

Service Manual

ORDER NO.
ARP2171

STEREO CASSETTE DECK

CT-229

HEM, HB,
HPW, SD

- Refer to the service manual ARP1980, CT-S407.
- This manual is applicable to the HEM, HB, HPW and SD types.

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- Parts marked by "⊕" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT-229/HEM, HB, HPW and SD types are the same as the CT-S407/KUC type with the exception of the following sections.

Mark	Symbol & Description	Part No.					Remarks
		CT-S407/ KUC type	CT-229/ HEM type	CT-229/ HB type	CT-229/ HPW type	CT-229/ SD type	
	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply	
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply	
	Transformer 1 unit	Non supply	Non supply	Non supply	Non supply	Non supply	
	MIC unit	Non supply	.....	.....	.....	.....	
Δ	Strain relief	CM-22	CM-22B	CM-22B	CM-22B	CM-22B	
Δ	Voltage selector	.....	.....	.....	.....	PSB1002	
Δ	AC Power cord	RDG1010	PDG1003	PDG1036	PDG1006	PDG1013	
Δ	FU1, FU2 Fuse (1.25A)	REK-073	REK-101	REK-101	REK-101	REK-101	
Δ	Power transformer (AC120V)	RTT1086	.....	.....	.....	.....	
Δ	Power transformer (AC220/240V)	.....	RTT1087	RTT1087	RTT1087	.....	
Δ	Power transformer (AC110/120-127/220/240V)	.....	.....	.....	.....	RTT1088	
	Knob (Eject)	RAC1344	RAC1367	RAC1367	RAC1367	RAC1367	
	Knob (REC/TIMER OFF/PLAY/REPEAT)	RAC1357	RAC1236	RAC1236	RAC1236	RAC1236	
	Tact knob	RAC1409	.....	.....	.....	.....	
	Meter panel	RAH1637	.....	.....	.....	.....	
	Door panel	RAH1638	RAH1812	RAH1812	RAH1812	RAH1812	
	Dolby name plate	RAH1655	RAH1458	RAH1458	RAH1458	RAH1458	
	Meter lens	.....	RAH1821	RAH1821	RAH1821	RAH1821	
	Ratchet spring	.....	RBH1008	RBH1008	RBH1008	RBH1008	
	Leg ass'y	REC-369	.....	.....	REC-369	REC-369	
	Cord clamper	RNH-184	.....	.....	.....	.....	
	Front panel ass'y	RXX1325	RXX1365	RXX1365	RXX1365	RXX1365	
	Stopper	.....	VEC1061	VEC1061	.....	.....	
	Insulator	.....	VNK1095	VNK1095	.....	.....	
	Bonnet	RXX1079	RXX1396	RXX1396	RXX1396	RXX1396	
	Packing case	RHG1178	RHG1251	RHG1251	RHG1251	RHG1251	
	Mini-plug cord	PDE-319	.....	.....	.....	.....	
	Control cord	RDE1018	.....	.....	.....	.....	
	Operating instructions (English)	RRB1063	.....	.....	.....	.....	
	Operating instructions (English)	.....	RRB1084	RRB1084	RRB1084	RRB1084	
	Operating instructions (French, German, Italian, Dutch, Swedish, Spanish, Portuguese)	.....	RRD1092	.....	.....	.....	
	Operating instructions (Spanish)	.....	.....	.....	.....	RRD1088	

MAIN UNIT

The main unit (for CT-229/HEM, HB, HPW and SD types) are the same as the main unit (for CT-S407/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT-S407/KUC type	CT-229/HEM, HB, HPW and SD types	
	IC301, IC1001, IC1601	M5218L	BA15218N	
	IC801	UPC1297CA	.....	
	Q110, Q124, Q230, Q303-Q306	DTC124ES	XDC124ES	
	Q801, Q802	2SA1309A	.....	
	Q803, Q1150	DTC124ES	.....	
	Q905, Q909	DTC124ES	XDC124ES	
	D801, D802, D1102-D1104, D1110-D1112	1SS254	.....	
	C601, C602	.....	CCCSL101K500	
	C801, C802	CGCYX103K25	.....	
	C803, C804	CKPUYB821K50	.....	
	C805, C806	CFTXA223J50	.....	
	C807, C808	CGCYX473K25	.....	
	C809, C810	CCCSL101K500	.....	
	C811, C812	CKCYB471J500	.....	
	C813	CKPUYB101K50	.....	
	C814	CEASR10M50	.....	
	C815, C819	CEAS100M50	.....	
	C816	CEAS4R7M50	.....	
	C1105, C1111, C1113	CKCYF103Z50	.....	
	C1110	CKCYF473Z50	.....	
	C1112	CEAS010M50	.....	
	L602	RTD1039	RTD1017	
	L801, L802	RTD1030	.....	
	R651	RD1/2LF331J	RD1/2LF201J	
	R652	RD1/2LF221J	RD1/2LF151J	
	R801, R802, R806	RD1/6PM223J	.....	
	R803, R804	RD1/6PM184J	.....	
	R805	RD1/6PM153J	.....	
	R807, R808	RD1/6PM472J	.....	
	R809	RD1/6PM103J	.....	
	R1150	RD1/6PM274J	.....	
	R1104	.....	RD1/6PM223J	
	VR801, VR802 (22k Ω)	RCP1035	.....	
	VR601, VR602	.....	VRTB6VS104	
	CN112	BTMK05P-1R	BTMK04-1R	
	CN113	BTMK11P-1R	BTMK10P-1R	
	CN202	.....	KPC3	
	J201	RDD1196	.....	
	JA1101, JA1102	RKN1004	.....	
	JA1103	RKN1014	.....	

DISPLAY UNIT

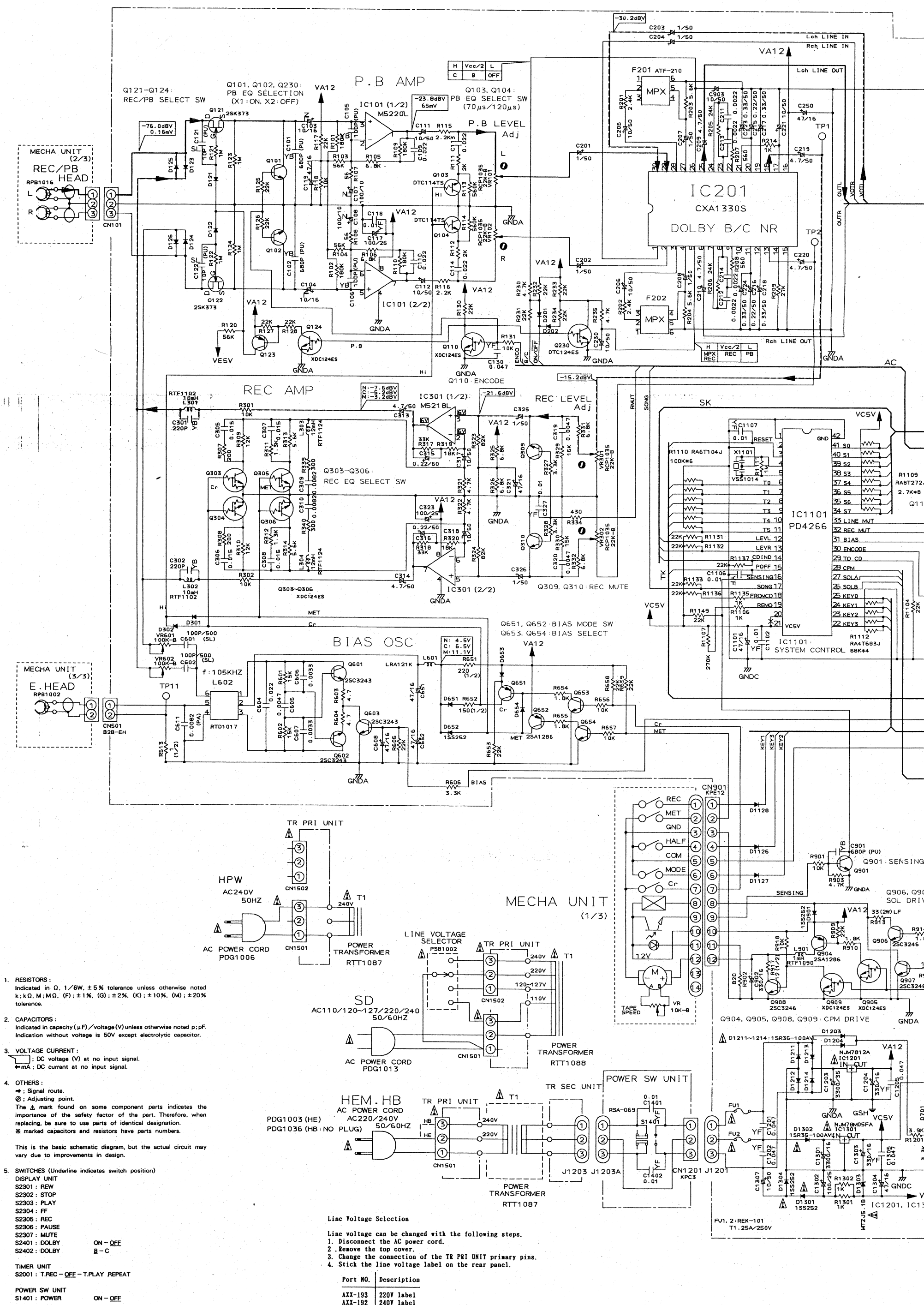
The display unit (for the CT-229/HEM, HB, HPW and SD types) are the same as the display unit (for CT-S407/KUC type) with the exception of the following sections.

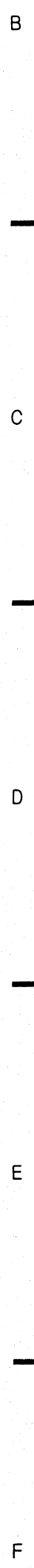
Mark	Symbol & Description	Part No.			Remarks
		CT-S407/ KUC type	CT-229/HEM and HB types	CT-229/HPW and SD types	
	Q2451	2SA1309A	.....	.....	
	Q2468	2SC3311A	.....	.....	
	D2401, D2403-D2412, D2419, D2420	SEL4914A	SEL4310E	SEL4914A	
	D2421-D2423	SEL4214S	.....	.....	
	D2431	1SS254	.....	.....	
	R2414-R2416	RD1/6PM331J	.....	.....	
	R2428	RD1/6PM332J	.....	.....	
	S2308	RSG-155	.....	.....	
	CN112	BTMK05S	BTMK04S	BTMK04S	
	CN113	BTMK11S	BTMK10S	BTMK10S	

TRANSFORMER 1 UNIT

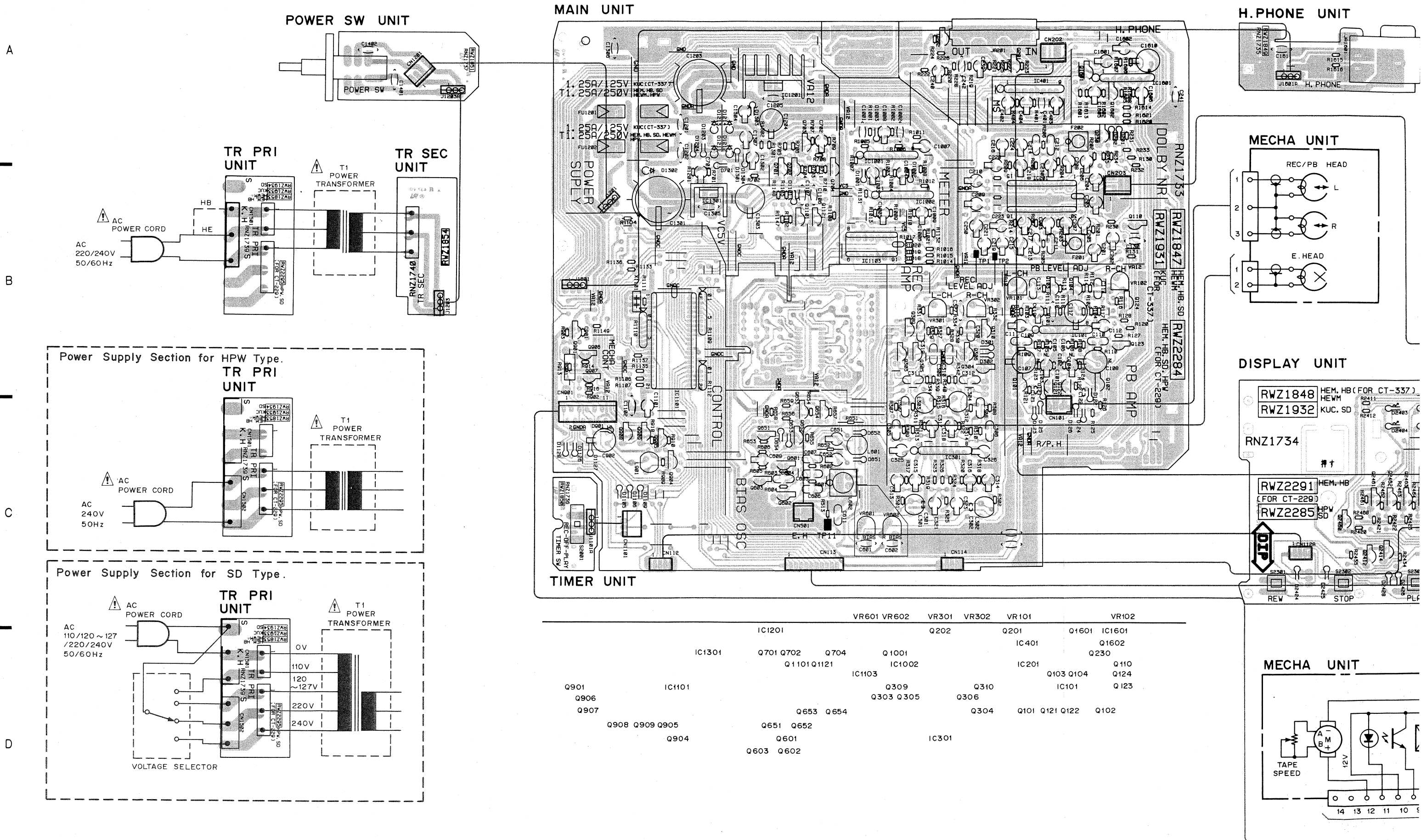
The Transformer 1 units (CT-229/HEM, HB, HPW and SD types) are the same as the Transformer 1 unit (CT-S407/KUC type) for the service supply parts.

2. SCHEMATIC DIAGRAM

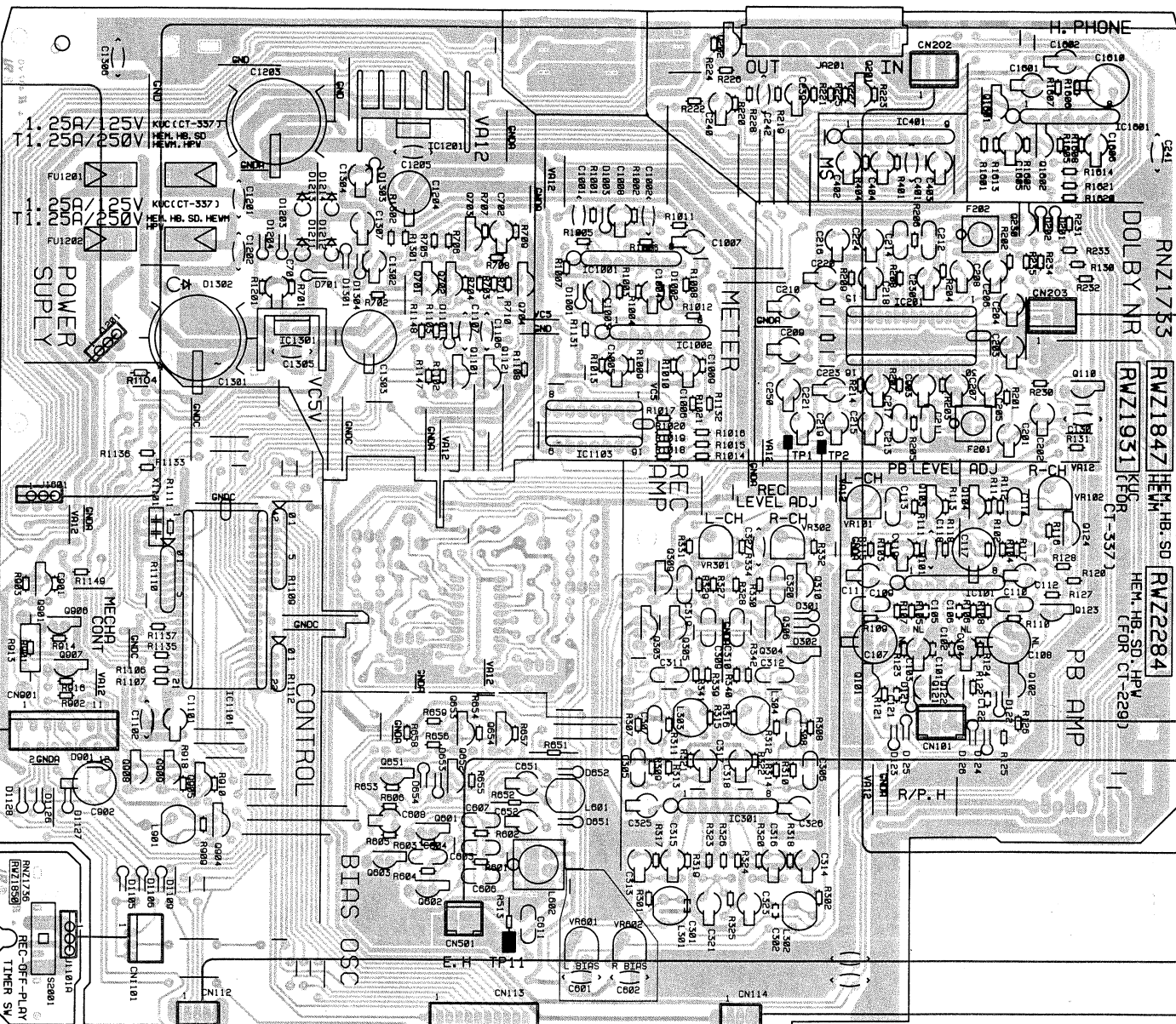




3. P.C. BOARDS CONNECTION DIAGRAM



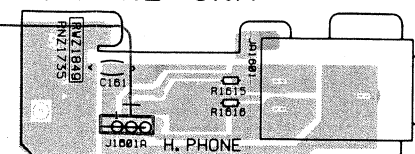
MAIN UNIT



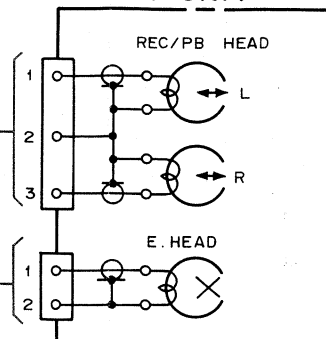
TIMER UNIT

										VR601	VR602	VR301	VR302	VR101	VR102					
										IC1201				Q202	Q201	Q1601	IC1601			
														IC401	Q1602					
										IC1301	Q701	Q702	Q704		Q1001	Q230				
											Q1101	Q1121		IC1002		Q110				
												IC1103			Q103	Q104	Q124			
Q901											IC1101			Q309	Q310	IC101	Q123			
Q906														Q303	Q305	Q306				
Q907																Q304	Q101	Q121	Q122	Q102
										Q653	Q654									
Q908	Q909	Q905											Q651	Q652						
										Q904		Q601				IC301				
											Q603	Q602								

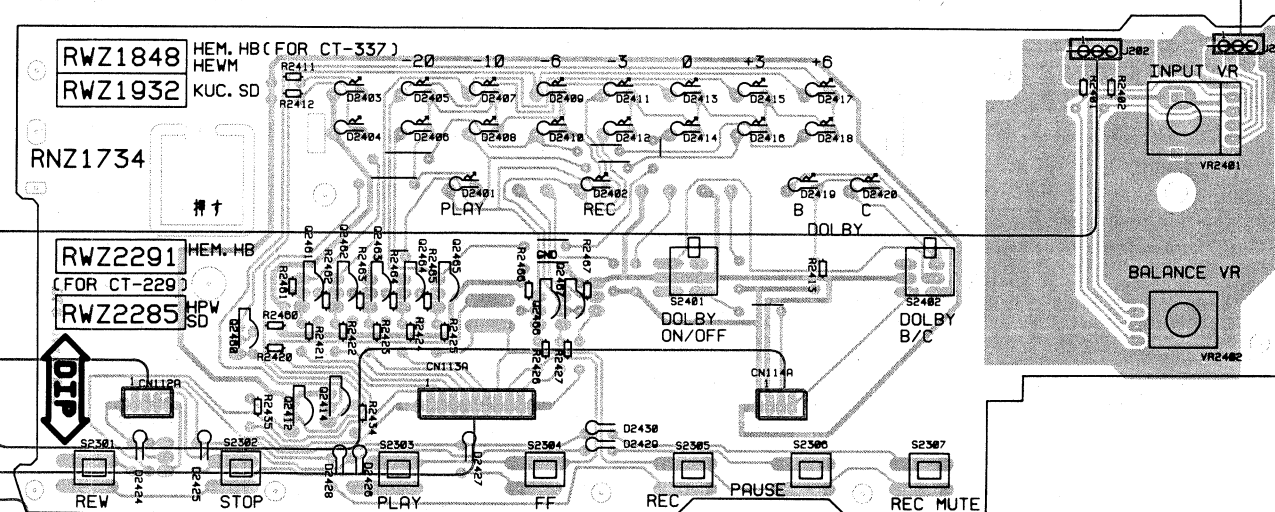
H.PHONE UNIT



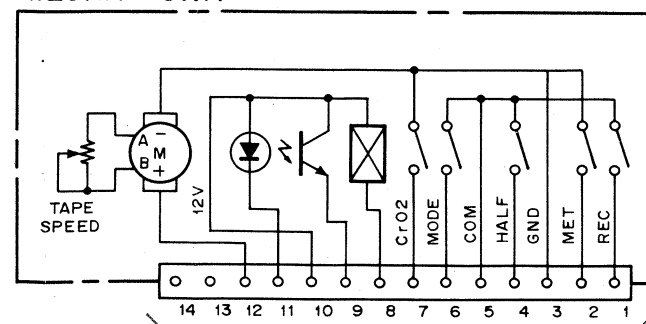
MECHA UNIT



DISPLAY UNIT



MECHA UNIT

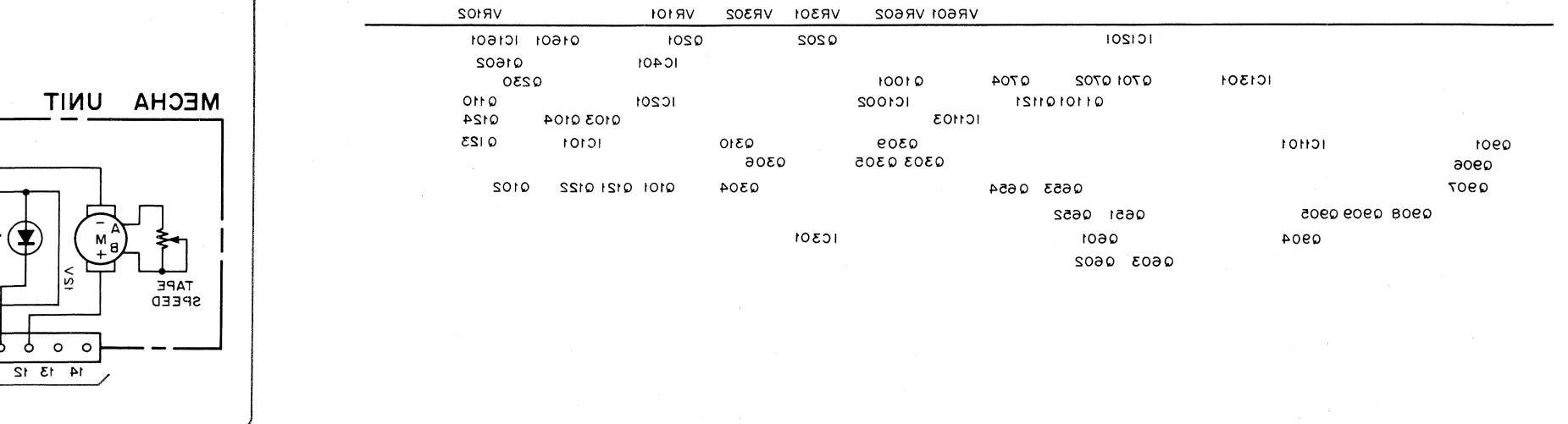
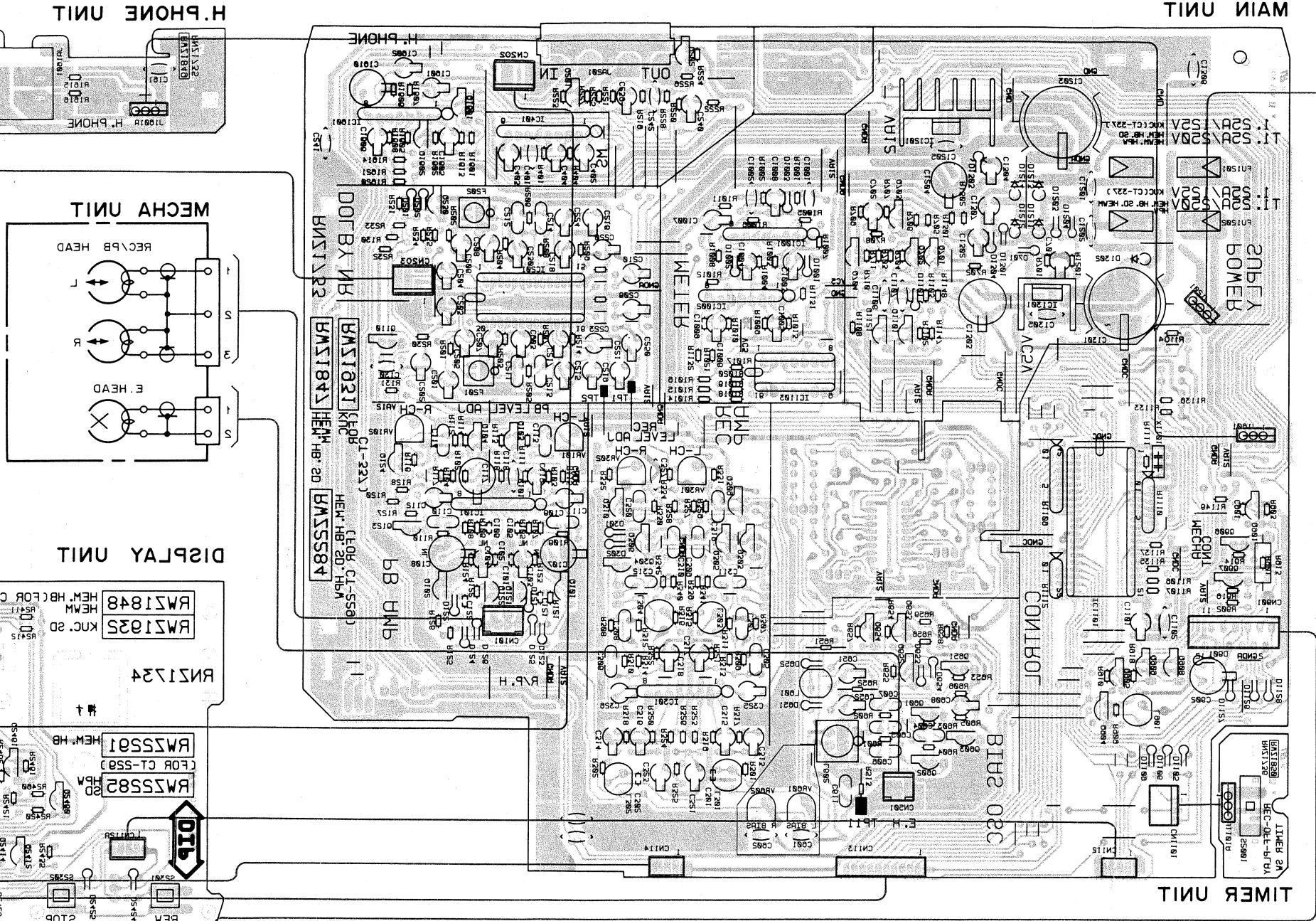
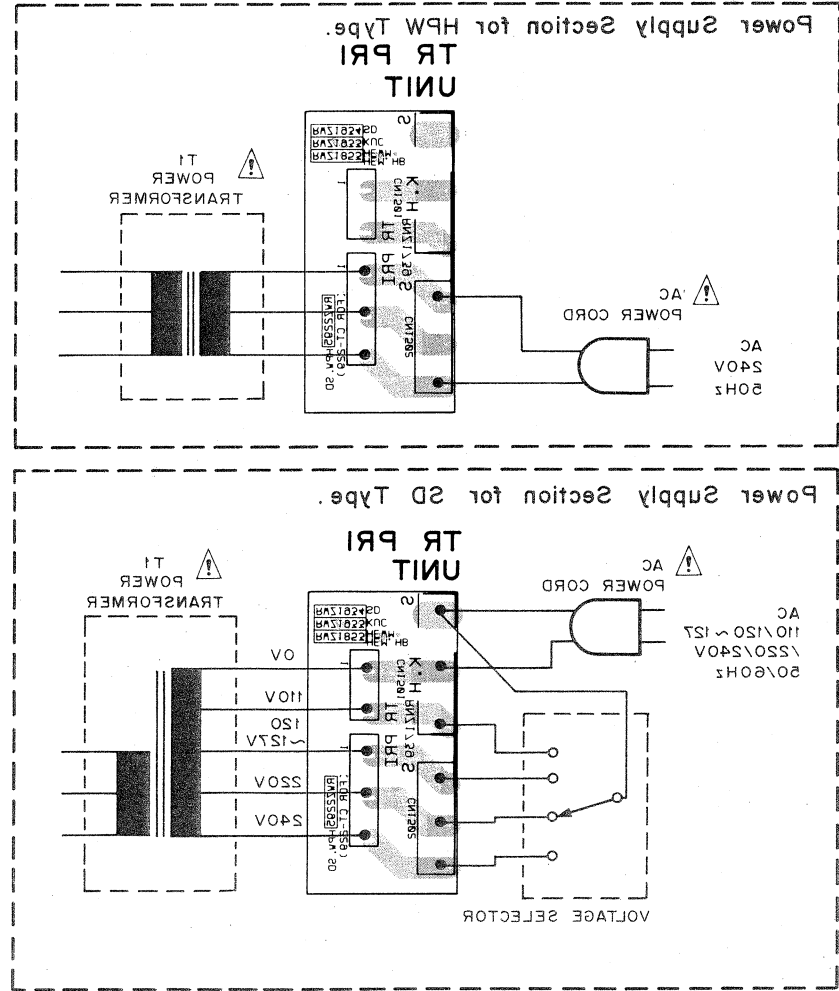
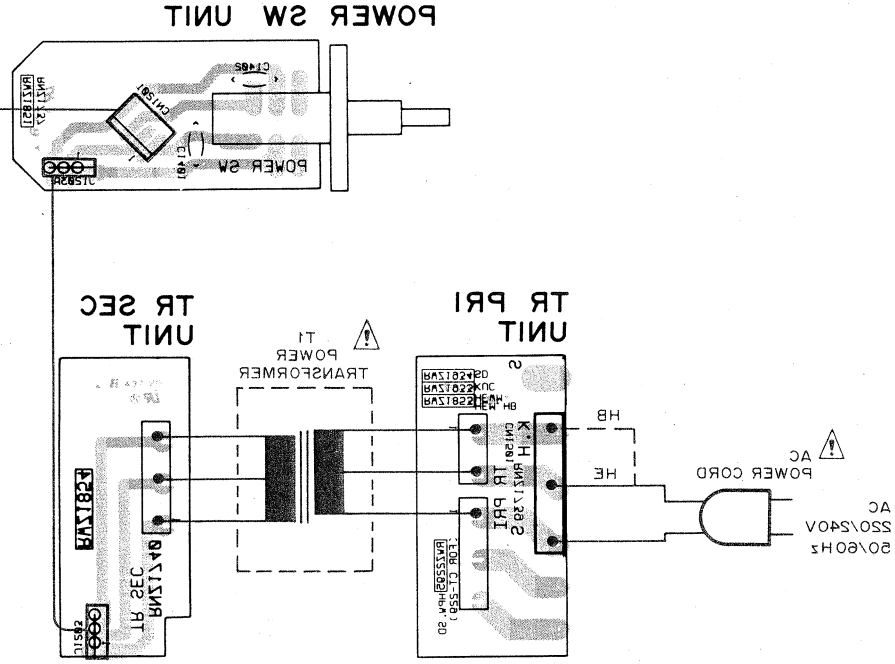


P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
		Zener diode			Electrolytic capaci (Non polarized)
		LED			Electrolytic capaci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

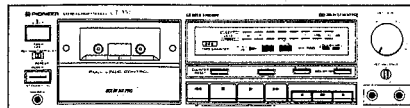
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in Table 1.
3. The capacitor terminal marked with  shows negative terminal.
4. The diode marked with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

3. P.C. BOARDS CONNECTION DIAGRAM

• View from soldering side



Service Manual



• The illustration shows model CT-337.

ORDER NO.
ARP 1980

STEREO CASSETTE DECK

CT-S407

CT-337

CT-337-S

MODEL CT-S407, CT-337 and CT-337-S HAVE FOLLOWING VERSIONS:

Type	Applicable model			Power requirement	Export destination
	CT-S407	CT-337	CT-337-S		
KUC	○			AC 120V only	U.S.A.
HEM		○		AC 220V, 240V (Switchable) *	European continent
HB		○		AC 220V, 240V (switchable) *	United Kingdom
HEWM			○	AC 220V, 240V (switchable) *	European continent
SD		○		AC110V, 120V, 220V, 240V (Switchable)	Kingdom of Saudi Arabia and General market

* Change the primary wiring of the power transformer.

- This manual is applicable to the KUC, HEM, HB, HEWM and SD types.
- As to the HEM, HB, HEWM and SD types, refer to pages 32, 33.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

CONTENTS

1. SAFETY INFORMATION	2	7. ADJUSTMENTS	23
2. EXPLODED VIEWS AND PARTS LIST	3	RÉGLAGE	27
3. PACKING	6	AJUSTE	31
4. P.C. BOARDS CONNECTION DIAGRAM	9	8. FOR CT-337/HEM, HB, SD CT-337-S/ HEWM and CT-S407/KUC TYPES	35
5. SCHEMATIC DIAGRAM	17	9. PANEL FACILITIES	37
6. ELECTRICAL PARTS LIST	20	10. SPECIFICATIONS	39

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

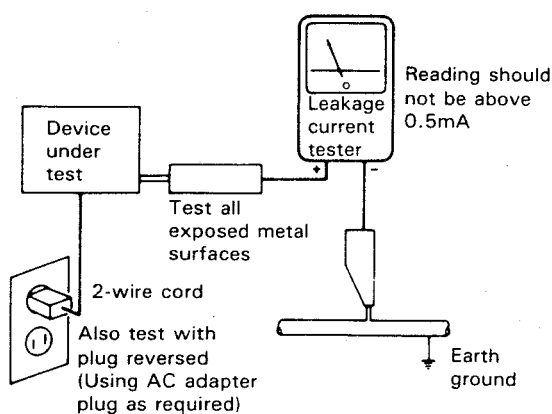
(FOR USA MODEL ONLY)

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 Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does 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.EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

2.1 PARTS LIST OF EXTERIOR

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
Δ	1	Strain relief	CM-22		101	Main unit	
Δ	2	AC Power cord	RDG1010		102	Headphone unit	
Δ	3	FU1, FU2 fuse (1.25A)	REK-073		103	Timer SW unit	
Δ	4	T1 Power transformer	RTT1086		104	Power SW unit	
	5	Push spring	RBH1146		105	Transformer 1 unit	
	6	Eject lever spring (L) (For Mechanism unit)	RBH1201		106	Transformer 2 unit	
	7	Door spring (L)	RBH1203		107	Display unit	
	8	Half pressure spring	RBK1004		108	Mechanism unit	
	9	Counter belt	REB-514		109	PCB spacer	
	10	Damper ass'y	REC1013		110	-----	
	11	Collar (For Mechanism unit)	RLA1119		111	Mechanism mount plate	
	12	Knob (REC LEVEL)	RAC1363		112	Eject lever (L) (For Mechanism unit)	
	13	Knob (COUNTER RESET)	RAC1228		113	Counter holder	
	14	Bottom (POWER)	RAC1364		114	Rear panel	
	15	Knob (REC BALANCE)	RAC1366		115	Front panel	
	16	Knob (DOLBY NR)	RAC1343		116	Main chassis	
	17	Knob (EJECT)	RAC1344		117	Name plate	
	18	Knob ($\leftarrow$, $\blacksquare$, $\rightarrow$, $\gg$, $\bullet$, $\parallel$, $\circ$)	RAC1345		118	LED holder	
	19	Knob (REC/TIMER OFF/ PLAY/REPEAT)	RAC1357		119	MIC unit	
	20	Screw	RAT1001		120	Spacer	
	21	Counter	RAW1041		121	MIC bracket	
	22	Leg ass'y	REC-369		122	Headphone bracket	
	23	Remaining sheet	REE-113				
	24	Door pocket	RNT1013				
	25	Door lens	RAH1244				
	26	Meter panel	RAH1457				
	27	Dolby name plate	RAH1655				
	28	Meter lens	RAH1637				
	29	Door panel	RAH1638				
	30	Screw	ARZ26P060FMC				
	31	Screw	ABZ26P050FMC				
	32	Screw	BBZ30P060FZK				
	33	Screw	BBZ30P080FMC				
	34	Screw	FBT40P080FZK				
	35	Screw	IBZ30P150FCU				
	36	Screw	PMA30P060FMC				
	37	Binder	REC-371				
	38	Bonnet	RXX1079				
	39	Front panel ass'y	RXX1267				
	40	Cord clasper	RNH-184				
	41	Screw	IBZ26P120FMC				
	42	Push spring (A) (Color:Black)	RBH1214				
	43	Tact knob	RAC1409				

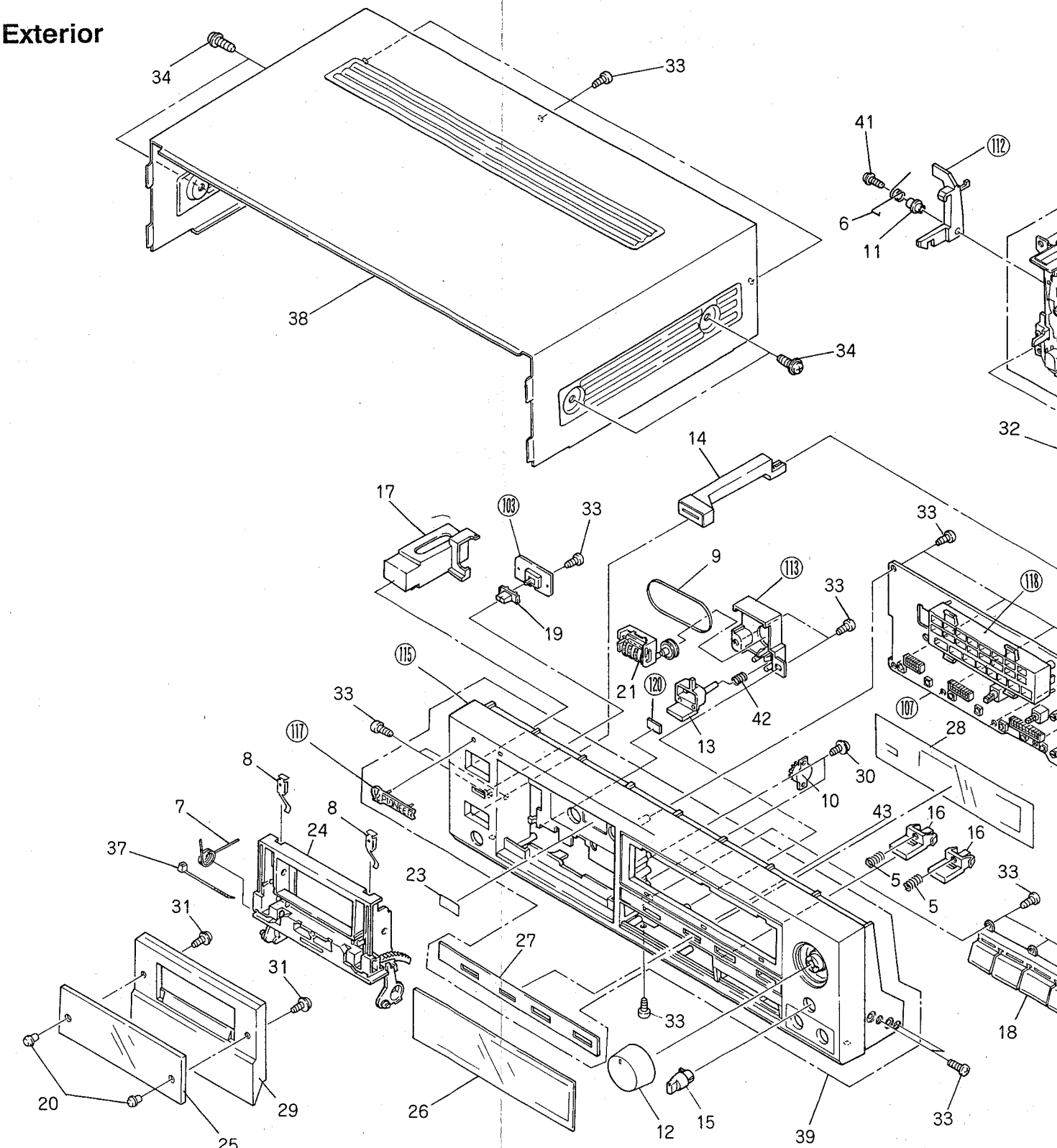
2.1 Exterior

A

B

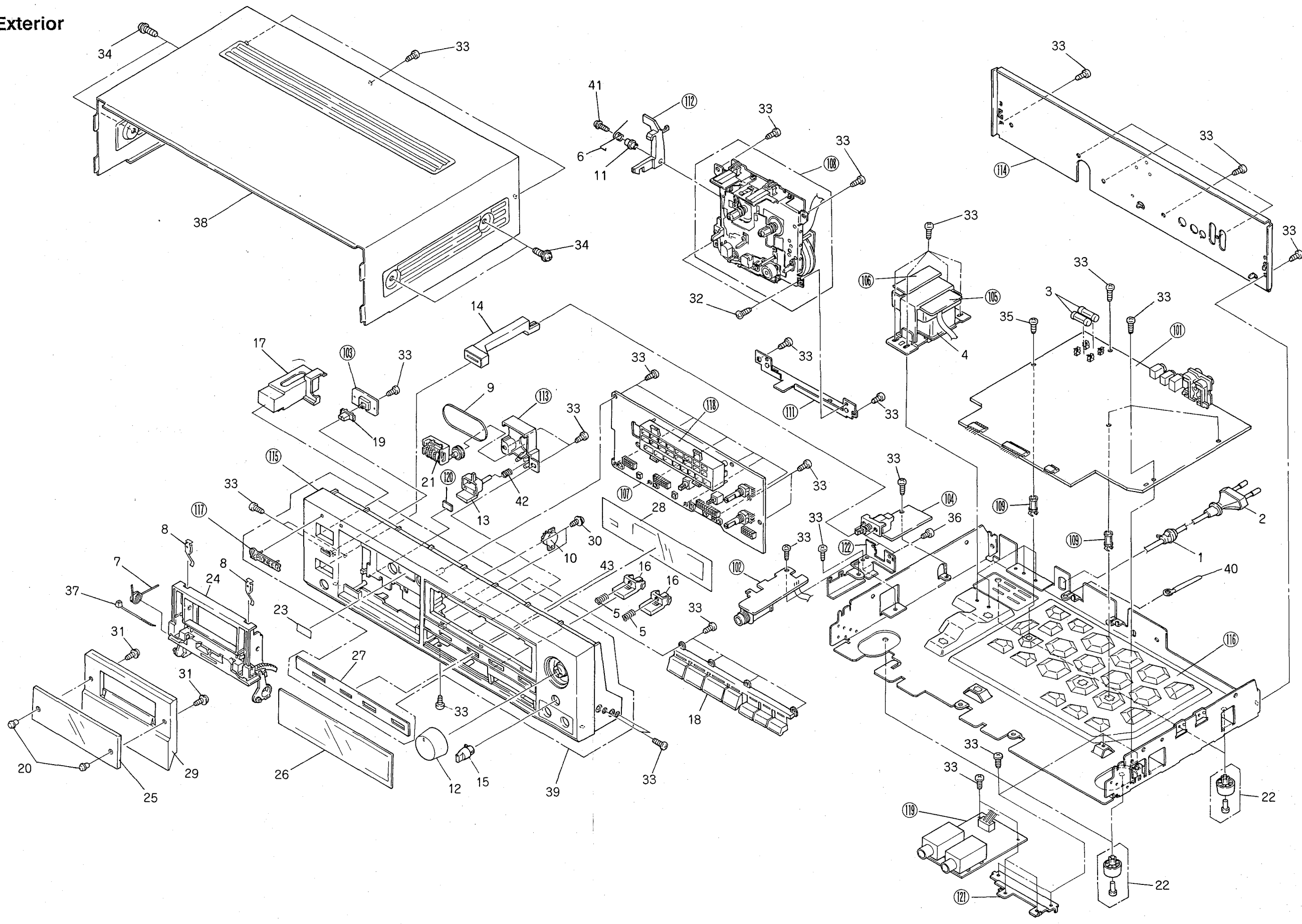
C

D



2.1 Exterior

Parts No.



2.

B

C

D

7

A

B

C

□

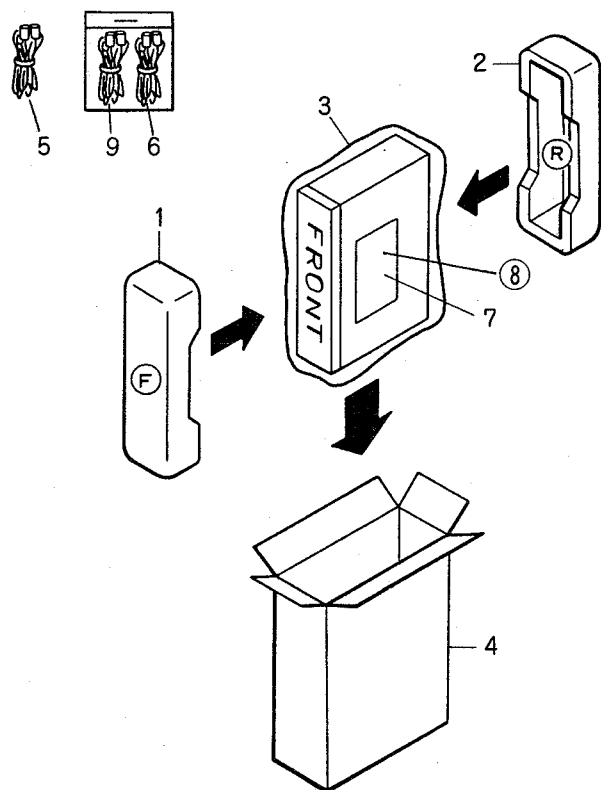
2.2 PARTS LIST OF MECHANISM UNIT

Mark	No.	Description	Parts No.
	1	-----	
	2	Planger	RLA1120
	3	Holder	RNK1461
	4	R/P Head	RPB1026
	5	E Head	RPB1027
	6	Leaf switch	RSN1016
	7	Leaf switch	RSN1017
	8	Yoke ass'y	RXA1264
	9	Motor ass'y	RXM1044
	10	Solenoid	RXP1009
	11	Photo sensor	ON2170L(LF)R
	12	-----	
	13	-----	
	14	Guide (R)	RNK1468
	15	Guide (L)	RNK1469
	16	Guide	RNK1470
	17	Main belt	REB1139
	18	Pinch roller	REB1135
	19	Metal	RNG1035
	20	Frywheel ass'y	RXA1263
	21	Spring	RBH1208
	22	-----	
	23	Belt (FR)	REB1087
	24	Gear (A)	RNK1465
	25	Play arm	RNK1531
	26	Gear (FF)	RNK1467
	27	FR arm ass'y	RXA1347
	28	FR pully ass'y	RXA1267
	29	T-Reel ass'y	RXA1268
	30	S-Reel	RNK1633
	31	Azimuth screw	RBA1070
	32	Screw	RBA1071
	33	Washer	RBF1030
	34	Azimuth spring	RBH1205
	35	Spring	RBH1210
	36	Spring	RBH1211
	37	Spring	RBH1212
	38	Assist gear	RNK1634
	39	Head chassis ass'y	RXA1270
	40	Spring	RBH1206
	41	Spring	RBH1207
	42	Arm cue lock	RNK1463
	43	Trigger arm	RNK1464
	44	Cassette spring	RBK1026
	45	Eject lock (L)	RNK1451
	46	Screw	BCZ20P060FMC
	47	Screw	PCZ20P040FMC
	48	Screw	RBA1086
	49	-----	
	50	Screw	RBA1072
	51	-----	
	52	-----	
	53	Washer	RBF1028
	54	-----	
	55	Washer	RBF1031
	56	Nut	RBN1001
	57	Washer	WA21D040D013
	58	Spring	RBH1268
	59	Cushion	REB1103
	60	Bush	RBA1075

3. PACKING

Parts List

Mark	No.	Description	Parts No.
	1	Pad (A)	RHA1006
	2	Pad (B)	RHA1007
	3	Styren paper	RHC-161
	4	Packing case	RHG1178
	5	Mini-plug cord	PDE-319
	6	Control cord	RDE1018
	7	Operating instructions (English)	RRB1063
	8	Warranty card	
	9	Connection card	RDE-010



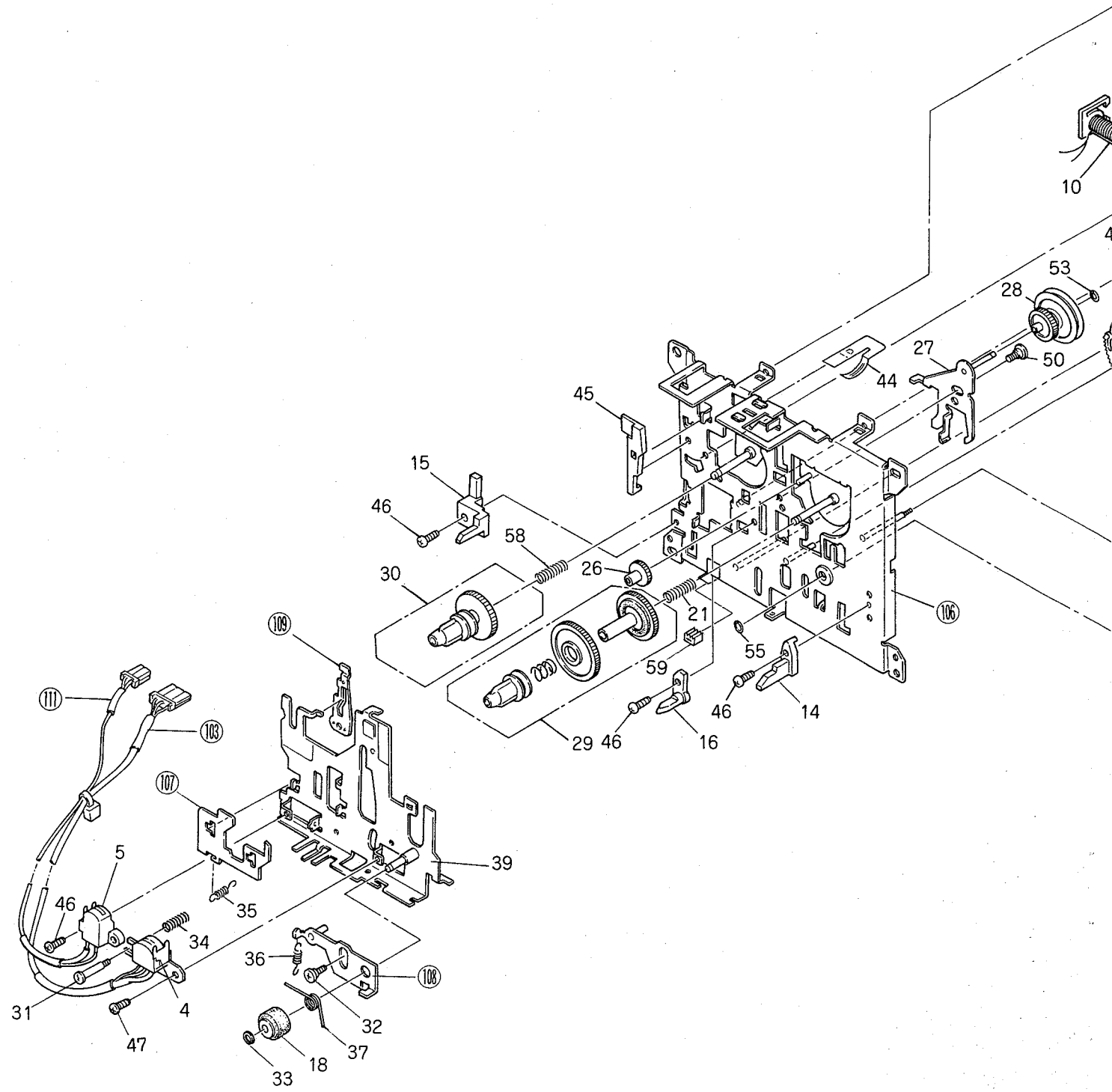
2.2 Mechanism Unit

A

B

C

D



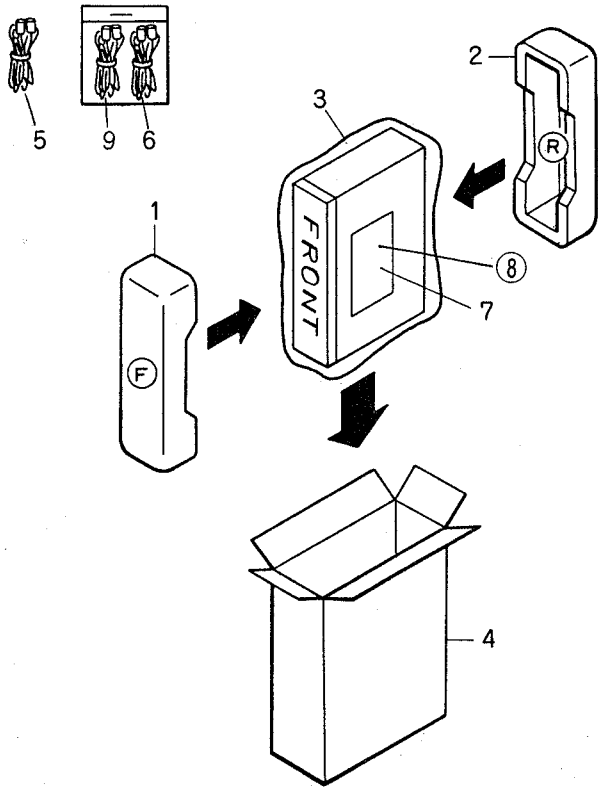
2.2 PARTS LIST OF MECHANISM UNIT

Mark	No.	Description	Parts No.
	1	-----	
	2	Planger	RLA1120
	3	Holder	RNK1461
	4	R/P Head	RPB1026
	5	E Head	RPB1027
	6	Leaf switch	RSN1016
	7	Leaf switch	RSN1017
	8	Yoke ass'y	RXA1264
	9	Motor ass'y	RXM1044
	10	Solenoid	RXP1009
	11	Photo sensor	ON2170L(LF)R
	12	-----	
	13	-----	
	14	Guide (R)	RNK1468
	15	Guide (L)	RNK1469
	16	Guide	RNK1470
	17	Main belt	REB1139
	18	Pinch roller	REB1135
	19	Metal	RNG1035
	20	Frywheel ass'y	RXA1263
	21	Spring	RBH1208
	22	-----	
	23	Belt (FR)	REB1087
	24	Gear (A)	RNK1465
	25	Play arm	RNK1531
	26	Gear (FF)	RNK1467
	27	FR arm ass'y	RXA1347
	28	FR pully ass'y	RXA1267
	29	T-Reel ass'y	RXA1268
	30	S-Reel	RNK1633
	31	Azimuth screw	RBA1070
	32	Screw	RBA1071
	33	Washer	RBF1030
	34	Azimuth spring	RBH1205
	35	Spring	RBH1210
	36	Spring	RBH1211
	37	Spring	RBH1212
	38	Assist gear	RNK1634
	39	Head chassis ass'y	RXA1270
	40	Spring	RBH1206
	41	Spring	RBH1207
	42	Arm cue lock	RNK1463
	43	Trigger arm	RNK1464
	44	Cassette spring	RBK1026
	45	Eject lock (L)	RNK1451
	46	Screw	BCZ20P060FMC
	47	Screw	PCZ20P040FMC
	48	Screw	RBA1086
	49	-----	
	50	Screw	RBA1072
	51	-----	
	52	-----	
	53	Washer	RBF1028
	54	-----	
	55	Washer	RBF1031
	56	Nut	RBN1001
	57	Washer	WA21D040D013
	58	Spring	RBH1268
	59	Cushion	REB1103
	60	Bush	RBA1075

3. PACKING

Parts List

Mark	No.	Description	Parts No.
	1	Pad (A)	RHA1006
	2	Pad (B)	RHA1007
	3	Styren paper	RHC-161
	4	Packing case	RHG1178
	5	Mini-plug cord	PDE-319
	6	Control cord	RDE1018
	7	Operating instructions (English)	RRB1063
	8	Warranty card	
	9	Connection card	RDE-010



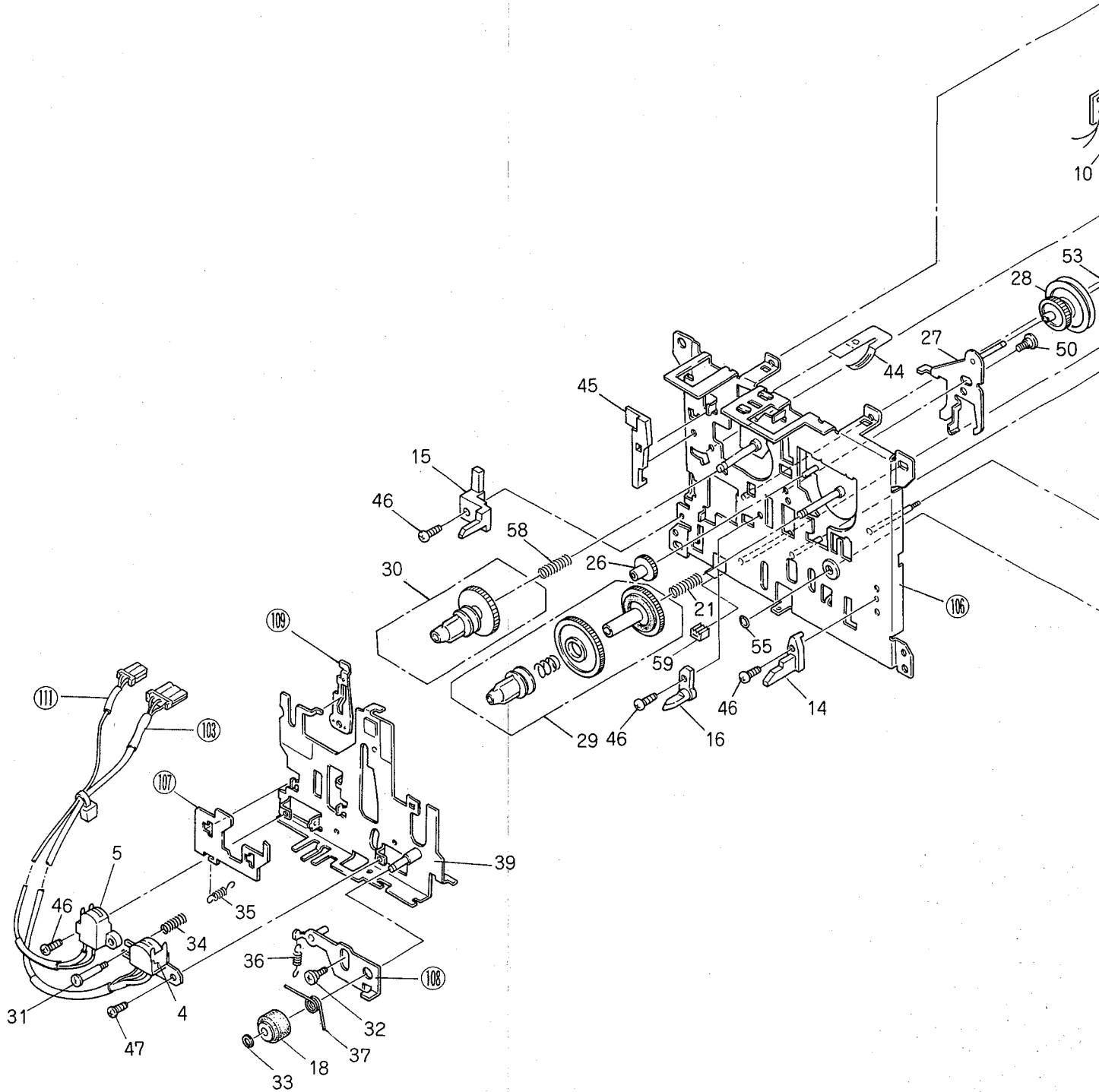
2.2 Mechanism Unit

A

B

C

D



1	2	3	4	5	6
---	---	---	---	---	---

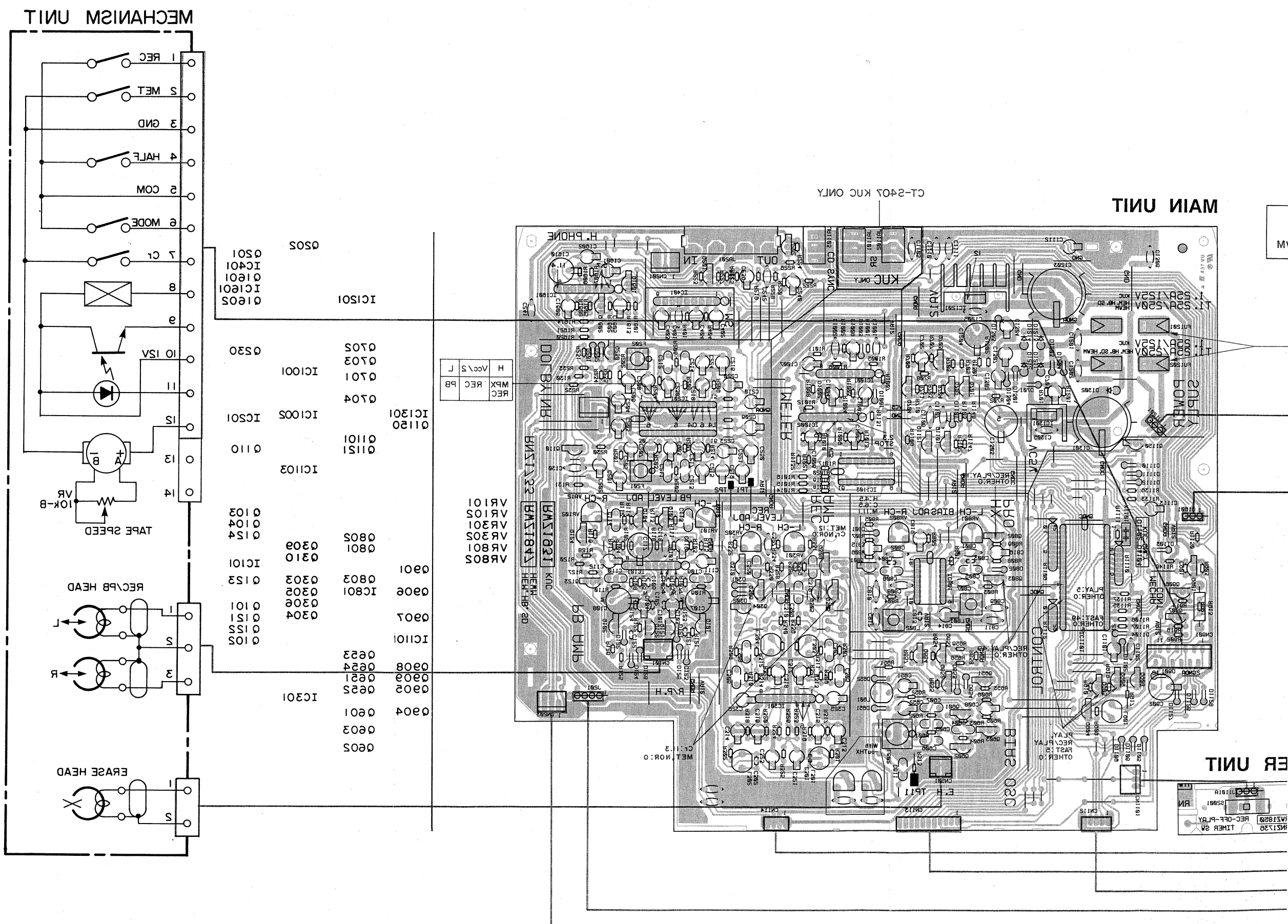


B

C

D

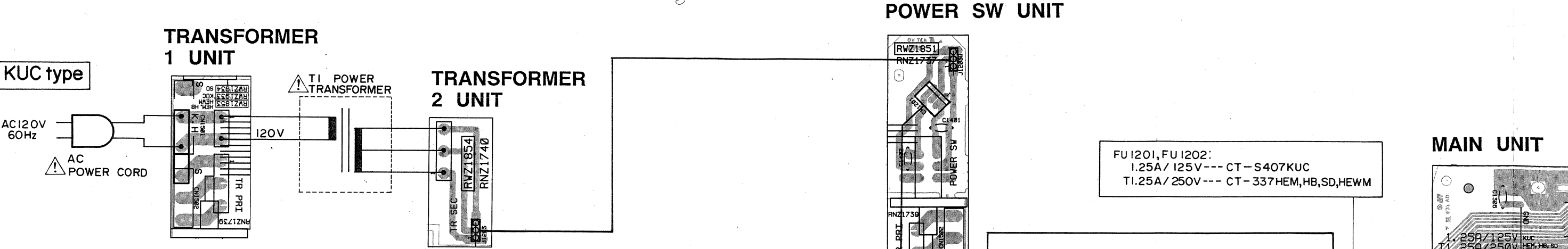
- View from soldering side



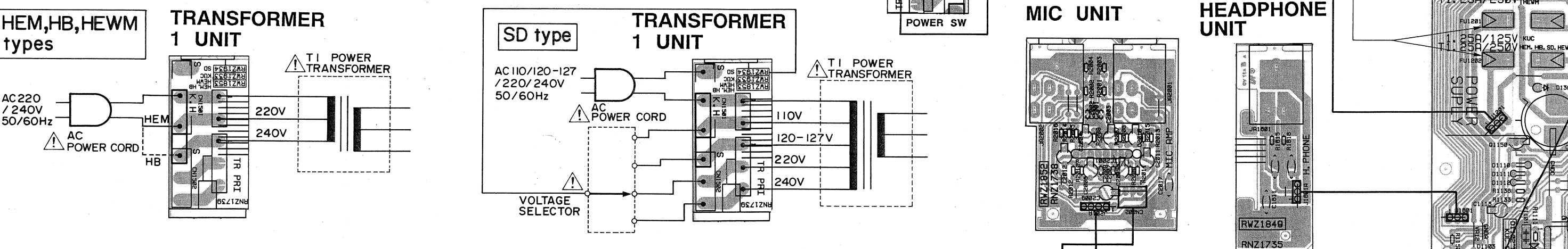
4. P.C. BOARDS CONNECTION DIAGRAM

View from component side

A



B



HEM, HB type Line Voltage Section

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the TRANSFORMER 1 UNIT assembly primary pins.

Voltage	AC cord
220 V	CN1501-②
240 V	CN1501-③

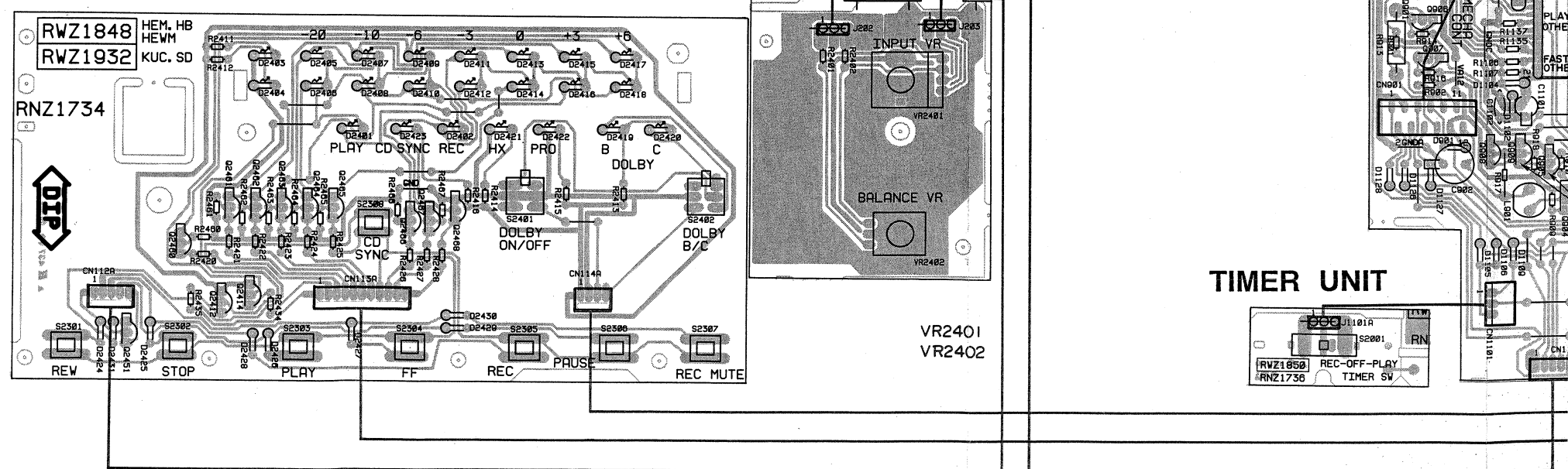
4. Stick the line voltage label on the rear panel.

Parts No.	Description
AAX-193	220V label
AAX-192	240V label

HEM, HEWM 220V ———
HB 240 V - - - - -

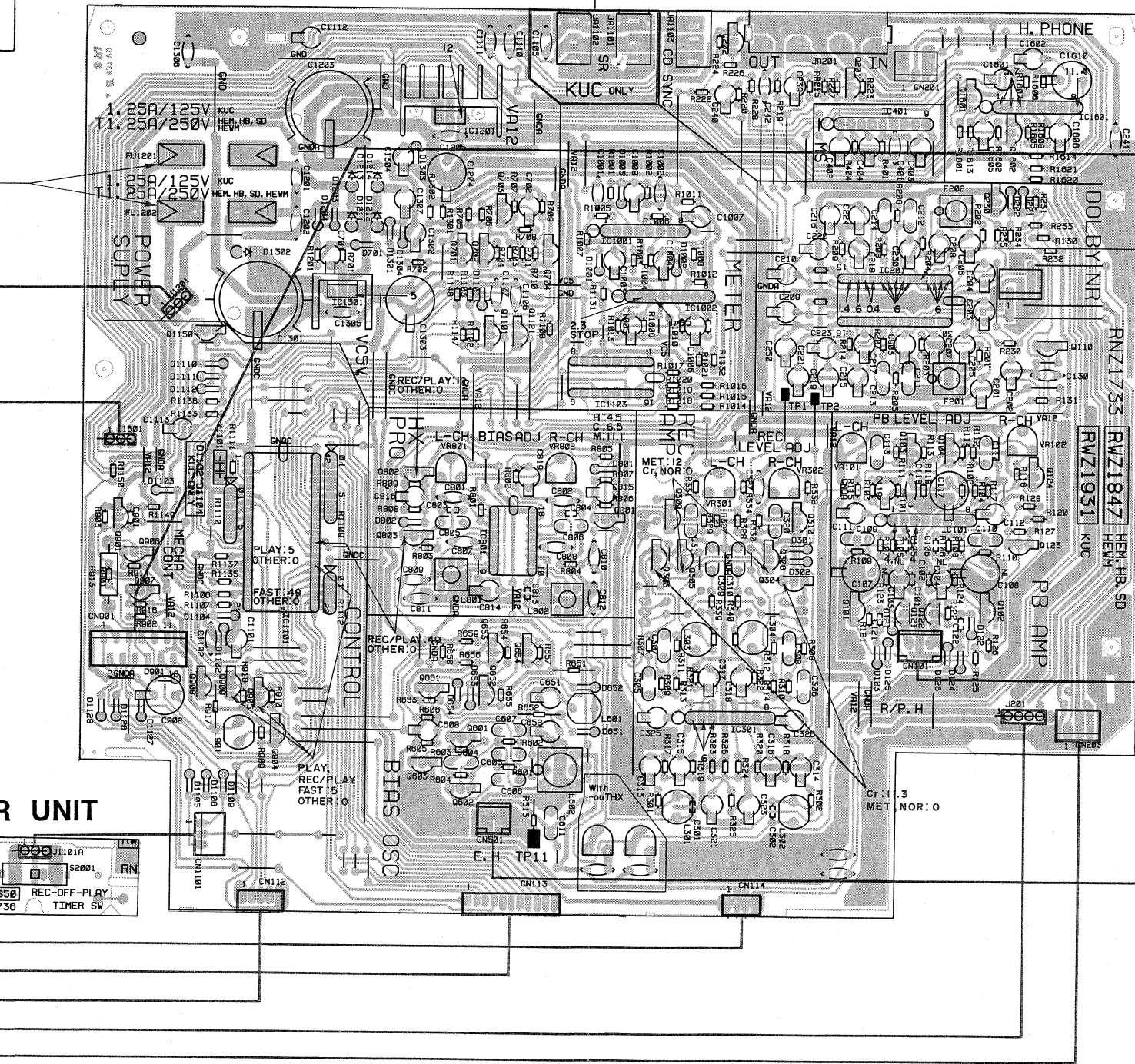
D

DISPLAY UNIT

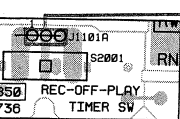


MAIN UNIT

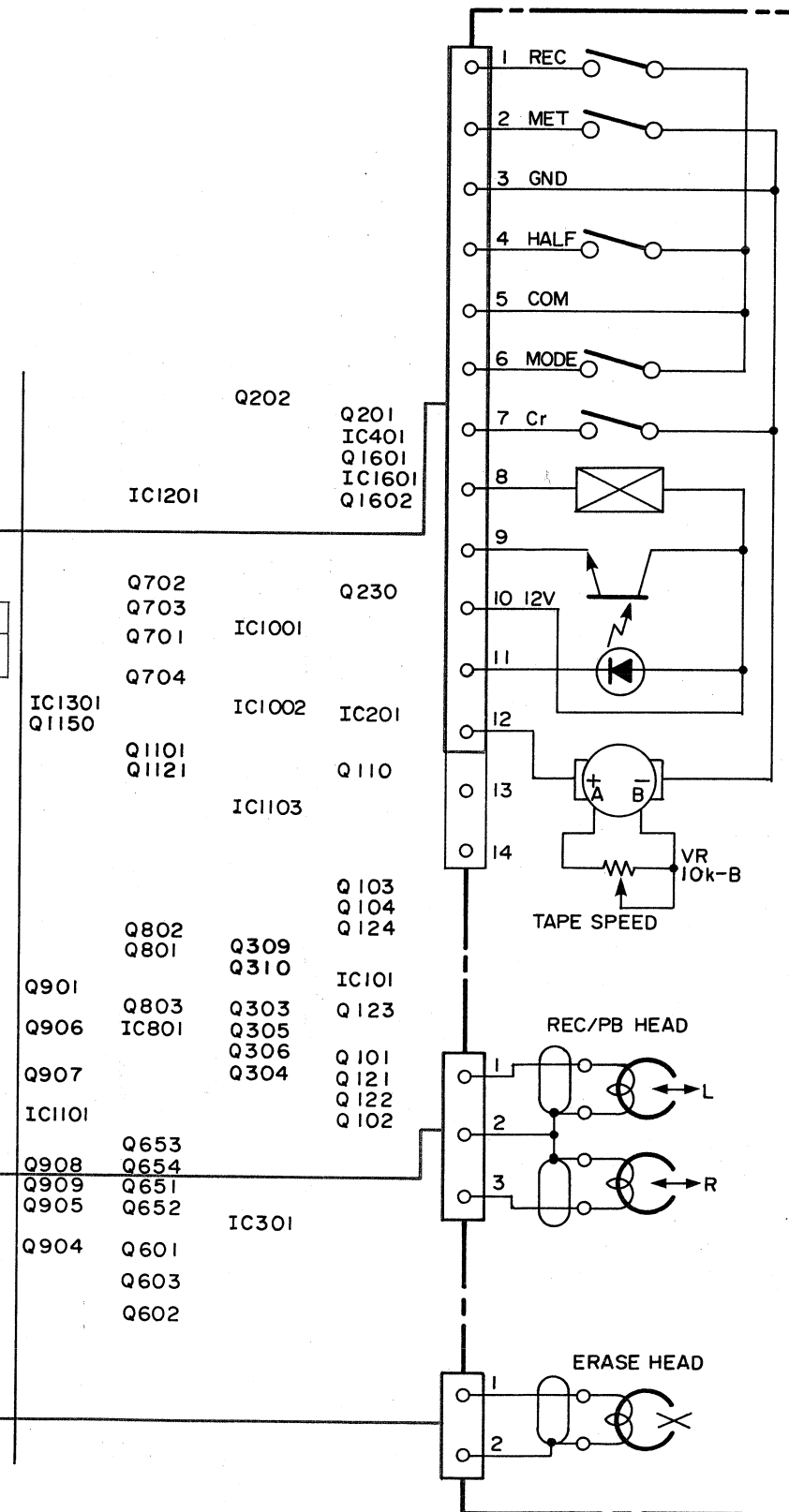
CT-S407 KUC ONLY



R UNIT



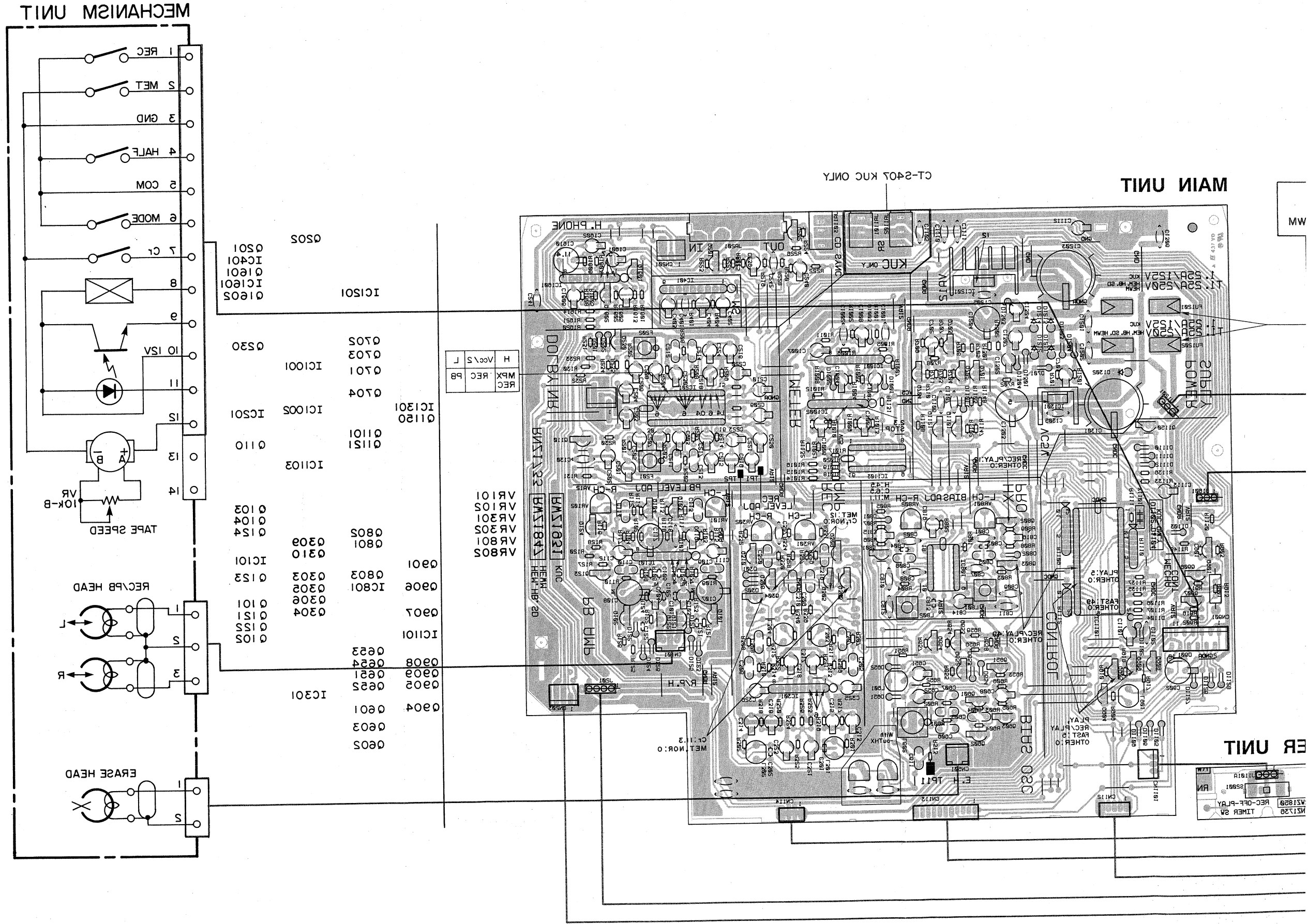
MECHANISM UNIT



P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zener 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

- This P.C.B. connection diagram is viewed from the parts mounted side.
- 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.
- The capacitor terminal marked with shows negative terminal.
- The diode marked with shows cathode side.
- The transistor terminal marked with shows emitter.

View from soldering side

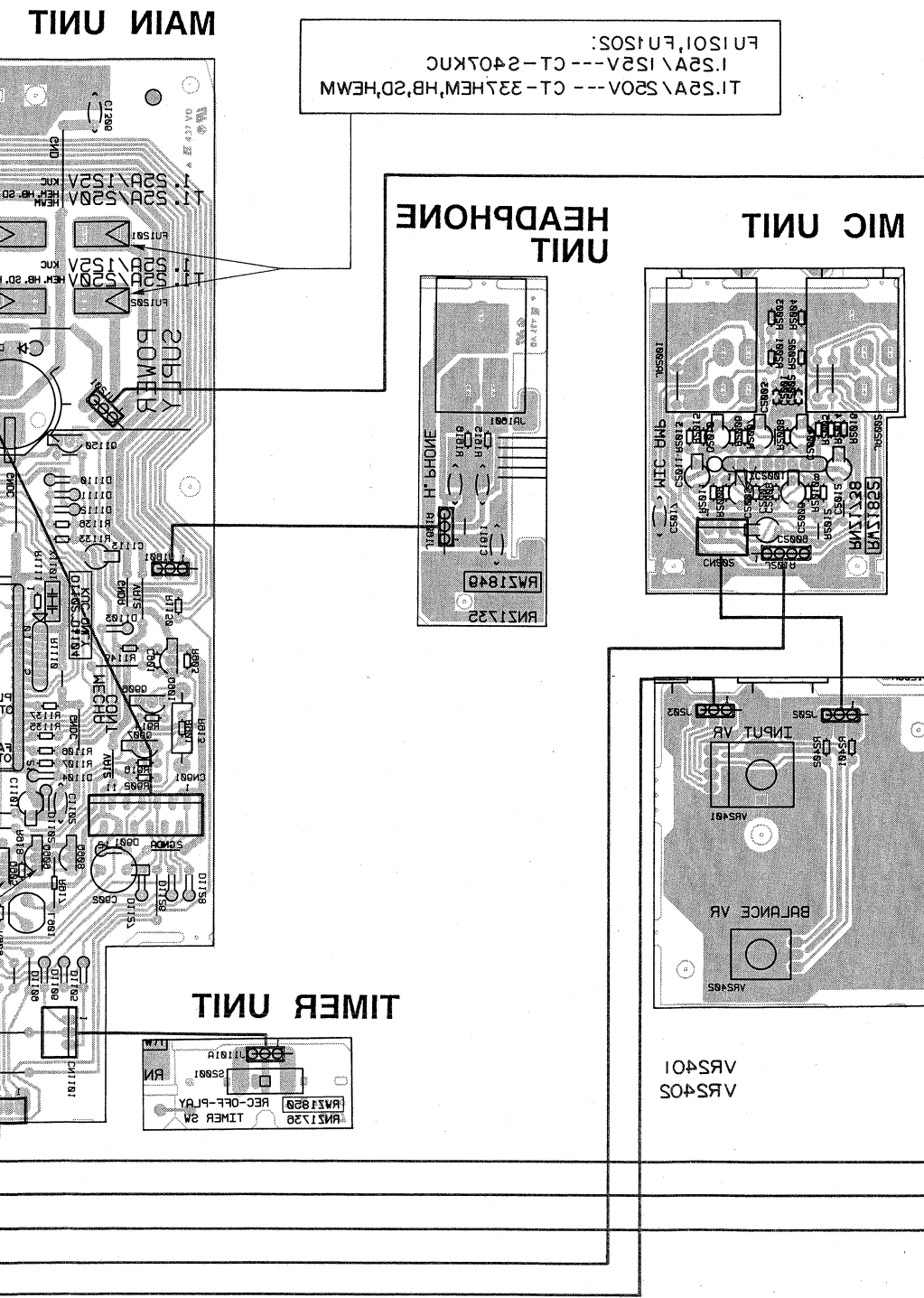
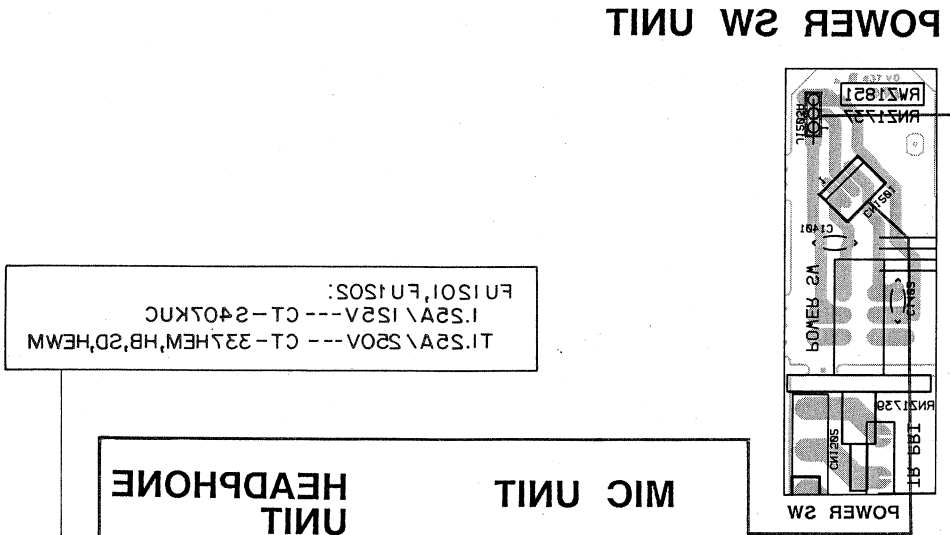
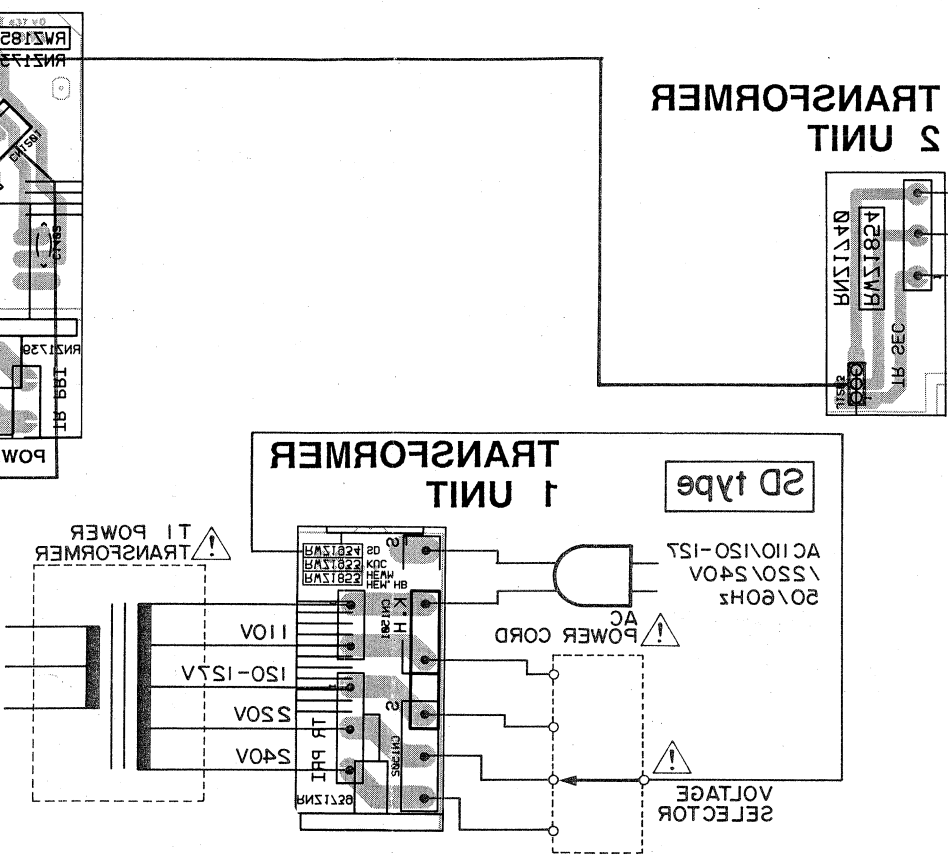
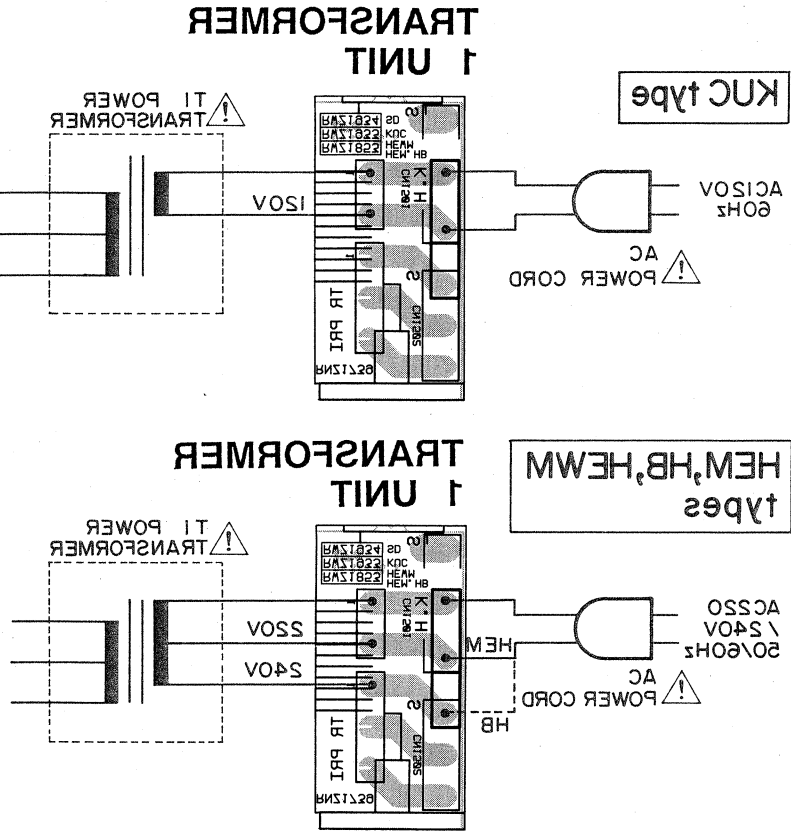


Parts No.	Description
AAX-193	S20V label
AAX-192	HB S40V label

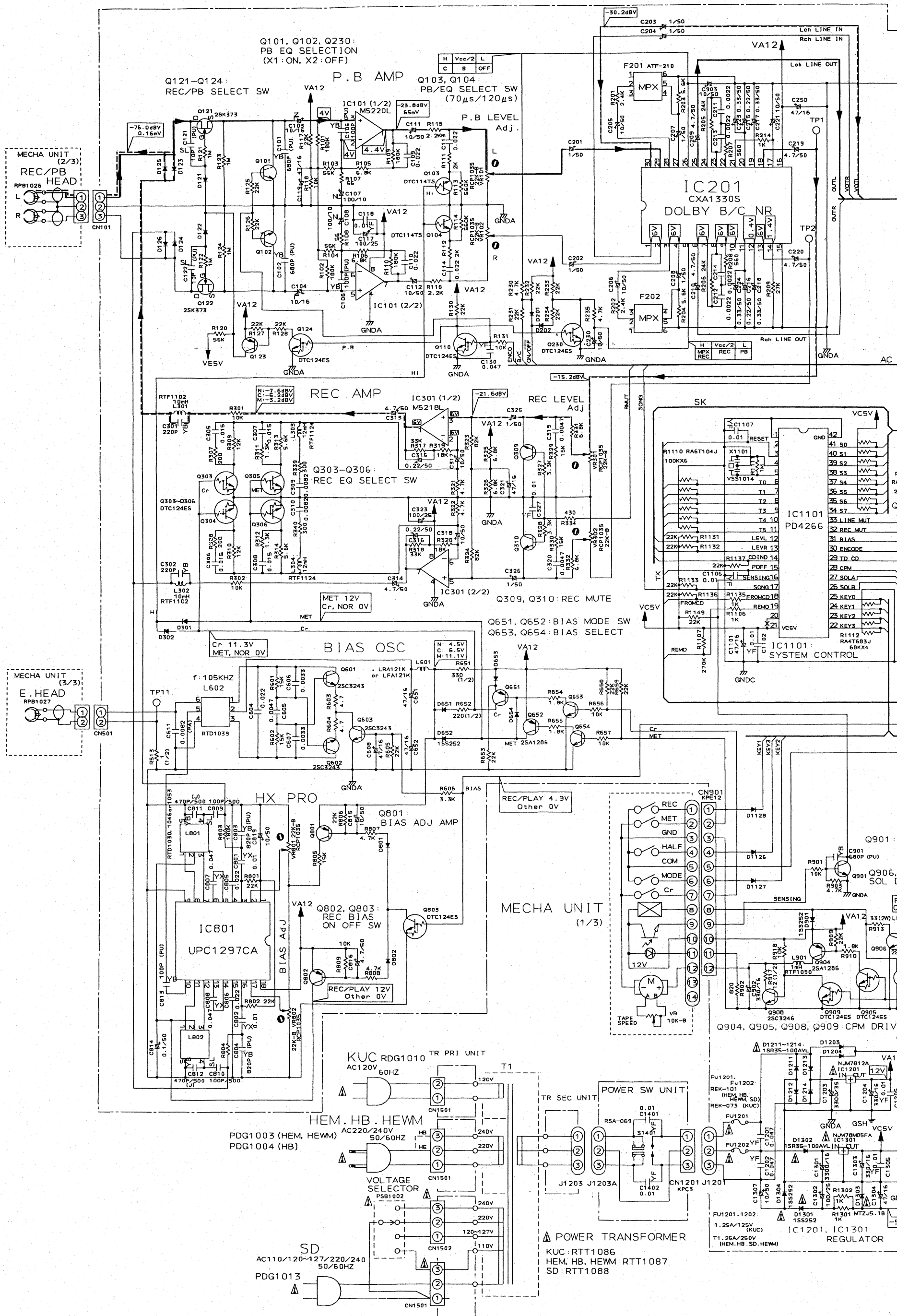
4. Stick the line voltage label on the rear panel.

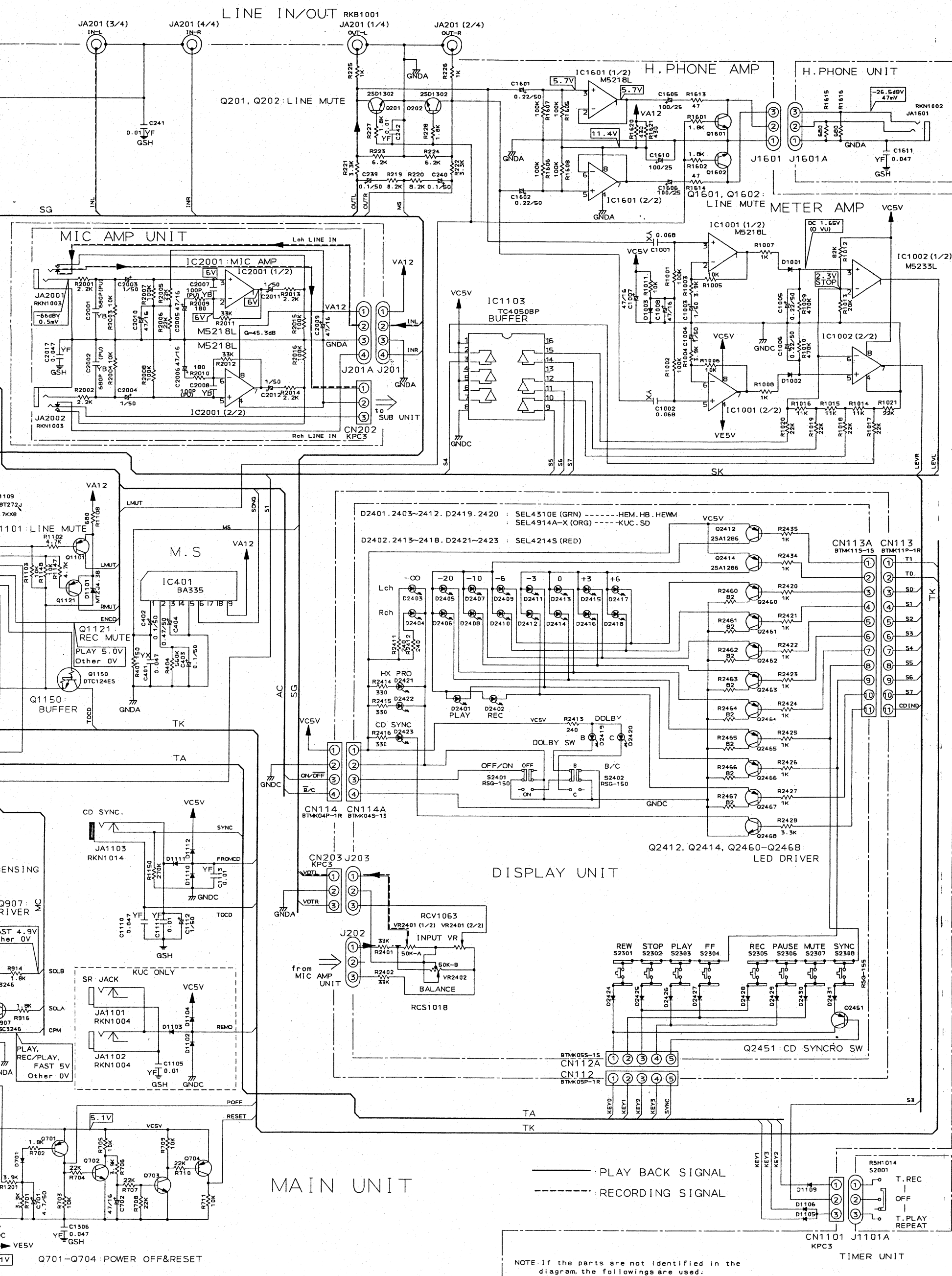
- assembly primary pins.
3. Change the connection of the TRANSFORMER 1 UNIT
 2. Remove the Bonnet case.
 1. Disconnect the AC power cord.
- Line voltage can be changed with following steps.

Voltage	AC cord
S20 V	CN1501-③
S40 V	CN1501-②



5. SCHEMATIC DIAGRAM





NOTE: If the parts are not identified in the diagram, the followings are used:

-  1SS254
 2SC3311A
 2SA1309A

1. RESISTORS:
Indicated in Ω, 1/4W, 1/6W, ±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.

4. OTHERS
_____ PLAYBACK SIGNAL ROUTE
----- RECORDING 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.
▶: Test point

5. SWITCHES (underline indicates switch position.)
TIMER UNIT
S2001: TIMER REC-OFF-PLAY/REPEAT
POWER SW. UNIT
S1401: POWER STANDBY/ON
DISPLAY UNIT
S2301: REW
S2302: STOP
S2303: PLAY
S2304: FF
S2305: REC
S2306: PAUSE
S2307: MUTE
S2308: SYNC
S2401: DOLBY NR OFF-ON
S2402: DOLBY NR B-C

6. 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 importance 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%).
560Ω 56 × 10¹ 561.....RD1/4PS□□□J
47kΩ 47 × 10³ 473.....RD1/4PS□□□J
0.5Ω 0R5.....RN2H□□□K
1Ω 010.....RS1P□□□K
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ 5621.....RN1/4SR□□□□F

Miscellaneous Parts
P. C. BOARD UNIT

Mark	No.	Description	Parts No.
		Headphone unit	
		Timer SW unit	
		Power SW unit	
		Mic. unit	
		Display unit	
		Main unit	
		Transformer 1 unit	
		Transformer 2 unit	

HEADPHONE UNIT			
CAPACITOR			
	C1611	CERAMIC CAPACITOR	CKCYF473Z50

RESISTORS			
	R1615, R1616	CARBON RESISTOR	RD1/6PM681J

OTHERS			
	JA1601	HEADPHONE JACK	RKN1002

TIMER SWITCH UNIT			
SWITCH			
	S2001	SLIDE SWITCH	RSH1014

POWER SWITCH UNIT			
CAPACITOR			
	C1401, C1402	CERAMIC	CKCYF103Z50

SWITCH			
△	S1401	POWER SWITCH	RSA-069
	CN1201	OTHER	KPC3

MIC UNIT			
SEMICONDUCTORS			
	IC2001	OP-AMP IC	M5218L
RESISTORS			
		OTHER RESISTOR	RD1/6PM□□□□J

Mark	No.	Description	Parts No.
CAPACITOR			
	C2001, C2002	AXIAL CERAMIC	CKPUYB681K50
	C2003, C2004	ELECTR. CAPACITOR	CEAS010M50
	C2005, C2006	ELECTR. CAPACITOR	CEAS470M16
	C2007, C2008	AXIAL CERAMIC	CKPUYB101K50
	C2009, C2010	ELECTR. CAPACITOR	CEAS470M16
	C2011, C2012	ELECTR. CAPACITOR	CEAS010M50
	C2017	CERAMIC CAPACITOR	CKCYF473Z50

OTHERS			
	JA2001, JA2002	MIC JACK	RKN1003
	CN202		KPC3

DISPLAY UNIT			
SEMICONDUCTORS			
	Q2412	TRANSISTOR	2SA286
	Q2414	TRANSISTOR	2SA1286
	Q2451	TRANSISTOR	2SA1309A
	Q2460-Q2467	TRANSISTOR	2SA1309A
	Q1468	TRANSISTOR	2SC3311

	D2401	DIODE	SEL4214A
	D2402	DIODE	SEL4214S
	D2403-D2412	DIODE	SEL4214A
	D2413-D2418	DIODE	SEL4214S
	D2419, D2420	DIODE	SEL4214A

	D2421-D2423	DIODE	SEL4214S
	D2424-D2431	DIODE	1SS254

RESISTORS			
	VR2401	VARIABLE RESISTOR (100KA)	RCV1063
	VR2402	VARIABLE RESISTOR (200KB)	RCS1018
		OTHER RESISTORS	RD1/6PM□□□□J

SWITCHES			
	S2301-S2308	TACT SWITCH	RSG-155
	S2401, S2402	PUSH SWITCH	RSG-150

OTHERS			
	CN114		BTMK04S-1S
	CN113		BTMK11S-1S
	CN112		BTMK05S-1S

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
MAIN UNIT							
SEMICONDUCTORS							
	IC101	OP-AMP IC	M5220L				
	IC201	DOLBY-B/C IC	CXA1330S				
	IC301	OP-AMP IC	M5218L				
	IC401	IC	BA335				
	IC801	DOLBY HX PRO IC	UPC1297CA				
	IC1001	OP-AMP IC	M5218L				
	IC1002	DUAL-COMPARATER	M5233L				
	IC1101	CPU	PD4266				
	IC1103	CMOS LOGIC IC	TC4050BP				
△	IC1201	REGULATOR IC	NJM7812A				
△	IC1301	REGULATOR IC	NJM78M05FA				
	IC1601	OP-AMP IC	M5218L				
	Q101, Q102	TRANSISTOR	2SC3311A				
	Q103, 1104	TRANSISTOR	DTC114TS				
	Q110	TRANSISTOR	DTC124ES				
	Q121, Q122	N-FET	2SK373				
	Q123	TRANSISTOR	2SA1309A				
	Q124	TRANSISTOR	DTC124ES				
	Q201, Q202	TRANSISTOR	2SD1302				
	Q230	TRANSISTOR	DTC124ES				
	Q303-Q306	TRANSISTOR	DTC124ES				
	Q309, Q310	TRANSISTOR	2SC3311A				
	Q601-Q603	TRANSISTOR	2SC3243				
	Q651	TRANSISTOR	2SA1309A				
	Q652	TRANSISTOR	2SA1286				
	Q653, Q654	TRANSISTOR	2SC3311A				
	Q701	TRANSISTOR	2SA1309A				
	Q702, Q703	TRANSISTOR	2SC3311A				
	Q704	TRANSISTOR	2SA1309A				
	Q801, Q802	TRANSISTOR	2SA1309A				
	Q803	TRANSISTOR	DTC124ES				
	Q901	TRANSISTOR	2SC3311A				
	Q904	TRANSISTOR	2SA1286				
	Q905	TRANSISTOR	DTC124ES				
	Q906-Q908	TRANSISTOR	2SC3246				
	Q909	TRANSISTOR	DTC124ES				
	Q1101	TRANSISTOR	2SA1309A				
	Q1121	TRANSISTOR	2SA1309A				
	Q1150	TRANSISTOR	DTC124ES				
	Q1601, Q1602	TRANSISTOR	2SC3311A				
	D121-D126	DIODE	1SS254				
	D201, D202	DIODE	1SS254				
	D301, D302	DIODE	1SS254				
	D651	DIODE	1SS254				
	D652	DIODE	1SS252				
	D653, D654	DIODE	1SS254				
	D701	DIODE	1SS254				
	D801, D802	DIODE	1SS254				
	D901	DIODE	1SS252				
	D1001-D1003	DIODE	1SS254				
	D1101	ZENER DIODE	MTZJ4.3B				
	D1102-D1106	DIODE	1SS254				
	D1109-D1112	DIODE	1SS254				
	D1126-D1128	DIODE	1SS254				
△	D1203, D1204	DIODE	1SS254				
△	D1211-D1214	DIODE	1SR35-100AVL				
△	D1301	DIODE	1SS252				
△	D1302	DIODE	1SR35-100AVL				
△	D1303	ZENER DIODE	MTZJ5.1B				
△	D1304	DIODE	1SS252				
COILS AND FILTERS							
	L301, L302	COIL	RTF1102				
	L303, L304	COIL	RTF1124				
	L601	COIL	LRA121K				

Mark	No.	Description	Parts No.
	L602	COIL	RTD1039
	L801, L802	COIL	RTD1030
	L901	COIL	RTF1090
	F201, F202	DOLBY FILTER	ATF-210
CAPACITORS			
	C101, C102	AXIAL CERAMIC	CKPUYB681K50
	C103, C104	ELECTR. CAPACITOR	CEANL100M16
	C105, C106	AXIAL CERAMIC	CKPUYB101K50
	C107, C108	ELECTR. CAPACITOR	CEANL101M10
	C109, C110	AUDIO FILM CAPACITOR	CFTXA223J50
	C111, C112	ELECTR. CAPACITOR	CEAS100M50
	C113, C114	AUDIO FILM CAPACITOR	CFTXA223J50
	C117	ELECTR. CAPACITOR	CEAS101M25
	C118	CERAMIC CAPACITOR	CKCYF103Z50
	C119	ELECTR. CAPACITOR	CEAS470M16
	C121, C122	AXIAL CERAMIC	CCPUSL100J50
	C130	CERAMIC CAPACITOR	CKCYF473Z50
	C201-C204	ELECTR. CAPACITOR	CEAS010M50
	C205, C206	ELECTR. CAPACITOR	CEAS100M50
	C207, C208	ELECTR. CAPACITOR	CEAS010M50
	C209, C210	ELECTR. CAPACITOR	CEAS4R7M50
	C211-C214	AUDIO FILM CAPACITOR	CFTXA222J50
	C215, C216	ELECTR. CAPACITOR	CEASR22M50
	C217, C218	ELECTR. CAPACITOR	CEASR33M50
	C219, C220	ELECTR. CAPACITOR	CEAS4R7M50
	C221	ELECTR. CAPACITOR	CEAS100M50
	C223, C224	ELECTR. CAPACITOR	CEASR33M50
	C230	ELECTR. CAPACITOR	CEAS100M50
	C239, C240	ELECTR. CAPACITOR	CEASR10M50
	C241, C242	CERAMIC CAPACITOR	CKCYF103Z50
	C250	ELECTR. CAPACITOR	CEAR470M16
	C301, C302	AXIAL CERAMIC	CKPUYB221K50
	C305-C308	AUDIO FILM CAPACITOR	CFTXA153J50
	C309, C310	AUDIO FILM CAPACITOR	CFTXA822J50
	C313, C314	ELECTR. CAPACITOR	CEAS4R7M50
	C315, C316	ELECTR. CAPACITOR	CEASR22M50
	C317, C318	ELECTR. CAPACITOR	CEAS100M50
	C319, C320	AUDIO FILM CAPACITOR	CFTXA472J50
	C321	ELECTR. CAPACITOR	CEAS470M16
	C323	ELECTR. CAPACITOR	CEAS101M25
	C325, C326	ELECTR. CAPACITOR	CEAS010M50
	C327	CERAMIC CAPACITOR	CKCYF103Z50
	C401	CERAMIC CAPACITOR	CGCYX473K25
	C402, C403	ELECTR. CAPACITOR	CEASR10M50
	C404	ELECTR. CAPACITOR	CEASR47M50
	C604	AUDIO FILM CAPACITOR	CFTXA223J50
	C605	AUDIO FILM CAPACITOR	CFTXA472J50
	C606, C607	AUDIO FILM CAPACITOR	CFTXA332J50
	C608	ELECTR. CAPACITOR	CEAS470M16
	C611	PP CAPACITOR	CQPA822J100
	C651, C652	ELECTR. CAPACITOR	CEAS470M16
	C701	ELECTR. CAPACITOR	CEAS4R7M50
	C702	ELECTR. CAPACITOR	CEAS470M16
	C801, C802	CERAMIC CAPACITOR	CGCYX103K25
	C803, C804	AXIAL CERAMIC	CKPUYB821K50

Mark	No.	Description	Parts No.
	C805, C806	AUDIO FILM CAPACITOR	CFXA223J50
	C807, C808	CERAMIC CAPACITOR	CGCYX473K25
	C809, C810	CERAMIC CAPACITOR	CCCSL101K500
	C811, C812	CERAMIC CAPACITOR	CKCYB471J500
	C813	AXIAL CERAMIC	CKPUYB101K50
	C814	ELECTR. CAPACITOR	CEASR10M50
	C815	ELECTR. CAPACITOR	CEAS100M50
	C816	ELECTR. CAPACITOR	CEAS4R7M50
	C819	ELECTR. CAPACITOR	CEAS100M50
	C901	AXIAL CERAMIC	CKPUYB681K50
	C902	ELECTR. CAPACITOR	CEAS331M16
	C903	ELECTR. CAPACITOR	CEAS100M50
	C1001, C1002	CERAMIC CAPACITOR	CGCYX683K25
	C1003, C1004	ELECTR. CAPACITOR	CEAS010M50
	C1005, C1006	ELECTR. CAPACITOR	CEASR22M50
	C1007, C1008	ELECTR. CAPACITOR	CEAS470M16
	C1101	ELECTR. CAPACITOR	CEAS470M16
	C1102	CERAMIC CAPACITOR	CKCYF103Z50
	C1105-C1107	CERAMIC CAPACITOR	CKCYF103Z50
	C1110	CERAMIC CAPACITOR	CKCYF473Z50
	C1111	CERAMIC CAPACITOR	CKCYF103Z50
	C1112	ELECTR. CAPACITOR	CEAS010M50
	C1113	CERAMIC CAPACITOR	CKCYF103Z50
	C1201, C1202	CERAMIC CAPACITOR	CKCYF473Z50
	C1203	ELECTR. CAPACITOR	CEAS332M35
	C1204	ELECTR. CAPACITOR	CEAS331M16
	C1205	CERAMIC CAPACITOR	CKCYF103Z50
	C1301	ELECTR. CAPACITOR	CEAS332M16
	C1302	ELECTR. CAPACITOR	CEAS101M25
	C1303	ELECTR. CAPACITOR	CEAS331M16
	C1304	ELECTR. CAPACITOR	CEAS470M16
	C1305	CERAMIC CAPACITOR	CKCYF103Z50
	C1306	CERAMIC CAPACITOR	CKCYF473Z50
	C1307	ELECTR. CAPACITOR	CEAS100M50
	C1601, C1602	ELECTR. CAPACITOR	CEASR22M50
	C1605, C1606	ELECTR. CAPACITOR	CEAS101M25
	C1610	ELECTR. CAPACITOR	CEAS101M25
RESISTORS			
	VR101, VR102	VARIABLE RESISTOR (22k Ω)	RCP1035
	VR301, VR302	VARIABLE RESISTOR (22k Ω)	RCP1035
	VR801, VR802	VARIABLE RESISTOR (22k Ω)	RCP1035
	R513	CARBON RESISTOR	RD1/2LF□□□J
	R651	CARBON RESISTOR	RD1/2LF□□□J
	R652	CARBON RESISTOR	RD1/2LF□□□J
	R913	METAL OXIDE	RS2LMF330J
	R917	CARBON RESISTOR	RD1/2LF□□□J
	R1109	RESISTOR ARRAY	RA8T272J
	R1110	RESISTOR ARRAY	RA6T104J
	R1112	RESISTOR ARRAY	RA4T683J
	OTHER RESISTORS		RD1/6PM□□□J

Mark	No.	Description	Parts No.
OTHERS			
	JA201	JACK (4P)	RKB1001
	JA1101, JA1102	REMOTE CONTROL JACK	RKN1004
	JA1103	MINI JACK	RKN1014
	X1101	CERAMIC RESONATOR	VSS1014
	CN114		BTMK04P-1R
	CN113		BTMK11P-1R
	CN112		BTMK05-1R
	CN203, CN1101		KPC3
TRANSFORMER 1 UNIT			
No Parts are supplied with the TRANSFORMER 1 UNIT.			
TRANSFORMER 2 UNIT			
No Parts are supplied with the TRANSFORMER 2 UNIT.			

6. 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 importance 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%).

560Ω	56×10^1	561.....	RD1/4PS	5	6	1	J
47kΩ	47×10^3	473.....	RD1/4PS	4	7	3	J
0.5Ω	0R5.....		RN2H	0	5	K	
1Ω	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 $\times 10^1$ 5621..... RN1/4SR **5 6 2 1 F**

Miscellaneous Parts

P. C. BOARD UNIT

<u>Mark</u>	<u>No.</u>	<u>Description</u>	<u>Parts No.</u>
		Headphone unit	
		Timer SW unit	
		Power SW unit	
		Mic. unit	
		Display unit	
		Main unit	
		Transformer 1 unit	
		Transformer 2 unit	

HEADPHONE UNIT

CAPACITOR

C1611 CERAMIC CAPACITOR CKCYF473Z50

RESISTORS

R1615, R1616 CARBON RESISTOR RD1/6PM681J

OTHERS

JA1601 HEADPHONE JACK RKN1002

TIMER SWITCH UNIT

SWITCH

S2001 SLIDE SWITCH RSH1014

POWER SWITCH UNIT

CAPACITOR

C1401, C1402 CERAMIC CKCYF103Z50

SWITCH

⚠ S1401 POWER SWITCH RSA-069

OTHER

CN1201 KPC3

MIC UNIT

SEMICONDUCTORS

IC2001 OP-AMP IC M5218L

RESISTORS

OTHER RESISTOR RD1/6PM□□□J

<u>Mark</u>	<u>No.</u>	<u>Description</u>	<u>Parts No.</u>
CAPACITOR			
	C2001, C2002	AXIAL CERAMIC	CKPUYB681K50
	C2003, C2004	ELECTR. CAPACITOR	CEAS010M50
	C2005, C2006	ELECTR. CAPACITOR	CEAS470M16
	C2007, C2008	AXIAL CERAMIC	CKPUYB101K50
	C2009, C2010	ELECTR. CAPACITOR	CEAS470M16
	C2011, C2012	ELECTR. CAPACITOR	CEAS010M50
	C2017	CERAMIC CAPACITOR	CKCYF473Z50

OTHERS

JA2001, JA2002 MIC JACK	RKN1003
CN202	KPC3

DISPLAY UNIT

SEMICONDUCTORS

Q2412	TRANSISTOR	2SA286
Q2414	TRANSISTOR	2SA1286
Q2451	TRANSISTOR	2SA1309A
Q2460-Q2467	TRANSISTOR	2SA1309A
Q1468	TRANSISTOR	2SC3311

D2401	DIODE	SEL4214A
D2402	DIODE	SEL4214S
D2403-D2412	DIODE	SEL4214A
D2413-D2418	DIODE	SEL4214S
D2419, D2420	DIODE	SEL4214A

D2421-D2423	DIODE	SEL4214S
D2424-D2431	DIODE	1SS254

RESISTORS

VR2401 VARIABLE RESISTOR RCV1063
(100KA)

VR2402 VARIABLE RESISTOR RCS1018
(200KB)

OTHER RESISTORS RD1/6PM ☐ ☐ ☐ ☐

SWITCHES

S2301-S2308	TACT SWITCH	RSG-155
S2401, S2402	PUSH SWITCH	RSG-150

OTHERS

CN114	BTMK04S-1S
CN113	BTMK11S-1S
CN112	BTMK05S-1S

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
MAIN UNIT							
SEMICONDUCTORS							
	IC101	OP-AMP IC	M5220L	L602	COIL		RTD1039
	IC201	DOLBY-B/C IC	CXA1330S	L801, L802	COIL		RTD1030
	IC301	OP-AMP IC	M5218L	L901	COIL		RTF1090
	IC401	IC	BA335	F201, F202	DOLBY FILTER		ATF-210
	IC801	DOLBY HX PRO IC	UPC1297CA	CAPACITORS			
	IC1001	OP-AMP IC	M5218L	C101, C102	AXIAL CERAMIC		CKPUYB681K50
	IC1002	DUAL-COMPARATER	M5233L	C103, C104	ELECTR. CAPACITOR		CEANL100M16
	IC1101	CPU	PD4266	C105, C106	AXIAL CERAMIC		CKPUYB101K50
	IC1103	CMOS LOGIC IC	TC4050BP	C107, C108	ELECTR. CAPACITOR		CEANL101M10
⚠	IC1201	REGULATOR IC	NJM7812A	C109, C110	AUDIO FILM CAPACITOR		CFTXA223J50
⚠	IC1301	REGULATOR IC	NJM78M05FA	C111, C112	ELECTR. CAPACITOR		CEAS100M50
	IC1601	OP-AMP IC	M5218L	C113, C114	AUDIO FILM CAPACITOR		CFTXA223J50
	Q101, Q102	TRANSISTOR	2SC3311A	C117	ELECTR. CAPACITOR		CEAS101M25
	Q103, Q104	TRANSISTOR	DTC114TS	C118	CERAMIC CAPACITOR		CKCYF103Z50
	Q110	TRANSISTOR	DTC124ES	C119	ELECTR. CAPACITOR		CEAS470M16
	Q121, Q122	N-FET	2SK373	C121, C122	AXIAL CERAMIC		CCPUSL100J50
	Q123	TRANSISTOR	2SA1309A	C130	CERAMIC CAPACITOR		CKCYF473Z50
	Q124	TRANSISTOR	DTC124ES	C201-C204	ELECTR. CAPACITOR		CEAS010M50
	Q201, Q202	TRANSISTOR	2SD1302	C205, C206	ELECTR. CAPACITOR		CEAS100M50
	Q230	TRANSISTOR	DTC124ES	C207, C208	ELECTR. CAPACITOR		CEAS010M50
	Q303-Q306	TRANSISTOR	DTC124ES	C209, C210	ELECTR. CAPACITOR		CEAS4R7M50
	Q309, Q310	TRANSISTOR	2SC3311A	C211-C214	AUDIO FILM CAPACITOR		CFTXA222J50
	Q601-Q603	TRANSISTOR	2SC3243	C215, C216	ELECTR. CAPACITOR		CEASR22M50
	Q651	TRANSISTOR	2SA1309A	C217, C218	ELECTR. CAPACITOR		CEASR33M50
	Q652	TRANSISTOR	2SA1286	C219, C220	ELECTR. CAPACITOR		CEAS4R7M50
	Q653, Q654	TRANSISTOR	2SC3311A	C221	ELECTR. CAPACITOR		CEAS100M50
	Q701	TRANSISTOR	2SA1309A	C223, C224	ELECTR. CAPACITOR		CEASR33M50
	Q702, Q703	TRANSISTOR	2SC3311A	C230	ELECTR. CAPACITOR		CEAS100M50
	Q704	TRANSISTOR	2SA1309A	C239, C240	ELECTR. CAPACITOR		CEASR10M50
	Q801, Q802	TRANSISTOR	2SA1309A	C241, C242	CERAMIC CAPACITOR		CKCYF103Z50
	Q803	TRANSISTOR	DTC124ES	C250	ELECTR. CAPACITOR		CEAR470M16
	Q901	TRANSISTOR	2SC3311A	C301, C302	AXIAL CERAMIC		CKPUYB221K50
	Q904	TRANSISTOR	2SA1286	C305-C308	AUDIO FILM CAPACITOR		CFTXA153J50
	Q905	TRANSISTOR	DTC124ES	C309, C310	AUDIO FILM CAPACITOR		CFTXA822J50
	Q906-Q908	TRANSISTOR	2SC3246	C313, C314	ELECTR. CAPACITOR		CEAS4R7M50
	Q909	TRANSISTOR	DTC124ES	C315, C316	ELECTR. CAPACITOR		CEASR22M50
	Q1101	TRANSISTOR	2SA1309A	C317, C318	ELECTR. CAPACITOR		CEAS100M50
	Q1121	TRANSISTOR	2SA1309A	C319, C320	AUDIO FILM CAPACITOR		CFTXA472J50
	Q1150	TRANSISTOR	DTC124ES	C321	ELECTR. CAPACITOR		CEAS470M16
	Q1601, Q1602	TRANSISTOR	2SC3311A	C323	ELECTR. CAPACITOR		CEAS101M25
	D121-D126	DIODE	1SS254	C325, C326	ELECTR. CAPACITOR		CEAS010M50
	D201, D202	DIODE	1SS254	C327	CERAMIC CAPACITOR		CKCYF103Z50
	D301, D302	DIODE	1SS254	C401	CERAMIC CAPACITOR		CGCYX473K25
	D651	DIODE	1SS254	C402, C403	ELECTR. CAPACITOR		CEASR10M50
	D652	DIODE	1SS252	C404	ELECTR. CAPACITOR		CEASR47M50
	D653, D654	DIODE	1SS254	C604	AUDIO FILM CAPACITOR		CFTXA223J50
	D701	DIODE	1SS254	C605	AUDIO FILM CAPACITOR		CFTXA472J50
	D801, D802	DIODE	1SS254	C606, C607	AUDIO FILM CAPACITOR		CFTXA332J50
	D901	DIODE	1SS252	C608	ELECTR. CAPACITOR		CEAS470M16
	D1001-D1003	DIODE	1SS254	C611	PP CAPACITOR		CQPA822J100
	D1101	ZENER DIODE	MTZJ4.3B	C651, C652	ELECTR. CAPACITOR		CEAS470M16
	D1102-D1106	DIODE	1SS254	C701	ELECTR. CAPACITOR		CEAS4R7M50
	D1109-D1112	DIODE	1SS254	C702	ELECTR. CAPACITOR		CEAS470M16
	D1126-D1128	DIODE	1SS254	C801, C802	CERAMIC CAPACITOR		CGCYX103K25
⚠	D1203, D1204	DIODE	1SS254	C803, C804	AXIAL CERAMIC		CKPUYB821K50
⚠	D1211-D1214	DIODE	1SR35-100AVL				
⚠	D1301	DIODE	1SS252				
⚠	D1302	DIODE	1SR35-100AVL				
⚠	D1303	ZENER DIODE	MTZJ5.1B				
⚠	D1304	DIODE	1SS252				
COILS AND FILTERS							
	L301, L302	COIL	RTF1102				
	L303, L304	COIL	RTF1124				
	L601	COIL	LRA121K				

Mark	No.	Description	Parts No.
	C805, C806	AUDIO FILM CAPACITOR	CFXA223J50
	C807, C808	CERAMIC CAPACITOR	CGCYX473K25
	C809, C810	CERAMIC CAPACITOR	CCCSL101K500
	C811, C812	CERAMIC CAPACITOR	CKCYB471J500
	C813	AXIAL CERAMIC	CKPUYB101K50
	C814	ELECTR. CAPACITOR	CEASR10M50
	C815	ELECTR. CAPACITOR	CEAS100M50
	C816	ELECTR. CAPACITOR	CEAS4R7M50
	C819	ELECTR. CAPACITOR	CEAS100M50
	C901	AXIAL CERAMIC	CKPUYB681K50
	C902	ELECTR. CAPACITOR	CEAS331M16
	C903	ELECTR. CAPACITOR	CEAS100M50
	C1001, C1002	CERAMIC CAPACITOR	CGCYX683K25
	C1003, C1004	ELECTR. CAPACITOR	CEAS010M50
	C1005, C1006	ELECTR. CAPACITOR	CEASR22M50
	C1007, C1008	ELECTR. CAPACITOR	CEAS470M16
	C1101	ELECTR. CAPACITOR	CEAS470M16
	C1102	CERAMIC CAPACITOR	CKCYF103Z50
	C1105-C1107	CERAMIC CAPACITOR	CKCYF103Z50
	C1110	CERAMIC CAPACITOR	CKCYF473Z50
	C1111	CERAMIC CAPACITOR	CKCYF103Z50
	C1112	ELECTR. CAPACITOR	CEAS010M50
	C1113	CERAMIC CAPACITOR	CKCYF103Z50
	C1201, C1202	CERAMIC CAPACITOR	CKCYF473Z50
	C1203	ELECTR. CAPCITOR	CEAS332M35
	C1204	ELECTR. CAPACITOR	CEAS331M16
	C1205	CERAMIC CAPACITOR	CKCYF103Z50
	C1301	ELECTR. CAPACITOR	CEAS332M16
	C1302	ELECTR. CAPACITOR	CEAS101M25
	C1303	ELECTR. CAPACITOR	CEAS331M16
	C1304	ELECTR. CAPACITOR	CEAS470M16
	C1305	CERAMIC CAPACITOR	CKCYF103Z50
	C1306	CERAMIC CAPACITOR	CKCYF473Z50
	C1307	ELECTR. CAPACITOR	CEAS100M50
	C1601, C1602	ELECTR. CAPACITOR	CEASR22M50
	C1605, C1606	ELECTR. CAPACITOR	CEAS101M25
	C1610	ELECTR. CAPACITOR	CEAS101M25

RESISTORS

VR101, VR102	VARIABLE RESISTOR (22k Ω)	RCP1035
VR301, VR302	VARIABLE RESISTOR (22k Ω)	RCP1035
VR801, VR802	VARIABLE RESISTOR (22k Ω)	RCP1035
R513	CARBON RESISTOR	RD1/2LF□□□J
R651	CARBON RESISTOR	RD1/2LF□□□J
R652	CARBON RESISTOR	RD1/2LF□□□J
R913	METAL OXIDE	RS2LMF330J
R917	CARBON RESISTOR	RD1/2LF□□□J
R1109	RESISTOR ARRAY	RA8T272J
R1110	RESISTOR ARRAY	RA6T104J
R1112	RESISTOR ARRAY	RA4T683J
OTHER RESISTORS		RD1/6PM□□□J

Mark	No.	Description	Parts No.
OTHERS			
	JA201	JACK (4P)	RKB1001
	JA1101, JA1102	REMOTE CONTROL JACK	RKN1004
	JA1103	MINI JACK	RKN1014
	X1101	CERAMIC RESONATOR	VSS1014
	CN114		BTMK04P-1R
	CN113		BTMK11P-1R
	CN112		BTMK05-1R
	CN203, CN1101		KPC3

TRANSFORMER 1 UNIT

No Parts are supplied with the TRANSFORMER 1 UNIT.

TRANSFORMER 2 UNIT

No Parts are supplied with the TRANSFORMER 2 UNIT.

1. RESISTORS:

Indicated in Ω , 1/4W, 1/6W, $\pm 5\%$ tolerance unless otherwise noted
K; k Ω , M; M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.

2. CAPACITORS:

Indicated in capacity (μ F) / 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.

4. OTHERS

——— PLAYBACK SIGNAL ROUTE

----- RECORDING SIGNAL ROUTE

⊗ : Adjusting point.

The $\triangle$ 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.

► : Test point

5. SWITCHES (underline indicates switch position.)

TIMER UNIT

S2001 : TIMER REC-OFF-PLAY/REPEAT

POWER SW. UNIT

S1401 : POWER STANDBY/ON

DISPLAY UNIT

S2301 : REW

S2302 : STOP

S2303 : PLAY

S2304 : FF

S2305 : REC

S2306 : PAUSE

S2307 : MUTE

S2308 : SYNC

S2401 : DOLBY NR OFF-ON

S2402 : DOLBY NR B-C

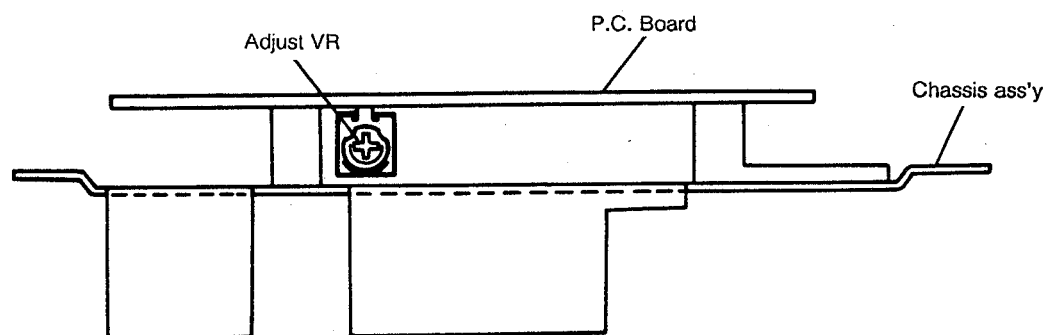
7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENT

1. Tape speed adjustment

Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Variable resistor control	3000Hz $\pm$ 5Hz

Note: Adjust after one minute of playback.



Mechanism unit diagram, top view

Fig. 7-1

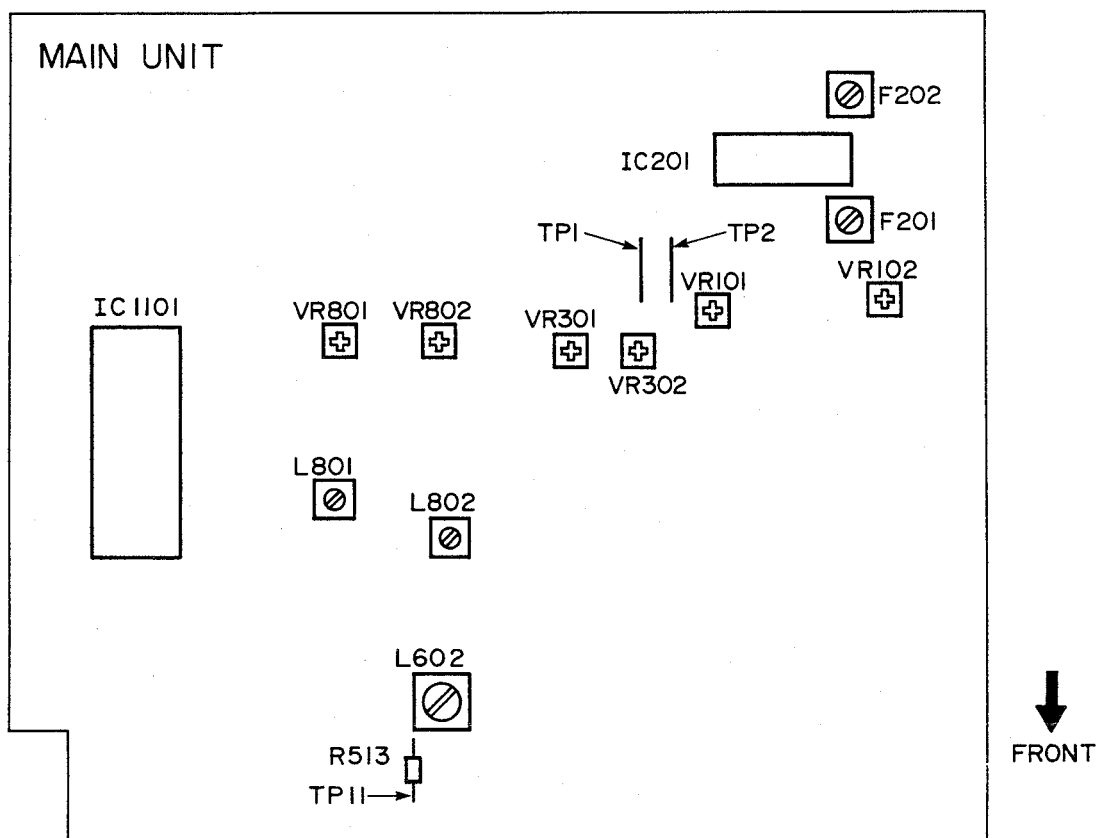


Fig. 7-2

7.2 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. 7-3)
STD-630 : NORMAL blank tape
STD-620 : CrO₂ 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. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.

NOTE: This unit has an automatic tape selection feature.

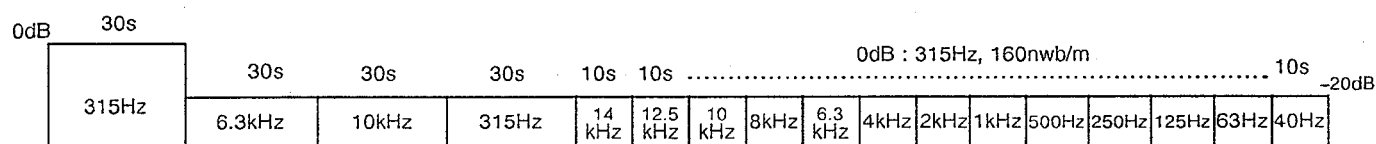


Fig. 7-3 Constants of the test tape STD-331B

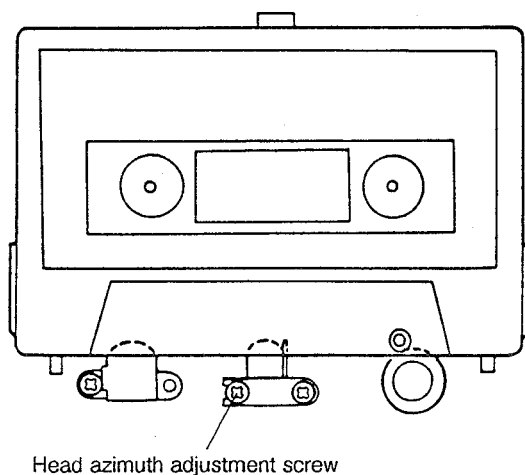
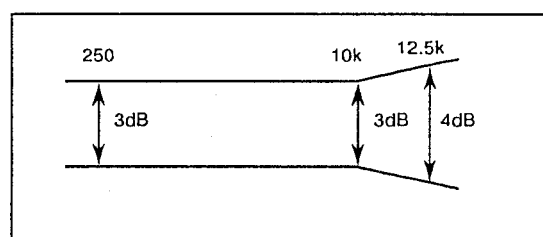


Fig. 7-4 Head azimuth adjustment

PLAY BACK



RECORDING

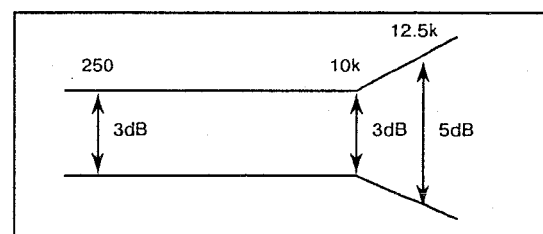


Fig. 7-5 Allowable playback frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR101, VR102 to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10kHz/-20dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 7.4)	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 STD-331B test tape.	Deck I VR101 (Lch) VR102 (Rch)	TP1. (Lch) TP2. (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 L602	TP. 11	105 kHz $\pm$ 0.3 kHz	

2. 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 +0.5 dB $\pm$ 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

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 315Hz/0dBv signal to the line input terminals, load the STD-630 test tape.	Rec Level control volume	TP. 1 (Lch) TP. 2 (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 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2dB.	
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 (Lch) TP. 2 (Rch)	-11.2 dBv $\pm$ 1.5dB	
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 (Lch) TP. 2 (Rch)	-11.2 dBv $\pm$ 1.5dB	

4. 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	TP1. (Lch) TP2. (Rch)	Check that the level meters "0 dB" light up within -11.2 dBv $\pm$ 2 dB of the signal output level.	

8. FOR CT-337/HEM, HB, SD, CT-337-S/HEWM AND CT-S407/KUC TYPES

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 Δ 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.
- 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 Δ Δ Δ J
47k Ω	47×10^3	473.....	RD1/4PS Δ Δ Δ J
0.5 Ω	0R5.....		RN2H Δ Δ Δ K
1 Ω	010.....		RSIP Δ Δ Δ 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 Δ Δ Δ F
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• Contrast of Miscellaneous Parts

The CT-337/HEM, HB, SD and CT-337-S/HEWM types are the same as the CT-S407/KUC type with the exception of the following sections.

Mark	Symbol & Description	Parts No.				
		CT-S407/KUC	CT-337/SD	CT-337/HEM	CT-337/HB	CT-337-S/HEWM
	Main unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Display unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Transformer 1 unit	Non supply	Non supply	Non supply	Non supply	Non supply
	Transformer 2 unit	Non supply	Non supply	Non supply	Non supply	Non supply
Δ	Strain relief	CM-22	CM-22B	CM-22B	CM-22B	CM-22B
Δ	AC power cord	PDG1010	PDG1013	PDG1003	PDG1004	PDG1003
Δ	Fuse (1.25A)	REK-073	REK-101	REK-101	REK-101	REK-101
Δ	Power transformer	RTT1086	RTT1088	RTT1087	RTT1087	RTT1087
	Voltage selector switch	-----	PSB1002	-----	-----	-----
	Front panel ass'y	RXX1267	RXX1266	RXX1266	RXX1266	RXX1268
	Knob (REC LEVEL)	RAC1363	RAC1363	RAC1363	RAC1363	RAC1496
	Knob (COUNTER RESET)	RAC1228	RAC1228	RAC1228	RAC1228	RAC1309
	Button (POWER)	RAC1364	RAC1364	RAC1364	RAC1364	RAC1497
	Knob (HEADPHONE)	RAC1366	RAC1366	RAC1366	RAC1366	RAC1498
	Knob (DOLBY NR)	RAC1343	RAC1343	RAC1343	RAC1343	RAC1351
	Knob (EJECT)	RAC1344	RAC1344	RAC1344	RAC1344	RAC1352
	Knob (TAPE RUN OPERATION)	RAC1345	RAC1345	RAC1345	RAC1345	RAC1353
	Knob (REC/TIMER/PLAY/REPEAT)	RAC1357	RAC1357	RAC1357	RAC1357	RAC1350
	TACT knob	RAC1409	RAC1409	RAC1409	RAC1409	RAC1501
	Operating instruction (ENGLISH/SPANISH)	-----	-----	RRD1073	-----	RRD1073
	DOLBY name plate	RAH1655	RAH1655	RAH1655	RAH1655	RAH1636
	Door panel	RAH1638	RAH1638	RAH1638	RAH1638	RAH1656
	Bonnet	RXX1079	RXX1079	RXX1079	RXX1079	RXX1080
	Leg ass'y	REC-369	REC-369	VNK1095	VNK1095	VNK1095
	Packing case	RHG1178	RHG1177	RHG1177	RHG1177	RHG1179
	Mini-plug cord	PDE-319	-----	-----	-----	-----
	Control cord	RDE1018	RDE1018	RDE1018	RDE1018	RDE1018
	Skid	-----	-----	VEC1061	VEC1061	VEC1061

● Main Unit

The main units of CT-337/HEM, HB, SD and CT-337-S/HEWM types are the same as the main unit of CT-S407/KUC type with the exception of the following sections.

Mark	Symbol & Description	Parts No.					Remarks
		CT-S407/KUC	CT-337/SD	CT-337/HEM	CT-337/HB	CT-337-S/HEWM	
	D1102-D1104	ISS254	-----	-----	-----	-----	
	C1105	CKCYF103Z50	-----	-----	-----	-----	
	JA1101, JA1102	RKN1004	-----	-----	-----	-----	

● Display Unit

The display units of CT-337/HEM, HB, SD and CT-337-S/HEWM types are the same as the display unit of CT-S407/KUC type with the exception of the following sections.

Mark	Symbol & Description	Parts No.					Remarks
		CT-S407/KUC	CT-337/SD	CT-337/HEM	CT-337/HB	CT-337-S/HEWM	
	D2401, D2403-D2412, D2419, D2420	SEL4914A	SEL4914A	SEL4310E	SEL4310E	SEL4310E	

● Transformer 1 Unit

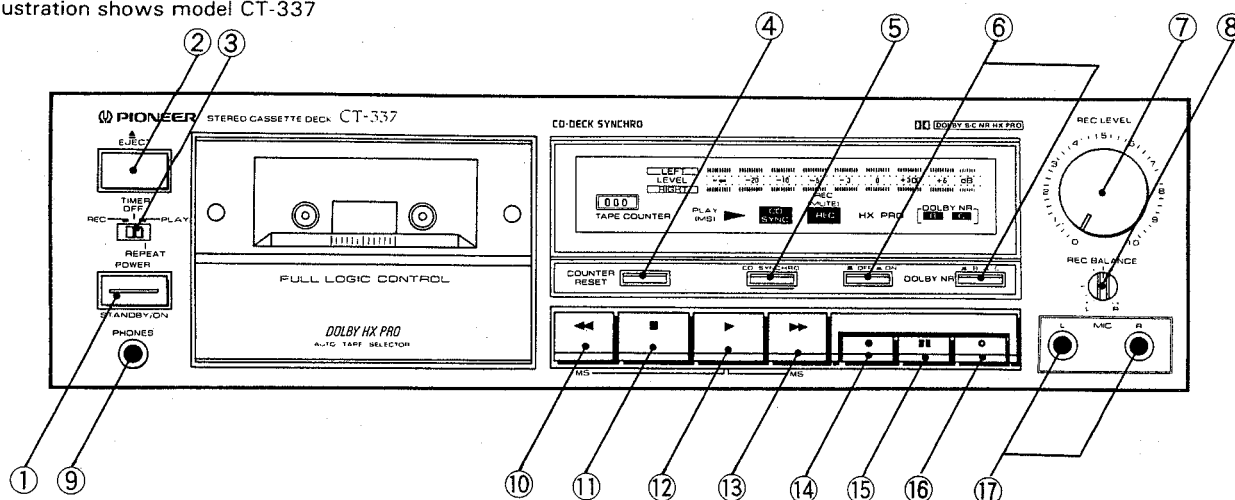
The transformer 1 units of CT-337/HEM, HB, SD and CT-337-S/HEWM types are the same as those of CT-S407/KUC type, though the part number of unit is different.

● Transformer 2 Unit

The CT-337/HEM, HB, SD and CT-337-S/HEWM types are the same as those of CT-S407/KUC type, though CT-S407/KUC type has no transformer 2 unit.

9. PANEL FACILITIES

The illustration shows model CT-337



① POWER STANDBY/ON switch

This is the switch for electric power.

ON: When set to the ON position, power is supplied and the unit becomes operational.

STANDBY: When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

NOTE:

POWER switch turns off the transformer secondary circuits only, and so even at STANDBY position, the unit is connected to the mains as long as the power cord is connected to a power outlet.

② EJECT button (▲)

Press to open the cassette door after you have pressed the stop button (■) and the tape has stopped.

③ TIMER mode selector

OFF:

Normally, be sure to leave the switch in this position.

REC:

For timer recording.

PLAY/REPEAT:

For timer playback or for repeat playback.

- Recording or playback may suddenly start when turning the power on with this switch in the REC or PLAY/REPEAT position.

④ Tape COUNTER RESET button

Resets the tape counter reading to "000".

⑤ CD SYNCHRO button

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

⑥ DOLBY* NR switches

Set these switches to ON and B-TYPE or C-TYPE for recording with the built-in Dolby Noise Reduction Systems and for playback of tapes which have been recorded using the Dolby Noise Reduction Systems.

For other tapes, set the left DOLBY NR switch to OFF.

*

- 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.

⑦ REC LEVEL control

⑧ REC BALANCE control

Balancing the recording level between left (L) and right (R) channels.

⑨ PHONES jack

⑩ Rewind button (◀◀)

To rewind the tape in the direction of the arrows.

When this button is pressed once during playback of a selection, the same selection will be played again. If pressed in the blank between two selections, the first selection before the current tape position will be played. The unit will skip one selection in reverse direction for each time the ◀◀ button is pressed.

⑪ Stop button (■)

To stop all operations.

⑫ Playback button (▶)

To start playback.

⑬ Fast forward button (▶▶)

To fast-forward the tape in the direction of the arrows.

When pressed during playback, the unit will skip one selection in forward direction for each time the ▶▶ button is pressed.

⑭ Recording button (●)

When the recording (●) button is pressed, the unit is set to recording standby mode.

Press the pause (■) button or playback (▶) button when ready to record.

The unit will not enter the recording standby mode if a cassette with the erasure prevention tabs removed is loaded.

⑮ **Pause button (||)**

To stop tape transport momentarily during recording or playback. Press the button again to resume operation. This can also be done by pressing the playback (▶) button. This button does not work during fast-forward and rewind.

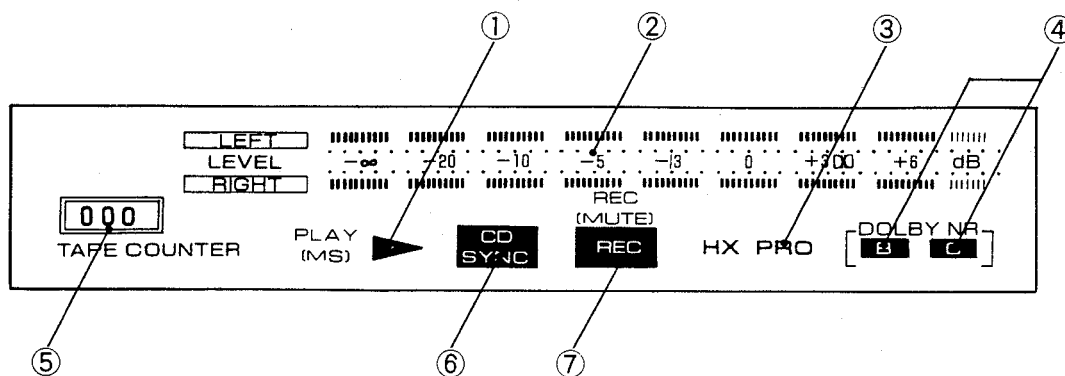
⑯ **Recording mute button (○)**

Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording standby mode.

⑰ **MIC-L/R jacks**

To insert the plugs of the microphones L and R.

OPERATING DISPLAY



① **Play indicator**

▶ : Lights during playback and recording. The indicator flashes slowly in the pause mode, recording standby mode and fast during music search.

② **LEVEL meter**

LEFT Left channel.
RIGHT Right channel.

NOTE:

The  mark on the meter scale indicates the reference level for the DOLBY NR System.

③ **DOLBY HX PRO indicator**

Lights up when the POWER switch is pressed.

④ **DOLBY B/C NR indicator**

Indicates the selected Dolby Noise Reduction Systems, B-type or C-type.

⑤ **TAPE COUNTER**

⑥ **CD SYNCHRO indicator**

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

⑦ **REC indicator**

Lights or blinks during REC mode. Lights during recording and blinks during REC MUTE operation.

10. SPECIFICATIONS

Systems	4 track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head × 1 "Ferrite" erasing head × 1
Motor	DC servo capstan motor × 1
Wow and Flutter	No more than 0.075% (WRMS) No more than ±0.19% (DIN)
Fast winding Time	Approximately 110 seconds (C-60 tape)
Frequency Response (±6 dB)	
- 20 dB recording:	
Normal tape	25 to 16,000 Hz
Chrome tape	25 to 16,500 Hz
Metal tape	25 to 17,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF	More than 57 dB
Noise Reduction Effect	
Dolby B-type NR ON	More than 10 dB (at 5 kHz)
Dolby C-type NR ON	More than 19 dB (at 5 kHz)
Harmonic Distortion	No more than 0.7% (0 dB)
Input (Sensitivity)	
LINE (INPUT)	63 mV (Input impedance 50 kΩ)
MIC	0.4 mV
Output (Reference level)	
LINE (OUTPUT)	316 mV (Output impedance 3.4 kΩ)
PHONES	0.25 mW (load impedance 8Ω)

Subfunctions

- Dolby B-type and C-type NR Systems
- DOLBY HX PRO system
- Auto tape selector
- Headphones jack
- CD-DECK synchro recording capability
- Microphone jacks
- Music search up to ± 15 selections
- Automatic space recording mute
- REC BALANCE control
- 7 + 1 seg LED peak hold meter
- Timer Recording/Playback
-  System remote control available (CT-S407 only)
- Repeat playback

Miscellaneous

Power Requirements

U.S. Canadian models	AC 120 V, 60 Hz
European model	a.c. 220 Volts~, 50/60 Hz
U.K. model	a.c. 240 Volts~, 50/60 Hz
Other destination models (Multi-voltage models)	AC 110 V/120 V-127 V/220 V/240 V (switchable), 50/60 Hz

Power Consumption 15 W

Dimensions

U.S. and Canadian models	420 (W) × 120 (H) × 272 (D)mm 16-9/16 (W) × 4-11/16 (H) × 10-5/8 (D) in
U.K. and European models	420 (W) × 126 (H) × 272 (D)mm

Weight (without package) 3.6 kg (8 lb)

Accessories

Operating instructions	1
Connection cord with pin plugs	2
CD-Deck synchro control cord	1
 System remote control cord (CT-S407 only)	1

NOTE:

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