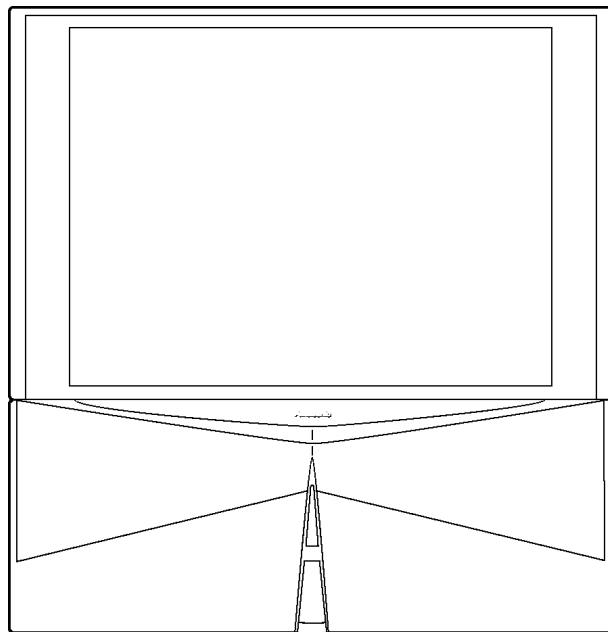


Service Manual

Projection Television



TX-51P800X
TX-51P800HM
TX-51P800HQ
TX-43P800X
TX-43P800HM
TX-43P800HQ
TX-43P800HZ
 GP1VP

Specifications

	TX-43P800H / TX-51P800H	TX-43P800X / TX-51P800X
Power Source	AC 220 - 240 V, 50 / 60 Hz	AC 110 - 240 V, 50 / 60 Hz
Power Consumption	Stand-by condition 0.5 W Normal viewing 175 W	Stand-by condition 0.5 W Normal viewing 175 W
	TX-43P800H / X	TX-51P800H / X
Dimensions (W × H × D)	1095 mm × 1267.5 mm × 547 mm	1298 mm × 1394 mm × 547 mm
Mass (Weight)	60 kg (Net)	66 kg (Net)
Remote control Transmitter	EUR511254 R6 (AA) Battery × 2	

Receiving System

21 Systems		Function
1	PAL B, G, H	Reception of broadcast transmissions and Playback from Video Cassette Tape Recorders.
2	PAL I	
3	PAL D, K	
4	SECAM B, G	
5	SECAM D, K	
6	SECAM K1	
7	NTSC M (NTSC 3.58/4.5 MHz)	

21 Systems		Function
15	PAL 60 Hz/5.5 MHz	Playback from Special Disc Players and Special VCR's
16	PAL 60 Hz/6.0 MHz	
17	PAL 60 Hz/6.5 MHz	
18	SECAM 60 Hz/5.5 MHz	
19	SECAM 60 Hz/6.0 MHz	
20	SECAM 60 Hz/6.5MHz	
21	NTSC 50 Hz/ 4.5 MHz	

21 Systems		Function
8	NTSC 4.43/5.5 MHz	Playback from Special VCR's
9	NTSC 4.43/6.0 MHz	
10	NTSC 4.43/6.5 MHz	
11	NTSC 3.58/5.5 MHz	
12	NTSC 3.58/6.0 MHz	
13	NTSC 3.58/6.5 MHz	
14	SECAM I	

Receiving Channels

Regular TV

VHF BAND

2-12 (PAL/SECAM B, K1)

0-12 (PAL B AUST.)

1-9 (PAL B N.Z)

1-12 (PAL/SECAM D)

1-12 (NTSC M Japan)

2-13 (NTSC M U.S.A)

UHF BAND

21-69 (PAL G, H, I/SECAM G, K, K1)

28-69 (PAL AUST.)

13-57 (PAL D, K)

13-62 (NTSC M Japan)

14-69 (NTSC M U.S.A)

CATV

S1-S20 (OSCAR)

1-125 (U.S.A CATV)

C13-C49 (JAPAN)

S21-S41 (HYPER)

Z1-Z37 (CHINA)

5A, 9A (AUST.)

Receiving Stereo System

NICAM I, NICAM B/G, NICAM D, A2 (German)

Tuning System

Frequency synthesizer

Auto Search Tuning

POSITION: 100 Position

DIRECT: 125 Position

Audio Output

40 W [20 W + 20 W] (10 % THD)

Speaker System

Woofer (13 cm) × 2 + Squawker (12 cm × 6 cm) × 2.....TX-43P800H/X

Woofer (13 cm) × 2 + Squawker (12 cm × 6 cm) × 2 + Tweeter (5 cm) × 2.....TX-51P800H/X

Headphones

3.5 mm Plug × 1

Aerial Impedance

75 Ω Unbalanced coaxial

Video / Audio / Component Terminals

AV 1, 2, 3, 4,

S Video In

Y: 1 V p-p, 75 Ω

C: 0.3 V p-p, 75 Ω

DVD (Y/ P_B/ P_R)

Video In

1 V p-p, 75 Ω

Audio In

Approx. 0.5 V 47 KΩ

Monitor Out

Video Out

1 V p-p, 75 Ω

Audio Out

Approx. 0.5 V, 1 KΩ

AV1 IN (Rear): S Video, Video, Audio L/R terminals

AV2 IN (Rear): Video or Y/ P_B/ P_R, Audio L/R terminals

AV3 IN (Front): S Video, Video, Audio L/R terminals

AV4 IN (Rear): Video or Y/ P_B/ P_R, Audio L/R terminals

Applicable signal to AV2, AV4 Y/ P_B/ P_R input terminals: 480i (525i), 576i (625i), 480P (525P) and 576P (625P)

Notes: Design and Specifications are subject to change without notice. Weight and Dimensions shown are approximate.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General Guide Lines

1. It is advisable to insert an isolation transformer in the AC supply before servicing a hot chassis.
2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits.
If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. When the receiver is not to be used for a long period of time, unplug the power cord from the AC outlet.
5. Potential, as high as **30.0kV**, is present when this monitor is in operation. Operation of the Projection Monitor without the rear cover involves the danger of a shock hazard from the power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the projection tube to the Projection Monitor chassis before handling the tube.
6. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2. Leakage Current Cold Check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Turn on the Projection Monitor's power switch.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the projection monitor, such as screw heads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 4 MΩ and 20 MΩ.

When the exposed metal does not have a return path to the chassis, the reading must be ∞.

1.3. Leakage Current Hot Check (See Fig. 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 2kΩ, 10W resistor, in series with an exposed metallic part on the projection monitor and an earth such as a water pipe.
3. Use an AC voltmeter, with high impedance type, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 1.0V rms. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the projection monitor should be repaired and rechecked before it is returned to the customer.

Hot-Check Circuit

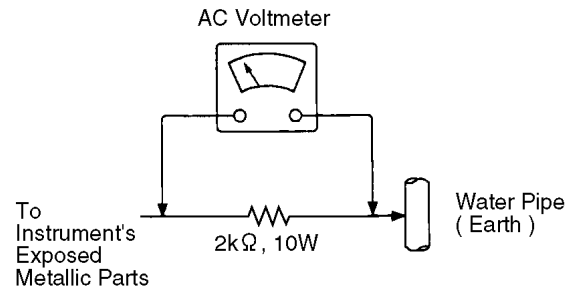


Fig. 1

1.4. X-Radiation

Warning :

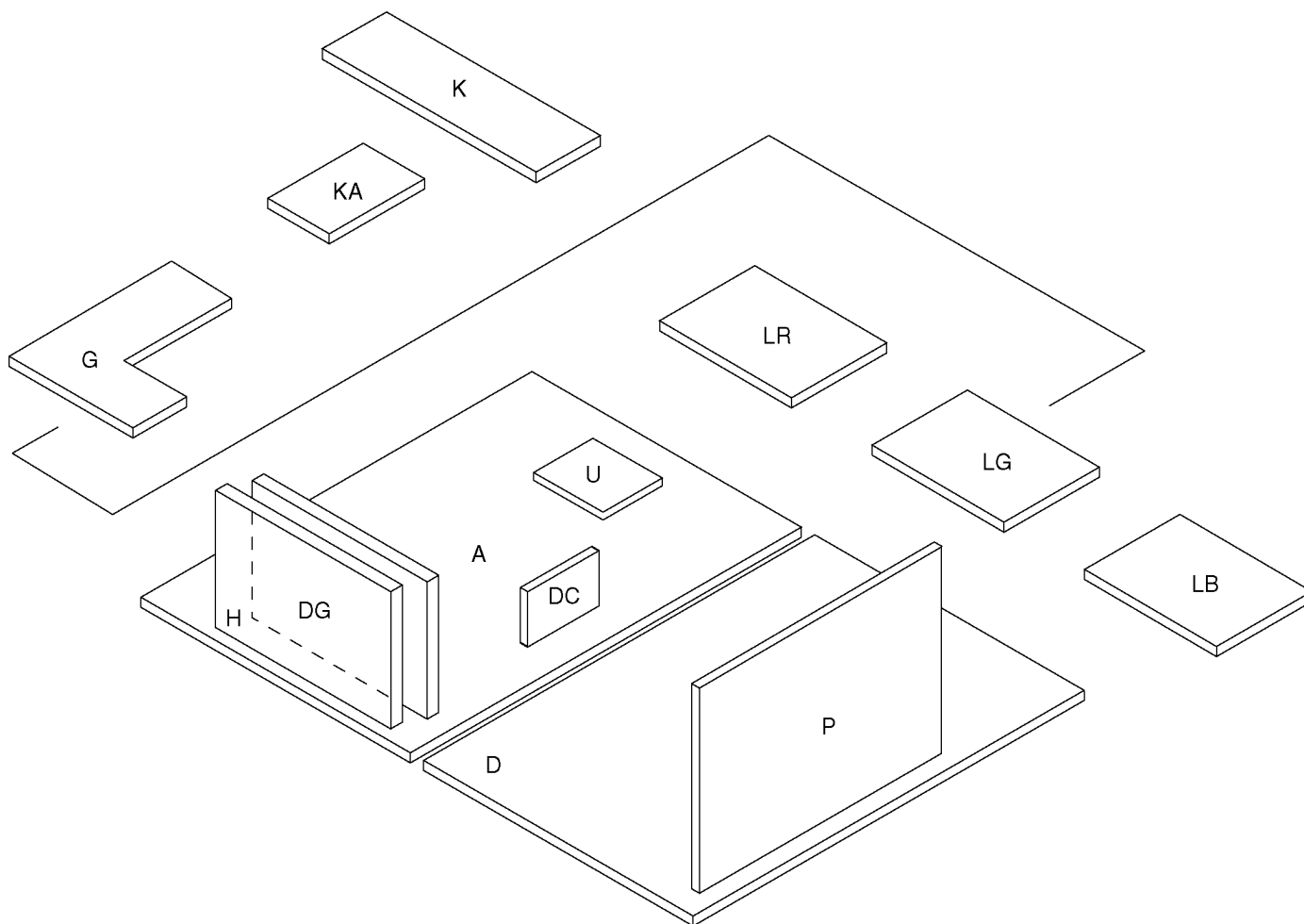
1. The potential sources of X-Radiation in projection monitor are the High Voltage section and the projection tube.
2. When using a projection tube test jig for service, ensure that jig is capable of handling **30.0kV** without causing X-Radiation.

Note:

It is important use an accurate periodically calibrated high voltage meter.

1. Set the brightness to minimum.
2. Set the service switch to the service position.
3. Measure the High Voltage. The meter reading should indicate **30.0 ± 1.0 kV**. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. To prevent an X-Radiation possibility, it is essential to use the specified projection tube.

2 Chassis Board Layout

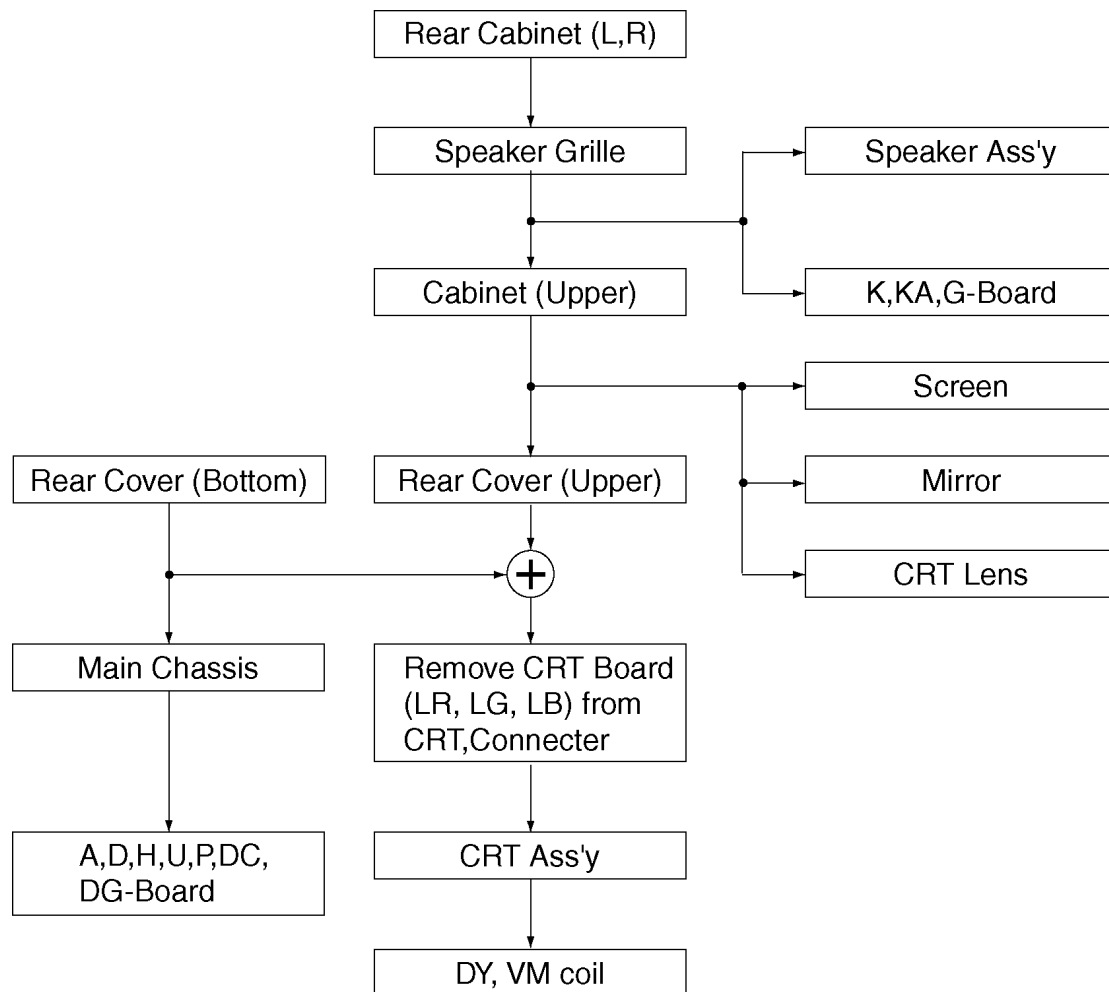


Board-Name	Function
A-Board	Main Signal, Digital Converter
P-Board	Line Filter
D-Board	Deflection, High Voltage
LR-Board	CRT Drive (R)
LG-Board	CRT Drive (G)
LB-Board	CRT Drive (B)
H-Board	Rear terminal
U-Board	MPU
DG-Board	Digital Core
DC-Board	Convergence
G-Board	Front Terminal
K-Board	Power Switch
KA-Board	Blue light

3 Disassembly for Service

This flowchart indicates disassembly items of the cabinet parts and circuit boards in order to find the items necessary for servicing, when reassembling, perform the procedures in the reverse order.

3.1. Disassembly Flowchart

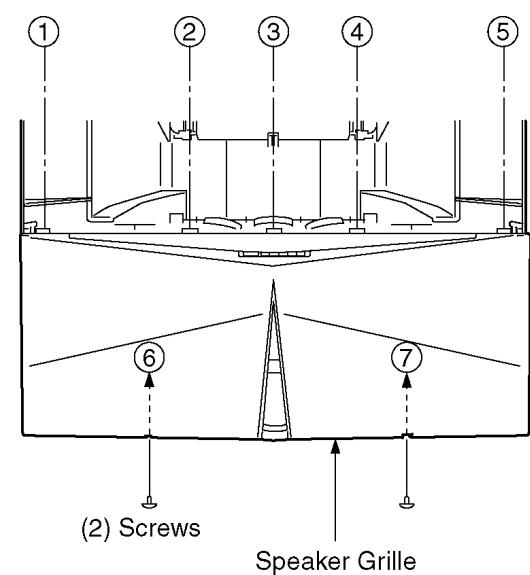
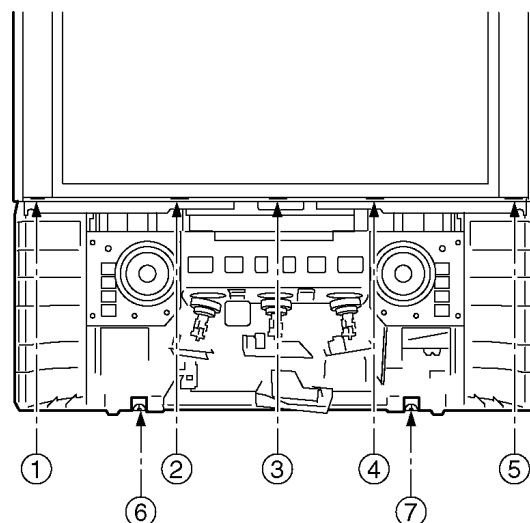
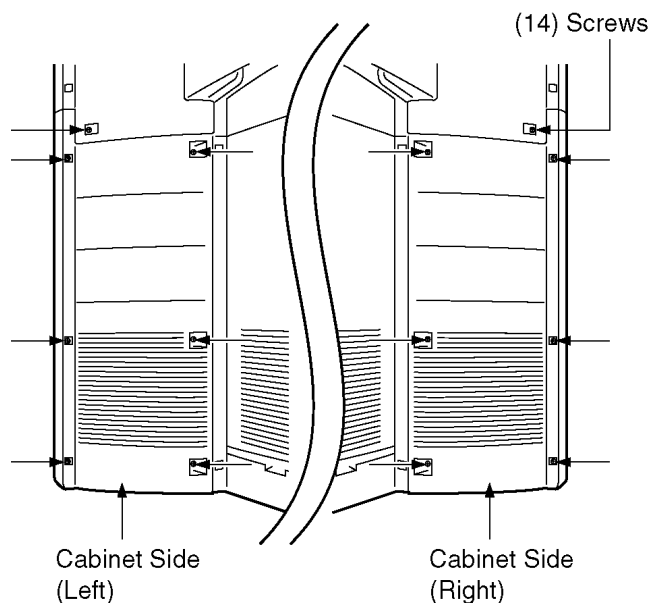


Note:

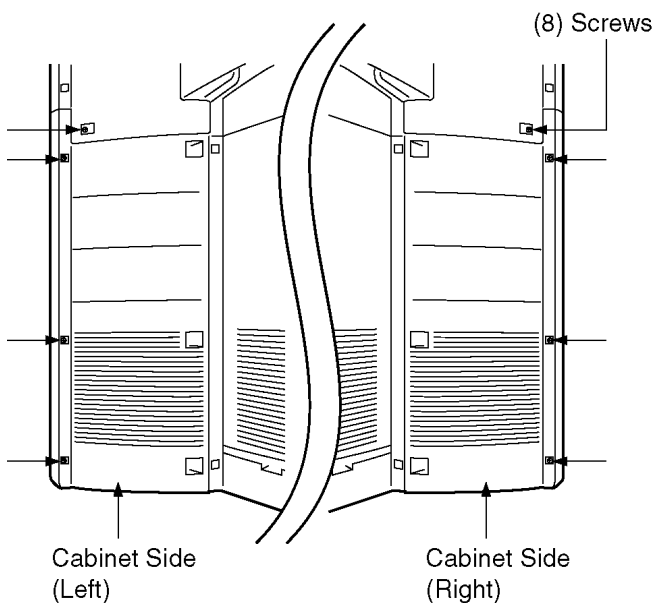
Board ground wires may have to be disconnected to disassemble some boards. All ground wires must be reconnected using jumper leads if necessary before power is applied to Receiver for service.

3.2. Cabinet Side (L, R)

1. Remove (14) screws.

**3.3. Speaker Grille**

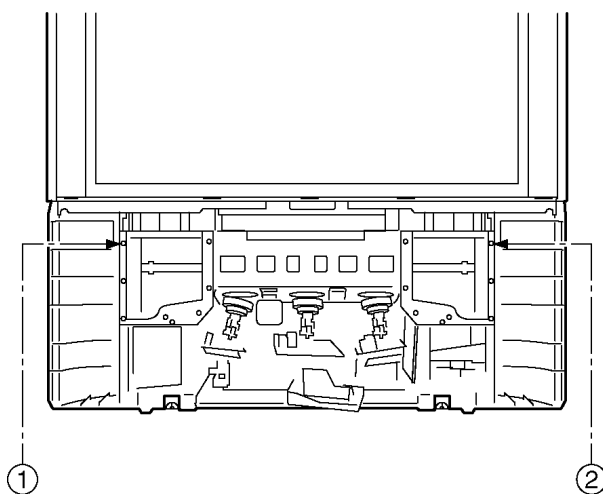
1. Remove (8) screws.

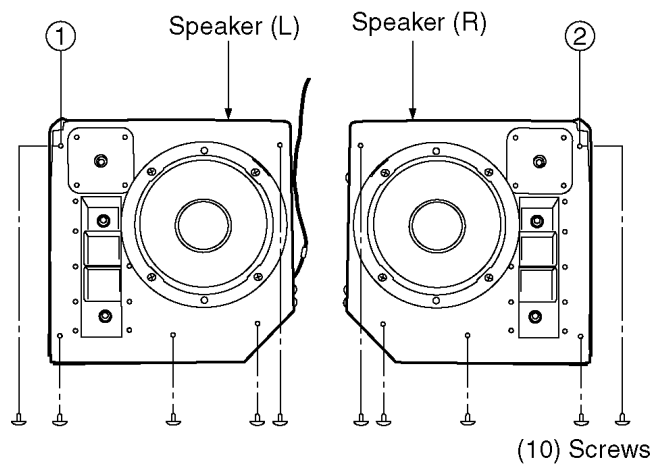


2. Remove (2) screws.

3.4. Speaker Ass'y

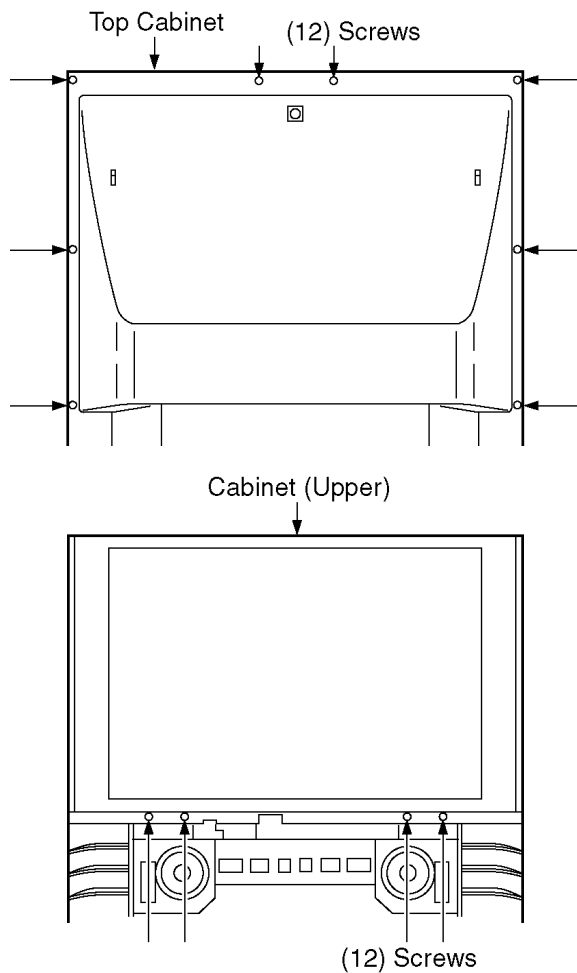
1. Remove (10) screws.





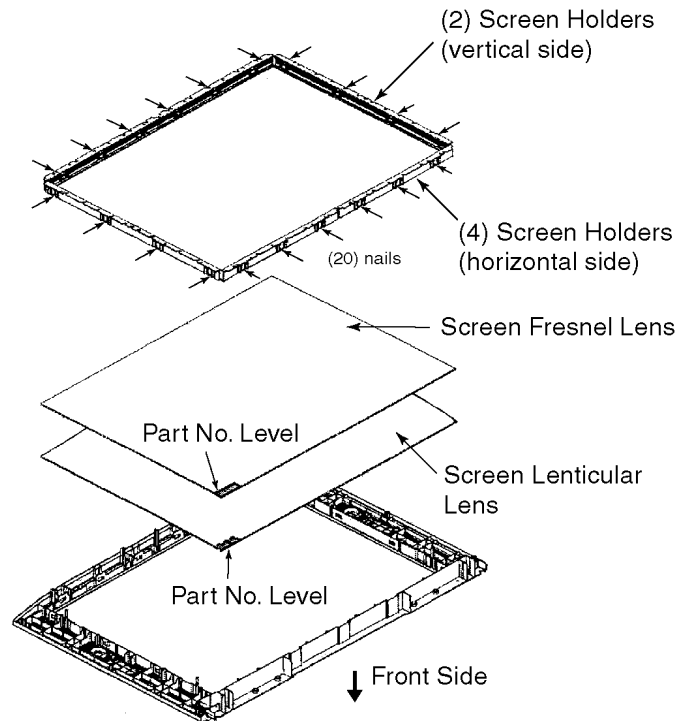
3.5. Cabinet (Upper)

1. Remove (12) Screws.



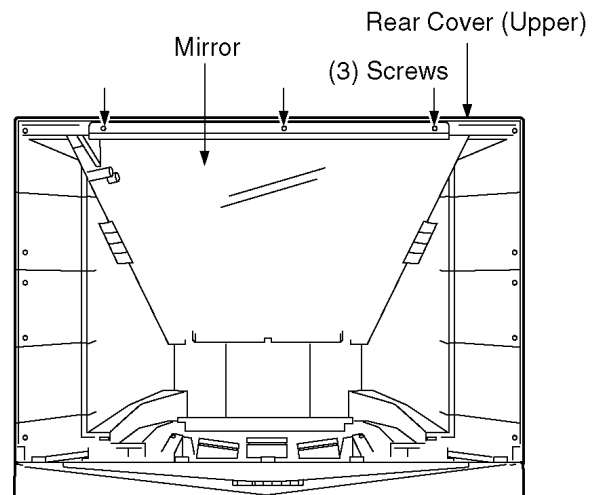
3.6. Screen

1. Remove (20) nails, and remove (2) Screen Holders (vertical side) and (4) Screen Holders (horizontal side).



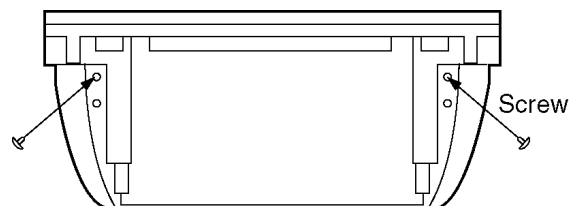
3.7. Mirror

1. Remove (3) screws.



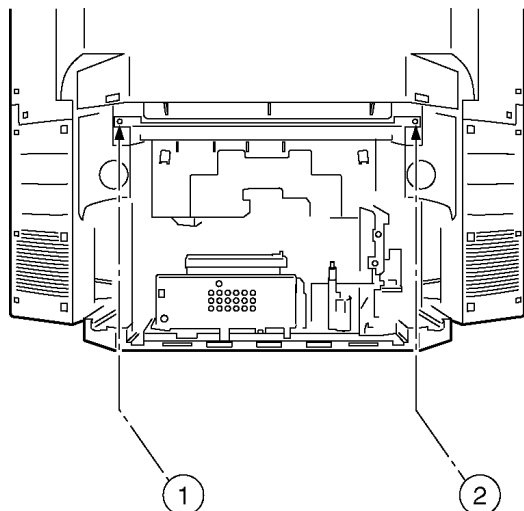
3.8. Rear Cover (Upper)

1. Remove the Cabinet (Upper).
2. Remove (2) screws.

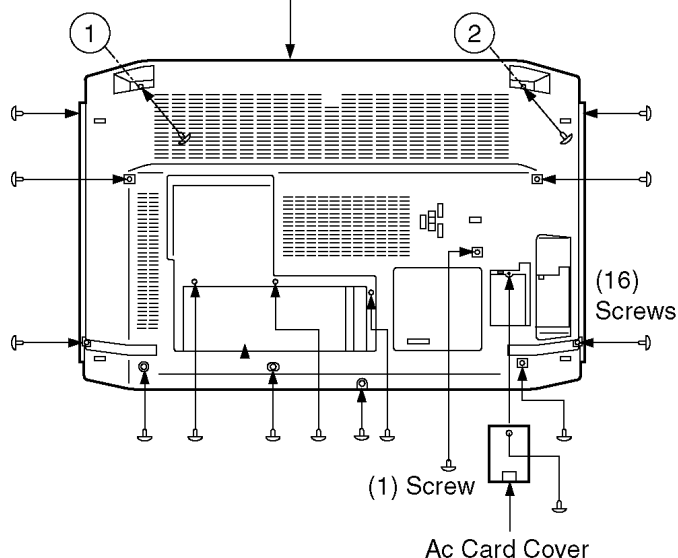


3.9. Rear Cover (Bottom)

1. Remove (16) screws.
2. Remove (1) screw.



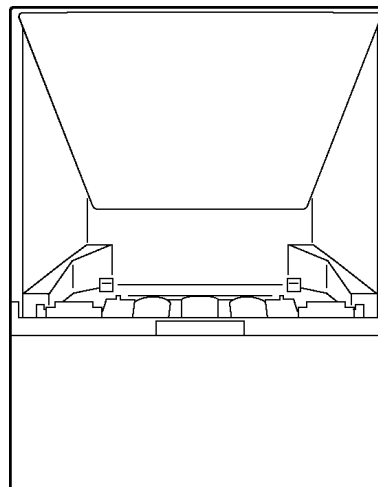
Rear Cover (Bottom)



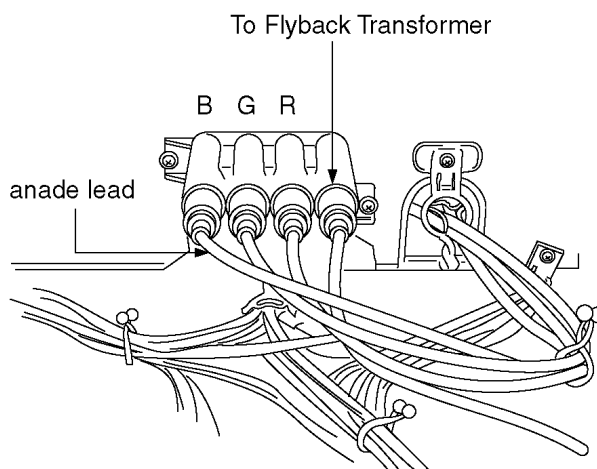
3.10. Disassembly For CRT Removal

To facilitate CRT replacement, the complete CRT mounting chassis does not need to be removed.

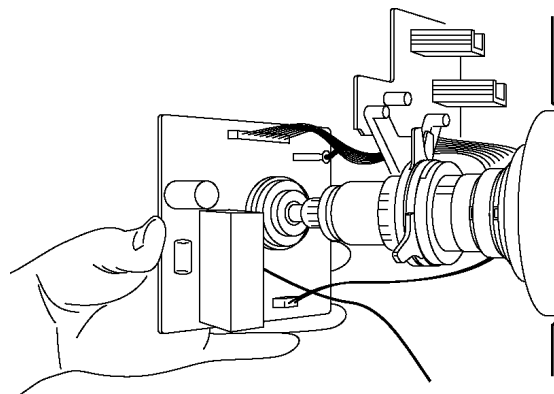
1. Remove the Screen Frame Ass'y, Decorative Panel and the Bottom Rear Cover Ass'y. (See Disassemble for Service).



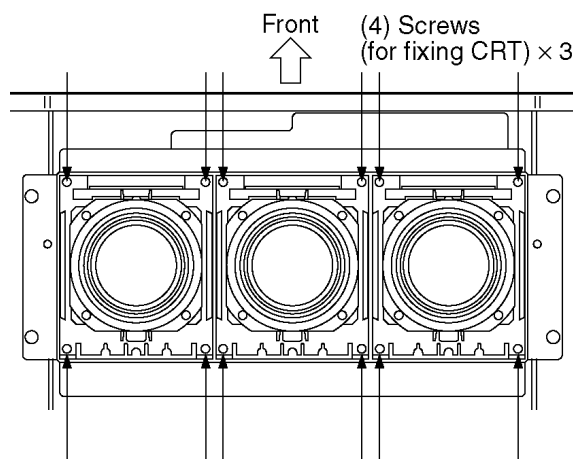
2. Unplug the defective CRT Dag (GND), from the CRT Board, LBGND for LB, LGGND for LG, LRGND for LR.
3. Remove lead wires (DY, VM coil) and anode lead wire from holders as necessary.



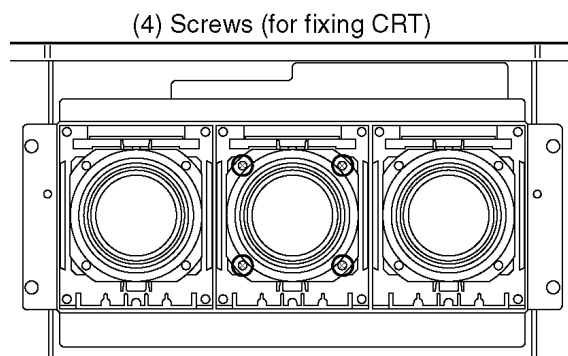
4. Remove the CRT Board from the defective CRT neck.



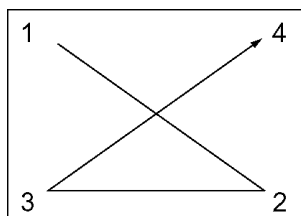
5. Note position of yoke with centering tabs and remove from defective CRT.
6. From the Top, remove (2) screws from the defective CRT.



7. Release CRT anode lead from CRT chassis wire clamp and all other wires from holders.
8. Wire the anode lead wire.
9. Lift out CRT assembly with lens assembly and other CRT neck assemblies.
10. Lay CRT face down on a soft cloth.
11. Remove CRT lens by removing (4) screws.



12. Install yoke and VM coil with other CRT neck assemblies on CRT neck in the same order and position as removed from the defective CRT.
13. Push yoke against bell of CRT and tighten the clamp just snug enough so it will not easily shift.
14. Assemble CRT focus lens assembly to new CRT with (4) screws. Make sure focus lens adjustment nut is in the same location as on other CRT focus lens.



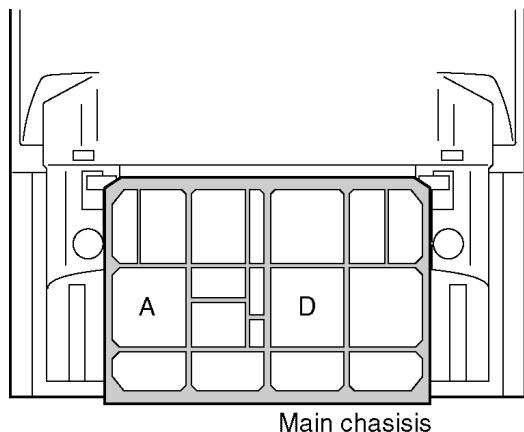
Note:

Please assemble with screws in the order shown in detail and tighten with same torque.

4 Service Hints

4.1. Service position for Main chassis

1. Remove the Rear Cover (Bottom) by removing (16) screws and (1) screws around its perimeter.
2. Remove lead wires and bundles from holders as necessary.
3. Pull out main chassis and stand it.

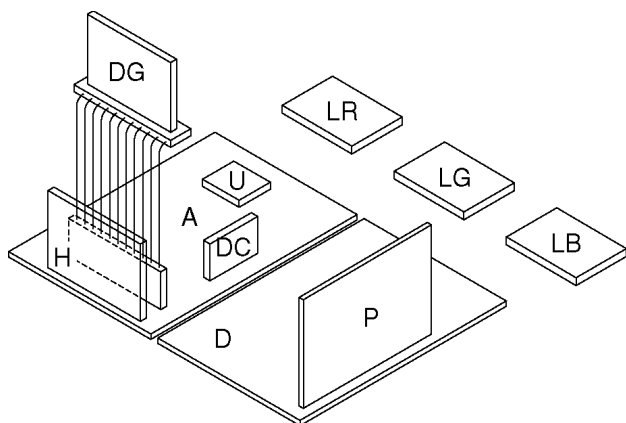


4.2. Service Position for DG-Board

1. Remove the each circuit board from A or D-Board.
2. Connect extension cables between individual circuit board and A or D-Board.

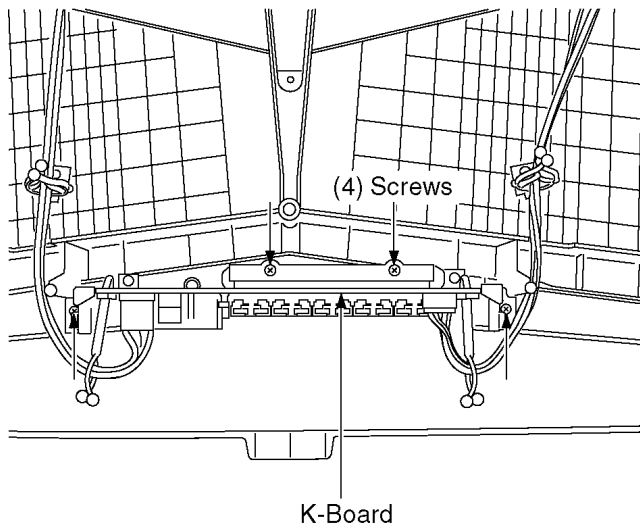
Note:

Extension cable kit is supplied as service fixtures and tools.
(Part No. TZSC0724)



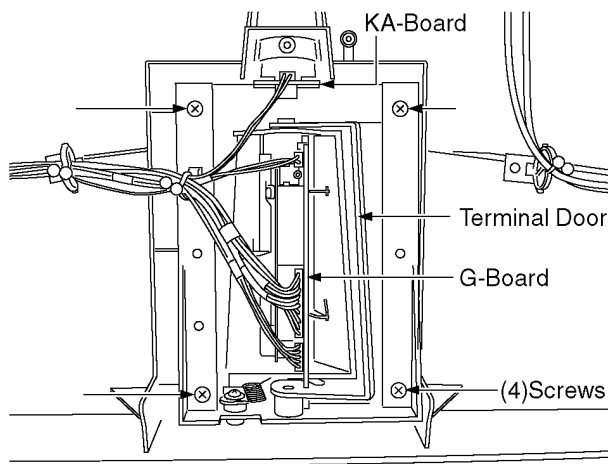
4.3. Service Position for K-Board

1. Remove the Speaker Grille.
2. Remove the K-Board by (4) screws.

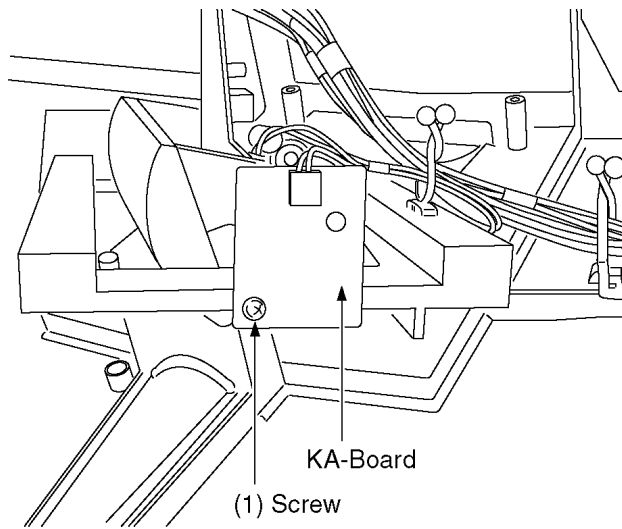


4.4. Service Position for KA-Board

1. Remove the Speaker Grille.
2. Remove the Terminal Door by (4) screws.

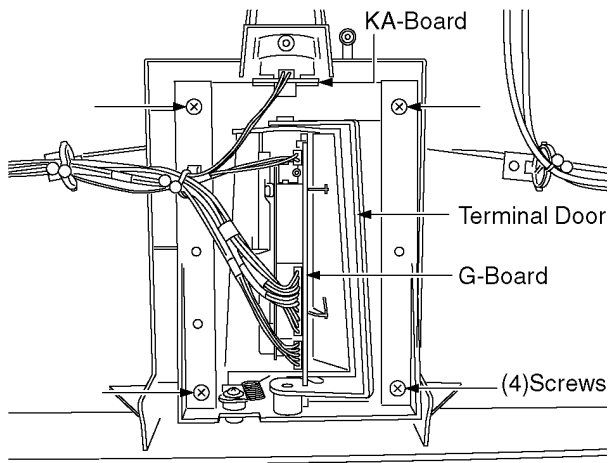


3. Remove the KA-Board by (1) screws.

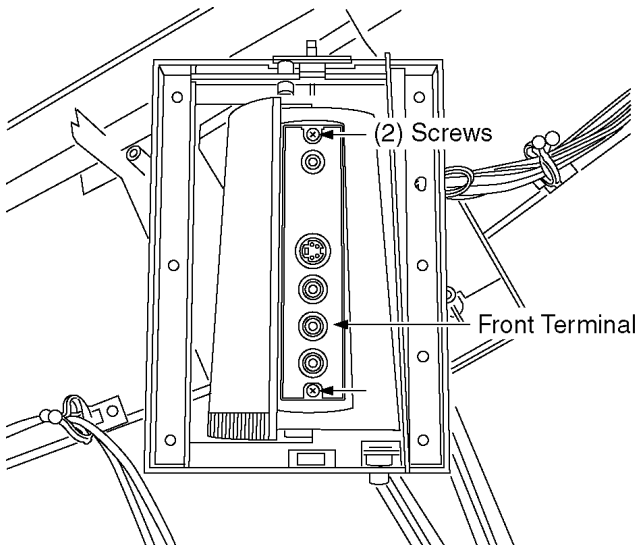


4.5. Service Position for G-Board

1. Remove the Speaker Grille.
2. Remove the Terminal Door by (4) screws.

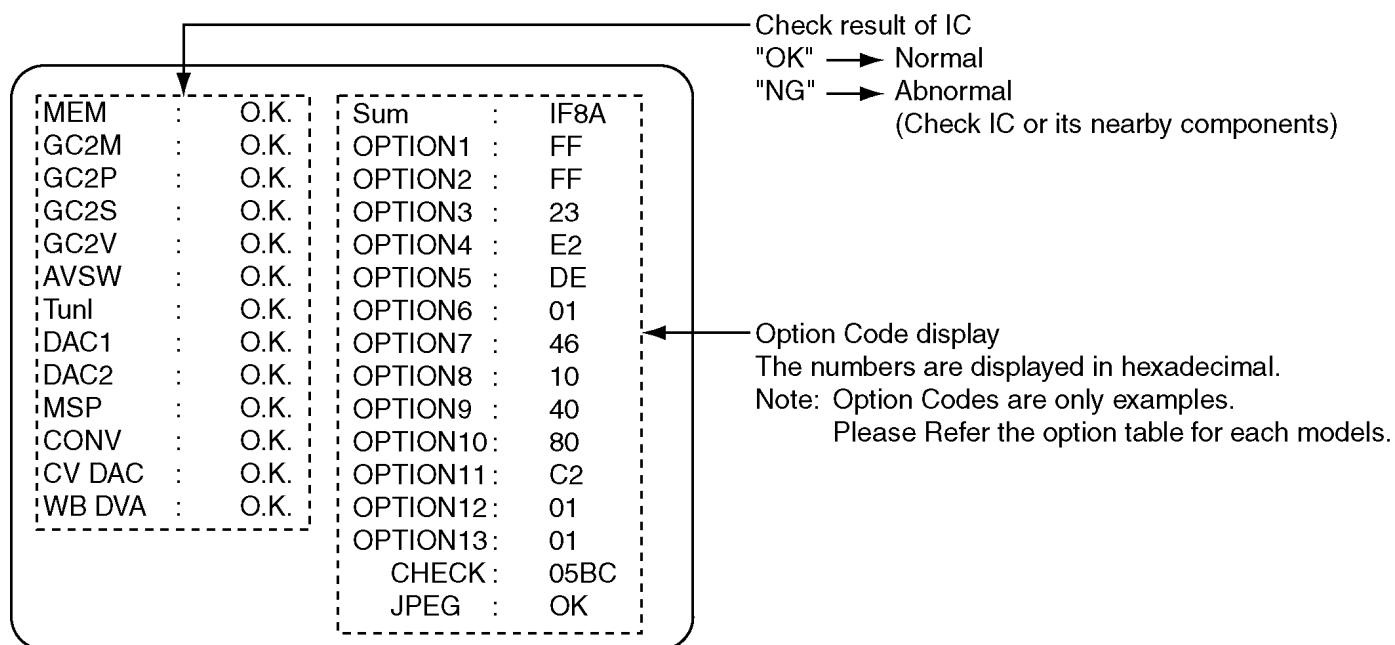


3. Remove the G-Board by (2) screws.



5 Self Check

1. Self-Check is used to automatically check the bus lines and hexadecimal code of the TV set.
2. To get into the Self -Check mode press the down (—/√) button on the customer controls at the front of the set, at the same time pressing the HELP button on the remote control, and the screen will show :



If the CCU ports have been checked and found to be incorrect or not located then "--" will appear in place of "O.K.".

Display	Ref. No.	Description	P.C.B.
MEMORY	IC1104	Memory	U-Board
GC2M	IC1301	Grobal Core MAIN	DG-Board
GC2P	IC1304	Grobal Core SUB1	DG-Board
GC2S	IC1302	Grobal Core SUB2	DG-Board
GC2V	IC1350	Grobal Core	DG-Board
AVSW	IC3003	AV Switch	H-Board
Tun1	TNR001	Tuner	A-Board
DAC1	IC1004	DAC control1	A-Board
DAC2	IC7110	DAC control2	DC-Board
MSP	IC2002	Stereo Decoder	A-Board
CONV	IC7107	Convergence	DC-Board
CV DAC	IC7301	Conv. DAC	A-Board
WB DAC	IC7702	WB DAC control	A-Board

6 Service Mode Function

MPU controls the functions switching for each IICs through IIC bus in this chassis. The following setting and adjustment can be adjusted by remote control in Service Mode.

6.1. How to enter SERVICE 1

1. In sound menu, set BASS to MAX, and set TREBLE to MINIMUM.
2. Simultaneously press INDEX button on remote control and VOLUME DOWN button [-] on the TV set.

6.2. How to enter SERVICE 2

1. Set the channel to CH99.
2. Press HOLD button on remote control.

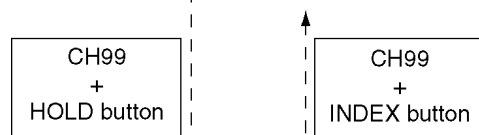
Note:

To exit to Service mode, press N or Power button on remote control.

SERVICE 1

Function	Average Data
H-Pos	438
V-Pos	132
H-Amp	28
V-Amp	119
Parabola	68
Trapezoid	131
H-Parallel	8
V-Linear	134
Top-Corner	180
Bottom-Corner	180
V-S-Correct	55
C-Correct	7
IVBL C	160
G-LIMIT	255
B-LIMIT	255
WB-B-G-ST1	255
R High(Drive)	0128
G High(Drive)	0128
B High(Drive)	0128
R Low(Cut off)	0690
G Low(Cut off)	0640
B Low(Cut off)	0640
Sub-Bright	168
Sub-Contrast	154
Sub-Colour	26
Sub-NTSC Tint	-4
SECAM B-Y	192
SECAM R-Y	70
Sub-NTSC Tint2	129
Sub SECAM B-Y	192
Sub SECAM R-Y	70
Video Gain 2	20
SDRAM-F	-1
DAF-H-PARA	312
DAF V-SAW	9
DAF V-PARA	28
Coarse Convergence	Access
Fine Convergence	Access

- Press the RED/GREEN button to step up/down through the functions.
- Press the YELLOW/BLUE button to change the function values.
- Press the STR button after each adjustment has been made to store the required values.

**SERVICE 2**

Function		Function	
Y/C Delay	04	OPTION 8	10
OPTION 1	FF	OPTION 9	40
OPTION 2	FF	OPTION 10	80
OPTION 3	23	OPTION 11	C2
OPTION 4	E2	OPTION 12	01
OPTION 5	DE	OPTION 13	01
OPTION 6	01	Hours	00005
OPTION 7	46		

6.3. Option Description

Options	HQ	HM	X		ASIA	
option1	6F	6F	6F			
0E0	b0	1	1	1	Colour system	Auto (1)
	b1	1	1	1		SECAM (1)
	b2	1	1	1		NTSC (1)
	b3	1	1	1		M.NTSC (1)
	b4	0	0	0	JPEG (1)	enable (1)
	b5	1	1	1	BBE (1)	enable (1)
	b6	1	1	1	BLUE LED (1)	enable (1)
	b7	0	0	0	YUV-SW (1)	enable (1)
option2	FF	FF	FF			
0E1	b0	1	1	1	CH Plan	ASIA / M.E. / HK / UK / CHINA (1)
	b1	1	1	1		NZ/INDNES (1)
	b2	1	1	1		AUSTRALIA (1)
	b3	1	1	1		E.EUROPE (1)
	b4	1	1	1		SPECIAL (1)
	b5	1	1	1		AMERICA (1)
	b6	1	1	1		CATV (1)
	b7	1	1	1		JAPAN (1)
option3	21	21	21			
0E2	b0	1	1	1	sub picture	without sub-picture (0), with sub-picture (1)
	b1	0	0	0	2tuner	2tuner (1), 1tuner (0)
	b2	0	0	0	VGA	enable (1)
	b3	0	0	0	AV5	enable (1)
	b4	0	0	0	Wide (16:9)	16:9 (1), 4:3 (0) (change multi window / aspect operation)
	b5	1	1	1	HYPER	UHF only (0), UHF/VHF (1)
	b6	0	0	0	SIF	4.5 / 5.5 / 6.0 / 6.5 (0), 5.5 / 6.0 / 6.5 (1)
	b7	0	0	0		5.5 / 6.5 (2), 6.0 / 6.5 (3)
option4	E2	E2	E2			
0E3	b0	0	0	0	A2 enable	4.5 (1)
	b1	1	1	1		5.5 (1)
	b2	0	0	0		6.0 (1)
	b3	0	0	0		6.5 (1)
	b4	0	0	0	NICAM enable	4.5 (1)
	b5	1	1	1		5.5 (1)
	b6	1	1	1		6.0 (1)
	b7	1	1	1		6.5 (1)
option5	DE	DE	DE			
0E4	b0	0	0	0	A2 select 6.5MHz	5.742MHz (0) 6.742MHz (1)
	b1	1	1	1	NICAM priority	ASIA / M.E. (1)
	b2	1	1	1		HK / UK (1)
	b3	1	1	1		CHINA (1)
	b4	1	1	1		NZ / INDN (1)
	b5	0	0	0		AUSTRA (1)
	b6	1	1	1		E.EURO (1)
	b7	1	1	1		SPECIAL (1)

Options	HQ	HM	X		ASIA	
option6	00	00	02			
0E5	b0	0	0	0	Ext. HV input	Without HV input (0) / with HV input (1)
	b1	0	0	1	SASO enable	SASO enable (1)
	b2	0	0	0	Noise mute	Noise mute enable (0)
	b3	0	0	0	Monitor out AV1 mute	Monitor out AV1 mute (1)
	b4	0	0	0	Tuner no refresh	Refresh tuner (0), no refresh (1)
	b5	0	0	0	Tuner	MACO tune r(0), ALPS tuner (1)
	b6	0	0	0	free	
	b7	0	0	0		No motion cotrol in film mode (1)
option7	C6	C6	C6			
0E6	b0	0	0	0	Power up EC-Mode	Power on EC enable (1)
	b1	1	1	1	CH Blanking	Blanking enable (1)
	b2	1	1	1	AV Blanking	Blanking enable (1)
	b3	0	0	0	Auto WIDE	WSS enable only in aspect Auto (0), WSS always enable (1)
	b4	0	0	0	Volume correction	TV Volume correction enable (1)
	b5	0	0	0	AVLink	Q-Link on/off selectable in menu (1)
	b6	1	1	1	MPX/NICAM display	Display NICAM (0), Display MPX (1)
	b7	1	1	1	Owner ID	enable (1)
option8	D0	50	50			
0E7	b0	0	0	0	Teletext CH Refrech	enable (1)
	b1	0	0	0	Geomagnetic Sensor	Geomagnetic sensor enable (1)
	b2	0	0	0	Geomagnetic Polarity	Geomagnetic polarity +(0), -(1)
	b3	0	0	0	Rf Attenuater menu	Enable (1)
	b4	1	1	1	Fine tuning	Enable (1)
	b5	0	0	0	Search speed	Slow (1) Fast (0)
	b6	1	1	1	TEXT FLOF	Reserved
	b7	1	0	0	TEXT TOP	TOP enable (1)
option9	40	40	40			
0E8	b0	0	0	0	Dolby	Dolby enable (1)
	b1	0	0	0	3D Subwoofer	Subwoofer enable(1) Dolby model should be 0.
	b2	0	0	0	Dolby Virtual	Dolby Virtual enable (1)
	b3	0	0	0	Amp	with Amp (0) / without Amp (1)
	b4	0	0	0	Sound Ext. DA	without Sound Ext. DA (0) / with Sound Ext. DA (1)
	b5	0	0	0	Shopping Sound menu	MUSIC (0) / CINEMA (1)
	b6	1	1	1	Volume curve	Volume curve1 (0), curve2 (1)
	b7	0	0	0	L1PSYNC	L1PSYNC enable (1)
option10	80	80	80			
0E9	b0	0	0	0	OSD language	English Chinese Arabia (0), English Russian (1)
	b1	0	0	0	ACI all country	not use
	b2	0	0	0	ACI auto MP	not use
	b3	0	0	0	ACI offset	not use
	b4	0	0	0	Blue Back	
	b5	0	0	0	BC Safety	Reserved
	b6	0	0	0	Protect XPR	Reserved
	b7	1	1	1	Protect 5V detect	Protection input enable (1)

Options Model		HQ	HM	X		ASIA
option11		42	42	42		
0EA	b0	0	0	0	Shop mode	enable (1)
	b1	1	1	1	Picture Shift	enable (1)
	b2	0	0	0	Sub Headphone	enable (1)
	b3	0	0	0	User aspect Just	enable (1)
	b4	0	0	0	User aspect 14:9	enable (1)
	b5	0	0	0	NICAM C4 bit	enable (1)
	b6	1	1	1	ID-1	enable (1)
	b7	0	0	0	1080I	enable (1)
option12		03	01	01	Area Option	
0EB	b0	1	1	1	Asia	Asia (1), europe (0)
	b1	1	0	0	Australia	Australia (1)
	b2	0	0	0	Ireland/India	India (1)
	b3	0	0	0	UK	not use
	b4	0	0	0	MELCOA	MELCOA (1)
	b5	0	0	0	28 inch	28 inch (1) when only Large size=0, Wide=1, PTV=0
	b6	0	0	0	LED	enable (1)
	b7	0	0	0	free	
option13		01	01	01	Temporary	
0EC	b0	1	1	1	GC2V ES2	ES2 (1), BS1 (0)
	b1	0	0	0	UK Tuner IF 38.9	38.9 MHz (0), 39.5 MHz (1)
	b2	0	0	0		
	b3	0	0	0		
	b4	0	0	0		
	b5	0	0	0		
	b6	0	0	0		
	b7	0	0	0		

7 CRT Set Up

Caution:

Insure yoke plugs on the A-Board are reconnected before turning the Receiver ON to prevent damage to the horizontal output transistor and/or CRTs.

7.1. Dynamic Focus Adjustment

1. Focus adjustments should be performed after 1 hour of aging.
2. Use oscilloscope with 100 : 1 probe.
3. Apply PAL monoscope pattern.
4. Set scan mode to 100Hz.
5. Set the picture menu to Dynamic.
6. Adjust the Red, Blue and Green focus VR on the focus block for best focus of overall picture of each CRT. (Fig. 2)

Focus Pack

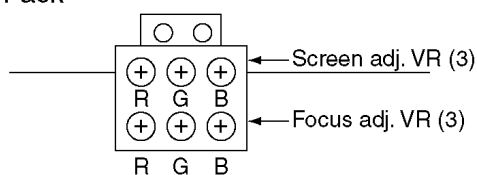


Fig. 2

7. Connect the scope probe to TPD20, GND to TPD21. Scope set at 20V/div & 5m sec./div.
8. Adjust V-PARA (Service mode1) so that waveform (A) is $380V \pm 20V$. (Fig. 3)
9. Adjust H-PARA (Service mode1) so that waveform (B) is $560V \pm 40V$. (Fig. 3)

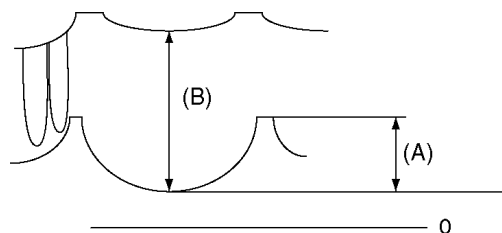


Fig. 3

10. Set scan mode to PAL 100V Comp.
11. Set the picture menu to Dynamic.
12. Adjust V-PARA (Service model) so that waveform (A) is $180V \pm 20V$. (Fig. 3)
13. Adjust H-PARA (Service model) so that waveform (B) is $560V \pm 20V$. (Fig. 3)
14. Set scan mode to Progressive.
15. Repeat step 6-9.
16. Apply NTSC monoscope pattern.
17. Set scan mode to Progressive.
18. Repeat step 6-9.
19. Set scan mode to 100Hz.
20. Repeat step 6-9.
21. Proceed with Focus Adjustments.

7.2. Electrical Focus Adjustment

1. Receive a monoscope pattern.
2. Cover the Red and Blue CRT, projecting Green only.
The electrical focus controls are located on the front. Adjust the Green Focus VR for best focus of overall picture. (Fig. 2)
3. Repeat for Red focus VR while projecting Red only.
4. Repeat for Blue. (Best focus at bottom left corner of screen)

7.3. Optical Lens Focus Adjustment

Note:

This adjustment normally should not require resetting unless the lens has been replaced or adjustment has changed.

1. Optical focus adjustment is located on the top of each CRT lens system. Loosen the adjustment knurled locking knob. (Fig. 4)

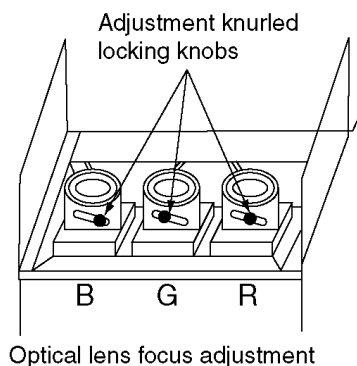


Fig. 4 (Rear view)

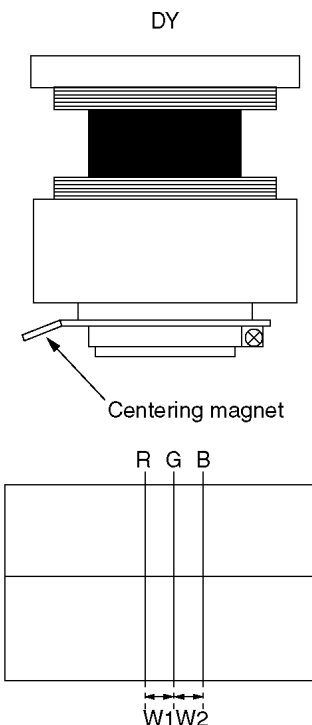
2. Turn the Receiver ON apply and view a monoscope pattern.
3. Adjust each lens focus for best focus while viewing each CRT.
4. Cover the Red and Blue CRT, projecting green only. Rotate the Green lens for best focus around screen center area.
5. Do the same for the Red focus lens while projecting Red only.
6. Repeat for Blue.

7.4. Centering Magnet Adjustment

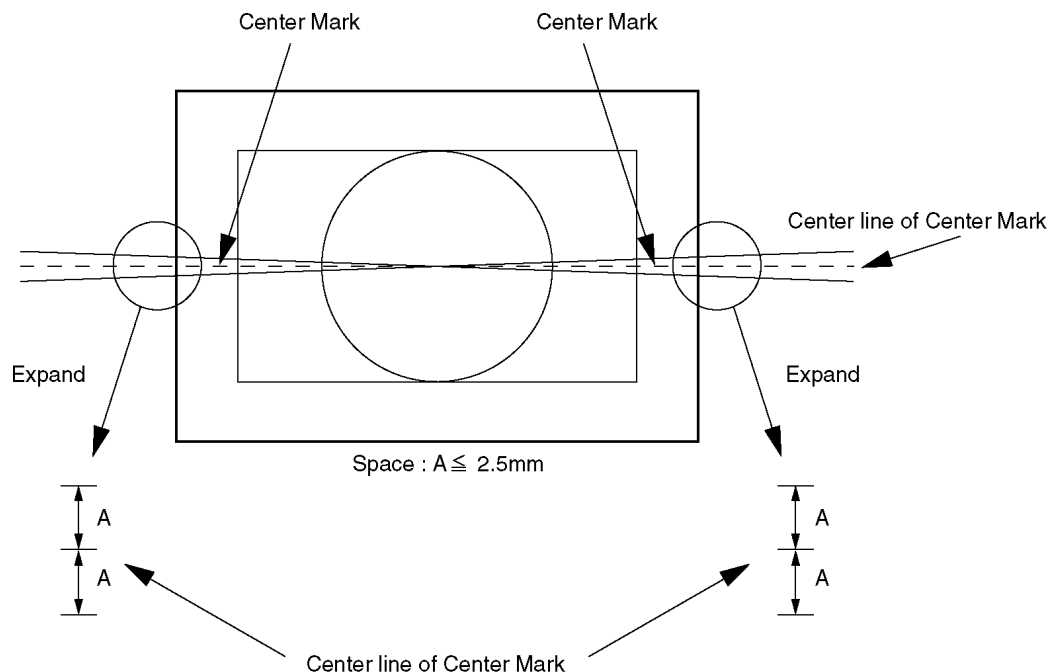
1. Receive a monoscope pattern.
2. Set that Fine convergence data (Service mode1) is clear (no correction).
3. Set that V-Pos data (Service mode1) is [130].
4. Set that H-Pos data (Service mode1) is [438].
5. Set that H-Parallel data (Service mode1) is [8].

Procedure:

1. Cover the Red, Blue CRT lens, projecting Green only.
2. Adjust green centering magnet (DY) if the projected green horizontal/vertical line does not line up with the screen horizontal/vertical center line.
3. Cover the Green, Red CRT lens, projecting Blue only.
4. Repeat step 2. for blue.
5. Cover the Green, Blue CRT lens, projecting Red only.
6. Repeat step 2. for red.
7. Cover the Red, Blue CRT lens, projecting Green only.
8. Adjust green centering magnets until the center of the monoscope pattern line up with the screen center line.
9. Cover the Green, Red CRT lens, projecting Blue only.
10. Adjust blue centering magnets to position the center of the blue raster W2 away from the center of the green raster.
11. Cover the Green, Blue CRT lens, projecting Red only.
12. Adjust red centering magnets to position the center of the red raster W1 away from the center of the green raster.



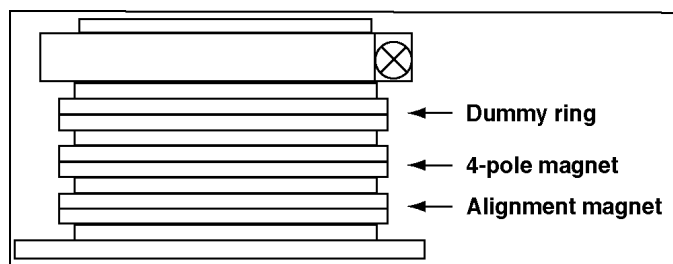
51inch	W1=17.5mm ± 2.5mm W2=40.0mm ± 2.5mm
43inch	W1=17.5mm ± 2.5mm W2=40.0mm ± 2.5mm



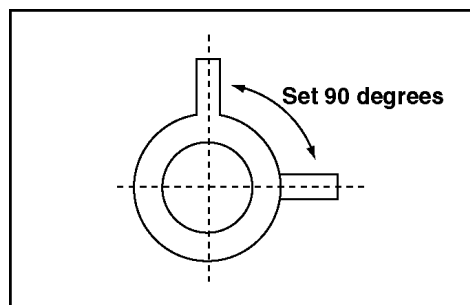
7.5. Alignment magnet Adjustment

Preparation:

1. Receive an cross hatch pattern with dots (pincushion).
2. Loosen the centering magnets screws.
3. Position the longer tab of the four-pole magnet to 90 degrees (uncorrected position).

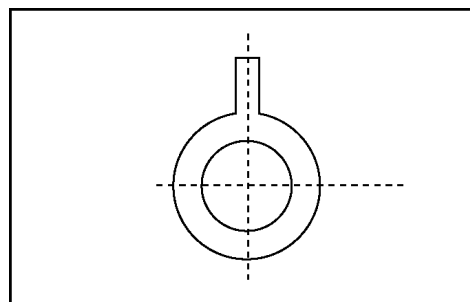


VM Coil with focus correction magnet



4-pole magnet

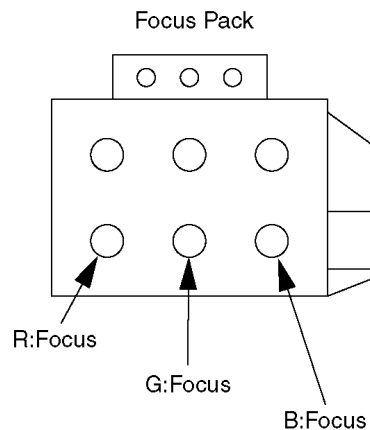
4. Position the long tab of all alignment magnets and of the dummy ring together in an uncorrected position.



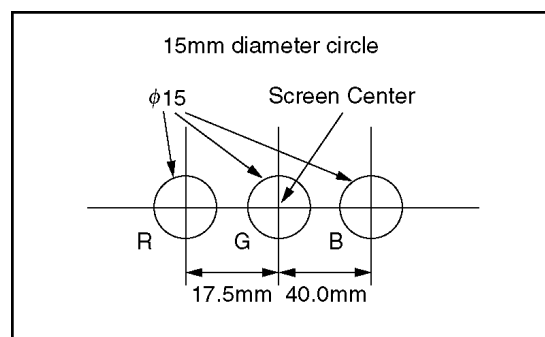
Alignment magnet (or dummy ring)

Procedure:

1. Receive an cross hatch pattern with dots.
2. Cover the Red, Blue CRT lens, projecting Green only.
3. Turn the green electrical focus adjustment VR (on focus pack) fully counterclockwise and note the position of the dots at the center of the picture.
4. Turn the green electrical focus adjustment VR fully clockwise.
5. Adjust the four pole magnets until the shape of the dot at the center of the screen is circular.
6. Adjust for best green electrical focus with green electrical focus adjustment VR.
7. Cover the Green, Red CRT lens, projecting Blue only.
8. Repeat step 4. ~ step 6. for blue electrical focus.
9. Cover the Green, Blue CRT lens, projecting Red only.
10. Repeat step 4. ~ step 6. for red electrical focus.



11. Receive an monoscope pattern.
12. Cover the Red, Blue CRT lens, projecting Green only.
13. If the center of the monoscope pattern is not inside the 15mm circle, shown in below, adjust the centering magnets. Repeat the alignment magnet adjustments and four pole magnet adjustments (step 1. ~ step 6.)



Centering magnet adjustment

14. Cover the Green, Blue CRT lens, projecting Red only.
15. Repeat step 13. for the red.
16. Cover the Green, Red CRT lens, projecting Blue only.
17. Repeat step 13. for the blue.
18. Following adjustments, fix the centering magnets of DY, dummy rings of VM coil, four pole magnets of VM coil and the alignment magnets of VM coil to prevent them from moving.

8 Deflection Adjustment

Caution

1. The following adjustment have to be carried out one with **PAL signal (100i/50p)** and with **NTSC signal (60p/120i)**.
2. Deflection adjustment need to set the Coarse/Fine Convergence to Zero Correction some time.
3. Before Deflection Adjustment are attempted, CRT Set up, Electrical Focus and Optical Lens Focus adjustment must be completed.

8.1. PAL 100Hz mode (100i)

8.1.1. Preparation

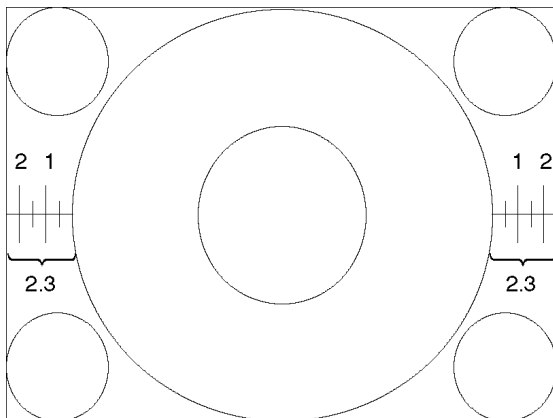
1. Receive PAL monoscope pattern.
2. Set scan mode to 100Hz.
3. Set the Picture Menu to NORMAL.
4. Set the TV to Service Mode 1.
5. Set the Data of Service Mode 1 as follow

H-Pos	438	Top-Corner	170
V-Pos	130	Bottom-Corner	173
H-Parallel	8	V-S-Correct	92
IVBL C	108	C-Correct	6

6. Push [0] button so that set the Data of Coarse/Fine Convergence to Zero Correction.
7. Push [HELP] button so that projecting Green only.

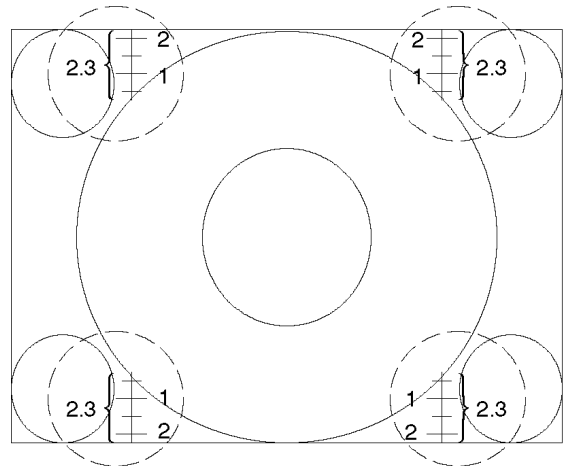
8.1.2. H-Pos and H-Amp Adjustment

1. Adjust Monoscope pattern for center of the screen by H-Pos control.
2. Adjust Horizontal amplitude for 2.3 ± 0.1 division of a scale by H-Amp control.

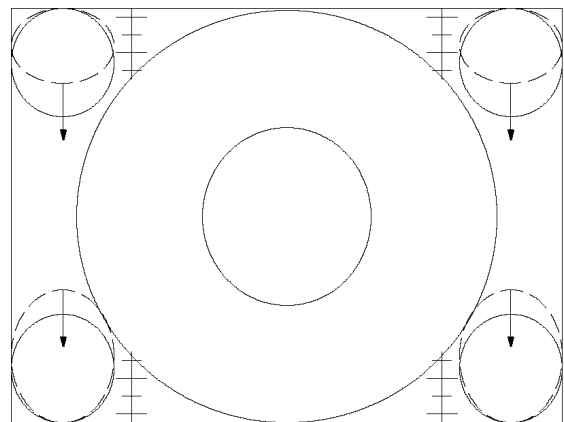


8.1.3. V-Amp, V-Linear and V-Pos Adjustment

1. Adjust Vertical amplitude for 2.3 ± 0.1 division of a scale by V-Amp control.



2. Confirm Vertical Linear as to the balance of circle, if need adjust V-Linear control.



3. Confirm Vertical Center , if it is not correct, adjust Monoscope pattern for center of the screen by V-Pos control.

8.1.4. Parabola and Trapezoid Adjustment

1. Receive PAL cross hatch pattern.
2. Adjust the vertical line to straight line by Parabola control.
3. Adjust the vertical line to straight line of both side Vertical line by Trapezoid control.

8.2. PAL 100Hz V Comp mode (100i)

8.2.1. Preparation

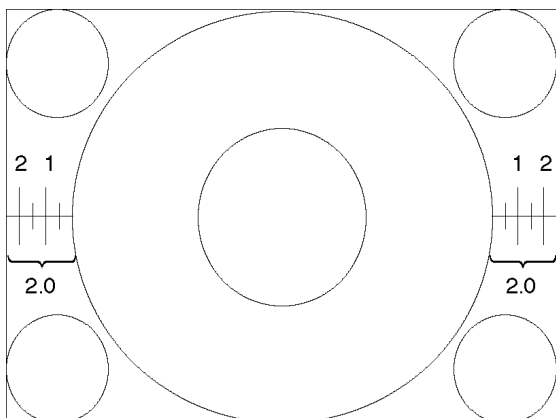
1. Receive PAL monoscope pattern.
2. Set scan mode to 100Hz.
3. Set the Picture Menu to NORMAL.
4. Set the TV to Service Mode 1.
5. Set the Data of Service Mode 1 as follow

H-Pos	438	Top-Corner	168
		Bottom-Corner	173
H-Parallel	8	V-S-Correct	45
IVBL C	45	C-Correct	7

6. Push [0] button so that set the Data of Coarse/Fine Convergence to Zero Correction.
7. Push [HELP] button so that projecting Green only.

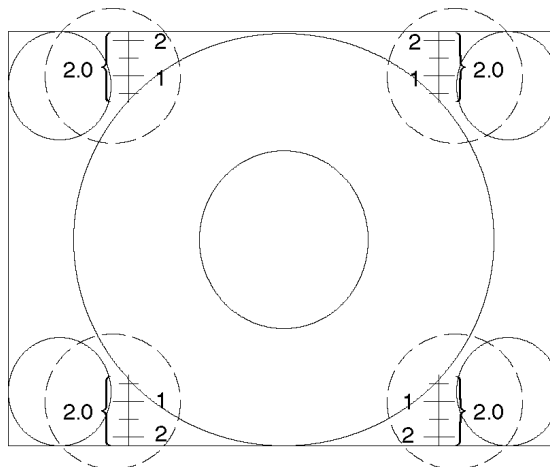
8.2.2. H-Pos and H-Amp Adjustment

1. Adjust Monoscope pattern for center of the screen by H-Pos control.
2. Adjust Horizontal amplitude for 2.0 ± 0.1 division of a scale by H-Amp control.

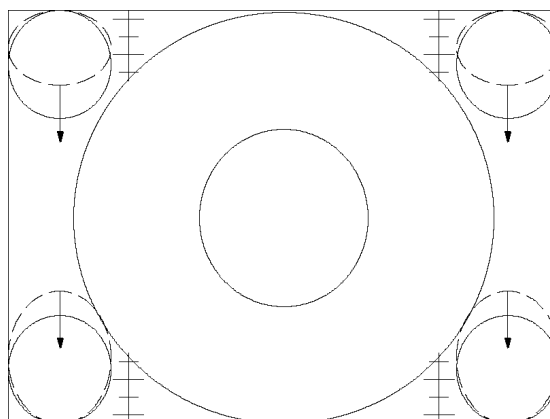


8.2.3. V-Amp, V-Linear and V-Pos Adjustment

1. Adjust Vertical amplitude for 2.3 ± 0.1 division of a scale by V-Amp control.



2. Confirm Vertical Linear as to the balance of circle, if need adjust V-Linear control.



3. Confirm Vertical Center , if it is not correct, adjust Monoscope pattern for center of the screen by V-Pos control.

8.2.4. Parabola and Trapezoid Adjustment

1. Receive PAL cross hatch pattern.
2. Adjust the vertical line to straight line by Parabola control.
3. Adjust the vertical line to straight line of both side Vertical line by Trapezoid control.

8.3. PAL Progressive mode (50p)

8.3.1. Preparation

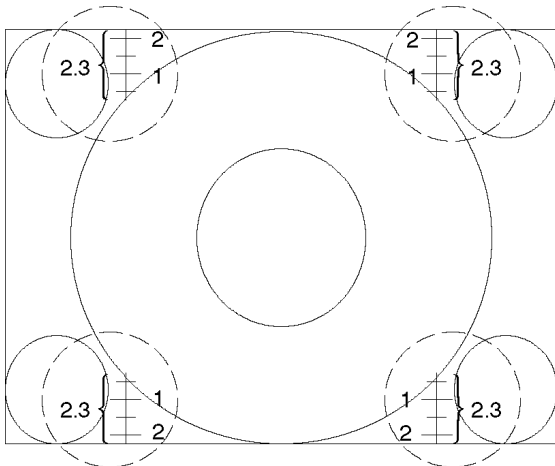
1. Receive PAL monoscope pattern.
2. Copy the Data of PAL 100Hz mode (100i) to PAL Progressive mode (50p)
3. Set scan mode to progressive.
4. Set the Picture Menu to NORMAL.
5. Set the TV to Service Mode 1.
6. Set the Data of Service Mode 1 as follow

H-Parallel	8	Bottom-Corner	173
IVBL C	90	V-S-Correct	90
Top-Corner	173	C-Correct	6

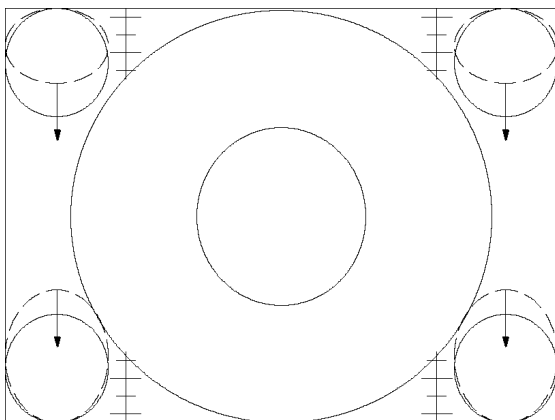
7. Push [0] button so that set the Data of Coarse/Fine Convergence to Zero Correction.
8. Push [HELP] button so that projecting Green only.

8.3.2. V-Amp, V-Linear and V-Pos Adjustment

1. Adjust Vertical amplitude for 2.3 ± 0.1 division of a scale by V-Amp control.



2. Confirm Vertical Linear as to the balance of circle, if need adjust V-Linear control.



3. Confirm Vertical Center, if it is not correct, adjust Monoscope pattern for center of the screen by V-Pos control.

8.4. NTSC Progressive mode (60p)

8.4.1. Preparation

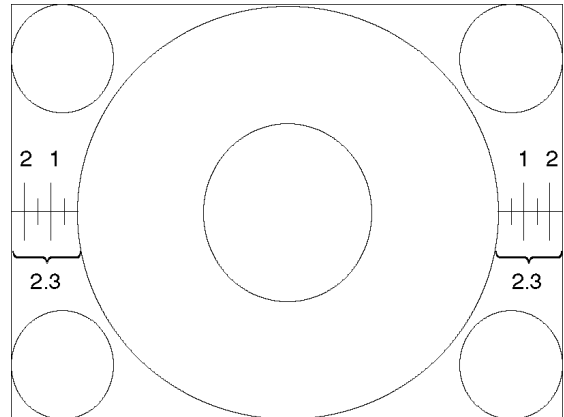
1. Receive NTSC monoscope pattern.
2. Set scan mode to Progressive.
3. Set the Picture Menu to NORMAL.
4. Set the TV to Service Mode 1.
5. Set the Data of Service Mode 1 as follow

H-Parallel	8	Bottom-Corner	167
IVBL C	95	V-S-Correct	92
Top-Corner	176	C-Correct	6

6. Push [0] button so that set the Data of Coarse/Fine Convergence to Zero Correction.
7. Push [HELP] button so that projecting Green only.

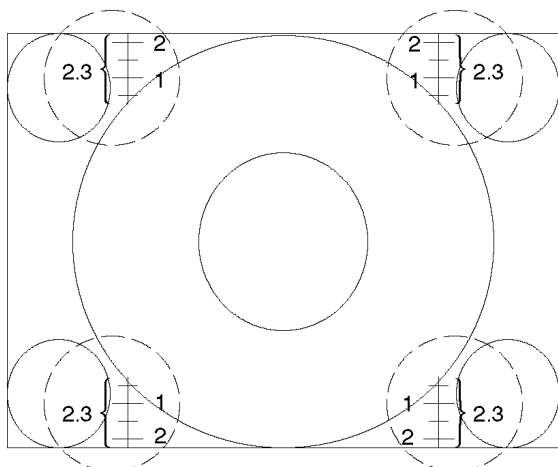
8.4.2. H-Pos and H-Amp Adjustment

1. Adjust Monoscope pattern for center of the screen by H-Pos control.
2. Adjust Horizontal amplitude for 2.3 ± 0.1 division of a scale by H-Amp control.

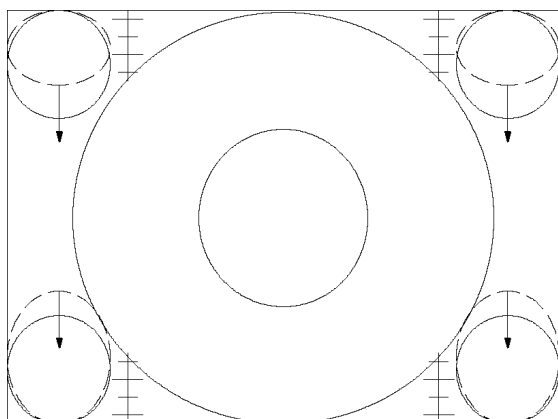


8.4.3. V-Amp, V-Linear and V-Pos Adjustment

1. Adjust Vertical amplitude for 2.3 ± 0.1 division of a scale by V-Amp control.



2. Confirm Vertical Linear as to the balance of circle, if need adjust V-Linear control.



3. Confirm Vertical Center, if it is not correct, adjust Monoscope pattern for center of the screen by V-Pos control.

8.4.4. Parabola and Trapezoid Adjustment

1. Receive NTSC cross hatch pattern.
2. Adjust the vertical line to straight line by Parabola control.
3. Adjust the vertical line to straight line of both side Vertical line by Trapezoid control.

8.5. 525p Deflection Adjustment / Confirmation

8.5.1. V / H-Deflection confirmation

1. Receive 525p signal.
2. Confirm V / H-Deflection is normal.

8.5.2. H-Pos confirmation / Adjustment

1. Receive 525p signal.
2. Confirm H-Pos and if need, adjust H-Pos.

8.6. 625p Deflection Adjustment / Confirmation

8.6.1. V / H-Deflection confirmation

1. Receive 625p signal.
2. Confirm V / H-Deflection is normal

8.6.2. H-Pos confirmation / Adjustment

1. Receive 625p signal.
2. Confirm H-Pos and if need, adjust H-Pos.

9 Adjustment Procedure

9.1. Cut off Adjustment

Preparation

Picture Menu : Dynamic WB-B-G-ST1 : 255

C Temp : Standard High-RGB : 128

AI : ON Low-RGB : 640

P-NR : AUTO

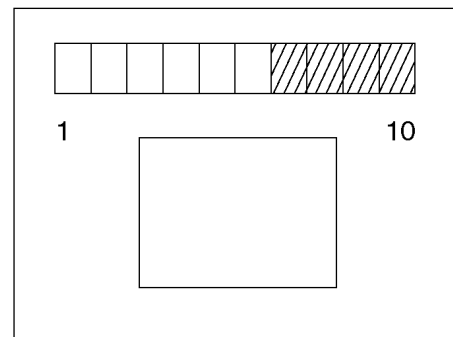
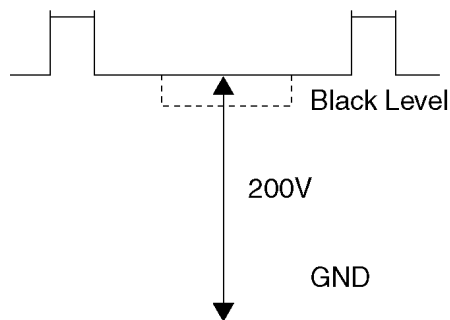
Scan Mode : 100Hz (PAL) G-Limit : 255

Screen VR : Full Counterclockwise B-Limit : 255

Adjustment

1. Receive a Black Level pattern.
2. Connect an oscilloscope to TPLG1 on LG-Board.
3. Adjust Sub Bright so that the waveform A is $200 \pm 2V$.
4. Connect an oscilloscope to TPLR1 on LR-Board.
5. Adjust Low-R so that the waveform A is $200 \pm 2V$.
6. Connect an oscilloscope to TPLB1 on LB-Board.
7. Adjust Low-B so that the waveform A is $200 \pm 2V$.
8. It pushes and it makes a [HELP] key the project only of GREEN.
9. The 6th paragraph shines faintly with the screen VR of GREEN and the 7th paragraph does to the sinking style.
10. It pushes and it makes a [HELP] key the project only of RED.
11. The 6th paragraph shines faintly with the screen VR of RED and the 7th paragraph does to the sinking style.
12. It pushes and it makes a [HELP] key the project only of BLUE.
13. The 6th paragraph shines faintly with the screen VR of BLUE and the 7th paragraph does to the sinking style.

TPLG1/R1/B1



9.2. Sub Contrast / G-Limit Adjustment

Preparation

Picture Menu : Dynamic WB-B-G-ST1 : 255

C Temp : Standard High-RGB : 128

AI : ON Low-G : 640

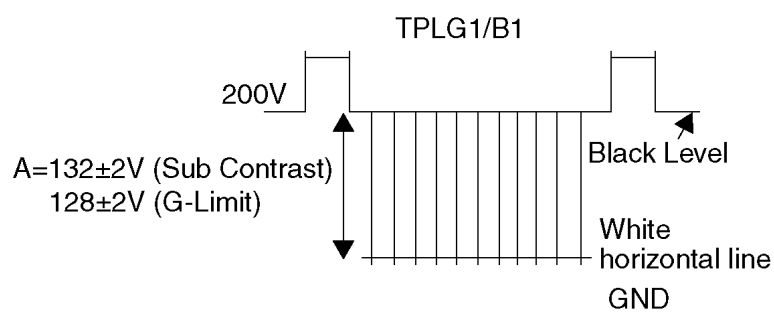
P-NR : AUTO G-Limit : 255

Scan Mode : 100Hz (PAL)

Cut off Adjustment has been adjusted

Adjustment

1. Receive a Cross Hatch pattern.
2. Connect an oscilloscope to TPLG1 on LG-Board.
3. Adjust Sub Contrast so that the waveform A is $132 \pm 2V$.
4. Before G-Limit Adjustment is attempted, Sub Contrast adjustment must be completed.
5. Adjust G-Limit so that the waveform A is $128 \pm 2V$.



9.3. Sub Picture Contrast Adjustment

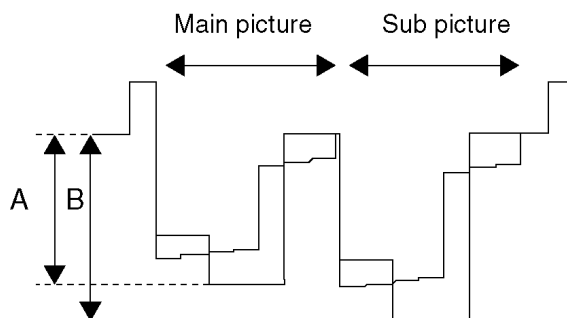
Preparation

Picture Menu : Dynamic

AI : ON

Adjustment

1. Receive a Colour Bar pattern.
2. Connect an oscilloscope to TPLG1 on LG-Board.
3. Increment / Decrement Video gain2 to adjust Sub-Video level B as same as Main video level A.
4. Write same date on
Video gain TV as Video gain AV.



9.4. NTSC Tint Adjustment

Preparation

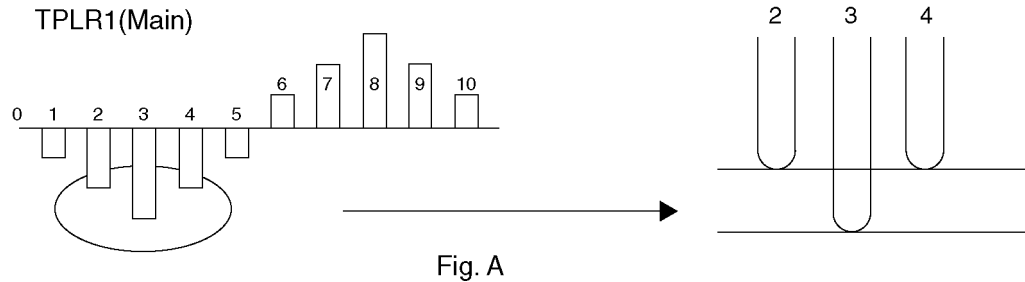
Picture Menu : Dynamic P-NR : AUTO

C Temp : Standard Scan Mode : 100Hz (PAL)

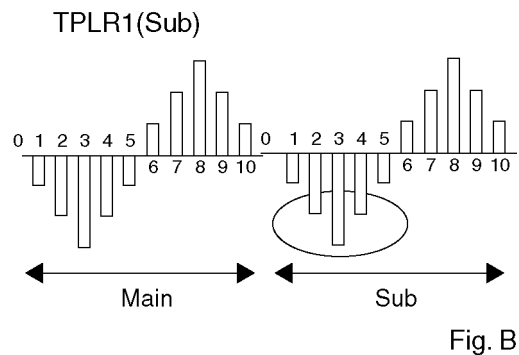
AI : ON

Adjustment

1. Receive a Rainbow (NTSC 3.58Hz) pattern.
2. Connect an oscilloscope to TPLR1 on LR-Board.
3. Adjust Sub NTSC Tint so that the peak of level of waveform is similar to Fig. A.



4. Receive a Rainbow (NTSC 3.58Hz) pattern on both of Main and Sub picture.
5. Adjust Sub NTSC Tint 2 so that the peak of level of waveform is similar to Fig. B.



9.5. Sub Color Adjustment

Preparation

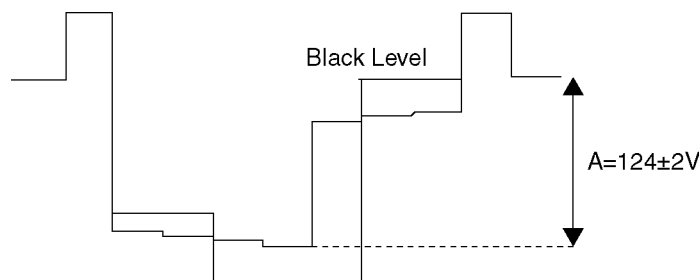
Picture Menu : Dynamic P-NR : AUTO

C Temp : Standard Scan Mode : 100Hz (PAL)

AI : ON ACL : OFF

Adjustment

1. Receive a PAL Colour Bar pattern.
2. Connect an oscilloscope to TPLG1 on LG-Board.
3. Adjust Sub Color so that the waveform A is $124 \pm 2V$.



9.6. Blue Focus / Gamma Adjustment

Preparation

Picture Menu : Dynamic WB-B-G-ST1 : 100

C Temp : Standard B-Limit : 255

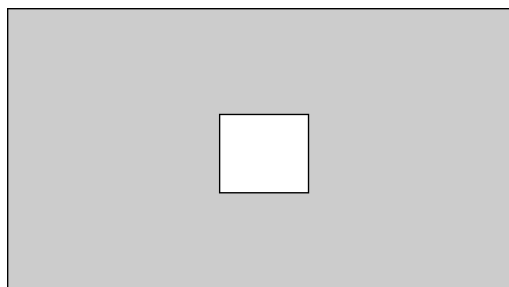
AI : ON

P-NR : AUTO

Scan Mode : 100Hz (PAL)

Adjustment

1. Set the White Balance Meter on Screen center.
2. Receive a Window pattern.
3. Set the Sub Contrast and High-B to Max.
4. It pushes and it makes a [HELP] key the project only of BLUE.
5. Adjust Blue Focus VR so that Y is $7.0 \pm \text{cd/m}^2$



9.7. White Balance Adjustment

Preparation

Picture Menu : Dynamic Sub Bright :130

C Temp : Standard High R : 100

AI : ON

P-NR : ON High B : 128

Scan Mode : 100Hz (PAL) WB-B-G-ST1 : 170

Low G : 640

Adjustment

1. Set the White Balance Meter on Screen center.
2. Receive a Window pattern.
3. Adjust Sub Bright so that the 6th paragraph shines faintly and the 7th paragraph does to the sinking style.
4. Adjust High R, WB-B-G-ST1, High B, Low R, and Low B to the table value.

51 inch model

Mode	Bright (cd/m ²)	Controle DAC name		Target (x) (y)	C. Temp (K)	MPCD
		RED	BLUE			
Hi	96	High R	WB-B-G-ST1	0.270 ± 0.005	13000 ± 500	-5 ± 5
				0.240 ± 0.005		
Mid	35	---	High B	0.270	11500 ± 500	-20 ± 5
				0.230 ± 0.005		
Low	3	Low R	Low B	0.280 ± 0.008	9200 ± 500	-25 ± 5
				0.240 ± 0.008		

43 inch model

Mode	Bright (cd/m ²)	Controle DAC name		Target (x) (y)	C. Temp (K)	MPCD
		RED	BLUE			
Hi	120	High R	WB-B-G-ST1	0.266 ± 0.005	13000 ± 500	-5 ± 5
				0.246 ± 0.005		
Mid	40	---	High B	0.270	11500 ± 500	-20 ± 5
				0.240 ± 0.005		
Low	3	Low R	Low B	0.280 ± 0.008	9200 ± 500	-25 ± 5
				0.240 ± 0.008		

9.8. Sub Bright Adjustment

Preparation

Picture Menu : Dynamic P-NR : AUTO

C Temp : Dynamic Scan Mode : 100Hz (PAL)

AI : ON

Cut off and White Balance Adjustment has been adjusted

Adjustment

1. Set the White Balance Meter on Screen center.
2. Receive a PAL Window pattern.
3. Adjust Sub Bright so that the 6th paragraph shines faintly and the 7th paragraph does to the sinking style.

9.9. Blue Limit Adjustment

Preparation

Picture Menu : Dynamic

C Temp : Standard

AI : ON

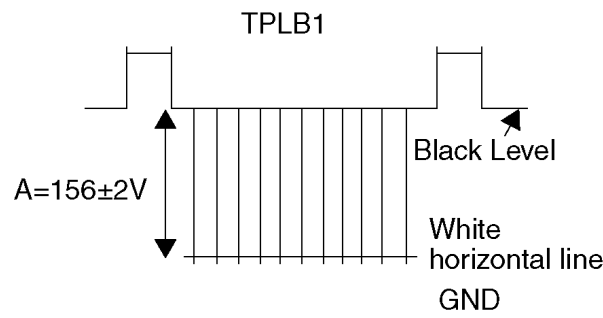
P-NR : ON

Scan Mode : 100Hz (PAL)

White Balance Adjustment has been adjusted

Adjustment

1. Receive a Cross Hatch pattern.
2. Connect an oscilloscope to TPLB1 on LB-Board.
3. Adjust B-LIMIT so that the waveform A is 156 ± 2V.



10 Convergence Adjustment

The convergence adjustment is set separately for each 50/100Hz/ 60/100Hz input (NTSC, PAL/ SECAM). The following explanation uses the PAL mode as an example, since the same procedure applies to the convergence adjustment for NTSC mode.

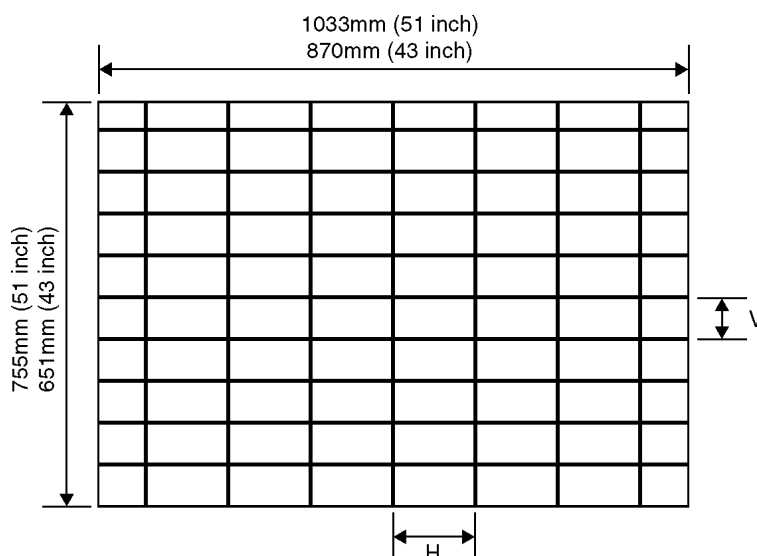
When replacing the following Parts.

IC7301 (EEP-ROM in A-Board)L551 (Pincushion Coil)High Voltage Producing Parts Other Parts (If change the convergence)

Create an Adjustment Sheet by tracing the following specifications in their actual size on transparent film or tracing paper. Then adjust the convergence.

When replacing one of the CRT's.

10.1. Convergence Adjustment Sheet



51inch

信号	メッシュピッチ(mm)	
	H	V
PAL 100	176.5	100.0
PAL V.Comp	176.5	51.5
PAL Progressive	176.5	100.0
NTSC Progressive	170.5	102.5

43inch

信号	メッシュピッチ(mm)	
	H	V
PAL 100	149.0	84.5
PAL V.Comp	149.0	43.5
PAL Progressive	149.0	84.5
NTSC Progressive	143.5	86.5

Adjust the convergence for each of the 50/100Hz and 60/120Hz inputs so that they are aligned with the other colours.

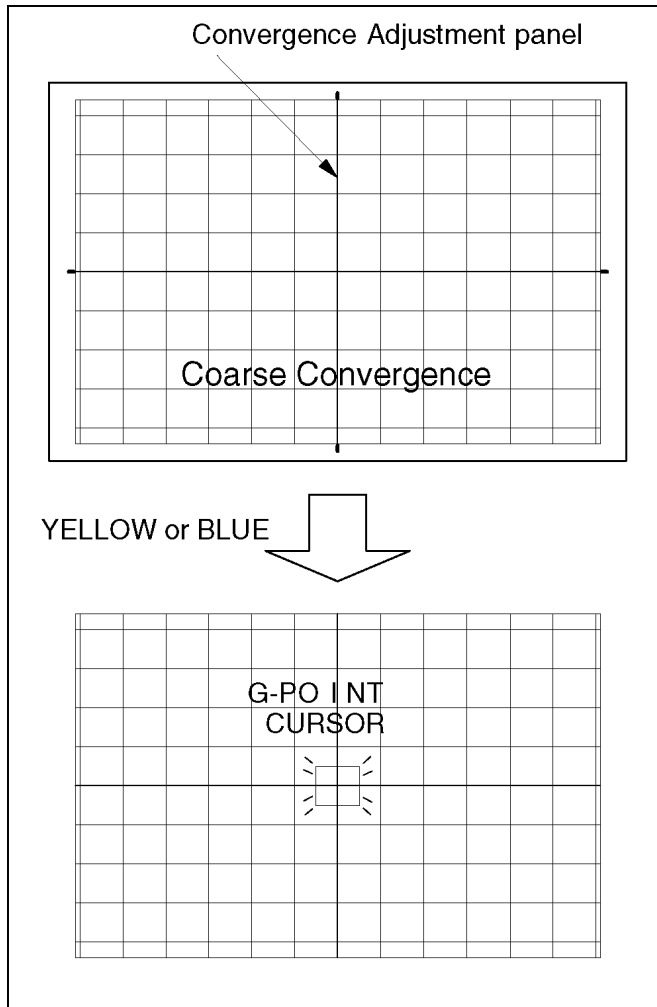
Helpful Hint

All positions which have been adjusted are recorded within P-2 for NTSC data and P-3 for PAL data of the memory. This data can be copied to P-4 memory area, allowing you to perform the adjustment of P-2 (NTSC) and P-3 (PAL). To perform these adjustments, push the SEARCH button on the remote control, and manipulate the position [▲] and [▼] button and the "N" button as instructed by the On Screen Display in Fine Convergence adjustment.

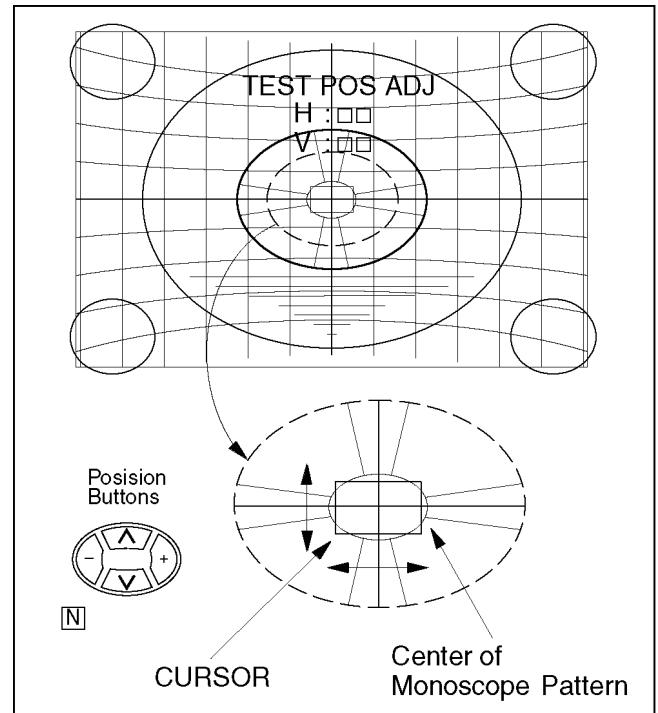
All of the Convergence Control Charts have been listed for the remote control buttons after the Convergence Adjustment Procedure Please refer to these. (Page 29)

10.2. Convergence Adjustment Procedure

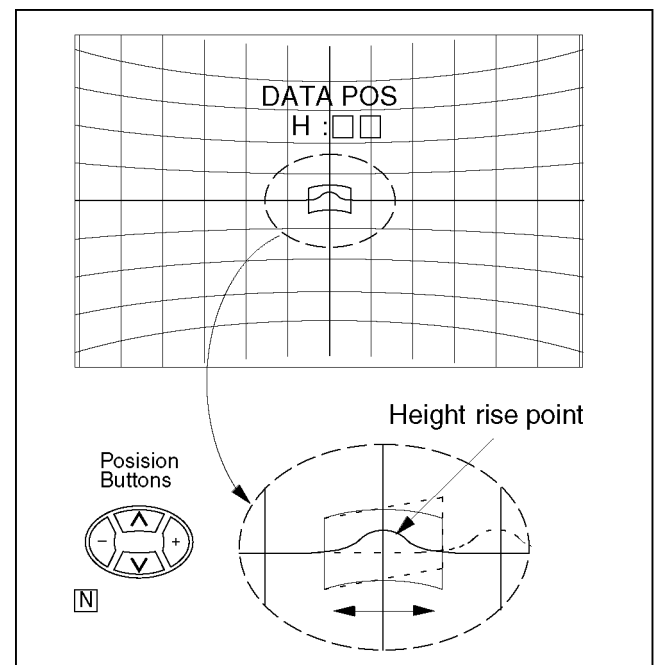
1. Input a monoscope pattern of PAL.
2. Enter the Service Mode1.
3. Select the Coarse Convergence by pushing "RED" or "GREEN" buttons. Then push "YELLOW" button, and push Position and [N] buttons to set the data to zero.
4. Stick the Convergence Adjustment Sheet (PAL 50Hz) onto the screen.
5. Push the "YELLOW" or "BLUE" on the remote control, and enter the Coarse Convergence Adjustment mode.



6. Push the "0" of 10 key buttons, and then push the "N" of position buttons on the remote control.
7. Enter to "TEST POS." mode.
8. Push the "5" button to display the monoscope pattern on the screen.
9. Adjust the position buttons so that the cursor in the center of the test pattern is aligned with the center of the monoscope pattern.



10. Push the "TV/AV" button on the remote control, and enter the "DATA POS." mode.
11. Push the "5" button and close the background image (monoscope pattern).
12. Use the "+" and "-" of the position buttons so that the bump in the screen center line is at the center of the cursor.



13. Push the "TV/AV" button twice, and enter the "OSD POS" mode.
14. Adjust the position buttons so that the cross-cursor is aligned near cross-bar.
15. Push the "SET UP" button, and "N" button to store data.
16. Push the "0" of 10 key buttons, and return to Coarse Convergence Adjustment mode.

10.3. Coarse Convergence Adjustment mode

MODE		SAMPLE DATA		DAC DATA UP		DAC DATA DOWN	
1	STATIC	H	R	123			
			G	10			
			B	-229			
		V	R	-8			
			G	-5			
			B	-8			
2	SIZE	H	R	-69			
			G	-38			
			B	-93			
		V	R	-5			
			G	-6			
			B	-15			
3	SKEW	H	R	-14			
			G	-5			
			B	-10			
		V	R	0			
			G	0			
			B	-2			

MODE		SAMPLE DATA		DAC DATA UP		DAC DATA DOWN	
3	LINEARITY	H	R	-107			
			G	88			
			B	319			
4	KEystone	V	R	102			
			G	32			
			B	-111			
5	PIN	H	R	61			
			G	48			
			B	53			
		V	R	227			
			G	268			
			B	258			
6	CORNER	H	R	+31			
			G	-19			
			B	-69			

10.3.1. Green Coarse Convergence Adjustment

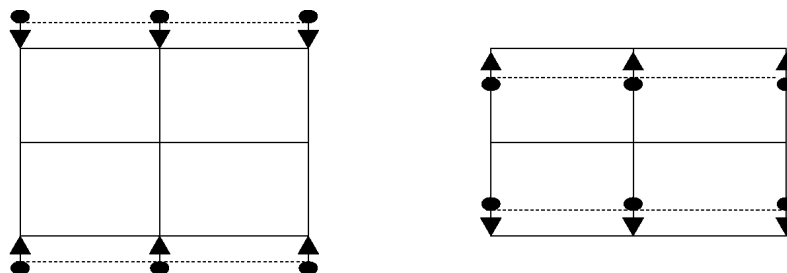
10.3.1.1. Reparation

Push the "SOUND" button, and select the Green Adjustment mode. Push the "2" button, and select the "Border and Cross" pattern. Push the "MUTE" button, and select the "Green" colour.

10.3.1.2. "G-SIZE (V)" adjustment

Push the "TV/AV" buttons, and select the "G-SIZE (V)". Push the "Channel up/down" buttons, and adjust the upper and lower border line of test pattern is aligned with the edge of the screen frame.

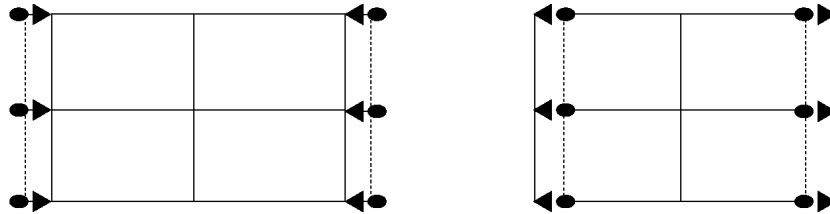
Fig. A : V-SIZE



10.3.1.3. "G-SIZE (H)" adjustment

Push the "TV/AV" buttons, and select the "G-SIZE (H)". Push the "Volume up/down" buttons, and adjust the boarder line on either side of test pattern is aligned with the edge of the screen frame.

Fig. B : H-SIZE



10.3.1.4. "G-LINEAR" adjustment

Push the "TV/AV" buttons, and select the "G-LINEAR". Push the "Volume up/down" buttons, and adjust the "G-LINEAR" to become the following figure.

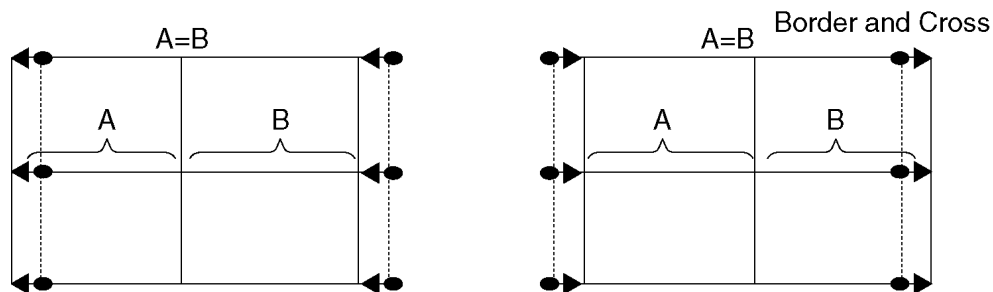


Fig.C : LINEAR

10.3.1.5. "G-PIN (V)" adjustment

Push the "TV/AV" buttons, and select the "G-PIN". Push the "Channel up/down" buttons, and adjust the "G-PIN (V)" to become the following figure.

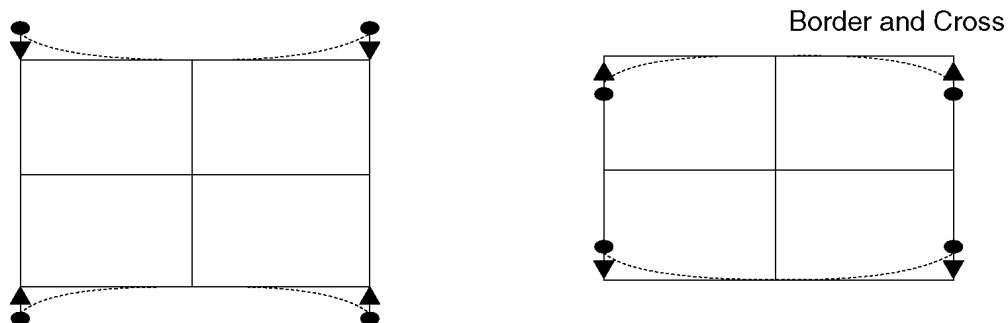


Fig.D : V-PIN

10.3.1.6. "G-PIN (H)" adjustment

Push the "TV/AV" buttons, and select the "G-PIN". Push the "Volume up/down" buttons, and adjust the "G-PIN (H)" to become the following figure.

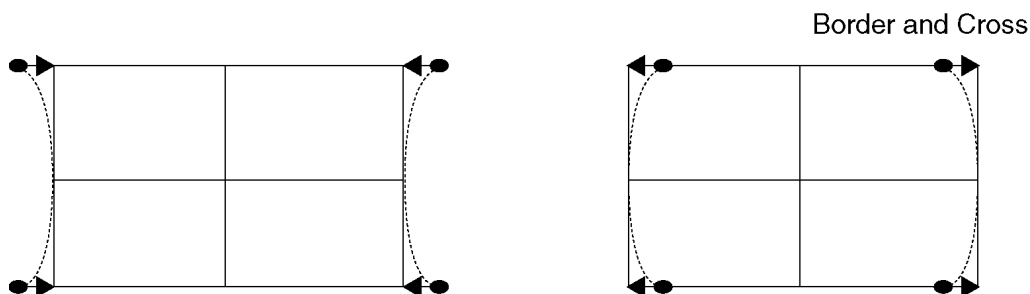


Fig.E : H-PIN

10.3.1.7. "G-CORNER" adjustment

Push the "TV/AV" buttons, and select the "G-CORNER". Push the "Volume up/down" buttons, and adjust the "G-CORNER" to become the following figure.

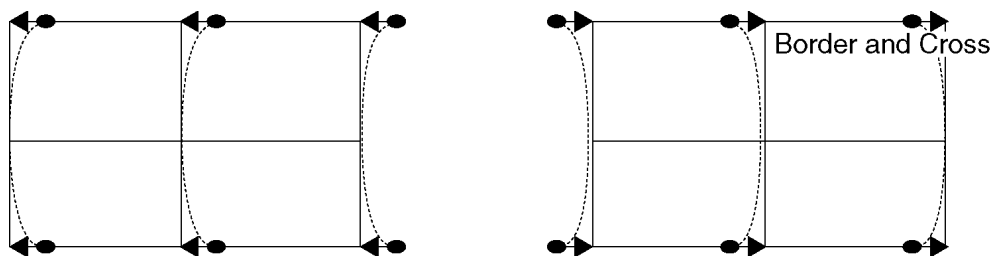


Fig.F : CORNER

10.3.1.8. "G-KEY" adjustment

Push the "TV/AV" buttons, and select the "G-KEY". Push the "Channel up/down" buttons, and adjust the "G-KEY" refer to following figure.

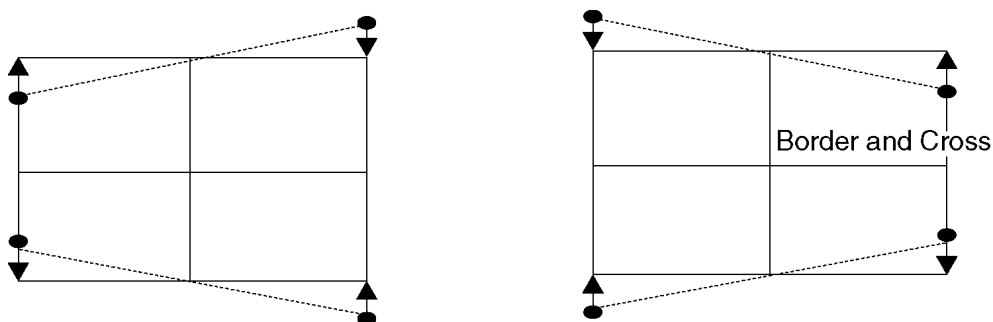


Fig.G : KEY

10.3.1.9. "G-STATIC" adjustment

Push the "TV/AV" buttons, and select the "G-STATIC". Push the "Channel/Volume up/down" buttons, and adjust "G-STATIC" so that Horizontal & Vertical center line is aligned with the bump in the screen center mark.

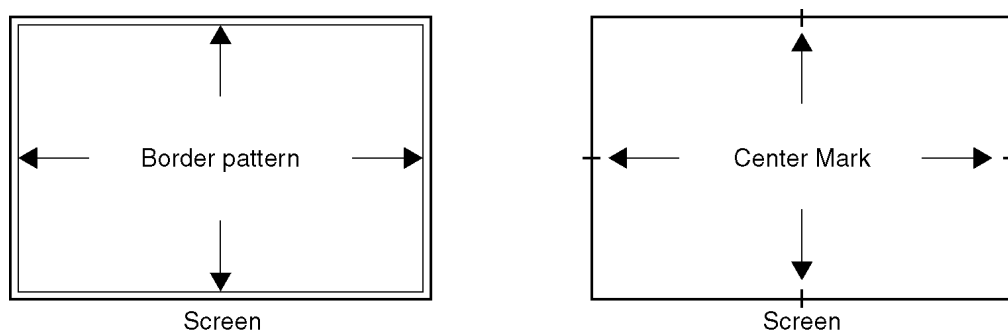


Fig.H STATIC

10.3.2. Red Coarse Convergence Adjustment

10.3.2.1. Reparation

Push the "SOUND" button, and select the Red Adjustment mode. Push the "2" button, and select the "Border and Cross" pattern. Push the "MUTE" button, and select the "Yellow" colour. Push the "POSITION" button, and adjust the "R-STATIC" so that the Red color of pattern is aligned with Green colour of pattern.

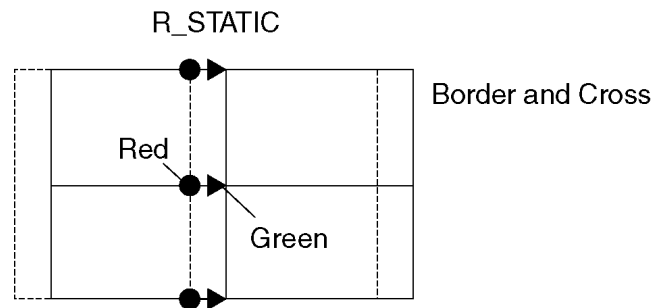


Fig.I : R-STATIC

10.3.2.2. "R-SKEW (V)" adjustment

Push the "TV/AV" buttons, and select the "R-SKEW". Push the "Volume up/down" buttons, and adjust the reference line become a vertical line. (Refer to figure.)

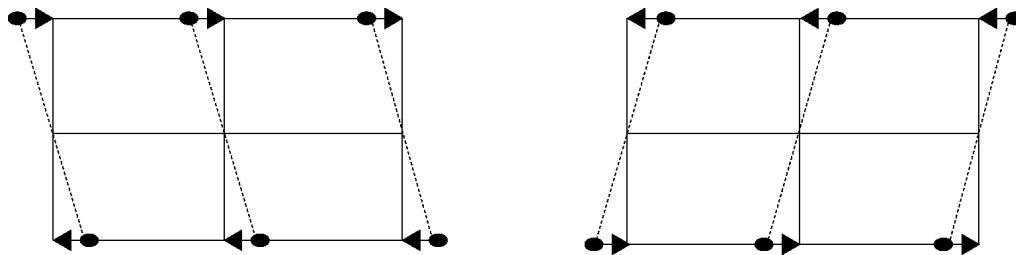


Fig.J : SKEW(V)

10.3.2.3. "R-SKEW (H)" adjustment

Push the "TV/AV" buttons, and select the "R-SKEW". Push the "Channel up/down" buttons, and adjust reference line become a horizontal line. (Refer to figure.)

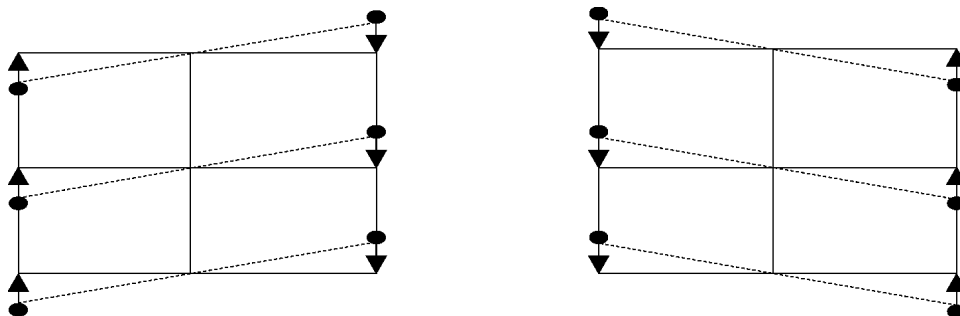


Fig.K : SKEW(H)

10.3.2.4. "R-SIZE (V)" adjustment

Push the "TV/AV" buttons, and select the "R-SIZE". Push the "Channel up/down" buttons, and adjust the upper and lower boarder line of test pattern is aligned with the edge of the screen frame. (Refer to Fig. A.)

10.3.2.5. "R-SIZE (H)" adjustment

Push the "TV/AV" buttons, and select the "R-SIZE". Push the "Volume up/down" buttons, and adjust the boarder line on either side of test pattern is aligned with the edge of the screen frame. (Refer to Fig. B.)

10.3.2.6. "R-LINEAR" adjustment

Push the "TV/AV" buttons, and select the "R-LINEAR". Push the "Volume up/down" buttons, and adjust the "R-LINEAR". (Refer to Fig. C.)

10.3.2.7. "R-PIN (V)" adjustment

Push the "TV/AV" buttons, and select the "R-PIN". Push the "Channel up/down" buttons, and adjust the "R-PIN (V)". (Refer to Fig. D.)

10.3.2.8. "R-PIN (H)" adjustment

Push the "TV/AV" buttons, and select the "R-PIN". Push the "Volume up/down" buttons, and adjust the "R-PIN (H)". (Refer to Fig. E.)

10.3.2.9. "R-CORNER" adjustment

Push the "TV/AV" buttons, and select the "R-CORNER". Push the "Channel up/down" buttons, and adjust the "R-CORNER". (Refer to Fig. F.)

10.3.2.10. "R-KEY" adjustment

Push the "TV/AV" buttons, and select the "R-KEY". Push the "Channel up/down" buttons, and adjust the "R-KEY". (Refer to Fig. G.)

10.3.2.11. "R-STATIC" adjustment

Push the "TV/AV" buttons, and select the "R-STATIC". Push the "Channel/Volume up/down" buttons, and adjust "R-STATIC" so that Horizontal & Vertical Center line is aligned with the bump in the screen center mark. (Refer to Fig. H.)

10.3.3. Blue Coarse Convergence Adjustment

10.3.3.1. Reparation

Push the "SOUND" button, and select the Blue Adjustment mode. Push the "2" button, and select the "Border and Cross" pattern. Push the "MUTE" button, and select the "Cyan" colour. Push the "POSITION" button, and adjust the "B-STATIC" so that the Blue color of pattern is aligned with Green colour of pattern.

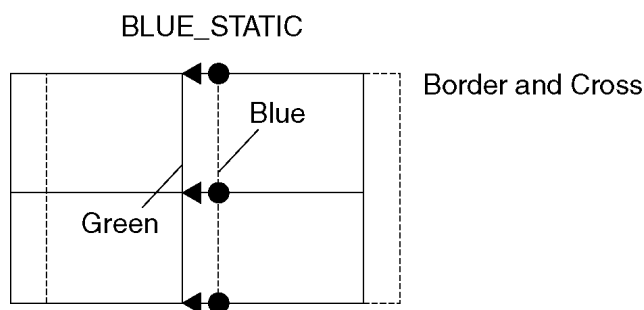


Fig.L : B-STATIC

10.3.3.2. "B-SKEW (V)" adjustment

Push the "TV/AV" buttons, and select the "B-SKEW". Push the "Volume up/down" buttons, and adjust the reference line become a vertical line. (Refer to Fig. J.)

10.3.3.3. "B-SKEW (H)" adjustment

Push the "TV/AV" buttons, and select the "B-SKEW". Push the "Channel up/down" buttons, and adjust reference line become a horizontal line. (Refer to Fig. K.)

10.3.3.4. "B-SIZE (V)" adjustment

Push the "TV/AV" buttons, and select the "B-SIZE". Push the "Channel up/down" buttons, and adjust the upper and lower boarder line of test pattern is aligned with the edge of the screen frame. (Refer to Fig. A.)

10.3.3.5. "B-SIZE (H)" adjustment

Push the "TV/AV" buttons, and select the "B-SIZE". Push the "Volume up/down" buttons, and adjust the boarder line on either side of test pattern is aligned with the edge of the screen frame. (Refer to Fig. B.)

10.3.3.6. "B-LINEAR" adjustment

Push the "TV/AV" buttons, and select the "B-LINEAR". Push the "Volume up/down" buttons, and adjust the "B-LINEAR". (Refer to Fig. C.)

10.3.3.7. "B-PIN (V)" adjustment

Push the "TV/AV" buttons, and select the "B-PIN". Push the "Channel up/down" buttons, and adjust the "B-PIN (V)". (Refer to Fig. D.)

10.3.3.8. "B-PIN (H)" adjustment

Push the "TV/AV" buttons, and select the "B-PIN". Push the "Volume up/down" buttons, and adjust the "B-PIN (H)". (Refer to Fig. E.)

10.3.3.9. "B-CORNER" adjustment

Push the "TV/AV" buttons, and select the "B-CORNER". Push the "Channel up/down" buttons, and adjust the "B-CORNER". (Refer to Fig. F.)

10.3.3.10. "B-KEY" adjustment

Push the "TV/AV" buttons, and select the "B-KEY". Push the "Channel up/down" buttons, and adjust the "B-KEY". (Refer to Fig. G.)

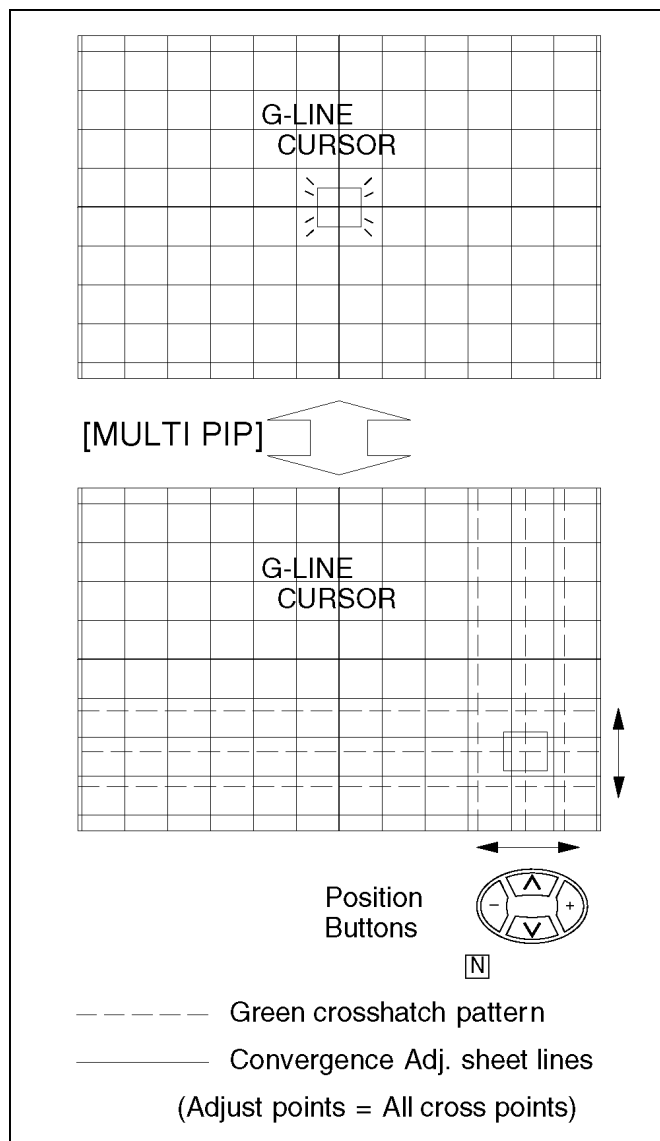
10.3.3.11. "B-STATIC" adjustment

Push the "TV/AV" buttons, and select the "B-STATIC". Push the "Channel/Volume up/down" buttons, and adjust "B-STATIC" so that Horizontal & Vertical Center line is aligned with the bump in the screen center mark. (Refer to Fig. H.)

10.4. Fine Convergence Adjustment

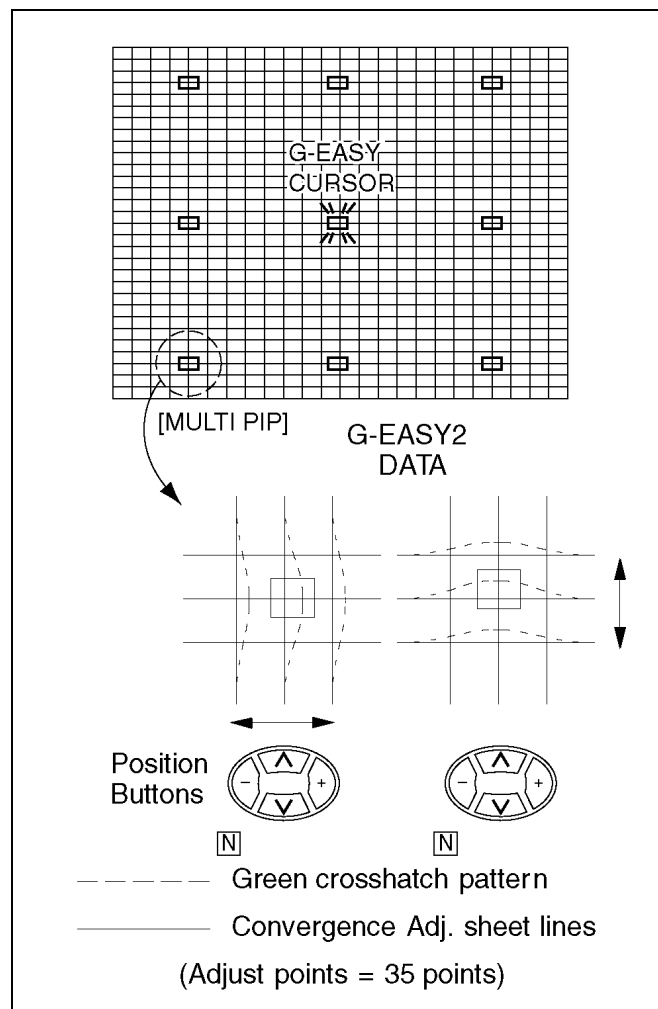
10.4.1. Green Convergence Adjustment

1. Select the "G-LINE CURSOR" mode by pushing "TV/AV" button on the remote control

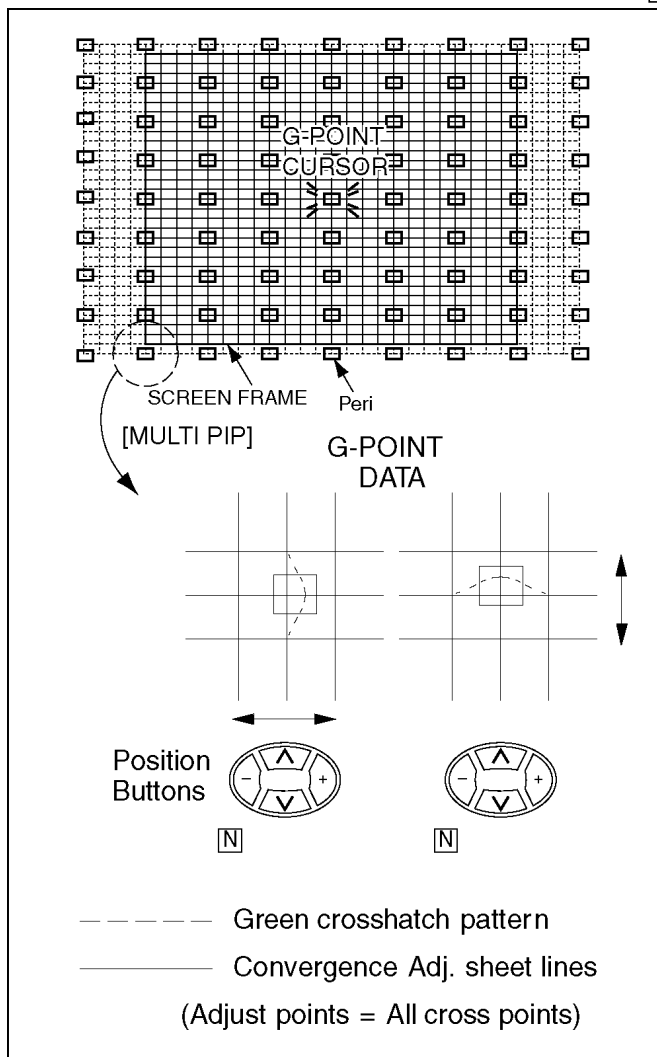


2. Use the Position Buttons to move the cursor to the point where you wish to change the data (adjustment lines). Then use the "MULTI PIP" to change from "G-LINE CURSOR" to "G-LINE DATA".
3. Use the Position Buttons to adjust each point (line) so that the Green Crosshatch Pattern is aligned with the vertical and horizontal lines of the Convergence Adjustment Sheet.
4. Push the "MULTI PIP" and switch from "G-LINE DATA" to "G-LINE CURSOR".
5. Repeat step 2~4 to adjust the vertical lines (13) and the horizontal lines (9).
6. Select the "G-EASY CURSOR" mode by pushing "TV/AV" button on the remote control.
7. Use the Position Buttons to move the cursor to the point where you wish to change the data (adjustment point). Then use the "MULTI PIP" to change from "G-EASY CURSOR" to "G-EASY DATA".

8. Use the Position Buttons to adjust each point so that the Green Crosshatch Pattern is aligned with the vertical and horizontal lines of the Convergence Adjustment Sheet.
9. Push the "MULTI PIP" and with from "G-EASY DATA" to "G-EASY CURSOR".
10. Repeat step 7~9 to adjust the 9 adjustment points.



11. Select the "G-POINT CURSOR" mode by pushing "TV/AV" button on the remote control.
12. Use the Position Buttons to move the cursor to the point where you wish to change the data (adjustment lines). Then use the "MULTI PIP" to change from "G-LINE CURSOR" to "G-LINE DATA".
13. Use the Position Buttons to adjust each point so that the Green Crosshatch Pattern is aligned with the vertical and horizontal lines of the Convergence Adjustment Sheet.
14. Push the "MULTI PIP" and switch from "G-POINT DATA" to "G-POINT CURSOR".
15. Repeat step 12-14 to adjust all of adjustment points.



16. Adjust the LINE, EASY and POINT DATA again viewing all over the screen.

If need the adjustment at the around of screen, select the "ORIGINAL" and adjust it.

17. To store the data after the Green Convergence Adjustment has been completed, push the "MAIN MENU" button and then push the "N" button (pushing the "N" button will store the data in the E²PROM).

18. Remove the Convergence Adjustment Sheet from the screen.

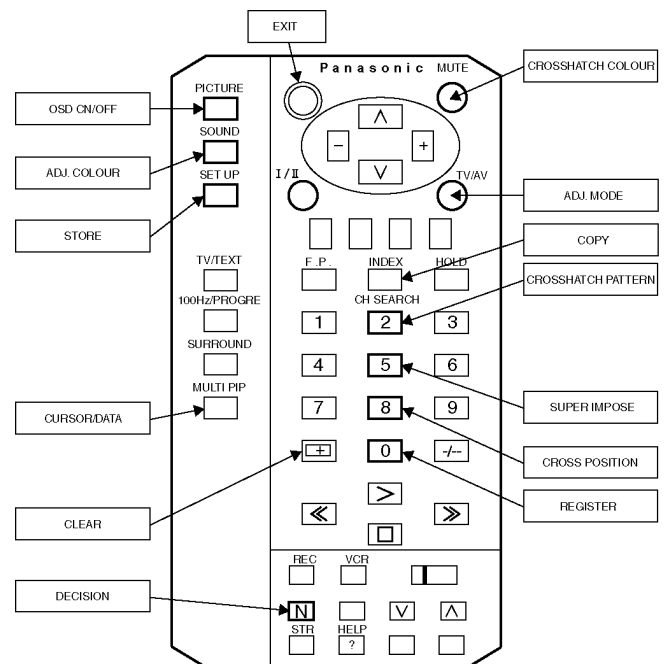
10.4.2. Red Convergence Adjustment

1. Push the "MUTE" button twice and change to the Red Adjustment of Yellow Colour.
2. Repeat the same steps described for the Green Conv.Adj. in 1~16 to perform the Red Convergence Adjustment.
3. To store the data after the Red Convergence Adjustment has been completed, push the "MAIN MENU" button and then the "N" button.

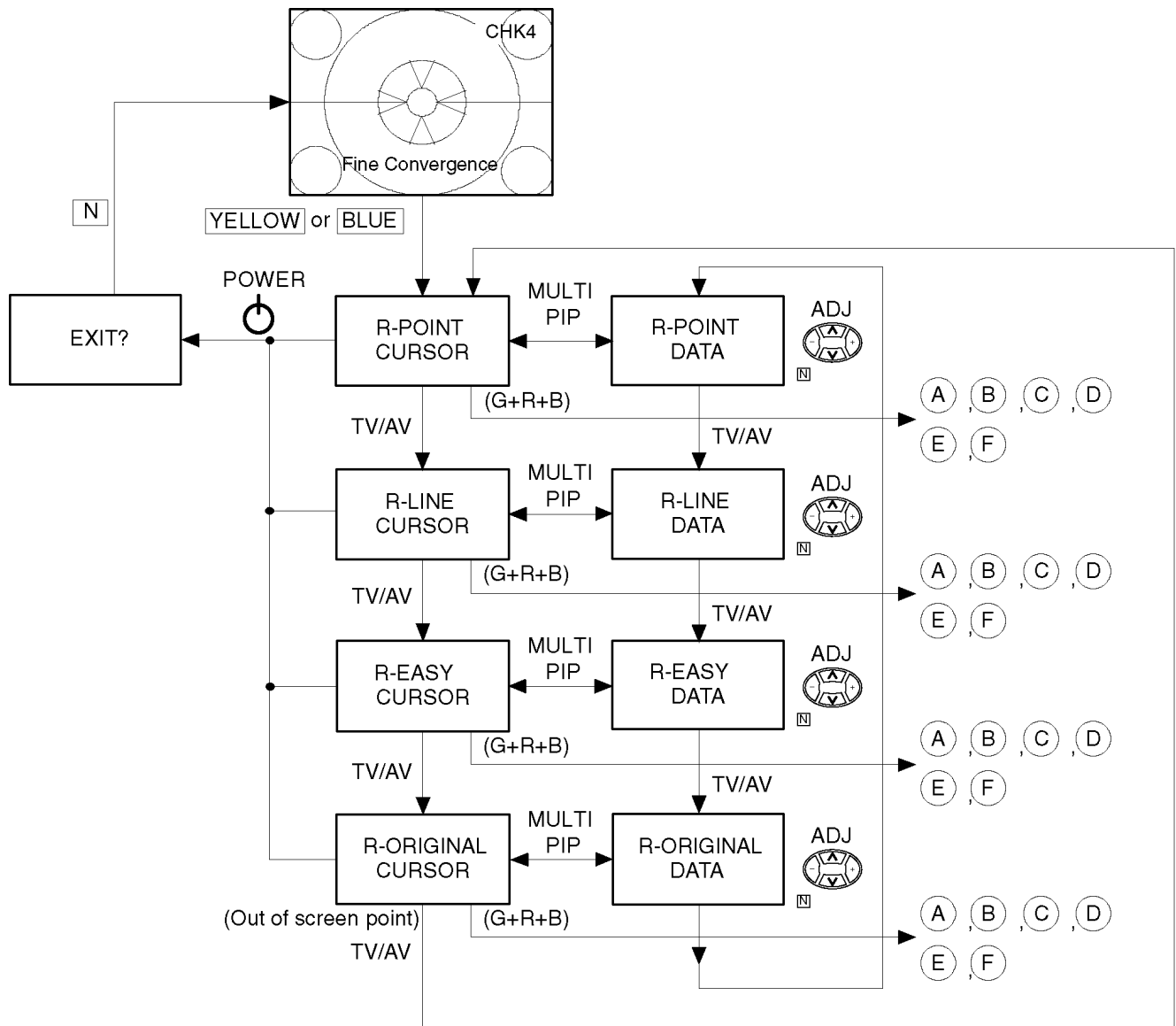
10.4.3. Blue Convergence Adjustment

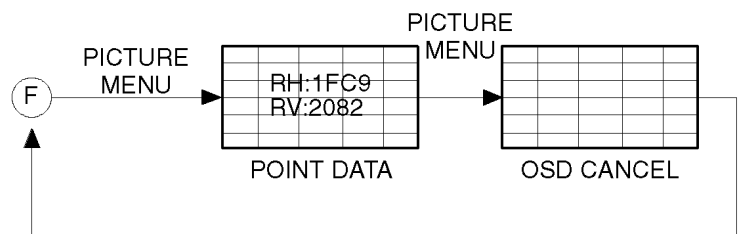
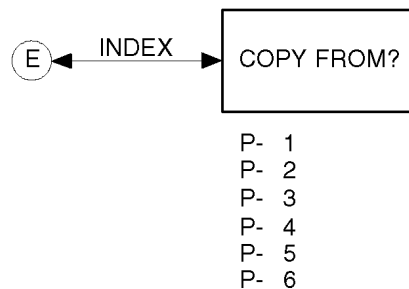
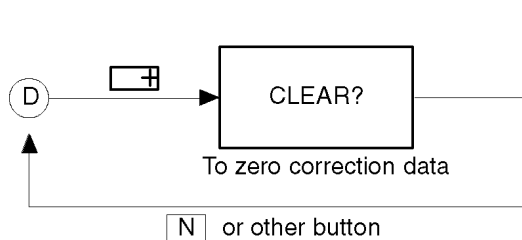
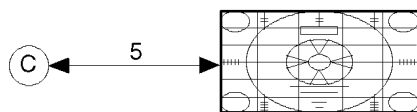
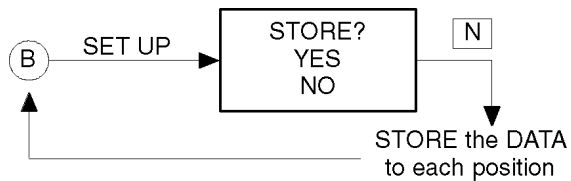
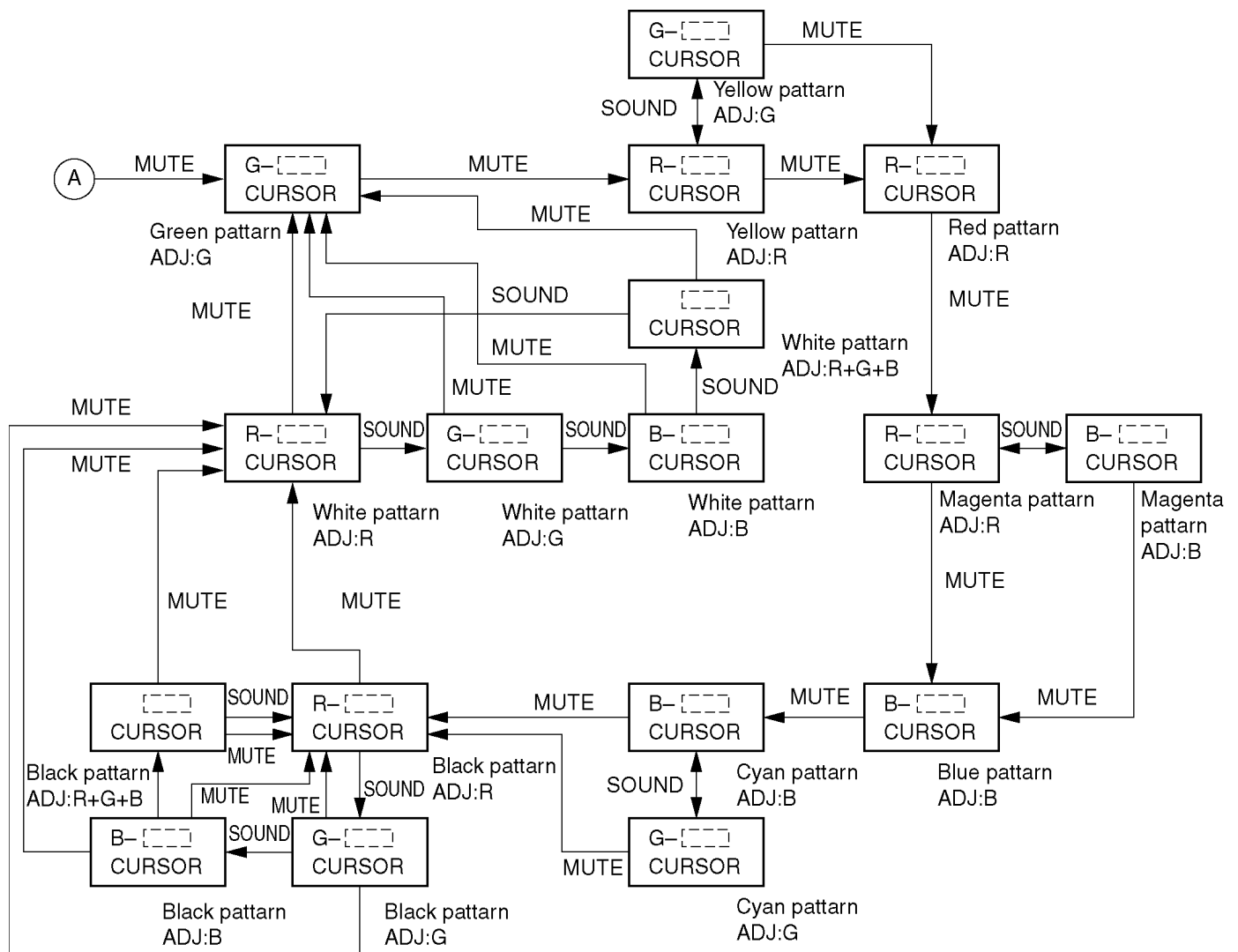
1. Push the "MUTE" button twice and change to the Blue Adjustment of cyan Colour.
2. Repeat the same steps described for the Green Conv.Adj. in 1~16 to perform the Blue Convergence Adjustment.
3. To store the data after the Blue Convergence Adjustment has been completed, push the "MAIN MENU" button and then push the "N" button.
4. To switch from the Convergence Adjustment Mode to the Service Mode, press the Power button and then push the "N" button.

Repeat the same adjustment after inputting the 60Hz (NTSC) signal.



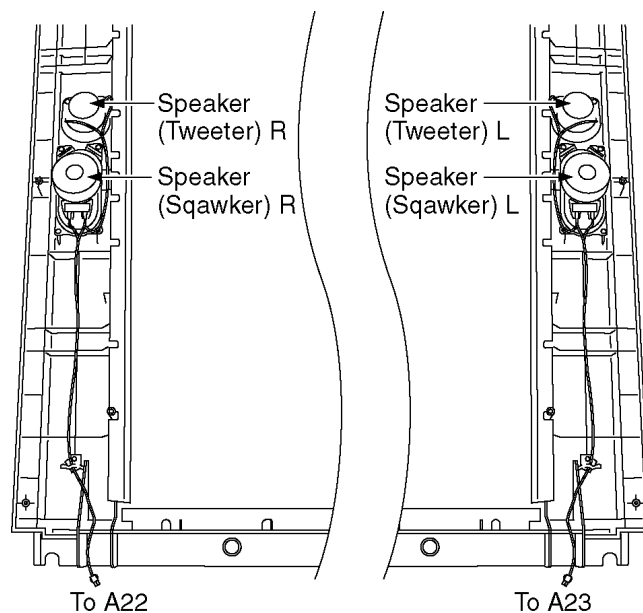
Fine Convergence Control Chart



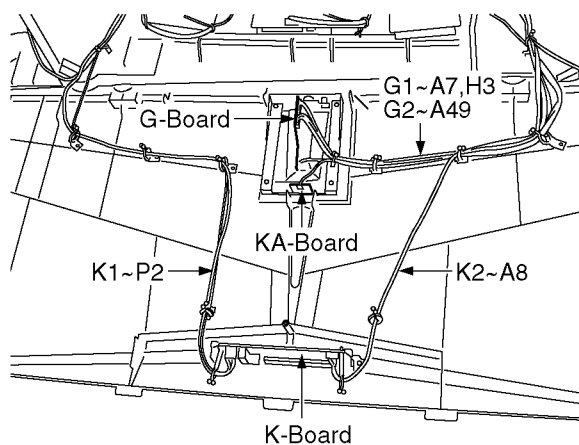


11 Location of Lead Wiring

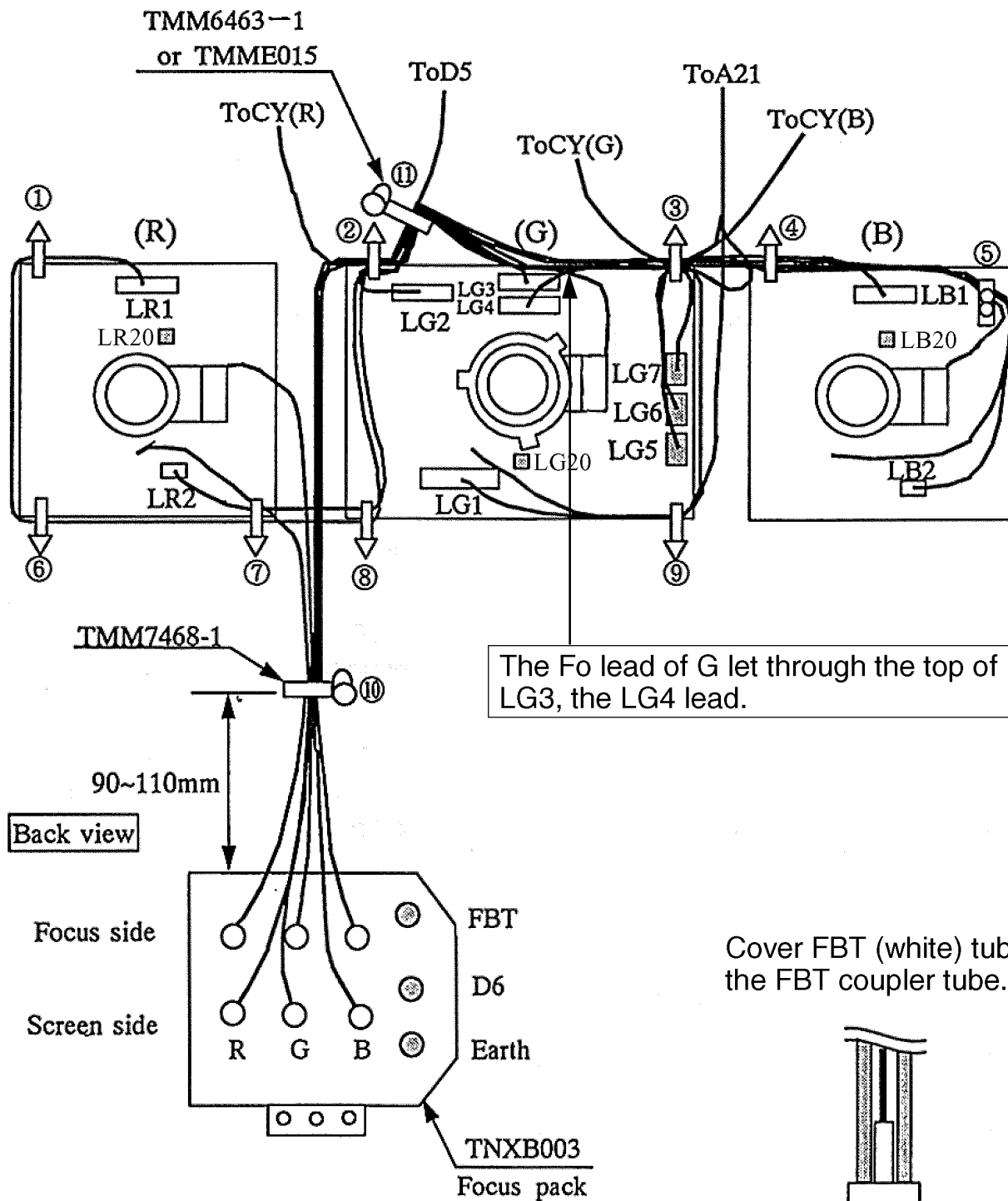
11.1. Location of Lead Wiring (1)



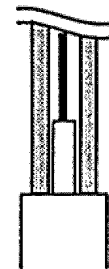
11.2. Location of Lead Wiring (2)



11.3. Location of Lead Wiring (3)



Cover FBT (white) tube to the FBT coupler tube.



(Attention)
The lead line doesn't come within 5 millimeters of the neighborhood of the focus block, too.

INSERTION OF CONNECTOR

LR1, LR2, LG1, LG2, LG3, LG4, LG5, LG6, LG7, LB1, LB2,

LR20, LG20, LB20

CLAMP DOUBLE CLAMP : ◎

WIRES \ CLAMPER	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑳
CY(R)		●	●								●								
CY(G)			◎																
CY(B)			◎																
Focus(R)										●									
Focus(G)		●								●	●								
Focus(B)		●	●	●	●					●	●								
Screen(R)							●			●									
Screen(G)		●	●						●	●	●								
Screen(B)		●	●	●	●					●	●								
LR1~LG3	●	●				●	●	●			●								
LR2~A21		●	●				●	●			●								
LG1~A21									●										
LG4~LB1			●	●															
LG2~D5		●									●								
LB2				●	●														

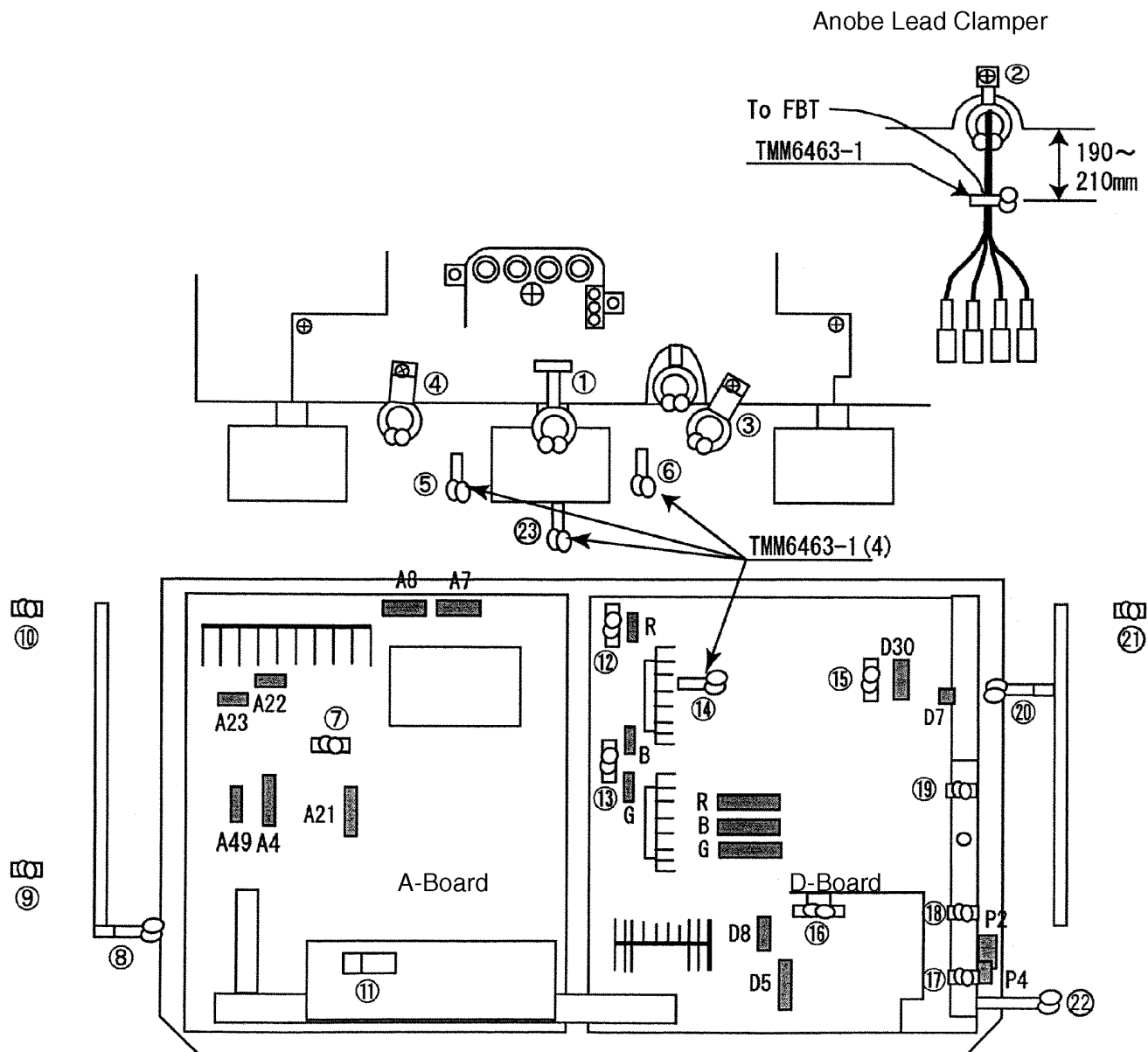
NOTICE FOR WORE DRESSING

1. Confirm that the lead line isn't hitting the metallic part of the neck print after CRT neck print (R, G, B) insertion.
2. It decides to be permitted to insert the lead line (R, G, B) of the VM coil wherever of LG5, LG6, LG7 of the LG print.
3. It decides to be permitted to insert G, B of the DY lead in either.
4. Keep the Fo lead of B clear of components of the LB-Board and IC2301 heat sink of the A-Board.

11.4. Location of Lead Wiring (4)

The Anode Lead

1. It inserts Anode lead tip in the back to FBT (the fly background transformer), and it makes turn on the right and it locks it.
(Three insertion positions are free).
2. Secure a safe space distance from the circumference part by equal to or more than 10 millimeters.



INSERTION OF CONNECTOR

A6, A7, A21, A22, A23, A49, Anode distributor (R, G, B, FBT), D8, D5, DY (R, G, B),

CY (R, G, B), D30, P1, P2, P4, Focus Pack (R)

CLAMP DOUBLE CLAMP : ⊙

WIRES \ CLAMPER	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	㉑	㉒	㉓
A22~RSP							⊙	●	●	●													
B~DY	●		●			⊙								●		●							
B~CY	●			⊙	⊙								●										
G~DY	●		●			⊙								●		●							
G~CY	●			⊙	⊙								●										
R~DY	●		●			⊙								●		●							
R~CY	●			⊙	⊙							●											●
D8~Distributor	●													●		●							
G2~A49								●	●	●													
A6~K2							●	●	●	●													
A2~LB2, LG1, LR2							⊙																
A23~LSP	●		●		●	●	⊙													●	●		
LG2~D5				●	⊙	●								●		●							
FBT~Focus pack	●													●		●							
D30~Focus pack	●													●	●	●							
K1~P2																	●	●	●	●	●		
Cabinet earth~P4																	●	●	●	●			
AC cord																						●	
G1~A7, H3							●	●	●	●	●												
D7~DG	●		●		●						●				●								

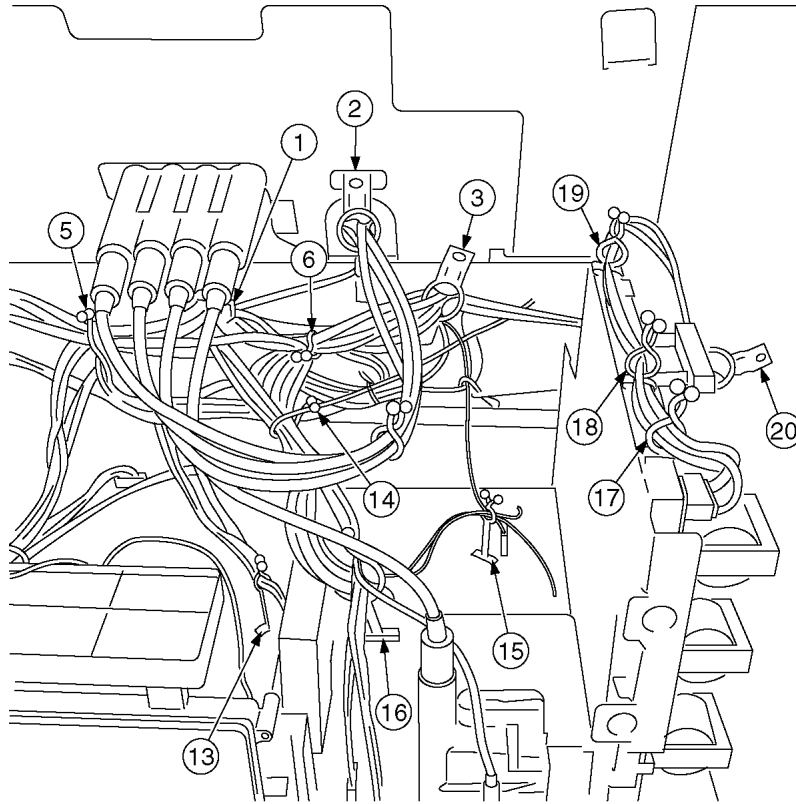
A7 only

H3 only

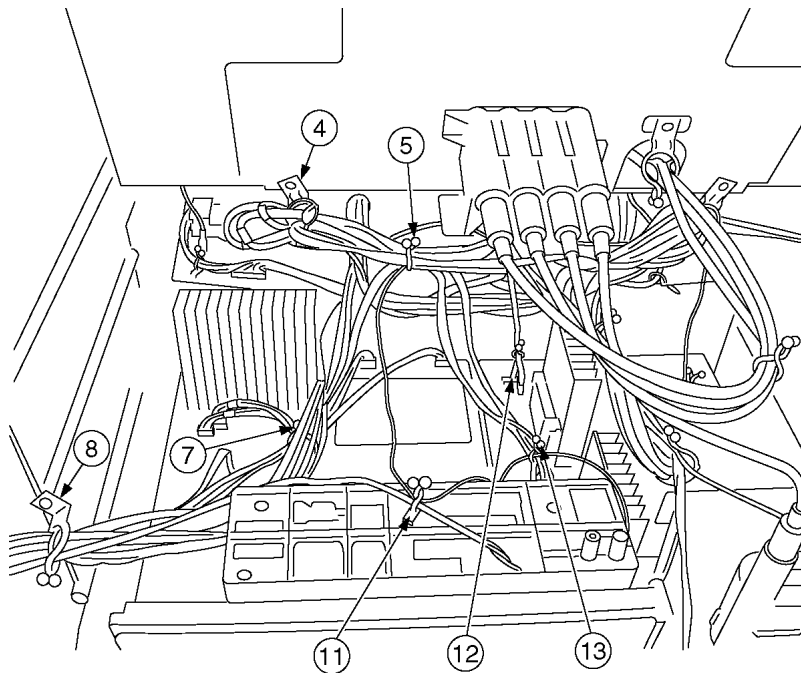
NOTICE FOR WIRE DRESSING

1. After insert R, G, B on CRT-print, confirm that wire should not touch to material parts of CRT-print.

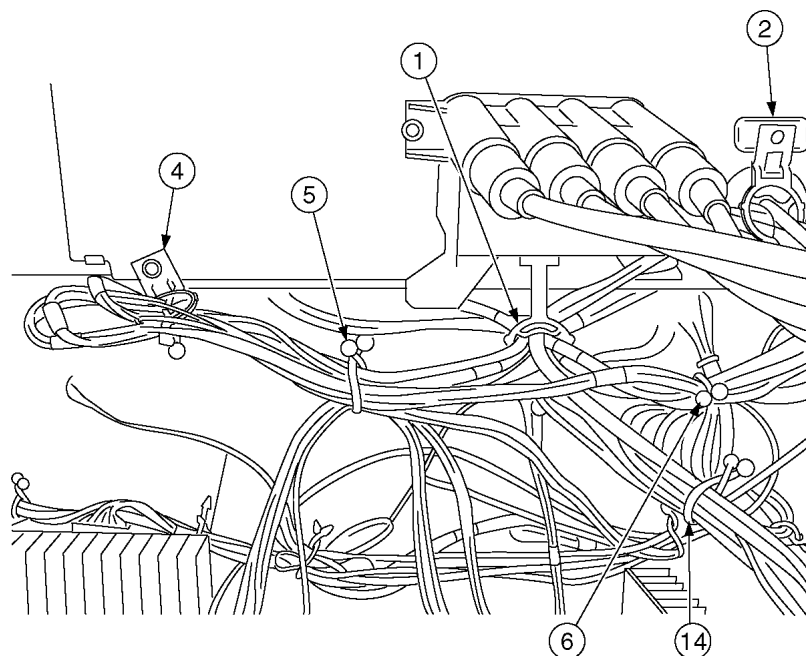
11.5. Location of Lead Wiring (5)



11.6. Location of Lead Wiring (6)



11.7. Location of Lead Wiring (7)



11.8. Location of Lead Wiring (8)

