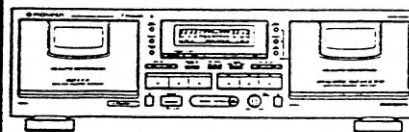


Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2747

STEREO DOUBLE CASSETTE DECK

CT-W620R

CT-W620R HAS THE FOLLOWING:

Type	Power Requirement	Remarks
HEM	AC220 - 230V, 230 - 240V (switchable) *	
HEMXJ	AC220 - 230V, 230 - 240V (switchable) *	
HB	AC220 - 230V, 230 - 240V (switchable) *	
HBXJ	AC220 - 230V, 230 - 240V (switchable) *	
SD	AC110V, 120 - 127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring.

- This manual is applicable to CT-W620R/HEM, HEMXJ, HBXJ and SD.
- For HEMXJ, HBXJ and SD types, refer to page 28.

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1. EXPLODED VIEWS, PACKING AND PARTS LIST

1.1 EXTERIOR AND PACKING

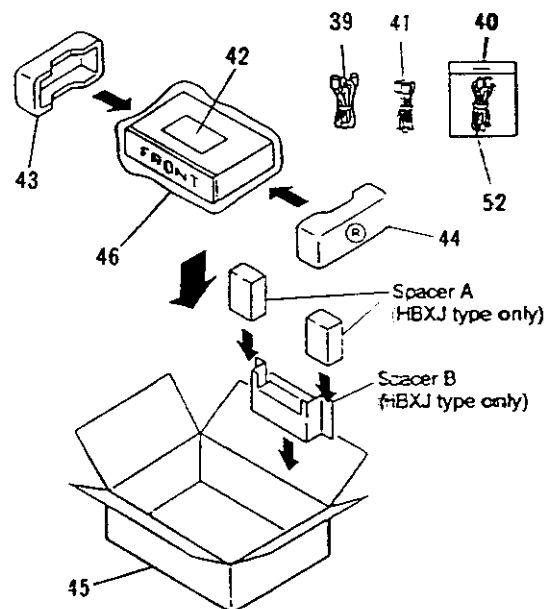
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- 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.

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Main unit	RWZ2837		41	Control cord	RDE1030
	2	Display unit	RWZ2838		42	Operating instructions (English/French/German/Italian/Dutch/ Swedish/Spanish/Portuguese)	REE1075
NSP	3	Transformer 1 unit	RWZ2927		43	Pad	RHA1115
NSP	4	Transformer 2 unit	RWZ2839		44	Pad R	RHA1116
Δ	5	Strain relief	CM - 22B		45	Packing case	RHG1431
Δ	6	FU1001, FU1002 Fuse (T1.6A)	REK1024		46	Sheet	REX - 034
Δ	7	AC power cord	PDG1003		47	Screw	EBZ20P040FMC
Δ	8	Lead card 35P	RDD1271		48	Screw	EBZ30P060FMC
Δ	9	Power transformer	RTT1224		49	Screw	EBZ30P080FZK
⊙	10	Mechanism 1 unit (DECK I)	RYM1198		50	Screw	EBZ30P150FCU
⊙	11	Mechanism 2 unit (DECK II)	RYM1201		51	Binder	REC - 371
	12	.....			52	Connection cord with plug	RDE - 010
NSP	13	PCB spacer	PNY - 404		53	Slide knob	REA1078
	14	Insulator	PNW1912		54	Screw	EBZ30P060FMC
	15	Door spring L	RBH1304		55	Bonnet	REA1077
	16	Door spring R	RBH1305		56	PB. DOLBY unit	RWX1085
	17	Half pressure spring	RBK1004	NSP	57	LED unit	RWZ2931
NSP	18	FL spacer	REB1171		58	LED lens	PNW2019
	19	Damper assembly	REC1005		59	Knob spacer	REC1195
	20	.....				
NSP	21	Main chassis	RNB1089				
NSP	22	Transformer shield plate	RNE1451				
NSP	23	Mechanism shield plate	RNE1519				
	24	Cord clamper	RNH - 184				
	25	Balance knob	RAC1705				
	26	Eject knob L	RAC1778				
	27	Eject knob R	RAC1779				
	28	Power knob	RAC1780				
	29	Control knob	RAC1782				
	30	REC knob B	RAC1788				
	31	FL lens	RAH2186				
	32	Front panel	RAH2180				
	33	Door pocket L	RAH2183				
	34	Door pocket R	RAH2178				
	35	Door lens	RAH2187				
	36	Name plate	RAM1007				
	37	Remain display paper	REE - 113				
NSP	38	Rear panel	RNA1659				
	39	Connection cord with mini plug	PDE - 319				
	40	Connection cord assembly	RDE1002				

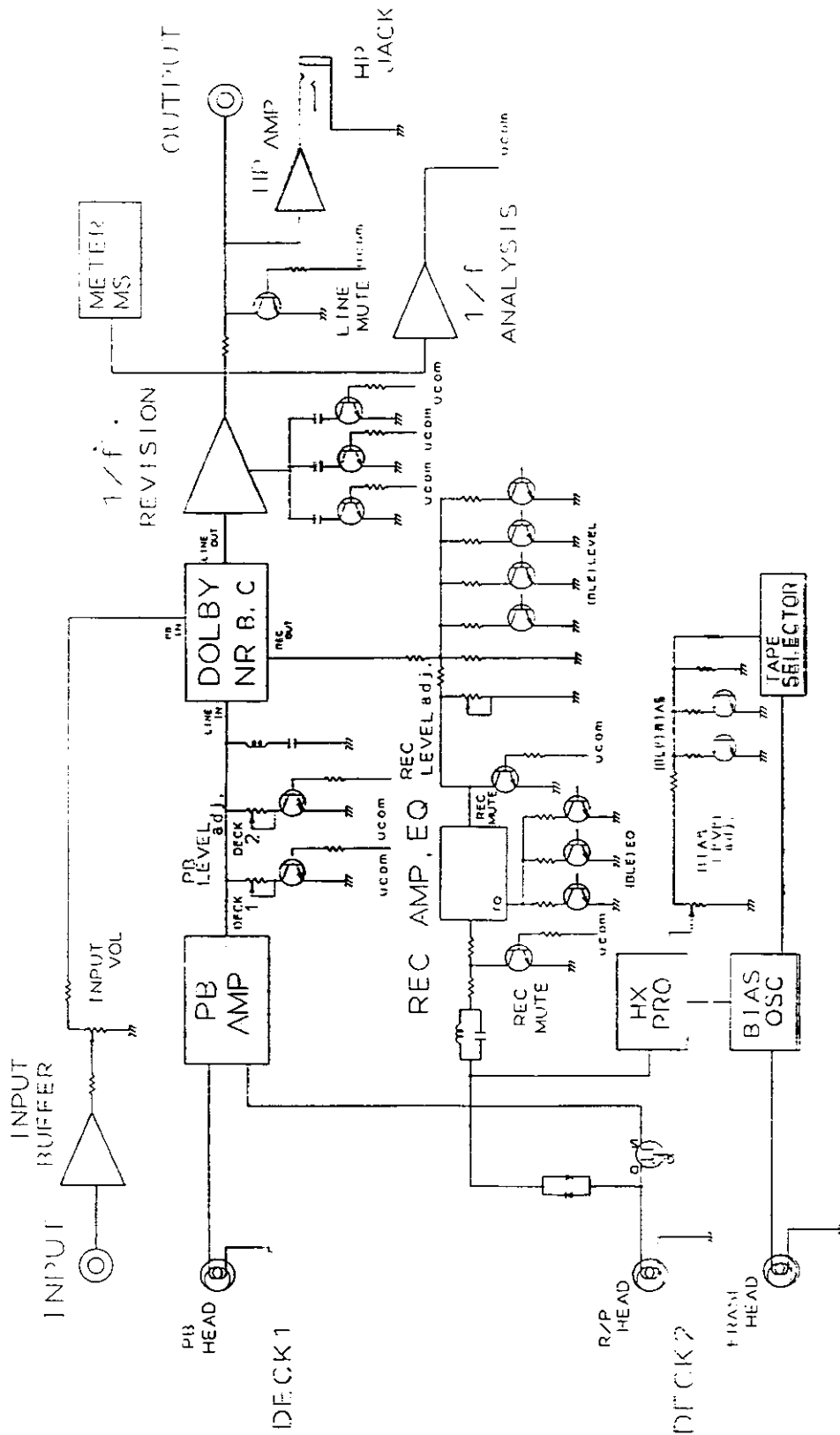
Packing



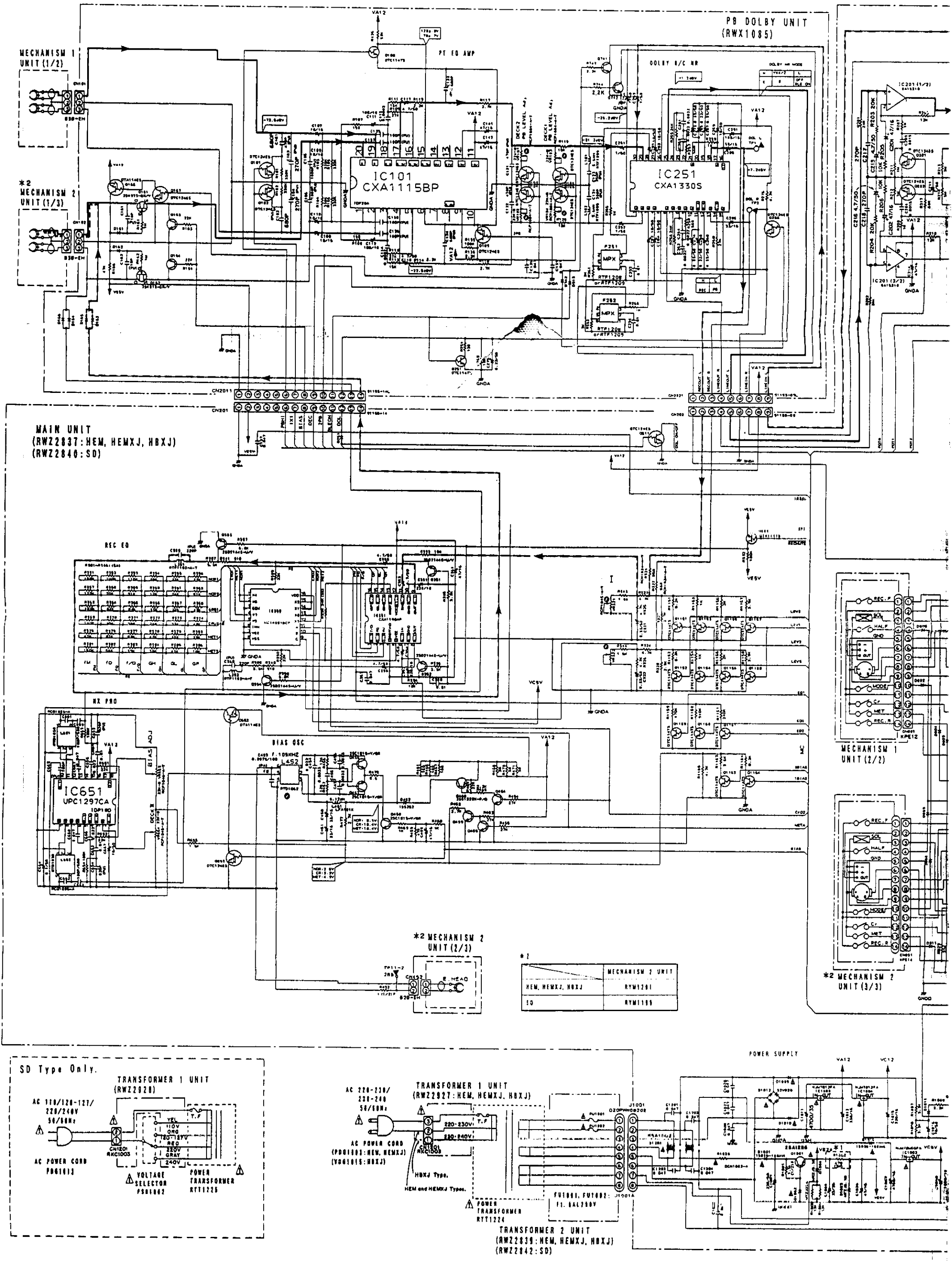
Parts List

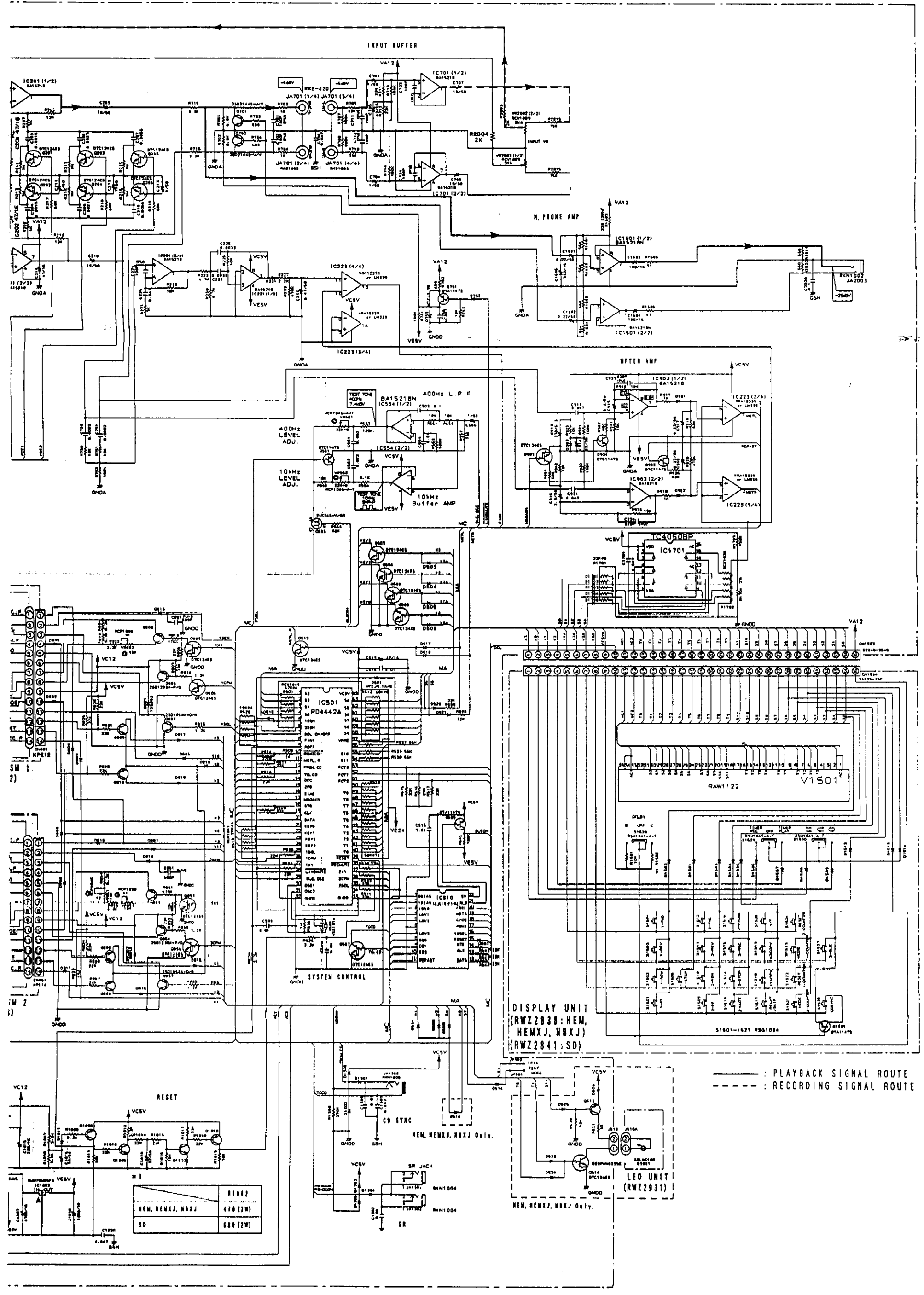
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	ASS'Y HOLDER HEAD (Mechanism 2 unit)	RXA1477		41	BRACKET FW	RNE1438
	1	ASS'Y HOLDER HEAD (Mechanism 1 unit)	RXA1500		42	GEAR FWR (Mechanism 2 unit)	RNK1733
	2	FLAME HEAD	RNK1715		43	ASS'Y MOTOR (Mechanism 2 unit)	RXM1061
	3	LEVER HEAD	RNK1716		43	ASS'Y MOTOR (Mechanism 1 unit)	RXM1060
	4	SPRING AZIMUTH	RBK1006	NSP	44	WIRE	RDD1012
	5	ASS'Y ARM ASSIST	RXA1401		45	BELT MAIN (Mechanism 1 unit)	REB1159
	6	GEAR ARM HEAD	RNK1717		45	BELT MAIN (Mechanism 2 unit)	REB1162
	7	SPRING CASSETTE	RBK1039		46	P.C. BOARD	RNP1348
	8	EJECT LOCK	RNK1718		47	HOUSING (Mechanism 2 unit)	RKP1397
	9	CAP REEL	RNK1719		47	HOUSING (Mechanism 1 unit)	RKP1396
	10	ASS'Y PINCH ARM L	RXA1403		48	EJECT LEVER L (Mechanism 2 unit)	RNK1831
	11	CHASSIS HEAD	RNE1437		48	EJECT LEVER R (Mechanism 1 unit)	RNK1811
	12	ASS'Y PINCH ARM R	RXA1404		49	COLLAR	RNK1704
	13	ARM PLAY L	RNK1866		50	WIRE HEAD (Mechanism 2 unit)	RKP1399
	14	GEAR PLAY	RNK1867		50	WIRE HEAD (Mechanism 1 unit)	RKP1398
	15	ARM PLAY R	RNK1868		61	SPRING	RBH1282
	16	CHASSIS OS.	RXA1411		62	SPRING	RBH1283
	17	ASS'Y SUB REEL L	RXA1407		63	SPRING	RBH1284
△	18	SOLENOID	RXP1020		64	SPRING	RBH1286
	19	WIRE	RDC1006		65	SPRING	RBH1288
	20	ARM RVS	RNK1721		66	SPRING	RBH1291
	21	GEAR FF	RNK1723		67	SPRING	RBH1285
	22	ASS'Y ARM FR	RXA1412		68	SPRING	RBH1287
	23	ASS'Y PULLEY FR	RXA1413		69	SPRING	RBH1289
	24	BELT FR	REB1158		70	SPRING	RBH1290
	25	METAL	RNG1048		71	SPRING	RBH1292
	26	ASS'Y FLYWHEEL L (Mechanism 2 unit)	RXA1476		72	SPRING	RBH1061
	26	ASS'Y FLYWHEEL L (Mechanism 1 unit)	RXA1423		73	SPRING	RBH1325
	27	METAL	RNG1005		74	SPRING (L) (Mechanism 2 unit)	RBH1319
	28	ARM BRAKE	RNK1724		74	SPRING (R) (Mechanism 1 unit)	RBH1320
	29	ASS'Y SUB REEL R	RXA1408		81	SCREW	RBA1023
	30	ARM TRIGGER	RNK1722		82	SCREW	RBA1027
	31	GEAR CAM	RNK1725		83	SCREW	RBA1030
	32	METAL	RNG1049		84	SCREW	PCZZ0P040FMC
	33	FLYWHEEL R (Mechanism 2 unit)	RXA1415		85	SCREW	RBA1093
	33	ASS'Y FLYWHEEL R (Mechanism 1 unit)	RXA1424		86	SCREW	RBA1094
	34	METAL	RNG1004		87	SCREW	RBA1086
	35	WIRE (14P) (Mechanism 2 unit)	RDD1217		88	SCREW	RBA1096
	35	WIRE (12P) (Mechanism 1 unit)	RDD1249		89	WASHER	RBF1046
NSP	36	HOLDER WIRE	RNK1683		90	WASHER	WA26D047D013
	37	P.C. BOARD	RNP1347				
	38	SWITCH MODE	RSN1022				
	39	SWITCH (LEAF)	RSN1019				
	40	HALL IC.	DN6851A				

2. BLOCK DIAGRAM



4. SCHEMATIC DIAGRAM





HEM, HEMJ, HEMJ	R1002
	470 (2W)
SD	600 (2W)

DISPLAY UNIT
(RWZ2838: HEM,
HEMJ, HEMJ)
(RWZ2841: SD)

— : PLAYBACK SIGNAL ROUTE
- - - : RECORDING SIGNAL ROUTE

B
C
D
E
F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
		Q332, Q509, Q751	DTA114TS			C225, C227, C455-C457	CGCYX332K25
		Q551, Q902, Q904, Q1151-Q1161, Q1163, Q1164	DTC114TS			C236, C657, C658	CGCYX473K25
		Q201-Q206, Q503-Q507, Q511, Q512, Q514, Q653, Q803, Q805, Q853, Q855, Q903	DTC124ES			C750, C751	CGCYX822K25
	△	D1001, D1006	1SR35-106AF			C551	CGCYX825F25
		D452, D801, D812	1SS252			C358, C509, C510, C514, C515, C1300, C1302	CKCYF103Z50
		D221, D251, D503-D509, D511, D514-D518, D520, D521, D523-D526, D752, D802-D811, D813-D819, D901-D903, D1011, D1300-D1305, D1701-D1705	1SS254			C127, C357, C706, C756, C911, C921, C1008, C1020-C1022, C1030, C1201-C1204, C1301, C1701, C2020	CKCYF473Z50
	△	D1009, D1010	1SS254			C221, C663, C701, C702, C711, C712, C723, C724	CKPUYB101K50
	△	D1002	MTZJ22A			C359, C360	CKPUYB221K50
		D1004	MTZJ3. 3B			C217, C218	CKPUYB271K50
		D753	MTZJ3. 9B			C801, C851	CKPUYB681K50
		D1003	MTZJ5. 1B			C653, C654, C923, C924	CKPUYB821K50
		D501	MTZJ9. 1A			C453	CQPA752J100
	△	D1012	S2VB20			C661, C662(C-470P, V(DC)=, 500)	RCG1006
						C1011(C-4700, VDC-35V)	RCH1089
		SWITCHES				RESISTORS	
	△	S1201	RSA1002		△	R1020 (10Ω)	DCN1002
		COILS				R518 (68K)	RA11T683J
		L451	LFA121K			R528 (10K)	RA4T103J
		L651, L652(L=4. 6mH, Q=25, F=105KHz)	RTD1030			R1701 (22K)	RA5T223J
		L452(F=105K)	RTD1062			R512 (68K)	RA6T683J
		L351, L352(L=103J)	RTF1102			R321, R322 (560Ω)	RCN1024
		CAPACITORS				R1702 (11K/22K)	RCX1020
		C659, C660	CCCSL101E50			R510 (22K)	RCX1041
		C211-C213, C555, C703, C704	CEAS010M50			R501 (47K)	RCX1045
		C209, C210, C667, C707, C708, C1016	CEAS100M50			R452	RD1/2LF010J
		C1603, C1604	CEAS101M50			R1001	RD1/2LF152J
		C1010	CEAS102M50			R1609 (220Ω)	RS2LMF221J
		C1018	CEAS220M50			R1002 (470Ω)	RS2LMF471J
		C351, C352	CEAS221M50			VR321, VR322, VR851 (10K)	RCP1045
		C1001	CEAS221M50			VR551, VR552, VR653, VR654 (22K)	RCP1046
		C451, C458	CEAS330M50			VR802, VR852 (15K)	RCP1090
		C914, C1004	CEAS330M50			VR2002 (5KA)	RCV1089
		C1013, C1015, C1605	CEAS331M50			OTHER RESISTORS	RD1/6PM□□□□
		C913	CEAS331M50E			OTHERS	
		C915, C916	CEAS3R3M50			CN1503 CONNECTOR (35P)	52045-3545
		C201, C202, C214, C361, C459, C513, C705, C1024	CEAS470M50			CN202 CONNECTOR	9115B-09
		C1007	CEAS472M50			CN201 CONNECTOR	9115B-14
		C215, C216, C353-C356	CEAS4R7M50			CN801 CONNECTOR (12P)	KPE12
		C664	CEASR10M50			CN851 CONNECTOR (14P)	KPE14
		C917, C918, C1601, C1602	CEASR22M50			JA1300 MINI JACK	PKN1005
		C321, C322	CEASR33M50			JA701 PIN JACK (4P)	RKB-020
		C233	CEASR47M50			JA2003 HEADPHONE JACK	RKN1002
		C203, C204	CFTXA152J50			JA1301, JA1302 REMOTE CONTROL JACK	RKN1004
		C454	CFTXA223J50			X501 CERAMIC RESONATOR (4. 19MHz)	VSS1014
		C205, C206	CFTXA272J50				
		C207, C208	CFTXA562J50				
		C1009	CGCYF104Z25				
		C554, C651, C652	CGCYX103E25				
		C503	CGCYX104E25				
		C552, C655, C656	CGCYX223E25				

3. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- 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.
- 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%, K=10%).

560 Ω \rightarrow 56 \times 10¹ \rightarrow 561 RD1/8PM $\boxed{5}\boxed{6}\boxed{1}\boxed{J}$
 47k Ω \rightarrow 47 \times 10³ \rightarrow 473 RD1/4PS $\boxed{4}\boxed{7}\boxed{3}\boxed{J}$
 0.5 Ω \rightarrow 0R5 RN2H $\boxed{0}\boxed{R}\boxed{5}\boxed{K}$
 1 Ω \rightarrow 010 RS1P $\boxed{0}\boxed{1}\boxed{0}\boxed{K}$

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

5.62k Ω \rightarrow 562 \times 10¹ \rightarrow 5621 RNI/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}\boxed{F}$

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
LIST OF ASSEMBLIES				C125, C139			CKCYF473Z50
		PB. DOLBY UNIT	RWX1085	C135-C138			CKPUYB101K50
NSP	MOTHER UNIT		RWM1595	C105, C106			CKPUYB102K50
	├ MAIN UNIT		RWZ2837	C103, C104			CKPUYB271K50
	├ DISPLAY UNIT		RWZ2838	C123, C124			CKPUYB391K50
NSP	├ TRANSFORMER 1 UNIT		RWZ2927	C121, C122			CKPUYB471K50
NSP	├ TRANSFORMER 2 UNIT		RWZ2839				
NSP	└ LED UNIT		RWZ2931	C101, C102, C133, C134			CKPUYB681K50
PB. DOLBY UNIT				RESISTORS			
SEMICONDUCTORS						VR101-VR104 (22K)	RCP1084
	IC101		CXA1115BP			OTHER RESISTORS	RD1/6PM $\square\square\square\square$ J
	IC251		CXA1330S	OTHERS			
	Q163, Q164, Q741, Q742		2SC3311A			CN2021 CONNECTOR	9115S-09L
	Q161, Q162		2SK373			CN2011 CONNECTOR	9115S-14L
	Q165		DTA114ES	MAIN UNIT			
	Q108, Q251		DTC114TS	SEMICONDUCTORS			
	Q101-Q106, Q109, Q167, Q256		DTC124ES			IC201, IC221, IC701, IC902	BA15218
	D161-D166, D742, D913		1SS254			IC554, IC1501	BA15218N
COILS AND FILTERS						IC351	CXA1198AP
	L101, L102 (L-562J)		RTF1099			IC223	LM339
	F251, F252		RTF1208			IC352	MC14051BCP
CAPACITORS						IC1003, IC1004	NJM7812FA
	C161, C162		CCPUSL100J50	\pm		IC1002	NJM78M05FA
	C107-C110		CEANL100M16	\pm		IC510	NJU3715L
	C111, C112		CEANL101M10			IC501	PD4442A
	C251-C254		CEAS010M50			IC1701	TC4050BP
	C269, C281-C284		CEAS100M50			IC651	UPC1297CA
	C291		CEAS101M16	\pm		Q1001	2SA1286
	C285, C286		CEAS330M16			Q513, Q802, Q808-Q810, Q852, Q858.	2SA1309A
	C141, C142		CEAS470M16			Q1305, Q1010	
	C117, C118		CEAS4R7M50			Q460, Q804, Q854	2SB1238X
	C265, C266, C275		CEASR22M50			Q456-Q458	2SC1815
	C267, C268, C273, C274		CEASR33M50			Q454, Q455, Q459, Q1006, Q1007	2SC3311A
	C293, C294		CFTXA103J50			Q807, Q857	2SD1858X
	C261-C264		CFTXA222J50			Q351-Q354, Q701, Q702	2SD2144S
	C113, C114		CFTXA822J50			Q553	2SK246
						Q652	DTA114ES

CT-W620R

Note for Schematic Diagram

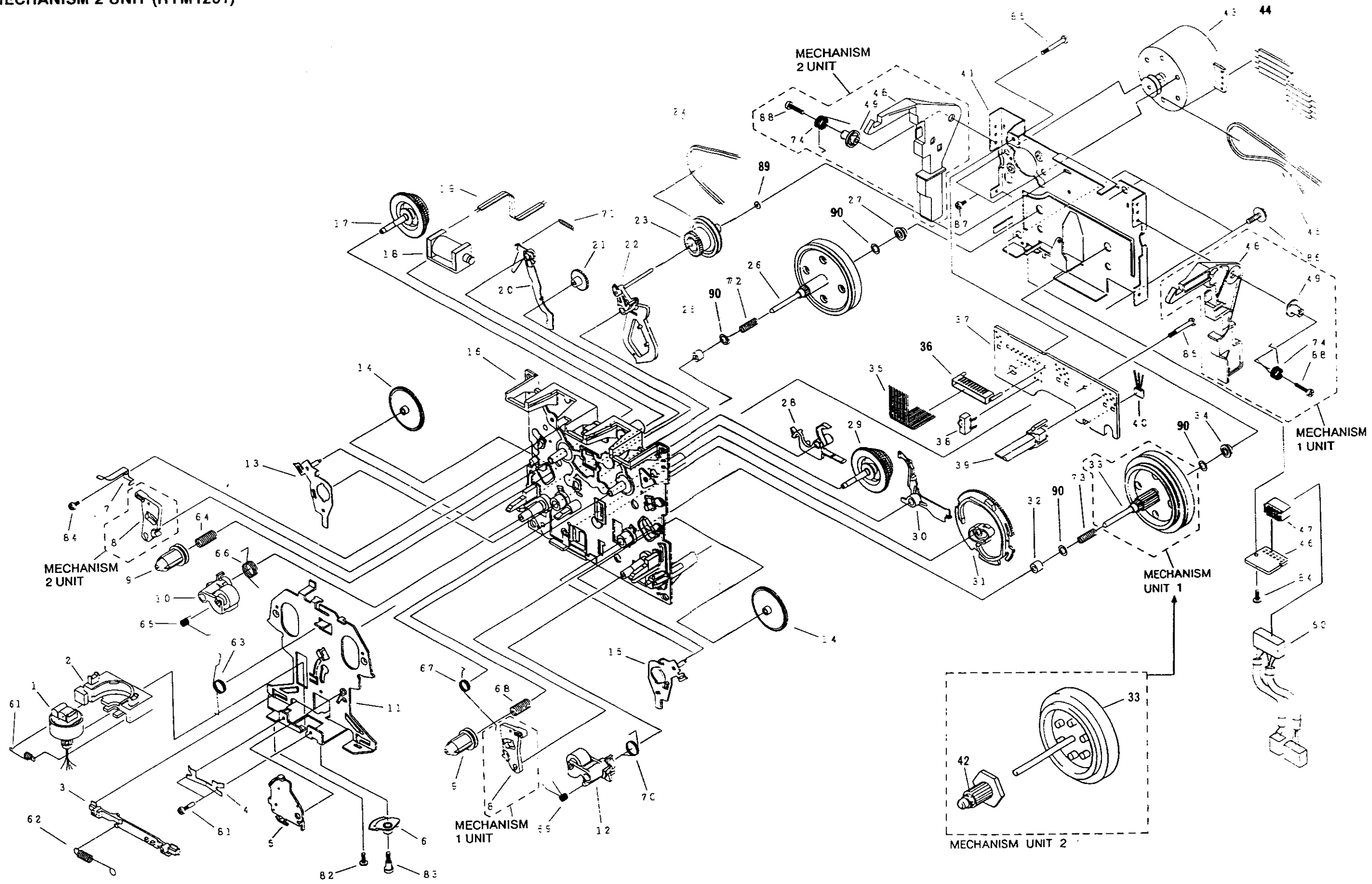
1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB

8. SWITCHES (underline indicates switch position):
 DISPLAY UNIT

Mark No.	Description	Part No.
DISPLAY UNIT		
SEMICONDUCTORS		
Q1501		DTA114CS
D1501-D1509, D1512-D1514		ISS254
SWITCHES		
S1501-S1504, S1506, S1509-S1525, S1527		RSE1144
S1528-S1530		RSE1144
RESISTORS		
ALL RESISTORS		RD1 10000J
OTHERS		
CN1504 CONNECTOR (35P)		96023-35P
V1501 FL INDICATOR TUBE		RAF1222
TRANSFORMER 1 UNIT		
TRANSFORMER 1 unit has no service part.		
TRANSFORMER 2 UNIT		
TRANSFORMER 2 unit has no service part.		
LED UNIT		
SEMICONDUCTORS		
D3001		SEL510R

1.2 MECHANISM 1 UNIT (RYM1198)
MECHANISM 2 UNIT (RYM1201)

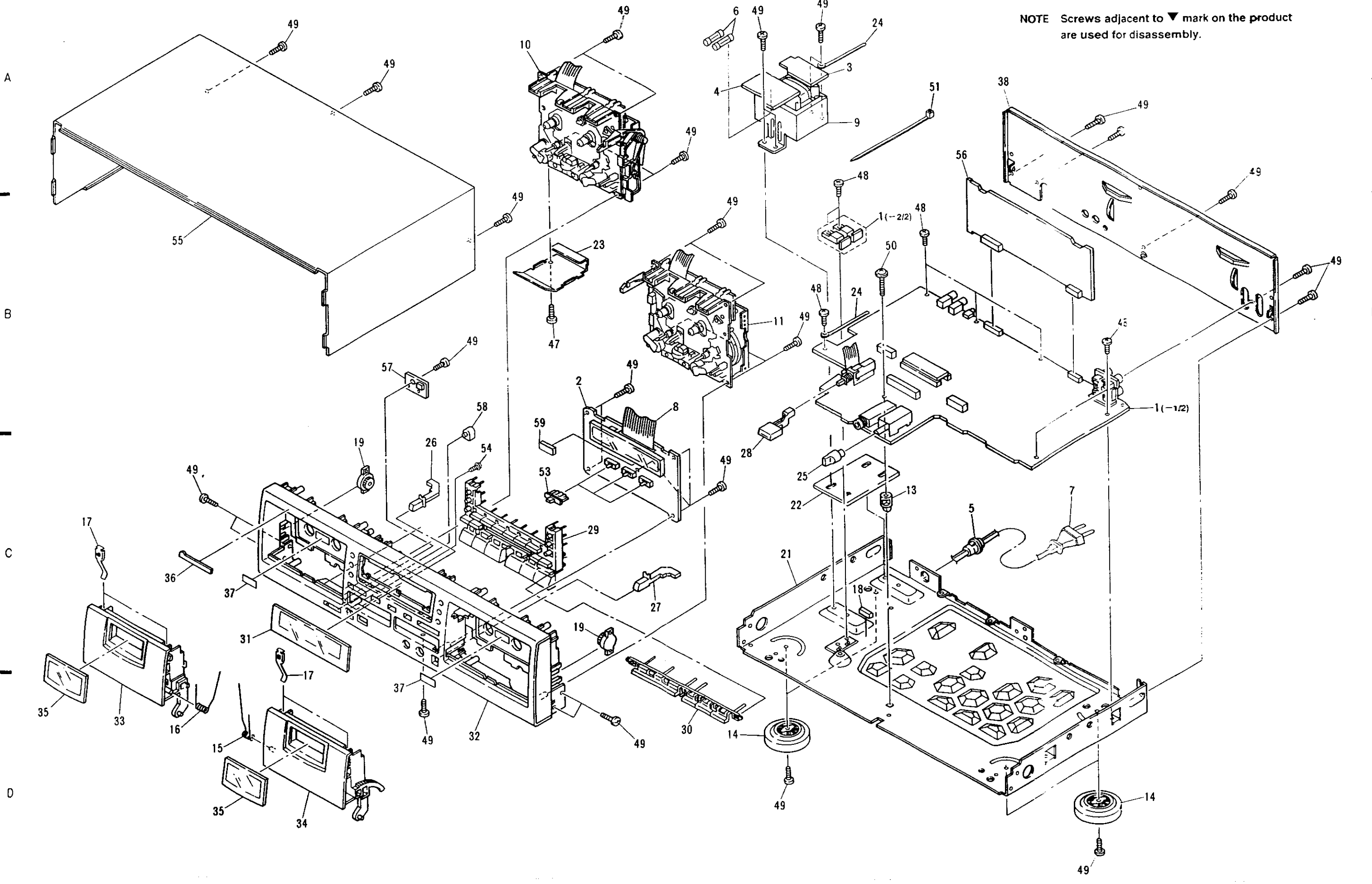
A
B
C
D



A
B
C
D

Exterior

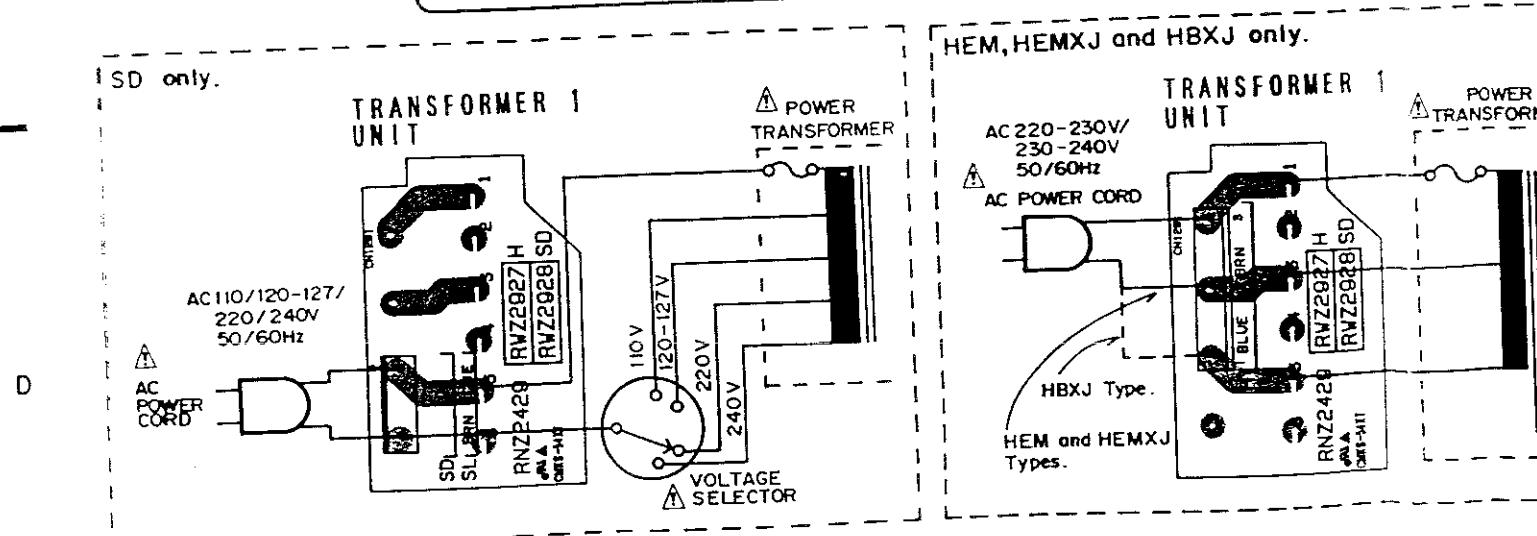
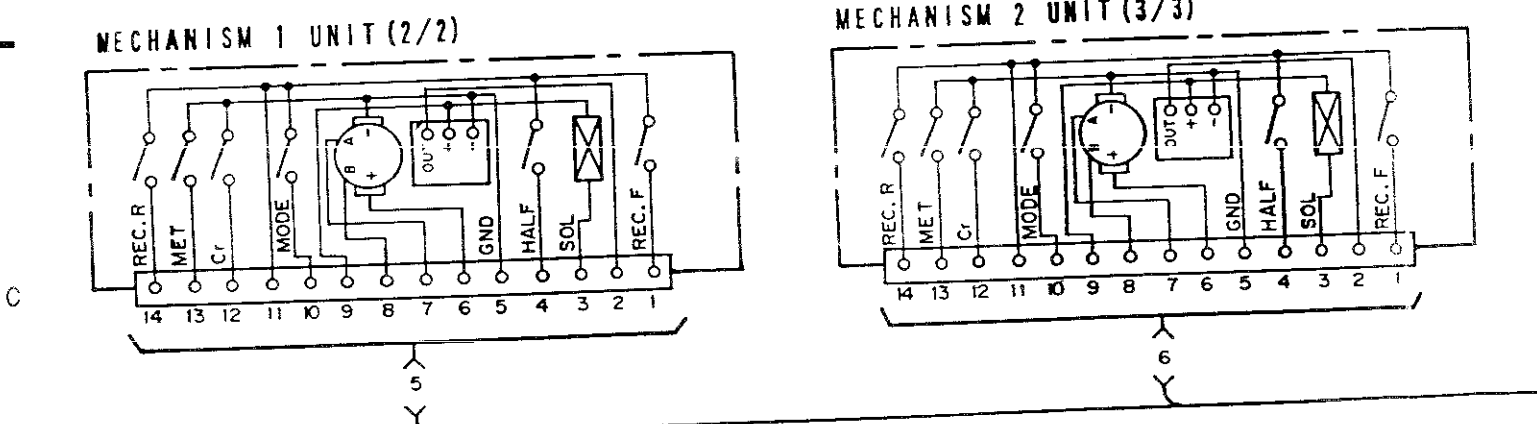
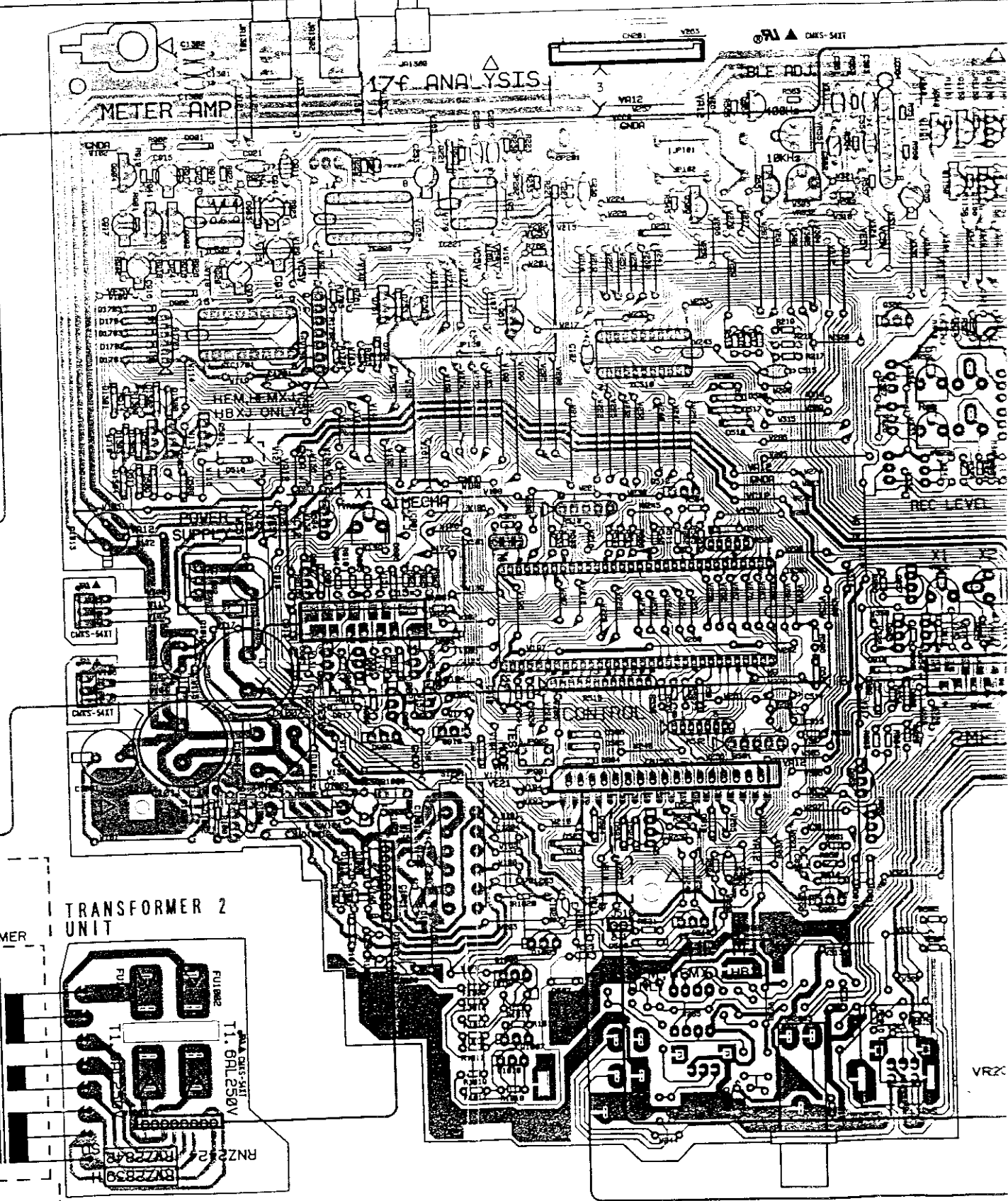
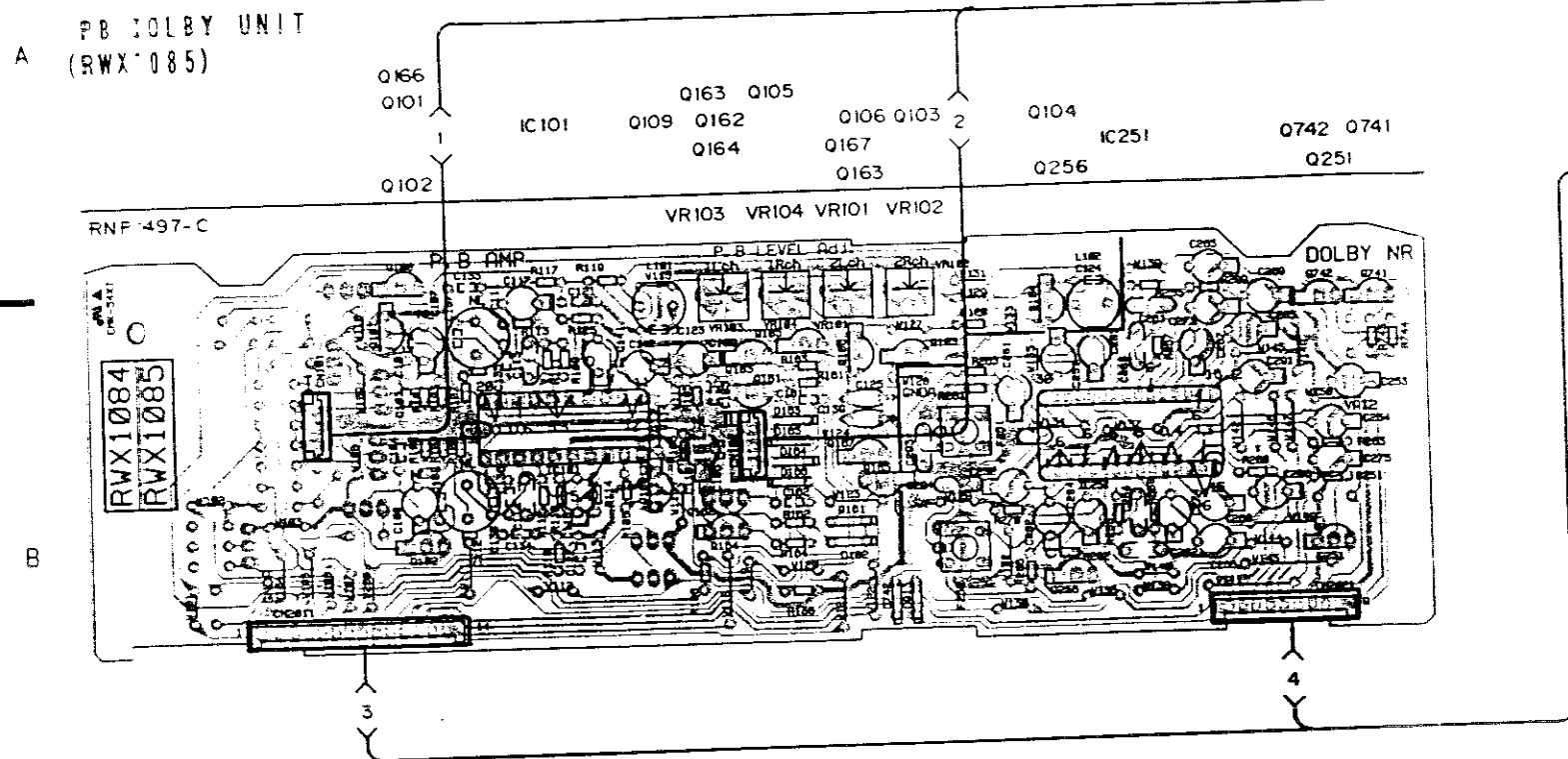
NOTE Screws adjacent to ▼ mark on the product are used for disassembly.

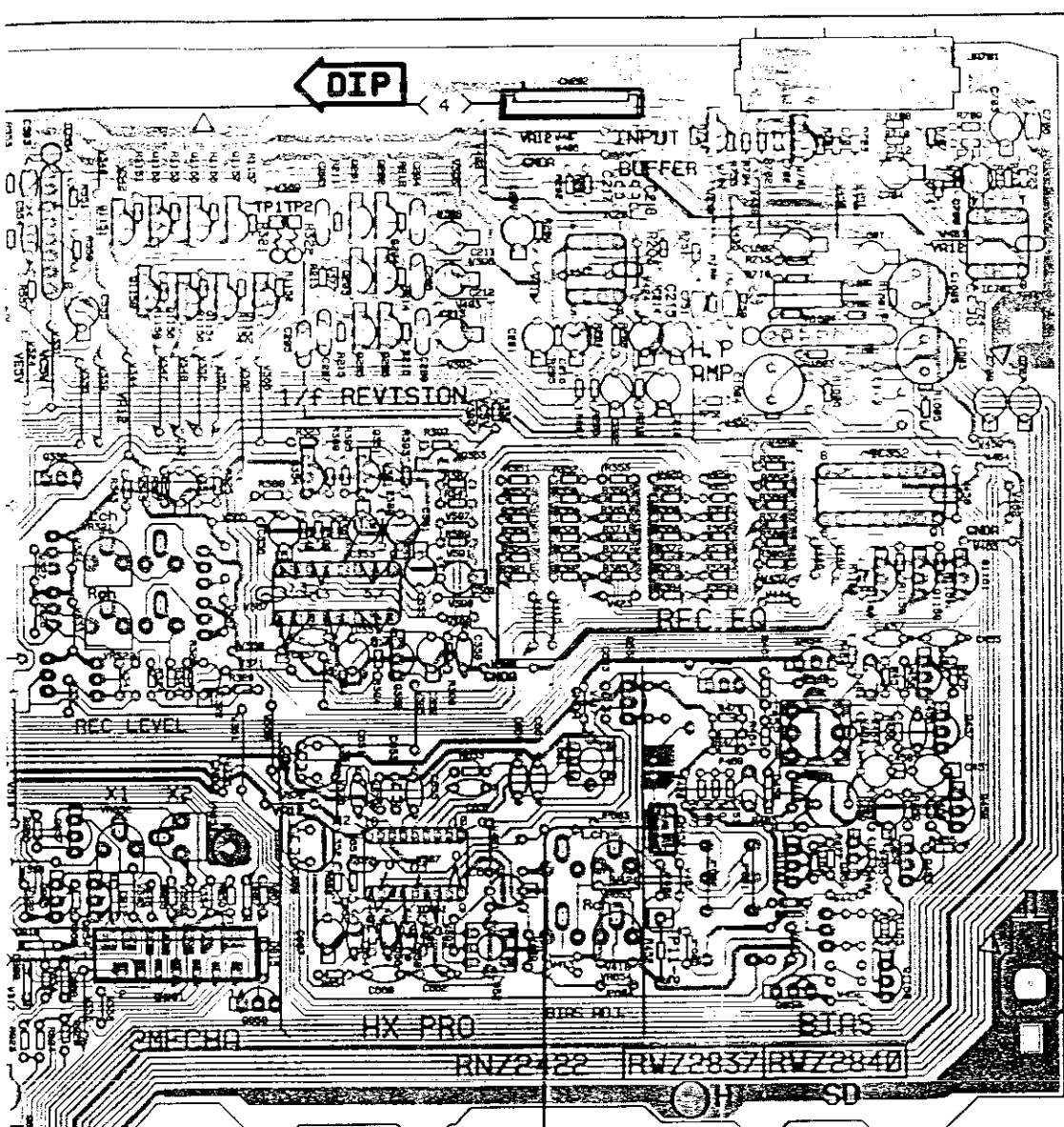


5. PCB CONNECTION DIAGRAM

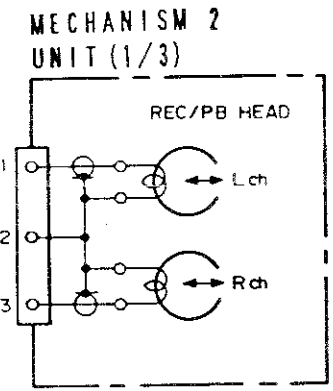
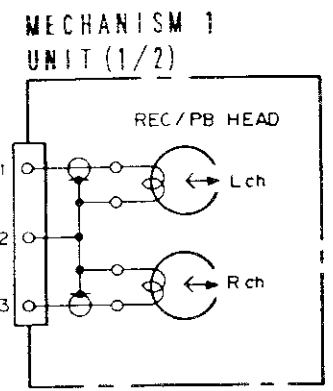
• View from component side

MAIN UNIT
(RWZ2837: HEM, HEMXJ, HBXJ)
(RWZ2840: SD)





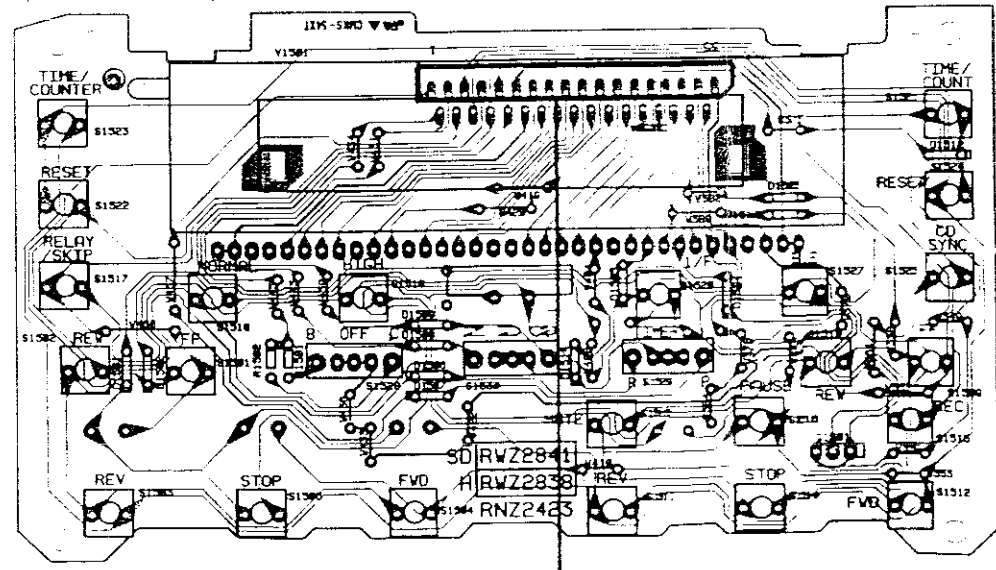
VR551	Q533		Q702 Q701
VR552	Q904	Q1151 Q1153 Q1155	Q201 IC 701
	Q903	Q551 Q1157 Q202	
	Q902	Q509 IC 554 Q203	
		IC 221 Q1158 Q204	IC 1601
		IC 223 Q1159 IC 201	
		IC 902 Q1152 Q205	
			Q206
		Q751	
		Q551	
		IC 1701 Q332	Q354
			Q351
		IC 510	Q353
			IC 352
VR 321			Q1161
			Q1159
			Q1160
VR 322	Q503		IC 351
	Q505		
	Q507		
		Q352	Q454
			Q456
			Q460
VR 802	Q512	Q652	Q457
	Q504		
		IC 1002 Q807	Q458
VR 653	IC 1003	IC 501 Q857	Q1164
			Q459
			Q455
			IC 651
VR 654	IC 1004	Q802 Q855	
		Q804 Q854	
		Q805	
		Q803	
		Q506	Q1163
		Q809	Q653
		Q810 Q858	
		Q1001 Q852	



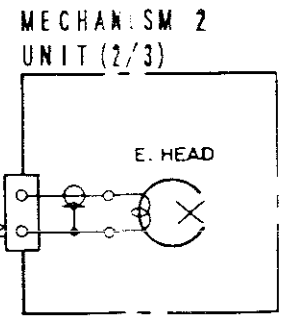
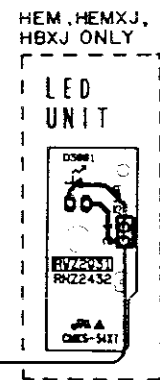
PCB pattern diagram indication	Corresponding part symbol	Part name	PCB pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
					Mylar capacitor
					Styro capacitor
		Diode			Electrolytic capacitor (Non polarized)
		Zener diode			Electrolytic capacitor (Nonleak)
					Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Fact switch			Resistor array
		Inductor			Resistor
		Coil			Resistor
		Transformer			Thermistor
		Filter			

1. This PCB connection diagram is viewed from the parts mounter 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.

DISPLAY UNIT
(RWZ2838:HEM,HEMJ,HBXJ)
(RWZ2841:SD)



- Q808
- Q514
- Q853
- Q513
- Q1005
- Q1006
- Q1007
- Q1010



Line Voltage Selection

Line voltage can be changed with the following steps.

1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

Parts No	Description
AAI-193	220 V label
AAI-192	240 V label

6. ADJUSTMENTS

6.1 MECHANICAL ADJUSTMENT

6.1.1 Door Damping Check and Adjustment

Set the door spring of the DECK I side to position (A) as shown in Fig. 6-1. Then, erect the front panel assembly vertically.

Open the doors of DECK I and DECK II at the same time. At this point, confirm that the difference between the door completely opened and the other door is within 15mm. If this standard is not satisfied install the door spring of DECK I at another position and adjust as follows:

- When the door of DECK I opens later than that of DECK II: Change the door spring of DECK II from A to B.
- When the door of DECK I opens faster than that of DECK II: Change the door spring of DECK I from A to B.

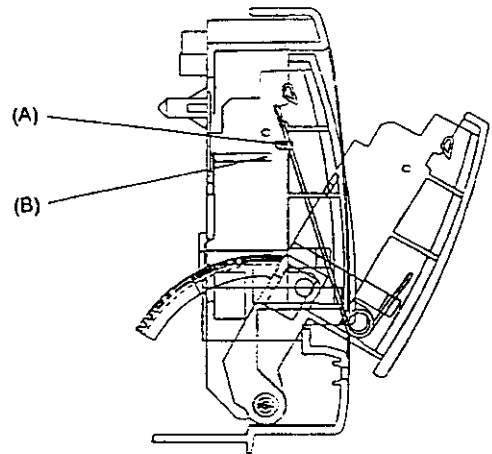


Fig. 6-1

6.1.2 Tape Speed

- Perform this adjustment in the test mode.
- TEST mode setting.

1. Set the REV MODE to "=".
2. Short-circuit the JP901 and JP902 for a moment. (Set into TEST mode.)
3. The speed becomes normal when the PLAY key is pressed, and double when the FF key is pressed.
4. To cancel the TEST mode, press the DECK I COUNTER RESET key or turn off the power.

1. Tape Speed Adjustment and Check						
No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Double speed PLAY	STD-301	check	6000 Hz ± 600 Hz	
2	II			VR851	Within ± 10 Hz against the measurement value of the step 1 (deck I)	
3	I	NORMAL speed PLAY	(S 1kHz)	VR802	3000 Hz ± 5 Hz	
4	II			VR852	Within ± 5 Hz against the measurement value of the step 3 (deck I)	

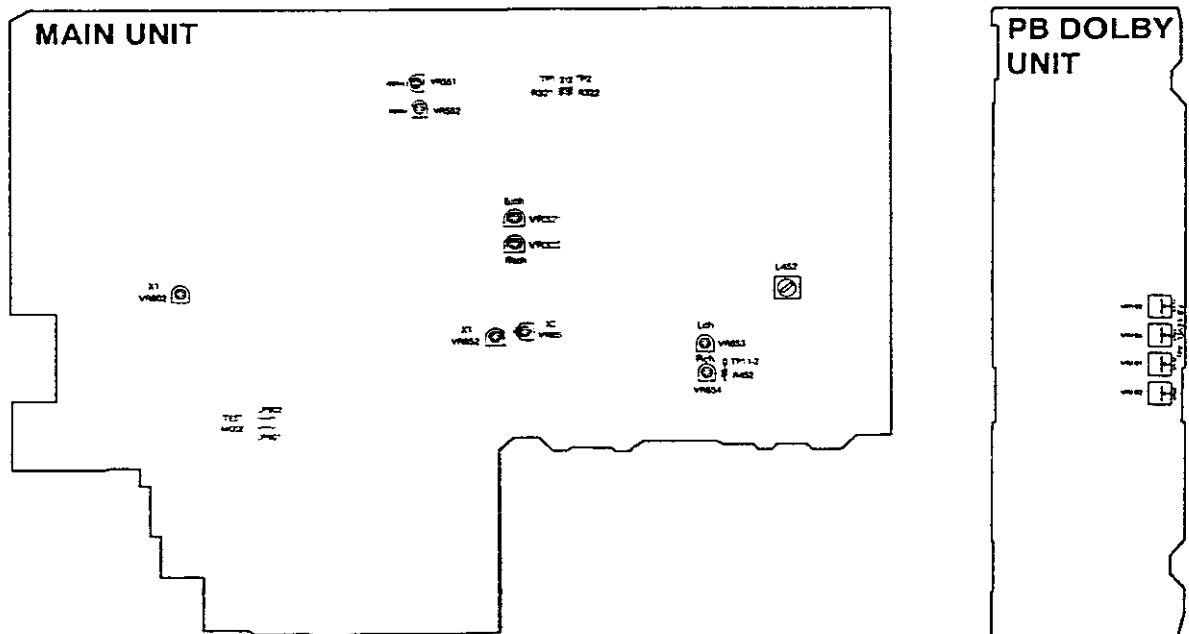


Fig. 6-2 Adjusting points

6.2 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 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) 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-331E : Playback adjustments
 (See Fig. 6-3)
- STD-631 : NORMAL blank tape (TYPE I)
 STD-621 : CrO₂ blank tape (TYPE II)
 STD-610 : METAL blank tape (TYPE IV)

* As the reference recording level is 250 nwb/m for STD-331E, the recording level will be higher by 4 dB for STD-331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

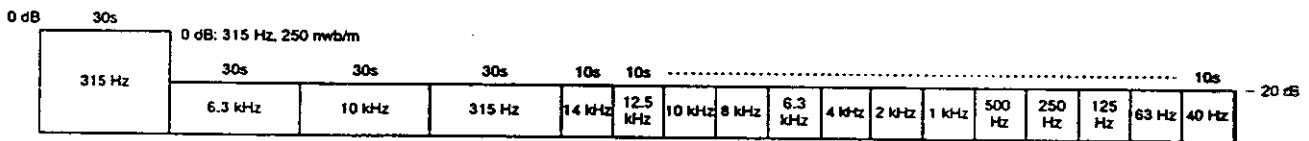


Fig. 6-3 Constants of the test tape STD-331E

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.
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

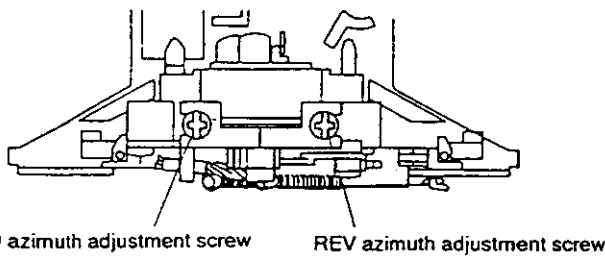
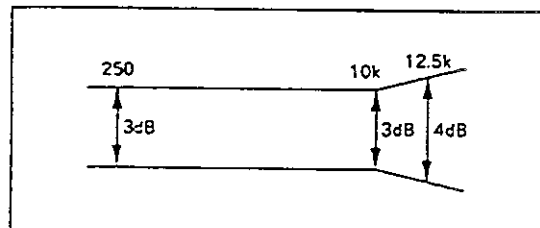


Fig. 6-4 Head azimuth adjustment

PLAY BACK



RECORDING

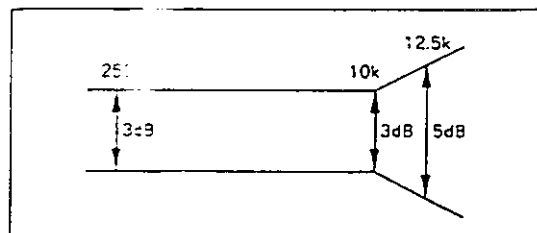


Fig. 6-5 Frequency response zone

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-331E test tape.	Head azimuth adjustment screw. (See Fig. 6-4)	LINE CUT	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-331E test tape.	Deck I	VR 103 (Lch) VR 104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	-6.7 dB	
			Deck II	VR 101 (Lch) VR 102 (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 \pm 0.3kHz	If the adjustment value on the left cannot be obtained values within 105kHz \pm 0.3 kHz are also satisfactory.

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.	REC	Record the 315 Hz and 6.3 kHz signals at -20 dB input level and playback. (STD-631)	Deck II	VR653(Lch) VR654(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.	REC PAUSE	Apply a 315 Hz/0 dBV signal to the line input terminals, load the STD-631 test tape.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV	
2.	STOP	Set the DOLBY NR switch to the ON position.				
3.	REC/ PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck II	VR32: (Lch) VR32: (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes - 11.2 dBV.
4.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check	TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 1.5dB	
5.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check	TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 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 (318 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 -7.2 dBV ± 2 dB of the signal output level.	

5. AUTO BLE Adjustment

- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode.

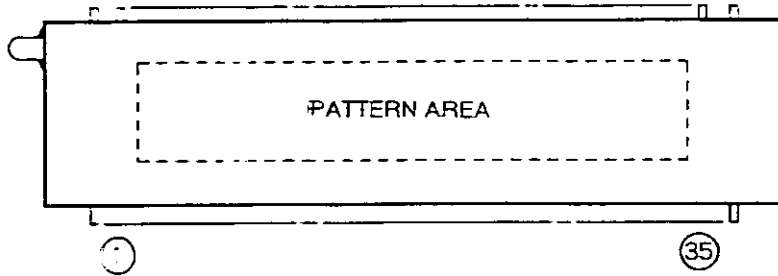
For details of how to enter the test mode, refer to the "Mechanical Adjustment" section (Page 23)

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.		Set to test mode.	-	-	-	
2.	-	Press the BLE SW key on the front panel.	Level meter	VR551	Adjust so that - 3 dB on the level meter turn on and off.	400 Hz adjustment
3.		Press the BLE SW key on the front panel again.		VR552		10 kHz adjustment

Reference: The output of LINE OUT after completing the adjustments for 400 Hz, 10 kHz becomes - 26 dBV ± 1dB.

7. FL INFORMATION

● RAW1122 (V1501)

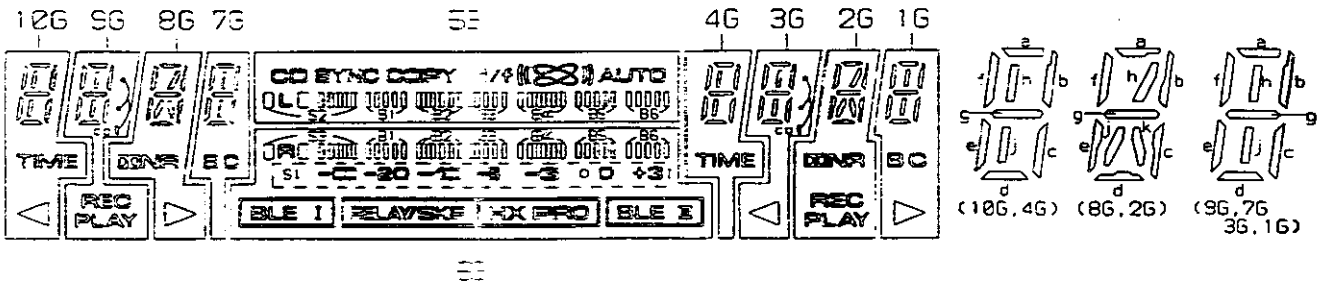


PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
CONNECTION	F	F	N	N	1G	8	7	N	5	6	N	4	3	2	1	N	N	P	P	P	P	P	N	P	P	P	P	P	P	P	P	P	N	N	F	F
	1	1	PC	3	EG	6	6	6	6	6	6	6	6	6	6	C	C	2	1	0	9	8	C	7	6	5	4	3	2	1	C	P	2	2		

NOTE 1) F1, F2 --- Filament 3) NC ----- No connection
 2) NP ----- No pin 4) 1G~10G --- Grid

GRID ASSIGNMENT



ANODE CONNECTION

	12G	8G	8G	7G	5G	5G	4G	3G	2G	1G
P1	e	a	a	a	E	E	e	e	e	e
P2	b	b	b	c	E2	E2	c	b	b	b
P3	f	f	f	f	E3	E3	f	f	f	f
P4	g	g	g	g	E4	E4	g	g	g	g
P5	c	c	c	c	E5	E5	c	c	c	c
P6	e	e	e	e	E6	E6	e	e	e	e
P7	c	c	d	c	BLE OSC		d	d	d	c
P8	h,j	h,j	h,j	h	BLE COPY		h,j	h,j	h,j	h,j
P9	-	cd	k	-	BLE AUTO		-	cd	k	-
P12	<	PLAY	>	-	BLE (X)		-	<	PLAY	>
P11	-	REC	-	E	E	1/4	-	-	REC	E
P13	TIME	-	DONE	E	E	SC	TIME	-	DONE	C

8. FOR HEMXJ, HBXJ AND SD TYPES

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- 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.

HEMXJ, HBXJ, SD and HEM have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		HEM type	HEMXJ type	HBXJ type	SD type	
NSP	Mother unit	RWM1595	RWM1595	RWM1595	RWM1595	
	Main unit	RWZ2837	RWZ2837	RWZ2837	RWZ2840	
	Display unit	RWZ2838	RWZ2838	RWZ2838	RWZ2841	
NSP	Transformer 1 unit	RWZ2927	RWZ2927	RWZ2927	RWZ2928	
NSP	Transformer 2 unit	RWZ2839	RWZ2839	RWZ2839	RWZ2842	
NSP	LED unit	RWZ2931	RWZ2931	RWZ2931	.....
Δ	AC power cord	PDG1003	PDG1003	VDG1051	PDG1013	
Δ	Power transformer (AC220 - 230/230 - 240V)	RTT1224	RTT1224	RTT1224	.....
Δ	Power transformer (AC110/120 - 127/220/240V)	.....	.....	.....	RTT1225	
Δ	Line voltage selector (AC110/120 - 127/220/240V)	.....	.....	.....	PSB1082	For rear panel
©	Mechanism 2 unit (DECK II)	RYM1201	RYM1201	RYM1201	RYM1200	
	BS pin cap	.....	.....	VEC1616	.....	Note 1
	LED lens	PNW2019	PNW2019	PNW2019	.....
	FL lens	RAH2186	RAH2186	RAH2186	RAH2217	
	Front panel	RAH2180	RAH2180	RAH2180	RAH2225	
NSP	Rear panel	RNA1659	RNA1668	RNA1669	RNA1661	
NSP	Main chassis	RNB1089	RNB1091	RNB1091	RNB1089	
	Packing case	RHG1431	RHG1439	RHG1440	RHG1429	
	Sheet	RHX - 034	Z23 - 007	Z23 - 007	RHX - 034	Note 2
	Spacer A	.....	.....	RHC1032	.....	Note 3
	Spacer B	.....	.....	RHC1033	.....	Note 3
	Operating instructions (English/French/German/Italian/ Dutch/Swedish/Spanish/Portuguese)	RRE1075	RRE1072	.....	.....
	Operating instructions (English)	.....	.....	RRB1127	RRB1129	
	Operating instructions (Spanish)	.....	.....	.....	RRD1134	

Note 1: Refer to Fig 1.

Note 2: For HEMXJ and HBXJ types, the parts name is mirror mat sheet.

Note 3: Refer to page 2.

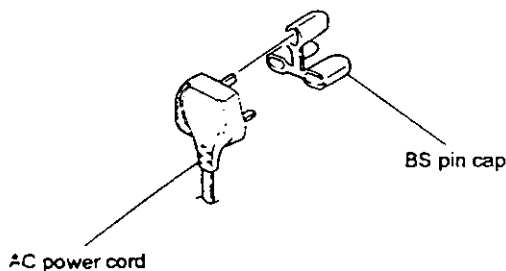


Fig 1.

MAIN UNIT

RWZ2840 and RWZ2837 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2837	RWZ2840	
	Q513	2SA1309A	.....
	Q514	DTC124ES	.....
	D516, D523 - D526	1SS254	.....
	R520	RD1/6PM103J	.....
	R521	RD1/6PM330J	.....
	R1002	RS2LMF471J	RS2LMF681J	

DISPLAY UNIT

Although RWZ2841 and RWZ2838 are different in part number, they consist of the same components.

TRANSFORMER 1 UNIT

Although RWZ2928 and RWZ2927 are different in part number, they consist of the same components.

TRANSFORMER 2 UNIT

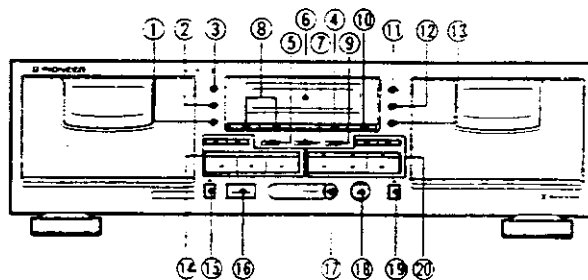
Although RWZ2842 and RWZ2839 are different in part number, they consist of the same components.


MECHANISM 2 UNIT

RYM1199 and RYM1201 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1201	RYM1199	
	BELT MAIN	REB1162	REB1159	
	GEAR FW R	RNK1733	.....
	FLYWHEEL R	RXA1415	.....
	ASS'Y FLYWHEEL R	.....	RXA1424	
	ASS'Y FLYWHEEL L	RXA1476	RXA1423	
	ASS'Y MOTOR	RXM1061	RXM1060	

9. PANEL FACILITIES



- ① RELAY/SKIP button
- ② DECK I counter reset button (RESET)
- ③ DECK I counter mode button (TIME/COUNT)
- ④ FLEX (1/f) button
- ⑤ Dolby® NR switch (B/OFF/C)
- *
- *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.*
- ⑥ Function display
- ⑦ Reverse mode switch (REV MODE)
Both DECK I and II
- ⑧ Synchro copy buttons (SYNCHRO COPY I▶II)
NORMAL : Normal speed copy
HIGH : Twice the normal speed copy
- ⑨ TIMER mode switch (REC/OFF/PLAY)
- ⑩ DECK II BLE button
- ⑪ DECK II counter mode button (TIME/COUNT)
- ⑫ DECK II counter reset button (RESET)
- ⑬ CD-DECK SYNCHRO recording button (CD SYNC)
- ⑭ Deck I operation buttons
 - ◀ : Reverse playback
 - ▶ : Forward playback
 - ◀◀/MS : Fast reverse/music search
 - : Stop
 - ▶▶/MS : Fast forward/music search

- ⑮ DECK I eject button (⏏)
 - If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.


NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.
- ⑯ POWER STANDBY/ON switch
The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.
- ⑰ Headphones jack (PHONES)
- ⑱ Recording level control (REC LEVEL)
- ⑲ DECK II eject button (⏏)
 - If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.
- ⑳ DECK II operation buttons
 - ◀ : Reverse playback
 - ▶ : Forward playback
 - ◀◀/MS : Fast reverse/music search
 - : Stop
 - ▶▶/MS : Fast forward/music search
 - : Recording mute
 - ⏏ : Pause
 - : Recording

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 motor > 2
Wow and Flutter	0.09% (WRMS) ±0.19% (DIN)
Fast Winding Time	Approximately 120 seconds (C-60 tape)
Frequency Response	
-20 dB recording:	
TYPE IV (Metal) tape	25 to 16,500 Hz
TYPE II (High/CrO ₂) tape	25 to 16,000 Hz
TYPE I (Normal) tape	25 to 16,000 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 0.8% (at -4 dB; 160 nwb/rm)
Input (Sensitivity)	
LINE (INPUT)	100 mV (Input impedance 68 kΩ)
Output (Reference level)	
LINE (OUTPUT)	0.5 V (Output impedance 3.2 kΩ)
Headphones	0.63 mW (Load impedance 8 Ω)



Subfunctions

- AUTO BLE tuning system
- Automatic reverse
- DOLBY HX PRO recording function
- DOLBY B/C type NR
- Music search over ±15 selections
- Synchronized copy start
- 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
- TIMER Recording
- TIMER Playback (Automatic relay on)
- 2-mode electronic 4-digit twin tape counter
- Headphone jack
- FLEX system

Miscellaneous

Power Requirements	AC 120–230 volts, 50–60 Hz
Power Consumption	
CT-W620R	19 W
Dimensions	420 (W) × 125 (H) × 250 (D) mm
Weight (without package)	
CT-W620R	4.3 kg

Accessories

Operating instructions	1
Connection cord with pin plugs	2
 Remote control cord	1
 CD-DECK SYNCHRO control cord	1

NOTE:

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

POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed in such a way that they are not likely to be stepped on. A damaged power cord can cause fire or give you an electrical shock. Check the power cord regularly. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.