3 Alignments and Adjustments

3-1 Service Instruction

1. Usually, a color TV-VCR needs only slight touch-up adjustment upon installation. Check the basic characteristics such as height, horizontal and vertical sync.

2. Use the specified test equipment or its equivalent.

3. Correct impedance matching is essential.

4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test result.

5. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.

6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.

7. To protect aganist shock hazard, use an isolation transform.

3-2 How to Access Service Mode

3-2-1 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	→	MENU	→	MUTE	→	Power On

   - If you have Factory remote - control

PICTURE ON	→	DISPLAY	→	FACTORY

   - The buttons are active in the service mode.
     1. Remote - Control Key : Power, Arrow Up, Arrow Down, Arrow Left
                                     Arrow Right, Menu, Enter, Number Key(0~9)
     2. Function - Control Key : Power, CH +, CH -, VOL +, VOL -,
                                     Menu, TV/VIDEO(Enter)

3-2-2 Panel Check

You have to check Panel Maker Because of different adjustments as follows.
First of all, Check the label rating!

1) Label Rating File

- LCD PANEL MARK -

A:ACER(AUO)   S : SEC   C : CMO   * If not printed you could consider S(sec) panel mark.

2) If Panel Mark is "A", Set the factory mode indicating as follows.

* Option Byte

1. Inch Option 32"

2. Gamma 32"AUO

3. Panel Option AUO

Others are same shown below.

3-3 Factory Data

1. Calibration
2. Service
3. White Balance
4. SVP-UX
5. Option Block
6. SGTV5810/NTP3000
7. YC Delay
8. Option Table
9. I2C Check
10. W/B MOVIE
11. Checksum
12. Reset
13. Spread Spectrum
T-BDPMPEUD-xxxx (Main Micom Ver)
T-BDPMPEUS-xxxx
BORD2_CALLA_TR-xxxx (Sub Micom Ver)
   Month / Day / Year / Hour / Min. / Sec.

1. Calibration
   1) AV Calibration
   2) COMP Calibration
   3) PC Calibration
   4) HDMI Calibration

2. Option Table   XXXX XXXX

No	Item	Range	
1	Ready	ON/OFF	OFF
2	Inch Option	23"/ 26" / 32"...	32"
3	Panel Vender	AUO/CMO...	AMLCDINT
4	Gamma	ON/OFF	OFF
5	Panel Type	Normal1/Normal2...	Normal1
6	Model Option	Calla/Lily/Bord Plus/Jasmine	Bord Plus
7	Tuner	SEMCO/ALPS	SEMCO
8	Tuner TOP	0~31	8
9	Auto Power	ON/OFF	ON
10	Nordic	ON/OFF	OFF
11	LNA Menu	ON/OFF	ON
12	TTX On/Off	ON/OFF	ON
13	TTX List	Flof/List	Flof
14	Carrier Mute	ON/OFF	OFF
15	High Deviation	ON/OFF	OFF
16	VOL.Curve	Small/Large	Small
17	HDMI Hotplug	1/0	1
18	HDMI Clock Ctrl	1/0	1
19	HDMI Hotplug Dly	3~50	9

3 Alignments and Adjustments

No	Item	Range	
20	Hotel Option		
	Hotel Mode	ON/OFF	OFF
	Power On Channel	1~99	1
	Power On Volume	1~100	10
	Max Volume	1~100	100
	Local Key Lock	ON/OFF	OFF
	Power On Source	RF/Ext.1...	RF
21	Shop Mode	ON/OFF	OFF
22	Color Space	ON/OFF	ON
23	PC Ident	ON/OFF	OFF
24	Language	English/German...	English
25	ANYNET+	ON/OFF	ON
26	Ch.Table	SUWON/SESK/SEH/TTSEC	SUWON
27	TTX Group	Auto/West Europe...	Auto
28	iDTV_Cntry	UK/France...	UK

3. White Balance

No	Item	Range	TV/AV/Scart	Comp/iDTV	PC	HDMI
1	Sub-Briteness	00H~FFH	128	128	128	128
2	R-offset	00H~FFH	128	128	128	128
3	G-offset	00H~FFH	128	128	128	128
4	B-offset	00H~FFH	128	128	128	128
5	Sub-Contrast	00H~FFH	128	128	128	128
6	R-Gain	00H~FFH	128	128	128	128
7	G-Gain	00H~FFH	128	128	128	128
8	B-Gain	00H~FFH	128	128	128	128

4. SVP-PX
1) ComB Filter

No	Item	Range
1	Y-Filter	00H~FFH

2) Sharpness

No	Item	Range	RF	AV	Comp480i	Comp480p	Comp720p	Comp1080i	HDMI	PC	iDTV
1	H2Gain	00 ~ 1FH	05H	05H	05H	05H	04H	04H	0AH	05H	05H
2	H4Gain	00 ~ 1FH	04H	0AH	05H	05H	02H	02H	0AH	05H	05H
3	V2Gain	00 ~ 1FH	0CH	0CH	0AH	0CH	0AH	0AH	10H	0AH	0AH
4	V4Gain	00 ~ 1FH	0CH	10H	0CH	0CH	0AH	0AH	10H	0AH	0AH
5	Sr2Gain	00 ~ 1FH	00H	00H	00H	00H	00H	00H	00H	00H	00H
6	Sr4Gain	00 ~ 1FH	00H	02H	00H	00H	02H	02H	04H	02H	02H
7	Sl2Gain	00 ~ 1FH	00H	00H	00H	00H	00H	00H	00H	00H	00H
8	Sl4Gain	00 ~ 1FH	00H	02H	00H	00H	02H	02H	04H	02H	02H
9	Peakth1	00H~FFH	06H	02H	03H	03H	03H	03H	03H	08H	04H
10	Peakth2	00H~FFH	2FH	2FH	2FH	2FH	2FH	2FH	2FH	2FH	2FH
11	Peskth3	00H~FFH	3FH	3FH	3FH	3FH	3FH	3FH	3FH	3FH	3FH

3) NR

No	Item	Range	
1	Y_NR_OFF	00H~FFH(Y_NR_OFF)	00H
2	C_NR_OFF	00H~FFH(C_NR_OFF)	00H
3	Y_NR_ON	00H~FFH(Y_NR_ON)	00H
4	C_NR_ON	00H~FFH(C_NR_ON)	00H

4) RGB Calibration

No	Item	Range	TV/AV/S_Video	Component	PC	HDMI
1	R-Offset	00H~FFH	3AH	40H	32H	82H
2	G-Offset	00H~FFH	3AH	40H	32H	82H
3	B-Offset	00H~FFH	3AH	40H	32H	82H
4	R-Gain	00H~FFH	A6H	92H	A9H	6CH
5	G-Gain	00H~FFH	A6H	92H	A9H	6CH
6	B-Gan	00H~FFH	A6H	92H	A9H	6CH

5) ADC Calibration

No	Item	Range	TV/AV/S_Video	Component	PC	HDMI
1	TCD3 Contrast	00H~FFH	79H	78H	78H	78H
2	TCD3 Brightness	00H~FFH	29H	20H	20H	20H
3	TCD3 CR	00H~FFH	80H	80H	80H	80H
4	TCD3 CB	00H~FFH	80H	80H	80H	80H
5	TCD3 Delay	00H~FFH	00H	00H	00H	00H
6	Analog Y Offset	00H~FFH	40H	3DH	44H	40H
7	Analog PB Offset	00H~FFH	80H	80H	44H	80H
8	Analog PR Offset	00H~FFH	80H	80H	44H	80H
9	Analog Y Gain	00H~FFH	D6H	B3H	A4H	80H
10	Analog PB Gain	00H~FFH	80H	B3H	ACH	80H
11	Analog PR Gain	00H~FFH	80H	B3H	A7H	80H
12	Black Level	00H~FFH	00H	00H	00H	00H
13	Svp Brightness	00H~FFH	00H	00H	00H	00H

6) Caliration Target

No	Item	Range	low	high	Delta
1	AV ADC	00H~FFH	10H	DCH	02H
2	COMP ADC	00H~FFH	10H	EBH	02H
3	PC ADC	00H~FFH	10H	DCH	04H
4	ALL RGB	00H~FFH	01H	EBH	0AH

3 Alignments and Adjustments

7) Color Management

No	Item	Range	
1	Skin Direction	Reddish/Yellowish	Reddish
2	Skin Enhance	00H~FFH	00H
3	Green Stretch	00H~FFH	00H
4	Blue Stretch	00H~FFH	00H

5. Option Block

1) FRC(Micronas)

2) FRC2X

No	Item	Range	
1	OUTCON	1~3	0
2	GAMMA	1~7	0
3	OCC_MODE	0/1	0
4	FALLBACK	0/1	0
5	DBG_MARK	0/1	0
6	SPR_CBR	0/1	0
7	BIT_EXPAND	0/1	0
8	INV_BIT_EXPAND	0/1	0
9	REPEAT_MODE	0/1	0
10	DEMO_ON_OFF	0/1	0
11	MMU_RD_START	00H~FFH	00H
12	ME_RD_START	00H~FFH	00H
13	MC_RD_START	00H~FFH	00H
14	CMZL(0x36E)	00H~0FH	0H
15	BLOL(0x2A7)	00H~0FH	0H
16	LOGO(0x2A7)	00H~0FH	0H

3) FBE2

No	Item	Range	RF	AV/ S-VIDEO	COMP (480i/576i)	COMP (480p/576p)	COMP (720p/1080i/1080p)	HDMI	DTV	DTV
1	Pattern Select	0~20	0	0	0	0	0	0	0	0
2	BS-On	0/1	1	1	1	1	1	1	1	1
3	B-Slope Gain	0~255	34	44	44	64	64	64	64	64
4	B-Tilt Min	0~255	20	20	20	20	20	20	20	20
5	B-Tilt Max	0~255	120	120	120	120	120	120	120	120
6	B-Tilt Slope	0~255	128	128	128	128	128	128	128	128
7	LFunc-Basis	0~255	30	20	20	40	70	55	75	75
8	Hfunc-Basis	0~255	30	40	40	40	75	65	88	88
9	Mean-Offset1	0~255	20	100	100	75	75	75	75	75
10	Mean Offset2	0~255	120	200	200	155	225	225	225	225
11	Mean Slope	0~255	56	56	56	45	85	85	85	85
12	Input Offset	0~255	128	128	128	128	128	128	128	128
13	Input Gain	0~255	128	128	128	128	128	128	128	128
14	ACR Offset	0~128	15	15	15	15	15	15	15	15
15	ACR Th1	0~255	30	30	30	30	30	30	30	30
16	ARC Th2	0~255	130	130	130	130	130	130	130	130
17	Skin Enable	0/1	1	1	1	1	1	1	1	1
18	Skin Tu	0~255	165	165	165	150	165	165	128	128
19	Skin Tv	0~255	140	140	140	140	128	128	128	128
20	M Skin Tu	0~255	128	128	128	128	128	128	128	128
21	M Skin TV	0~255	128	128	128	128	128	128	128	128
22	Sub Color	0~255	115	128	128	135	140	150	143	143
23	M-Au-Sub Color	0~255	128	128	128	128	128	128	128	128
24	M-Wi-Sub Color	0~255	128	128	128	128	128	128	128	128
25	MW-Skin-Tu	0~255	128	128	128	128	128	128	128	128
26	MW-Skin-Tv	0~255	128	128	128	128	128	128	128	128

3 Alignments and Adjustments

4) Pdp Logic

No	Item	Range	
1	Pattern Srlect	0~63	0
2	Data updata	ON/OFF	OFF
3	Data Type	42"EU MRT/42"EU MESH/.....	42"EU MRT
4	CDC Sw	ON/OFF	OFF
5	CDC Strengh Th	0~31	0
6	BRE Sw	ON/OFF	OFF
7	FRC Repeat Mode	ON/OFF	OFF
8	FRC CBG Mark On	0~15	0
9	ERC Bypass	ON/OFF	OFF
10	Panel Type	-	0H
11	Panel Inch	-	SD
12	Panel Version	-	
13	Logic Sw Version	-	0H 0H 0H

6. SGTV5810/NTP3000

No	Item	Range	
1	ID Tone Shift	1H~FH	01H
2	ID Tone Thresh	00H~FFH	7FH
3	Demod Prescaler	00H~20H	13H
4	Master Volume	00H~30H	13H
5	PWM Modulation	80H~F2H	F1H
6	DRC Threshold	00H~7FH	06H
7	Speaker EQ	ON/OFF	OFF

7. YC Delay

No	Item	Range	
1	RF PAL-B/G	00H~FFH	AAH
2	RF PAL - D/K	00H~FFH	99H
3	RF PAL - I	00H~FFH	99H
4	RF SECAM - B/G	00H~FFH	88H
5	RF SECAM - D/K	00H~FFH	44H
6	RF SECAM -L/L'	00H~FFH	88H
7	RF NTSC 3.58	00H~FFH	44H
8	RF NTSC 4.43	00H~FFH	CCH
9	AV PAL	00H~FFH	AAH
10	AV SECAM	00H~FFH	88H
11	AV NTSC 3.58	00H~FFH	30H
12	AV NTSC 4.43	00H~FFH	AAH
13	AV PAL60	00H~FFH	77H

8. Adjust

No	Item	Range	
1	Video Mute Time	0~255	10
2	Dynamic Contrast	ON/OFF	OFF
3	Dynamic Dimming	ON/OFF	ON
4	Dynamic CE	ON/OFF	OFF
5	LNA PLUS		
	RFDB-1 Level	0~255	2
	RFDB-2 Level	0~255	5
	RFDB-3 Level	0~255	7
	RFDB-4 Level	0~255	24
6	Magazine LNA	ON/OFF	OFF
7	PixelShift Test	ON/OFF	OFF
8	Debug	ON/OFF	OFF
9	ACR	ON/OFF	OFF
10	D-Watchdog	ON/OFF	ON
11	UART Select	MAIN / IDTV / PDP Lvds ON / PDP Lvds OFF	OFF

9. I2C Check

10. W/B MOVIE

No	Item	Range	TV/AV/S_Video	Component	PC	HDMI	Scart1/2
1	WB Movie	ON/OFF	OFF	OFF	OFF	OFF	OFF
2	Color Mode	Movie	Movie	Dynamic	Dynamic	Dynamic	Dynamic
3	Color Tone		Cool1	Cool1	Cool1	Cool1	Cool1
4	Msub Brigh	0~255	128	128	128	128	128
5	Msub Contr	0~255	128	128	128	128	128
6	W1_RGAIN	0~255	157	161	144	161	157
7	W1_BGAIN	0~255	76	74	117	76	76
8	W1_R_OFFS	0~255	119	119	127	118	119
9	W1_B_OFFS	0~255	138	140	110	141	138
10	W2_RGAIN	0~255	142	143	149	142	142
8	W2_BGAIN	0~255	48	47	93	51	48
9	W2_R_OFFS	0~255	129	127	124	128	129
10	W2_B_OFFS	0~255	143	145	110	143	143
11	NO_RGAIN	0~255	141	139	137	141	141
12	NO_BGAIN	0~255	104	102	123	104	104
13	NO_R_OFFS	0~255	126	125	126	121	126
14	NO_B_OFFS	0~255	136	133	114	133	136
15	C2_RGAIN	0~255	124	122	123	125	124
16	C2_BGAIN	0~255	142	141	156	143	142
17	C2_R_OFFS	0~255	128	129	117	128	128
18	C2_B_OFFS	0~255	128	127	116	128	128
19	Movie Contr	0~100	100	100	100	100	100
20	Movie Brigh	0~100	45	45	45	45	45
21	Movie Color	0~100	55	55	55	55	55
22	Movie Sharp	0~100	75	75	75	75	75

11. Checksum   7A72

12. Reset

13. Spread Spectrun

No	Item	Range	
1	Spectrum	ON/OFF	ON
2	Delta	-128 ~ +128	0
3	Positive	0~99	8
4	Negative	0~99	2
5	Speed	0~7	0
6	Time	0~7	4
7	FBE Spectrum	ON/OFF	OFF
8	FEE Delta	0~5	0

3-4 Service Adjustment

3-4-1 White Balance - Calibration

If picture color is wrong, do calibration first.

Equipment : CA210, Patten : chess pattern
Execute calibration in Factory Mode
Source   AV : PAL composite, Component : 1280*720/60Hz
         PC : 1024*768/60Hz
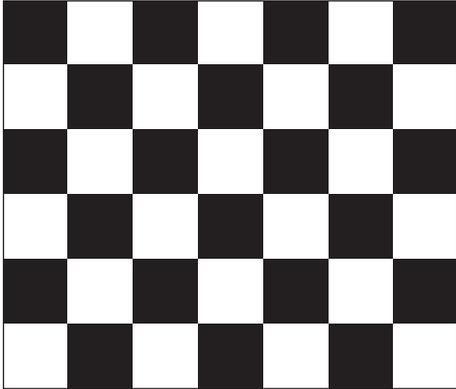
(chess patten)

3-4-2 White Balance - Adjustment

If picture color is wrong, check White Balance condition.

Equipment : CA210, Patten : Flat W/B Pattern
Adjust W/B in Factory Mode

Sub brightness and R/G/B Offset controls low light region
Sub contrast and R/G/B Gain controls high light region
Source   AV : PAL composite, Component : 1280*720/60Hz
              HDMI[DVI] : 1280*720/60Hz

[Test Pattern : MIK K-7256 PAttern #92]

 *Color temperature
 1500K +/-500, -6 ~-20 MPCD

 *Color coordinate
 H/L : 267/263 +/- 2   35.0 Ft +/- 2.0Ft
 L/L : 270/260 +/- 3   1.5 Ft +/- 0.2Ft

Flat W/B Pattern

3-4-3 Conditions for Measurement

1. On the basis of toshiba ABL pattern : High Light level (57 IRE)

    - INPUT SIGNAL GENERATOR : MSPG-925LTH

       * Mode   NO   2 :   744X484@60 Hz

                        NO   6 : 1280X720@60 Hz

                        NO 21 : 1024X768@60 Hz

       * Pattern NO 36 : 16 Color Pattern

                        NO 16 : Toshiba ABL Pattern

2. Optical measuring device : CA210 (FL)

    Please use the MSPG-925 LTH generator for model LE26M51B/LE32M51B/LE40M51B/LE46M51B.

3-4-4 Method of Adjustment

1. Adjust the white balance of AV, Component and DVI Modes.

        (AV ⟶ Component)

    a) Set the input to the mode in which the adjustment will be made

        (RF ⟶ DTV ⟶ PC ⟶ DVI).

    * Input signal - VIDEO Mode : Model #2 (744*484 Mode), Pattern #16

                        - DTV,DVI Mode : Model #6 (1280*720 Mode), Pattern #16

                        - HDMI Mode: Model #6(1280*720 Mode), Pattern #16

    b) Enter factory color control, confirm the data.

    c) Adjust the low light. (Refer to table 1, 2 in adjustment position by mode)

        - Adjust sub - Brightness to set the 'Y' value.

   - Adjust red offset ('x') and blue offset ('y') to the color coordinates.

Picture 4-2 Flat W/B Pattern

Low light
Measurement point
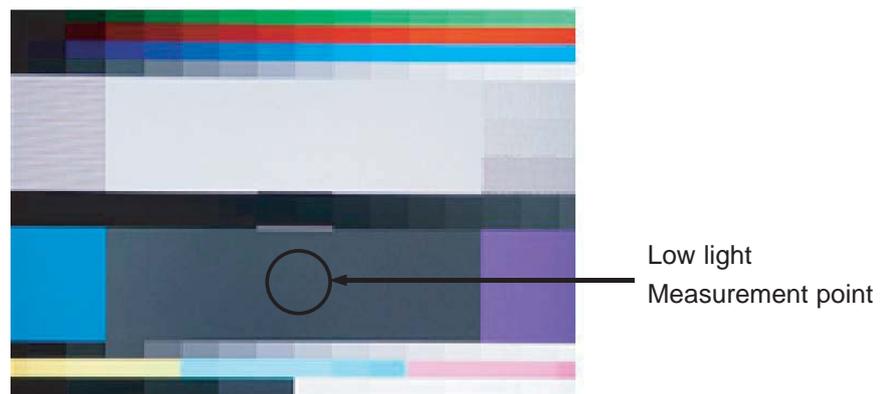
    * Do not adjust green offset data.

    d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)

        - Adjust red gain ('x') and blue gain ('y') to the color coordinates.

        * Do not adjust the green gain and sub-contrast (Y) data.

d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)
   - Adjust red gain ('x') and blue gain ('y') to the color coordinates.
   * Do not adjust the green gain and sub-contrast (Y) data.

Picture 4-3 Flat W/B Pattern

High light
Measurement point
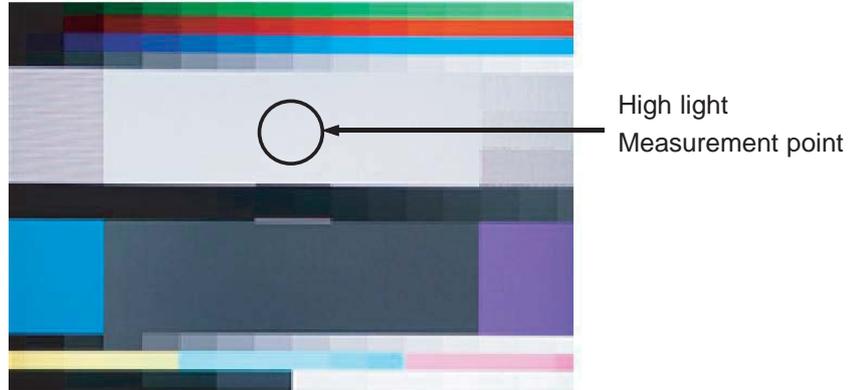
3-5 Software Upgrade

3-5-1 How to Update Flash ROM

1. Install the Flash Downloader

   ConnectSet(Service Jack)and Jig Cable to execute Program Update.

2. Flash Downloader program update

   -Before Turning on the set,Click "connect"which is under of OSD Screen!

   -Turn on the Set.