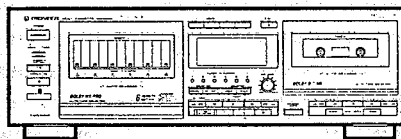


Service Manual



ORDER NO.
ARP2725

MULTI - CASSETTE CHANGER

CT-WM62R

MODEL CT-WM62R HAS THE FOLLOWING:

Type	Power Requirement	Remarks
KU/CA	AC120V only	
SD	AC110V, 120 - 127V, 220V, 240V (Switchable)	

● This manual is applicable to CT-WM62R/KU/CA and SD.

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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.

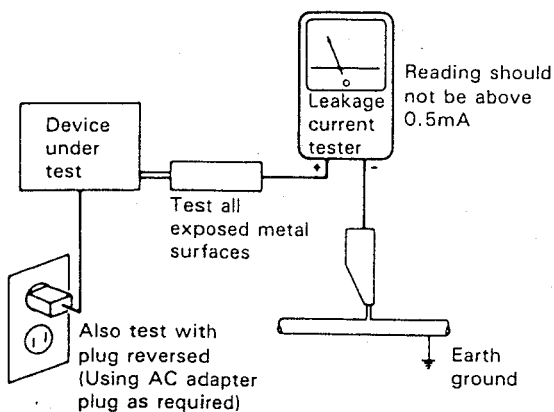
(FOR USA MODEL ONLY)

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 Δ on the schematics and on the parts list in this Service Manual.

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

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

2. EXPLODED VIEWS AND PARTS LIST

NOTES:

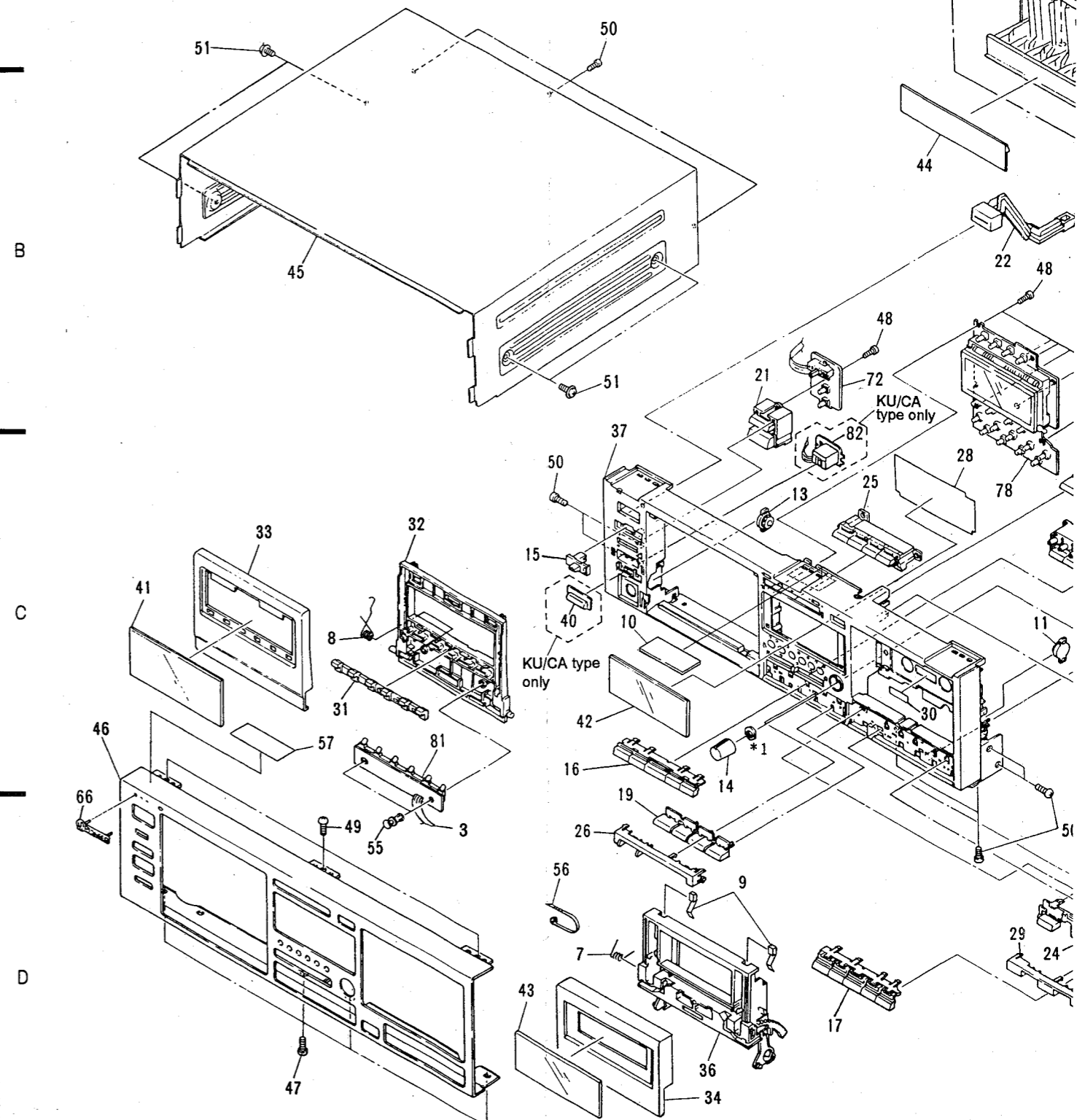
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "©"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

2.1 EXTERIOR

Parts List

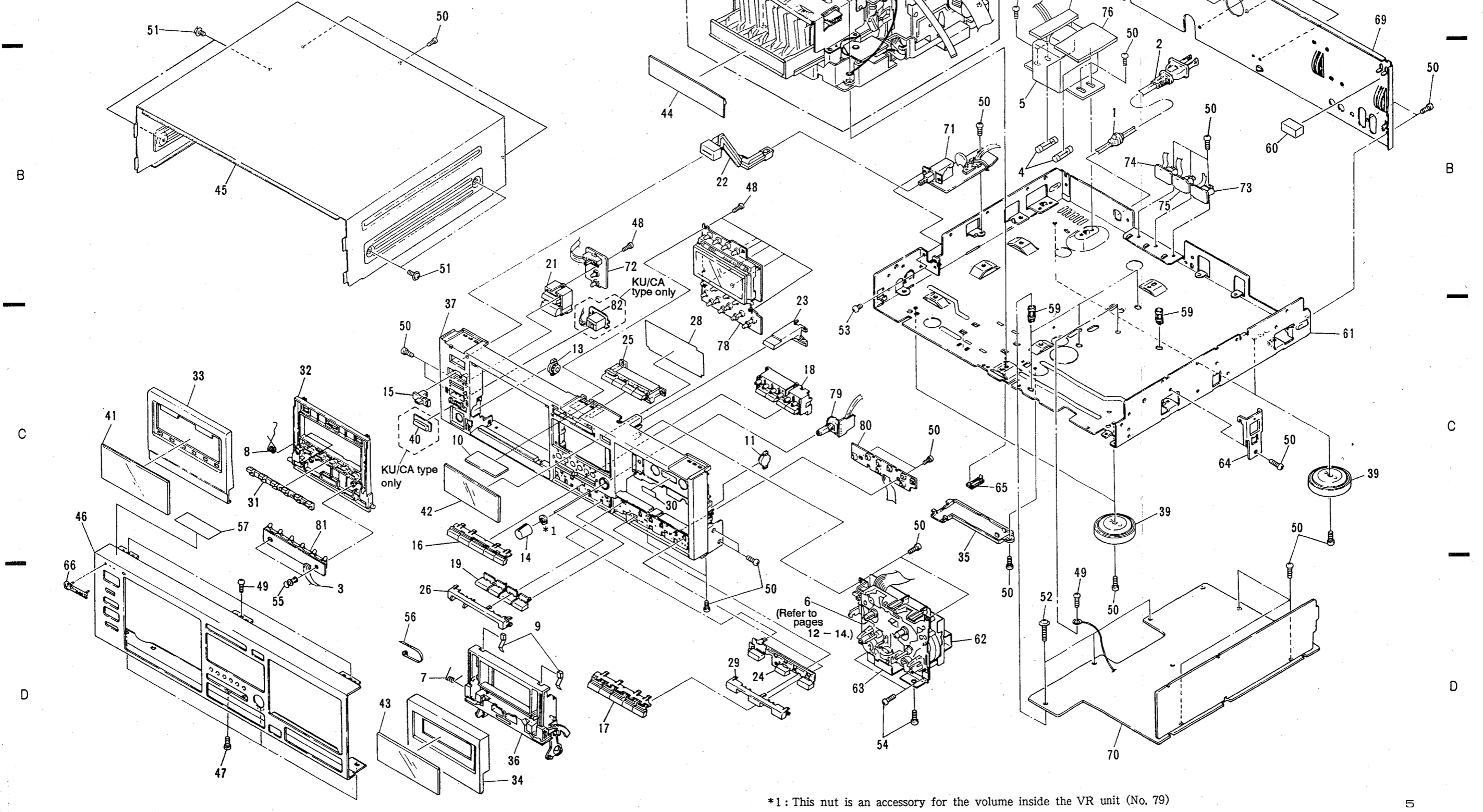
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
Δ	1	Strain relief (KU/CA type)	CM-22C	36	Door pocket	RNT1013	
Δ	1	Strain relief (SD type)	CM-22B	37	Panel stay	RNT1098	
Δ	2	AC power cord (KU/CA type)	PDG1015	38	.....	
Δ	2	AC power cord (SD type)	PDG1013	39	Insulator	PNW1912	
Δ	3	SUMI card 7P	RDD1246	40	Sensor acryl (KU/CA type only)	VNK1566	
Δ	4	FU501, FU502 Fuse (UL1.5A) (KU/CA type)	DEK1014	41	Door lens (1)	RAH1783	
Δ	4	FU501, FU502 Fuse (1.6A) (SD type)	REK-102	42	FL lens	RAH1786	
Δ	5	Power transformer (KU/CA type)	RTT1231	43	Door lens (2)	RAH2024	
Δ	5	Power transformer (SD type)	RTT1232	44	Tray plate	RNK1694	
©	6	Mechanism unit (DECK II)	RYM1197	45	Bonnet	RXX1516	
	7	Door spring (L)	RBH1203	46	Front panel (KU/CA type)	RAH2272	
	8	Door coil spring (1)	RBH1317	46	Front panel (SD type)	RAH2273	
	9	Half pressure spring	RBK1004	47	Screw	BBT30P080FZK	
	10	Cushion (CR sponge)	REB1168	48	Screw	BBZ26P080FZK	
	11	Damper assembly	REC1013	49	Screw	BBZ30P060FZK	
	12	Cord clamper	RNH-184	50	Screw	BBZ30P080FMC	
	13	Damper assembly	VXA1153	51	Screw	FBT40P080FZK	
	14	VR knob (B)	RAC1262	52	Screw	IBZ30P150FCU	
	15	Slide SW knob	RAC1562	53	Screw	PMA30P060FMC	
	16	Operation button (1)	RAC1819	54	Screw	BCZ26P050FMC	
	17	Operation button (2)	RAC1820	55	Nylon rivet	RBM-003	
	18	Tact button (B)	RAC1594	56	Binder	REC-371	
	19	REC button (1)	RAC1595	57	Caution seal	RRW1069	
	20		NSP	58	Loading unit	RXA1540
	21	Tact button (C)	RAC1598	NSP	59	PCB spacer	PNY-404
	22	Power button	RAC1600	NSP	60	Spacer	REB1194
	23	Eject knob	RAC1692	NSP	61	Main chassis	RNB1073
	24	Copy button	RAC1694	NSP	62	Mechanism shield plate	RNE1306
	25	Tact button (A)	RAC1818	NSP	63	Mechanism bracket	RNE1510
	26	REC mold (1)	RAH1784	NSP	64	PCB holder	RNE1511
	27		NSP	65	Lead holder	RNK1563
	28	FL filter	RAH1788	66	Name plate	VAM1032	
	29	Copy mold	RAH2023	67	.....	
	30	Remain display paper	REE-113	68	.....	
	31	LED lens	RNK1700	NSP	69	Rear panel (KU/CA type)	RNA1716
	32	Door (1)	RNK1701	NSP	69	Rear panel (SD type)	RNA1717
	33	Door cover (1)	RNK1900	70	Main unit (KU/CA type)	RWZ2893	
	34	Door cover (2)	RNK1901	70	Main unit (SD type)	RWZ3013	
	35	Lead cover	RNK1835				

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	71	Power switch unit (KU/CA type)	RWZ2894	NSP	77	Power primary unit (KU/CA type)	RWZ2900
NSP	71	Power switch unit (SD type)	RWZ3014	NSP	77	Power primary unit (SD type)	RWZ3016
NSP	72	F-PANEL unit	RWZ2895	78	SUB 1 unit	RWZ2939	
NSP	73	Regulator (A) unit	RWZ2896	NSP	79	VR unit	RWZ2961
NSP	74	Regulator (B) unit	RWZ2897	NSP	80	SUB 2 unit	RWZ2962
A NSP	75	Regulator (C) unit	RWZ2898	NSP	81	Door IND. unit	RWZ2963
NSP	76	Power secondly unit (KU/CA type)	RWZ2899	NSP	82	Remote control reception unit (KU/CA type only)	RWZ3018
NSP	76	Power secondly unit (SD type)	RWZ3015	83	Line voltage selector (SD type only)	PSB1002	



Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	71	Power switch unit (KU/CA type)	RWZ2894	NSP	77	Power primary unit (KU/CA type)	RWZ2900
NSP	71	Power switch unit (SD type)	RWZ3014	NSP	77	Power primary unit (SD type)	RWZ3016
NSP	72	F - PANEL unit	RWZ2895	NSP	78	SUB 1 unit	RWZ2939
NSP	73	Regulator (A) unit	RWZ2896	NSP	79	VR unit	RWZ2961
NSP	74	Regulator (B) unit	RWZ2897	NSP	80	SUB 2 unit	RWZ2962
NSP	75	Regulator (C) unit	RWZ2898	NSP	81	Door IND. unit	RWZ2963
NSP	76	Power secondly unit (KU/CA type)	RWZ2899	NSP	82	Remote control reception unit (KU/CA type only)	RWZ3018
NSP	76	Power secondly unit (SD type)	RWZ3015	NSP	83	Line voltage selector (SD type only)	PSB1002

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



*1: This nut is an accessory for the volume inside the VR unit (No. 79)

be sure

no.

FZK
FZK
FZK
FMC

FZK
FCU
DFMC
FMC

3

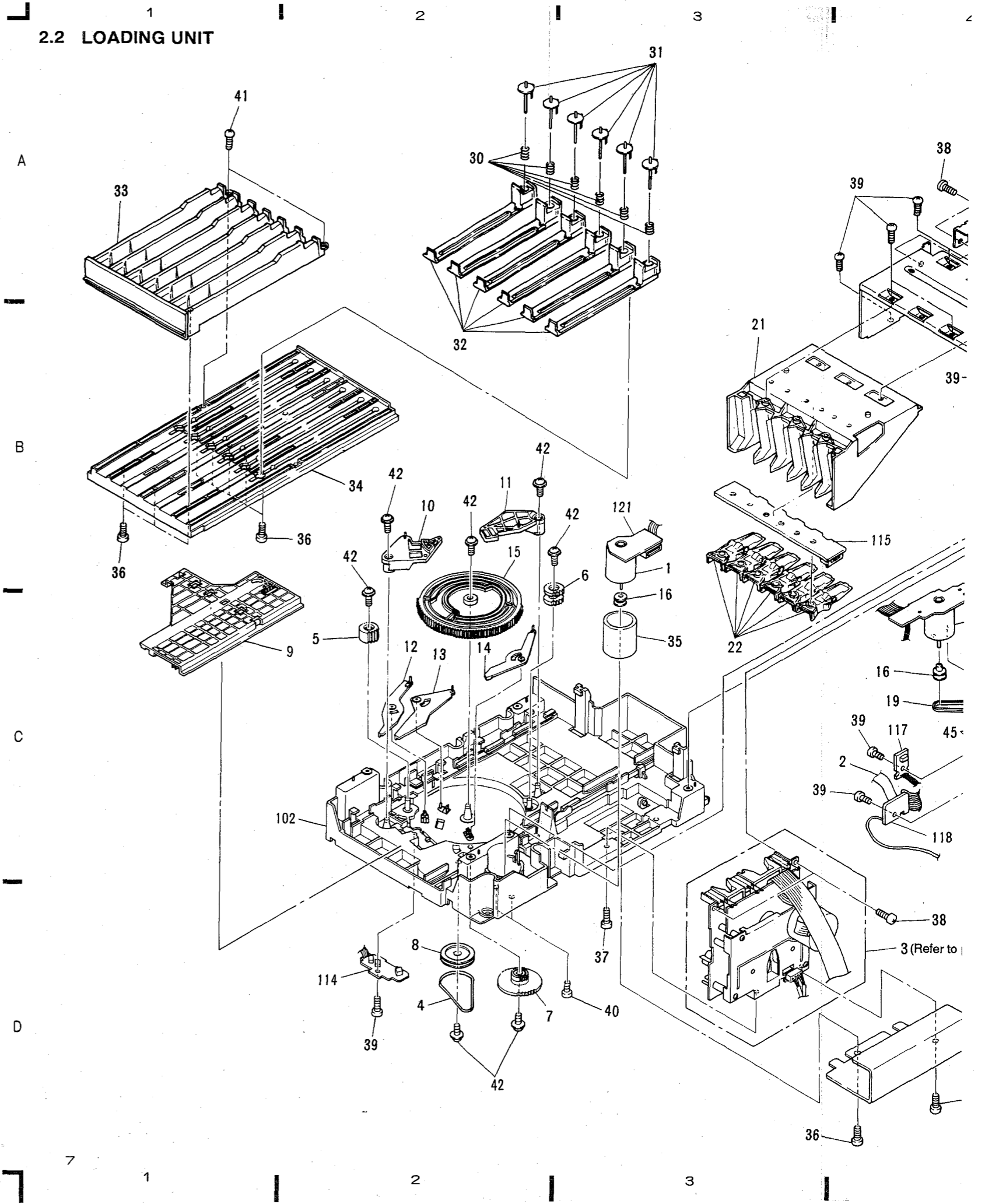
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2.2 LOADING UNIT

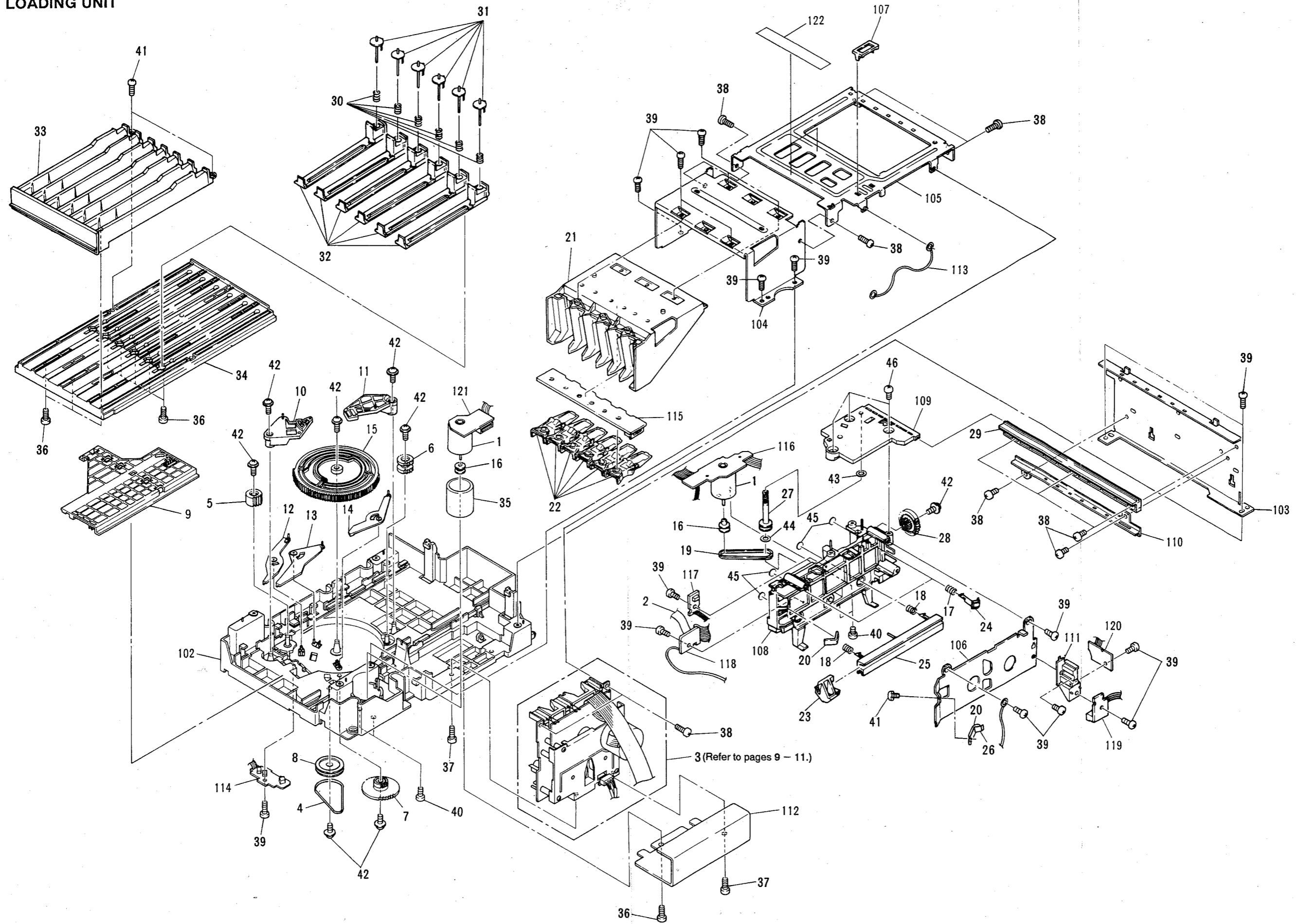
2.2 LOADING UNIT

Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Motor 1.32W	PXM1011	101	.....
2	Lead card 9P	RDD1251	NSP 102	Bottom chassis	RNK1782
3	Mechanism unit (DECK I)	RYM1195	NSP 103	Rear chassis	RNE1485
4	O/C belt	REB1183	NSP 104	Front chassis	RNE1486
5	Drive gear (A)	RNK1774	NSP 105	Upper chassis	RNE1524
6	Drive gear (B)	RNK1775	NSP 106	Carrier plate	RNE1488
7	Drive gear (C)	RNK1776	NSP 107	Lead holder	RNK1563
8	Pully gear	RNK1777	NSP 108	Carrier	RNK1786
9	Drive plate	RNK1781	NSP 109	Worm cover	RNK1787
10	Cam lever (A)	RNK1784	NSP 110	Sensing plate	RNK1793
11	Cam lever (B)	RNK1785	NSP 111	PCB holder	RNK1794
12	Switch lever (A)	RNK1788	NSP 112	Mechanism shield plate	RNE1306
13	Switch lever (B)	RNK1789	NSP 113	Earth lead unit	XDF-504
14	Switch lever (C)	RNK1790	NSP 114	Tray SW unit	RWZ2493
15	Cam gear	RNK1792	NSP 115	Upper unit	RWZ2494
16	Motor pulley	PNW1634	NSP 116	CA motor unit	RWZ2495
17	Cassette pressure spring	RBH1247	NSP 117	Loading SW unit	RWZ2496
18	Cassette pressure spring 2	RBH1256	NSP 118	Relay unit	RWZ2497
19	Drive belt	REB1184	NSP 119	Cassette holder unit	RWZ2498
20	Carrier felt	RED1024	NSP 120	Carrier detect unit	RWZ2499
21	Upper holder	RNK1558	NSP 121	Tray motor unit	RWZ2500
22	Cassette arm	RNK1560	NSP 122	Condenser sheet	VEX1023
23	Selector	RNK1578			
24	Cassette pressure (A)	RNK1579			
25	Cassette pressure (B)	RNK1580			
26	Cassette hold spring	RNK1773			
27	Worm pulley	RNK1778			
28	Loading gear	RNK1779			
29	Rack base	RNK1780			
30	Stopper pin spring	RBH1246			
31	Stopper pin	RNK1771			
32	Cassette holder	RNK1772			
33	Tray	RNK1783			
34	Tray base	RNK1791			
35	Shield band	RNE1373			
36	Screw	BBZ26P080FZK			
37	Screw	BBZ26P120FZK			
38	Screw	BBZ30P060FZK			
39	Screw	BBZ30P080FMC			
40	Screw	PMZ30P040FMC			
41	Screw	BPZ20P060FMC			
42	Screw	IPZ26P080FMC			
43	Washer	WA32D060D050			
44	Washer	WA42D080D050			
45	Washer	WT21D050D050			
46	Screw	IBZ30P120FCC			



2.2 LOADING UNIT



2.3 MECHANISM UNIT (DECK I)

Parts List

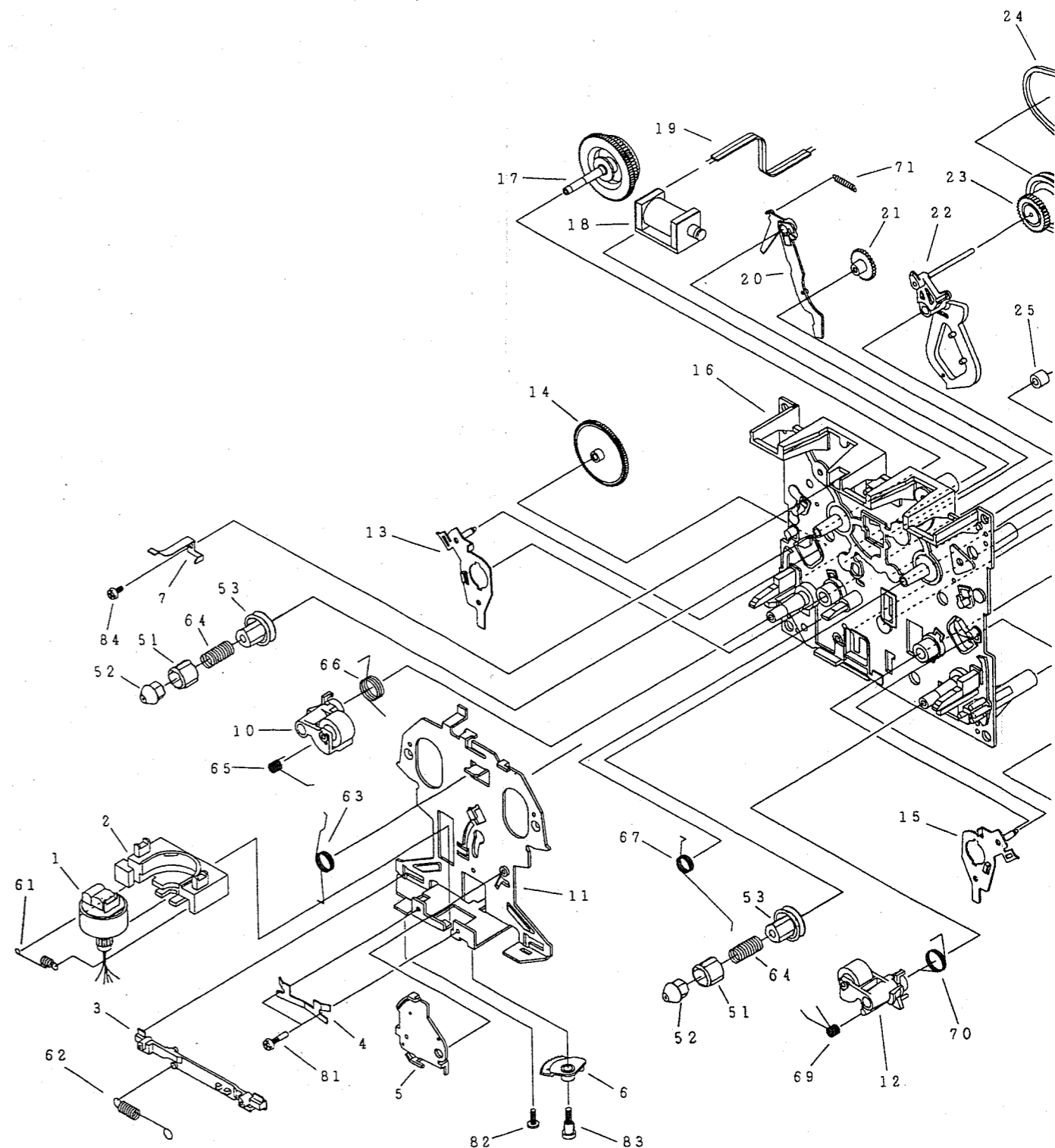
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Holder head assembly	RXA1477		53	Pulley reel	RNK1824
	2	Flame head	RNK1715		61	Spring	RBH1282
	3	Lever head	RNK1716		62	Spring	RBH1283
	4	Azimuth spring	RBK1006		63	Spring	RBH1284
	5	Arm assist assembly	RXA1401		64	Spring	RBH1324
	6	Gear arm head	RNK1717		65	Spring	RBH1288
	7	Spring cassette	RBK1046		66	Spring	RBH1291
	8	.....			67	Spring	RBH1285
	9	.....			68	.....
	10	Pinch arm L assembly	RXA1403		69	Spring	RBH1289
	11	Chassis head	RNE1437		70	Spring	RBH1290
	12	Pinch arm R assembly	RXA1404		71	Spring	RBH1292
	13	Arm play L	RNK1866		72	Spring (FWR)	RBH1061
	14	Gear play	RNK1867		73	Spring	RBH1325
	15	Arm play R	RNK1868				
	16	Chassis OS.	RXA1411		81	Screw (For azimuth)	RBA1023
	17	Sub reel L assembly	RXA1491		82	Screw	RBA1027
△	18	Solenoid	RXP1020		83	Screw	RBA1030
	19	Wire	RDC1006		84	Screw	PCZ20P040FMC
	20	Arm RVS	RNK1721		85	Screw	RBA1093
	21	Gear FF	RNK1723		86	Screw	RBA1094
	22	Arm FR assembly	RXA1412		87	Screw	RBA1100
	23	Pulley FR assembly	RXA1413		88	.....
	24	Belt FR	REB1158		89	Washer	RBF1046
	25	Metal (Shaft holder)	RNG1048		90	Washer	WA26D047D013
	26	Flywheel L assembly	RXA1423				
	27	Metal (Shaft holder)	RNG1005				
	28	Arm brake	RNK1724				
	29	Sub reel R assembly	RXA1408				
	30	Arm trigger	RNK1722				
	31	Gear cam	RNK1725				
	32	Metal (Shaft holder)	RNG1049				
	33	Flywheel R assembly	RXA1424				
	34	Metal (Shaft holder)	RNG1004				
	35	Wire (15P)	RDD1250				
NSP	36	Holder wire	RNK1683				
	37	P.C. board	RNP1435				
	38	Switch mode	RSN1022				
	39	Switch (leaf)	RSN1019				
	40	Hall IC.	DN6851A				
	41	Bracket FW	RNE1438				
	42	Spacer	RNK1822				
	43	Motor assembly	RXM1062				
NSP	44	Wire	RDD1012				
	45	Belt main	REB1159				
	46	P.C. board	RNP1348				
	47	Housing	RKP1397				
	48	.....				
	49	.....				
	50	Wire head	RKP1502				
	51	Reel (A)	RNK1825				
	52	Reel (B)	RNK1826				

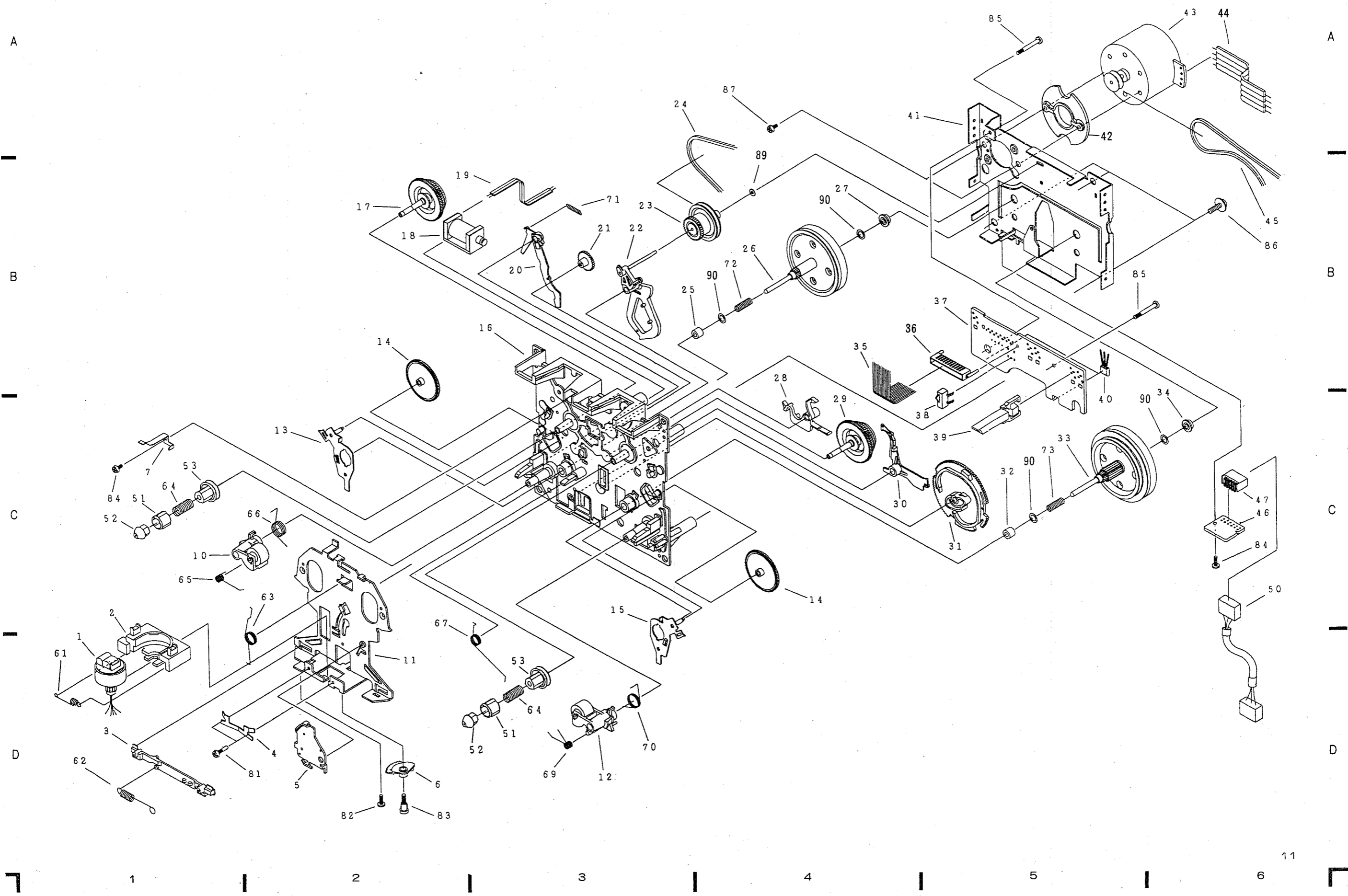
A

B

C

D

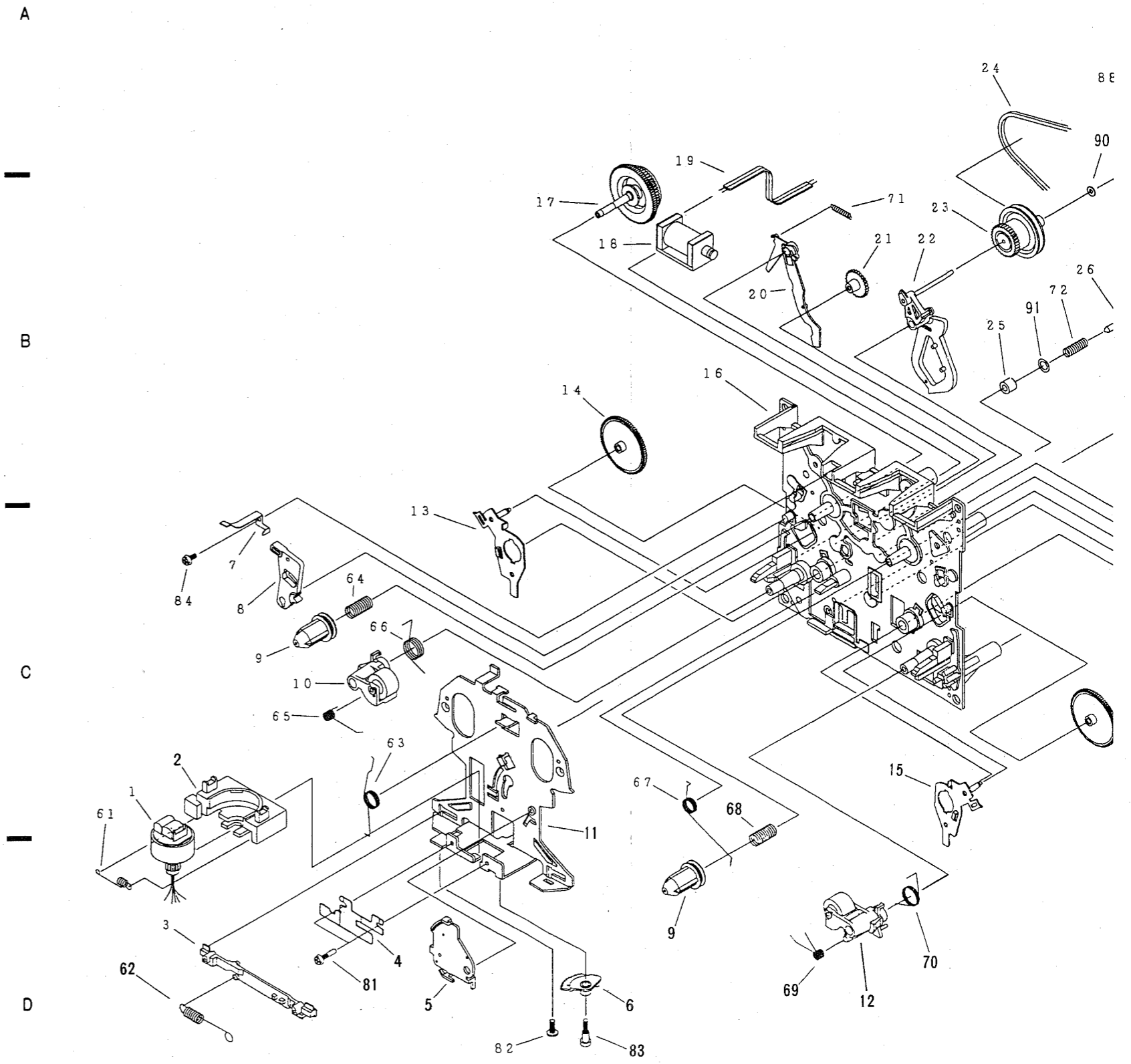




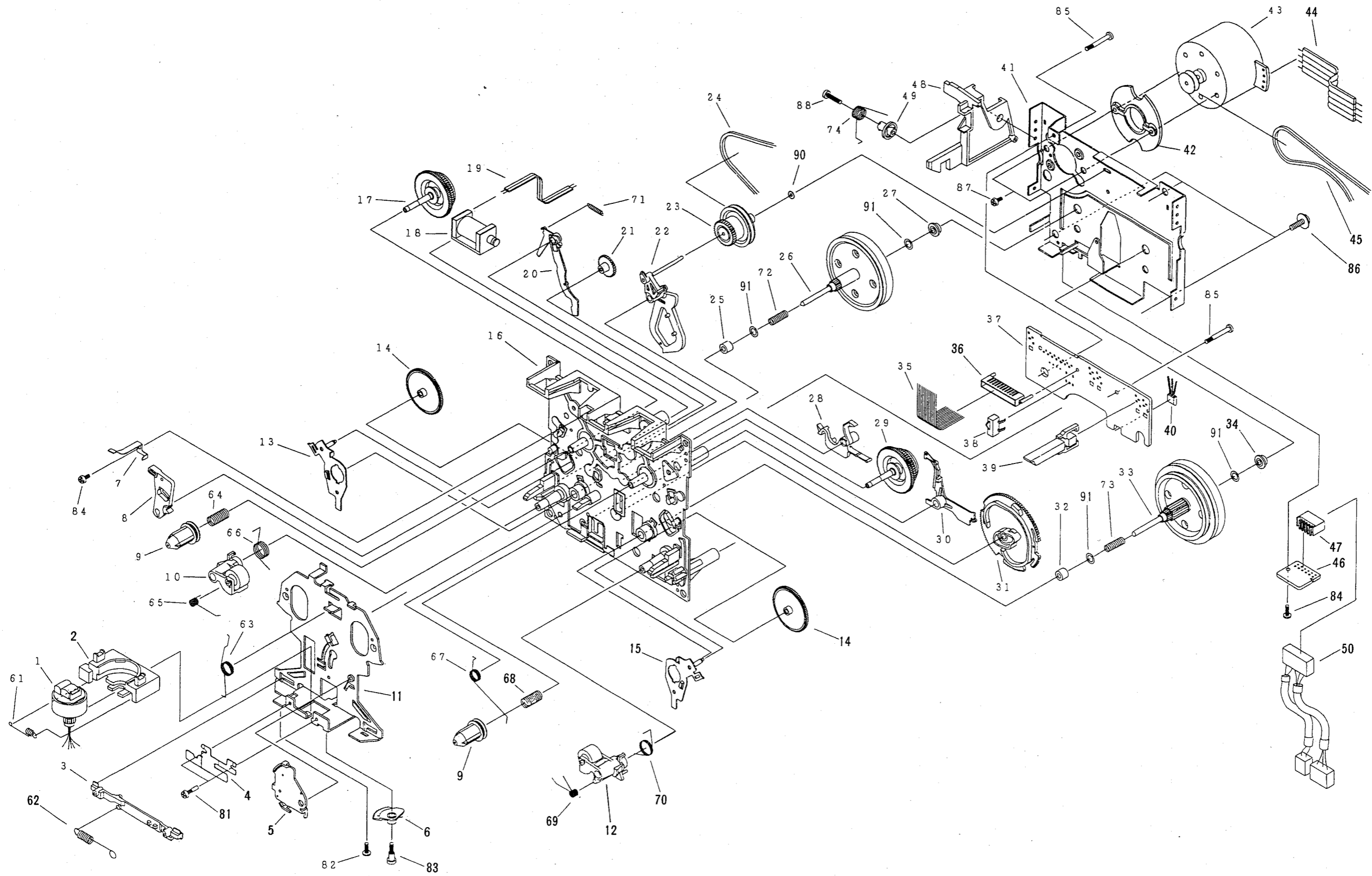
2.4 MECHANISM UNIT (DECK II)

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Holder head assembly	RXA1400		41	Bracket FW.	RNE1438
	2	Flame head	RNK1715		42	Spacer	RNK1822
	3	Lever head	RNK1716		43	Motor assembly	RXM1062
	4	Azimuth spring	RBK1045	NSP	44	Wire	RDD1012
	5	Arm assist assembly	RXA1401		45	Belt main	REB1159
	6	Gear arm head	RNK1717		46	P.C. board	RNP1348
	7	Spring cassette	RBK1039		47	Housing	RKP1396
	8	Eject lock	RNK1718		48	Eject lever L	RNK1702
	9	Cap reel	RNK1719		49	Collar	RNK1704
	10	Pinch arm L assembly	RXA1403		50	Wire head	RKP1499
	11	Chassis head	RNE1437		61	Spring	RBH1282
	12	Pinch arm R assembly	RXA1404		62	Spring	RBH1283
	13	Arm play L	RNK1866		63	Spring	RBH1284
	14	Gear play	RNK1867		64	Spring	RBH1286
	15	Arm play R	RNK1868		65	Spring	RBH1288
	16	Chassis OS.	RXA1411		66	Spring	RBH1291
	17	Sub reel L assembly	RXA1407		67	Spring	RBH1285
	18	Solenoid	RXP1020		68	Spring	RBH1287
	19	Wire	RDC1006		69	Spring	RBH1289
	20	Arm RVS	RNK1721		70	Spring	RBH1290
	21	Gear FF	RNK1723		71	Spring	RBH1292
	22	Arm FR assembly	RXA1412		72	Spring (FWR)	RBH1061
	23	Pulley FR assembly	RXA1413		73	Spring	RBH1325
	24	Belt FR	REB1158		74	Spring	RBH1294
	25	Metal (Shaft holder)	RNG1048		81	Screw (For azimuth)	RBA1023
	26	Flywheel L assembly	RXA1423		82	Screw	RBA1027
	27	Metal (Shaft holder)	RNG1005		83	Screw	RBA1030
	28	Arm brake	RNK1724		84	Screw	PCZ20P040FMC
	29	Sub reel R assembly	RXA1408		85	Screw	RBA1093
	30	Arm trigger	RNK1722		86	Screw	RBA1094
	31	Gear cam	RNK1725		87	Screw	RBA1100
	32	Metal (Shaft holder)	RNG1049		88	Screw	RBA1095
	33	Flywheel R assembly	RXA1424		89	.....
	34	Metal (Shaft holder)	RNG1004		90	Washer	RBF1046
	35	Wire (12P)	RDD1249		91	Washer	WA26D047D013
NSP	36	Holder wire	RNK1683				
	37	P.C. board	RNP1436				
	38	Switch mode	RSN1022				
	39	Switch (leaf)	RSN1019				
	40	Hall IC.	DN6851A				

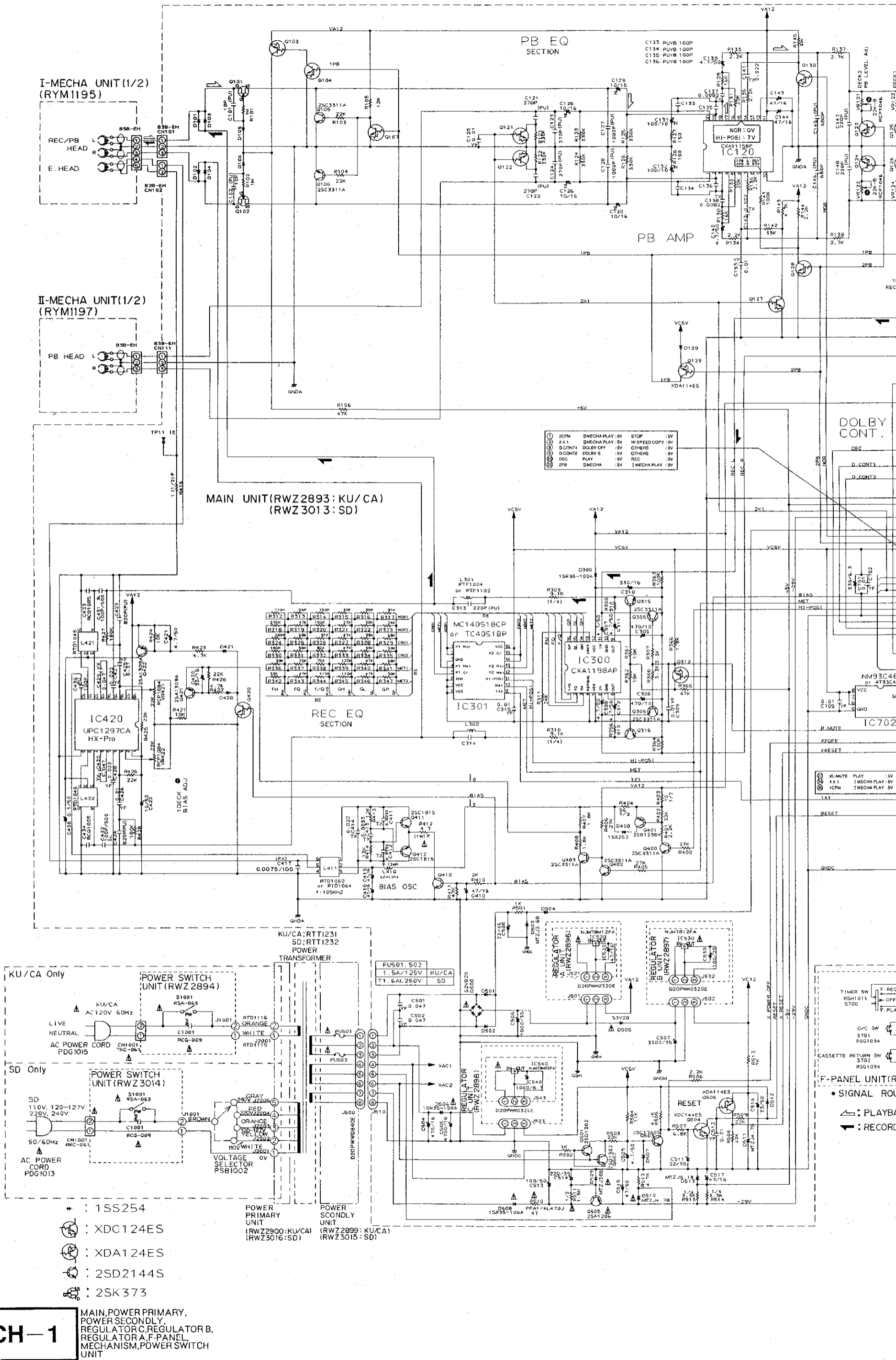


Mechanism Unit (Deck II)



3. SCHEMATIC DIAGRAM

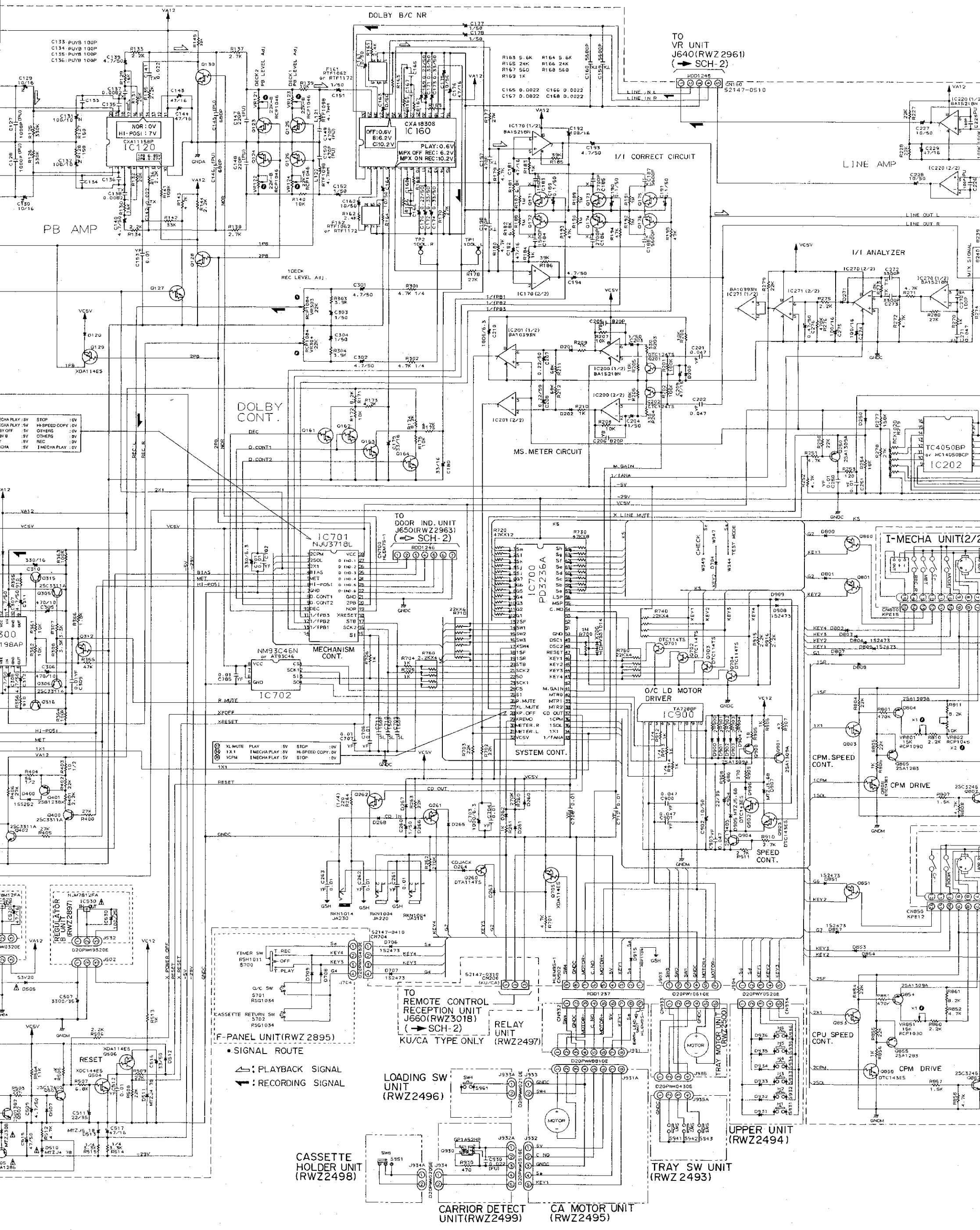
1. MAIN, POWER PRIMARY, POWER SECONDLY, REGULATOR C, REGULATOR B, REGULATOR A, F-PANEL, MECHANISM AND



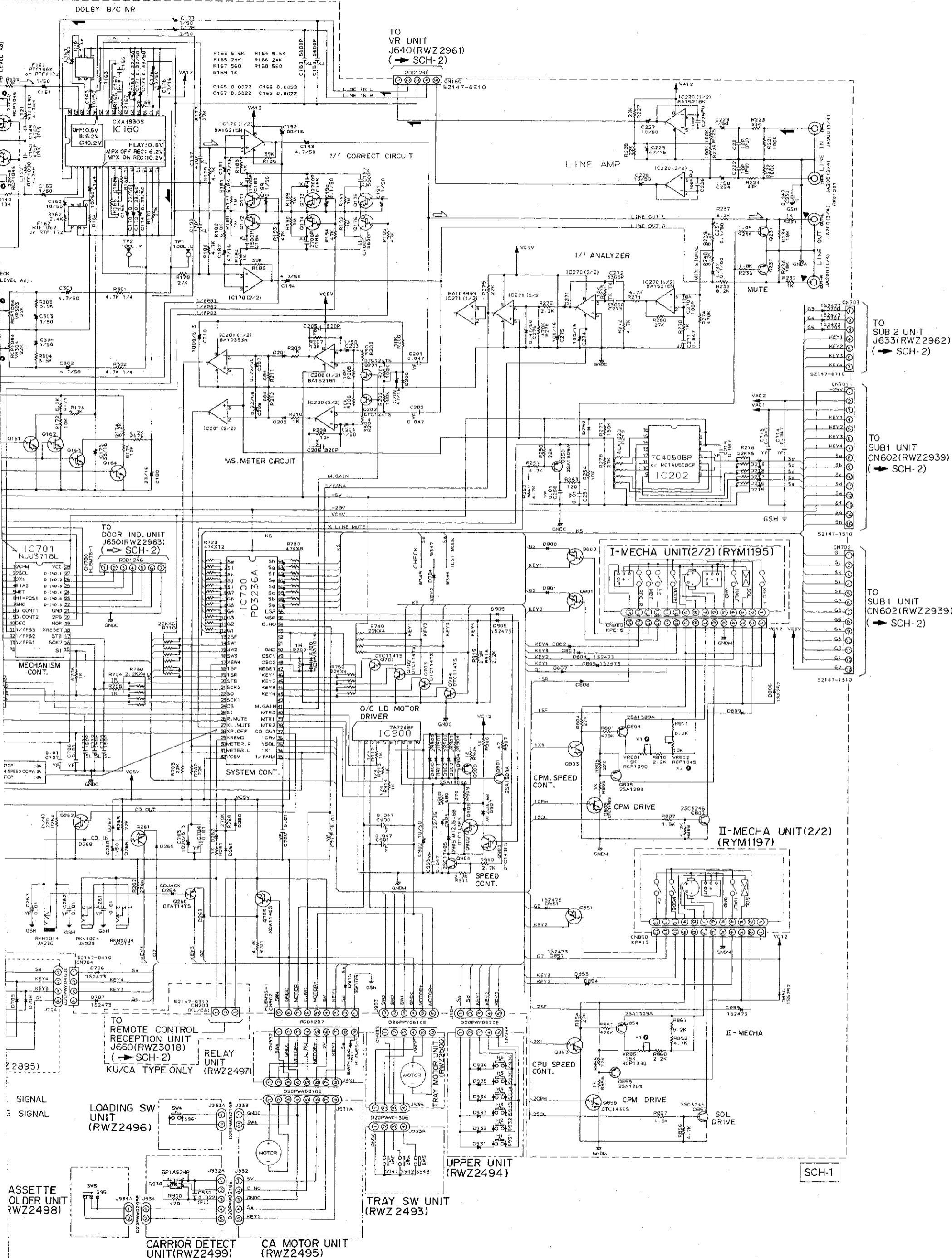
SCH-1

MAIN, POWER PRIMARY,
POWER SECONDLY,
REGULATOR C, REGULATOR B,
REGULATOR A, F-PANEL,
MECHANISM, POWER SWITCH
UNIT

REGULATOR A, F-PANEL, MECHANISM AND POWER SWITCH UNIT



POWER SWITCH UNIT

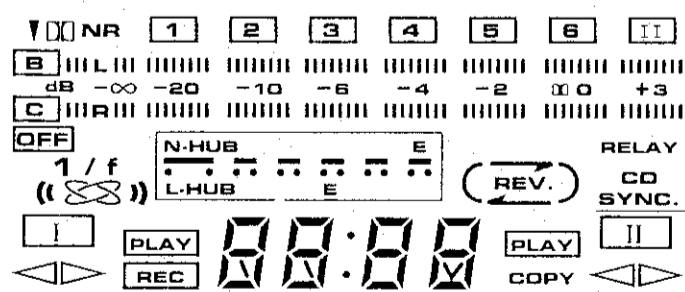
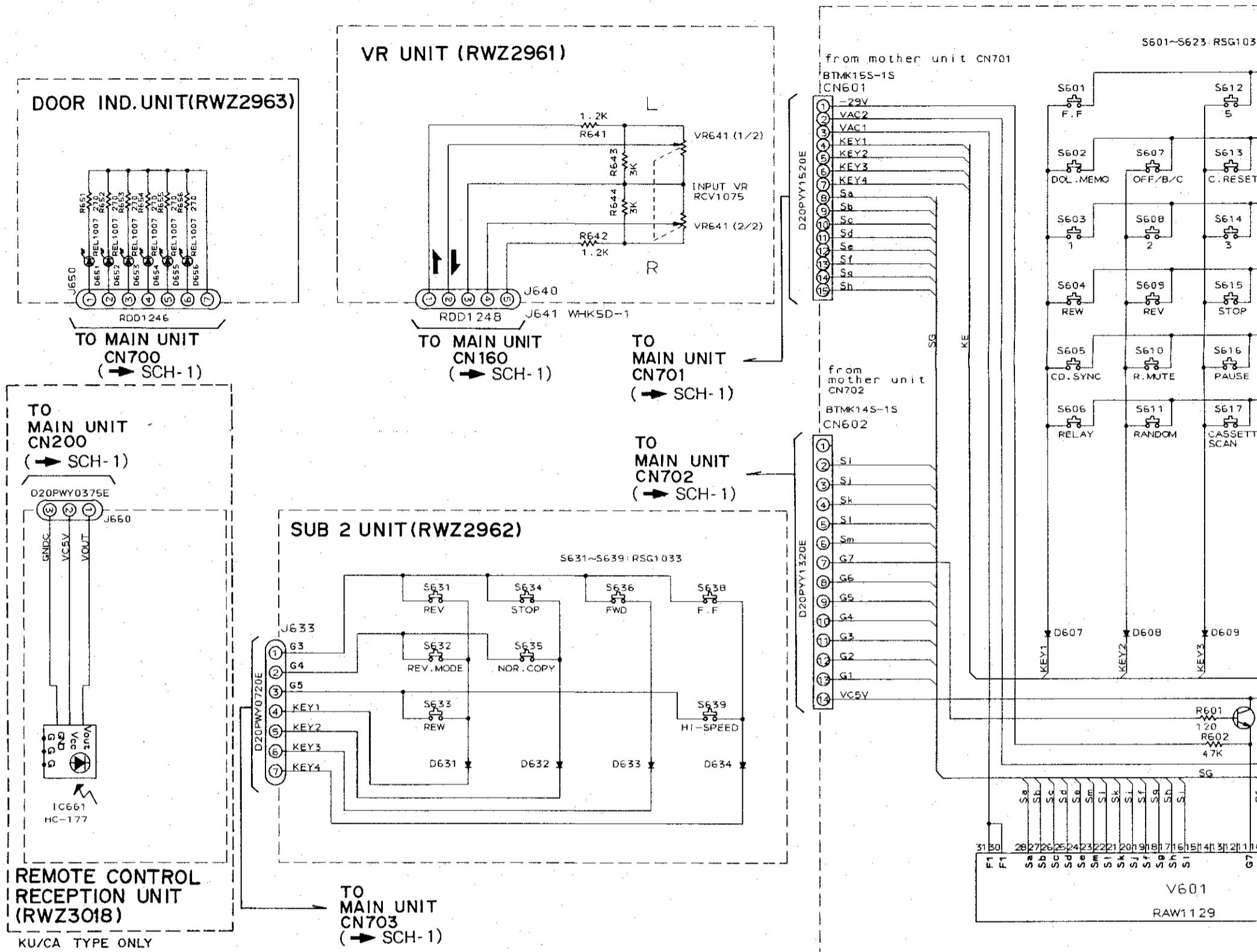


MAIN POWER PRIMARY,
 POWER SECONDLY,
 REGULATOR C, REGULATOR B,
 REGULATOR A, F-PANEL,
 MECHANISM, POWER SWITCH
 UNIT

SCH-1

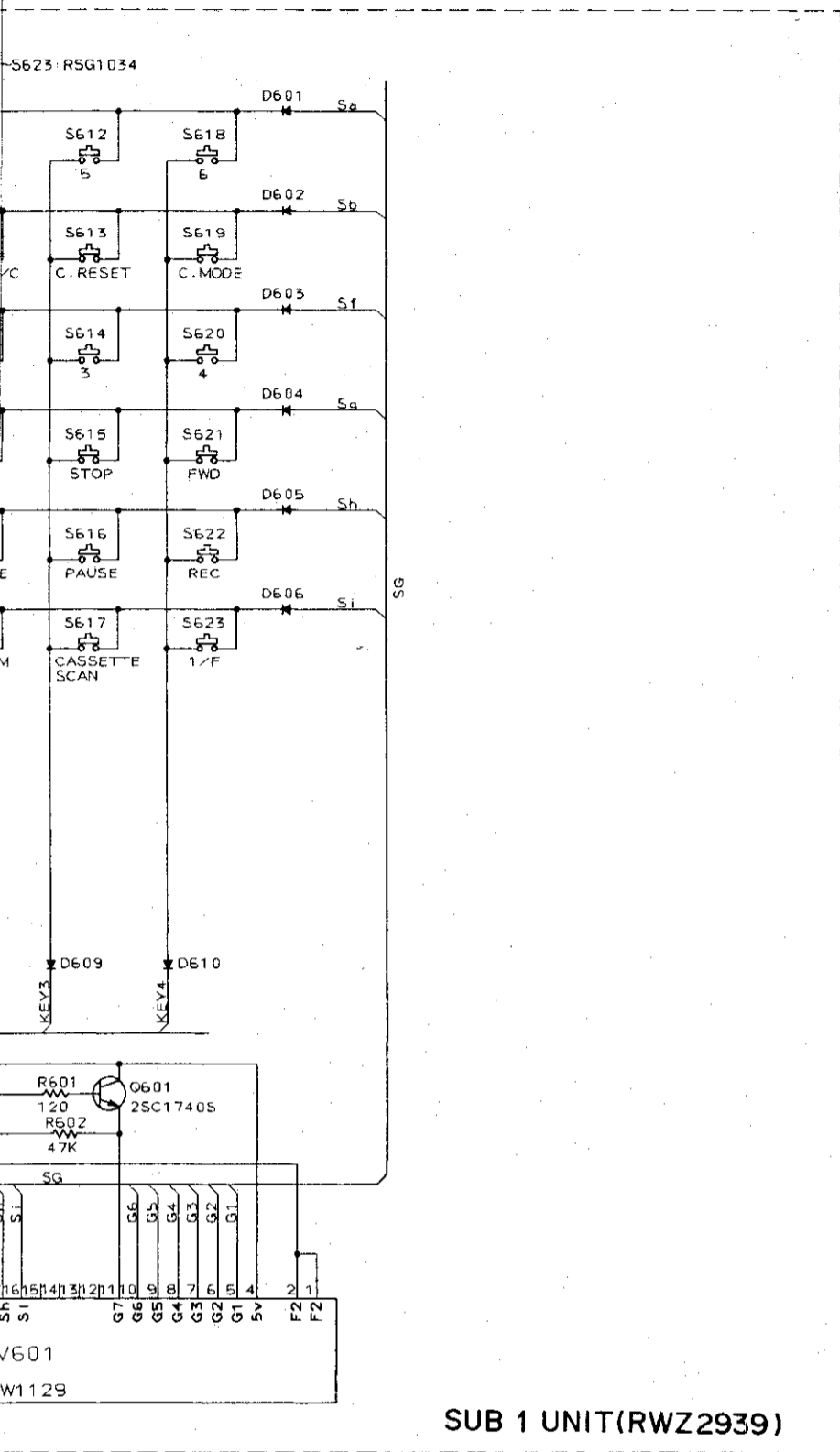
A
 B
 C
 D
 E
 F

2. SUB 1, SUB 2, VR, DOOR IND. AND REMOTE CONTROL RECEPTION UNIT



	7G	6G	5G	4G	3G	2G	1G
P1	1	2	3	4	5	6	7
P2	B1	B2	B3	B4	B5	B6	B7
P3	-20	-10	-6	-4	-2	0	+3
P4	B8	B9	B10	B11	B12	B13	B14
P5	S7	B18	B17	B16	B15	(REV.)	-
P6	(OFF)	B19	h	h	col	h	-
P7	1/f	B20	g	g	g	g	RELAY
P8	OFF	-	f	f	f	f	CD SYNC.
P9	I	-	e	e	e	e	(S)
P10	▷ (S2)	-	d	d	d	d	▷ (S)
P11	◁ (S1)	-	c	c	c	c	◁ (S)
P12	C	PLAY	b	b	b	b	PLAY
P13	B	REC	a	a	a	a	COPY
P14	NR	S9	o	o	o	o	-

SCH-2 SUB 1, SUB 2, VR, DOOR IND. AND REMOTE CONTROL RECEPTION UNIT



SUB 1 UNIT(RWZ2939)

SCH-2

16	(S5)
B7	
+	
B14	
-	
-	
RELAY	
CD SYNC.	
(S6)	
(S4)	
(S3)	
PLAY	
COPY	

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:Ω, 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):**

• SUB 1 UNIT

- S601 : ►► MS (FF : DECK I)
- S602 : MEMORY (DOLBY NR)
- S603 : 1 (CASSETTE NUMBER)
- S604 : MS◄◄ (REW : DECK I)
- S605 : CD SYNCHRO
- S606 : RELAY (DECK I)
- S607 : OFF/B/C (DOLBY NR)
- S608 : 2 (CASSETTE NUMBER)
- S609 : ◄ (REV : DECK I)
- S610 : ○ (REC MUTE : DECK I)
- S611 : RANDOM (DECK I)
- S612 : 5 (CASSETTE NUMBER)
- S613 : RESET (COUNTER)
- S614 : 3 (CASSETTE NUMBER)
- S615 : ■ (STOP : DECK I)
- S616 : || (PAUSE : DECK I)
- S617 : SCAN (DECK I)
- S618 : 6 (CASSETTE NUMBER)
- S619 : MODE (COUNTER)
- S620 : 4 (CASSETTE NUMBER)
- S621 : ► (FWD : DECK I)
- S622 : ● (REC : DECK I)
- S623 : FLEX

• SUB 2 UNIT

- S631 : ◄ (REV : DECK II)
- S632 : ⇄ (REVERSE MODE)
- S633 : MS◄◄ (REW : DECK II)
- S634 : ■ (STOP DECK II)
- S635 : NORMAL (COPY MODE I◄II)
- S636 : ► (FWD : DECK II)
- S638 : ►► MS (FF : DECK II)
- S639 : HI SPEED (COPY MODE I◄II)

• F-PANEL UNIT

- S700 : DECK I TIMER REC - OFF - PLAY
- S701 : OPEN/CLOSE
- S702 : CASSETTE RETURN

• POWER SWITCH UNIT

- S1001 : POWER ON - OFF

9. For SCH - □ on the schematic diagram.

- SCH - □ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)

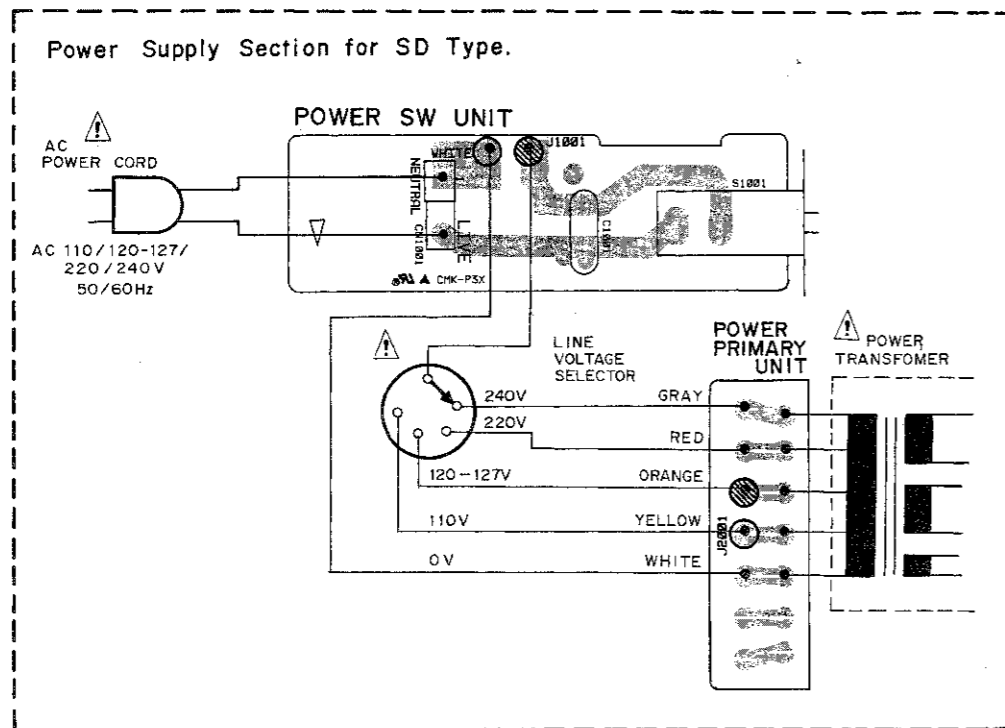
SUB 1, SUB 2, VR, DOOR IND. AND REMOTE CONTROL RECEPTION UNIT

SCH-2

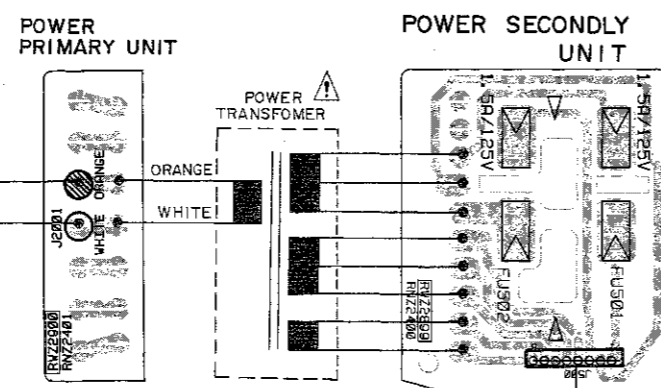
4. PCB CONNECTION DIAGRAM

• View from component side

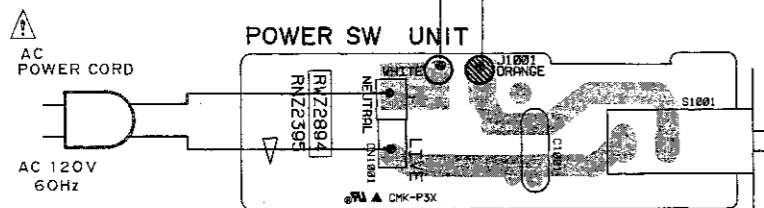
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B

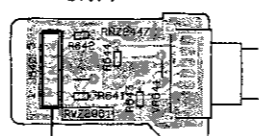


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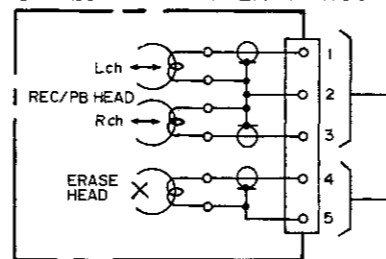


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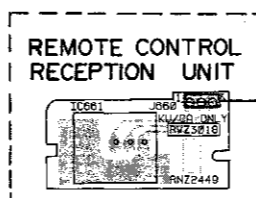
VR UNIT



I-MECHA UNIT(1/2)(RYM1195)



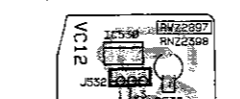
KU/CA TYPE ONLY



REGULATOR A UNIT



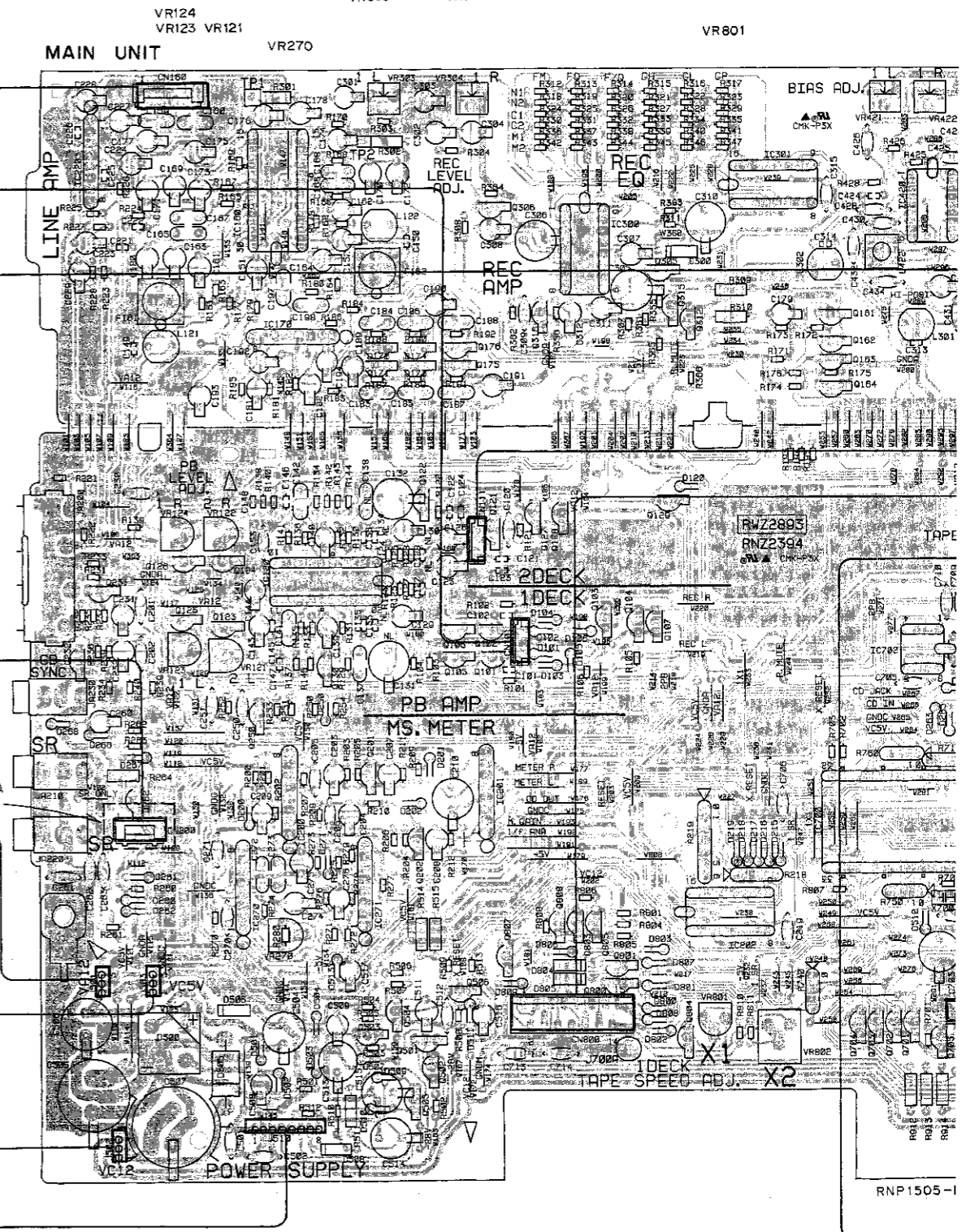
REGULATOR B UNIT



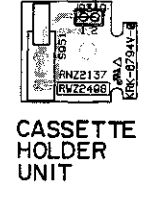
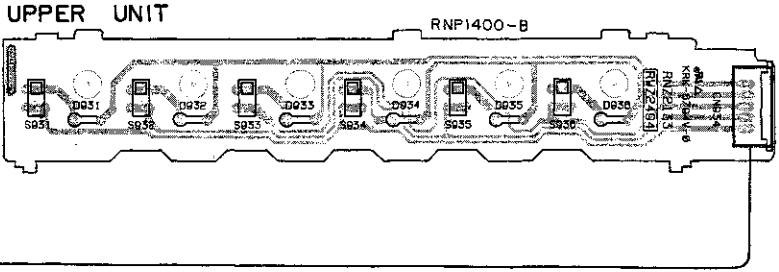
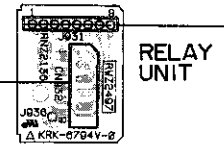
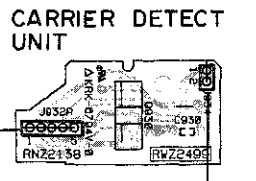
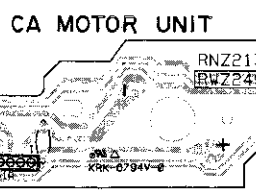
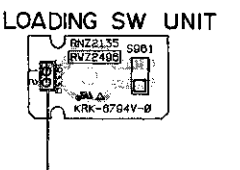
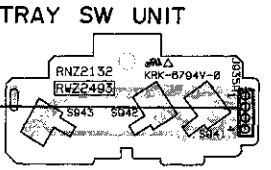
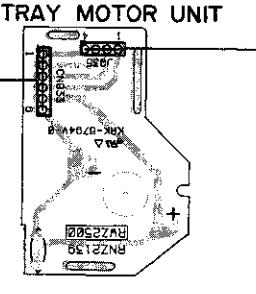
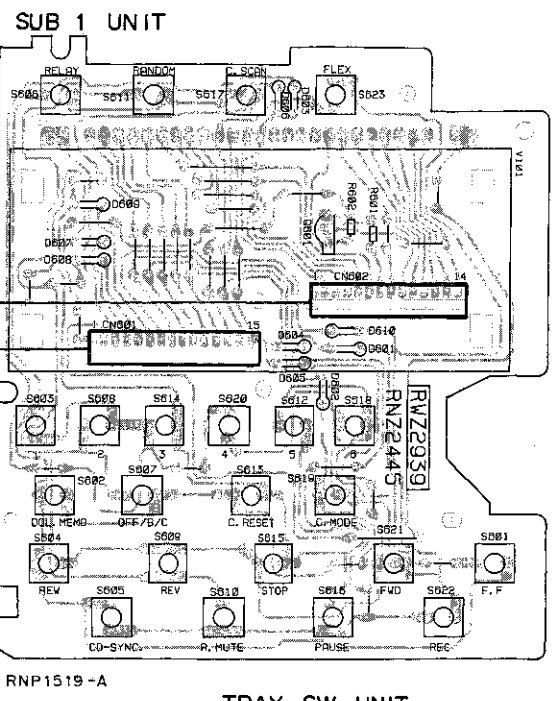
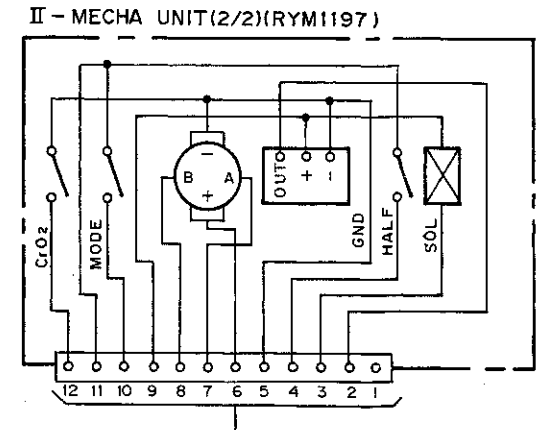
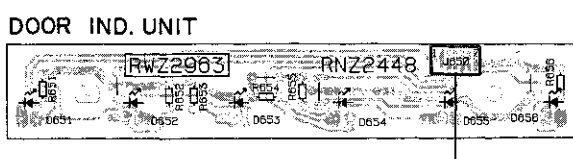
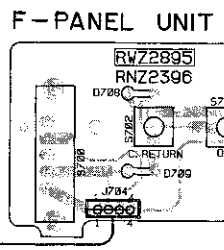
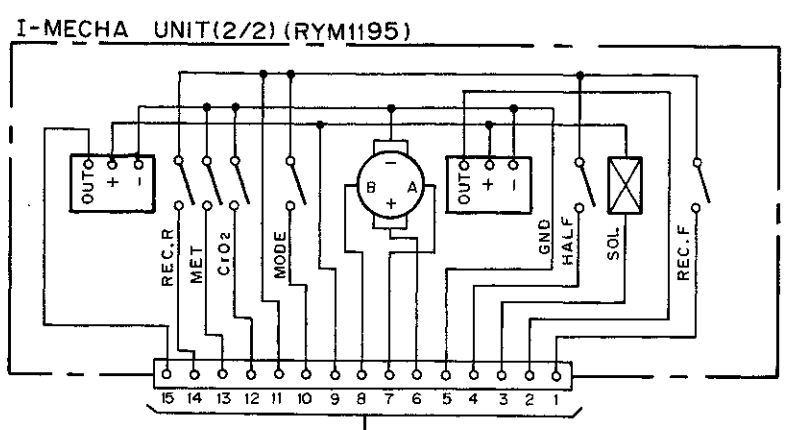
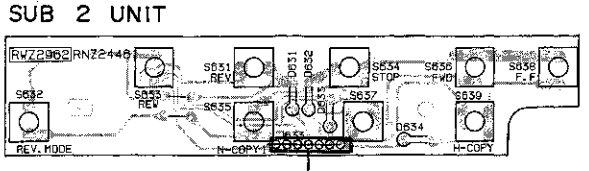
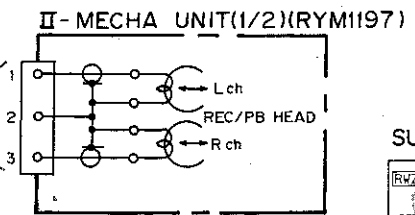
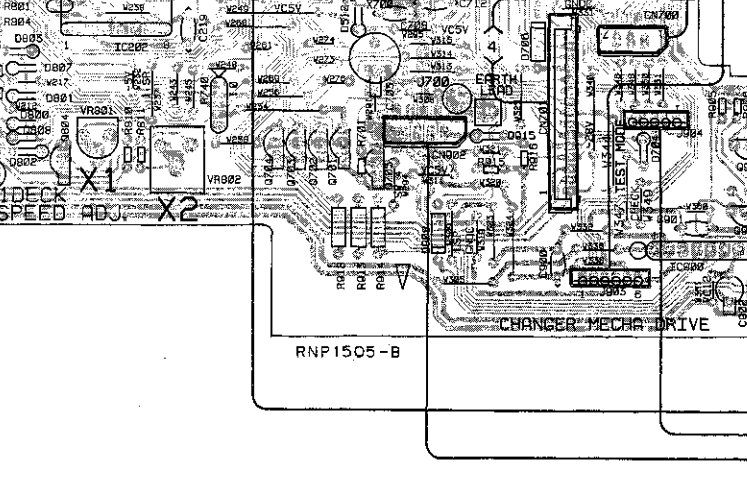
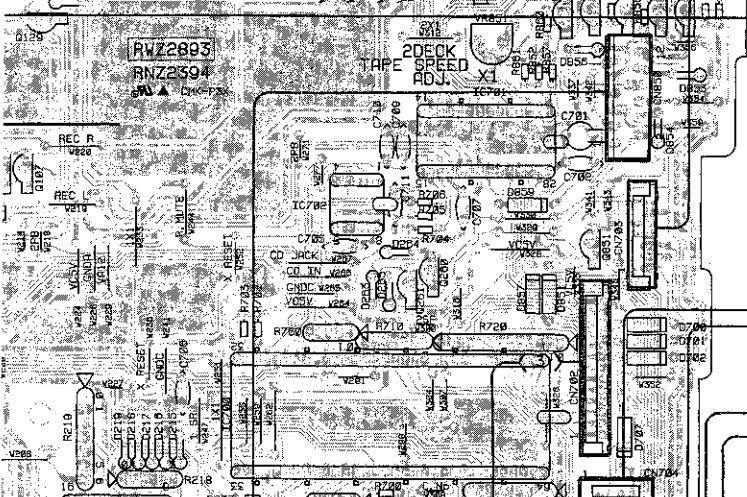
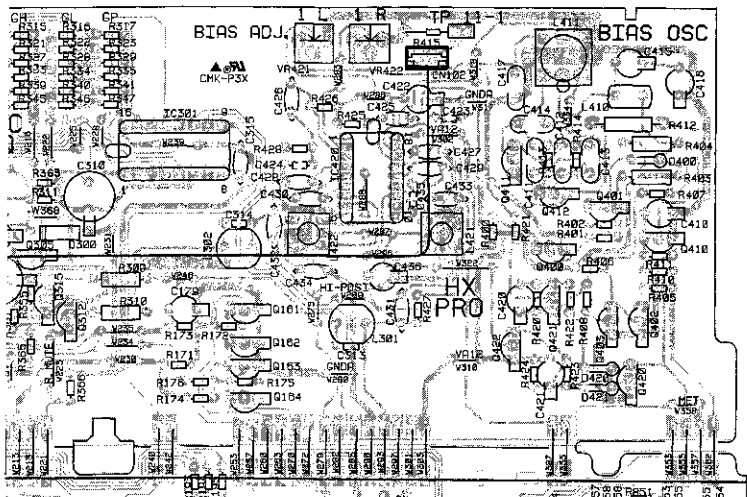
REGULATOR C UNIT



IC250	IC160	Q306	IC300	Q305	IC301	Q161	IC420
Q251	Q126 Q124	IC170 IC120	Q172 Q174 Q176	Q316	Q121 Q127 Q128	Q315 Q312	Q162
Q252	Q125 Q123	Q250 IC200 Q130	Q171 Q173 Q175 IC201	Q103 Q104 Q107	Q803 Q805	Q129	Q163
		IC270	Q201 Q122	Q106 Q102	Q801 Q804		Q164
			Q271 Q504 Q204 Q506 Q105 Q101	Q807	Q808		
			Q503 Q505 Q502				



Q305	IC301	Q161	IC420	Q411	Q412	Q401	Q410
Q315	Q162	IC702	IC701	Q400	Q403	Q402	
Q129	Q163	IC700	Q261	Q260	Q854	Q857	Q858
Q107	Q164	Q855	Q901	Q904			
Q5	IC202	Q704	Q703	Q702	Q701	Q705	Q900
Q1	Q804	VR421	VR422	VR851			Q903
Q0							Q902



P.C.B. element diagram	Corresponding part symbol	Part name
		Transistor
		FET
		Diode
		Zener diode
		LED
		Variable capacitor
		Tact switch
		Inductor
		Coil
		Transformer
		Filter
		Ceramic capacitor
		Mylar capacitor
		Siyol capacitor
		Electrolytic capacitor (Non polarized)
		Electrolytic capacitor (Polarized)
		Electrolytic capacitor (Polarized)
		Power capacitor
		Semi-conductor
		Resistor array
		Resistor
		Resonator
		Thermistor

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring purpose here in the arrow list.
3. The capacitor terminal marked with \ominus shows negative terminal.
4. The diode marked with \ominus shows cathode side.
5. The transistor terminal marked with \ominus shows emitter.

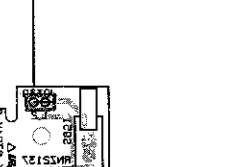
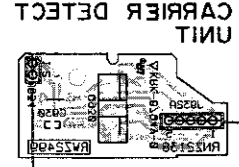
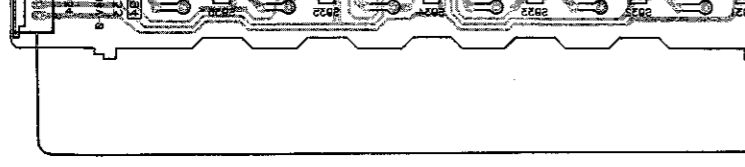
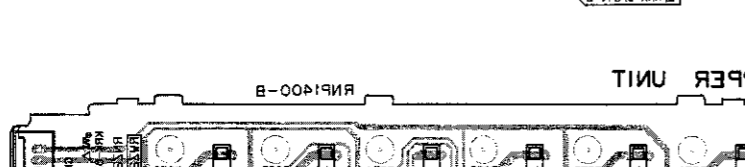
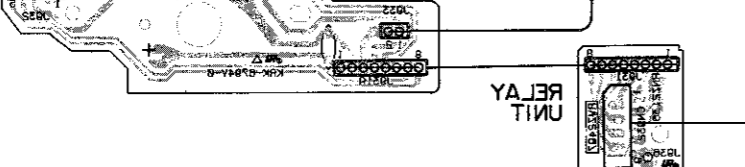
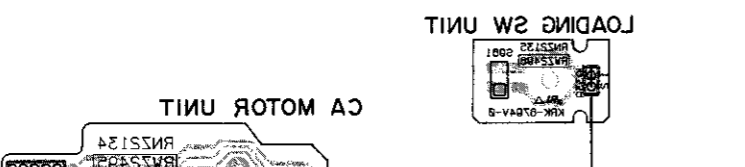
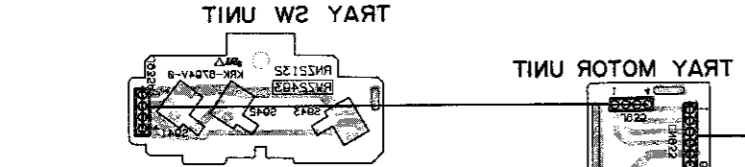
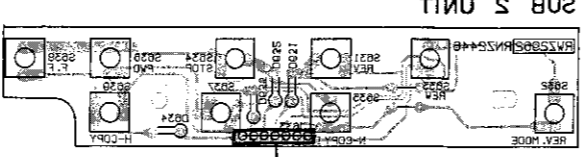
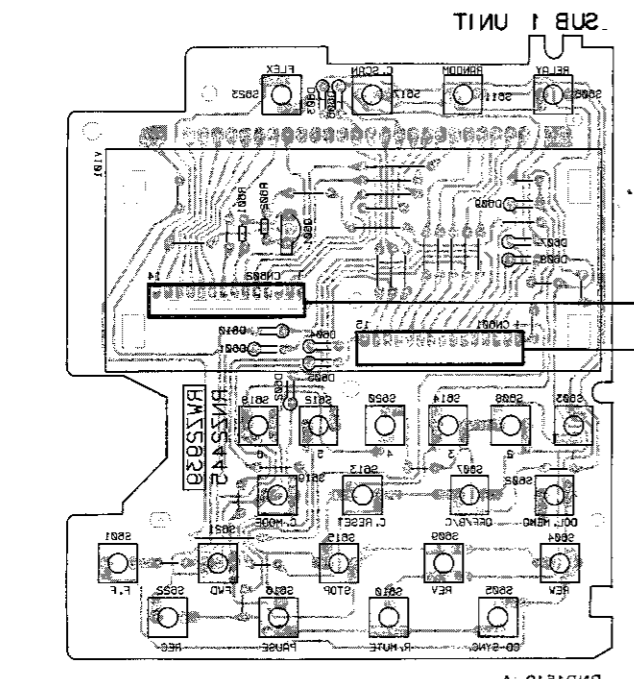
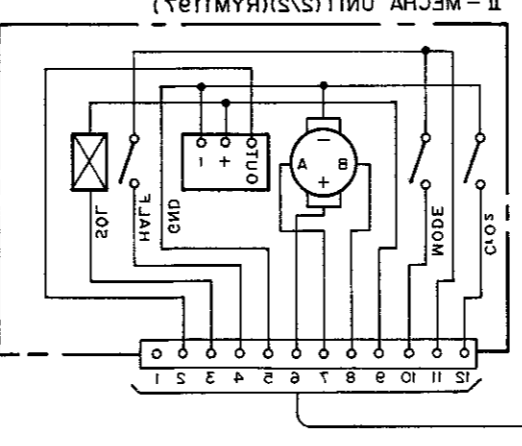
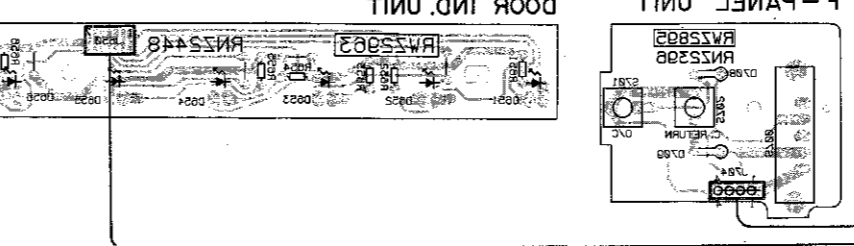
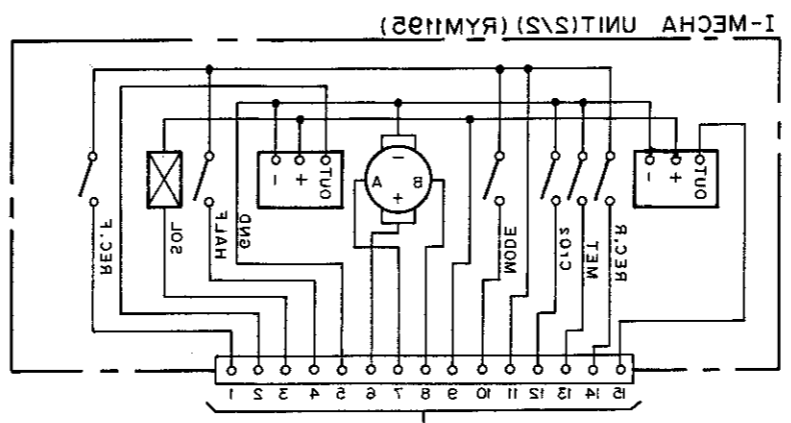
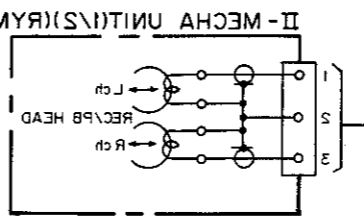
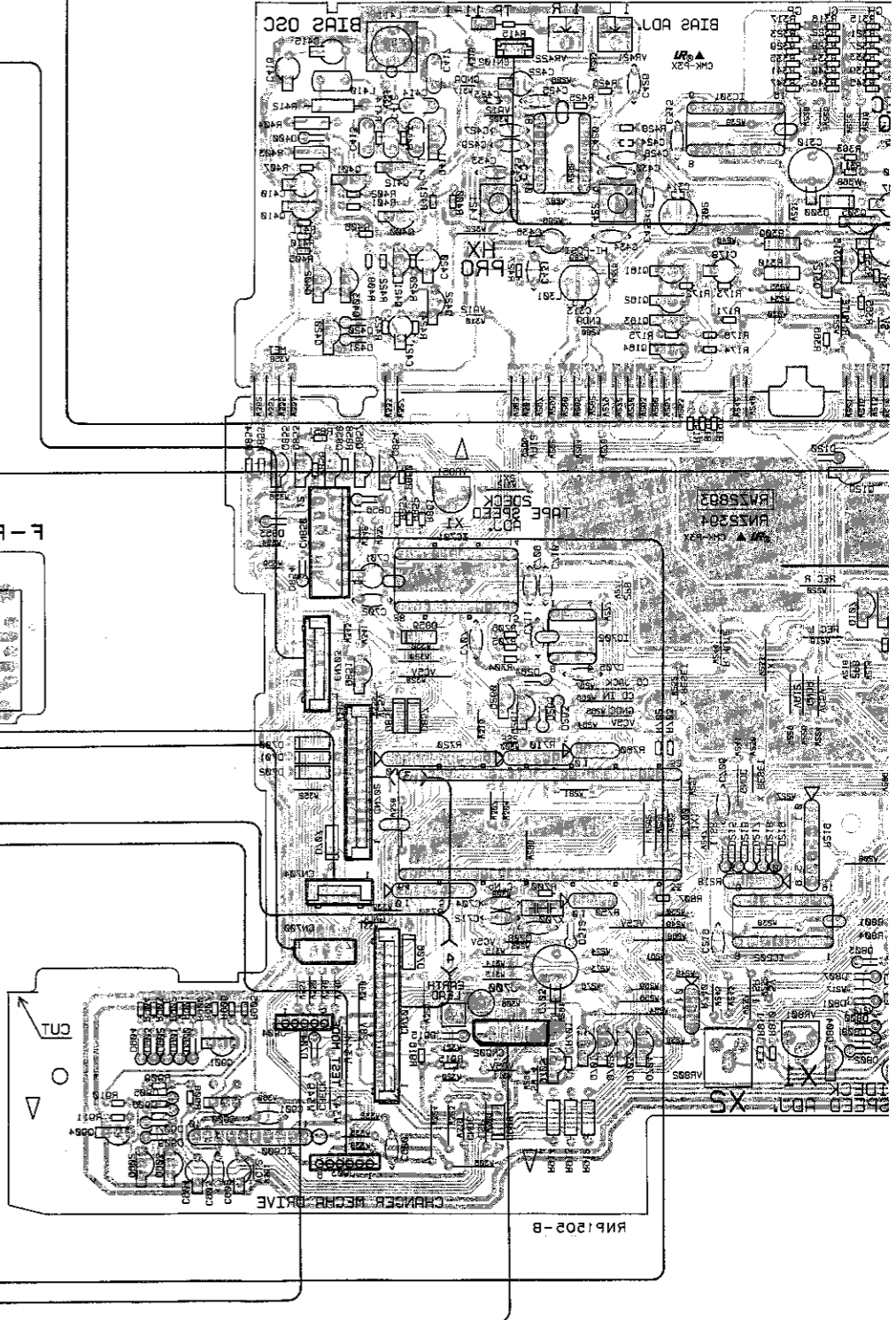
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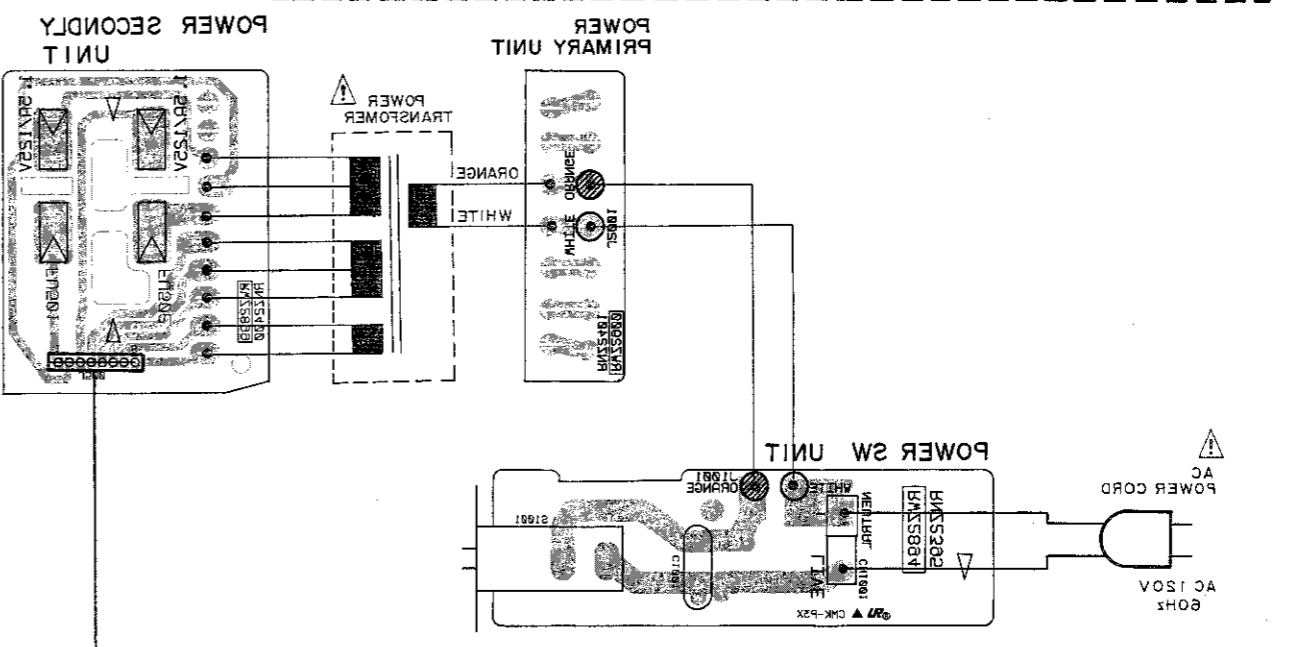
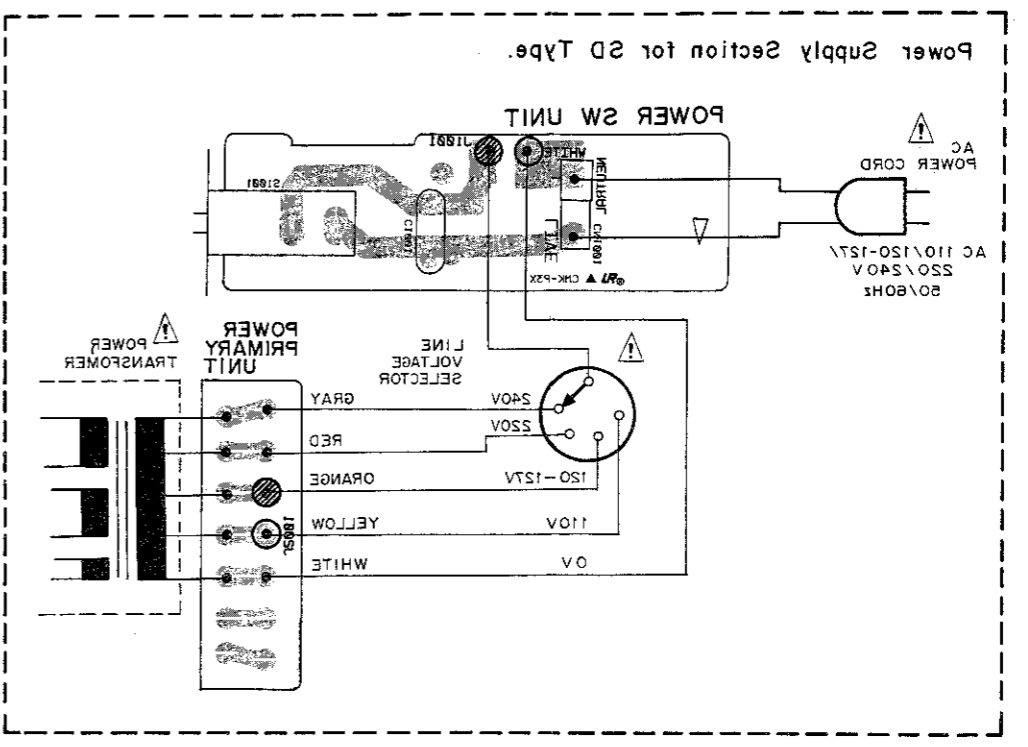
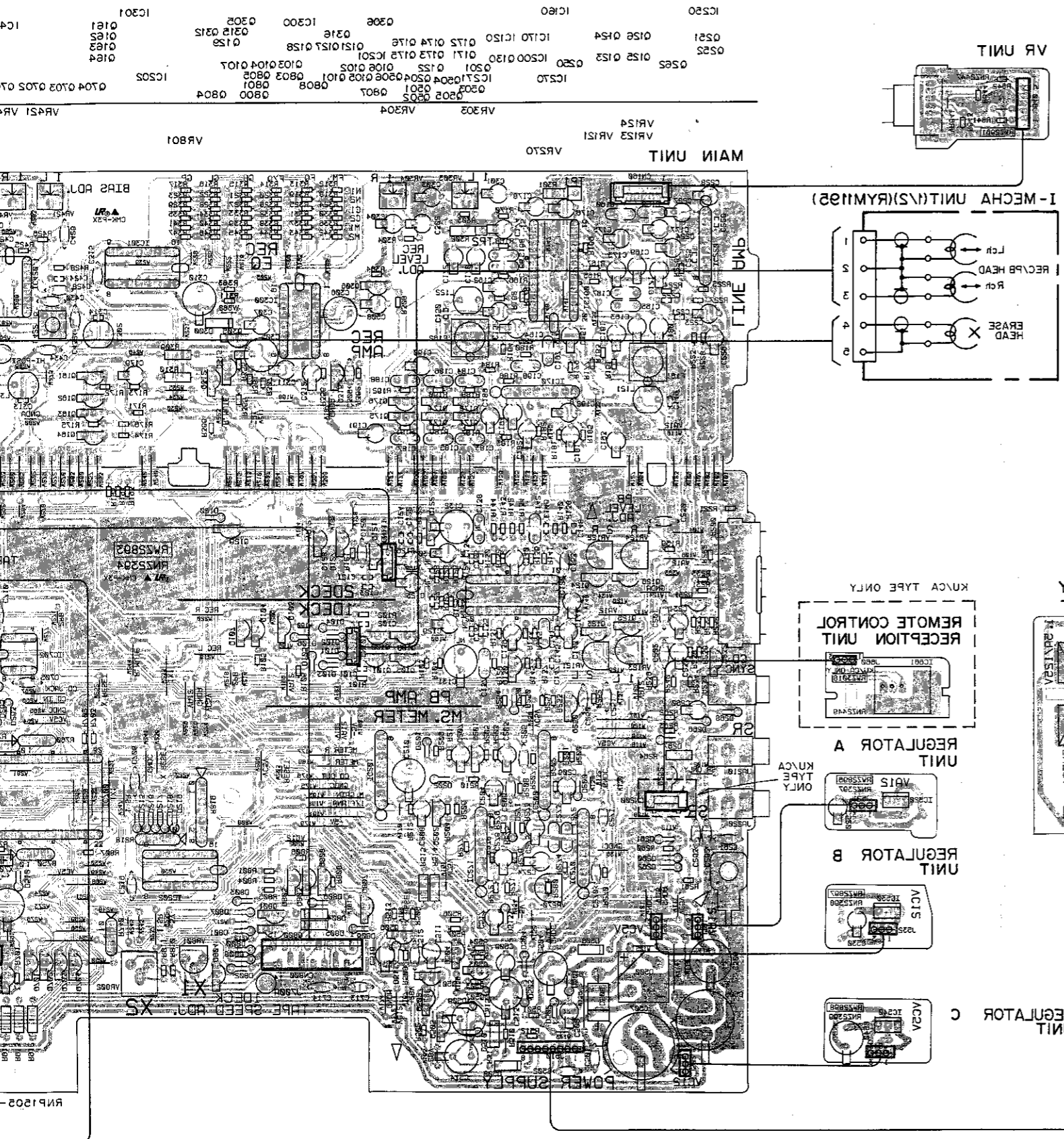
D

IC301	IC450	IC701	IC705	IC707	IC708	IC709	IC710	IC711	IC712	IC713	IC714	IC715	IC716	IC717	IC718	IC719	IC720	IC721	IC722	IC723	IC724	IC725	IC726	IC727	IC728	IC729	IC730	IC731	IC732	IC733	IC734	IC735	IC736	IC737	IC738	IC739	IC740	IC741	IC742	IC743	IC744	IC745	IC746	IC747	IC748	IC749	IC750	IC751	IC752	IC753	IC754	IC755	IC756	IC757	IC758	IC759	IC760	IC761	IC762	IC763	IC764	IC765	IC766	IC767	IC768	IC769	IC770	IC771	IC772	IC773	IC774	IC775	IC776	IC777	IC778	IC779	IC780	IC781	IC782	IC783	IC784	IC785	IC786	IC787	IC788	IC789	IC790	IC791	IC792	IC793	IC794	IC795	IC796	IC797	IC798	IC799	IC800
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4. PCB CONNECTION DIAGRAM

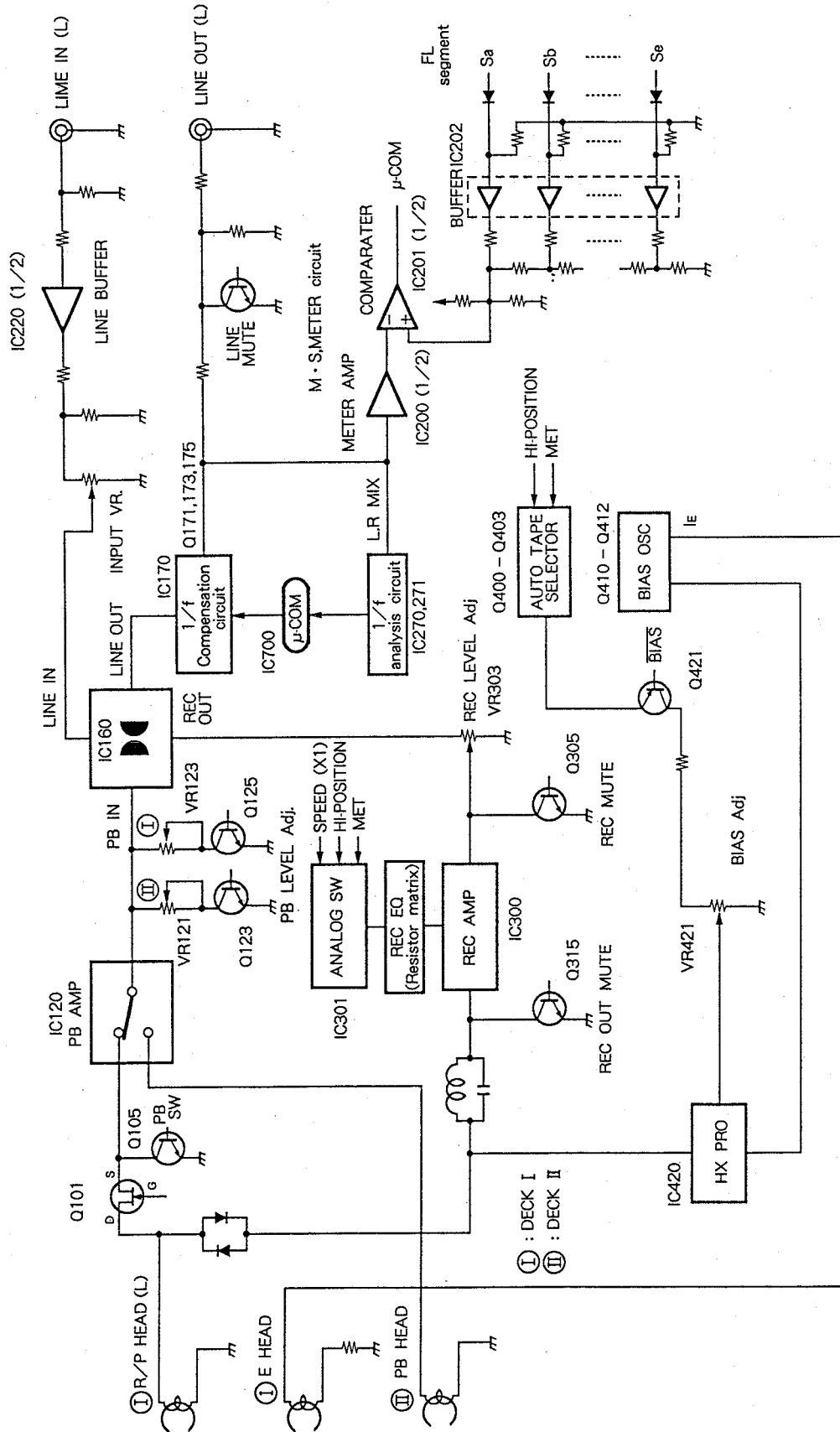
• View from soldering side



A
B
C
D

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5. BLOCK DIAGRAM



7. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊕" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	$\rightarrow 56 \times 10^1 \rightarrow 561$	RD1/8PM	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>5</td><td>6</td><td>1</td></tr></table> J	5	6	1
5	6	1				
47k Ω	$\rightarrow 47 \times 10^3 \rightarrow 473$	RD1/4PS	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>4</td><td>7</td><td>3</td></tr></table> J	4	7	3
4	7	3				
0.5 Ω	$\rightarrow 0R5$	RN2H	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>R</td><td>5</td></tr></table> K	0	R	5
0	R	5				
1 Ω	$\rightarrow 010$	RS1P	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>0</td><td>1</td><td>0</td></tr></table> K	0	1	0
0	1	0				

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

5.62k Ω	$\rightarrow 562 \times 10^1 \rightarrow 5621$	RN1/4PC	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>5</td><td>6</td><td>2</td><td>1</td></tr></table> F	5	6	2	1
5	6	2	1				

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

• For KU/CA type

NSP	MOTHER UNIT	RWM1605
	├ MAIN UNIT	RWZ2893 (*1)
NSP	├ POWER SWITCH UNIT	RWZ2894 (*2)
NSP	├ F-PANEL UNIT	RWZ2895
NSP	├ REGULATOR (A) UNIT	RWZ2896
NSP	├ REGULATOR (B) UNIT	RWZ2897
NSP	├ REGULATOR (C) UNIT	RWZ2898
NSP	├ POWER SECONDLY UNIT	RWZ2899 (*3)
NSP	├ POWER PRIMARY UNIT	RWZ2900 (*4)
NSP	SUB UNIT	RWM1623
	├ SUB 1 UNIT	RWZ2939
NSP	├ VR UNIT	RWZ2961
NSP	├ SUB 2 UNIT	RWZ2962
NSP	├ DOOR IND. UNIT	RWZ2963
NSP	├ REMOTE CONTROL RECEPTION UNIT	RWZ3018

• For SD type

NSP	MOTHER UNIT	RWM1638
	├ MAIN UNIT	RWZ3013 (*1)
NSP	├ POWER SWITCH UNIT	RWZ3014 (*2)
NSP	├ F-PANEL UNIT	RWZ2895
NSP	├ REGULATOR (A) UNIT	RWZ2896
NSP	├ REGULATOR (B) UNIT	RWZ2897
NSP	├ REGULATOR (C) UNIT	RWZ2898
NSP	├ POWER SECONDLY UNIT	RWZ3015 (*3)
NSP	├ POWER PRIMARY UNIT	RWZ3016 (*4)
NSP	SUB UNIT	RWM1639
	├ SUB 1 UNIT	RWZ2939
NSP	├ VR UNIT	RWZ2961
NSP	├ SUB 2 UNIT	RWZ2962
NSP	├ DOOR IND. UNIT	RWZ2963

• For KU/CA and SD types

NSP	MECHANISM BOARD UNIT	RWM1469
NSP	├ TRAY SW UNIT	RWZ2493
NSP	├ UPPER UNIT	RWZ2494
NSP	├ CA MOTOR UNIT	RWZ2495
NSP	├ LOADING SW UNIT	RWZ2496
NSP	├ RELAY UNIT	RWZ2497
NSP	├ CASSETTE HOLDER UNIT	RWZ2498
NSP	├ CARRIER DETECT UNIT	RWZ2499
NSP	├ TRAY MOTOR UNIT	RWZ2500

NOTE:

*1 MAIN UNIT
Although RWZ3013 and RWZ2893 are different in part number, they consist of the same components.

*2 POWER SWITCH UNIT
Although RWZ3014 and RWZ2894 are different in part number, they consist of the same components.

*3 POWER SECONDLY UNIT
Although RWZ3015 and RWZ2899 are different in part number, they consist of the same components.

*4 POWER PRIMARY UNIT
Although RWZ3016 and RWZ2900 are different in part number, they consist of the same components.

MAIN UNIT

SEMICONDUCTORS

IC201, IC271	BA10393N
IC170, IC200, IC220, IC270	BA15218N
IC120	CXA1115BP
IC300	CXA1198AP
IC160	CXA1330S
IC301	MC14051BCP
IC701	NJU3718L
IC702	NM93C46N
IC700	PD3236A
IC900	TA7288P
IC202	TC4050BP
IC420	UPC1297CA

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△	Q805, Q855		2SA1283		C223, C224, C260, C303, C304		
	Q505		2SA1286		C189-C191		CEASOR1M50
	Q250, Q421, Q422, Q804, Q854, Q900, Q901		2SA1309A		C161-C164, C175, C227, C228, C422, C902		CEAS100M50
	Q401		2SB1238X		C192, C274, C275		CEAS101M16
	Q503, Q904		2SC1740S		C513		CEAS101M50
	Q411, Q412		2SC1815		C506		CEAS102M35
	Q807, Q857		2SC3246		C210, C703		CEAS102M6R3
	Q105, Q106, Q305, Q306, Q400, Q402, Q403		2SC3311A		C508, C511, C904		CEAS220M35
	Q501, Q502		2SD1302		C514		CEAS221M35
	Q231, Q232, Q315, Q316, Q410		2SD2144S		C179, C180, C420		CEAS330M16
	Q101, Q102		2SK373		C516		CEAS330M50
	Q260		DTA114TS		C310		CEAS331M16
	Q701-Q704		DTC114TS		C701		CEAS331M6R3
	Q201, Q202		DTC124TS		C507		CEAS332M35
	Q808, Q858, Q902, Q903		DTC143ES		C143, C144, C176, C181, C182, C209, C229, C410, C415, C416, C517		CEAS470M16
Q129, Q506, Q705		XDA114ES		C515		CEAS470M50	
Q103, Q261, Q312, Q800, Q801, Q851		XDA124ES		C305, C306		CEAS471M10	
Q104, Q107, Q121-Q128, Q130, Q161-Q164, Q171-Q176, Q262, Q420, Q803, Q853		XDC124ES		C504		CEAS471M16	
Q504		XDC144ES		C505		CEAS472M16	
D700-D702, D706, D707, D804, D805, D851, D857, D859, D908		1S2473		C139, C140, C193, C194, C301, C302, C307, C308, C311, C312, C421, C509		CEAS477M50	
D300		1SR35-100A		C231, C232, C436		CEASR10M50	
D506, D508		1SR35-100A		C169, C170, C207, C208		CEASR22M50	
D400, D806, D856		1SS252		C171-C174		CEASR33M50	
D101-D106, D120, D200-D202, D215-D219, D250, D260-D268, D271, D420, D421, D501, D502, D504, D507, D512, D704, D800-D803, D807-D809, D853, D854, D900-D904, D906, D909, D915		1SS254		C276		CEASR47M50	
D503, D907		MTZJ3. 6B		C183, C184		CFTXA152J50	
D509		MTZJ30B		C165-C168		CFTXA222J50	
D510		MTZJ4. 7B		C141, C142, C414		CFTXA223J50	
D511		MTZJ4. 7B		C185, C186		CFTXA272J50	
D513		MTZJ5. 1B		C272, C273, C411-C413		CFTXA332J50	
D905		MTZJ5. 6B		C197, C198		CFTXA471J50	
D500		S2VB20		C159, C160, C187, C188		CFTXA562J50	
D505		S3V20		C137, C138		CFTXA822J50	
				C429, C430		CGCYX473K25	
				C270		CKCYB101K50	
				C205, C206		CKCYB821K50	
				C120, C153, C250, C251, C261-C263, C309, C315, C425, C426, C512, C702, C704-C708, C712		CKCYF103Z50	
				C427, C428		CKCYF223Z50	
				C201, C202, C219, C230, C271, C501, C502, C713, C714, C900, C901, C903		CKCYF473Z50	
				C133-C136, C225, C226, C435		CKPUYB101K50	
				C127, C128		CKPUYB102K50	
				C147, C148, C313, C314		CKPUYB221K50	
				C121-C124		CKPUYB271K50	
				C149, C150		CKPUYB471K50	
				C145, C146		CKPUYB681K50	
				C423, C424		CKPUYB821K50	
				C417		CQPA752J100	
				C433, C434 (C=430P, V(DC)=500)		RCG1005	
COILS AND FILTERS				RESISTORS			
	L410		LFA121K		R720 (47K)		RA12T473J
	L421, L422 (L=4. 6mH, Q=25, F=105KH)		RTD1046		R760 (2. 2K)		RA4T222J
	L411 (F=105K)		RTD1062				
	L301, L302 (L=10mH(79. 6KHZ), Q=25)		RTF1004				
	L121, L122 (L=472J)		RTF1098				
	F161, F162		RTF1062				
CAPACITORS							
	C431, C432		CCCSL101K500				
	C709-C711		CCDSL151J50				
	C101, C102, C221, C222		CCPUSL100J50				
	C125, C126, C129, C130		CEANL100M16				
	C131, C132		CEANL101M10				
	C151, C152, C177, C178, C203, C204,		CEAS010M50				

Mark	No.	Description	Part No.
	R740, R750 (22K)		RA4T223J
	R218 (22K)		RA5T223J
	R710 (22K)		RA6T223J
	R730 (47K)		RA8T473J
	R219 (11K/22K)		RCX1020
	R415		RD1/2LF010J
△	R511		RD1/2PM152J
	R403		RD1/2PMF100J
	R404		RD1/2PMF560J
	R912-R914		RD1/4PM102J
	R264		RD1/4PM221J
	R514, R515		RD1/4PM332J
	R301, R302		RD1/4PM472J
	R309, R310		RD1/4PM912J
△	R510 (47Ω)		RFA1/4L470J
	R412 (4.7Ω)		RS1LMF4R7J
	VR802 (10K)		RCP1045
	VR121-VR124 (22K)		RCP1046
	VR303, VR304, VR421, VR422 (22K)		RCP1084
	VR801, VR851 (15K)		RCP1090
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN700 CONNECTOR (7P)		HLEM7S-1
	CN902 CONNECTOR (9P)		HLEM9S-1
	CN850 CONNECTOR (12P)		KPE12
	CN800 CONNECTOR (15P)		KPE15
	JA200 PIN JACK (4P)		RKB1001
	JA210, JA220 JACK		RKN1004
	JA230 MINI JACK		RKN1014
	X700 CERAMIC RESONATOR (4.19MHz)		VSS1014
POWER SWITCH UNIT			
SWITCHES			
△	S1001		RSA-063
CAPACITORS			
△	C1001 (10000pF)		RCG-009
OTHERS			
△	TERMINAL		RKC-061
F-PANEL UNIT			
SEMICONDUCTORS			
	D708, D709		1SS254
SWITCHES			
	S701, S702		RSG1034
	S700		RSH1011
REGULATOR (A) UNIT			
SEMICONDUCTORS			
△	IC520		NJM78M12FA
CAPACITORS			
	C520		CEAS470M16

Mark	No.	Description	Part No.
REGULATOR (B) UNIT			
SEMICONDUCTORS			
△	IC530		NJM7812FA
CAPACITORS			
	C530		CEAS101M25
REGULATOR (C) UNIT			
SEMICONDUCTORS			
△	IC540		NJM78M05FA
CAPACITORS			
	C540		CEAS102M6R3
POWER SECONDLY UNIT			
Power secondly unit has no service part.			
POWER PRIMARY UNIT			
Power primary unit has no service part.			
SUB 1 UNIT			
SEMICONDUCTORS			
	Q601		2SC1740S
	D601-D610		1SS254
SWITCHES			
	S601-S623		RSG1034
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J
OTHERS			
	CN602 CONNECTOR (14P)		BTMK14S
	CN601 CONNECTOR (15P)		BTMK15S
	V601 FL INDICATOR TUBE		RAW1129
VR UNIT			
RESISTORS			
	VR641		RCV1075
	OTHER RESISTORS		RD1/6PM□□□J
SUB 2 UNIT			
SEMICONDUCTORS			
	D631-D634		1SS254
SWITCHES			
	S631-S636, S638, S639		RSG1033
DOOR IND. UNIT			
SEMICONDUCTORS			
	D651-D656		REL1007
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J
REMOTE CONTROL RECEPTION UNIT (For KU/CA type only)			
OTHERS			
	REMOTE SENSOR		HC-177

Mark No.	Description	Part No.
TRAY SW UNIT		
SWITCHES		
	S941-S943	DSG1016
UPPER UNIT		
SEMICONDUCTORS		
	D931-D936	1SS254
SWITCHES		
	S931-S936	DSG1015
CA MOTOR UNIT		
CA motor unit has no service part.		
LOADING SW UNIT		
SWITCHES		
	S961	DSG1015
RELAY UNIT		
OTHERS		
	CN932 CONNECTOR	HLEM9S-1
CASSETTE HOLDER UNIT		
SWITCHES		
	S951	RSK1003
CARRIER DETECT UNIT		
SEMICONDUCTORS		
	Q930	GP1A52HR
CAPACITORS		
	C930	CKPUYF223Z25
RESISTORS		
	ALL RESISTORS	RD1/6PM□□□J
TRAY MOTOR UNIT		
Tray motor unit has no service part.		

7. ADJUSTMENTS

7.1 MECHANICAL ADJUSTMENT

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

Short-circuit the JUMPER WIRE (W344) and JUMPER WIRE (W347) for a moment. (Set into TEST mode.)

Mode	Operation	Display
DECK I Double speed play	Press the F. F key (side I) in the side I PLAY mode to set to the double speed PLAY mode. (To transfer to the other modes, press the STOP key first.)	: 01, Copy (flashing)
DECK II Double speed play	Press the F. F key (side II) in the side II PLAY mode to set to the double speed PLAY mode. (To transfer to the other modes, press the STOP key first.)	: 01, Copy (flashing)

To cancel the TEST mode, press the COUNTER RESET key or turn off the power.

1. Tape Speed Adjustment and Check							
No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks	
1	II	Normal speed PLAY	STD-301 (3 kHz)	After playing back for 1 minute.			
2		Double speed PLAY		check	8000 Hz \pm 600 Hz		
3				VR851	3020Hz \pm 5Hz.		
4	I	Normal speed PLAY		After checking, play back deck I.			
5				After playing back for 1 minute.			
6		Double speed PLAY		VR802	Within \pm 10 Hz against the measurement value of the step 2 (deck II)		
7		Normal speed PLAY		VR801	3020 Hz \pm 5 Hz		

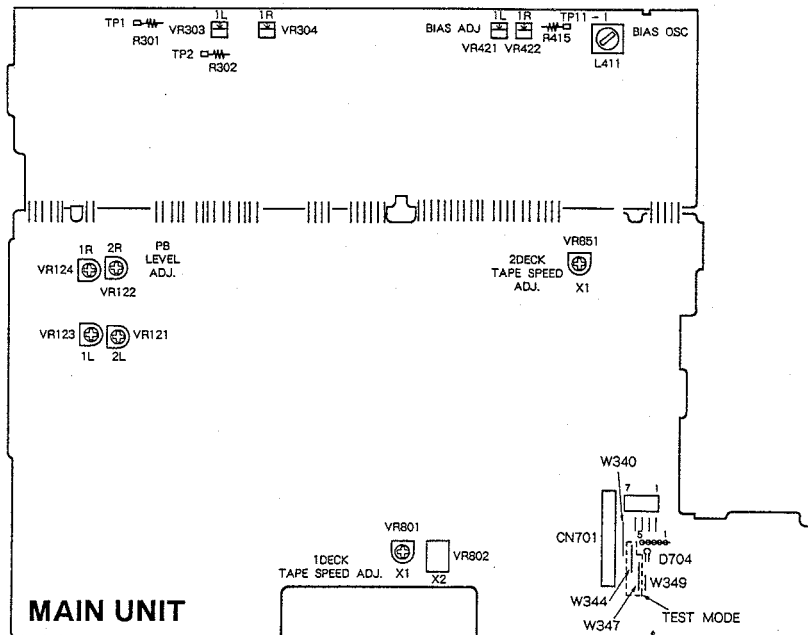


Fig. 7-1 Adjusting points

7.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 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. 7-2)
 STD-631 : NORMAL blank tape
 STD-621 : CrO₂ blank tape
 STD-610 : METAL blank tape

List of Adjustments

Playback sections

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

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.

NOTE: This unit has an automatic tape selection feature.

* 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.

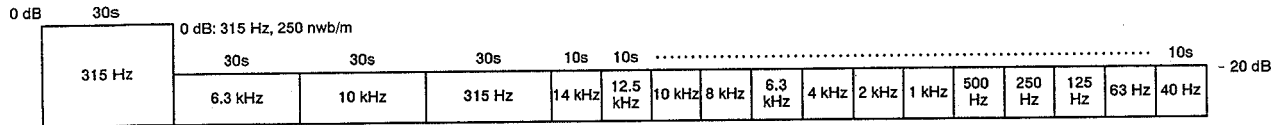


Fig. 7-2 Constants of the test tape STD-331E

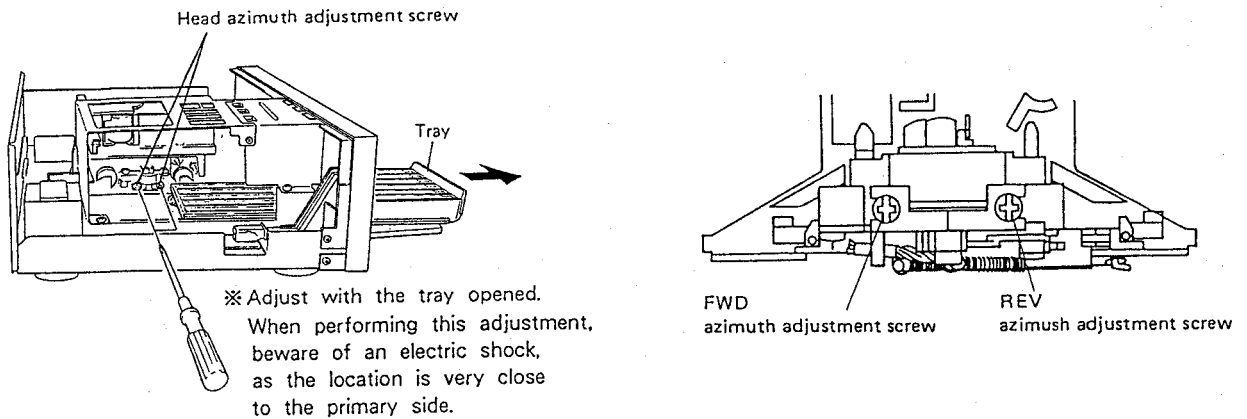
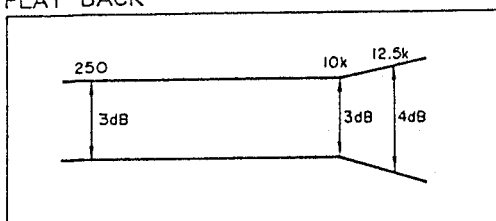


Fig. 7-3 Head azimuth adjustment

PLAY BACK



RECORDING

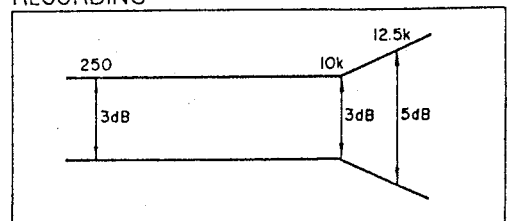


Fig. 7-4 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR123, 124 (Deck I) or VR121, 122 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/-20 dB section of STD-331E test tape.	Head azimuth adjustment screw. (See Fig. 7-3)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD-331E test tape.	Deck I	VR 123 (Lch) VR 124 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	-6.7 dBV
			Deck II	VR 121 (Lch) VR 122 (Rch)		

RECORDING SECTION

1. Bias Oscillator Adjustment

- Adjust the bias oscillator with checks set to recording mode simultaneously.

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 I	L 411	TP. 11-1	105kHz \pm 0.3kHz

2. Recording Bias Adjustment

- Adjust the bias oscillator with decks I and II set to recording mode independently.
- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC	Load the STD-631 test tape. Record the 315 Hz and 6.3 kHz signals at -20 dBV input level and playback.	Deck I	VR421 (Lch) VR422 (Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes +0.5 dB \pm 0.5 dB when compared with the 315 Hz signal.

3. Recording Level Adjustment

- Adjust the bias oscillator with decks I and II set to recording mode independently.

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.	STOP	Set the DOLBY NR switch to the OFF position.					
3	REC/ PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck I	VR303 (Lch) VR304 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes -11.2dB.	
4.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 1.5 dB	
5.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 1.5 dB	

4. Level Meter Check

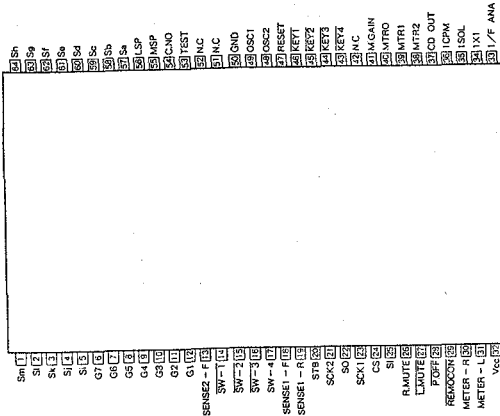
No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC/ PAUSE	Apply a 315 Hz/-14 dBV (316 mV) signal to the Line Input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within -7.2 dBV ± 2 dB of the signal output level.	

8. IC INFORMATION

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

1. PD3236A (IC700)

● Pin Assignment



● Pin Functions

Pin No.	Name	Function
1	Sm	Segment output.
2	Si	
3	Sk	
4	Sj	
5	Si	Segment output, key scan output.
6	G7	Grid output, key scan output.
7	G6	
8	G5	
9	G4	
10	G3	
11	G2	
12	G1	
13	SENSE2 - F	Side 2 take up side sensing pulse input.
14	SW - 1	Tray SW input. ON at "L".
15	SW - 2	
16	SW - 3	
17	SW - 4	Loading position detection SW input. ON at "H".
18	SENSE1 - F	Side 1 take up side sensing pulse input.
19	SENSE1 - R	Side 1 supply side sensing pulse input.
20	STB	Output expansion IC communication strobe output.
21	SCK2	Output expansion IC communication clock output.
22	SO	Memory, output expansion IC communication data output.
23	SCK1	Memory communication clock output.
24	CS	Chip enable output. Memory selected at "H".
25	SI	Memory communication data input.
26	REC MUTE	REC mute control output. ON at "H".
27	LINE MUTE	Line mute control output. ON at "L".
28	POFF	Power off pulse input. When "H" → "L", power off processing starts.
29	REMOCON	Remote control pulse input.
30	METER - R	Rch meter input.

Pin No.	Name	Function
31	METER – L	Lch meter input.
32	Vcc	Power supply pin (+5V).
33	1/F ANA	1/F playback analysis signal input.
34	1X1	Mechanism 1 double speed control output. Speed doubles at "L".
35	1SOL	Mechanism 1 solenoid control output. ON at "H".
36	1CPM	Mechanism 1 capstan motor control output. ON at "H".
37	CDOUT	CD synchro control output.
38	MTR2	Changer motor rotation direction control output. The carrier is at the right and the tray at the back at "H".
39	MTR1	Changer motor selection control output. Tray motor at "H".
40	MTR0	Changer motor selection control output. Carrier motor at "H".
41	M.GAIN	Meter circuit gain switching output. Normally "L". Outputs "H" when MS or when there is no signal.
42	N.C	–
43	KEY4	Key scan return data input.
44	KEY3	
45	KEY2	
46	KEY1	
47	RESET	Reset pulse input. Resets at "H".
48	OSC2	Clock output.
49	OSC1	Clock input.
50	GND	GND terminal.
51	N.C	–
52	N.C	–
53	TEST	Connected to +5V.
54	C.NO	Carrier position detection photo interrupter input.
55	MSP	Changer motor speed control output. "H" when the tray operates.
56	LSP	Changer motor speed control output. Decelerates at "H".
57	Sa	Segment output, key scan output, level scan output.
58	Sb	
59	Sc	
60	Sd	
61	Se	
62	Sf	Segment output, key scan output.
63	Sg	
64	Sh	

● Carrier Position

There are altogether 1 to F positions with SW-4 and C No.

1 to E are counted up and down according to the photo interrupter edge and E → F, F → E determined at the edge of SW-4.

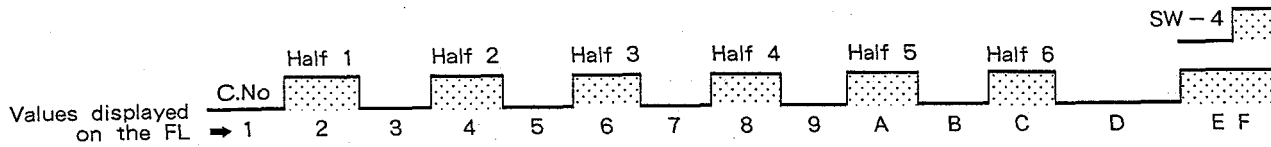


Fig. 1

● Carrier Control

- ① Compare the current position and the target position and determine the direction of the rotation of the carrier motor.
- ② Decelerate one blank before the target position so that it will stop precisely at the target position.
- ③ Stop at the target position.
- ④ Check the position again 200 msec. after it had stopped. If the position is deviated (too front or too back), decelerate, and return to step ③ again.
- ⑤ After checking the position, check whether it is the half position or the blank position.
It is the half position if the C No. is "H". If it is blank (the photo interrupter has counted incorrectly), return to the cassette mechanism position (F) and repeat from step ① again.

● Tray position

There are altogether 0 to 7 positions with SW - 1 to SW - 3.

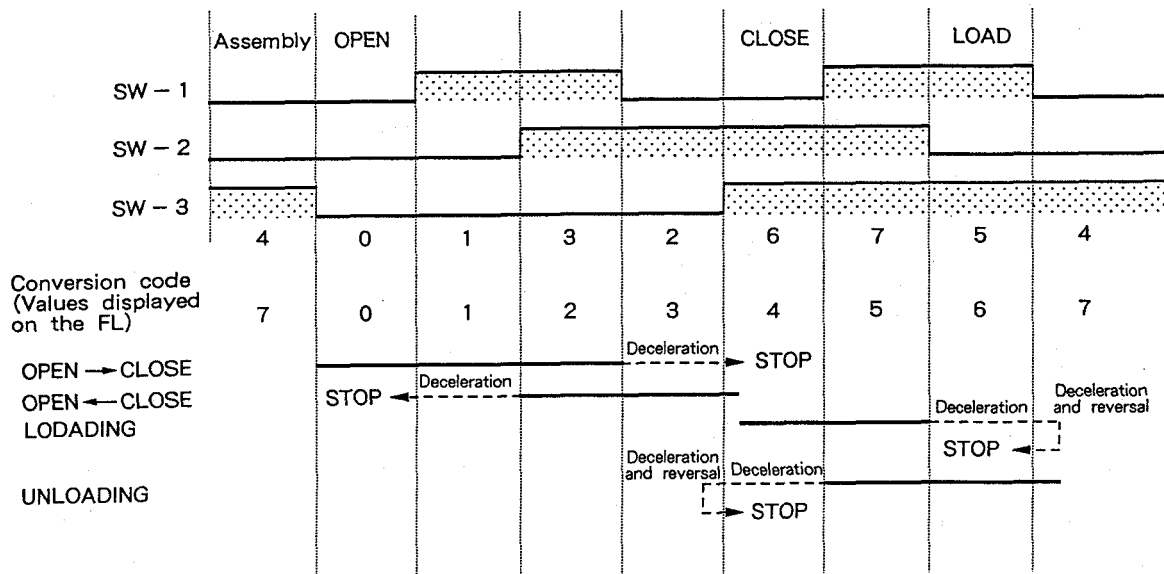


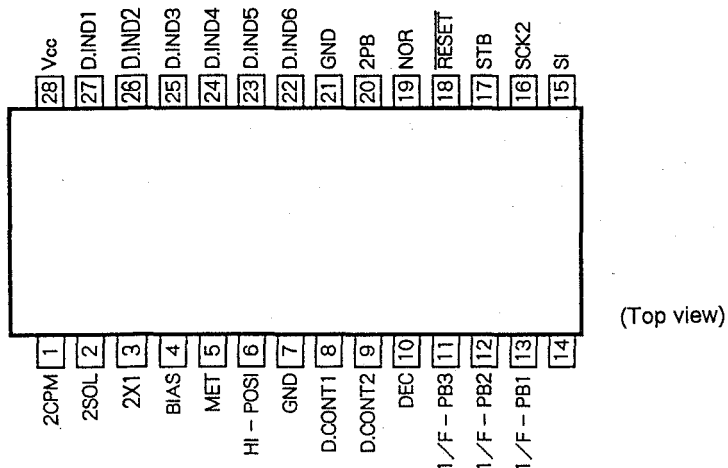
Fig. 2

● Tray Control

OPEN, CLOSE, LOADING, and UNLOADING are controlled as above.

2. NJU3718L (IC701)

● Pin Assignment



● Pin Functions

Pin No.	Name	Function												
1	2CPM	Mechanism 2 capstan motor control output. ON at "H".												
2	2SOL	Mechanism 2 solenoid control output. The solenoid turns ON at "H".												
3	2X1	Mechanism 2 × 2 speed control output. × 2 speed at "L".												
4	BIAS	Bias control output. ON at "H".												
5	MET	Recording equalizer control output. Outputs "H" during metal tape recording.												
6	HI-POSI	Recording equalizer control output. Outputs "H" during metal and CrO ₂ tape recording.												
7	GND	Connected to the GND.												
8	D.CONT1	Dolby switching output. Outputs as shown in the right table according to the dolby position.												
9	D.CONT2													
		<table border="1"> <tr> <td></td> <td>D.CONT2</td> <td>D.CONT1</td> </tr> <tr> <td>OFF</td> <td>L</td> <td>H</td> </tr> <tr> <td>B</td> <td>H</td> <td>L</td> </tr> <tr> <td>C</td> <td>L</td> <td>L</td> </tr> </table>		D.CONT2	D.CONT1	OFF	L	H	B	H	L	C	L	L
	D.CONT2	D.CONT1												
OFF	L	H												
B	H	L												
C	L	L												
10	DEC	Dolby IC encoder/decode switching output. Outputs "H" during decoding (PLAY, MS).												
11	1/F-PB3	Pins 11 to 13 are 1/F playback compensation outputs. All pins output "L" when the 1/F playback mode is off. The compensation amount is maximum when all pins output "H".												
12	1/F-PB2													
13	1/F-PB1													
14	N.C	—												
15	SI	Communication data input.												
16	SCK2	Communication clock input.												
17	STB	Strobe signal input.												
18	RESET	Reset signal input.												
19	NOR	Playback equalizer control output. Outputs "H" during normal tape playback.												
20	2PB	Mechanisms 1 and 2 switching of the playback system. Outputs "H" during the mechanism 2 side playback.												
21	GND	Connected to the GND.												
22	D.IND6	Tray LED display control output. Outputs "H" when the 6th tape is loaded.												
23	D.IND5	Tray LED display control output. Outputs "H" when the 5th tape is loaded.												
24	D.IND4	Tray LED display control output. Outputs "H" when the 4th tape is loaded.												
25	D.IND3	Tray LED display control output. Outputs "H" when the 3rd tape is loaded.												
26	D.IND2	Tray LED display control output. Outputs "H" when the 2nd tape is loaded.												
27	D.IND1	Tray LED display control output. Outputs "H" when the 1st tape is loaded.												
28	Vcc	Power supply pin (+5V).												

● Test Mode

① Entering the Test Mode


Short-circuit the jumper wires (W344 and W347) of the unit with a screwdriver.

In the test mode, the basic mechanism operation key, changer key, HI SPEED COPY key, CD SYNCHRO key, COUNTER MODE key, COUNTER RESET key, and DOLBY SEL key can be accepted.

Key Pressed	Display	Adjustment and Check
Basic mechanism operation key	: 00	Carries out basic mechanism operations even when there is no half and enables the following checks to be carried out. <ul style="list-style-type: none"> • Auto stop check Stops after one second when played reversed. • Bias oscillation check Record.
COUNTER MODE	: 02	<ul style="list-style-type: none"> • SWs Check <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px;">I</div>, <div style="border: 1px solid black; padding: 2px;">II</div> </div> <div style="display: flex; align-items: center; gap: 10px;"> ◀, ▶ </div> <div style="display: flex; flex-direction: column; gap: 5px;"> B C </div> Lights up when there is a half. The DIRECTION lamp lights up when recording can be carried out. Lights up with TIMER REC. Lights up with TIMER PLAY. • CD synchro jack check <div style="border: 1px solid black; padding: 2px;">CD SYNC</div> lights up when the jack is connected. • CD synchro input/output signal check Connect the jack for checking and continue pressing the SYNCHRO KEY. <div style="border: 1px solid black; padding: 2px;">CD SYNC</div> blinks.

② FLEX Function Check Mode

When the FLEX key is pressed, this mode will be set and the following modes set cyclically.

Key Pressed	Display	Adjustment and Check
FLEX	OX : 03 	<ul style="list-style-type: none"> • Sweep mode The compensation value of the FLEX function compensation circuit is switched at regular intervals between 0 and 7. The compensation value is displayed.

③ Releasing the Test Mode

Press the COUNTER RESET KEY to release the mode.

Or turn off the power.

② Releasing the Manual Mode

Turn off the power.

Keys accepted are as follows. They function only while pressed.

- FF KEY : Moves to the right of the carrier
- FWD KEY : Moves to the left of the carrier
- REW KEY : Moves in the tray open direction
- REV KEY : Moves in the tray close direction

● Manual Mode

The changer mechanism motor (tray motor, carrier motor) can be operated manually. This mode is used for recovering the changer mechanism when it has locked.

① Entering the Manual Mode

Turn off the power, set the timer SW to T – PLAY, and short – circuit the jumper wires (W347 and W349) of the unit. Then turn on the power in this state. Leave the jumper wires short – circuited.

The changer mechanism will not be initialized at this time.

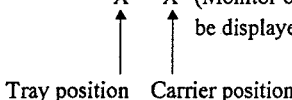
“ – X – X” (Monitor of tray and carrier positions) will be displayed.

Tray position Carrier position

● Monitor Mode

With the power turned on, set the timer SW to T – PLAY, and short – circuit the jumper wires (W347 and W349) of the unit.

“ – X – X” (Monitor of tray and carrier positions) will be displayed.



9. PACKING AND PARTS LIST

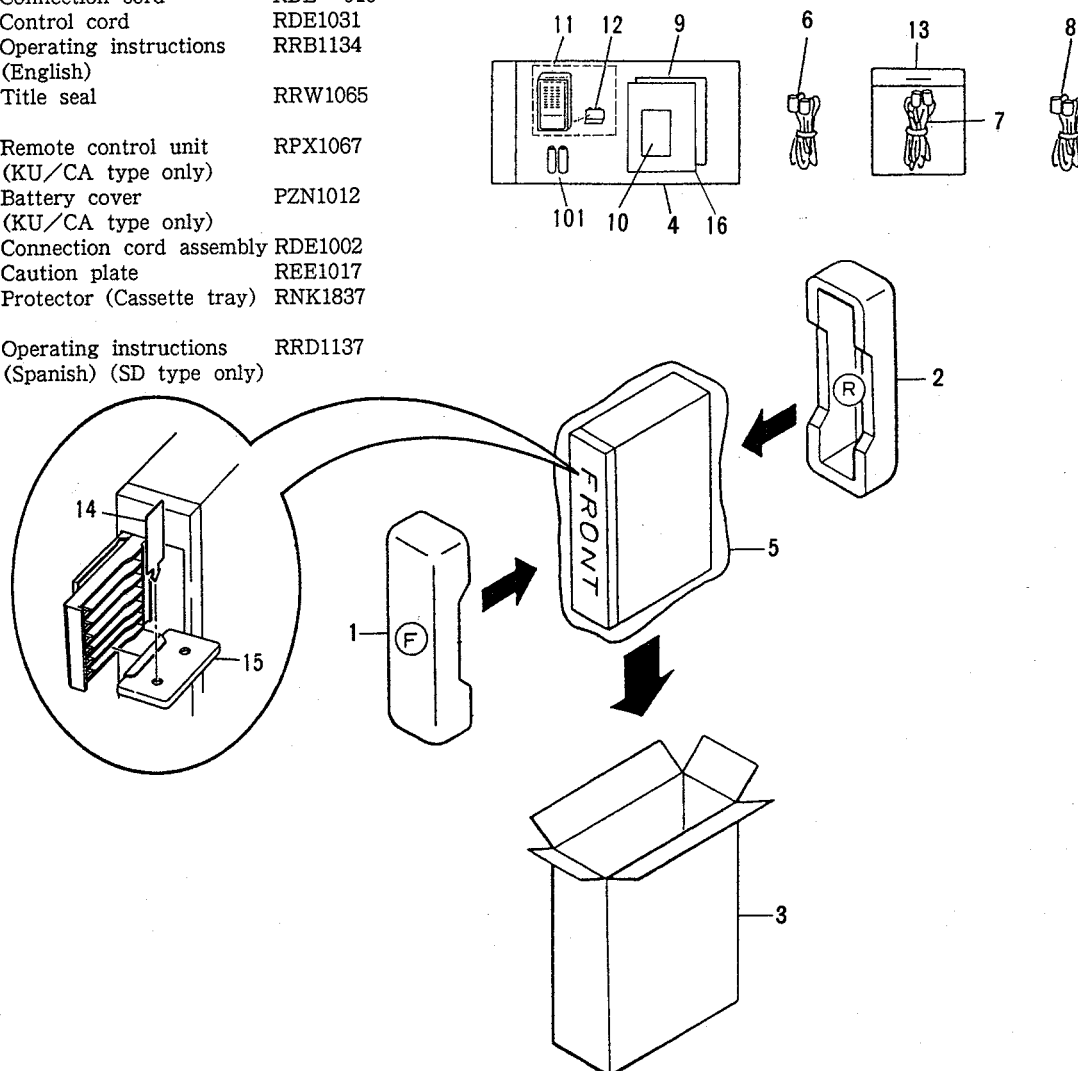
NOTES:

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

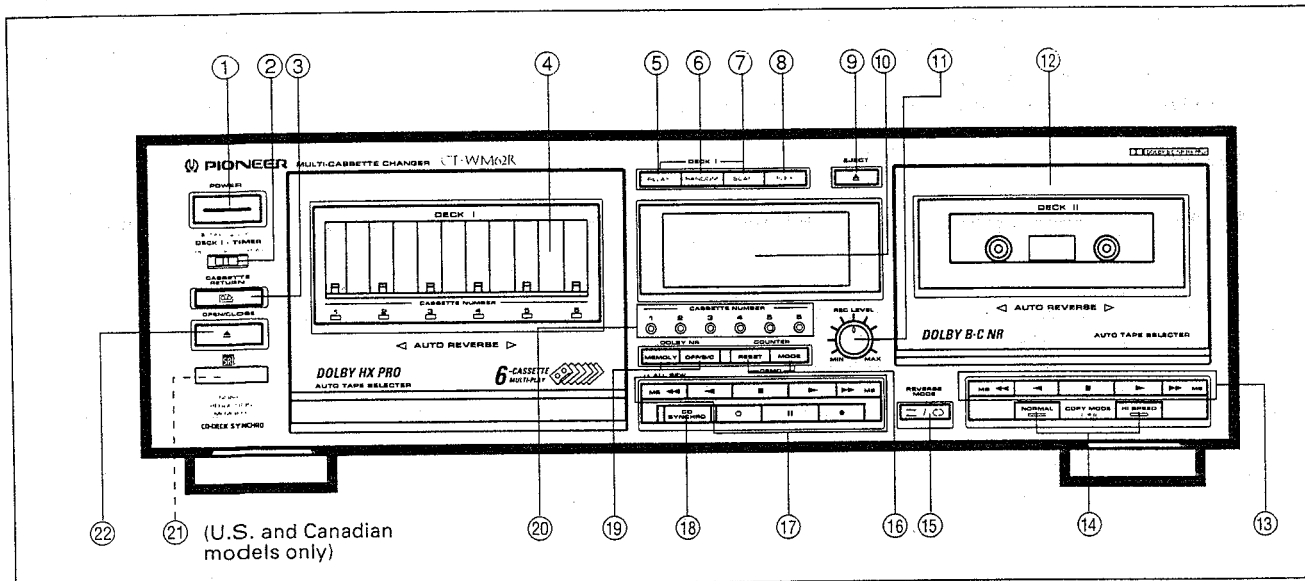
Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Pad (F)	RHA1044				
	2	Pad (R)	RHA1045	NSP	101	Dry cell battery	VEM - 022
	3	Packing case (KU/CA type)	RHG1487			(R03, AAA)	
		Packing case (SD type)	RHG1488			(KU/CA type only)	
	4	Plastic bag (KU/CA type)	RHL1001				
		Plastic bag (SD type)	Z21 - 038				
	5	Sheet	RHX1007				
	6	Connection cord (with mini plug)	PDE - 319				
	7	Connection cord	RDE - 010				
	8	Control cord	RDE1031				
	9	Operating instructions (English)	RRB1134				
	10	Title seal	RRW1065				
	11	Remote control unit (KU/CA type only)	RPX1067				
	12	Battery cover (KU/CA type only)	PZN1012				
	13	Connection cord assembly	RDE1002				
	14	Caution plate	REE1017				
	15	Protector (Cassette tray)	RNK1837				
	16	Operating instructions (Spanish) (SD type only)	RRD1137				

*Caution plate and protector are used as a cassette tray protector when shipping.



10. PANEL FACILITIES



① **POWER (■ OFF — ON) switch**

When the POWER switch is pressed to turn the cassette deck on, the 6 cassette indicators on the cassette door flash to indicate that the circuits are warming up. After about 10 seconds, the circuits become stable and the cassette deck can be operated.

All the indicators in the display window will light when the power is turned on. The display will be set to its normal state when one of the operation buttons is pressed.

② **DECK I TIMER (REC, OFF, PLAY) switch**

Use this switch to select the timer relay recording or timer relay playback functions.

③ **CASSETTE RETURN button**

Press this button to return the loaded cassette to the tray.

④ **DECK I cassette door and tray**

All of the cassette indicators on the cassette door flash while the cassette deck is warming up. When the cassette door is closed and there are cassettes on the tray, the indicators for the tray slots which contain cassette tapes (including the currently loaded tape) will light. When a cassette is being loaded from the tray, the corresponding indicator flashes.

⑤ **RELAY button**

Press this button to select relay recording or relay playback. The RELAY indicator lights when relay mode is selected.

⑥ **RANDOM button**

⑦ **SCAN button**

⑧ **FLEX button**

⑨ **DECK II eject button (EJECT)**

Press this button to open the cassette door of DECK II.

NOTE:

The cassette door cannot be opened while the tape is running (recording, playback, etc.). Press the stop (■) button of DECK II before pressing this button.

⑩ **Display window**

⑪ **REC LEVEL control knob**

⑫ **DECK II cassette door**

⑬ **DECK II operation buttons**

Fast forward (▶▶ MS): If this button is pressed during stop mode, the tape is fast-forwarded in the direction of the arrows (towards the end of side A or the beginning of side B). If it is pressed during playback, the cassette deck skips forward one selection for each press of the button (up to 15 selections), and playback resumes at the beginning of the designated selection.

Forward play (▶):

During stop mode, press this button to begin playback of side A; that is, the side facing outward (forward playback).

During recording standby mode, press this button to begin recording on side A.

Stop (■):

Press this button to stop the tape transport.

Reverse play (◀):

Press this button to begin playback of side B; that is, the side facing the rear of the cassette deck (reverse playback).

During recording standby mode, press this button to begin recording on side B.

Fast reverse (MS ◀◀):

If this button is pressed during stop mode, the tape is fast-forwarded in the direction of the arrows (towards the beginning of side A or the end of side B). If it is pressed during playback, the playback position skips backward by one selection for each press of the button (up to 15 selections), and playback resumes at the beginning of the designated selection.

⑭ COPY MODE I ◀ II buttons

NORMAL: Press this button to copy a tape from DECK II to DECK I.

HI SPEED: Press this button to copy a tape from DECK II to DECK I at twice the normal speed.

⑮ REVERSE MODE button

Use this button to choose the tape transport mode.

☐: One way mode. Tape transport stops after one side of a tape is played or recorded.

When relay mode is selected, after one cassette ends, playback or recording (of one side only) continues on the cassette in the next tape slot, and so on until the cassette in the highest numbered tape slot is reached.

Ⓞ: Reverse mode. During playback, both sides of the tape are played back continuously until the tape has been played back 8 times (16 sides). During recording, both sides of the tape are recorded, and then tape transport stops.

When relay mode is selected, after both sides of one cassette have been recorded or played back once, playback or recording continues on the cassette in the next tape slot, and so on until the cassette in the highest numbered tape slot is reached.

NOTE:

During recording, relay playback and random playback, the auto reverse function will only operate when the tape is moving from the end of side A to the beginning of side B.

The tape cannot move automatically from the end of side B to the beginning of side A during these modes (i.e., the tape will stop at the end of side B even when reverse mode is selected).

This indicates that the cassette deck will switch automatically from side A to side B, but will not switch automatically from side B to side A. If, for example, recording is started from the beginning of side B, the tape will stop after only one side is recorded, even though reverse mode is selected.

⑯ COUNTER buttons

MODE: Each time this button is pressed, the multifunction display switches between tape counter display mode and time counter display mode.

RESET: When this button is pressed, the tape counter is reset to 0000 and the time counter is reset to 00:00.

⑰ DECK I operation buttons

These buttons operate in the same way as the operation buttons of DECK II, with the following exceptions:

Forward play (▶): If the tray is open when this button is pressed, it will close automatically, the cassette in the lowest numbered slot will be loaded, and side A will be played back.

Reverse play (◀): If the tray is open when this button is pressed, it will close automatically, the cassette in the lowest numbered slot will be loaded, and side B will be played back.

Fast reverse (MS ◀◀):

Load a cassette tape in the tape transport mechanism, then press this button twice to select the ALL REWIND mode. The ALL REWIND mode begins from the currently playing tape. Press the button once more to return to normal REWIND mode.

Recording (●):

When this button is pressed, the cassette deck enters recording standby mode. Recording begins when the play (▶ or ◀) button or pause (⏸) button is pressed.

Pause (⏸):

Press this button to temporarily pause recording or playback. Press the button again to resume recording or playback. The pause button cannot be used during fast-forward or fast-reverse. If this button is pressed after the recording (●) button is pressed, recording will begin.

Recording mute (Ⓞ):

When this button is pressed during recording, the cassette deck creates a 4-second blank space on the tape and then enters recording standby mode. If the button is pressed and held, the deck continues to create a blank space until the button is released.

⑱ CD-DECK SYNCHRO recording button (CD SYNCHRO)**⑲ DOLBY* NR buttons****DOLBY NR MEMORY button:**

Press this button to begin setting the DOLBY NR system, or to check the current DOLBY NR settings.


DOLBY NR OFF/B/C button:

Press this button repeatedly to select the desired type of DOLBY NR. The selected type of DOLBY NR (B or C) is displayed.

If no display appears, DOLBY NR OFF is selected.

When playing back Dolby NR-encoded tapes, always select the same position (OFF, B or C) used for recording.

*

- *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.*

⑳ CASSETTE NUMBER buttons (1-6)

Press one of these buttons to select the cassette which will be loaded from the tray into the tape transport mechanism of DECK I.

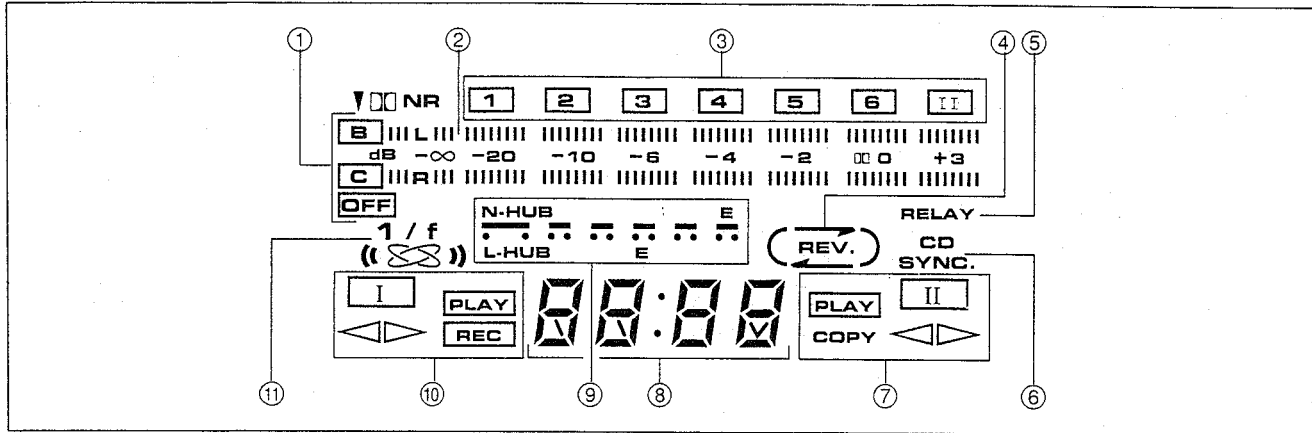
㉑ Remote control sensor window (U.S and Canadian models only)**㉒ DECK I OPEN/CLOSE button (▲)**

Press this button to open the cassette door. When the door is open, cassette tapes can be placed onto or removed from the tray. If a cassette is loaded in the tape transport mechanism (see page 5), the door can still be opened and tapes can be added or removed. However, DO NOT place a cassette in the tray slot previously occupied by the loaded cassette.

NOTE:

The cassette tray cannot be opened unless the POWER switch is turned OFF.

DISPLAY WINDOW



① DOLBY NR B/C/OFF indicator

Indicates the selected type of Dolby noise reduction (B-type or C-type). The DOLBY NR system is turned OFF when neither of the **B** or **C** indicators are lighted. In this case, the **OFF** indicator will flash if the DOLBY NR MEMORY button is pressed.

② Level meter

Indicates the left and right channel signal levels. Indicates the recording level during recording, and the recorded level during playback. The **0** mark beside 0 indicates the Dolby NR system standard level. The level meter on this cassette deck has a peak hold function which continues to display the peak level for 1.2 seconds, to make adjustment of the recording level easier.

③ Cassette number indicators/DECK II indicator

The cassette number indicators light when the indicated cassette has been loaded into the tape transport mechanism of DECK I. When the ALL REWIND mode is in operation, the number of the cassette being rewound will flash; when the ALL REWIND operation is completed, the number will go out.

When the DOLBY NR MEMORY button is pressed, the selected type of Dolby noise reduction for each tape is displayed below the cassette number and DECK II indicators.

④ Reverse mode indicator (REV.)

Indicates the tape transport mode:

▬: One way mode is selected.

⌂: Reverse mode is selected.

NOTE:

During recording, relay playback and random playback, the autoreverse function will only operate when the tape is moving from the end of side A to the beginning of side B.

The tape cannot move automatically from the end of side B to the beginning of side A during these modes (i.e., the tape will stop at the end of side B even when reverse mode is selected).

⑤ RELAY indicator

Lights when the cassette deck is in relay mode.

⑥ CD Synchro indicator (CD SYNC.)

Lights when synchro recording from a CD player is being carried out.

⑦ DECK II tape transport indicators (II)

⑧ Multifunction display

⑨ DECK I remaining time indicators

Indicate the approximate time remaining on the tape during recording and playback. When the tape is close to the end, each indicator will flash and then go off in sequence.

⑩ DECK I tape transport indicators (I)

⑪ FLEX (1/f) indicator

If the FLEX button is pressed while the unit is in the play mode, the 1/f indicator lights, and the **∞** indicator flashes. When FLEX tuning is completed, the indicator lights steadily.

Dolby HX PRO Headroom Extension System

The Dolby HX PRO system controls the level of signals during recording and always keeps it at an optimal level according to the level of the high frequency components of the music signal and the tape bias. It therefore provides excellent recording quality even when recording signals from digital sources which contain a large amount of high-frequency components. To guarantee optimal recording results, The HX PRO system is activated automatically when recording begins. The Dolby HX PRO system operates regardless of the setting of the Dolby NR system buttons.

Dolby NR Systems

The Dolby NR systems are designed to reduce the amount of tape hiss, mainly in the treble components. During recording, the high-pitched pianissimo sounds which are most characteristic of audible noise are boosted, and during playback, only those boosted sections are attenuated, so that tape sound is returned to normal. As a result, the noise is attenuated by an amount equal to the boosting in the treble range. The Dolby B-type NR system reduces noise in the treble range, cutting tape hiss and expanding the dynamic range. The Dolby C-type NR system is even more effective in reducing noise, as it cuts the noise from the mid-range on.

NOTE:

When a tape has been recorded using Dolby B-type or C-type noise reduction, make sure that the DOLBY NR buttons are set to the same position during playback.

11. SPECIFICATIONS

System	4-track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head x 1 "Hard Permalloy" playback head x 1 "Ferrite" erasing head x 1
Motors	DC servo motor (capstan) x 2 DC motor (open/close, loading) x 2
Wow and flutter	No more than 0.09% (WRMS)
Fast winding time	Approximately 120 seconds (C-60 tape)

Frequency response	
-20 dB recording:	
TYPE I (Normal) tape	20 to 17,000 Hz, ± 6 dB
TYPE II (HIGH/CrO ₂) tape	20 to 18,000 Hz, ± 6 dB
TYPE IV (Metal) tape	20 to 19,000 Hz, ± 6 dB
Signal-to-Noise ratio	
Dolby NR OFF	More than 58 dB
Noise reduction effect	
Dolby B type NR ON	More than 10 dB (at 5 kHz)
Dolby C type NR ON	More than 19 dB (at 5 kHz)
Harmonic distortion	No more than 0.8% (-4 dB)
Input (Sensitivity)	
LINE (INPUT)	112 mV (Input impedance 57 k Ω)
Output (Reference level)	
LINE (OUTPUT)	0.5 V (Output impedance 7.4 k Ω)

Miscellaneous

Power requirements	
U.S., Canadian models	AC 120 Volts, 60 Hz
Multi-voltage model	AC 110 V/ 120 V~127 V/220 V/240 V (switchable), 50/60 Hz
Power consumption	
U.S. and Canadian models	22 W
Multi-voltage model	23 W
Dimensions	420 (W) x 135.5 (H) x 364 (D) mm 16-9/16 (W) x 5-5/16 (H) x 14-5/16 (D) in
Weight (without package)	7.2 kg (15 lb 9 oz)

Accessories

Operating instructions	1
Connection cord with pin plugs	2
CD-DECK SYNCHRO control cord	1
System remote control cord	
(U.S. and Canadian models only)	1
Cassette labels	1
Remote control unit (U.S. and Canadian models only)	1
Dry cell batteries "AAA" (IEC R03/UM-4)	
(U.S. and Canadian models only)	2

Subfunctions

- DOLBY NR B/C types
- DOLBY HX PRO (DECK I only)
- DOLBY NR memory
- High-speed and normal-speed tape copying (DECK II \rightarrow DECK I)
- Synchronized copy start
- Blank skip
- Music search over ± 15 selections
- CD-DECK SYNCHRO recording capability (DECK I only)
- Tape counter/Time counter
- Tape Remaining Time indicators (6 seg; DECK I only)
- FL peak level meter (7 seg + ∞)
- Automatic space recording mute (DECK I only)
- One-touch recording pause (DECK I only)
- Automatic tape selector
- Automatic reverse
- TIMER RELAY Recording/TIMER Playback (DECK I only)
- System remote control compatible
- Relay recording/Relay playback (DECK I only)
- All rewind (at high speed, on DECK I only)
- Cassette random playback (DECK I only)
- Cassette scan playback (DECK I only)
- Powered eject (DECK I only)

NOTE:

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