
4. Alignment and Adjustments

4-1 General Alignment Instructions

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 and focus.
2. Observe the picture for good black and white details. There should be objectionable color shading; if color shading is present, demagnetize, perform purity and convergence adjustments described below.
3. Use the specified test equipment or its equivalent.
4. Correct impedance matching is essential.
5. 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 results.
6. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
7. Do not attempt to connect or disconnect any wires while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
8. To protect against shock hazard, use an isolation transformer.

4-2 Automatic Degaussing

A degaussing coil is mounted around the picture tube, so that external degaussing after moving the TV should be unnecessary. But the receiver must be properly degaussed upon installation.

The degaussing coil operates for about 1 second after the power is switched ON. If the set is moved or turned in a different direction, the power should be OFF for at least 10 minutes.

If the chassis or parts of the cabinet become magnetized, poor color purity will result. If this happens, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube and the sides and front of the receiver. Slowly withdraw the coil to a distance of about 6 feet before turning power OFF.

If color shading persists, perform the following Color purity and Convergence adjustments.

4-3 High Voltage Check

CAUTION : There is no high voltage adjustment on this chassis. The B+ power supply should be +135 volts (with full color- bar input and normal picture level).

1. Connect a digital voltmeter to the second anode of the picture tube.
2. Turn on the TV. Set the Brightness and Contrast controls to minimum (zero beam current).
3. Adjust the Brightness and contrast controls to both extremes. Ensure that the high voltage does not exceed 30 KV under any conditions.

4-4 FOCUS Adjustment

1. Input a black and white signal.
2. Adjust the tuning control for the clearest picture.
3. Adjust the FOCUS control for well defined scanning lines in the center area of the screen.

4-5 SCREEN Adjustment

1. Input Toshiba Pattern
2. Enter "Service Mode".(Refer to "4-8-1 Service Mode")
3. Select "G2-Adjust".
4. Set the values as below.

Table 1. Screen Adjustment Table

No	INCH / CRT	IBRM	WDRV	CDL	COLR G B (Smallest Value)	REGION
1	14" / SDI	205	35	100	100	Noraml
2	15PF / SDI	220	35	180	100	
		215	35	100	100	CIS
3	21" 1.7R / SDI	220	35	180	100	Noraml
4	21" 1.7R / JCT	220	35	200	150	
5	21PF / TSB	220	35	180	65	
6	21PF / LG	230	35	230	65	
7	21PF / SDI	220	35	210	65	
8	25PF / SDI	210	35	160	120	
9	29" 1.3R / SDI	200	35	170	150	

5. Turn the SCREEN VR until "MRCR G B" and "MRWDG" are green and those value are about 100.
(The incorrect SCREEN Voltage may result that "MRCR G B" and "MRWDG" should be red)

4-6 E²PROM (IC902) Replacement

1. When IC902 is replaced, all adjustment data revert to the initial values.
So, all adjustment values when servicing should be readjusted.
2. After IC902 is replaced, connect the AC power supply cord.
3. Turn the power switch ON.
4. In stand-by, warm up the TV for at least 10 seconds.
5. Power on the TV.

4-7 White Balance Adjustment

■ Equipment : Color-Analyzer (CA-100)

■ Input Signal : Pattern signal (Toshiba pattern)

1. Select STANDARD from the menu.
2. Input an 100% White pattern.
3. Enter the "Service Mode". (Refer to "4-8 Service Mode")
4. Warm up the TV set at least for 30 minutes.
5. Input a Toshiba pattern signal.
6. Enter the "Video Adjust1". (Refer to table 2.)
 - Adjust "Sub Contrast" so that Y (luminance) becomes $65 \text{ ft} \pm 3$.
 - Use "Red Drive" and "Blue Drive" to adjust High-Light (x : 265, y : 265)
 - Adjust "Sub Bright" so that Y (luminance) becomes $1.2 \text{ ft} \pm 0.3$.
 - Use "Red Cutoff" and "Blue Cutoff" to adjust Low-Light (x : 265, y : 265).
7. Adjust CA-100 so that the final adjustment value can be fixed.
8. Use the Channel Up/Down (▲/▼) buttons to move the cursor on the adjustment modes.
9. Use the Volume +/- buttons to change the adjustment value.

Table 2. White Balance Table

Area	Inch	High			Low		
		X	Y	Luminance (ft)	X	Y	Luminance (ft)
East South Asia	15PF	265	265	95	265	265	2.0
	21" 1.7R	265	265	60	265	265	1.5
	21PF	265	265	65	265	265	1.2
	25PF	265	265	50	265	265	1.4
	29" 1.3R	265	265	40	265	265	1.2
Middle East Asia & Africa	14"	290	300	60	290	300	2.0
	21" 1.7R	290	300	55	290	300	1.5
	21PF	290	300	65	290	300	1.2
	25PF	290	300	50	290	300	1.4
	29" 1.3R	290	300	40	290	300	1.2
CIS	15PF	272	270	55	265	266	2.2
	21" 1.7R	272	270	55	265	266	1.5
	21PF	272	270	55	265	266	2.2
	25PF	272	270	50	265	266	1.4
	29" 1.3R	272	270	35	265	266	2.2
Australia	15PF	292	307	95	301	311	2.0
	21" 1.7R	292	307	55	301	311	1.5
	21PF	292	307	65	301	311	1.2
	25PF	292	307	50	301	311	1.4
	29" 1.3R	292	307	40	301	311	1.2

4-8 Factory Adjustment

4-8-1 Service Mode

1. To enter the "Service Mode", Press the remote-control keys in this sequence :

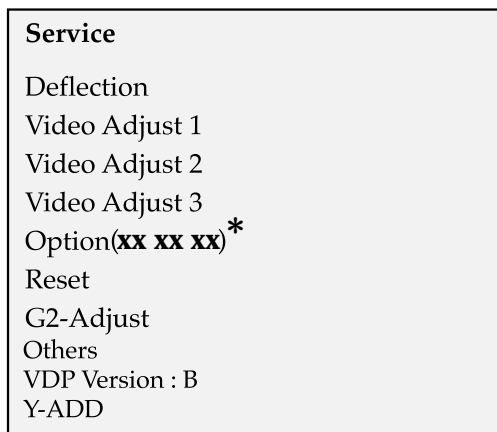
- If you do not have Factory remote-control



- If you have Factory remote-control



2. After the Service Mode is entered, the initial screen is as shown in the figure below.



* These hexa digits are check sum value which depends on the MICOM version.
If check sum value is changed, the value of E²PROM Data newly initialed.

3. Use the Channel Up/Down buttons to move the cursor in the adjustment parameters.

Note :

- When CRT, CRT PCB, FBT, E²PROM (sometimes MICOM) is replaced, the adjustment values should be controlled.
- After the Service adjustment is completed, Do not select "Reset" in the service mode menu. (After above procedure is done, power is on initially and the "Plug and Play" will be operated.)

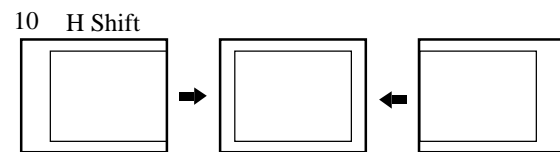
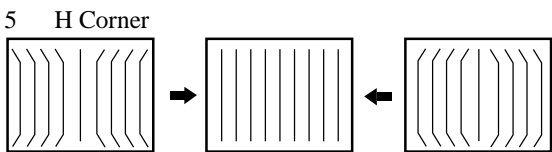
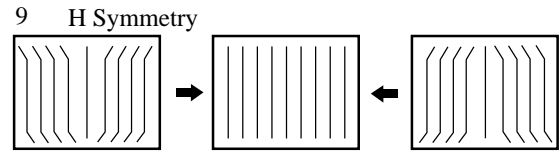
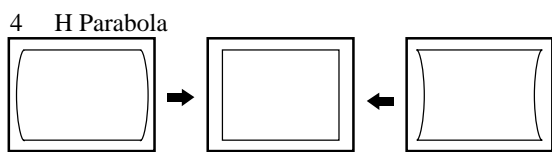
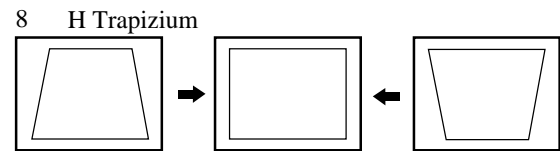
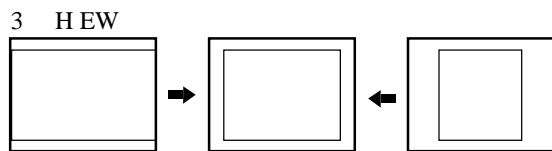
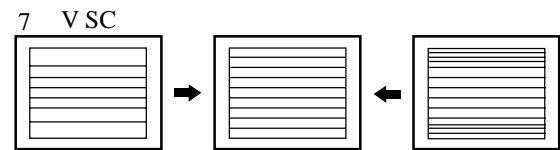
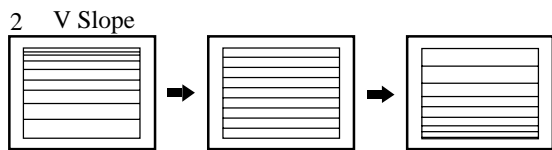
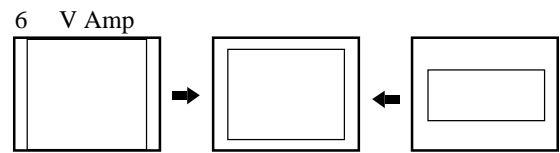
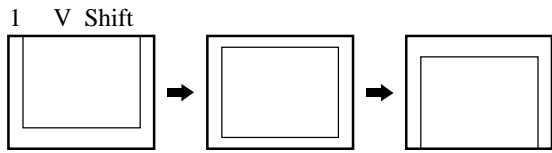
4-8-2 Deflection (Memory Data)

4-8-2(A) GEOMETRIC ADJUSTMENT VALUE

 Fixed Value

No.	OSD	Range	Initial Value	Function	Remark
1	V Shift	-128 ~ 127	-54	Vertical Shift	
2	V Amp	-128 ~ 127	15	Vertical Amplitude	
3	V Slope	-128 ~ 127	-2	Vertical Slope	
4	V SC	-128 ~ 127	-15	Vertical S-Correction	
5	H EW	-128 ~ 127	61	Horizontal East West Width	
6	H Trapezium	-128 ~ 127	-8	Horizontal Trapezium	
7	H Parabola	-128 ~ 127	-3	Horizontal Parabola	
8	H Symmetry	-128 ~ 127	12	Horizontal Symmetry	
9	H Corner	-128 ~ 127	-32	Horizontal Corner	
10	H Shift	-128 ~ 127	10	Horizontal Shift	
11	PIP Contrast	0 ~ 15	7	PIP Contrast	PIP Option
12	PIP Tint	0 ~ 63	0	PIP Tint (Hue)	
13	PIP H.Move	0 ~ 7	0	PIP Horizontal Move (PIP Picture)	
14	PIP V.Move	0 ~ 7	33	PIP Vertical Move (PIP Picture)	
15	PIP PAL V.Pos	0 ~ 255	33	PIP PAL System Vertical Position (PIP Box)	
16	PIP NTSC V.Pos	0 ~ 255	33	PIP NTSC System Vertical Position (PIP Box)	
17	PIP H.Pos	0 ~ 255	45	PIP Horizontal Position (PIP Box)	
18	PIP BLKLG	0 ~ 15	6	PIP BLAnKing Level Green	

4-8-2(B) SCREEN CHANGE (I2C BUS GEOMETRIC ADJUSTMENT)



4-8-2(C) VIDEO ADJUST 1

 Fixed Value

No.	OSD	Range	Initial Value	Function	Remark
1	Red Cutoff	0 ~255	137	Adjust Red Cutoff Level	Low Light
2	Green Cutoff	0 ~255	127	Adjust Green Cutoff Level	
3	Blue Cutoff	0 ~255	152	Adjust Blue Cutoff Level	
4	Red Drive	0 ~255	142	Adjust Red Output Gain	High Light
5	Green Drive	0 ~255	127	Adjust Green Output Gain	
6	Blue Drive	0 ~255	136	Adjust Blue Output Gain	
7	Sub Bright	0 ~ 200	117	Adjust Brightness Level	Low Light
8	Sub Contrast	0 ~ 63	52	Adjust Contrast Level	High Light
9	Sub Color	0 ~ 27	27	Adjust Color Level	Not to be adjusted
10	Sub Tint	0 ~ 100	30	Adjust Tint	
11	BCL Threshold	0 ~ 255	62	Adjust Beam Control Limit Refer to Note 1.	Refer to table 4.
12	BCL Gain	0 ~ 15	8		Not to be adjusted
13	BCL Time	0 ~ 15	13		
14	TTX Contrast	0 ~ 255	90	Adjust OSD/TTX Contrast	Refer to table 4.
15	P.BG.YC Delay	0 ~ 8	3	Luminance vs Chrominance PAL BG System	Refer to Table 3.
16	P.DK.YC Delay	0 ~ 8	6	Luminance vs Chrominance PAL DK System	
17	P.I.YC Delay	0 ~ 8	6	Luminance vs Chrominance PAL I System	
18	S.BG.YC Delay	0 ~ 8	3	Luminance vs Chrominance SECAM BG System	
19	S.DK.YC Delay	0 ~ 8	5	Luminance vs Chrominance SEDAM DK System	
20	S.I.YC Delay	0 ~ 8	7	Luminance vs Chrominance SEDAM I System	
21	N.M.YC Delay	0 ~ 8	0	Luminance vs Chrominance NTSC System	
22	P.YC Delay	0 ~ 8	4	Luminance vs Chrominance PAL System in Video mode	
23	S.YC Delay	0 ~ 8	1	Luminance vs Chrominance SECAM System in Video mode	
24	N.YC Delay	0 ~ 8	4	Luminance vs Chrominance NTSC System in Video mode	

Note 1. Beam Control Limit Characteristic

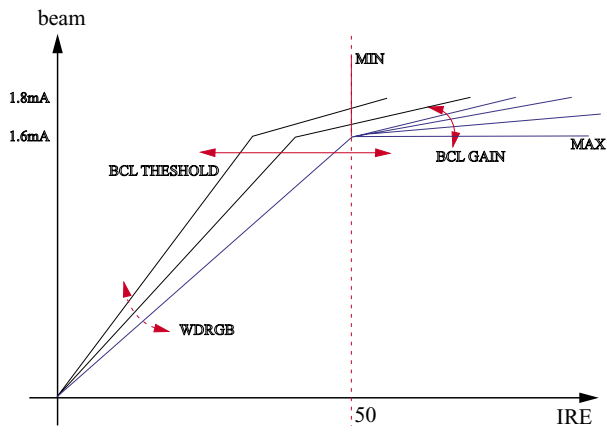


Table 3. YC Delay Adjustment Table

YC Delay	PAL				SECAM				NTSC	
	Def.	BG	DK	I	Def.	BG	DK	I	Def.	M
Value	4	3	6	6	1	3	5	7	4	0

Table 4. Variable Factory Item

ITEM	VDP VERSION = B												REMARK
	14" (SDI)	15"PF (SDI)	21"1.7R (SDI)	21"1.7R (JCT)	21"PF (TSB)	21"PF (LG)	21"PF (SDI)	21"PF (SDI)	22"Q (SDI)	25"PF (SDI)	29"1.3R (SDI)	29"2.0R (SDI)	
V. SC	0	-17	-7	0	-6	-6	13	13	13	-13	0		
H. SYMMETRY	12	5	5	5	13	13	5			13	13		
BCL Threshold	32	40	40	40	62	55	62			60	62		
BCL Gain	8	8	8	8	8	8	8			8	8		
BCL Time	13	13	13	13	13	13	13			13	13		
B stretch - BTLT	8	8	8	8	8	2	8			2	8		CIS ONLY
B stretch - BAM	4	4	4	4	4	6	4			6	4		
EHT Time	0	0	0	0	0	0	0			0	0		CIS ONLY
VSU	110	110	108	108	108	108	108			108	108		
H.Zoom Parabola	8	8	8	8	8	8	8			-12	-22		
H.16:9 Parabola	-10	-18	-18	-18	-18	-18	-10			0	8		
AKB	ON	ON	ON	ON	ON	ON	ON			ON	OFF		
H Dsc	3	3	3	3	2	2	2			3	2		

ITEM	VDP VERSION = Y											REMARK
	14" (SDI)	15"PF (SDI)	21"1.7R (SDI)	21"1.7R (JCT)	21"PF (TSB)	21"PF (LG)	21"PF (SDI)	22"Q (SDI)	25"PF (SDI)	29"1.3R (SDI)	29"2.0R (SDI)	
V. SC	0	-17	-7	0	-6	-6			-6	0		
H. SYMMET RY	12	5	5	5	13	13			13	13		
BCL Threshold	32	40	40	40	62	55			62	62		
BCL Gain					9	9			9			
BCL Time					5	5			5			
B stretch - BTLT					8	8			8			CIS ONLY
B stretch - BAM					4	4			4			CIS ONLY
EHT Time					8	8			8			
VSU	110	110	108	108	100	100			100	108		
H.Zoom Parabola	8	8	8	8	8	8			-12	-22		
H.16:9 Parabola	-10	-18	-18	-18	-18	-18			0	8		
AKB	ON	ON	ON	ON	ON	ON			ON	OFF		
H Dsc	3	3	3	3	2	2			3	2		

4-8-2(D) VIDEO 2 ADJUST

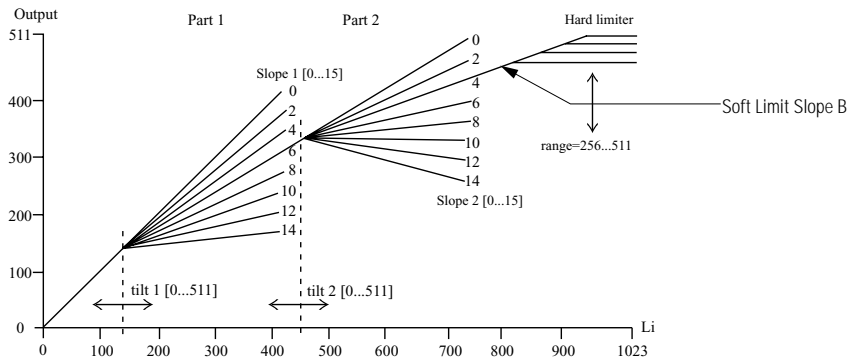
No.	OSD	Range	Initial Value	Function	Remark
1	B stretch-BTHR	0 ~ 55	50	Black Stretch Threshold	
2	B stretch-BTLT	0 ~ 15	8	Black Stretch Tilt Position	
3	B stretch-BAM	0 ~ 31	4	Black Stretch Amount	
4	Coring ¹	0 ~ 31	31	Luma Peaking Filter Coring	
5	RGB Bright	0 ~ 255	0	External RGB Brightness	
6	RGB Contrast	80	0	External RGB Contrastness	
7	EHT Time	0 ~ 15	0	Electronic High Tension Response Time	
8	EHT Compensation	0 ~ 255	60	EHT Compensation Coefficient	

¹ Coring : The Value of Center Frequency for the active bandwidth.

4-8-2(E) VIDEO 3 ADJUST

No.	OSD	Range	Initial Value	Function	Remark
1	Peak Threshold	0 ~ 255	255	White Peak Level Threshold	Refer to Note Below
2	Soft Limit Slope B	0 ~ 15	4	Refer to Picture Below	
3	Hard Limit	0 ~ 255	255		
4	Peak Video Ref	0 ~ 4	0	White Peak Level Threshold Reference	
5	Peak Video Gain	0 ~ 5	0	White Peak Level Threshold Gain	
6	ACC-REF(PAL/NTSC)	0 ~ 20	20	PAL/NTSC Color Gain	
7	ACCR(SECAM)	0 ~ 39	21	SECAM Color Gain	
8	Gain 1(Video)	0 ~ 63	11	svm Video model Gain	SIM806EI, SIM806C Only
9	Delay 1(Video)	0 ~ 7	3	svm Video model Delay	
10	Velocity Limit	0 ~ 127	74	svm Limit Value	
11	Velocity Delay	0 ~ 15	7	svm Delay for RGBout	
12	Velocity Coring	0 ~ 15	10	svm Coring	

Note 2. Soft Limit & Hard Limit Characteristics



“Soft Limit” is that Limiting the peak white without feed-back, but “Peak Limit” is that with feed-back for white peak level

4-8-2(F) OPTION 1

Micom Spec : SIM-806EA

No.	ITEM(OSD)	Control	Description
1	Language	ESAsia	ENGLISH/VIETNAM/THAI/INDONESIA/MALAYSIA
2	Sound	A2/NICAM	A2 Stereo / Nicam Stereo Model
		Virtual Dolby	Virtual Dolby Model
		Mono	Mono Model
		Line-Stereo	Line stereo Model
3	CRT	4:3	Normal / Zoom / 16:9
		Wide	Wide CRT (16:9)
		Q(12.8:9)	Plus / Normal / Zoom / 16:9
		4:3-16:9	Normal / Zoom
		Q - 16:9	Plus / Normal / Zoom
4	AV Mode	1Scart	Built in 1 Scart Model
		2Scart	Built in 2 Scart Model
		2scart+S	Built in 2 Scart +SVHS JACK Model
		1RCA	Built in RCA 6P / RCA 4P Model
		2RCA	Built in RCA 9P Model
		2RCA+S	Built in RCA 9P + SVHS JACK Model
		2RCA+D	Built in RCA 9P + DVD JACK Model
		2RCA+S+D	Built in RCA 9P + SVHS JACK Model + DVD JACK Model
5	x-ray	On	X-ray detection function on
		Off	X-ray detection function off
6	Tilt Control	On	CRT Tilt control function on (wide / 29PF CRT)
		Off	CRT Tilt control function off
7	Auto FM	On	automatic change from NICAM to FM depends on NICAM error rate
		Off	automatic change from NICAM to FM depends on NICAM synchronization
8	PIP	Off	no PIP function
		1 - tuner	1 Tuner PIP function
		2 - tuner	2 Tuner PIP function
9	Txt Language	West Europe	English/German/Skandinavian/Italian French/Spainsh/Czech
		East Europe	Polish/Czech/Rumanian/Slovenian/Croatian/ French/Skandinavian/German/Italian
		Russian	Russian/Ukranian/Estonian/Czech/German/ Lettish/English
		Greek-Turkey	English/Turkey/Greek/French/Skandinavian/German/Spainsh/Italian
		Arabic	English/Arabic/French
		Farsi	English/Farsi/French
		Arab-Hebrew	Arabic/Hebrew
10	LNA	On	Built in LNA Tuner
		Off	Built in Normal Tuner
11	Equalizer	On	Include in Equalizer function (MSP34X0D)
		Off	Without Equalizer function (MSP34X5D)
12	High deviate	On	High deviation mode on MSP34XX
		Off	Normal mode on MSP34XX
13	TTX On/Off	On	TTX Model
		Off	W/O - TTX Model

4-8-2(G) OPTION 2

Micom Spec : SIM-806MA

No.	ITEM(OSD)	Control	Description
1	Language	Arab	English/Arab/French/Pakistan
		Iran	English/Persian/French/Turkey
		Libya	English/Libya/French
		CIS	English/Russia
2	Sound	A2/NICAM	A2 Stereo / Nicam Stereo Model
		Virtual Dolby	Virtual Dolby Model
		Mono	Mono Model
		Line-Stereo	Line stereo Model
3	CRT	4:3	Normal / Zoom / 16:9
		Wide	Wide CRT (16:9)
		Q(12.8:9)	Plus / Normal / Zoom / 16:9
		4:3-16:9	Normal / Zoom
		Q - 16:9	Plus / Normal / Zoom
4	AV Mode	1Scart	Built in 1 Scart Model
		2Scart	Built in 2 Scart Model
		2scart+S	Built in 2 Scart +SVHS JACK Model
		1RCA	Built in RCA 6P / RCA 4P Model
		2RCA	Built in RCA 9P Model
		2RCA+S	Built in RCA 9P + SVHS JACK Model
		2RCA+D	Built in RCA 9P + DVD JACK Model
5	x-ray	On	X-ray detection function on
		Off	X-ray detection function off
6	Tilt Control	On	CRT Tilt control function on (wide / 29PF CRT)
		Off	CRT Tilt control function off
7	Auto FM	On	automatic change from NICAM to FM depends on NICAM error rate
		Off	automatic change from NICAM to FM depends on NICAM synchronization
8	PIP	Off	no PIP function
		1 - tuner	1 Tuner PIP function
		2 - tuner	2 Tuner PIP function
9	Txt Language	West Europe	English/German/Skandinavian/Italian/French/Spainsh/Czech
		East Europe	Polish/Czech/Rumanian/Slovenian/Croatian/ French/Skandinavian/German/Italian
		Russian	Russian/Ukranian/Estonian/Czech/German/Lettish/English
		Greek-Turkey	English/Turkey/Greek/French/Skandinavian/German/Spainsh/Italian
		Arabic	English/Arabic/French
		Farsi	English/Farsi/French
10	LNA	On	Built in LNA Tuner
		Off	Built in Normal Tuner
11	Equalizer	On	Include in Equalizer function (MSP34X0D)
		Off	Without Equalizer function (MSP34X5D)
12	High deviate	On	High deviation mode on MSP34XX
		Off	Normal mode on MSP34XX
13	TTX On/Off	On	TTX Model
		Off	W/O - TTX Model

4-8-2(H) OPTION 3

Micom Spec : SIM-806EI/SIM-806C

No.	ITEM(OSD)	Control	Description
1	SOUND	A2/NICAM	A2 Stereo / Nicam Stereo Model
		Virtual Dolby	Virtual Dolby Model
		Mono	Mono Model
		Line-Stereo	Line stereo Model
2	CRT	4:3	Normal / Zoom / 16:9
		Wide	Wide CRT (16:9)
		Q(12.8:9)	Plus / Normal / Zoom / 16:9
		4:3-16:9	Normal / Zoom
		Q - 16:9	Plus / Normal / Zoom
3	A/V Mode	1Scart	Built in 1 Scart Model
		2Scart	Built in 2 Scart Model
		2scart+S	Built in 2 Scart +SVHS JACK Model
		1RCA	Built in RCA 6P / RCA 4P Model
		2RCA	Built in RCA 9P Model
		2RCA+S	Built in RCA 9P + SVHS JACK Model
		2RCA+D	Built in RCA 9P + DVD JACK Model
		2RCA+S+D	Built in RCA 9P + SVHS JACK Model + DVD JACK Model
4	x-ray	On	X-ray detection function on
		Off	X-ray detection function off
5	Tilt Control	On	CRT Tilt control function on (wide / 29PF CRT)
		Off	CRT Tilt control function off
6	Auto FM	On	automatic change from NICAM to FM depends on NICAM error rate
		Off	automatic change from NICAM to FM depends on NICAM synchronization
7	PIP	Off	no PIP function
		1 - tuner	1 Tuner PIP function
		2 - tuner	2 Tuner PIP function
8	LNA	On	Built in LNA Tuner
		Off	Built in Normal Tuner
9	Equalizer	On	Include in Equalizer function (MSP34X0D)
		Off	Without Equalizer function (MSP34X5D)
10	High deviate	On	High deviation mode on MSP34XX
		Off	Normal mode on MSP34XX
11	AKB	On	AKB Function On
		Off	AKB Function Off
12	AV by CH Key	On	Without Video Pannel Key
		Off	With Video Pannel Key

4-8-2(I) G2 - ADJUSTMENT

No.	ITEM(OSD)	Control	Description	Initial Value
1	MRCR G B	No Control	Measure of Cutoff Gain	110 110 110
2	MRWDG	No Control	Measure of Green Drive Gain	110
3	IBRM	0 ~ 255	Internal Brightness offset value by Read Measurement	220 Refer to Screen adjust table
4	WDRV	0 ~ 255	White Drive Value	35
5	CDL	0 ~ 255	Cathode Drive Level	180
6	COLR G B	0 ~ 255	Cathode Cutoff Level	65 70 75

4-8-2(J) OTHERS

No.	ITEM(OSD)	Control	Description	Initial Value
1	VSU	96 ~ 111	Vertical Setup Time (Large Value time)	108
2	H QEW	-30 ~ 30	Horizontal EW data offset to plus screen	0
3	H Zoom Parabola	-15 ~ 15	Horizontal Parabola offset to zoom screen	8
4	H 16:9 Parabola	-15 ~ 15	Horizontal Parabola offset to 16:9 screen	-18
5	TTX Position	-30 ~ 30	Horizontal shift in TTX Mode	0
6	Mono Sound System	BG	Initial Sound System of Mono Model	BG
		DK		
		I		
		M		
7	V Slice level	0 ~ 3	Vertical Sync Slice level Setting	2
8	Melody Volume	0 ~ 20	Melody Sound Volume level Setting	5
9	AKB	On/Off	AKB Function On/Off	On
10	TTX List Prior	On/Off	TTX List Mode Priority is higher than FLOF Mode when TTX Mode	Off (SIM806EA Only)

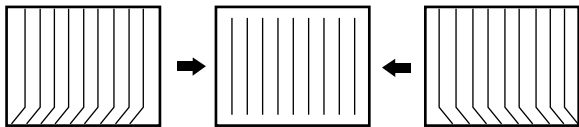
Table 5.

VDP Version		Remark
OSD	Description	
B	Chroma IC is VDP3108B	Normal Version IC
Y	Chroma IC is VDP3130Y	DVD Version IC

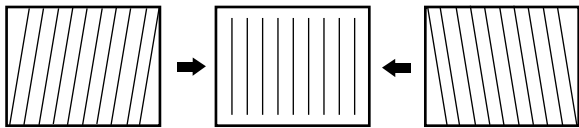
Table 6.

No.	Y-ADD				Remark
	ITEM(OSD)	Control	Initial Value	Description	
1	H BOW	-128 ~ 127	0	Horizontal Bow control	VDP Version is "Y" Only
2	H ANGLE	-128 ~ 127	0	Horizontal Angle control	
3	H Dsc	1 ~ 7	2	H Dsc	
4	DVD Tint Contro	0 ~ 1	1	Positive or Negative Tint control value	
5	DVD Subtint	0 ~ 100	25	Subtint value in DVD Mode	
6	EHT Offset	0 ~ 535	0	Electronic High Tension Offset coefficient	
7	EHT Horizontal	-128 ~ 127	0	Electronic High Tension Horizontal coefficient	

① H-BOW

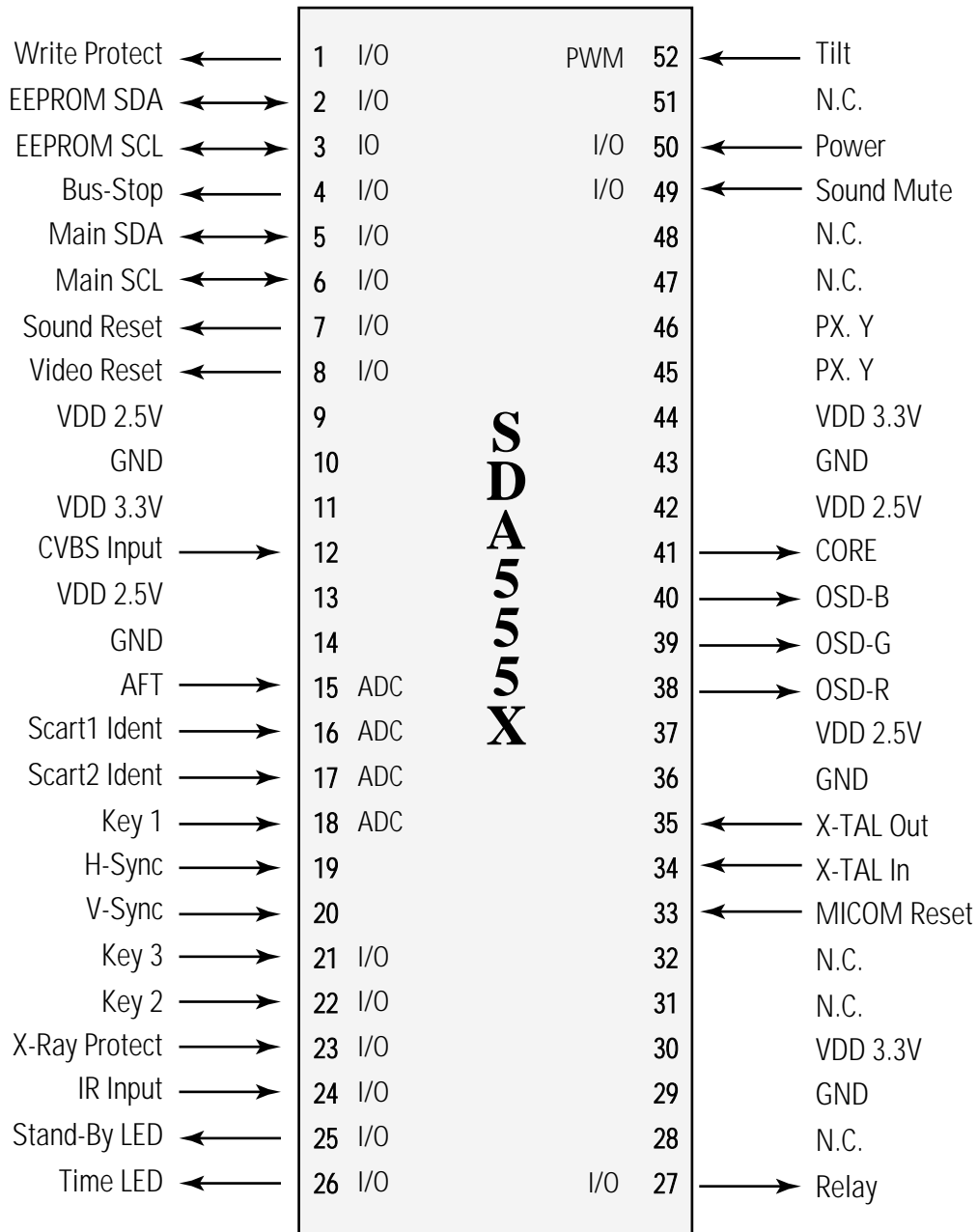


② H-ANGLE



4-9 MICOM

4-9-1 Pin Layout



4-9-2 Pin Assignment Specification

PIN NO	FUNCTION	ASSIGN	IN/OUT	ACTIVE H/L	DESCRIPTION
1	I/O	Write Protect	Out	Low	EEPROM Write Protection
2	I/O	ROM SDA	I/O		EEPROM Serial Data Line
3	I/O	ROM SCL	I/O		EEPROM Serial Clock Line
4	I/O	Bus Stop	In	Low	Disable Micom IIC
5	I/O	Main SDA	I/O		Peripheral IC Serial Data Line
6	I/O	Main SCL	I/O	Low	Peripheral IC Serial Clock Line
7	I/O	Sound Reset	Out	Low	MSP IC Initial Control
8	I/O	Video Reset	Out		VDP IC Initial Control
9	Vdd	VDD 2.5V			
10	GND				
11	Vdd	VDD 3.3V			
12	CVBS	CVBS Input	In		TTX CVBS Input
13	Vdd	VDD 2.5V			Analog B+
14	GND				Analog Ground
15	ADC	AFT	In		Auto Fine Tuning Control
16	ADC	SC1-ID	In		Scart1 Ident
17	ADC	SC2-ID	In		Scart2 Ident
18	ADC	Key1	In		Key1 Input
19	HS	H-Sync	In		Horizontal Sync Input
20	VS	V-Sync	In		Vertical Sync Input
21	I/O	Key3	In		Key3 Input
22	I/O	Key2	In		Key2 Input
23	I/O	X-Ray	In		X-Ray Protection
24	I/O	IR-In	In		Remocon Signal Input
25	I/O	STD-LED	Out		LED Drive Output(Red)
26	I/O	TIM-LED	Out		LED Drive Output(Green)

4-9-2 Pin Assignment Specification (Continued)

PIN NO	FUNCTION	ASSIGN	IN/OUT	ACTIVE H/L	DESCRIPTION
27	I/O	Relay	Out	Low	Activate Degaussing Coil
28	N.C.				Not Used (Programmed Gound Level)
29	GND				Analog Ground
30	Vdd	VDD 3.3V			Not Used (Programmed Gound Level)
31	N.C.				Not Used (Programmed Gound Level)
32	N.C.				Micom Hardware Reset
33	Reset	Reset	In	Low	Crystal Oscillation Input
34	X-In	X-TAL In	In	6MHz	Crystal Oscillation Output
35	X-Out	X-TAL Out	Out	6MHz	Analog Ground
36	GND				Analog B+
37	Vdd	VDD 2.5V			OSD/TTX Output (Red)
38	R	OSD-R	Out		OSD/TTX Output (Green)
39	G	OSD-G	Out		OSD/TTX Output (Blue)
40	B	OSD-B	Out		Fast Blank/Half Contrast Output
41	COR	CORE	Out		
42	Vdd	VDD 2.5V			
43	GND				
44	Vdd	VDD 3.3V			
45	I/O	PX.Y	In		When The Caption Function Adopted, Used.
46	I/O	PX.Y	Out		
47	N.C.				Not Used (Programmed Gound Level)
48	N.C.				
49	I/O	S-Mute	Out	High	Sound Amp Mute
50	I/O	Power	Out	Low	Picture On/Off Control
51	N.C.				Not Used (Programmed Gound Level)
52	I/O				

MEMO