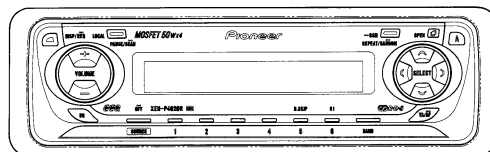


# Service Manual

KEH-P4020R / XM/EW



ORDER NO  
CRT2764

MULTI-CD CONTROL HIGH POWER CASSETTE PLAYER WITH RDS TUNER

# KEH-P4020R

 XM/EW

# KEH-P4023R

 XM/EW

● This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech. Module	Remarks
CX-1011	CRT2406	3L	Cassette Mech. Module:Mech.Description, Disassembly, Adjustment

**NOTE:**

● This service manual does not describe the CD test mode.

For the operations in the CD test mode, refer to the CD player's Service manual.

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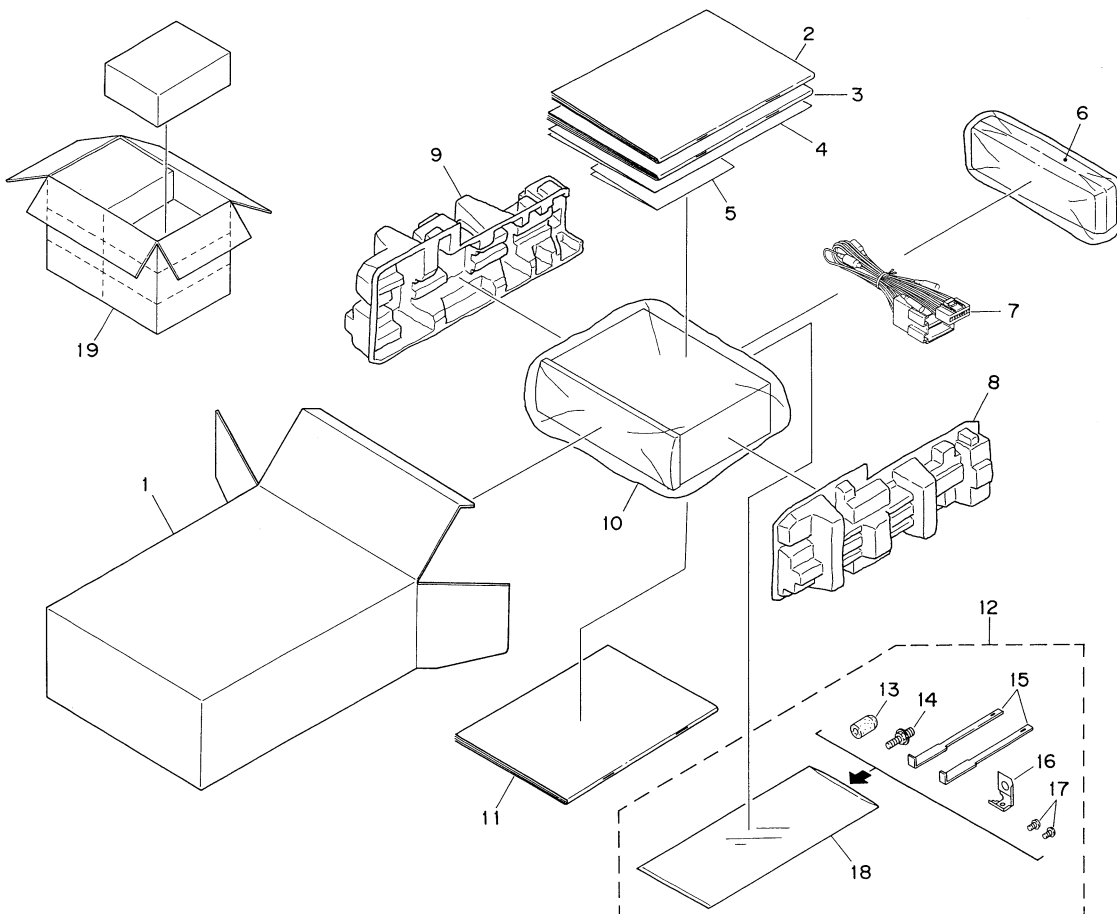
PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan  
 PIONEER ELECTRONICS (USA) INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.  
 PIONEER EUROPE NV Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium  
 PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

## **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.

## **2. EXPLODED VIEWS AND PARTS LIST**

### **2.1 PACKING**



**NOTE**

● Parts marked by “\*\*” are generally unavailable because they are not in our Master Spare Parts List.

**● PACKING SECTION PARTS LIST**

KEH-P4020R/XM/EW

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Carton	CZH5587		11	Owner's Manual	CZR2951
	2	Owner's Manual	CZR2950		12	Accessory Assy	CEA3062
	3	Installation Manual	CZR2952		13	Bush	CNV3930
*	4	Warranty Card	CRY1157		14	Screw	CBA1002
*	5	Passport	CRY1013		15	Handle	CNC5395
	6	Case Assy	CXB3520		16	Holder	CNC9450
	7	Cord Assy	CZD2977		17	Screw	BPZ20P060FZK
	8	Protector	CZH5591	*	18	Polyethylene Bag	E36-615
	9	Protector	CZH5592		19	Contain Box	CZH5588
	10	Polyethylene Bag	CZE2903				

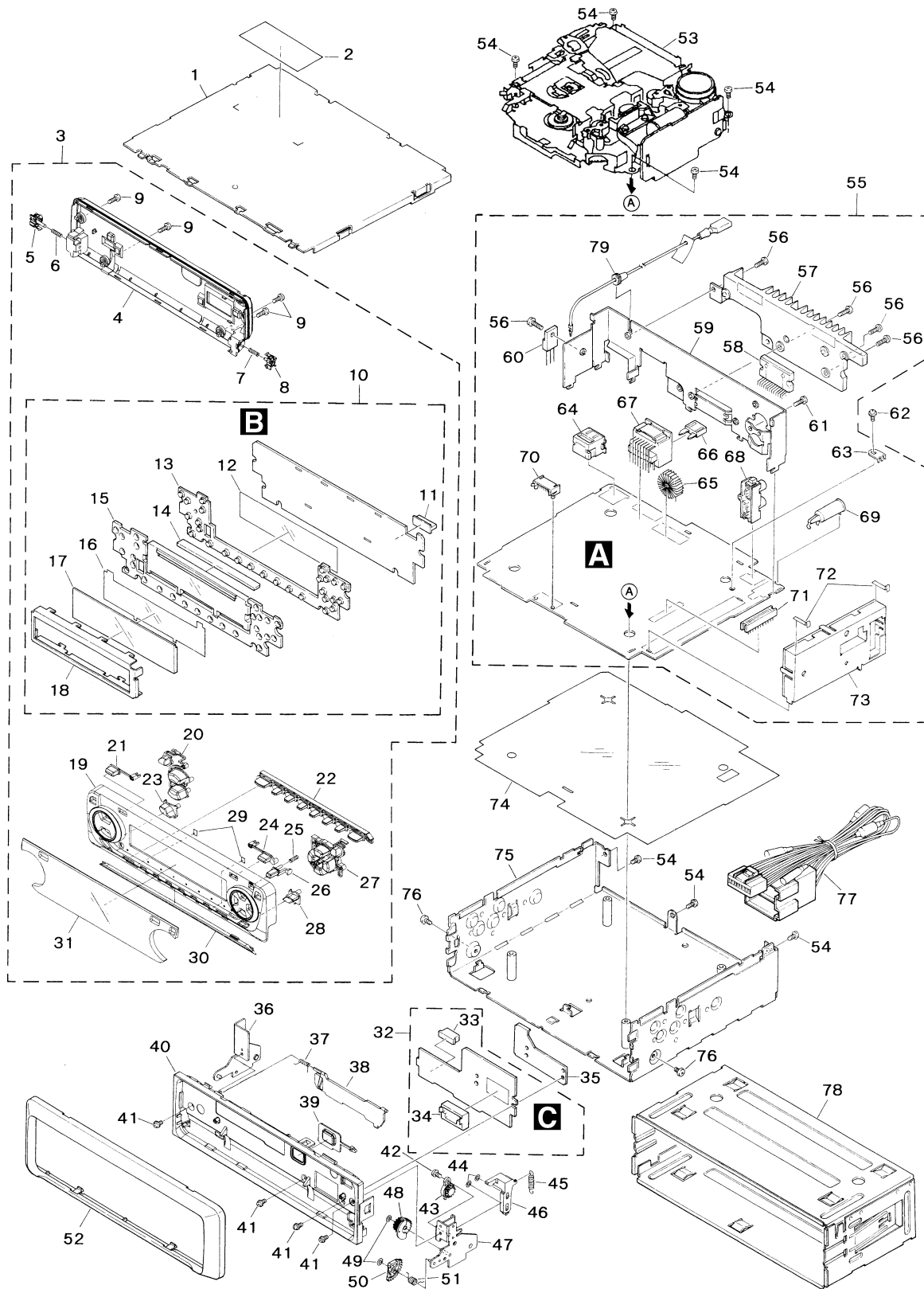
KEH-P4023R/XM/EW

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Carton	CZH5589		11	Owner's Manual	CZR2951
	2	Owner's Manual	CZR2950		12	Accessory Assy	CEA3062
	3	Installation Manual	CZR2952		13	Bush	CNV3930
*	4	Warranty Card	CRY1157		14	Screw	CBA1002
*	5	Passport	CRY1013		15	Handle	CNC5395
	6	Case Assy	CXB3520		16	Holder	CNC9450
	7	Cord Assy	CZD2977		17	Screw	BPZ20P060FZK
	8	Protector	CZH5591	*	18	Polyethylene Bag	E36-615
	9	Protector	CZH5592		19	Contain Box	CZH5590
	10	Polyethylene Bag	CZE2903				

**Owner's Manual,Installation Manual**

Part No.	Language
CZR2950	English, Spanish, German
CZR2951	French, Italian, Dutch
CZR2952	English, Spanish, German, French, Italian, Dutch

## 2.2 EXTERIOR



**(1)EXTERIOR SECTION PARTS LIST**

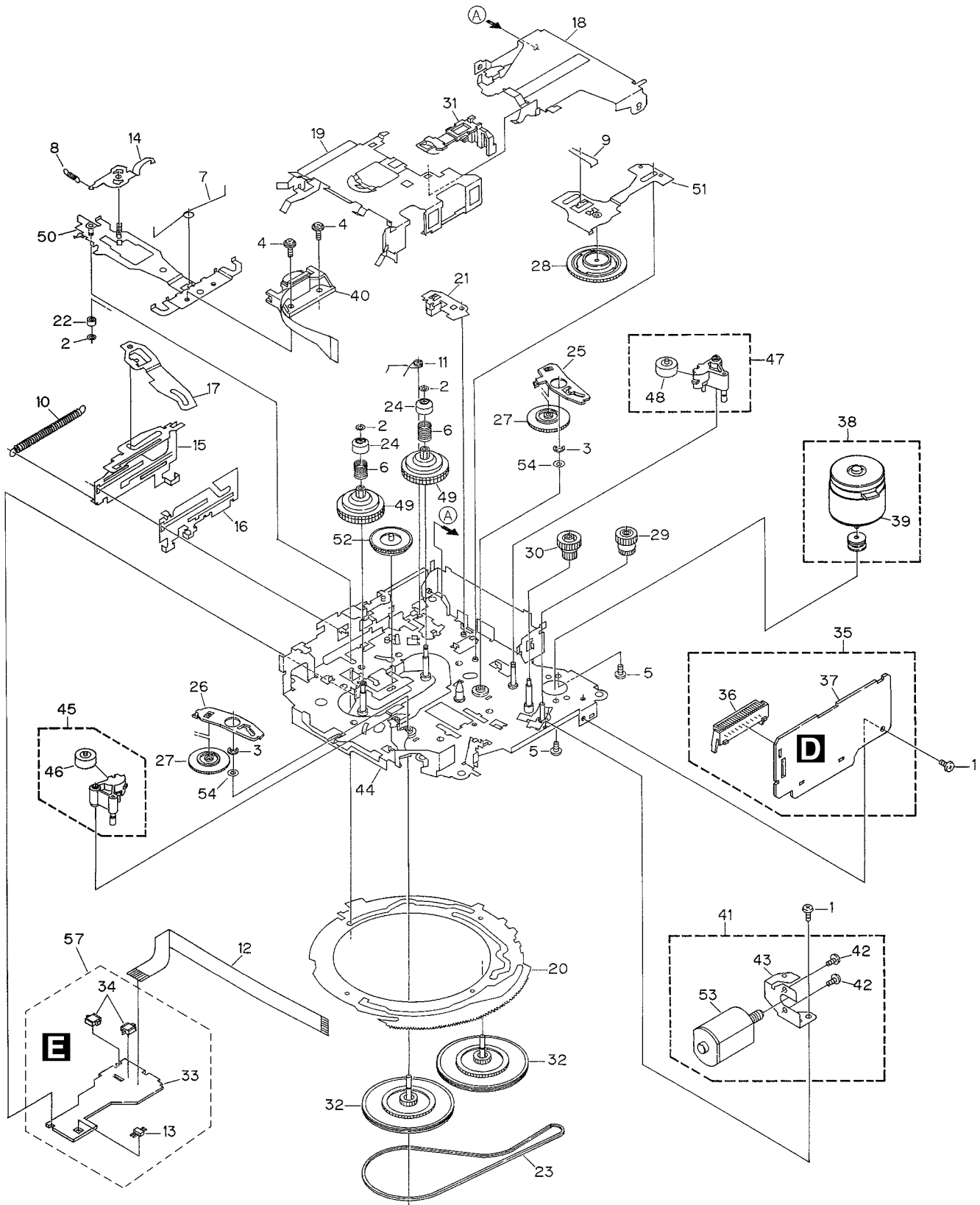
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Case	CZN6794	41	Screw	IMS20P045FZK	
*	2	Label	CZA5543	42	Screw(M2x2)	CBA1176	
*	3	Grille Unit	See Contrast table(2)	43	Damper Unit	CXB5070	
	4	Cover	See Contrast table(2)	44	Washer	CBF1039	
	5	Holder	CNV6506	45	Spring	CBH2429	
	6	Spring	CBH2431	46	Arm	CZN6827	
	7	Spring	CBH2430	47	Holder Unit	CXB6356	
	8	Holder	CNV6505	48	Clutch Unit	CXB6358	
	9	Screw	BPZ20P100FZK	49	Washer	CBF1038	
	10	Keyboard Unit	See Contrast table(2)	50	Gear	CNV6507	
	11	Connector(CN900)	CZK2948	51	Spring	CBH2428	
	12	Sheet	CZN6808	52	Panel	See Contrast table(2)	
	13	Rubber	CZN6806	53	Cassette Mechanism Module	EXK4080	
	14	Contact	CZN6807	54	Screw	BSZ26P060FMC	
	15	Lighting Conductor	CZN6809	55	Tuner Amp Unit	CZW5530	
	16	Light Plate	CZN6810	56	Screw	BSZ26P100FMC	
	17	LCD(LCD900)	CZA5561	57	Heat Sink	CZN6798	
	18	Holder	CZN6811	58	IC(IC500)	PAL007A	
	19	Grille Assy	See Contrast table(2)	59	Panel	CZN6797	
	20	Button(VOL)	CZA5544	60	Transistor(Q607)	2SD2396	
	21	Button(LOCAL)	CZA5550	61	Screw	BPZ26P100FZK	
	22	Button(PRESET)	CZA5551	62	Screw	ISS26P055FUC	
	23	Button(EQ)	CZA5545	63	Terminal(CN101)	CKF1059	
	24	Button(BSM)	CZA5549	64	Connector(CN400)	CKS3408	
	25	Spring	CZB2980	65	Choke Coil(L600)	CTH1221	
	26	Button(RELEASE)	CZA5552	66	Fuse(10A)	CEK1208	
	27	Button(CROSS)	CZA5548	67	Connector(CN600)	CZK2943	
	28	Button(TA/AF)	CZA5547	68	Pin Jack(CN350)	CKB1041	
	29	Sheet	CZN6833	69	Antenna Jack(CN100)	CKX1056	
	30	Plate Assy	CZX5525	70	Connector(CN800)	CZK2949	
	31	Plate Assy	See Contrast table(2)	71	Connector(CN200)	CKS3568	
	32	Panel PCB Unit	CZW5526	72	Plate	CZN6730	
	33	Connector(CN850)	CZK2950	73	FM/AM Tuner Unit(TU100)	CWE1562	
	34	Connector(CN851)	CZK2947	74	Insulator	CZN6801	
	35	Holder	CZN6799	75	Chassis Unit	See Contrast table(2)	
	36	Holder Unit	CXB6357	76	Screw	BMZ30P040FZK	
	37	Spring	CZB2981	77	Cord Assy	CZD2977	
	38	Door	See Contrast table(2)	*	78 Holder	CNC9131	
	39	Button(EJECT)	CZA5553	79	Cord Assy	CZD2978	
	40	Panel Assy	See Contrast table(2)				

**(2)CONTRAST TABLE**

KEH-P4020R/XM/EW,KEH-P4023R/XM/EW have the same cuntruction except for the following:

Mark No.	Description	Part No.	
		KEH-P4020R/XM/EW	KEH-P4023R/XM/EW
*	3 Grille Unit	CZX5536	CZX5537
	4 Cover	CZN6804	CZN6805
	10 Keyboard Unit	CZW5531	CZW5532
	19 Grille Assy	CZX5530	CZX5531
	31 Plate Assy	CZX5524	CZX5532
	38 Door	CAT2109	CAT2108
	40 Panel Assy	CZX5519	CZX5520
	52 Panel	CNS6332	CNS6333
	75 Chassis Unit	CZX5516	CZX5517

2.3 CASSETTE MECHANISM MODULE

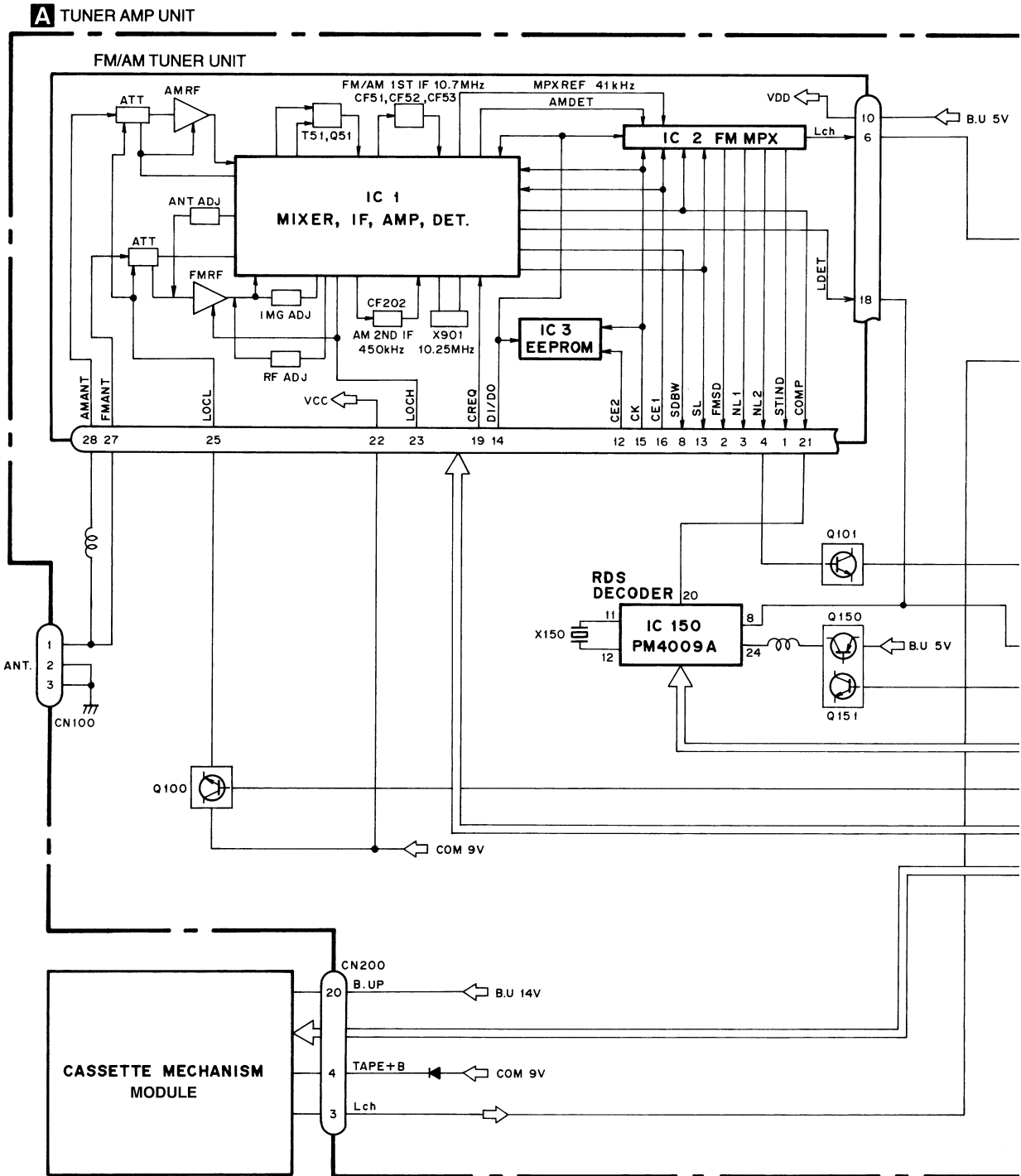


● CASSETTE MECHANISM MODULE SECTION PARTS LIST

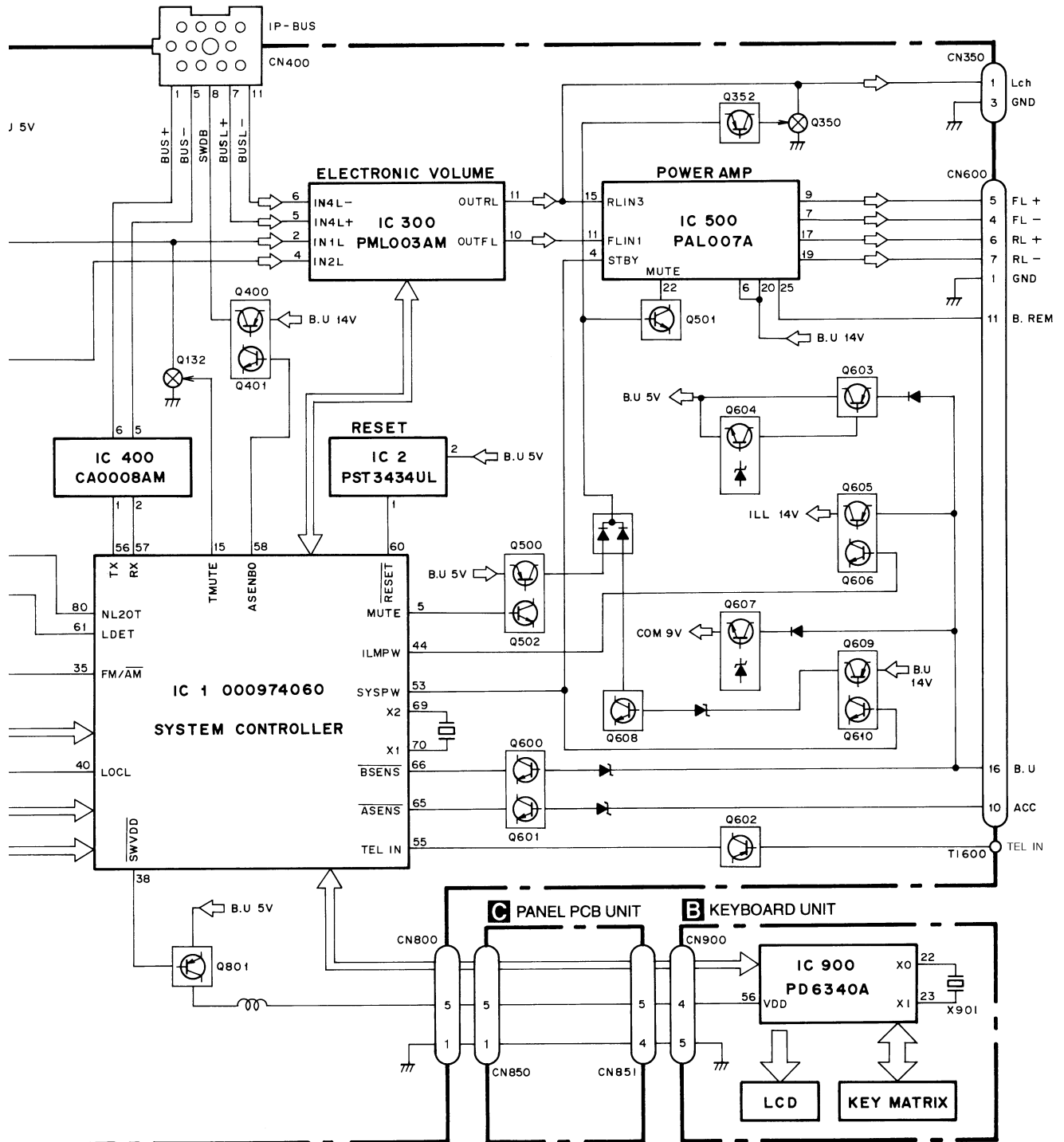
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	31	Lever	ENV1551
2	Washer	CBF1037	32	Flywheel	ENV1554
3	Washer	CBG1003	33	PCB	ENP1196
4	Screw	EBA1028	34	Switch(S101,102)	ESG1007
5	Screw	CBA1037	35	Deck Unit	EWM1042
6	Spring	EBH1653	36	Plug(CN251)	CKS3540
7	Spring	EBH1624	37	Gathering PCB	ENX1064
8	Spring	EBH1641	38	Motor Unit(M1)	EXA1621
9	Spring	EBH1626	39	Motor	EXM1028
10	Spring	EBH1627	40	Head Assy(HD1)	EXA1589
11	Spring	EBH1649	41	Motor Unit(M2)	EXA1580
12	Cord	EDD1024	42	Screw	BMZ20P022FMC
13	Photo-reflector(Q101)	EGN1004	43	Bracket	ENC1528
14	Arm	ENC1526	44	Chassis Unit	EXA1637
15	Lever	ENC1544	45	Pinch Holder Unit	EXA1584
16	Lever	ENC1543	46	Pinch Roller	ENV1518
17	Arm	ENC1532	47	Pinch Holder Unit	EXA1583
18	Frame	ENC1533	48	Pinch Roller	ENV1518
19	Holder	ENC1534	49	Reel Unit	EXA1625
20	Gear	ENC1535	50	Head Base Unit	EXA1611
21	Arm	ENC1550	51	Lever Unit	EXA1631
22	Roller	ENR1040	52	Gear Unit	EXA1632
23	Belt	ENT1027	53	Motor Unit(Service)	EXX1055
24	Collar	ENV1508	54	Washer	HBF-179
25	Arm	ENV1539	55	.....	
26	Arm	ENV1540	56	.....	
27	Gear	ENV1569	57	Sensor Unit	EWM1044
28	Gear	ENV1547			
29	Gear	ENV1560			
30	Worm Wheel	ENV1566			

### 3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

#### 3.1 BLOCK DIAGRAM







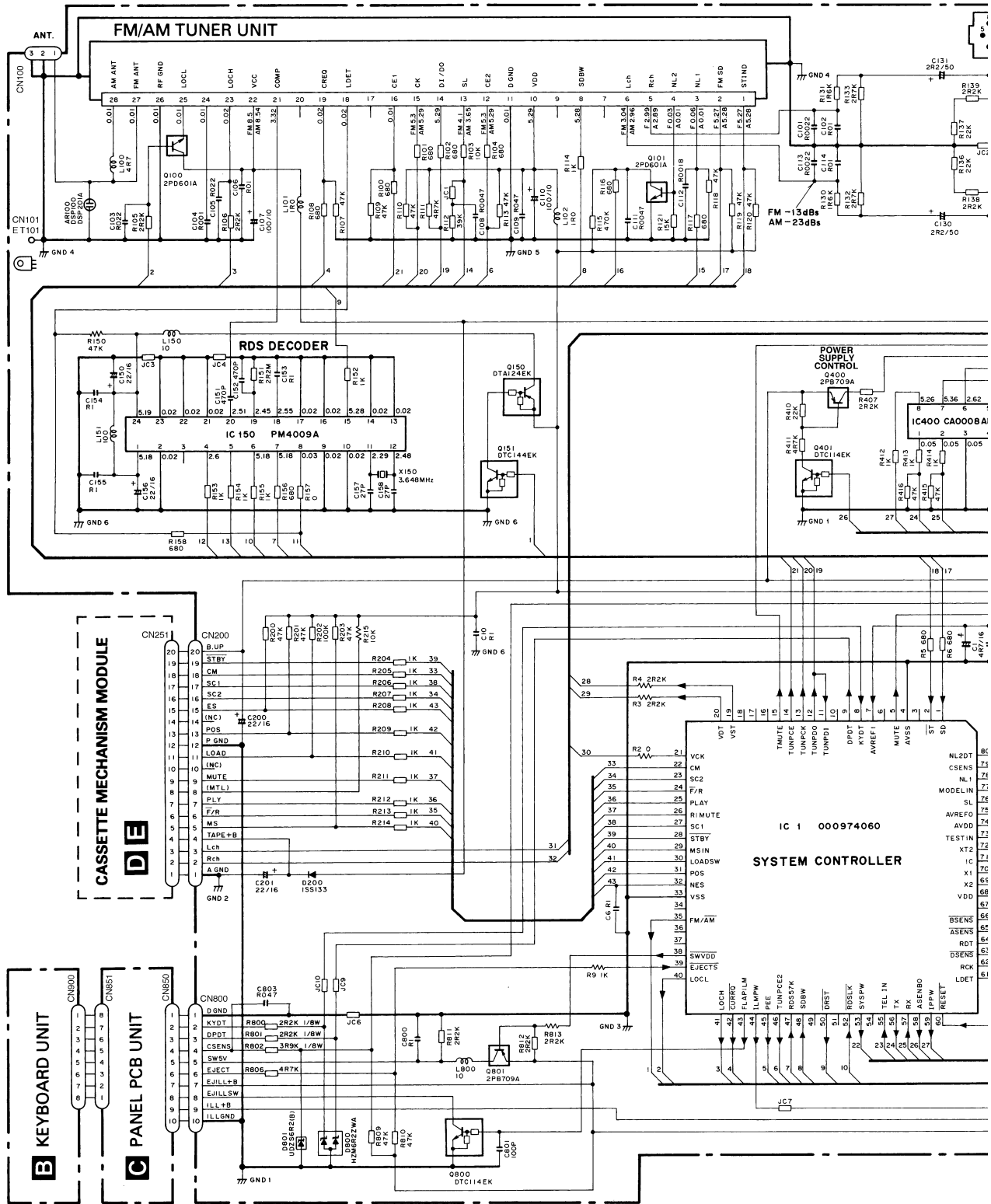
3.2 OVERALL CONNECTION DIAGRAM

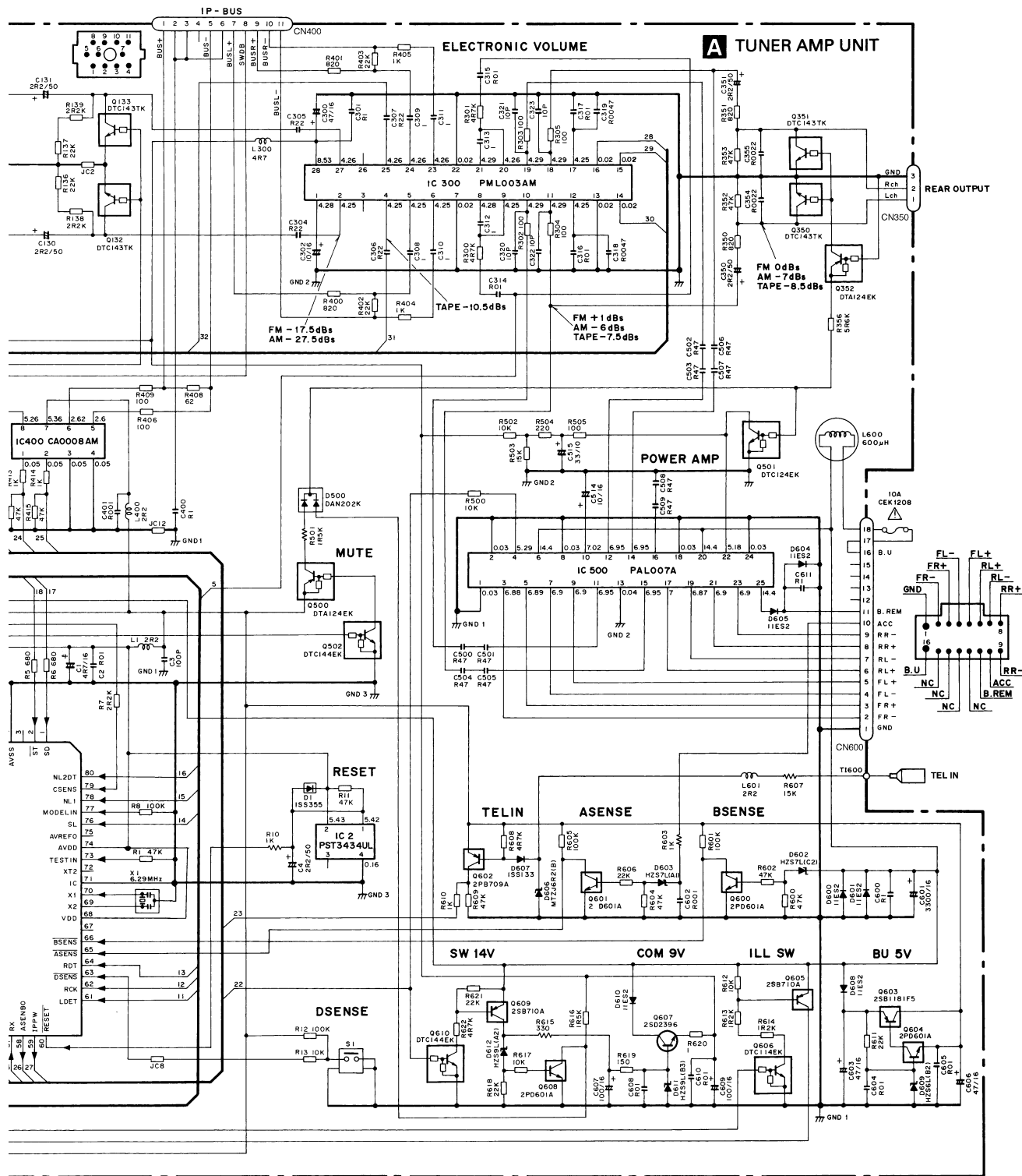
A

B

C

D





NOTE :

- Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.
- ⊖ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

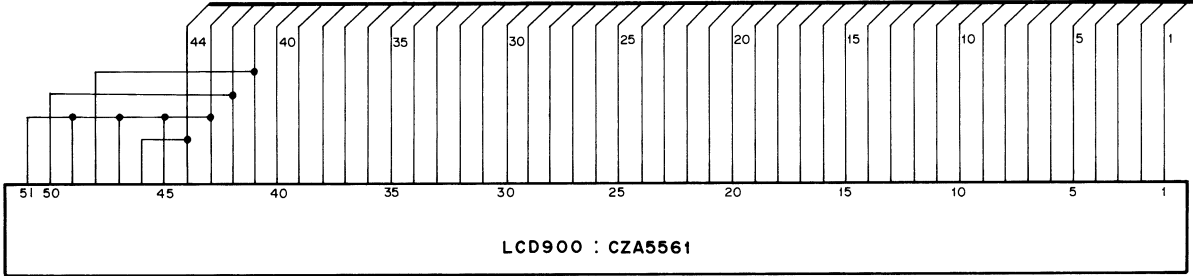
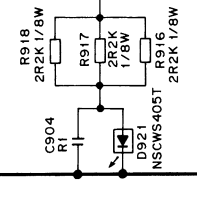
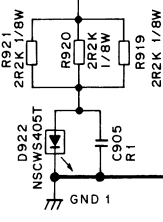
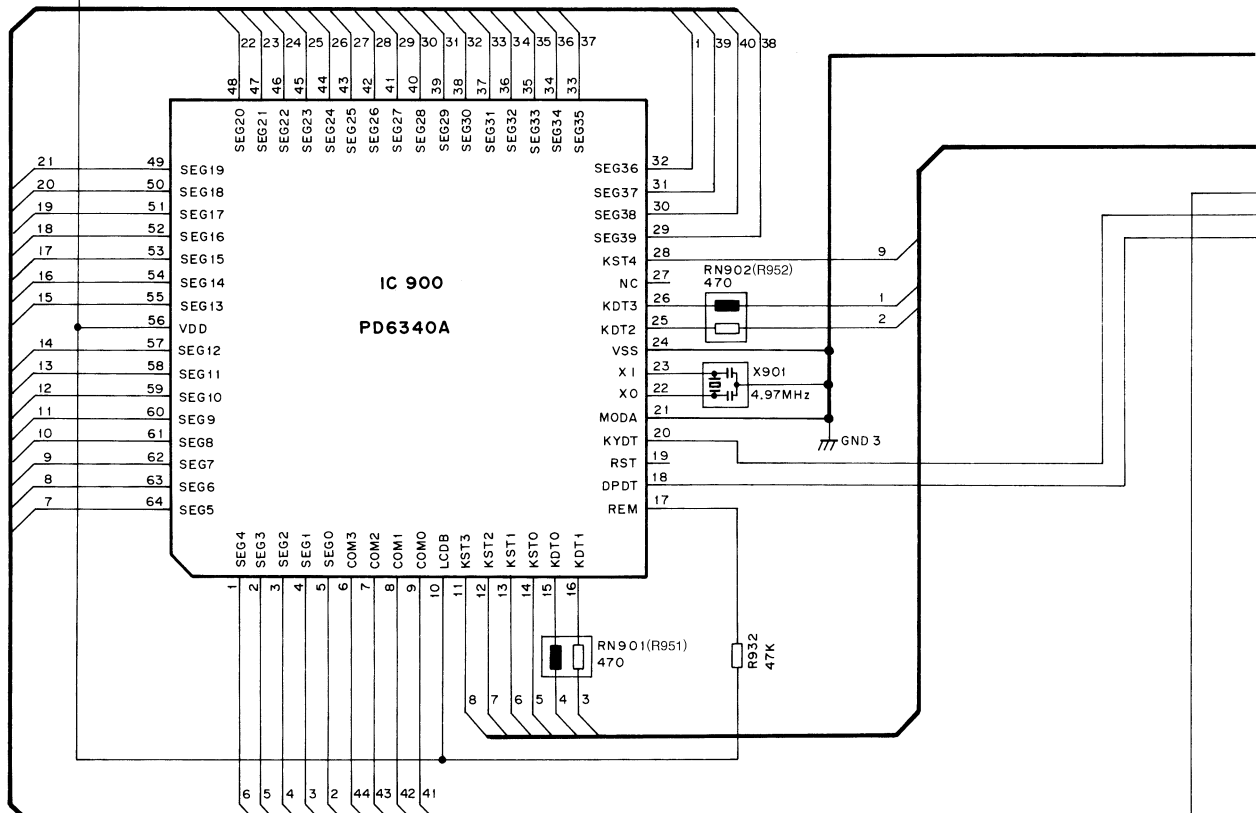
Decimal points for resistor and capacitor fixed values are expressed as :  
 2.2 → R22  
 0.022 → R022

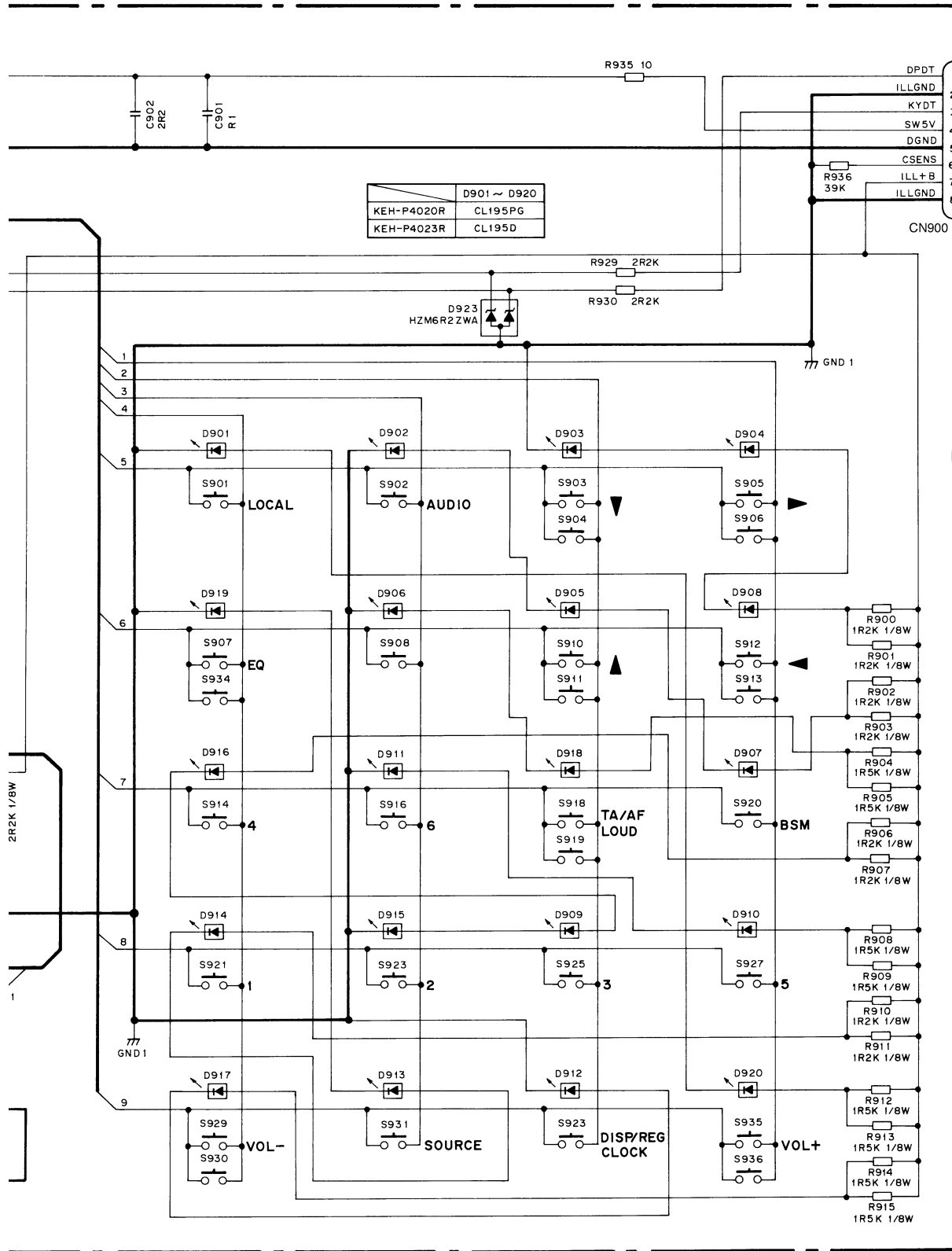
The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



### 3.3 KEYBOARD UNIT

#### B KEYBOARD UNIT

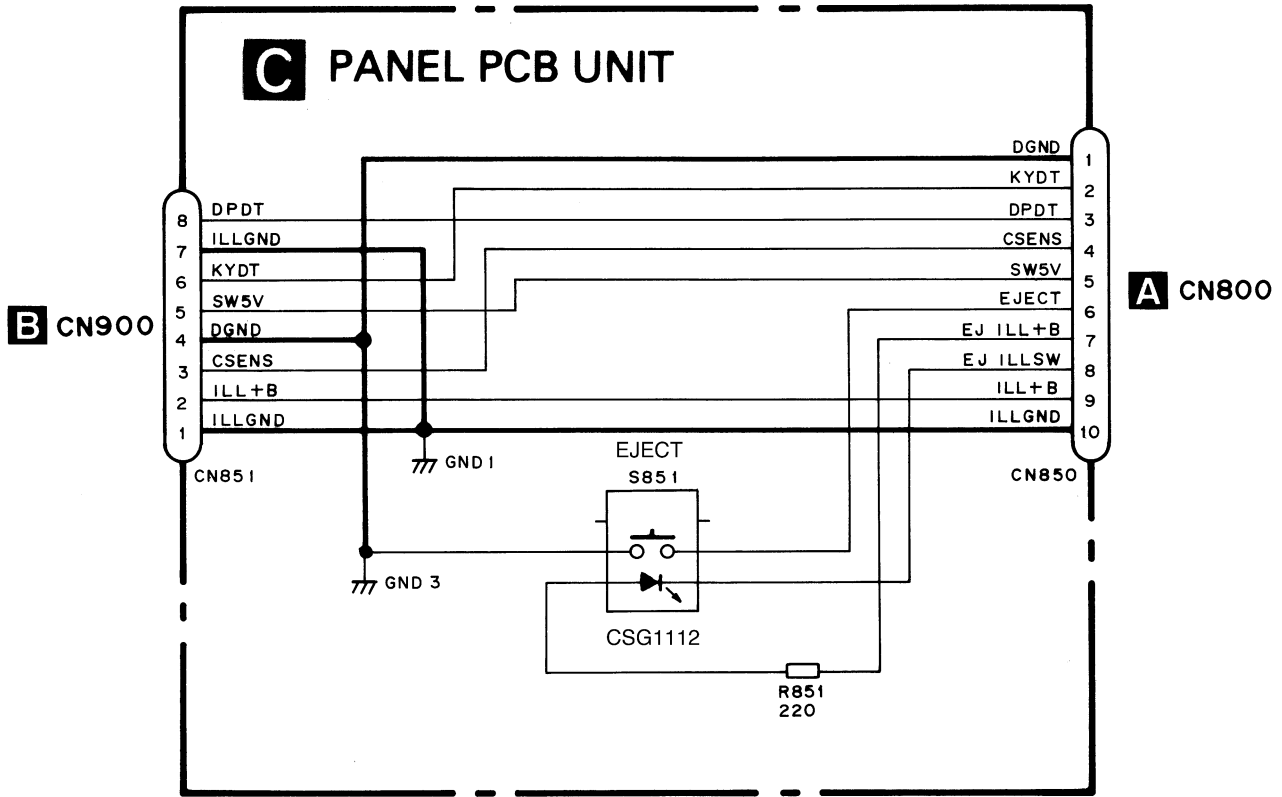




C CN851

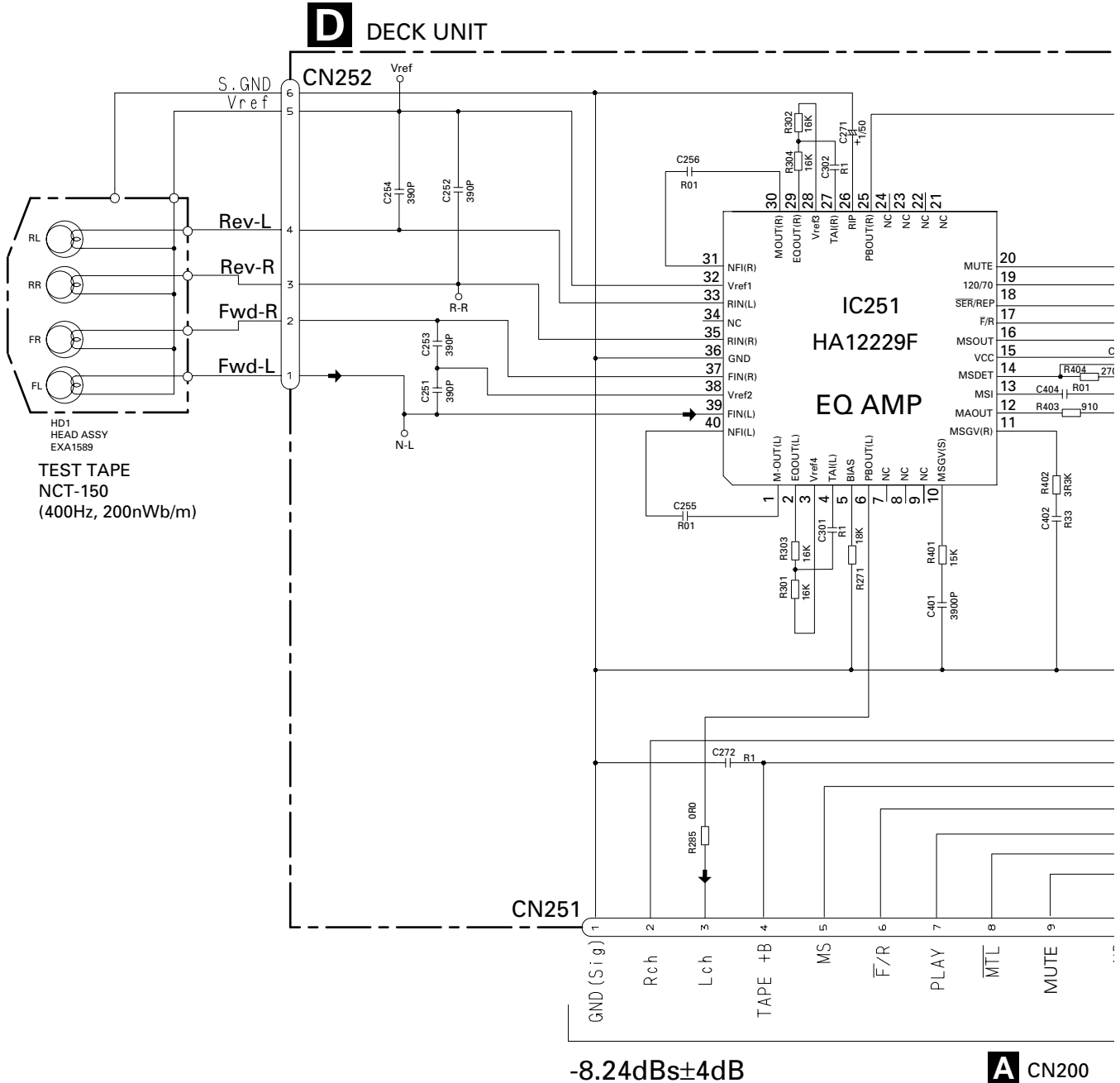
B

### 3.4 PANEL PCB UNIT

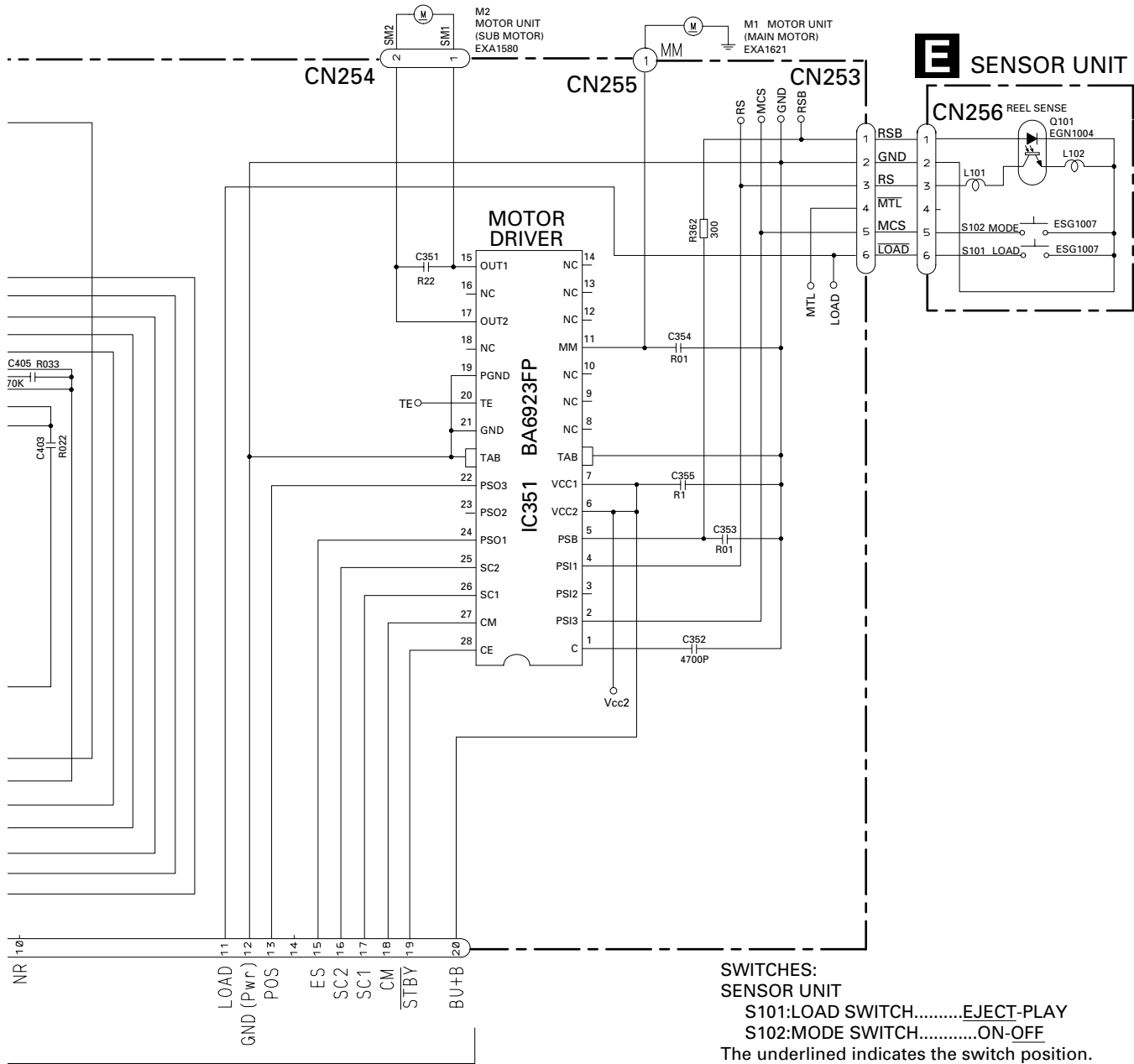




### 3.5 CASSETTE MECHANISM MODULE







A

B

C

D

1 2 3 4

**KEH-P4020R,P4023R**

**4. PCB CONNECTION DIAGRAM**

**4.1 TUNER AMP UNIT**

**NOTE FOR PCB DIAGRAMS**

1. The parts mounted on this PCB include all necessary parts for several destination.  
For further information for respective destinations, be sure to check with the schematic diagram.

2. Viewpoint of PCB diagrams

Connector Capacitor  
P.C.Board Chip Part  
SIDE A  
SIDE B

**A TUNER AMP UNIT**

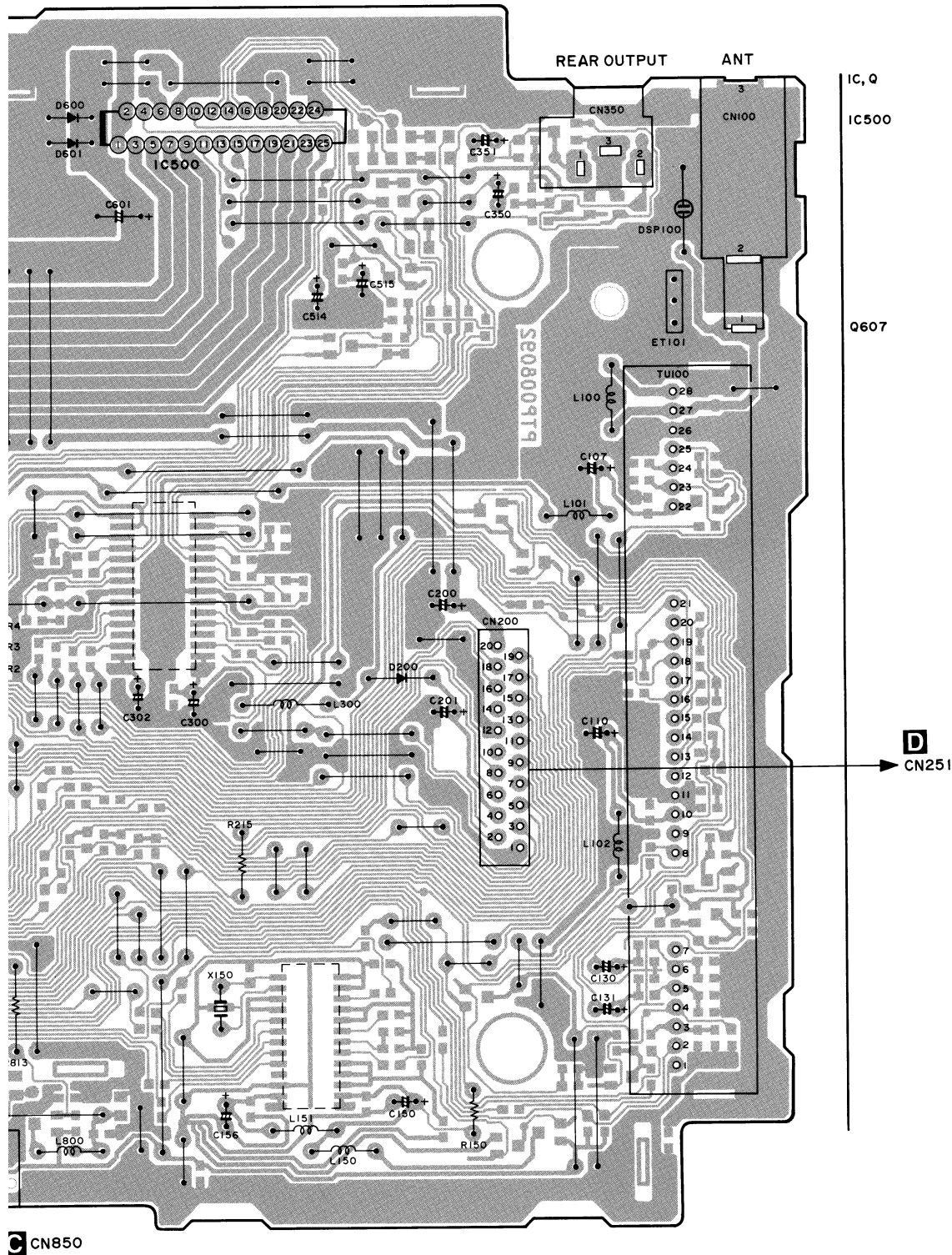
IP-BUS CORD ASSY  
CN400 CN600  
D604 D605 D603 D602 D606 D607  
L600 L601 R603 R607  
Q607 T1600 D610 C607  
R615 D612 L400 R501 R50 R4 R3 R2  
D609 C603 D608 L1 R10 C4 C4  
C606 R5 R13 R13 L800  
SI CN800  
DSENSE CN850

18

**A**

1 2 3 4

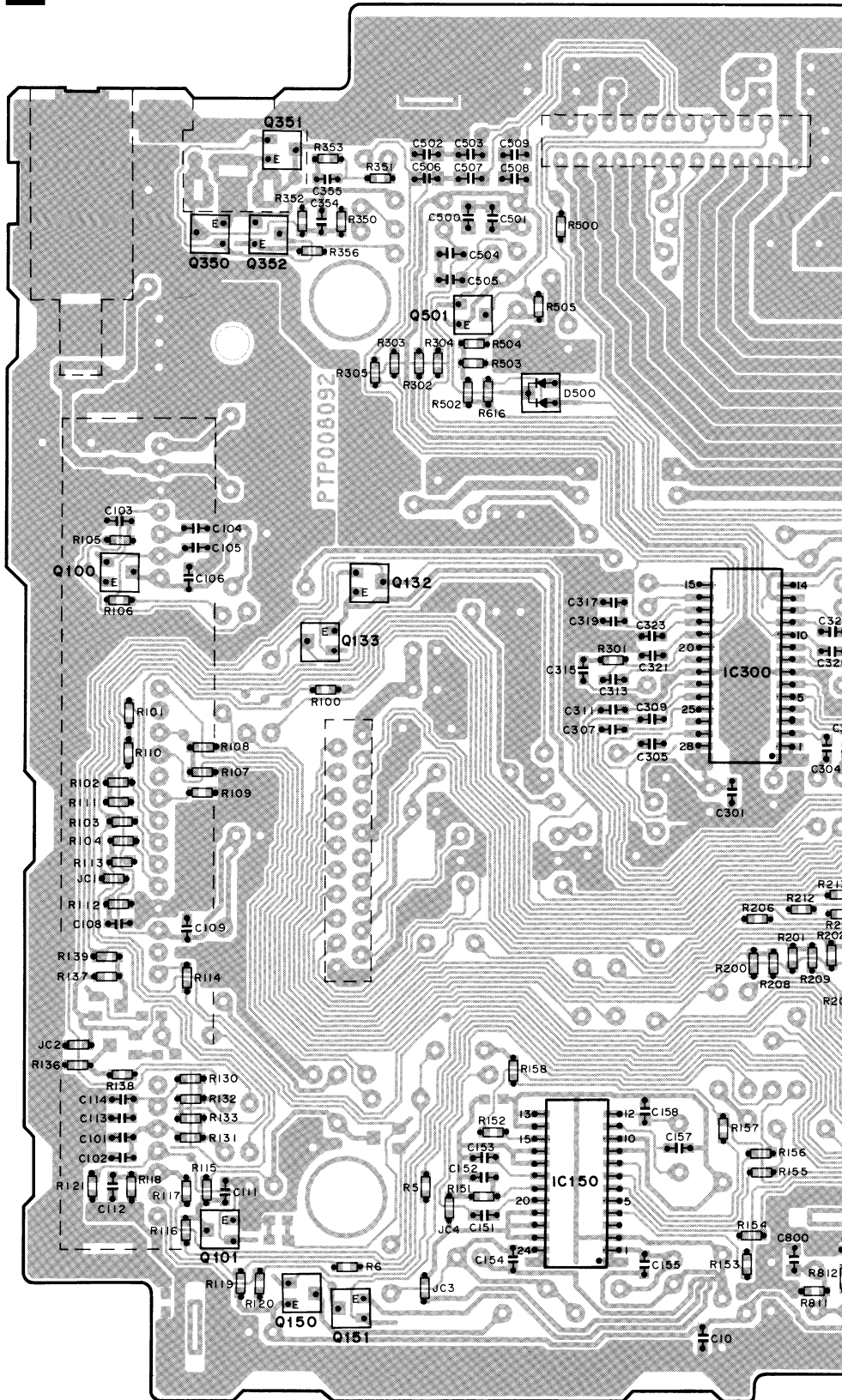
SIDE A



FRONT

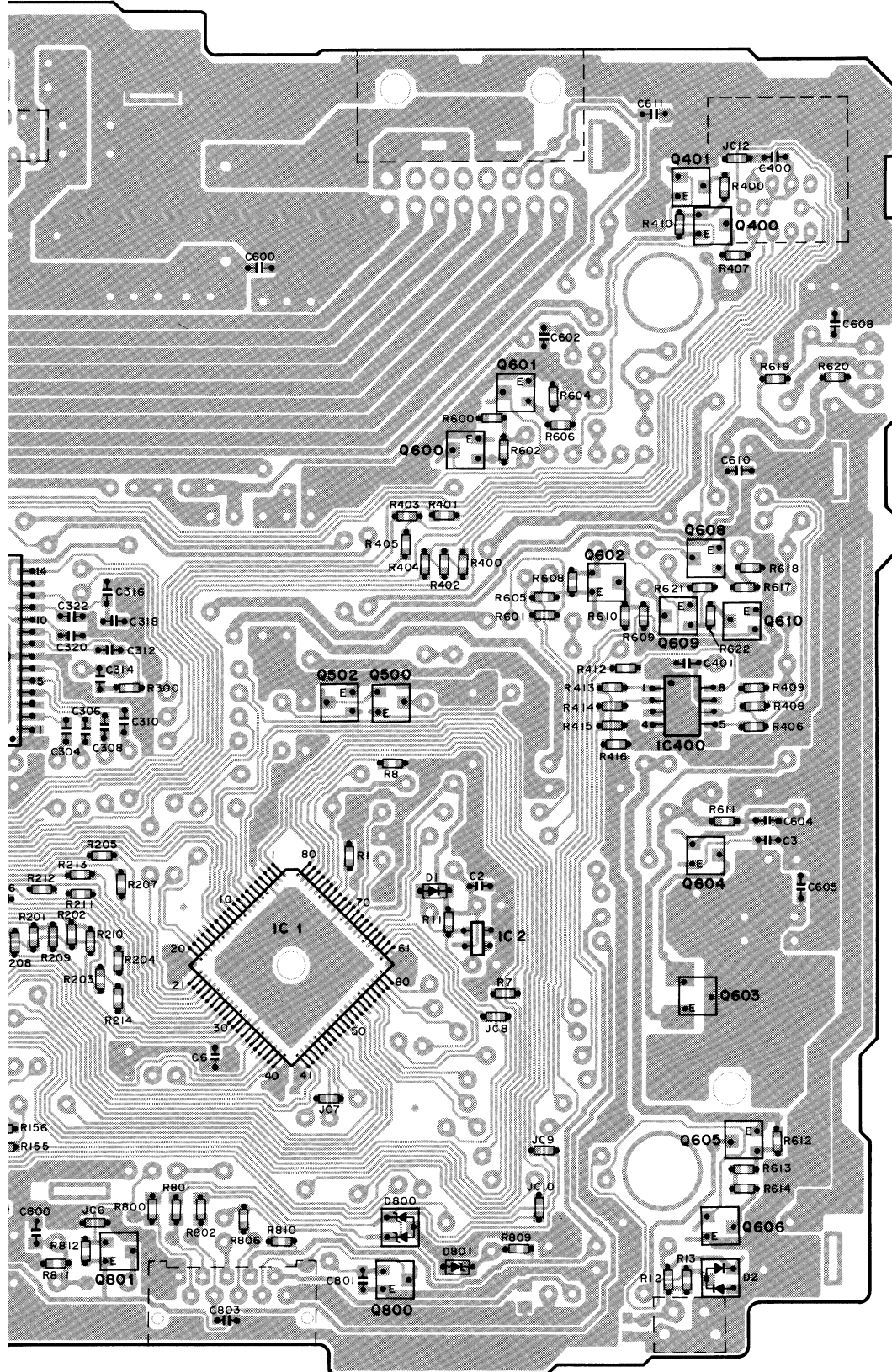
**A** TUNER AMP UNIT

IC, Q  
 Q351  
 Q401, Q400  
 Q350, Q352  
 Q501  
 Q601  
 Q600  
 Q602, Q608  
 Q100  
 Q132  
 Q609, Q610  
 Q133  
 IC300  
 Q502, Q500  
 IC400  
 Q604  
 IC1, IC2  
 Q603  
 Q605  
 IC500  
 Q101  
 Q606  
 Q801  
 Q150, Q151  
 Q800



FRONT

SIDE B



A

B

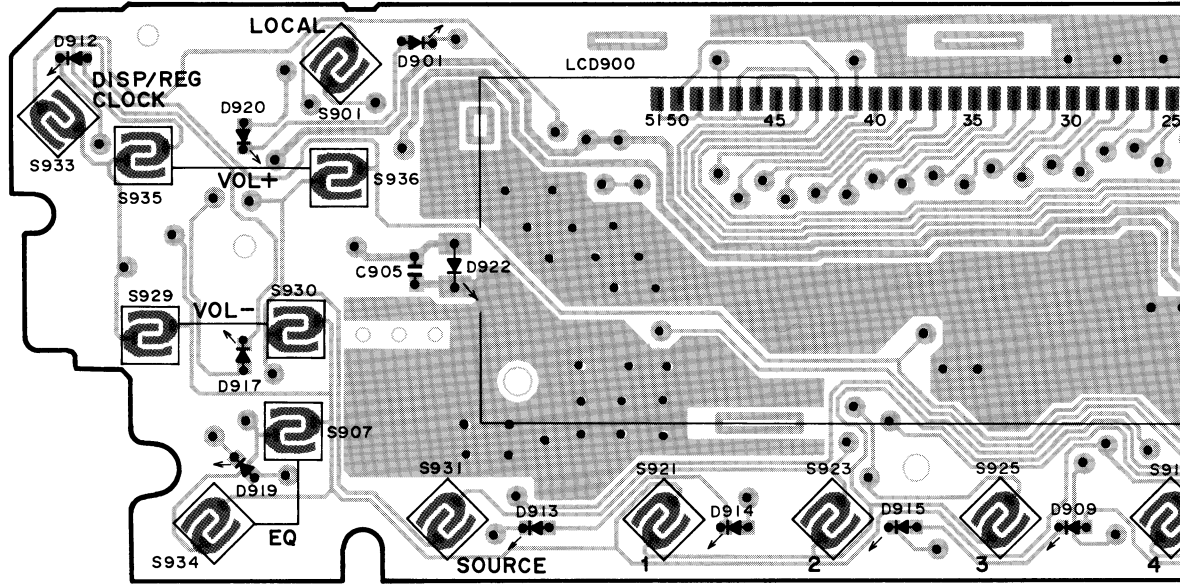
C

D

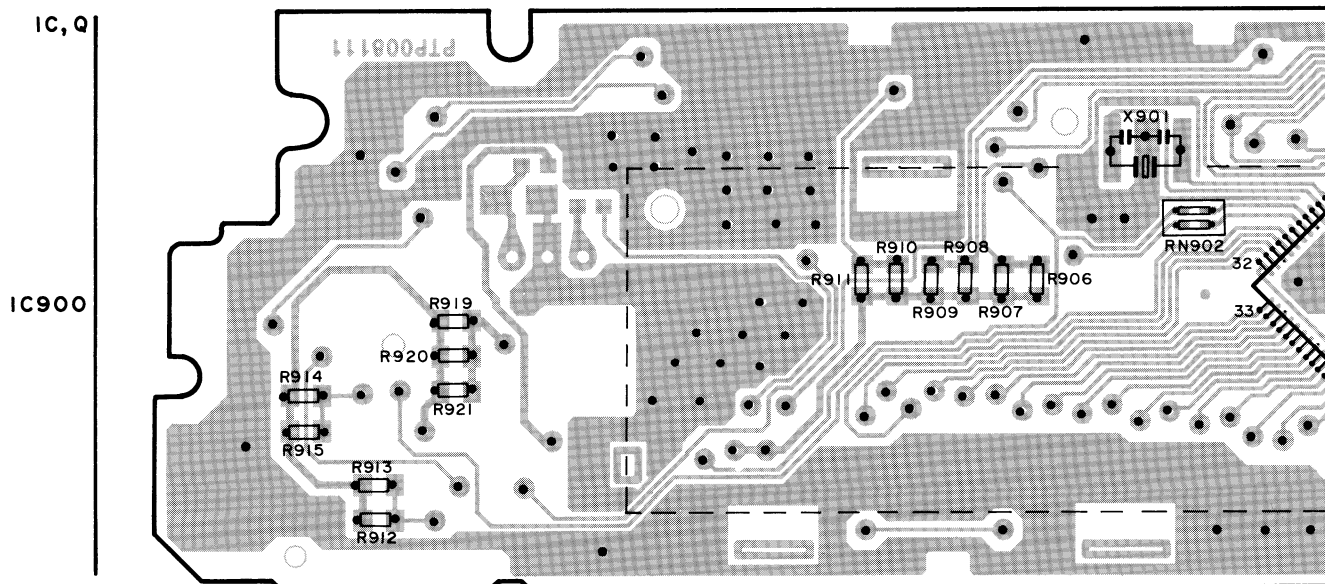


## 4.2 KEYBOARD UNIT

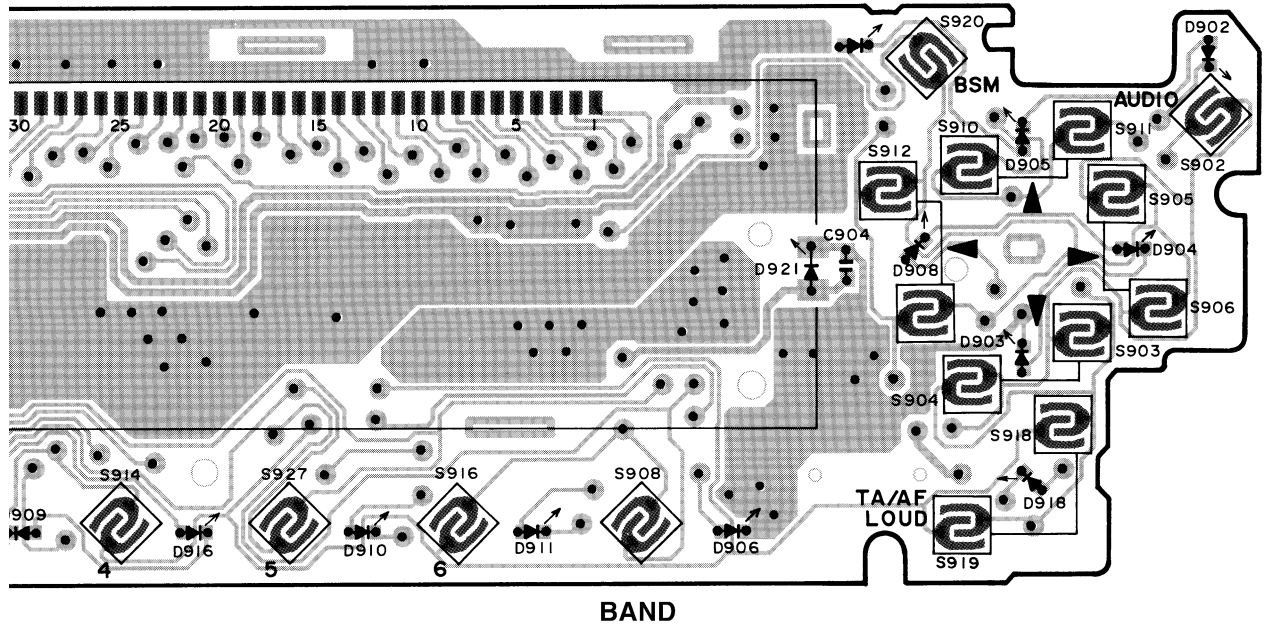
### **B** KEYBOARD UNIT



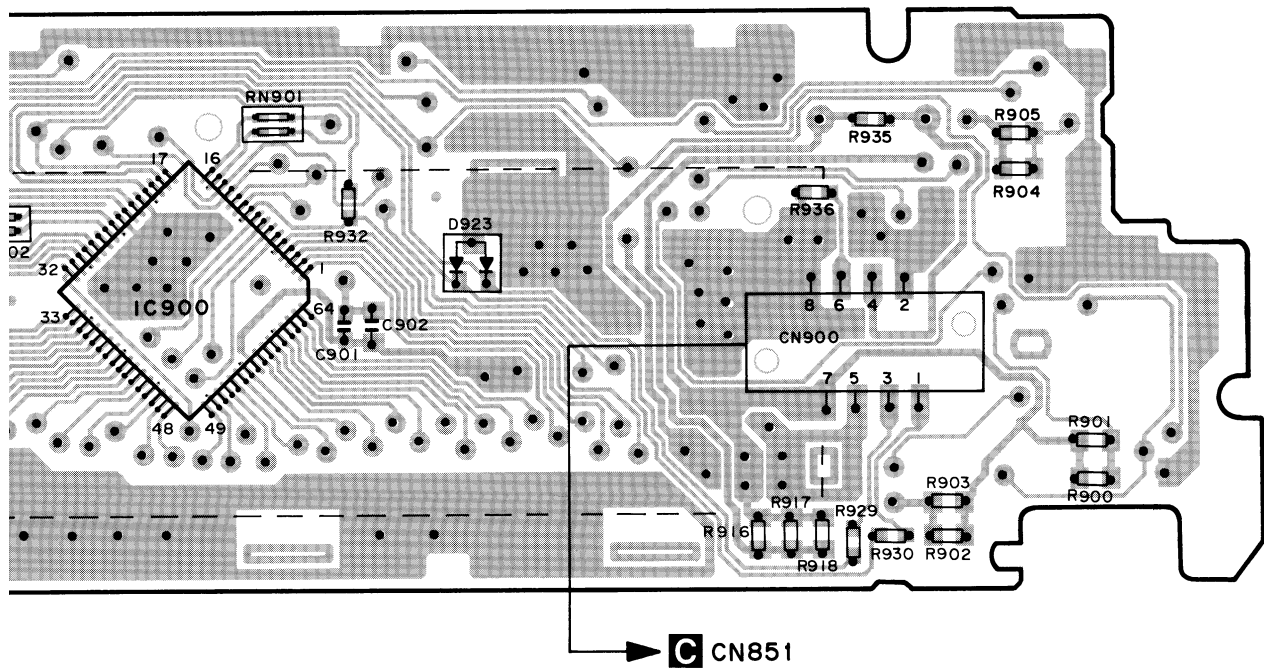
### **B** KEYBOARD UNIT



SIDE A



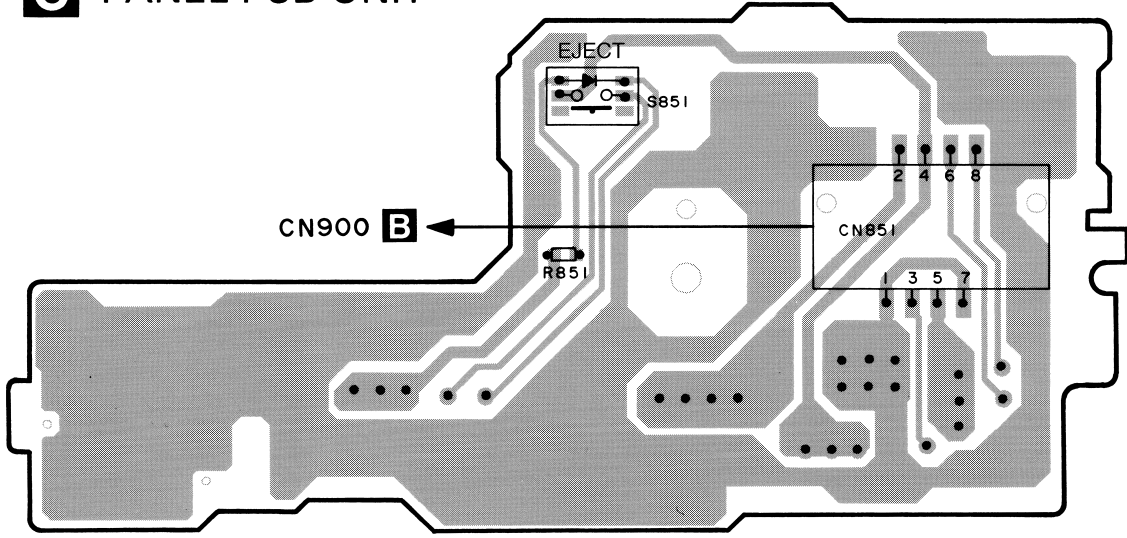
SIDE B



### 4.3 PANEL PCB UNIT

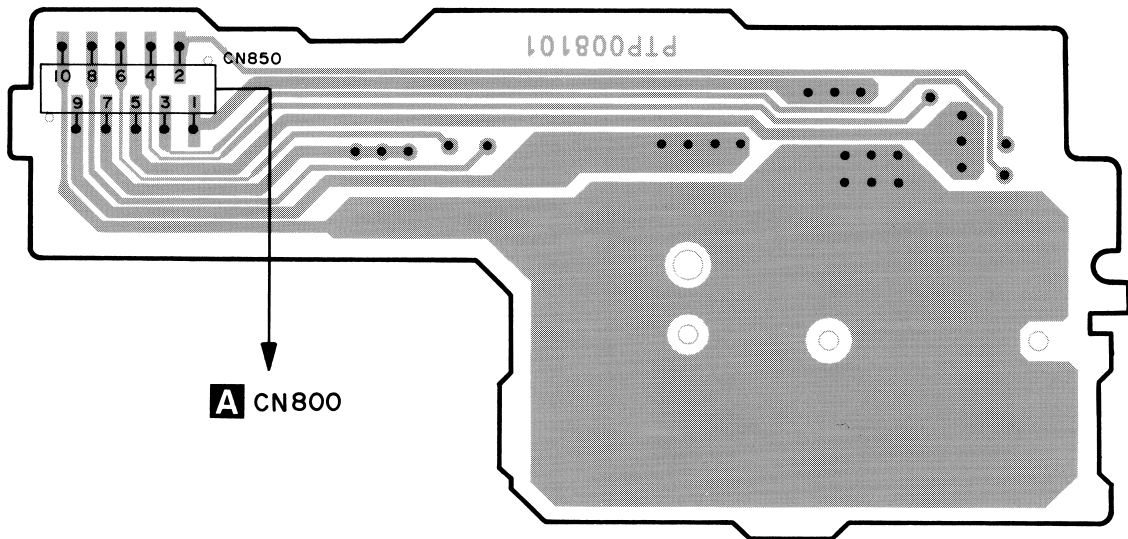
**SIDE A**

#### **C** PANEL PCB UNIT



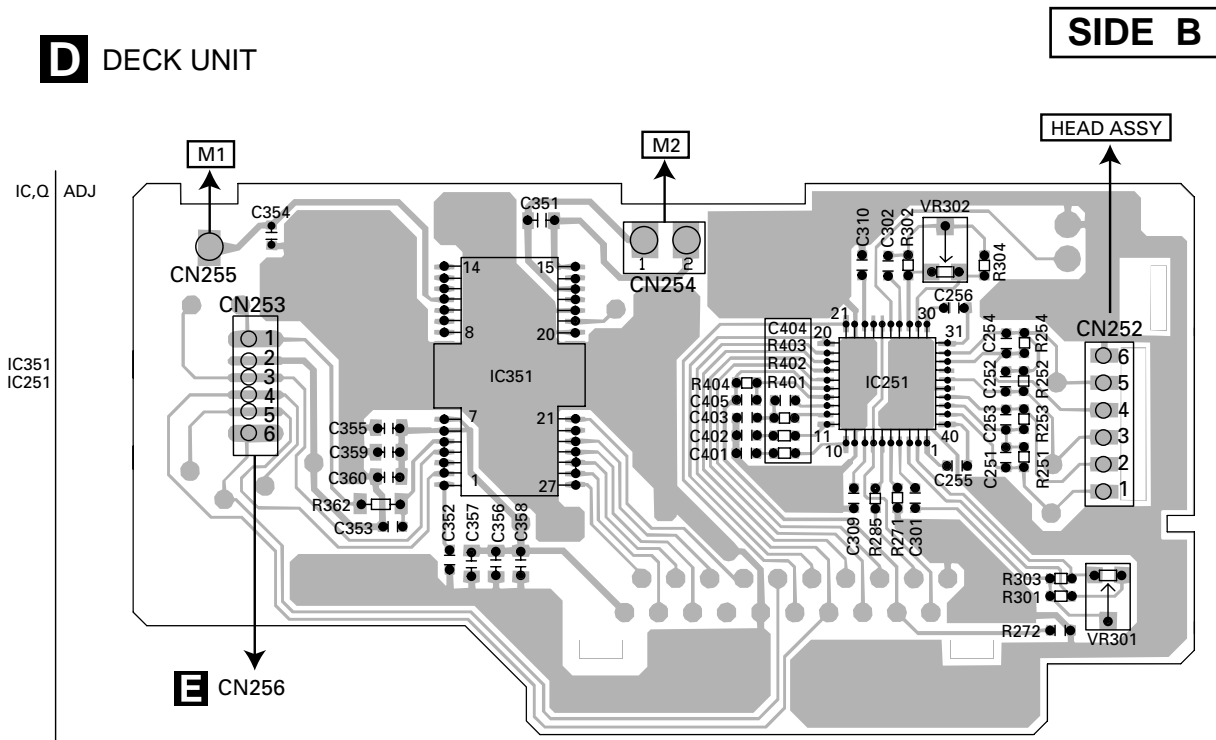
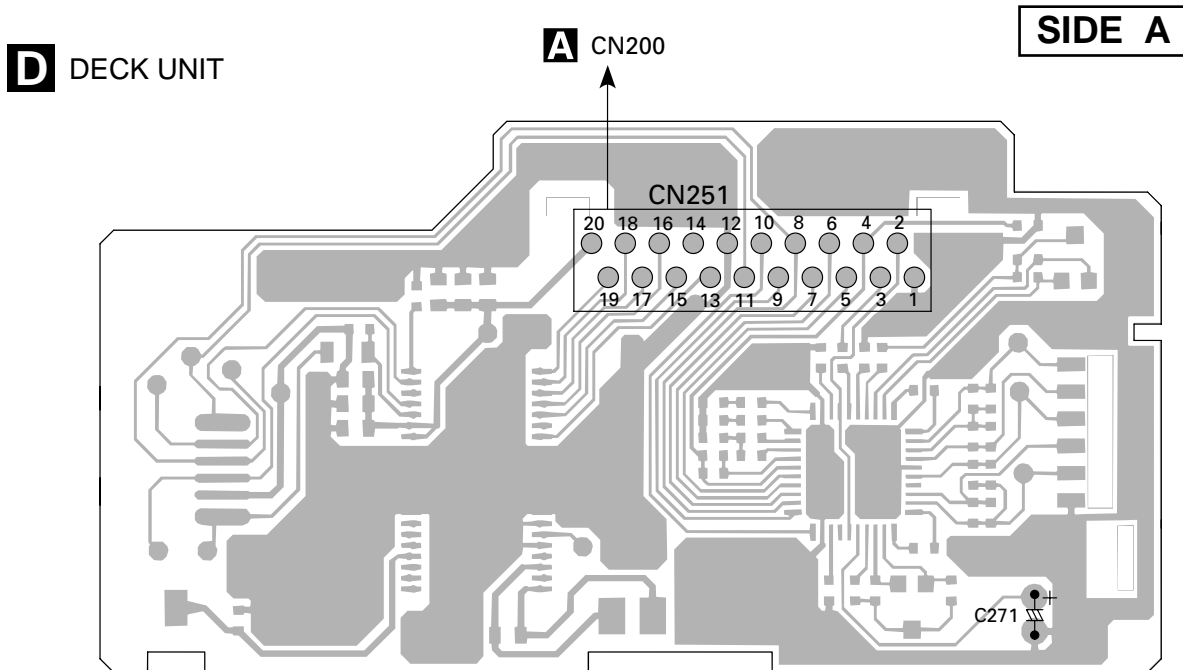
**SIDE B**

#### **C** PANEL PCB UNIT



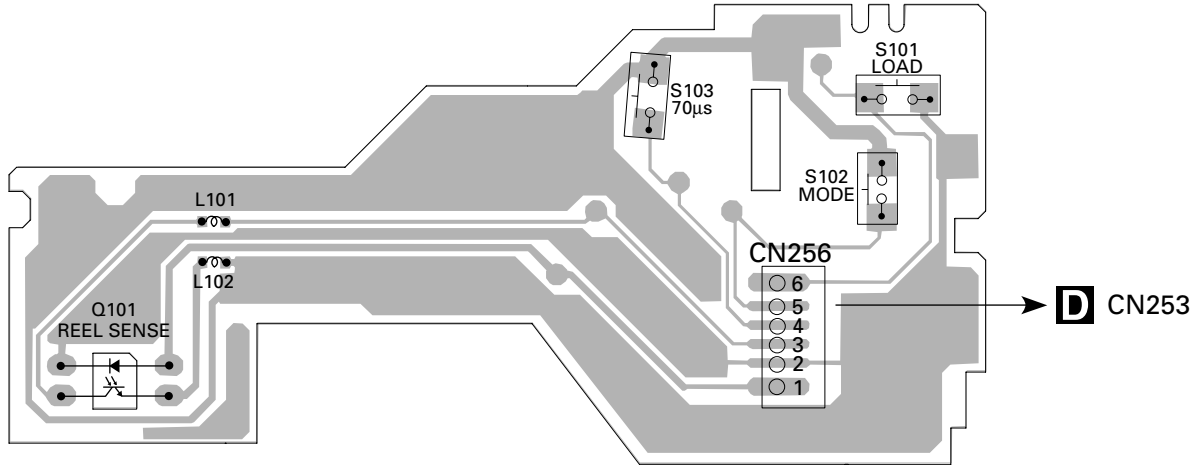


4.4 CASSETTE MECHANISM MODULE



A

**E** SENSOR UNIT



B

C

D

## 5. ELECTRICAL PARTS LIST

### NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

#### Chip Resistor

RS1/○S○○○○J,RS1/○○S○○○J

#### Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol and No.====Part Name --- ---	Part No.	====Circuit Symbol and No.====Part Name --- ---	Part No.
<b>A</b> AUnit Number :CZW5530 Unit Name :Tuner Amp Unit		D 609 Diode	HZS6L(B2)
		D 610 Diode	11ES2
		D 611 Diode	HZS9L(B3)
		D 612 Diode	HZS9L(A2)
		D 800 Diode	HZM6R2ZWA
MISCELLANEOUS		D 801 Diode	UDZS6R2(B)
IC 1 IC	000974060	L 1 Inductor	LAU2R2J
IC 2 IC	PST3434UL	L 100 Ferri-Inductor	LAU4R7J
IC 150 IC	PM4009A	L 101 Ferri-Inductor	LAU1R0J
IC 300 IC	PML003AM	L 102 Ferri-Inductor	LAU1R0J
IC 400 IC	CA0008AM	L 150 Ferri-Inductor	LAU100J
IC 500 IC	PAL007A	L 151 Ferri-Inductor	LAU101J
Q 100 Transistor	2PD601A	L 300 Ferri-Inductor	LAU4R7J
Q 101 Transistor	2PD601A	L 400 Inductor	LAU2R2J
Q 132 Transistor	DTC143TK	L 600 Choke Coil 600 μH	CTH1221
Q 133 Transistor	DTC143TK	L 601 Inductor	LAU2R2J
Q 150 Transistor	DTA124EK	L 800 Ferri-Inductor	LAU100J
Q 151 Transistor	DTC144EK	X 1 Ceramic Resonator 6.29MHz	CSS1310
Q 350 Transistor	DTC143TK	X 150 Crystal Resonator 3.648MHz	CSS1447
Q 351 Transistor	DTC143TK	TU 100 FM/AM Tuner Unit	CWE1562
Q 352 Transistor	DTA124EK	S 1 Switch(DSENSE)	CSN1039
Q 400 Transistor	2PB709A	JC 1	RS1/16S0R0J
Q 401 Transistor	DTC114EK	JC 2	RS1/16S0R0J
Q 500 Transistor	DTA124EK	JC 3	RS1/16S0R0J
Q 501 Transistor	DTC124EK	JC 4	RS1/16S0R0J
Q 502 Transistor	DTC144EK	JC 6	RS1/16S0R0J
Q 600 Transistor	2PD601A	JC 7	RS1/16S0R0J
Q 601 Transistor	2PD601A	JC 8	RS1/16S0R0J
Q 602 Transistor	2PB709A	JC 9	RS1/16S0R0J
Q 603 Transistor	2SB1181F5	JC 10	RS1/16S0R0J
Q 604 Transistor	2PD601A	JC 12	RS1/16S0R0J
Q 605 Transistor	2SB710A	AR 100 Surge Protector	DSP-201M-A11F
Q 606 Transistor	DTC114EK		
Q 607 Transistor	2SD2396	RESISTORS	
Q 608 Transistor	2PD601A	R 1	RS1/16S473J
Q 609 Transistor	2SB710A	R 3	RD1/4PU222J
Q 610 Transistor	DTC144EK	R 4	RD1/4PU222J
Q 800 Transistor	DTC114EK	R 5	RS1/16S681J
Q 801 Transistor	2PB709A	R 6	RS1/16S681J
D 1 Diode	1SS355	R 7	RS1/16S222J
D 200 Diode	1SS133	R 8	RS1/16S104J
D 500 Diode	DAN202K	R 9	RD1/4PU102J
D 600 Diode	11ES2	R 10	RD1/4PU102J
D 601 Diode	11ES2	R 11	RS1/16S473J
D 602 Diode	HZS7L(C2)	R 12	RS1/16S104J
D 603 Diode	HZS7L(A1)	R 13	RS1/16S103J
D 604 Diode	11ES2	R 100	RS1/16S681J
D 605 Diode	11ES2	R 101	RS1/16S681J
D 606 Diode	MTZJ6R2(B)	R 102	RS1/16S681J
D 607 Diode	1SS133		
D 608 Diode	11ES2		

# KEH-P4020R,P4023R

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
R 103	RS1/16S103J	R 353	RS1/16S473J
R 104	RS1/16S681J	R 356	RS1/16S562J
R 105	RS1/16S222J	R 400	RS1/16S821J
R 106	RS1/16S222J	R 401	RS1/16S821J
R 107	RS1/16S473J	R 402	RS1/16S223J
R 108	RS1/16S681J	R 403	RS1/16S223J
R 109	RS1/16S473J	R 404	RS1/16S102J
R 110	RS1/16S473J	R 405	RS1/16S102J
R 111	RS1/16S472J	R 406	RS1/16S101J
R 112	RS1/16S393J	R 407	RS1/16S222J
R 113	RS1/16S473J	R 408	RS1/16S620J
R 114	RS1/16S102J	R 409	RS1/16S101J
R 115	RS1/16S474J	R 410	RS1/16S223J
R 116	RS1/16S681J	R 411	RS1/16S472J
R 117	RS1/16S681J	R 412	RS1/16S102J
R 118	RS1/16S473J	R 413	RS1/16S102J
R 119	RS1/16S473J	R 414	RS1/16S102J
R 120	RS1/16S473J	R 415	RS1/16S473J
R 121	RS1/16S153J	R 416	RS1/16S473J
R 130	RS1/16S162J	R 500	RS1/16S103J
R 131	RS1/16S162J	R 501	RD1/4PU152J
R 132	RS1/16S272J	R 502	RS1/16S103J
R 133	RS1/16S272J	R 503	RS1/16S153J
R 136	RS1/16S223J	R 504	RS1/16S221J
R 137	RS1/16S223J	R 505	RS1/16S101J
R 138	RS1/16S222J	R 600	RS1/16S473J
R 139	RS1/16S222J	R 601	RS1/16S104J
R 150	RD1/4PU473J	R 602	RS1/16S473J
R 151	RS1/16S225J	R 603	RD1/4PU102J
R 152	RS1/16S102J	R 604	RS1/16S473J
R 153	RS1/16S102J	R 605	RS1/16S104J
R 154	RS1/16S102J	R 606	RS1/16S223J
R 155	RS1/16S102J	R 607	RD1/4PU153J
R 156	RS1/16S681J	R 608	RS1/16S472J
R 157	RS1/16S0R0J	R 609	RS1/16S473J
R 200	RS1/16S473J	R 610	RS1/16S102J
R 201	RS1/16S473J	R 611	RS1/16S223J
R 202	RS1/16S104J	R 612	RS1/16S103J
R 203	RS1/16S473J	R 613	RS1/16S122J
R 204	RS1/16S102J	R 614	RS1/16S122J
R 205	RS1/16S102J	R 615	RD1/4PU331J
R 206	RS1/16S102J	R 616	RS1/16S152J
R 207	RS1/16S102J	R 617	RS1/16S103J
R 208	RS1/16S102J	R 618	RS1/16S223J
R 209	RS1/16S102J	R 619	RS1/16S151J
R 210	RS1/16S102J	R 620	RS1/16S1R0J
R 211	RS1/16S102J	R 621	RS1/16S223J
R 212	RS1/16S102J	R 622	RS1/16S472J
R 213	RS1/16S102J	R 800	RS1/10S222J
R 214	RS1/16S102J	R 801	RS1/10S222J
R 215	RD1/4PU103J	R 802	RS1/10S392J
R 300	RS1/16S472J	R 806	RS1/16S472J
R 301	RS1/16S472J	R 809	RS1/16S473J
R 302	RS1/16S101J	R 810	RS1/16S473J
R 303	RS1/16S101J	R 811	RS1/16S222J
R 304	RS1/16S101J	R 812	RS1/16S223J
R 305	RS1/16S101J	R 813	RD1/4PU222J
R 350	RS1/16S821J		
R 351	RS1/16S821J		
R 352	RS1/16S473J		

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
<b>CAPACITORS</b>			
C 1	CEAL4R7M16	C 323	CCSRCH100D50
C 2	CKSRYB103K50	C 350	CEAL2R2M50
C 3	CCSRCH101J50	C 351	CEAL2R2M50
C 4	CEAL2R2M50	C 354	CKSRYB222K50
C 6	CKSRYB104K25	C 355	CKSRYB222K50
C 10	CKSRYB104K25	C 400	CKSRYB104K25
C 101	CKSRYB222K50	C 401	CKSRYB102K50
C 102	CKSRYB103K50	C 500	CKSQYB474K16
C 103	CKSRYB223K50	C 501	CKSQYB474K16
C 104	CKSRYB102K50	C 502	CKSQYB474K16
C 105	CKSRYB223K50	C 503	CKSQYB474K16
C 106	CKSRYB103K50	C 504	CKSQYB474K16
C 107	CEAL101M10	C 505	CKSQYB474K16
C 108	CKSRYB472K50	C 506	CKSQYB474K16
C 109	CKSRYB473K50	C 507	CKSQYB474K16
C 110	CEAL101M10	C 508	CKSQYB474K16
C 111	CKSRYB472K50	C 509	CKSQYB474K16
C 112	CKSRYB182K50	C 514	CEAL100M16
C 113	CKSRYB222K50	C 515	CEAL330M10
C 114	CKSRYB103K50	C 600	CKSRYB104K25
C 130	CEAL2R2M50	C 601	3300 µF/16V
C 131	CEAL2R2M50	C 602	
C 150	CEAL220M16	C 603	470 µF/16V
C 151	CCSRCH471J50	C 604	
C 152	CCSRCH471J50	C 605	
C 153	CKSRYB104K25	C 606	
C 154	CKSRYB104K25	C 607	100 µF/16V
C 155	CKSRYB104K25	C 608	
C 156	CEAL220M16	C 609	100 µF/16V
C 157	CCSRCH270J50	C 610	
C 158	CCSRCH270J50	C 611	
C 200	CEAL220M16	C 800	CKSQYB104K50
C 201	CEAL220M16	C 801	CCSRCH101J50
C 300	CEAL470M16	C 803	CKSRYB473K50
C 301	CKSRYB104K25		
C 302	CEAL100M16		
C 304	CKSRYB224K10		
C 305	CKSRYB224K10		
C 306	CKSRYB224K10		
C 307	CKSRYB224K10		
C 308	CKSRYB105K10		
C 309	CKSRYB105K10		
C 310	CKSRYB105K10		
C 311	CKSRYB105K10		
C 312	CKSRYB105K10		
C 313	CKSRYB105K10		
C 314	CKSRYB103K50		
C 315	CKSRYB103K50		
C 316	CKSRYB103K50		
C 317	CKSRYB103K50		
C 318	CKSRYB472K50		
C 319	CKSRYB472K50		
C 320	CCSRCH100D50		
C 321	CCSRCH100D50		
C 322	CCSRCH100D50		
		<b>B</b> Unit Number:CZW5531(KEH-P4020R/XM/EW) : CZW5532(KEH-P4023R/XM/EW) Unit Name :Keyboard Unit	
		<b>MISCELLANEOUS</b>	
		IC 900	IC PD6340A
		D 901	LED See Contrast table
		D 902	LED See Contrast table
		D 903	LED See Contrast table
		D 904	LED See Contrast table
		D 905	LED See Contrast table
		D 906	LED See Contrast table
		D 907	LED See Contrast table
		D 908	LED See Contrast table
		D 909	LED See Contrast table
		D 910	LED See Contrast table
		D 911	LED See Contrast table
		D 912	LED See Contrast table
		D 913	LED See Contrast table
		D 914	LED See Contrast table
		D 915	LED See Contrast table
		D 916	LED See Contrast table
		D 917	LED See Contrast table
		D 918	LED See Contrast table
		D 919	LED See Contrast table

# KEH-P4020R,P4023R

====Circuit Symbol and No.====Part Name Part No.

D 920 LED See Contrast table  
 D 921 LED NSCWS405T  
 D 922 LED NSCWS405T  
 D 923 Diode HZM6R2ZWA  
 LCD900 LCD CZA5561

X 901 Ceramic Resonator 4.97MHz CSS1422

## RESISTORS

R 900 RS1/10S122J  
 R 901 RS1/10S122J  
 R 902 RS1/10S122J  
 R 903 RS1/10S122J  
 R 904 RS1/10S152J

R 905 RS1/10S152J  
 R 906 RS1/10S122J  
 R 907 RS1/10S122J  
 R 908 RS1/10S152J  
 R 909 RS1/10S152J

R 910 RS1/10S122J  
 R 911 RS1/10S122J  
 R 912 RS1/10S152J  
 R 913 RS1/10S152J  
 R 914 RS1/10S152J

R 915 RS1/10S152J  
 R 916 RS1/10S222J  
 R 917 RS1/10S222J  
 R 918 RS1/10S222J  
 R 919 RS1/10S222J

R 920 RS1/10S222J  
 R 921 RS1/10S222J  
 R 929 RS1/16S222J  
 R 930 RS1/16S222J  
 R 932 RS1/16S473J

R 935 RS1/16S100J  
 R 936 RS1/16S393J  
 R 951 RA2S471J  
 R 952 RA2S471J

## CAPACITORS

C 901 CKSRYB104K25  
 C 902 CKSQYB225K10  
 C 904 CKSRYB104K25  
 C 905 CKSRYB104K25

**C** Unit Number : CZW5526  
 Unit Name : Panel PCB Unit

## MISCELLANEOUS

S 851 Push Switch (EJECT) CSG1112

## RESISTORS

R 851 RS1/16S221J

====Circuit Symbol and No.====Part Name Part No.

**D** Unit Number : EWM1042  
 Unit Name : Deck Unit

## MISCELLANEOUS

IC 251 IC HA12229F  
 IC 351 IC BA6923FP

## RESISTORS

R 271 RS1/16S183J  
 R 285 RS1/16S0R0J  
 R 301 RS1/16S163J  
 R 302 RS1/16S163J  
 R 303 RS1/16S163J

R 304 RS1/16S163J  
 R 362 RS1/8S301J  
 R 401 RS1/16S153J  
 R 402 RS1/16S332J  
 R 403 RS1/16S911J

R 404 RS1/16S274J

## CAPACITORS

C 251 CKSRYB391K50  
 C 252 CKSRYB391K50  
 C 253 CKSRYB391K50  
 C 254 CKSRYB391K50  
 C 255 CKSRYB103K50

C 256 CKSRYB103K50  
 C 271 ECH0002  
 C 272 CKSRYB104K16  
 C 301 CKSRYB104K16  
 C 302 CKSRYB104K16

C 351 CKSQYB224K25  
 C 352 CKSRYB472K50  
 C 353 CKSRYB103K50  
 C 354 CKSRYB103K50  
 C 355 CKSQYB104K50

C 401 CKSRYB392K50  
 C 402 CKSRYB334K10  
 C 403 CKSRYB223K25  
 C 404 CKSRYB103K50  
 C 405 CKSRYB333K16

**E** Unit Number : EWM1044  
 Unit Name : Sensor Unit

Q 101 Photo-reflector EGN1004  
 S 101 Switch(LOAD) ESG1007  
 S 102 Switch(MODE) ESG1007  
 L 101 Inductor CTF1546  
 L 102 Inductor CTF1546

## Miscellaneous Parts List

M 1 Motor Unit(MAIN) EXA1621  
 M 2 Motor Unit(SUB) EXA1580  
 HD 1 Head Assy EXA1589

**CONTRAST TABLE of KEYBOARD UNIT**

KEH-P4020R/XM/EW,KEH-P4023R/XM/EW have the same construction except for the following:

Symbol and Description		Part No.	
		KEH-P4020R/XM/EW	KEH-P4023R/XM/EW
D901	LED	CL195PG	CL195D
D902	LED	CL195PG	CL195D
D903	LED	CL195PG	CL195D
D904	LED	CL195PG	CL195D
D905	LED	CL195PG	CL195D
D906	LED	CL195PG	CL195D
D907	LED	CL195PG	CL195D
D908	LED	CL195PG	CL195D
D909	LED	CL195PG	CL195D
D910	LED	CL195PG	CL195D
D911	LED	CL195PG	CL195D
D912	LED	CL195PG	CL195D
D913	LED	CL195PG	CL195D
D914	LED	CL195PG	CL195D
D915	LED	CL195PG	CL195D
D916	LED	CL195PG	CL195D
D917	LED	CL195PG	CL195D
D918	LED	CL195PG	CL195D
D919	LED	CL195PG	CL195D
D920	LED	CL195PG	CL195D

## **6. ADJUSTMENT**

There is no information to be shown in this chapter.



## 7. GENERAL INFORMATION

### 7.1 DIAGNOSIS

#### 7.1.1 DISASSEMBLY

##### ● Removing the Upper Case(not shown)

1.Remove the Upper Case.

##### ● Removing the Cassette Mechanism Module(Fig.1)

① Remove the four screws and then remove the Cassette Mechanism Module.

##### ● Remove the Grille Assy(Fig.1)

② Remove the two screws.

Disconnect the two stoppers and then remove the Grille Assy.

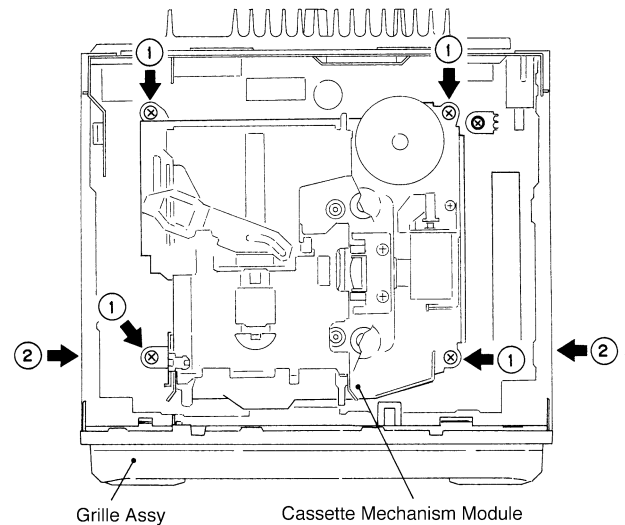


Fig. 1

##### ● Removing the Tuner Amp Unit(Fig.2)

① Remove the three screws.

② Remove the screw.

③ Unbend the three claws and then remove the Tuner Amp Unit.

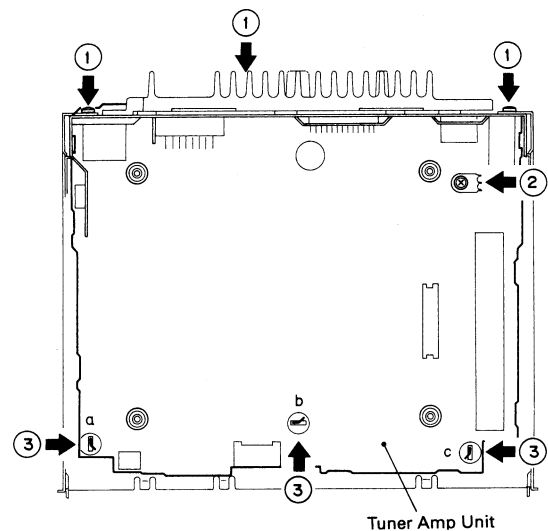
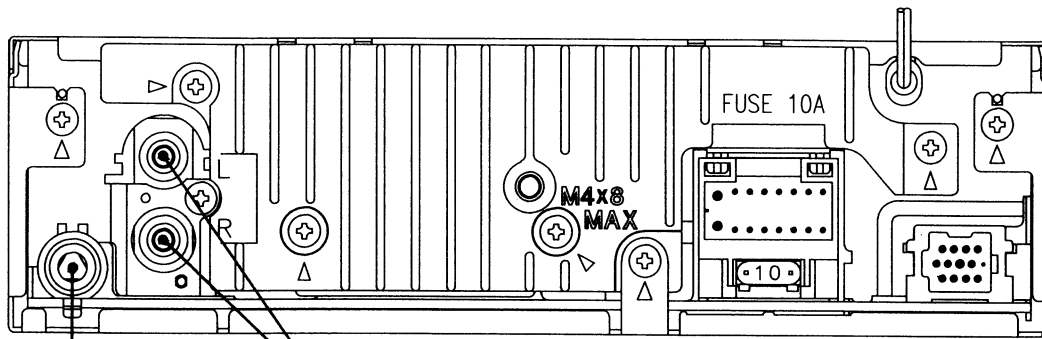
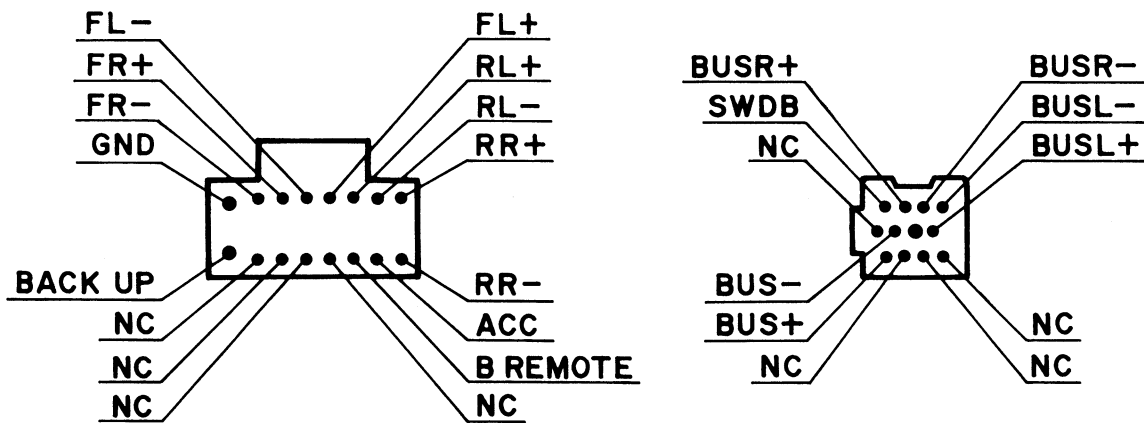


Fig. 2

**7.1.2 CONNECTOR FUNCTION DESCRIPTION**



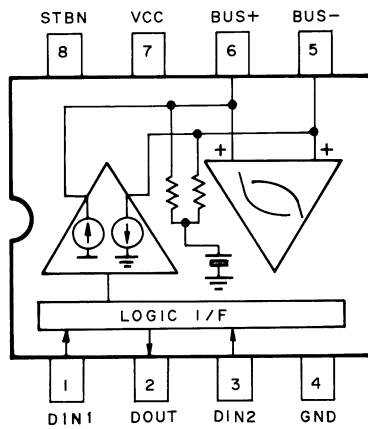
**ANTENNA JACK    REAR OUTPUT**



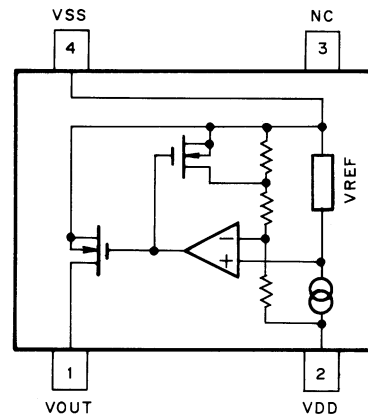
7.2 PARTS

7.2.1 IC

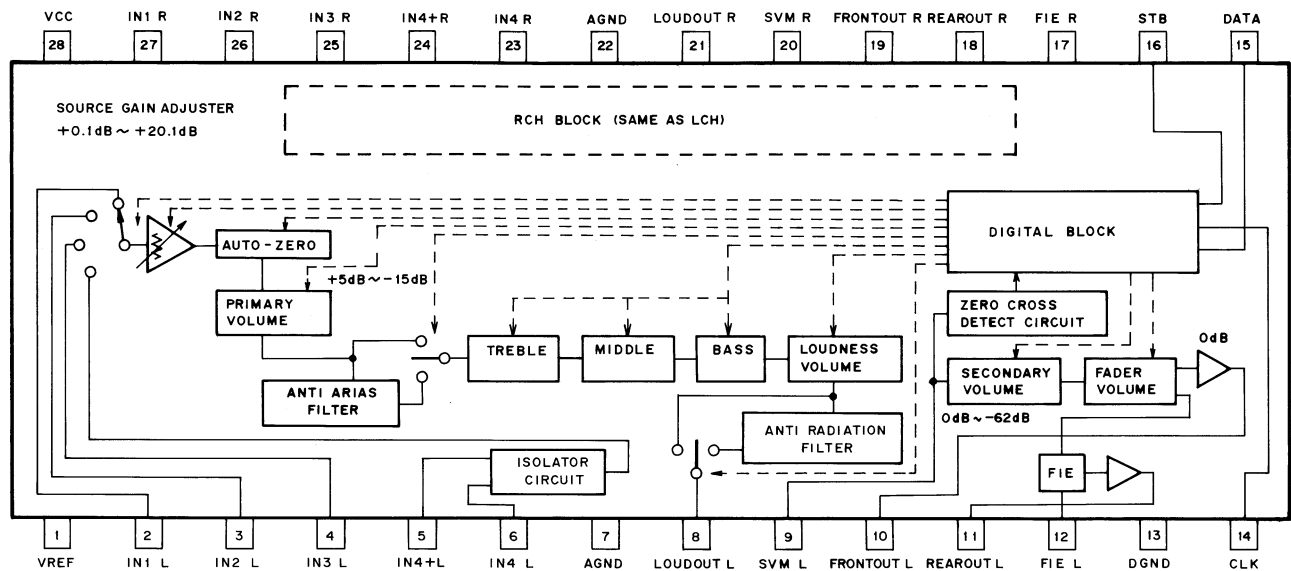
CA0008AM



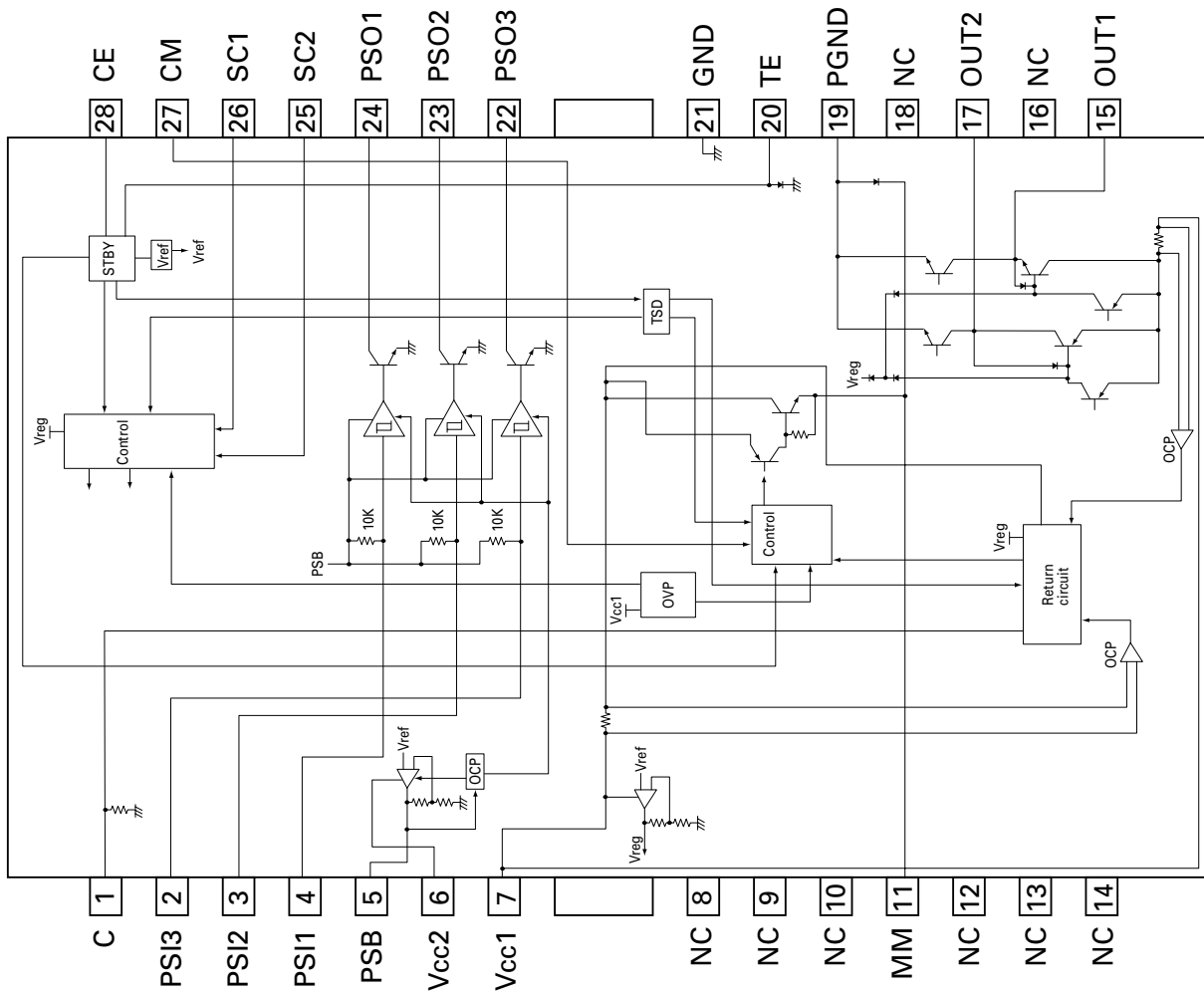
PST3434UL



PML003AM

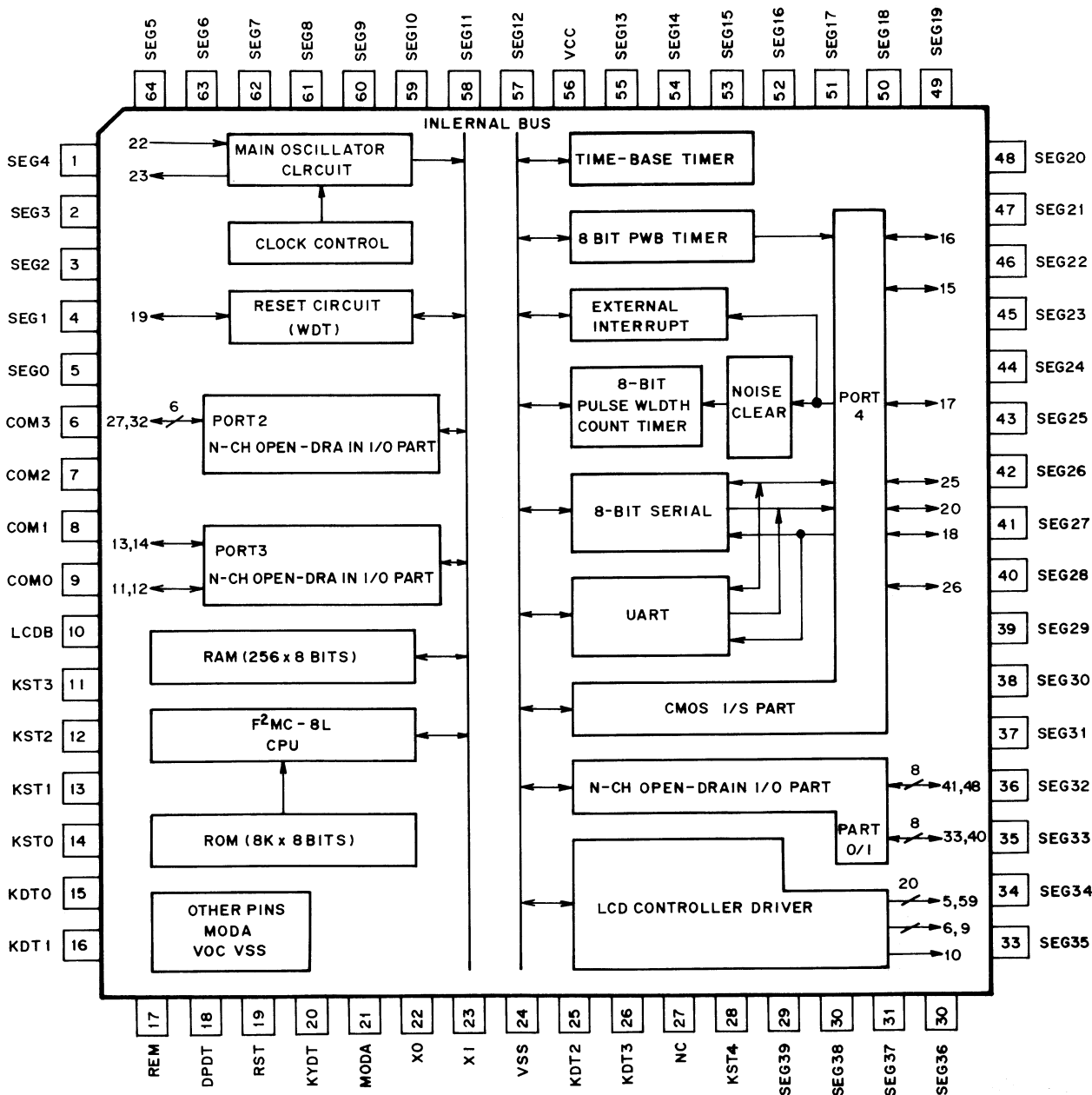


BA6923FP



IC's marked by \* are MOS type.  
 Be careful in handling them because they are very liable to be damaged by electrostatic induction

\*PD6340A



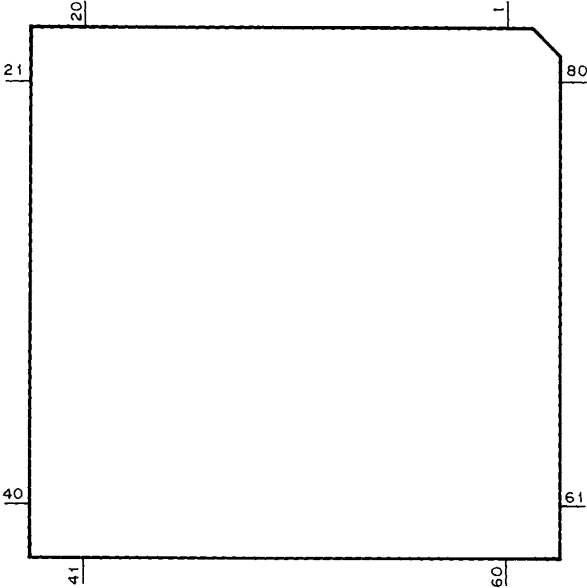
# KEH-P4020R,P4023R

## ● Pin Functions(000974060)

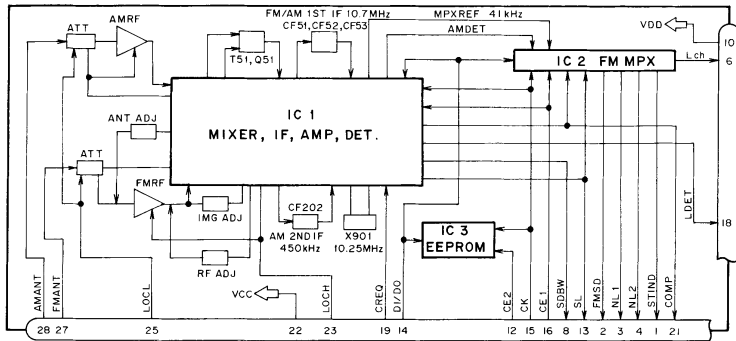
Pin No.	Pin Name	I/O	Format	Function and Operation
1	SD	I		SD signal input
2	ST	I		FM stereo input
3	ADPW	O	C	A/D converter power supply control output
4	AVSS			GND
5	MUTE	O	C	System mute output
6	NC			Not used
7	AVREF1	I		A/D converter reference voltage terminal
8	KYDT	I		Display data input
9	DPDT	O	C	Key data output
10	NC			Not used
11	TUNPDI	I		PLL IC data input
12	TUNPDO	O	C	PLL IC data output
13	TUNPCK	O	C	PLL IC clock output
14	TUNPCE	O	C	PLL IC chip enable output
15	TMUTE	O	C	Tuner mute output
16-18	NC			Not used
19	VST	O	C	Strobe pulse output for electronic volume
20	VDT	O	C	Data output for electronic volume
21	VCK	O	C	Clock output for electronic volume
22	CM	O	C	Cassette mechanism capstan motor control output
23	SC2	O	C	Cassette mechanism sub motor control output 2
24	F/R	O	C	Cassette mechanism tape direction output
25	PLAY	O	C	Cassette mechanism MS gain select output
26	RIMUTE	O	C	Tape mute output
27	SC1	O	C	Cassette mechanism sub motor control output 1
28	STBY	O	C	Cassette mechanism drive IC control output
29	MSIN	I		Cassette mechanism MS sense input
30	LOADSW	I		Cassette mechanism loading switch input
31	POS	I		Cassette mechanism position sense input
32	NES	I		Cassette mechanism normal sense input
33	VSS			GND
34	NC			Not used
35	FM/AM	O	C	"FM/AM band select pin ""H"" : FM ""L"" : AM"
36,37	NC			Not used
38	SWVDD	O	N	Grille chip enable output
39	EJECTS	I	N	Eject key input
40	LOCL	O	C	Local L output
41	LOCH	O	C	Local H output
42	CURRQ	O	C	Tuner voltage FIX output
43	FLAPILM	O	C	Flap illumination output
44	ILMPW	O	C	Illumination power supply control output
45	PEE	O	C	Beep tone output
46	TUNPCE2	O	C	EEPROM chip enable output
47	RDS57K	I		RDS 57kHz pulse count input
48	SDBW	I		SD input at NF
49	PCL	O	C	Clock adjustment output
50	RDST	O	C	RDS reset output
51	RECEIVE	O	C	RDS receive output
52	RDSLK	I		RDS LK input
53	SYSPW	O	C	System power output
54	B.REM	O	C	System power ON/OFF output
55	TELIN	I		HANDS FREE/Cellular mute input
56	TX	O	C	IP BUS data output
57	RX	I		IP BUS data input
58	ASENBO	O	C	Slave power supply control output
59	IPPW	O	C	Power supply control output for IP BUS interface IC
60	RESET	I		Reset input
61	LDET	I		PLL lock detect input
62	RCK	I		RDS clock input
63	DSSENS	I		Grille detach sense input
64	RDT	I		RDS data input
65	ASENS	I		ACC power sense input
66	BSSENS	I		Back up power sense input
67	NC			Not used
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1	I		Crystal oscillator connection pin
71	IC			(GND)
72	XT2			Not used
73	TESTIN	I		Test program mode input
74	AVDD			A/D converter power supply terminal
75	AVREF0	I		A/D converter reference voltage terminal
76	SL	I		Signal level input
77	NC			Not used
78	NL1	I		RDS noise level input 1
79	CSSENS	I		Flap open/close sense input
80	NL2DT	I		RDS noise level input 2

Format	Meaning
C	C MOS
N	N Channel open drain

\*000974060



● FM/AM Tuner Unit

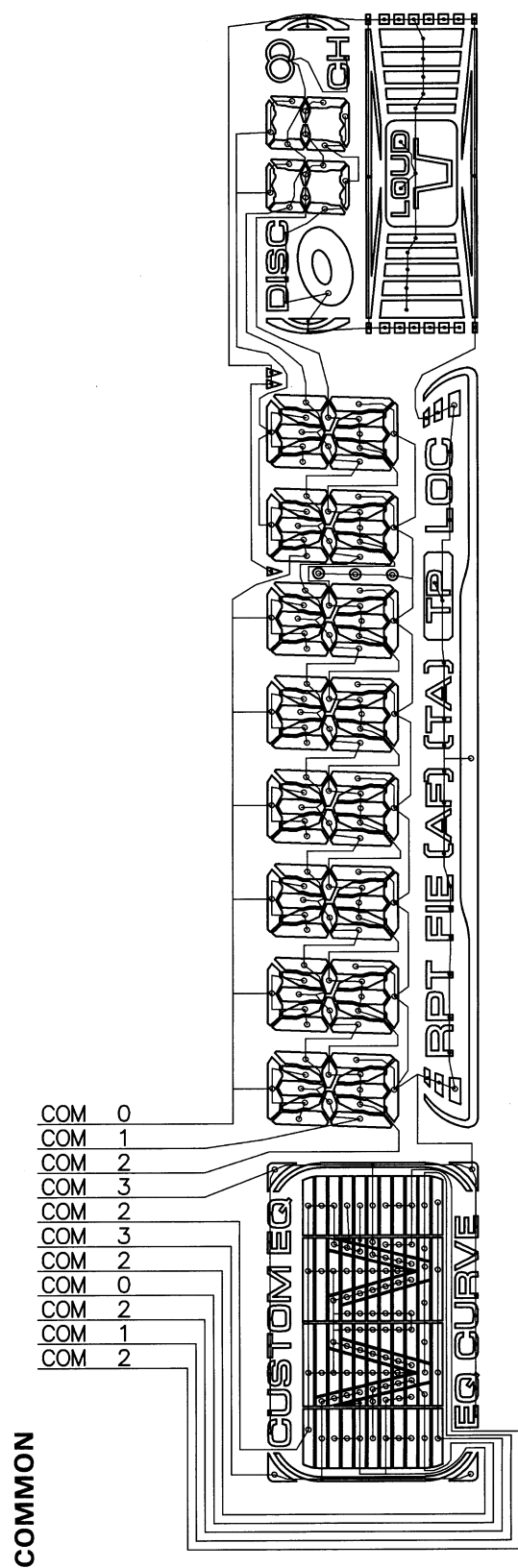
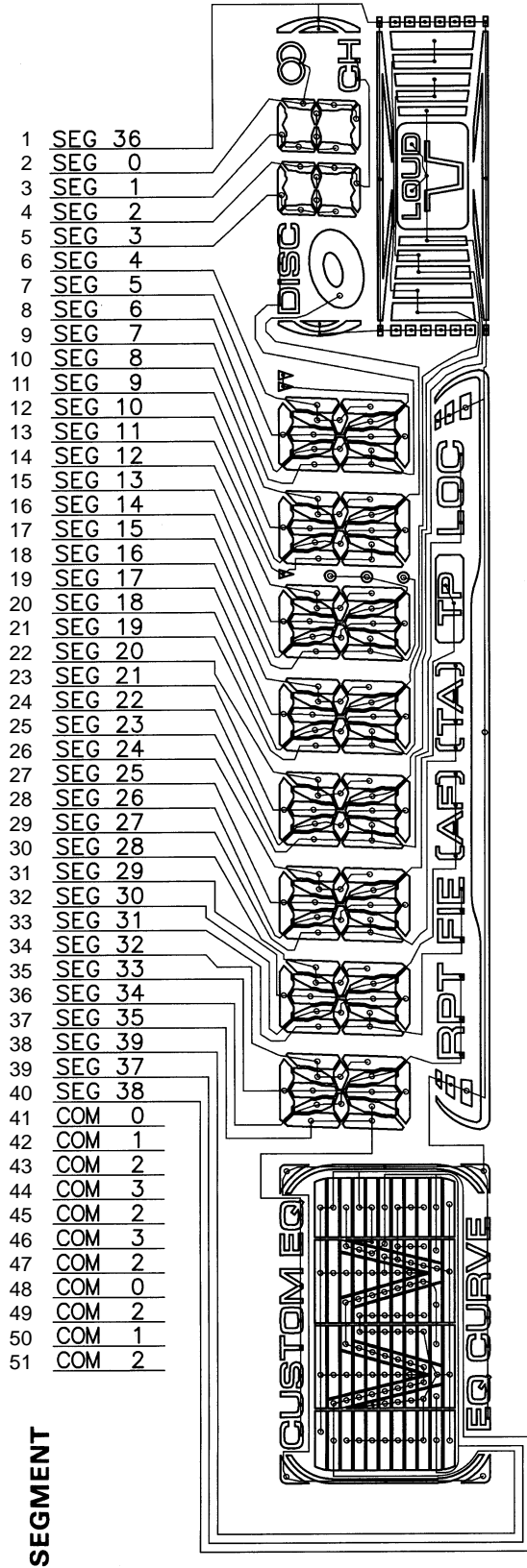


No.	Symbol	I/O	Explain
1	STIND	O	stereo indicator "Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector "High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from here and "High: 0.9VDD or more" and "Low: 250mV or less". (Should satisfy the diver IC specifications)
3	NL1	O	noise level-1 "High" when noise is received. Output for the RDS. GND at 47kΩ //1,800pF.
4	NL2	O	noise level-2 "High" when noise is received. Output for the RDS. GND at 36kΩ //330pF.
5	Rch	O	R channel output FM stereo "R-ch" signal output or AM audio output. Add the specified de-emphasis constant.
6	Lch	O	L channel output FM stereo "L-ch" signal output or AM audio output. Add the specified de-emphasis constant.
7	WC		write control EEPROM write control. Writing permissible at "Low". Normally open.
8	SDBW	O	SD bandwidth SD bandwidth signal output. For detection of detuning data for the RDS.
9	NC		Not used
10	VDD		power supply Power supply pin for the digital section. DC 5V +/- 0.25V. Be careful about overlapping noise in the logic section.
11	DGND		digital ground Grounding for the digital section.
12	CE2	I	chip enable-2 EEPROM chip enable. Active a "Low" To be pulled up to the "VDD" at 47kΩ
13	SL	I/O	signal level Received FM/AM signal level (strength) output. Connect the specified load resistor and capacitor (10k Ω + 39k Ω //4,700pF)
14	DI/DO	I/O	data input/ data output Data input/Data output To be pulled up to the "VDD" at 47kΩ
15	CK	I	clock Clock input To be pulled up to the "VDD" at 47kΩ
16	CE1	I	chip enable-1 AF·RF chip enable. Active at "High" To be grounded at 47kΩ
17	NC		Not used
18	LDET	O	lock detector Active at "Low". To be pulled up to the "VDD" at 47kΩ
19	CREQ	I	current request Active at "Low". To be grounded at 47kΩ
20	NC		Not used
21	COMP	O	composite signal FM composite signal output. r out < 100Ω
22	VCC		power supply Analog section power supply pin.DC 8.4V +/- 0.3V
23	LOCH	I	local high FM local high pin. When seeking local high, apply 5V together with "LOCL".
24	FMLOCL	I	FM local low FM local low pin. When seeking local low, apply 5V to the base of the NPN transistor with which the specified resistor is being connected to the emitter. Keep it open in case of ordinary marketed models.
25	LOCL	I	local low FM/AM local low pin. When seeking local low, apply 5V to the base of the NPN transistor. Since this pin is exclusive for AM when the FMLOCL is in use, do not drive it under FM.
26	RFGND		RF ground Grounding for the antenna section.
27	FMANT	I	FM antenna input FM antenna input. 75Ω. Surge absorber (DSP-201M-S00B) is necessary.
28	AMANT	I	AM antenna input AM antenna input. High impedance. Connect to the antenna through an L (LAU type) of 4.7μH.To cope with the power transmission line hums, insert a series circuit consisting of an L (a coil of about 100mH) + R (a resistor of 470 Ω to 2.2kΩ) between the GND.

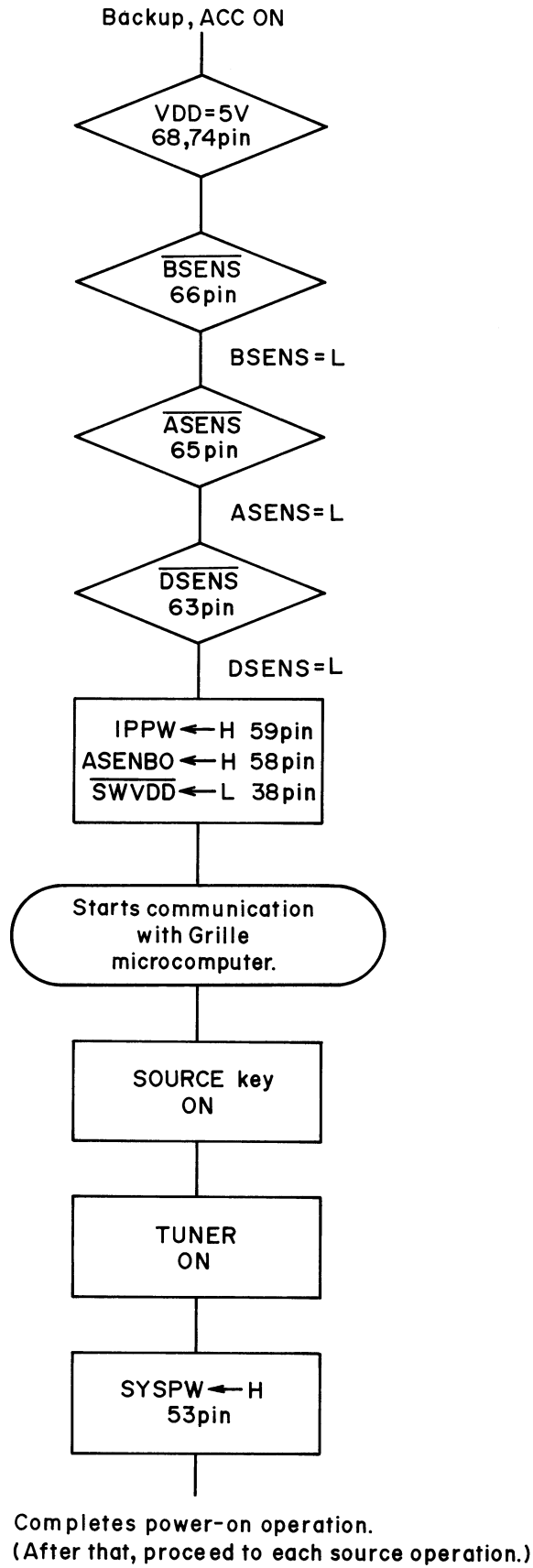


7.2.2 DISPLAY

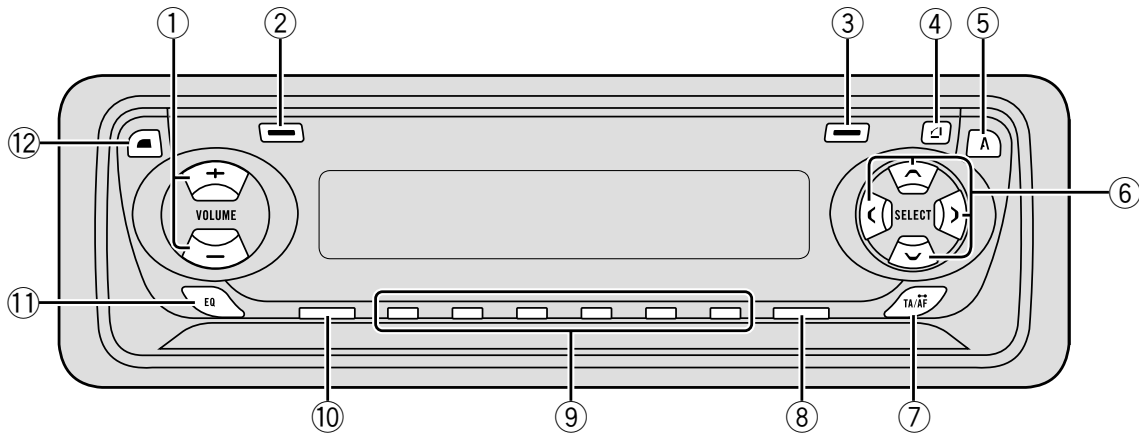
● CZA5561



### 7.3. OPERATIONAL FLOW CHART




## 8. OPERATIONS AND SPECIFICATIONS



### What's what

- ① VOLUME button  
Press to increase or decrease the volume.
- ② LOCAL button (tuner)  
Press to switch local function on or off.  
PAUSE/SCAN button  
Press to switch pause function on or off.  
Press and hold for two seconds to switch scan function on or off.
- ③ BSM button (tuner)  
Press and hold for two seconds to switch BSM function on or off.  
REPEAT/RANDOM button  
Press to switch repeat function on or off.  
Press and hold for two seconds to switch random function on or off.
- ④ OPEN button  
Press to open the front panel.
- ⑤ AUDIO button  
Press to select various sound quality controls.
- ⑥ ▲/▼/◀/▶ buttons  
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.
- ⑦ TA/AF button  
Press to switch traffic announcements function on or off.  
Press and hold for two seconds to switch alternative frequency search function on or off.
- ⑧ BAND button  
Press to select among two FM or MW/LW bands and cancel the control mode of functions.
- ⑨ 1-6 (PRESET TUNING) buttons  
Press for preset tuning and disc number search when using a multi-CD player.
- ⑩ SOURCE button  
This unit is switched on by selecting a source. Press to cycle through all of the available sources.
- ⑪ EQ button  
Press to select various equalizer curves.
- ⑫ DISP/REG button  
Press to switch the RDS display.

## 4 Turning the unit on

Press **SOURCE** to turn the unit on.  
When you select a source the unit is turned on. 


### Selecting a source

You can select a source you want to listen to. To switch to the cassette player, load a cassette tape in this unit.


Press **SOURCE** to select a source.  
Press **SOURCE** repeatedly to switch between the following sources:  
Tuner—Cassette player—Multi-CD player  
—External unit—AUX



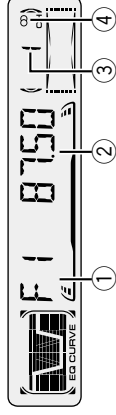
#### Notes

- In the following cases, the sound source will not change:
  - When a product corresponding to each source is not connected to this unit.
  - When no cassette is set in this unit.
  - When no magazine is set in the multi-CD player.
  - When the AUX (external input) is set to off.
- External Unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this product. Only one External Unit can be controlled by this product.
- When this unit's blue/white lead is connected to the car's auto-antenna relay control terminal, the car's antenna extends when this unit's source is switched on. To retract the antenna, switch the source off. 

### Turning the unit off

Press **SOURCE** and hold for at least one second to turn the unit off. 

## Listening to the radio




This unit's AF (alternative frequencies search) function can be switched on and off. AF should be off for normal tuning operation.

- ① **BAND indicator**  
Shows which band the radio is tuned to, MW, LW or FM.
- ② **FREQUENCY indicator**  
Shows to which frequency the tuner is tuned.
- ③ **PRESET NUMBER indicator**  
Shows what preset has been selected.
- ④ **STEREO (stereo symbol) indicator**  
Shows that the frequency selected is being broadcast in stereo.

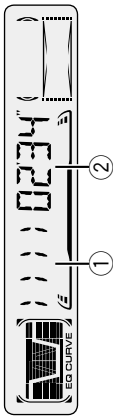
- 1 Press **SOURCE** to select the tuner.
- 2 Use **VOLUME** to adjust the sound level.  
When you press **VOLUME** up/+, the volume is raised and when pressed down/–, the volume is lowered.
- 3 Press **BAND** to select a band.  
Press **BAND** until the desired band is displayed, F1, F2 for FM or MW/LW.
- 4 To perform manual tuning, press ◀ or ▶ with quick presses.  
The frequencies move up or down step by step.
- 5 To perform seek tuning, press and hold ◀ or ▶ for about one second and release.  
The tuner will scan the frequencies until a broadcast strong enough for good reception is found.
  - You can cancel seek tuning by pressing either ◀ or ▶ with a quick press.
  - If you press and hold ◀ or ▶ you can skip broadcasting stations. Seek tuning starts as soon as you release the buttons.



#### Note

- When the frequency selected is being broadcast in stereo the STEREO (stereo symbol) indicator will light. 

## Playing a tape



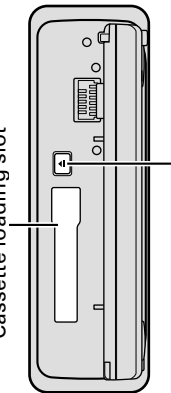
① TAPE DIRECTION indicator  
Shows the direction of the tape transport.

② PLAY TIME indicator  
Shows the elapsed playing time of the current side of the tape.

1 Press OPEN to open the front panel. Cassette loading slot appears.

2 Insert a cassette tape into the cassette loading slot. Playback will automatically start.

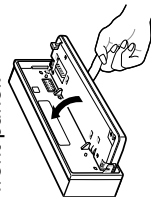
Cassette loading slot



TAPE EJECT button

• You can eject a cassette tape by pressing TAPE EJECT.

3 Close the front panel.



• After a cassette tape has been inserted, press SOURCE to select the Cassette player.

4 Use VOLUME to adjust the sound level. When you press VOLUME up/+, the volume is raised and when pressed down/–, the volume is lowered.

5 To perform fast forward or rewind, press ◀ or ▶.

FF or REW appears in the display.

- To cancel fast forward or rewind and return to playback, press BAND.
- You can cancel fast forward or rewind by pressing ◀ or ▶ in the same direction twice.

6 To perform forward or rewind music search, press ◀ or ▶ twice.

F-MS (forward music search) or R-MS (rewind music search) appears in the display. The cassette player will fast forward or rewind to the next or previous blank spot on the tape and begin to play.

- To cancel music search and return to playback, press BAND.
- You can cancel music search by pressing ◀ or ▶ in the same direction again.

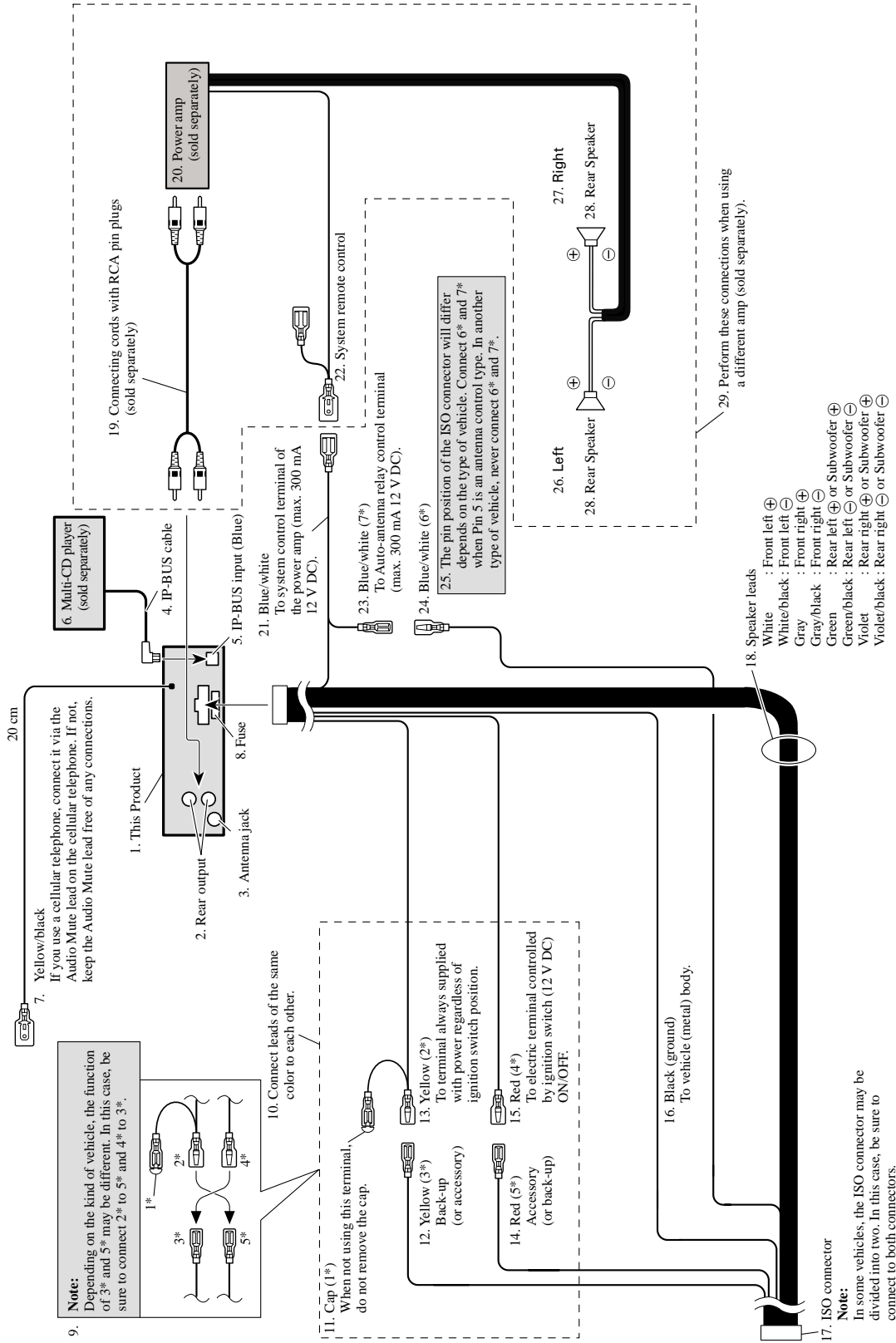
7 To change the direction of the tape transport, press BAND.



### Notes

- Do not insert anything other than a cassette tape into the cassette loading slot.
- PLAY TIME indicator starts from 00'00" in the following cases:
  - When a tape is inserted
  - When the tape direction is changed
  - When you rewind the tape to the beginning
- PLAY TIME indicator is halted when fast forward, rewind or music search is operating. □

## ● CONNECTION DIAGRAM



## Specifications

### General

Power source .....	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system .....	Negative type
Max. current consumption .....	10.0 A
Dimensions (W × H × D):	
Chassis .....	178 × 50 × 157 mm
Nose .....	188 × 58 × 20 mm
Weight .....	1.4 kg
Backup current .....	1.0 mA

### Audio

Maximum power output	50 W × 4
Continuous power output	25 W × 4 (DIN 45324, +B=14.4 V)
Load impedance .....	4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance .....	2.2 V/1 kΩ
Equalizer (3-Band Equalizer):	
(LOW) .....	Level : ±12 dB
(MID) .....	Level : ±12 dB
(HIGH) .....	Level : ±12 dB
Loudness contour	
(LOW) .....	+3.5 dB (100 Hz), +3 dB (10 kHz)
(MID) .....	+10 dB (100 Hz), +6.5 dB (10 kHz)
(HIGH) .....	+11 dB (100 Hz), +11 dB (10 kHz) (volume : –30 dB)

### Cassette player

Tape .....	Compact cassette tape (C-30 – C-90)
Tape speed .....	4.76 cm/sec.(+0.14cm/sec., -0.05cm/sec.)
Fast forward/rewinding time .....	Approx. 100 sec (C-60)
Wow & flutter .....	0.09% (WRMS)
Frequency response .....	30 – 16,000 Hz (±3 dB)
Stereo separation .....	45 dB
Signal-to-noise ratio .....	61 dB (IEC-A network)

### FM tuner

Frequency range .....	87.5 – 108 MHz
Usable sensitivity .....	9 dBf (0.8 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	15 dBf (1.5 μV/75 Ω, mono)
Signal-to-noise ratio .....	70 dB (IEC-A network)
Distortion .....	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response .....	30 – 15,000 Hz (±3 dB)
Stereo separation .....	40 dB (at 65 dBf, 1 kHz)

### MW tuner

Frequency range .....	531 – 1,602 kHz (9 kHz)
Usable sensitivity .....	18 μV (S/N: 20 dB)
Selectivity .....	50 dB (±9 kHz)

### LW tuner

Frequency range .....	153 – 281 kHz
Usable sensitivity .....	30 μV (S/N: 20 dB)
Selectivity .....	50 dB (±9 kHz)



#### Note

- Specifications and the design are subject to possible modifications without notice due to improvements. ▣