Service Manual

AKAI

17” Wide Screen
LCD Multi-Media Display

LM-H17CLSA

Table of Contents

1. Safety and Precautions

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 DON'T'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 supply (AC adapter) and power cord 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

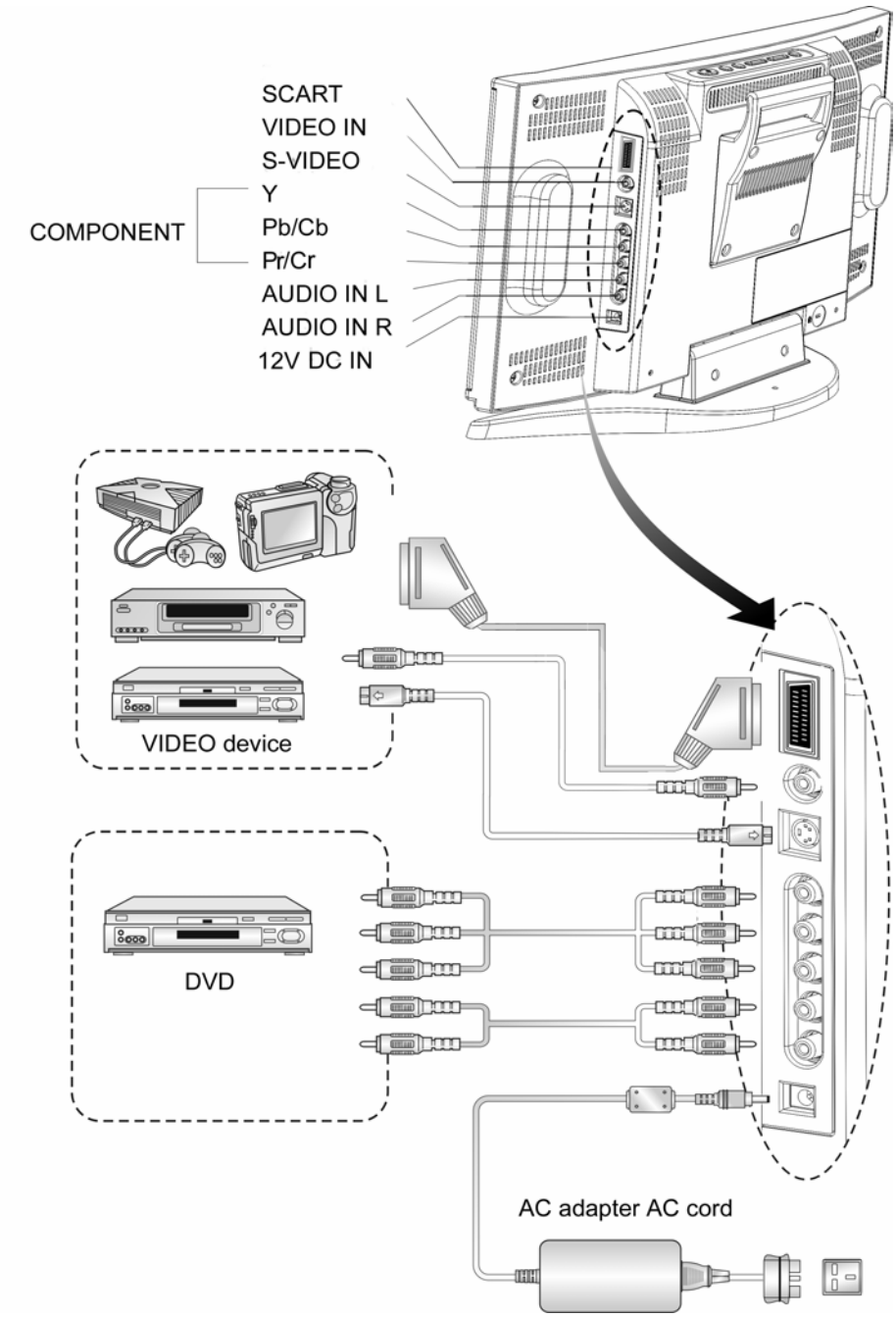
2.1 Specification :

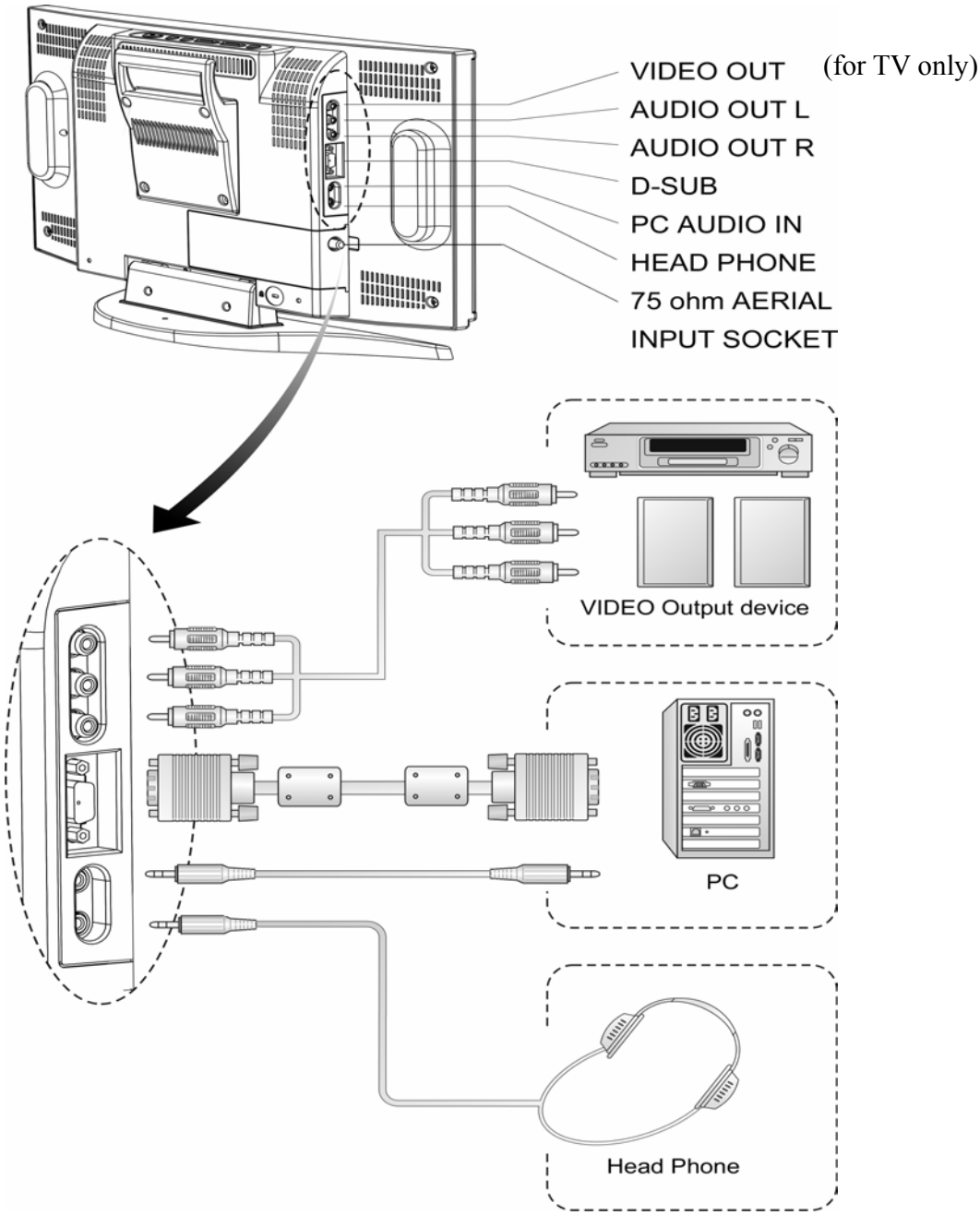
ITEMS		SPECIFICATION	
Display	Screen size	17" Wide TFT-LCD Panel (Fujitsu)	
	Aspect Ratio	16：9	
	Resolution	1280 x 768 (Wide-XGA)	
	Contrast Ratio	400 : 1 (Typical)	
	Brightness	400 cd/m² (Typical)	
	Viewing Angle	160° (Hor.) / 160° (Vert.)	
	Response Time : Ton / Toff	15ms / 10ms	
	OSD Language	English, French, German, Spanish, Italian	
TV Function	TV Standard (CCIR)	B/G, D/K, I and L/L' (Multi-Europe)	
	Color System	PAL / SECAM	
	Sound System	NICAM / A2 (IGR)	
	Teletext	10 Pages (FLOF / TOP)	
Video I/O	Color System	PAL / SECAM / NTSC	
	AV1 (In / Out)	21-pin SCART (RGB / Video) x 1	
	AV2 (In)	Video (Composite) x 1	Audio L/R x 1
		S-Video x 1	
		Component (YPbPr, YCbCr) x 1 (DTV system : 625p)	
	AV3 (Out)	Video (Composite) TV only x 1	
PC I/P	Signal I/P	Analog : D-Sub 15 pin (detachable cable)	
	PnP compatibility	DDC / 2B	
	I/P Frequency	Analog: F_H: 31kHz to 60kHz F_V: 56Hz to 75Hz	
	Recommended	Analog: 1024x768 (60Hz)	
	DTV ready (via D-sub 15pin)	DTV System : 625p	
Audio O/P	Audio O/P: L/R	Speaker (Built-in) : 3.5W+3.5W (rms)	
		Headphone Mini-jack for stereo (3.5 mm)	
		Line Out (RCA L/R)	
Other Functions	PIP under PC mode	Yes	
	A.P.S. , Child-Lock	Yes	
	VESA Panel Wall Mounting Holes	100mm x 100mm	
Power	Power Supply	DC 12V / 5A (external AC adapter) AC 100V~240V, 50/60Hz	
	Power Consumption	< 60W	
Panel Tilt	Forwards/ Backwards /Rotation	-5°/ +15° / ±180°	
Weight (net)	6.5 Kg (Without Accessories)		
Accessories	Remote Control, Batteries x 2 , AC adapter, AC cord, 15 Pin D-Sub Signal Cable , Cable Clamps , Operation Manual .		

2.2 PC I/P Preset Timing Table :

Analog Input				
Mode No.	**Mode Name Resolution**	**H.Freq. (kHz) V.Freq. (Hz)**	**H. Polarity V. Polarity**	**Pixel CLK (MHZ)**
1	VGA 70Hz 640x350	31.469 70.087	+ -	25.175
2	VGA 60Hz 640x480	31.469 59.941	- -	25.175
3	VGA 72Hz 640x480	37.861 72.81	- -	31.5
4	VGA 75Hz 640x480	37.5 75.0	- -	31.5
5	SVGA 56Hz 800x600	35.16 56.25	+ +	36.0
6	SVGA 60Hz 800x600	37.876 60.317	+ +	40.0
7	SVGA 72Hz 800x600	48.077 72.118	+ +	50.0
8	SVGA 75Hz 800x600	46.875 75.0	+ +	49.5
9	XGA 60Hz 1024x768	48.363 60.004	- -	65.0
10	XGA 70Hz 1024x768	56.476 70.069	- -	75.0
11	XGA 75Hz 1024x768	60.023 75.029	+ +	78.75
12	MAC VGA 640x480	35.0 66.667	- -	30.24
13	MAC VGA 832x624	49.725 74.550	- -	57.283
14	US TEXT 720x400	31.469 70.087	- +	28.322
15	WXGA 60Hz 1280x768	47.733 60.042	- -	80

3. Connection & Applications





(for TV only)

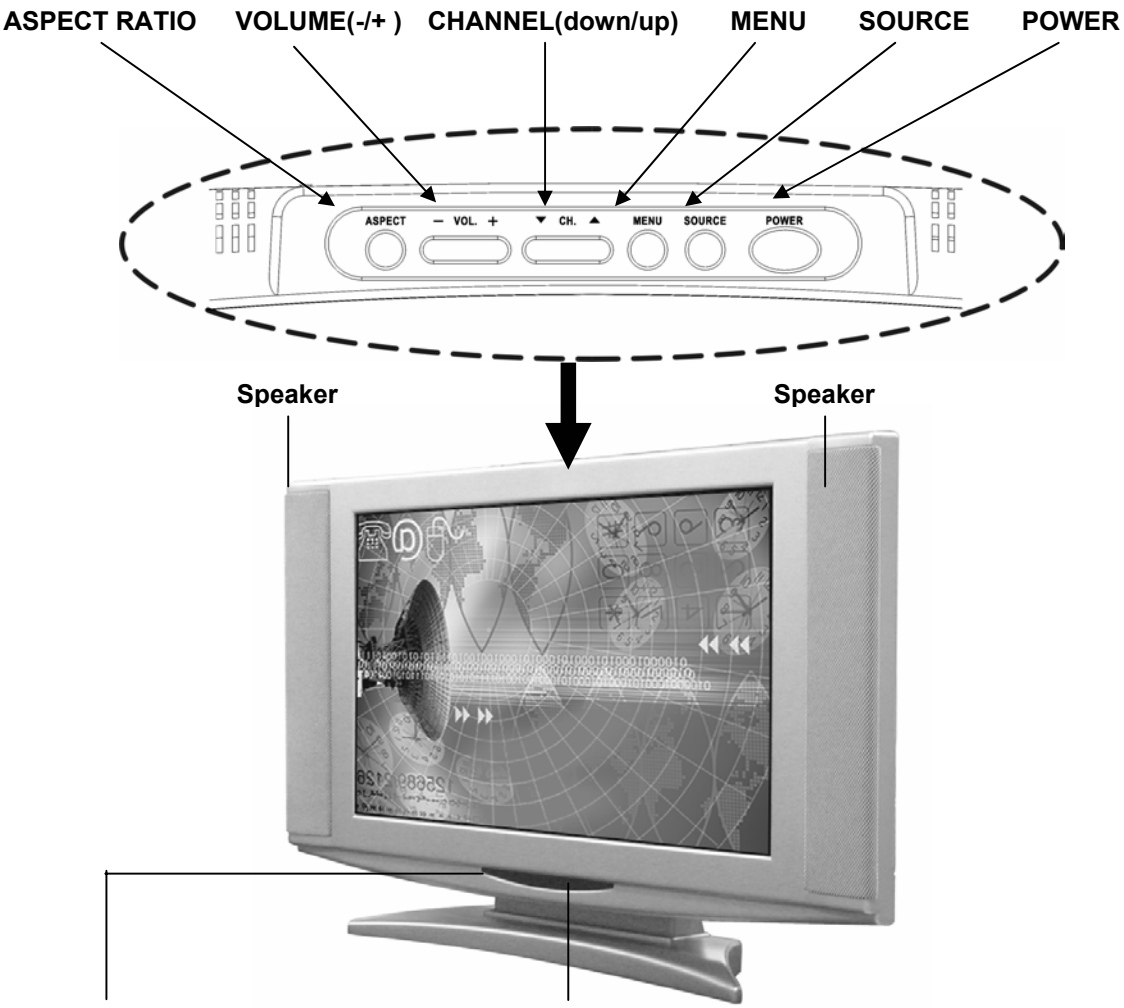
NOTE:

- **Audio 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.
- **VCR Recording:** The main display must set to TV mode in order to use the audio and video output to record a program using a VCR .
- **PIP sound** **:** When using the PIP feature in PC mode , to hear the Sub display sound you must set the sound source to “Sub” .

4. Controls Location

The buttons control your TV'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 TV.
SOURCE: set up the input source (PC, TV, SCART Video/ SCART RGB , Video, S-Video, Component)
MENU: display the main menu.
CHANNEL (down/up): change channels.
VOLUME (-/+): turn up or turn down the volume.
ASPECT RATIO: set up the ratio of display (Normal, Panscan, Zoom or Full.)



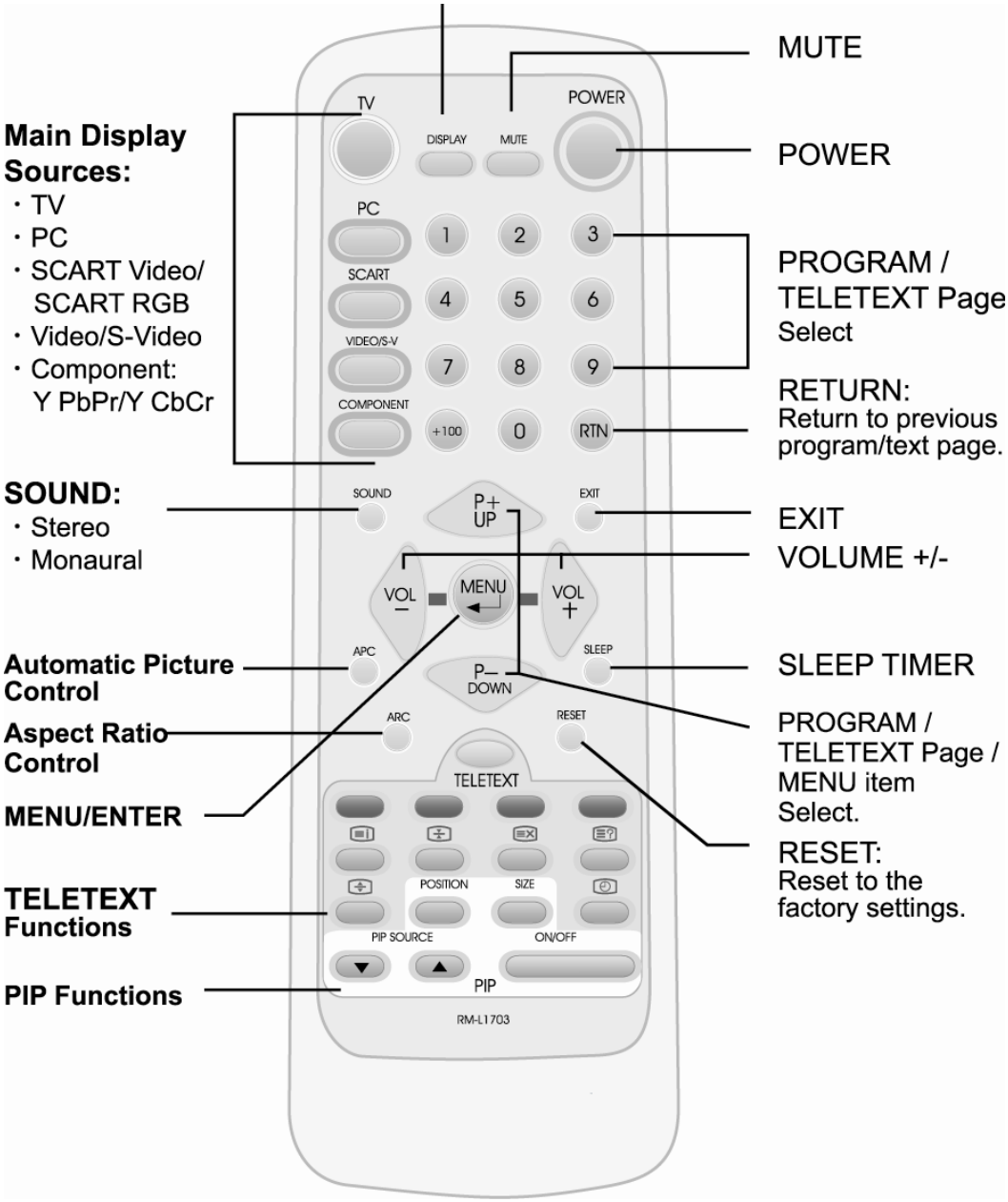
Remote sensor window
Aim the remote control towards this region on the TV.

Power indicator
A green indicator lights when the power is on and a red indicator lights when in the standby mode (the indicator will not light when the main power is off).

5. Remote Control

The remote control pad works almost same as ordinary TV remote control that includes the basic function needed while viewing a live video.

DISPLAY : Display the current source or program digits .



Summary of Control Buttons

Selecting the Signal Source

TV	Switch to the TV mode.
PC	Switch to the PC mode.
SCART	Switch to the Video mode or RGB mode from SCART.
VIDEO/S-V	Switch to the Video mode from RCA socket or S-Video mode.
COMPONENT	Switch to the Component mode (YPbPr or YCbCr).
DISPLAY	Display the current source.

Menu Setting

MENU/ENTER	Display the main on-screen menu or enter the next menu.
UP/DOWN	Press to select the item you want to adjust in the OSD menu.
VOL- / VOL+	Press to decrease or increase the value in the OSD control bar.
EXIT	Exit from the menu.

Changing Channels

P- / P+	Press P- or P+ to change Programs in TV mode or Teletext page in TELETEXT mode.
0 ~ 9	To select programs directly in TV mode.
DISPLAY	Display the current program digits.
RTN	Press to return to the previous program.

Sound Control

VOL+ / VOL-	Press to turn up or turn down the volume.
MUTE	Press to switch the sound on or off.
SOUND	Press to choose Stereo, Bilingual and Monaural broadcasts.

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.
 UPDATE	Press " UPDATE" 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.
RTN	Press to return to the previous viewed Teletext page.

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→ SCART Video→SCART RGB→ Video→ S-Video→ Component Press ▼ button : Component→ S-Video → Video→ SCART RGB →SCART Video→ TV
SIZE	To make the PIP window double, large or small.
POSITION	Press to move the PIP window to: Top Left → Top Right→ Bottom Right → Bottom Left → Repeat.

NOTE : When you set Main-display at 1280x768/1024x768 resolution of PC mode and Sub-display YPbPr, the screen will appear “Not Available“. You should reduce the PC resolution to 800 X 600 or 640 X 480. The PIP function will then work.

Other Function

RESET	Reset to the original factory settings, such as theBrightness/Contrast/ Color Temp.
ARC	Set the picture window to Normal(4:3) → Panscan→ Zoom→ Full (16:9)
APC	To select Clear,Dark, or Nomal mode for picture control.
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.

6. Disassembly Instructions

1) Face down the LCD-TV :

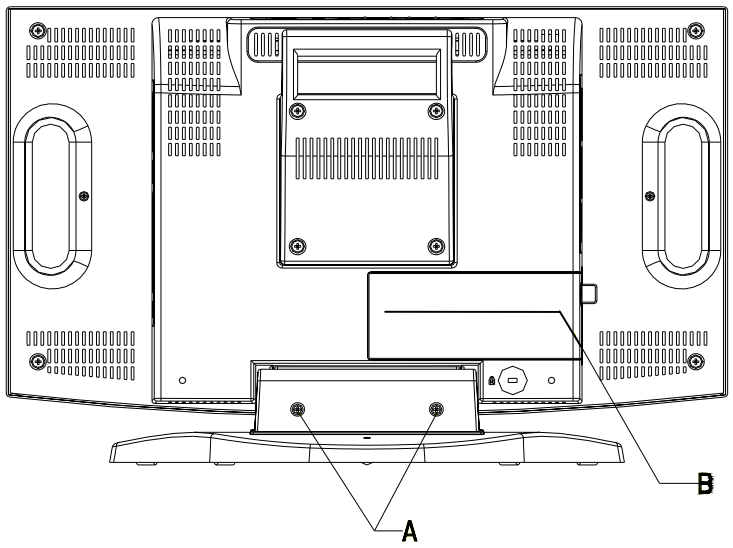
Face down the LCD-TV on a smooth plane with a soft material to protect the panel faceplate .

2) Tuner Board Removal :

Note: If only repair the Tuner Board , needn't disassemble the Swivel Base and Back Cover .

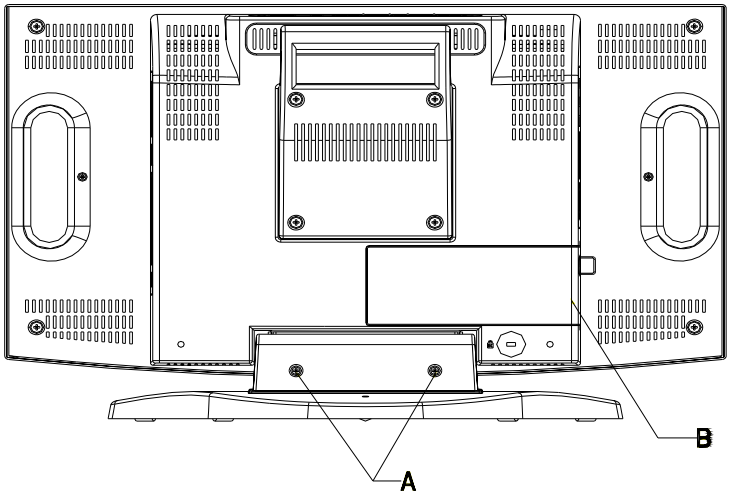
2.1 Press the hook on the left side of Tuner Cover , and push toward the right direction. (Indicated as "**B**")
2.2 Remove the Tuner Cover by sliding.
2.3 Loosen 3 screws on the Tuner Board. (Indicated as "**G**")
2.4 Lift up the Tuner Board, and pull out the 15-pin cable.

Then the Tuner Board could be taken apart from the LCD-TV.



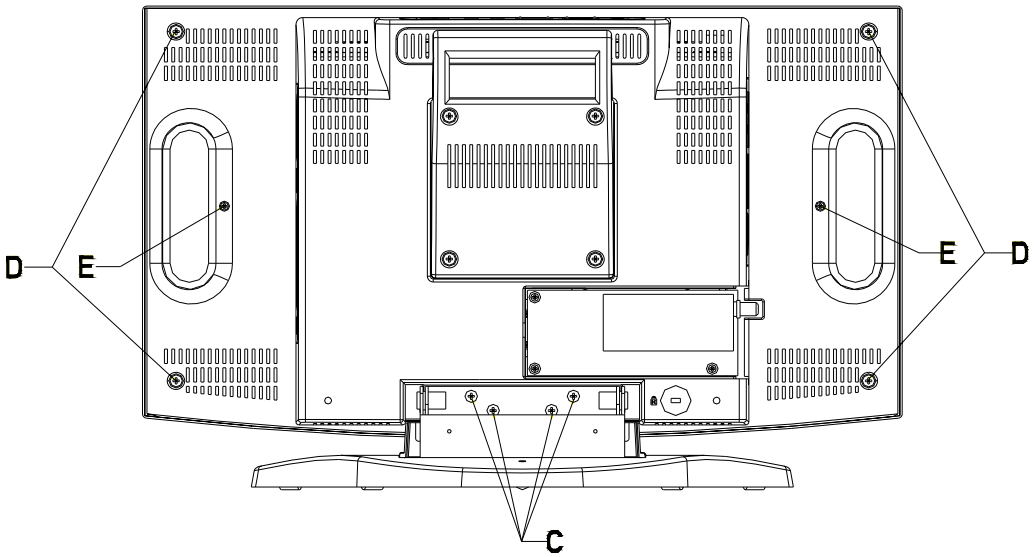
3) Swivel Base Removal :

3.1 Loosen 2 screws and remove Neck Cover . (Indicated as "**A"**)
3.2 Loosen 4 screws from Neck Bracket and remove the Swivel Base .
(Indicated as "**C**")



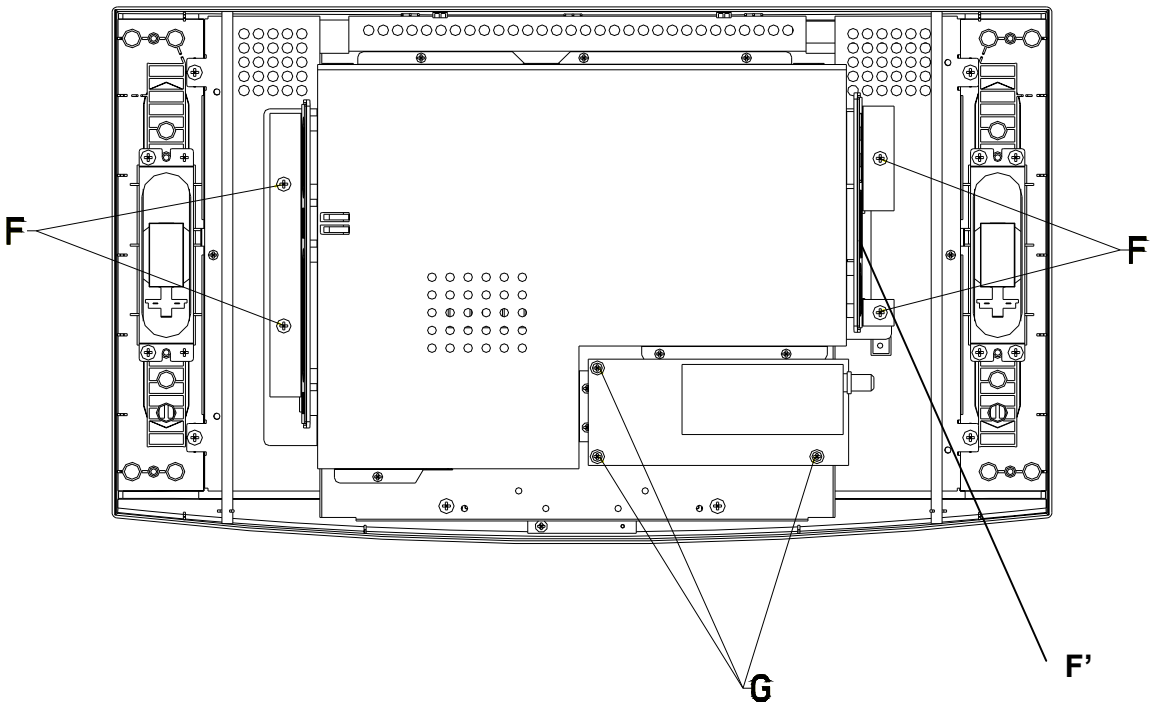
4) Back Cover Removal :

4.1 Remove the Tuner Cover by pressing and sliding . (Indicated as "**B**")
4.2 Loosen 6 screws from the Back Cover . (Indicated as "**E**" and "**D**")
4.3 Lift up Back Cover and pull out the cable from the key board on the top of the panel .



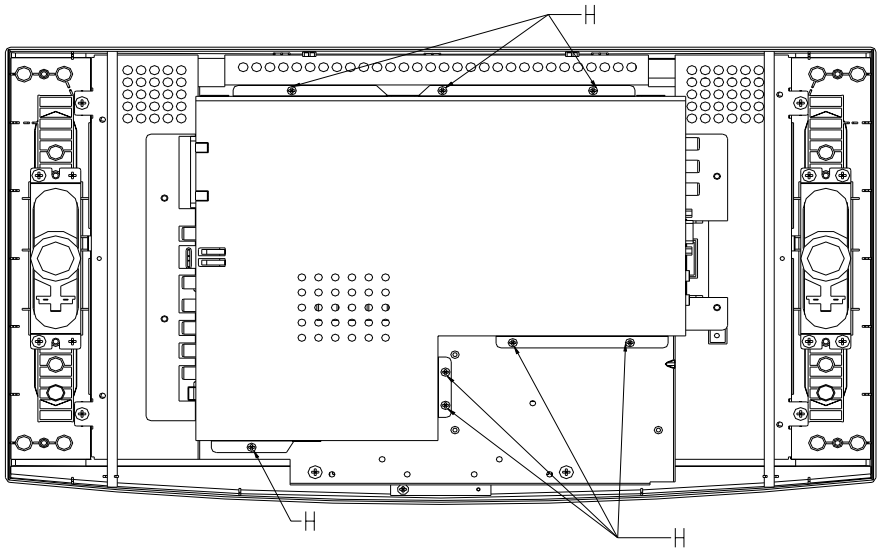
5) Right & Left Side Covers Removal :

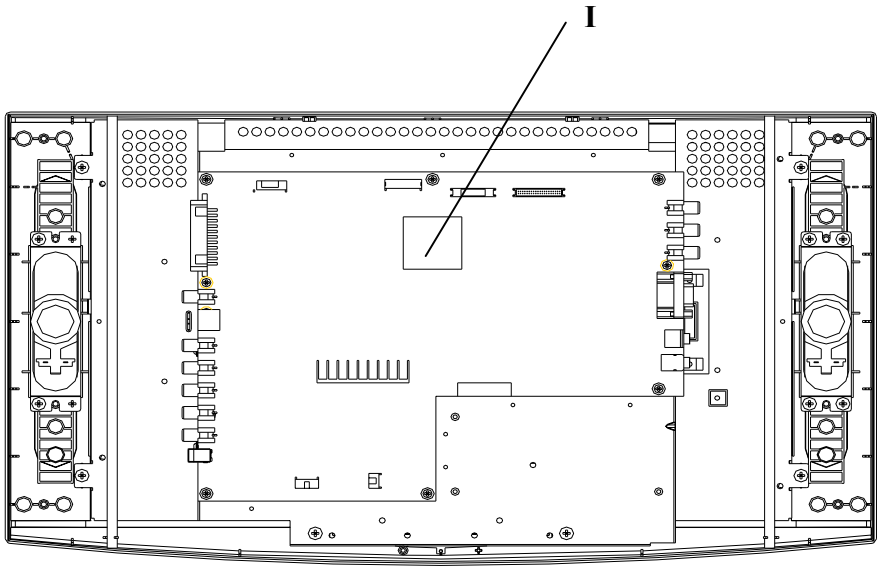
5.1 Loosen 4 screws from Right & Left Side Covers . (Indicated as "**F** ")
5.2 Loosen 2 screws from the 15 pin D-Sub connector on the right side of the panel. (Indicated as "**F'** ")
5.3 Loosen 3 screws from the Tuner Board . (Indicated as "**G** ")
5.4 Lift up the Tuner Board, and pull out the 15-pin cable .
.



6) Metallic Shield Removal :

6.1 Loosen 8 screws from Metallic Shield of Main-PCB . (Indicated as "**H")**
6.2 Remove Metallic Shield of Main-PCB from Main Bracket and then the Main Board shows up.

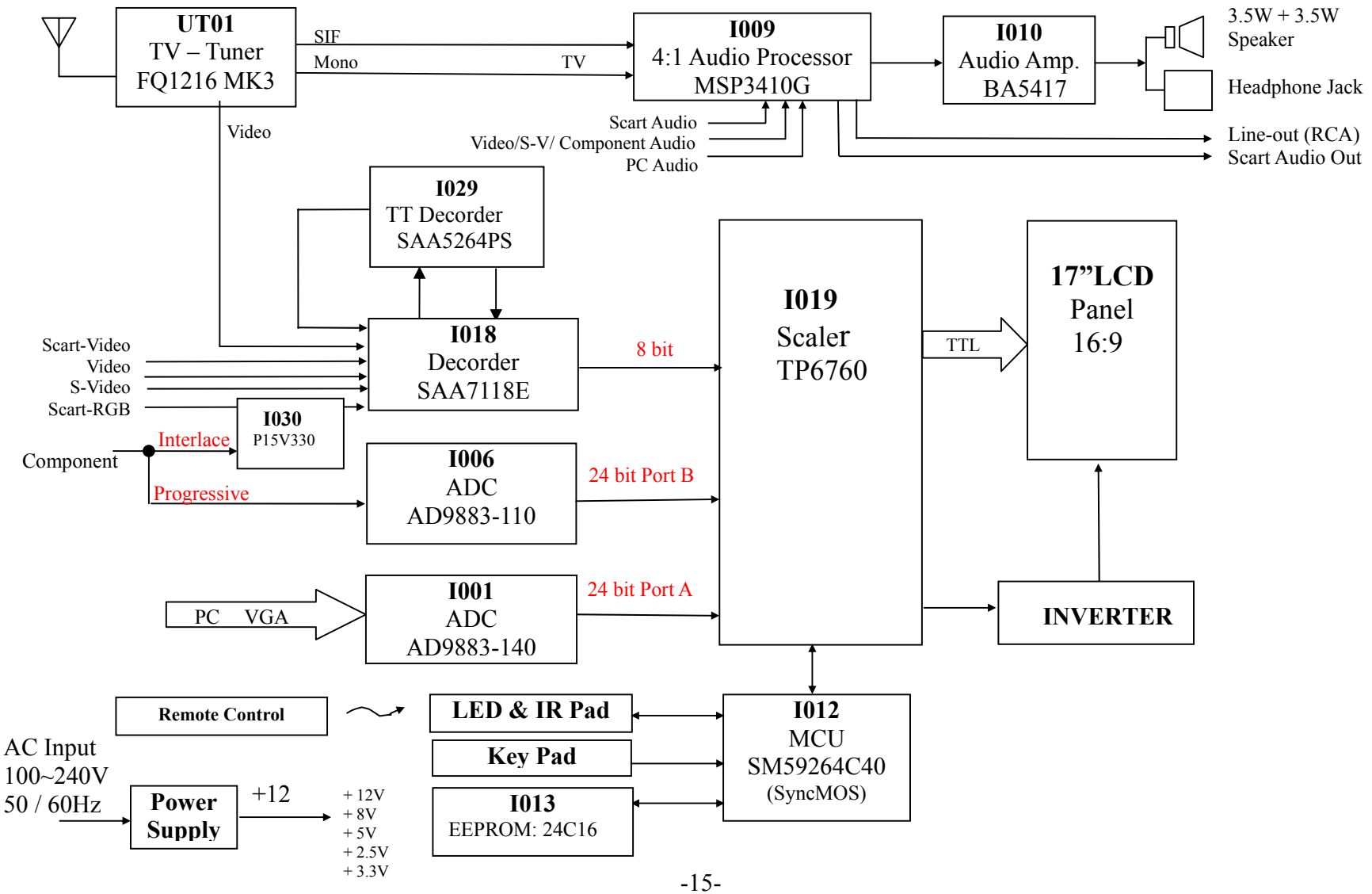




7) MCU Removal (if need) :

7.1 Clamp up the MCU by using an MCU clamp. (Indicated as " **I** ")
7.2 Put in new MCU and push fasten .

7. Block Diagram



8. Troubleshooting

8.1 Symptom Codes : (for Call Center use)

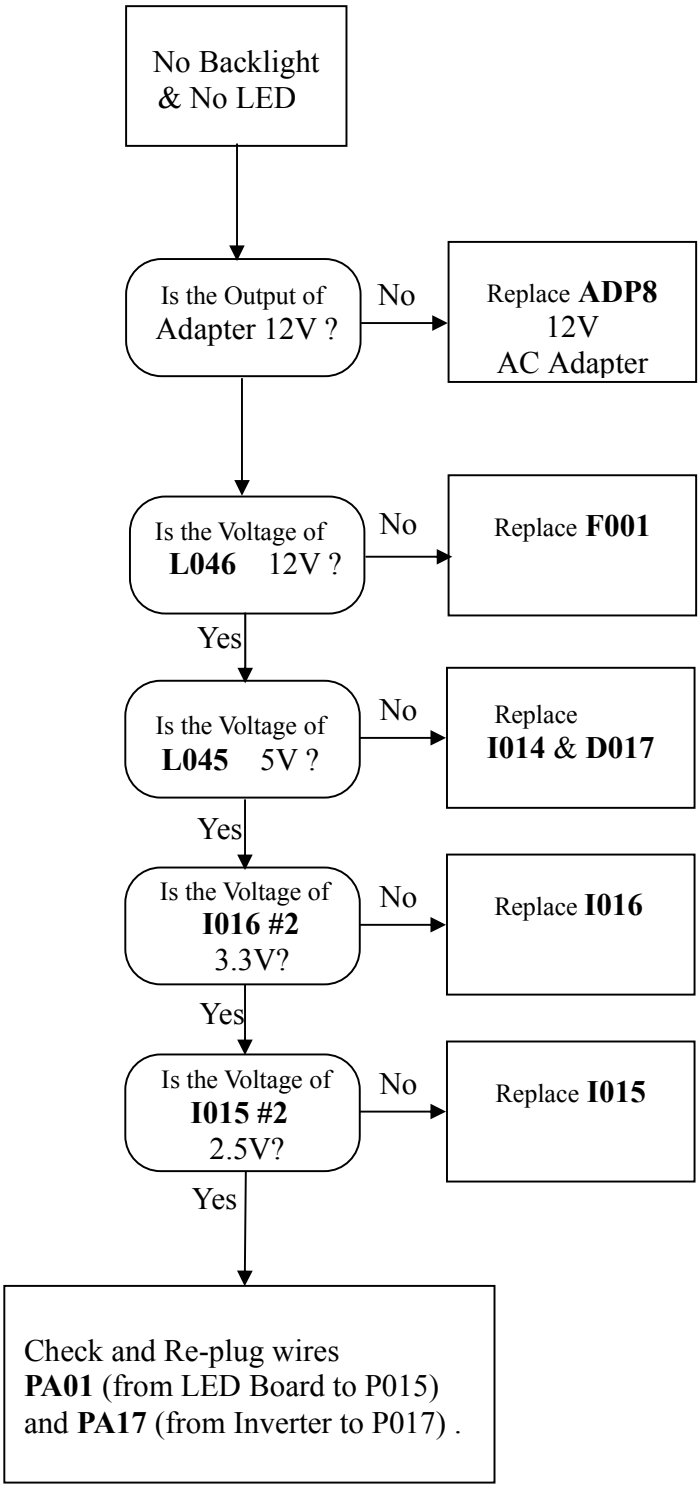
	CODE	SYMPTOM	COUNTERMEASURES
No picture and and no Sound	**NP1**	No Picture and No Sound in TV mode.	• Make sure the Power cord and Aerial Cable are properly connected . • Make sure the batteries in remote control are not flat. • Press the **POWER** button to switch the TV on. • Switch to TV source by pressing "**TV**" button. • Run "**Automatic Search** " by operating the remote control.
	NP2	No Picture and No Sound in video mode.	• Check the connection between the optional video equipment and the TV. • Press **SCART , Video/S-V** or **COMPONENT** button on the remote control to select the right video equipment.
	NP3	TV is automatically turned off.	• Check if the "SLEEP" timer is activated . • Press the **POWER** button to turn on the TV once again.
Poor Picture	**PP1**	**Double Images / Ghosts**	If the TV suffers interference from signals reflecting from mountains or buildings , double-pictures or Ghosts will occur. • Adjust the aerial's location and direction • Replace it with one with better directionality. • Turn off or disconnect the booster if it is in use , as the booster may be inappropriate.
	PP2	**Snowy picture and noisy Sound**	If snow totally blocks out the picture , there may be a problem with the Aerial or Aerial Cable . • Have the TV and aerial been connected properly ? Has the aerial cable been damaged ? • Is the aerial pointing in the right direction ? • Is the aerial itself faulty ? • Try using a booster , as signal transmission may be low.
	PP3	**Distorted picture and noisy sound**	• Turn off or disconnected the booster if it is in use , as broadcast signals may be too strong.
	PP4	**Dotted Lines / Stripes** in the picture.	If the TV or aerial suffers interference from other equipment , stripes or noise may appear in the picture. • Keep the TV away from noise sources such as personal computer , amplifier , cars, motorcycles or hair-dryers. • If the aerial suffers interference from a radio tower or high-voltage wire , contact the local dealer.

	CODE	SYMPTOM	COUNTERMEASURES
Poor Picture	**PP5**	**Stripe** noise .	• Check the coaxial cable connected with the TV is not oxidized • Do not use 300 ohm twin lead cables as interference may occur • It is recommended to use a 75 ohm coaxial cable (not supplied) to get premium quality picture. • Keep the aerial cable away from other connecting cables.
	PP6	No color, too light or too dark	• Adjust the picture settings — APC, Brightness, Contrast, Saturation , Color Temp. • Press "**RESET** " button on remote control .
No Sound or Noisy Sound	**NS1**	Good picture, no sound	• Make sure the headphone is not connected. • Check audio connections between Equipment & LCD-TV. • Press **MUTE** or **VOL** + to cancel the muting.
	NS2	Noisy noise	• Make sure that the aerial connected is 75 ohm coaxial cable (not supplied) , not 300 ohm twin lead cables . • Keep the aerial cable away from other connecting cables. • Press **SOUND** to select "Mono" which will reduce the noise • Adjust **BASS** or **TREBLE** properly in OSD.
	NS3	No sound in TV mode	If the Country setting for the TV is incorrect , it may prevent the sound from being issued • Select the **Country** where you are located in OSD Menu. • If the country is not listed in OSD , select "**Other Country"** .
	NS4	Good picture, but noisy sound or no sound in TV mode.	• If the sound of "all the channels" is noisy , run A.P.S. again by selecting **Automatic Search** in OSD. • If the sound of "some channels" is noisy or no sound , select **Manual Search** and select an **appropriate TV system** in OSD such as B/G , D/K , I , L/L' ; then , store it**.** (If the sound system setting for a TV channel is incorrect , it may prevent the sound from being issued .)
PC	**PC1**	PC display is Not Full Screen	• Select **Auto Image Adjust** in OSD menu to optimize the image . • If executing Auto Image Adjust still can not achieve full screen display, adjust **V.Position** and **H.Position** in PC mode
	PC2	Horizontal Noise or Color pattern is not uniform	• Select **Auto Image Adjust** in OSD menu to optimize the image . • If still no good , adjust **H. Phase** in OSD menu

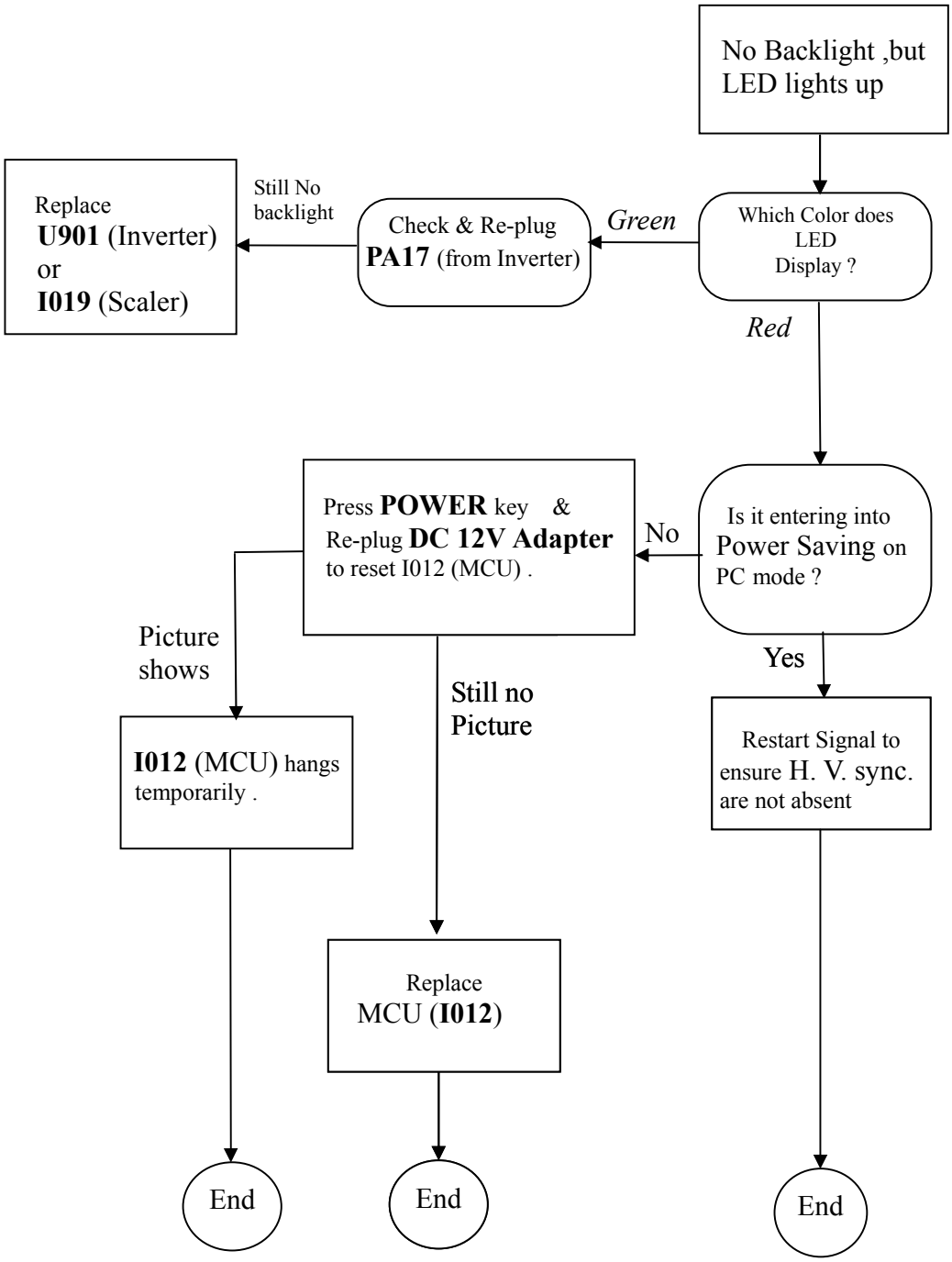
	CODE	SYMPTOM	COUNTERMEASURES
PC	**PC3**	"**Out of Range**" message	• Maximum PC resolution supported is 1024x768 / 1280 x 768, so the screen will appear "Out of range" at higher resolution. • Reduce the resolution to 1024x 768/ 1280x 768 from PC .
	PC4	No Sound	• Make sure PC audio Input is well connected.
	PC5	"**Not Available**" message on PIP	• 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.
	PC6	After **"No Signal "** has appeared on PC mode for a while, the view disappears and the " LED Indicator" turns from Green to**"Red"** .	• Press any key on keyboard or move the mouse to activate the PC , because the PC may go to power saving status. • Check if the D-sub connector (Cable) is disconnected or loose .
Remote Control	**RC1**	Remote Control does not work	• Make sure the batteries in remote control are not flat • Check the polarity of the batteries • Use the remote control in the front of the TV or from less than seven meters away. • make sure the Remote Sensor Window is not under strong lighting.
	RC2	Can not change channels with the remote control	• Press **TV** button to switch to TV mode. • Make sure the TV is not in Teletext mode. •
Picture Halt / Abnormal	**PH1**	Picture suddenly **Stops Responding** or **abnormal**.	• Press **RESET** button on remote control . • Unplug and then plug the Power Cord of the TV from the AC outlet (or the Adapter from the TV). • If the picture still no good , execute "**Initial EEPROM**". Press **POWER** key to turn off the TV . Press"**CH∇** " key on the top of LCD TV (don't release) ; then, press **POWER** button on remote control until "Initial EEPROM" appears on the screen . (Note : Remind user that every setting will be return to factory preset mode including Child Lock , PIN No. , Programs …)

8.2 Flow Chart : (for Repair Center Use)

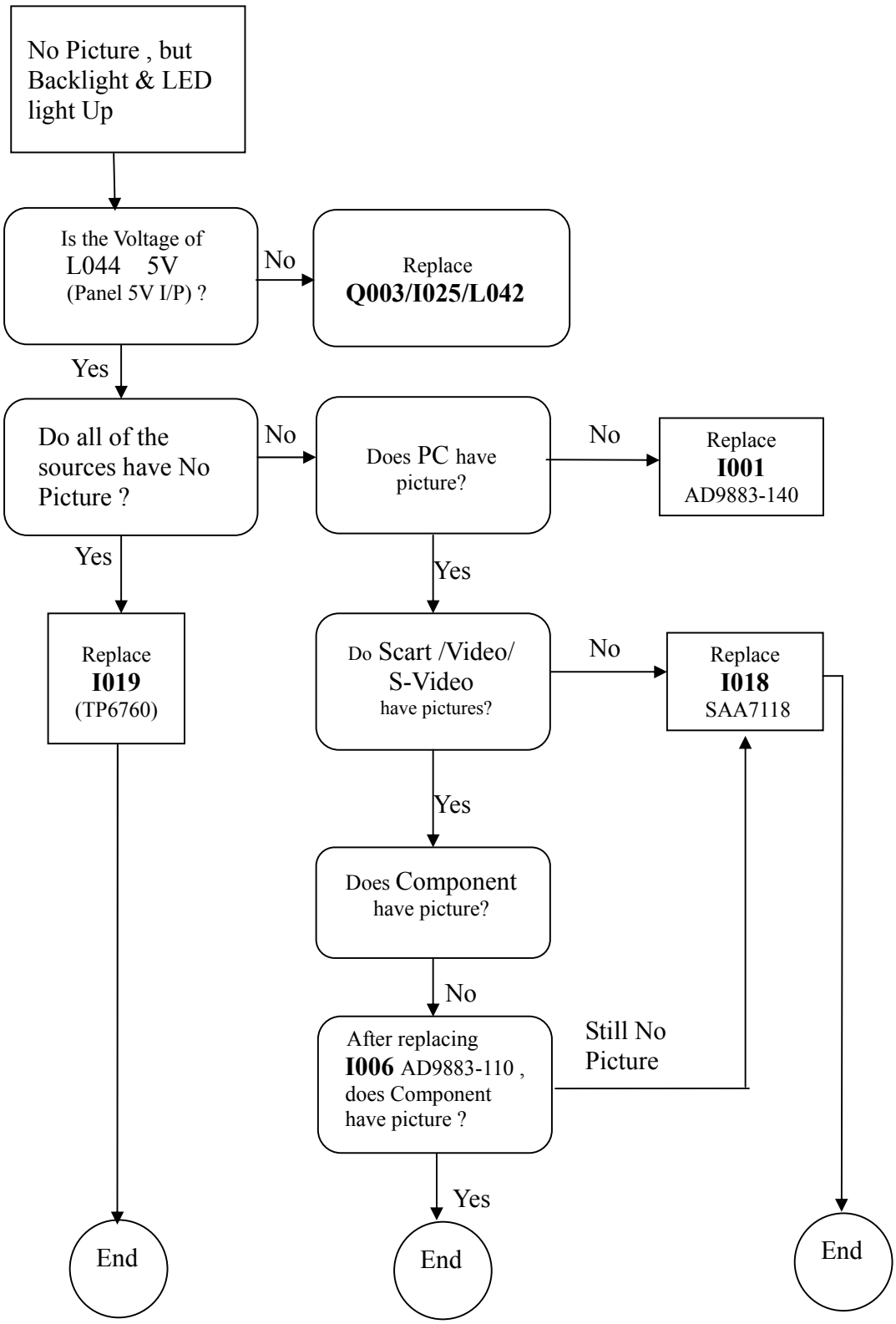
(1) Power Start NG



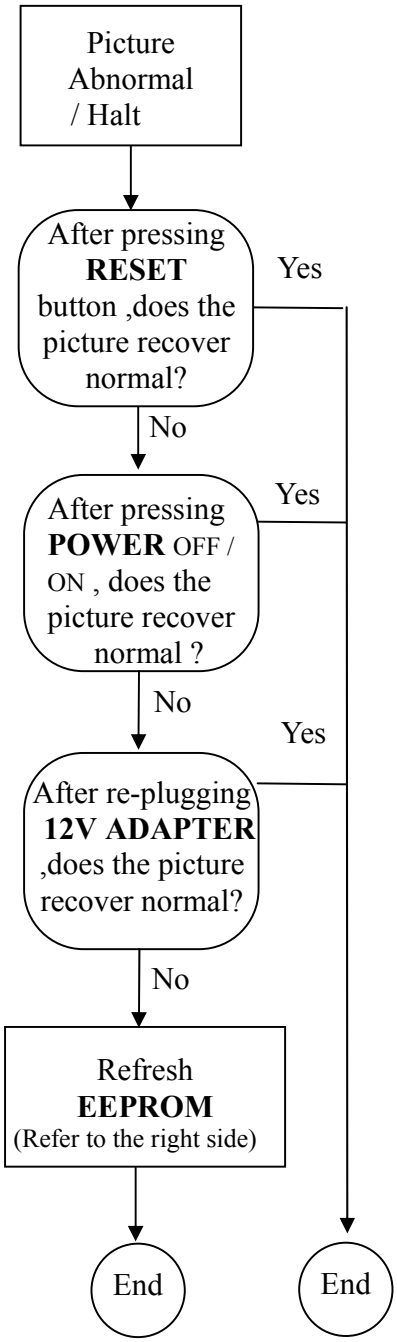
(2) No Backlight , but LED lights up



(3) No picture , but Backlight & LED light up



(4) Picture Abnormal or Halt

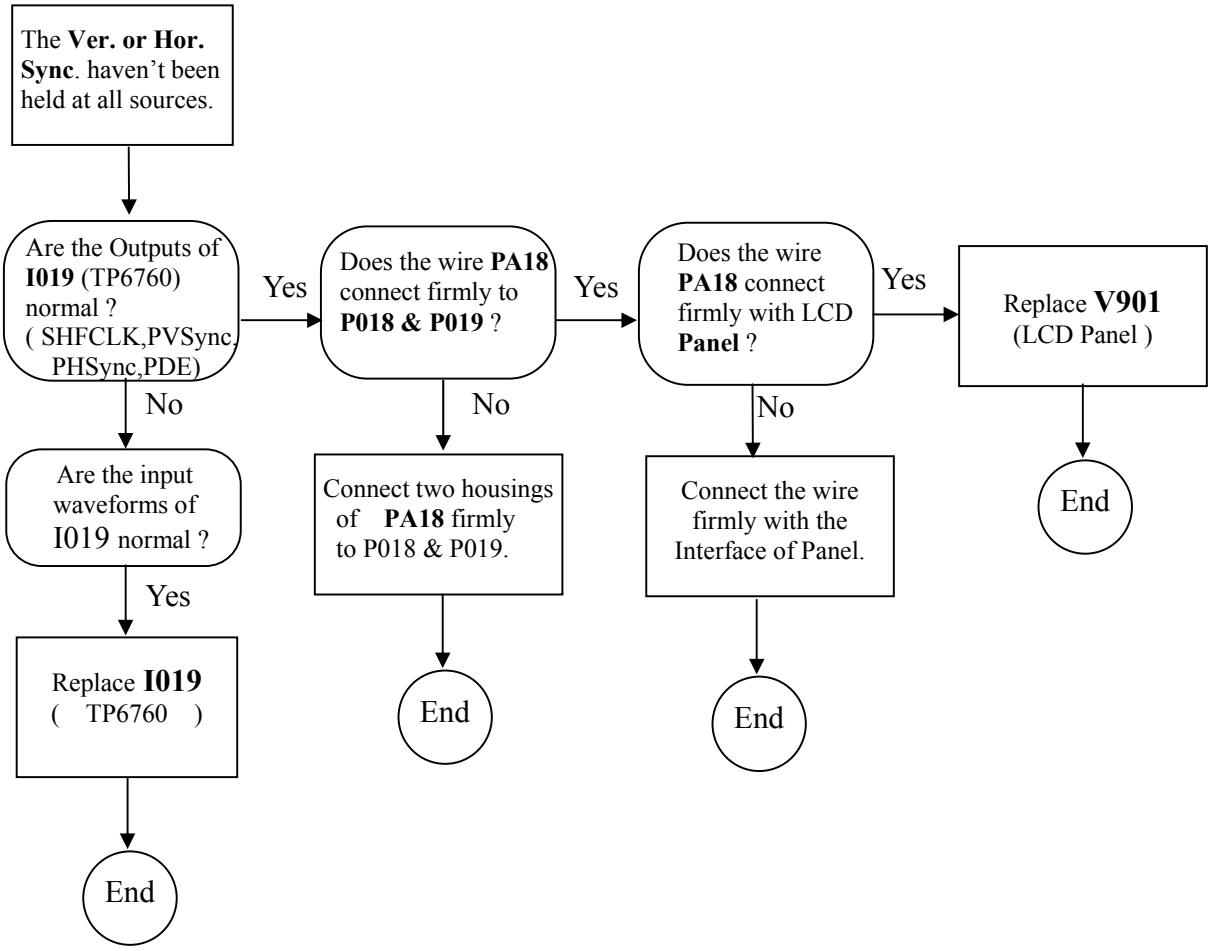


Steps to Refresh EEPROM :

1. Press **POWER** key to turn off the LCD-TV.
2. Press **CH. Down** key on the top of LCD-TV (don't release) and then press **POWER** button on remote control, until "EEPROM Initial" appears.
3. Now, all the buttons which you are pressing could be loosed .

Note : If the PIN of Child-Lock is forgotten , the only way to unlock the channels is to refresh EEPROM and the PIN will also recover initial number "1111". Besides , all the STORE done by user will be refreshed to the situation of First Time Installation.

(5) Frame Defects or Striped Lines at all sources



9. Electronic Circuit Description

9.1 Main Board Circuit

1) Power

Refer to sheet 7 of PWB-0579 circuit diagram.

DC +12V output of AC adaptor is applied to the LCD-TV through socket **P020**. This supply is fed directly to **P017**#1、2 (Connector to Inverter) and **I010**#4 (Audio Amp. BA5417). It also provide +8V for **I009** (Audio processor MSP3410) through the regulator (RC1117) **I011**. Beside,+12V is regulated by **I014** (switching regulator : LM2576) to provide +5V for the whole system. **I014** LM2576 is a step-down regulator (Buckconverter) and capable of driving a 30A load. The output voltage of **I014**#2 could be fixed in 5.0V ± 4% tolerance via **R106**、**R107** and **R108**. In the event of an short or a overload of external circuit, the internal oscillator frequency will reduce from 52KHz to approximately 18KHz. This self-protection lowers the average dissipation of the IC by lowering the duty cycle from 5% to 2%, featured 80 μ A(typical) standby current. Moreover, if the DC 12V supply drops to less than +7V, the +5V O/P will turn to low .

The output of **I014** #2 offers +5V to Panel via **I025** (MOSFET: MI9933). It's also fed into **I015** (RC1117) to offer +2.5V supply and **I016** (RC1117) to offer +3.3V supply to other chips.

2) PC Signal

Refer to sheet 1 of PWB-0579 circuit diagram.

The analog R.G.B. video signals are supplied through the **PJ03**(D-sub connector) and these three input signals are approximately 0.7Vpp in amplitude. **R031**、**R032**and **R033** give resistance of 75Ω respectively for impedance matching. These R.G.B. video signals are AC coupled via 0.047U capacitors **C021**、**C016** and **C013**, and then fed into the **I001** (AD converter) at #54、#48、#49 and #43 respectively. Then , R.G.B. video signals are converted to their digital forms in **I001**. The outputs of digital data including 8 bits red, 8 bits green, 8 bits blue signals are assigned at #70~77、#2~9and #12~19 of **I001**, and applied to port A of **I019** (Scaler : TP6760) . H.sync & V.sync are applied to **I001** #30、#31 and the processed signal taken from #66、#64 are fed into **I019** (TP6760) #18、#19. CLK signal is taken from **I001** (AD9883-140) #67 and applied to **I019** (TP6760) #156. The LCD-TV is designed to have the DDC/2B functions. DDC communication between the LCD-TV and computer is via **PJ03** (D-sub connector) #12、#15 and I004 #5、#6. The EDID data have written into the **I004** (EEPROM) in the factory during production , so computer will read out the EDID from the **I004** (EEPROM).

3) TV Signal

Refer to sheet 11、8、9 of PWB-0579 circuit diagrams.

The IEC plug on tuner **UT01** receives TV picture and Sound signals from aerial .Tuner **UT01**(Tuner-FQ1216ME/MK3) 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 . (Refer to Chapter 9.2 Tuner Board Circuit)

Tuner **UT01** provides the Composite Video at **QT01** #Emitter and is connected to **I018**(SAA7118)L3 via **P013**#10 , and then provides at output #M1of **I018**(SAA7118) . Then , it is connected to Teletext Decorder **I029** (SAA5264) #23 and provides at the R.G.B. output of **I029**#34、#33、#32 after processing. These 3 decorded R.G.B. signal are delivered back to **I018**(SAA7118) # E1、#J3、#G1 .

AF and SIF sound from **UT01** (Tuner) are applied to Audio Processor **I009** (MSP3410) #47、#50 through **P013** #6、#8 .

4) AV Signal

(A) Video / S-Video / Component (Y Cb Cr):

Refer to sheet 9 of PWB-0579 circuit diagrams.

Video decorder **I018** (SAA7118) 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 (Y Cb/Cr :DTV 480i) . There are 4 A/D Converters at the I/O port of **I018** (SAA7118) which includes 16 channel analog inputs.

I018 (SAA7118) 16 channel analog inputs accept Video/S-Video/Component signals from **P001 / P008/ P010** / **P011,P012,P014** and provides at the output of 8 bits X-port and then connected to Port V of Scaler **I019** #143~#150 .

(B) Component (Y Pb Pr) :

Refer to sheet 2 of PWB-0579 circuit diagrams.

Component Signals Y PbPr are applied to **I006** (AD9883-110) # 43,48,49,54 through Green/Blue/Red connectors **P011/P012/P014** . **I006** , AD Converter, converts YPbPr signals to its 24bits digital format and is connected to Port B of Scaler **I019** #8~15、#198~205、#175~182.

5) Panel interface

Refer to sheet 6 of PWB-0579 circuit diagrams.

The signals of panel interface are all applied from Scaler **I019**(TP6760) to LCD Panel through connector **P018**、**P019** and wire **PA18**. The signals SHFCLK、PDE、PVYSNC、PHSYNC from **I019** #90~94 are applied to LCD panel via connector **P018**. These four signals are used for panel display controls. The 36 bits digital R.G.B.data from data outputs of **I019** (Scaler) are allotted to even and odd connectors and then applied to 6 bits LCD panel .

+5V for LCD panel is controlled by **I019** #96 (FPVCC) via **Q003**(MTB3904) and **I025** (MM9933)

6) MCU

Refer to sheet 5 of PWB-0579 circuit diagrams.

* Pin 136 (UCLK): The Microcontroller **I012** (Sync.Mos: SM59264C) is operated with the 14.318 MHz Clock which is provided from Scaler **I019** #136 (UCLK) based on crystal **X002**.

* Pin 10 (Reset) : **C127** and **R096** constitute a Reset circuit. It provides a necessary active high reset signal to **I012**(MCU) # 10 for proper operation of **I012**.

* Pin 15 (IR) : The signal IR_DA at **I012** #15 is connect with Infrared Receiver. If the IR receives some signal, **I012** will send interrupt signal via **I012** #2、#3 (MSDA、MSCL) to control other chips .

* Pin 36~43 (Data transfer): The signals AD0~ AD7 transferring between **I012**(MCU)and **I019** (Scaler) are assigned to **I012** #36~#43.

* Pin 11,13 (Debug) : The signals TXD and RXD used for debugging firmware are assign to **I012** #13、11.

I013 (24LC16B) provides necessary non-volatile storage for operating variables and parameters. It is controlled by **I012** via MSDA and MSCL signal, which are pull up to +5V voltage by R092 and R093 (10KΩ).

9.2 Tuner Board Circuit

Refer to sheet 11 of PWB-0579 circuit diagrams.

UT01(Tuner-FQ1216ME/MK3) 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 . The Output of Composite Video from **QT01** #Emitter fed with Tuner **UT01** is applied to SAA7118 through **P013**#10 .

AF and SIF sound from **UT01** (Tuner) are applied to Audio Processor **I009** (MSP3410) #47、#50 through **P013** #6、#8 . 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^{nd} 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

9.3 Key、LED&IR Board Circuit

Refer to Key、LED and IR circuit diagram of PWB-0475 in Chapter10.2.

* Key : The Keyboard is connected with Main Board through socket **P021** and wire **PA21** and to control the **I012** (MCU) , so if the operation of key is fail , the **I012** (MCU) may fail .

* IR : The **IR01** (TSOP1138) is a receiver for infrared remote control systems. The demodulated output signal can directly be decoded by MCU **I012**#15 through **P015**#5 and wire **PA01**

* LED :The dual LED **D001** on LED&IR Board is controlled by MCU **I012** #24、#25 through **P015** #2、#3 and wire **PA01.**

9.4 Inverter Board Circuit

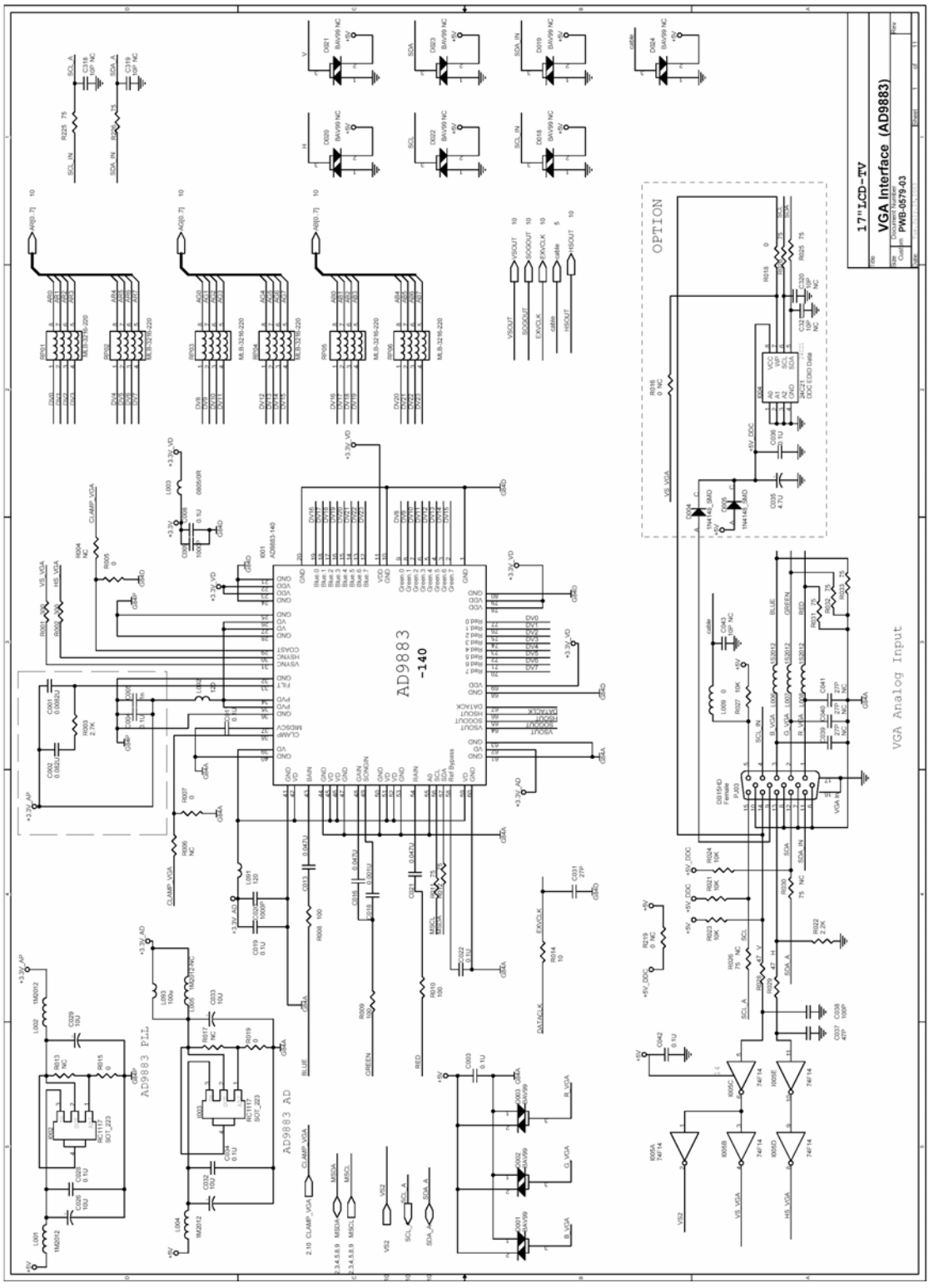
The inverter board is fed with +12V through **P017** #1、#2 on main board and offers 10.5 mA (typical) to each lamp of backlight in LCD panel.

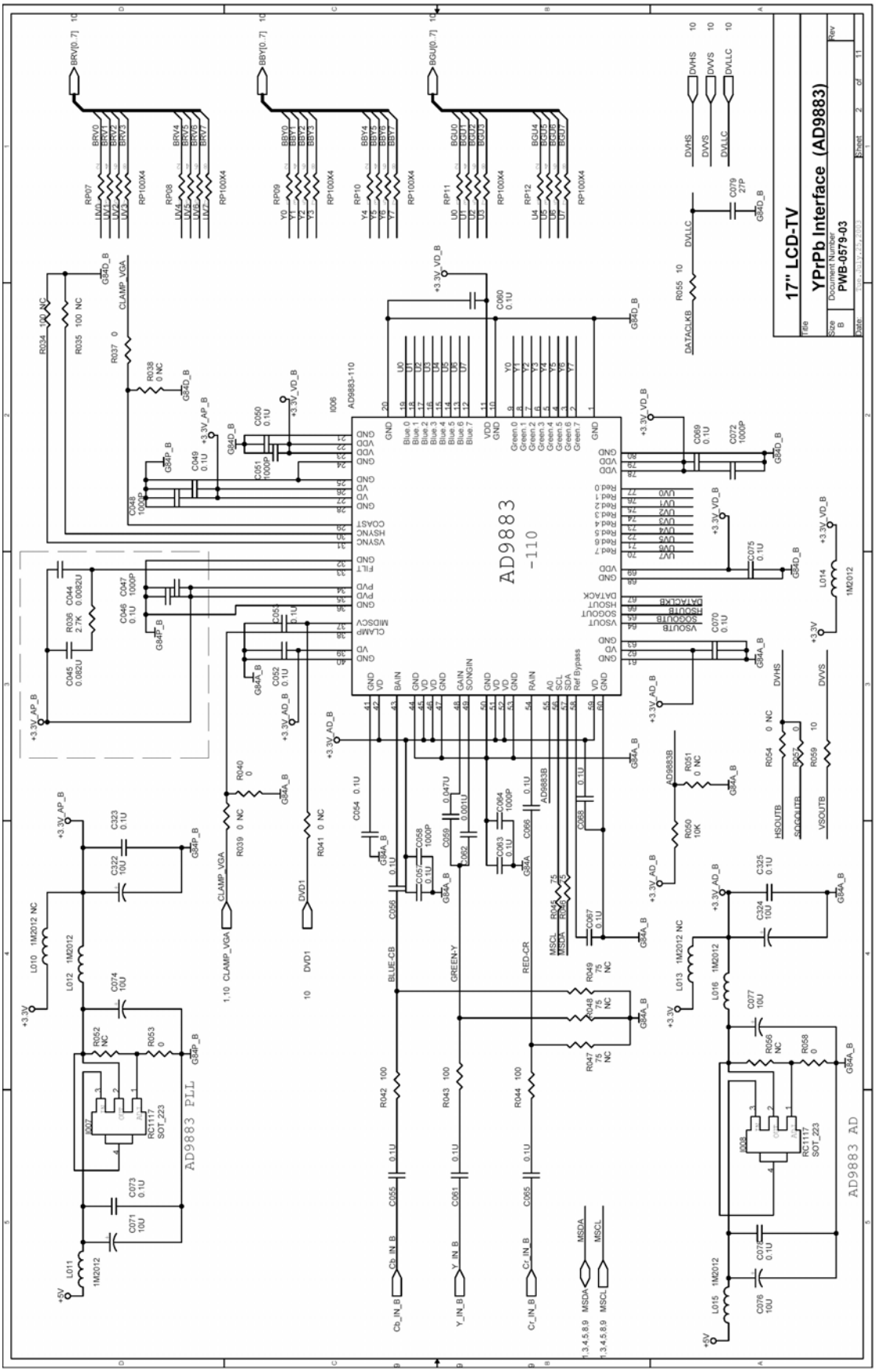
The On / Off of the inverter is controlled by the voltage of **P017** # 5 which is applied from **I019** (Scaler:TP6760) #95 (FPBACK). While the voltage of **P017** # 5 is **'H'**(2~5.5V) , the lamp of backlight will be turned on. While the voltage of **P017** # 5 is **'L'** (0~ 0.8V) , the lamp of backlight will be turned off.

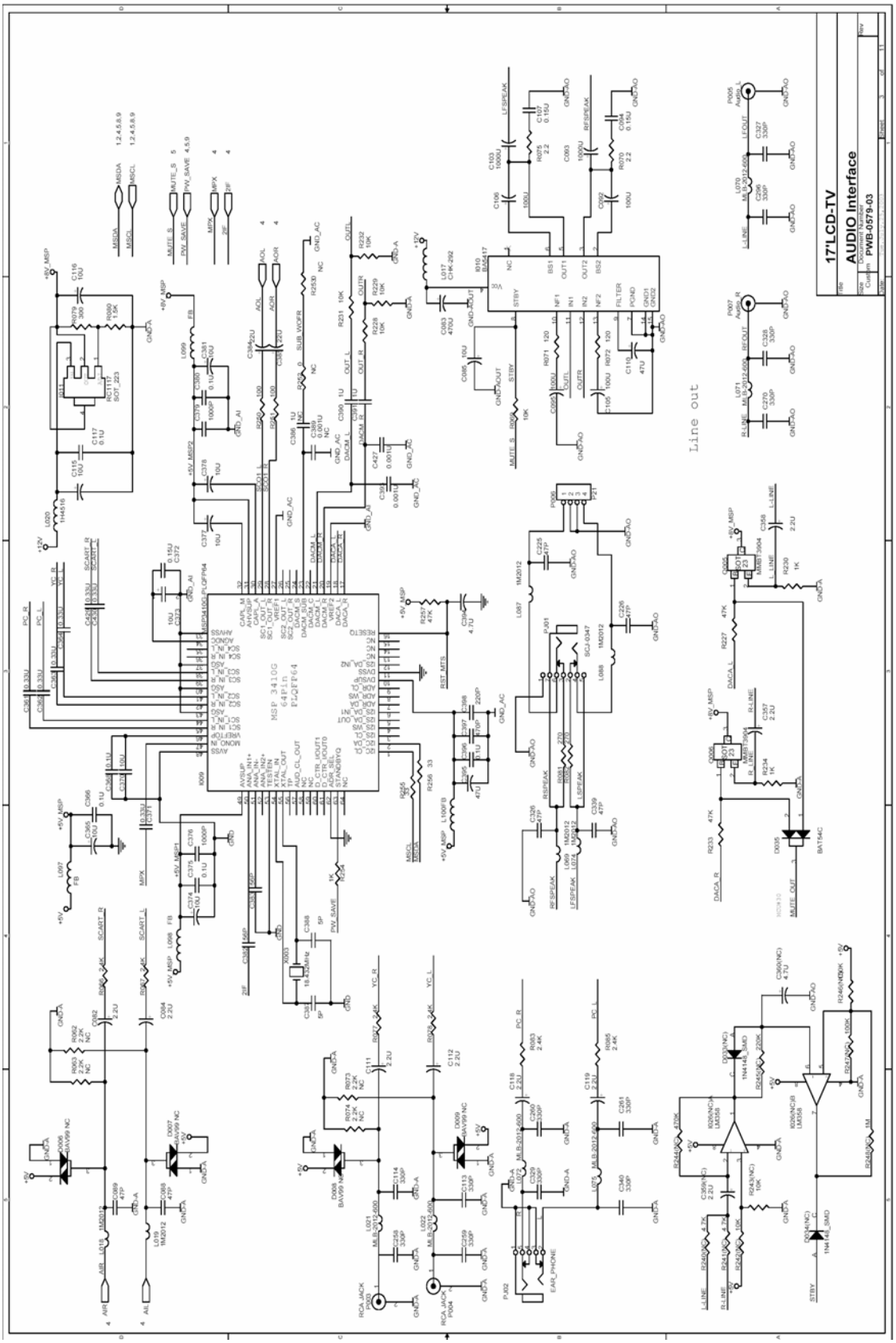
Adjusting the Brightness in OSD menu is to control the voltage at #62 (DVD0) of **I019** (Scaler:TP6760) and then applies to **P017** #7 (to Inverter). The range of the voltage is from 0.5V to 2.8V. If the voltage of **P017**#7 is 0.5V, the screen will get light ; if it's 2.8V, the screen will get dim. It means that the different voltage will change the lamp current through the inverter to make the screen lighter or dimmer.

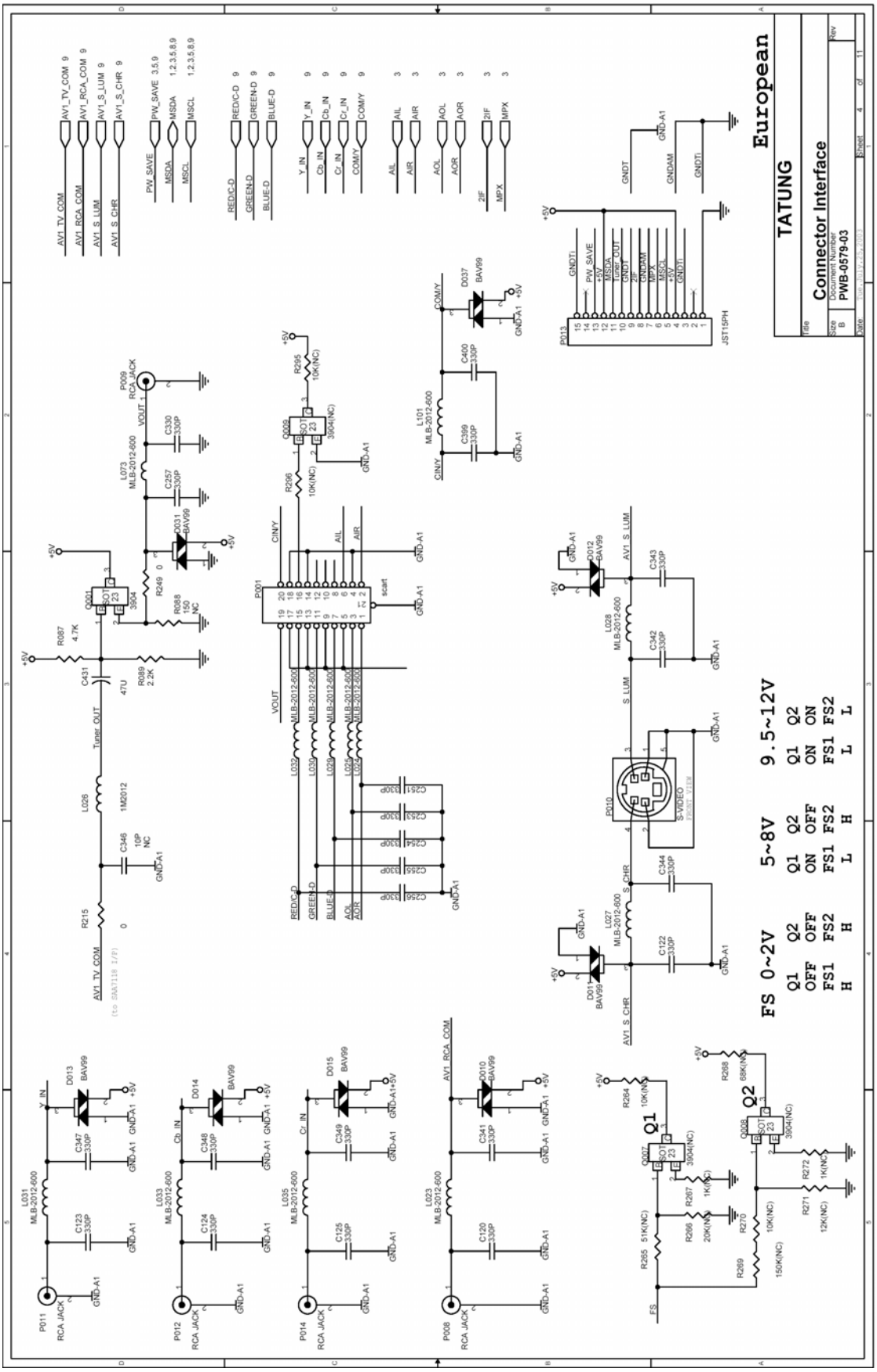
10. Circuit Diagram

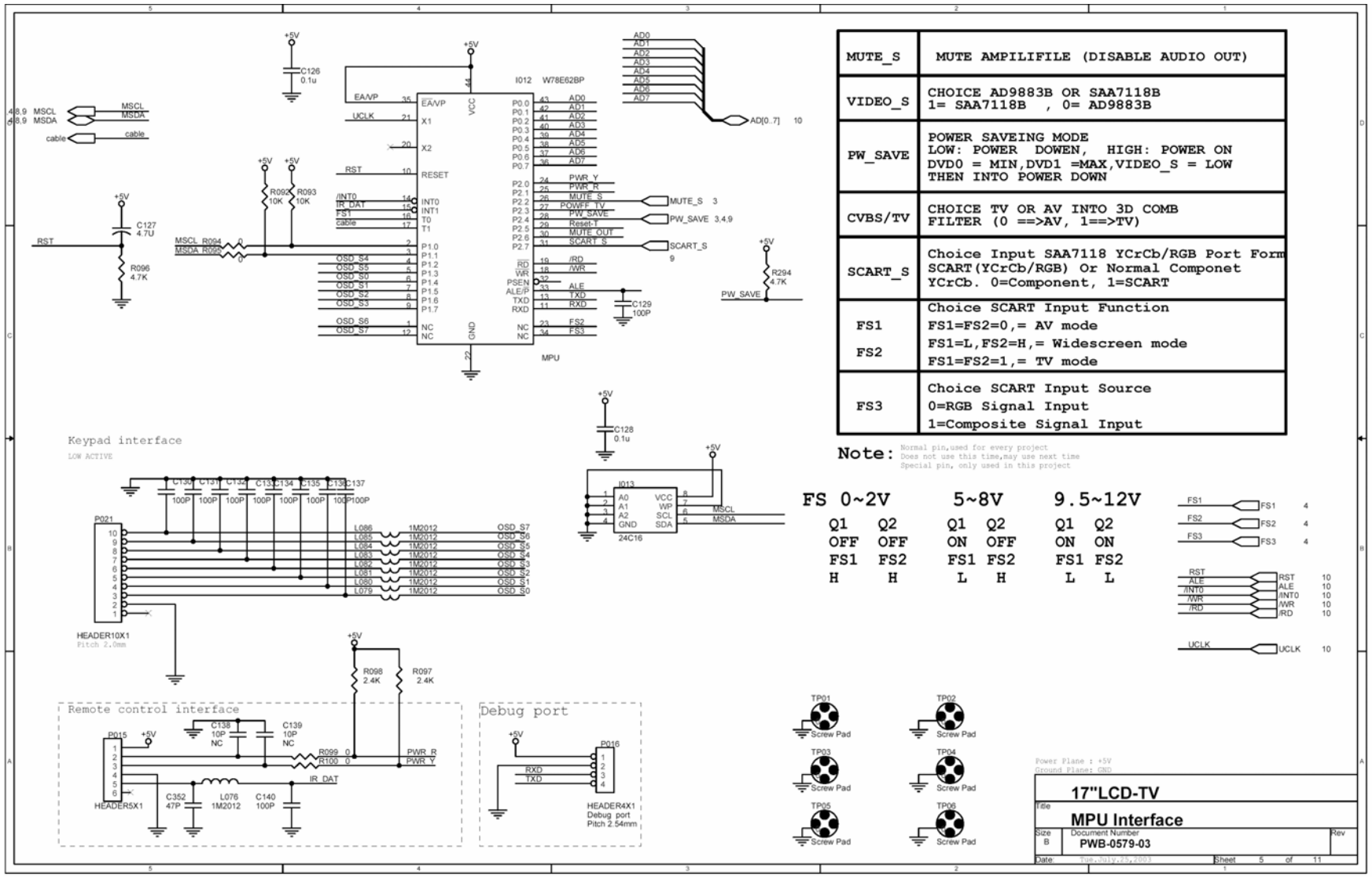
10.1 Main & Tuner Board (PWB-0579)




17" LCD-TV
YPrPb Interface (AD9883)
PWB-0579-03
AD9883
-110
AD9883 PLL
AD9883 AD


17'LCD-TV
AUDIO Interface
PWB-0579-03
Line out

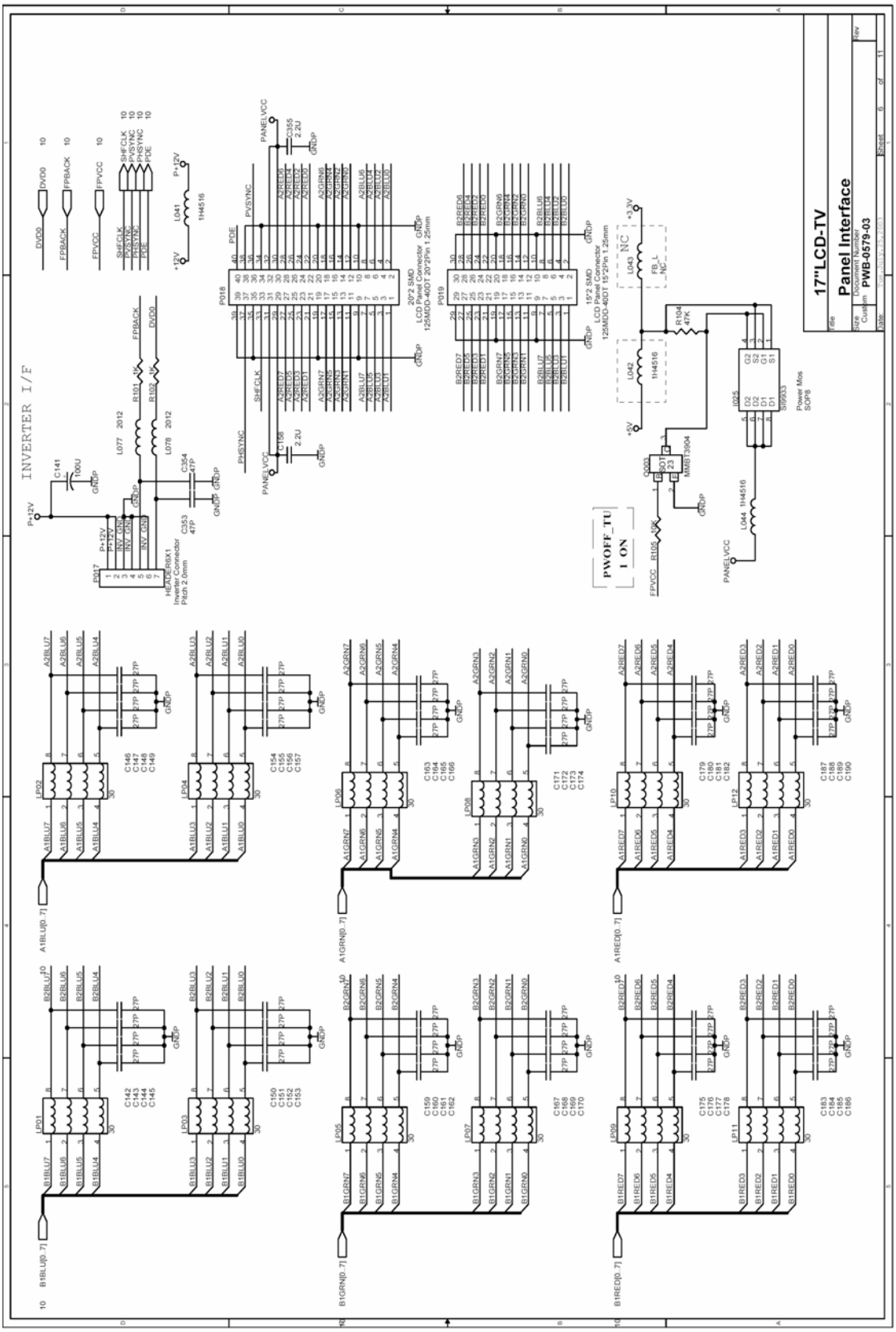

European
TATUNG
Connector Interface
PWB-0579-03
FS 0~2V
Q1 Q2
OFF OFF
FS1 FS2
H H
5~8V
Q1 Q2
ON OFF
FS1 FS2
L H
9.5~12V
Q1 Q2
ON ON
FS1 FS2
L L
AV1_TV_COM
AV1_RCA_COM
AV1_S_LUM
AV1_S_CHR
PW_SAVE
MSDA
MSCL
REDIC-D
GREEN-D
BLUE-D
Y_IN
Cb_IN
Cr_IN
COMY
AIL
AIR
AOL
AOR
2IF
MPX
JST15PH
S-VIDEO
RCA JACK
scart
Tuner_OUT
Q1
Q2

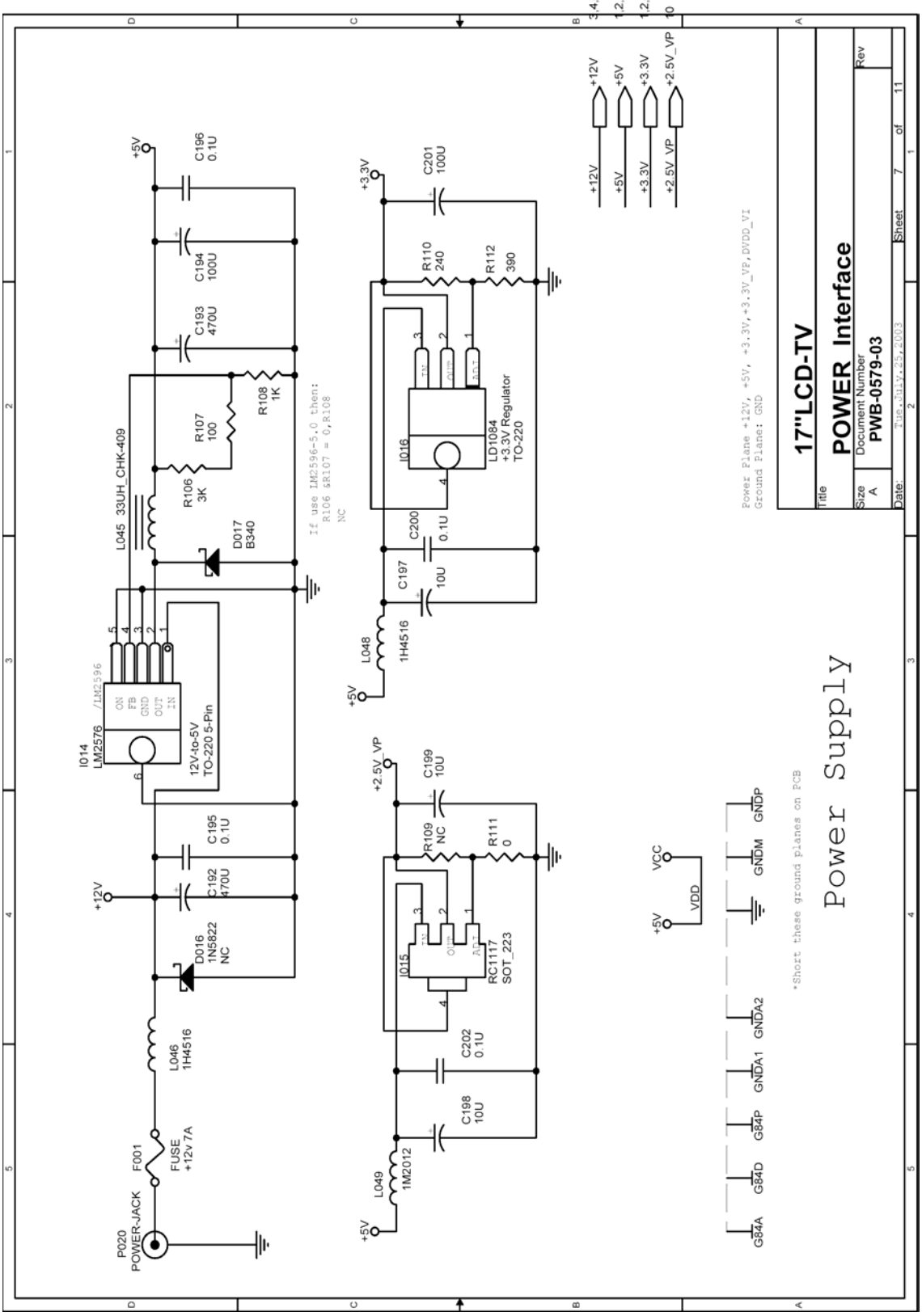


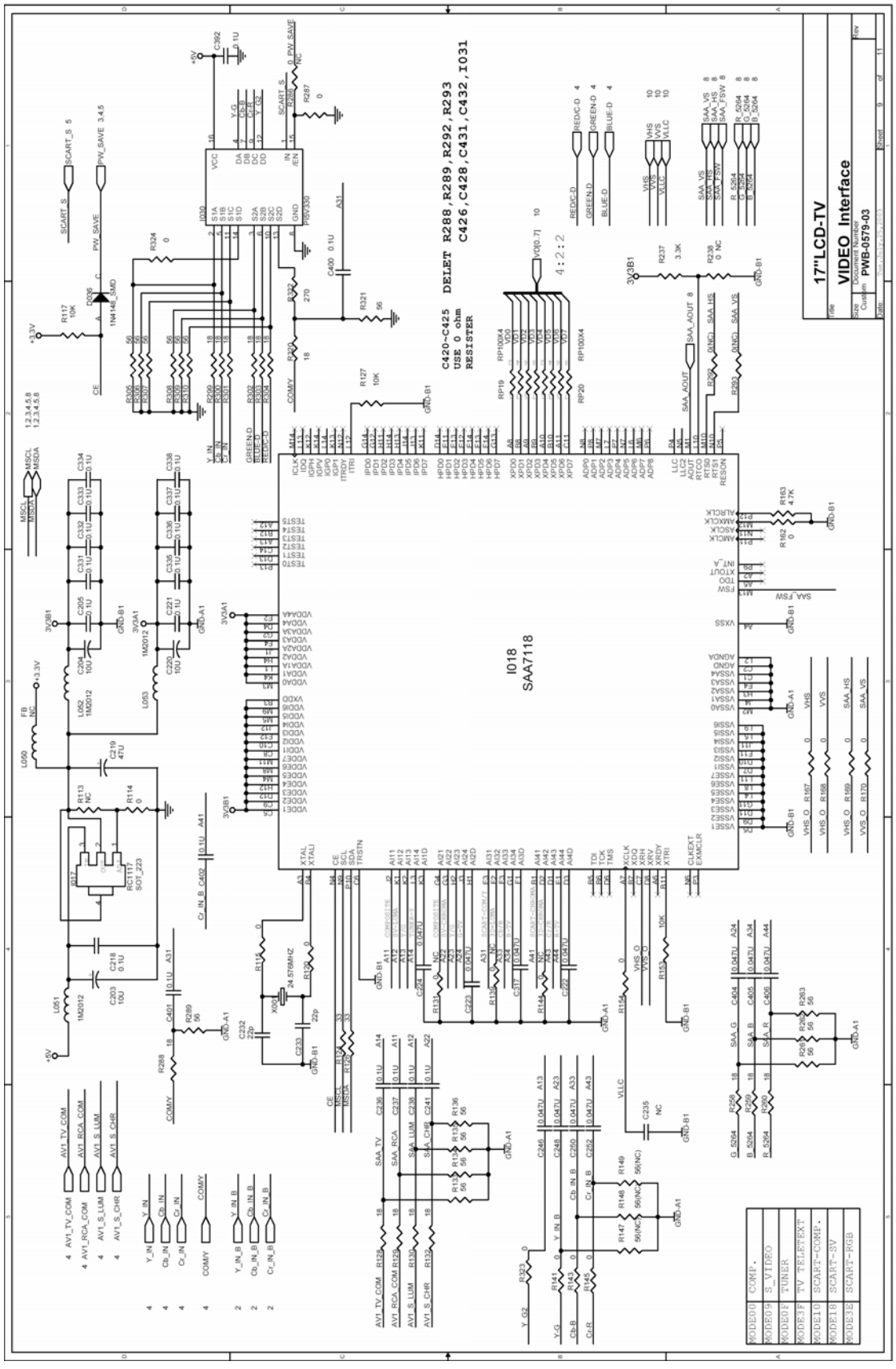
MUTE_S	MUTE AMPILIFILE (DISABLE AUDIO OUT)
VIDEO_S	CHOICE AD9883B OR SAA7118B 1= SAA7118B , 0= AD9883B
PW_SAVE	POWER SAVEING MODE LOW: POWER DOWEN, HIGH: POWER ON DVD0 = MIN,DVD1 =MAX,VIDEO_S = LOW THEN INTO POWER DOWN
CVBS/TV	CHOICE TV OR AV INTO 3D COMB FILTER (0 ==>AV, 1==>TV)
SCART_S	Choice Input SAA7118 YCrCb/RGB Port Form SCART(YCrCb/RGB) Or Normal Componet YCrCb. 0=Component, 1=SCART
FS1 FS2	Choice SCART Input Function FS1=FS2=0,= AV mode FS1=L,FS2=H,= Widescreen mode FS1=FS2=1,= TV mode
FS3	Choice SCART Input Source 0=RGB Signal Input 1=Composite Signal Input

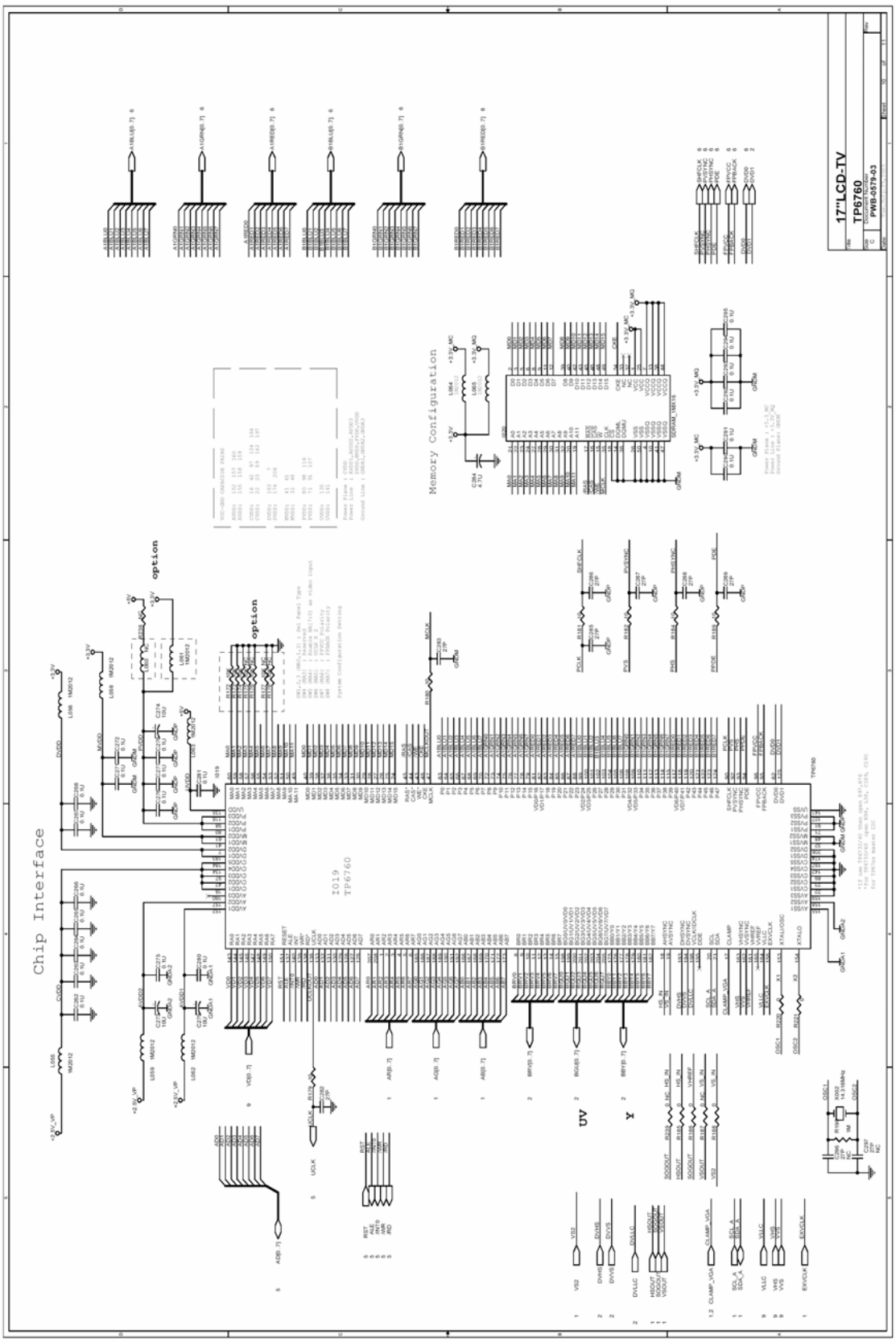
Note: Normal pin,used for every project
Does not use this time,may use next time
Special pin, only used in this project

FS 0~2V		5~8V		9.5~12V	
Q1	Q2	Q1	Q2	Q1	Q2
OFF	OFF	ON	OFF	ON	ON
FS1	FS2	FS1	FS2	FS1	FS2
H	H	L	H	L	L

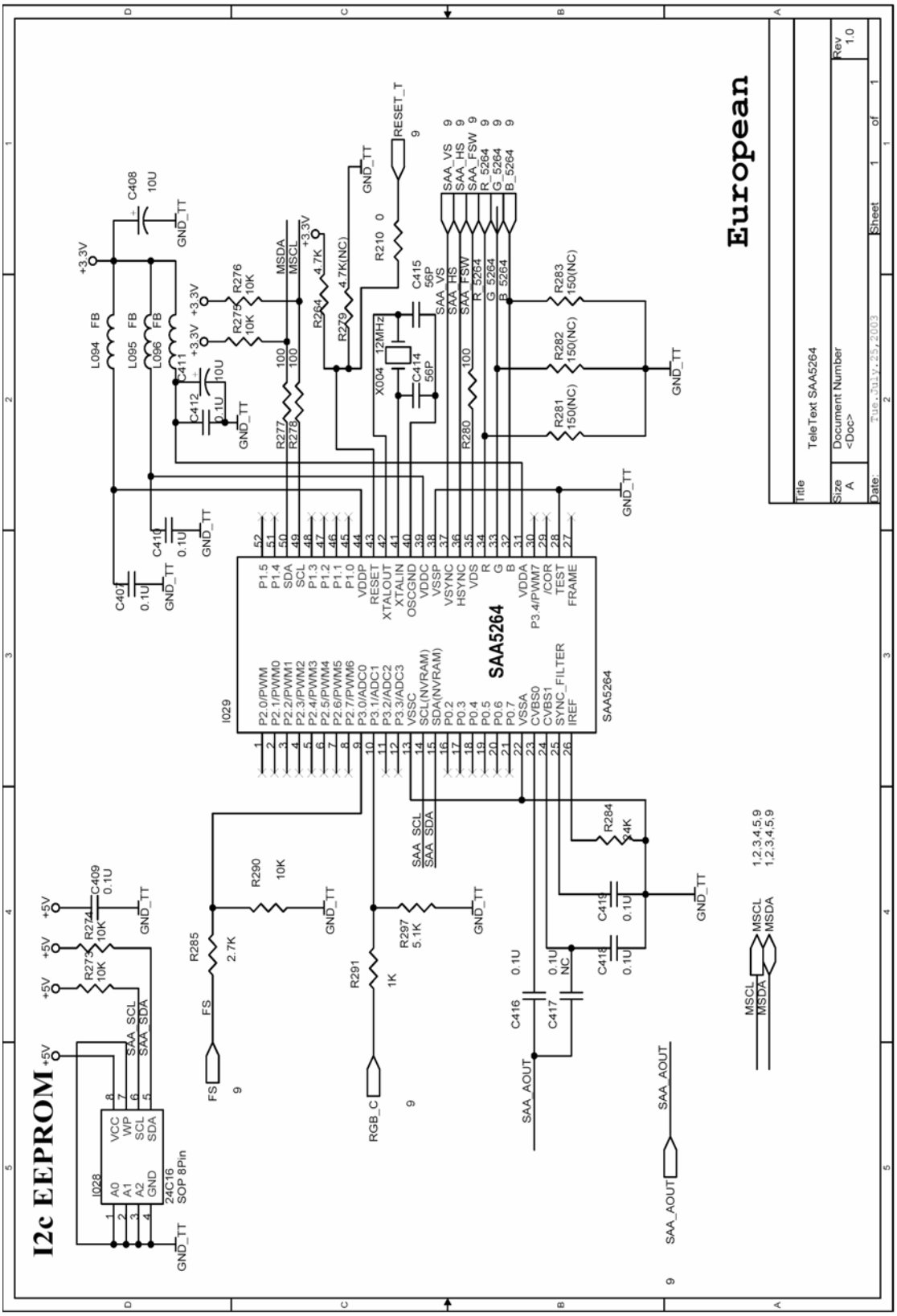

INVERTER I/F
17"LCD-TV
Panel Interface
PWB-0579-03
PWOFF_TU
1 ON
HEADER6X1
Inverter Connector
Pitch 2.0mm
20*2 SMD
LCD Panel Connector
125MDD-40DT 20*2Pin 1.25mm
15*2 SMD
LCD Panel Connector
125MDD-40DT 15*2Pin 1.25mm
Power Mos
SOP8
MMBT3904
DVD0
FPBACK
FPVCC
SHFCLK
PVSYNC
PHSYNC
PDE
PANELVCC
P+12V
+12V
+5V
+3.3V
A1BLU[0..7]
B1BLU[0..7]
A1GRN[0..7]
B1GRN[0..7]
A1RED[0..7]
B1RED[0..7]

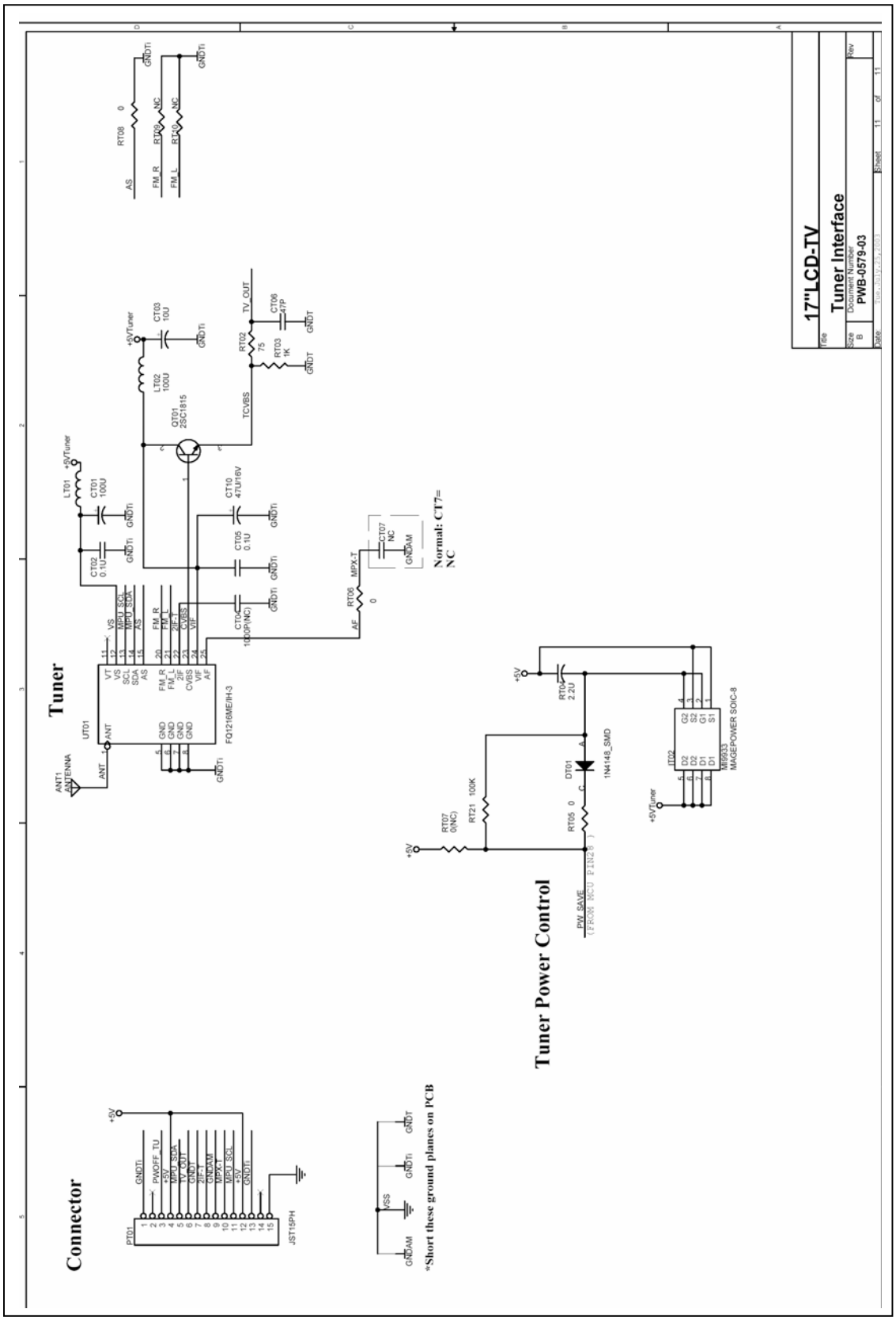

17"LCD-TV
POWER Interface
Document Number
PWB-0579-03
Power Supply
Power Plane +12V, +5V, +3.3V,+3.3V_VP,DVDD_VI
Ground Plane: GND
*Short these ground planes on PCB
If use LM2596-5.0 then:
R106 &R107 = 0,R108
NC
P020 POWER-JACK
F001 FUSE +12v 7A
L046 1H4516
L045 33UH_CHK-409
L048 1H4516
L049 1M2012
I014 LM2576 /LM2596
12V-to-5V TO-220 5-Pin
D016 1N5822 NC
D017 B340
I015 RC1117 SOT_223
I016 LD1084 +3.3V Regulator TO-220
R106 3K
R107 100
R108 1K
R109 NC
R110 240
R111 0
R112 390
C192 470U
C193 470U
C194 100U
C195 0.1U
C196 0.1U
C197 10U
C198 10U
C199 10U
C200 0.1U
C201 100U
C202 0.1U
+12V
+5V
+3.3V
+2.5V_VP
VCC
VDD
GNDP
GNDM
GNDA2
GNDA1
G84P
G84D
G84A


17"LCD-TV
VIDEO Interface
Document Number
PWB-0579-03
Sheet 9 of 11
C420~C425 DELET R288,R289,R292,R293
C426,C428,C431,C432,I031
USE 0 ohm
RESISTER
I018
SAA7118
4:2:2
MODE00 COMP.
MODE05 S_VIDEO
MODE0E TUNER
MODE3F TV SELECTEXT
MODE10 SCART-COMP.
MODE18 SCART-SV
MODE3E SCART-RGB

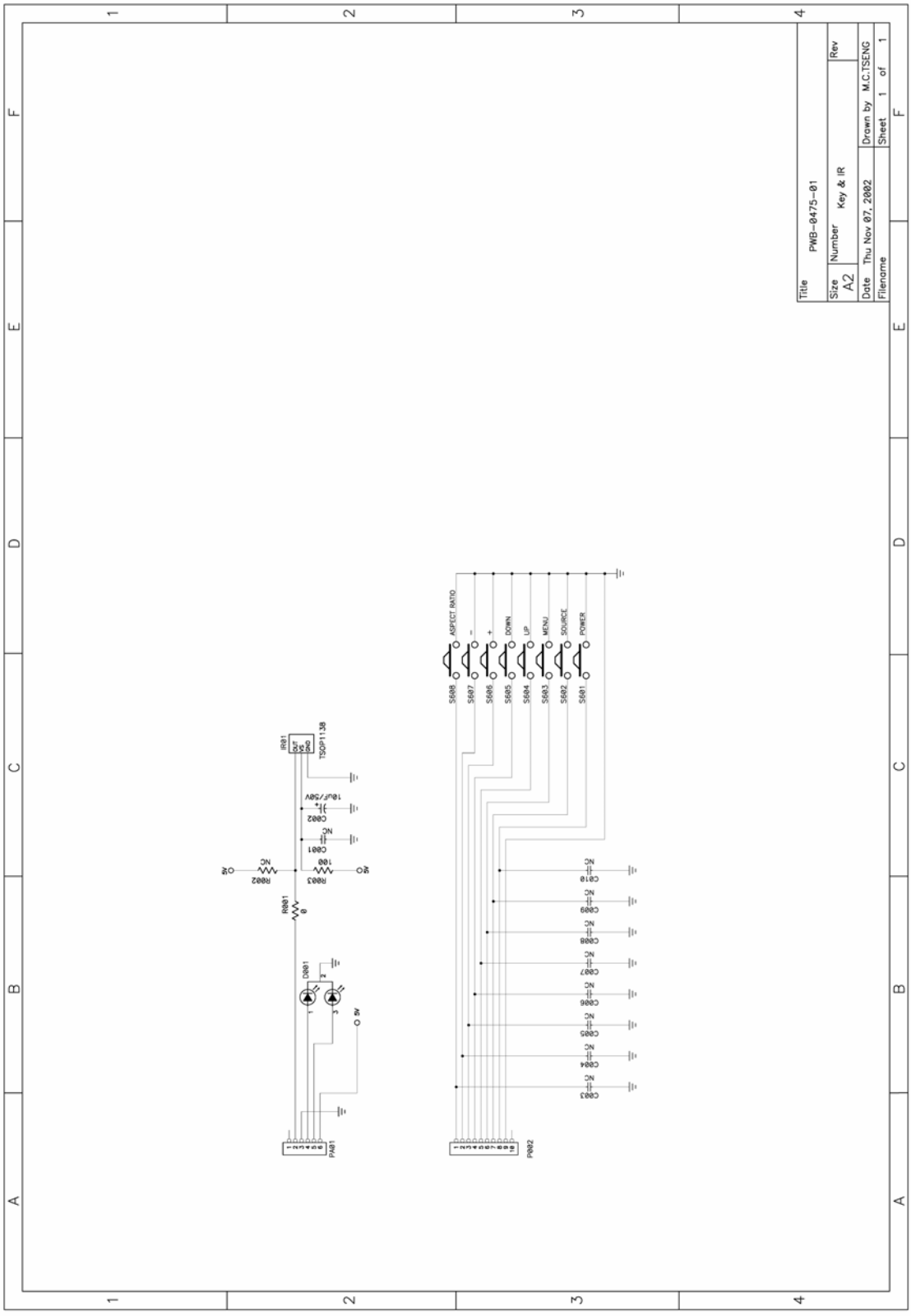

17"LCD-TV
TP6760
PWB-0579-03
Chip Interface
Memory Configuration
option
TP6760

]


European
I2c EEPROM
SAA5264
TeleText SAA5264
Document Number
<Doc>
Rev
1.0
Sheet 1 of 1
Date: Tue,July,25,2003
Size A
Title
I028
24C16
SOP 8Pin
I029
SAA5264
SAA_SCL
SAA_SDA
SAA_AOUT
MSCL
MSDA
RESET_T
SAA_VS
SAA_HS
SAA_FSW
R_5264
G_5264
B_5264
FS
RGB_C
X004
12MHz
GND_TT
+3.3V
+5V

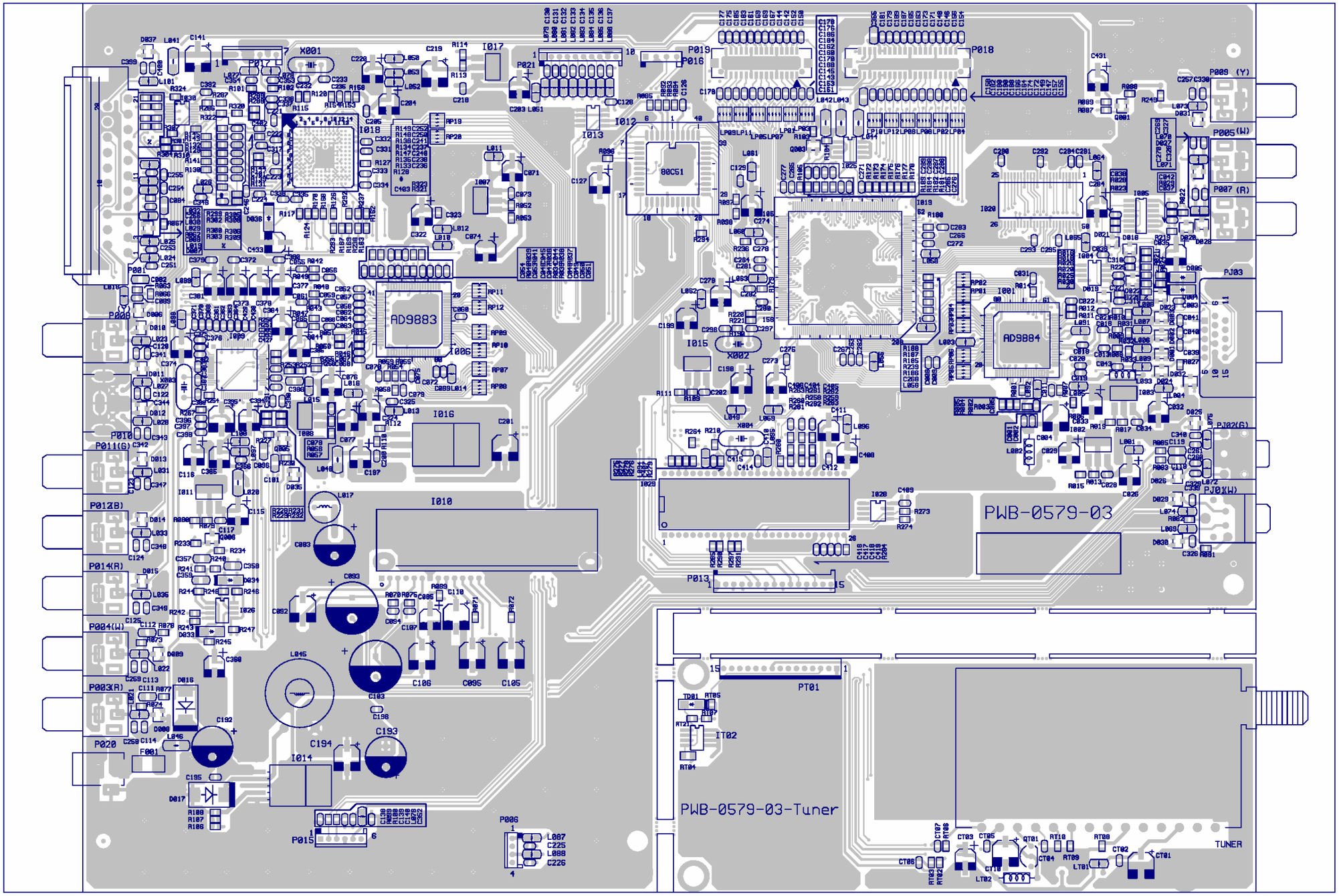

17"LCD-TV
Tuner Interface
PWB-0579-03
Tuner
Tuner Power Control
Connector
Normal: CT7= NC
*Short these ground planes on PCB
JST15PH
FQ1216ME/H-3
MP6533
MAGEPOWER SOIC-8
1N4148_SMD
2SC1815

10.2 Key & LED board (PWB-0475)



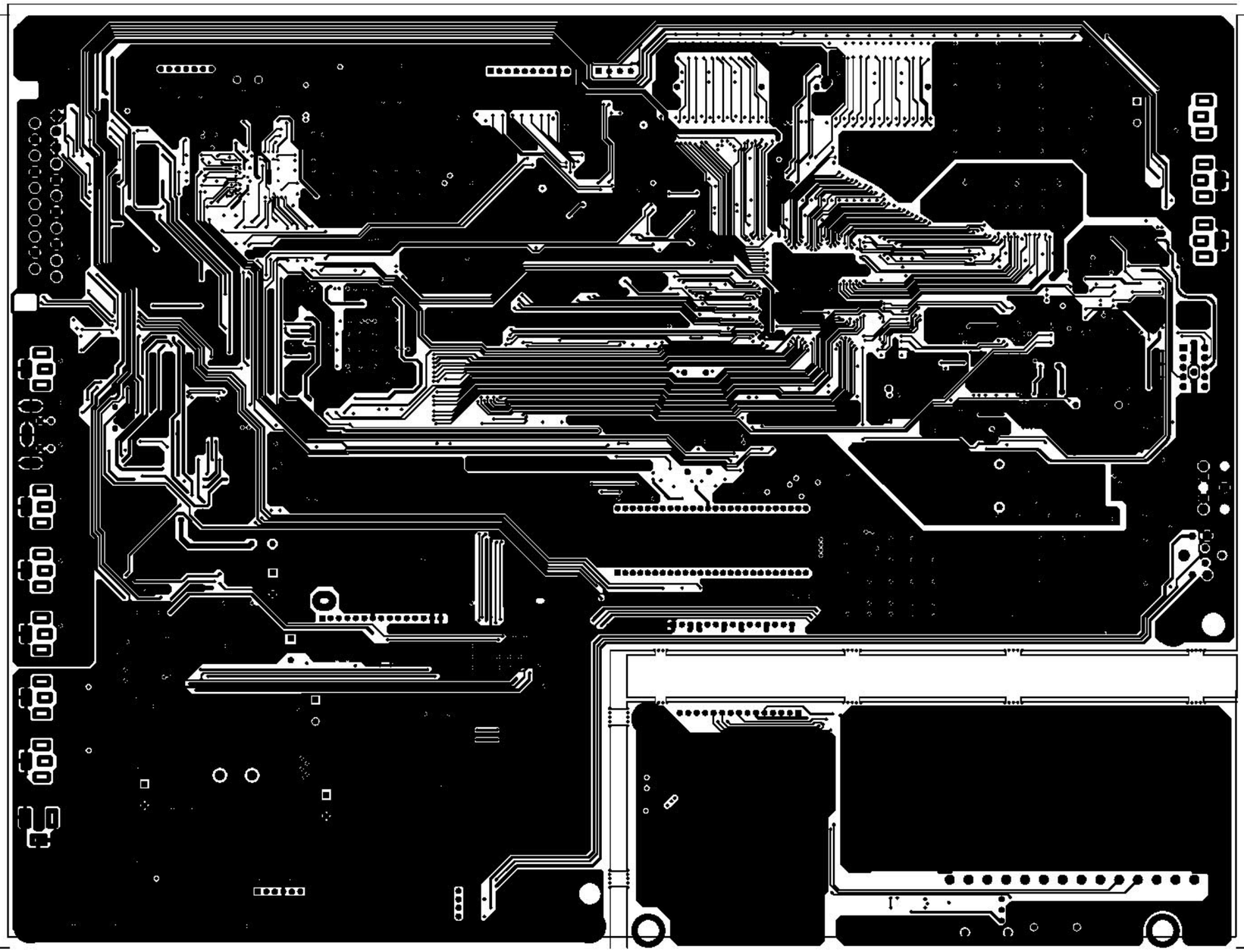
11. PCB Layout

11.1 Main & Tuner PCB (PWB-0579 & PWB-0579-Tuner) :



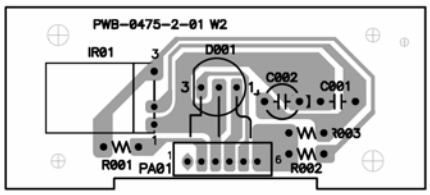
SILKTOP

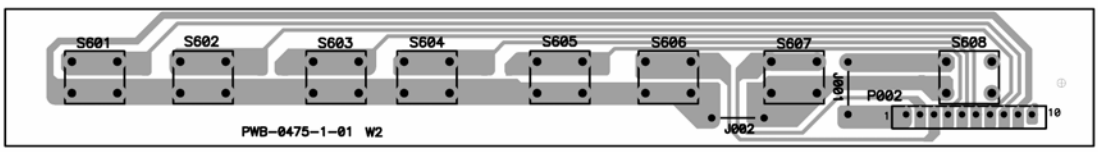
TATUNG		PAGE	1OF 9
Model No.	PWB-0579	SILK TOP	
Issue Date	2003Y 08 M 27 D	Rev.	03



TATUNG		PAGE	8OF 9
Model No.	PWB-0579	REV_02	
Issue Date	2003Y 08 M 27 D	Rev.	03

11.2 Key & LED PCB (PWB-0475-1 & PWB-0475-2)





12. Electrical Parts List

12.1 Main Board (PWB-0579)

Main PCB / MCU / Dip Parts						
Item	**pc's**	**Circuit No.**	**Part Spec.**	**Part No.**	**Type**	**Vendor**
2	1	I012	MCU: SM59264C	6647021813	PLC44	Sync.MOS.
1	1	U0579	PWB-0579	5053105790	4 Layers	Gia-Tzoong,TKE
3	3	C083,C192,C193	470U/25V	5205447102	DIP	CHINSAN TEAPO CAPXON
4	2	C093,C103	1000U/16V	5214019102	DIP	CAPXON
5	1	I010	BA5417	6644007001	DIP	ROHM
6	1	I029	SAA5264PS/M3	6645006603	SDIP52	PHILIPS
7	1	L017	CHK-292 (50U)	5062129200	DIP	Shining-Yuan Jet-signal
8	1	L045	CHK-409 (33U)	5062140900	DIP	Jet-Signal
9	2	L093, L002	Coil , 100uH,TRF-8101J	5064410129	DIP	TDK,CHILISIN
10	1	PJ01	EAR_PHONE (Out)	5056302037	JY-3551-21	Lih-Sheng
11	1	PJ02	EAR_PHONE (in)	5056300105	SCJ-0349A	S.C.
12	1	PJ03	D-SUB Conn. + Screw	5056309121	DIP	Cen-Link
13	1	P001	Scart Conn. AJ-2050B	5556314100	DIP	Jye-Tai
14	3	P003,P007,P014	RCA JACK (RED)	5056307064	DIP	S.C.
15	2	P004,P005	RCA JACK (WHITE)	5056307065	DIP	S.C.
16	2	P009,P008	RCA JACK (YELLOW)	5056307066	DIP	S.C.
17	1	P011	RCA JACK_Y (GREEN)	5056307068	DIP	S.C.
18	1	P012	RCA JACK_Cb (BLUE)	5056307067	DIP	S.C.
19	1	P010	S-VIDEO	5056302049	DIP	S.C.
20	1	P020	DC-JACK , LD-0202	5056300707	DIP	Lih-Sheng
21	1	P006	BASE & PIN (4P) L	5056415484	DIP	JWT
22	1	P015	BASE & PIN (6P) L	5056415685	DIP	JWT
23	1	P017	BASE & PIN (7P) L	5056415728	DIP	JWT
24	1	P021	BASE & PIN (10P) L	5056416038	DIP	JST,JWT
25	1	P013	BASE & PIN (15P) L	5056416537	DIP	JST,JWT
26	1	PA13	Wire Ass' y 15p	5057415235	DIP	Liang-San,Great Land
27	1	X001	24.576MHZ	6699134506	DIP	H.ELE
28	1	X002	14.318MHz / 30pF	6699106034	DIP	H.ELE
29	1	X003	18.432MHz / 12pF	6699153630	DIP	H.ELE
30	1	X004	12MHz / 18p	6699114105	DIP	H.ELE

SMT Parts						
Item	**pc's**	**Circuit No.**	**Part Spec.**	**Part no.**	**Type**	**Vendor**
1	4	C035,C127,C284,C394	4.7U/16V	5218014791	SMD	CAPXON
2	93	C003,C008,C011,C019,C022, C028,C034,C036,C042,C046, C049,C050,C052,C053,C054, C055,C056,C057,C060,C061, C063,C065,C066,C067,C068, C069,C070,C073,C075,C078, C117,C126,C128,C195,C196, C200,C202,C205,C218,C221, C236,C237,C238,C241,C262, C263,C264,C265,C266,C267, C268,C271,C272,C275,C276, C277,C278,C280,C281,C290, C291,C292,C293,C294,C295, C323,C325,C331,C332,C333, C334,C335,C336,C337,C338, C366,C368,C375,C380,C390, C391,C392,C396,C401,C402, C403,C407,C409,C410,C412 , C416,C418, C419	0.1U/25V	5230005491	0603	PHYCOMP TAIYO YUDEN TDK WALSIN
3	14	C009,C018,C020,C047,C048, C051,C058,C062,C064,C072, C376,C379,C393,C427	1000P/50V	5230610291	0603	
4	4	C037,C352,C353,C354	47P/50V	5240647091	0603	
5	23	C013,C016,C021,C059,C130, C131,C132,C133,C134,C135, C136,C137,C222,C223,C224, C246,C248,C250,C252,C317, C404,C405,C406	0.047U/50V	5230647391	0603	
6	10	C082,C084,C111,C112,C118, C119,C158,C355,C357,C358,	2.2U/16V	5230007791	0805	
7	7	C361,C362,C363,C364,C371, C429,C430	0.33U/16V	5230004191	0603	
8	2	C387,C388	5P/50V	5240605091	0603	
9	1	C398	220P/50V	5240622191	0603	
10	2	C001,C044	0.0082U/50V	5230682291	0603	
11	2	C002,C045	0.082U/16V	5230019091	0603	
12	57	C031,C079,C142,C143,C144, C145,C146,C147,C148,C149, C150,C151,C152,C153,C154, C155,C156,C157,C159,C160, C161,C162,C163,C164,C165, C166,C167,C168,C169,C170, C171,C172,C173,C174,C175, C176,C177,C178,C179,C180, C181,C182,C183,C184,C185, C186,C187,C188,C189,C190, C282,C283,C285,C286,C287, C288,C289	27P/50V	5240627091	0603	
13	3	C038,C129,C140	100P/50V	5240610191	0603	

Item	pc's	Circuit No.	Part Spec.	Part no.	Type	AVL
14	39	C088,C089,C113,C114,C120, C122,C123,C124,C125,C225, C226,C251,C253,C254,C255, C256,C257,C258,C259,C260, C261,C269,C270,C326,C327, C328,C329,C330,C339,C340, C341,C342,C343,C344,C347, C348,C349,C399,C400	330P/50V	5240633191	0603	PHYCOMP TAIYO YUDEN TDK WALSIN
15	3	C107,C094,C372	0.15U/16V	5230019191	0603	
16	2	C233,C232	22P/50V	5240622091	0603	
17	4	C382,C383,C414,C415	56P/50V	5240656091		
18	29	C026,C029,C032,C033,C074, C071,C076,C077,C085,C115, C116,C197,C198,C199,C203, C204,C220,C273,C274,C279, C322,C324,C365,C374,C373, C377,C378,C408,C411	10U/16V	5218007891	SMD	NIPPON CHEMICON
19	2	C384,C385	22U/16V	5218008891	SMD	
20	7	C092,C095,C105,C106,C141, C194,C201	100U/16V	5218007991	SMD 6x5	
21	5	C004,C110,C219,C395,C431	47U/16V	5218008991	SMD	PANASONIC
22	11	D001,D002,D003,D010,D011, D012,D013,D014,D015,D031, D037	BAV99-7 / 75V MMBD7000LT1	6613000555 6613003550	SOT-23 SOT-23	DII ON
23	3	D004,D005,D036	RLS4148 HSK120	6613003059 6613003052	SMD	ROHM HITACHI
24	1	D017	B340 (SS34) SS34 SS34	6611026558 6611026552 6611026555	C type	DII GS Tantron
25	1	D035	BAT54C	6611012352	SOT-23	DII
26	1	F001	125V/7A	5054470091	FUSE	BEL
27	27	L001,L004,L011,L012,L014, L015,L016,L049,L051 ,L052, L053,L055,L056,L058,L059, L061,L062,L063,L064 ,L065, L094,L095,L096,L097,L098, L099,L100	MLB-201209-0300L-N2 HH-1M2012-301	5062133003 5062120132	0805 0805	MAGLAYES CSC
28	4	L006,L007,L008,L026	MLB-201209-00007BN3 HB-1S2012-8R0	5062133004 5062120131	0805	MAGLAYES CSC
29	1	L009	0	5132300009	0805	YAGEO,RAYAL
30	6	L020,L041,L042,L044,L046, L048	MLB-451616-0080P-N1 HH-1H4516-600	5062132306 5062120130	1806 1806	MAGLAYES CTC
31	25	L018,L019,L021,L022,L023, L024,L025,L027,L028,L029, L030,L031,L032,L033,L035, L069,L070,L071,L072,L073, L074,L075,L087 ,L088,L101	MLB-201209-00600L-N 2	5062133011	0805	MAGLAYES

Item	pc's	Circuit No.	Part Spec.	Part no.	Type	Vendor
32	5	L076,L077,L078,L091,L092	MLB-201209-0120A-N4	5062122981	0805	MAGLAYES
33	1	L003	MLI-201209-R15K	5062132412	0805	MAGLAYES
34	8	L079,L080,L081,L082,L083, L084,L085,L086	MLB-201209-1500	5062133023	0805	MAGLAYES
35	12	LP01,LP02,LP03,LP04,LP05, LP06,LP07,LP08,LP09,LP10, LP11,LP12	MLB-3216-0030M4-N2	5062128504	Bead Array	MAGLAYES
36	6	RP01,RP02,RP03,RP04,RP05, RP06	MLB-3216-0220M4-N3	5062128505	Bead Array	MAGLAYES
37	1	P018	20P*2 MDS240320	5056417018	SMD	STM
38	1	P019	15P*2 MDS240315	5056416508	SMD	STM
39	4	Q001,Q003,Q005,Q006	MMBT3904 KST3904 MMBT3904	6622002257 6621038451 6622002259	SOT-23	ZOWIE FAIRCHILD DII
40	37	R005,R007,R015,R019,R037, R040,R053,R057,R058,R094, R095,R099,R100,R111,R114, R115,R120,R141,R143,R145, R154,R162,R167,R168,R169, R170,R185,R186,R188,R210, R220,R221,R249,R287,R322, R323,R324	0	5134300009	0603	YAGEO RAYAL
41	7	R101,R102,R108,R230,R234, R254,R291	1K	5134310209	0603	YAGEO,RAYAL
42	4	R124,R126,R256,R255	33	5134333009	0603	YAGEO,RAYAL
43	11	R011,R012,R020,R025,R031, R032,R033,R045,R046,R225, R226	75	5134375009	0603	YAGEO,RAYAL
44	4	R104,R227,R233,R257	47K	5134347309	0603	YAGEO,RAYAL
45	20	R023,R027,R050,R069,R092, R093,R105,R117,R127,R153, R172,R173,R174,R228,R231, R273,R274,R275,R276,R290	10K	5134310309	0603	YAGEO,RAYAL
46	1	R284	24K	5134324309	0603	YAGEO,RAYAL
47	1	R297	5.1K	5134351209	0603	YAGEO,RAYAL
48	9	R014,R055,R059,R179,R180, R181,R182, R184,R189	10	5134310009	0603	YAGEO,RAYAL
49	1	R080	1.5K	5134315209	0603	YAGEO,RAYAL
50	4	R022,R089,R232,R229	2.2K	5134322209	0603	YAGEO,RAYAL
51	3	R003,R036,R285	2.7K	5134327209	0603	YAGEO,RAYAL
52	3	R001,R002,R079	300	5134330109	0603	YAGEO,RAYAL
53	1	R110	240	5134324109	0603	YAGEO,RAYAL
54	1	R112	390	5134339109	0603	YAGEO,RAYAL
55	2	R028,R029	47	5134347009	0603	YAGEO,RAYAL
56	8	R066,R067,R077,R078,R083, R085,R097,R098	2.4k	5134324209	0603	YAGEO,RAYAL
57	2	R075,R070	2.2	5134322909	0603	YAGEO,RAYAL
58	2	R071,R072	120	5134312109	0603	YAGEO,RAYAL
59	2	R081,R082	270	5134327109	0603	YAGEO,RAYAL
60	7	R021,R024,R087,R096,R163, R264,R294	4.7K	5134347209	0603	YAGEO,RAYAL
61	1	R237	3.3K	5134333209	0603	YAGEO,RAYAL
62	1	R106	3K	5134330209	0603	YAGEO,RAYAL

Item	pc's	Circuit No.	Part Spec.	Part no.	Type	Vendor
63	12	R008,R009,R010,R042,R043, R044,R107,R250,R251,R277, R278,R280	100	5134310109	0603	YAGEO,RAYAL
64	15	R128,R129,R130,R132,R258, R259,R260,R288,R299,R300, R301,R302,R303,R304,R320	18	5134318009	0603	YAGEO,RAYAL
65	15	R133,R134,R135,R136,R261, R262,R263,R289,R305,R306, R307,R308,R309,R310,R321	56	5134356009	0603	YAGEO,RAYAL
66	2	R190	1M	5134310509	0603	YAGEO,RAYAL
67	8	RP07,RP08,RP09,RP10,RP11, RP12,RP19,RP20	RP100x4	5160310900	Array x 4	YAGEO
68	1	I005	74F14	6646021451	SO-14	FAIRCHILD
69	1	I025	SI9933	6644075755	SMD	VISHAY-SILICONIX
70	1	I030	P15V330Q	6644036001	SMD	PERICOM
71	5	I002,I003,I007,I008,I017	RC1117ST 33	6640003858	SOT-223	FAIRCHILD
72	1	I011	RC1117ST ADJ AP1117E-ADJ	6640003863 6640010155	SOT-223 SOT-223	FAIRCHILD ATC
73	1	I015	RC1117ST 25	6640003867	SOT-223	FAIRCHILD
74	1	I006	AD9883A-110	6649001852	LQFP 80P	ADI
75	1	I001	AD9883A-140	6649001853	LQFP 80P	ADI
76	1	I004	24WC02	6647051862	SO-8	CATALYST
77	2	I009	MSP 3410G	6644077051	PMQFP64	MICRONAS
78		I013,I028	24LC16 (16K) AT24C16N CA24WC16	6647026355 6647026301 6647026357	SO-8 SO-8 SO-8	MICROCHIP ATMEL CATALYST
79	1	I014	LM2576 ADJ	6640007957	TO-263	NS
80	1	I016	LD1084 ADJ	6640005156	TO-263	EGTEK
81	1	I018	SAA7118E	6647052050	BGA156P	PHILIPS
82	1	I019	TP6760Q	6646000351	QFP 208P	TOPRO
83	1	I020	HY57V161610	6647013102	TSOP	HYNIX
84	1	I012A	MCU Socket 44P	5056304402	PLCC	Cen-Link

12.2 Tuner Board (PWB-0579-Tuner)

Item	Pc's	Circuit No.	Part Spec.	Part No.	Type	Vendor
1	1	CT01	100U/16V	5218007991	SMD 6x5	NIPPON CHEMICON
2	2	CT02,CT05	0.1U/25V	5230005491	0603	PHYCOMP , TAIYO YUDEN, TDK , WALSIN
3	1	CT03	10U/16V	5218007891	SMD	NIPPON CHEMICON
4	1	CT06	47P/50V	5240647091	0603	
5	1	CT10	47U/16V	5218008991	SMD	PANASONIC
6	1	DT01	LS4148 HSK120	6613003059 6613003052	SMD	ROHM HITACHI
7	1	IT02	SI9933	6644075755	SMD	VISHAY-SILICONIX
8	2	LT01,LT02	Coil , 100uH	5064410129	DIP	TDK,CHILISIN
9	1	PT01	BASE & PIN (15P) I	5056416567	DIP	JST,JWT
10	1	QT01	2SC1815 H945P	6621015332 6621015335	DIP DIP	TOSHIBA HITACHI
11	1	RT02	75	5134375009	0603	YAGEO,RAYAL
12	1	RT03	1K	5134310209	0603	YAGEO,RAYAL
13	1	RT04	2.2U/16V	5230007791	0805	PHYCOMP TAIYO YUDEN TDK WALSIN
14	3	RT05,RT06,RT08	0	5134300009	0603	YAGEO,RAYAL
15	1	RT21	100K	5134310409	0603	YAGEO,RAYAL
16	1	UT01	TUNERFQ1216ME/IH-3	5000100054	DIP	PHILIPS

12.3 Inverter Board (PWB-0476)

Item	Pc's	Circuit No.	Part Spec.	Part No.	Type	Vendor
1	1	U901	Inverter IV50220/ 12V	5000100053		Sumida

12.4 LED & IR Board (PWB-0475-2)

Item	Pc's	Circuit No.	Part Spec.	Part No.	Type	Vendor
1	1	C002	10U/ 50V	5213610091	DIP	CAPXON , CHINSAN,TEAPO
2	1	D001	Dual LED L-319EUGF Dual LED CSL-F300EG	6618018150 6618022000	DIP DIP	PARA CSC
3	1	IR01	IR Lens TSOP1138	5000100043	DIP	VISHAY-TELEFUNKEN
4	1	PA01	Wire Ass'y 6P (to LED)	5057406135	DIP	Greatland , Liang-San
5	1	R001	Copper Wire	6119210605	DIP	Tatung
6	1	R003	1/6W , 100 ohm	5142110195	DIP	RAYL , Fong-Ya

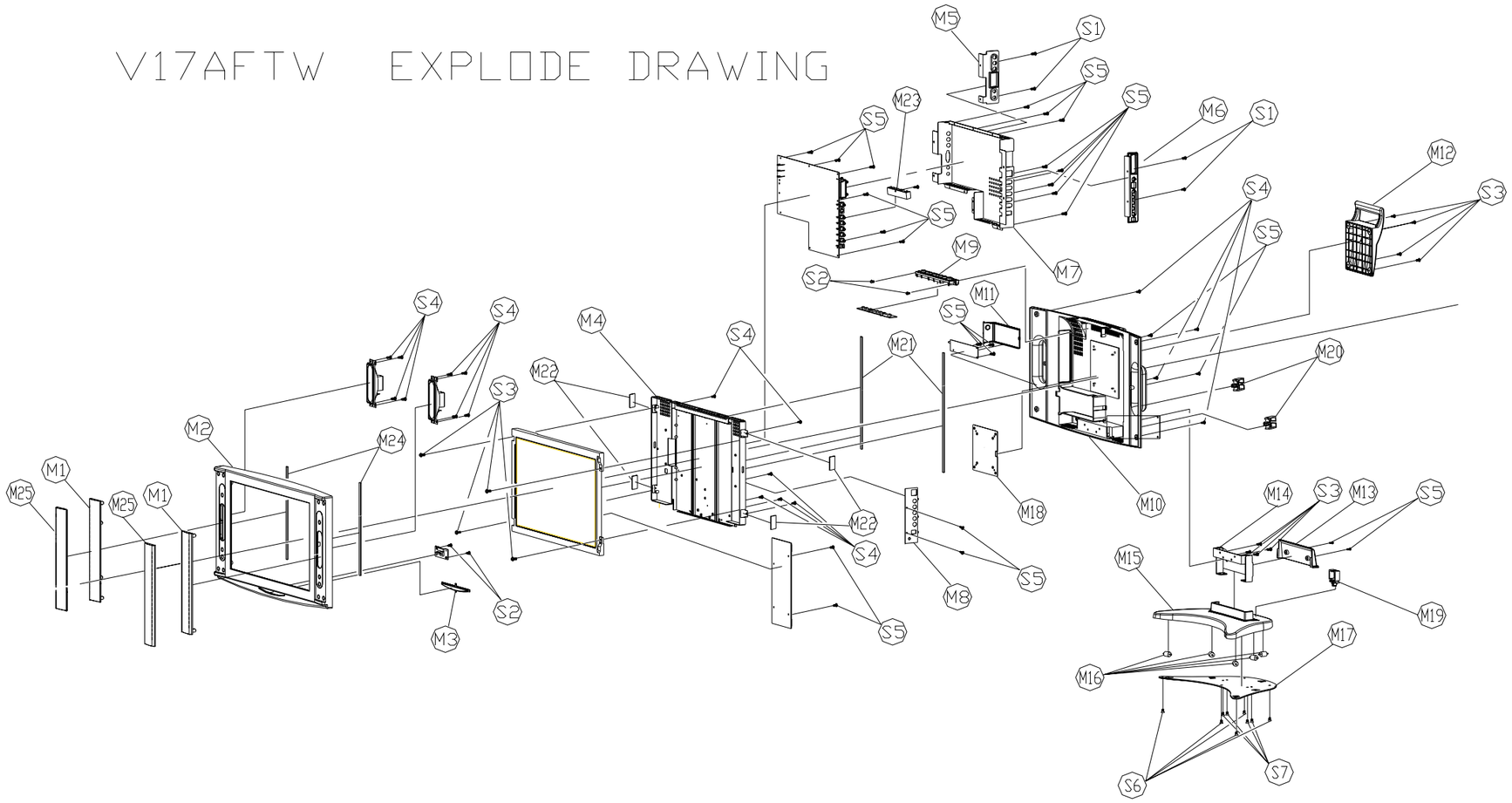
12.5 Key Board (PWB-0475-1)

Item	Pc's	Circuit No.	Part Spec.	Part No.	Type	Vendor
1	1	U0475	PWB-0475	5053104750	1 Layer	Tai-Jing
2	2	J001,J002	Copper Wire	6119210605	DIP	Tatung
3	1	P002	Base & Pin, 10p	5056416038	DIP	JST,JWT
4	8	S601,S602,S603,S604,S605, S606,S607,S608	Tact Switch	5054512951	DIP	Forward

12.6 Panel /Miscellaneous / Accessories

Item	Pc's	Circuit No.	Part Spec.	Part no.	Type	Vendor
1	1	V901	Panel:FLC43XWC6V-02	5051253610	TTL, 6bit	Fujitsu
2	1	JA01	Quick Tie	5071000510		PinGood
3	1	P101	Signal Cable 15p	5057415248	D-Sub	Liang-San
4	1	PA06	Wire Ass'y 4P	5057404347	Speaker Conn.	Liang-San
5	1	PA17	Wire Ass'y 7P	5057407072	Inverter Conn.	Liang-San,Great Land
6	1	PA18	Wire Ass'y 60P	5057460001	Panel Conn.	GreatLand
7	1	PA21	Wire Ass'y 10P	5057410108	Key Board Conn.	Liang-San,Great Land
8	1	W661	Speaker SPK-2225	5055122500		Sea Trade
9	1	W662	Speaker SPK-2225	5055122500		Sea Trade
10	1	P801	Power Cord Black 1.8m	5056706150	SP-28/IS-14	I-Sheng
11	1	ADP8	ADAPTER FSP060/60W	5061370331	1AD101C	FSP
12	1	RT01	Remote Control Akai	5000100094	RM-L1703	Forward
13	1	Y001	IB (I) Akai	5030057010		Tatung
14	1	Y002	Warranty Card Akai	5030250015		Tatung
15	1	Y003	IB (II) Akai	5030057027		Tatung

13. Mechanical Disassembly



14. Mechanical Parts List

CKT NO.	DESCRIPTION	PARTS NO.
M1	SP-SCREEN	5642382104
M2	FRONT COVER	5642288709
M3	IR LENS	5642382200
M4	LCD MBRACKET	5642722701
M5	RIGHT D-SUB COVER	5642420005
M6	LEFT YPBPR COVER	5642421103
M7	MPCB SHIELD	5646250602
M8	MPCBSHIELD-2	5646251700
M9	FUNCTION KEY	5642847102
M10	BACK COVER	5642288806
M11	TUNNER COVER	5642420104
M12	HAND BACK	5642901104
M13	NECK BACK COVER	5641410905
M14	NECK BRACKET	5648736500
M15	BASE COVER	5641411005
M16	BASE WHEEL	5648602000
M17	BASE BRACKET	5640406500
M18	VESA PLANE	5648731700
M19	CABLE HOLDER	5642606800
M20	WIRE HOLDER	5642606501
M21	SPONGE SPK	5642026404
M22	SPONGE SPK	5642026405
M23	HEAT SINK	5646404912
M24	NON-WOVEN FABRICS	5642025807
M25	METAL-MESH-SPEAKER	5648737600
S1	PP 4X08	7001261112
S2	PZP 3X08	7134161182
S3	PP 4X10	7001261412
S4	PZP 4X10	7134251482
S5	PP 3X06	7001170612
S6	BFB 4X10	7034251452
S7	PF 4X08	7004261112
M1	SP-SCREEN	5642382104
M2	FRONT COVER	5642288709
M3	IR LENS	5642382200
M4	LCD MBRACKET	5642722701