Training Manual for

LCD TV “Jasmine 20”

Samsung Electronics
Visual Display Div. R&D team

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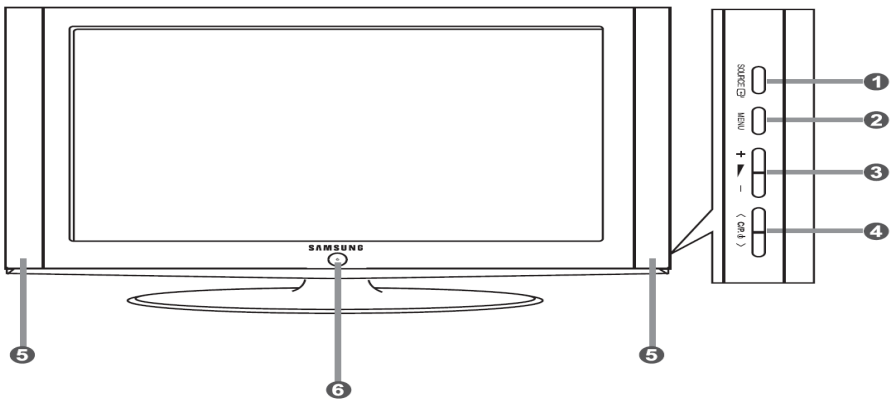
1. Jasmine 20
Front Panel Buttons



➢ The product colour and shape may vary depending on the model.

❶ **SOURCE**
Toggles between all the available input sources (TV - Ext. - AV - S-Video - PC). In the on-screen menu, use this button as you use the **ENTER** button on the remote control.

❷ **MENU**
Press to see an on-screen menu of your TV's features.

❸ **+ −**
Press to decrease or increase the volume.
In the on-screen menu, use the **+ −** buttons as you use the ◀ and ▶ buttons on the remote control.

❹ **< C/P. >**
Press to change channels.
In the on-screen menu, use the **< C/P. >** buttons as you use the ▲ and ▼ buttons on the remote control.
(Without the Remote Control, you can turn on the TV by using the Channel buttons.)

❺ **Speakers**

❻ **(Power)**
Press to turn the TV on and off.

Power Indicator
Blinks and turns off when the power is on and lights up in stand-by mode.

Remote Control Sensor
Aim the remote control towards this spot on the TV.

1. Jasmine 20
Rear Panel Jacks

❶ ***Connecting an Aerial or Cable Television Network***

To view television channels correctly, a signal must be received by the set from one of the following sources:

- An outdoor aerial / A cable television network / A satellite network

❸ ***Connecting External A/V Devices***

- Connect RCA (optional) or S-VIDEO cable (optional) to an appropriate external A/V device such as VCR, DVD or Camcorder.
- Connect RCA audio cables (optional) to "L - AUDIO - R" on the rear of your set and the other ends to corresponding audio out connectors on the A/V device.
- Headphone may be connected to the headphone output (❷) on the rear of your set. While the head phone is connected, the sound from the built-in speakers will be disabled.

❹ ***Connecting Set-Top Box, VCR or DVD***

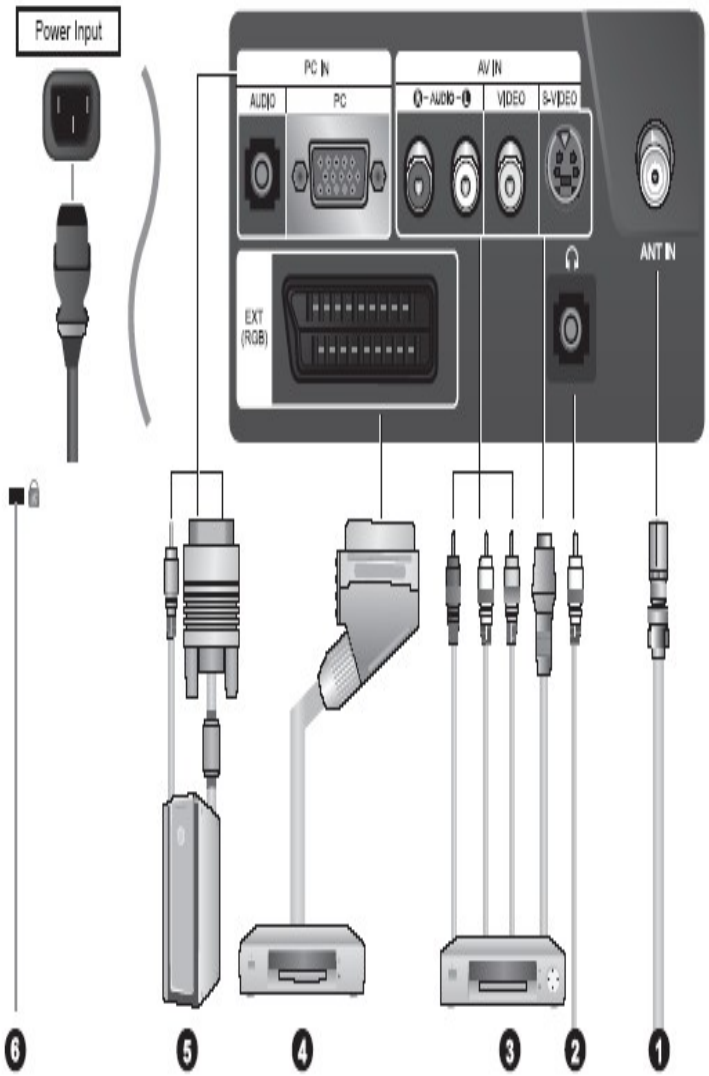
- Connect the VCR or DVD SCART cable (optional) to the SCART connector of the VCR or DVD.
- If you wish to connect both the Set-Top Box and VCR (or DVD), you should connect the Set-Top Box to the VCR (or DVD) and connect the VCR (or DVD) to your set.

❺ ***Connecting Computer***

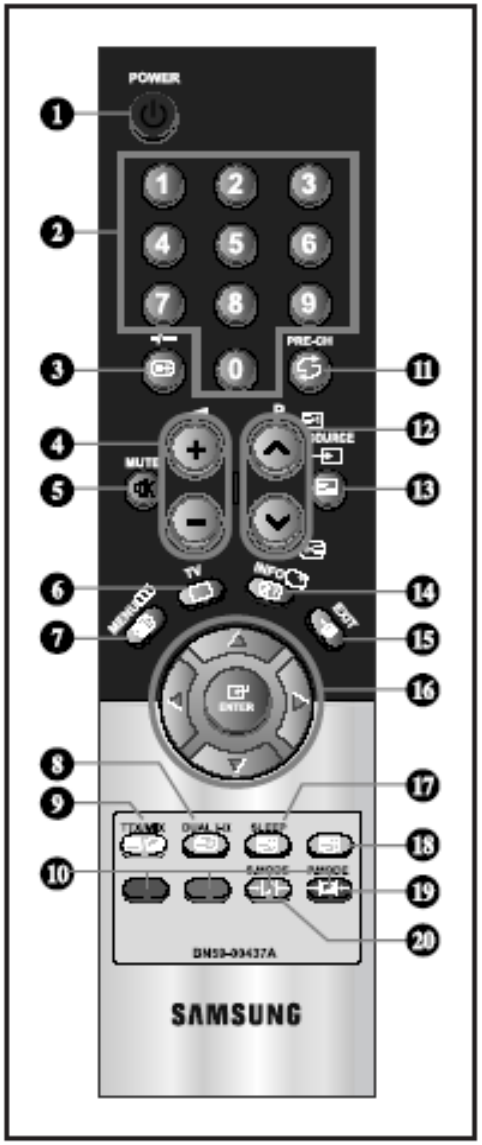
- Connect the D- Sub cable (optional) to "PC IN (PC)" on the rear of your set and the other end to the Video Card of your computer.
- Connect the stereo audio cable (optional) to "PC IN (AUDIO)" on the rear of your set and the other end to "Audio Out" of the sound card on your computer.

❻ ***Kensington Lock***

- The Kensington lock (optional) is a device used to physically fix the system when used in a public place.
- If you want to use a locking device, contact the dealer where you purchased the TV.
- The place of the Kensington Lock may be different depending on its model.



2. Jasmine 20 Remote Control



1. Television Standby button
2. Number buttons for direct channel access
3. One/Two-digit channel selection
4. : Volume increase
   : Volume decrease
5. Temporary sound switch-off
6. Selects the TV mode directly
7. Displays the main on-screen menu
8. Sound effect selection
9. Previous channel
10. P: Next channel
    P: Previous channel
11. Available source selection
12. Use to see information on the current broadcast
13. Exit the on-screen menu
14. Control the cursor in the menu
15. Automatic Power-off
16. Picture effect selection
17. Sound mode selection

Teletext Functions

18. Teletext hold
19. Exit from the teletext display
20. Teletext index
21. Teletext sub page
22. Teletext display/mix both teletext information and the normal broadcast
23. Fastext topic selection
24. P: Teletext next page
    P: Teletext previous page
25. Teletext mode selection (LIST/FLOF)
26. Teletext reveal
27. Teletext store
28. Teletext size selection

➢ The performance of the remote control may be affected by bright light.

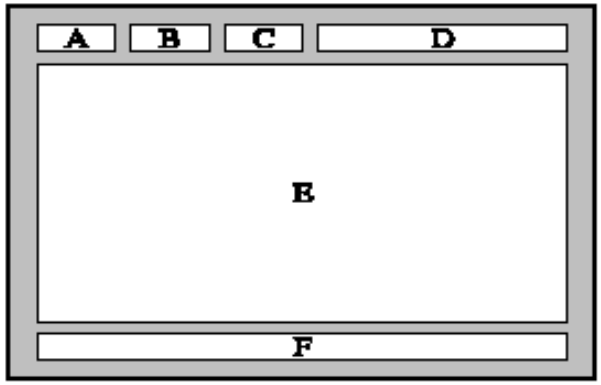
➢ For details, refer to further instructions.

3. Specification

Model Name	LE20S8
Panel	
Size	20" Diagonal (4:3)
Display Size	408.0 (H) x 306.0 (V) mm
Pixel Pitch	0.51 (H) x 0.51 (V) mm
Frequency	
Horizontal / Vertical	28 ~ 47 kHz / 50 ~ 75 Hz
PC Resolution (Optimum)	640 x 480 @ 60Hz
Dimension (WxDxH)	
Body	479.0 x 74.7 x 436.4 mm
With stand	479.0 x 226.0 x 463.0 mm
Weight	
With stand	7.45 kg (16.42 lbs)
Environmental Considerations	
Operating Temperature	10 °C to 40 °C (50 °F to 104 °F)
Operating Humidity	10 % to 80 %, non-condensing
Storage Temperature	-20 °C to 45 °C (-4 °F to 113 °F)
Storage Humidity	5 % to 95 %, non-condensing

4. Using the TELETEXT Feature

Teletext Decoder



Most set channels carry " teletext ", pages of written information that provide information such as:

- ***Television programme times.***
- ***News bulletins and Weather forecasts.***
- ***Sports results.***
- ***Subtitles for the hard of hearing.***

The teletext pages are organized according to six categories:

Part	Contents
A	Selected page number.
B	Broadcasting station identity.
C	Current page number or search status.
D	Date and time.
E	Text.
F	Status information.

4. Display the Teletext Information

You can display teletext information at any time, but signal reception must be good. Otherwise:

- ***Information may be missing.***
- ***Some pages may not be displayed.***

To activate the teletext mode and display the contents page:

1. Using the **P** ( ) or **P** ( ) button, select the channel providing the teletext service.
2. Press the **TTX/MIX** ( ) button to activate the teletext mode.
   - The contents page is displayed. It can be redisplayed at any time by pressing the **MENU** ( ) button.
3. Press the **TTX/MIX** ( ) button again.
   - The actual broadcast will be displayed simultaneously with the teletext page on the screen.
4. Press the **TV**( ) button again to exit from the Text display.

- If any broken character appears while Text is being viewed, make sure that the Text language is identical with the language in the “Setup” menu mode. If both languages are different, select the same language with the Text language on the “Setup” menu.

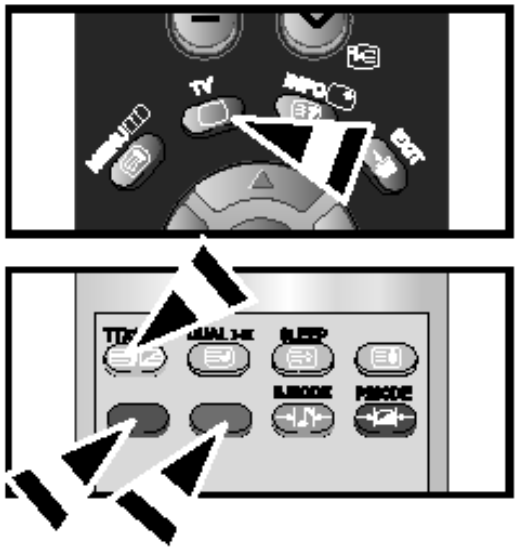
4. Selecting a Specific Teletext Page

Press the number buttons on the remote control to enter the page number directly:

1. Enter the three-digit page number listed in the contents by pressing the corresponding numeric buttons.
2. If the selected page is linked with several secondary pages, the secondary pages are displayed in sequence. To freeze the display on a given page, press the -/-- ( ). Press the -/-- ( ) button again to resume.
3. Using the various display options:

To display...	Press the...
Both teletext information and the normal broadcast	**TTX/MIX ( )**
Hidden text (answers to quiz games, for example)	**INFO ( )**
The normal screen	**INFO ( )**
A secondary page, by entering its 4-digit number	**DUAL I-II ( )**
The next page The previous page	**P ( )** **P ( )**
Double-size letters in the: • Upper half of the screen • Lower half of the screen	( ) • Once • Twice
Normal screen	• Three times

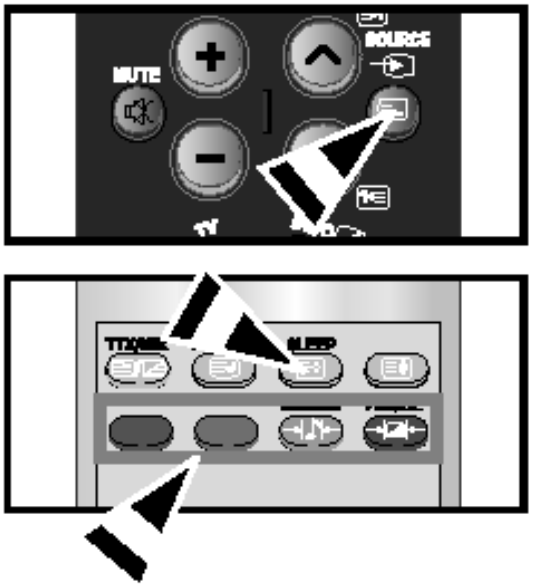
4. Using Fastext to Select a Teletext Page



The various topics included in the teletext pages are colour-coded, and can be selected by pressing the coloured buttons on the remote control.

1. Display the teletext contents page by pressing the **TTX/MIX** ( ) button.
2. Press the coloured button corresponding to the topic that you wish to select (The available topics are listed on the status information line).
3. Press the Red button to display the previous page.
   Press the Green button to display the next page.
4. Press the **TV** ( ) button again to exit from the Text display.

4. Storing Teletext Pages



You can store up to four teletext pages to display them later at leisure.

1. Select the LIST mode using the **SOURCE** ( ) button.
   ➢ The **SOURCE** ( ) button is used to switch between the LIST and FLOF modes.
2. Press the coloured button corresponding to the page that will be replaced.
3. Enter the new page number using the numeric buttons.
4. Repeat steps 2 and 3 for each page to be stored, using a different coloured butt e.
5. Press the **SLEEP** ( ) button until the corresponding blocks blink.

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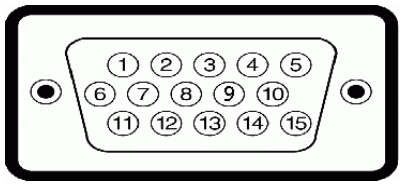
Visual Display Division

5. Signal Connections and Pin Assignments

If the monitor signal cable is disconnected, the monitor starts the 'Self-Test' function

15pin D-sub connector

Pin Number	Monitor Side of the 15-Pin Side Signal Cable
1	Video-Red
2	Video-Green
3	Video-Blue
4	GND
5	DDC-return
6	GND-R
7	GND-G
8	GND-B
9	DDC +5V
10	GND-sync/self-test
11	GND
12	DDC data
13	H-sync
14	V-sync
15	DDC clock



6. Display Modes

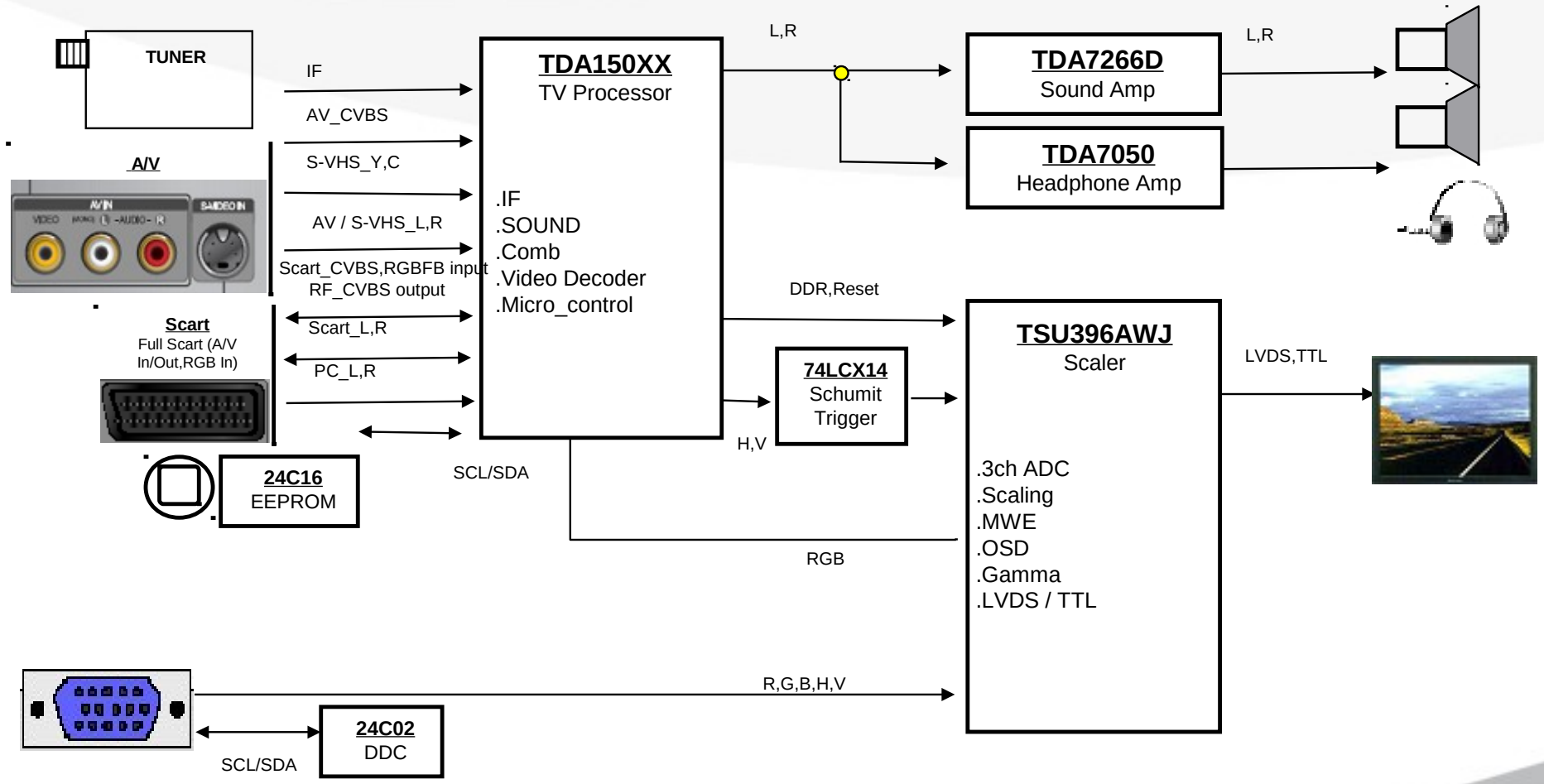
Both screen position and size will vary depending on the type of PC monitor and its resolution.

The resolutions in the table are recommended. (All resolutions between the supported limits are supported)

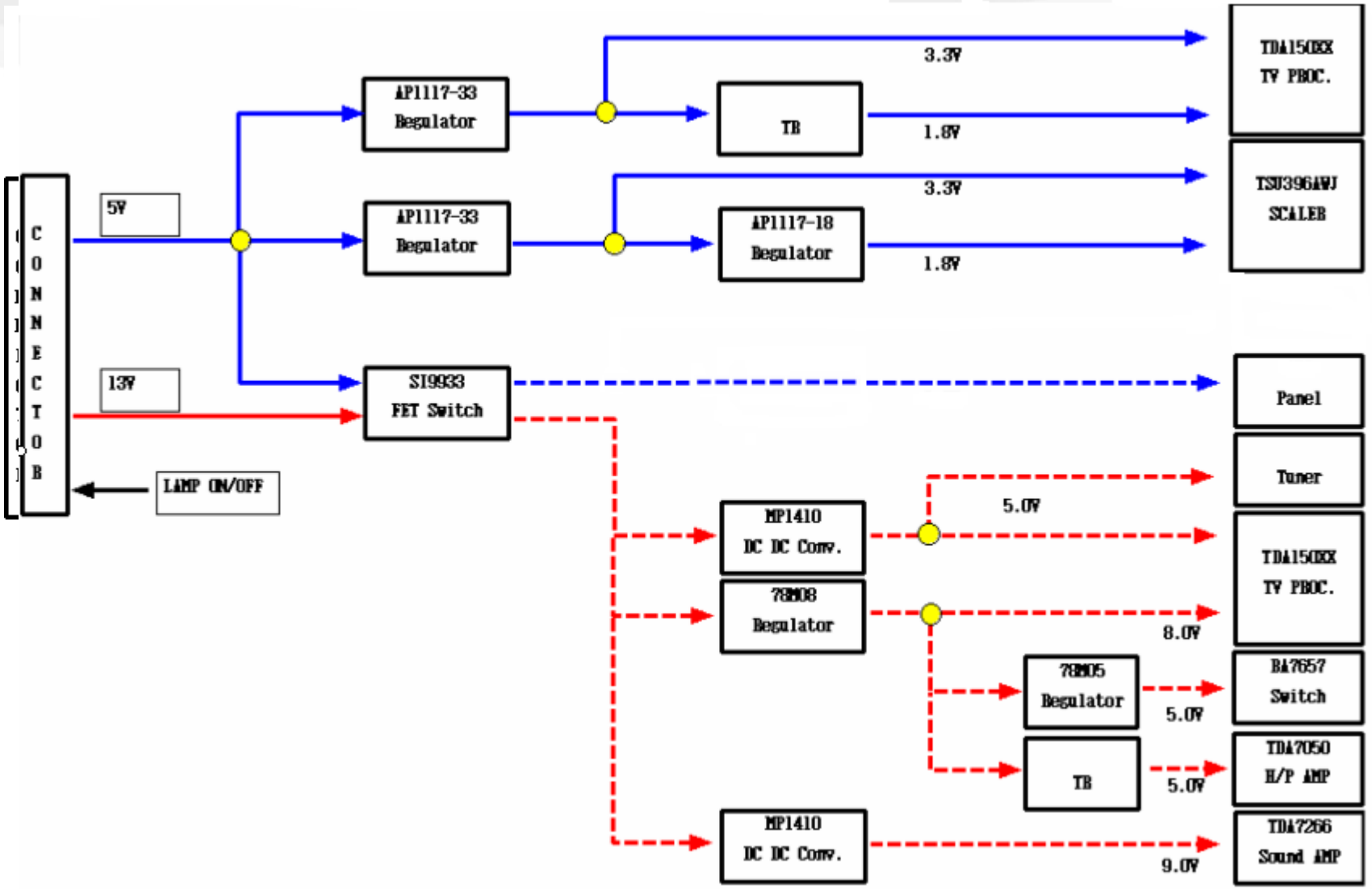
Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H/V)
VGA	720X400	31.469	70.087	28.322	- / +
	640X480	31.469	59.940	25.175	- / -
	640X480	37.500	75.000	31.500	- / -

7. Block Diagram

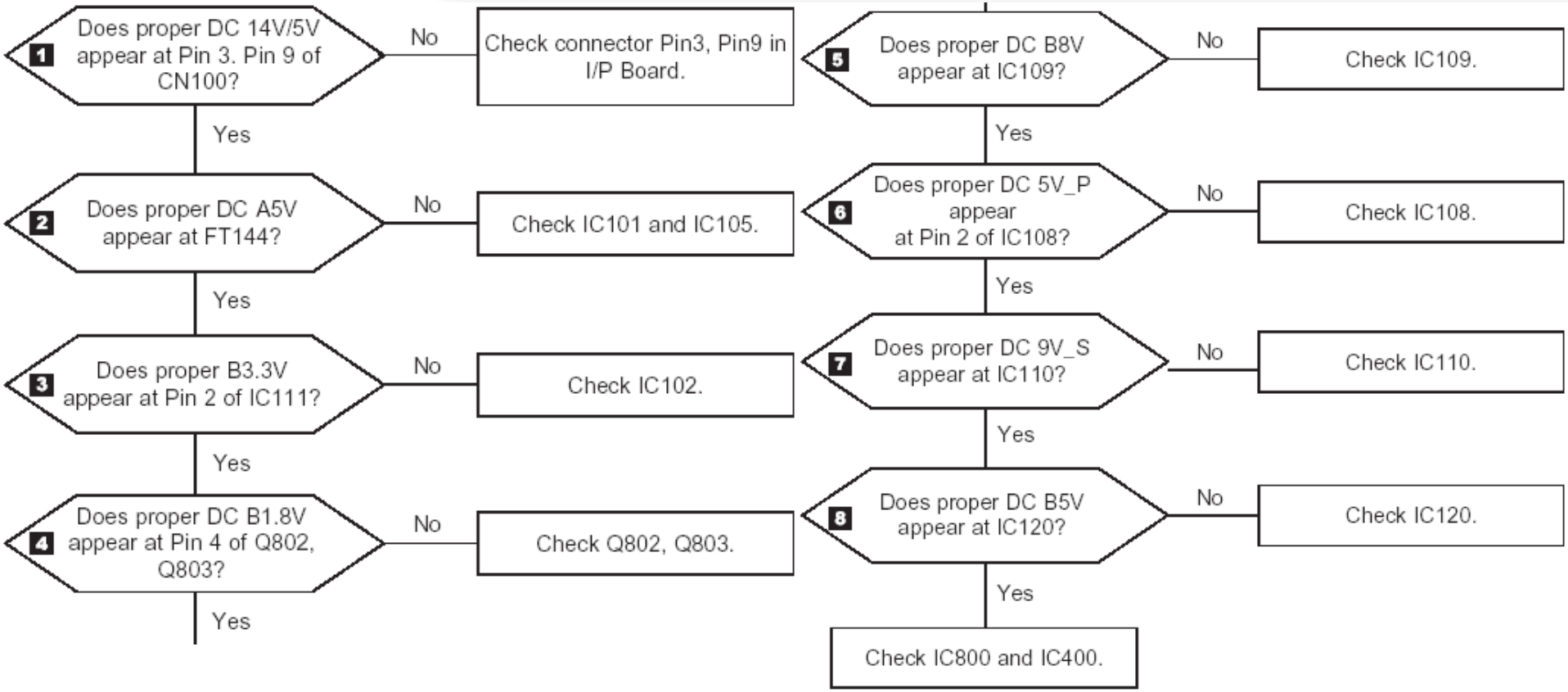
PLUS BLOCK DIAGRAM (For European Model)



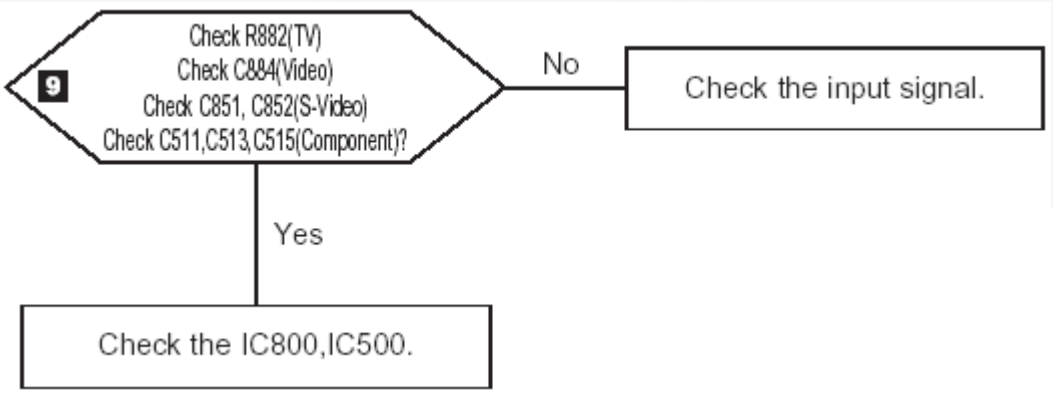
8. Power Flow


CONNECTOB
5V
13V
LAMP ON/OFF
AP1117-33 Regulator
AP1117-33 Regulator
SI9933 FET Switch
TB
AP1117-18 Regulator
MP1410 DC DC Conv.
78M08 Regulator
MP1410 DC DC Conv.
78M05 Regulator
TB
3.3V
1.8V
3.3V
1.8V
5.0V
8.0V
5.0V
5.0V
9.0V
TDA15EEX TV PROC.
TSU396AWJ SCALER
Panel
Tuner
TDA15EEX TV PROC.
BA7657 Switch
TDA7050 H/P AMP
TDA7266 Sound AMP

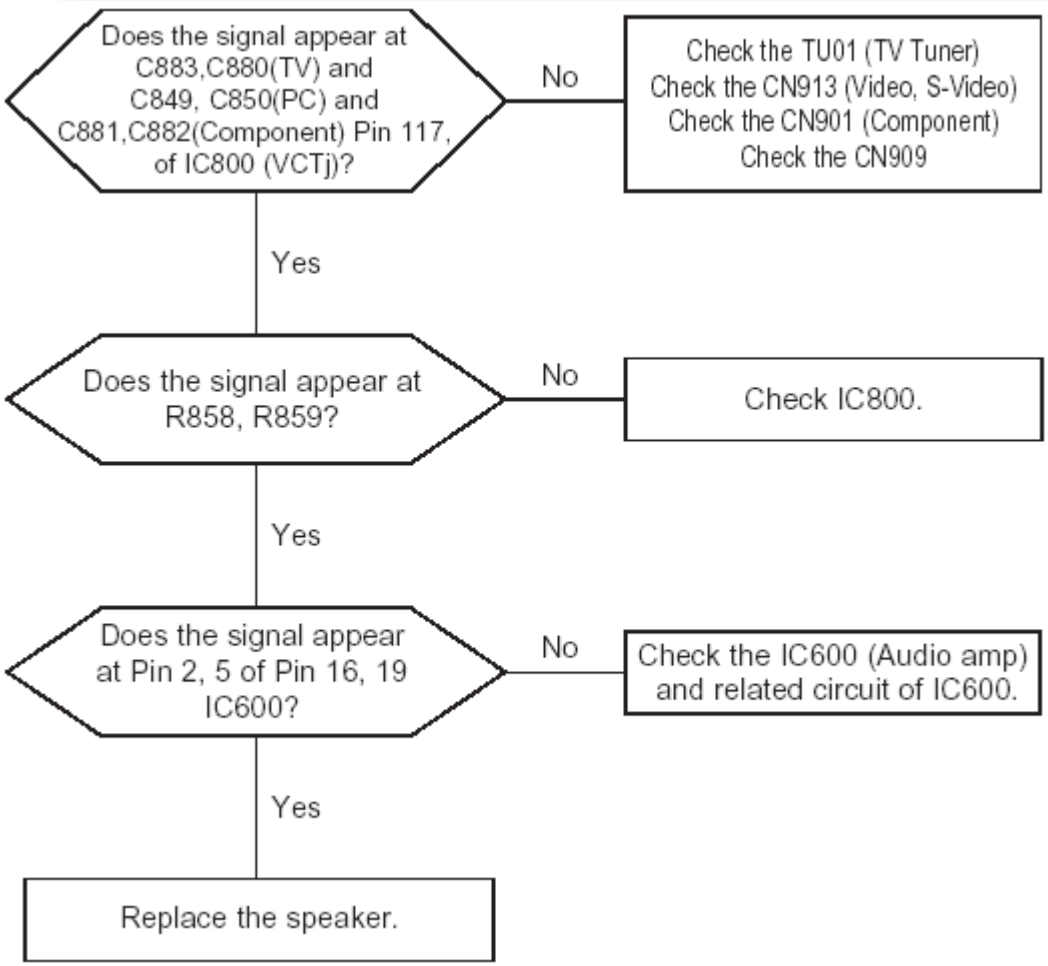
9. Troubleshooting (No Power)



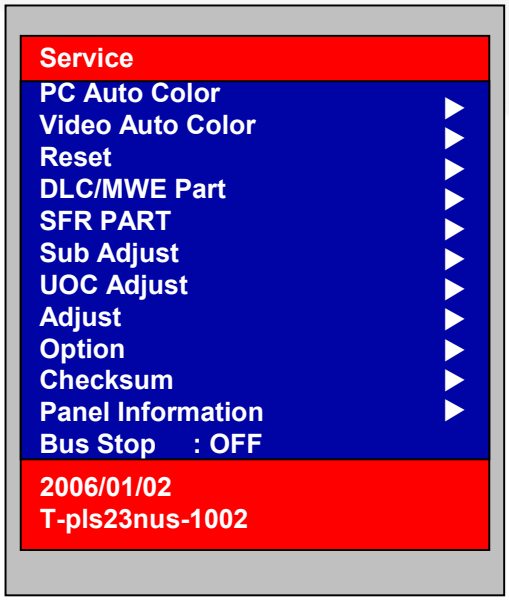
9. Troubleshooting (No Picture)



9. Troubleshooting (No Sound)

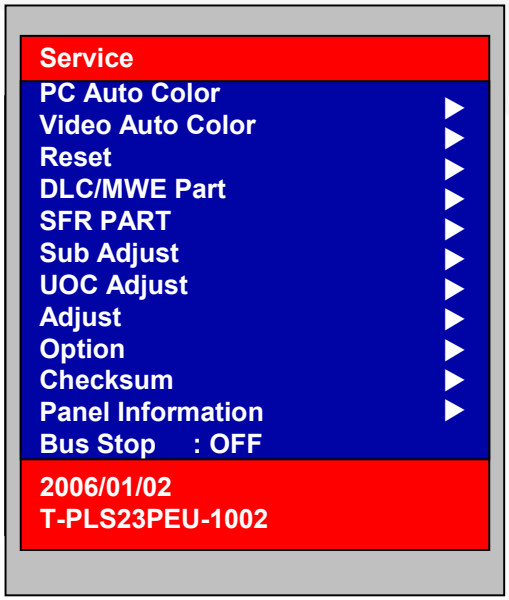


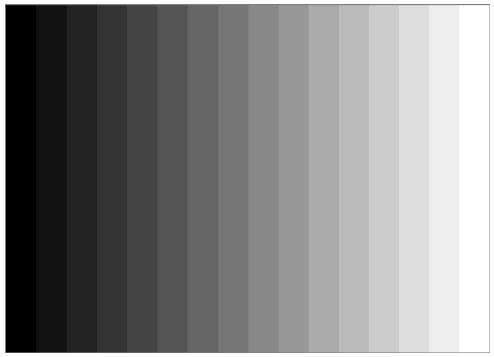
10. Service Function list(1)

No	Function	Action method
1	**Hidden Service Function(1)** 	**Entering Factory Mode** 1) To enter “Service Mode” Press the remote -control keys in this sequence : -If you do not have Factory remote – control POWER OFF -> MUTE -> 1-> 8 -> 2 -> POWER ON 2) If you have Factory remote-control POWER ON -> INFO -> Factory **-. OSD which the basic adjustment is added.** PC Auto Color Video Auto Color Reset DLC/MWE Part SFR PART Sub Adjust UOC Adjust Adjust Option Checksum Panel Information Bus Stop : OFF ***. 2006/01/02: MCU firmware date.** ***. T-PLUS23NUS-1002: MCU firmware version information (this information must be appended due to a compatibility problem report.)** **1) Reset: Factory reset** **2) Bus Stop: The communication Line ON / OFF**

Service Function list(2)

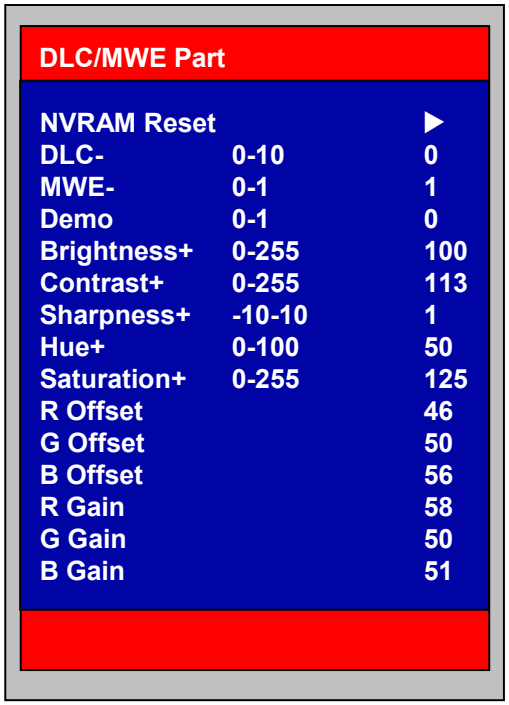
No	Function	Action method
2	Hidden Service Function (2)	Move to the (-) / (+) key, select the 'Enter' key. 3) PC Auto Color/ Video Auto Color : in case that color of all screen is wrong, excute the PC Auto color at 16 gray pattern (refer to attach left 16gray pattern) 4) Checksum: MCU firmware checksum information (this information must be appended due to a compatibility problem report.)



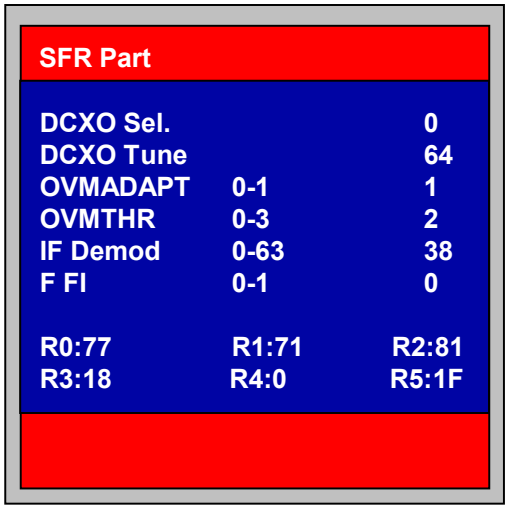


Service Function list(3)

No	Function	Action method
2	**Hidden Service Function (3)** *.When Panel Information selected	6) Dynamic Luma Correction "-" : RF, AV, S_Video -> all store "+": RF, AV, S_Video -> separate store

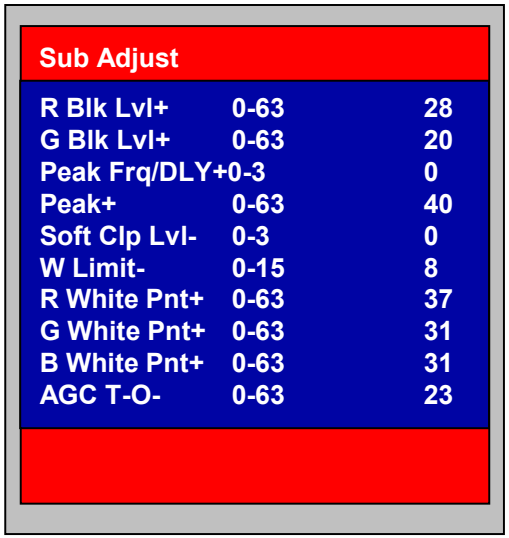


Service Function list(3)

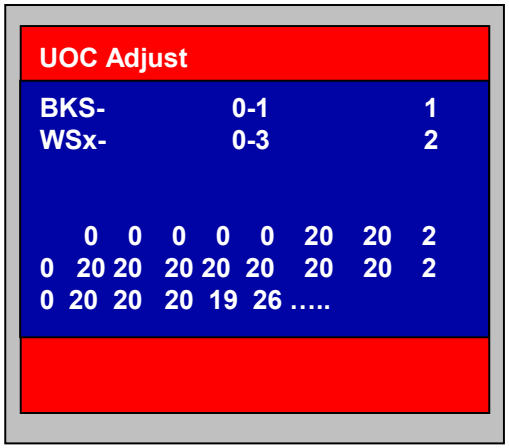
No	Function	Action method
2	**Hidden Service Function (3)** *.When Panel Information selected 	7) Special Function Register

Service Function list(3)

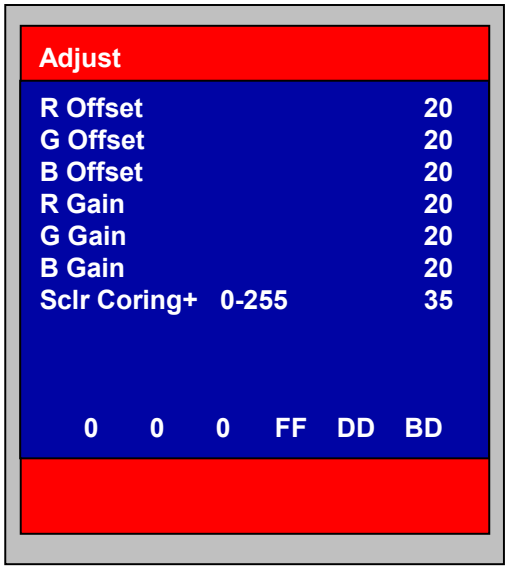
No	Function	Action method
2	**Hidden Service Function (4)** *.When Panel Information selected	8) Sub Adjust of UOC Ⅲ



Service Function list(3)

No	Function	Action method
2	**Hidden Service Function (5)** *.When Panel Information selected 	9) UOC Adjustment BKS : Black stretch Wsx : White stretch

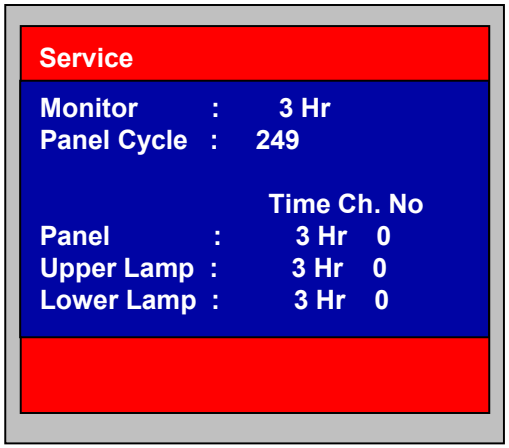
Service Function list(3)

No	Function	Action method
2	**Hidden Service Function (6)** *.When Panel Information selected 	10) Scaler Adjust

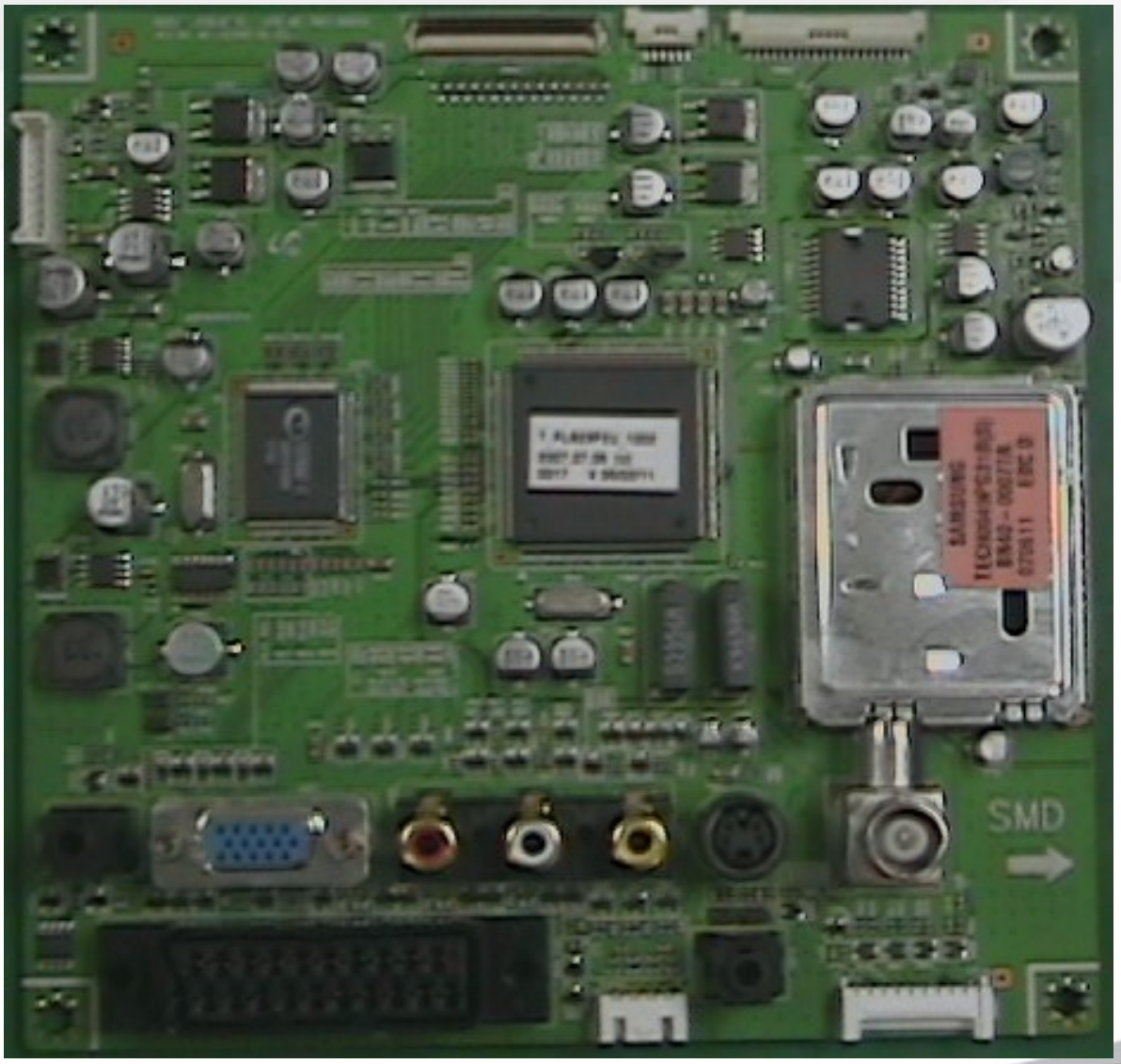
Service Function list(3)

No	Function	Action method
2	**Hidden Service Function (7)** *.When Panel Information selected 	11) Service Channel Memory for Factory

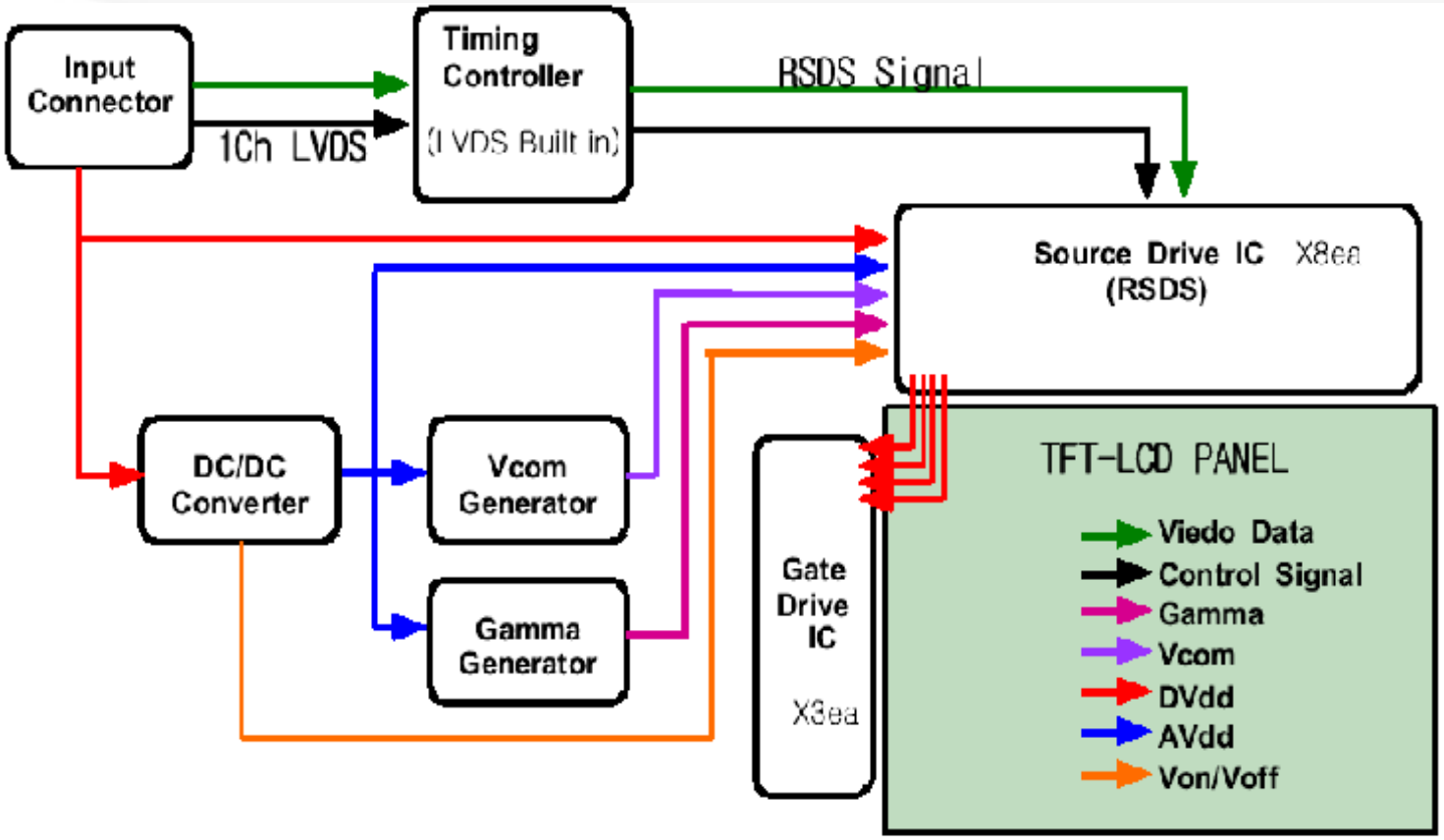
Service Function list(3)

No	Function	Action method
2	**Hidden Service Function (8)** *.When Panel Information selected 	12) Panel Information various function are included in information. ① Monitor On Time : Power On Time ② Panel Cycle : Panel On/off time (Power off, Mode change, DPMS on/off ...) ③ Panel : Panel on Time (when the panel is changed , select the Reset) ④ Lower lamp : Lower lamp on time (when the Lower lamp is changed , select the Reset) ⑤ Upper lamp : Upper Lamp on time (when the Upper Lamp is changed , select the Reset)

11. Main PBA


20” TTL
Program Download
Scart Cable
I/P Board
SMD
Scart Jack
Speaker
Function

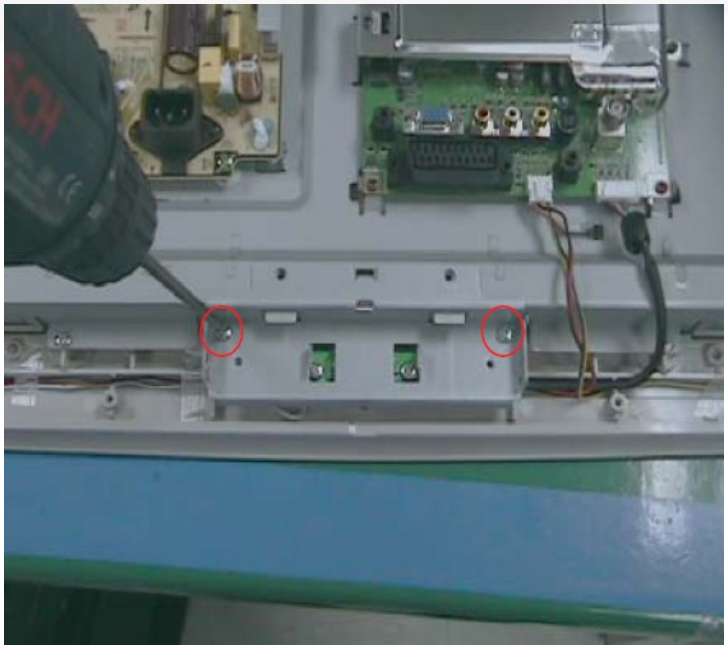
12. Panel part



13. Disassembly(1) – LE20S81BX

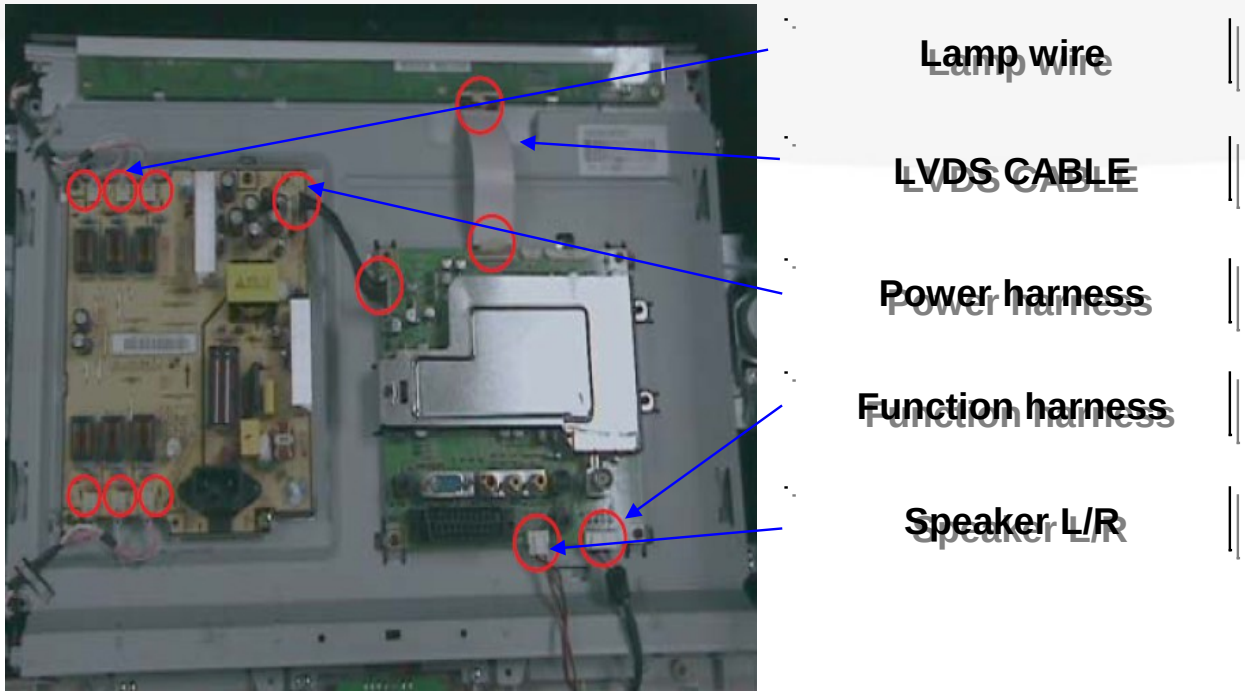
1. Disassembly stand on the flat desk.
2. Before disassembly set , separate other Cables and Power cord.

1. Separate the screw.
(11 point)



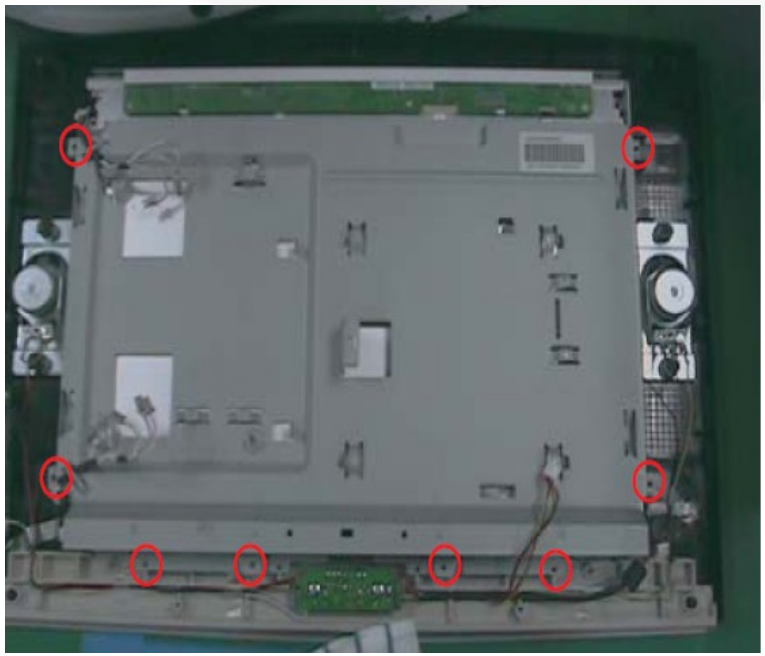
Separate the screw
(2 point)

13. Disassembly(2) – LE20S81BX

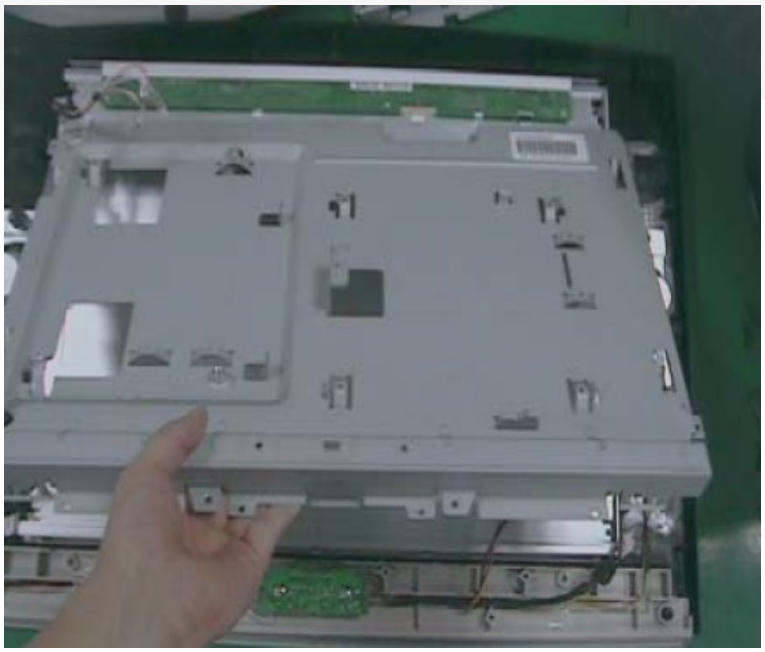


2. Disconnect cable from the boards.

13. Disassembly(3) – LE20S81BX



3. Separate the screws

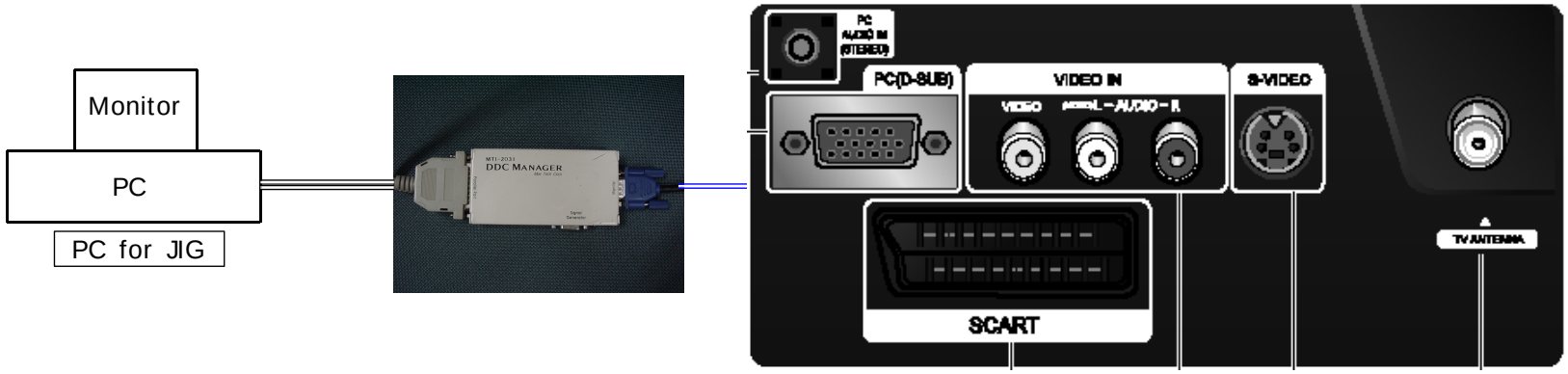


4. Lift up the RPKT

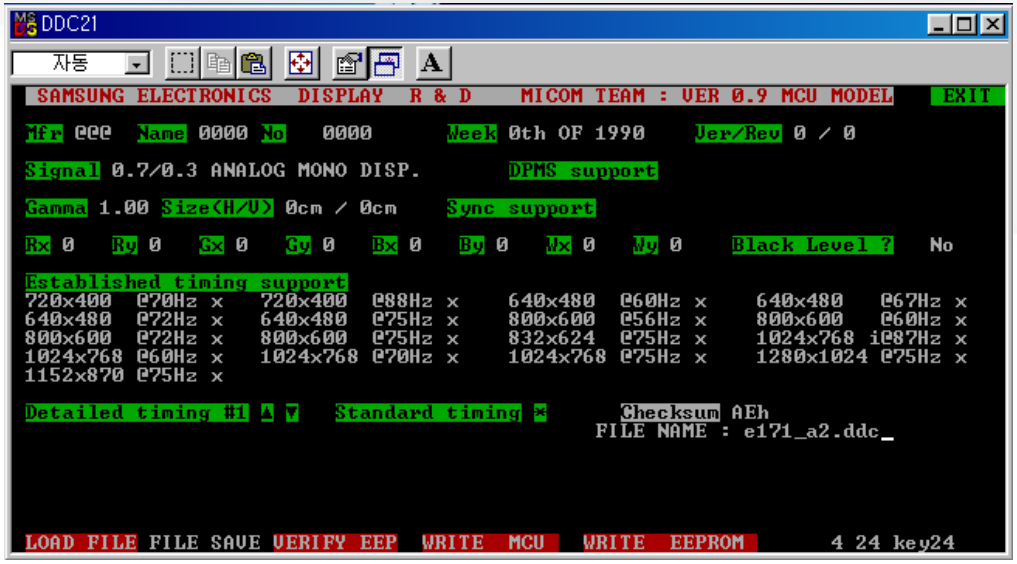
14. EDID input method

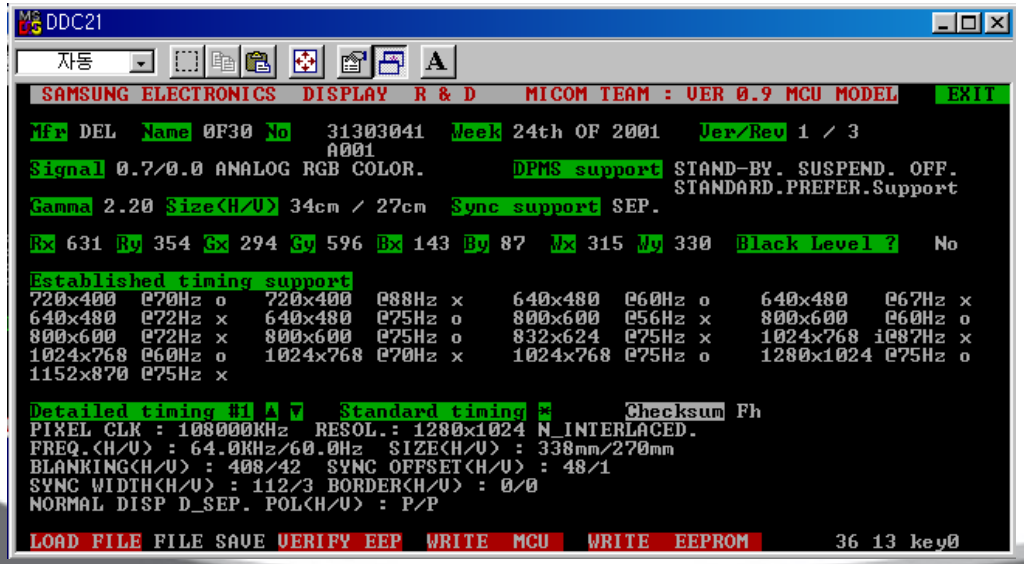
SAMSUNG LCD TV support the DDC control JIG.

You can see the connection between PC and LCD TV.



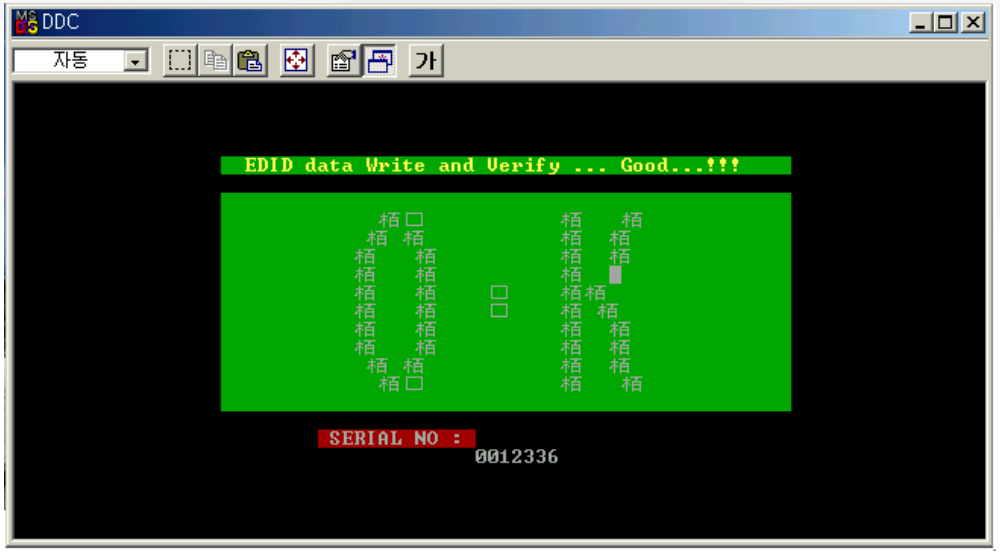
EDID input method (Dos Program)



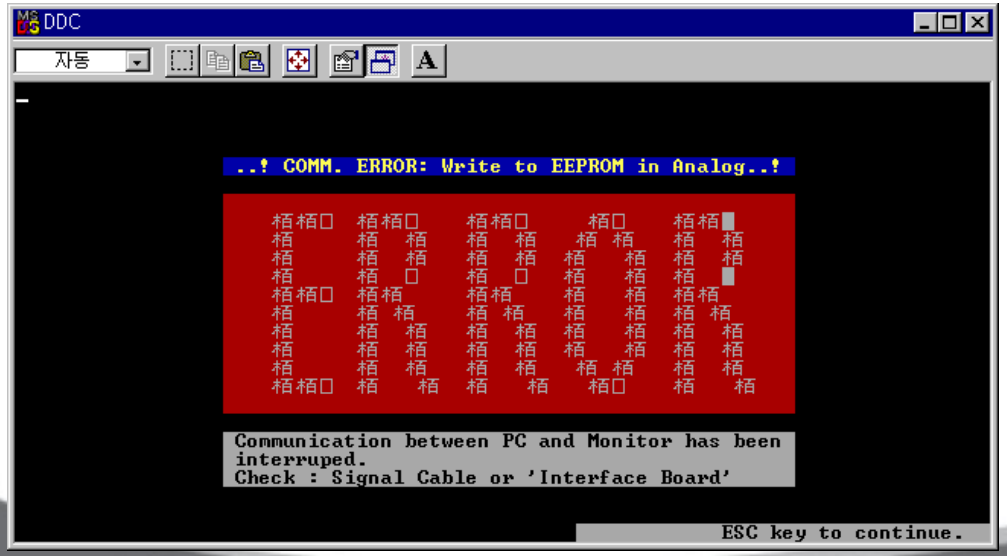


1. execute “DDC21.exe”
2. Click “LOAD FILE”
3. Input the File Name
   - -. “VE15.ddc”
   - -. “VC17.ddc”
   - -. “VC20.ddc”
4. Click “ WRITE EEPROM”

EDID input method (Dos Program)



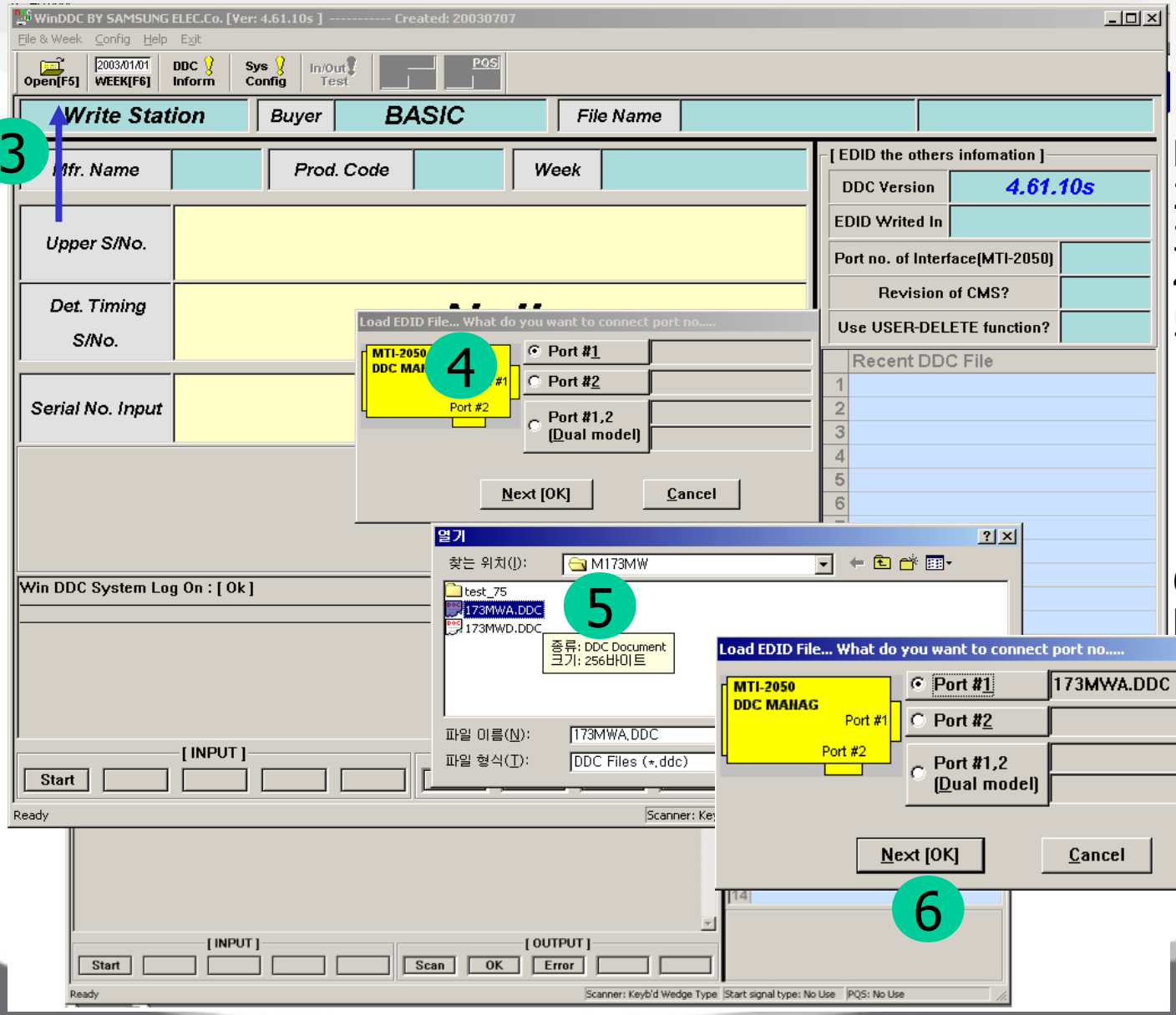
Confirm the “OK” Sign



Error Massage

: Check the Signal Cable or Interface Board

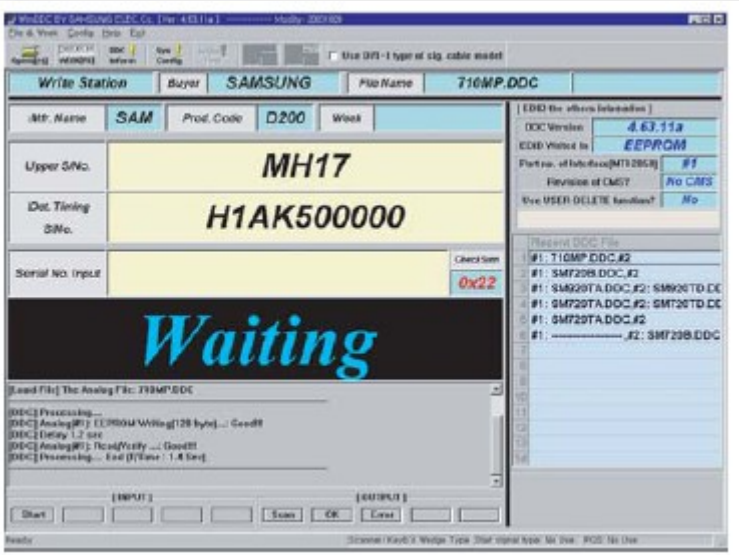
EDID input method (Windows Program)



1.Execute Winddc.exe Program at PC.
2. Click the Winddc icon.
3. File open.
4. Select Port#1
5. Load DDC file
   File Name
   15 inch : VE15
   17 inch : VC17
   20 inch : VC20

6. Click Next (OK) button.

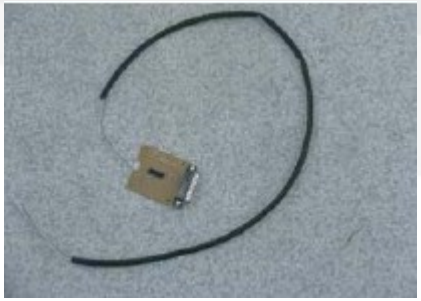
EDID input method (Windows Program)



7. Select enter button (on Key-Board) After Monitor S/N input.

8. Check "DDC OK".

14. Micom (TDA15021H) Program Upgrade

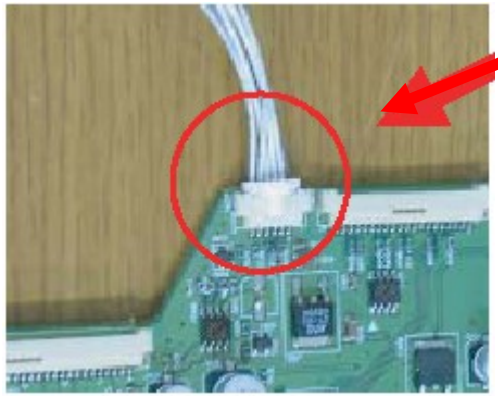


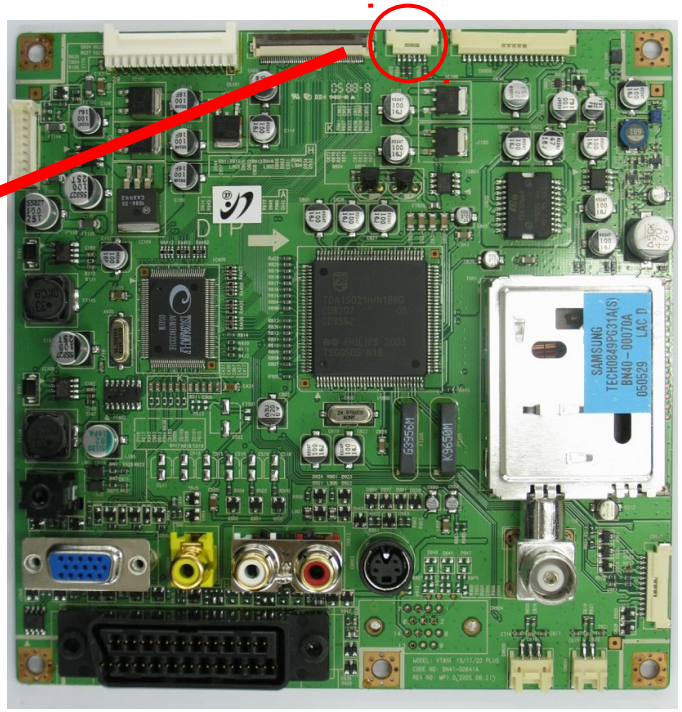
Program Upgrade Jig

Connect the parallel Port

14. Micom (TDA15021H) Program Upgrade

Connect Jig to CN905 on PCB Ass'y

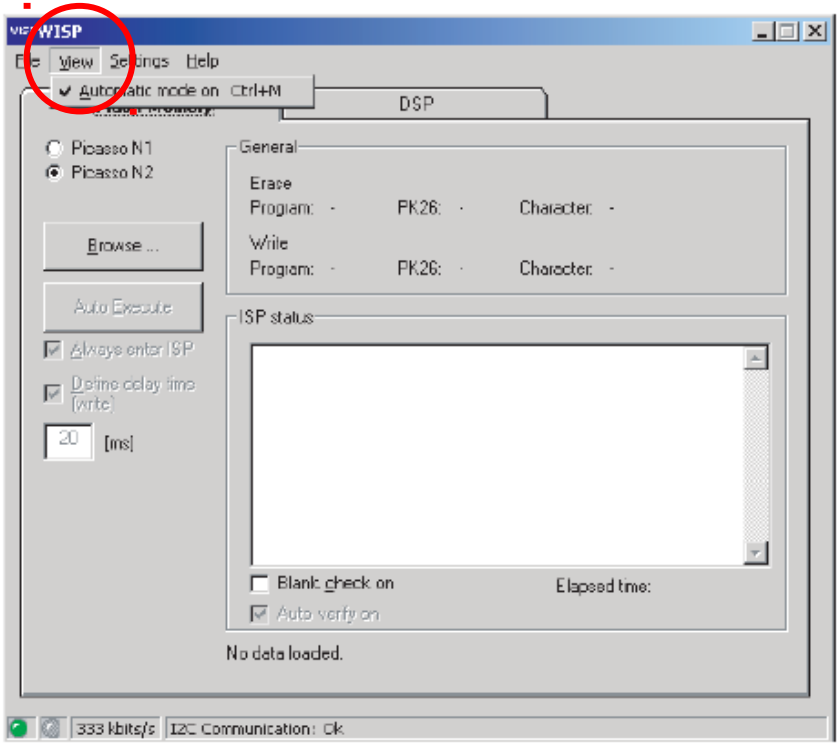




14. Micom (TDA15021H) Program Upgrade

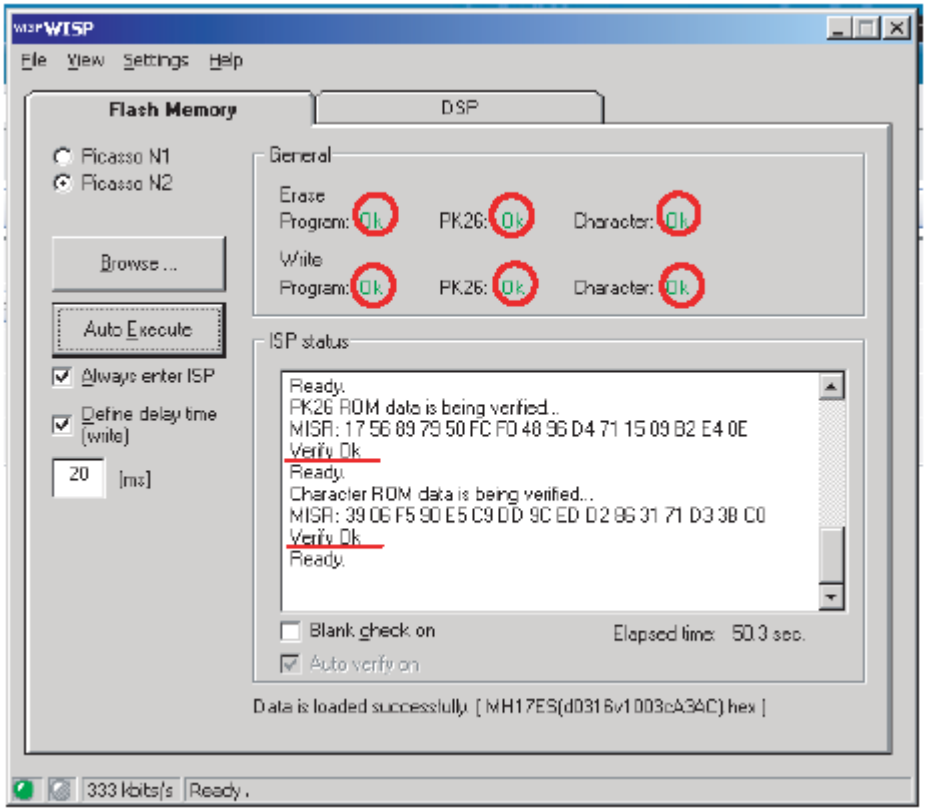
Click “WISP” Icon on Computer

Check “ Automatic mode on”



14. Micom (TDA15021H) Program Upgrade

Click "Browser" button : Select the Code , Click "Auto Execute" button
Check Erase and Write OK In "General" window and check Verify OK in "ISP status" window



Thank You!

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