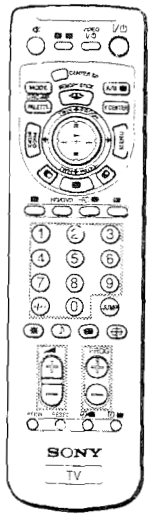
HCSD ID: 079663

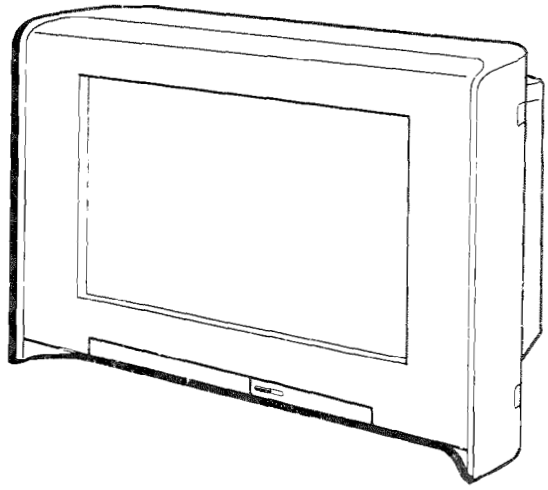
Self Diagnosis Supported model

SERVICE MANUAL AX-1CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-HR36M31	RM-1007	OCE	SCC-M13A-A				



RM-1007



KV-HR36M31

TRINITRON® COLOR TV

SONY®

Specifications

	KV-HR36 M31	
Power requirements	220–240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV.	
Television system	B/G, I, D/K, M	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	
Available language for Teletext	English, Farsi, French	
Stereo/Bilingual system	NICAM Stereo/Bilingual D/K, I, B/G; A2 Stereo/Bilingual (German) B/G	
Channel coverage		
B/G	VHF : E2 to E12 / UHF : E21 to E69 / CATV : S01 to S03, S1 to S41	
I	UHF : B21 to B68 / CATV : S01 to S03, S1 to S41	
D/K	VHF : C1 to C12, R1 to R12 / UHF : C13 to C57, R21 to R60 / CATV : S01 to S03, S1 to S41, Z1 to Z39	
M	VHF : A2 to A13 / UHF : A14 to A79/ CATV : A-8 to A-2, A to W+4, W+6 to W+84	
(Antenna)	75-ohm external terminal	
Audio output (Speaker)	7.5W + 7.5W	
3D Woofer	15W	
Number of terminal		
(Video)	Input: 4 Output: 1	Phono jacks; 1 Vp-p, 75 ohms
(Audio)	Input: 6 Output: 1	Phono jacks; 500 mVrms
(S Video)	Input: 2	Y: 1 Vp-p, 75 ohms, unbalanced, sync negative C: 0.286 Vp-p, 75 ohms
(Component Video)	Input: 2	Phono jacks Y: 1 Vp-p, 75 ohms, sync negative P_B/C_B: 0.7 Vp-p, 75 ohms P_R/C_R: 0.7 Vp-p, 75 ohms Audio: 500 mVrms
(G/B/R/HD/VD Video)	Input: 1	Phono jacks G: 0.7 Vp-p, 75 ohms, B: 0.7 Vp-p, 75 ohms, R: 0.7 Vp-p, 75 ohms HD: 0.7 Vp-p, 75 ohms, VD: 0.7 Vp-p, 75 ohms
(Center Speaker)	Input:1	120 W max., 8 ohms
(Headphones)	Output: 1	Stereo minijack
Picture tube		36in.
Tube size (cm) (measured diagonally)		93
Screen size (cm) (measured diagonally)		86
Dimensions (w/h/d, mm)		994 x 652 x 605
Mass (kg)		88

Design and specifications are subject to change without notice.

(CAUTION)

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESECOMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFEOPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

TABLE OF CONTENTS

SECTION 1

SELF DIAGNOSIS FUNCTION

1. Summary of Self-Diagnosis Function

- This device includes a self-diagnosis function.
- In case of abnormalities, the ⏻ indicator automatically blinks. It is possible to predict the abnormality location by the number of blinks. The Instruction Manual describes blinking of the ⏻ indicator.
- If the symptom is not reproduced sometimes in case of a malfunction, there is recording of whether a malfunction was generated or not. Operate the remote command to confirm the matter on the screen and to predict the location of the abnormality.

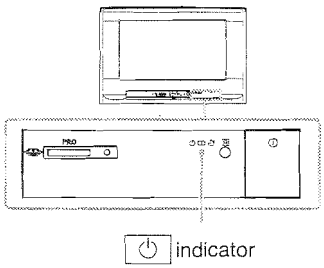
2. Diagnosis Items and Prediction of Malfunction Location

- When a malfunction occurs the ⏻ indicator only blinks for one of the following diagnosis items. In case of two or more malfunctions, the item which first occurred blinks. If the malfunctions occurred simultaneously, the item with the lower blink count blinks first.
- The screen display displays the results regarding all the diagnosis items listed below. The display " 0 " means that no malfunctions occurred.

Diagnosis Item	Number of times ⏻ indicator blinks	Probable Cause Location	Detected Symptoms
+B overcurrent (OCP)	2 times	T8001 (FBT) Rare short-circuit etc. (D board) Q5001 (H-OUT), Q5006 (D board)	Has entered standby mode. (Relay is off when the power turns on.)
+B overvoltage (OVP)	3 times	+B load open (D board) R6570 Open PH8003, control system malfunction L2603 Open	Has entered standby mode.
Vertical deflection stopped (V-STOP)	4 times	IC5101 (V. OUT) (D board) IC401 (CXA2170Q) (MJ board)	Has entered standby mode.
IK error (AKB ERROR)	5 times	VIDEO OUT IC malfunction IC9001, 9002, 9003 (C board) IC401 (CXA2170Q) (MJ board)	Has not entered standby mode.
Low-B error	6 times	Sub power supply system load shorted etc. (A board)	Has entered standby mode.
Horizontal deflection stopped (H-STOP)	7 times	IC401 (CXA2150Q) (MJ board) Q5404 (S-COR-OUT), Q5001 (H-OUT), Q5006	Has entered standby mode.
Audio Protector	8 times	IC2000, 2001 malfunction (A board)	Has entered standby mode.
High-Voltage stopped (HV-PROT)	10 times	T8001 (FBT) rare short-circuit (D board) IC8002, Q8013, 8014, R8051 (D board)	Has entered standby mode.
Zero Cross DET error	9 times	RY6000 Power relay melting down (A board)	Has not entered standby mode.

3. Blinking count display of ⏻ indicator

< FRONT PANEL >

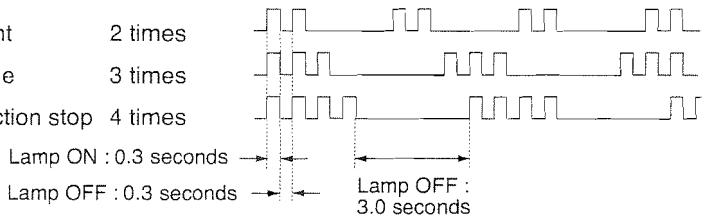


* One blink is not used for self-diagnosis.

•EXAMPLE

<Diagnosis Items> <Number of Blinks>

- +B overcurrent 2 times
- +B overvoltage 3 times
- Vertical deflection stop 4 times



Release of ⏻ indicator blinking.

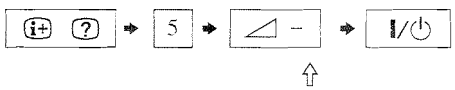
- The STAND BY indicator blinking display is released by turning OFF the power switch on the TV main unit or removing the plug from the power.
  But in the RLY ERR (10 times blinking), do not release by tuning power off.
  For details, refer to the item 1-6.

4. Self-diagnosis screen displays

- In cases of malfunctions where it is not possible to determine the symptom such as when the power goes off occasionally or when the screen disappears occasionally, there is a screen display on whether the malfunction occurred or not in the past (and whether the detection circuit operated or not) in order to allow confirmation.

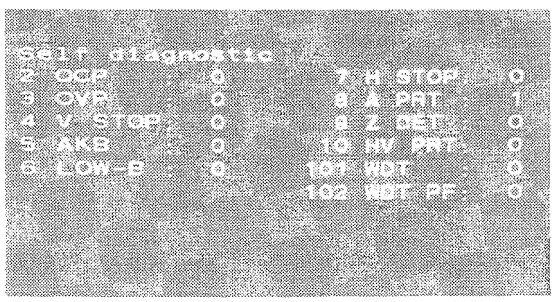
<Screen Display Method>

- Quickly press the remote command button in the following order from the standby state.



Be aware that this differs from the method of entering the service mode (+).

Self-diagnosis screen display



- "G" : OK, "NG" : DETECTS ONCE OR MORE
- THE 10 DIGITS OF NUMERALS ARE FOR CHECKING, NO RELATION TO DIAGNOSIS.
- 101 : NO LED BLINKING FOR WDT.
  "0" : NUMBER OF DETECTION.

5. After the self-diagnosis operation

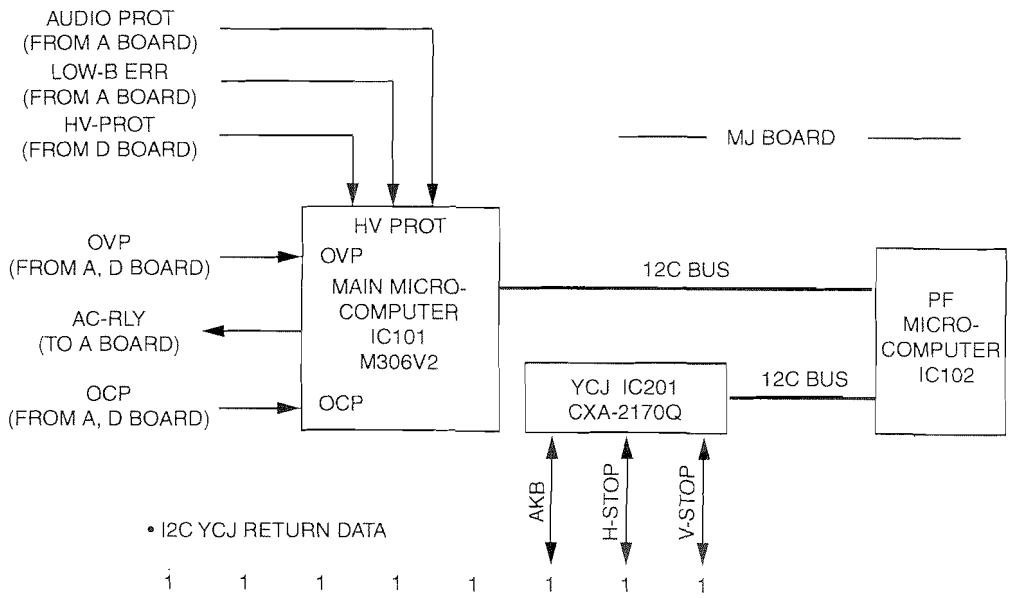
- The results display is not automatically cleared. In case of repairs and after repairs, check the self-diagnosis screen and be sure to return the results display to " 0 ".
- If the results display is not returned to " 0 " it will not be possible to judge a new malfunction after completing repairs.

<Method of Clearing Results Display>

1. Power off (Set to the standby mode)
2. [i+] [?] ➡ [5] ➡ [◿ +] ➡ [I/⏻] (Service Mode)
3. Channel [8] ➡ [12] (Test reset = Factory preset condition)

<Method of Ending Self Diagnosis Screen>

- When ending the self-diagnosis screen completely, turn the power switch OFF on the remote commander or the main unit.

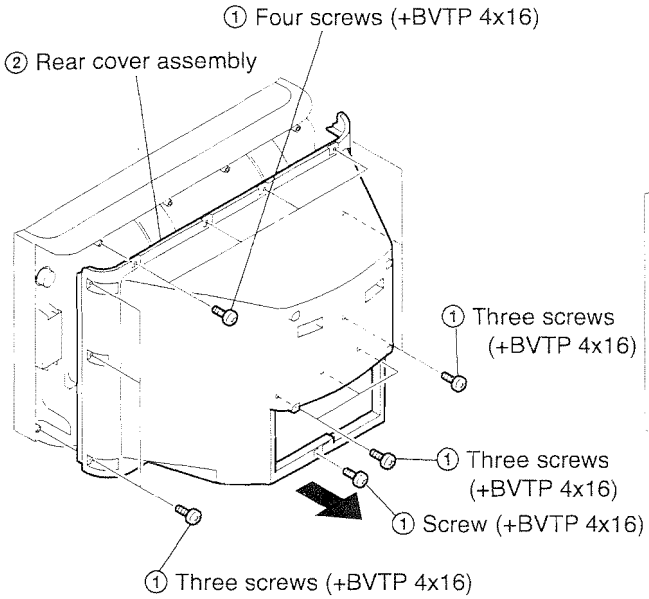


LED BLINKING TIMES	SYMPTOM
2	+B OCP
3	+B OVP
4	V-STOP
5	AKB
6	LOW-B ERROR
7	H-STOP
8	AUDIO PROT
9	Z DET
10	HV PRT

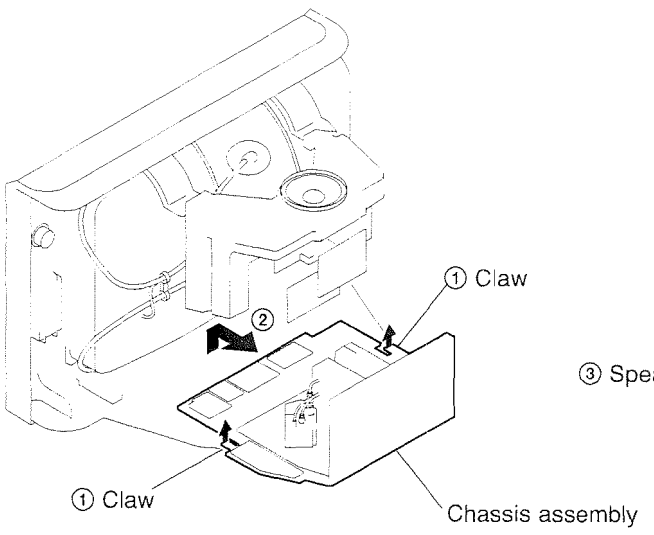
+B OCP	If the IC701 Pin 44 (+B OCP DET) is high 2 seconds, turn AC-RELAY low (P-OFF) and make STANDBY LED blinks twice.
+B OVP	If the IC701 Pin 45 (+B OVP DET) is high 2 seconds, turn AC-RELAY low (P-OFF) and make STANDBY LED blinks three times.
V-STOP	If the return data Bit0 (VNG) from CXA2150Q is "1" while 2 seconds, turn AC-RELAY low (P-OFF) and make STANDBY LED blinks four times.
AKB	If the return data Bit2 (IKREF) from CXA2150Q is "0" and there is no change for 20 seconds, make STANDBY LED blinks five times. At this time, AC-RELAY continues to high.
LOW-B ERROR	If the IC701 Pin 69 (AC-RELAY) is high and the Pin 43 (LOW-B ERROR DET) is low while 5 seconds, turn AC-RELAY low (P-OFF) and make STANDBY LED blinks six times.
H-STOP	If the return data Bit1 (HNG) from CXA2170 is "1" while 2 seconds, turn AC-RELAY low (P-OFF) and make STANDBY LED blinks seven times.
W. D. T.	Observes the watch dock timer (BUS COMMUNICATION ERROR DET) bus communication. If errors are detected, counts up and reform the bus communication and displays the number of time. (No LED blinking).
AUDIO PROT	In case of Pin 85 of IC101 (AUDIO PROT DET) turns high 60msec twice at a time, makes AC-RELAY turns low (Power off) and STANDBY-LED blinks 8 times.
HV-PROT	In case of Pin 33 of IC101 (HV-PROT DET) turns high 10 seconds continuously in normal operation or in BS fixed Stand-by, makes AC-RELAY turns low (Power off) and STANDBY-LED blinks 10 times.
Z DET	There are two causes for Zero Cross Error. Normally the pulse doubled AC power supply frequeny is fed to Pin 8 of IC101. But in case of the abnormal pulse is fed, it makes AC-RELAY turns low (Power off) and STANDBY-LED blinks 9 times. In this case, "1" is not displayed in '9. Z DET' column in the self-diagnosis mode.

SECTION 2
DISASSEMBLY

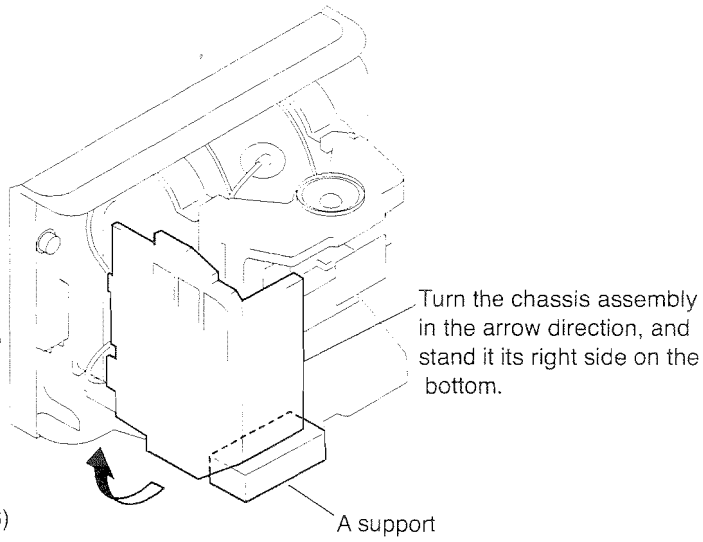
2-1. REAR COVER ASSEMBLY



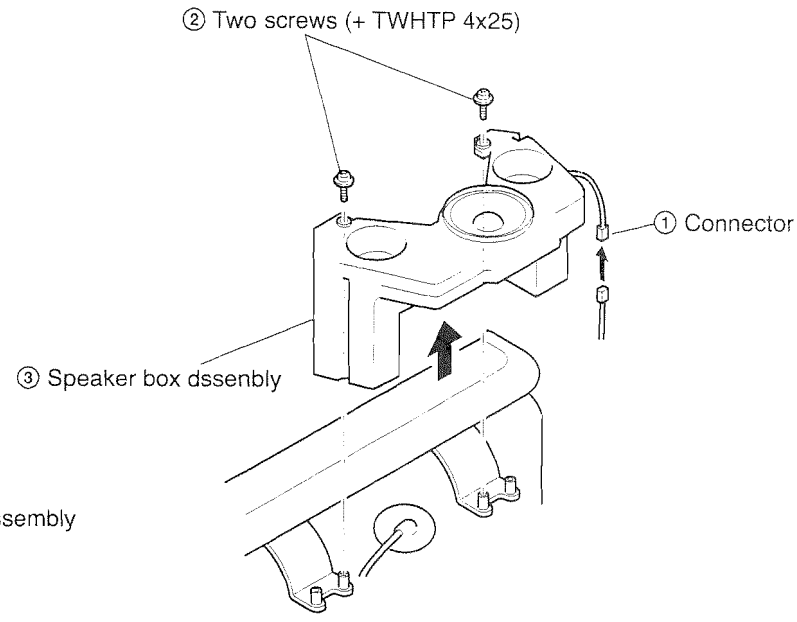
2-2. CHASSIS ASSEMBLY



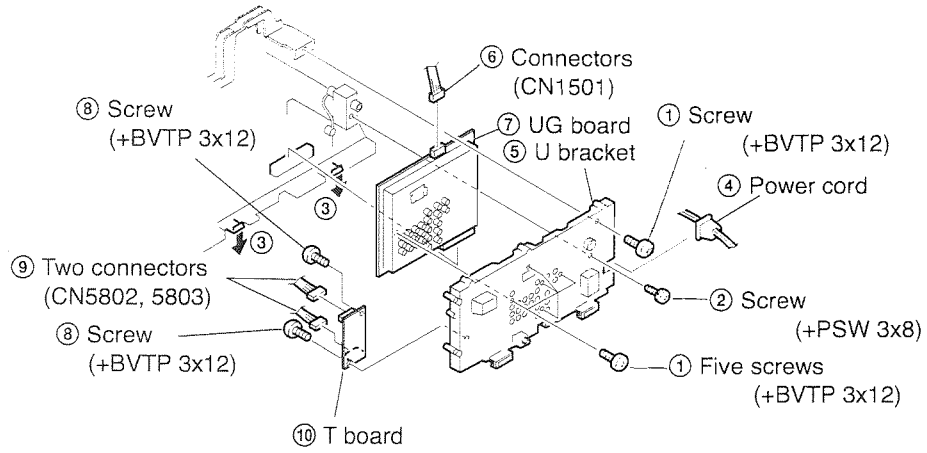
2-3. SERVICE POSITION



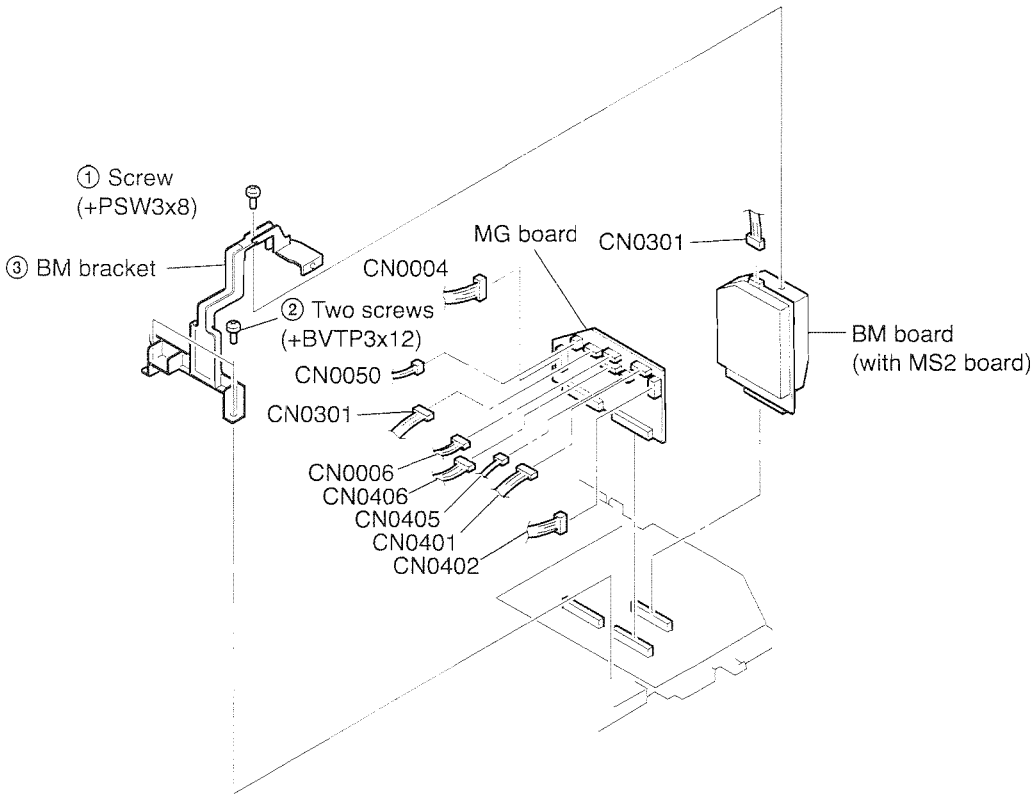
2-4. SPEAKER BOX ASSEMBLY



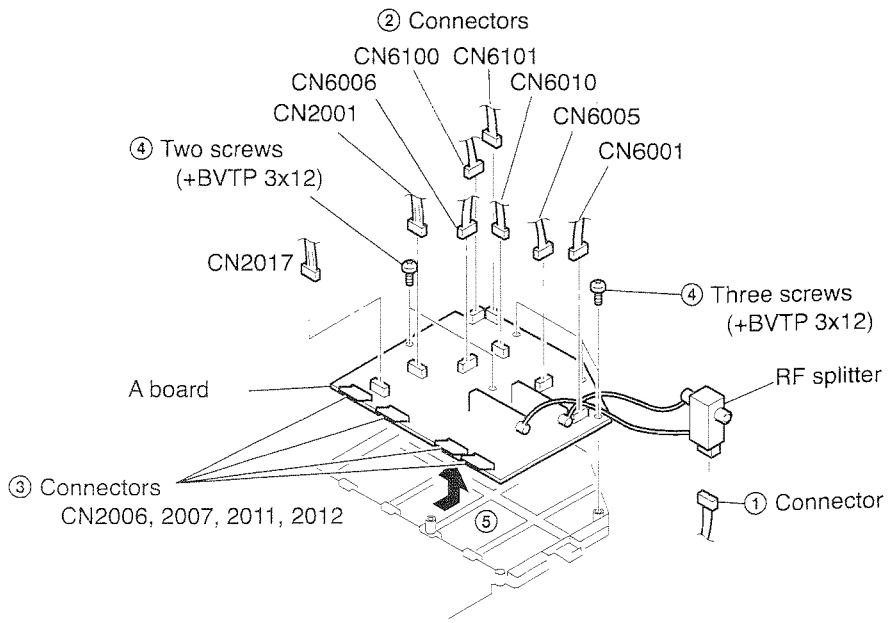
2-5. T AND UG BOARDS



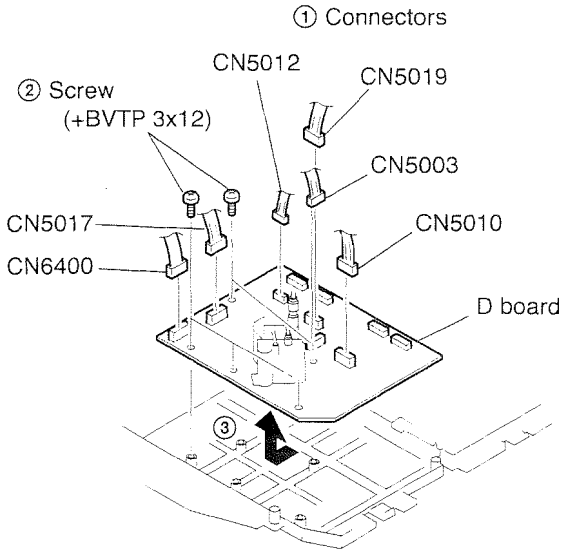
2-6. BM AND MG BOARDS



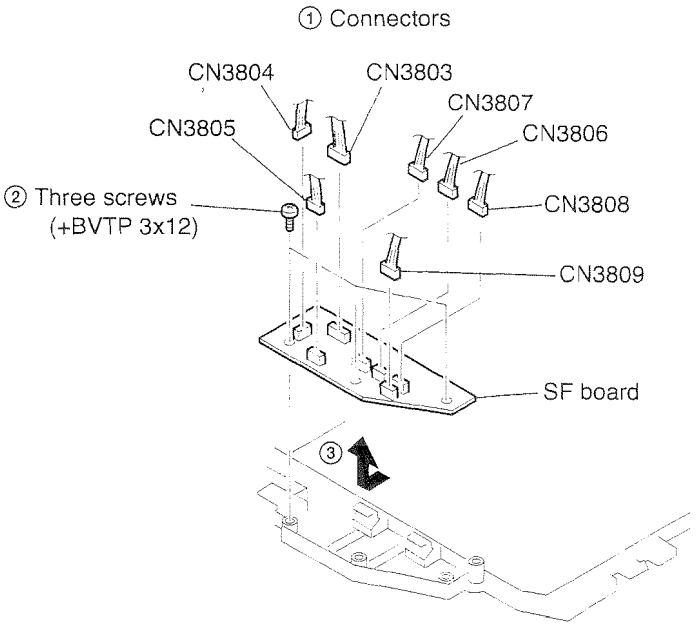
2-7. A BOARD



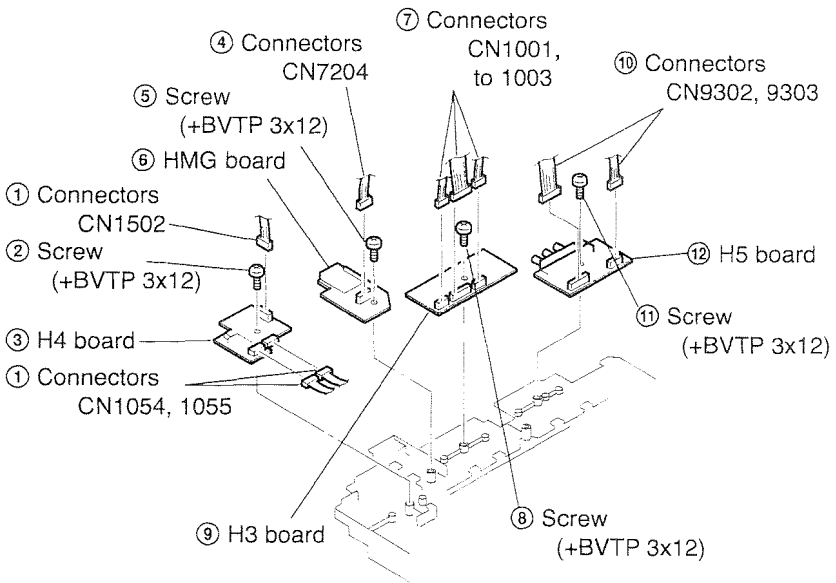
2-8. D BOARD



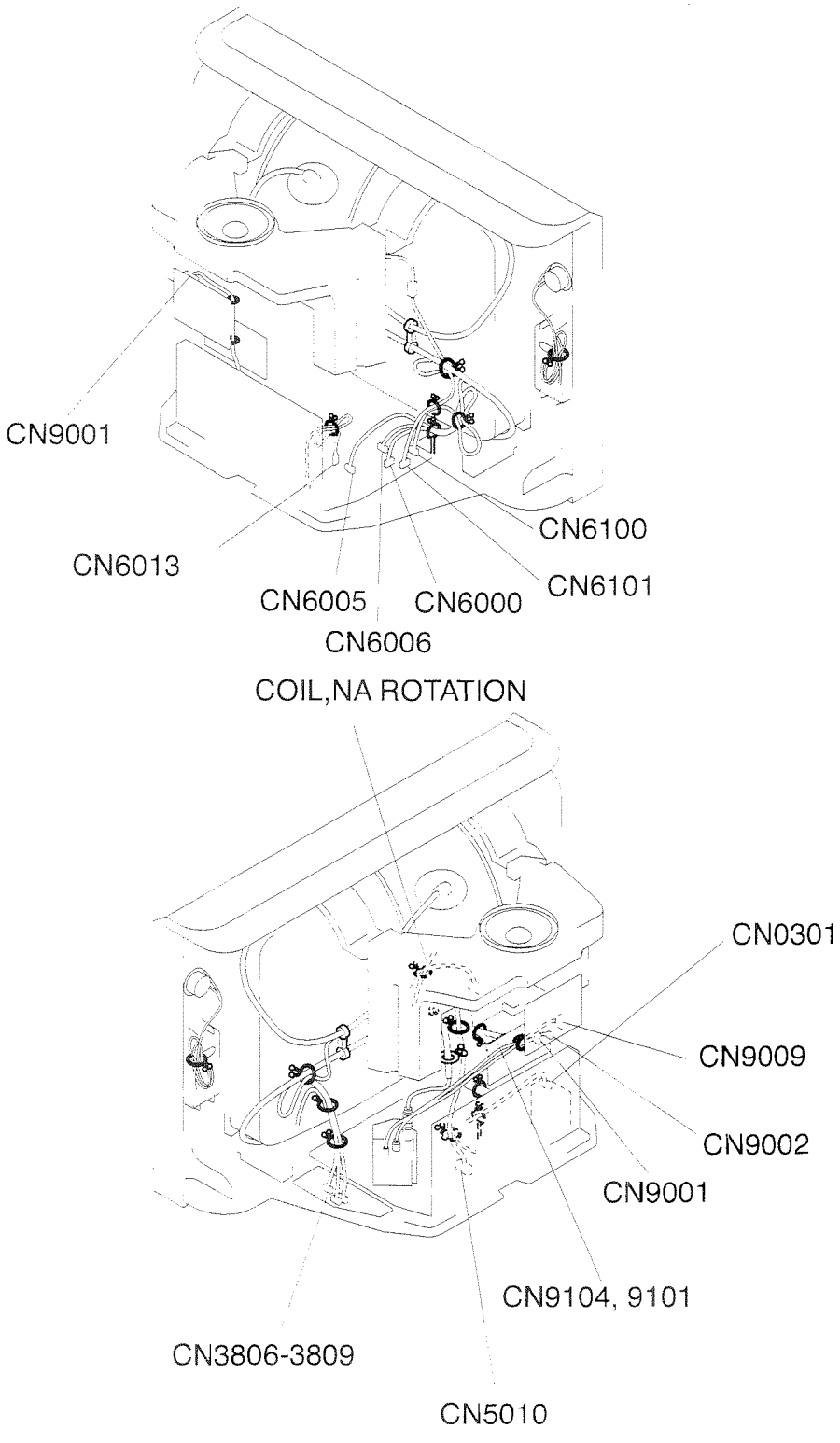
2-9. SF BOARD



2-10. H3, H4, H5 AND HMG BOARDS



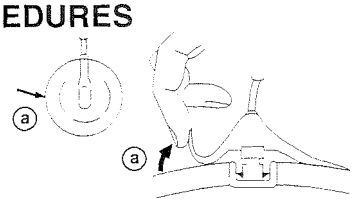
2-11. HARNESS ARRANGEMENT



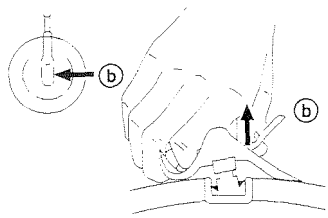
2-12. REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

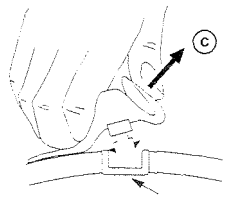
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



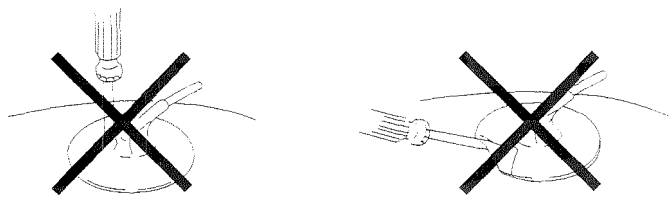
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.



③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.

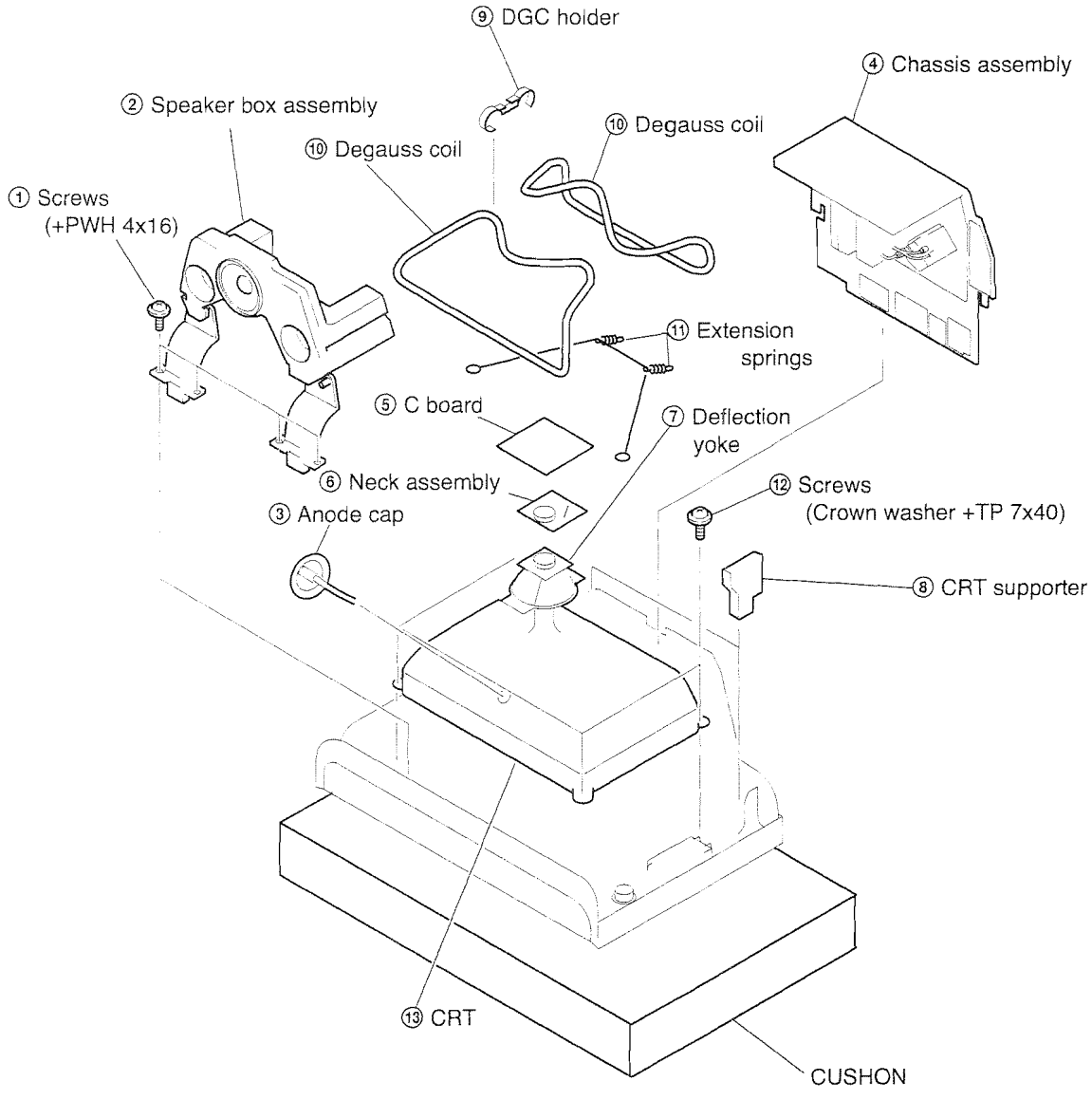
• HOW TO HANDLE AN ANODE-CAP

① Do not damage the surface of anode-caps with sharp shaped objects.
② Do not press the rubber too hard so as not to damage the inside of anode-cap.
A metal fitting called the shatter-hook terminal is built into the rubber.
③ Do not turn the foot of rubber over too hard.
The shatter-hook terminal will stick out or damage the rubber.



2-13. CRT

NOTE: After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.



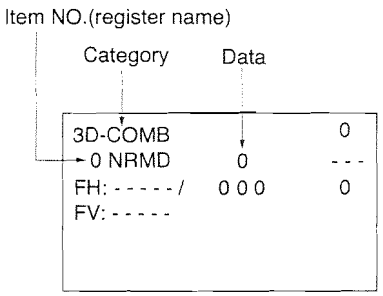
SECTION 3
SERVICE MODE

3-1. METHOD OF SETTING THE SERVICE ADJUSTMENT MODE

SERVICE MODE PROCEDURE

1. Standby mode. (Power off)
2. [i+] [?] → [5] → [◿ (+)] → [I/⏻] on the Remote Commander.
   (Press each button within a second.)

3-2. SERVICE MODE ADJUSTMENT



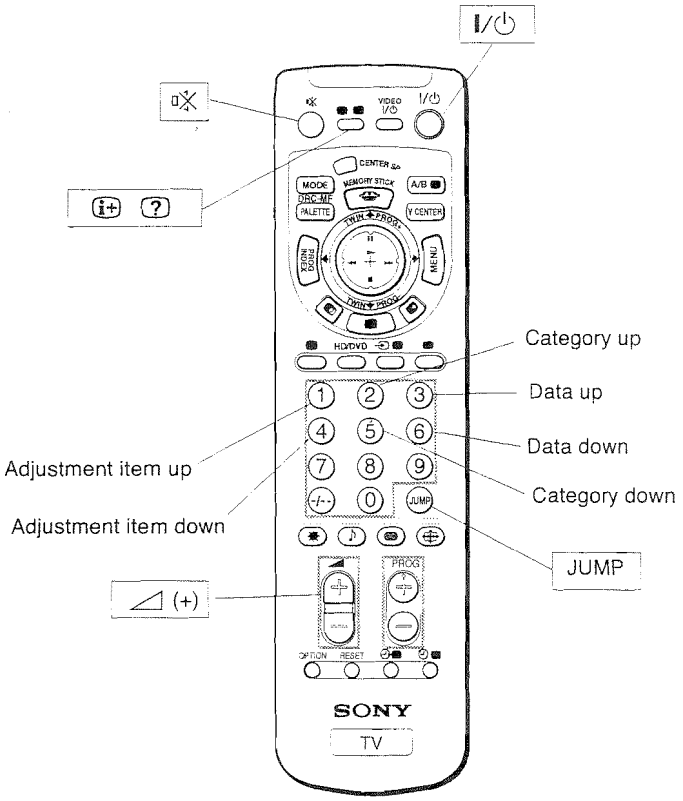
3. The SCREEN displays the item being adjusted.
4. Press [1] or [4] on the Remote Commander to select the adjustment item.
5. Press [3] or [6] on the Remote Commander to change the data.
6. Press [2] or [5] on the Remote Commander to select the category.
7. If you want to recover the latest values press [10] then [JUMP] to read the memory.
8. Press [MUTING] then [JUMP] to write into memory.
9. Turn power off.

Note: Press [8] then [JUMP] on the Remote Commander to initialize or turn set off and on to exit.

3-3. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, turn power off with the remote commander.
2. Turn power on and set to Service Mode.
3. Call the adjusted items again and confirm they were adjusted.

3-4. ADJUSTING BUTTONS AND INDICATOR



RM-1007

3-5.SERVICE MODE LIST

LUMA

Functionality		Range	Standards
No.	Name		
0	BROF	0-7	*1
1	GAMM	0-7	*1
2	GAMS	0-15	*2
3	RGAM	0-15	*2
4	GGAM	0-15	*2
5	BGAM	0-15	*2
6	BLK	0-7	*1
7	APED	0-3	*3
8	DCTR	0-15	*3
9	ABLM	0-3	*3

Standards *1

RF / CV / YC / COMP

No.	Name	Dynamic													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	BROF	0	0	0	0	0	0	4	4	1	1	1	1	3	3
1	GAMM	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	BLK	6	6	6	6	6	6	7	7	7	7	7	7	7	7

No.	Name	Standard													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	BROF	5	5	5	3	3	3	4	4	4	4	1	1	1	1
1	GAMM	3	3	3	3	3	3	4	4	4	4	4	4	4	4
6	BLK	4	4	4	4	4	4	4	4	4	4	5	5	5	5

No.	Name	Hi-fine													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	BROF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	GAMM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	BLK	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No.	Name	Personal													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	BROF	5	5	5	3	3	3	4	4	4	4	1	1	1	1
1	GAMM	3	3	3	3	3	3	4	4	4	4	4	4	4	4
6	BLK	4	4	4	4	4	4	4	4	4	4	5	5	5	5

RGB / MS / Twin

No.	Name	Dynamic													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	BROF	4	4	1	1	1	1	3	3	1	1	1	1	1	0
1	GAMM	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	BLK	7	7	7	7	7	7	7	7	5	5	5	5	5	5

No.	Name	Standard													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	BROF	4	4	4	4	1	1	1	1	1	1	1	1	1	1
1	GAMM	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	BLK	4	4	4	4	5	5	5	5	5	5	5	5	5	5

No.	Name	Hi-Fine													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	BROF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	GAMM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	BLK	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No.	Name	Personal													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	BROF	4	4	4	4	1	1	1	1	1	1	1	1	1	1
1	GAMM	4	4	4	4	4	4	4	4	4	4	4	4	4	4
6	BLK	4	4	4	4	5	5	5	5	5	5	5	5	5	5

Standards *2

No.	Name	GAMMA0	GAMMA1	GAMMA2	GAMMA3	GAMMA4	GAMMA5	GAMMA6	GAMMA7
2	GAMS	13	13	13	13	13	13	13	13
3	RGAM	0	4	5	6	7	8	9	10
4	GGAM	0	4	5	6	7	8	9	10
5	BGAM	0	4	5	6	7	8	9	10

Standards *3

No.	Name	BLK0	BLK1	BLK2	BLK3	BLK4	BLK5	BLK6	BLK7
7	APED	0	1	3	3	2	1	3	2
8	DCTR	0	5	8	15	10	5	10	10
9	ABLM	0	0	0	1	0	0	1	1

COLOR

Functionality		Range	Standards
No.	Name		
0	CLOF	0-7	*1
1	HUOF	0-7	*1
2	RDRV	0-63	41
3	GDRV	0-63	30
4	BDRV	0-63	35
5	RCUT	0-63	41
6	GCUT	0-63	31
7	BCUT	0-63	24
8	SBRT	0-63	25
9	DCOL	0-3	1
10	WBSW	0-1	*2
11	SBOF	0-7	*2
12	RDOF	0-63	*2
13	GDOF	0-63	*2
14	BDOF	0-63	*2
15	RCOF	0-63	*2
16	GCOF	0-63	*2
17	BCOF	0-63	*2
18	AXIS	0-3	*1
19	R-YR	0-15	*3
20	R-YB	0-15	*3
21	G-YR	0-15	*3
22	G-YB	0-15	*3

Standards *1

RF / CV / YC / COMP

No.	Name	Dynamic													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	CLOF	6	6	6	5	5	5	6	6	6	6	5	5	5	5
1	HUOF	3	3	1	3	3	1	3	2	3	3	3	3	3	3
18	AXIS	3	3	1	3	3	1	3	1	3	1	3	1	3	1

No.	Name	Standard													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	CLOF	1	1	3	1	1	3	1	3	4	4	4	4	4	4
1	HUOF	3	3	1	3	3	1	3	2	3	3	3	3	3	3
18	AXIS	3	3	1	3	3	1	3	1	3	1	3	1	3	1

No.	Name	Hi-Fine													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	CLOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	HUOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	AXIS	3	3	1	3	3	1	3	1	3	1	3	1	3	1

No.	Name	Personal													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	CLOF	1	1	3	1	1	3	1	3	4	4	4	4	4	4
1	HUOF	3	3	1	3	3	1	3	2	3	3	3	3	3	3
18	AXIS	3	3	1	3	3	1	3	1	3	1	3	1	3	1

RGB / MS / Twin

No.	Name	Dynamic													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	CLOF	6	6	6	6	5	5	5	5	7	7	7	7	7	6
1	HUOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	AXIS	3	1	3	1	3	1	3	1	1	1	1	1	1	1

No.	Name	Standard													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	CLOF	1	1	4	4	4	4	4	4	4	4	4	4	4	4
1	HUOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	AXIS	3	1	3	1	3	1	3	1	1	1	1	1	1	1

No.	Name	Hi-Fine													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	CLOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1	HUOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	AXIS	3	1	3	1	3	1	3	1	1	1	1	1	1	1

No.	Name	Personal													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	CLOF	1	1	4	4	4	4	4	4	4	4	4	4	4	4
1	HUOF	3	3	3	3	3	3	3	3	3	3	3	3	3	3
18	AXIS	3	1	3	1	3	1	3	1	1	1	1	1	1	1

Standards *2

No.	Name	COOL	WARM	MIDCOOL
10	WBSW	0	1	0
11	SBOF	3	3	3
12	RDOF	31	31	31
13	GDOF	31	34	31
14	BDOF	34	43	31
15	RCOF	31	19	31
16	GCOF	35	34	31
17	BCOF	38	63	31

Standards *3

No.	Name	AXIS0	AXIS1	AXIS2	AXIS3
19	R-YR	8	14	9	9
20	R-YB	9	15	15	9
21	G-YR	9	8	9	9
22	G-YB	6	4	7	7

CLTY

Functionality No.	Functionality Name	Range	Standards
0	SYSM	0-3	*1
1	UVML	0-3	*1
2	VMCR	0-3	*1
3	VMLM	0-3	*1
4	VMF0	0-3	*1
5	VMDL	0-15	*1
6	SHOF	0-3	*1
7	SHF0	0-1	*1
8	PROV	0-3	*1
9	F1LV	0-3	*1
10	LTLV	0-3	*1
11	LTMD	0-1	*1
12	CTLV	0-3	*1
13	MIDE	0-63	*1
14	VMLV	0-15	*2

Standards *1

No.	Name	Dynamic													
		RF			CV/YC			Comp							
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	SYSM	1	1	1	1	1	1	2	2	2	2	3	3	3	3
1	UVML	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	VMCR	0	0	0	2	2	2	0	0	0	0	0	0	0	0
3	VMLM	3	3	3	3	3	3	0	0	0	0	0	0	0	0
4	VMF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	8	8	8	3	3	3	3	3	5	5	5	5	10	10
6	SHOF	3	3	3	3	3	3	0	0	0	0	1	1	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	0	0	0	0	0	0	2	2	3	3	0	0
10	LTLV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	3	3	3	3	3	3	0	0	0	0	0	0	0	0
13	MIDE	3	3	3	7	7	7	11	11	27	27	19	19	19	19

No.	Name	Dynamic													
		RGB			M					S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	SYSM	2	2	2	2	3	3	3	3	3	3	3	3	3	2
1	UVML	3	3	3	3	3	3	3	3	2	2	2	2	2	3
2	VMCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	VMLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	VMF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	3	3	5	5	5	5	10	10	10	10	10	10	10	5
6	SHOF	0	0	0	0	1	1	0	0	0	0	0	0	0	1
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	2	2	3	3	0	0	0	0	0	0	0	0
10	LTLV	3	3	3	3	3	3	3	3	0	0	0	0	0	3
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	MIDE	11	11	27	27	19	19	19	19	23	23	23	23	23	27

No.	Name	Standard													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	SYSM	1	1	1	1	1	1	2	2	2	2	3	3	3	3
1	UVML	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	VMCR	0	0	0	2	2	2	0	0	0	0	0	0	0	0
3	VMLM	3	3	3	3	3	3	0	0	0	0	0	0	0	0
4	VMF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	8	8	8	3	3	3	3	3	5	5	5	5	10	10
6	SHOF	1	1	1	1	1	1	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	0	0	0	0	0	0	1	1	0	0	0	0
10	LTLV	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	1	1	1	1	1	1	0	0	0	0	0	0	0	0
13	MIDE	2	2	2	6	6	6	10	10	26	26	18	18	18	18

No.	Name	Standard													
		RGB			M					S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	SYSM	2	2	2	2	3	3	3	3	3	3	3	3	3	2
1	UVML	3	3	3	3	3	3	3	3	2	2	2	2	2	3
2	VMCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	VMLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	VMF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	3	3	5	5	5	5	10	10	10	10	10	10	10	5
6	SHOF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10	LTLV	0	0	0	0	0	0	1	1	0	0	0	0	0	0
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	MIDE	10	10	26	26	18	18	18	18	22	22	22	22	22	26

No.	Name	Hi-Fine													
		RF			CV/YC			C		omp					
		480_60I	480_60I	576_50I	480_60I	480_60I	576_50I	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
		NTSC	PAL	PAL	NTSC	PAL	PAL								
0	SYSM	1	1	1	1	1	1	2	2	2	2	3	3	3	3
1	UVML	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	VMCR	0	0	0	2	2	2	0	0	0	0	0	0	0	0
3	VMLM	3	3	3	3	3	3	0	0	0	0	0	0	0	0
4	VMF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	8	8	8	3	3	3	3	3	5	5	5	5	10	10
6	SHOF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	LTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	MIDE	0	0	0	4	4	4	8	8	24	24	16	16	16	16

No.	Name	Hi-Fine													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	SYSM	2	2	2	2	3	3	3	3	3	3	3	3	3	2
1	UVML	3	3	3	3	3	3	3	3	2	2	2	2	2	3
2	VMCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	VMLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	VMF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	3	3	5	5	5	5	10	10	10	10	10	10	10	5
6	SHOF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	LTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	MIDE	8	8	24	24	16	16	16	16	20	20	20	20	20	24

No.	Name	Personal													
		RF			CV/YC			C		omp					
		480_60I	480_60I	576_50I	480_60I	480_60I	576_50I	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
		NTSC	PAL	PAL	NTSC	PAL	PAL								
0	SYSM	1	1	1	1	1	1	2	2	2	2	3	3	3	3
1	UVML	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	VMCR	0	0	0	2	2	2	0	0	0	0	0	0	0	0
3	VMLM	3	3	3	3	3	3	0	0	0	0	0	0	0	0
4	VMF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	8	8	8	3	3	3	3	3	5	5	5	5	10	10
6	SHOF	1	1	1	1	1	1	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	0	0	0	0	0	0	1	1	0	0	0	0
10	LTLV	0	0	0	0	0	0	0	0	0	0	0	0	1	1
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	1	1	1	1	1	1	0	0	0	0	0	0	0	0
13	MIDE	2	2	2	6	6	6	10	10	26	26	18	18	18	18

No.	Name	Personal													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie	All Format
0	SYSM	2	2	2	2	3	3	3	3	3	3	3	3	3	2
1	UVML	3	3	3	3	3	3	3	3	2	2	2	2	2	3
2	VMCR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	VMLM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	VMF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	VMDL	3	3	5	5	5	5	10	10	10	10	10	10	10	5
6	SHOF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	F1LV	0	0	1	1	0	0	0	0	0	0	0	0	0	0
10	LTLV	0	0	0	0	0	0	1	1	0	0	0	0	0	0
11	LTMD	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	CTLV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	MIDE	10	10	26	26	18	18	18	18	22	22	22	22	22	26

Standards *2

No.	Name	Dynamic			S tandard			Hi-Fine			P ersonal		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
14	VMLV	15	10	15	6	5	10	4	5	5	4	5	10

MIDE

Functionality No.	Functionality Name	Range	Standards
0	POP	0-63	*1
1	MHLY	0-3	*1
2	MHLC	0-3	*1
3	MVLY	0-3	*1
4	MVLC	0-3	*1
5	MHYR	0-3	*1
6	MHYL	0-3	*1
7	MHYE	0-7	*1
8	MHYO	0-1	*1
9	MHCR	0-3	*1
10	MHCL	0-3	*1
11	MHCE	0-7	*1
12	MHCO	0-1	*1
13	MVYR	0-3	*1
14	MVYL	0-3	*1
15	MVYE	0-7	*1
16	MVCR	0-3	*1
17	MVCL	0-3	*1
18	MVCE	0-7	*1

Standards *1

No.	Name	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	MHLY	3	3	3	3	1	1	1	1	1	1	1	1	0	1	2	1
2	MHLC	3	3	3	3	3	3	3	3	3	3	3	3	0	3	3	3
3	MVLY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	MVLC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	MHYR	0	0	0	1	0	0	0	1	0	0	0	1	1	0	1	1
6	MHYL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	MHYE	2	2	2	7	0	0	2	7	0	0	2	7	4	6	6	6
8	MHYO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	MHCR	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
10	MHCL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	MHCE	0	2	3	5	0	0	0	5	0	0	0	0	7	7	7	7
12	MHCO	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
13	MVYR	0	0	0	2	1	1	1	2	1	1	1	1	1	1	1	1
14	MVYL	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
15	MVYE	0	0	2	5	0	2	3	5	0	2	3	4	0	0	3	4
16	MVCR	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
17	MVCL	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
18	MVCE	0	0	0	3	0	0	0	3	0	0	0	0	0	0	2	3

No.	Name	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	MHLY	2	2	2	2	0	0	0	0	1	1	1	1	1	1	1	1
2	MHLC	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3
3	MVLY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	MVLC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	MHYR	0	0	1	1	0	0	0	0	1	1	1	1	1	1	1	1
6	MHYL	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1
7	MHYE	2	2	2	4	0	0	0	0	0	2	4	7	0	0	2	5
8	MHYO	0	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1
9	MHCR	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1
10	MHCL	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1
11	MHCE	0	2	2	4	0	0	0	0	0	0	2	5	0	0	2	5
12	MHCO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	MVYR	2	2	0	2	1	1	1	1	1	1	1	2	1	1	1	1
14	MVYL	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
15	MVYE	0	1	2	4	0	0	1	2	0	2	2	4	0	0	0	0
16	MVCR	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1
17	MVCL	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0
18	MVCE	0	0	2	3	0	0	1	2	0	1	2	3	0	0	1	3

No.	Name	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	MHLY	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0
2	MHLC	3	3	3	3	0	0	0	0	3	3	0	0	0	0	0	0
3	MVLY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	MVLC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	MHYR	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0
6	MHYL	1	1	2	2	1	1	1	1	1	1	1	1	0	0	0	0
7	MHYE	4	7	2	7	2	4	7	7	2	5	7	7	0	0	0	0
8	MHYO	1	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0
9	MHCR	0	0	0	0	0	0	1	1	2	2	0	1	0	0	0	0
10	MHCL	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
11	MHCE	0	0	0	0	0	0	4	4	0	0	4	4	0	0	0	0
12	MHCO	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
13	MVYR	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0
14	MVYL	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0	0
15	MVYE	0	3	7	5	0	0	4	4	0	3	4	4	0	0	0	0
16	MVCR	0	0	0	0	0	0	1	1	2	2	1	1	0	0	0	0
17	MVCL	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
18	MVCE	0	0	0	0	0	0	4	4	0	0	4	4	0	0	0	0

No.	Name	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
1	MHLY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	MHLC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	MVLY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	MVLC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	MHYR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	MHYL	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
7	MHYE	0	2	4	7	7	0	0	0	0	0	0	0	0	0	0	0
8	MHYO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	MHCR	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
10	MHCL	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
11	MHCE	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
12	MHCO	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
13	MVYR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	MVYL	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
15	MVYE	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0
16	MVCR	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
17	MVCL	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
18	MVCE	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0

CCPM

Functionality		Range	Standards
No.	Name		
0	REFC	0-3	1
1	YLEV	0-255	*1
2	CLEV	0-255	*1
3	SHUE	0-15	*1
4	SHUO	0-7	3
5	YCDL	0-15	*2
6	FUP2	0-3	*3
7	SHF0	0-1	*3
8	PROV	0-7	*3
9	SHPC	0-3	*3
10	SSHP	0-15	*3
11	CBPF	0-3	*4
12	CBPA	0-3	*4
13	CEQ	0-3	*4
14	SFIL	0-1	*5
15	SSTC	0-1	*5
16	AFCG	0-3	*10
17	AFLG	0-3	*6
18	AFCM	0-1	*6
19	AFLC	0-1	*6
20	AFHC	0-1	*6
21	CDM1	0-3	*6
22	CDM2	0-1	*6
23	CDM3	0-1	*6
24	CLPP	0-63	28
25	BGPS	0-15	*7
26	APED	0-3	*8
27	DCTR	0-3	*8
28	YTRP	0-1	*9
29	CTRP	0-1	*9
30	STUP	0-15	*10
31	VINT	0-15	*10
32	CLAD	0-1	*10
33	SSAD	0-1	*10
34	CLPG	0-3	*10
35	HSSL	0-3	*10
36	VSSL	0-3	*10
37	STTC	0-3	*10
38	VAFC	0-1	*10
39	SLPF	0-1	*11
40	1774	0-15	0
41	NCOM	0-1	*12
42	SDLP	0-1	*13
43	ROM2	0-1	*13
44	VECR	0-1	*14
45	VECL	0-1	*14
46	VECN	0-3	*14
47	VEGA	0-7	*14
48	BPT1	0-255	*15
49	BPT2	0-255	*15
50	KLEV	0-3	*16
51	APCG	0-3	*16
52	BLKM	0-3	1
53	HSPO	0-15	7
54	VBIS	0-31	5
55	ID1W	0-1	1
56	30H	0-255	0
57	3410	0-3	0
58	4CNT	0-1	1
59	SDOF	0-1	0
60	APAT	0-3	2
61	APHL	0-3	2
62	APAR	0-3	1
63	APHY	0-3	0
64	DTTC	0-3	2
65	DTLT	0-3	2
66	E656	0-1	0
67	DCLP	0-1	0
68	MVSW	0-3	*10
69	MVCT	0-15	7

*Available for MS mode only.

Standards *1

No.	Name	RF		CV		YC		Comp		MS
		60Hz	50Hz	60Hz	50Hz	50Hz	60Hz	50Hz	60Hz	
1	YLEV	169	171	184	188	187	187	185	185	115
2	CLEV	105	102	102	103	105	105	194	194	113
3	SHUE	1	7	6	7	6	7	7	7	7

Standards *2

No.	Name	RF			CV		YC		Comp	MS
		NTSC	PAL_DKI	PAL_OTHER	NTSC	PAL	NTSC	PAL		
5	YCDL	8	5	7	8	8	7	7	8	8

Standards *3

No.	Name	Dynamic													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	SSHP	10	10	10	9	9	9	10	10	10	10	10	10	10	10

No.	Name	Dynamic													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie(Hi-Fine)	All Format
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	SSHP	10	10	10	10	10	10	10	10	10	10	10	10	10	10

No.	Name	Standard													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	2	2	2	2	2	2	0	0
10	SSHP	8	8	8	7	7	7	8	8	8	8	8	8	7	7

No.	Name	Standard													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie(Hi-Fine)	All Format
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	0	0	2	2	2	2	2	2
10	SSHP	8	8	8	8	8	8	7	7	8	8	8	8	8	8

No.	Name	Hi-Fine													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	2	2	2	2	2	2	0	0
10	SSHP	7	7	7	7	7	7	7	7	7	7	7	7	7	7

No.	Name	Hi-Fine													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie(Hi-Fine)	All Format
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	0	0	2	2	2	2	2	2
10	SSHP	7	7	7	7	7	7	7	7	7	7	7	7	7	7

No.	Name	Personal													
		RF			CV/YC			C		omp					
		480_60I NTSC	480_60I PAL	576_50I PAL	480_60I NTSC	480_60I PAL	576_50I PAL	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	2	2	2	2	2	2	0	0
10	SSHP	8	8	8	7	7	7	8	8	8	8	8	8	7	7

No.	Name	Personal													
		RGB						M		S					Twin
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Index	Full	Popup	Player	Movie(Hi-Fine)	All Format
6	FUP2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	SHF0	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	PROV	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9	SHPC	2	2	2	2	2	2	0	0	2	2	2	2	2	2
10	SSHP	8	8	8	8	8	8	7	7	8	8	8	8	8	8

Standards *4

No.	Name	RF NTSC (GR: OFF)	PAL_DKI	PAL_OTHER	CV NTSC	PAL	YC NTSC	PAL
11	CBPF	2	2	2	0	0	0	0
12	CBPA	1	1	1	0	0	0	0
13	CEQ	1	1	1	0	0	0	0

Standards *5

No.	Name	RF	CV	YC	Comp	Digital
14	SFIL	1	1	1	1	1
15	SSTC	0	0	0	0	0

Standards *6

No.	Name	RF	CV/YC	Other
17	AFLG	0	0	0
18	AFCM	0	0	0
19	AFLC	0	0	0
20	AFHC	0	0	0
21	CDM1	2	2	2
22	CDM2	0	0	0
23	CDM3	0	0	0

Standards *7

No.	Name	RF	VIDEO1	VIDEO2	VIDEO3	VIDEO4/Other
25	BGPS	10	9	9	9	9

Standards *8

No.	Name	Single	Black0	Black1	Black2	Black3	Black4	Black5	Black6	Black7
26	APED	0	0	0	0	0	0	0	0	0
27	DCTR	0	0	0	0	0	0	0	0	0

Standards *9

No.	Name	SD	Other
28	YTRP	1	0
29	CTRP	1	0

Standards *10

No.	Name	RF	CV/YC	Other							
				480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
16	AFCG	1	0	1	1	1	1	1	1	1	1
30	STUP	0	0	0	0	0	0	0	0	0	0
31	VINT	7	7	7	7	7	7	7	7	3	3
32	CLAD	0	0	0	0	0	0	0	0	0	0
33	SSAD	0	0	0	0	0	0	1	1	1	1
34	CLPG	2	2	2	2	2	2	2	2	2	2
35	HSSL	3	3	3	3	3	3	3	3	3	3
36	VSSL	2	2	2	2	2	2	3	3	3	3
37	STTC	2	2	2	2	2	2	2	2	2	2
38	VAFC	1	1	1	1	1	1	1	1	1	1
68	MVSW	2	2	2	2	2	2	2	2	2	2

Standards *11

No.	Name	RF	CV	YC/Other
39	SLPF	0	0	0

Standards *12

No.	Name	60Hz			50Hz		
		RF	BS/CV/YC	Other	RF	CV/YC	Other
41	NCOM	0	0	0	0	0	0

Standards *13

No.	Name	SD	Other
42	SDLP	1	0
43	ROM2	0	0

Standards *14

No.	Name	Dynamic				Standard			
		60Hz		50Hz		60Hz		50Hz	
		RF	Other	RF	Other	RF	Other	RF	Other
44	VECR	0	0	0	0	0	0	0	0
45	VECL	0	0	0	0	0	0	0	0
46	VECN	2	2	2	2	2	2	2	2
47	VEGA	0	0	0	0	0	0	0	0

No.	Name	Hi-Fine				Personal			
		60Hz		50Hz		60Hz		50Hz	
		RF	Other	RF	Other	RF	Other	RF	Other
44	VECR	0	0	0	0	0	0	0	0
45	VECL	0	0	0	0	0	0	0	0
46	VECN	2	2	2	2	2	2	2	2
47	VEGA	0	0	0	0	0	0	0	0

Standards *15

No.	Name	RF	Other	
48	BPT1	40	40	Only At Auto Color System Mode
49	BPT2	30	30	Only At Auto Color System Mode

Standards *16

No.	Name	RF	CV	YC/Other
50	KLEV	2	2	2
51	APCG	0	0	0

COMB

Functionality		Range	Standards
No.	Name		
0	NSS	0-31	*1
1	TESS	0-7	No Address
2	NSC	0-31	*1
3	NSV	0-1	*1
4	SCTP	0-3	*1
5	CYBP	0-3	*1
6	Y2BP	0-3	*1
7	C2LE	0-3	*1
8	DTCN	0-3	*1
9	VEDL	0-7	*1
10	HP	0-7	*1
11	PNR	0-1	*1
12	NCDT	0-1	*1
13	MC1	0-15	*1
14	MC2	0-15	*1
15	CR1	0-3	*1
16	CR2	0-15	*1
17	CR3	0-3	*1
18	CR4	0-3	*1
19	CCR	0-3	*1
20	CHED	0-3	*1
21	CVED	0-3	*1
22	CR5	0-7	*1
23	YFLT	0-7	*1
24	C3LE	0-3	*1
25	YMFH	0-15	*1
26	YMFV	0-7	*1
27	F2SW	0-1	*1
28	MO1	0-15	*1
29	MO2	0-7	*1
30	MNNR	0-1	*1
31	DTH	0-7	*1
32	DTV	0-7	*1
33	DT2D	0-3	*1
34	DTHP	0-7	*1
35	DTCR	0-7	*1
36	D2FC	0-3	*1
37	D2F	0-15	*1
38	D2F2	0-3	*1
39	D2FL	0-3	*1
40	DC	0-3	*1
41	CVFL	0-7	*1
42	H2DD	0-3	*1
43	HC2F	0-1	*1
44	THRU	0-1	No Address
45	MCH	0-31	*1
46	MCV	0-3	*1
47	PEDS	0-1	*1
48	MMK	0-7	*1
49	MKAM	0-1	*1
50	GHLT	0-1	*1
51	TESL	0-7	No Address
52	MNSW	0-1	*1
53	MDYB	0-3	*1
54	LCBP	0-7	*1
55	BPSE	0-1	*1
56	CR2H	0-1	*1
57	IMPR	0-3	*1
58	IMPS	0-1	*1
59	IMPL	0-1	*1
60	PLPL	0-3	*1
61	MDYE	0-3	*1
62	PLCL	0-1	*1
63	BPL2	0-7	*1
64	HPL	0-7	*1
65	CVFP	0-1	*1
66	STDH	0-3	*1
67	SHH	0-3	*1
68	BPOF	0-1	*1
69	C1L	0-1	*1
70	BPL3	0-7	*1
71	D2F3	0-7	*1
72	LPSW	0-1	*1
73	LCR	0-1	*1
74	F2CR	0-1	*1
75	YIR	0-1	*1
76	MOMO	0-1	*1
77	CYV	0-1	*1
78	PAL3	0-1	*1

Standards *1

No.	Name	NTSC		PAL	
		Standard	NonStandard	Standard	NonStandard
0	NSS	8	8	8	8
2	NSC	15	15	15	15
3	NSV	1	1	1	1
4	SCTP	0	2	0	0
5	CYBP	0	1	0	1
6	Y2BP	0	1	0	1
7	C2LE	1	0	1	0
8	DTCN	1	0	1	0
9	VEDL	3	3	3	3
10	HP	2	2	2	2
11	PNR	0	0	0	0
12	NCDT	0	0	0	0
13	MC1	4	4	15	15
14	MC2	3	3	15	15
15	CR1	1	1	1	1
16	CR2	1	1	1	1
17	CR3	0	0	0	0
18	CR4	1	1	1	1
19	CCR	2	2	2	2
20	CHED	2	2	2	2
21	CVED	3	3	2	2
22	CR5	4	3	0	0
23	YFLT	4	4	4	4
24	C3LE	1	1	1	1
25	YMFH	3	3	3	3
26	YMFV	1	1	1	1
27	F2SW	0	0	0	0
28	MO1	15	15	6	6
29	MO2	3	3	3	3
30	MNNR	1	1	1	1
31	DTH	2	2	2	2
32	DTV	2	2	2	2
33	DT2D	2	2	2	2
34	DTHP	3	3	2	2
35	DTCR	4	4	4	4
36	D2FC	3	3	3	3
37	D2F	9	9	8	8
38	D2F2	1	1	1	1
39	D2FL	0	0	0	0
40	DC	0	0	0	0
41	CVFL	3	0	3	0
42	H2DD	0	0	1	1
43	HC2F	1	1	1	1
45	MCH	15	15	22	22
46	MCV	1	1	0	0
47	PEDS	0	0	0	0
48	MMK	7	7	7	7
49	MKAM	0	0	0	0
50	GHLT	0	0	0	0
52	MNSW	0	0	0	0
53	MDYB	0	0	0	0
54	LCBP	2	2	2	2
55	BPSE	1	1	1	1
56	CR2H	0	0	0	0
57	IMPR	3	3	3	3
58	IMPS	1	1	1	1
59	IMPL	0	0	0	0
60	PLPL	1	1	1	1
61	MDYE	3	3	3	3
62	PLCL	1	1	1	1
63	BPL2	1	1	1	1
64	HPL	1	1	1	1
65	CVFP	0	0	0	0
66	STDH	2	2	1	1
67	SHH	1	1	1	1
68	BPOF	1	1	0	0
69	C1L	1	1	1	1
70	BPL3	7	7	7	7
71	D2F3	2	2	2	2
72	LPSW	1	1	1	1
73	LCR	1	1	1	1
74	F2CR	1	1	1	1
75	YIR	1	1	1	1
76	MOMO	0	0	0	0
77	CYV	0	0	0	0
78	PAL3	1	1	1	1

YCTM(CXA2163)

Functionality		Range	Standards
No.	Name		
0	YLEV	0-63	21
1	CLEV	0-63	15
2	SCON	0-15	*1
3	SCOL	0-15	*1
4	YDLY	0-15	*1
5	SHAP	0-15	*1
6	SHF0	0-3	2
7	PREO	0-3	3
8	BPF0	0-3	1
9	BPFQ	0-3	2
10	FLSW	0-1	1
11	CBOF	0-15	9
12	CROF	0-15	9
13	SR-Y	0-15	7
14	SB-Y	0-15	7

Standards *1

No.	Name	RF	Other
2	SCON	7	7
3	SCOL	7	7
4	YDLY	5	5
5	SHAP	6	6

YCTS(CXA2163)

Functionality		Range	Standards
No.	Name		
0	YLEV	0-63	43
1	CLEV	0-63	29
2	SCON	0-15	*1
3	SCOL	0-15	*1
4	SHUE	0-63	*1
5	YDLY	0-15	*2
6	SHAP	0-15	*1
7	SHF0	0-3	2
8	PREO	0-3	3
9	BPF0	0-3	1
10	BPFQ	0-3	2
11	FLSW	0-1	1
12	CBOF	0-15	9
13	CROF	0-15	7
14	SR-Y	0-15	7
15	SB-Y	0-15	7
16	PNGW	0-1	1
17	PNIS	0-1	0
18	NCOM	0-1	1
19	ATPD	0-3	*3
20	DCTR	0-3	*3

Standards *1

No.	Name	60Hz		50Hz	
		RF	Other	RF	Other
2	SCON	8	7	8	7
3	SCOL	5	7	6	6
4	SHUE	36	32	31	31
6	SHAP	7	7	7	7

Standards *2

No.	Name	RF			CV		YC	
		NTSC	PAL_DKI	AL_OTHE	NTSC	PAL	NTSC	PAL
5	YDLY	3	6	3	3	3	5	5

Standards *3

No.	Name	Single	Black0	Black1	Black2	Black3	Black4	Black5	Black6	Black7
19	ATPD	0	0	0	0	0	0	0	0	0
20	DCTR	0	0	0	0	0	0	0	0	0

YCTC(CXA2163)

Functionality		Range	Standards
No.	Name		
0	SDTS	0-1	1
1	BELS	0-3	2
2	BLF0	0-1	0
3	SVID	0-1	0
4	SGPP	0-3	0
5	SIDS	0-1	1
6	CDMD	0-3	0
7	AFCG	0-3	0
8	MVM	0-1	0

MCP

Functionality		Range	Standards
No.	Name		
0	TCOF	0-1	0
1	PON	0-1	1
2	RON	0-1	1
3	GON	0-1	1
4	BON	0-1	1
5	AKBO	0-1	0
6	RGBL	0-3	2
7	YLMT	0-3	0
8	BLKB	0-3	1
9	YOF	0-15	*1
10	CBOF	0-63	*1
11	CROF	0-63	*1
12	SPIC	0-15	*1
13	SCOL	0-63	*1
14	SHUE	0-63	*1
15	ABLT	0-15	*2

Standards *1

No.	Name	DRC		Analog			R GB				MS	Twin
		RF/CV/YC	Comp-480i	480p/576p	720p	1080i	DRC	480p	720p	1080i		
9	YOF	7	7	7	7	7	7	7	7	7	7	7
10	CBOF	28	28	28	29	28	28	35	29	28	28	28
11	CROF	28	28	28	29	28	28	31	33	31	31	28
12	SPIC	8	5	5	10	10	9	9	12	12	8	8
13	SCOL	31	31	31	31	31	31	31	31	31	31	31
14	SHUE	31	31	31	31	31	31	31	31	31	31	31

Standards *2

No.	Name	Other	Small Pic (Normal)
15	ABLT	0	9

DEF1

Functionality		Range	Standards
No.	Name		
0	VPOS	0-63	24
1	VSIZ	0-63	31
2	VLIN	0-15	8
3	VSCO	0-15	*1
4	VCEN	0-63	31
5	VPIN	0-31	*2
6	NSCO	0-63	31
7	HTPZ	0-31	15
8	ZOOM	0-1	*3
9	APSW	0-1	*4
10	ASPT	0-63	*5
11	SCRL	0-63	*5
12	UVLN	0-15	*6
13	LVLN	0-15	*6
14	VPSO	0-15	*7

Standards *1

No.	WideZoom	Other
3 VSCO	11	8

Standards *2

No.	Vcomp	Other
5 VPIN	15	15

Standards *3

No.	Zoom WideZoom	Other
8 ZOOM	1	0

Standards *4

No.	HD		SD
	50Hz	60Hz	
9 APSW	1	0	1

Standards *5

No.	Full						VComp/Normal					
	50Hz		60Hz		100Hz	120Hz	50Hz		60Hz		100Hz	120Hz
	SD	HD	SD	HD	SD	SD	SD	HD	SD	HD	SD	SD
10 ASPT	3	18	3	3	0	0	3	3	3	3	0	0
11 SCRL	31	31	31	31	36	35	31	31	31	31	36	35

No.	WideZoom				Zoom			
	50Hz	60Hz	100Hz	120Hz	50Hz	60Hz	100Hz	120Hz
	SD	SD	SD	SD	SD	SD	SD	SD
10 ASPT	22	22	20	20	43	43	41	41
11 SCRL	31	31	36	35	31	31	37	36

Standards *6

No.	WideZoom	Other
12 UVLN	4	0
13 LVLN	4	0

Standards *7

No.	50Hz	60Hz	100Hz	120Hz
14 VPSO	7	7	11	14

DEF2

Functionality		Range	Standards
No.	Name		
0	HCNT	0-63	31
1	HPOS	0-63	*1
2	HSIZ	0-63	*2
3	SLIN	0-15	*2
4	MPIN	0-15	*2
5	PIN	0-63	*2
6	UCP	0-63	*2
7	LCP	0-63	*2
8	PPHA	0-63	*3
9	VANG	0-63	31
10	LANG	0-63	31
11	VBOW	0-63	31
12	LBOW	0-63	31
13	UXCG	0-3	0
14	LXCG	0-3	0
15	UXCP	0-3	0
16	LXCP	0-3	0
17	XCPP	0-1	0
18	PPHO	0-15	*4
19	PINO	-4/+3	*5
20	UCPO	-4/+3	*5
21	LCPO	-4/+3	*5
22	VAOC	0-7	4
23	HIHS	0-31	*6
24	HISL	0-7	*6
25	HIMP	0-15	*6
26	HIPN	0-15	*6

Standards *1

No.	HD	SD
1 HPOS	22	24

Standards *2

No.	WideZoom	Other
2 HSIZ	49	31
3 SLIN	11	3
4 MPIN	15	9
5 PIN	40	31
6 UCP	31	35
7 LCP	31	35

Standards *3

No.	Zoom WideZoom	Other
8 PPHA	20	20

Standards *4

No.	50Hz	60Hz	100Hz	120Hz
18 PPHO	8	5	8	11

Standards *5

No.	60Hz		100Hz		120Hz	
	WideZoom	Other	WideZoom	Other	WideZoom	Other
19 PINO	0	0	1	1	1	1
20 UCPO	0	0	-1	0	-1	-1
21 LCPO	0	0	0	0	0	0

Standards *6

No.	WideZoom/ VComp	Other
23 HIHS	2	2
24 HISL	2	2
25 HIMP	7	7
26 HIPN	1	1

DEF3

Functionality		Range	Standards
No.	Name		
0	HBLK	0-1	1
1	LBLK	0-63	*1
2	RBLK	0-63	*1
3	VBLK	0-1	*2
4	TBLK	0-15	*3
5	BBLK	0-15	*3
6	AFCM	0-3	3
7	JUMP	0-1	*4
8	VDJP	0-1	*5
9	AKBT	0-31	*3

Standards *1

No.	HD	SD
1 LBLK	54	54
2 RBLK	30	28

Standards *2

No.	Zoom WideZoom	Other
3 VBLK	0	1

Standards *3

No.	Full						4:3VComp/Normal					
	50Hz		60Hz		100Hz	120Hz	50Hz		60Hz		100Hz	120Hz
	SD	HD	SD	HD	SD	SD	SD	HD	SD	HD	SD	SD
4 TBLK	7	4	1	4	15	12	7	7	1	2	15	12
5 BBLK	14	6	8	8	9	4	14	14	8	9	9	4
9 AKBT	20	16	18	16	20	18	20	16	18	16	20	18

No.	WideZoom				Zoom			
	50Hz	60Hz	100Hz	120Hz	50Hz	60Hz	100Hz	120Hz
	SD	SD	SD	SD	SD	SD	SD	SD
4 TBLK	12	12	15	12	7	7	7	7
5 BBLK	15	15	9	15	7	7	7	7
9 AKBT	15	15	22	15	15	15	15	15

Standards *4

No.	Vcomp/Norm	Other
7 JUMP	0	0

Standards *5

No.	Zoom WideZoom	HD	ther
8 VDJP	1	1	0

DEF4

Functionality		Range	Standards
No.	Name		
0	QPDC	0-63	*1
1	QPDV	0-63	*1
2	QPDP	0-15	*1
3	QPAM	0-63	*1
4	QPAV	0-63	*1
5	QPAP	0-15	*1
6	COPY	0-3	0

Standards *1

No.	Vcomp/Norm	Other
0 QPDC	43	43
1 QPDV	56	56
2 QPDP	6	6
3 QPAM	16	16
4 QPAV	63	63
5 QPAP	6	6

DEF5

Functionality		Range	Standards
No.	Name		
0	VON	0-1	1
1	EWDC	0-1	0
2	AGCS	0-1	0
3	ACMP	0-7	0

MID1

Functionality		Range	Standards
No.	Name		
0	DYCD	0-15	*1
1	DYSD	0-7	*2
2	MDVP	0-15	*3

Standards *1

No.	Single	Other
0 DYCD	2	2

Standards *2

No.	Single(Norm)	Twin/Freeze	MS	Index
1 DYSD	1	1	1	0

Standards *3

No.	Vcomp				Other			
	50Hz	60Hz	100Hz	120Hz	50Hz	60Hz	100Hz	120Hz
2 MDVP	12	0	15	15	0	0	15	15

MID2

Functionality		Range	Standards
No.	Name		
0	BCOL	0-15	*1
1	MSYS	0-1	1

Standards *1

No.	Single(Normal)	TWIN	Freeze	Index	Favorite/PAP	MS
0 BCOL	0	4	1	4	4	6

MID3

Functionality		Range	Standards
No.	Name		
0	MHPH	-8/+7	*1
1	SHPH	-8/+7	*2

Standards *1

No.	RF		CV		YC		Comp								
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other
0 MHPH	5	-1	5	-1	5	-1	3	3	2	2	2	0	0	1	0

No.	RGB									MS
	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other	
0 MHPH	7	7	-8	-8	0	0	0	0	0	0

Standards *2

No.	RF		CV		YC	
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
1 SHPH	4	6	4	6	4	6

VSW

Functionality		Range	Standards
No.	Name		
0	VTC	0-3	0
1	HSEP	0-1	1

CRNR

Functionality		Range	Standards
No.	Name		
0	YNR	0-15	*1
1	CNR	0-15	*1

Standards *1

No.	Name	RF	CV	YC	Comp	MS
0	YNR	0	0	0	0	0
1	CNR	0	0	0	0	0

RNR

Functionality		Range	Standards
No.	Name		
0	NYLP	0-1	*1
1	NYG	0-3	*1
2	NYPH	0-31	*1
3	NYLM	0-15	*1
4	NCLP	0-1	*1
5	NCG	0-3	*1
6	NCPH	0-31	*1
7	NCLM	0-15	*1

Standards *1

No.	Name	RNR=OFF											
		RF		CV/YC		C omponent							
		50Hz	60Hz	50Hz	60Hz	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	NYLP	0	0	0	0	0	0	0	0	0	0	0	0
1	NYG	0	0	0	0	0	0	0	0	0	0	0	0
2	NYPH	0	0	0	0	0	0	0	0	0	0	0	0
3	NYLM	0	0	0	0	0	0	0	0	0	0	0	0
4	NCLP	0	0	0	0	0	0	0	0	0	0	0	0
5	NCG	0	0	0	0	0	0	0	0	0	0	0	0
6	NCPH	0	0	0	0	0	0	0	0	0	0	0	0
7	NCLM	0	0	0	0	0	0	0	0	0	0	0	0

No.	Name	RNR=HIGH											
		RF		CV/YC		C omponent							
		50Hz	60Hz	50Hz	60Hz	480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I
0	NYLP	0	0	0	0	0	0	0	0	0	0	0	0
1	NYG	1	3	1	3	3	1	3	1	0	0	0	0
2	NYPH	13	5	13	5	5	13	5	13	0	0	0	0
3	NYLM	10	2	10	2	2	10	2	10	0	0	0	0
4	NCLP	0	1	0	1	1	0	1	0	0	0	0	0
5	NCG	1	1	1	1	1	1	1	1	0	0	0	0
6	NCPH	13	3	13	3	3	13	3	13	0	0	0	0
7	NCLM	10	2	10	2	2	10	2	10	0	0	0	0

No.	Name	RNR=OFF									
		RGB									MS
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other	
0	NYLP	0	0	0	0	0	0	0	0	0	0
1	NYG	0	0	0	0	0	0	0	0	0	0
2	NYPH	0	0	0	0	0	0	0	0	0	0
3	NYLM	0	0	0	0	0	0	0	0	0	0
4	NCLP	0	0	0	0	0	0	0	0	0	0
5	NCG	0	0	0	0	0	0	0	0	0	0
6	NCPH	0	0	0	0	0	0	0	0	0	0
7	NCLM	0	0	0	0	0	0	0	0	0	0

No.	Name	RNR=HIGH									
		RGB									MS
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other	
0	NYLP	0	0	0	0	0	0	0	0	0	0
1	NYG	3	1	3	1	0	0	0	0	0	0
2	NYPH	5	13	5	13	0	0	0	0	0	0
3	NYLM	2	10	2	10	0	0	0	0	0	0
4	NCLP	1	0	1	0	0	0	0	0	0	0
5	NCG	1	1	1	1	0	0	0	0	0	0
6	NCPH	3	13	3	13	0	0	0	0	0	0
7	NCLM	2	10	2	10	0	0	0	0	0	0

BNR

Functionality		Range	Standards
No.	Name		
0	EDL	0-7	*1
1	LFL	0-7	*1
2	DCT	0-7	*1
3	BLEV	0-7	*1
4	DNE	0-1	*1

Standards *1

No.	Name	BNR:OFF									
		RF/CV/YC/Comp/RGB									MS
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other	
0	EDL	0	0	0	0	0	0	0	0	0	0
1	LFL	0	0	0	0	0	0	0	0	0	0
2	DCT	0	0	0	0	0	0	0	0	0	0
3	BLEV	0	0	0	0	0	0	0	0	0	0
4	DNE	0	0	0	0	0	0	0	0	0	0

NoiseReducer BnrFormatInputPack 2Byte

No.	Name	BNR:HIGH									
		RF/CV/YC/Comp/RGB									MS
		480_60I	576_50I	480_60P	576_50P	720_60P	720_50P	1080_60I	1080_50I	Other	
0	EDL	2	2	2	2	2	2	2	2	2	2
1	LFL	2	2	2	2	2	2	2	2	2	2
2	DCT	2	2	2	2	2	2	2	2	2	2
3	BLEV	7	7	7	7	7	7	7	7	7	7
4	DNE	1	1	1	1	1	1	1	1	1	1

SNNR

Functionality		Range	Standards
No.	Name		
0	MODE	0-3	0
1	SNNR	0-7	0
2	HYST	0-15	7
3	WSLT	0-255	*1
4	SSSN	0-15	*2
5	F2SN	0-3	*2
6	SCSN	0-3	*2
7	VGSN	0-7	*2
8	YNSN	0-15	*2
9	CNSN	0-15	*2
10	PYSN	0-31	*2
11	LYSN	0-15	*2
12	PCSN	0-31	*2
13	LCSN	0-15	*2
14	7SHP	0-63	*2
15	7YF1	0-3	*2
16	7LTI	0-3	*2
17	7CTI	0-3	*2
18	7VML	0-15	*2
19	7VMC	0-3	*2
20	MIDD	0-63	*2
21	CCLV	0-15	*2
22	CCBP	0-1	*2
23	PCR4	0-1	*2
24	PYMH	0-7	*2
25	PYMV	0-7	*2
26	PMO1	0-7	*2
27	PMO2	0-7	*2
28	PDF2	0-7	*2
29	PF2D	0-1	*2
30	SACG	0-3	*2
31	SALG	0-3	*2

Standards *1

No.	Name	A	B	C	D	E	F	G
3	WSLT	5	20	45	63	85	110	127

Standards *2

No.	Name	0	1	2	3	4	5	6	7
4	SSSN	0	0	1	1	2	2	2	3
5	F2SN	0	0	0	0	0	0	0	0
6	SCSN	0	0	1	1	1	1	1	1
7	VGSN	0	1	1	1	1	1	1	1
8	YNSN	0	0	0	0	0	0	0	0
9	CNSN	0	0	1	1	2	2	2	3
10	PYSN	0	0	0	0	0	0	0	0
11	LYSN	0	0	0	0	0	0	0	0
12	PCSN	0	0	0	0	0	0	0	0
13	LCSN	0	0	0	0	0	0	0	0
14	7SHP	0	0	1	1	3	3	3	4
15	7YF1	0	0	1	1	2	2	2	3
16	7LTI	0	0	1	1	2	2	3	3
17	7CTI	0	0	1	1	2	2	3	3
18	7VML	0	3	5	7	9	11	13	15
19	7VMC	0	0	1	1	2	2	2	3
20	MIDD	0	0	1	1	2	2	2	3
21	CCLV	0	3	5	7	9	11	13	15
22	CCBP	0	0	0	0	0	0	0	0
23	PCR4	0	0	0	0	0	0	0	0
24	PYMH	0	0	0	0	0	0	0	0
25	PYMV	0	0	0	0	0	0	0	0
26	PMO1	0	0	0	0	0	0	0	0
27	PMO2	0	0	0	0	0	0	0	0
28	PDF2	0	0	0	0	0	0	0	0
29	PF2D	0	0	0	0	0	0	0	0
30	SACG	0	0	0	0	1	2	2	2
31	SALG	0	0	0	0	1	2	2	2

AWID

Functionality		Range	Standards
No.	Name		
0	AWOF	0-1	1
1	FRWD	0-3	
2	FRTI	0-3	
3	LPFL	0-1	
4	UPAR	0-1	
5	UPTH	0-1	
6	X149	0-1	
7	DMST	0-1	
8	UPRL	0-1	
9	OFSL	0-1	
10	SLOF	0-1	
11	FR43	0-3	
12	REFP	0-15	
13	REFM	0-15	

DDEV

Functionality		Range	Standards	Remarks
No.	Name			
0	ASPT	0-1		
1	OVSR	0-31		
2	DTYP	0-7		
3	DFID	0-15		
4	ALTD	0-7	*1	Highland Value
5	HICM	0-1	*1	Highland SW
6	ALMX	0-7		

Standards *1

Item		Except Highland & Iran	Highland & Iran
4	ALTD	0	4
5	HICM	0	1

SFC

Functionality No.	Functionality Name	Range	Standards
0	COPC	0-1	0
1	COPL	0-1	0
2	TESW	0-1	1
3	ENSW	0-1	1
4	NSSW	0-1	1
5	EWSW	0-1	1
6	LTEU	-128/+127	-40
7	LTEC	-128/+127	-34
8	LTED	-128/+127	-37
9	RTEU	-128/+127	31
10	RTEC	-128/+127	20
11	RTED	-128/+127	32
12	NSTE	-128/+127	-41
13	LENU	-128/+127	-43
14	LENC	-128/+127	-53
15	LEND	-128/+127	-47
16	RENU	-128/+127	43
17	RENC	-128/+127	42
18	REND	-128/+127	37
19	NSEN	-128/+127	-25
20	LNSU	-128/+127	-4
21	LNSC	-128/+127	0
22	LNSD	-128/+127	4
23	RNSU	-128/+127	-4
24	RNSC	-128/+127	0
25	RNSD	-128/+127	4
26	NSNS	-128/+127	69
27	LEWU	-128/+127	-18
28	LEWC	-128/+127	0
29	LEWD	-128/+127	18
30	REWU	-128/+127	18
31	REWC	-128/+127	0
32	REWD	-128/+127	-18
33	APEN	0-255	64
34	TECT	0-255	64
35	ENCT	0-255	66
36	NSCT	0-255	64
37	EWCT	0-255	64
38	HPOS	0-10	5
39	VPOS	0-255	15
40	VOSI	0-255	*1
41	RVOS	0-255	*1
42	VSEI	0-255	*1
43	RVSE	0-255	*1
44	VINT	0-255	*1
45	RVIN	0-255	*1
46	ODP	0-255	9
47	ODVM	0-255	69
48	ODHH	0-255	7
49	HPHL	0-255	30
50	HOS	0-255	40
51	HSEI	0-255	93
52	HINT	0-255	93
53	HLIN	0-255	56
54	LDCV	0-255	13
55	VCOM	0-255	20
56	TESL	0-255	63
57	PWMA	0-255	255
58	HCMX	0-255	32
59	VCMX	0-255	32
60	LCMX	0-255	64
61	LAMX	0-255	64
62	NSMX	0-255	64
63	UPMX	0-15	3
64	HSLV	0-31	31

Standards *1

No.	FULL						NORMAL/VCOMP					
	480P/960I 60Hz	1080I/540 P 60Hz	480I 120Hz	576I 100Hz	576P/115 2I 50Hz	1080I/540 P 50Hz	480P/960I 60Hz	1080I/540 P 60Hz	480I 120Hz	576Iz 100Hz	576P/115 2I 50Hz	1080I/540 P 50Hz
40 VOSI	18	0	8	16	24	49	18	0	8	16	24	49
41 RVOS	0	0	0	0	0	0	0	0	0	0	0	0
42 VSEI	51	45	30	31	61	56	51	45	30	31	61	56
43 RVSE	0	0	0	0	0	0	0	0	0	0	0	0
44 VINT	51	57	26	31	61	56	51	57	26	31	61	56
45 RVIN	0	0	0	0	0	0	0	0	0	0	0	0

No.	WIDEZOOM				ZOOM			
	480P/960I 60Hz	480I 120Hz	576I 100Hz	576P/ 1152I 50Hz	480P/960I 60Hz	480I 120Hz	576I 100Hz	576P/ 1152I 50Hz
40 VOSI	30	11	16	37	67	30	42	84
41 RVOS	96	43	52	96	64	26	32	96
42 VSEI	54	34	39	63	45	32	34	53
43 RVSE	0	0	0	0	0	0	0	0
44 VINT	47	24	29	57	40	20	24	48
45 RVIN	32	22	22	32	22	13	16	32

AP

Functionality		Range	Standards
No.	Name		
0	SUBV	0-15	*1
1	BASS	0-15	*2
2	TREB	0-15	*2
3	BBE	0-1	*2
4	BBEL	0-31	*2
5	BBEH	0-31	*2
6	AGC	0-1	*3
7	AGCL	0-3	*3
8	SUR	0-15	*4

Standards *1

No.	TruSurround	Simulated	OFF
0 SUBV	2	3	3

Standards *2

No.	Personal (BBE:off)						Personal (BBE:Low)						Personal (BBE:High)					
	Tu			Others			Tu			Others			BS			Others		
	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF
1 BASS	7	6	6	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7
2 TREB	7	6	6	7	6	6	7	7	7	7	7	7	7	7	7	7	7	7
3 BBE	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
4 BBEL	0	0	0	0	0	0	8	6	6	8	6	6	14	12	12	14	12	12
5 BBEH	0	0	0	0	0	0	8	6	6	8	6	6	14	12	12	14	12	12

No.	Dynamic						rama						Soft					
	BS			Others			Tu			Others			Tu			Others		
	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF	TruSurround	Simulated	OFF
1 BASS	11	10	10	11	10	10	10	9	9	10	9	9	10	8	8	10	8	8
2 TREB	8	7	7	8	7	7	9	8	8	9	8	8	9	7	7	9	7	7
3 BBE	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
4 BBEL	5	13	13	15	13	13	10	8	8	10	8	8	0	0	0	0	0	0
5 BBEH	9	7	7	11	9	9	9	7	7	9	7	7	0	0	0	0	0	0

Standards *3

No.	Intellient Volume	
	Auto	OFF
6 AGC	1	0
7 AGCL	0	0

Standards *4

No.	Effect		
	TruSurround	Simulated	OFF
8 SUR	12	15	0

MSMO

Functionality		Range	Standards
No.	Name		
0	MSPF	0-1	0
1	MIXU	0-1	0
2	STD1	0-1	0
3	LVDS	0-3	2
4	BGLV	0-255	0
5	DPAC	0-1	0

OSDP

Functionality		Range	Standards
No.	Name		
0	LEVL	0-15	0
1	FFLV	0-15	0

ASEL

Functionality		Range	Standards
No.	Name		
0	TU1	0-15	10
1	TU2	0-15	9
2	TU3	0-15	0
3	VID1	0-15	7
4	VID2	0-15	5
5	VID3	0-15	4
6	VID4	0-15	3
7	YUV1	0-15	2
8	YUV2	0-15	1
9	YUV3	0-15	0
10	MS	0-15	8
11	ATSC	0-15	0
12	CSPK	0-15	6

VSEL

Functionality		Range	Standards
No.	Name		
0	TU1	0-15	1
1	TU2	0-15	2
2	TU3	0-15	0
3	VID1	0-15	5
4	VID2	0-15	6
5	VID3	0-15	7
6	VID4	0-15	4
7	YUV1	0-31	16
8	YUV2	0-31	18
9	YUV3	0-31	0
10	ATSC	0-31	0
11	SECM	0-31	17

DRCV

Functionality		Range	Standards
No.	Name		
0	MFVR	0-1	0
1	ISEL	0-1	1
2	ORES	0-255	*1
3	ONCT	0-255	*1
4	FMAT	0-1	0
5	FMTH	0-3	*2
6	FSEL	0-1	1
7	CDLY	0-3	2
8	LMIT	0-1	0
9	LMLV	0-3	*3
10	LMSL	0-1	1
11	VDLY	0-3	1
12	VDPR	0-3	3
13	WPLL	0-3	2
14	CRCT	0-1	0

Standards *1

No.	Name	Dynamic				Standard			
		RF	BS/CV/YC	Component	RGB	RF	BS/CV/YC	Component	RGB
2	ORES	128	128	128	128	128	128	128	128
3	ONCT	128	128	128	128	128	128	128	128

No.	Name	Hi-Fine				Personal			
		RF	BS/CV/YC	Component	RGB	RF	BS/CV/YC	Component	RGB
2	ORES	128	128	128	128	128	128	128	128
3	ONCT	128	128	128	128	128	128	128	128

Standards *2

No.	Name	Other	RF
5	FMTH	1	1

Standards *3

No.	Name	Dynamic	Standard	Hi-Fine	Personal
9	LMLV	2	2	2	2

PFID

Functionality		Range	Standards
No.	Name		
0	COLS	0-7	2
1	DEFS	0-7	0
2	DRC	0-1	0
3	AMAX	0-1	1
4	FRME	0-1	0
5	SMAX	0-1	1
6	FVLO	0-1	1
7	2057	0-1	0
8	NSMT	0-1	0
9	YDET	0-1	0

PFOP

Functionality		Range	Standards
No.	Name		
0	CMD	0-15	

OSD

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	OSV		32	OSD V Position	
01	OSH		13	OSD H Position	
02	FW1		07	OSD ODD/EVEN Field Window Setup #1	
03	FW2		20	OSD ODD/EVEN Field Window Setup #2	
04	VOF		*1	OSD V Position (Offset)	Wide/50/60/100/120/HD/Twin/Favorite/Index

Standards *1

Functionality		FULL50	FULL60	FULL100	FULL120	WDZM50	WDZM60	WDZM100
No.	Name							
04	VOF	32	32	32	32	32	32	32

Functionality		WDZM120	ZOOM50	ZOOM60	ZOOM100	ZOOM120	INDEX50	INDEX60
No.	Name							
04	VOF	32	32	32	32	32	32	32

Functionality		FAVORITE50	FAVORITE60	TWIN50	TWIN60	HD50	HD60	MS
No.	Name							
04	VOF	32	32	32	32	32	32	32

Functionality		VCOMP	VCOMP60	VCOMP100	VCOMP120
No.	Name				
04	VOF	32	32	32	32

MSP

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	WST		21	W/G Stereo Threshold	
01	WBT		236	W/G Bilingual Threshold	
02	WLL		05	W/G Monaural Threshold	
03	WAC		01	W/G Agreement Count	
04	WDL		48	W/G Search Delay	
05	NDL		32	NICAM Search Delay	
06	SDL		16	Stereo status Read Delay	
07	AGC		01	AGC Switch Auto/Constant	
08	REL		40	AGC Gain at Constant Mode	
09	CRM		00	Carrier muting on/off	
10	ACO		01	Audio Clock out on/off	
11	FP		27	FM Prescale for non-M system	
12	FPM		50	FM Prescale for M system	
13	FH		54	FM Prescale for HDEV	
14	FHM		101	FM Prescale for HDEV and M	
15	WGP		28	W/G Prescale	
16	NIP		127	NICAM Prescale	
17	ERR		80	Auto FM switch Threshold	
18	VOL		48	Loud Speaker gain 0700h to 07FFh	

TEXT

Functionality		Range	Standards	F unction	Remarks
No.	Name				
00	TXH		35	Teletext Horizontal Display Position	
01	TXV		63	Teletext Vertical Display Position	
02	THD		56	Teletext H-sync Active Edge Shift	
03	TVD		00	Teletext V-sync Active Edge Shift	
04	HPL		00	Teletext H-sync Polarity Configuration	
05	VPL		00	Teletext V-sync Polarity Configuration	
06	FPL		01	Teletext Field Polarity Configuration	
07	FMD		03	Teletext Fastext/TOP Force Mode	
08	TBR		06	Teletext RGB Brightness	
09	NOP		02	Teletext National Option Table Configuration	
10	TCH		02	Teletext Twisted Character Set Configuration	

PIC

Functionality		Range	Standards	Function	emarks
No.	Name				
00	PIC		* 1	User Picture P	icture Mode
01	COL		* 1	User Color P	icture Mode
02	BRI		* 1	User Bright P	icture Mode
03	HUE		*1	User Hue	Picture Mode
04	SHP		* 1	User Sharp P	icture Mode
05	PIOF		*2	Picture Offset (Picture * (20-data)/20 * Eco(75%)	MS/NORMAL/MULTI/OTHER

Standards *1

Functionality		Picture Mode			
No.	Name	Dynamic	Standard	Hi-Fine	Personal
00	PIC	100	80	60	50
01	COL	60	60	50	50
02	BRI	43	50	50	50
03	HUE	50	50	50	50
04	SHP	50	50	50	50

Standards *2

Functionality		Picture Offset				
No.	Name	MS	Normal(4:4)	HD	Twin/Index/Pap	Other
05	PIOF	5	1	5	5	0

SOU

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	BAS		*1	User Bass S	ound Mode
01	TRE		*1	User Treble S	ound Mode

Standards *1

Functionality		Sound Mode			
No.	Name	Dynamic	Drama	Soft	Personal
00	BAS	50	50	50	50
01	TRE	50	50	50	50

DRC

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	CLAR		*1	User DRC Palette Initial number Clarity	
01	REAL		*1	User DRC Palette Initial Number Reality	

Standards *1

Functionality		DRC Palette (TV Custom1)		DRC Palette (TV Custom2)		DRC Palette (TV Custom3)		DRC Palette (Video Custom1)		DRC Palette (Video Custom2)	
No.	Name	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per
00	CLAR	01	01	50	50	80	80	01	01	50	50
01	REAL	25	25	55	55	90	90	25	25	55	55

Functionality		DRC Palette (Video Custom3)		DRC Palette (Comp Custom1)		DRC Palette (Comp Custom2)		DRC Palette (Comp Custom3)	
No.	Name	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per	Dynamic	Std/HiFine/Per
00	CLAR	80	80	01	01	50	50	80	80
01	REAL	90	90	25	25	55	55	90	90

PFED

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	PFED			PF-Engine Service	

GUID

Functionality		Range	Standards	F uction	Remarks
No.	Name				
01	CUID			Guide Select country ID (0:English,1:Tiwan,2:Korea,3:English)	

POWR

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	DLY1			Power On Delay1	
01	DLY2			Power On Delay2	
02	DLY3			Power On Delay3	
03	ZDET			Zero Detect Delay	
04	ZTMO			Zero Detect Timeout (*10ms min 300ms)	

OPM

Functionality		Range	Standards	R Function	emarks
No.	Name				
00	APC			APC Switch	
01	TSY		0	TV System Selection under searching with Auto TV System	
02	AFM			Auto FM switch	
03	DBL			Disable Blueback function	
04	SSO			Speed CH Search Selection	
05	SCH			CH Selection for Shipping Condition	NTSC Only
06	SCA			Cable/Air Selection for Shipping Condition	NTSC Only
07	DMG			Disable Menu-operation Guide	
08	VSN			Enable Noise Reduction in Video Mode	
09	LBB			Lower Blue Back Intensity	
10	23P			2/3 Pull Down Mode 0: Force OFF, 1: Auto	
11	DF		36	DF_PHA	
12	DQP		26	DQP_PHA	
13	VLIM			Wide V-Center Limit	50/60/ZM/WZ
14	TUT1		5	Tune Wait Time Mode1 (Max) 30[ms] + 10[ms] * service_data	
15	TUT2		5	Tune Wait Time Mode2 (Max) 30[ms] + 10[ms] * service_data	
16	TUT3		5	Tune Wait Time Mode3 (Max) 30[ms] + 10[ms] * service_data	
17	TUTW		5	Tune Wait Time 6 point sense	
18	3NR			3D-NR INIT (User Reset or Test Reset)	
19	SIG			No-Signal Detect number of lock detect count.	TV/Video(HD/DVD)
20	NSIG			No-Signal Detect number of unlock detect counter.	TV/Video(HD/DVD)

Functionality		V-Center Limit			
No.	Name	WIDEZOOM 50Hz	WIDEZOOM 60Hz	ZOOM 50Hz	ZOOM 60Hz
13	VLIM	15	15	15	15

Functionality		Signa-Detect	
No.	Name	RF	Video
19	SIG	0	5
20	NSIG	0	20

OPB

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	OP0		36	Optional Bits 0	
01	OP1		107	Optional Bits 1	
02	OP2		3	Optional Bits 2	
03	OP3		104	Optional Bits 3	
04	OP4		20	Optional Bits 4	

SRV

Functionality		Range	Standards	Function	Remarks
No.	Name				
00	COM			Service Command	

SECTION 4
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control ..... normal
BRIGHTNESS control..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

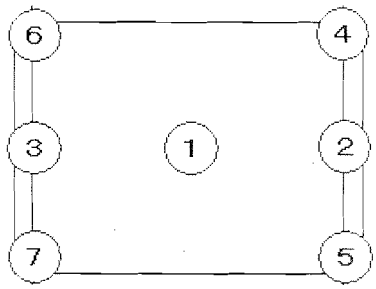
Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

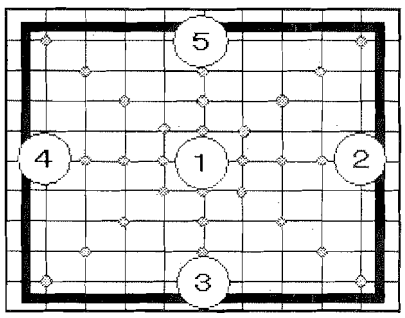
4-1. INITIALIZING SFC DATA

1. Set to the service mode.
2. Set to the coarse CONV and LAND adjustment mode.
3. Move the marker in the order as shown in the figure and set its data to "0".

Landing: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦



Convergence: ① → ② → ③ → ④ → ⑤



- Move the marker with the buttons ↑ ,↓ , ← and → on the remote commander."
  Press "ENTER" to decide the position.
  Change the data with the buttons ↑ ,↓ , ← and → on the remote commander.

4-2. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast
   Brightness } normal
2. Position neck assy as shown in Fig4-1.
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 4-1 through 4-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 4-2.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.

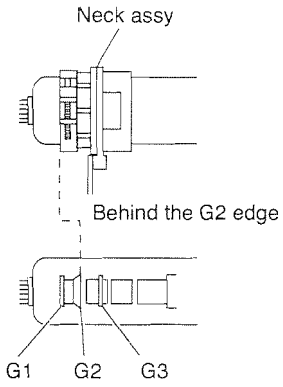


Fig. 4-1

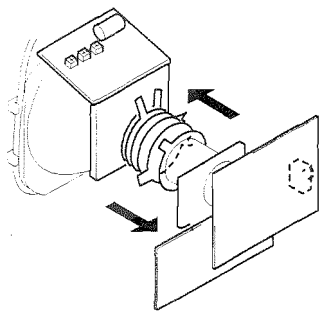


Fig. 4-2

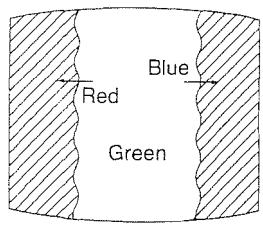


Fig. 4-3

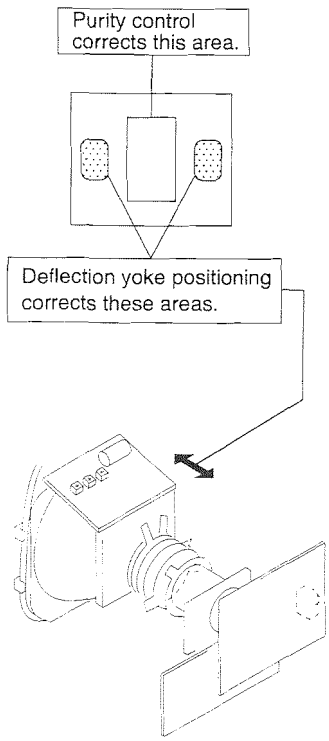


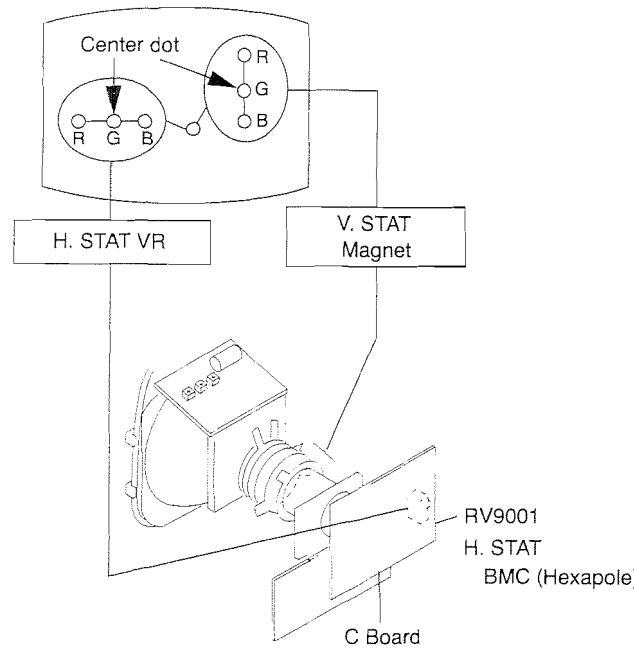
Fig. 4-4

4-3. CONVERGENCE ADJUSTMENT

Preparation :

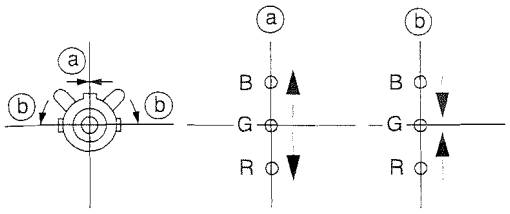
- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Set the Picture Mode to "STANDARD".
- Cross hatch / Dot pattern.

4-3-1. Horizontal and Vertical Static Convergence

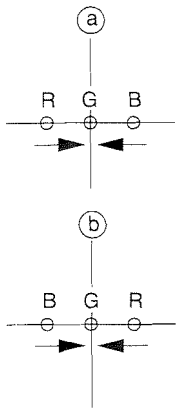


1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue dots are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green and blue dots together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

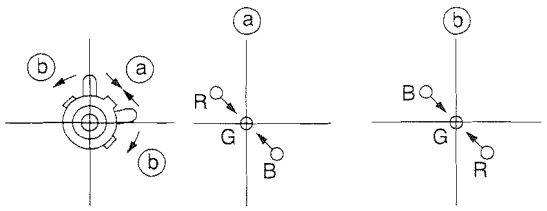
① V. STAT

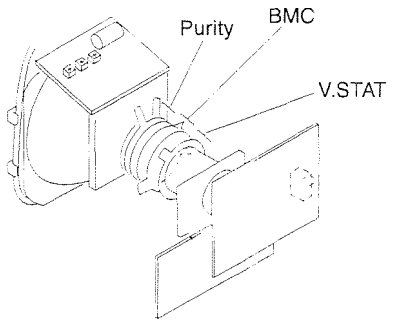


② H. STAT VR



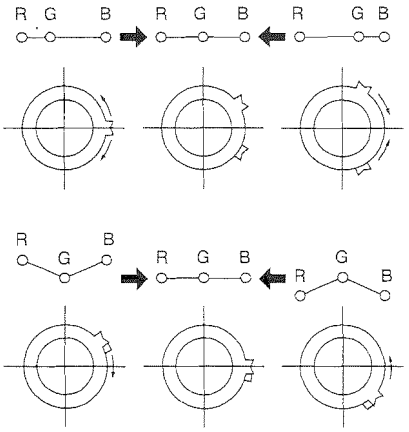
③





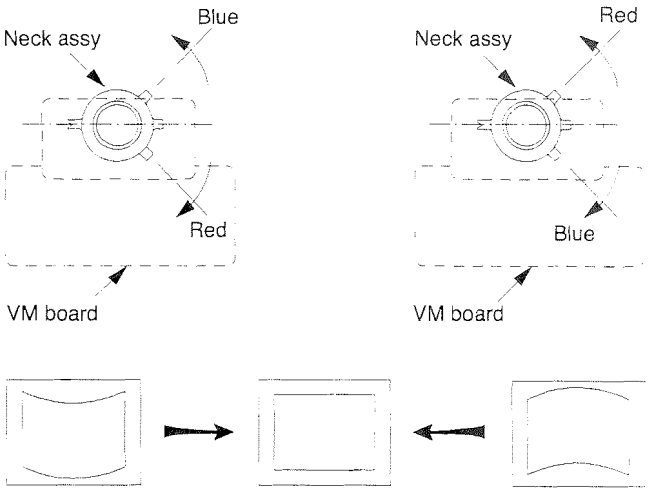
④ BMC (Hexapole) Magnet.

If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.



⑤ Y separation axis correction magnet adjustment.

1. Receive the cross-hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .
2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.



Note

1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

4-3-2. Dynamic Convergence Adjustment

Preparation:

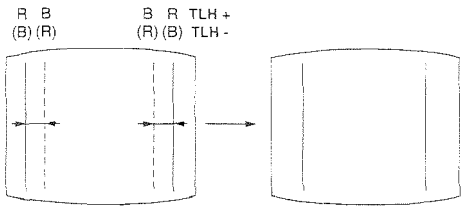
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence
- Set the PICTURE and BRIGHTNESS to normal.

1. Adjust TLH. (TLH correction piece)

① Receive the dot/hatch pattern signal and adjust picture quality by the menu.

② Correct horizontal mis-convergence of red and blue of both sides on the X axis.

When red is outside insert BMC magnet to right side (THL+) views from DY neck. And when blue is outside, insert it to left side (THL–) and take both sides.



2. Adjust XCV core.

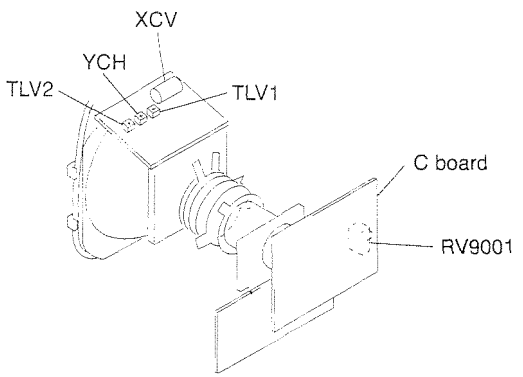
To able to become balance of XCV on the X axis well.

3. Adjust V-TILT.

Correct the vertical mis-convergence of red and blue of vertically sides on the Y axis.

4. Adjust YCH.

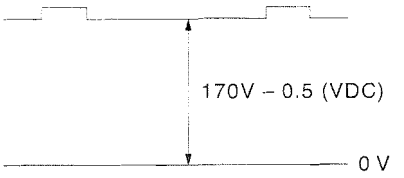
Adjust horizontal mis-convergence of red and blue of vertically sides on the Y axis. Mentioned above steps 2 to 4 are adjusting respectively perform minuteness tracking.



4-4. G2 (SCREEN) ADJUSTMENT

1. G2 (SCREEN) ADJUSTMENT

1) Set to zoom mode and the PICTURE and BRIGHTNESS to normal and to the service mode.
2) In put monoscope signal.
3) Set the service data. CXA2150P-210: ABLK10
4) Connect R, G and B of the C board cathode to the oscilloscope.
5) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
6) Whilst watching the picture, adjust the screen VR located on the flyback transformer to the point just before the flyback return lines disappear (to the point before cut-off)

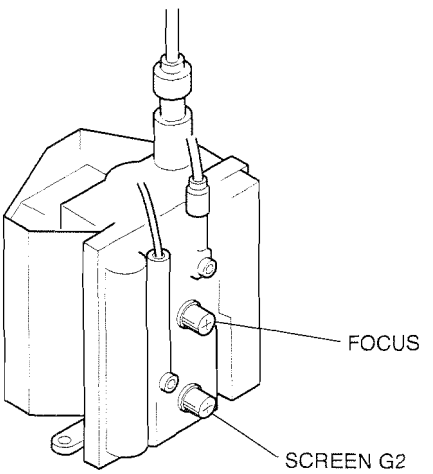


4-5. FOCUS ADJUSTMENT 1

Note

Focus adjustment should be completed before W/B adjustment.

(1) Receive digital monoscope pattern.
(2) Set DRC-MF to "Progressive" and PICTURE to "Standard".
(3) Adjust FOCUS VR so that the center of the screen becomes justfocus.



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4-6. NECK ASSY TWIST ADJUSTMENT

(1) Receive dot/hatch pattern.
(2) Turn FOCUS VR fully counter-clockwise.
(3) Confirm the dot shape at the screen center. (Fig. 4-5)
(4) Resume FOCUS VR.

Note

In case of turning NECK ASSY, loosen the screw 3 turns. Do not move the position.

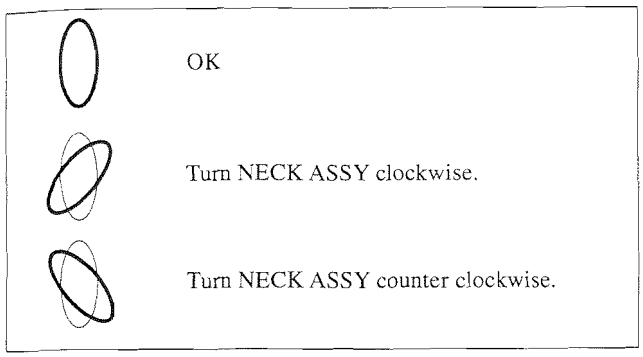


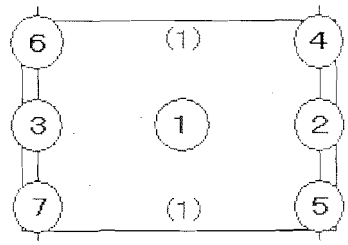
Fig. 4-5

4-7. SFC COARSE ADJUSTMENT

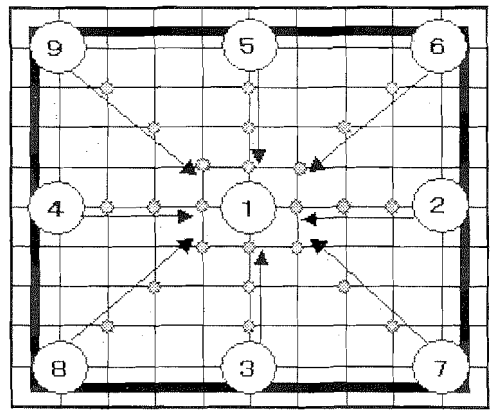
Summary:

Move the marker to the position as shown in the figure and adjust the convergence or the landing at its position.
Also to move the marker is available with the buttons 1 and 4 on the remote commander.

Landing: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦
Select R, G or B signal by pressing "6" on the remote commander.
In case of selecting VIDEO without input, a single color is displayed.
In case of adjusting 1 position, observe the (1) positions.



Convergence: ① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → ⑧
Adjust the position from outer to inner as shown in the figure.

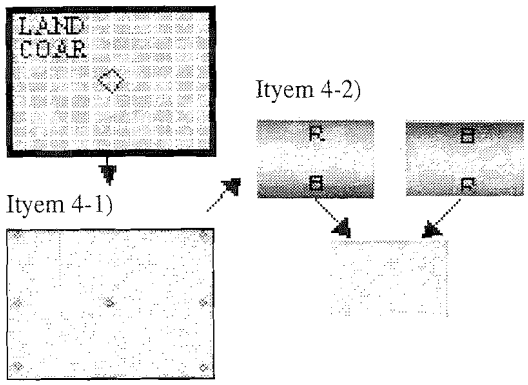


4-7-1. Landing Adjustment

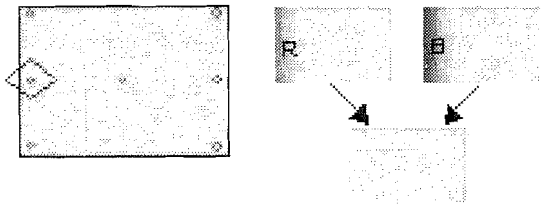
In case of no lack of uniformity, it is no need to adjust.

1. Set to the service mode.
2. Select the category "LAND". The cross hatch and the marker appear on the screen
3. Set to the coarse adjustment by pressing "9" on the remote commander.
4. Adjust upper and lower sides on the screen. (Edges of Y axis)
   1) Move the marker to the center on the screen and set to green single color.
      Move the marker by pressing ↑, ↓, ← and → buttons on the remote commander.
      The crosshatch appears on the screen, but the marker moves to the position only as shown in the figure. Set the marker to the center on the screen and press "ENTER". Then it becomes the adjusting mode. To return to move the marker, press "ENTER" again.
      To change the single color red, green or blue, press "6".
   Note: In case of receiving TV signal, a single color is mixed to the TV signal. It is easy to adjust in VIDEO 1 to 3 without input because only a single color is displayed.
   2) Landing adjustment
      Adjust with the remote commander ← and → to reduce the lack of uniformity on upper and lower side on the screen.
      After adjustment, press "ENTER". Then it becomes to moving marker mode and the crosshatch appears on the screen."
5. Adjust right and left sides on the screen. (Edges of X axis)
   Set the marker to right or left and adjust landing in the same manner as the item 4.
6. Adjust on the corners.
   Set the marker to the corners and adjust landing in the same manner as the item 4.
   It can be adjusted from any corner.
7. Write the adjusted data to the memory by pressing "MUTE" and "12" on the remote commander.

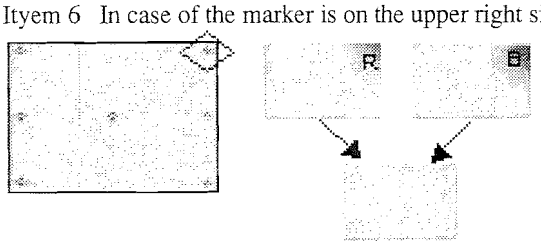
Ityems 2, 3

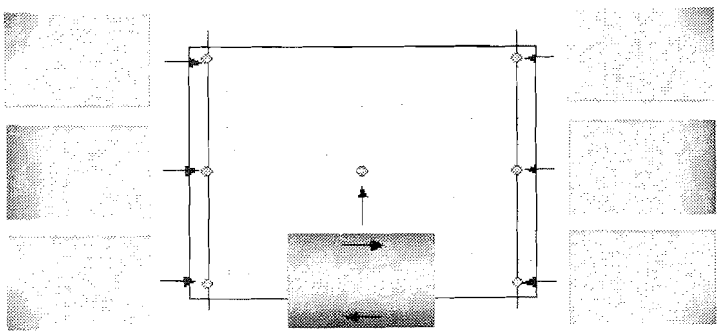


Ityem 5 In case of the marker is on the left side.



Ityem 6 In case of the marker is on the upper right side.

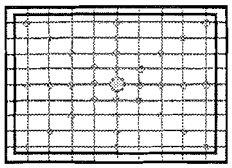




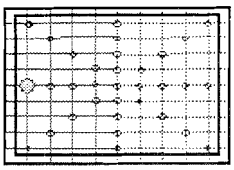
4-7-2. Convergence Adjustment

The adjusting ranges according to its position selected.

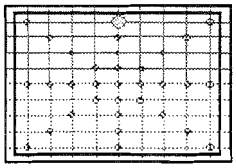
It is adjustable from the selected point to the center.



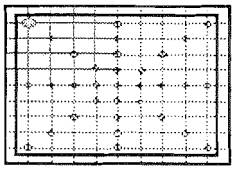
Left: Left to center



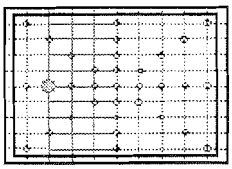
Upper: Upper to center

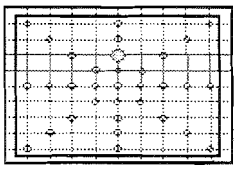


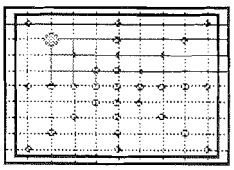
Upper left: Upper left to center



In case of 1 step inner from each edges: Marker position to center, it cannot be adjusting on the outside of the marker.





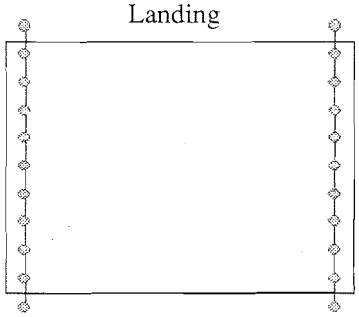


4-8. SFC FINE ADJUSTMENT

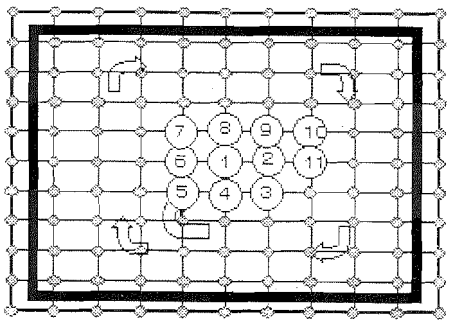
Landing: Left 11 points, right 11 points
Select R, G or B signal by pressing "6" on the remote commander.
In case of selecting VIDEO without input, a single color is displayed.

Convergence: Move the marker from the center to outer spirally.
Only the center data is within +-15.

Fine mode
Landing

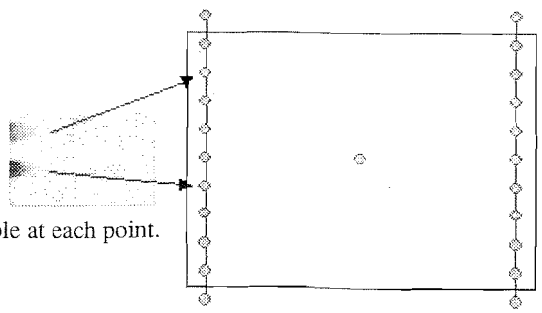


Convergence



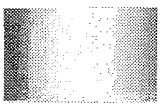
4-8-1. Landing

Fine mode

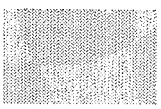


Adjustable at each point.

Move DY.



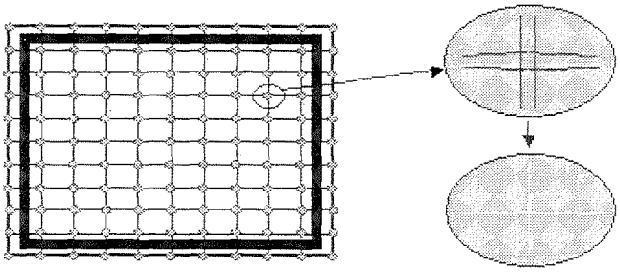
Purity



All red or blue

4-8-2. Convergence

Fine mode
Adjustable at each point.



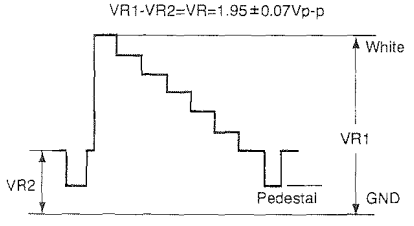
4-9. P & P SUB CONTRAST ADJUSTMENT (VIDEO) (NTSC/PAL)

1. Receive the signal.
   TV terminal (sub) : Color-bar (white-75%, No setup)
   VIDEO terminal (main) : Color-bar (white-75%, No setup)
2. VIDEO MODE : AV Pro
   PICTURE : maximum
   COLOR : minimum
   RGB Signal : off
3. Set to P & P mode, and set to service mode.
4. Set the service data.

Category	Reg. No & Name		Standards
MCP	2	RON	1
	3	GON	0
	4	BON	0
	7	YLMT	1
PIC	0	PIC	100
	1	COL	0
	5	PIOF	0

5. Connect an oscilloscope between the check point and ground.
   Check points : CN9001 pin ① (R-DRV)
   (C Board)
6. Adjust the item as shown below.

	Category	Reg. No & Name
LEFT	CCPM	1 YLEV
RIGHT	YCTS	0 YLEV



7. Write the data into memory.
   MUTE → 12

4-10. P & P SUB-HUE AND SUB-COLOR ADJUSTMENT (VIDEO) (NTPC/PAL)

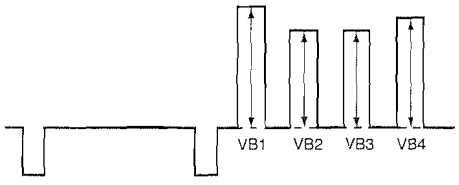
1. Receive the signal.
   TV terminal (sub) : Color-bar (white-75%, No setup)
   VIDEO terminal (main) : Color-bar (white-75%, No setup)
2. VIDEO MODE : AV Pro
   PICTURE : maximum
   COLOR : center
   RGB Signal : on
3. Set to P & P mode, set to service mode.
4. Set the service data.

Category	Reg. No & Name		Standards
MCP	2	RON	1
	3	GON	1
	4	BON	1
	7	YLMT	1
PIC	0	PIC	60
	1	COL	50

5. Connect an oscilloscope between pin ⑤ (B-DRV) of CN9001 (C board) connecter and ground.
6. Adjust the item as shown below to have VB1 ≦ VB4 and VB2 ≦ VB3 in the waveform levels.

	Category	Reg. No & Name	
LEFT	CCPM	2	CLEV
		3	SHUE
RIGHT	YCTS	1	CLEV
		4	SHUF

7. Write the data into memory.
   MUTE → 12



4-11. WHITE BALANCE ADJUSTMENT

(1). VIDEO MODE : AV PRO
PICTURE : Maximum
COLOR : Minimum
Color Temp.: High
DRC-MF : Progressive

(2). Receive the all white signal and set to full mode screen and to the service mode.

(3). Minimize the cut-offs and make drives normal in the following items.

Category	Reg. No & Name	
COLR	3	GDRV
	4	BDRV
	6	GCUT
	7	BCUT

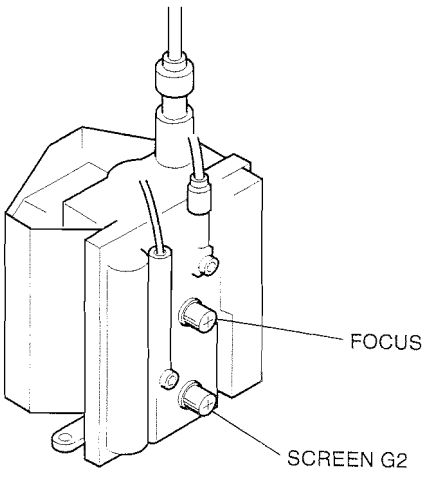
(4). Adjust with the cut-offs and the drives mutually the white balance becomes best in the mode the picture is maximum or minimum.

4-12. FOCUS ADJUSTMENT 2

Note

Focus adjustment should be completed before W/B adjustment.

(1) Receive digital monoscope pattern.
(2) Set DRC-MF to "Progressive" and PICTURE to "Standard".
(3) Adjust FOCUS VR so that the center of the screen becomes justfocus.
(4) Change the receiving signal to white pattern and blue back.
(5) Confirm MAGENTA RING should not be over the limit sample. In case MAGENTA RING is over the limit sample, adjust FOCUS VR to take tracking of MAGENTA RING and FOCUS.



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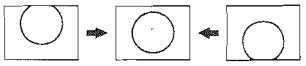
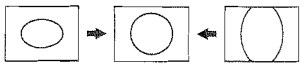
4-13. PICTURE DISTORTION ADJUSTMENT

Note: In this adjustment use the monoscope signal.
Adjust in the service mode "DEF1" and "DEF2".

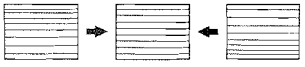
0 (VPOS)-DEF1



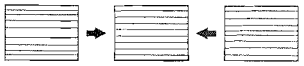
1 (VSIZ)-DEF1



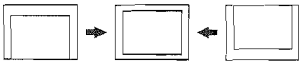
2 (VLIN)-DEF1



3 (VSCO)-DEF1



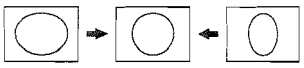
11 (SCRL)-DEF1



12 (UVLN)-DEF1

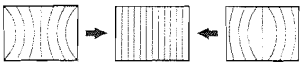
13 (LVLN)-DEF1

2 (HSIZ)-DEF2

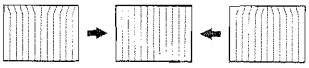


1 (HPOS)-DEF2

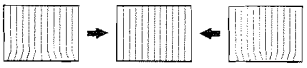
5 (PIN)-DEF2



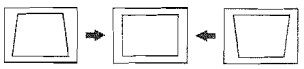
6 (UCP)-DEF2



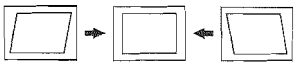
7 (LCP)-DEF2



8 (PPHA)-DEF2



9 (VANG)-DEF2



11 (VBOW)-DEF2

SECTION 5
SAFETY RELATED ADJUSTMENTS

[D BOARD]

5-1. +B MAX VOLTAGE CONFIRMATION

1. Supply 242 ± $^{3}_{0}$ VAC to variable autotransformer.
2. Receive dot signal pattern and set the PICTURE and BRIGHTNESS settings to their minimum.
3. Confirm the voltage between the both sides of C6512 on D board is 137.0 V dc.

5-2. HV REGULATION CIRCUIT ADJUSTMENT

When replacing the following components marked with ◪ on the schematic diagram always check HV regulation, and if necessary re-adjust.

⋈: RV8002
◪: IC8004, IC8005,
R8014, R8015, R8017
PH8003
T8001 (FBT)
D board

1. Connect a HV static voltmeter to the unconnected plug of the high-voltage block.
2. Power on the set.
3. Receive the dot signal.
4. Set PIC MIN/BRT MIN.
5. Confirm that the static voltmeter reading is 31.5 ± 0.3kVDC.
6. If not, adjust with RV8002 to the specified value.

5-3. HV PROTECTOR CIRCUIT ADJUSTMENT

When replacing the following components marked with ◪ on the schematic diagram always check hold-down voltage and if necessary re-adjust.

⋈: RV8002
◪: D8014
IC8001
R8016, R8019, R8046, R8052, R8072,
R8078, R8079, R8165
T8001 (FBT)
D board

1. Connect a HV static voltmeter to the unconnected plug of the high-voltage block.
2. Power on the set.
3. Receive the dot signal.
4. Set PIC MIN/BRT MIN.
5. Adjust RV8002 to the 36.6kVDC reading on the static voltmeter.

5-4. IK PROTECTOR CIRCUIT CHECK (D BOARD)

When replacing the following components marked with / on the schematic diagram, always check IK protector circuit.

◪: D8004
IC8001
Q8007,Q8008
R8027, R8029, R8030, R8031, R8035,
R8037, R8038, R8039, R8040, R8041, R8043,
D board

1. Unsolder T8001 (FBT) Pin 1 and connect a DC current meter between Pin 1 and the pattern.
2. Short circuit C8015.
3. Turn power on, feed the dot signal and set the picture and brightness to minimum.
4. Feed the all white signal, increase the picture and brightness slowly and check the hold-down works when the reading on the DC current meter is 2670uA.
5. Turn power off.
6. Release C8015 short-circuit.
7. Short circuit C8012.
8. Turn power on, feed the dot signal and set the picture and brightness to minimum.
9. Feed the all white signal, increase the picture and brightness slowly and check the hold-down works when the reading on the DC current meter is 2670uA.
10. Turn power off.
11. Release C8012 short-circuit.
12. Remove the DC current meter and the external DC power supply and solder the unsolder portions.