ADJUSTMENT INSTRUCTION

1. Application Object

These instructions are applied to all of the color TV, MC-036A.

2. Notes

(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.But the adjustment can be changed by consideration of mass production.

(3) The adjustment must be performed in the circumstance of 25±5°C of temperature and 65±10% of relative humidity if there is no specific designation.

(4) The input AC voltage of the receiver must keep 220V±10% in adjusting.

(5) The receiver must be operated for about 15 minutes prior to the adjustment.

3. Focus adjustment

3-1. Preliminary steps

(1) Tune the TV set to receive a digital pattern.
(SVC mode: Automatically mode change the STANDARD MODE)

3-2. Adjustment

(1) Adjust center focus volume of FBT for the best focus of vertical line (B).

(2) Adjust the upper focus volume of FBT for the best focus of area (A).

(3) Repeat above step 1) and 2) for the best overall focus.
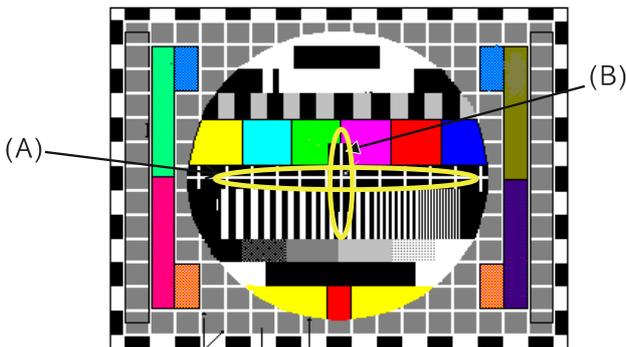
4. Purity & Convergence adjustment

4-1. Color purity adjustment

(1) Magnetic room set to destination magnetic and horizontal magnetic set to zero.

(2) It makes CPT or CABINET enough to demagnetization.

(3) Self-adjustment: Adjust by input of Green raster signal Manual-adjustment: Receive the signal of red raster.
(RF: PG50Ch or A/V input: RED pattern)

(4) Loosen fixed screw of DY and closely to CPT funnel part.

(5) Check the center of screen that purity magnet of CPT by crossing adjustment. At this time, 4 & 6 pole magnet is located to magnet of nothing.

(6) Move the DY to make equal red on whole screen and it does not to make the DY by fixed screw after check a simple color of Red/Green/Blue and white raster whether or not it is a pollution of color.
(At this time, take care raster of screen and DY must fixing in the condition which maintains a horizontality.)

(7) Check the TV set by move direction.

4-2. Convergence adjustment

These adjustments can the best condition of focus after finished purity adjustment.

(1) Receive the signal of cross hatch that color is black.

(2) Adjust brightness and luminosity till dot appear 9 ~12.

(3) Open angle of the two tab of 4 pole magnet by isotonic angle and accord with vertical line of red and blue color in the middle of screen.

(4) Maintain as angle of 3) and rotate the tab to accord with vertical line of Red and Blue color in the middle of screen.

(5) Open angle of the two tab of 6 pole magnet by isotonic angle and accord with vertical line of Red/Blue and Green.

(6) Maintain as angle of 5) and rotate the tab to accord with horizontal line. In case of twisted horizontal line,repeat adjustment of 3) ~ 5) remembering the movement of Red/Green/Blue color.

(7) Move the DY to best condition of convergence and attach the CPT to a rubber-chock for fixed DY.

4-3 Screen voltage adjustment

(1) Preliminary steps

1) Turn on the TV set.

2) This adjustment should be performed after warming up for more than 15 minutes.

(2) Adjustment

1) Adjust in RF non-signal.

2) Press the ADJ key of SVC remote controller to make horizontal line.

5. White balance adjustment

This adjustment should be performed after screen adjustment. This adjustment set the self-adjustment rule.

5-1. Test Equipment

(1) Automatic White balance meter: Incase of self-adjustment

(2) White balance meter(CRT Color Analyzer, CA-100): 1 EA

(3) A SVC remote controller.

5-2. Preliminary steps

(1) Tune the TV set to receive an 100% white pattern.

(2) This adjustment should be performed after screen voltage adjustment.

5-3. Adjustment

(1) Press the CH ▲ ,▼ key to select adjustment item.

(2) Press the VOL ◄ ,► key to change data.

(3) Adjustment preliminary steps.

    a. In items of picture adjustment,adjust until "CONTRASTS" and "BRIGHT" become 45 Ft_L(153Cd/m²).

    b. Press the SVC key to enter adjustment mode.

    c. Adjust the Y value of High Light with R-DRIVE and adjust the X value with B-DRIVE until they have the color coordinate of High Light as below.

    d. In items of picture adjustment,adjust until "CONTRASTS" and "BRIGHT" become 4.5 Ft_L(15.4FT-L).

    e. Enter the adjustment mode by pressing the SVC key.

    f. Adjust the Y value of Low Light with R-CUTOFF and adjust the X value with B-CUTOFF until they have the color coordinate of Low Light as below.

    g. Repeat adjusting until the color coordinate of High and Low Light is satisfied.

    h. Check the color coordinate of adjusted condition with white balance meter.

Color temperature.	X coordinate	Y coordinate	Remark
13000K	266 ± 8	273 ± 8	Non EU(except model)
9000K	288 ±8	295 ± 8	EU (RE,RL model)

	Item	LG 29" FLAT	LG 32" FLAT	Remark
SERVICE1	CR(0~511)	256	256	LOW LIGHT adjustment
	CG(0~511)	256	256	LOW LIGHT adjustment
	CB(0~511)	256	256	LOW LIGHT adjustment
	WR(0~511)	256	256	HIGH LIGHT adjustment
	WG(0~511)	256	256	HIGH LIGHT adjustment
	WB(0~511)	256	256	HIGH LIGHT adjustment
	SBRI(-255 ~ 254)	0	20	SUB BRIGHT adjustment
	YCDEL	-4	-4	

IIC DATA SETTING

	R AMP	R CUT	B AMP	B CUT	SUB BRIGHT	DATA SAVE
OFFSE DATA	0	3	1	2		
IIC WRITE						
SUB ADD	1C8	1C3	1CA	1C5		
START BIT	8	8	8	8		
STOP BIT	0	0	0	0		
EEPROM SUB ADD	30,31	2A,2B	34,35	2E,2F		

| SLAVE ADDRESS(WRITE)	SUB BRIGHT CONTROL DATA	SPEED
IC 8A12 EEPROM A0		2

6. Deflection & POP position setting data adjustment.

6-1 Adjustment preparation
(1) Deflection setting data adjustment is operate by SVC communicator.
(2) Enter the adjustment mode by pressing SVC key.
(3) Enter the deflection mode by pressing ADJUST key.
(4) Use the CH ▲ ,▼ key to select adjustment item.
(5) Use the VOL ◄ ,► key to increase/decrease data.
(6) Tune the TV set to receive PAL-B/G Digital pattern.

6-2 Adjustment
(1) VL(Vertical Linearity) adjustment:
Adjust the top & bottom size of inner circle to be equal.
(2) VA (Vertical Amplitude) adjustment:
Adjust so that the circle of a digital circle pattern should be located interval of 6~7mm from the effective screen of the CPT.
(3) SC (Vertical S correction) adjustment:
Adjust so that all distance between each lattice width of top/center/bottom are to be the same.
(4) VS (Vertical Shift) adjustment:
Adjust so that the geometric vertical center line is in accord with vertical center line of CPT.
(5) HS(Horizontal Shift) adjustment:
Adjust so that the geometric horizontal center line is in accord with horizontal center line of CPT.
(6) EW(East-West Width) adjustment:
Adjust until the outmost left and right lattice of received pattern is accord with 75% of other lattice width.

$b/a = 75 \pm 3\%$
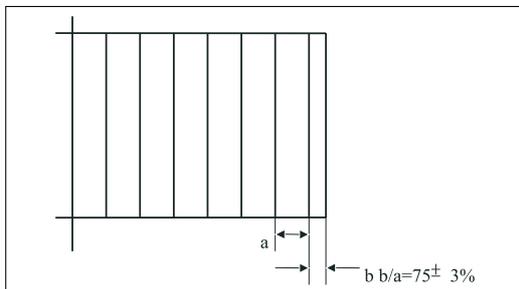
(7) ET(East-West Trapezium) adjustment:
Adjust to make the length of top horizontal line same with it of the bottom of horizontal line.
(8) EP (East-West Parabola) adjustment:
Adjust so that middle portion of the outermost left and right vertical line look like parallel with vertical lines of the CPT.
(9) CRNU(Upper Corner Correction) adjustment:
After finished EP adjustment,adjust vertical line of left-top,right-top of screen to the best straight line.
(10) CRNL(Lower Corner Correction) adjustment:
After finished EP adjustment,adjust vertical line of left-bottom ,right-bottom of screen to the best straight line.
(11) BOW adjustment
A standard is not changing the default value.
(12) Angle adjustment.
When you adjust the angle,adjust correctly raster of left/right screen.
(13) CRNU6(6' th Order Upper Corner Correction) adjustment
After finished EP adjustment,adjust vertical line of left-top,right-top of screen to the best straight line.
(14) CRNL6(Lower Corner Correction) adjustment:

After finished EP adjustment,adjust vertical line of left-bottom ,right-bottom of screen to the best straight line.

(15) OSD P (OSD POSITION) adjustment.
Adjust so that the character "2" of "EHTP2" is in accord with right of Screen Center Vertical line after finished (1)~ (14) adjustment. (Refer to <figure.1> and <figure.2>.)

<figure.1>

<figure.2>
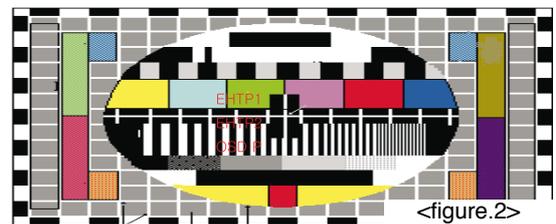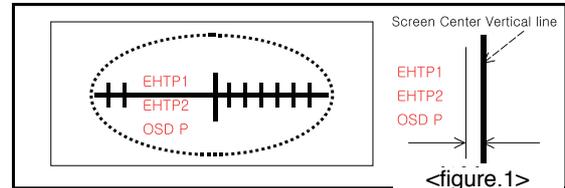
SERVICE 2 standard DATA

Item	Variable range -128~127	S/S 29" FLAT	S/S 28" FLAT
VL	-128~127	0	0
VA	-128~127	19	49
SC	-256~255	30	20
VS	-512~511	5	0
HS	-256~255	-198	-180
EW	-128~127	-13	0
ET	-256~255	0	0
EP	-128~127	228	239
CRNU	-128~127	6	2
CRNL	-512~511	6	3
BOW	-512~511	0	0
ANGLE	-128~127	0	0
CRNU6	-128~127	-1	-1
CRNL6	0~2047	-1	-1
EHTTH	0~511	250	250
EHT	-512~511	60	60
EHTV1	-512~511	-61	-61
EHTV2	-512~511	-20	-20
EHTH1	-512~511	-97	-97
EHTH2	0~511	-22	-22
EHT F	-511~512	0	0
EHTP1	-511~512	-20	-20
EHTP2	-15~15	-40	-40
OSD P		0	0

SERVICE 3 standard DATA

Item	PHILIPS 32"FLAT	S/S 29" FLAT	S/S 28" FLAT	
IBRM	413	413	413	
WDRM	128	128	128	
CGAIN	50	50	50	
WGAIN	50	50	50	
MWDR	496	496	496	
BCLTH	85	140	135	
BCLTC	400	400	400	
BCLGA	113	230	200	
BCLC	200	200	200	
SVDEL	7	5	5	
SVD	4	4	4	
SVG	30	30	20	
VBSO	23	23	23	
TML	14	15	14	

SERVICE 4 standard DATA

Item	PHILIPS 32"FLAT	S/S 29" FLAT	S/S 28" FLAT	
FP	20	20	20	
NP	83	83	83	
SP	17	17	17	
S1 VOL	102	102	102	
S2 VOL	102	102	102	
AGC-L	230	230	230	
VPC-L	0	0	0	
M-STR	45	45	45	
M-HMC	25	25	25	
M-HP	9	9	9	
M-LP	11	11	11	
M-LIM	252	252	252	

29" Model:
Adjustment must adjust to the N50Hz(Only PAL mode).
W50Hz,N60Hz and W60Hz need not adjustments.(Only 29" model)
28"/32" WIDE Model:
14:9,4:3 MODE H-SH(H-SHIFT) adjustment addition.
Adjust "H-SHIFT" of 14:9 and 4:3 by 50Hz.

* Caution: Adjustment of 50 Hz is 16:9's standard format. When the adjustment is 50Hz wide mode, you must be done re-check.

At this time, ZOOM1 and ZOOM2 Mode need not adjustments. Because it can automatically correct in 16:9 mode.

When you want to re-adjust after deflection adjustment, adjustment is finished after always re-adjustment.

Screen OSD FONT status and adjustment in H-Shift ARC SVC adjustment.

No.	ARC MODE	SVC OSD FONT(50Hz,PAL)	H-SHIFT
1	16:9	50W	Adjustment
2	14:9	50 149	Adjustment
3	ZOOM1	50 Z1	Adjustment X
4	ZOOM2	50 Z2	Adjustment X
5	4:3	50 N	Adjustment

Deflection adjustment standard DATA

Item	Variable range	PAL 100Hz	480I
VL	-128~127	0	0
VA	-128~127	10	10
SC	-128~127	20	20
VS	-256~255	0	0
HS	-512~511	-152	-152
EW	-256~255	5	5
ET	-128~127	0	0
EP	-256~255	234	234
CRNU	-128~127	4	4
CRNL	-128~127	5	5
BOW	-512~511	2	2
ANGLE	-512~511	1	1
CRNU6	-128~127	-1	-1
CRNL6	-128~127	-1	-1
PFGHE	0~1024	0	0
PFGHB	0~1024	0	0
EHTTH	0~2047	250	250
EHTS	0~511	60	60
EHTV1	-512~511	-61	-61
EHTV2	-512~511	-20	-20
EHTH1	-512~511	-97	-97
EHTH2	-512~511	-22	-22
EHT F	0~511	0	0
EHTP1	-511~512	-20	-20
EHTP2	-511~512	-40	-40
OSD P	-15~15	0	0

Adjust in PAL100Hz and PAL50Hz,NTSC60Hz and 480I needed not adjustment.

7. OPTION Adjustment

7-1. Preparation for Adjustment

1) This option adjustment decides function in accordance with model.
   Press the SVC TX adjustment button(IN-START button) at SVC mode,then adjust the option at OPTION 1,2,3,4 mode.
2) Mark the option adjustment data like [111,11,111,11] in BOM.

[63,56,112,201]

OPTION 1
OPTION 2
OPTION 3
OPTION 4
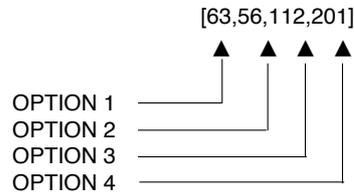
● Mark of BOM

LEVEL PART NO.   SPECIFICATION   DESCRIPTION

1.   3141VMN382A   MAIN[63.56.112.201]   CHASSIS ASSY

The OPTION 1 data is 113,OPTION 2 data is 63,the oOPTION 3 data is 112,the OPTION 4 data is 201 in this model.

7-2. Adjustment Method

1) Input data directly by the buttons corresponded with OPTION1 ??(0~63), OPTION2 ??(0~63), OPTION3 ???(0~127).
2) Option4???(0~116) controls corresponding lines directly relate with OSD and TXT LANG.
3) Select each OPTION function by the CH Up/Down button and then set up each OPTION by the VOL Up/Down button.

Table.1 OPTION 1 Function

Option	Code	Function	Remark
200PR	0	100 PROGRAM SAVE	
	1	200 PROGRAM SAVE	
TSEAR	0	WITHOUT TURBO SEARCH FUNCTION	WL/CL model
	1	WITH TURBO SEARCH FUNCTION	CT/CE/WT/WE model
I II SV	0	NO SAVE DUAL SOUND CONDITION	EU(WE/WL/CE/C model)
	1	SAVE DUAL SOUND CONDITION	NON-EU (WT/CT model)
TOP	0	FLOP TEXT	Without top text
	1	TOP TEXT	
EYE	0	WITHOUT EYE	
	1	WITH EYE	
A2 ST	0	FM STEREO/DUAL NON ACTIVE	
	1	NICAM AND FM STEREO/DUAL	
SYS	0	BG/I/DK	
	1	BG/L	
	2	BG/I/DK/M	
	3	RESERVED	

Table 2. OPTION 2 Function

Option	Code	Function	Remark
ACMS	0	Without ACMS function	Australia
	1	With ACMS function	
VOL	0	Normal volume curve	EU
	1	Rushed volume curve	NON EU
HPHON	0	Without headphone	
	1	With headphone	
DVD	0	Without DVD input	
	1	With DVD input	
SAV3	0	AV3 Y&C not coresspondence	
	1	AV3 Y&C coresspondence	
WOOF	0	Without woofer	
	1	With woofer	
RESE1	0		NON USED
	1		
AV SV	0	No save last AV	
	1	Last AV save	

Table. 3 OPTION 3 Function

Option	Code	Function	Remark
WIDE	0	4:3 TV	
	1	16:9 TV	
TEXT	0	WITHOUT TEXT	
	1	WITH TEXT	
CH+AU	0	WITHOUT D/K CHINA or BB SYSTEM	
	1	WITH D/K CHINA or BB SYSTEM	
HEDV	0	WITHOUT HIGH DEVIATION	High deviation
	1	WITH HIGH DEVIATION	
DOLBY	0	WITHOUT DOLBY VIRTUAL	
	1	WITH DOLBY VIRTUAL	
RESE3			NON USED
HOTEL	0	WITHOUT HOTEL FUNCTION	
	1	WITH HOTEL FUNCTION	
RESE2			NON USED

Table 4. OPTION 4 Function

State	Language	Function
LANG	0:ENG Only	English
	1:EU 5EA	English/German/French/Italy/Spanish
	2:EU ETC	Netherlands/Sweden/Norway/Denmark/Pinland/Portugal/Rumania/Poland
		/Hungary/Czech/Russia
	3:GREECE	
LANG (NON EU)	0:ENG Only	English
	1:PARSI	English/Farsi
	2:ARAB URDU	English/French/Arab/Urdu
T-LAN	0:West EU	English/French/Swedish/Czech/German/Spanish/Italian
	1:East EU1	Polish/French/Swedish/Czech/German/Slovenian/Italian/Rumanian
	2:Turkey EU1	English/French/Swedish/Turkish/German/Spanish/Italian
	3:East EU2	English/Czech/Hungarian/Serbian/German/Polish/Turkish/Rumanian
	4:Cyrillic 1	Polish/Russia/Estonian/Swedish
	5:Cyrillic 2	Polish/Russia/Swedish/Czech/Estonian
	6:Cyrillic 3	English/Russia/Estonian/Czech/German/Ukrainian
	7:Turkey/Greek 1	English/French/Swedish/Turkish/German/Spanish/Italian/Greek
	8:Turkey/Greek 2	English/Turkish/German/Turkish/Greek
	9:Turkey/Greek 3	English/French/Swedish/Turkish/German/Spanish/Italian/Greek
	10:Arab/France	English/French/English/Arabic
	11:Arab/English	English/French/Turkish/Arabic
	12:Arab/Hebrew 1	Hebrew/Arabic
	13:Arab/Hebrew 2	English/French/Hebrew/Arabic
	14:Farsi/English	English/French/Turkish/Farsi
	15:Farsi/France	French/Turkish/Farsi
	16:Farsi all	
MAX V		Max Volume

8. Sound Pre scaler

Don't adjust mass-production. Because this value of SVC setting is set to come up to standard. Only This standard is for reference.

In case of Phone jack is over 1EA in AV1 & AV2,apply to Phone standard.
- Audio out level: 500mVrms at 100% modulation ratio.

In case of both of AV1 & AV2 is Scart jack,apply to Scart jack standard.
- Audio out level 500Vrms at 54% modulation ratio

* MSP3410 Pre-scaler setting value.

Item	Description	DATA
FP	FM Pre-scaler	21
NP	Nicam Pre-scaler	90
SP	Scart Pre-scaler	20
S1 vol	Scart1 Pre-scaler	102
S2 vol	Scart2 Pre-scaler	102
VPC-L	VPC LEVEL	0
M-STR	EFFECT STRENGTH	45
M-HMC	HARMONIC CONTENT	25
M-HP	HIGH PASS CENTER FREQUENCY	9
M-LP	LOW PASS CENTER FREQUENCY	11
M-LIM	AMPLITUDE LIMIT	252