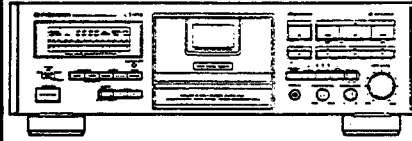


# Service Manual

**PIONEER®**  
The Art of Entertainment



ORDER NO.  
ARP2735

STEREO CASSETTE DECK

# CT-43

## CT-S820S

## CT-S620

## CT-S620-G

CT-43, CT-S820S, CT-S620 AND CT-S620-G HAVE THE FOLLOWING:

Type	Model				Power Requirement	Remarks
	CT-43	CT-S820S	CT-S620	CT-S620-G		
KU/CA	○	—	—	—	AC120V	
HEM	—	○	○	○	AC220 — 230V, 230 — 240V (Switchable) *	
HB	—	—	○	—	AC220 — 230V, 230 — 240V (Switchable) *	
SD	—	—	○	—	AC110V, 120 — 127V, 220V, 240V (Switchable)	

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

- For the following: CT-S820S/HEM; CT-S620/HEM, HB and SD; CT-S620-G/HEM, refer to page 37.

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# 1. SAFETY INFORMATION

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

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



## WARNING

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

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

## NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

## REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

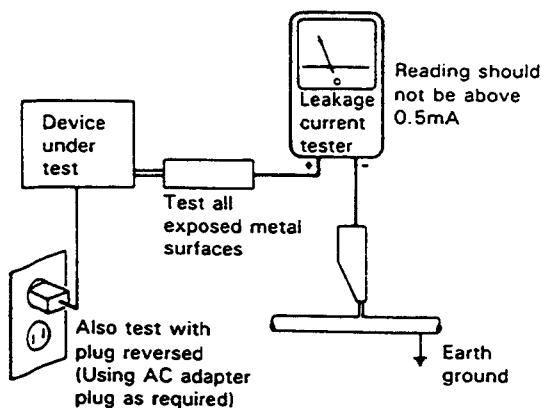
(FOR USA MODEL ONLY)

## 1. SAFETY PRECAUTIONS

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

### LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

## 2. PRODUCT SAFETY NOTICE

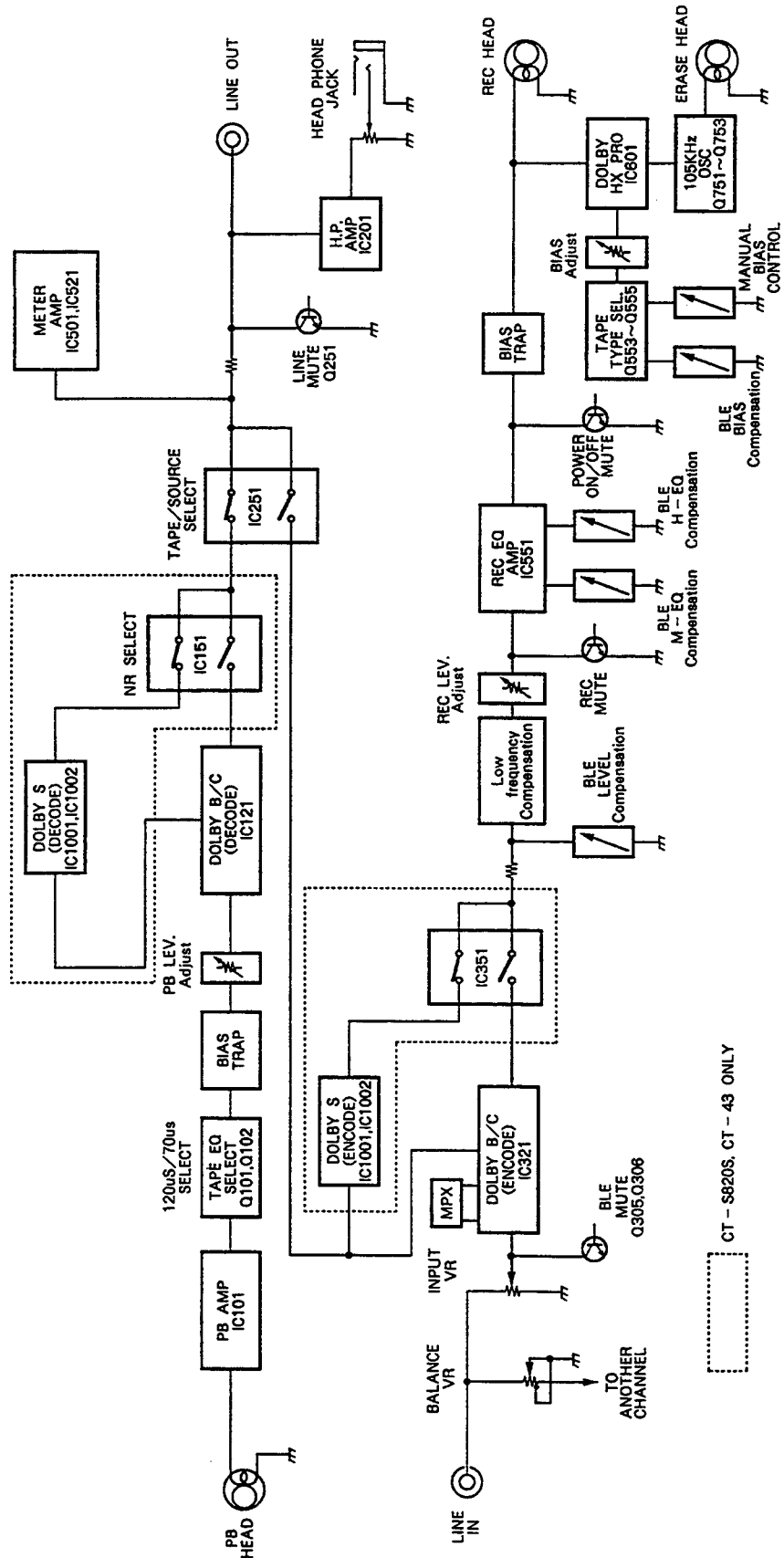
Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which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

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

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

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

## 2. BLOCK DIAGRAM



CT - S820S, CT - 43 ONLY

### 3. EXPLODED VIEWS, PACKING AND PARTS LIST

#### 3.1 EXTERIOR

##### NOTES:

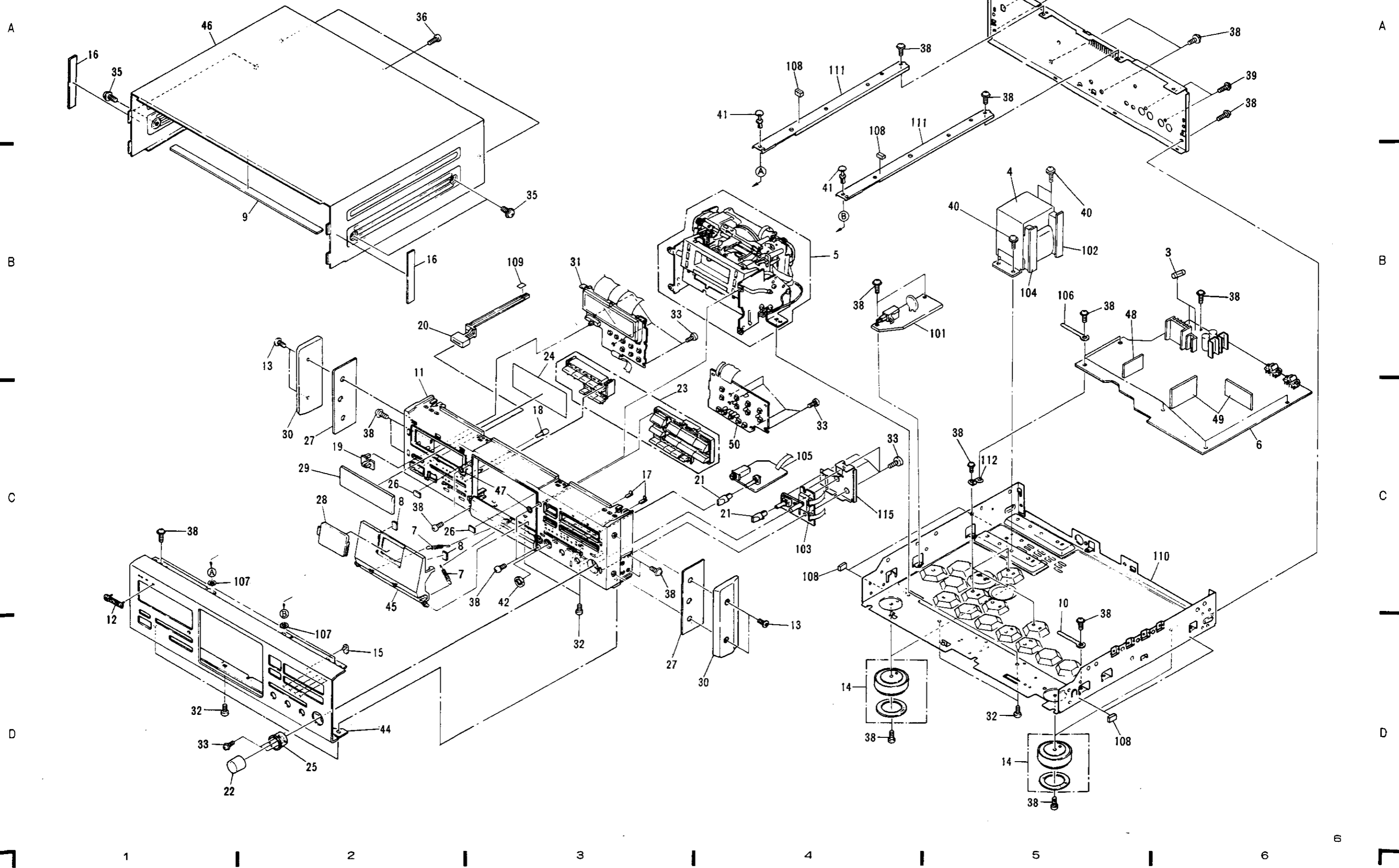
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked 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.
$\triangle$	1	Strain relief	CM - 22C		41	Rivet	RBM - 003
$\triangle$	2	AC power cord	PDG1015		42	Jack nut	RBN - 006
$\triangle$	3	FU811, FU812 Fuse (1.5A)	DEK1014		43	.....	
$\triangle$	4	T1 power transformer	RTT1234		44	Front panel	RAH2283
⊙	5	Mechanism unit	RYM1206		45	Door	RAH2277
	6	MAIN unit	RWZ2964		46	Bonnet	RXX1516
	7	Door spring	RBH1306	⊙	47	Fiber washer	REC1180
	8	Cushion	REB1174		48	HX unit	RWX1069
	9	Protector	RED1020		49	DOLBY S unit	RWX1079
	10	Cord clamper	RNH - 184		50	OPSW unit	RWZ2921
	11	Panel stay	RNT1179	NSP	101	PWSW unit	RWZ2965
	12	Name plate	RAN1008	NSP	102	TRN2 unit	RWZ2967
	13	Screw	ABA1148	NSP	103	VR unit	RWZ2922
	14	Foot assembly	AMR1159	NSP	104	TRN 1 PCB	RNZ2456
	15	LED lens	AMR1160	NSP	105	HPHN unit	RWZ2918
	16	Side sheet (sponge)	PNM1150	NSP	106	Cord clamper	DNF1128
	17	Lens S	PNW1893	NSP	107	Washer	RBF1017
	18	Counter reset knob	RAA1009	NSP	108	Rubber spacer (A)	REB1057
	19	Slide SW knob	RAC1562	NSP	109	Acetate tape	REH1020
	20	Power button	RAC1703	NSP	110	Main chassis	RNB1059
	21	Balance knob	RAC1705	NSP	111	Center stay	RNC1071
	22	VR knob	RAC1707	NSP	112	PCB base	RNE1221
	23	Function knob	RAC1817		113	.....	
	24	FL filter	RAH2087	NSP	114	Rear panel	RNA1722
	25	VR ring	RAT1011	NSP	115	VR shield plate	RNE1609
	26	Door sheet (rubber)	REB1191				
	27	Side spacer (rubber)	PEB1198				
	28	Door lens	RAH1927				
	29	FL lens	RAH2032				
	30	Side panel	RAH2044				
	31	FL unit	RWZ2920				
	32	Screw	BBT30P100FZK				
	33	Screw	BBZ26P080FZK				
	34	.....					
	35	Screw	FBT40P080FZK				
	36	Screw	IBZ30P060FCC				
	37	.....					
	38	Screw	IBZ30P080FCC				
	39	Screw	IBZ30P100FCC				
	40	Screw	IBZ40P080FCC				

Exterior

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



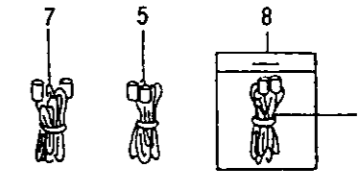
3.2 MECHANISM UNIT

Parts List

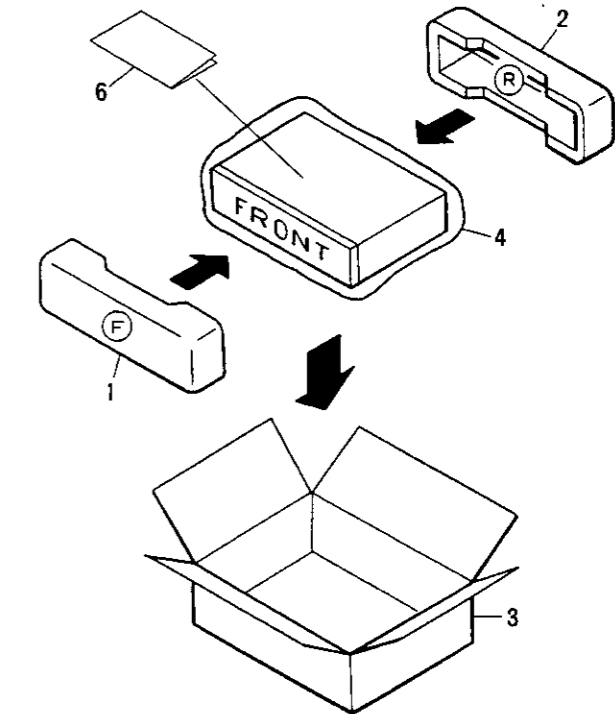
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Rotary encoder	RSX1004	51	Head base set spring	RBL - 026
2	Capstan motor assembly	RXX1491	52	Gear chassis assembly	RXA1171
3	Reel motor assembly	REA1075	53	Screw	BBZ26P080FZK
4	Step screw	RBA - 064	54	Pinch base assembly	RXB - 878
5	Cassette plate assembly	RXX1064	55	Screw	BBZ30P080FZK
6	Rubber cushion	REB1125	56	Eject lever	RNK1763
7	Pinch spring	RBL - 028	57	Screw	BCZ30P060FMC
8	Pinch thrust spring	RBL - 030	58	Screw	BMZ26P030FZK
9	Sub - pinch spring	RBL - 098	59	Screw	IBZ20P060FMC
10	Capstan belt	REB1143	60	Screw	BMZ26P060FZK
11	Capstan belt (A)	REB - 509	61	Screw	BMZ30P080FZK
12	Tape guide	RNK1823	62	Screw	PMZ30P040FMC
13	Flywheel assembly	RXA1374	63	Screw	PMA26P050FZK
14	Sub - flywheel assembly	RXA1375	64	Screw	PMA26P060FZK
15	Metal holder assembly (A)	RXA1426	65	Screw	PMZ20P080FZK
16	Metal holder assembly (B)	RXA1343	66	Washer	RBF - 030
17	Pinch roller arm (R) assembly	RXB - 876	67	Stabilizer (B)	REB1038
18	Pinch roller arm (A) assembly	RXB - 877	68	Earth spring	RBL - 059
19	BT spring (A)	RBL - 031	69	Washer	RBF - 076
20	BT spring (B)	RBL - 032	70	Washer	RBF1040
21	Idler pressure spring	RBL - 033	71	Binder	REC - 371
22	Reel shaft cap (B)	RNK - 815	72	Steel ball (3mm)	REF - 022
23	BT disk assembly	RXB - 751	73	Steel ball (4mm)	REF - 023
24	Reel base assembly	RXB - 874	74	Screw	VCT30P060FZK
25	Take - up idler assembly	RXA1554	75	LED (D3)	SLF - 401C
26	Washer	RBF - 065	76	Washer	WA21D040D013
27	Head base spring	RBL - 037	77	Washer	WA26N070W040
28	Brake spring	RBL - 038	78	Washer	WA32D080D050
29	Drive belt	REB1182	79	E ring	YE20FUC
30	Brake shoe	REB - 511	80	E ring	YE25FUC
31	Brake	RNL - 723	81	E ring	YE30FUC
32	Cam gear	RNK1640	82	Snap ring	YS24FBT
33	Side cam gear	RNK1765	83	Shift shaft assembly	RXB - 885
34	Stabilizer	REB1161	84	Head base assembly	RXX1333
35	Eject spring	RBL - 039	85	Mechanism chassis assembly	RXA1366
36	Half set arm spring	RBL - 040	86	Brake lever	RNK1638
37	REC functioning spring	RBL - 041	87	Second pulley assembly	RXA1350
38	Detection functioning spring	RBL - 042	88	Door frame (L)	RNE1475
39	Reel motor mounting plate	RNE1604	89	Pinch lever assembly	RXA1360
40	Flywheel holder	RNH - 304	90	Door frame (R)	RNE1476
41	Cord clamber	RNH - 184	91	Damper assembly	VXA1153
42	Washer	RBF - 057	92	Half pressure spring	RBK1004
43	REC detector arm	RNL - 733	93	Door pocket	RNK1865
44	Chrom detector arm	RNL - 734	94	Loading motor	VXM1034
45	Metal detector arm	RNL - 735	95	Screw	PBZ20P060FMC
46	Thrust holder	RNL - 743	96	Capstan motor	RXM1054
47	Motor pulley	PNW1634	97	Reel motor	RXM1065
48	Pressure arm (R)	RNL - 725	98	2.5mm pitch side post (5P)	BS5P - SHF - 1
49	Collar	RNL - 742	99	Connector assembly (4P)	RKP1383
50	Pressure arm (L)	RNL - 726	100	Connector assembly (2P)	RKP1384

3.3 PACKING

Mark No.	Description	Part No.
1	Pad (F)	RHA1117
2	Pad (R)	RHA1118
3	Packing case	RHG1493
4	Sheet	RHX1007
5	Control cord (For CD • DECK SYNCHRO)	RDE1030
6	Operating instructions (English/French)	RRE1078
7	Connection cord (For SR cord)	PDE - 319
8	Connection cord assembly (For Audio)	RDE1002
9	Connection cord (For Audio)	RDE - 010



Mark No.	Description	Part No.
NSP 101	Gear base assembly	RXB - 882
NSP 102	E head	RPB1042
NSP 103	R & P head	RPB1041
NSP 104	Connector unit	RWZ1751
NSP 105	Adjustment nut	RBA1047
NSP 106	Head adjustment spring C	RBL - 034
NSP 107	Hight spring	RBL - 036
NSP 108	Head base	RNK1645
NSP 109	Sub - head base	RNG - 335
NSP 110	E head base	RNG1033
NSP 111	Earth lead assembly	RDF - 001
NSP 112	REC switch unit	RWZ1749
NSP 113	Tape selector unit	RWZ1750
NSP 114	Sensor unit (B)	RWZ1753
NSP 115	Cassette plate	RAH1306
NSP 116	Lead wire holder	RNL - 793
NSP 117	Shift roller	RNL - 731
NSP 118	Sensor unit (A)	RWZ1752
NSP 119	Motor pulley	RNK1676
NSP 120	Reel motor pulley	RLA1186
NSP 121	Connector assembly (4P)	RKP1111
NSP 122	Connector assembly (2P)	RKP - 895
NSP 123	Spring	RBL - 047
NSP 124	Spring cup	RNL - 012
NSP 125	Idle pulley	RNL - 549
NSP 126	Idler arm	RNK1908



A

B

C

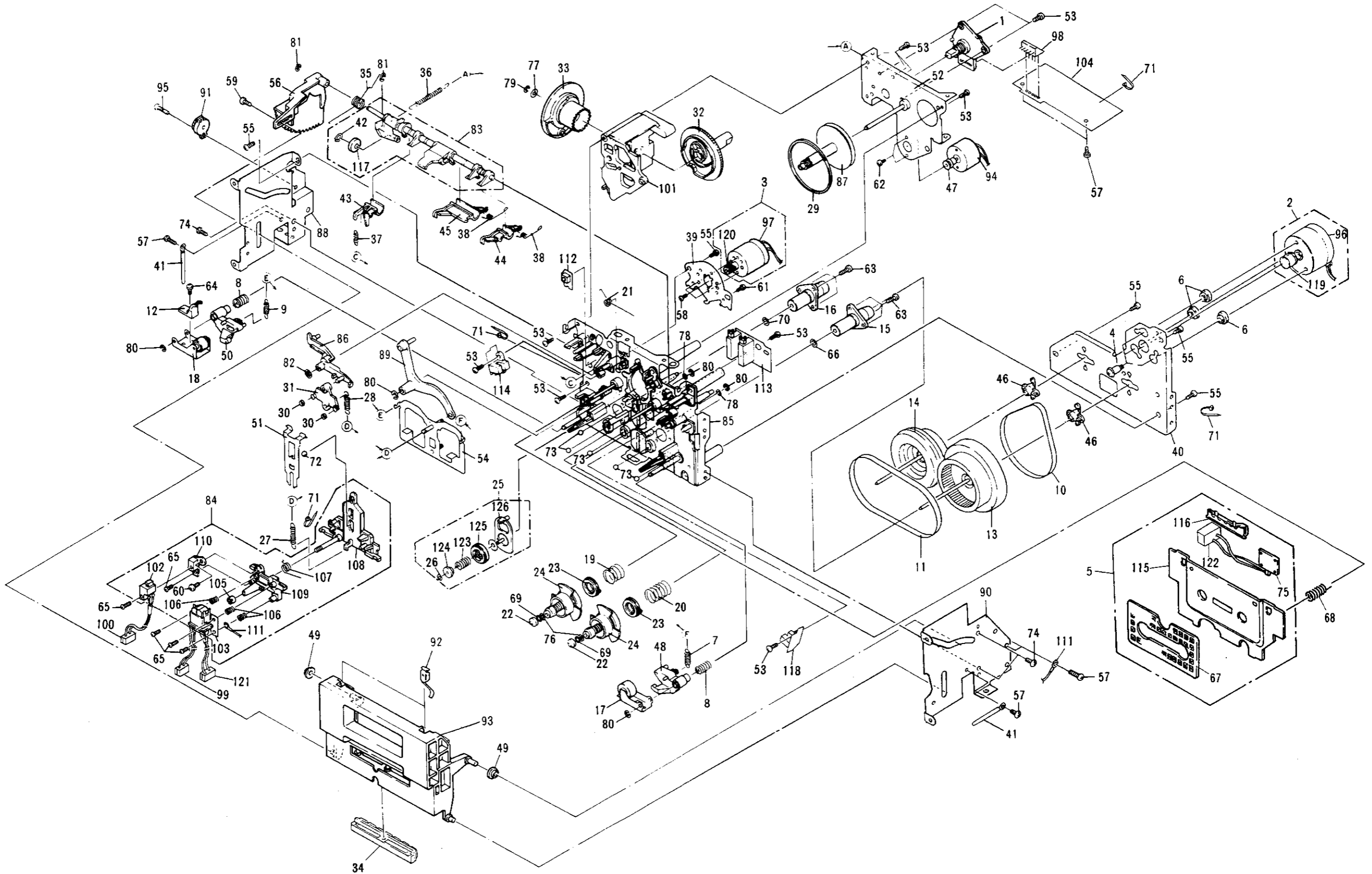
D

A

B

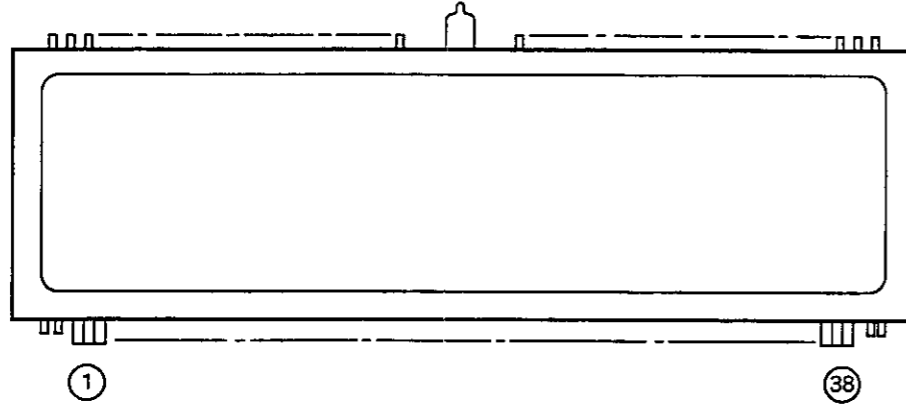
C

D



### 4. FL INFORMATION

RAW1127 (V1501)

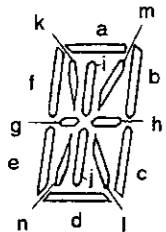
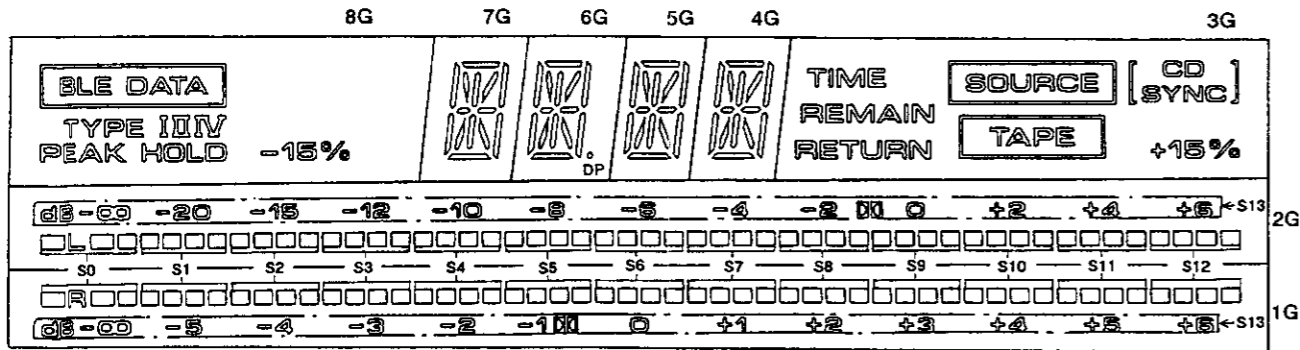


**Pin Connection**

TERMINAL NO. ELECTRODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	F1	F1	NP	NP	NC	8G	7G	6G	5G	4G	3G	2G	1G	P14	P13	P12	P11	P10	P9
TERMINAL NO. ELECTRODE	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
	P8	P7	P6	P5	P4	P3	P2	P1	P0	NP	NP	NP	NP	NP	NP	NP	F2	F2	

Notes F: Filament G: Grid P: Anode NP: No pin

**Grid Assignment**

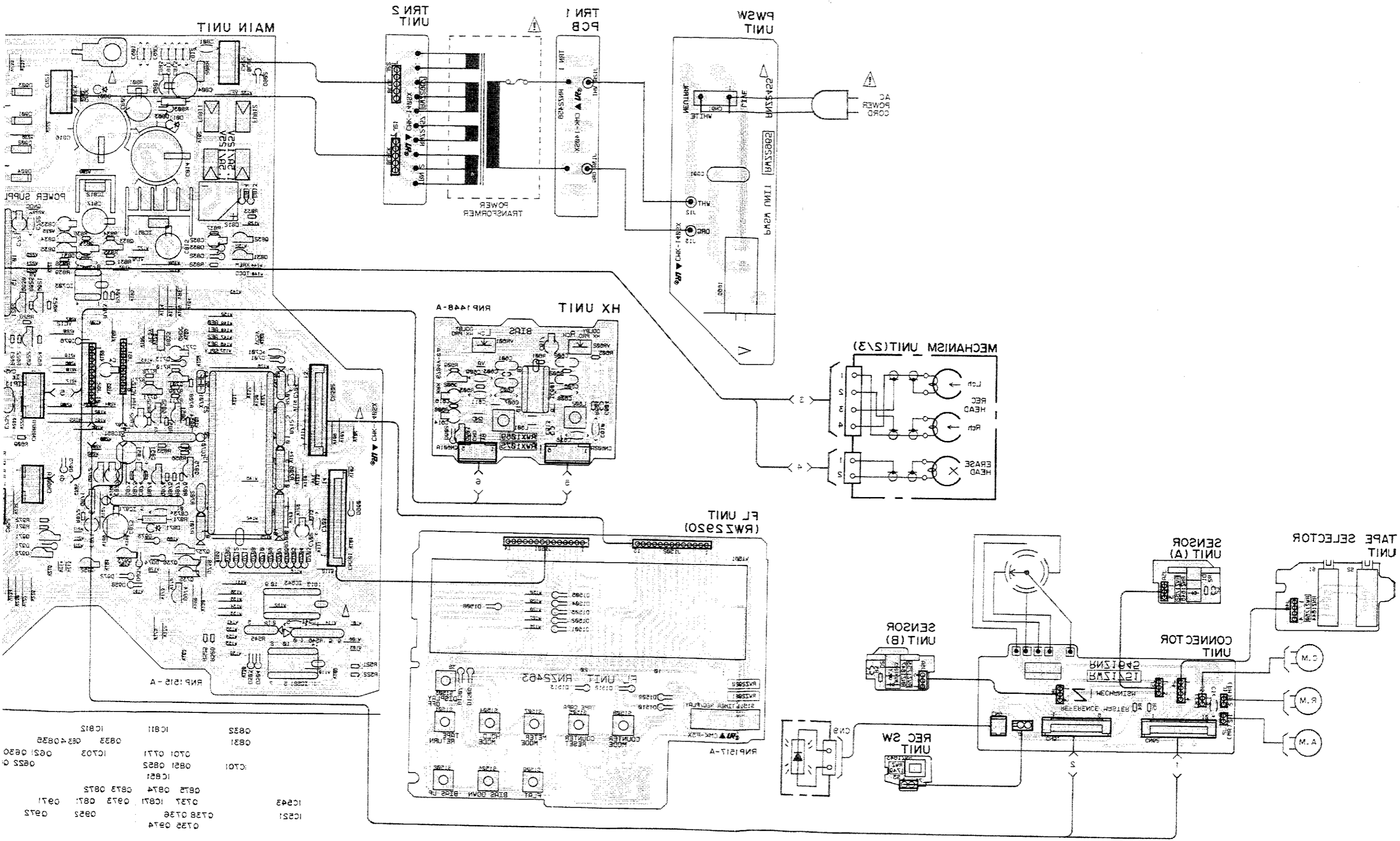


**Anode Connection**

	8G	7G	6G	5G	4G	3G	2G	1G
S0	-	a	a	a	a	TIME	S0	S0
S1	-	b	b	b	b	REMAIN	S1	S1
S2	-	c	c	c	c	RETURN	S2	S2
S3	-	d	d	d	d	TAPE	S3	S3
S4	-	e	e	e	e	SOURCE	S4	S4
S5	-	f	f	f	f	[ CD ] [ SYNC ]	S5	S5
S6	BLE DATA	g	g	g	g	+ 15%	S6	S6
S7	TYPE	h	h	h	h	-	S7	S7
S8	I	i	i	i	i	-	S8	S8
S9	II	j	j	j	j	-	S9	S9
S10	IV	k	k	k	k	-	S10	S10
S11	- 15%	l	l	l	l	-	S11	S11
S12	HOLD	m	m	m	m	-	S12	S12
S13	PEAK	n	DP	n	n	-	S13	S13
S14	-	-	n	-	-	-	-	-





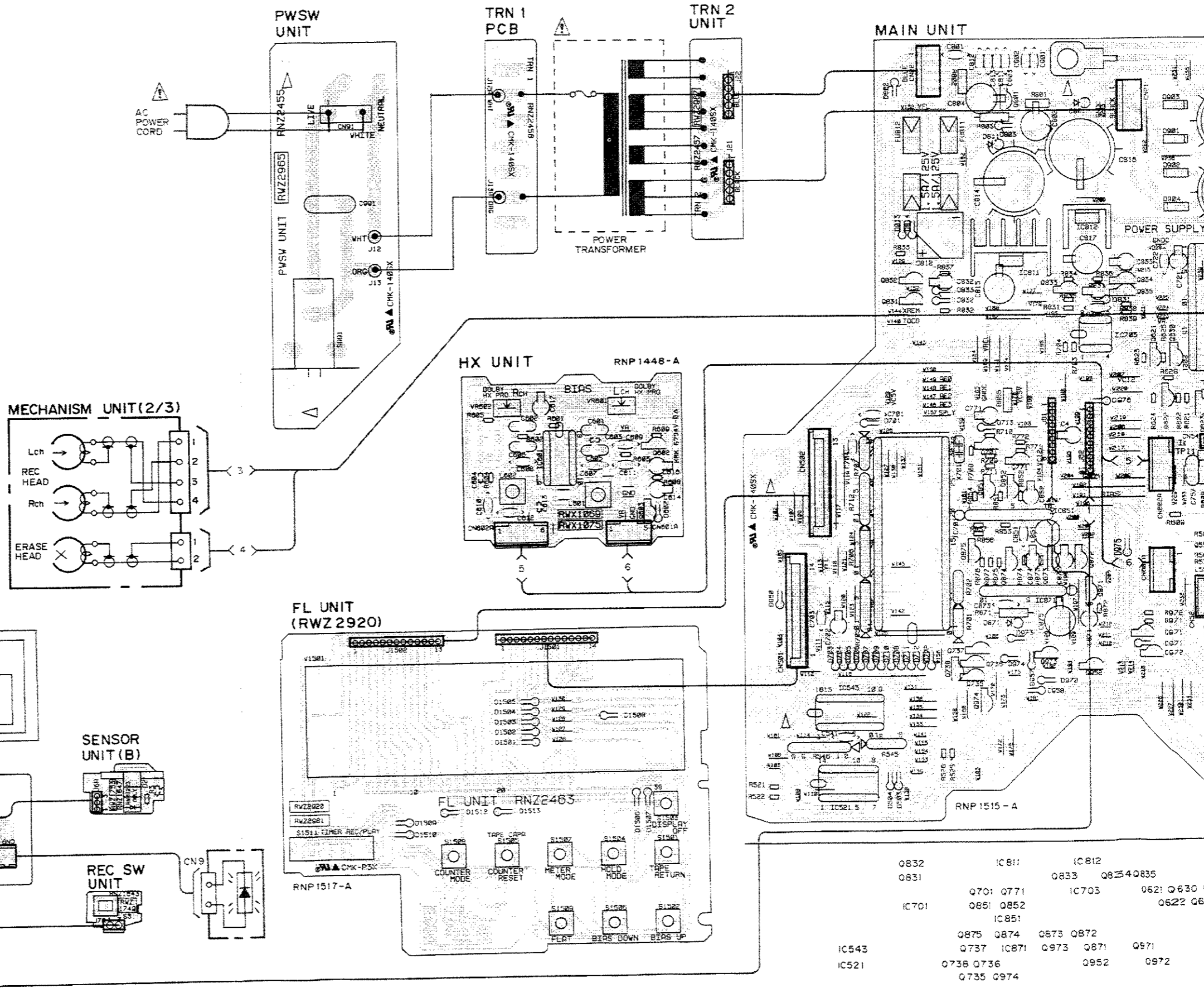


0328 0326	IC251	0328 0326	0325	0325
0327 0321	IC243	0327 0321	0324	0321
0326 0317		0326 0317	0323	0320
0325 0316		0325 0316	0322	0319
0324 0315		0324 0315	0321	0318
0323 0314		0323 0314	0320	0317
0322 0313		0322 0313	0319	0316
0321 0312		0321 0312	0318	0315
0320 0311		0320 0311	0317	0314
0319 0310		0319 0310	0316	0313
0318 0309		0318 0309	0315	0312
0317 0308		0317 0308	0314	0311
0316 0307		0316 0307	0313	0310
0315 0306		0315 0306	0312	0309
0314 0305		0314 0305	0311	0308
0313 0304		0313 0304	0310	0307
0312 0303		0312 0303	0309	0306
0311 0302		0311 0302	0308	0305
0310 0301		0310 0301	0307	0304
0309 0300		0309 0300	0306	0303
0308 0299		0308 0299	0305	0302
0307 0298		0307 0298	0304	0301
0306 0297		0306 0297	0303	0300
0305 0296		0305 0296	0302	0299
0304 0295		0304 0295	0301	0298
0303 0294		0303 0294	0300	0297
0302 0293		0302 0293	0299	0296
0301 0292		0301 0292	0298	0295
0300 0291		0300 0291	0297	0294
0299 0290		0299 0290	0296	0293
0298 0289		0298 0289	0295	0292
0297 0288		0297 0288	0294	0291
0296 0287		0296 0287	0293	0290
0295 0286		0295 0286	0292	0289
0294 0285		0294 0285	0291	0288
0293 0284		0293 0284	0290	0287
0292 0283		0292 0283	0289	0286
0291 0282		0291 0282	0288	0285
0290 0281		0290 0281	0287	0284
0289 0280		0289 0280	0286	0283
0288 0279		0288 0279	0285	0282
0287 0278		0287 0278	0284	0281
0286 0277		0286 0277	0283	0280
0285 0276		0285 0276	0282	0279
0284 0275		0284 0275	0281	0278
0283 0274		0283 0274	0280	0277
0282 0273		0282 0273	0279	0276
0281 0272		0281 0272	0278	0275
0280 0271		0280 0271	0277	0274
0279 0270		0279 0270	0276	0273
0278 0269		0278 0269	0275	0272
0277 0268		0277 0268	0274	0271
0276 0267		0276 0267	0273	0270
0275 0266		0275 0266	0272	0269
0274 0265		0274 0265	0271	0268
0273 0264		0273 0264	0270	0267
0272 0263		0272 0263	0269	0266
0271 0262		0271 0262	0268	0265
0270 0261		0270 0261	0267	0264
0269 0260		0269 0260	0266	0263
0268 0259		0268 0259	0265	0262
0267 0258		0267 0258	0264	0261
0266 0257		0266 0257	0263	0260
0265 0256		0265 0256	0262	0259
0264 0255		0264 0255	0261	0258
0263 0254		0263 0254	0260	0257
0262 0253		0262 0253	0259	0256
0261 0252		0261 0252	0258	0255
0260 0251		0260 0251	0257	0254
0259 0250		0259 0250	0256	0253
0258 0249		0258 0249	0255	0252
0257 0248		0257 0248	0254	0251
0256 0247		0256 0247	0253	0250
0255 0246		0255 0246	0252	0249
0254 0245		0254 0245	0251	0248
0253 0244		0253 0244	0250	0247
0252 0243		0252 0243	0249	0246
0251 0242		0251 0242	0248	0245
0250 0241		0250 0241	0247	0244
0249 0240		0249 0240	0246	0243
0248 0239		0248 0239	0245	0242
0247 0238		0247 0238	0244	0241
0246 0237		0246 0237	0243	0240
0245 0236		0245 0236	0242	0239
0244 0235		0244 0235	0241	0238
0243 0234		0243 0234	0240	0237
0242 0233		0242 0233	0239	0236
0241 0232		0241 0232	0238	0235
0240 0231		0240 0231	0237	0234
0239 0230		0239 0230	0236	0233
0238 0229		0238 0229	0235	0232
0237 0228		0237 0228	0234	0231
0236 0227		0236 0227	0233	0230
0235 0226		0235 0226	0232	0229
0234 0225		0234 0225	0231	0228
0233 0224		0233 0224	0230	0227
0232 0223		0232 0223	0229	0226
0231 0222		0231 0222	0228	0225
0230 0221		0230 0221	0227	0224
0229 0220		0229 0220	0226	0223
0228 0219		0228 0219	0225	0222
0227 0218		0227 0218	0224	0221
0226 0217		0226 0217	0223	0220
0225 0216		0225 0216	0222	0219
0224 0215		0224 0215	0221	0218
0223 0214		0223 0214	0220	0217
0222 0213		0222 0213	0219	0216
0221 0212		0221 0212	0218	0215
0220 0211		0220 0211	0217	0214
0219 0210		0219 0210	0216	0213
0218 0209		0218 0209	0215	0212
0217 0208		0217 0208	0214	0211
0216 0207		0216 0207	0213	0210
0215 0206		0215 0206	0212	0209
0214 0205		0214 0205	0211	0208
0213 0204		0213 0204	0210	0207
0212 0203		0212 0203	0209	0206
0211 0202		0211 0202	0208	0205
0210 0201		0210 0201	0207	0204
0209 0200		0209 0200	0206	0203
0208 0199		0208 0199	0205	0202
0207 0198		0207 0198	0204	0201
0206 0197		0206 0197	0203	0200
0205 0196		0205 0196	0202	0199
0204 0195		0204 0195	0201	0198
0203 0194		0203 0194	0200	0197
0202 0193		0202 0193	0199	0196
0201 0192		0201 0192	0198	0195
0200 0191		0200 0191	0197	0194
0199 0190		0199 0190	0196	0193
0198 0189		0198 0189	0195	0192
0197 0188		0197 0188	0194	0191
0196 0187		0196 0187	0193	0190
0195 0186		0195 0186	0192	0189
0194 0185		0194 0185	0191	0188
0193 0184		0193 0184	0190	0187
0192 0183		0192 0183	0189	0186
0191 0182		0191 0182	0188	0185
0190 0181		0190 0181	0187	0184
0189 0180		0189 0180	0186	0183
0188 0179		0188 0179	0185	0182
0187 0178		0187 0178	0184	0181
0186 0177		0186 0177	0183	0180
0185 0176		0185 0176	0182	0179
0184 0175		0184 0175	0181	0178
0183 0174		0183 0174	0180	0177
0182 0173		0182 0173	0179	0176
0181 0172		0181 0172	0178	0175
0180 0171		0180 0171	0177	0174
0179 0170		0179 0170	0176	0173
0178 0169		0178 0169	0175	0172
0177 0168		0177 0168	0174	0171
0176 0167		0176 0167	0173	0170
0175 0166		0175 0166	0172	0169
0174 0165		0174 0165	0171	0168
0173 0164		0173 0164	0170	0167
0172 0163		0172 0163	0169	0166
0171 0162		0171 0162	0168	0165
0170 0161		0170 0161	0167	0164
0169 0160		0169 0160	0166	0163
0168 0159		0168 0159	0165	0162
0167 0158		0167 0158	0164	0161
0166 0157		0166 0157	0163	0160
0165 0156		0165 0156	0162	0159
0164 0155		0164 0155	0161	0158
0163 0154		0163 0154	0160	0157
0162 0153		0162 0153	0159	0156
0161 0152		0161 0152	0158	0155
0160 0151		0160 0151	0157	0154
0159 0150		0159 0150	0156	0153
0158 0149		0158 0149	0155	0152
0157 0148		0157 0148	0154	0151
0156 0147		0156 0147	0153	0150
0155 0146		0155 0146	0152	0149
0154 0145		0154 0145	0151	0148
0153 0144		0153 0144	0150	0147
0152 0143		0152 0143	0149	0146
0151 0142		0151 0142	0148	0145
0150 0141		0150 0141	0147	0144
0149 0140		0149 0140	0146	0143
0148 0139		0148 0139	0145	0142
0147 0138		0147 0138	0144	0141
0146 0137		0146 0137	0143	0140
0145 0136		0145 0136	0142	0139
0144 0135		0144 0135	0141	0138
0143 0134		0143 0134	0140	0137
0142 0133		0142 0133	0139	0136
0141 0132		0141 0132	0138	0135
0140 0131		0140 0131	0137	0134
0139 0130		0139 0130	0136	0133
0138 0129		0138 0129	0135	0132
0137 0128		0137 0128	0134	0131
0136 0127		0136 0127	0133	0130
0135 0126		0135 0126	0132	0129

• View from component side

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

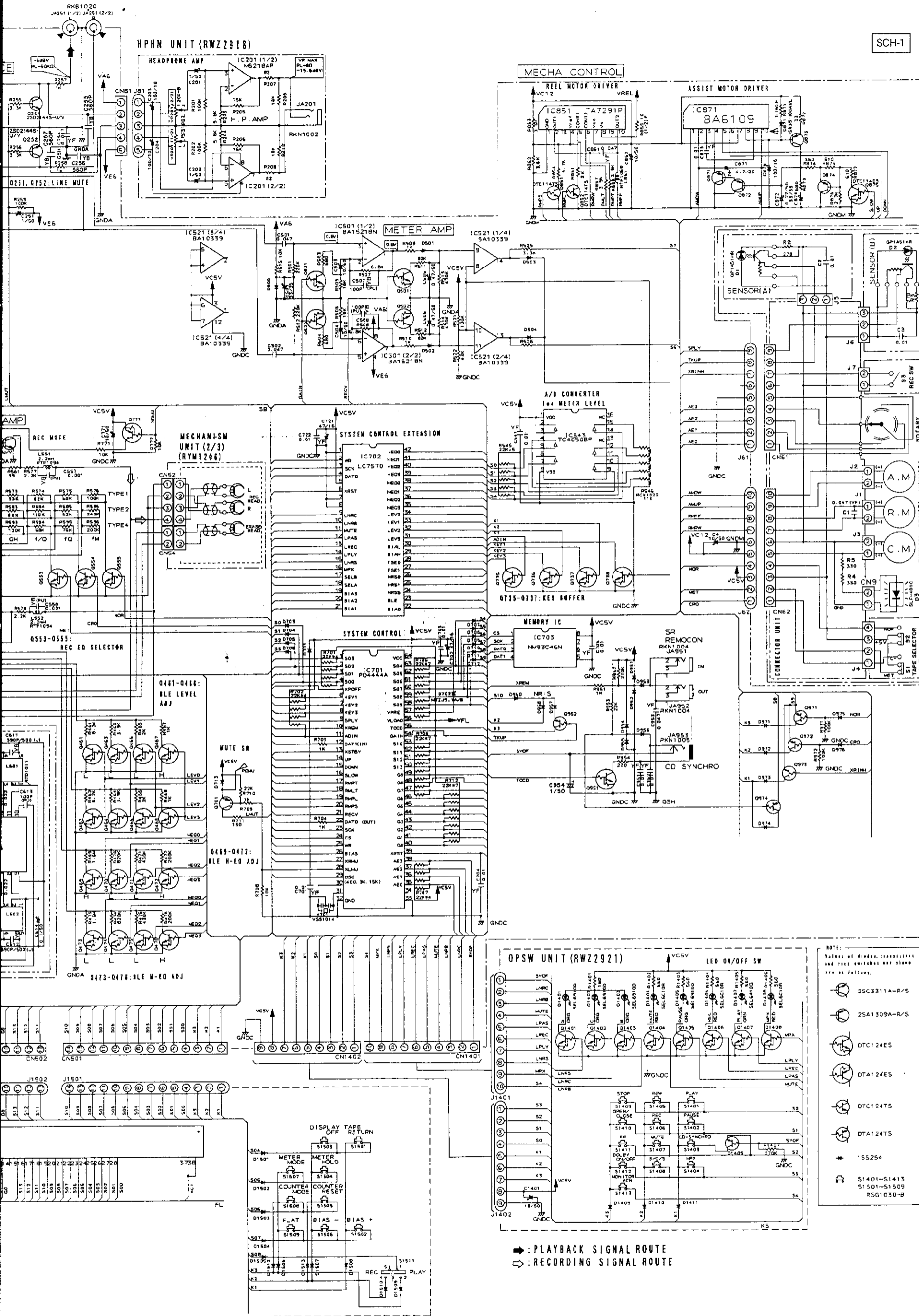
- This P.C.B. connection diagram is viewed from the parts mounted side.
- The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above table.
- The capacitor terminal marked with shows negative terminal.
- The diode marked with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



0832	IC811	IC812	
0831		0833	0834 0835
	0701	0771	IC703
IC701	0851	0852	0621 0630
	IC851		0622 062
	0875	0874	0873 0872
IC543	0737	IC871	0973 0871
IC521	0738 0736		0952 0972
	0735	0974	







SCH-1

MECHANISM UNIT (3/3) (RYM1206)

IC121, IC321 (CXA1330S)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	16	6.0
2	0	17	0
3	0	18	0
4	0	19	-5.7
5	-6.0	20	-5.7
6	0	21	0
7	0	22	0
8	0	23	0
9	0	24	0
10	0	25	0
11	-5.7	26	0
12	-5.7	27	0
13	0	28	0
14	-4.9	29	0
15	-6.0	30	0

IC551 (CXA1198AP)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	1.3	9	0.7
2	1.3	10	0
3	1.3	11	0
4	0	12	6.0
5	-6.0	13	1.2
6	0	14	1.3
7	0	15	1.3
8	0.7	16	1.3

IC601 (UPC1297CA)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	4.4	10	1.7
2	0	11	0
3	4.4	12	0
4	0.6	13	0
5	0	14	0
6	0	15	0.6
7	0	16	4.4
8	0	17	0
9	0	18	12.0

- NOTE: Values of diodes, transistors and their symbols are shown as follows:
- 2SC3311A-R/S
  - 2SA1309A-R/S
  - DTC124ES
  - DTA124ES
  - DTC124TS
  - DTA124TS
  - 1SS254
  - S1401-S1413
  - S1501-S1509
  - RS61030-B

➔: PLAYBACK SIGNAL ROUTE  
 ⇄: RECORDING SIGNAL ROUTE

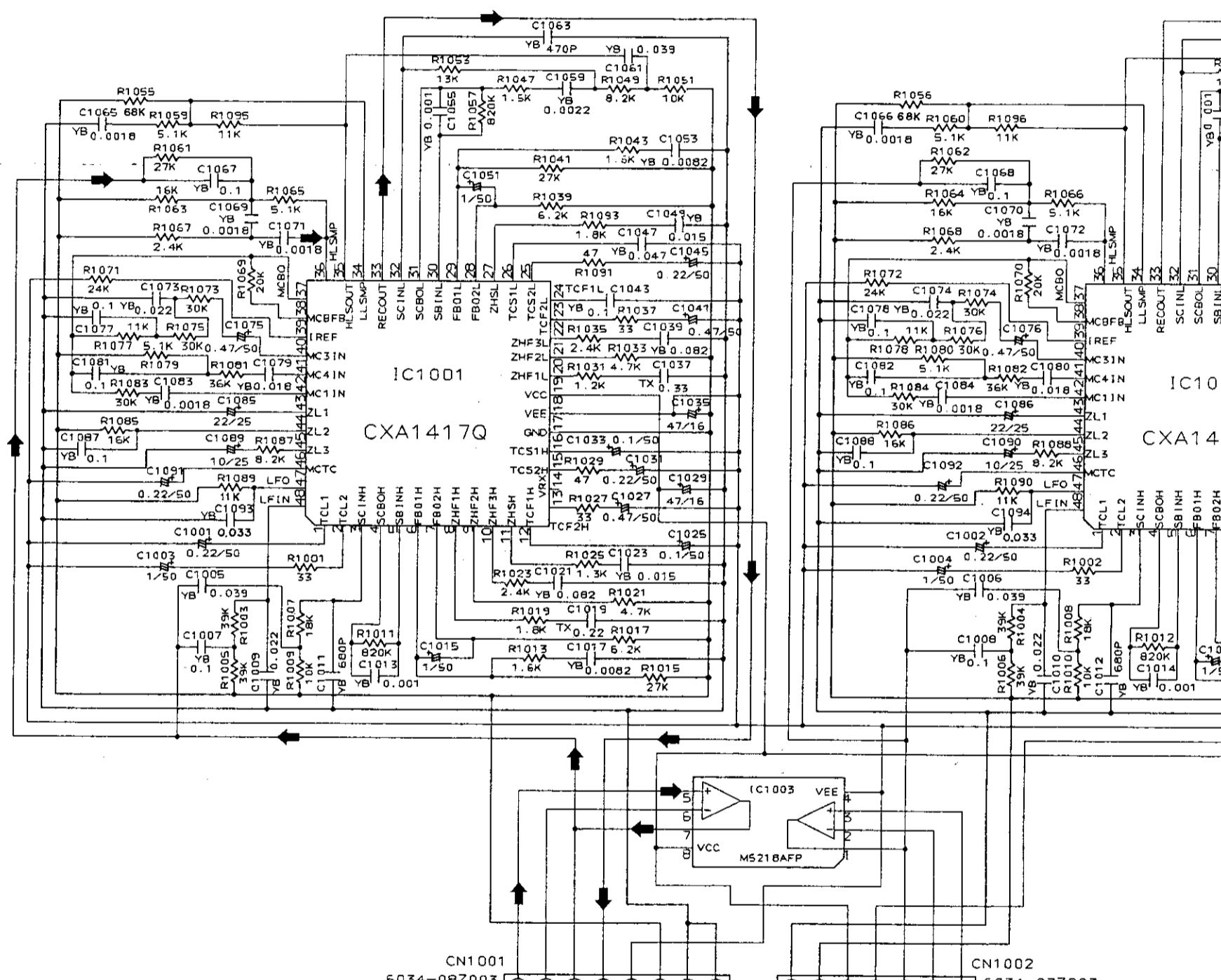
MAIN, HPHN, HX, FL, OPSW, PWSW, VR, TRN 2 UNIT

SCH-1

2. DOLBY S UNIT

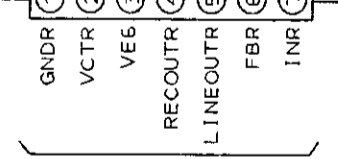
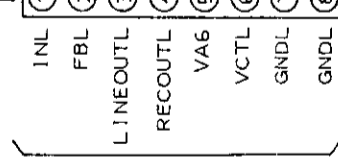
DOLBY S UNIT (RWX1079)

• CT-43 and CT-S820S each has two DOLBY S unit.



CN1001 6034-08Z003

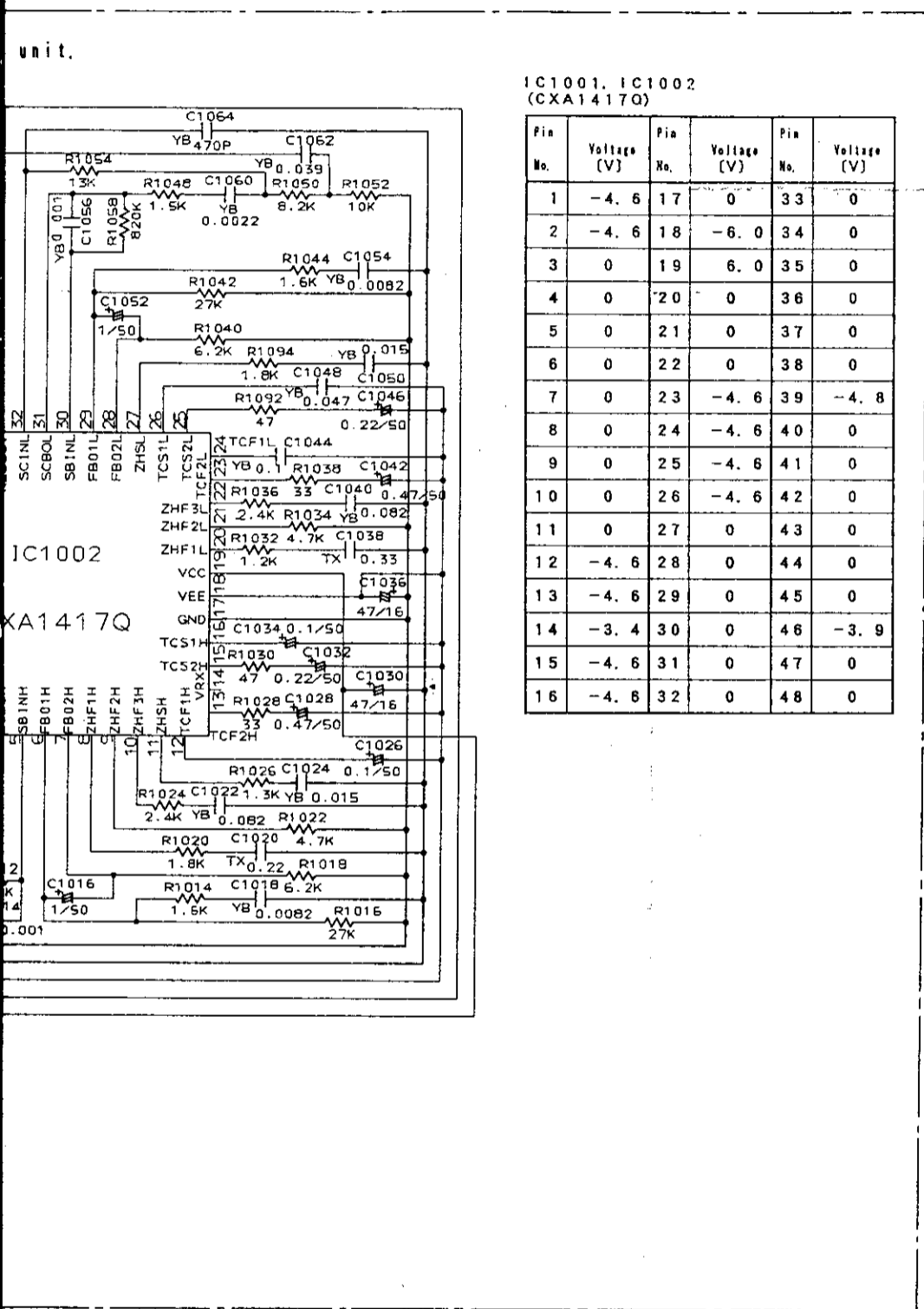
CN1002 6034-07Z003



TO MAIN UNIT  
CN1001A or CN1001B  
(→ SCH-1)

TO MAIN UNIT  
CN1002A or CN1002B  
(→ SCH-1)

SCH-2 DOLBY S UNIT



IC1001, IC1002  
(CXA1417Q)

Pin No.	Voltage [V]	Pin No.	Voltage [V]	Pin No.	Voltage [V]
1	-4.6	17	0	33	0
2	-4.6	18	-6.0	34	0
3	0	19	6.0	35	0
4	0	20	0	36	0
5	0	21	0	37	0
6	0	22	0	38	0
7	0	23	-4.6	39	-4.8
8	0	24	-4.6	40	0
9	0	25	-4.6	41	0
10	0	26	-4.6	42	0
11	0	27	0	43	0
12	-4.6	28	0	44	0
13	-4.6	29	0	45	0
14	-3.4	30	0	46	-3.9
15	-4.6	31	0	47	0
16	-4.6	32	0	48	0

- Note: Type 6
- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
  - Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
  - RESISTORS:**  
Unit: k:KΩ, M:MΩ, or Ω unless otherwise noted.  
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.  
Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
  - CAPACITORS:**  
Unit: p:pF or μF unless otherwise noted.  
Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.  
Rated voltage: 50V except for electrolytic capacitors.
  - COILS:**  
Unit: m:mH or μH unless otherwise noted.
  - VOLTAGE AND CURRENT:**  
□ : DC voltage (V) in STOP mode unless otherwise noted.  
⊖ mA or - mA : DC current in STOP mode unless otherwise noted.
  - OTHERS:**
    - : Signal route.
    - ⊙ : Adjusting point.
    - ▼ : Measurement point.
    - The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
  - SWITCHES (Underline indicates switch position):**

PWSW UNIT  
S991 : POWER

OPSW UNIT  
S1401 : ► (PLAY)  
S1402 : || (PAUSE)  
S1403 : CD SYNC  
S1404 : MPX FILTER  
S1405 : ◀◀ (REV)  
S1406 : • (REC)  
S1407 : ○ (MUTE)  
S1408 : DOLBY NR B/C/S  
S1409 : ■ (STOP)  
S1410 : ▲ (OPEN/CLOSE)  
S1411 : ►► (FF)  
S1412 : DOLBY OFF/ON  
S1413 : MONITOR

FL UNIT  
S1501 : TAPE RETURN  
S1502 : BIAS +  
S1503 : DISPLAY OFF  
S1504 : METER HOLD  
S1505 : COUNTER RESET  
S1506 : BIAS -  
S1507 : METER MODE  
S1508 : COUNTER MODE  
S1509 : AUTO BLE

S1511 : TIMER (REC - OFF - PLAY)

→ : ENCODE SIGNAL ROUTE

SCH-2

DOLBY S UNIT

SCH-2



# 7. PCB PARTS LIST

**NOTES:**

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- 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  $\Omega$   $\rightarrow$  56  $\times$  10<sup>1</sup>  $\rightarrow$  561 ..... RD1/8PM  $\boxed{5} \boxed{6} \boxed{1} \boxed{J}$   
 47k  $\Omega$   $\rightarrow$  47  $\times$  10<sup>3</sup>  $\rightarrow$  473 ..... RD1/4PS  $\boxed{4} \boxed{7} \boxed{3} \boxed{J}$   
 0.5  $\Omega$   $\rightarrow$  0R5 ..... RN2H  $\boxed{0} \boxed{R} \boxed{5} \boxed{K}$   
 1  $\Omega$   $\rightarrow$  010 ..... RSIP  $\boxed{0} \boxed{1} \boxed{0} \boxed{K}$

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

5.62k  $\Omega$   $\rightarrow$  562  $\times$  10<sup>1</sup>  $\rightarrow$  5621 ..... RN1/4PC  $\boxed{5} \boxed{6} \boxed{2} \boxed{1} \boxed{F}$

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
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**LIST OF ASSEMBLIES**

NSP	MOTHER UNIT	RWM1618
⊙	MAIN UNIT	RWZ2964
	HX UNIT	RWX1069
	DOLBY S UNIT	RWX1079
NSP	PWSW UNIT	RWZ2965
NSP	TRN2 UNIT	RWZ2967
NSP	TRN1 PCB	RNZ2456
	(TRN1 UNIT for SD type)	
NSP	SUB UNIT	RWM1613
NSP	HPHN UNIT	RWZ2918
	FL UNIT	RWZ2920
	OPSW UNIT	RWZ2921
NSP	VR UNIT	RWZ2922
	JUNCTION CIRCUIT UNIT	RWM1615
NSP	REC SWITCH UNIT	RWZ1749
NSP	TAPE SELECTOR UNIT	RWZ1750
NSP	CONNECTOR UNIT	RWZ1751
NSP	SENSOR UNIT(A)	RWZ1752
NSP	SENSOR UNIT(B)	RWZ1753

$\Delta$	Q801	2SA1283
	Q701, Q871-Q874, Q902	2SA1309A
$\Delta$	Q904	2SB1185
	Q751, Q752	2SC3243
	Q621, Q630, Q831-Q833, Q901	2SC3311A
$\Delta$	Q903	2SD1762
	Q251, Q252, Q305, Q306, Q551, Q552,	2SD2144S
	Q557, Q558, Q753	
	Q304	2SK246
	Q142, Q163, Q302, Q771, Q835	DTA124ES
	Q952, Q971-Q974	DTA124TS
	Q101, Q102, Q875	DTC114ES
	Q851, Q852	DTC114TS
	Q141, Q161, Q162, Q301, Q401, Q402,	DTC124ES
	Q461-Q476, Q501, Q502, Q521, Q522,	
	Q553-Q555, Q624-Q629, Q735-Q738,	
	Q834, Q951	
	Q622, Q623	DTC124TS
$\Delta$	D901-D904	10DF2FA9
$\Delta$	D801, D811, D871	1SR35-10 OAVL
	D813, D814	1SS252
	D101-D104, D141, D301, D302,	1SS254
	D501-D505, D701, D703-D713, D751,	
	D831, D832, D951-D958, D960,	
	D971-D976,	
	D833	MTZ3.5B
$\Delta$	D803	MTZJ3B
$\Delta$	D905, D906	HZS60L
	D702	MTZJ11A
$\Delta$	D802	MTZJ11C
$\Delta$	D812	SZVB3

**MAIN UNIT**

**SEMICONDUCTORS**

	IC521	BA10339
	IC401, IC501	BA15218N
	IC871	BA6109
	IC551	CXA1198AP
	IC121, IC321	CXA1330S
$\Delta$	IC901, IC902	ICP-N20
	IC702	LC7570
	IC141, IC903	M5218AP
	IC101	M5220P
$\Delta$	IC812	NJM7805FA
$\Delta$	IC811	NJM7812FA
	IC703	NM93C46N
	IC701	PD4444A
	IC851	TA7291P
	IC543	TC4050BP
	IC251	TC4052BP
	IC151, IC351	TC4066BP

**COILS AND FILTERS**

	L751	LFA11K
	L752	RTD167
	L101, L102	RTF160
	L851 (L=0.15mH)	RTF168
	L551, L552 (L=222J)	RTF194
	F301, F302	RTF110

Mark	No.	Description	Part No.
<b>CAPACITORS</b>			
	C871		CEANP4R7M25
	C251, C401, C551, C552, C564, C954		CEAS010M50
	C4, C503, C504, C771, C852		CEAS100M50
	C751, C815, C875		CEAS101M16
	C804		CEAS101M25
	C802		CEAS101M50
	C817		CEAS102M6R3
	C509, C756, C874		CEAS330M35
	C702, C721, C833		CEAS470M16
	C831, C832		CEAS4R7M50
	C814		CEAS682M25
	C129, C130, C317, C318, C872		CEASR22M50
	C127, C128, C131, C132, C315, C316, C319, C320		CEASR33M50
	C133, C134, C252, C253, C323, C324, C905, C906		CENA101M25
	C505, C506		CEASR47M50
	C113, C114, C147-C150, C559, C560		CENA470M25
	C123-C126, C311-C314		CFTXA222J50
	C405, C753, C754		CFTXA332J50
	C406, C755		CFTXA682J50
	C752		CFTYA223J50
	C109, C110, C402		CFTYA273J50
	C501, C502		CFTYA473J50
	C105, C106, C403, C909, C910		CFTYA563J50
	C541, C701, C703-C705, C722, C873, C951, C952		CKCYF103Z50
	C254, C303, C801, C803, C811-C813, C851, C901, C902, C953		CKCYF473Z50
	C255-C257		CKDYB561K50
	C103, C104, C507, C508		CKPUYB101K50
	C111, C112, C557, C558		CKPUYB102K50
	C143, C144		CKPUYB122K50
	C304		CKPUYF103Z25
	C407		QOMA103J50
	C404		QOMA823J50
	C757		QOPA752J100
	C101, C102		QQSF221J50
	C305, C306, C351, C352 (1 $\mu$ /50V)		RCH1079
	C141, C142, C145, C146, C353, C354, C907, C908 (10 $\mu$ /50V)		RCH1080
	C107, C108, C135, C136, C555, C556 (22 $\mu$ /25V)		RCH1081
	C137, C138, C321, C322 (33 $\mu$ /25V)		RCH1083
	C121, C122, C309, C310, C553, C554 (4.7 $\mu$ /50V)		RCH1090
	C903, C904 (3300 $\mu$ /25V)		RCH1102
	C911, C912 (220 $\mu$ /25V)		RCH1103
	C816 (10000 $\mu$ /16V)		VCH1054
<b>RESISTORS</b>			
	R701, R702, R707 (22K)		RA4T223J
	R545 (22K)		RA5T223J
	R705, R706, R712 (22K)		RA7T223J
	R369, R370 (560 $\Omega$ )		RCN1024
	R153, R154, R157, R158 (12K)		RCN1064

Mark	No.	Description	Part No.
	R546 (11K/22K)		RCX1020
	R608		RD1/2LF010J
	R855		RD1/2LF100J
	R802		RD1/2LF562J
	R753, R754		RD1/2LF6R2J
	R257, R258		RDR1/4PM102J
	R327, R328		RDR1/4PM273J
	R801 (47 $\Omega$ )		RFA1/4L470J
	R871 (1 $\Omega$ )		RSILMF010J
	R903, R904 (150 $\Omega$ )		RSILMF151J
	R803 (1.5K)		RSILMF152J
	VR551, VR552 (22K)		RCP1046
	VR101, VR102, VR401, VR403 (47K)		RCP1047
	VR402 (100K)		RCP1048
	OTHER RESISTORS		RD1/6PM□□□□J
<b>OTHERS</b>			
	JA953 MINI JACK		PKN1005
	JA251, JA301 PIN JACK		RKB1020
	JA951, JA952 REMOTE CONTROL JACK		RKN1004
	X701 CERAMIC RESONATOR (4.19MHz)		VSS1014
<b>HX UNIT</b>			
<b>SEMICONDUCTORS</b>			
	IC601		UPC1297CA
	Q602		ZSA1309A
	Q603		DTC124ES
	D602		ISS254
<b>COILS</b>			
	L601, L602 (L=4.6mH, Q=75, F=105KHz)		RTD1011
<b>CAPACITORS</b>			
	C609, C610		CCCSL101K500
	C616, C617		CEAS330M35
	C614		CEASR10M50
	C601, C602		CFTXA103J50
	C605, C606		CFTXA223J50
	C607, C608		CGCYX223K25
	C613		CKPUYB101K50
	C603, C604		CKPUYB821K50
	C611, C612 (C=390P, V(DC)=500)		RCG1004
<b>RESISTORS</b>			
	VR601, VR602		VRTB6HS473
	OTHER RESISTORS		RD1/6PM□□□□J
<b>DOLBY S UNIT</b>			
<b>SEMICONDUCTORS</b>			
	IC1001, IC1002		CXA1417Q
	IC1003		M5218AFP
<b>CAPACITORS</b>			
	C1003, C1004, C1015, C1016, C1051, C1052		CEJA010M50
	C1033, C1034		CEJAR10M50
	C1001, C1002, C1031, C1032, C1045, C1046,		CEJAR22M50
	C1091, C1092		

Mark No.	Description	Part No.	Mark No.	Description	Part No.
C1027, C1028, C1041, C1042, C1075, C1076		CEJAR47M50	<b>RESISTORS</b>		
C1019, C1020		CFTYA224J50	VR201(20KB)		PCS1002
C1037, C1038		CFTYA334J50	OTHER RESISTORS		RD1/6PM□□□J
C1013, C1014, C1055, C1056		CKSQYB102K50	<b>OTHERS</b>		
C1007, C1008, C1025, C1026, C1043, C1044, C1067, C1068, C1077, C1078, C1081, C1082, C1087, C1088		CKSQYB104K25	JA201 HEADPHONE JACK		RKN1002
C1023, C1024, C1049, C1050		CKSQYB153K50	<b>FL UNIT</b>		
C1065, C1066, C1069-C1072, C1083, C1084		CKSQYB182K50	<b>SEMICONDUCTORS</b>		
C1093, C1094		CKSQYB333K50	D1501-D1510, D1512, D1513		ISS254
C1079, C1080		CKSQYB183K50	<b>SWITCHES</b>		
C1059, C1060		CKSQYB222K50	S1501-S1509		RSG1030
C1009, C1010, C1073, C1074		CKSQYB223K50	S1511		RSH1011
C1093, C1094		CKSQYB333K50	<b>OTHERS</b>		
C1005, C1006, C1061, C1062		CKSQYB393K50	V1501 FL INDICATOR TUBE		RAW1127
C1063, C1064		CKSQYB471K50	<b>OPSW UNIT</b>		
C1047, C1048		CKSQYB473K50	<b>SEMICONDUCTORS</b>		
C1011, C1012		CKSQYB681K50	Q1409		DIA124TS
C1017, C1018, C1053, C1054		CKSQYB822K50	Q1401-Q1408		DTC124ES
C1021, C1022, C1039, C1040		CKSQYB823K25	D1409-D1411		ISS254
C1089, C1090 (10 μ /25V)		RCH1093	D1407		SEL6410G
C1085, C1086 (22 μ /25V)		RCH1094	D1401-D1403, D1405		SEL6910D
C1029, C1030, C1035, C1036 (47 μ /16V)		RCH1095	D1404, D1406, D1408		SEL6C10R
<b>RESISTORS</b>			<b>SWITCHES</b>		
OTHER RESISTORS		RD1/10S□□□J	S1401-S1413		RSG1030
<b>OTHERS</b>			<b>CAPACITORS</b>		
CN1002		6034B-07Z001	C1401		CEJA100M16
CN1001		6034B-08Z001	<b>RESISTORS</b>		
<b>PWSW UNIT</b>			ALL RESISTORS		RD1/6PM□□□J
<b>SWITCHES</b>			<b>VR UNIT</b>		
△ S991		RSA1001	<b>RESISTORS</b>		
<b>CAPACITORS</b>			VR2102		RCV1078
△ C991 (0.01 μ F/400V)		VCG-044	VR2101 (100KA)		RCV1097
<b>OTHERS</b>			<b>REC SWITCH UNIT</b>		
△ TERMINAL		RKC-061	<b>SWITCHES</b>		
<b>TRN2 UNIT</b>			S3		RSG-113
TRN2 unit has no service part.			<b>TAPE SELECTOR UNIT</b>		
<b>TRN1 PCB</b>			<b>SWITCHES</b>		
TRN1 PCB has no service part.			S1, S2		RSH-070
<b>HPHN UNIT</b>			<b>CONNECTOR UNIT</b>		
<b>SEMICONDUCTORS</b>			<b>CAPACITORS</b>		
IC201		M5218AP	C1		CKCYR7 3Z50
<b>CAPACITORS</b>			<b>RESISTORS</b>		
C201, C202		CEAS010M50	ALL RESISTORS		RD1/6M□□□J
C203, C204		CEAS101M10			

<b>Mark</b>	<b>No.</b>	<b>Description</b>	<b>Part No.</b>
<b>SENSOR UNIT (A)</b>			
<b>SEMICONDUCTORS</b>			
	D1		GP1A51HR
<b>CAPACITORS</b>			
	C2		CKPUYY103N16
<b>RESISTORS</b>			
	ALL RESISTORS		RD1/6PM□□□J
<b>SENSOR UNIT (B)</b>			
<b>SEMICONDUCTORS</b>			
	D2		GP1A51HR
<b>CAPACITORS</b>			
	C3		CKPUYY103N16
<b>RESISTORS</b>			
	ALL RESISTORS		RD1/6PM□□□J

# 8. ADJUSTMENTS

## 8.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment

Mode	Test tape	Adjustment position	Specification rating (playback frequency)
PLAY	Play the STD-301 tape (3kHz)	Tape speed adjustment hole	3015Hz ± 5Hz

Fig. 8-1 Tape speed adjustment

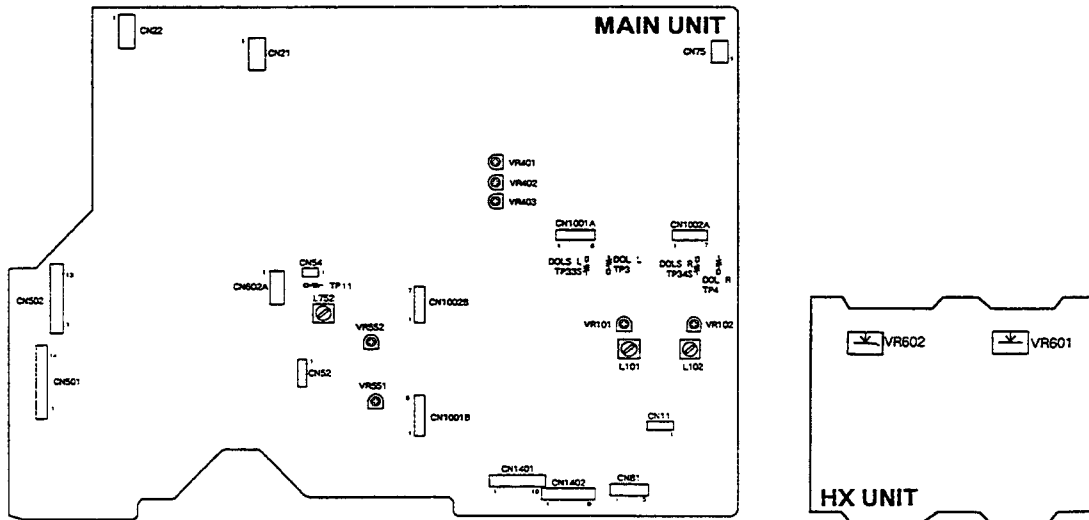


Fig. 8-2 Adjusting points

## 8.2 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. 8-3)
- STD-631 : NORMAL blank tape  
 STD-621 : CrO<sub>2</sub> blank tape  
 STD-610 : METAL blank tape

\* 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.

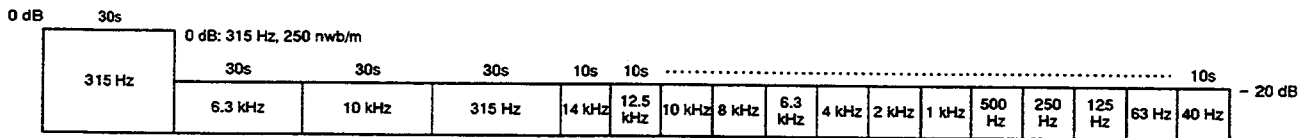


Fig. 8-3 Constants of the test tape STD-331E

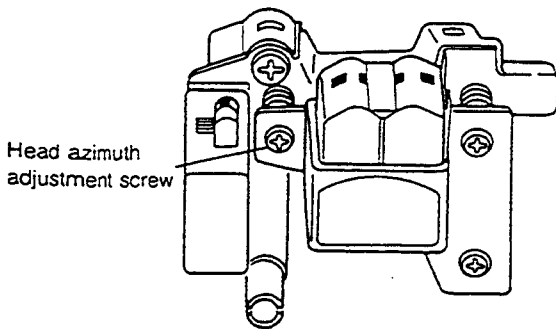


Fig. 8-4 Head azimuth adjustment

### List of Adjustments

#### Playback sections

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

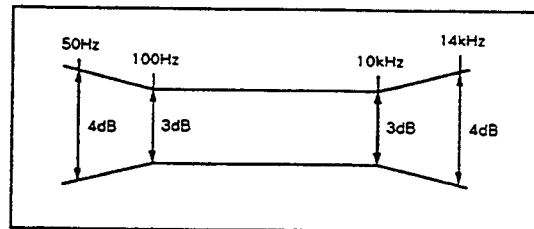
#### Recording sections

1. Bias oscillator adjustment.
2. Bias trap adjustment.
3. Recording bias adjustment.
4. Recording level adjustment.
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

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### PLAY BACK



### RECORDING

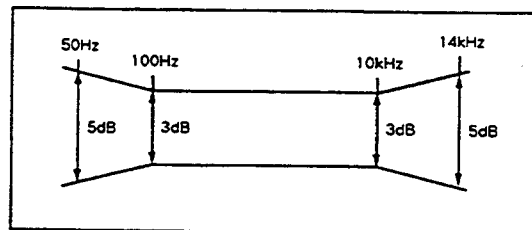


Fig. 8-5 Frequency response zone

## PLAYBACK SECTION

### 1. Head Azimuth Adjustment

- Turn VR101, 102 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. 8-4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

Note: The left and right phase difference for the 12.5 kHz tone should be within 75 degrees. (That for the 10 kHz tone should be within 60 degrees.)

### 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	VR101 (Lch) VR102 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	-7.2 dBV
2.	Set the DOLBY NR switch to the S position.					
3.	PLAY	Play the 315 Hz/0 dB section of the STD-331E test tape.		TP. 33S (Lch) TP. 34S (Rch)	-7.2 dBV $\pm$ 0.5 dB	

## RECORDING SECTION

### 1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Load the STD-610 test tape with no input signal.	Deck	L752	TP. 11	105 kHz $\pm$ 300 Hz

### 2. Bias Trap Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Load the STD-610 test tape with no input signal.	Deck	L101 (Lch) L102 (Rch)	LINE OUT	Minimum output

### 3. Recording Bias Adjustment

- After the adjustment, Caution should be exercised so as not to become under bias by checking the distortion rate.
- Set the DOLBY NR switch to the OFF position.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PLAY	Record the 315 Hz and 10kHz signals at -26 dBV input level onto the STD-631 test tape, and Playback.	NOR.	VR601 (Lch) VR602 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 10 kHz signal becomes 0 dB $\pm$ 0.5dB when compared with the 315Hz signal.

**4. Recording Level Adjustment**

- Set the DOLBY NR switch to the OFF position.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/ - 4 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.	REC/PLAY	Record the above signal onto the STD - 631 test tape, and playback.	Deck	VR551 (Lch) VR552 (Rch)	TP. 3 (Lch) TP. 4 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2 dB.	
3.	REC/PLAY	Record the above signal onto the STD - 621 test tape, and playback.	Check			-11.2 dBV ± 1 dB	
4.	REC/PLAY	Record the above signal onto the STD - 610 test tape, and playback.	Check			-11.2 dBV ± 1 dB	
5.	STOP	Set the DOLBY NR switch to the S position.					
6.	REC/PLAY	Record the above signal onto the STD - 631 test tape, and playback.	Check		LINE OUT	0 dB ± 1.0 dB for paragraph 2.( * 1)	

\* 1: If this confirmation value cannot be obtained, perform "Playback Level Adjustment" once again.

**5. 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 COUNTER MODE, COUNTER RESET and PAUSE 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 AUTO BLE key is pressed, the oscillation frequency changes as follows: 3 kHz oscillation → 15 kHz oscillation → 400Hz oscillation

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.		Set to test mode	-	-		
2.		Press the AUTO BLE key on the front panel.	VR401	Level meter Lch	Adjust the Lch segment which is lit until Rch is not lighting up. Lch <input checked="" type="checkbox"/> → <input type="checkbox"/> Rch <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> ( <input checked="" type="checkbox"/> : light up <input type="checkbox"/> : not light up)	400 Hz adjustment (FL indication 1)
3.		Press the AUTO BLE key on the front panel.	VR402			3 kHz adjustment (FL indication 2)
4.		Press the AUTO BLE key on the front panel.	VR403			15 kHz adjustment (FL indication 3)
5.	When the COUNTER RESET key is pressed again, the test mode is released.					



## 9. IC INFORMATION

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

### 1. PD4444A (IC701)

- System control

#### Pin functions

Pin No.	Name	Function
1	S3	Pins 1 to 4 are the FL scan segment output, key scan output and level scan output.
2	S2	
3	S1	
4	S0	
5	$\overline{\text{POFF}}$	Power off pulse input. Power off processing starts when "H" becomes "L".
6	$\overline{\text{KEY1}}$	Pins 6 to 8 are key scan data inputs.
7	$\overline{\text{KEY2}}$	
8	$\overline{\text{KEY3}}$	
9	SPLY	Supply side sensing pulse input.
10	$\overline{\text{REMOTE}}$	Remote control pulse input.
11	ADIN	Level detection signal input. (Lch, Rch, FLEX level detection signals)
12	DAT1(IN)	Communication data input from the external memory (NM93C46N).
13	STBY	When the power is turned off by the SR signal, outputs "L" and sets into the standby mode.
14	AM UP	Assist motor control output. Outputs "H" when stopping.
15	AM DOWN	Assist motor control output. Outputs "H" when stopping.
16	AM SLOW	Assist motor control output. Outputs "H" when stopping.
17	RM RT	Reel motor control output. Outputs "H" when stopping.
18	RM LT	Reel motor control output. Outputs "H" when stopping.
19	RM PL	Reel motor play torque output. Outputs "H" during play.
20	RM PS	Reel motor play torque output. Outputs "H" at the beginning of tape rewinding during play.
21	RECV	Switches the meter circuit output recovery time. Increases the speed of the recovery time at "H".
22	DAT0(OUT)	Communication data output with the external memory (NM93C46) and output expansion IC (LC7570).
23	SCK	Communication clock output with the external memory and output expansion IC.
24	CS	Chip select output. Outputs "H" when communicating with the external memory.
25	WR	Outputs "H" when communicating with the output expansion IC.
26	BIAS	Bias current and erasure current control output. ON at "H".
27	$\overline{\text{REC MUTE}}$	Recording amplifier mute control output. Mute turns on at "L".
28	$\overline{\text{LINE MUTE}}$	Line mute control output. Mute turns on at "L".
29	BLE OSC	Square wave output for AUTO BLE. Outputs the 400/3K/10K/15 kHz square wave.
30	OSC1	Operation clock input.
31	OSC2	Operation clock input.
32	GND	Connected to GNDC.

Pin No.	Name	Function
33	GND	Connected to GNDC.
34	—	N.C.
35	AE0	Pins 35 to 38 are encoder inputs for detecting the position of the mechanism assist.
36	AE1	
37	AE2	
38	AE3	
39	<u>RESET</u>	Reset input. Resets at "L". (When the power is on and off)
40	G0	Pins 40 to 49 are outputs for the FL scan grid.
41	G1	
42	G2	
43	G3	
44	G4	
45	G5	
46	G6	
47	G7	
48	G8	
49	G9	
50	S13	Pins 50 to 53 are FL scan segment output pins.
51	S12	
52	S11	
53	S10	
54	M. GAIN	Meter amplifier gain switching output. When MS, outputs "H".
55	TOCD	CD synchronization output. Outputs "H" during CD synchronization.
56	VLOAD	Connected to VFL (Approx. - 30V).
57	VPRE	Connected to approx. - 5V.
58	S9	Pins 58 to 62 are FL scan segment outputs and key scan outputs.
59	S8	
60	S7	
61	S6	
62	S5	
63	S4	FL scan segment output, key scan output, and level scan output.
64	VC5V	Power supply terminal. Connected to +5V.

\* 2 Pad spacer B

Pad(R)

Packing case

## 10. FOR CT-S820S/HEM, CT-S620/HEM, HB, SD, AND CT-S620-G/HEM

### CONTRAST OF MISCELLANEOUS PARTS

#### NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

CT-S820S/HEM, CT-S620/HEM, HB, SD, CT-S620-G/HEM and CT-43/KU/CA have the same construction except for the following:

Mark	Symbol & Description	Part No.						Remarks
		CT-43/ KU/CA	CT-S820S/ HEM	CT-S620/ HEM	CT-S620/ HB	CT-S620/ SD	CT-S620-G/ HEM	
NSP	MOTHER unit	RWM1818	RWM1810	RWM1819	RWM1820	RWM1821	RWM1819	
	MAIN unit	RWZ2984	RWZ2917	RWZ2988	RWZ2972	RWZ2976	RWZ2968	
NSP	PWSW unit	RWZ2985	RWZ2919	RWZ2989	RWZ2973	RWZ2977	RWZ2969	
NSP	TRN1 PCB *	RNZ2456	RNZ2452	RNZ2460	RNZ2480	.....	RNZ2480	
NSP	TRN1 unit *	.....	.....	.....	.....	RWZ2978	.....	
NSP	TRN2 unit	RWZ2987	RWZ2934	RWZ2971	RWZ2975	RWZ2979	RWZ2971	
NSP	SUB unit	RWM1813	RWM1813	RWM1822	RWM1822	RWM1822	RWM1822	
NSP	HPHN unit	RWZ2918	RWZ2918	RWZ2980	RWZ2980	RWZ2980	RWZ2980	
	FL unit	RWZ2920	RWZ2920	RWZ2981	RWZ2981	RWZ2981	RWZ2981	
	OPSW unit	RWZ2921	RWZ2921	RWZ2982	RWZ2982	RWZ2982	RWZ2982	
NSP	VR unit	RWZ2922	RWZ2922	RWZ2983	RWZ2983	RWZ2983	RWZ2983	
	DOLBY S unit	RWX1079	RWX1079	.....	.....	.....	.....	
$\Delta$	T1 Power transformer (AC120V)	RTT1234	.....	.....	.....	.....	.....	
$\Delta$	T1 Power transformer (AC220 - 230/230 - 240V)	.....	RTT1233	RTT1233	RTT1233	.....	RTT1233	
$\Delta$	T1 Power transformer (AC110/120 - 127/220/240V)	.....	.....	.....	.....	RTT1235	.....	
$\Delta$	AC power cord	PDG1015	RDG1026	RDG1026	RDG1024	RDG1027	RDG1026	
$\Delta$	Strain relief	CM - 22C	CM - 22B	CM - 22B	CM - 22B	CM - 22B	CM - 22B	
$\Delta$	Fuse FU811, FU812 (1.5A/125V)	DEK1014	.....	.....	.....	.....	.....	
$\Delta$	Fuse FU811, FU812 (T1.6AL, 250V)	.....	REK - 102	REK - 102	REK - 102	REK - 102	REK - 102	
$\Delta$	Line voltage selector (AC110/120 - 127/220/240V)	.....	.....	.....	.....	PSB1002	.....	
	Foot assembly	AMR1159	.....	.....	.....	.....	.....	
	Insulator	.....	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	For foot
	Side panel	RAH2044	.....	.....	.....	.....	.....	
	Side sheet	PNM1150	.....	.....	.....	.....	.....	
	Side spacer (Rubber)	REB1198	.....	.....	.....	.....	.....	
	Front panel	RAH2283	RAH2269	RAH2284	RAH2284	RAH2284	RAH2285	
	Door	RAH2277	RAH2270	RAH2278	RAH2278	RAH2278	RAH2279	
	FL filter	RAH2087	RAH1936	RAH1936	RAH1936	RAH2087	RAH1936	
	Name plate	RAN1008	VAM1032	VAM1032	VAM1032	VAM1032	RAN1011	
	Function knob	RAC1817	RAC1817	RAC1821	RAC1821	RAC1821	RAC1822	
NSP	Rear panel	RNA1722	RNA1715	RNA1723	RNA1723	RNA1724	RNA1725	
	Panel stay	RNT1179	RNT1175	RNT1175	RNT1175	RNT1175	RNT1180	
	Slide SW knob	RAC1582	RAC1582	RAC1582	RAC1582	RAC1582	RAC1540	
	Power button	RAC1703	RAC1703	RAC1703	RAC1703	RAC1703	RAC1657	
	Balance knob	RAC1705	RAC1705	RAC1705	RAC1705	RAC1705	RAC1882	
	VR knob	RAC1707	RAC1707	RAC1707	RAC1707	RAC1707	RAC1708	
	VR ring	RAT1011	RAT1011	RAT1011	RAT1011	RAT1011	RAT1010	
	Bonnet	RXX1516	RXX1516	RXX1516	RXX1516	RXX1516	RXX1506	
	Screw	.....	.....	.....	.....	.....	RBA1088	For bonnet
	Screw	ABA1148	.....	.....	.....	.....	.....	
	Packing case	RHG1493	RHG1450	RHG1494	RHG1495	RHG1496	RHG1497	
	Pad.(F)	RHA1117	RHA1119	RHA1119	RHA1119	RHA1119	RHA1119	
	Operating instructions (German/Italian/Dutch/Swedish/Spanish/Portuguese)	.....	RRD1138	RRD1138	.....	.....	RRD1138	
	Operating instructions (Spanish)	.....	.....	.....	.....	RRD1139	.....	*1
	Pad spacer A.	.....	.....	.....	RHC1043	.....	.....	
	Pad spacer B	.....	.....	.....	RHC1041	.....	.....	*2
	Pin cap	.....	.....	.....	VEC1618	.....	.....	*3

MAIN UNIT  
RWZ2968, RWZ2972, RWZ2976 and following:

Mark	Symbol & Description	RWZ
	IC141	M5
	IC151, IC351	TC4
	Q141	DTC
	Q142	DTA
	D141, D958	1S
	C137, C138 (33 $\mu$ /25V)	RC
	C141, C142, C145, C146, C353, C354 (10 $\mu$ /50V)	RC
	C143, C144	CKPUY
	C147 - C150	CENA
	C351, C352 (1 $\mu$ /50V)	RC
	C903, C904 (3300 $\mu$ /25V)	RC
	C903, C904 (2200 $\mu$ /25V)	...
	C113, C114, C559, C560	CENA
	C133, C134, C323, C324, C905, C906	CENA
	C252, C253	CENA
	C907, C908 (10 $\mu$ /50V)	RC
	C907, C908	...
	C911, C912 (220 $\mu$ /25V)	RC
	C911, C912	...
	R131, R132, R151, R152	RD1/6
	R143, R144, R155, R156, R365, R366	RD1/6
	R145 - R148	RD1/6
	R153, R154 (12K)	RC
	R159	RD1/6
	R160	RD1/6
	R353, R354, R359, R360	RD1/6
	R355, R356	RD1/6
	R357, R358	RD1/6
	R361, R362	RD1/6

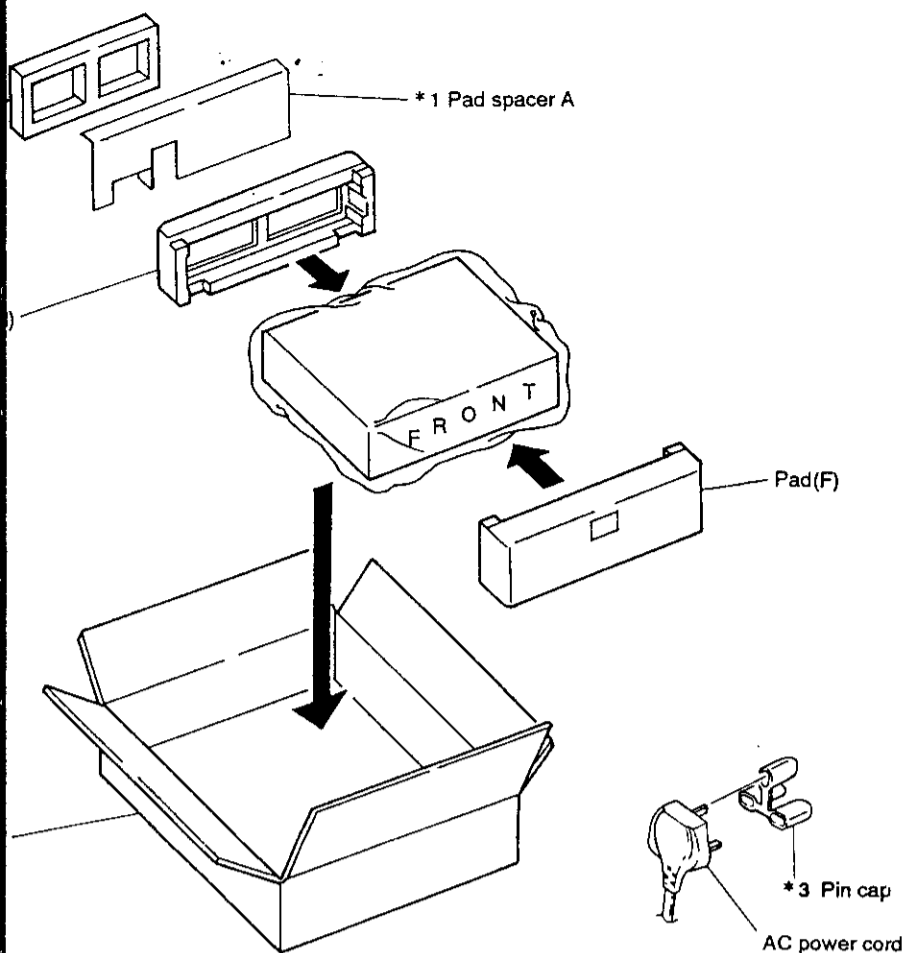
Note : Although RWZ2917 and RWZ2964 are different

PWSW UNIT  
Although RWZ2919, RWZ2969, RWZ2973 number, they have the same service

TRN2 UNIT  
Although RWZ2934, RWZ2971, RWZ2975 number, they consist of the same components.

HPHN UNIT  
Although RWZ2980 and RWZ2918 are different components.

FL UNIT  
Although RWZ2981 and RWZ2920 are different components.



**CT-S820S, CT-S620, CT-S6**

76 and RWZ2964 have the same construction except for the

**OPSW UNIT**

RWZ2982 and RWZ2921 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2921	RWZ2982	
	Q1402	DTC124ES	.....	
	D1402	SEL6910D	.....	

**VR UNIT**

Although RWZ2983 and RWZ2922 are different in part number, they consist of the same components.

	Part No.				Remarks
	RWZ2964	RWZ2968	RWZ2972	RWZ2976	
M5218AP	.....	.....	.....	.....	
TC4066BP	.....	.....	.....	.....	
DTC124ES	.....	.....	.....	.....	
DTA124ES	.....	.....	.....	.....	
1SS254	.....	.....	.....	.....	
RCH1083	.....	.....	.....	.....	
RCH1080	.....	.....	.....	.....	
CKPUYB122K50	.....	.....	.....	.....	
CENA470M25	.....	.....	.....	.....	
RCH1079	.....	.....	.....	.....	
RCH1102	.....	.....	.....	.....	
.....	RCH1096	RCH1096	RCH1096	RCH1096	
CENA470M25	CENA470M25	CEAS101M10	CEAS101M10	CEAS101M10	
CENA101M25	CENA101M25	CEAS101M10	CEAS101M10	CEAS101M10	
CENA101M25	CENA101M25	CEAS470M16	CEAS470M16	CEAS470M16	
RCH1080	RCH1080	.....	.....	.....	
.....	.....	CEAS100M50	CEAS100M50	CEAS100M50	
RCH1103	RCH1103	.....	.....	.....	
.....	.....	CEAS101M10	CEAS101M10	CEAS101M10	
RD1/6PM182J	.....	.....	.....	.....	
RD1/6PM104J	.....	.....	.....	.....	
RD1/6PM152J	.....	.....	.....	.....	
RCN1064	.....	.....	.....	.....	
RD1/6PM223J	.....	.....	.....	.....	
RD1/6PM473J	.....	.....	.....	.....	
RD1/6PM203J	.....	.....	.....	.....	
RD1/6PM103J	.....	.....	.....	.....	
RD1/6PM124J	.....	.....	.....	.....	
RD1/6PM123J	.....	.....	.....	.....	

4 are different in part number, they consist of the same components.

9, RWZ2973, RWZ2977 and RWZ2965 are different in part service parts.

1, RWZ2975, RWZ2979 and RWZ2967 are different in part same components.

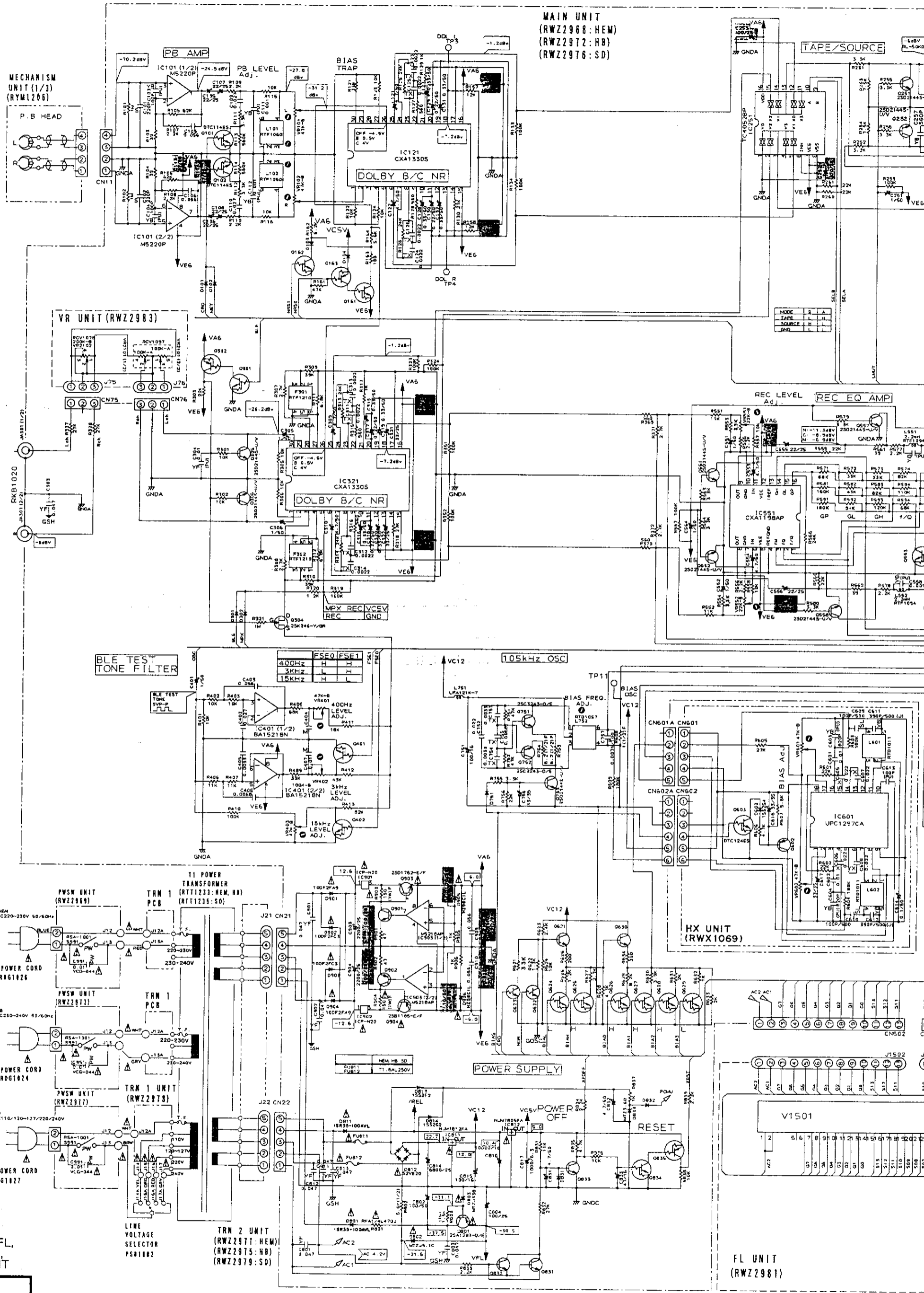
2918 are different in part number, they consist of the same

2920 are different in part number, they consist of the same

SCHEMATIC DIAGRAM FOR CT-S620 AND CT-S620-G

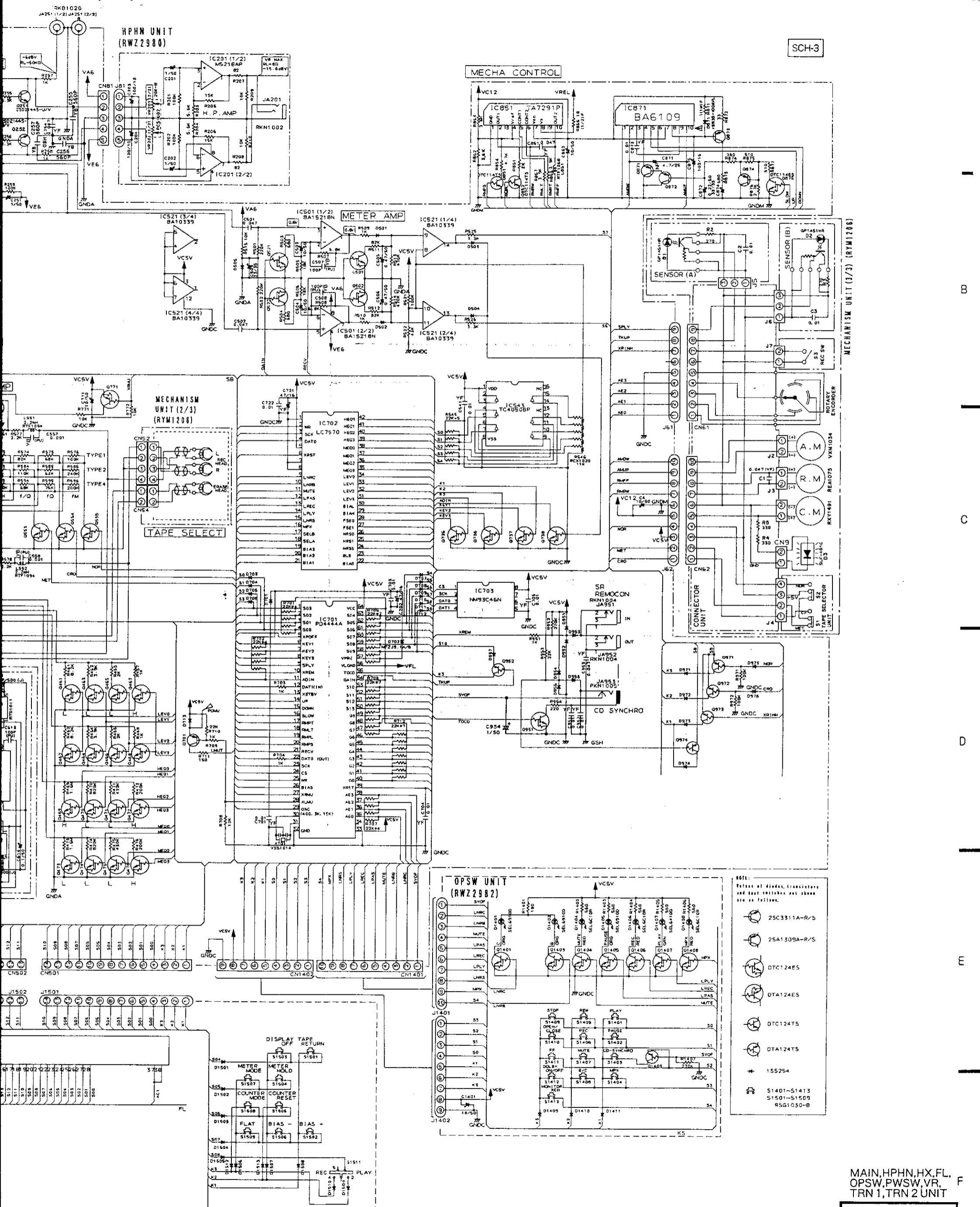
Note: For CT-S820S/HEM, refer to "6. SCHEMATIC DIAGRAM".

A  
B  
C  
D  
E  
F



SCH-3

NOTE: For parts man...



SCH-3

MECHANISM UNIT (2/3) (RYM1208)

MAIN, HPHN, HX, FL, OPSW, PWSW, VR, TRN 1, TRN 2 UNIT

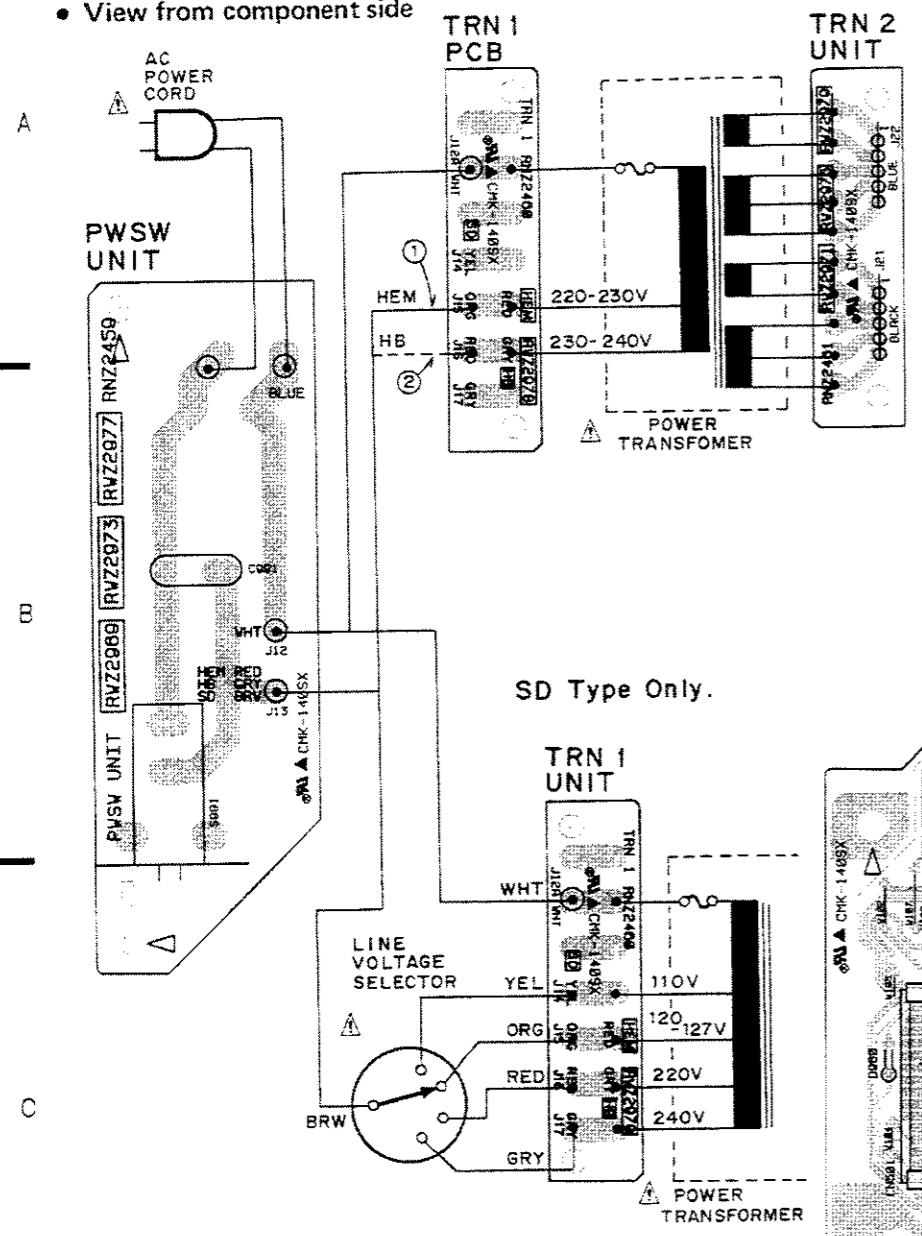
SCH-3

parts marked by [symbol] refer to page 38.

● PCB DIAGRAM FOR CT-S620 AND CT-S620-G

Note: For CT-S820S/HEM, refer to "5. PCB CONNECTION DIAGRAM".

● View from component side



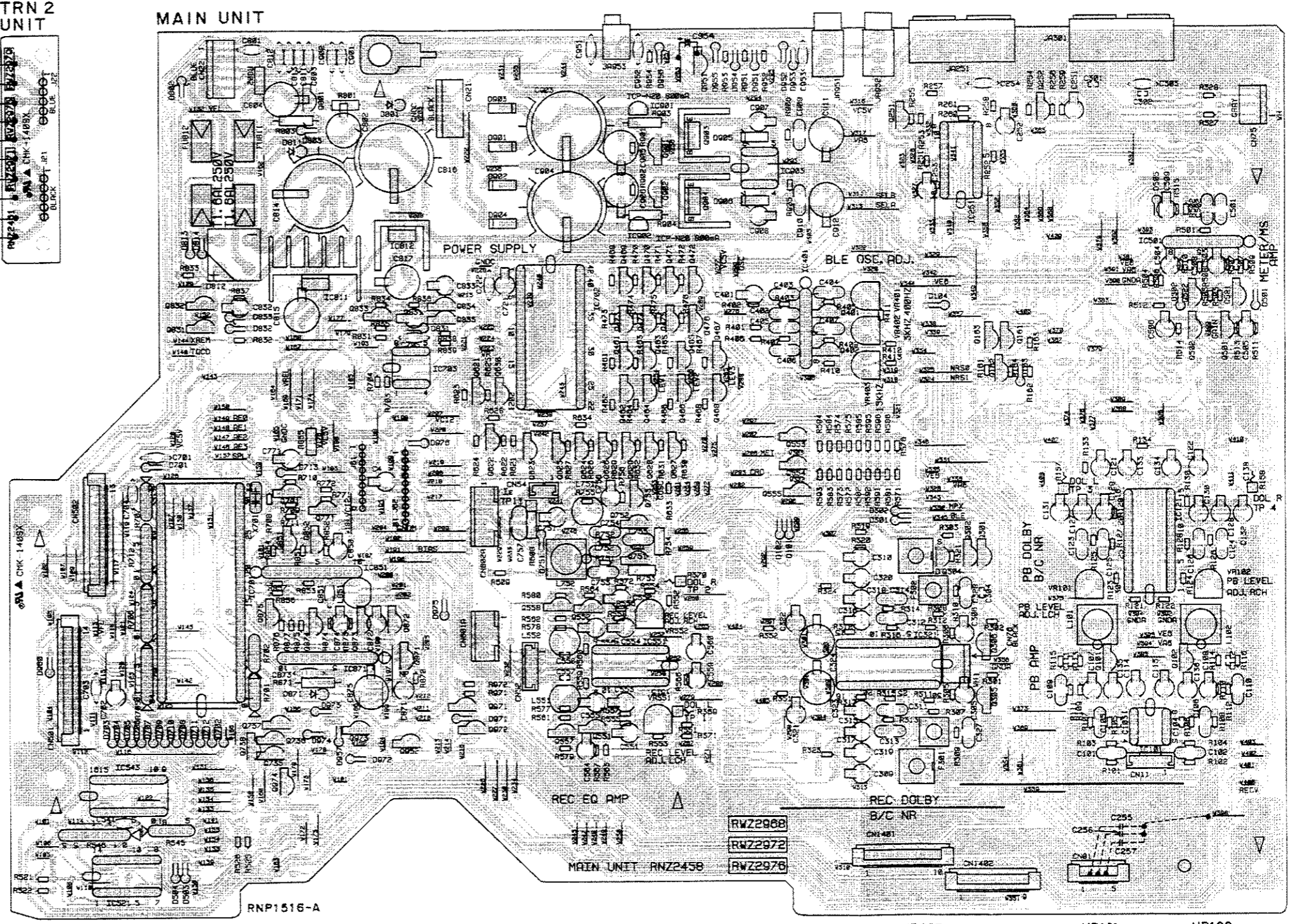
Line Voltage Selection

1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the position of the connection wire from PWSV unit to TRN 1 PCB as follows.

Voltage	Position of the connection wire
220V-230V	①
230V-240V	②

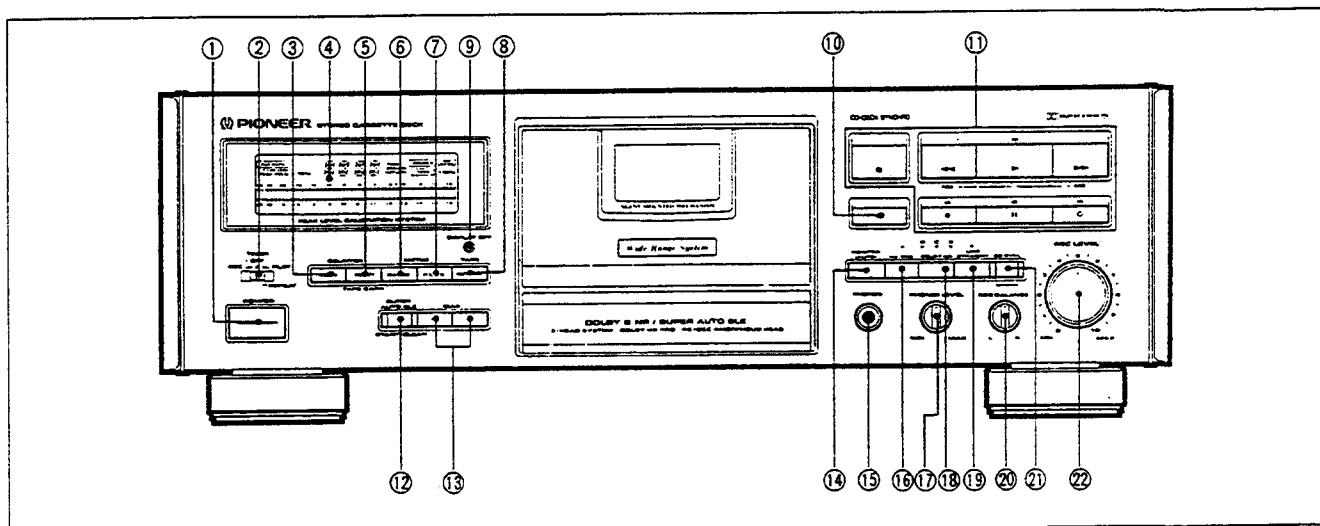
4. Stick the line voltage label on the rear panel.

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



Q832	IC811	IC812	Q951	IC903	IC251	IC501
Q831	Q701 Q771	IC703	IC901 Q901 Q903	IC401	Q163 Q161	Q522 Q521
IC701	Q851 Q852	Q621 Q630 IC702	IC902 Q902 Q904	Q401	Q162	Q502 Q501
	IC851	Q622 Q623 Q625 Q624 Q626 Q628	Q553 Q402	Q304 Q302 Q301	Q306	IC121
	Q875 Q874	Q629 Q627	Q554	Q305	Q305	Q101
IC543	Q737 IC871 Q973	Q558 Q552 Q753	Q555	IC321		IC101
IC521	Q738 Q736	Q557 Q551				
	Q735 Q974					

## 11. PANEL FACILITIES



### ① Power switch (POWER)

After pressing the switch, the WAIT message will appear in the counter display and the level meter scale will flash for about four seconds (the time necessary for circuitry to stabilize). During the time the display is flashing, no operating buttons will respond, with the exception of the cassette door open/close button (⏏). To close the cassette door, do it while the power is turned on.

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

**REC:** Set to this position to perform timer recording.

**OFF:** Set to this position under ordinary conditions, (when not using the timer or repeat functions).

**PLAY-REPEAT:**

Set to this position to perform timer playback. When the switch is set to this position during normal playback, repeat playback of a single tape can be performed.

### ③ Counter mode button (COUNTER MODE)

Each time this button is pressed, one of the three modes (Normal tape counter/Timer counter/Remaining time counter) is set in sequence.

### ④ Function display

### ⑤ Counter reset/tape capacity selector button (COUNTER RESET/TAPE CAPA)

Reset the counter indication to "0000" in the normal tape counter or the time counter mode.

To indicate the correct time value in the remaining time counter mode, this button must be set in accordance with the tape used.

### ⑥ Level meter mode selector button (METER MODE)

Switches between wide range, expanded range, and bias display.

### ⑦ Level meter hold mode button (METER HOLD MODE)

Selects the display mode of the peak level.

When press this button so that the PEAK 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 PEAK HOLD indicator goes off, the level meter holds peak indications for about 1.2 second.

### ⑧ 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".

### ⑨ Display off button (DISPLAY OFF)

Press this button to turn off the function display.

### ⑩ Open/Close button (⏏)

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.

### ⑪ Operation buttons

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

### ⑫ SUPER AUTO BLE START/CLEAR button

### ⑬ Recording bias buttons (BIAS -/+)

When desired, these buttons can be used to manually adjust the recording bias after performing AUTO BLE tuning.

- : Changes tone by reducing recording bias
- + : Changes tone by increasing recording bias

### ⑭ Monitor selector button (MONITOR [AUTO])

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

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

### ⑮ Headphones jack (PHONES)

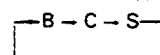
### ⑯ DOLBY NR ON/OFF button

Press to turn the Dolby NR system on and off.


### ⑰ Headphones level control (PHONES LEVEL)

### ⑱ DOLBY\* NR button (B/C/S)

Press to select the Dolby NR system in the following order. The selected indicator lights up on the display.



\*

- Dolby noise reduction and HX Pro hedroom 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.

### ⑲ MPX FILTER button

### ⑳ Recording balance control (REC BALANCE)

### ㉑ CD-DECK SYNCHRO recording button (CD SYNC)

### ㉒ Recording level control (REC LEVEL)