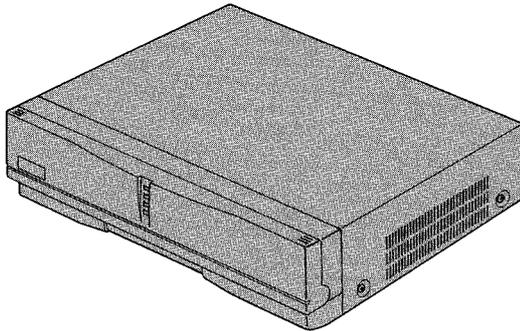


Service Manual

Video Cassette Recorder

Panasonic **S VHS** VHS
625 PAL

Hi-Fi HQ
NV-HS800 A/EA
EE

K-MECHANISM

SPECIFIC ATION	ТЕХНИЧЕСКИЕ ХА	РАКТЕРИСТИКИ
DESCRIPTIONS	ОБЩЕЕ ОПИСАНИЕ	
SERVICE INFORM ATION	СЕРВИСНАЯ ИНФОРМАЦИЯ	
SERIAL CLOCK TRANSMISSION ERROR DISPL	КОДЫ ОШИБОК	
SERVICE INFORM ATION DISPL	ИДИКАЦИЯ СЕРВИСНОЙ ИНФОРМАЦИИ	
TECHNICAL INFORM ATION	ТЕХНИЧЕСКАЯ ИНФОРМАЦИЯ	
ADJUSTMENT PROCEDURES	ПРОЦЕДУРЫ НАСТРОЙКИ	
DISASSEMB LY METHOD	МЕТОДИКА РАЗБОРКИ	
MECHANICAL ADJUSTMENT PROCEDURES	МЕТОДИКА МЕХАНИЧЕСКОЙ НАСТРОЙКИ	
DISASSEMB LY PROCEDURES OF MECHANISM	МЕТОДИКА РАЗБОРКИ МЕХАНИЗМА	
ASSEMB LY PROCEDURES OF MECHANISM	МЕТОДИКА СБОРКИ МЕХАНИЗМА	
ELECTRICAL ADJUSTMENT PROCEDURES	МЕТОДИКА ЭЛЕКТРИЧЕСКОЙ НАСТРОЙКИ	
BLOCK DIAGRAMS	БЛОК - СХЕМЫ	
EDIT BLOCK DIAGRAM	БЛОК - СХЕМА МОДУЛЯ МОН ТАЖА	
HI-FI AUDIO BLOCK DIAGRAM	БЛОК - СХЕМА А УДИОУСИЛИТЕЛЯ	
SYSTEM CONTROL & SERVO BLOCK DIAGRAM	БЛОК - СХЕМА СИСТЕМЫ УП РАВЛЕНИЯ И СЕРВОПРИВОДА	
LUMINANCE & CHROMINANCE BLOCK DIAGRAM	БЛОК - СХЕМА ОБ РАБОТКИ ВИДЕОСИГНАЛА	
SCHEM ATIC DIAGRAMS	ПРИНЦИПИАЛЬНЫЕ СХЕМЫ	
POWER SCHEMATIC DIAGRAM	ПРИНЦИПИАЛЬНАЯ СХЕМА БЛОКА ПИ ТАНИЯ	
SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEM	ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА СИСТЕМЫ	
УП РАВЛЕНИЯ И СЕРВОПРИВОДА (ОСНОВНАЯ ПЛ АТА)		
AUDIO SECTION IN MAIN & SUBAUDIO	PACK SCHEM ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА ОБ РАБОТКИ А УДИО	
СИГНАЛА (ОСНОВНАЯ ПЛ АТА)		
LUMINANCE & CHROMINANCE SECTION IN MAIN SCHEM	ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА ОБ РАБОТКИ ВИДЕО	
СИГНАЛА (ОСНОВНАЯ ПЛ АТА)		
CAPS TAN DRIVE PACK SCHEM ATIC DIAGRAM	ПРИНЦИПИАЛЬНАЯ СХЕМА УП РАВЛЕНИЯ ВИДЕО ГОЛОВКОЙ	
LUMINANCE & CHROMINANCE	PACK SCHEM ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА ОБ РАБОТКИ ВИДЕОСИГНАЛА	
HI-FI AUDIO	PACK SCHEM ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА ОБ РАБОТКИ А УДИО СИГНАЛА	
INPUT/OUTPUT	PACK SCHEM ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА МОДУЛЯ ВВОДА-ВЫВОДА СИГНАЛОВ	
HEAD AMP SCHEM ATIC DIAGRAM	ПРИНЦИПИАЛЬНАЯ СХЕМА УСИЛИТЕЛЯ ВИДЕО ГОЛОВОК	
SUB LUMINANCE & CHROMINANCE	PACK SCHEM ATIC DIAGRAM ПРИНЦИПИАЛЬНАЯ СХЕМА ОБ РАБОТКИ ВИДЕО	
СИГНАЛА (ДОПОЛНИТЕЛЬНАЯ ПЛ АТА)		
TIMER & VR SCHEMATIC DIAGRAM	ПРИНЦИПИАЛЬНАЯ СХЕМА ТАЙМЕ РА	
TV DEMODUL ATOR PACK SCHEM ATIC DIAGRAM (NV-HS800A)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕМОД УЛЯТО РА NV-HS800A	
TV DEMODUL ATOR PACK SCHEM ATIC DIAGRAM (NV-HS800EA)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕМОД УЛЯТО РА NV-HS800EA	
TV DEMODUL ATOR PACK SCHEM ATIC DIAGRAM (NV-HS800EE)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕМОД УЛЯТО РА NV-HS800EE	
DECODER PACK SCHEM ATIC DIAGRAM (NV-HS800A/EA)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕКОДЕ РА NV-HS800A/EA	
DECODER PACK SCHEM ATIC DIAGRAM (NV-HS800EA)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕКОДЕ РА НИКАМ	
DECODER PACK SCHEM ATIC DIAGRAM (NV-HS800EE)	ПРИНЦИПИАЛЬНАЯ СХЕМА ДЕКОДЕ РА NV-HS800EE	
EXPLODED VIEWS & MECHANICAL PARTS LIST	СБОРОЧНЫЕ ЧЕРТЕЖИ И СПИСО МЕЖАНИЧЕСКИХ ЗАПАСНЫХ ЧАСТЕЙ	
CHASSIS PARTS SECTION (1)	ШАССИ, СЕКЦИЯ 1	
CHASSIS PARTS SECTION (2)	ШАССИ, СЕКЦИЯ 2	
CASING PARTS SECTION	КОРПУС	

SPECIFICATIONS

ITEM	SPECIFICATION		ITEM	SPECIFICATION
POWER	SOURCE: 220 - 240 V AC 50/60Hz		VIDEO	OUTPUT: EURO AV (AV1, AV2) Connectors (21 pin) 1.0Vp-p, 75Ω unbalanced S-VIDEO OUT Connector Y: 1.0Vp-p, 75Ω unbalanced C: 0.3Vp-p, 75Ω unbalanced VIDEO OUT Connector (Phono type) 1.0Vp-p, 75Ω unbalanced
	CONSUMPTION: 37 watts			
RECORDING SYSTEM	2 rotary heads, helical scanning system		AUDIO	HEAD: 1 stationary head (Normal Audio) 2 rotary heads (Hi-Fi 2CH)
	PAL			
TV TUNER SYSTEM	NV-HS800A	VHF I: CH0~CH5 (PAL B) VHF III: CH5A~CH11 (PAL B) UHF: CH21~CH69 (PAL G) 75Ω terminated	AUDIO	INPUT: EURO AV (AV1, AV2) Connectors (21 pin) More than -6dBV (500mV), More than 10kΩ AUDIO IN (AV3) Connector (Phono type) More than -10dBV (316mV), More than 47kΩ MICROPHONE JACK - 70dBV
	NV-HS800EA	VHF: CHE2~CHS3 (PAL B) VHF III: CHM1~CHE12 (PAL B) VHF H: CHU1~CHS41 (PAL B) UHF: CH21~CH69 (PAL G) 75Ω terminated		
	NV-HS800EE	VHF I: CHR1~CHR5 (SECAM D) CHN1~CHS10 (PAL/SECAM B) VHF III: CHR6~CHR12 (SECAM D) CHE5~CHS41 (PAL/SECAM B) UHF: CH21~CH69 (SECAM K) CH21~CH69 (PAL/SECAM G) 75Ω terminated		
RF OUT SYSTEM	NV-HS800A	VHF: CH0/1 (PAL B) 73±3dBμ, 75Ω terminated	TAPE FORMAT	S-VHS, VHS Cassette tape (Tape width 12.7mm)
	NV-HS800EA	UHF: CH36±4 (PAL G) 70±3dBμ, 75Ω terminated		
	NV-HS800EE	UHF: CH38±2 (SECAM K) CH38±2 (PAL/SECAM G) 73±3dBμ, 75Ω terminated		
VIDEO	HEADS: 4 rotary heads 1 pair for SP recording, playback and trick play (L-R heads) 1 pair for LP recording, playback and trick play (L'-R' heads) 1 flying erase head		TAPE SPEED	SP: 23.39mm/s (PAL), 33.35mm/s (NTSC) LP: 11.695mm/s (PAL), 11.12mm/s (NTSC) Record/Playback Time: SP: 4 hours with 240min. type tape LP: 8 hours with 240min. type tape FF/REW Time: 2.5min. with 180min. type tape
	INPUT: EURO AV (AV1, AV2) Connectors (21 pin) 1.0Vp-p, 75Ω unbalanced S-VIDEO IN (AV3) Connector Y: 1.0Vp-p, 75Ω unbalanced C: 0.3Vp-p, 75Ω unbalanced VIDEO IN (AV3) Connector (Phono type) 1.0Vp-p, 75Ω unbalanced		DIMENSIONS	430(W)×118(H)×395(D) mm
			WEIGHT	6.8kg
			STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. Infra-red Remote Controller 1 pc. Audio Cables 1 pc. AC Mains Lead 1 pc. S-VIDEO 4 P Cable

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

SECTION 1

GENERAL DESCRIPTIONS

1-1. SERVICE INFORMATION

1-1-1. K-MECHANISM INFORMATION

A. SERVICE POSITION

In this position, the following services are possible.

When servicing the K-Mechanism, the Mechanism can easily be fixed by standing the Mechanism up in the Main Frame as shown below to check easily.

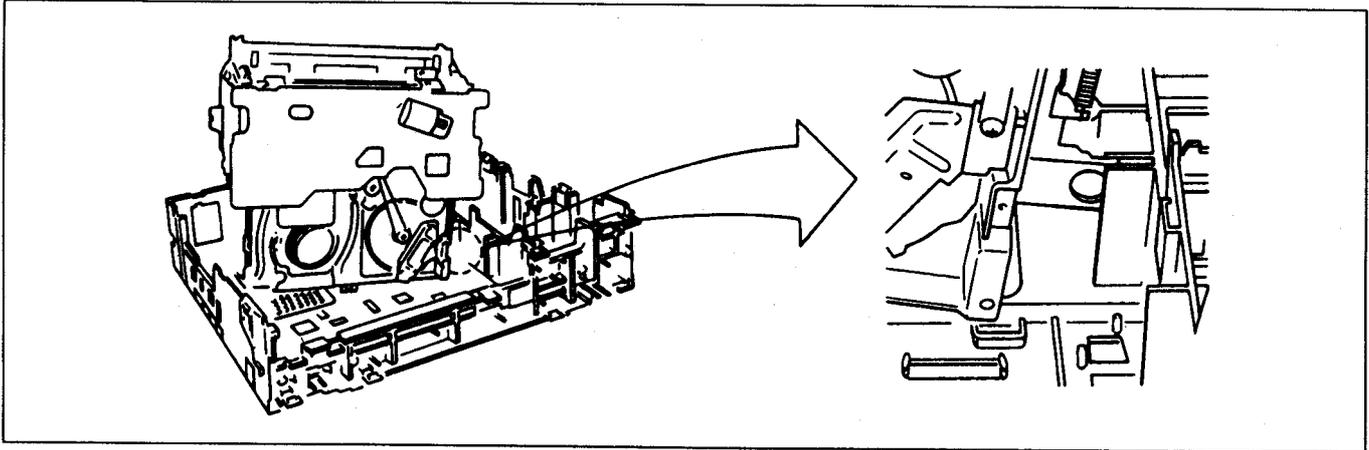


Fig. S1

A-1. CHECKING OF GEAR PHASE ALIGNMENT CONDITION

- 1) Remove the Mechanism Connection C.B.A.
- 2) Check gear phase Alignment Condition of Mechanism described on the bottom side of Frame.

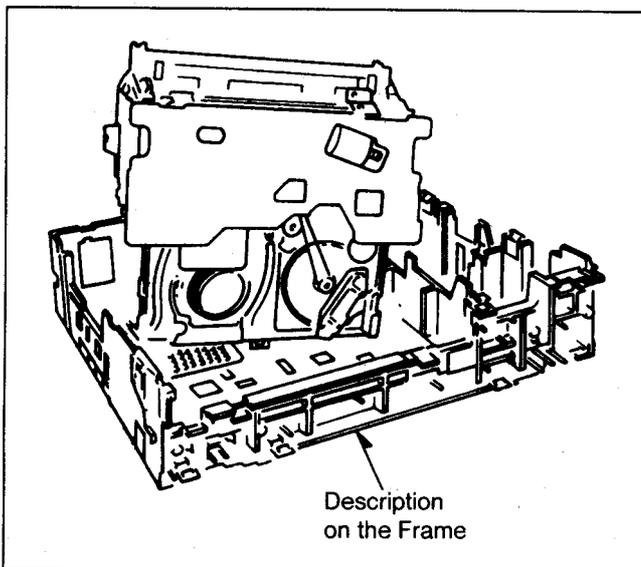


Fig. S2

A-2. CHECKING OF LOADING/UNLOADING OPERATION

There are 3 methods for manual operation of loading/unloading operation as follows.

1. HAND OPERATION
 - 1) Remove the Mechanism Connection C.B.A.
 - 2) Turn the Worm Gear or the WORM WHEEL GEAR (Remove the Loading Motor Unit) manually.
2. BATTERY OPERATION
 - 1) Remove the Mechanism Connection C.B.A.
 - 2) Connect the Battery (Manganes-Type R6 (AA) 3pcs./+4.5V) to the Loading Motor terminals.
3. SERVICE INFORMATION DISPLAY OPERATION
 - 1) Set the Service Information Display mode. (Press the "FF", "REW" and "EJECT" buttons simultaneously.)
 - 2) Press the "FF", "REW" and "EJECT" buttons 7 times to set the Service Mode 7. (The end of display on the Display becomes "--".)
 - 3) In the above Service Information Display mode, the Loading Motor rotates for Loading operation when the "PLAY" button is pressed. The Loading Motor rotates for unloading operation when the "STOP" button is pressed.

Remark:

Use the "SERVICE INFORMATION DISPLAY" mode for a final check of mechanism movement.

A-3. CHECKING OF REEL GEARS OPERATION

- 1) Remove the Mechanism Connection C.B.A.
- 2) Move the mechanism to "PLAY" position by loading operation. (Refer to <A-2>)
- 3) Turn the "Rotor Unit" to check movement of reel gears.

B. CYLINDER UNIT REPLACEMENT

The Cylinder Unit can be replaced easily by the following method.

- 1) Remove the Top Panel.
- 2) Remove the 3 screws of the Cylinder Unit with a magnetized screw driver through the holes on the Bottom Plate as shown in Fig. S3.

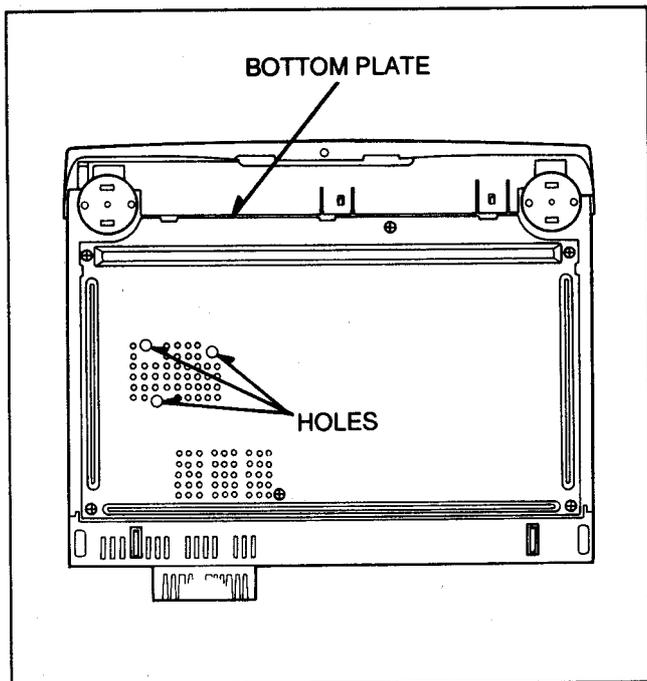


Fig. S3

C. CAPSTAN STATOR UNIT ASSEMBLY

When replacing the CAPSTAN STATOR UNIT, the CENTRE FIXING TOOL (VFK0851) must be used to fix the centre of CAPSTAN STATOR UNIT.

Method:

- 1) Place the CAPSTAN STATOR UNIT into position.
- 2) Loosely tighten the 3 screws.
- 3) Insert the CENTRE FIXING TOOL (VFK0851) as shown in Fig. S4.
- 4) Tighten the 3 screws.
- 5) Remove the CENTRE FIXING TOOL.

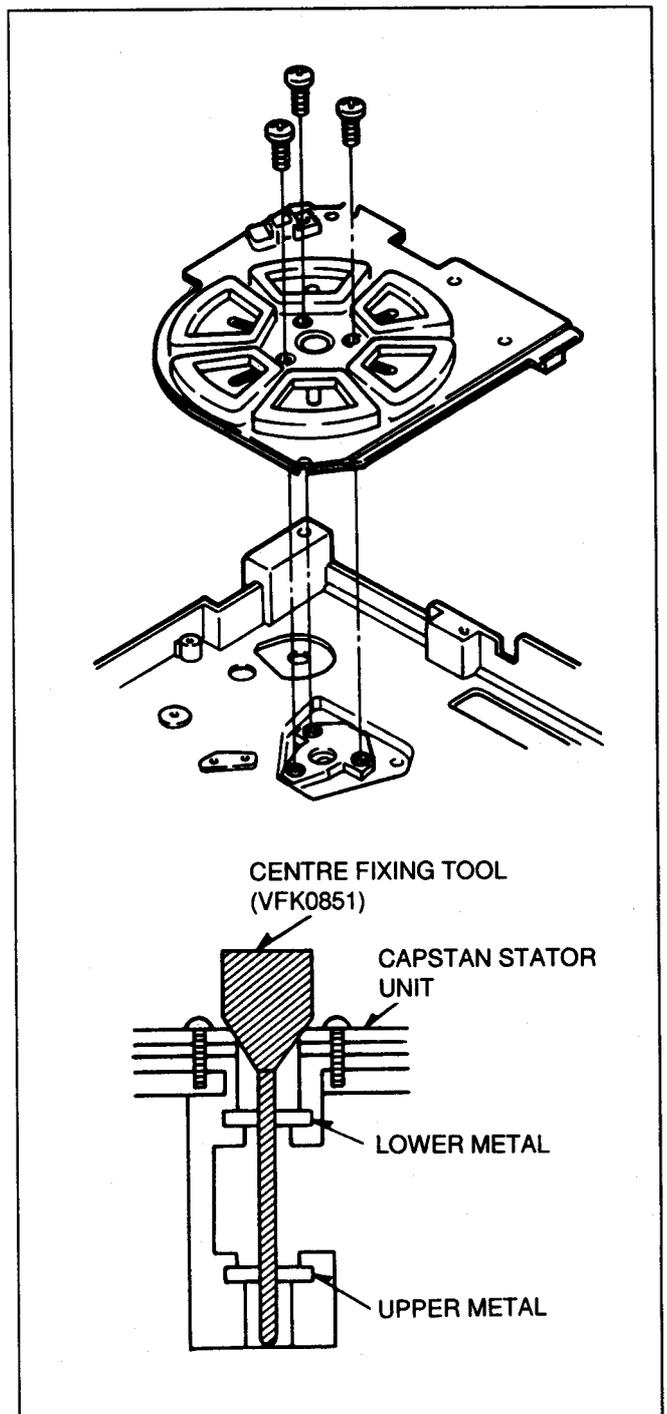


Fig. S4

D. EJECT OPERATION

The main cam gear rotates in the direction of the arrow. The projection (B) of the carriage connection gear engages with the recession (A) of the main cam gear. The carriage connection gear rotates in the direction of the arrow to perform the Eject operation.

<NOTE>

If the Eject operation is performed without the cassette carriage installed while repairing or making the mechanical phase alignment, the main cam gear will not engage with the carriage connection gear and will not rotate.

To perform the Eject operation with the cassette carriage not installed, it is necessary to rotate the carriage connection gear by hand in the direction of the arrow.

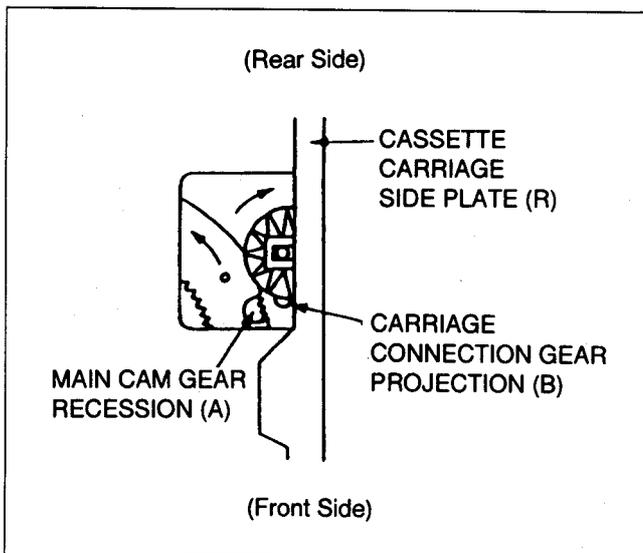


Fig. S5 Top View of Eject Operation

1-1-2. REMOVAL OF THE CASSETTE TAPE

If the electrical circuit is defective and the action of unloading and front unloading do not work properly, it is possible to remove the cassette manually. There are 2 methods of removing the cassette.

1. HAND OPERATION

- 1) Remove the bottom plate.
- 2) Turn the WORM GEAR to "A" arrow mark direction manually as shown in Fig. S6, moving the LOADING POST to the unloaded position.
- 3) Turn the CAPSTAN clockwise to take up the tape.
- 4) Turn the WORM GEAR again to eject the cassette.

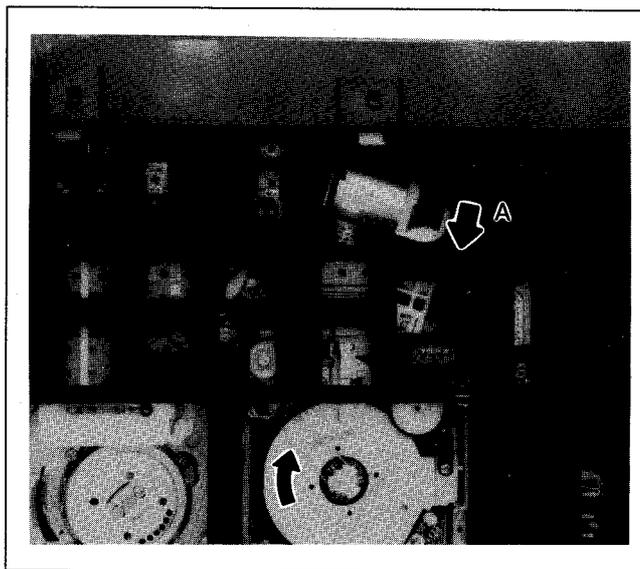


Fig. S6

E. TAKE-UP PHOTO SENSOR OPERATION

Note the following matters for Take-up Photo Sensor Operation.

- 1) While servicing of the K-Mechanism, the unit will not operate properly if a strong light (ex, Fluorescent light, Spot light) falls on the Take-up Photo Sensor. In this case, cover the Take-up Photo Sensor to prevent the light from falling on it.
- 2) While servicing of the K-Mechanism with "Power On" and without cassette tape inserted, the Unit does not operate properly.

F. POWER TRANSISTOR SERVICING

When removing the connector of the Power Transistor, hold the Power Transistor by hand to prevent damage.

2. BATTERY OPERATION

- 1) Connect the Battery (Manganese-Type R6 (AA) 3pcs./ +4.5V) to P1503 as shown in Fig. S7.
- 2) After moving the LOADING POST to the unloaded position, disconnect the battery to stop the motor.
- 3) Turn the CAPSTAN to clockwise to take up the tape.
- 4) Reconnect the battery to eject the cassette.

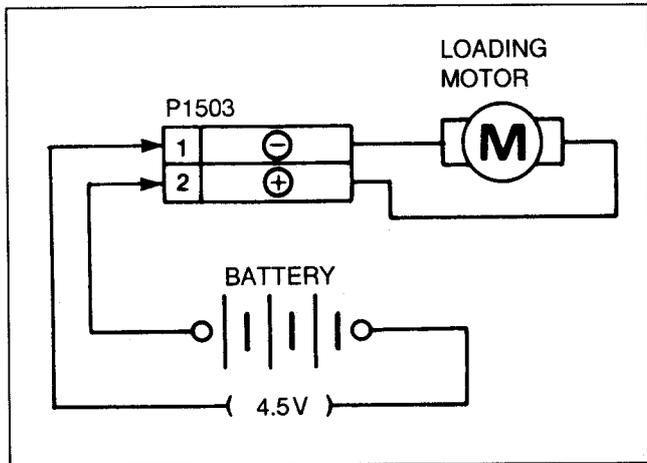


Fig. S7

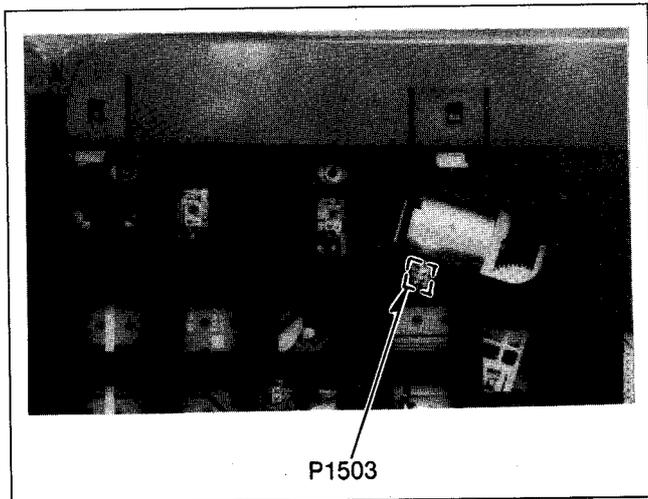


Fig. S8

If the cassette tape can not be removed by the above 2 methods, remove it by the following method.

- 1) Remove the Top Panel.
- 2) Remove the Front Panel Unit.
- 3) Lift up the Pinch Arm after removing spring.
- 4) Push the P5 Arm and remove the cassette tape from tape transportation (P1, P2, P3 and P5 Posts).
- 5) Turn the Capstan Motor to take up the tape.
- 6) Remove 1 screw from the Side Plate (R) Unit to disconnect the Rack Gear from the Carriage Connection Gear.
- 7) Take out the cassette tape from the Cassette Compartment.

1-1-3. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

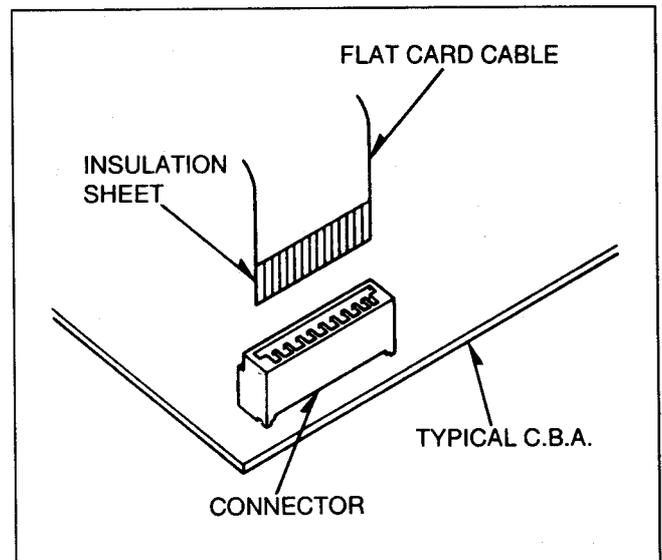


Fig. S9

1-1-4. CHANNEL MEMORY IC INITIALIZATION

When replacing the channel memory IC7503 (XLJ9021B), its IC should be initialized.

- Note:
- 1) It should be performed before tuning.
 - 2) Do not turn off the power source during initialization or 1 second after.
 - 3) Meaning of "INITIALIZATION" is to erase the "SKIP CH" In other words the number of channel position is the same as displayed channel.

Method:

- 1) Press the CH UP/DOWN Button so that the channel indicator indicates "3".
- 2) Connect a jumper wire between Pin 54 and Pin 35 of IC7501 for more than 1 second.
- 3) Channel indication changes from "3" to "1".

1-1-5. SERVICING THE PACK C.B.A.

When servicing the CAP Drive Pack C.B.A., Sub Audio Pack C.B.A., Luminance & Chrominance Pack C.B.A., Sub Luminance & Chrominance Pack C.B.A and TV Demodulator Pack C.B.A. (NV-HS800EA Only), connections of extention cable are necessary as shown below.

PART NO	PART NAME	PCS	CONNECTION
VFK0678	18P EXTENTION CABLE	2	MAIN (PP3011) – SUB L/C (PS3303) MAIN (PP3012) – SUB L/C (PS3302)
VFK0764	10P EXTENTION CABLE	1	MAIN (PP2002) – CAP DRIVE (PS2002)
VFK0918	17P EXTENTION CABLE	1	MAIN (PP4501) – SUB AUDIO (PS4501)
VFK0937	9P EXTENTION CABLE	1	MAIN (PP3001) – L/C (PS301)
VFK0938	12P EXTENTION CABLE	2	MAIN (PP3002) – L/C (PS302) MAIN (PP2001) – CAP DRIVE (PS2001)
VFK0939	13P EXTENTION CABLE	1	MAIN (PP3003) – L/C (PS303)
VFK0940	4P EXTENTION CABLE	1	MAIN (PP3013) – SUB L/C (PS3501)
VFK0944 (NV-HS800EA)	5P EXTENTION CABLE	3	MAIN (PP7401) – TV DEMODU (PS701) MAIN (PP7402) – TV DEMODU (PS702) MAIN (PP7403) – TV DEMODU (PS703)
VFK0890 (NV-HS800EA)	6P EXTENTION CABLE	1	MAIN (PP7404) – TV DEMODU (PS704)

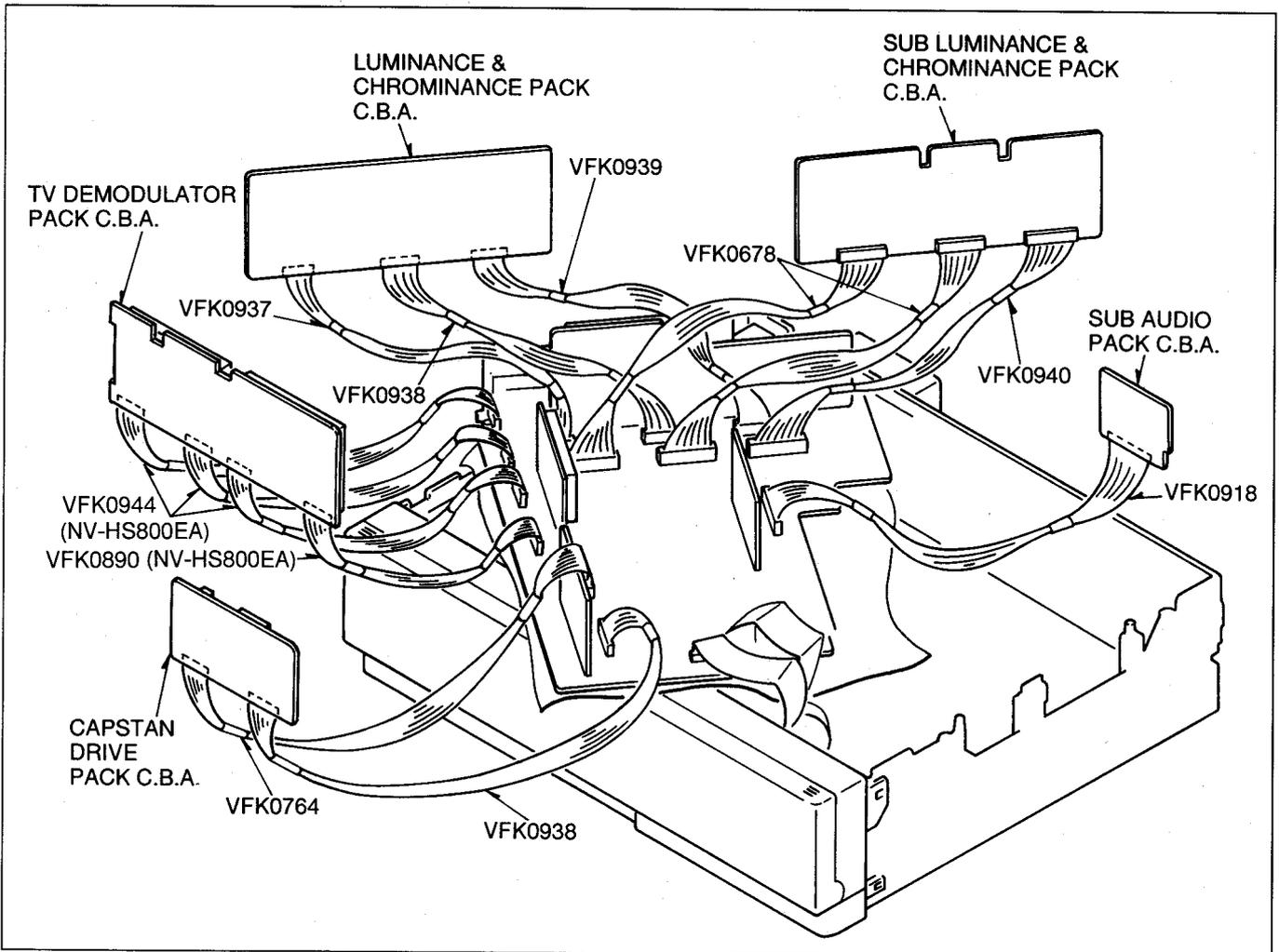


Fig. S10

1-2. SERIAL CLOCK TRANSMISSION ERROR DISPLAY

If the Serial Clock is not transmitted from IC6001 to IC7501, "E9" is displayed as shown in Fig. T1. This indication will be displayed either during the Service Information Display mode or in normal mode.

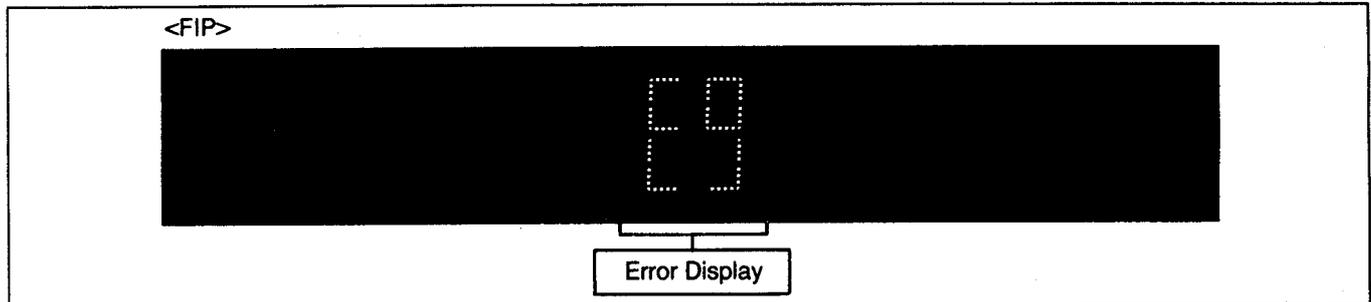


Fig. T1 Serial Data/Clock Transmission Error Display

1-3. SERVICE INFORMATION DISPLAY

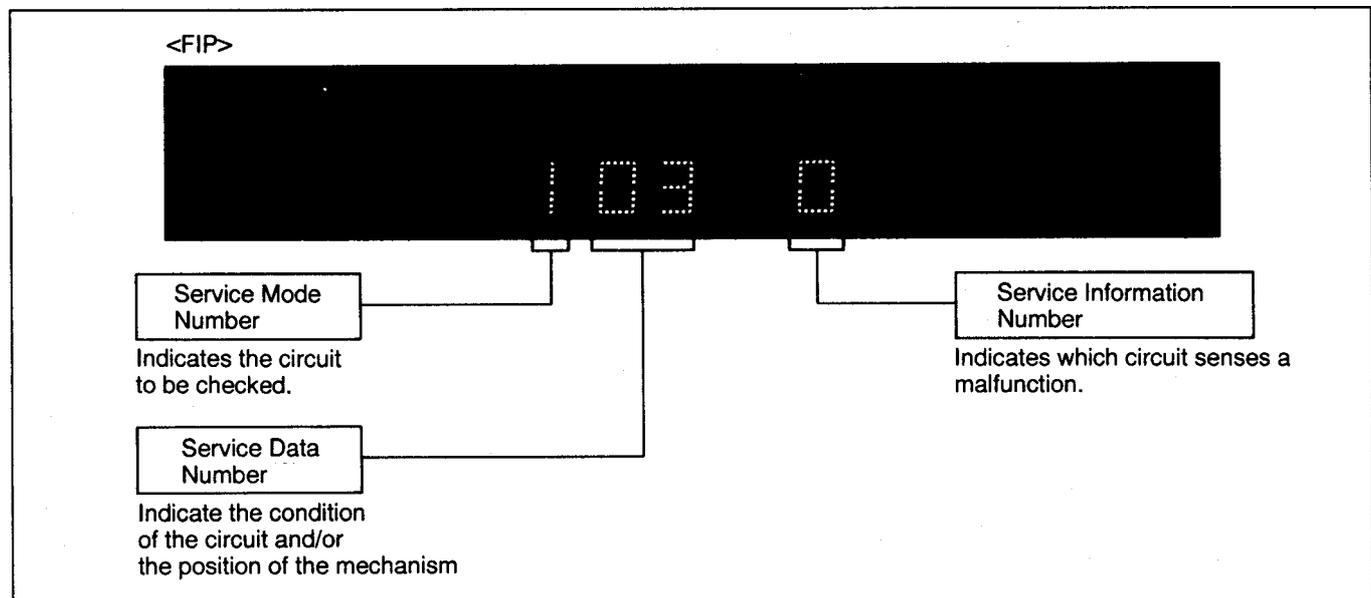


Fig. D1 Service Information Display

1-3-1. Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by the consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

1-3-2. Turning on Service Information Display

There are two ways to turn on the Service Information Display.

- (1) Press the FF, REW and EJECT buttons simultaneously. The Service Information will be displayed for 1 minute.
- (2) Connecting a Jumper wire between TP6010 and TP6011 will display the service information indefinitely.

In the Service Information Display, there are four digits divided into 3 functions.

The first digit indicates which of the 7 service modes that the unit is currently in.

- MODE 1 : Checks tape protection circuit
- MODE 2 : Checks tape transport mechanism
- MODE 3 : Checks mode switching operation
- MODE 4 : Checks control buttons
- MODE 5 : Checks capstan motor
- MODE 6 : Checks cylinder motor
- MODE 7 : Checks loading/unloading operation

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The fourth digit is the service Information display. It is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is supplied.

1-3-3. Use of Service Modes

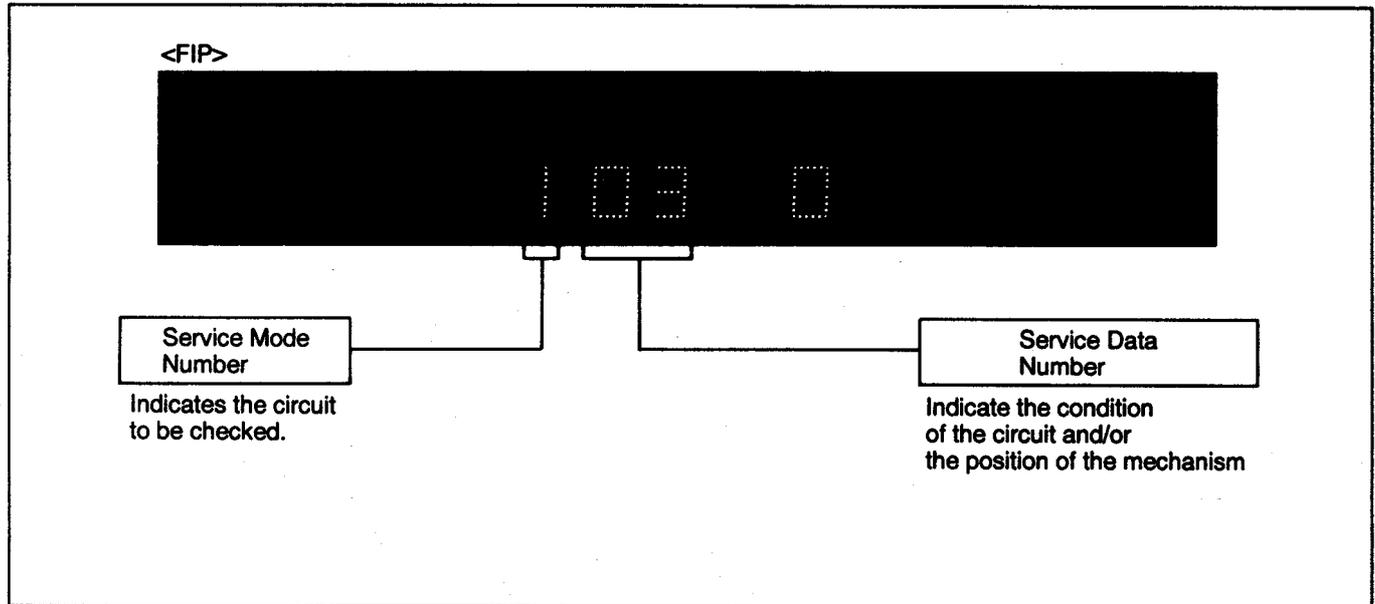


Fig. D2 Service Mode Number and Service Data Number on S.I.D.

- (1) Turn on Service Information Display.
- (2) To change Service Modes press the FF, REW and EJECT buttons simultaneously.
- (3) Mode 1: Checks that the Sensor LED, Supply & Take-up Sensor circuits check the circuits by blocking the light from the Sensor LED to either or both Supply & Take-up Sensors. When the light is blocked to both sensors, "00" should be indicated on the service data number. When the light is blocked to the supply sensor, "01" should be indicated.
- (4) Mode 2: Checks the mode switch circuit while indicating mechanism position. Service Data Numbers indicate the position of the mode switch and there by the mechanism position.
- (5) Mode 3: Checks that mode switch circuit operations have been completed. Service Data Number should indicate "00" after each mechanism operation is completed.
- (6) Mode 4: Checks the operation circuit. Indicates if IC6001 receives the operating commands from the mode buttons and/or remote controller.

- (7) Mode 5: Checks the capstan motor circuit. Indicates if the IC6001 has received the command to rotate the capstan motor.
- (8) Mode 6: Checks the cylinder motor circuit. IC6001 has received the command to rotate the cylinder motor.
- (9) Mode 7: Checks the Loading/Unloading Operation. The Loading Motor rotates for loading operation when the "PLAY" button pressed. The Loading Motor rotates for unloading operation when the "STOP" button is pressed. This mode can be displayed indefinitely until the OPERATE button is pressed.

<NOTE>

Refer to Fig. D5 for details of Service Data Number.

1-3-4. Service Information Number

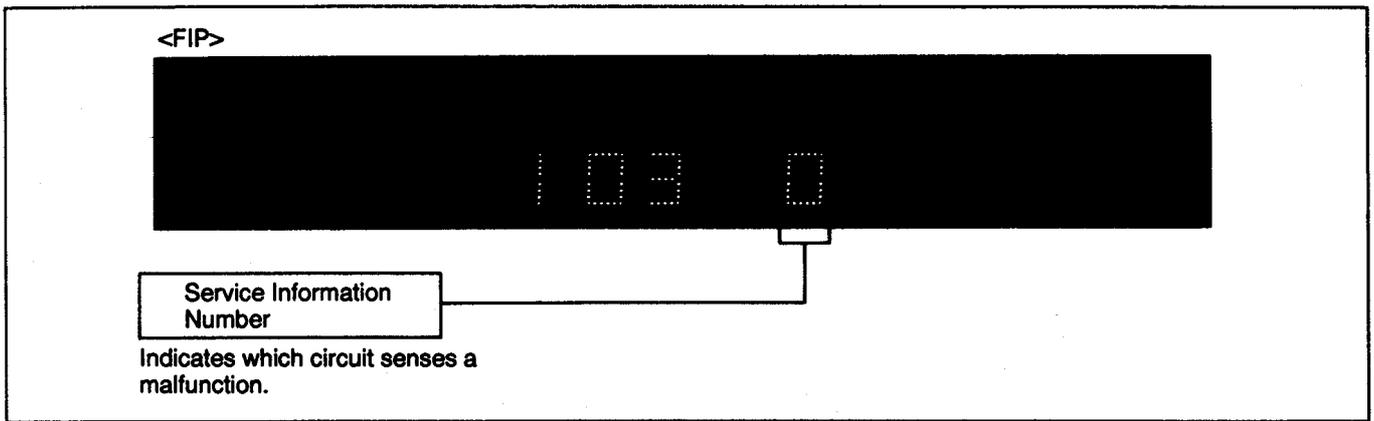


Fig. D3 Service Information Number on S.I.D.

Refer to Fig. D4 for details of Service Information Number.

Note:

The Service Information Number display is independent of the service mode display.
 The Service Information Number will be stored as long as AC power is supplied.
 If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
0	Normal (No problem)
1	Cylinder stop
2	Tape reel stop
3	Stop at position other than 4 or 6
4	Stop during unloading
5	Faulty capstan rotation
6	Stop during Cassette-In/Eject operation

Fig. D4 Service Information

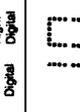
Service mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1		00	No light detected at either sensor	Tape not required
		01	Tape Beginning. Light to Supply Photo Sensor is blocked.	
		02	Tape End. Light to Take-up Photo Sensor is blocked.	
		03	Light detected at both sensors.	
2		04	EJECT	Tape Required *1: STOP3; The Pinch Roller is on the capstan motor shaft. *2: STOP; The Pinch Roller is off the capstan motor shaft. Refer to Fig. D7 to Check mechanism Position and timing. Note: Supply and Take-up Photo Sensor is inhibited.
		05	Cassette-down	
		06	REV, REV SLOW	
		07	Loading/Unloading	
		08	PLAY/REC, STILL/PAUSE, CUE, FWD SLOW, STOP3 *1	
		09	STOP *2	
		10	FF/REW	
		11	Intermediate position	
		12	Any display other than "00" indicates a fault in the mode switch circuit or system.	
		13	Disregard service data displayed until mechanism operation is completed. Then the display should indicate "00".	
4	Display only when the operating button is pressed.	Refer to Fig. D6		Tape not required.
5	Left digit only, disregard Right digit display.		8, 9, u, A, -, n, L, and no display indicate that the Capstan motor "PLAY" command received by IC6001.	Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.
	Right digit only, disregard left digit display.		1, 2, 3, 4, 5, 6, 7, indicate that the Capstan motor "CUE, FF, Forward Slow" commands received by IC6001.	
	Right digit only, disregard left digit display.		8, 9, u, A, -, n, L, and no display indicate that the Capstan motor Reverse, Rew, Reverse Slow commands received by IC6001.	
6	Left digit only, disregard Right digit display.		1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor "ON" command received by IC6001.	Tape required. If a symbol other than those listed is displayed, a malfunction in that circuit is indicated.

Fig. D5 Service Data Display and Indication

SERVICE DATA NUMBERS	MODE BUTTONS	SERVICE DATA NUMBERS	MODE BUTTONS
3n	OPERATE	56	DISPLAY (REMOTE CONTROLLER)
01	EJECT	—	RESET
09	AUDIO DUB	49.4U	INDEX (REMOTE CONTROLLER)
A3	INSERT	—	TRACKING (+,-)/V-LOCK (REMOTE CONTROLLER)
-9	PAL/MESECAM	—	TAPE SELECT (REMOTE CONTROLLER)
—	CHECK/PROG.	—	RECORDING SP/LP (REMOTE CONTROLLER)
34.35	^v (REMOTE CONTROLLER)	—	CANCEL (REMOTE CONTROLLER)
—	NEXT/SP/LP	10	SU (1) (REMOTE CONTROLLER)
—	SLEEP/SHIFT	11	MO (2) (REMOTE CONTROLLER)
84	TIMER REC	12	TU (3) (REMOTE CONTROLLER)
08	REC	13	WE (4) (REMOTE CONTROLLER)
—	CLOCK SET	14	TH (5) (REMOTE CONTROLLER)
—	TUNER PRESET	15	FR (6) (REMOTE CONTROLLER)
80	PAUSE/STILL	16	SA (7) (REMOTE CONTROLLER)
0U	PLAY	17	SU~SA (8) (REMOTE CONTROLLER)
00	STOP	18	MO~SA (9) (REMOTE CONTROLLER)
06	PAUSE/STILL (REMOTE CONTROLLER)	19	MO~FR (0) (REMOTE CONTROLLER)
03.02	FF, REW	3A	-/-- (REMOTE CONTROLLER)
—	TRANSMIT (REMOTE CONTROLLER)	—	AUDIO OUT
0	SLOW (REMOTE CONTROLLER)	57	OSD (REMOTE CONTROLLER)

Fig. D6 Service Data Display for Service mode 4

1-3-5. Timing Chart from Mode SW to System control
IC6001

System control IC6001 senses the mechanism position through the Mode SW.
Fig. D7 shows the timing for Service Mode Number 2.

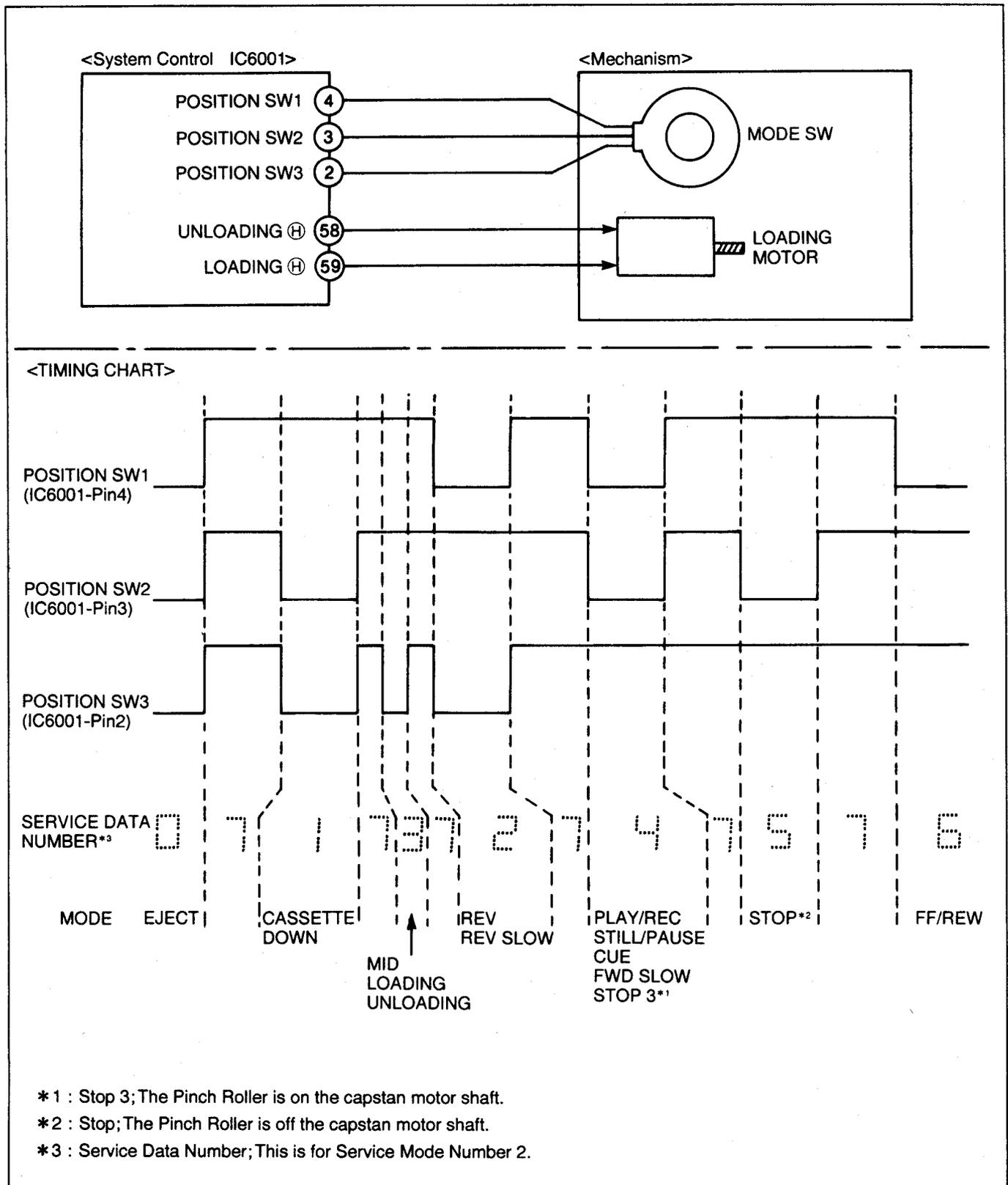


Fig. D7 Timing Chart of Mode SW

1-4. TECHNICAL INFORMATION

1-4-1. AI (ARTIFICIAL INTELLIGENCE) RECORDING FUNCTION

The recording and playback are adjusted to achieve optimum picture quality from tapes with varying characteristics.

(1) Detail explanation

<Playback mode>

The picture quality is varying from the different tapes as follows:

- 1) If the output level is low, from worn or rental cassette tapes, a soft picture is obtained by the RF equalizer and picture control on the Lumi./Chro. Pack C.B.A.
- 2) If the output level is medium, from normal tapes, a sharp picture is obtained from the emphasis and picture control on the Lumi./Chro. Pack C.B.A.
- 3) If the output level is high, from HG/S tapes, a sharp and detailed picture is obtained from the RF equalizer, emphasis picture control and noise canceller on the Lumi./Chro. Pack C.B.A.

<Recording mode>

The optimum recording level is used for all head conditions and for all types of tapes.

- 1) The luminance S/N is boosted 2 dB.
- 2) Recording head wear compensation.
- 3) The optimum recording current is achieved in 1.5 seconds.

(2) Signal Flow

<Playback mode>

- 1) When the AI is turned on, the AI TRIG (H) signal is supplied to IC3403 from pin 122 of IC6001. The AI CNT (H) is supplied to the Lumi./Chro. Pack C.B.A., IC6001 and the Erase Current Generator circuit.
- 2) The RF C signal from the Head Amp C.B.A. is used by the IC3403 to detect the output level of the video head.
- 3) After receiving the RF C signal, the IC3403 supplies ENVE1 and ENVE2 to the Lumi./Chro. Pack as shown in Fig. A1.
- 4) The optimum picture is output from the video circuit.

<Recording mode>

- 1) When the AI is turned on, the AI TRIG (H) signal is supplied to IC3403 from pin 122 of IC6001. The AI CNT (H) is supplied to the Lumi./Chro. Pack C.B.A., IC6001 and the Erase Current Generator circuit.
- 2) Before recording, the recording and playback operations are done in the still mode to determine the optimum recording current. The signal level detection is the same as the playback mode operation. The recording current is set by the REC CUR1, 2, 3 signals from IC3403. IC3405 is used for erasing the tape in the still mode.

<Others>

The NTSC (L) signal is used for setting the system to NTSC or PAL.

Other command signals are used to control the performance timing.

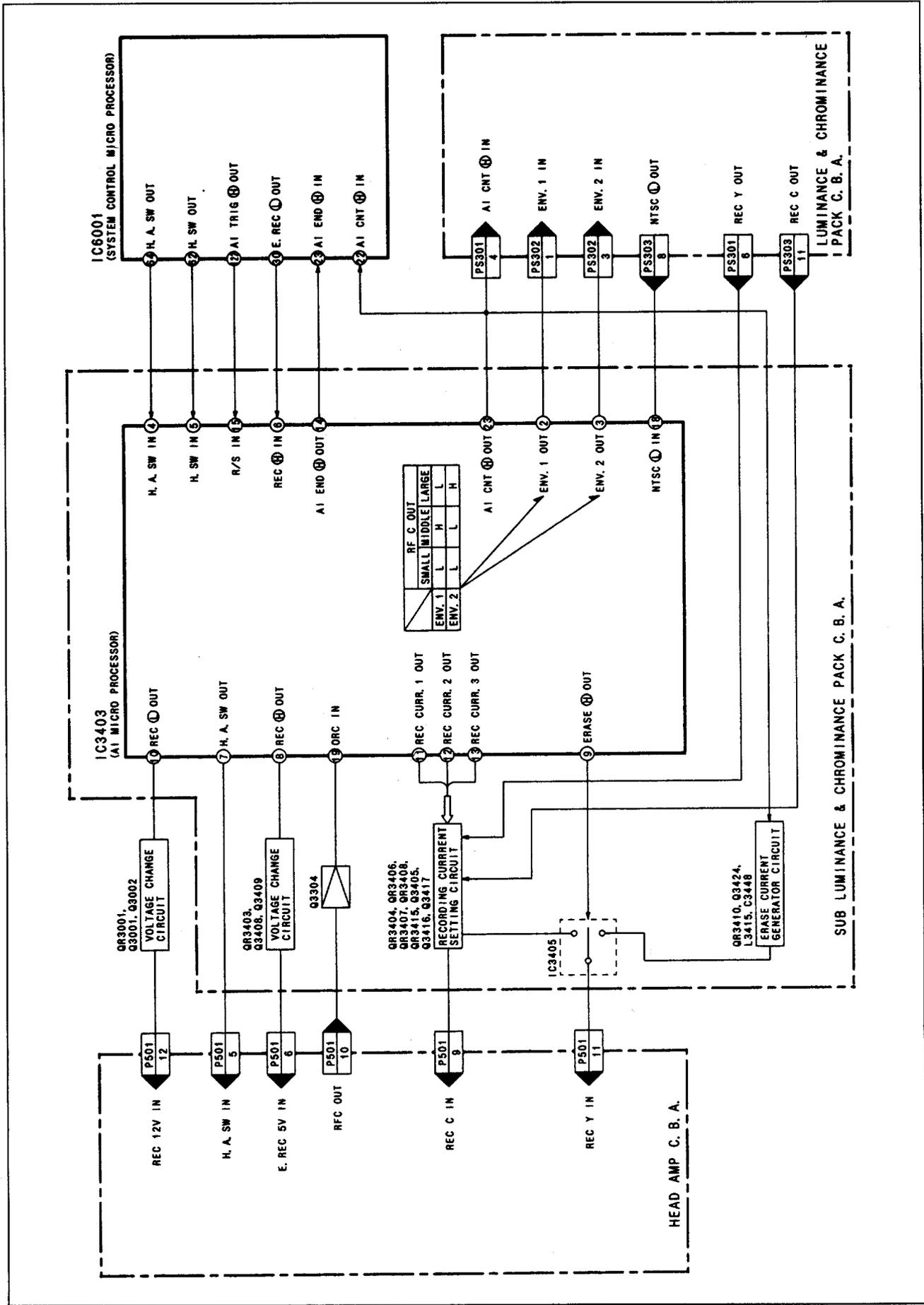


Fig. A1 Simplified AI Function Block Diagram

1-4-2. NEW SERIAL DATA TRANSMISSION

1. Serial data transmission

To exchange the data among the microprocessors, the serial data transmission is used.

Serial data transmission is used because of the relatively large amount of information that can be sent in a signal data line.

Actually two lines are required in this system, an in/out data line and a clock line.

The data in/out line between each microprocessor is timeshared.

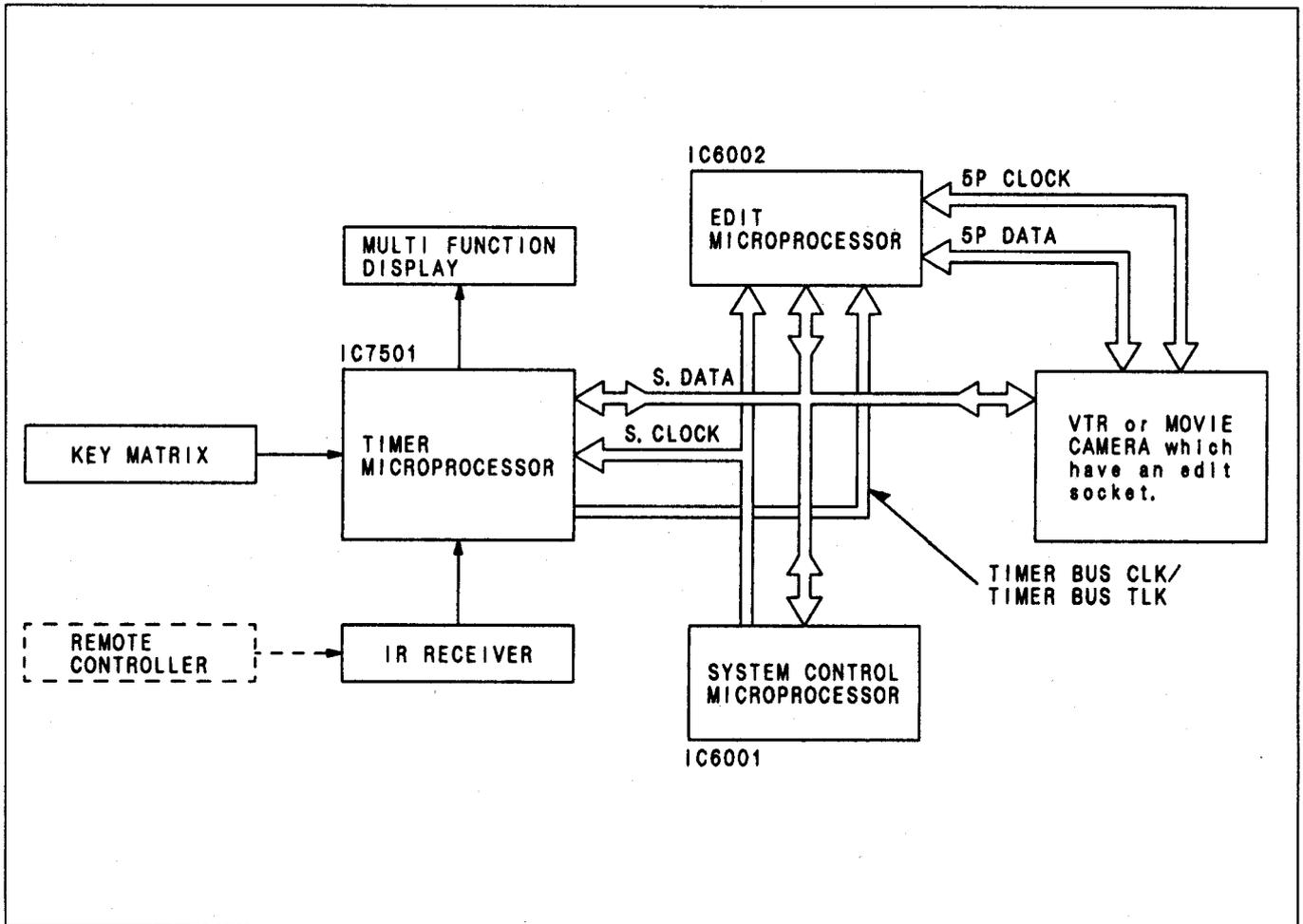


Fig. A2

2. Serial clock line and data line

This serial clock signal is a reference signal which is used to control the timing of the data transmission among the microprocessors.

The previous transmission has only 13 clocknumber, the new serial data transmission has 20 clock number in it. Blocks 1 to 10 of both formats will be the same.

Now the clock number from 1 to 13 is same.

The contents of new data is as shown below.

S. Clock is used for transmission of the data among the system control microprocessor, timer microprocessor and edit microprocessor.

And 5P Clock which is composed of the clock no. 1, 3, 4, 5, 7, 8, 9 works to transmit the data between the edit microprocessor and the VTR or MOVIE CAMERA which has an edit socket.

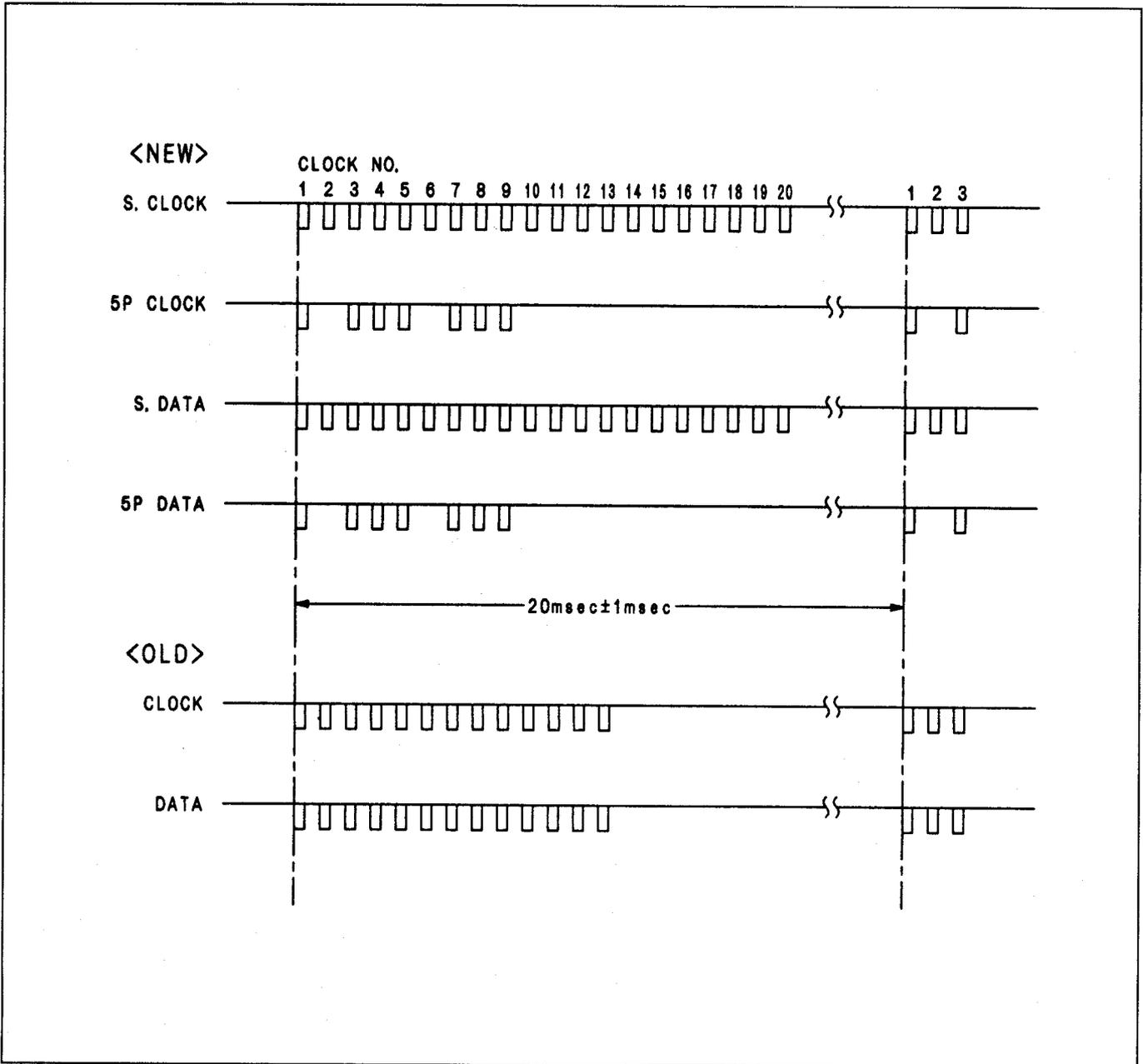


Fig. A3

CLOCK NO	TRANSMISSION	CONTENTS OF DATA	CLOCK NO	TRANSMISSION	CONTENTS OF DATA
1	IC7501 ← IC6001	TAPE SPEED M/R/S etc.	11	IC7501 ← IC6001	SEARCH MODE CONDITION CODE
2	IC6001 ← IC7501	WIRELESS REMOTE AND KEY CONTROL CODE	12	IC7501 ← IC6001	FRAME NUMBER CODE
3	IC6001 ← IC7501	TIMER INSTRUCTIONS CODE	13	NOT USED	—————
4	IC6001 ← EDIT CONTROLLER	EDIT CONTROLLER INSTRUCTIONS CODE	14	IC6001 ← IC7501	JOG/SHUTTLE CODE
5	IC7501 ← IC6001	TRANSMISSION OF VTR MODE CODE	15	IC6001 ← IC7501	AI SWITCH CONDITION
6	IC7501 ← IC6001	DISPLAY INDICATION CODE (POWER ON/OFF etc.)	16	IC6001 ← IC7501	AUDIO CONDITION CODE
7	IC7501 ← IC6001	COUNTER/TAPE REMAINING CODE	17	IC7501 ← IC6001	PLAY BACK BILINGUAL CONDITION CODE
8	IC7501 ← IC6001	COUNTER/TAPE REMAINING CODE	18	IC6002 ← IC6001	VITC CODE
9	IC7501 ← IC6001	COUNTER/TAPE REMAINING CODE	19	IC6001 ← IC6002	EDIT MICROPROCESSOR INSTRUCTION CODE
10	IC6001 ← IC7501	TIMER CONDITION CODE	20	NOT USED	—————

Fig. A4

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.

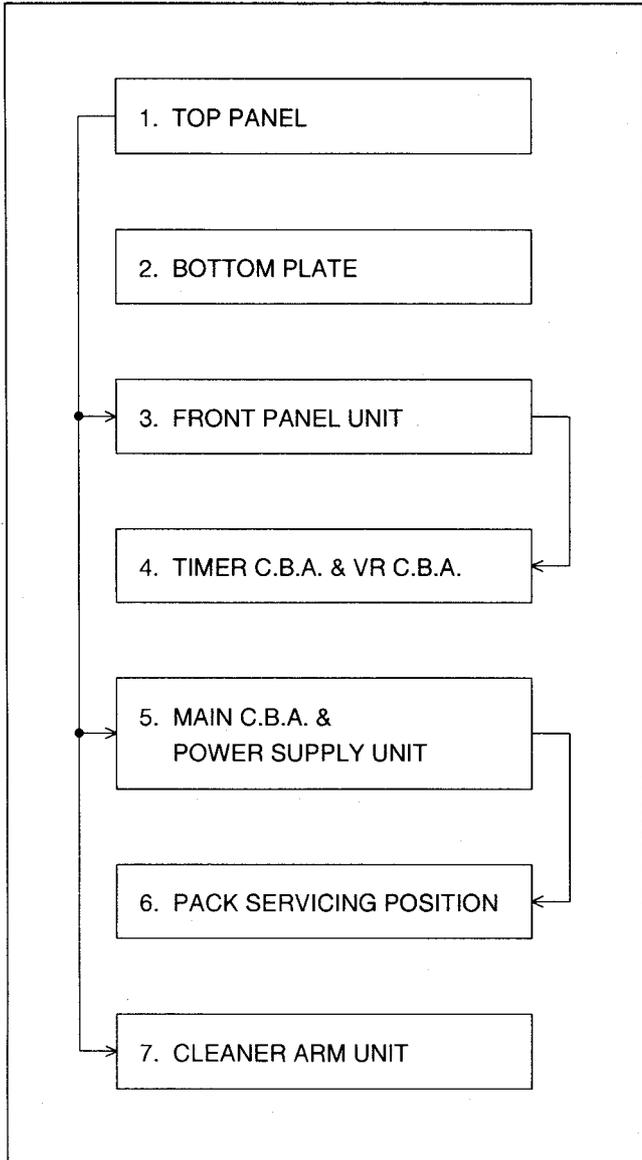


Fig. D1

2-1-2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove..... 4 Screws (A)

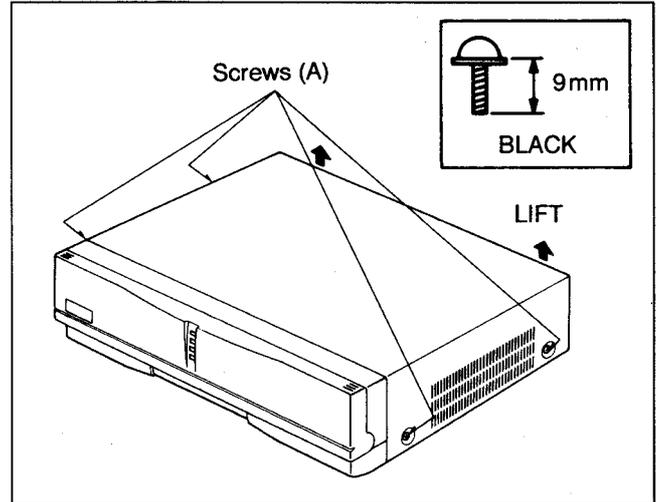


Fig. D2

2. REMOVAL OF THE BOTTOM PLATE

Remove..... 8 Screws (B)

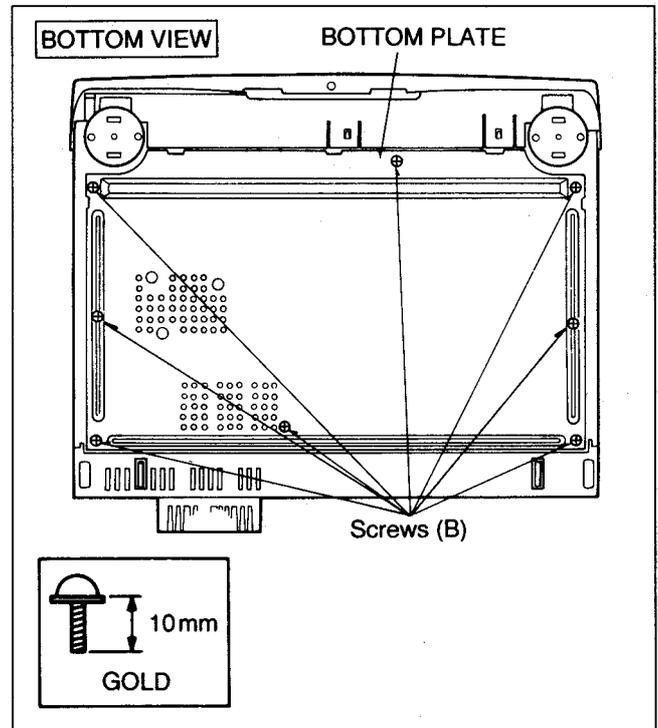


Fig. D3

3. REMOVAL OF THE FRONT PANEL UNIT

Remove Screws (C)
 Unlock 8 Tabs (D)

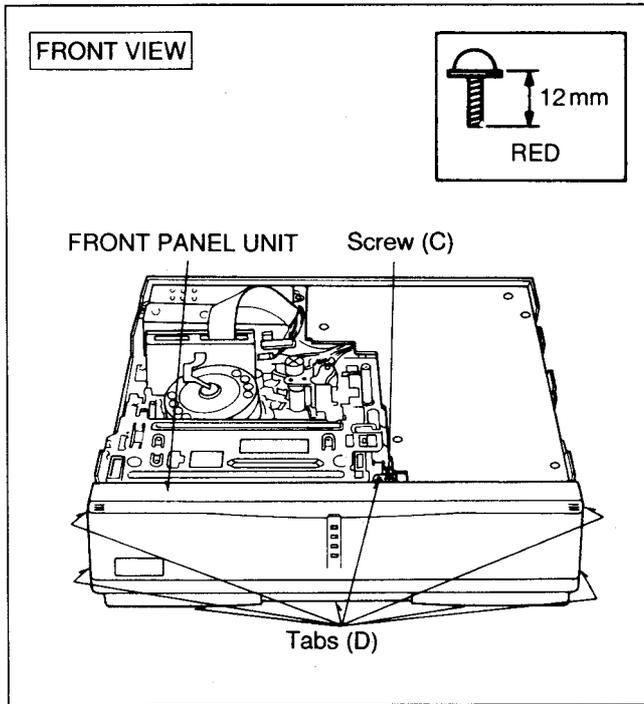


Fig. D4

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

Unlock 9 Tabs (F)

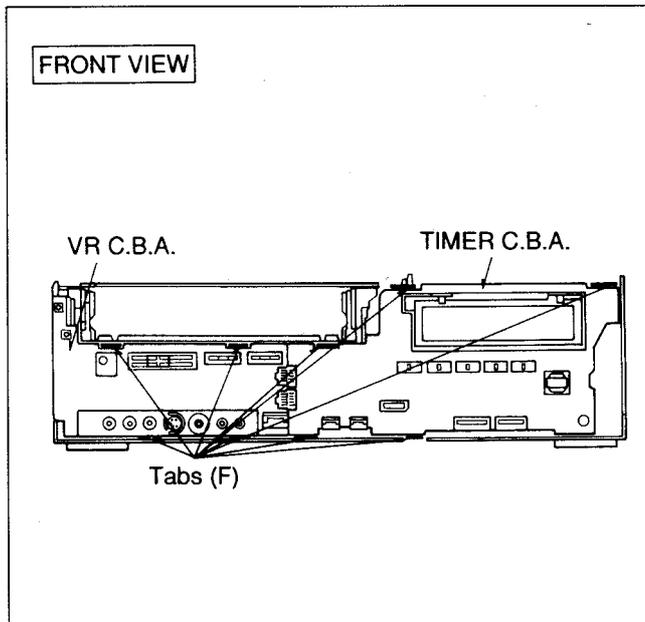


Fig. D5

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

REMOVAL OF THE MAIN C.B.A.

Remove 3 Screws (G)
 Remove 2 Screws (H)
 Unlock Tab (I)

REMOVAL OF THE POWER SUPPLY UNIT

Remove 2 Screws (J)
 Remove Screws (K)
 Unlock 2 Screws (L) and The HEAT SINK COVER
 Remove Screw (M) and The HEAT SINK

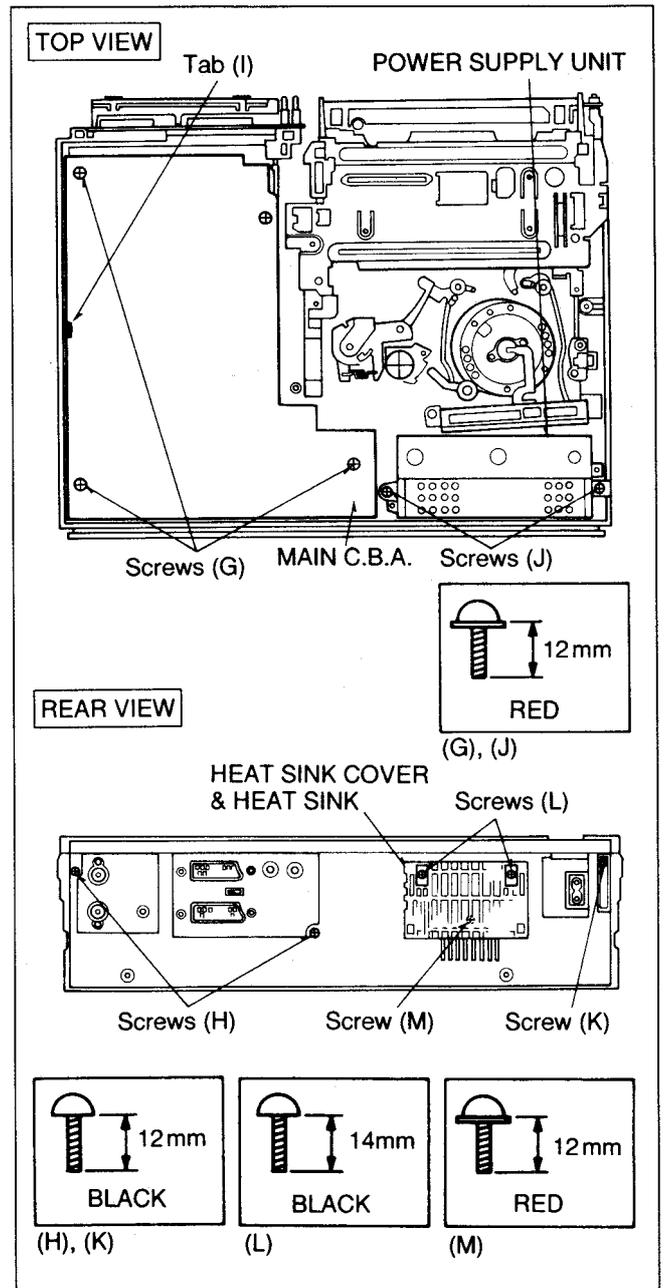


Fig. D6

6. PACK SERVICING POSITION

CAUTION:

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

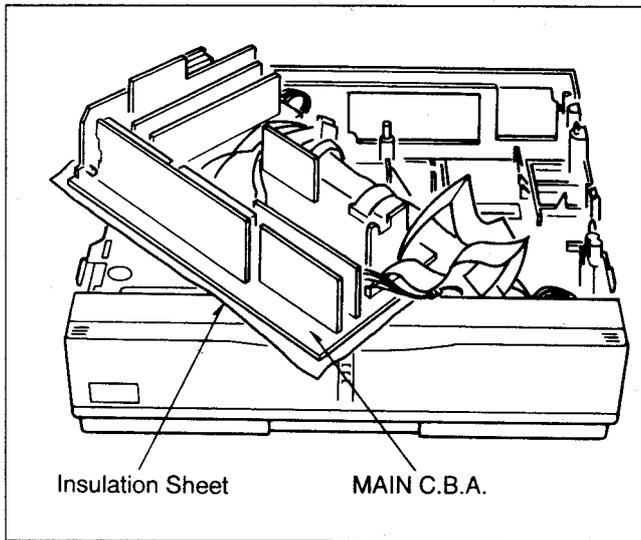


Fig. D7

7. REMOVAL OF THE CLEANER ARM UNIT

1. Unlock the locking portion (N).
2. Pull up the Cleaner Arm Unit.

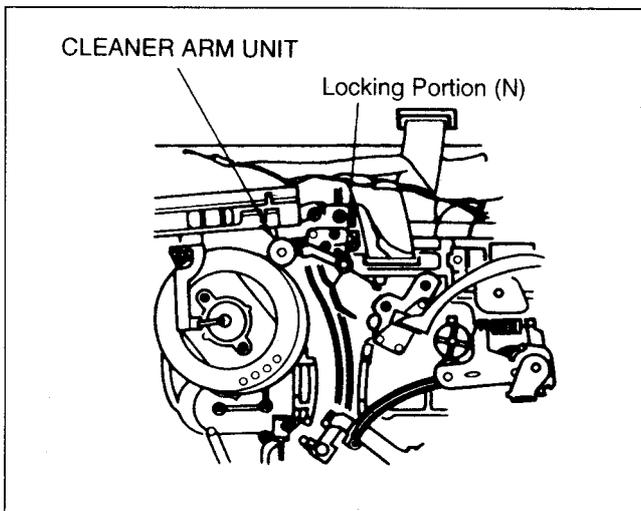


Fig. D8

2-2. MECHANICAL ADJUSTMENT PROCEDURES

The mechanical chassis of this model is the K Mechanical Chassis.

Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

CAUTIONS:

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.

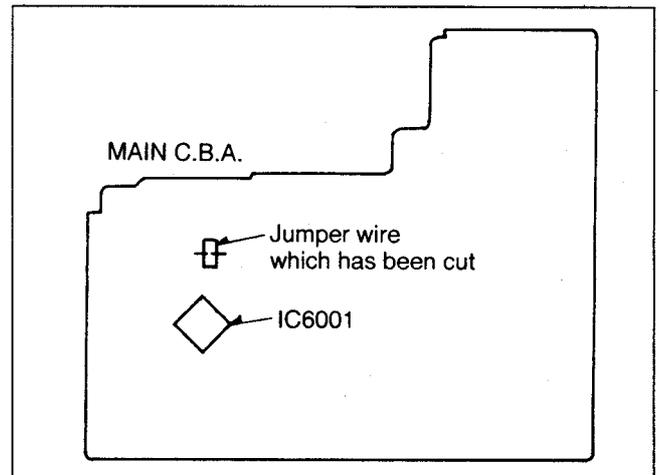


Fig. M1

2-3. DISASSEMBLY PROCEDURES OF MECHANISM

The mechanical chassis of this model is the K Mechanical Chassis.

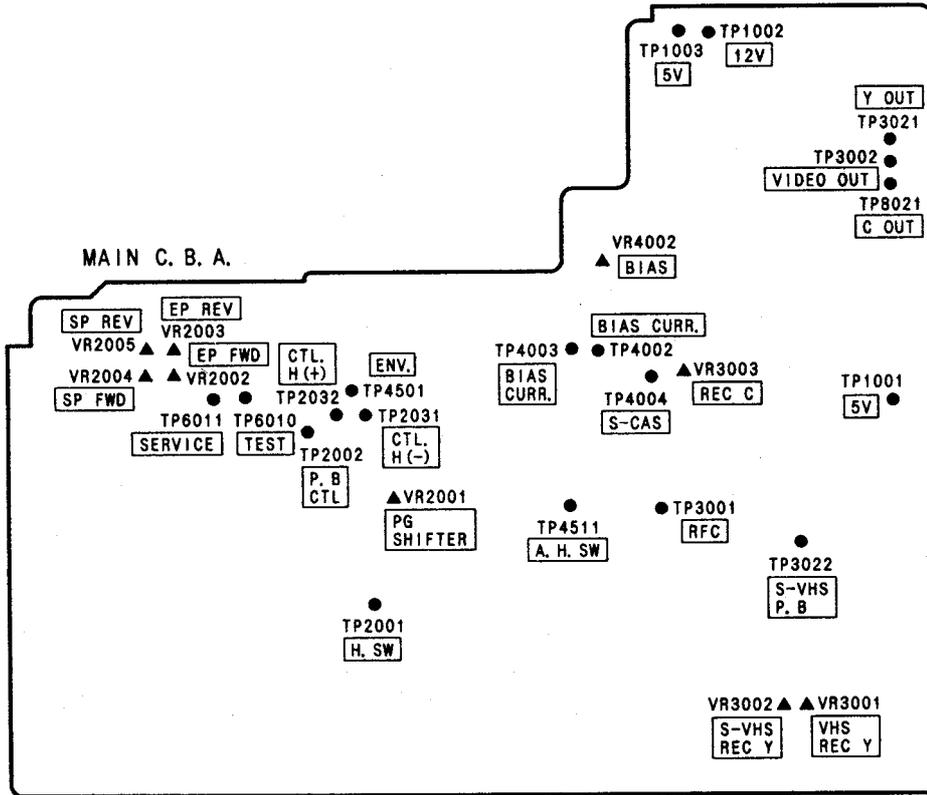
Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

2-4. ASSEMBLY PROCEDURES OF MECHANISM

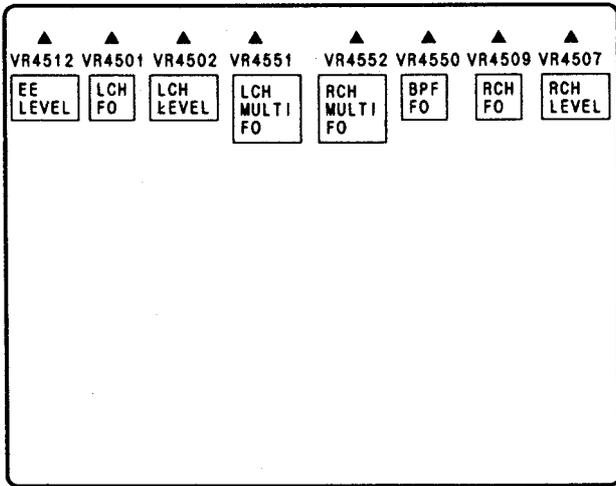
The mechanical chassis of this model is the K Mechanical Chassis.

Therefore refer to the Service Manual for K Mechanical Chassis. (Order No. VRD9307M131)

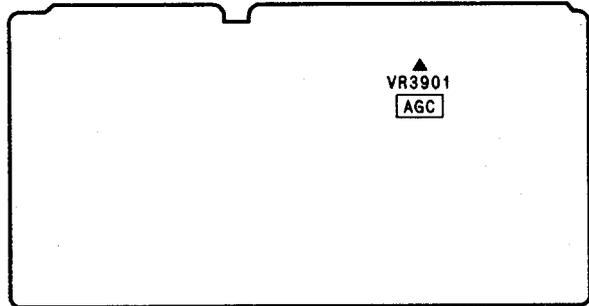
LOCATION OF TEST POINTS & CONTROLS



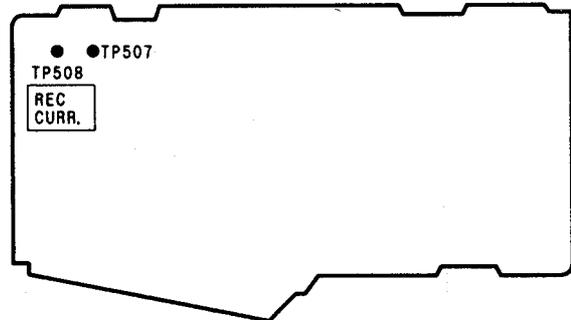
HI-FI AUDIO PACK C. B. A.



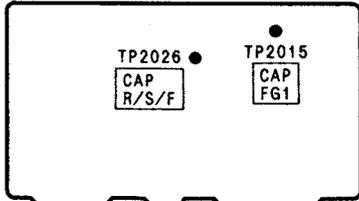
INPUT/OUTPUT PACK C. B. A.



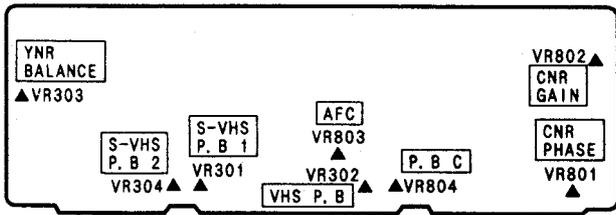
HEAD AMP C. B. A.



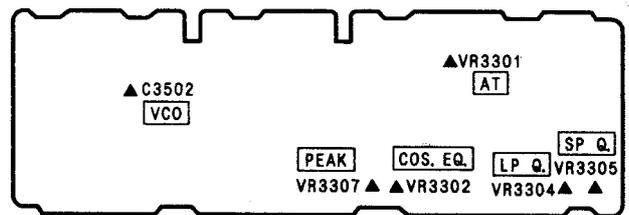
CAPSTAN DRIVE PACK C. B. A.



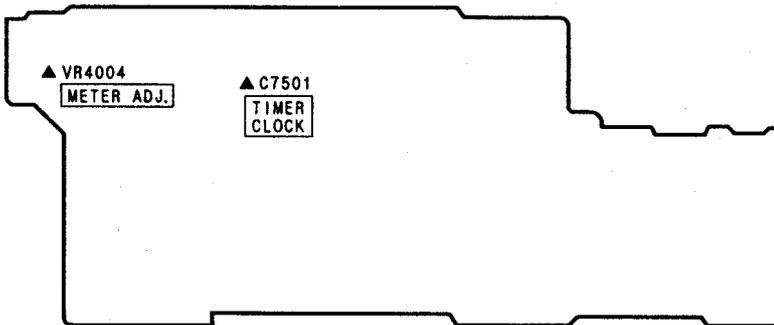
LUMINANCE & CHROMINANCE PACK C. B. A.



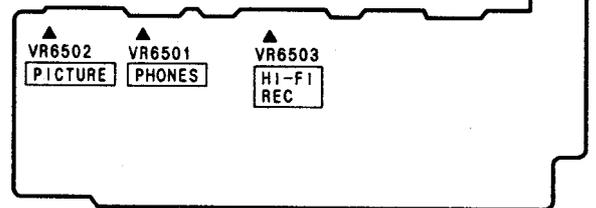
SUB LUMINANCE & CHROMINANCE PACK C. B. A.



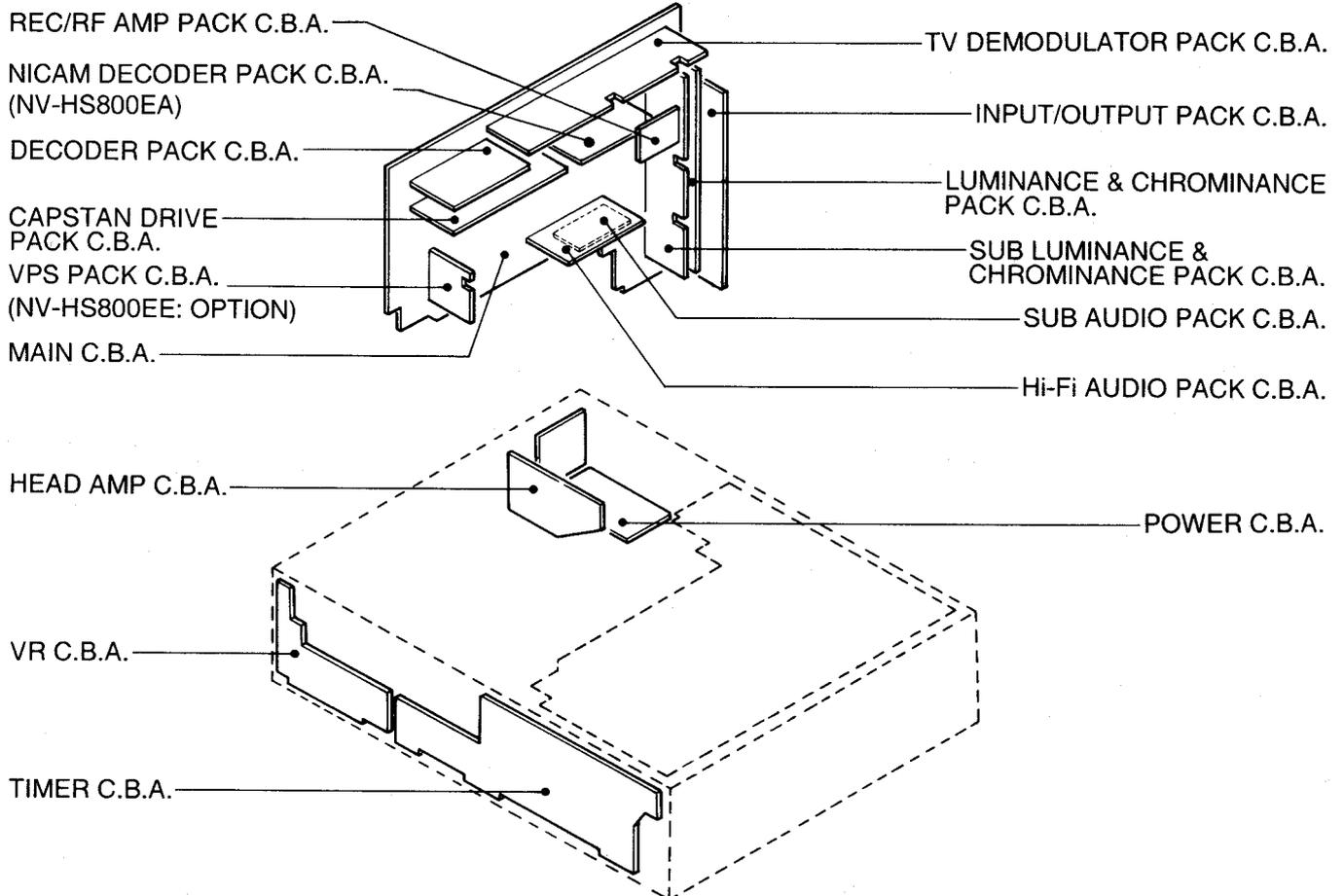
TIMER C. B. A.



OPERATION 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 35MHz)
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. Digital Volt Meter. (D.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.

NORMAL/Y/C/TEST SIGNAL SW (REAR).....NORMAL
 VIDEO MODE SWAUTO
 AI SW.....ON
 EDIT SW.....ON
 HIFI/NORMAL MIX SWOFF
 PICTURE VR.....CENTRE FIX
 HIFI REC LEVEL VR.....CENTRE FIX
 CHANNEL.....A1/A2/A3
 (Set to signal input terminal number)
 16:9 SW.....AUTO
 AV3 INPUT SELECT SWS-VIDEO/LINE
 (Set to signal input terminal)
 S-VHS SW.....ON
 TAPE SPEED.....SP
 NICAM/MONO SW (NV-HS800EA).....NICAM
 PAL/MESECAM (NV-HS800EE).....PAL

2-5-3. HOW TO READ ADJUSTMENT PROCEDURES

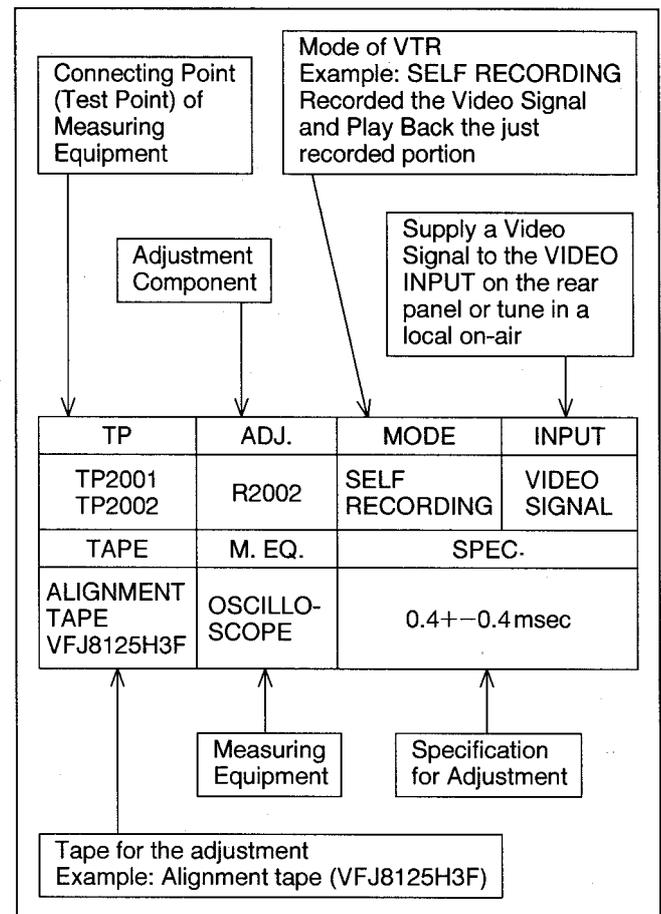


Fig. E1

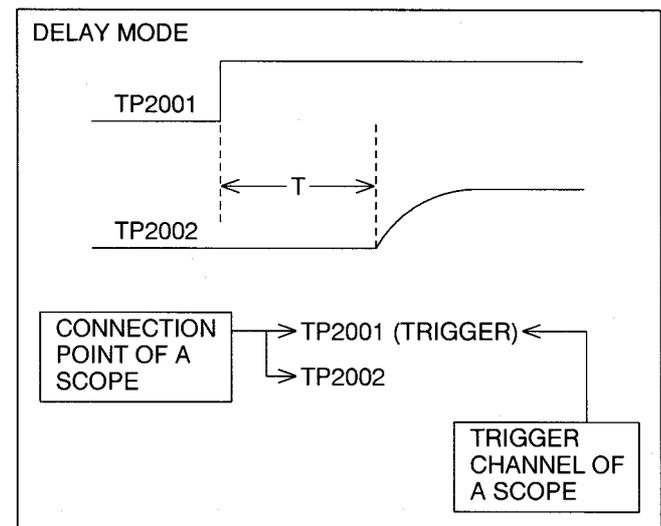


Fig. E2

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	8.0+ -0.5 (H)	

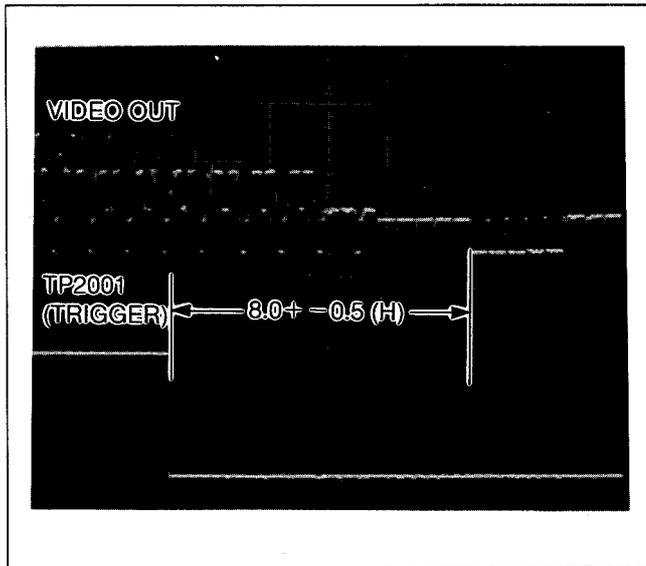


Fig. E3

2-5-5. SLOW TRACKING ADJUSTMENT

TP	ADJ.	MODE	INPUT
MONITOR SCREEN	VR2004 (SP) VR2002 (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 wire which has been cut as shown in Fig. E4.
2. After connecting a jumper wire, press the TRACKING (+) and (-) buttons on the Remote Controller simultaneously to set the tracking to centre fix position.
3. After this adjustment, disconnect a jumper wire.

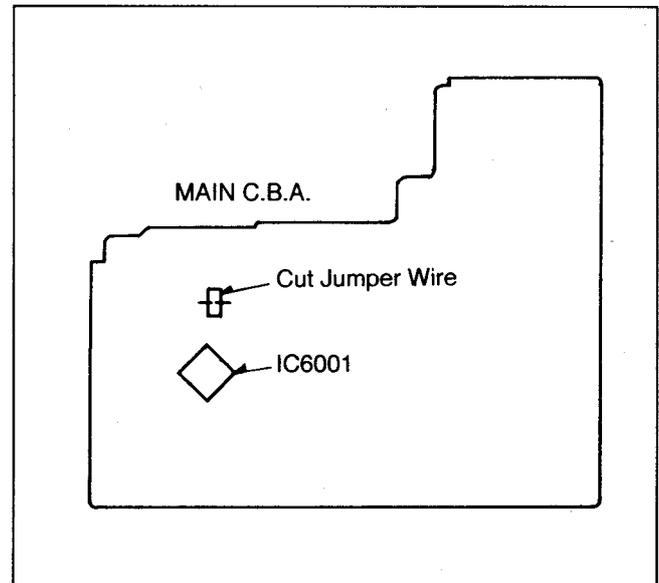


Fig. E4

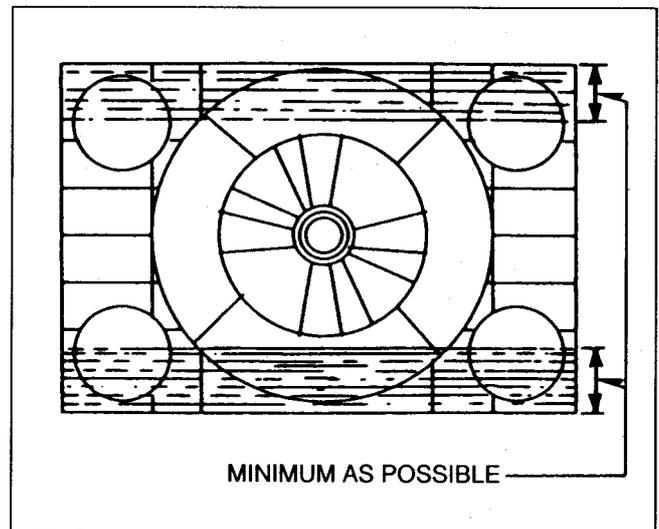


Fig. E5

2-5-6. REVERSE SLOW TRACKING ADJUSTMENT

TP	ADJ.	MODE	INPUT
MONITOR SCREEN	VR2005 (SP) VR2003 (LP)	(SELF RECORDED) REV SLOW	CCIR PATTERN
TAPE	M. EQ.	SPEC.	
BLANK TAPE	MONITOR TV	Noise bar on the monitor screen is minimized. (Shown in Fig. E5)	

REV SLOW: REVERSE SLOW

- Note: 1. Before this adjustment, connect a jumper which has been cut as shown in Fig. E4.
- After connecting a jumper wire, press the TRACKING (+) and (-) buttons on the Remote Controller simultaneously to set the tracking to centre fix position.
 - After this adjustment, disconnect a jumper wire.

2-5-7. AUTO TRACKING GAIN ADJUSTMENT

TP	ADJ.	MODE	INPUT
PP3011-1	VR3301	STOP	SINEWAVE 4MHz/200mVp-p (TO PP3011-2)
TAPE	M. EQ.	SPEC.	
/	SINEWAVE GENE./ D.V.M.	3.1+/-0.1 (V)	

- Note: 1. After connecting the Sinewave Generator to PP3011-2, set the signal level to 4MHz/200mVp-p.

LUMINANCE & CHROMINANCE SECTION

2-5-8. ARTIFICIAL NTSC FREE RUN ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC802-9 (TL803)	VR803	STOP	/
TAPE	M. EQ.	SPEC.	
/	FREQUENCY COUNTER/ SINEWAVE GENERATOR	15735+/-100 (Hz)	

- Note: 1. Supply +5V DC to IC802-27 (TL802).
- Turn VR803 to maximum frequency, then adjust VR803 until the specification.

2-5-9. RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP507 (HOT) TP508 (GND)	VR3001 (VHS Y) VR3002 (S-VHS Y) VR3003 (C)	SP RECORDING	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
S-VHS BLANK TAPE	OSCILLOSCOPE	VHS Y : 110+/-5 (mVp-p) S-VHS Y: 120+/-5 (mVp-p) C : 28+/-2 (mVp-p)	

- Note: 1. Set the AI SW to OFF position.
- When adjusting the S-VHS Luminance level, set the S-VHS SW to ON position.
 - When adjusting the VHS Luminance level, set the S-VHS SW to OFF position.
 - Adjust the Luminance level until the peak level of V-SYNC is 110+/-5mVp-p (VHS MODE), 120+/-5mVp-p (S-VHS MODE).
 - When adjusting the Chrominance level, Supply +5V DC to PP3001-6 (TL14) to eliminate Luminance component.

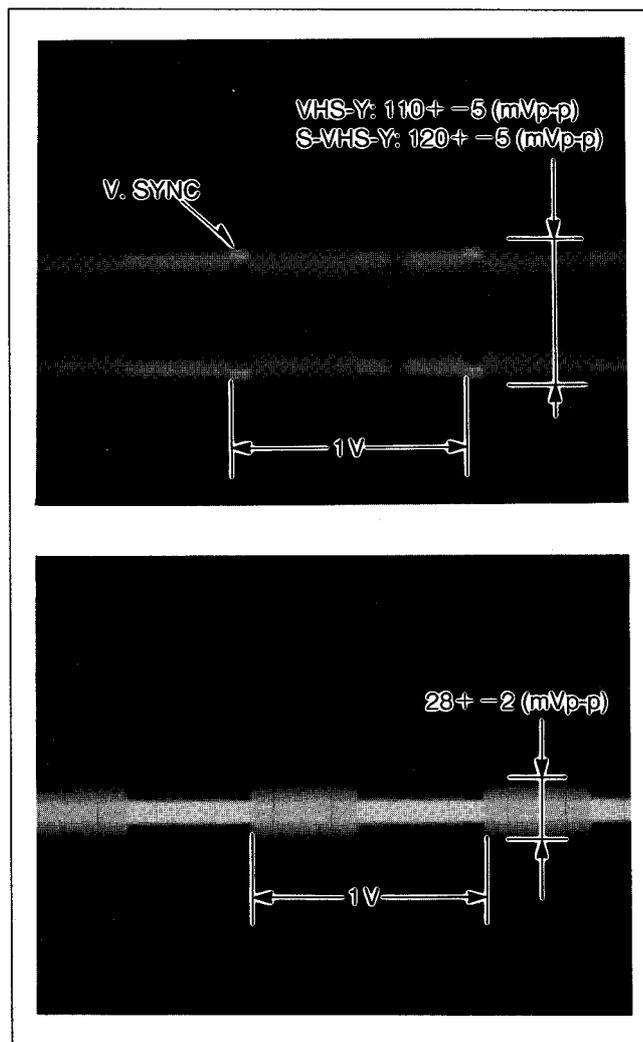


Fig. E6

2-5-10. VHS FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR3305 (SP) VR3304 (LP)	SP/LP (SELF RECORDED) PLAYBACK	VIDEO SWEEP SIGNAL (Shown in Fig. E7)
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE/VIDEO SWEEP GENERATOR	SP: 0+-1(dB) (90-110%) LP: -1+-1(dB) (80-100%)	

- Note: 1. Set the Video Sweep Signal as shown in Fig. E7.
2. Set the AI and S-VHS SW to OFF position.
3. Set the VIDEO MODE SW to B/W position.

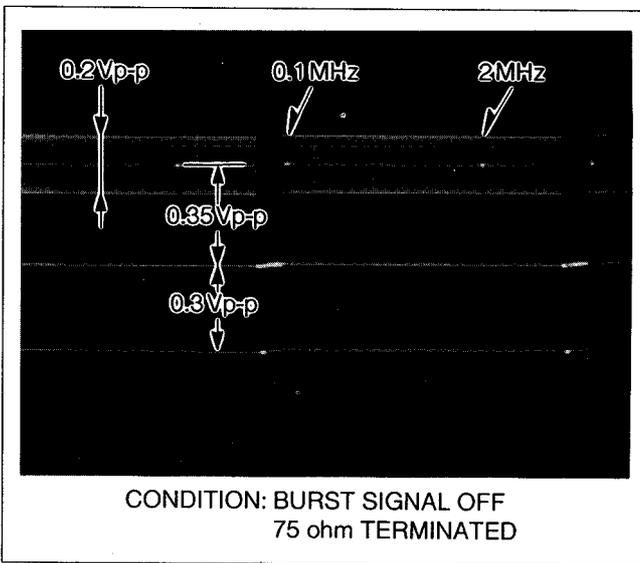


Fig. E7

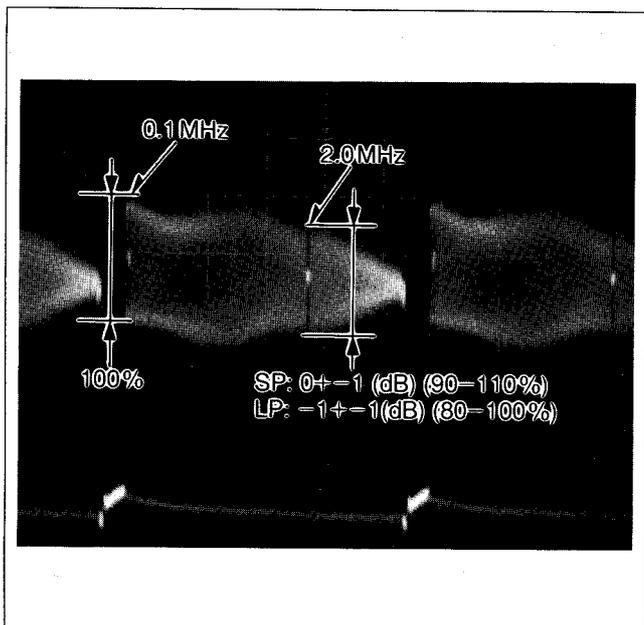


Fig. E8

2-5-11. RF PEAK FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
PP3011-18	VR3307	PLAYBACK	VIDEO SWEEP SIGNAL (PP3014-14)
TAPE	M. EQ.	SPEC.	
ALIGNMENT TAPE (VFJ8125H3F)	OSCILLOSCOPE/VIDEO SWEEP GENERATOR	SIGNAL LEVEL AT 7MHz PORTION IS MAXIMUM	

- Note: 1. Connect the Service Circuit as shown in Fig. E9.
2. Disconnect P501 (from MAIN C.B.A. to HEAD AMP PACK C.B.A.).
3. Set VR3302 to centre position.
4. Connect a jumper wire between PP3011-5 and GND.
5. Set the Video Sweep Signal Generator (video signal only) as shown in Fig. E10.
6. Supply set up video sweep signal to PP3011-14 via Service Circuit.
7. Adjust VR3307 until the signal level at 7 MHz portion is maximum as shown in Fig. E11.
8. After this adjustment, connect P501.

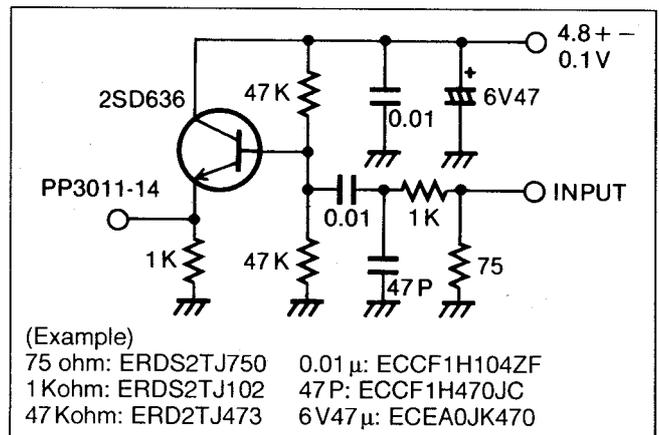


Fig. E9

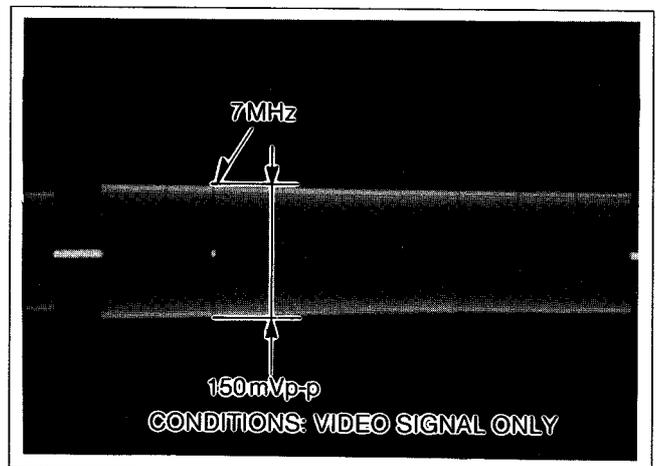


Fig. E10

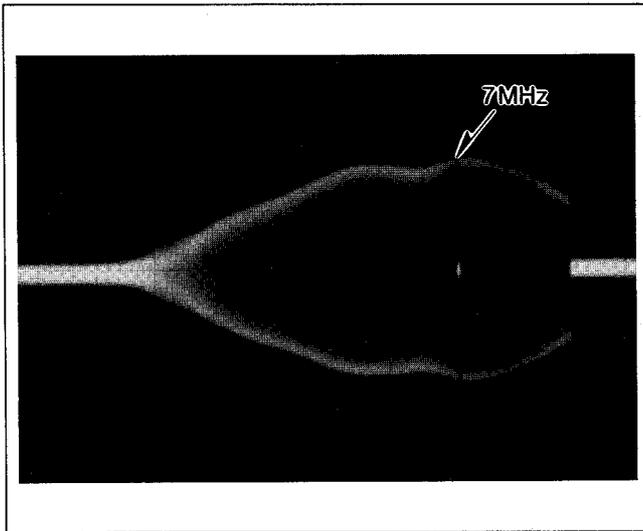
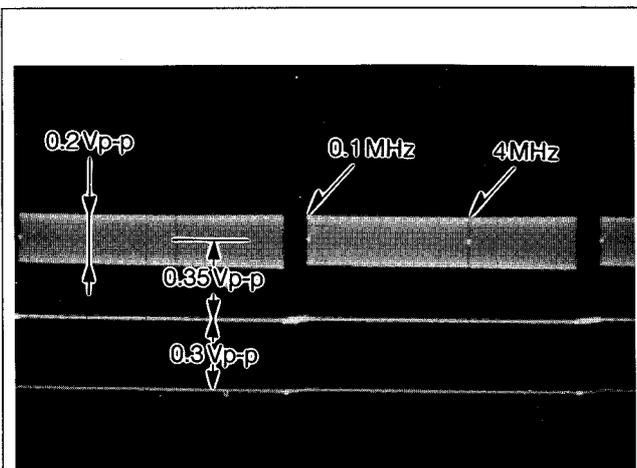


Fig. E11

2-5-12. S-VHS FREQUENCY RESPONSE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3021	VR3302 (SP)	SP (SELF RECORDED) PLAYBACK	VIDEO SWEEP SIGNAL (P3002-10)
TAPE	M. EQ.	SPEC.	
S-VHS BLANK TAPE	OSCILLOSCOPE/ VIDEO SWEEP GENERATOR	SP: -4.5 ± 1 (dB) (55-70%) LP: -6 ± 4 (dB) (30-80%)	

- Note: 1. Before this adjustment, RF PEAK ADJUSTMENT must be done.
 2. Set the Video Sweep Signal as shown in Fig. E12.
 3. Set the AI SW to OFF position.
 4. Connect a jumper wire between PP3003-5 and GND.
 5. After this adjustment, disconnect the jumper wire.



CONDITION: BURST SIGNAL OFF
75 ohm TERMINATED

Fig. E12

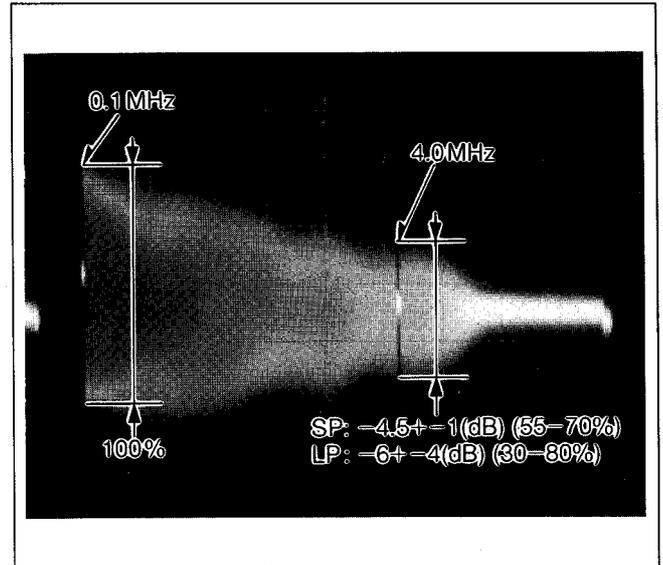


Fig. E13

2-5-13. VHS PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3021 (Y) TP8021 (C)	VR302 (Y) VR804 (C)	SP (SELF RECORDED) PLAYBACK	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	Y: 2.0 ± 0.1 (Vp-p) C: 1.1 ± 0.1 (Vp-p)	

Note: 1. Set the S-VHS SW to OFF position.

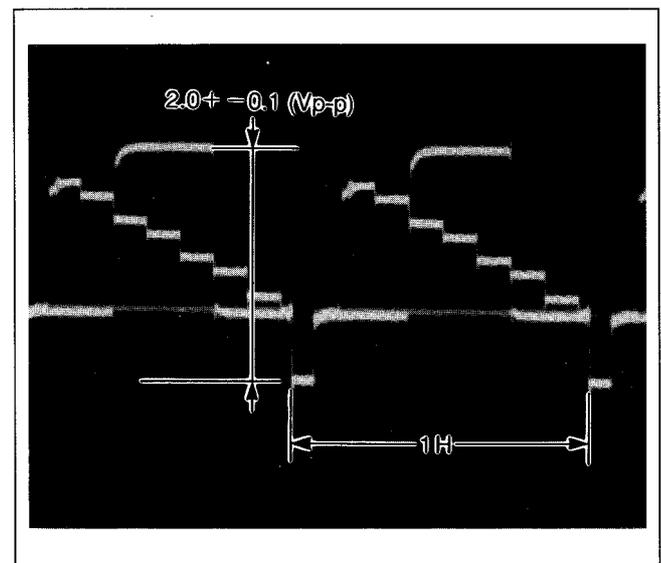


Fig. E14

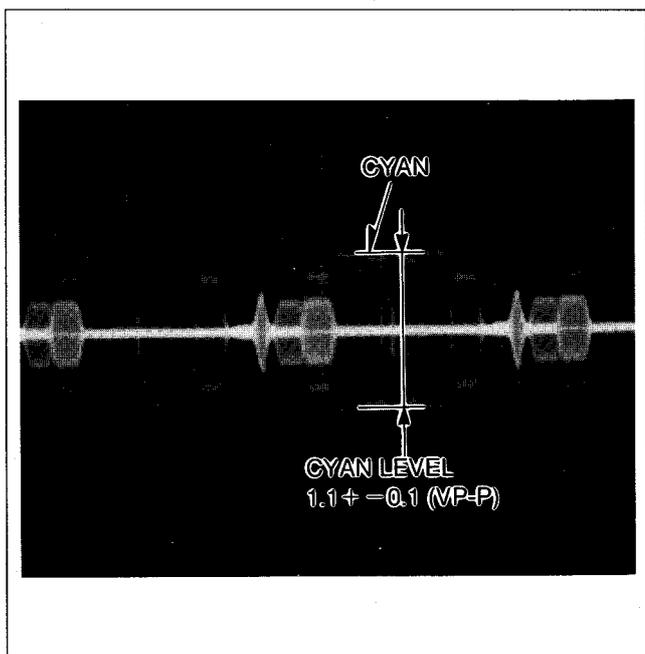


Fig. E15

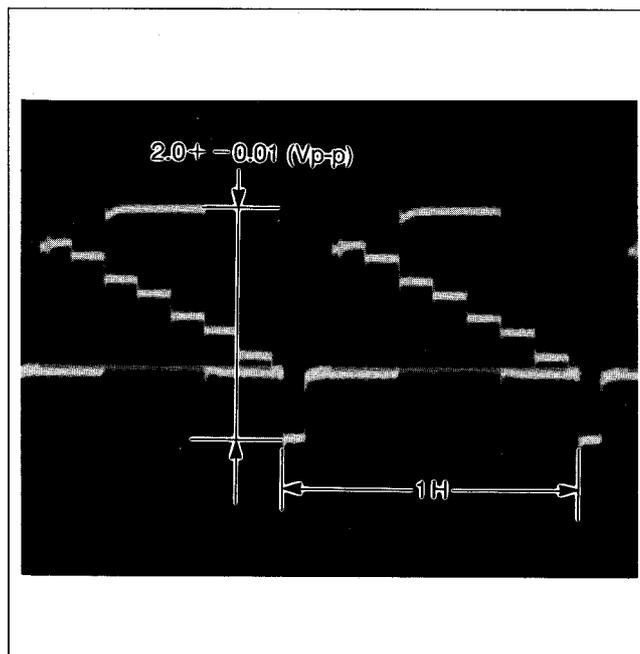


Fig. E17

2-5-14. S-VHS PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3022 (Y1) TP3021 (Y2)	VR301 (Y1) VR304 (Y2)	SP (SELF RECORDED) PLAYBACK	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
S-VHS BLANK TAPE	OSCILLO- SCOPE	Y1: 0.38 ± 0.01 (Vp-p) Y2: 2.0 ± 0.01 (Vp-p)	

- Note: 1. Set the S-VHS SW to ON position.
2. Before this adjustment, VHS PLAYBACK LEVEL ADJUSTMENT must be done.

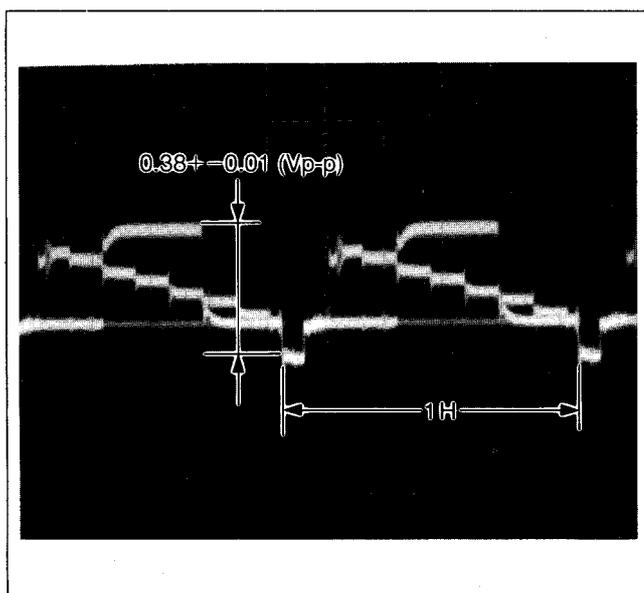


Fig. E16

2-5-15. YNR ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC301-34	VR303	LP RECORDING	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLO- SCOPE	WAVEFORM IS MINIMUM	

- Note: 1. Connect the capacitor (1500pF) between IC301-34 and GND as shown in Fig. E18.

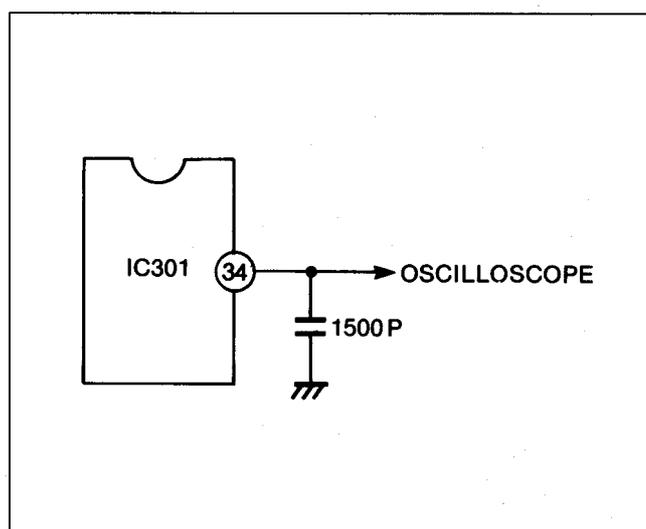


Fig. E18

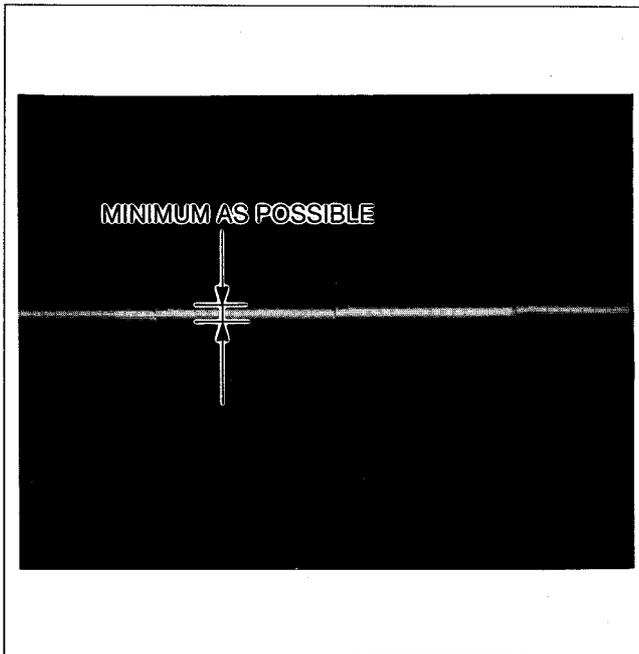


Fig. E19

2-5-16. CHROMINANCE RECURSIVE ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC801-7	VR801 VR802	(SELF RECORDED) PLAYBACK	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	WAVEFORM IS MINIMUM	

- Note: 1. Before this adjustment, RECORDING CURRENT and YNR ADJUSTMENT must be done.
 Note: 2. Adjust VR801 and VR802 alternately until the amplitude of the signal at IC801-7 is minimum.

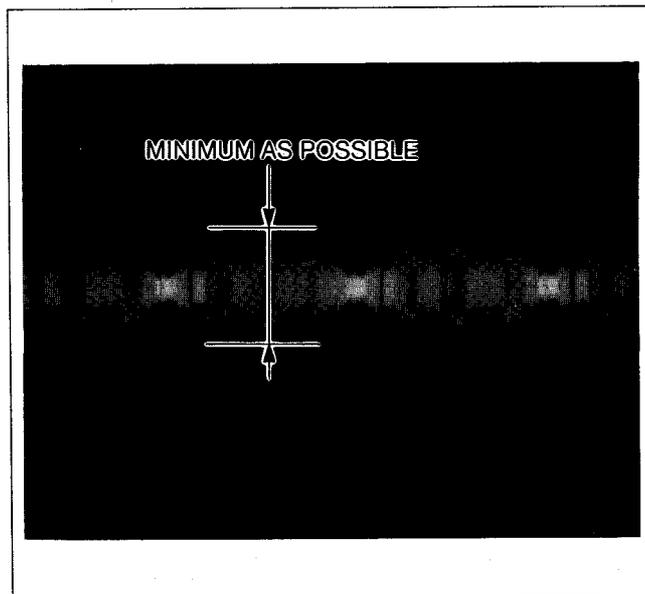


Fig. E20

2-5-17. 1H DELAY GAIN ADJUSTMENT

TP	ADJ.	MODE	INPUT
P9001-1 P9001-3	VR9501	(SELF RECORDED) PLAYBACK	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	SIGNAL LEVEL OF P9001-3 ± 0.03 (Vp-p)	

- Note: 1. Set the S-VHS and TBC SW to OFF position.
 Note: 2. Connect the oscilloscope to P9001-1 and 3.
 Note: 3. Adjust VR9501 until the level of P9001-1 is level of P9001-3 ± 0.03 Vp-p.

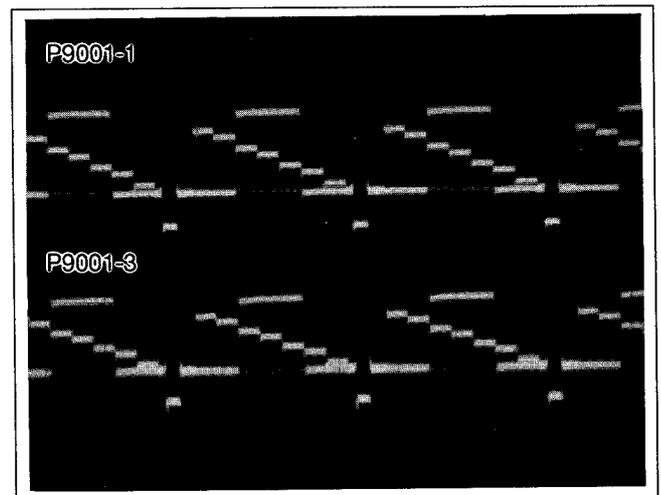


Fig. E21

2-5-18. AGC LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
PP3023-1	VR3901	STOP	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	1.0 ± 0.04 (Vp-p)	

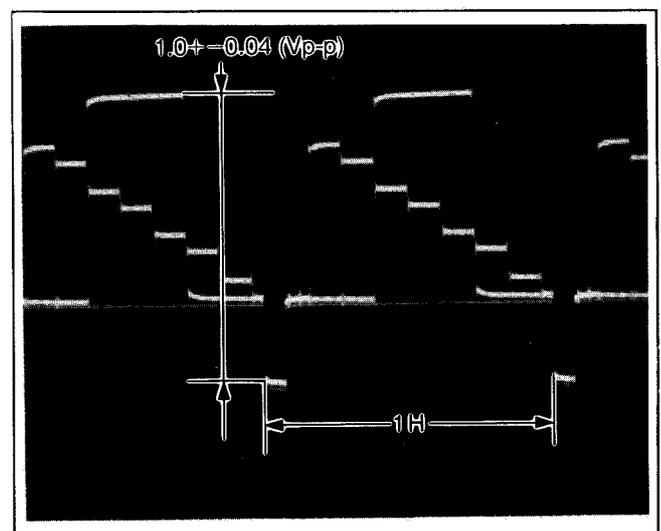


Fig. E22

AUDIO SECTION

2-5-19. BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT/ TEST LAND) TP4003 (GND/ TEST LAND)	VR4002	RECORDING	
TAPE	M. EQ.	SPEC.	
BLANK TAPE	V.T.V.M.	3.0+−0.1 (mVrms)	

Note: 1. Connect a jumper wire between TP4004 and GND.
2. Set the S-VHS SW to OFF position.

2-5-20. HiFi E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
AUDIO OUT (L)	VR4512	STOP	SINEWAVE 1 KHz/−6dB (AUDIO IN (L))
TAPE	M. EQ.	SPEC.	
	V.T.V.M./ SINEWAVE GENERATOR	−8+−0.5 (dB)	

Note: 1. Select the STEREO mode by Remote Controller.
(Both Left and Right indicators on the FIP are lit.)
2. Set the HiFi REC VR to FIX position.

2-5-21. CARRIER FREQUENCY ADJUSTMENT

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

Note: 1. When adjusting the NTSC mode, connect a jumper wire between PP3013-13 and GND.
2. When adjusting the PAL mode, disconnect a jumper wire.

2-5-22. DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
BETWEEN VR4502 and R4511 (L) BETWEEN VR4507 and R4561 (R)	VR4502 (L) VR4507 (R)	SP RECORDING	SINEWAVE 1 KHz/−6dB (AV1 IN)
TAPE	M. EQ.	SPEC.	
BLANK TAPE	V.T.V.M./ SINEWAVE GENERATOR	110 (mVrms)	

Note: 1. Before recording the sinewave, adjust the HiFi REC VR until the audio output level of AV1 is 400mVrms.

2-5-23. FM B.P.F. ADJUSTMENT

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

Note: 1. Disconnect P501 (from MAIN C.B.A. to HEAD AMP PACK C.B.A.).
2. Connect a jumper wire between PP4003-16 and GND.
3. The GND lead of oscilloscope must be connected to GND on HiFi AUDIO PACK C.B.A. to reduce the noise.
4. Supply the sinewave signal (1.608MHz/400mVp-p) to PS4003-8.
5. After this adjustment, connect P501 and disconnect the jumper wire.

TIMER SECTION

2-5-24. TIMER REFERENCE CLOCK ADJUSTMENT

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

2-5-25. LEVEL METER SENSITIVITY ADJUSTMENT

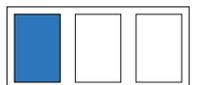
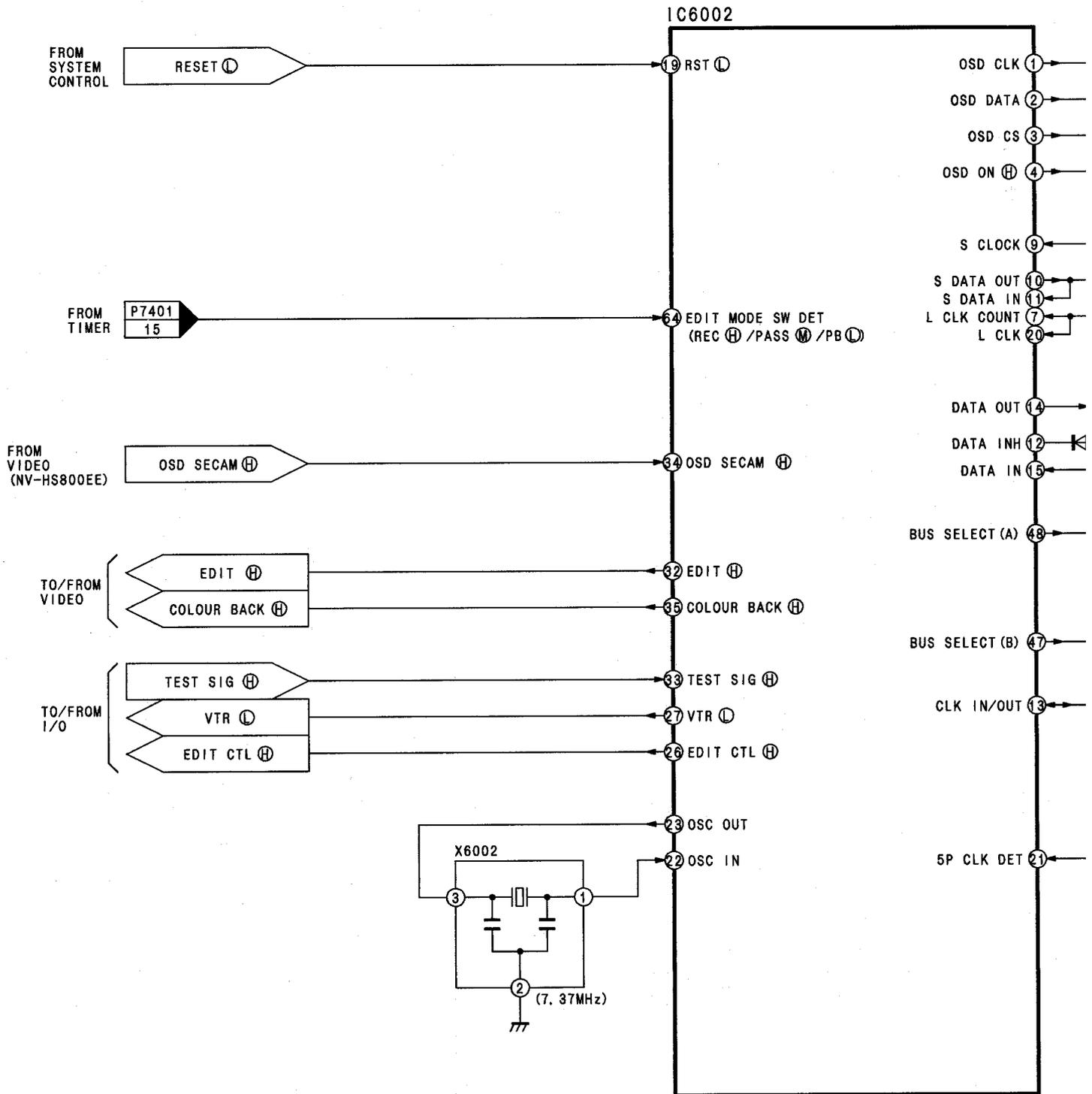
TP	ADJ.	MODE	INPUT
LEVEL METER ON THE FIP	VR4004	STOP	SINEWAVE 1 KHz/-6 dB (AUDIO IN (L), (R))
TAPE	M. EQ.	SPEC.	
		0dB INDICATOR ON THE AUDIO LEVEL METER JUST LIGHTS UP	

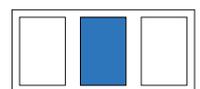
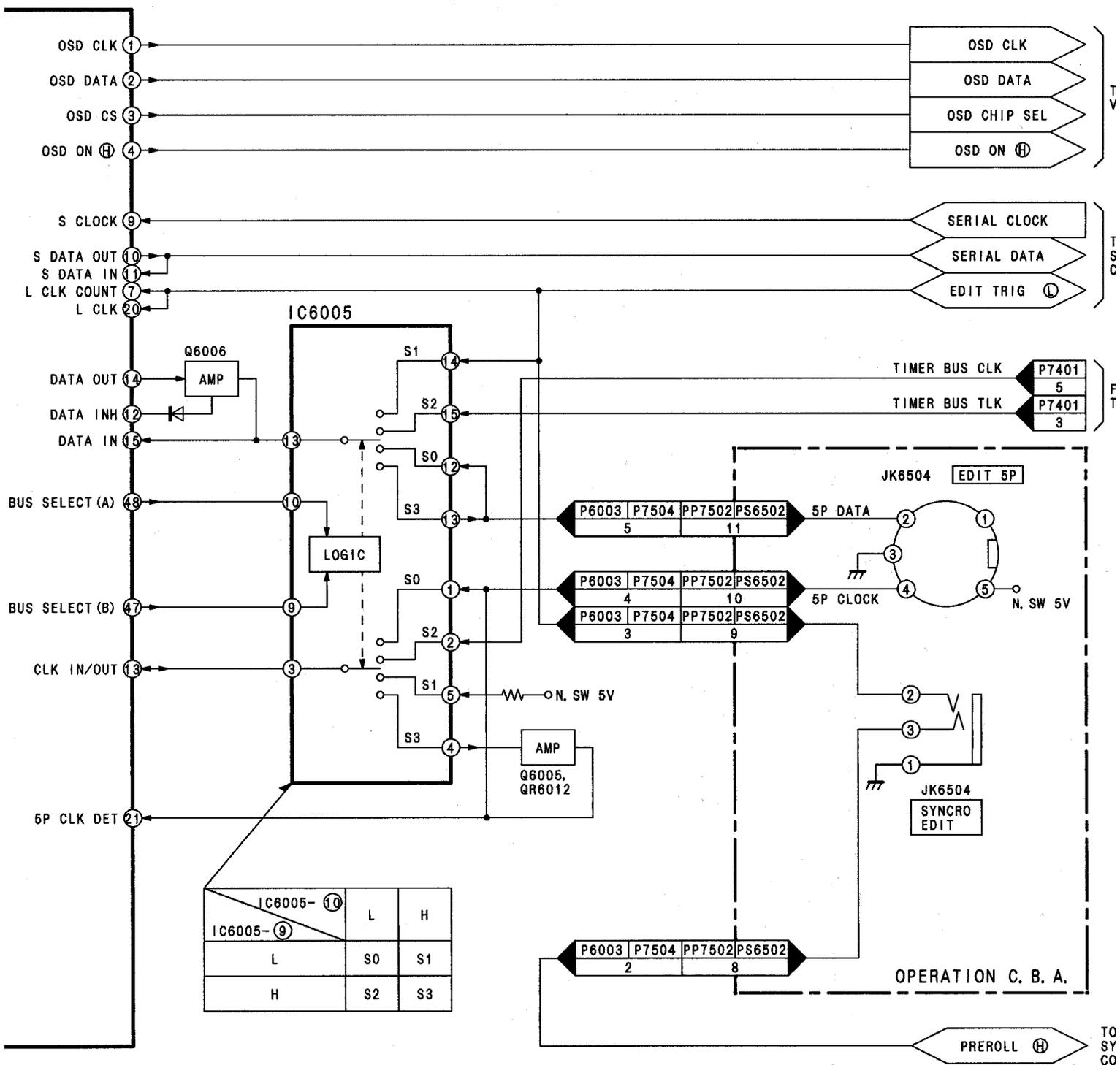
- Note: 1. Select the STEREO mode.
(Both Left and Right indicators on the FIP are lit.)
2. Before recording the sinewave, adjust the HIFI REC VR until the signal level at Audio Output Terminal is 400 mVrms.

2-5-26. CHARACTER GENERATOR VCO ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC3501-26 (TL3)	C3502	STOP	PAL COLOUR BAR
TAPE	M. EQ.	SPEC.	
	V.T.V.M.	2.5+/-0.25V	

3-2. EDIT BLOCK DIAGRAM



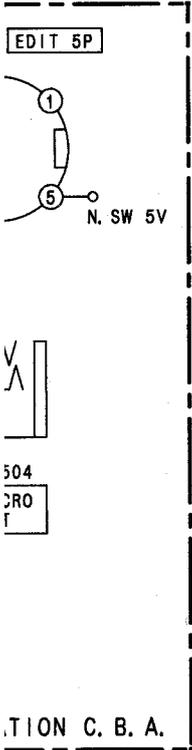
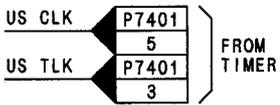
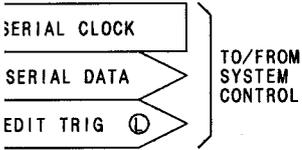
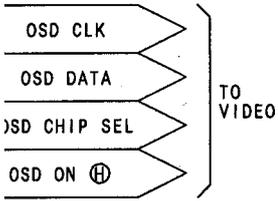


T V

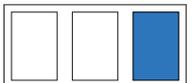
T S C

F T

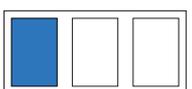
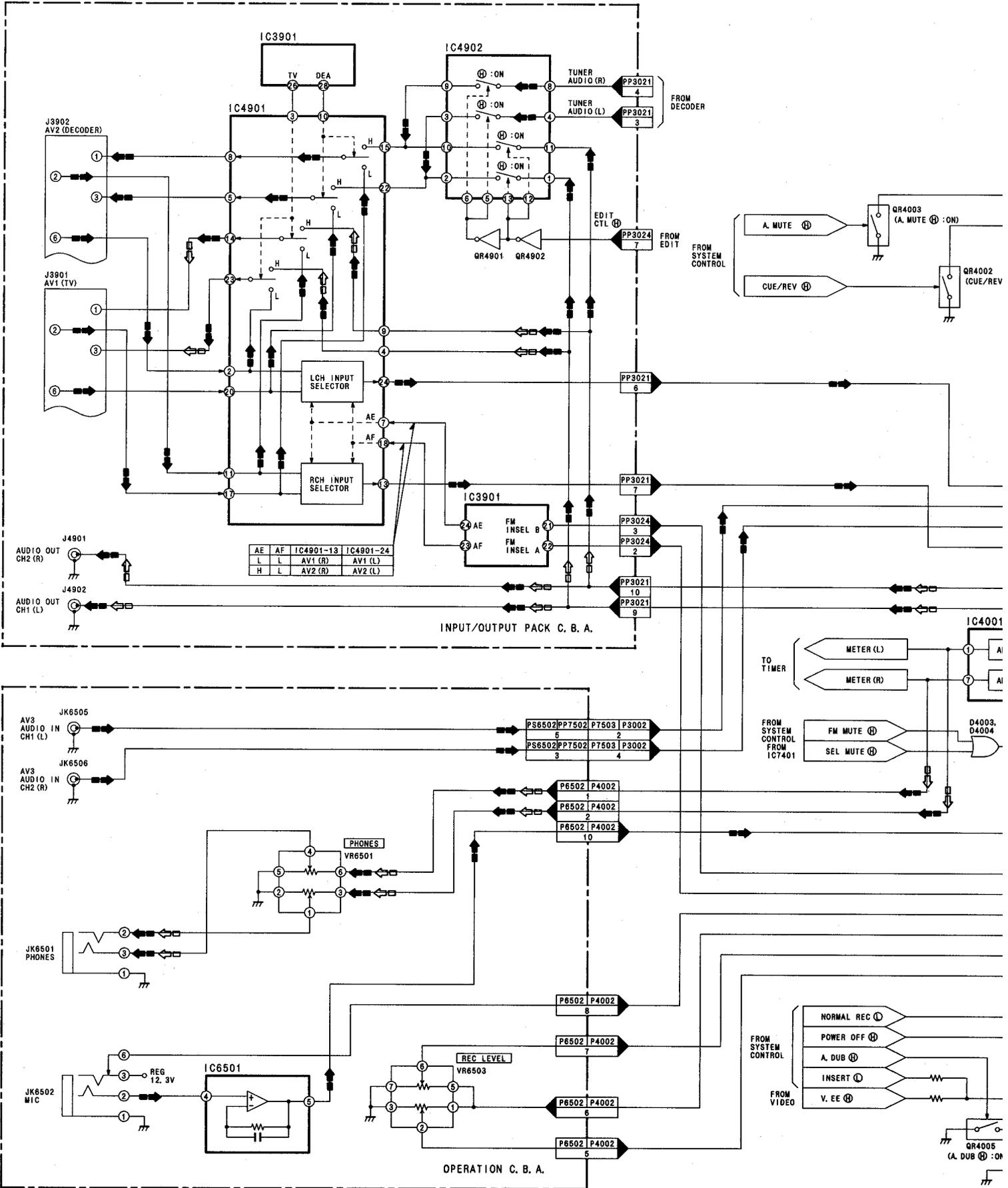
TO SY CO

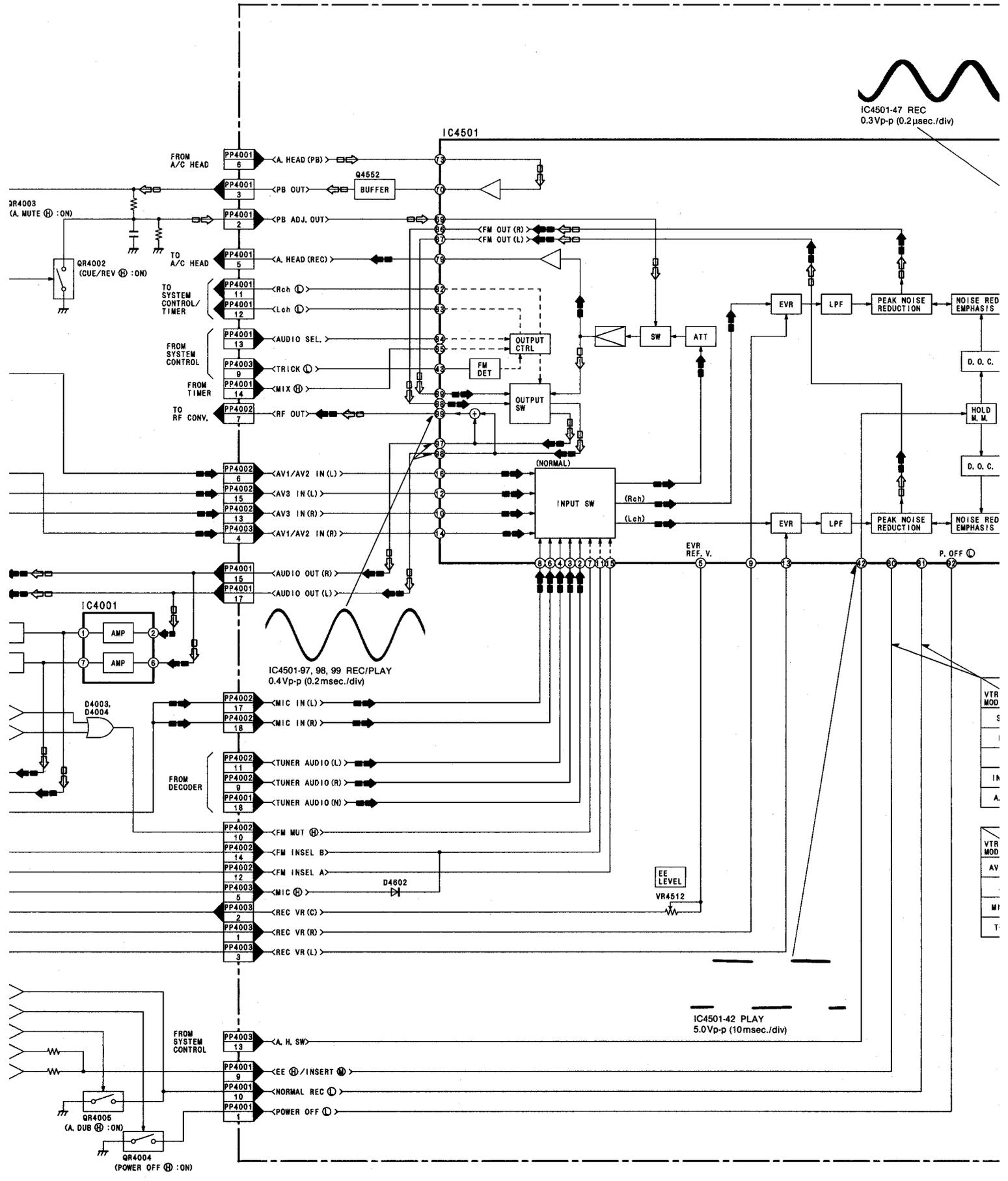


SYMBOL	TRUTH VALUE TABLE																				
INVERTER 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>H</td> <td>L</td> </tr> <tr> <td>OUT</td> <td>(b)</td> <td>L</td> <td>H</td> </tr> </table>	IN	(a)	H	L	OUT	(b)	L	H												
IN	(a)	H	L																		
OUT	(b)	L	H																		
COMPARATOR 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>(a) > (b)</td> <td>(a) < (b)</td> </tr> <tr> <td>OUT</td> <td>(c)</td> <td>H</td> <td>L</td> </tr> </table>	IN	(a)	(a) > (b)	(a) < (b)	OUT	(c)	H	L												
IN	(a)	(a) > (b)	(a) < (b)																		
OUT	(c)	H	L																		
AND CIRCUIT 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> </tr> <tr> <td></td> <td>(b)</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> </tr> <tr> <td>OUT</td> <td>(c)</td> <td>L</td> <td>L</td> <td>L</td> <td>H</td> </tr> </table>	IN	(a)	L	L	H	H		(b)	L	H	L	H	OUT	(c)	L	L	L	H		
IN	(a)	L	L	H	H																
	(b)	L	H	L	H																
OUT	(c)	L	L	L	H																
OR CIRCUIT 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> </tr> <tr> <td></td> <td>(b)</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> </tr> <tr> <td>OUT</td> <td>(c)</td> <td>L</td> <td>H</td> <td>H</td> <td>H</td> </tr> </table>	IN	(a)	L	L	H	H		(b)	L	H	L	H	OUT	(c)	L	H	H	H		
IN	(a)	L	L	H	H																
	(b)	L	H	L	H																
OUT	(c)	L	H	H	H																
THREE STATES BUFFER 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>H</td> <td>L</td> <td>H or L</td> </tr> <tr> <td></td> <td>(b)</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>OUT</td> <td>(c)</td> <td>H</td> <td>L</td> <td>※</td> </tr> </table> <p>※ High Impedance</p>	IN	(a)	H	L	H or L		(b)	L	L	H	OUT	(c)	H	L	※					
IN	(a)	H	L	H or L																	
	(b)	L	L	H																	
OUT	(c)	H	L	※																	
TR. SW (NPN TYPE) 	<table border="1"> <tr> <td>BASE</td> <td>H</td> <td>L</td> </tr> <tr> <td>TR. SW</td> <td>ON</td> <td>OFF</td> </tr> </table>	BASE	H	L	TR. SW	ON	OFF														
BASE	H	L																			
TR. SW	ON	OFF																			
TR. SW (PNP TYPE) 	<table border="1"> <tr> <td>BASE</td> <td>H</td> <td>L</td> </tr> <tr> <td>TR. SW</td> <td>OFF</td> <td>ON</td> </tr> </table>	BASE	H	L	TR. SW	OFF	ON														
BASE	H	L																			
TR. SW	OFF	ON																			
R-S TYPE FLIP-FLOP 	<table border="1"> <tr> <td>IN</td> <td>(a)</td> <td>L</td> <td>L</td> <td>⌈</td> </tr> <tr> <td></td> <td>(b)</td> <td>L</td> <td>⌋</td> <td>L</td> </tr> <tr> <td>OUT</td> <td>(c)</td> <td>※</td> <td>L</td> <td>H</td> </tr> <tr> <td></td> <td>(d)</td> <td>◆</td> <td>H</td> <td>L</td> </tr> </table> <p>※ Initial condition is maintained. ◆ Initial condition is reversed.</p>	IN	(a)	L	L	⌈		(b)	L	⌋	L	OUT	(c)	※	L	H		(d)	◆	H	L
IN	(a)	L	L	⌈																	
	(b)	L	⌋	L																	
OUT	(c)	※	L	H																	
	(d)	◆	H	L																	

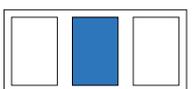


3-3. Hi-Fi AUDIO BLOCK DIAGRAM



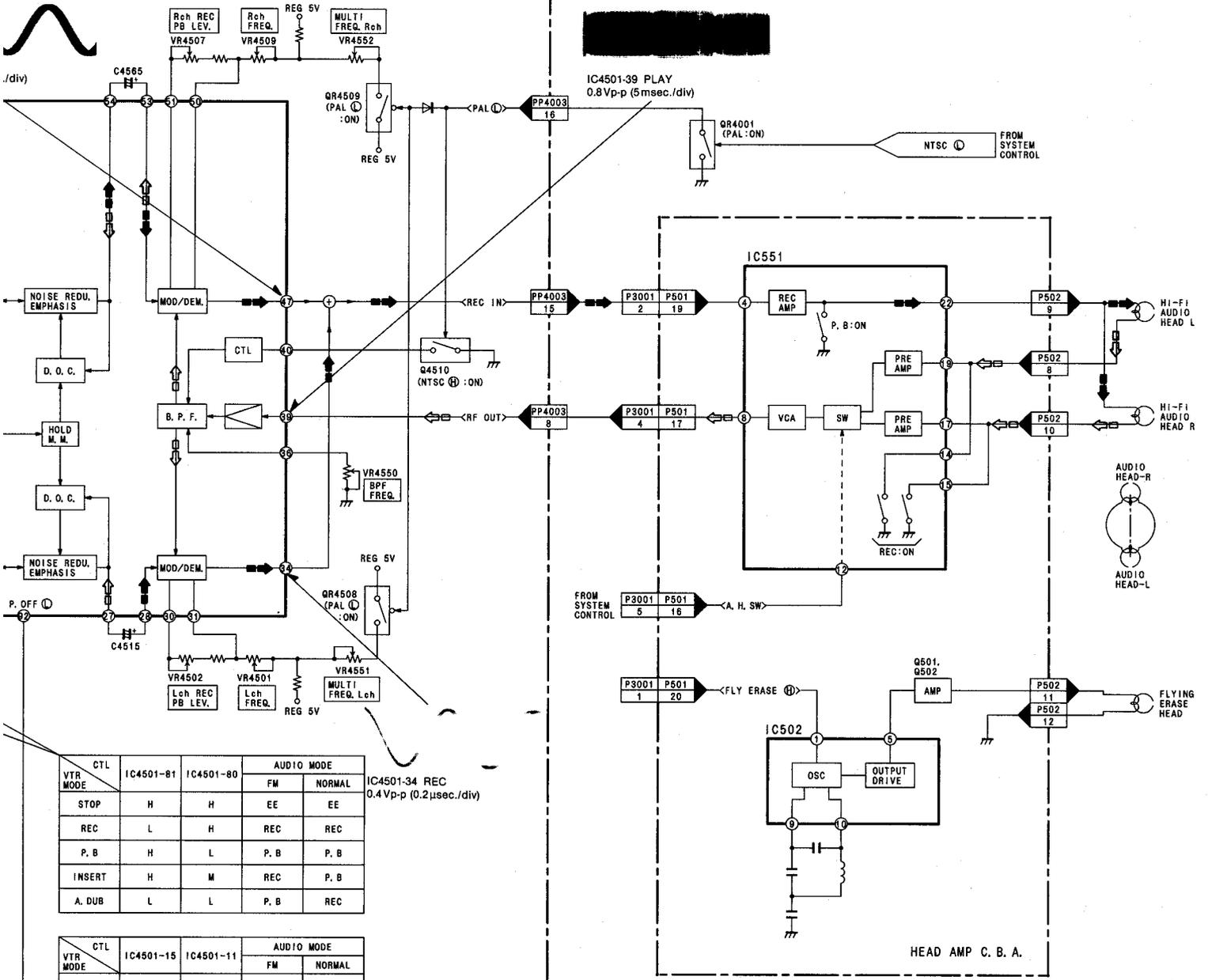


VTR MOD S
IN
A.
VTR MOD AV
MI
T



SIGNAL PATH IN REC MODE

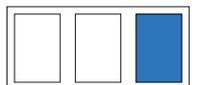
← MAIN SIGNAL PATH IN PLAYBACK MODE



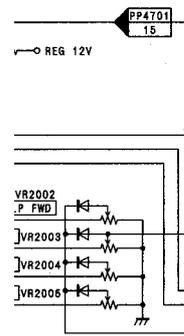
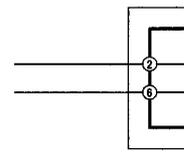
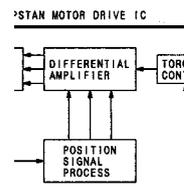
VTR MODE	CTL	AUDIO MODE			
		IC4501-81	IC4501-80	FM	NORMAL
STOP	H	H	EE	EE	
REC	L	H	REC	REC	
P. B	H	L	P. B	P. B	
INSERT	H	M	REC	P. B	
A. DUB	L	L	P. B	REC	

VTR MODE	CTL	AUDIO MODE			
		IC4501-15	IC4501-11	FM	NORMAL
AV1/AV2	H	L	AV1/AV2 IN	AV1/AV2 IN	
AV3	L	M	AV3 IN	AV3 IN	
MIC IN	-	H	MIC IN	MIC IN	
TUNER	L	L	TUNER	TUNER	

HI-FI AUDIO PACK C. B. A.

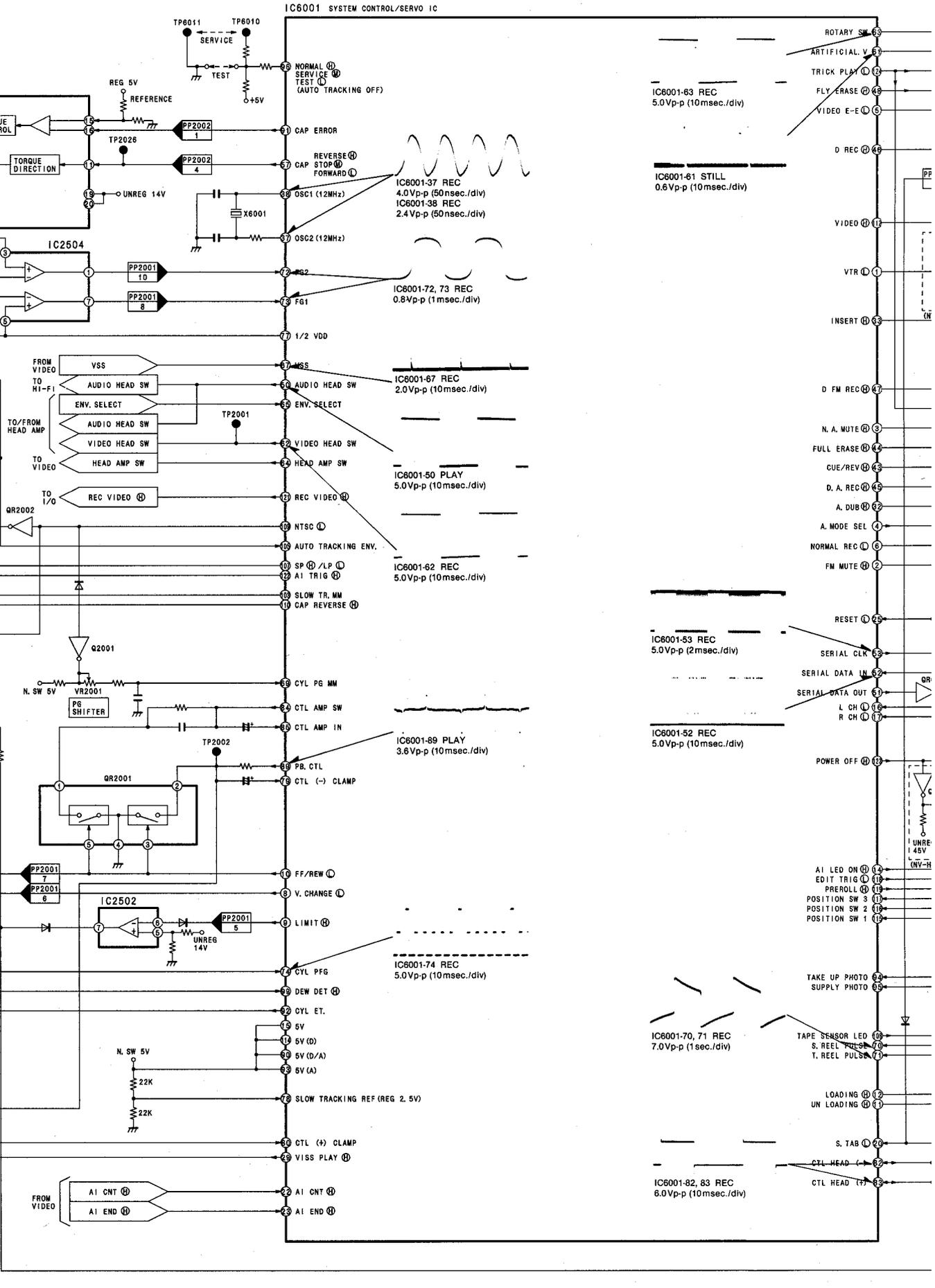
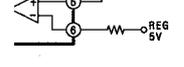
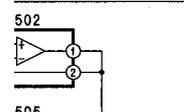
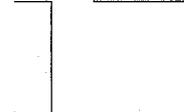
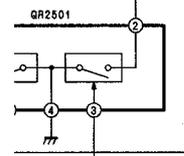


IC6001 SYSTEM CONTROL/SERVO IC



OUTPUT			
2IN	2PIN	3PIN	4PIN
Z	Z	Z	H
Z	Z	H	Z
Z	H	Z	Z
H	Z	Z	Z

HIGH-IMPEDANCE



IC6001-63 REC
5.0Vp-p (10msec./div)

IC6001-61 STILL
0.6Vp-p (10msec./div)

IC6001-37 REC
4.0Vp-p (50nsec./div)
IC6001-38 REC
2.4Vp-p (50nsec./div)

IC6001-72, 73 REC
0.8Vp-p (1msec./div)

IC6001-67 REC
2.0Vp-p (10msec./div)

IC6001-50 PLAY
5.0Vp-p (10msec./div)

IC6001-62 REC
5.0Vp-p (10msec./div)

IC6001-89 PLAY
3.6Vp-p (10msec./div)

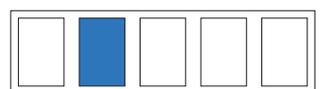
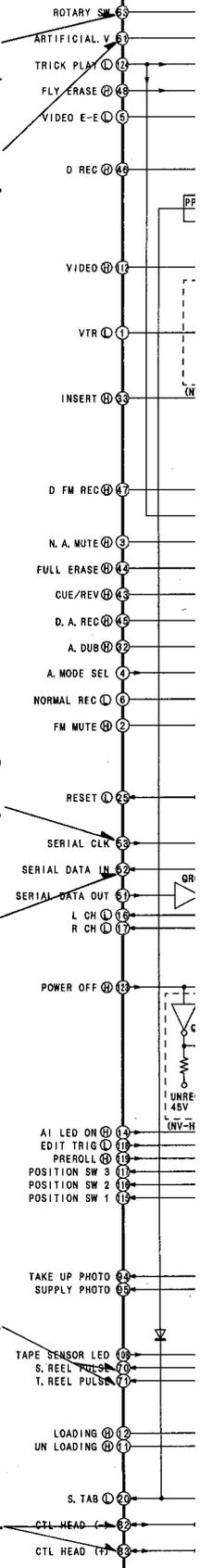
IC6001-74 REC
5.0Vp-p (10msec./div)

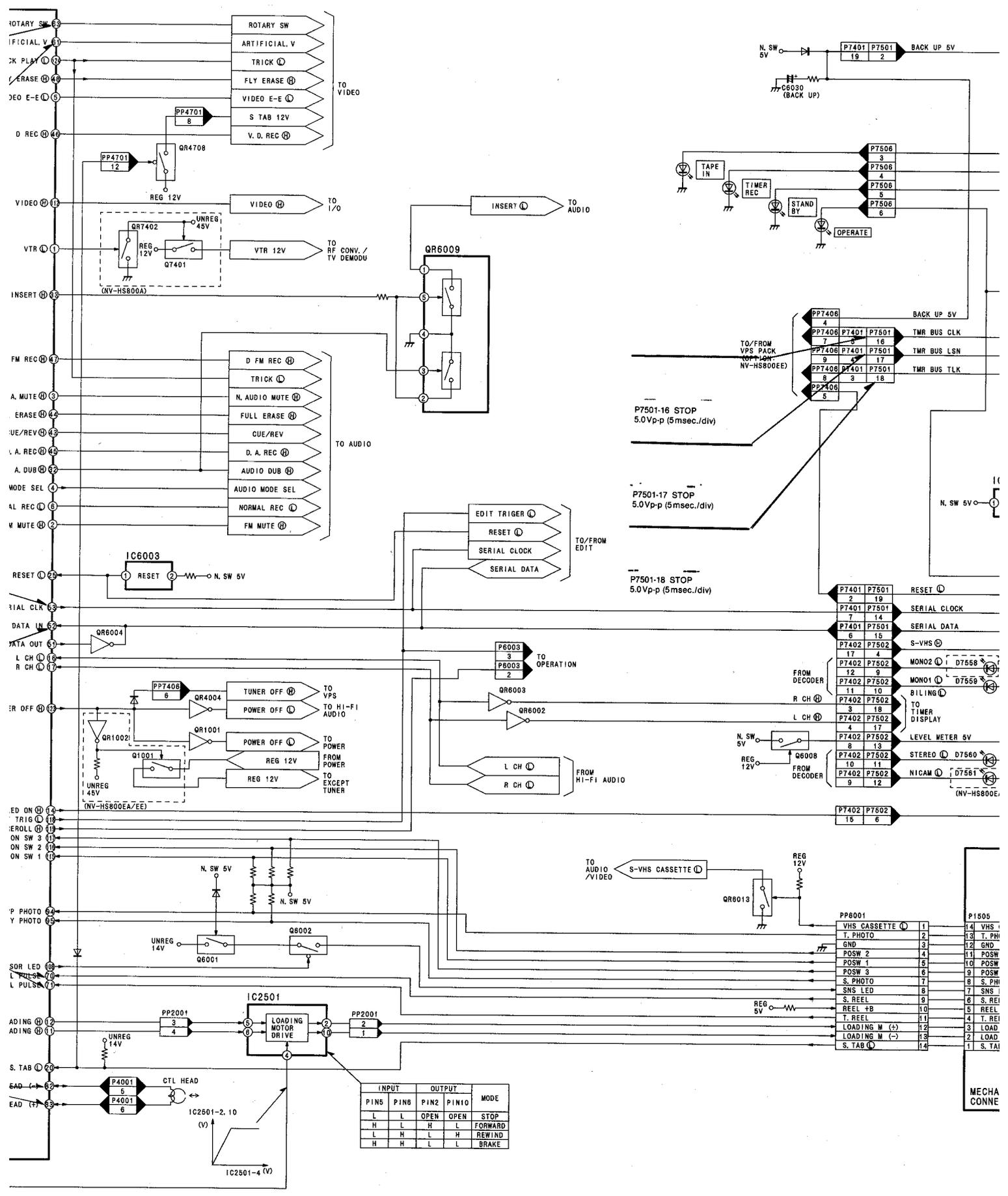
IC6001-53 REC
5.0Vp-p (2msec./div)

IC6001-52 REC
5.0Vp-p (10msec./div)

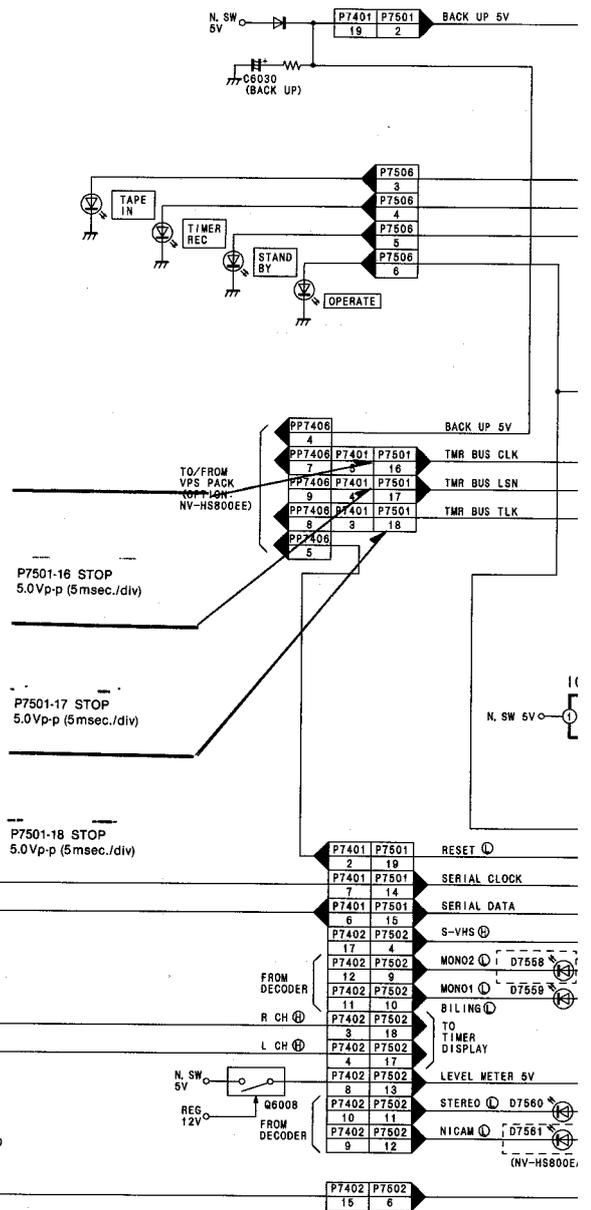
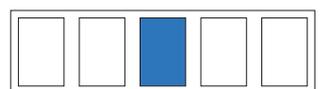
IC6001-70, 71 REC
7.0Vp-p (1sec./div)

IC6001-82, 83 REC
6.0Vp-p (10msec./div)

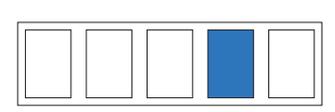
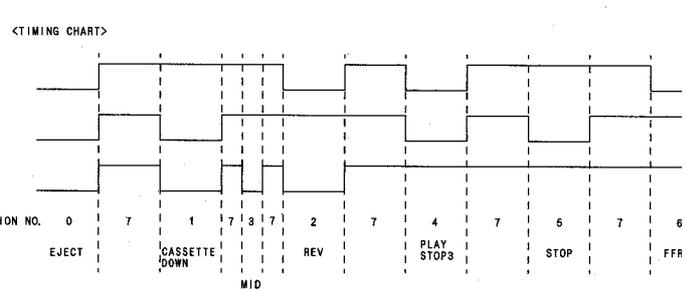
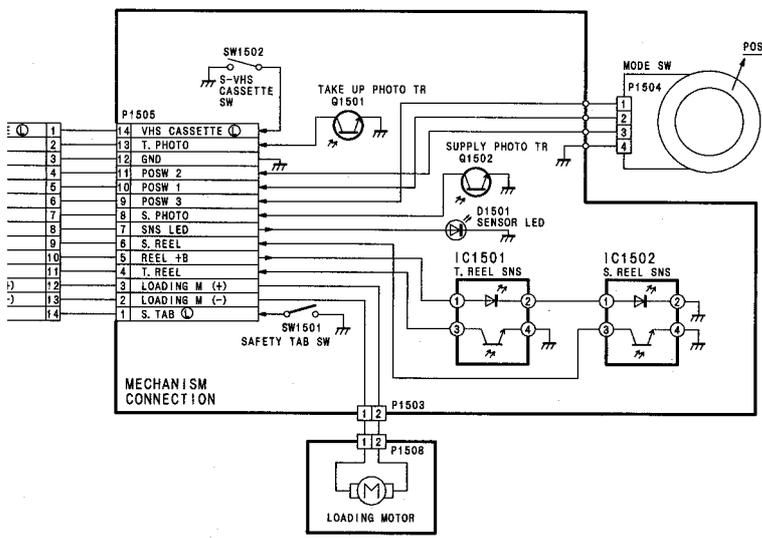
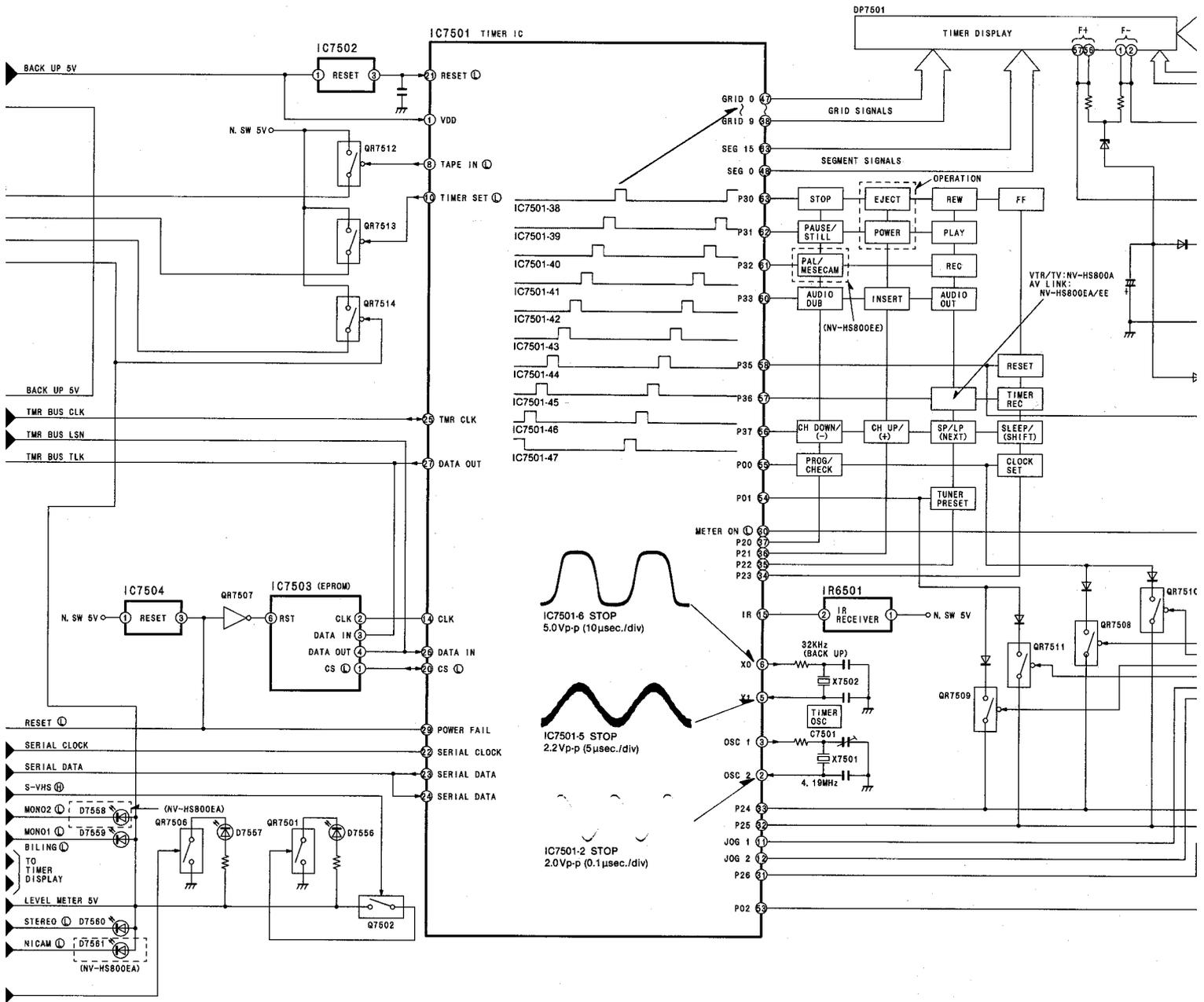




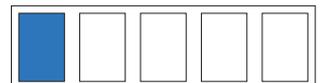
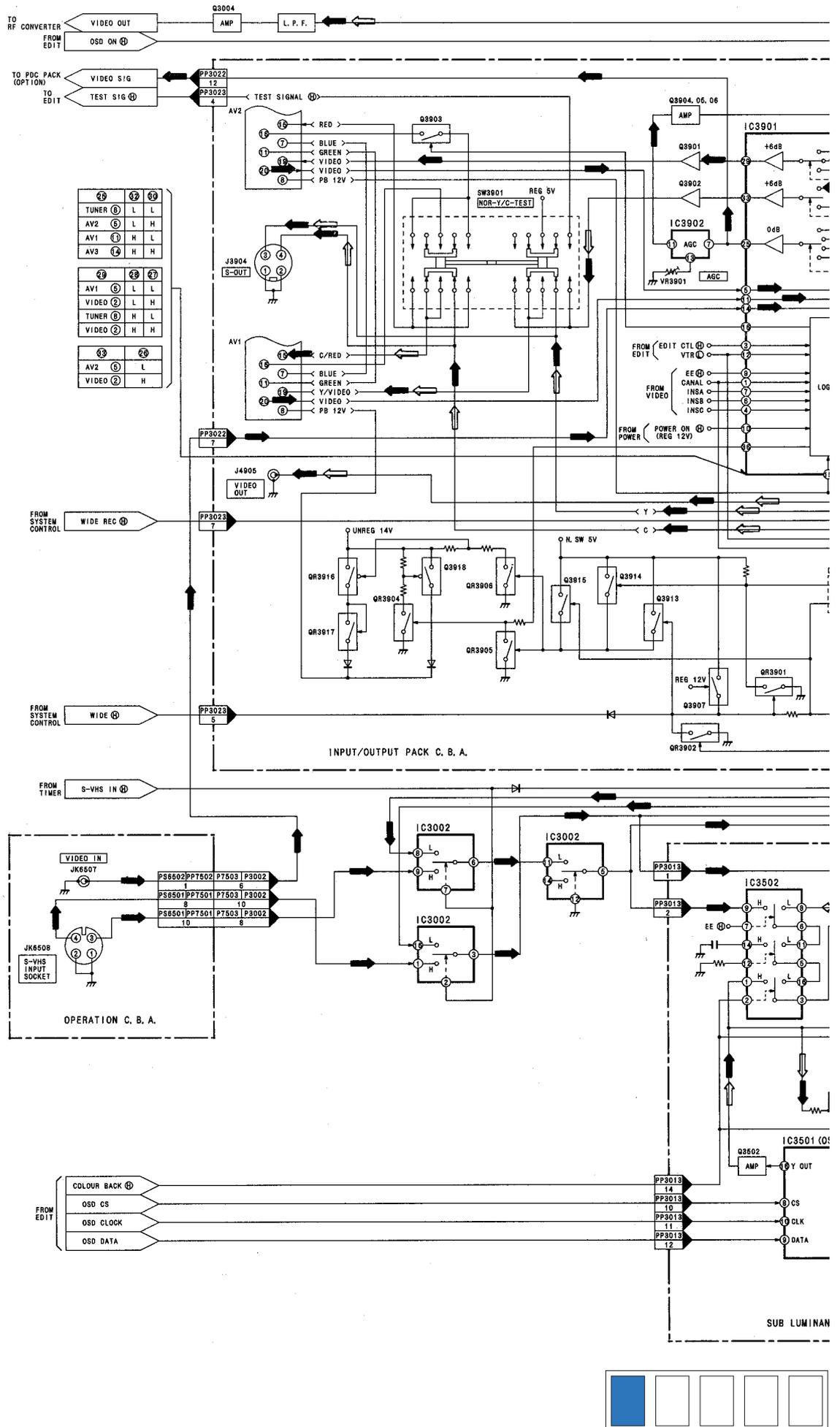
INPUT		OUTPUT		MODE
PIN5	PIN6	PIN2	PIN10	
L	L	OPEN	OPEN	STOP
H	L	H	L	FORWARD
L	H	L	H	REWIND
H	H	L	L	BRAKE



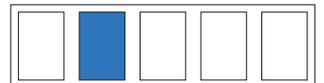
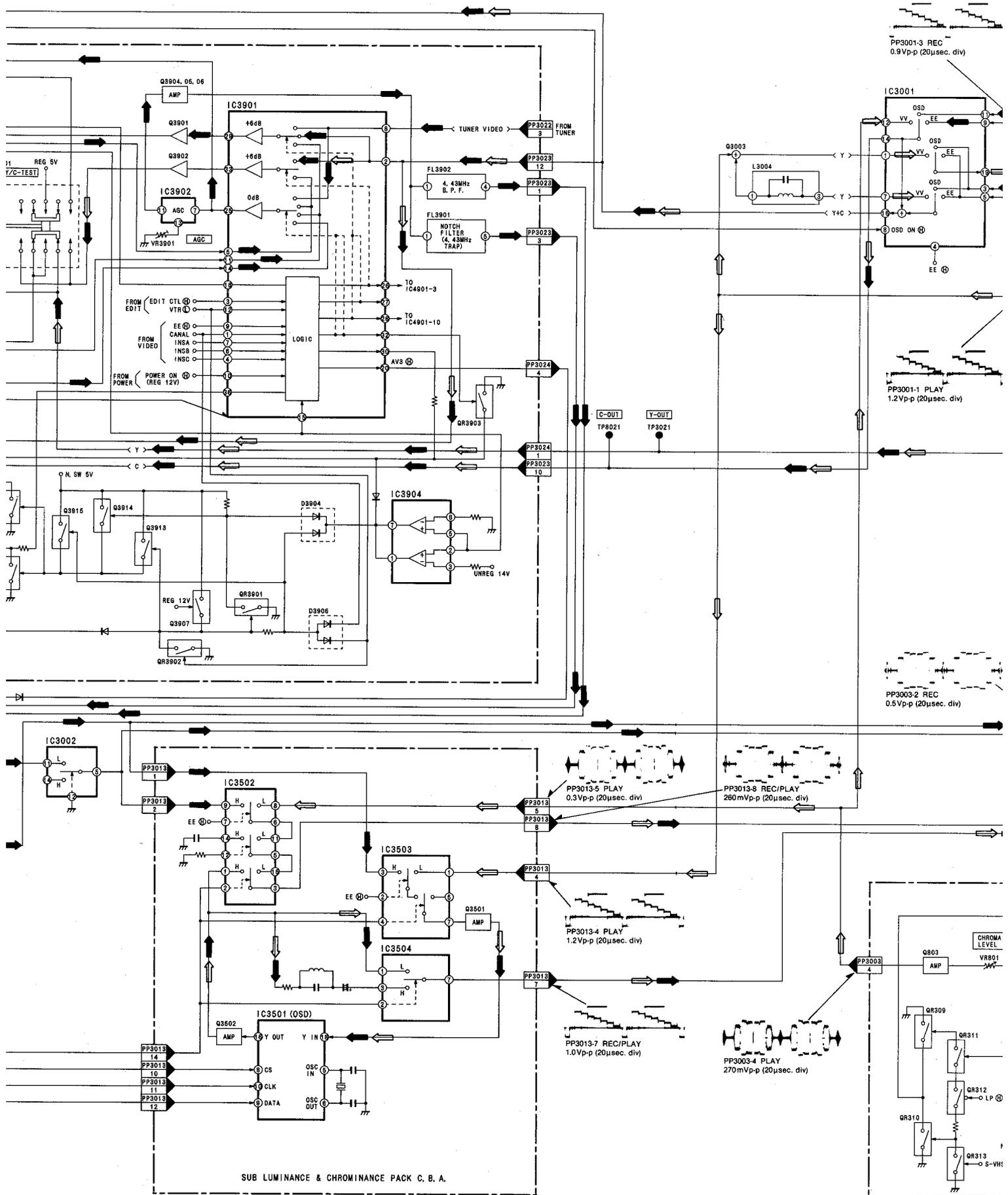
MECHA CONNE

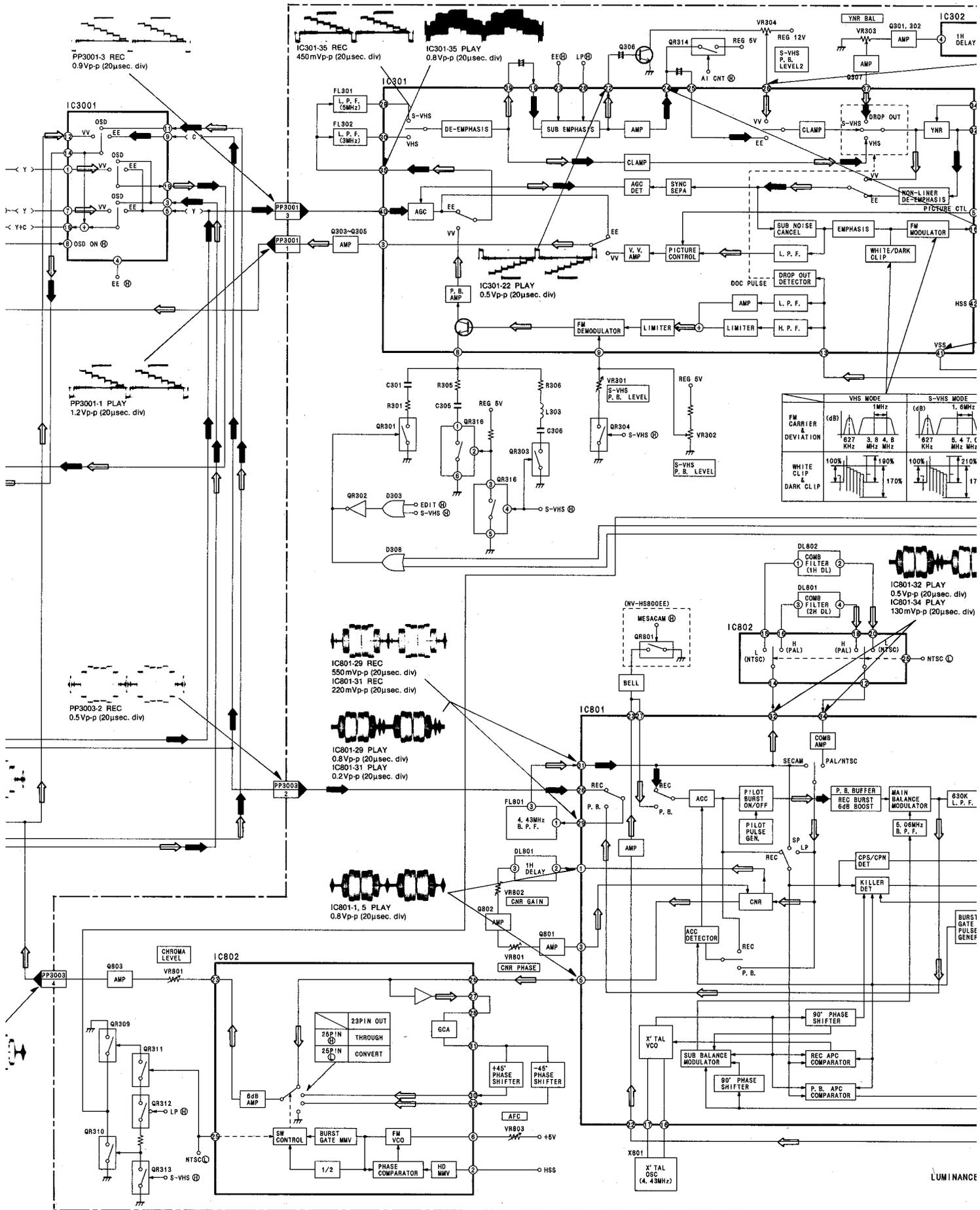


3-5. LUMINANCE & CHROMINANCE BLOCK DIAGRAM

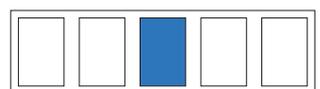


THE BLOCK DIAGRAM



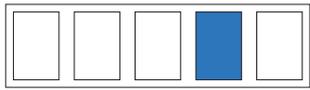
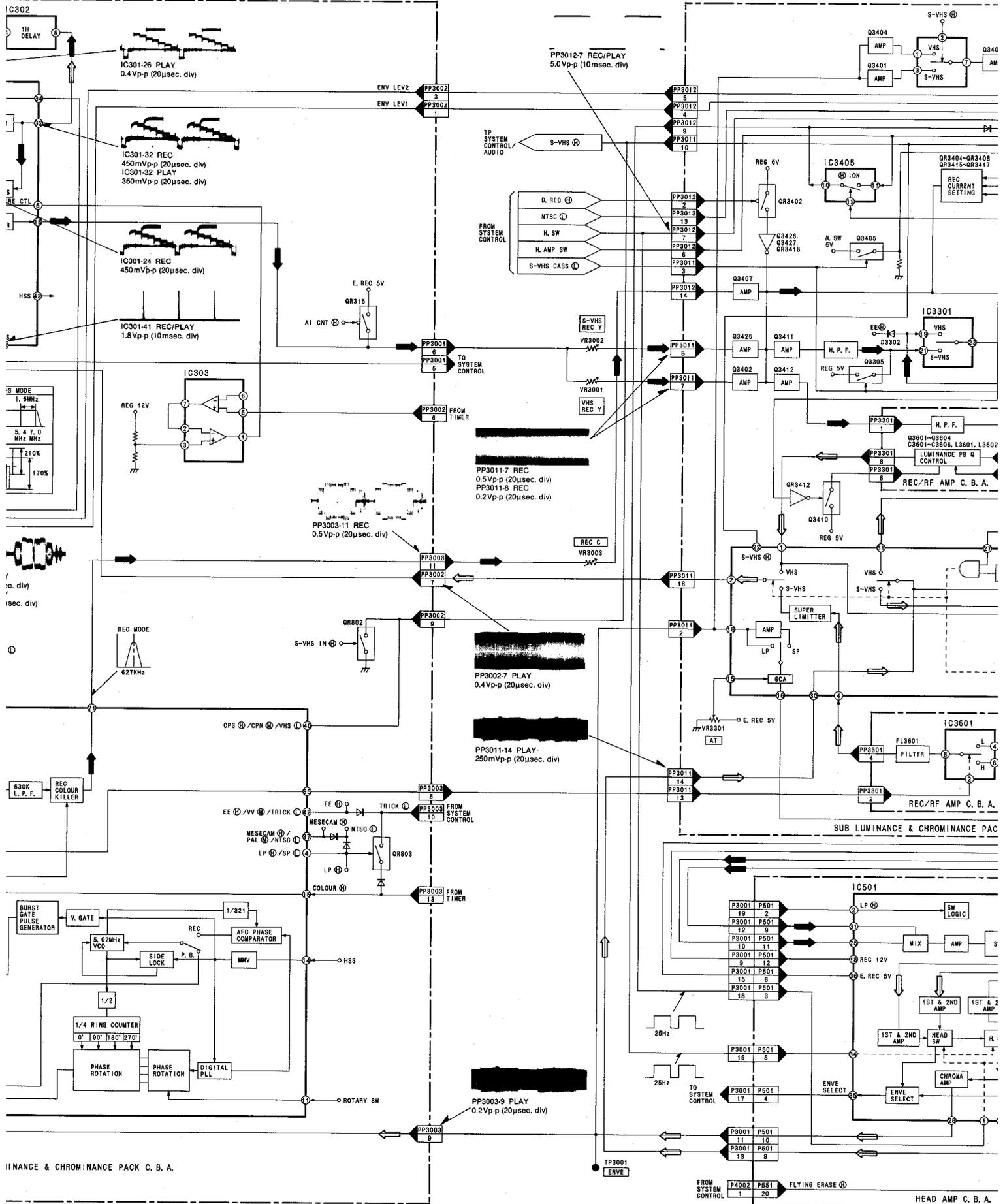


LUMINANCE

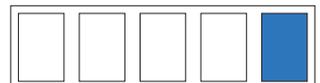
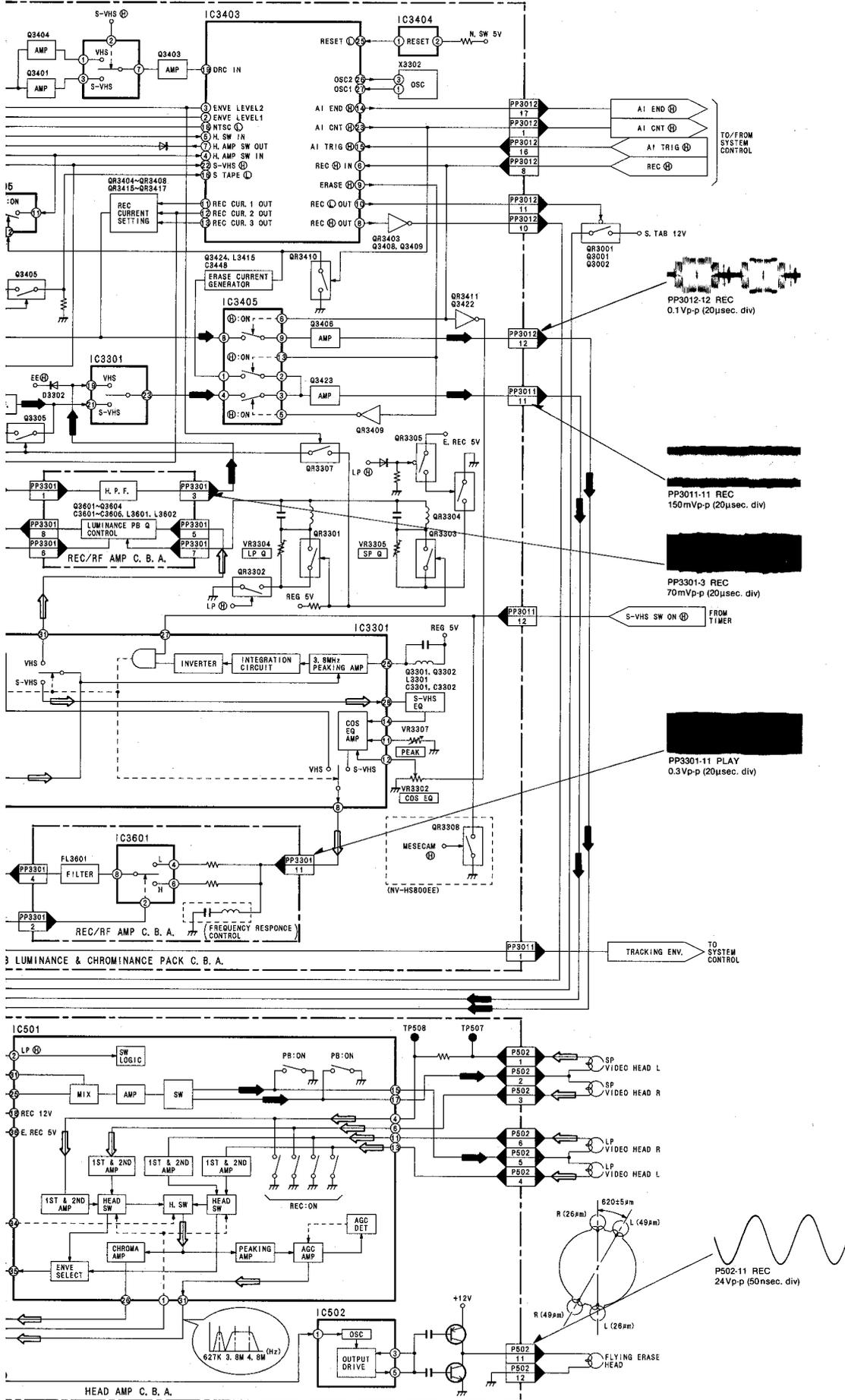


MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN I

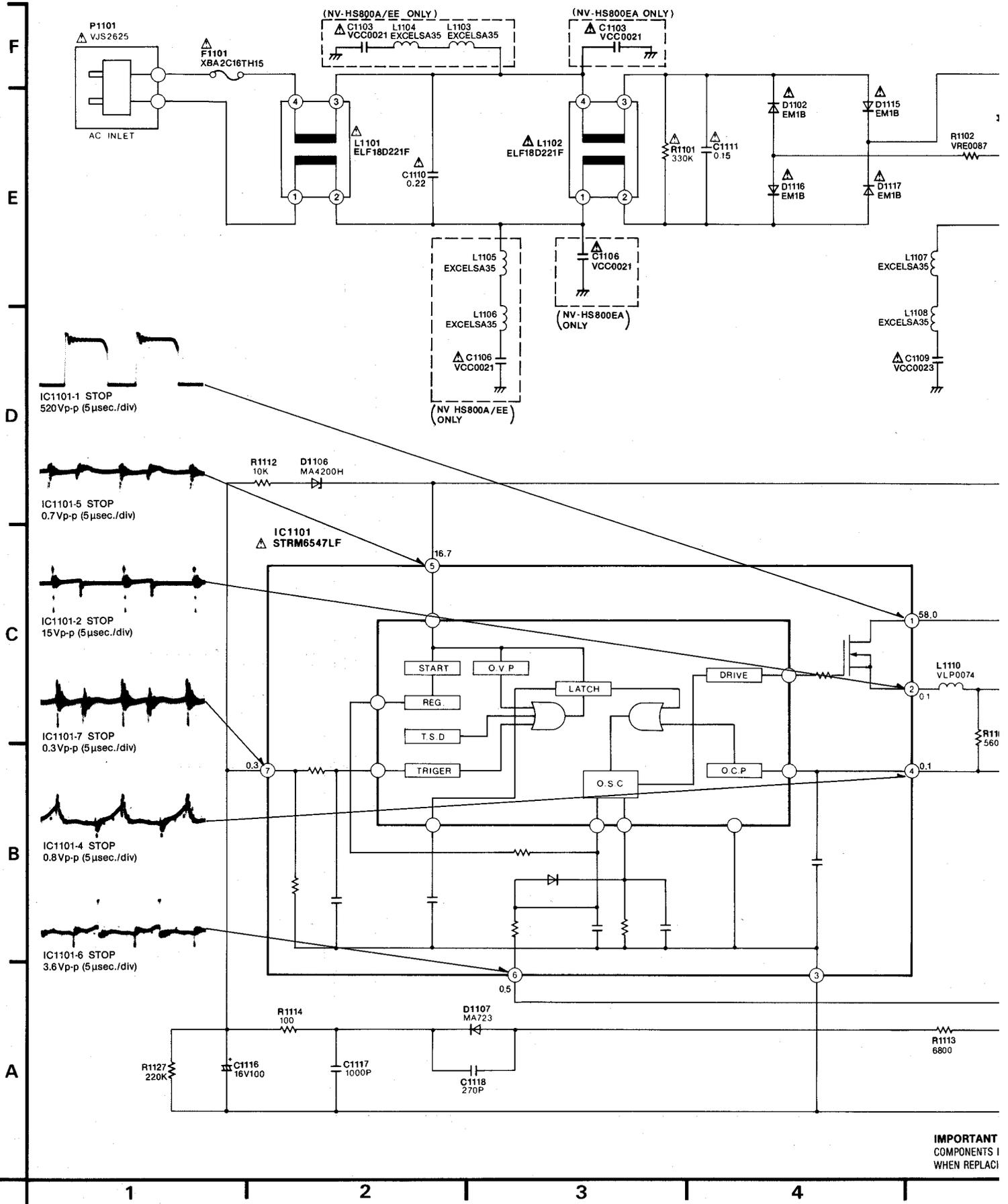


IGNAL PATH IN PLAYBACK MODE

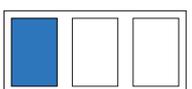


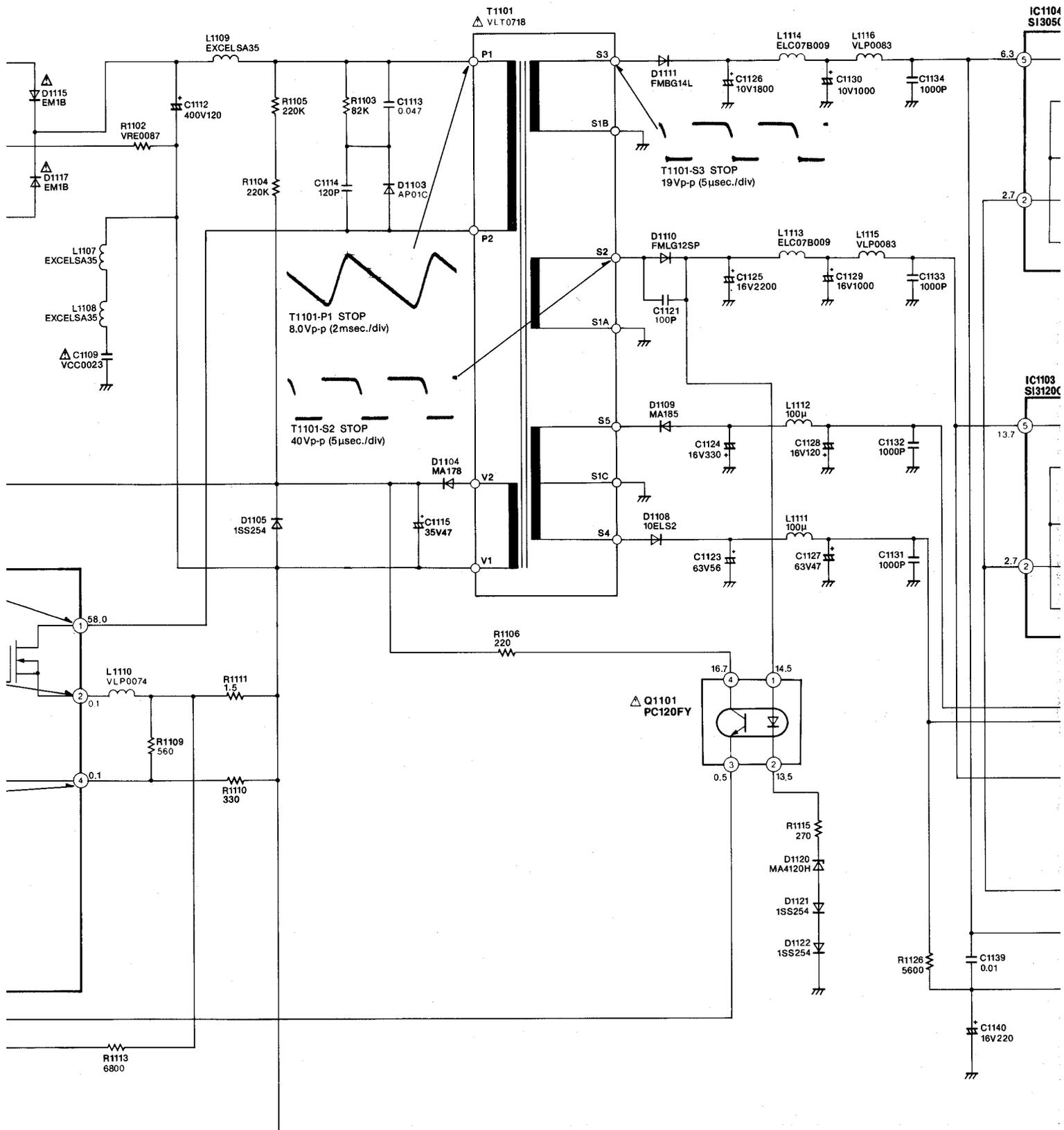
SECTION 4 SCHEMATIC DIAGRAMS

4-1. POWER SCHEMATIC DIAGRAM



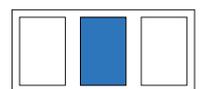
IMPORTANT COMPONENTS I WHEN REPLACI

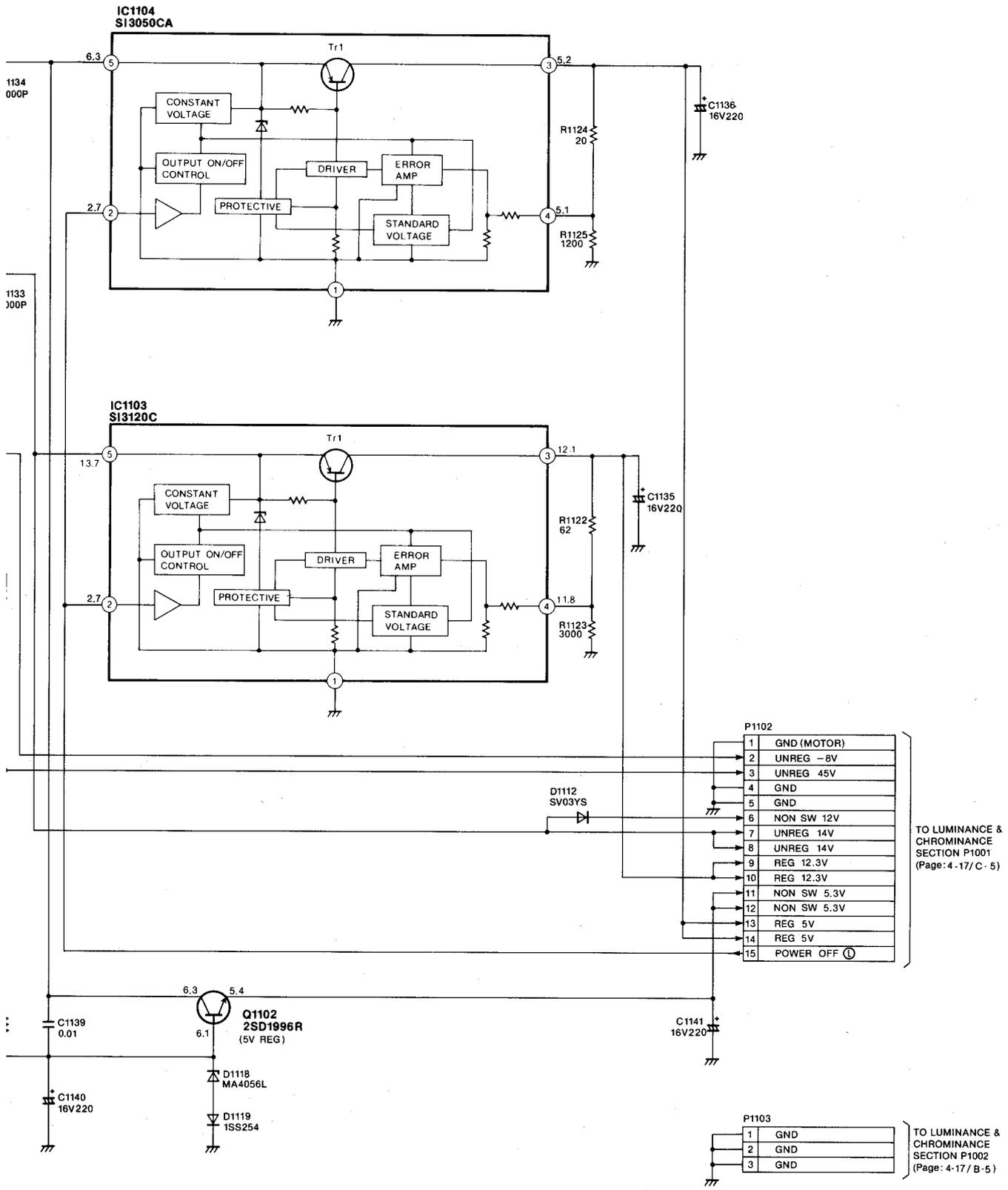




IMPORTANT SAFETY NOTICE:
 COMPONENTS IDENTIFIED WITH THE MARK Δ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
 WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

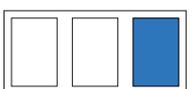
NOTE 1. WHEN MEASURE THE VOLTAGE OR WAVEFORM OF
 CIRCUIT, SET THE GND TERMINAL OF MEASURING
 PRIMARY SIDE IC1101-(3)
 SECONDARY SIDE ... TP GND OF MAIN C.B.A..



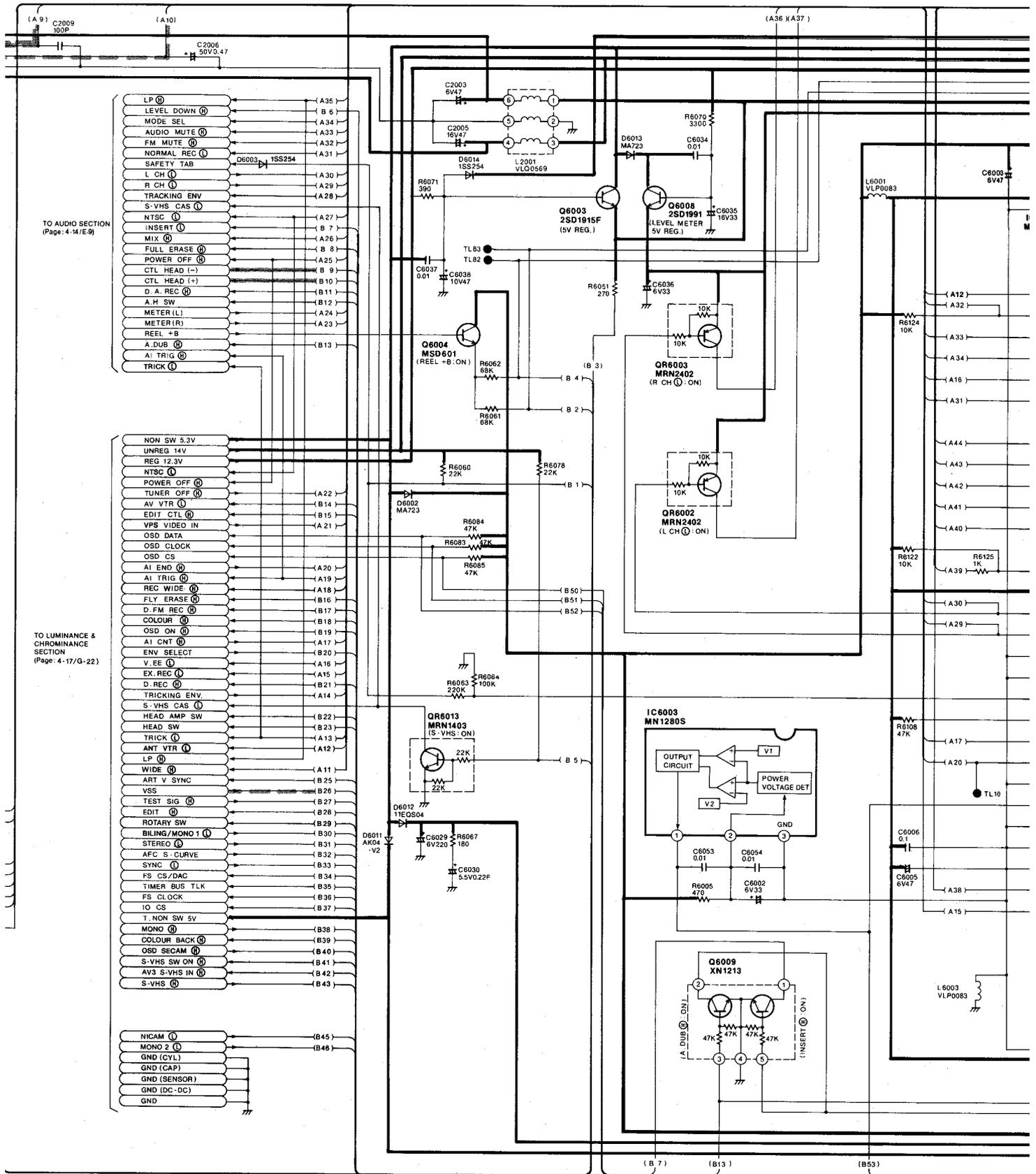


VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER
 TERMINAL OF MEASURING POINT AS FOLLOWS.
 IC1101-(3)
 TP GND OF MAIN C.B.A.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS
 SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU
 ORDER A PART, PLEASE REFER TO PARTS LIST.



DIAGRAM



6

7

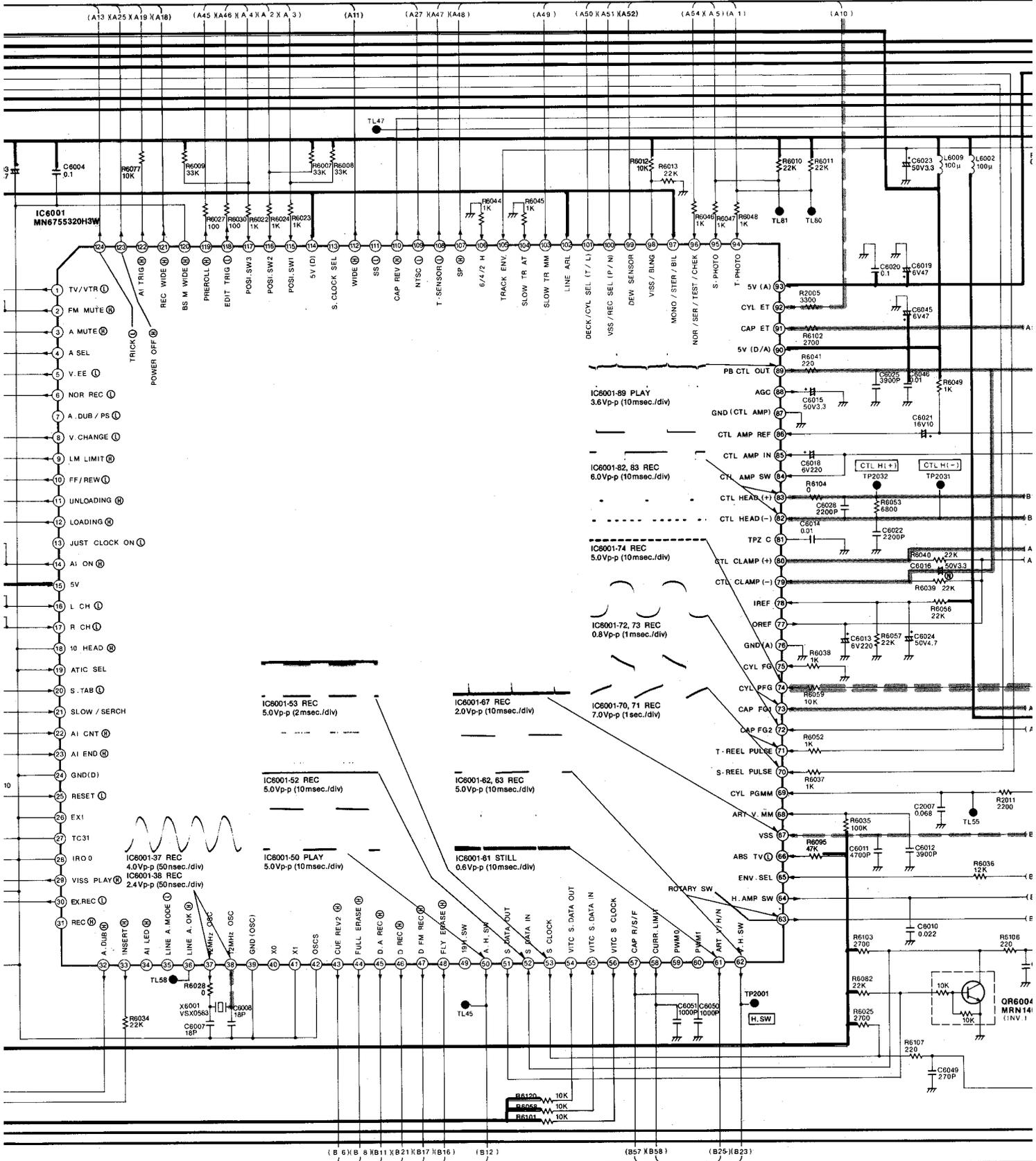
8

9

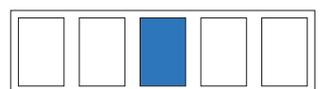
10

11





12 13 14 15 16 17



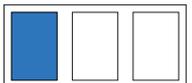
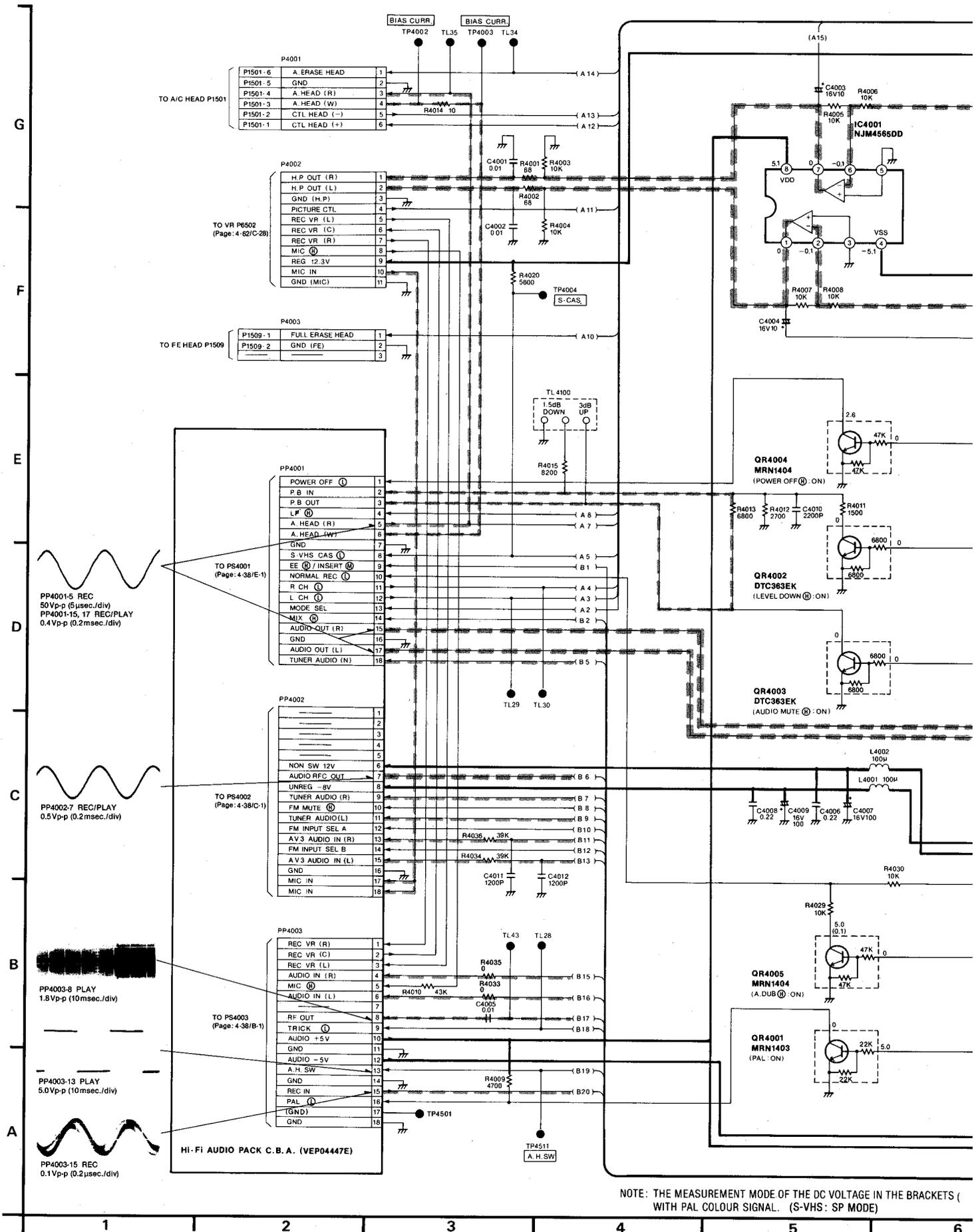
SYSTEM CONTROL & SERVO TRANSISTORS DC VOLTAGE CHART (S-VHS: SP MODE)

REF. NO.	Q2001			Q2002			Q6001			Q6002			Q6003			Q6004									
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B							
STOP	5.0	4.8	5.0	1.6	0	1.0	5.1	14.4	5.6	5.1	-0.2	5.0	5.2	5.4	5.9	5.0	5.0	5.7							
PLAY	5.0	4.8	5.0	2.6	0	2.0	5.0	14.4	5.6	5.0	4.8	4.2	5.2	5.4	5.9	5.0	5.0	5.7							
REC	5.0	4.8	4.9	1.1	0	0.5	4.9	14.3	5.6	4.9	4.8	4.2	5.2	5.4	5.9	5.0	5.0	5.5							
F.F	5.0	4.8	5.0	1.1	0	1.1	5.0	14.3	5.6	5.0	4.9	4.2	5.2	5.4	5.9	5.0	5.0	5.7							
REW	5.0	4.8	5.0	1.1	0	0.5	5.0	14.3	5.6	5.0	4.8	4.2	5.2	5.4	5.9	5.0	5.0	5.7							
REF. NO.	Q6005			Q6006			Q6008																		
MODE	E	C	B	E	C	B	E	C	B																
STOP	0	4.9	0.1	0	4.7	0.1	5.0	5.1	5.8																
PLAY	0	4.9	0.1	0	4.7	0.1	5.0	5.1	5.8																
REC	0	4.9	0.1	0	4.7	0.1	5.0	5.1	5.8																
F.F	0	4.8	0.1	0	4.7	0.1	5.0	5.1	5.8																
REW	0	4.8	0.1	0	4.7	0.1	5.0	5.1	5.8																
REF. NO.	QR2001					QR2002					QR6001					QR6002					QR6003				
MODE	1	2	3	4	5	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B		
STOP	0	0	4.9	0	4.9	5.0	0	5.0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	0	5.0	5.0	0	5.0	5.0	0		
PLAY	0	0	4.9	0	4.9	5.0	0	5.0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	0	5.0	5.0	0	5.0	5.0	0		
REC	0	0	4.9	0	4.9	5.0	0	5.0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	0	5.0	5.0	0	5.0	5.0	0		
F.F	0	1.0	0	0	0	5.0	0	5.0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	0	5.0	5.0	0	5.0	5.0	0		
REW	0	1.0	0	0	0	5.0	0	5.0	0	0	5.0	5.0	5.0	5.0	5.0	5.0	0	5.0	5.0	0	5.0	5.0	0		
REF. NO.	QR6004			QR6009					QR6012			QR6013			QR6014										
MODE	E	C	B	1	2	3	4	5	E	C	B	E	C	B	E	C	B								
STOP	0	0.9	1.7	5.1	0	0	0	0	0	0.1	4.3	0	0	7.0	0	0	4.9								
PLAY	0	0.9	1.7	0.5	0	0	0	0	0	0.1	4.3	0	0	7.0	0	0	4.9								
REC	0	1.0	1.7	5.1	0	0	0	0	0	0.1	4.3	0	0	7.0	0	0	4.9								
F.F	0	1.0	1.7	5.1	0	0	0	0	0	0.1	4.3	0	0	7.0	0	0	4.9								
REW	0	0.9	1.7	5.1	0	0	0	0	0	0.1	4.3	0	0	7.0	0	0	4.9								
REF. NO.	QR6015																								
MODE	E	C	B																						
STOP	5.2	0.3	5.0																						
PLAY	5.2	0.3	5.0																						
REC	5.2	0.3	5.0																						
F.F	5.2	0.3	5.0																						
REW	5.2	0.3	5.0																						

INPUT/OUTPUT CHART FOR IC6002 (M38024V1BH)

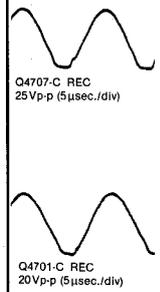
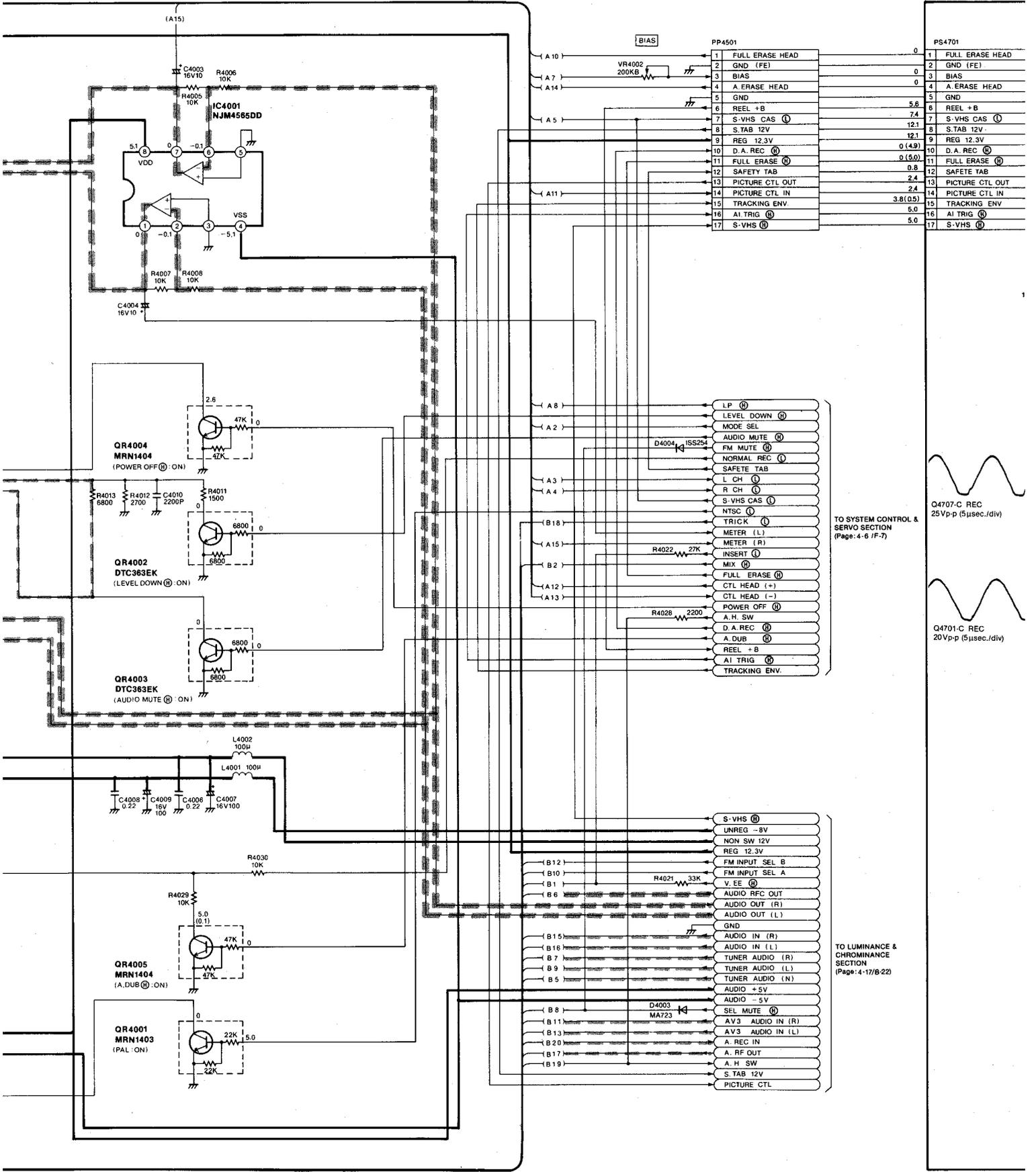
PIN NO.	I/O	PORT NAME	PIN NO.	I/O	PORT NAME	PIN NO.	I/O	PORT NAME
1	O	OSD CLK	20	I	L CLK	37	I	VITC OK (H)
2	O	OSD DATA	21	I	5P CLK	38	I	LANGUAGE 2
3	O	OSD CS	22	I	OSC IN	39	I	LANGUAGE 1
4	O	OSD ON (H)	23	O	OSC OUT	40	I	LANGUAGE 0
5, 6	-	—	24	-	GND	41-46	-	—
7	I	L CLK CNT	25	O	JOG LED (H)	47	O	BUS SELECT (B)
8	-	—	26	O	EDIT 21P	48	O	BUS SELECT (A)
9	I	SYS CLK	27	O	AV VTR (L)	49	I	CHECK (L)
10	O	SYS OUT	28	-	—	50-56	-	—
11	I	SYS IN	29	-	—	57, 58	I	VDD
12	O	DATA INH	30	-	—	59	-	GND
13	I	CLK INPUT	31	-	—	60	-	—
14	O	DATA OUT	32	O	EDIT (H)	61	-	—
15	I	DATA IN	33	I	TEST SIGNAL (H)	62	-	—
16, 17	-	—	34	I	OSD SECAM (H)	63	-	—
18	-	GND	35	O	INSIDE (H)	64	I	REC/P1/P2
19	I	RESET (L)	36	I	SERCH MUTE OK (H)			

4-4. AUDIO SECTION IN MAIN & SUB AUDIO PACK SCHEMATIC DIAGRAM



CK SCHEMATIC DIAGRAM

MAIN SIGNAL I



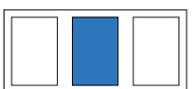
TO SYSTEM CONTROL & SERVO SECTION (Page: 4-6 / F-7)

TO LUMINANCE & CHROMINANCE SECTION (Page: 4-17/B-22)

E: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS () ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

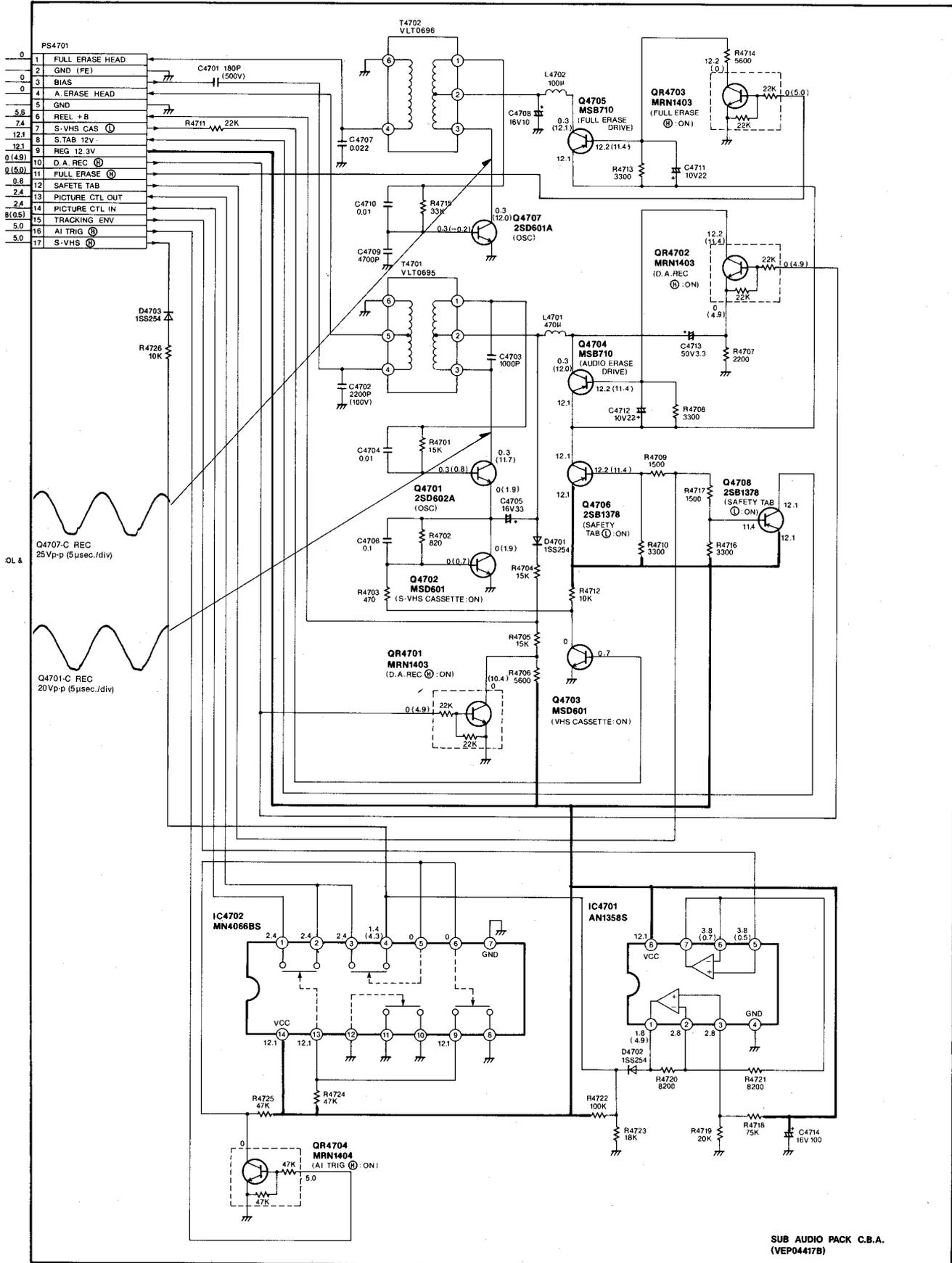
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAY WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

5 | 6 | 7 | 8 | 9 | 10



LINE SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE



SUB AUDIO PACK C.B.A. (VEP04417B)

ON THIS DIAGRAM IS PLAYBACK MODE

• LINE IN SIGNAL LEVEL... -10dB 1kHz

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

10

11

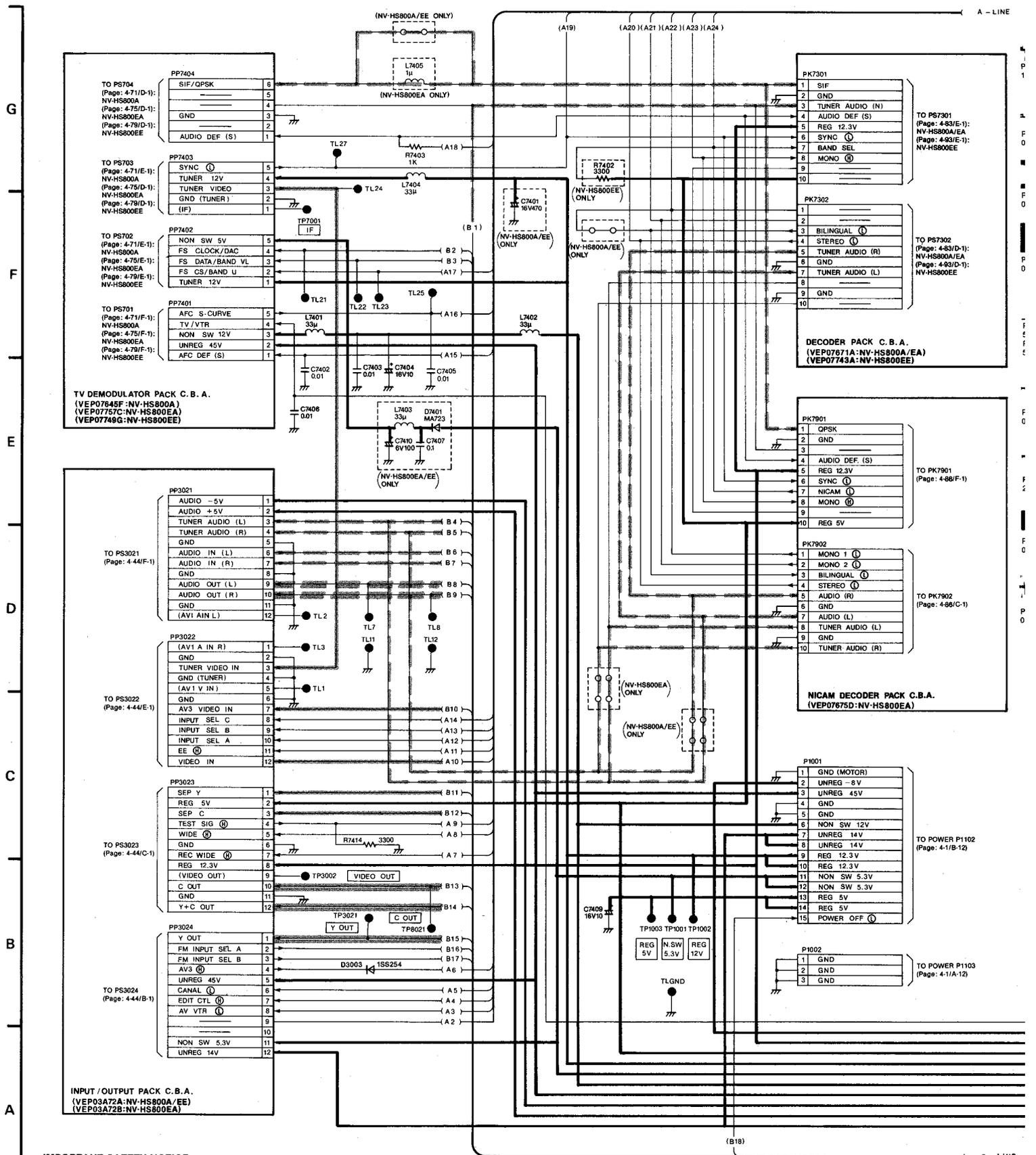
12

13

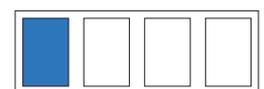
14



4-5. LUMINANCE & CHROMINANCE SECTION IN MAIN SCHEMATIC DIAGRAM

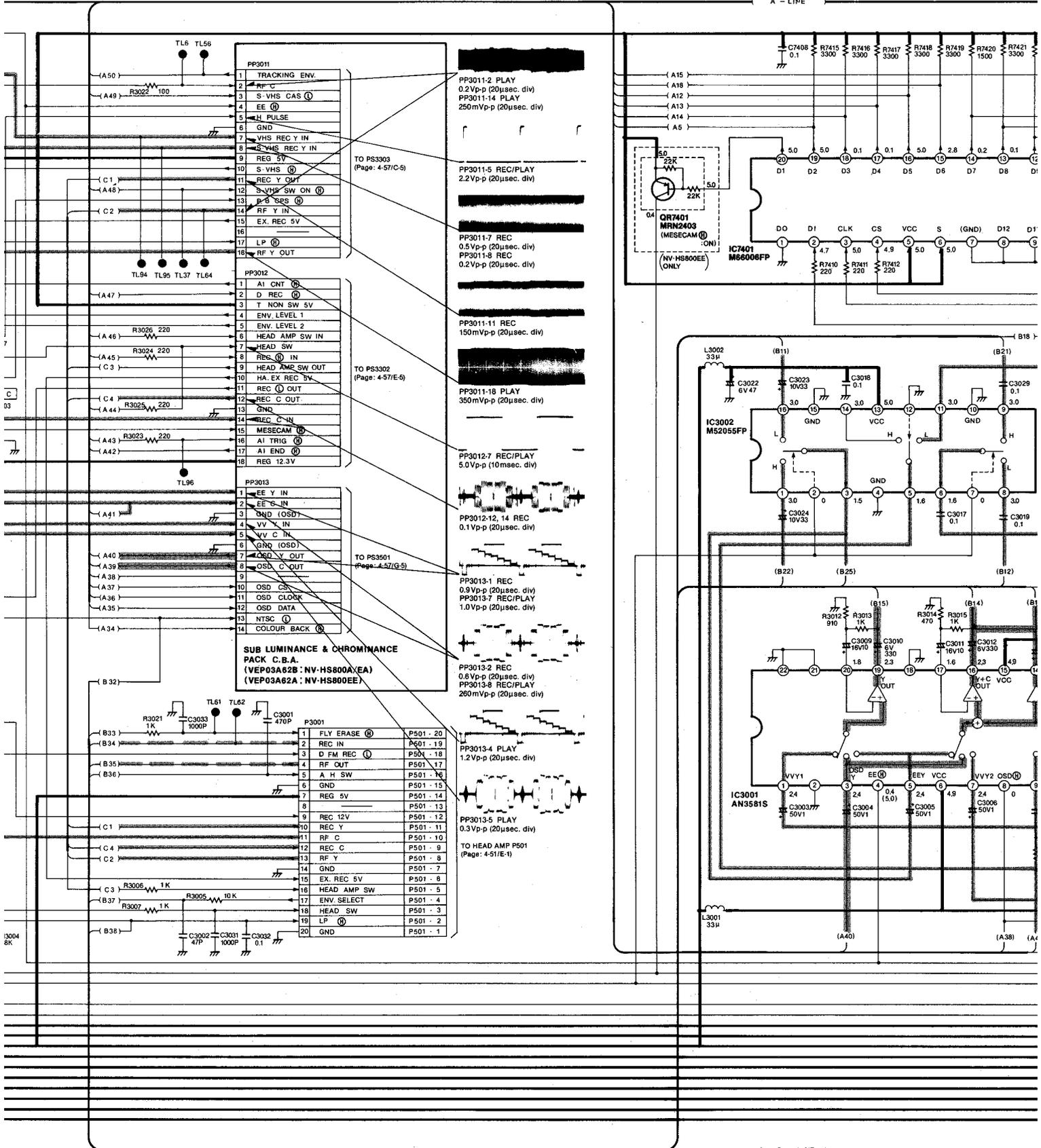


IMPORTANT SAFETY NOTICE:
 COMPONENTS IDENTIFIED WITH THE MARK Δ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
 WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



VIDEO MAIN SIGNAL PA
VIDEO MAIN SIGNAL PA

A - LINE



NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS () ON THIS DIAGRAM IS WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

12

13

14

15

16

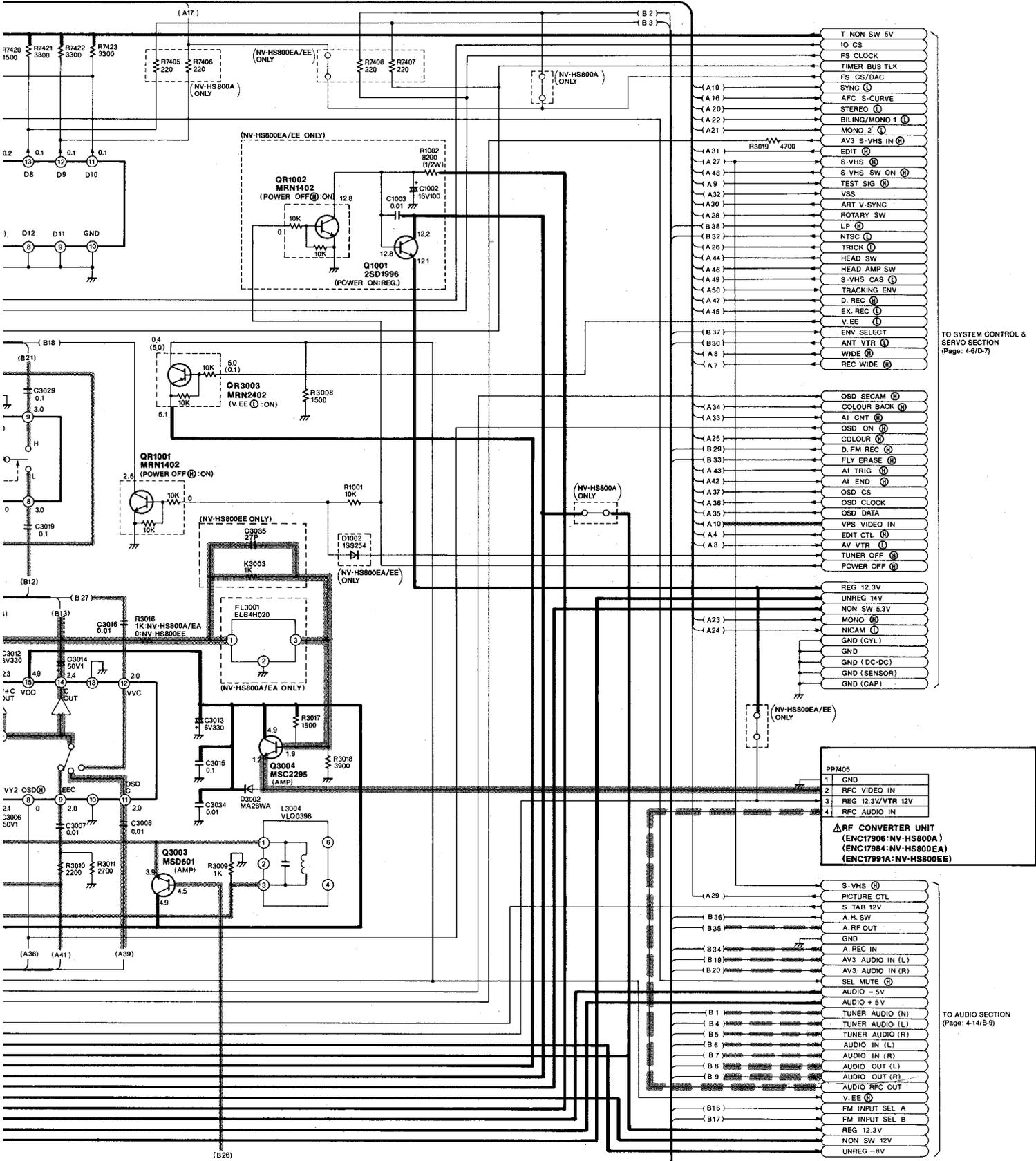
17

B - LINE



AL PATH IN REC MODE
AL PATH IN PLAYBACK MODE

AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

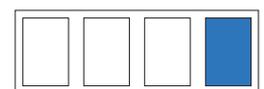


TO SYSTEM CONTROL & SERVO SECTION (Page: 4-6/0-7)

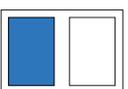
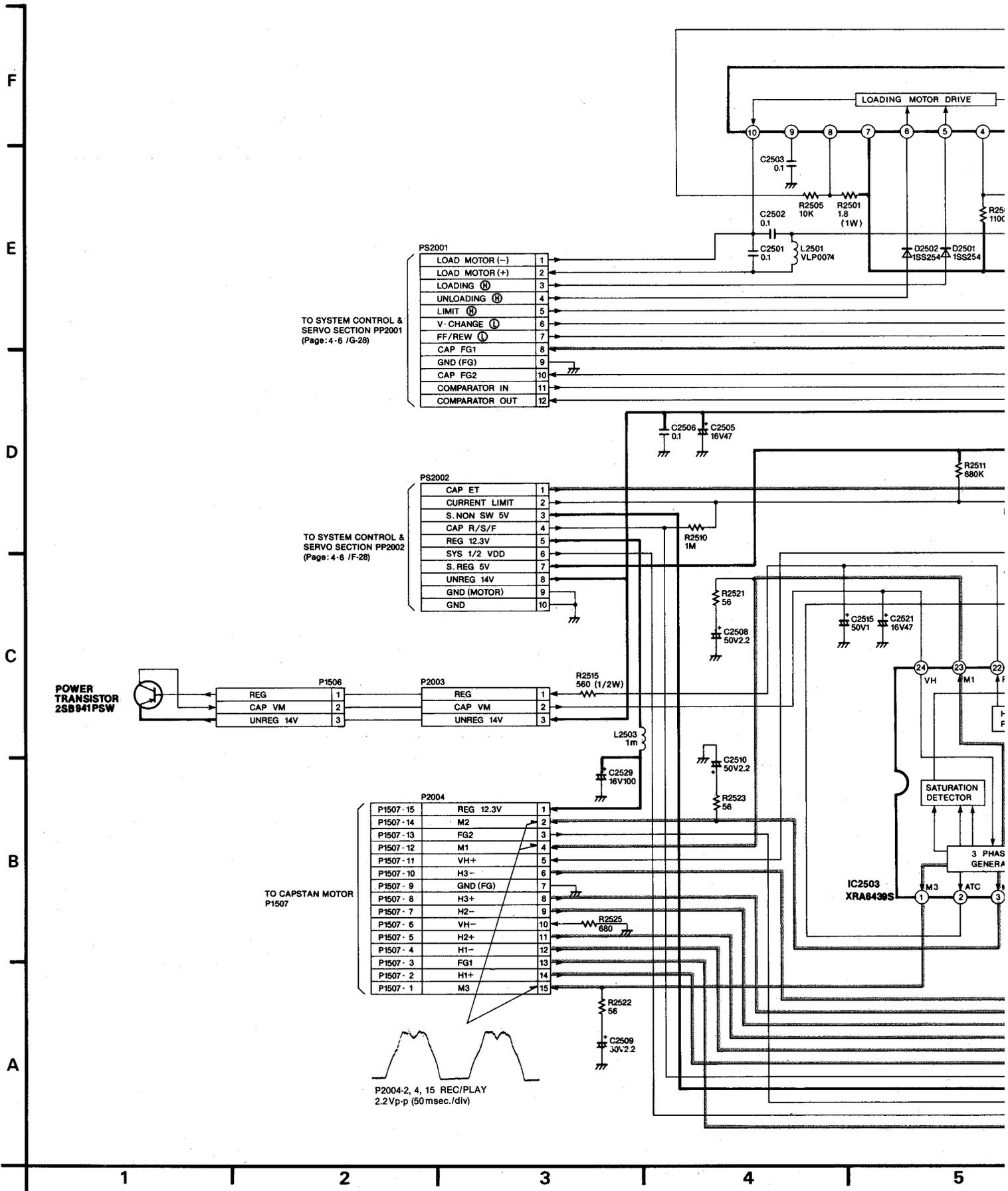
TO AUDIO SECTION (Page: 4-14/B-9)

IS DIAGRAM IS RECORD MODE THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

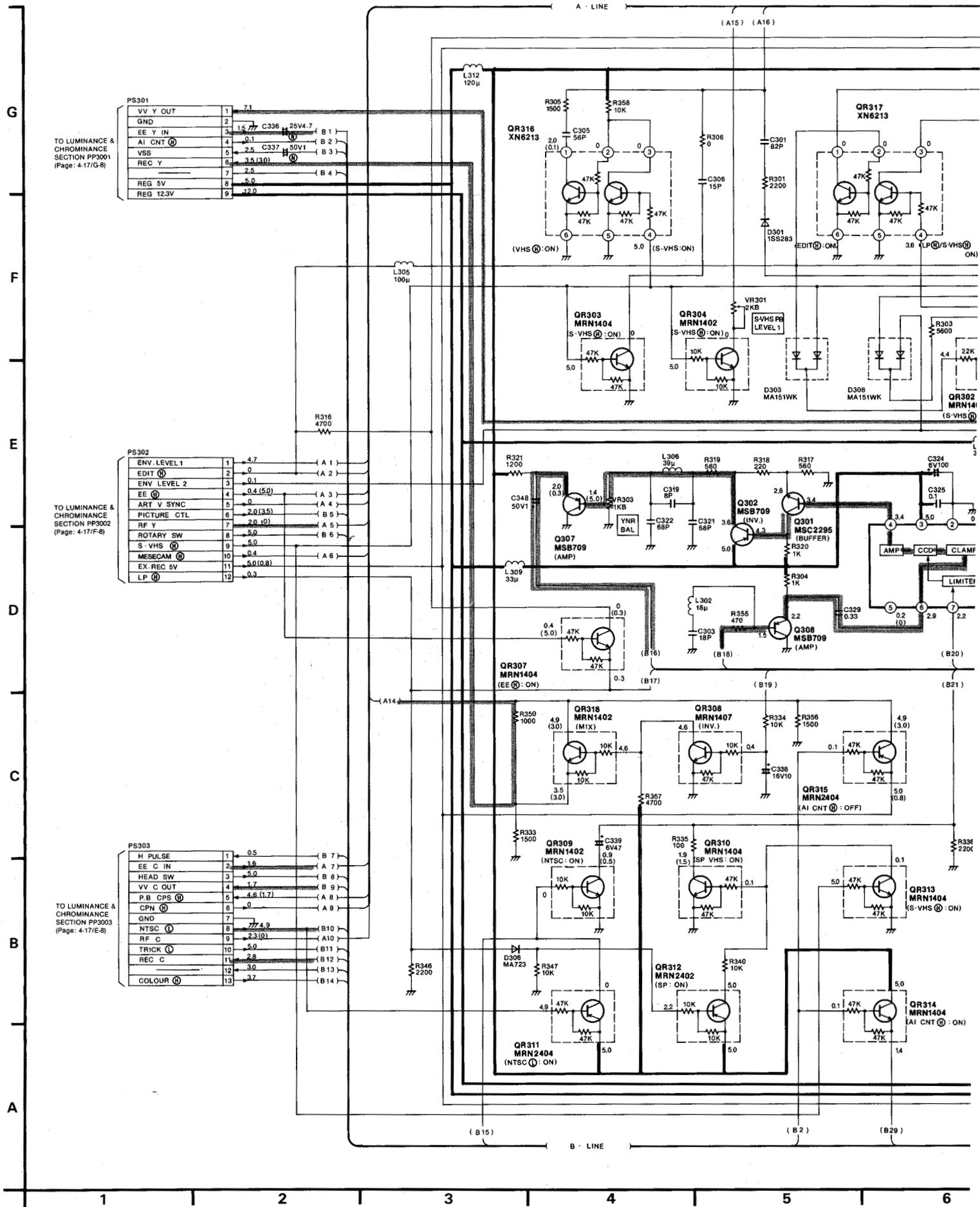
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

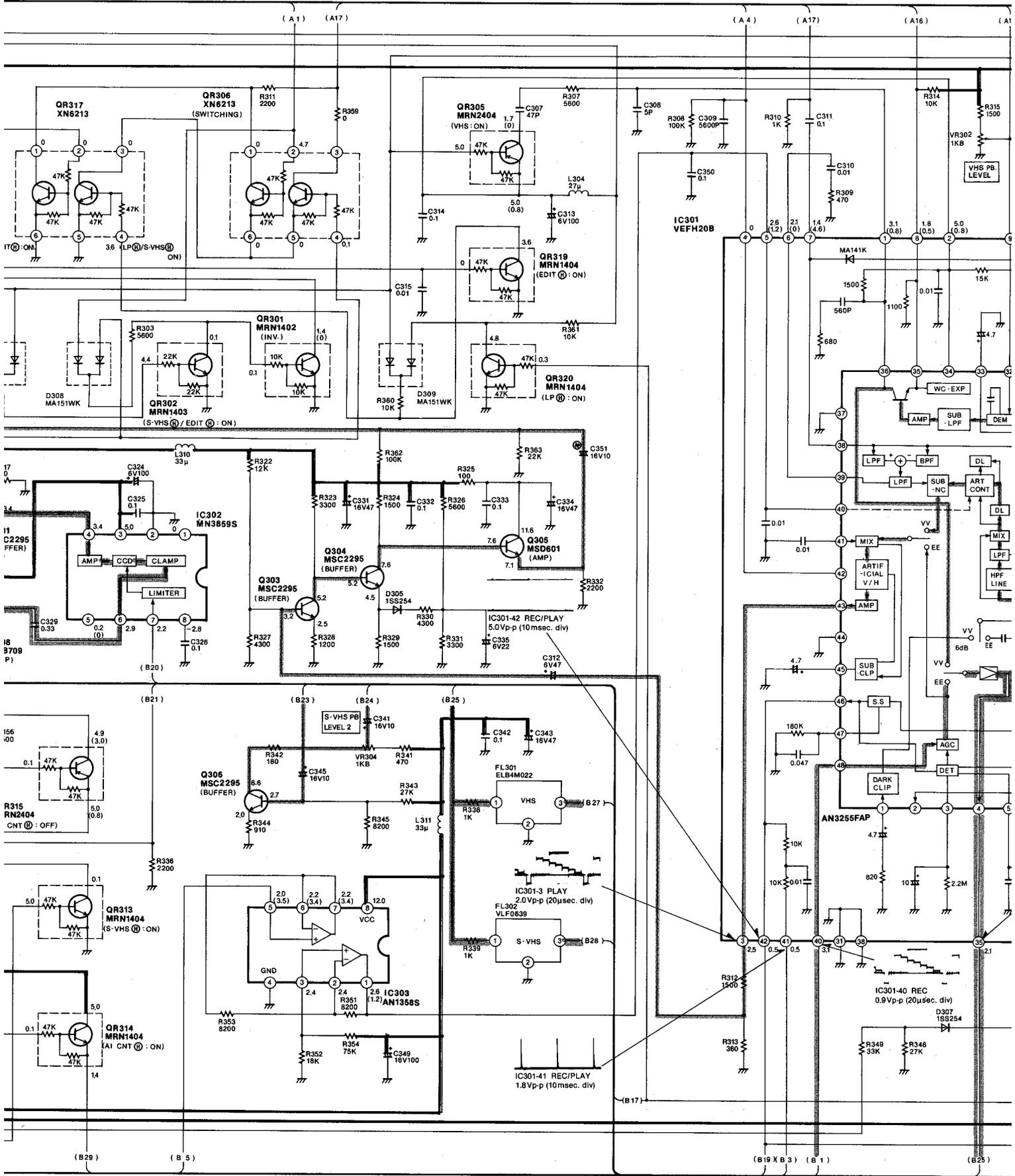


4-7. CAPSTAN DRIVE PACK SCHEMATIC DIAGRAM



4-9. LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM





6

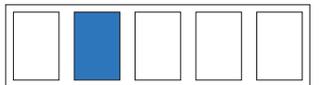
7

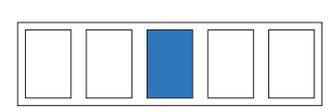
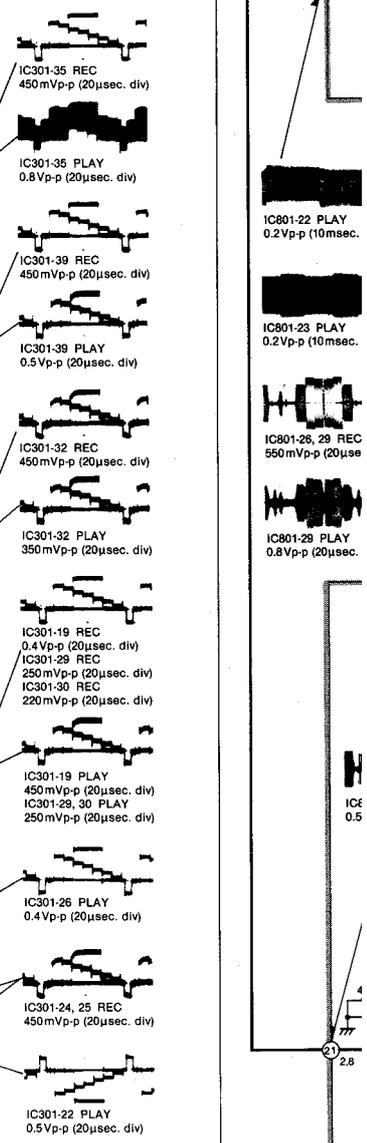
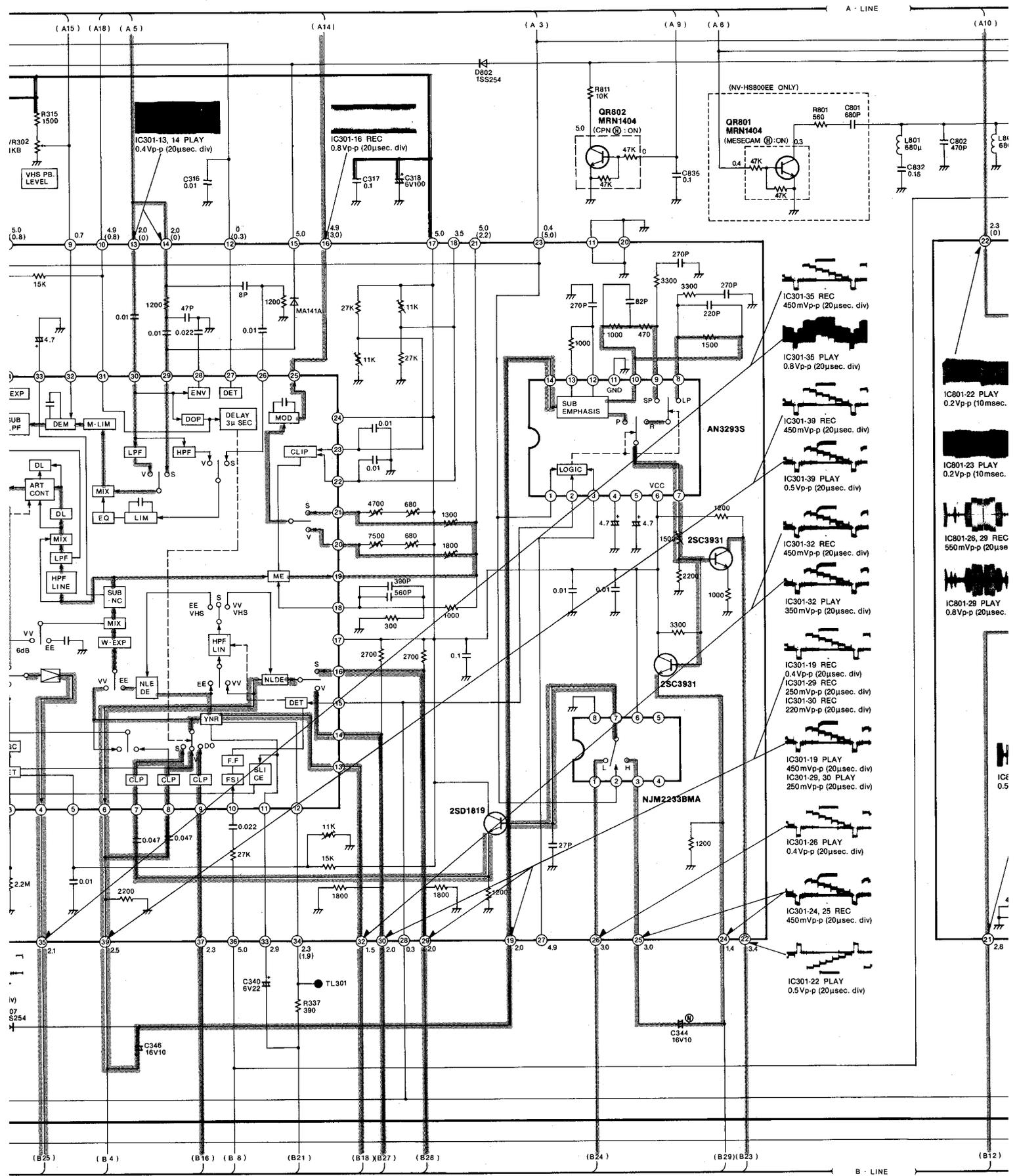
8

9

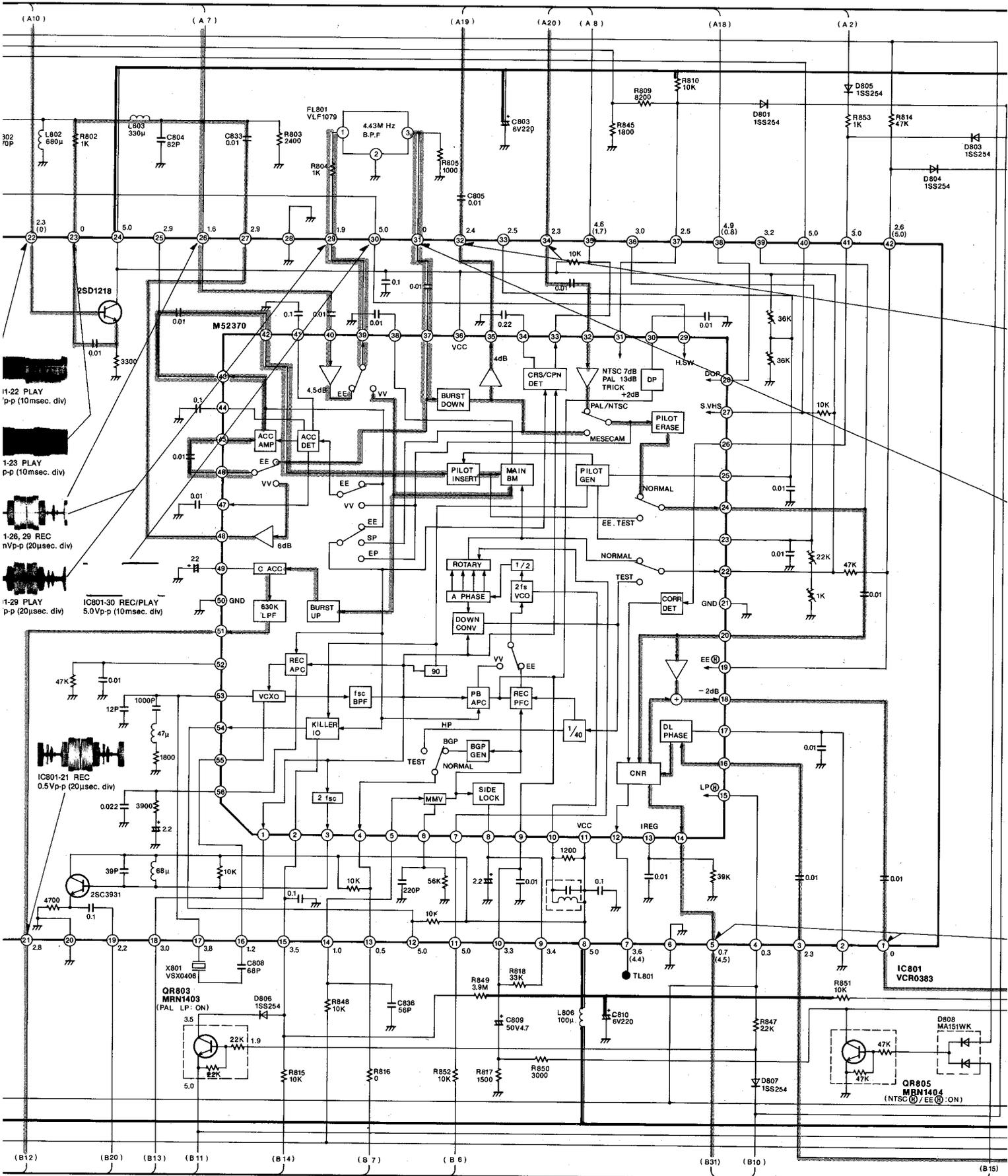
10

11

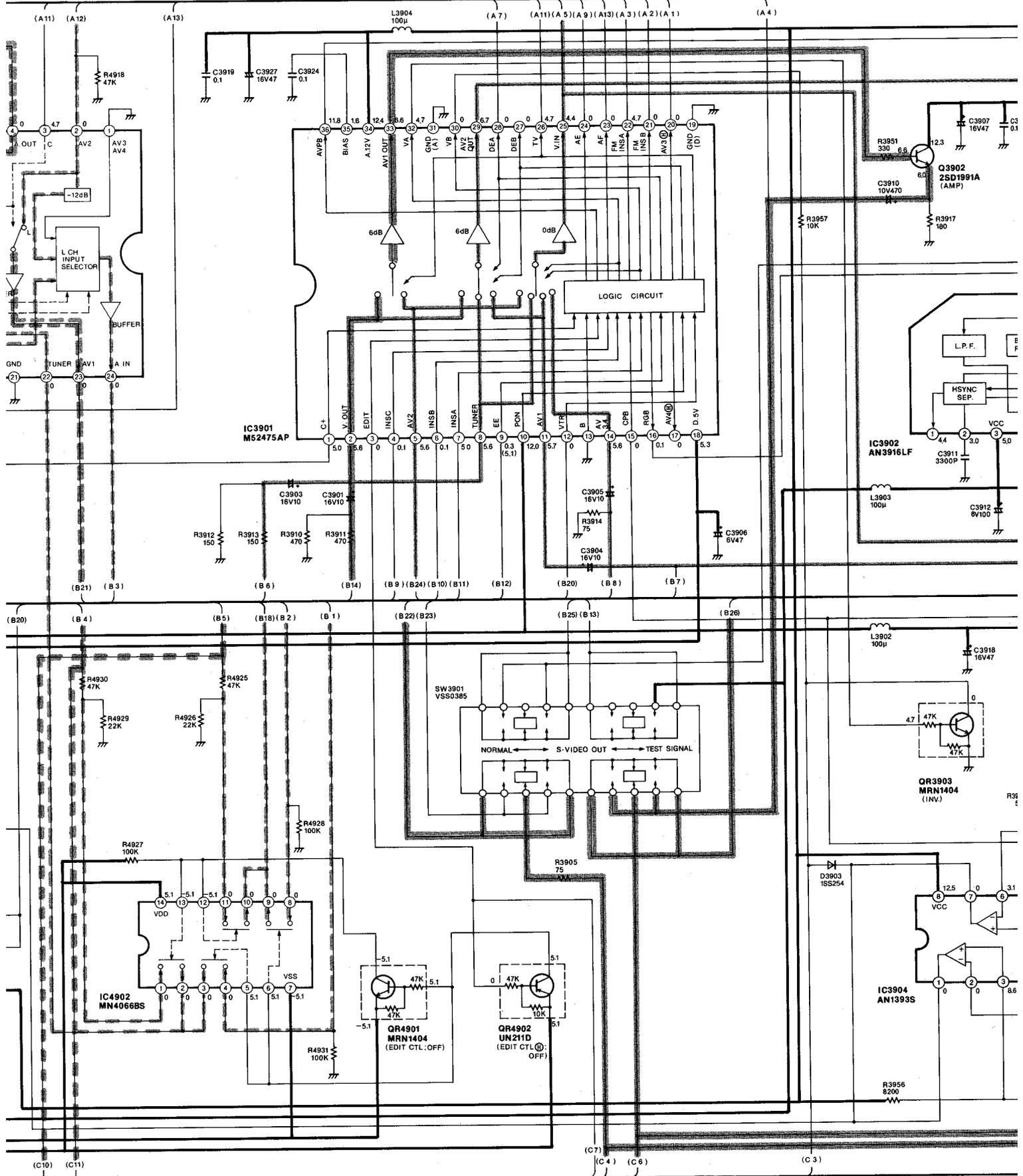




MAIN SIGNAL PATH IN REC



VIDEO MAIN SIGNAL PAT
VIDEO MAIN SIGNAL PAT



NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS () ON THIS DIAGRAM IS RECORDED WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

6

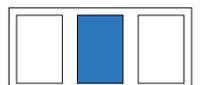
7

8

9

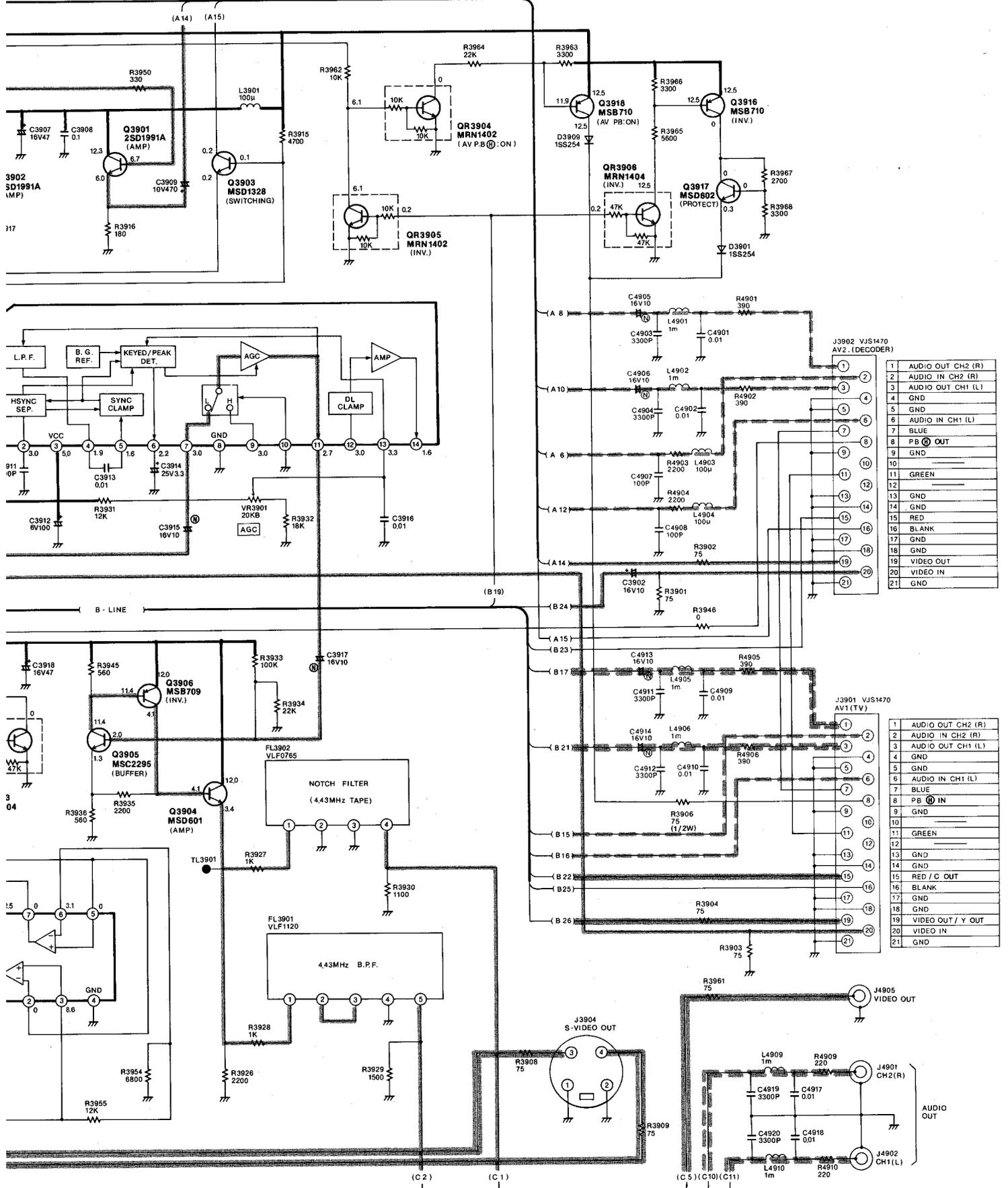
10

11



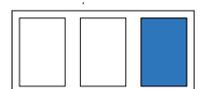
AL PATH IN REC MODE
AL PATH IN PLAYBACK MODE

AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

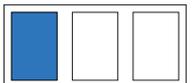
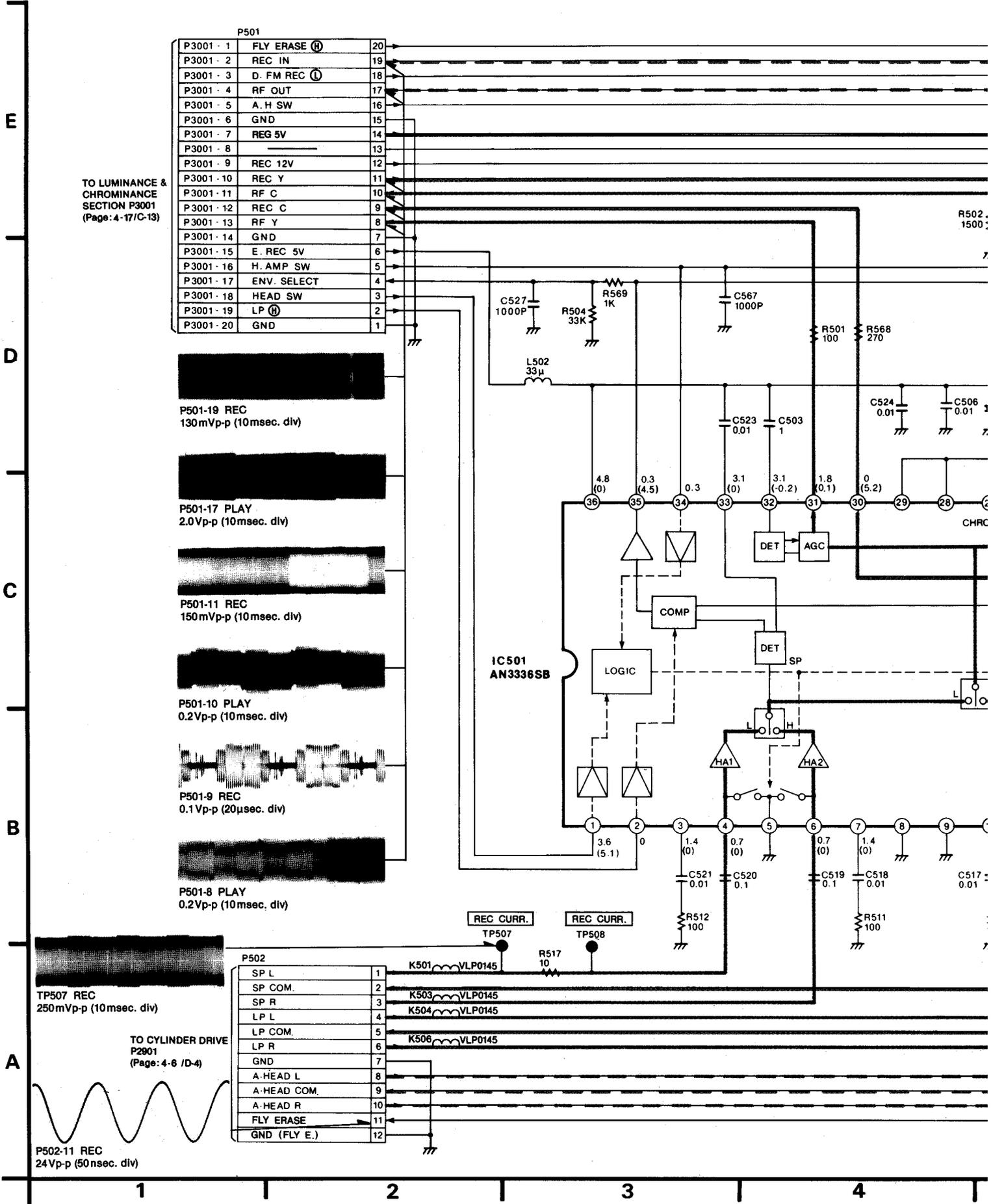


RAM IS RECORD MODE THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)

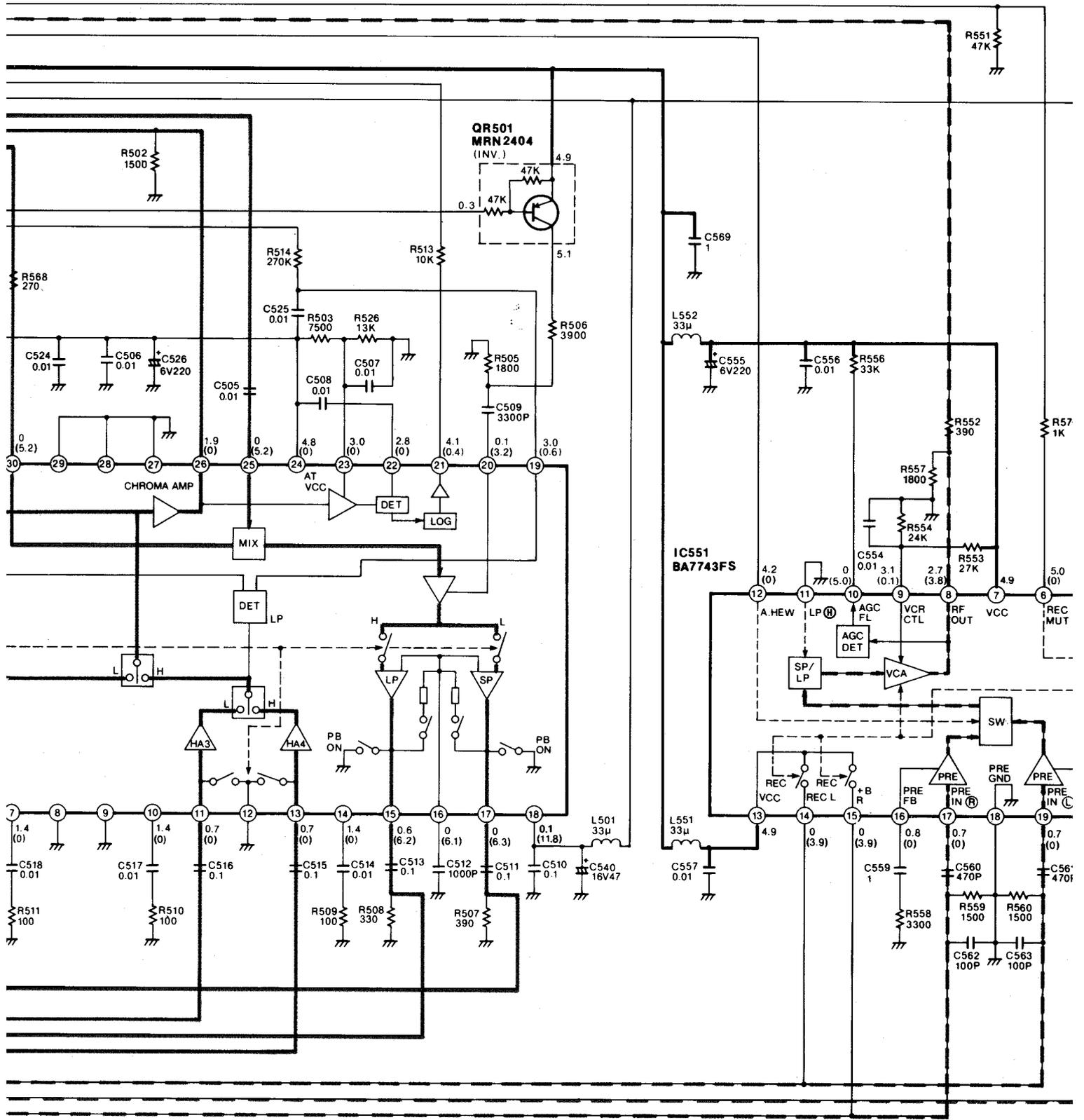
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



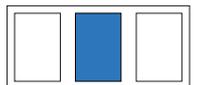
4-16. HEAD AMP SCHEMATIC DIAGRAM



—— VIDEO MAIN SIGNAL PATH IN
 —— VIDEO MAIN SIGNAL PATH IN

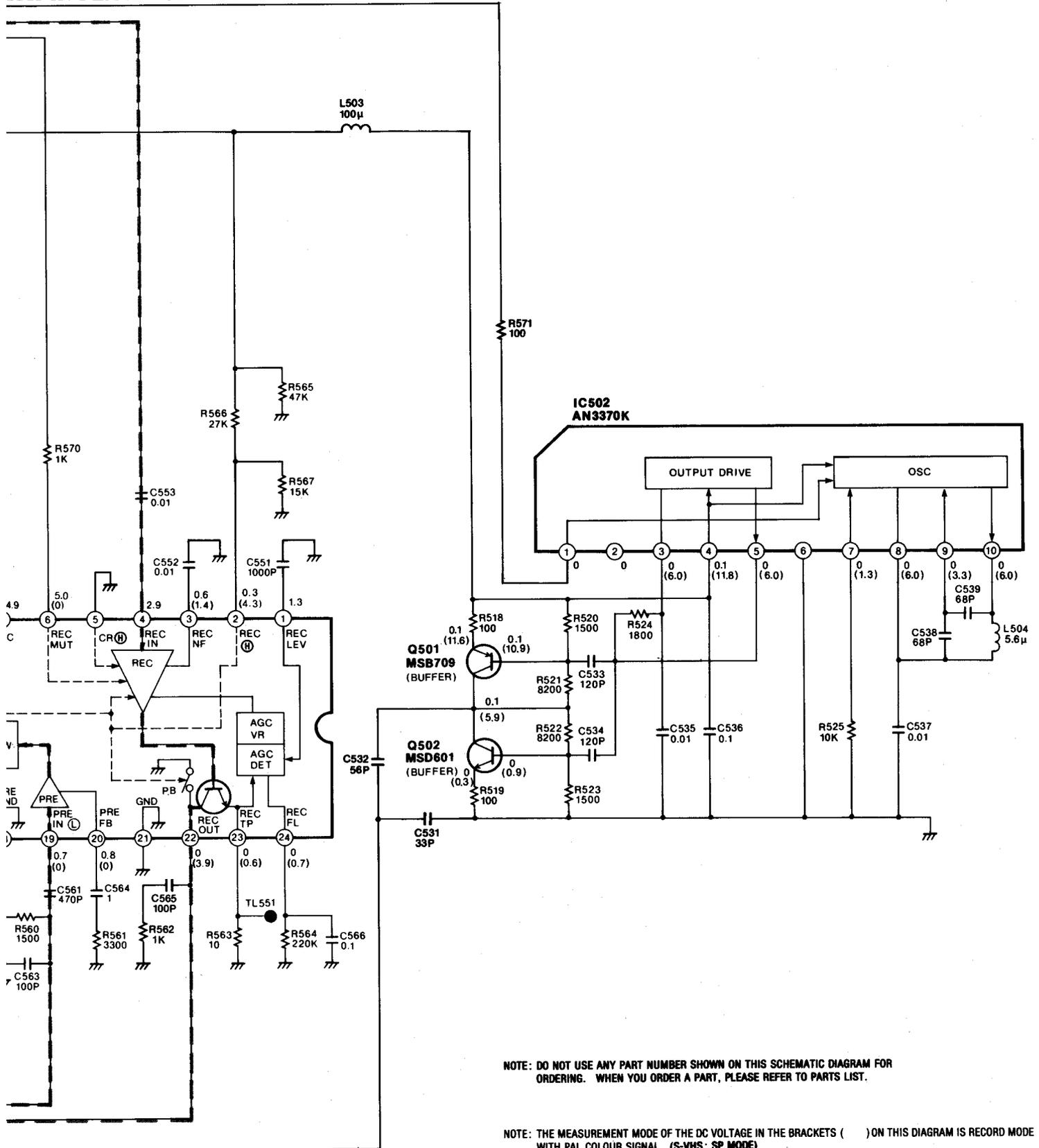


4 | 5 | 6 | 7 | 8



ATH IN REC MODE
 ATH IN PLAYBACK MODE

--- Hi-Fi AUDIO MAIN SIGNAL PATH IN REC MODE
 --- Hi-Fi AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

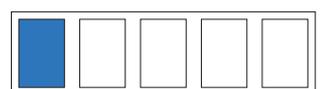
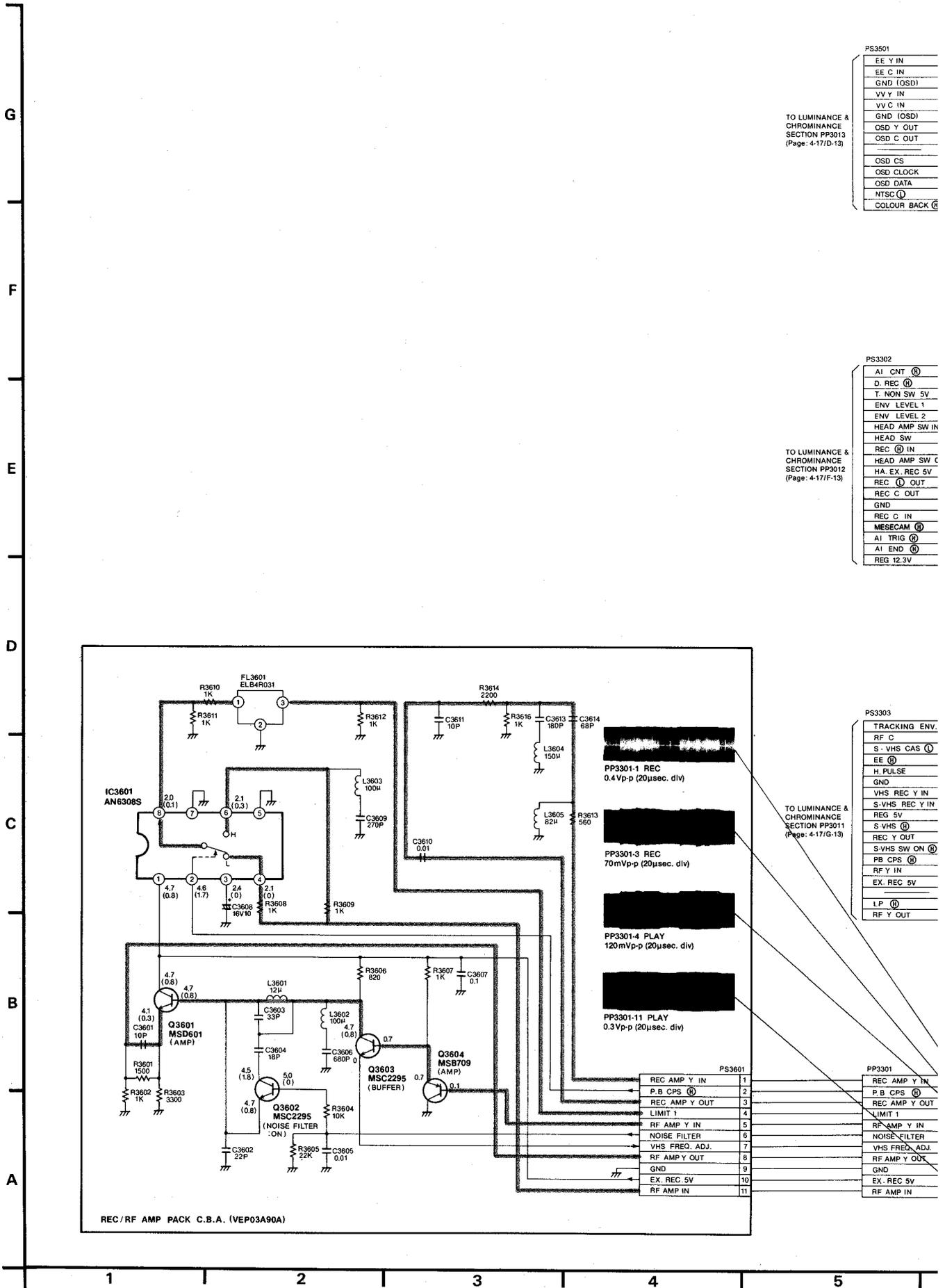


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS () ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)
 THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL. (S-VHS: SP MODE)



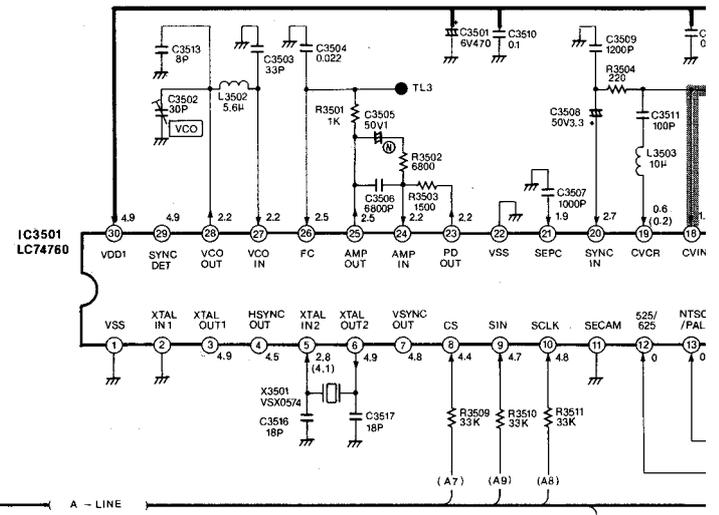
4-18. SUB LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAG



EMATIC DIAGRAM

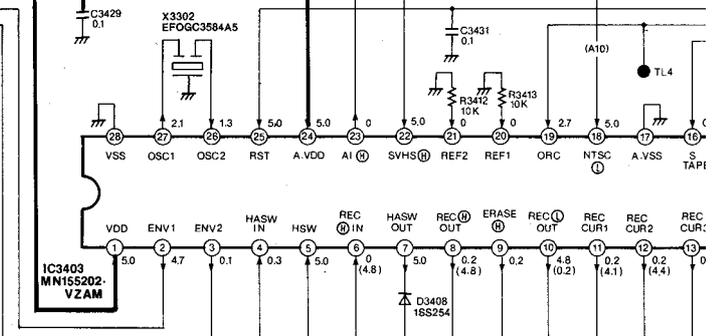
TO LUMINANCE & CHROMINANCE SECTION PP3013 (Page: 4-17/D-13)

PS3501	Pin	Value	Label
EE Y IN	1		A 1
EE C IN	2	1.6	A 2
GND (OSD)	3	77 4.5	A 3
VV Y IN	4	4.5	A 4
VV C IN	5		A 4
GND (OSD)	6	77 2.3	A 5
OSD Y OUT	7	6	A 6
OSD C OUT	8		A 6
	9	0	
OSD CS	10	4.3	(A 7)
OSD CLOCK	11	4.6	(A 8)
OSD DATA	12	4.5	(A 9)
NTSC	13	5.0	(A 10)
COLOUR BACK	14	0	(A 11)



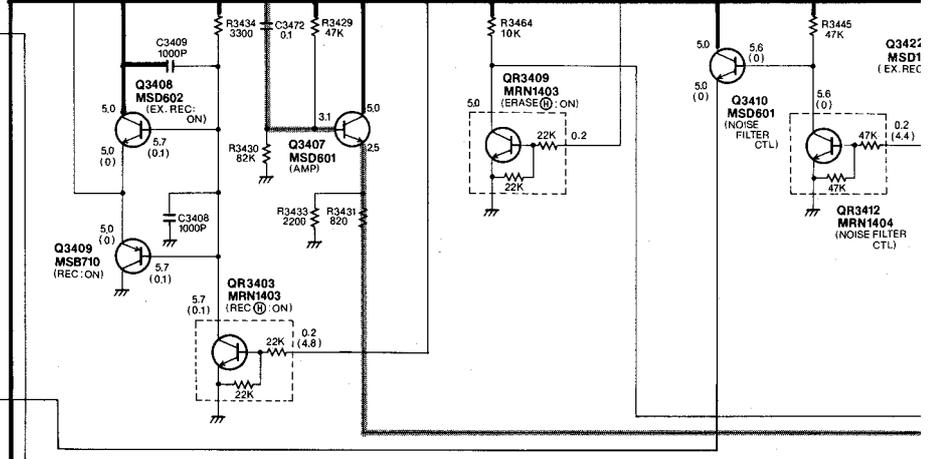
TO LUMINANCE & CHROMINANCE SECTION PP3012 (Page: 4-17/F-13)

PS3302	Pin	Value	Label
A1 CNT	1	0.1(5.0)	(B 1)
D. REC	2	5.0	
T. NON SW 5V	3	4.7	
ENV LEVEL 1	4	0.1	
ENV LEVEL 2	5	0.3	
HEAD AMP SW IN	6	5.0	
HEAD SW	7	0(4.8)	
REC IN	8	0.3	
HEAD AMP SW OUT	9	5.0(0)	
HA. EX. REC 5V	10	4.8(0.2)	
REC OUT	11	0(5.1)	(B 2)
REC C OUT	12		
GND	13		
REC C IN	14	77 0.5	
MESECAM	15	0.4	(B 3)
A1 TRIG	16	5.0	
A1 END	17	0	
REG 12.3V	18	12.0	



TO LUMINANCE & CHROMINANCE SECTION PP3011 (Page: 4-17/G-13)

PS3303	Pin	Value	Label
TRACKING ENV.	1	2.0 (0.5)	(B 4)
RF C	2	2.4(0)	(B 5)
S-VHS CAS	3	0.1	
EE	4	0.4(5.0)	(B 7)
H. PULSE	5	0.5	(B 8)
GND	6	77 2.7(1.6)	
VHS REC Y IN	7	0.7	(B 9)
S-VHS REC Y IN	8	5.0	(B 10)
REG 5V	9	5.0	
S-VHS	10	4.3(1.2)	(B 11)
REC Y OUT	11	4.9	(B 12)
S-VHS SW ON	12	4.6(1.7)	(B 12)
PB CPS	13	4.4(0.2)	(B 13)
RF Y IN	14	5.0(0)	(B 13)
EX. REC 5V	15	0.3	(B 14)
LP	16	2.0(0)	(B 14)
RF Y OUT	17		(B 15)
	18		



PP3301	Pin	Value	Label
REC AMP Y IN	1	1.4 (1.0)	B16
P.B CPS	2	4.6 (1.7)	B17
REC AMP Y OUT	3	0.8 (2.5)	B17
LIMIT 1	4	1.0 (0)	B18
RF AMP Y IN	5	0.1	B19
NOISE FILTER	6	5.0 (0)	
VHS FREQ. ADJ.	7	0	(B 21)
RF AMP Y OUT	8	1.6(0.1)	(B 22)
GND	9		
EX. REC 5V	10	4.8(0.8)	
RF AMP IN	11	2.1(0)	(B 23)

5

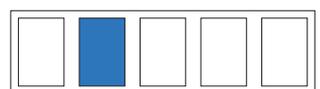
6

7

8

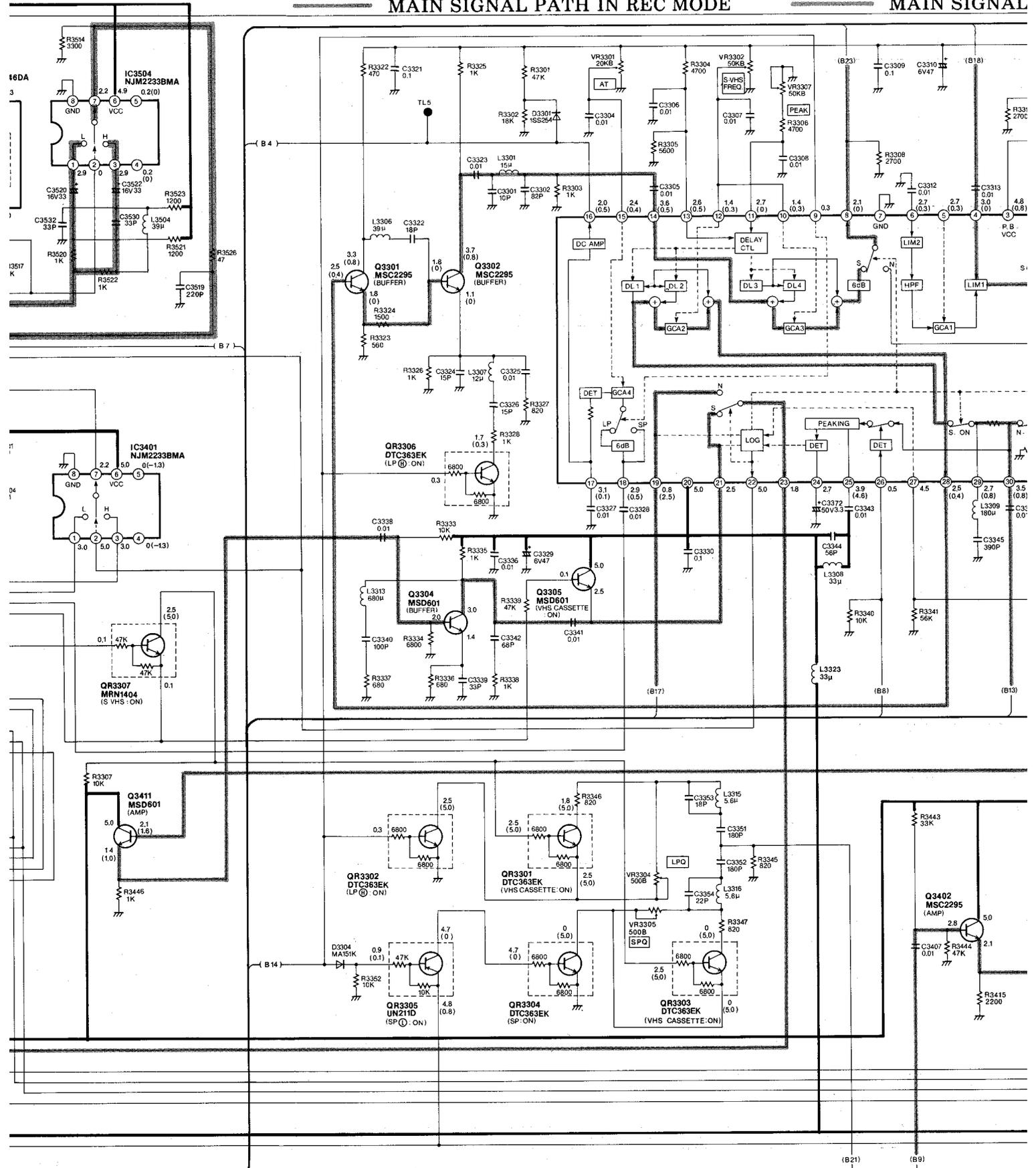
9

10



MAIN SIGNAL PATH IN REC MODE

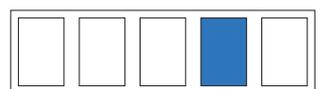
MAIN SIGNAL



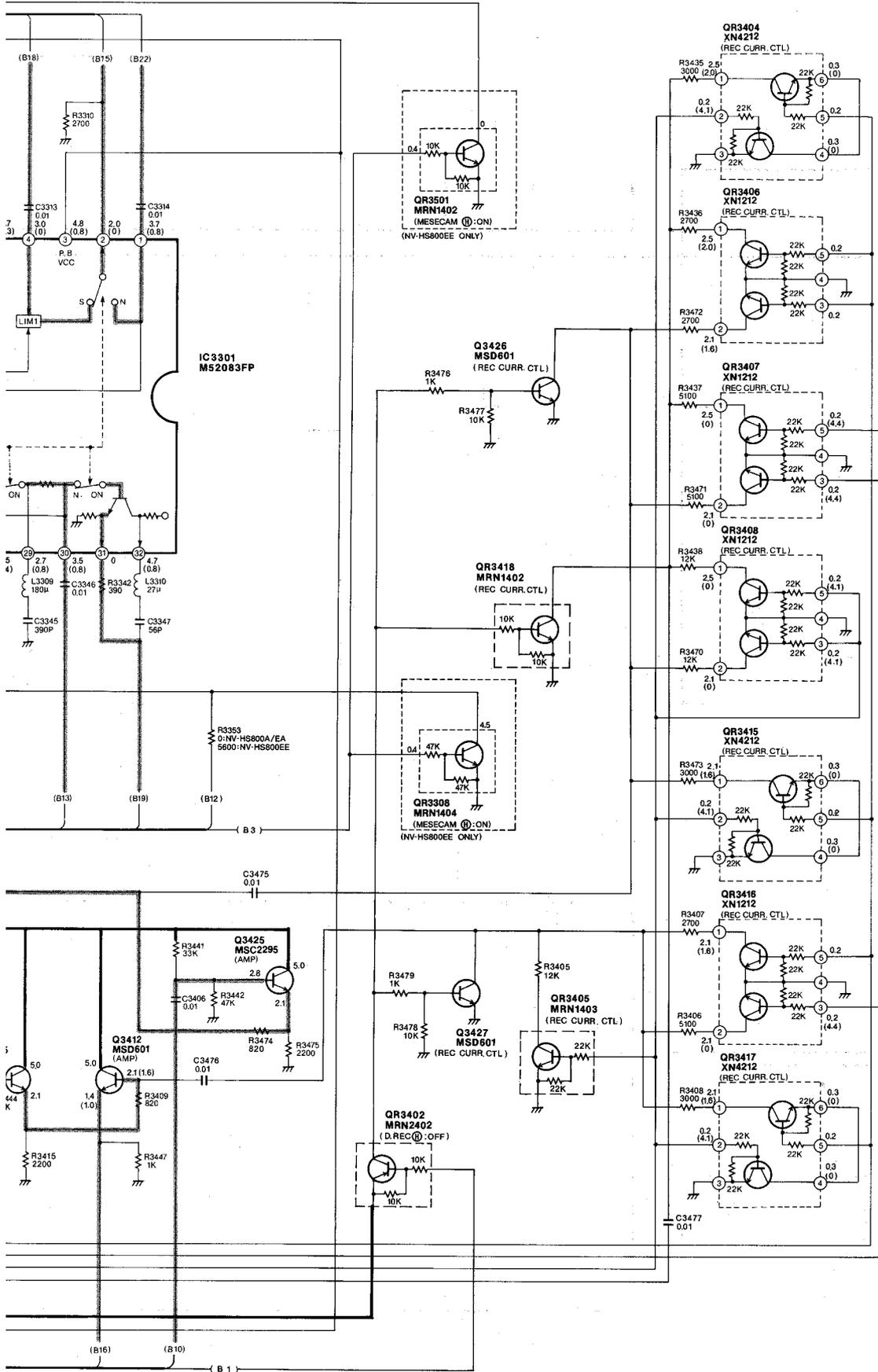
3 - LINE
 MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS () ON THIS DIAGRAM IS RECORD MODE
 AL COLOUR SIGNAL. (S-VHS : SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MO
 WITH PAL COLOUR SIGNAL. (S-VHS : SP MODE)

16 | 17 | 18 | 19 | 20 | 21

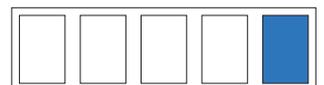


SIGNAL PATH IN PLAYBACK MODE

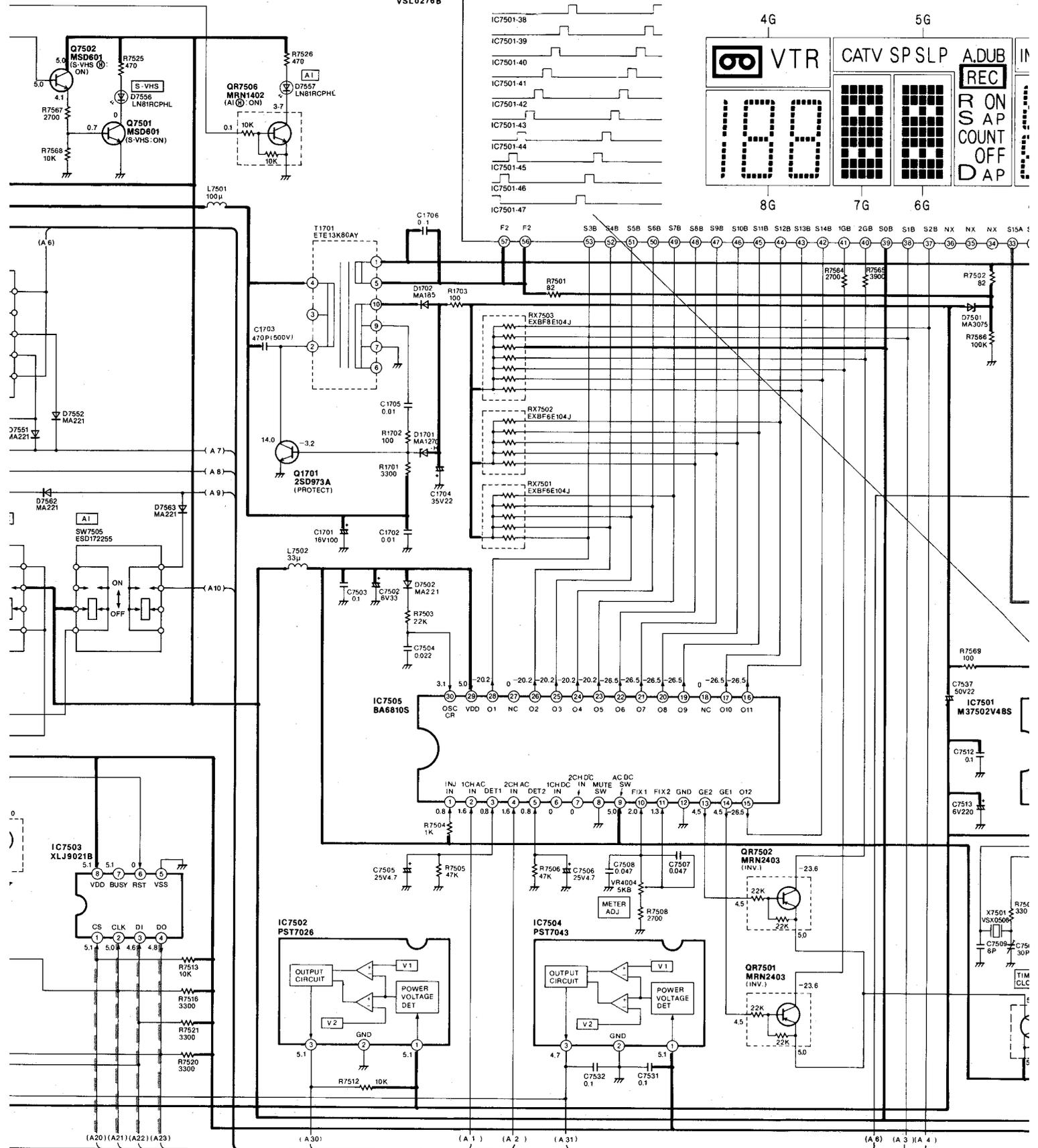


PLAYBACK MODE

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



DP7501
VSL0276B



6

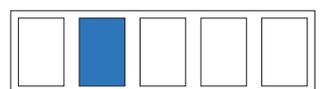
7

8

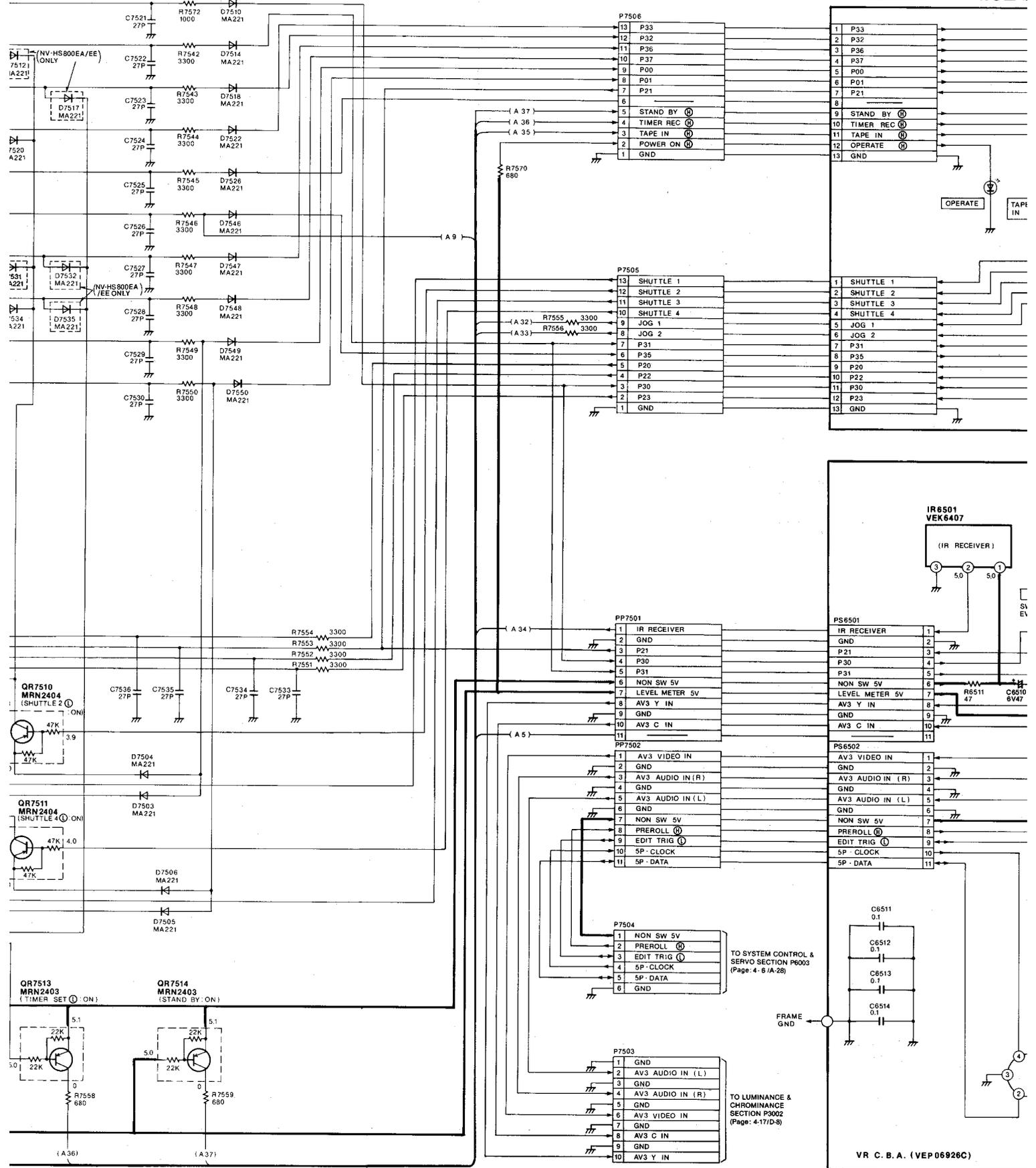
9

10

11



SEGMENT CONTROL S



NOTE: THE MEASUREMENT MODE OF THE DC

17

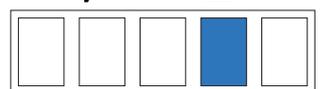
18

19

20

21

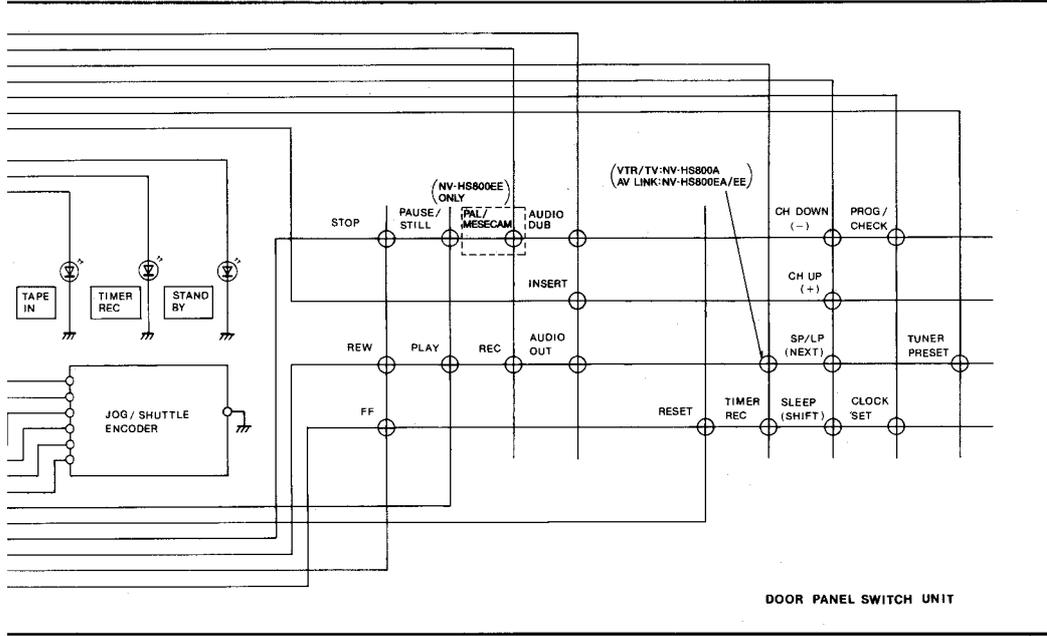
22



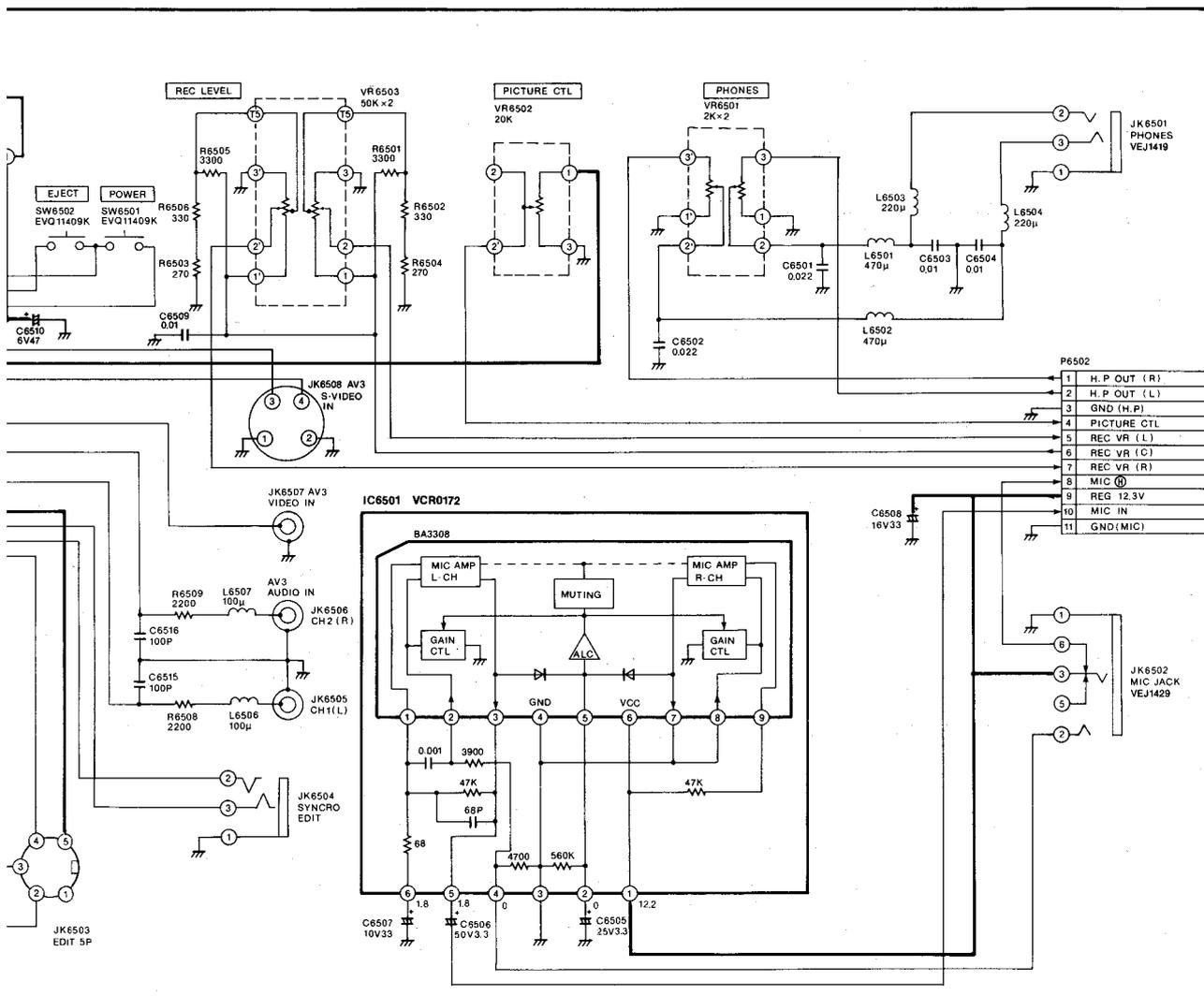
L SIGNAL

GRID CONTROL SIGNAL

TUNE CONTROL SIGNAL



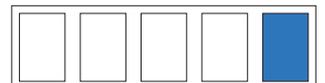
DOOR PANEL SWITCH UNIT



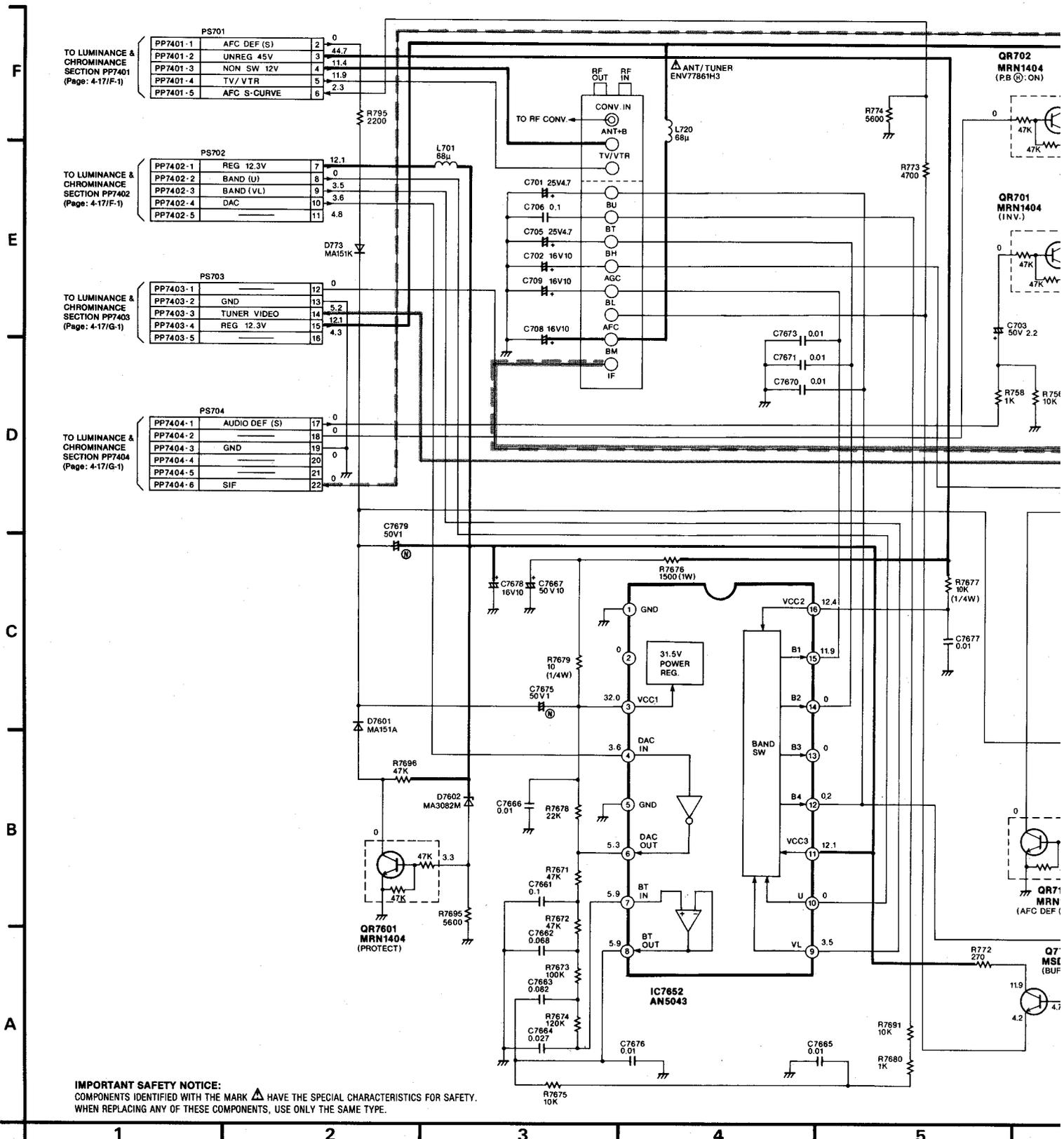
TO AUDIO SECTION P4002 (Page 4-141F-2)

THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE. (S-VHS: SP MODE)

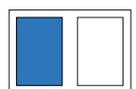
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



4-21. TV DEMODULATOR PACK SCHEMATIC DIAGRAM (NV-HS800A)

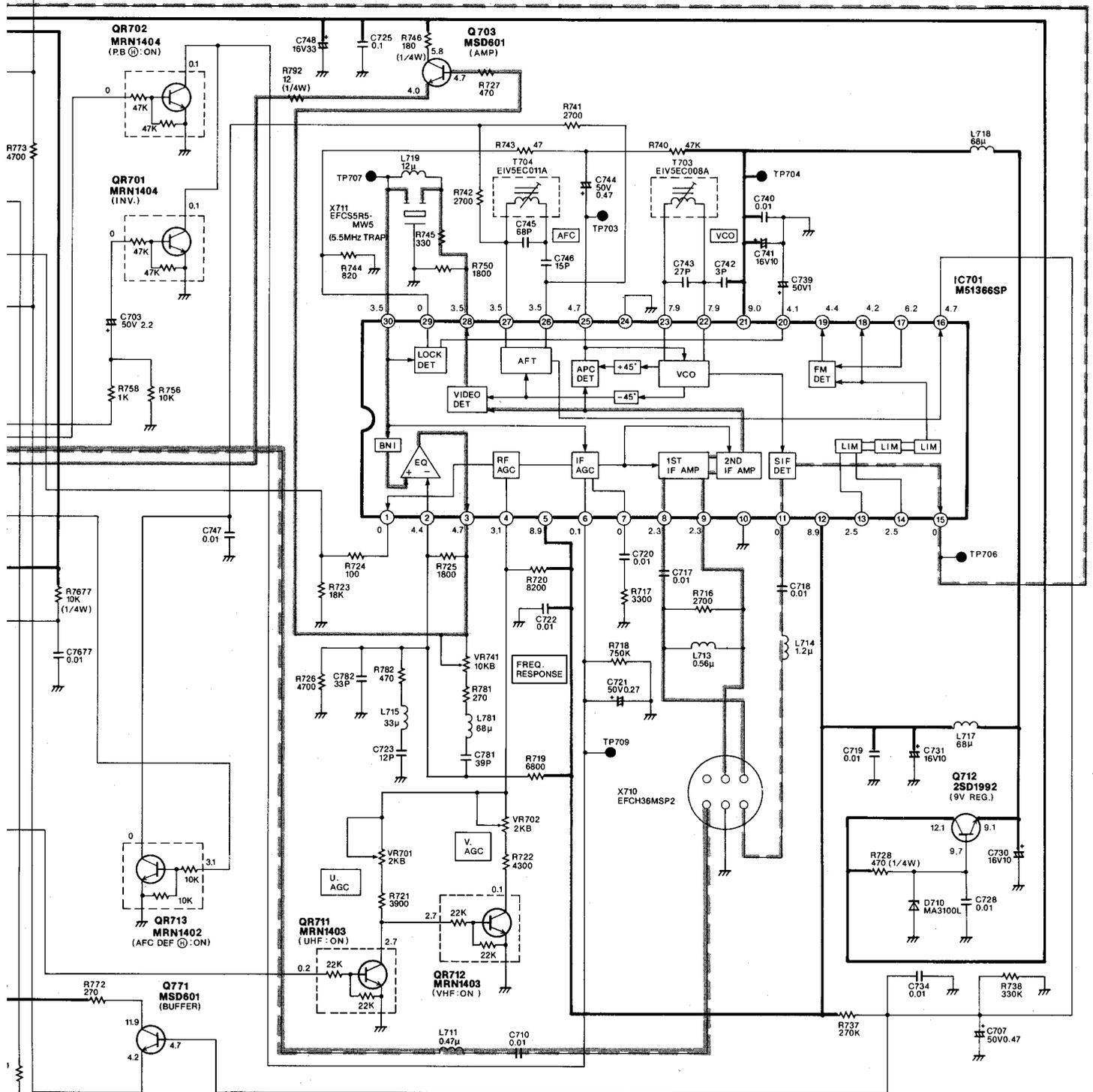


IMPORTANT SAFETY NOTICE:
 COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
 WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



VIDEO SIGNAL PATH

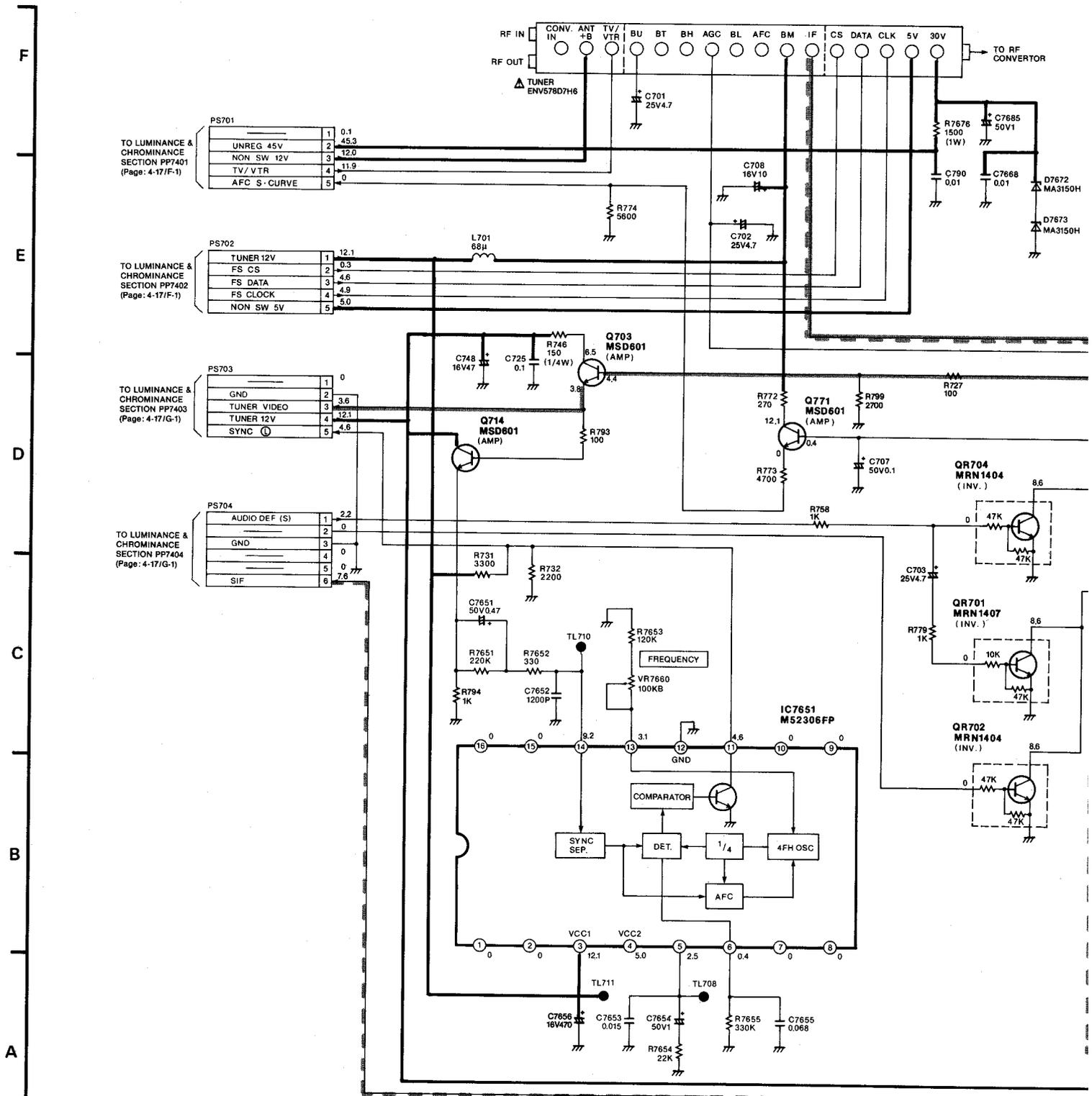
AUDIO SIGNAL PATH



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



4-23. TV DEMODULATOR PACK SCHEMATIC DIAGRAM (NV-HS800EA)



TO LUMINANCE & CHROMINANCE SECTION PP7401 (Page: 4-17/F-1)

PS701	1	0.1
UNREG 45V	2	45.3
NON SW 12V	3	12.0
TV/VTR	4	11.9
AFC S-CURVE	5	0

TO LUMINANCE & CHROMINANCE SECTION PP7402 (Page: 4-17/F-1)

PS702	1	12.1
TUNER 12V	2	0.3
FS CS	3	4.6
FS DATA	4	4.9
FS CLOCK	5	5.0
NON SW 5V	6	0

TO LUMINANCE & CHROMINANCE SECTION PP7403 (Page: 4-17/G-1)

PS703	1	0
GND	2	3.6
TUNER VIDEO	3	12.1
TUNER 12V	4	4.6
SYNC	5	0

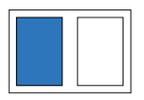
TO LUMINANCE & CHROMINANCE SECTION PP7404 (Page: 4-17/G-1)

PS704	1	2.2
AUDIO DEF (S)	2	0
GND	3	0
SIF	4	0
SIF	5	7.6

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

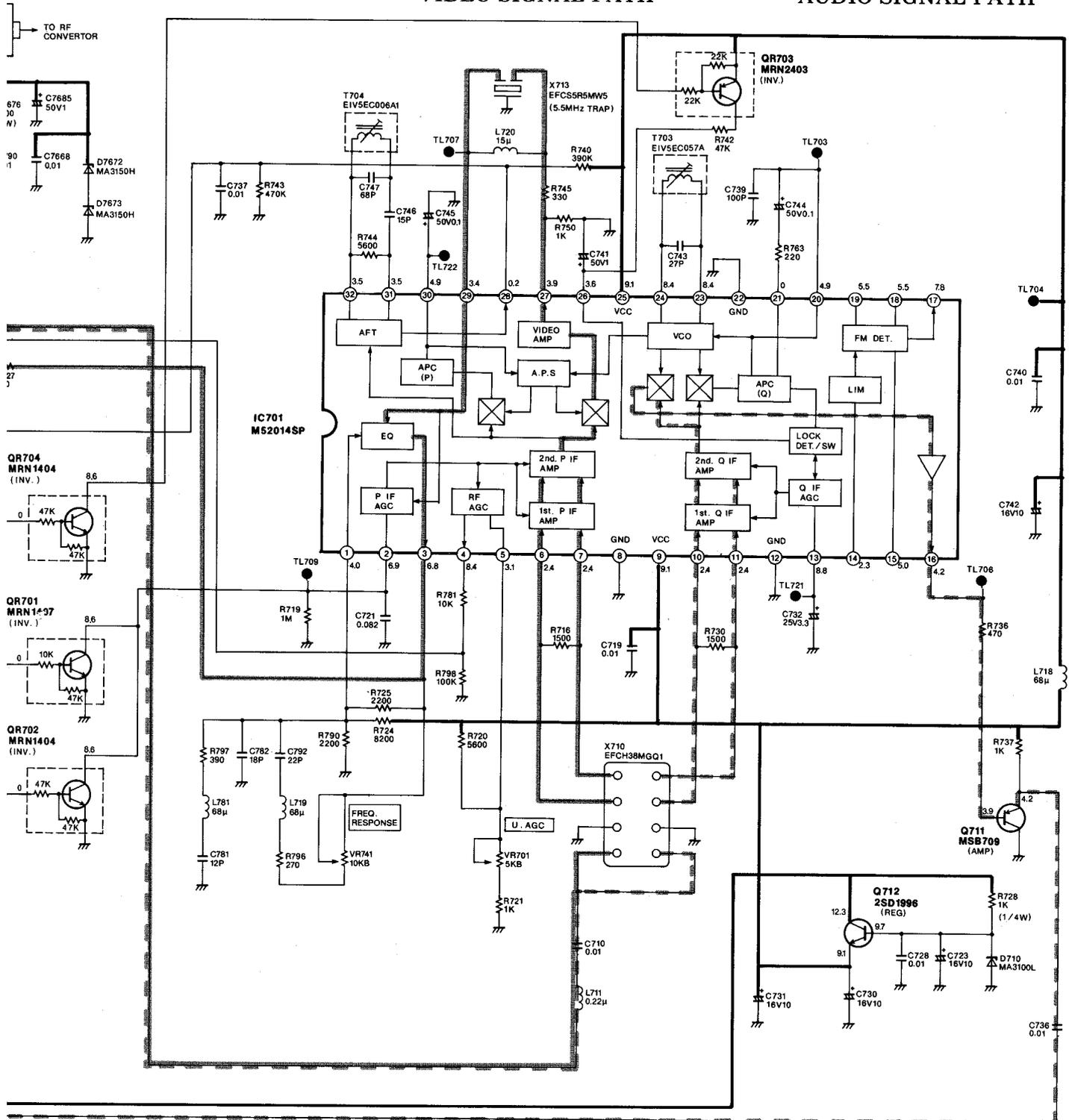
NOTE: THE MEASUREMENT MO

1 | 2 | 3 | 4 | 5



VIDEO SIGNAL PATH

AUDIO SIGNAL PATH



NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

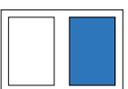
6

7

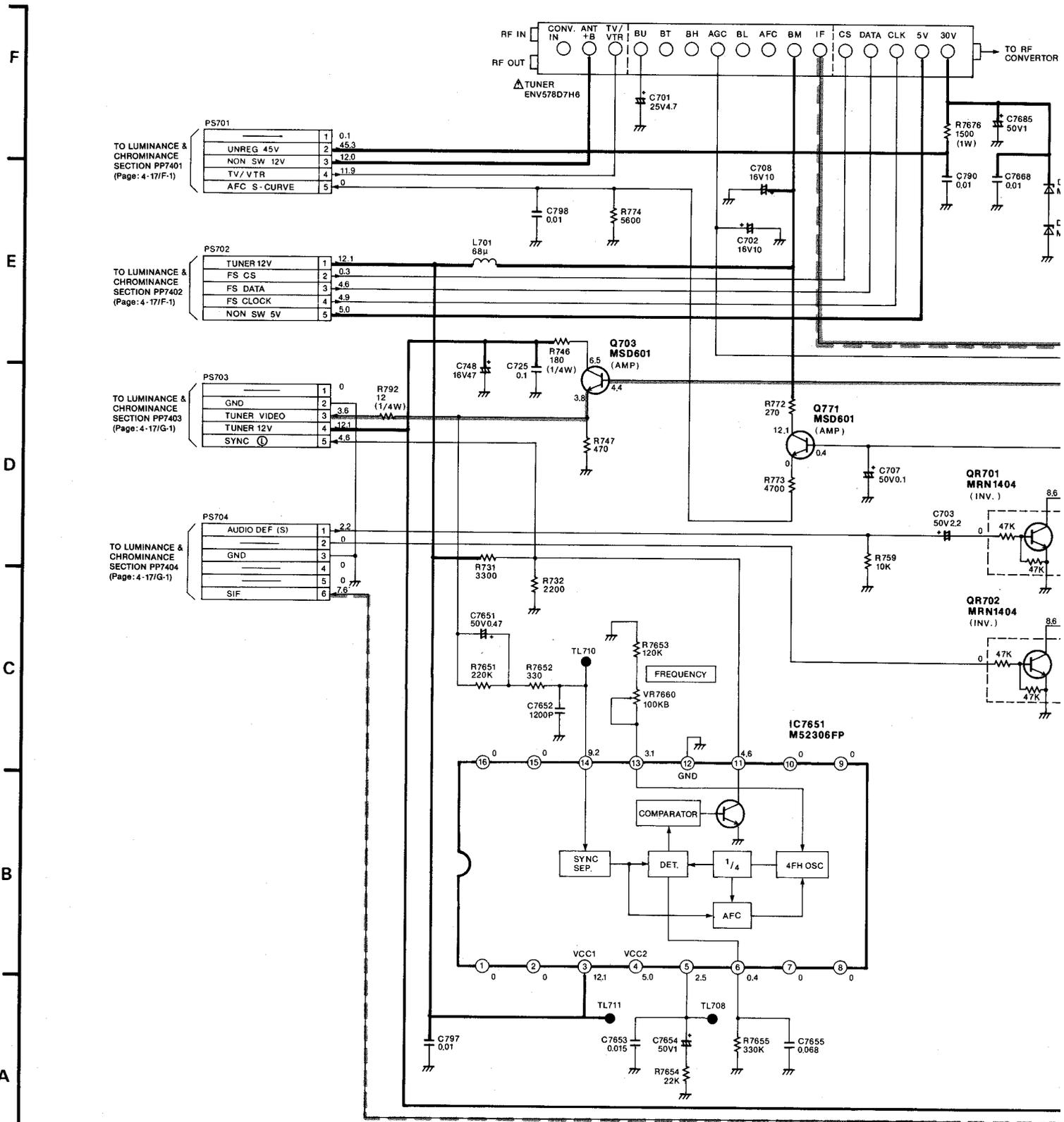
8

9

10

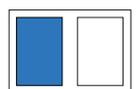


4-25. TV DEMODULATOR PACK SCHEMATIC DIAGRAM (NV-HS800EE)



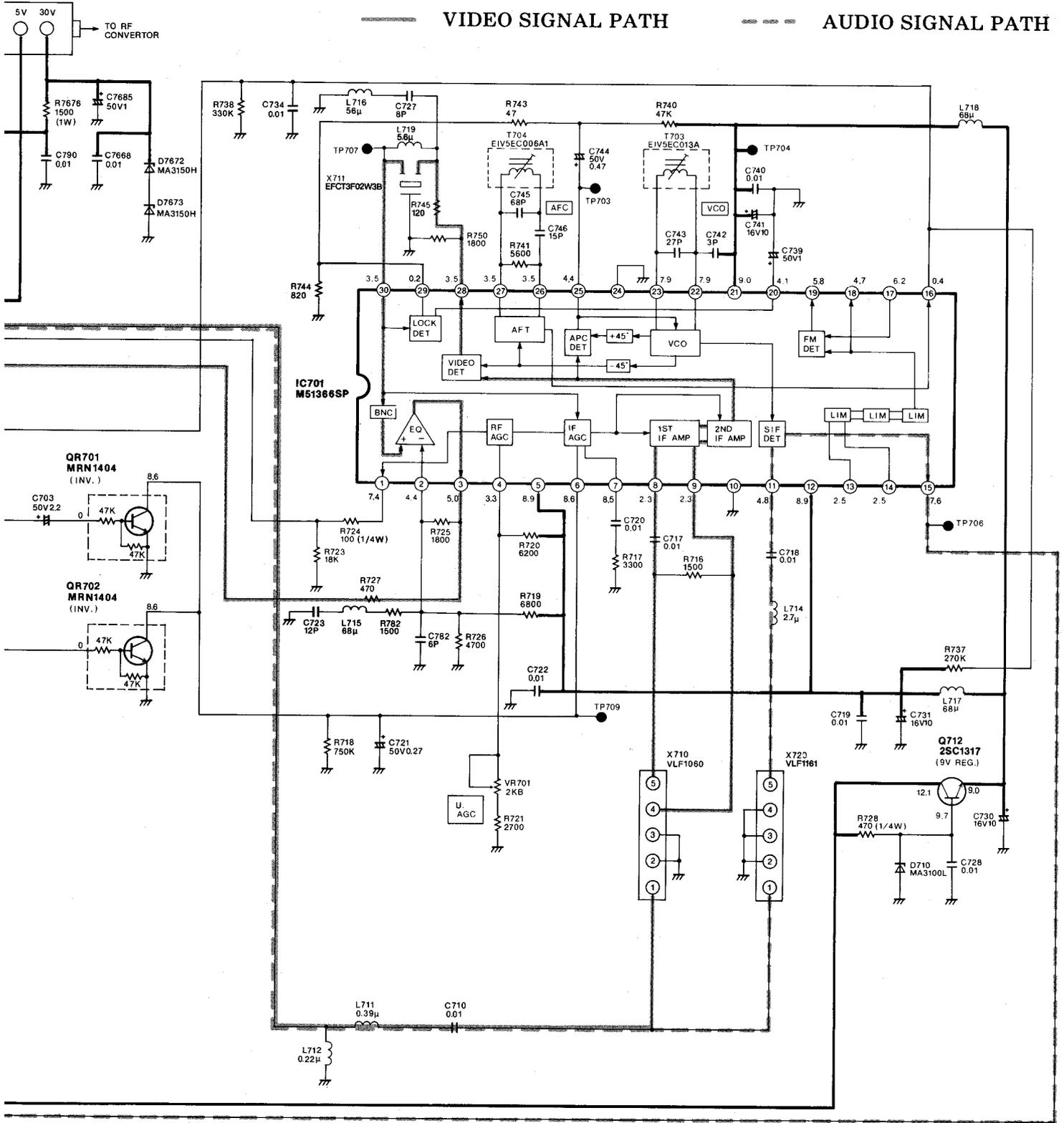
IMPORTANT SAFETY NOTICE:
 COMPONENTS IDENTIFIED WITH THE MARK Δ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
 WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NC



VIDEO SIGNAL PATH

AUDIO SIGNAL PATH



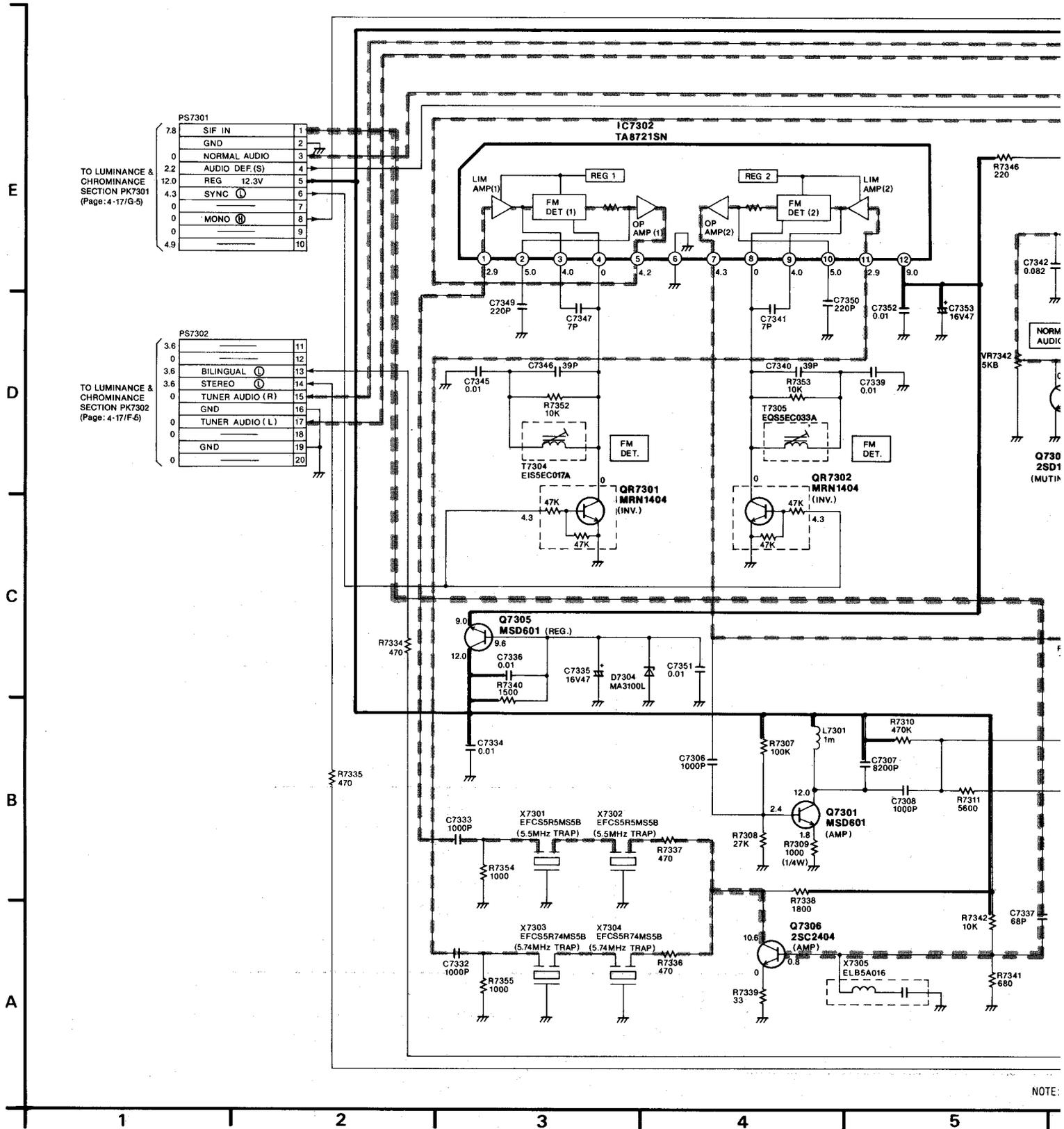
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

5 | 6 | 7 | 8 | 9 | 10



4-27. DECODER PACK SCHEMATIC DIAGRAM (NV-HS800A/EA)



PS7301

7.8	SIF IN	1
0	GND	2
0	NORMAL AUDIO	3
2.2	AUDIO DEF.(S)	4
12.0	REG 12.3V	5
4.3	SYNC	6
0		7
0	MONO	8
0		9
4.9		10

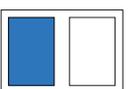
TO LUMINANCE & CHROMINANCE SECTION PK7301 (Page: 4-17/G-5)

PS7302

3.6		11
0		12
3.6	BILINGUAL	13
3.6	STEREO	14
0	TUNER AUDIO (R)	15
0	GND	16
0	TUNER AUDIO (L)	17
0		18
0		19
0		20

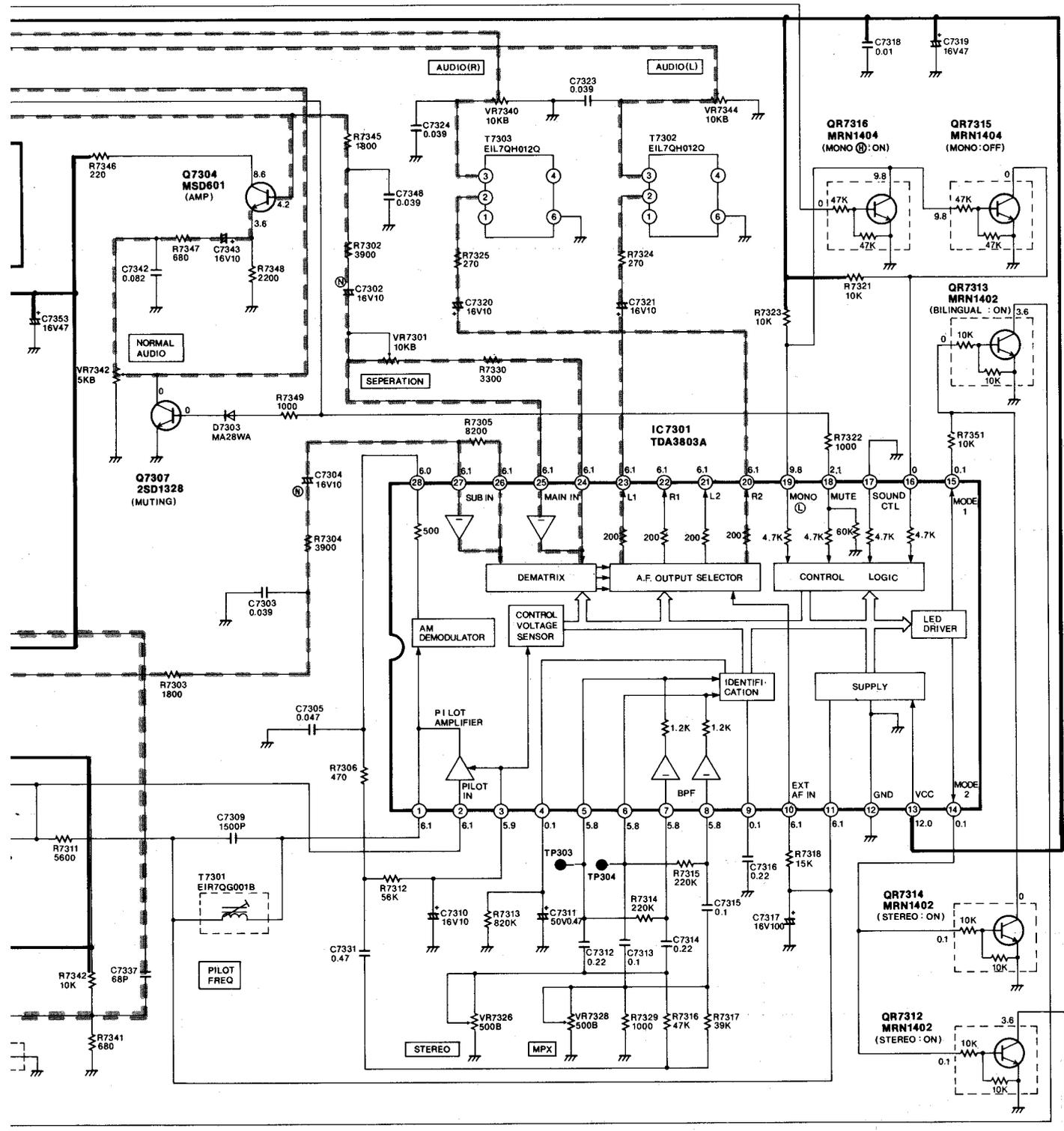
TO LUMINANCE & CHROMINANCE SECTION PK7302 (Page: 4-17/F-5)

NOTE:



AUDIO MAIN SIGNAL PATH

AUDIO SUB SIGNAL PATH



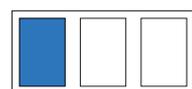
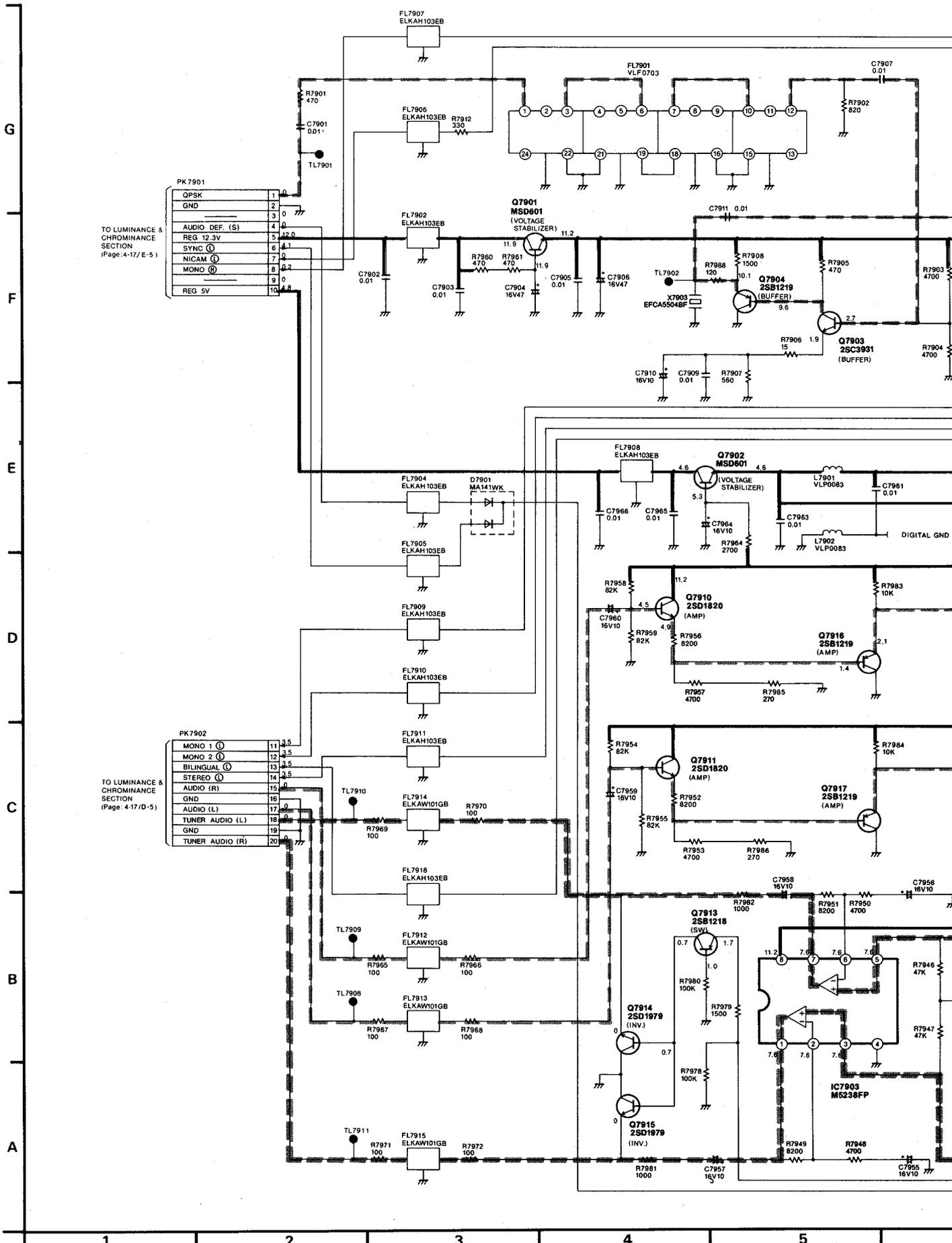
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

5 | 6 | 7 | 8 | 9 | 10

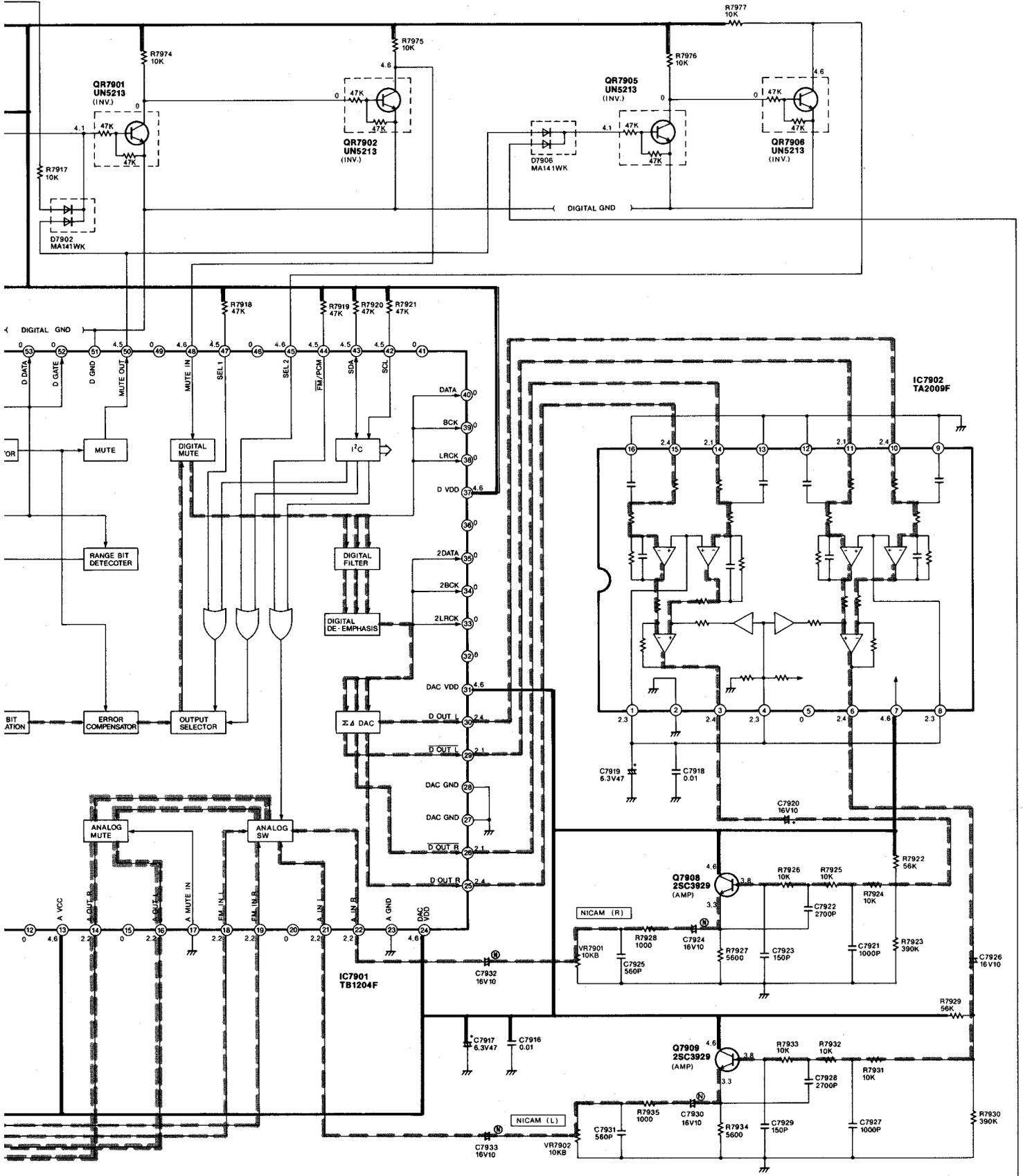


4-29. NICAM DECODER PACK SCHEMATIC DIAGRAM (NV-HS800EA)



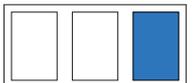
NORMAL AUDIO SIGNAL PATH

NICAM AUDIO SIGNAL PATH

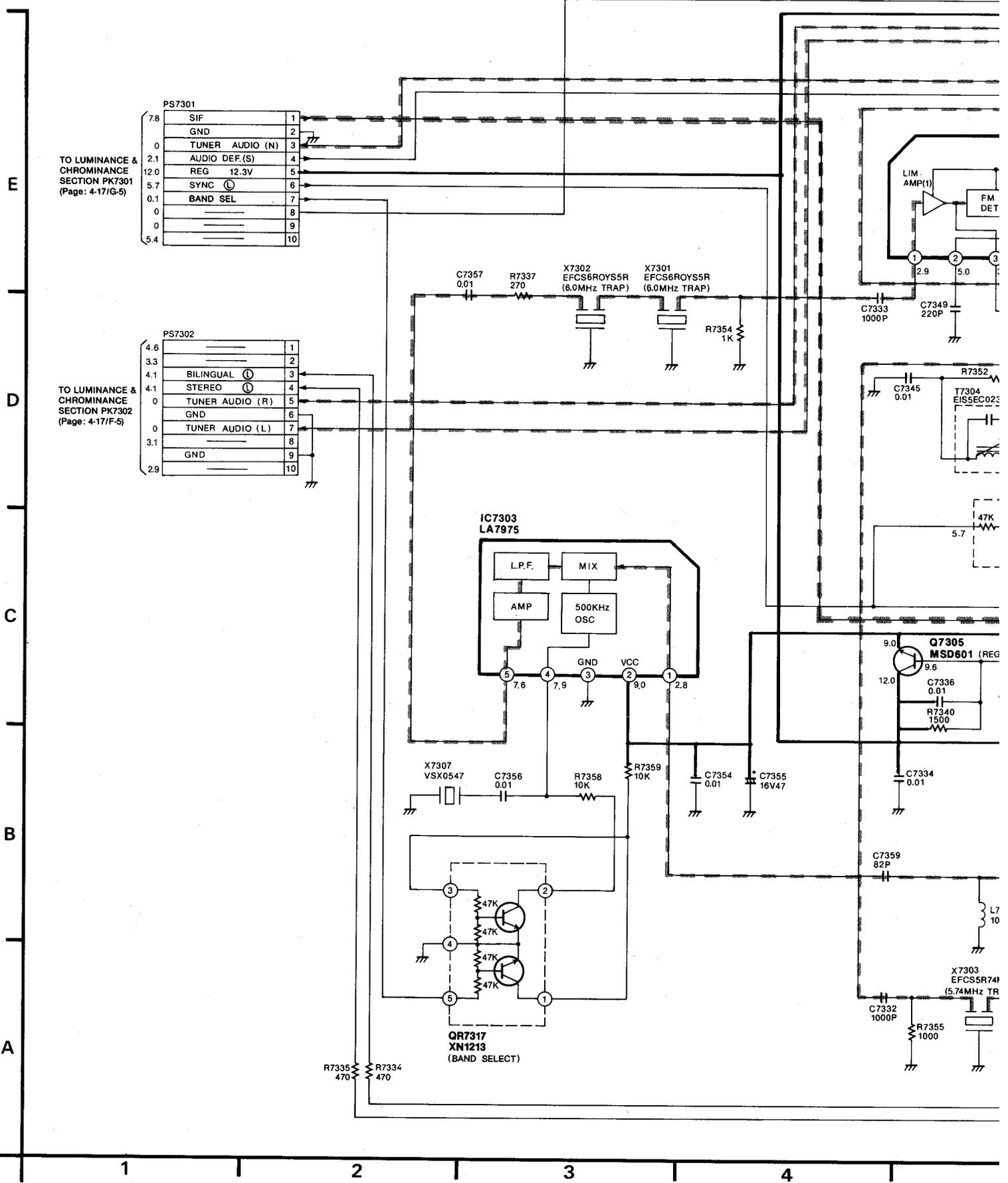


NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



4-31. DECODER PACK SCHEMATIC DIAGRAM (NV-HS800EE)

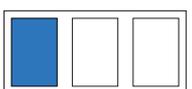


TO LUMINANCE & CHROMINANCE SECTION PK7301 (Page: 4-17/G-5)

7.8	SIF	1
0	GND	2
0	TUNER AUDIO (N)	3
2.1	AUDIO DEF.(S)	4
12.0	REG 12.3V	5
5.7	SYNC	6
0.1	BAND SEL	7
0		8
0		9
5.4		10

TO LUMINANCE & CHROMINANCE SECTION PK7302 (Page: 4-17/F-5)

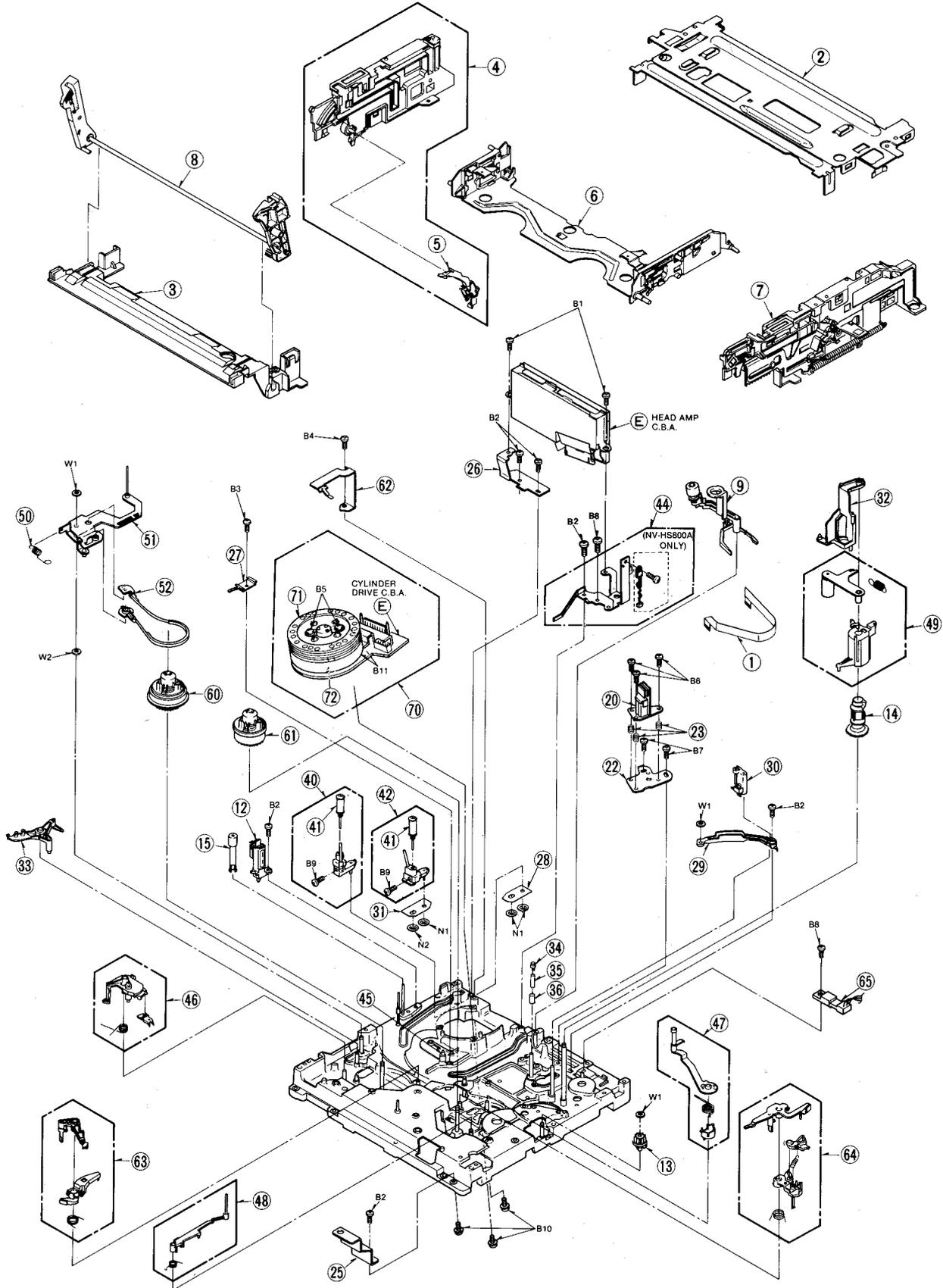
4.6		1
3.3		2
4.1	BILINGUAL	3
4.1	STEREO	4
0	TUNER AUDIO (R)	5
0	GND	6
0	TUNER AUDIO (L)	7
3.1		8
2.9	GND	9
		10



SECTION 5 EXPLODED VIEWS & PARTS LIST

5-1. EXPLODED VIEW & MECHANICAL REPLACEMENT PARTS LIST

① CHASSIS PARTS SECTION (1)



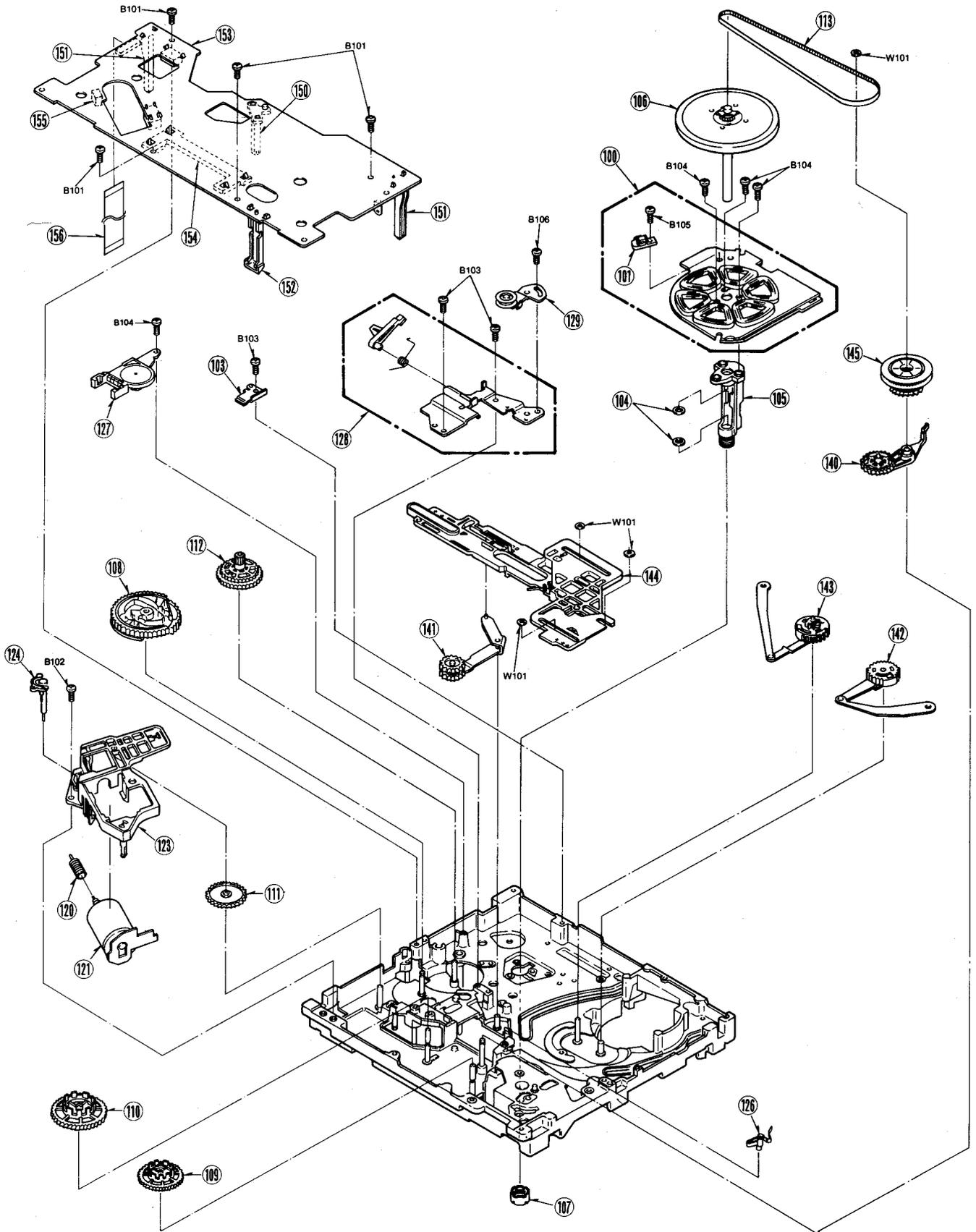
Note:1.* Be sure to make your orders of replacement parts according to this list.
 2. IMPORTANT SAFETY NOTICE
 Components identified with the mark (!) have the special characteristics for safety. When replacing any of these components, use only the same type.

Note:1.* Be sure to make your orders of replacement parts according to this list.
 2. IMPORTANT SAFETY NOTICE
 Components identified with the mark (!) have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1(1)	VWJ0617	FLEXIBLE CABLE (6P)	1	P4003-P1501
2(1)	VMA8644	TOP PLATE	1	
3(1)	VMA8787	CASSETTE GUIDE	1	
4(1)	VXA4660	SIDE PLATE (L) UNIT	1	
5(1)	VML2902	OPENER LEVER UNIT	1	
6(1)	VXA4661	CASSETTE HOLDER PLATE UNIT	1	
7(1)	VXA4806	SIDE PLATE (R) UNIT	1	
8(1)	VXP1339	MAIN SHAFT UNIT	1	
9(1)	VXL2440	CLEANER ARM UNIT	1	
12(1)	VBS0050	FE HEAD	1	
13(1)	VDG0871	CARRIAGE CONNECTION GEAR	1	
14(1)	VDG0886	PINCH CAM GEAR	1	
15(1)	VXP1402	IMPEDANCE ROLLER UNIT	1	
20(1)	VEDO205	A/C HEAD (1) UNIT	1	
22(1)	VMA8624	A/C HEAD BASE	1	
23(1)	VMB2515	A/C HEAD SPRING	3	
25(1)	VMA8761	MOUNT ANGLE	1	
26(1)	VMA9158	HEAD AMP MOUNT ANGLE (L)	1	
27(1)	VMC0917	EARTH SPRING	1	
28(1)	VMA8874	INCLIND BASE HOLDER (S)	1	
29(1)	VMD2078	P5 STOPPER BASE	1	
30(1)	VXA4927	P5 POST STOPPER	1	
31(1)	VMA8873	INCLIND BASE HOLDER (T)	1	
32(1)	VMD2101	OPENER PIECE	1	
33(1)	VML2776	TENSION SPRING ARM	1	
34(1)	VMX1544	P4 UPPER LIMITER	1	
35(1)	VMX2175	P4 SLEEVE	1	
36(1)	VMX2176	P4 LOWER LIMITER	1	
40(1)	VXA5245KIT	INCLINED BASE (S) UNIT	1	OR VXA4982KIT
41(1)	VXP1415	ROLLER POST	2	
42(1)	VXA5247KIT	INCLINED BASE (T) UNIT	1	OR VXA4984KIT
44(1)	VXA4974	HEAD AMP MOUNT ANGLE (R) U.	1	NV-HS800EA/EE
44(1)	VXA5170	HEAD AMP MOUNT ANGLE (R) U.	1	NV-HS800A
45(1)	VMS5383	CASSETTE POSITION FIXTURE	1	
46(1)	VXL2310	REVIEW ARM UNIT	1	
47(1)	VXL2306	P5 ARM UNIT	1	
48(1)	VXL2394	TAKE UP TENSION REGULATOR ARM UNIT	1	
49(1)	VXL2246	PINCH ARM UNIT	1	
50(1)	VMB2434	TENSION SPRING	1	
51(1)	VXL2309	TENSION ARM (1) UNIT	1	
52(1)	VX20310	TENSION BAND UNIT	1	
60(1)	VXR0221	SUPPLY REEL TABLE UNIT	1	
61(1)	VXR0222	TAKE UP REEL TABLE UNIT	1	
62(1)	VXS0113	EARTH PLATE	1	
63(1)	VX20312	SUPPLY BRAKE ARM UNIT	1	
64(1)	VX20313	TAKE UP BRAKE ARM UNIT	1	
65(1)	2SB941PSW	POWER TRANSISTOR	1	
70(1)	VEG1133	CYLINDER UNIT	1	
71(1)	VEH0651	UPPER CYLINDER UNIT	1	
72(1)	VSC3940	CYLINDER SHIELD PLATE	1	
B1(1)	VHD0773	SCREW	2	
B2(1)	XTV26+6F	SCREW	6	
B3(1)	XTV26+4F	SCREW	1	
B4(1)	XTN3+6FFZ	SCREW	1	
B5(1)	VHD0553	SCREW	2	
B6(1)	VHD0762	SCREW	3	
B7(1)	XTV26+6FZ	SCREW	2	
B8(1)	XTV26+8F	SCREW	2	
B9(1)	XQN2+AJ4	SCREW	2	
B10(1)	VHD0342	SCREW	3	
B11(1)	XYNV0029	SCREW	2	
N1(1)	VHN0192	NUT	3	
N2(1)	VHN0193	NUT	1	
W1(1)	VMX2208	WASHER	3	
W2(1)	XWGV26D5G	WASHER	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
100(2)	VEK5927	STATOR UNIT	1	
101(2)	VBK0061	FG HEAD	1	
103(2)	VMA8930	ROTOR STOPPER	1	
104(2)	VMX1927	OIL SEAL	2	
105(2)	VXD0140	HOUSING UNIT	1	
106(2)	VXP1519	ROTOR UNIT	1	
107(2)	VXQ0297	THRUST SCREW UNIT	1	
108(2)	VDG0913	MAIN CAM GEAR	1	
109(2)	VDG0956	SUPPLY REEL GEAR	1	
110(2)	VDG0957	TAKE UP REEL GEAR	1	
111(2)	VDG0868	WORM WHEEL GEAR	1	
112(2)	VDG0885	SUB CAM GEAR	1	
113(2)	VDU0235	TIMING BELT	1	
120(2)	VDG0866	WORM GEAR	1	
121(2)	VEM0427	LOADING MOTOR (1) UNIT	1	
123(2)	VMD1942	MOTOR BRACKET	1	
124(2)	VMD2153	S-VHS SW ACTUATOR	1	
126(2)	VML2725	IDLER CONTROL LEVER	1	
127(2)	VSS0365	MODE SW	1	
128(2)	VXA5138	SS BRAKE BASE UNIT	1	
129(2)	VXA4799	TENSION ROLLER UNIT	1	
140(2)	VXL2378	IDLER ARM UNIT	1	
141(2)	VXL2372	DIRECT LEVER UNIT	1	
142(2)	VXL2299	SUPPLY LOADING ARM UNIT	1	
143(2)	VXL2300	TAKE UP LOADING ARM UNIT	1	
144(2)	VXL2307	MAIN LEVER UNIT	1	
145(2)	VXP1409	CENTRE CLUTCH	1	
150(2)	VMD1926	LED HOLDER	1	
151(2)	VMD1927	PHOTO TRANSISTOR HOLDER	2	
152(2)	VES0695	SAFETY TAB SW	1	
153(2)	VJB00187	MECHANISM CONNECTION C.B.	1	ELECTRICAL PARTS ON
154(2)	VMD2029	REEL SHAFT GUIDE	1	
155(2)	VST0176	S-VHS CASSETTE SW	1	
156(2)	VWJ0777	FLEXIBLE CABLE (14P)	1	(P6001-P1505)
B101(2)	VHD0772	SCREW	4	
B102(2)	XTV26+8F	SCREW	1	
B103(2)	XTV26+6F	SCREW	3	
B104(2)	VHD0753	SCREW	4	
B105(2)	VHD0754	SCREW	1	
B106(2)	XSB26+4FZ	SCREW	1	
W101(2)	VMX2208	WASHER	4	

② CHASSIS PARTS SECTION (2)



3 CASING PARTS SECTION

