

Service Manual



Colour Television

TX-29E50D

TX-29E50D/B

TX-29PS12D

TX-29PS12F

TX-29PS12P

CP-830FP Chassis

SPECIFICATIONS

Power Source:	220-240V a.c., 50Hz
Power Consumption:	100W
Stand-by Power Consumption:	1,5W
Aerial Impedance:	75Ω unbalanced, Coaxial Type
Receiving System:	PAL-I, B/G, D/K, PAL-525/60 SECAM B/G, D/K, L, L' M.NTSC (AV only) NTSC (AV only)

Receiving Channels:

VHF E2-E12	VHF H1-H2 (ITALY)
VHF A-H (ITALY)	VHF R1-R2
VHF R3-R5	VHF R6-R12
UHF E21-E69	CATV (S01-S05)
CATV S1-S10 (M1-M10)	CATV S11-S20 (U1-U10)
CATV S21-S41 (HYPERBAND)	

Intermediate Frequency:

Video/Audio	
Video	38,9MHz, 33,9MHz
Sound	33,4MHz (B/G), 33,16MHz (A2) 33,05MHz (NICAM B/G, D/K, L) 32,4MHz (D/K), 32,66MHz (CZ STEREO) 40,4MHz (L'), 39,75MHz (L'NICAM)
Colour	34,47MHz (PAL) 34,5MHz, 34,65MHz (SECAM) 38,3MHz, 38,15MHz (SECAM L')

Terminals:

AV1 IN	Video (21pin)	1V p-p 75Ω
	Audio (21pin)	500mV rms 10kΩ
	RGB (21pin)	0,7V p-p 75Ω
AV1 OUT	Video (21pin)	1V p-p 75Ω
	Audio (21pin)	500mV rms 1kΩ

AV2 IN	Video (21pin)	1V p-p 75Ω
	Audio (21pin)	500mV rms 10kΩ
	S-Video IN (21pin)	Y: 1V p-p 75Ω C: 0,3V p-p 75Ω
AV2 OUT	Video (21pin)	1V p-p 75Ω
	Audio (21pin)	500mV rms 1kΩ
AV3 FRONT	Audio (RCAx2)	500mV rms 10kΩ
	Video (RCAx1)	1V p-p 75Ω
	S-Video IN	Y: 1V p-p 75Ω C: 0,3V p-p 75Ω

High Voltage: 29kV ± 1kV

Picture Tube: A68ERF182X44 68cm

Audio Output: 2x7W RMS, 2x14W MPO, 8Ω impedance

Headphones: 8Ω impedance

Accessories supplied:

Remote Control
2xR6 (UM3) Batteries

Dimensions:

Height:	585 mm
Width:	776 mm
Depth:	533 mm
Net weight:	44,0 kg

Specifications are subject to change without notice.
Weights and dimensions shown are approximate.

Panasonic

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SAFETY PRECAUTION

GENERAL GUIDE LINES

1. It is advisable to insert an isolation transformer in the a.c. supply before servicing a hot chassis.
2. When servicing, observe the original lead dress in the high voltage circuits. If a short circuit is found, replace all parts that have been overheated or damaged by the short circuit.
3. After servicing, see that all the protective devices such as insulation barriers, insulation papers, shields and isolation R-C combinations are correctly installed.
4. When the receiver is not being used for a long period of time, unplug the power cord from the a.c. outlet.
5. Potentials as high as 30kV are present when this receiver is in operation. Operation of the receiver without the rear cover involves the danger of a shock hazard from the receiver power supply. Servicing should not be attempted by anyone who is not familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazard.

4. Check each exposed metallic part and check the voltage at each point.
5. Reverse the a.c. plug at the outlet and repeat each of the previous measurements.
6. The potential at any point should not exceed 1,4 Vrms. In case a measurement is outside the limits specified, there is a possibility of a shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

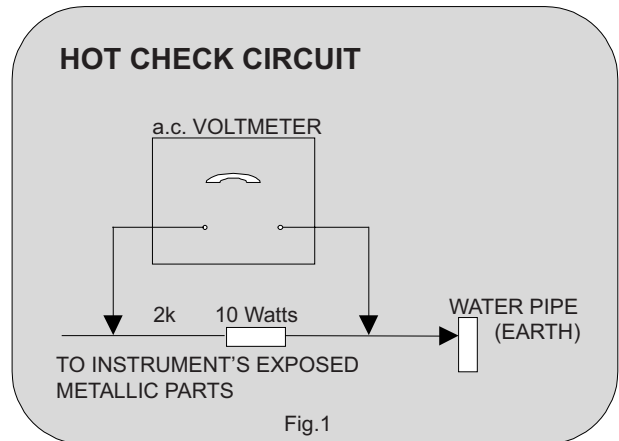


Fig.1

LEAKAGE CURRENT COLD CHECK

1. Unplug the a.c. cord and connect a jumper between the two prongs of the plug.
2. Turn on the receiver's power switch.
3. Measure the resistance value with an ohmmeter, between the jumpered a.c. plug and each exposed metallic cabinet part on the receiver, such as screw heads, aerials, connectors, control shafts etc. When the exposed metallic part has a return path to the chassis, the reading should be between 4M ohm and 20M ohm. When the exposed metal does not have a return path to the chassis, the reading must be infinite.

LEAKAGE CURRENT HOT CHECK

1. Plug the a.c. cord directly into the a.c. outlet. Do not use an isolation transformer for this check.
2. Connect a 2kΩ 10W resistor in series with an exposed metallic part on the receiver and an earth, such as a water pipe.
3. Use an a.c. voltmeter with high impedance to measure the potential across the resistor.

X-RADIATION WARNING

1. The potential sources of X-Radiation in TV sets are the high voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that the jig is capable of handling 30kV without causing X-Radiation.

NOTE: It is important to use an accurate periodically calibrated high voltage meter.

1. Set the brightness to minimum.
2. Measure the high voltage. The meter should indicate: 29kV ± 1kV.
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
3. To prevent any X-Radiation possibility, it is essential to use the specified tube.

SERVICE HINTS

How to remove the rear cover

1. Remove the 10 screws as shown in Fig. 2.



Fig. 2

LOCATION OF CONTROLS

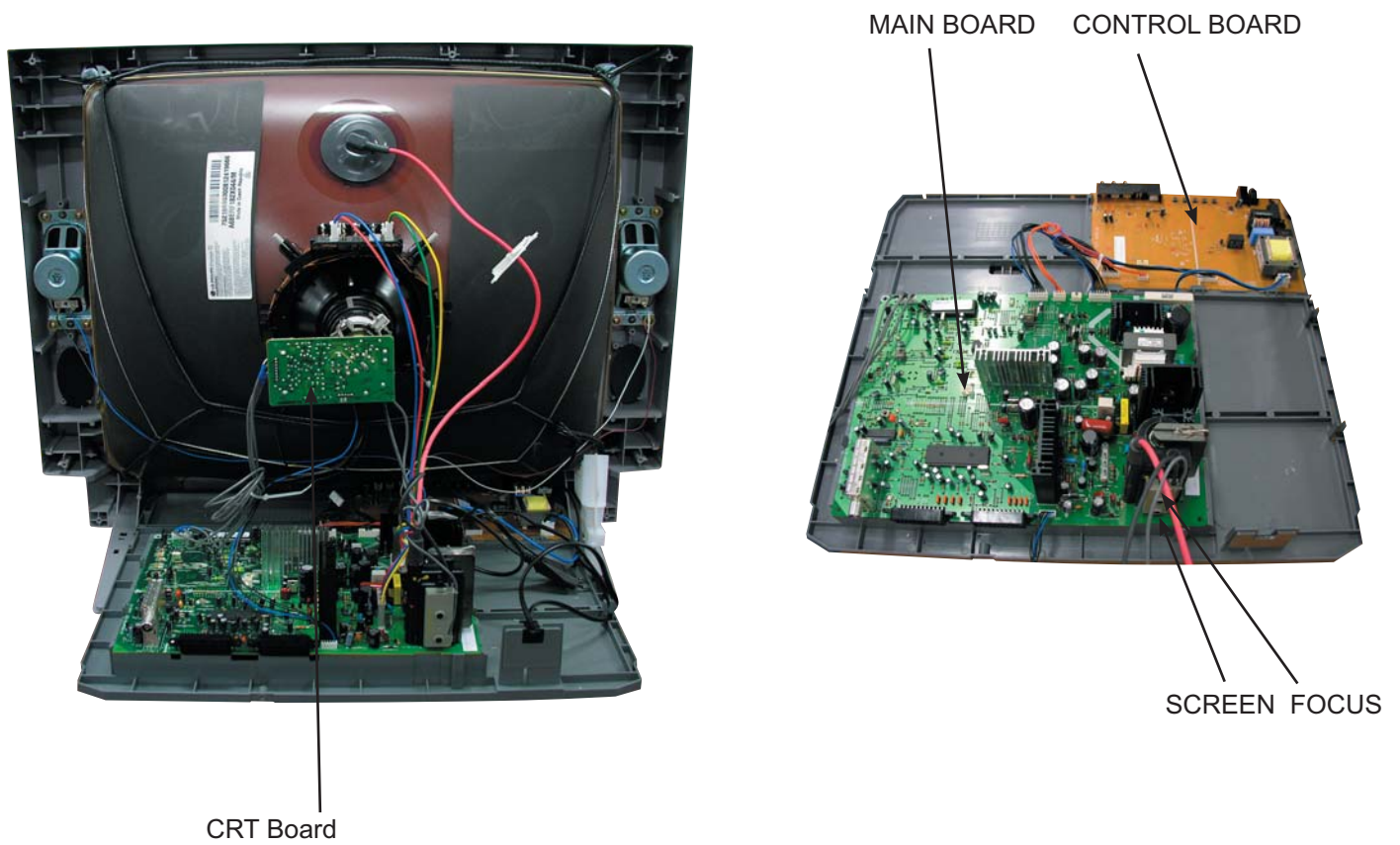


Fig. 3

VOLTAGE CHECK

SMT	2094.0074*			test conditions ; Input voltage : 230VAC TV set on ON mode (if nothing specified) Picture : colour bar - Dynamic Sound : 1Khz - (mode : Music)
MAIN B+ Voltage [V]	129	± 1 V	D820	
14V [V]	13	± 0,5 V	D831	
8V [V]	7,4	± 0,5 V	D830	
5V [V]	4,6	± 0,5 V	D870	
SOUND B+ [V]	13,2	± 0,5 V	*Volume Min.	
	12,8	± 0,5 V	*Volume Max.	

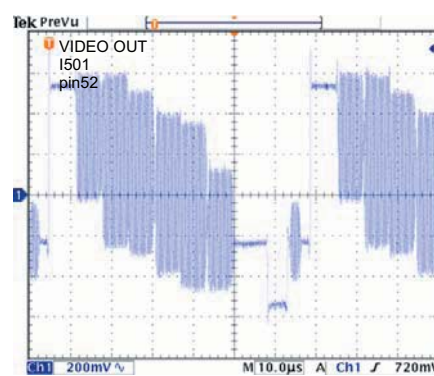
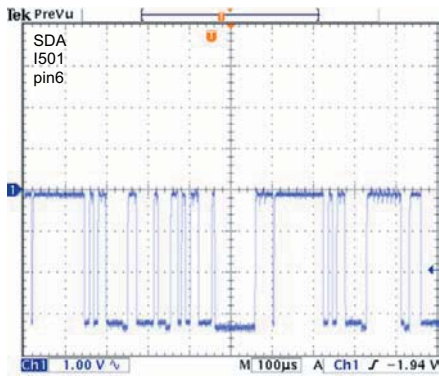
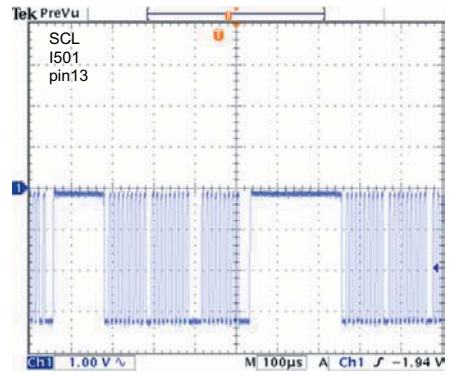
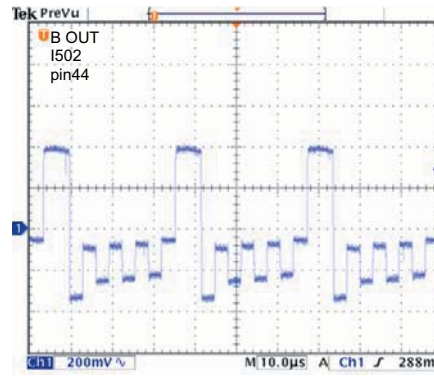
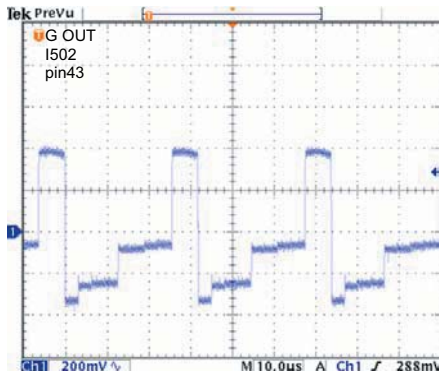
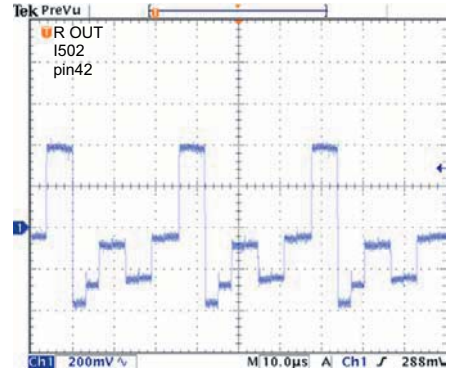
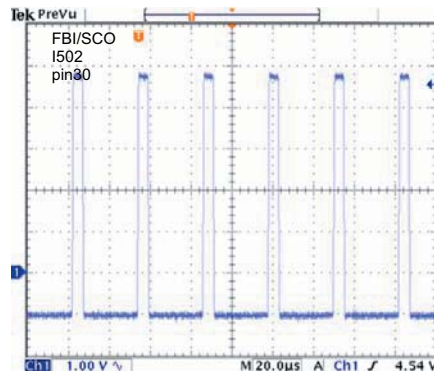
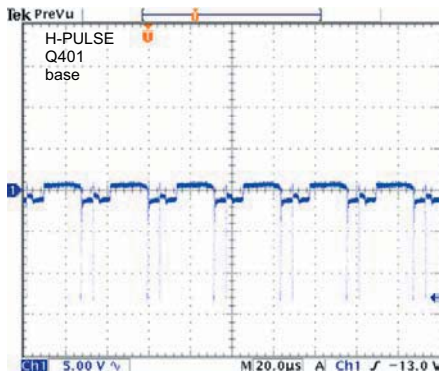
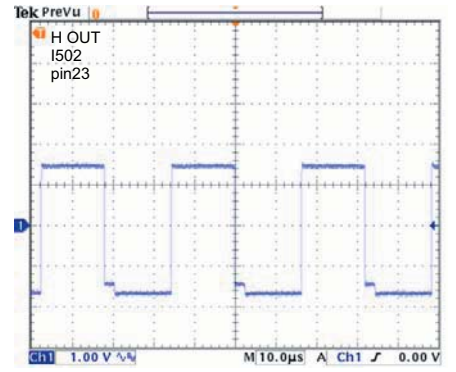
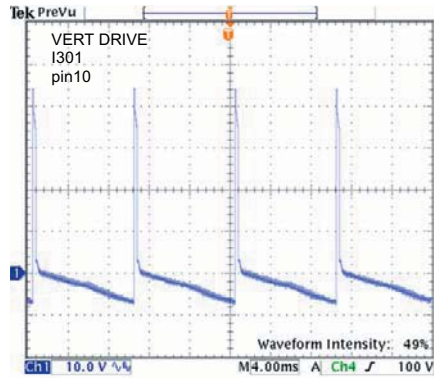
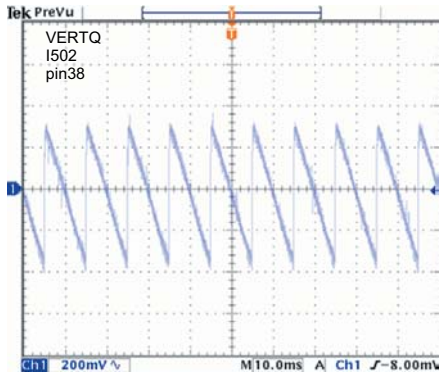
FBT	1302.2002*			test conditions ; Input voltage : 230VAC Ct = 11nF Cs = 0,36uF L linearity: TRL-040F CRT : A68ERF182X044/M
High Voltage [V]	28,08	± 0,5 V	load Max.	
	29,44	± 0,5 V	load Min.	
Retrace time	5,26	± 0,2 us		
Vcp [V]	1210	± 20 V		
Video Voltage [V]	180	± 5%		
14V line [V]	14	± 5%		
52V line [V]	52	± 5%		
Heater Voltage [Vrms]	6,2	± 5%		

G2 SCREEN / CUTOFF		Adjust the screen VR till G2-SCREEN get 32(31~33).
1. Receive a Color bar pattern 2. set the TV into Service mode. 3. Select G2 SCREEN item.		

OPTION BYTES

MODEL	OPTION BYTE 1		OPTION BYTE 2	
TX-29E50D	0 0 1 1 1 0 0 0	0 x 38	0 1 1 0 1 0 1 1	0 x 6B
TX-29E50D/B	0 0 1 1 1 0 0 0	0 x 38	0 1 1 0 1 0 1 1	0 x 6B
TX-29PS12D	0 0 1 1 1 0 0 0	0 x 38	0 1 1 0 1 0 1 1	0 x 6B
TX-29PS12F	1 0 1 1 1 0 0 0	0 x B8	0 1 1 0 1 0 1 1	0 x 6B
TX-29PS12P	1 0 1 1 1 0 0 0	0 x B8	0 1 1 0 1 0 1 1	0 x 6B

WAVEFORM PATTERN TABLE



CONDITIONS: Contrast: MAX, Brightness: MID, Colour: MID, Sharpness: MID

ALIGNMENT SETTINGS

(The figures below are nominal and used for representative purposes only.)

To access Service Mode select program position 99 and set sharpness to minimum.

Press "MUTE" button on remote control and at the same time press the „V" button on the customer controls at the front of the TV, this will place the TV set into Service Mode.

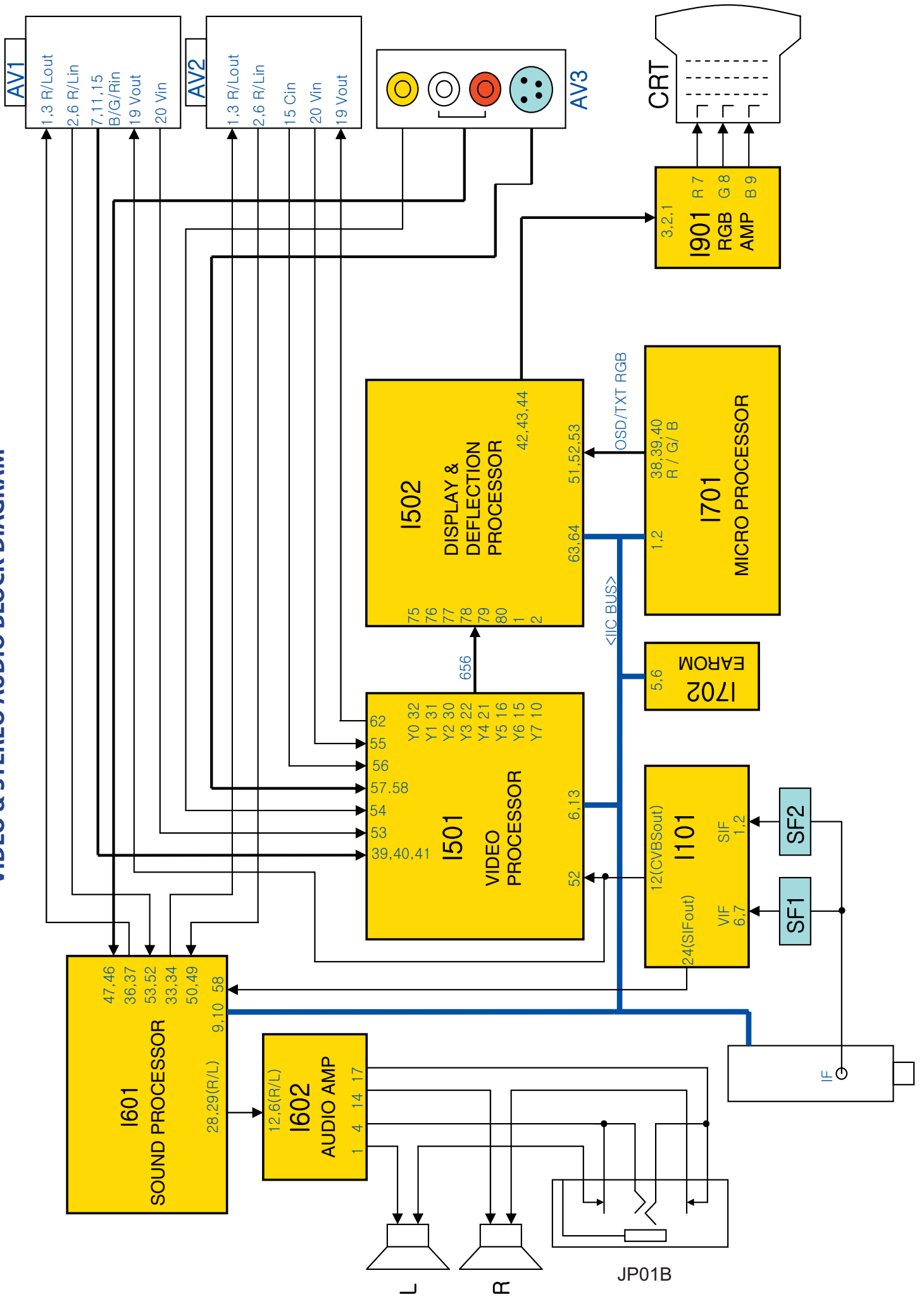
Press ^/V buttons to step up / down through the functions.

Press + / - buttons to alter the function values.

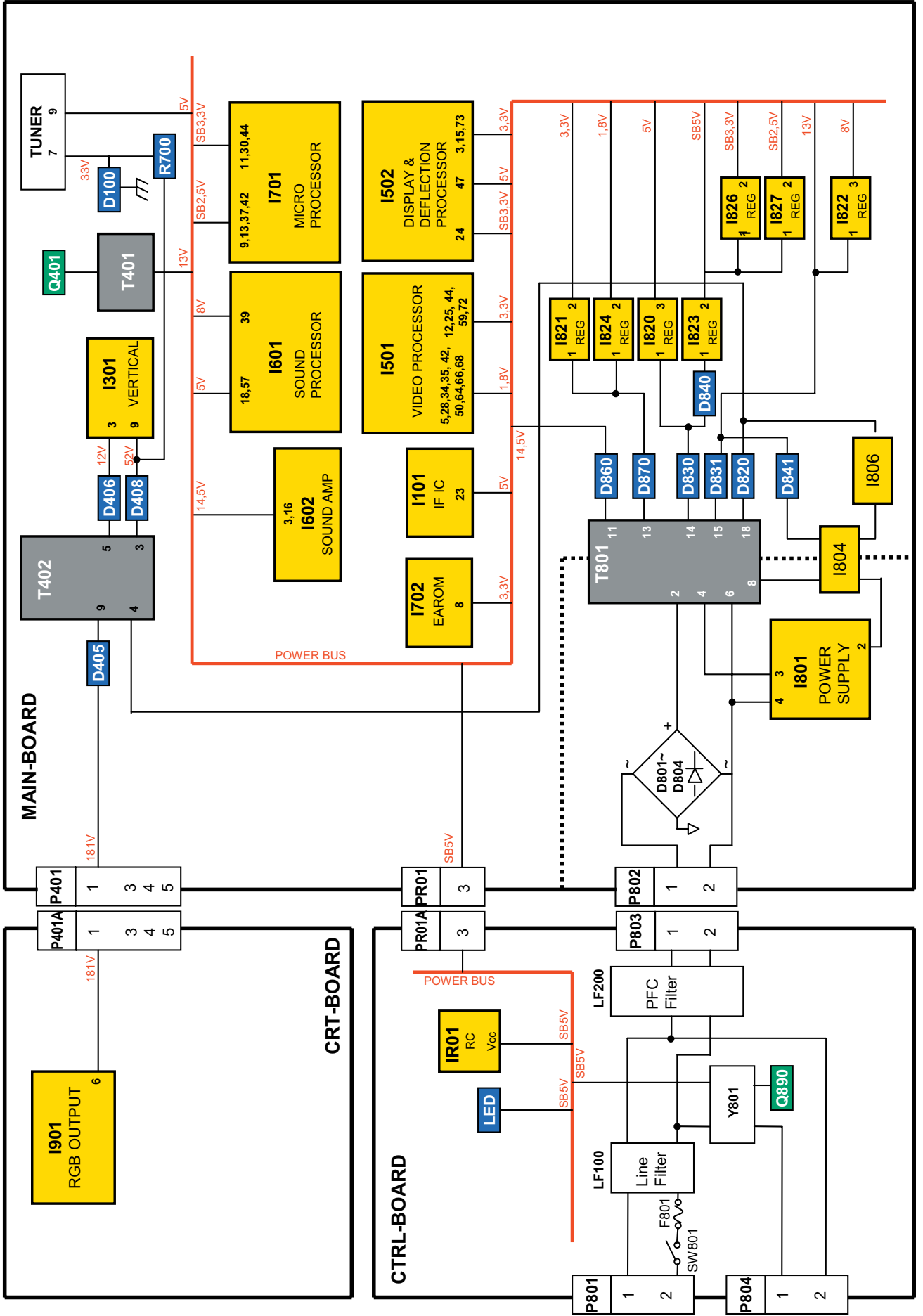
To exit Service Mode press „MENU" button.

No	Setting in indication Note : All settings are approximate	Settings / Special features
1	PARABOLA	+ 309
2	HOR WIDTH	- 79
3	CORNER T	- 89
4	CORNER B	- 65
5	HOR PARAL	0
6	V. LINEAR	- 10
7	EW-TRAPEZ	+ 42
8	S CORRECT	+ 111
9	VERT CENT	- 1
10	VERT SIZE	- 8
11	SHIPPING	OFF
12	HOR CEN	- 140
13	RED GAIN	+ 345
14	GRN GAIN	+ 320
15	BLUE GAIN	+ 330
16	RED BIAS	+ 152
17	GRN BIAS	+ 288
18	AGC LEVEL	+ 45
19	G2 SCREEN	+ 32
20	AFT	+ 32
21	Bit0 ~ Bit7	Refer to the Option Bytes(Page4)
22	Bit0 ~ Bit7	
23	Bit0 ~ Bit7	
24	AVL	0 x FF
		OFF

VIDEO & STEREO AUDIO BLOCK DIAGRAM

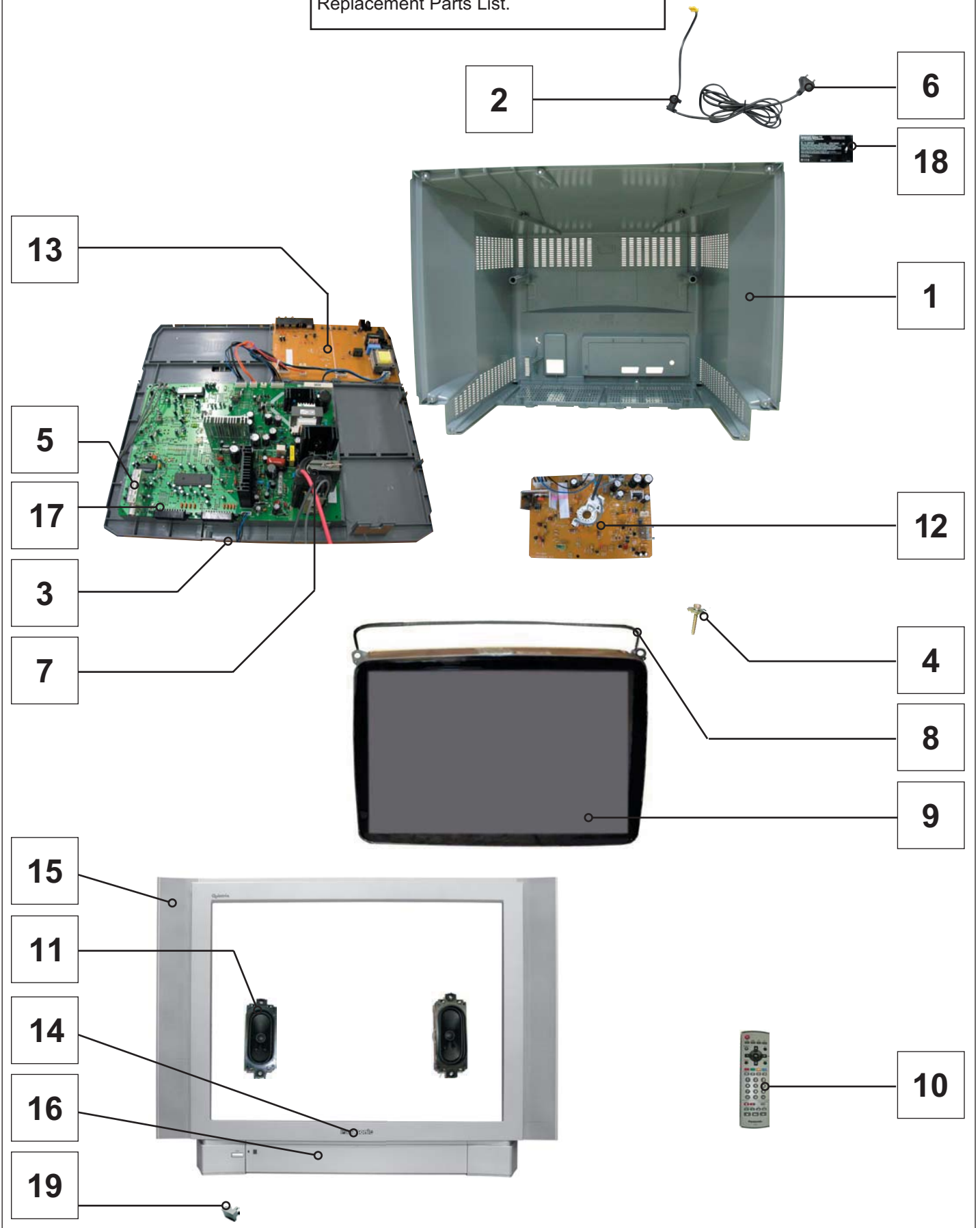


POWER SUPPLY & CONTROL BLOCK DIAGRAM



PARTS LOCATION

NOTE:
The numbers on the exploded view below refer to the exploded view section of the Replacement Parts List.



SCHEMATIC DIAGRAMS FOR MODELS TX-29E50D, TX-29E50D/B, TX-29PS12D, TX-29PS12F, TX-29PS12P (CP-830FP CHASSIS)

IMPORTANT SAFETY NOTICE

Components identified by \triangle mark have special characteristics important for safety.
When replacing any of these components, use only manufacturers' specified parts.

NOTE

1. RESISTOR

All resistors are carbon $\frac{1}{4}W$ resistor, unless marked otherwise.
Unit of resistance is OHM (Ω) (k=1,000, M=1,000,000)


2. CAPACITORS


All capacitors are ceramic 50V unless marked otherwise.
Unit of capacitance is μF unless otherwise stated.

3. COIL

Unit of inductance is μH , unless otherwise stated.

4. EARTH SYMBOL

 Chassis Earth (Cold)

 Line Earth (Hot)

5. VOLTAGE MEASUREMENT

Voltage is measured by a d.c. voltmeter.
Measurement conditions are as follows:

Power source	a.c. 220V-240V, 50Hz
Receiving Signal	Colour Bar signal (RF)
All customer controls	Maximum position

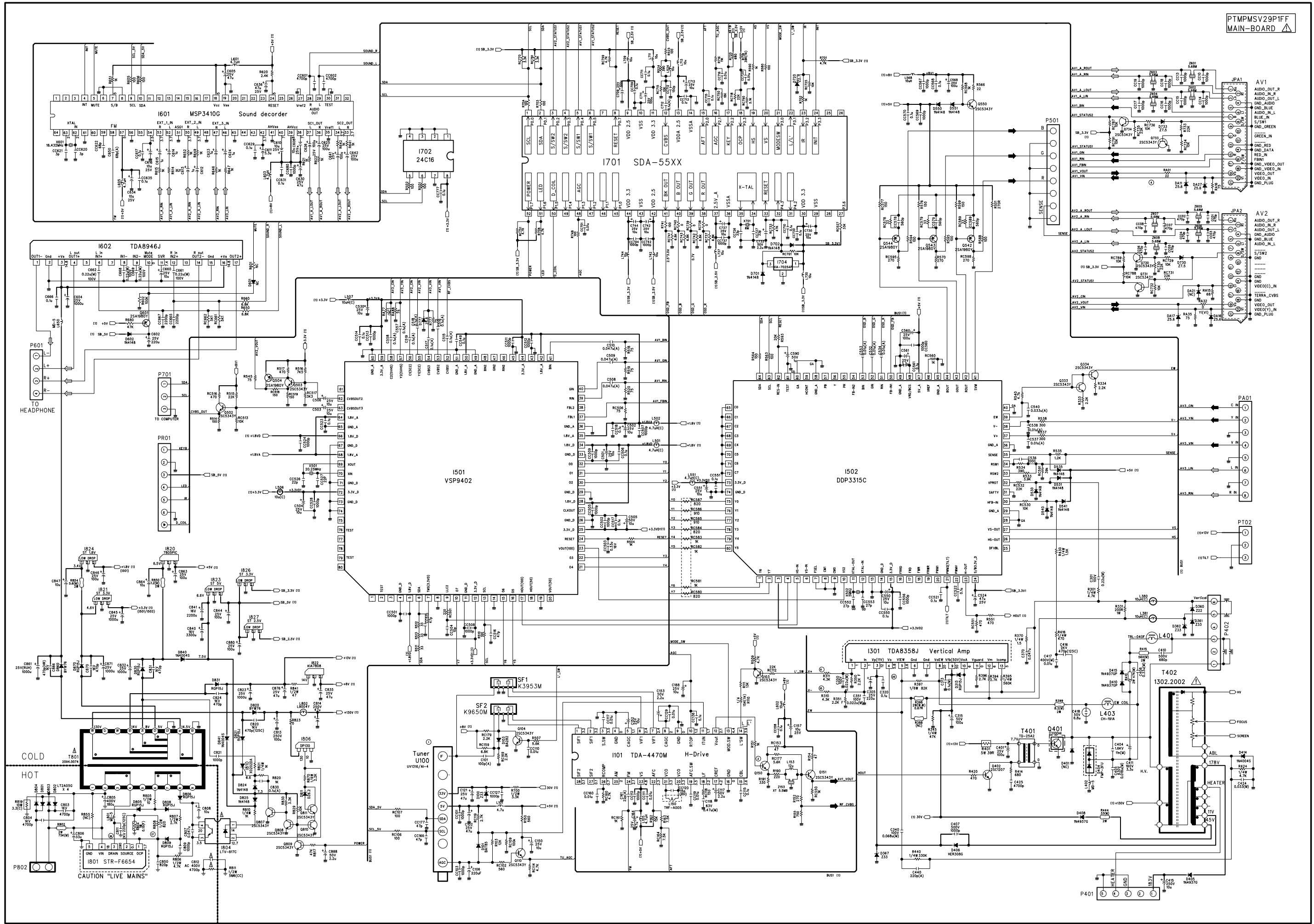
These schematic diagrams are the latest at time of printing and are subject to change without notice.

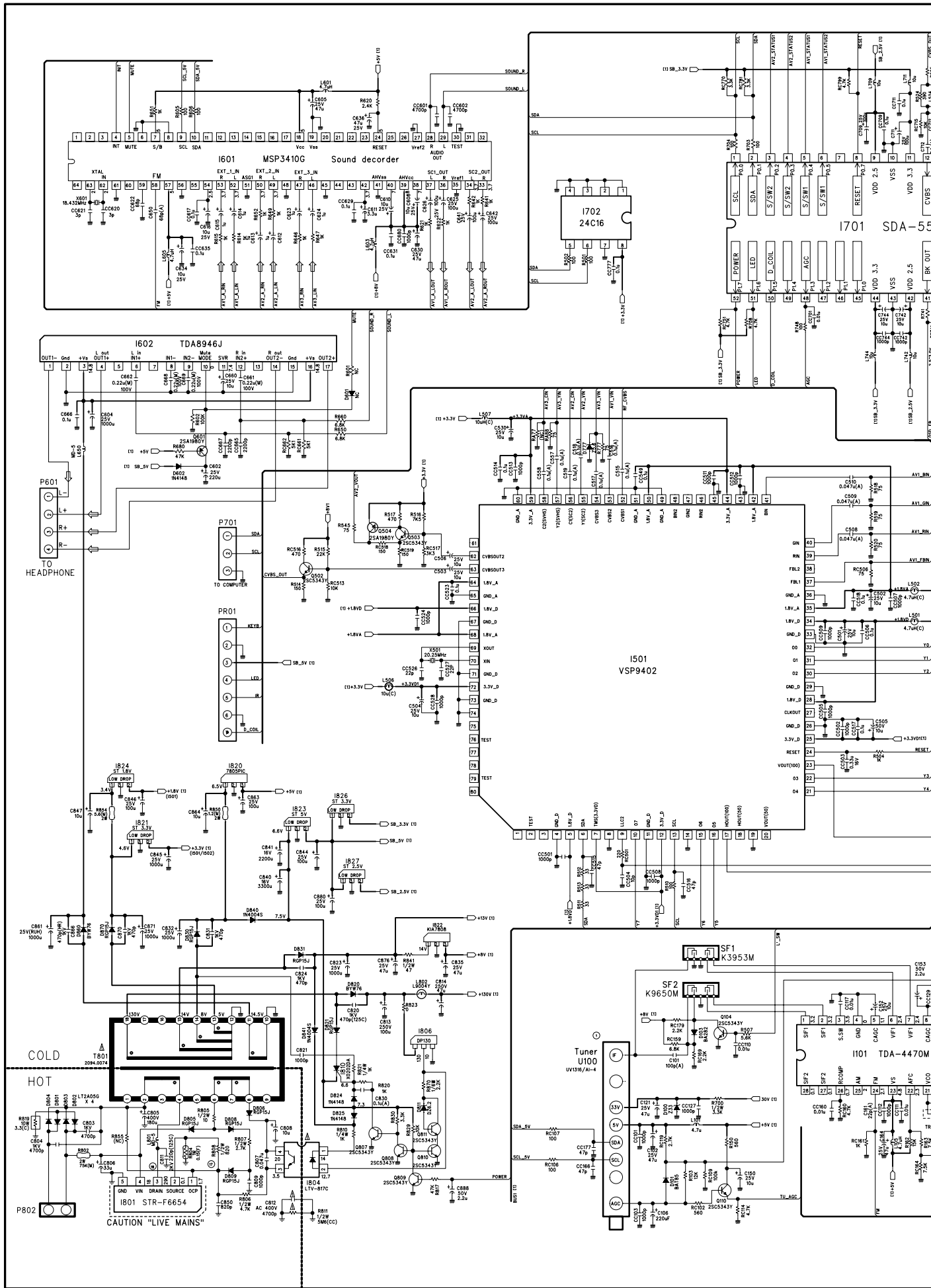
REMARKS

- Do not touch the hot part, or the hot and cold parts at the same time, as you are liable to a shock hazard.
- Do not short circuit the hot and cold circuits as electrical components may be damaged.
- Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously as this may cause fuse failure.
Connect the earth of the instruments to the earth connection of the circuit being measured.
- Make sure to disconnect the power plug before removing the chassis.

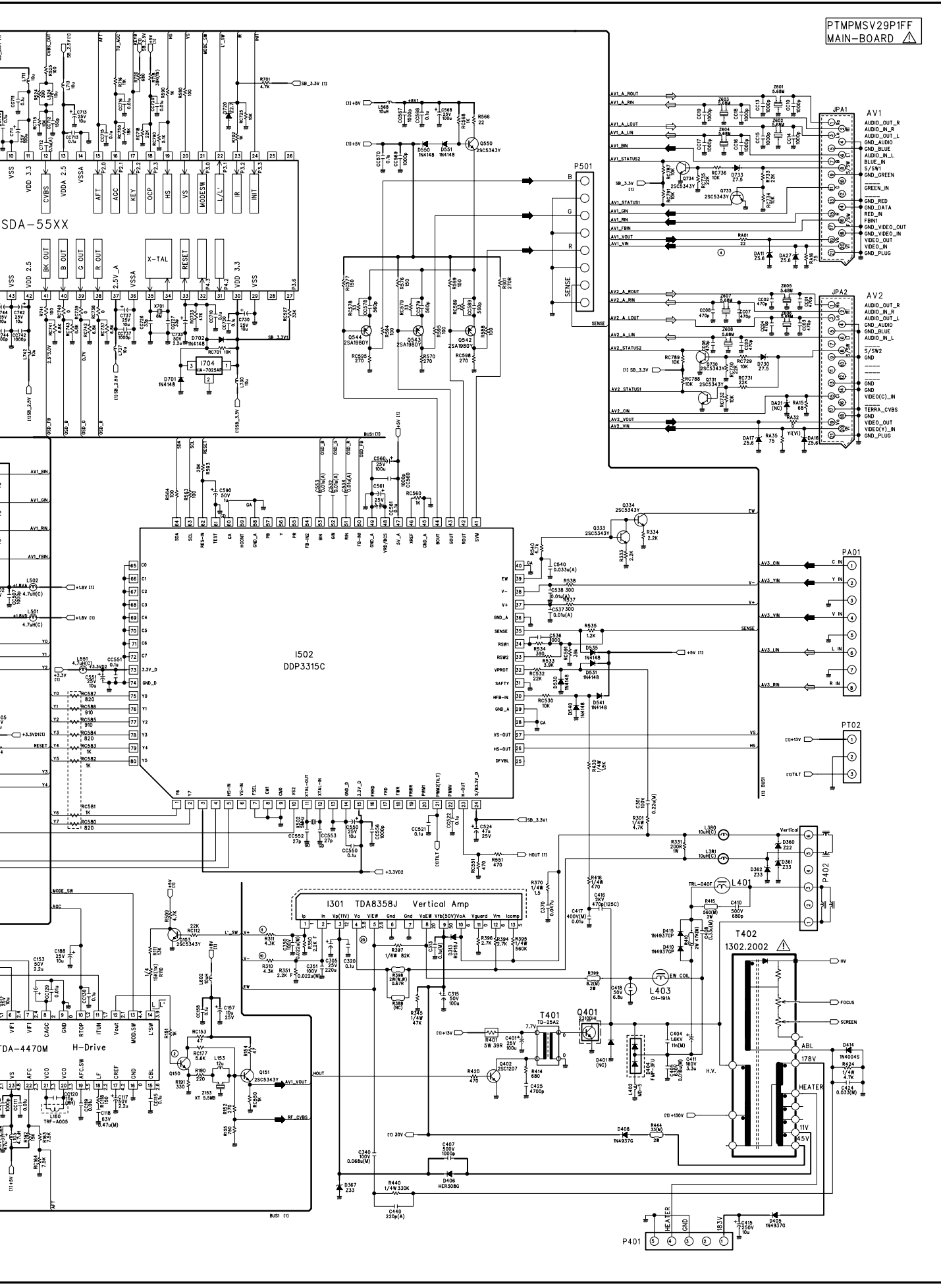
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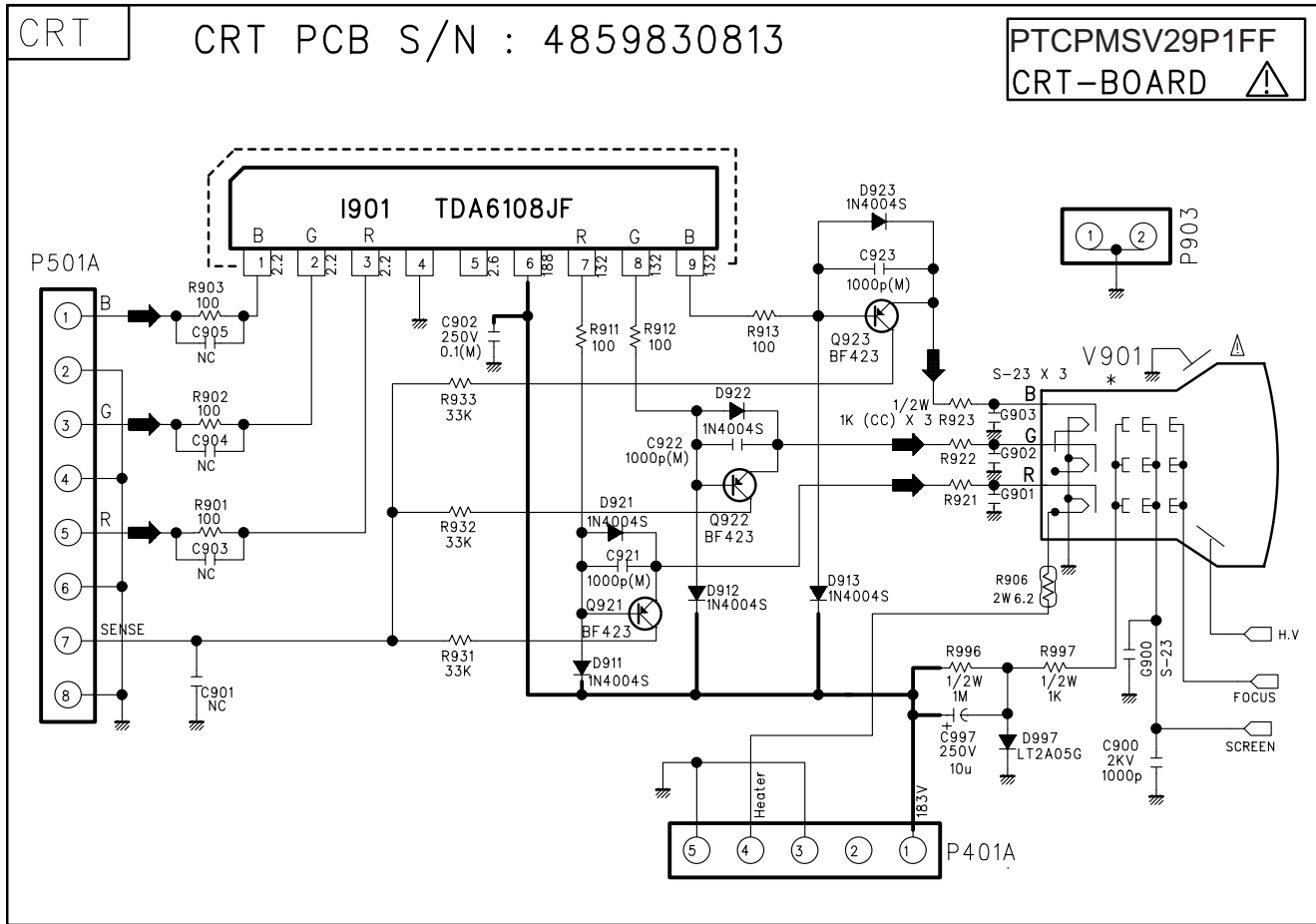
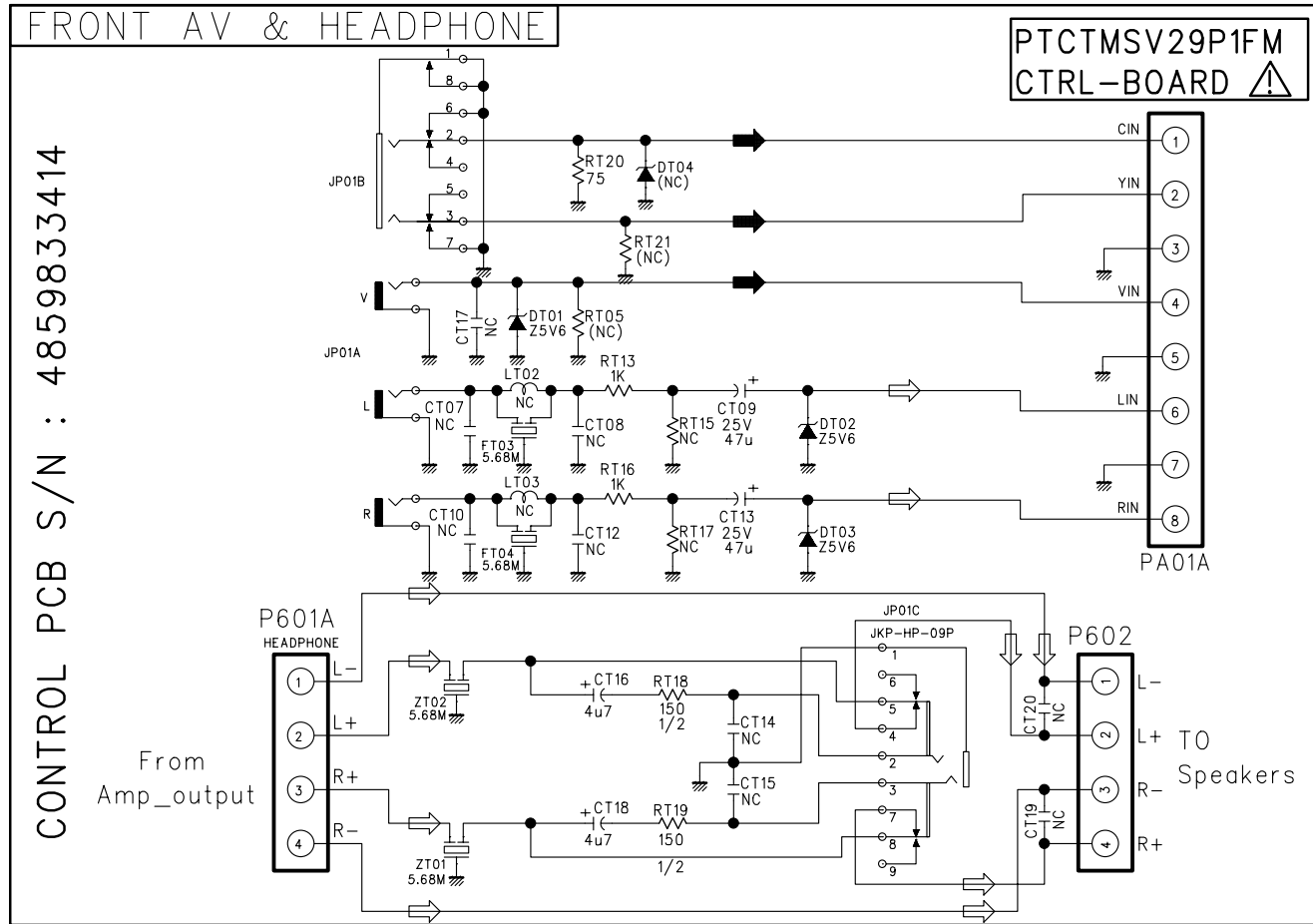
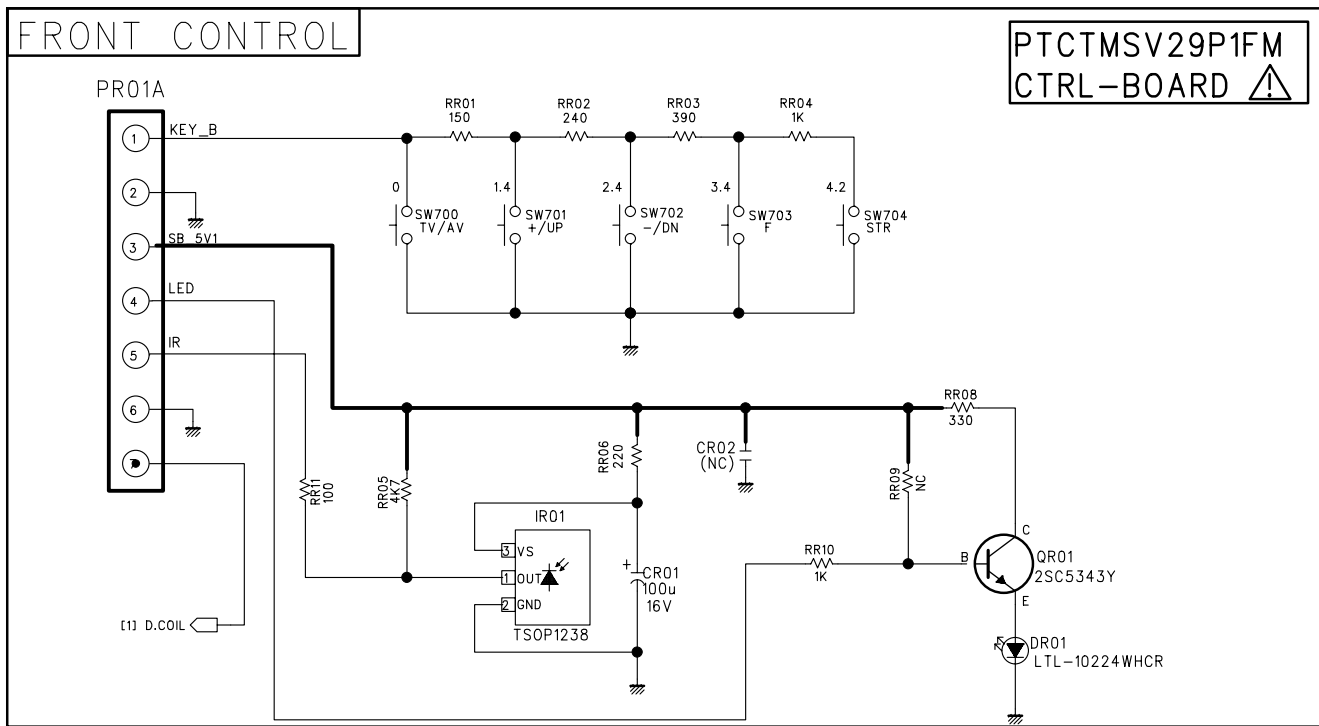
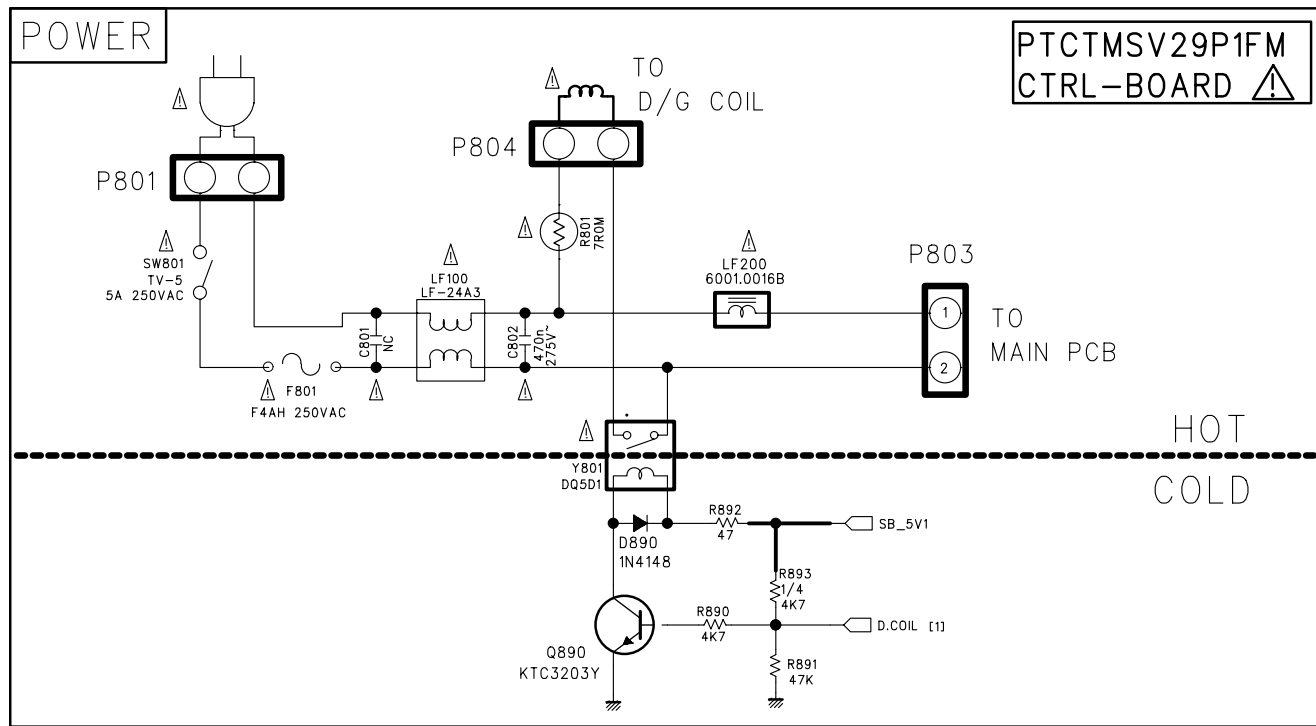
- The Power Supply Circuit contains a circuit area, which uses a separate power supply to isolate the earth connection. The circuit is defined by HOT and COLD indications in the schematic diagram. All circuits, except the Power Circuit, are COLD.

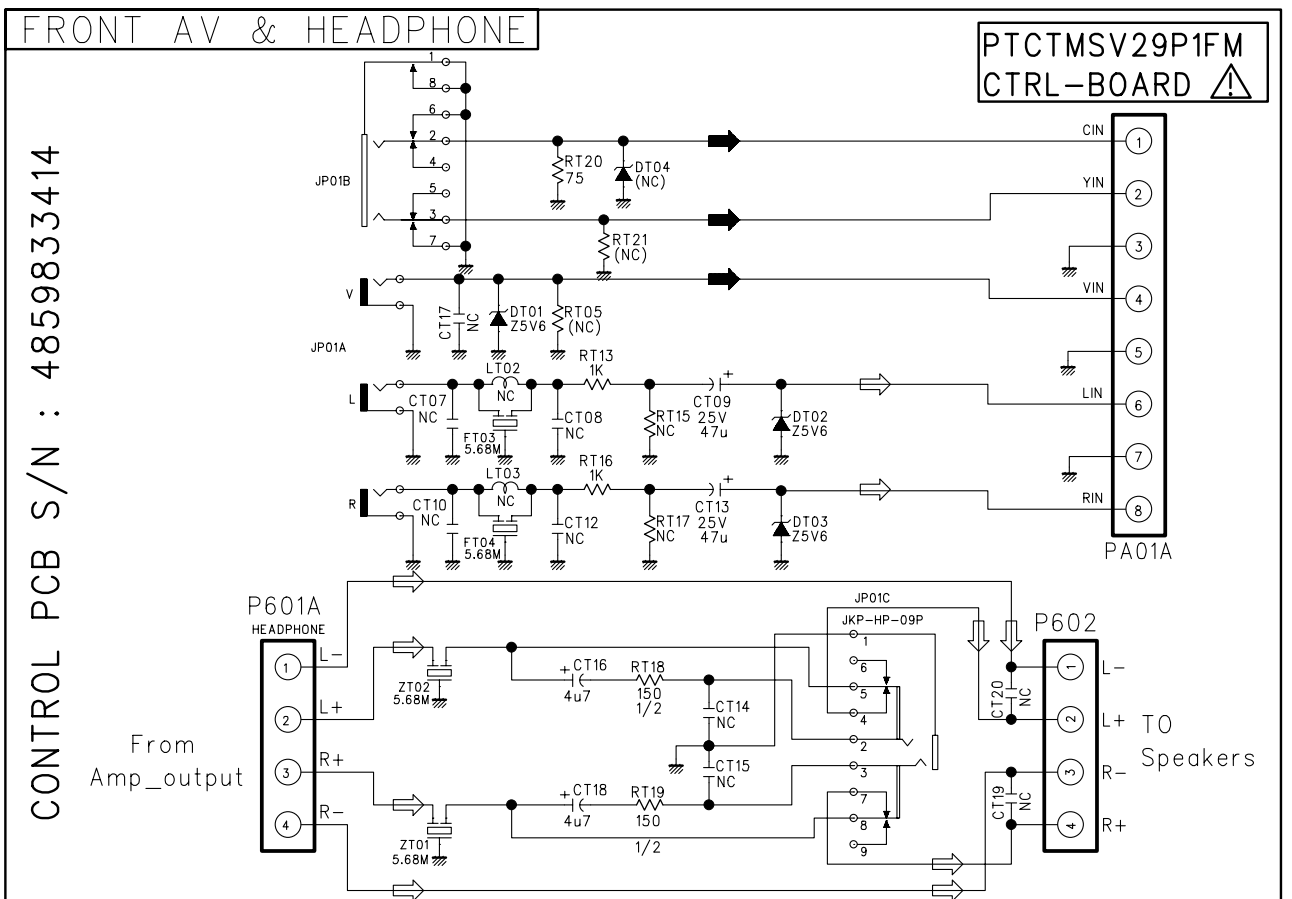
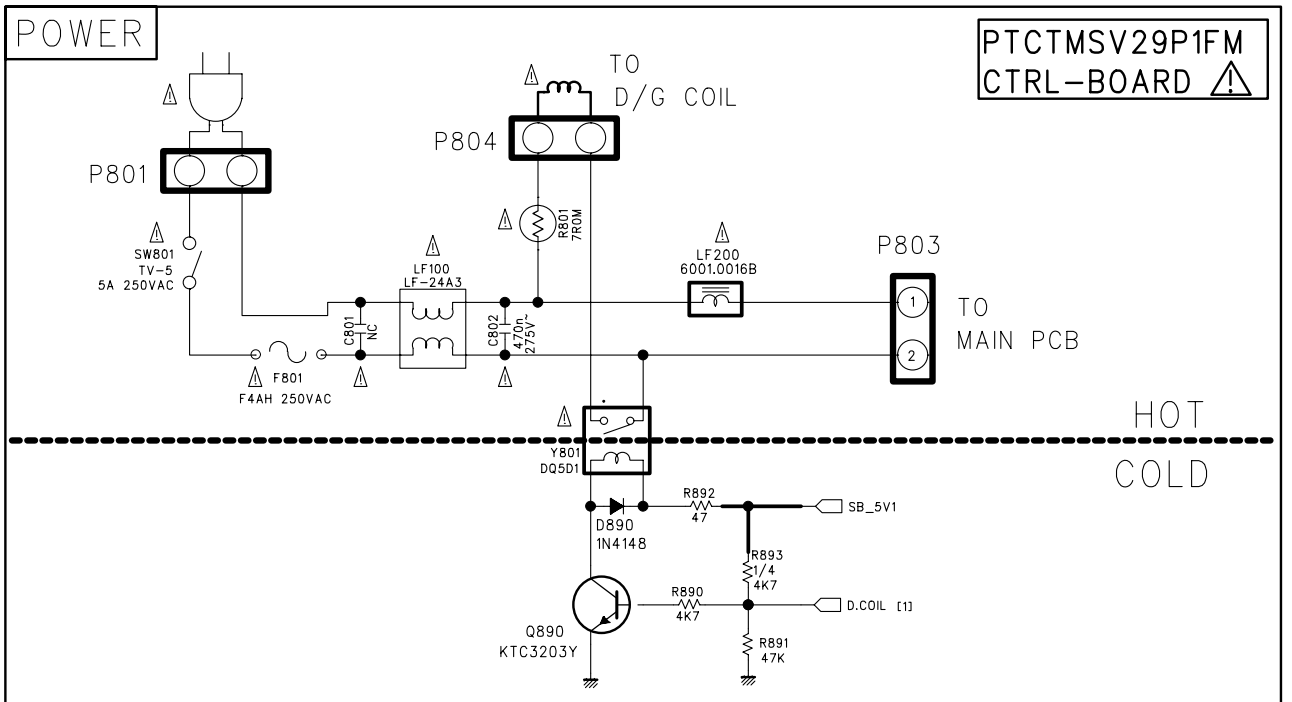




PTMPMSV29P1FF
MAIN-BOARD

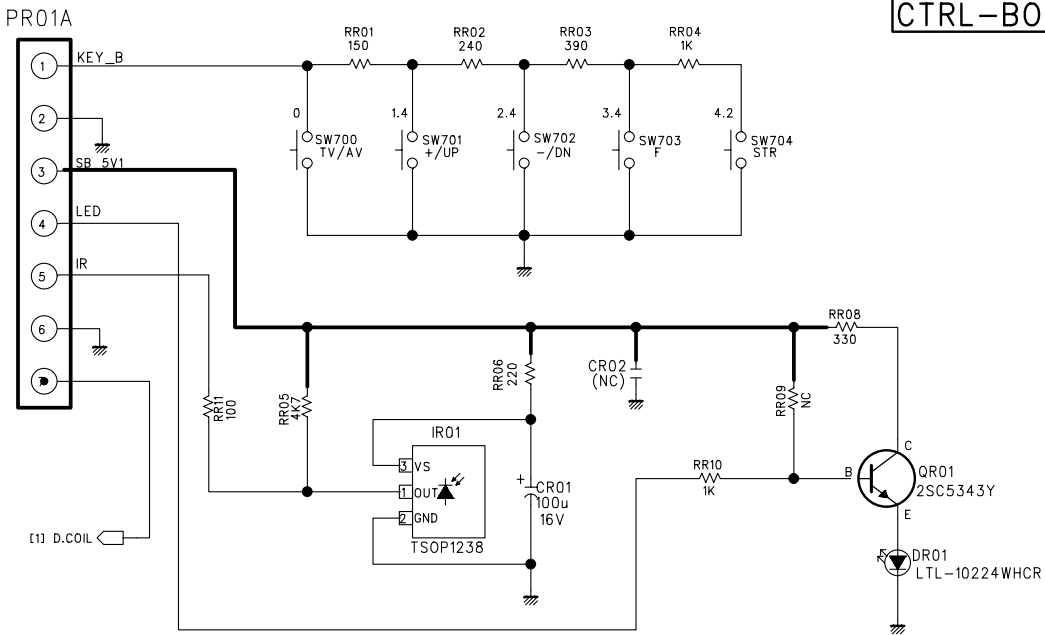






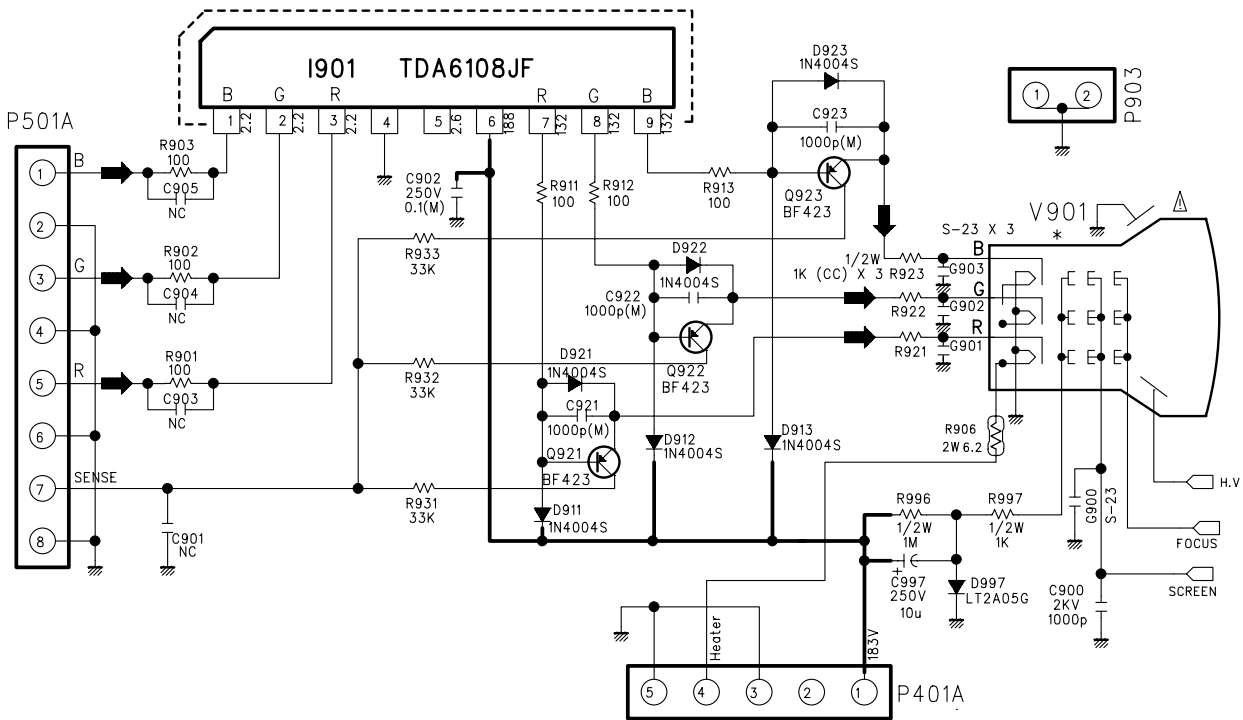
FRONT CONTROL

PTCTMSV29P1FM
CTRL-BOARD ⚠



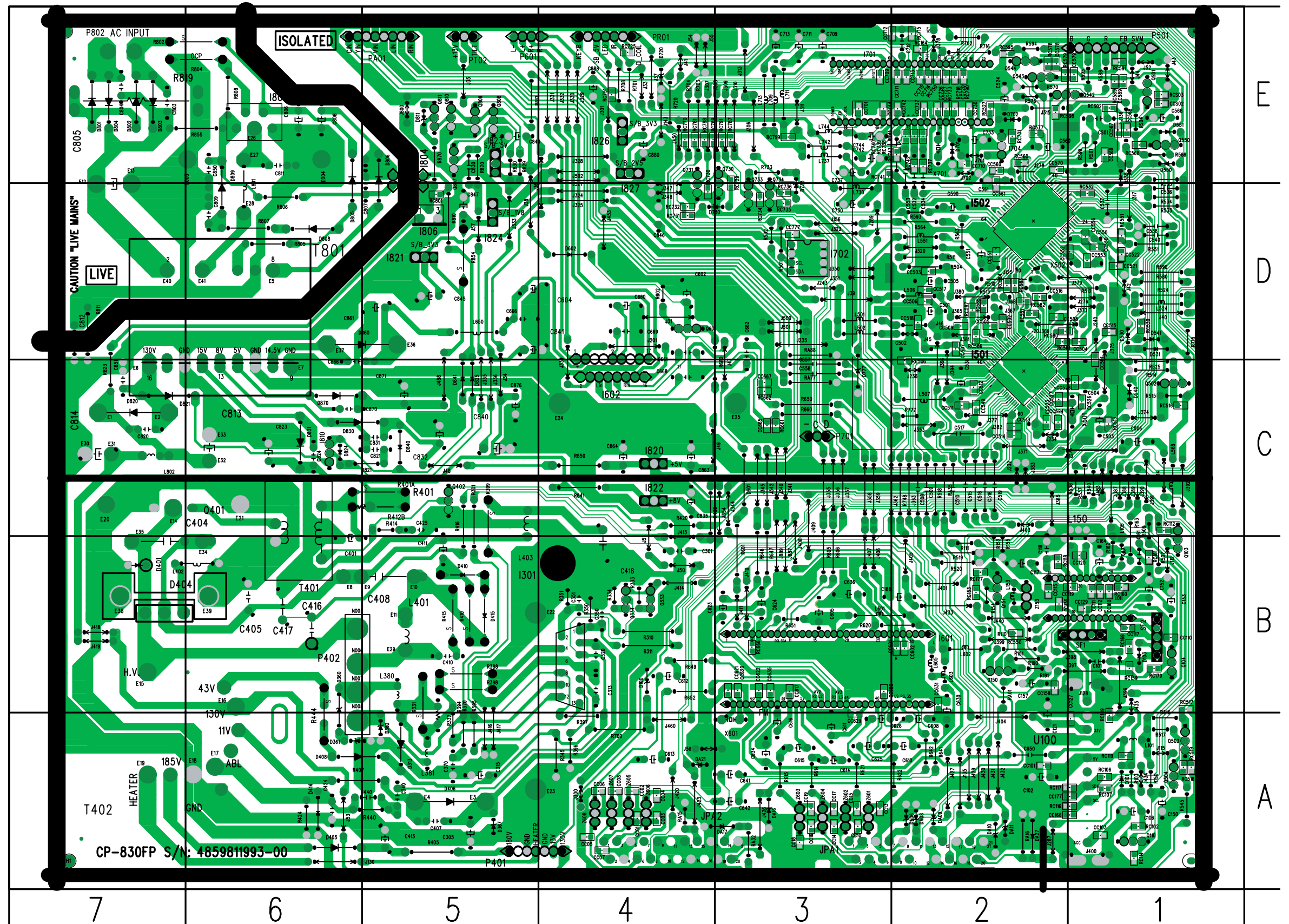
CRT CRT PCB S/N : 4859830813

PTCPMSV29P1FF
CRT-BOARD ⚠



**CONDUCTOR VIEWS FOR MODELS
TX-29E50D, TX-29E50D/B, TX-29PS12D, TX-29PS12F, TX-29PS12P
MAIN-BOARD PTMPMSV29P1FF**

TRAN'S	D103	B1	D830	C6	
Q103	B1	D313	A5	D831	C6
Q104	B1	D360	B6	D840	C5
Q110	A1	D361	A6	D841	C5
Q150	B2	D362	A5	D860	D5
Q151	B2	D367	A5	D870	C6
Q333	B4	D404	B7	IC'S	
Q334	B4	D405	A6	I101	B1
Q401	C7	D406	A5	I301	B4
Q402	C5	D408	A6	I501	C2
Q502	C1	D410	B5	I502	D2
Q503	A1	D414	A6	I601	B3
Q504	A1	D415	B5	I602	C4
Q542	E2	D720	E4	I701	E3
Q543	E2	D730	D3	I702	D3
Q544	E2	D733	D3	I704	E2
Q550	E1	D777	C3	I801	E6
Q601	D4	D801	E7	I804	E5
Q730	E3	D802	E7	I806	D5
Q731	D4	D803	E7	I810	C6
Q733	D3	D804	E7	I820	C4
Q734	D3	D805	E6	I821	D5
Q807	E5	D806	E5	I822	C4
Q808	E5	D808	D6	I823	E5
Q809	E5	D809	D6	I824	D5
Q810	E5	D811	E5	I826	E4
Q811	E5	D820	C7	I827	E4
DIODES	D821	C7			
D100	B4	D824	C6		
D101	A1	D825	C5		



CTRL-BOARD PTCTMSV29P1FM

CRT-BOARD PTCPMSV29P1FF

TRAN'S	
Q890	B4
QR01	C4
DIODES	
D890	B4
DT01	C1
DT02	B1
DT03	B1
IC'S	
IR01	C4

TRAN'S		DIODES	
Q921	B2	D911	B3
Q922	A2	D912	B2
Q923	B3	D913	B3
		D921	B2
		D922	B2
IC'S		D923	B3
1901	A3	D997	A2

