

**Service**  
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# Service Manual

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# SAFETY PRECAUTIONS

## IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  $\Delta$  in the Schematic Diagram and Replacement Parts List.  
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 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 resulting in personal injury from electrical shocks.

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

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

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 high vacuum and large surface area of picture tube, extreme care should be used 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 the same type tube as specified in the Replacement Parts List.

To determine the presence of high voltage, use an accurate high impedance HV meter.

Adjust brightness, color, contrast controls to minimum.  
Measure the high voltage.  
The meter reading should indicate  
23.5  $\pm$  1.5KV: 14-19 inch, 26  $\pm$  1.5KV: 19-21 inch,  
29.0  $\pm$  1.5KV: 25-29 inch, 30.0  $\pm$  1.5KV: 32 inch  
If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.

### 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 be sure the set is safe to operate without damage of electrical shock.

#### Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1M $\Omega$  and 5.2M $\Omega$ .

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

#### Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

#### Do not use a line Isolation Transformer during this check.

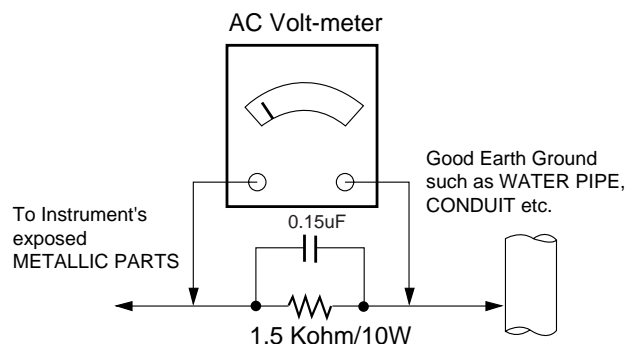
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

#### Leakage Current Hot Check circuit



# SERVICING PRECAUTIONS

**CAUTION:** Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, 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 receiver assembly.
  - 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 part substitution or incorrect polarity installation 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 heatsink in this receiver.

## 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 fieldeffect

transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static 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 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 type solder 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 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 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°F to 600°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 wirebrush (0.5 inch, or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
  - a. Allow the soldering iron tip to reach normal temperature. (500°F to 600°F)
  - b. Heat the component lead until the solder melts.
  - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.

**CAUTION:** Work quickly to avoid overheating the circuitboard printed foil.

6. Use the following soldering technique.
  - a. Allow the soldering iron tip to reach a normal temperature (500°F to 600°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.

### IC 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 the 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 in paragraphs 5 and 6 above.

#### Removal

1. 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.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

#### Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. 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

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. 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

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

### Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. 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 the 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 ensure 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 the it does not touch components or sharp edges.

# DESCRIPTION OF CONTROLS

## **Source**

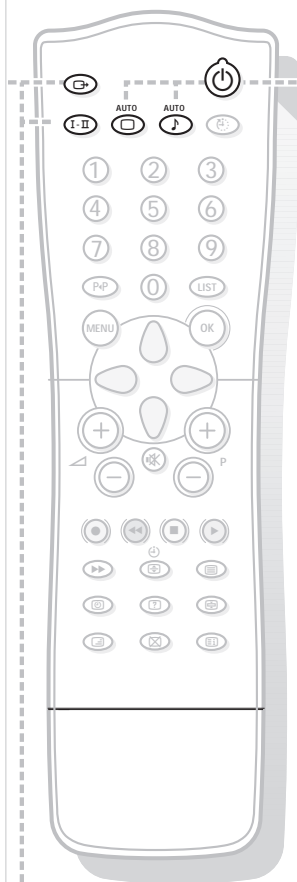
Select your computer or other peripherals: press repeatedly to select **TV**, **AV1**, **AV2**, **S-VIDEO** or **PC monitor** mode.

## **I-II Bilingual choice and sound mode selection**

Press this key

- to switch from **Stereo** to **Mono** sound in case of stereo transmission, or from **Nicam Stereo** to **Nicam Mono**, in case of digital transmission
- to switch from **Nicam Dual I** to **Nicam Dual II** or **Nicam Dual I-II** in case of Nicam Dual transmission
- to choose between **Dual I**, **Dual II** or **Dual I-II** in case of bilingual transmission:  
**Dual I** sends the primary broadcast language to the loudspeakers;  
**Dual II** sends the secondary broadcast language to the loudspeakers;  
**Dual I-II** sends a separate language to each loudspeaker.

*Note: in case of weak stereo sound signals, with stereo or Nicam stereo transmission, select mono reception.*



## **Standby**

Switches the TV on from standby or off to standby.

## **AUTO keys**

To select predefined picture and sound settings.

### **AUTO picture**

Each time it is pressed, a different picture setting is selected, corresponding with specific factory settings of Contrast, Brightness, Colour and Sharpness.

### **AUTO sound**

Each time it is pressed, a different sound setting is selected, corresponding with specific factory settings of treble and bass.

**Personal** refers to the personal preference settings of picture and sound selected and stored in the picture and sound menu.

## **Sound output selection in AV mode**

In AV mode, you can select the output sound for the left and right loudspeakers.

Press the **I-II** key repeatedly to select:

- **L+R**: the audio signal from the audio L input is sent to the left loudspeaker, the audio signal from the audio R input to the right loudspeaker
- **L+L**: the audio signal from the audio L input is sent to the left and right loudspeakers
- **R+R**: the audio signal from the audio R input is sent to the left and right loudspeakers.

**MENU** Press repeatedly to display each menu.

**OK** Press this key to activate your choice, when in the menus.

#### **Volume**

Press + or - to adjust the volume.

#### **Mute**

Temporarily interrupt the sound or restore it.

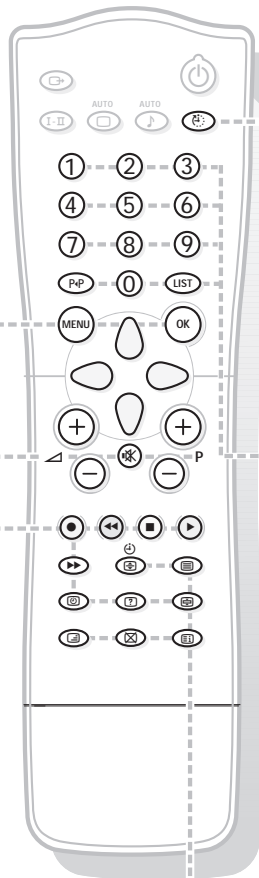
#### **P Programme selection**

- to browse through the TV channels which are not skipped
- to switch the TV on from standby.

#### **Video recorder keys**

##### **Time display**



The time, downloaded from the TV channel (with teletext broadcast) stored on programme number 1 or the lowest not skipped programme number, is displayed on the screen.



#### **Sleeptimer**

With this key you can set a time period after which the TV should switch itself to standby.

Press the key repeatedly to select the number of minutes. The counter runs from 0, 10, 20, 30... to 240 minutes. The timer begins to count down from the number of minutes selected.

*Note: To view the remaining time, press the  key once. To cancel the sleep time, repeatedly press the  key until 0 appears.*

#### **0/9 Digit keys**

To select a TV channel.

#### **P/P Previous programme**

To display the previously selected TV channel.

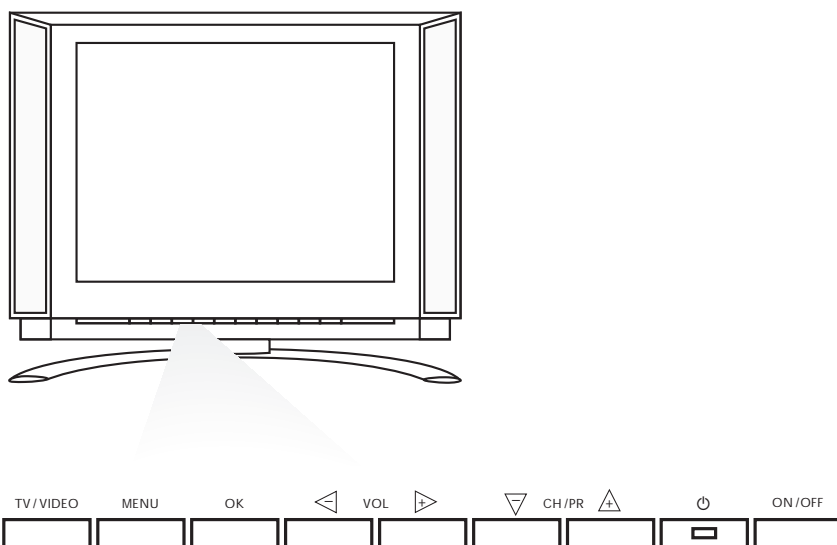
#### **LIST Programme list**

To display the programme list.

#### **Teletext on/off**

##### **Teletext functions**





Should your remote control be lost or broken you can still operate your TV with the keys in front of the TV.

**ON/OFF:** Press the power **ON/OFF** key to switch the TV on or off

**TV/VIDEO:** Press repeatedly to select **TV**, **AV** or **PC** monitor mode

**MENU:** Press repeatedly to display each menu

**OK:** - Press this key to activate your choice when in the menu

- **Auto demonstration:** Keep the **OK** key pressed for about 10 seconds.

All the menus are being displayed automatically one after the other.

To stop Auto demonstration, press any key on the front panel.

- **VOL + :** - Press - or + to select a menu item;
- Press - or + to adjust the volume;
- Press - or + to adjust the menu settings.

- **CH/PR +/-** Press - or + to browse through the TV channels which are not skipped;
- Press - or + to select a menu item;
- To switch the TV on from standby.

**⏻:** Switches the TV on from standby or off to standby.  
The **⏻** indicator lights up brightly when the TV is in standby, dims when the TV is switched on.

# TROUBLESHOOTING

## 1. General Features

No.	Symptom	Cause	Check Point
1	Soft touch doesn't function properly	Defective speaker wire and inverter wire	1) Make some space between the speaker wire and the Soft touch Board by sticking the speaker wire to the guide hole of the cabinet. 2) Arrange working state of A1. Tape in the inverter wire and correct working state of the Shield case.
2	Soft touch doesn't function	1) Broken components and soldering of them 2) P101 connector error	1) Check Soft touch with eyes Check and repair soldering 2) Check and repair the P101 connector
3	No screen	Input error of inverter connector	1) Bend the pin legs of P801 connector -> recheck them 2) Check and repair the IC801,802 SI4925
		P502 and Pin 21 connector being slipped out	1) Check and fix P502 connector 2) Check and fix the components at P502 LCD module and at main board. 3) Check Pin21.
		Cracked components and soldering at tuner board	1) Check and repair tuner board and main board 2) Solder Q403, Q402 and C153
4	Dark screen	1) Defective LCD lamp 2) Defective inverter 3) Input error of inverter connector	1) Replace the inverter 2) Replace the LCD lamp 2) Check the connector input.
5	Broken OSD display	Defective the font rom of IC501	Check and replace the font rom of IC501

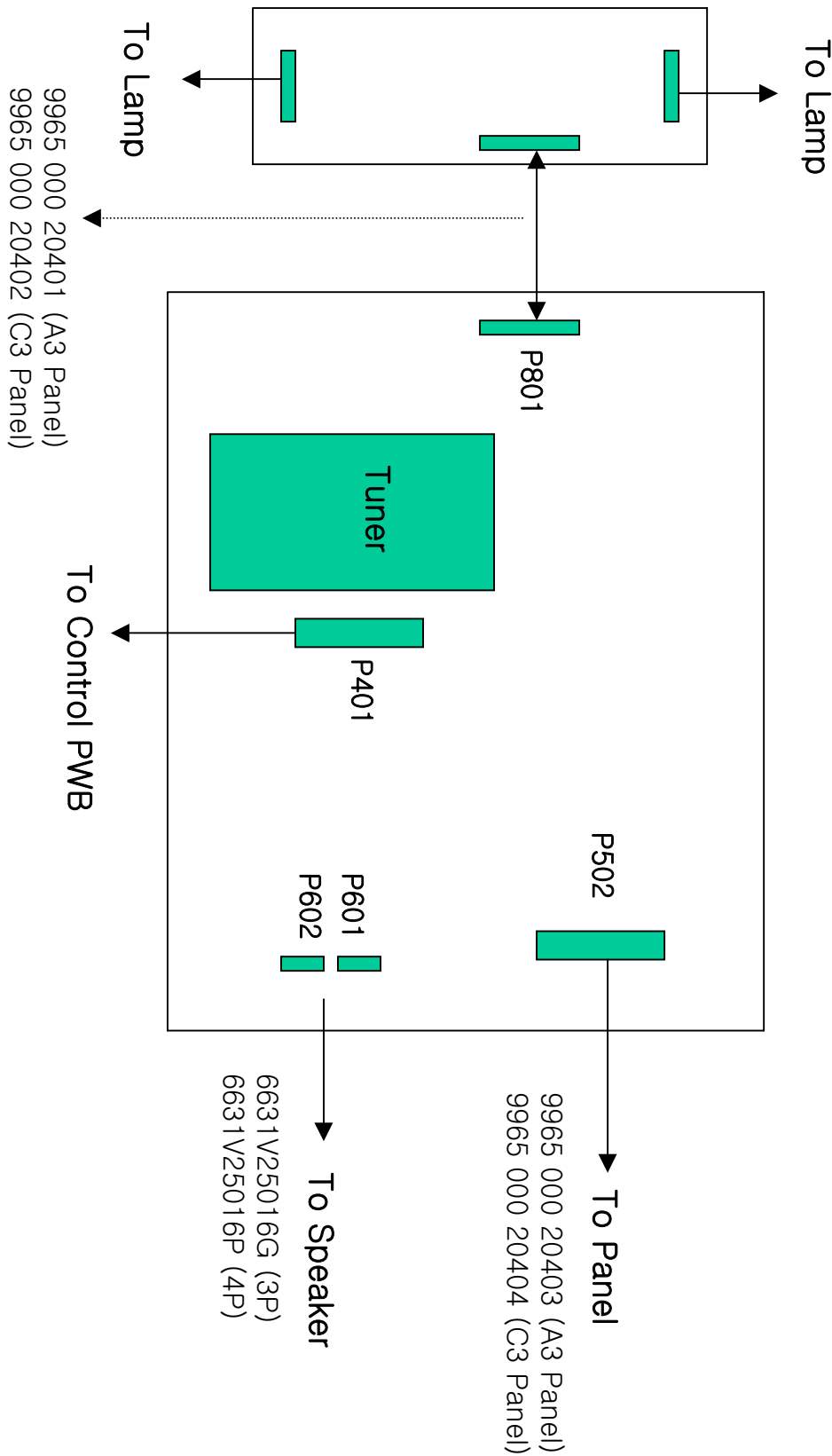
## 2. PC Mode

No.	Symptom	Cause	Check Point
6	Screen noise	Clock or phase being not able to be adjusted	1) Resetting is needed according to the video card of each PC 2) Horizontal noise : adjust phase until no horizontal noise occurs 3) Vertical noise : adjust clock in menu until no vertical noise occurs
7	Screen position error	Screen position error horizontally or vertically	1) Play the Auto Configure in Menu. 2) Adjust horizontal and vertical position until the screen displays normally
8	Color beat noise	Soldering AD converter or making it short	Recheck and repair AD9884

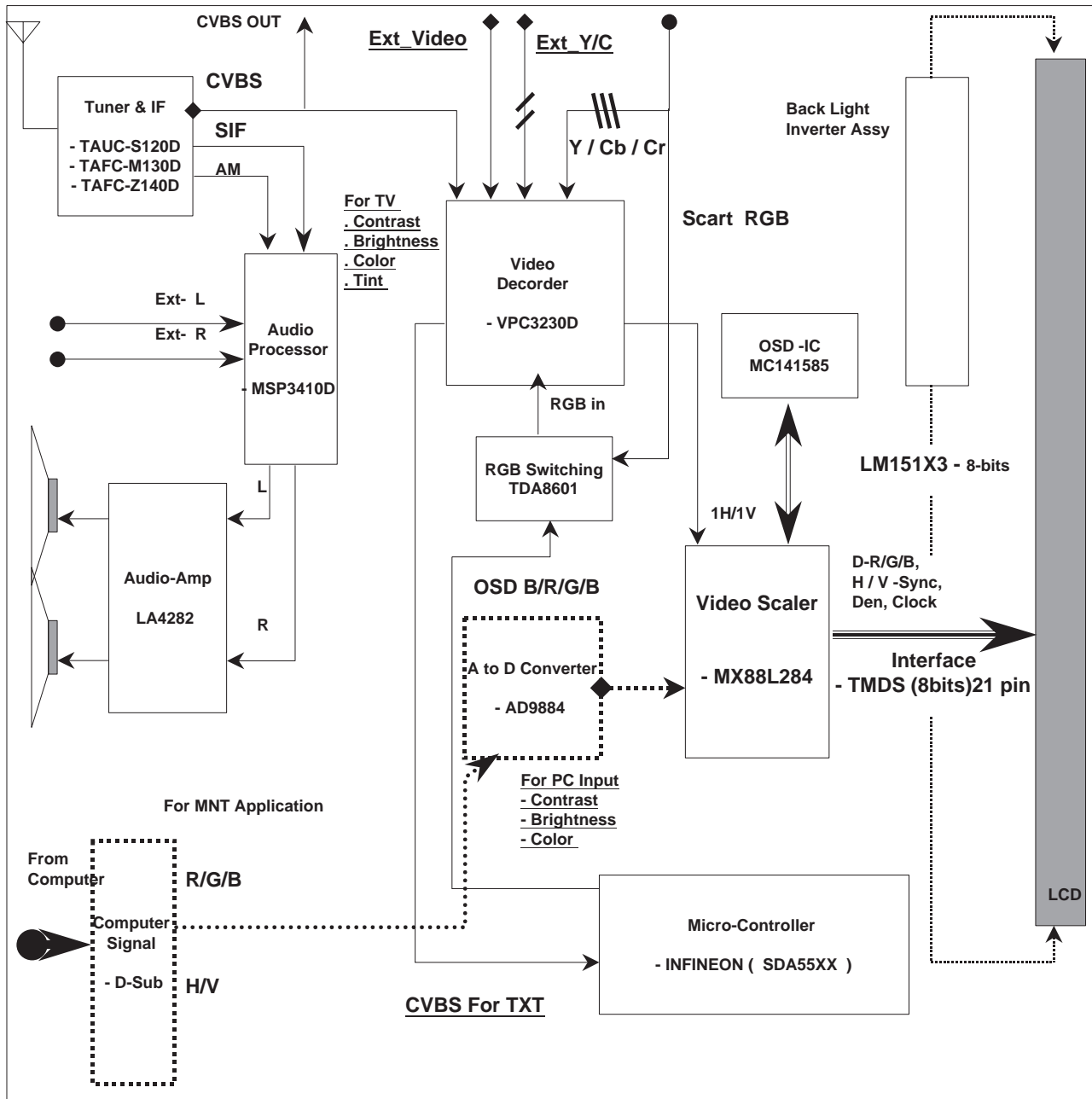
## 3. TV and external input

No.	Symptom	Cause	Check Point
9	No sound - Speaker - Earphone	Defective Reset IC of IC603 Defective MSP3400D of IC601 Defective B+(8V,5V) of IC604,605.	1) Check volume and speaker - Sound comes out only when being inputted into Audio L/R 2) Check after replacing IC603 3) Replace IC601 4) Check and replace B+ of IC604,605.
10	Video color beat noise	Earphone shield case being touched	Check the mould of shield and JA401, Replace shield case
		Soldering IC301 and IC507	Re-soldering

# RE/RL-15LA40 Wiring Diagram (15.1")

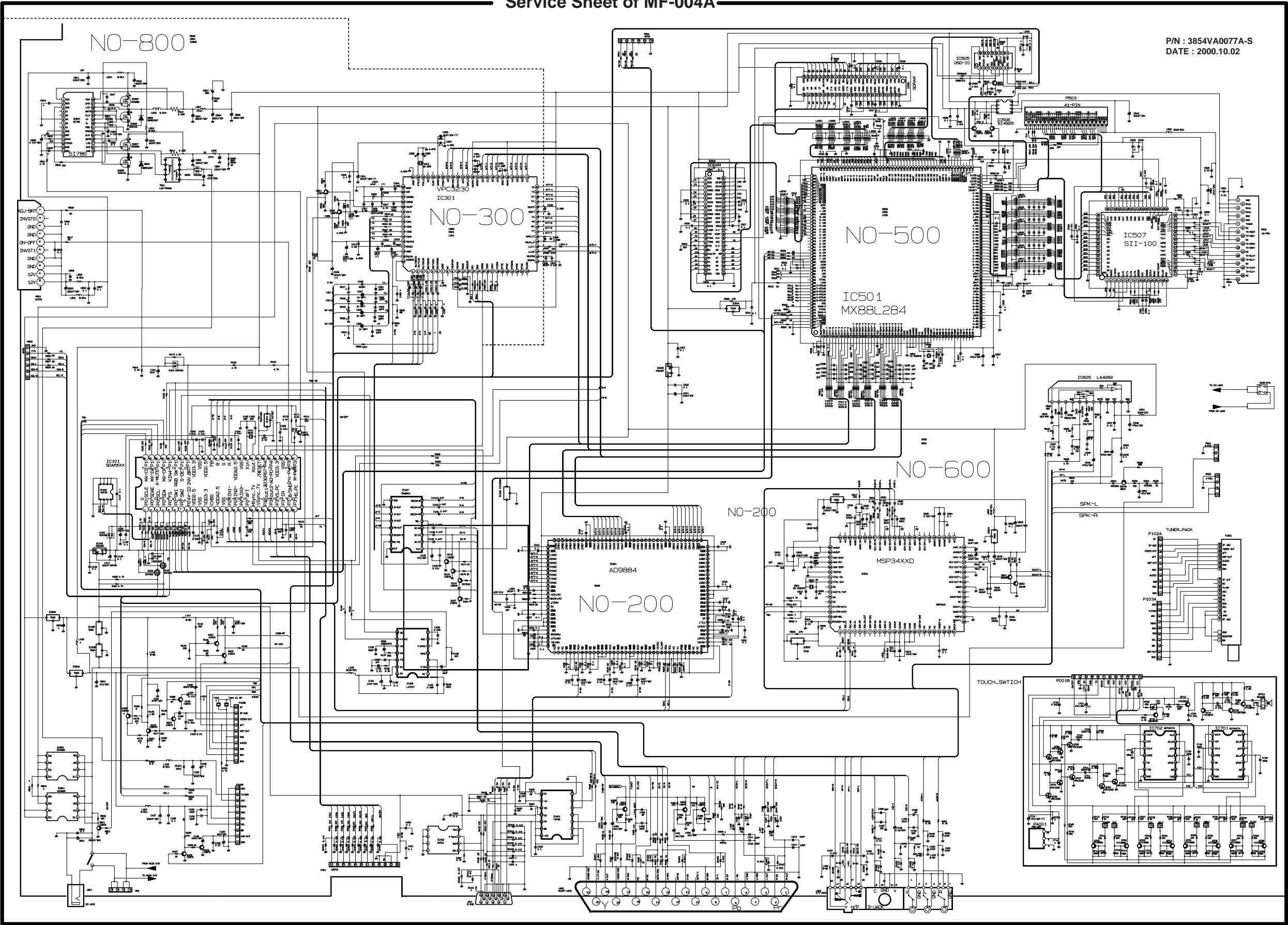


## < LCD TV System Block Diagram >



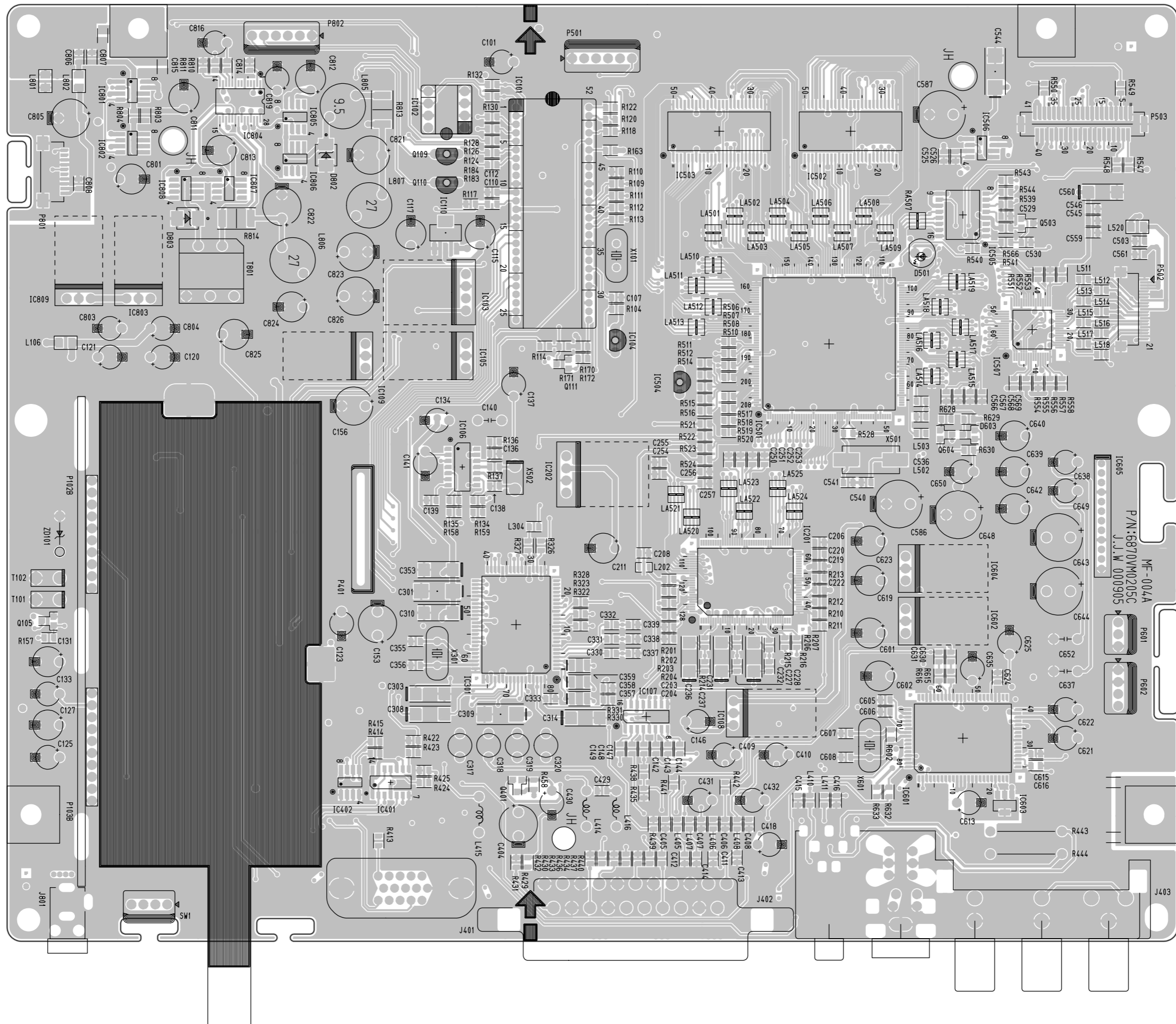
Main Board for LC151X01-A3 LCD Panel

Service Sheet of MF-004A

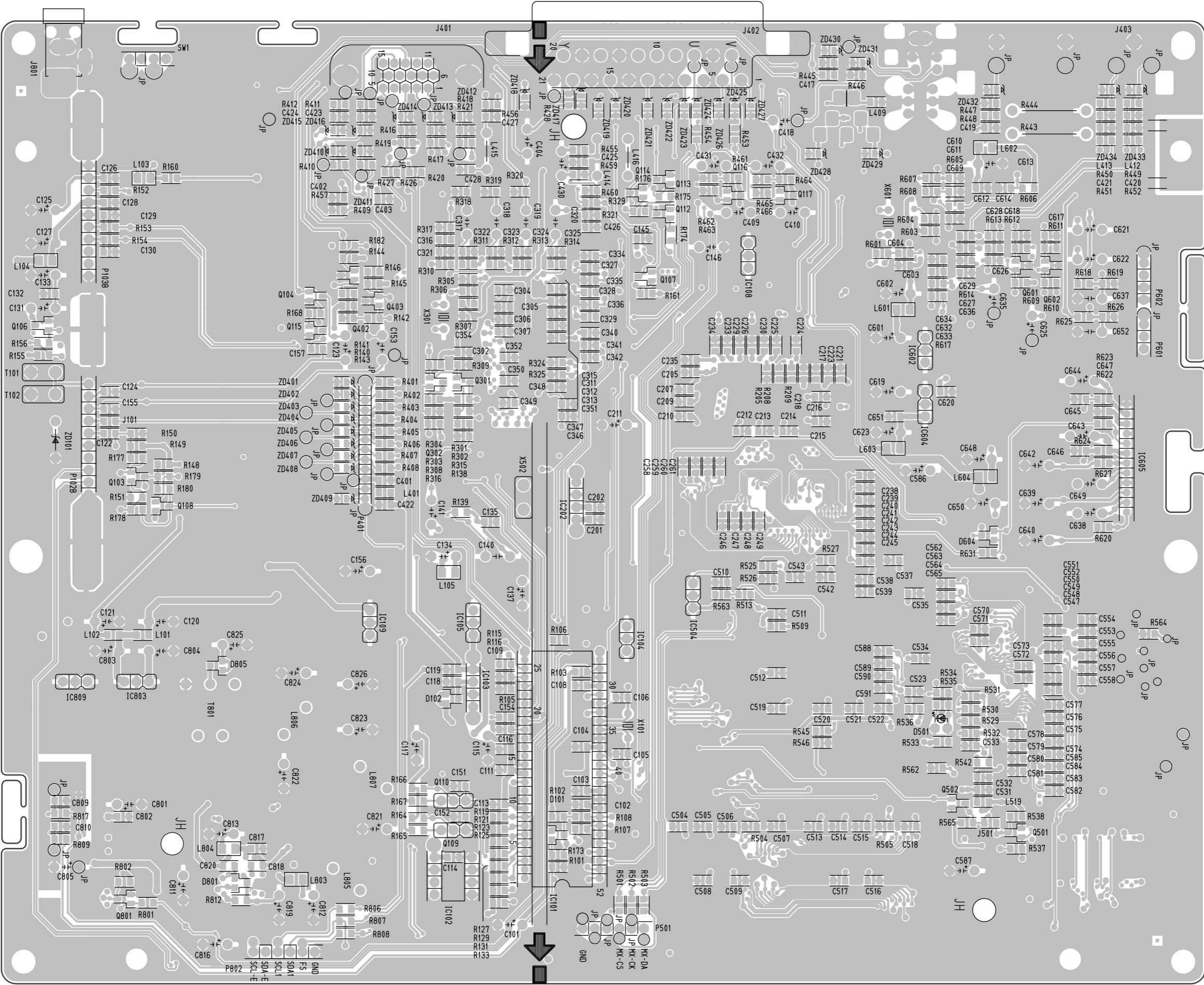


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DATE : 2000.10.02

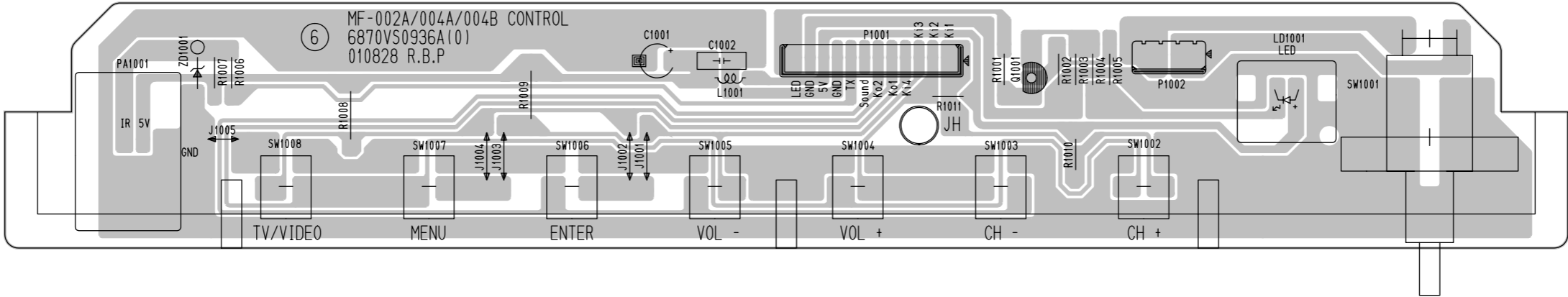
## Main Board for LC151X01-A3 LCD Panel (Top Side)



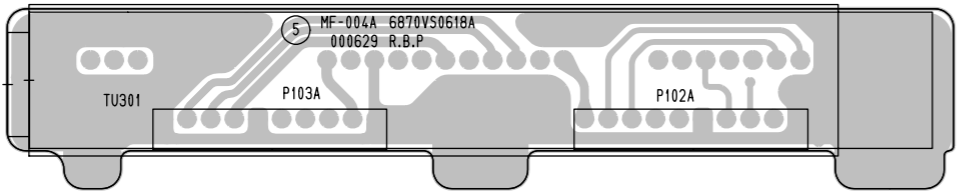
Main Board for LC151X01-A3 LCD Panel (Bottom Side)



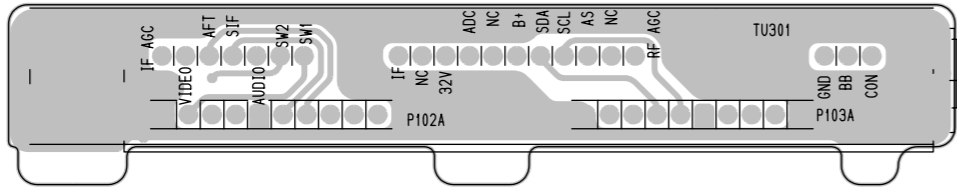
CONTROL



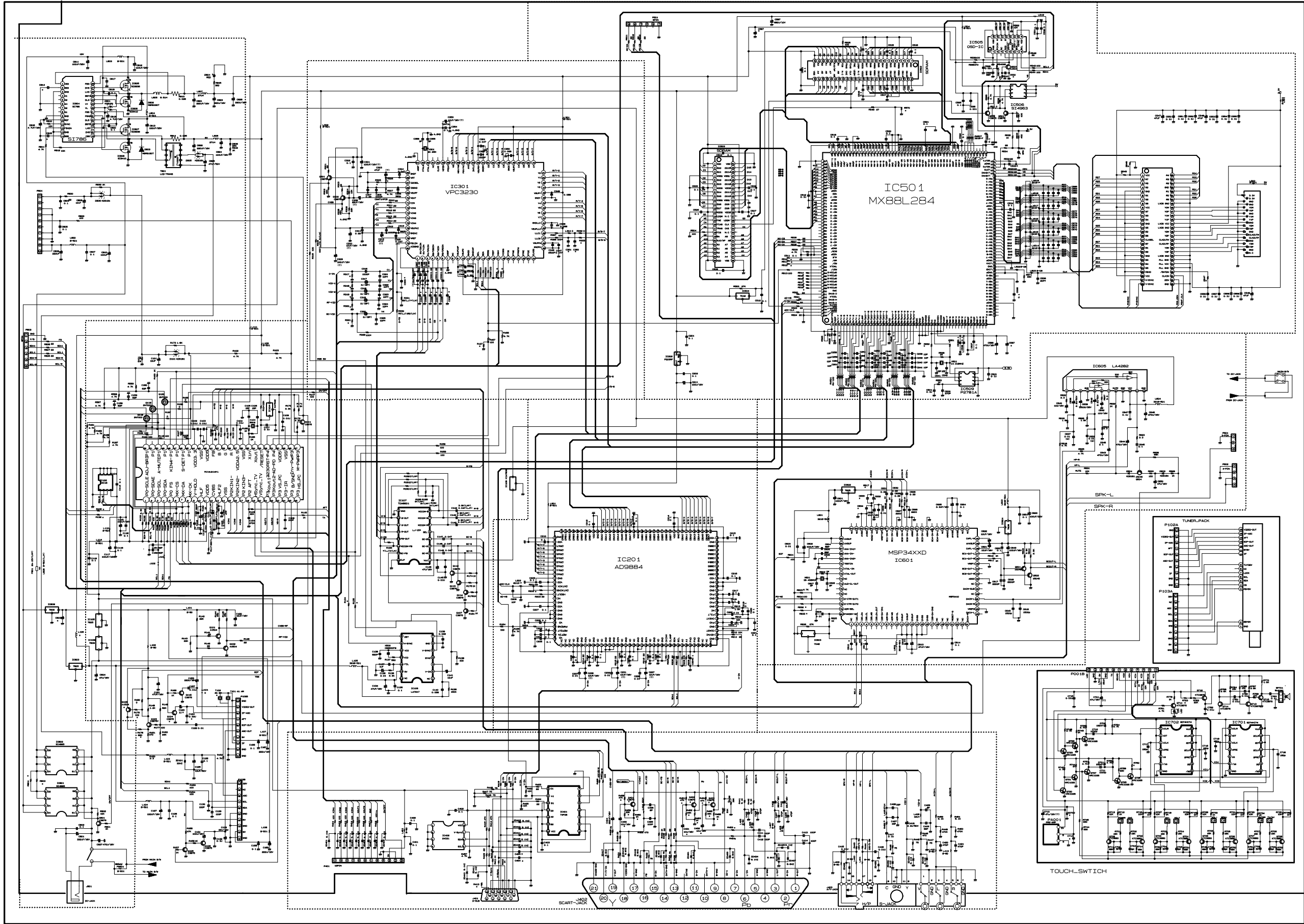
TUNER(TOP)



TUNER(BOTTOM)



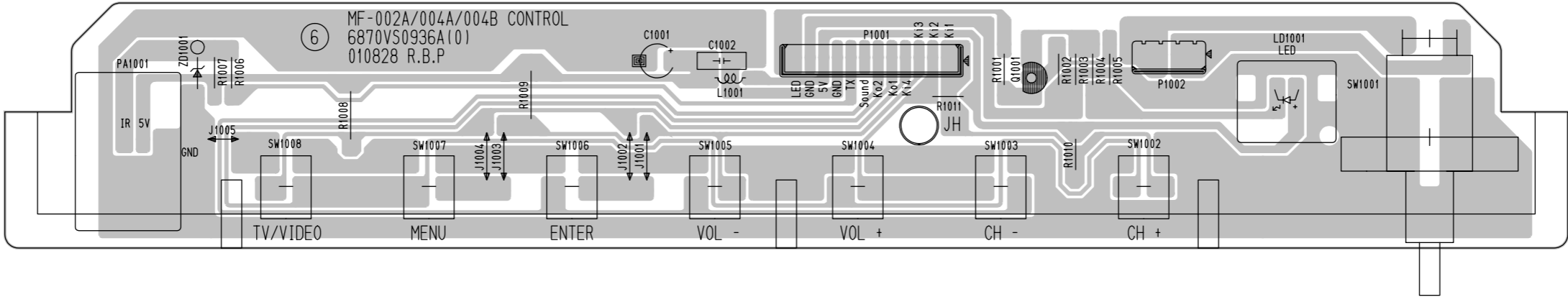
Main Board for LC151X01-C3P1 LCD Panel



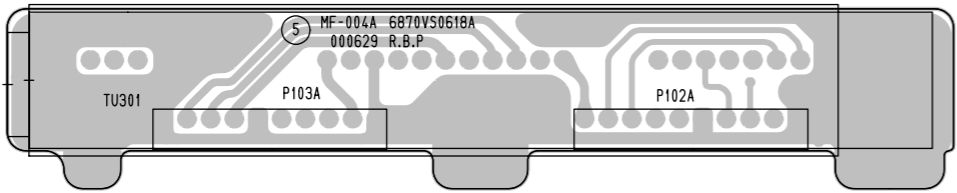




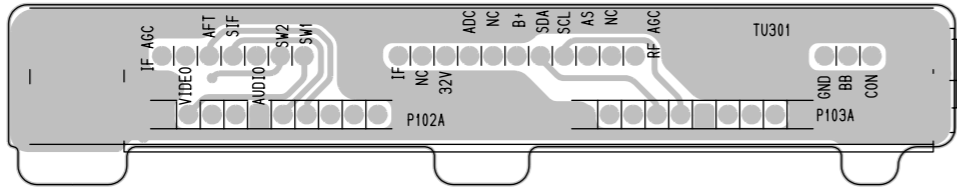
CONTROL



TUNER(TOP)



TUNER(BOTTOM)



# ADJUSTMENT INSTRUCTION

## 1. Application Object

This instruction is for the application to the LCD TV.

	R		G		B		Error
Color Coordinates(x,y)	0.63	0.34	0.30	0.60	0.14	0.10	! 0.03
AD9884	0x02		0x03		0x04		Register

## 2. Notes

- (1) This set uses an adapter, so connect the adapter and the set correctly before adjustment.
  - (2) The adjustment must be performed under the correct sequence.
  - (3) The adjustment must be performed in the circumstance of 25! 5cC of temperature and 65±10% of relative humidity if there is no specific designation.
  - (4) The input voltage of the receiver must keep 220V, 60Hz in adjusting.
  - (5) The set must be operated for 30 minutes preliminarily before adjustment if there is no specific designation.
- [ ÔHeat RunÕ must be performed with the full white signal or TV noise signal in the internal part of the set.
- [ The time for ÔHeat RunÕ can be changed owing to production plan.

### Default option settings

Option	Default value
S-B	23
FP	21
NP	89
S1VOL	105
S2VOL	105
200PR	0
TEXT	1
I II SA	0
TOP	1
SCART	1
A2 ST	1
SYS	0 (Eu), 1 (Fr)
ACMS	1
VOL	0
BBACK	0
LANG	6
TSS	0
PANEL	0
IICT	0
INVT	0
MD SA	0
MONO	0
CH+AL	0
T-LANG	0

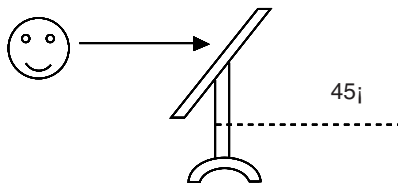
## 3. PC Input Mode Adjustment

### 3-1. Required Test Equipment

- (1) A pattern generator being in proportion to VG819 ; Pattern of 64 tones
- (2) A remote control

### 3-2. Preparation for Adjustment

- (1) Perform ÔHeat RunÕ for more than 30 minutes in white pattern.
- (2) Connect the signal of pattern generator with LCD TV.
- (3) Lean the set 45i backward. (Adjustment is easy.)



- (4) Set the PC mode menu as below.

	Contrast	Brightness
Initial Value	70	100

### 3-3. White Adjustment

- (1) Approve the signal of 64 tones of XGA(1024 \* 768).
- (2) Select all the gain of R, B and G with using ADJ of remote control.
- (3) After making 62 tones, 63 tones and 64 tones not distinguished with using each signal of R, G and B, finish adjusting at the moment when the signal 62, 63 and 64 is distinguished.

### 3-4. Position of Mode Adjustment

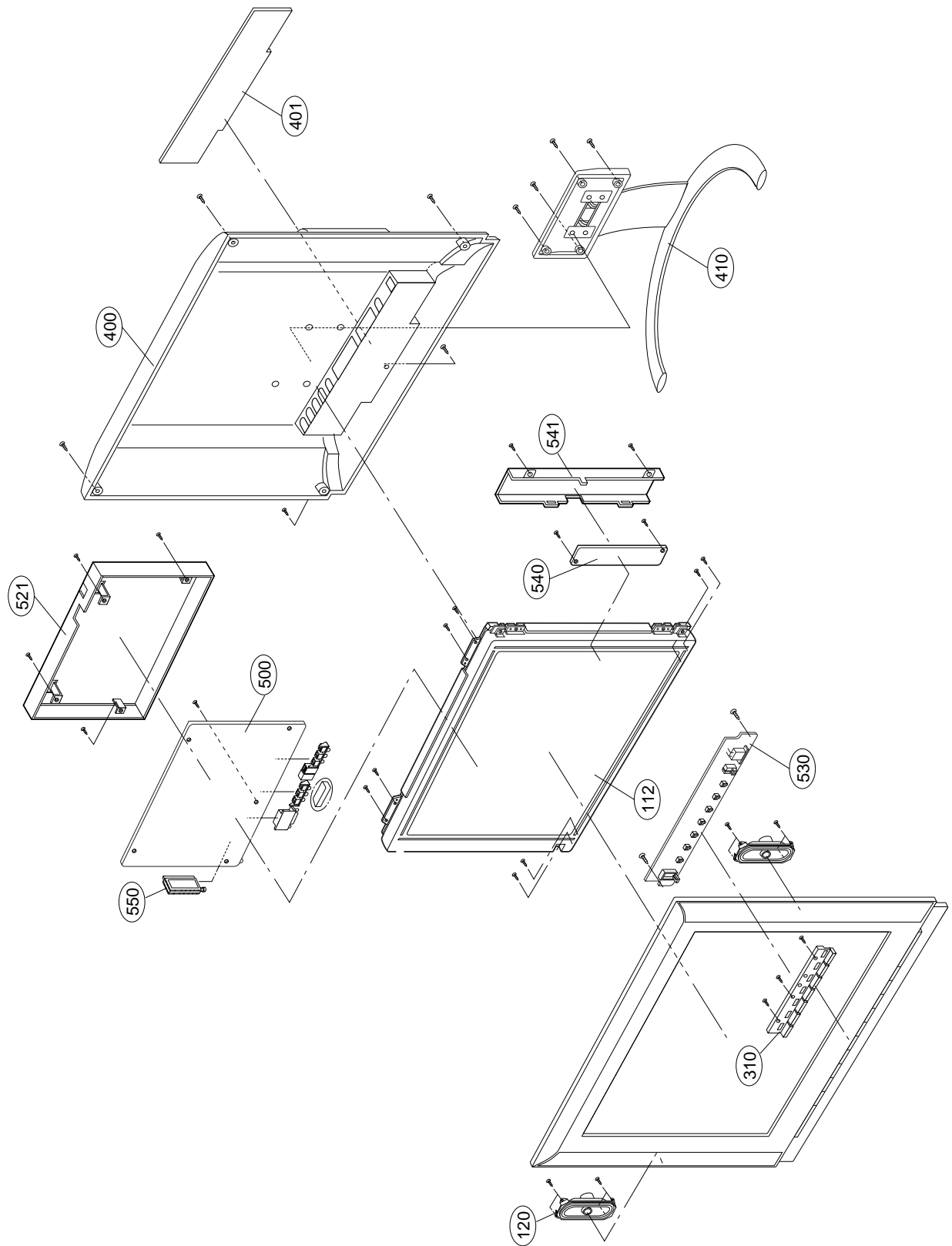
Timing of Mode Table

\* H[dot]/V[line]

Mode	VGA-60	VGA-67	VGA-72	VGA-75	VGA-85	TEXT-70	SVGA-56	SVGA-60	SVGA-72
H_Total	800	864	832	840	832	900	1024	1056	1040
H_Display	640	640	656	640	640	720	800	800	800
H_Blanking	160	224	176	200	192	180	224	256	240
H_Sync	96	64	40	64	56	108	72	128	120
H Polarity	NEG.	NEG.	NEG.	NEG.	NEG.	NEG.	POS	POS	POS
H_Bp	48	96	120	120	80	54	128	88	64
H_Fp	16	64	16	16	56	18	24	40	56
H-Freq[KHz]	31.469	35.0	37.861	37.5	43.269	31.469	35.156	37.879	48.077
/Clk[MHz]	25.175	30.24	31.5	31.5	36.0	28.324	36.0	40.0	50.0
V_Total	525	525	520	500	509	449	625	628	666
V_Display	480	480	496	480	480	400	600	600	600
V_Blanking	45	45	24	20	29	49	25	28	66
V_Sync	2	3	3	3	3	2	2	4	6
V Polarity	NEG	NEG	NEG	NEG	NEG	POS	POS	POS	POS
V_Bp	33	39	20	16	25	34	22	23	23
V_Fp	10	3	1	1	1	13	1	1	37

Mode	SVGA-75	SVGA-85	XGA-60	XGA-70	XGA-75	MAC-75
H_Total	1056	1048	1344	1328	1312	1152
H_Display	800	800	1024	1024	1024	832
H_Blanking	256	248	320	304	288	320
H_Sync	80	64	136	136	96	64
H Polarity	POS	POS	NEG	NEG	POS	NEG
H_Bp	160	152	136	144	176	224
H_Fp	16	32	160	24	16	32
H-Freq[KHz]	46.875	53.674	48.363	56.476	60.23	49.725
/Clk[MHz]	49.5	56.25	65.0	75.0	78.75	57.283
V_Total	625	631	806	806	800	667
V_Display	600	600	768	768	768	624
V_Blanking	25	31	38	38	32	43
V_Sync	3	3	6	6	3	3
V Polarity	POS	POS	NEG	NEG	POS	NWG
V_Bp	21	27	29	29	28	39
V_Fp	1	1	3	3	1	1

# EXPLODED VIEW



Spare Parts List

LC1.15E

Various

	9965 000 20401	Cable assy P801 A3 PANEL
	9965 000 20402	Cable assy P801 C3 PANEL
	9965 000 20403	Cable assy P502 A3 PANEL
	9965 000 20404	Cable assy P502 C3 PANEL
00A1	9965 000 16515	Directions for Use
00A1	9965 000 16519	DFU MF004A
00A2	9965 000 14330	RC25109/01
00A3	9965 000 16428	Adapter SAD3612E
0112	9965 000 16410	LC151X01-A3
0112	9965 000 16743	LC151X01-C3P1
0120	9965 000 16411	Loud speaker C073A01-126K14
0174	9965 000 14327	Mains cord for M2511A-001 EUR
0174	9965 000 16412	Mains cord MP5004
0300	9965 000 16416	Cabinet
0300A	3139 120 01511	W/MARK 8.5X35(P/SILVER 11007)
0310	9965 000 16417	Push buttons (7x)
0320	9965 000 16418	Coil
0330	9965 000 16419	Mains knob
0400	9965 000 16420	Back cover
0401	9965 000 16421	Cover plate A/V
0410	9965 000 16516	Stand
0420	9965 000 14326	Hinge for stand
0500	9965 000 16422	Main board MF-004A
0500	9965 000 16517	Main board MF-004A -/19
0500	9965 000 19696	Main board for c# panel -/12
0500	9965 000 19697	Main board for C3 panel -/19
0521	9965 000 16423	Metal frame for main board
0530	9965 000 16424	Control panel MF-004A
0540	9965 000 16425	Inverter 12V
0540	9965 000 17796	Inverter 12V for C3 panel
0541	9965 000 16426	Case for inverter
0550	9965 000 16427	Tuner LE-15A10
0550	9965 000 16518	Tuner LL-15A10
F501	9965 000 16454	Filter HH-1M3216-501 1206
P1001	9965 000 16491	12P 300MM H-B UL 100
P1002	9965 000 16492	4P 200MM H-B UL1007
PA1001	9965 000 16493	TSOP2238MQ1
S001	9965 000 14752	15" VESA PLATE (15PF9925)
S002	9965 000 14332	VGA cable 7M
S030	9965 000 20079	Service RC
SW1001	9965 000 16502	SDKLA11100
SW1002	9965 000 16503	Tact switch SKHV17910B
SW1003	9965 000 16503	Tact switch SKHV17910B
SW1004	9965 000 16503	Tact switch SKHV17910B
SW1005	9965 000 16503	Tact switch SKHV17910B
SW1006	9965 000 16503	Tact switch SKHV17910B
SW1007	9965 000 16503	Tact switch SKHV17910B
SW1008	9965 000 16503	Tact switch SKHV17910B
TU301	9965 000 16507	Tuner TAFC-M130D
TU301	9965 000 16521	Tuner TAFC-S120D
X101	9965 000 16508	Crystal 6 MHz HC49U
X301	9965 000 16509	Crystal 20.250 MHz HC49U
X501	9965 000 16510	Crystal 14.318MHz
X502	9965 000 16511	Crystal 500kHz CSB500F9
X601	9965 000 16512	Crystal 18.432 MHz HC49U
ZD101	9965 000 16513	MTZJ33B
ZD410	9965 000 16514	UDZS TE-17
ZD411	9965 000 16514	UDZS TE-17
ZD412	9965 000 16514	UDZS TE-17
ZD413	9965 000 16514	UDZS TE-17
ZD414	9965 000 16514	UDZS TE-17
ZD415	9965 000 16514	UDZS TE-17
ZD416	9965 000 16514	UDZS TE-17
ZD417	9965 000 16514	UDZS TE-17
ZD418	9965 000 16514	UDZS TE-17
ZD419	9965 000 16514	UDZS TE-17
ZD420	9965 000 16514	UDZS TE-17
ZD421	9965 000 16514	UDZS TE-17
ZD423	9965 000 16514	UDZS TE-17
ZD430	9965 000 16514	UDZS TE-17
ZD431	9965 000 16514	UDZS TE-17
ZD432	9965 000 16514	UDZS TE-17

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C1001	9965 000 16429	100µF 10V
C1002	9965 000 16430	0.01µF 80% 50V
C101	9965 000 16431	10µF 16V
C115	9965 000 16432	100µF 16V
C117	9965 000 16432	100µF 16V
C120	9965 000 16431	10µF 16V
C121	9965 000 16433	47µF 16V
C125	9965 000 16434	10µF 50V
C127	9965 000 16432	100µF 16V

C131	9965 000 16432	100µF 16V
C133	9965 000 16435	4.7µF 50V
C133	9965 000 16441	22µF 16V
C134	9965 000 16433	47µF 16V
C137	9965 000 16436	1µF 50V
C140	9965 000 16437	0.056µF 5% 100V
C141	9965 000 16431	10µF 16V
C146	9965 000 16433	47µF 16V
C153	9965 000 16438	220µF 16V
C156	9965 000 16438	220µF 16V
C211	9965 000 16432	100µF 16V
C307	9965 000 16439	220000pF 16V 0805
C311	9965 000 16439	220000pF 16V 0805
C317	9965 000 16440	1µF 50V
C318	9965 000 16440	1µF 50V
C319	9965 000 16440	1µF 50V
C320	9965 000 16440	1µF 50V
C327	9965 000 16439	220000pF 16V 0805
C328	9965 000 16439	220000pF 16V 0805
C329	9965 000 16439	220000pF 16V 0805
C342	9965 000 16439	220000pF 16V 0805
C404	9965 000 16438	220µF 16V
C404	9965 000 16441	22µF 16V
C409	9965 000 16441	22µF 16V
C410	9965 000 16441	22µF 16V
C418	9965 000 16442	2.2µF 50V
C544	9965 000 16443	680µF 10V
C586	9965 000 16444	470µF 16V
C587	9965 000 16443	680µF 10V
C595	9965 000 16429	100µF 10V
C595	9965 000 16443	680µF 10V
C597	9965 000 16443	680µF 10V
C598	9965 000 16443	680µF 10V
C601	9965 000 16432	100µF 16V
C602	9965 000 16432	100µF 16V
C613	9965 000 16433	47µF 16V
C619	9965 000 16432	100µF 16V
C621	9965 000 16431	10µF 16V
C622	9965 000 16431	10µF 16V
C623	9965 000 16432	100µF 16V
C625	9965 000 16445	3.3µF 50V
C628	9965 000 16439	220000pF 16V 0805
C629	9965 000 16439	220000pF 16V 0805
C630	9965 000 16439	220000pF 16V 0805
C631	9965 000 16439	220000pF 16V 0805
C635	9965 000 16431	10µF 16V
C637	9965 000 16446	0.01µF 100V
C638	9965 000 16442	2.2µF 50V
C639	9965 000 16432	100µF 16V
C640	9965 000 16432	100µF 16V
C642	9965 000 16432	100µF 16V
C643	9965 000 16444	470µF 16V
C644	9965 000 16444	470µF 16V
C648	9965 000 16444	470µF 16V
C649	9965 000 16442	2.2µF 50V
C650	9965 000 16438	220µF 16V
C652	9965 000 16446	0.01µF 100V
C801	9965 000 16447	330µF 16V
C804	9965 000 16433	47µF 16V
C805	9965 000 16438	220µF 16V
C811	9965 000 16432	100µF 16V
C812	9965 000 16448	100µF 25V
C813	9965 000 16432	100µF 16V
C816	9965 000 16435	4.7µF 50V
C819	9965 000 16435	4.7µF 50V
C821	9965 000 16438	220µF 16V
C821	9965 000 16443	680µF 10V
C822	9965 000 16438	220µF 16V
C822	9965 000 16444	470µF 16V
C823	9965 000 16438	220µF 16V
C823	9965 000 16444	470µF 16V
C823	9965 000 16449	470µF 10V
C824	9965 000 16432	100µF 16V
C824	9965 000 16444	470µF 16V
C824	9965 000 16449	470µF 10V
C825	9965 000 16450	47µF 50V
C826	9965 000 16438	220µF 16V
C826	9965 000 16449	470µF 10V
C827	9965 000 16451	EU1ZV(1)
C958	9965 000 16443	680µF 10V
C959	9965 000 16443	680µF 10V

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R1001	9965 000 16498	4.7k 5% 1/6W
R1003	9965 000 16499	1.2k 5% 1/6W
R1004	9965 000 16500	330Ω 5% 1/6W
R1006	9965 000 16498	4.7k 5% 1/6W
R1007	9965 000 16498	4.7k 5% 1/6W

R1008	9965 000 16498	4.7k 5% 1/6W
R1009	9965 000 16498	4.7k 5% 1/6W
R1010	9965 000 16498	4.7k 5% 1/6W
R1011	9965 000 16498	4.7k 5% 1/6W
R443	9965 000 16501	120Ω 5% 1/2W
R444	9965 000 16501	120Ω 5% 1/2W
R540	9965 000 16483	Filter HB-1M2012-800JT 0805
RA507	9965 000 16489	Filter 3216 4S600

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L1001	9965 000 16482	22μH 2.3 X 3.4
L101	9965 000 16483	Filter HB-1M2012-800JT 0805
L102	9965 000 16483	Filter HB-1M2012-800JT 0805
L103	9965 000 16454	Filter HH-1M3216-501 1206
L104	9965 000 16454	Filter HH-1M3216-501 1206
L105	9965 000 16454	Filter HH-1M3216-501 1206
L202	9965 000 16484	Filter HB-1S2012-080JT 0805
L401	9965 000 16483	Filter HB-1M2012-800JT 0805
L402	9965 000 16454	Filter HH-1M3216-501 1206
L403	9965 000 16454	Filter HH-1M3216-501 1206
L405	9965 000 16483	Filter HB-1M2012-800JT 0805
L406	9965 000 16483	Filter HB-1M2012-800JT 0805
L407	9965 000 16483	Filter HB-1M2012-800JT 0805
L408	9965 000 16483	Filter HB-1M2012-800JT 0805
L410	9965 000 16483	Filter HB-1M2012-800JT 0805
L411	9965 000 16483	Filter HB-1M2012-800JT 0805
L412	9965 000 16483	Filter HB-1M2012-800JT 0805
L413	9965 000 16483	Filter HB-1M2012-800JT 0805
L414	9965 000 16485	12μH 2.3 X 3.4
L415	9965 000 16486	27μH 2.3 X 3.4
L416	9965 000 16485	12μH 2.3 X 3.4
L502	9965 000 16484	Filter HB-1S2012-080JT 0805
L503	9965 000 16484	Filter HB-1S2012-080JT 0805
L504	9965 000 16454	Filter HH-1M3216-501 1206
L505	9965 000 16454	Filter HH-1M3216-501 1206
L506	9965 000 16454	Filter HH-1M3216-501 1206
L519	9965 000 16483	Filter HB-1M2012-800JT 0805
L601	9965 000 16454	Filter HH-1M3216-501 1206
L602	9965 000 16454	Filter HH-1M3216-501 1206
L603	9965 000 16454	Filter HH-1M3216-501 1206
L604	9965 000 16454	Filter HH-1M3216-501 1206
L801	9965 000 16454	Filter HH-1M3216-501 1206
L802	9965 000 16454	Filter HH-1M3216-501 1206
L803	9965 000 16454	Filter HH-1M3216-501 1206
L804	9965 000 16454	Filter HH-1M3216-501 1206
L805	9965 000 16487	9.5μH
L806	9965 000 16488	26μH
L807	9965 000 16488	26μH
L809	9965 000 16454	Filter HH-1M3216-501 1206
L810	9965 000 16454	Filter HH-1M3216-501 1206
LA501	9965 000 16489	Filter 3216 4S600
LA502	9965 000 16489	Filter 3216 4S600
LA503	9965 000 16489	Filter 3216 4S600
LA504	9965 000 16489	Filter 3216 4S600
LA505	9965 000 16489	Filter 3216 4S600
LA506	9965 000 16489	Filter 3216 4S600
LA507	9965 000 16489	Filter 3216 4S600
LA508	9965 000 16489	Filter 3216 4S600
LA509	9965 000 16489	Filter 3216 4S600
LA510	9965 000 16489	Filter 3216 4S600
LA511	9965 000 16489	Filter 3216 4S600
LA512	9965 000 16489	Filter 3216 4S600
LA513	9965 000 16489	Filter 3216 4S600
LA514	9965 000 16489	Filter 3216 4S600
LA515	9965 000 16489	Filter 3216 4S600
LA516	9965 000 16489	Filter 3216 4S600
LA517	9965 000 16489	Filter 3216 4S600
LA518	9965 000 16489	Filter 3216 4S600
LA519	9965 000 16489	Filter 3216 4S600
LA520	9965 000 16489	Filter 3216 4S600
LA521	9965 000 16489	Filter 3216 4S600
LA522	9965 000 16489	Filter 3216 4S600
LA523	9965 000 16489	Filter 3216 4S600
LA524	9965 000 16489	Filter 3216 4S600
LA525	9965 000 16489	Filter 3216 4S600
LD1001	9965 000 16490	LED assy
T101	9965 000 16504	MKT40.4MA110P-TF0
T101	9965 000 16520	Filter MKT41.4MA110P-TF01
T102	9965 000 16505	MKT40.9MA110P-TF01
T801	9965 000 16506	Transformer 13-Z320UH DC-DC

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D101	9965 000 16452	KDS181
D102	9965 000 16452	KDS181
D603	9965 000 16452	KDS181
D604	9965 000 16452	KDS181
D801	9965 000 16452	KDS181
D802	9965 000 16453	MBRS190T3
D803	9965 000 16453	MBRS190T3
D805	9965 000 16451	EU1ZV(1)



IC101	9965 000 16455	SDA555X
IC102	9965 000 16456	AT24C16-10PC-2.7
IC103	9965 000 16457	PQ3RF23
IC104	9965 000 16458	KA75270Z
IC105	4822 209 16128	KIA7805PI
IC106	9965 000 16459	LA7217M
IC107	9965 000 16460	TDA8601T
IC108	9965 000 16461	KIA7808API
IC109	9965 000 16462	KIA7809AP
IC201	9965 000 16463	AD9884
IC202	9965 000 16457	PQ3RF23
IC301	9965 000 16464	VPC3230D-QA-B3
IC401	9965 000 16465	74F08D
IC402	9965 000 16466	AT24C2-10SI-2.5
IC501	9965 000 16467	MX88L284AEC
IC502	9965 000 16468	K4S161622D-TC80
IC503	9965 000 16468	K4S161622D-TC80
IC505	9965 000 16469	SC786107DWR2
IC506	9965 000 16470	SI4963DY
IC507	9965 000 16471	SIL100
IC601	9965 000 16472	MSP3410D-QA-C5
IC601	9965 000 20400	MSP3410G-QA-B8 V3
IC602	4822 209 16128	KIA7805PI
IC603	9965 000 16473	KIA7042AF
IC604	9965 000 16461	KIA7808API
IC605	4822 209 31855	LA4282
IC801	9965 000 16474	SI4925DY
IC802	9965 000 16474	SI4925DY
IC803	4822 209 16128	KIA7805PI
IC804	9965 000 16475	SI786
IC805	9965 000 16476	SI9936DY
IC805	9965 000 16573	SI4808DY
IC806	9965 000 16477	SI9410DY
IC807	9965 000 16476	SI9936DY
IC807	9965 000 16573	SI4808DY
IC808	9965 000 16477	SI9410DY
IC809	9965 000 16462	KIA7809AP
Q1001	9965 000 16494	KTA-1266
Q103	9965 000 16495	2SC3875S
Q105	9965 000 16495	2SC3875S
Q106	9965 000 16495	2SC3875S
Q107	9965 000 16495	2SC3875S
Q108	9965 000 16496	2SA1504S
Q109	9965 000 16497	2N7000TA
Q110	9965 000 16497	2N7000TA
Q111	9965 000 16495	2SC3875S
Q112	9965 000 16495	2SC3875S
Q113	9965 000 16495	2SC3875S
Q114	9965 000 16495	2SC3875S
Q115	9965 000 16495	2SC3875S
Q301	9965 000 16495	2SC3875S
Q302	9965 000 16495	2SC3875S
Q402	9965 000 16496	2SA1504S
Q403	9965 000 16496	2SA1504S
Q501	9965 000 16495	2SC3875S
Q502	9965 000 16495	2SC3875S
Q503	9965 000 16496	2SA1504S
Q601	9965 000 16496	2SA1504S
Q602	9965 000 16496	2SA1504S
Q604	9965 000 16496	2SA1504S
Q801	9965 000 16495	2SC3875S
J401	9965 000 16478	Connector 15P
J402	9965 000 16479	Socket scart
J403	9965 000 16480	Socket SHVS
J801	9965 000 16481	Socket headphone

# Revision list

## Manual 3122 785 12511

1. In the version with the A3 LCD panel IC601 has been changed from MSP3410D-QA-C5 (9965 000 16472) into MSP3410G-QA-B8 V3 (9965 000 20400) to improve the sound quality. This change is introduced in June 2002.
2. In the version with the A3 LCD panel IC507 has been changed from SIL100 (9965 000 16471) into the SIL140. Both IC's are interchangeable.
3. In the version with the A3 LCD panel IC805 and IC807 are changed from SI9936DY (9965 000 16476) into SI4808DY (9965 000 16573) to improve the function.
4. The LCD panel LC151X01-A3 has been changed into the LC151X01-C3P1. This change is introduced in sets with serial number AG990230 and higher. At the same time also the following parts are changed:
  - LCD panel LC151X01-A3 (9965 000 16410) into LC151X01-C3P1 (9965 000 16743).
  - Main board from 9965 000 16422 into 9965 000 19696.
  - Inverter panel from 9965 000 16425 into 9965 000 17796.
  - Cable to LCD panel (P502) from 9965 000 20403 into 9965 000 20404.
  - Cable to Inverter (P801) from 9965 20401 into 9965 000 20402.