

# Service Manual

**V32ECBB/V32ELBB/V32EMBB**

**LCD Multi-Media Display**  
**(PAL/SECAM system)**

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## 1. Safety and Precautions

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### CAUTION

- \* **The service of this LCD TV must be carried out by qualified persons only.**
- \* **Do not change any module unless the set is switched off.**

**CLEANING :** Always disconnect unit from mains supply before attempting to clean it.  
Use soft cloth moistened with soapy water, wipe gently. Do not use solvents of abrasive materials.

### SOME DO'S AND DONT'S ON THE SAFE USE OF EQUIPMENT

This equipment has been designed and manufactured to meet European safety standards but like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.

**Do** read the operating instructions before you attempt to use the equipment.

**Do** ensure that all electrical connections (Including the mains plug, extension leads and interconnections between pieces of equipment) are properly made in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.

**Do** use only the Power Cord and Power Supply (option) provided.

**Do** consult your dealer if you are ever in doubt of the installation, operating, or safety of your equipment.

**Don't** exert pressure on the LCD TV . This could break the panel .

**Don't** continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way. Switch off, withdraw the mains plug and consult your dealer.

**Don't** remove any fixed covers as this may expose dangerous voltages.

**Don't** leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure that everyone knows how to do this. Special arrangements may need to be made for infirm or handicapped people.

**Don't** listen to headphones at high volume, as such use can permanently damage your hearing.

**Don't** obstruct the ventilation of the equipment, for example, with curtains or soft furnishings. Overheating will cause damage and shorten the life of the equipment.

**Don't** allow electrical equipment to be exposed to rain or moisture.

**Above all**

- Never let anyone push anything into holes, slots or any other opening as this could result in a fatal electric shock.
- Never guess or take chances with electrical equipment of any kind.
- It is better to be safe than sorry!

**WARNING :** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

## 2. Specifications

### 2.1 V32ECBB

ITEMS		SPECIFICATION
Panel	Screen Size	31.51" TFT-LCD Panel (CPT)
	Aspect Ratio	16 : 9
	Resolution	1366 x 768 (WXGA)
	Display Area (opening) H x V	697.68 mm x 392.25 mm
	Pixel Pitch	0.511 mm x 0.511 mm
	Display colors	16,777,216 colors
	Contrast Ratio	800 : 1 (typ.)
	Brightness (center)	550 cd / m <sup>2</sup> (typ.)
	Viewing Angle (CR>10)	176° Hor. / 176° Ver. (typ.)
	Response Time (GTG)	10 ms (typ.)
TV Function	Broadcasting System	PAL / SECAM
	Receiving Channel	B / G, D / K, I and L / L' (Multi-Europe)
	Sound System	NICAM / A2 (IGR)
	Data Broadcasting	Teletext 255 pages (FLOF /TOP) , Auto Program Searching (APS)
Video Input	Video Color System	PAL / SECAM / NTSC
	AV1 (scart)	21-pin Scart (RGB / CVBS / SVHS) x 2
	AV2 (composite)	Composite (RCA jack) x 1
	AV3 (component)	S-Video x 1 Y Pb Pr (720P / 1080i , HDTV ready) x 1
Digital Input	HDCP / DVI	HDCP 1.1 / DVI 1.0 x 1
PC Input (analog)	Signal Connection	D-Sub 15 pin x 1
	PnP compatibility	DDC / 2B
	Scanning Frequency	f <sub>H</sub> = 31.5 ~ 60KHz / f <sub>V</sub> = 56 ~ 75Hz
	HDTV Ready (via D-sub 15 pin)	720p, 1080i
Audio Input	Audio 1	Scart (build-in) x 2
	Audio 2	Composite x 1
	Audio 3	S - Video x 1
	Audio 4	Component x 1
	Audio 4	PC x 1
Video Output	SCART 1	TV x 1
	SCART 2	TV / CVBS (scart 1) x 1
	Composite (RCA jack)	TV x 1
Audio Output	Speaker ( build-in)	10W + 10W (rms) @ THD < 10% ( 7W + 7W @ THD < 1% )
	Line Out	Left / Right / Subwoofer
Feature	OSD Language	English, French , German , Spanish , Italian , Finnish , Swedish, Dutch, Demark, Norway
	Function Keys	Power , Source , Menu , Up/Down(Channel) , +/-(Volume) , Aspect .
	Video Performance	Picture in Picture (PIP) , Comb-filter , 3D De-interlace , Canal Plus , Tele text , Aspect Ratio Control (ARC) , Auto Picture Control(APC) , Video Enhance , Noise Reduction , Picture by Picture (PBP) .
	Audio Performance	Equalizer, Subwoofer, Auto Volume Control (AVC),
	Other Control	Sleep Timer, Auto Power Off.
Power	Power Supply	AC 100V ~ 240V , 50 / 60Hz
	Power Consumption	< 180 W
Dimension	W x H x D	964.8mm * 582.4mm * 279.8mm
Weight (net)	Without Accessories	22.2kg

## 2.2 V32ELBB

ITEMS		SPECIFICATION
Panel	Screen Size	31.51" TFT-LCD Panel (LG)
	Aspect Ratio	16 : 9
	Resolution	1366 x 768 (WXGA)
	Display Area (opening) H x V	697.68 mm x 392.25 mm
	Pixel Pitch	0.511 mm x 0.511 mm
	Display colors	16,777,216 colors
	Contrast Ratio	550 : 1 (typ.)
	Brightness (center)	500 cd / m (typ.)
	Viewing Angle (CR>10)	176° Hor. / 176° Ver. (typ.)
	Response Time (BTW)	16 ms (typ.)
TV Function	Broadcasting System	PAL / SECAM
	Receiving Channel	B / G, D / K, I and L / L' (Multi-Europe)
	Sound System	NICAM / A2 (IGR)
	Data Broadcasting	Teletext 255 pages (FLOF / TOP) , Auto Program Searching (APS)
Video Input	Video Color System	PAL / SECAM / NTSC
	AV1 (scart)	21-pin Scart (RGB / CVBS / SVHS) x 2
	AV2 (composite)	Composite (RCA jack) x 1
		S-Video x 1
	AV3 (component)	Y Pb Pr (720P / 1080i , HDTV ready) x 1
Digital Input	HDCP / DVI	HDCP 1.1 / DVI 1.0 x 1
PC Input (analog)	Signal Connection	D-Sub 15 pin x 1
	PnP compatibility	DDC / 2B
	Scanning Frequency	f <sub>H</sub> = 31.5 ~ 60KHz / f <sub>V</sub> = 56 ~ 75Hz
	HDTV Ready (via D-sub 15 pin)	720p, 1080i
Audio Input	Audio 1	Scart (build-in) x 2
	Audio 2	Composite x 1
		S - Video x 1
	Audio 3	Component x1
	Audio 4	PC x 1
Video Output	SCART 1	TV x 1
	SCART 2	TV / CVBS (scart 1) x 1
	Composite (RCA jack)	TV x 1
Audio Output	Speaker ( build-in)	10W + 10W (rms) @ THD < 10% ( 7W + 7W @ THD < 1% )
	Line Out	Left / Right / Subwoofer
Feature	OSD Language	English, French , German , Spanish , Italian , Finnish , Swedish, Dutch, Demark, Norway
	Function Keys	Power, Source, Menu, Up/Down (Channel), +/- (Volume), Aspect.
	Video Performance	Picture in Picture (PIP) , Comb-filter , 3D De-interlace , Canal Plus , Tele text , Aspect Ratio Control (ARC) , Auto Picture Control(APC) , Video Enhance , Noise Reduction , Picture by Picture (PBP) .
	Audio Performance	Equalizer, Subwoofer, Auto Volume Control (AVC),
	Other Control	Sleep Timer, Auto Power Off.
Power	Power Supply	AC 100V ~ 240V , 50 / 60Hz
	Power Consumption	< 180 W
Dimension	W x H x D	964.8mm * 582.4mm * 279.8mm
Weight (net)	Without Accessories	22.2kg

## 2.3 V32EMBB

ITEMS		SPECIFICATION
Panel	Screen Size	32.02" TFT-LCD Panel (CMO)
	Aspect Ratio	16 : 9
	Resolution	1366 x 768 (WXGA)
	Display Area (opening) H x V	714.96 mm x 404.6 mm
	Pixel Pitch(Sub Pixel)	0.519 mm x 0.519 mm
	Display colors	16,777,216 colors
	Contrast Ratio	1000 : 1 (typ.)
	Brightness (center)	550 cd / m <sup>2</sup> (typ.)
	Viewing Angle (CR>20)	176° Hor. / 176° Ver. (typ.)
	Response Time (GTG)	8 ms (typ.)
TV Function	Broadcasting System	PAL / SECAM
	Receiving Channel	B / G, D / K, I and L / L' (Multi-Europe)
	Sound System	NICAM / A2 (IGR)
	Data Broadcasting	Teletext 255 pages (FLOF /TOP), Auto Program Searching (APS)
Video Input	Video Color System	PAL / SECAM / NTSC
	AV1 (scart)	21-pin Scart (RGB / CVBS / SVHS) x 2
	AV2 (composite)	Composite (RCA jack) x 1
		S-Video x 1
	AV3 (component)	Y Pb Pr (720P / 1080i , HDTV ready) x 1
Digital Input	HDCP / DVI	HDCP 1.1 / DVI 1.0 x1
PC Input (analog)	Signal Connection	D-Sub 15 pin x1
	PnP compatibility	DDC / 2B
	Scanning Frequency	f <sub>H</sub> = 31.5 ~ 60KHz / f <sub>V</sub> = 56 ~ 75Hz
	HDTV Ready (via D-sub 15 pin)	720p, 1080i
Audio Input	Audio 1	Scart (build-in) x 2
	Audio 2	Composite x 1
		S - Video x 1
	Audio 3	Component x 1
	Audio 4	PC x 1
Video Output	SCART 1	TV x 1
	SCART 2	TV / CVBS (scart 1) x 1
	Composite (RCA jack)	TV x 1
Audio Output	Speaker ( build-in)	10W + 10W (rms) @THD < 10% ( 7W + 7W @ THD < 1% )
	Line Out	Left / Right / Subwoofer
Feature	OSD Language	English, French , German , Spanish , Italian , Finnish , Swedish, Dutch, Demark, Norway
	Function Keys	Power, Source, Menu, Up/Down (Channel), +/- (Volume), Aspect.
	Video Performance	Picture in Picture (PIP), Comb-filter, 3D De-interlace, Canal Plus, Tele text, Aspect Ratio Control (ARC), Auto Picture Control (APC), Video Enhance, Noise Reduction, Picture-by-Picture (PBP).
	Audio Performance	Equalizer, Subwoofer, Auto Volume Control (AVC),
	Other Control	Sleep Timer, Auto Power Off.
Power	Power Supply	AC 100V ~ 240V , 50 / 60Hz
	Power Consumption	< 180 W
Dimension	W x H x D	964.8mm * 582.4mm * 279.8mm
Weight (net)	Without Accessories	22.2kg

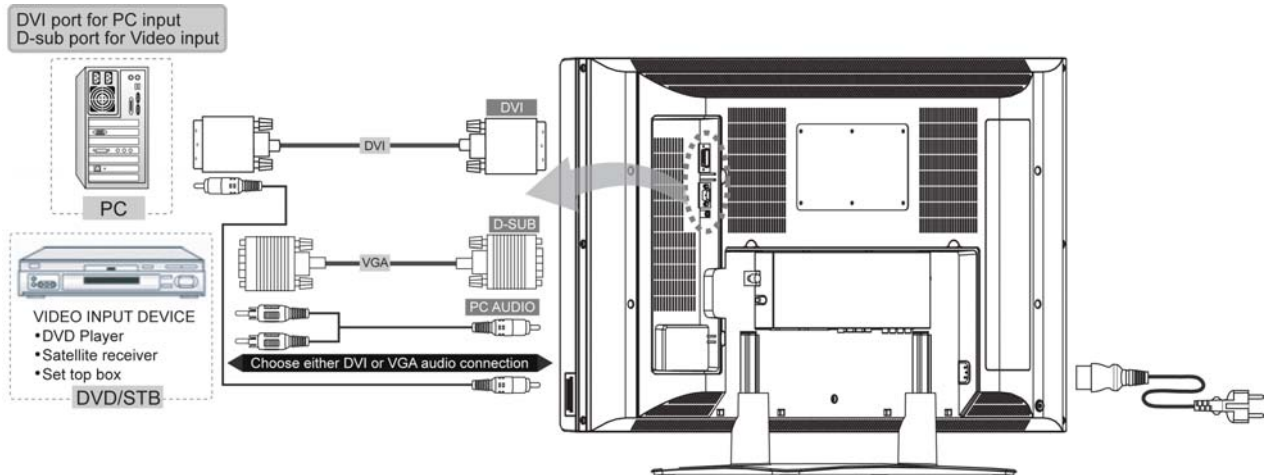
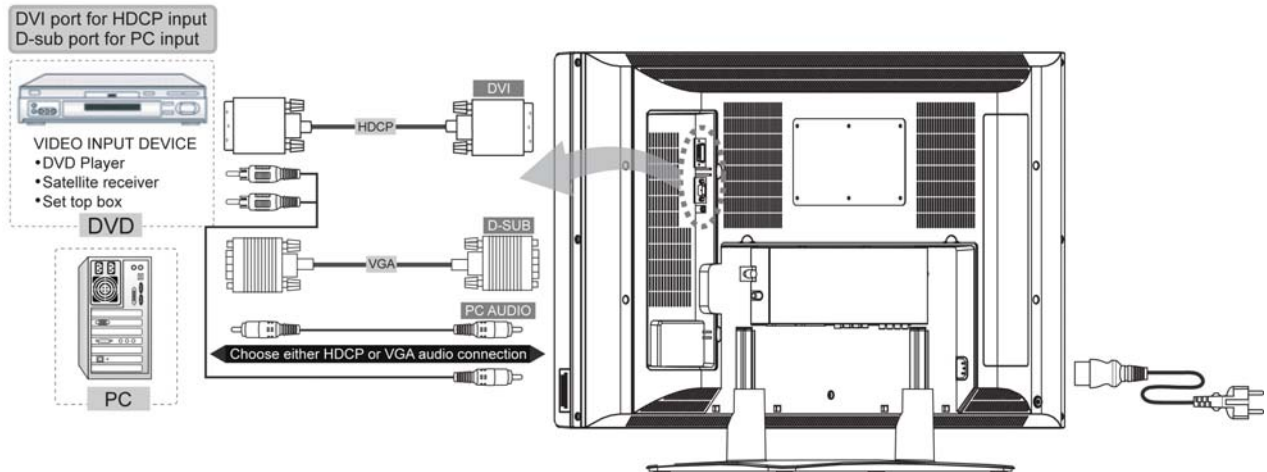
## 2.4 PC I/P Preset Timing Table:

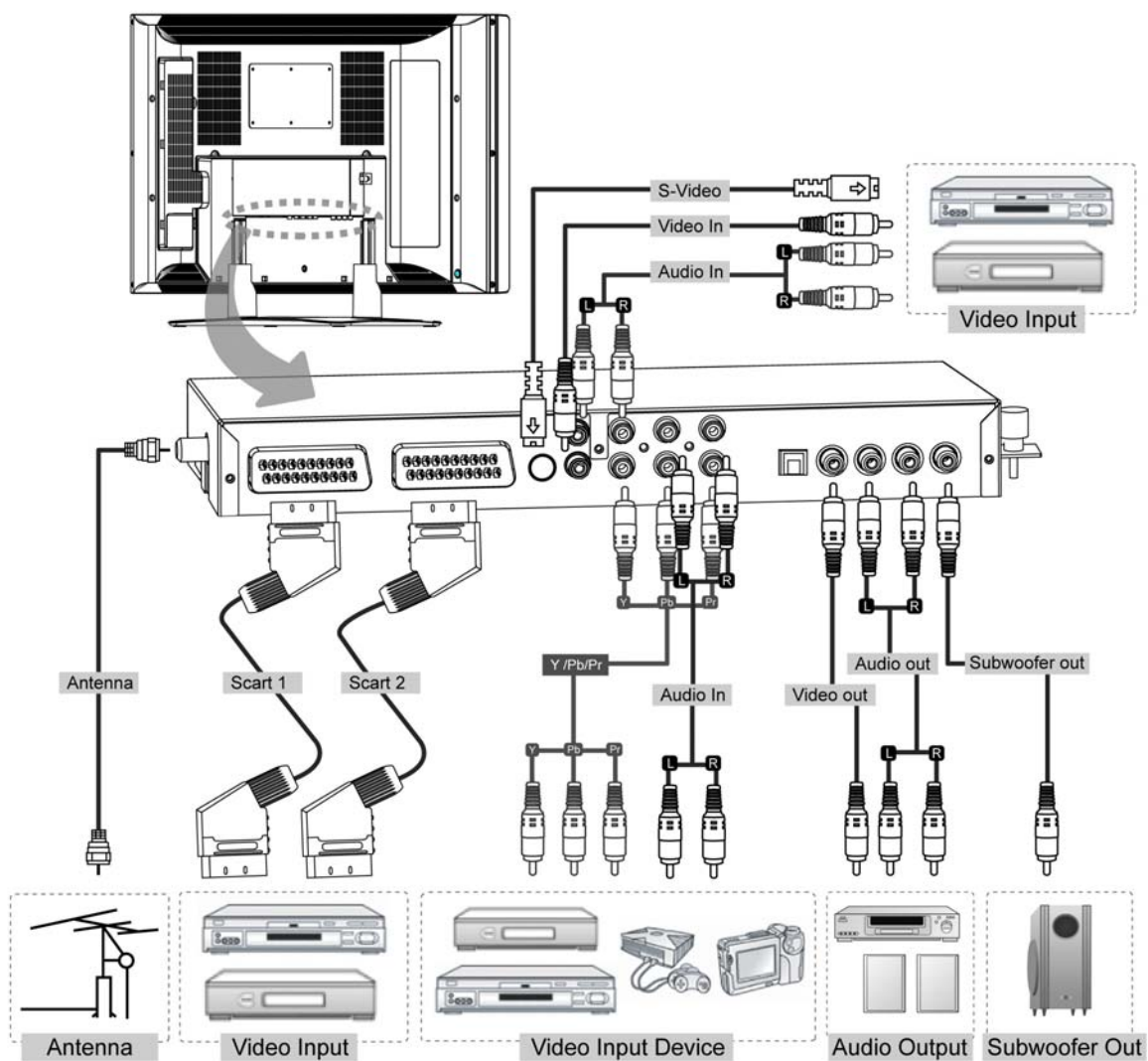
Analog Input							
N o.	Mode Name	H-Resoluti on V-Resoluti on	H.Freq . (KHz)	V.Freq . (Hz)	H. Polarit y	V. Polarit y	Pixel CLK (MHz)
1	VGA	640 * 480	31.469	59.940	-	-	25.175
2	VGA	640 * 480	37.500	75.000	-	-	31.500
3	US TEXT	720 * 400	31.472	70.100	-	+	28.325
4	STB	768 * 576	31.250	50.000	-	-	29.750
5	SVGA	800 * 600	37.879	60.300	+	+	40.000
6	SVGA	800 * 600	46.875	75.000	+	+	49.500
7	XGA	1024 * 768	48.363	60.000	-	-	65.000
8	XGA	1024 * 768	56.476	70.000	-	-	75.000
9	WSGA	1280 * 768	47.708	60.000	+	-	80.150
10	WXGA	1366 * 768	48.54	59.93	+	+	80

\* The resolution and the frequencies are displayed on the screen may not exactly same as this list.



### 3. Connection & Applications





**NOTE:**

**Audio out L/R & Subwoofer out**

The level of audio output cannot be changed using the volume , treble , and bass controls on your TV . These connectors should be used with an external audio amplifier that can be used to control the volume.

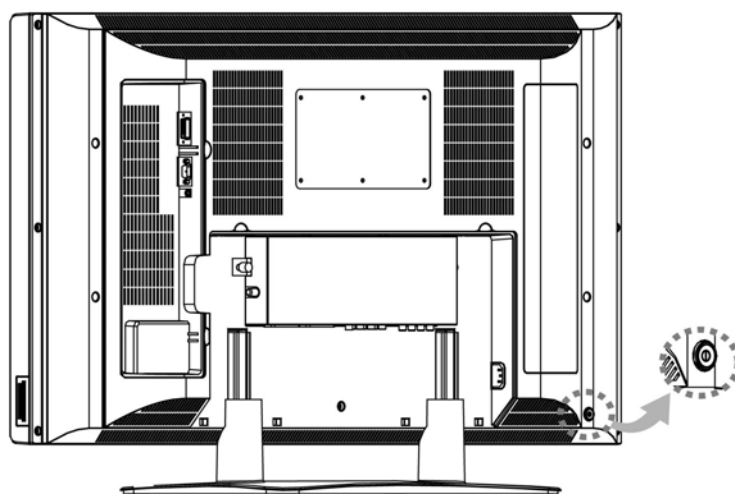
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## 4. Controls Location

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### Main Power Switch

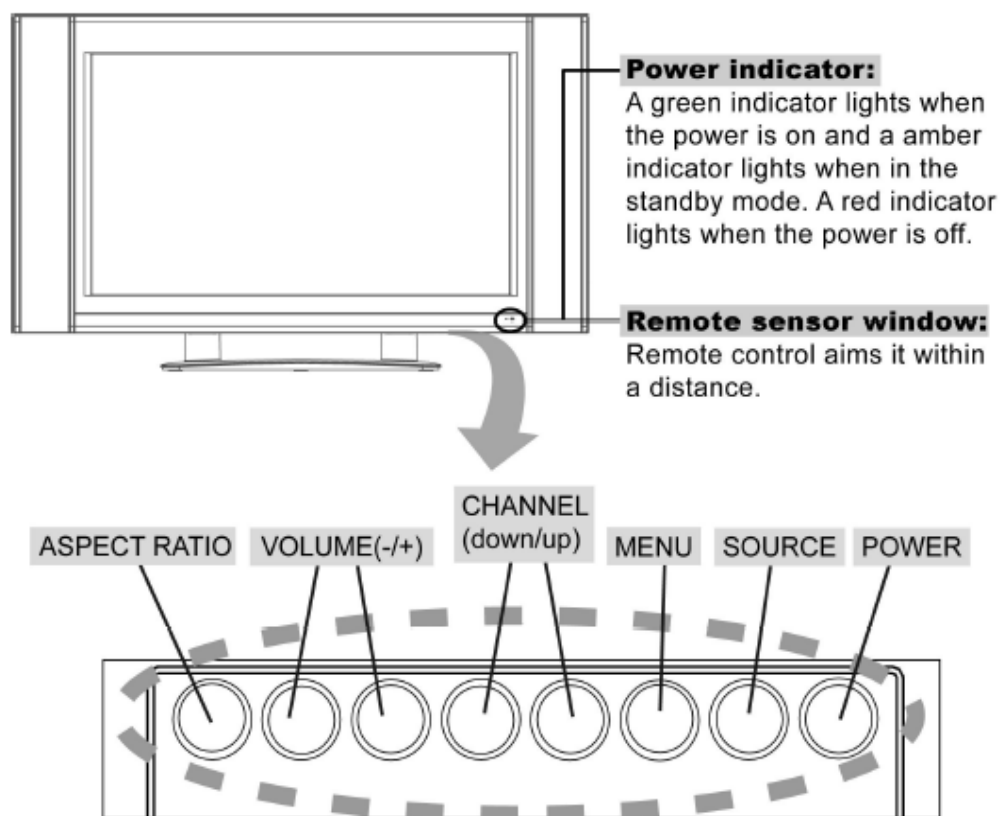
Before operating the LCD display or remote control, users must press **MAIN POWER** switch to **ON**. The **MAIN POWER** switch is located at the bottom-left back of the LCD display (near by Power Inlet).



## Function Key

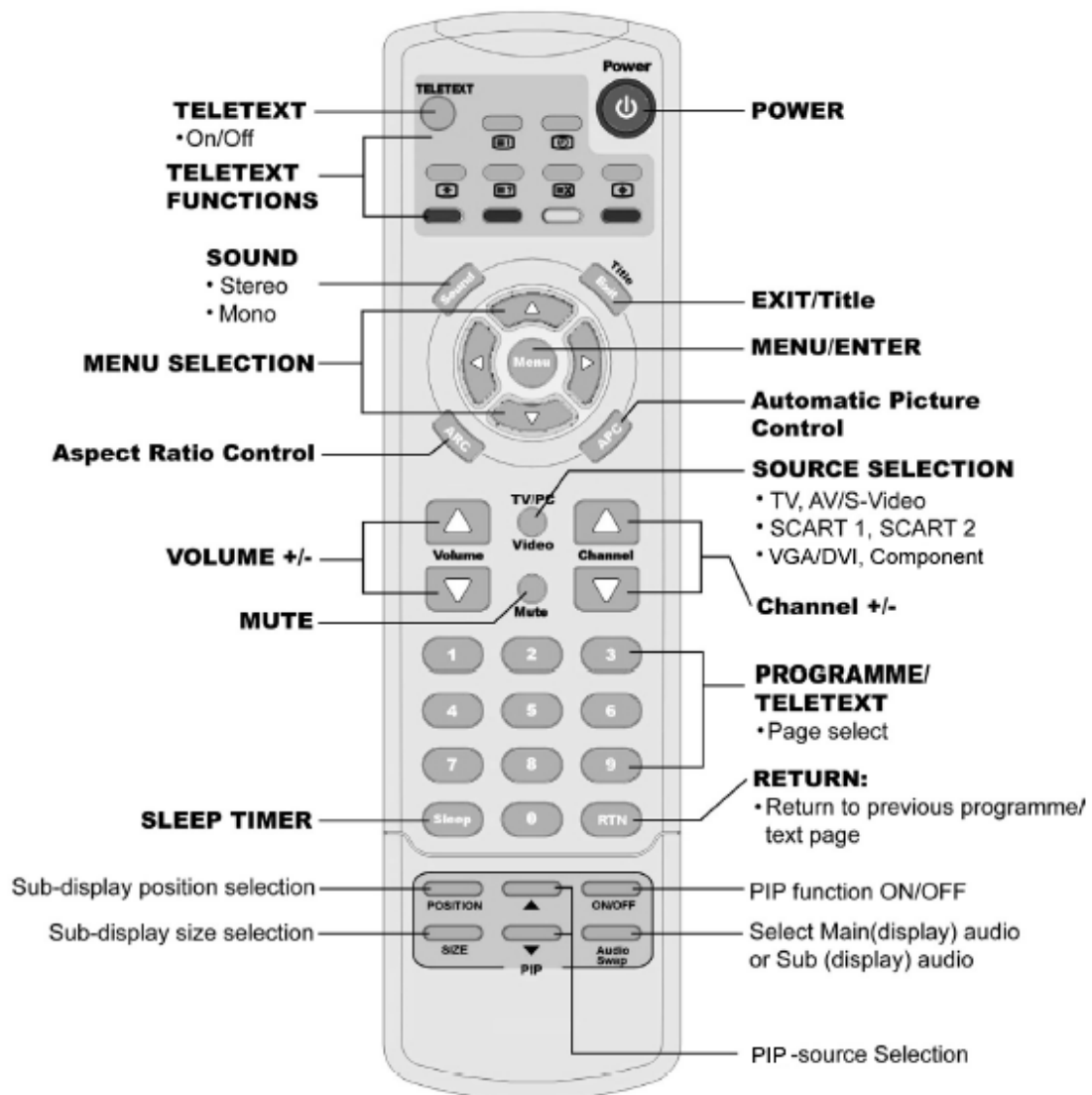
These buttons control your display's basic features, including the on-screen menu. To use the more advanced features, you must use the remote control.

POWER	: turn on or turn off the LCD display.
SOURCE	: select input source (VGA, DVI, TV, AV, SV, CV, SCART 1, SCART 2).
MENU	: display the main menu.
CHANNEL (down/up)	: change channels.
VOLUME (-/+)	: turn up or turn down the volume.
ASPECT RATIO	: set the display aspect (Normal, Full, Panoramic, 16:9 Zoom). For PC mode, only Normal and Full options are available.



## 5. Remote Control

The remote control includes the basic functions needed while viewing a live video.



## Summary of Control Buttons

### Selecting the Signal Source

TV/PC/VIDEO Select input source (VGA/DVI, CV, TV, AV/SV, SCART 1, SCART 2).

### Menu Setting

MENU/ENTER Display the main on-screen menu or enter the next menu.  
 ▲ / ▼ Press to select the item you want to adjust in the OSD menu.  
 ◀ / ▶ Press to decrease or increase the value in the OSD control bar.  
 EXIT Exit from the menu.








### Changing Channels

▲ / ▼ (channel) Press CH▲ or CH▼ to change Programs in TV mode or Teletext page in TELETEXT mode.  
 0 ~ 9, +100 To select programs directly in TV mode.  
 EXIT Exit the channel on screen.  
 TITLE Press to display the current program digits.  
 RTN Press to return to the previous channel/text page.

### Sound Control

▲ / ▼ (volume) Press VOL ▲ or VOL ▼ to turn up or turn down the volume.  
 MUTE Press to switch the sound on or off.


### Teletext Control

 TELETEXT Press to show the Teletext Service. Press again to return to TV Viewing.  
 INDEX Press "INDEX" button to show the list of teletext contents.  
 HOLD Press "HOLD" button to stop the automatic page change.  
 INTERRUPT Press "INTERRUPT" button to switch to TV while waiting for the next text page.  
 REVEAL Press "REVEAL" button to display concealed information, such as solutions of riddles or a quiz.  
 EXPAND Press "EXPAND" button to enlarge the top half or bottom half of the Teletext page.  
 SUB-PAGE/TIME Press "SUB-PAGE/TIME" button to access to the sub-page you required.

### PIP Control

ON / OFF	Press to watch one of the video sources on Sub-display, whilst in PC mode. Press again to turn off the Sub-display.
PIP Source	Press to select the PIP window input source as : Press ▲▼ button : TV → Video → S-Video → SCART 1 → SCART 2 → SCART 2 S.
SIZE	To make the PIP window double, large, small and tiny.
POSITION	Press to move the PIP window to: Top Left → Top Right → Bottom Right → Bottom Left → Repeat.

### Other Function

Audio SWAP	Exchange sound between main and sub source
ARC	Set the display aspect: Full → Normal → 16:9 Zoom → Panoramic → Auto. For PC mode, only Regular and Full options are available. Note: not available for Panoramic under 1080i of CV mode.
APC	Select the picture brightness & contrast to "Standard", "Movie", "Bright", „Manual" and "clear".
SOUND	Press to choose stereo, bilingual, and monaural broadcasts.
SLEEP	Press to select a preset time interval for automatic power off.
 SUB-PAGE/TIME	Press "Sub-Page/Time" to display the digital clock in TV mode.

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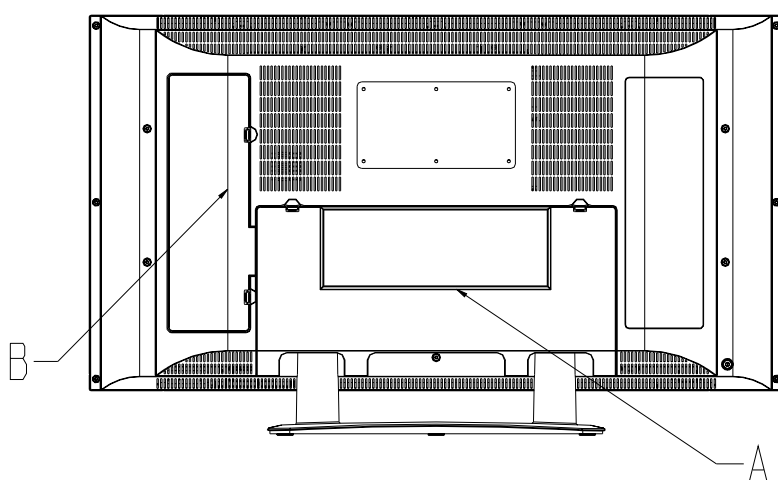
## 6. Disassembly Instructions

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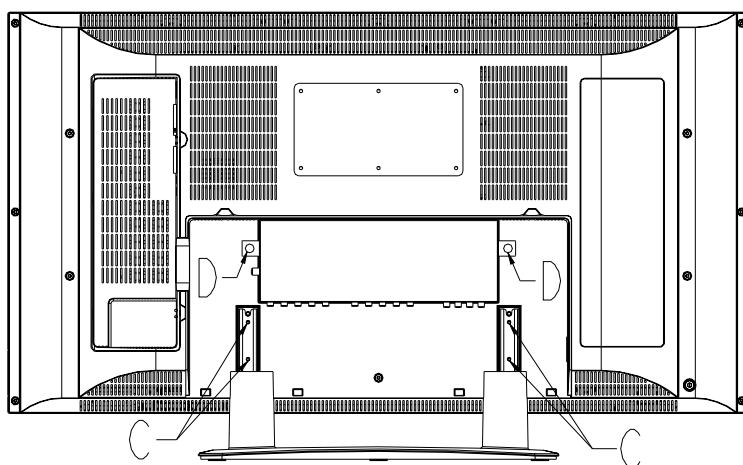
### Face down the LCD-TV:

Face down the LCD-TV on a smooth plane with a soft material to protect the panel faceplate.

- A. Remove it and pull out it along the slot.
- B. Remove the plastic cover from the back cover.

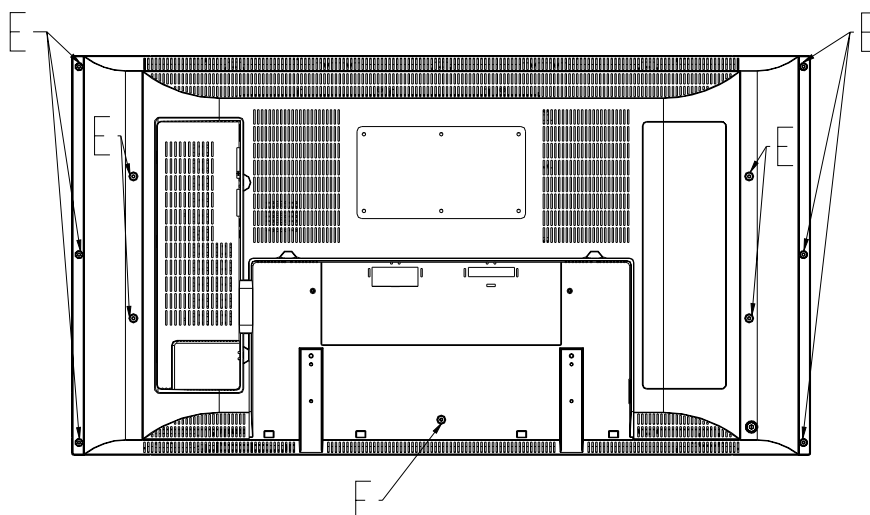


- C. Remove 4 screws from the Neck and then takes neck apart from the cover.
- D. Remove 2 screws and pull out it along the slot.

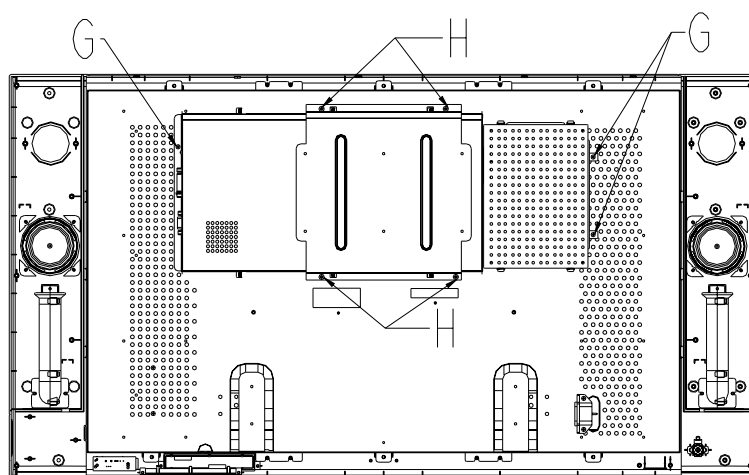




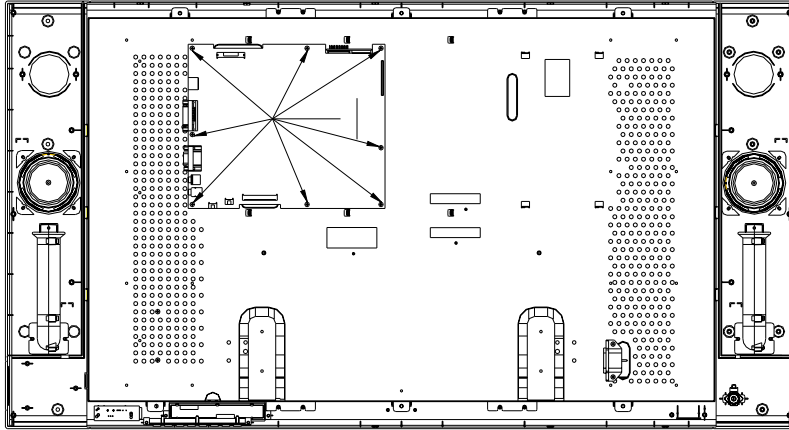
- E.** Remove 10 screws from the back cover.
- F.** Remove 1 screw from the back cover and then take back cover apart from the LCD TV.



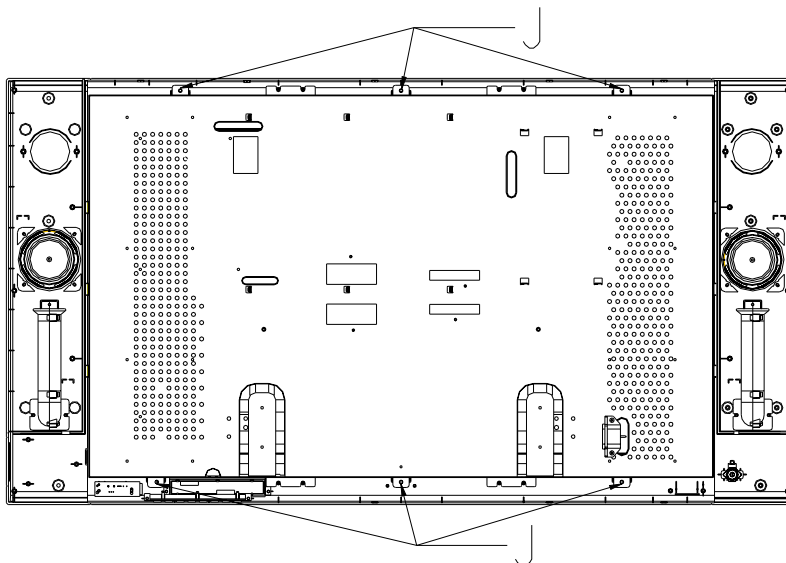
- G.** Remove 3 screws from Power box.
- H.** Remove 4 screws from Main PCB Shield and Visa bracket apart from Panel Bracket.



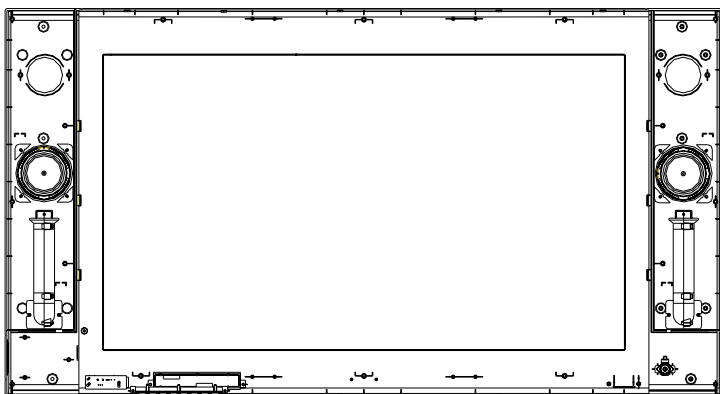
- I. Remove 8 screws from the Main PCB and then take Main PCB apart from the Main Bracket.



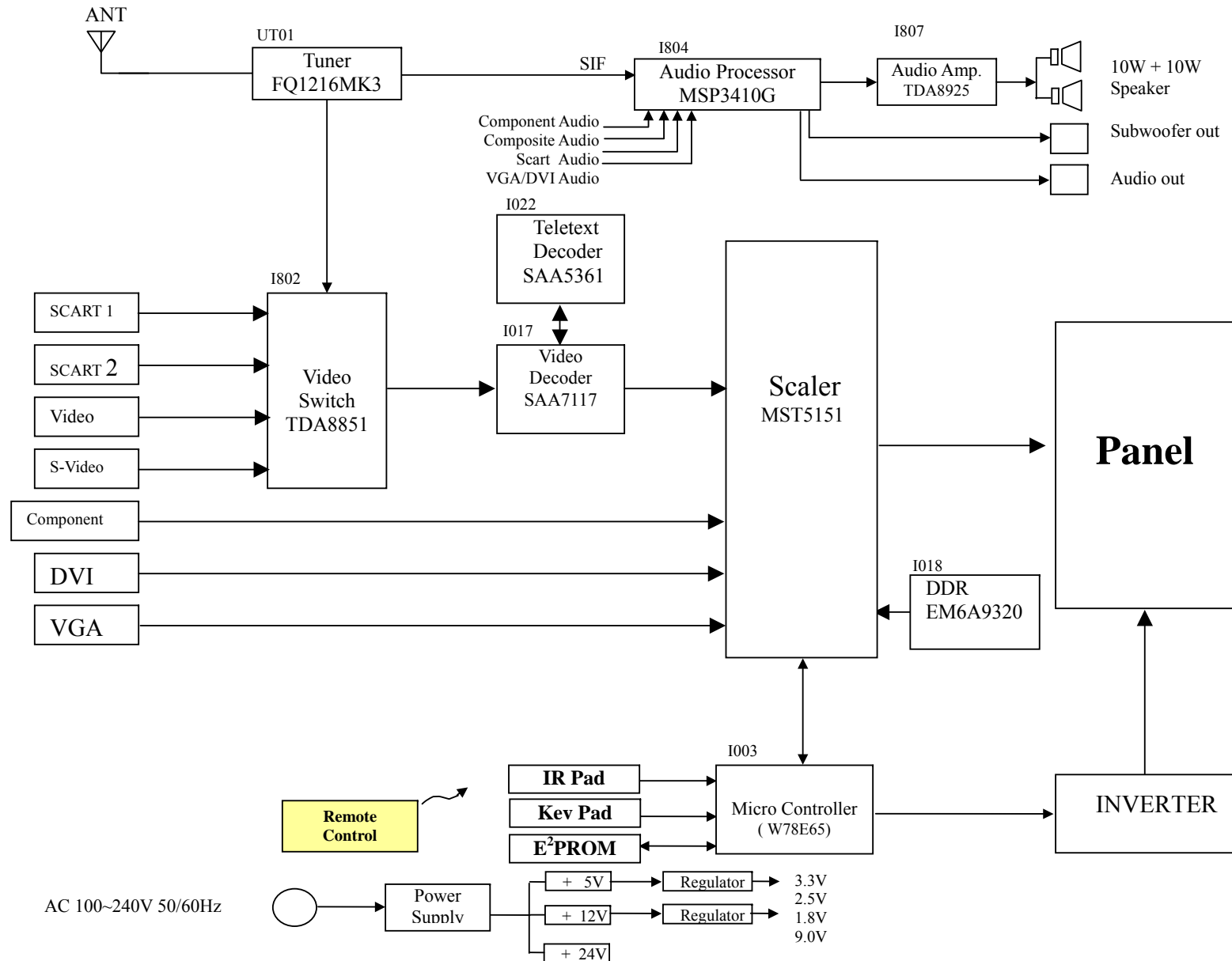
- J. Remove 6 screws from the Panel Bracket.



**K.** Take Panel Bracket apart from the Front Cover.



## 7. Block Diagram



## 8. Troubleshooting

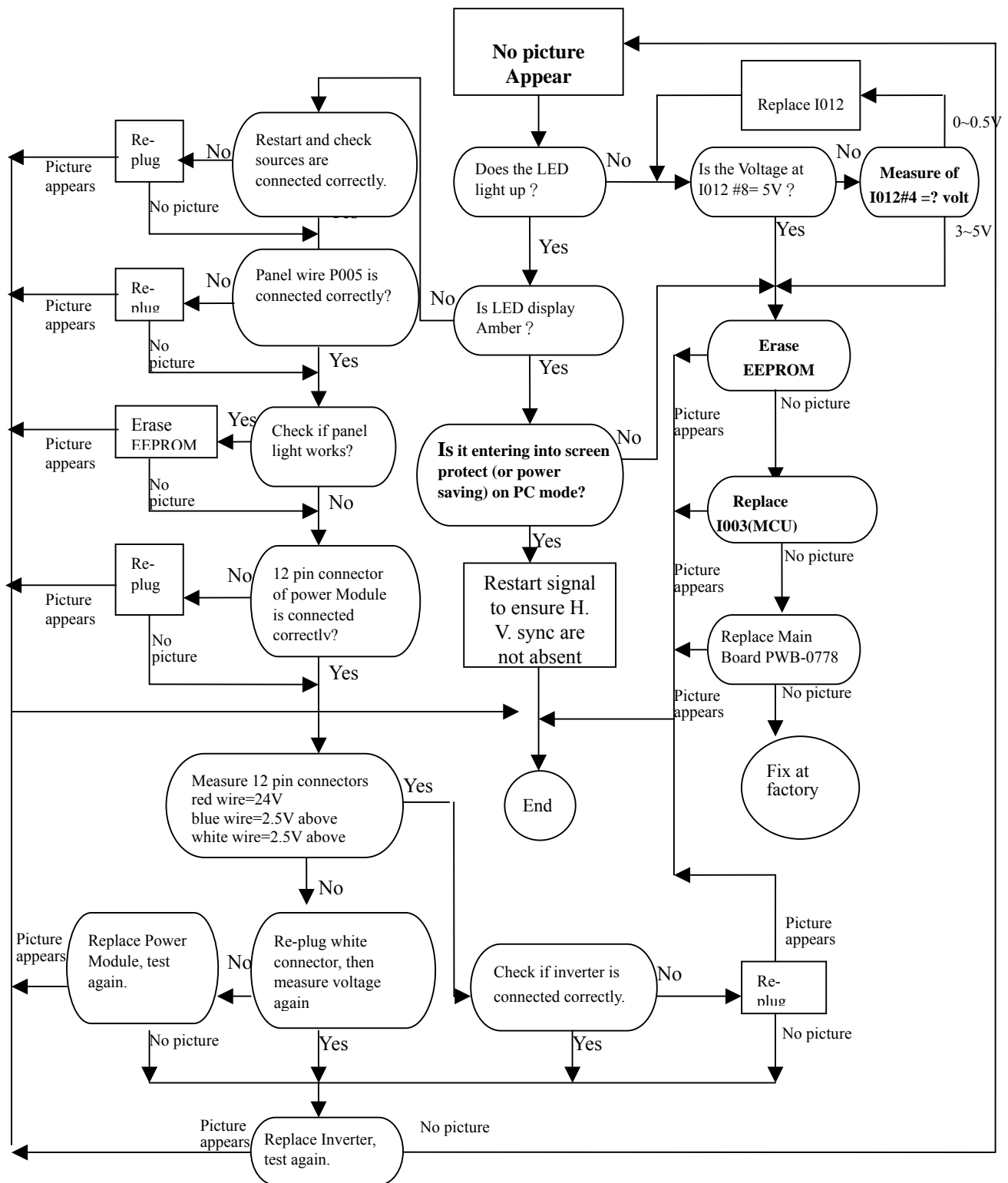
### 8.1 Symptom Codes : ( for Call Center use )

	COD E	SYMPTOM	COUNTERMEASURES
No picture and no Sound	<b>NP1</b>	No Picture and No Sound in TV mode.	<ul style="list-style-type: none"> <li>• Make sure the Power cord and Aerial Cable are properly connected .</li> <li>• Make sure the batteries in remote control are not flat.</li> <li>• Press the <b>POWER</b> button to switch the TV on.</li> <li>• Switch to TV source by pressing “<b>TV</b>” button.</li> <li>• Run “<b>Automatic Search</b> ” by operating the remote control.</li> </ul>
	<b>NP2</b>	No Picture and No Sound in video mode.	<ul style="list-style-type: none"> <li>• Check the connection between the optional video equipment and the TV.</li> <li>• Press <b>SCART</b> , <b>Video/S-V</b> or <b>COMPONENT</b> button on the remote control to select the right video equipment.</li> </ul>
	<b>NP3</b>	TV is automatically turned off.	<ul style="list-style-type: none"> <li>• Check if the “<b>SLEEP</b>” timer is activated .</li> <li>• Press the <b>POWER</b> button to turn on the TV once again.</li> </ul>
	<b>NP4</b>	Screen appear 「NO SIGNAL」 in TV mode, it is automatically turned off after 10 mins.	<ul style="list-style-type: none"> <li>• Check Aerial Cable are correct connected.</li> <li>• Press P+ or P- to change channel.</li> <li>• Press Power button for power off and on if necessary.</li> </ul>
	<b>NP5</b>	Screen appear 「NO SIGNAL」 in Video mode, it is automatically turned off after 10 mins.	<ul style="list-style-type: none"> <li>• Check Video Cable are correct connected, then play video device and make sure it is normal.</li> <li>• Press Source button (AV/SV/CV) for change Video source.</li> <li>• Press Power button for power off and on if necessary.</li> </ul>
Poor Picture	<b>PP1</b>	<b>Double Images / Ghosts</b>	<p>If the TV suffers interference from signals reflecting from mountains or buildings , double-pictures or Ghosts will occur.</p> <ul style="list-style-type: none"> <li>• Adjust the aerial’s location and direction</li> <li>• Replace it with one with better directionality.</li> <li>• Turn off or disconnect the booster if it is in use , as the booster may be inappropriate.</li> </ul>
	<b>PP2</b>	<b>Snowy picture and noisy Sound</b>	<p>If snow totally blocks out the picture , there may be a problem with the Aerial or Aerial Cable .</p> <ul style="list-style-type: none"> <li>• Have the TV and aerial been connected properly ?</li> <li>• Has the aerial cable been damaged ?</li> <li>• Is the aerial pointing in the right direction ?</li> <li>• Is the aerial itself faulty ?</li> <li>• Try using a booster , as signal transmission may be low.</li> </ul>
	<b>PP3</b>	<b>Distorted picture and noisy sound</b>	<ul style="list-style-type: none"> <li>• Turn off or disconnected the booster if it is in use , as broadcast signals may be too strong.</li> </ul>
	<b>PP4</b>	<b>Dotted Lines / Stripes</b> in the picture.	<p>If the TV or aerial suffers interference from other equipment , stripes or noise may appear in the picture.</p> <ul style="list-style-type: none"> <li>• Keep the TV away from noise sources such as personal computer , amplifier , cars, motorcycles or hair-dryers.</li> <li>• If the aerial suffers interference from a radio tower or high-voltage wire , contact the local dealer.</li> </ul>

	CODE	SYMPTOM	COUNTERMEASURES
Poor Picture	PP5	Stripe noise .	<ul style="list-style-type: none"> <li>Check the coaxial cable connected with the TV is not oxidized</li> <li>Do not use 300 ohm twin lead cables as interference may occur</li> <li>It is recommended to use a 75 ohm coaxial cable (not supplied) to get premium quality picture.</li> <li>Keep the aerial cable away from other connecting cables.</li> </ul>
	PP6	No color, too light or too dark	<ul style="list-style-type: none"> <li>Adjust the picture settings — APC, Brightness, Contrast, Saturation , Color Temp.</li> <li>Press “<b>RESET</b>” button on remote control .</li> </ul>
No Sound or Noisy Sound	NS1	Good picture, no sound	<ul style="list-style-type: none"> <li>Make sure the headphone is not connected.</li> <li>Check audio connections between Equipment &amp; LCD-TV.</li> <li>Press <b>MUTE</b> or <b>VOL +</b> to cancel the muting.</li> </ul>
	NS2	Noisy noise	<ul style="list-style-type: none"> <li>Make sure that the aerial connected is 75 ohm coaxial cable (not supplied) , not 300 ohm twin lead cables .</li> <li>Keep the aerial cable away from other connecting cables.</li> <li>Press <b>SOUND</b> to select “Mono” which will reduce the noise.</li> <li>Adjust <b>BASS</b> or <b>TREBLE</b> properly in OSD.</li> </ul>
	NS3	No sound in TV mode	<p>If the Country setting for the TV is incorrect , it may prevent the sound from being issued</p> <ul style="list-style-type: none"> <li>Select the <b>Country</b> where you are located in OSD Menu.</li> <li>If the country is not listed in OSD , select “<b>Other Country</b>” .</li> </ul>
	NS4	Good picture, but noisy sound or no sound in TV mode.	<ul style="list-style-type: none"> <li>If the sound of “all the channels” is noisy , run A.P.S. again by selecting <b>Automatic Search</b> in OSD.</li> <li>If the sound of “some channels” is noisy or no sound , select <b>Manual Search</b> and select an <b>appropriate TV system</b> in OSD such as B/G , D/K , I , L/L’ ; then , store it.</li> </ul> <p>( If the sound system setting for a TV channel is incorrect , it may prevent the sound from being issued .)</p>
PC	PC1	PC display is Not Full Screen	<ul style="list-style-type: none"> <li>Select <b>Auto Image Adjust</b> in OSD menu to optimize the image .</li> <li>If executing Auto Image Adjust still can not achieve full screen display, adjust <b>V.Position</b> and <b>H.Position</b> in PC mode</li> </ul>
	PC2	Horizontal Noise or Color pattern is not uniform	<ul style="list-style-type: none"> <li>Select <b>Auto Image Adjust</b> in OSD menu to optimize the image .</li> <li>If still no good , adjust <b>H. Phase</b> in OSD menu</li> </ul>

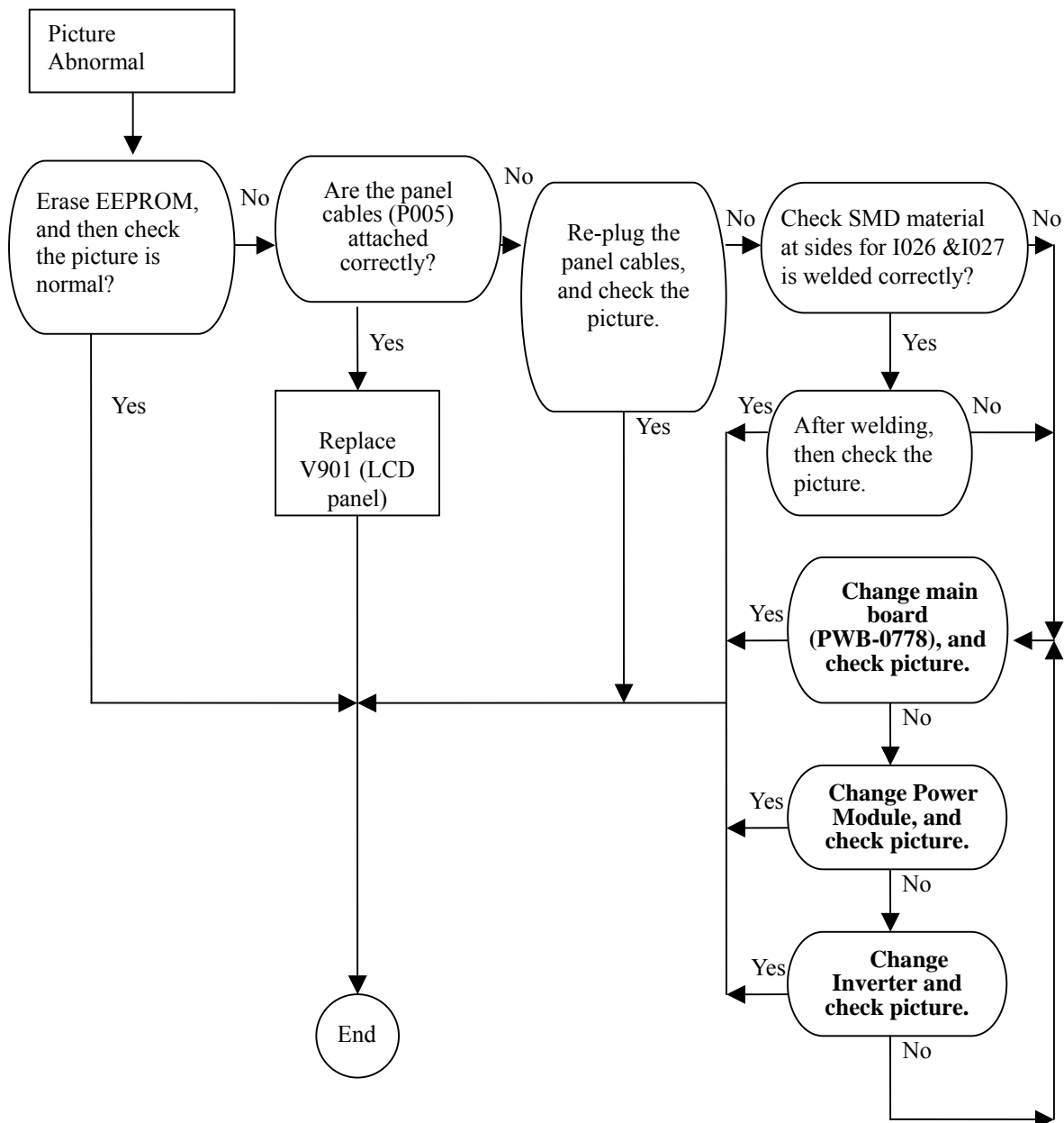
	CODE	SYMPTOM	COUNTERMEASURES
PC	PC3	“Out of Range” message	<ul style="list-style-type: none"> <li>Maximum PC resolution supported is 1360x768 , so the screen will appear “Out of range” at higher resolution.</li> <li>Note: the panel maximum resolution is 1366 x 768, perhaps can’t suit for all of PC graphic card, due to 1366 x 768 resolution was not a standard timing.</li> <li>Reduce the resolution to 1360x 768 from PC.</li> </ul>
	PC4	No Sound	<ul style="list-style-type: none"> <li>Make sure PC audio Input is well connected.</li> </ul>
	PC5	“Not Available” message on PIP	<ul style="list-style-type: none"> <li>If Main-Display is PC and Sub-display is Component, resolution of the PC should be reduced to 800 x 600 or lower; then, the PIP will work well.</li> </ul>
	PC6	After “No Signal ” has appeared on PC mode for a while, the view disappears and the “ LED Indicator” turns from Green to ”Amber”.	<ul style="list-style-type: none"> <li>Press any key on keyboard or move the mouse to activate the PC , because the PC may go to power saving status.</li> <li>Check if the D-sub or DVIconnector (Cable) is disconnected or loose.</li> </ul>
Remote Control	RC1	Remote Control does not work	<ul style="list-style-type: none"> <li>Make sure the batteries in remote control are not flat</li> <li>Check the polarity of the batteries</li> <li>Use the remote control in the front of the TV or from less than seven meters away.</li> <li>make sure the Remote Sensor Window is not under strong lighting.</li> </ul>
	RC2	Can not change channels with the remote control	<ul style="list-style-type: none"> <li>Press <b>TV</b> button to switch to TV mode.</li> <li>Make sure the TV is not in Teletext mode.</li> </ul>
Picture Halt / Abnormal	PH1	Picture suddenly <b>Stops Responding</b> or <b>abnormal</b> .	<ul style="list-style-type: none"> <li>Press <b>RESET</b> button on remote control .</li> <li>Unplug and then plug the Power Cord of the TV from the AC outlet (or the Adapter from the TV).</li> <li>If above issues cannot be solved, unplug the power cord for 2~3 seconds. Then, check it is back to the normal situation.</li> </ul>
Note	NT1	Issues cannot be solved	<p>Implementing initial preset value might be necessary to enter factory setting mode. The steps are as bellow:</p> <ul style="list-style-type: none"> <li>Hold Menu key on the right/button on the top of the display.</li> <li>Press Power button on remote control until the LED light is on.</li> <li>While still holding Menu key, the end of implement would show “INITIAL EPROM” that appears on screen after 3 seconds. Then, release the holding.</li> </ul>

(1) Power fair





## (2) Picture Abnormal:



### Steps to erase EEPROM

1. Press Power key to turn off the LCD-TV.
2. Press **Menu** key continuously at same time, then press **Power** key of remote control to turn on the LCD-TV ,after 3 seconds ago then release **Menu** key.
3. When “ UPDATE EEPROM” appears on the screen, on the Erase EEPROM is complete.

### Trouble Shooting

1. MCU platform using Winbond W79E632A
2. Label : V32ELBB-E01

<b>TAT</b> <b>V32ELBB</b> MP 1.1
--

→Custom  
→Model NO.  
→Edition

3. Check Sum : DCB8
4. BIOS Version : V32ELBB-E01 TAT-MP 1.1 Jan 28 2005
5. EEPROM INITIAL : Press **Menu** (located on the right/bottom of set), then **Power** on (by remote control)
6. Enter Factory Mode : Press Volume - (located on the right/bottom of set), then press **Power** on (by remote control)
7. Leave Factory Mode : Press **Power** off
8. Self – Test Mode (for Burn in) : Press **Menu** and **Channel Up** (located on the top of set) continuously at same time, then Press **Power** on (by remote control). After 3 seconds then release **Menu** and **Channel Up** keys, test pattern will appear on the screen.
9. Disable Self-Test Mode : Press **Power** off  
(Self-Test Mode can't be disable by disconnecting power cord, it must thru. **Power** key)

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## 9. Electronic Circuit Description

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### 9.1 Main Board Circuit

#### 1) Power

Refer to sheet 5 of PWB-0778 circuit diagram.

AC 100V~240V is applied to the LCD-TV through power socket into CN1 of power module (FSP216 or PWB 0769), which output provides.

- (a) DC+24V to Inverter via CN3 #3 ~ #7 (red colour wire).  
DC+24V is also applied to Main Board via CN2 #1 ~ #2 (blue colour wire) and connect to P006 #12 & #13 of main board, then through L849 to I807 #5 & #13 (Audio Amp. TDA8925).
- (b) DC+12V applied to panel's T-con board via CN2 #3 & #4 (yellow colour wire) and connect to P006 #3 & #4 of main board, then through L019 to I005 for panel on/off control, which output through L021 to P005 #29 & #30, then connect to T-con board by cable.
- (c) DC +5V to main board via CN2 #5-#7 (red colour wire) and connect to P006#7~#9 of main board.  
(1) pass to I012 (Switch SI4431) in on/off control of I017、I022、etc. (2) regulated by I011 (Regulator LT1117 S2.5) to provide + 2.5V and I010 (Regulator LT1117 S3.3) to provide +3.3V, both powers provide precise voltage for I019 (Scaler).

#### 2) PC Signal

##### (a) VGA (D-Sub connected VGA cable from PC)

Refer to sheet 1 of PWB-0778 circuit diagram.

The analog PC signals are supplied through the **PJ01**( D-sub connector) and R、G、B input signals are approximately 0.7Vpp in amplitude. **R027**, **R026** and **R025** give resistance of 75  $\Omega$  respectively for impedance matching. These R.G.B. video signals are AC coupled via 0.047U capacitors **C018**、**C017** and **C016**, and then fed into the ADC port of **I019** (Scaler MST5151) at #25、#23 and #20 respectively. H.sync & V.sync are applied to **I002**#13、#10 and the processed signal taken from #12、#9 are fed into **I019** (Scaler) #18、#19. The LCD-TV is designed to have the DDC/2B functions, DDC communication between the LCD-TV and computer is via **PJ01** (D-sub connector) #12、#15. The EDID data have written into the **I001** (EEPROM) in the factory during production, so computer will read out the EDID from the **I001** (EEPROM).

##### (b) DVI (DVI-D connected DVI cable from PC)

Refer to sheet 1 of PWB-0778 circuit diagrams.

The digital signals supplied from the P022 (DVI-24pin connector) and RX2 +/-、RX1 +/-、RX0 +/-、RCLK +/- input signals fed into the DVI port of I019(Scaler MST5151) at #207、#208、#2、#3、#5、#6、#8、#9.

##### (c) HDCP (DVI connected HDCP cable from Video Device)

Same as (b), but connect HDCP cable to DVD player or satellite STB.

### 3) Teletext

Refer to sheet 8 of PWB-0778 circuit diagrams.

- Pin 70 (XTALIN): The Teletext chip I022 (SAA5361) is operated with 12 MHz clock and which is provided by X004 (Crystal).
- Pin 73 (RESET): controlled by I 003 (MCU) #31 and which is provided high level (2-3.3V) for I022 reset during power ON.
- Pin 31 (SAA\_AOUT): The input signal from I017 (SAA7117) #M1 and provided a composite format synch for generated Teletext page.
- Pin 46-48 (RGB\_5361): generated R,G, B colors and connected to R108 、 R111 、 R115 the through C142 、 C143 、 C144 to I017 (Video decoder) #AI32 、 AI42 、 AI22 for combined video signal.

### 4) Panel interface

Refer to sheet 4 、 7 of PWB-0778 circuit diagrams.

The signals of panel interface are all applied from Scaler **I019** (MST5151) to LCD Panel through connector **P005** and its cable. The signals IN0, IN1, IN2, PCLK, IN3 from **I019** #171~#164 、 #161 、 #160 are applied to P005 #13 ~ #26 and used for panel display controls. P005 #29~#30 was +5V for LCD panel is controlled by **I003** #6 (FPVCC) 、 **Q004** (MTB3904) and **I005** (Si4431).

### 5) MCU

Refer to sheet 3 of PWB-0778 circuit diagrams.

- \* Pin 21 (UCLK): The Microcontroller **I003** (WE78165EP) is operated with 24 MHz Clock and which is provided by X001(Crystal).
- \* Pin 10 (Reset ) : **C040** and **R033** constitute a Reset circuit. It provides a necessary active high reset signal to **I003** (MCU) # 10 for proper operation of **I003**.
- \* Pin 15 (IR ) : The signal IR\_DA at **I003** #15 is connect with Infrared Receiver. If the IR receives some signal, **I003** will send interrupt signal via **I003** #17 、 #16 ( MSDA 、 MSCL) to control other chips .
- \* Pin 36~43 (Data transfer): The signals AD0~ AD7 transferring between **I003** (MCU)and **I019** (Scaler) are assigned to **I003** #36~#43.
- \* Pin 11,13 (Debug) : The signals TXD and RXD used for debugging firmware are assigned to **I003** #13 、 11.

**I004** (24LC32) provides necessary non-volatile storage for operating variables and parameters. It is controlled by **I003** via MSDA and MSCL signal, which are pull up to +5V voltage by R039 and R041 (10K $\Omega$ ).

## 9.2 Key 、LED&IR Board Circuit

Refer to Key 、LED & IR circuit diagram of PWB-0768-D 、PWB-0768-C in Chapter10.2 and sheet 3 of PWB-0778 circuit diagram(Main Board).

\* Key: The Keyboard is connected with Main Board through socket **P003** and wire assembly and to control the **I003** (MCU) .So , if the operation of key fails , the **I003** (MCU) may fail .

\* IR: The **IR01** (PL-IRM0101-3) is a receiver for infrared remote control systems. The demodulated output signal can directly be decoded by MCU **I003**#15 through **P003**#15 and wire **assembly**.

\* LED: The dual LED **DI01** on LED&IR Board is controlled by MCU **I003** #1 、#23 through **P003** #12 、#13 and wire assembly.

## 9.3 Tuner & Video Board Circuit

### 1) TV signal

Refer to sheet 1 、2 of PWB-0786 circuit diagram.

**UT01** (FQ1216MEPT or TAPE-S701D) is a multi-standard TV tuner for CCIR B/G、 D/K、 I、 L/L' system and the front-end has a built-in digitally ( $I^2C$ ) PLL tuning system.

AF and SIF sound from **UT01** (Tuner) are applied to Audio Processor **I804** ( MSP3410) #47 、#50. The specifications of Tuner are as follows:

Intermediate Frequencies

System	L	L'	B/G	D/K	I
Picture Carrier	38.90	33.95	38.90	38.90	38.90
Colour	34.47	38.38	34.47	34.47	34.47
Sound 1	32.40	40.40	33.40	32.40	32.90
Sound 2	-	-	33.16	-	-
NICAM	33.05	39.80	33.05	33.05	32.348

Channel Coverage

BAND	Frequency (MHz)
Low Band	48.25 to 160.00MHz
Mis Band	160.00 to 442.00 MHz
High Band	442.00 to 863.25 MHz

PINNING

SYMBOL	PIN	DESCRIPTION
N.C.	1	(AGC Monitor) Do not connect *
N.C.	2	(Tuning Voltage Monitor ) Do not connect
+5V	3	Supply Voltage Vb , tuner section.
SCL	4	$I^2C$ – serial Clock
SDA	5	$I^2C$ – serial Data
AS	6	$I^2C$ – Address Select

-	X	
-	X	
N.C.	9	Not connected
N.C.	10	Not connected
2 <sup>nd</sup> IF Sound	11	Second IF sound output
CVBS	12	Composite Video Baseband Signal
+5V , IF	13	Supply Voltage , IF section
AF O/P (TV)	14	AF sound output
Ground		Mounting Tags

## 2) Composite Input

Refer to sheet 1 、 2 of PWB-0786 and sheet 6 of PWB-0778 circuit diagram.

Video decoder 1017 (SAA7117) is able to decode the colour of PAL, SECAM, and NTSC signals into ITU 601 compatible colour component values, It accepts 4 different video signals, including Composite Video (CVBS), S-Video (Y/C signal), Scart-R.G.B. and Component Video. There are 4 A/D converters at the I/O port of 1017 (SAA7117) which includes 16 channel analog inputs.

I017 (SAA7117) with 16 channel analog inputs accept Video/S-Video/Component signals from P800 、 P804、P801、P802 on PWB-0786 and provides at the output of 8 bits X-port and then connected to Port V of Scaler I019 #41~ #48 and #54 ~ #61.

## 3) Component Input

(a) For Scart RGB input, same as above Composite input.

(b) For RCA jack Y Pb Pr input, which came from P800 to P 807 of PWB-0786, then pass connecting board to P001 of PWB-0778. P001 through C031/C032/C034/C036 to I019 (Scaler) #31 、 #31 、 #33 、 #28 for SOGS/GREEN2+/RED 2+/BIN2+ input port.

## 4) Video Output

Refer to sheet 2 of PWB-0786 circuit diagram.

UT01 output provides the Composite Video through

(a) C870 to Q801 #E and pass R838 to P801 (Scart-1) #19 made for Video Output. This Video Output was only for TV.

(b) L840、R833 and R834 to ground for SAA\_TV, then fed into I802 (Selector TA8851) #5, its output (1) #46 pass to Q800 #E and connected P810 、 P811 to P818 (RCA jack) made for Video Output. (2) #36 through R822 、 C873 to Q802 #E and connected to P802 (Scart-2) #19 made for Video Output.

This Video Output included TV and Video (RCA jack 、 Scart-1 、 Scart-2) which selected by I802 (TA8851).

## 9.4 Connecting Board

PWB-0768-A was a connecting board which made for a bridge between PWB-0778 (Main Board) and PWB-0786 (Tuner & Video Board) for P001/P002 and P807/P808 connecting.

## 9.5 Inverter Board Circuit

The Inverter Board is fed with +24V through socket **CN3** #3~7 on Power Module (PWB-0769 or FSP216) and wire assembly. It offers 4.5mA (typical ) to each lamp of backlight in LCD panel.

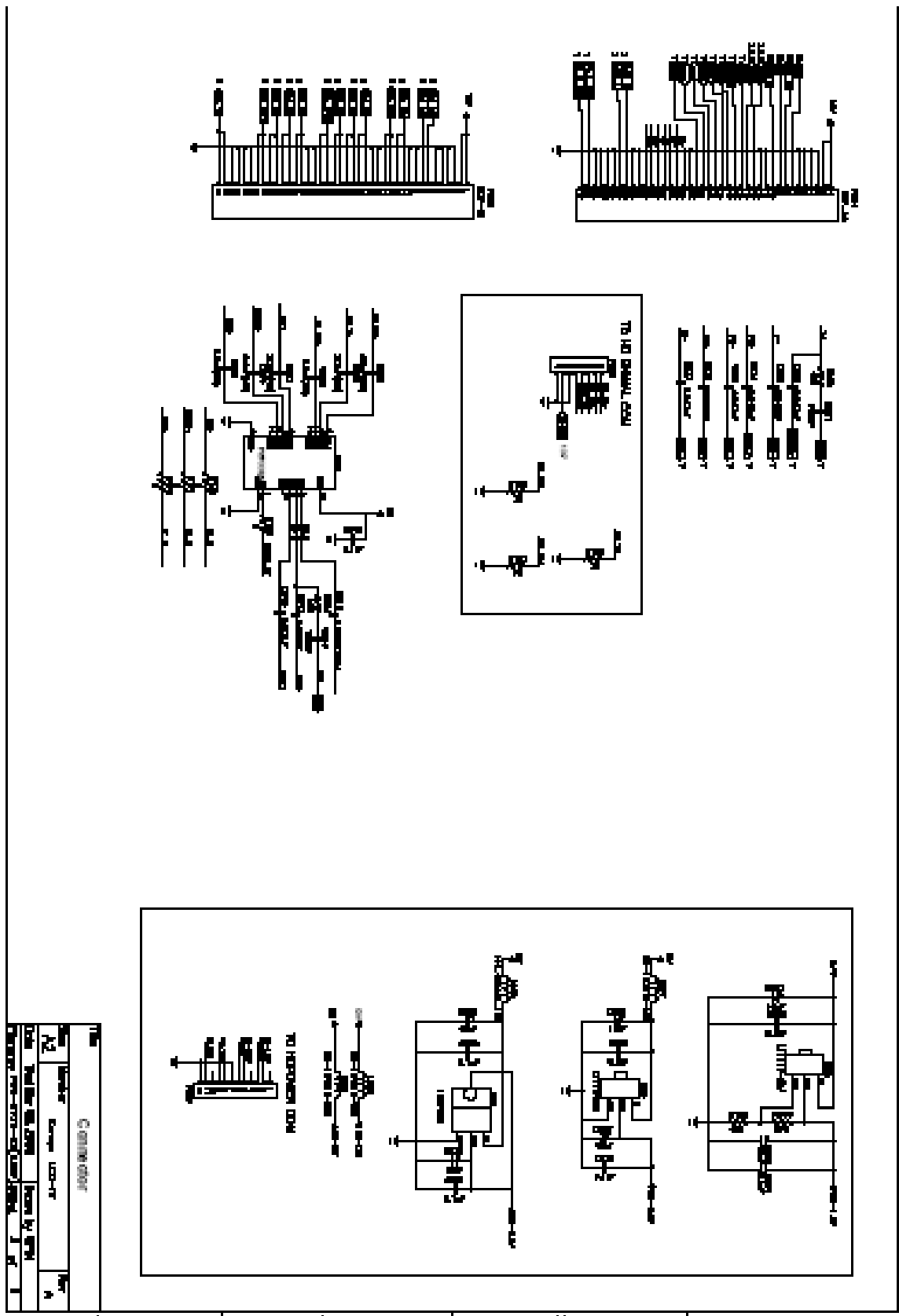
The On / Off of the inverter is controlled by the voltage of **CN3** #12 which is applied from **I003** (MCU) #5 (FPBACK) to R077 、 Q007, then via **P006**#13 on Main Board. While the voltage of **P006** #13 is 'H'(2.4~5V) , the lamp of backlight will be turned on. While the voltage of **P006** # 13 is 'L' (0~ 0.8V) , the lamp of backlight will be turned off.

Adjusting the Back Light in OSD menu is to control the voltage at #200 (PWM) of **I019** (Scaler: MST5151) and pass to Q006 for reverse, then applies to **P006** #11 on Main Board and through wire to CN2 of Power Module, then via CN3#11 connect to Inverter by wire assembly. The range of the voltage is from 0V to 3.0V. If the voltage of **P006**#11 is 0V, the screen will get dim, if it's 3.0V, the screen will get light. It means that the different voltage will change the lamp current through the inverter to make the screen lighter or dimmer.

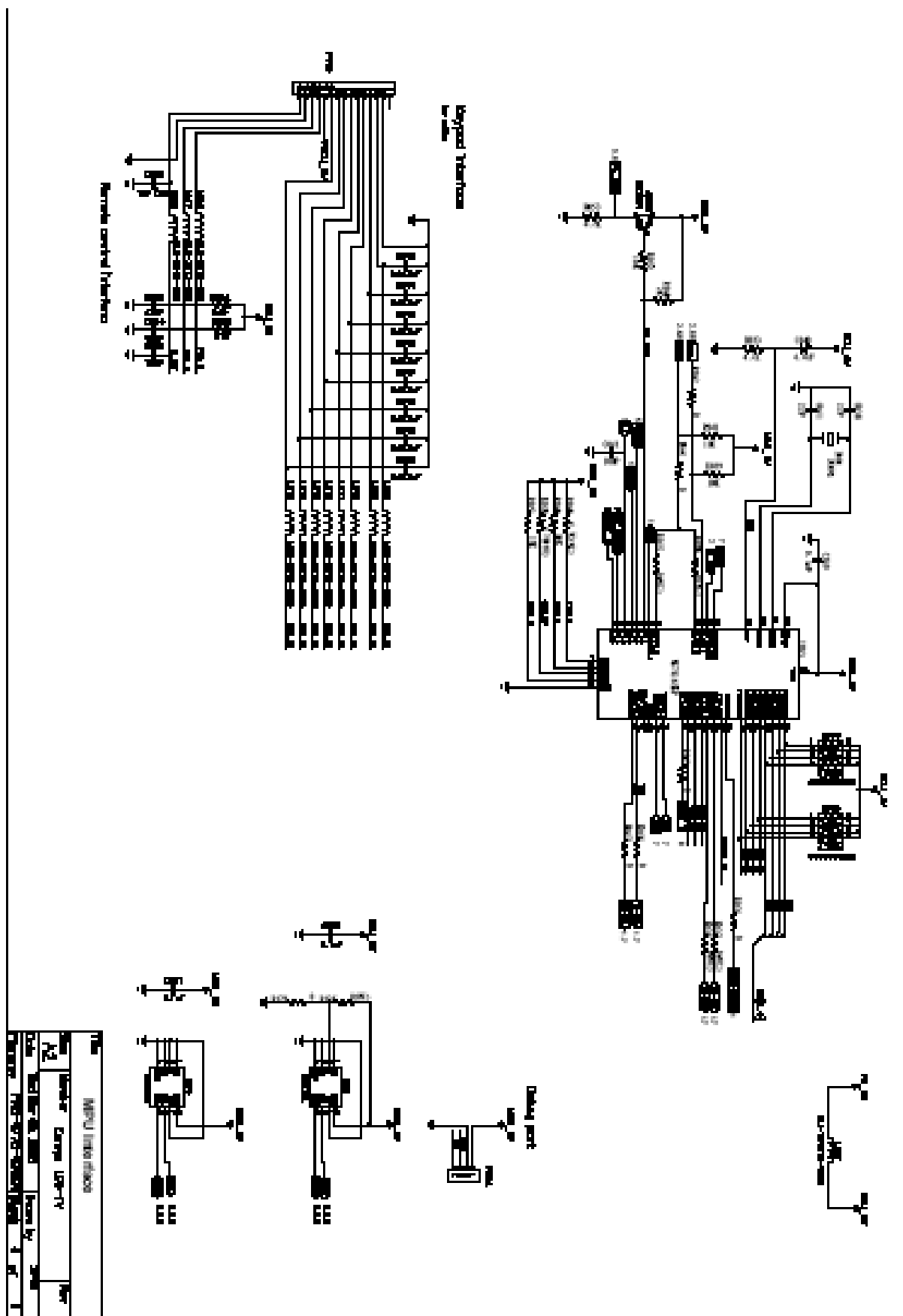
## 10.1 Main Board (PWB-0778)







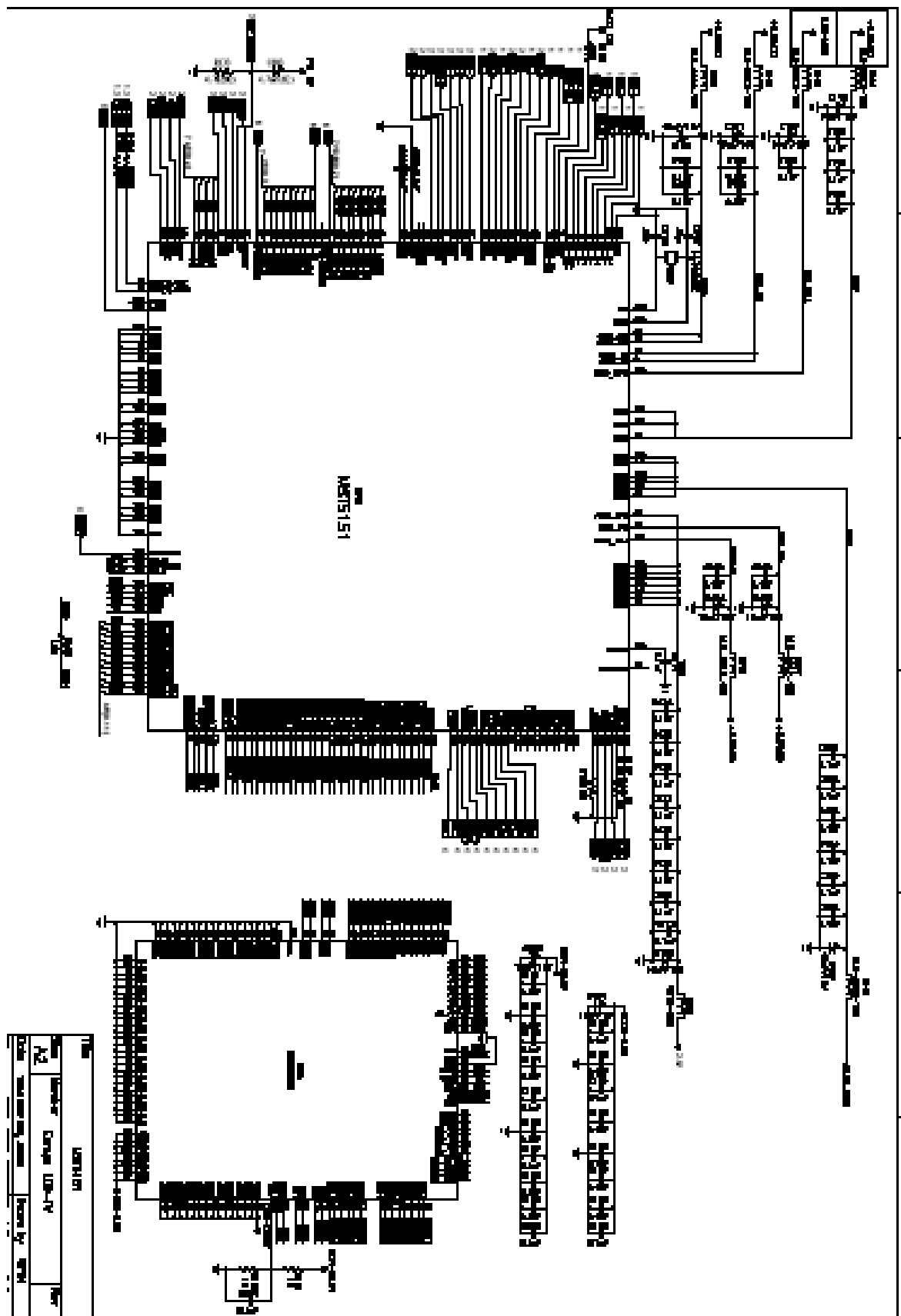
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1 of 1			

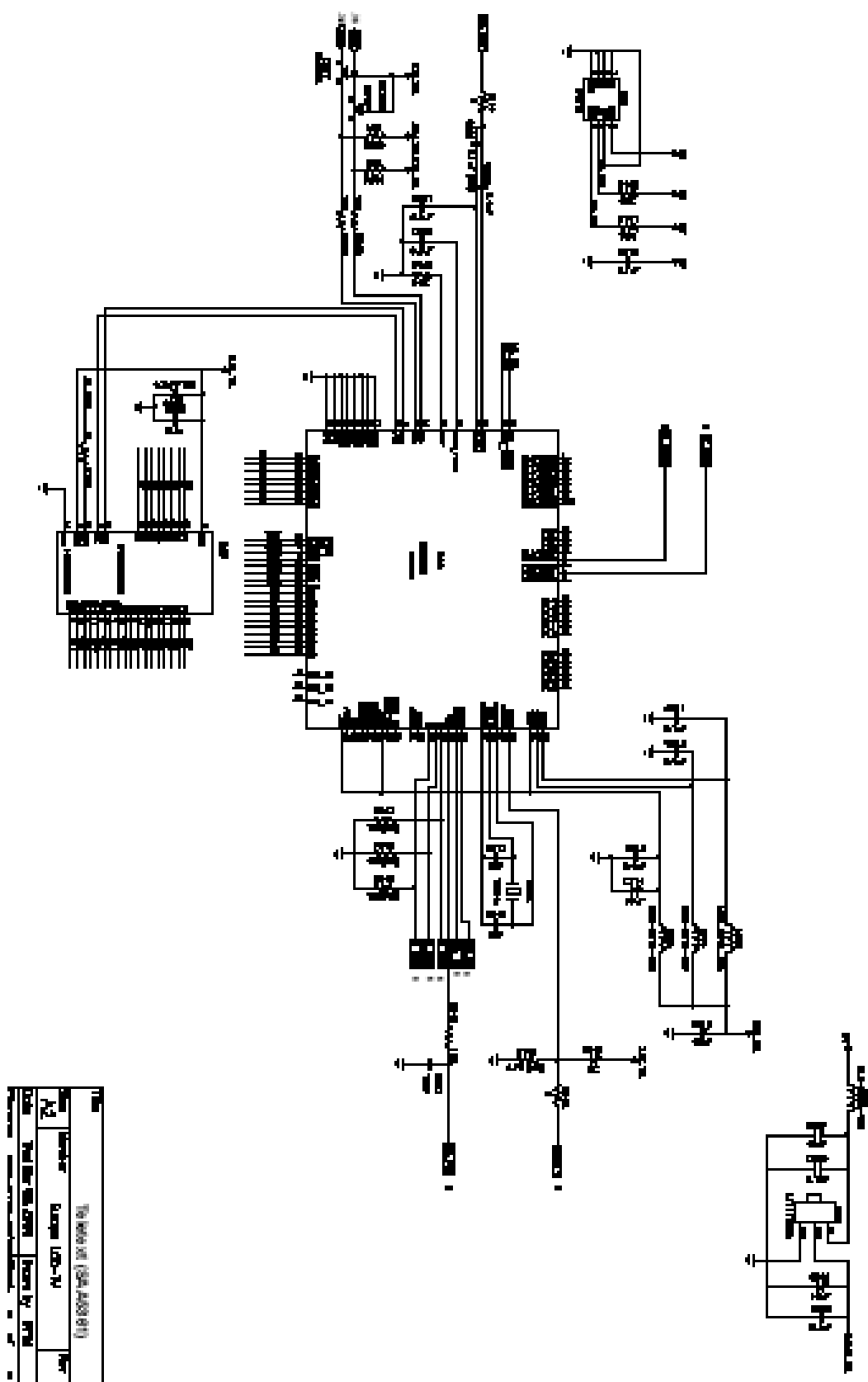




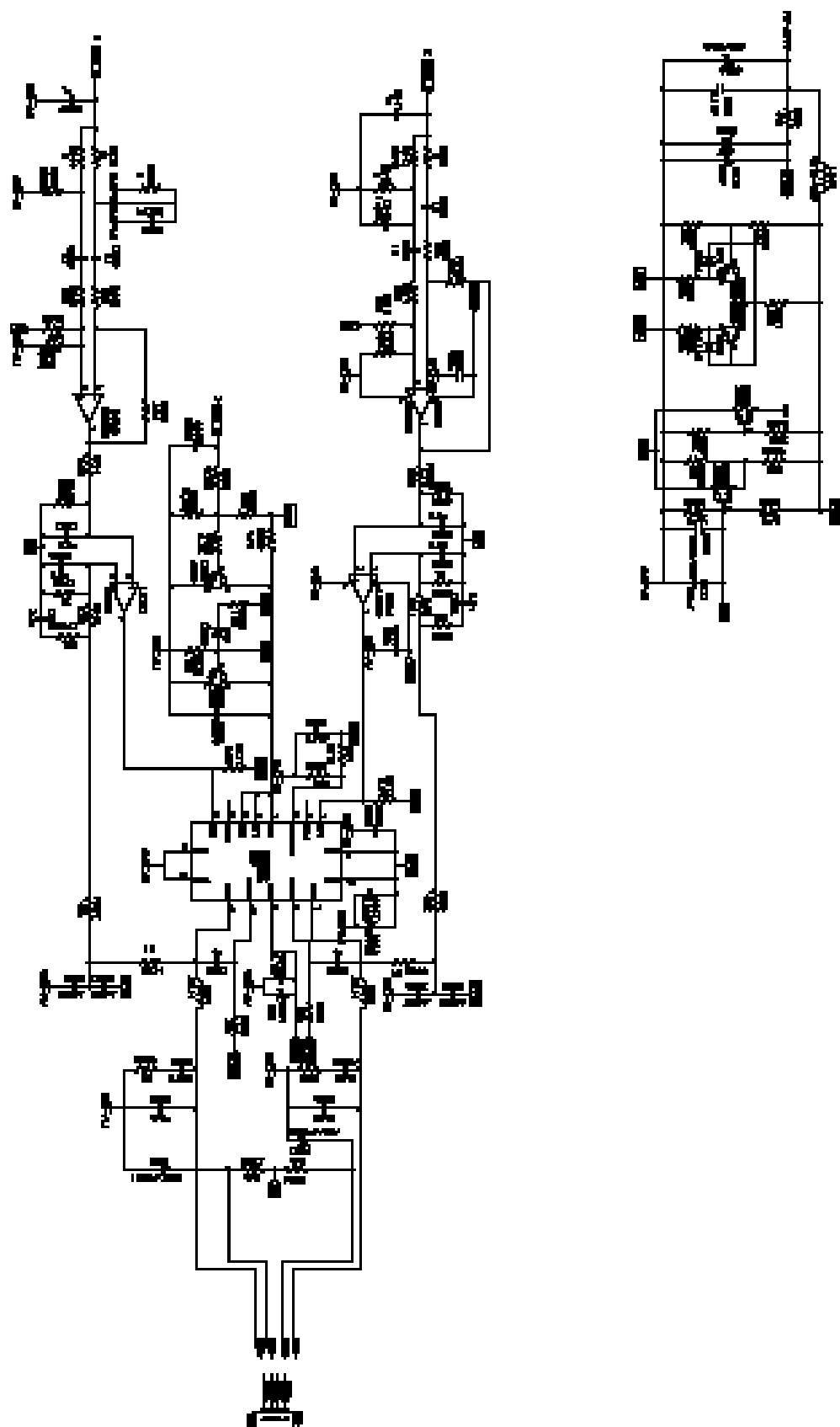






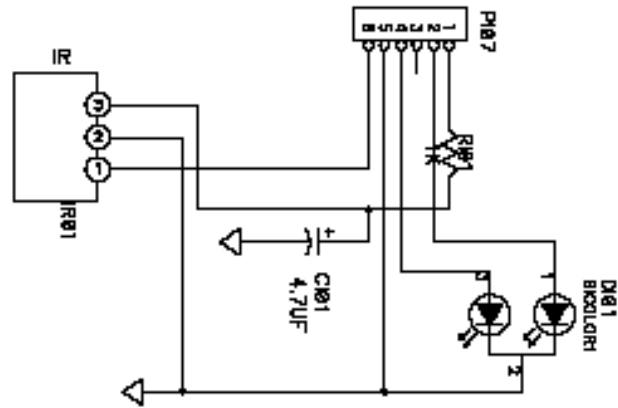


Rev		Rev	
Rev	Author	Rev	Author
Rev	Rev	Rev	Rev
Rev	Rev	Rev	Rev

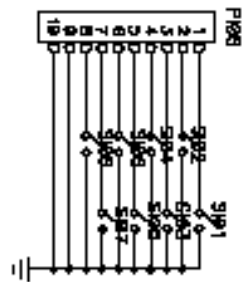




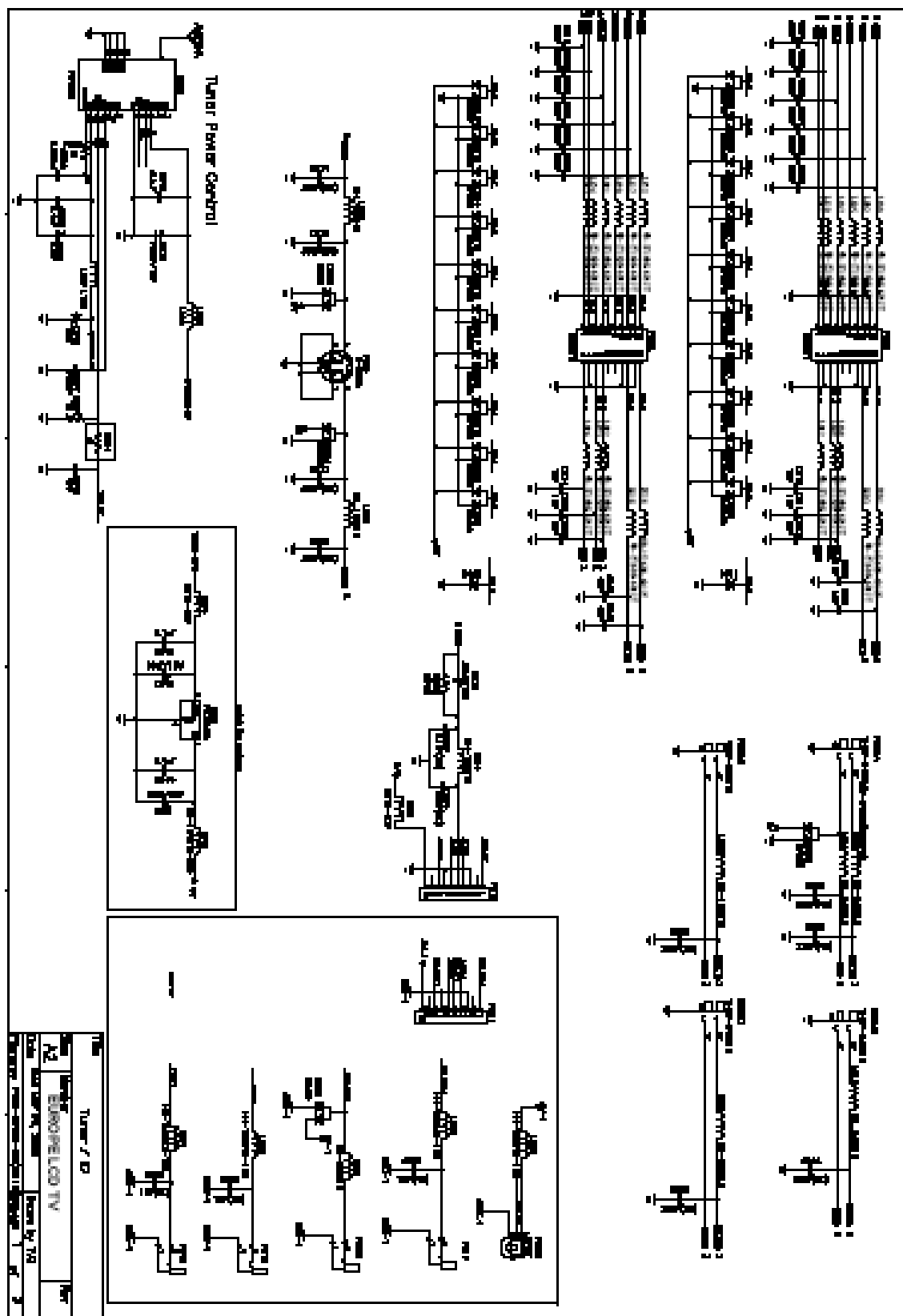
## 10.2 Key(PWB-0786-B), LED&IR Board (PWB-0786-C)



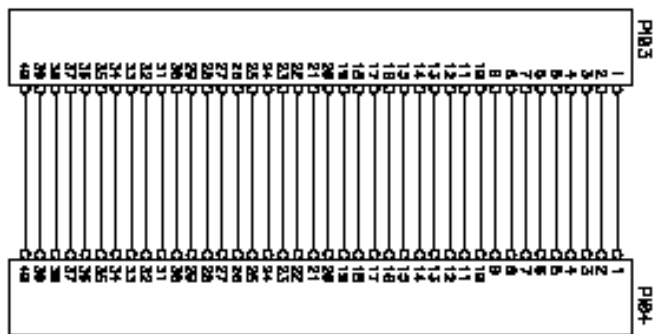
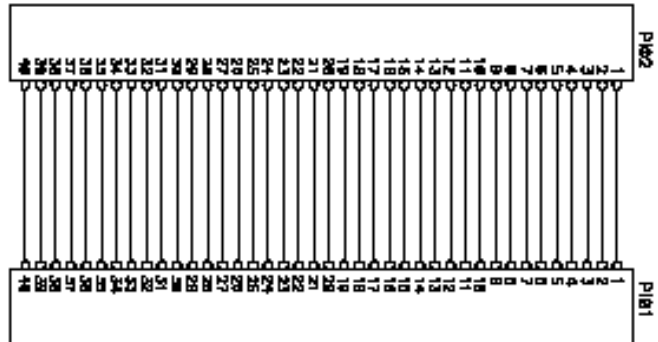
KEY&IR



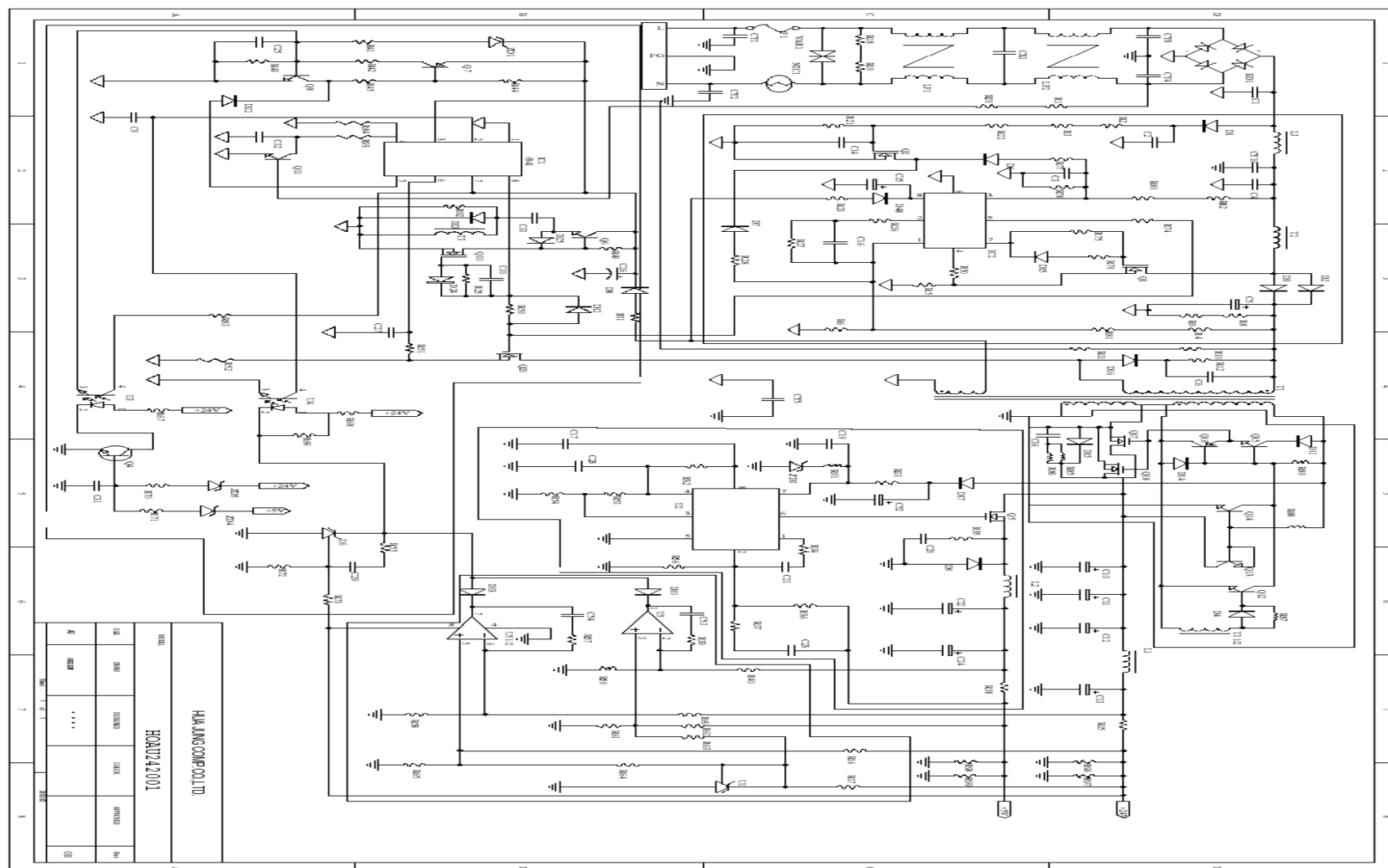
## 10.3 Tuner & Video Board (PWB-0786)



## 10.4 Connecting Board (PWB-0768-A)

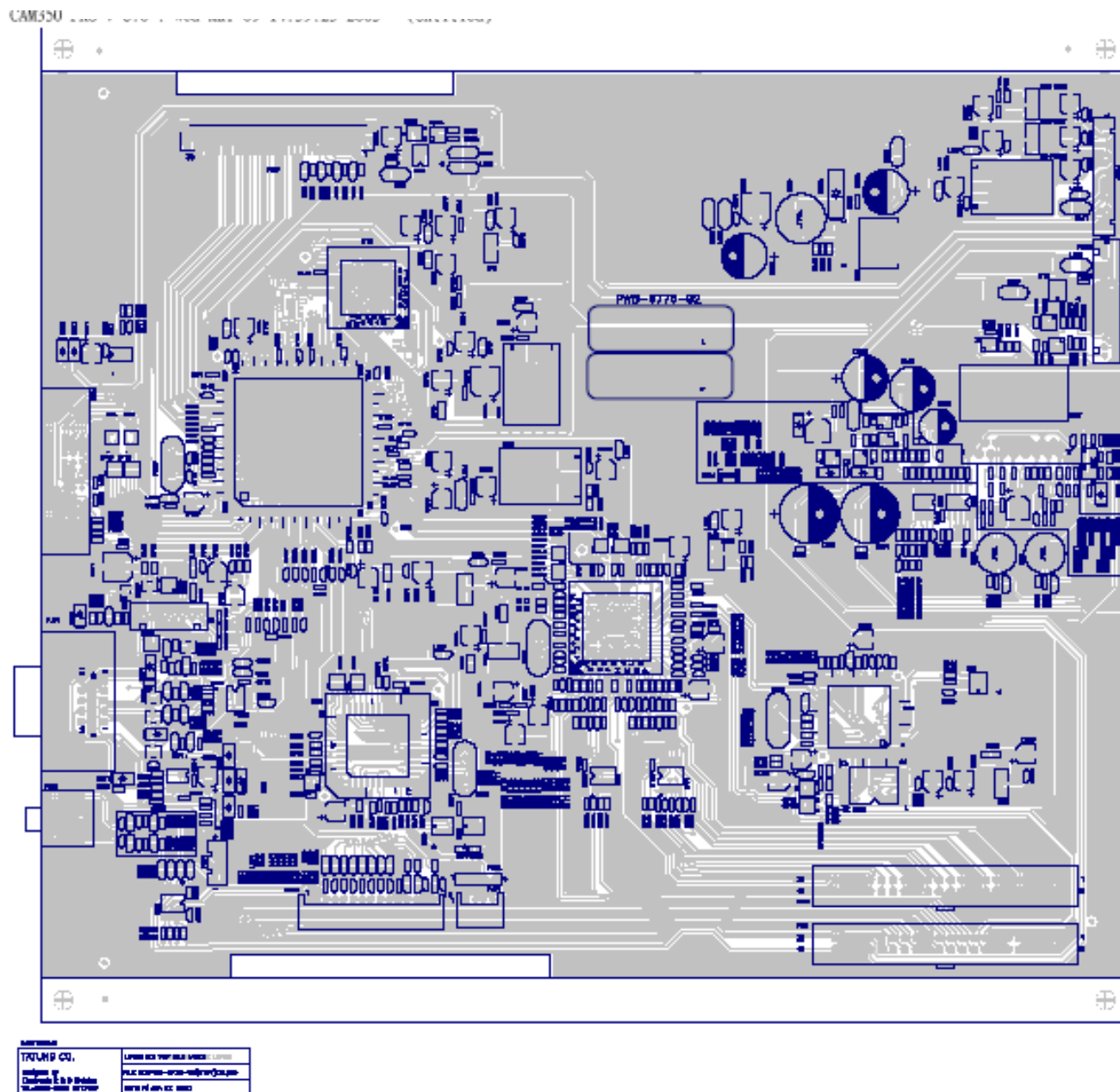


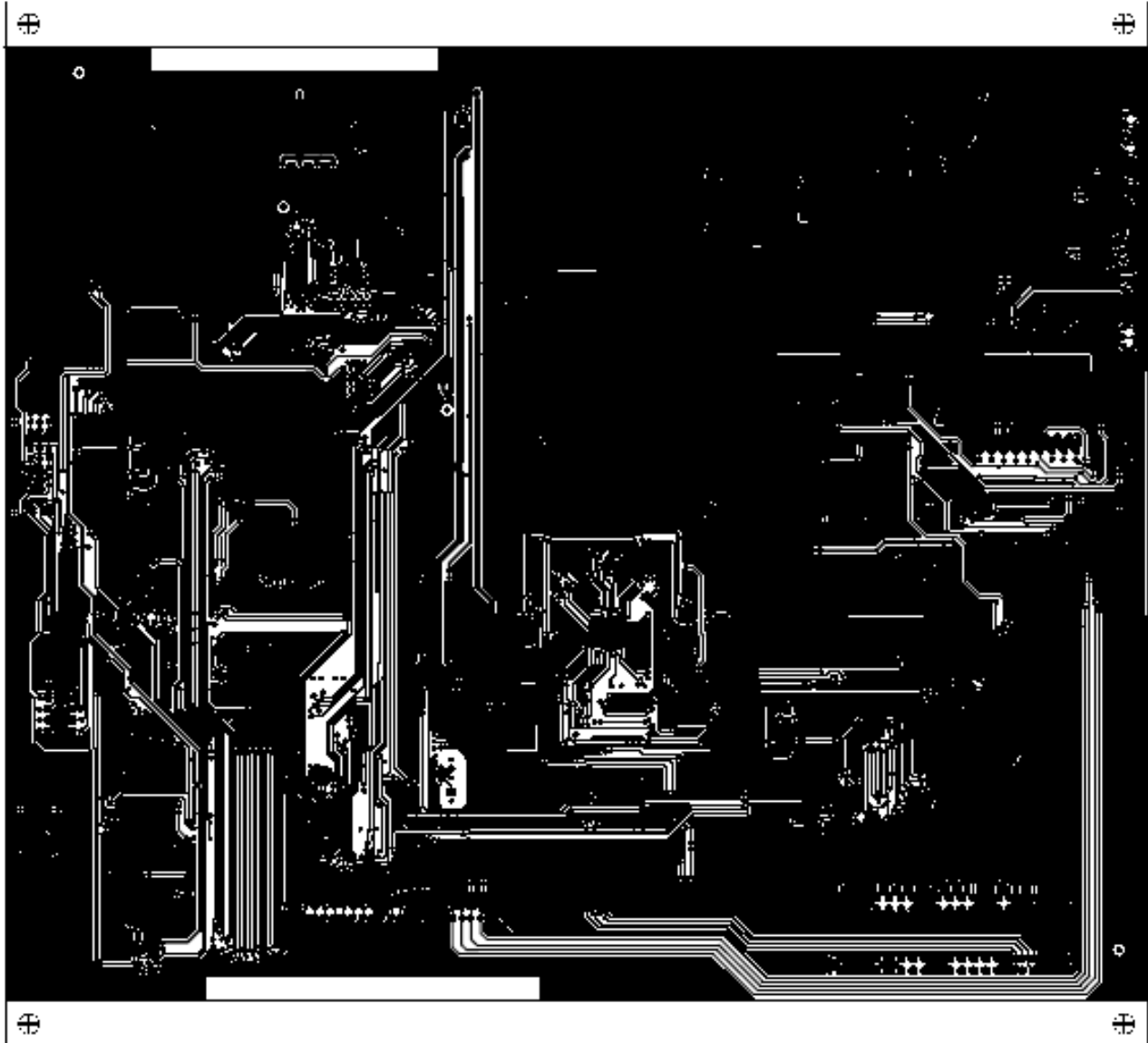
## 10.5 Power Board (PWB-0769)



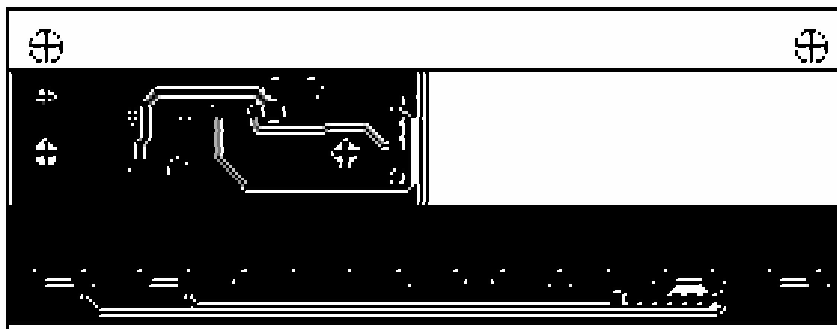
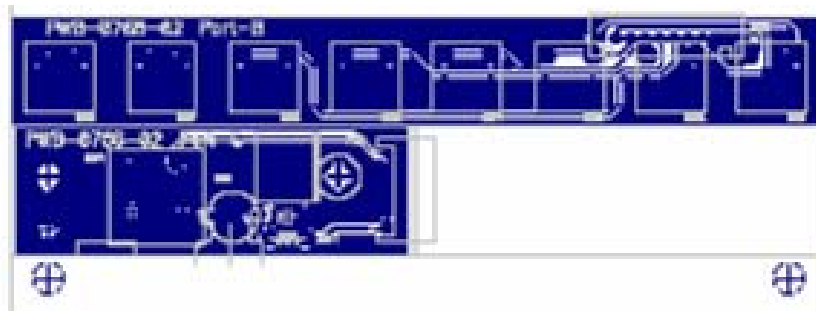
## 11. PCB Layout

## 11.1 Main Board PCB (PWB-0778):

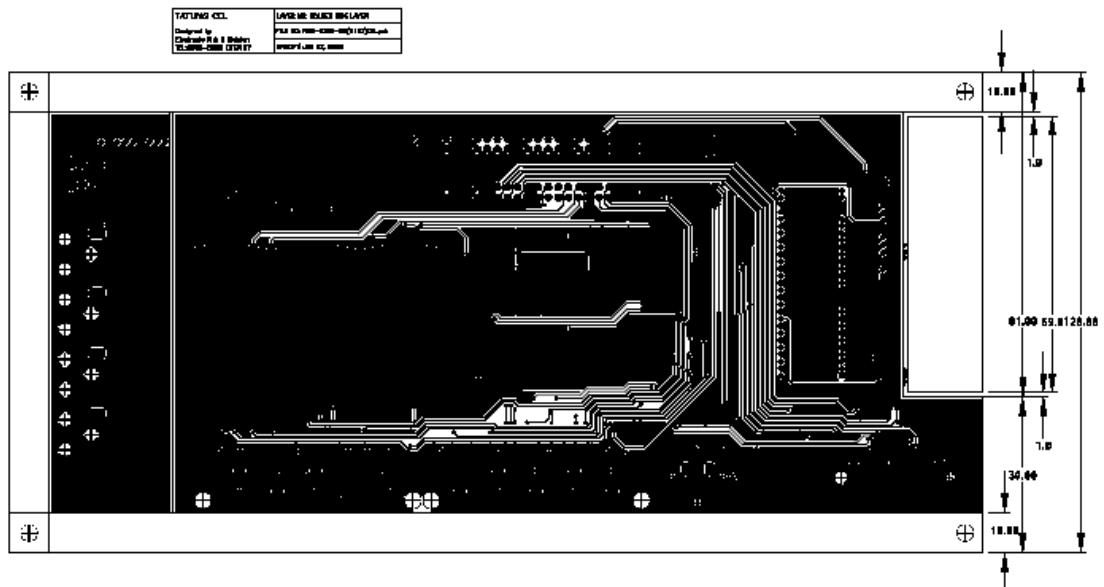
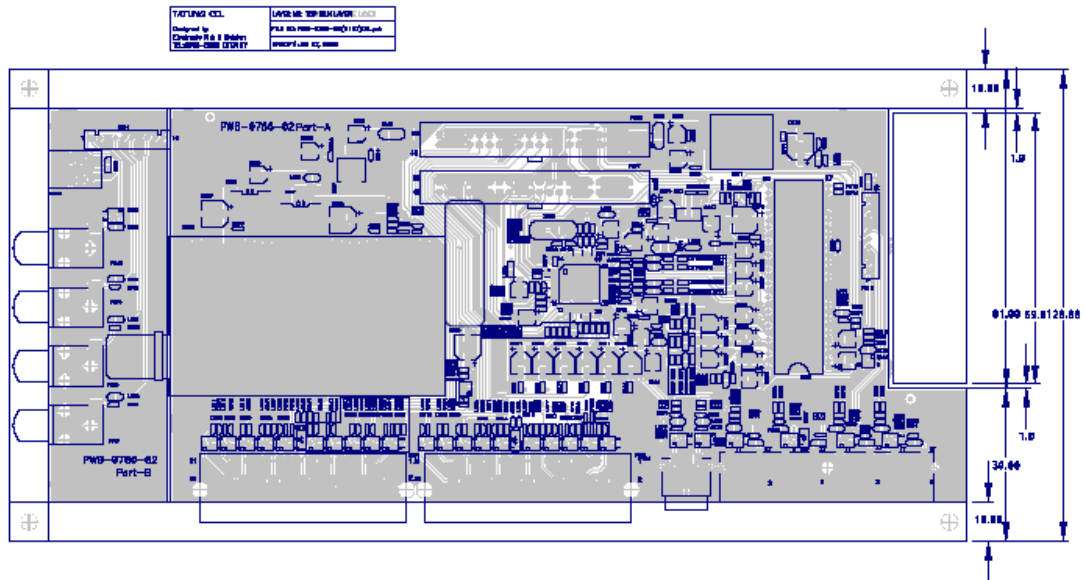




## 11.2 Key , LED&IR, Connecting Board PCB (PWB-0768)

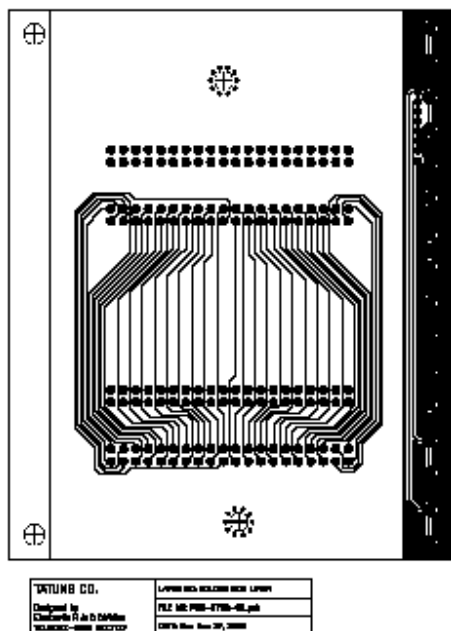
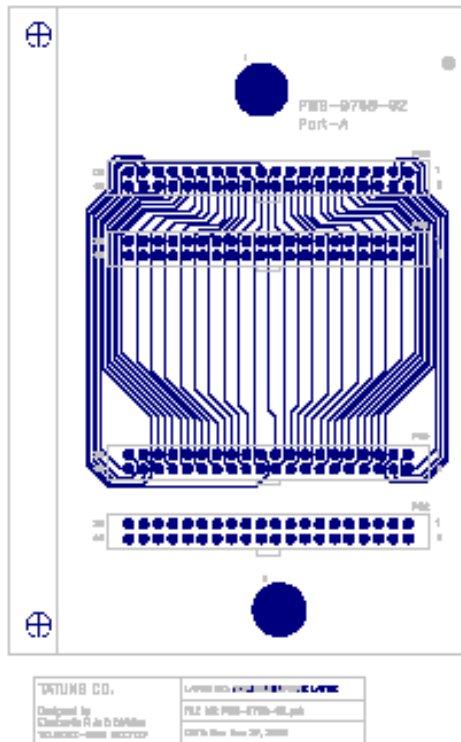


## 11.3 Tuner & Video Board PCB (PWB-0786)




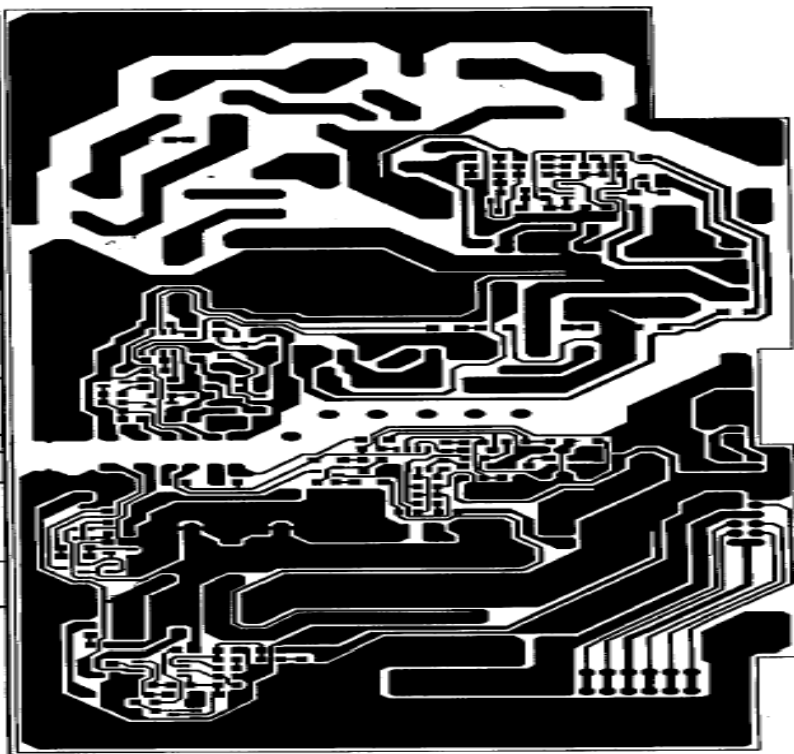


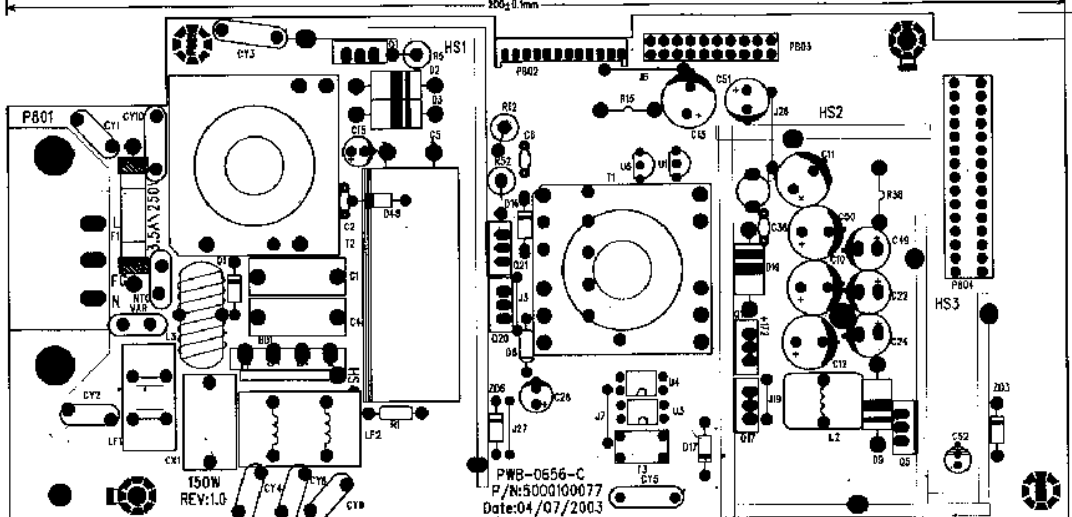

## 11.4 Connecting Board PCB (PWB-0768-A)



## 11.5 Power Board PCB (PWB-0769)

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			FILE NAME		INCH APPROVAL 1			
PART NO.	APRT NAME	MODEL NAME	MATERIAL		ENGINEER		DRAWN BY	
			SCALE					
REMARK			PREPARE		REV.		SHEET	



 <p>PWB-0656-C P/N: 5000100077 Date: 04/07/2003</p>								
 HUA JUNG COMPONENTS CO., LTD.	DRAWING NAME		UNIT	M/M APPROVAL 2	DATE			
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	MODEL NAME		MATERIAL	ENGINEER				
	APRT NAME		SCALE	DRAWN BY				
DOC. NO.	PART NO.	REMARK	PREPARE	REV.	SHEET			

### 13. Spare Parts List

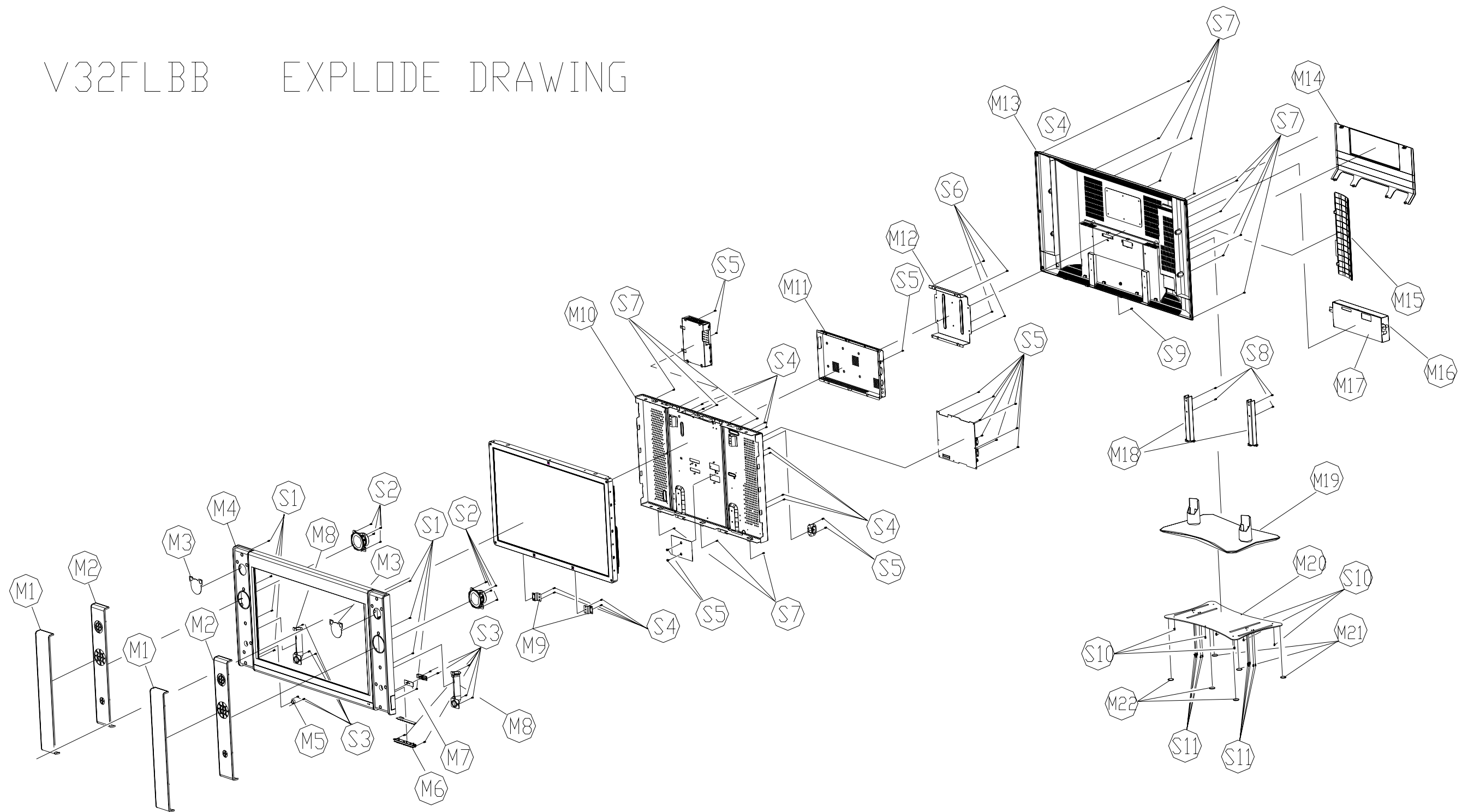
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EE           PARTS	TFT Panel	5051253677
	Power Module	6693006612 (RA) 6693006600 (RB)
	Tuner Board Assembly	5097635901(I) 5097635903(SKD) 5097635900(SET)
	IR Board Assembly	5098800932(I) 5097636411(SKD) 5098800867(SET)
	Key Board Assembly	5098800931(I) 5097636414(SKD) 5098800866(SET)
	PCB- CONNECTOR A Assembly	5098800933(I) 5097636412(SKD) 5098800865(SET)
	Main Board Assembly	5097643701(SET)-I 5097646702(SKD) 5097643700(SET)
	Speaker	5055125600
	Remote control	5052731029(no logo) 5252731072(T) 5052731032 (A)
	MCU	6647024460
	User's Manual	5030057148 (I) 5030007058 (T) 5030057154 (A)
	Power Cord	5056706150(I) 5056705939(EU) 5056706196(ISRAEL)
ME	Front Cover	5642298702-I 5642298704-T
	IR Lens	5640332100
	Speak Cover	5642321101(R)-A 5642321151(L)-A  5642321103(R)-T 5642321153(L)-T
	Speak Net	5642564901(L)-A 5642564951(R)-A  5642564902(L)-T 5642564952(R)-T

PARTS	Back Cover	5642298802-I 5642298804-T
	D-Sub Cover	5642320102-I 5642320104-T
	Visa Bracket	5648743900
	Control Key	5642850901-I
	Neck Cover	5642319802-I 5642319804-T
	Neck Bracket	5648744001
	Base	5641415901-I 5641415904-T
	Base Bracket	5640408900
	Power Cap	5641100500
	Tuner Box Up	5642730801-I 5642730860-T
	Tuner Box Down	5642730981-I 5642730980-T

**I = Itaico**  
**T=Tatung**  
**A=Akai**  
**N-Natural**  
**P=Premium**

### 13. Mechanical Disassembly

V32FLBB EXPLODE DRAWING



No.	Part Name	Parts No.
	<b>SPEAKER-NET</b>	<b>5642564901(L) 5642564951(R)</b>
<b>M2</b>	<b>SPEAKER SCREEN</b>	<b>5642321151(L) 5642321101(R)</b>
<b>M3</b>	<b>SPEAKER INSULATION SHEET</b>	<b>5646510300</b>
<b>M4</b>	<b>FRONT COVER</b>	<b>5642298701</b>
<b>M5</b>	<b>POWER CAP</b>	<b>5641100500</b>
<b>M6</b>	<b>FUNCTION KEY</b>	<b>5642850901</b>
<b>M7</b>	<b>IR LENS</b>	<b>5640332100</b>
<b>M8</b>	<b>SOUND PIPE</b>	<b>5642680700</b>
<b>M9</b>	<b>PANEL BRACKET</b>	<b>5642736700</b>
<b>M10</b>	<b>LCD MBRACKET</b>	<b>5642730702</b>
<b>M11</b>	<b>MPCB SHIELD</b>	<b>5646257000</b>
	<b>VESABRACKET</b>	<b>5648743900</b>
<b>M13</b>	<b>BACK COVER</b>	<b>5642298801</b>
<b>M14</b>	<b>NECK COVER</b>	<b>5642319801</b>
<b>M15</b>	<b>D-SUB COVER</b>	<b>5642320101</b>
<b>M16</b>	<b>TUNNER BOX UP</b>	<b>5642730860</b>
<b>M17</b>	<b>TUNNER BOX DOWN</b>	<b>5642730960</b>
<b>M18</b>	<b>NECK BRACKET</b>	<b>5648744001</b>
<b>M19</b>	<b>BASE COVER</b>	<b>5641415902</b>
	<b>BASE BRACKET</b>	<b>5640408900</b>
<b>M21</b>	<b>RUBBER FOOT</b>	<b>5642025400</b>
	<b>PZP 4X08</b>	<b>7134151182</b>
<b>S2</b>	<b>SPEAKER SCREW M3X14</b>	<b>5640228400</b>
<b>S3</b>	<b>PZP 3X08</b>	<b>7134161182</b>
<b>S4</b>	<b>PP 4X06</b>	<b>7001260612</b>
<b>S5</b>	<b>PZS 3X06</b>	<b>7134160652</b>
<b>S6</b>	<b>PP 4X08</b>	<b>7001261112</b>
<b>S7</b>	<b>PZP 4X10</b>	<b>7134251482</b>
<b>S8</b>	<b>PPW 4X10</b>	<b>7000311122</b>
<b>S9</b>	<b>PRW 3X06</b>	<b>7136160654</b>
<b>S10</b>	<b>BFB 4X08</b>	<b>7134251155</b>
<b>S11</b>	<b>PFS 4X12</b>	<b>7135251656</b>

## 14. Firmware Program Update Steps

### Step 1 : Install Programs

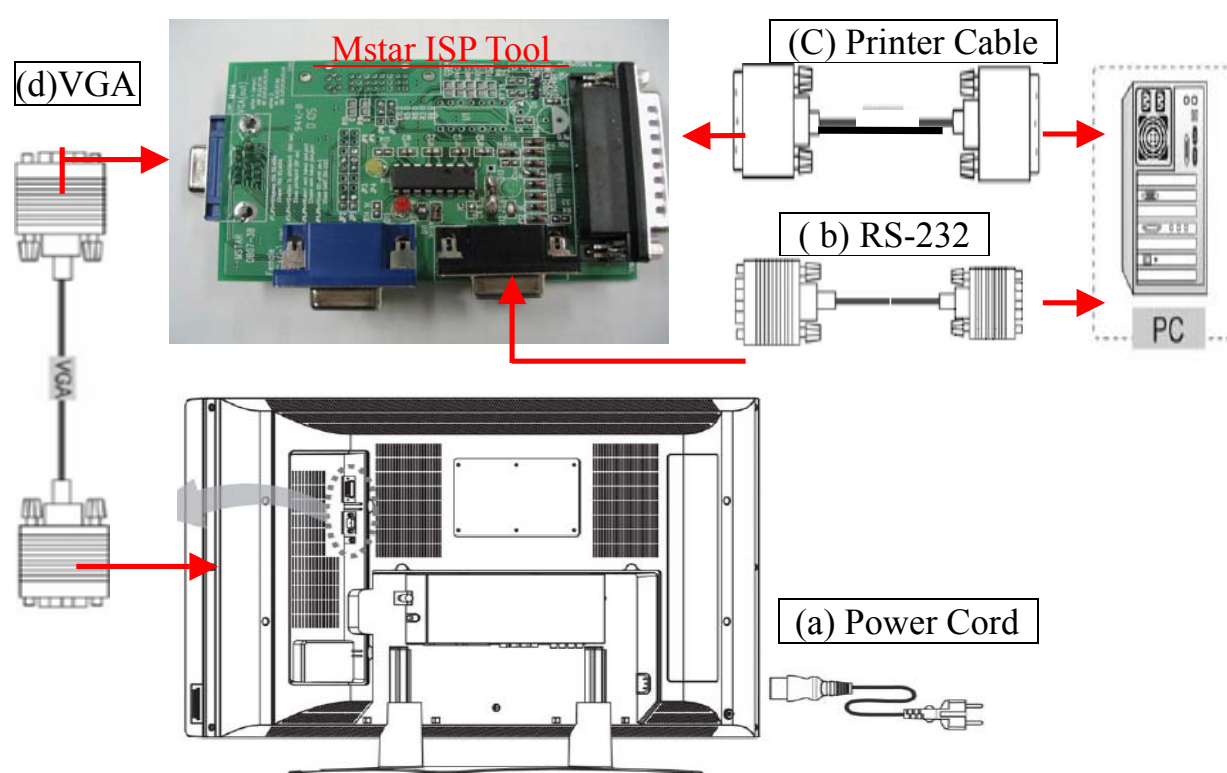
- (a) Save the file of **MSTV\_TOOL** and the folder of **IspWriter** on the Desk top of a PC with Window XP .(first time)



- (b) Save the updated programs, **xxxx.H00** and **xxxx.H01** into the same PC.

### Step 2 : Connect Cables

- (a) Connect **Power Cord** to LCD-TV.  
(b) Connect **RS-232 Cable** between PC and **Mstar ISP TOOL** .  
(c) Connect **Printer Cable** between PC and **Mstar ISP TOOL** .  
(d) Connect **D-SUB Cable** between **Mstar ISP TOOL** and LCD-TV.

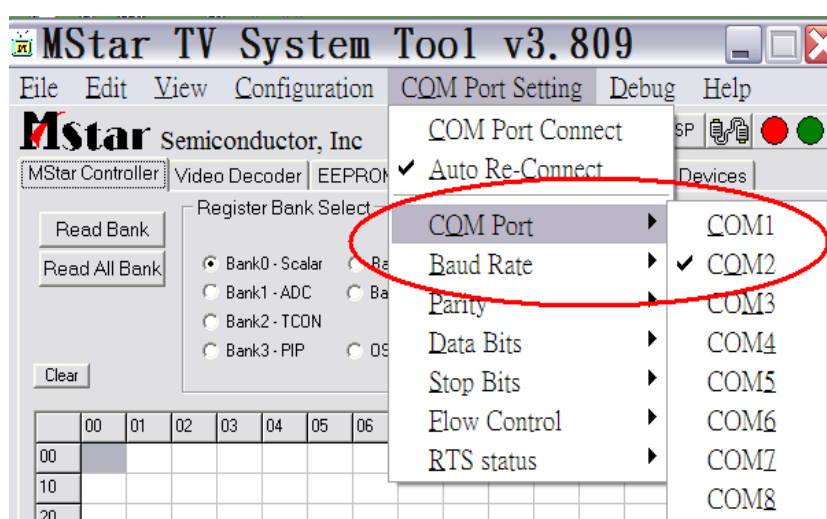


### **Step 3 : Set and link the MSTV-Tool**

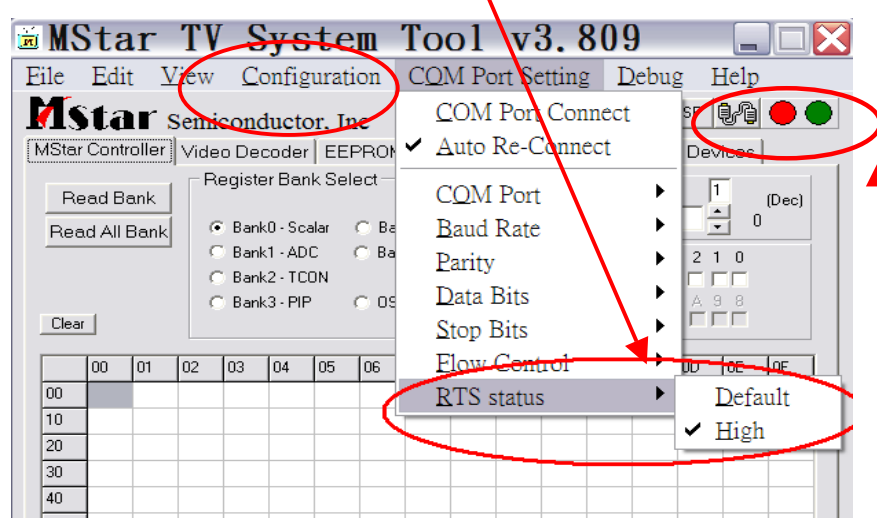
- (a) Press **POWER** Button to turn on the LCD-TV.
- (b) Click **MSTV-TOOL.exe**.






- (c) Click **COM Port Setting** to select the COM port, which you connect to.  
(Be sure your setting actually follow the port you connect to)



- (d) Make sure **RTS status** is set to High.

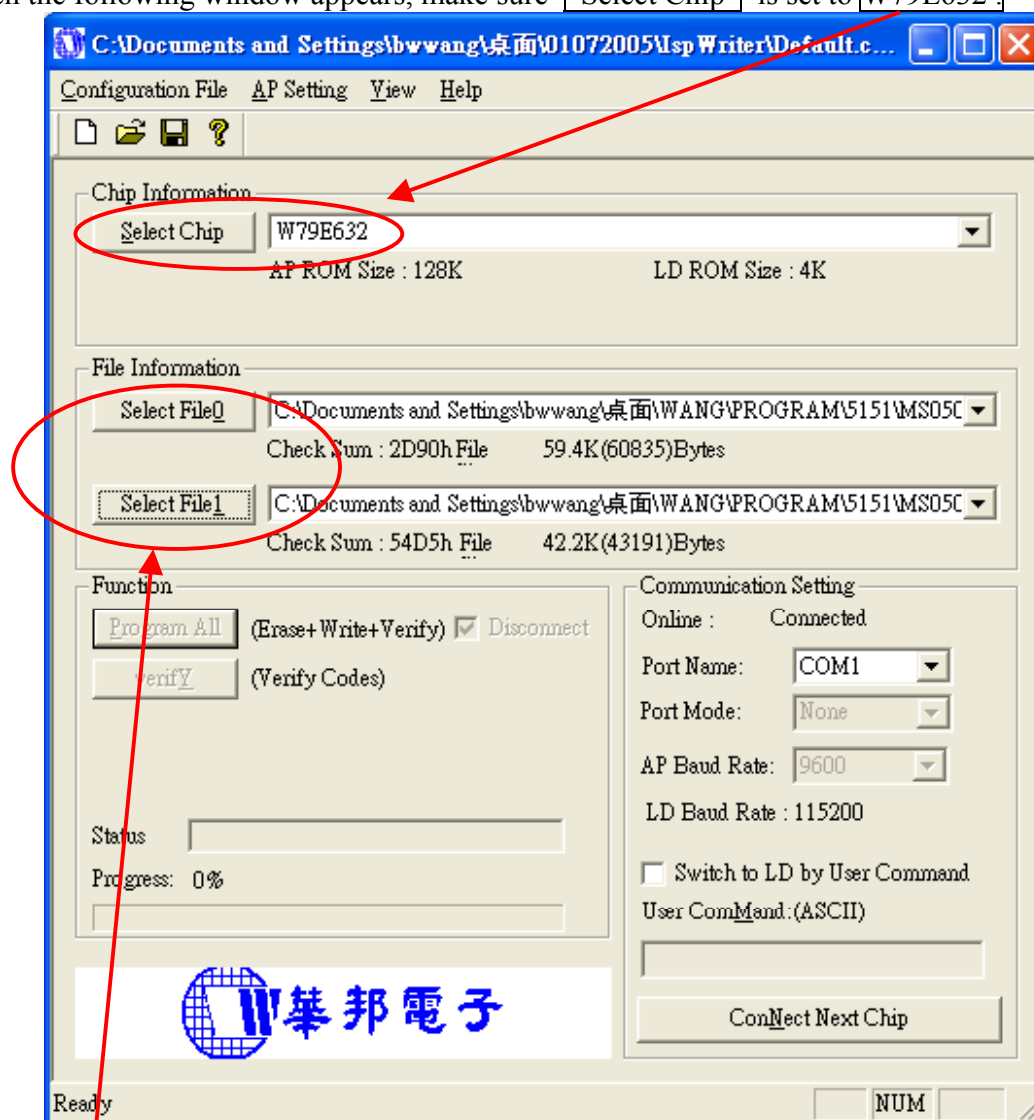


- (e) Click  to link with LCD-TV, and then  will turn to  automatically.



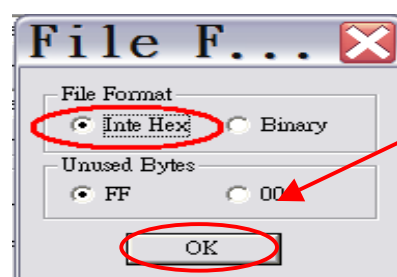
#### Step 4 : Set ISP writer and update firmwares

- (a) Click **Configuration** and choose **ISP Writer Setting**. Select the folder of **IspWriter** and then choose **8051 IspWriter.exe**.
- (b) Click **ISP** to execute **8051 IspWriter.exe**.
- (c) When the following window appears, make sure **Select Chip** is set to **W79E632**.

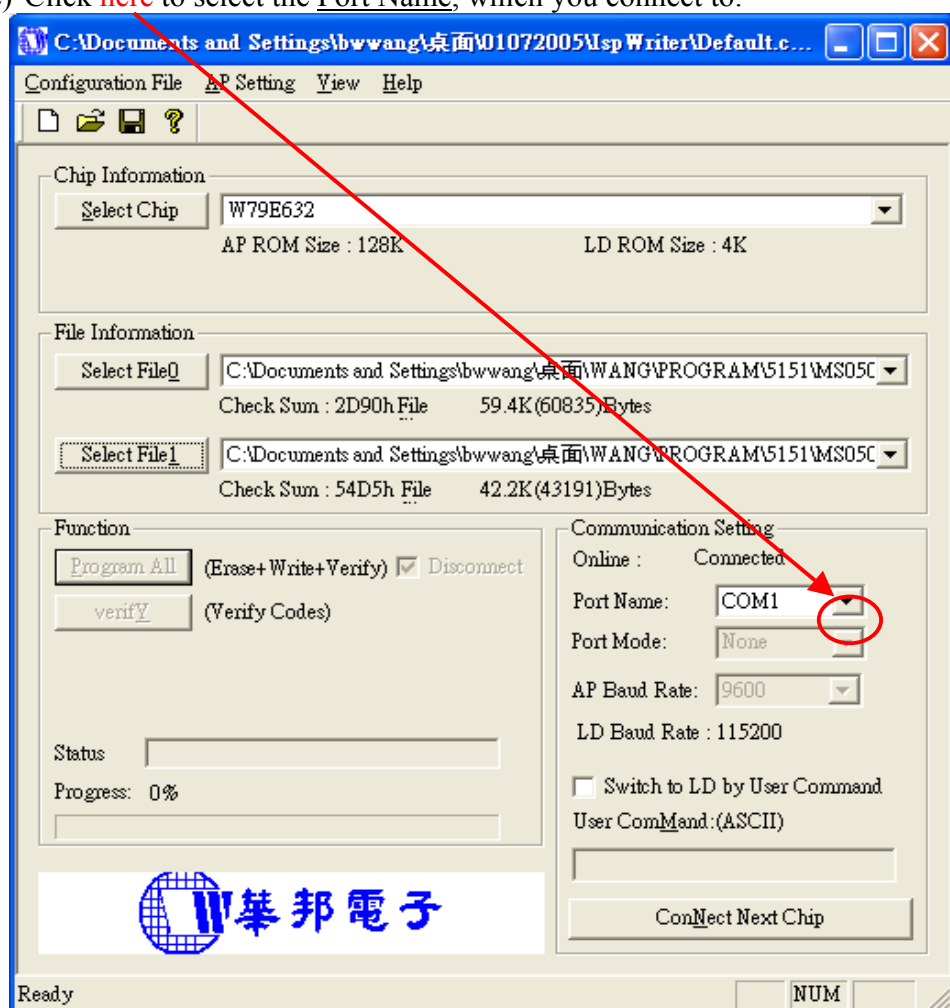


- (d) Click **Select File 0** to select program **xxxx.H00**. Then select **Inte Hex** and click **OK**.

(e) Click **Select File 1** to select program **xxxx.H01** . Then select **Inte Hex** and click **OK** .

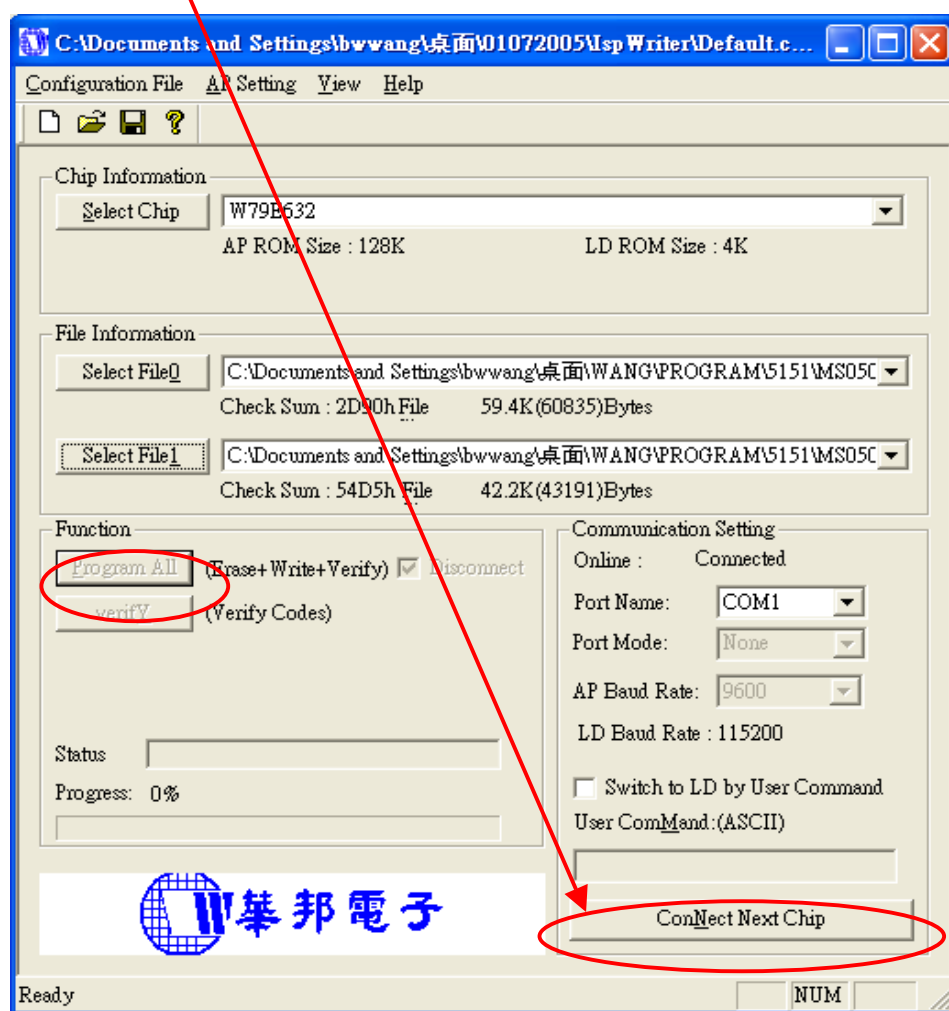


(e) Click [here](#) to select the **Port Name**, which you connect to.



(Be sure your setting actually follow the port you connect to)

(f) Click **ConNect Next Chip**, and then click **Program All**.



(g) When the **Program: OK!** appears, click **確定**.




#### **Step 5 : Initial EEPROM**

- (a) Press **POWER** Button to turn off LCD-TV. ( Make sure LED Indicator lights **Red** color. )
- (b) Press **MENU** Button and keep pressing it ( do not release), and then press **POWER** Button once.
- (c) When LED Indicator changes to **Green** color, release **MENU** Button, which you are pressing. When **UPDATE EEPROM** appears on the screen, the Initial EEPROM is completed.

#### **Step 6 : How to check the firmware version ?**

- (a) Press **POWER** Button to turn off LCD-TV. ( Make sure LED Indicator lights **Red** color. )
- (b) Press **— VOLUME** Button and keep pressing it ( do not release), and then press **POWER** Button once.
- (c) When LED Indicator changes to **Green** color, release **— VOLUME** Button, which you are pressing. Now the LCD-TV is in Factory Mode.
- (d) Press **MENU** Button to check the version such as V32ELBB-EI1-MP1.3 in the up-left window.
- (e) To exit the Factory Mode, press **POWER** Button to turn off and then on the LCD-TV .

**Notice** If you want to update the 2<sup>nd</sup> set , disconnect the VGA Cable (D-SUB) from 1<sup>st</sup> set , and then connect to 2<sup>nd</sup> set. Then, repeat the procedure from Step 4 (b)-- Click  .