

Alignment Procedure

Chassis name	M61 (ETC009)	File No.	
Prepared by	Liao ling zhi	Serial No.	
Reviewed by		Version	0.1
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Version: states by two Arabic Numbers, which is separated by one dot, e.g. 1.1. The first number means the version of signed file, the second one means the version of draft.

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Revision History

Model No.	Status		Date	Comment
03-2127P3-SC0	Prepared by	llz	2005-03-08	基础机芯
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1. GENERAL

1.1 Common Information

- 1.1.1 Use isolating transformer with low internal resistance.
- 1.1.2 Mains voltage is **180-240** V AC.
- 1.1.3 All voltages and waveforms mentioned are with respect to Ground. Do not use heat-sink as Ground.

1.2 How to enter factory Mode

- 1.2.1 Alignment need to enter Factory Mode (Service Menu). There are two ways to access factory mode:

One way is :

- A. Make the tv set into Standby Mode from Running Mode,
- B. Switch off Power Supply
- C. Switch on Power Supply while pressing "TEXT" Key continuously, until tv set switch on and entering factory mode.

The other one is:

Press "OK" key on the factory RC to entry factory mode . (Please be noted this method is valid only when "bit-0" of "MODE 1" is at "0" , " MODE 1 " is first item of page 9 in factory mode .)

- 1.2.2 All system data in Factory Mode of **"Key 8 & Key 9"** should not be adjusted when alignment, otherwise, the set maybe will not work well .
- 1.2.3 Pls. disable the short key of factory mode after the alignment is finished .

Navigation in factory mode :

- Press **"Up" and "Down"** key to select option;
- Press **"Left " and "Right "** key to adjust or select option.
- Press **"OK"** KEY on the RC as the shortcut key to access factory menu.;

All change in factory mode will be saved in EEPROM automatically

1.3 Special modes:

- 1.3.1 **Aging Mode** is used before set alignment. It should operate in factory mode;
Press blue " GUIDE" Key in factory mode, the Aging Mode will be entered when "Aging Mode" is shown on screen. Press blue " GUIDE " key again will exit " Aging Mode " .
- 1.3.2 **Vertical Stop mode** is used to confirm the screen voltage. Press red "PRESETS" key in factory mode and repress "PRESETS" to exit.
- 1.3.3 White balance alignment mode : Press **"EXIT"** key on factory RC, The set will display **" BUS OPEN "** , It means the I2C bus from the CPU to other ICs had been cut off . This is only used during automatic adjustment of white balance. Press other key will leave **" BUS OPEN "**.
- 1.3.4 RESET (Initialization before the set will took away from production line)
In factory mode, press yellow **"INFO"** key , then "RESET" will be shown . press "ZOOM+" , "BUSY" will shown, Initialization will be finished until "BUSY" disappear.

Tv Status after RESET

Volume: **30**, PG password : no password

program lock: **unlock**, Picture mode: **sport**,

Color temp: **neutral**, calendar:**01-08-2004**

2. Alignment procedure:

2.1 B+ voltage check

- 2.1.1 No alignment of B+ voltage is needed .
- 2.1.2 Input Philips test pattern signal and standard mode , measure B+ with voltage multi meter , adjust VR802 until it should within $112V \pm 0.5V$.

2.2 RF AGC adjustment

- 2.2.1 Input 60dB half-Color Bar signal.
- 2.2.2 Press key "2" to enter page 2 of factory mode .
- 2.2.3 Select RF AGC adjustment item with " up " or " down " key . .
- 2.2.4 Press "OK" key to start auto alignment RF AGC, also can adjust "RF AGC" manually by "left " and " right " key until the hint display just change from "INACTIVE" to "ACTIVE".

2.3 Crystal oscillator frequency adjustment

2.3.1 Crystal oscillator frequency adjustment with NICAM

- a. Apply PAL BG NICAM signal with good reception quality.
- b. Enter factory mode, press "Vol -" key , it will display " DCXOAUTO " , then press "ZOOM+" key to start auto adjust , when it displays "DCXOAUTO OK" , the adjust is finished .

2.3.2 Crystal oscillator frequency adjustment without NICAM

- a. Input PAL color bar signal.
- b. In factory mode, press "0" to entry page 0 , adjust "DCXO Cap" until display " DISC " is steady at 128.

2.4 Screen & Focus voltage adjustment

2.4.1 Screen voltage adjustment

- a. Press red "PRESETS" Key on the remote control and the screen will become a horizontal line, then adjust the "screen voltage" of the flyback transformer until the horizontal line can just be seen barely (minimum visible intensity).

2.4.2 Focus voltage adjustment

- a. Input cross hatch pattern signal.
- b. Adjust the "focus" VR of the flyback transformer until the vertical line and horizontal line becomes clear .

2.5 White balance adjustment (NORMAL)

- 2.5.1 Input Black and White pattern signal (PAL).
- 2.5.2 In factory mode, press "1" key enter white balance adjustment.
- 2.5.3 Measure the dark side of the picture with a color analyzer , adjust RED and GRN until the data on the analyzer become $x=284 \pm 8$, $y=299 \pm 8$.
- 2.5.4 Measure the bright side of the picture. Then adjust WPR, WPG and WPB

until the data on the analyzer become $x=284\pm 8$, $y=299\pm 8$.

- 2.5.5 Repeat step 1 and 2 until you get right white balance on both dark and bright side of the screen.

Remark :

1. When adjusting, RED、GRN are used to adjust black balance and WPR、WPB、WPG are used to adjust white balance .
2. On product line, the item which can be auto adjusted by auto test equipment , its data according to auto adjust value.
3. please look the fourth part at page 7 for white balance register and EEPROM address ,.

2.6 Adjustment of Sub-brightness

- 2.6.1 Input grey scale + color bar signal.
- 2.6.2 Press key "4" to enter sub-brightness adjustment.
- 2.6.3 At standard state, adjust "BRTC" , until the secondary grey just be seen.

2.7 Picture geometric adjustment

2.7.1 Vertical geometric adjustment

- a. Input a PAL cross hatch pattern signal .
- b. Press key "2" to enter Vertical geometric adjustment .
- c. first of all , adjust 5VSL to make middle line of top half picture could be seen just . In "5VSL" , the bottom half picture will be blanking ,
- d. Then adjust vertical position and amplitude to make the center and size of picture suitable in vertical direction .
- e. Adjust linearity and S-correction as requirement.

Remark: :

- 1 5VSC , 31 is fixed, don't adjust .
- 2 5VPOS for vertical position.
- 3 5VAM for vertical amplitude.
- 4 5VSL for vertical slope.
- 5 5VL for vertical linearity.
- 6 5SCL for vertical S-correction.

*Apply NTSC signal to adjust these registers for NTSC geometric

2.7.2 Horizontal geometry adjustment

- a. Input a PAL cross hatch pattern with black and white background signal.
- b. Press key "3" enter Horizontal geometric adjustment.
- c. Adjust alignment item one by one with remote control, until the center and the vertical line at left and right side of the picture become straight.

Remark :

1. Adjust 5HSH for horizontal position to make picture is in Hor. center.
2. 5PAR for parallelogram adjustment.
3. 5BOW for bow adjustment.
4. Adjust 5EWW for horizontal width.
5. 5EWP for pincushion correction.
6. 5UCR for upper corner correction.

7. 5LCR for low corner correction.
8. 5EWT for trapezium correction.
9. 5WBR for end of blanking time on 4:3 mode (16:9 tube).
9. 5WBF for start of blanking time on 4:3 mode (16:9 tube).

* 5WBF/5WBR only valid with 16:9 tube. In 4:3 picture mode, adjust blanking time of R and F. First press "ZOOM" key switch to 4:3 mode, then adjust 5WBF and 5WBR respective to make the overscan meet the requirements.

*This adjustment is disabled with 4:3 tube.

*Apply NTSC signal to adjust these registers for NTSC geometric

2.8 X rays over voltage protecting circuit test

Test method :

Switch on tv set with color bar signal, add more than 27V DC voltage on **C417**, tv set should enter into protection mode, otherwise please inspect X rays over voltage protecting circuit .

2.9 Main function test (eg, NICAM , TELTEXT ,SCART and etc.)

NICAM test standard please reference ETS 300 163

TELTEXT test standard please reference **Q/WP1259-2003**.

SCART test standard please reference IEC933-1

2.10 RESET tv set

When all item of tv alignment is finished , pls. make the tv to RESET as 1.34 .

3. EEPROM Data and Address.

Items marked with * aren't adjustable, the others are adjustable.

Model No.	KEY1					KEY2				
	RED	GRN	WPR	WPB	WPG	5VPOS	5VAM	5VSL	5VL	5VSL *
PJO556	32	32	32	32	32	32	23	28	30	31

Model No.	KEY2			KEY3						
	5SCL	RF AGC	AGCL	5HSH	5PAR	5BOW	5EWW	5EWP	5UCR	5LCR
PJO556	31	25	25	42	33	29	39	34	46	43

Model No.	KEY3			KEY4						
	5EWT	5WBR	5WBF	VOL 01	VOL 10	VOL 90	VOL 100	CNTC	BRTC	COLC
PJO556	26			30	104	189	205	25	30	23

Model No.	KEY4			
	TNTC	COLP	COLS	SHPTV
PJO556	35	6	29	

4. White balance address

R G B	R AMP	G AMP	B AMP	R CUT	G CUT	B CUT	Remark
Offset DATA	142	143	150	146	161	*****	Factual setup
I C write(LsB)							
Sub Add	32	33	34	23	24	*****	
Start Bit	5	5	5	5	5	*****	
Stop Bit	0	0	0	0	0	*****	
E ² PROM							
Sub Add(LsB)	122	123	124	120	121	*****	TV color temperature
Reference						B	BJ SanAi (SWB-301)
Slave Address(write)							
16 Bit EEPROM	<input type="checkbox"/>	Page Addr		<input type="checkbox"/>			
IC	138			E ² PROM	160		