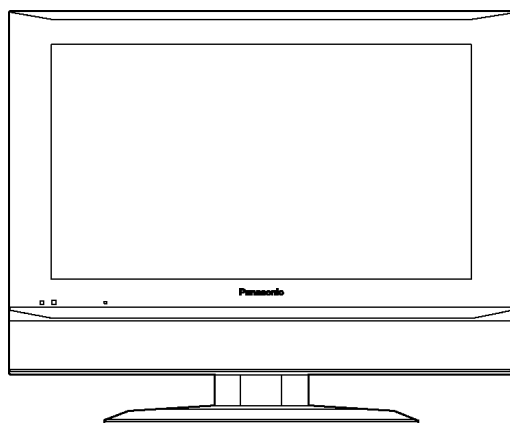


Service Manual

LCD TV

**TX-23LX50M****TX-23LX50A****TX-23LX50X**

GLP2W Chassis

Specifications

Power Source	AC 110-240 V, 50 / 60 Hz
Power Consumption	Average use : 87 W Standby condition : 0.5 W
LCD	22.9 - inch (58.3 cm) Wide XGA (1366 × 768 pixels) 16:9 aspect ratio LCD panel.
Screen Size	508 mm (W) × 286 mm (H) (20.0" × 11.3")
Sound	
Speaker	Ø6 cm × 2 pcs, 8 Ω
Audio Output	6 W (3 W + 3 W), 10 % THD
Headphones	M3 (3.5 mm) Jack × 1

Receiving Systems/ Band name

17 Systems		Function
1	PAL B, G, H	Reception of broadcast transmissions and Playback from Video Cassette Tape Recorders
2	PAL I	
3	PAL D, K	
4	SECAM B, G	
5	SECAM D, K	
6	SECAM K1	
7	NTSC M (NTSC 3.58/ 4.5 MHz)	
8	NTSC 4.43/ 5.5 MHz	Playback from Special VCR's
9	NTSC 4.43/ 6.0 MHz	
10	NTSC 4.43/ 6.5 MHz	
11	NTSC 3.58/ 5.5 MHz	
12	NTSC 3.58/ 6.0 MHz	
13	NTSC 3.58/ 6.5 MHz	
14	SECAM I	
15	PAL 60 Hz/ 5.5 MHz	Playback from Special Disc Players and Special VCR's
16	PAL 60 Hz/ 6.0 MHz	
17	PAL 60 Hz/ 6.5 MHz	

Receiving Channels

Regular TV

	VHF BAND	2-12 (PAL / SECAM B, K1) 0-12 (PAL B AUST.) 1-9 (PAL B N.Z.) 1-12 (PAL / SECAM D) 1-12 (NTSC M Japan) 2-13 (NTSC M USA)
	UHF BAND	21-69 (PAL G, H, I / SECAM G, K, K1) 28-69 (PAL B AUST.) 13-57 (PAL D, K) 13-62 (NTSC M Japan) 14-69 (NTSC M USA)
	CATV	S1-S20 (OSCAR) 1-125 (USA CATV) C13-C49 (JAPAN) S21-S41 (HYPER) Z1-Z37 (CHINA) 5A, 9A (AUST.)
Aerial-Rear	UHF/ VHF	
Operating Conditions	Temperature : 5 °C - 40 °C Humidity : 5 % - 90 % RH (non-condensing)	
Connection Terminals		
AV1	VIDEO (RCA Pin Type) S-VIDEO (MINI DIN 4-pin) AUDIO L-R (RCA Pin Type × 2)	1.0 Vp-p (75 Ω) Y: 1.0 Vp-p (75 Ω), C: 0.286 Vp-p (75 Ω) 0.5 Vrms
AV2	VIDEO (RCA Pin Type) AUDIO L-R (RCA Pin Type × 2) Y P _B / P _R	1.0 Vp-p (75 Ω) 0.5 Vrms 1.0 Vp-p (including synchronization) ± 0.35 Vp-p
MONITOR OUT	Applicable signal to AV2 Y, P _B / C _B , P _R / C _R input terminals: 525i / p and 625i / p VIDEO (RCA Pin Type) AUDIO L-R (RCA Pin Type × 2)	1.0 Vp-p (75 Ω) 0.5 Vrms
Dimensions (W × H × D)		
Including TV Stand	612 mm × 505 mm × 259 mm (24.1" × 19.9" × 10.2")	
TV Set Only	612 mm × 441 mm × 125 mm (24.1" × 17.4" × 4.9")	
Weight	10.0 kg (22.0 lb.) Net	

Note:

Design and specifications are subject to change without notice. Weight and Dimensions shown are approximate.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General Guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1\text{M}\Omega$ and $5.2\text{M}\Omega$.

When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

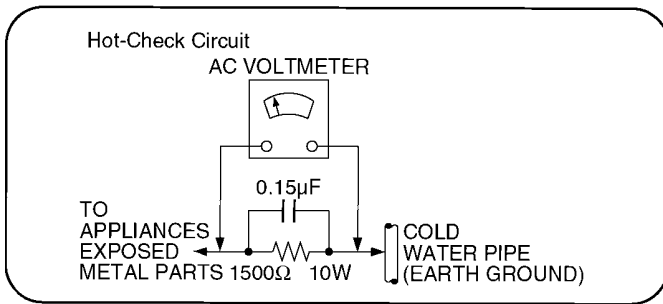


Figure 1

1.1.2. Leakage Current Hot Check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a $1.5\text{k}\Omega$, 10 watts resistor, in parallel with a $0.15\mu\text{F}$ capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

2 Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are 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 electro static discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons 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 solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge 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 harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by Δ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3 About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.

In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.

The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).

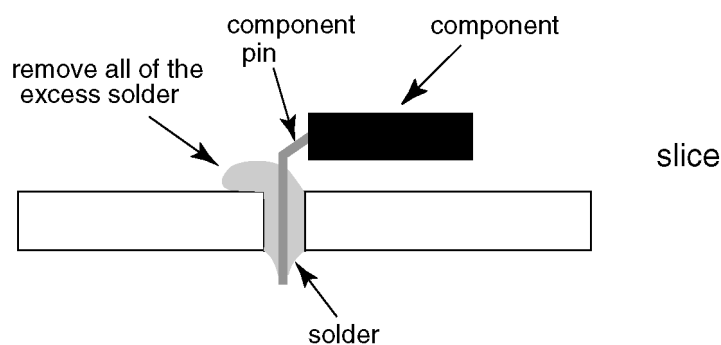
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in its manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol PbF stamped on the back of PCB.

Caution

- Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40°C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
 - Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
- If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
- After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)

**Suggested Pb free solder**

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g

4 Self-check function

When phenomena like "the power fails from time to time" or "the video/audio fails from time to time" can not be confirmed at the time of servicing, the self-check function can be used to confirm the occurrence and to limit the scope for the defective circuits. Also, when "the power fails from time to time", display on the screen can be used to confirm the occurrence and to limit the scope for the defective circuits.

Any programmed channels, channels caption data and some other user defined settings will be erased and return to factory setting.

4.1. How to access

4.1.1. Access

Produce TV reception screen and, while pressing [VOLUME-] button on the main unit, press [OFF TIMER] button on the remote controller unit simultaneously.

4.1.2. Exit

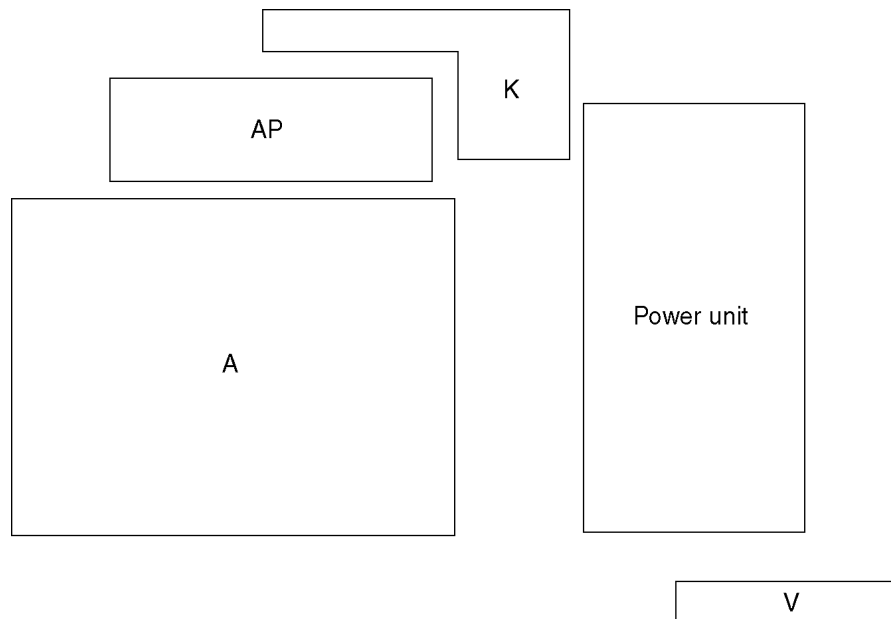
When one of the buttons for channel selection etc. is pressed, the display returns to the normal screen.

4.2. Screen display

E2	: OK	Sum	1852
DPS	: OK	OPTION 1	0F
VSP	: OK	OPTION 2	FF
Tun	: OK	OPTION 3	10
MSP	: OK	OPTION 4	E2
		OPTION 5	FE
		OPTION 6	90
		OPTION 7	06
		OPTION 8	50
		OPTION 9	00
		OPTION 10	6A
		OPTION 11	00
		OPTION 12	00
		OPTION 13	08
		Check	56

Display	Ref No.	Description	P.C.B
E2	IC1101	EEPROM	A-Board
DPS	IC1700	LCD DRIVER	A-Board
VSP	IC1500	Video Signal Processor	A-Board
Tun	TU100	Tuner	A-Board
MSP	IC2501	Multi Sound Processor	A-Board

5 Chassis Board Layout

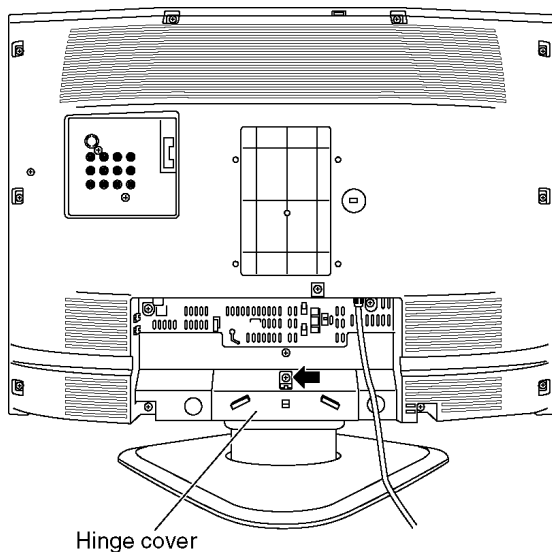


Board Name	Function
A-Board	Main (AV connector, AV Switch, Tuner, Audio & Video Processor, MCU, LCD Driver, LVDS)
V-Board	Remote Receiver, LED, Speaker Out
K-Board	Power Switch, Key Scan
AP-Board	Power Supply, Power Regulator
Power Unit	Power (AC/DC) None serviceable. Power Unit should be exchanged for service.

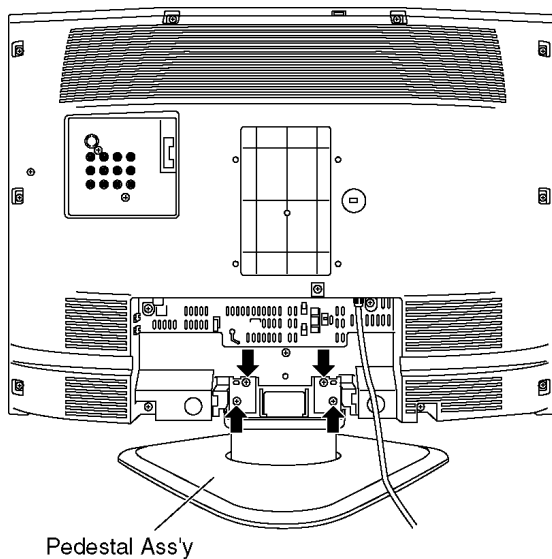
6 Disassembly for Service

6.1. Pedestal ass'y

1. Lay down the main unit so that the rear cover faces upward.
2. Remove the fixing screw (1pcs ➡).
3. Remove the hinge cover.

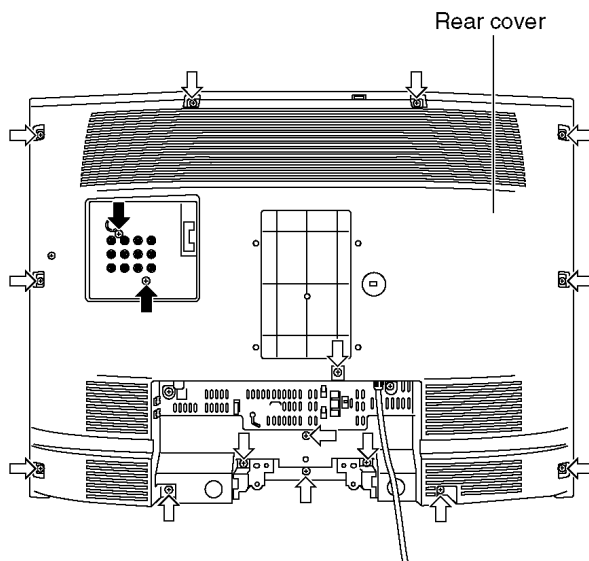


4. Remove the fixing screws (4pcs ➡).
5. Remove the pedestal ass'y.



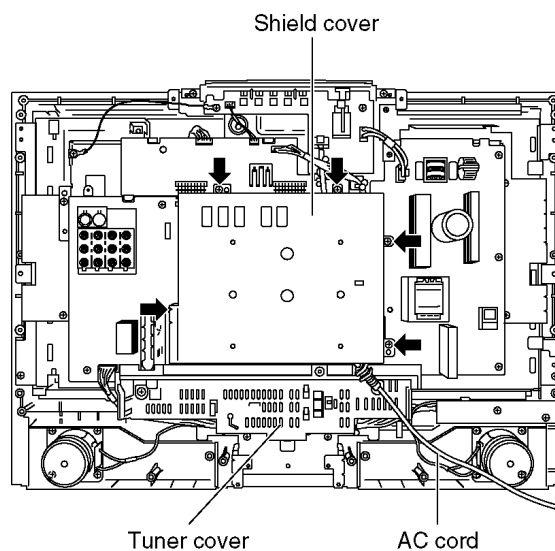
6.2. Rear cover

1. Remove the fixing screws (15pcs ➡ and 2pcs ➡).
2. Remove the rear cover.



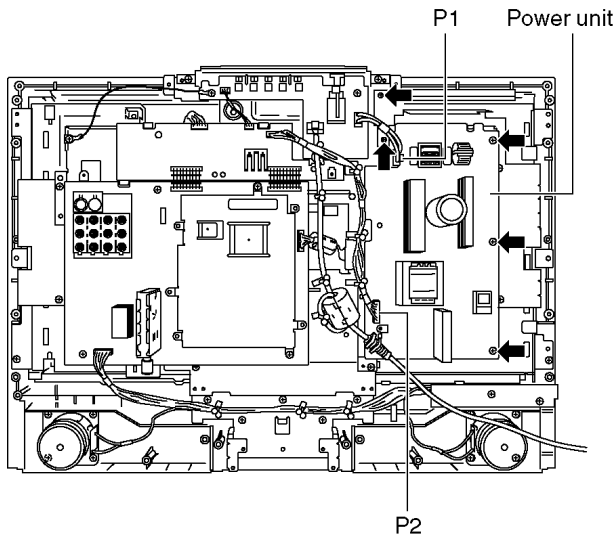
6.3. Tuner cover and the Shield cover

1. Remove the AC cord.
2. Remove the fixing screws (2pcs ➡).
3. Remove the tuner cover.
4. Remove the fixing screws (5pcs ➡).
5. Remove the Shield cover.



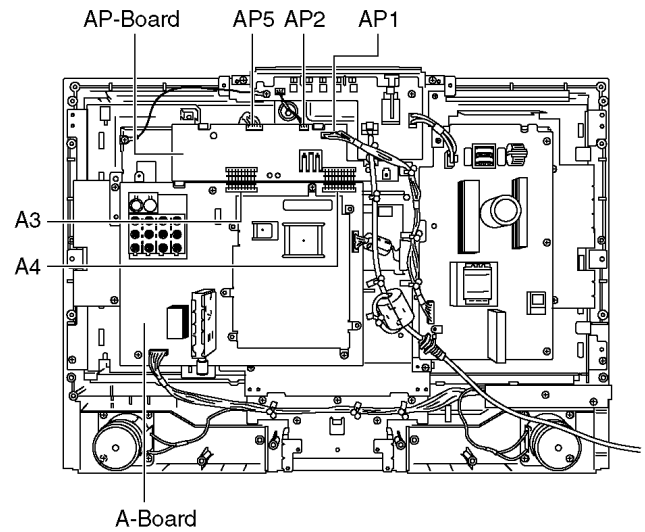
6.4. Power unit

1. Disconnect the couplers (P1 and P2).
2. Remove the fixing screws (5pcs ➡).
3. Remove the power unit.



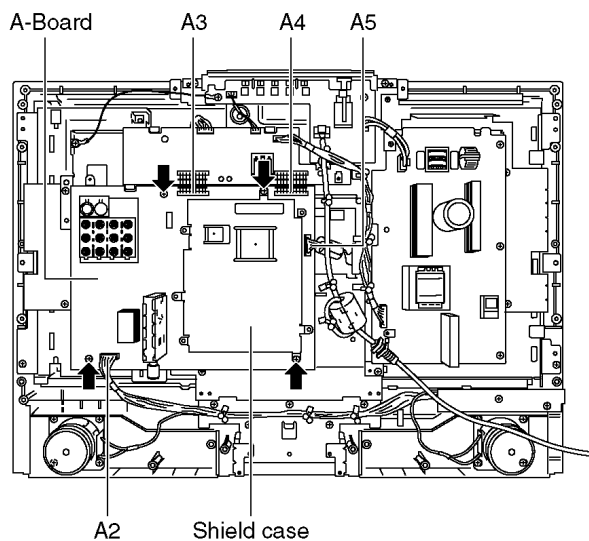
6.6. AP-Board

1. Disconnect the couplers (AP1, AP2 and AP5).
2. Disconnect the bridge connector (A3 and A4 on A-Board).
3. Remove the AP-Board.



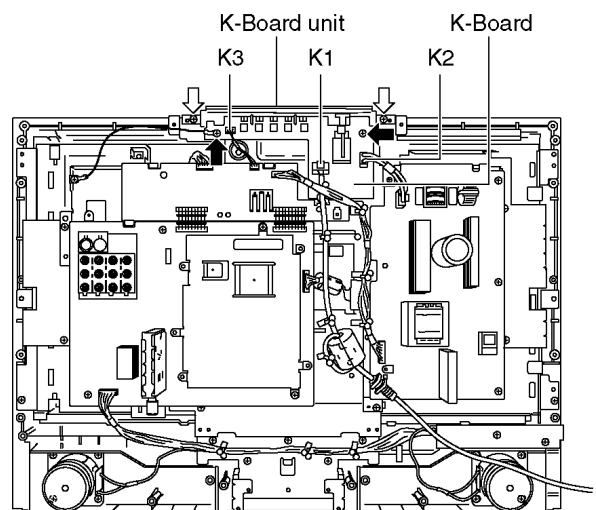
6.5. A-Board

1. Remove the fixing screws (4pcs ➡).
2. Disconnect the couplers (A2 and A5).
3. Disconnect the bridge connector (A3 and A4).
4. Remove the A-Board and the shield case.



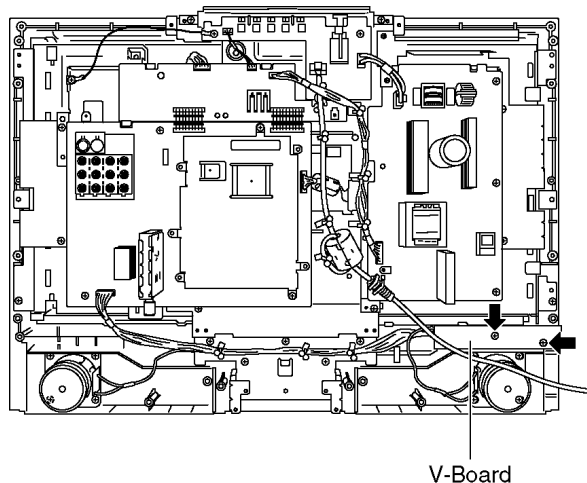
6.7. K-Board

1. Remove the fixing screws (2pcs ➡ and 2pcs ⇨).
2. Remove the K-Board unit.
3. Disconnect the couplers (K1, K2 and K3).
4. Remove the K-Board.

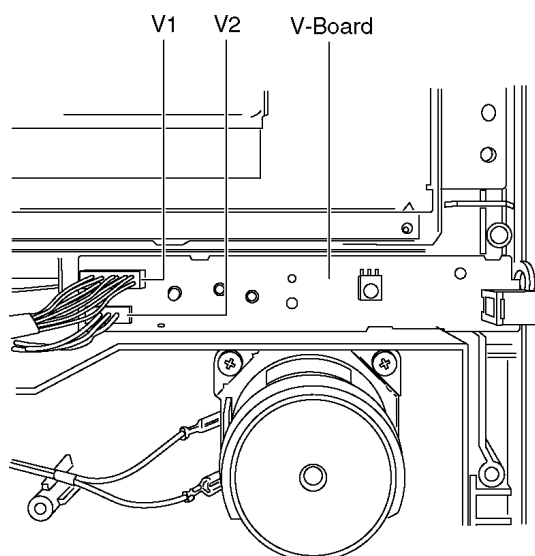


6.8. V-Board

1. Remove the fixing screws (2pcs ➡).

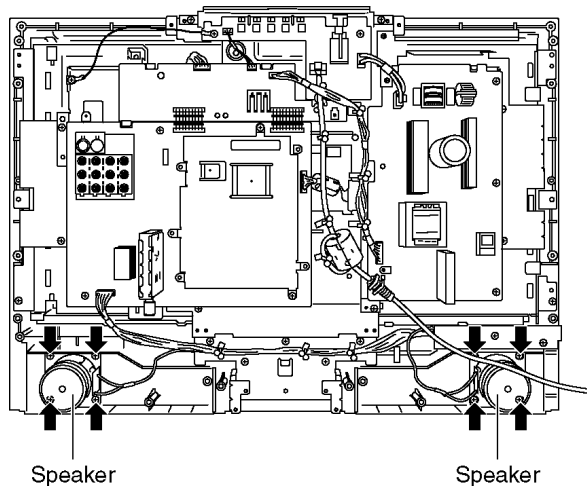


2. Disconnect the couplers (V1 and V2).
3. Remove the V-Board.



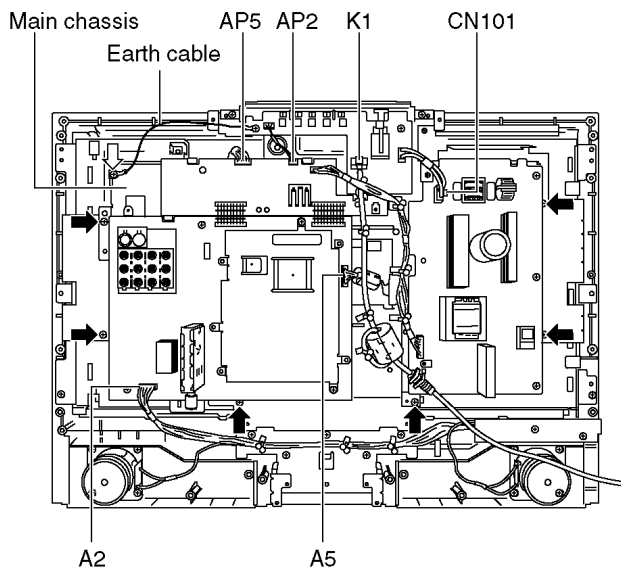
6.9. Speaker

1. Remove the fixing screws (8pcs ➡).
2. Remove the speaker.



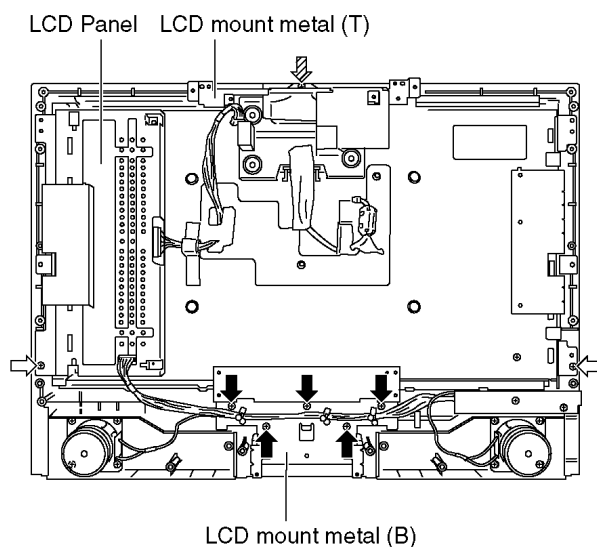
6.10. Main chassis

1. Remove the fixing screw (1pcs ➡).
2. Disconnect the earth cable.
3. Remove the fixing screws (6pcs ➡).
4. Disconnect the couplers (A2, A5, AP2, AP5, CN101 and K1).
5. Remove the main chassis.

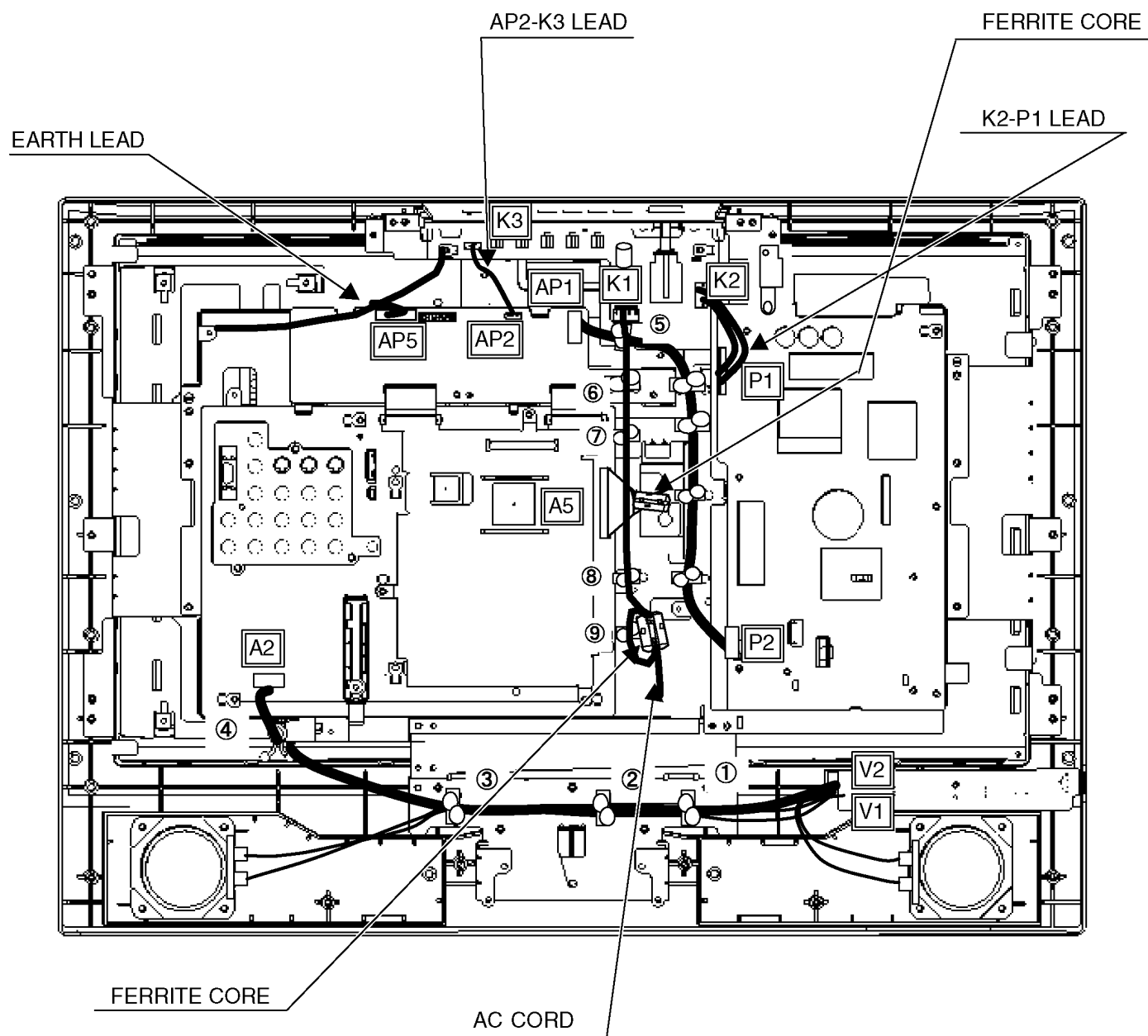


6.11. LCD Panel

1. Remove the main chassis.
2. Remove the K-Board.
3. Remove the fixing screws (2pcs ➡, 5pcs ➡ and 1pcs ➡).
4. Remove two LCD mount metal.
5. Remove the LCD Panel.



7 Lead of Wiring



[Processing of clamber]

Clamber Lead Line	①	②	③	④	⑤	⑥	⑦	⑧	⑨
V2-SP(R)	●	●	●						
V1-A2	●	●	●	●					
AC CORD						●	●	●	●
P2-AP1					●				

8 Service Mode Function

MPU controls the functions switching for each IICs through IIC bus in this chassis. The following setting and adjustment can be adjusted by remote control in Service Mode.

8.1. How to enter SERVICE 1

1. In sound menu, set BASS to MAXIMUM, and set TREBLE to MINIMUM.
2. Simultaneously press **INDEX** button on remote control and **DOWN** button [] on the TV set.

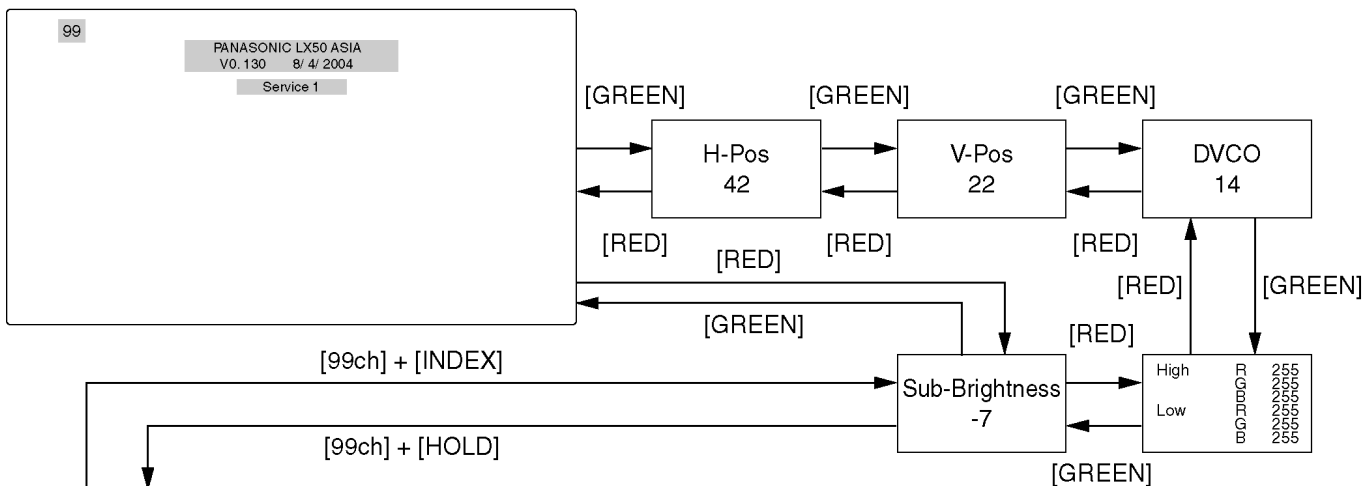
8.2. How to enter SERVICE 2

1. Set the channel to CH99.
2. Select the "Sub-Brightness" under Service 1.
3. Press HOLD button on remote control.

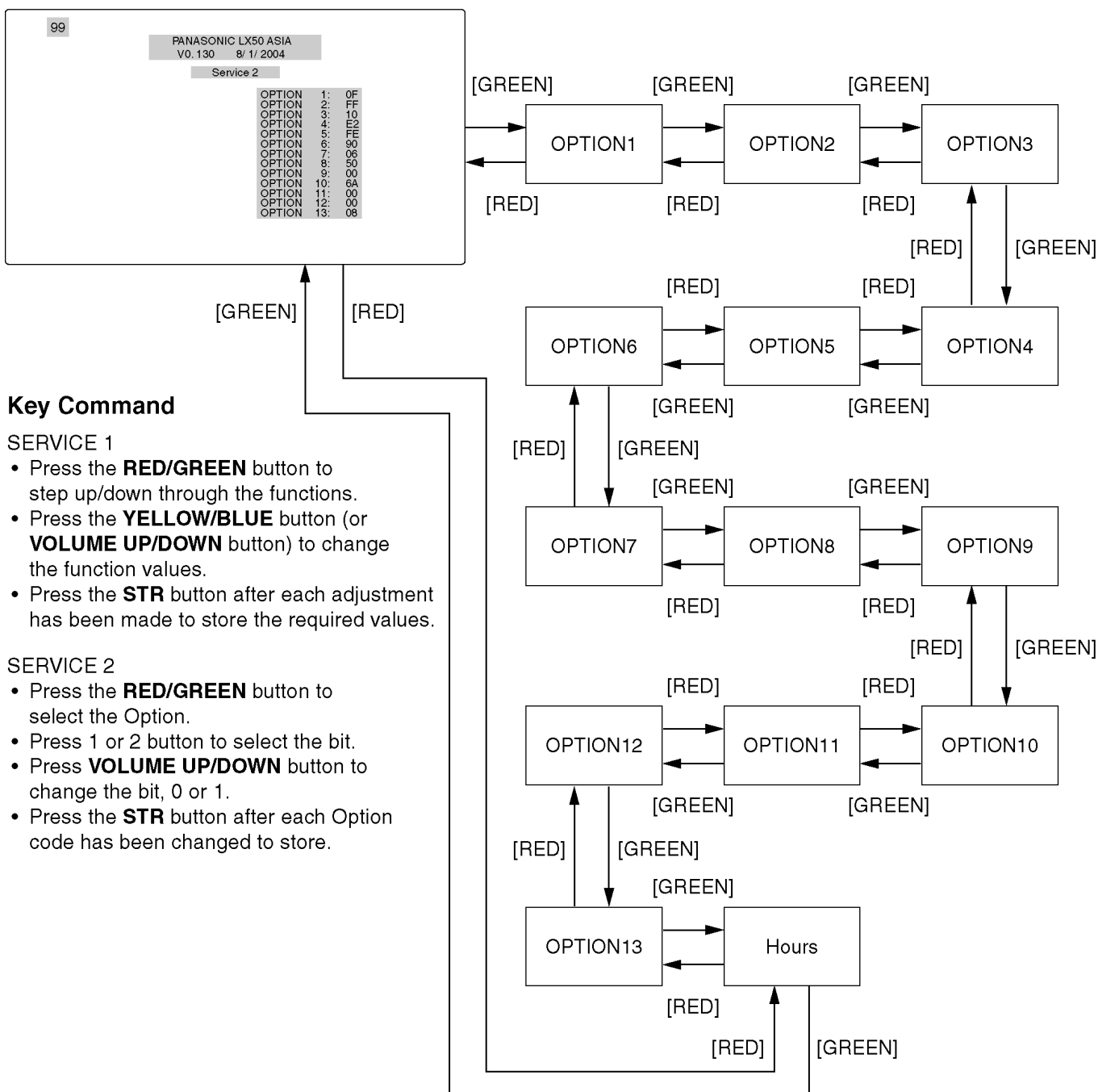
Note:

To exit to Service mode, press N button on remote control.

SERVICE 1



SERVICE 2



Key Command

SERVICE 1

- Press the **RED/GREEN** button to step up/down through the functions.
- Press the **YELLOW/BLUE** button (or **VOLUME UP/DOWN** button) to change the function values.
- Press the **STR** button after each adjustment has been made to store the required values.

SERVICE 2

- Press the **RED/GREEN** button to select the Option.
- Press 1 or 2 button to select the bit.
- Press **VOLUME UP/DOWN** button to change the bit, 0 or 1.
- Press the **STR** button after each Option code has been changed to store.

8.3. Option Description

option1	0F		
b0	1	Colour system	Auto(1)
b1	1		SECAM(1)
b2	1		NTSC(1)
b3	1		M.NTSC(1)
b4	0	free	
b5	0	free	
b6	0	free	
b7	0	free	
option2	FF		
b0	1	CH Plan	ASIA / M.E. / HK/UK / CHINA(1)
b1	1		NZ/INDNES(1)
b2	1		AUSTRALIA(1)
b3	1		E.EUROPE(1)
b4	1		SPECIAL(1)
b5	1		AMERICA(1)
b6	1		CATV(1)
b7	1		JAPAN(1)
option3	10		
b0	0	sub picture	not use
b1	0	2tuner	not use
b2	0	VGA	not use
b3	0	YUV	not use
b4	1	Wide (16:9)	not use
b5	0	HYPER	UHF only (0), UHF/VHF (1)
b6	0	SIF	4.5 / 5.5 / 6.0 / 6.5 (0), 5.5 / 6.0 / 6.5 (1)
b7	0		5.5 / 6.5 (2), 6.0 / 6.5 (3)
option4	E2		
b0	0	A2 enable	4.5(1)
b1	1		5.5(1)
b2	0		6.0(1)
b3	0		6.5(1)
b4	0	NICAM enable	4.5(1)
b5	1		5.5(1)
b6	1		6.0(1)
b7	1		6.5(1)
option5	FE		
b0	0	A2 select 6.5MHz	5.742MHz(0) 6.742MHz(1)
b1	1	NICAM priority	ASIA/M.E.(1)
b2	1		HK/UK(1)
b3	1		CHINA(1)
b4	1		NZ/INDN(1)
b5	1		AUSTRA(1)
b6	1		E.EURO(1)
b7	1		SPECIAL(1)
option6	90		
b0	0	IF 38.9MHz	
b1	0	SASO enable	SASO enable(1)
b2	0	IF I2C	I2C controlled Tuner IF module (1)
b3	0	Monitor out AV1 mute	Monitor out AV1 mute(1)
b4	1	Tuner Slave	C2(1), C0(0)
b5	0	Tuner	ALPS(1), ECOM (0)
b6	0	free	
b7	1	Noise mute	Noise mute enable(0)
option7	06		
b0	0	Power up EC-Mode	Power on EC enable (1)
b1	1	CH Blanking	Blanking enable (1)
b2	1	AV Blanking	Blanking enable (1)
b3	0	Auto WIDE	WSS enable only in aspect Auto (0), WSS always enable (1)
b4	0	Volume correction	TV Volume coorrection enable (1)
b5	0	AVLink	Q-Link off selectable in menu (1)
b6	0	MPX/NICAM display	Display NICAM (0), Display MPX (1)
b7	0	free	

option8	50		
b0	0	ACI auto MP	not use
b1	0	free	
b2	0	Geomagnetic Sensor	Geomagnetic polarity +(0), -(1)
b3	0	free	
b4	1	Fine tuning	Enable(1)
b5	0	Search speed	Slow(1) Fast(0)
b6	1	TEXT FLOF	FLOF enable (1)
b7	0	TEXT TOP	TOP enable (1)
option9	00		
b0	0	free	
b1	0	free	
b2	0	free	
b3	0	free	
b4	0	free	
b5	0	free	
b6	0	free	
b7	0	free	
option10	EA		
b0	0	OSD language	English/Chinese(0),English/Russian(1)
b1	1		English/Chinese/Arabic(2),English/Persian/French/Arabic(3)
b2	0	free	
b3	1	User aspect	JUST enable (1)
b4	0	Blue Back	BLUE BACK on/off selection in menu(0)
b5	1	Auto Aspect	AspectAuto disable(1)
b6	1	User aspect	ZOOM3 enable (2)
b7	1	free	
option11	00		
b0	0	Shop mode	enable(1)
b1	0	shipping Sound menu	MUSIC(0) / CINEMA(1)
b2	0	Sub HP	enable(1)
b3	0	Scan Blank	enable(1)
b4	0	User aspect 14:9	enable(1)
b5	0	NICAM C4 bit	enable(1)
b6	0	free	enable(1)
b7	0	free	enable(1)
option12	00		
b0	0	free	
b1	0	Australia	Australia(1)
b2	0	Ireland/India	not use
b3	0	UK/Korea	not use
b4	0	MELCOA	MELCOA(1)
b5	0	free	
b6	0	free	
b7	0	free	
option13	08	Temporary	
b0	0	ACI all country	not use
b1	0	ACI offset	not use
b2	0	free	
b3	1	Text	enable(1)
b4	0	free	
b5	0	free	
b6	0	free	
b7	0	Viewing ModeMain Menu	not use

8.4. Option Code Setting

If the memory IC (IC1103) or A Board is replaced, option code should be re-memorized.

Spare part of IC1103 is already memorized all Data for TX-23LX50M.

If you use for other model, you should re-memorized the different option code in SERVICE 2 mode.

Option No.	TX-23LX50M	TX-23LX50A	TX-23LX50X
OPTION 1	0F	0F	0F
OPTION 2	FF	FF	FF
OPTION 3	10	10	10
OPTION 4	E2	E2	E2
OPTION 5	FE	FE	FE
OPTION 6	90	90	10
OPTION 7	06	06	06
OPTION 8	50	D0	50
OPTION 9	00	00	00
OPTION 10	EA	EA	EB
OPTION 11	00	00	00
OPTION 12	00	02	00
OPTION 13	08	08	08

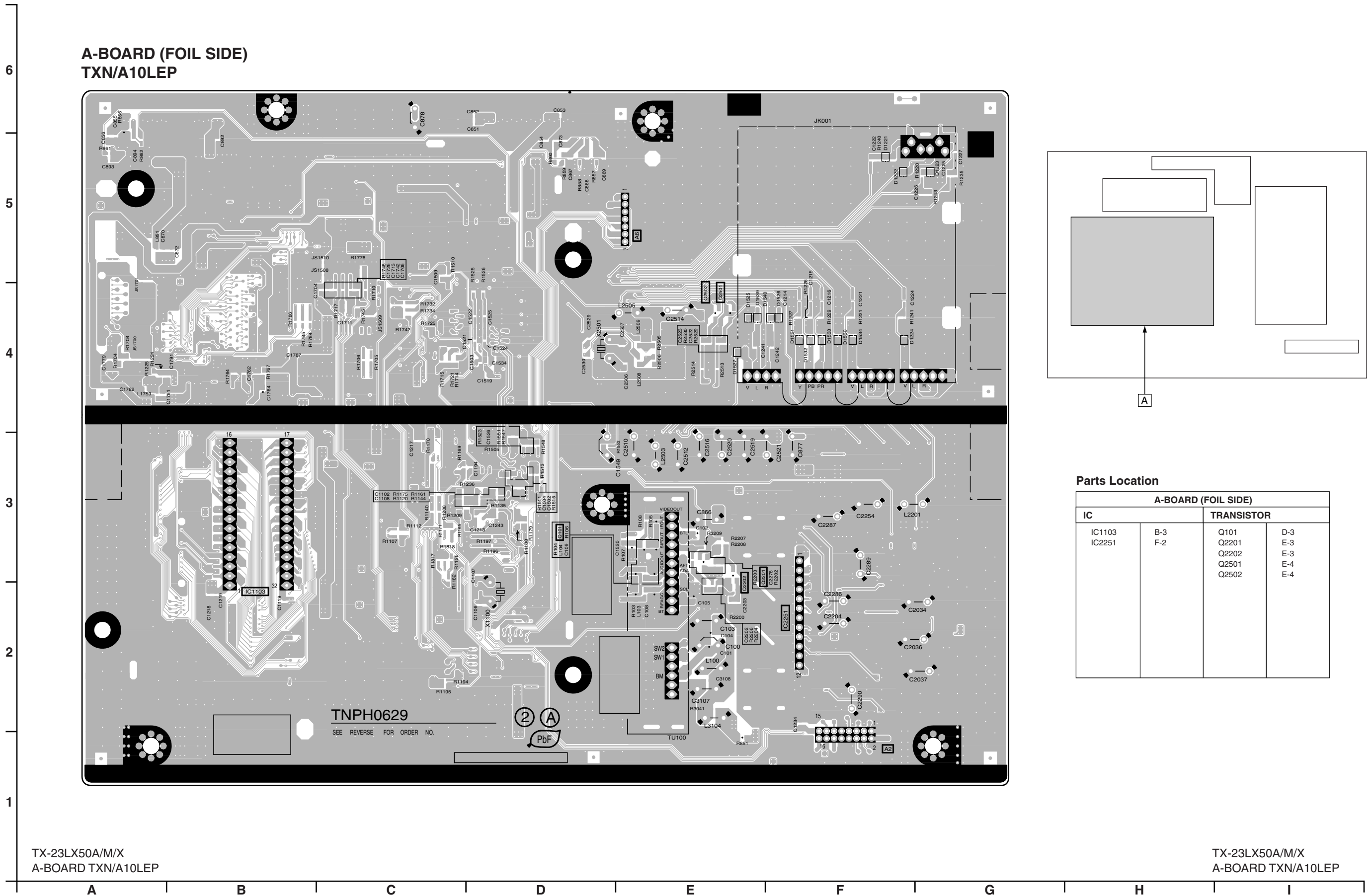
9 Adjustment

9.1. DVCO adjustment

Instrument Name	Connection	Remarks
Remote controller Internal signal (studio color bar)	RF input	
Procedure		
DVCO Adjustment 1. Receive the color bar pattern at AV1 composite video. Signal generator : PAL/ fp =4.43361875MHz (ref.) 2. Go to "DVCO" under Service 1. 3. Make automatic adjustment of DVCO by the blue key. (About 3sec.) The display color of DVCO serves as black (START) - red (under adjustment) - black (completion).		

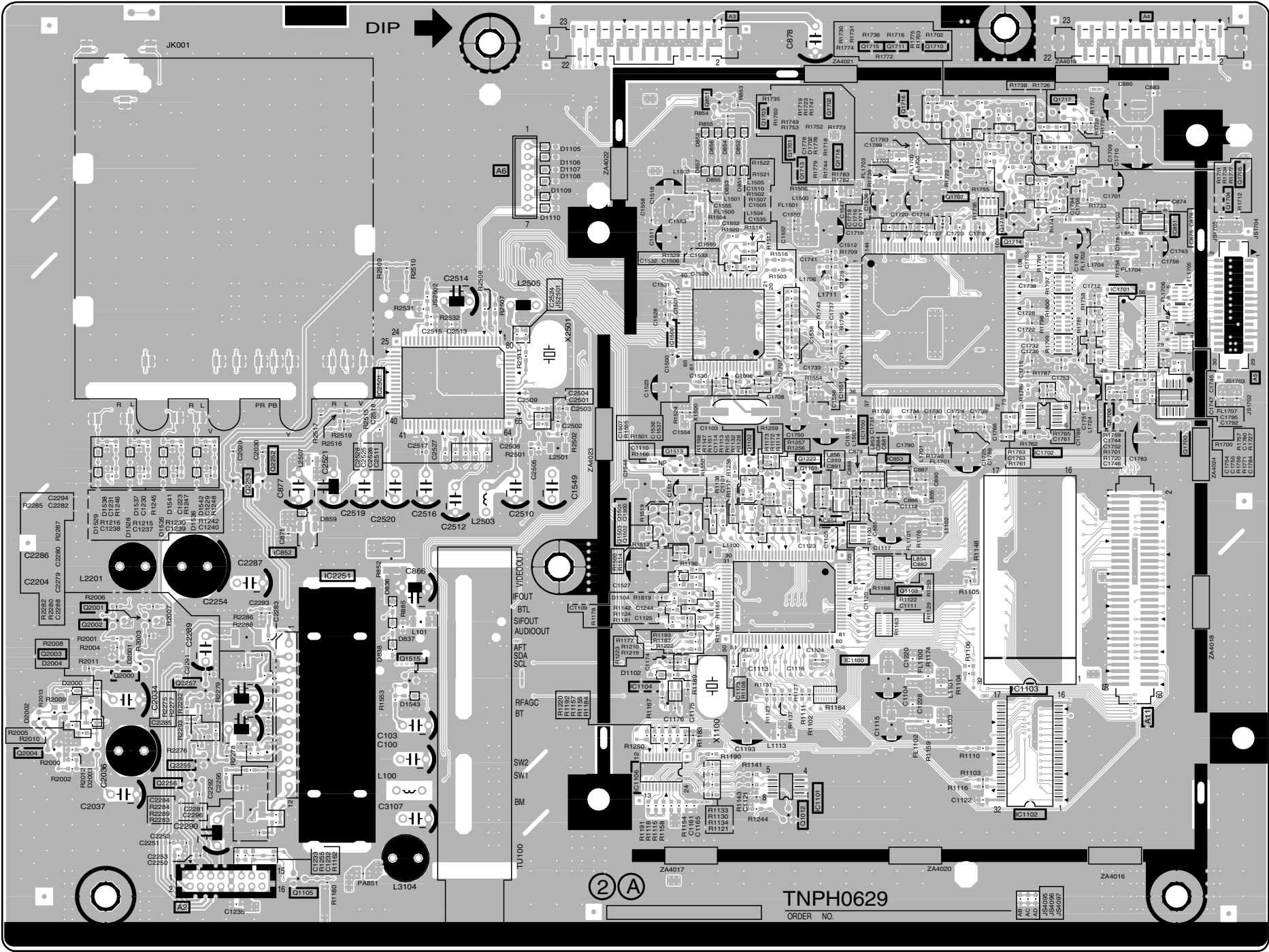
10 Conductor Views

10.1. A-Board

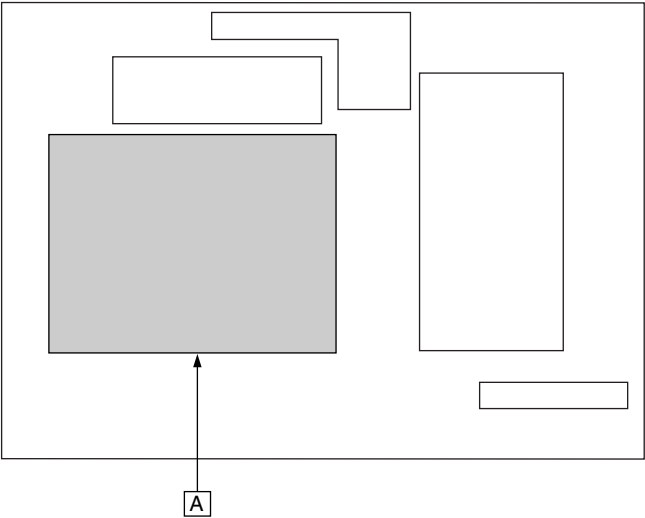


6
5
4
3
2
1

A-BOARD (COMPONENT SIDE)
TXN/A10LEP



TX-23LX50A/M/X
A-BOARD TXN/A10LEP

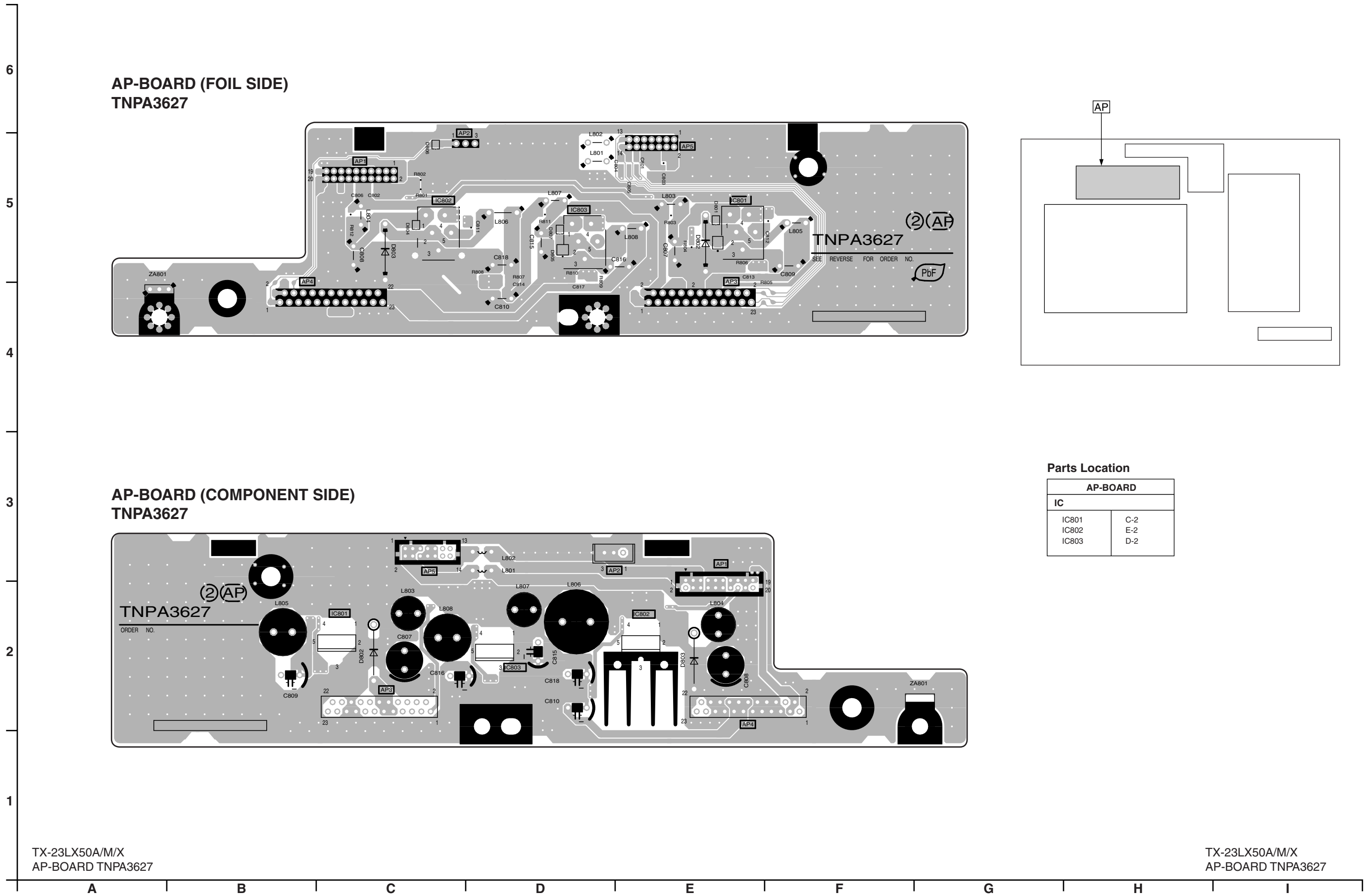


Parts Location

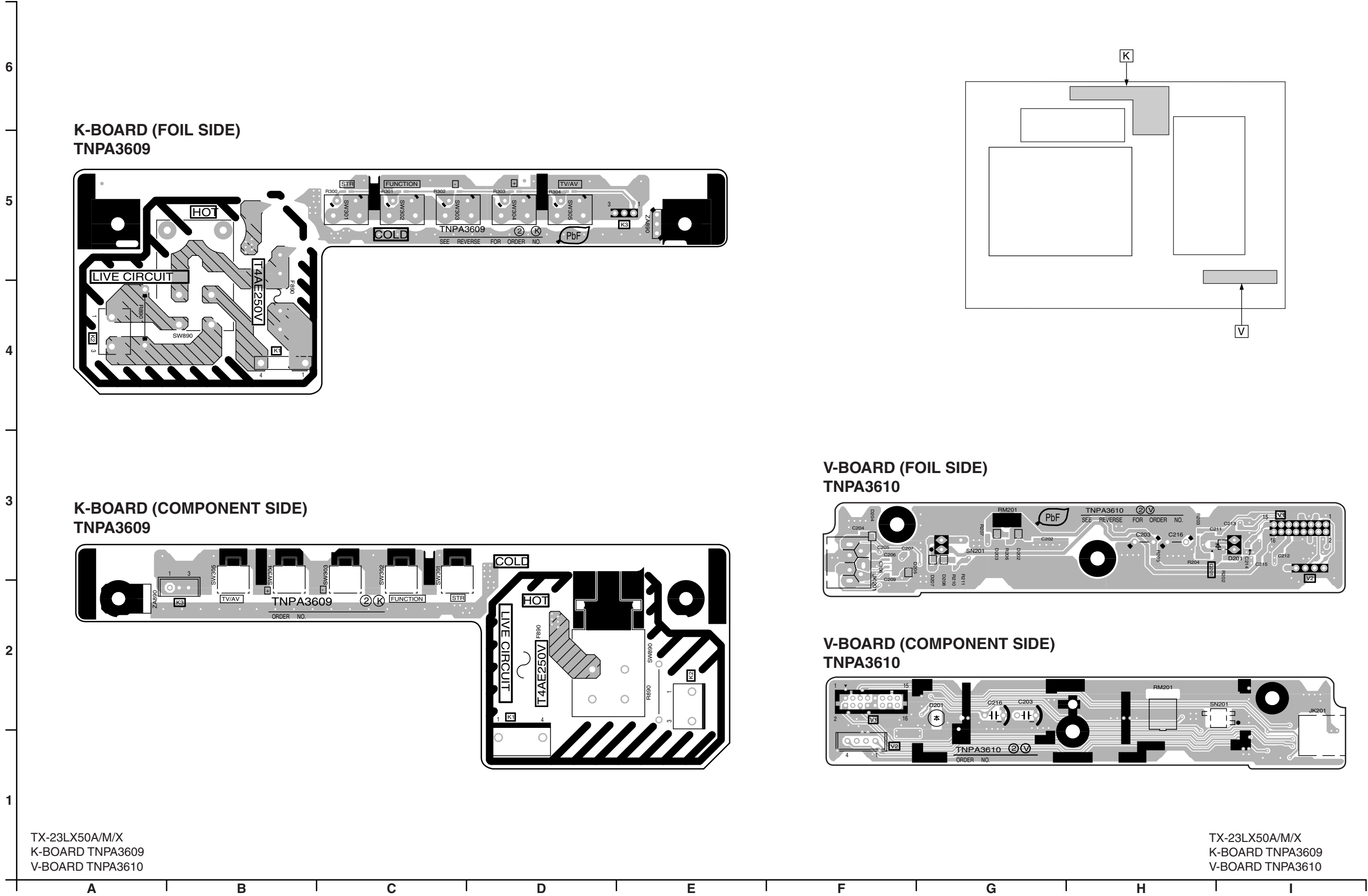
A-BOARD (COMPONENT SIDE)			
IC		TRANSISTOR	
IC851	G-5	Q851	D-5
IC852	B-3	Q1012	E-2
IC853	E-3	Q1101	E-3
IC854	E-3	Q1102	E-3
IC1100	E-3	Q1103	E-3
IC1101	E-2	Q1105	B-1
IC1102	F-2	Q1223	E-3
IC1103	F-3	Q1500	D-3
IC1104	D-2	Q1501	D-3
IC1106	D-2	Q1502	D-3
IC1500	D-4	Q1503	D-3
IC1700	E-4	Q1513	D-4
IC1701	F-4	Q1515	C-2
IC1702	F-4	Q1700	G-4
IC2251	C-2	Q1701	F-5
IC2501	C-4	Q1702	F-5
		Q1703	F-5
		Q1704	F-5
		Q1705	F-5
		Q1706	F-4
		Q1707	F-5
		Q1710	F-5
		Q1711	F-5
		Q1712	F-5
		Q1713	F-5
		Q1714	F-5
		Q1715	F-5
		Q1716	E-5
		Q1717	F-5
		Q1718	F-5
		Q2000	A-3
		Q2001	B-3
		Q2002	A-3
		Q2003	A-2
		Q2004	A-2
		Q2252	B-3
		Q2253	B-3
		Q2255	B-2
		Q2256	B-2
		Q2257	B-2

TX-23LX50A/M/X
A-BOARD TXN/A10LEP

10.2. AP-Board



10.3. K and V-Board



11 Block and Schematic Diagram

11.1. Schematic Diagram Notes

Important Safety Notice

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

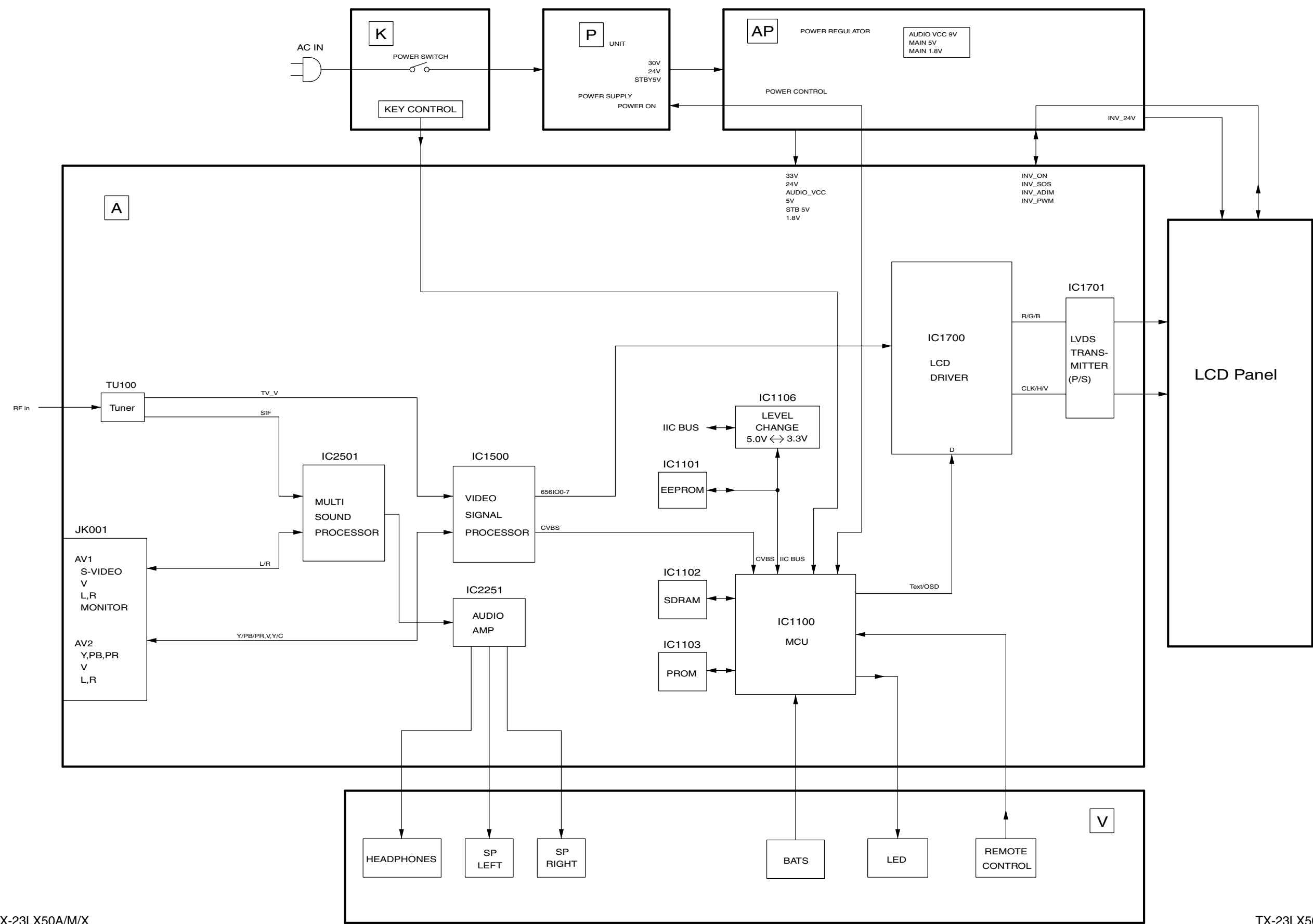
Notes:

- 1. **Resistor**
Unit of resistance is OHM [Ω] (K=1,000, M=1,000,000).
- 2. **Capacitor**
Unit of capacitance is μ F, unless otherwise noted.
- 3. Coil
Unit of inductance is H, unless otherwise noted.
- 4. Test Point
 : Test Point position
- 5. Earth Symbol
 : Chassis Earth (Cold)  : Line Earth (Hot)
- 6. Voltage Measurement
Voltage is measured by a DC voltmeter.
Conditions of the measurement are the following:
Power Source AC110-240V, 50/60Hz
Receiving Signal Colour Bar signal (RF)
All customer's controls Maximum positions
- 7. When arrow mark () is found, connection is easily found from the direction of arrow.
- 8. Indicates the major signal flow. : Video  Audio 
- 9. This schematic diagram is the latest at the time of printing and subject to change without notice.

Remarks:

- 1. The Power 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. Take the following precautions.
All circuits, except the Power Circuit, are cold.
Precautions
 - a. Do not touch the hot part or the hot and cold parts at the same time or you may be shocked.
 - b. Do not short- circuit the hot and cold circuits or a fuse may blow and parts may break.
 - c. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow.
Connect the earth of instruments to the earth connection of the circuit being measured.
 - d. Make sure to disconnect the power plug before removing the chassis.

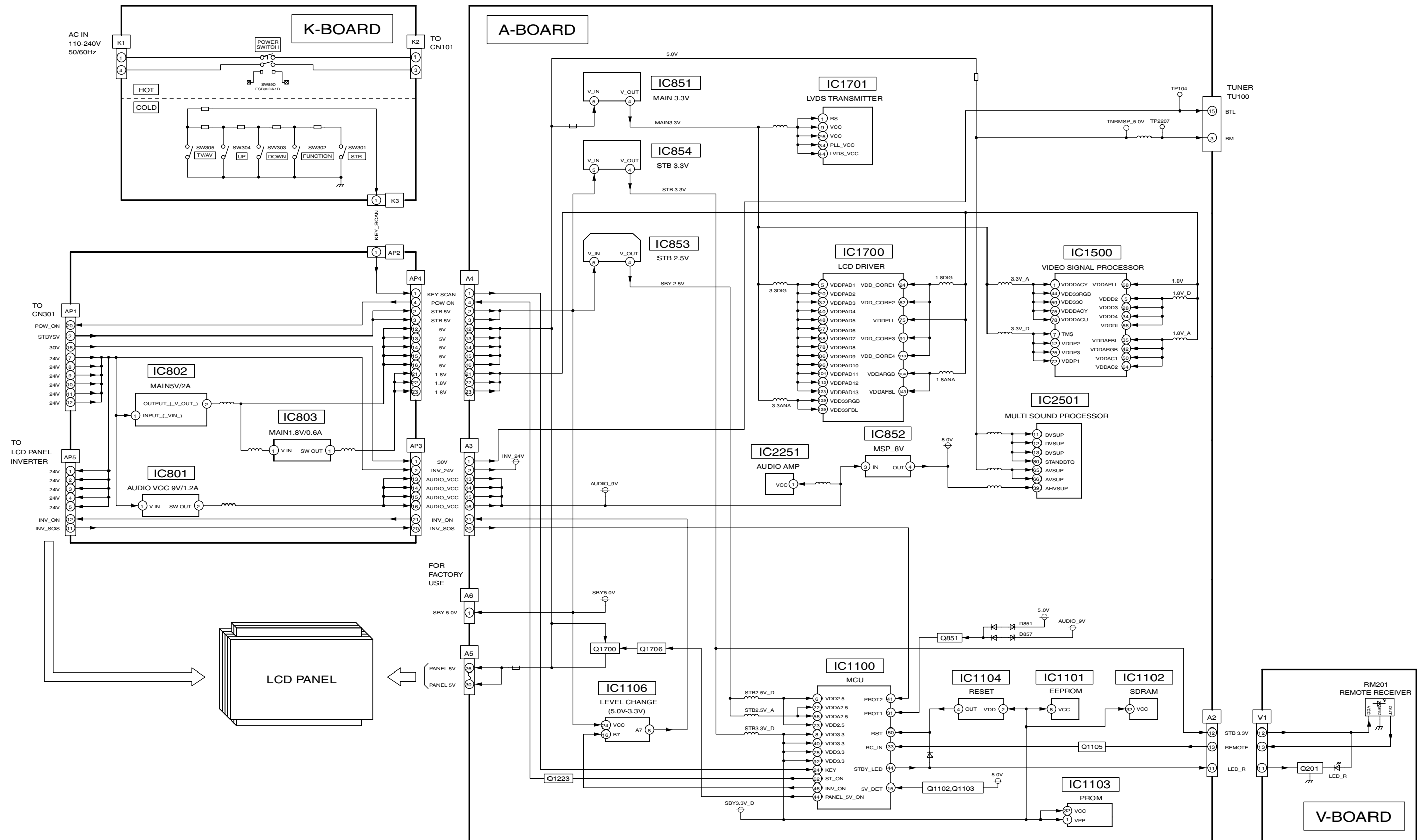
11.2. Main Block Diagram



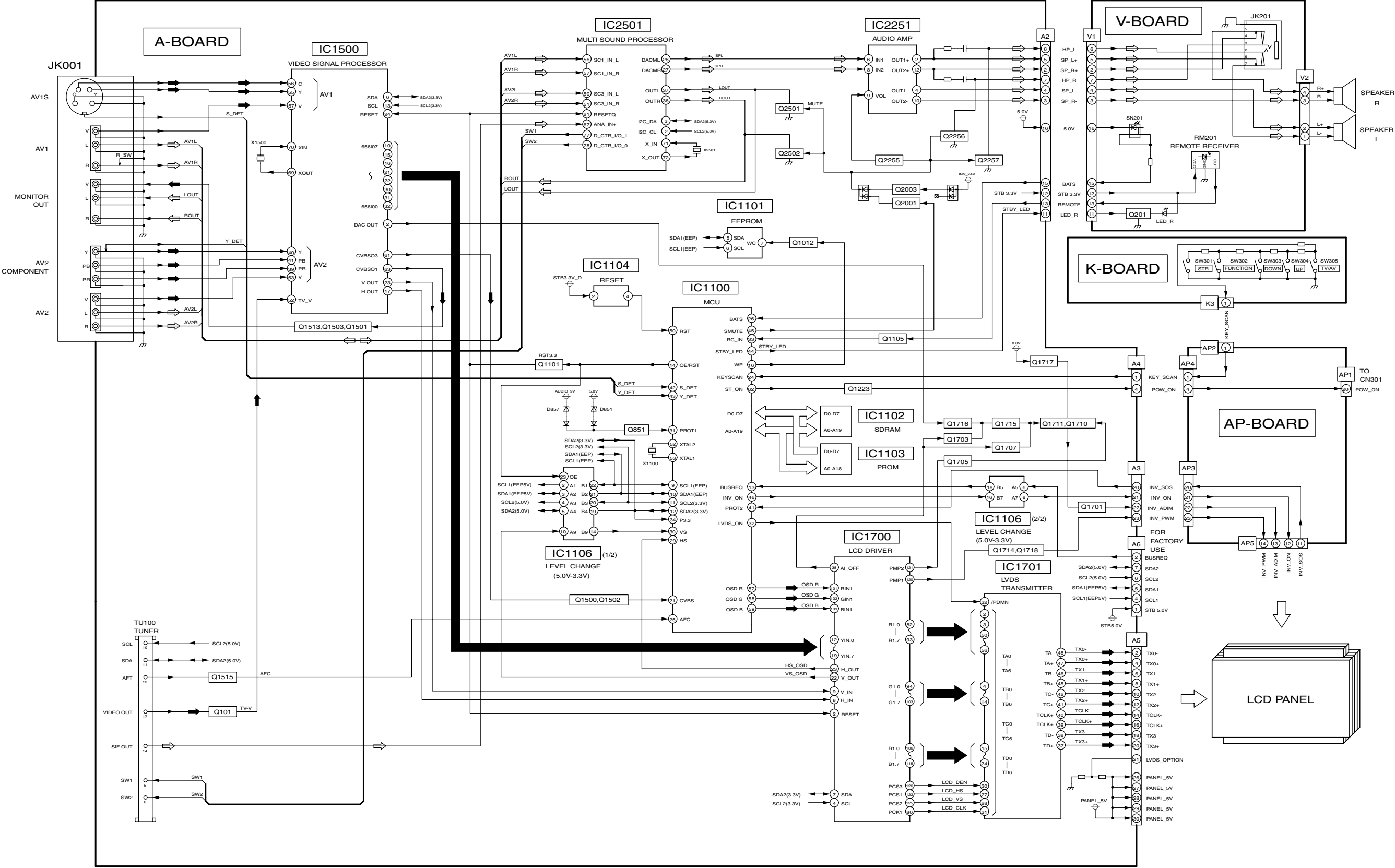
TX-23LX50A/M/X
Main Block Diagram

TX-23LX50A/M/X
Main Block Diagram

11.3. Power Block Diagram

TX-23LX50A/M/X
Power Block DiagramTX-23LX50A/M/X
Power Block Diagram

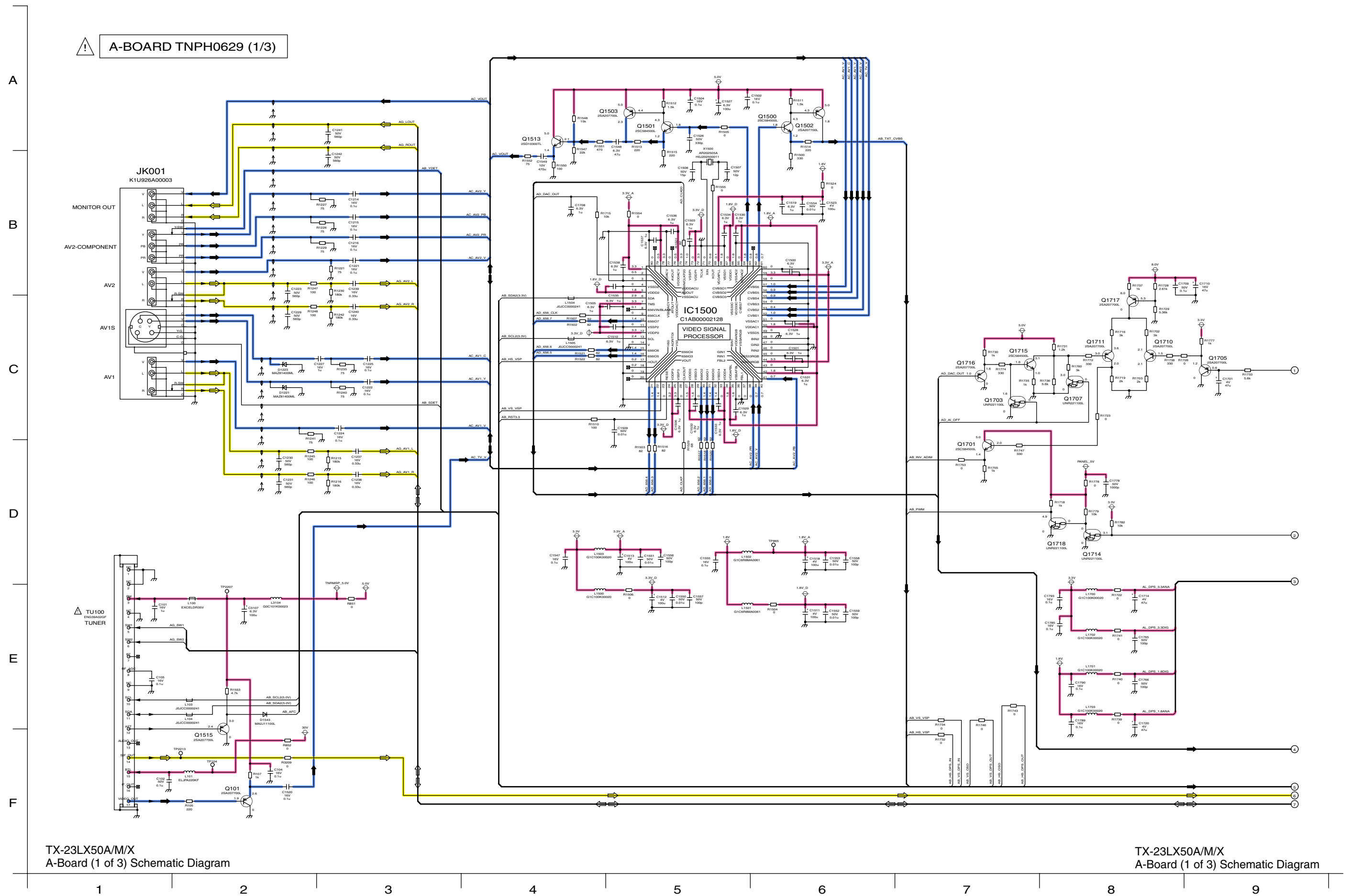
11.4. Signal Block Diagram



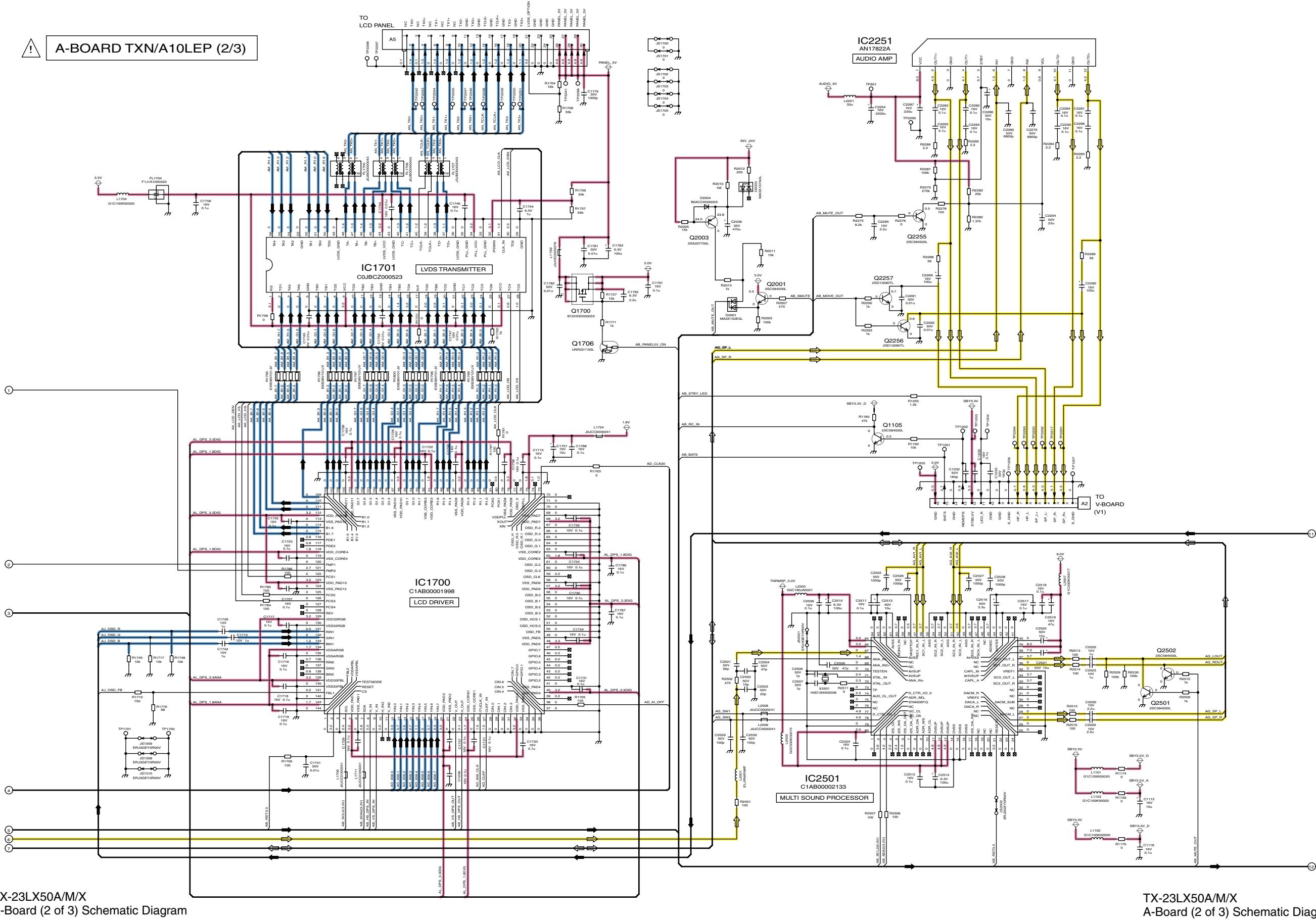
TX-23LX50A/M/X
Signal Block Diagram

TX-23LX50A/M/X
Signal Block Diagram

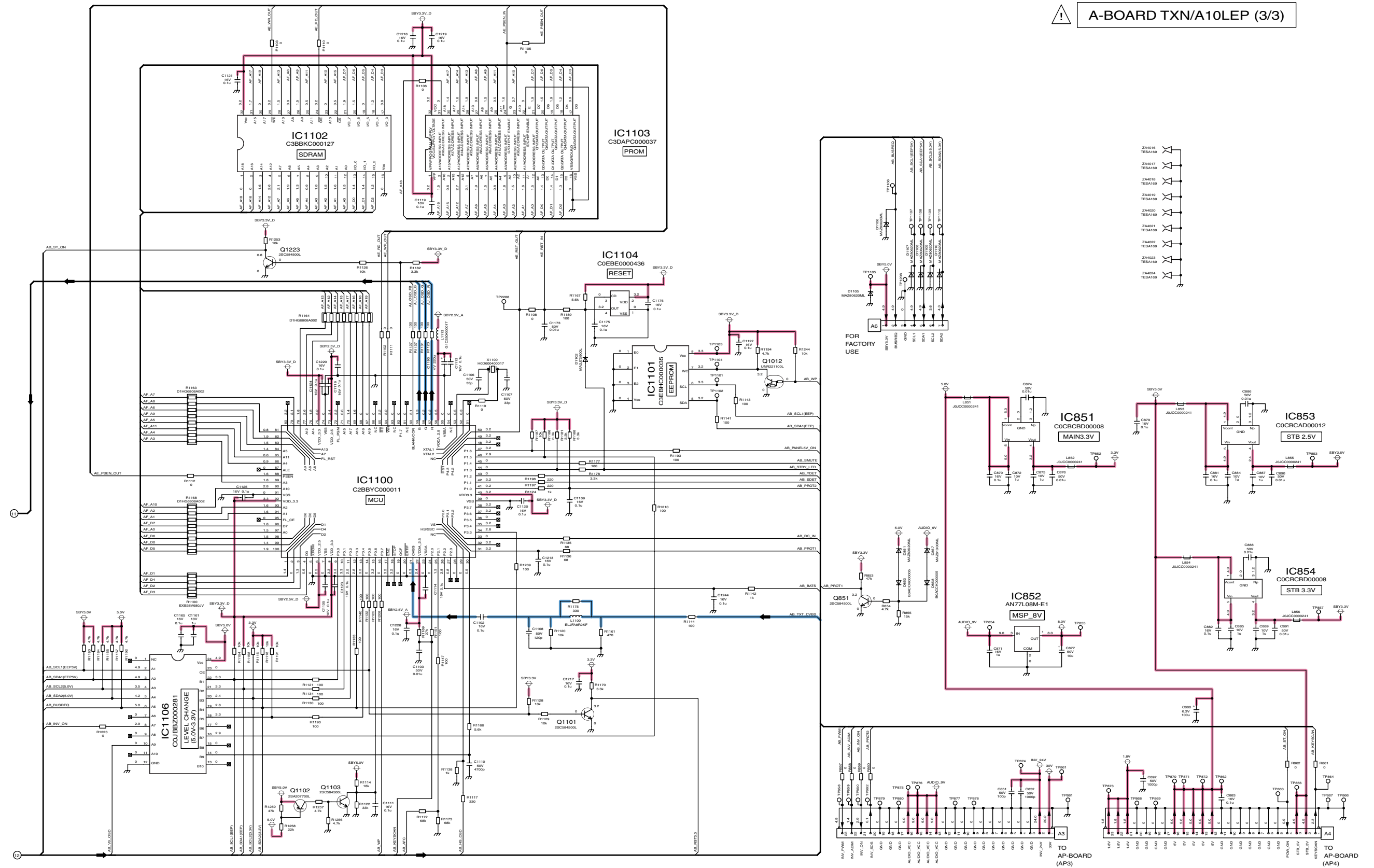
11.5. A-Board (1 of 3) Schematic Diagram



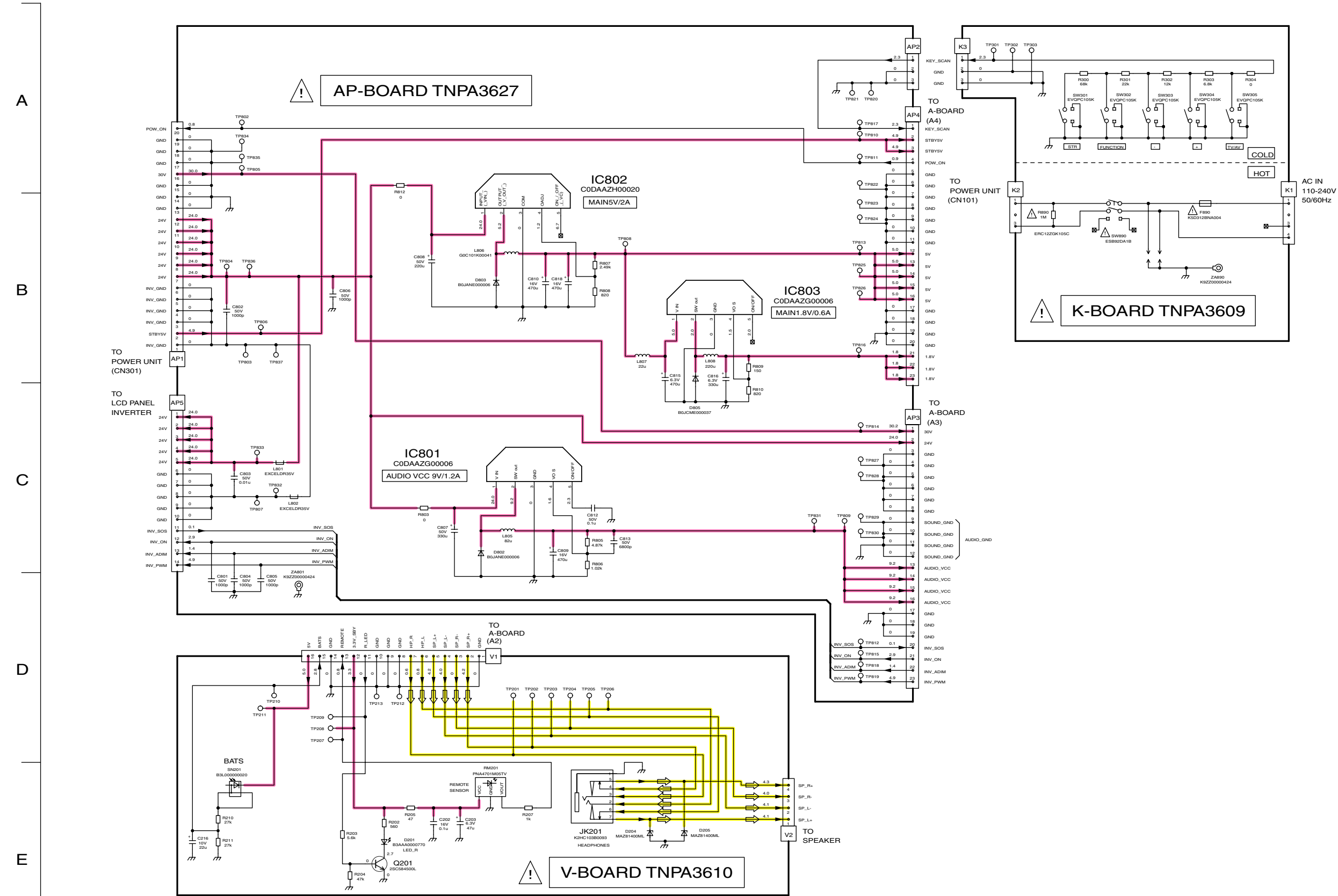
11.6. A-Board (2 of 3) Schematic Diagram



11.7. A-Board (3 of 3) Schematic Diagram

TX-23LX50A/M/X
A-Board (3 of 3) Schematic DiagramTX-23LX50A/M/X
A-Board (3 of 3) Schematic Diagram

11.8. AP, K and V-Board Schematic Diagram

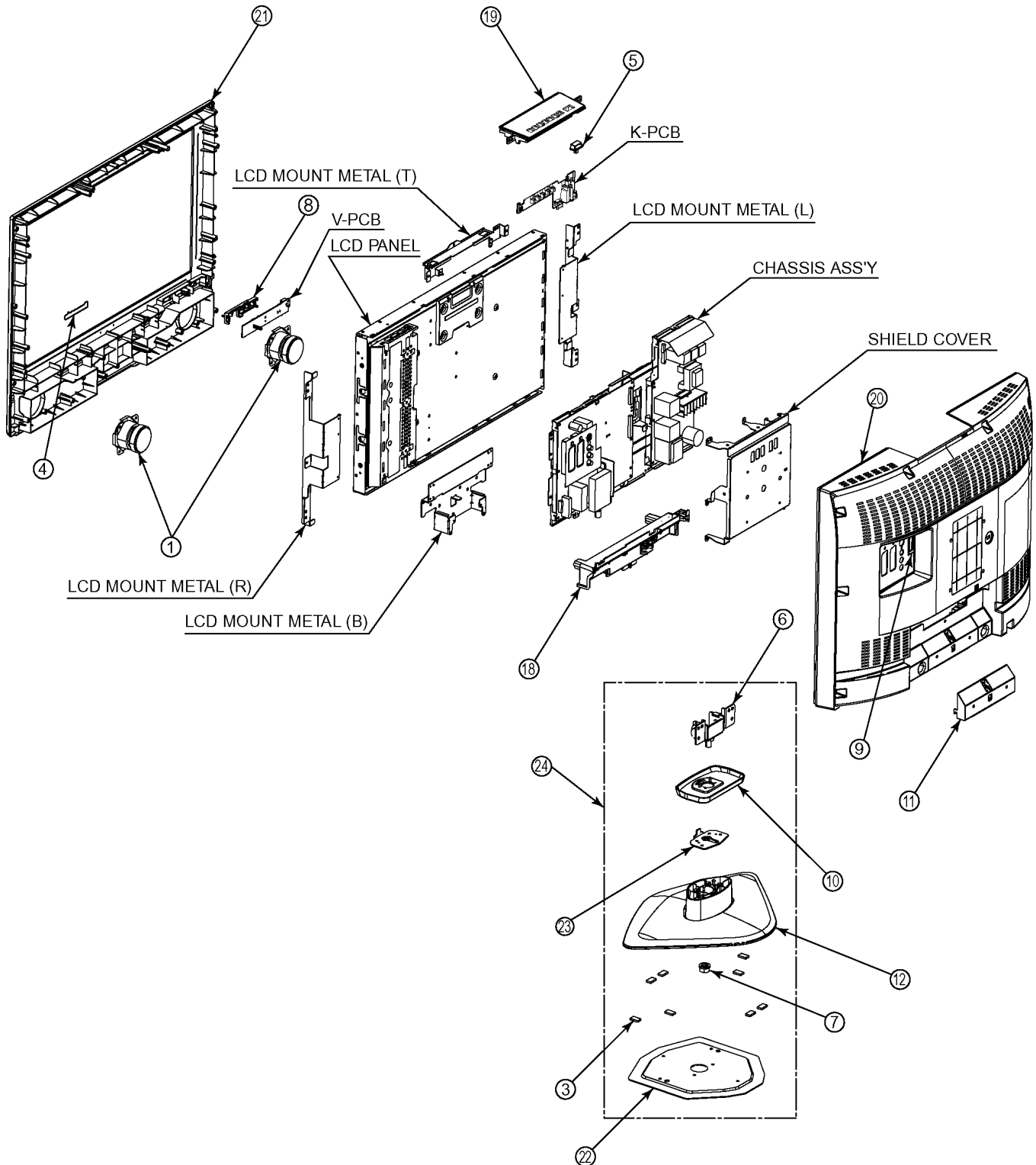


TX-23LX50A/M/X
AP, K and V-Board Schematic Diagram

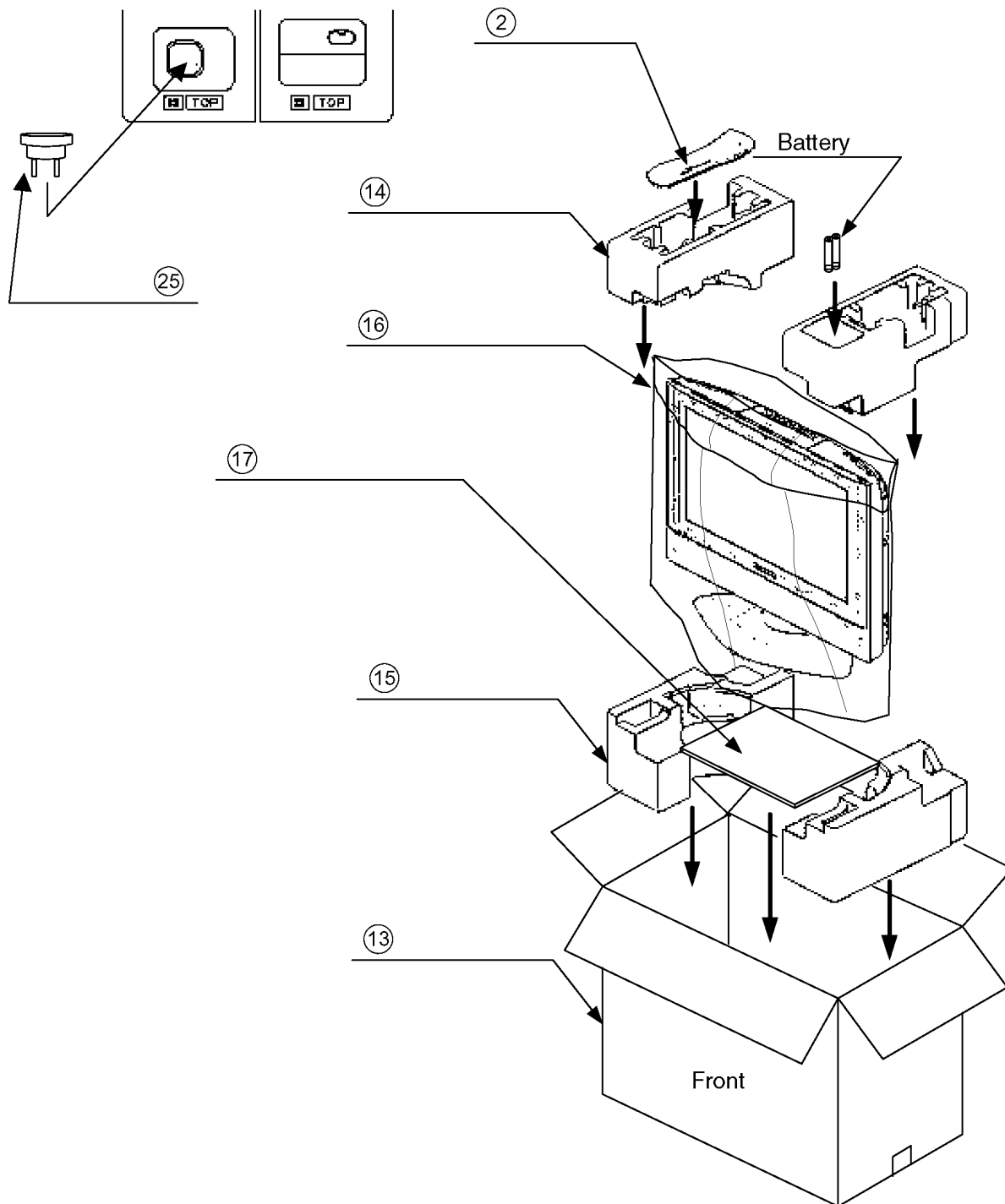
TX-23LX50A/M/X
AP, K and V-Board Schematic Diagram

12 Parts Location & Mechanical Replacement Parts List

12.1. Parts Location



12.2. Packing Exploded Views



12.3. Mechanical Replacement Parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
RTL	TZSA03013T	LCD PANEL	1	△
1	EAS6P125A	SPEAKER UNIT	2	
	J0KG00000011	FLAT CORE	1	
	J0KG00000054	NOISE FILTER	1	
	J0KG00000100	FILTER	1	
	K2CT2DZ00010	AC CORD	1	TX-23LX50M/X △
	K2CJ2DZ00014	AC CORD	1	TX-23LX50A △
25	K2DR53D00001	UNIVERSAL ADAPTER	1	TX-23LX50X
2	N2QAJB000121	REMOTE CONTROL TRANSMITTER	1	△
3	TBLG3037	SET LUG	8	
4	TBMA148	PANASONIC BADGE	1	
5	TBXA46001	POWER BUTTON	1	
6	TEJA083	TILT/REVOLVING HINGE	1	
	THEJ006J	SCREW	4	
7	THNA014U	NUT	1	
8	TKKC5209	PANEL LIGHT	1	
9	TKKL5290	CONNECTOR COVER	1	
10	TKXA17501	BLIND COVER	1	
11	TKXA18101	HINGE COVER	1	
12	TKXA18201	PEDESTAL BASE	1	
	TMKG547	SPONGE	1	
	TMM16452	CLAMPER	5	
	TMME047	CLAMPER	8	
	TMME237	CABLE CLAMPER	2	
13	TPCB79603	CARTON	1	
14	TPD2AA02801A	CUSHION TOP	1	
15	TPD2AA02901A	CUSHION BOTTOM	1	
16	TPEH211	PROTECT COVER	1	
17	TQBC2012	INSTRUCTION BOOK (ENGLISH)	1	TX-23LX50A △
17	TQBC2013	INSTRUCTION BOOK (ARABIC)	1	TX-23LX50X △
17	TQBC2014	INSTRUCTION BOOK (CHINESE)	1	TX-23LX50M △
17	TQBC2015	INSTRUCTION BOOK (ENGLISH)	1	TX-23LX50M/X △
18	TTP0A0038	TUNER COVER ASSY	1	△
19	TTPA0409	BUTTON PANEL ASS'Y	1	△
20	TTUA1129	REAR COVER	1	TX-23LX50A △
20	TTUA1130	REAR COVER	1	TX-23LX50M △
20	TTUA1131	REAR COVER	1	TX-23LX50X △
21	TTYA0698	CABINET ASS'Y	1	△
22	TUXA209	PEDESTAL BASE MTG	1	
23	TUXJ162	AXIS MOUNT MTG	1	
24	TXFKZ020Q51	PEDESTAL ASS'Y	1	
	TXJ/V20LEM-1	SPEAKER LEAD V2-SP	1	
	XTB4+12JFJ	SCREW	14	
	XTB4+15JFJ	SCREW	5	
	XTB4+15JFJK	SCREW	30	
	XTV3+10JFJ	SCREW	2	
	XTV3+12GFJK	SCREW	2	
	XTV3+8JFJ	SCREW	2	
	XTV3+8JFJK	SCREW (TUNER COVER)	2	
	XTW3+8TFJ	SCREW	26	
	XYN3+J8FJ	SCREW ROHS	3	
	XZBT6532	POLY BAG	1	

13 Electrical Replacement Parts List

13.1. Replacement Parts List Notes

Important Safety Notice

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

RTL (Retention Time Limited)

Note: The marking (RTL) indicates that the Retention Time is Limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

Abbreviation of part name and description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W
 Type Allowance

2. Capacitor

Example:

ECKF1H103ZF C 0.01UF, Z, 50V
 Type Allowance

Type	Allowance
C : Carbon	F : $\pm 1\%$
F : Fuse	G : $\pm 2\%$
M : Metal Oxide	J : $\pm 5\%$
Metal Film	K : $\pm 10\%$
S : Solid	M : $\pm 20\%$
W : Wire Wound	

Type	Allowance
C : Ceramic	C : $\pm 0.25\text{pF}$
E : Electrolytic	D : $\pm 0.5\text{pF}$
P : Polyester	F : $\pm 1\text{pF}$
Polypropylene	G : $\pm 3\text{pF}$
	J : $\pm 5\text{pF}$
T : Tantalum	K : $\pm 10\text{pF}$
	L : $\pm 15\text{pF}$
	M : $\pm 20\text{pF}$
	P : +100%, -0%
	Z : +80%, -20%

13.2. Electrical Replacement Parts List

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
A2	K1KA16AA0178	16P CONNECTOR	1	
A3,A4	K1KB23A00003	23P CONNECTOR	2	
A5	K1KA30AA0250	30P CONNECTOR	1	
A6	K1KA07AA0193	7P CONNECTOR	1	
AP1	K1KA20AA0178	20P CONNECTOR	1	
AP2	K1KA03AA0192	3P CONNECTOR	1	
AP3,P4	K1KA23A00003	23P CONNECTOR	2	
AP5	K1KA14AA0178	14P CONNECTOR	1	
C101	ECJ2VF1C105Z	C 1UF, Z, 16V	1	
C102	ECJ2VF1H104Z	C 0.1UF, Z, 50V	1	
C104	ECJ2VF1C104Z	C 0.1UF, Z, 16V	1	
C105	ECJ2VB1C104K	C 0.1UF, K, 16V	1	
C202	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C203	ECEA0JKA470	E 47UF, 6.3V	1	
C216	ECEA1AKA220B	E 22UF, 10V	1	
C801,02	ECJ1XB1H102K	C 1000UF, Z, 50V	2	
C803	ECJ2XB1H103K	C 0.01UF, K, 50V	1	
C804-06	ECJ1XB1H102K	C 1000UF, Z, 50V	3	
C807	ECA1HM331	E 330UF, 50V	1	
C808	ECA1HM221	E 220UF, 50V	1	
C809,10	ECA1CM471	E 470UF, 16V	2	
C812	ECJ2VF1H104Z	C 0.1UF, Z, 50V	1	
C813	ECJ1VB1H682K	C 6800PF, K, 50V	1	
C815	ECA1JM471	E 470UF, 63V	1	
C816	EEUF0J331	E 330UF, 6.3V	1	
C818	ECA1CM471	E 470UF, 16V	1	
C851	ECJ1XC1H101J	C 100PF, J, 50V	1	
C852	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C870	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C871	ECJ1VF1C105Z	C 1UF, Z, 16V	1	
C872	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C874	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C875	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C876	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C877	ECA1HM100	E 10UF, 50V	1	
C879	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C880	EEH0B0J101P	C 100PF, J, 6.3V	1	
C881-83	ECJ1XF1C104Z	C 0.1UF, Z, 16V	3	
C884,85	ECJ1VF1A105Z	C 1UF, Z, 10V	2	
C886	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C887	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C888	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C889	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C890,91	ECJ1VB1H103K	C 0.001UF, K, 50V	2	
C892	ECJ1XB1H102K	C 1000UF, Z, 50V	1	
C1102	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C1103	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C1105	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1106,07	ECJ1XC1H330J	C 33PF, J, 50V	2	
C1108	ECJ1XC1H121J	C 120PF, J, 50V	1	
C1109	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1110	ECJ1VB1H472K	C 4700PF, K, 50V	1	
C1111	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1113,14	ECJ1XF1C104Z	C 0.1UF, Z, 16V	2	
C1115	EEH0B1C100R	C 10PF, J, 16V	1	
C1116	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1118-25	ECJ1XF1C104Z	C 0.1UF, Z, 16V	8	
C1161	ECJ1VF1A105Z	C 1UF, Z, 10V	1	
C1165	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1173	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C1175	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C1176	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1193	EEH0B0G221P	C 220PF, J, 4V	1	
C1213	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1214-16	ECJ1XB1C104K	C 0.1UF, Z, 16V	3	
C1217-20	ECJ1XF1C104Z	C 0.1UF, Z, 16V	4	
C1221,22	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C1223	ECJ1XC1H561J	C 560PF, J, 50V	1	
C1224,25	ECJ1XB1C104K	C 0.1UF, Z, 16V	2	
C1227	ECJ1VF1C105Z	C 1UF, Z, 16V	1	
C1228	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1229-31	ECJ1XC1H561J	C 560PF, J, 50V	3	
C1232,33	ECJ1XC1H181J	C 180PF, J, 50V	2	
C1235,36	ECJ1XF1C104Z	C 0.1UF, Z, 16V	2	
C1237-40	ECJ1XF1C334Z	C 0.33UF, Z, 16V	4	
C1241,42	ECJ1XC1H561J	C 560PF, J, 50V	2	
C1244	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1500,01	ECJ1XB0J105K	C 1UF, K, 16V	2	
C1502	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1503	ECJ1XB0J105K	C 1UF, K, 16V	1	
C1504	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1505,06	ECJ1XB0J105K	C 1UF, K, 16V	2	
C1507	ECJ1VC1H120J	C 12PF, J, 50V	1	
C1508	ECJ1XC1H150J	C 15PF, J, 50V	1	
C1509	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C1510	ECJ1XB0J105K	C 1UF, K, 16V	1	
C1511-13	EEH0B0G101R	C 100PF, J, 4V	3	
C1518	EEH0B0G101R	C 100PF, J, 4V	1	
C1519	ECJ1XB0J105K	C 1UF, K, 16V	1	
C1520	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C1523	EEH0B0G101R	C 100PF, J, 4V	1	
C1526	ECJ1XC1H331J	C 330PF, J, 50V	1	
C1527	EEH0B0J101P	C 100PF, J, 6.3V	1	
C1528-38	ECJ1XB0J105K	C 1UF, K, 16V	11	
C1547	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1548	EEH0P0J470P	C 47PF, J, 6.3V	1	
C1549	ECA1AM471B		1	
C1550-54	ECJ1VB1H103K	C 0.001UF, K, 50V	5	
C1555	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1556-59	ECJ1XC1H101J	C 100PF, J, 50V	4	
C1701	EEH0B0G470R	C 47PF, J, 4V	1	
C1708	ECJ1XB0J105K	C 1UF, K, 16V	1	
C1709	ECJ1VF1H104Z	C 0.1UF, Z, 50V	1	
C1710	EEH0B1C470P	C 47PF, J, 16V	1	
C1713	ECJ1VB1A105K	C 0.01UF, Z, 50V	1	
C1714	EEH0B0G470R	C 47PF, J, 4V	1	
C1715-19	ECJ1XF1C104Z	C 0.1UF, Z, 16V	5	
C1720	EEH0B0G470R	C 47PF, J, 4V	1	
C1721-24	ECJ1XF1C104Z	C 0.1UF, Z, 16V	4	
C1726	ECJ1VB1A105K	C 0.01UF, Z, 50V	1	
C1727-39	ECJ1XF1C104Z	C 0.1UF, Z, 16V	13	
C1741	ECJ1VB1H103K	C 0.001UF, K, 50V	1	
C1742	ECJ1VB1A105K	C 0.01UF, Z, 50V	1	
C1744,45	ECJ1VB1C103K	C 0.010UF, K, 16V	2	
C1746	ECJ1XB1C104K	C 0.1UF, Z, 16V	1	
C1747	ECJ1VB1C103K	C 0.010UF, K, 16V	1	
C1751	EEH0B1C100R	C 10PF, J, 16V	1	
C1752	ECJ1VB1C103K	C 0.010UF, K, 16V	1	
C1754	ECJ1VB0J105K	C 1UF, K, 6.3V	1	
C1756	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C1765,66	ECJ1XC1H101J	C 100PF, J, 50V	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C1778,79	ECJ1XB1H102K	C 1000UF, Z, 50V	2	
C1781,82	ECJ1VF1H103Z	C 0.010UF, Z, 50V	2	
C1783	EEHBOJ101P	C 100PF, J, 6.3V	1	
C1785-91	ECJ1XF1C104Z	C 0.1UF, Z, 16V	7	
C1792	ECJ1VB0J225K	C 2.2UF, K, 6.3V	1	
C1793	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C2029,30	ECJ1VF1A225Z	C 22UF, Z, 10V	2	
C2036	ECA1VM471	E 470UF, 35V	1	
C2204	ECA1HM220	E 22UF, 50V	1	
C2254	ECA1CMH101	E 100UF, 16V	1	
C2279,80	ECJ1VB1H682K	C 6800PF, K, 50V	2	
C2281-84	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C2285	ECJ1VF1A225Z	C 22UF, Z, 10V	1	
C2286	ECA1HM100	E 10UF, 50V	1	
C2287	ECA1CM221	E 220UF, 16V	1	
C2289,90	ECA1CM101	E 100UF, 16V	2	
C2291,92	ECJ1VB1H103K	C 0.001UF, K, 50V	2	
C2293-96	ECJ1XB1C104K	C 0.1UF, Z, 16V	4	
C2501	ECJ1VC1H560J	C 56PF, J, 50V	1	
C2502	ECJ1VC1H100C	C 10PF, C, 50V	1	
C2503	ECJ1XC1H220J	C 22PF, J, 50V	1	
C2504	ECJ1XC1H470J	C 47PF, J, 50V	1	
C2506,07	ECJ1VC1H010C	C 1PF, C, 50V	2	
C2508	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C2509	ECJ1XC1H470J	C 47PF, J, 50V	1	
C2510	ECA0JM101	E 100UF, 6.3V	1	
C2511	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C2512	ECA1HM100	E 10UF, 50V	1	
C2513	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C2514	ECA0JM101	E 100UF, 6.3V	1	
C2516	F2A1H3R3A162	E 3.3UF, 50V	1	
C2517,18	ECJ1XF1C104Z	C 0.1UF, Z, 16V	2	
C2519	ECA1CM470	E 47UF, 16V	1	
C2520,21	ECA1HM100	E 10UF, 50V	2	
C2522,23	ECJ1VF1A105Z	C 1UF, Z, 10V	2	
C2524	ECJ1XF1C104Z	C 0.1UF, Z, 16V	1	
C2525-28	ECJ1XB1H102K	C 1000UF, Z, 50V	4	
C2529,30	ECJ1VC1H101J	C 100PF, J, 50V	2	
C3107	ECA0JM101	E 100UF, 6.3V	1	
D201	B3AAA0000770	DIODE	1	
D204,05	MA8140M	ZENER DIODE	2	
D802,03	RK34	DIODE	2	
D805	B0JCME000037	DIODE	1	
D851	MA8062MTX	ZENER DIODE	1	
D852	1S8355	DIODE	1	
D857	MA8130M	ZENER DIODE	1	
D858	1S8355	DIODE	1	
D1102	MA729	DIODE	1	
D1105-10	MA8062MTX	ZENER DIODE	6	
D1221	MA8140M	ZENER DIODE	1	
D1223	MA8140M	ZENER DIODE	1	
D1543	MA111	DIODE	1	
D2001	MA152	DIODE	1	
D2003	MA157A	DIODE	1	
D2004	1S8355	DIODE	1	
F890	K5D402BKA001	AC FUSE	1	△
F890-1,-2	K3GE1ZA00010	FUSE HOLDER	2	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
FL1704	FLJ1A1050020	C 1UF, Z, 50V	1	
FL1705-07	J0JBD0000043	CHIP INDUCTOR	3	
IC801	C0DAAZG00006	IC	1	
IC802	C0DAAZH00020	IC	1	
IC803	C0DAAZG00006	IC	1	
IC851	C0CBCBD00008	IC	1	
IC852	AN77L08M	IC	1	
IC853	C0CBCAD00012	IC	1	
IC854	C0CBCBD00008	IC	1	
IC1100	C2BBYC000011	IC	1	
IC1101	C3EBHC000035	IC	1	
IC1102	C3BBKC000127	IC	1	
IC1103	TVRN504	IC	1	
IC1104	C0EBE0000336	IC	1	
IC1106	C0JBBZ000281	IC	1	
IC1500	C1AB00002128	IC	1	
IC1700	C1AB00001998	IC	1	
IC1701	C0JBCZ000523	IC	1	
IC2251	AN17822A	IC	1	
IC2501	C1AB00002133	IC	1	
JK001	K1U926A00003	CONNECTOR	1	
JK201	TJS1A7250	HEDPHONE JACK	1	
JS1508-10	ERJ3GEY0R00	M 0 OHM, 1/16W	3	
JS1700-05	ERJ3GEY0R00	M 0 OHM, 1/16W	6	
JS2501,02	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
K1	K1KA03A00537	3P CONNECTOR	1	
K2	K1KA02A00626	2P CONNECTOR	1	
K3	K1KA03AA0190	3P CONNECTOR	1	
L100	EXCELD35C	BEAD CHOKE	1	
L101	ELJPA220KF	CHIP INDUCTOR	1	
L103,04	J0JCC0000241	CHIP INDUCTOR	2	
L801,02	EXCELD35C	BEAD CHOKE	2	
L805	TLUADTB820K	PEAKING COIL	1	
L806	VLQSH02R101K	PEAKING COIL	1	
L807	G0A220GA0002	CHOKE COIL	1	
L808	G0A221ZA0041	CHOKE COIL	1	
L851-56	J0JCC0000241	CHIP INDUCTOR	6	
L1100	ELJFA8R2KB	CHIP INDUCTOR	1	
L1101-03	G1C100K00020	INDUCTION COIL	3	
L1113	G1C330K00017	INDUCTOR COIL	1	
L1500	G1C100K00020	INDUCTION COIL	1	
L1501,02	G1C6R8MA0061	INDUCTOR COIL	2	
L1503	G1C100K00020	INDUCTION COIL	1	
L1504,05	J0JCC0000241	CHIP INDUCTOR	2	
L1700-04	G1C100K00020	INDUCTION COIL	5	
L1706	J0JCC0000241	CHIP INDUCTOR	1	
L1711	J0JCC0000241	CHIP INDUCTOR	1	
L1724	J0JCC0000241	CHIP INDUCTOR	1	
L1759	J0JHC0000078	CHIP INDUCTOR	1	
L2201	TALL08N330KA	INDUCTION COIL	1	
L2501	ELJFA6R8KF	CHIP INDUCTOR	1	
L2503	TALV35VB180J	INDUCTION COIL	1	
L2505	G0C330K00015	PEAKING COIL	1	
L2507	G1C330K00017	INDUCTOR COIL	1	
L2508,09	J0JCC0000241	CHIP INDUCTOR	2	
L3104	G0C101K00023	PEAKING COIL	1	
Q101	2SA207700L	TRANSISTOR	1	
Q201	2SC584500L	TRANSISTOR	1	
Q851	2SC584500L	TRANSISTOR	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
Q1012	UN2211	TRANSISTOR	1	
Q1101	2SC584500L	TRANSISTOR	1	
Q1102	2SA207700L	TRANSISTOR	1	
Q1103	2SC584500L	TRANSISTOR	1	
Q1105	2SC584500L	TRANSISTOR	1	
Q1223	2SC584500L	TRANSISTOR	1	
Q1500,01	2SC584500L	TRANSISTOR	2	
Q1502,03	2SA207700L	TRANSISTOR	2	
Q1513	2SD10300TL	TRANSISTOR	1	
Q1515	2SA207700L	TRANSISTOR	1	
Q1700	B1DHDD000033	TRANSISTOR	1	
Q1701	2SC584500L	TRANSISTOR	1	
Q1703	UN2211	TRANSISTOR	1	
Q1705	2SA207700L	TRANSISTOR	1	
Q1706,07	UN2211	TRANSISTOR	2	
Q1710,11	2SA207700L	TRANSISTOR	2	
Q1714	UN2211	TRANSISTOR	1	
Q1715	2SC584500L	TRANSISTOR	1	
Q1716,17	2SA207700L	TRANSISTOR	2	
Q1718	UN2211	TRANSISTOR	1	
Q2001	2SC584500L	TRANSISTOR	1	
Q2003	2SA207700L	TRANSISTOR	1	
Q2255	2SC584500L	TRANSISTOR	1	
Q2256,57	2SD13280TL	TRANSISTOR	2	
Q2501,02	2SC584500L	TRANSISTOR	2	
R105	ERJ6GEYJ221	M 220 OHM,J,1/10W	1	
R107	ERJ6GEYJ102	M 1KOHM,J,1/10W	1	
R202	ERJ3GEYJ561	M 560 OHM,J,1/16W	1	
R203	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	1	
R204	ERJ3GEYJ473	M 47KOHM,J,1/16W	1	
R205	ERJ3GEYJ470	M 47 OHM,J,1/16W	1	
R207	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R210,11	ERJ3GEYJ273	M 27KOHM,J,1/16W	2	
R300	ERJ3GEYJ683	M 68KOHM,J,1/16W	1	
R301	ERJ3GEYJ223	M 22KOHM,J,1/16W	1	
R302	ERJ3GEYJ123	M 12KOHM,J,1/16W	1	
R303	ERJ3GEYJ682	M 6.8KOHM,J,1/16W	1	
R304	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R803	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R805	ERJ3EKF4871	M 4.87KOHM, 1/16W	1	
R806	ERJ3EKF1021	M10.2KOHM, 1/16W	1	
R807	ERJ3EKF2491	M 24.9KOHM, 1/16W	1	
R808	ERJ3EKF8200	M 820 OHM, 1/16W	1	
R809	ERJ3EKF1500	M 150 OHM, 1/16W	1	
R810	ERJ3EKF8200	M 820 OHM, 1/16W	1	
R812	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R851	ERJ6GEY0R00	M 0 OHM, 1/10W	1	
R852	ERJ12Y0R00	M 0 OHM, J, 1/2W	1	
R853	ERJ3GEYJ473	M 47KOHM,J,1/16W	1	
R854	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R855	ERJ3GEYJ153	M 15KOHM,J,1/16W	1	
R857-62	ERJ3GEY0R00	M 0 OHM, 1/16W	6	
R890	ERC12ZGK105	S 1MOHM, K,1/2W	1	△
R1100	EXB38V680J	RESISTOR ARRAY	1	
R1102,03	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R1105,06	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R1108	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1110-12	ERJ3GEY0R00	M 0 OHM, 1/16W	3	
R1114	ERJ3GEYJ183	M 18KOHM,J,1/16W	1	
R1115	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1117	ERJ3GEYJ331	M 330 OHM,J,1/16W	1	
R1118	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1119	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1120	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1121	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1122	ERJ3GEYJ333	M 33KOHM,J,1/16W	1	
R1123	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1124	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R1125	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1126	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1127	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1128,29	ERJ3GEYJ103	M 10KOHM,J,1/16W	2	
R1130-34	ERJ3GEYJ101	M 100 OHM,J,1/16W	5	
R1135,36	ERJ3GEYJ680	M 68 OHM,J,1/16W	2	
R1137	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1138	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R1140,41	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R1142	ERJ3GEYJ102	M 1KOHM,J,1/16W	1	
R1143,44	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R1147	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1151	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1154	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1155	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R1157	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R1158	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1159	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1161	ERJ3GEYJ471	M 470 OHM,J,1/16W	1	
R1162	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1163,64	D1HG6808A002	NETWORK RESISTER	2	
R1166,67	ERJ3GEYJ562	M 5.6KOHM,J,1/16W	2	
R1168	D1HG6808A002	NETWORK RESISTER	1	
R1169	ERJ3GEYJ273	M 27KOHM,J,1/16W	1	
R1170	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R1172,73	ERJ3GEYJ683	M 68KOHM,J,1/16W	2	
R1174	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1175	ERJ3GEYJ331	M 330 OHM,J,1/16W	1	
R1176	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1177	ERJ3GEYJ181	M 180 OHM,J,1/16W	1	
R1178	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R1180	ERJ3GEYJ473	M 47KOHM,J,1/16W	1	
R1181,82	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	2	
R1183,84	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	2	
R1186	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R1187	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1188	ERJ3GEYJ332	M 3.3KOHM,J,1/16W	1	
R1189,90	ERJ3GEYJ101	M 100 OHM,J,1/16W	2	
R1191	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1192	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R1193	ERJ3GEYJ101	M 100 OHM,J,1/16W	1	
R1194	ERJ3GEYJ472	M 4.7KOHM,J,1/16W	1	
R1196,97	ERJ3GEYJ221	M 220 OHM,J,1/16W	2	
R1208-10	ERJ3GEYJ101	M 100 OHM,J,1/16W	3	
R1215,16	ERJ3GEYJ184	M 180KOHM,J,1/16W	2	
R1221	ERJ3EKF75R0	M 0.75HM, 1/16W	1	
R1223	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1226,27	ERJ3EKF75R0	M 0.75HM, 1/16W	2	
R1229	ERJ3EKF75R0	M 0.75HM, 1/16W	1	
R1230	ERJ3GEYJ184	M 180KOHM,J,1/16W	1	
R1235	ERJ3EKF75R0	M 0.75HM, 1/16W	1	
R1240,41	ERJ3EKF75R0	M 0.75HM, 1/16W	2	
R1242	ERJ3GEYJ184	M 180KOHM,J,1/16W	1	
R1244	ERJ3GEYJ103	M 10KOHM,J,1/16W	1	
R1245-48	ERJ3GEYJ101	M 100 OHM,J,1/16W	4	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1253	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1255	ERJ3GEYJ122	M 1.2KOHM, J, 1/16W	1	
R1256, 57	ERJ3GEYJ472	M 4.7KOHM, J, 1/16W	2	
R1258	ERJ3GEYJ223	M 22KOHM, J, 1/16W	1	
R1259	ERJ3GEYJ473	M 47KOHM, J, 1/16W	1	
R1500	ERJ3GEYJ331	M 330 OHM, J, 1/16W	1	
R1501-03	ERJ3GEYJ820	M 82 OHM, J, 1/16W	3	
R1504-06	ERJ3GEY0R00	M 0 OHM, 1/16W	3	
R1507	ERJ3GEYJ820	M 82 OHM, J, 1/16W	1	
R1510	ERJ3GEYJ101	M 100 OHM, J, 1/16W	1	
R1511, 12	ERJ3GEYJ152	M 1.5KOHM, J, 1/16W	2	
R1513-15	ERJ3GEYJ221	M 220 OHM, J, 1/16W	3	
R1516-18	ERJ3GEYJ820	M 82 OHM, J, 1/16W	3	
R1520-22	ERJ3GEYJ820	M 82 OHM, J, 1/16W	3	
R1524	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1529	ERJ3GEYJ680	M 68 OHM, J, 1/16W	1	
R1547	ERJ3GEYJ223	M 22KOHM, J, 1/16W	1	
R1548	ERJ3GEYJ153	M 15KOHM, J, 1/16W	1	
R1550	ERJ6GEYJ101	M 100 OHM, J, 1/10W	1	
R1551	ERJ3GEYJ471	M 470 OHM, J, 1/16W	1	
R1552	ERJ3GEYJ750	M 75 OHM, J, 1/16W	1	
R1553	ERJ3GEYJ472	M 4.7KOHM, J, 1/16W	1	
R1554, 55	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R1701	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1702	ERJ3EKF3001	M 3KOHM, 1/16W	1	
R1703	ERJ3EKF2001	M 2KOHM, 1/16W	1	
R1704	ERJ3GEYJ183	M 18KOHM, J, 1/16W	1	
R1705	ERJ3GEYJ101	M 100 OHM, J, 1/16W	1	
R1708	ERJ3GEYJ333	M 33KOHM, J, 1/16W	1	
R1709	ERJ3GEYJ101	M 100 OHM, J, 1/16W	1	
R1710	ERJ3GEYJ751	M 750 OHM, J, 1/16W	1	
R1715	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1716	ERJ3EKF3001	M 3KOHM, 1/16W	1	
R1717	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1718	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1719	ERJ3EKF2001	M 2KOHM, 1/16W	1	
R1720	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1722, 23	ERJ3GEY0R00	M 0 OHM, 1/16W	2	
R1726	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1727	ERJ3GEYJ153	M 15KOHM, J, 1/16W	1	
R1728	ERJ3EKF2611	M2.61KOHM, 1/16W	1	
R1729	ERJ3EKF5361	M 5.36KOHM, 1/16W	1	
R1730	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1731	ERJ3EKF1201	M 1.2KOHM, 1/16W	1	
R1732	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1733	ERJ3GEYJ562	M 5.6KOHM, J, 1/16W	1	
R1734	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1735	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1736	ERJ3EKF5601	M 5.6KOHM, 1/16W	1	
R1737	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1738	ERJ3GEYJ331	M 330 OHM, J, 1/16W	1	
R1739-41	ERJ3GEY0R00	M 0 OHM, 1/16W	3	
R1743	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1745	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1746	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1747	ERJ3GEYJ331	M 330 OHM, J, 1/16W	1	
R1748	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1753	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1755	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1756	ERJ3GEYJ333	M 33KOHM, J, 1/16W	1	
R1757	ERJ3GEYJ563	M 56KOHM, J, 1/16W	1	
R1758	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1760	ERJ3EKF3001	M 3KOHM, 1/16W	1	
R1763	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1771	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R1772	ERJ3GEYJ331	M 330 OHM, J, 1/16W	1	
R1774	ERJ3GEYJ331	M 330 OHM, J, 1/16W	1	
R1776	ERJ3GEYJ680	M 68 OHM, J, 1/16W	1	
R1777	ERJ3GEYJ102	M 1KOHM, J, 1/16W	1	
R1778	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1779	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1781	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R1782	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R1784-87	ERJ3GEYJ101	M 100 OHM, J, 1/16W	4	
R1795-00	EXB38V101J	RESISTOR ARRAY	6	
R2003	ERJ3GEYJ104	M 100KOHM, J, 1/16W	1	
R2005	ERJ3GEYJ153	M 15KOHM, J, 1/16W	1	
R2007	ERJ3GEYJ471	M 470 OHM, J, 1/16W	1	
R2010	ERJ3GEYJ105	M 1MOHM, J, 1/16W	1	
R2011	ERJ3GEYJ103	M 10KOHM, J, 1/16W	1	
R2012	ERJ3GEYJ221	M 220 OHM, J, 1/16W	1	
R2013	ERJ6GEYJ102	M 1KOHM, J, 1/10W	1	
R2275	ERJ3GEYJ822	M 8.2KOHM, J, 1/16W	1	
R2276	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R2278	ERJ3GEYJ101	M 100 OHM, J, 1/16W	1	
R2279	ERJ3GEYJ274	M 270KOHM, J, 1/16W	1	
R2280	ERJ3EKF1371	M 13.7 OHM, 1/16W	1	
R2282	ERJ3EKF2002	M 20KOHM, 1/16W	1	
R2283-86	ERJ3GEYJ2R2	M 2.2 OHM, J, 1/16W	4	
R2287	ERJ3GEYJ104	M 100KOHM, J, 1/16W	1	
R2288, 89	ERJ12YJ390U	M 39 OHM, J, 1/2W	2	
R2292, 93	ERJ3GEYJ102	M 1KOHM, J, 1/16W	2	
R2501	ERJ3GEYJ101	M 100 OHM, J, 1/16W	1	
R2502	ERJ3GEYJ471	M 470 OHM, J, 1/16W	1	
R2507, 08	ERJ3GEYJ101	M 100 OHM, J, 1/16W	2	
R2509, 10	ERJ3GEYJ102	M 1KOHM, J, 1/16W	2	
R2511	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
R2513-16	ERJ3GEYJ101	M 100 OHM, J, 1/16W	4	
R2529, 30	ERJ3GEYJ104	M 100KOHM, J, 1/16W	2	
R3209	ERJ3GEY0R00	M 0 OHM, 1/16W	1	
RM201	PNA4701M05TV	REMOCO RECEIVER	1	
RTL	ETXMM568M7C	POWER UNIT	1	△
RTL	TXN/A10LEP	CIRCUIT BOARD A	1	△
RTL	TNPA3609	CIRCUIT BOARD K	1	△
RTL	TNPA3610	CIRCUIT BOARD V	1	△
RTL	TNPA3627	CIRCUIT BOARD AP	1	△
SN201	B3L000000020	PHOTE IC DIODE	1	
SW301-05	EVQPC105K	SWITCH	5	
SW890	ESB92DA1B	SWITCH	1	△
TU100	ENG39A02GF	TUNER	1	△
V1	K1KA16AA0178	16P CONNECTOR	1	
V2	K1KA04AA0192	4P CONNECTOR	1	
X1100	H0D600400017	CRYSTAL	1	
X1500	H0J202500011	CRYSTAL	1	
X2501	TSSA128	CRYSTAL	1	
ZA801	K9ZZ00000424	CONNECTOR	1	
ZA890	K9ZZ00000424	CONNECTOR	1	
ZA4016-24	TESA169	SHIELD CLIP	9	