
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 Factory Adjustment

4-5-1 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



4-5-2 Factory Mode OSD

4-5-2(A) ADJUST

ADJUST
 OPTION 52 2A 48
 G2-ADJUST
 RESET
 SPM-836EAN 2002/02/08

AGC	33	STT	7	PWL	12	ETRP	32
SCT	13	AKB	0	AGN	1	VZ	58
SBT	9	PDL	15	PEK	2	SVM	0
BLR	31	NDL	10	ACL	0	VMA	0
BLB	27	PSR	15	FCO	0	DPSR	15
RG	32	NSR	10	SCBT	45	DNSR	10
GG	25	VOL	10	SSP	20	DSBT	7
BG	31	LCO	0	PSNS	1	DCDL	9
VSL	19	TXP	9	HPAR	32	DBLR	31
VS	38	MVOL	10	HBOW	32	DBLB	27
VA	40	FMWS	0	EWID	32		
HS	30	AGCS1	1	EPAR	32		
SC	24	OMD	26	EUCN	32		
CDL	9	SCL	1	ELCN	32		

OSD	Range	Register	Initial Value	Remark
AGC	0 ~ 63	1Eh(D5-D0)	33	RF AGC
SCT	0 ~ 23	1Dh	13	Sub contrast(high light adjustment)
SBT	0 ~ 23	1Bh	9	Sub brightness(low light adjustment)
BLR	0 ~ 63	14h(D5-D0)	31	Black level offset R(low light R adjustment)
BLB	0 ~ 63	15h(D5-D0)	27	Black level offset B(low light B adjustment)
RG	0 ~ 63	16h(D5-D0)	32	White point R(high light R adjustment)
GG	0 ~ 63	17h(D5-D0)	25	White point G(high light 25 fixed)
BG	0 ~ 63	18h(D5-D0)	31	White point B(high light B adjustment)
VSL	0 ~ 63	0Fh(D5-D0)	19	Vertical slope
VS	0 ~ 63	12h(D5-D0)	38	Vertical shift
VA	0 ~ 63	10h(D5-D0)	40	Vertical amplitude
HS	0 ~ 63	09h(D5-D0)	30	Horizontal shift
SC	0 ~ 63	0Fh(D5-D0)	24	S-correction
CDL	0 ~ 15	2Ah(D3-D0)	9	Cathode drive level
STT	0 ~ 7	08h	7	Sub tint(NTSC only)
AKB	0 ~ 1	2Ah(D4)	0	Black current stabilization
PDL	0 ~ 15	1Ah(D3-D0)	15	PAL Y-delay adjustment
NDL	0 ~ 15	1Ah(D3-D0)	10	NTSC Y-delay adjustment
PSR	0 ~ 23	1Ch	15	PAL sub color gain adjustment
NSR	0 ~ 23	1Ch	10	NTSC sub color gain adjustment
VOL	0 ~ 63	1Fh	10	Initial vol adjustment
LCO	0 ~ 1	27h(D7-D5)	0	PLL demodulator frequency adjust(0 : set)
TXP	0 ~ 15	87F2h(D5-D0)	9	TTX horizontal shift adjustment(Micom Memory Part)
MVOL	0 ~ 50	0h(D15-D0)	10	Melody initial vol adjustment(MSP34XX)
FMWS	0 ~ 1	29h(D5)	0	Narrow-band sound PLL window selection
AGCS1	0 ~ 3	28h(D2-D1)	1	IF AGC speed
OMD	0 ~ 63	05h(D5-D0)	26	Off-set IF demodulator
SCL	0 ~ 3	04h(D5-D4)	1	Soft clipping level
PWL	0 ~ 15	04h(D3-D0)	12	Peak white limiting
AGN	0 ~ 1	29h(D7)	1	FM demodulator gain
PEK	0 ~ 3	19h(D7-D6)	2	Peaking center frequency
ACL	0 ~ 1	20h(D1)	0	Automatic color limiting
FCO	0 ~ 1	21h(D0)	0	Forced color limiting
SCBT	0 ~ 63	1Bh	45	Screen brightness(different from INCH)
SSP	0 ~ 23	19h(D5-D0)	20	Sub Sharpness gain adjustment

OSD	Range	Register	Initial Value	Remark
PSNS	0 ~ 1	21h(D2)	1	Ident sensitivity PAL/NTSC decoder
HPAR	0 ~ 63	06h(D5-D0)	32	Horizontal parallelogram
HBOW	0 ~ 63	07h(D5-D0)	32	Horizontal bow
EWID	0 ~ 63	0Ah(D5-D0)	32	EW width
EPAR	0 ~ 63	0Bh(D5-D0)	32	EW parabola
EUCN	0 ~ 63	0Ch(D5-D0)	32	EW upper corner parabola
ELCN	0 ~ 63	0Dh(D5-D0)	32	EW lower corner parabola
ETRP	0 ~ 63	0Eh(D5-D0)	32	EW tarpezium
VZ	0 ~ 63	13h(D5-D0)	32	Vertical zoom
SVM	0 ~ 3	2Dh(D5-D0)	0	Delay of RGB output to VM output
VMA	0 ~ 3	2Eh(D5-D0)	0	Ampulitude of SVM out
DPSR	0 ~ 23	1Ch	15	DVD PAL sub color gain adjustment
DNSR	0 ~ 23	1Ch	10	DVD NTSC sub color gain adjustment
DSBT	0 ~ 23	1Bh	7	DVD Sub brightness(low light adjustment)
DCDL	0 ~ 15	2Ah(D3-D5)	9	DVD Cathode drive level
DBLR	0 ~ 63	14h(D5-D0)	31	DVD Black level offset R(low light R adjustment)
DBLB	0 ~ 63	15h(D15-D0)	27	DVD Black level offset B(low light B adjustment)

4-5-2(B) OPTION

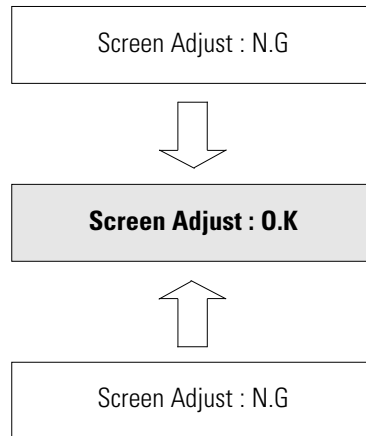
ADJUST
OPTION 52 2A 48
 G2-ADJUST
 RESET
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No	Item	Initial value	Remark
1	LNA	OFF	CIS : ON
2	SYSTEM	CS	CS - CB - CD
3	AUDIO	MONO	MONO - MONO/BILI - L-STEREO - L-STEREO/BILI - STEREO - NICAM
4	JACK	RCA	RCA - SCART - RCA+DVD
5	ZOOM	NOR/ZOOM/16:9	NOR/ZOOM/16:9 - NOR/ZOOM
6	AUTO POWER	ON	ON(MUST OFF)
7	EW	ON	ON - OFF(21" F PIN FREE CRT OFF)
8	2nd SIF	ON	ON - OFF(QUEST OFF)
9	HOTEL MODE	OFF	OFF - ON(OPTION)
10	BKS	ON	ON - OFF(EUROPE OFF)
11	HIGH DEVIA	OFF	OFF(MUST OFF)
12	HELP MENU	ON	ON - OFF(EUROPE OFF)
13	LANGUAGE	EAST ASIA	EAST ASIA - CHINA
14	V-GUARD	OFF	OFF(MUST OFF)

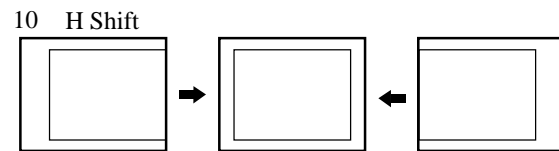
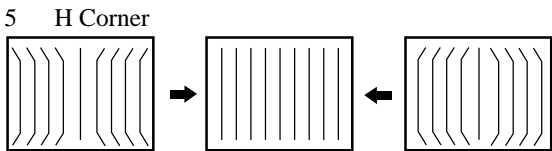
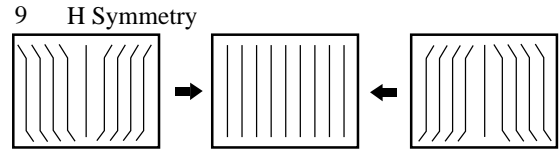
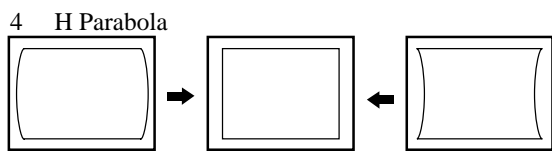
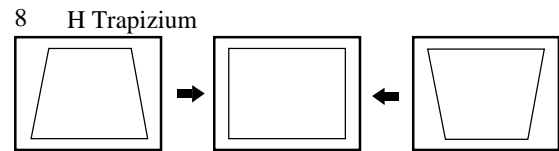
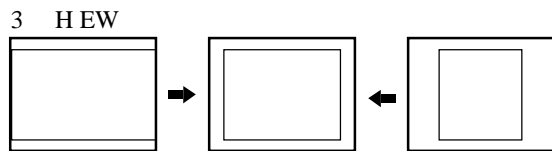
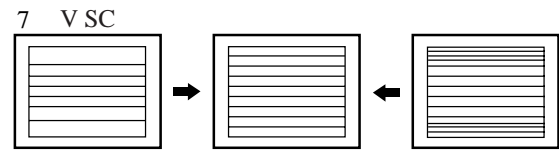
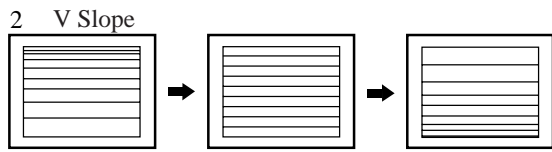
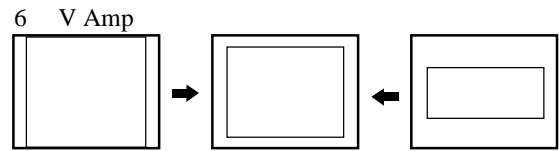
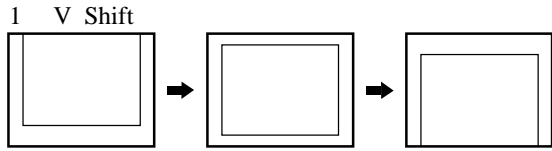
4-5-2(C) G2-ADJUST

ADJUST
 OPTION 52 2A 48
G2-ADJUST
 RESET
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- ☞ Entering G2-Adjust Mode Screen Adjust : Displayed As "NG".
 → Turn SCREEN VR OF FBT, Adjust Value Become To Be "OK".



4-5-2(D) SCREEN CHANGE (I2C BUS GEOMETRIC ADJUSTMENT)



4-6 PIN ASSIGNMENT SPECIFICATION

PIN NO	SYMBOL	PIN FUNCTION	CHECK VOLTAGE	
			S-By	P-On
1	P1.3/T1	port 1.3 or Counter/Timer 1 input		
2	P1.6/SCL	port 1.6 or IIC-bus clock line		
3	P1.7/SDA	port 1.7 or IIC-bus data line		
4	P2.0/TPMW	port 2.0 or Tuning PWM output		
5	P3.0/ADC0	port 3.0 or ADC0 input		
6	P3.1/ADC1	port 3.1 or ADC1 input		
7	P3.2/ADC2	port 3.2 or ADC2 input		
8	P3.3/ADC3	port 3.3 or ADC3 input		
9	VSSC/P	digital ground for m-Controller core and periphery		
10	P0.5	port 0.5(8mA current sinking capability for direct drive of LEDs)		
11	P0.6	port 0.6(8mA current sinking capability for direct drive of LEDs)		
12	VSSA	digital ground of TV-processor		
13	SECPLL	SECAM PLL decoupling		
14	VP2	2nd supply voltage TV-processor(+8V)		
15	DECDIG	supply voltage decoupling of digital circuit of TV-processor		
16	PH2LF	phase-2 filter		
17	PH1LF	phase-1 filter		
18	GND3	ground 3 for TV-processor		
19	DECBG	bandgap decoupling		
20	EWD	East-West drive output		
21	VDRB	vertical drive B output		
22	VDRA	vertical drive A output		
23	IFIN1	IF input 1		
24	IFIN2	IF input 2		
25	IREF	reference current input		
26	VSC	vertical sawtooth capacitor		
27	AGCOUT	tuner AGC output		
28	SIFIN1/DVBIN1	SIF input 1 / DVB input 1		
29	SIFIN2/DVBIN2	SIF input 2 / DVB input 2		
30	GND2	ground 2 for TV processor		
31	SIFAGC/DVBAGCR	narrow band PLL filter		
32	REFO/AMOUT/REFIN	Automatic Volume Leveling/subcarr reference output/sound IF input/external reference signal input for I signal mixer for DVB operation		

PIN NO	SYMBOL	PIN FUNCTION	CHECK VOLTAGE	
			S-By	P-On
33	HOUT	horizontal output		
34	FBISO	flyback input/sandcastle output		
35	QSSO/AMOUT	QSS intercarrier output/AM output in stereo applications or deemphasis(front-end audio out)/AM output in mono applications		
36	EHTO	EHT/overvoltage protection input		
37	PLLIF	IF-PLL loop filter		
38	IFVO/SVO/DVBO	AGC sound IF/inter-external AGC for DVB applications		
39	VP1	main supply voltage TV processor		
40	CVBS1	internal CVBS input		
41	GND	ground for TV processor		
42	CVBS/Y	CVBS3/Y input		
43	C	chroma input		
44	SVM	scan velocity modulation output		
45	INSSW2	2nd RGB/YUV insertion input		
46	R2/VIN	2nd R input/V(R-Y) input PR input		
47	G2/YIN	2nd G input/Y input		
48	B2/UIN	2nd B input/U(B-Y) input PB input		
49	BCLIN	beam current limiter input		
50	BLKIN	black current input/V-guard input		
51	RO	Red output		
52	GO	Green output		
53	BO	Blue output		
54	VDDA	analog supply of Teletext decoder and digital supply of TV-processor(3.3 V)		
55	VPE	OTP Programming Voltage		
56	VDDC	digital supply to core(3.3 V)		
57	OSCGND	oscillator ground supply		
58	XTLIN	crystal oscillator input		
59	XTLOUT	crystal oscillator output		
60	RESET	reset		
61	VDDP	digital supply to peryipher(+3.3 V)		
62	P1.0/INT1	port 1.0 or external interrupt 1 input		
63	P1.1/T0	port 1.1 or Counter/Timer 0 input		
64	P1.2/INT0	port 1.2 or external interrupt 0 input		