



ADJUSTMENT INSTRUCTIONS

Caution :

1. Because this is not a hot chassis, it is not necessary to use an isolation transformer.
However, the use of isolation transformer will help protect test instrument.
2. Adjustment must be done in the correct order.
3. The receiver must be operated for about 60 minutes prior to the adjustment.
Pre-heat run must be operated receiving moving pictures or 100% white pattern.

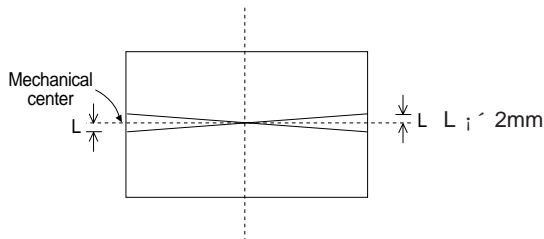
● Raster Slant/Focus Adjustment

1. Preliminary steps

- 1) The lens focus and electrical focus must be provisional alignment.
- 2) Tune the TV set to receive a EU 05 CH.
- 3) Press the buttons of Remote Controller for adjustment (SVC →  → 5 → OK → ) to reset the convergence.

2. Adjustment

- 1) Set only green to be appeared on the screen.
- 2) Carefully rotate the DY of the green CRT so that the slant of raster become the following figure.



- 3) Set two color (R or B and G) to be appeared on the screen.
- 4) Set the slant of Red or Blue correspond to the green.

- Note)
1. Tighten the tightening iron after loose completely. tighten iron which fixing DY when adjusting raster slant and set position.
 2. Never control to the tightening iron which fixed, it's condition is not untied.

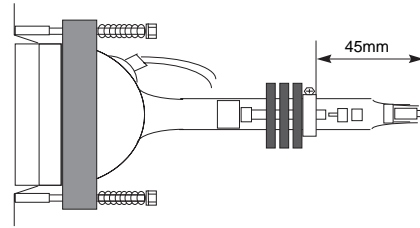
● Beam Alignment Adjustment

1. Test Equipment

Signal Generator can produce DOT pattern

2. Preliminary steps

- 1) Heat run over 60 minutes.
- 2) Pre-adjust Raster slope, Raster position & Lens focus.
- 3) Check if the Magnet is located 45mm from the end of CRT.
- 4) Receive DOT pattern.

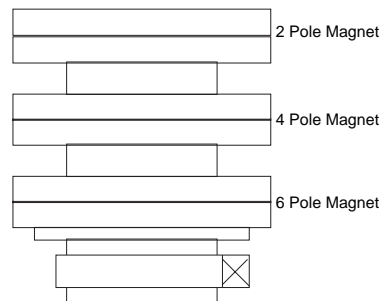


3. 2-Pole Magnet Adjustment

- 1) Make Green raster using lens cover.
- 2) Check the center position of DOT pattern on the center of the screen after turning Green focus volume left.
- 3) Turning green focus volume right and adjust 2-Pole magnet so the position to coincide that of item 2).
- 4) Adjust not to shift the screen by turning green focus volume left & right.
- 5) If the screen shifts, readjust 2)~4).
- 6) Do the same method in Red and Blue. Here, be careful not to be stained.



4. Beam Shape (4 & 6-Pole Magnet) Adjustment

- 1) Do after 2-Pole magnet adjustment.
- 2) Make Green raster using lens cover and turn the focus volume right.
- 3) Make the dot in the center a perfect circle using 4 & 6-Pole magnet.
- 4) Do the same method in Red & Blue.
- 5) Fasten the Magnet after adjustment.
- 6) Adjust focus accurately.



● Centering Magnet Adjustment

1. Preliminary steps

- 1) Tune the TV set to receive a EU 05 CH.
- 2) Press the buttons of Remote Controller for adjustment (SVC →  → 5 → OK → ) to reset the convergence.

2. Adjustment

1) LG Convergence assy

Make green raster using lens cover and coincide horizontal/vertical center lines of pattern with those of screen.

2) SGS-THOMSON Convergence assy

Adjust until the center of blue signal is shifted upto 30mm left from that of green signal and center of red signal is shifted upto 30mm right from that of green signal with turning the centering magnet.

- 3) After adjusting, recover original convergence data.

● High Voltage Regulation Adjustment

1. Test Equipment

Digital Multi-Meter(DMM)

2. Preliminary steps

- 1) Switch picture mode to STANDARD in no signal input.

3. Adjustment



- 1) Connect "+" terminal(Red) of DMM to the Anode of D432 and "-" terminal(Black) to the Heat Sink of Q406.
- 2) Adjust VR401 so that the D432 terminal voltage is $21.3 \pm 0.1V$.

● CUT-OFF Adjustment

- 1) Press the "SVC" button and then press the "≡" button on the remote controller for adjustment to display horizontal line.(Even though you enter into the SVC mode, the horizontal line might not be seen according to the position of Screen Volume.)
- 2) Adjust Screen Volume (R/G/B) in Focus Pack until brightness of red/blue/green horizontal line is about not to be seen.(At this moment, brightness of red, blue or green horizontal line should be equal to one another.)
- 3) Exit the adjustment mode by pressing the "≡" button.

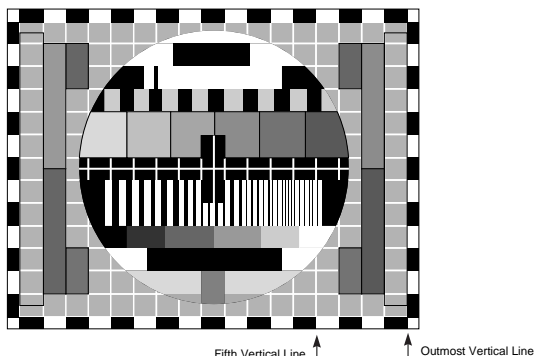
● Deflection Adjustment

1. Preliminary steps

- 1) Adjust differently based on input signal such as NTSC or PAL.
- 2) NTSC adjustment should be done in STANDARD mode of picture after receiving 13CH signal, and PAL adjustment should be done in STANDARD mode of picture after receiving EU05 CH.
- 3) Reset the data in convergence adjustment mode, quit the mode.
Convergence Mode : SVC, 
Data reset : 5 , OK
Adjustment mode out : 

2. PAL Mode Deflection Adjustment

- 1) At SVC mode, press the YELLOW key get into the deflection adjustment mode.
- 2) **VS (Vertical Shift)**
Adjust until geometric vertical center line of the screen is accord with the vertical center line of the screen JIG at EU 05 CH by pressing the VOLUME ◀, ▶ button.
- 3) **VA (Vertical Amplitude)**
Adjust until fifth vertical line from upper and lower center of the screen is accord with the edge of the frame.



4) HS (Horizontal Shift)

Adjust so that the horizontal center line of a digital circle pattern is in accord with geometric horizontal center of the CPT.

5) EW (East-west Width)

Adjust until the outermost left and right vertical line of the screen is accord with the edge of the frame.

6) EP (East-west Parabolic)

Adjust so that middle portion of the outermost left and right vertical line looks like parallel with vertical lines of the CPT.

7) ET(East-west Trapezium)

Adjust to make the length of top horizontal line same with it of the bottom horizontal line.

8) A-ANG(AFC Angle)

9) A-BOW(AFC BOW)

10) U-C(Upper Cotner Pincushion)

11) L-C(Lower Cotner Pincushion)

12) U-VL(Upper Vertical Linearity)

13) L-VL(Lower Vertical Linearity)

14) VL (Vertical Linearity)

Adjust so that the boundary line between upper and lower half is in accord with geometric horizontal center of the CPT.

15) SC (Vertical "S" Correction)

Adjust so that all distance between each horizontal lines are to be the same.

16) V-ASP(Vertical Aspect Ratio)

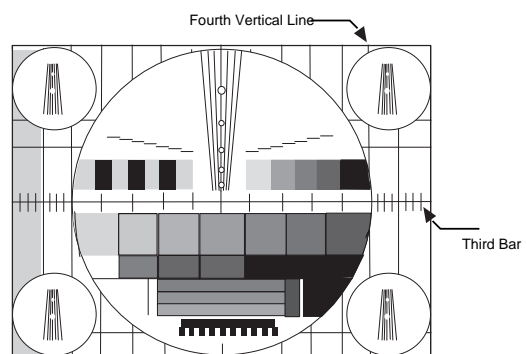
Adjust the vertical aspect ratio.

17) Store the adjusted data in EEPROM by pressing the "OK" button before exiting adjustment mode.

18) Restore the convergence correction data by pressing the "TV/AV" button before exiting adjustment mode

3. NTSC Mode Deflection Adjustment

- 1) Adjust vertical size (VA Adjustment) until fourth vertical bar from upper and lower center screen is accord with the edge of the frame.
- 2) Adjust horizontal size (EW Adjustment) until third bar to indicate horizontal size of circle is accord with the edge of the frame.
- 3) Do other adjustments the same as in PAL mode.

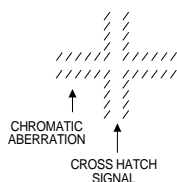


● Lens Focus & Electronic Focus Adjustment

1. Preliminary steps

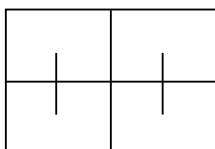
- 1) Electronic focus, Raster slope & Raster position must be pre-adjusted.
- 2) Heat-run over 60 minutes.
- 3) Receive Crosshatch pattern.
- 4) Adjustment must be operated in a dark room (simple dark room) and pay attention not to touch the lens during adjustment.
- 5) Screen the optional two lens with a cover so that the single color is appeared on the screen.
- 6) When turn the light the lens at front, chromatic aberration which appeared in bright line of cross-Hatch signal changed as below.

Lens	Change of chromatic aberration
Red	Orange ⇄ Scarlet
Green	Blue ⇄ Red
Blue	Purple ⇄ Green



2. G-lens Adjustment

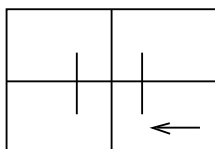
- 1) Turn the lens until the chromatic aberration changed Blue to Red point.
- 2) Viewing the all screen, in no case of the chromatic aberration appeared slimly within 3.5 cross-Hatch of the picture center. At this time, in case that the red chromatic aberration's bright line isn't equal, adjust G-lens so that the red chromatic aberration is appeared more than previous time.



- 3) Switching the signal to 13CH and operate adjustment minutely.
- 4) Adjust G-focus control volume of focus pack so that the external big circle's part appeared clearly.
- 5) Adjust accurately by repeat the upper control.
- 6) Especially, noting to the G-light because it influenced on picture's function.

3. R-lens Adjustment

- 1) Turn the lens until the chromatic aberration changed orange to scarlet.
- 2) Adjust the chromatic aberration so that it located center correctly.
- 3) Switching the signal to 13CH and adjust it as same method of G-lens.

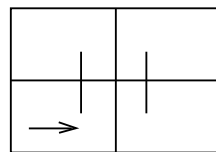


- 4) Adjust as same method of G-lens with Red focus control volume of focus pack.

4. B- lens Adjustment

- 1) Turn the lens until the chromatic aberration changed purple

to green which of 3.5 Cross-Hatch part from picture's center toward left.



- 2) Adjust the chromatic aberration become center of purple and green.

Note) After adjustment Red, Green & Blue lens, remove lens cover and receive Cross-Hatch pattern and check the overall focus. If need, repeat above.

● Convergence Adjustment

1. Preliminary steps

- 1) This adjustment should be performed after raster slant, raster position, horizontal and vertical adjustment.
- 2) This adjustment should be performed after warming up 60 minutes.
- 3) Do it always with crosshatch pattern.
- 4) Adjust for both PAL and NTSC system.
- 5) Use the jig screen with the cross hatch pattern for each mode.

2. Convergence Key

- 1) Convergence Mode : SVC,
- 2) Cursor shift : , , ,
- 3) Cursor Movement/Adjustment Selection : OK
- 4) Cursor Color Selection : TV/AV
- 5) Adjustment mode out :

Note) When cursor flickers, its adjustment mode, and when quiescent, its cursor movement mode.

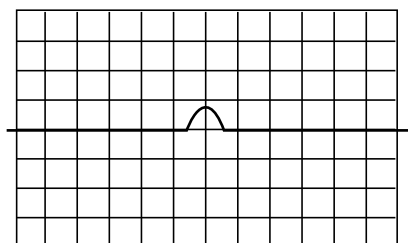
● Mode Adjustment

1. Preliminary steps

Press the buttons SVC & of Remote Controller for adjustment to get into the convergence adjustment mode.

2. Horizontal/Vertical phase Adjustment

- 1) Press the buttons 9 & 5 to get into the phase adjustment mode.
- 2) Horizontal Phase Adjustment.
Press the volume / button and move the convex part to the middle of TV screen.



- 3) Vertical Phase Adjustment
Press the channel / button and move the convex part to the middle of TV screen.
- 4) Press the OK button to escape from the adjustment.

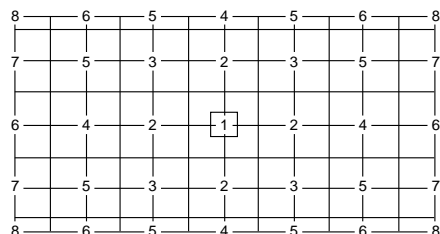
3. Pattern Position Adjustment

- 1) Change into pattern shift mode.
(Press numeric buttons "9" & "4")
- 2) Make sure to overlap pattern and image.
(Use MUTE button)
- 3) Accord the center of image and pattern.
(Use ◀, ▶, ▲, ▼ buttons)
- 4) Quit pattern shift mode. (Press "OK" button)
- 5) Save adjusted phase/pattern position adjustment mode. (Press "9", "2" & "OK" buttons)

4. Green Convergence Adjustment

- 1) Show the OSD on screen by pressing 2 button, then change the OSD to green(G) adjustment mode with pressing TV/AV button.
- 2) Close the cover of red CRT and blue CRT so that green display on screen only.
- 3) Adjust to coincide green pattern with screen jig pattern.
(Use ◀, ▶, ▲, ▼ buttons)

Move cursor and adjust convergence in same way with item 3). Here, do it in the same order from center listed in figure.



5. Red Convergence adjustment

- 1) Show the OSD on screen by pressing 2 button, then change the OSD to red(R) adjustment mode with pressing TV/AV button.
- 2) If the need arises, close the cover of the blue lens.
- 3) Adjust the red screen with the green screen in same way with that of green convergence adjustment.

6. Blue Convergence adjustment

- 1) Show the OSD on screen by pressing 2 button, then change the OSD to blue(B) adjustment mode with pressing TV/AV button.
- 2) Coincide the blue screen with the green screen in same way with that of red convergence adjustment.

7. Adjusted Data saving

- 1) Save the data after adjustment.
(Press "9", "1" & "OK" button)
- 2) Quit convergence adjustment mode. ("≡M" button)

● White Balance Adjustment

1. Test Equipment

Brightness meter(CA110), Pattern Generator(Window Pattern)

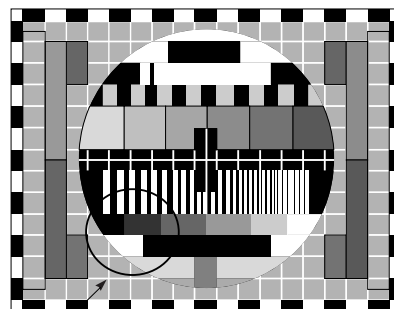
2. Adjustment

- 1) This adjustment must be operated in a dark room or equivalent.
- 2) Adjust after Cut-Off and Focus adjustment.
- 3) The brightness meter must be located in 20 ± 5 cm distance from the center of the screen.
- 4) Receive WINDOW signal.
- 5) Set BRIGHT to H/Light adjustment mode in 4) and enter SVC mode by pressing the "SVC" button. Adjust RG (R Gain) and BG (B Gain) until color coordinate becomes

X=0.280 and Y=0.300 (Deviation : ±0.01).

- 6) Set BRIGHT to L/Light adjustment mode and adjust CR (R Cut Off) and CB (B Cut Off) until color coordinate becomes X=0.282 and Y=0.286 (Deviation : ±0.01).
- 7) Repeat adjusting until the color coordinate of H/Light and L/Light is satisfied.
- 8) Save the data after adjustment.
(Press "OK" button)
- 9) Quit adjustment mode. ("TV/AV" button)

● SUB-BRIGHT Adjustment



100%,80% GRAY PATTERN

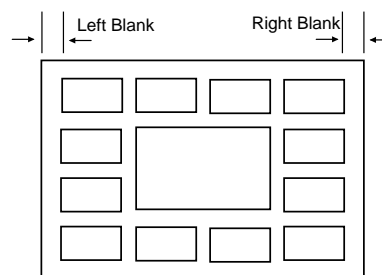
- 1) Tune the TV set to receive a EU 05 CH.
- 2) Enter SVC mode by pressing the "SVC" button. Adjust S-BRI data until 100% and 80% GRAY PATTERN is classified.
(Use ◀, ▶, ▲, ▼, ENTER buttons)

● DVCO Adjustment

- 1) Tune the TV set to receive a EU 05 CH.
- 2) Enter the adjustment mode by pressing SVC button of Remote Controller for adjustment, then select DVCO menu. Operate auto adjustment with VOL▶ button. If DVCO data is changed, auto adjustment has finished.
- 3) After finishing DVCO adjustment, save the data by pressing OK button.

● PIP POSITION Adjustment

- 1) After receiving a PAL signal, show the multi-picture scan screen on screen with pressing WD2 9/4PIP button.
- 2) Check the left, right blank on SCAN screen. (May be 20±5mm)



- 3) If the left, right blank isn't 20±5mm and symmetry, enter the adjustment mode by pressing SVC button of Remote Controller for adjustment and select service adjustment mode 5 by pressing YELLOW button.
- 4) Adjust M-HOR and M-VER to symmetry of left, right blank in service adjustment mode 5.
- 5) When finishing adjustment, save the data by pressing OK button.

● SVC Adjustment mode & Initial data

1. White Balane adjustment data (IC:CXA2100)

Menu	Description	Range	Default
RD	Red Drive		12
GD	Green Drive		1F
BD	Blue Drive		19
RC	Red Cut-off		0C
GC	Green Cut-off		3F
BC	Blue Cut-off		19
S-BRI	Sub BRIGHT		1A
DVCO	Digital VCO		

2. Deflection adjustment data (IC:CXA2100)

Menu	Description	Range	Default	
			PAL	NTSC
VS	Vertical Shift		11	10
VA	Vertical Amp		10	13
HS	Horizontal Shift		1A	2A
EW	East-West Width		1D	1E
EP	East-West Parabola		1E	20
ET	East-West Trapezium		6	6
U-C	UP Corner Pincushion		11	11
L-C	LO Corner Pincushion		11	11
U-VL	UP Vertical Lineality		C	D
L-VL	LO Vertical Lineality		5	7
VL	Vertical Lineality		6	6
A-ANG	AFC Angle		7	7
A-BOW	AFC Bow		7	7
SC	Vertical S-Correction		3	3
V-ASP	Aspect ratio control		1F	1F

3. Picture adjustment data (IC:CXA2100)

Menu	Description	Range	Default
D-COL	Dynamic Color ON/OFF		1
COLAX	Color matrix		2
DCOL	Dynamic Color Temperate		1
LIMLE	RGB Amplitude Limiter Level		1
CTILE	CTI Level		1
GAMMA	GAMMA correction		2
L TILE	LTI Level		1
BLKBO	RGB Bottom Llimiter Level		0
ABLTH	ABL threshold		3
ABLMO	ABL Mode		3
VM-LE	VM Level		1
PREOV	Pre/Over-Shoot Control		3
DPIC	Auto Pedestal level		1

Menu	Description	Range	Default
DC-TR	DC transmission control		3
LRGB2	RGB2 output level control		A
DL-PA	DElay Line switching		0
SHPF0	Sharpness f0		1
CB-F1	INput1 CB signal DC Offset		7
CR-F1	INput1 CR signal DC Offset		4
CB-F2	INput2 CB signal DC Offset		7
CR-F2	INput2 CR signal DC Offset		4
VCOMP	A-SAW output gain control		0
EW-DC	EW output DC level		1
AKBT2	AKB time shift		0
HCOMP	EW output DC control		0
VBLKW	VBLK width control		0
LE-BL	Left HBLK width control		37
RI-BL	Right HBLK width control		1B
S-CON	Sub contrast		A
P-ABL	PEAK ABL		C

4. Sound adjustment data (IC:MSP3452)

Menu	Description	Range	Default
FM	FM Prescaler		1B
NP	NICAM Prescaler		73
SP	SCART Prescaler		18
S1 VOL	SCART 1 Volume		50
S2 VOL	SCART 2 Volume		50
MDB-ST	MDB Effect Bass Strength		24
MDB-LIM	MDB Amplitude Limit		FD
MDB-HMC	MDB Harmonic Content		64
MDB-LP	MDB Low Pass		09
MDB-HP	MDB High Pass		06

5. Picture adjustment data (IC:SDA9410)

Menu	Description	Range	Default
VDEM	Vsync input delay(main)		13
NR Y	Temporal Noise Reduction of Y		0e
NR C	Temporal Noise Reduction of C		0a
NRKY			00
NRKC			00
ODELM	Output Processing delay master		Aa
VDELS	Vsync input delay(sub)		13
FSEL	Filter Select		3
RF AGC	RF AGC Level		A2
M-HOR	Horizontal PIP Position		7
M-VER	Vertical PIP Position		7

6.OPTION Data Adjustment

	Range	Description	Default
option1	200 PRO	1: 200 Program(CHINA Only)	
		0: 100 Program	
	TSEAR	1: With TURBO Search	
		0: Without TURBO Search	
	I/II SV	1: Save Dual Sound Condition	
		0: Not Save Dual Sound	
	TOP	Condition	
		1: TOP + FLOF TEXT	
	EYE	0: FLOF TEXT	
		1: With Digital EYE	
	A2 ST	0: Without Digital EYE	
		1: With FM Stereo	
	SYS	0: Without FM Stereo	
		0 : BG/I/DK(PE-)	
		1 : BG/L(PL-)	
		2: BG/I/DK/M(PT-)	
		3 : RESERVED	
option2	ACMS	1: With Channel Name Display (All Countries except Austrailia)	
		0: Without Channel Name Display (Austrailia)	
	VOL	1: Rushed Sound Curve (Middle East ASIA,INDIA)	
		0: Standard Sound Curve (Other countries)	
	AV4	1: With AV4 Input	
		0: Without AV4 Input	
	EU	1: PE/PL Model	
		0: PT Model	
	DVD i	1: With COMPONENT1 Input	
		0: Without COMPONENT1 Input	
option3	C SPK	1: With CENTER SPK	
		0: Without CENTER SPK	
	VFD	1: Digital Index button	
		0: SOUND MUTE button	
	C MUTE	1: RF Normal Sound Modulation(Others)	
		0: High Deviation Modulation(CHINA)	
	DOLBY	1: With DOLBY Pro LLogic	
		0: Without DOLBY Pro LLogic	
	V-DOL	1: With DOLBY Virtual Surround	
		0: Without DOLBY Virtual Surroud	

	Range	Description	Default
option3	TEXT	1: With Teletext	
		0: Without Teletext(CHINA)	
	SCART	1: RF 54% Modulation INput	
		0: RF 100% Modulation INput	
	CH + AU	1: China+AUST.Channel Table	
		0: Other countries Channel table	

	State	Language	Funciton	Default
option4	LANG	0:E Only	English	
		1:EU 5EA	English/German/French/Italy/Spanish	
		2:EU ETC	Pol./Hungary/Czecho/Russia/Eng	
		3:PARSI	English/Parsi	
		4:ARAB DUAL	English/French/Arab+Urdu	
		5:English+Hindi	English/Hindi	
		6:English+I+M+V	English/Indonesian/Malaysian/Vietnamese	
		7:English+THAI	English/Thai	
		8:English+China	English/China	
	T-LAN	0:West Europe	English/French/Swedish/Czech/German/Spanish/Itallian	
		1:East Europe	Polish/Fench/Swedish/Czech/German/Slovenian/Italian/Romanian	
		2:Turkey	English/French/Swedish/Turkish/German/Spanish/Itallian	
		3:EAST EU2	English/Hungarian/Serbian/Czech/German/Polish/Spanish/Itallian/ Romanian	
		4:Cyrillic 1		
		5:Cyrillic 2		
		6:Cyrillic 3		
		7:Turkey/Greek 1		
		8:Turkey/Greek 2		
		9:Turkey/Greek 3		
		10:Arab/France		
		11:Arab/English		
		12:Arab/Hebrew 1		
		13:Arab/Hebrew 2		
		14:Farsi/English		
		15:Farsi/France		
		16:Farsi all		