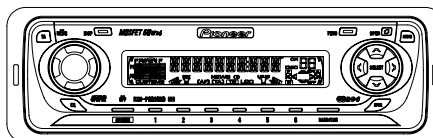


Service Manual

KEH-P6020RB/XN/EW



ORDER NO.
CRT2805

MULTI-CD CONTROL HIGH POWER CASSETTE PLAYER WITH RDS TUNER

KEH-P6020RB

XN/EW

KEH-P6020R

XN/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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For details, refer to "Important symbols for good services" on the next page.

PIONEER CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
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PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely. When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety



You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments



To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning



For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws



To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts



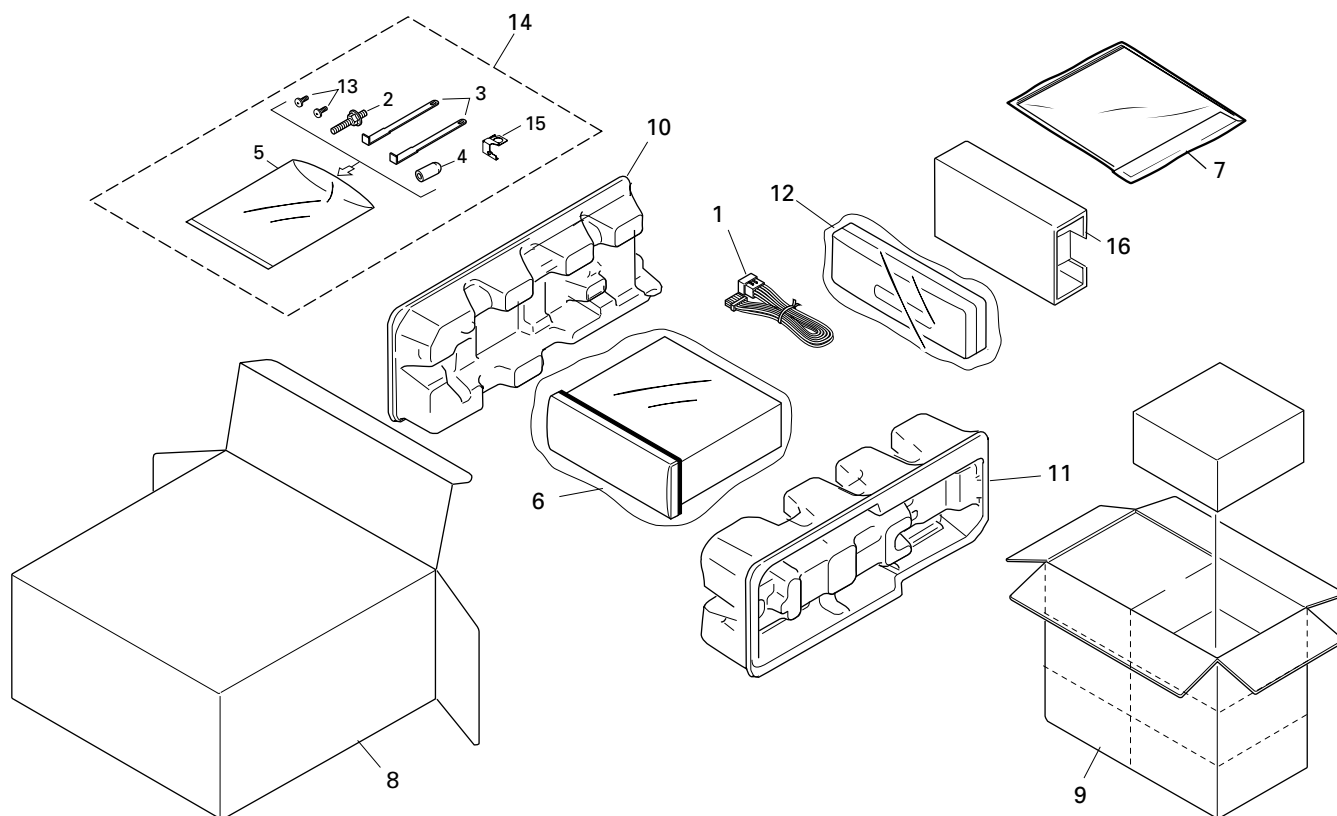
Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount. For replacement parts or tools, the prescribed ones should be used.

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.
- Screws adjacent to ∇ mark on the product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
(In the case of no amount instructions, apply as you think it appropriate.)

(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE6435	11	Protector	CHP2252
2	Screw	CBA1002	12	Case Assy	CXB3520
3	Handle	CNC5395	13	Screw	BPZ20P060FZK
4	Bush	CNV3930	14	Accessory Assy	CEA3062
*	5 Polyethylene Bag	E36-615	15	Earth Plate	CNC9450
6	Polyethylene Bag	CEG-162	16	Inner Box	CHW1754
7-1	Polyethylene Bag	CEG1116			
7-2	Owner's Manual	CRD3537			
7-3	Owner's Manual	CRD3538			
7-4	Installation Manual	CRD3553			
*	7-5 Passport	CRY1013			
*	7-6 Warranty Card	CRY1157			
8	Carton	See Contrast table(2)			
9	Contain Box	See Contrast table(2)			
10	Protector	CHP2251			

(2) CONTRAST TABLE

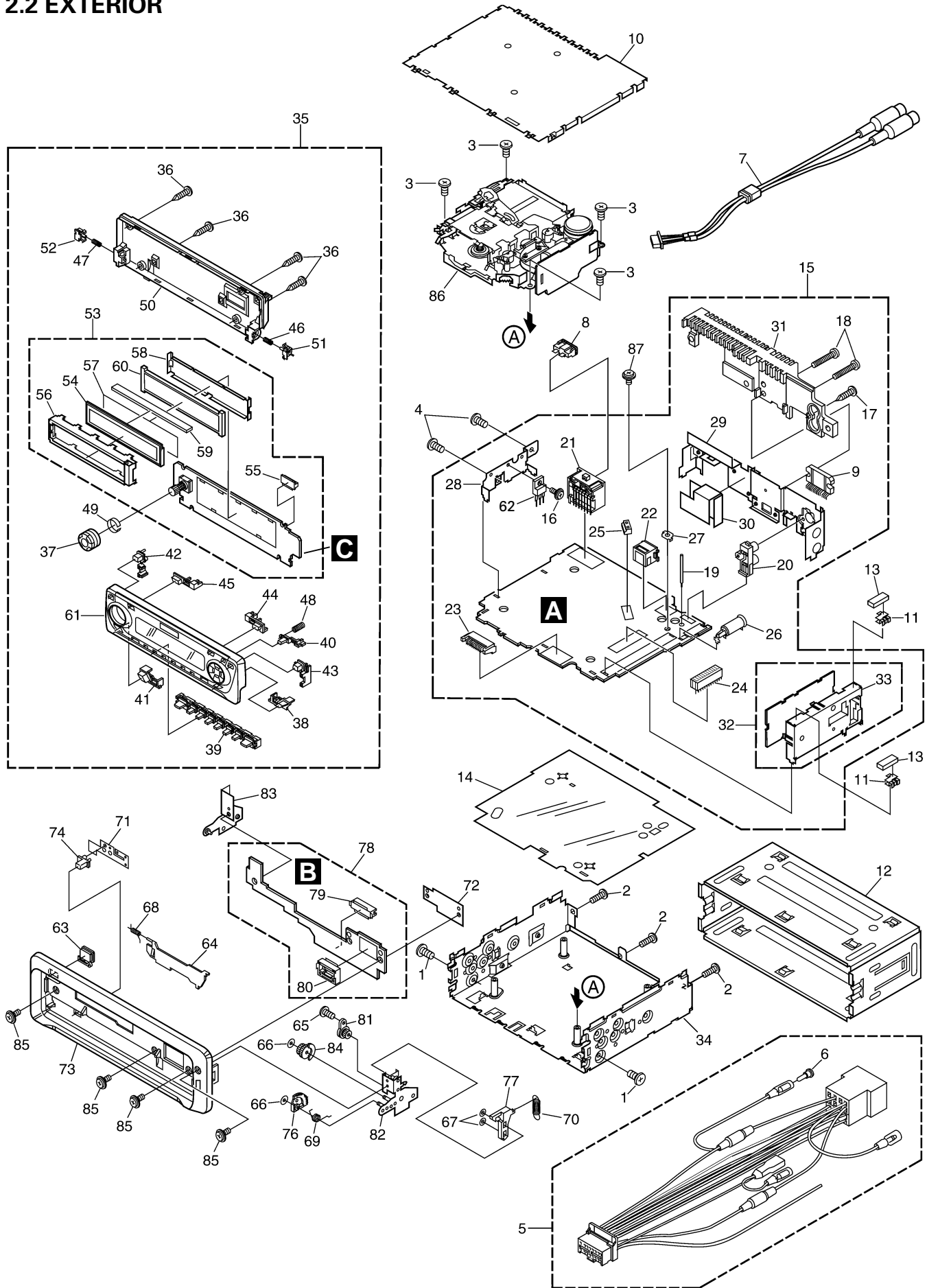
KEH-P602ORB/XN/EW and KEH-P602OR/XN/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		KEH-P602ORB/XN/EW	KEH-P602OR/XN/EW
8	Carton	CHG4561	CHG4560
9	Contain Box	CHL4561	CHL4560

● Owner's Manual, Installation Manual

Model	Part No.	Language
KEH-P602ORB/XN/EW	CRD3537	English, Spanish, German, French, Italian, Dutch
KEH-P602OR/XN/EW	CRD3538	
	CRD3553	

2.2 EXTERIOR



(1) EXTERIOR SECTION PARTS LIST


Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FZK	46	Spring	CBH2430
2	Screw	BMZ30P100FMC	47	Spring	CBH2431
3	Screw	BSZ26P050FMC	48	Spring	CBH2630
4	Screw	BSZ30P060FMC	49	Spring	CBL1470
5	Cord Assy	CDE6435	50	Cover	CNS6740
6	Cap	CKX-003	51	Holder	CNV6505
7	Cord Assy	CDE6494	52	Holder	CNV6506
8	Fuse(10A)	CEK1136	53	Keyboard Unit	See Contrast table(2)
9	IC(IC361)	PAL007A	54	LCD	See Contrast table(2)
10	Case	CNB2686	55	Connector(CN1901)	CKS4524
11	Holder	CNC5704	56	Holder	CNC9053
12	Holder	CNC8659	57	Film	See Contrast table(2)
13	Cushion	CNM4870	58	Sheet	CNM7647
14	Insulator	CNM6948	59	Connector	CNV6440
15	Tuner Amp Unit	See Contrast table(2)	60	Lighting Conductor	CNV6441
16	Screw	ASZ26P060FMC	61	Sub Grille Assy	See Contrast table(2)
17	Screw	BPZ26P120FMC	62	Transistor(Q910)	2SD2396
18	Screw	BSZ26P160FMC	63	Button(EJECT)	CAC6839
19	Clamper	CEF1007	64	Door	CAT2109
20	Pin Jack(CN351)	CKB1035	65	Screw(M2x2)	CBA1176
21	Plug(CN901)	CKM1330	66	Washer	CBF1038
22	Connector(CN701)	CKS3408	67	Washer	CBF1039
23	Plug(CN750)	CKS3537	68	Spring	CBH1838
24	Connector(CN551)	CKS3568	69	Spring	CBH2428
25	Connector(CN331)	CKS3598	70	Spring	CBH2429
26	Antenna Jack(CN402)	CKX1056	71	Spring	CBL1512
27	Holder(CN403)	CNC5399	72	Holder	CNC9096
28	Holder	CNC8615	73	Panel	CNS6950
29	Holder	CNC9470	74	Pin	CNV6486
30	Insulator	CNM6949	75	
31	Heat Sink	CNR1583	76	Gear	CNV6507
32	FM/AM Tuner Unit	CWE1562	77	Arm	CNV6508
33	Holder	CNC8815	78	Panel Unit	CWM7627
34	Chassis Unit	See Contrast table(2)	79	Socket(CN1950)	CKS3550
35	Detach Grille Assy	See Contrast table(2)	80	Connector(CN1951)	CKS4206
36	Screw	BPZ20P100FZK	81	Damper Unit	CXB5070
37	Knob	CAA2699	82	Holder Unit	CXB6356
38	Button(SFEQ)	CAC7221	83	Holder Unit	CXB6357
39	Button(1-6)	CAC7225	84	Clutch Unit	CXB6358
40	Button(OPEN)	CAC7227	85	Screw	IMS20P045FZK
41	Button(EQ)	CAC7231	86	Cassette Mechanism Module	EXK4070
42	Button(TA)	CAC7232	87	Screw	ISS26P055FUC
43	Button(AUDIO)	CAC7234			
44	Button(LOCAL)	CAC7235			
45	Button(BSM)	CAC7236			

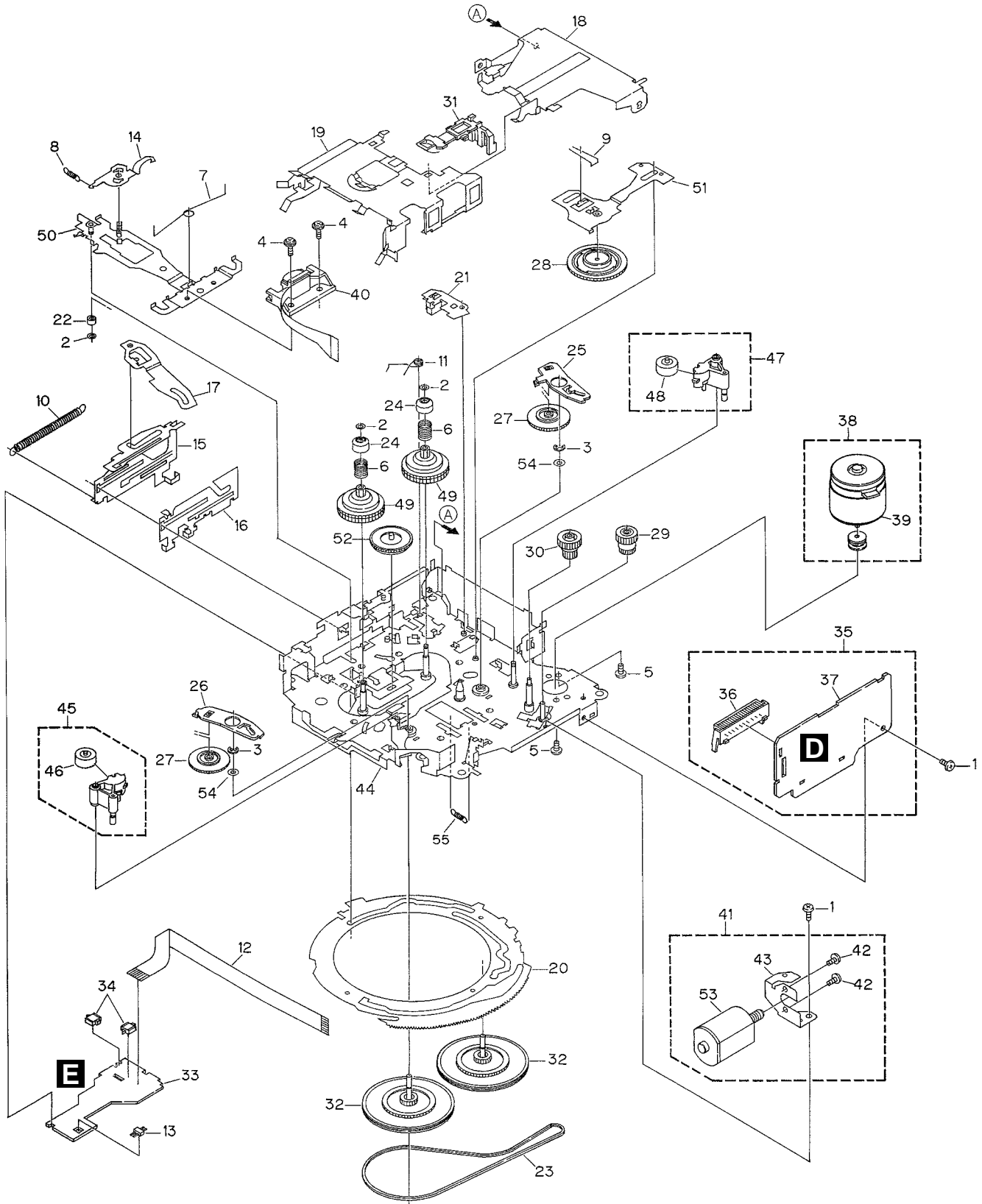
(2) CONTRAST TABLE

KEH-P6020RB/XN/EW and KEH-P6020R/XN/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		KEH-P6020RB/XN/EW	KEH-P6020R/XN/EW
15	Tuner Amp Unit	CWM8019	CWM8018
34	Chassis Unit	CXB8376	CXB8375
35	Detach Grille Assy	CXB8413	CXB8412
53	Keyboard Unit	CWM8312	CWM8311
54	LCD	CAW1668	CAW1627
57	Film	CNM6983	Not used
61	Sub Grille Assy	CXB8622	CXB8621

2.3 CASSETTE MECHANISM MODULE

 For grease application, refer to the service manual for CX-1011 (CRT2406).



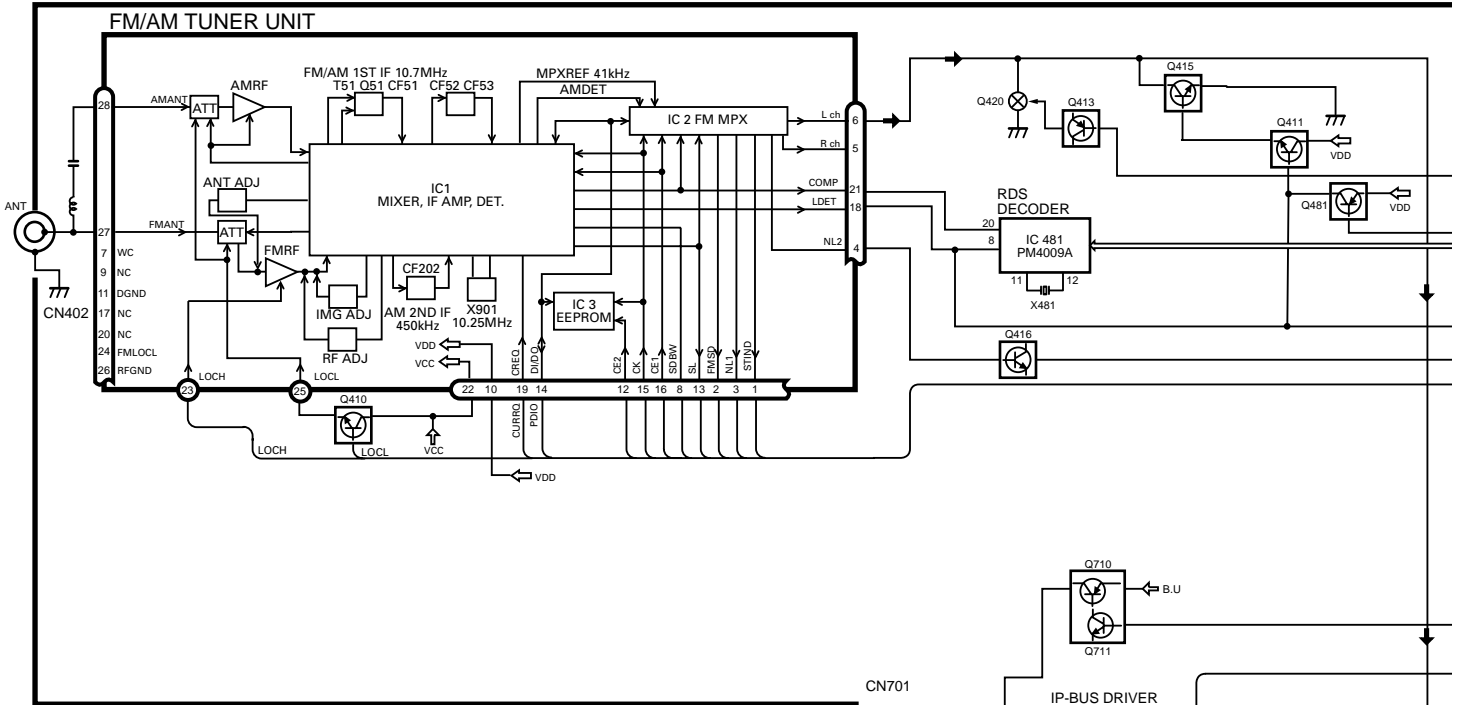
● CASSETTE MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	46	Pinch Roller	ENV1518
2	Washer	CBF1037	47	Pinch Holder Unit	EXA1607
3	Washer	CBG1003	48	Pinch Roller	ENV1518
4	Screw	EBA1028	49	Reel Unit	EXA1585
5	Screw	CBA1037	50	Head Base Unit	EXA1611
6	Spring	EBH1531	51	Lever Unit	EXA1587
7	Spring	EBH1642	52	Gear Unit	EXA1596
8	Spring	EBH1641	53	Motor Unit(Service)	EXX1055
9	Spring	EBH1626	54	Washer	HBF-179
10	Spring	EBH1627	55	Spring	EBH1537
11	Spring	EBH1649			
12	Cord	EDD1024			
13	Photo-reflector(EGN1)	EGN1004			
14	Arm	ENC1526			
* 15	Lever	ENC1544			
16	Lever	ENC1543			
17	Arm	ENC1532			
18	Frame	ENC1533			
19	Holder	ENC1534			
20	Gear	ENC1535			
21	Arm	ENC1550			
22	Roller	ENR1040			
23	Belt	ENT1027			
24	Collar	ENV1508			
25	Arm	ENV1539			
26	Arm	ENV1540			
27	Gear	ENV1544			
28	Gear	ENV1547			
29	Gear	ENV1560			
30	Worm Wheel	ENV1566			
31	Lever	ENV1551			
32	Flywheel	ENV1554			
33	Gathering PCB	ENX1068			
34	Switch(S1,S2)	ESG1007			
35	Deck Unit	EWM1032			
36	Plug(CN251)	CKS3540			
37	Gathering PCB	ENX1067			
38	Motor Unit(M1)	EXA1491			
39	Motor	EXM1028			
40	Head Assy(HD1)	EXA1592			
41	Motor Unit(M2)	EXA1580			
42	Screw	BMZ20P022FMC			
43	Bracket	ENC1528			
44	Chassis Unit	EXA1615			
45	Pinch Holder Unit	EXA1608			

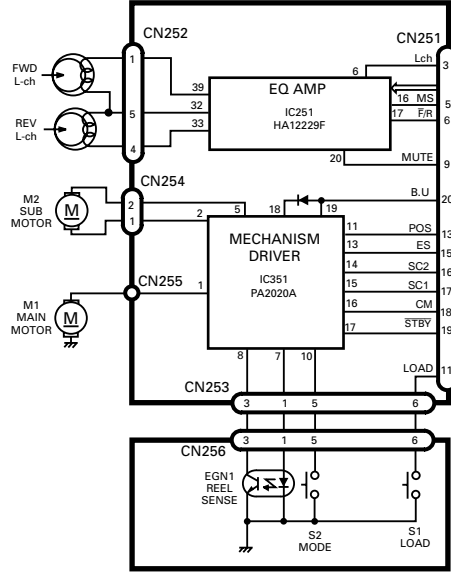
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

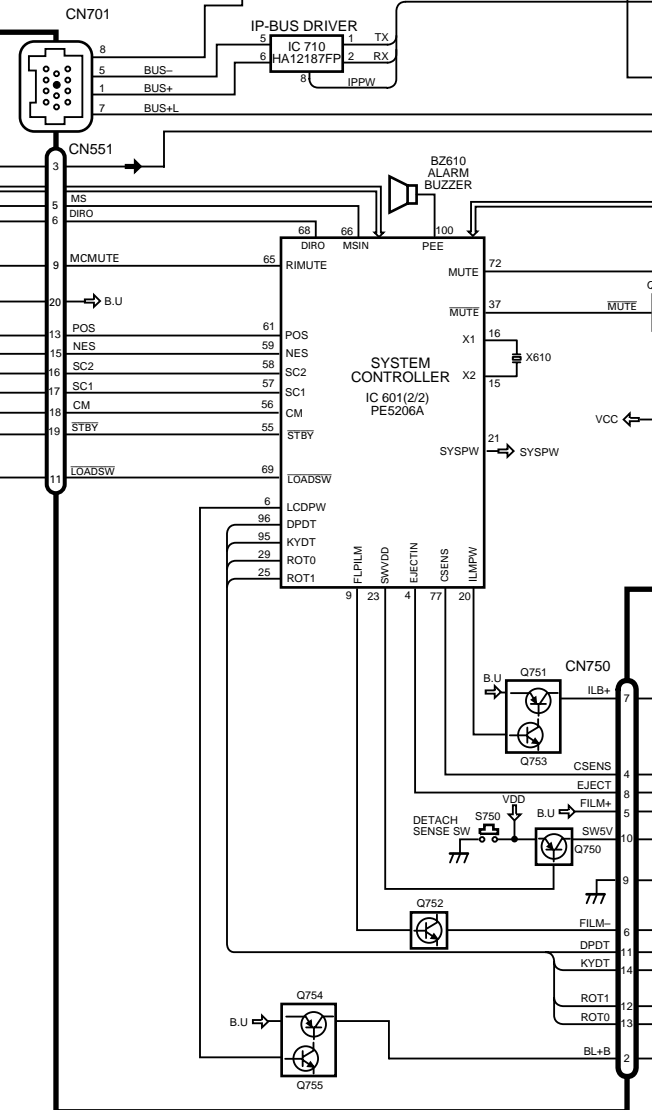
A TUNER AMP UNIT

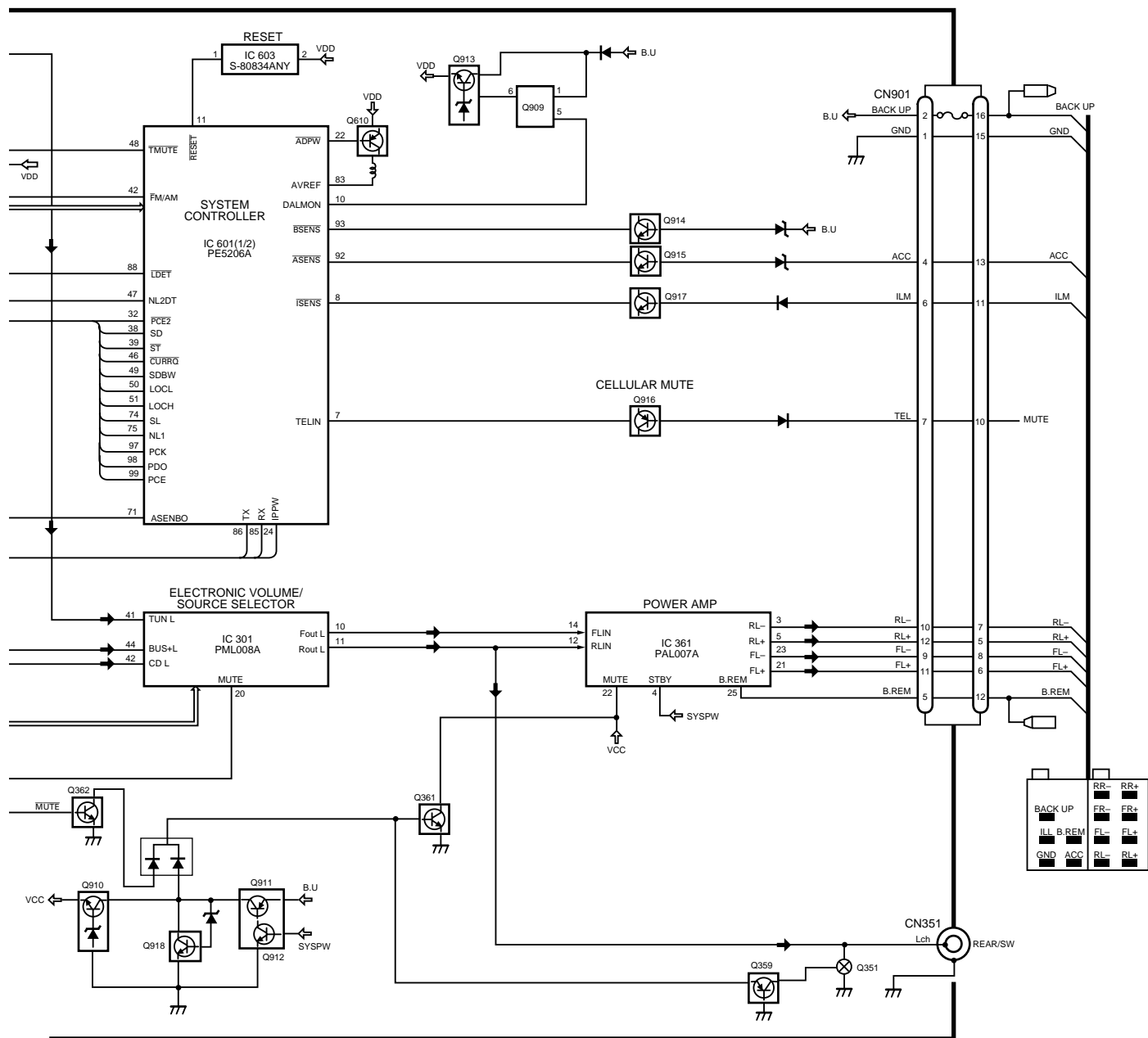


D DECK UNIT



E REEL SENSE PCB

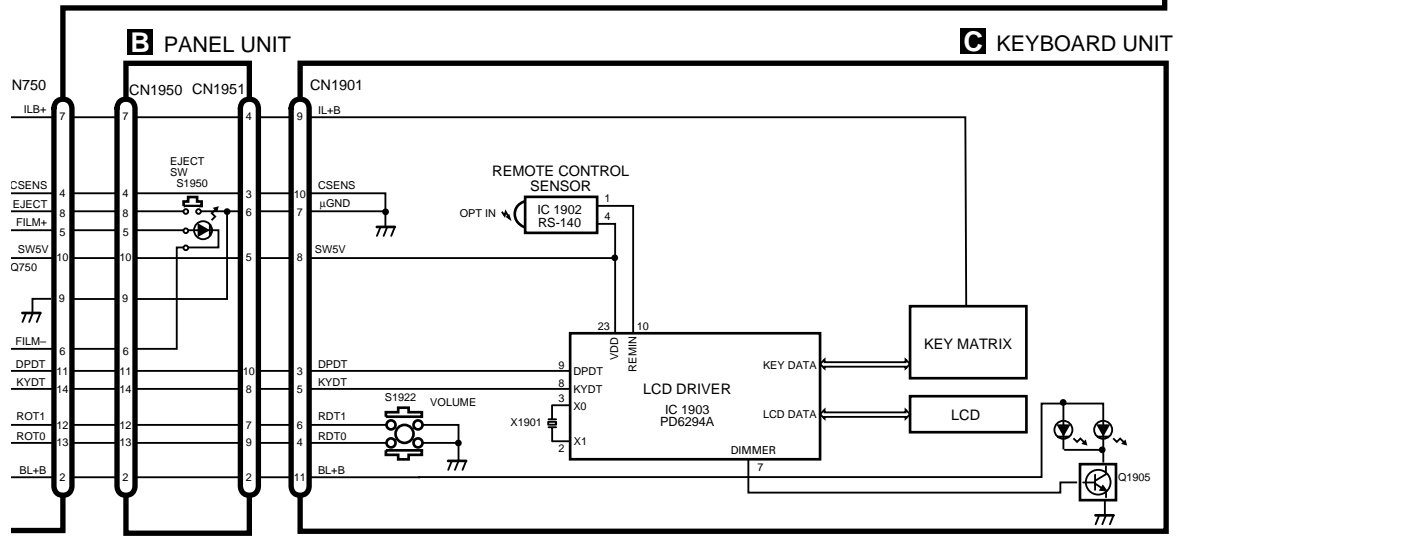




A

B

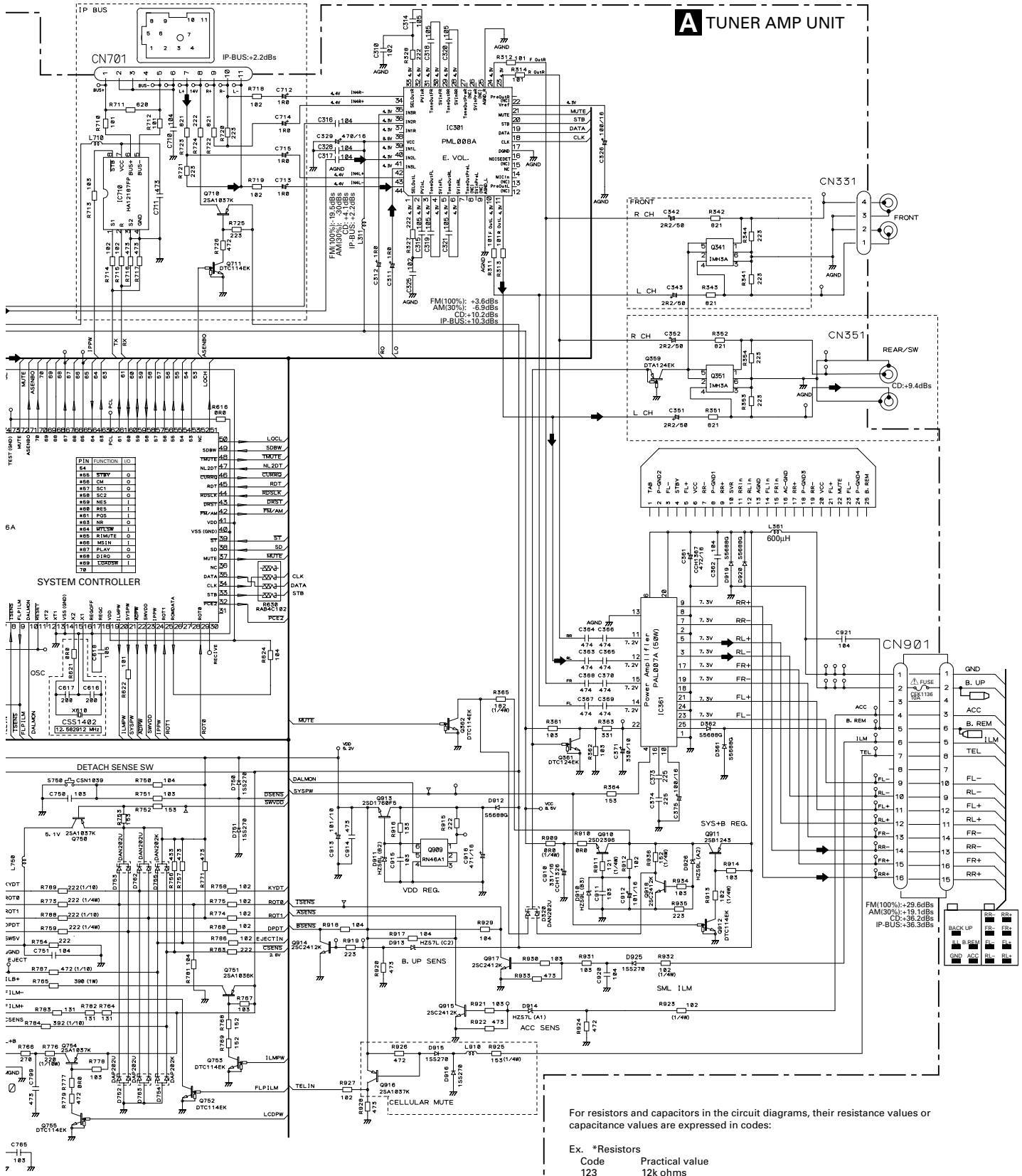
C



D

A-b

A TUNER AMP UNIT



For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

Ex. *Resistors	Code	Practical value
	123	12k ohms
	103	10k ohms

*Capacitors	Code	Practical value
	103	0.01uF
	101/10	100uF/10V

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.

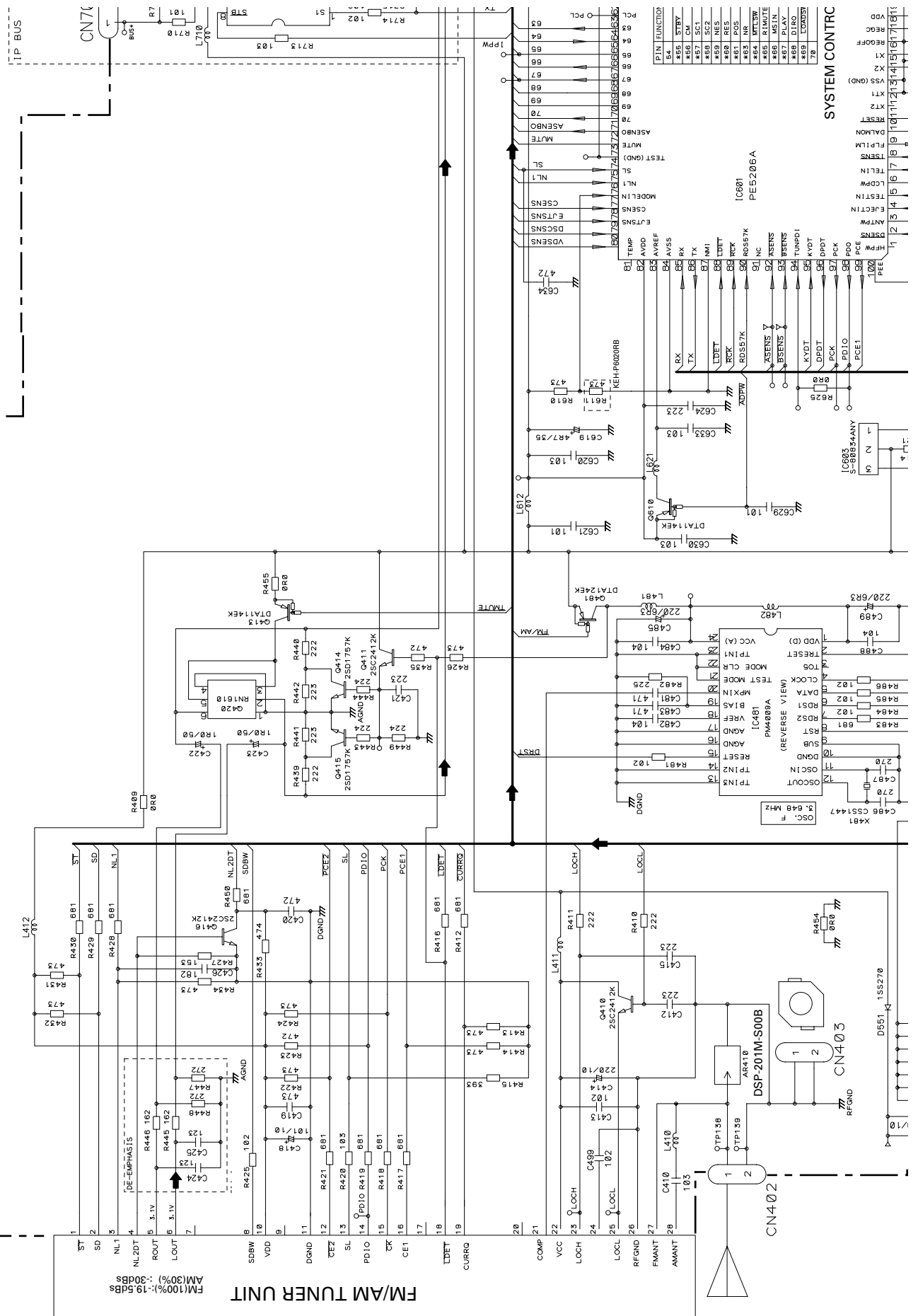


A

B

C

D



FM/AM TUNER UNIT

SYSTEM CONTRC

IP BUS

A-a A-b

A

B

C

D

1

2

3

4

A

B

C

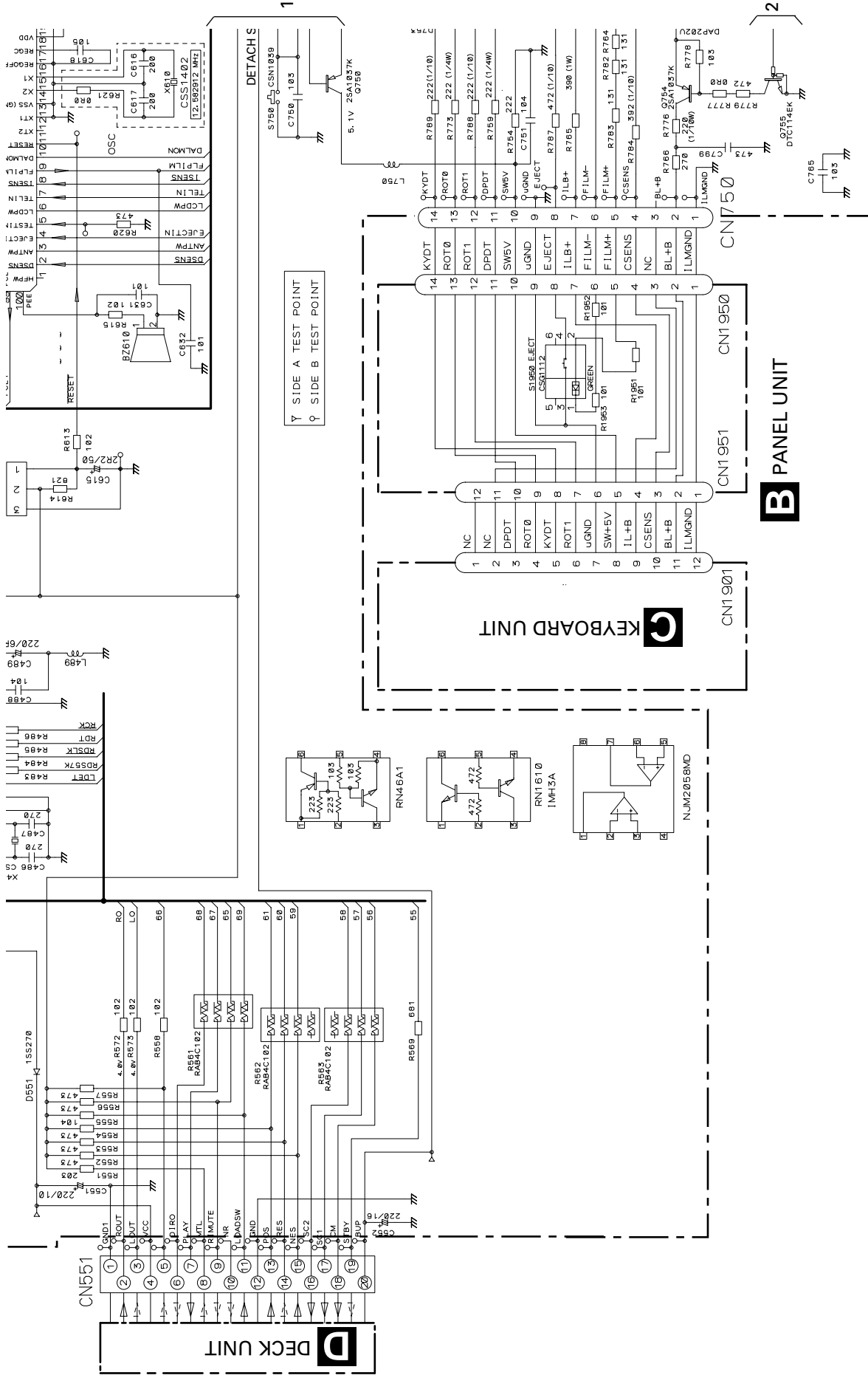
D

1

2

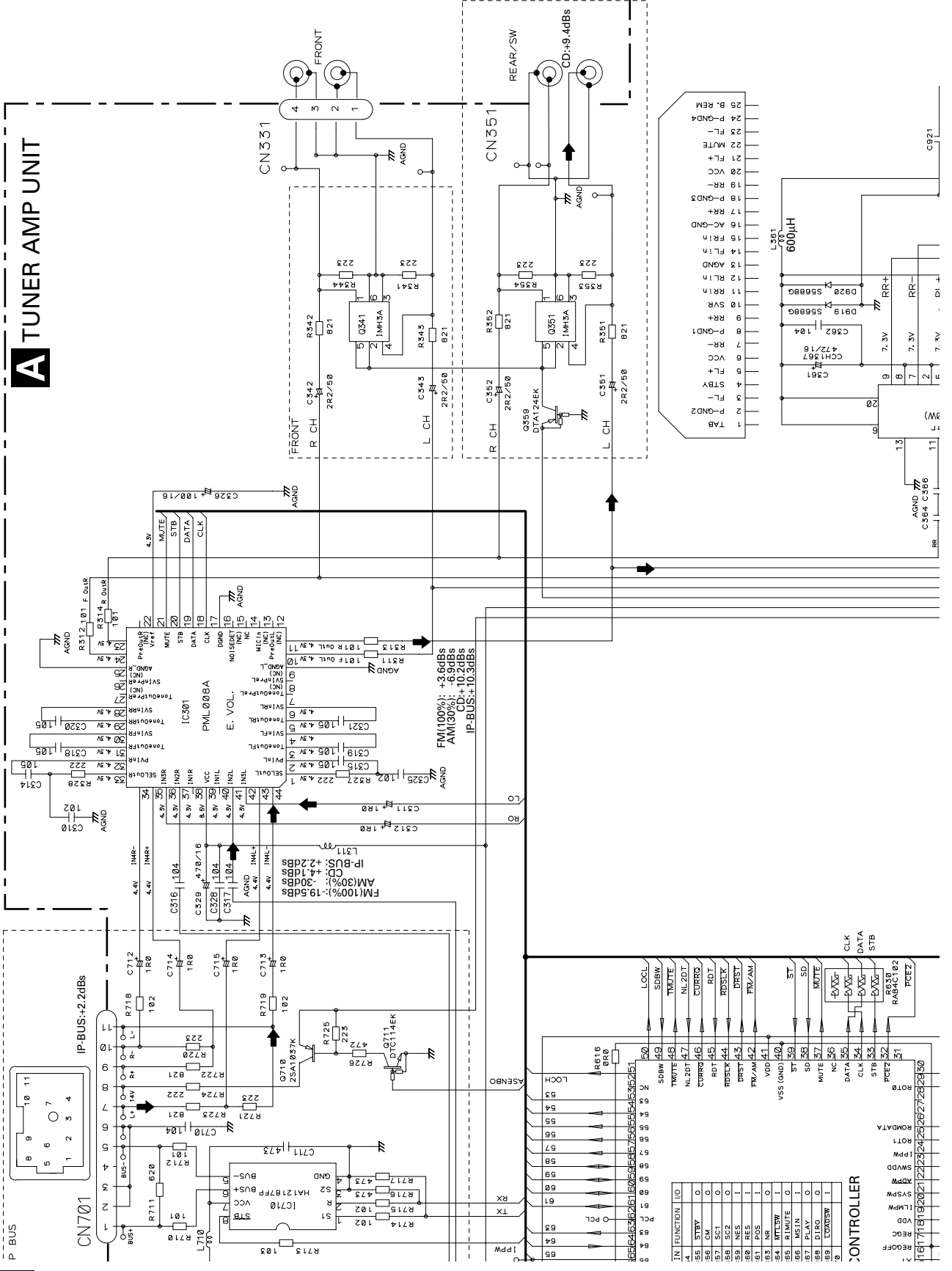
3

4



A-a A-b

A-a B



A

B

C

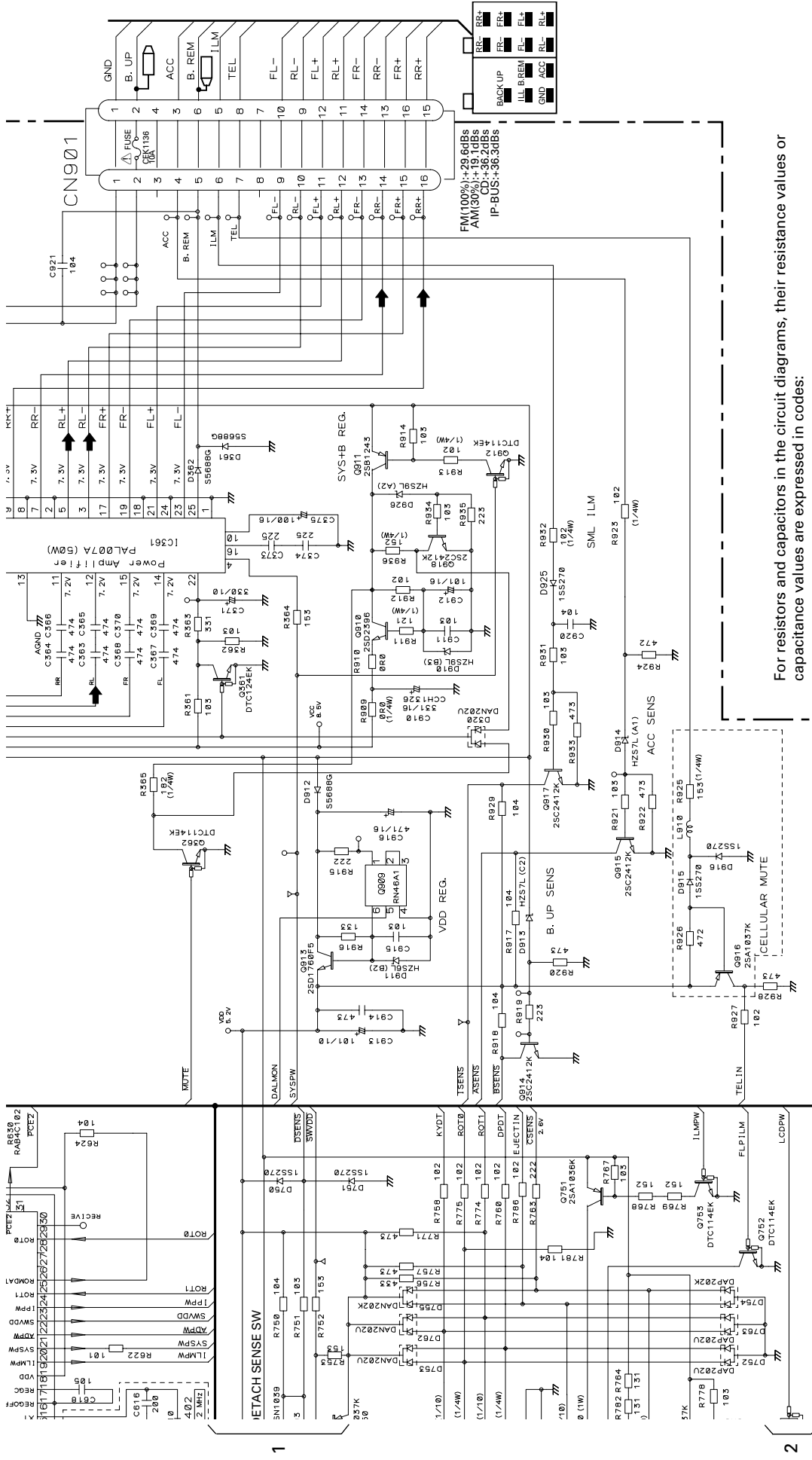
D

1

2

3

4

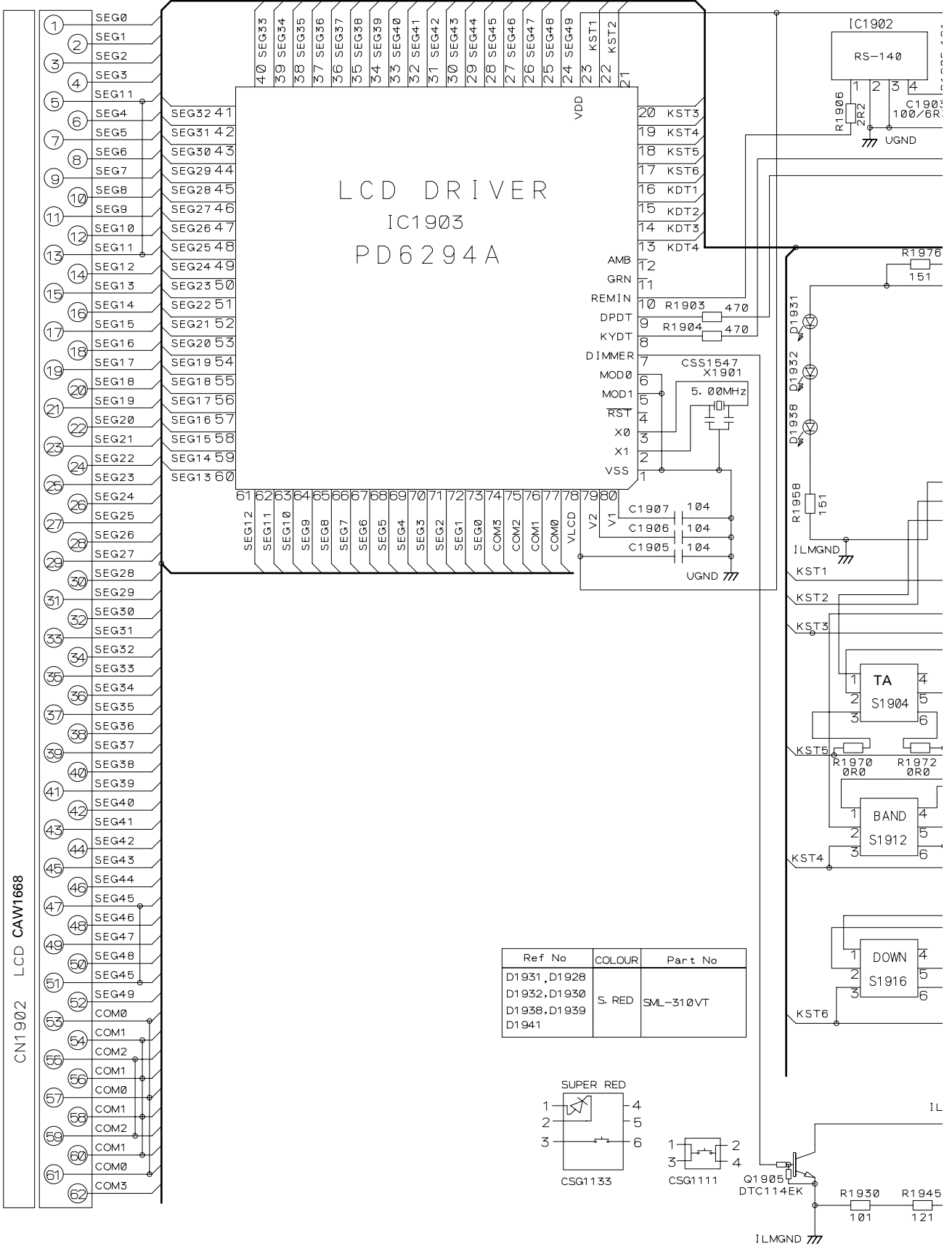


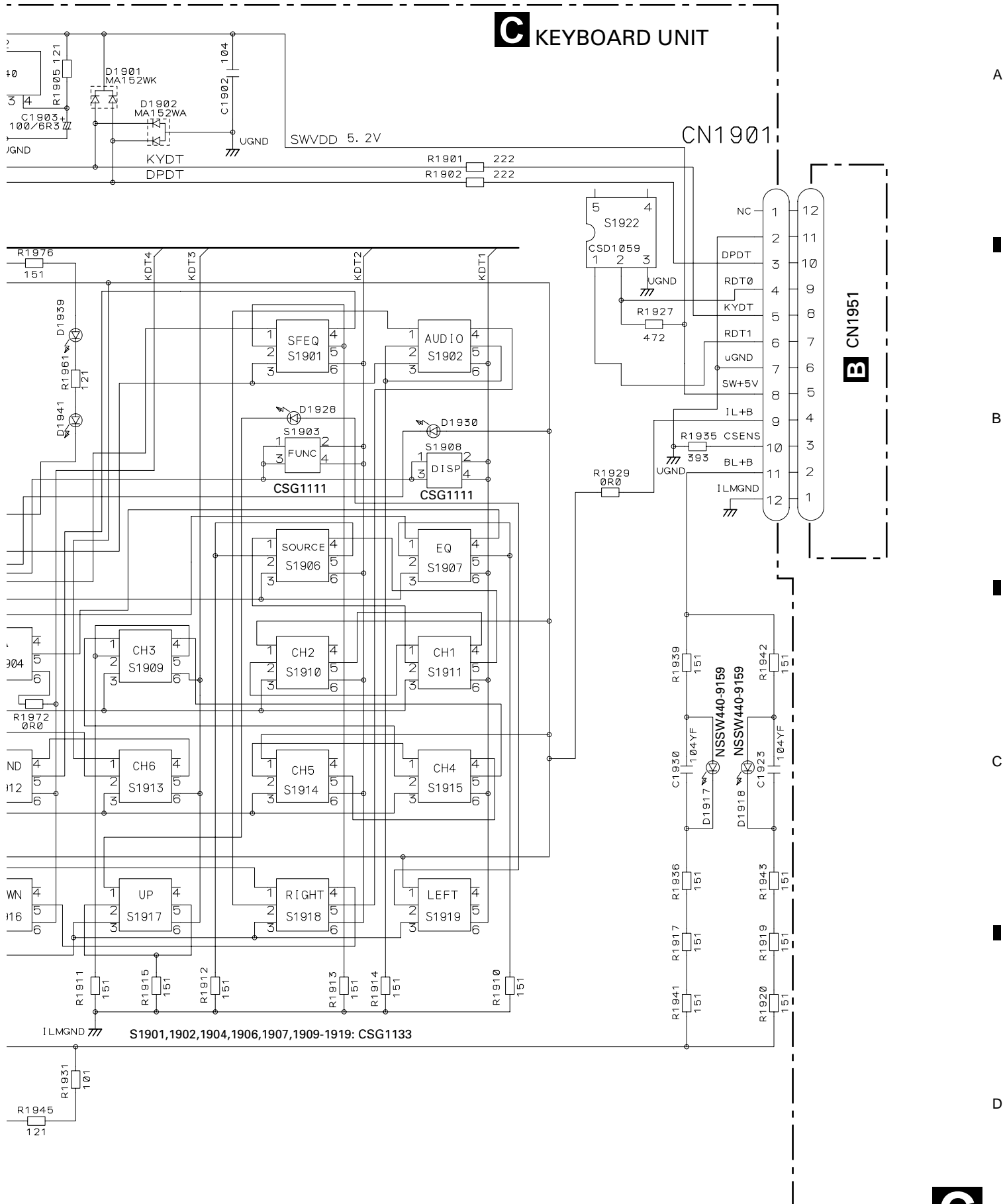
For resistors and capacitors in the circuit diagrams, their resistance values or capacitance values are expressed in codes:

*Resistors		*Capacitors	
Code	Practical value	Code	Practical value
123	12k ohms	103	0.01uF
103	10k ohms	101/10	100uF/10V

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.

3.3 KEYBOARD UNIT(KEH-P602ORB)





A

B

C

D



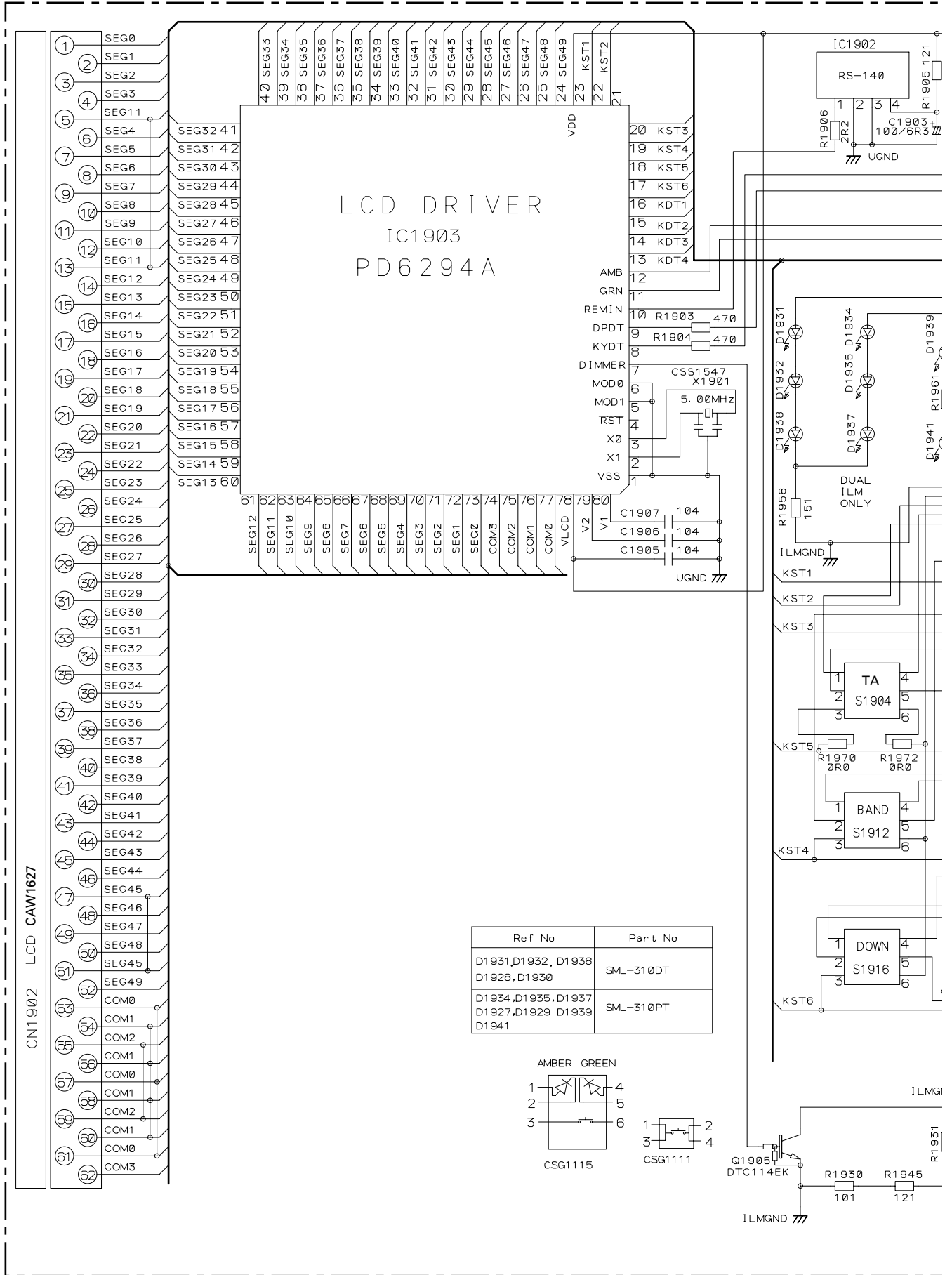
3.4 KEYBOARD UNIT(KEH-P602OR)

A

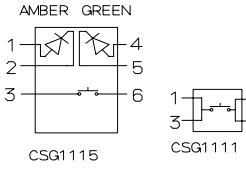
B

C

D

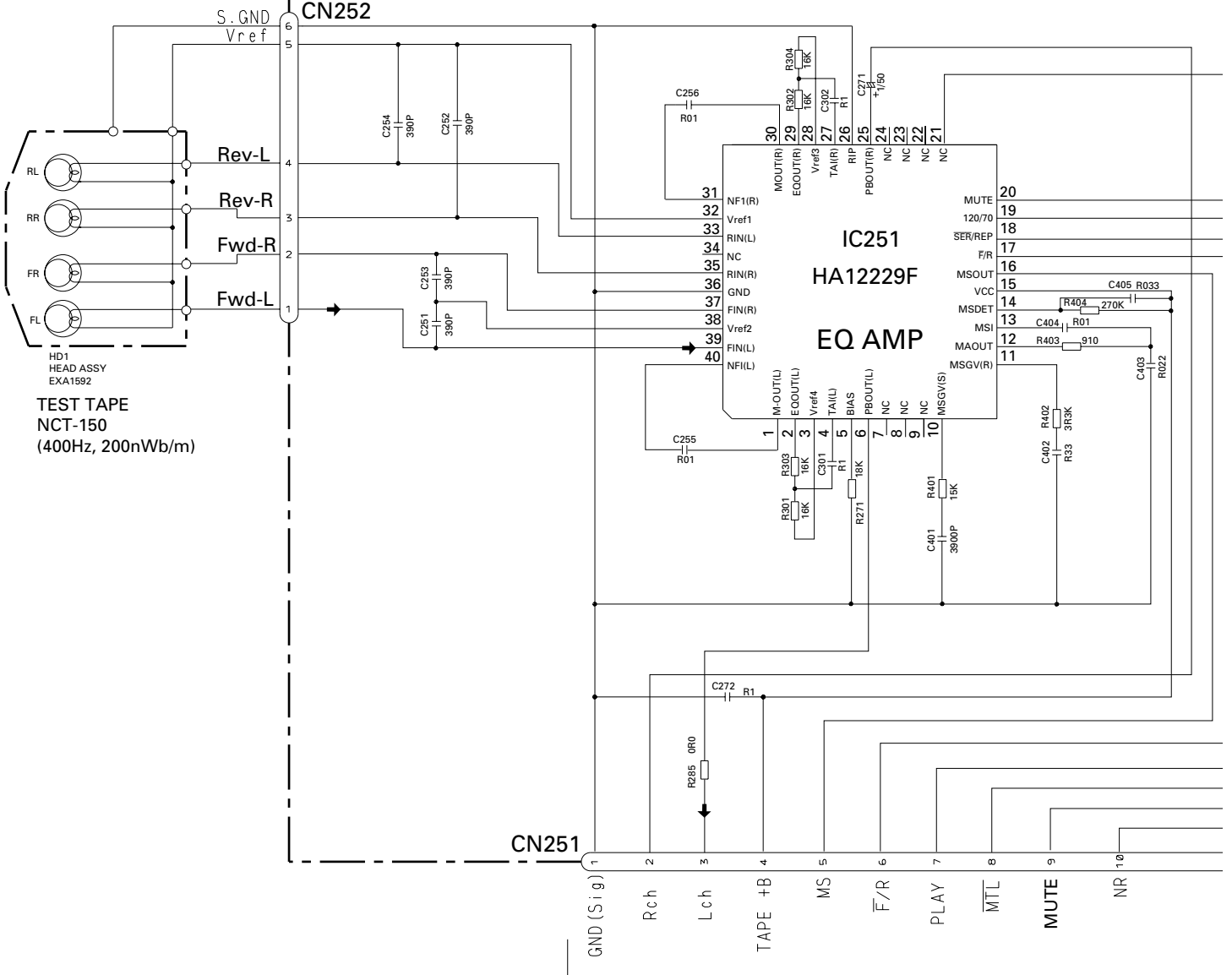


Ref No	Part No
D1931, D1932, D1938 D1928, D1930	SML-310DT
D1934, D1935, D1937 D1927, D1929, D1939 D1941	SML-310PT



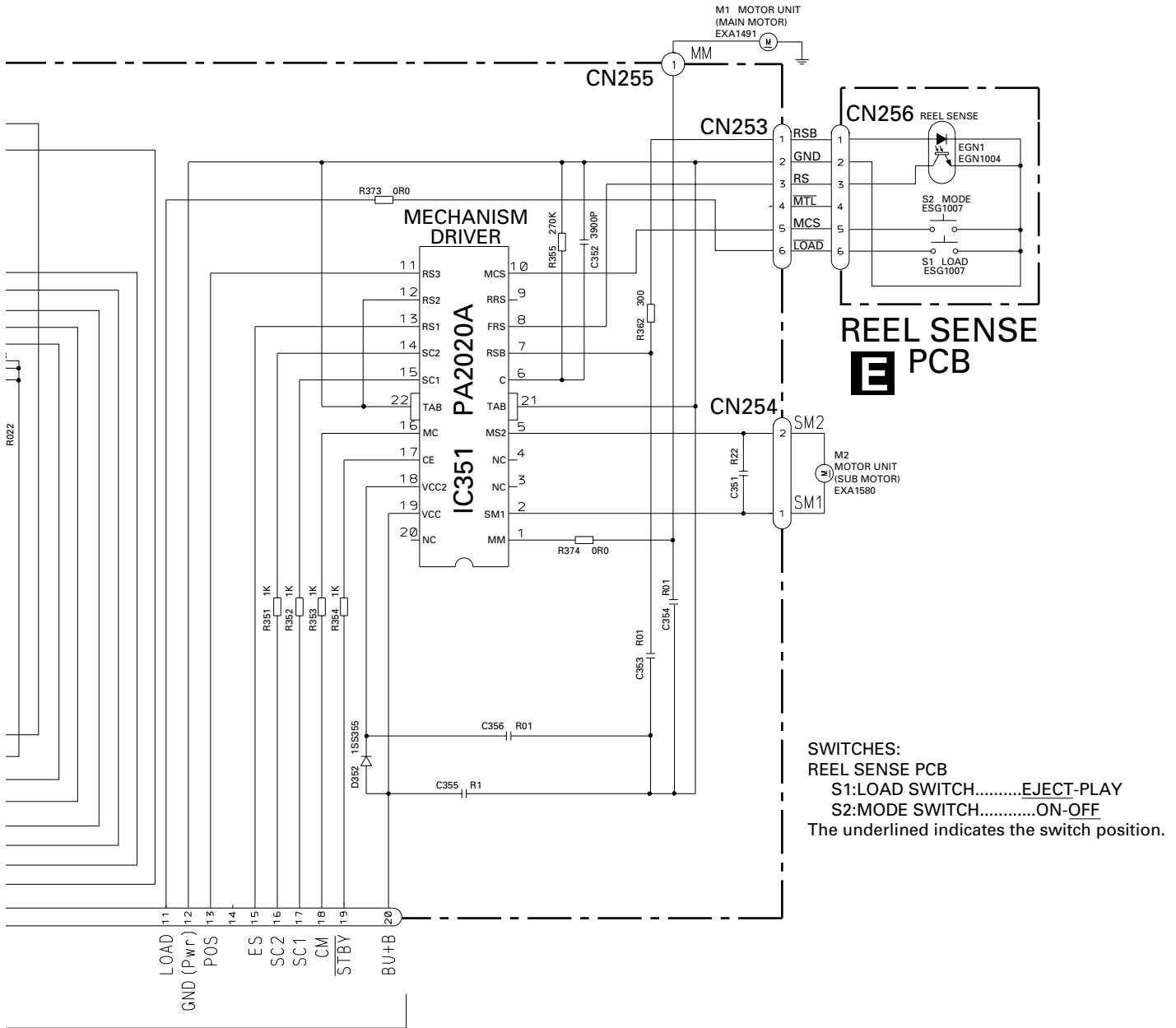
3.5 CASSETTE MECHANISM MODULE

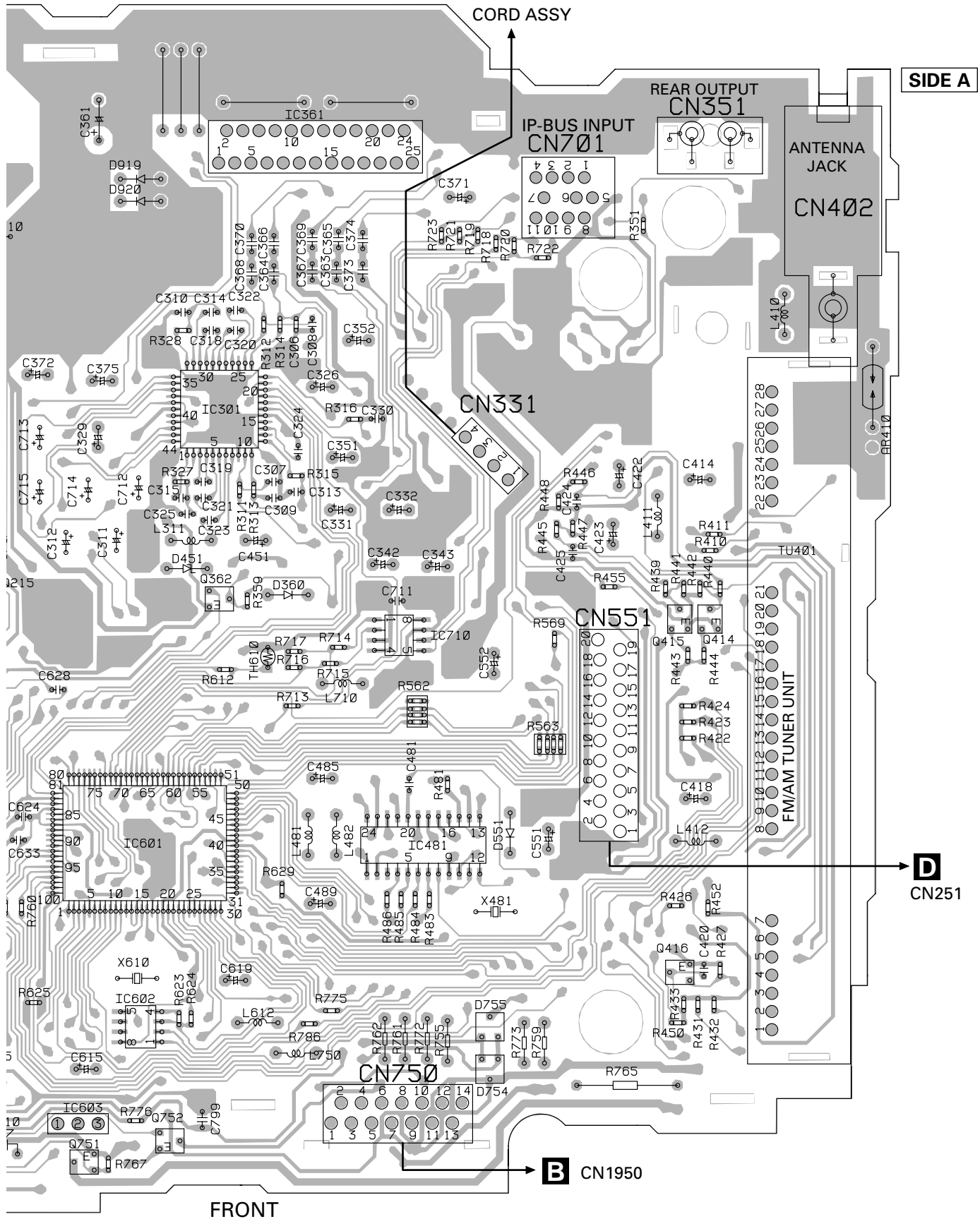
D DECK UNIT



-8.24dBs±4dB

A CN551

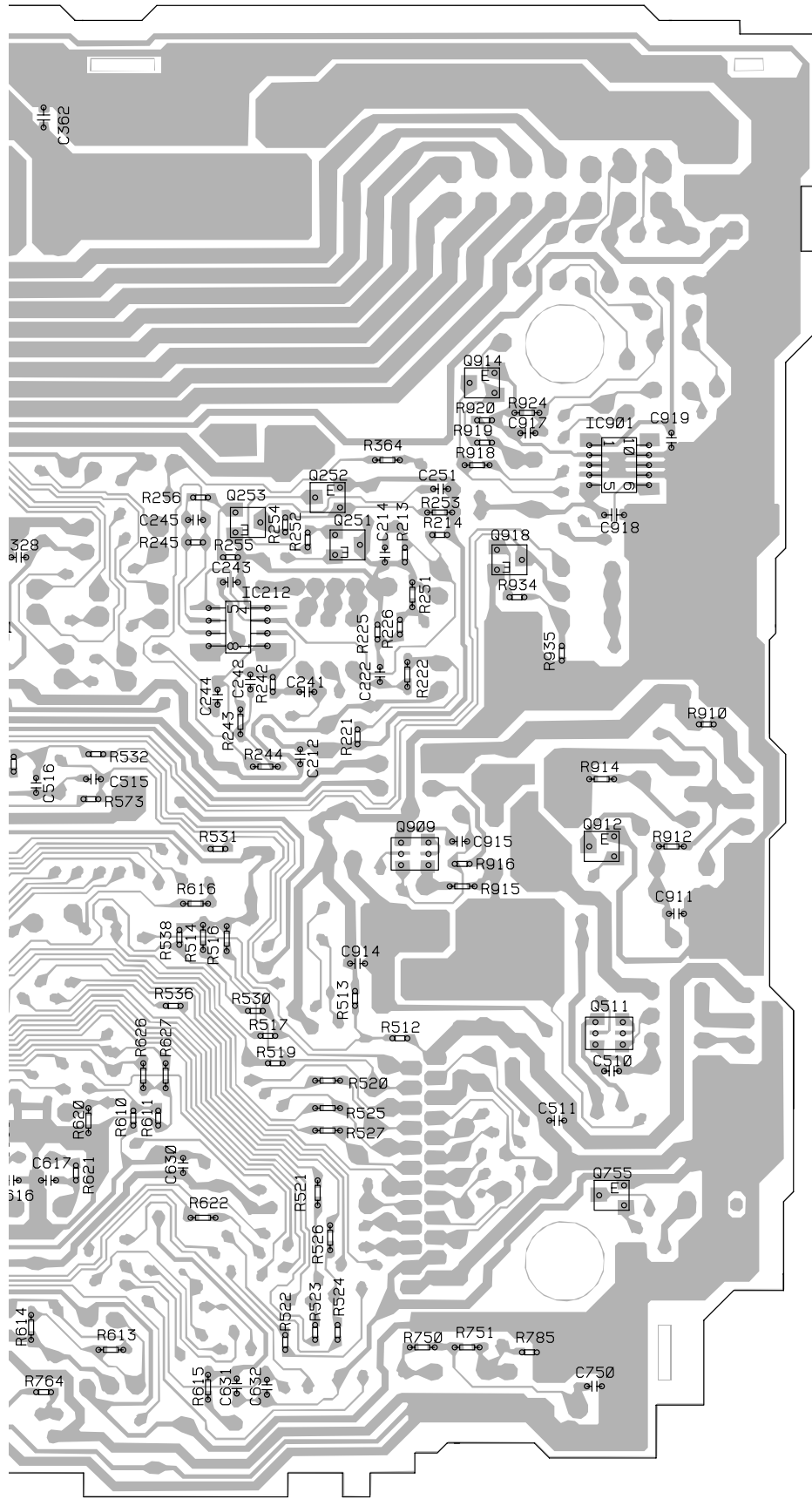




A
B
C
D

A

SIDE B



- IC, Q
- Q351
- Q710
- Q711 Q914
- Q331 IC901
- Q252
- Q359 Q253
- Q918 Q251
- Q410 Q413
- IC212
- Q420 Q361
- IC451
- Q411
- Q909 Q912
- Q511
- Q481
- Q755
- Q750

A

B

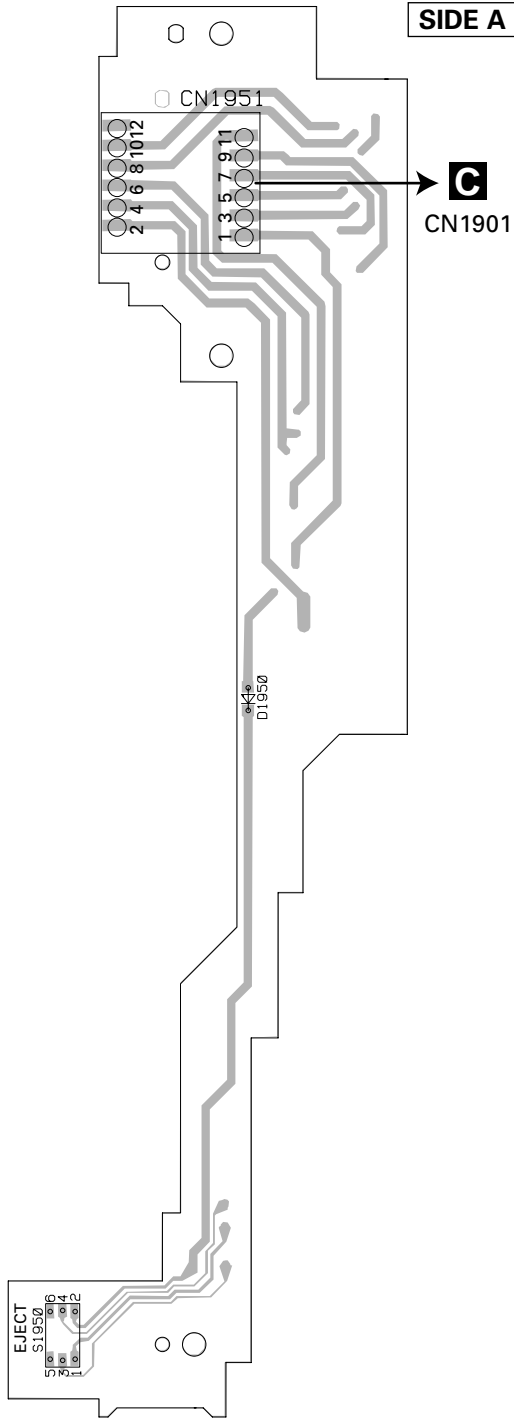
C

D

4.2 PANEL UNIT

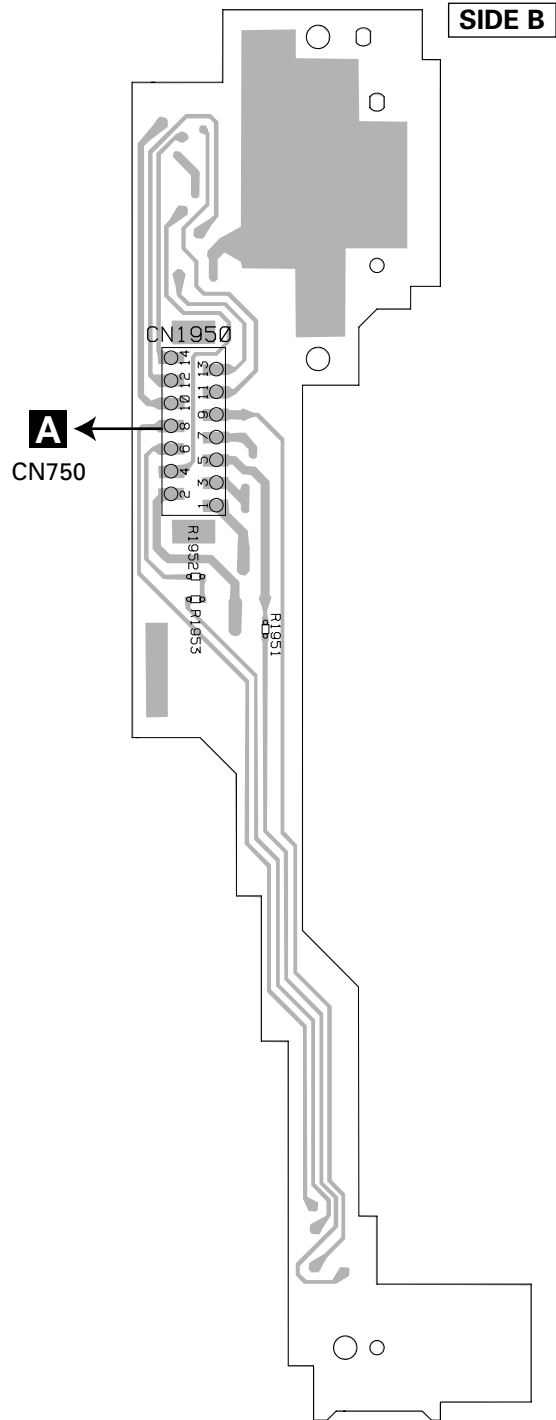
A

B PANEL UNIT



B

B PANEL UNIT



C

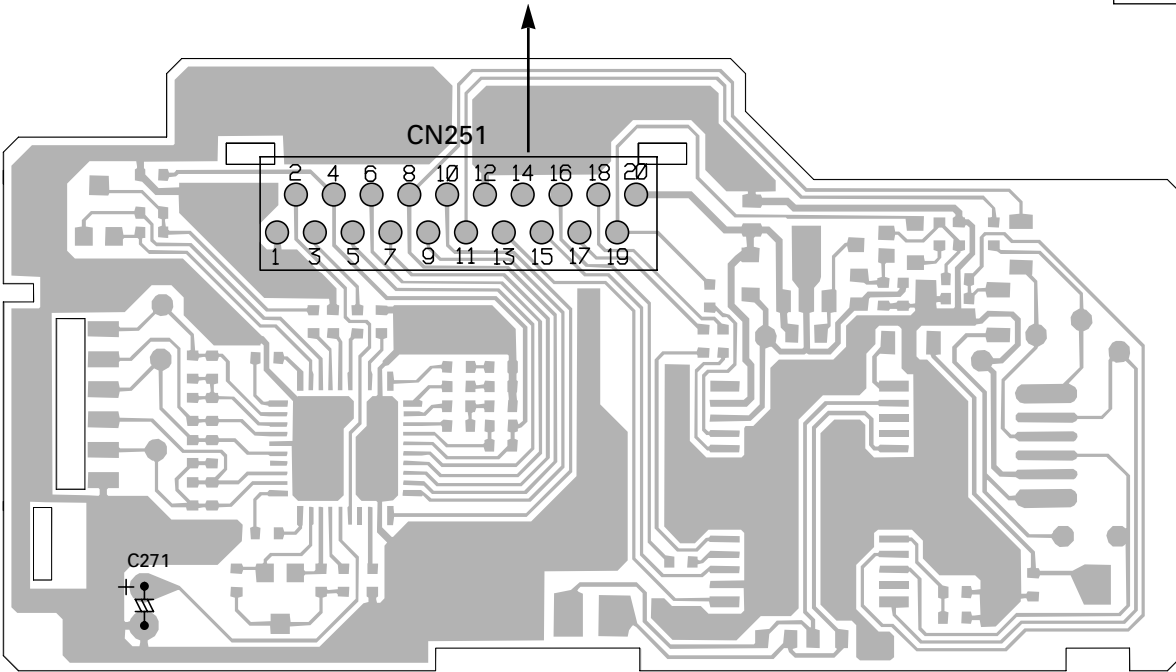
D

4.4 CASSETTE MECHANISM MODULE

D DECK UNIT

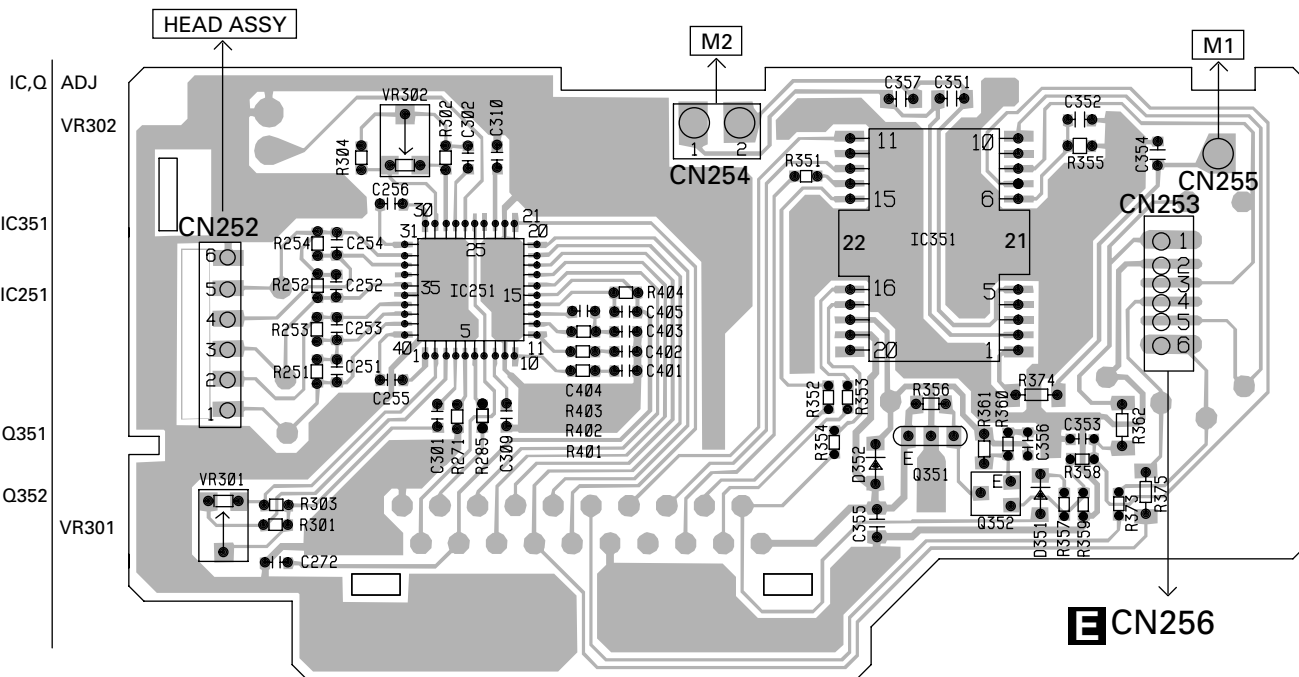
A CN551

SIDE A

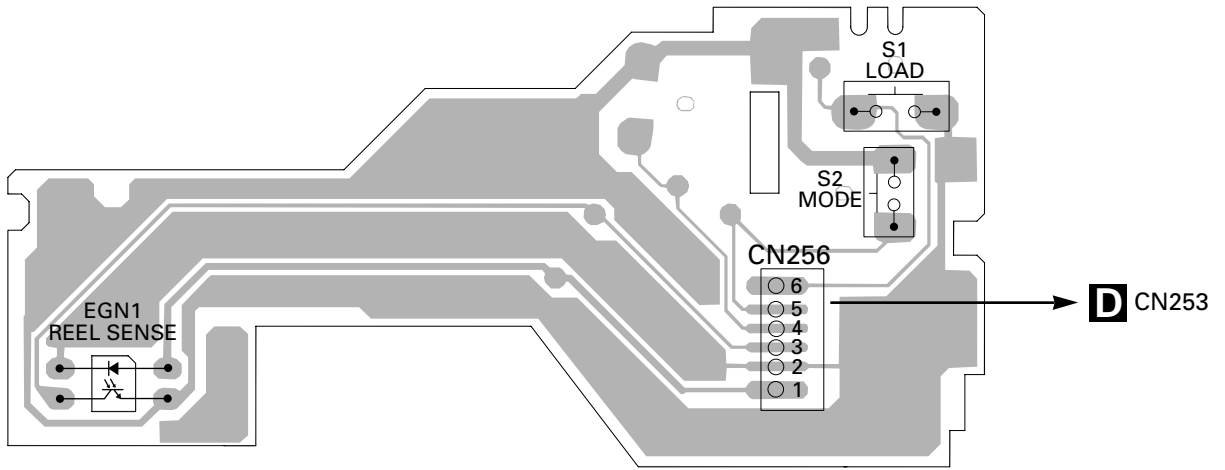


D DECK UNIT

SIDE B



E REEL SENSE PCB



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/OSOOOJ,RS1/OOSOOOJ

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

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

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

D Unit Number : EWM1032
Unit Name : Deck Unit

MISCELLANEOUS

IC 251	IC	HA12229F
IC 351	IC	PA2020A
D 352	Diode	1SS355

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 351	RS1/16S102J
R 352	RS1/16S102J
R 353	RS1/16S102J
R 354	RS1/16S102J
R 355	RS1/16S274J
R 362	RS1/8S301J
R 373	RS1/16S0R0J
R 374	RS1/8S0R0J
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	CKSRYB392K50
C 353	CKSRYB103K50
C 354	CKSRYB103K50
C 355	CKSQYB104K50
C 356	CKSRYB103K50
C 401	CKSRYB392K50
C 402	CKSRYB334K10
C 403	CKSRYB223K25
C 404	CKSRYB103K50
C 405	CKSRYB333K16

1μF/50V

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

A Unit Number : CWM8019(KEH-P6020RB)
Unit Number : CWM8018(KEH-P6020R)
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC 301	IC	PML008A
IC 361	IC	PAL007A
IC 481	IC	PM4009A
IC 601	IC	PE5206A
IC 603	IC	S-80834ANY

IC 710	IC	HA12187FP
Q 341	Transistor	IMH3A
Q 351	Transistor	IMH3A
Q 359	Transistor	DTA124EK
Q 361	Transistor	DTC124EK

Q 362	Transistor	DTC114EK
Q 410	Transistor	2SC2412K
Q 411	Transistor	2SC2412K
Q 413	Transistor	DTA114EK
Q 414	Transistor	2SD1757K

Q 415	Transistor	2SD1757K
Q 416	Transistor	2SC2412K
Q 420	Transistor	RN1610
Q 481	Transistor	DTA124EK
Q 610	Transistor	DTA114EK

Q 710	Transistor	2SA1037K
Q 711	Transistor	DTC114EK
Q 750	Transistor	2SA1037K
Q 751	Transistor	2SA1036K
Q 752	Transistor	DTC114EK

Q 753	Transistor	DTC114EK
Q 754	Transistor	2SA1037K
Q 755	Transistor	DTC114EK
Q 909	Transistor	RN46A1
Q 910	Transistor	2SD2396

Q 911	Transistor	2SB1243
Q 912	Transistor	DTC114EK
Q 913	Transistor	2SD1760F5
Q 914	Transistor	2SC2412K
Q 915	Transistor	2SC2412K

Q 916	Transistor	2SA1037K
Q 917	Transistor	2SC2412K
Q 918	Transistor	2SC2412K
D 320	Diode	DAN202U
D 361	Diode	S5688G

D 362	Diode	S5688G
D 551	Diode	1SS270
D 750	Diode	1SS270
D 751	Diode	1SS270
D 752	Diode	DAP202U

D 753	Diode	DAN202U
D 754	Diode	DAP202K
D 755	Diode	DAN202K
D 762	Diode	DAN202U
D 763	Diode	DAP202U

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
D 910 Diode	HZS9L(B3)	R 425	RS1/16S102J
D 911 Diode	HZS6L(B2)	R 426	RS1/16S473J
D 912 Diode	S5688G	R 427	RS1/16S153J
D 913 Diode	HZS7L(C2)	R 428	RS1/16S681J
D 914 Diode	HZS7L(A1)	R 429	RS1/16S681J
D 915 Diode	1SS270	R 430	RS1/16S681J
D 916 Diode	1SS270	R 431	RS1/16S473J
D 919 Diode	S5688G	R 432	RS1/16S473J
D 920 Diode	S5688G	R 433	RS1/16S474J
D 925 Diode	1SS270	R 434	RS1/16S473J
D 926 Diode	HZS9L(A2)	R 435	RS1/16S472J
L 311 Ferri-Inductor	LAU4R7K	R 439	RS1/16S222J
L 361 Choke Coil 600μH	CTH1221	R 440	RS1/16S222J
L 410 Ferri-Inductor	LAU4R7K	R 441	RS1/16S223J
L 411 Ferri-Inductor	LAU2R2K	R 442	RS1/16S223J
L 412 Ferri-Inductor	LAU2R2K	R 443	RS1/16S224J
L 481 Inductor	LAU100K	R 444	RS1/16S224J
L 482 Ferri-Inductor	LAU101K	R 445	RS1/16S162J
L 489 Inductor	CTF1346	R 446	RS1/16S162J
L 612 Inductor	LAU100K	R 447	RS1/16S272J
L 621 Inductor	CTF1346	R 448	RS1/16S272J
L 710 Ferri-Inductor	LAU2R2K	R 449	RS1/16S224J
L 750 Ferri-Inductor	LAU2R2K	R 450	RS1/16S681J
L 910 Ferri-Inductor	LAU2R2K	R 454	RS1/16S0R0J
X 481 Crystal Resonator 3.648MHz	CSS1447	R 455	RS1/16S0R0J
X 610 Radiator 12.58291MHz	CSS1402	R 481	RS1/16S102J
S 750 Switch(DETACH SENSE) FM/AM Tuner Unit	CSN1039	R 482	RS1/16S225J
BZ 610 Buzzer	CWE1562	R 483	RS1/16S681J
AR 410 Surge Absorber	CPV1050	R 484	RS1/16S102J
	DSP-201M-S00B	R 485	RS1/16S102J
RESISTORS		R 486	RS1/16S102J
R 311	RS1/16S101J	R 551	RS1/16S203J
R 312	RS1/16S101J	R 552	RS1/16S473J
R 313	RS1/16S101J	R 553	RS1/16S473J
R 314	RS1/16S101J	R 554	RS1/16S473J
R 327	RS1/16S222J	R 555	RS1/16S104J
R 328	RS1/16S222J	R 556	RS1/16S473J
R 341	RS1/16S223J	R 557	RS1/16S473J
R 342	RS1/16S821J	R 558	RS1/16S102J
R 343	RS1/16S821J	R 561	RAB4C102J
R 344	RS1/16S223J	R 562	RAB4C102J
R 351	RS1/16S821J	R 563	RAB4C102J
R 352	RS1/16S821J	R 569	RS1/16S681J
R 353	RS1/16S223J	R 572	RS1/16S102J
R 354	RS1/16S223J	R 573	RS1/16S102J
R 361	RS1/16S103J	R 610	RS1/16S473J
R 362	RS1/16S103J	R 611	RS1/16S473J
R 363	RS1/16S331J	R 613	RS1/16S102J
R 364	RS1/16S153J	R 614	RS1/16S821J
R 365	RD1/4PU182J	R 615	RS1/16S102J
R 409	RS1/16S0R0J	R 616	RS1/16S0R0J
R 410	RS1/16S222J	R 620	RS1/16S473J
R 411	RS1/16S222J	R 621	RS1/16S0R0J
R 412	RS1/16S681J	R 622	RS1/16S101J
R 413	RS1/16S473J	R 624	RS1/16S104J
R 414	RS1/16S473J	R 625	RS1/16S0R0J
R 415	RS1/16S393J	R 630	RAB4C102J
R 416	RS1/16S681J	R 710	RS1/16S101J
R 417	RS1/16S681J	R 711	RS1/16S620J
R 418	RS1/16S681J	R 712	RS1/16S101J
R 419	RS1/16S681J	R 713	RS1/16S103J
R 420	RS1/16S103J	R 714	RS1/16S102J
R 421	RS1/16S681J	R 715	RS1/16S102J
R 422	RS1/16S473J	R 716	RS1/16S473J
R 423	RS1/16S472J	R 717	RS1/16S473J
R 424	RS1/16S473J		

(KEH-P602ORB)

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
R 718	RS1/16S102J	R 932	RD1/4PU102J
R 719	RS1/16S102J	R 933	RS1/16S473J
R 720	RS1/16S223J	R 934	RS1/16S103J
R 721	RS1/16S223J	R 935	RS1/16S223J
R 722	RS1/16S821J	R 936	RD1/4PU152J
R 723	RS1/16S821J	CAPACITORS	
R 724	RS1/16S222J	C 310	CKSRYB102K50
R 725	RS1/16S223J	C 311	CEJA1R0M50
R 726	RS1/16S472J	C 312	CEJA1R0M50
R 750	RS1/16S104J	C 314	CKSRYB105K6R3
R 751	RS1/16S103J	C 315	CKSRYB105K6R3
R 752	RS1/16S153J	C 316	CKSRYB104K16
R 753	RS1/16S153J	C 317	CKSRYB104K16
R 754	RS1/16S222J	C 318	CKSRYB105K6R3
R 756	RS1/16S433J	C 319	CKSRYB105K6R3
R 757	RS1/16S473J	C 320	CKSRYB105K6R3
R 758	RS1/16S102J	C 321	CKSRYB105K6R3
R 759	RD1/4PU222J	C 325	CKSRYB102K50
R 760	RS1/16S102J	C 326	CEJA100M16
R 763	RS1/16S222J	C 328	CKSRYB104K16
R 764	RS1/16S131J	C 329	CEJA470M10
R 765	RS1PMF390J	C 342	CEJA2R2M50
R 766	RS1/10S270J	C 343	CEJA2R2M50
R 767	RS1/16S103J	C 351	CEJA2R2M50
R 768	RS1/16S152J	C 352	CEJA2R2M50
R 769	RS1/16S152J	C 361	4700µF/16V CCH1367
R 771	RS1/16S473J	C 362	CKSQYB104K16
R 773	RD1/4PU222J	C 363	CKSQYB474K16
R 774	RS1/16S102J	C 364	CKSQYB474K16
R 775	RS1/16S102J	C 365	CKSQYB474K16
R 776	RS1/16S220J	C 366	CKSQYB474K16
R 777	RS1/16SOR0J	C 367	CKSQYB474K16
R 778	RS1/16S103J	C 368	CKSQYB474K16
R 779	RS1/16S472J	C 369	CKSQYB474K16
R 781	RS1/16S104J	C 370	CKSQYB474K16
R 782	RS1/16S131J	C 371	CEJA330M10
R 783	RS1/16S131J	C 373	CKSQYB225K10
R 784	RS1/10S392J	C 374	CKSQYB225K10
R 786	RS1/16S102J	C 375	CEJA100M16
R 787	RS1/10S472J	C 410	CKSQYB103K50
R 788	RS1/10S222J	C 412	CKSRYB223K25
R 789	RS1/10S222J	C 413	CKSRYB102K50
R 909	RD1/4PU0R0J	C 414	CEJA220M10
R 910	RS1/16SOR0J	C 415	CKSRYB223K25
R 911	RD1/4PU121J	C 418	CEAL101M10
R 912	RS1/16S102J	C 419	CKSRYB473K16
R 913	RD1/4PU102J	C 420	CKSRYB472K50
R 914	RS1/16S103J	C 421	CKSRYB223K25
R 915	RS1/16S222J	C 422	CEJA1R0M50
R 916	RS1/16S133J	C 423	CEJA1R0M50
R 917	RS1/16S104J	C 424	CKSRYB123K25
R 918	RS1/16S104J	C 425	CKSRYB123K25
R 919	RS1/16S223J	C 426	CKSRYB182K50
R 920	RS1/16S473J	C 481	CCSRCH471J50
R 921	RS1/16S103J	C 482	CKSRYB104K16
R 922	RS1/16S473J	C 483	CKSRYB471K50
R 923	RD1/4PU102J	C 484	CKSRYB104K16
R 924	RS1/16S472J	C 485	CEAL220M6R3
R 925	RD1/4PU153J	C 486	CCSRCH270J50
R 926	RS1/16S472J	C 487	CCSRCH270J50
R 927	RS1/16S102J	C 488	CKSRYB104K16
R 928	RS1/16S473J	C 489	CEAL220M6R3
R 929	RS1/16S104J	C 499	CKSRYB102K50
R 930	RS1/16S103J	C 551	CEJA220M10
R 931	RS1/16S103J	C 552	CEJA220M16
		C 615	CEAL2R2M50

====Circuit Symbol and No.====	Part Name	Part No.
C 616		CCSRCH200J50
C 617		CCSRCH200J50
C 618		CKSRYP105K6R3
C 619		CEAL4R7M35
C 620		CKSRYP103K50
C 621		CCSRCH101J50
C 624		CKSRYP223K25
C 629		CCSRCH101J50
C 630		CKSRYP103K50
C 631		CCSRCH101J50
C 632		CCSRCH101J50
C 633		CKSRYP103K50
C 634		CKSRYP472K50
C 710		CKSRYP104K16
C 711		CKSRYP473K16
C 712		CEJA1R0M50
C 713		CEJA1R0M50
C 714		CEJA1R0M50
C 715		CEJA1R0M50
C 750		CKSRYP103K25
C 751		CKSQYB104K16
C 765		CKSQYB103K50
C 799		CKSQYB473K16
C 910	330µF/16V	CCH1326
C 911		CKSRYP103K25
C 912		CEJA101M16
C 913		CEJA101M10
C 914		CKSRYP473K16
C 915		CKSRYP103K25
C 916	470µF/16V	CCH1331
C 920		CKSRYP104K16
C 921		CKSQYB104K16

C Unit Number : CWM8312(KEH-P6020RB)
 Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1902	IC	RS-140
IC 1903	IC	PD6294A
Q 1905	Transistor	DTC114EK
D 1901	Diode	MA152WK
D 1902	Diode	MA152WA
D 1917	LED	NSSW440-9159
D 1918	LED	NSSW440-9159
D 1928	LED	SML-310VT
D 1930	LED	SML-310VT
D 1931	LED	SML-310VT
D 1932	LED	SML-310VT
D 1938	LED	SML-310VT
D 1939	LED	SML-310VT
D 1941	LED	SML-310VT
X 1901	Ceramic Resonator 5.00MHz	CSS1547
S 1901	Push Switch	CSG1133
S 1902	Push Switch	CSG1133
S 1903	Push Switch	CSG1111
S 1904	Push Switch	CSG1133
S 1906	Push Switch	CSG1133
S 1907	Push Switch	CSG1133
S 1908	Push Switch	CSG1111
S 1909	Push Switch	CSG1133
S 1910	Push Switch	CSG1133
S 1911	Push Switch	CSG1133
S 1912	Push Switch	CSG1133
S 1913	Push Switch	CSG1133
S 1914	Push Switch	CSG1133
S 1915	Push Switch	CSG1133
S 1916	Push Switch	CSG1133

====Circuit Symbol and No.====	Part Name	Part No.
S 1917	Push Switch	CSG1133
S 1918	Push Switch	CSG1133
S 1919	Push Switch	CSG1133
S 1922	Encoder LCD	CSD1059 CAW1668

RESISTORS

R 1901		RS1/16S222J
R 1902		RS1/16S222J
R 1903		RS1/16S470J
R 1904		RS1/16S470J
R 1905		RS1/16S121J
R 1906		RS1/16S2R2J
R 1910		RS1/16S151J
R 1911		RS1/16S151J
R 1912		RS1/16S151J
R 1913		RS1/16S151J
R 1914		RS1/16S151J
R 1915		RS1/16S151J
R 1917		RS1/16S151J
R 1919		RS1/16S151J
R 1920		RS1/16S151J
R 1927		RS1/16S472J
R 1929		RS1/16S0R0J
R 1930		RS1/16S101J
R 1931		RS1/16S101J
R 1935		RS1/16S393J
R 1936		RS1/16S151J
R 1939		RS1/16S151J
R 1941		RS1/16S151J
R 1942		RS1/16S151J
R 1943		RS1/16S151J
R 1945		RS1/16S121J
R 1958		RS1/16S151J
R 1961		RS1/16S121J
R 1970		RS1/16S0R0J
R 1972		RS1/16S0R0J
R 1976		RS1/16S151J

CAPACITORS

C 1902		CKSRYP104K16
C 1903		CSZS100M6R3
C 1905		CKSRYP104K16
C 1906		CKSRYP104K16
C 1907		CKSRYP104K16
C 1923		CKSQYF104Z50
C 1930		CKSQYF104Z50

C Unit Number : CWM8311(KEH-P6020R)
 Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1902	IC	RS-140
IC 1903	IC	PD6294A
Q 1901	Transistor	2SA1036K
Q 1902	Transistor	DTC114EU
Q 1903	Transistor	2SA1036K
Q 1904	Transistor	DTC114EU
Q 1905	Transistor	DTC114EK
D 1901	Diode	MA152WK
D 1902	Diode	MA152WA
D 1917	LED	NSSW440-9159
D 1918	LED	NSSW440-9159
D 1927	LED	SML-310PT
D 1928	LED	SML-310DT
D 1929	LED	SML-310PT
D 1930	LED	SML-310DT

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case (not shown)

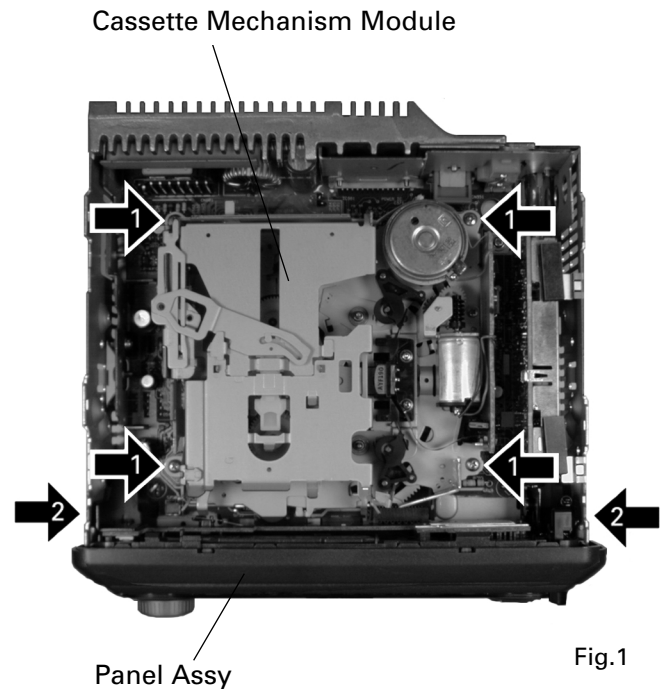
1. Remove the Case.

● Removing the Cassette Mechanism Module (Fig.1)

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

● Removing the Panel Assy (Fig.1)

2 Remove the two screws and then remove the Panel Assy.



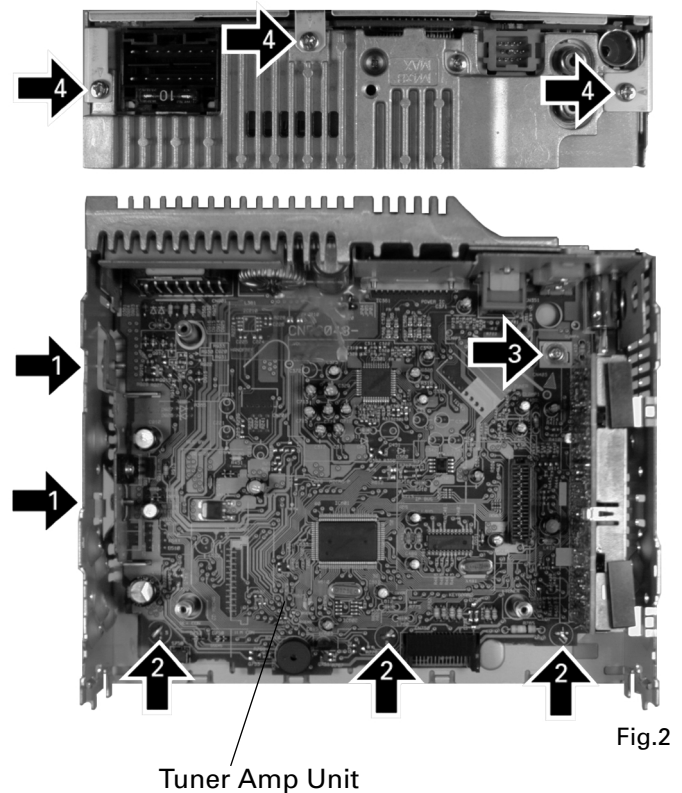
● Removing the Tuner Amp Unit (Fig.2)

1 Remove the two screws.

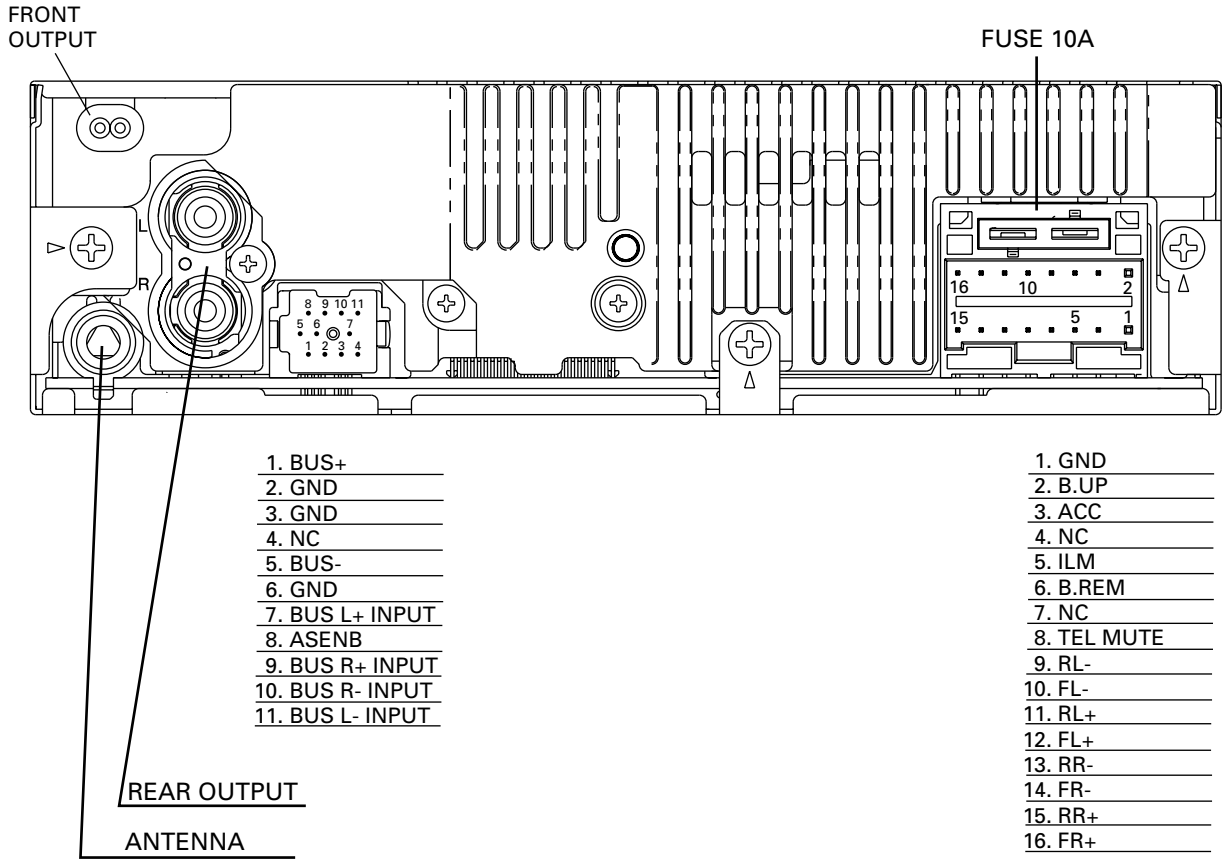
2 Straight the tabs at three locations indicated.

3 Remove the screw.

4 Remove the three screws and then remove the Tuner Amp Unit.



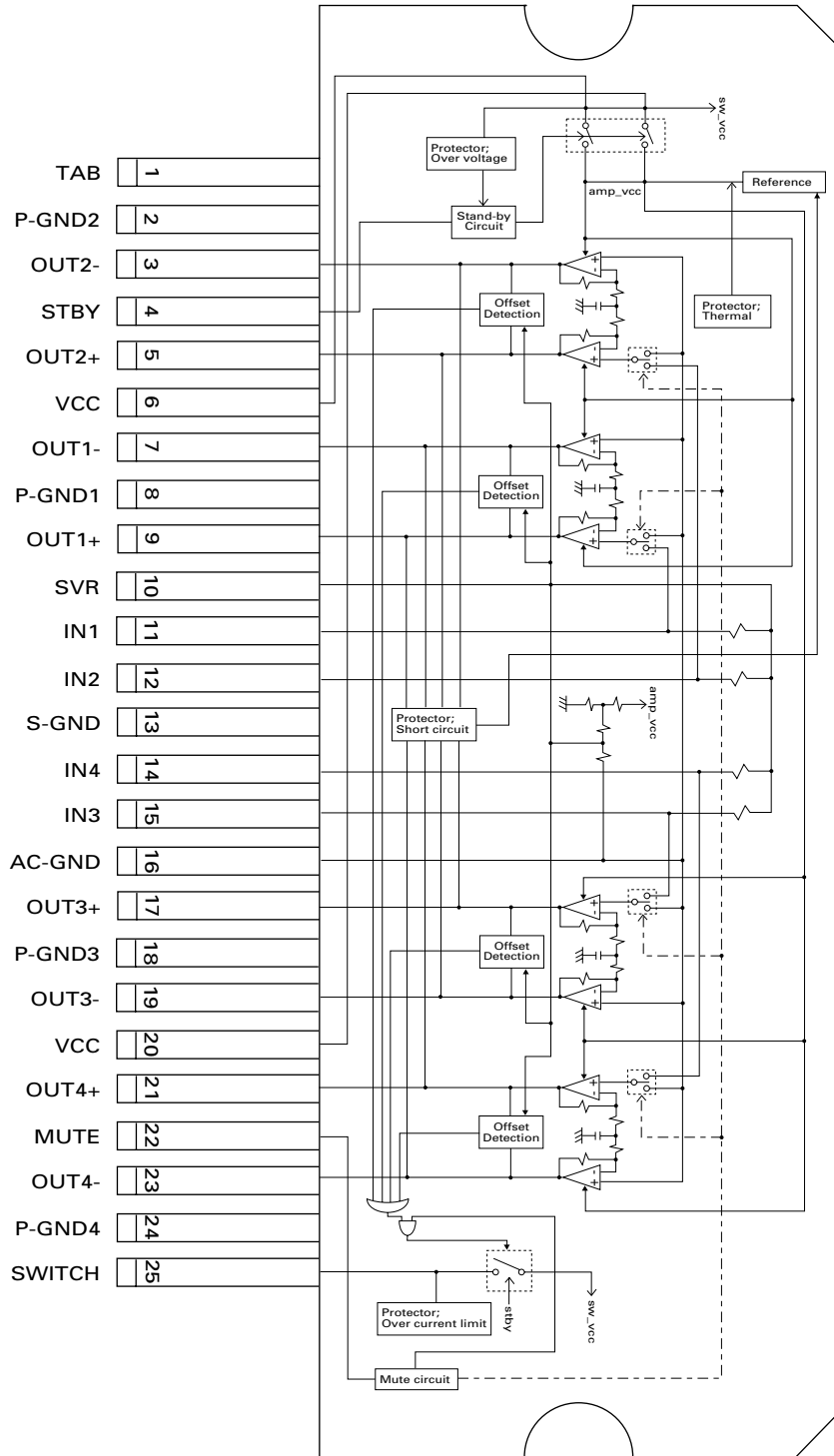
7.1.2 CONNECTOR FUNCTION DESCRIPTION



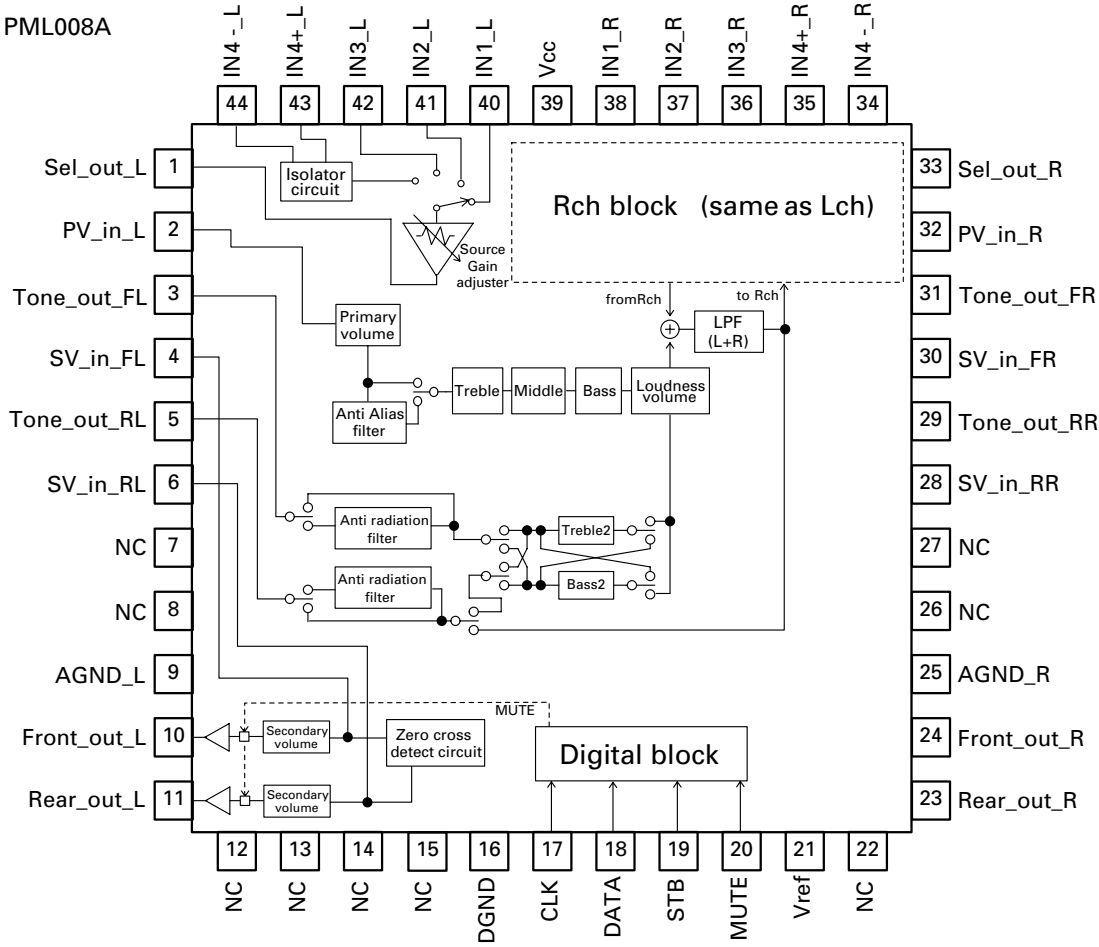
7.2 PARTS

7.2.1 IC

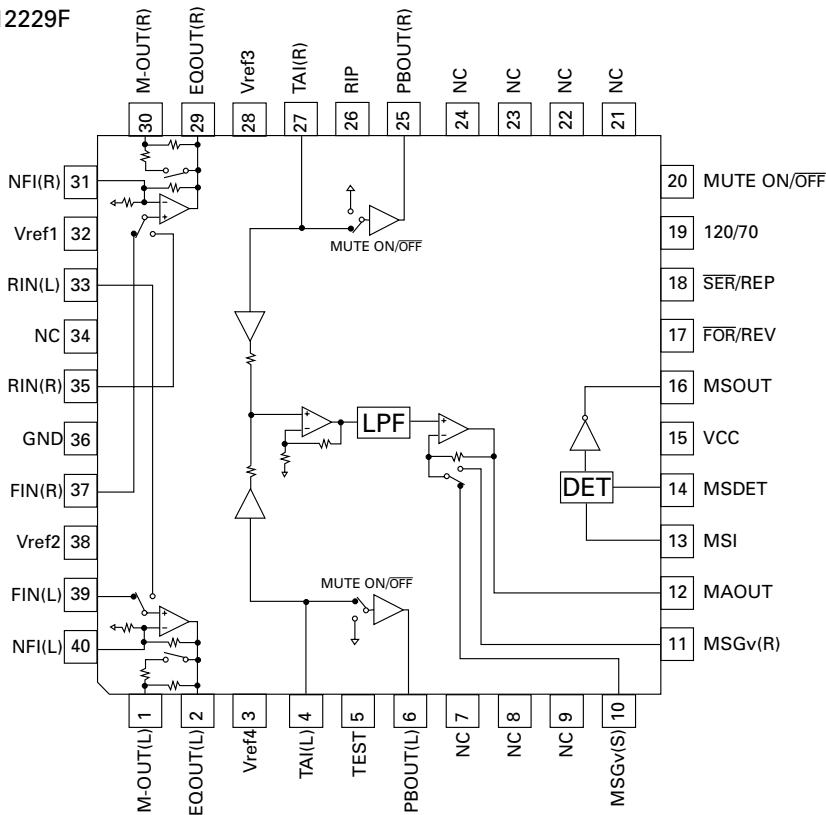
PAL007A



PML008A



HA12229F

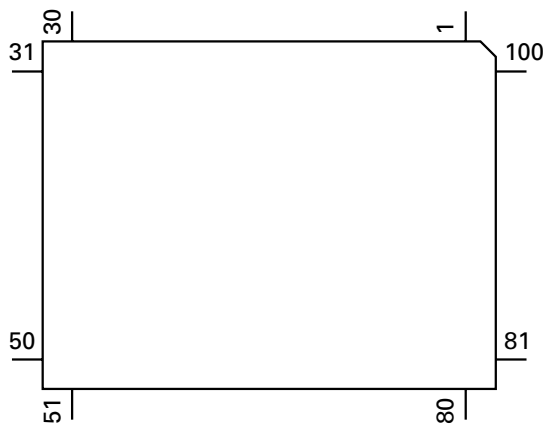


● Pin Functions (PE5206A)

Pin No.	Pin Name	I/O	Function and Operation
1	HFPW	O	Hand free circuit ON
2	\overline{DSENS}	I	Grille detach sense input
3	NC		Not used
4	EJECTIN	I	Eject sense input
5	TESTIN	I	Test program mode input
6	LCDPW	O	LCD back light power supply control output
7	TELIN	I	Telephone mute input
8	\overline{ISENS}	I	Illumination sense input
9	FLPILM	O	Flap illumination input
10	DALMON		For consumption current decrease
11	\overline{RESET}	I	Reset input
12	XT2		Not used (open)
13	XT1		Clock connection pin
14	VSS(GND)		GND
15	X2		Crystal oscillator connection pin
16	X1		Crystal oscillator connection pin
17	REGOFF		Regulator operation specification signal
18	REGC		Capacitor for regulator connect pin
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPW	O	System power control output
22	ADPW	O	A/D converter power supply control output
23	SWVDD	O	Grille:Chip enable output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ROT1	I	Rotary encoder input 1
26	ROMDATA	O	ROM collection data output
27,28	NC		Not used
29	ROT0	I	Rotary encoder input 0
30	RECIVE	O	During RDS data reception output
31	NC		Not used
32	$\overline{PCE2}$	O	EEPROM chip enable output
33	STB	O	Strobe pulse output for electronic volume
34	CLK	O	Clock output for electronic volume
35	DATA	O	Data output for electronic volume
36	NC		Not used
37	MUTE	O	System mute output
38	SD	I	Station detector input
39	ST	I	FM stereo input
40	VSS(GND)		GND
41	VDD		Power supply
42	$\overline{FM/AM}$	O	TUNER:Decoder power supply control output
43	\overline{DRST}	O	RDS:Decoder reset output
44	\overline{RDSLK}	I	RDS:Decoder clock input
45	RDT	I	RDS:Decoder data input
46	\overline{CURRO}	O	RDS:Tuner voltage FIX output
47	NL2DT	I	RDS:Noise level input 2
48	\overline{TMUTE}	O	RDS:Tuner mute output
49	SDBW	I	RDS:SD input
50	LOCL	O	Local L output
51	LOCH	O	Local H output
52-54	NC		Not used
55	STBY	O	CASSETTE:Drive IC control output
56	CM	O	CASSETTE:Capstan control output
57	SC1	O	CASSETTE:Sub motor control output
58	SC2	O	CASSETTE:Sub motor control output
59	NES	I	CASSETTE:Normal reel sense input
60	RES	I	CASSETTE:Reverse reel sense input
61	POS	I	CASSETTE:Position sense input

Pin No.	Pin Name	I/O	Function and Operation
62	PCL		Clock adjustment
63,64	NC		Not used
65	RIMUTE	O	CASSETTE:RI mute output
66	MSIN	I	CASSETTE:MS sense input
67	PLAY	O	CASSETTE:Gain select output
68	DIRO	O	CASSETTE:Tape direction forward/reverse select output
69	LOADSW	I	CASSETTE:Loading switch sense input
70	NC		Not used
71	ASENBO	O	IP-BUS:Slave power supply control output
72	MUTE	O	E.VOL:Mute control output
73	TEST(GND)	I	GND
74	SL	I	TUNER:Signal level input
75	NL1	I	RDS:Noise level input 1
76	MODELIN	I	Model select input
77	CESENS	I	Flap close sense input
78-81	NC		Not used
82	AVDD		A/D converter power supply terminal
83	AVREF		A/D converter reference voltage terminal
84	AVSS		GND
85	RX	I	IP-BUS:data input
86	TX	O	IP-BUS:data output
87	NMI		GND
88	LDET	I	PLL lock sense input
89	RCK	I	RDS:clock input
90	RDS57K	I	RDS:57kHz count pulse input
91	NC		Not used
92	ASENS	I	ACC power sense input
93	BSSENS	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KYDT	I	Grille data input
96	DPDT	O	Grille data output
97	PCK	O	PLL IC clock output
98	PDO	O	PLL IC data output
99	PCE	O	PLL IC chip enable output
100	PEE	O	Beep tone output

*PE5206A



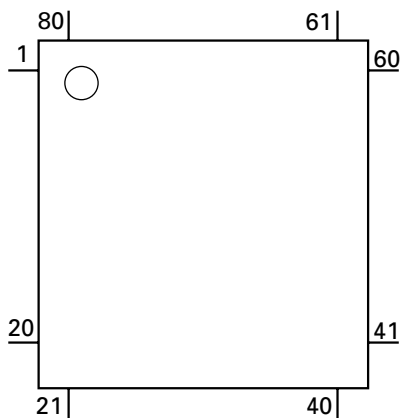
IC's marked by * are MOS type.

Be careful in handling them because they are very liable to be damaged by electrostatic induction.

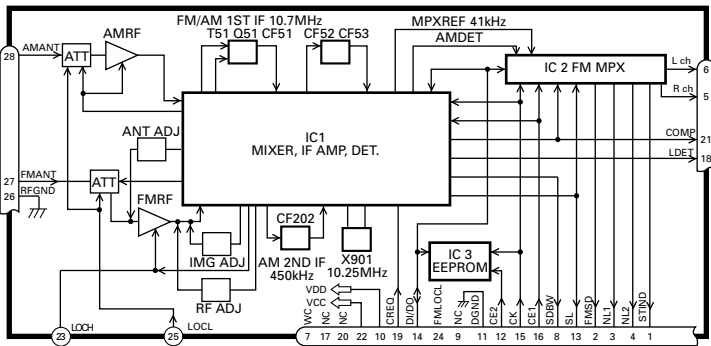
● Pin Functions (PD6294A)

Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	X1		Crystal oscillator connection pin
3	X0		Crystal oscillator connection pin
4	NC		Not used
5,6	MOD1,0	I	Connect to GND
7	DIMMER	O	Dimmer select output
8	KYDT	O	Key data output
9	DPDT	I	Display data input
10	REMIN	I	Remote control pulse input
11	GRN		Dual Illumination (Green)
12	AMB		Dual Illumination (Amber)
13-16	KD4-KD1	I	Key data input
17-22	KST6-KST1	O	Key strobe output
23	VDD		VDD
24-73	SEG49-0	O	LCD segment output
74-77	COM3-0	O	LCD common output
78	VLCD	I	LCD voltage input
79,80	V2,V1		Power supply terminal

*PD6294A



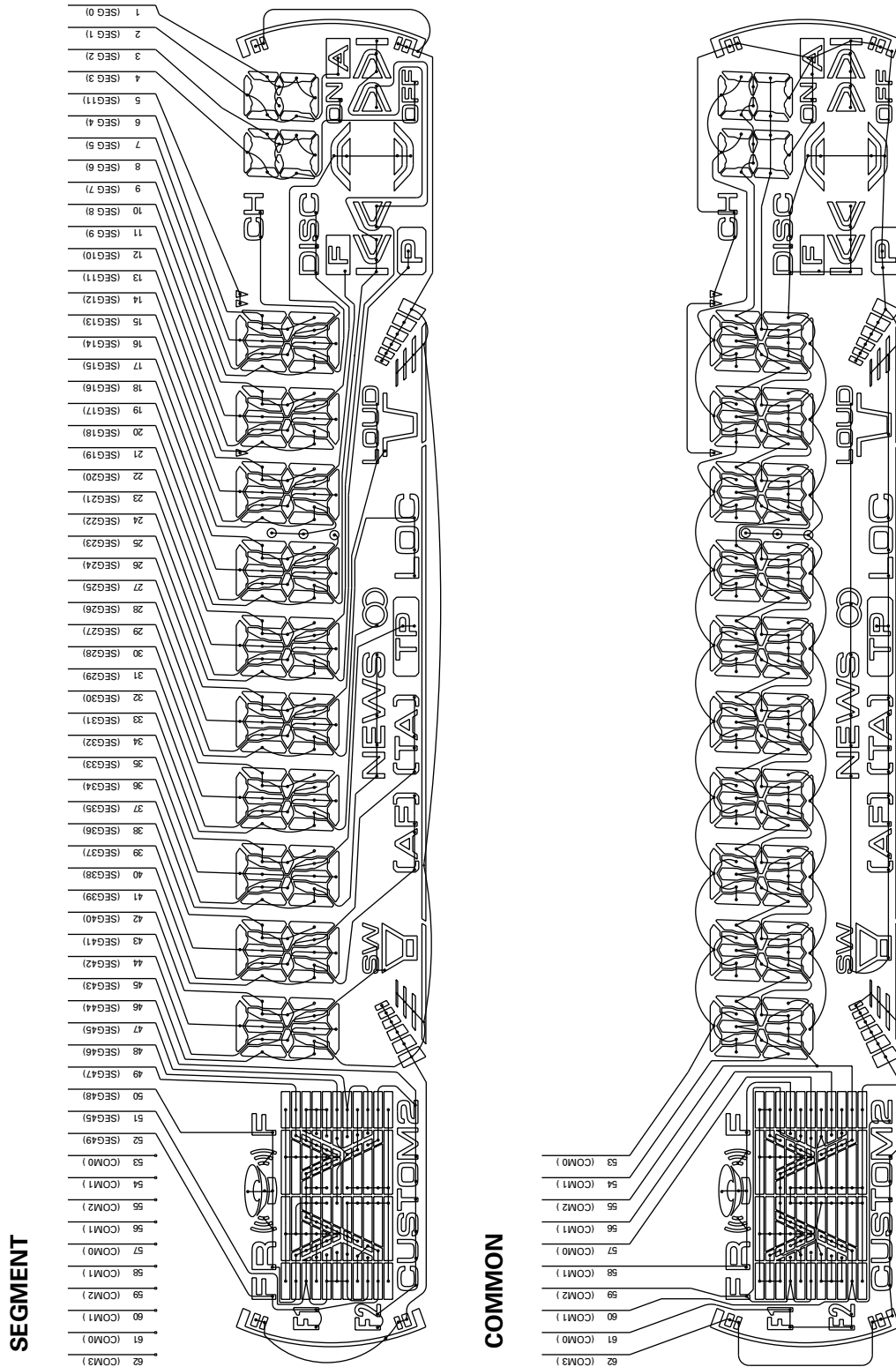
● FM/AM Tuner Unit



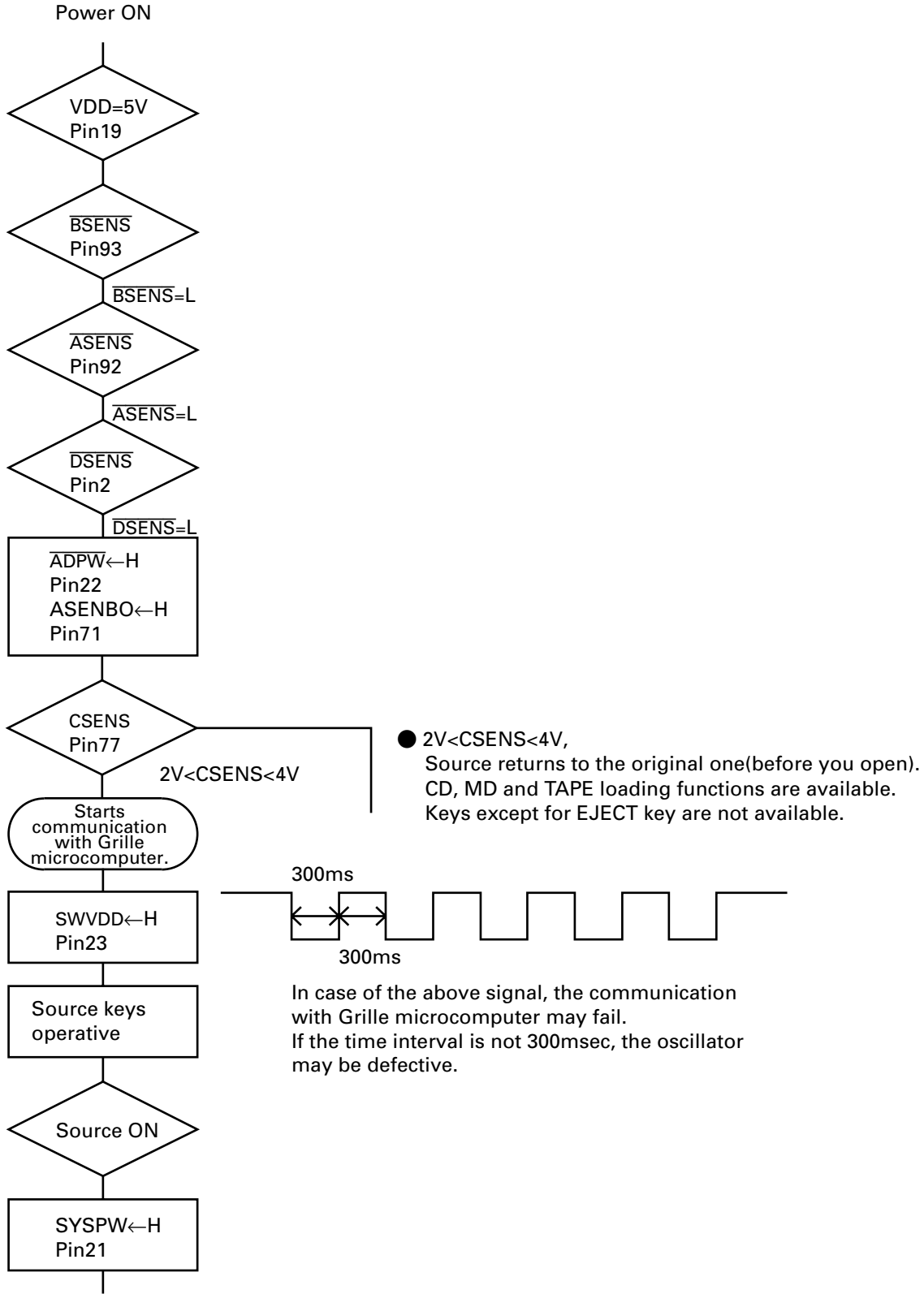
No.	Symbol	I/O	Explain	
1	STIND	O	stereo indicator	"Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector	"High" when signals are received. To be pulled up to the "VDD" at 47kΩ. Meanwhile, 10kΩ should be used when taking diver FIX trigger from 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

- CAW1668(KEH-P602ORB)
- CAW1627(KEH-P602OR)



7.3 OPERATIONAL FLOW CHART



Completes power-on operation.
(After that, proceed to each source operation)

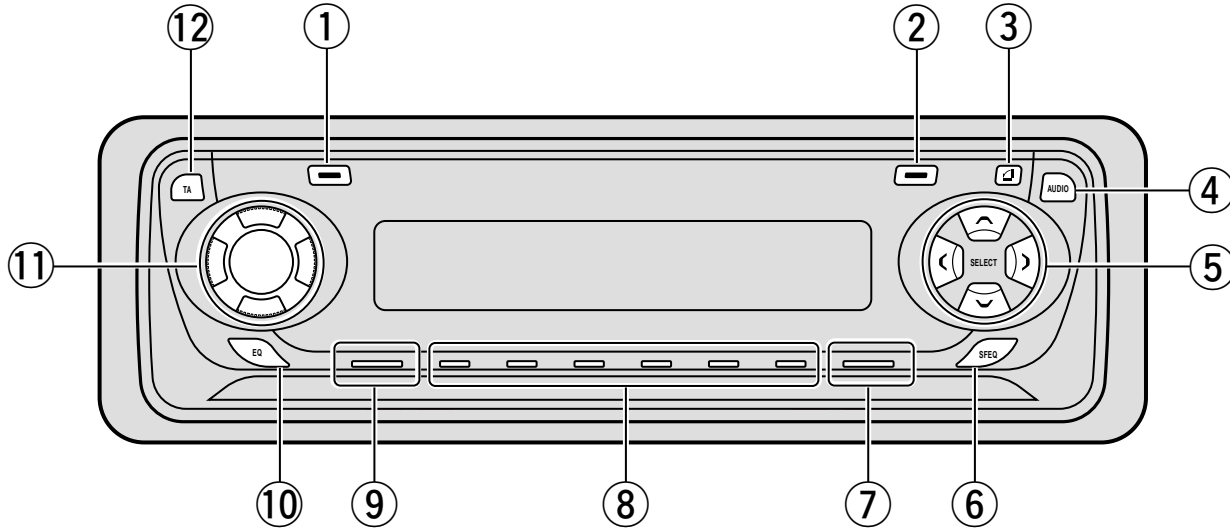
7.4 CLEANING

Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

Portions to be cleaned	Cleaning tools
Cassette heads Pinch rollers Capstans	Cleaning paper : GED-008

8. OPERATIONS AND SPECIFICATIONS

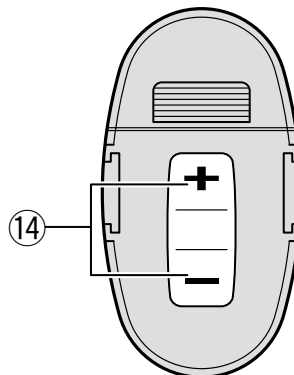
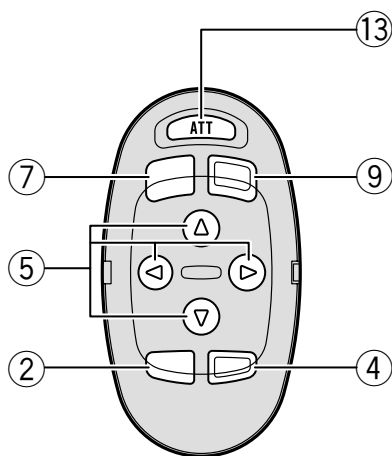
8.1 OPERATIONS



What's What

Head unit

- 1 DISPLAY button
Press to select different displays.
- 2 FUNCTION button
Press to select functions.
- 3 OPEN button
Press to open the front panel.
- 4 AUDIO button
Press to select various sound quality controls.
- 5 ▲/▼/◀/▶ buttons
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.
- 6 SFEQ button
Press to select a natural sound with presence.
- 7 BAND/ESC button
Press to select among three FM or MW/LW bands and cancel the control mode of functions.
- 8 1-6 (PRESET TUNING) buttons
Press for preset tuning and disc number search when using a multi-CD player.
- 9 SOURCE button
This unit is switched on by selecting a source. Press to cycle through all of the available sources.
- 10 EQ button
Press to select various equalizer curves.
- 11 VOLUME button
When you press VOLUME, it extends outward so that it becomes easier to turn.
To retract the VOLUME, press it again.
Rotate to increase or decrease the volume.
- 12 TA button
Press to switch traffic announcements function on or off.



Optional remote control

The steering remote control CD-SR80 is sold separately. Operation is the same as when using the button on the head unit. See the explanation of the head unit about the operation of each button with the exception of ATT, which is explained below.

13 ATT button

Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

14 VOLUME button

Press to increase or decrease the volume.


Using the remote control with PGM button

The remote control CD-R600, which is sold separately, can also operate this unit. It has a PGM (program) button in which frequently used functions are preprogrammed for each source. Press PGM to active functions as follows:

Source	Function name
Tuner	BSM (on/off) (Hold for 2 seconds)
Cassette player	Blank skip (on/off)
Multi-CD player	Pause (on/off)



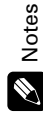
Turning the unit on

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

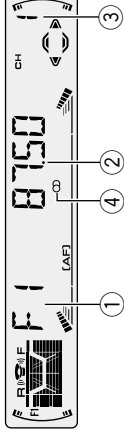
- In the following cases, the sound source will not change:
 - When a product corresponding to each source is not connected to this unit.
 - When no cassette is set in this unit.
 - When no magazine is set in the multi-CD player.
 - When the AUX (auxiliary) is set to off.

- 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 unit. Only one external unit can be controlled by this unit.
- 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



These are the basic steps necessary to operate the radio.

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

- BAND indicator**
Shows which band the radio is tuned to, MW, LW or FM.



- FREQUENCY indicator**
Shows to which frequency the tuner is tuned.



- PRESET NUMBER indicator**
Shows what preset has been selected.





- STEREO (⊖) indicator**
Shows that the frequency selected is being broadcast in stereo.

- Press SOURCE to select the tuner.
- Use VOLUME to adjust the sound level. Rotate to increase or decrease the volume.

- Press BAND/ESC to select a band. Press BAND/ESC until the desired band is displayed, F1, F2, F3 for FM or MW/LW.


- To perform manual tuning, press  or  with quick presses. The frequencies move up or down step by step.

- 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.

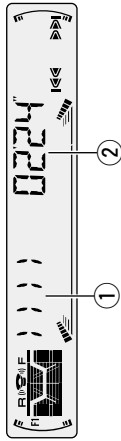
- You can cancel seek tuning by pressing either  or  with a quick press.
- If you press and hold  or  you can skip broadcasting stations. Seek tuning starts as soon as you release the buttons.



Note

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

Playing a tape



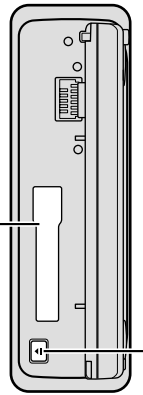
These are the basic steps necessary to play a tape with your cassette player.

- 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.

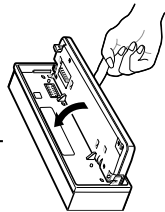
Cassette loading slot



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. Rotate to increase or decrease the volume.
- 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/ESC**.
- 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/ESC**.
- You can cancel music search by pressing **◀** or **▶** in the same direction again.

- 7 To change the direction of the tape transport, press **BAND/ESC**.



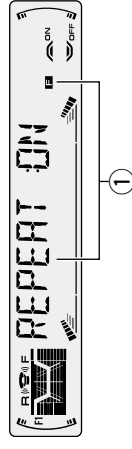
Notes

- 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.

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.

Introduction of advanced cassette player operation



- 1 **FUNCTION display**
Shows the function status.

Press **FUNCTION** to display the function names.

Press **FUNCTION** repeatedly to switch between the following functions:
REPEAT (repeat play)—**B-SKIP** (blank skip)—**RI** (radio intercept)

- To return to the playback display, press **BAND/ESC**.



Note

- If you do not operate the function within about 30 seconds, the display is automatically returned to the playback display.

Repeating play

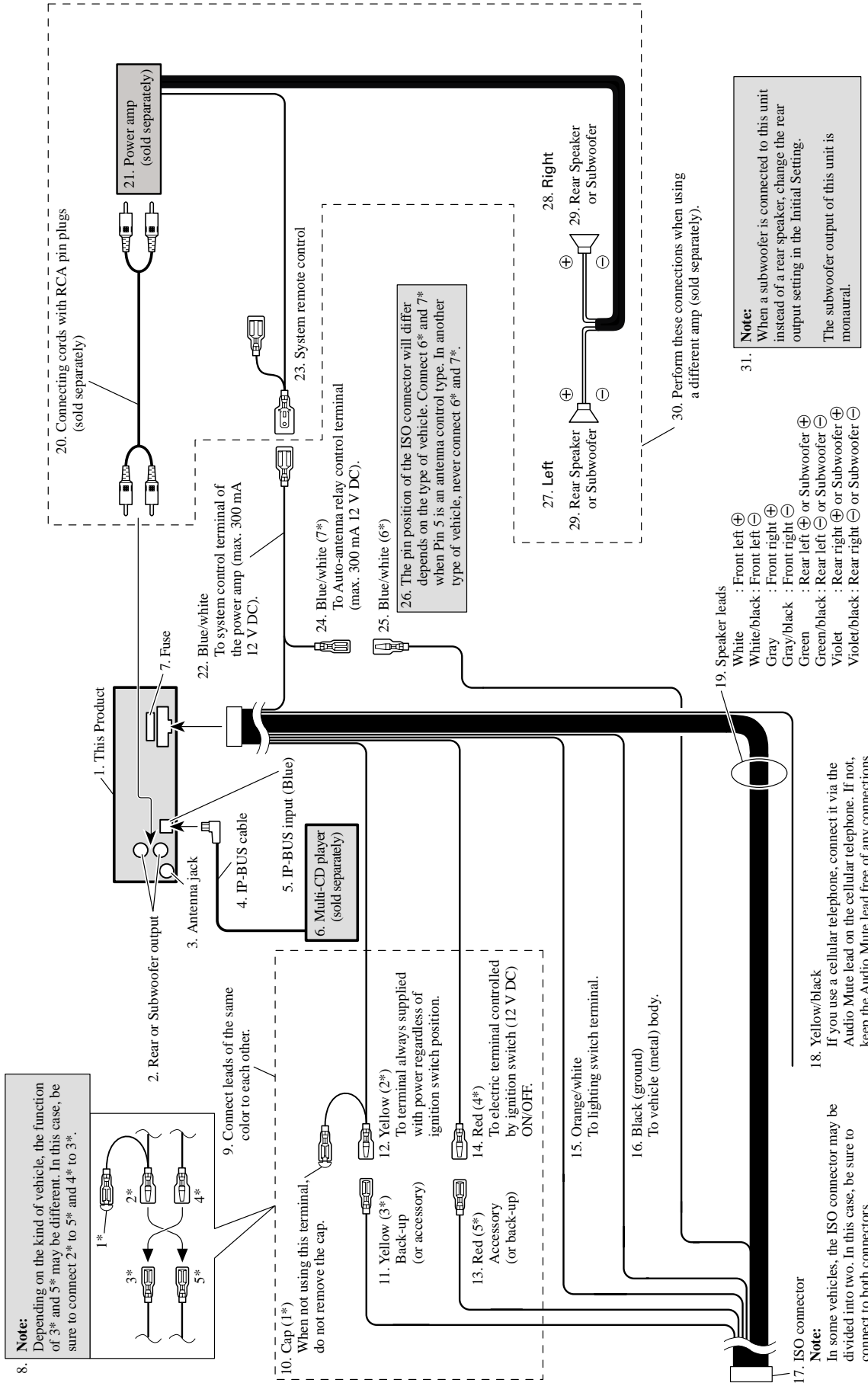
Repeat play lets you hear the same track over again.

- 1 Press **FUNCTION** to select **REPEAT**. Press **FUNCTION** until **REPEAT** appears in the display.

- 2 Press **▶** to turn repeat play on. **REPEAT :ON** appears in the display. The track presently playing will play and then repeat.

- 3 Press **▼** to turn repeat play off.

● CONNECTION DIAGRAM



8.2 SPECIFICATIONS

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	Less than 5 mA
Dimensions (W × H × D):	
Mounting size	178 × 50 × 157 mm
Nose	188 × 58 × 19 mm
Weight	1.5 kg

Amplifier

Maximum power output	50 W × 4, 50 W × 2 ch/4 Ω + 70 W × 1 ch/2 Ω (for Subwoofer)
Continuous power output	27 W × 4 (DIN45324, +B = 14.4 V)
Load impedance	4 Ω (4 – 8 Ω [2 Ω for 1 ch] allowable)
Preout maximum output level/output impedance	2.2 V/1 kΩ
Equalizer (3-Band Parametric Equalizer)	
(Low)	Frequency: 40/80/100/160 Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(Mid)	Frequency: 200/500/1k/2k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) Level: ±12 dB
(High)	Frequency: 3.15k/8k/10k/12.5k Hz Q Factor: 0.35/0.59/0.95/1.15 (+6 dB when boosted) 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)
Tone controls	
(Bass)	Frequency: 40/63/100/160 Hz Level: ±12 dB
(Treble)	Frequency: 2.5k/4k/6.3k/10k Hz Level: ±12 dB
Subwoofer output	
Frequency	50/80/125 Hz
Slope	-12 dB/oct.
Level	±12 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 – 108.0 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. ▣