

Service Manual

ORDER NO.
ARP2296

STEREO CASSETTE DECK

CT-41^{KU/CA} CT-900S^{HEM}

- Refer to the service manual ARP2217, CT-777.
- This manual is applicable to the CT-41/KU/CA and CT-900S/HEM types.

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

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

The CT-41/KU/CA and CT-900S/HEM types are the same as the CT-777/HEM type with the exception of the following sections.

Nos. in "Remark" column correspond to the illustration on page 4.

Mark	Symbol & Description	Part No.			Remarks
		CT-777/ HEM type	CT-41/ KU/CA type	CT-900S/ HEM type	
	Main unit	Non supply	Non supply	Non supply	
	Operation unit	Non supply	Non supply	Non supply	
	Control unit	Non supply	Non supply	Non supply	
	Headphone unit	Non supply	Non supply	Non supply	
	Power switch unit	Non supply	Non supply	Non supply	
	Dolby S unit	.....	Non supply	Non supply	⑩
Δ	Strain relief	CM-22B	CM-22C	CM-22B	
Δ	AC Power cord	PDG1003	PDG1015	PDG1003	
Δ	FU701, FU702 Audio fuse (T500mA)	REK-097	.....	REK-097	
Δ	FU703, FU704 Fuse (T2A)	REK-103	.....	REK-103	
Δ	FU701, FU702 Audio fuse (800mA)	.....	REK-079	.....	
Δ	FU703, FU704 Fuse (1.6A)	.....	REK-074	.....	
Δ	Power transformer (AC220-230/230-240V)	RTT1171	.....	RTT1171	
Δ	Power transformer (AC120V)	.....	RTT1157	.....	
	FL filter	RAH1542	RAH1838	RAH1542	
	Door lens	RLP1026	RLP1034	RLP1034	
	Cord clasper	RNH-184	.....	.....	
	Door	RNK1495	RNK1730	RNK1730	
	Bonnet	RXX1376	RXX1128	RXX1128	
	Front panel assembly	RXX1385	RXX1384	RXX1383	
	Door assembly	RXX1417	RXX1415	RXX1414	⑩
	PCB spacer	.....	Non supply	PNY-404	⑩
	Unit holder	.....	Non supply	Non supply	⑩
	Dolby S name plate	.....	Non supply	Non supply	⑩
	Packing case	RHG1279	RHG1278	RHG1277	⑩
	Connection cord with mini plug	.....	PDE-319	.....	
	Operating instructions (French, Italian, Dutch, Swedish, Spanish, Portuguese)	RRD1109	.....	RRD1109	
	Operating instructions (English, German)	RRE1044	.....	RRE1044	
	Operating instructions (English)	.....	RRB1094	.....	

MAIN UNIT

The main units (for CT-41/KU/CA and CT-900S/HEM types) are the same as the main unit (for CT-777/HEM type) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		CT-777/ HEM type	CT-41/ KU/CA type	CT-900S/ HEM type	
	C391 R303, R304 R382 VR105, VR108 JA41, JA42 Remote control jack	 RD1/6PM582J RD1/6PM123J RCP1017	CKPUYF103Z25 RD1/6PM622J RD1/6PM202J RCP1080 RKN1004	 RD1/6PM622J RD1/6PM202J RCP1080	

OPERATION UNIT

The operation units (for CT-41/KU/CA and CT-900S/HEM types) are the same as the operation unit (for CT-777/HEM type) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		CT-777/ HEM type	CT-41/ KU/CA type	CT-900S/ HEM type	
	D921-D923 S951 R954 R955 V921	 RSB1001 RD1/6PM223J RAW1056	1SS254 RSB1003 RD1/6PM274J RD1/6PM102J RAW1069	 RSB1003 RD1/6PM223J RAW1069	

CONTROL UNIT

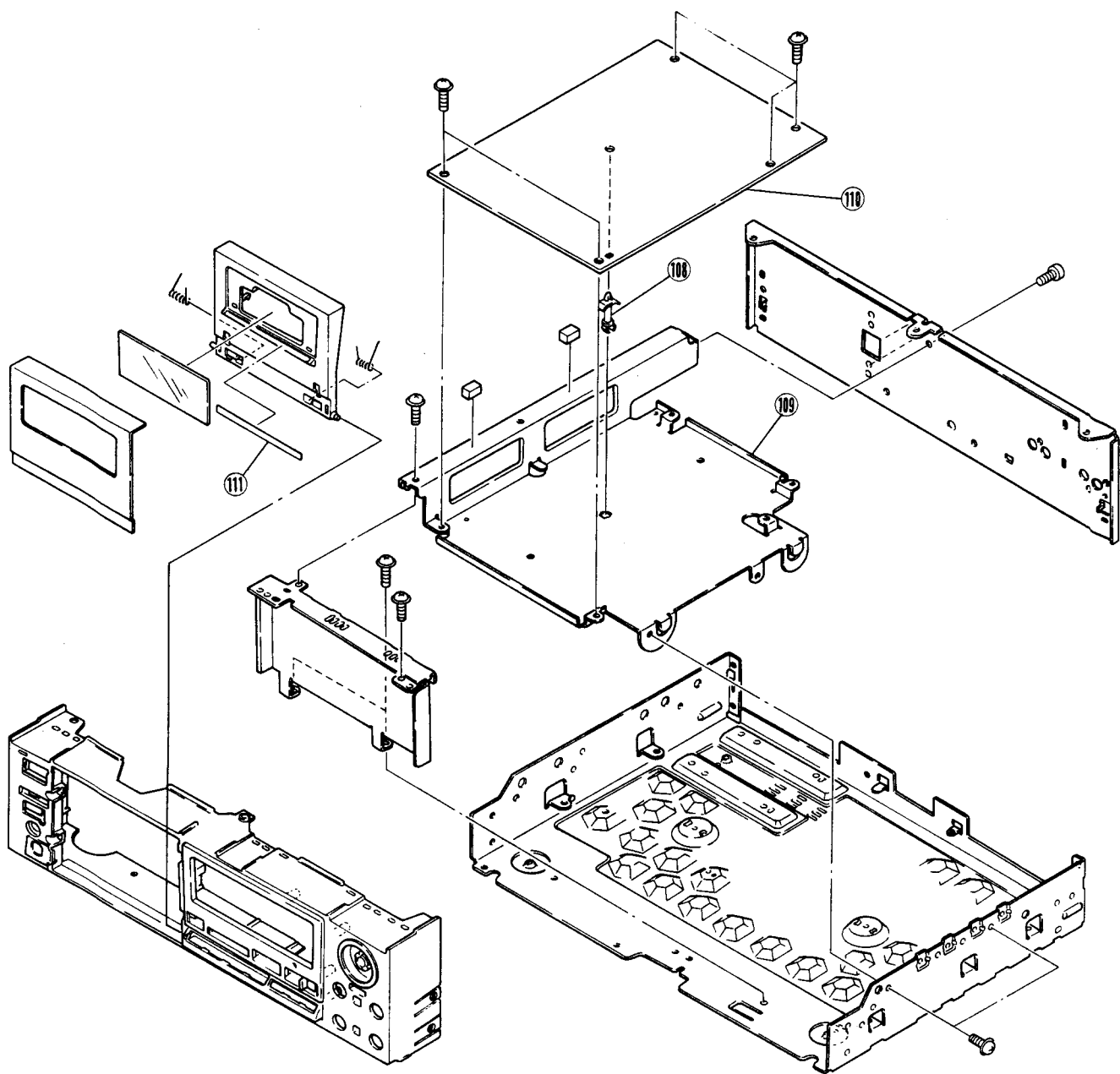
The control units of CT-41/KU/CA and CT-900S/HEM types are the same as that of CT-777/HEM type for the service supply parts.

HEADPHONE UNIT

The headphone units of CT-41/KU/CA and CT-900S/HEM types are the same as that of CT-777/HEM type for the service supply parts.

POWER SWITCH UNIT

The power switch units of CT-41/KU/CA and CT-900S/HEM types are the same as that of CT-777/HEM type for the service supply parts.



1

2

3

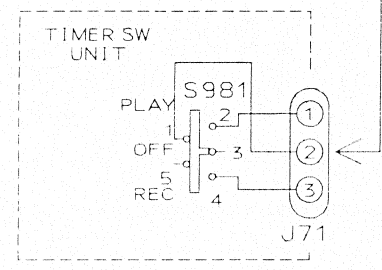
4

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*1	KU/CA	HEM
J72A	11Pin	10Pin

A

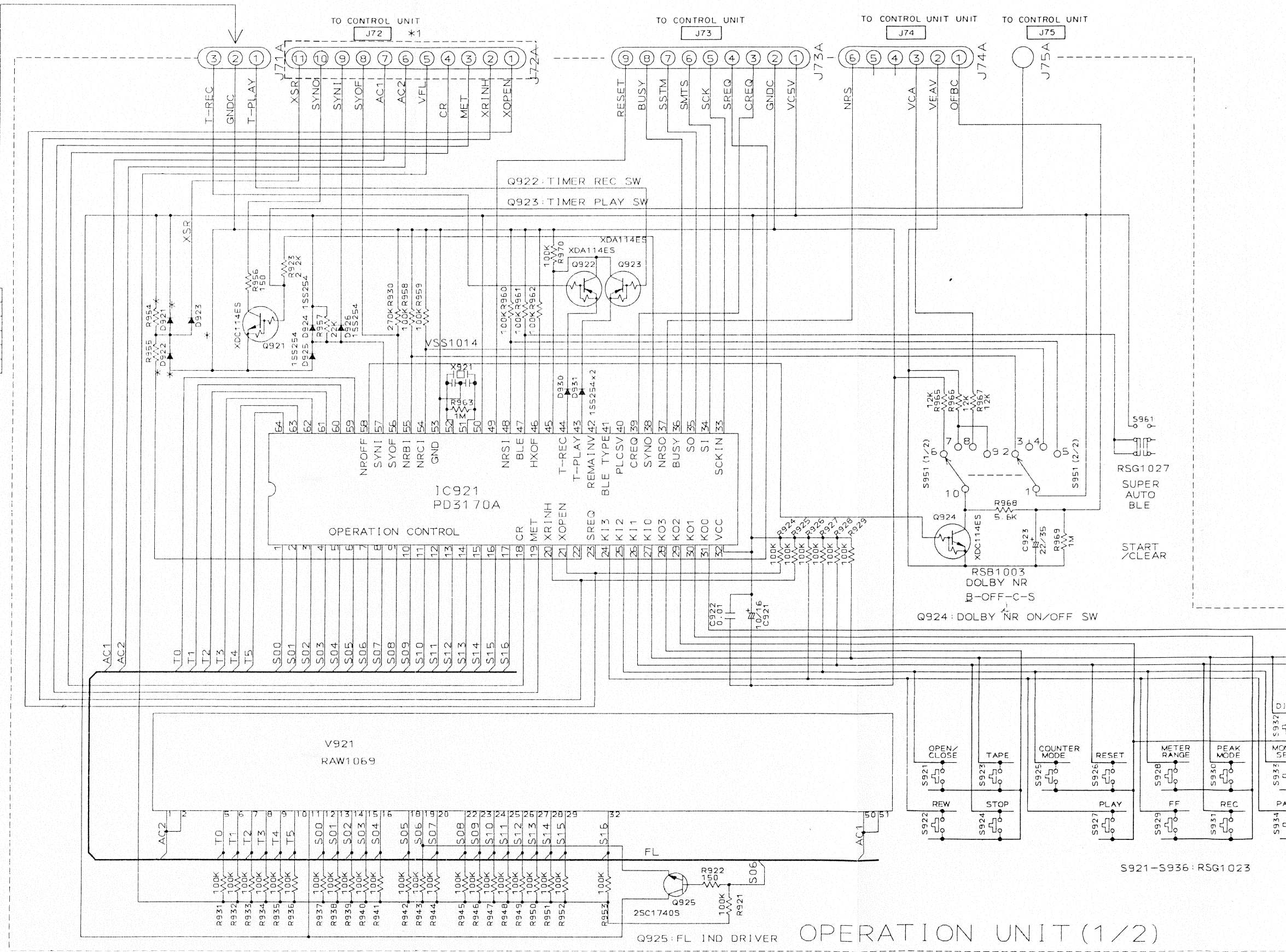


*PARTS	KU/CA	HEM
R954	270K	22K
R955	1K	JUMPER
D921	1SS254	X
D922	1SS254	X
D923	1SS254	X

B

C

D



OPERATION UNIT (1/2)

1

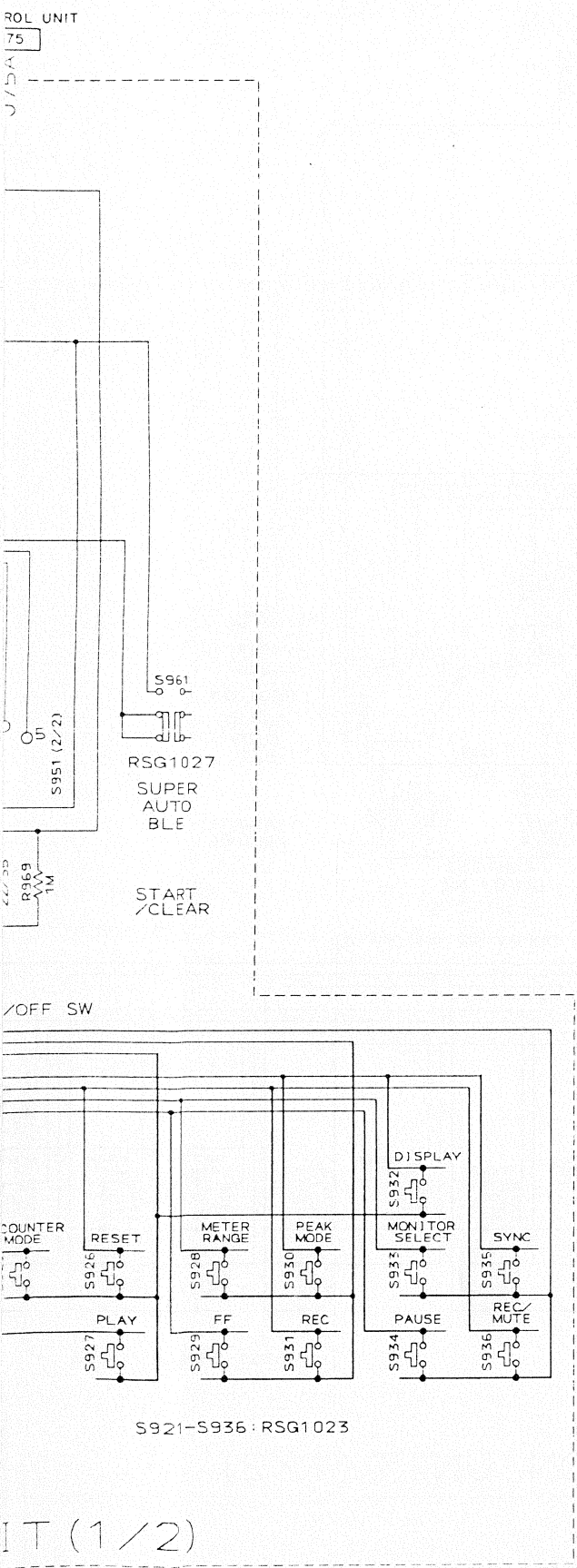
2

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A

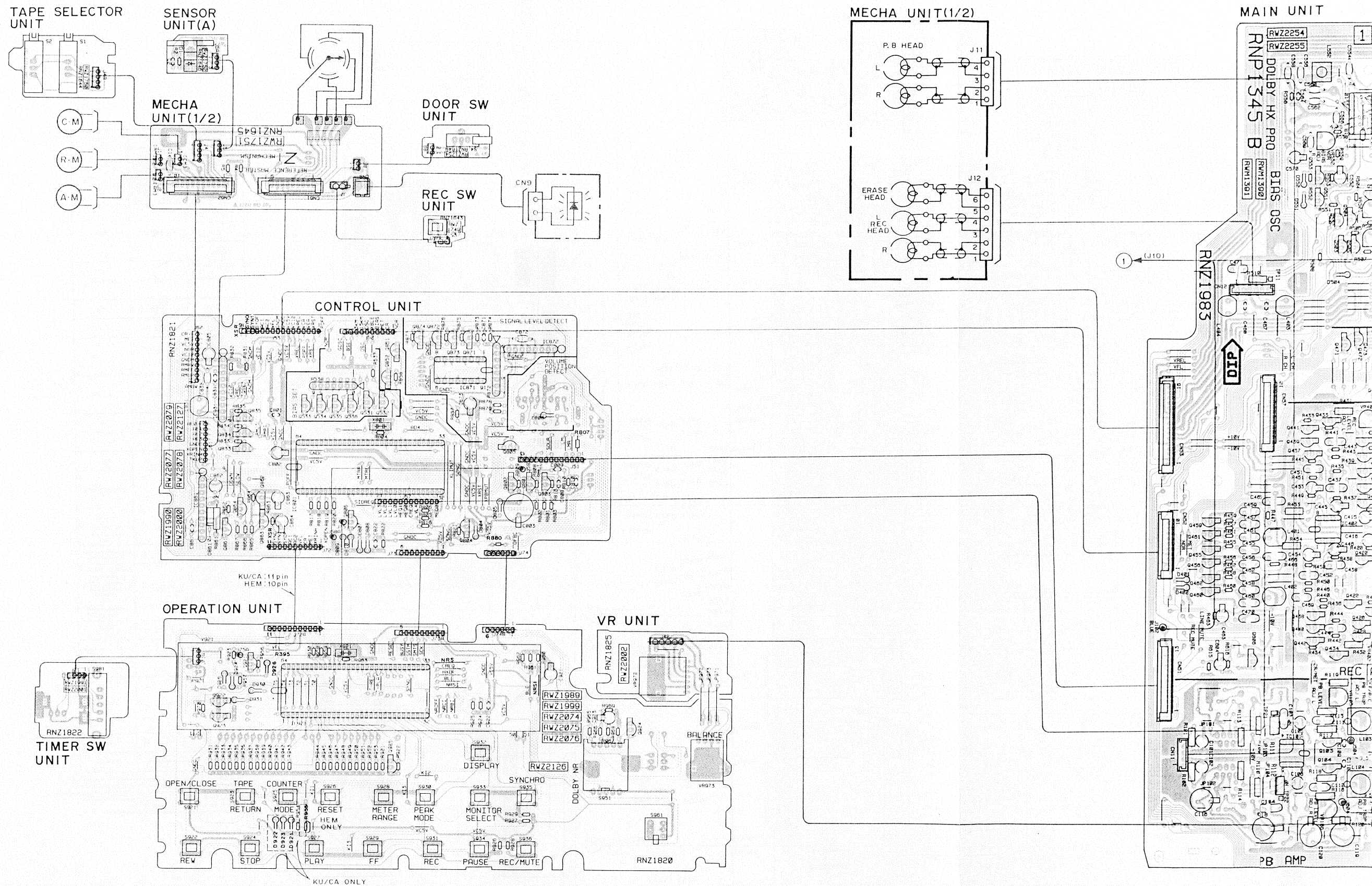
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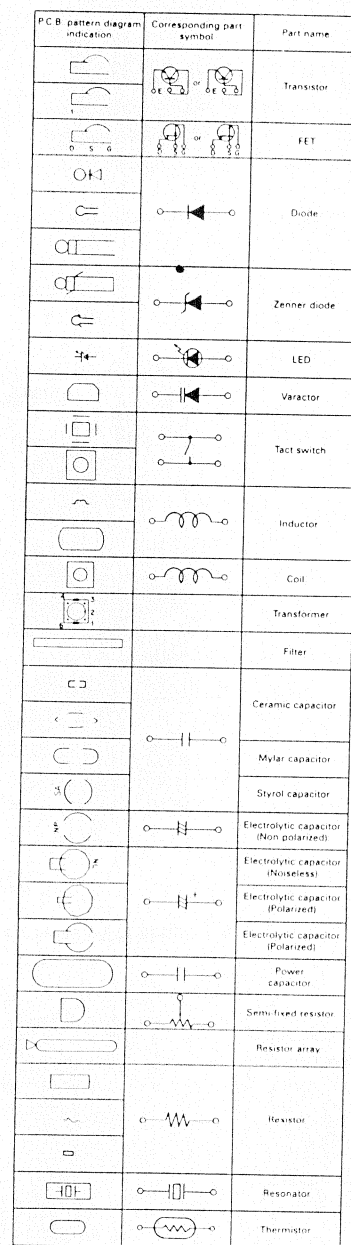
C

D

3. P. C. BOARDS CONNECTION DIAGRAM

• View from component side

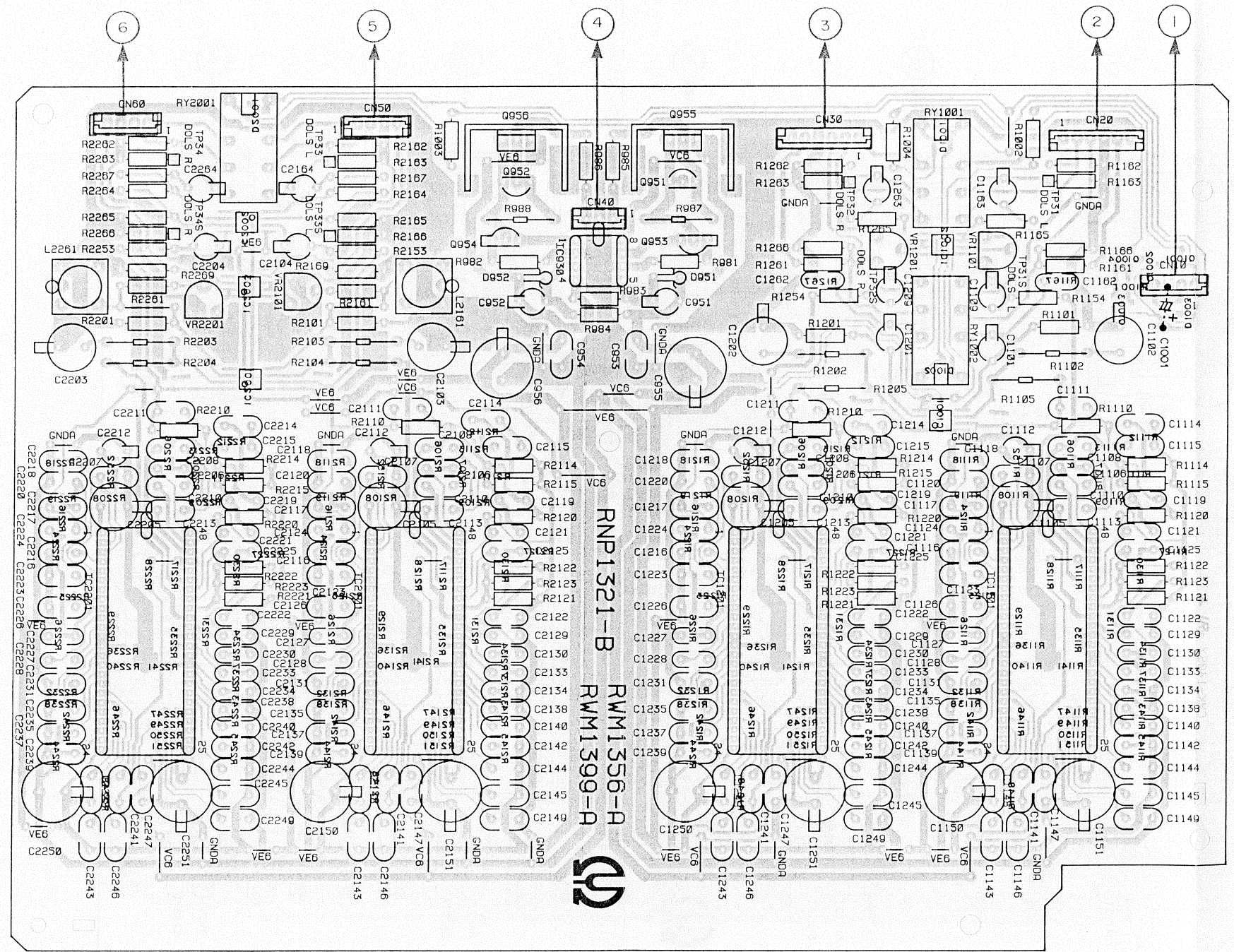




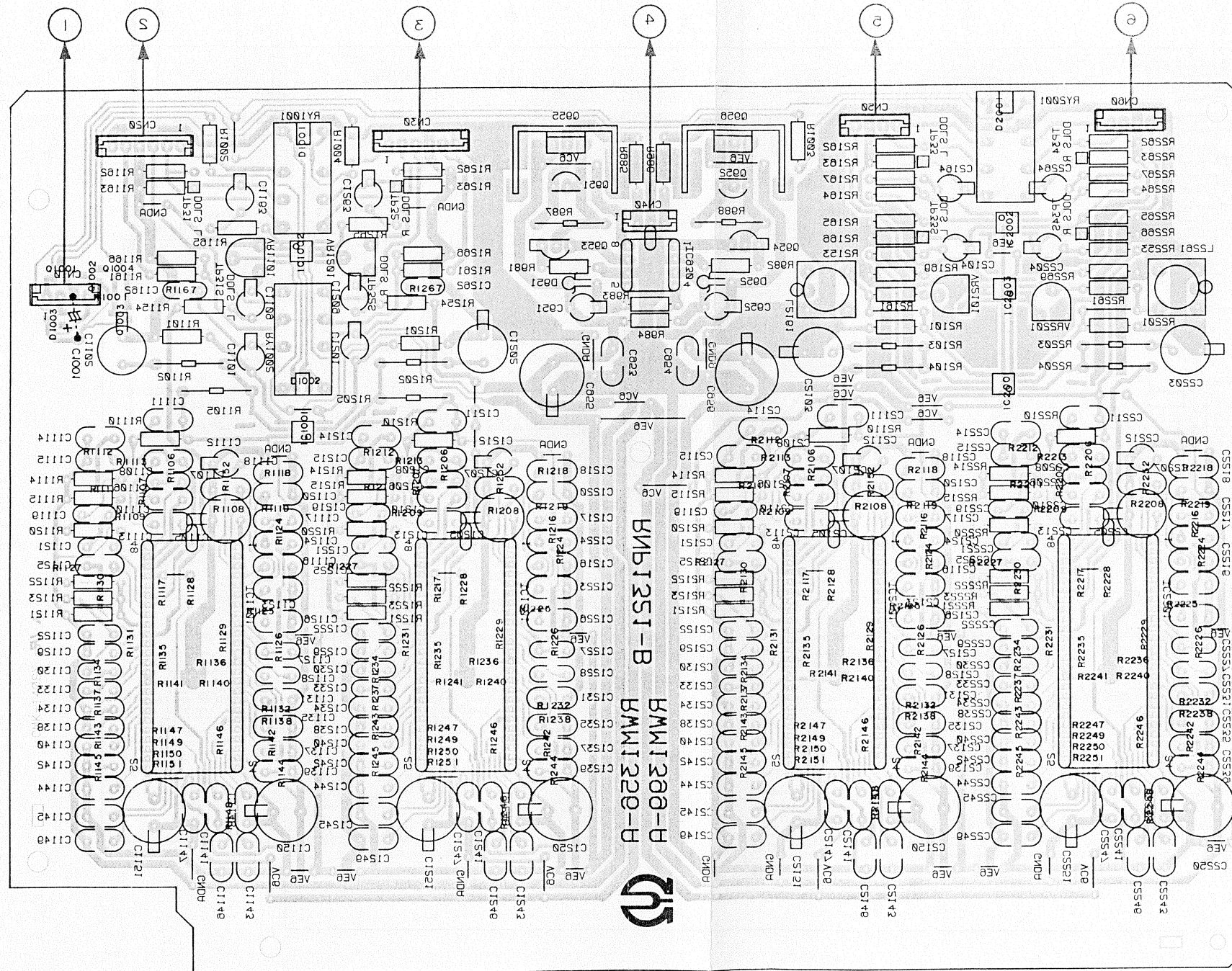
1. This PCB connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with  shows negative terminal.
4. The diode marked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

• View from component side

• View from



• View from soldering side



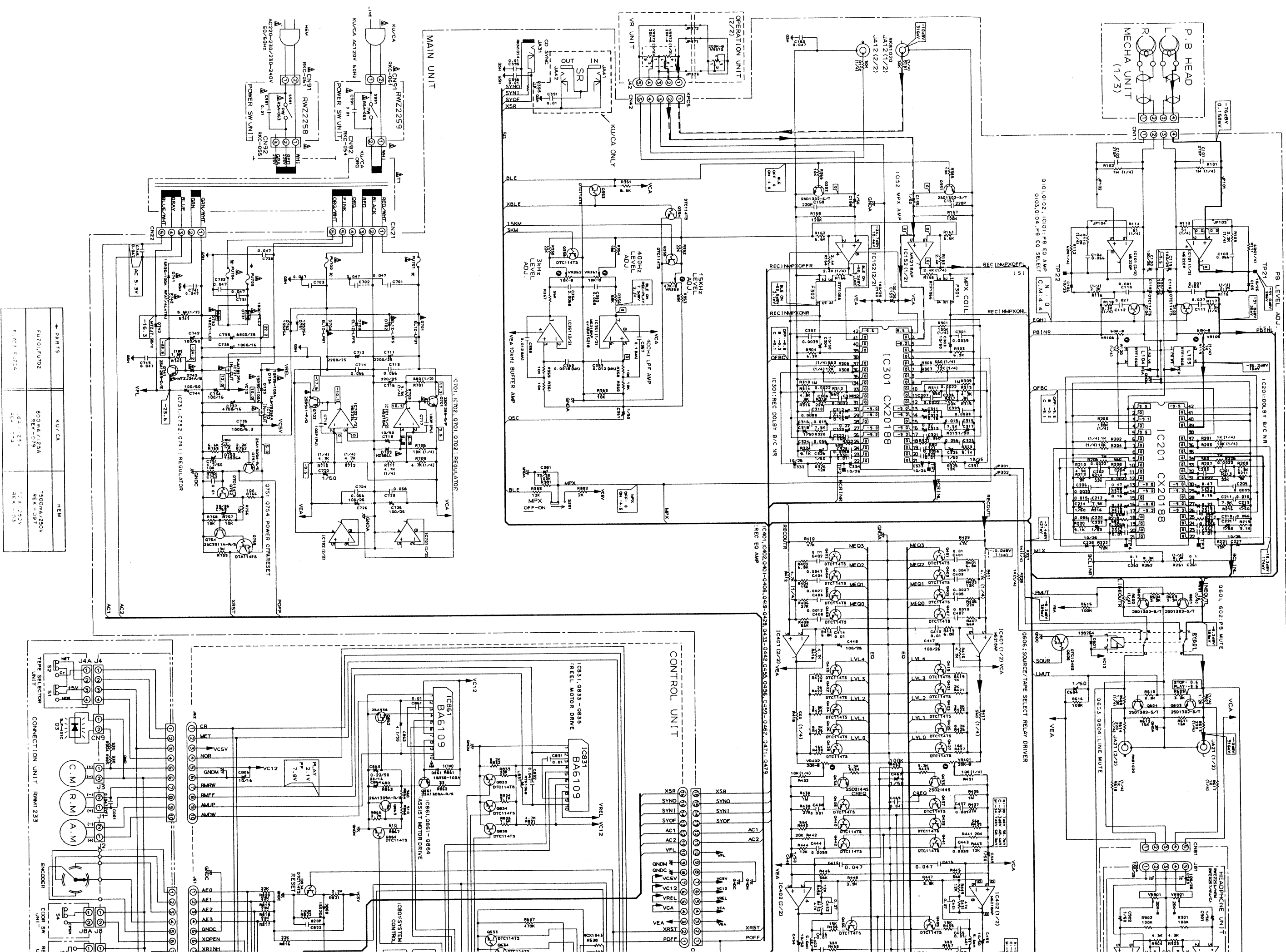
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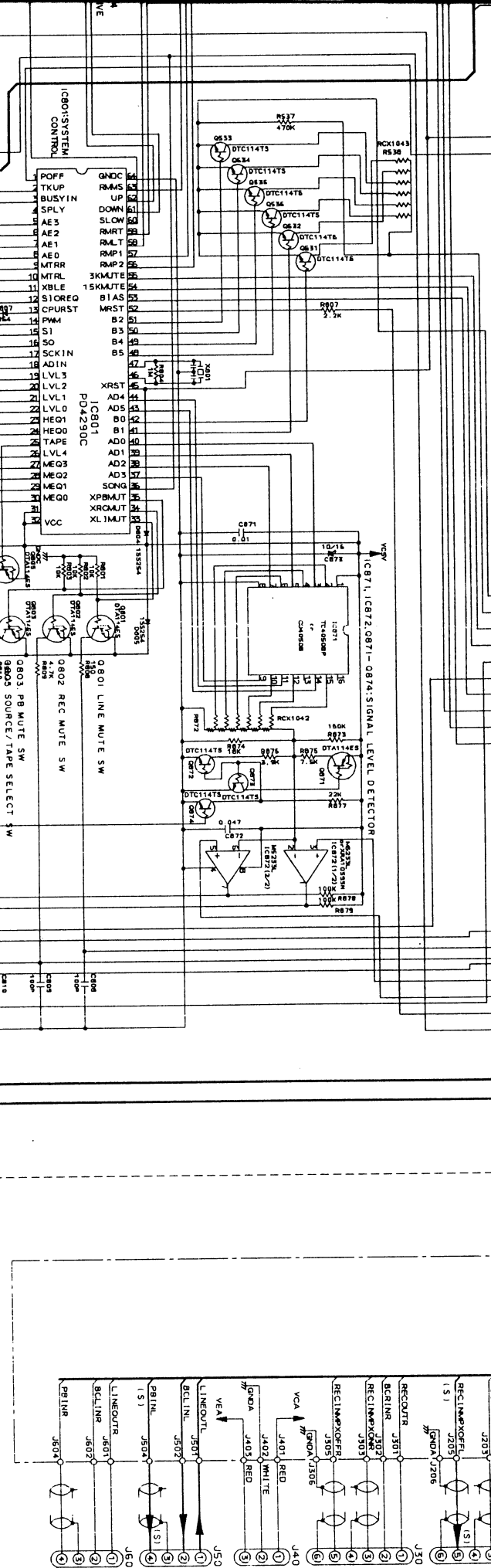
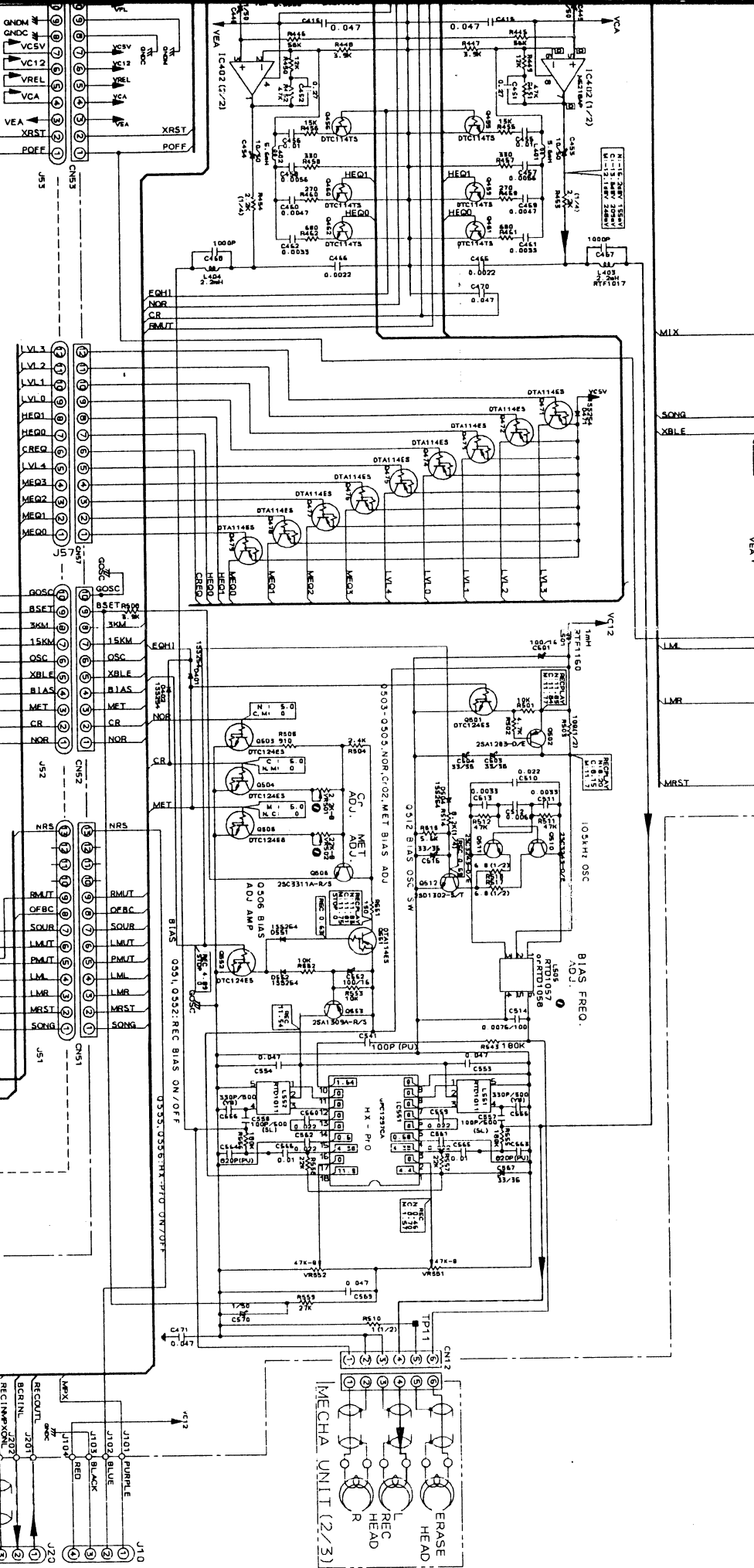
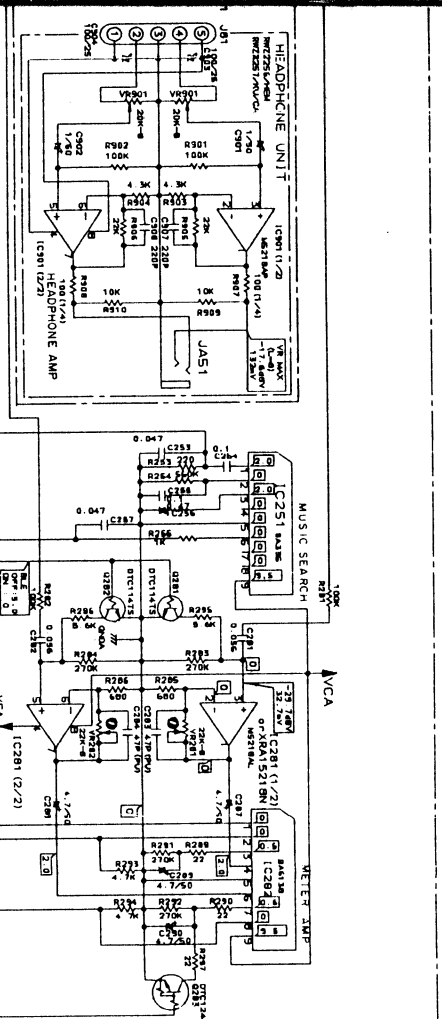
B

C

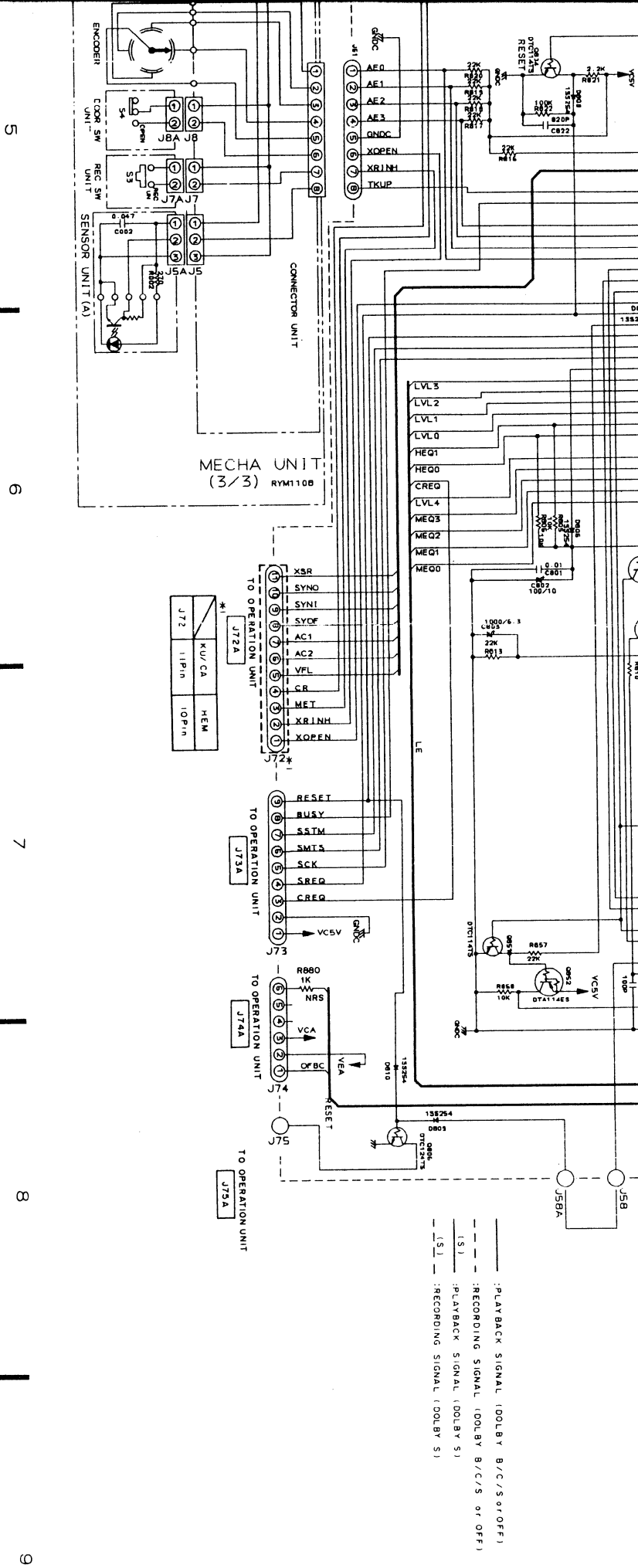
D

2. SCHEMATIC DIAGRAM





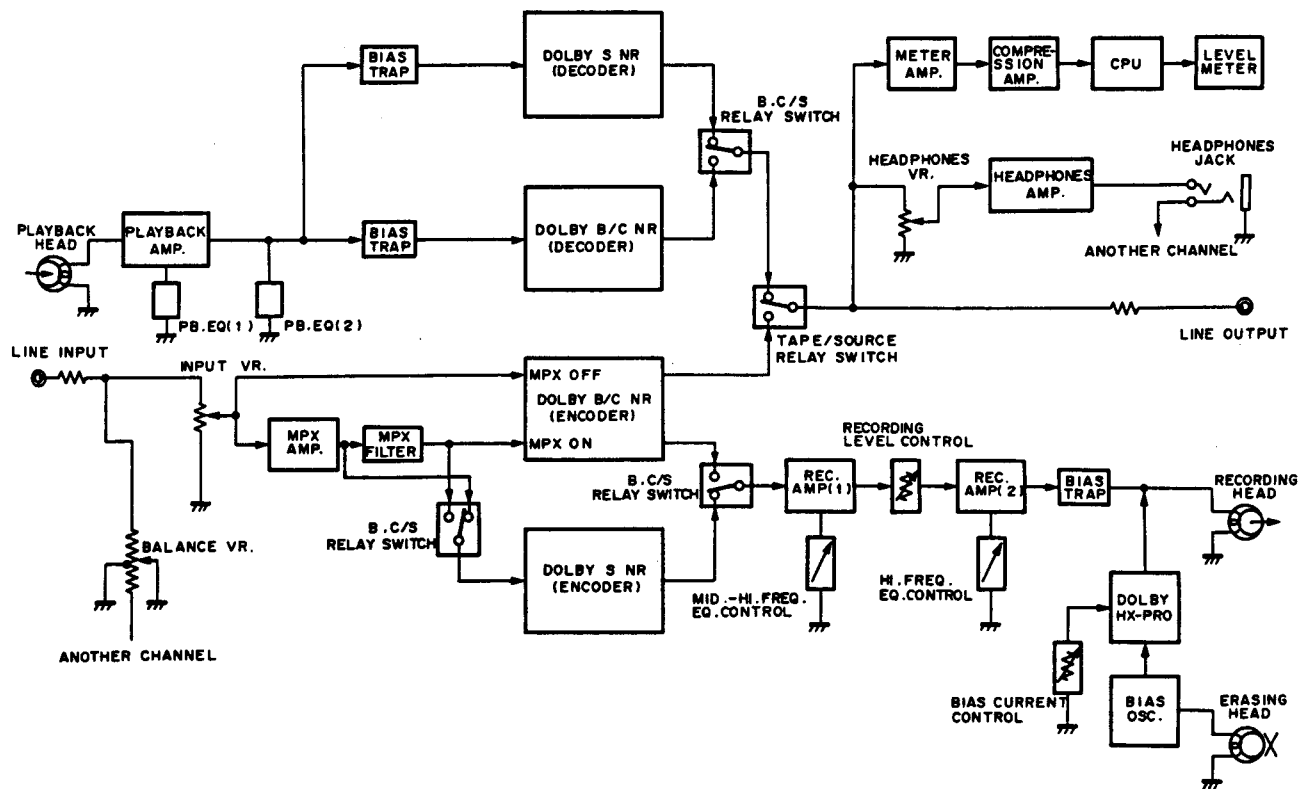
PLAYBACK SIGNAL (DOLBY B/C/S OFF)
RECORDING SIGNAL (DOLBY B/C/S OFF)
PLAYBACK SIGNAL (DOLBY S)
RECORDING SIGNAL (DOLBY S)





7

4. BLOCK DIAGRAM



5. 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 $\rightarrow$ $56 \times 10^1 \rightarrow 561$ RD1/4PS $\begin{bmatrix} 5 & 6 & 1 \end{bmatrix}$ J

47k Ω $\rightarrow$ $47 \times 10^3 \rightarrow 473$ RD1/4PS $\begin{bmatrix} 4 & 7 & 3 \end{bmatrix}$ J

0.5 Ω $\rightarrow$ 0R5 RN2H $\begin{bmatrix} 0 & R & 5 \end{bmatrix}$ K

1 Ω $\rightarrow$ 010 RS1P $\begin{bmatrix} 0 & 1 & 0 \end{bmatrix}$ K

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

5.62k Ω $\rightarrow$ $562 \times 10^1 \rightarrow 5621$ RN1/4SR $\begin{bmatrix} 5 & 6 & 2 & 1 \end{bmatrix}$ F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
DOLBY S UNIT				C1109	ELECTR. CAPACITOR(10/50)	RCH1062	
This unit is the exclusive board for CT-41/KU/CA and CT-900S/HEM types.				C1110	AUDIO FILM CAPACITOR	CFTXA183J50	
SEMICONDUCTORS				C1111	AUDIO FILM CAPACITOR	CFTXA104J50	
	IC930 OP-AMP, IC	M5218AP		C1112	ELECTR. CAPACITOR	CENA100M50	
	IC1001	UPC4572G		C1113	AUDIO FILM CAPACITOR	CFTXA474J50	
	IC1002 OP-AMP, IC	M5218AFP		C1114	AUDIO FILM CAPACITOR	CFTXA223J50	
	IC1101	CXA1417S		C1115	AUDIO FILM CAPACITOR	CFTXA104J50	
	IC1201	CXA1417S		C1116	AUDIO FILM CAPACITOR	CFTXA224J50	
	IC2001	UPC4572G		C1117	AUDIO FILM CAPACITOR	CFTXA104J50	
	IC2002, 2003 OP-AMP, IC	M5218AFP		C1118	AUDIO FILM CAPACITOR	CFTXA183J50	
	IC2101	CXA1417S		C1119	AUDIO FILM CAPACITOR	CFTXA182J50	
	IC2201	CXA1417S		C1120	AUDIO FILM CAPACITOR	CFTXA223J50	
Δ	Q951, 952 N-FET	2SK246		C1121, 1122	AUDIO FILM CAPACITOR	CFTXA182J50	
	Q953 TRANSISTOR	2SC2240		C1123	AUDIO FILM CAPACITOR	CFTXA224J50	
	Q954 TRANSISTOR	2SA970		C1124, 1125	AUDIO FILM CAPACITOR	CFTXA393J50	
Δ	Q955 TRANSISTOR	2SD1266		C1126	AUDIO FILM CAPACITOR	CFTXA105J50	
Δ	Q956 TRANSISTOR	2SB941		C1127		CFTXA681J50	
	Q1001-1004	DTC114EK		C1128		CFTXA102J50	
	D951, 952 ZENER DIODE	HZS6C1L		C1129		CFTXA471J50	
	D1001-1003 CHIP CIODE ARRAY	DAN202K		C1130	AUDIO FILM CAPACITOR	CFTXA222J50	
	D2001 CHIP CIODE ARRAY	DAN202K		C1131	AUDIO FILM CAPACITOR	CFTXA822J50	
RELAYS				C1133		CFTXA102J50	
	RY1001, 1002	RSR1026		C1134	AUDIO FILM CAPACITOR	CFTXA822J50	
	RY2001	RSR1026		C1135	AUDIO FILM CAPACITOR	CFTXA224J50	
COILS/TRANSFORMERS				C1137	AUDIO FILM CAPACITOR	CFTXA823J50	
	L2161 COIL	RTF1060		C1138, 1139	AUDIO FILM CAPACITOR	CFTXA153J50	
	L2261 COIL	RTF1060		C1140	AUDIO FILM CAPACITOR	CFTXA473J50	
CAPACITORS				C1141	AUDIO FILM CAPACITOR	CFTXA104J50	
	C951, 952 ELECTR. CAPACITOR(10/50)	RCH1062		C1142	AUDIO FILM CAPACITOR	CFTXA224J50	
	C953, 954 AUDIO FILM CAPACITOR	CFTXA563J50		C1143	AUDIO FILM CAPACITOR	CFTXA474J50	
	C955, 956 ELECTR. CAPACITOR(470/16)	RCH1056		C1144	AUDIO FILM CAPACITOR	CFTXA104J50	
	C1001 ELECTR. CAPACITOR	CEAS100M50		C1145	AUDIO FILM CAPACITOR	CFTXA474J50	
	C1101 ELECTR. CAPACITOR(10/50)	RCH1062		C1146	AUDIO FILM CAPACITOR	CFTXA224J50	
	C1105 ELECTR. CAPACITOR	CENA220M50		C1147	AUDIO FILM CAPACITOR	CFTXA823J50	
	C1106 AUDIO FILM CAPACITOR	CFTXA182J50		C1148	AUDIO FILM CAPACITOR	CFTXA104J50	
	C1107, 1108 AUDIO FILM CAPACITOR	CFTXA104J50		C1149	AUDIO FILM CAPADITOR	CFTXA334J50	
				C1150, 1151	ELECTR. CAPACITOR(100/16)	RCH1058	

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C1162		CFTXA471J50		C2116	AUDIO FILM CAPACITOR	CFTXA224J50
	C1163	ELECTR. CAPACITOR(10/50)	RCH1062		C2117	AUDIO FILM CAPACITOR	CFTXA104J50
	C1201	ELECTR. CAPACITOR(10/50)	RCH1062		C2118	AUDIO FILM CAPACITOR	CFTXA183J50
	C1205	ELECTR. CAPACITOR	CENA220M50		C2119	AUDIO FILM CAPACITOR	CFTXA182J50
	C1206	AUDIO FILM CAPACITOR	CFTXA182J50		C2120	AUDIO FILM CAPACITOR	CFTXA223J50
	C1207, 1208	AUDIO FILM CAPACITOR	CFTXA104J50		C2121, 2122	AUDIO FILM CAPACITOR	CFTXA182J50
	C1209	ELECTR. CAPACITOR(10/50)	RCH1062		C2123	AUDIO FILM CAPACITOR	CFTXA224J50
	C1210	AUDIO FILM CAPACITOR	CFTXA183J50		C2124, 2125	AUDIO FILM CAPACITOR	CFTXA393J50
	C1211	AUDIO FILM CAPACITOR	CFTXA104J50		C2126	AUDIO FILM CAPACITOR	CFTXA105J50
	C1212	ELECTR. CAPACITOR	CENA100M50		C2127		CFTXA681J50
	C1213	AUDIO FILM CAPACITOR	CFTXA474J50		C2128		CFTXA102J50
	C1214	AUDIO FILM CAPACITOR	CFTXA223J50		C2129		CFTXA471J50
	C1215	AUDIO FILM CAPACITOR	CFTXA104J50		C2130	AUDIO FILM CAPACITOR	CFTXA222J50
	C1216	AUDIO FILM CAPACITOR	CFTXA224J50		C2131	AUDIO FILM CAPACITOR	CFTXA822J50
	C1217	AUDIO FILM CAPACITOR	CFTXA104J50		C2133		CFTXA102J50
	C1218	AUDIO FILM CAPACITOR	CFTXA183J50		C2134	AUDIO FILM CAPACITOR	CFTXA822J50
	C1219	AUDIO FILM CAPACITOR	CFTXA182J50		C2135	AUDIO FILM CAPACITOR	CFTXA224J50
	C1220	AUDIO FILM CAPACITOR	CFTXA223J50		C2137	AUDIO FILM CAPACITOR	CFTXA823J50
	C1221, 1222	AUDIO FILM CAPACITOR	CFTXA182J50		C2138, 2139	AUDIO FILM CAPACITOR	CFTXA153J50
	C1223	AUDIO FILM CAPACITOR	CFTXA224J50		C2140	AUDIO FILM CAPACITOR	CFTXA473J50
	C1224, 1225	AUDIO FILM CAPACITOR	CFTXA393J50		C2141	AUDIO FILM CAPACITOR	CFTXA104J50
	C1226	AUDIO FILM CAPACITOR	CFTXA105J50		C2142	AUDIO FILM CAPACITOR	CFTXA224J50
	C1227		CFTXA681J50		C2143	AUDIO FILM CAPACITOR	CFTXA474J50
	C1228		CFTXA102J50		C2144	AUDIO FILM CAPACITOR	CFTXA104J50
	C1229		CFTXA471J50		C2145	AUDIO FILM CAPACITOR	CFTXA474J50
	C1230	AUDIO FILM CAPACITOR	CFTXA222J50		C2146	AUDIO FILM CAPACITOR	CFTXA224J50
	C1231	AUDIO FILM CAPACITOR	CFTXA822J50		C2147	AUDIO FILM CAPACITOR	CFTXA823J50
	C1233		CFTXA102J50		C2148	AUDIO FILM CAPACITOR	CFTXA104J50
	C1234	AUDIO FILM CAPACITOR	CFTXA822J50		C2149	AUDIO FILM CAPACITOR	CFTXA334J50
	C1235	AUDIO FILM CAPACITOR	CFTXA224J50		C2150, 2151	ELECTR. CAPACITOR(100/16)	RCH1058
	C1237	AUDIO FILM CAPACITOR	CFTXA823J50		C2164	ELECTR. CAPACITOR(10/50)	RCH1062
	C1238, 1239	AUDIO FILM CAPACITOR	CFTXA153J50		C2204	ELECTR. CAPACITOR(10/50)	RCH1062
	C1240	AUDIO FILM CAPACITOR	CFTXA473J50		C2205	ELECTR. CAPACITOR	CENA220M50
	C1241	AUDIO FILM CAPACITOR	CFTXA104J50		C2206	AUDIO FILM CAPACITOR	CFTXA182J50
	C1242	AUDIO FILM CAPACITOR	CFTXA224J50		C2207, 2208	AUDIO FILM CAPACITOR	CFTXA104J50
	C1243	AUDIO FILM CAPACITOR	CFTXA474J50		C2210	AUDIO FILM CAPACITOR	CFTXA183J50
	C1244	AUDIO FILM CAPACITOR	CFTXA104J50		C2211	AUDIO FILM CAPACITOR	CFTXA104J50
	C1245	AUDIO FILM CAPACITOR	CFTXA474J50		C2212	ELECTR. CAPACITOR	CENA100M50
	C1246	AUDIO FILM CAPACITOR	CFTXA224J50		C2213	AUDIO FILM CAPACITOR	CFTXA474J50
	C1247	AUDIO FILM CAPACITOR	CFTXA823J50		C2214	AUDIO FILM CAPACITOR	CFTXA223J50
	C1248	AUDIO FILM CAPACITOR	CFTXA104J50		C2215	AUDIO FILM CAPACITOR	CFTXA104J50
	C1249	AUDIO FILM CAPACITOR	CFTXA334J50		C2216	AUDIO FILM CAPACITOR	CFTXA224J50
	C1250, 1251	ELECTR. CAPACITOR(100/16)	RCH1058		C2217	AUDIO FILM CAPACITOR	CFTXA104J50
	C1262		CFTXA471J50		C2218	AUDIO FILM CAPACITOR	CFTXA183J50
	C1263	ELECTR. CAPACITOR(10/50)	RCH1062		C2219	AUDIO FILM CAPACITOR	CFTXA182J50
	C2104	ELECTR. CAPACITOR(10/50)	RCH1062		C2220	AUDIO FILM CAPACITOR	CFTXA223J50
	C2105	ELECTR. CAPACITOR	CENA220M50		C2221, 2222	AUDIO FILM CAPACITOR	CFTXA182J50
	C2106	AUDIO FILM CAPACITOR	CFTXA182J50		C2223	AUDIO FILM CAPACITOR	CFTXA224J50
	C2107, 2108	AUDIO FILM CAPACITOR	CFTXA104J50		C2224, 2225	AUDIO FILM CAPACITOR	CFTXA393J50
	C2110	AUDIO FILM CAPACITOR	CFTXA183J50		C2226	AUDIO FILM CAPACITOR	CFTXA105J50
	C2111	AUDIO FILM CAPACITOR	CFTXA104J50		C2227		CFTXA681J50
	C2112	ELECTR. CAPACITOR	CENA100M50		C2228		CFTXA102J50
	C2113	AUDIO FILM CAPACITOR	CFTXA474J50		C2229		CFTXA471J50
	C2114	AUDIO FILM CAPACITOR	CFTXA223J50		C2230	AUDIO FILM CAPACITOR	CFTXA222J50
	C2115	AUDIO FILM CAPACITOR	CFTXA104J50		C2231	AUDIO FILM CAPACITOR	CFTXA822J50

Mark	No.	Description	Part No.
	C2233		CPTXA102J50
	C2234	AUDIO FILM CAPACITOR	CPTXA822J50
	C2235	AUDIO FILM CAPACITOR	CPTXA224J50
	C2237	AUDIO FILM CAPACITOR	CPTXA823J50
	C2238, 2239	AUDIO FILM CAPACITOR	CPTXA153J50
	C2240	AUDIO FILM CAPACITOR	CPTXA473J50
	C2241	AUDIO FILM CAPACITOR	CPTXA104J50
	C2242	AUDIO FILM CAPACITOR	CPTXA224J50
	C2243	AUDIO FILM CAPACITOR	CPTXA474J50
	C2244	AUDIO FILM CAPACITOR	CPTXA104J50
	C2245	AUDIO FILM CAPACITOR	CPTXA474J50
	C2246	AUDIO FILM CAPACITOR	CPTXA224J50
	C2247	AUDIO FILM CAPACITOR	CPTXA823J50
	C2248	AUDIO FILM CAPACITOR	CPTXA104J50
	C2249	AUDIO FILM CAPACITOR	CPTXA334J50
	C2250, 2251	ELECTR. CAPACITOR(100/16)	RCH1058
	C2264	ELECTR. CAPACITOR(10/50)	RCH1062

RESISTORS

△	R981-984	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R985, 986	FUSE RESISTOR(10Ω)	DCN1002
	R1001	CHIP RESISTOR	RS1/10S□□□J
	R1101	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1102	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R1105	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R1106-1109		RS1/10S□□□J
	R1110	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1111-1113		RS1/10S□□□J
	R1114, 1115	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1116-1119	CHIP RESISTOR	RS1/10S□□□J
	R1120-1123	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1124-1132	CHIP RESISTOR	RS1/10S□□□J
	R1134-1138	CHIP RESISTOR	RS1/10S□□□J
	R1140-1152	CHIP RESISTOR	RS1/10S□□□J
	R1154	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1161-1163	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1165, 1166	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1167	CHIP RESISTOR	RS1/10S□□□J
	R1201	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1202	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R1205	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R1206-1209		RS1/10S□□□J
	R1210	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1211-1213		RS1/10S□□□J
	R1214, 1215	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1216-1219	CHIP RESISTOR	RS1/10S□□□J
	R1220-1223	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1224-1232	CHIP RESISTOR	RS1/10S□□□J
	R1234-1238	CHIP RESISTOR	RS1/10S□□□J
	R1240-1252	CHIP RESISTOR	RS1/10S□□□J
	R1254	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1261-1263	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1265, 1266	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R1267	CHIP RESISTOR	RS1/10S□□□J

Mark	No.	Description	Part No.
	R2101	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2103, 2104	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R2106-2109		RS1/10S□□□J
	R2110	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2111-2113		RS1/10S□□□J
	R2114, 2115	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2116-2119	CHIP RESISTOR	RS1/10S□□□J
	R2120-2123	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2124-2132	CHIP RESISTOR	RS1/10S□□□J
	R2134-2138	CHIP RESISTOR	RS1/10S□□□J
	R2140-2152	CHIP RESISTOR	RS1/10S□□□J
	R2153	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2161-2167	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2169	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2201	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2203, 2204	CARBONFILM RESISTOR	RDR1/2PM□□□J
	R2206-2209		RS1/10S□□□J
	R2210	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2211-2213		RS1/10S□□□J
	R2214, 2215	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2216-2219	CHIP RESISTOR	RS1/10S□□□J
	R2220-2223	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2224-2232	CHIP RESISTOR	RS1/10S□□□J
	R2234-2238	CHIP RESISTOR	RS1/10S□□□J
	R2240-2252	CHIP RESISTOR	RS1/10S□□□J
	R2253	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2261-2267	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R2269	CARBONFILM RESISTOR	RDR1/4PM□□□J
	VR1101	VARIABLE RESISTOR(20K)	RCP1017
	VR1201	VARIABLE RESISTOR(20K)	RCP1017
	VR2101	VARIABLE RESISTOR(5K)	RCP1088
	VR2201	VARIABLE RESISTOR(5K)	RCP1088

- 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. ADJUSTMENTS

PLAYBACK SECTION

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	VR105 (Lch) VR106 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	-15.0 dBv	This adjustment must be performed accurately for proper Dolby level setting.
2.			DOLBY S	VR2101 (Lch) VR2201 (Rch)	TP. 33S (Lch) TP. 34S (Rch)	-11.7 dBv	

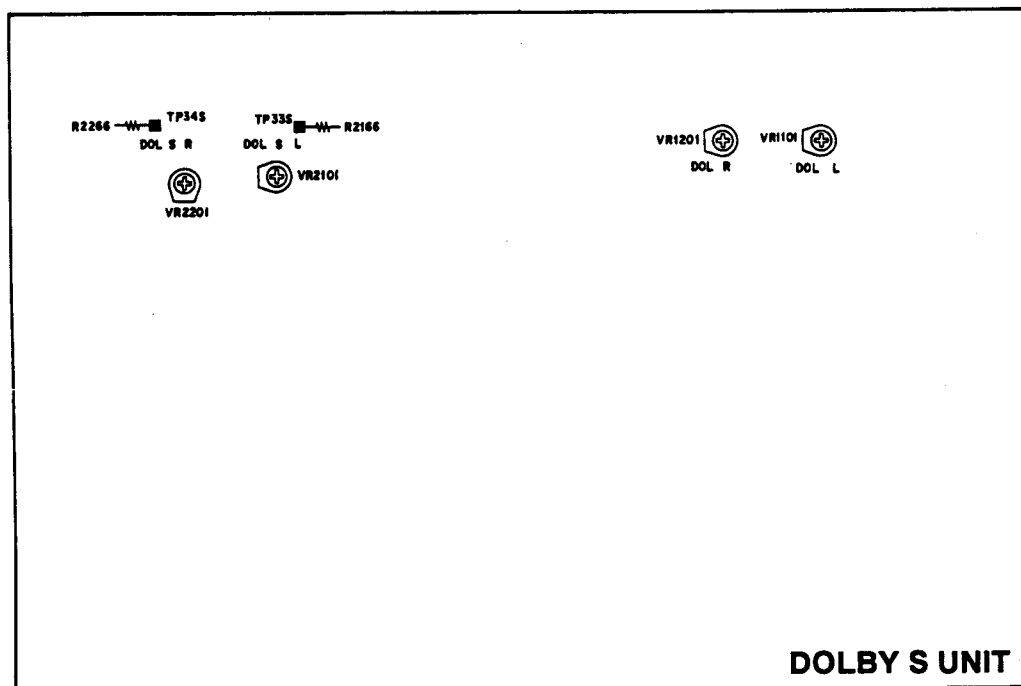


Fig. 6-1 Adjusting points

RECORDING SECTION

Bias Trap Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-810 test tape with no input signal.	Deck	L103 (Lch) L104 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Minimum output	
2.	Set the Dolby NR switch to S.						
3.	REC	Load the STD-810 test tape with no input signal.	DOLBY S	L2161 (Lch) L2261 (Rch)	LINE OUT	Minimum output	

DOLBY S Encoder Adjustment

- DOLBY S encoder adjustment must be performed before recording bias adjustment.

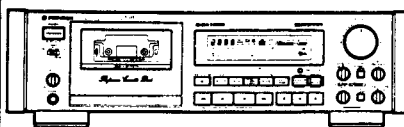
No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	Turn OFF the DOLBY NR switch.					
2.	REC/ PAUSE	Apply the 315 Hz/–10 dBv signal to the line input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	–15.2 dBv	
3.	Turn the DOLBY NR switch to S position.					
4.	REC/ PAUSE	Apply the 315 Hz/–10 dBv signal to the line input terminals.	VR1101 (Lch) VR1201 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–14.5 dBv	

Recording Bias Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/–20 dBv (–20VU meter reading) signal to the line input terminals and insert STD–630.			LINE OUT		
2.	REC → PLAY	Record and play back the 315 Hz signal and a 10 kHz signal at –20 dBv input level.	NOR	VR551 (L) VR552 (R)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to 0 ± 0.5 dB.	
3.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–620 and play back.	CrO2	VR501 (L/R)		0 dBv $\pm$ 1.0 dB	
4.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–610 and play back.	METAL	VR502 (L/R)		0 dBv $\pm$ 1.0 dB	
5.	Check distortion value after adjustment is completed and confirm that there is no underbias.						
6.	Set the Dolby NR switch to S.						
7.	REC/ PAUSE	Apply a 315 Hz/–20 dBv (–20VU meter reading) signal to the line input terminals and insert STD–630.			LINE OUT		
8.	REC → PLAY	Record and play back the 315 Hz signal and a 10 kHz signal at –20 dBv input level.	NOR	VR551 (L) VR552 (R)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to 0 ± 1.0 dB.	If the L and R levels are not uniform, adjust them to an average value of 0 dB.
9.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–620 and play back.	CrO2	VR501 (L/R)		0 dBv	
10.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–610 and play back.	METAL	VR502 (L/R)		0 dBv	
11.	Check distortion value after adjustment is completed and confirm that there is no underbias.						

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2217

STEREO CASSETTE DECK

CT-777

CT-777-S

CT-777 AND CT-777-S HAVE THE FOLLOWING:

Type	Model		Power Requirement	Remarks
	CT-777	CT-777-S		
HEM	○	—	AC220V-230V, 230V-240V (switchable) *	
HEWM	—	○	AC220V-230V, 230V-240V (switchable) *	

* Change the primary wiring of the power transformer.

- This manual is applicable to the CT-777/HEM and CT-777-S/HEWM types.
- As to the CT-777-S/HEWM type, refer to page 48.
- 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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SI APR. 1991 Printed in Japan

1. EXPLODED VIEWS AND PARTS LIST

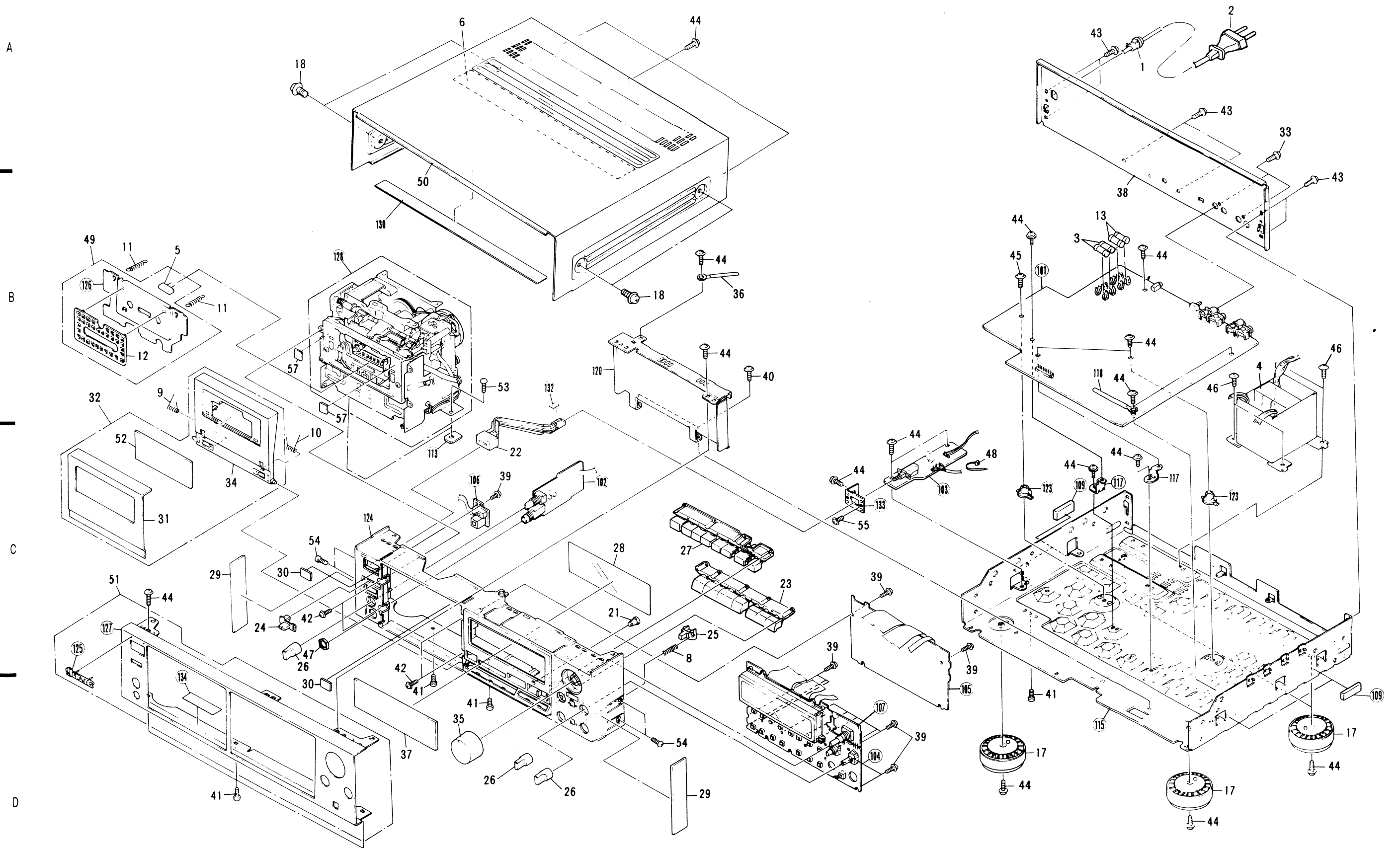
NOTES:

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

1.1 PARTS LIST OF EXTERIOR

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
Δ	1	Strain relief	CM - 22B		46	Screw	IBZ40P080FCC
Δ	2	AC power cord	PDG1003		47	Jack nut	RBN - 006
Δ	3	FU703, FU704 Fuse(T2A)	REK - 103		48	Binder	REC - 371
Δ	4	Power transformer (T1)	RTT1171		49	Cassette plate assembly	RXX1064
	5	LED (D3)	SLF - 401C		50	Bonnet	RXX1376
	6	Absorber plate (B)	PNB1109		51	Front panel assembly	RXX1385
	7	.....			52	Door lens	RLP1026
	8	Button spring	RBH1144		53	Screw	BBT30P080FCU
	9	Door spring (L)	RBH1222		54	Screw	BBZ30P080FZK
	10	Door spring (R)	RBH1223		55	Screw	PMA30P060FCU
	11	Cassette plate spring	RBL - 059		56	.....	
	12	Stabilizer B	REB1038		57	Door cushion	REB1117
Δ	13	FU701, FU702 Audio fuse (T500mA)	REK - 097		101	Main unit	
	14	.....			102	Headphone unit	
	15	.....			103	Power switch unit	
	16	.....			104	Operation unit	
	17	Leg assembly	AMR1159		105	Control unit	
	18	Screw	FBT40P080FZK		106	Timer switch unit	
	19	.....			107	VR unit	
	20	.....			108	.....	
	21	Counter reset knob	RAA1009		109	Rubber spacer (A)	
	22	Power button	RAC1410		110	.....	
	23	Function knob	RAC1411		111	.....	
	24	Slide SW knob	RAC1562		112	.....	
	25	Push knob	RAC1413		113	Mechanism sheet (2)	
	26	Knob (B)	RAC1414		114	.....	
	27	Mode knob	RAC1552		115	Main chassis	
	28	FL filter	RAH1542		116	.....	
	29	Side rubber	REB1094		117	P.C.B base	
	30	Door sheet	REB1138		118	Binder	
	31	Door panel	RAH1844		119	.....	
	32	Door assembly	RXX1417		120	FL shield plate	
	33	Screw	BBZ30P100FCC		121	.....	
	34	Door	RNK1495		122	.....	
	35	VR knob assembly	RXA1281		123	P.C.B stad	
	36	Cord clamber	RNH - 184		124	Panel stay	RNT1090
	37	FL lens	RLP1027		125	Name plate	
	38	Rear panel			126	Cassette plate	
	39	Screw	ABZ26P080FZK		127	Front panel	
	40	Screw	BBT30P060FCC		128	Mechanism unit	
	41	Screw	BBT30P100FZK		129	.....	
	42	Screw	BBZ30P100FZK		130	Protector 300 × 10	RED1020
	43	Screw	BBZ30P060FCC		131	.....	
	44	Screw	IBZ30P060FCC		132	Acetate tape 10 × 10	
	45	Screw	IBZ30P100FCC		133	PS holder	
					134	Acetate tape (K)	

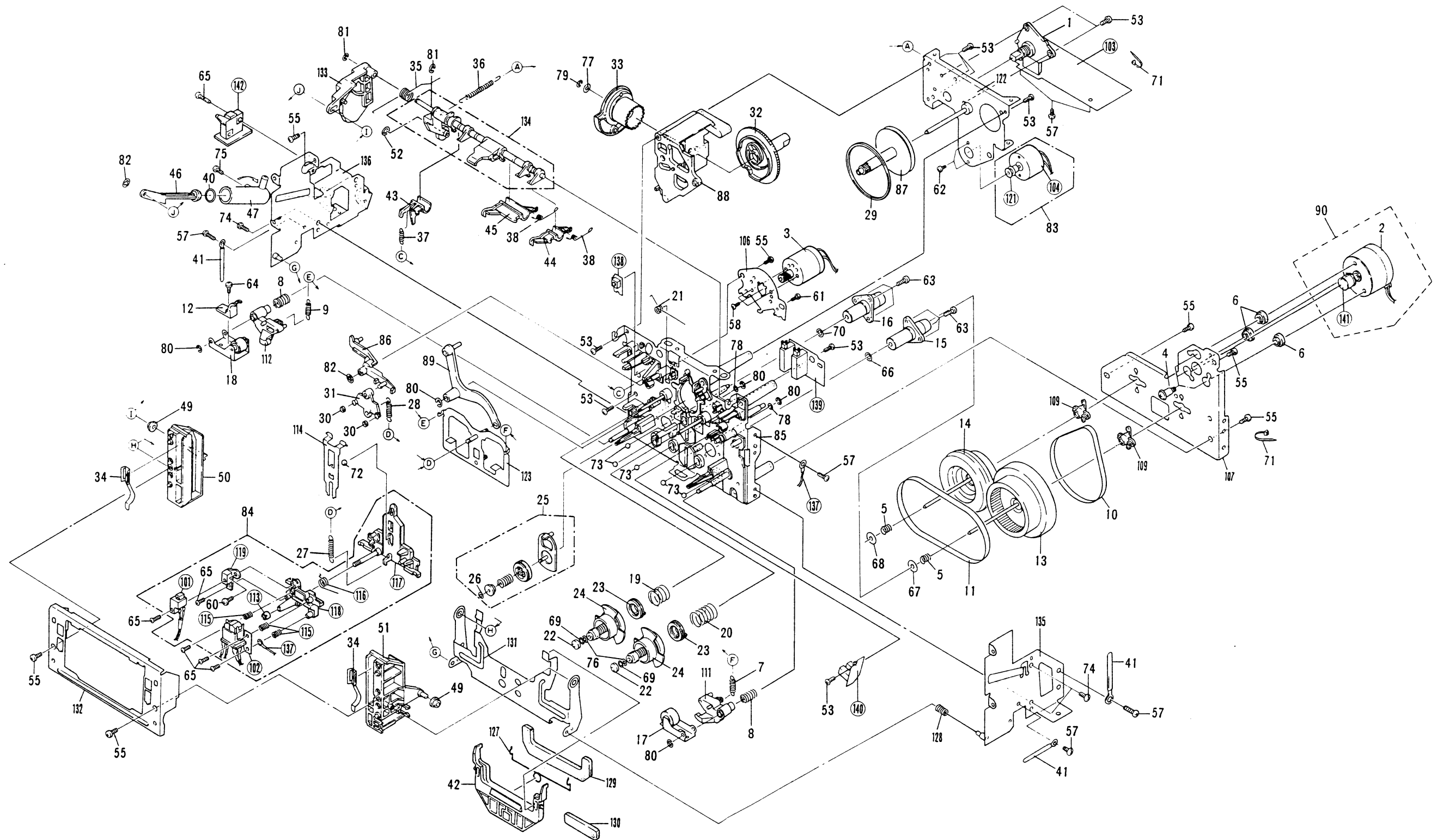
Exterior

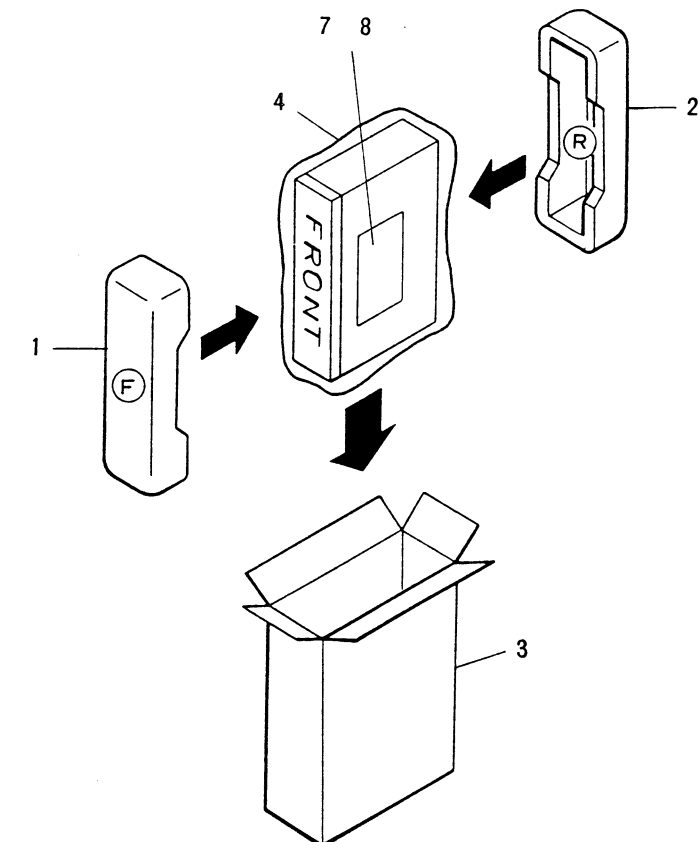


1.2 PARTS LIST OF MECHANISM SECTION

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Rotary encoder	RSX1004		56	.....			121	First pulley	
	2	Capstan motor	RXM1036		57	Screw	BCZ30P060FMC		122	Gear chassis assembly	RXA1171
	3	Reel motor assembly	RXM1018		58	Screw	BMZ26P030FZK		123	Pinch base assembly	RXB - 878
	4	Step screw	RBA - 064		59	.....			124	.....	
	5	Thrust spring	RBL - 044		60	Screw	BMZ26P060FZK		125	.....	
	6	Rubber cushion	REB1125		61	Screw	BMZ30P080FZK		126	.....	
	7	Pinch spring	RBL - 028		62	Screw	JGZ20P025FMC		127	Cassette plate spring	RBH1227
	8	Pinch thrust spring	RBL - 030		63	Screw	PMA26P050FZK		128	Position spring	RBL - 045
	9	Sub - pinch spring	RBL - 098		64	Screw	PMA26P060FZK		129	Plate rubber (A)	REB1100
	10	Capstan belt	REB1143		65	Screw	PMZ20P080FZK		130	Plate rubber (B)	REB1101
	11	Capstan belt (A)	REB - 509		66	Washer	RBF - 030		131	Door arm	RNE1324
	12	Tape guide	RNL - 016		67	Thrust washer (A)	RBF - 069		132	Pocket frame	RNE1327
	13	Flywheel assembly	RXA1374		68	Thrust washer (B)	RBF - 070		133	Eject lever	RNL - 738
	14	Sub - flywheel assembly	RXA1375		69	Washer	RBF - 076		134	Shift shaft assembly	RXB - 885
	15	Metal holder assembly(A)	RXA1342		70	Washer	RBF1040		135	Door frame (R) assembly	RXA1284
	16	Metal holder assembly(B)	RXA1343		71	Binder	REC - 371		136	Door frame (L) assembly	RXA1285
	17	Pinch roller arm (R) assembly	RXB - 876		72	Steel ball (3mm)	REF - 022		136	Door frame	
	18	Pinch roller arm (A) assembly	RXB - 877		73	Steel ball (4mm)	REF - 023		137	Earth lead assembly	
	19	BT spring (C)	RBH1213		74	Screw	VCT30P060FZK		138	REC switch unit	
	20	BT spring (B)	RBL - 032		75	Screw	VCZ26P080FMC		139	Tape selector unit	
	21	Idler pressure spring	RBL - 033		76	Washer	WA21D040D013		140	Sensor unit (A)	
	22	Reel shaft cap (B)	RNK - 815		77	Washer	WA26N070W040		141	Motor pulley	
	23	BT disk assembly	RXB - 751		78	Washer	WA32D080D050		142	Door switch unit	
	24	Reel base assembly	RXB - 874		79	E ring	YE20FUC		143	2.5mm pitch sidepost (5P)BS5P - SHF	
	25	Take - up idler assembly	RXB - 875		80	E ring	YE25FUC				
	26	Washer	RBF - 065		81	E ring	YE30FUC				
	27	Head base spring	RBL - 037		82	Snapping	YS24FBT				
	28	Brake spring	RBL - 038		83	Power motor assembly	RXX1055				
	29	Drive belt	REB1169		84	Head base assembly	RXX1333				
	30	Brake shoe	REB - 511		85	Mechanism chassis assembly	RXA1366				
	31	Brake	RNL - 723		86	Brake lever	RNK1638				
	32	Cam gear	RNK1640		87	Second pulley assembly	RXA1350				
	33	Side cam gear assembly	RXA1349		88	Gear base assembly	RXA1351				
	34	Pocket spring (A)	RBL - 027		89	Pinch lever assembly	RXA1360				
	35	Eject spring	RBL - 039		90	Capstan motor assembly	RXX1334				
	36	Half set arm spring	RBL - 040		101	E head					
	37	REC functioning spring	RBL - 041		102	R & P head					
	38	Detection functioning spring	RBL - 042		103	Connector unit					
	39	.....			104	Power motor					
	40	O ring	REB - 447		105	.....					
	41	Cord clamber	RNH - 184		106	Reel motor mounting plate	RNE1169				
	42	Cassette plate	RNK1498		107	Flywheel holder	RNL - 304				
	43	REC detector arm	RNL - 733		108	.....					
	44	Chrom detector arm	RNL - 734		109	Thrust holder	RNL - 743				
	45	Metal detector arm	RNL - 735		110	.....					
	46	Piston	RNL - 739		111	Pressure arm (R)	RNL - 725				
	47	Cylinder	RNL - 740		112	Pressure arm (L)	RNL - 726				
	48	.....			113	Adjustment nut					
	49	Collar	RNL - 742		114	Head base set spring	RBL - 026				
	50	Pocket (L)	RNL - 849		115	Head adjustment spring (C)					
	51	Pocket (R)	RNL - 850		116	Hight spring					
	52	Washer	RBF - 057		117	Head base					
	53	Screw	BBZ26P080FZK		118	Sub - head base					
	54	.....			119	E head base					
	55	Screw	BBZ30P080FZK		120	.....					

Mechanism Unit





1. RESISTORS :

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

2. CAPACITORS :

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

3. VOLTAGE CURRENT :

 ; DC voltage (V) at no input signal.
◀mA ; DC current at no input signal.

4. OTHERS :

→ ; Signal route.

⊗ ; Adjusting point.

The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

※ marked capacitors and resistors have parts numbers.

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

5. SWITCHES (Underline indicates switch position)

OPERATION UNIT

S921 : OPEN/CLOSE

S922 : REW

S923 : TAPE RETURN

S924 : STOP

S925 : COUNTER

S926 : RESET

S927 : PLAY

S928 : METER RANGE

S929 : FF

S930 : PEAK MODE

S931 : REC

S932 : DISPLAY

S933 : MONITOR SELECT

S934 : PAUSE

S935 : SYNCHRO

S936 : REC/MUTE

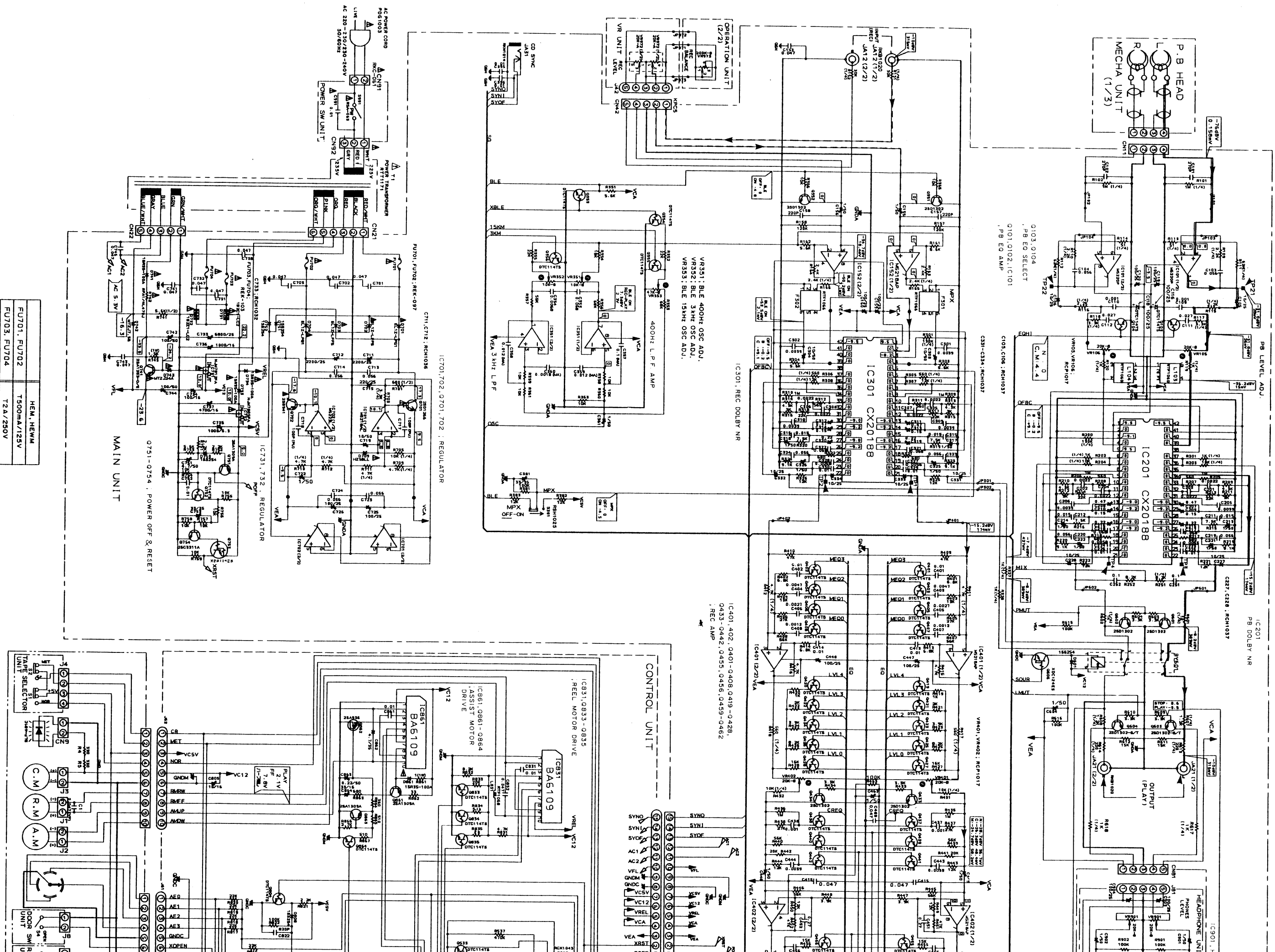
S951 : DOLBY NR B - OFF - C

S961 : SUPER AUTO BLE

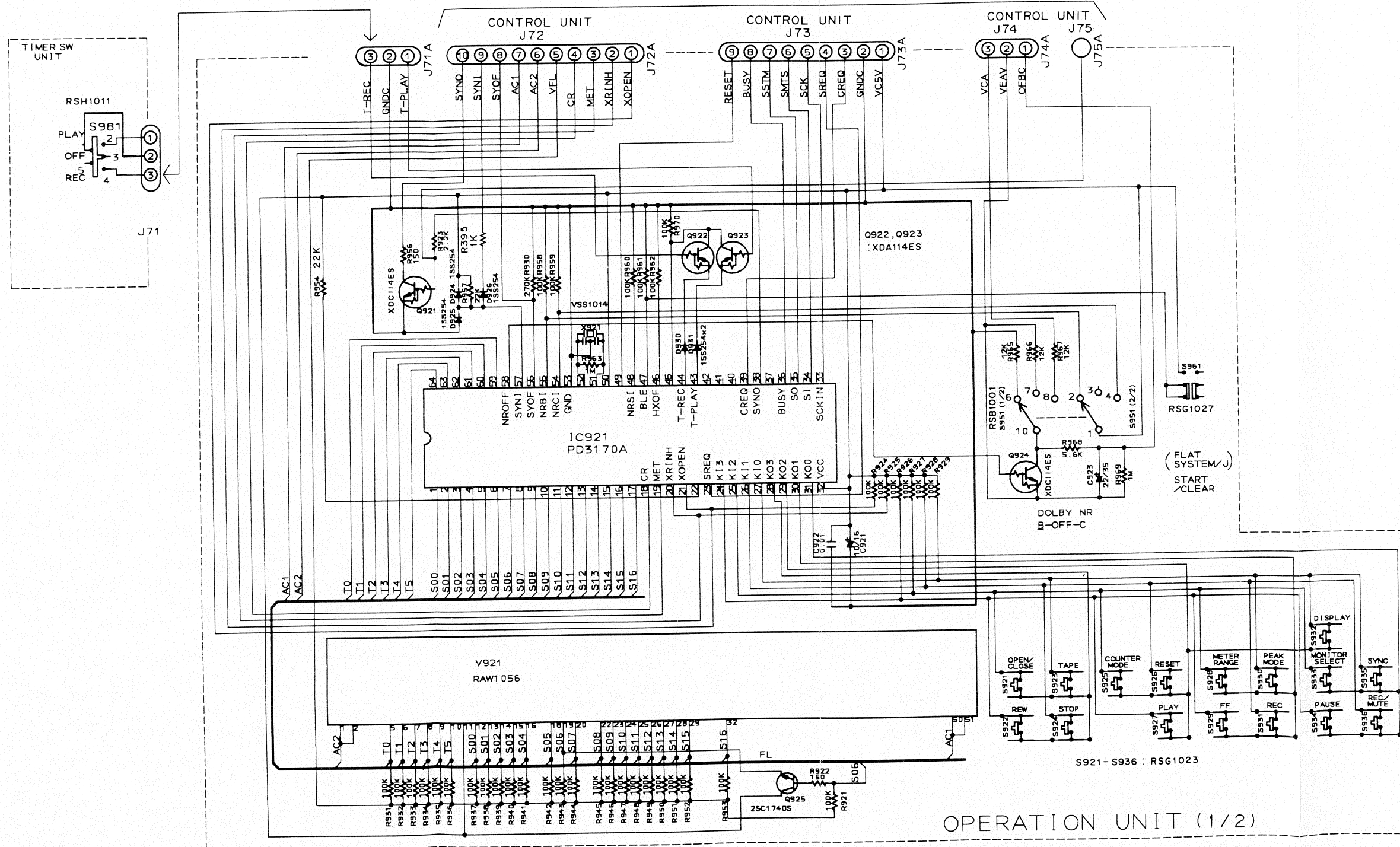
POWER SW UNIT

S991 : ON - OFF

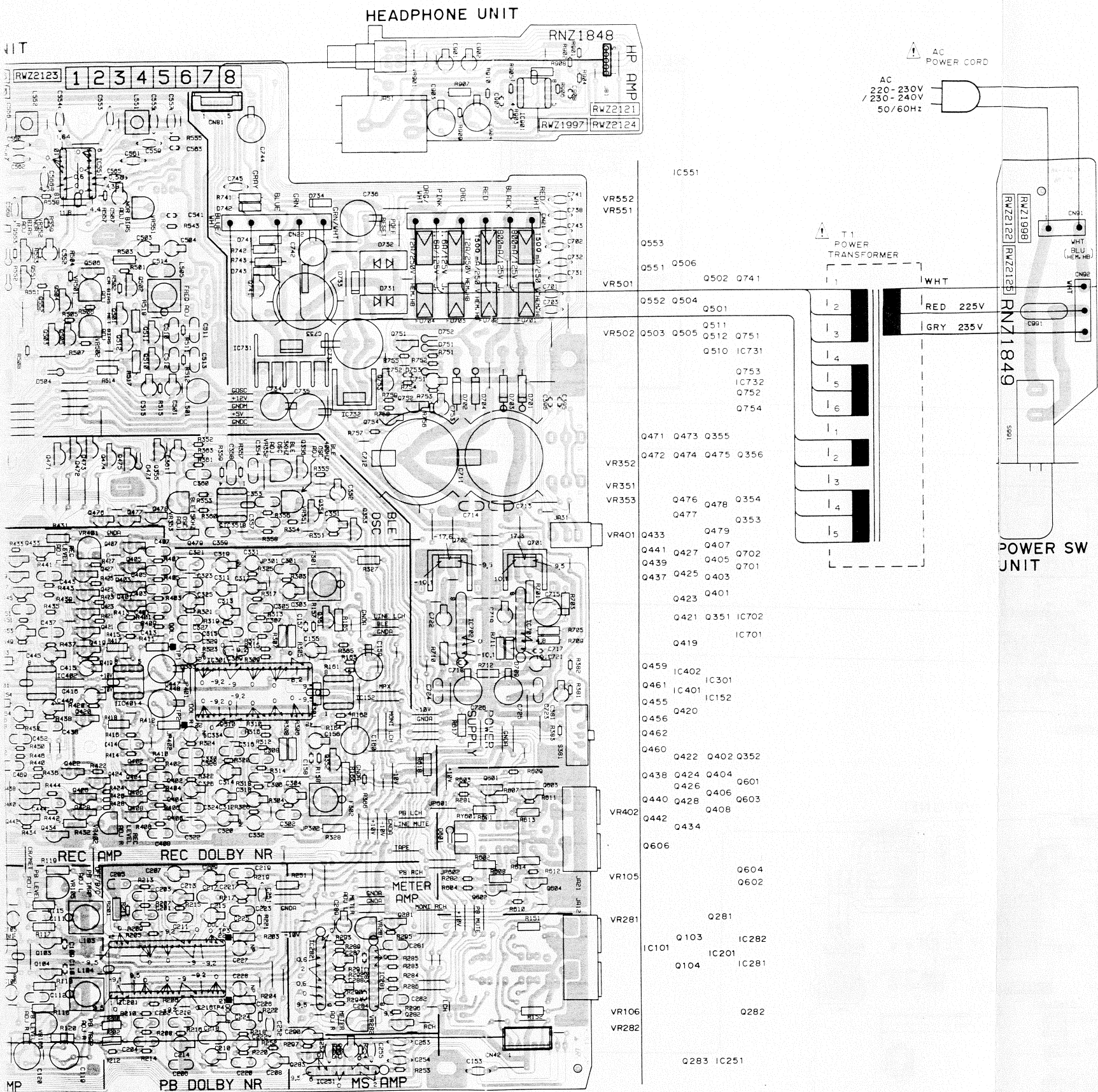
3. SCHEMATIC DIAGRAM



TO (1/2)



OPERATION UNIT (1/2)



PCB 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 PCB 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.

C

24



5. 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 $\rightarrow 56 \times 10^1 \rightarrow 561$ RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J

47k Ω $\rightarrow 47 \times 10^3 \rightarrow 473$ RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J

0.5 Ω $\rightarrow 0R5$ RN2H $\boxed{0}\boxed{R}\boxed{5}$ K

1 Ω $\rightarrow 010$ RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

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

5.62k Ω $\rightarrow 562 \times 10^1 \rightarrow 5621$ RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
REC SW UNIT				S951			RSB1001
SWITCHES				S961	SWITCH		RSG1027
	S3	SWITCH	RSG-143	CAPACITORS			
TAPE SELECTOR UNIT				C921	ELECTR. CAPACITOR		CEAS100M16
SWITCHES				C922	CERAMIC CAPACITOR		CKPUYY103N16
	S1, 2		RSH-070	C923	ELECTR. CAPACITOR		CEAS220M35
SENSOR UNIT(A)				RESISTORS			
SEMICONDUCTORS				R395			RD1/6PM $\square\square\square$ J
	D1		GP1A51HR	R921-954	CARBONFILM RESISTOR		RD1/6PM $\square\square\square$ J
CAPACITORS				R956-963	CARBONFILM RESISTOR		RD1/6PM $\square\square\square$ J
	C2	CERAMIC CAPACITOR	CKPUYY103N16	R965-970	CARBONFILM RESISTOR		RD1/6PM $\square\square\square$ J
RESISTORS				VR973	VARIABLE RESISTOR (200K)		RCV1046
	R2	CARBONFILM RESISTOR	RD1/6PM $\square\square\square$ J	OTHERS			
TIMER SW UNIT)				V921			RAW1056
SWITCHES				X921	CERAMIC RESONATOR		VSS1014
	S981		RSH1011	CONTROL UNIT			
VR UNIT				SEMICONDUCTORS			
RESISTORS				IC801	MAIN CPU		PD4290C
	VR972	VARIABLE RESISTOR (20K)	RCV1058	IC831	IC		BA6109
OPERATION UNIT				IC861	IC		BA6109
SEMICONDUCTORS				IC871	LOGIC IC		CD4050B
	IC921		PD3170A	IC872	DUAL-COMPARATOR IC		M5233L
	Q921	DIGITAL TRANSISTOR	XDC114ES	Q531-536	DIGITAL TRANSISTOR		DTC114TS
	Q922, 923	DIGITAL TRANSISTOR	XDA114ES	Q801-803	DIGITAL TRANSISTOR		XDA114ES
	Q924	DIGITAL TRANSISTOR	XDC114ES	Q804	DIGITAL TRANSISTOR		DTC114TS
	Q925	TRANSISTOR	2SC1740S	Q805	DIGITAL TRANSISTOR		XDA114ES
				Q806	TRANSISTOR		DTC124TS
	D924-926	DIODE	1SS254	Q833-835	DIGITAL TRANSISTOR		DTC114TS
	D930, 931	DIODE	1SS254	Q851	DIGITAL TRANSISTOR		DTC114TS
SWITCHES				Q852	DIGITAL TRANSISTOR		XDA114ES
	S921-936	SWITCH	RSG1023	Q861	TRANSISTOR		2SA1309A
				Q862	TRANSISTOR		2SA936
				Q863	TRANSISTOR		2SA1309A
				Q864	DIGITAL TRANSISTOR		DTC114TS
				Q871	DIGITAL TRANSISTOR		XDA114ES
				Q872-874	DIGITAL TRANSISTOR		DTC114TS

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
		D804-810 DIODE	1SS254				
△		D861 RECTIFIER DIODE	1SR35-100A			Q281, 282 DIGITAL TRANSISTOR	DTC114TS
COILS/TRANSFORMERS						Q283 TRANSISTOR	XDC124ES
	L831		RTF1068			Q351, 352 TRANSISTOR	2SD1302
CAPACITORS						Q353-356 DIGITAL TRANSISTOR	DTC114TS
		C801 CERAMIC CAPACITOR	CKPUYY103N16			Q401-408 DIGITAL TRANSISTOR	DTC114TS
		C802 ELECTR. CAPACITOR	CEAS101M10				
		C803 ELECTR. CAPACITOR	CEAS102M6R3			Q419-428 DIGITAL TRANSISTOR	DTC114TS
		C805 ELECTR. CAPACITOR	CEAS100M16			Q433, 434 TRANSISTOR	2SD1302
		C808-810 AXIAL CAPACITOR	CKPUYB101K50			Q437-442 DIGITAL TRANSISTOR	DTC114TS
		C822 AXIAL CAPACITOR	CKPUYB821K50			Q455, 456 DIGITAL TRANSISTOR	DTC114TS
		C831 CERAMIC CAPACITOR	CKPUYY103N16			Q459-462 DIGITAL TRANSISTOR	DTC114TS
		C832 CERAMIC CAPACITOR	CKCYF473Z50				
		C861 CERAMIC CAPACITOR	CKPUYY103N16			Q471-479 DIGITAL TRANSISTOR	XDA114ES
		C862 ELECTR. CAPACITOR	CEANP4R7M35			Q501 TRANSISTOR	XDC124ES
		C863 ELECTR. CAPACITOR	CEASR22M50			Q502 TRANSISTOR	2SA1283
		C864 ELECTR. CAPACITOR	CEAS330M16			Q503-505 TRANSISTOR	XDC124ES
		C871 CERAMIC CAPACITOR	CKPUYY103N16			Q506 TRANSISTOR	2SC3311A
		C872 CERAMIC CAPACITOR	CKCYF473Z50				
		C873 ELECTR. CAPACITOR	CEAS100M16			Q510, 511 TRANSISTOR	2SC3243
RESISTORS						Q512 TRANSISTOR	2SD1302
		R537 CARBONFILM RESISTOR	RD1/6PM□□□J			Q551 DIGITAL TRANSISTOR	XDA114ES
		R538	RCX1043	△		Q552 TRANSISTOR	XDC124ES
		R801-810 CARBONFILM RESISTOR	RD1/6PM□□□J	△		Q553 TRANSISTOR	2SA1309A
		R813 CARBONFILM RESISTOR	RD1/6PM□□□J	△			
		R816-822 CARBONFILM RESISTOR	RD1/6PM□□□J			Q601-604 TRANSISTOR	2SD1302
		R831-835 CARBONFILM RESISTOR	RD1/6PM□□□J			Q606 TRANSISTOR	XDC124ES
		R857, 858 CARBONFILM RESISTOR	RD1/6PM□□□J			Q701 TRANSISTOR	2SD1266
		R861 METAL OXIDE RESISTOR	RS1LMF□□□J			Q702 TRANSISTOR	2SB941
		R862-867 CARBONFILM RESISTOR	RD1/6PM□□□J			Q741 TRANSISTOR	2SA1283
		R872 (10K)	RCX1042				
		R873-876 METALFILM RESISTOR	RN1/6PQ□□□□F			Q751 TRANSISTOR	2SA1309A
		R877-879 CARBONFILM RESISTOR	RD1/6PM□□□J			Q752 DIGITAL TRANSISTOR	DTC114TS
OTHERS						Q753 DIGITAL TRANSISTOR	XDA114ES
		X801 CERAMIC RESONATOR	VSS1014			Q754 TRANSISTOR	2SC3311A
MAIN UNIT						D401, 402 DIODE	1SS254
SEMICONDUCTORS						D471 DIODE	1SS254
		IC101 OP-AMP-IC	M5220P			D504 DIODE	1SS254
		IC152 OP-AMP, IC	M5218AP			D551, 552 DIODE	1SS254
		IC201 DOLBY-B, C IC	CX20188			D601 DIODE	1SS254
		IC251 IC	BA335			D701 DIODE	EL1Z-LFG1
		IC281 OP-AMP IC	XRA15218N	△			
		IC282	BA6138			D702, 703 DIODE	EL1Z-LFF5
		IC301 DOLBY-B, C IC	CX20188	△		D704 DIODE	EL1Z-LFG1
		IC351 OP-AMP IC	XRA15218	△		D709 ZENER DIODE	HZ5BLL
		IC401, 402 OP-AMP, IC	M5218AP	△		D731 POWER DIODE	1B2C1-LC2
		IC551 DOLBY HX PRO IC	UPC1297CA	△		D732 POWER DIODE	1B2Z1-LC2
		IC701 OP-AMP, IC	M5218AL			D733, 734 RECTIFIER DIODE	1SR35-100A
		IC702 OP-AMP IC	M5223L			D741 RECTIFIER DIODE	1SR35-100A
△		IC731 REGULATOR IC	NJM7812FA			D742 ZENER DIODE	MTZJ7.5B
△		IC732 REGULATOR IC	NJM7805FA			D743 ZENER DIODE	MTZJ24A
		Q103, 104 DIGITAL TRANSISTOR	DTC114TS			D751-753 DIODE	1SS254
						SWITCHES	
						S381	RSH1025
						RELAYS	
						RY601	RSR1016
						COILS/TRANSFORMERS	
						L103, 104 COIL	RTF1060
						L401, 402 COIL	RTF1022
						L403, 404	RTF1017

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	L501		RTF1160		C358, 359	MYLOR FILM CAPACITOR	CQMA123J50
	L505		RTD1057		C360	MYLOR FILM CAPACITOR	CQMA182J50
	L551, 552		RTD1011		C361	ELECTR. CAPACITOR	CEAS010M50
	F301, 302	FILTER	RTF1066		C381	ELECTR. CAPACITOR	CEAS330M35
					C395, 396	CERAMIC CAPACITOR	CKPUYF103Z25
CAPACITORS							
	C101, 102	PL. STYRENE CAPACITOR	CQSF271J50		C401, 402	AUDIO FILM CAPACITOR	CFTXA103J50
	C103, 104	AUDIO FILM CAPACITOR	CFTXA563J50		C403, 404	AUDIO FILM CAPACITOR	CFTXA472J50
	C105, 106	(10/25)	RCH1037		C405, 406	AUDIO FILM CAPACITOR	CFTXA272J50
	C109, 110	CERAMIC CAPACITOR	CKPUYB102K50		C407, 408	AUDIO FILM CAPACITOR	CFTXA122J50
	C111, 112	AUDIO FILM CAPACITOR	CFTXA273J50		C413, 414	AUDIO FILM CAPACITOR	CFTXA103J50
	C116	(100/25)	PCH1076		C415, 416	AUDIO FILM CAPACITOR	CFTXA473J50
	C118-120	(100/25)	PCH1076		C437, 438	AUDIO FILM CAPACITOR	CFTXA102J50
	C153	CERAMIC CAPACITOR	CKCYF473Z50		C443, 444	AUDIO FILM CAPACITOR	CFTXA392J50
	C155, 156	ELECTR. CAPACITOR	CEYA010M50		C445, 446	ELECTR. CAPACITOR	CEYA010M50
	C157, 158	AXIAL CAPACITOR	CKPUYB221K50		C447, 448	(100/25)	PCH1076
	C159, 160	ELECTR. CAPACITOR (100/25)	PCH1076		C451, 452	AUDIO FILM CAPACITOR	CFTXA274J50
	C201-204	AUDIO FILM CAPACITOR	CFTXA222J50		C453, 454	ELECTR. CAPACITOR	CEYA100M50
	C205, 206	AUDIO FILM CAPACITOR	CFTXA392J50		C455, 456	AUDIO FILM CAPACITOR	CFTXA103J50
	C207, 208	ELECTR. CAPACITOR	CEASR47M50		C457, 458	AUDIO FILM CAPACITOR	CFTXA562J50
	C209, 210	ELECTR. CAPACITOR	CEASR15M50		C459, 460	AUDIO FILM CAPACITOR	CFTXA472J50
	C211, 212	AUDIO FILM CAPACITOR	CFTXA153J50		C461, 462	AUDIO FILM CAPACITOR	CFTXA332J50
	C213, 214	ELECTR. CAPACITOR	CEYA010M50		C463	ELECTR. CAPACITOR	CEAS010M50
	C215, 216	ELECTR. CAPACITOR	CEASR22M50		C465, 466	AUDIO FILM CAPACITOR	CFTXA222J50
	C217, 218	AUDIO FILM CAPACITOR	CFTXA683J50		C467, 468	CERAMIC CAPACITOR	CKPUYB102K50
	C219, 220	AUDIO FILM CAPACITOR	CFTXA563J50		C469-471	AUDIO FILM CAPACITOR	CFTXA473J50
	C221, 222	ELECTR. CAPACITOR	CEYA010M50		C501	ELECTR. CAPACITOR	CEAS010M16
	C223, 224	AUDIO FILM CAPACITOR	CFTXA562J50		C503, 504	ELECTR. CAPACITOR	CEAS330M35
	C225, 226	AUDIO FILM CAPACITOR	CFTXA103J50		C510	AUDIO FILM CAPACITOR	CFTXA223J50
	C227, 228	(10/25)	RCH1037		C511	AUDIO FILM CAPACITOR	CFTXA332J50
	C251, 252	AUDIO FILM CAPACITOR	CFTXA104J50		C512	AUDIO FILM CAPACITOR	CFTXA682J50
	C253	AUDIO FILM CAPACITOR	CFTXA473J50		C513	AUDIO FILM CAPACITOR	CFTXA332J50
	C254, 255	AUDIO FILM CAPACITOR	CFTXA104J50		C514	CAPACITOR	CQPA752J100
	C256	ELECTR. CAPACITOR	CEASR47M50		C515	ELECTR. CAPACITOR	CEAS330M35
	C257	AUDIO FILM CAPACITOR	CFTXA473J50		C541	AXIAL CAPACITOR	CKPUYB101K50
	C281, 282	AUDIO FILM CAPACITOR	CFTXA563J50		C552	ELECTR. CAPACITOR	CEAS010M16
	C283, 284	AXIAL CERAMIC C.	CCPUSL470J50		C553, 554	CERAMIC CAPACITOR	CKCYF473Z50
	C287-290	ELECTR. CAPACITOR	CEAS4R7M50		C555, 556	(390P/500)	RCG1004
	C301, 302	AUDIO FILM CAPACITOR	CFTXA392J50		C557, 558	CERAMIC CAPACITOR	CCCSL101K500
	C303, 304	ELECTR. CAPACITOR	CEYA100M50		C559-562	CERAMIC CAPACITOR	GCYX223K25
	C305-308	AUDIO FILM CAPACITOR	CFTXA222J50		C563, 564	AXIAL CAPACITOR	CKPUYB821K50
	C309, 310	AUDIO FILM CAPACITOR	CFTXA392J50		C565, 566	CERAMIC CAPACITOR	GCYX103K25
	C311, 312	ELECTR. CAPACITOR	CEASR47M50		C567	ELECTR. CAPACITOR	CEAS330M35
	C313, 314	ELECTR. CAPACITOR	CEASR15M50		C569	CERAMIC CAPACITOR	CKCYF473Z50
	C315, 316	AUDIO FILM CAPACITOR	CFTXA153J50		C570	ELECTR. CAPACITOR	CEAS010M50
	C317, 318	ELECTR. CAPACITOR	CEYA010M50		C604	ELECTR. CAPACITOR	CEAS010M50
	C319, 320	ELECTR. CAPACITOR	CEASR22M50		C701-703	CERAMIC CAPACITOR	CKCYF473Z50
	C321, 322	AUDIO FILM CAPACITOR	CFTXA683J50		C711, 712	ELECTR. CAPACITOR	RCH1036
	C323, 324	AUDIO FILM CAPACITOR	CFTXA563J50		C713, 714	AUDIO FILM CAPACITOR	CFTXA563J50
	C325, 326	ELECTR. CAPACITOR	CEYA010M50		C715	ELECTR. CAPACITOR	CEAS221M25
	C327, 328	AUDIO FILM CAPACITOR	CFTXA562J50		C717, 718	AXIAL CAPACITOR	CKPUYB101K50
	C329, 330	AUDIO FILM CAPACITOR	CFTXA103J50		C719	ELECTR. CAPACITOR	CEYA100M50
	C331-334	(10/25)	RCH1037		C722	ELECTR. CAPACITOR	CEYA010M50
	C353	AUDIO FILM CAPACITOR	CFTXA683J50		C723, 724	AUDIO FILM CAPACITOR	CFTXA563J50
	C354	AUDIO FILM CAPACITOR	CFTXA682J50		C725, 726	(100/25)	PCH1076
	C357	MYLOR FILM CAPACITOR	CQMA104J50		C731, 732	CERAMIC CAPACITOR	CKCYF473Z50

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C733	(6800/25)	RCH1032		R543	CARBONFILM RESISTOR	RD1/6PM□□□J
	C734	ELECTR. CAPACITOR	CEAS101M16		R551-553	CARBONFILM RESISTOR	RD1/6PM□□□J
	C735	ELECTR. CAPACITOR	CEAS102M6R3		R555-559	CARBONFILM RESISTOR	RD1/6PM□□□J
	C736	ELECTR. CAPACITOR	CEAS102M16		R601, 602	CARBONFILM RESISTOR	RD1/4PM□□□J
	C737	ELECTR. CAPACITOR	CEAS472M16		R603, 604	CARBONFILM RESISTOR	RD1/6PM□□□J
	C738	CERAMIC CAPACITOR	CKCYF473Z50		R607, 608	CARBONFILM RESISTOR	RD1/4PM□□□J
	C741	CERAMIC CAPACITOR	CKCYF473Z50		R609-612	CARBONFILM RESISTOR	RD1/6PM□□□J
	C742	ELECTR. CAPACITOR	CEAS101M50		R613, 614	CARBONFILM RESISTOR	RD1/4PM□□□J
	C743	CERAMIC CAPACITOR	CKCYF473Z50		R615, 616	CARBONFILM RESISTOR	RD1/6PM□□□J
	C744	ELECTR. CAPACITOR	CEAS101M50		R617, 618	CARBONFILM RESISTOR	RD1/4PM□□□J
	C745	CERAMIC CAPACITOR	CKCYF473Z50		R701	CARBONFILM RESISTOR	RD1/2PMF□□□J
	C751	ELECTR. CAPACITOR	CEAS4R7M50		R703	CARBONFILM RESISTOR	RD1/4PM□□□J
	C752	CERAMIC CAPACITOR	CKPUYF103Z25		R705	CARBONFILM RESISTOR	RD1/4PM□□□J
	C753	ELECTR. CAPACITOR	CEAS330M35		R709-712	CARBONFILM RESISTOR	RD1/4PM□□□J
					R741	CARBONFILM RESISTOR	RD1/2PMF□□□J
RESISTORS							
	R101, 102	CARBONFILM RESISTOR	RD1/4PM□□□J	△	R742	FUSIBLE RESISTOR	RFA1/4L□□□J
	R109-120	CARBONFILM RESISTOR	RD1/4PM□□□J		R743	METAL OXIDE RESISTOR	RS1LMF□□□J
	R151, 152	CARBONFILM RESISTOR	RD1/4PM□□□J		R751-759	CARBONFILM RESISTOR	RD1/6PM□□□J
	R157, 158	CARBONFILM RESISTOR	RD1/6PM□□□J		VR105, 106 (20K)		RCP1017
	R161-164	CARBONFILM RESISTOR	RD1/6PM□□□J		VR281, 282	VR	VRTB6VS223
	R165, 166	CARBONFILM RESISTOR	RD1/4PM□□□J		VR351, 352	SEMI-FIXED RESISTOR	VRTB6VS103
	R200-204	CARBONFILM RESISTOR	RD1/4PM□□□J		VR353	VR	VRTB6VS473
	R205-222	CARBONFILM RESISTOR	RD1/6PM□□□J		VR401, 402 (20K)		RCP1017
	R251	CARBONFILM RESISTOR	RD1/4PM□□□J		VR501	VR	VRTB6VS222
	R252-255	CARBONFILM RESISTOR	RD1/6PM□□□J		VR502	VR	VRTB6VS223
	R281-286	CARBONFILM RESISTOR	RD1/6PM□□□J		VR551, 552	VR	VRTB6VS473
	R289-297	CARBONFILM RESISTOR	RD1/6PM□□□J	OTHERS			
	R301	CARBONFILM RESISTOR	RD1/4PM□□□J		JA12	JACK	RKB1020
	R303, 304	CARBONFILM RESISTOR	RD1/6PM□□□J		JA21	JACK	RKB1020
	R305-308	CARBONFILM RESISTOR	RD1/4PM□□□J		JA31	JACK	RKN1014
	R309-326	CARBONFILM RESISTOR	RD1/6PM□□□J	HEAD PHONE UNIT			
	R327, 328	CARBONFILM RESISTOR	RD1/4PM□□□J	SEMICONDUCTORS			
	R351-361	CARBONFILM RESISTOR	RD1/6PM□□□J		IC901	OP-AMP, IC	M5218AP
	R363	CARBONFILM RESISTOR	RD1/6PM□□□J	CAPACITORS			
	R365, 366	CARBONFILM RESISTOR	RD1/6PM□□□J		C901, 902	ELECTR. CAPACITOR	CEYA010M50
	R381-383	CARBONFILM RESISTOR	RD1/6PM□□□J		C903, 904 (100/25)		PCH1076
	R395	CARBONFILM RESISTOR	RD1/6PM□□□J		C907, 908	AXIAL CAPACITOR	CKPUYB221K50
	R401-410	CARBONFILM RESISTOR	RD1/6PM□□□J	RESISTORS			
	R411, 412	CARBONFILM RESISTOR	RD1/4PM□□□J		R901-906	CARBONFILM RESISTOR	RD1/6PM□□□J
	R413-416	CARBONFILM RESISTOR	RD1/6PM□□□J		R907, 908	CARBONFILM RESISTOR	RD1/4PM□□□J
	R417, 418	CARBONFILM RESISTOR	RD1/4PM□□□J		R909, 910	CARBONFILM RESISTOR	RD1/6PM□□□J
	R419-428	CARBONFILM RESISTOR	RD1/6PM□□□J		VR901	VARIABLE RESISTOR(20K)	RCV1043
	R431, 432	CARBONFILM RESISTOR	RD1/4PM□□□J	OTHERS			
	R433-452	CARBONFILM RESISTOR	RD1/6PM□□□J		JA51	JACK	RKN1019
	R453, 454	CARBONFILM RESISTOR	RD1/4PM□□□J	POWER SW UNIT			
	R455-463	CARBONFILM RESISTOR	RD1/6PM□□□J	SWITCHES			
	R501, 502	CARBONFILM RESISTOR	RD1/6PM□□□J	△	S991	SWITCH	RSA-063
	R503	CARBONFILM RESISTOR	RD1/2PMF□□□J	CAPACITORS			
	R504, 505	CARBONFILM RESISTOR	RD1/6PM□□□J	△	C991	CAPACITOR (CERAMIC)	VCG-044
	R508	CARBONFILM RESISTOR	RD1/6PM□□□J				
	R510	CARBONFILM RESISTOR	RD1/2LF□□□J				
	R511, 512	CARBONFILM RESISTOR	RD1/6PM□□□J				
	R514	CARBONFILM RESISTOR	RD1/4PM□□□J				
	R515	CARBONFILM RESISTOR	RD1/6PM□□□J				
	R517, 518	CARBONFILM RESISTOR	RD1/2PMF□□□J				

Mark	No.	Description	Part No.
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DOOR SW UNIT

SWITCHES

S4

RSK1002

CONNECTOR UNIT

CAPACITORS

C1 CERAMIC CAPACITOR

CKCYF473Z50

RESISTORS

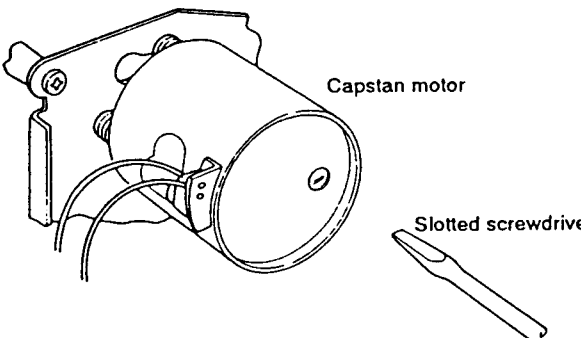
R4,5 CARBONFILM RESISTOR

RD1/6PM331J

6. ADJUSTMENTS

6.1 MECHANISM RELATED ADJUSTMENT

1. Tape Speed Adjustment		
Mode	Adjustment Location	Specifications
PLAY	Capstan motor adjustment hole (Refer to Fig. 1.)	Adjust so that the playback frequency is 3000 ± 5 Hz at the beginning of winding of test tape STD-301.
PLAY		Playback test tape STD-301 again and confirm that the above specifications are satisfied.

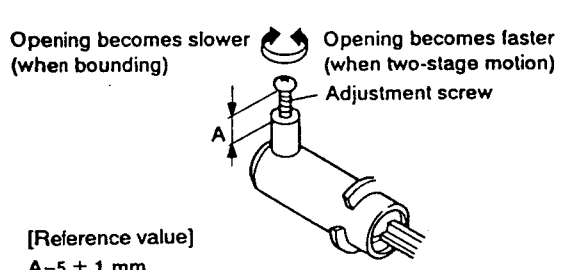


Capstan motor

Slotted screwdriver

Fig. 1

2. Adjustment of Door Damper	
Adjustment Location	Specifications
Cylinder adjustment screw (Refer to Fig. 2.)	Make sure that the door opens smoothly, there is no two-stage motion, and that there is no bounding when it opens completely. (Perform with no cassette half inserted.)



Opening becomes slower (when bounding)

Opening becomes faster (when two-stage motion)

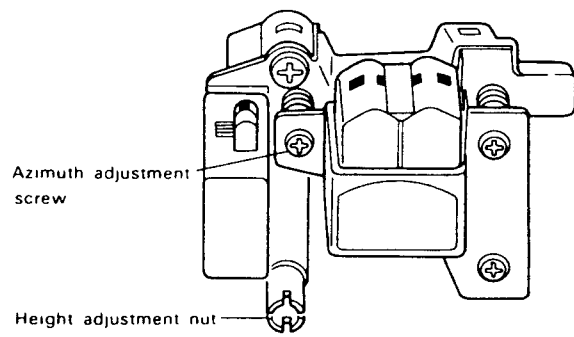
Adjustment screw

A

[Reference value]
A = 5 ± 1 mm

Fig. 2

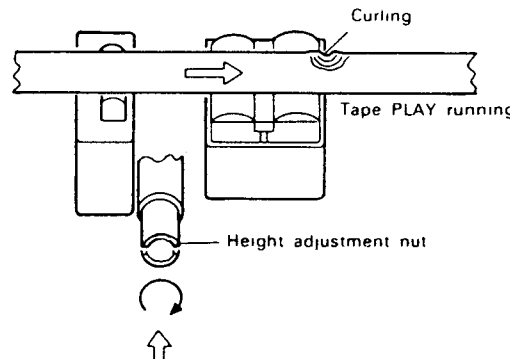
3. Tape running and azimuth adjustment			
No.	Mode	Adjustment Location	Specifications
1			Insert half mirror in side A (set screws at front).
2	PLAY	Height adjustment nut (Refer to Fig. 3.)	Playback the above tape and adjust so that there is no curling of the tape in the guide section of the head. (Refer to Fig. 4.)
3	PLAY	Azimuth adjustment screw (Refer to Fig. 3.)	Playback test tape STD-331B and adjust so that the 10 kHz output level is maximum and also so that there is no phase difference between L-ch and R-ch.
4	Check Item 2 above again and adjust again if it does not satisfy the specifications. (Be sure to adjust Item 3 when Item 2 is adjusted.)		



Azimuth adjustment screw

Height adjustment nut

Fig. 3



Curling

Tape PLAY running

Height adjustment nut

Fig. 4

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 k Ω (or between 47k to 52 k Ω) 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. 6-1)
STD-630 : NORMAL blank tape
STD-620 : CrO₂ blank tape
STD-610 : METAL blank tape

List of Adjustments

Playback sections

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

Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. Level meter check.
6. AUTO BLE adjustment.

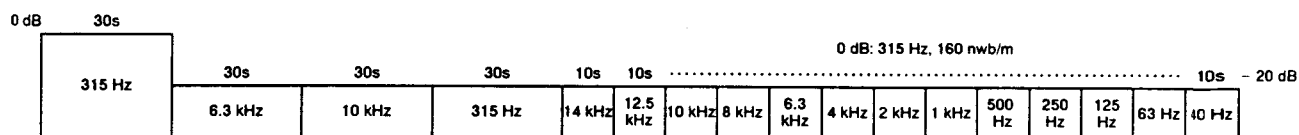


Fig. 6-1 Constants of the test tape STD-331B

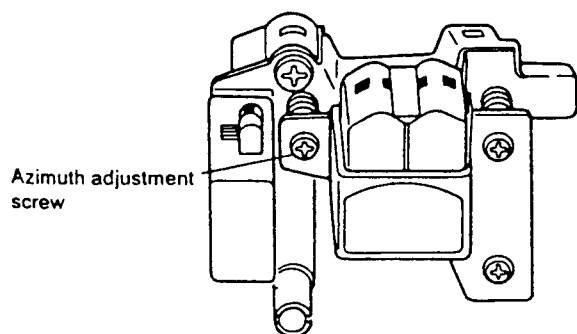
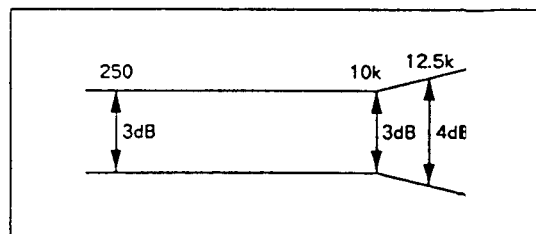


Fig. 6-2 Head azimuth adjustment

PLAY BACK



RECORDING

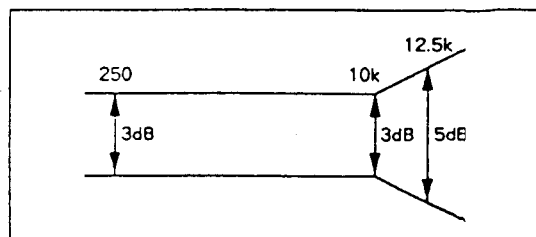


Fig. 6-3 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR105, 106 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. 6−2)	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 VR105 (Lch) VR106 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	−14.7 dBv	This adjustment must be performed accurately for proper Dolby level setting.

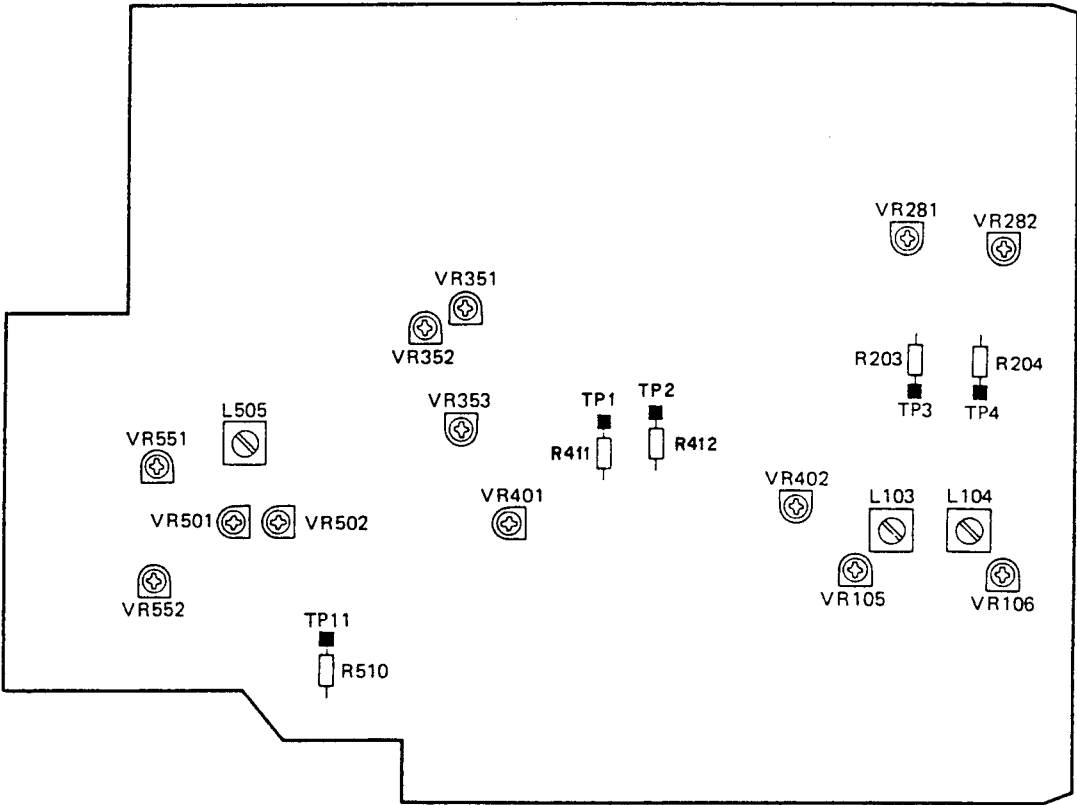


Fig. 6−4 Adjusting points

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	L505	TP. 11	108 kHz $\pm$ 300 Hz	

2. Bias Trap 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	L103 (Lch) L104 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Minimum output	

3. Recording Bias Adjustment

- Turn ON the DOLBY HX PRO switch on the front panel, and set the BIAS control to the center position.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/–20 dBv (–20VU meter reading) signal to the line input terminals and insert STD–630.			LINE OUT		
2.	REC →PLAY	Record and play back the 315 Hz signal and a 10 kHz signal at –20 dBv input level.	NOR	VR551 (L) VR552 (R)		Record and play back repeatedly, comparing the 315 Hz and 10 kHz playback levels, and adjust to 0 ± 0.5 dB.	
3.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–620 and play back.	CrO2	VR501 (L/R)		$0 \text{ dBv} \pm 1.0 \text{ dB}$	
4.		Record the 10 kHz/315 Hz, –20 dBv signal on STD–610 and play back.	METAL	VR502 (L/R)		$0 \text{ dBv} \pm 1.0 \text{ dB}$	
5.	Check distortion value after adjustment is completed and confirm that there is no underbias.						

4. Recording Level Adjustment

- Turn ON the DOLBY NR switch.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks		
1.	REC/ PAUSE	Apply the 315 Hz/0 dBv signal to the line input, and load STD-630 (NORM).	REC level control volume		TP. 3 (Lch) TP. 4 (Rch)	-15.2 dBv			
2.	REC → PLAY	Record and play back the 315 Hz/0 dBv signal.	Deck	VR401 (Lch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -15.2 dB.	Recording bias adjustment and recording level adjustment with STD-630 must be performed accurately as reference for BLE adjustment.		
				VR402 (Rch)					
3.	REC → PLAY	Record the 315 Hz/0 dBv signal on STD-620 (CrO2), and play it back.	Check					-15.2 dBv ± 1 dB	
4.	REC → PLAY	Record the 315 Hz/0 dBv signal on STD-610 (METAL), and play it back.	Check					-15.2 dBv ± 1 dB	

5. Level Meter Adjustment

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.	VR281 (Lch) VR282 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Always set the enlarged mode when adjusting. Adjust so that the 0 dB segment lights at a level of -15.2 ± 0.5 dBv (-15.2 ± 1.0 dBv in the normal mode).	Adjust by turning clockwise until the lamp lights up.

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

Press the MODE (COUNTER), RANGE and MONITOR keys on the front panel simultaneously, with the power ON. The unit enters the test mode and oscillates a 400 Hz signal.

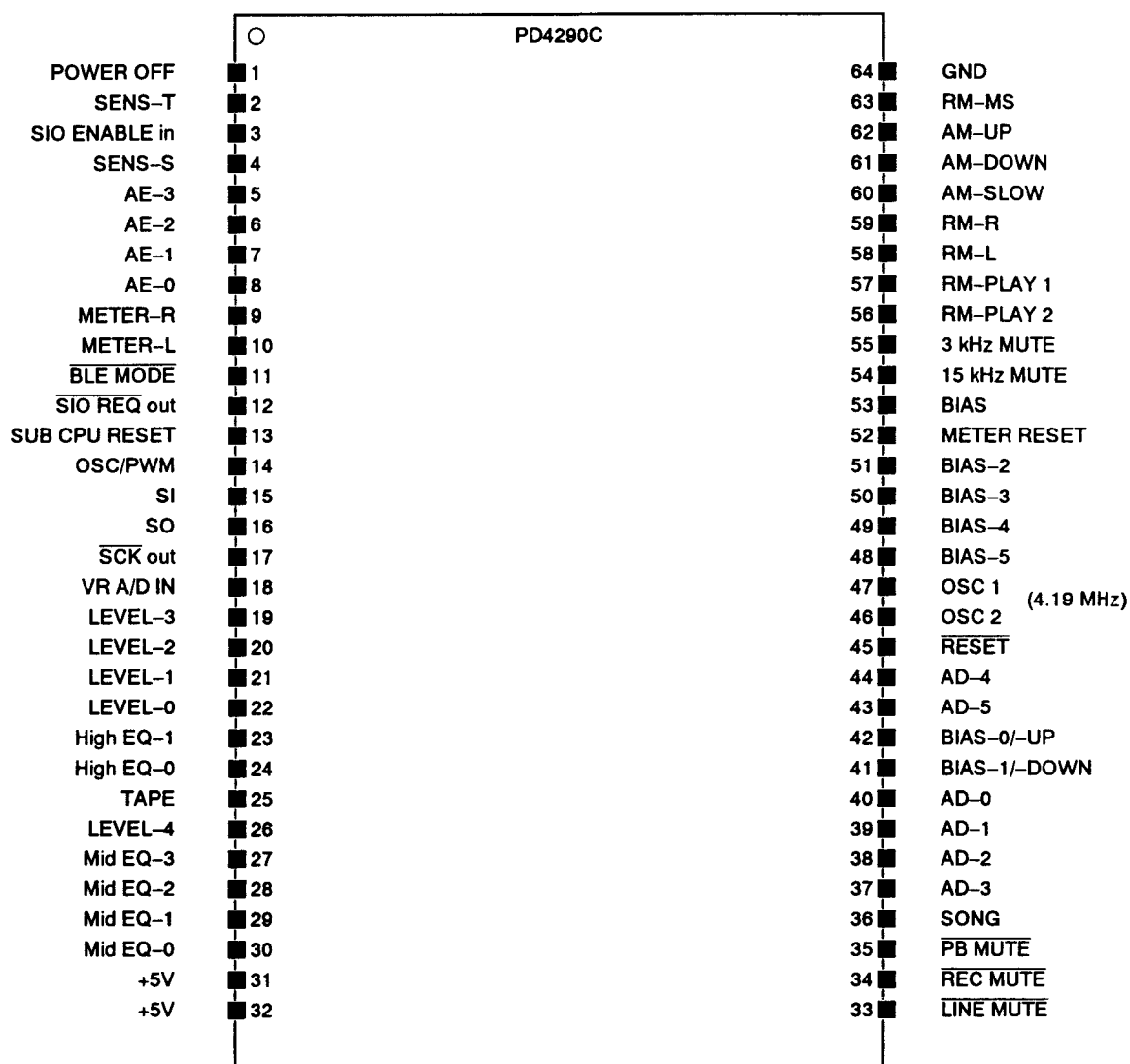
Thereafter, each time the START/CLEAR key is pressed, the oscillation frequency changes as follows: 3 kHz oscillation → 15 kHz oscillation → Release

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	-	REC LEVEL VR MIN or no signal input.	-	-	-	
2.		Press the three keys MODE (COUNTER), RANGE and MONITOR on the front panel simultaneously.	VR351	Level meter Rch	Adjust so that -3 dB on the level meter lights.	400 Hz adjustment
3.		Press the START/CLEAR key once.	VR352		Adjust so that -1 dB on the level meter lights.	3 kHz adjustment
4.		Press the START/CLEAR key once.	VR353		Adjust so that -1 dB on the level meter lights.	15 kHz adjustment
5.	When the START/CLEAR key is pressed again, the test mode is released.					

7. IC DESCRIPTIONS

7.1 PD4290C

7.1.1 Main CPU Port Arrangement PD4290C (BLE & Main Control)



7.1.2 I/O Matrix Table

	CrO ₂ (in) (Sub CPU)	METAL (in) (Sub CPU)	High EQ-1 (out) (Main CPU)	High EQ-0 (out) (Main CPU)
TAPE: NORMAL	L	L	1	0
TAPE: CrO ₂	H	L	1	0
TAPE: METAL	L	H	0	1

- Output standard value for setting
 LEVEL (5bit) : 01111
 Mid EQ (4bit) : 0111
 High EQ (2bit) : According to the table above.

7.1.3 PD4290C Pin Functions

Pin No.	I/O	Name	Function														
1	I	POWER OFF	POWER OFF trigger input and rising edge input when power is OFF. Normally "L".														
2		SENS-T	Rotation pulse input for the take-up side reel base. The tape end is detected when the signal change stops. Also, ATLC operation is based on the signal change.														
3		SIO ENABLE in	When this signal from the sub CPU becomes "H", the main CPU starts communication with the sub CPU.														
4		SENS-S	Rotation pulse input for the supply side reel base. When Ver REMAIN is ON, the operation for the remain function is performed by this signal. Also, when the signal change stops for 5 minutes with Ver REMAIN ON, PLAY or REC/PLAY mode changes to STOP mode.														
5		AE-3	4-bit encoder input for position detection of the mechanism.														
6		AE-2	<table><tr><th>4-bit data</th><th>Mechanism mode</th></tr><tr><td>0000</td><td>PLAY, REC/PLAY</td></tr><tr><td>0010</td><td>PLAY/PAUSE, REC/PAUSE</td></tr><tr><td>0111</td><td>CUE, REVIEW</td></tr><tr><td>0100</td><td>STOP, PAUSE</td></tr><tr><td>1101</td><td>FF. REW</td></tr><tr><td>1001</td><td>EJECT</td></tr></table>	4-bit data	Mechanism mode	0000	PLAY, REC/PLAY	0010	PLAY/PAUSE, REC/PAUSE	0111	CUE, REVIEW	0100	STOP, PAUSE	1101	FF. REW	1001	EJECT
4-bit data		Mechanism mode															
0000		PLAY, REC/PLAY															
0010		PLAY/PAUSE, REC/PAUSE															
0111		CUE, REVIEW															
0100	STOP, PAUSE																
1101	FF. REW																
1001	EJECT																
7	AE-1																
8	AE-0																
9	METER-R	Input of results from comparison of 6-bit output (AD-0 through AD-5) with both R and L channels.															
10	METER-L																
11	O	BLE MODE	"L" is output during BLE tuning mode and test mode, and "H" is output at other times.														
12		SIO REQ out	"L" is output when main CPU requests communication with sub CPU, and "H" is output at other times.														
13		SUB CPU RESET	Reset output for resetting of sub CPU when power is turned ON/OFF and when the communication between main CPU and sub CPU is interrupted for a certain duration.														
14		OSC/PWM	Tuning oscillator output in BLE mode, and at other times PWM output for position detection of the input volume.														
15	I	SI	Serial input for communication with sub CPU.														
16	O	SO	Serial output for communication with sub CPU.														
17		SCK out	Clock pulse output for communication with sub CPU.														
18	I	VR A/D IN	Input of results from comparison of PWM smoothed level signal and position detection level signal of the input volume.														
26	O	LEVEL-4	BLE 5-bit LEVEL output.														
19		LEVEL-3															
20		LEVEL-2															
21		LEVEL-1															
22		LEVEL-0															
23		High EQ-1	BLE 2-bit High EQ output.														
24		High EQ-0															
25		TAPE	Tape monitor output. Tape when "H", source when "L".														
27		Mid EQ-3	BLE 4-bit Mid EQ output.														
28		Mid EQ-2															
29		Mid EQ-1															
30		Mid EQ-0															
33		LINE MUTE	Mute control output for LINE OUT. Muting is ON when "L".														
34		REC MUTE	Mute control output for recording signal. Muting is ON when "L".														
35		PB MUTE	Mute control output for playback signal. Muting is ON when "L".														

Pin No.	I/O	Name	Function																																																
36	I	SONG	Blank detection signal input. Blank when "L".																																																
43		AD-5	6-bit compensation level signal output for meter A/D.																																																
44		AD-4																																																	
37		AD-3																																																	
38		AD-2																																																	
39		AD-1																																																	
40		AD-0																																																	
41		BIAS-DOWN	Control output for BLE power drive bias volume when Ver VR-BLE is ON. When DOWN is "L" and UP is "H", the volume rotates clockwise and the bias current increases. When DOWN is "H" and UP is "L", the volume rotates counterclockwise and the bias current decreases. The power drive bias volume stops when the output status is "L", "L" or "H", "H".																																																
42		BIAS-UP																																																	
45	I	RESET	Reset input for main CPU. Reset when "L"; programming starts when "L" → "H".																																																
48	O	BIAS-5	Not used when Ver VR-BLE is ON.																																																
49		BIAS-4																																																	
50		BIAS-3																																																	
51		BIAS-2																																																	
52		METER RESET	Used to speed up A/D operation in BLE mode. Meter circuit is discharged when "H".																																																
53		BIAS	Control output for bias ON/OFF during recording. Bias is ON when "H".																																																
54		15 kHz MUTE	Used in accordance with the test signal for BLE tuning. Muting is ON when "H". Both are ON when the signal is 400 Hz. Only 15 kHz MUTE is ON when the signal is 3 kHz. Both are OFF when the signal is 15 kHz.																																																
55		3 kHz MUTE																																																	
56		RM-PLAY 2	For PLAY and REC (L) mode, PLAY torque is lowered only for the first 5 to 15 minutes of tape winding. During tape return and BLE rewind, tape speed is varied using the control lines of PLAY-2, PLAY-1 and MS.																																																
57		RM-PLAY 1																																																	
63		RM-MS	<table><tr><th>Mechanism mode</th><th>PLAY-2</th><th>PLAY-1</th><th>MS</th><th>L</th><th>R</th></tr><tr><td>FF</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td></tr><tr><td>REW</td><td>L</td><td>L</td><td>L</td><td>H</td><td>L</td></tr><tr><td>CUE</td><td>L</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>REVIEW</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td></tr><tr><td>PLAY, REC (H)</td><td>H</td><td>L</td><td>L</td><td>L</td><td>H</td></tr><tr><td>PLAY, REC (L)</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td></tr><tr><td>STOP, PAUSE, PLAY/PAUSE, REC/PAUSE</td><td>-</td><td>-</td><td>-</td><td>H</td><td>H</td></tr></table>	Mechanism mode	PLAY-2	PLAY-1	MS	L	R	FF	L	L	L	L	H	REW	L	L	L	H	L	CUE	L	L	H	L	H	REVIEW	L	L	H	H	L	PLAY, REC (H)	H	L	L	L	H	PLAY, REC (L)	H	H	L	L	H	STOP, PAUSE, PLAY/PAUSE, REC/PAUSE	-	-	-	H	H
Mechanism mode		PLAY-2	PLAY-1	MS	L	R																																													
FF		L	L	L	L	H																																													
REW		L	L	L	H	L																																													
CUE		L	L	H	L	H																																													
REVIEW	L	L	H	H	L																																														
PLAY, REC (H)	H	L	L	L	H																																														
PLAY, REC (L)	H	H	L	L	H																																														
STOP, PAUSE, PLAY/PAUSE, REC/PAUSE	-	-	-	H	H																																														
58	RM-L																																																		
59	RM-R																																																		
60	AM-SLOW	Assist motor control output. When DOWN is "L" and UP is "H", the mechanism raises the head base, and when DOWN is "H" and UP is "L" it lowers the head base for ejection of the tape. SLOW output is set to "H" only during the servo operation after one assist motor operation and during the assist motor operation between the EJECT and STOP mode.																																																	
61	AM-DOWN																																																		
62	AM-UP																																																		

8. FOR CT-777-S/HEWM TYPE

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

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

The CT-777-S/HEWM type is the same as the CT-777/HEM type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		CT-777/ HEM type	CT-777-S/ HEWM type	
	Panel stay	RNT1090	RNT1110	
	Power button	RAC1410	RAC1503	
	Function knob	RAC1411	RAC1502	
	Push knob	RAC1413	RAC1505	
	Knob (B)	RAC1414	RAC1492	
	Mode knob	RAC1552	RAC1611	
	Slide SW knob	RAC1562	RAC1522	
	Side rubber	REB1094	REB1128	
	Door	RNK1495	RNK1731	
	VR knob assembly	RXA1281	.....	
	VR knob	.....	RAC1496	
	Door panel	RAH1844	RAH1845	
	Bonnet	RXX1376	RXX1377	
	Front panel assembly	RXX1385	RXX1386	
	Operating instructions (Dutch, Spanish, Portuguese, Swedish)	RRD1109	.....	
	Packing case	RHG1279	RHG1280	
	Door assembly	RXX1417	RXX1418	

9. SPECIFICATIONS

System	4 track, 2-channel stereo
Heads	
Recording and playback head:	
[CT-900S, CT-777]	
Hard permalloy playback head and Hard permalloy recording head combination × 1	
Erasing head: Ferrite head with sendust gurd × 1	
Motor	DC servo capstan motor × 1
	DC reel motor × 1
	DC auxiliary motor × 1
Wow and Flutter	
[CT-900S, CT-777]	No more than 0.023%(WRMS)
	No more than ±0.056% (DIN)
Fast Winding Time	Approximately 75 seconds
	(C-60 tape)
Frequency Response	
– 20 dB recording:	
[CT-900S, CT-777]	
Metal tape	15 to 22,000 Hz
Chrome tape	15 to 21,000 Hz
Normal tape	15 to 21,000 Hz
Signal-to-Noise Ratio (Dolby NR off)	
[CT-900S, CT-777]	More than 60 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)
Dolby S-type NR ON (CT-93, CT-900S)	More than 22 dB
	(at 5 kHz)
Harmonic Distortion	No more than 0.6% (0 dB)
Input (Sensitivity)	
LINE (INPUT)	60 mV (Input impedance 47 kΩ)
Output (Reference level)	
LINE (OUTPUT)	316 mV (Output impedance 1.8 kΩ)
Headphone	2.3 mW
	(Load impedance 8 Ω, PHONES LEVEL control max.)

Subfunctions

- Super AUTO BLE system
- Dolby B-type and C-type noise reduction systems
- MPX filter
- Level meter with 2 modes peak hold selection (16 + 1 segments)
- Level meter range selection (wide/expanded)
- 4-digit electronic tape counter with mode selection (CT-900S, CT-777: Normal/Time)
- Auto monitor selection (Tape/Source)
- Display off
- Music search (over ±15 selections)
- Automatic Tape Loose Canceller (ATLC)
- Tape return/Return play
- Auto space recording mute
- Auto tape selector
- Playback/recording timer start function
- CD•DECK SYNCHRO recording
- Headphones jack with level control
- Power eject (Open/Close)
- Repeat playback

Miscellaneous

Power Requirements

European model	AC 220–230 Volts ~, 50/60 Hz
U.K. model	AC 230–240 Volts ~, 50/60 Hz
Multi-voltage model	AC 110/120–127/220/240 V
	(switchable), 50/60 Hz

Power Consumption

[CT-777]	19W
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Dimensions

[CT-979, CT-900S, CT-777]	420(W) × 135(H)
	× 370(D) mm

Weight (without package)

[CT-777]	7.6 kg
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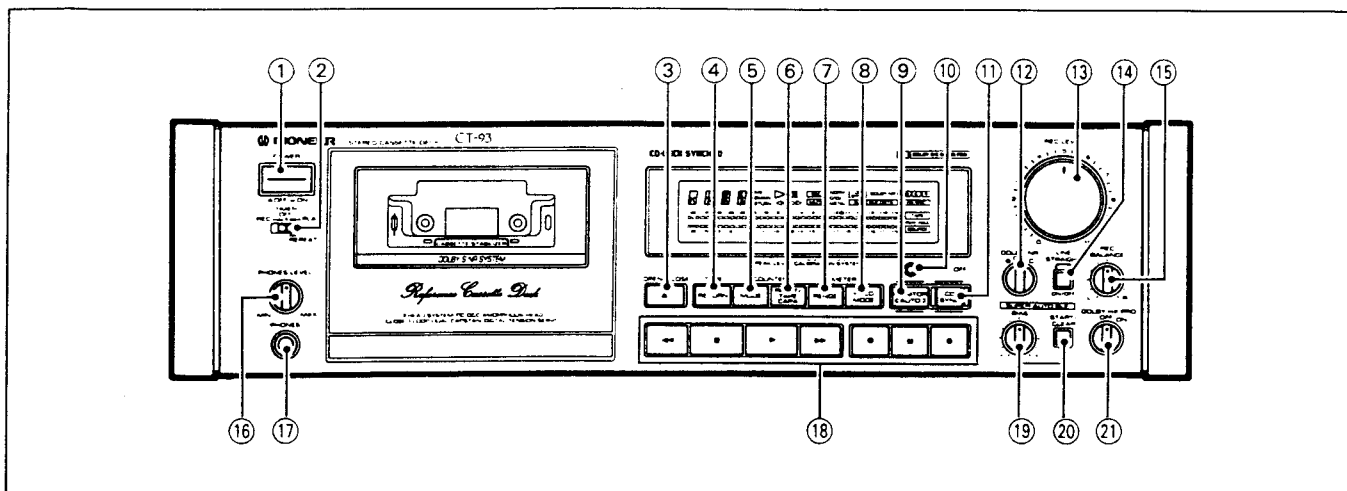
Accessories

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

NOTE:

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

10. PANEL FACILITIES



① Power switch (POWER OFF/ON)

② Timer mode/repeat play switch (TIMER REC/OFF/PLAY-REPEAT)

③ Open/close button (OPEN/CLOSE)

Press this button to open or close the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.

NOTE:

If the cassette door is closed while the unit is turned OFF, and the power is then turned ON, the cassette door may open and close after pressing one of the operation buttons. This occurs when the microprocessor resets the door mechanism to its initial state and does not indicate any malfunctioning of the unit.

④ Tape return button (TAPE RETURN)

This button is used in the normal tape counter mode to fast forward or rewind the tape to a point near the counter reading "0000."

⑤ Counter mode button (COUNTER MODE) [CT-900S, CT-777]

Each time this button is pressed, one of the two mode (Normal tape counter/Time counter) is set in sequence.

⑥ Counter reset button (COUNTER RESET) [CT-900S, CT-777]

Reset the counter indication to "0000."

⑦ Level meter range selector button (METER RANGE)

Selects wide or expanded range for the level meter.

⑧ Level meter hold mode button (METER HOLD MODE)

Selects the display mode of the peak level. When press this button so that the HOLD indicator lights up, the level meter holds the maximum level indications of the signal. To erase the maximum level indications, press this button again. When the HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

⑨ Monitor selector button (MONITOR [AUTO])

Used to monitor the source sound or just recorded sound during recording.

- When the unit is set to record or playback mode, the TAPE indicator light up and the monitor mode is automatically selected.

⑩ Display off button (DISPLAY OFF)

Press this button to turn off the function display.

⑪ CD-DECK SYNCHRO recording button (CD SYNC)

⑫ DOLBY* NR switch

[CT-979, CT-777]

3-position (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.

⑬ Recording level control (REC LEVEL)

⑭ [CT-93, CT-979 only]

Line straight button/indicator (LINE STRAIGHT)

When press this button so that the indicator lights up, the signal is passed the REC BALANCE control circuits.

⑮ Recording balance control (REC BALANCE)

⑯ Headphones level control (PHONES LEVEL)

⑰ Headphones jack (PHONES)

⑱ Operation buttons

- ◀◀: Rewind/music search
- : Stop
- ▶▶: Playback
- ▶▶▶: Fast forward/music search
- : Recording
- ||: Pause
- : Recording mute

⑲ [CT-93, CT-979 only]

Recording bias control/indicator (BIAS)

If you desire, you can readjust the recording bias condition after the AUTO BLE tuning.

⑳ SUPER AUTO BLE button (START/CLEAR)

㉑ [CT-93, CT-979 only]

DOLBY HX PRO switch (OFF/ON)