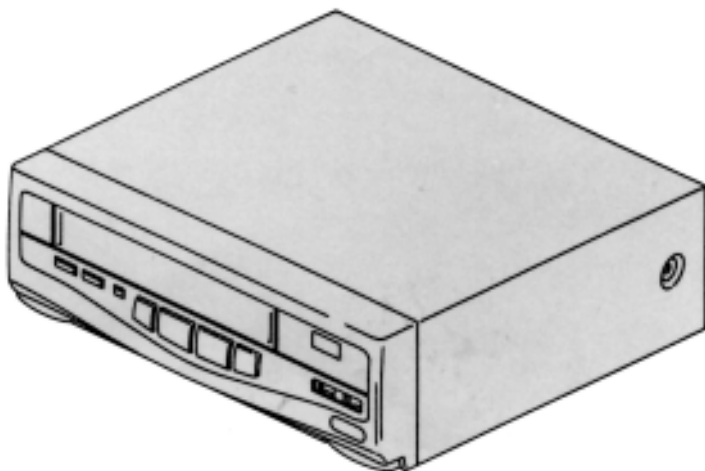


Service Manual

Video Cassette Player

Panasonic **VHS** **HQ**
PAL NTSC4.43
NV-P05 REE
REU
K-MECHANISM


SPECIFICATIONS \ ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
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Panasonic

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SPECIFICATIONS

ITEM	SPECIFICATION	ITEM	SPECIFICATION
POWER	SOURCE: 110/127/220/230-240V 50/60 Hz	TAPE FORMAT	VHS Cassette tape (Tape width 12.7 mm)
	CONSUMPTION: 30 watts		23.39 mm/s
RECORDING SYSTEM	2 rotary heads, helical scanning system	TAPE SPEED	Record/Playback Time: 4 hours with 240 min. type tape (NV-E240)
	PAL NTSC4.43		FF/REW Time: Less than 3.0 min. with 180 min. type tape (NV-E180)
RF OUT SYSTEM	UHF: CH38 73 ± 3 dBu, 75Ω terminated	DIMENSIONS	320 (W) × 91 (H) × 293 (D) mm
VIDEO	HEADS: 2 rotary heads	WEIGHT	4.1 kg
	INPUT: VIDEO IN Connector (Phono type) 1.0 V _{p-p} , 75Ω terminated	STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. Remote Controller 1 pc. AC Plug Adaptor
	OUTPUT: VIDEO OUT Connector (Phono type) 1.0 V _{p-p} , 75Ω terminated		
HEAD: 1 Stationary head (Normal Audio)			
AUDIO	INPUT: AUDIO IN Connector (Phono type) -8 dBV (400 mV), 47 kΩ		
	OUTPUT: AUDIO OUT Connector (Phono type) -8 dBV (400 mV), Less than 1 kΩ		

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

SECTION 1

GENERAL DESCRIPTIONS

1-1. SERVICE INFORMATION

1-1-1. SERVICE POSITION

A. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

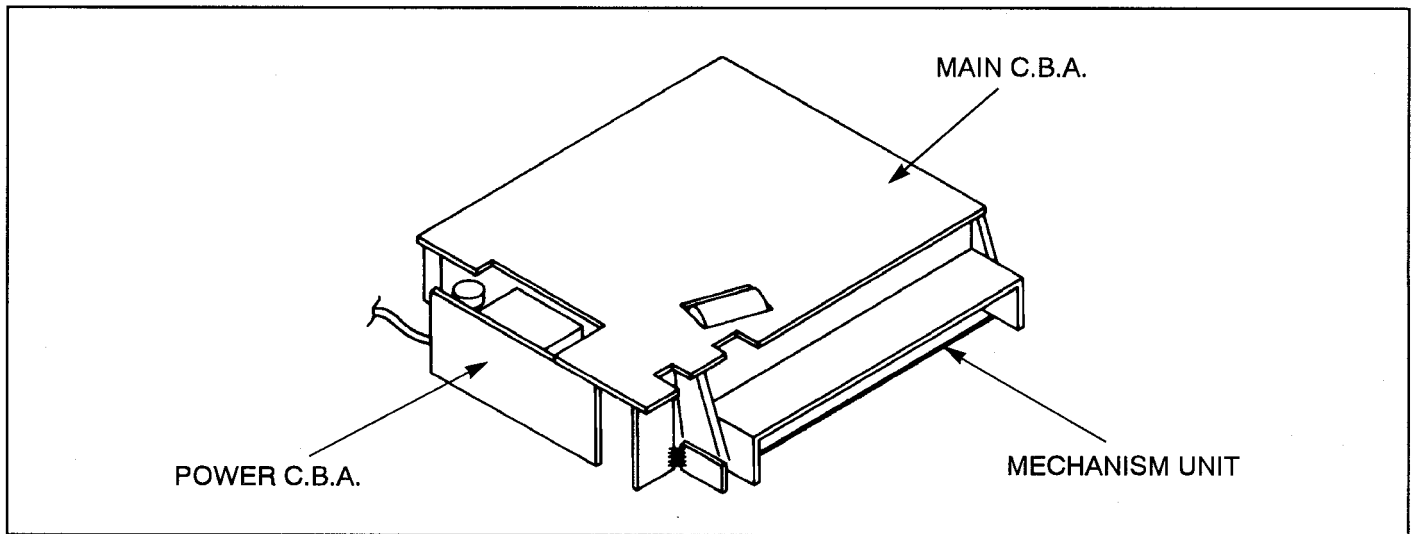


Fig.S1

B. MECHANISM SERVICE POSITION

When servicing the K-Mechanism, take out the mechanism from the MAIN C.B.A. and connect Extension Cable (VFK0889) between the Loading motor connector and P1503 as shown in Fig. S2. In this position, the following services are possible.

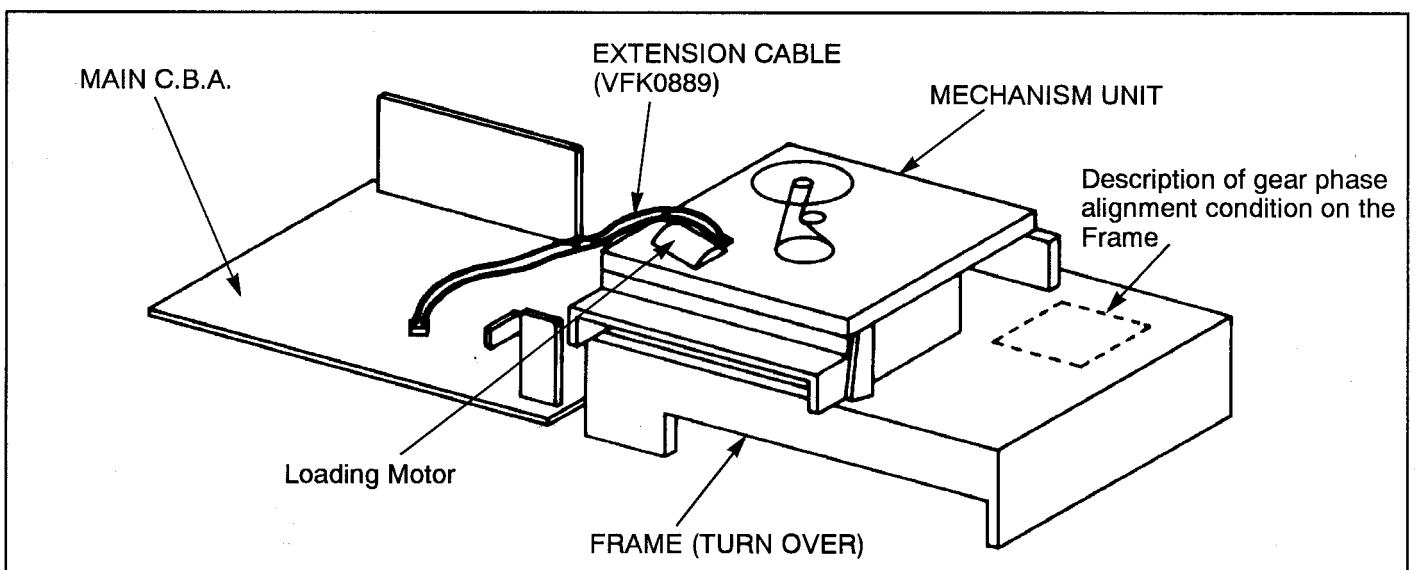


Fig.S2

B-1. CHECKING OF GEAR PHASE ALIGNMENT CONDITION

- 1) Check gear phase Alignment Condition of Mechanism.

B-2. CHECKING OF LOADING/UNLOADING OPERATION

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

1. HAND OPERATION

- 1) Turn the Worm Gear of the Worm Wheel Gear (Remove the Loading Motor unit) ,manually.

2. BATTERY OPERATION

- 1) Disconnect the Extension cable (VFK0889) from connection of loading motor unit.
- 2) Connect the Battery (Manganes-Type R6(AA) 3pcs. /+4.5v) to the Loading Motor Terminals.

3. SERVICE MODE OPERATION

- 1) Set the Service Mode.(Press the FF,REW and EJECT buttons simultaneously.)
- 2) Press the FF,REW and EJECT buttons 2 times to set the Service Mode 2.
In this Service Mode 2, the LEDs are illuminated as follows.

FF/REW LED : Light up

PLAY LED : Blinking at 0.25 seconds interval

- 3) In the above Service Mode, the Loading Motor rotates for loading operation when the "PLAY" button is pressed. The Loading Moter rotates for unloading operation when the "STOP" button is pressed.

Remark:

Use the "SERVICE MODE" for a final check of Mechanism movement.

B-3. CHECKING OF REEL GEARS OPERATION

- 1) Move the mechanism to "PLAY" position by loading operation. (Refer to B-2)
- 2) Turn the Capstan Rotor Unit to check the movement of reel gears.

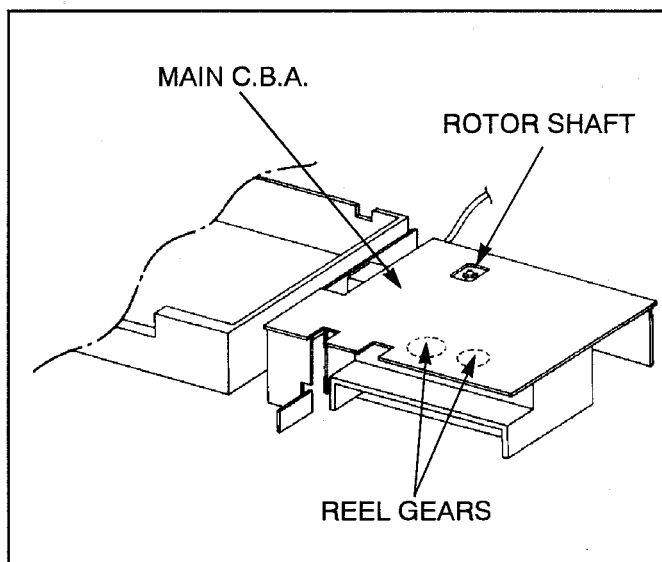


Fig.S3

C. UDD CYLINDER UNIT REPLACEMENT

Remove the 3 screws of the CYLINDER UNIT with a magnetized screw driver in the MECHANISM SERVICE POSITION.

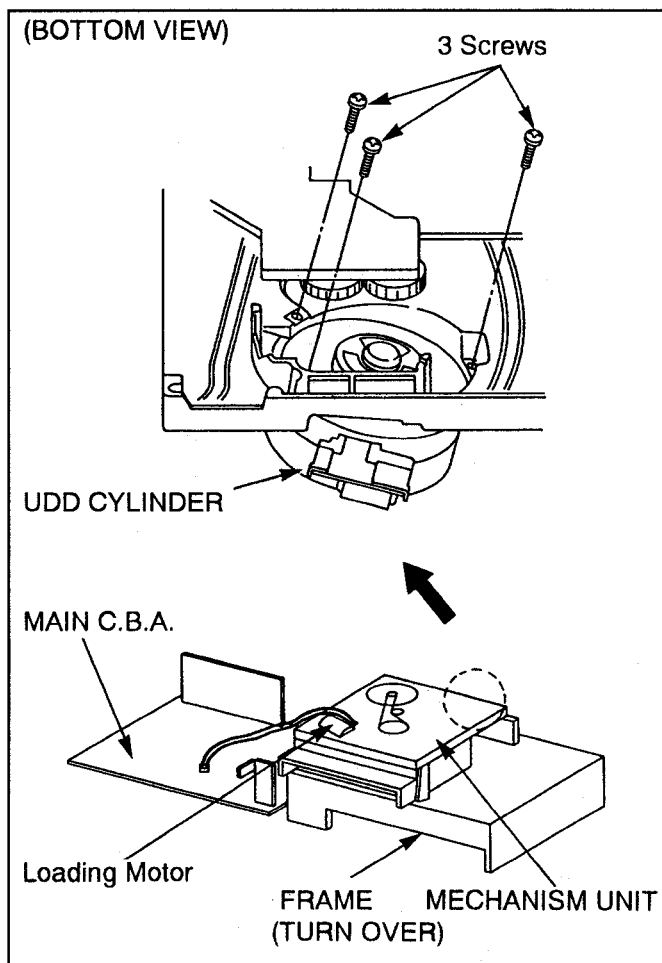


Fig.S4

D. UPPER CYLINDER REPLACEMENT

D-1. UPPER CYLINDER DISASSEMBLY

1. Remove 2 screws (A).
2. Remove the CYLINDER STATOR UNIT.
3. Remove 2 screws (B).
4. Remove the CYLINDER ROTOR UNIT.
5. Loosen Hex screw (C) and remove the CYLINDER RETAINER. (Use Hex. Key Wrench 1.5mm)
6. Remove the UPPER CYLINDER UNIT.

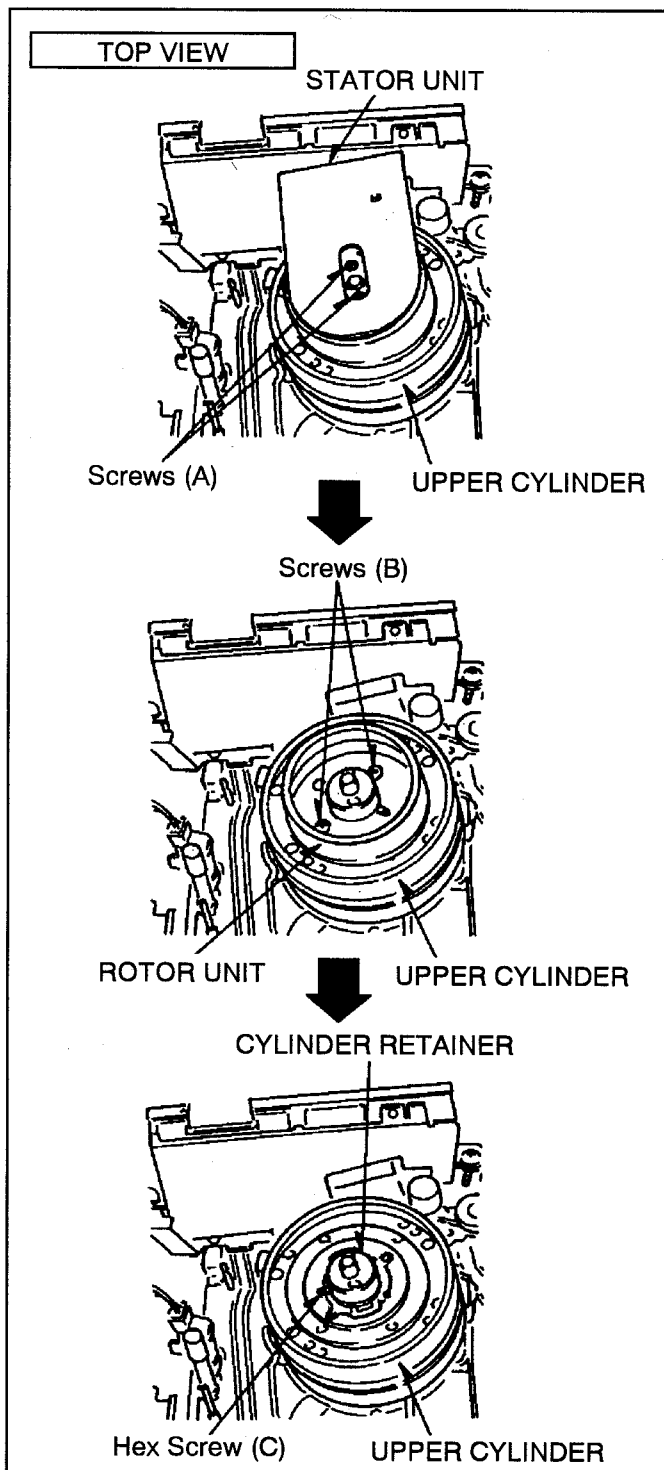


Fig.S5

D-2. UPPER CYLINDER ASSEMBLY

When reassembling, perform the steps in the reverse order.

Notes:

- 1) Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the Head Amp Shield.
- 2) Tighten the Hex screw (C) while pressing down on top of the Cylinder Retainer. (Use Hex. Key Wrench 1.5mm)

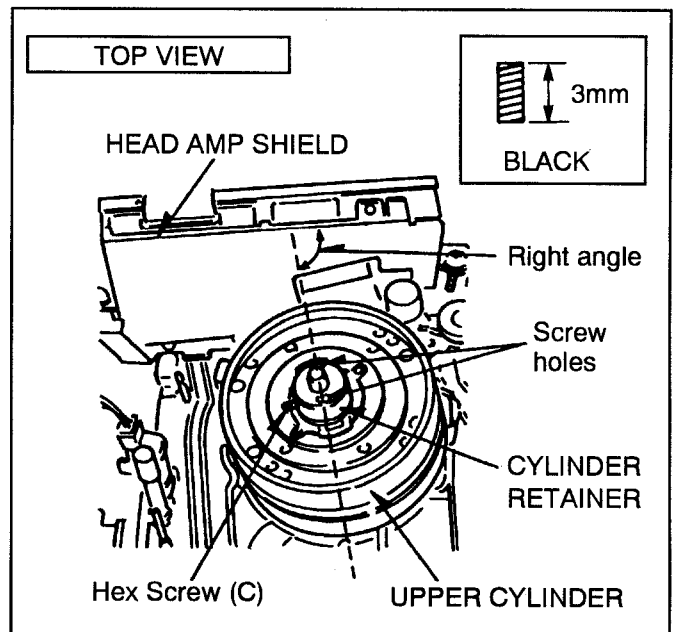


Fig.S6

- 3) Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.
- 4) Tighten 2 screws (B).

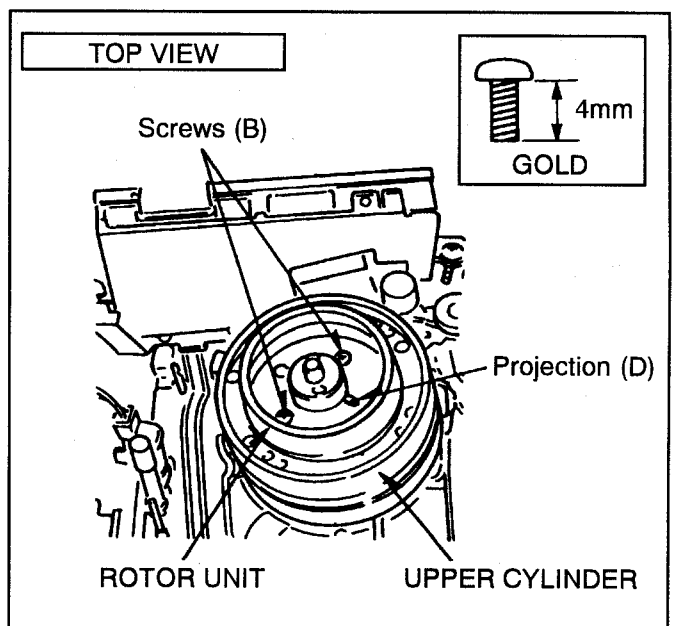


Fig.S7

- 5) Install the Cylinder Stator Unit.
- 6) Tighten 2 screws (A).

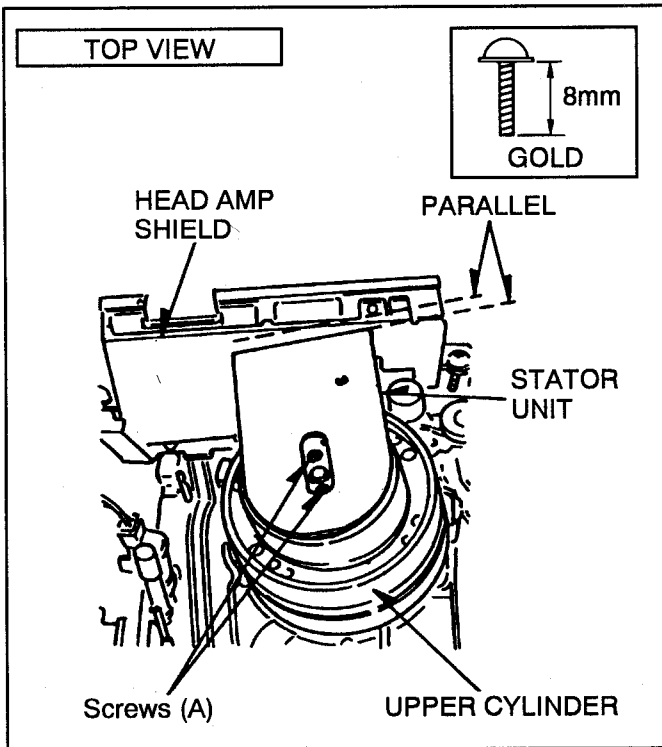


Fig.S8

- 7) Confirm the PG SHIFTER ADJUSTMENT with the alignment tape (PAL : VFJ8125H3F) and adjust it if necessary.

E. 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 show in Fig.S9.
- 4) Tighten the 3 screws.
- 5) Remove the Centre Fixing Tool.

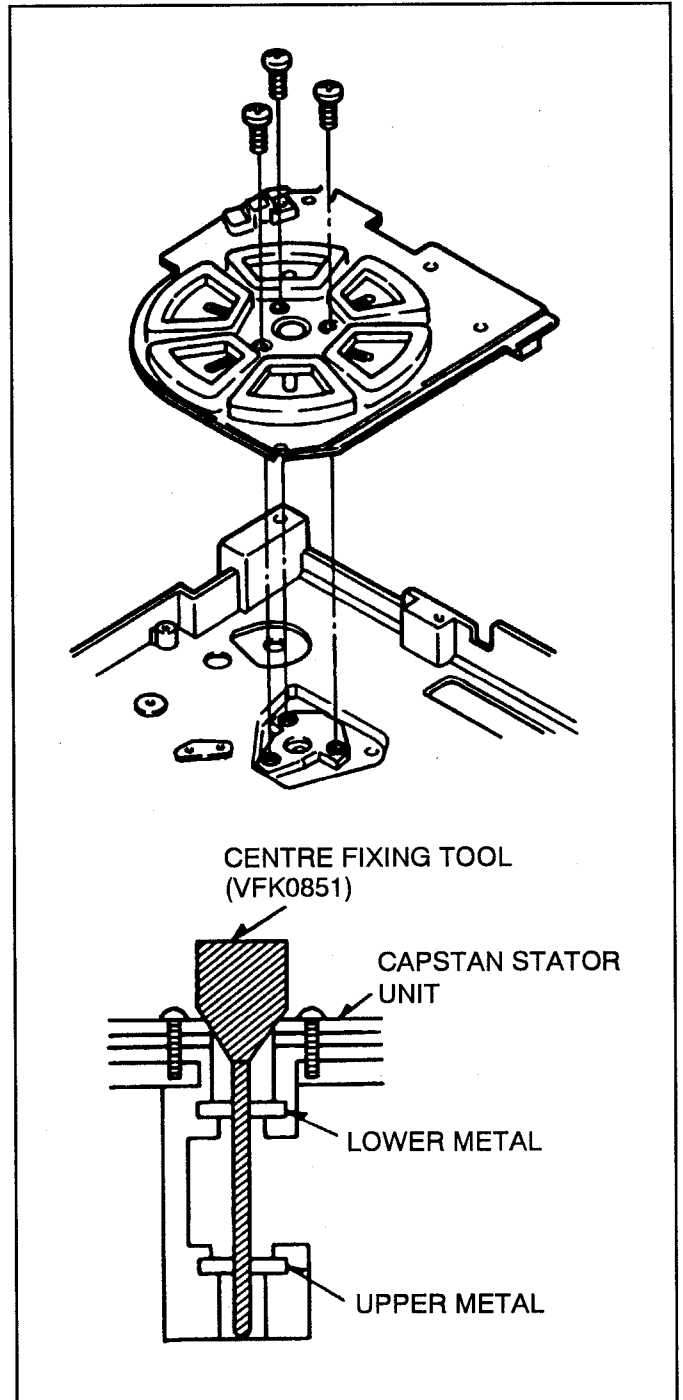


Fig.S9

F. 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.

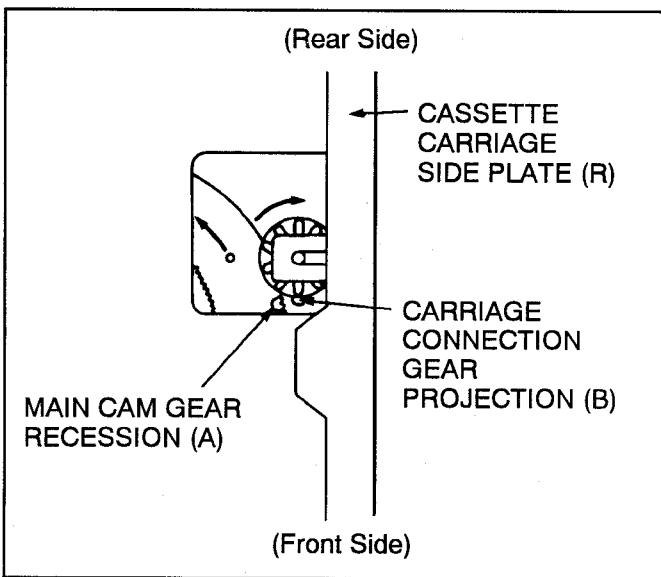


Fig. S10 Top View of Eject Operation

G. 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) 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 will not operate properly.

H. POWER TRANSISTOR SERVICING

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

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) Take out the mechanism from MAIN C.B.A.
- 2) Turn the Worm Gear manually, moving the Loading Post to the unloaded position.
- 3) Turn the CAPSTAN ROTOR UNIT clockwise to take up the tape.
- 4) Turn the Worm Gear again to eject the cassette.

2. BATTERY OPERATION

- 1) Take out the mechanism from MAIN C.B.A.
- 2) Connect the Battery (Manganese-Type R6 (AA) 3pcs./+4.5V) to the LOADING MOTOR terminals as shown in Fig.S11.
- 3) After moving the LOADING POST to the unloaded position, disconnect the battery to stop the motor.
- 4) Turn the CAPSTAN ROTOR UNIT to clockwise to take up the tape.
- 5) Reconnect the battery to eject the cassette.

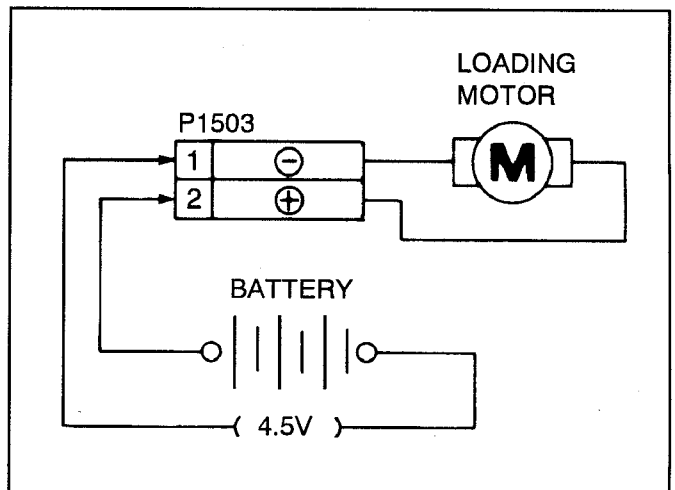


Fig. S11

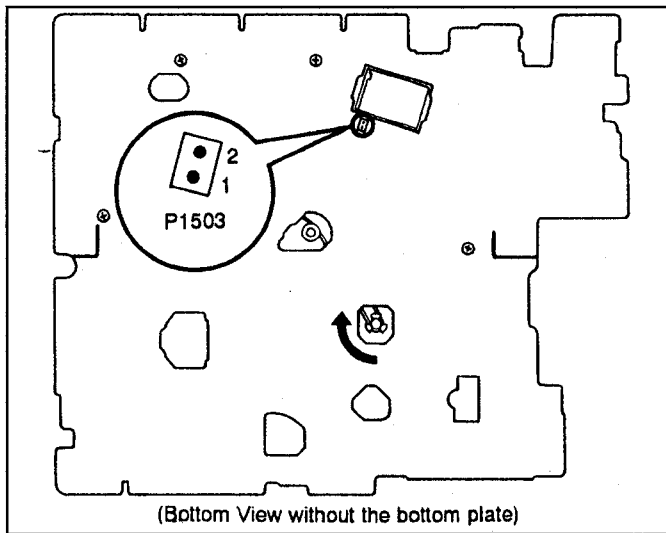


Fig. S12

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 Tape from tape transportation (P3, P2, P5 and P1 Post).
- 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 RIBBON CABLE INSTALLATION

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

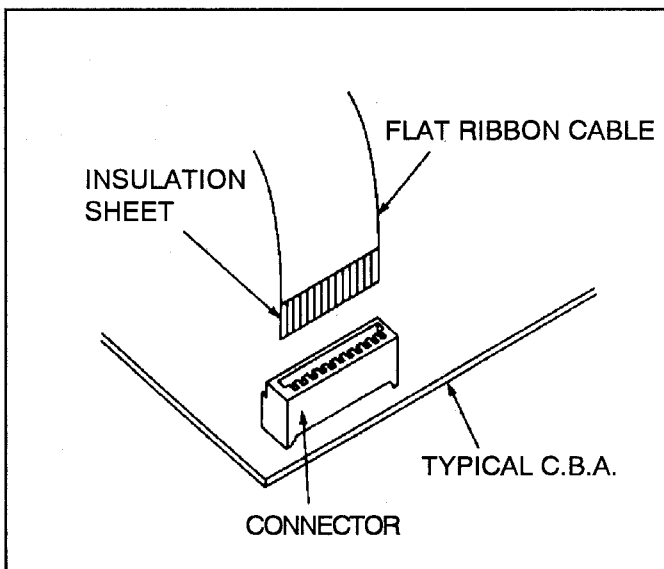


Fig. S13

1-1-4. SERVICE MODE

1) Purpose of Service Mode

This service mode allow the service Technicians to check the VCP mechanism freely without a cassette tape, which enables accessing faulty mechanical part quickly and shortening total repair time.

2) Turning on Service Mode

By pressing the FF,REW and EJECT buttons simultaneously, the service mode will be activated.

In the service mode, two types of checking modes are available as follows:

MODE 1 : For checking Tape Transport mechanism. In cassette down condition without cassette tape, the mechanism goes to PLAY, REV,CUE,FF or REW position when the operation button is pressed. In this mode, LEDs are illuminated as follows:

FF/REW	: Light up
PLAY	: Blinking at 0.5 seconds interval

MODE 2 : For checking loading/unloading operation. 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. In this mode, LEDs illuminated as follows:

FF/REW	: Light up
PLAY	: Blinking at 0.25 seconds interval

This service mode is released when the POWER Button is pressed.

1-1-5. Timing Chart of Mode SW Signals

System control IC6001 detects the mechanism position through the Mode SW.

Fig. S14 shows the timing chart of Mode SW.

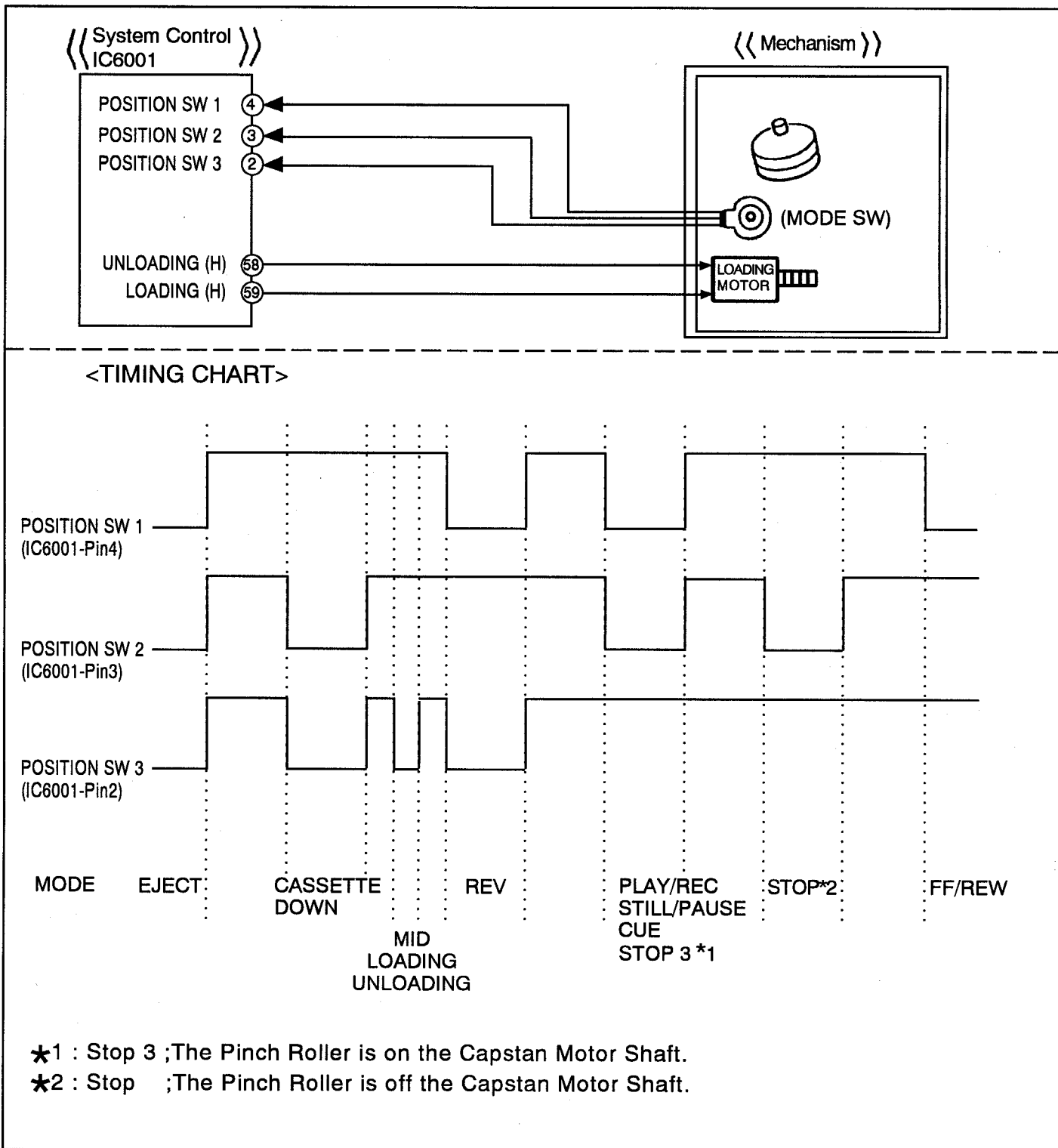


Fig. S14 Timing Chart of Mode SW

1-1-6. Input/Output Chart for IC6001

Pin Number	Input/Output	Port Name	Function																																				
1	I	SAFETY TAB	When inserting the cassette tape with safety tab, this port is low. When there is no safety tab, this port is high to prevent recording.																																				
2	I	POSITION SW 3	<table border="1"> <thead> <tr> <th>P.SW 3</th> <th>P.SW 2</th> <th>P.SW 1</th> <th>Position (Mode) Name</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>EJECT</td> </tr> <tr> <td>0</td> <td>0</td> <td>1</td> <td>CASSETTE DOWN</td> </tr> <tr> <td>0</td> <td>1</td> <td>0</td> <td>REV</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> <td>MID (LOADING / UNLOADING)</td> </tr> <tr> <td>1</td> <td>0</td> <td>0</td> <td>PLAY/REC, STILL/PAUSE, CUE, FWD STOP3 *1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>STOP</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> <td>FF/REW</td> </tr> <tr> <td>1</td> <td>1</td> <td>1</td> <td>INTERMEDIATE</td> </tr> </tbody> </table> <p>(*1) The Pinch Roller is on the capstan motor shaft.</p>	P.SW 3	P.SW 2	P.SW 1	Position (Mode) Name	0	0	0	EJECT	0	0	1	CASSETTE DOWN	0	1	0	REV	0	1	1	MID (LOADING / UNLOADING)	1	0	0	PLAY/REC, STILL/PAUSE, CUE, FWD STOP3 *1	1	0	1	STOP	1	1	0	FF/REW	1	1	1	INTERMEDIATE
P.SW 3	P.SW 2	P.SW 1		Position (Mode) Name																																			
0	0	0		EJECT																																			
0	0	1		CASSETTE DOWN																																			
0	1	0		REV																																			
0	1	1		MID (LOADING / UNLOADING)																																			
1	0	0		PLAY/REC, STILL/PAUSE, CUE, FWD STOP3 *1																																			
1	0	1		STOP																																			
1	1	0		FF/REW																																			
1	1	1		INTERMEDIATE																																			
3	I	POSITION SW 2																																					
4	I	POSITION SW 1																																					
5	I	SUPPLY REEL PULSE	Supply Reel Pulse Input (For detecting tape remaining)																																				
6	I	NORMAL/SERVICE/TEST	Service Mode Setting Normal Mode : High Service Mode : Middle Test Mode : Low																																				
8	I	TEST	Not used (Low setting)																																				
9	I	ENVELOPE SELECT	The playback envelope video signal level is detected at this input to select the video head in the special playback modes.																																				
10	O	ROTARY SW	Normally this signal is supplied to the chrominance circuit to perform the phase rotation. But this model use VIDEO H. SW instead of ROTARY SW.																																				
12	O	HEAD AMP SWITCH	This signal is supplied to the head amp circuit to switch the video head, SP or LP.																																				
14	O	ARTIFICIAL V/H/N	Artificial Vertical Sync Signal is supplied to video circuit to stabilize the picture in the special playback modes.																																				
17	I	TAKE-UP PHOTO	Take-up Side Photo Sensor Input (For detecting tape beginning)																																				
18	I	SUPPLY PHOTO	Supply Side Photo Sensor Input (For detecting tape end.)																																				
19	I	TAKE-UP REEL	Take-up Reel Pulse Input (For detecting tape remaining and reel (Cap.) lock.																																				

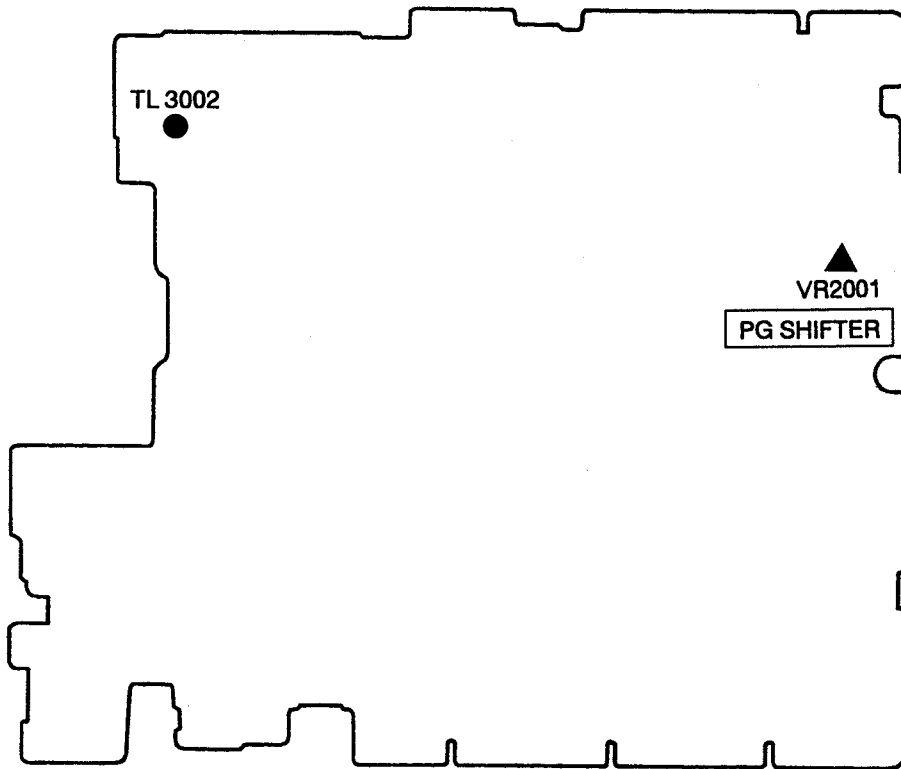
Pin Number	Input/Output	Port Name	Function																
47	O	VTR (H)	VTR Switch Output VTR(PAL) : High VTR(NTSC): Low																
49	O	KEY OUT 2	KEY SCAN OUTPUT <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>KEY OUT 0</th> <th>KEY OUT 1</th> <th>KEY OUT 2</th> </tr> </thead> <tbody> <tr> <th>KEY IN 0</th> <td>POWER</td> <td>PLAY</td> <td>REC</td> </tr> <tr> <th>KEY IN 1</th> <td>EJECT</td> <td>STOP</td> <td>STILL</td> </tr> <tr> <th>KEY IN 2</th> <td>REW</td> <td>FF</td> <td>A.DUB</td> </tr> </tbody> </table>		KEY OUT 0	KEY OUT 1	KEY OUT 2	KEY IN 0	POWER	PLAY	REC	KEY IN 1	EJECT	STOP	STILL	KEY IN 2	REW	FF	A.DUB
	KEY OUT 0	KEY OUT 1		KEY OUT 2															
KEY IN 0	POWER	PLAY		REC															
KEY IN 1	EJECT	STOP		STILL															
KEY IN 2	REW	FF		A.DUB															
51	O	KEY OUT 1																	
52	O	KEY OUT 0																	
53	I	KEY IN 2																	
56	I	KEY IN 1																	
57	I	KEY IN 0																	
54	O	SENSOR LED ON (L)	When turning on the Sensor LED, this port is low. 1) STOP Mode : No lit. 2) FF, REW, CUE, REV Modes : DC is lit. 3) EJECT Mode : Pulse blinking. (Cycle: 320[msec])																
55	O	VOLTAGE CHANGE (H)	When increasing the drive torque of loading motor to perform the FF/REW mode, this port is high.																
58	O	UNLOADING (H)	When unloading, this port is high.																
59	O	LOADING (H)	When unloading, this port is low.																
63	O	SERIAL CLOCK	Serial Clock Output																
64	I	REC SELECT	When the recording system goes to NTSC, this port is Low.																
68	O	FULL ERASE (H)	When the video goes to the recording mode, this port is high.																
69	O	REC (H)	When the video goes to the recording mode, this port is high.																
70	O	NTSC (L)	System Output NTSC : Low PAL : High																
71	O	AUDIO MUTE (H)	When the audio goes to the mute mode, this port is high.																

Pin Number	Input/Output	Port Name	Function
75	O	CURRENT EMPHASIS (H)	When the servo goes to the edit mode, this port is high.
76	O	FF/REW (L)	When the servo goes to the FF/REW mode, this port is low.
78	O	VIDEO EE (L)	When the video goes to the EE mode, this port is low.
79	O	TRICK (L)	When the video goes to the special playback (CUE, REV, SLOW, STILL) mode, this port is low.
80	O	POWER OFF (H)	Power ON/OFF Control is low when the power switch is turned on.
84	I	RESET (L)	When resetting the IC6001, this port is low.

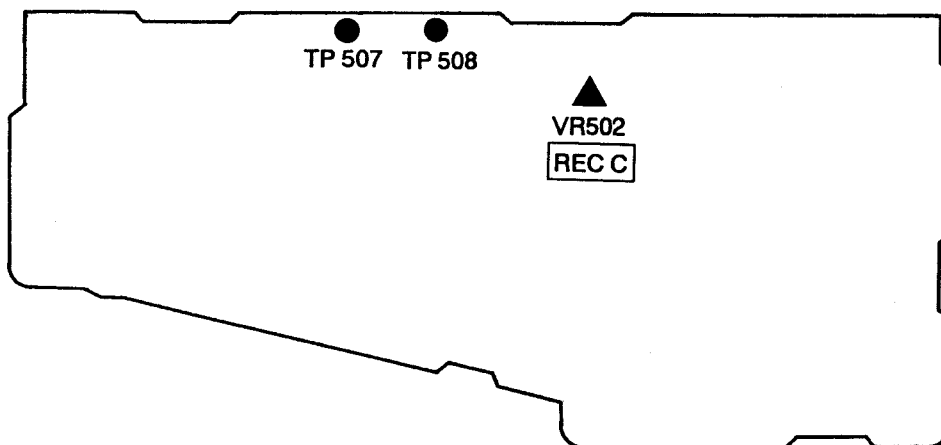
SECTION 2

LOCATION OF TEST POINTS & CONTROLS

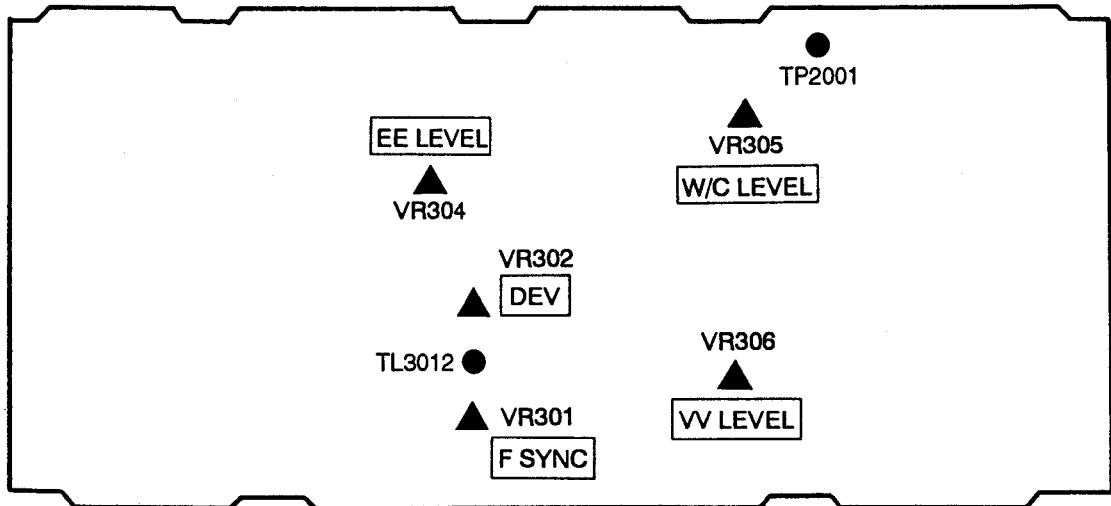
MAIN C.B.A.



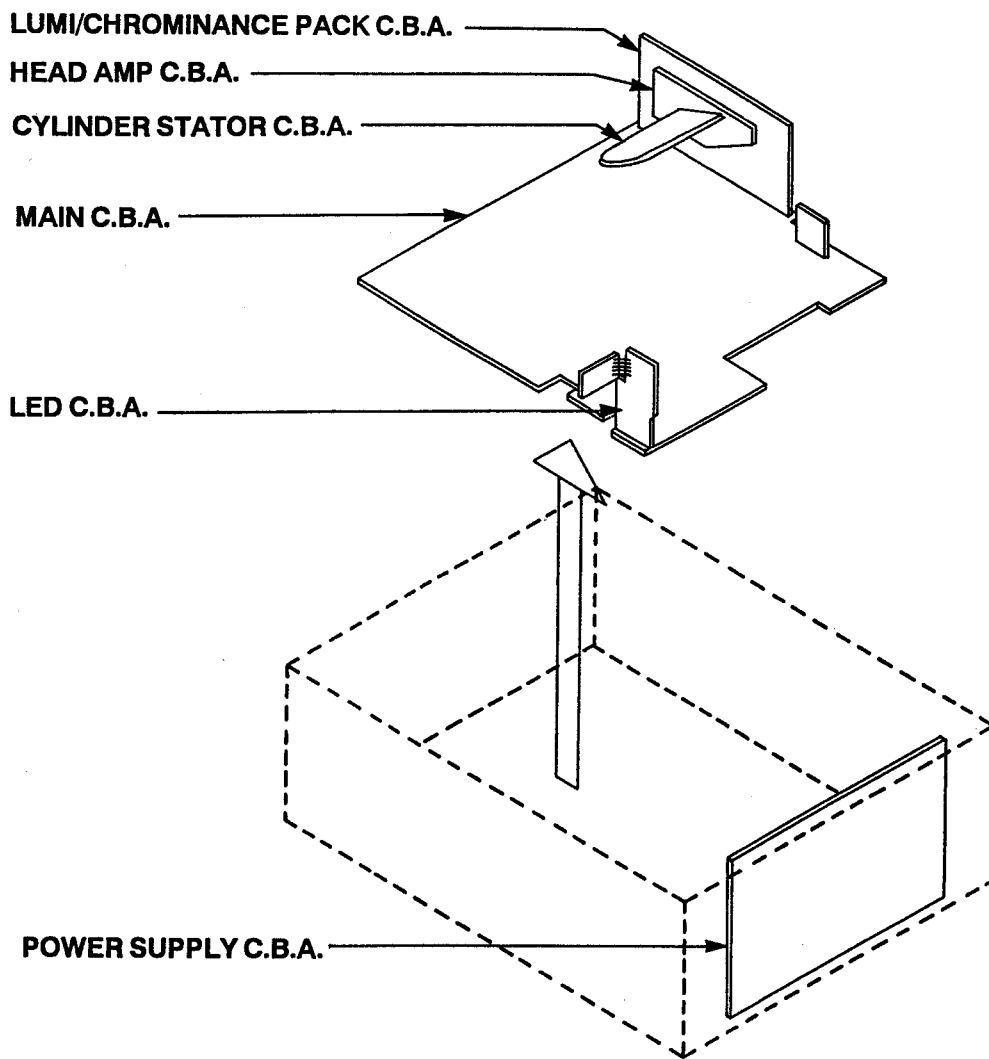
HEAD AMP C.B.A.



LUMINANCE & CHROMINANCE PACK C.B.A.



CIRCUIT BOARD LAYOUT



2-3. ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete adjustment procedures required for electric circuits of VCP.

2-3-1. 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
2. Frequency Counter.
Frequency Range: 0-10MHz
Probes : 1:1
3. Universal Counter.
4. Video Sweep Generator.
5. Sine Wave Generator.
6. Video Pattern Generator.
7. VHS Alignment Tape. (VFJ8125H3F)
8. VHS Blank Tape.
9. Plastic Tip Driver.
10. Vacuum Tube Volt Meter (V.T.V.M)
11. Monitor

2-3-2. PREPARATION

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

PAL/MESECAM SELECT SW PAL
 CONVERTER SELECT SW PAL D/K
 PAL/ NTSC 4.43 SW PAL

2-3-3. HOW TO READ ADJUSTMENT PROCEDURES

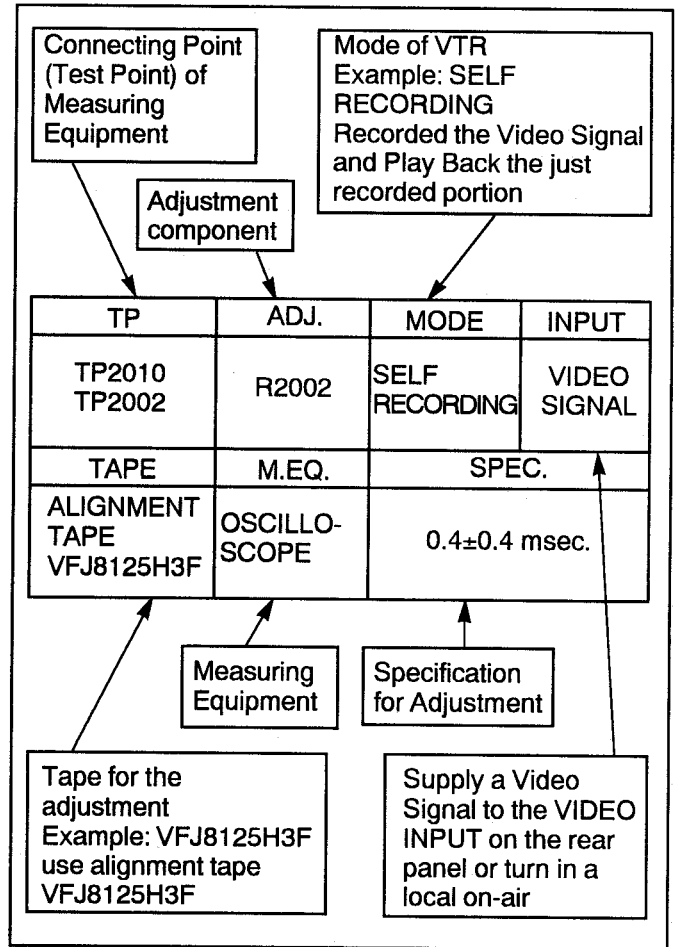


Fig.E1

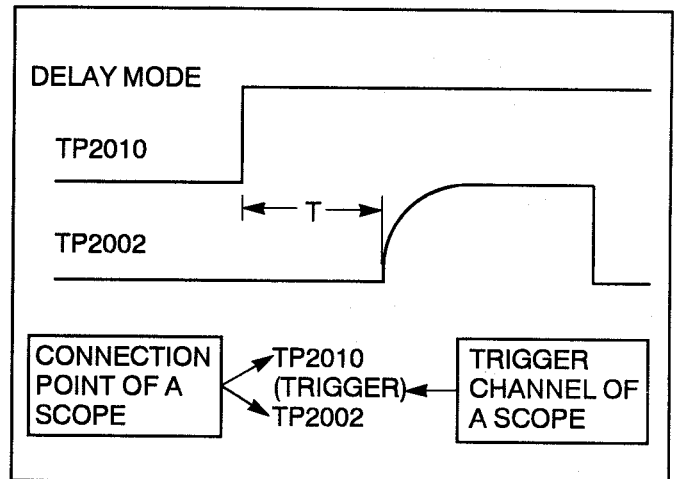


Fig.E2

SERVO SECTION

2-3-4. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP3002	VR2001	PLAYBACK	X
TAPE	M.EQ.	SPEC.	
ALIGNMENT TAPE VFJ8125H3F	OSCILLO- SCOPE	6.5±0.5(H)	

1. Connect the oscilloscope to TP2001(H.SW) and TP3002(V.OUT).
2. Playback the alignment tape.
3. Adjust VR2001 until the phase difference between falling edge of Head SW pulse and V-Sync is $6.5 \pm 0.5(H)$.

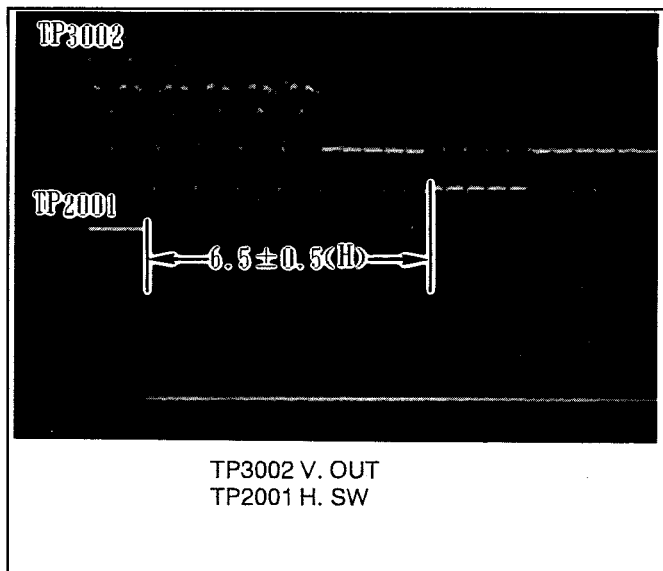


Fig.E3

VIDEO SECTION

2-3-5. VIDEO EE LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR304	RECORDING	COLOUR BAR
TAPE	M.EQ.	SPEC.	
BLANK TAPE	OSCILLO- SCOPE	1.0±0.05(Vp-p)	

1. Supply the colour bar signal to video input.
2. Connect the oscilloscope to video output.
3. Adjust VR304 so that the video output signal level is $1.0 \pm 0.05V_{p-p}$.

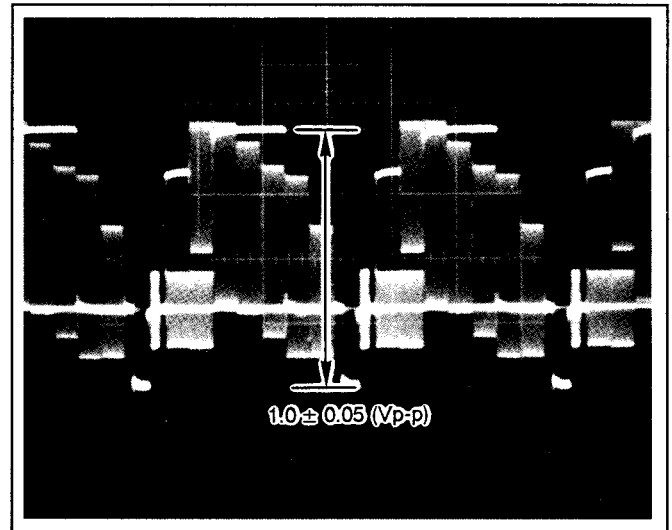


Fig.E4

2-3-6. VIDEO VV LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR306	SELF RECORDING PLAYBACK	COLOUR BAR
TAPE	M.EQ.	SPEC.	
X	OSCILLO- SCOPE	1.0±0.05(Vp-p)	

1. Supply the colour bar signal to video input.
2. Connect the oscilloscope to video output.
3. Record the colour bar signal and playback the just recorded portion.
4. Adjust VR306 so that the video output signal level is $1.0 \pm 0.05V_{p-p}$ (Unterminated).

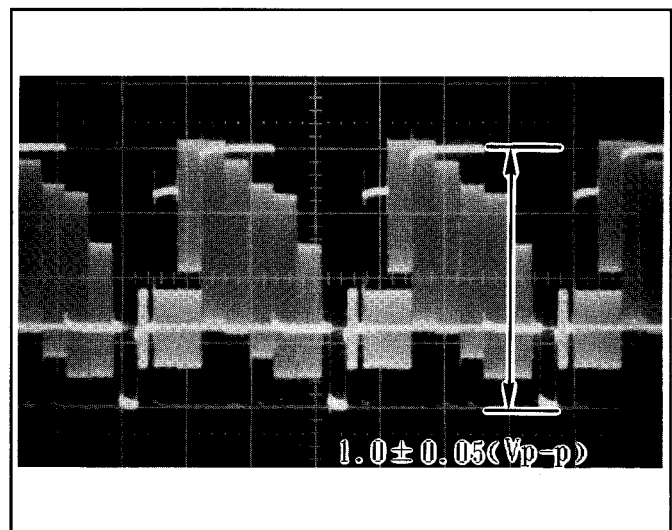


Fig.E5

2-3-7. WHITE CLIP ADJUSTMENT

TP	ADJ.	MODE	INPUT
TL3012	VR305	RECORDING	COLOUR BAR
TAPE	M.EQ.	SPEC.	
	OSCILLOSCOPE	WHITE CLIP LEVEL 185±3%	

1. Supply the colour bar signal to video input.
2. Connect the oscilloscope to TL3012.
3. Record the colour bar signal.
4. Adjust VR305 so that the white clip level is 185±3%.

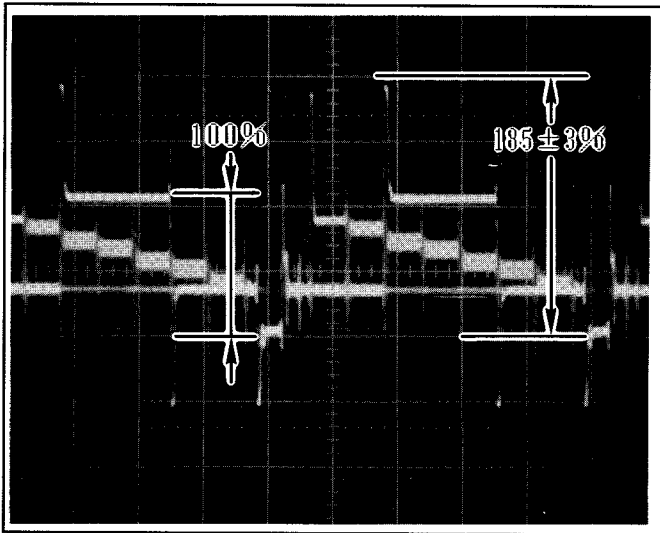


Fig.E6

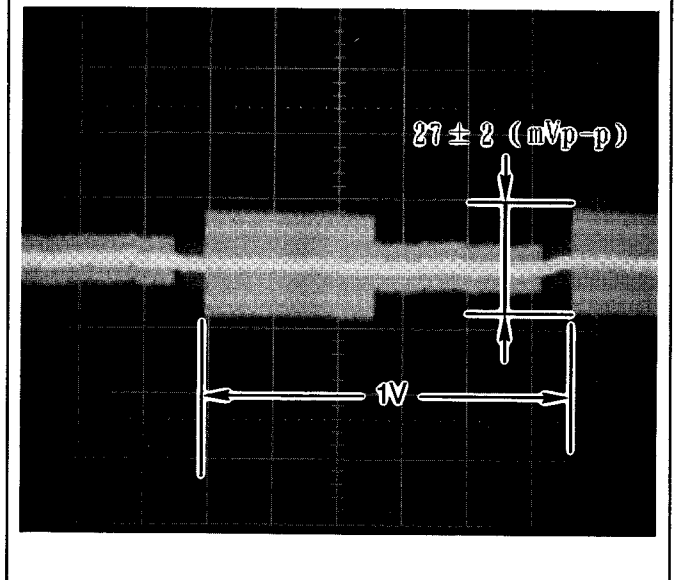
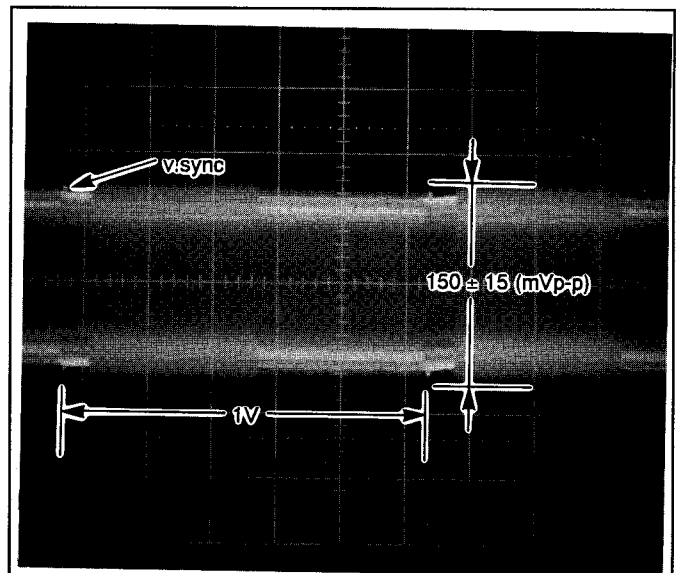


Fig. E7

2-3-8 RECORDING CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP507(HOT) TP508(GND)	VR502(C)	RECORDING	COLOUR BAR
TAPE	M.EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	Y:150±15(mVp-p) C:27±2(mVp-p)	

1. Record the colour bar.
2. Connect the oscilloscope to TP507(HOT) and TP508(GND).
3. Confirm the amplitude of sync tip portion is 150±15mVp-p.
4. Supply +5V DC to TL3008 to reduce luminance Component.
5. Adjust VR502 until the amplitude of Cyan is 27±2mVp-p.

2-3-9. SYNC TIP FREQUENCY ADJUSTMENT

TP	ADJ.	MODE	INPUT
IC302-5	VR301	RECORDING	
TAPE	M.EQ.	SPEC.	
BLANK TAPE	FREQUENCY COUNTER	3.8±0.05(MHz)	

1. Connect the frequency counter to IC302-5.
2. Adjust VR301 so that sync tip frequency is 3.8±0.05(MHz) in recording mode.

2-3-10. DEVIATION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIDEO OUT	VR302	(SELF RECORDED) PLAYBACK	COLOUR BAR
TAPE	M.EQ.	SPEC.	
BLANK TAPE	OSCILLOSCOPE	2.0±0.1(Vp-p)	

Note :

(1) Before this adjustment, the PLAYBACK LEVEL ADJUSTMENT must be adjusted.

1. Supply the colour bar signal.
2. Connect the oscilloscope to VIDEO OUTPUT.
3. Record the colour bar signal and adjust VR302 during recording.
4. Playback the just recorded portion and confirm the playback DEVIATION level is 2.0±0.1Vp-p (unterminated).

If the signal level is out of the specification, repeat item 3 and item 4 until the signal becomes the specification.

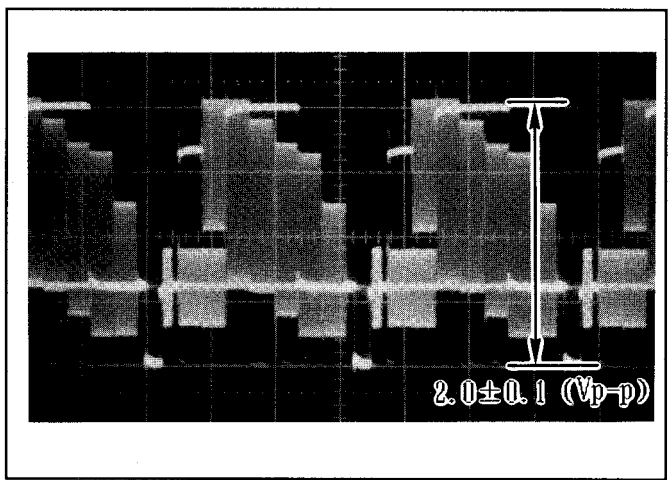
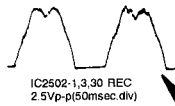
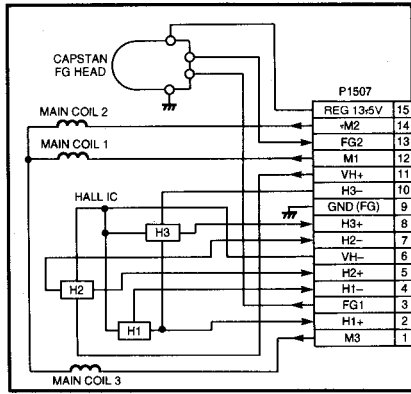


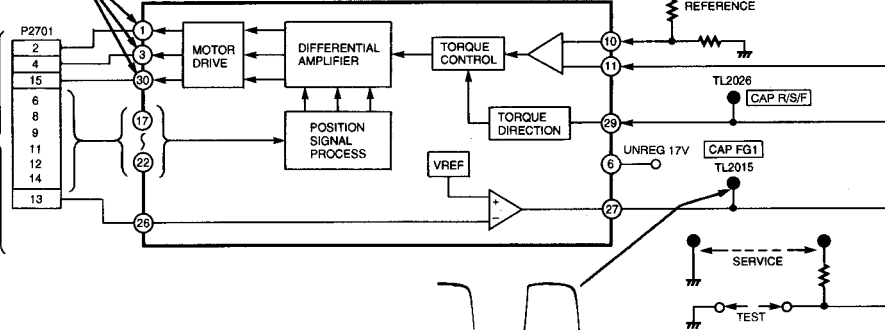
Fig.E8

3-2.SYSTEM CONTROL & SERVO SECTION BLOCK DIAGRAM

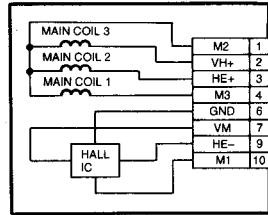
DD CAPSTAN MOTOR



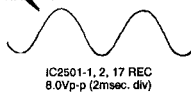
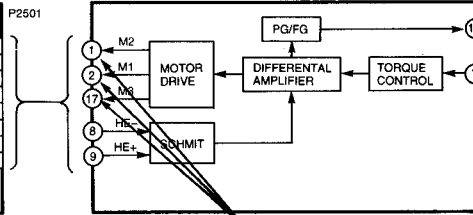
IC2701 CAPSTAN MOTOR DRIVR IC



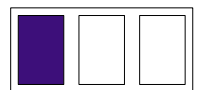
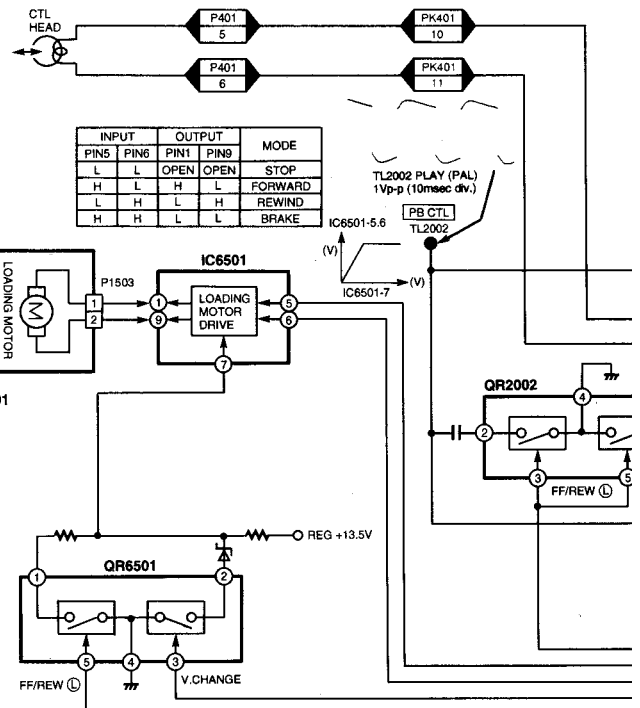
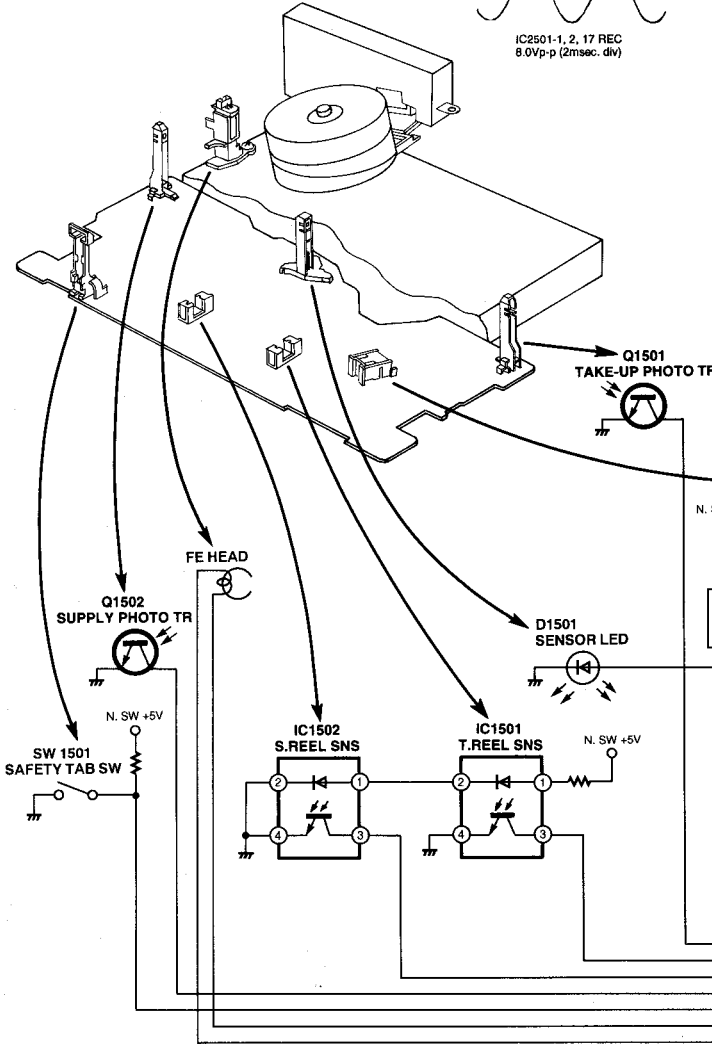
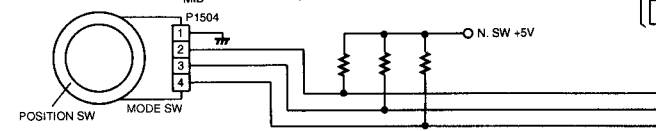
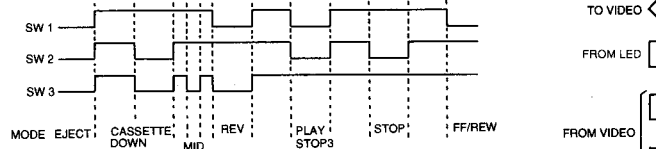
DD CYLINDER MOTOR

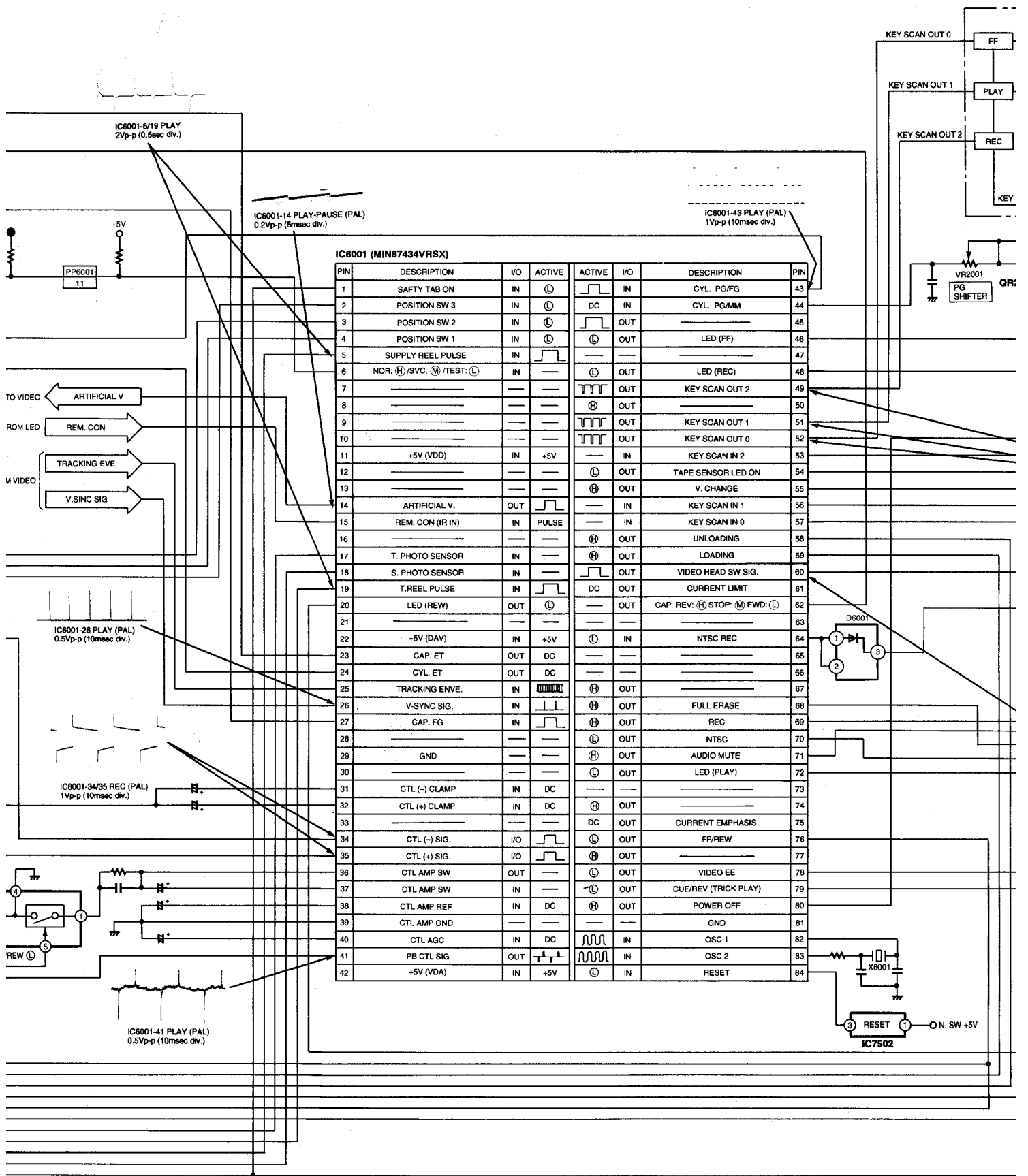


IC2501 CYLINDER DRIVE IC



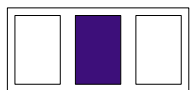
<TIMING CHART>





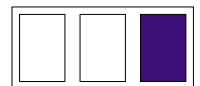
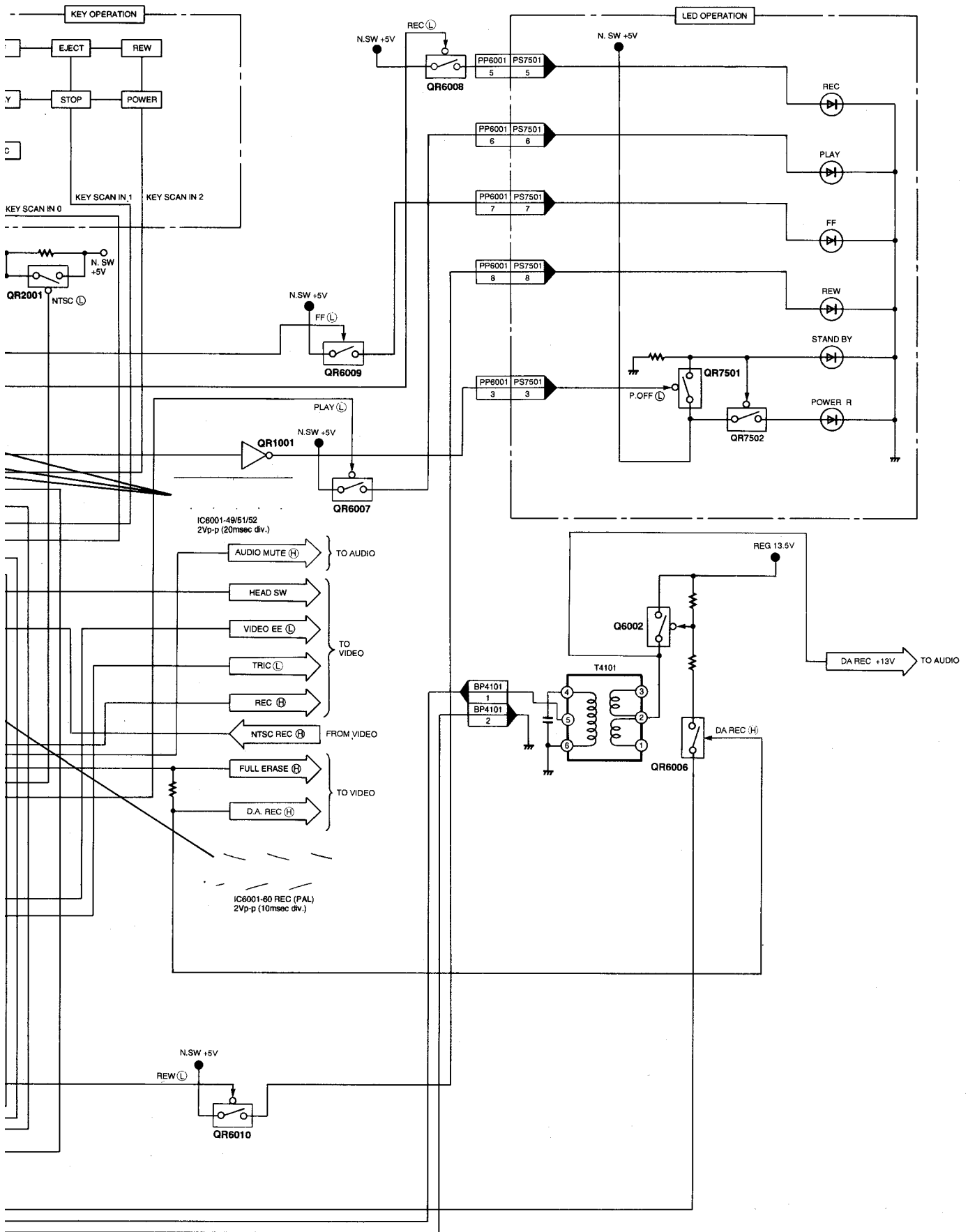
IC6001 (MIN67434VRSX)

PIN	DESCRIPTION	I/O	ACTIVE	ACTIVE	I/O	DESCRIPTION	PIN
1	SAFTY TAB ON	IN			IN	CYL. PG/FG	43
2	POSITION SW 3	IN			IN	CYL. PG/MM	44
3	POSITION SW 2	IN			OUT		45
4	POSITION SW 1	IN			OUT	LED (FF)	46
5	SUPPLY REEL PULSE	IN					47
6	NOR: (H)/SVC: (M)/TEST: (L)	IN			OUT	LED (REC)	48
7					OUT	KEY SCAN OUT 2	49
8					OUT	KEY SCAN OUT 1	51
9					OUT	KEY SCAN OUT 0	52
10					IN	KEY SCAN IN 2	53
11	+5V (VDD)	IN	+5V		IN	KEY SCAN IN 2	53
12					OUT	TAPE SENSOR LED ON	54
13					OUT	V. CHANGE	55
14	ARTIFICIAL V.	OUT			IN	KEY SCAN IN 1	56
15	REM. CON (IR IN)	IN	PULSE		IN	KEY SCAN IN 0	57
16					OUT	UNLOADING	58
17	T. PHOTO SENSOR	IN			OUT	LOADING	59
18	S. PHOTO SENSOR	IN			OUT	VIDEO HEAD SW SIG.	60
19	T.REEL PULSE	IN		DC	OUT	CURRENT LIMIT	61
20	LED (REW)	OUT			OUT	CAP. REV: (H) STOP: (M) FWD: (L)	62
21							63
22	+5V (DAV)	IN	+5V		IN	NTSC REC	64
23	CAP. ET	OUT	DC				65
24	CYL. ET	OUT	DC				66
25	TRACKING ENVE.	IN			OUT	FULL ERASE	68
26	V-SYNC SIG.	IN			OUT	REC	69
27	CAP. FG	IN			OUT	NTSC	70
28					OUT	AUDIO MUTE	71
29	GND				OUT	LED (PLAY)	72
30					OUT		73
31	CTL (-) CLAMP	IN	DC				74
32	CTL (+) CLAMP	IN	DC		OUT	CURRENT EMPHASIS	75
33				DC	OUT	FF/REW	76
34	CTL (-) SIG.	I/O			OUT		77
35	CTL (+) SIG.	I/O			OUT	VIDEO EE	78
36	CTL AMP SW	OUT			OUT	CUE/REV (TRICK PLAY)	79
37	CTL AMP SW	IN			OUT	POWER OFF	80
38	CTL AMP REF	IN	DC			GND	81
39	CTL AMP GND						82
40	CTL AGC	IN	DC		IN	OSC 1	83
41	PB CTL SIG	OUT			IN	OSC 2	83
42	+5V (VDA)	IN	+5V		IN	RESET	84

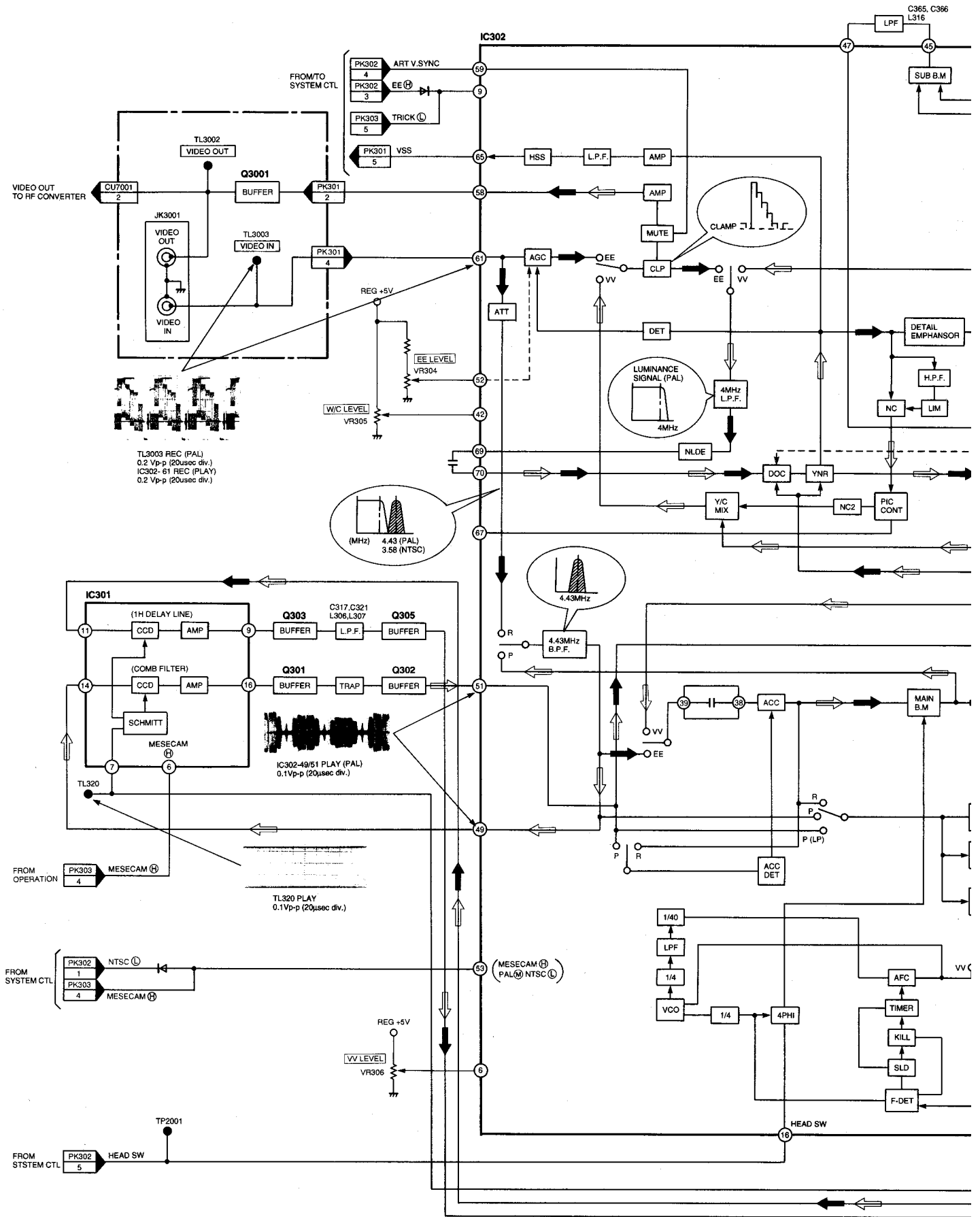


LUMINANCE & CHROMINANCE BLOCK

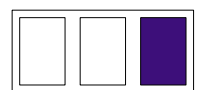
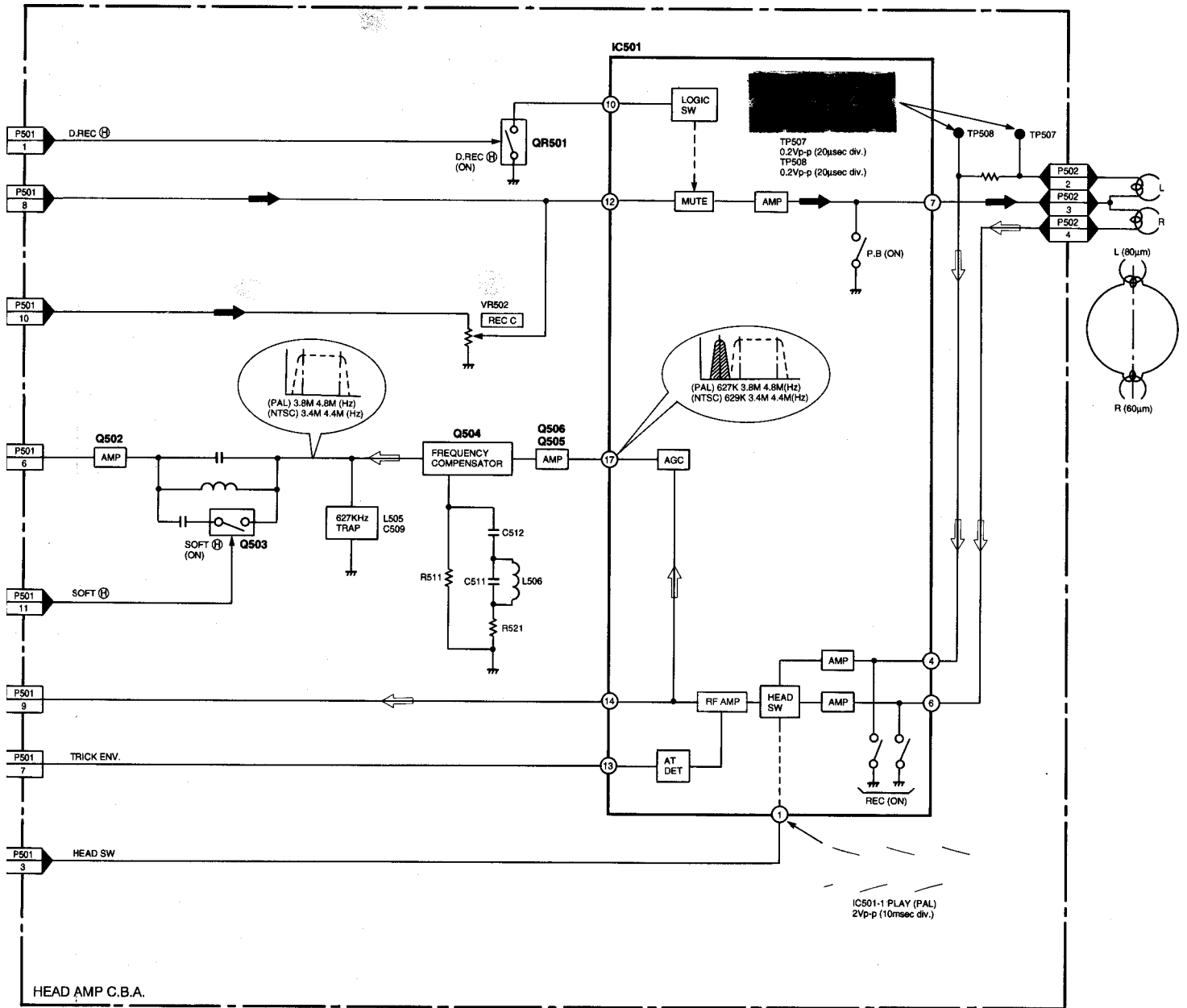
SYSTEM CONTROL & SERVO BLOCK

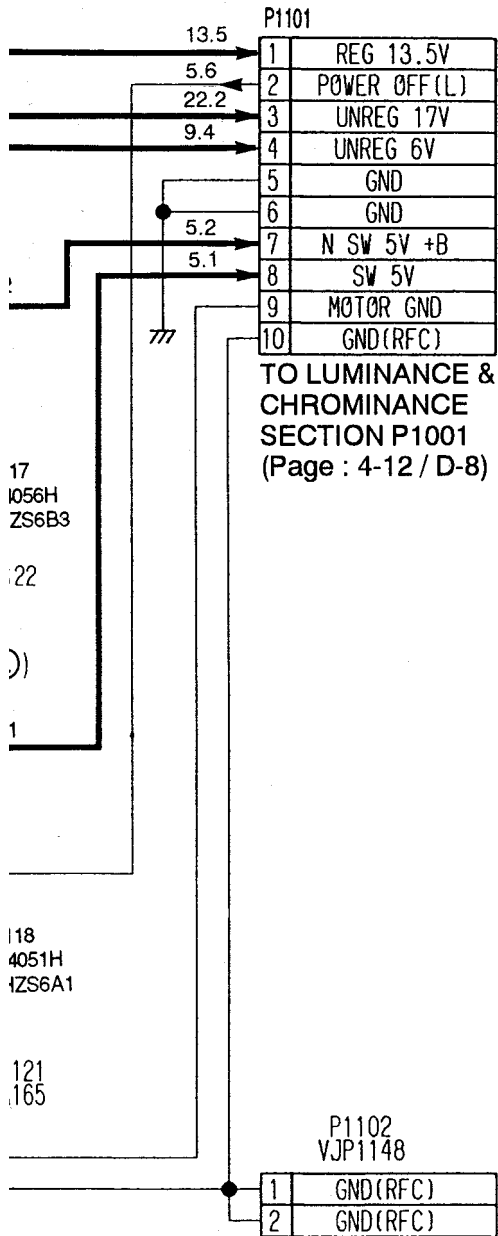


3-3.LUMINANCE & CHROMINANCE SECTION BLOCK DIAGRAM



L PATH IN REC MODE



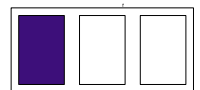
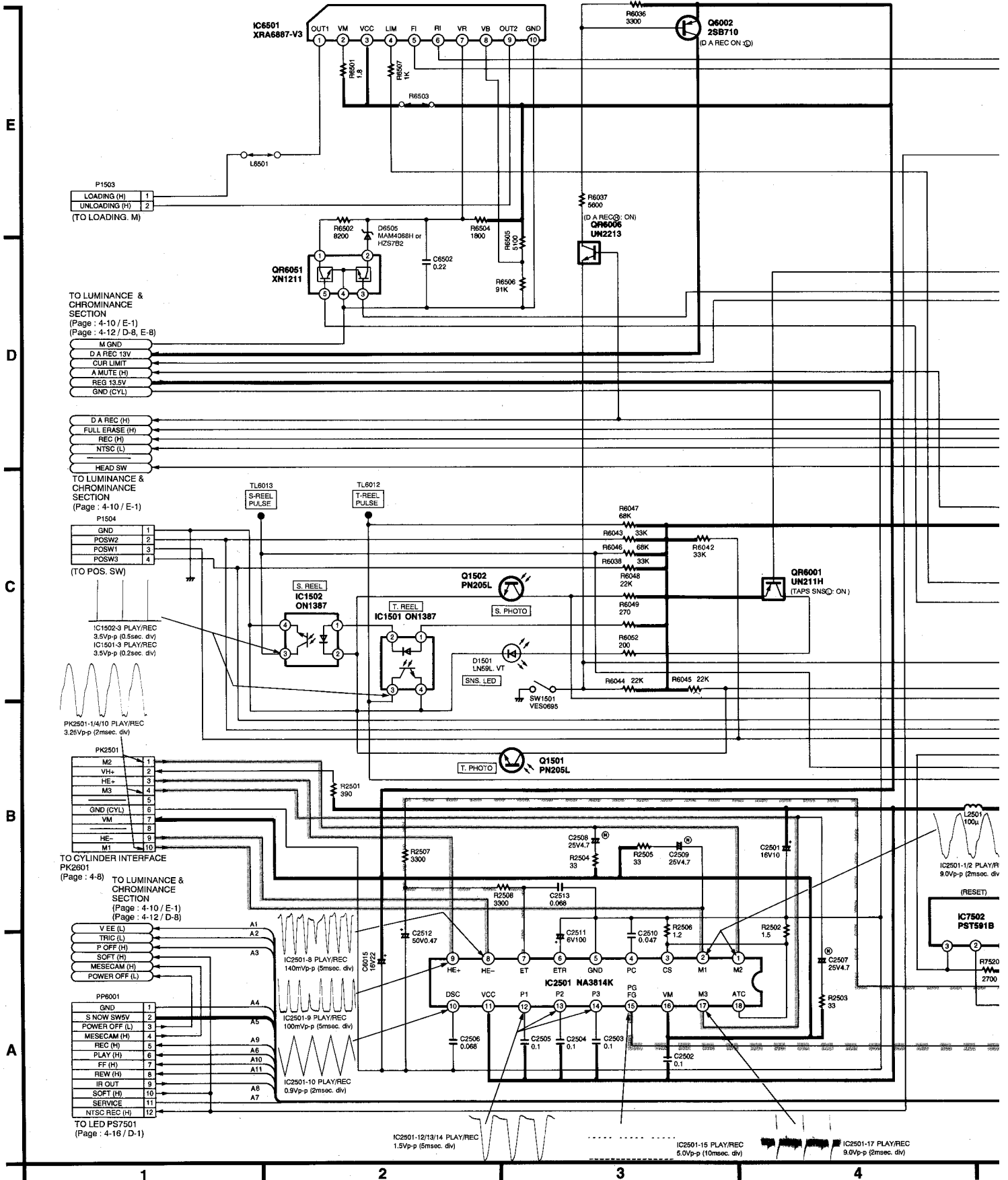


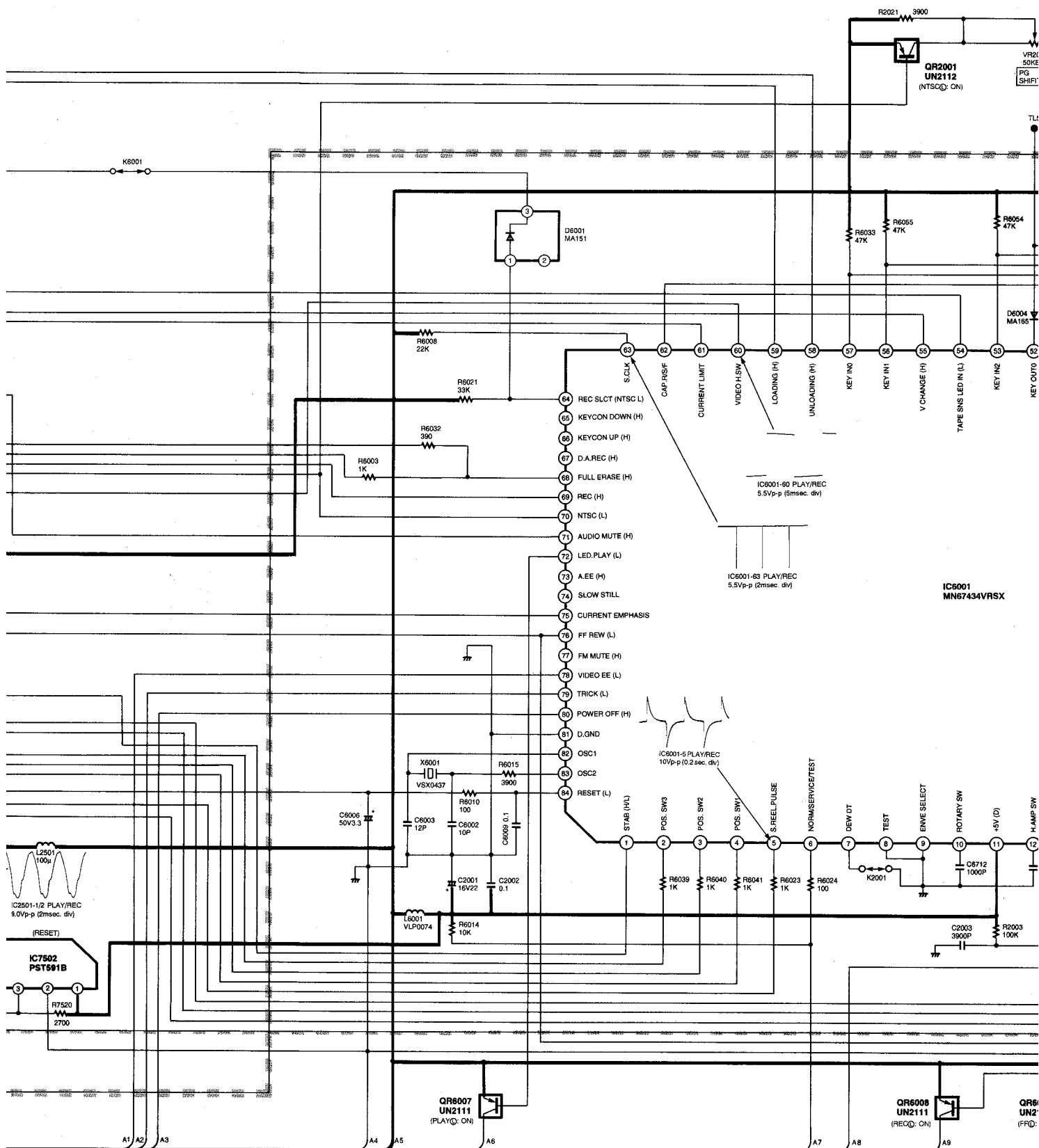
SET

THE VOLTAGE WHEN INPUT AC IS 220V.



4-3.SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM



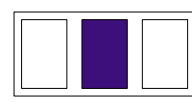


5

6

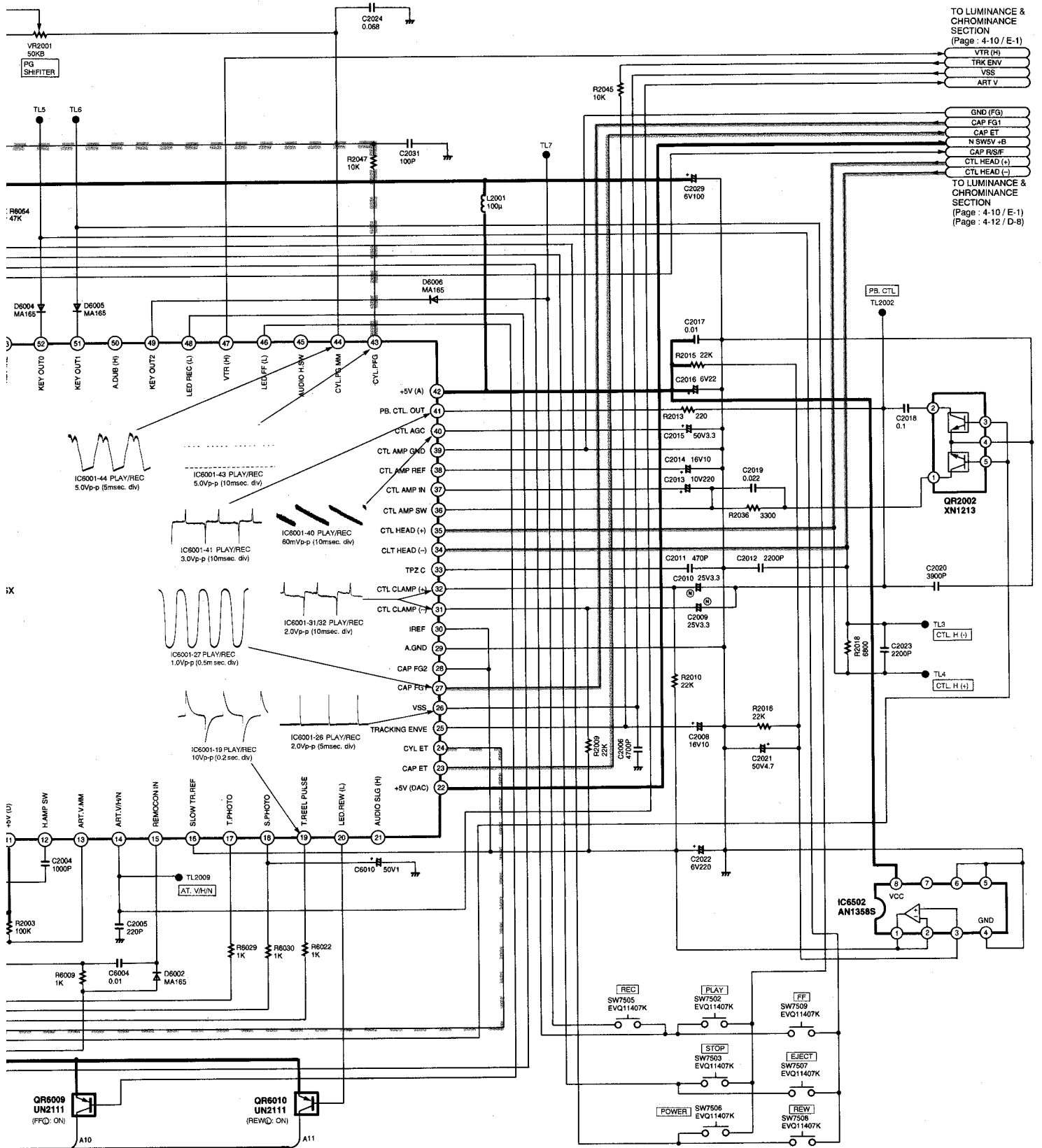
7

8



CAPSTAN SERVO SPEED LOOP

CYLINDER SERVO SPEED LOOP



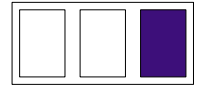
TO LUMINANCE & CHROMINANCE SECTION
(Page : 4-10 / E-1)

VTR (H)
TRK ENV
VSS
ART V

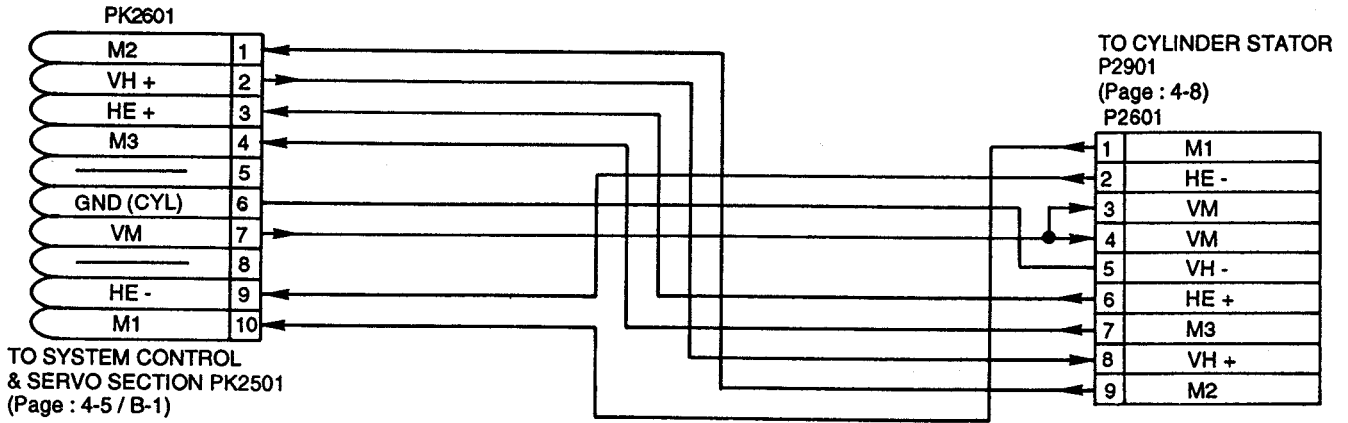
GND (FG)
CAP FG1
CAP ET
N SW5V +B
CAP RSP
CTL HEAD (+)
CTL HEAD (-)

TO LUMINANCE & CHROMINANCE SECTION
(Page : 4-10 / E-1)
(Page : 4-12 / D-8)

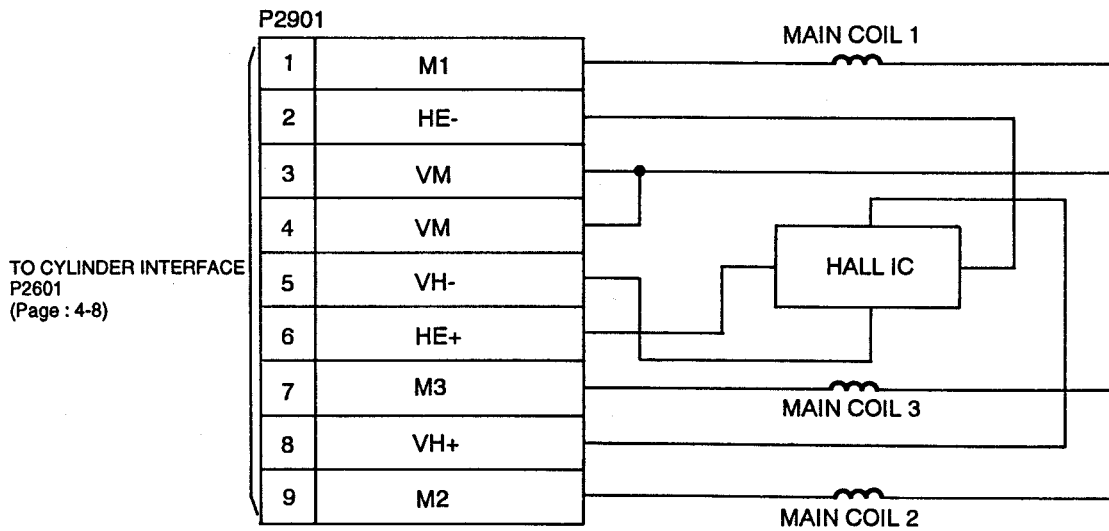
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.



■ CYLINDER INTERFACE SCHEMATIC DIAGRAM



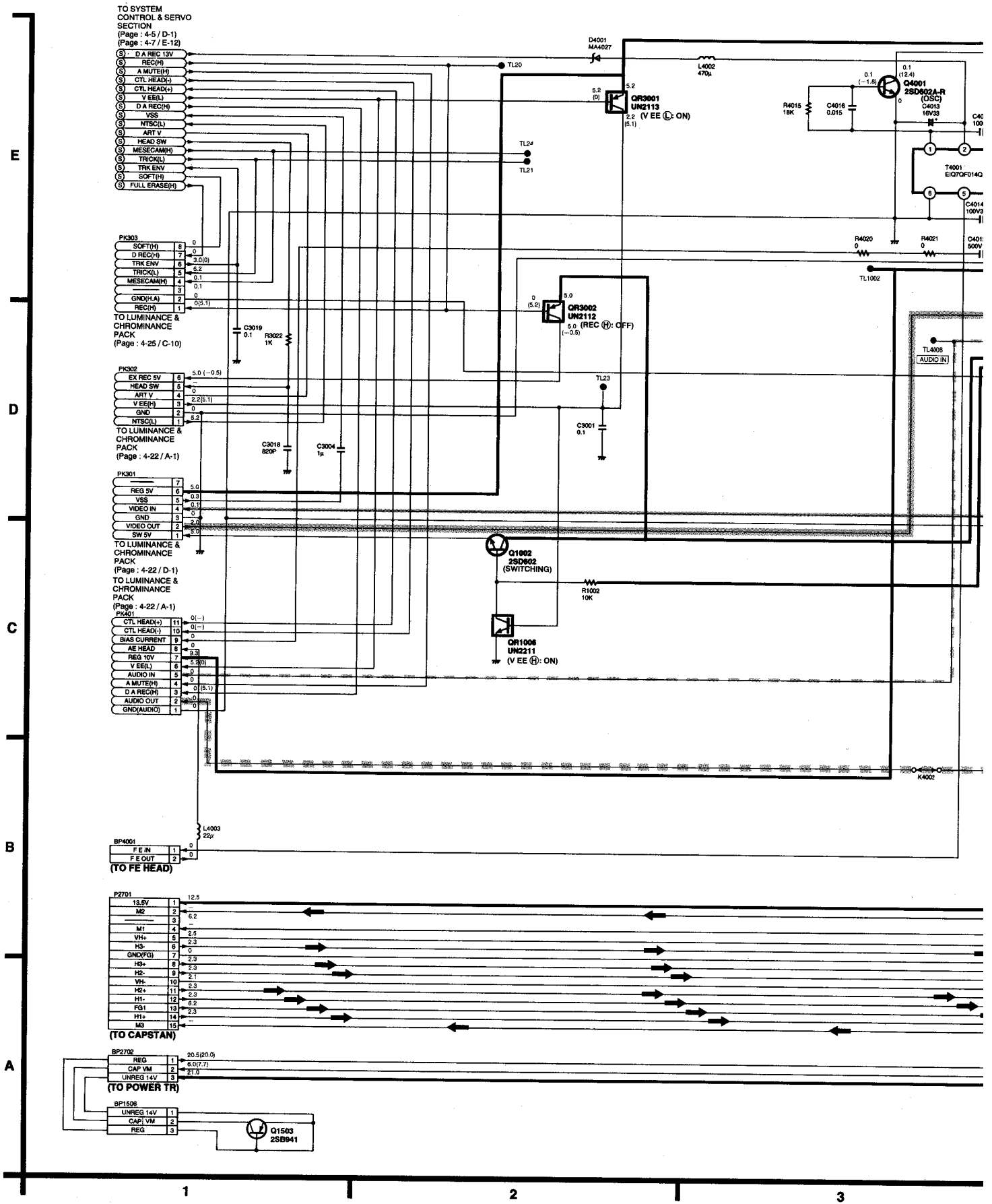
■ CYLINDER STATOR SCHEMATIC DIAGRAM



SYSTEM CONTROL & SERVO TRANSISTORS DC VOLTAGE CHART (SP MODE)

REF.NO.	Q1501			Q1502			Q6002											
MODE	+	-		+	-		E	C	B									
STOP	5.1	0		5.1	0		13.4	0.1	13.4									
PLAY	5.1	0		5.1	0		13.4	0.1	13.4									
REC	5.1	0		5.1	0		13.4	13.3	12.6									
F.F	5.1	0		5.1	0		13.4	0.1	13.4									
REW	5.1	0		5.1	0		13.4	0.1	13.4									
REF.NO.	QR2001			QR2002					QR6001			QR6006			QR6007			
MODE	E	C	B	1	2	3	4	5		E	C	B	E	C	B	E	C	B
STOP	5.2	4.9	5.2	0	0	5.1	0	5.1		5.2	-0.9	5.2	4.2	13.4	0	5.2	-1.3	5.2
PLAY	5.2	4.9	5.2	0	0	5.1	0	5.1		5.2	5.1	0	4.2	13.4	0	5.2	5.2	0
REC	5.2	4.9	5.2	0	0	5.1	0	5.1		5.2	5.1	0	0	0	5.1	5.2	-1.3	5.2
F.F	5.2	4.9	5.2	0	2.6	0	0	0		5.2	5.1	0	0	13.4	0	5.2	-1.3	5.2
REW	5.2	4.9	5.2	0	2.6	0	0	0		5.2	5.1	0	0	13.4	0	5.2	-1.3	5.2
REF.NO.	QR6008			QR6009			QR6010			QR6501								
MODE	E	C	B	E	C	B	E	C	B	1	2	3	4	5				
STOP	5.2	-	5.2	5.2	-	5.2	5.2	0.1	5.2	0	0	5.1	0	5.1				
PLAY	5.2	-	5.2	5.2	-	5.2	5.2	0.1	5.2	0	0	5.1	0	5.1				
REC	5.2	5.1	0	5.2	-	5.2	5.2	-0.9	5.2	0	0	5.1	0	5.1				
F.F	5.2	-	5.2	5.2	5.1	0	5.2	0.1	5.2	13.4	7.6	0	0	0				
REW	5.2	-	5.2	5.2	-	5.2	5.2	5.1	0	13.4	7.6	0	0	0				

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



TO SYSTEM CONTROL & SERVO SECTION
(Page : 4-5 / D-1)
(Page : 4-7 / E-12)

⑤	D A REC 13V	→
⑥	REC(M)	→
⑦	A MUTE(H)	→
⑧	CTL HEAD(3)	→
⑨	CTL HEAD(4)	→
⑩	V EEL(L)	→
⑪	D A REC(H)	→
⑫	VSS	→
⑬	NTSCL(L)	→
⑭	ART V	→
⑮	HEAD SW	→
⑯	MESECAM(H)	→
⑰	TRICK(L)	→
⑱	TRK ENV	→
⑲	SOFT(H)	→
⑳	FULL ERASE(H)	→

PK303

8	SOFT(H)	0
7	D REC(H)	0
6	TRK ENV	3.0(0)
5	TRICK(L)	5.2
4	MESECAM(H)	0.1
3		0.1
2	GND(HA)	0
1	REC(H)	0(8-1)

TO LUMINANCE & CHROMINANCE PACK
(Page : 4-25 / C-10)

PK302

8	EX REC 5V	5.0 (-0.5)
5	HEAD SW	0
4	ART V	0
3	V EEL(H)	2.2(5-1)
2	GND	0
1	NTSCL(L)	5.2

TO LUMINANCE & CHROMINANCE PACK
(Page : 4-22 / A-1)

PK301

7	REG 5V	5.0
6	VSS	0.3
5	VIDEO IN	0.1
4	GND	0
3	VIDEO OUT	0
2	SW 5V	5.0
1		0

TO LUMINANCE & CHROMINANCE PACK
(Page : 4-22 / D-1)

TO LUMINANCE & CHROMINANCE PACK
(Page : 4-22 / A-1)

PK401

11	CTL HEAD(+)	0(-)
10	CTL HEAD(-)	0(-)
9	BIAS CURRENT	0
8	AE HEAD	0
7	REG 10V	5.2(0)
6	V EEL(L)	0
5	AUDIO IN	0
4	A MUTE(H)	0
3	D A REC(H)	0(5-1)
2	AUDIO OUT	0
1	GND(AUDIO)	0

BP4001

1	F E IN	0
2	F E OUT	0

(TO FE HEAD)

P2701

1	13.5V	12.5
2	M2	6.2
3	M1	2.5
4	VH+	2.3
5	HS-	0
6	HS+	2.3
7	H2-	2.3
8	VH-	2.3
9	H2+	2.3
10	H1-	6.2
11	H1+	2.3
12	M3	15

(TO CAPSTAN)

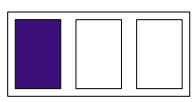
BP2702

1	REG	20.5(20.0)
2	CAP VM	5.0(4.7)
3	UNREG 14V	21.0

(TO POWER TR)

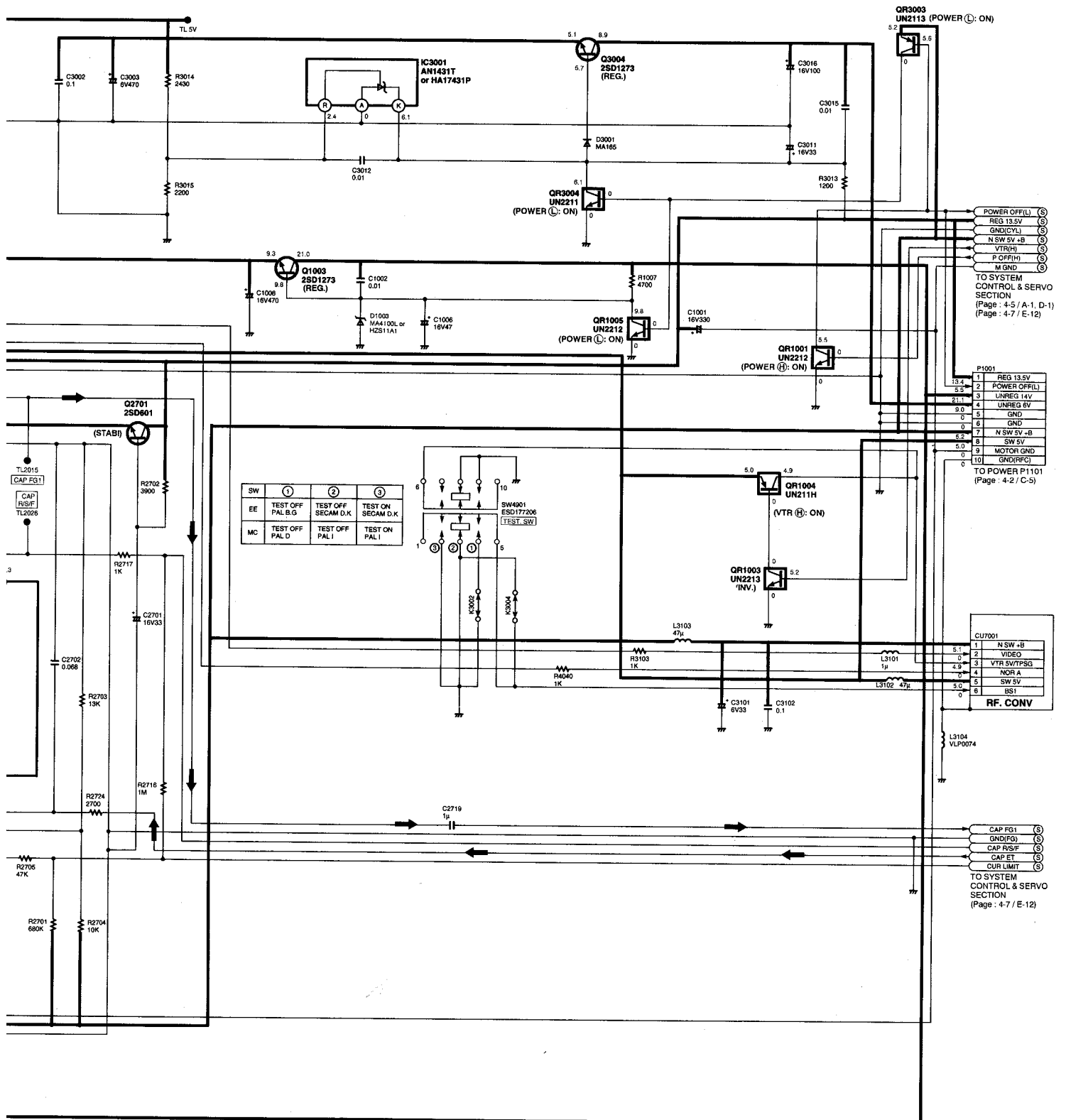
BP1508

1	UNREG 14V	→
2	CAP VM	→
3	REG	→



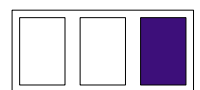
O MAIN SIGNAL PATH IN REC MODE
 O MAIN SIGNAL PATH IN PLAYBACK MODE

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

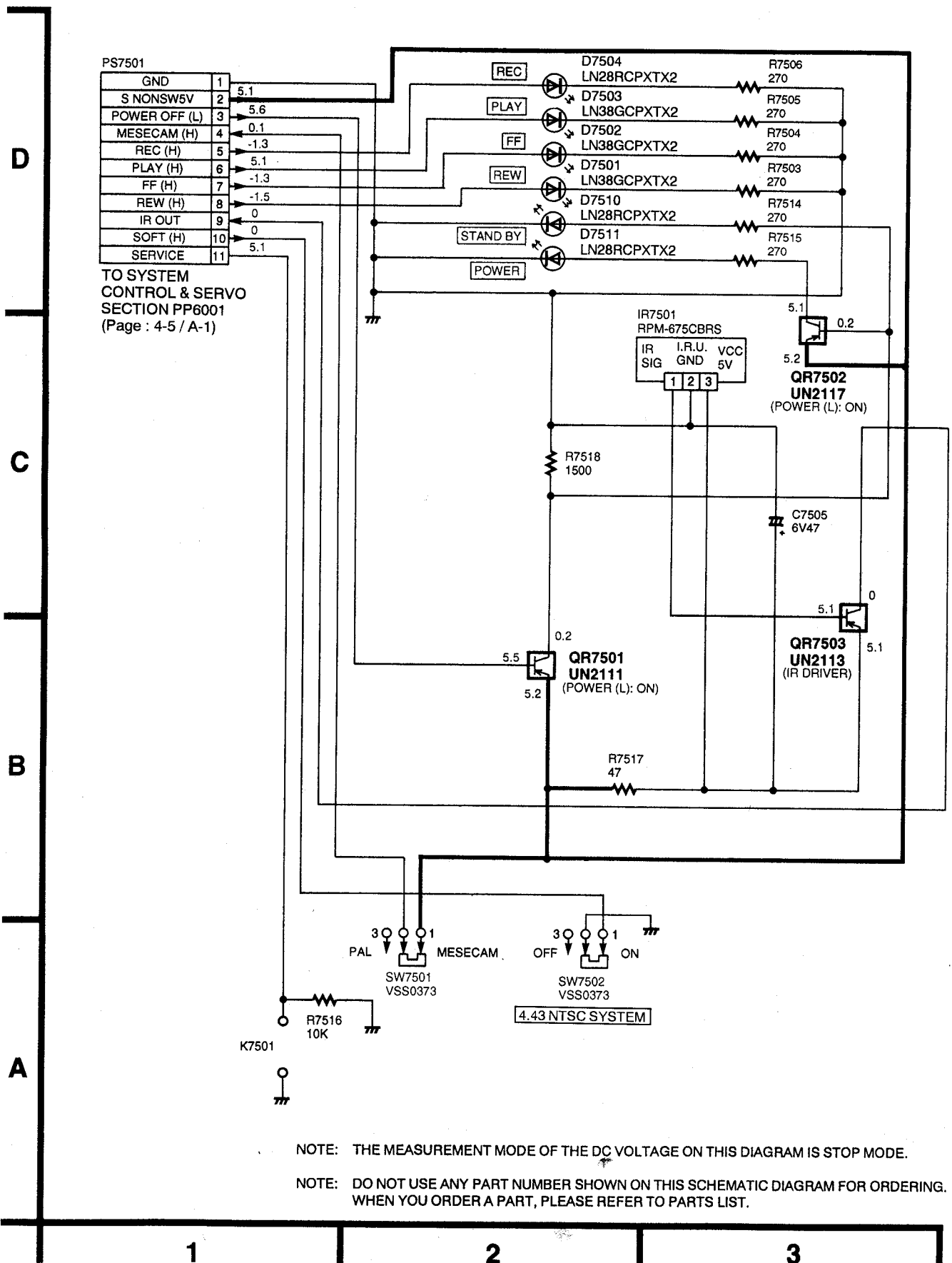


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

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



4-6.LED SCHEMATIC DIAGRAM



PS7501

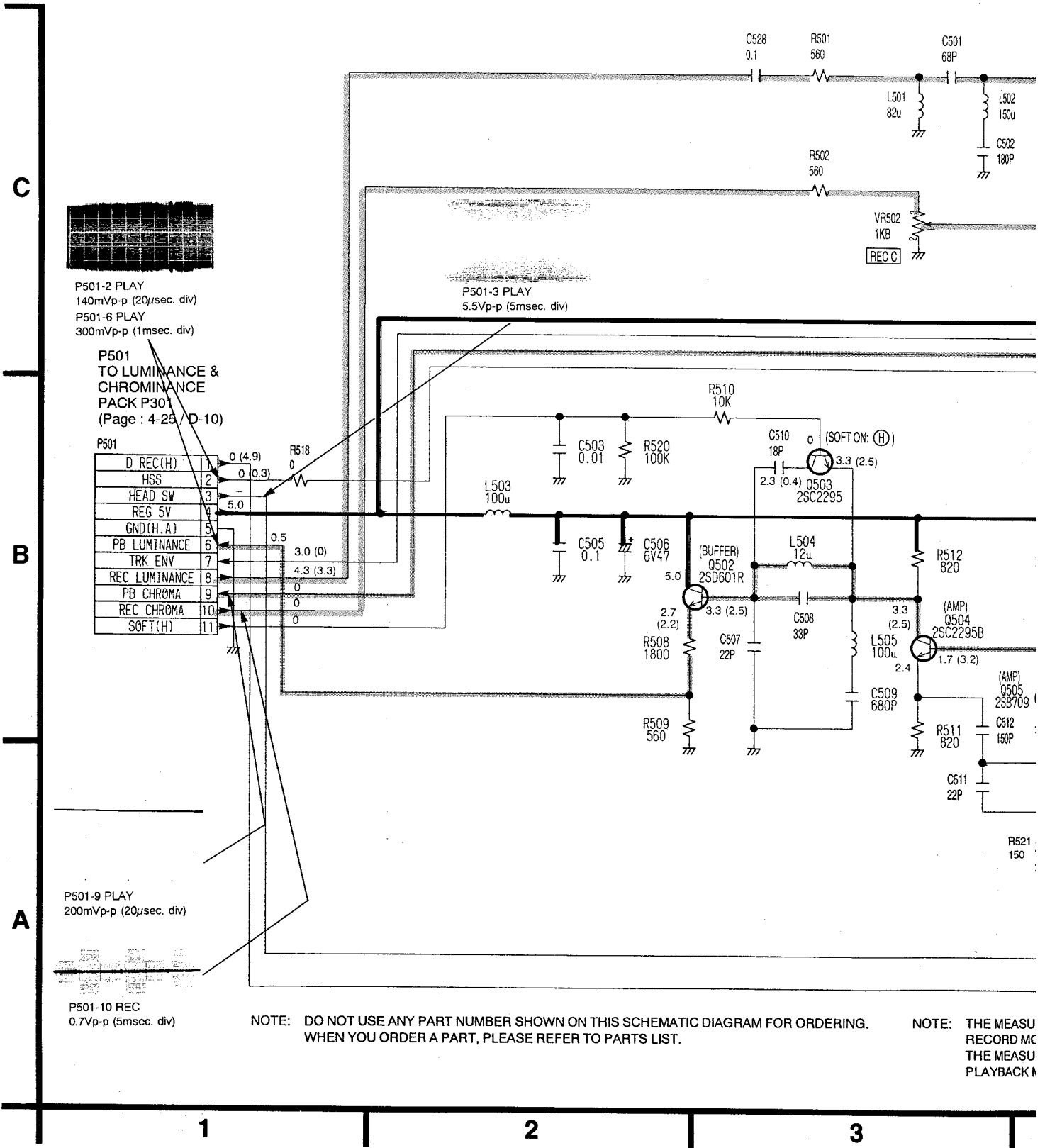
GND	1	
S NONSW5V	2	5.1
POWER OFF (L)	3	5.6
MESECAM (H)	4	0.1
REC (H)	5	-1.3
PLAY (H)	6	5.1
FF (H)	7	-1.3
REW (H)	8	-1.5
IR OUT	9	0
SOFT (H)	10	0
SERVICE	11	5.1

TO SYSTEM CONTROL & SERVO SECTION PP6001 (Page : 4-5 / A-1)

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

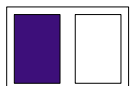
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

4-8. HEAD AMP SCHEMATIC DIAGRAM

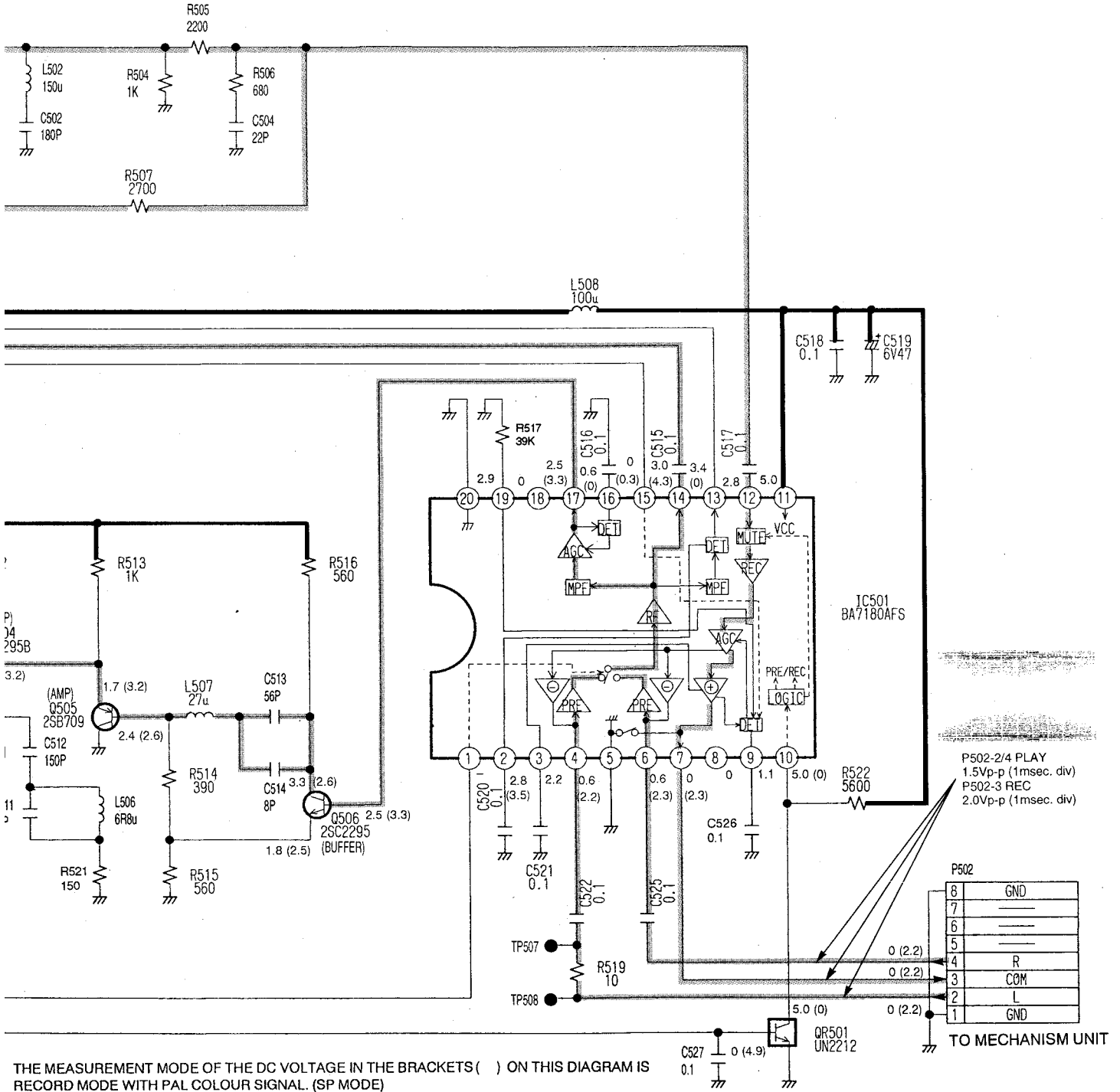


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUR RECORD MC THE MEASUR PLAYBACK M



----- VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
 ----- VIDEO MAIN SIGNAL PATH IN REC MODE



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

P502-2/4 PLAY
 1.5Vp-p (1msec. div)
 P502-3 REC
 2.0Vp-p (1msec. div)

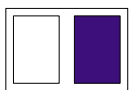
8	GND
7	---
6	---
5	---
4	R
3	COM
2	L
1	GND

TO MECHANISM UNIT

4

5

6



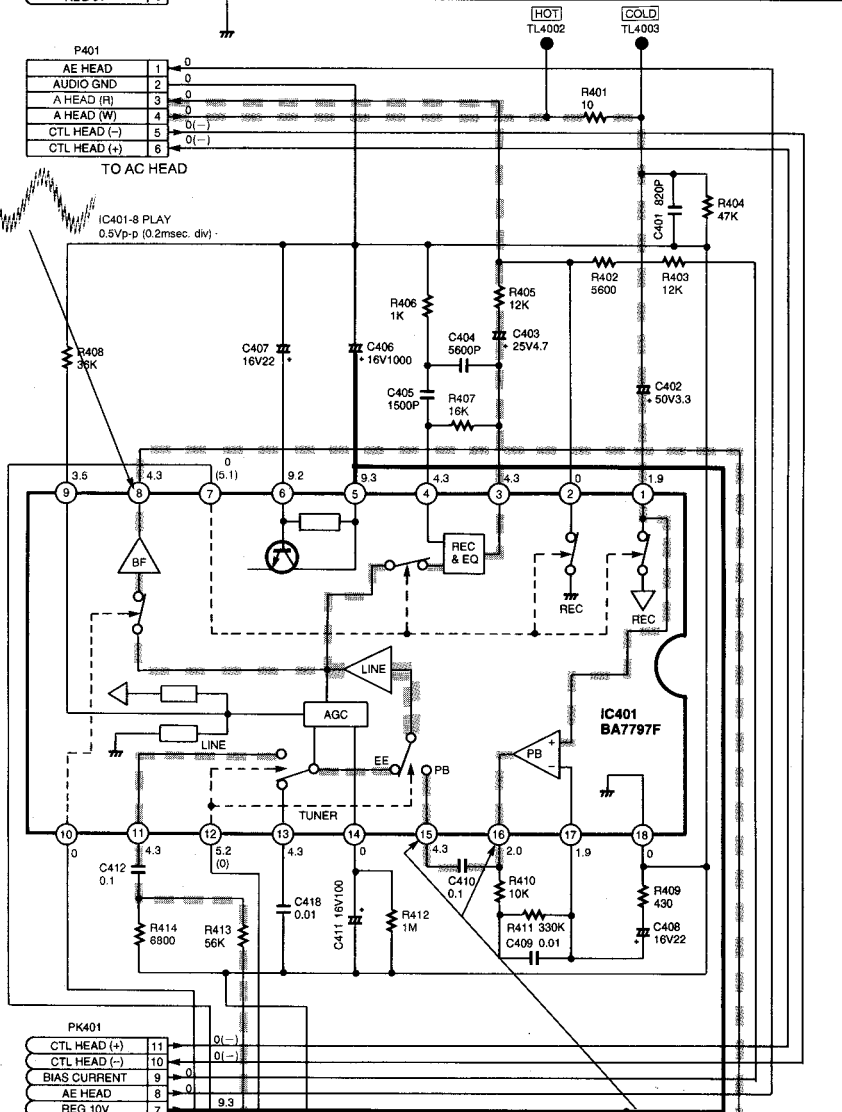
4-10.LUMINANCE & CHROMINANCE PACK SCHEMATIC DIAGRAM

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

TO LUMINANCE & CHROMINANCE SECTION
(Page : 4-10 / C-1)

PK301	
SW 5V	1 5.0
VIDEO OUT	2 2.0
GND	3 0
VIDEO IN	4 0.1
VSS	5 0.3
REG 5V	6 5.0

P401	
AE HEAD	1 0
AUDIO GND	2 0
A HEAD (R)	3 0
A HEAD (W)	4 0
CTL HEAD (-)	5 0(-)
CTL HEAD (+)	6 0(-)

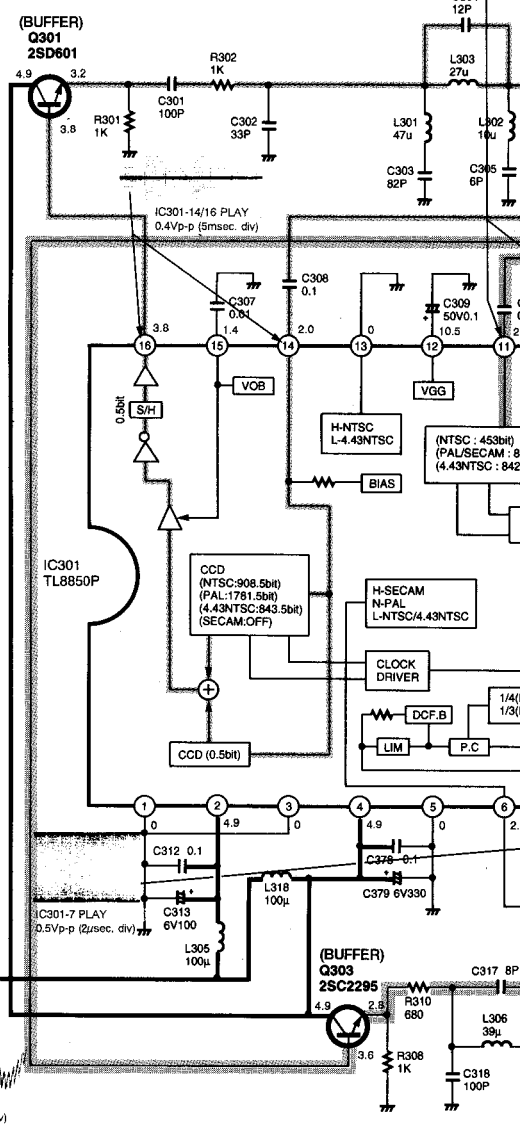


PK401	
CTL HEAD (+)	11 0(-)
CTL HEAD (-)	10 0(-)
BIAS CURRENT	9 0
AE HEAD	8 0
REG 10V	7 9.3
V EE (L)	6 5.2(0)
AUDIO IN	5 0
A MUTE (H)	4 0
D A REC (H)	3 0
AUDIO OUT	2 0(5.1)
GND (AUDIO)	1 0

TO LUMINANCE & CHROMINANCE SECTION
(Page : 4-10 / C-1)

PK302	
NTSC(L)	1 5.2
GND	2 0
V EE(H)	3 (8.1)2.2
ART V	4 0
HEAD SW	5 -
EX. REC 5V	6 5.0 (-0.5)

TO LUMINANCE & CHROMINANCE SECTION
(Page : 4-10 / D-1)

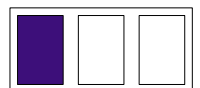


NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.
WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

1

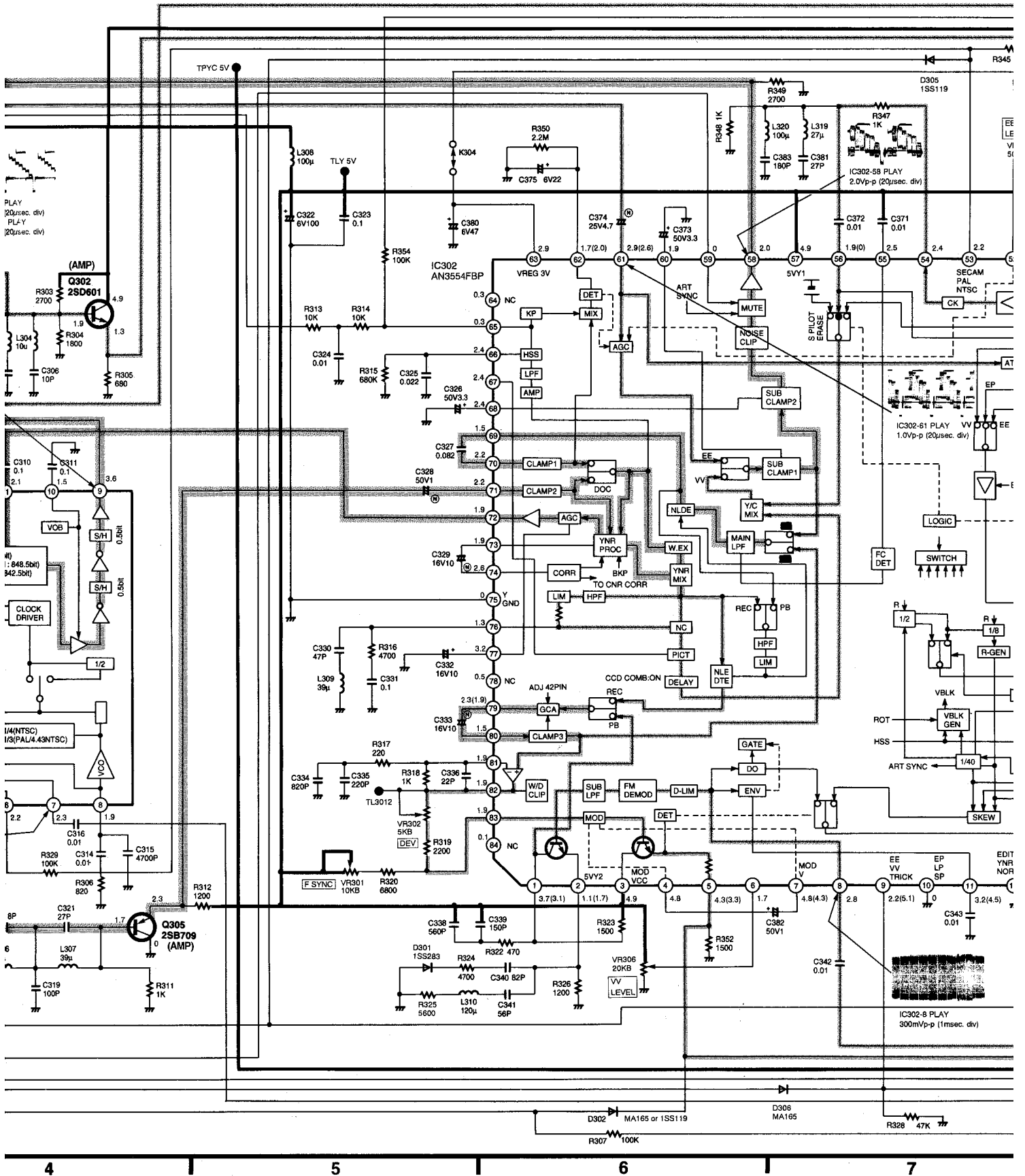
2

3



AUDIO MAIN SIGNAL PATH IN REC MODE

AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

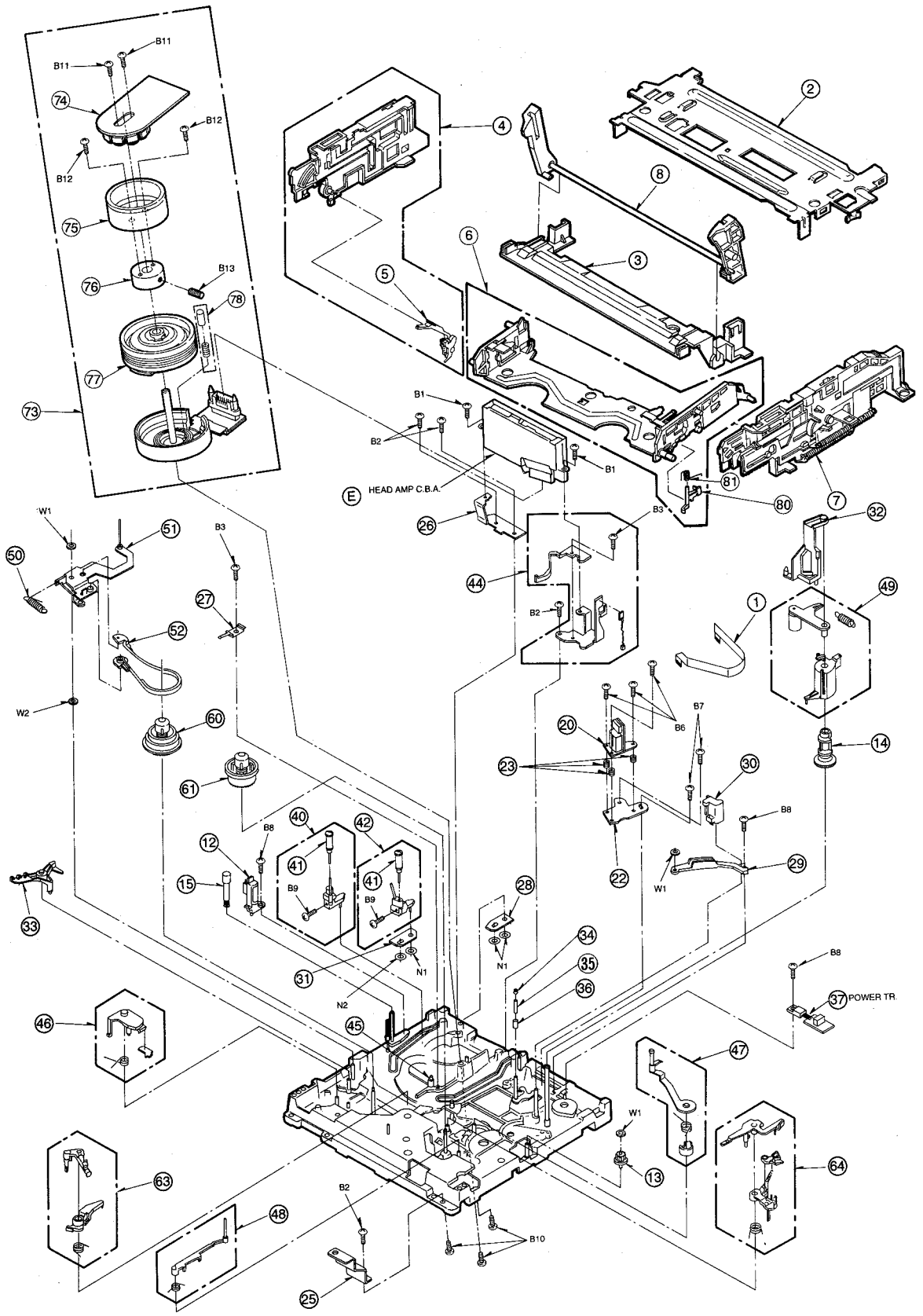


SECTION 5

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.

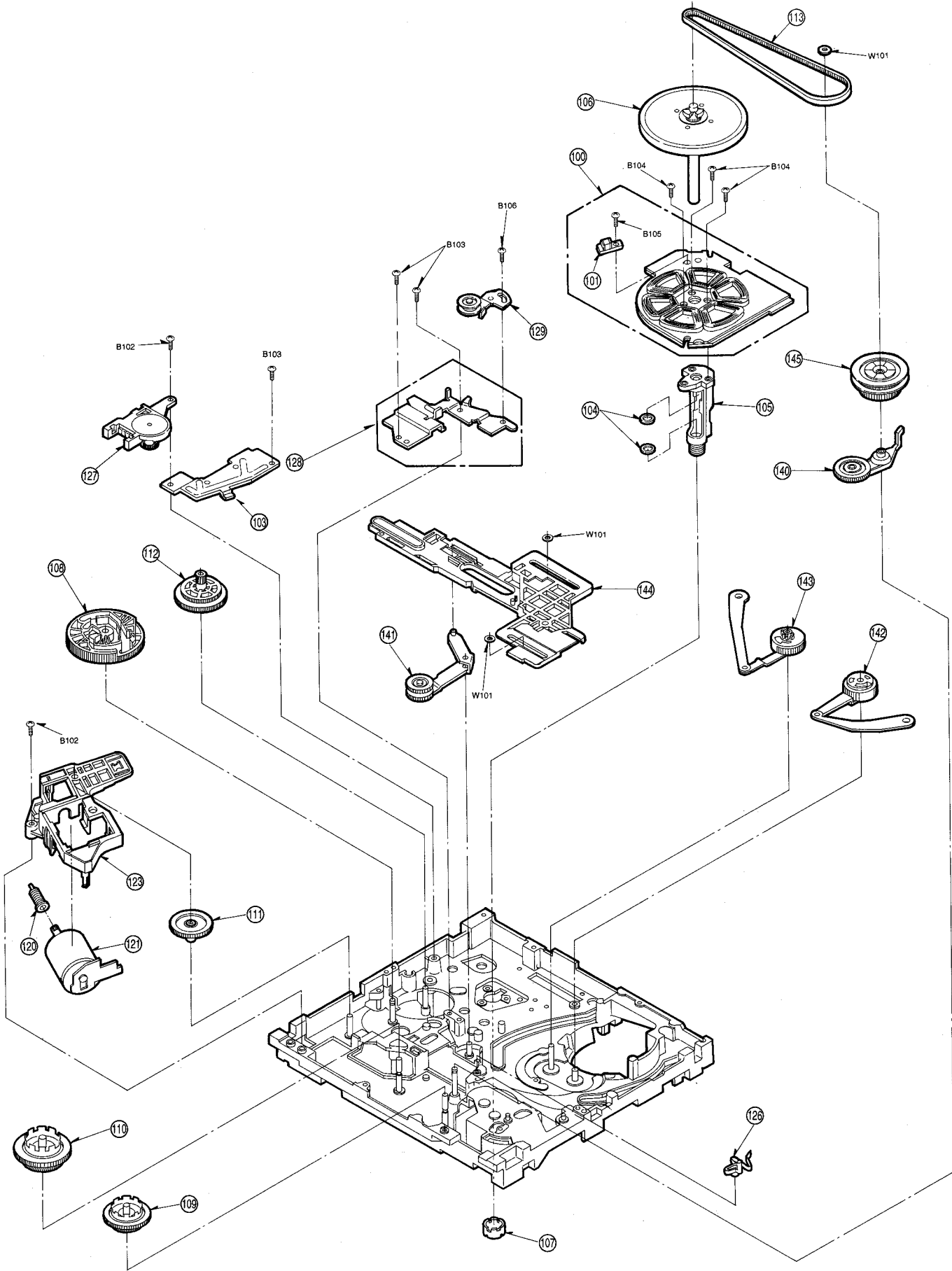
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1(1)	VWJ0758	FLEXIBLE CABLE (6P)	1	P401-P1501
2(1)	VMA8644	TOP PLATE	1	
3(1)	VMA8787	CASSETTE GUIDE	1	
4(1)	VXA4660	SIDE PLATE (L) UNIT	1	
5(1)	VML2902	OPENER LEVER UNIT	1	
6(1)	VXA4661	CASSETTE HOLDER PLATE UNIT	1	
7(1)	VXA4806	SIDE PLATE (R) UNIT	1	
8(1)	VXP1339	MAIN SHAFT UNIT	1	
12(1)	VBS0052	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)	VED0217	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	
37(1)	2SB941QBB	POWER TRANSISTOR	1	
40(1)	VXA5245KIT	INCLINED BASE (S) UNIT	1	
41(1)	VXP1415	ROLLER POST	2	
42(1)	VXA5247KIT	INCLINED BASE (T) UNIT	1	
44(1)	VXA4974	HEAD AMP MOUNT ANGLE (R) U.	1	
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)	VXL2308	TENSION ARM (1) UNIT	1	
52(1)	VX20310	TENSION BAND UNIT	1	
60(1)	VXRO221	SUPPLY REEL TABLE UNIT	1	
61(1)	VXRO222	TAKE UP REEL TABLE UNIT	1	
63(1)	VX20312	SUPPLY BRAKE ARM UNIT	1	
64(1)	VX20313	TAKE UP BRAKE ARM UNIT	1	
73(1)	VEG1162	CYLINDER UNIT	1	
74(1)	VEK7236	STATOR UNIT	1	<!
75(1)	VXP1500	ROTOR UNIT	1	
76(1)	VDB1256	CYLINDER RETAINER	1	
77(1)	VEH0678	UPPER CYLINDER UNIT	1	
78(1)	VXS0135	EARTH BRUSH UNIT	1	
80(1)	VML2680	RELEASE LEVER	1	
81(1)	VMB2013	RELEASE SPRING	1	
B1(1)	VHD0773	SCREW	2	
B2(1)	XTV26+6F	SCREW	4	
B3(1)	XTV26+4F	SCREW	2	
B6(1)	VHD0762	SCREW	3	
B7(1)	XTV26+6FZ	SCREW	2	
B8(1)	XTV26+8F	SCREW	3	
B9(1)	XQN2+AJ4	SCREW	2	
B10(1)	VHD0342	SCREW	3	
B11(1)	VHD0844	SCREW	2	
B12(1)	VHD0843	SCREW	1	
B13(1)	XXE3W4FP	SCREW	1	
N1(1)	VHN0192	NUT	3	
N2(1)	VHN0193	NUT	1	
W1(1)	VMX2208	WASHER	3	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
W2(1)	XWGV26D5G	WASHER	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.

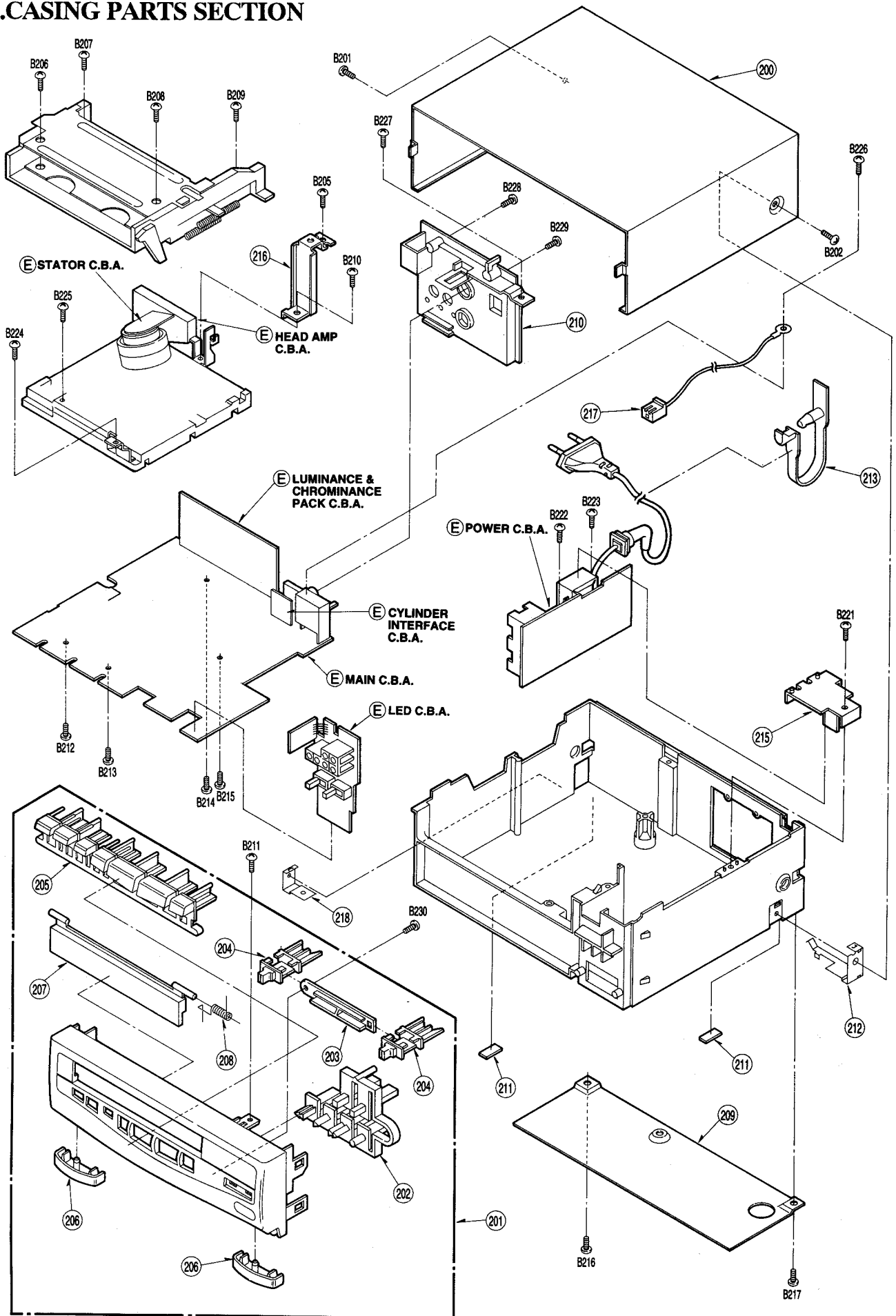
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
100(2)	VEK5927	STATOR UNIT	1	
101(2)	VBK0061	FG HEAD	1	
103(2)	VMA8930	ROTOR STOPPER	1	
104(2)	VMK1927	OIL SEAL	2	
105(2)	VXDO140	HOUSING UNIT	1	
106(2)	VXP1350	ROTOR UNIT	1	OR VXP1519
107(2)	VXQ0297	THRUST SCREW UNIT	1	
108(2)	VDG0913	MAIN CAM GEAR	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)	VDV0235	TIMING BELT	1	
120(2)	VDG0866	WORM GEAR	1	
121(2)	VEH0427	LOADING MOTOR (1) UNIT	1	
123(2)	VMD1942	MOTOR BRACKET	1	
126(2)	VML2725	IDLER CONTROL LEVER	1	
127(2)	VSS0365	MODE SW	1	
128(2)	VMA8965	SS BRAKE BASE	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	
B102(2)	XTV26+8F	SCREW	2	
B103(2)	XTV26+6F	SCREW	3	
B104(2)	VHD0753	SCREW	3	
B105(2)	VHD0754	SCREW	1	
B106(2)	XSB26+4FZ	SCREW	1	
W101(2)	VMX2208	WASHER	3	

2.CHASSIS PARTS SECTION (2)



SECTION 5

3. CASING PARTS SECTION



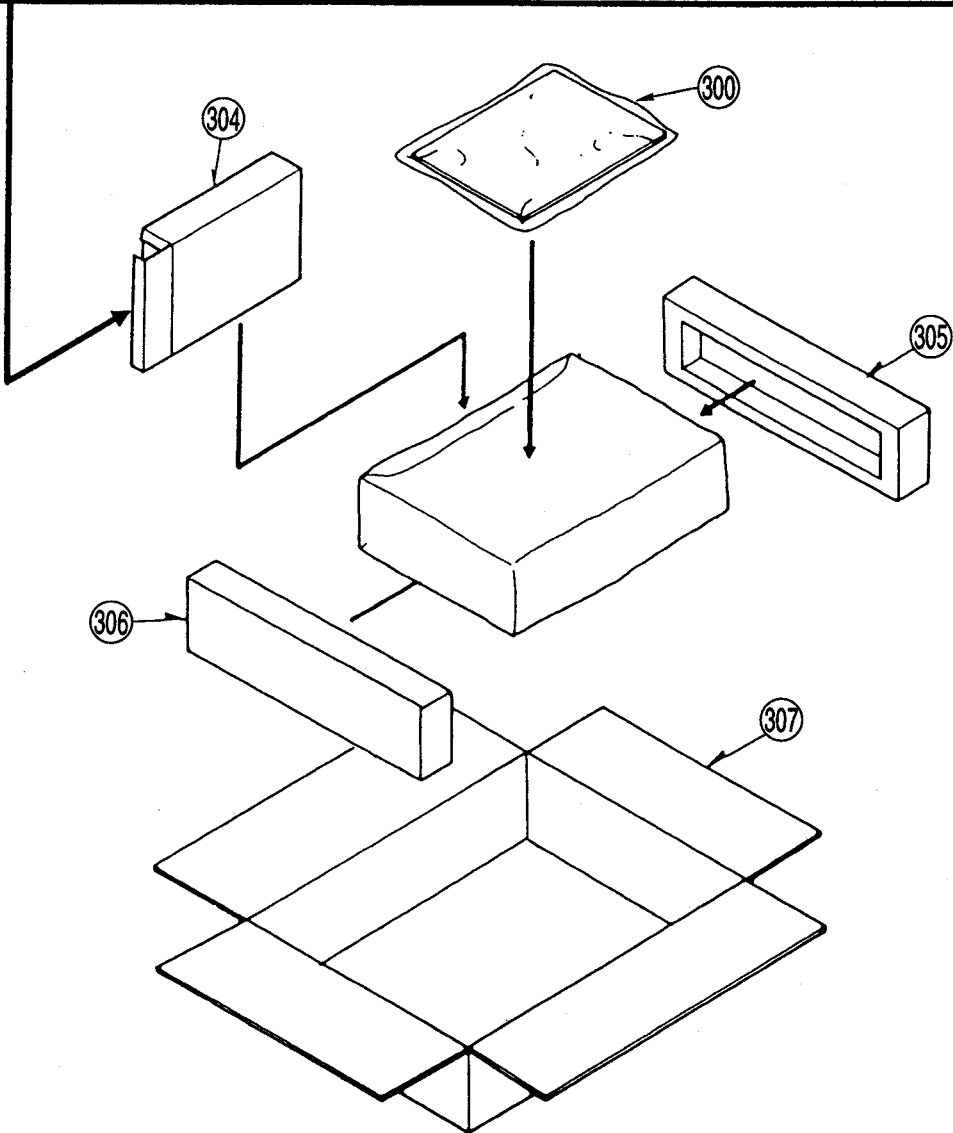
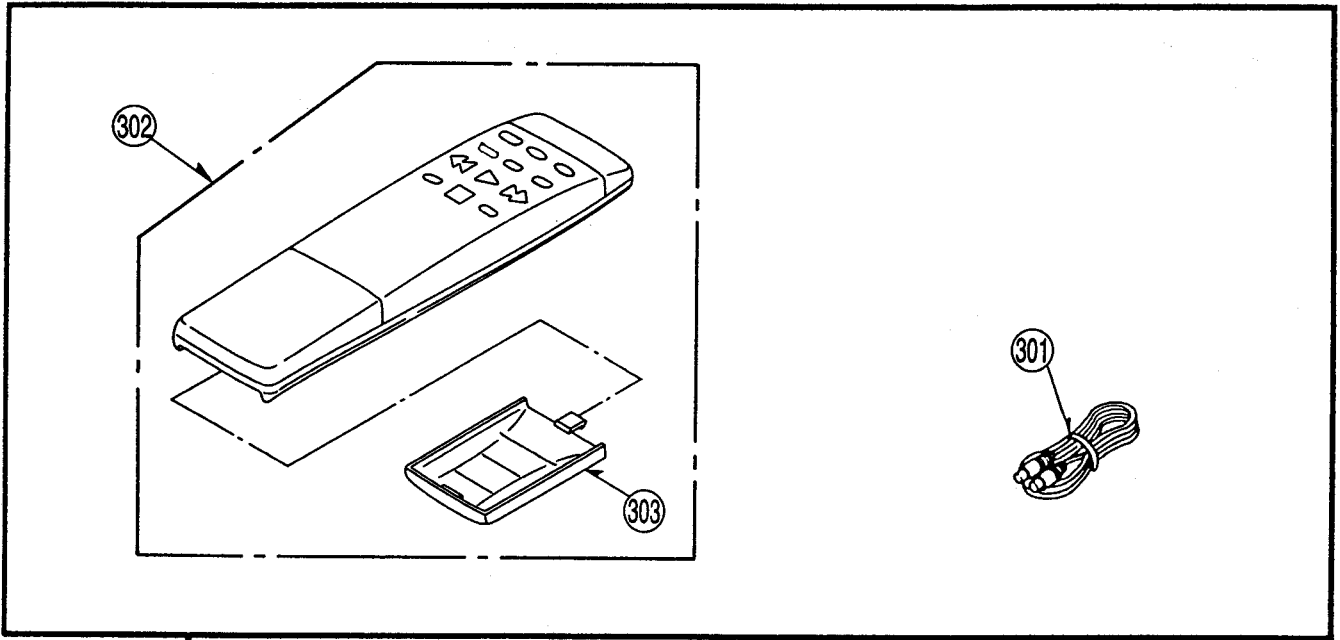
Note:1.* Be sure to make your orders of replacement parts according to this list.
 2.IMPORTANT SAFETY NOTICE
 Components identified with the mark (!) have the special characteristics for safety. When replacing any of these components,use only the same type.

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
200(3)	VGM1076	TOP PANEL	1	SUPPLIED FROM MAV
201(3)	VYP5797	FRONT PANEL UNIT	1	SUPPLIED FROM MAV
202(3)	VGL0556	PANEL LIGHT	1	SUPPLIED FROM MAV
203(3)	VGQ3464	KNOB SUPPORT	1	SUPPLIED FROM MAV
204(3)	VGU6583	SLIDE KNOB	2	SUPPLIED FROM MAV
205(3)	VGU6580	BUTTON	1	SUPPLIED FROM MAV
206(3)	VKA0176	LEG	2	SUPPLIED FROM MAV
207(3)	VKF2314	BLINDER PANEL	1	SUPPLIED FROM MAV
208(3)	VMB2521	BLINDER SPRING	1	
209(3)	VKU0397	BOTTOM PLATE	1	SUPPLIED FROM MAV
210(3)	VJH0750	JACK BOARD	1	SUPPLIED FROM MAV
211(3)	VKA0122	FOOT	2	
212(3)	VMP4314	SIDE ANGLE (R)	1	
213(3)	VJF0139	AC CORD FIXTURE	1	
215(3)	VMP4320	TRANSFORMER ANGLE	1	SUPPLIED FROM MAV
216(3)	VMP4313	MECHANISM ANGLE (R)	1	
217(3)	VEE9133	CONNECTOR	1	
218(3)	VMP3821	SIDE ANGLE (F)	1	
B201-B202	XTW3+10TFZ	SCREW	2	
B205	XTV3+12GR	SCREW	1	
B206-B208	XTV26+8FR	SCREW	3	
B209	XTV26+10F	SCREW	1	
B210	VHD0168	SCREW	1	
B211	VHD0773	SCREW	1	
B212-B215	VHD0772	SCREW	4	
B216-B217	VHD0059	SCREW	2	
B221	XTV3+12GR	SCREW	1	
B222-B225	VHD0168	SCREW	4	
B226	XTV3+6F	SCREW	1	
B227	VHD0773	SCREW	1	
B228-B229	XTV3+12JFZ	SCREW	2	
B230	XTV26+8G	SCREW	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
300(4)	VQT6042	OPERATING INSTRUCTIONS (ENGLISH/RUSSIAN/ARABIC)	1	<!>SUPPLIED FROM MAV NV-POSREE
300(4)	VQT6094	OPERATING INSTRUCTIONS (ENGLISH/RUSSIAN/ARABIC)	1	<!>SUPPLIED FROM MAV NV-POSREU
301(4)	VJA0376	DIN RF CABLE	1	SUPPLIED FROM MAV
302(4)	EUR571100	REMOTE CONTROLLER	1	SUPPLIED FROM MAV
303(4)	UR57E0490	BATTERY COVER	1	SUPPLIED FROM MAV
304(4)	VFK1584	ACCESSORY BOX	1	SUPPLIED FROM MAV
305(4)	VFN4142	CUSHION (R)	1	SUPPLIED FROM MAV
306(4)	VFN4143	CUSHION (L)	1	SUPPLIED FROM MAV
307(4)	VFG7897	PACKING CASE	1	SUPPLIED FROM MAV NV-POSREE
307(4)	VFG7928	PACKING CASE	1	SUPPLIED FROM MAV NV-POSREU
		SERVICE FIXTURES & TOOLS		
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	1	
	VFK0335	RETAINING RING REMOVER (3mm/4mm)	1	
	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
	VFK0326	HEX WRENCH SET	1	
	VFK0132	BACK TENSION METER	1	
	VFK27	HEAD CLEANING STICK	1	
	MOR265	MORLYTONE GREASE	1	
	VFK0341	UPPER CYLINDER REMOVER	1	
	VFK0680	WHITE GREASE	1	
	VFK0851	STATOR CENTERING TOOL	1	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	

4.PACKING PARTS SECTION



5-2.ELECTRICAL REPLACEMENT PARTS LIST

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.
 3.Unless otherwise specified, All resistors are in OHMS , K-1,000 OHMS. All capacitors are in MICRO-FARADS(uf),P=μF.
 4.The P.C.Board units marked with "■"show below the main assembled parts.
 5.The marking(RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	VEPO3A97H	MAIN C.B.A. (Page:5-7)	1	[SUPPLIED FROM MAV] (RTL) INCLUDING THE LED C.B.A.(VEPO0U10D), CYLINDER INTERFACE C.B.A.(VEPO2435A), LUMINANCE & CHROMINANCE PACK C.B.A.(VEPO3A98C).
	VEPO0U10D	LED C.B.A.	1	[SUPPLIED FROM MAV] (RTL) INCLUDED IN MAIN C.B.A.(VEPO3A97H).
	VEPO2435A	CYLINDER INTERFACE C.B.A.	1	[SUPPLIED FROM MAV] (RTL) INCLUDED IN MAIN C.B.A.(VEPO3A97H).
	VEPO3A98C	LUMINANCE & CHROMINANCE PACK C.B.A.	1	[SUPPLIED FROM MAV] (RTL) INCLUDED IN MAIN C.B.A.(VEPO3A97H).
	VEPO5199B	HEAD AMP C.B.A. (Page:5-10)	1	[SUPPLIED FROM MAV] (RTL)
	VEPO1582F	POWER C.B.A. (Page:5-11)	1	[SUPPLIED FROM MAV] (RTL)<!>
	VEPO2432A	POWER TRANSISTOR C.B.A. (Page:5-11)	1	[SUPPLIED FROM MAV] (RTL)
	-----	CYLINDER STATOR C.B.A. (Page:5-11)	1	(RTL) C.B.A. IS INCLUDED IN CYLINDER STATOR UNIT (VEK7236).
	-----	MOTOR C.B.A. (Page:5-11)	1	(RTL) C.B.A. IS INCLUDED IN LOADING MOTOR (1) UNIT (VEM0427).
	ENC47998	RF CONVERTER	1	[SUPPLIED FROM MAV] <!>
F1101	XBA2C05TBO	FUSE	1	<!>
F1102	XBA2C10TBO	FUSE	1	<!>
F1104	XBA2C16TBO	FUSE	1	<!>
	■ VEPO3A97H	MAIN C.B.A.		[SUPPLIED FROM MAV] (RTL)
C301	ECUM1H101JCN	C.CAPACITOR CH 50V	100P	1
C302	ECUM1H330JCN	C.CAPACITOR CH 50V	33P	1
C303	ECUM1H820JCN	C.CAPACITOR CH 50V	82P	1
C304	ECUM1H120JCN	C.CAPACITOR CH 50V	12P	1

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C305	ECUM1H060DCN	C.CAPACITOR CH 50V	6P	1
C306	ECUM1H100DCN	C.CAPACITOR CH 50V	10P	1
C307	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C308	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C309	ECEA1HKA0R1	E.CAPACITOR	50V 0.1U	1
C310-12	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	3
C313	ECEAOJKS101	E.CAPACITOR	6.3V 100U	1
C314	ECUM1H103KBN	C.CAPACITOR CH 50V	0.01U	1
C315	ECUM1H472KBN	C.CAPACITOR CH 50V	4700P	1
C316	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C317	ECUM1H080DCN	C.CAPACITOR CH 50V	8P	1
C318,19	ECUM1H101JCN	C.CAPACITOR CH 50V	100P	2
C321	ECUM1H270JCN	C.CAPACITOR CH 50V	27P	1
C322	ECEAOJKA101	E.CAPACITOR	6.3V 100U	1
C323	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C324	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C325	ECUM1H223KBN	C.CAPACITOR CH 50V	0.022U	1
C326	ECEA1HKA3R3	E.CAPACITOR	50V 3.3U	1
C327	ECUM1E823KBN	C.CAPACITOR CH 25V	0.082U	1
C328	ECEA1HKNO10	E.CAPACITOR	50V 1U	1
C329	ECEA1CKA100	E.CAPACITOR	16V 10U	1
C330	ECUM1H470JCN	C.CAPACITOR CH 50V	47P	1
C331	ECUM1E104KBN	C.CAPACITOR CH 25V	0.1U	1
C332	ECEA1CKA100	E.CAPACITOR	16V 10U	1
C333	ECEA1CKN100	E.CAPACITOR	16V 10U	1
C334	ECUM1H821JCN	C.CAPACITOR CH 50V	820P	1
C335	ECUM1H221JCN	C.CAPACITOR CH 50V	220P	1
C336	ECUM1H220JCN	C.CAPACITOR CH 50V	22P	1
C338	ECUM1H561JCN	C.CAPACITOR CH 50V	560P	1
C339	ECUM1H151JCN	C.CAPACITOR CH 50V	150P	1
C340	ECUM1H820JCN	C.CAPACITOR CH 50V	82P	1
C341	ECUM1H560JCN	C.CAPACITOR CH 50V	56P	1
C342	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C343	ECUM1H103KBN	C.CAPACITOR CH 50V	0.01U	1
C344	ECUM1E104KBN	C.CAPACITOR CH 25V	0.1U	1
C345	ECEA1HKA2R2	E.CAPACITOR	50V 2.2U	1
C347	ECUM1E154KBM	C.CAPACITOR CH 25V	0.15U	1
C348	ECUM1H332KBN	C.CAPACITOR CH 50V	3300P	1
C349	ECEA1HKA010	E.CAPACITOR	50V 1U	1
C350	ECUM1H333KBN	C.CAPACITOR CH 50V	0.033U	1
C351	ECUM1H102KBN	C.CAPACITOR CH 50V	1000P	1
C352	ECUM1H100DCN	C.CAPACITOR CH 50V	10P	1
C353	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C354	ECUM1H470JCN	C.CAPACITOR CH 50V	47P	1
C355	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C356	ECEAOJKA221	E.CAPACITOR	6.3V 220U	1
C357	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C358,59	ECUM1E104KBN	C.CAPACITOR CH 25V	0.1U	2
C360	ECUM1H223KBN	C.CAPACITOR CH 50V	0.022U	1
C361	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C362	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C363	ECEAOJKA221	E.CAPACITOR	6.3V 220U	1
C364	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	1
C365	ECUM1H220JCN	C.CAPACITOR CH 50V	22P	1
C366	ECUM1H270JCN	C.CAPACITOR CH 50V	27P	1
C367-72	ECUM1H1032FN	C.CAPACITOR CH 50V	0.01U	6
C373	ECEA1HKA3R3	E.CAPACITOR	50V 3.3U	1
C374	ECEA1EK04R7	E.CAPACITOR	25V 4.7U	1
C375	ECEAOJKA220	E.CAPACITOR	6.3V 22U	1
C376	ECUM1E154KBM	C.CAPACITOR CH 25V	0.15U	1
C378	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1
C379	ECEAOJKS331	E.CAPACITOR	6.3V 330U	1
C380	ECEAOJKA470	E.CAPACITOR	6.3V 47U	1
C381	ECUM1H270JCN	C.CAPACITOR CH 50V	27P	1
C382	ECEA1HKA010	E.CAPACITOR	50V 1U	1
C383	ECUM1H181JCN	C.CAPACITOR CH 50V	180P	1
C401	ECUM1H821JCN	C.CAPACITOR CH 50V	820P	1
C402	ECEA1HKA3R3	E.CAPACITOR	50V 3.3U	1
C403	ECEA1EKA4R7	E.CAPACITOR	25V 4.7U	1
C404	ECQB1H562JZ	F.CAPACITOR	50V 5600P	1
C405	ECQB1H152JZ	F.CAPACITOR	50V 1500P	1
C406	ECEA1CU102	E.CAPACITOR	16V 1000P	1
C407,08	ECEA1CKA220	E.CAPACITOR	16V 22U	2
C409	ECQB1H103JZ	F.CAPACITOR	50V 0.01U	1
C410	ECUM1H1042FN	C.CAPACITOR CH 50V	0.1U	1

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C411	ECEA1CKA101	E. CAPACITOR 16V 100U	1		C4015	ECCD2H181J	C. CAPACITOR 500V 180P	1	
C412	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1		C4016	ECQB1H153JZ	P. CAPACITOR 50V 0.015U	1	
C413,14	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	2		C6002	ECUM1H100DCN	C. CAPACITOR CH 50V 10P	1	
C415	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1		C6003	ECUM1H120JCN	C. CAPACITOR CH 50V 12P	1	
C416	ECUM1H220JCN	C. CAPACITOR CH 50V 22P	1		C6004	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1	
C417	ECEA1CKA100	E. CAPACITOR 16V 10U	1		C6006	ECEA1HKA3R3	E. CAPACITOR 50V 3.3U	1	
C418	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1		C6009	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1	
C1001	ECEA1CGE331	E. CAPACITOR 16V 330U	1		C6010	ECEA1HKA010	E. CAPACITOR 50V 1U	1	
C1002	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1		C6015	ECEA1CKA220	E. CAPACITOR 16V 22U	1	
C1006	ECEA1CGE470	E. CAPACITOR 16V 47U	1		C6502	ECUM1C224ZFN	C. CAPACITOR CH 16V 0.22U	1	
C1008	ECEA1CU471	E. CAPACITOR 16V 470U	1		C6712	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1	
C2001	ECEA1CKA220	E. CAPACITOR 16V 22U	1		C7505	ECEAOJKA470	E. CAPACITOR 6.3V 47U	1	
C2002	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1						
C2003	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1						
C2004	ECUM1H102KBN	C. CAPACITOR CH 50V 1000P	1		CU7001	ENC47998	RF CONVERTER	1	[SUPPLIED FROM MAV]
C2005	ECUM1H221JCN	C. CAPACITOR CH 50V 220P	1						<1>
C2006	ECUM1H472KBN	C. CAPACITOR CH 50V 4700P	1						
C2008	ECEA1CKA100	E. CAPACITOR 16V 10U	1		D301	1SS283	DIODE	1	
C2009,10	ECEA1ESN3R3	E. CAPACITOR 25V 3.3U	2		D302-07	1SS254	DIODE	6	
C2011	ECUM1H471JCN	C. CAPACITOR CH 50V 470P	1		D1003	MA4100L	DIODE	1	
C2012	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1		D1501	LN59L-VT	IC	1	
C2013	ECEA1AKS221	E. CAPACITOR 10V 220U	1		D3001	1SS254	DIODE	1	
C2014	ECEA1CKS100	E. CAPACITOR 16V 10U	1		D4001	MA4027-L	DIODE	1	
C2015	ECEA1HKS3R3	C. CAPACITOR CH 50V 3.3U	1		D6001	MA151K	DIODE	1	
C2016	ECEAOJKS220	E. CAPACITOR 6.3V 22U	1		D6002	1SS254	DIODE	1	
C2017	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1		D6004-06	1SS254	DIODE	3	
C2018	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1		D6505	MA4068-H	DIODE	1	
C2019	ECUM1H223KBN	C. CAPACITOR CH 50V 0.022U	1		D7501-03	LN38GCPX	DIODE	3	
C2020	ECUM1H392KBN	C. CAPACITOR CH 50V 3900P	1		D7504	LN28RCFX	DIODE	1	
C2021	ECEA1HKA4R7	E. CAPACITOR 50V 4.7U	1		D7510,11	LN28RCFX	DIODE	2	
C2022	ECEAOJU221	E. CAPACITOR 6.3V 22U	1						
C2023	ECUM1H222KBN	C. CAPACITOR CH 50V 2200P	1		FE	VJS1229T	CONNECTOR (FEMALE)	1	
C2024	ECQV1H683JM	P. CAPACITOR 50V 0.068U	1						
C2029	ECEAOJKA101	E. CAPACITOR 6.3V 100U	1		IC301	TL8850P	IC	1	
C2031	ECUM1H101JCN	C. CAPACITOR CH 50V 100P	1		IC302	AN3554FBP	IC	1	
C2501	ECEA1CKG100	E. CAPACITOR 16V 10U	1		IC401	BA7797F	IC	1	
C2502	ECQV1H104JM	P. CAPACITOR 50V 0.1U	1		IC1501,02	ON1387	DIODE	2	
C2503-05	ECUM1E104KBN	C. CAPACITOR CH 25V 0.1U	3		IC2501	AN3814K	IC	1	
C2506	ECQV1H683JM	P. CAPACITOR 50V 0.068U	1		IC2701	BA6871	IC	1	
C2507-09	ECEA1EKN4R7	E. CAPACITOR 25V 4.7U	3		IC3001	HA17431PA	IC	1	
C2510	ECUM1H4732FN	C. CAPACITOR CH 50V 0.047U	1		IC6001	MN67434VRSX	IC	1	[SUPPLIED FROM MAV]
C2511	ECEAOJKA101	E. CAPACITOR 6.3V 100U	1		IC6501	XRA6887-V3	IC	1	
C2512	ECEA1HKG4R7	E. CAPACITOR 50V 0.47U	1		IC6502	AN1358S	IC	1	
C2513	ECQV1H683JM	P. CAPACITOR 50V 0.068U	1		IC7502	PST591B	IC	1	
C2701	ECEA1CKA330	E. CAPACITOR 16V 33U	1						
C2702	ECQV1H683JM	P. CAPACITOR 50V 0.068U	1		IR7501	RFM-675CBRS	IR RECEIVER UNIT	1	[SUPPLIED FROM MAV]
C2703,04	ECUM1H333KBN	C. CAPACITOR CH 50V 0.033U	2						
C2705	ECEA1VU470	E. CAPACITOR 35V 47U	1						
C2706	ECEAOJU221	E. CAPACITOR 6.3V 220U	1						
C2707	ECEA1HKA2R2	E. CAPACITOR 50V 0.22U	1						
C2708	ECEA1HKA010	E. CAPACITOR 50V 1U	1						
C2709	ECEA1VU470	E. CAPACITOR 35V 47U	1						
C2710-13	ECUM1H333KBN	C. CAPACITOR CH 50V 0.033U	4						
C2714-16	ECEA1HKA2R2	E. CAPACITOR 50V 2.2U	3						
C2717	ECEA1CU101	E. CAPACITOR 16V 100U	1						
C2719	ECUX1C1052FM	C. CAPACITOR CH 16V 1U	1						
C2721	ECEA1HKNR47	E. CAPACITOR 50V 0.47U	1		L301	VLQ0188J470	COIL 47UH	1	
C2724	ECUM1H680JCN	C. CAPACITOR CH 50V 68P	1		L302	VLQ0188J100	COIL 10UH	1	
C2725	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1		L303	ELESE270KA	COIL 27UH	1	
C3001,02	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	2		L304	ELESE100KA	COIL 10UH	1	
C3003	ECEAOJGE471	E. CAPACITOR 6.3V 470U	1		L305	ELESE101KA	COIL 100UH	1	
C3004	ECUX1C1052FM	C. CAPACITOR CH 16V 1U	1		L306,07	ELESE390KA	COIL 39UH	2	
C3005	ECEA1CKA470	E. CAPACITOR 16V 47U	1		L308	VLQEL06F101K	COIL	1	
C3007	ECEAOJM471	E. CAPACITOR 6.3V 470U	1		L309	VLQ0188J390	COIL 39UH	1	
C3011	ECEA1CKG330	E. CAPACITOR 16V 33U	1	[SUPPLIED FROM MAV]	L310	VLQ0188J121	COIL 120UH	1	
C3012	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1		L311	ELESE101KA	COIL 100UH	1	
C3015	ECUM1H1032FN	C. CAPACITOR CH 50V 0.01U	1		L312	ELESE8R2KA	COIL 8.2UH	1	
C3016	ECEA1CKG101	E. CAPACITOR 16V 100U	1		L313	ELESE391KA	COIL 390UH	1	
C3018	ECUM1H821JCN	C. CAPACITOR CH 50V 820P	1		L314	VLQEL06F101K	COIL	1	
C3019	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1		L315	VLQ0188J3R3	COIL H	1	
C3101	ECEAOJKS330	E. CAPACITOR 6.3V 33U	1		L316	ELESE470KA	COIL 47UH	1	
C3102	ECUM1H104ZFN	C. CAPACITOR CH 50V 0.1U	1		L317	ELESE681KA	COIL 680UH	1	
C4012	ECQB1H102KZ	F. CAPACITOR 50V 1000P	1		L318	ELESE101KA	COIL 100UH	1	
C4013	ECEA16M33	E. CAPACITOR 16V 33U	1		L319	VLQ0188J270	COIL 27UH	1	
C4014	ECQB1332JF	P. CAPACITOR	1	[SUPPLIED FROM MAV]	L320	VLQ0188J101	COIL 100UH	1	
					L1001	VLQ0599J101	COIL 100UH	1	
					L2001	VLQ0599J101	COIL 100UH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L2501	VLQ0599J101	COIL 100UH	1	
L3101	ELESE1R0KA	COIL 1UH	1	
L3102_03	ELESE470KA	COIL 47UH	2	
L3104	VLPO074	INDUCTOR	1	
LA002	ELESE471KA	COIL	1	
LA003	VLQ0599J220	COIL 22UH	1	
L6001	VLPO074	INDUCTOR	1	
P301	VJS3537A011G	CONNECTOR (FEMALE) 11P	1	
P401	VJS2176	CONNECTOR (FEMALE)	1	
P1001	VJS3553E010	CONNECTOR (FEMALE) 10P	1	
P1102	VJS1141	CONNECTOR (FEMALE)	1	
P1503	VJS3316A002	CONNECTOR (FEMALE) 2P	1	
P1504	VJS3317A004	CONNECTOR (FEMALE) 4P	1	
P1506	VJS1230T	CONNECTOR (FEMALE)	1	
P2601	VJS3537B009G	CONNECTOR (FEMALE) 9P	1	
P2701	VJS3537A015G	CONNECTOR (FEMALE) 15P	1	
P2702	VJP1230T	CONNECTOR (MALE) 3P	1	
P2702	VJS1230T	CONNECTOR (FEMALE)	1	
P4001	VJP1229T	CONNECTOR (MALE) 2P	1	
P4001	VJS1229T	CONNECTOR (FEMALE)	1	
PK301_02	VJR0778B006W	CONNECTOR	2	
PK303	VJR0778B008W	CONNECTOR	1	
PK401	VJR0778B011W	CONNECTOR	1	
PK2601	VJR0778B010W	CONNECTOR	1	
PP6001	VJP3573E011	CONNECTOR (MALE) 11P	1	
PS7501	VJS3573F011	CONNECTOR (FEMALE) 11P	1	
Q301_02	MSD601	TRANSISTOR	2	
Q303	MSC2295	TRANSISTOR	1	
Q305	MSB709	TRANSISTOR	1	
Q401	2SD601A-R	TRANSISTOR	1	
Q1002	MSD602	TRANSISTOR	1	
Q1003	2SD2139	TRANSISTOR	1	
Q1501_02	PN205L-NC.VT	TRANSISTOR	2	
Q2701	MSD601	TRANSISTOR	1	
Q3001	MSB709-R	TRANSISTOR	1	
Q3004	2SD1273	TRANSISTOR	1	
Q4001	2SD602A-R	TRANSISTOR	1	
Q6002	MSB710	TRANSISTOR	1	
QR301	UN2210	TRANSISTOR-RESISTOR	1	
QR302_03	MUN2213	TRANSISTOR-RESISTOR	2	
QR1001	MUN2212	TRANSISTOR-RESISTOR	1	
QR1005	MUN2212	TRANSISTOR-RESISTOR	1	
QR1006	MUN2211	TRANSISTOR-RESISTOR	1	
QR2001	MUN2112	TRANSISTOR-RESISTOR	1	
QR2002	XN1213	TRANSISTOR-RESISTOR	1	
QR3001	MUN2113	TRANSISTOR-RESISTOR	1	
QR3002	MUN2112	TRANSISTOR-RESISTOR	1	
QR3003	MUN2113	TRANSISTOR-RESISTOR	1	
QR3004	MUN2211	TRANSISTOR-RESISTOR	1	
QR6001	UN211H	TRANSISTOR-RESISTOR	1	
QR6006	MUN2213	TRANSISTOR-RESISTOR	1	
QR6007-10	MUN2111	TRANSISTOR-RESISTOR	4	
QR6501	XN1211	TRANSISTOR-RESISTOR	1	
QR7501	MUN2111	TRANSISTOR-RESISTOR	1	
QR7502	UN2117	TRANSISTOR-RESISTOR	1	
QR7503	MUN2113	TRANSISTOR-RESISTOR	1	
R301_02	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R303	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R304	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R305	ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R306	ERJ6GMYJ821	M.RESISTOR CH 1/10W 820	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R307	ERJ6GMYJ104	M.RESISTOR CH 1/10W 1M	1	
R308	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R309	ERJ6GMYJ124	M.RESISTOR CH 1/10W 120K	1	
R310	ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R311	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R312	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R313_14	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	2	
R315	ERJ6GMYJ684	M.RESISTOR CH 1/10W 680K	1	
R316	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R317	ERJ6GMYC221	M.RESISTOR CH 1/10W 220	1	
R318	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R319	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R320	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R321	ERJ6GEYK106	M.RESISTOR CH 1/10W 10M	1	
R322	ERJ6GMYG471	M.RESISTOR CH 1/10W 470	1	
R323	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R324	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R325	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R326	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R328	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R329	ERDS2TJ104	M.RESISTOR CH 1/10W 100K	1	
R330	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R331	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R332	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R334	ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R335	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R336	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R337	ERJ6GMYG201	M.RESISTOR CH 1/10W 200	1	
R339	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R340	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R341	ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R342_43	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R344	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R345	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R347_48	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R349	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R350	ERJ6GMYK225	M.RESISTOR CH 1/10W 2.2M	1	
R352	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R353	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R354	ERJ6GMYJ104	M.RESISTOR CH 1/10W 1M	1	
R355_56	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	2	
R357	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R401	ERJ6GMYJ100	M.RESISTOR CH 1/10W 10	1	
R402	ERJ6GMYC562	M.RESISTOR CH 1/10W 5.6K	1	
R403	ERJ6GMYG123	M.RESISTOR CH 1/10W 12K	1	
R404	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R405	ERJ6GMYG123	M.RESISTOR CH 1/10W 12K	1	
R406	ERJ6GMYG102	M.RESISTOR CH 1/10W 1K	1	
R407	ERJ6GMYG163	M.RESISTOR CH 1/10W 16K	1	
R408	ERJ6GMYC363	M.RESISTOR CH 1/10W 36K	1	
R409	ERJ6GMYG431	M.RESISTOR CH 1/10W 430	1	
R410	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R411	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R412	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R413	ERJ6GMYJ563	M.RESISTOR CH 1/10W 56K	1	
R414	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R415_16	ERJ6GMYG104	M.RESISTOR CH 1/10W 100K	2	
R417	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R418	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R419	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R1002	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R1007	ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
R2003	ERJ6GMYJ104	M.RESISTOR CH 1/10W 1M	1	
R2009_10	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	2	
R2013	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R2015_16	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	2	
R2018	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R2021	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2036	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R2045	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2047	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2501	ERDS2TJ391	C.RESISTOR 1/4W 390	1	
R2502	ERDS2FJ1R5	C.RESISTOR 1/4W 1.5	1	
R2503-05	ERDS2TJ330	C.RESISTOR 1/4W 33	3	
R2506	ERDS2FJ1R2	C.RESISTOR 1/4W 1.2	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R2507,08	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	2	
R2701	ERJ6GMYJ684	M.RESISTOR CH 1/10W 680K	1	
R2702	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2703	ERJ6GMYG133	M.RESISTOR CH 1/10W 13K	1	
R2704	ERJ6GMYG103	M.RESISTOR CH 1/10W 10K	1	
R2705	ERJ6GMYG473	M.RESISTOR CH 1/10W 47K	1	
R2706	EROS2CKG4301	M.RESISTOR 1/4W 4.3K	1	
R2707	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R2708	ERDS1TJ561	C.RESISTOR 1/2W 560	1	
R2709-11	ERDS2TJ560	C.RESISTOR 1/4W 56	3	
R2712	ERX12SJR47	C.RESISTOR 1/2W 0.47	1	
R2713	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R2714	ERJ6GMYG681	M.RESISTOR CH 1/10W 680	1	
R2716	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R2717	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R2718	ERJ6GMYG821	M.RESISTOR CH 1/10W 820	1	
R2719	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R2720	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2721	ERDS2TJ472	C.RESISTOR 1/4W 4.7K	1	
R2723	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R2724	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3005	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R3013	ERDS2TJ122	C.RESISTOR 1/4W 1K	1	
R3014	VRB0034E38B	M.RESISTOR CH 1/10W	1	
R3015	VRB0034E222	M.RESISTOR CH 1/10W 2.2K	1	
R3021	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R3022	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3101,02	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	2	
R3103	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R4015	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R4020,21	ERJ6GMZOR00	M.RESISTOR CH 1/10W 0	2	
R4040	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R4062	ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R6003	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6008	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6009	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6010	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R6014	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6015	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R6021	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R6022,23	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R6024	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R6029,30	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	2	
R6032	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R6033	ERDS2TJ473	C.RESISTOR 1/4W 47K	1	
R6036	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6037	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R6038	ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
R6039-41	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	3	
R6042,43	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	2	
R6044	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6045	ERJ6GMYG223	M.RESISTOR CH 1/10W 22K	1	
R6046,47	ERJ6GMYJ683	M.RESISTOR CH 1/10W 68K	2	
R6048	ERJ6GMYG223	M.RESISTOR CH 1/10W 22K	1	
R6049	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R6052	ERJ6GMYG201	M.RESISTOR CH 1/10W 200	1	
R6054,55	ERDS2TJ473	C.RESISTOR 1/4W 47K	2	
R6501	ERX1S1R8	M.RESISTOR 1W 1.8	1	
R6502	ERJ6GMYG822	M.RESISTOR CH 1/10W 8.2K	1	
R6504	ERJ6GMYG182	M.RESISTOR CH 1/10W 1.8K	1	
R6505	ERJ6GMYG512	M.RESISTOR CH 1/10W 5.1K	1	
R6506	ERJ6GMYG913	M.RESISTOR CH 1/10W 91K	1	
R6507	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7503-06	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	4	
R7514,15	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	2	
R7516	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R7517	ERDS2TJ470	C.RESISTOR 1/4W 47	1	
R7518	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R7520	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
SW1501	VES0695	SAFETY SWITCH	1	
SW4901	ESD177206	SWITCH	1	
SW7501	VSS0373	SWITCH	1	[SUPPLIED FROM MAV]
SW7502	EVQ11407K	SWITCH	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
SW7502	VSS0373	SWITCH	1	[SUPPLIED FROM MAV]
SW7503	EVQ11407K	SWITCH	1	
SW7505-09	EVQ11407K	SWITCH	5	
T4001	EIQ7QF014Q	TRANSFORMER	1	
VR301	EVNCBAA00B14	V.RESISTOR	1	
VR302	EVNCBAA00B53	V.RESISTOR	1	
VR304	EVNCBAA00B54	V.RESISTOR	1	
VR305,06	EVNCBAA00B24	V.RESISTOR	2	
VR2001	EVNCYAA03B54	V.RESISTOR	1	
X301	VSX0162	CRYSTAL OSCILLATOR	1	
X6001	VSX0437	CRYSTAL OSCILLATOR	1	
		MISCELLANEOUS		
	VMD2029	REEL GUIDE	1	
	VJH0750	JACK BOARD	1	[SUPPLIED FROM MAV]
	VMJ0891	FLAT CARD CABLE	1	(P2701-P1507)
	VEE9133	WIRE CABLE	1	(P1102-RF CONVERTER)
	VEE9084	WIRE CABLE	1	(P4001-FE HEAD)
	VEE9085	WIRE CABLE	1	(P2702-P1506)
	VMJ0894	FLAT CARD CABLE	1	(P2601-P202)
	XTV3+12JFZ	SCREW	1	
	XTV3+6F	SCREW	1	
	VMD2102	LED SPACER	1	FOR LED C.B.A.
				[SUPPLIED FROM MAV]
	VMJ11AW070BB	FLAT CARD CABLE	1	FOR LUMI.& CHRO. (P301-P501)
	VEP05199B	HEAD AMP C.B.A.		(RTL) [SUPPLIED FROM MAV]
C501	ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C502	ECUM1H181JCN	C.CAPACITOR CH 50V 180P	1	
C503	ECUM1H1032FN	C.CAPACITOR CH 50V 0.01U	1	
C504	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C505	ECUM1H1042FN	C.CAPACITOR CH 50V 0.1U	1	
C506	ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C507	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C508	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C509	ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C510	ECUM1H180JCN	C.CAPACITOR CH 50V 18P	1	
C511	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C512	ECUM1H151JCN	C.CAPACITOR CH 50V 150P	1	
C513	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C514	ECUM1H080DCN	C.CAPACITOR CH 50V 8P	1	
C515-18	ECUM1H1042FN	C.CAPACITOR CH 50V 0.1U	4	
C519	ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C520-22	ECUM1H1042FN	C.CAPACITOR CH 50V 0.1U	3	
C525-28	ECUM1H1042FN	C.CAPACITOR CH 50V 0.1U	4	
IC501	BA7180AFS	IC	1	
L501	ELESE820KA	COIL 82UH	1	
L502	ELESE151K	COIL 150UH	1	
L503	ELESE101KA	COIL 100UH	1	
L504	ELESE120KA	COIL 12UH	1	
L505	ELESE101KA	COIL 100UH	1	
L506	ELESE6R8JA	COIL 6.8UH	1	
L507	ELESE270KA	COIL 27UH	1	
L508	ELESE101KA	COIL 100UH	1	
P501	VJS3537B011G	CONNECTOR (FEMALE) 11P	1	
P502	VJS3069	CONNECTOR (FEMALE)	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q502	MSD601-R	TRANSISTOR	1	
Q503	MSC2295	TRANSISTOR	1	
Q504	MSC2295-B	TRANSISTOR	1	
Q505	MSB709	TRANSISTOR	1	
Q506	MSC2295	TRANSISTOR	1	
QR501	MUN2212	TRANSISTOR-RESISTOR	1	
R501,02	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	2	
R504	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R505	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R506	ERJ6GMYJ681	M.RESISTOR CH 1/10W 680	1	
R507	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R508	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R509	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R510	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R511,12	ERJ6GMYJ821	M.RESISTOR CH 1/10W 820	2	
R513	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R514	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R515,16	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	2	
R517	VRE0034E393	M.RESISTOR CH 1/10W 39K	1	
R518	ERJ6GMYZ0R00	M.RESISTOR CH 1/10W 0	1	
R519	ERJ6GMYJ100	M.RESISTOR CH 1/10W 10	1	
R520	ERJ6GMYJ104	M.RESISTOR CH 1/10W 1M	1	
R521	ERJ6GMYG151	M.RESISTOR CH 1/10W 150	1	
R522	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
VR502	EVNDCAA03B13	V.RESISTOR	1	
		MISCELLANEOUS		
	VSC4055	H.A. SHIELD COVER (A)	1	
	VSC4056	H.A. SHIELD COVER (B)	1	
	■ VEPO1582F	POWER C.B.A.		[SUPPLIED FROM MAV] (RTL) <1>
C1101	ECEA1VGE222	E.CAPACITOR 35V 2200U	1	
C1102	ECEA1CGE472	E.CAPACITOR 16V 4700U	1	
C1103	ECKF1H1032F	C.CAPACITOR 50V 0.01U	1	
C1104	ECA1CGE470	E.CAPACITOR 16V 47U	1	
C1105	ECKF1H1032F	C.CAPACITOR 50V 0.01U	1	
C1106	ECA1CGE470	E.CAPACITOR 16V 47U	1	
C1118	ECA1CGE470	E.CAPACITOR 16V 47U	1	
C1120,21	ECKF1H1032F	C.CAPACITOR 50V 0.01U	2	
D1101-04	ERA15-01	DIODE	4	
D1109-12	ERA15-01	DIODE	4	
D1117	MA4056H	DIODE	1	
D1118	MA4051H	DIODE	1	
D1120	ERZTC4AK221	DIODE	1	<1>
D1121	1SS254	DIODE	1	
D1123	1SS254	DIODE	1	
F1101	XBA2C05T80	FUSE	1	<1>
F1102	XBA2C16T80	FUSE	1	<1>
F1104	XBA2C10T80	FUSE	1	<1>
IC1101	HA17431PA	IC	1	
L1102,03	VLP0054	COIL	2	
P1101	VJP3553FO10	CONNECTOR (MALE) 10P	1	
P1102	VJP1148	CONNECTOR (MALE) 2P	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q1101,02	2SD1273	TRANSISTOR	2	
Q1103	2SD1275	TRANSISTOR	1	
R1101	ERDS2TJ332	C.RESISTOR 1/4W 3.3K	1	
R1102	ERDS2TJ272	C.RESISTOR 1/4W 2.7K	1	
R1103	ERDS2TJ122	C.RESISTOR 1/4W 1.2K	1	
R1104	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1105	ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
SW1101	VSR0108	SWITCH	1	<1>
T1101	VTP0366	TRANSFORMER	1	[SUPPLIED FROM MAV] <1>
		MISCELLANEOUS		
	VJA0832	AC CORD	1	[SUPPLIED FROM MAV] <1>
	EYF52BC	FUSE HOLDER	1	<1>
	■ VEPO2432A	POWER TRANSISTOR C.B.A.		[SUPPLIED FROM MAV] (RTL)
P1506	VJP1230T	CONNECTOR (MALE) 3P	1	
Q1503	2SB941QBB	TRANSISTOR	1	
	■ -----	CYLINDER STATOR C.B.A.		(RTL)
		MISCELLANEOUS		
	HW-101A-4T-A	HALL IC	1	
	VJS3537FO09G	CONNECTOR (MALE) 9P	1	
	■ -----	MOTOR C.B.A.		(RTL)
		MISCELLANEOUS		
	VJP3316B002	CONNECTOR (FEMALE) 2P	1	