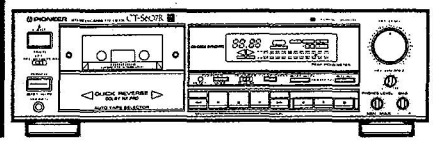
PIONEER®
The future of sound and vision.

Service Manual

Original



ORDER NO.
ARP1873

STEREO CASSETTE DECK

CT-S607R

● This manual is applicable to the KUC type.

CONTENTS

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SI OCT. 1989 Printed in Japan

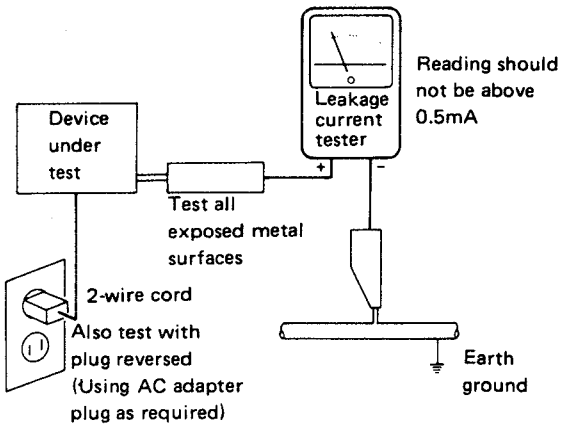
1. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. SPECIFICATIONS

System ..... 4 track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head x 1
"Ferrite" erasing head x 1
Motor ..... DC servo motor (capstan) x 1
DC motor (reel) x 1
Wow and Flutter ..... No more than 0.055% (WRMS)
No more than ±0.16% (DIN)
Fast Winding Time ..... Approximately 100 seconds
(C-60 tape)
Frequency Response (±6 dB)
-20 dB recording:
Normal tape ..... 25 to 18,000 Hz
Chrome tape ..... 25 to 18,000 Hz
Metal tape ..... 25 to 20,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB

Noise Reduction Effect
Dolby NR B type ON ..... More than 10 dB (at 5 kHz)
Dolby NR C type ON ..... More than 19 dB (at 5 kHz)

Harmonic Distortion ..... No more than 1.0% (0 dB)
Input (Sensitivity)
LINE (INPUT) ..... 63 mV (Input impedance 52 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 316 mV (Output impedance 5.8 kΩ)
Headphone ..... 45 mV (Load impedance 8 Ω)

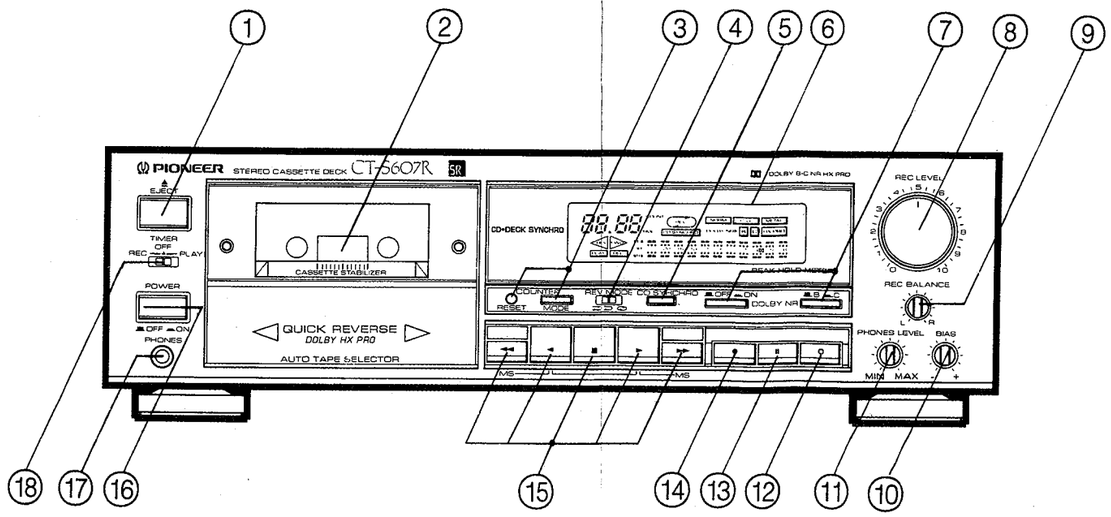
Subfunctions
- DOLBY NR B/C types
- DOLBY HX PRO
- Music search over ±15 selections
- CD-Deck synchro recording capability
- Tape counter/Time counter
- Bias adjustment
- FL peak level meter (10 seg + ∞)
- Automatic space recording mute
- One-touch recording pause
- Automatic tape selector
- Automatic reverse
- Phones jack/level
- TIMER Recording/Playback
- System remote control compatible

Miscellaneous
Power Requirements ..... AC 120 Volts, 60 Hz
Power Consumption 21W
Dimensions ..... 420 (W) x 130 (H) x 323 (D) mm
16-9/16 (W) x 5-1/16 (H) x 12-11/16(D) in
Weight (without package) ..... 4.3 kg (9 lb 7 oz)

Accessories
Operating instructions 1
Connection cord with pin plugs 2
CD-Deck synchro control cord 1
System remote control cord 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

3. PANEL FACILITIES



(1) EJECT button
Press to open the cassette door.
- Do not press the EJECT button while the tape is running. Press the stop button ■ first and then press the EJECT button.
- The cassette door may not open when the EJECT button is pressed if the power was turned off while the tape was running. If this occurs, turn the power back on and then press the EJECT button.

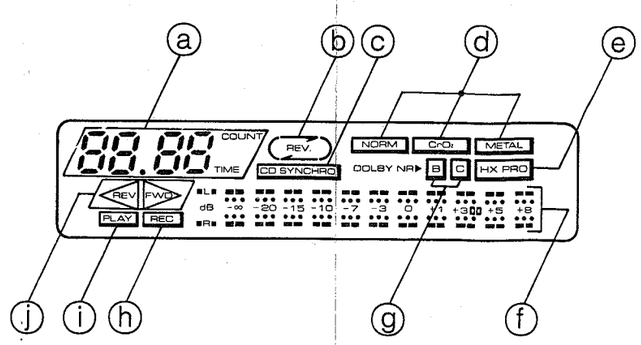
(2) Cassette door
Press the EJECT button to open the cassette door and insert a cassette tape into the cassette door with the exposed (tape) side facing down. To close the cassette door, press in on the front of the door until a click sound is heard.

(3) COUNTER RESET/MODE buttons
RESET:
Sets the tape counter display to 0000 and the time counter display to 00.00.
MODE:
Switches between the tape counter display and the time counter display.

(4) REV MODE (reverse mode) switch
⇄:
Tape transport stops after one side of a tape is played or recorded.
⇉:
When the forward play button ► is pressed, each side of the tape is played or recorded once. When the reverse play button ◄ is pressed to play or record on the tape, tape transport stops at the end of the reverse side (the side facing away from you when you loaded the tape).
↻:
When the forward play button ► is pressed, both sides of the tape are played continuously until 32 sides have been played. When the reverse play button ◄ is pressed, both sides of the tape are played continuously until 31 sides have been played. In record mode, both sides of the tape are recorded once and then tape transport stops.

(5) CD SYNCHRO button
This button is used to carry out CD-Deck synchro recording from a CD player.

(6) Display window

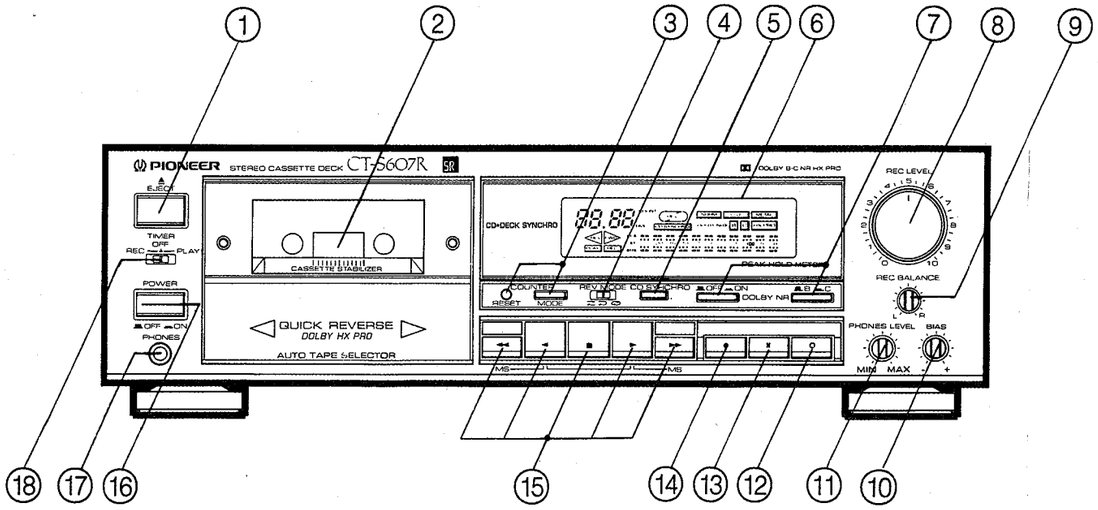


. AC 120 Volts, 60 Hz
..... 21W
130 (H) x 323 (D) mm
6 (H) x 12-11/16(D) in
..... 4.3 kg (9 lb 7 oz)

..... 1
..... 2
..... 1
..... 1

ossible modifications

3. PANEL FACILITIES



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⑤ CD SYNCHRO button
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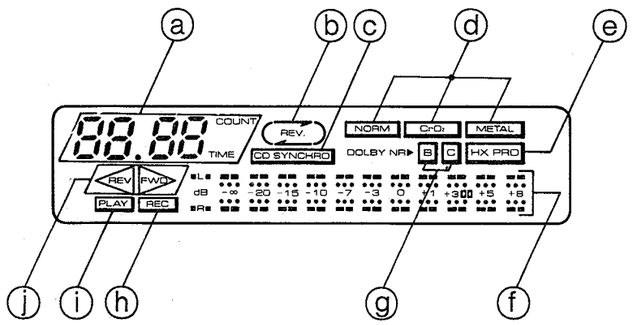
⑥ Display window



ⓐ Tape counter/time counter/music search selection number display
Tape counter (COUNT):
The number on the display is incremented (or decremented) as the tape is advanced (or rewound), providing an easy reference for locating positions on a tape.
Time counter (TIME):
Indicates the amount of time which has elapsed since the start of playback or recording.
- The display switches between the tape counter and the time counter each time the COUNTER MODE button is pressed.

Music search selection number display:
Displays the number of the selection being searched for during music search mode.

ⓑ Reverse mode indicator
Indicates the mode selected by the REV MODE switch.

ⓒ CD SYNCHRO indicator
Lights when synchro recording from a CD player is being carried out.

ⓓ Tape type indicators (NORM, CrO2, METAL)
The tape type (NORMAL, CrO2, METAL) of the currently loaded tape is automatically detected and displayed.

ⓔ Dolby* HX PRO indicator
This unit is provided with a built-in Dolby HX PRO Headroom Extension circuit. The Dolby HX PRO indicator always appears on the display when the POWER switch is turned on.
*
- *Dolby noise reduction and HX PRO headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX PRO originated by Bang & Olufsen.*
- *"Dolby", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

ⓕ Level meter
Indicates the left and right channel signal levels. Indicates the recording level during recording, and the recorded level during playback. The ⧈ mark indicates the Dolby noise reduction system standard level.

ⓖ Dolby NR B/C indicator
Indicates type B or type C Dolby noise reduction.

ⓗ Recording indicator (REC)
Lights when the record button is pressed. Flashes during record mute mode.

ⓘ Play indicator (PLAY)
Lights during tape playback or when the unit is in play-pause mode.

ⓙ Tape transport indicators
Indicate the direction in which the tape is running. "FWD" is displayed when the tape is running in the forward direction, and "REV" is displayed when the tape is running in the reverse direction. These indicators blink when the unit is in record-pause mode or play-pause mode.

⑦ DOLBY NR switches
ON/OFF:
Switches the Dolby noise reduction system on and off.
B/C:
Switches between type B and type C Dolby noise reduction.

⑧ REC LEVEL control

⑨ REC BALANCE control

⑩ BIAS control

⑪ PHONES LEVEL control

⑫ Record muting button (O)
When this button is pressed during recording, the deck creates a 4-second blank space on the tape and then enters record-pause mode.

⑬ Pause button (❚❚)
Press this button when it is desired to temporarily pause playback or recording. Press the button again to resume playback or recording. Pressing the play ► (or ◄) button will also resume playback or recording.

⑭ Recording button (●)
When this button is pressed, the deck enters record-standby mode. Recording begins when the play ► (or ◄) button or pause (❚❚) button is pressed.

⑮ Basic operation buttons
Fast-forward ►►:
When this button is pressed during stop mode, the tape is fast-forwarded in the direction of the arrows. When pressed during playback, the playback position skips forward by one selection for each press of the button (up to 15 selections), and playback resumes at the beginning of the designated selection.
Play ◄:
Press this button to play back or record on the reverse side of the tape (the side facing away from you). (Reverse playback/recording)
Used to start recording in record-standby mode.
Stop ■:
Press this button to stop the tape transport.
Play ►:
Press this button to play back or record on the forward side of the tape (the side facing you). (Forward playback/recording)
Used to start recording in record-standby mode.
Fast-forward ◄◄:
When this button is pressed during stop mode, the tape is fast-forwarded in the direction of the arrows. When pressed during playback, the playback position skips forward by one selection for each press of the button (up to 15 selections), and playback resumes at the beginning of the designated selection.

⑯ POWER switch
After a period of approximately 4 seconds from when the POWER switch is pressed ON, the circuits become stable and operations can be carried out.

⑰ PHONES jack

⑱ TIMER switch
REC:
Set to this position for carrying out timer recording.
OFF:
Set to this position when not using the timer. (The switch should normally be set to this position.)
PLAY:
Set to this position for carrying out timer playback.

4. EXPLODED VIEWS AND PARTS LIST

NOTES :

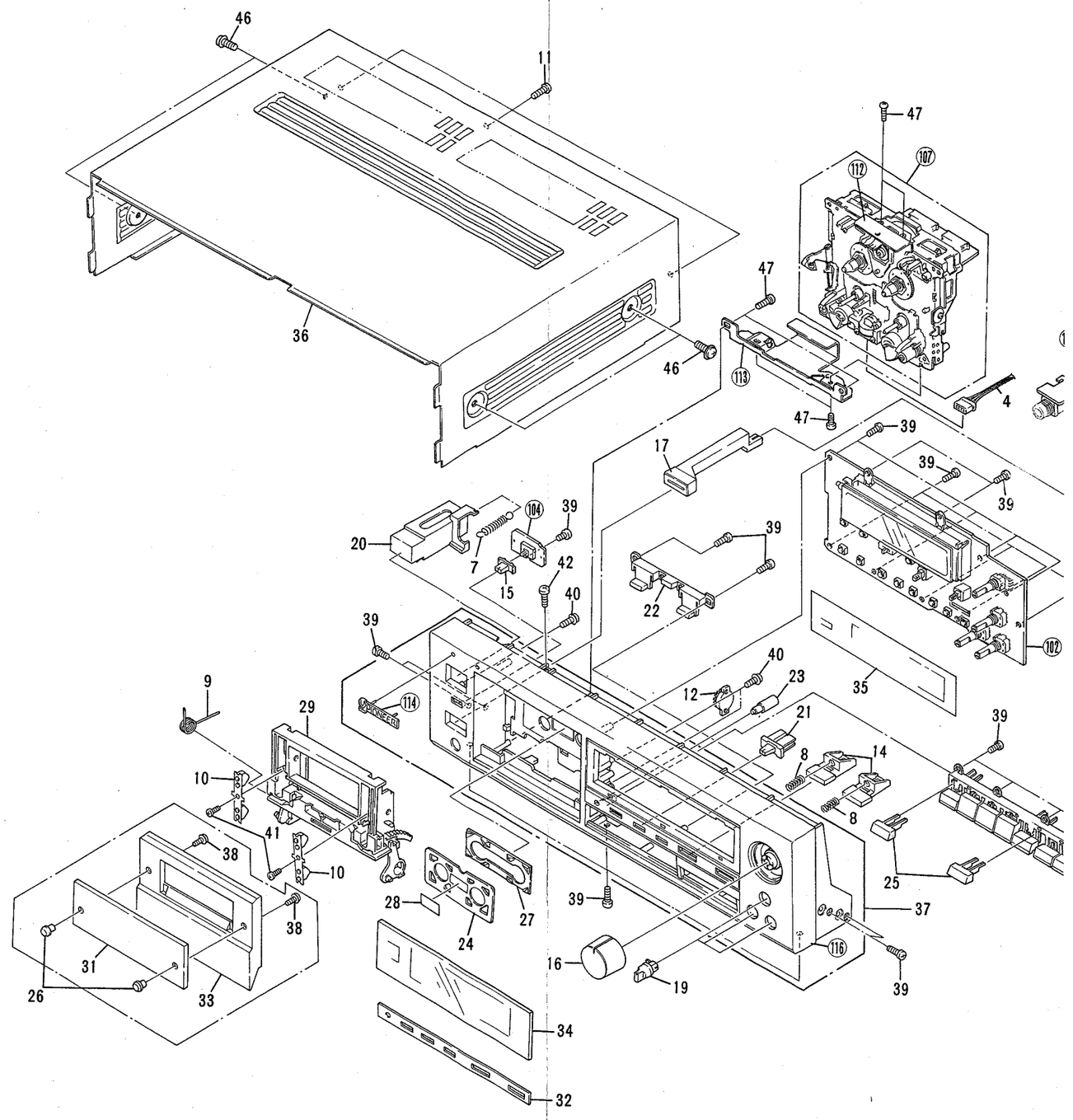
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

4.1 Parts List of Exterior

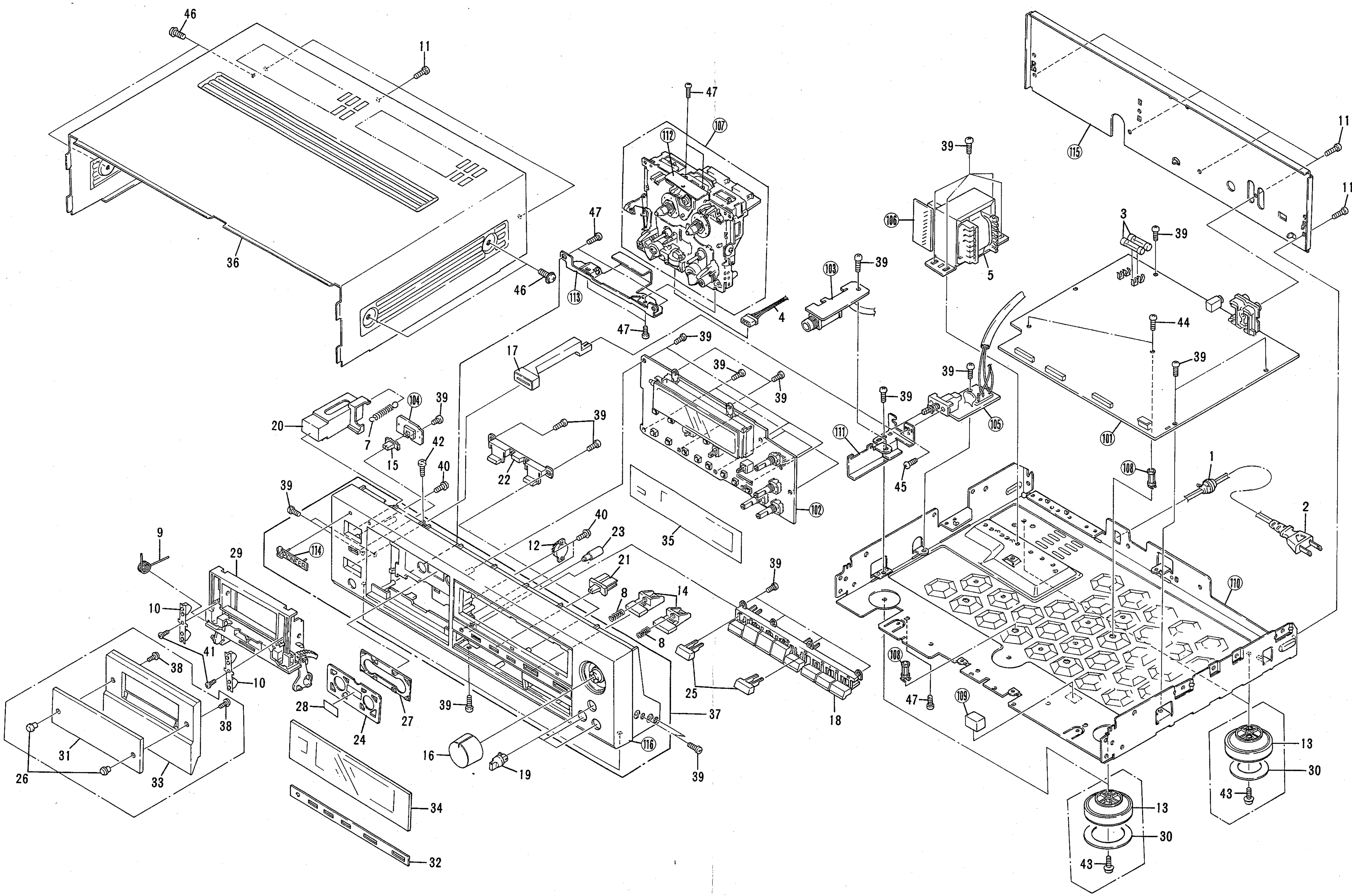
Mark	No.	Part No.	Description
⚠	1	CM−22	Strain relief
⚠	2	RDG1010	AC Power cord
⚠	3	REK−073	FU1201, FU1202 Fuse (1.25A)
	4	RKP1323	Connector assembly 5P
⚠	5	RTT1105	Power transformer (T1)
	6		.....
	7	RBH1008	Ratchet spring
	8	RBH1146	Push spring
	9	RBH1224	Door spring (L)
	10	RBK1013	Half pressure spring
	11	BBZ30P080FCC	Screw
	12	REC1005	Damper assembly
	13	PNW1263	Insulator
	14	RAC1343	DOLBY knob
	15	RAC1357	Slide knob (A)
	16	RAC1363	VR knob
	17	RAC1364	Power button
	18	RAC1365	Operation knob
	19	RAC1366	Headphone knob
	20	RAC1367	Eject konb
	21	RAC1392	Slide knob (B)
	22	RAC1399	Tact knob
	23	RAC1400	Counter reset knob
	24	RAH1483	Stabilizer panel
	25	RAP1007	Decoration plate
	26	RAT1001	Decoration screw
	27	REB1085	Stabilizer (B)
	28	REE−113	Remain display paper
	29	RNT1010	Door pocket
	30	VEC1061	Stopper
	31	RAH1244	Door lens
	32	RAH1518	Dolby name plate
	33	RAH1560	Door panel
	34	RAH1545	FL lens
	35	RAH1525	FL filter
	36	RXX1172	Bonnet
	37	RXX1223	Front panel assembly
	38	ABZ26P050FMC	Screw
	39	BBZ30P080FMC	Screw
	40	ARZ26P060FMC	Screw
	41	BBZ20P060FMC	Screw
	42	BCZ30P060FMC	Screw
	43	BBZ30P120FMC	Screw
	44	IBZ30P150FCU	Screw
	45	PMA30P080FMC	Screw

Mark	No.	Part No.	Description
	46	FBT40P080FZK	Screw
	47	BBZ30P060FZK	Screw
	101		Main unit
	102		Display unit
	103		Headphone unit
	104		Timer SW unit
	105		Power SW unit
	106		Transformer 2 unit
	107		Mechanism unit
	108		PCB spacer
	109		PCB spacer
	110		Main chassis
	111		Headphone blacket
	112		Mechanism mount plate (U)
	113		Mechanism mount plate (D)
	114		Name plate
	115		Rear panel
	116		Front panel

4.1 EXTERIOR



4.1 EXTERIOR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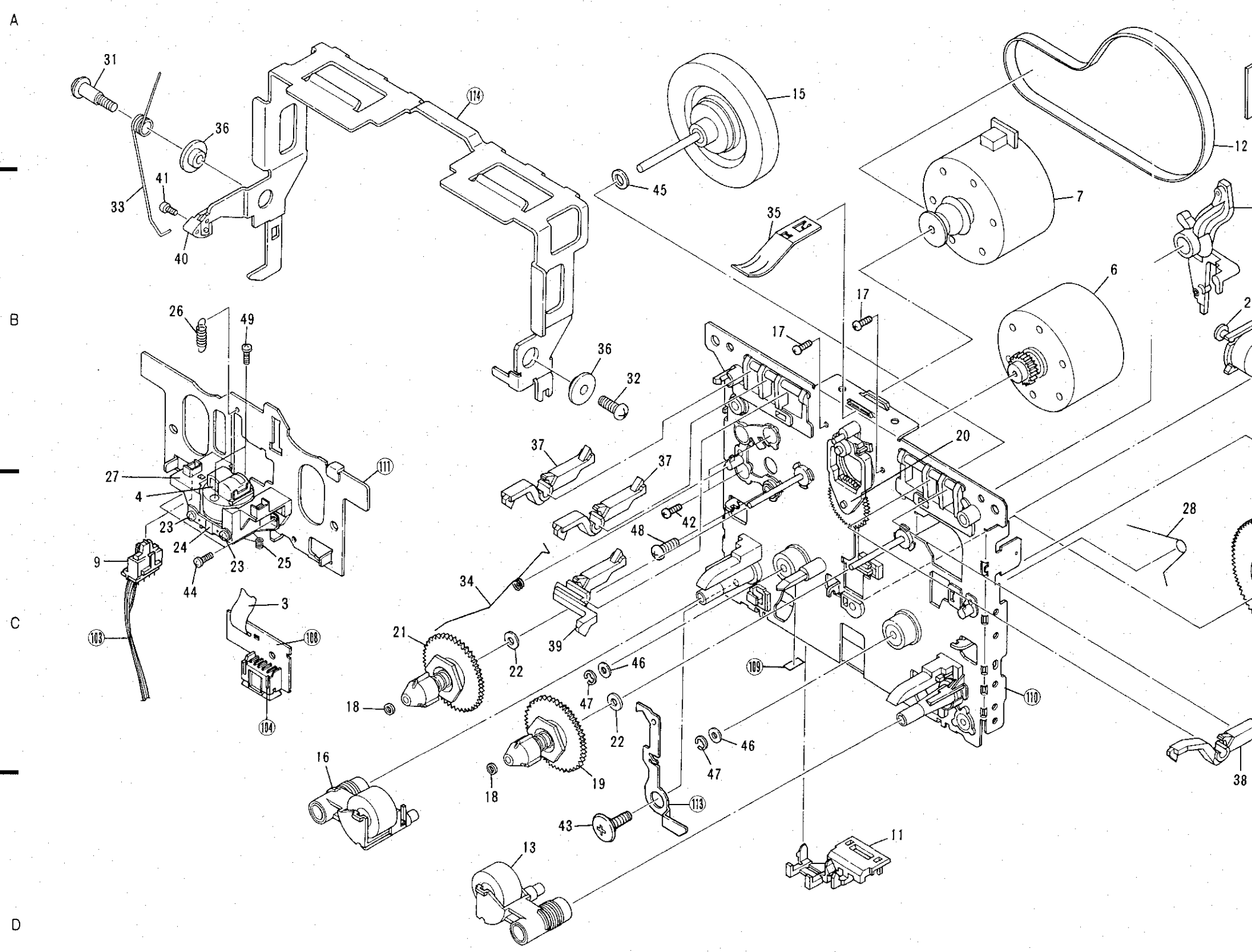
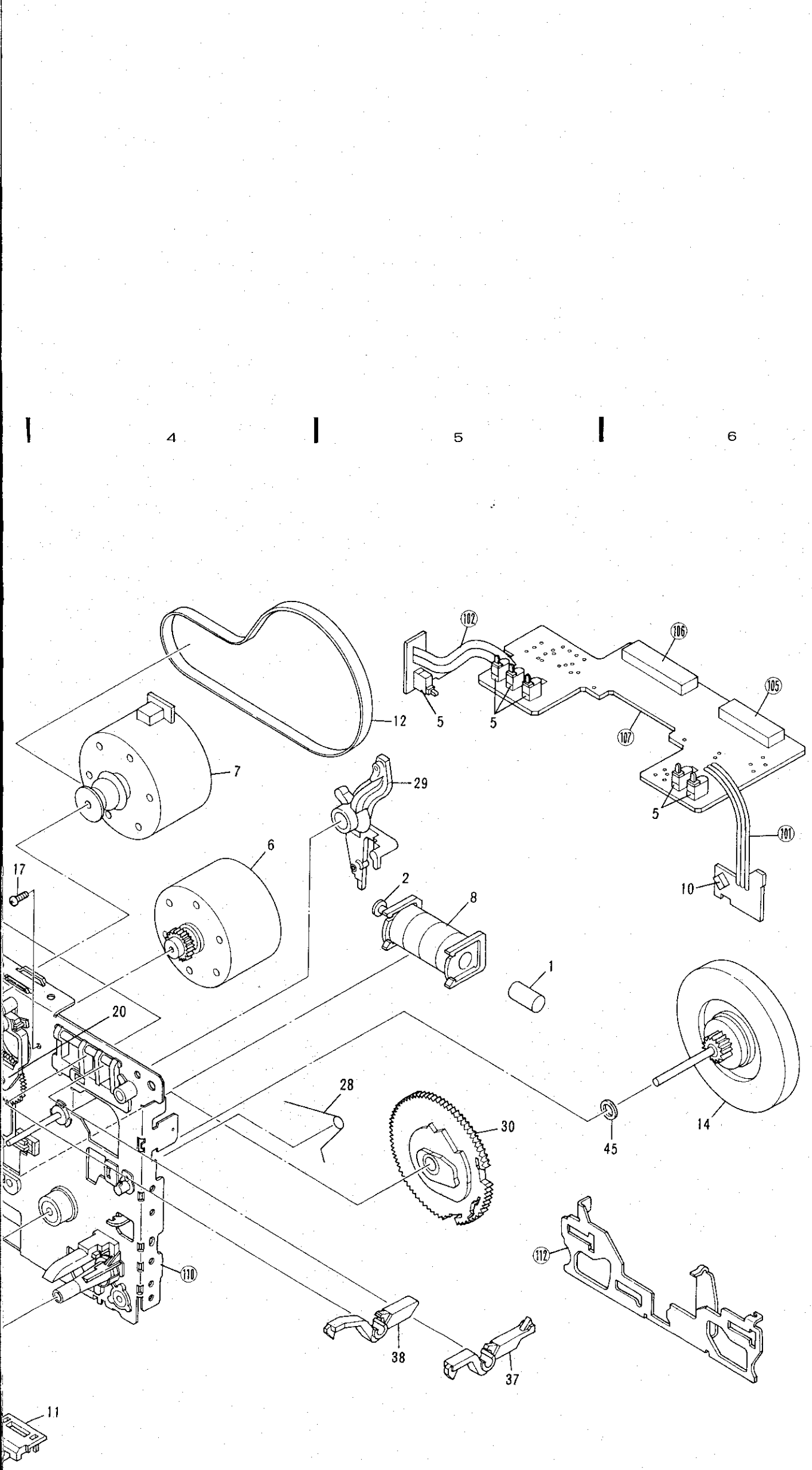
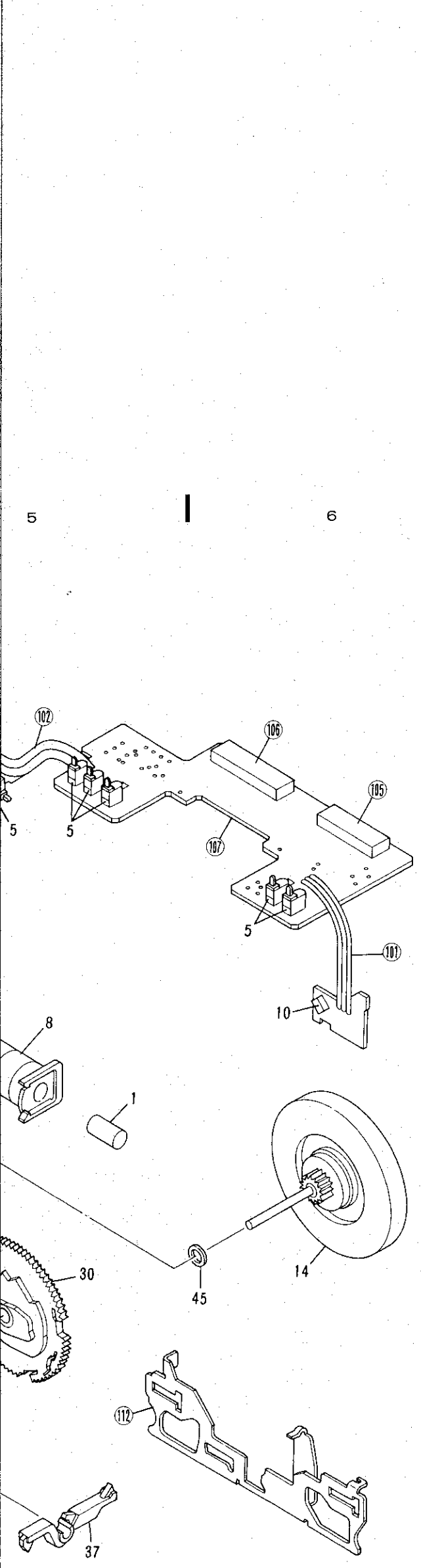
4.2 MECHANISM UNIT





Parts List of Mechanism Unit

Mark	No.	Part No.	Description
	1	RLA1130	Shaft
	2	RLA1132	Plunger
	3	RNP1232	HD FPC (R/P)
	4	RPB1030	R/P, E head
	5	RSG1018	Push switch
	6	RXM1029	Motor assembly
	7	RXM1032	Motor assembly (Main)
	8	RXP1010	Solenoid
	9	SPI-320-AB	Quick sensor
	10	SPI-335-34-C	Photo transistor
	11	RNK1530	Wire holder
	12	REB1112	Main belt
	13	RXA1183	Pinch roller assembly
	14	RXA1294	Flywheel assembly
	15	RXA1295	Flywheel assembly
	16	RXA1296	Pinch roller (L) assembly
	17	RBA1076	Screw
	18	RBF-057	Washer
	19	RXA1184	TU Reel assembly
	20	RXA1248	Idler assembly
	21	RXC-040	Reel assembly
	22	WA21D070D013	Washer
	23	RBA1080	Azimuth screw
	24	RBK1029	Azimuth spring
	25	RBL-085	Rotation spring
	26	RBL1003	Head base spring
	27	RXA1293	Head housing assembly
	28	RBH1239	Slide spring
	29	RNK1525	Play arm
	30	RNK1526	Cam gear (3R)
	31	RBA1078	Screw
	32	RBA1079	Screw
	33	RBH1231	Eject lever spring (L)
	34	RBH1234	Eject prevention spring (L)
	35	RBK1031	Cassette hold spring
	36	RLA1133	Lever collor (A)
	37	RNK1527	REC detection lever
	38	RNK1528	PACK detection lever (L)
	39	RNK1529	Metal detection lever (L)
	40	RNM-160	Hook
	41	PCZ20P040FMC	Screw
	42	PMZ26P050FMC	Screw
	43	RBA1048	Screw
	44	RBA1077	Screw
	45	WA26D045D025	Washer
	46	WA26D047D050	Washer
	47	YE15FUC	E ring
	48	PBZ30P080FMC	Screw
	49	PMZ14P050FNI	Screw
	101		Triple-conductor jumper wire
	102		Dual-conductor jumper wire
	103		QS lead wire
	104		Connector (5P)
	105		Connector (8P)



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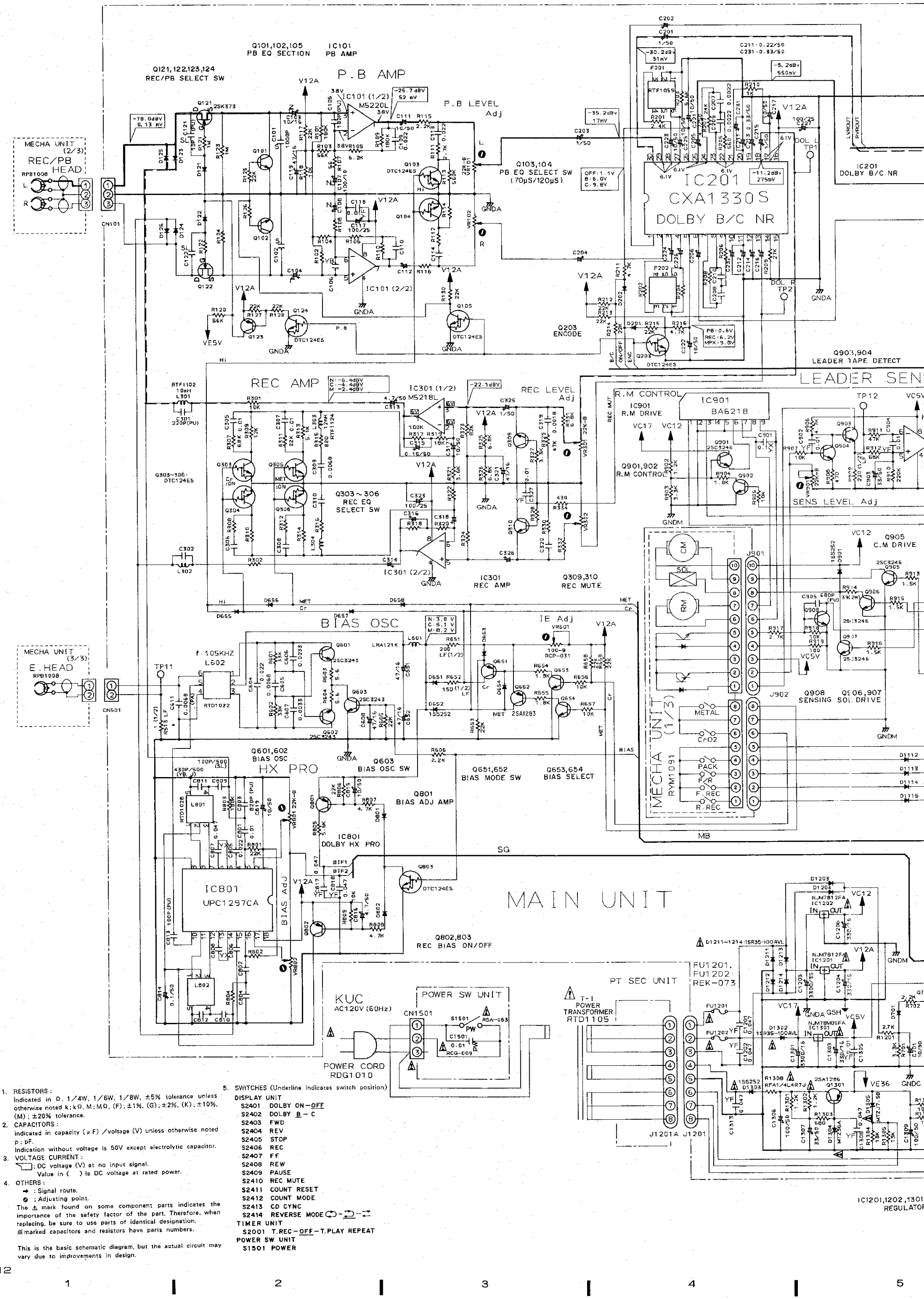
	42	PMZ26P050FMC	Screw
	43	RBA1048	Screw
	44	RBA1077	Screw
	45	WA26D045D025	Washer
	46	WA26D047D050	Washer
	47	YE15FUC	E ring
	48	PBZ30P080FMC	Screw
	49	PMZ14P050FNI	Screw
	101		Triple-conductor jumper wire
	102		Dual-conductor jumper wire
	103		QS lead wire
	104		Connector (5P)
	105		Connector (8P)
	106		Connector (10P)
	107		P.C. board
	108		Head P.C.B. R/P
	109		Reflection plate
	110		Chassis assembly
	111		Head base
	112		Slide plate
	113		Eject prevention arm (L)
	114		Eject lever (L)

5. SCHEMATIC DIAGRAM



1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W, 1/8W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance.
2. CAPACITORS :
   Indicated in capacity (μF) /voltage (V) unless otherwise noted p; pF.
   Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT :
   ⊓; DC voltage (V) at no input signal.
   Value in ( ) is DC voltage at rated power.
4. OTHERS :
   ➡ : Signal route.
   ⊘ ; Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES (Underline indicates switch position)

DISPLAY UNIT
- S2401 DOLBY ON—OFF
- S2402 DOLBY B—C
- S2403 FWD
- S2404 REV
- S2405 STOP
- S2406 REC
- S2407 FF
- S2408 REW
- S2409 PAUSE
- S2410 REC MUTE
- S2411 COUNT RESET
- S2412 COUNT MODE
- S2413 CD CYNC
- S2414 REVERSE MODE

TIMER UNIT
- S2001 T.REC—OFF—T.PLAY REPEAT

POWER SW UNIT
- S1501 POWER

4 5 6 7 8

LINE IN/OUT

JA201 (3/4) JA201 (4/4) JA201 (1/4) JA201 (2/4)

RKB1001

Q201,202 LINE MUTE

IC201 DOLBY B/C NR

IC201 CXA1330S DOLBY B/C NR

Q1601,1602 LINE MUTE (HEAD PHONE)

H.PHONE AMP

IC1601 (1/2) M5218L

IC1601 (2/2)

IC1601 HEAD PHONE AMP

M.S

IC401 MUSIC SEARCH

IC401 BA335

Q1102 LINE MUTE

IC202 (2/2)

IC202 (1/2) M5218L

IC1001 (1/2) M5218L

IC1001,1002 METER AMP

IC1001

LEADER SENS

Q903,904 LEADER TAPE DETECT

R.M CONTROL

IC901 R.M DRIVE

IC901 BA6218

Q901,902 R.M CONTROL

IC902 LEADER SENS

IC902 M5233L

SENS LEVEL Adj

Q905 C.M DRIVE

Q908 SENSING

Q906,907 SOL DRIVE

MECHA UNIT (1/3) RYM1091

IC1101 PD3148 IC1101 µCOM

Q1101 BUFFER

CD SYNCHRO

RKN1014

RKN-071 X2

SR REMOCON

FL2401 RAW1045

CN1102 J1102A

CN1104 J1104A

CN1105 J1105A

Q2402 NOR SELCT

DOLBY SW

OFF/ON

BIAS FINE

HP VR RCV1049

INPUT VR

BALANCE VR

UNIT

PT SEC UNIT FU1201, FU1202: REK-073

IC1201,1202,1301,Q1301 REGULATOR

Q701,702,703 CPU POWER OFF & RESET

指示なき部品 ★ 1SS254

NPN 2SC3311A

PNP 2SA1309A

4 5 6 7 8

LINE IN/OUT

-10dBV 316mV

JA201 (3/4) JA201 (4/4) JA201 (1/4) JA201 (2/4)

RKB1001

Q201,202 LINE MUTE

2SD1302 Q201 Q202

C245 0.01μF SHG

Q1601,1602 LINE MUTE (HEAD PHONE)

H.PHONE AMP

IC1601 (1/2) M5218L

IC1601 (2/2)

IC1601 HEAD PHONE AMP

H.PHONE UNIT

-26.5dBV 47mV

RKN1002 JA2002

J1601 J1601A

METER

IC1001 (1/2) M5218L

IC1001,1002 METER AMP

IC1001 (2/2)

IC1002 (2/2)

M5233L IC1002 (1/2)

DC 1.65V (0 VU)

M.S

IC401 BA335

IC401 MUSIC SEARCH

Q1102 LINE MUTE

IC202 (2/2)

IC202 (1/2) M5218L

IC902 LEADER SENS

IC1101 μCOM PD3148

Q1101 BUFFER

DTC124ES

SR REMOCON

JA1102

RKN1014

CD SYNCHRO

RKN-071 X2

JA1103

FL2401 RAW1045

CN1102 J1102A

CN1104 J1104A

CN1105 J1105A

INPUT VR

BALANCE VR

HP VR RCV1049

BIAS FINE

DOLBY SW

OFF/ON

B/C

Q2402 NOR SELCT

REVERSE MODE

RSH1018

FWD REV STOP REC

FF REW PAUSE REC MUTE

COUNT RESET COUNT MODE CD CYNC

J1103A CN1103

S2403~2410:RSG-155

S2412,2413

S2411 :RSG1010

Q2401 CD SYNC SW INH

DISPLAY UNIT

RSH1014 S2001

T.REC OFF T.PLAY REPEAT

CN1101 J1101A KPC3 DTWY0330E

TIMER SW UNIT

Q701,702,703 CPU POWER OFF & RESET

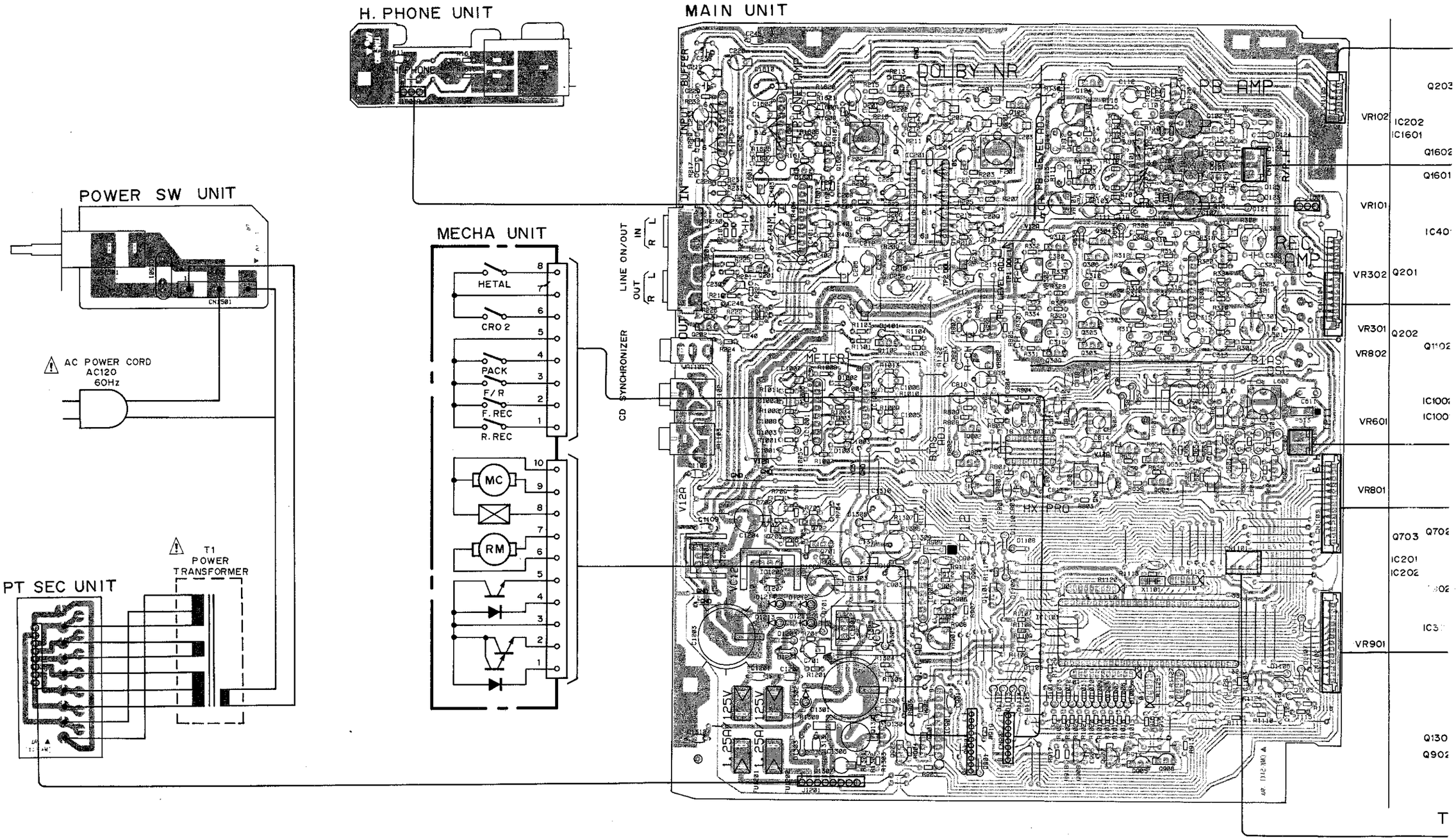
指示なき部品 1SS254

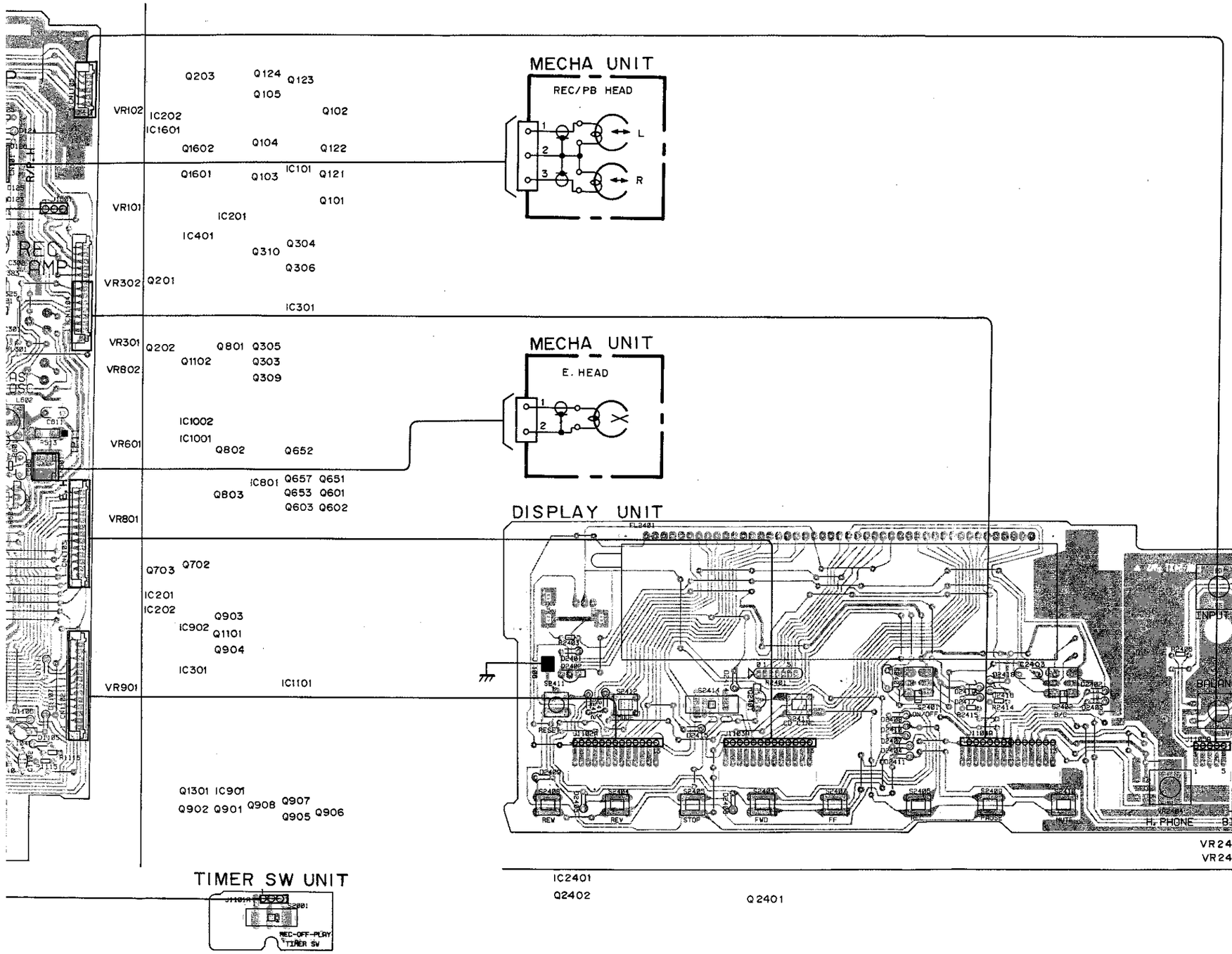
NPN 2SC3311A

PNP 2SA1309A

6. P.C. BOARDS CONNECTION DIAGRAM

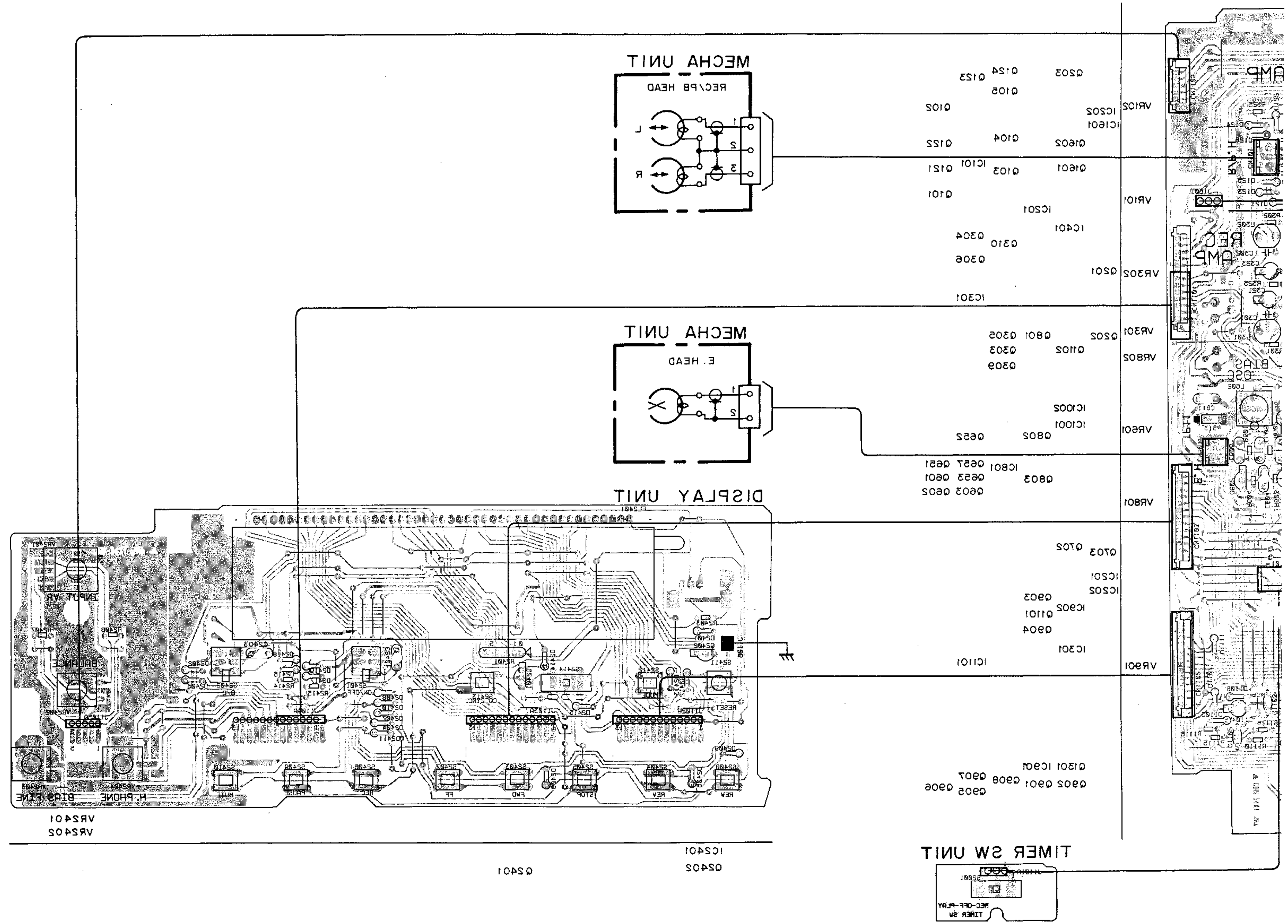
- View from component side





P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zenner diode
		LED
		Varactor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Styrol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Noiseless)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-fixed resistor
		Resistor array
		Resistor
		Resonator
		Thermistor

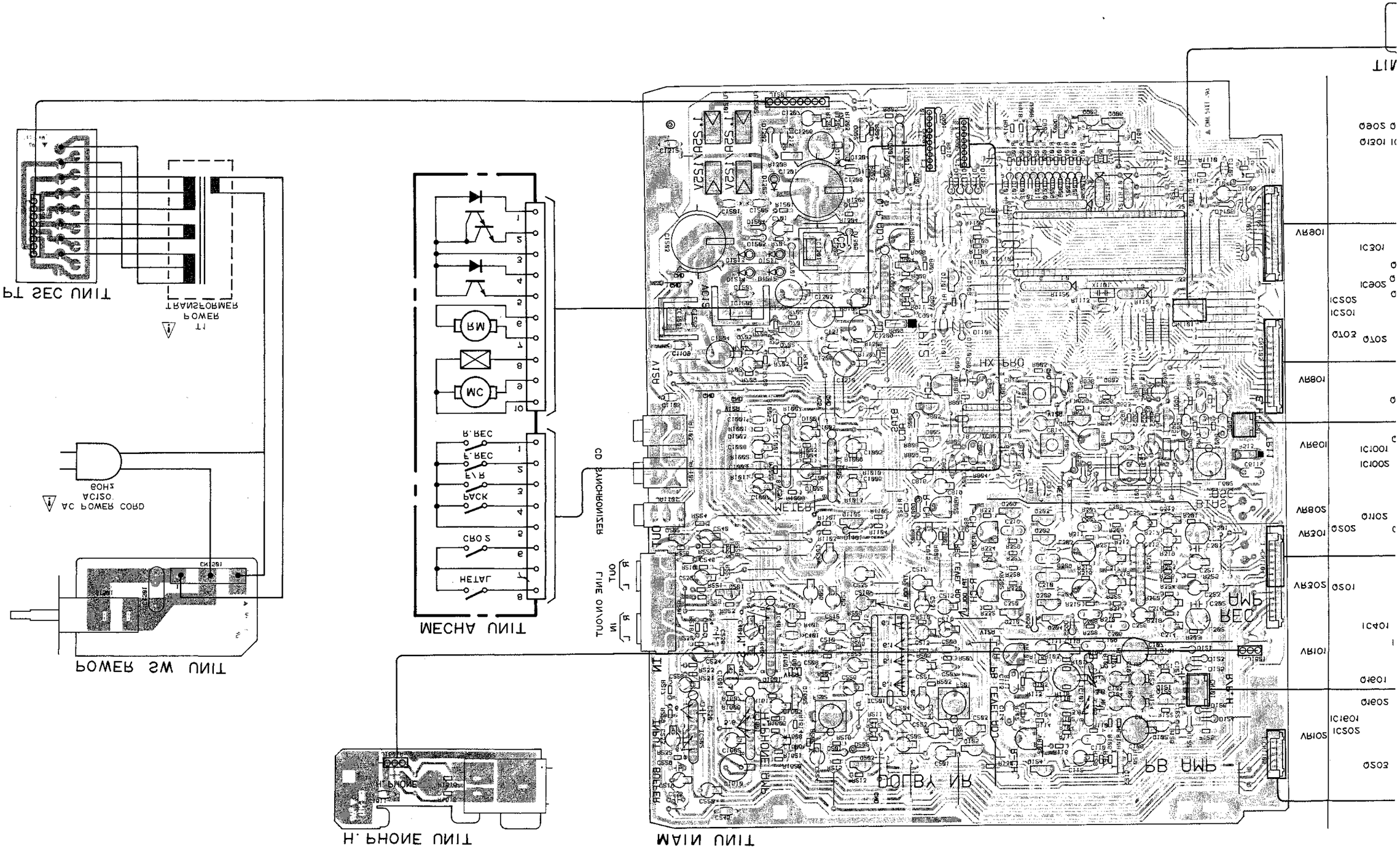
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.



MECHA UNIT
REC/PB HEAD
L
R
MECHA UNIT
E. HEAD
DISPLAY UNIT
INPUT VR
BALANCE
H.PHONE
BIAS FINE
MUTE
FF
FWD
STOP
REV
REW
RESET
VR2401
VR2402
IC2401
Q2402
Q2401
TIMER SW UNIT
REC-OFF-PLAY
TIMER SW
REC AMP
BIAS OSC
VR102
VR101
VR302
VR301
VR802
VR601
VR801
VR901
IC202
IC1601
IC101
IC201
IC401
IC301
IC1002
IC1001
IC801
IC1201
IC1202
IC902
IC1101
IC1301
IC901
Q203
Q124
Q123
Q105
Q102
Q104
Q122
Q602
Q103
Q121
Q601
Q101
Q304
Q310
Q306
Q201
Q305
Q303
Q309
Q801
Q202
Q110
Q652
Q802
Q657
Q651
Q653
Q601
Q603
Q602
Q803
Q702
Q703
Q903
Q1101
Q904
Q907
Q908
Q902
Q906
Q905

6. P.C. BOARDS CONNECTION DIAGRAM

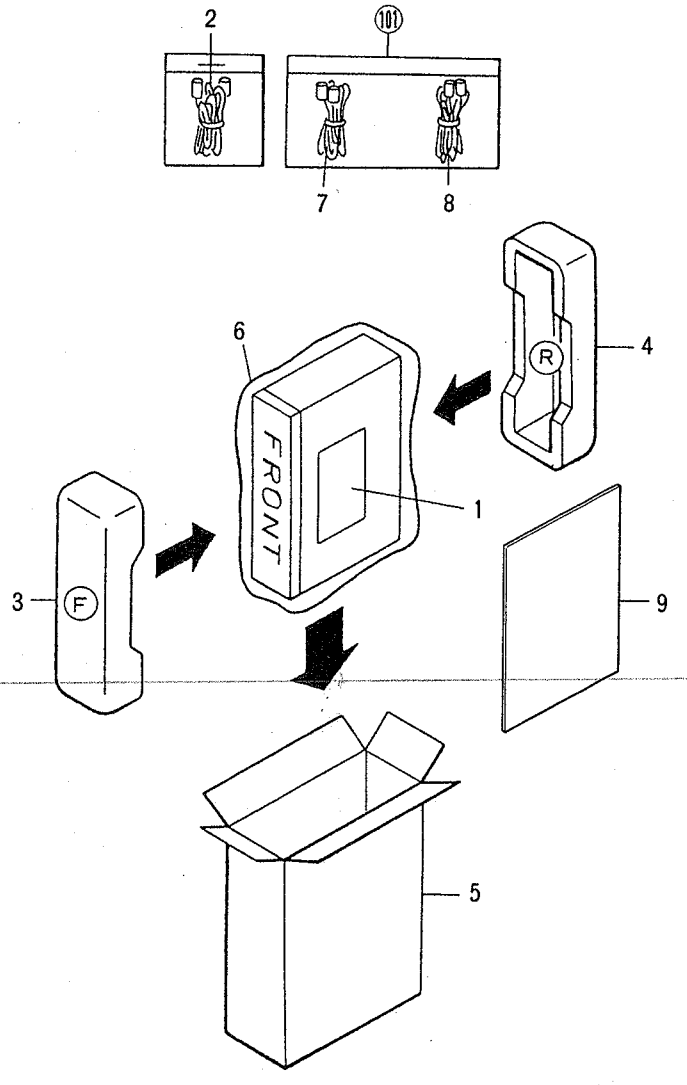
• View from soldering side



7. PACKING

Parts List

Mark	No.	Part No.	Description
	1	RRB1051	Operating instructions (English)
	2	RDE1018	Control cord
	3	RHA1006	Pad (A)
	4	RHA1007	Pad (B)
	5	RHG1137	Packing case
	6	RHX−034	Sheet
	7	RDE−010	Connection cord
	8	PDE−319	Mini connection cord
	9	RHC1014	Spacer
	101		Connection cord assembly



8. ELECTRICAL PARTS LIST

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	56×10^{1}	561	RD1/4PS 5 6 1 J
47k Ω	47×10^{3}	473	RD1/4PS 4 7 3 J
0.5 Ω	0R5		RN2H 0 R 5 K
1 Ω	010		RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	562×10^{1}	5621	RN1/4SR 5 6 2 1 F

Miscellaneous Parts

P.C. BOARD ASSEMBLY

Mark	Symbol & Description	Part No.
	Main unit	
	Headphone unit	
	Timer SW unit	
	Power SW unit	
	Transformer 2 unit	
	Display unit	

OTHERS

Mark	Symbol & Description	Part No.
⚠	Strain relief	CM-22
⚠	AC Power cord	RDG1010
⚠	Fuse (1.25A)	REK-073
	Connector assembly 5P	RKP1323
⚠	Power transformer	RTT1105
	Planger	RLA1132
	R/P, E head	RPB1030
	Push switch	RSG1018
	Motor assembly	RXM1029
	Motor assembly (Main)	RXM1032
	Solenoid	RXP1010
	Quick sensor	SPI-320-AB
	Photo transistor	SPI-335-34-C

Main Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC401	BA335
	IC901	BA6218
	IC201	CXA1330S
	IC202, IC301, IC1001, IC1601	M5218L
	IC101	M5220L
	IC902, IC1002	M5233L
⚠	IC1301	NJM78M05FA
⚠	IC1201, IC1202	NJM7812FA
	IC1101	PD3148
	IC801	UPC1297CA

Mark	Symbol & Description	Part No.
	Q103-Q105, Q124, Q203, Q303-Q306, Q803, Q1101	DTC124ES
	Q651, Q652	2SA1283
⚠	Q1301	2SA1286
	Q123, Q701, Q801, Q802, Q1102	2SA1309A
	Q601-Q603	2SC3243
	Q901, Q905-Q907	2SC3246
	Q101, Q102, Q309, Q310, Q653, Q654, Q702, Q703, Q902-Q904, Q908, Q1601, Q1602	2SC3311A
	Q201, Q202	2SD1302
	Q121, Q122	2SK373
⚠	D1101	MTZJ4.3B
⚠	D1306	MTZJ5.1B
⚠	D1305	MTZJ7.5B
⚠	D1304	MTZ36A
⚠	D1211-D1214, D1302	1SR35-100AVL
	D652, D901	1SS252
⚠	D1303	1SS252
	D121-D126, D201, D202, D651, D653-D658, D701, D801, D802, D1001-D1003, D1005-D1014, D1103, D1105-D1115, D1203, D1204	1SS254

COILS AND FILTERS

Mark	Symbol & Description	Part No.
	L601 Radial inductor	LRA121K
	L602 Oscillator coil	RTD1022
	L801, L802 Coil	RTD1028
	F201, F202 MPX filter	RTF1059
	L301, L302 Coil (10mH)	RTF1102
	L303, L304 Coil (12mH)	RTF1124

CAPACITORS

Mark	Symbol & Description	Part No.
	C809, C810	CCCSL101K500
	C121, C122	CCPUSL100J50
	C103, C104	CEANL100M16
	C107, C108	CEANL101M10
	C239, C240, C402, C403, C814, C1601, C1602	CEASR10M50
	C315, C316	CEASR15M50
	C211, C212	CEASR22M50
	C213, C214, C231, C232, C1005, C1006	CEASR33M50
	C404	CEASR47M50
	C201–C204, C215, C216, C325, C326, C1003, C1004	CEAS010M50
	C111, C112, C217, C219–C226, C233, C234, C317, C318, C701, C702, C815, C819	CEAS100M50
	C117, C227, C323, C1605, C1606	CEAS101M25
	C1306, C1309	CEAS101M50
	C903, C1307	CEAS330M50
	C1204, C1206, C1303, C1610	CEAS331M16
	C1301	CEAS332M16
	C1203	CEAS332M35
	C205, C206, C313, C314, C816	CEAS4R7M50
	C119, C228, C321, C608, C651, C652, C1007, C1008, C1104, C1310	CEAS470M16
	C305–C308, C801, C802	CFTXA103J50
	C319, C320	CFTXA182J50
	C207–C210	CFTXA222J50
	C109, C110, C113, C114, C604, C805, C806	CFTXA223J50
	C606, C607	CFTXA332J50
	C309, C310, C605	CFTXA682J50
	C901	CGCYX104K25
	C401, C807, C808	CGCYX473K25
	C1001, C1002	CGCYX683K25
	C811, C812	CKCYB431J500
	C118, C245, C327, C902, C904, C1101–C1103, C1109, C1305	CKCYF103Z50
	C246, C817, C818, C1105, C1201, C1202, C1308, C1311–C1313	CKCYF473Z50
	C105, C106, C229, C230, C235, C236, C813	CKPUYB101K50
	C301, C302	CKPUYB221K50
	C905	CKPUYB681K50
	C803, C804	CKPUYB821K50
	C611	CQPA682J100
	C101, C102	CQSA102J50

RESISTORS

Mark	Symbol & Description	Part No.
	R1119	RA10T104J
	R1121, R1125, R1127	RA4T223J
	R1120	RA8T104J
	VR601 Variable resistor	RCP–031
⚠	R1308	RFA¼L4R7J
	R914	RS2LMF390J
	VR101, VR102, VR301, VR302, VR801, VR802, VR901 Semi-fixed resistor (22k)	VRTB6VS223
	R513, R651, R652, R909	RD½LF□□□J
	Other resistors	RD⅙PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN1101 Jamper connector 3P	KPC3
	JA201 Pin jack 4P	RKB1001
	JA1102, JA1103 Mini jack ϕ 3.5	RKN–071
	JA1101 Mini jack	RKN1014
	X1101 Ceramic resonator	VSS1014

Headphone Unit

CAPACITOR

Mark	Symbol & Description	Part No.
	C1611	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	R1615, R1616	RD⅙PM681J

OTHERS

Mark	Symbol & Description	Part No.
	JA2002 Headphone jack	RKN1002

Timer SW Unit

SWITCH

Mark	Symbol & Description	Part No.
	S2001 Slide switch	RSH1014

Power SW Unit

SWITCH

Mark	Symbol & Description	Part No.
⚠	S1501 Power switch	RSA–063

CAPACITOR

Mark	Symbol & Description	Part No.
⚠	C1501 (0.01/AC400V)	RCG–009

Transformer 2 Unit

There is no supply part in this unit.

Display Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q2401, Q2402	2SA1309A
	D2418, D2419	MTZJ4.3B
	D2416, D2417	1SS252
	D2401 – D2415	1SS254

SWITCHES

Mark	Symbol & Description	Part No.
	S2401, S2402 Push switch	RSG – 150
	S2403 – S2410, S2412, S2413 Tact switch	RSG – 155
	S2414 Slide switch	RSH1018
	S2411 Tact switch	RSG1010

CAPACITORS

Mark	Symbol & Description	Part No.
	C2401 – C2403	CFTXA223J50

RESISTORS

Mark	Symbol & Description	Part No.
	R2408	RA6T104J
	VR2403 (5k – B)	RCS1013
	VR2402 (5k – B)	RCS1014
	VR2404 Variable resistor (500B)	RCV1049
	VR2401 Variable resistor (5k – A)	RCV1050
	Other resistors	RD 1/6 PM □□□ J

OTHERS

Mark	Symbol & Description	Part No.
	Fluorescent indicator	RAW1045
	FL holder	RNK1499

9. ADJUSTMENTS

9.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment

Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Capstan motor adjustment VR	3000Hz ± 5Hz

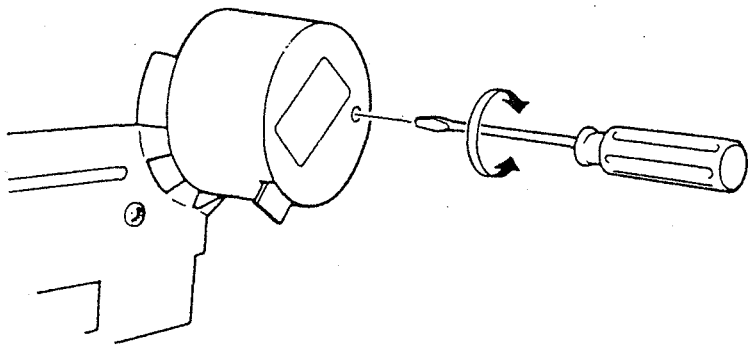


Fig. 9-1

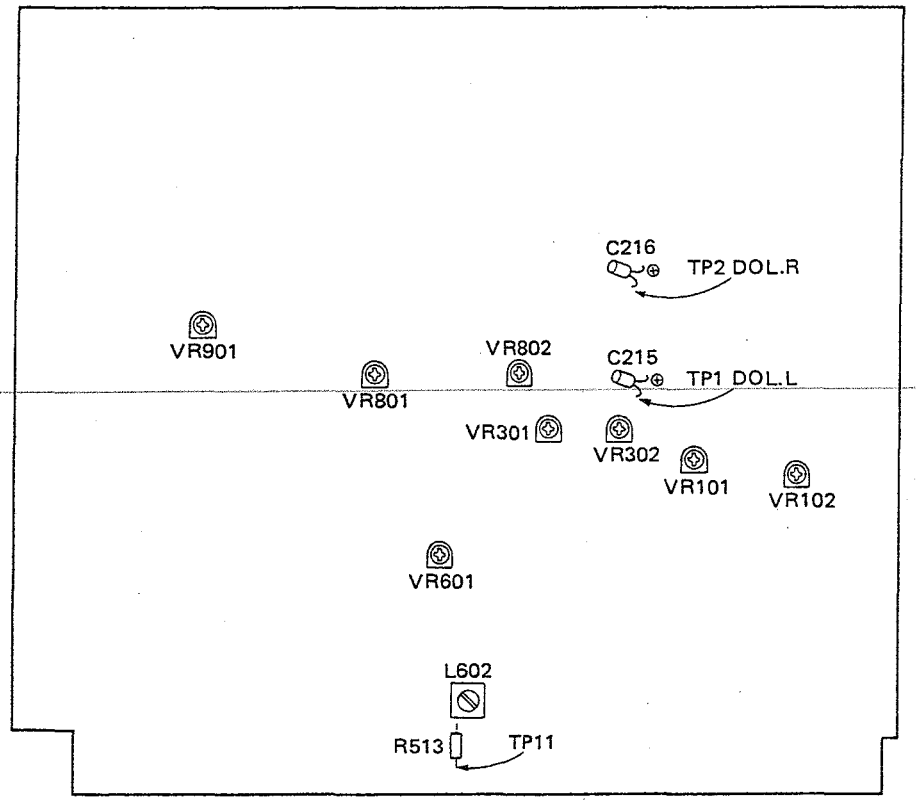


Fig. 9-2 Adjusting Points

9.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv=1Vrms.
5. Connect a 50 kilo-ohm (or between 47 to 52 kilo-ohm) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD-331B : Playback adjustments (See Fig. 9-3)
STD-630 : NORMAL blank tape
STD-620 : CrO_2 blank tape
STD-610 : METAL blank tape

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Erase current adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. Level meter check.
6. Leader tape detection operation adjustment.

NOTE: This unit has an automatic tape selection feature.

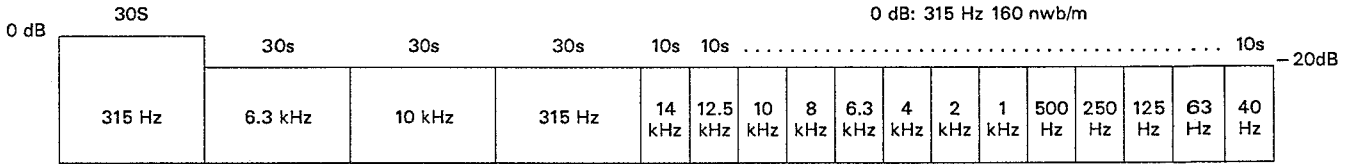


Fig. 9-3. Constants of the test tape STD-331B

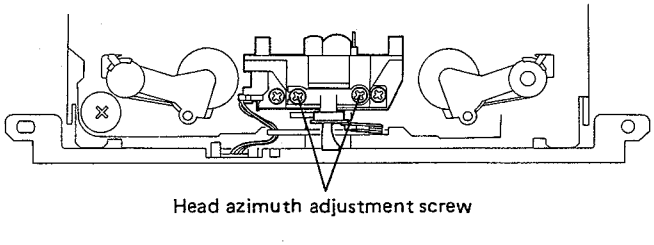


Fig. 9-4. Head azimuth adjustment

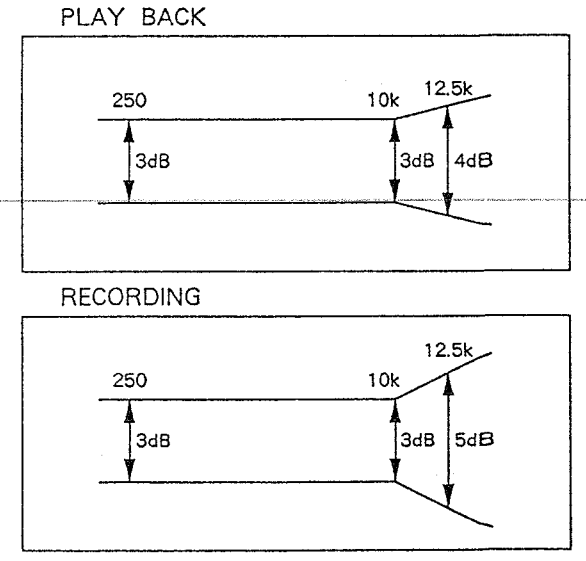


Fig. 9-5. Allowable playback frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

• Turn VR101, VR102 (Deck I) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/– 20 dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 9-4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback level Adjustment

• This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331B test tape.	Deck I	VR101 (Lch) VR102 (Rch)	TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	– 10.7 dBv	

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck I	L 602	TP. 11	105 kHz ±0.3 kHz	

2. Erase Current Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-610 test tape with no input signal.	Deck I	VR601	TP. 11	165 mV AC	

3. Recording Bias Adjustment

• After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC	Record the 315 Hz and 6.3 kHz signals at – 20 dBv input level and playback.	Deck I	VR801 (Lch) VR802 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes + 1.0 dB ± 0.5 dB when compared with the 315 Hz signal.	

4. Recording Level Adjustment

• Adjust the bias oscillator with decks I and II set to recording mode indenpendently. ← (Double R/P only)

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	STOP	Set the TAPE SELECTOR switch to the NORM position.					
2.	REC PAUSE	Apply a 315 Hz/0 dBv signal to the line Input terminals, load the STD-630 test tape.	Rec Level control volume		TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	– 11.2 dBv	
3.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)					
4.	REC/ PLAY	Record the above signal onto the STD-630 test tape, and playback.	Deck I	VR301 (Lch) VR302 (Rch)	TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes – 11.2 dB.	
5.	STOP	Set the TAPE SELECTOR switch to the CrO_2 position.					
6.	REC/ PLAY	Record the above signal onto the STD-620 test tape, and playback.	Check		TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	– 11.2 dBv ± 1.5 dB	
7.	STOP	Set the TAPE SELECTOR switch to the METAL position.					
8.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	– 11.2 dBv ± 1.5 dB	

5. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/– 10 dBv (316 mV) signal to the Line input terminals.	Rec Level control volume	TP.1 DOL.L (Lch) TP.2 DOL.R (Rch)	Check that the level meters "0 dB" light up within – 11.2 dBv ± 2 dB of the signal output level.	

6. Leader Tape Detection Operation Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location		Adjustment value	Remarks
1.	PLAY	No input-load an empty cassette half.	Deck I	VR901	Deck I	TP. 11	1.0V $\pm \frac{0}{0.1}$ V (DC)	
2.	Check that the leader tape is correctly detected (inboth FWD and REV directions when in endless reverse mode).							

10. IC DESCRIPTIONS

• PD3148 Pin description

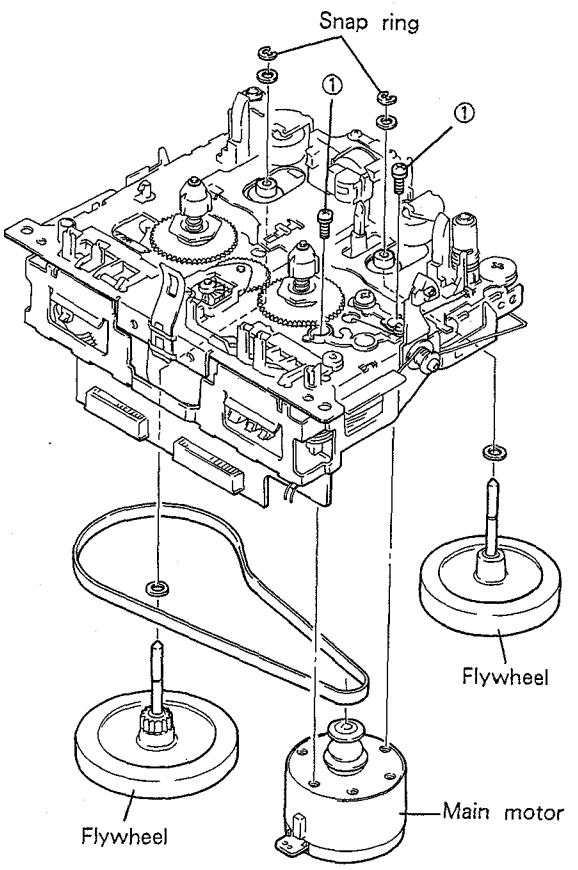
Pin No.	Pin Name	I/O	Pin Function	Active
1	G_{11}/KEY IN 2	I/O	Key input terminal, also used as dynamic display output (Controlled in time division)	
2	G_{12}/KEY IN 3			
3	IND SEL	O	"H" when Ga to G_{12}, "L" when key in 0 to 3	
4	S10		Output terminal for level scan, key scan and dynamic display (Controlled in time division)	
5	S9			
6	S8			
7	S7			
8	S6			
9	S5			
10	S4			
11	S3			
12	S2			
13	S1			
14	I −SOL • A		Unused	
15	I −SOL • B			
16	II −SOL • A		Output terminal for solenoid drive	H
17	II −SOL • B		Low voltage output terminal for solenoid drive	
18	I −SENSING	I	Unused	
19	II −SENSING		Sensing pulse input terminal	
20	I −CPM	O	Unused	
21	I −RM • L			
22	I −RM • R			
23	I −RM • PLAY			
24	II −CPM		Output terminal for capstan motor drive	
25	II −RM • L		Terminal for drive to reel motor FWD direction	
26	II −RM • R		Terminal for drive to reel motor REV direction	
27	II −RM • PLAY		Reel motor play terminal	
28	$\overline{\text{POWER}}$	I	Power off detection input terminal	L
29	$\overline{\text{REMOCON}}$		Remote control input terminal	L
30	I −LEADER		Unused	H
31	II −LEADER		Leader tape detection terminal	
32	Vcc	−	Power supply terminal	

Pin No.	Pin Name	I/O	Pin Function	Active
33	I −PB SW	O	Unused	H
34	I −BIAS			
35	II −PB SW		Playback head selecting terminal	
36	II −BIAS		Bias oscillation ON/OFF terminal	
37	ENCODE		Dolby IC, "H" during encoding	
38	I −REC MUTE		Unused	
39	II −REC MUTE		REC AMP muting terminal	
40	$\overline{\text{LINE MUTE}}$		LINE OUT muting terminal	L
41	I −X2 CONT		Unused	H
42	II −X2 CONT		EQ AMP selecting terminal	
43	METER Rch	I	Input terminal for Rch level detection	
44	METER Lch		Input terminal for Lch level detection	
45	SONG		Input terminal for song interval detection	
46	FROM CD		CD−SYNCHRO control input terminal	
47	RESET	I	System reset terminal	
48	OSC2	−	Crystal connecting terminal	
49	OSC1			
50	GND	−	GND terminal	
51	CL1	−	Unused	
52	CL2			
53	$\overline{\text{TEST}}$			L
54	TO CD	O	CD control signal output terminal	H
55	G1		Dynamic display output terminal	
56	G2			
57	G3			
58	G4			
59	G5			
60	G6			
61	G7			
62	G8			
63	KEY IN 0/G9	I/O	Key input terminal, also used as dynamic display output (Controlled in time division)	
64	KEY IN 1/G10			

11. DISASSEMBLY

● Main Motor & Flywheel

1. Desolder two portions of the main motor (section Ⓐ).
2. Remove the main motor with the belt by removing two screws ①.
3. Remove two flywheel assemblies by removing two snap rings.



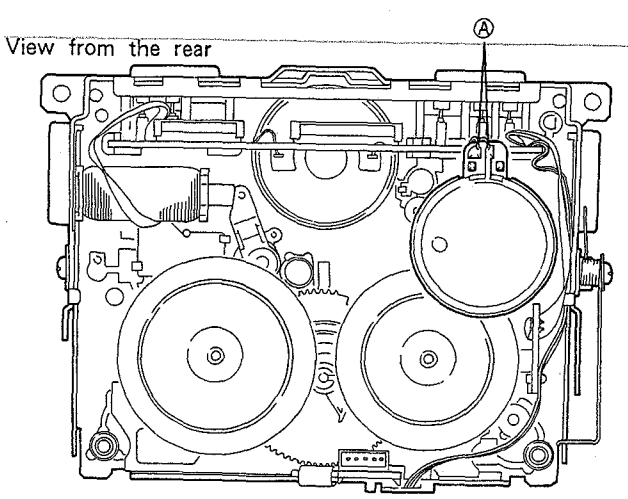


Fig. 11−1. Removal of Main Motor and Flywheel

● Play Arm, Slide Plate, Cam Gear & Solenoid

1. Before servicing, remove the main motor and the flywheel. (Refer to the above item.)
2. Remove the slide spring and then the play arm by releasing the play arm claw Ⓑ.
3. Remove the direction SW board and lead holder by releasing the claws Ⓒ and Ⓓ.
4. Move the slide plate rightward and remove it with the cam gear (at this time, remove with aligning the cam gear's groove with the slide plate protrusion section.).
5. Remove the photo sensor board by releasing the claw Ⓔ, and the solenoid by releasing the claw Ⓕ (at the same time, the plunger and fixing mandrel are also removed.).

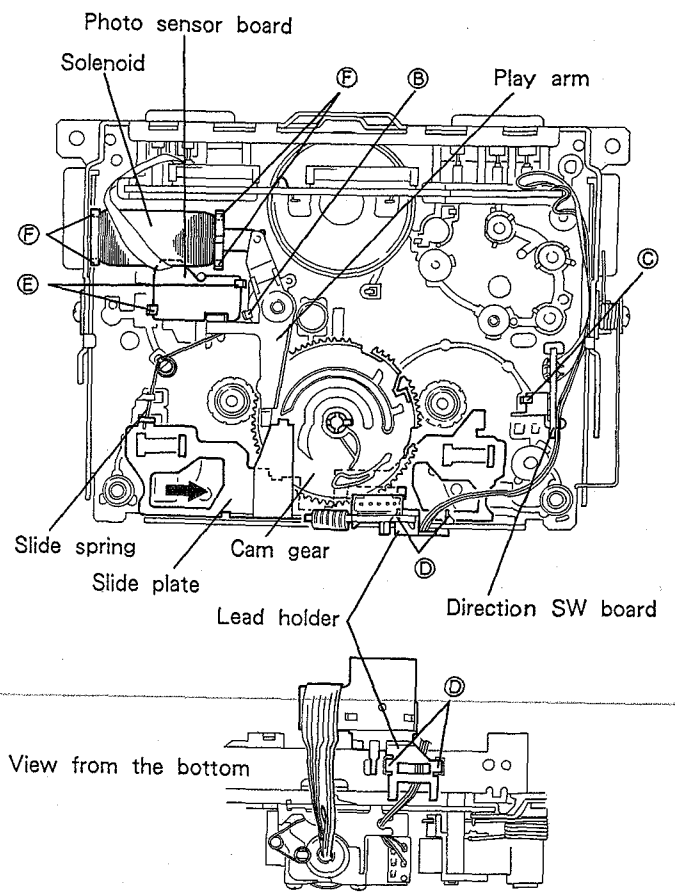


Fig. 11−2. Removal of Play Arm, Slide Plate, Cam Gear and Solenoid

● Reel Motor

1. Remove the main motor. (Refer to the 1 and 2 of the item of "Main Motor & Flywheel" above.)
2. Desolder two portions of the reel motor (section Ⓖ).
3. Move the relay board backward by releasing the claw Ⓗ. (At this time, perform servicing with care for the soldered solenoid wire.)
4. Remove the reel motor by removing two screws ②.

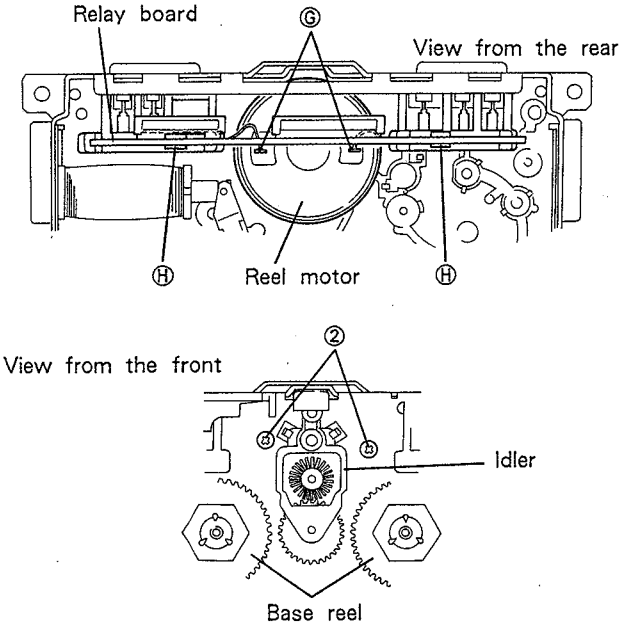
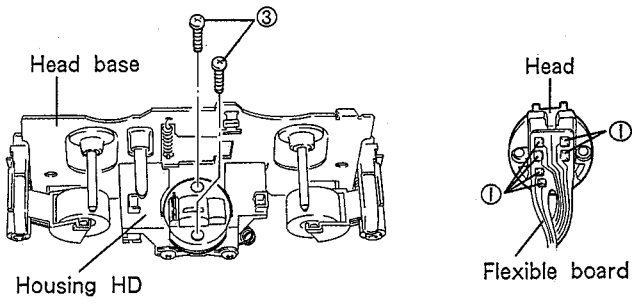


Fig. 11−3. Removal of Reel Motor

● Head, Head Base, Housing HD & Pinch Roller Assembly

1. Remove the head by removing two screws ③ and desoldering six portions of the head (section Ⓘ).
2. Remove the housing HD by removing two screws ④.
3. Remove the head base spring by removing the screw ⑤.
4. Remove the both pinch roller assemblies by releasing the claw Ⓙ and remove the head base by lifting.



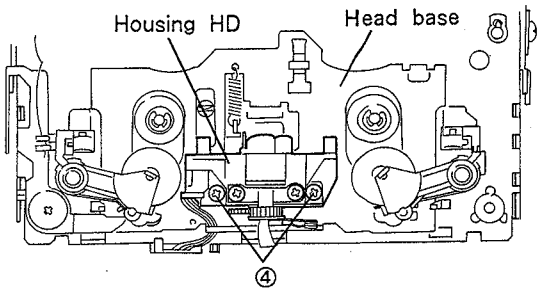


Fig. 11−4. Removal of Head and Housing HD

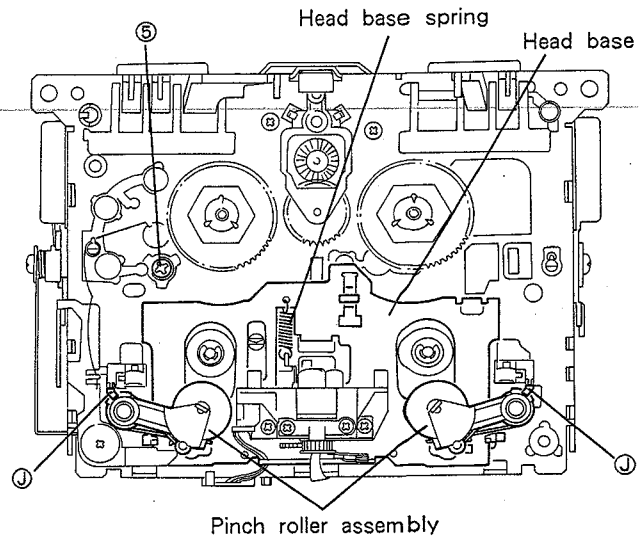


Fig. 11−5. Removal of Head Base and Pinch Roller Assembly