
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 against 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



- If you have Factory remote - control



- 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

Specially for LE26,32R7**, You have to check Panel Maker Because of different adjustments as follows.
First of all, Check the label rating!

1) Label Rating File



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

Panel BOM(Bill of material) : BN07-00289A
Connector between Panel and Power Unit : BN39-00603M (300mm)

* Option Byte

1. Gamma "AUO"
2. Panel Option "AUO"

If Panel Mark is "S" or not printed.
Set the factory mode indicating as follows.

Panel BOM(Bill of material) : BN07-00247A
Connector between Panel and Power Unit : BN39-00603M (300mm)

* Option Byte

1. Gamma "AMLCD"
2. Panel Option "AMLCD_INT"

If Panel Mark is "C" , Set the Factory mode indicating as follows.

Panel BOM(Bill of Material) : BN07-00207A
Connecotor between Panel and Powe Unit : BN39-00659A(200mm)

* Option Byte

1. Gamma " CMO "
2. Panel Option " CMO "

Others are same shown below.

3-3 Factory Data

1. Calibration
 2. Option Table XXXX XXXX
 3. White Balance
 4. SVP-FX
 5. Option Block
 6. STV8257/STA323W
 7. YC Delay
 8. Adjust
 9. I2C Check
 10. W/B MOVIE
 11. Checksum
 12. Reset
 13. Spread Spectrum
- T-BRDMPEA-1008 (Main Micom Ver)
T-BRDMPEAS-1002 (Sub Micom Ver)
Month / Day / Year / Hour / Min. / Sec.

1. Calibration
 - 1) AV Calibration
 - 2) DTV Calibration
 - 3) PC Calibration

2. Option Table XXXX XXXX

Inch Option	32"	Carrier Mute	ON	TTX Group	Auto
Gamma	AUO	Language	English	Auto Power	ON
Panel Option	AUO_MVA	Auto FM	ON	----	OFF
2HDMI	OFF	High Deviation	OFF	----	G
Brт.Sensor	OFF	TTX	ON	----	OFF
EnergySave	ON	TTX List	ON	Debug	OFF
LBE/FBE	OFF	ACR	OFF	Ch.Table	SUWON
FRC(Micronas)	OFF	Dynamic CE	ON	iDTV_Cntry	UK
FRC(Samsung)	OFF	Dynamic Dimming	ON	Dynamic Contrast	OFF
LNA	OFF	Tuner TOP	10		

- Option Table setting for Panel maker & inch.

Inch	Panel maker	Panel Spec	code no	Factory Option			W/B		
				Inch Option	Gamma	Panel Option	Sub Contrast	X	Y
26	AUO(A)	T260XW02	BN07-00254A	26	AUO	AUO	165	272	278
27	CMO(C)	V27B1-L01	BN07-00136A	27	CMO	CMO	160	272	278
32	AUO(A)	T315XW02	BN07-00289A	32	AUO	AUO_AMVA	155	272	278
		T315XW01 V5	BN07-00253A	32	AUO	AUO_MVA	155	272	278
	AMLCD(S)	LTA3200WT-L11	BN07-00247A	32	Off	AMLCD_INT	135	272	278
37	AUO(A)	T370XW01	BN07-00255A	37	AUO	AUO	160	272	278
40	AMLCD(S)	LTA400WT-L01	BN07-00264A	40	AMLCD	AMLCD_INT	155	272	278

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3. White Balance

No	Item	Range	TV/AV	Component	PC	DVI(HDMI)
1	Sub-Brightness	0~255	80	115	128	140
2	R-offset	0~255	120	130	128	129
3	G-offset	0~255	128	128	128	128
4	B-offset	0~255	113	128	128	128
5	Sub-Contrast	0~63	36	32	32	28
6	R-Gain	0~255	140	129	128	130
7	G-Gain	0~255	128	128	128	128
8	B-Gain	0~255	150	129	128	120

4. SVP-EX

1) Comb Filter

No	Item	Range	EEPROM	NTSC	PAL	SECAM		Control IC	Remark
1	Y-Filter	0~255			80h				X

2) Peaking

No	Item	Range	EEPROM	TV	AV	Component		Control IC	Remark
1	Y-Peaking	0~255			80h				X
2	Peaking Delay	0~255			80h				X
3	Peaking Gain	0~255			80h				X
4	Peaking Width	0~255			80h				X
5	Peaking f0	0~255			80h				X

3) NR

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC		Control IC	Remark
1	Y-NR-Off	0~255			80h				X
2	C-NR-Off	0~255			80h				X
3	Y-NR-ON	0~255			80h				X
4	C-NR-ON	0~255			80h				X

4) DeInterlace

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC		Control IC	Remark
1	Monitor	0~255			80h				X

5) Picture Gain Adjust

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC	DVI/HDMI
1	TCD3 Contrast	0~255		AV Calibration(78h)	78h	78h	78h
2	TCD3 Brightness	0~255		AV Calibration(20h)	20h	20h	20h
3	TCD3 CR Saturation	0~255		78h	78h	78h	78h
4	TCD3 CB Saturation	0~255		78h	78h	78h	78h
5	TCD3 YC Delay	0~15		00h	00h	00h	00h
6	Analog Y offset	00~255		40h	3	40h	40h
7	Analog PB offset	00~255		80h	DTV Calibration(80h)	80h	80h
8	Analog PR offset	00~255		80h	DTV Calibration(80h)	80h	80h
9	Analog Y Gain	00~255		D6h	DTV Calibration(D6h)	D6h	D6h
10	Analog PB Gain	00~255		FEh	FEh	FEh	FEh
11	Analog PR Gain	00~255		FEh	FEh	FEh	FEh
12	Black Level Setting	00~255		00h			
13	Brightness (SVP)	0~255		00h			

5. MST9883

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC	DVI/HDMI
1	R-offset	00~255		151 (SC1 RGB)		PC Calibration(128)	
2	G-offset	00~255		151 (SC1 RGB)		PC Calibration(128)	
3	B-offset	00~255		151 (SC1 RGB)	X	PC Calibration(128)	X
4	R-Gain	00~255		123 (SC1 RGB)		PC Calibration(192)	
5	G-Gain	00~255		123 (SC1 RGB)		PC Calibration(192)	
6	B-Gain	00~255		123 (SC1 RGB)		PC Calibration(192)	

6. MSP34XX/44XX

No	Item	Range	EEPROM	PAL
1	FM-Prescale	00~255		20h
2	NT-M-Prescale	00~255		20h
3	SECAM-L-Prescale	00~255		22h
4	NICAM-Prescale	00~255		42h
5	AV-Prescale	00~255		1Ah
6	12S_1 Prescale	00~255		10h
7	12S_12 Prescale	00~255		10h
8	Carrier Mute	00~255		42h
9	Pilot High	00~255		14
10	Pilot Low	00~255		7

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7. YC Delay

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC	DVI/HDMI
1	RF PAL-B/G	00~255		77h	88h	88h	88h
2	RF PAL-D/K	00~255		88h			
3	PF PAL-I	00~255		66h			
4	RF SECAM-B/G	00~255		88h			
5	PF SECAM-D/K	00~255		77h			
6	RF SECAM-L/L'	00~255		88h			
7	RF NTSC 3.58	00~255		66h			
8	RF NTSC 4.43	00~255		CCh			
9	AV PAL	00~255		77h			
10	AV SECAM	00~255		BBh			
11	AV NTSC 3.58	00~255		66h			
12	AV NTSC 4.43	00~255		CCh			
13	AV PAL60	00~255		77h			

8. Adjust

No	Item	Range	EEPROM	TV/AV/S-Video	Component	PC	DVI/HDMI	Control IC	Remark
1	Video Mute Time			10					
2	Melody Volume	0~20		5					
	Ana_Dimm_Max			FEH					
3	TTX Contrast	0~100		50					
4	TTX Brightness	0~100		50					
5	TTX Color	0~100		50					
6	Dynamic Contrast	0~100		100					Dynamic Mode
7	Dynamic Brightness	0~100		50					
8	Dynamic Color	0~100		55					
9	Dynamic Sharpness	0~100		75					
10	Standard Contrast	0~100		80					Standard Mode
11	Standard Brightness	0~100		50					
12	Standard Color	0~100		50					
13	Standard Sharpness	0~100		50					Movie Mode
14	Movie Contrast	0~100		70					
15	Movie Brightness	0~100		50					
16	Movie Color	0~100		25					
17	Movie Sharpness	0~100		45					
No	Item	Range	EEPROM	TV/AV/S-Video	Component/PC/HDMI				
1	LNA PLUS				X		P4 CVD2 0x7F	[07..00]	
2	RFDB_1 Level			1					
3	RFDB_2 Level			5					
4	RFDB_3 Level			10					
5	RFDB_4 Level			16					

9. 12C Check

10. Chip Debugger : OFF

11. Checksum XXXX XXXX

12. Reset

13. Spread Spectrum

1	Spectrum	ON
2	Delta	-3
3	Positive	8
4	Negative	2

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3-4 Service Adjustment

3-4-1 White Balance - Calibration

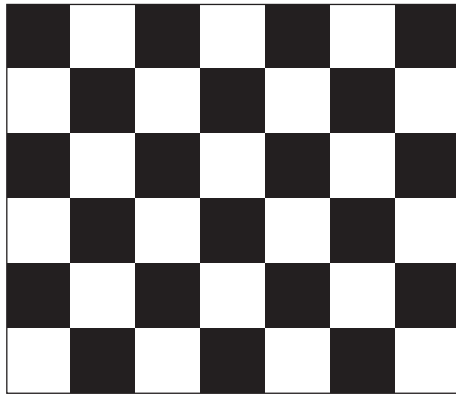
If picture color is wrong, do calibration first.

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 : Toshiba

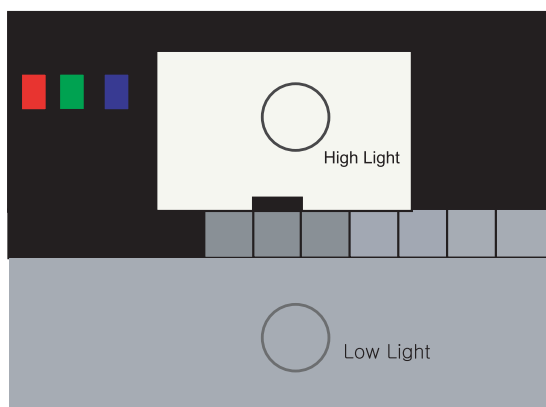
Adjust W/B in Factory Mode

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 : MSPG-945 Series Pattern #16]

*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

Toshiba Patten

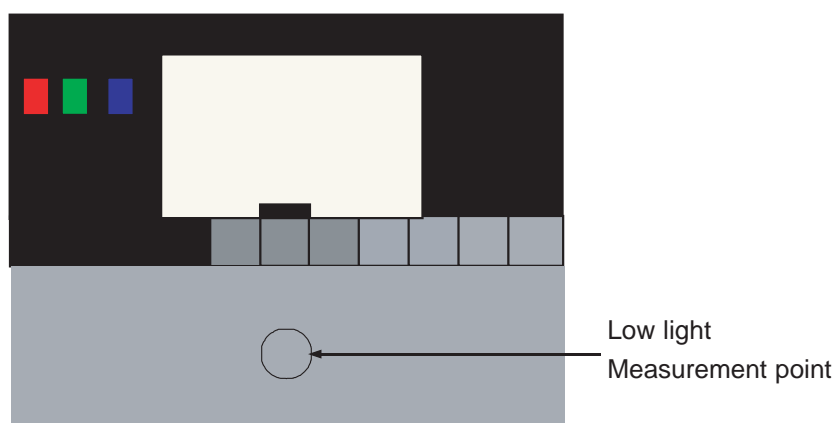
3-4-3 Conditions for Measurement

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 Toshiba ABL Pattern

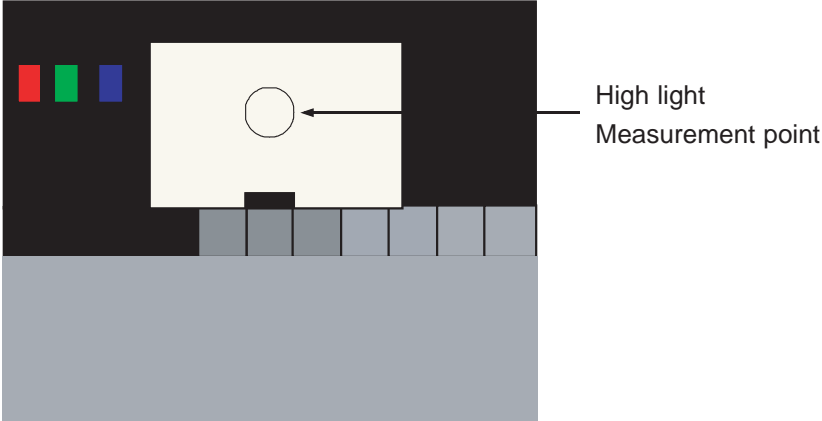


- * Do not adjust green offset data.
- d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)
 - Adjust red gain ('x') and blue gain ('y') to the color coordinates.
 - * Do not adjust the green gain and sub-contrast (Y) data.

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- 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 Toshiba ABL Pattern



3-5 Software Upgrade

3-5-1 How to Update Flash ROM

1. Install the Flash Downloader

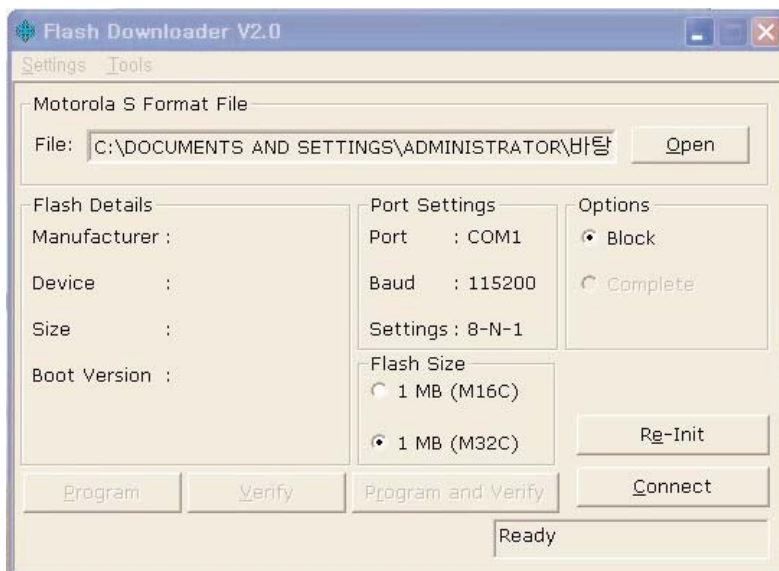
Connect Set (Service Jack) and Jig Cable to execute Program Update.



2. Flash Downloader program update

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

-Turn on the Set.



Memo