Haier

COLOUR TELEVISION

SERVICE MANUAL



Models

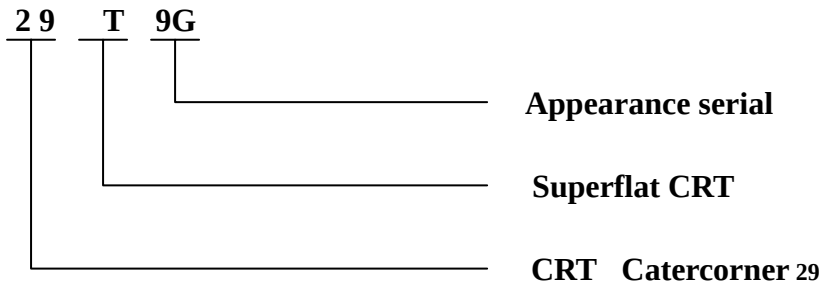
29T9G

Latin America

- **Features**

- **DIGITAL IC^2 BUS CONTROL**
- **AUTO SEARCH TUNING, 250 PROGRAMS STORED**
- **FULL INFRARED REMOTE CONTROL**
- **MULTI-PICTURE MODES SELECTION**
- **MULTI-FUNCTION TIMER, APPOINTING PROGRAMME**

1. Product code illumination and series introduction



Features

⊙ **DIGITAL IC2 BUS CONTROL**

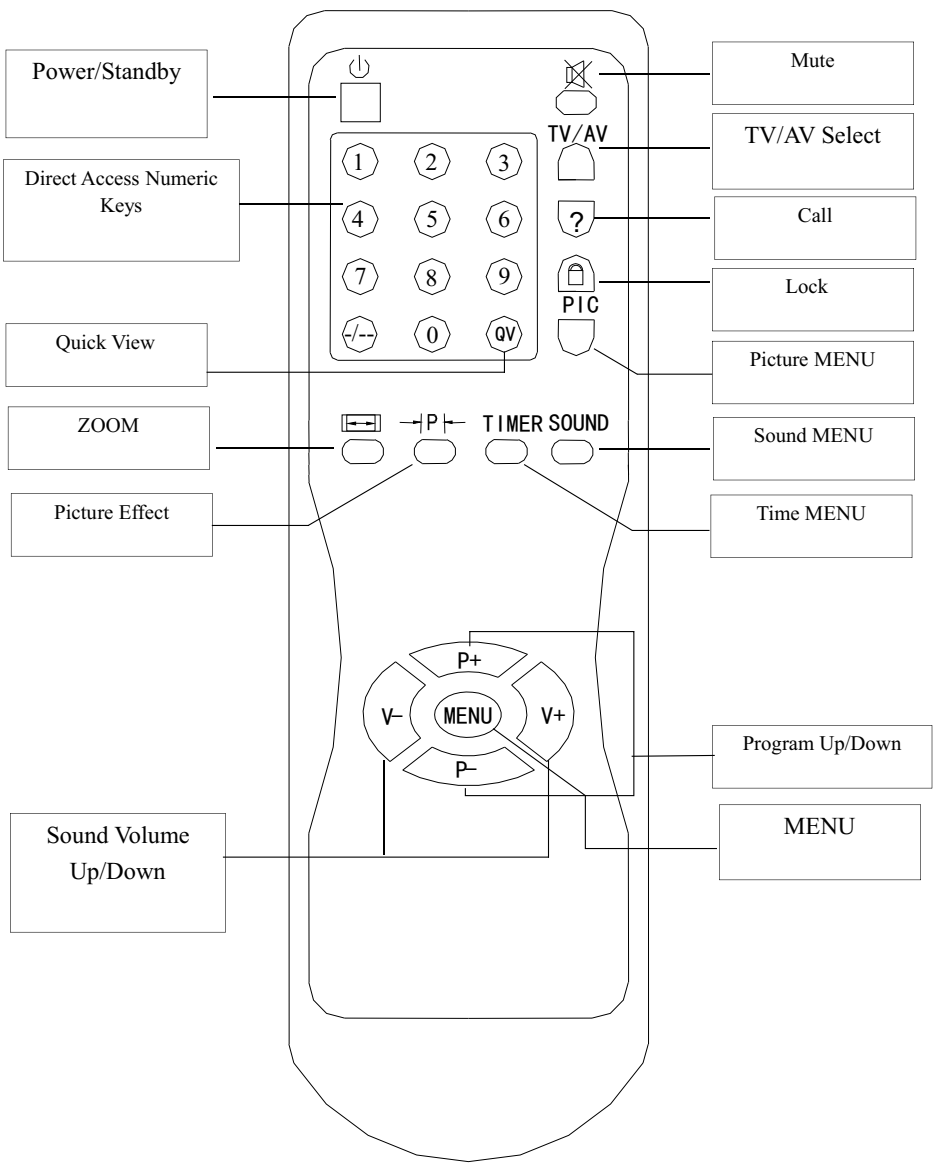
⊙ **AUTO SEARCH TUNING, 250 PROGRAMS STORED**

⊙ **FULL INFRARED REMOTE CONTROL**

⊙ **MULTI-PICTURE MODES SELECTION**

⊙ **MULTI-FUNCTION TIMER, APPOINTING PROGRAMME**

2. REMOTE CONTROLLER



3. Specifications

NO.	FUNCTION		
1	PIC	Main IC	TDA9381
2		CRT	PF
3		Color system	NTSC
4		Audio system	M
5		NO.of channels	181
6		OSD language	E/F/A
7		Multi-picture modes	YES
8	AUDIO	AV stereo	YES
9		Super woofer	
10		Surrounding sound	
11		Treble/bass boost	
12		Left/right balancer	
13		NICAM	
14		Multi-audio modes	YES
15		Tone adjuster	
16		MTS/SAP	
17		Auto-volume leveling	YES
18	JIC	AV input	YES
19		AV output	YES
20		DVD terminal	YES
21		S-video jack	YES
22		Headphone socket	
23		SCART socket	
24	SOFTWARE	Digital curtain	
25		Slow fading on & off	
26		Semitransparent menu	YES
27		Non-flshing channel changing	
28		ZOOM	YES
29		16:9 mode	YES
30		Games	
31		Calendar	YES
32		Child-lock	YES
33		Multi-functional lock	YES
34		No-picture listening	
35		Background light	
36		Auto-timer on	YES
37		CCD	YES
38		V-CHIP	YES

NO.	FUNCTION		
39	PARAMETER	NO. of built-in speakers	2
40		Audio output power(W)	4W+4W
41		Total power input（W）	140
42		Voltage range（V）	110-250V
43		Power frequency（Hz）	50HZ
44		Time of sleep timer(MINS)	10S
45		Net weight(KG)	40.5Kg
46		Gross weight(KG)	45.5Kg
47		Net dimension(MM)	
48		Packaged dimension(MM)	
49		Quantity for 20' container	
50		Quantity for 40' container	
51		Quantiry for 40' high container	
52	APPROVAL	Acquired certificate	
53		Suitable market	

4.SAFETY PRECAUTIONS

INPORTANT SAFETY NOTICE

These parts are identified by many electrical and mechanical parts in this chassis have special safety-related characteristics.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of the manufacturer.

General Guidance

An Isolation Transformer should always be used during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents that might result in personal injury caused by electrical shocks.

It will also protect the receiver and it’s components from being damaged by accidental shorts of the circuitry that might be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this TV receiver is blown, replace it with a specified one.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to the high vacuum and large surface area of the picture tube, extreme care should be taken in handling the Picture Tube. Do not lift the Picture Tube by its Neck.

X-RAY Radiation

Warning:

The source of X-RAY RADIATION in this TV receiver is the High Voltage Section and the Picture Tube.

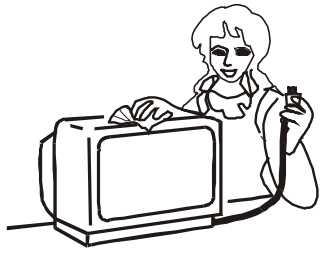
For continued X-RAY RADIATION protection, the replacement tube must be of the same type as specified in the Replacement Parts List.

Before returning the receiver to the customer,

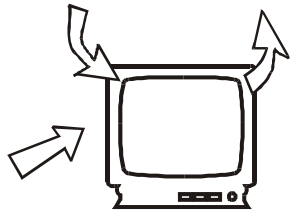
Always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to make sure that the set is safe to operate without any danger of electrical shock.

5.Warning and Cautions

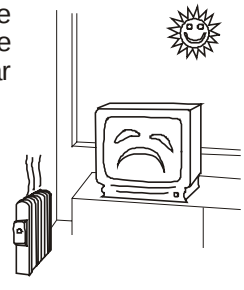
1. When you clean the TV set, please pull out the power plug from AC outlet. Don't clean the cabinet and the screen with benzene, petrol and other chemicals.



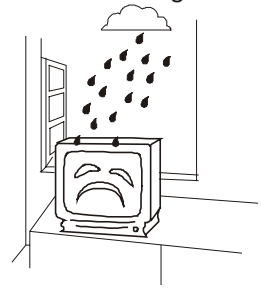
2. In order to prolong the using life of the TV set, please place it on a ventilated place.



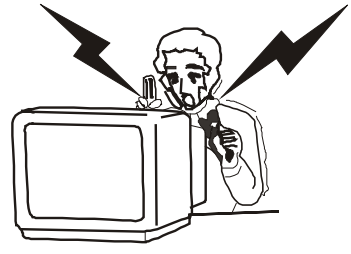
3. Don't place the TV set in the sunshine or near heat source.



4. To prevent the TV set from firing and electric shock, don't make the TV set rain or moisture.



5. Don't open the back cover, otherwise it is possible to damage the components in the TV set and harm you.



6. When the TV set isn't going to be used for long time or it is in thunder and lightening, please pull out the plug from AC outlet and the antenna plug from the cover of the TV set.

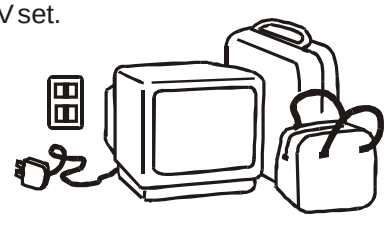


Figure 1

Explanation on the display tube

Generally, it is not needed to clean the tube surface. However, if necessary, its surface can be cleaned with a dry cotton cloth after cutting off the power. Don't use any cleanser. If using hard cloth, the tube surface will be damaged.

CAUTION: Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS**.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions. **Remember : Safety First.**

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:
   a. Removing or reinstalling any component, circuit board module or any other assembly of the receiver.
   b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

      CAUTION: A wrong substitution part or incorrect installation polarity of electrolytic capacitors may result in an explosion hazard.
   d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage-measuring device (DVM, FETVOM, etc.) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Discharge the picture tube anode only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube anode button, using an insulating handle to avoid personal contact with high voltage.
4. Do not spray chemicals on or near this receiver or any of its assemblies.
5. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength)

   CAUTION: This is a flammable mixture.

   Unless specified otherwise in this service manual, lubrication of contacts is not required.
6. Do not defeat any plug / socket B+ voltage interlocks with which receivers covered

by this service manual might be equipped.

7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.

8. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

   Always remove the test receiver ground lead last.

9. Use with this receiver only the test fixtures specified in this service manual.

   CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components are usually called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static type folder removal device. Some solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise even some normally harmless motions such as mutual brushing of your clothes' fabric or lifting of your foot from a carpeted floor might generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500 ^{o}f to 600 ^{o}f.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a mall wire bristle (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spay-on cleaners.
5. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature.(500 ^{o} F to 600^{o} F)
   b. Heating the component lead until the solder melts.
   c. Quickly draw the melted solder with an anti-static, suction-type solder removal device with solder braid.

      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following unsoldering technique
   a. Allow the soldering iron tip to reach normal temperature.(500 ^{o} F to 600^{o} F)
   b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.

      CAUTION: Work quickly to avoid overheating the circuit board printed foil.
   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

Remove /Replacement

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are of slotted type, the following technique should be used to remove and replace the IC. When working with

boards using the familiar round hole, use the standard technique as Outlined .

Removal

Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.

Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

Carefully insert the replacement IC in the circuit board.

Carefully bend each IC lead against the circuit foil pad and solder it.

Clean the soldered areas with a small wire-bristle brush.(It is not necessary to reapply acrylic coating to the areas).

“Small-Signal” Discrete Transistor Removal/Replacement

Remove the defective transistor by clipping its leads as close as possible to the component body.

Bend into a “U” shape the end of each of three leads remaining on the circuit board.

Bend into a “U” shape the replacement transistor leads.

Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to insure metal to metal contact then solder each connection.

Power Output, Transistor Device Removal/Replacement

Heat and remove all solder from around the transistor leads.

Remove the heat sink mounting screw (if so equipped).

Carefully remove the transistor from the heat sink of the circuit board.

Insert new transistor in the circuit board.

Solder each transistor lead, and clip off excess lead.

Replace heat sink.

Diode Removal/Replacement

Remove defective diode by clipping its leads as close as possible to diode body.

Bend the two remaining leads perpendicularly to the circuit board.

Observing diode polarity, wrap each lead of the new diode round the corresponding lead on the circuit board.

Securely crimp each connection and solder it.

Inspect (on the circuit board copper side) the solder joints of the two “original” leads. If they are not shiny, reheat them and if necessary, apply additional solder.

Fuse and Conventional Resistor

Removal/Replacement

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.
3. Solder the connections

   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds foil to the circuit board causing the foil to separate from or “lift-off” the board. The following guidelines and procedures should be followed whenever this condition is encountered.

At IC Connections

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board.(Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small “U” in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

At other connections

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife.

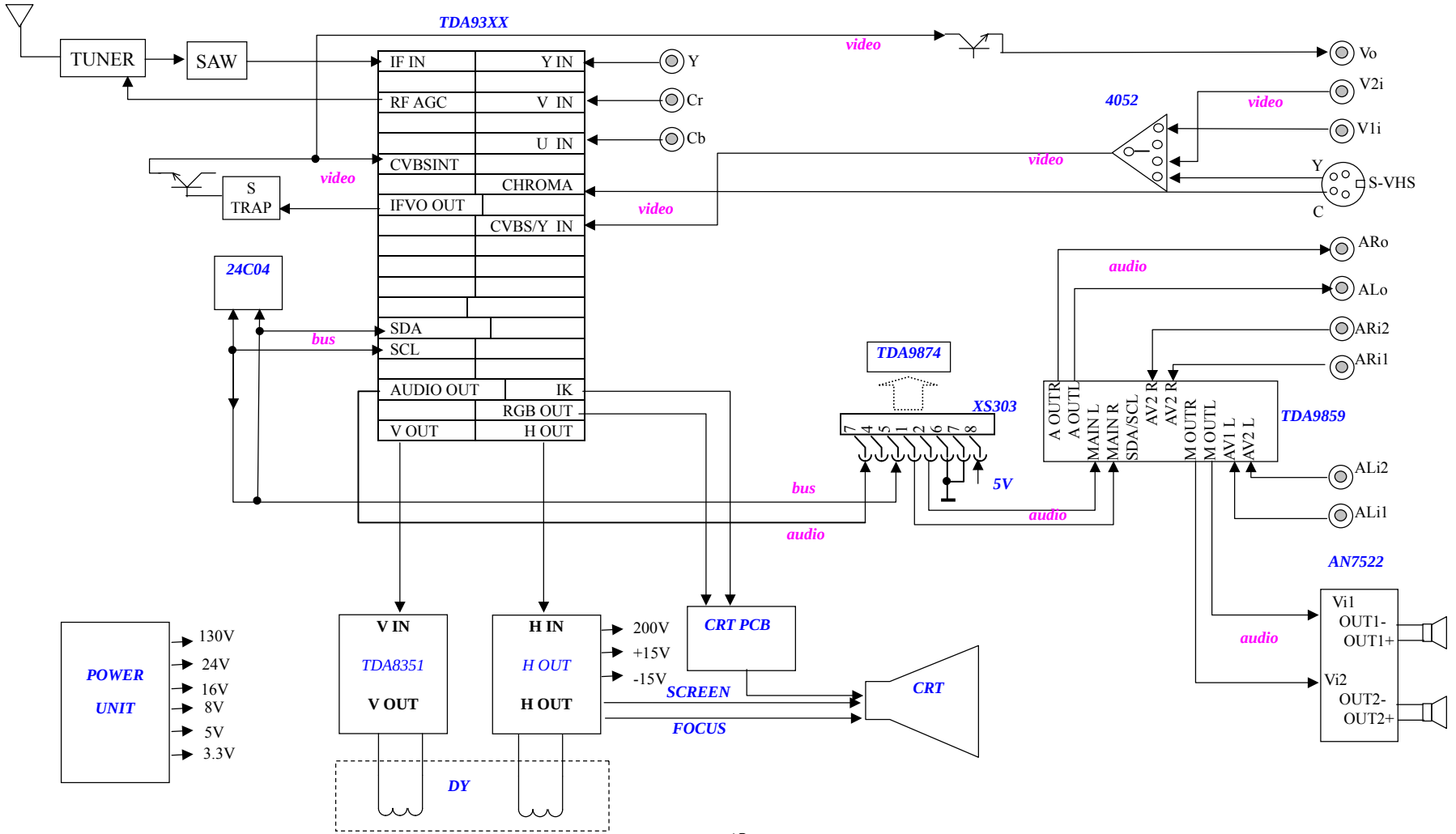
   Remove at least 1/4 inch of copper, to insure that a hazardous condition will not exist if the jumper wire opens.

2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side.

Carefully crimp and solder the connections.

CAUTION: Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

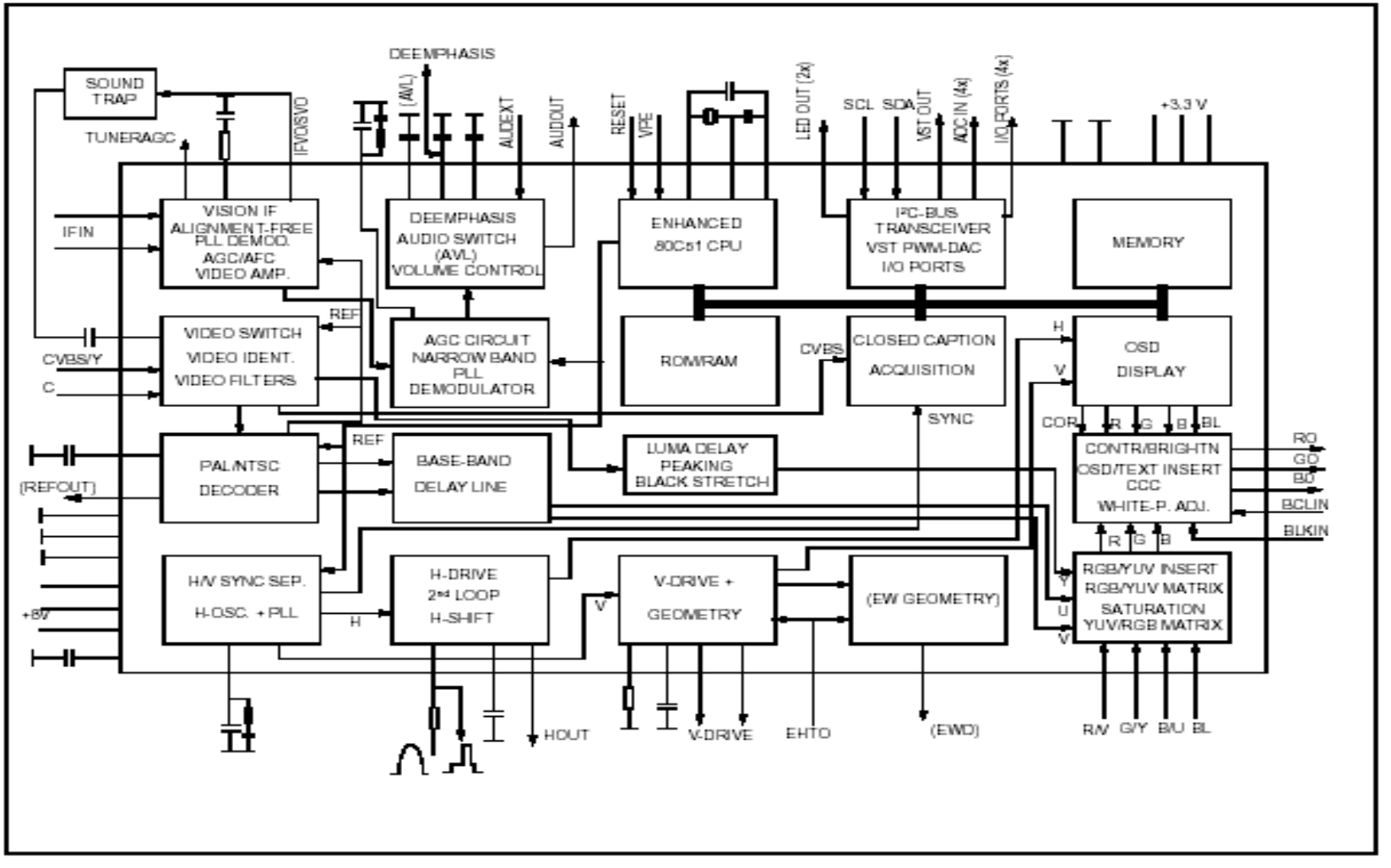
6.TV Block diagram



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
Monointer-carriermulti-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	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



7.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.

8.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.

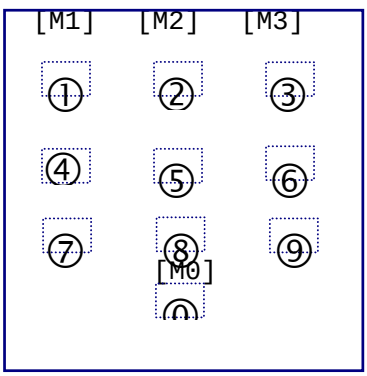
FOCUS ADJUSTMENT

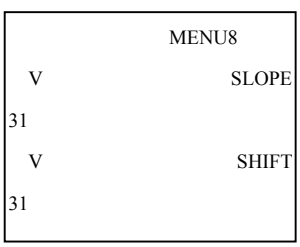
1. **Receive a crosshatch signal.**
2. **While watching the screen, adjust the FOCUS VR to make the vertical and horizontal lines as fine and sharp as possible.**

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





[M8] menu

MENU0 Geometrical adjustment

Receive PAL standard Complete pattern signal.

Adjustment steps：

a) Adjust V. SLOPE, to the center horizontal line just appeare from half bottom shadow.

b) Adjust V. SIZE, to get 90% of vertical picture contents would be displayed on CRT.

c) Adjust V. SHIFT, the center horizontal line correspond to CRT vertical center.

d) 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.

a) CRT cut off adjustment.

1. **Select "SC", then automatically vertical scan will be stopped.**
2. **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).**

b) White balance adjustment.

1. **Select RD/BD menu.**
2. **Adjust RD/BD to get colour temperature as x=281, y=311**

c) Sub-Brightness adjustment. (Use stair case signal)

1. **Select SB menu.**
2. **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 ADRESS	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	9					
	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					

3.TDA9384 OR TDA9363 ---2NG UOC

I^2C standard UOC for export bus control adjustment item default setting

MI	Items	Variable	Preset
M0	AVL	ON/OFF	ON
	FSL	ON/OFF	ON
	FMWS	ON/OFF	OFF
	FFI	ON/OFF	OFF
	OSO	ON/OFF	ON
	FCO	ON/OFF	OFF
	WOOFER	ON/OFF	OFF
	DUAL OUT	0~1	1
	VOLPIN	OPEN/DRAIN	OPEN-DRAIN
M1	BAND*	0~2	2
	AV CFG*	0~9	3(9AVMODE) ， 9(SCART MODE)
	NTSC MX		USA
	VIDEO OUT		CVBS
	PIN5*		NTSC
	PRO	0~3	0
	STARTTIME	0～15	10
M2	VISION IF		38.9M
	DK	ON/OFF	ON
	BG	ON/OFF	ON
	I	ON/OFF	OFF
	M	ON/OFF	OFF
	SIF PREFER		DK
	AUTO SOUND	ON/OFF	ON
M3	START ON	0~2	0
	ENGLISH	ON/OFF	ON
	ARABIC	ON/OFF	ON
	PERSIAN	ON/OFF	ON
	TURKISH	ON/OFF	ON
	FRANCE	ON/OFF	ON
	RUSSIA	ON/OFF	ON)
	BULGARIA	ON/OFF	ON
	PORTUGUESE	ON/OFF	ON
MI	Items	Variable	Preset
M4	SUBCON		63

	SUBCOL		63
	SUBSHP		63
	SUBTINT		15
	YDLY PAL		15
	YDLY NTSC		15
	YDLY SEC		15
	YDLY AV		15
	UOC VOL		OFF
	UOCVOL	0~63	50
	TDA9874 GAIN	0~30	15
	CATHODE		4 (14”—21”), 6 (25”), 8 (29”), 10 (34”)
	SC BRI		20
M5	OSD VPOS		53
	OSD HPOS		15
	WIDE		15
	ZOOM		59
	NENU TITLE		3
	E2PROM AORESS		0~33
	E2PROM VALUE		0~95
	E2PROM WRITE		
M6	SHIPMODE		
	Searchspeed		3
M7	AGC-TOP		25(AGC)
	AGCSPEED		1
	SP1		20
	SP25		50
	SP50		75
M8	FREQUENCY		50HZ
	VSLOPE		37
	VSHIFT		32
	VAMP		51
	VSCOR		30
	HSHIFT		36
	RGB HSHIFT	63	8
	RGB HPOS		0
	WIDE		0~63
	HPARA		0~63
	HBOW		0~63
	EWPARA		0~63

	EWUCP		0~63
	EWLCP		0~63
	EWTRAP		0~63
M9	BT		48
	CT		48
	SC		OFF
	RB		32
	GB		32
	RD		32
	BD		32
	SB		40

*2. method of LOGO input:

- when E2PROM ADRESS = 0, to adjust E2PROM VALUE may be changed horizontal position of LOGO.
  It's range is from 10 to 20.
- when E2PROM ADRESS =1, to adjust E2PROM VALUE may be changed vertical position of LOGO.
  It's range is from 1 to 30.
- when E2PROM ADRESS =2, to adjust E2PROM VALUE may be changed color of LOGO.
  It's range is from 0 to 7.

VALUE	0	1	2	3	4	5	6	7
COLOR	RED	BLUE	GREEN	CYAN	ORANGE	PINK	YELLOW	WHITE

- when E2PROM ADRESS =3, to adjust E2PROM VALUE may be changed size of LOGO.
  It's range is from 0 to 3.
- when E2PROM ADRESS =4~33, to adjust E2PROM VALUE may be changed character of LOGO.
  It's range is from 0 to 95.

0	8	16	24	32	40	48	56	64	72	80	88
	(	0	8	@	H	P	X	—	h	p	x
1	9	17	25	33	41	49	57	65	73	81	89
!	)	1	9	A	I	Q	Y	a	i	q	y
2	10	18	26	34	42	50	58	66	74	82	90
”	*	2	:	B	J	R	Z	b	j	r	z
3	11	19	27	35	43	51	59	67	75	83	91
£	+	3	;	C	K	S	←	c	k	s	$^{1}_{4}$
4	12	20	28	36	44	52	60	68	76	84	92
$	,	4	<	D	L	T	$^{1}_{2}$	d	l	t	| |
5	13	21	29	37	45	53	61	69	77	85	93

%	-	5	=	E	M	U	→	e	m	u	$\frac{3}{4}$
6	14	22	30	38	46	54	62	70	78	86	94
🖷	.	6	>	F	N	V	↑	f	n	v	÷
7	15	23	31	39	47	55	63	71	79	87	95
’	/	7	?	G	O	W	#	g	o	w	■

9. 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^2C-bus clock line**
SDA	**3**	**I^2C-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**

ICs functional description

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/UIN	**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**					
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.

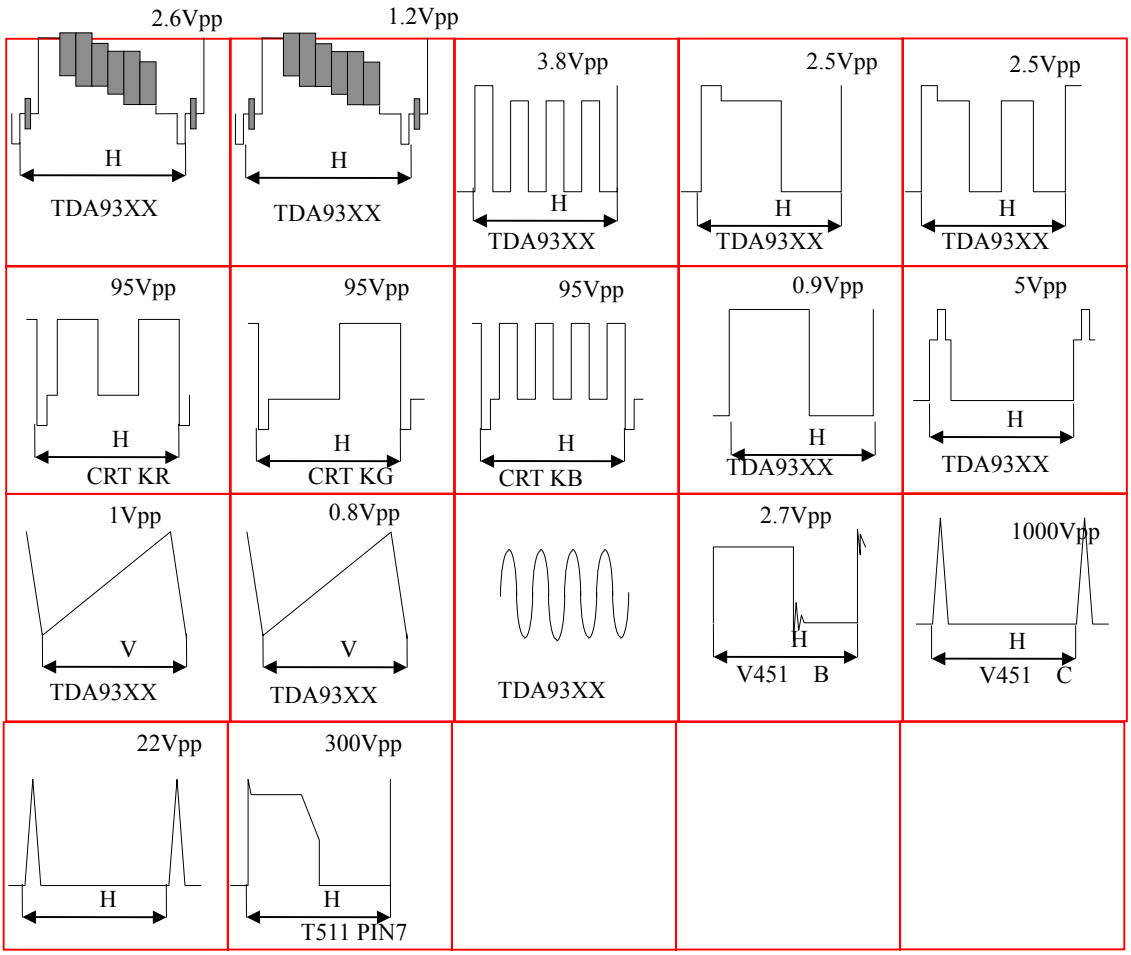
LA78040/78045 **Function :** vertical output

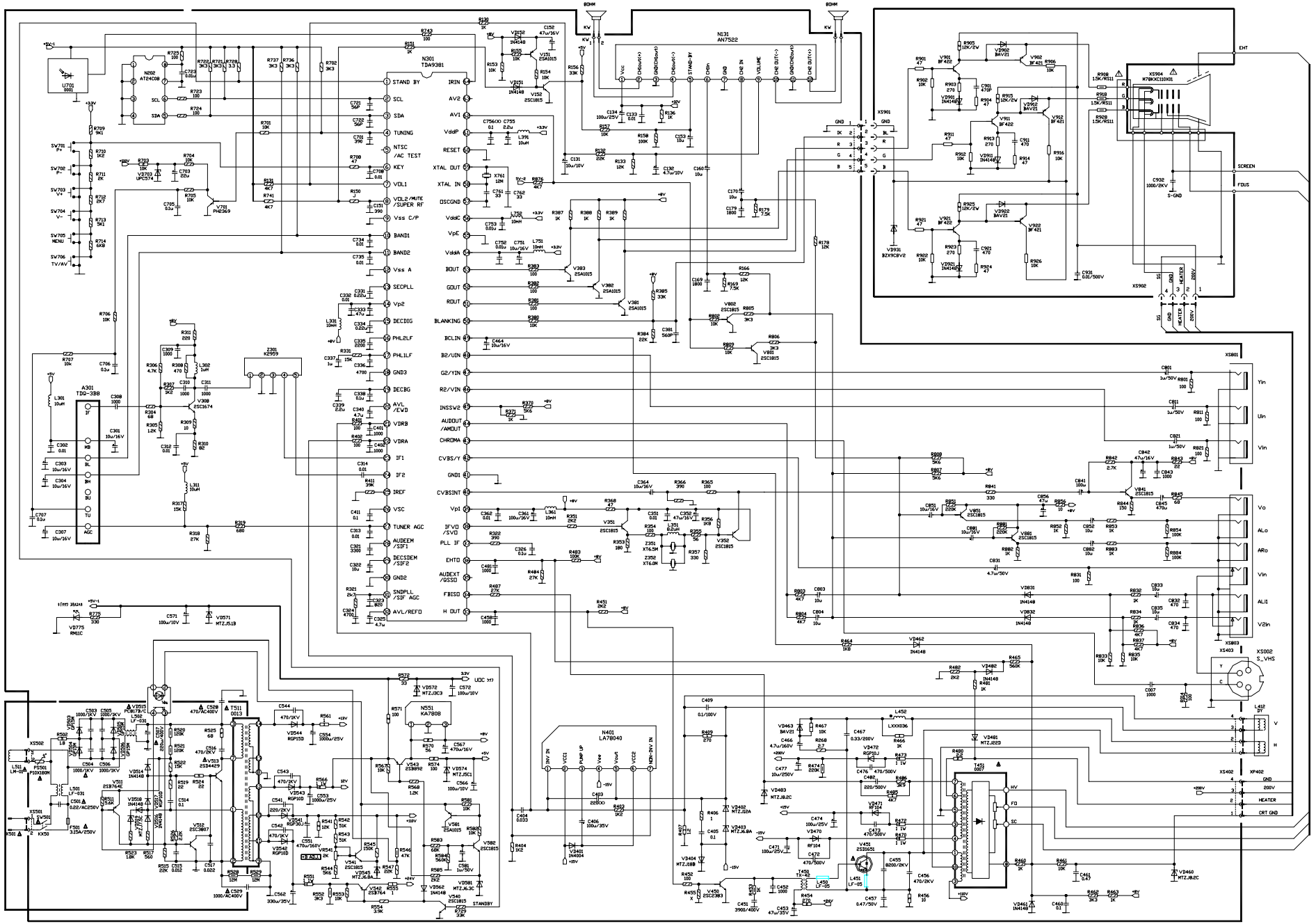
Symbol	PIN	Function	Symbol	PIN	Function
INV IN	1	Input	V OUT	5	Vertical output
VCC1	2	Power	VCC2	6	Output power supply
PUMP UP	3	Pump up power	NON INV IN	7	Negative feedback
GND	4	Ground			

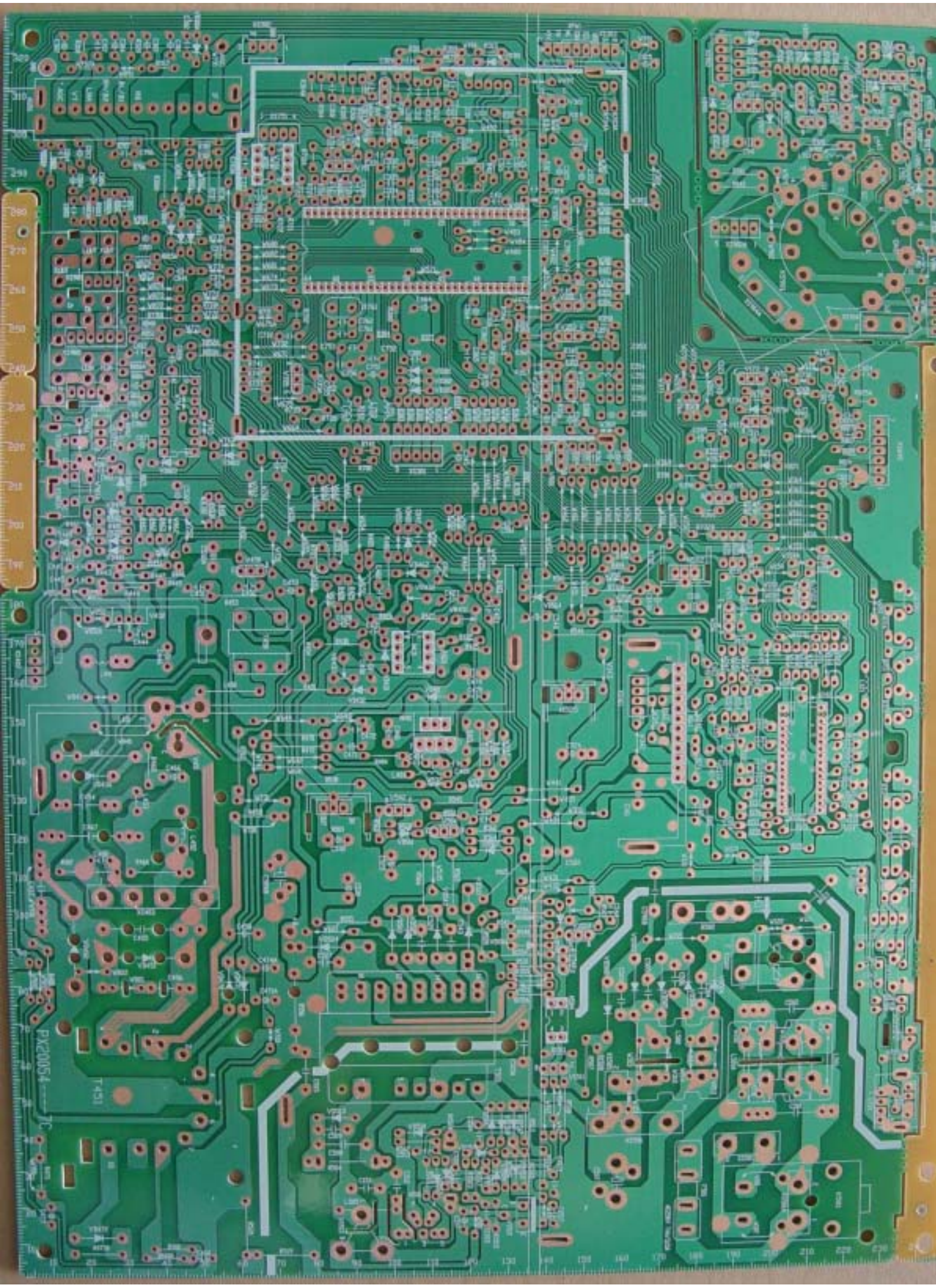
TDA9859 **Function :** Universal Sound processor

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

10. Test point Waveforms

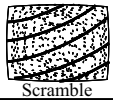






TROUBLE SHOOTING GUIDE

The following problems are not always caused by hardware failure, please use the follow trouble shooting guide before you call for service:

BREAKDOWN PHENOMENON		CHECKING
PICTURE	SOUND	
 Picture with Snow	 Noise	The direction and connection of the antenna
 Double or Triple Image	 Normal	Direction, station and connection of the antenna
 Disturb	 Noise	Interference from electric appliance. Automobile、Motor, Vehicle Fluorescence lamp etc.
 Normal	 No Sound	Volume, Sound mute
 No Picture	 No Sound	The power plug isn't plugged in AC outlet. The main power isn't turned on. The setting up of contrast, brightness and volume.
 No Color	 Normal Volume	Adjust color control
 Scramble	 Normal or Weak Volume	Adjust channel again
 Color Spot	 Normal Volume	Moving the TV set or using magnetic electric appliance near TV, Which will lead to color spot on screen. Please remove the electric appliance and cut off power. After 120 minutes turn the TV on, the picture will be recovered.

Note:1.If the problem can not be fixed after you check above items. DO NOT attempt to remove the back cover by yourself.

2.If the snapping sound from the cabinet of the TV set can be heard occasionally because of temperature changing of environment, it is normal, you can use it reassuringly.

Sincere Forever

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