456
42000033	BC558(B)	1	V506
42000033	BC558(B)	1	V601
		4	
42000016	2SC2688K	1	V201
42000016	2SC2688K	1	V206
42000016	2SC2688K	1	V211
		3	
42000062	BF420(BF422)	1	V202
42000062	BF420(BF422)	1	V207
42000062	BF420(BF422)	1	V209
		3	
42000063	BF421(BF423)	1	V205
42000063	BF421(BF423)	1	V208
42000063	BF421(BF423)	1	V210
		3	
42000002	2SC1815Y	1	V808
42000034	BF370	1	V101
42000057	BU2508DX □	1	V402
42000007	PH2369	1	V709
42000073	D882(P)	1	V807
42000073	D882(P)	1	V809
		2	
50000000	OTHERS	0	
43000016	HEF4053(BP)	1	N001

43000004	AN7805	1	N102
43000004	AN7805	1	N805
		2	
43000005	AN7808	1	N807
43000140	CD54573ACS	1	N101
43000053	MTV880C.V1.1	1	N701
43000054	OM8838(PS)	1	N501
43000031	AT24C04	1	N702
43000050	TDA7057AQ	1	N602
43000051	TDA8351	1	N301
43000001	μPC574J	1	ZD702
44000002	LTV817B(C)/P817B □	1	N801
51100001	RG-T-3.15A-250V □	1	F801
52010012	ENV59D68F1E □	1	U101
52060001	HS0038	1	CP701
51070004	LT 5.5M	1	Z502
51080004	XT 5.5M	1	Z508
51040007	JA18A-12.0MHz □	1	X701
51040003	JA18B-4.43MHz □	1	X901
51040004	JA25C-3.58MHz □	1	X902
51050010	K2951A □	1	Z101
53010003	GZS10-2-10C3 □	1	X200
52020002	YDT813-8W-16Ω	2	
52070027	CD0329A	1	
53030016	SW-2	1	X002
53020042	AV3-8.4-307	1	XS1103
53020017	AV3-8.4-305	1	X005
53020017	AV3-8.4-305	1	X006

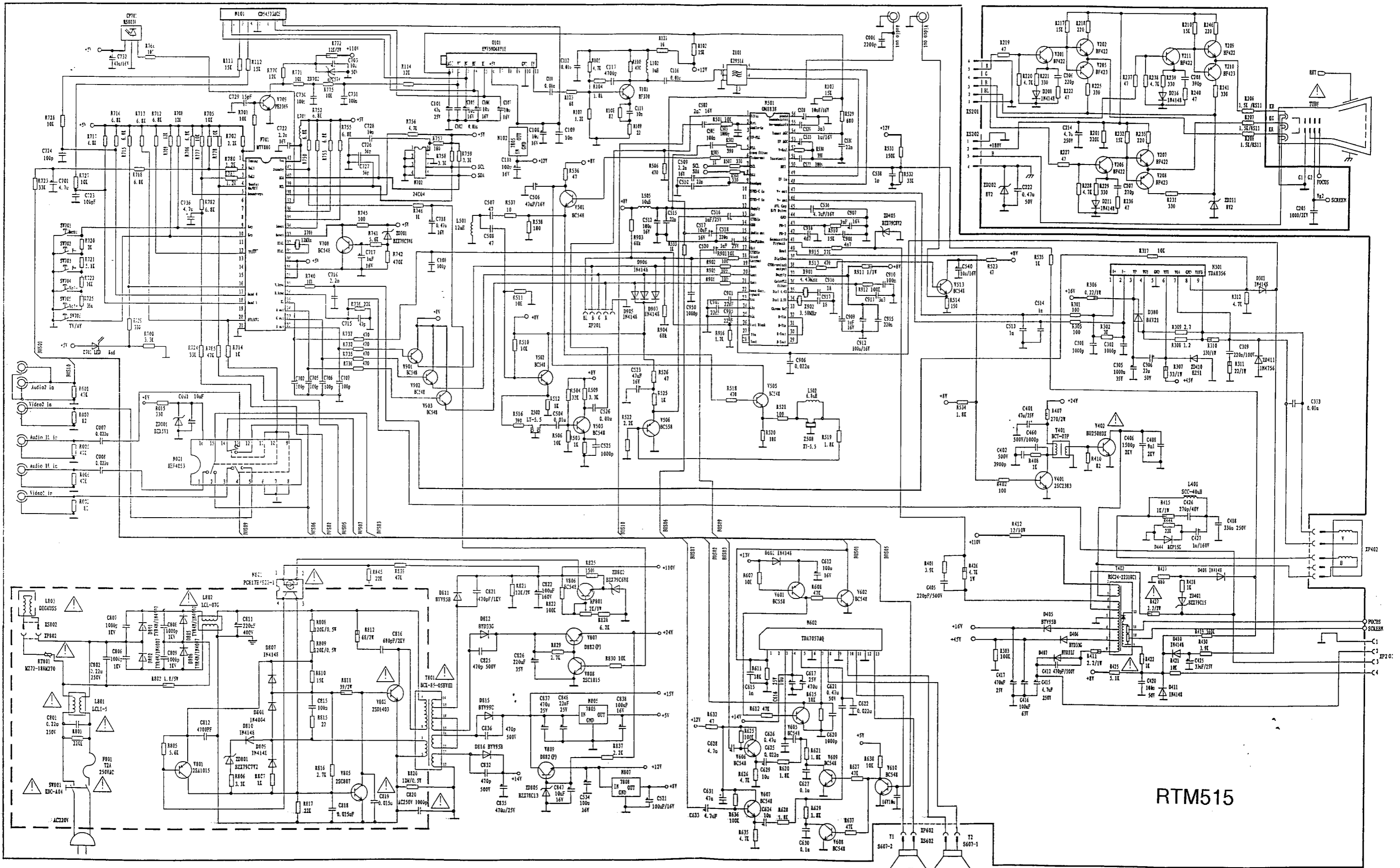
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71010201	TJC1-2A	1	XP803
71020101	TJC2-1A	1	TP-+B
71020101	TJC2-1A	1	X201
71020101	TJC2-1A	1	X202
		3	
71020201	TJC2-2A	1	XP802
71020501	TJC2-5A-4	1	XP402
71030301	TJC3-3A	1	XP004
71030301	TJC3-3A	1	XP702
		2	
71030401	TJC3-4A	1	XP202
71030401	TJC3-4A	1	XP602
		2	
71030501	TJC3-5A	1	XP201
71030502	TJC3-5A-4	1	XP701
E5690160	WIRE AWM1007 150mm	1	M-M'
E5690630	WIRE AWM1015 210mm	1	G-G1
E5690111	TERMINAL , PLUG TJC3-4Y(420)	1	XS202
E5690150	TERMINAL , PLUG TJC2-5Y(420)	1	XS402
E5690180	TERMINAL , PLUG TJC3-4Y(700)	1	XS602
E5690210	TERMINAL , PLUG TJC1-2Y(200)	1	XS803
E5690410	TERMINAL , PLUG TJC3-3Y(450)	1	XS1100
E5691250	TERMINAL , PLUG TJC3-3Y(250)	1	XS702
E5691260	TERMINAL , PLUG TJC3-5Y(250)	1	XS701
E5691290	TERMINAL , PLUG TJC3-5Y(420)	1	XS201
54020004	KFC-A06-A(1.5mm)	1	SW701
54020004	KFC-A06-A(1.5mm)	1	SW702
54020004	KFC-A06-A(1.5mm)	1	SW703
54020004	KFC-A06-A(1.5mm)	1	SW704
54020004	KFC-A06-A(1.5mm)	1	SW705
54020004	KFC-A06-A(1.5mm)	1	SW706
		6	
54010015	KDC-A04 □	1	SW801

14" OM8838 MONO CIRCUIT SCHEMATIC



RTM345

21" OM8838 STEREO CIRCUIT SCHEMATIC



RTM515

29" OM8838 CIRCUIT SCHEMATIC

RTM685

