SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY METHOD

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.
When reassembling, perform the steps in the reverse order.

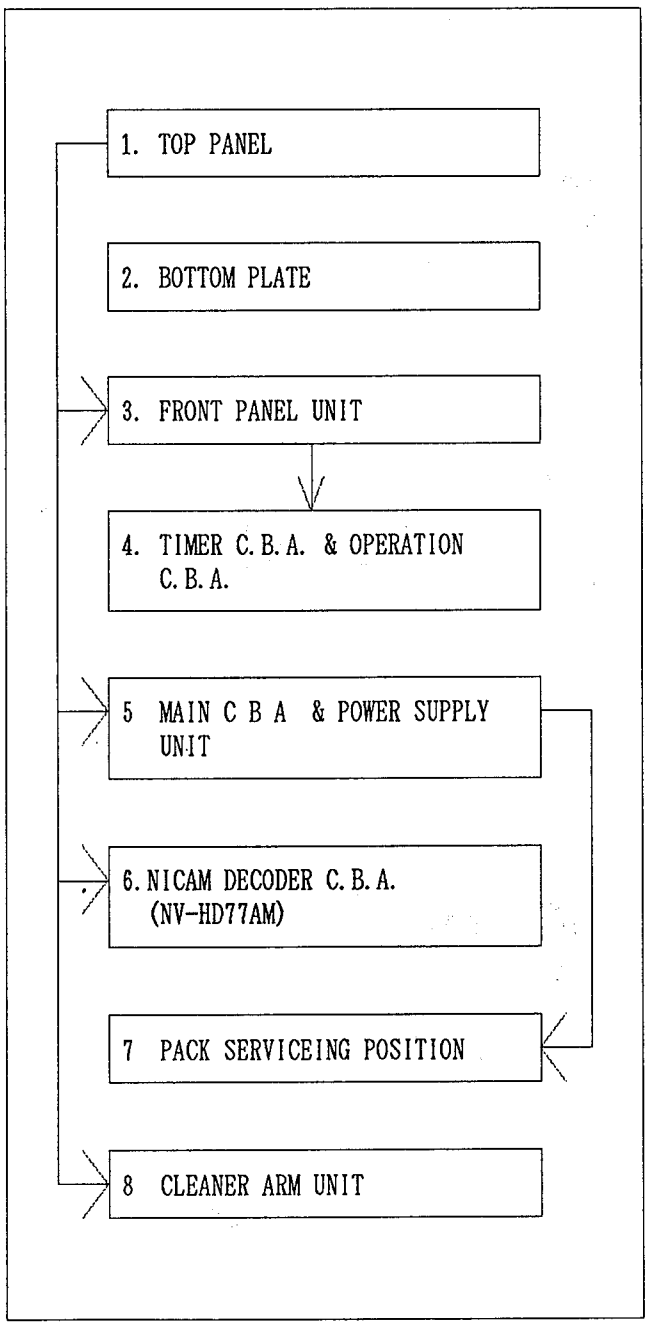


Fig. D1

1. REMOVAL OF THE TOP PANEL

Remove.....4 Screws(A)

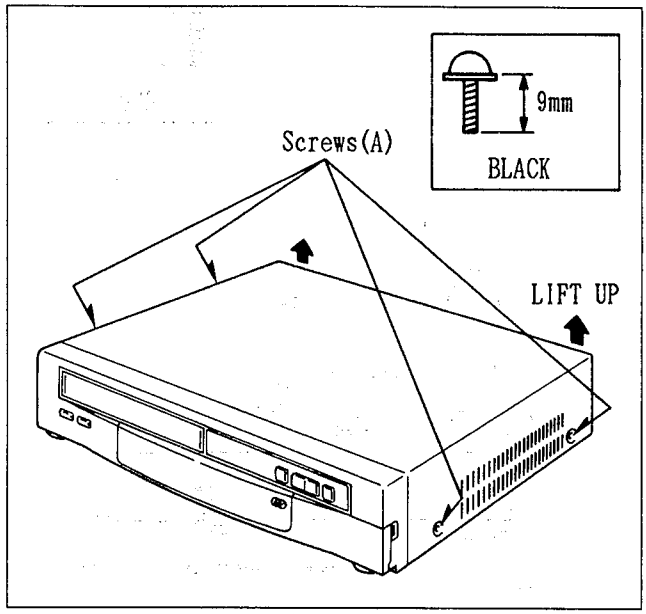


Fig. D2

2. REMOVAL OF THE BOTTOM PLATE

Remove.....6 Screws(B)

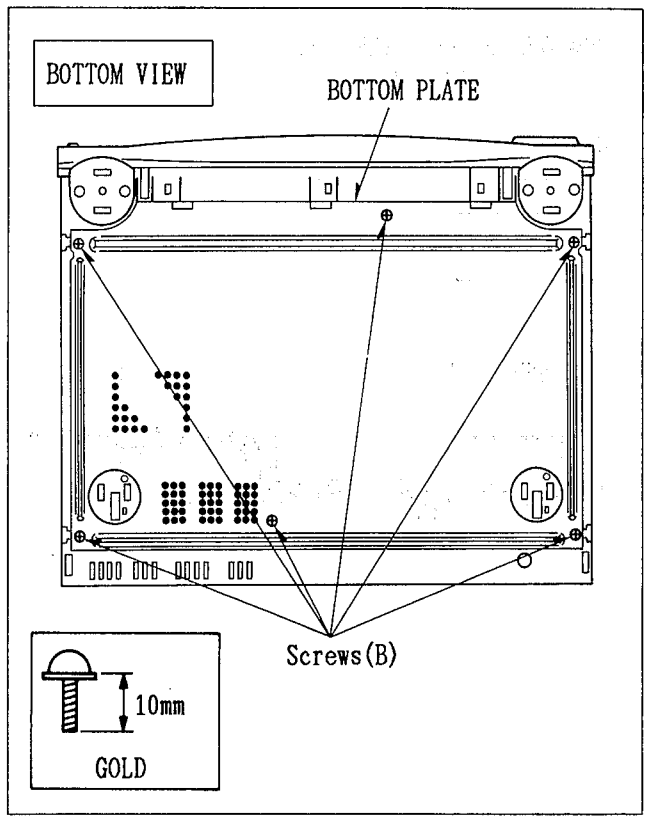


Fig. D3

3 REMOVAL OF THE FRONT PANEL UNIT

Remove.....Screw(C)
Unlock.....8 Tabs(D)

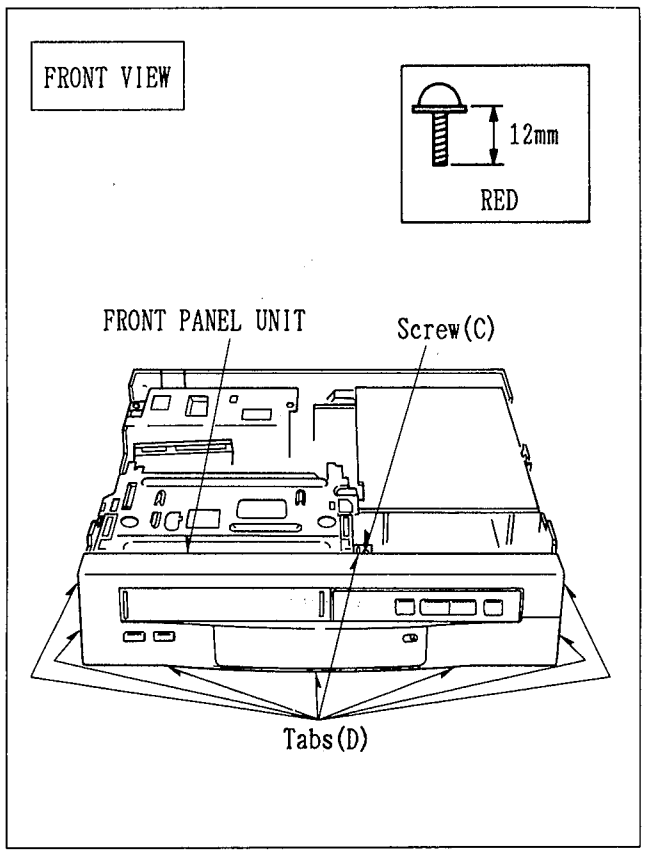


Fig. D4

4. REMOVAL OF THE TIMER C.B.A. &
THE OPERATION C.B.A.

Unlock.....8 Tabs(E)

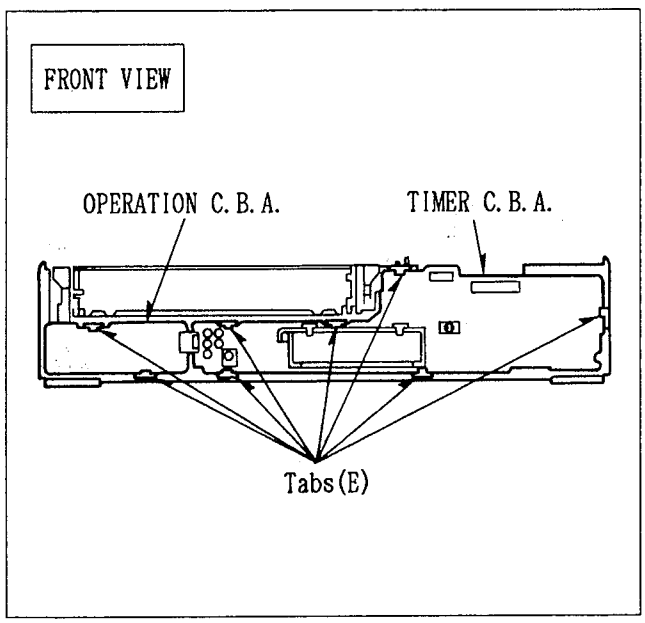


Fig. D5

5. REMOVAL OF THE MAIN C.B.A. &
THE POWER SUPPLY UNIT

REMOVAL OF THE MAIN C.B.A.
Remove.....2 Screws(F)
Remove.....3 Screws(G)
Unlock.....Tab(H)

REMOVAL OF THE POWER SUPPLY UNIT
Remove.....2 Screws(I)
Remove.....Screw(J)

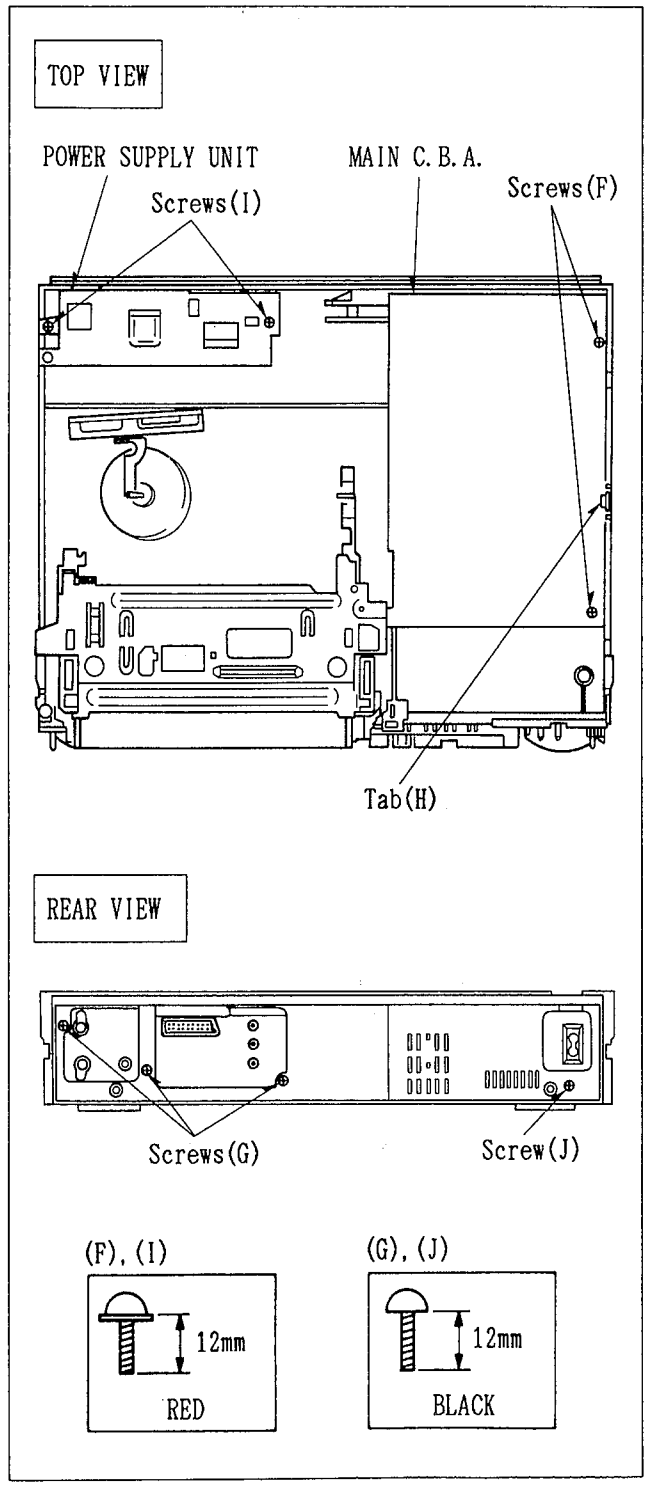


Fig. D6

6 REMOVAL OF THE NICAM DECODER C B A (NV-HD77AM)

Unlock...NICAM HOLDER(K)

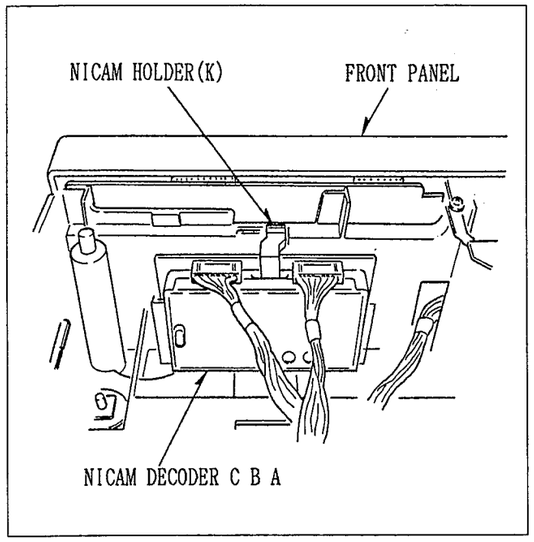


Fig. D7

7. PACK SERVICING POSITION

CAUTION:
Confirm the isolation between Mechanical Chassis and Main C B A before connecting Main AC.

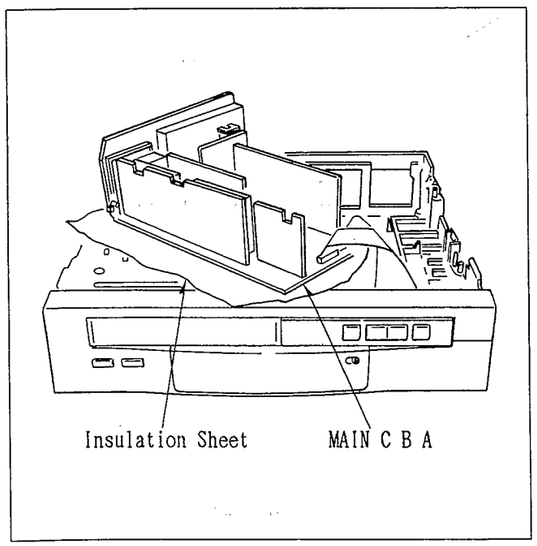


Fig. D8

8 REMOVAL OF THE CLEANER ARM UNIT

Unlock.....Tab(L)

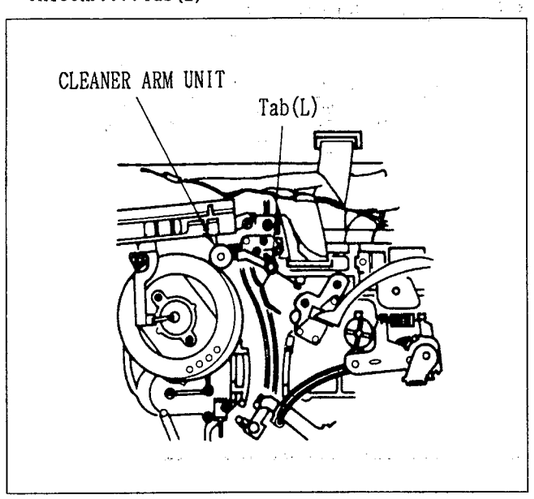


Fig. D9

2-2 MECHANICAL ADJUSTMENT PROCEDURES

The mechanical cahssis of this model is the K-Mechanical Chassis.
Therefore refer to the Service Manual for K-Mechanical Chassis. (Order No. VRD9307M131)

CAUTION:
To make a adjustment mode for Tape Interchangeability, connect a jumper wire which has been cut as shown in Fig. M1.
(Auto Tracking is turned off)
After finishing the adjustment, disconnect the jumper wire.

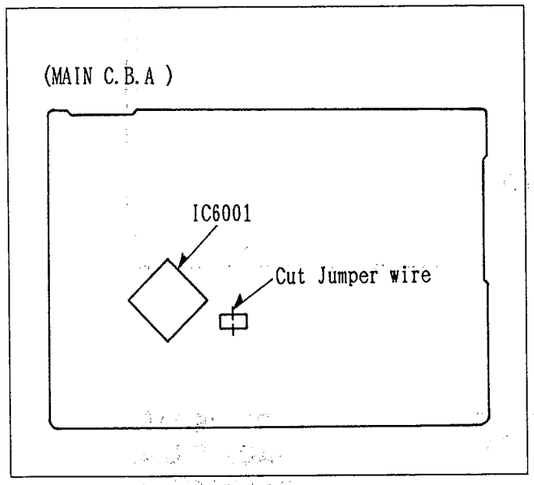


Fig. M1

2-3. DISASSEMBLY PROCEDURES OF MECHANISM

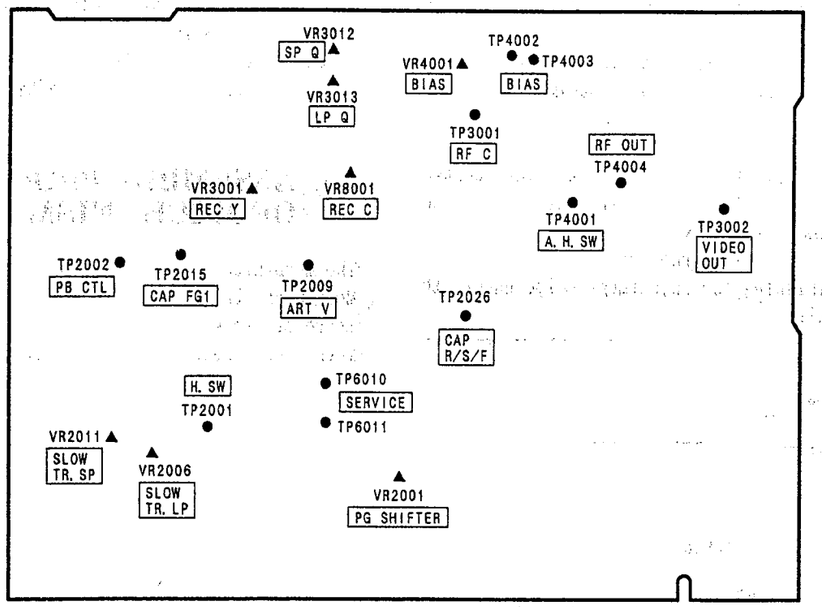
The mechanical chassis of this model is the K-Mechanical Chassis.
Therefore refer to the Service Manual for K-Mechanical Chassis. (Order No. VRD9307M131)

2-4 ASSEMBLY PROCEDURES OF MECHANISM

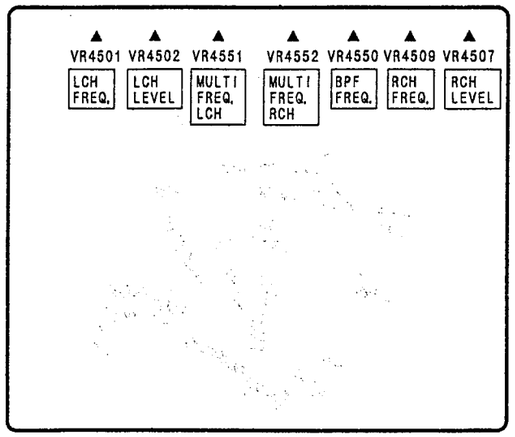
The mechanical chassis of this model is the K-Mechanical Chassis.
Therefore refer to the Service Manual for K-Mechanical Chassis. (Order No. VRD9307M131)

LOCATION OF TEST POINTS & CONTROLS

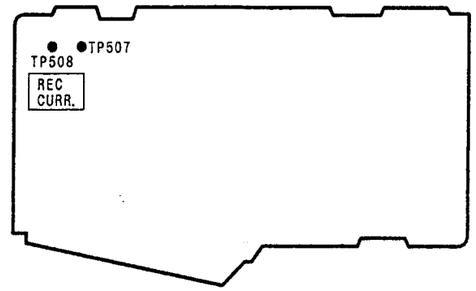
MAIN C.B.A.



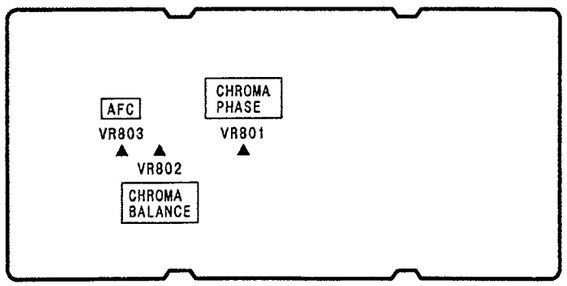
Hi-Fi AUDIO PACK C.B.A.



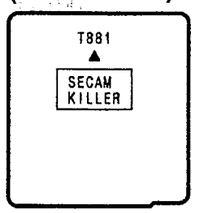
HEAD AMP C.B.A.



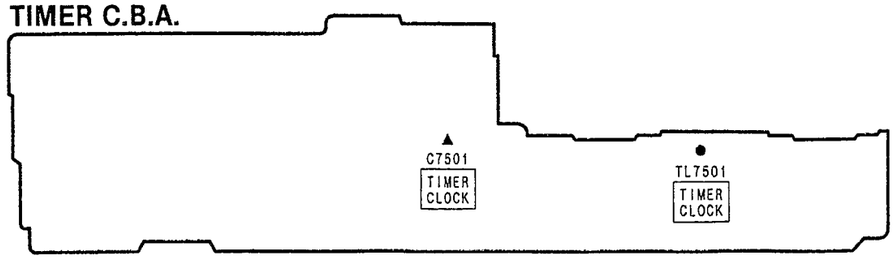
LUMINANCE & CHROMINANCE PACK C B.A.



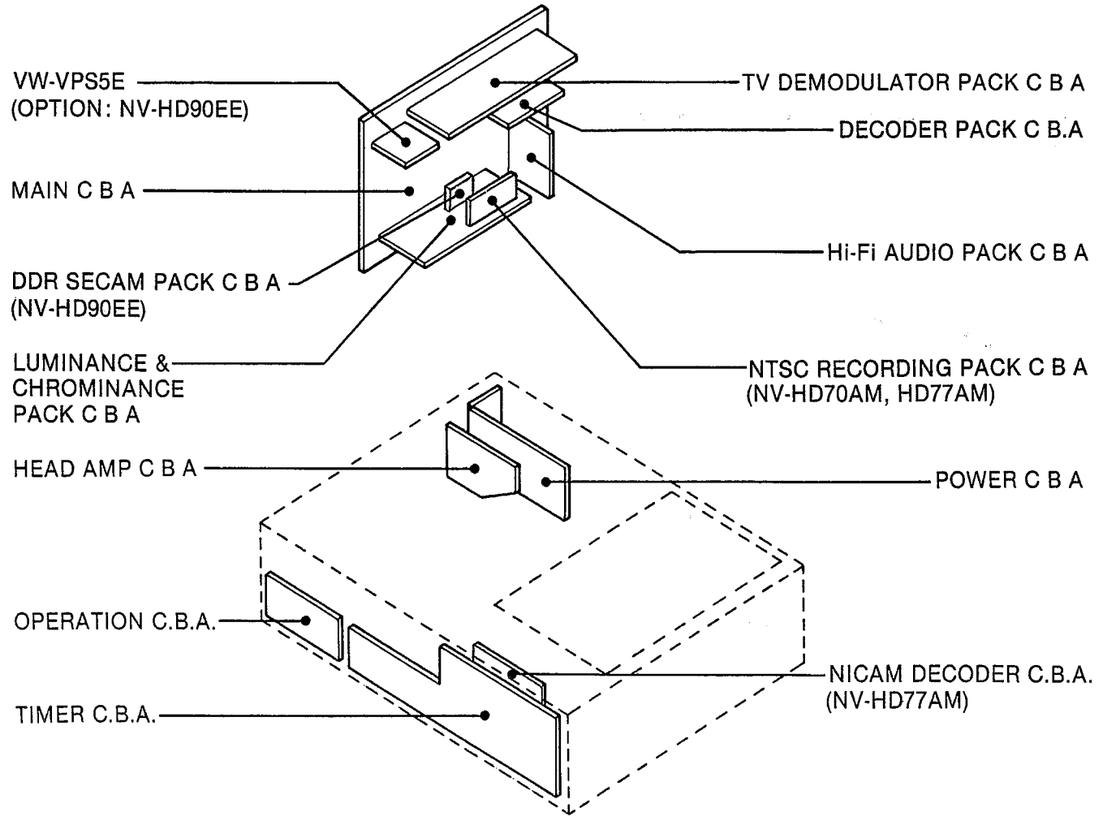
DDR SECAM PACK C.B.A. (NV-HD90EE)



TIMER C.B.A.



CIRCUIT BOARD LAYOUT



2-5. ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete adjustment procedures required for electric circuits of VHS Video Cassette Recorders.

2-5-1. TEST EQUIPMENT

To perform electrical adjustments following equipment is required.

1. Dual-Trace Oscilloscope. (More than 35 MHz)
   Voltage Range:0.005-5V/div
   Frequency Range:DC-35MHz
   Probes:10:1 OR 1:1
2. Frequency Counter.
   Frequency Range:0-10MHz
   Probes:1:1
3. Universal Counter.
4. Vacuum Tube Volt Meter. (V.T.V.M.)
5. Video Sweep Generator.
6. Sine Wave Generator.
7. Video Pattern Generator.
8. VHS Alignment Tape. (VFJ8125H3F)
9. VHS Blank Tape.
10. Monitor.
11. Plastic Tip Driver.
12. DC Power Supply.

2-5-2. PREPARATION

During adjustment, set each selector as follows when no indication in the procedure.

TEST SIGNAL SW (REAR).....OFF
SIMUL SW(NV-HD70AM/HD77AM).....OFF
TAPE SPEED.....SP
NICAM/MONO SW(NV-HD77AM).....NICAM
3.58NTSC/4.43NTSC/PAL SW
(NV-HD70AM/HD77AM).....PAL
PAL/MESECAM SW.....PAL

2-5-3. HOW TO READ ADJUSTMENT PROCEDURES

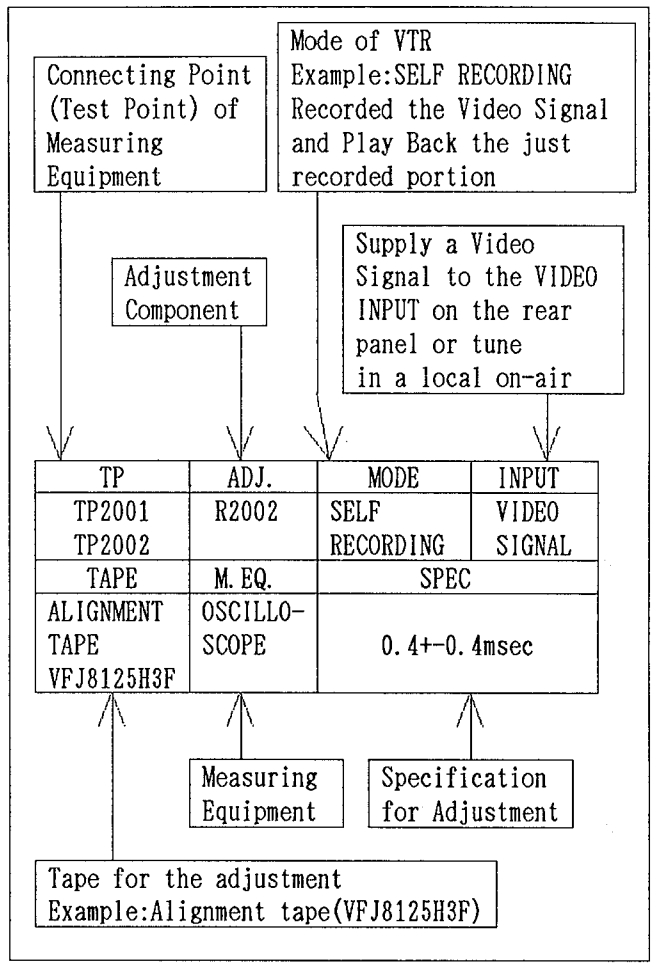


Fig. E1

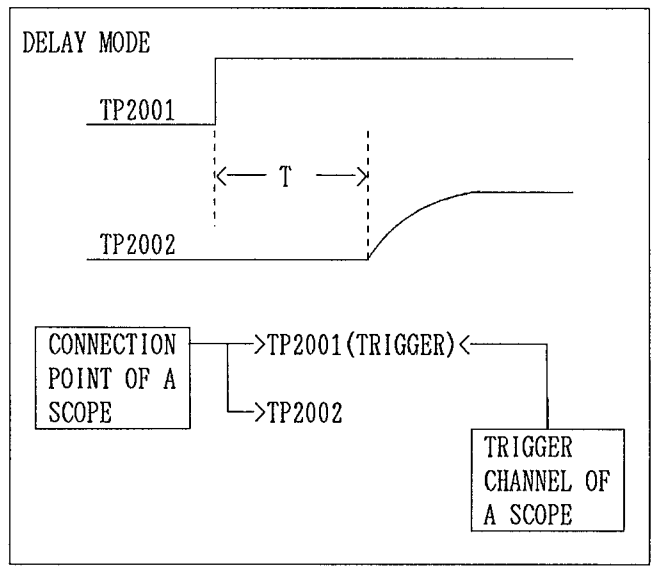


Fig. E2

SERVO SECTION

2-5-4. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 (TEST LAND) VIDEO OUT	VR2001	PLAYBACK	
TAPE	M. EQ.	SPEC	
ALIGNMENT TAPE VFJ8125H3F	OSCILLO-SCOPE	7.0+-0.5(H)	

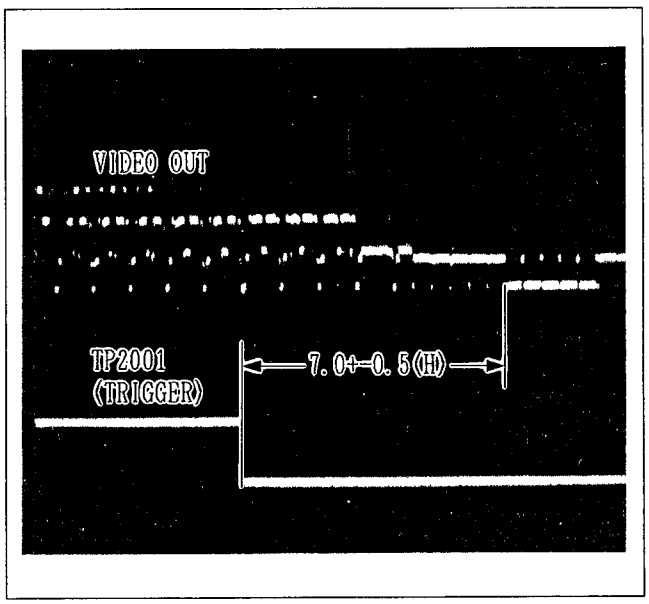


Fig. E3

2-5-5. SLOW TRACKING ADJUSTMENT

TP	ADJ.	MODE	INPUT
MONITOR SCREEN	VR2011 (SP) VR2006 (LP)	(SELF RECORDED) SLOW	CCIR PATTERN
TAPE	M. EQ.	SPEC	
BLANK TAPE	MONITOR TV	Noise bar on the monitor screen is minimized. (Shown in Fig. E5)	

Note: 1. Before this adjustment, connect a jumper which has been cut as shown in Fig. E4.
2. After this adjustment, disconnect a jummper wire.

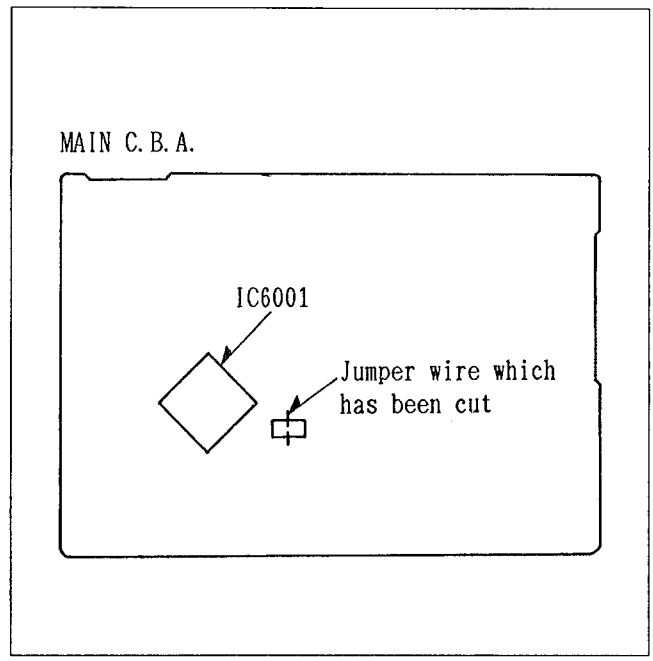


Fig. E4

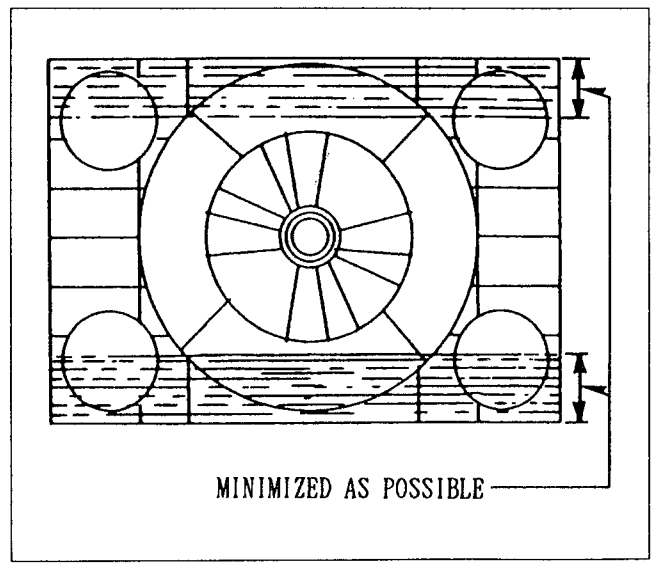


Fig. E5

LUMINANCE & CHROMINANCE SECTION

2-5-6 RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP507(HOT) TP508(GND)	VR3001(Y) VR8001(C)	SP RECORDING	PAL COLOUR BAR
TAPE	M.EQ.	SPEC	
BLANK TAPE	OSCILLO- SCOPE	Y=130+-5(mVp-p) C=32+-2 (mVp-p)	

Note:1. Adjust the Luminance level so that the peak level of V-SYNC is 130+-5mVp-p.

2. When adjusting the Chrominance level, Supply +5V DC to Pin 6 of PP3001 (TL3004) to eliminate Luminance component.

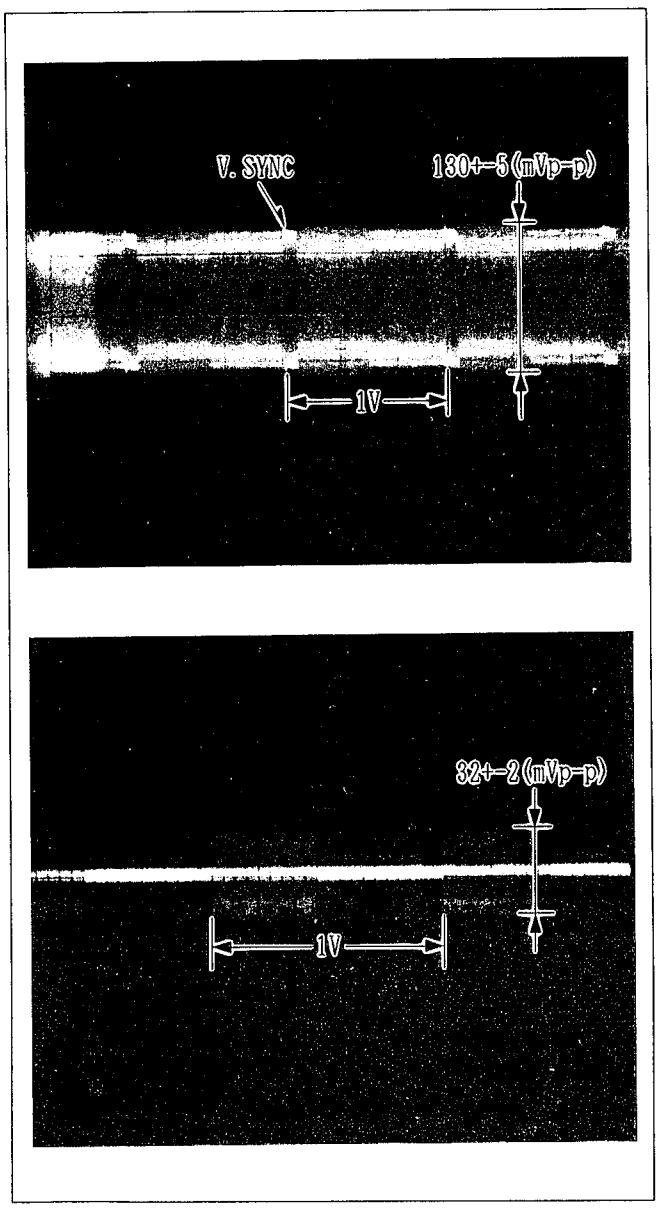


Fig. E6

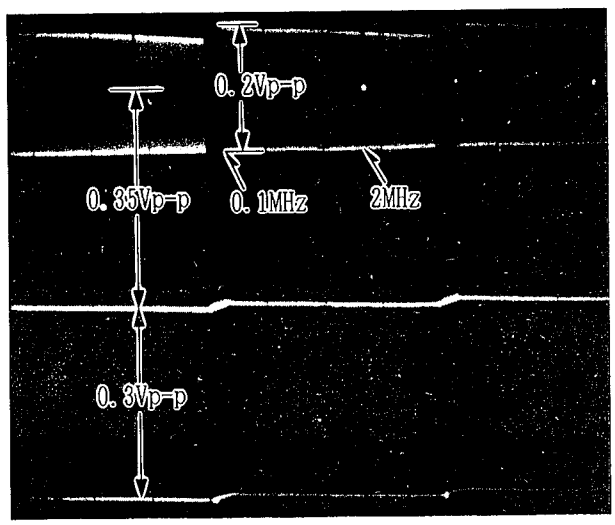
2-5-7. VIDEO FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3012 (SP) VR3013 (LP)	SP/LP (SELF RECORDED) PLAYBACK	VIDEO SWEEP SIGNAL (Shown in Fig.E7)
TAPE	M.EQ.	SPEC	
BLANK TAPE	OSCILLO- SCOPE/ VIDEO SWEEP GENERATOR	SP:0+-1(dB) (90-110%) LP:0+-1(dB) (90-110%)	

Note:1. Set the Video Sweep Signal as shown in Fig.E7.

2. Supply 5.05+-0.15V DC to TL2033 through the resistor(1Kohm).

3. Supply 5.05+-0.15V DC to TL2034 through the resistor(68Kohm).



CONDITION:BURST SIGNAL OFF
75 ohm TERMINATED

Fig. E7

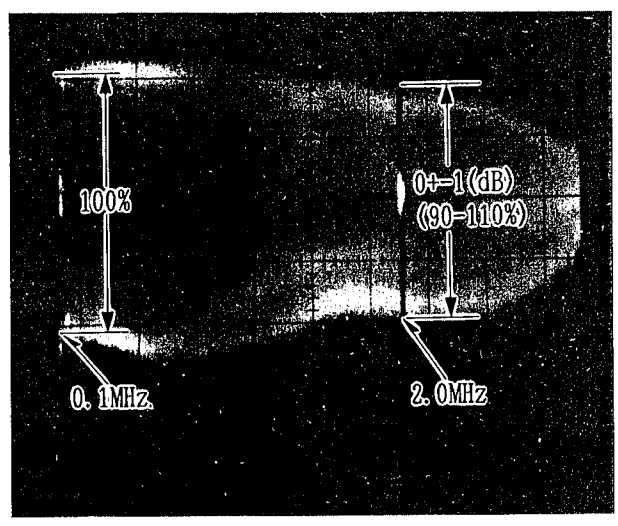
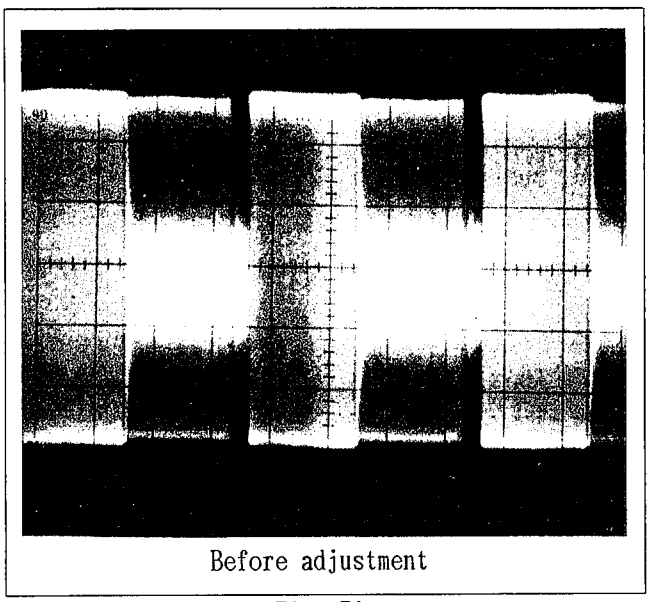


Fig. E8

2-5-8. CHROMINANCE RECURSIVE ADJUSTMENT
(NV-HD90EE)

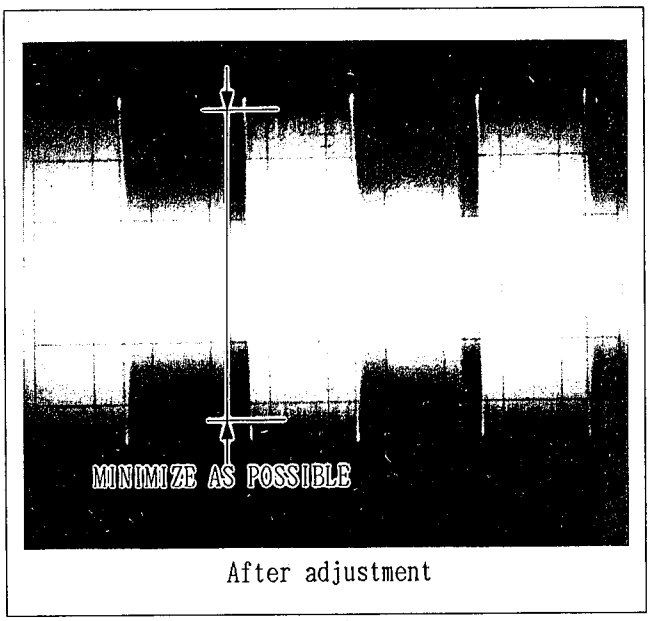
TP	ADJ.	MODE	INPUT
IC301-17	VR801 VR802	(SELF RECORDED) PLAYBACK	PAL COLOUR BAR
TAPE	M. EQ.	SPEC	
BLANK TAPE	OSCILLO-SCOPE	MINIMIZE AMPLITUDE	

Note:1. Before this adjustment, RECORDING CURRENT ADJUSTMENT must be done.



Before adjustment

Fig. E9



After adjustment

Fig. E10

2-5-9. ARTIFICIAL NTSC AFC FREE RUN ADJUSTMENT.

TP	ADJ.	MODE	INPUT
IC802-9	VR803	STOP	SINEWAVE (8KHz, -10dB) VIDEO IN
TAPE	M. EQ.	SPEC	
	OSCILLO-SCOPE/ SINEWAVE GENERATOR	15735+-100(Hz)	

Note:1. Supply +5V DC to IC802-27.
2. Before adjusting VR803, turn VR803 clockwise or counter-clockwise which is maximum frequency side.

2-5-10. SECAM KILLER ADJUSTMENT
(NV-HD90EE)

TP	ADJ	MODE	INPUT
IC881-11	T881	SP RECORDING	SECAM COLOUR BAR
TAPE	M. EQ.	SPEC	
BLANK TAPE	OSCILLO-SCOPE	MINIMIZE AMPLITUDE ("A" PORTION: NEGATIVE PEAK)	

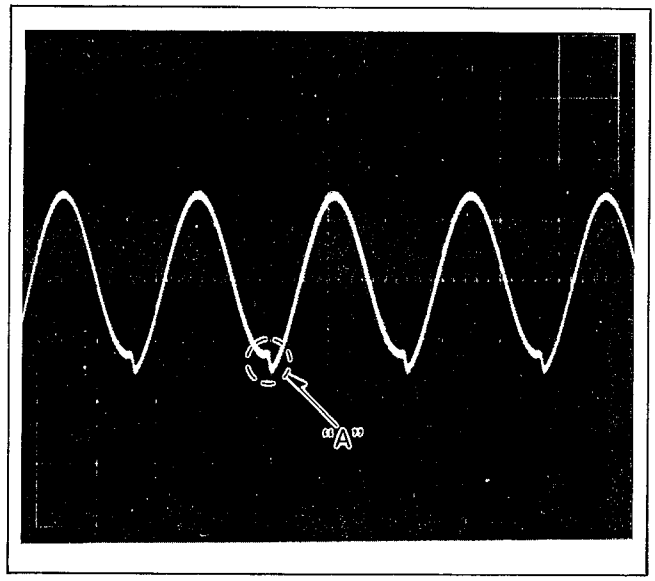


Fig. E11

AUDIO SECTION

2-5-11. BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002(HOT/ TEST LAND) TP4003(GND/ TEST LAND)	VR4001	RECORDING	
TAPE	M.EQ.	SPEC	
BLANK TAPE	V.T.V.M.	2.4+-0.1(mVrms)	

Note:1. Connect the Audio Input and GND.

2-5-12. CARRIER FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4501-34(L) (TL4515) IC4501-47(R) (TL4516)	VR4551(P-L) VR4552(P-R) VR4501(N-L) VR4509(N-R)	SP RECORDING	
TAPE	M.EQ.	SPEC	
BLANK TAPE	FREQUENCY COUNTER	PAL-L:1.4+-0.003(MHz) PAL-R:1.8+-0.003(MHz) NTSC-L:1.3+-0.003(MHz) NTSC-R:1.7+-0.003(MHz)	

Note:1. When adjusting VR4501 and VR4509, connect a jumper wire between IC6001-70 and GND (compulsory NTSC mode)
2. After adjusting VR4501 and VR4509, disconnect a jumper wire.

2-5-13. DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
BETWEEN VR4502 and R4511(L) BETWEEN VR4507 and R4561(R)	VR4502(L) VR4507(R)	SP RECORDING	SINEWAVE (1KHz,-10dB) AUDIO IN (L),(R)
TAPE	M.EQ.	SPEC	
BLANK TAPE	V.T.V.M./ SINEWAVE GENERATOR	120(mVrms)	

Note:1. Before recording the sinewave, set the Signal Gnerator until the both audio outputs (L) and (R) are 400mVrms.

2-5-14. FM B.P.F. ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC4501-33(L) (TL4517) IC4501-48(R) (TL4518)	VR4550	PLAYBACK	1.608MHz/ 400mVp-p SINEWAVE SIGNAL (PS4003-8)
TAPE	M.EQ.	SPEC	
ALIGNMENT TAPE VFJ8125H3F	OSCILLO-SCOPE/ SINEWAVE GENERATOR	Lch(IC4501-33) = Rch(IC4501-48)	

Note:1. Disconnect P501(from Main C.B.A. to Head Amp Pack)
2. Supply the sinewave signal (1.608MHz/ 400mVp-p) to PS4003-8.
3 After this adjustment, connect P501

TIMER SECTION

2-5-15. TIMER REFERENCE CLOCK ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL7501	C7501	STOP	
TAPE	M.EQ.	SPEC	
	UNIVERSAL COUNTER	7812.5+-0.015(usec)	

Memo