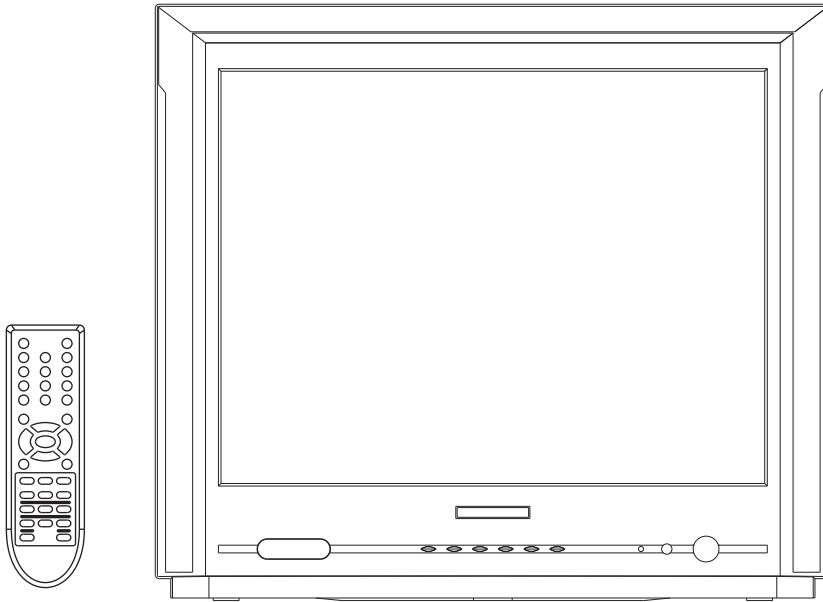


# SERVICE MANUAL

## 3P51 CHASSIS



*Design and specifications are subject to change without prior notice.  
( ONLY REFERENCE )*

ENGINEER BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_ PPROVED BY: \_\_\_\_\_

# Service Adjustments

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## 1、 Please notice the following before debug and equipment: |

- 1-1 The main power is 90~260V/50/60Hz , Please be careful when you debug and equip.
- 1-2 Don't short any two soldering points, which should not be shorted and don't touch any components, which should not be touched.
- 1-3 Please pull out plug before equipment.
- 1-4 For safety reasons, all components equipped or replaced should be identical with BOM.
- 1-5 Must be warm up for 30 minutes or more and degauss CRT thoroughly with demagnetizer before alignment.
- 1-6 The data of EEPROM must be stored before the adjustment for main chassis.

## 2、 Tools and equipments for adjustment:

- 2-1 small " - " screwdriver
- 2-2 screwdriver without inductance
- 2-3 Pattern Generator
- 2-4 DC Regulated power supply
- 2-5 Digital Voltmeter
- 2-6 Sweep Signal Generator
- 2-7 20MHz 2-channel Oscilloscope
- 2-8 Signal condition

## Service Adjustments

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### 3P51 ADJUST MENU

#### 1.FACTORY MODE:

- (1)Assembly line adjust mode: Press S.M.,  (DISPLAY) and **I/II** keys in turn to enter this mode.
- (2)Engineer adjust mode: Press CLOCK, P.M. and  keys in turn to enter this mode. This mode is usually for R&D and engineering department use.
- (3)Press digital keys to enter every adjust page, use PROG+/- keys to pick adjust items, use VOL+/- keys to adjust the value.
- (4)Press DISPLAY to quit factory mode.

#### 2.B+ VOLTAGE ADJUST

Measure C600A + voltage, adjust VR641 to get proper B+ voltage according to CRT assembly list requirement.

#### 3. RF AGC VOLTAGE ADJUST

- (1)Receive 294.25MHz,60dBcolor bar signal.
- (2)Enter factory mode and press digital key “4”.
- (3)Measure tuner AGC point voltage, adjust AGC item till the voltage is 2.4V,or till picture noise just disappears. Usually the AGC value is fixed to 27.

#### 4、 FINE ADJUST:

##### (1) FOCUS ADJUST

- a. Receive cross-hatch pattern signal.
- b. Set picture to “ RICH” mode.
- c. Adjust FBT’s FOCUS knob till picture is clear.

##### (2) SCREEN VOLTAGE ADJUST(KEY 0 ):

- a. Set picture to “STANDARD” mode, without signal input;
- b. Enter factory mode and press digital key”0”
- c. Adjust FBT’s SCREEN knob till VG2 voltage flag changes between “LOW” and “HIGH”, press PROG+ key to enter other menu.

##### (3) HORIZON ADJUST(KEY 1 ):

- a. Receive 50HZ monoscope PATTERN. Set TV to standard mode. Press KEY1 to enter factory mode
- b. Adjust 5HSH(for 60Hz picture,its is 6HSH)to set picture horizontal center to CRT horizontal center.
- c. Receive 60HZ monoscope PATTERN, repeat above b item

## Service Adjustments

### (4) VERTICAL & YUV/RGB HORIZON ADJUST (KEY 2):

|      |                         |      |                                |
|------|-------------------------|------|--------------------------------|
| 5VSL | 50Hz vertical linearity | 5SCL | 50Hz vertical slope correction |
| 5VSH | 50Hz vertical center    | 5VAM | 50Hz vertical size             |
| 6VSL | 60Hz vertical linearity | 6SCL | 60Hz vertical slope correction |
| 6VSH | 60Hz vertical center    | 6VAM | 60Hz vertical size             |

- a. Receive 50Hz cross hatch signal, set TV to STANDARD mode, press digital key “2” after enter factory mode, adjust 5VSL so that picture’s vertical line is just at the bottom of the half picture.
- b. Adjust 5VSH to set picture vertical center to CRT center.
- c. Adjust 5SCL to set proper vertical linearity
- d. Adjust 5VAM to obtain picture’s vertical re-display ratio more than 90% .
- e. If necessary, fine adjust above items.
- f. Receive 50HZ RGB or YUV cross hatch signal, set TV to STANDARD mode, adjust 5RGH till picture horizontal center is at the CRT center. (OPTION)
- g.
- h. Receive 60Hz cross hatch signal, repeat above a, b.
- f. Receive 60HZ RGB or YUV cross hatch signal, repeat above items. (OPTION)

### (5) OSD POSITION:

- 4-6-1 Menu OSD position adjustment: Receive 50/60HZ cross hatch pattern. Set TV standard status. Press **KEY 2** in factory mode, adjust 5VOF/6VOF and HOF item, to obtain menu OSD at the center of CRT screen;
- 4-6-2 LOGO position adjustment: Receive 50/60HZ cross hatch pattern. Set TV standard status. Press **KEY 7** in factory mode, adjust XMIN, XMAX, YMIN, and YMAX item, to obtain LOGO at the center upto 1/3 of CRT screen.
- 4-6-3 TELETEXT OSD position adjustment: Receive 50/60HZ TELETEXT signal. Set TV standard status. Press **KEY 7** in factory mode, adjust TXMI and 5TYM/6TYM item, to obtain INDEX at the center of CRT screen.

### 4-2 White Balance Adjustment (Applied in factory) (KEY 3 )

Normally, this chassis can auto adjust white balance, but for some CRT need to adjust white balance carefully by hand, Set BRIGHTNESS and CONTRAST at normal status , receive GREY SCAL and entering factory mode press KEY 3, set WPR at 31, adjust WPG and WPR to obtain white balance.

### 4-3 RF.AGC ADJUSTMENT (KEY 4 )

- 4-3-1 Receive 60dB RF signal. Connect Digital voltmeter positive terminal to tuner AGC terminal and negative terminal to GND.
- 4-3-2 Enter the AGC item in factory mode by the REMOTE CONTROL.

Method: Press key S.M., , I/II in turn to enter factory mode, then

## Service Adjustments

press key “4” and select AGC item by PROG+/-.

4-3-3 Adjust “VOL+” and “VOL-“ keys to obtain 2.4V Digital voltage meter reading or just no NOISE on screen.

Press key “” to exit factory mode!.

## 5、E2PROM INITIALIZATION

### (1) E2PROM initialization (KEY 8):

We can use an empty E2PROM when making the sample TV or repairing,also can use the E2PROM which has been full of data,but you must follow the steps below to initialize the E2PROM.

Press the keys **CLOCK** , **P.M.**,  in turn to enter the factory mode. Press KEY 8,VOL +/- in turn,you may see the OSD”BUSY” after the “INIT” on the screen.About a while, the character“BUSY”will disappear, then POWER OFF and ON the TV,the initialization is completed.

### (2) FUNCTION SETTING (KEY 5)

Press the keys “**CLOCK**” , “**P.M.**”, “” in turn to enter the factory mode. Press KEY 5 to enter the setting menu.

b.Set values to OPTION 1- OPTION 7

c.LOGO setting when powered on or no signal: Press key **CLOCK** in factory menu to enter the LOGO edit mode, there are two rows, the 1<sup>st</sup> can set the customer’s name etc, and the 2<sup>nd</sup> row can set to display the customer’s e-mail, phone... Press the keys “PROG +/- ”to select the character to edit, use keys “VOL+/-” to choose the charater.

## The detailed instruction of 3P51

Some items displayed but not mentioned below is not used in 3P51 chassis.

| Item                            | Storage address                                                                                                                                                                                                                                                                                            | Display string | Range (Index   value) |   | Default value         |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|---|-----------------------|
| Information of the factory menu |                                                                                                                                                                                                                                                                                                            | RELEASE2.0;    | Software Version      |   | Fixed, not changeable |
| <i>Drect key “8”</i>            |                                                                                                                                                                                                                                                                                                            |                |                       |   |                       |
| Initialization                  | INIT                                                                                                                                                                                                                                                                                                       | initialize     | 1                     | 0 |                       |
|                                 |                                                                                                                                                                                                                                                                                                            | uninitialize   | 0                     |   |                       |
| <i>Instruction</i>              | Press key “VOL +”, you can see the character ”INIT <b>BUSY</b> ” is active, Exit the menu and turn off the TV after the character disappearing, reopen it can have a success to innitalize。Then the program has been stored in the memorizer, and then need to readjust the parameter of the factory menu。 |                |                       |   |                       |

## Service Adjustments

| Item                              | Storage address | Display string                                                                                                             | Range (Index   value) | Default value |
|-----------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|
| <b>Drect key “0”</b>              |                 |                                                                                                                            |                       |               |
| Screen Voltage                    |                 | A level bright line                                                                                                        |                       |               |
| <i>Instruction</i>                |                 | Adjust the screen voltage under Tv standard mode and no signal input, just can see the line is ok.                         |                       |               |
| <b>Drect key “1”</b>              |                 |                                                                                                                            |                       |               |
| Horizontal paralellogram 50Hz     | 29              | 5PAR                                                                                                                       | 0-63                  | 31            |
| Horizontal bow 50Hz               | 2A              | 5BOW                                                                                                                       | 0-63                  | 31            |
| <i>Instruction</i>                |                 | The above value be adjusted $\pm 10$ can be OK,the default value is 31                                                     |                       |               |
| Horizontal shift 50Hz             | 2B              | 5HSH                                                                                                                       | 0-63                  | 19            |
| EW width 50Hz                     | 2C              | 5EWW                                                                                                                       | 0-63                  | 33            |
| EW parabola/width 50Hz            | 2D              | 5EWP                                                                                                                       | 0-63                  | 19            |
| EW upper corner parabola 50Hz     | 2E              | 5UCR                                                                                                                       | 0-63                  | 33            |
| EW lower corner parabola 50Hz     | 2F              | 5LCR                                                                                                                       | 0-63                  | 18            |
| EW trapezium 50Hz                 | 30              | 5EWT                                                                                                                       | 0-63                  | 43            |
| Horizontal paralellogram 60Hz     | 37              | 6PAR                                                                                                                       | 0-63                  | 31            |
| Horizontal bow 60Hz               | 38              | 6BOW                                                                                                                       | 0-63                  | 31            |
| Horizontal shift 60Hz             | 39              | 6HSH                                                                                                                       | 0-63                  | 31            |
| <i>Instruction</i>                |                 | The above value be adjusted $\pm 10$ can be OK,the default value is 31                                                     |                       |               |
| EW width 60Hz                     | 3A              | 6EWW                                                                                                                       | 0-63                  | 33            |
| EW parabola/width 60Hz            | 3B              | 6EWP                                                                                                                       | 0-63                  | 19            |
| EW upper corner parabola 60Hz     | 3C              | 6UCR                                                                                                                       | 0-63                  | 44            |
| EW lower corner parabola 60Hz     | 3D              | 6LCR                                                                                                                       | 0-63                  | 10            |
| EW trapezium 60Hz                 | 3E              | 6EWT                                                                                                                       | 0-63                  | 44            |
| <b>Drect key “2”</b>              |                 |                                                                                                                            |                       |               |
| Vertical slope 50Hz               | 31              | 5VSL                                                                                                                       | 0-63                  | 31            |
| Vertical amplitude 50Hz           | 32              | 5VAM                                                                                                                       | 0-63                  | 10            |
| S-correction 50Hz                 | 33              | 5SCL                                                                                                                       | 0-63                  | 31            |
| <i>Instruction</i>                |                 | generally ,SCL can be setted to be 31.                                                                                     |                       |               |
| Vertical shift 50Hz               | 34              | 5VSH                                                                                                                       | 0-63                  | 22            |
| Horizontal shift 50Hz on RGB mode | 35              | 5RGH                                                                                                                       | 0-63                  | 38            |
| OSD vertical position offset 50Hz | 36              | 5VOF                                                                                                                       | 0-63                  | 38            |
| <i>Instruction</i>                |                 | Horizontal shift on RGB mode generally between 30 to 42, the direct way is to connect the two Tv's SCART. Adjust the Value |                       |               |
| Vertical slope 60Hz               | 3F              | 6VSL                                                                                                                       | 0-63                  | 31            |
| Vertical amplitude 60Hz           | 40              | 6VAM                                                                                                                       | 0-63                  | 11            |
| S-correction 60Hz                 | 41              | 6SCL                                                                                                                       | 0-63                  | 31            |
| Vertical shift 60Hz               | 42              | 6VSH                                                                                                                       | 0-63                  | 23            |
| Horizontal shift 60Hz on RGB mode | 43              | 6RGH                                                                                                                       | 0-63                  | 38            |
| OSD vertical position offset 60Hz | 44              | 6VOF                                                                                                                       | 0-63                  | 31            |
| OSD horizontal position offset    | 45              | HOF                                                                                                                        | 0-63                  | 42            |

## Service Adjustments

| Item                                 | Storage address | Display string                                                                                                                                                                                                                                                                                                 | Range (Index   value) |   | Default value |
|--------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---|---------------|
| Vertical zoom                        | 46              | VX                                                                                                                                                                                                                                                                                                             | 0-63                  |   | 32            |
| Instruction                          |                 | Adjust this item when lack of vertical amplitude will lead to the picture can't be full of the screen,then need to adjust the resistance's(R318,R319) value.                                                                                                                                                   |                       |   |               |
| Direct Key “3”                       |                 |                                                                                                                                                                                                                                                                                                                |                       |   |               |
| Black level off-set R                |                 | RED                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 32            |
| Black level off-set G                |                 | GRN                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 32            |
| White point R (Direct Key “Red”)     |                 | WPR                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 31            |
| White point G (Direct Ke“Green”)     |                 | WPG                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 31            |
| White point B (Direct Key “Blue”)    |                 | WPB                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 45            |
| Instruction                          |                 | The white balance can be adjusted automatically on this machine, only one or two tube need to be adjusted, generally the value of RED and GRN between 23 to 39,if adjust excessively will lead the picture faded。 (Remark: because of the higher colour temperature, it's normal that you feel a little red。 ) |                       |   |               |
| Luminance delay time PAL             |                 | YDFP                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 8             |
| Instruction                          |                 | This item has the function to adjust the luminance and colour delay,change the NO. on P card,make the boundary of central green and purple accord with the border of above gray pane.                                                                                                                          |                       |   |               |
| Y delay time NTSC                    |                 | YDFN                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 8             |
| Y delay time SECAM                   |                 | YDFS                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 8             |
| Y delay time AV                      |                 | YDAV                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 8             |
| Teletext contrast                    |                 | TTBR                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 15            |
| Mute delay time while switch program |                 | MUTD                                                                                                                                                                                                                                                                                                           | 0-20                  |   | 13            |
| Instruction                          |                 |                                                                                                                                                                                                                                                                                                                |                       |   |               |
| Direct Key “4”                       |                 |                                                                                                                                                                                                                                                                                                                |                       |   |               |
| AGC take-over                        |                 | AGC                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 27            |
| UOC Volume                           |                 | VOL                                                                                                                                                                                                                                                                                                            | 0-63                  |   | 56            |
| Instruction                          |                 | Input standard RF signal with 1KHz sound ,measure UOC amplitude(location is W101) of output audio RMS value,adjust VOL till it reaches to 0.5Vrms.                                                                                                                                                             |                       |   |               |
| SUB HUE control                      |                 | SHUE                                                                                                                                                                                                                                                                                                           | 0-63                  |   | 35            |
| IF frequency                         |                 | IFFS                                                                                                                                                                                                                                                                                                           | 38.9MHz               | 2 | 2             |
|                                      |                 |                                                                                                                                                                                                                                                                                                                | 38.0MHz               | 3 |               |
| Cathode drive level                  |                 | HDOL                                                                                                                                                                                                                                                                                                           | 0-15                  |   | 2             |

## Service Adjustments

| Item                              | Storage address | Display string                                                                                                                                                                                                                                                                       | Range (Index   value) |   | Default value |
|-----------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---|---------------|
| Instruction                       |                 | Adjust "HDOL" can change the voltage of “R.G.B”obviously,but adjust too high may lead to fade badly,reverse maybe lead to lack of luminance,so should be careful。 Generally it's ok when there is no black screen or picture faded change the channel under the maximal beam current |                       |   |               |
| IF AGC speed                      |                 | SPD                                                                                                                                                                                                                                                                                  | 0.7X                  | 0 | 1             |
|                                   |                 |                                                                                                                                                                                                                                                                                      | Normal                | 1 |               |
|                                   |                 |                                                                                                                                                                                                                                                                                      | 3X                    | 2 |               |
|                                   |                 |                                                                                                                                                                                                                                                                                      | 6X                    | 3 |               |
| VG2 Brightness                    |                 | VG2B                                                                                                                                                                                                                                                                                 | 0-63                  |   | 31            |
| TELETEXT brightness control       |                 | TRBI                                                                                                                                                                                                                                                                                 | 0-63                  |   | 25            |
| Direct Key “6”                    |                 |                                                                                                                                                                                                                                                                                      |                       |   |               |
| Contrast –Min pre-set             |                 | 1CON                                                                                                                                                                                                                                                                                 | 0-100                 |   | 10            |
| Brightness –Min pre-set           |                 | 1BRI                                                                                                                                                                                                                                                                                 | 0-100                 |   | 10            |
| Colour –Min pre-set               |                 | 1COL                                                                                                                                                                                                                                                                                 | 0-100                 |   | 0             |
| Sharpness –Min pre-set            |                 | 1SHP                                                                                                                                                                                                                                                                                 | 0-100                 |   | 0             |
| Contrast –Middle pre-set          |                 | 2CON                                                                                                                                                                                                                                                                                 | 0-100                 |   | 60            |
| Brightness – Middle pre-set       |                 | 2BRI                                                                                                                                                                                                                                                                                 | 0-100                 |   | 40            |
| Colour – Middle pre-set           |                 | 2COL                                                                                                                                                                                                                                                                                 | 0-100                 |   | 45            |
| Sharpness – Middle pre-set        | 65              | 2SHP                                                                                                                                                                                                                                                                                 | 0-100                 |   | 60            |
| Contrast – Rich pre-set           | 66              | 3CON                                                                                                                                                                                                                                                                                 | 0-100                 |   | 100           |
| Brightness – Rich pre-set         | 67              | 3BRI                                                                                                                                                                                                                                                                                 | 0-100                 |   | 100           |
| Colour – Rich pre-set             | 68              | 3COL                                                                                                                                                                                                                                                                                 | 0-100                 |   | 100           |
| Sharpness – Rich pre-set          | 69              | 3SHP                                                                                                                                                                                                                                                                                 | 0-100                 |   | 100           |
| Volume inflexion Pre-set          |                 | VL05                                                                                                                                                                                                                                                                                 |                       |   | 40            |
|                                   |                 | VL20                                                                                                                                                                                                                                                                                 |                       |   | 65            |
|                                   |                 | VL40                                                                                                                                                                                                                                                                                 |                       |   | 83            |
|                                   |                 | VL60                                                                                                                                                                                                                                                                                 |                       |   | 88            |
|                                   |                 | VL80                                                                                                                                                                                                                                                                                 |                       |   | 95            |
| Instruction                       |                 | If VOL05 set to 40,it means when VOLUME is set to 05 by user,the internal Volume is 40.This function is used to adjust speaker sound level-VOLUME OSD curve                                                                                                                          |                       |   |               |
| opening time control              |                 | RGBL                                                                                                                                                                                                                                                                                 | 0-25                  |   | 8             |
| Direct Key “7”                    |                 |                                                                                                                                                                                                                                                                                      |                       |   |               |
| Screen saver / Logo Left position | 6A              | XMIN                                                                                                                                                                                                                                                                                 | 0-255                 |   | 44            |
| Screen saver Right position       | 6B              | XMAX                                                                                                                                                                                                                                                                                 | 0-255                 |   | 186           |
| Screen saver Top position         | 6C              | YMIN                                                                                                                                                                                                                                                                                 | 0-63                  |   | 4             |
| Screen saver Bottom position      | 6D              | YMAX                                                                                                                                                                                                                                                                                 | 0-63                  |   | 37            |
| Teletext Horizontal position      | 6E              | TXMI                                                                                                                                                                                                                                                                                 | 0-255                 |   | 40            |

## Service Adjustments

| Item                            |               | Storage address | Display string                                                                                                                                                                                                                                                                                                                | Range (Index   value) |             | Default value |
|---------------------------------|---------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------|---------------|
| Teletext Vertical position 50Hz |               | 6F              | 5TYM                                                                                                                                                                                                                                                                                                                          | 0-63                  |             | 38            |
| Teletext Vertical position 60Hz |               | 70              | 6TYM                                                                                                                                                                                                                                                                                                                          | 0-63                  |             | 38            |
| Instruction                     |               |                 |                                                                                                                                                                                                                                                                                                                               |                       |             |               |
| Direct Key “5”                  |               |                 |                                                                                                                                                                                                                                                                                                                               |                       |             |               |
| NVM option 1                    |               | 71              | OP1                                                                                                                                                                                                                                                                                                                           | 0                     | 1           | 18            |
| VG2 Alignment mode              |               |                 | Bit 0                                                                                                                                                                                                                                                                                                                         | AVG                   | VSD         | 0             |
| Instruction                     |               |                 | VG2 is usually set to 0.Receive 49.75MHZ PHILIPS signal. press key "PM" to set picture to standard mode, adjust FBT's SCREEN VOLTAGE knob, if the screen voltage is too high, the OSD "high" appears, oppositely, OSD "low" appears, when you see the characters "HIGH" and "LOW" display by turns, it means VG2 is well set. |                       |             |               |
| YUV or Yprpb                    |               |                 | Bit 1                                                                                                                                                                                                                                                                                                                         | YUV                   | Yprpb       | 1             |
| WIDE BAND SOUND PLL             |               |                 | Bit 2                                                                                                                                                                                                                                                                                                                         | off                   | on          | 0             |
| BLACK STRETCH AMOUNT            |               |                 | Bit 3                                                                                                                                                                                                                                                                                                                         | 10%                   | 20%         | 0             |
| AV2                             |               |                 | Bit 4                                                                                                                                                                                                                                                                                                                         | off                   | on          | 1             |
| SVHS                            |               |                 | Bit 5                                                                                                                                                                                                                                                                                                                         | off                   | on          | 0             |
| BLACK STRETCH DEPTH             |               |                 | Bit 6                                                                                                                                                                                                                                                                                                                         | 20IRE                 | 30IRE       | 0             |
| XX                              |               |                 | Bit 7                                                                                                                                                                                                                                                                                                                         | off                   | on          | 0             |
| NVM option 2                    |               | 72              | OP2                                                                                                                                                                                                                                                                                                                           | 0                     | 1           | 11            |
| AVL                             |               |                 | Bit 0                                                                                                                                                                                                                                                                                                                         | off                   | On          | 1             |
| Auto sound in autosearch mode   |               |                 | Bit 1                                                                                                                                                                                                                                                                                                                         | off                   | On          | 1             |
| Pan Europe Teletext set         |               |                 | Bit 2                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 0             |
| Cyrillic Teletext set           |               |                 | Bit 3                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| Farsi Teletext set              |               |                 | Bit 4                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 0             |
| Arabic Teletext set             |               |                 | Bit 5                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 0             |
| Sync On Y (YUV/Yprpb mode)      |               |                 | Bit 6                                                                                                                                                                                                                                                                                                                         | off                   | on          | 0             |
| Slicing lever                   |               |                 | Bit 7                                                                                                                                                                                                                                                                                                                         | dependent on noise    | Fixed       | 0             |
| NVM option 3                    |               | 73              | OP3                                                                                                                                                                                                                                                                                                                           | 0                     | 1           | 255           |
| SW1                             | SW2           |                 | Bit 0                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| English Menu                    | English Menu  |                 |                                                                                                                                                                                                                                                                                                                               |                       |             |               |
| Farsi Menu                      | Farsi Menu    |                 | Bit 1                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| Arabic Menu                     | Arabic Menu   |                 | Bit 2                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| Turkey menu                     | Serbian Menu  |                 | Bit 3                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| France Menu                     | Bulgaria Menu |                 | Bit 4                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| German menu                     | German menu   |                 | Bit 5                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| Itality Menu                    | Itality Menu  |                 | Bit 6                                                                                                                                                                                                                                                                                                                         | Off                   | On          | 1             |
| Russia Menu                     | Russia Menu   |                 | Bit 7                                                                                                                                                                                                                                                                                                                         | off                   | on          | 1             |
| NVM option 4                    |               | 74              | OP4                                                                                                                                                                                                                                                                                                                           | 0                     | 1           | 114           |
| Narrow-band sound PLL window    |               |                 | Bit 0                                                                                                                                                                                                                                                                                                                         | small                 | large       | 0             |
| Power mode                      |               |                 | Bit 1                                                                                                                                                                                                                                                                                                                         | standby               | Last Memory | 1             |

## Service Adjustments

| Item                            | Storage address | Display string                                                                          | Range (Index   value) |                | Default value |
|---------------------------------|-----------------|-----------------------------------------------------------------------------------------|-----------------------|----------------|---------------|
| Geometry control                |                 | Bit 2                                                                                   | off                   | On             | 0             |
| Logo                            |                 | Bit 3                                                                                   | off                   | On             | 0             |
| EHT tracking mode               |                 | Bit 4                                                                                   | Vertical              | Vert. & EW     | 1             |
| Search tuing mode sensitivity   |                 | Bit 5                                                                                   | Normal                | Reduced        | 1             |
| Menu half-tone                  |                 | Bit 6                                                                                   | Off                   | On             | 1             |
| Zoom function                   |                 | Bit 7                                                                                   | off                   | on             | 0             |
| <b>NVM option 5</b>             | <b>75</b>       | <b>OP5</b>                                                                              | <b>0</b>              | <b>1</b>       | <b>223</b>    |
| Sound system DK                 |                 | Bit 0                                                                                   | Off                   | on             | 1             |
| Sound system BG                 |                 | Bit 1                                                                                   | Off                   | On             | 1             |
| Sound system I                  |                 | Bit 2                                                                                   | Off                   | On             | 1             |
| CORING0                         |                 | Bit 3                                                                                   | Off                   | On             | 1             |
| CORING1                         |                 | Bit 4                                                                                   | Off                   | On             | 1             |
| AV3                             |                 | Bit 5                                                                                   | off                   | On             | 0             |
| Switch-off in vertical overscan |                 | Bit 6                                                                                   | Undefined             | Vert. overscan | 1             |
| Power on to last status         |                 | Bit 7                                                                                   | Off                   | On             | 1             |
| <b>NVM option 6</b>             | <b>76</b>       | <b>OP6</b>                                                                              | <b>0</b>              | <b>1</b>       | <b>218</b>    |
| "No signal" OSD when no signal  |                 | Bit 0                                                                                   | off                   | On             | 0             |
| Blue screen or black screen     |                 | Bit 1                                                                                   | Black                 | Blue           | 1             |
| 16:9 mode                       |                 | Bit 2                                                                                   | off                   | On             | 0             |
| Child lock (Lock local key)     |                 | Bit 3                                                                                   | Off                   | On             | 1             |
| Top & bottom bar on Menu        |                 | Bit 4                                                                                   | Off                   | On             | 1             |
| Hotel mode                      |                 | Bit 5                                                                                   | Off                   | On             | No use        |
| Set "POC" bit when no signal    |                 | Bit 6                                                                                   | Off                   | On             | 1             |
| Game                            |                 | Bit 7                                                                                   | off                   | on             | 1             |
| <i>Instruction</i>              |                 | OP6 generally fixed to 218                                                              |                       |                |               |
| <b>NVM option 7</b>             | <b>77</b>       | <b>OP7</b>                                                                              | <b>0</b>              | <b>1</b>       | <b>196</b>    |
| AV1                             |                 | Bit 0                                                                                   | off                   | on             | 0             |
| <i>Instruction</i>              |                 | Because of AV1 is back AV, if SCART needed, no back AV, need to set AV1 0.              |                       |                |               |
| XX                              |                 | Bit 1                                                                                   | 0                     | 1              | 0             |
| TV and monitor out select       |                 | Bit 2                                                                                   | Monitor               | TV             | 1             |
| <i>Instruction</i>              |                 | Because the output of SCART always follow TV, when back AV is SCART, the value set to1. |                       |                |               |
| LISTEN PRESET                   |                 | Bit 3                                                                                   | off                   | on             | 0             |
| Power on always                 |                 | Bit 4                                                                                   | See OP4 bit 1         | Direct On      | 0             |
| Noise Reduce Off                |                 | Bit 5                                                                                   | <b>See Table 1</b>    |                | 0             |
| Noise Reduce On                 |                 | Bit 6                                                                                   |                       |                | 1             |
| NTSC-M Control switch           |                 | Bit 7                                                                                   | 1(FM)                 | 0(QSS)         | 1             |
| TrueBass control                | 78              | BASS                                                                                    | off                   | On             | 0             |
| Comb-filter Control             | 79              | COMB                                                                                    | Off                   | On             | 0             |

## Service Adjustments

| Item                           | Storage address | Display string                                                                                                                                      | Range (Index   value)       |    | Default value |
|--------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----|---------------|
| NICAM control                  | 7A              | NICA                                                                                                                                                | Off                         | On | 0             |
| RGB Control                    | 7B              | RGB                                                                                                                                                 | Off                         | On | 1             |
| YUV Control                    | 7C              | YUV                                                                                                                                                 | Off                         | On | 0             |
| NTSC-M Control                 | 7D              | M                                                                                                                                                   | off                         | on | 0             |
| Direct Key “CLOCK”             |                 |                                                                                                                                                     |                             |    |               |
| Logo edit (7 chars. & 2 lines) |                 | Logo Text                                                                                                                                           | English letter & number etc |    |               |
| Instruction                    |                 | The LOGO edit function will take effect when Bit3 in OP4 set 1, press key ‘VOL+/-’ to choose character, and press PROG+/- to choose ASC II charater |                             |    |               |

Table 1 : Noise Reduce Setting for PAL

| Noise Reduce On | Noise Reduce Off | OP7 Bit 5 | OP5 Bit 6 |
|-----------------|------------------|-----------|-----------|
| 2.7MHz          | 3.1MHz           | 0         | 0         |
| 2.7MHz          | 3.5MHz           | 1         | 0         |
| 3.1MHz          | 3.5MHz           | 0         | 1         |
| 3.1MHz          | 3.5MHz           | 1         | 1         |

\* Remark : NTSC system preset to 2.7 -> 3.1MHz.

# Purity and Convergence Adjustment

## COLOR PURITY ADJUSTMENT

- (1) Before color purity adjustment, warm up the TV set over 15 minutes and fully degauss.
- (2) Receive pure white signal in AV status and set the TV receiver dynamic.
- (3) Go to factory mod MENU2. After write down the values of R-BIAS and B-BIAS, set the values of R-BIAS and B-BIAS zero.
- (4) Loosen the clamp screw of the deflection yoke and pull the deflection yoke towards color purity Magnetic loop.
- (5) Adjust color purity magnetic loop to make the green area at the center of CRT screen.
- (6) Slowly push the deflection yoke toward the front of CRT and set it where a uniform green field is Obtained. Tighten the clamp screw of the deflection yoke.
- (7) Restore the values of R-BIAS, G-BIAS AND B-BIAS.

## CONVERGENCE ADJUSTMENT

- (1) Receive a dotted pattern. Set the TV receiver dynamic.
- (2) Loose the convergence magnet clamperrrr and align red with blu dots at the center of the screen by rotating(R,B) static convergence magnets.
- (3) Align Red/Blue with green dots at the center of the screen by rotating(RB-G) static convergence magnet.
- (4) Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good

