ADJUSTMENT PRECAUTIONS

Entering service mode

(Method 1)

- 1. Send the service R/C code to enter the service mode.
- 2. Send it again to exit the service mode.

(Method 2)

- 1. Short the jumper to enter the service mode. Connect "J 311" with "J 403".
- 2. Stop shorting the jumper to exit the service mode.

Service mode menu

- 1. Select item by ch up/down ,push vol up/down.
- 2. When you adjust geometry, please set Full mode by "Wide mode key".
- 3. About geometry adjustment, it is necessary to adjust 2 pattern.
 - 50hz interlace signal
 - 60hz interlace signal

About "Reset TV-set"

- 1. When replacing the flash ROM or EEPROM, the TV may need to be reset.
- 2. Unless necessary, do not reset the TV because the adjustment data will be initialized.
- 3. To reset the TV, enter the "Reset TV-set" menu and press the SURROUND key. After about 30 seconds, the NVM data will be initialized.

Changing the NVM data

- 1. Enter the "NVM Edit" menu.
- 2. Input the addr. and data in hex with the number keys or vol up/down key.
 - NVM-edit addr. (hex) ----
 - NVM-edit data (hex) --



Service Mode MENU

Service Mode	Vertical Geometry	Tube Measurement (3)
Vartical Generatory Horistati Gasanatory Tube Masurement (1) Tube Masurement (2) BOL and SVM BOL and SVM EHT Addical Sattings Reset TV-sat	Vert-Position < **> Vert-Amplitude < **> Vertinarity < **> VertS-Correction < **> VertBankingStop < **> VertBlankingStart < **>	IBRM 0 > CUTOIS 0 > CUTGAIN 0 > WORDS 0 > WORLGAN 0 > TML + 25 >
Ver: (E1) Date:** ** **		
	Horizontal Geometry	BCL and SVM
	Hor position (NEWLN)+ < +* > Pick Widh +1 < +* > Trapeze + < +* > Cushion + < +* > UpperCorner < +* > LowerCorner (Sixth) < +* > LogerCorner (Sixth) < +* > Bay < +* > HoroBlankingStop 1 < +* > HoroBlankingStop 1 < +* > RGB Clamping 1 < +* >	BCL-CAIN (***) BCL-THRES (**>) SVM-SVDEL (**>) SVM-SVLDL (**>) SVM-SVLN (**>) SVM-SVG (**>) SVM-SVG (**>) SVM-SVD (**>)
	Tube Measurement (1)	EHT
	Cutoff Red < ** > < ** > Cutoff Green < ** > < ** > Cutoff Bule < ** > < ** > Whitedry, Red < ** > < ** > Whitedry, Green < ** > < ** > Whitedry, Green < ** > < ** > Whitedry, Green < ** > < ** >	EHT-THRES < + +> EHT-STC < +> EHTV-SA1 < +> EHTV-SA2 < +> EHTH-SA1 < +> EHTH-SA1 < +> EHTH-SA2 < +> EHT-FTC < +> EHTH-P1 < +> FHTH-P2 < +>
	Tube Measurement (2)	Additional Settings
	CONT < ++> BRI < ++> COL < ++> TINT < ++>	OSD H-Shift < ** > OSD V-Shift < ** > IF AGC Adjust < ** > Auto AGC < ** > ROTATION < ** > SUB-LS-VOL < ** > SUB-LS-VOL < ** >

PIF ADJUSTMENT

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	RF-AGC ADJUSTMENT (I2C BUS CONTROL)	 Receive "PAL COLOUR BAR" signal. E-10CH Signal strength: 54 ± 1dBµV (50 ohm open) (2) Call "Auto AGC" mode in service mode (Additional Setting). (3) Push "Vol up" or "Vol down" key, automatically adjust. "change indication from <stop> to <check> at start adjustment. when adjustment is finished, <check> to <stop></stop></check></check></stop> 	Note: For the 50 ohm signal strength gauge, when not using 50/75 impedance adapter, signal strength is 54±1dB μ V(50 ohm open), instead of 56 ±1dB μ V(75 ohm open). precaution: The loss of using impedance adapter.

CUT OFF, BKGD ADJUSTMENT

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
	AGING	(1) Receive PR-0ch (BLUE BACK OFF), "NOISE PICTURE"	
		(2) Aging 30 minutes.	
1	CRT CUTOFF ADJUSTMENT	(1) Receive E-5CH (Monoscope pattern).	
	Service mode I2C bus data adjustment	 (2) Select P-NORM with the remote controller. (3) Turn on the service SW, and select "Tube Measurement (1) mode. (4) Select the screen VR 0/10. (5) Press "-/" key of the remote controller to select the horizontal centering mode. (6) Turn the screen VR in the opposite direction to the point where the horizontal centering raster goes out. Note1: Apply the adjustment after aging with the beam current 1,600 ± 50mA or more for 30 min or more. (7) Press "-/" key of the remote controller to select the normal mode. 	*Before doing the adjustment, make sure the R/G/B-cut and the R/B/G-Drive is at initial values. R-CUT:300 R-DRIVE:400 G-CUT:300 G-DRIVE:400 B-CUT:300 B-DRIVE:400 On the monocolor screen of white or green.
2	WHITE BALANCE BACKGROUND (CUT OFF BKGD) I2C bus adjustment	 (1) Receive E-5CH (Monoscope pattern). (2) Select Picture-Normal with the remote controller. (3) Receive the window pattern with AV input. (4) With the data of G-drive and B-drive, adjust the colour temperature 12300°K of the center white area. (5) Adjust the right dark area of the window to 12300°K with G-cut off. (6) Readjust the colour temperature at the white peak. (7) Check 12300°K at the low white. Note 1:Apply this adjustment after aging with the beam current 1,600 ± 50mA or more for 30 min or more. (0) the white or green monocolor screen) *The colour temperature is based on the shipment initial setting table. * The following item is carrying out simultaneously. No. 2, 4, 5 	• 12300°K X : 0.272±0.010 Y : 0.275±0.010 (With Minolta colour thermometer CA-100)

CUT OFF, BKGD ADJUSTMENT CONTINUED

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
3	Max Beam Check	(1) Receive 50Hz Monoscope Pattern Signal.	
		(2) Press R/C to set Picture NORMAL condition.	
		(3) Select full mode.	
		(4) Connect the DC miliammeter between TP601 and TP602 (Full Scale: 3mA Range)	
		(5) Beam current must be within 1800 $\pm 100 \mu A.$	
4	SUB-CONTRAST (SUB-CONT) I2C bus adjustment (RF SIGNAL)	 Receive the window pattern with AV input. Make the picture normal with the remote controller. Select the SUB-CONTRAST adjustment mode with the remote controller, and adjust 50% white to 140 ± 10cd. 	Note 2: Use "Y" of Minolta colour analyzer CA-100. Note 3: Use the PAL window pattern of the signal generator SX1006 for adjustment.
			50% white for SUB-CONT
5	SUB-BRIGHTNESS (SUB BRI) I2C bus adjustment (RF signal)	 Receive the window pattern with AV input. Make the picture normal with the remote controller. Select the sub-bright adjustment mode with the remote controller, and adjust the right dark white area of the window pattern to 2.0cd ± 0.5cd. 	 When E-2 CH (Crosshatch pattern)or eqivalent signal is received. Make the picture normal with the remote controller. Adjust the 3rd (1 thru 5 from the left) balck of the window pattern to sink.

PAL CHROMA ADJUSTMENT

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NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	SUB COLOUR I2C Bus adjustment (RF signal)	 Receive the "PAL Colour Bar" signal. (E-10CH) Make the picture normal with the remote controller. Connect the oscilloscope to TP1802 (Use 10:1 probe) Range:2V/Div Sweep time:20µsec/Div Set the sub colour adjustment mode with the remote controller, and vary the sub colour data to make 75% W of the PAL colour bar and RED at the same level for adjustment shown in Fig. 1-1. 	Cy G B W Y W Mg R 75% 100% Fig.1-1

NTSC CHROMA ADJUSTMENT

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	SUB-TINT I2C bus adjutment (RF signal)	(1) Select the sub-tint adjustment mode to receive NTSC colour bar.	(B-Y)
		(2) Connect the oscilloscope to 1P1803 Range :20mV/Div(AC) (Use Probe 10:1) Sweep time :10μsec/Div	Adjust Same Level
		(3) Vary the sub tint data to adjust the waveform to be gained as shown in Fig 1-1.	W Y Cy G Mg R BI B
		*Change NVM data position 7F1 data 07=>00 07 is the offset value for factory.	Fig.1-1

HORIZONTAL, VERTICAL, DEFLECTION LOOP ADJUSTMENT

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
	1) 100Hz FULL	(1) Press R/C to set Picture NORMAL condition.	Note:
1	V. LINEARITY (I2C BUS CONTROL)	 (2) Select full mode. *Receive 50Hz Monoscope Pattern Signal. (1) Call the "VERTICAL LINEARITY" mode. (2) Increase or decrease "VERTICAL LINEARITY" by Volume key till the horizontal line in the center of monoscope is just at the position where the blanking starts. 	
2	VERTICAL POSITION (I2C BUS CONTROL)	 Cali the "VERTICAL POSITION" mode. Increase or decrease "VERTICAL POSITION" by Volume key till the picture is centered. 	VERTICAL POSITION and VERTICAL AMP.
3	VERTICAL AMP. (I2C BUS CONTROL)	 Call the "VERTICALAMPLITUDE" mode. Increase or decrease "VERTICALAMPLITUDE" by Volume key to set overscan of 8% typical. Adjustment Spec 8% range +1% -1% 	
4	HORIZONTAL POSITION (I2C BUS CONTROL)	 Call the "Hor.RGB Pos POFS3" mode. (not NEWLIN mode) Increase or decrease "Hor.RGB Pos POFS3" by Volume key to center the picture horizontal. 	
5	PICTURE WIDTH (I2C BUS CONTROL)	 (1) Call the "PICTURE WIDTH" mode. (2) Increase or decrease "PICTURE WIDTH" by Volume key to set overscan of 8% typical. Adjustment Spec 8% range +1% -1% 	2mm > [P-0] 4 face is for south Adjustment Spec 8.0% range +1% -1% at the upper side of the geometry center and the lower side of the geometry center
		*Receive 50Hz Cross-Hatch Pattern Signal.	

HORIZONTAL, VERTICAL, DEFLECTION LOOP ADJUSTMENT CONTINUED

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
6	TRAPEZE	(1) Call the "TRAPEZE" mode.	
	(I2C BUS CONTROL)	(2) Increase or decrease "I RAPEZE" by Volume key.	
7	CUSHION	(1) Call the "CUSHION" mode.	
	(I2C BUS CONTROL)	(2) Increase or decrease "CUSHION" by Volume key.	
8	CORNER AMPLITUDE (I2C BUS CONTROL)	(1) Call the "UPPER CORNER" mode. (2) Increase or decrease "UPPER CORNER" by Volume key.	
		 (3) Call the "LOWER CORNER" mode. (4) Increase or decrease "LOWER CORNER" by Volume key. 	
9	CORNER AMPLITUDE (SIXTH)	(1) Call the "UPPER CORNER (SIXTH)" mode. (2) Increase or decrease "UPPER CORNER (SIXTH)" by	
	(I2C BUS CONTROL)	Volume key. (3) Call the "LOWER CORNER (SIXTH)" mode. (4) Increase or decrease "LOWER CORNER (SIXTH)" by Volume key.	
10	ANGLE (I2C BUS CONTROL)	 Call the "ANGLE" mode. Increase or decrease "ANGLE" by Volume key. 	
11	BOW (I2C BUS CONTROL)	(1) Call the "BOW" mode.(2) Increase or decrease "BOW" by Volume key.	
12	S CORRECTION (I2C BUS CONTROL)	 Call the "S CORRECTION" mode. Increase or decrease "S CORRECTION" by Volume key. 	
	2) 120Hz FULL	Adjust items 2), same as 100Hz FULL NO.1 NO.12	

FOCUS ADJUSTMENT

10	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	FOCUS	 Receive the "Monoscope Pattern" signal. Press R/C to set Picture NORMAL condition. Select full mode. 	(Adjusted point)
		(4) Adjust the focus control to get the best focusing.	Adjust these Horizontal and Vertical lines

PROTECTOR OPERATION CHECKING

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	H+V PROTECTOR	 Receive "Monoscope Pattern" signal. Connect output of Bias Box to D757 cathode Set voltage of Bias Box to 18V and make sure the protector is not work. Set voltage of Bias Box to 27V, and make sure the protector is work. 	
2	OTHER PROTECTOR	 Once finish rectified Electrolytic Capacitor short testing in + B line, check all possible damaged components on +B line. (Use random selected set for inspection) 	

A/V INPUT AND OUTPUT CHECKING

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	AV OUTPUT CHECK	 Receive the "PAL Colour Bar" signal (100% White Colour Bar, Sound 400Hz 100% Mod) Terminate the Video output with a 75 ohm impedance. Make sure the output is as specified (1.0 Vp-p ± 3dB) Terminate the Audio output with a 10 Kohm impedance. Make sure the output is as specified (1.77 Vp-p ± 3dB) 	
2	AV-1 INPUT CHECK	Check of AV	
3	AV-2 INPUT CHECK	Check of AV	
4	Component (50Hz 60Hz 480p 576p) INPUT CHECK	Check of AV	
5	REAR S-Terminal INPUT CHECK	Check of AV	
6	FRONT INPUT CHECK	Check of AV	
7	FRONT S-Terminal INPUT CHECK	Check of AV	

FUNCTION OPERATION CHECKING (1) (VIDEO & AUDIO)

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	CONTRAST	(1) Receive "Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Picture Mode and set to select CONTRAST.	
		(3) Press Volume Up/Down key to check whether the CONTRAST effect is OK or not.	
2	COLOUR	(1) Receive "Colour Bar" signal.	
		(2) Press to Menu mode, then select Picture Mode and set to select COLOUR.	
		(3) Press Volume Up/Down key to check whether the COLOUR effect is OK or not.	
3	BRIGHTNESS	(1) Receive "Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Picture Mode and set to select BRIGHTNESS.	
		(3) Press Volume Up/Down key to check whether the BRIGHTNESS effect is OK or not.	
4	SHARPNESS	(1) Receive "Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Picture Mode and set to select BRIGHTNESS.	
		(3) Press Volume Up/Down key to check whether the BRIGHTNESS effect is OK or not.	
5	TINT	(1) Receive "NTSC Colour Bar" signal thru AV in.	
		(2) Press to Menu mode, then select Picture Mode and set to select TINT.	
		(3) Press Volume Up/Down key to check TINT, UP for GREEN direction and DOWN for RED direction whether is OK or not.	
6	POWER SAVE	(1) Receive "Monoscope Pattern" signal.	
		(2) Set FEATURE to select SAVE.	
		(3) Press Volume Up/Down key to check the POWER SAVE effect is OK or not. and whether LED(POWER SAVE) light up or not.	
7	WHITE TEMP	(1) Receive "Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Picture Mode and set to select WHITE TEMP.	
		(3) Press Volume Up/Down key to check WHITE TEMP Option.	
8	NORMAL	(1) Once in PICTURE Mode, and the NORMAL key is pressed, all the settings will be present to normal setting. (Normal setting value for every mode, refer on the following figure).	
		standerd movie music news	
		CONTRAST 50 60 45 45 COLOUR 0 0 5 5 BRIGHT 0 5 5 0 TINT 0 0 0 0 SHAPPNESS 0 0 0 0	
		PICTURE NR LOW LOW LOW LOW WHITE TEMP. 0 10 0 0	

CHECKING FUNCTION OPERATION (2) (VIDEO & AUDIO) CONTINUED

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
9	COLOUR SYSTEM	(1) Receive the "PAL COLOUR BAR" signal, press the COLOUR SYSTEM key to select modes except PAL, check the COLOUR is not working properly. Then, select the "PAL" mode. Check again its colour so that it is working properly.	
		(2) Receive "SECAM COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except SECAM, check the COLOUR is not working properly. Then, select the "SECAM" mode. Check again its colour so that it is working properly.	
		(3) Receive "NTSC 3.58 COLOUR BAR" signal, press COLOUR SYSTEM key to select modes except NTSC 3.58, check the COLOUR is not working properly. Then, select the "NTSC 3.58" mode. Check again its colour so that it is working properly.	
		(4) Receive "NTSC 4.43 COLOUR BAR" signal thru AV, press COLOUR SYSTEM key to select modes except NTSC 4.43, check the COLOUR is not working properly. Then, select the "NTSC 4.43" mode. Check again its colour so that it is working properly.	
10	SOUND SYSTEM	 Receive "PAL-D/K" signal, press the "SOUND SYSTEM" to select B/G, I, M Check the sound output is not working properly. Select D/K and check the sound output to make sure it is working properly. 	
		(2) Receive "PAL-I" signal, press the "SOUND SYSTEM" to select B/G, D/K, M Check the sound output is not working properly. Select I and check the sound output to make sure it is working properly.	
		(3) Receive "PAL-B/G" signal, press the "SOUND SYSTEM" to select 1, D/K, M Check the sound output is not working properly. Select B/G and check the sound output to make sure it is working properly.	
		(4) Receive "NTSC-M" signal, press the "SOUND SYSTEM" to select I, D/K, B/G Check the sound output is not working properly. Select M and check the sound output to make sure it is working properly.	
11	VOLUME	 Receive "E-5ch Monoscope Pattern" signal. Press Volume Up/Down key to check whether the VOLUME effect is OK or not. 	
12	BALANCE	(1) Receive "E-5ch Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Sound Mode and set to select BALANCE.	
		(3) Press Volume Up/Down key to check whether the Left-to-Right BALANCE effect is OK or not.	
13	BASS	(1) Receive "E-5ch Monoscope Pattern" signal.	
		(2) Press to Menu mode, then select Sound Mode and set to select BASS.	
		(3) Press Volume Up/Down key to check whether the BASS effect is OK or not.	

CHECKING FUNCTION OPERATION (2) (VIDEO & AUDIO) CONTINUED

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
14	TREBLE	 Receive "E-5ch Monoscope Pattern" signal. Press to Menu mode, then select Sound Mode and set to select TREBLE. Press Volume Up/Down key to check whether the TREBLE effect is OK or not. 	
15	SUPER BASS	 Receive "E-5ch Monoscope Pattern" signal. Press to Menu mode, then select Sound Mode and set to select SUPER BASS. Press Volume Up/Down key to check whether the SUPER BASS effect is OK or not. 	
16	VOLUME Headphone	 Receive "E-5ch Monoscope Pattern" signal. connect Headphone. Press to Menu mode, then select Feature Mode and set to select HEADPHONE. Press Volume Up/Down key to check whether the VOLUME effect is OK or not. 	

CHECKING FUNCTION OPERATION (WIDE MODE)

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	WIDE MODE	 Receive "Monoscope Pattern" signal. Press WIDE key to check change WIDE mode PANORAMA/FULL/NORMAL/ZOOM14:9/CINEMA 	
2	V-SIZE in wide mode	 Receive "Monoscope Pattern" signal. Select PANORAMA, ZOOM14:9, and CINEMA mode. Select V-SIZE, Press Volume Up/Down key to check whether the V-SIZE effect is OK or not. 	
3	V-SCROLL in wide mode	 Receive "Monoscope Pattern" signal. Select PANORAMA, ZOOM14:9, and CINEMA mode. Select V-SCROLL, Press Volume Up/Down key to check whether the V-SCROLL effect is OK or not. 	

CHECKING FUNCTION OPERATION (TEXT MODE)

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	TEXT	(1) Receive E-10ch signal.(2) Press TEXT key to check change TEXT mode	
		TELETEXT mode / MIXED mode / TEXT off.	
2	TEXT key	(1) Receive E-10ch signal.	
		(2) Press HALF PAGE, HOLD, REVEAL, CLOCK, CANCEL, LIST, INDEX, and RESET key to check whether each effect is OK or not.	

CHECKING FUNCTION OPERATION (AV MODE)

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	AV MODE key	(1) Receive "Monoscope Pattern" signal.	
		(2) Press AV MODE key to check change AV MODE mode STANDERD/MOVIE/MUSIC/NEWS	

CHECKING FUNCTION OPERATION (Twin Screen, PinP)

NO	ADJUSTMENT POINT	ADJUSTMENT CONDITION / PROCEDURE	WAVEFORM OR OTHERS
1	Twin Screen (ON-OFF) (Picture quality)	 Press "Twin Screen" key. Recive "E-5ch Monoscope Pattern" signal at SUB ch. Check the picture quality. Receive "E-12ch Colour bar" signal at SUB ch. Check the colour level. 	
2	P in P (ON-OFF) (SIZE) (MOVE)	 Press "P in P" key. Check the picture quality of SUB picture. Press "P in P" key. Check the SIZE of SUB picture. Press "MOVE" key. Check the position of SUB picture. 	
3	P out P (ON-OFF) (MOVE)	 Select NORMAL in Wide mode. Press to "P in P" key. Check the picture quality of SUB picture. Press "MOVE" key. Check the position of SUB picture. 	
4	FREEZE	 Receive "LIVE picture" signal. Press "P in P" key. Check the LIVE and FREEZE pictures. 	
5	CH-SCAN	 Press *CH-SCAN* key. Check the multi pictures. 	