

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit and on the remote control for more than a the standard time in the appropriate condition. (See below chart.)

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
TV mode	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
DVD mode (No disc)	VOL. DOWN (Minimum)	4	2 sec.	Initialization of factory DVD data.
DVD mode (No disc)	VOL. DOWN (Minimum)	5	2 sec.	DVD Write mode. Refer to the "RE-WRITE FOR DVD FIRMWARE". NOTE: Do not use this for normal servicing.
TV mode	VOL. DOWN (Minimum)	6	2 sec.	POWER ON total hours are displayed on the screen. Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
TV mode	VOL. DOWN (Minimum)	8	2 sec.	Check of the SUM DATA and MICON VERSION on the screen. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
ALL mode	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	STOP	1	2 sec.	Check of the firmware version. Refer to the "RE-WRITE FOR DVD FIRMWARE". NOTE: Do not use this for normal servicing.
DVD mode (No disc)	STOP	7	2 sec.	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL".

WHEN REPLACING EEPROM (MEMORY) IC

CONFIRMATION OF CHECK SUM, POWER ON TOTAL HOURS AND MICON VERSION

Initial total of MEMORY IC, POWER ON total hours and MICON VERSION can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".

Please refer to "CONFIRMATION OF INITIAL DATA" when SUM DATA is not corresponding.

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(8)** on the remote control for more than 2 seconds.
4. After the confirmation of each check sum, turn off the power.

NOTE: The each item value might be different according to each set.

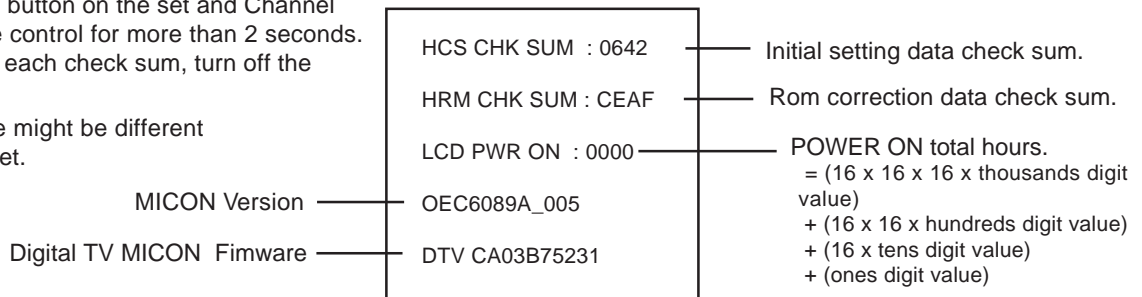


FIG. 1

CONFIRMATION OF INITIAL DATA

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to INITIAL SETTING TABLE (Attached "INITIAL DATA").

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as **FIG 2**.

ADDRESS	DATA
HCS 00	0B
HRM 0600	01
OEC6089A_005	
DTV CA03B75231	

FIG. 2

4. ADDRESS is now selected and should "blink". Using the Channel UP/DOWN button on the remote, step through the ADDRESS until Press VOL. UP/DOWN button to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using Channel UP/DOWN button until required DATA value has been selected.
6. Pressing VOL. UP/DOWN button will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 4 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

9. Turn on the Power.
 10. Set the VOLUME to minimum.
 11. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
 12. After the finishing of the initializing of shipping, the unit will turn off automatically.
- The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease (**YG6260M**) on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damage to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Pattern Generator

2. BASIC ADJUSTMENTS

On-Screen Display Adjustment

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 2-1**.

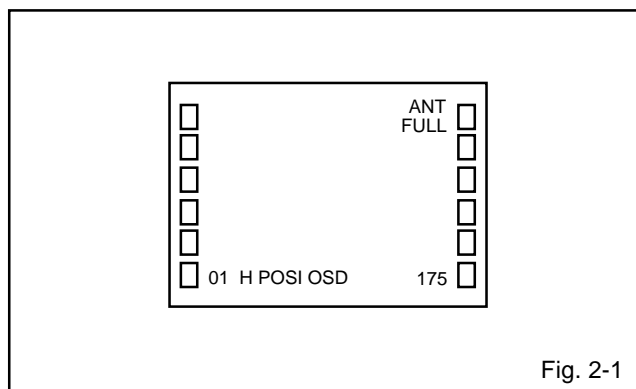


Fig. 2-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 2-2**.
4. Press the MENU button on the remote control to end the adjustments.
5. To display the adjustment screen for ANT, VIDEO, COLORSTREAM HD, HDMI and PC mode, press the INPUT SELECT button on the remote control to set to the ANT, VIDEO, COLORSTREAM HD, HDMI and PC mode.
6. Press the VOL.DOWN button on the set and the channel **(9)** on the remote control for more than 2 seconds.

NO.	FUNCTION	NO.	FUNCTION
01	H POSI OSD	21	H POSI 60
02	V POSI OSD	22	V POSI 60
03	R DRIVE (N)	23	BAK LIGHT CENT
04	R CUT OFF (N)	24	BAK LIGHT MAX
05	G DRIVE (N)	25	BAK LIGHT MIN
06	G CUT OFF (N)	26	BRIGHT CENT
07	B DRIVE (N)	27	BRIGHT MAX
08	B CUT OFF (N)	28	BRIGHT MIN
09	R DRIVE (C)	29	TINT
10	R CUT OFF (C)	30	SHARP CENTER
11	G DRIVE (C)	31	SHARP MAX
12	G CUT OFF (C)	32	SHARP MIN
13	B DRIVE (C)	33	CONTRAST CENTER
14	B CUT OFF (C)	34	CONTRAST MAX
15	R DRIVE (W)	35	CONTRAST MIN
16	R CUT OFF (W)	36	COLOR CENT
17	G DRIVE (W)	37	COLOR MAX
18	G CUT OFF (W)	38	COLOR MIN
19	B DRIVE (W)	39	CONTRAST 40
20	B CUT OFF (W)	40	Flicker test

Fig. 2-2

2-1: FLICKER

NOTE: The following adjustment is necessary for changing the DIGITAL PCB and Panel module.

1. Activate the adjustment mode display of **Fig. 2-1** and press the Channel UP/DOWN button to select "40 Flicker test". (**Refer to Fig. 2-3**)
2. Check if the screen is flashing.
3. Turn Variable Resistor, and adjust it not appear FLICKER (FLASHING). (**Refer to Fig. 2-4**)

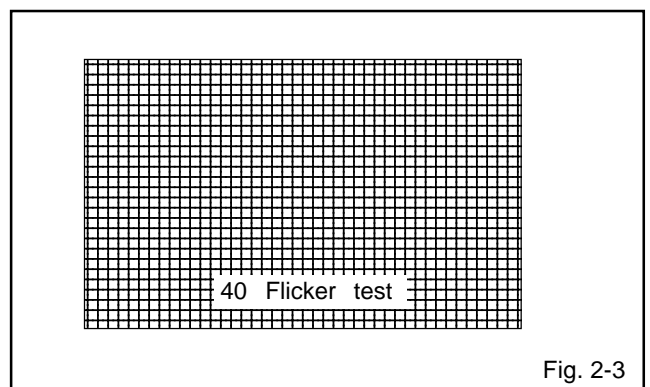


Fig. 2-3

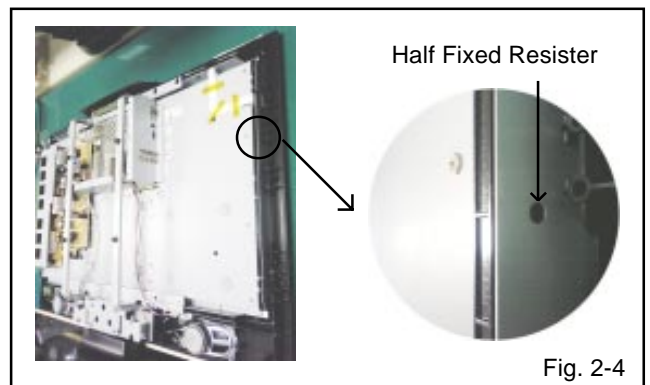


Fig. 2-4

ELECTRICAL ADJUSTMENTS

2-2: WHITE BALANCE

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Press the INPUT SELECT button on the remote control to set to the VIDEO mode.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(03)** on the remote control to select "R DRIVE (N)".
6. Press the CH. UP/DOWN button on the remote control to select the "R CUT OFF(N)", "B DRIVE(N)", "B CUT OFF(N)", "R DRIVE(C)", "R CUT OFF(C)", "B DRIVE(C)", "B CUT OFF(C)", "R DRIVE(W)", "R CUT OFF(W)", "B DRIVE(W)" or "B CUT OFF(W)".
7. Adjust the VOL. UP/DOWN button on the remote control to whiten the R CUT OFF(N), B DRIVE(N), B CUT OFF(N), R DRIVE(C), R CUT OFF(C), B DRIVE(C), B CUT OFF(C), R DRIVE(W), R CUT OFF(W), B DRIVE(W) and B CUT OFF(W) at each step tone sections equally.
8. Perform the above adjustments 6 and 7 until the white color is achieved.

2-3: CONTRAST MAX

1. Receive the monoscope pattern. (RF Input)
2. Press the INPUT SELECT button on the remote control to set to the ANT mode.
3. Set the screen mode to FULL.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(34)** on the remote control to select "CONT MAX".
6. Press the VOL. UP/DOWN button on the remote control until the white color is looked like a white.
7. Receive the monoscope pattern. (VIDEO Input)
8. Press the INPUT SELECT button on the remote control to set to the VIDEO mode. Then perform the above adjustments 3~6.
9. Playback the DVD(480i) disc. (COLORSTREAM HD Input)
10. Press the INPUT SELECT button on the remote control to set to the COLORSTREAM HD mode. Then perform the above adjustments 3~6.
11. Playback the DVD(480i) disc. (HDMI Input)
12. Press the INPUT SELECT button on the remote control to set to the HDMI mode. Then perform the above adjustments 3~6.

2-4: BRIGHT CENT

1. Receive the monoscope pattern. (RF Input)
2. Press the INPUT SELECT button on the remote control to set to the ANT mode.
3. Set the screen mode to FULL.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(26)** on the remote control to select "BRIGHT CENT".
6. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "102".
7. Press the INPUT SELECT button on the remote control to set to the VIDEO mode. Then perform the above adjustments 3~6.
8. Playback the DVD(480i) disc. (COLORSTREAM HD Input)
9. Press the INPUT SELECT button on the remote control to set to the COLORSTREAM HD mode. Then perform the above adjustments 3~6.
10. Playback the DVD(480i) disc. (HDMI Input)
11. Press the INPUT SELECT button on the remote control to set to the HDMI mode.
12. Set the screen mode to FULL.
13. Using the remote control, set the brightness and contrast to normal position.
14. Activate the adjustment mode display of **Fig. 2-1** and press the channel button **(26)** on the remote control to select "BRIGHT CENT".
15. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "114".

ELECTRICAL ADJUSTMENTS

2-4: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of each of the adjustment item is set correctly referring below.
(ANT/VIDEO/COLORSTREAM HD/HDMI/PC/DVD/DIGITAL)

NO.	FUNCTION	ANT	VIDEO		COLORSTREAM HD				HDMI					PC								DVD	DIGITAL			
			CVBS	S(Y/C)	480i	480p	720p	1080i	VGA	480i	480p	720p	1080i	640*480	720*400	800*600	1024*768	1280*768	1280*720	848*480	1360*768		480i	480p	720p	1080i
		Step No.																								
1	H POSI OSD	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	
2	V POSI OSD	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	
3	R.DRIVE (N)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	128	128	128	128	128	128	128	128	ADJ	ADJ	ADJ	ADJ	
4	R CUTOFF (N)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
5	G DRIVE (N)	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	
6	G CUTOFF (N)	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
7	B DRIVE (N)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	128	128	128	128	128	128	128	128	ADJ	ADJ	ADJ	ADJ	
8	B CUTOFF (N)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
9	R.DRIVE (C)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
10	R CUTOFF (C)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
11	G DRIVE (C)	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
12	G CUTOFF (C)	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
13	B DRIVE (C)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
14	B CUTOFF (C)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
15	R.DRIVE (W)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
16	R CUTOFF (W)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
17	G DRIVE (W)	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
18	G CUTOFF (W)	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
19	B DRIVE (W)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
20	B CUTOFF (W)	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	x	x	x	x	x	x	x	x	ADJ	ADJ	ADJ	ADJ	
21	H POSI 60	233	233	233	233	233	233	233	233	233	233	233	233	256	256	256	256	256	256	256	256	233	233	233	233	
22	V POSI 60	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	128	
23	BAK LIGHT CENT	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	128	78	78	78	
24	BAK LIGHT MAX	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	258	155	155	155	
25	BAK LIGHT MIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	
26	BRIGHT CENT	102	102	102	102	122	122	122	114	114	114	114	114	128	128	128	128	128	128	128	128	ADJ	114	114	114	
27	BRIGHT MAX	137	137	137	137	152	152	152	152	152	152	152	152	149	149	149	149	149	149	149	149	160	137	137	137	
28	BRIGHT MIN	80	80	80	80	102	102	102	102	102	102	102	102	109	109	109	109	109	109	109	109	60	80	80	80	
29	TINT	128	128	128	128	128	128	128	128	128	128	128	128	x	x	x	x	x	x	x	x	128	128	128	128	
30	SHARP CENTER	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	
31	SHARP MAX	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	
32	SHARP MIN	110	110	110	110	110	110	110	110	110	110	110	110	100	100	100	100	100	100	100	100	110	50	50	50	
33	CONT CENTER	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	90	90	90	90	90	90	90	90	ADJ	ADJ	ADJ	ADJ	
34	CONT MAX	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	110	110	110	110	110	110	110	110	ADJ	ADJ	ADJ	ADJ	
35	CONT MIN	80	80	80	80	50	50	50	50	50	50	50	50	45	45	45	45	45	45	45	45	80	80	80	80	
36	COLOR CENT	150	150	150	160	160	160	160	170	160	170	170	170	x	x	x	x	x	x	x	x	160	170	170	170	
37	COLOR MAX	175	170	170	175	180	230	230	200	190	200	200	200	x	x	x	x	x	x	x	x	215	205	205	205	
38	COLOR MIN	0	0	0	0	0	0	0	0	0	0	0	0	x	x	x	x	x	x	x	x	0	0	0	0	
39	CONT 40	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	ADJ	100	100	100	100	100	100	100	100	ADJ	ADJ	ADJ	ADJ	