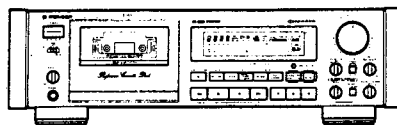


Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2216

STEREO CASSETTE DECK

CT-979

CT-979 HAS THE FOLLOWING:

Type	Power Requirement	Remarks
HEM	AC220V-230V, 230V-240V (switchable) *	
HB	AC220V-230V, 230V-240V (switchable) *	

*Change the primary wiring of the power transformer.

- This manual is applicable to the HEM and HB types.
- 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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1. EXPLODED VIEWS AND PARTS LIST

NOTES:

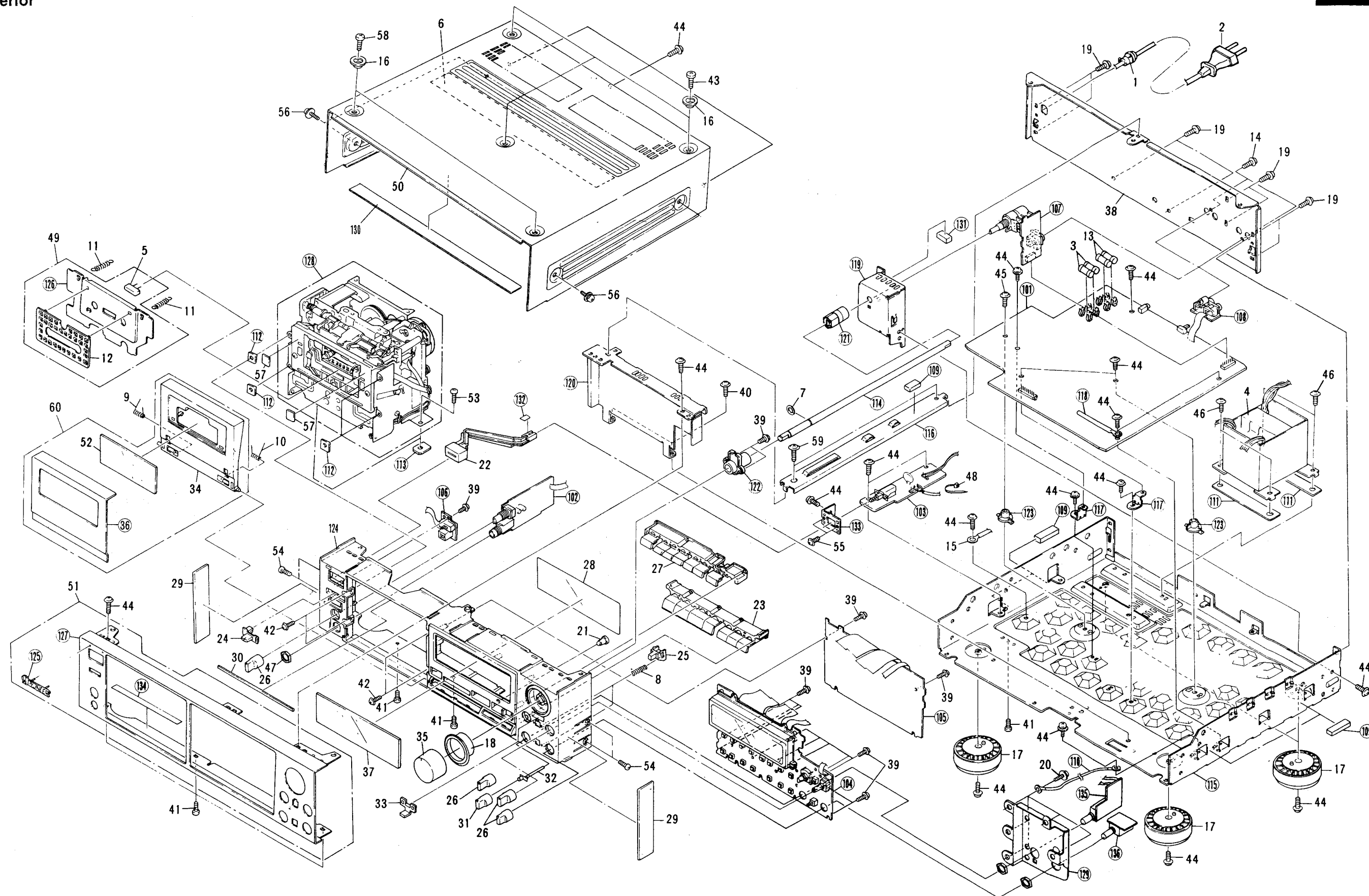
- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be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

1.1 PARTS LIST OF EXTERIOR

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Cord stopper	CM - 22B		46	Screw	IBZ40P080FCC
Δ	2	AC power cord (For HEM type)	ADG1036		47	Jack nut	RBN - 006
Δ		AC power cord (For HB type)	PDG1036		48	Binder	REC - 371
Δ	3	FU703, FU704 Fuse (T2A)	REK - 103		49	Cassette plate assembly	RXX1064
Δ	4	Power transformer (T1)	RTT1158		50	Bonnet	RXX1279
	5	LED (D3)	SLF - 401C		51	Front panel assembly	RXX1382
	6	Absorber plate (B)	PNB1109		52	Door lens	RLP1026
	7	Washer	RBF1019		53	Screw	BBT30P080FCU
	8	Button spring	RBH1144		54	Screw	BBZ30P080FZK
	9	Door spring (L)	RBH1222		55	Screw	PMA30P060FCU
	10	Door spring (R)	RBH1223		56	Screw (FE)	RBA1088
	11	Cassette plate spring	RBL - 059		57	Door cushion	REB1117
	12	Stabilizer (B)	REB1038		58	Screw (FE)	RBA1089
Δ	13	FU701, FU702 Audio fuse (T630mA)	REK - 098		59	Nylon rivet	RBM - 003
	14	Screw	BBZ30P100FCC		60	Door assembly	RXX1416
	15	Cord clamber			101	Main unit	
	16	Washer	ABE1009		102	Headphone unit	
	17	Leg assembly	AMR1159		103	Power switch unit	
	18	VR ring	RAT1007		104	Operation unit	
	19	Screw	BBZ30P060FCC		105	Control unit	
	20	Screw	BBZ26P100FMC		106	Timer switch unit	
	21	Counter reset knob	RAA1009		107	Input VR unit	
	22	Power button	RAC1410		108	Pin jack unit	
	23	Function knob	RAC1411		109	Rubber spacer (A)	
	24	Slide SW knob	RAC1562		110	Wire	
	25	Push knob	RAC1413		111	Transformer sheet	
	26	Knob (B)	RAC1414		112	Mechanism sheet	
	27	Mode knob	RAC1609		113	Mechanism sheet (2)	
	28	FL filter	RAH1542		114	VR shaft	
	29	Side rubber	REB1094		115	Main chassis	
	30	Door sheet	REB1119		116	Center stay	
	31	Knob (ABS)	RAC1608		117	P.C.B base	
	32	BIAS lens	RNK1674		118	Binder	
	33	Line straight lens	RNK1682		119	VR holder	
	34	Door	RNK1495		120	FL shield plate	
	35	VR knob assembly (A)	RXA1281		121	Joint	
	36	Door panel			122	VR shaft guide	
	37	FL lens	RLP1027		123	P.C.B stad	
	38	Rear panel			124	Panel stay	RNT1108
	39	Screw	ABZ26P080FZK		125	Name plate	
	40	Screw	BBT30P060FCC		126	Cassette plate	
	41	Screw	BBT30P100FZK		127	Front panel	
	42	Screw	BBZ30P100FZK		128	Mechanism unit	
	43	Screw (FE)	RBA1090		129	Motor bracket (FE)	
	44	Screw	IBZ30P060FCC		130	Protector 300 × 10	RED1020
	45	Screw	IBZ30P100FCC		131	Cushion	
					132	Acetate tape 10 × 10	
					133	PS holder	
					134	Acetate tape (K)	
					135	Motor VR unit	
					136	HX SW unit	

Exterior

CT-979



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 assembly	RXM1016		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	RBA1074		59	Screw	BMZ26P040FMC		124		
	5	Thrust spring	RBL - 044		60	Screw	BMZ26P060FZK		125		
	6	Insulator	REB1099		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	REB - 501		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	
	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		137	Earth lead assembly	
	18	Pinch roller arm (A) assembly	RXB - 877		73	Steel ball (4mm)	REF - 023		138	REC switch unit	
	19	BT spring (C)	RBH1213		74	Screw	VCT30P060FZK		139	Tape selector unit	
	20	BT spring (B)	RBL - 032		75	Screw	VCZ26P080FMC		140	Sensor unit (A)	
	21	Idler pressure spring	RBL - 033		76	Washer	WA21D040D013		141	Sensor unit (B)	
	22	Reel shaft cap (B)	RNK - 815		77	Washer	WA26N070W040		142	Door switch unit	
	23	BT disk assembly	RXB - 751		78	Washer	WA32D080D050		143	Acetate Tape	REH1003
	24	Reel base assembly	RXB - 874		79	E ring	YE20FUC		144	2.5mm pitch side post (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	RXX1342				
	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	Pocket felt	RED1028				
	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	PWM1223				
	39				104	Power motor					
	40	O ring	REB - 447		105	Insulator spring	RBH1226				
	41	Cord clamper	RNH - 184		106	Reel motor mounting plate	RNE1169				
	42	Cassette plate	RNK1498		107	Flywheel holder	RNH - 304				
	43	REC detector arm	RNL - 733		108	Motor bracket	RNK1497				
	44	Chrom detector arm	RNL - 734		109	Thrust holder	RNL - 743				
	45	Metal detector arm	RNL - 735		110	Motor pulley					
	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						

A



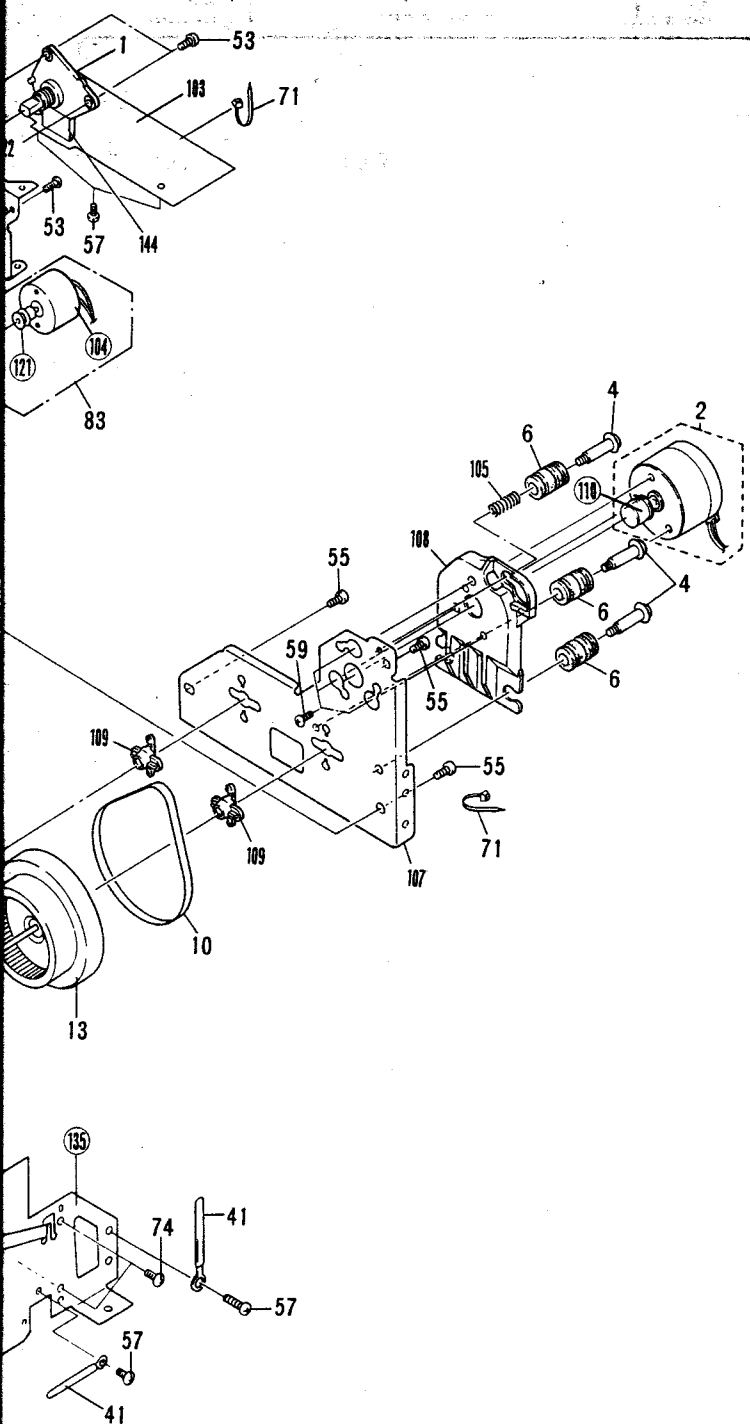
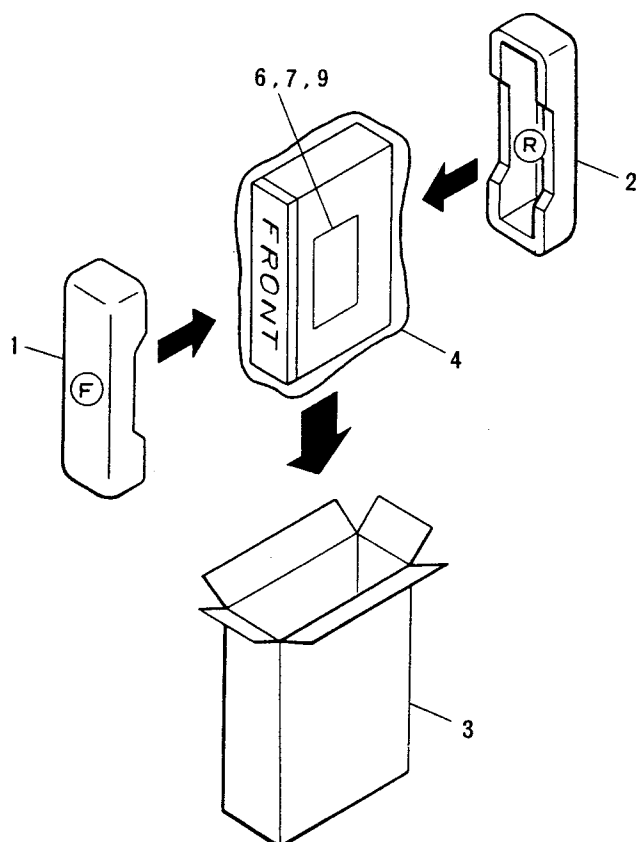
C

D

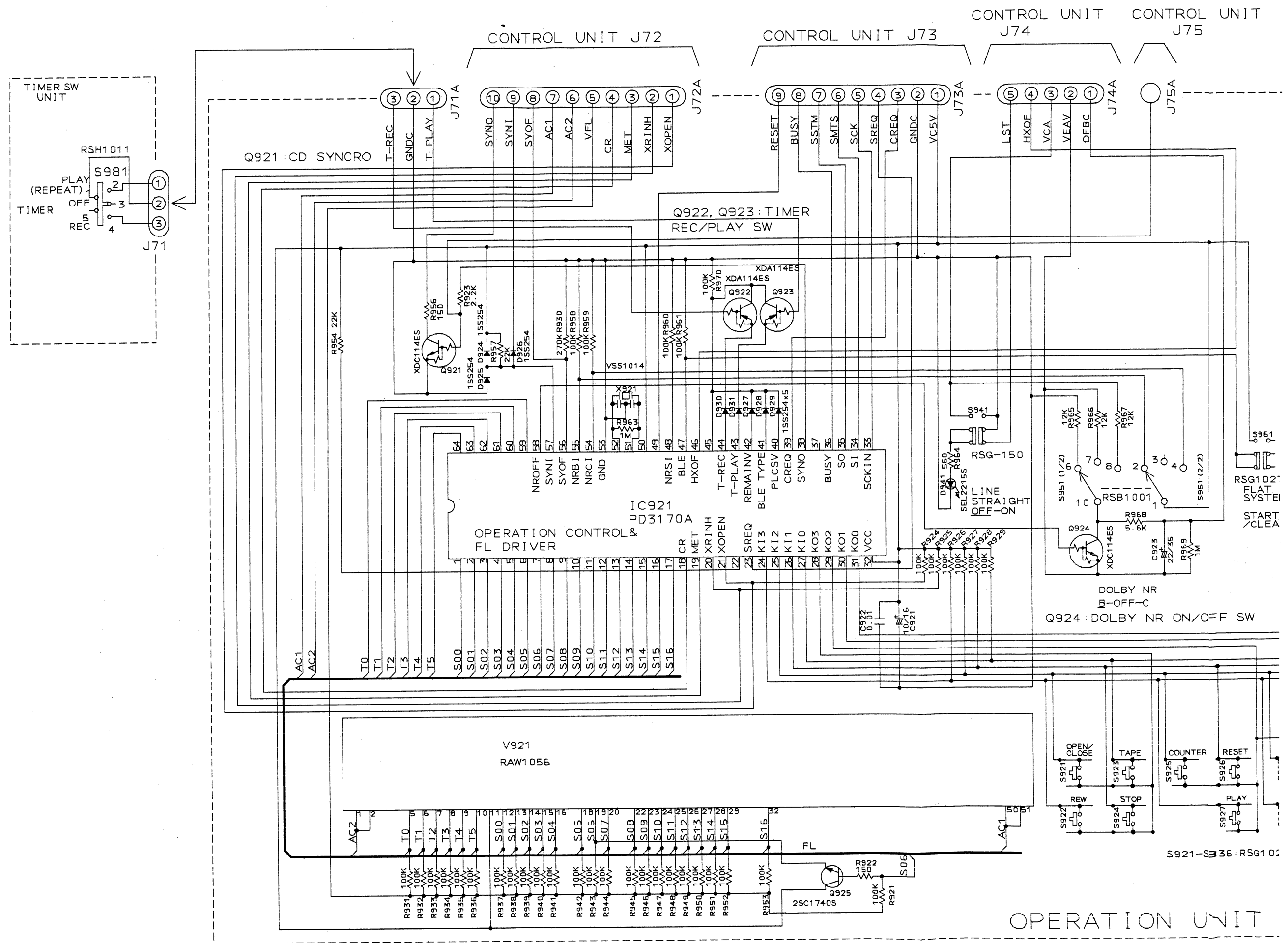
-  : DC voltage (V) at no input signal.
 : DC current at no input signal.
- OTHERS :
-  : Signal route.
 : Adjusting point.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- *marked capacitors and resistors have parts numbers.

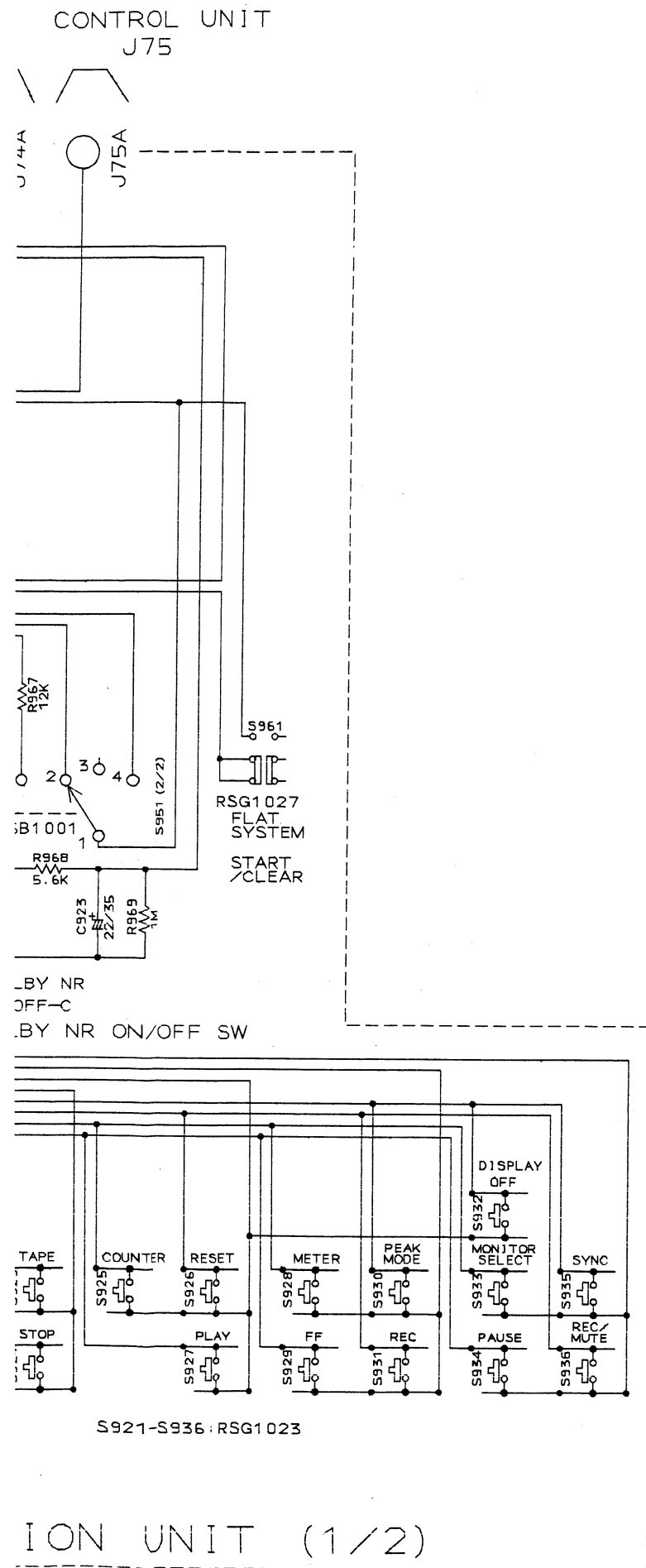
Parts List

101 Connection cord assembly









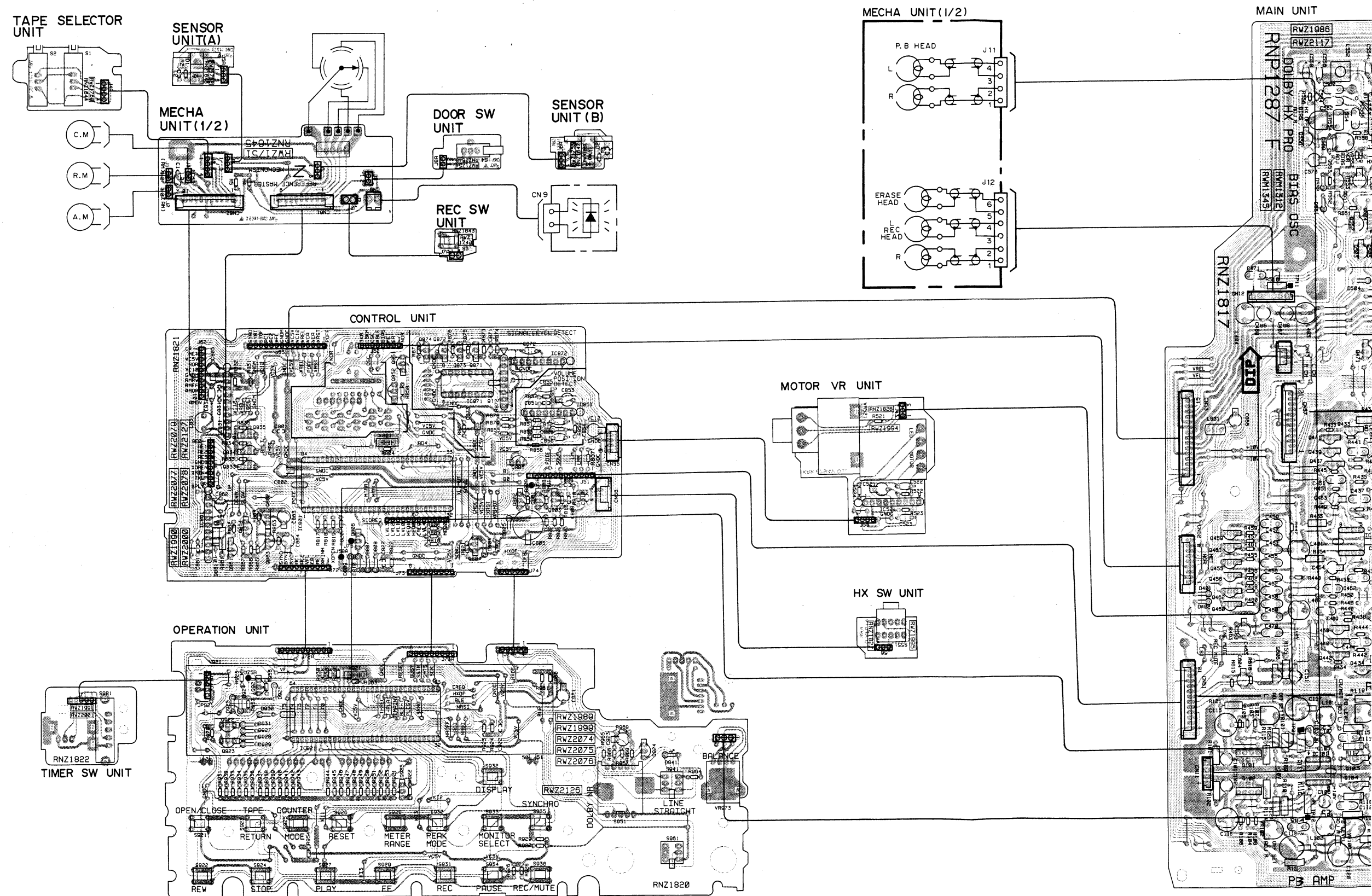
A

B

C

D

4. P.C. BOARDS CONNECTION DIAGRAM



- **View from soldering side**



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 ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)
560 Ω → 56 × 10¹ → 561 RD1/4PS

5	6	1
---	---	---

J
47k Ω → 47 × 10³ → 473 RD1/4PS

4	7	3
---	---	---

J
0.5 Ω → 0R5 RN2H

0	R	5
---	---	---

K
1 Ω → 010 RS1P

0	1	0
---	---	---

K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 RN1/4SR

5	6	2	1
---	---	---	---

F

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
INPUT VR UNIT							
RESISTORS							
	R973, 974	CARBONFILM RESISTOR	RDR1/4PM□□□J				
	VR971		RCV1067				
OTHERS							
	CN31	SSQ CONNECTOR 8P	SSQ-8-A				
	JA11	JACK	PKB1005				
PINJACK UNIT							
OTHERS							
	JA22	JACK	PKB1006				
MOTOR VR UNIT							
SEMICONDUCTORS							
	IC521	MECHANISM DRIVER IC	TA7291S				
CAPACITORS							
	C521	ELECTR. CAPACITOR	CEAS100M16				
	C522, 523	CERAMIC CAPACITOR	CKCYF473Z50				
RESISTORS							
	R521-524	CARBONFILM RESISTOR	RD1/6PM□□□J				
	VR521 (5K)		RCS1023				
HX SW UNIT							
SWITCHES							
	S551		RSB1002				
TIMER SW UNIT							
SWITCHES							
	S981		RSH1011				
OPERATION UNIT							
SEMICONDUCTORS							
	IC921		PD3170A				
	Q921	DIGITAL TRANSISTOR	XDC114ES				
	Q922, 923	DIGITAL TRANSISTOR	XDA114ES				
	Q924	DIGITAL TRANSISTOR	XDC114ES				

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.	Mark	No.	Description	
	Q862	TRANSISTOR	2SA936		IC282		BA6138	⚠	D743	ZENER DIODE	
	Q863	TRANSISTOR	2SA1309A		IC301	DOLBY-B, C IC	CX20188		D751-753	DIODE	
	Q864	DIGITAL TRANSISTOR	DTC114TS		IC351	OP-AMP IC	XRA15218	SWITCHES			
	Q871	DIGITAL TRANSISTOR	XDA114ES		IC401, 402	OP AMP	M5238PF			S381	
	Q872-874	DIGITAL TRANSISTOR	DTC114TS		IC551	DOLBY HX PRO IC	UPC1297CA				
	D804-810	DIODE	1SS254		IC701	OP-AMP, IC	M5218AL	RELAYS			
					IC702	OP-AMP IC	M5223L			RY151	
⚠	D861	RECTIFIER DIODE	1SR35-100A	⚠	IC731	REGULATOR IC	NJM7812FA		RY601		
				⚠	IC732	REGULATOR IC	NJM7805FA	COILS/TRANSFORM			
					Q101, 102	N-DUAL-FET	2SK389				
COILS/TRANSFORMERS					Q103, 104	DIGITAL TRANSISTOR	DTC114TS		L101, 102	COIL	
	L831		RTF1068		Q281, 282	DIGITAL TRANSISTOR	DTC114TS		L103, 104	COIL	
CAPACITORS					Q283	TRANSISTOR	XDC124ES		L401, 402	COIL	
	C801	CERAMIC CAPACITOR	CKPUYY103N16		Q351, 352	TRANSISTOR	2SD1302		L403, 404		
	C802	ELECTR. CAPACITOR	CEAS101M10		Q353-356	DIGITAL TRANSISTOR	DTC114TS		L501		
	C803	ELECTR. CAPACITOR	CEAS102M6R3								
	C805	ELECTR. CAPACITOR	CEAS100M16		Q401-408	DIGITAL TRANSISTOR	DTC114TS		L505		
	C808-810	AXIAL CAPACITOR	CKPUYB101K50		Q419-428	DIGITAL TRANSISTOR	DTC114TS		L541	COIL	
	C822	AXIAL CAPACITOR	CKPUYB821K50		Q433, 434	TRANSISTOR	2SD1302		L551, 552		
	C831	CERAMIC CAPACITOR	CKPUYY103N16		Q437-442	DIGITAL TRANSISTOR	DTC114TS		L553, 554	RADIAL	
	C832	CERAMIC CAPACITOR	CKCYF473Z50		Q455, 456	DIGITAL TRANSISTOR	DTC114TS		L851	RADIAL IN	
	C851	AXIAL CAPACITOR	CKPUYB101K50								
	C852	CERAMIC CAPACITOR	CGCYX473K25		Q459-462	DIGITAL TRANSISTOR	DTC114TS		F301, 302	FILTER	
					Q471-479	DIGITAL TRANSISTOR	XDA114ES	CAPACITORS			
	C853	ELECTR. CAPACITOR	CEAS220M25		Q501	TRANSISTOR	XDC124ES			C101, 102	PL. ST
	C854	ELECTR. CAPACITOR	CEAS100M16		Q502	TRANSISTOR	2SA1283			C103, 104	AUDIO
	C855	CERAMIC CAPACITOR	CKCYF473Z50		Q503-505	TRANSISTOR	XDC124ES		C105, 106	ELECT	
	C856	CERAMIC CAPACITOR	CGCYX473K25						C107, 108	CERAM	
	C861	CERAMIC CAPACITOR	CKPUYY103N16		Q506	TRANSISTOR	2SC3311A		C109, 110	AUDIO	
	C862	ELECTR. CAPACITOR	CEANP4R7M35		Q510, 511	TRANSISTOR	2SC3243				
	C863	ELECTR. CAPACITOR	CEASR22M50		Q512	TRANSISTOR	2SD1302		C111, 112	AUDIO	
	C864	ELECTR. CAPACITOR	CEAS330M16		Q551	DIGITAL TRANSISTOR	XDA114ES		C115-120 (100/		
	C871	CERAMIC CAPACITOR	CKPUYY103N16		Q552	TRANSISTOR	XDC124ES		C151	ELECTR. CA	
	C872	CERAMIC CAPACITOR	CKCYF473Z50						C153	CERAMIC C	
					Q553	TRANSISTOR	2SA1309A		C155, 156	ELECT	
	C873	ELECTR. CAPACITOR	CEAS100M16		Q555, 556	TRANSISTOR	XDC124ES				
					Q601-604	TRANSISTOR	2SD1302		C157, 158	AXIAL	
					Q606	TRANSISTOR	XDC124ES		C159, 160 (100/		
				⚠	Q701	TRANSISTOR	2SD1267		C201-204	AUDIC	
				⚠					C205, 206	AUDIC	
				⚠	Q702	TRANSISTOR	2SB942		C207, 208	AUDIC	
				⚠	Q741	TRANSISTOR	2SA1283				
	R801-810	CARBONFILM RESISTOR	RD1/6PM□□□J		Q751	TRANSISTOR	2SA1309A		C209, 210	AUDIC	
	R813	CARBONFILM RESISTOR	RD1/6PM□□□J		Q752	DIGITAL TRANSISTOR	DTC114TS		C211, 212	AUDIC	
	R816-822	CARBONFILM RESISTOR	RD1/6PM□□□J		Q753	DIGITAL TRANSISTOR	XDA114ES		C213, 214	ELECT	
	R831-835	CARBONFILM RESISTOR	RD1/6PM□□□J						C215, 216	AUDIC	
	R851-859	CARBONFILM RESISTOR	RD1/6PM□□□J						C217, 218	AUDIC	
					Q754	TRANSISTOR	2SC3311A				
	R861	METAL OXIDE RESISTOR	RS1LMF□□□J		D151	DIODE	1SS254		C219, 220	AUDIC	
	R862-867	CARBONFILM RESISTOR	RD1/6PM□□□J		D401, 402	DIODE	1SS254		C221, 222	ELECT	
	R872 (10K)		RCX1042		D471	DIODE	1SS254		C223, 224		
	R873-876	METALFILM RESISTOR	RN1/6PQ□□□□F		D504	DIODE	1SS254		C225, 226	AUDIC	
	R877-879	CARBONFILM RESISTOR	RD1/6PM□□□J						C227, 228 (10/2		
OTHERS					D541, 542	DIODE	1SS254				
	X801	CERAMIC RESONATOR	VSS1014		D551, 552	DIODE	1SS254				
MAIN UNIT					D601	DIODE	1SS254		C251, 252	AUDIC	
				⚠	D701-704		31DF2-FC5		C253	AUDIO FII	
SEMICONDUCTORS				⚠	D709	ZENER DIODE	HZ5BLL		C254, 255	AUDIC	
	IC101	OP-AMP-IC	M5220P						C256	ELECTR. C/	
	IC152	OP-AMP, IC	M5218AP	⚠	D731	POWER DIODE	1B2C1-LC2		C257	AUDIO FII	
	IC201	DOLBY-B, C IC	CX20188	⚠	D732	POWER DIODE	1B2Z1-LC2				
	IC251	IC	BA335	⚠	D733, 734	RECRIFIER DIODE	1SR35-100A		C281, 282	AUDIC	
	IC281	OP-AMP IC	XRA15218N	⚠	D741	RECRIFIER DIODE	1SR35-100A		C283, 284	AXIAL	
					D742	ZENER DIODE	MTZJ7. 5B		C287-290	ELEC	

Mark	No.	Description	Part No.
△	D743 ZENER DIODE	MTZJ24A	
	D751-753 DIODE	ISS254	
SWITCHES			
	S381	RSH1025	
RELAYS			
	RY151	RSR1016	
	RY601	RSR1016	
COILS/TRANSFORMERS			
	L101, 102 COIL	RTF1022	
	L103, 104 COIL	RTF1060	
	L401, 402 COIL	RTF1022	
	L403, 404	RTF1013	
	L501	RTF1160	
	L505	RTD1057	
	L541 COIL	RTF1022	
	L551, 552	RTD1045	
	L553, 554 RADIAL INDUCTOR	LFA182J	
	L851 RADIAL INDUCTOR	LFA121K	
	F301, 302 FILTER	RTF1066	
CAPACITORS			
	C101, 102 PL. STYRENE CAPACITOR	CQSF151J50	
	C103, 104 AUDIO FILM CAPACITOR	CFTXA563J50	
	C105, 106 ELECTR. CAPACITOR	RCH1037	
	C107, 108 CERAMIC CAPACITOR	CKPUYB121K50	
	C109, 110 AUDIO FILM CAPACITOR	CFTXA472J50	
	C111, 112 AUDIO FILM CAPACITOR	CFTXA273J50	
	C115-120 (100/25)	PCH1076	
	C151 ELECTR. CAPACITOR	CEAS100M50	
	C153 CERAMIC CAPACITOR	CKCYF473Z50	
	C155, 156 ELECTR. CAPACITOR	CEYA010M50	
	C157, 158 AXIAL CAPACITOR	CKPUYB221K50	
	C159, 160 (100/25)	PCH1076	
	C201-204 AUDIO FILM CAPACITOR	CFTXA222J50	
	C205, 206 AUDIO FILM CAPACITOR	CFTXA392J50	
	C207, 208 AUDIO FILM CAPACITOR	CFTXA474J50	
	C209, 210 AUDIO FILM CAPACITOR	CFTXA154J50	
	C211, 212 AUDIO FILM CAPACITOR	CFTXA153J50	
	C213, 214 ELECTR. CAPACITOR	CEYA010M50	
	C215, 216 AUDIO FILM CAPACITOR	CFTXA224J50	
	C217, 218 AUDIO FILM CAPACITOR	CFTXA683J50	
	C219, 220 AUDIO FILM CAPACITOR	CFTXA563J50	
	C221, 222 ELECTR. CAPACITOR	CEYA010M50	
	C223, 224	CFTXA562J50	
	C225, 226 AUDIO FILM CAPACITOR	CFTXA103J50	
	C227, 228 (10/25)	RCH1037	
	C251, 252 AUDIO FILM CAPACITOR	CFTXA104J50	
	C253 AUDIO FILM CAPACITOR	CFTXA473J50	
	C254, 255 AUDIO FILM CAPACITOR	CFTXA104J50	
	C256 ELECTR. CAPACITOR	CEASR47M50	
	C257 AUDIO FILM CAPACITOR	CFTXA473J50	
	C281, 282 AUDIO FILM CAPACITOR	CFTXA563J50	
	C283, 284 AXIAL CERAMIC C.	CCPUSL470J50	
	C287-290 ELECTR. CAPACITOR	CEAS4R7M50	

Mark	No.	Description	Part No.
	C301, 302 AUDIO FILM CAPACITOR	CFTXA392J50	
	C303, 304 ELECTR. CAPACITOR	CEYA100M50	
	C305-308 AUDIO FILM CAPACITOR	CFTXA222J50	
	C309, 310 AUDIO FILM CAPACITOR	CFTXA392J50	
	C311, 312 AUDIO FILM CAPACITOR	CFTXA474J50	
	C313, 314 AUDIO FILM CAPACITOR	CFTXA154J50	
	C315, 316 AUDIO FILM CAPACITOR	CFTXA153J50	
	C317, 318 ELECTR. CAPACITOR	CEYA010M50	
	C319, 320 AUDIO FILM CAPACITOR	CFTXA224J50	
	C321, 322 AUDIO FILM CAPACITOR	CFTXA683J50	
	C323, 324 AUDIO FILM CAPACITOR	CFTXA563J50	
	C325, 326 ELECTR. CAPACITOR	CEYA010M50	
	C327, 328	CFTXA562J50	
	C329, 330 AUDIO FILM CAPACITOR	CFTXA103J50	
	C331-334 ELECTR. CAPACITOR(10/25)	RCH1037	
	C353 AUDIO FILM CAPACITOR	CFTXA683J50	
	C354 AUDIO FILM CAPACITOR	CFTXA682J50	
	C357 MYLOR FILM CAPACITOR	CQMA104J50	
	C358, 359 MYLOR FILM CAPACITOR	CQMA123J50	
	C360 MYLOR FILM CAPACITOR	CQMA182J50	
	C361 ELECTR. CAPACITOR	CEAS010M50	
	C381 ELECTR. CAPACITOR	CEAS330M35	
	C395, 396 CERAMIC CAPACITOR	CKPUYF103Z25	
	C401, 402 AUDIO FILM CAPACITOR	CFTXA103J50	
	C403, 404 AUDIO FILM CAPACITOR	CFTXA472J50	
	C405, 406	CFTXA272J50	
	C407, 408 AUDIO FILM CAPACITOR	CFTXA122J50	
	C413, 414 AUDIO FILM CAPACITOR	CFTXA103J50	
	C415, 416 AUDIO FILM CAPACITOR	CFTXA473J50	
	C437, 438	CFTXA102J50	
	C443, 444	CFTXA272J50	
	C447, 448 ELECTR. CAPACITOR	CEYA221M16	
	C451, 452 AUDIO FILM CAPACITOR	CFTXA274J50	
	C453, 454 ELECTR. CAPACITOR	CEYA330M25	
	C455, 456 AUDIO FILM CAPACITOR	CFTXA103J50	
	C457, 458	CFTXA562J50	
	C459, 460 AUDIO FILM CAPACITOR	CFTXA472J50	
	C461, 462 AUDIO FILM CAPACITOR	CFTXA222J50	
	C463 ELECTR. CAPACITOR	CEAS010M50	
	C467, 468 PL. STYRENE CAPACITOR	CQSA561J50	
	C469-471 AUDIO FILM CAPACITOR	CFTXA473J50	
	C501 ELECTR. CAPACITOR	CEAS101M16	
	C503, 504 ELECTR. CAPACITOR	CEAS330M35	
	C510 AUDIO FILM CAPACITOR	CFTXA183J50	
	C511 AUDIO FILM CAPACITOR	CFTXA332J50	
	C512 AUDIO FILM CAPACITOR	CFTXA682J50	
	C513 AUDIO FILM CAPACITOR	CFTXA332J50	
	C514 CAPACITOR	CQPA752J100	
	C515 ELECTR. CAPACITOR	CEAS330M35	
	C541 AXIAL CAPACITOR	CKPUYB101K50	
	C552 ELECTR. CAPACITOR	CEAS101M16	
	C553, 554 CERAMIC CAPACITOR	CKCYF473Z50	
	C555, 556 CERAMIC CAPACITOR	CCCSL221K500	
	C557, 558 (390P/500)	RCG1004	

Mark	No.	Description	Part No.
	C559, 560 AUDIO FILM CAPACITOR	CFTXA333J50	
	C561, 562 AUDIO FILM CAPACITOR	CFTXA223J50	
	C563, 564 CERAMIC CAPACITOR	CKPUYB331K50	
	C565, 566 AUDIO FILM CAPACITOR	CFTXA103J50	
	C567 ELECTR. CAPACITOR	CEAS330M35	
	C569 CERAMIC CAPACITOR	CKCYF473Z50	
	C570 ELECTR. CAPACITOR	CEAS010M50	
	C604 ELECTR. CAPACITOR	CEAS010M50	
	C701-703 CERAMIC CAPACITOR	CKCYF473Z50	
	C711 ELECTR. CAPACITOR(3300 μ F)	RCH1048	
	C712 ELECTR. CAPACITOR(3300 μ F)	RCH1049	
	C713, 714 AUDIO FILM CAPACITOR	CFTXA563J50	
	C715 ELECTR. CAPACITOR	CEAS221M25	
	C717, 718 AXIAL CAPACITOR	CKPUYB101K50	
	C719 ELECTR. CAPACITOR	CEYA100M50	
	C722 ELECTR. CAPACITOR	CEYA010M50	
	C723, 724 AUDIO FILM CAPACITOR	CFTXA563J50	
	C725, 726 (100/25)	PCH1084	
	C731, 732 CERAMIC CAPACITOR	CKCYF473Z50	
	C733 ELECTR. CAPACITOR(6800/25)	RCH1032	
	C734 ELECTR. CAPACITOR	CEAS101M16	
	C735 ELECTR. CAPACITOR	CEAS102M6R3	
	C736 ELECTR. CAPACITOR	CEAS102M16	
	C737 ELECTR. CAPACITOR	CEAS472M16	
	C738 CERAMIC CAPACITOR	CKCYF473Z50	
	C741 CERAMIC CAPACITOR	CKCYF473Z50	
	C742 ELECTR. CAPACITOR	CEAS101M50	
	C743 CERAMIC CAPACITOR	CKCYF473Z50	
	C744 ELECTR. CAPACITOR	CEAS101M50	
	C745 CERAMIC CAPACITOR	CKCYF473Z50	
	C751 ELECTR. CAPACITOR	CEAS4R7M50	
	C752 CERAMIC CAPACITOR	CKPUYF103Z25	
	C753 ELECTR. CAPACITOR	CEAS330M35	
	C855 ELECTR. CAPACITOR	CEAS101M10	
RESISTORS			
	R101, 102 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R103-108 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R109-124 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R153, 154 CARBONFILM RESISTOR	RDR1/4PM□□□J	
△	R155 FUSIBLE RESISTOR	RFA1/4L□□□J	
	R157, 158 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R161-164 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R165, 166 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R200-204 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R205-222 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R251 CARBONFILM RESISTOR	RD1/4PM□□□J	
	R252-255 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R281-286 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R289-297 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R301 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R303, 304 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R305-308 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R309-326 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R327, 328 CARBONFILM RESISTOR	RDR1/4PM□□□J	

Mark	No.	Description	Part No.
	R351-361 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R363 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R365, 366 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R381-383 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R401-410 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R411, 412 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R413-416 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R417, 418 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R419-428 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R431, 432 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R433-452 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R453, 454 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R455-463 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R501, 502 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R503 CARBONFILM RESISTOR	RD1/2PMF□□□J	
	R504-507 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	
	R541, 542 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R551-553 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R555-559 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R601, 602 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R603, 604 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R607, 608 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R609-612 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R613, 614 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R615, 616 CARBONFILM RESISTOR	RD1/6PM□□□J	
	R617, 618 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R701 CARBONFILM RESISTOR	RD1/2PMF□□□J	
	R703 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R705 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R709-712 CARBONFILM RESISTOR	RDR1/4PM□□□J	
	R741 CARBONFILM RESISTOR	RD1/2PMF□□□J	
△	R742 FUSIBLE RESISTOR	RFA1/4L□□□J	
	R743 METAL OXIDE RESISTOR	RS1LMF□□□J	
	R751-759 CARBONFILM RESISTOR	RD1/6PM□□□J	
	VR101, 102 VR	VRTS6VS472	
	VR105, 106 (20K)	RCP1017	
	VR281, 282 VR	VRTB6VS223	
	VR351, 352 SEMI-FIXED RESISTOR	VRTB6VS103	
	VR353 VR	VRTB6VS473	
	VR401, 402 (20K)	RCP1017	
	VR501 VR	VRTG6VS103	
	VR502 VR	VRTG6VS473	
	VR551, 552 VR	VRTG6VS473	
	VR553, 554 VR	VRTB6VS472	
OTHERS			
	CN31	B8P-SHF-1AA	
	JA31 JACK	RKN1014	

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.
INPUT VR UNIT				Q925	TRANSISTOR	2SC1740S	
RESISTORS				D924-931	DIODE	1SS254	
R973, 974	CARBONFILM RESISTOR	RDR1/4PM $\begin{bmatrix} \square & \square & \square & \square \end{bmatrix}$ J		D941	LED	SEL2215S	
VR971		RCV1067		SWITCHES			
OTHERS				S921-936	SWITCH	RSG1023	
CN31	SSQ CONNECTOR 8P	SSQ-8-A		S941	SWITCH	RSG-150	
JA11	JACK	PKB1005		S951		RSB1001	
PINJACK UNIT				S961	SWITCH	RSG1027	
OTHERS				CAPACITORS			
JA22	JACK	PKB1006		C921	ELECTR. CAPACITOR	CEAS100M16	
MOTOR VR UNIT				C922	CERAMIC CAPACITOR	CKPUYY103N16	
SEMICONDUCTORS				C923	ELECTR. CAPACITOR	CEAS220M35	
IC521	MECHANISM DRIVER IC	TA7291S		RESISTORS			
CAPACITORS				R921-954	CARBONFILM RESISTOR	RD1/6PM $\begin{bmatrix} \square & \square & \square & \square \end{bmatrix}$ J	
C521	ELECTR. CAPACITOR	CEAS100M16		R956-961	CARBONFILM RESISTOR	RD1/6PM $\begin{bmatrix} \square & \square & \square & \square \end{bmatrix}$ J	
C522, 523	CERAMIC CAPACITOR	CKCYF473Z50		R963-970	CARBONFILM RESISTOR	RD1/6PM $\begin{bmatrix} \square & \square & \square & \square \end{bmatrix}$ J	
RESISTORS				VR973	VARIABLE RESISTOR(200K)	RCV1045	
R521-524	CARBONFILM RESISTOR	RD1/6PM $\begin{bmatrix} \square & \square & \square & \square \end{bmatrix}$ J		OTHERS			
VR521 (5K)		RCS1023		V921		RAW1056	
HX SW UNIT				X921	CERAMIC RESONATOR	VSS1014	
SWITCHES				CONTROL UNIT			
S551		RSB1002		SEMICONDUCTORS			
TIMER SW UNIT				IC801	MAIN CPU	PD429C	
SWITCHES				IC831	IC	BA6109	
S981		RSH1011		IC851	DUAL-COMPARATOR IC	M52331	
OPERATION UNIT				IC861	IC	BA6109	
SEMICONDUCTORS				IC871	LOGIC IC	CD4051B	
IC921		PD3170A		IC872	DUAL-COMPARATOR IC	M52331	
Q921	DIGITAL TRANSISTOR	XDC114ES		Q801-803	DIGITAL TRANSISTOR	XDA111ES	
Q922, 923	DIGITAL TRANSISTOR	XDA114ES		Q804	DIGITAL TRANSISTOR	DTC111TS	
Q924	DIGITAL TRANSISTOR	XDC114ES		Q805	DIGITAL TRANSISTOR	XDA111ES	
				Q806	TRANSISTOR	DTC121TS	
				Q833-835	DIGITAL TRANSISTOR	DTC111TS	
				Q851	DIGITAL TRANSISTOR	DTC111TS	
				Q852	DIGITAL TRANSISTOR	XDA111ES	
				Q861	TRANSISTOR	2SA1319A	

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	Q862	TRANSISTOR	2SA936		IC282		BA6138
	Q863	TRANSISTOR	2SA1309A		IC301	DOLBY-B, C IC	CX20188
	Q864	DIGITAL TRANSISTOR	DTC114TS		IC351	OP-AMP IC	XRA15218
	Q871	DIGITAL TRANSISTOR	XDA114ES		IC401, 402	OP AMP	M5238PF
	Q872-874	DIGITAL TRANSISTOR	DTC114TS		IC551	DOLBY HX PRO IC	UPC1297CA
	D804-810	DIODE	1SS254		IC701	OP-AMP, IC	M5218AL
△	D861	RECTIFIER DIODE	1SR35-100A	△	IC702	OP-AMP IC	M5223L
COILS/TRANSFORMERS				△	IC731	REGULATOR IC	NJM7812FA
	L831		RTF1068		IC732	REGULATOR IC	NJM7805FA
CAPACITORS					Q101, 102	N-DUAL-FET	2SK389
	C801	CERAMIC CAPACITOR	CKPUYY103N16		Q103, 104	DIGITAL TRANSISTOR	DTC114TS
	C802	ELECTR. CAPACITOR	CEAS101M10		Q281, 282	DIGITAL TRANSISTOR	DTC114TS
	C803	ELECTR. CAPACITOR	CEAS102M6R3		Q283	TRANSISTOR	XDC124ES
	C805	ELECTR. CAPACITOR	CEAS100M16		Q351, 352	TRANSISTOR	2SD1302
	C808-810	AXIAL CAPACITOR	CKPUYB101K50		Q353-356	DIGITAL TRANSISTOR	DTC114TS
	C822	AXIAL CAPACITOR	CKPUYB821K50		Q401-408	DIGITAL TRANSISTOR	DTC114TS
	C831	CERAMIC CAPACITOR	CKPUYY103N16		Q419-428	DIGITAL TRANSISTOR	DTC114TS
	C832	CERAMIC CAPACITOR	CKCYF473Z50		Q433, 434	TRANSISTOR	2SD1302
	C851	AXIAL CAPACITOR	CKPUYB101K50		Q437-442	DIGITAL TRANSISTOR	DTC114TS
	C852	CERAMIC CAPACITOR	CGCYX473K25		Q455, 456	DIGITAL TRANSISTOR	DTC114TS
	C853	ELECTR. CAPACITOR	CEAS220M25		Q459-462	DIGITAL TRANSISTOR	DTC114TS
	C854	ELECTR. CAPACITOR	CEAS100M16		Q471-479	DIGITAL TRANSISTOR	XDA114ES
	C855	CERAMIC CAPACITOR	CKCYF473Z50		Q501	TRANSISTOR	XDC124ES
	C856	CERAMIC CAPACITOR	CGCYX473K25		Q502	TRANSISTOR	2SA1283
	C861	CERAMIC CAPACITOR	CKPUYY103N16		Q503-505	TRANSISTOR	XDC124ES
	C862	ELECTR. CAPACITOR	CEANP4R7M35		Q506	TRANSISTOR	2SC3311A
	C863	ELECTR. CAPACITOR	CEASR22M50		Q510, 511	TRANSISTOR	2SC3243
	C864	ELECTR. CAPACITOR	CEAS330M16		Q512	TRANSISTOR	2SD1302
	C871	CERAMIC CAPACITOR	CKPUYY103N16		Q551	DIGITAL TRANSISTOR	XDA114ES
	C872	CERAMIC CAPACITOR	CKCYF473Z50		Q552	TRANSISTOR	XDC124ES
	C873	ELECTR. CAPACITOR	CEAS100M16		Q553	TRANSISTOR	2SA1309A
RESISTORS					Q555, 556	TRANSISTOR	XDC124ES
	R801-810	CARBONFILM RESISTOR	RD1/6PM□□□J	△	Q601-604	TRANSISTOR	2SD1302
	R813	CARBONFILM RESISTOR	RD1/6PM□□□J	△	Q606	TRANSISTOR	XDC124ES
	R816-822	CARBONFILM RESISTOR	RD1/6PM□□□J	△	Q701	TRANSISTOR	2SD1267
	R831-835	CARBONFILM RESISTOR	RD1/6PM□□□J		Q702	TRANSISTOR	2SB942
	R851-859	CARBONFILM RESISTOR	RD1/6PM□□□J		Q741	TRANSISTOR	2SA1283
	R861	METAL OXIDE RESISTOR	RS1LMF□□□J		Q751	TRANSISTOR	2SA1309A
	R862-867	CARBONFILM RESISTOR	RD1/6PM□□□J		Q752	DIGITAL TRANSISTOR	DTC114TS
	R872 (10K)		RCX1042		Q753	DIGITAL TRANSISTOR	XDA114ES
	R873-876	METALFILM RESISTOR	RN1/6PQ□□□□F		Q754	TRANSISTOR	2SC3311A
	R877-879	CARBONFILM RESISTOR	RD1/6PM□□□J		D151	DIODE	1SS254
OTHERS					D401, 402	DIODE	1SS254
	X801	CERAMIC RESONATOR	VSS1014		D471	DIODE	1SS254
MAIN UNIT					D504	DIODE	1SS254
SEMICONDUCTORS					D541, 542	DIODE	1SS254
	IC101	OP-AMP-IC	M5220P	△	D551, 552	DIODE	1SS254
	IC152	OP-AMP, IC	M5218AP	△	D601	DIODE	1SS254
	IC201	DOLBY-B, C IC	CX20188	△	D701-704		31DF2-FC5
	IC251	IC	BA335	△	D709	ZENER DIODE	HZ5BLL
	IC281	OP-AMP IC	XRA15218N	△	D731	POWER DIODE	1B2C1-LC2
				△	D732	POWER DIODE	1B2Z1-LC2
				△	D733, 734	RECRIFIER DIODE	1SR35-100A
				△	D741	RECRIFIER DIODE	1SR35-100A
					D742	ZENER DIODE	MTZJ7.5B

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△	D743	ZENER DIODE	MTZJ24A		C301, 302	AUDIO FILM CAPACITOR	CFTXA392J50
	D751-753	DIODE	1SS254		C303, 304	ELECTR. CAPACITOR	CEYA100M50
SWITCHES					C305-308	AUDIO FILM CAPACITOR	CFTXA222J50
	S381		RSH1025		C309, 310	AUDIO FILM CAPACITOR	CFTXA392J50
RELAYS					C311, 312	AUDIO FILM CAPACITOR	CFTXA474J50
	RY151		RSR1016		C313, 314	AUDIO FILM CAPACITOR	CFTXA154J50
	RY601		RSR1016		C315, 316	AUDIO FILM CAPACITOR	CFTXA153J50
COILS/TRANSFORMERS					C317, 318	ELECTR. CAPACITOR	CEYA010M50
	L101, 102	COIL	RTF1022		C319, 320	AUDIO FILM CAPACITOR	CFTXA224J50
	L103, 104	COIL	RTF1060		C321, 322	AUDIO FILM CAPACITOR	CFTXA683J50
	L401, 402	COIL	RTF1022		C323, 324	AUDIO FILM CAPACITOR	CFTXA563J50
	L403, 404		RTF1013		C325, 326	ELECTR. CAPACITOR	CEYA010M50
	L501		RTF1160		C327, 328		CFTXA562J50
	L505		RTD1057		C329, 330	AUDIO FILM CAPACITOR	CFTXA103J50
	L541	COIL	RTF1022		C331-334	ELECTR. CAPACITOR (10/25)	RCH1037
	L551, 552		RTD1045		C353	AUDIO FILM CAPACITOR	CFTXA683J50
	L553, 554	RADIAL INDUCTOR	LFA182J		C354	AUDIO FILM CAPACITOR	CFTXA682J50
	L851	RADIAL INDUCTOR	LFA121K		C357	MYLOR FILM CAPACITOR	CQMA104J50
	F301, 302	FILTER	RTF1066		C358, 359	MYLOR FILM CAPACITOR	CQMA123J50
CAPACITORS					C360	MYLOR FILM CAPACITOR	CQMA182J50
	C101, 102	PL. STYRENE CAPACITOR	CQSF151J50		C361	ELECTR. CAPACITOR	CEAS010M50
	C103, 104	AUDIO FILM CAPACITOR	CFTXA563J50		C381	ELECTR. CAPACITOR	CEAS330M35
	C105, 106	ELECTR. CAPACITOR	RCH1037		C395, 396	CERAMIC CAPACITOR	CKPUYF103Z25
	C107, 108	CERAMIC CAPACITOR	CKPUYB121K50		C401, 402	AUDIO FILM CAPACITOR	CFTXA103J50
	C109, 110	AUDIO FILM CAPACITOR	CFTXA472J50		C403, 404	AUDIO FILM CAPACITOR	CFTXA472J50
	C111, 112	AUDIO FILM CAPACITOR	CFTXA273J50		C405, 406		CFTXA271J50
	C115-120 (100/25)		PCH1076		C407, 408	AUDIO FILM CAPACITOR	CFTXA121J50
	C151	ELECTR. CAPACITOR	CEAS100M50		C413, 414	AUDIO FILM CAPACITOR	CFTXA103J50
	C153	CERAMIC CAPACITOR	CKCYF473Z50		C415, 416	AUDIO FILM CAPACITOR	CFTXA473J50
	C155, 156	ELECTR. CAPACITOR	CEYA010M50		C437, 438		CFTXA103J50
	C157, 158	AXIAL CAPACITOR	CKPUYB221K50		C443, 444		CFTXA271J50
	C159, 160 (100/25)		PCH1076		C447, 448	ELECTR. CAPACITOR	CEYA221M16
	C201-204	AUDIO FILM CAPACITOR	CFTXA222J50		C451, 452	AUDIO FILM CAPACITOR	CFTXA271J50
	C205, 206	AUDIO FILM CAPACITOR	CFTXA392J50		C453, 454	ELECTR. CAPACITOR	CEYA330M25
	C207, 208	AUDIO FILM CAPACITOR	CFTXA474J50		C455, 456	AUDIO FILM CAPACITOR	CFTXA103J50
	C209, 210	AUDIO FILM CAPACITOR	CFTXA154J50		C457, 458		CFTXA561J50
	C211, 212	AUDIO FILM CAPACITOR	CFTXA153J50		C459, 460	AUDIO FILM CAPACITOR	CFTXA472J50
	C213, 214	ELECTR. CAPACITOR	CEYA010M50		C461, 462	AUDIO FILM CAPACITOR	CFTXA221J50
	C215, 216	AUDIO FILM CAPACITOR	CFTXA224J50		C463	ELECTR. CAPACITOR	CEAS010M50
	C217, 218	AUDIO FILM CAPACITOR	CFTXA683J50		C467, 468	PL. STYRENE CAPACITOR	CQSA561J50
	C219, 220	AUDIO FILM CAPACITOR	CFTXA563J50		C469-471	AUDIO FILM CAPACITOR	CFTXA473J50
	C221, 222	ELECTR. CAPACITOR	CEYA010M50		C501	ELECTR. CAPACITOR	CEAS101M16
	C223, 224		CFTXA562J50		C503, 504	ELECTR. CAPACITOR	CEAS330M35
	C225, 226	AUDIO FILM CAPACITOR	CFTXA103J50		C510	AUDIO FILM CAPACITOR	CFTXA183J50
	C227, 228 (10/25)		RCH1037		C511	AUDIO FILM CAPACITOR	CFTXA33J50
	C251, 252	AUDIO FILM CAPACITOR	CFTXA104J50		C512	AUDIO FILM CAPACITOR	CFTXA682J50
	C253	AUDIO FILM CAPACITOR	CFTXA473J50		C513	AUDIO FILM CAPACITOR	CFTXA33J50
	C254, 255	AUDIO FILM CAPACITOR	CFTXA104J50		C514	CAPACITOR	CQPA752J100
	C256	ELECTR. CAPACITOR	CEAS47M50		C515	ELECTR. CAPACITOR	CEAS330M35
	C257	AUDIO FILM CAPACITOR	CFTXA473J50		C541	AXIAL CAPACITOR	CKPUYB121K50
	C281, 282	AUDIO FILM CAPACITOR	CFTXA563J50		C552	ELECTR. CAPACITOR	CEAS101M16
	C283, 284	AXIAL CERAMIC C.	CCPUSL470J50		C553, 554	CERAMIC CAPACITOR	CKCYF473Z50
	C287-290	ELECTR. CAPACITOR	CEAS4R7M50		C555, 556	CERAMIC CAPACITOR	CCCSL22K500
					C557, 558 (390P/500)		RCG1004

Mark	No.	Description	Part No.
	C559, 560	AUDIO FILM CAPACITOR	CFTXA333J50
	C561, 562	AUDIO FILM CAPACITOR	CFTXA223J50
	C563, 564	CERAMIC CAPACITOR	CKPUYB331K50
	C565, 566	AUDIO FILM CAPACITOR	CFTXA103J50
	C567	ELECTR. CAPACITOR	CEAS330M35
	C569	CERAMIC CAPACITOR	CKCYF473Z50
	C570	ELECTR. CAPACITOR	CEAS010M50
	C604	ELECTR. CAPACITOR	CEAS010M50
	C701-703	CERAMIC CAPACITOR	CKCYF473Z50
	C711	ELECTR. CAPACITOR(3300 μ F)	RCH1048
	C712	ELECTR. CAPACITOR(3300 μ F)	RCH1049
	C713, 714	AUDIO FILM CAPACITOR	CFTXA563J50
	C715	ELECTR. CAPACITOR	CEAS221M25
	C717, 718	AXIAL CAPACITOR	CKPUYB101K50
	C719	ELECTR. CAPACITOR	CEYA100M50
	C722	ELECTR. CAPACITOR	CEYA010M50
	C723, 724	AUDIO FILM CAPACITOR	CFTXA563J50
	C725, 726 (100/25)		PCH1084
	C731, 732	CERAMIC CAPACITOR	CKCYF473Z50
	C733	ELECTR. CAPACITOR(6800/25)	RCH1032
	C734	ELECTR. CAPACITOR	CEAS101M16
	C735	ELECTR. CAPACITOR	CEAS102M6R3
	C736	ELECTR. CAPACITOR	CEAS102M16
	C737	ELECTR. CAPACITOR	CEAS472M16
	C738	CERAMIC CAPACITOR	CKCYF473Z50
	C741	CERAMIC CAPACITOR	CKCYF473Z50
	C742	ELECTR. CAPACITOR	CEAS101M50
	C743	CERAMIC CAPACITOR	CKCYF473Z50
	C744	ELECTR. CAPACITOR	CEAS101M50
	C745	CERAMIC CAPACITOR	CKCYF473Z50
	C751	ELECTR. CAPACITOR	CEAS4R7M50
	C752	CERAMIC CAPACITOR	CKPUYF103Z25
	C753	ELECTR. CAPACITOR	CEAS330M35
	C855	ELECTR. CAPACITOR	CEAS101M10

RESISTORS

	R101, 102	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R103-108	CARBONFILM RESISTOR	RD1/6PM□□□J
	R109-124	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R153, 154	CARBONFILM RESISTOR	RDR1/4PM□□□J
△	R155	FUSIBLE RESISTOR	RFA1/4L□□□J
	R157, 158	CARBONFILM RESISTOR	RD1/6PM□□□J
	R161-164	CARBONFILM RESISTOR	RD1/6PM□□□J
	R165, 166	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R200-204	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R205-222	CARBONFILM RESISTOR	RD1/6PM□□□J
	R251	CARBONFILM RESISTOR	RD1/4PM□□□J
	R252-255	CARBONFILM RESISTOR	RD1/6PM□□□J
	R281-286	CARBONFILM RESISTOR	RD1/6PM□□□J
	R289-297	CARBONFILM RESISTOR	RD1/6PM□□□J
	R301	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R303, 304	CARBONFILM RESISTOR	RD1/6PM□□□J
	R305-308	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R309-326	CARBONFILM RESISTOR	RD1/6PM□□□J
	R327, 328	CARBONFILM RESISTOR	RDR1/4PM□□□J

	R351-361	CARBONFILM RESISTOR	RD1/6PM□□□J
	R363	CARBONFILM RESISTOR	RD1/6PM□□□J
	R365, 366	CARBONFILM RESISTOR	RD1/6PM□□□J
	R381-383	CARBONFILM RESISTOR	RD1/6PM□□□J
	R401-410	CARBONFILM RESISTOR	RD1/6PM□□□J
	R411, 412	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R413-416	CARBONFILM RESISTOR	RD1/6PM□□□J
	R417, 418	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R419-428	CARBONFILM RESISTOR	RD1/6PM□□□J
	R431, 432	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R433-452	CARBONFILM RESISTOR	RD1/6PM□□□J
	R453, 454	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R455-463	CARBONFILM RESISTOR	RD1/6PM□□□J
	R501, 502	CARBONFILM RESISTOR	RD1/6PM□□□J
	R503	CARBONFILM RESISTOR	RD1/2PMF□□□J
	R504-507	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
	R541, 542	CARBONFILM RESISTOR	RD1/6PM□□□J
	R551-553	CARBONFILM RESISTOR	RD1/6PM□□□J
	R555-559	CARBONFILM RESISTOR	RD1/6PM□□□J
	R601, 602	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R603, 604	CARBONFILM RESISTOR	RD1/6PM□□□J
	R607, 608	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R609-612	CARBONFILM RESISTOR	RD1/6PM□□□J
	R613, 614	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R615, 616	CARBONFILM RESISTOR	RD1/6PM□□□J
	R617, 618	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R701	CARBONFILM RESISTOR	RD1/2PMF□□□J
	R703	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R705	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R709-712	CARBONFILM RESISTOR	RDR1/4PM□□□J
	R741	CARBONFILM RESISTOR	RD1/2PMF□□□J

△	R742	FUSIBLE RESISTOR	RFA1/4L□□□J
	R743	METAL OXIDE RESISTOR	RS1LMF□□□J
	R751-759	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR101, 102	VR	VRTS6VS472
	VR105, 106 (20K)		RCP1017
	VR281, 282	VR	VRTB6VS223
	VR351, 352	SEMI-FIXED RESISTOR	VRTB6VS103
	VR353	VR	VRTB6VS473
	VR401, 402 (20K)		RCP1017
	VR501	VR	VRTG6VS103
	VR502	VR	VRTG6VS473
	VR551, 552	VR	VRTG6VS473
	VR553, 554	VR	VRTB6VS472

OTHERS

CN31	B8P-SHF-1AA
JA31 JACK	RKN1014

Mark	No.	Description	Part No.
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HEDPHONE UNIT**SEMICONDUCTORS**

IC901	OP-AMP, IC	M5218AP
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CAPACITORS

C901, 902	ELECTR. CAPACITOR	CEYA010M50
C903, 904	ELECTR. CAPACITOR(100/25)	PCH1076
C907, 908	AXIAL CAPACITOR	CKPUYB221K50

RESISTORS

R901-906	CARBONFILM RESISTOR	RD1/6PM□□□J
R907, 908	CARBONFILM RESISTOR	RDR1/4PM□□□J
R909, 910	CARBONFILM RESISTOR	RD1/6PM□□□J
VR901	VARIABLE RESISTOR	RCV1043

OTHERS

JA51	JACK	RKN1019
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POWER SW UNIT**SWITCHES**

△	S991 SWITCH	RSA-063
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CAPACITORS

△	C991 CAPACITOR (0.01/AC400)	VCG-044
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REC SW UNIT**SWITCHES**

S3	SWITCH	RSG-143
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TAPE SELECTOR UNIT**SWITCHES**

SL, 2		RSH-070
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CONNECTOR UNIT**CAPACITORS**

C1	CERAMIC CAPACITOR	CKCYF473Z50
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RESISTORS

R4, 5	CARBONFILM RESISTOR	RD1/6PM□□□J
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SENSOR UNIT (A)**SEMICONDUCTORS**

D1		GP1A51HR
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CAPACITORS

C2	CERAMIC CAPACITOR	CKPUYY103N16
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RESISTORS

R2	CARBONFILM RESISTOR	RD1/6PM□□□J
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Mark	No.	Description	Part No.
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SENSOR UNIT (B)**SEMICONDUCTORS**

D2		GP1A51HR
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CAPACITORS

C3	CERAMIC CAPACITOR	CKPUYY103N16
----	-------------------	--------------

RESISTORS

R3	CARBONFILM RESISTOR	RD1/6PM□□□J
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DOOR SW UNIT**SWITCHES**

S4	SWITCH	RSK1002
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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.
3. DC balance 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.

NOTE: This unit has an automatic tape selection feature.

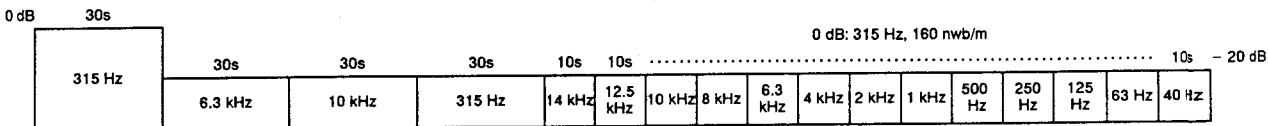


Fig. 6—1 Constants of the test tape STD—331B

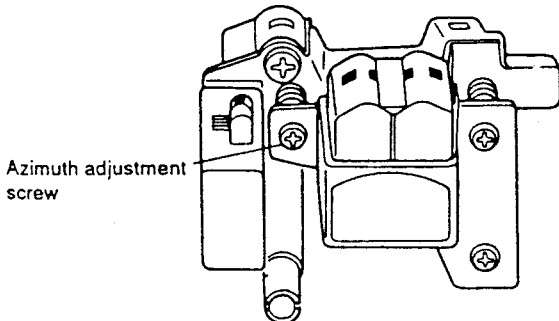


Fig. 6-2 Head azimuth adjustment

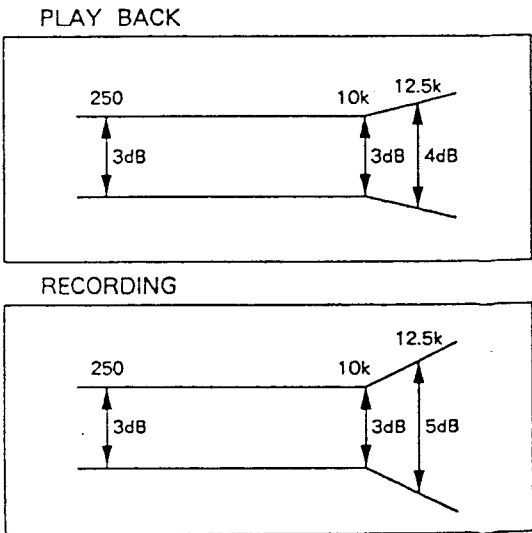


Fig. 6-3 Frequency response zone

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 the 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.

3. DC Balance Adjustment

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.			VR101 (Lch) VR102 (Rch)	TP. 21 (Lch) TP. 22 (Rch)	0V $\pm$ 0.2V	

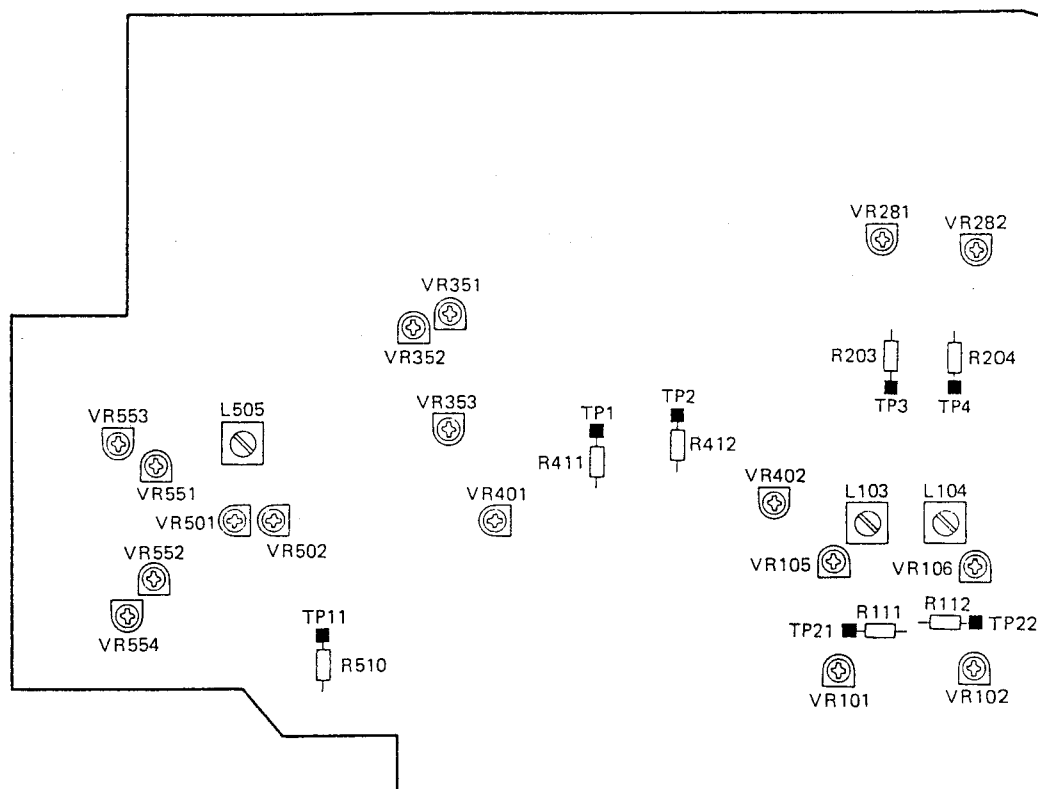


Fig. 6-4 Adjusting points

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	106 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 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.	Turn OFF the DOLBY HX PRO switch.						
7.	REC → PLAY	Record and play back the 315 Hz signal and a 10kHz signal at –20 dBv input level.	NOR	VR553 (L) VR554 (R)	LINE OUT	Turn the control fully counterclockwise, and gradually turn to the right to adjust to $0 \text{ dB} \pm 0.5 \text{ dB}$ compared when HX–Pro is ON.	Turn control clockwise past the peak to assure proper overbias value.

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.

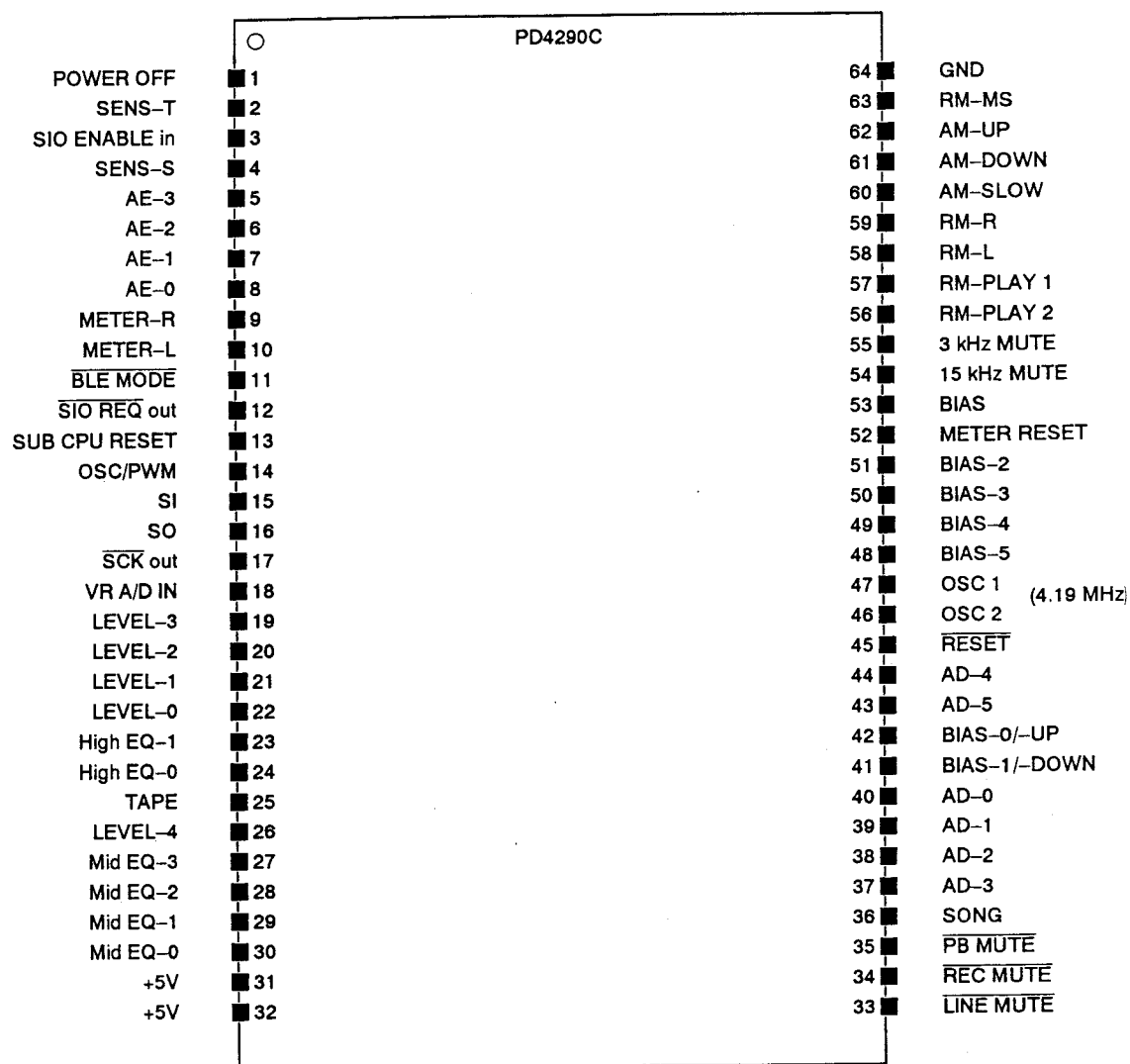
Thereafter, each time the START/CLEAR key is pressed, the oscillation frequency changes as follows: 3 kHz oscillation → 15 kHz oscillation → Release

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.

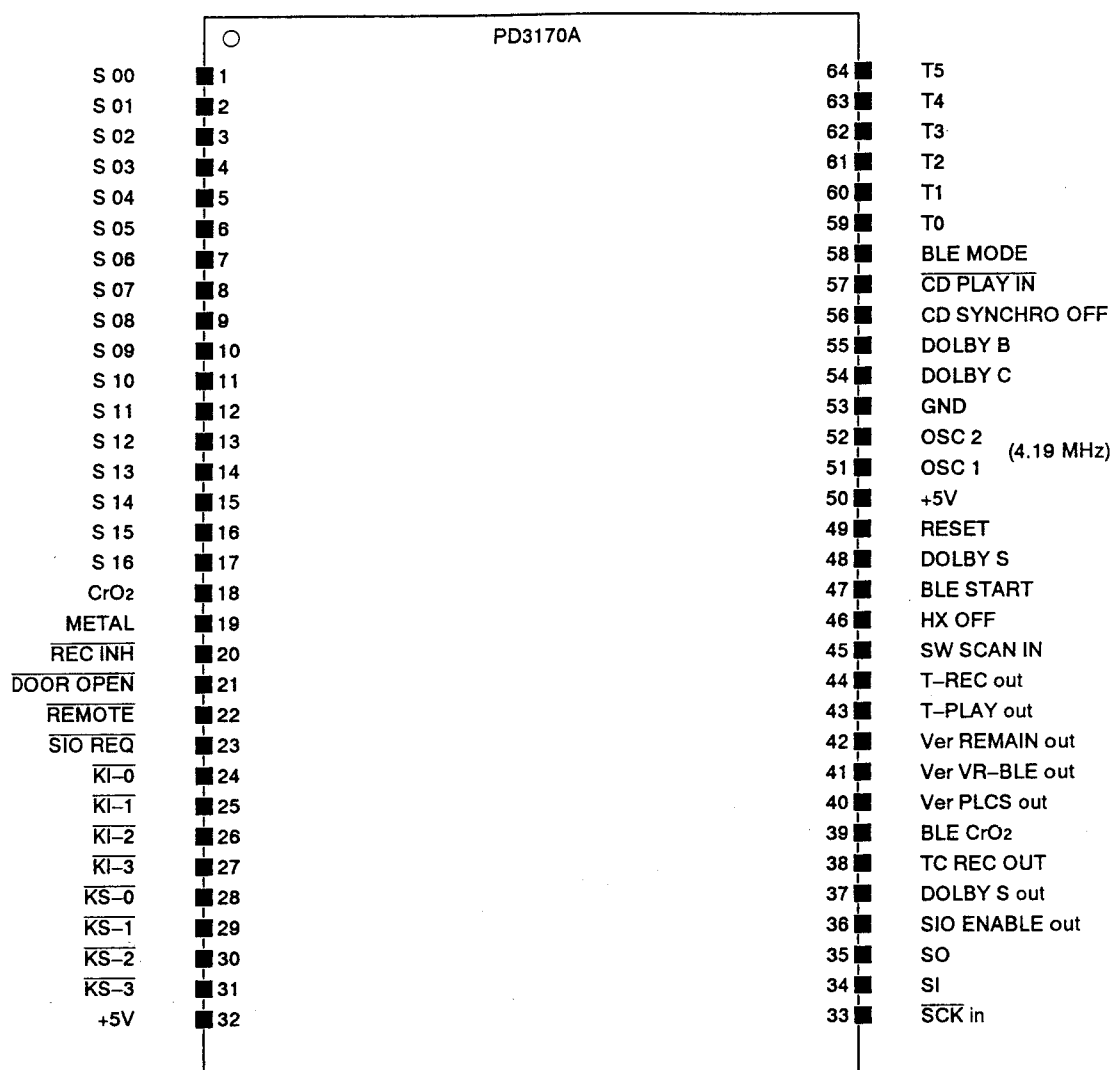
7.1.3 PD4290C Pin Functions

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><td>4-bit data</td><td>Mechanism mode</td></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																																																		

7.2 PD3170A

7.2.1 Sub CPU Port Arrangement PD3170A (Display and Key Input)



7.2.2 Input Matrix Table

("L" active for all.)

	KI 3	KI 2	KI 1	KI 0	
KS3	REW	OPEN/CLOSE	STOP	TAPE RETURN	Detection is possible when the scanning is OFF.
KS2	PLAY	COUNTER MODE	COUNTER RESET/CAPACITY	DISPLAY	
KS1	FF	METER RANGE	REC	PEAK MODE	
KS0	PAUSE	MONITOR	REC MUTE	CD SYNCHRO	

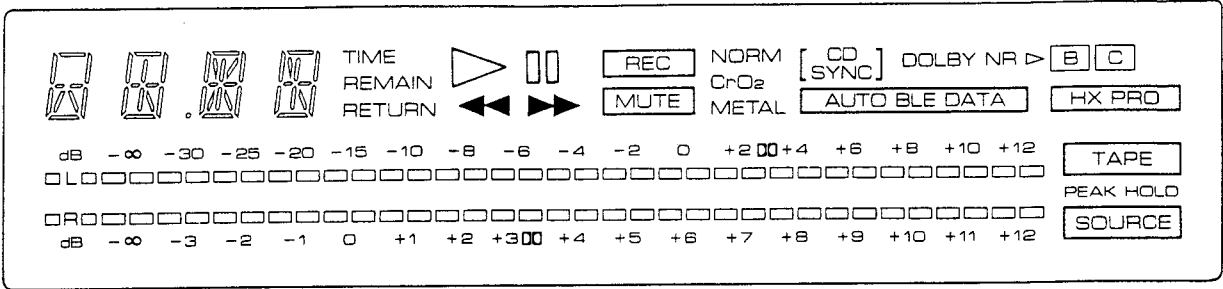
- For the input matrix, a key is ON when 1 port of either KS3 through KS0 is "L", and KI-0, 1, 2, and 3 are "L".
- A switch is ON when 1 port of either T-REC, T-PLAY, Ver REMAIN, Ver VR-BLE or Ver PLCS is "H", and SW SCAN IN is "H". However, the input of these 5 lines is performed for 4 sec. after the power is turned ON, and thereafter only T-PLAY is input except during BLE test mode.

7.2.3 PD3170A Pin Functions

Pin No.	Name	Function
1	S00	S01 through S16 are FL segment outputs.
2	S01	
3	S02	
4	S03	
5	S04	
6	S05	
7	S06	
8	S07	
9	S08	
10	S09	
11	S10	
12	S11	
13	S12	
14	S13	
15	S14	
16	S15	
17	S16	
18	CrO2	Input for CrO2 switch for cassette half. Switch is ON when "H".
19	METAL	Input for METAL switch for cassette half. Switch is ON when "H".
20	RECINH	Input for REC protection switch for cassette half. Recording is disabled when "L".
21	DOOR OPEN	Door switch input. Door open when "L".
22	REMOTE	Remote control signal input. Serial communication request input from the main CPU. "L" is output when
23	SIO REQ	communication is requested, and "H" is output at other times.
24	KI3	KI0 through KI3 are key scan return signal inputs. Key is ON when "L".
25	KI2	
26	KI1	
27	KI0	
28	KO3	KO0 through KO3 are key scan signal outputs. "L" is output during scanning.
29	KO2	
30	KO1	
31	KO0	
32	Vcc	Power supply terminal, +5V.

Pin No.	Name	Function
33	SCKIN	Serial communication clock pulse input.
34	SI	Serial communication data input.
35	SO	Serial communication data output.
36	BUSY	Serial communication enable signal output. Communication is enabled when "H".
37	NRSO	Dolby S control signal output. Dolby S is ON when "H".
38	SYNO	PLAY request signal output from the deck to the CD player for CD synchronization. Deck REC state when "H".
39	CREQ	EQ control output during BLE. "H" is output during the BLE tuning with a CrO ₂ tape or when AUTO BLE DATA lights.
40	PLCSV	When pins 40 through 44 output "H" and if the result input at 45 is "H", presence of diode and switch ON is detected. PLCS version diode scan output.
41	BLE TYPE	VR-BLE version diode scan output.
42	REMAINV	REMAIN version diode scan output.
43	T-PLAY	Timer PLAY switch scan output.
44	T-REC	Timer REC switch scan output.
45	SW SCAN IN	Switch scan return input. Scanned switch is ON when "H".
46	HXOF	Not used.
47	BLE	BLE start switch input. Switch is ON when "L" → "H".
48	NRSI	Dolby S switch input. Switch is ON when "H".
49	RESET	RESET signal input. Reset when "H"; programming starts when "H" → "L".
50	TEST	Not used. Connected to VCC potential.
51	OSC1	4.19 MHz ceramic resonator is connected between OSC1 and OSC2.
52	OSC2	
53	GND	GND terminal
54	NRCI	Dolby C switch input. Switch is ON when "H".
55	NRBI	Dolby B switch input. Switch is ON when "H".
56	SYOF	Jack connection detection of the CD synchronization cord. No connection when "H".
57	SYNI	PLAY signal input during CD synchronization. CD PLAY when "L".
58	NROFF	Dolby is set to OFF during BLE. Dolby OFF when "H".
59	T0	T0 through T5 are FL grid outputs.
60	T1	
61	T2	
62	T3	
63	T4	
64	T5	

7.3 FL



7.3.1 Connection Terminals

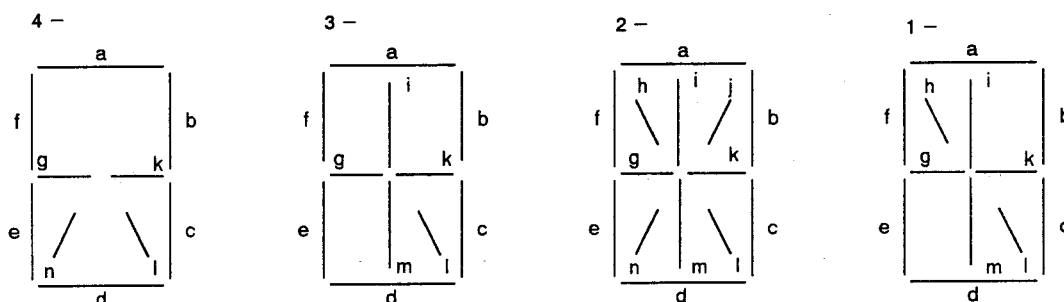
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
ELECTRODE	F	F	NP	NP	(T0)	(T1)	(T2)	(T3)	(T4)	(T5)	(ALL)	(S00)	(S01)	(S02)	(S03)	(S04)				
TERMINAL No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
ELECTRODE	NP	(S05)	(S06)	(S07)	NP	(S08)	(S09)	(S10)	(S11)	(S12)	(S13)	(S14)	(S15)	NP	NP	(S16)	NP	NP	NP	NP
TERMINAL No.						37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
ELECTRODE						NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	F	F

Notes F : Filament NP: No Pin

7.3.2 FL Matrix Table

	T0	T1	T2	T3	T4	T5
S00	3-a	2-a	1-a	S	L-0	R-0
S01	3-b	2-b	1-b	C	L-1	R-1
S02	3-i+m	2-i	1-i+m	B	L-2	R-2
S03	3-f	2-h	1-h+l	HX PRO	L-3	R-3
S04	3-g+k	2-j	1-k	DOLBY NR ►	L-4	R-4
S05	3-c	2-f	1-f	(CD SYNC)	L-5	R-5
S06	3-l	2-g	1-g	AUTO BLE DATA	L-6	R-6
S07	3-e	2-k	1-c	NORM	L-7	R-7
S08	3-d	2-c	1-e	CrO2	L-8	R-8
S09	4-a	2-n	1-d	METAL	L-9	R-9
S10	4-b	2-l	▬ (PAUSE)	REC	L-10	R-10
S11	4-f	2-m	► (PLAY)	MUTE	L-11	R-11
S12	4-g+k	2-e	TIME	TAPE	L-12	R-12
S13	4-c	2-d	REMAIN	HOLD	L-13	R-13
S14	4-l+n	●	►► (FF)	PEAK	L-14	R-14
S15	4-e		◄◄ (REW)	SOURCE	L-15	R-15
S16	4-d		RETURN		NORMAL RANGE SCALE	EXPAND RANGE SCALE
ALL					-L- - -	-R- - -

- Of the 4 digits of the 7 segment display the leftmost digit is 4-, and the rightmost digit is 1-.



- 7 segment display indications other than numbers are as shown below.

7.3.3 Character Display

Display	Display condition
WAIT	Lights for 4 sec. at POWER ON.
REC	Blinks for 4 sec. with TIMER REC switch ON at POWER ON.
OPEN	Lights for 4 sec. when the mechanism ejects.
CAL	Lights during the BLE tuning operation.
ERR	Blinks when the BLE tuning is not completed.
P- - -	The data "00" through "15" light during the skip search operation.
P+ - -	
C60	Lights or blinks during detection of tape length, when the counter is set to remain mode, until the results are displayed.
C46L	
C90	
C80L	

8. SPECIFICATIONS

System 4 track, 2-channel stereo
Heads

Recording and playback head:

[CT-93, CT-979]

Laser amorphous playback head and Laser amorphous recording head combination × 1

[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-93, CT-979] No more than 0.022% (WRMS)

No more than ±0.052% (DIN)

[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-93, CT-979]

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-93, CT-979] More than 61 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
- Bias control with motor driven (CT-93, CT-979)
- Dolby HX Pro Headroom Extension system
(CT-93, CT-979: on/off possible)
- Dolby S-type noise reduction system (CT-93, CT-900S)
- 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)
- Peak level calibration system (CT-93, CT-979)
- 4-digit electronic tape counter with mode selection
(CT-93, CT-979: Normal/Time/Remain 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

- System remote control available (Multi-voltage model of CT-93)

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-979] 20W

Dimensions

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

Weight (without package)

[CT-979] 8.2 kg

Accessories

Operating instructions 1

Connection cord with pin plugs 2

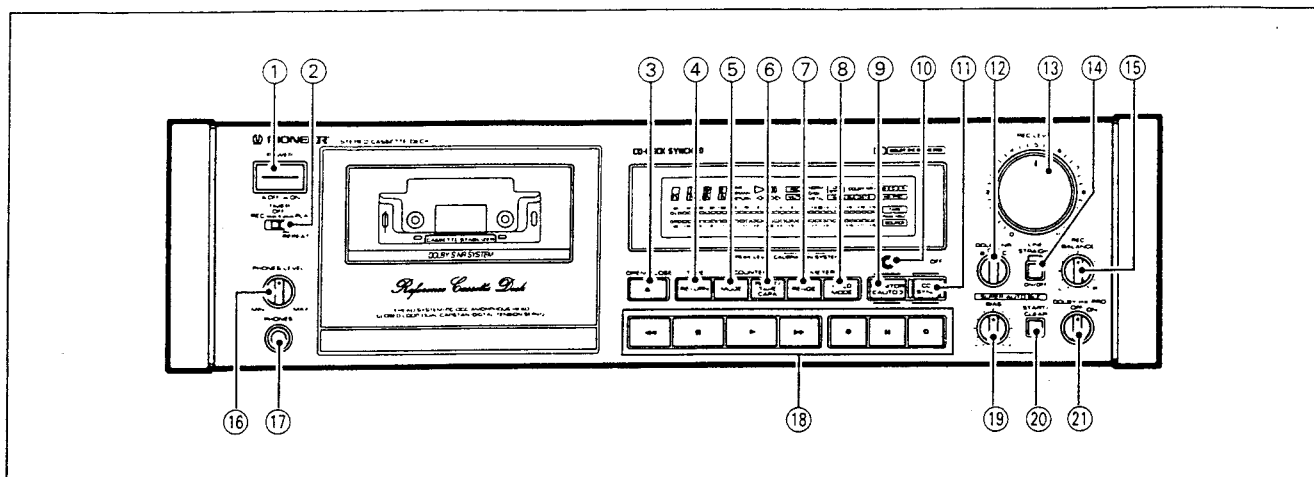
CD•DECK SYNCHRO control cord 1

Remote control cord (Multi-voltage model of CT-93) 1

NOTE:

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

9. 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-93, CT-979]

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

⑥ [CT-93, CT-979]

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.

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)