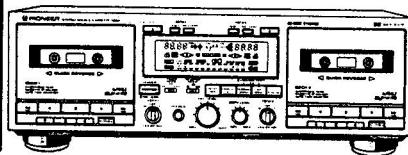


# Service Manual

**PIONEER**  
The Art of Entertainment



ORDER NO.  
ARP2195

STEREO DOUBLE CASSETTE DECK

# CT-W850R

# CT-W860R

CT-W850R AND CT-W860R HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CT-W850R	CT-W860R		
KUC	○	—	AC120V only	
HEM	○	—	AC220V-230V, 230V-240V (switchable) *	
HB	○	—	AC220V-230V, 230V-240V (switchable) *	
SD	—	○	AC110V, 120V-127V, 220V, 240V (switchable)	

\* Change the position of jumper of the transformer board assembly.

- This manual is applicable to the CT-W850R/KUC, HEM, HB and CT-W860R/SD types.
- As to the CT-W850R/HEM, HB and CT-W860R/SD types, refer to page 45.
- Ce manuel pour le service comprend les explications de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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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

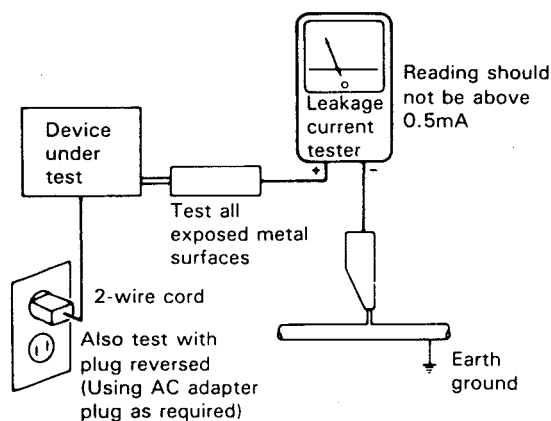
(FOR USA MODEL ONLY)

## 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  $\Delta$  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, PACKING AND PARTS LIST

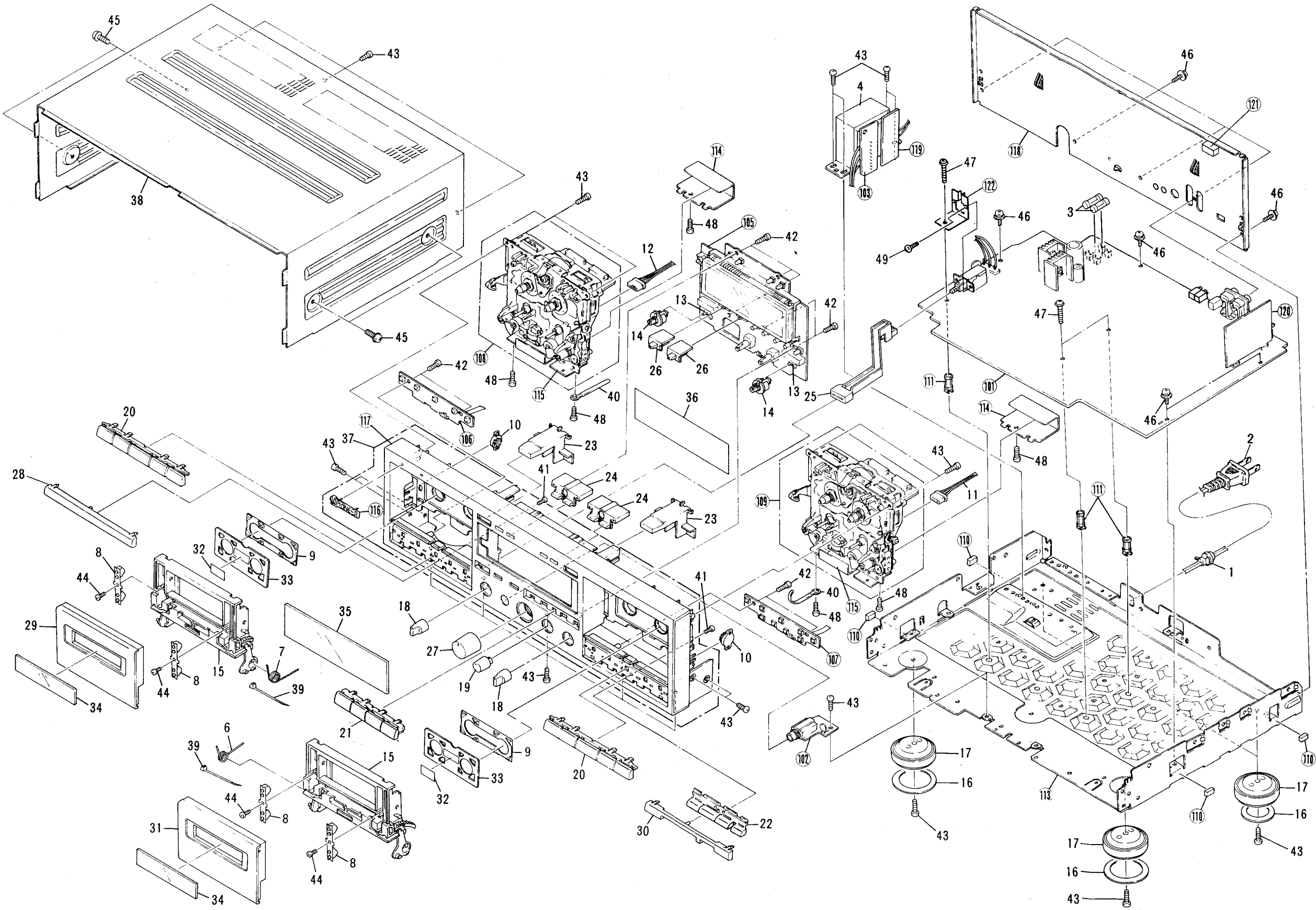
## 2.1 EXTERIOR

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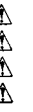
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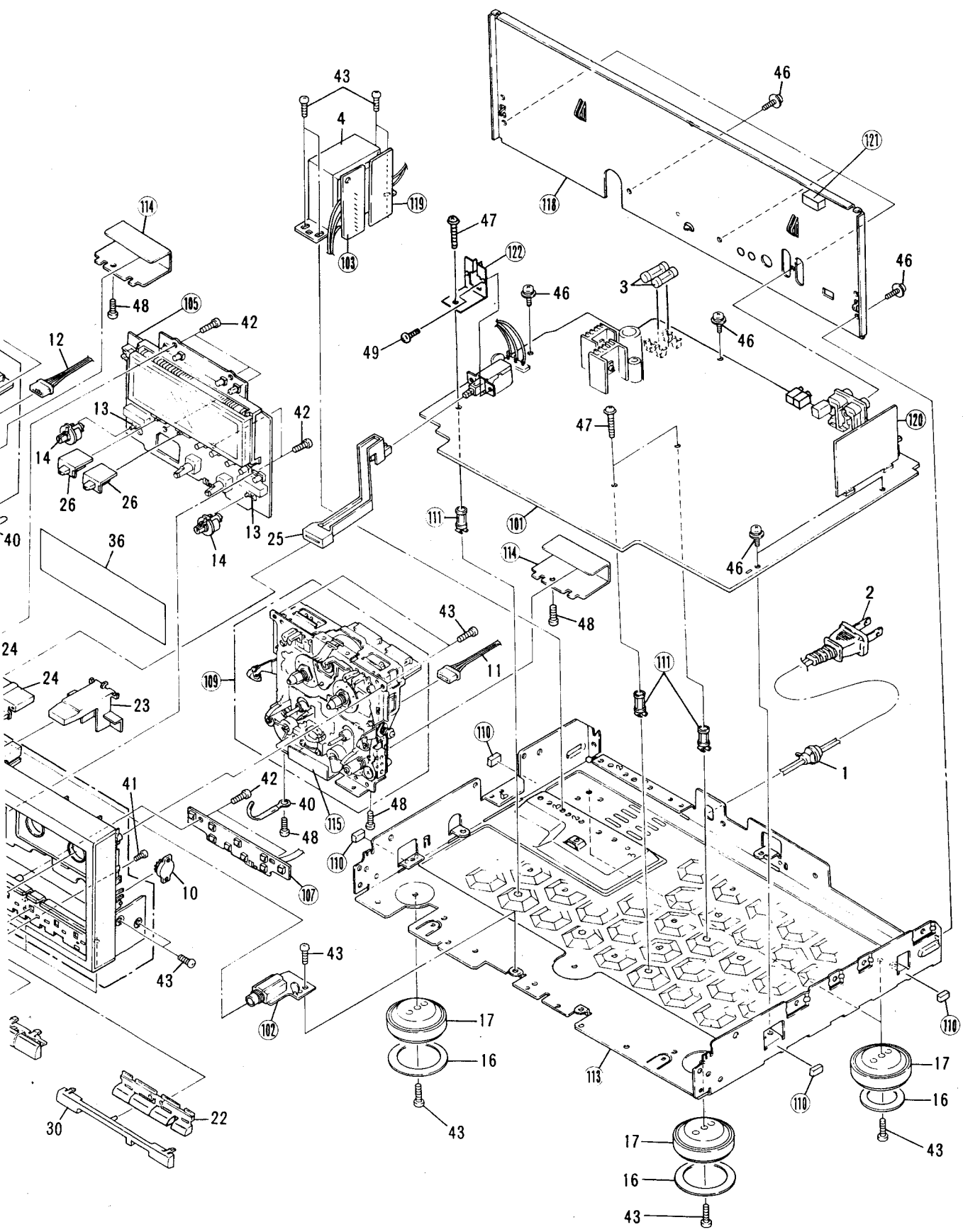


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**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  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.

A

**Parts List of Exterior**

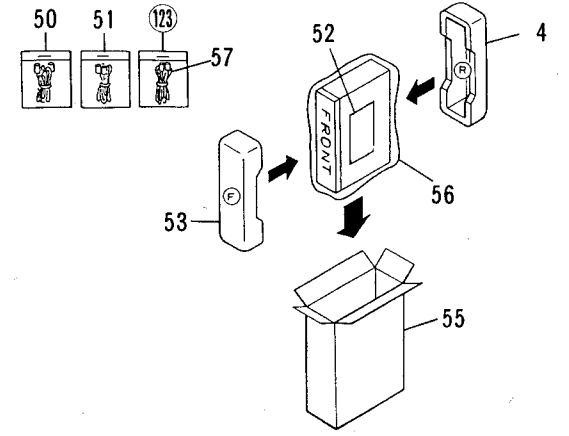
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
$\Delta$	1	CM-22C	Strain relief		46	IBZ30P060FCC	Screw
$\Delta$	2	PDG1002	AC Power cord		47	IBZ30P150FCU	Screw
$\Delta$	3	REK1001	FU1001, FU1002 Fuse (1.5A)		48	BCZ26P050FMC	Screw
$\Delta$	4	RTT1162	Power transformer		49	PMA30P060FCU	Screw
	5		.....		50	PDE-319	Mini connection cord
	6	RBH1224	Door spring (L)		51	RDE1030	Control cord
	7	RBH1225	Door spring (R)		52	RRB1079	Operating instructions (English)
	8	RBK1013	Half pressure spring		53	RHA1044	Pad F
	9	REB1085	Stabilizer (B)		54	RHA1045	Pad R
	10	REC1005	Damper assembly		55	RHG1291	Packing case
	11	RKP1323	Connector assembly 5P		56	RHX-034	Sheet
	12	RKP1322	Connector assembly 3P		57	RDE-010	Connection cord
	13	RNK1522	SW cap		101		Main unit
	14	RNK1523	Rotary SW shaft		102		H.Phone unit
	15	RNT1010	Door pocket		103		Trans 2 unit
	16	VEC1061	Stopper		104		.....
	17	VNK1095	Insulator		105		Display unit
	18	RAC1414	Knob (DOLBY NR)		106		Operate (1) unit
	19	RAC1421	VR knob B (COPY LEVEL)		107		Operate (2) unit
	20	RAC1479	Operation knob A (◀, ◄, ■, ▶, ▶▶)		108		Mechanism unit
	21	RAC1475	Operation knob C (SYNCHRO COPY)		109		Mechanism unit
	22	RAC1601	BLE knob (●, ■, ●, AUTO-BLE)		110		Spacer
	23	RAC1425	Eject knob		111		PCB spacer
	24	RAC1426	Counter knob		112		.....
	25	RAC1427	Power knob		113		Main chassis
	26	RAC1428	Slide knob (TIMER MODE, REVERSE MODE)		114		Mechanism shield plate
	27	RAC1430	VR knob A (REC LEVEL)		115		Mechanism bracket
	28	RAH1608	REC mold (L)		116		Name plate
	29	RAH1793	Door cover		117		Front panel
	30	RAH1729	BLE mold		118		Rear panel
	31	RAH1794	Door cover		119		Trans 1 unit
	32	REE-113	Remain display paper		120		REC (2) unit
	33	RAH1483	Stabilizer panel		121		PCB spacer
	34	RAH1553	Door lens		122		SW bracket
	35	RAH1594	FL lens		123		Connection cord assembly
	36	RAH1596	FL filter				
	37	RXX1369	Front panel assembly				
	38	RXX1297	Bonnet				
	39	REC-371	Binder				
	40	RNH-184	Cord clamper				
	41	BBZ20P060FMC	Screw				
	42	BBZ30P060FZK	Screw				
	43	BBZ30P080FCC	Screw				
	44	BPZ20P060FMC	Screw				
	45	FBT40P080FZK	Screw				

B

C

D

**Packing**



Mark No. Description Part No.

Parts List of Mechanism Unit (Deck I)

1	Shaft	RLA1130
2	Planger	RLA1132
3	HEAD assembly	RXA1402
4	PB head	RPB1031
5	Push switch	RSG1018
6	Reel motor (BLK)	RXM1029
7	Main motor (BLK)	RXM1030
8	Solenoid (BLK)	RXP1010
9	Photo transistor	SPI33534FG
10	Wire holder	RNK1530
11	Main belt	REB1157
12	Pinch roller assembly (DIA 2.5)	RXA1183
13	Flywheel assembly	RXA1294
14	Flywheel assembly	RXA1295
15	Pinch roller assembly(L)	RXA1296
16	Screw	RBA1076
17	Washer	RBF-057
18	Reel base (BLK)	RXA1184
19	Idler (BLK)	RXA1248
20	Reel base (BLK)	RXC-040
21	Washer	RBF1038
22	Azimuth screw	RBA1080
23	Azimuth spring	RBK1029
24	Rotation spring	RBL-085
25	Head base spring	RBL1003
26	Housing head (BLK)	RXA1293
27	Slide spring	RBH1239
28	Play arm	RNK1525
29	Cam gear (3R)	RNK1672
30	Screw	RBA1078
31	Screw (For CT-W850R/HB and HEM)	RBA1079
32	Eject lever spring (R) (For CT-W850R/HB and HEM)	RBH1233
33	Eject prevention spring (R)	RBH1230
34	Cassette hold spring	RBK1031
35	Lever collar (A) (For CT-W850R/HB and HEM)	RLA1133
36	REC detection lever	RNK1527
37	PACK detection lever(P)	RNK1543
38	.....	
39	Hook (For CT-W850R/HB and HEM)	RNM-160
40	Screw (For CT-W850R/HB and HEM)	PCZ20P040FMC

Mark No. Description Part No.

41	Screw	PMZ26P050FMC
42	Screw	RBA1048
43	Screw	RBA1077
44	Washer	WA26D045D025
45	Washer	WA26D047D050
46	Washer	YE15FUC
47	Screw	PBZ30P080FMC
48	.....	
49	Screw	PMZ14P050FNI
50	Chassis base (BLK)	RXA1291
51	Slide plate	RNE1345
52	HD FPC (PB)	RNP1235
53	Holder cushion (L)	RED1027
54	Eject lever (R) (For CT-W850R/KUC and CT-W860R/SD)	RNK1594
55	Eject lever spring (R) (For CT-W850R/KUC and CT-W860R/SD)	RBH1264
56	Lever collar (B) (For CT-W850R/KUC and CT-W860R/SD)	RLA1146
60	Connector (3P)	
61	Connector (5P)	
62	Connector (10P)	
63	P.C. Board	
64	Head P.C.B (PB)	
65	.....	
66	Head base	
67	.....	
68	Eject prevention arm (R)	
69	Eject lever (WR) (For CT-W850R/HB and HEM type)	RNE1328
70	.....	
71	Jumper wire	
72	Jumper wire	
73	.....	

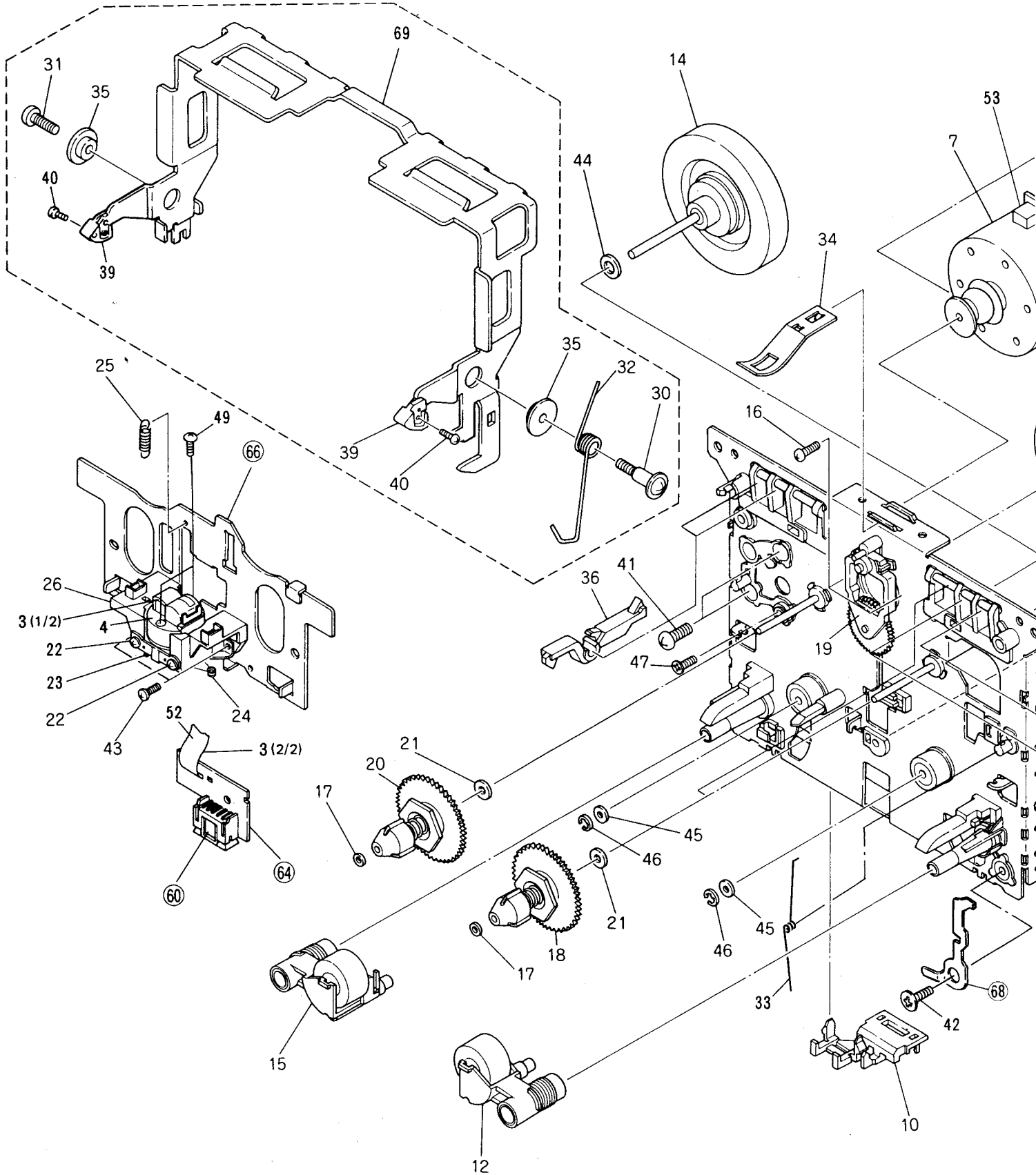
For CT-W850R/HEM and HB types

A

B

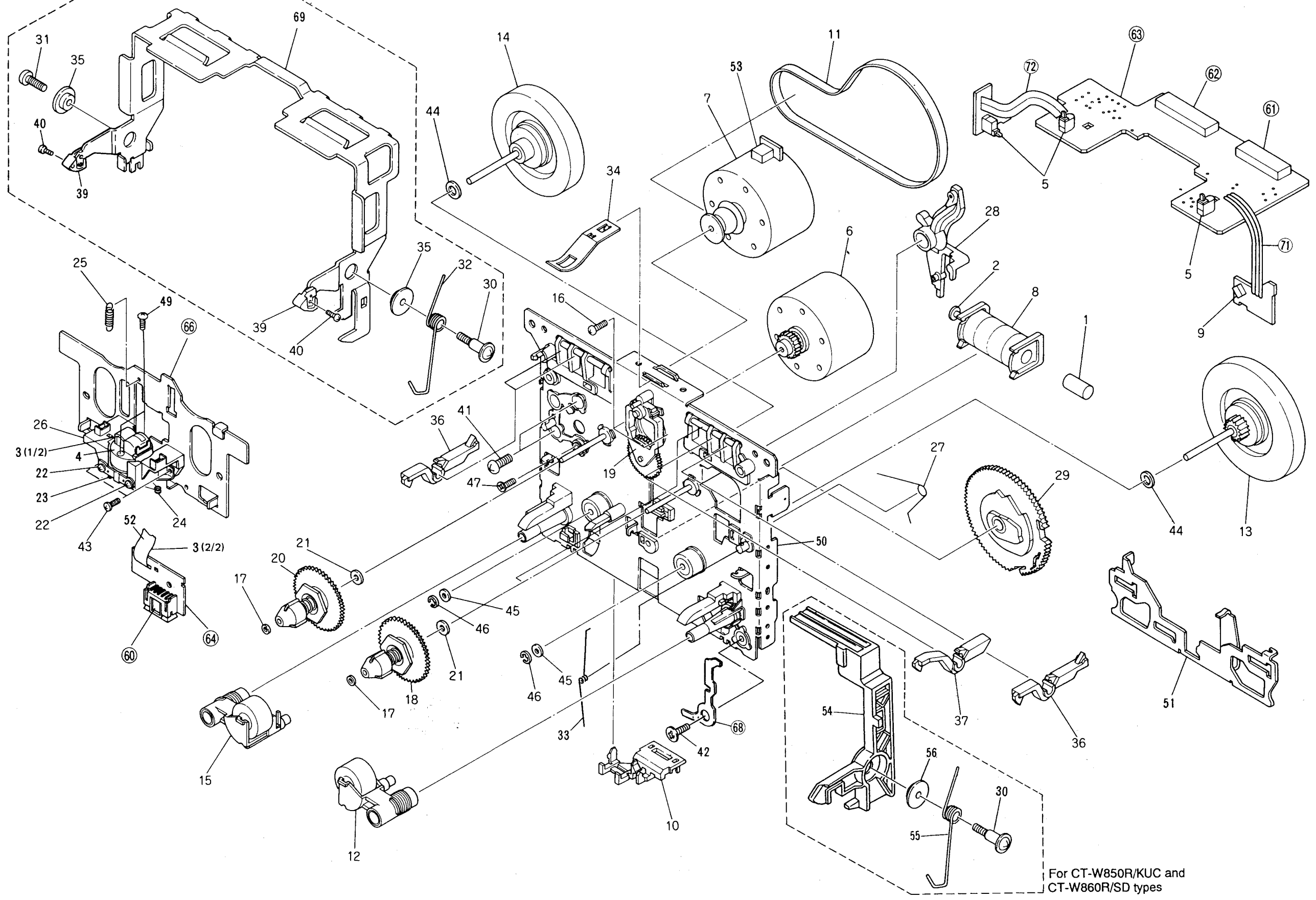
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Mechanism Unit (Deck I)

For CT-W850R/HEM and HB types



For CT-W850R/KUC and CT-W8560R/SD types

2.3 MECHANISM UNIT (DECK II)

A

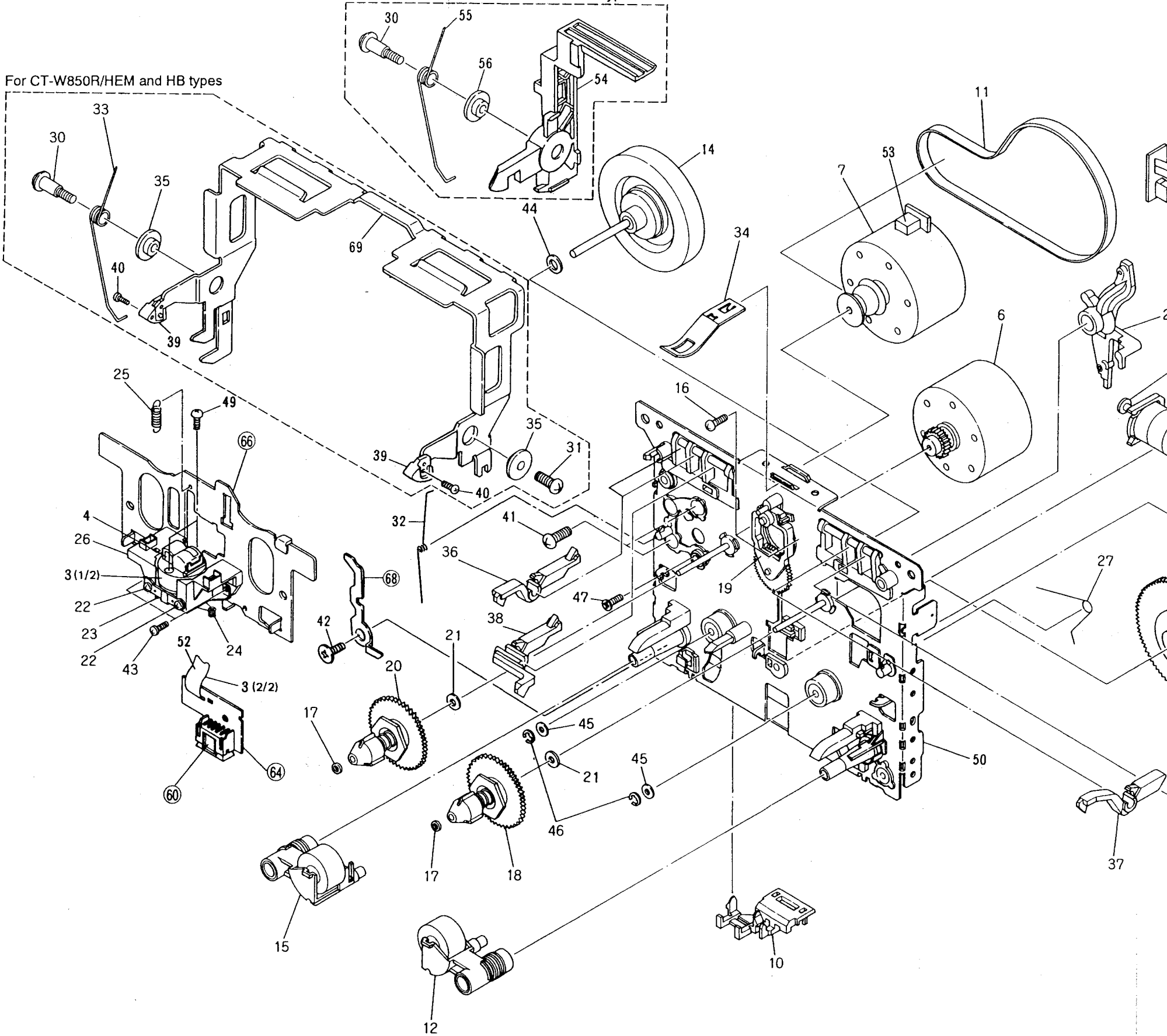
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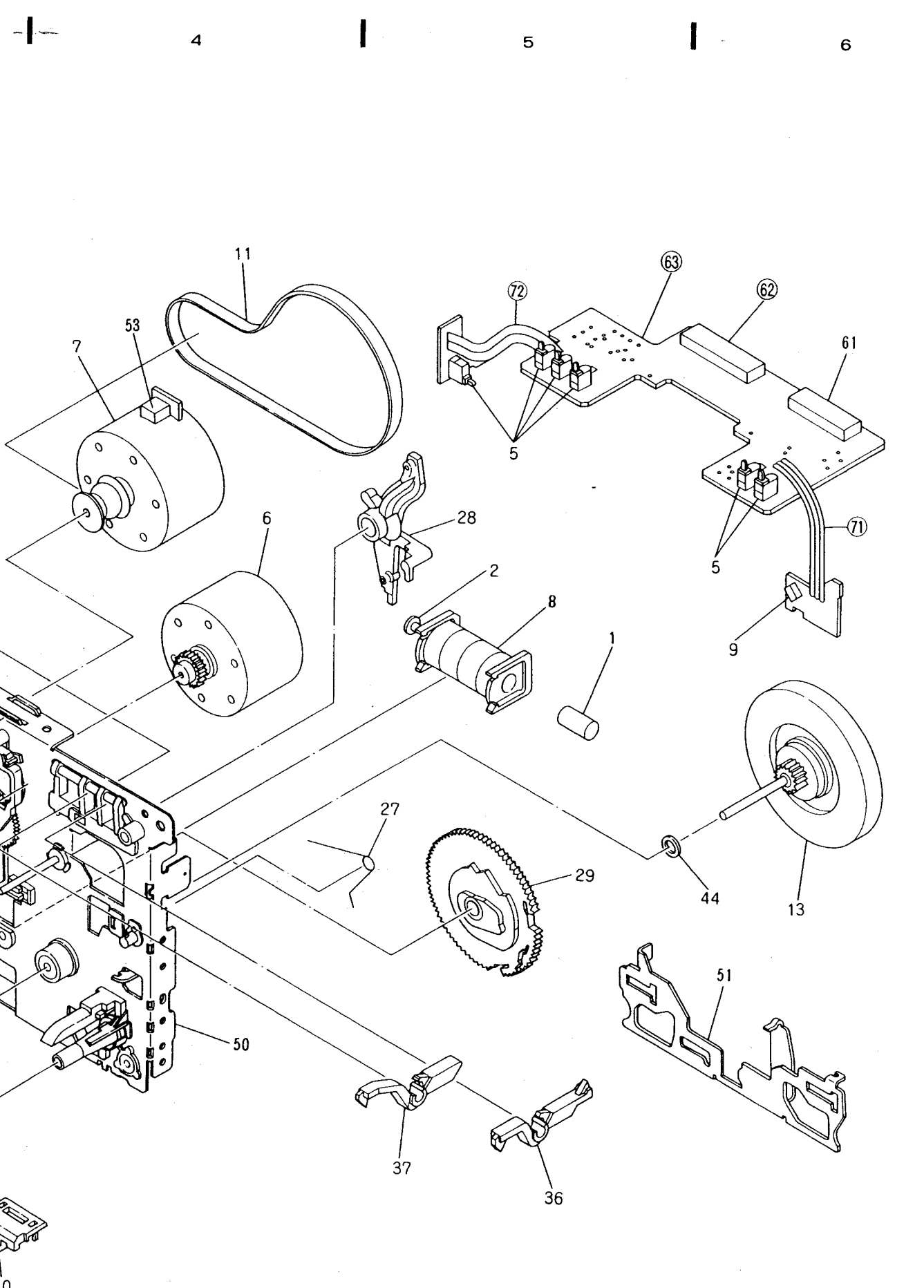
For CT-W850R/HEM and HB types

For CT-W850R/KUC and CT-W860R/SD types



unless otherwise noted ( ) : ± 10%, (M) : ± 20%  
 unless otherwise noted p.p.f.  
 electrolytic capacitor.  
 parts indicate the  
 part. Therefore, when  
 designation.  
 parts numbers.  
 the actual circuit may

5. SWITCHES (Underline indicates switch position)  
 DISPLAY UNIT  
 S1501 : CD CYNC  
 S1503 : X2 COPY  
 S1504 : X1 COPY  
 S1505 : 2 - COUNTER MODE  
 S1506 : 2 - COUNTER REST  
 S1507 : 1 - COUNTER MODE  
 S1508 : 1 - COUNTER REST  
 S1509 : SKIP/RELAY  
 S1510 : REV MODE ← - → - ⊙  
 S1511 : T.REC - OFF - T.RELAY  
 S1512 : I DOLBY B - OFF - C  
 S1513 : II DOLBY B - OFF - C  
 OPERATE 1 UNIT  
 S1301 : FWD  
 S1302 : REV  
 S1303 : STOP  
 S1305 : FF  
 S1306 : REW  
 OPERATE 2 UNIT  
 S1401 : FWD  
 S1402 : REV  
 S1403 : STOP  
 S1404 : REC  
 S1405 : FF  
 S1406 : REW  
 S1407 : PAUSE  
 S1408 : MUTE



Mark No. Description Part No.

Parts List of Mechanism Unit (Deck II)

Mark No.	Description	Part No.
A	1 Shaft	RLA1130
	2 Planger	RLA1132
	3 Head assembly (R/P)	RXA1378
	4 R/P, E head	RPB1030
	5 Push switch	RSG1018
	6 Reel motor (BLK)	RXM1029
	7 Main motor (BLK)	RXM1030
	8 Solenoid (BLK)	RXP101C
	9 Photo transistor	SPI33534FG
	10 Wire holder	RNK1530
	11 Main belt	REB1157
	12 Pinch roller assembly (DIA2.5)	RXA1183
	13 Flywheel assembly	RXA1294
	14 Flywheel assembly	RXA1295
	15 Pinch roller assembly(L)	RXA1296
B	16 Screw	RBA1076
	17 Washer	RBF - 057
	18 Reel base (BLK)	RXA1184
	19 Idler (BLK)	RXA1248
	20 Reel base (BLK)	RXC - 040
	21 Washer	RBF1038
	22 Azimuth screw	RBA1080
	23 Azimuth spring	RBK1029
	24 Rotation spring	RBL - 085
	25 Head base spring	RBL1003
	26 Housing head (BLK)	RXA1293
	27 Slide spring	RBH1239
	28 Play arm	RNK1525
	29 Cam gear (3R)	RNK1672
	30 Screw	RBA1078
C	31 Screw (For CT - W850R/HB and HEM)	RBA1079
	32 Eject prevention spring (L)	RBH1234
	33 Eject lever spring (L) (For CT - W850R/HB and HEM)	RBH1231
	34 Cassette hold spring	RBK1031
	35 Lever callar (A) (For CT - W850R/HB and HEM)	RLA1133
	36 REC detection lever	RNK1527
	37 PACK detection lever(P)	RNK1543
	38 Metal detection lever(L)	RNK1529
	39 Hook (For CT - W850R/HB and HEM)	RNM - 160
D	40 Screw (For CT - W850R/HB and HEM)	PCZ20P040FMC



W850R W860R

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

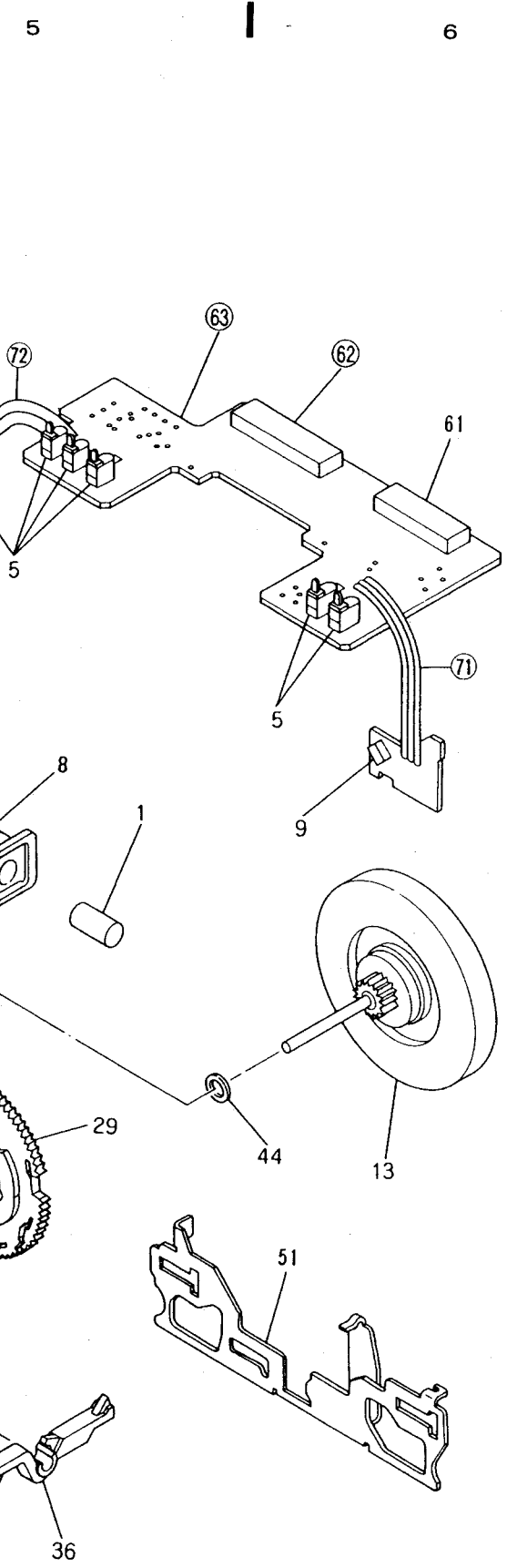
※ marked capacitors and resistors have parts numbers. replacing, be sure to use parts of identical designation. importance of the safety factor of the part. Therefore, when The Δ mark found on some component parts indicates the

⊙ : Adjusting point.  
 ← : Signal route.  
 4. OTHERS :  
 → mA : DC current at no input signal.  
 □ : DC voltage (V) at no input signal.  
 3. VOLTAGE CURRENT :

Indication without voltage is 50V except electrolytic capacitor. Indicated in capacity (μF) / voltage (V) unless otherwise noted p.p.f.

2. CAPACITORS :  
 tolerance.  
 Indicated in Ω, 1/6W, ±5% tolerance unless otherwise noted k: kΩ, M: MΩ, (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20%

5. SWITCHES (Underline indicates switch position)
- S1501 : CD CYNC
  - S1503 : X2 COPY
  - S1504 : X1 COPY
  - S1505 : 2-COUNTER MODE
  - S1506 : 2-COUNTER REST
  - S1507 : 1-COUNTER MODE
  - S1508 : 1-COUNTER REST
  - S1509 : SKIP/RELAY
  - S1510 : REV MODE ←-↻-⊙
  - S1511 : T.REC-OFF-T.RELAY
  - S1512 : I DOLBY B-OFF-C
  - S1513 : II DOLBY B-OFF-C
- OPERATE 1 UNIT
- S1301 : FWD
  - S1302 : REV
  - S1303 : STOP
  - S1305 : FF
  - S1306 : REW
- OPERATE 2 UNIT
- S1401 : FWD
  - S1402 : REV
  - S1403 : STOP
  - S1404 : REC
  - S1405 : FF
  - S1406 : REW
  - S1407 : PAUSE
  - S1408 : MUTE
- POWER SW UNIT
- S1201 : ON-OFF



Mark No.	Description	Part No.	Mark No.	Description	Part No.
<b>Parts List of Mechanism Unit (Deck II)</b>					
A	1 Shaft	RLA1130	41	Screw	PMZ26P050FMC
	2 Planger	RLA1132	42	Screw	RBA1048
	3 Head assembly (R/P)	RXA1378	43	Screw	RBA1077
	4 R/P, E head	RPB1030	44	Washer	WA26D045D025
	5 Push switch	RSG1018	45	Washer	WA26D047D050
	6 Reel motor (BLK)	RXM1029	46	Washer	YE15FUC
	7 Main motor (BLK)	RXM1030	47	Screw	PBZ30P080FMC
	8 Solenoid (BLK)	RXP101C	48	.....	
	9 Photo transistor	SPI33534FG	49	Screw	PMZ14P050FNI
	10 Wire holder	RNK1530	50	Chassis base (BLK)	RXA1291
	11 Main belt	REB1157	51	Slide plate	RNE1345
	12 Pinch roller assembly (DIA2.5)	RXA1183	52	HD FPC (R/P)	RNP1232
	13 Flywheel assembly	RXA1294	53	Holder cushion (L)	RED1027
	14 Flywheel assembly	RXA1295	54	Eject lever (L)	RNK1593
	15 Pinch roller assembly(L)	RXA1296		(For CT - W850R/KUC and CT - W860R/SD)	
B	16 Screw	RBA1076	55	Eject lever spring (L)	RBH1262
	17 Washer	RBF - 057		(For CT - W850R/KUC and CT - W860R/SD)	
	18 Reel base (BLK)	RXA1184	56	Lever collar (B)	RLA1146
	19 Idler (BLK)	RXA1248		(For CT - W850R/KUC and CT - W860R/SD)	
	20 Reel base (BLK)	RXC - 040	60	Connector (5P)	
	21 Washer	RBF1038	61	Connector (8P)	RKP1327
	22 Azimuth screw	RBA1080	62	Connector (10P)	
	23 Azimuth spring	RBK1029	63	P.C. Board	
	24 Rotation spring	RBL - 085	64	Head P.C.B (R/P)	
	25 Head base spring	RBL1003	65	.....	
	26 Housing head (BLK)	RXA1293	66	Head base	
	27 Slide spring	RBH1239	67	.....	
	28 Play arm	RNK1525	68	Eject prevention arm (L)	
	29 Cam gear (3R)	RNK1672	69	Eject lever (WL)	RNE1321
	30 Screw	RBA1078		(For CT - W850R/HB and HEM)	
C	31 Screw	RBA1079	70	.....	
	(For CT - W850R/HB and HEM)		71	Jumper wire	
	32 Eject prevention spring (L)	RBH1234	72	Jumper wire	
	33 Eject lever spring (L)	RBH1231	73	.....	
	(For CT - W850R/HB and HEM)				
	34 Cassette hold spring	RBK1031			
	35 Lever callar (A)	RLA1133			
	(For CT - W850R/HB and HEM)				
	36 REC detection lever	RNK1527			
	37 PACK detection lever(P)	RNK1543			
	38 Metal detection lever(L)	RNK1529			
	39 Hook	RNM - 160			
	(For CT - W850R/HB and HEM)				
D	40 Screw	PCZ20P040FMC			
	(For CT - W850R/HB and HEM)				

### 3. SCHEMATIC DIAGRAM

A

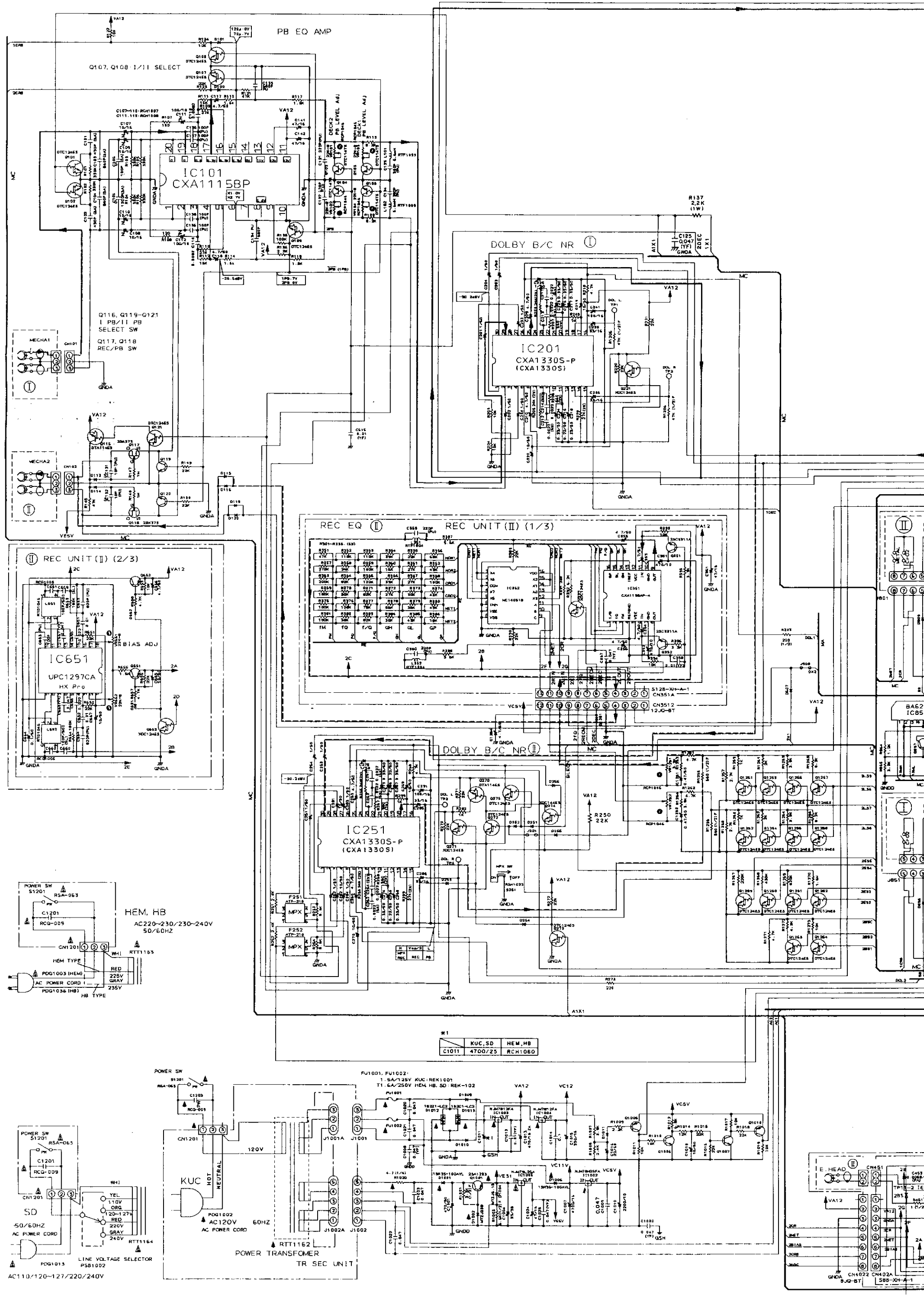
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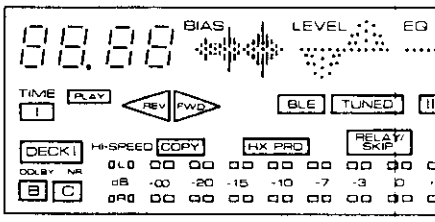
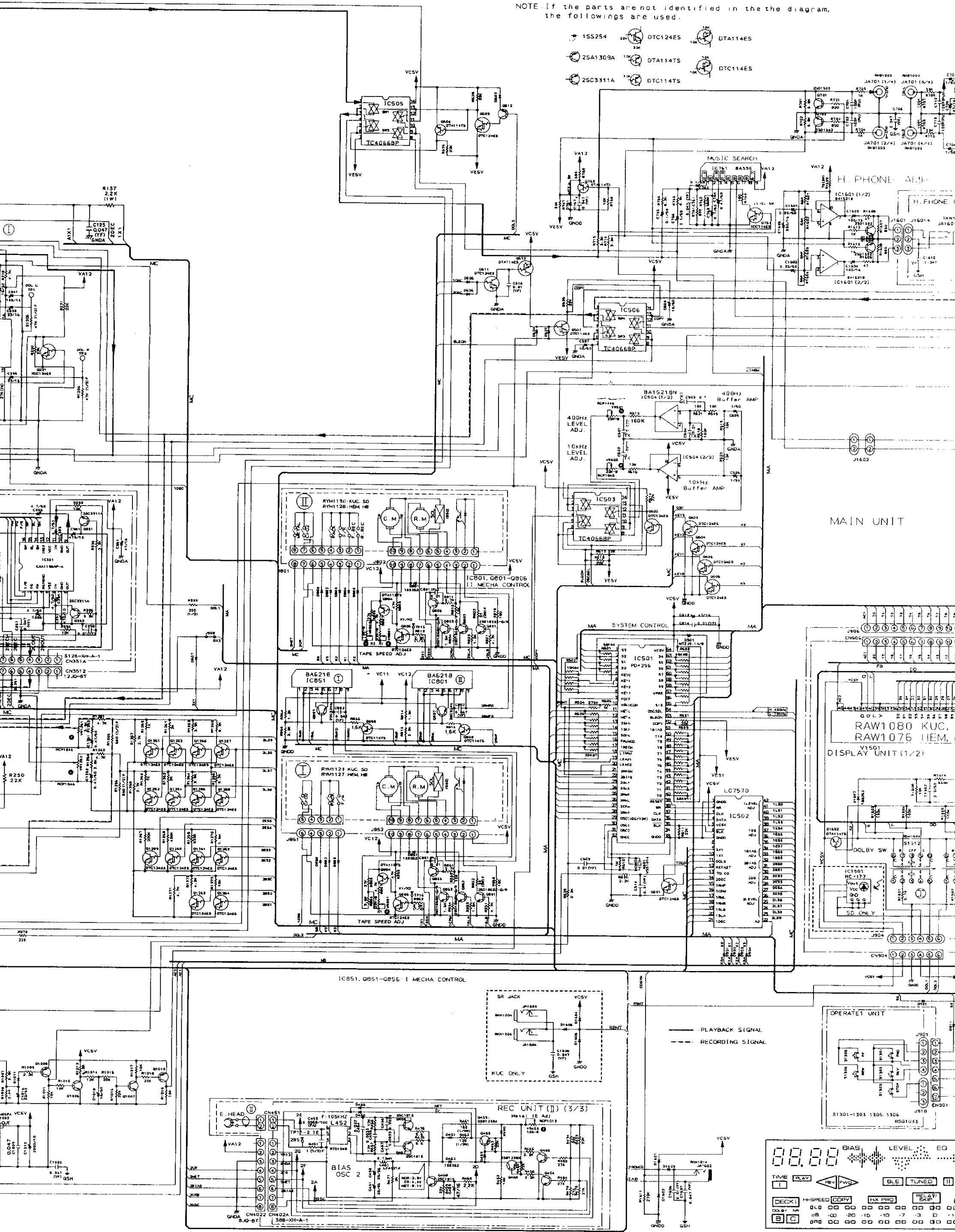
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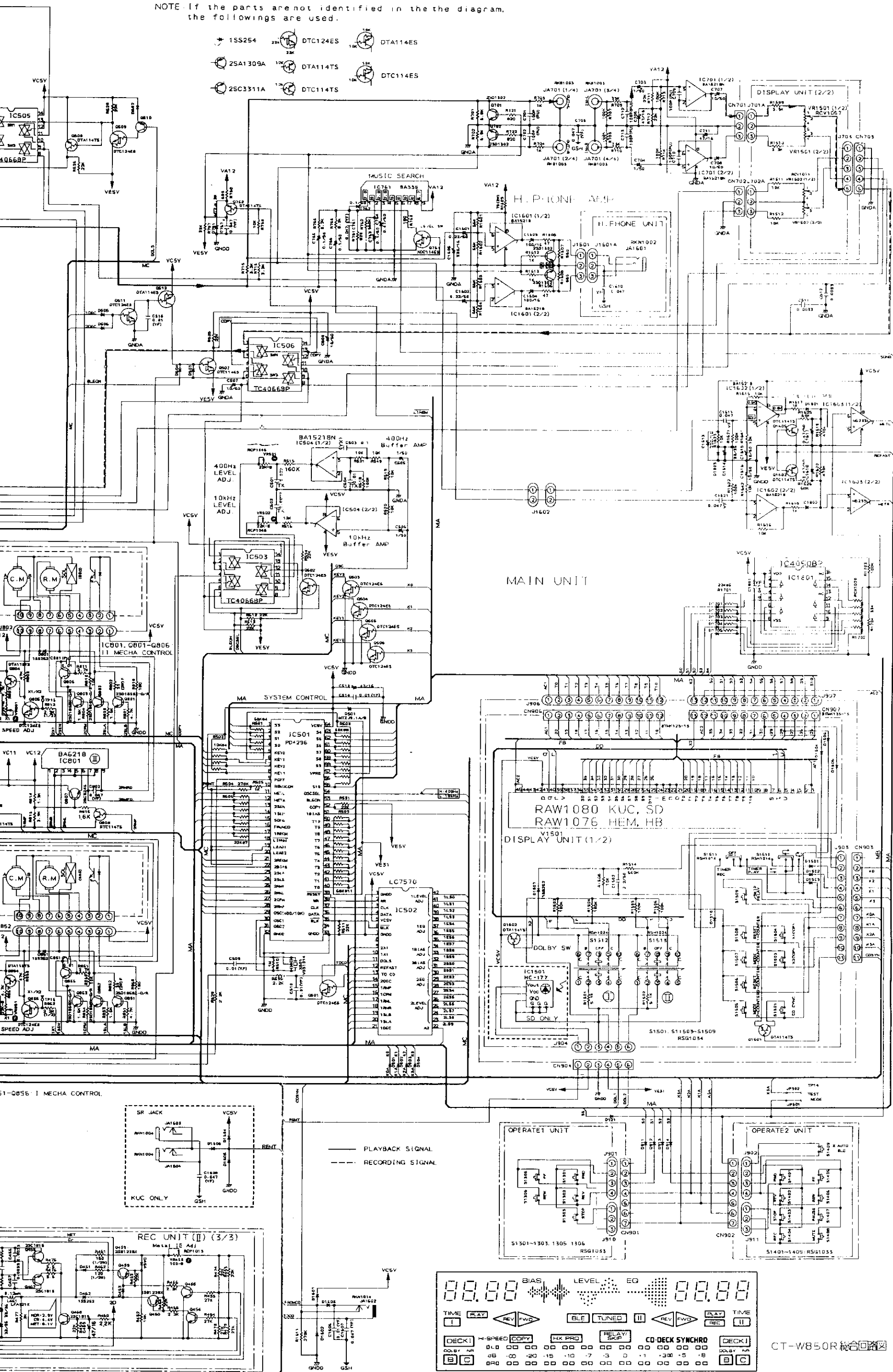
NOTE: If the parts are not identified in the the diagram, the followings are used.

- 1SS254 DTC124ES DTA114ES
- 2SA1309A DTA114TS DTC114ES
- 2SC3311A DTC114TS



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

- 1SS254 DTC124ES DTA114ES
- 2SA1309A DTA114TS DTC114ES
- 2SC3311A DTC114TS



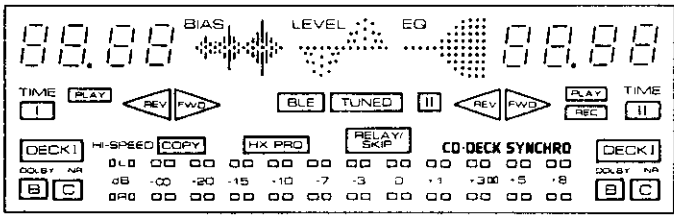
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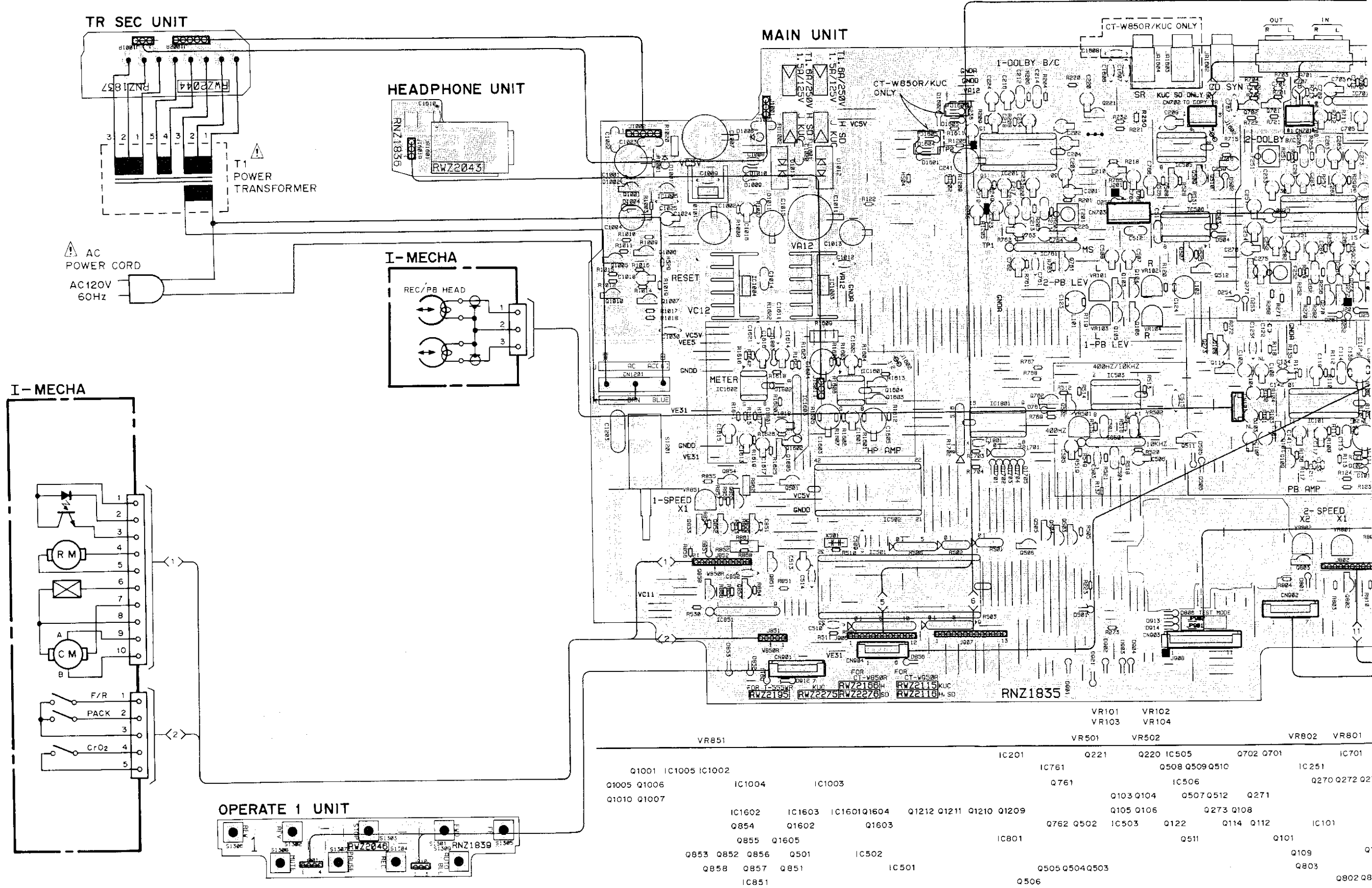
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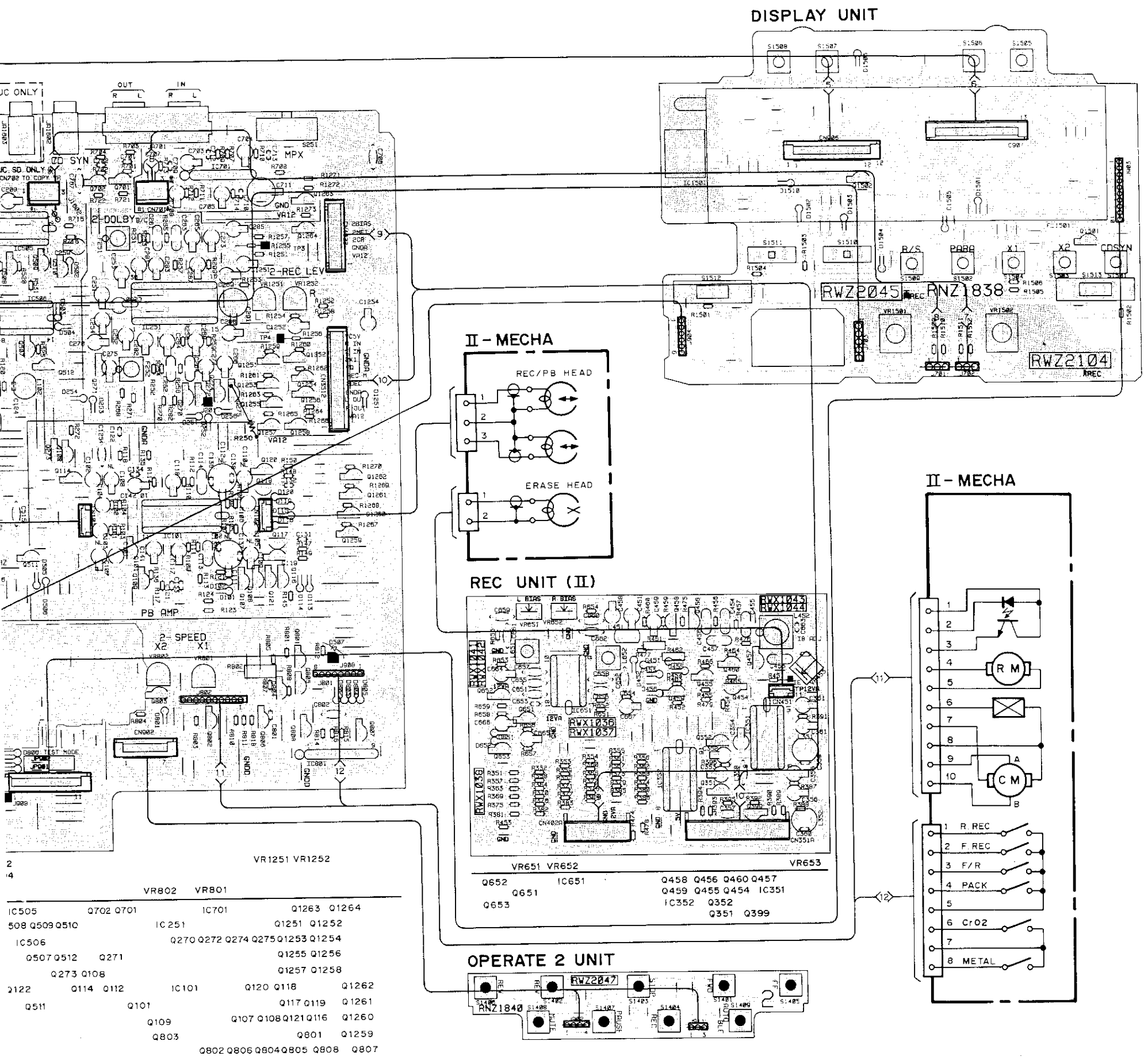


CT-WB50R

# 4. P.C. BOARDS CONNECTION DIAGRAM



VR851	VR501	VR502	IC201	Q221	Q220	IC505	Q702	Q701	IC701
Q1001	IC1005	IC1002	IC761	Q271	Q508	Q509	Q510	IC251	IC701
Q1005	Q1006	IC1004	IC1003	Q761	IC506	Q270	Q272	Q271	Q270
Q1010	Q1007	IC1602	IC1603	IC1601	Q1604	Q1212	Q1211	Q1210	Q1209
Q854	Q1602	Q1603	Q855	Q1605	IC801	Q762	Q502	IC503	Q122
Q853	Q852	Q856	Q501	IC502	Q511	Q114	Q112	IC101	Q101
Q858	Q857	Q851	IC501	Q505	Q504	Q503	Q803	Q802	Q801
IC851	Q506								



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

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.

IC505	Q702 Q701	IC701	Q1263 Q1264
508 Q509 Q510	IC251	Q1251 Q1252	
IC506	Q270 Q272 Q274 Q275 Q1253 Q1254		Q1255 Q1256
Q507 Q512 Q271		Q1257 Q1258	
Q273 Q108	IC101	Q120 Q118	Q1262
2122 Q114 Q112	Q101	Q117 Q119	Q1261
Q511	Q109	Q107 Q108 Q121 Q116	Q1260
	Q803	Q801 Q1259	
	Q802 Q806 Q804 Q805 Q808 Q807		

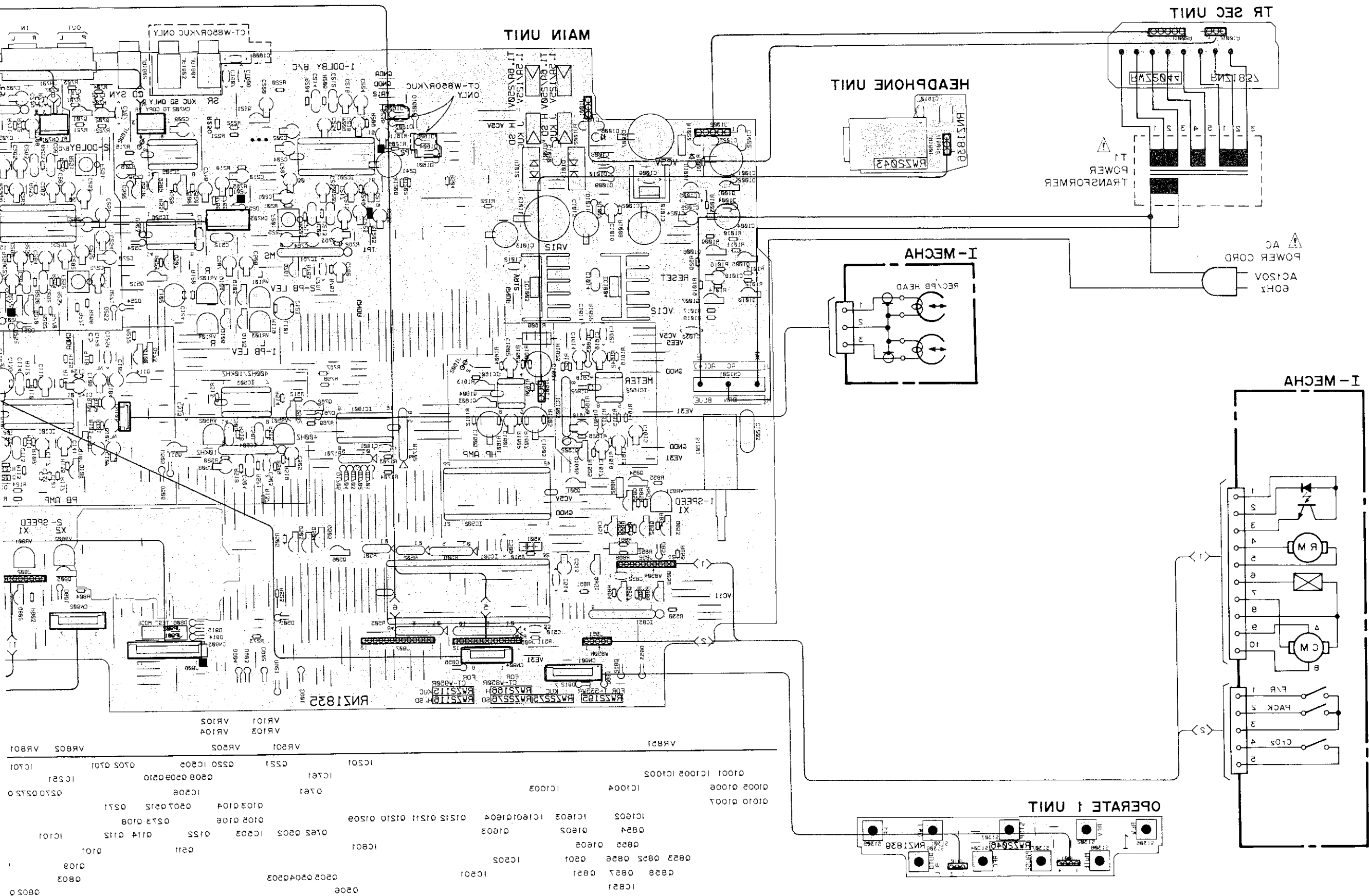
A  
B  
C  
D





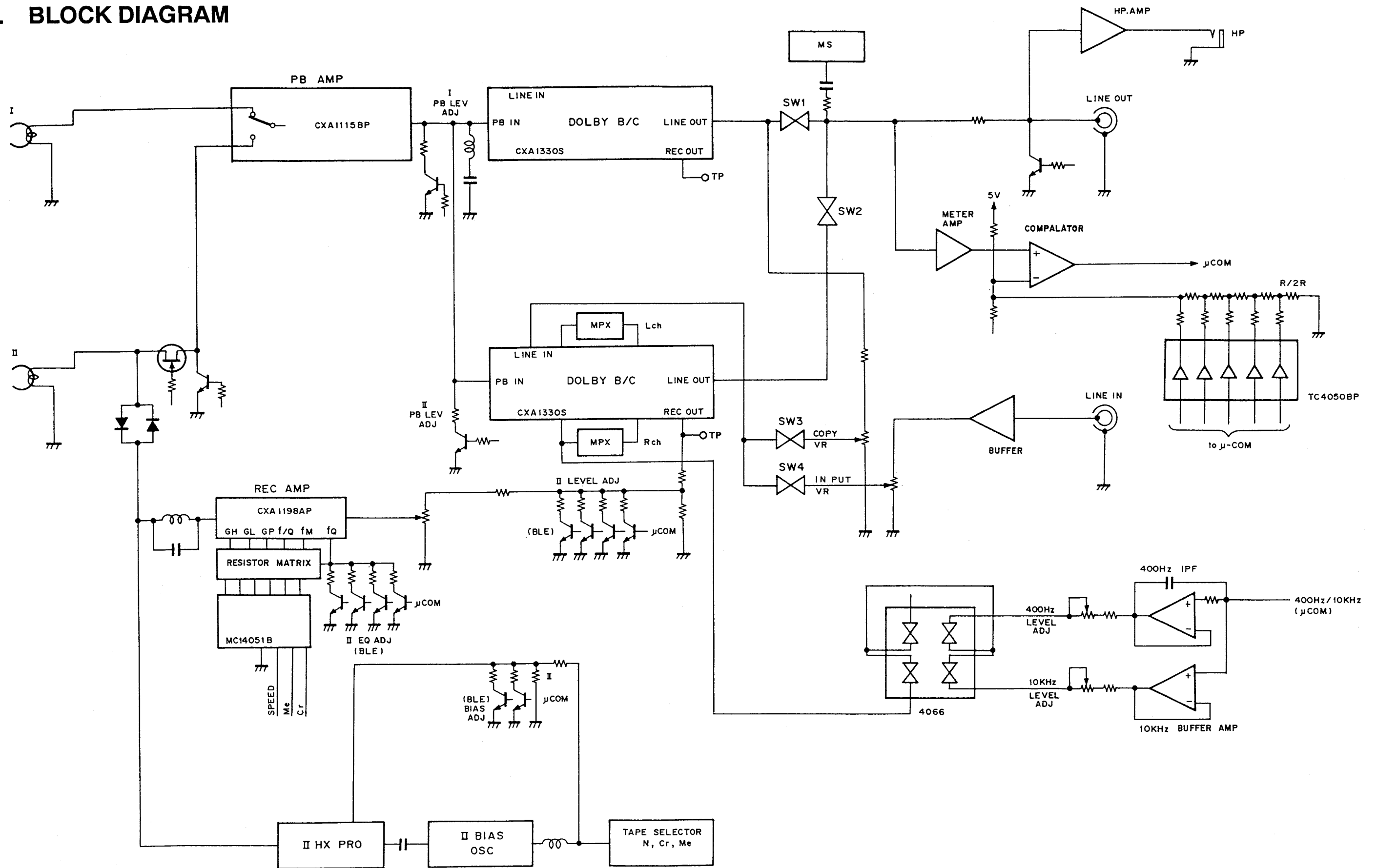
# 4. P.C. BOARDS CONNECTION DIAGRAM

This P.C.B. connection diagram is viewed from the foil side.





5. BLOCK DIAGRAM



## 6. P.C.B's 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 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<sup>1</sup> → 561 ..... RD1/4PS 561J

47k Ω → 47 × 10<sup>3</sup> → 473 ..... RD1/4PS 473J

0.5 Ω → 0R5 ..... RN2H0R5K

1 Ω → 010 ..... RS1P010K

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

5.62k Ω → 562 × 10<sup>1</sup> → 5621 ..... RN1/4SR 5621F

Mark No.	Description	Part No.	Mark No.	Description	Part No.
<b>REC (2) UNIT</b>					
<b>SEMICONDUCTORS</b>					
IC351 REC EQUALIZER IC	CXA1198AP-A		C657, 658 CERAMIC CAPACITOR	CGCYX473K25	
IC352 LOGIC IC	MC14051B		C659, 660 CERAMIC CAPACITOR	CCCSL101K500	
IC651 DOLBY HX PRO IC	UPC1297CA		C661, 662 CERAMIC CAPACITOR	RCG1005	
Q351, 352 TRANSISTOR	2SC3311A		C663 AXIAL CAPACITOR	CKPUYB101K50	
Q399 TRANSISTOR	XDC124ES		C664 ELECTR. CAPACITOR	CEASR10M50	
Q454, 455 TRANSISTOR	2SC3311A		C665 ELECTR. CAPACITOR	CEAS100M50	
Q456-458 TRANSISTOR	2SC1815		C666 ELECTR. CAPACITOR	CEAS4R7M50	
Q459, 460 TRANSISTOR	2SB1238X		C667 ELECTR. CAPACITOR	CEAS100M50	
Q651, 652 TRANSISTOR	2SA1309A		<b>RESISTORS</b>		
Q653 TRANSISTOR	XDC124ES		R351-396 CARBONFILM RESISTOR	RD1/6PM□□□J	
D451 DIODE	1SS254		R451 CARBONFILM RESISTOR	RD1/2LF□□□J	
D452 DIODE	1SS252		R452-457 CARBONFILM RESISTOR	RD1/6PM□□□J	
D453-456 DIODE	1SS254		R459, 460 CARBONFILM RESISTOR	RD1/6PM□□□J	
D651, 652 DIODE	1SS254		R461, 462 CARBONFILM RESISTOR	RD1/2LF□□□J	
<b>COILS/TRANSFORMERS</b>					
L351, 352 COIL	RTF1004		R463-466 CARBONFILM RESISTOR	RD1/6PM□□□J	
L451 RADIAL INDUCTOR	LFA121K		R474-479 CARBONFILM RESISTOR	RD1/6PM□□□J	
L452	RTD1048		R651-659 CARBONFILM RESISTOR	RD1/6PM□□□J	
L651, 652 COIL	RTD1046		VR453 VARIABLE RESISTOR	RCP1013	
<b>CAPACITORS</b>					
C351, 352 ELECTR. CAPACITOR	CEAS471M10		VR651, 652 VR	VRTB6HS223	
C353-356 ELECTR. CAPACITOR	CEAS4R7M50		<b>OTHERS</b>		
C357 CERAMIC CAPACITOR	CKCYF473Z50		CN351	S12B-XH-A-1	
C358 CERAMIC CAPACITOR	CKCYF103Z50		CN402	S8B-XH-A-1	
C359, 360 AXIAL CAPACITOR	CKPUYB221K50		<b>H. PHONE UNIT</b>		
C361 ELECTR. CAPACITOR	CEAS470M16		<b>CAPACITORS</b>		
C451 ELECTR. CAPACITOR	CEAS330M35		C1610 CERAMIC CAPACITOR	CKCYF473Z50	
C453 CAPACITOR	CQPA682J100		<b>OTHERS</b>		
C454 AUDIO FILM CAPACITOR	CFTXA223J50		JA1601 JACK	RKN1002	
C455-457 AUDIO FILM CAPACITOR	CFTXA332J50		<b>OPERATE 1 UNIT</b>		
C458 ELECTR. CAPACITOR	CEAS330M35		<b>SWITCHES</b>		
C459 ELECTR. CAPACITOR	CEAS470M16		S1401-1409 SWITCH	RSG1033	
C651, 652 AUDIO FILM CAPACITOR	CFTXA103J50		<b>OPERATE 2 UNIT</b>		
C653, 654 AXIAL CAPACITOR	CKPUYB821K50		<b>SWITCHES</b>		
C655, 656 AUDIO FILM CAPACITOR	CFTXA223J50		S1301-1303 SWITCH	RSG1033	

Mark No.	Description	Part No.	Mark No.	Description	Part No.
	S1305, 1306 SWITCH	RSG1033		Q858 DIGITAL TRANSISTOR	DTC114TS
<b>MAIN UNIT</b>					
<b>SEMICONDUCTORS</b>					
IC101 PB-EQ AMP IC	CXA1115BP		Q1001 TRANSISTOR	2SA1283	
IC201 DOLBY B/C IC	CXA1330S		Q1005 TRANSISTOR	2SA1309A	
IC251 DOLBY B/C IC	CXA1330S		Q1006, 1007 TRANSISTOR	2SC3311A	
IC501	PD4296A		Q1010 TRANSISTOR	2SA1309A	
IC502 FL STATIC DRIVER IC	LC7570		Q1251-1264 TRANSISTOR	XDC124ES	
IC503 LOGIC IC	TC4066BP		Q1602 DIGITAL TRANSISTOR	DTC114TS	
IC504 IC	BA15218N		Q1603, 1604 TRANSISTOR	2SC3311A	
IC505, 506 LOGIC IC	TC4066BP		Q1605 DIGITAL TRANSISTOR	DTC114TS	
IC701 IC	BA15218N		D101, 102 DIODE	1SS254	
IC761 IC	BA335		D113-116 DIODE	1SS254	
IC801 IC	BA6218		D119, 120 DIODE	1SS254	
IC851 IC	BA6218		D251-256 DIODE	1SS254	
IC1002 REGULATOR IC	NJM78M05FA		D501 ZENER DIODE	MTZJ9. 1A	
IC1003, 1004 REGULATOR IC	NJM7812FA		D502-507 DIODE	1SS254	
IC1005 REGULATOR IC	NJM79L05A		D761 ZENER DIODE	MTZJ4. 3B	
IC1601, 1602 OP-AMP IC	BA15218		D801 DIODE	1SS252	
IC1603 DUAL-COMPARATOR IC	M5233L		D802-806 DIODE	1SS254	
IC1801 CMOS LOGIC IC	TC4050BP		D851 DIODE	1SS252	
Q101, 102 TRANSISTOR	XDC124ES		D852, 853 DIODE	1SS254	
Q103-106 DIGITAL TRANSISTOR	DTC114TS		D856 DIODE	1SS254	
Q107-109 TRANSISTOR	XDC124ES		D901-904 DIODE	1SS254	
Q116 DIGITAL TRANSISTOR	XDA114ES		D911-914 DIODE	1SS254	
Q117, 118 N-FET	2SK373		D921 DIODE	1SS254	
Q119, 120 TRANSISTOR	2SC3311A		D1001 DIODE	1SR35-100AVL	
Q121, 221 TRANSISTOR	XDC124ES		D1002 ZENER DIODE	MTZJ33B	
Q270 DIGITAL TRANSISTOR	XDA114ES		D1004 ZENER DIODE	MTZJ5. 1B	
Q271-273 TRANSISTOR	XDC124ES		D1006 DIODE	1SR35-100AVL	
Q274 DIGITAL TRANSISTOR	XDC144ES		D1009-1011 DIODE	1SS254	
Q275 TRANSISTOR	XDC124ES		D1012 POWER DIODE	1B2Z1-LC2	
Q501-506 TRANSISTOR	XDC124ES		D1013 POWER DIODE	1B2C1-LC2	
Q507 DIGITAL TRANSISTOR	XDC114ES		D1251 DIODE	1SS254	
Q508 DIGITAL TRANSISTOR	DTA114TS		D1601-1606 DIODE	1SS254	
Q509 TRANSISTOR	XDC124ES		D1701-1705 DIODE	1SS254	
Q510 TRANSISTOR	2SA1309A		D1801-1803 DIODE	1SS254	
Q511 TRANSISTOR	XDC124ES		<b>SWITCHES</b>		
Q512 DIGITAL TRANSISTOR	XDA114ES		S251	RSH1022	
Q701, 702 TRANSISTOR	2SD1302		Δ S1201 SWITCH	RSA-063	
Q761 DIGITAL TRANSISTOR	XDC114ES		<b>COILS/TRANSFORMERS</b>		
Q762 DIGITAL TRANSISTOR	DTA114TS		L101, 102 COIL	RTF1099	
Q801-803 TRANSISTOR	2SD1858X		F251, 252 FILTER	ATF-210	
Q804 DIGITAL TRANSISTOR	DTA115TS		<b>CAPACITORS</b>		
Q805 TRANSISTOR	XDC124ES		C101, 102 PL. STYRENE CAPACITOR	CQSA431J50	
Q806 TRANSISTOR	2SC3311A		C103, 104 PL. STYRENE CAPACITOR	CQSA561J50	
Q807 TRANSISTOR	2SC3246		C105, 106 PL. STYRENE CAPACITOR	CQSA102J50	
Q808 DIGITAL TRANSISTOR	DTC114TS		C107-110 ELECTR. CAPACITOR	RCH1007	
Q851-853 TRANSISTOR	2SD1858X		C111, 112 ELECTR. CAPACITOR	RCH1008	
Q854 DIGITAL TRANSISTOR	DTA115TS		C113, 114 AUDIO FILM CAPACITOR	CFTXA822J50	
Q855 TRANSISTOR	XDC124ES		C117, 118 ELECTR. CAPACITOR	CEAS4R7M50	
Q856 TRANSISTOR	2SC3311A		C121, 122 AXIAL CAPACITOR	CKPUYB221K50	
Q857 TRANSISTOR	2SC3246		C123, 124 AXIAL CAPACITOR	CKPUYB391K50	
			C125 CERAMIC CAPACITOR	CKCYF473Z50	
			C131, 132 AXIAL CERAMIC C.	CCPUSL100J50	
			C133, 134 AXIAL CAPACITOR	CKPUYB681K50	

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C135-138	AXIAL CAPACITOR	CKPUYB101K50		C1007	ELECTR. CAPACITOR	CEAS472M16
	C141, 142	ELECTR. CAPACITOR	CEAS470M16		C1008	CERAMIC CAPACITOR	CKCYF473Z50
	C201-204	ELECTR. CAPACITOR	CEAS010M50		C1009	CERAMIC CAPACITOR	CFTXA473J50
	C209, 210	ELECTR. CAPACITOR	CEAS4R7M50		C1010	ELECTR. CAPACITOR	CEAS222M16
	C211-214	AUDIO FILM CAPACITOR	CFTXA222J50		C1011	ELECTR. CAPACITOR	CEAS472M25
	C215, 216	ELECTR. CAPACITOR	CEASR22M50		C1012	CERAMIC CAPACITOR	CKCYF103Z50
	C217, 218	ELECTR. CAPACITOR	CEASR33M50		C1013	ELECTR. CAPACITOR	CEAS471M16
	C219, 220	ELECTR. CAPACITOR	CEYA100M50		C1014	AUDIO FILM CAPACITOR	CFTXA104J50
	C223, 224	ELECTR. CAPACITOR	CEASR33M50		C1015	ELECTR. CAPACITOR	CEAS331M16
	C225	ELECTR. CAPACITOR	CEAS010M50		C1016	ELECTR. CAPACITOR	CEAS220M50
	C233, 234	ELECTR. CAPACITOR	CEAS010M50		C1018	ELECTR. CAPACITOR	CEAS100M50
	C235, 236	ELECTR. CAPACITOR	CEAS330M16		C1020-1023	AUDIO FILM CAPACITOR	CFTXA473J50
	C241	ELECTR. CAPACITOR	CEAS101M16		C1024	ELECTR. CAPACITOR	CEAS470M16
	C251-254	ELECTR. CAPACITOR	CEAS010M50		C1025	CERAMIC CAPACITOR	CKCYF473Z50
	C259, 260	ELECTR. CAPACITOR	CEAS4R7M50		C1030	CERAMIC CAPACITOR	CKCYF473Z50
	C261-264	AUDIO FILM CAPACITOR	CFTXA222J50	△	C1203	CAPACITOR (CERAMIC)	RCG-009
	C265, 266	ELECTR. CAPACITOR	CEASR22M50		C1251, 1252	ELECTR. CAPACITOR	CEASR47M50
	C267, 268	ELECTR. CAPACITOR	CEASR33M50		C1254	ELECTR. CAPACITOR	CEAS4R7M50
	C269, 270	ELECTR. CAPACITOR	CEAS100M50		C1601, 1602	ELECTR. CAPACITOR	CEASR22M50
	C273, 274	ELECTR. CAPACITOR	CEASR33M50		C1603, 1604	ELECTR. CAPACITOR	CEAS101M16
	C275	ELECTR. CAPACITOR	CEAS010M50		C1605	ELECTR. CAPACITOR	CEAS331M16
	C281, 282	ELECTR. CAPACITOR	CEAS100M50		C1606	CERAMIC CAPACITOR	CKCYF103Z50
	C283, 284	ELECTR. CAPACITOR	CEAS010M50		C1607, 1608	CERAMIC CAPACITOR	CKCYF473Z50
	C285, 286	ELECTR. CAPACITOR	CEAS330M16		C1611	CERAMIC CAPACITOR	CKCYF473Z50
	C291	ELECTR. CAPACITOR	CEAS101M16		C1613	ELECTR. CAPACITOR	CEAS331M16
	C501, 502	AUDIO FILM CAPACITOR	CFTXA223J50		C1614	ELECTR. CAPACITOR	CEAS330M35
	C503	CERAMIC CAPACITOR	CGCYX104K25		C1615, 1616	ELECTR. CAPACITOR	CEAS100M50
	C504	AUDIO FILM CAPACITOR	CFTXA103J50		C1617, 1618	ELECTR. CAPACITOR	CEASR47M50
	C505, 506	ELECTR. CAPACITOR	CEAS010M50		C1621	CERAMIC CAPACITOR	CKCYF473Z50
	C507, 508	ELECTR. CAPACITOR	CEAS100M50		C1801	CERAMIC CAPACITOR	CKCYF473Z50
	C509, 510	CERAMIC CAPACITOR	CKCYF103Z50		<b>RESISTORS</b>		
	C511, 512	AUDIO FILM CAPACITOR	CFTXA332J50		R101-114	CARBONFILM RESISTOR	RD1/6PM□□□J
	C513	ELECTR. CAPACITOR	CEAS470M16		R117-124	CARBONFILM RESISTOR	RD1/6PM□□□J
	C514, 515	CERAMIC CAPACITOR	CKCYF103Z50		R135, 136	CARBONFILM RESISTOR	RD1/6PM□□□J
	C516	CERAMIC CAPACITOR	CKDYF103Z50		R137	METAL OXIDE RESISTOR	RS1LMF□□□J
	C701, 702	AXIAL CAPACITOR	CKPUYB101K50		R145	CARBONFILM RESISTOR	RD1/6PM□□□J
	C703, 704	ELECTR. CAPACITOR	CEAS010M50		R147-150	CARBONFILM RESISTOR	RD1/6PM□□□J
	C705	ELECTR. CAPACITOR	CEAS470M16		R203-209	CARBONFILM RESISTOR	RD1/6PM□□□J
	C706	CERAMIC CAPACITOR	CKCYF473Z50		R218	CARBONFILM RESISTOR	RD1/6PM□□□J
	C707, 708	ELECTR. CAPACITOR	CEAS100M50		R220, 221	CARBONFILM RESISTOR	RD1/6PM□□□J
	C709, 710	AXIAL CAPACITOR	CKPUYB101K50		R223	CARBONFILM RESISTOR	RD1/2LF□□□J
	C711	ELECTR. CAPACITOR	CEAS470M16		R249, 250	CARBONFILM RESISTOR	RD1/6PM□□□J
	C712, 713	AXIAL CAPACITOR	CKPUYB101K50		R251-259	CARBONFILM RESISTOR	RD1/6PM□□□J
	C761	CERAMIC CAPACITOR	CKCYF473Z50		R268	CARBONFILM RESISTOR	RD1/6PM□□□J
	C762, 763	ELECTR. CAPACITOR	CEASR10M50		R270-273	CARBONFILM RESISTOR	RD1/6PM□□□J
	C764	ELECTR. CAPACITOR	CEASR47M50		R282	CARBONFILM RESISTOR	RD1/6PM□□□J
	C765, 766	ELECTR. CAPACITOR	CEASR10M50		R299	CARBONFILM RESISTOR	RD1/6PM□□□J
	C767	CERAMIC CAPACITOR	CKCYF473Z50		R501, 502	RESISTOR ARRAY (10K)	RA4T□□□J
	C801	CERAMIC CAPACITOR	CKPUY103M16		R503	RESISTOR ARRAY (68 K)	RA8T□□□J
	C802	CERAMIC CAPACITOR	CKCYF473Z50		R504, 505	CARBONFILM RESISTOR	RD1/6PM□□□J
	C851	CERAMIC CAPACITOR	CKPUY103M16		R506	RESISTOR ARRAY (22K)	RA7T□□□J
	C852	CERAMIC CAPACITOR	CKCYF473Z50		R509	RESISTOR ARRAY (68K)	RA11T□□□J
	C1001	ELECTR. CAPACITOR	CEAS471M50		R510-516	CARBONFILM RESISTOR	RD1/6PM□□□J
	C1004	ELECTR. CAPACITOR	CEAS330M35		R518-521	CARBONFILM RESISTOR	RD1/6PM□□□J

# T-W850R, CT-W860R

Mark	No.	Description	Part No.
	R525, 526	CARBONFILM RESISTOR	RD1/6PM□□□J
	R528-531	CARBONFILM RESISTOR	RD1/6PM□□□J
	R549	CARBONFILM RESISTOR	RD1/6PM□□□J
	R701-704	CARBONFILM RESISTOR	RD1/6PM□□□J
	R707-716	CARBONFILM RESISTOR	RD1/6PM□□□J
	R721, 722	CARBONFILM RESISTOR	RD1/6PM□□□J
	R761-763	CARBONFILM RESISTOR	RD1/6PM□□□J
	R765-769	CARBONFILM RESISTOR	RD1/6PM□□□J
	R801	CARBONFILM RESISTOR	RD1/6PM□□□J
	R802	METAL OXIDE RESISTOR	RS2LMF□□□J
	R803-805	CARBONFILM RESISTOR	RD1/6PM□□□J
	R807, 808	CARBONFILM RESISTOR	RD1/6PM□□□J
	R810-812	CARBONFILM RESISTOR	RD1/6PM□□□J
	R814-816	CARBONFILM RESISTOR	RD1/6PM□□□J
	R818	CARBONFILM RESISTOR	RD1/6PM□□□J
	R851	CARBONFILM RESISTOR	RD1/6PM□□□J
	R852	METAL OXIDE RESISTOR	RS2LMF□□□J
	R853-858	CARBONFILM RESISTOR	RD1/6PM□□□J
	R860, 861	CARBONFILM RESISTOR	RD1/6PM□□□J
	R862	CARBONFILM RESISTOR	RD1/2LF□□□J
	R864-866	CARBONFILM RESISTOR	RD1/6PM□□□J
	R868	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1001	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1003	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1007-1012	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1014-1019	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1020	FUSIBLE RESISTOR	RFA1/4L□□□J
	R1205, 1206	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1251-1254	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1255, 1256	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1257-1273	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1601-1608	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1609	METAL OXIDE RESISTOR	RS2LMF□□□J
	R1611-1613	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1615-1623	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1625, 1626	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1641, 1642	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1701	RESISTOR ARRAY (22K)	RA5T□□□J
	R1702	LADDER RESISTOR	RCX1020
	R1703, 1704	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR101-104	VR	RCP1046
	VR501, 502	VR	RCP1046
	VR801	VR	VRTG6VS223
	VR802	VR	RCP1054
	VR851	VR	VRTG6VS223
	VR1251, 1252	VR	RCP1046

## OTHERS

CN701, 702	JUMPER CONNECTOR 3-P	KPC3
CN703	CONNECTOR (5P)	KPC5
CN3512		12JQ-BT
CN4022		8JQ-BT
JA701	4P PIN JACK	RKB1003
JA1602	JACK	RKN1014
JA1603, 1604	JACK	RKN1004

Mark	No.	Description	Part No.
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X501 CERAMIC RESONATOR VSS1014

## DISPLAY UNIT

### SEMICONDUCTORS

Q1501, 1502	DIGITAL TRANSISTOR	DTA114TS
D1501-1506	DIODE	1SS254
D1507	DIODE	1SS252
D1510	DIODE	1SS254

### SWITCHES

S1501	SWITCH	RSG1034
S1503-1509	SWITCH	RSG1034
S1510, 1511	SWITCH	RSH1014
S1512, 1513		RSH1024

### CAPACITORS

C1502	ELECTR. CAPACITOR	CEAS2R2M50
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### RESISTORS

R1501-1506	CARBONFILM RESISTOR	RD1/6PM□□□J
R1508-1512	CARBONFILM RESISTOR	RD1/6PM□□□J
R1514	CARBONFILM RESISTOR	RD1/6PM□□□J
VR1501		RCV1057
VR1502		RCV1071

### OTHERS

CN906		BTMK12S-1S
V1501		RAW1080

## TRANS 2 UNIT

There is no supply part in this unit.

# 7. ADJUSTMENTS

## 7.1 MECHANICAL ADJUSTMENT

- This adjustment should be performed in the test mode.
- Entering the test mode.

Short JP901 and JP902 briefly. (The unit enters the TEST MODE.)

Mode	Operation	Display
Side I Double speed play	Double speed PLAY is selected while the FAST key (Side I or II) is held down during PLAY mode of side I. (Before selecting another mode, press the STOP key first.)	C-03
Side II Double speed play	Double speed PLAY is selected while the FAST key (Side I or II) is held down during PLAY mode of Side II. (Before selecting another mode, press the STOP key first.)	C-04

To release the TEST MODE, press the side I COUNTER RESET key or turn off the unit.

1. Tape Speed Adjustment and Check						
No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Normal speed PLAY	STD-301 (3 kHz)	After playing back for 1 minute.		
2		Double speed PLAY		check	6000 Hz ± 600 Hz	
3		Normal speed PLAY		VR851	3000 Hz ± 5 Hz	
4	II	Double speed PLAY		After checking, play back on deck II.		
5		Normal speed PLAY		After playing back for 1 minute.		
6		Double speed PLAY		VR802	Within ± 10 Hz of the value measured in step 2 (deck I)	
7		Normal speed PLAY		After checking.		
8				VR801	3000 Hz ± 5 Hz	

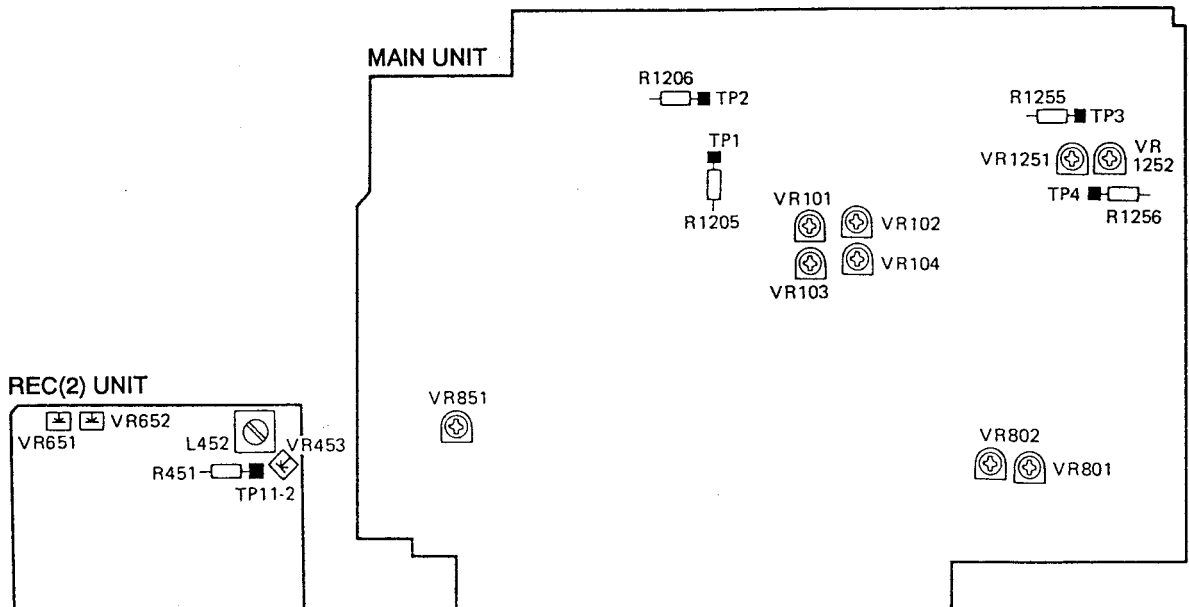


Fig. 7-1 Adjusting points

## 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  $0\text{dBv}=1\text{Vrms}$ .
5. Connect a  $50\text{ k}\Omega$  (or between  $47\text{k}$  to  $52\text{ k}\Omega$ ) 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. 7-2)
- STD-630 : NORMAL blank tape
- STD-620 :  $\text{CrO}_2$  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. AUTO BLE adjustment.

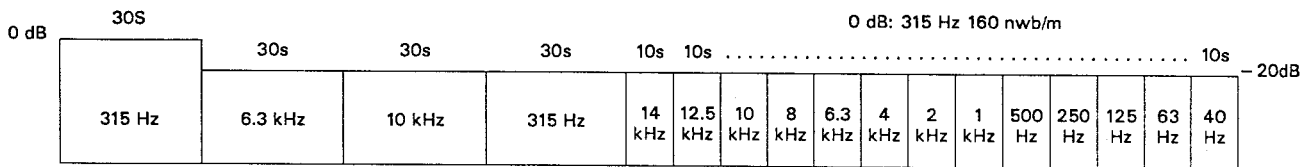


Fig. 7-2 Constants of the test tape STD-331B

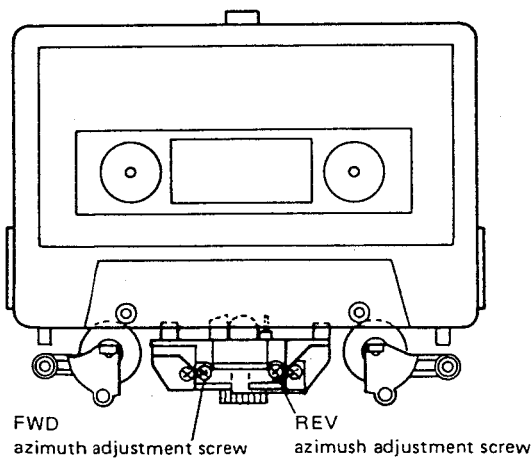


Fig. 7-3 Head azimuth adjustment

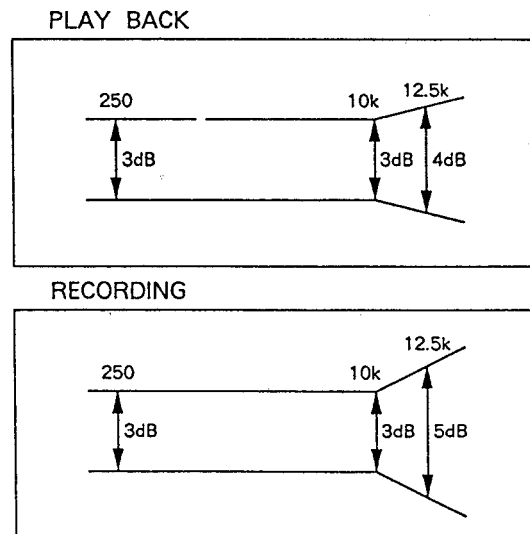


Fig. 7-4 Frequency response zone

## PLAYBACK SECTION

### 1. Head Azimuth Adjustment

- Turn VR103, 104 (Deck I) or VR101, 102 (Deck II) 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. 7-3)	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	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	−10.7 dBv	
			Deck II	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)		

## 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 II	L 452	TP. 11-2	105 kHz $\begin{matrix} +3 \\ -0.5 \end{matrix}$ kHz

### 2. Erase Current Adjustment

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

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 II	VR453	TP. 11-2	170 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 II	VR651 (Lch) VR652 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes $+0.5 \text{ dB} \pm 0.5 \text{ dB}$ when compared with the 315 Hz signal.

### 4. 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 315 Hz/0 dBv 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 II	VR1251 (Lch) VR1252 (Rch)	TP. 1 (Lch) TP. 2 (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 <sub>2</sub> 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 $\pm 1.5 \text{ dB}$	
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 (Lch) TP. 2 (Rch)	−11.2 dBv $\pm 1.5 \text{ dB}$	

## 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 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within − 11.2 dBv ± 2 dB of the signal output level.	

## 6. AUTO BLE Adjustment

- BLE adjustment must be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode. (Refer to page 29.)

No.	Mode	Input signal/Test mode	Adjusting point	Measuring point	Adjusting value	Remarks
1.		Set to the test mode.	—	—	—	
2.	—	Press the PAUSE (Deck II) key on the front panel.	Level meter	VR501	Adjust so that 0 dB lights up on the level meter.	400 Hz adjustment
3.		Press the REC (Deck II) key.		VR502	Adjust so that 0 dB lights up on the level meter.	10 kHz adjustment



## 7. RÉGLAGES

### 7.1 RÉGLAGE MECANIQUE

- Ce réglage doit être effectué dans le mode d'essai.
- Passage au mode d'essai.

Court-circuiter brièvement JP901 et JP902. (L'appareil passe dans le MODE D'ESSAI).

Mode	Opération	Indication
Lecture (PLAY) double vitesse pour le côté I	La lecture double vitesse est sélectionnée lorsque la touche FAST (côté I ou II) est maintenue enfoncée pendant le mode lecture (PLAY) du côté I. (Avant de sélectionner un autre mode, appuyer tout d'abord sur la touche STOP).	C-03
Lecture (PLAY) double vitesse pour le côté II	La lecture double vitesse est sélectionnée lorsque la touche FAST (côté I ou II) est maintenue enfoncée pendant le mode lecture (PLAY) du côté II. (Avant de sélectionner un autre mode, appuyer tout d'abord sur la touche STOP).	C-04

Pour sortir du MODE D'ESSAI, appuyer sur la touche COUNTER RESET du côté I ou mettre l'appareil hors circuit.

No.	Platine	Mode	Bande test	Points de réglage	Spécifications/valeurs (fréquence de lecture)	Remarques
1	I	Lecture à vitesse normale	STD-301 (3 kHz)	Après reproduction pendant 1 minute.		
2		Lecture à vitesse double		Vérifier	6000 Hz ± 600 Hz	
3		Lecture à vitesse normale		VR851	3000 Hz ± 5 Hz	
4	II	Lecture à vitesse normale		Après le contrôle, reproduire sur la Platine II.		
5		Lecture à vitesse double		Après reproduction pendant 1 minute.		
6		Lecture à vitesse normale		VR802	Dans la limite de +/- 10 Hz de la valeur mesurée à l'étape 2 (Platine I).	
7		Lecture à vitesse normale		Après le contrôle		
8				VR801	3000 Hz ± 5 Hz	

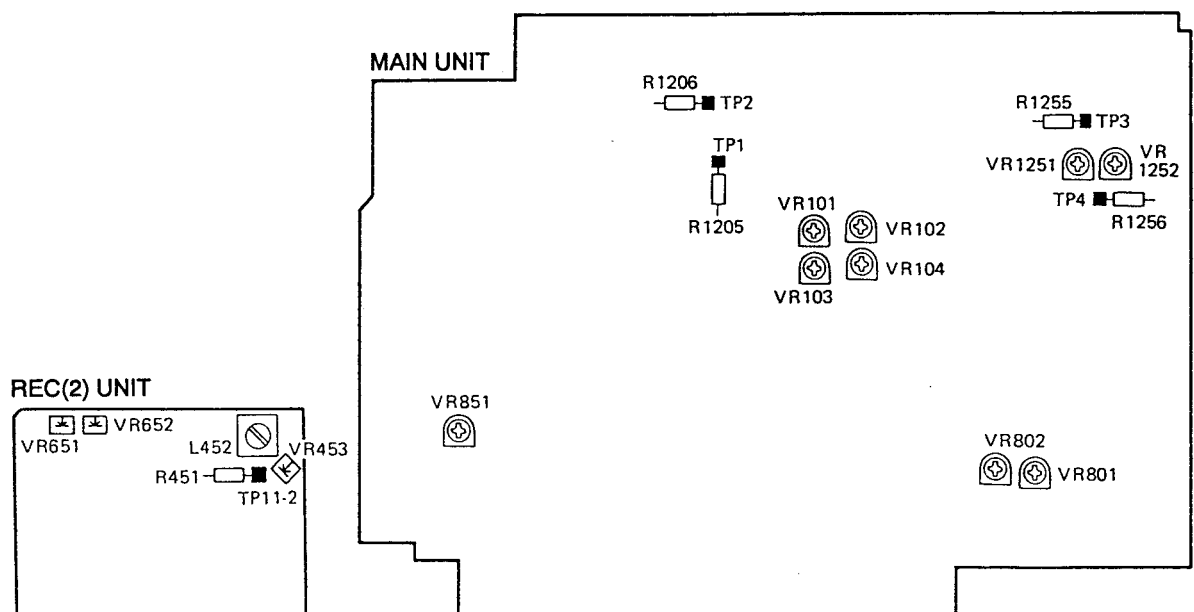


Fig. 7-1 Points de réglage

## 7.2 REGLAGES ELECTRIQUES

### Conditions de réglage

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de  $\text{dBv}=1 \text{ Vrms}$ .
5. Connecter une résistance de charge de  $50 \text{ k}\Omega$  (tolérance  $47\text{k}$  à  $52 \text{ k}\Omega$ ) aux bornes de sortie (OUTPUT).
6. Sauf indication contraire, les commutateurs ci-dessous doivent être laissés sur les positions indiquées.  
**DOLBY NR** : OFF  
**Sélecteur de bande** : NORM  
 (TAPE SELECTOR)

### Bandes d'essai

- STD-331B : Réglages de la lecture  
(Voir fig. 7-2)
- STD-630 : Bande vierge de type normal
- STD-620 : Bande vierge de type chrome
- STD-610 : Bande vierge de type métal

### Liste des réglages

#### Sections de lecture

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

#### Sections d'enregistrement

1. Réglage de l'oscillateur de polarisation.
2. Réglage du courant d'effacement.
3. Réglage de la polarisation d'enregistrement.
4. Réglage du niveau d'enregistrement.
5. Vérification de l'indicateur de niveau.
6. Réglage de AUTO BLE.

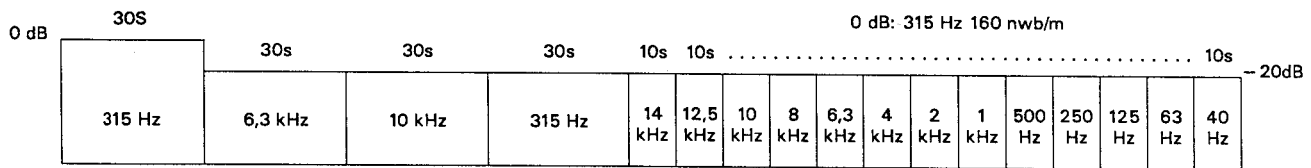


Fig. 7-2 Constantes de la bande d'essai STD-331B

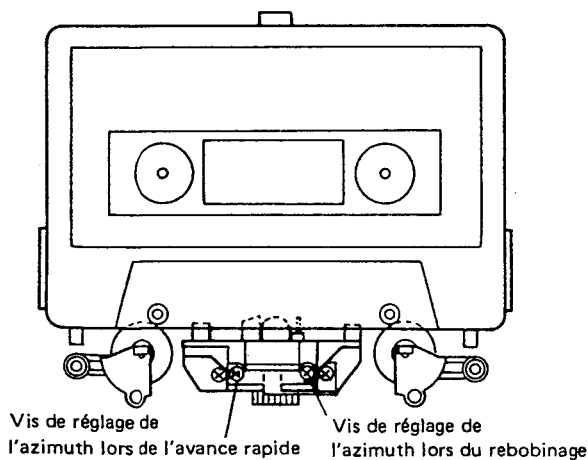
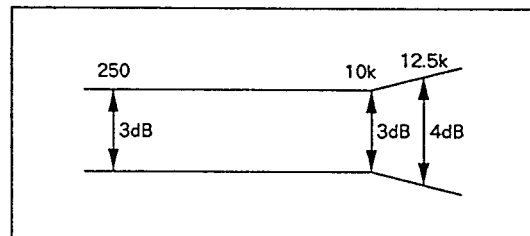


Fig. 7-3 Réglage de l'azimut de la tête

### LECTURE



### ENREGISTREMENT

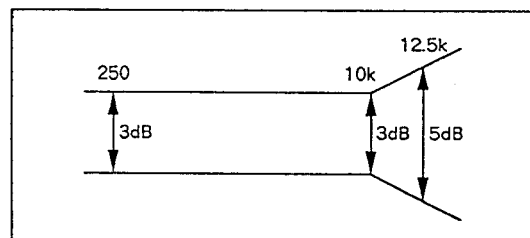


Fig. 7-4 Zone de réponse en fréquence

**SECTION DE LECTURE**

**1. Réglage de l'azimut de la tête**

• Tourner VR103, 104 (Platine I) ou VR101, 102 (Platine II) sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/−20 dB de la bande d'essai STD-331B.	Vis de réglage de l'azimut de la tête. (Voir fig. 7-3)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

**2. Réglage du niveau de lecture**

• Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD-331B.	Platine I VR103 (can. G) VR104 (can. D)	TP. 1 (can. G) TP. 2 (can. D)	−10,7 dBv	
			Platine II VR101 (can. G) VR102 (can. D)	TP. 3 (can. G) TP. 4 (can. D)		

**SECTION D'ENREGISTREMENT**

**1. Réglage de l'oscillateur de polarisation**

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD-610 et n'introduire aucun signal.	Platine II L452	TP. 11-2	105 kHz $\pm 3$ −0,5 kHz	

**2. Réglage du courant d'effacement**

• Régler l'oscillateur de polarisation, les platines I et II étant réglées indépendamment dans le mode d'enregistrement. ← (Enr/lec double seulement)

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD-610 et n'introduire aucun signal.	Platine II VR 453	TP. 11-2	170 mV AC	

**3. Réglage de la polarisation d'enregistrement**

• Après le réglage, des précautions doivent être prises pour éviter une sous-polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de −20 dBv et les reproduire.	Platine II VR651 (can. G) VR652 (can. D)	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne +0,5 dB $\pm 0,5$ dB lorsqu'il est comparé avec le signal 315 Hz.	

## 4. Réglage du niveau d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position NORM.				
2.	REC PAUSE	Appliquer un signal de 315 Hz/0 dBv aux bornes d'entrée de ligne, charger la bande d'essai STD-630.	Volume de la commande de niveau d'enregistrement.	TP. 1 (can. G) TP. 2 (can. D)	- 11,2 dBv	
3.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)				
4.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-630 et le reproduire.	Platine II VR1251 (can.G) VR1252 (can.D)	TP. 1 (can. G) TP. 2 (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne - 11,2dB.	
5.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position CrO2.				
6.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-620 et le reproduire.	Vérifier	TP. 1 (can. G) TP. 2 (can. D)	- 11,2 dBv ± 1,5 dB	
7.	STOP	Régler le sélecteur de bande (TAPE SELECTOR) sur la position METAL.				
8.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.	Vérifier	TP. 1 (can. G) TP. 2 (can. D)	- 11,2 dBv ± 1,5 dB	

## 5. Vérification de l'indicateur de niveau

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC PAUSE	Appliquer un signal de 315 Hz/- 10 dBv (316 mV) aux bornes d'entrée de ligne.	Volume de la commande de niveau d'enregistrement	TP. 1 (can. G) TP. 2 (can. D)	Vérifier que les indicateurs de niveau "0 dB" s'allument dans la limite de - 11,2 dBv ± 2 dB du niveau de sortie du signal.	

## 6. Réglage de AUTO BLE

- Le réglage de BLE doit être effectués que tous les autres réglages ont été complétés.
- Ce réglage doit être effectué dans le mode d'essai.
- Passage au mode d'essai. (Se reporter page 33.)

No.	Mode	Signal d'entrée/ Bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
1.		Régler dans le mode d'essai.	—	—	—	
2.		Appuyer sur la touche PAUSE (Platine II) du panneau avant.	Indicateur de niveau.	VR501	Régler afin que 0 dB s'allume sur l'indicateur de niveau.	Réglage 400 Hz
3.		Appuyer sur la touche REC (Platine II).		VR502	Régler afin que 0 dB s'allume sur l'indicateur de niveau.	Réglage 10 kHz

## 7. AJUSTES

### 7.1 AJUSTE MECANICO

- Este ajuste debe efectuarse en el modo de prueba.
- Cómo poner el modo de prueba

Cortocircuite JP901 y JP902 durante un corto tiempo. (La unidad se pondrá en el MODO DE PRUEBA).

Mode	Operación	Indicación
Reproducción a doble velocidad para el lado I	La reproducción a doble velocidad se selecciona al mantener pulsada la tecla FAST (lado I o II) durante la reproducción del lado I. (Antes de seleccionar otro modo, pulse primero la tecla STOP).	C-03
Reproducción a doble velocidad para el lado II	La reproducción a doble velocidad se selecciona al mantener pulsada la tecla FAST (lado I o II) durante la reproducción del lado II. (Antes de seleccionar otro modo, pulse primero la tecla STOP).	C-04

Para cancelar el modo de prueba, pulse la tecla COUNTER RESET del lado I o desconecte la alimentación de la unidad.

1. Ajuste y verificación de la velocidad de cinta						
No.	Platina	Modo	Cinta de prueba	Puntos de ajuste	Especificaciones/valores nominales (frecuencia de reproducción)	Comentarios
1	I	PLAY (velocidad normal)	STD-301	Después de reproducir durante 1 minuto.		
2		PLAY (velocidad doble)		Verificar	6000 Hz ± 600 Hz	
3		PLAY (velocidad normal)		VR851	3000 Hz ± 5 Hz	
4	II	PLAY (velocidad normal)	(3 kHz)	Después de verificar, reproduzca en la platina II.		
5		PLAY (velocidad doble)		Después de reproducir durante 1 minuto.		
6		PLAY (velocidad normal)		VR802	Dentro de +/− 10 Hz del valor medido en el paso 2 (platina I).	
7				Después de verificar.		
8			VR801	3000 Hz ± 5 Hz		

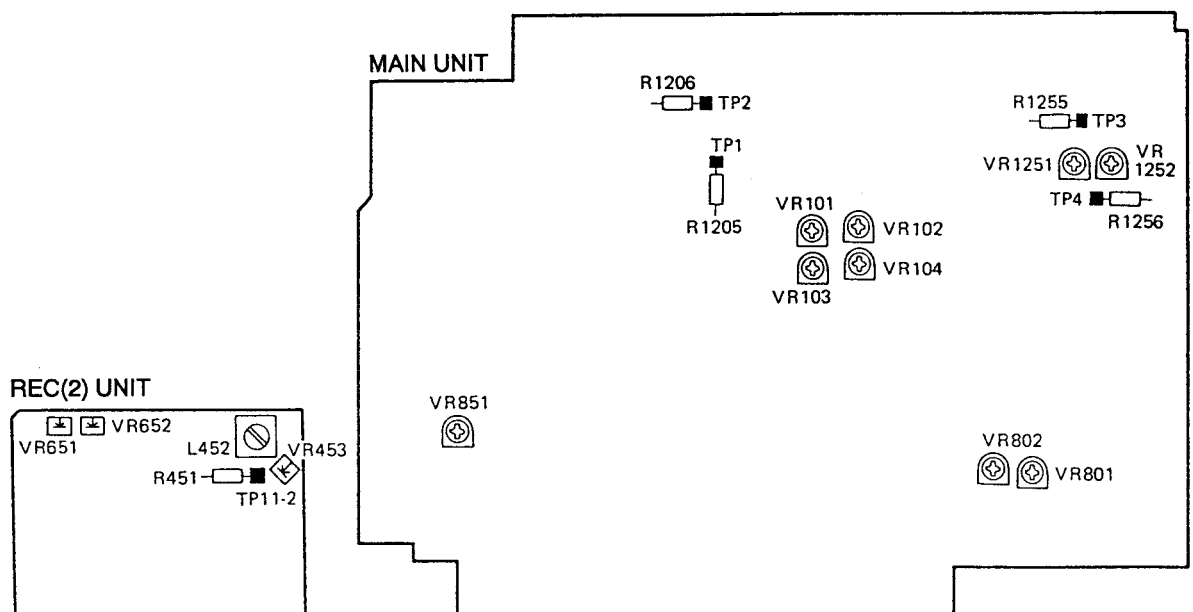


Figura 7-1 Puntos de ajuste

## 7.2 AJUSTES ELÉCTRICOS

### Condiciones de ajuste

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de  $0\text{ dBv} = 1\text{ Vrms}$ .
5. Conecte una resistencia de  $50\text{ k}\Omega$  (o entre  $47\text{ k}\Omega$  y  $52\text{ k}\Omega$ ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.

DOLBY NR : OFF  
 TAPE SELECTOR : NORM

### Cintas de prueba

- STD-331B : Ajustes de reproducción  
 (Consulte la figura 7-2)
- STD-630 : Cinta virgen NORMAL
- STD-620 : Cinta virgen de CrO<sub>2</sub>
- STD-610 : Cinta virgen de METAL

### Lista de ajustes

#### Secciones de reproducción

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

#### Secciones de grabación

1. Ajuste del oscilador de polarización
2. Ajuste de la corriente de borrado
3. Ajuste de la polarización de grabación
4. Ajuste del nivel de grabación
5. Verificación del medidor de nivel
6. Ajuste BLE automático

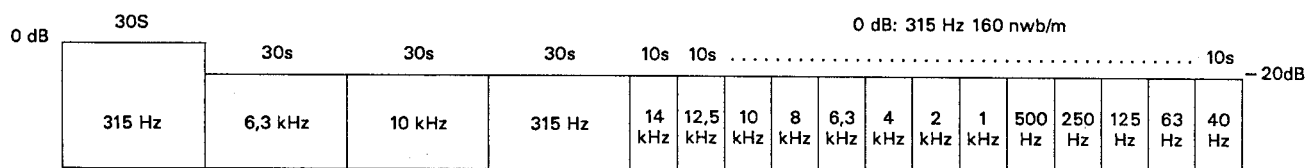


Figura 7-2 Constantes de la cinta de prueba STD-331B

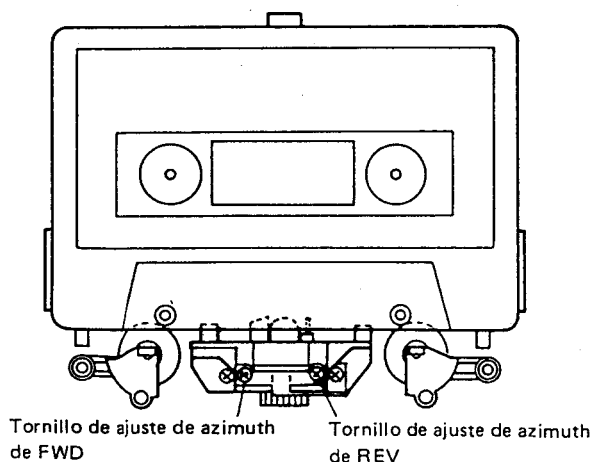
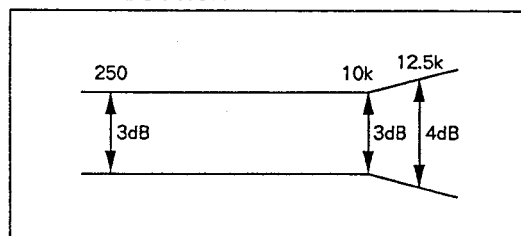


Figura 7-3 Ajuste de azimut de la cabeza

### REPRODUCCIÓN



### GRABACIÓN

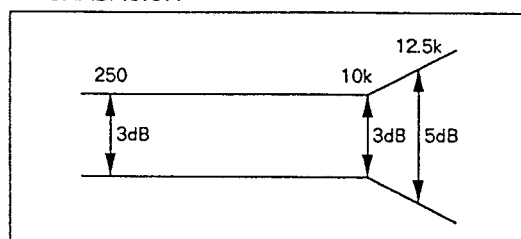


Figura 7-4 Zona permisible de respuesta de frecuencia de reproducción

**SECCION DE REPRODUCCION**

**1. Ajuste del azimut de la cabeza**

• Poner VR103, 104 (platina I) o VR101, 102 (platina II) en las posiciones del centro mecánico.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/ -20 dB de la cinta de prueba STD-331B.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 7-3)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

**2. Ajuste del nivel de reproducción**

• Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD-331B.	Platina I	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	-10,7 dBv
			Platina II	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	

**SECCIÓN DE GRABACIÓN**

**1. Ajuste del oscilador de polarización**

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD-610 sin señal de entrada.	Platina II	L 452	TP. 11-2	105 kHz $\begin{matrix} +3 \\ -0,5 \end{matrix}$ kHz

**2. Ajuste de la corriente de borrado**

• Ajuste el oscilador de polarización con las platinas I y II puestas independientemente en el modo de grabación. ← (Doble G/R sólo)

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD-610 sin señal de entrada.	Platina II	VR453	TP. 11-2	170 mV AC

**3. Ajuste de polarización de grabación**

• Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de -20 dBv y reproduzca.	Platina II	VR651 (Lch) VR652 (Rch)	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de + 0,5 dB $\pm$ 0,5 dB cuando se compare con la señal de 315 Hz.

## 4. Ajuste del nivel de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	STOP	Ponga el conmutador TAPE SELECTOR en la posición NORM.				
2.	REC PAUSE	Aplique una señal de 315 Hz/0 dBv a los terminales de entrada de línea e introduzca la cinta de prueba STD-630.	Control de nivel de grabación.	TP. 1 (Lch) TP. 2 (Rch)	- 11,2 dBv	
3.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)				
4.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-630 y reproduzca.	Platina II VR1251 (Lch) VR1252 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de - 11,2 dB.	
5.	STOP	Ponga el conmutador TAPE SELECTOR en la posición CrO2.				
6.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-620 y reproduzca.	Verifique	TP. 1 (Lch) TP. 2 (Rch)	- 11,2 dBv ± 1,5 dB	
7.	STOP	Ponga el conmutador TAPE SELECTOR en la posición METAL.				
8.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD-610 y reproduzca.	Verifique	TP. 1 (Lch) TP. 2 (Rch)	- 11,2 dBv ± 1,5 dB	

## 5. Verificación del medidor de nivel

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC PAUSE	Aplique una señal de 315 Hz/ - 10 dBv (316 mV) a los terminales de entrada de línea.	Control de nivel de grabación	TP. 1 (Lch) TP. 2 (Rch)	Verifique si se encienden los medidores de nivel "0 dB" cuando el nivel de salida de la señal sea - 11,2 dBv ± 2 dB.	

## 6. Ajuste BLE Automático

- El ajuste BLE debe efectuarse después de haber terminado todos los otros ajustes.
- Este ajuste debe efectuarse en el modo de prueba.
- Cómo poner el modo de prueba (consúltese la página 37.)

N.º	Modo	Señal de entrada/cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Observaciones
1.		Ponga el modo de prueba.	—	—	—	
2.	—	Pulse la tecla PAUSE (Platina II) del panel delantero.	Medidor de nivel	VR501	Ajuste de modo que se ilumine 0 dB en el medidor de nivel.	Ajuste de 400 Hz
3.		Pulse la tecla REC (platina II).		VR502	Ajuste de modo que se ilumine 0 dB en el medidor de nivel.	Ajuste de 10 kHz



## 8. IC DESCRIPTIONS

### 8.1 PD4296A PIN FUNCTIONS

Pin No.	Name	Function	I/O	Voltage (V) in "H"	Voltage (V) in "L"
1 to 4 55, 58 to 63	S0 to S10	Segment terminal for display, key scan and level scan S0 to S10 → Display S0 to S9 → Key scan S0 to S4 → Level scan	O	4 to 5	approx. -28
40 to 50	T0 to T10	Grid terminal for display	O	4 to 5	approx. -28
5 to 8	KEYIN0 to KEYIN3	Input port for key scan	I	3.75 to 5	0 to 1
9	POWER OFF	When POWER OFF: "H"	I	3.5 to 5	0 to 1.5
10	REMOCON	Remote control code input port When no remote control code input: "H"	I	3.5 to 5	0 to 1.5
11 12	METER L METER R	Lch level scan input port Rch level scan input port	I	3.75 to 5	0 to 1
13 14	SENSING2 SENSING1	SENSING input port side 2 SENSING input port side 1 When right side reel base is rotating: When right side reel base is stopped, "H" or "L" is constant.	I	3.5 to 5	0 to 1.5
15	SONG	SONG input port When there is a signal input to MS circuit: "H" When no signal input: "L"	I	3.5 to 5	0 to 1.5
16	FROM CD	CD SYNCHRO input port REC/PAUSE by EDGE input in "H". REC (release PAUSE) by EDGE input in "L".	I	3.5 to 5	0 to 1.5
17	REC MUTE1	REC MUTE output terminal side 1. "H": REC MUTE ON	O	4 to 5	0 to 0.5
18	LINE MUTE	LINE MUTE output terminal. "L": LINE MUTE ON	O	4 to 5	0 to 0.5
19 20	LEADER1 LEADER2	LEADER TAPE input port side 1 LEADER TAPE input port side 2 TAPE LEADER portion: "H"	I	3.5 to 5	0 to 1.5
21	REC MUTE2	REC MUTE output terminal side 2. "H": REC MUTE ON	O	3.25 to 5	0 to 1
22	BIAS2	BIAS ON output port side 2. "H": BIAS ON	O	3.25 to 5	0 to 1
23	SOL A2	SOLENOID A output port side 2	O	3.25 to 5	0 to 1
24	SOL B2	SOLENOID A low voltage control port side 2. "H": low voltage	O	3.25 to 5	0 to 1
25	RM-R2	REEL MOTOR RIGHT output port side 2	O	3.5 to 5	0 to 1.5
26	RM-L2	REEL MOTOR LEFT output port side 2	O	3.5 to 5	0 to 1.5
27	CPM2	CAPSTAN MOTOR output port side 2	O	3.5 to 5	0 to 1.5
28	RM-PLAY2	REEL MOTOR PLAY TORQUE output port side 2	O	3.5 to 5	0 to 1.5
29	400 Hz/10 kHz OSC	AUTO BLE rectangular wave output terminal	O	4.6 to 5	0 to 0.4

# T-W850R, CT-W860R

Pin No.	Name	Function	I/O	Voltage (V) in "H"	Voltage (V) in "L"
30 31	X1 X2	Ceramic lock connection terminal for main system clock oscillation		4.6 to 5	0 to 0.4
32	Vss	Ground potential terminal			
35	$\overline{\text{BLK}}$	Extension control output terminal. "H": extension output ON	O	4 to 5	0 to 2
36	DATA	Extension output DATA terminal	O	4 to 5	0 to 2
37	CLK	Extension control output terminal	O	4 to 5	0 to 2
38	WR	Extension control output terminal	O	4 to 5	0 to 2
39	$\overline{\text{RESET}}$	RESET: "L"	I	3.75 to 5	0 to 1
51	BIAS1	BIAS ON output port side 1. "H": BIAS ON	O	4 to 5	0 to 0.5
52	COPY	COPY output terminal When COPY: "H". Sets analog switch (Pins ⑤ and ⑥ of IC506) to "H" and Pins ⑫ and ⑬ to "L", and selects the signal pass as follows: LINE OUT of DOLBY IC side 1 → COPY VR → LINE IN of DOLBY IC side 2	O	4 to 5	-4 to -5
53	BLE ON	BLE ON output terminal When AUTO BLE: "H" When TEST MODE: "H"	O	4 to 5	-4 to -5
54	OSC FRQ SEL	OSCILLATOR FREQUENCY SELECT output terminal During AUTO BLE (TEST MODE); 400 Hz: "H" 10 kHz: "L"	O	4 to 5	-4 to -5
56	VLOAD	Connected nowhere inside the microprocessor. Open terminal (used when mask option)			
57	VPRE	Power supply terminal for FL display output buffer		-3.5 to -5	

8.2 LC7570 PIN FUNCTIONS

Pin No.	Name	Function	I/O	Voltage (V) in "H"	Voltage (V) in "L"
1	VFL	Pull-down resistor common terminal (pulled down to ground)			
2	WR	Extension control input terminal	I	3.5 to 5	0 to 1.5
3	CLK	Extension control input terminal	I	3.5 to 5	0 to 1.5
4	DATA	Extension input DATA terminal	I	3.5 to 5	0 to 1.5
5	VDD	Power terminal (+5V)			
6	BLK	Extension control input terminal BLK= "L" (Vss)... extension output OFF BLK= "H" (VDD)... extension output ON	I	3.5 to 5	0 to 1.5
7	VSS	Power terminal (GND)			
9 10	2×2 1×1	Double speed control output terminal side 2 Double speed control output terminal side 1 When double speed copy: "H"	O	2.2 to 5	0 to 2.2
11	DOLBY SELECT	DOLBY IC SELECT control output terminal When DOLBY IC side 1 is selected: "H" When decoding side 1 and double speed copying: "H"	O	2.2 to 5	0 to 2.2
12	RECOVERY FAST	RECOVERY FAST/SLOW control output terminal Controls time constant in meter circuit. The falling at level input becomes sooner in "H" level. When LINE MUTE is closed: "H", when fetching the playback signal during AUTO-BLE: "H".	O	2.2 to 5	0 to 2.2
13	TOCD	CD DECK SYNCHRO COPY control output terminal When DECK REC (CD play) mode: "H"	O	2.2 to 5	0 to 2.2
14	DECODE2	ENCODE/DECODE control output port side 2 When PLAY, PLAY/PAUSE, CUE and REVIEW modes in side 2: "H"	O	2.2 to 5	0 to 2.2
15	RM-PLAY1	REEL MOTOR PLAY TORQUE output port side 1	O	2.2 to 5	0 to 2.2
16	CPM1	CAPSTAN MOTOR output port side 1	O	2.2 to 5	0 to 2.2
17	RM-L1	REEL MOTOR LEFT output port side 1	O	2.2 to 5	0 to 2.2
18	RM-R1	REEL MOTOR RIGHT output port side 1	O	2.2 to 5	0 to 2.2
19	SOL B1	SOLENOID A low voltage control port side 1. "H": low voltage	O	2.2 to 5	0 to 2.2
20	SOL A1	SOLENOID A output port side 1	O	2.2 to 5	0 to 2.2
21	DECODE1	ENCODE/DECODE control output port side 1 When PLAY, PLAY/PAUSE, CUE and REVIEW modes in side 1: "H"	O	2.2 to 5	0 to 2.2
22	×2 COPY DSP	When double speed copy: display control output port. When double speed copy: "H" (When double speed copy: lights off the DOLBY B and C displays.)	O	2.2 to 5	0 to 2.2
26 25 24 23	2LEVEL-0 2LEVEL-1 2LEVEL-2 2LEVEL-3	AUTO-BLE LEVEL adjustment DATA output port side 2 When AUTO-BLE is not adjusted: 2LEVEL-3: "H" 2LEVEL-2: "L" 2LEVEL-1: "L" 2LEVEL-0: "L"	O	2.2 to 5	0 to 2.2

Pin No.	Name	Function	I/O	Voltage (V) in "H"	Voltage (V) in "L"
30 29 28 27	2EQ-0 2EQ-1 2EQ-2 2EQ-3	AUTO-BLE EQUALIZER adjustment DATA output port side 2 When AUTO-BLE is not adjusted: 2EQ-3: "L" 2EQ-2: "H" 2EQ-1: "H" 2EQ-0: "H"	O	2.2 to 5	0 to 2.2
32 31	2BIAS-0 2BIAS-1	AUTO-BLE BIAS adjustment DATA output port side 2 When AUTO-BLE is not adjusted: 2BIAS-1: "H" 2BIAS-0: "L"	O	2.2 to 5	0 to 2.2
34 33	1BIAS-0 1BIAS-1	AUTO-BLE BIAS adjustment DATA output port side 1 When AUTO-BLE is not adjusted: 1BIAS-1: "H" 1BIAS-0: "L"	O	2.2 to 5	0 to 2.2
38 37 36 35	1EQ-0 1EQ-1 1EQ-2 1EQ-3	AUTO-BLE EQUALIZER adjustment DATA output port side 1 When AUTO-BLE is not adjusted: 1EQ-3: "L" 1EQ-2: "H" 1EQ-1: "H" 1EQ-0: "H"	O	2.2 to 5	0 to 2.2
42 41 40 39	1LEVEL-0 1LEVEL-1 1LEVEL-2 1LEVEL-3	AUTO-BLE LEVEL adjustment DATA output port side 1 When AUTO-BLE is not adjusted: 1LEVEL-3: "H" 1LEVEL-2: "L" 1LEVEL-1: "L" 1LEVEL-0: "L"	O	2.2 to 5	0 to 2.2

## 9. FOR CT-W850R/HEM, HB AND CT-W860R/SD TYPES

### CONTRAST OF MISCELLANEOUS PARTS

**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  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-W850R/HEM, HB and CT-W860R/SD types are the same as the CT-W850R/KUC type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		CT-W850R/ KUC type	CT-W850R/ HEM type	CT-W850R/ HB type	CT-W860R/ SD type	
	Main unit	Non supply	Non supply	Non supply	Non supply	
	Display unit	Non supply	Non supply	Non supply	Non supply	
$\Delta$	Strain relief	CM-22C	CM-22B	CM-22B	CM-22B	
$\Delta$	AC Power cord	PDG1002	PDG1003	PDG1036	PDG1013	
$\Delta$	Fuse (1.5A/125V, FU1001, 1002)	REK1001	.....	.....	.....	
$\Delta$	Fuse (T1.6A/250V, FU1001, 1002)	.....	REK-102	REK-102	REK-102	
$\Delta$	Power transformer (AC120V)	RTT1162	.....	.....	.....	
$\Delta$	Power transformer (AC220-230/230-240V)	.....	RTT1163	RTT1163	.....	
$\Delta$	Power transformer (AC110/120-127/220/240V)	.....	.....	.....	RTT1164	
	Line voltage selector	.....	.....	.....	PSB1002	
	FL filter	RAH1596	RAH1597	RAH1597	RAH1672	
	FL lens	RAH1594	RAH1594	RAH1594	RAH1587	
	Front panel assembly	RXX1369	RXX1371	RXX1371	RXX1370	
	Packing case	RHG1291	RHG1239	RHG1239	RHG1267	
	Operating instructions (English)	RRB1079	.....	RRB1079	RRB1079	
	Operating instructions (Dutch/Spanish/Portuguese/Swedish)	.....	RRD1096	.....	.....	
	Operating instructions (English/French/Dutch/Italian)	.....	RRE1039	.....	.....	
	Absorb plate (B)	.....	PNB1109	PNB1109	.....	
	Connection cord (Mini)	PDE-319	.....	.....	.....	
	Remote control unit	.....	.....	.....	RPX1020	
	Case (C)	.....	.....	.....	VNK-634	Battery cover

**MAIN UNIT**

The main units (for CT-W850R/HEM, HB and CT-W860R/SD types) are the same as the main unit (for CT-W850R/KUC type) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		CT-W850R/ KUC type	CT-W850R/ HEM and HB types	CT-W860R/ SD type	
	D1604-D1606 C117, C118, C209, C210, C259, C260 C141, C142, C705, C711 C201-C204, C233, C234, C251-C254, C283, C284, C703, C704 C215, C216, C265, C266, C1601, C1602  C217, C218, C223, C224, C267, C268, C273, C274 C235, C236, C285, C286 C241, C291, C1603, C1604 C269, C270, C281, C282, C707, C708 C1011  C1013 C1251, C1252 C1605 C1608 JA1603, JA1604	1SS254 CEAS4R7M50 CEAS470M16 CEAS010M50  CEASR22M50  CEASR33M50  CEAS330M16 CEAS101M16 CEAS100M50 CEAS472M25  CEAS471M16 CEASR47M50 CEAS331M16 CKCYF473Z50 RKN1004	..... CEYA4R7M50 CEYA470M16 CEYA010M50  CEYAR22M50  CEYAR33M50  CEYA330M16 CEYA101M16 CEYA100M50 RCH1060  CEZA471M16 CEYAR47M50 CEYA331M16 ..... .....	..... CEAS4R7M50 CEAS470M16 CEAS010M50  CEASR22M50  CEASR33M50  CEAS330M16 CEAS101M16 CEAS100M50 CEAS472M25  CEAS471M16 CEASR47M50 CEAS331M16 ..... .....	

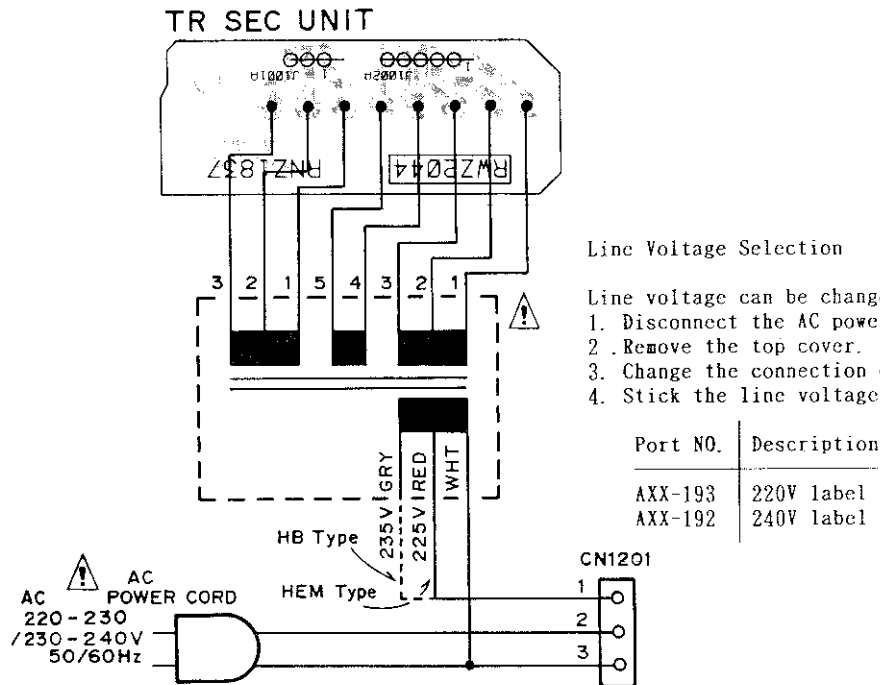
**DISPLAY UNIT**

● The display units (for CT-W850R/HEM and HB types) are the same as the display unit (for CT-W850R/KUC type) with the exception of the following sections.

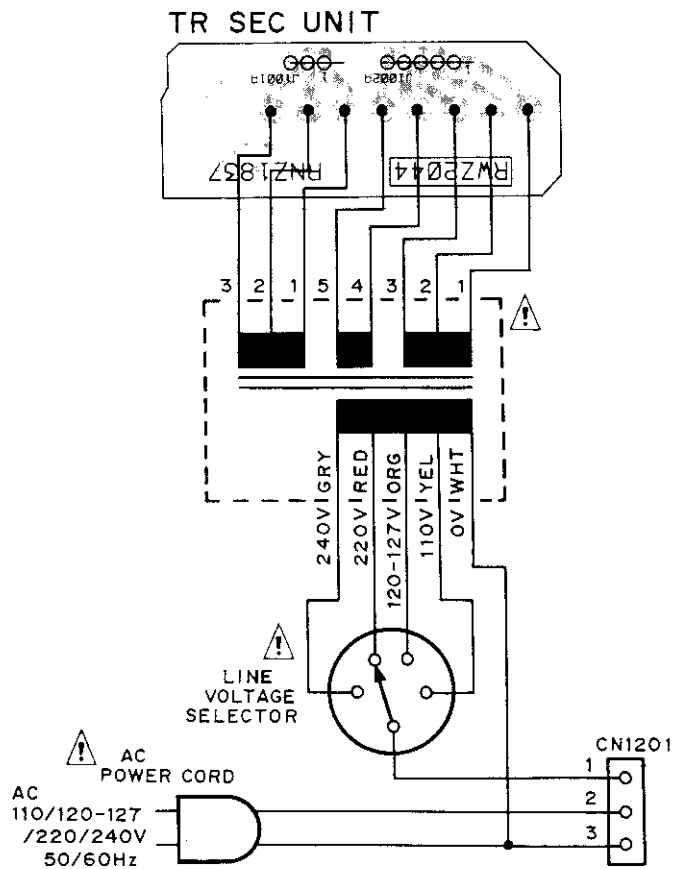
● The display unit (for CT-W860R/SD type) is the same as the display unit (for CT-W850/KUC type).

Mark	Symbol & Description	Part No.			Remarks
		CT-W850R/ KUC type	CT-W850R/ HEM and HB types	CT-W860R/ SD type	
	V1501 IC151 (Remocon, Sensor)	RAW1080 .....	RAW1076 .....	RAW1080 HC-177	

**POWER supply section for HEM and HB types**



**POWER supply section for SD type**



## 10. SPECIFICATIONS

System .....	4 track, 2-channel stereo
Heads .....	"Hard Permalloy" recording/playback head × 1
	"Hard Permalloy" playback head × 1
	"Ferrite" erasing head × 1
Motor .....	DC servo capstan motor × 2
	DC reel motor × 2
Wow and Flutter .....	No more than 0.055% (WRMS) (JIS)
	No more than ±0.16% (DIN)
Fast Winding Time .....	Approximately 90 seconds
	(C-60 tape)

### Frequency Response

-20 dB recording:

Metal tape ..... 20 to 20,000 Hz

Chrome tape ..... 20 to 19,000 Hz

Normal tape ..... 20 to 18,000 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 57 kΩ)

### Output (Reference level)

LINE (OUTPUT) ..... 316 mV (Output impedance 3.2 kΩ)

Headphone ..... 0.25 mW (Load impedance 8 Ω)

### Subfunctions

- AUTO BLE system (only on deck II)
- DOLBY HX PRO recording function (only on deck II)
- DOLBY B/C types NR
- Music search over ±15 selections
- High-speed and normal-speed copy (DECK I→DECK II)
- Relay playback/blank skip
- CD•DECK SYNCHRO recording capability
- Peak level meter with peak-hold function
- Automatic space recording mute
- Automatic tape selector
-  System remote control available (U.S. and Canadian model)
- TIMER Recording
- TIMER Playback (Automatic relay on)
- 2-mode electronic 4-digit twin tape counter
- Headphone jack
- Wireless remote control operation (CT-W860R)
- Copy level control (normal speed copy)
- Dolby NR type convertible copy (normal speed copy)

### Miscellaneous

#### Power Requirements

U.S., Canadian models ..... AC 120V, 60 Hz

Australian models ..... AC 230-240 Volts~, 50/60 Hz

U.K. models ..... AC 230-240 Volts~, 50/60 Hz

European models ..... AC 220-230 Volts~, 50/60 Hz

Multi-voltage models ..... AC 110V/120V-127V/220V/240V  
(switchable), 50/60 Hz

#### Power Consumption

CT-W850R ..... 29W

CT-W860R ..... 29W

Dimensions ..... 420(W) × 135(H) × 318.5(D) mm


16-9/16(W) × 5-5/16(H) × 12-7/16(D) in

Weight (without package) ..... 5.6 kg (12 lb 4 oz.)

### Accessories

Operating instructions ..... 1

Connection cord with pin plugs ..... 2

 Remote control cord

(U.S. and Canadian models) ..... 1

CD•DECK SYNCHRO control cord ..... 1

Remote control unit(CT-W860R) ..... 1

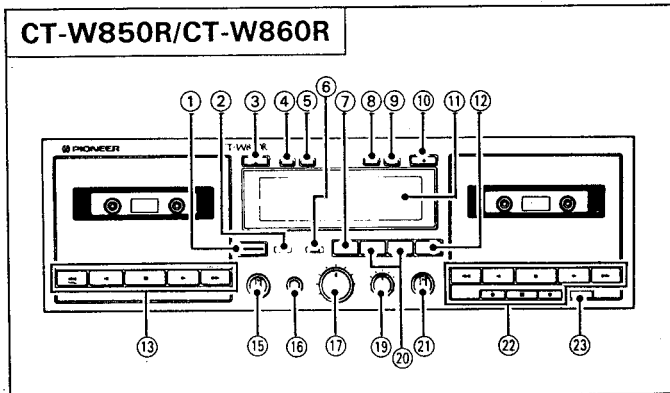
Dry cell batteries (size AAA/IEC R03) (CT-W860R) ..... 2

#### NOTE:

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



## 11. PANEL FACILITIES



- ① Power switch (POWER  $\blacksquare$  OFF/  $\blacktriangle$  ON)
- ② Timer mode switch (TIMER MODE REC/OFF/PLAY)
- ③ DECK I eject button (  $\blacktriangle$  )  
Stop a tape running before opening the door.
- ④ DECK I counter reset button (RESET)
- ⑤ DECK I counter mode button (TIME/COUNT)
- ⑥ Reverse mode switch (REVERSE MODE)
- ⑦ Relay/skip button (RELAY/SKIP)
- ⑧ DECK II counter reset button (RESET)
- ⑨ DECK II counter mode button (TIME/COUNT)
- ⑩ DECK II eject button (  $\blacktriangle$  )  
Stop a tape running before opening the door.
- ⑪ Function display
- ⑫ CD•DECK SYNCHRO recording button (CD SYNCHRO)
- ⑬ DECK I operation buttons  
  - ◀◀/MS: Fast reverse/music search
  - ◀ : Reverse playback
  - : Stop
  - ▶ : Forward playback
  - ▶▶/MS: Fast forward/music search
- ⑮ DECK I Dolby\* NR switch (DOLBY NR B/OFF/C)
- ⑯ Headphones jack (PHONES)
- ⑰ Recording level control (REC LEVEL)
- ⑱ Copying level control (COPY LEVEL)
- ⑳ Synchro copy buttons (SYNCHRO COPY)  
  - NORMAL SPEED: Normal speed copy
  - HIGH SPEED : Double speed copy
- ㉑ DECK II Dolby\* NR switch (DOLBY NR B/OFF/C)
- ㉒ DECK II operation buttons  
  - ◀◀/MS: Fast reverse/music search
  - ◀ : Reverse playback
  - : Stop
  - ▶ : Forward playback
  - ▶▶/MS: Fast forward/music search
  - : Recording mute
  - ⏸ : Pause
  - : Recording
- ㉓ DECK II AUTO BLE button

- \*
- 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  $\square\square$  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

### FEATURES OF AUTO BLE

With commercially available cassette tapes, sensitivity and frequency characteristics might differ slightly from one another, even though the same sound adjustment is set for them. To utilize tape characteristics to the maximum possible and realize an ideal recording which reproduces the source exactly, optimum recording level (sensitivity) and equalizer values must be set accordingly for each tape. In many conventional tape decks, standard values are fixed for standard tapes, thus nullifying the subtle differences between individual tapes. Perfect tuning by ear through use of fine adjustment controllers for bias and sensitivity is difficult and requires a lot of effort. It is especially difficult with a 2-head deck where the recording sound cannot be monitored.

The AUTO BLE on this unit automatically adjusts bias, level and equalizer by using a microprocessor to set the optimum recording characteristics accordingly for each tape.