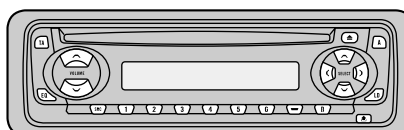


Service Manual

DEH-1400R/XM/EW



ORDER NO.
CRT2755

HIGH POWER CD PLAYER WITH RDS TUNER

DEH-1400R

XM/EW

DEH-1400RB

XM/EW

DEH-1430R

XM/EW



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

Model No.	Order No.	Mech. Module	Remarks
CX-977	CRT2624	S9	CD Mech. Module:Circuit Description, Mech.Description, Disassembly

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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

● CD Player Service Precautions

1. For pickup unit(CXX1480) handling, please refer to "Disassembly"(see page 41).
During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a jumper-solder).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the pickup unit(see page 38).
4. In this product, because the memory capacity of the microcomputer is insufficient, the test mode is not installed. However grating of the pickup unit can be confirmed.

1. SAFETY INFORMATION

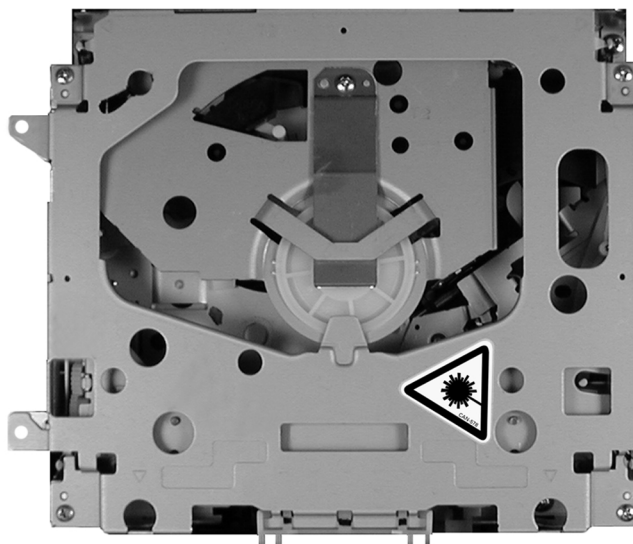
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly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

1. Safety Precautions for those who Service this Unit.

- When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
 2. During repair or tests, do not view laser beam for 10 seconds or longer.
2. A "CLASS 1 LASER PRODUCT" label is affixed to the bottom of the player.
 3. The triangular label is attached to the mechanism unit frame.



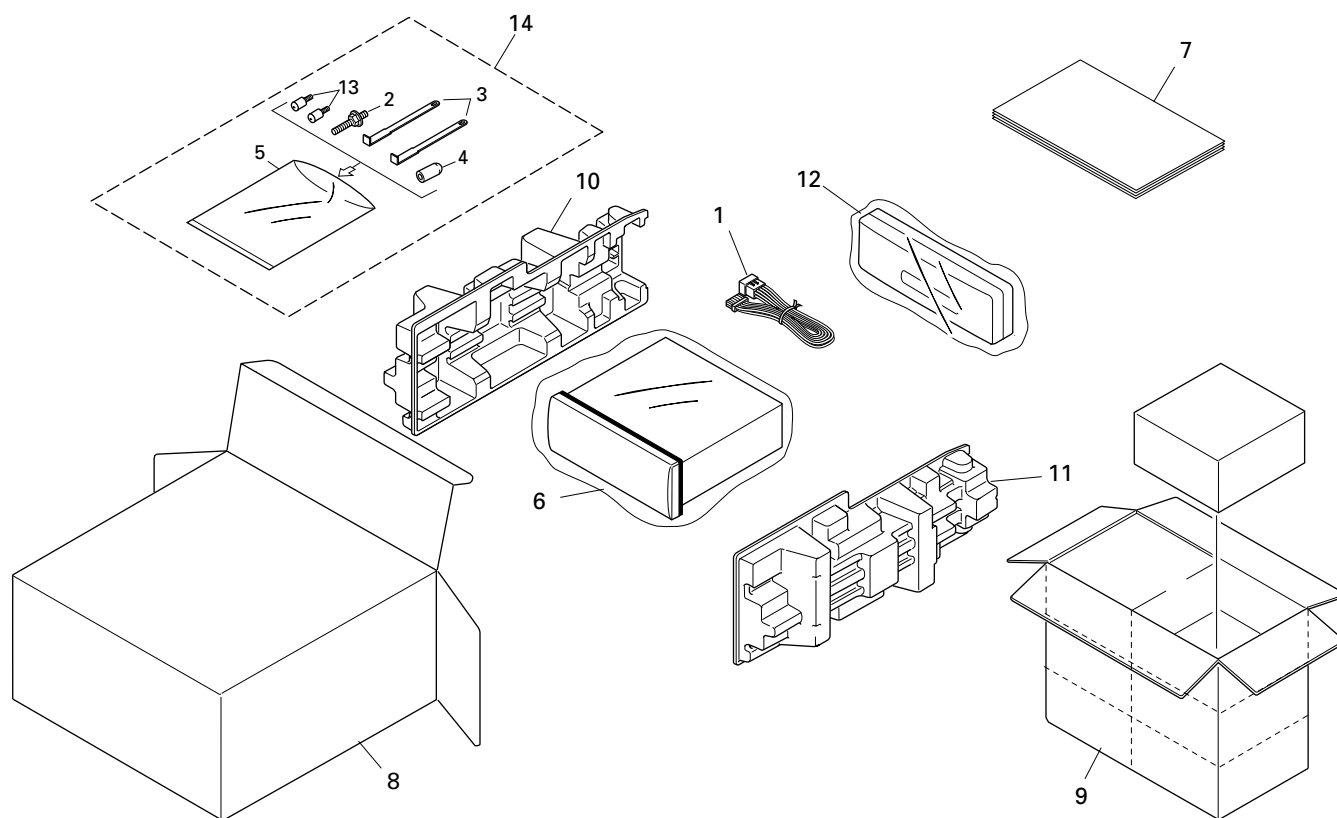
4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

Wavelength = 800 nanometers

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.

(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE6467	8	Carton	See Contrast table(2)
2	Screw	CBA1002	9	Contain Box	See Contrast table(2)
3	Handle	CNC5395	10	Protector	CHP2421
4	Bush	CNV3930	11	Protector	CHP2422
* 5	Polyethylene Bag	E36-615	12	Case Assy	CXB3520
6	Polyethylene Bag	CEG-162	13	Screw(M3x4)	CBA1488
7-1	Owner's Manual	CRD3485	14	Accessory Assy	CEA3094
7-2	Installation Manual	CRD3490			
* 7-3	Passport	CRY1013			
* 7-4	Warranty Card	CRY1157			

(2) CONTRAST TABLE

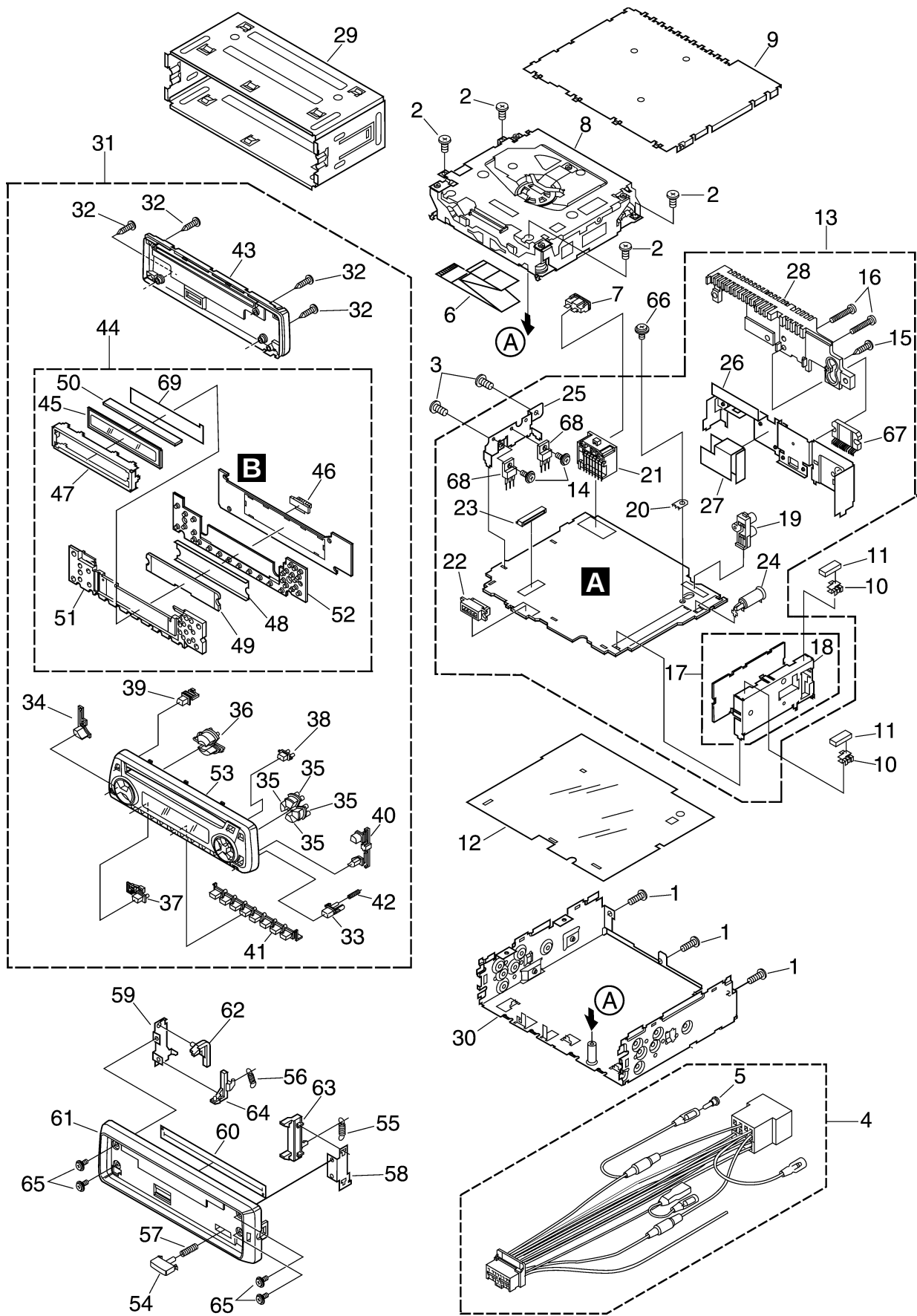
DEH-1400R/XM/EW, DEH-1400RB/XM/EW and DEH-1430R/XM/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.		
		DEH-1400R/XM/EW	DEH-1400RB/XM/EW	DEH-1430R/XM/EW
8	Carton	CHG4488	CHG4491	CHG4492
9	Contain Box	CHL4488	CHL4491	CHL4492

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-1400R/XM/EW	CRD3485	English, Spanish, German, French, Italian, Dutch
DEH-1400RB/XM/EW	CRD3490	
DEH-1430R/XM,/EW		

2.2 EXTERIOR



(1) EXTERIOR SECTION PARTS LIST

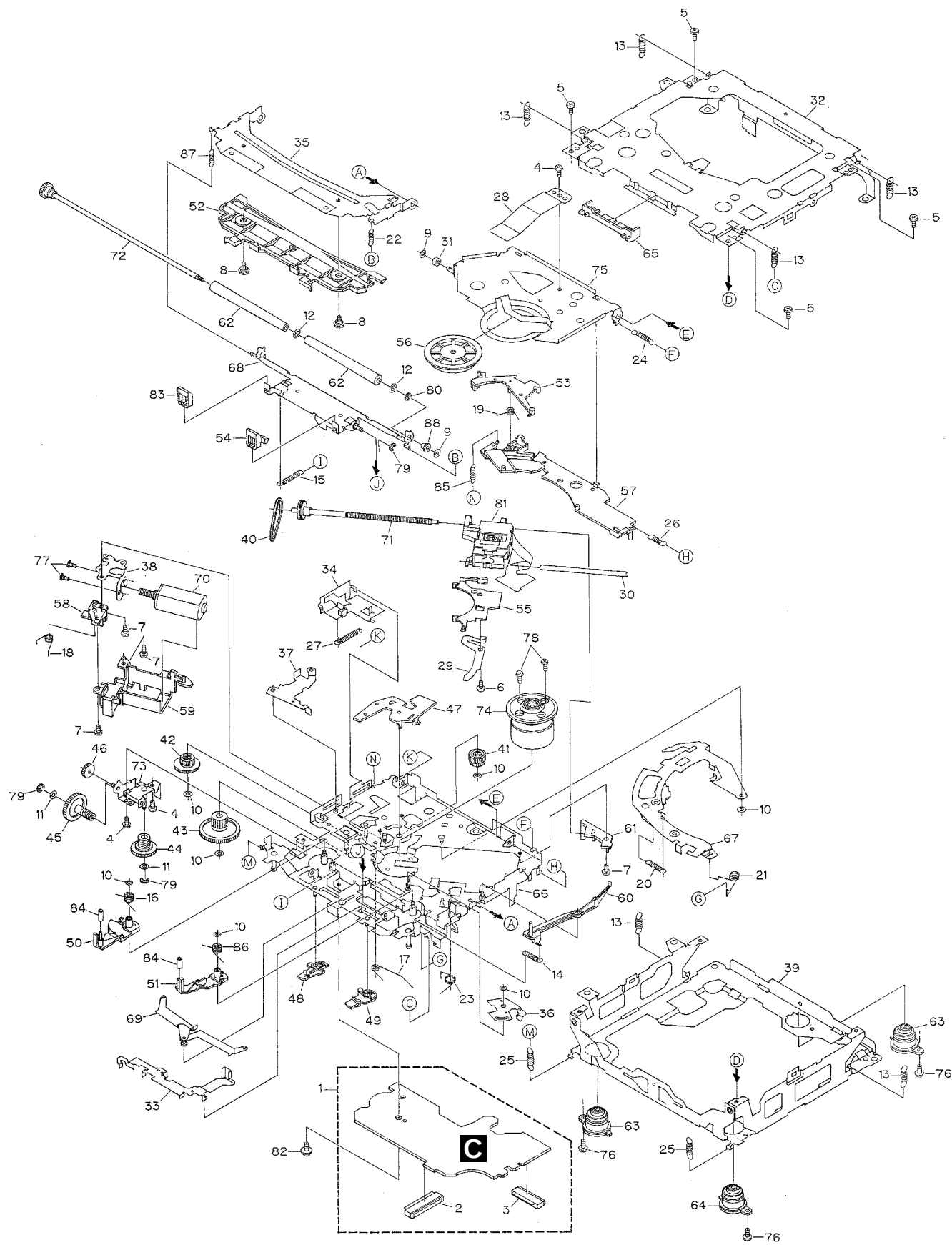
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P100FMC	36	Button(VOL+,-)	CAC7182
2	Screw	BSZ26P060FMC	37	Button(SRC)	CAC7187
3	Screw	BSZ30P060FMC	38	Button(EJECT)	CAC7183
4	Cord Assy	CDE6467	39	Button(TA)	CAC7185
5	Cap	CKX-003	40	Button(A,LD)	CAC7184
6	Cable	CDE6610	41	Button(1-6)	CAC7180
7	Fuse(10A)	CEK1136	42	Spring	CBH2210
8	CD Mechanism Module(S9ANA)	CXK5501	43	Cover	See Contrast table(2)
9	Case	CNB2686	44	Keyboard Unit	See Contrast table(2)
10	Holder	CNC5704	45	LCD	See Contrast table(2)
11	Cushion	CNM4870	46	Connector(CN1800)	CKS3580
12	Insulator	CNM7622	47	Holder	CNC9617
13	Tuner Amp Unit	CWM7939	48	Sheet	CNM7057
14	Screw	ASZ26P060FMC	49	Lighting Conductor	CNV6476
15	Screw	BPZ26P120FMC	50	Connector	CNV6868
16	Screw	BSZ26P160FMC	51	Lighting Conductor	CNV6869
17	FM/AM Tuner Unit	CWE1562	52	Rubber	CNV6905
18	Holder	CNC8815	53	Grille Unit	See Contrast table(2)
19	Pin Jack(CN351)	CKB1035	54	Button	CAC4836
20	Terminal(CN404)	CKF1059	55	Spring	CBH1835
21	Plug(CN901)	CKM1330	56	Spring	CBH2208
22	Connector(CN751)	CKS3581	57	Spring	CBH2367
23	Connector(CN501)	CKS3835	58	Bracket	CNC6791
24	Antenna Jack(CN402)	CKX1056	59	Holder	CNC8042
25	Holder	CNC8615	60	Cover	CNM6276
26	Holder	CNC9619	61	Panel	See Contrast table(2)
27	Insulator	CNM6949	62	Arm	CNV4692
28	Heat Sink	CNR1583	63	Arm	CNV4728
29	Holder Unit	CXB6681	64	Arm	CNV5576
30	Chassis Unit	See Contrast table(2)	65	Screw	IMS20P030FZK
31	Detach Grille Assy	See Contrast table(2)	66	Screw	ISS26P055FUC
32	Screw	BPZ20P100FZK	67	IC(IC361)	TDA7386
33	Button(DETACH)	See Contrast table(2)	68	Transistor(Q501,910)	2SD2396
34	Button(EQ)	CAC7186	69	Sheet	See Contrast table(2)
35	Button(SELECT)	CAC7181			

(2) CONTRAST TABLE

DEH-1400R/XM/EW, DEH-1400RB/XM/EW and DEH-1430R/XM/EW are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.		
		DEH-1400R/XM/EW	DEH-1400RB/XM/EW	DEH-1430R/XM/EW
30	Chassis Unit	CXB7817	CXB7818	CXB7819
31	Detach Grille Assy	CXB8037	CXB8039	CXB8040
33	Button(DETACH)	CAC5789	CAC5789	CAC5929
43	Cover	CNS6720	CNS6720	CNS6721
44	Keyboard Unit	CWM7952	CWM7953	CWM7954
45	LCD	CAW1632	CAW1615	CAW1632
53	Grille Unit	CXB8053	CXB8055	CXB8056
61	Panel	CNS6724	CNS6724	CNS6725
69	Sheet	Not used	CNM7294	Not used

2.3 CD MECHANISM MODULE



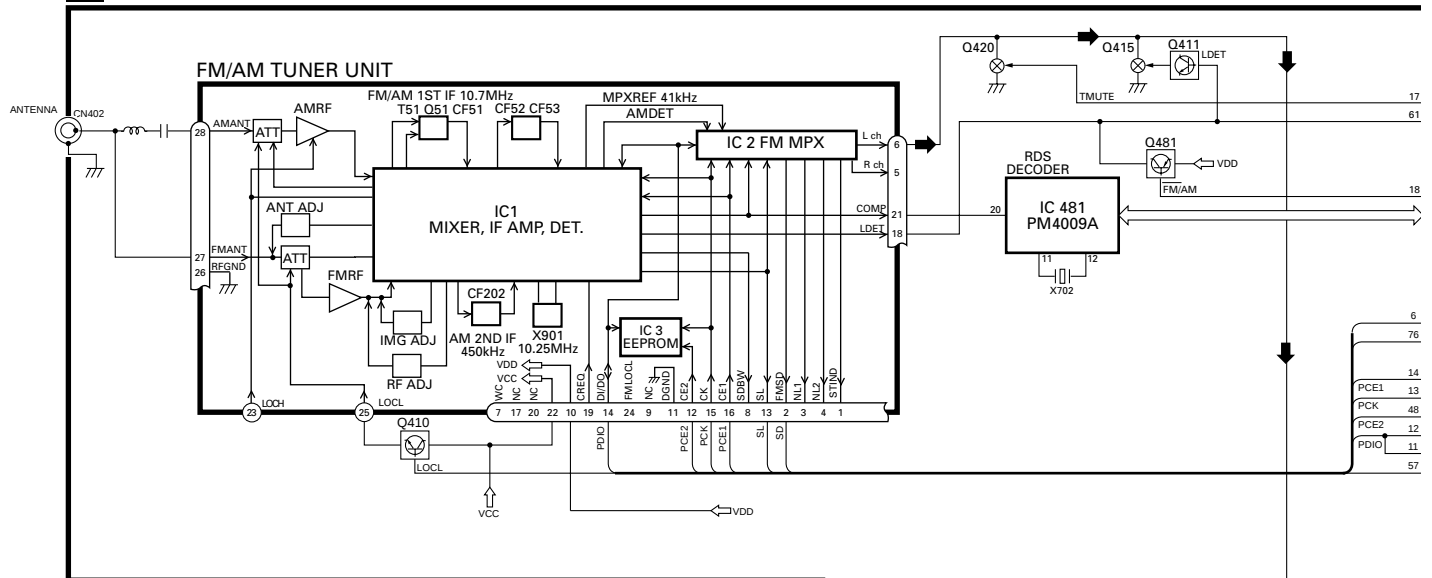
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Control Unit	CWX2481	46	Gear	CNV6320
2	Connector(CN701)	CKS1959	47	Arm	CNV6322
3	Connector(CN101)	CKS3486	48	Arm	CNV6323
4	Screw	BMZ20P025FMC	49	Arm	CNV6324
5	Screw	BSZ20P040FMC	50	Arm	CNV6888
6	Screw(M2x4)	CBA1362	51	Arm	CNV6889
7	Screw(M2x3)	CBA1527	52	Guide	CNV6327
8	Screw	CBA1545	53	Arm	CNV6924
9	Washer	CBF1037	54	Guide	CNV6921
10	Washer	CBF1038	55	Rack	CNV6923
11	Washer	CBF1039	56	Clamper	CNV6331
12	Washer	CBF1060	57	Arm	CNV6332
13	Spring	CBH2378	58	Guide	CNV6333
14	Spring	CBH2379	59	Cover	CNV6334
15	Spring	CBH2514	60	Arm	CNV6335
16	Spring	CBH2533	61	Guide	CNV6336
17	Spring	CBH2382	62	Roller	CNV6338
18	Spring	CBH2383	63	Damper	CNV6339
19	Spring	CBH2384	64	Damper	CNV6340
20	Spring	CBH2527	65	Guide	CNV6925
21	Spring	CBH2386	66	Chassis Unit	CXB7980
22	Spring	CBH2537	* 67	Arm Unit	CXB7983
23	Spring	CBH2390	68	Arm Unit	CXB7984
24	Spring	CBH2391	69	Arm Unit	CXB7985
25	Spring	CBH2523	70	Motor Unit(M2)	CXB5903
26	Spring	CBH2426	71	Screw Unit	CXB5904
27	Spring	CBH2444	72	Gear Unit	CXB8076
28	Spring	CBL1561	73	Bracket Unit	CXB7982
29	Spring	CBL1553	74	Motor Unit(M1)	CXB6007
30	Shaft	CLA3845	75	Arm Unit	CXB8504
31	Roller	CLA3910	76	Screw(M2x5)	EBA1028
32	Frame	CNC9654	77	Screw	JFZ20P020FMC
33	Lever	CNC9664	78	Screw	JGZ17P020FZK
34	Lever	CNC8949	79	Washer	YE15FUC
35	Arm	CNC9661	80	Washer	YE20FUC
36	Arm	CNC9016	81	Pickup Unit(Service)(P9)	CXX1480
37	Arm	CNC9017	82	Screw	IMS26P030FMC
38	Bracket	CNC9123	83	Guide	CNV6922
39	Frame	CNC9656	84	Roller	CNV6887
40	Belt	CNT1086	85	Spring	CBH2509
41	Gear	CNV6886	86	Spring	CBH2512
42	Gear	CNV6316	87	Spring	CBH2536
43	Gear	CNV6317	88	Collar	CNV6906
44	Gear	CNV6318			
45	Gear	CNV6319			

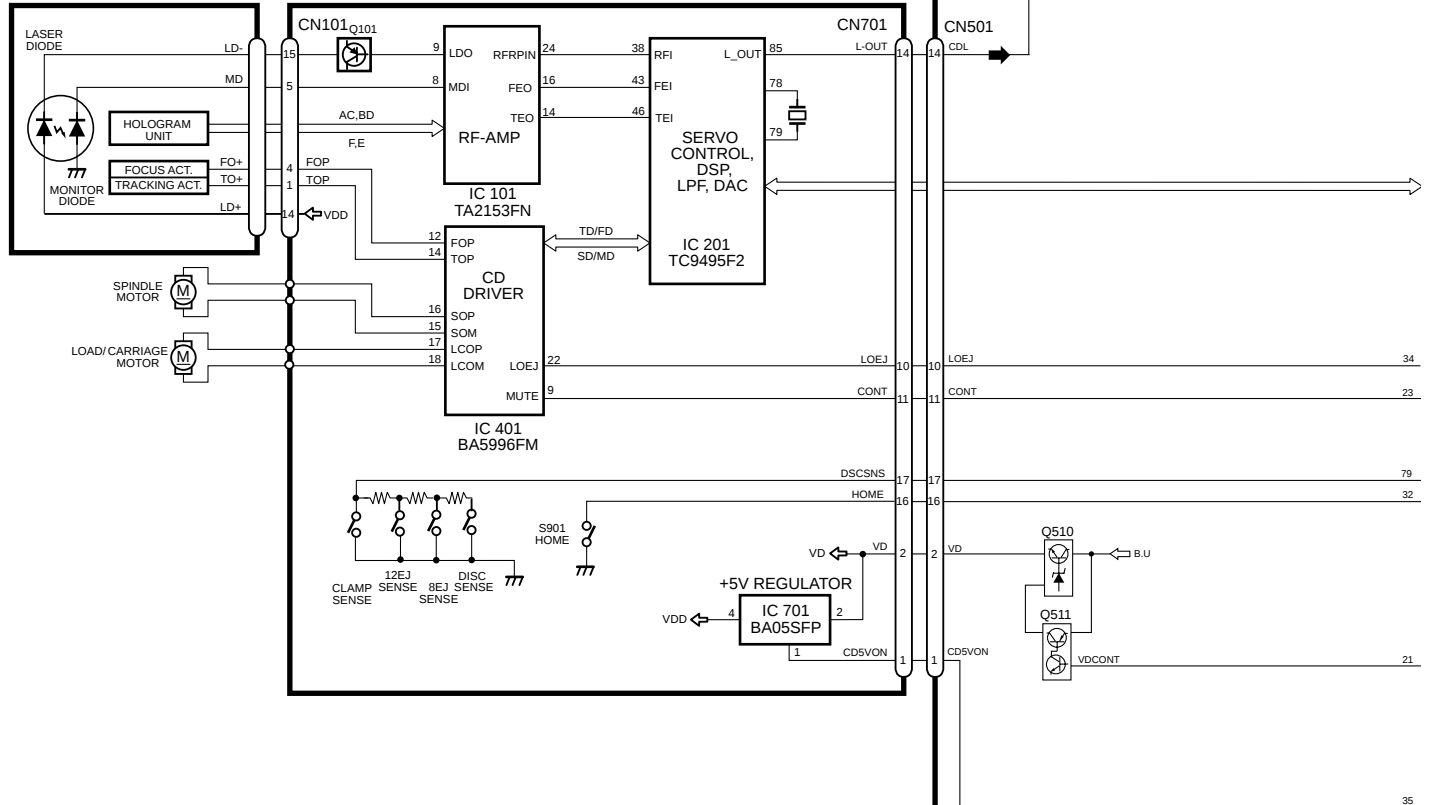
DEH-1400R,1400RB,1430R
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

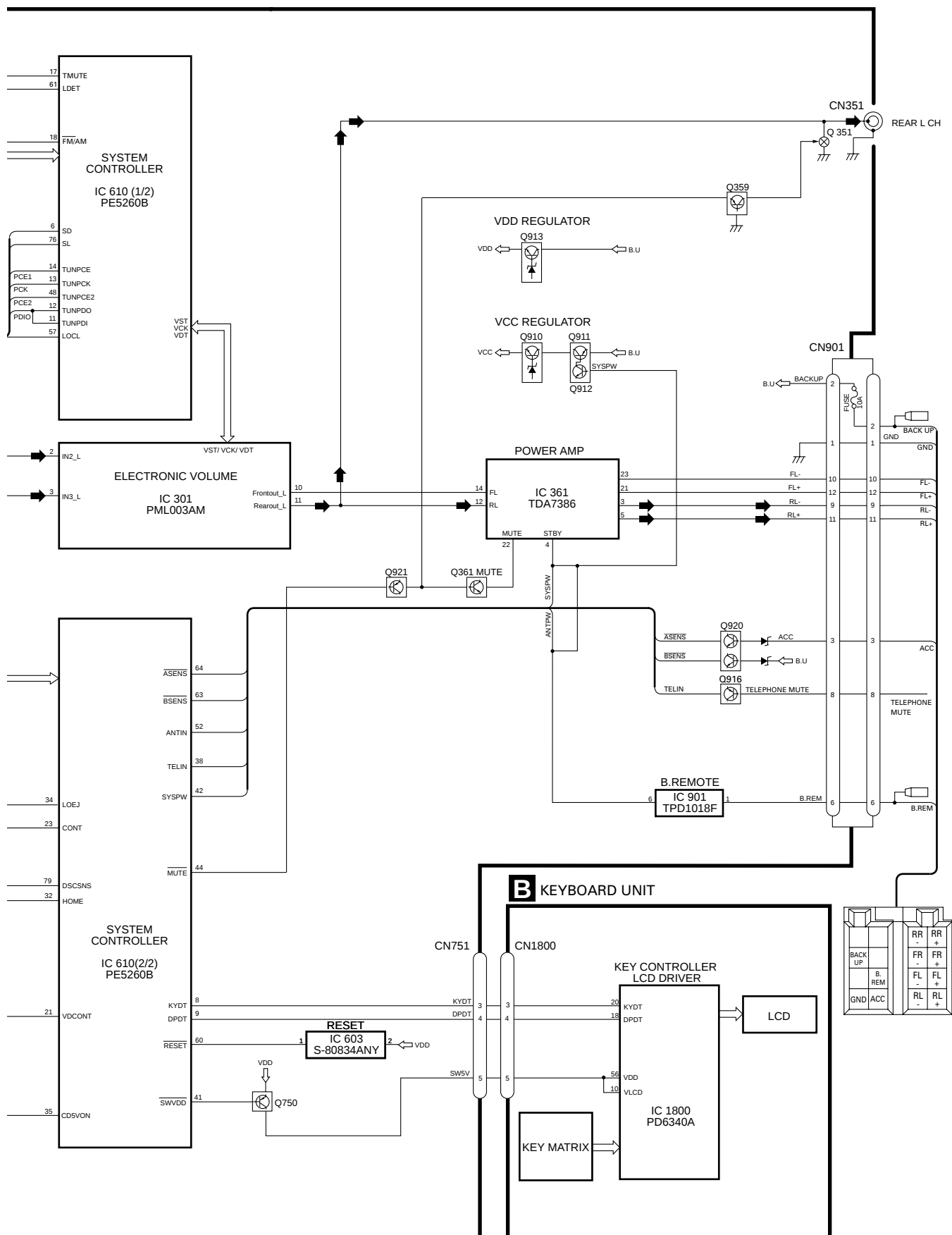
3.1 BLOCK DIAGRAM

A TUNER AMP UNIT



PICKUP UNIT (SERVICE)(P9)

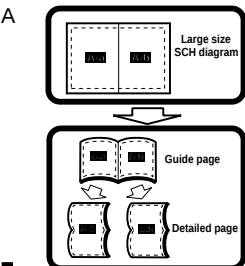




3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

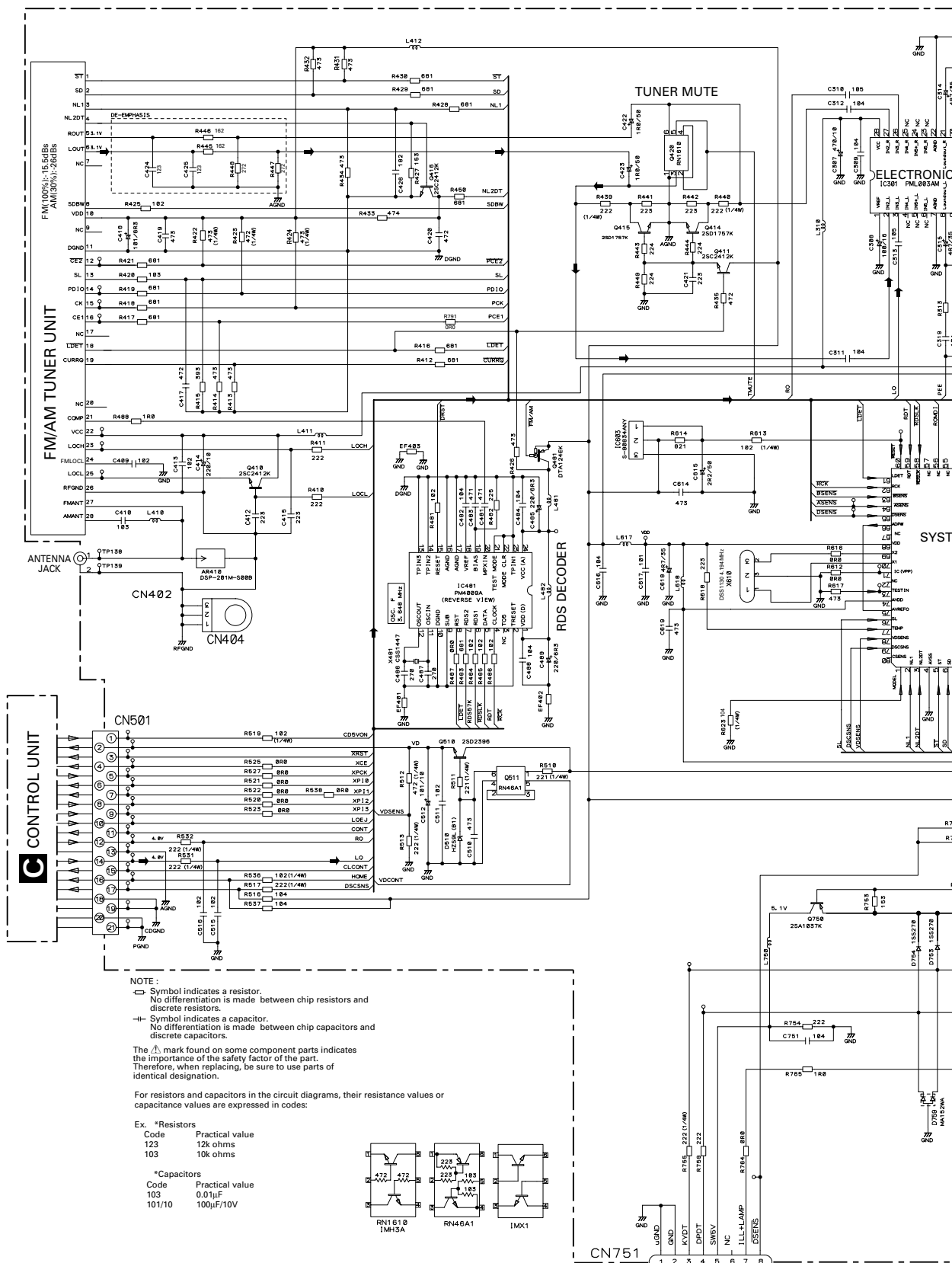
A-a



B

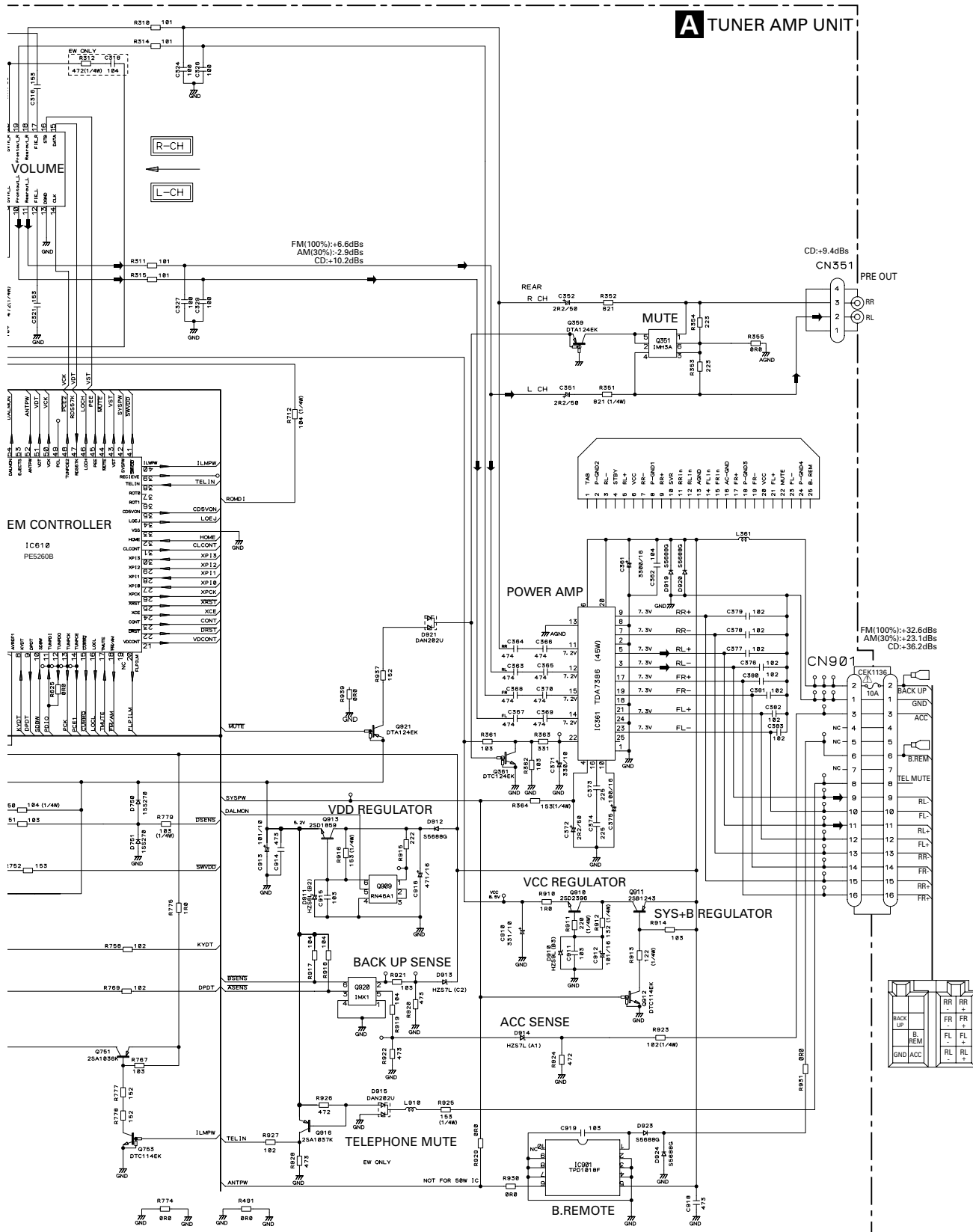
C

D



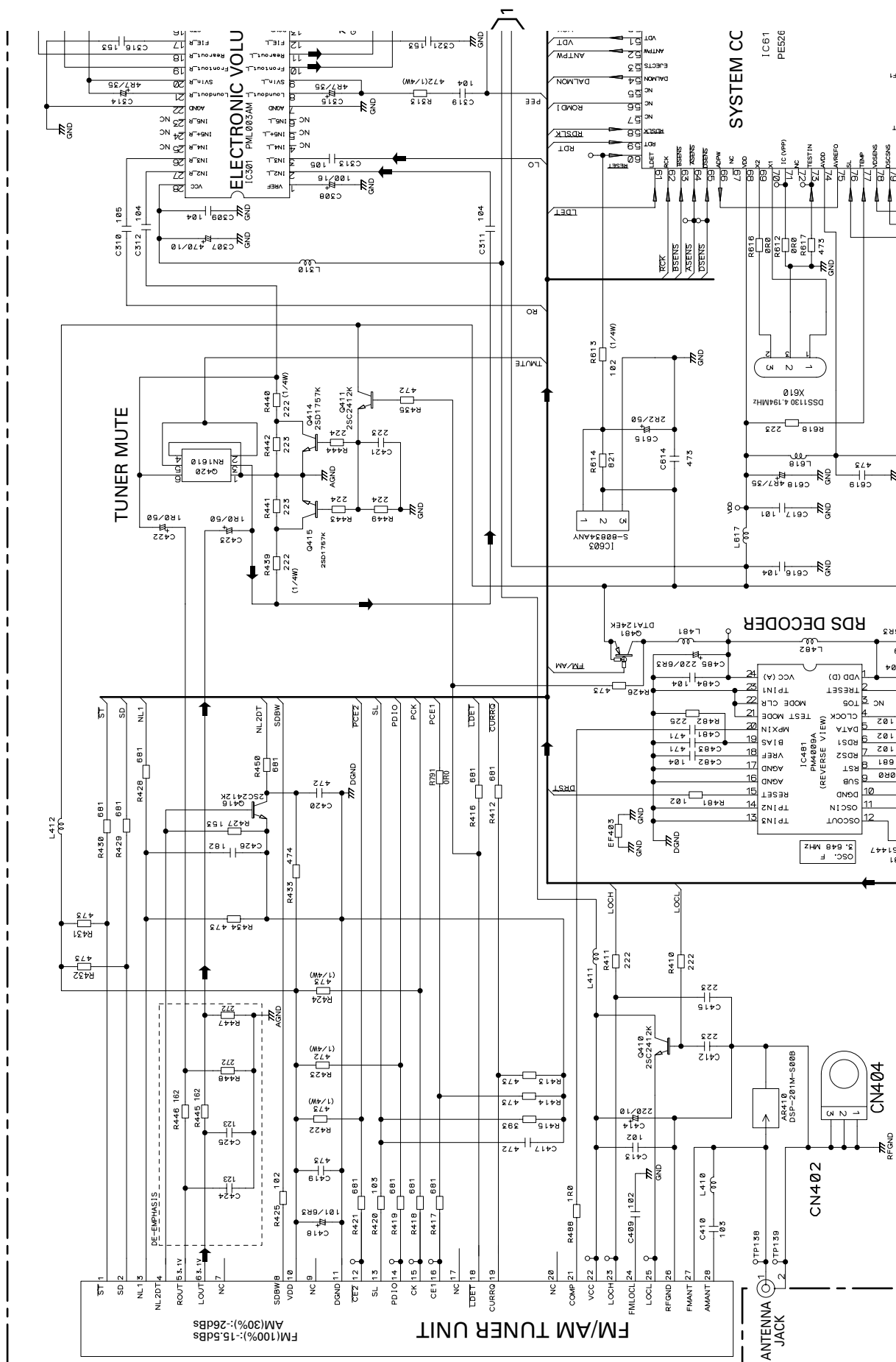
A-b

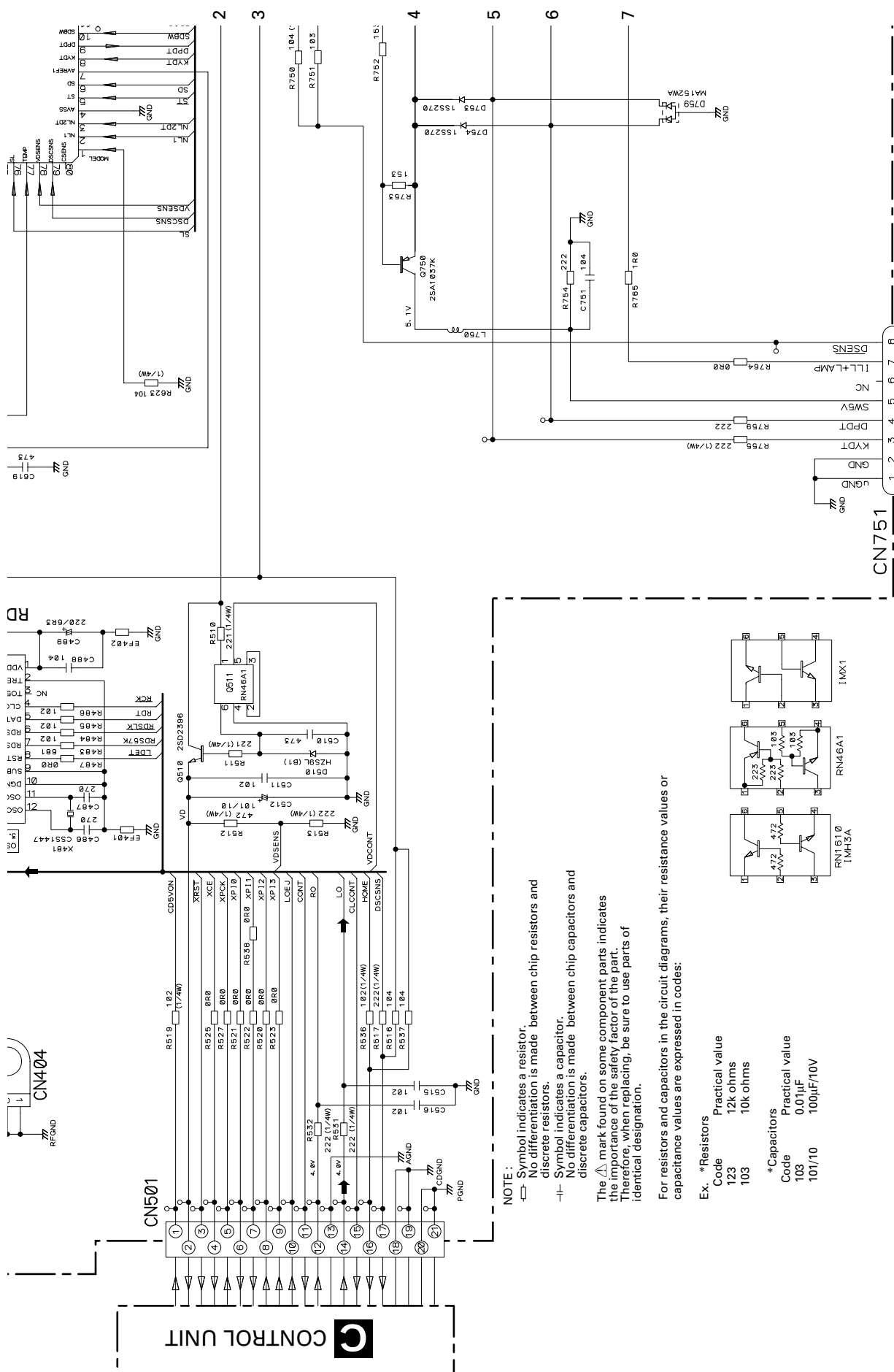
A TUNER AMP UNIT



A-a A-b

A-a





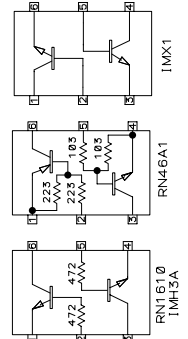
NOTE:

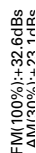
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

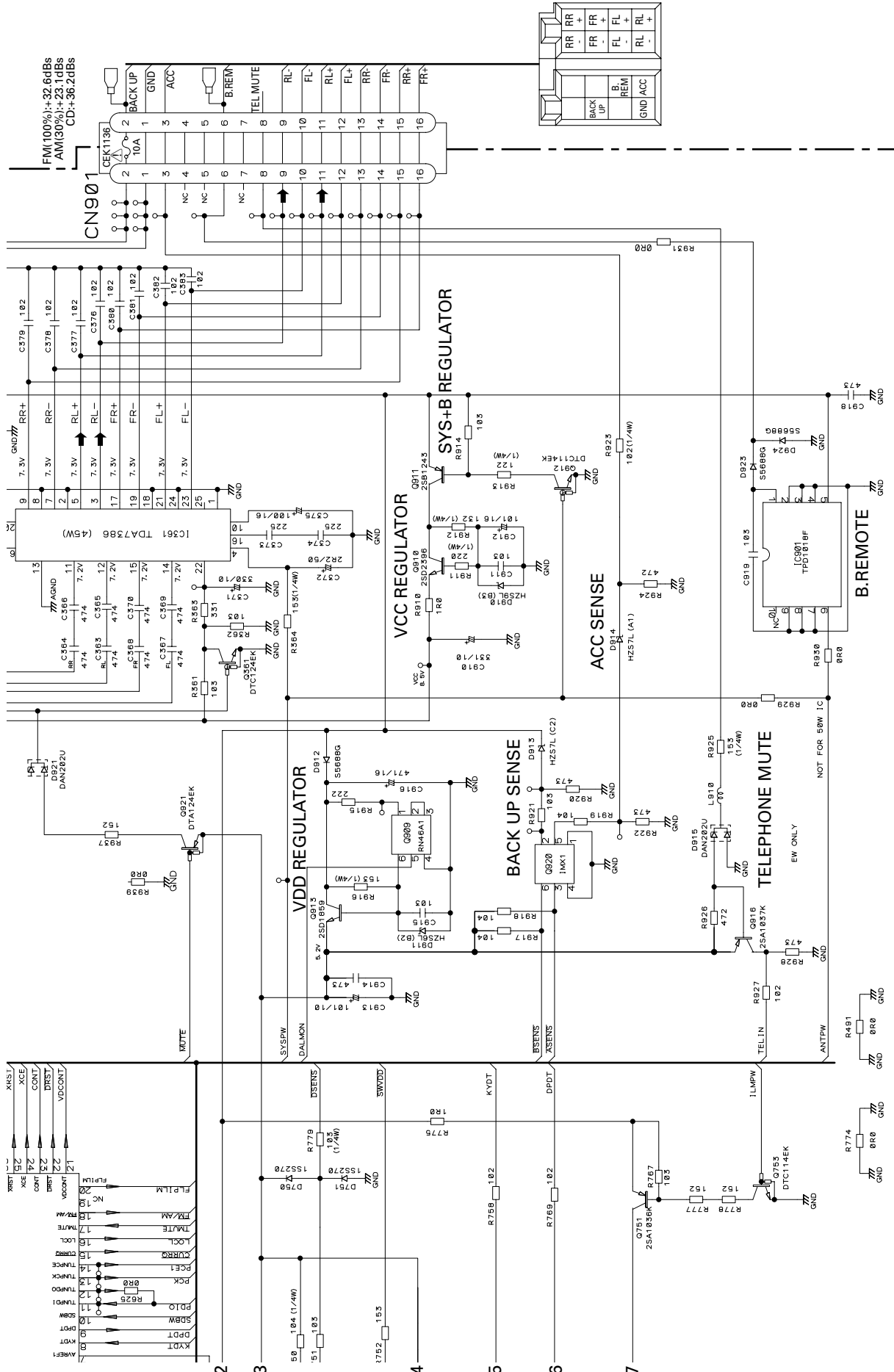
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

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 | 0.01 μ F |
| 101/10 | 100 μ F/10V |

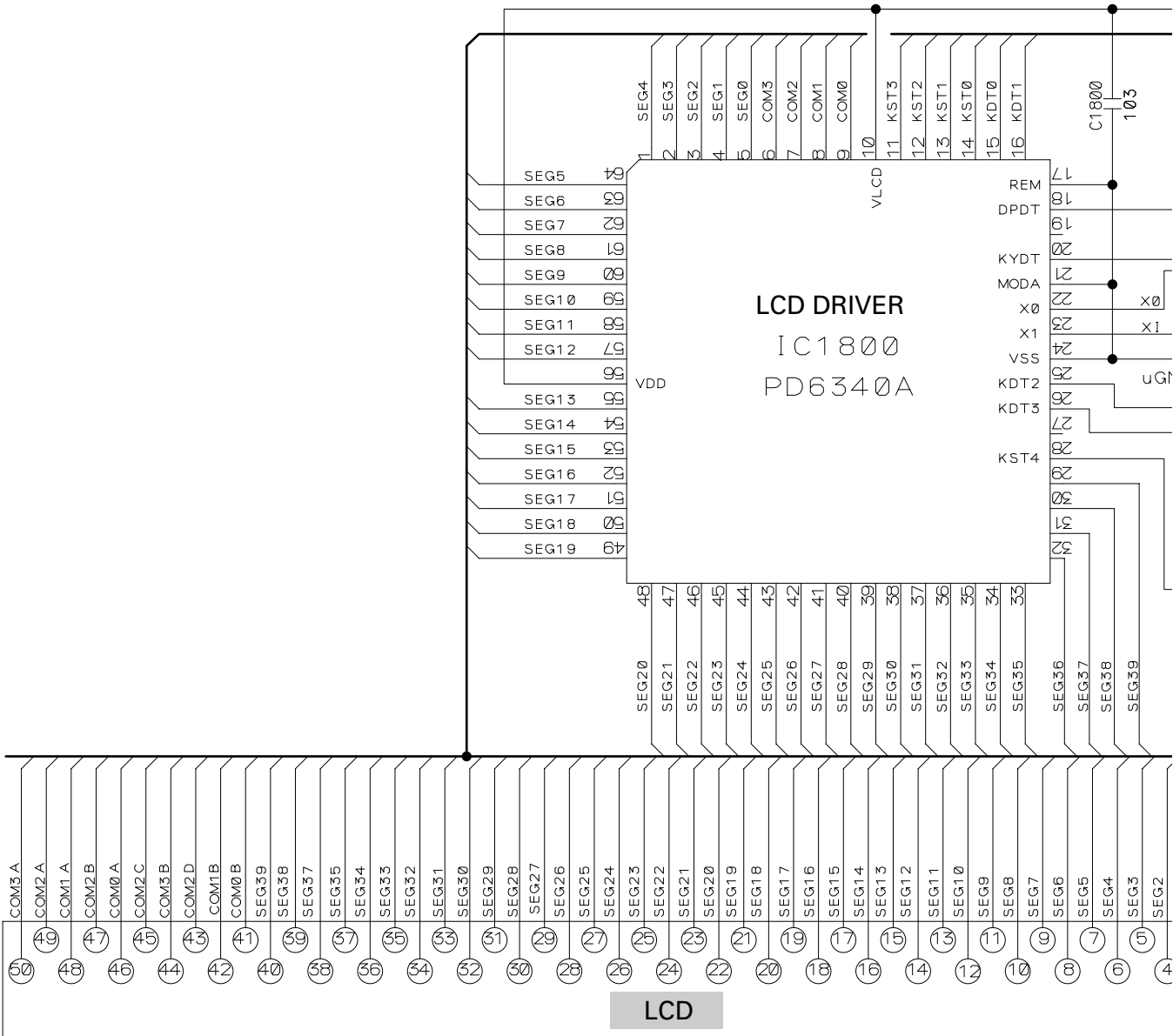


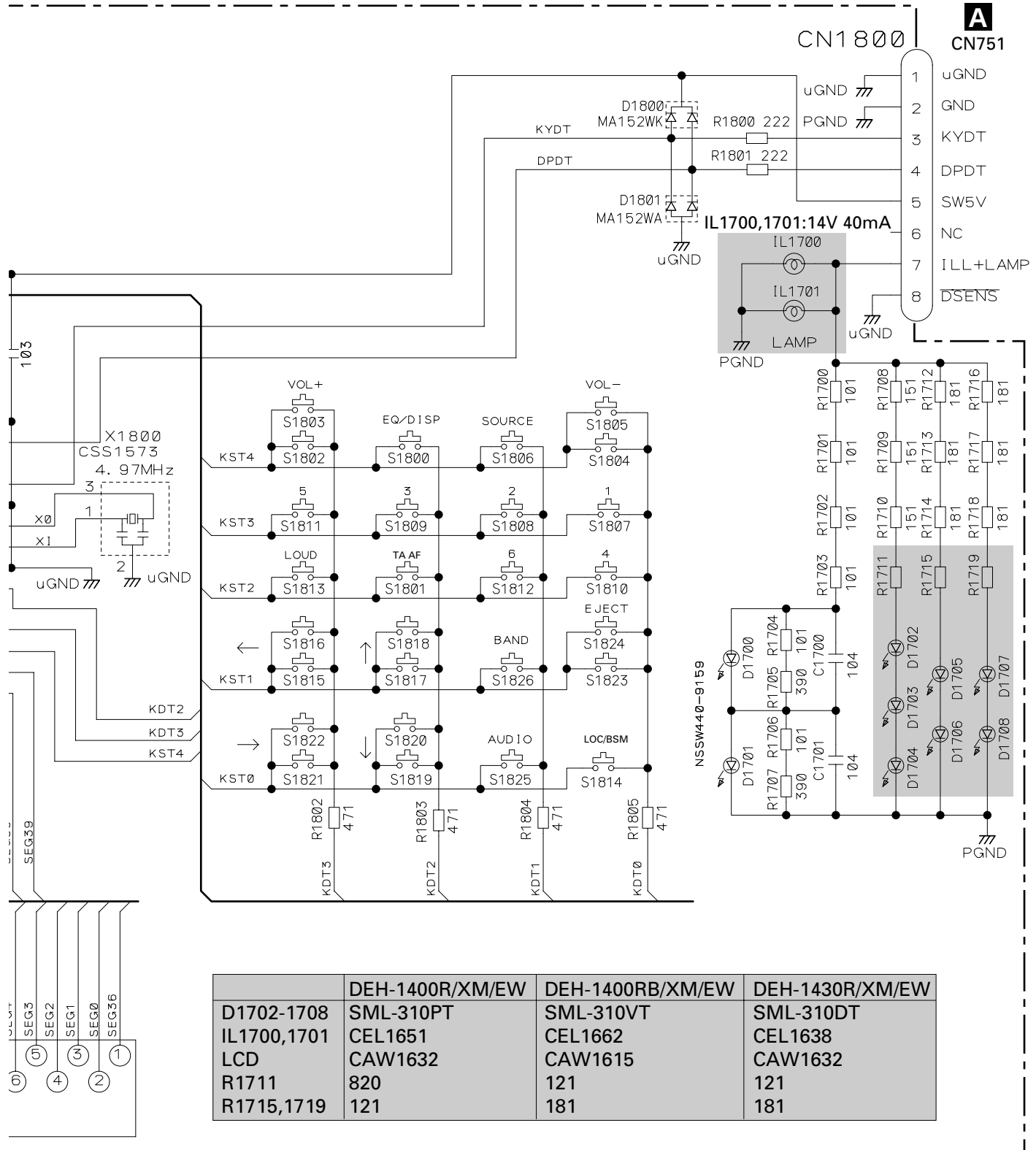




3.3 KEYBOARD UNIT

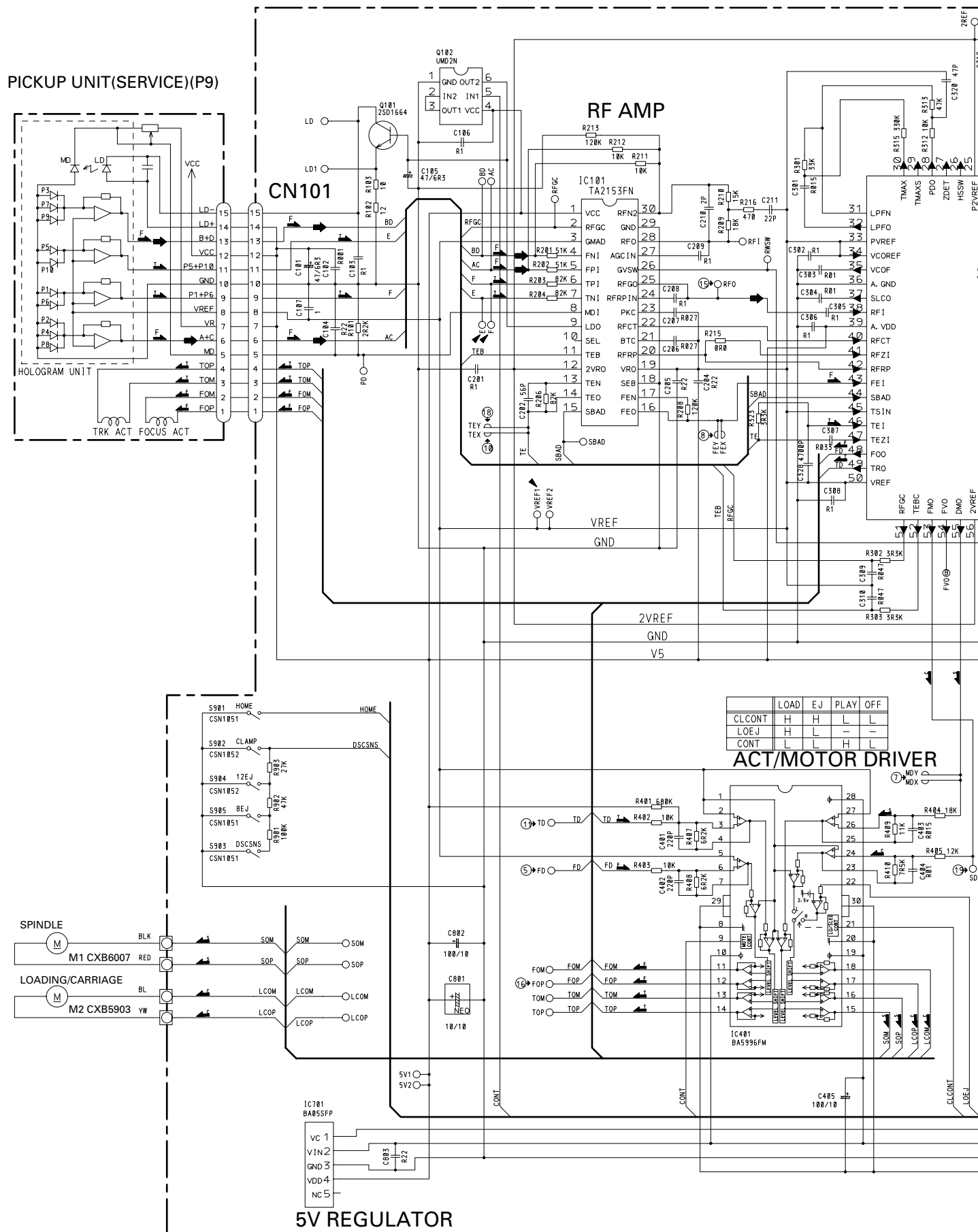
B KEYBOARD UNIT

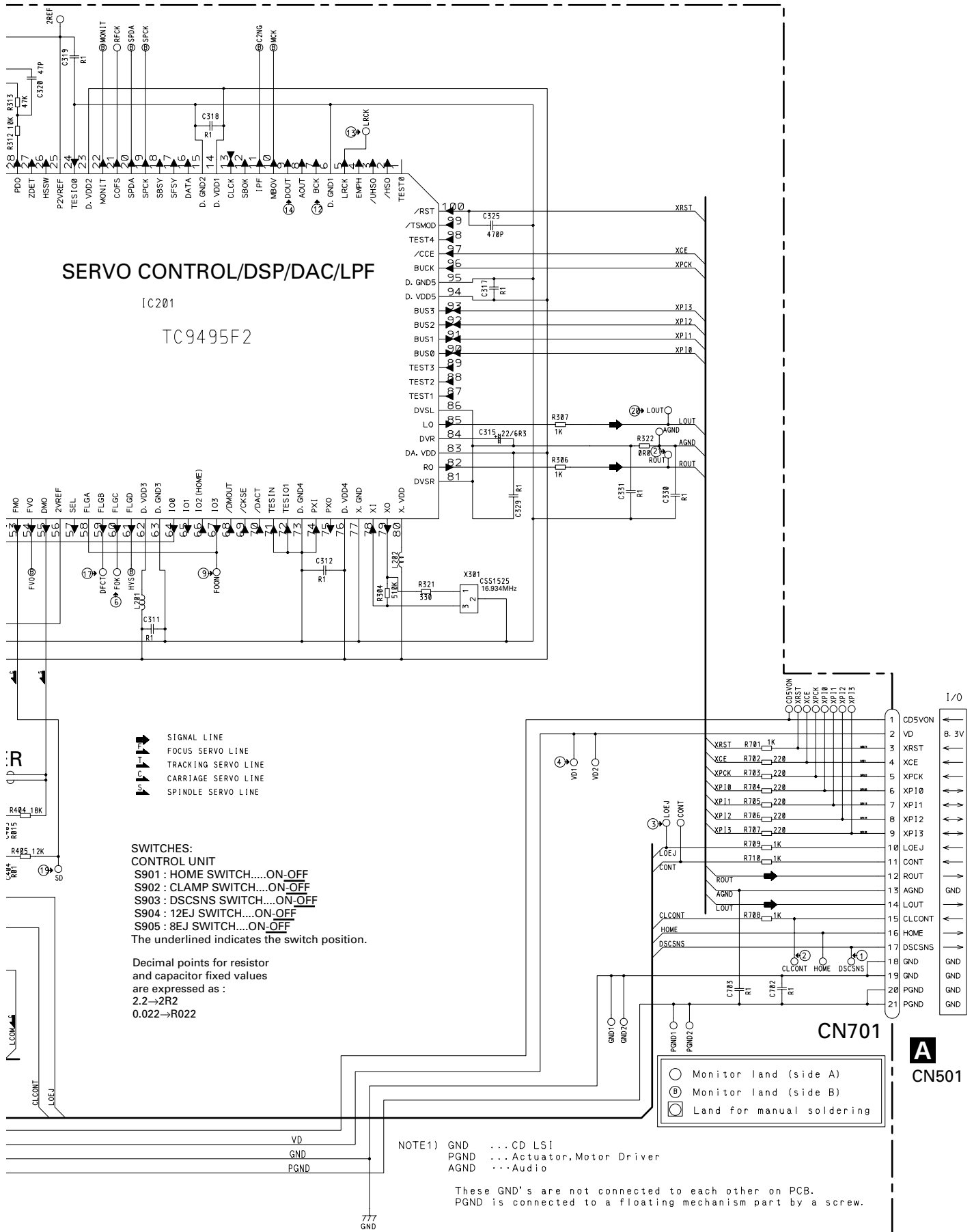




3.4 CD MECHANISM MODULE

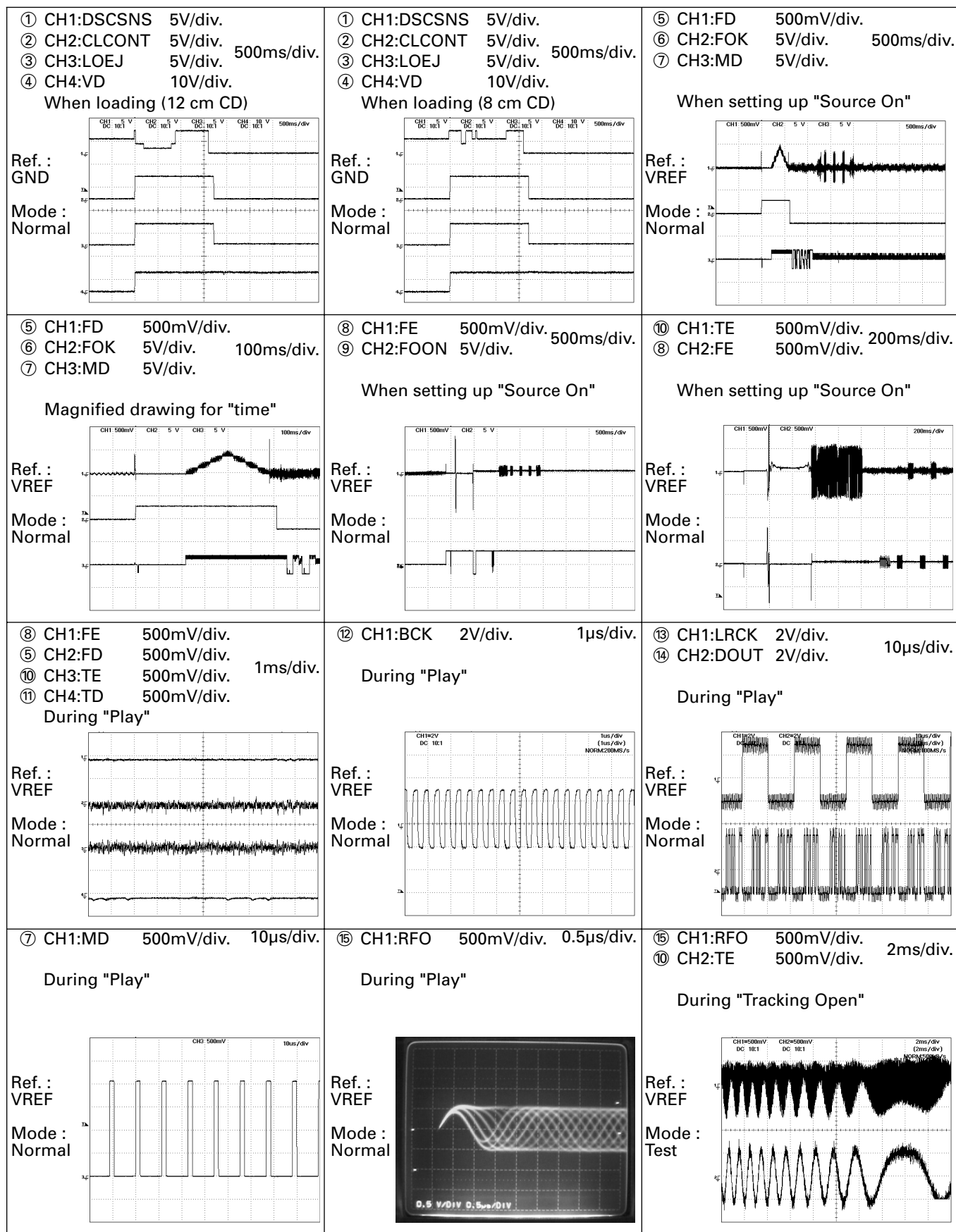
CONTROL UNIT

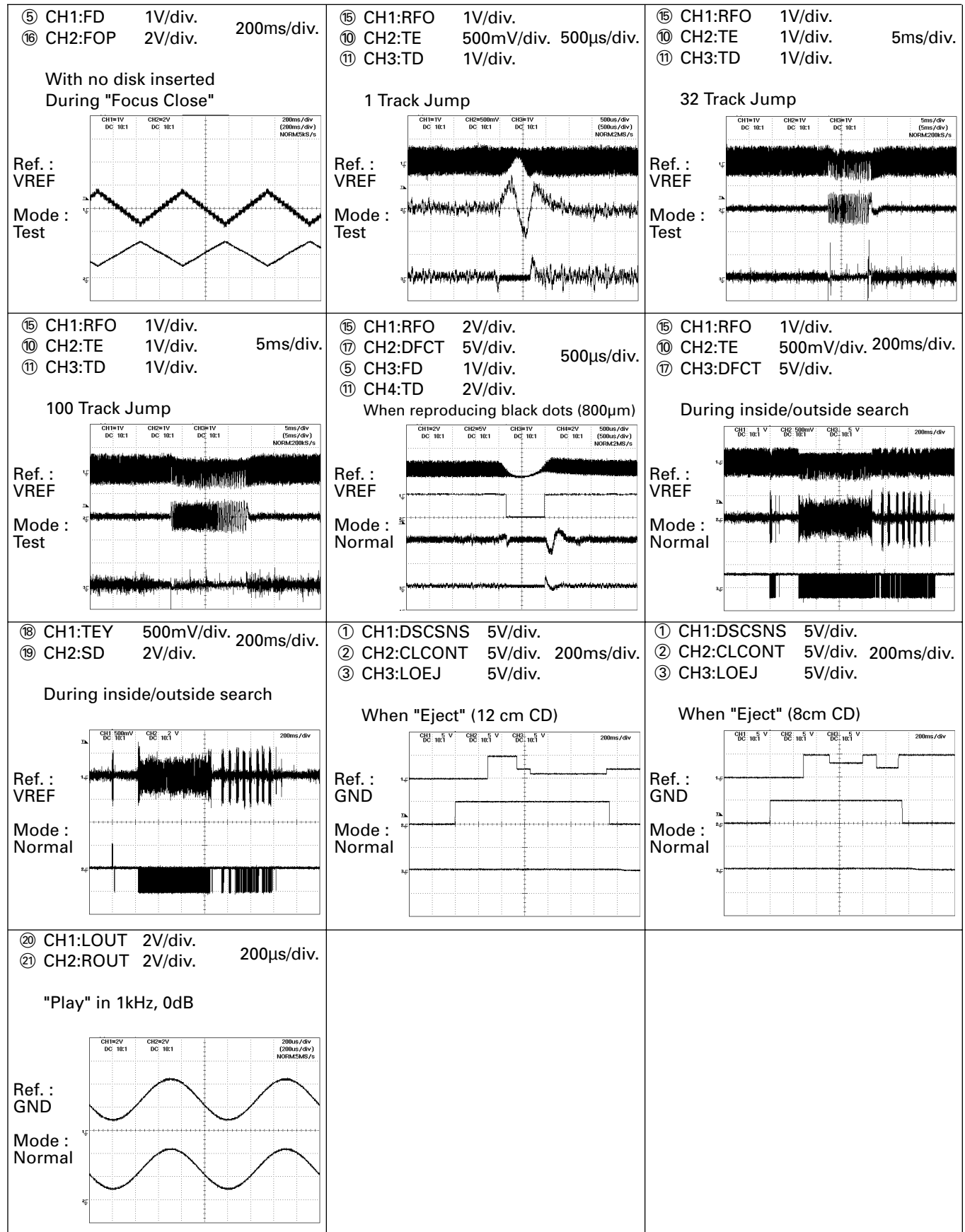




Note:1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage
VREF:2.1V

● Waveforms



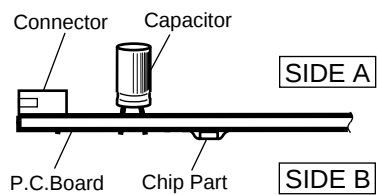


DEH-1400R,1400RB,1430R 4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT A TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

- 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.
- Viewpoint of PCB diagrams



IC, Q

IC361

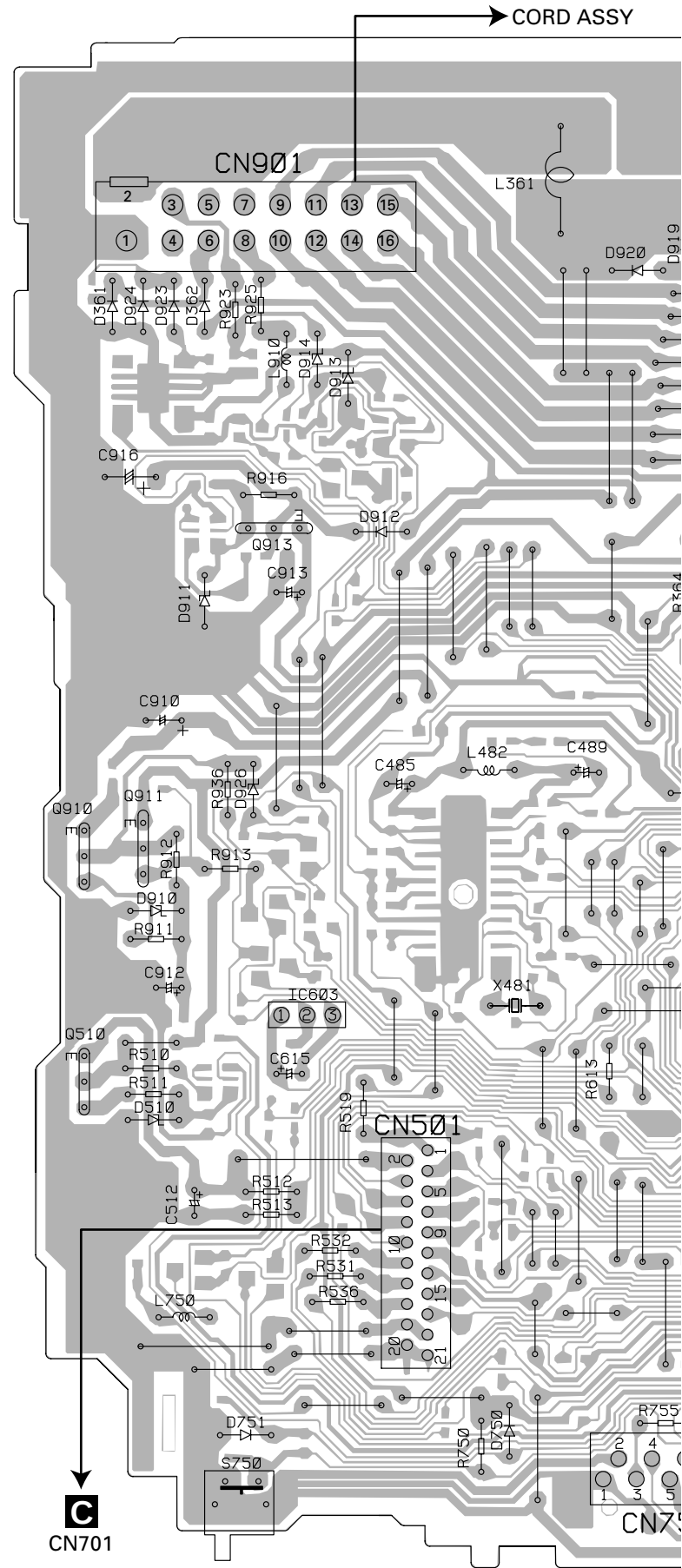
Q913

Q910 Q911

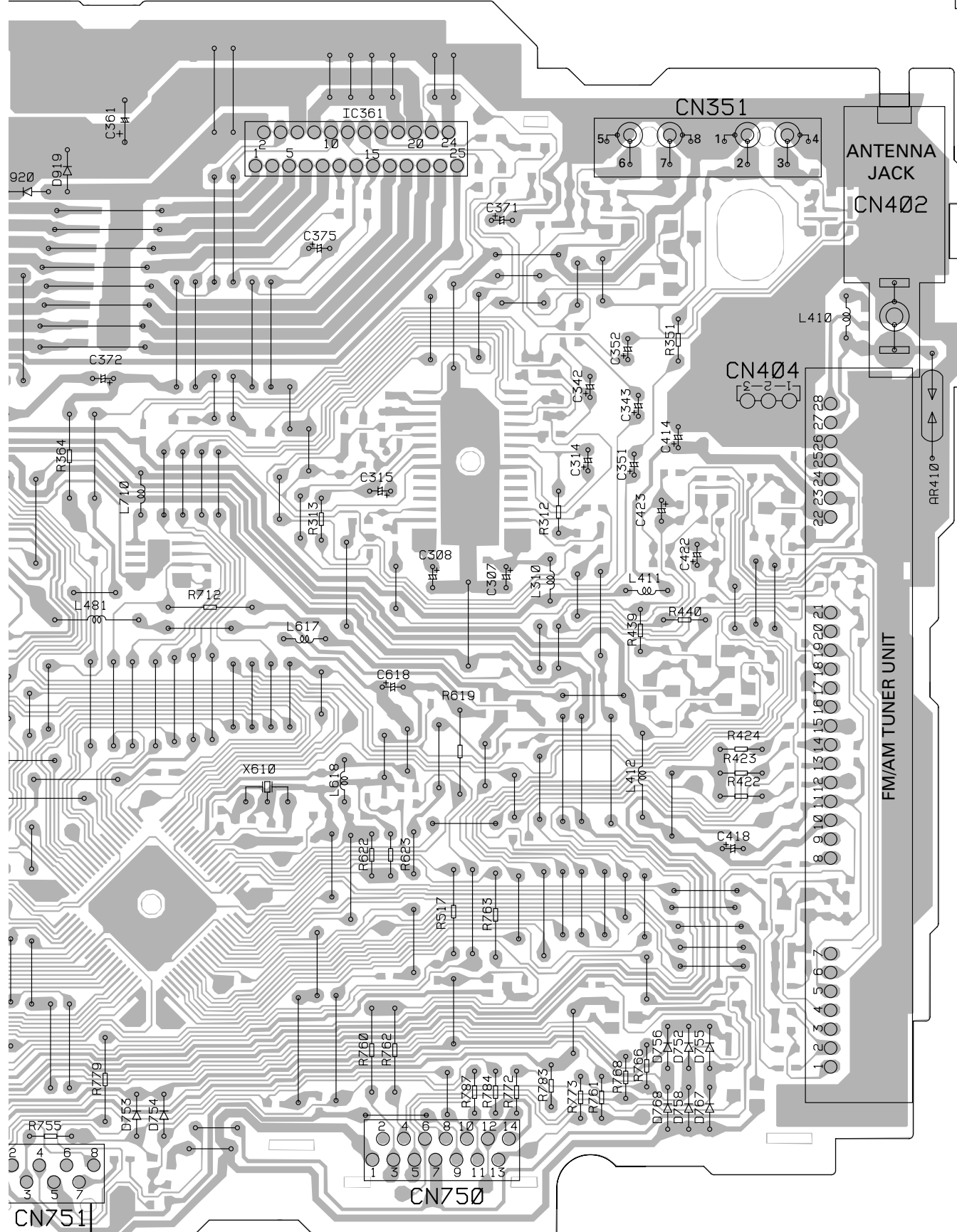
IC603

Q510

CN701



SIDE A

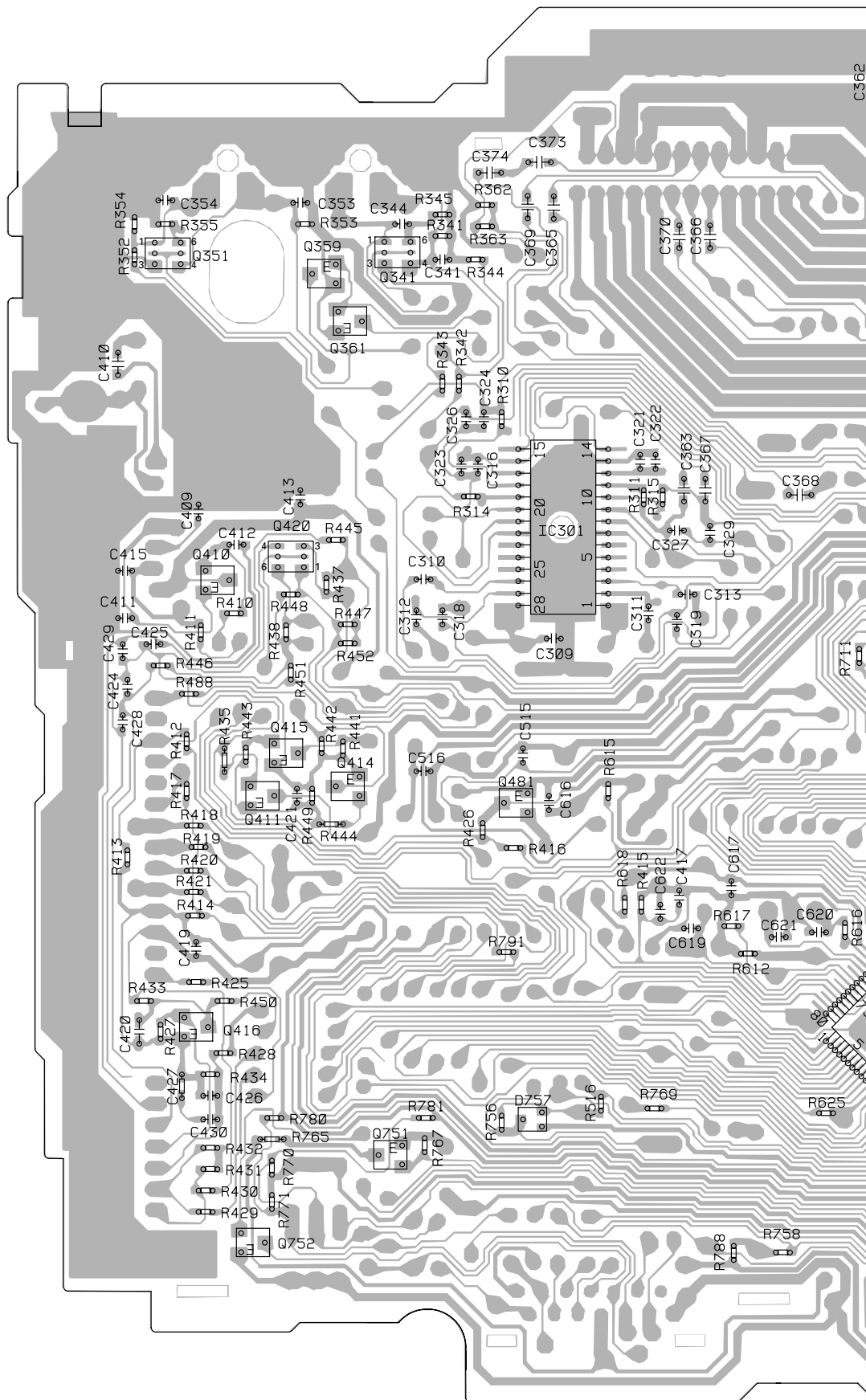


B CN1800

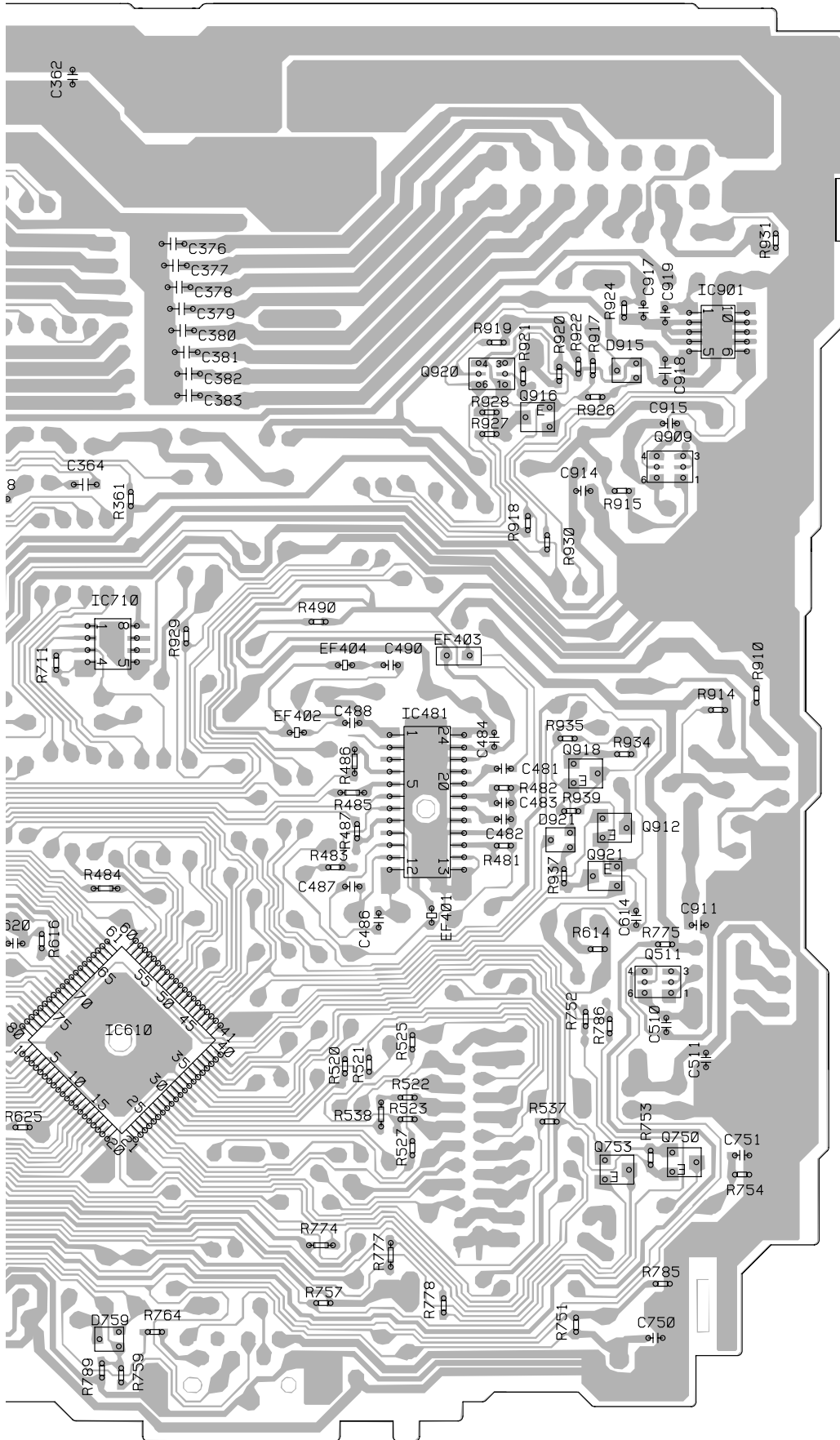
FRONT

A

A TUNER AMP UNIT



SIDE B



IC, Q

Q351 Q359

Q341
IC901

Q361
Q920

Q916
Q909

IC301
Q420
Q410
IC710

IC481
Q415
Q918
Q414
Q481

Q411 Q912
Q921

Q511

IC610
Q416

Q751 Q753
Q750

Q752

DEH-1400R,1400RB,1430R

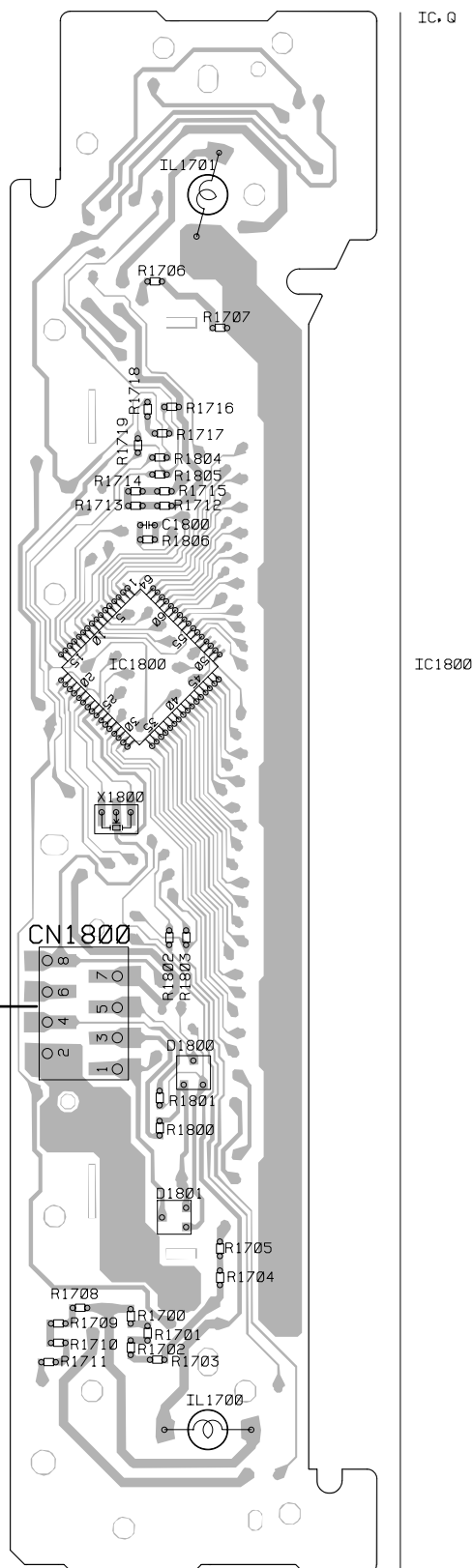
4.2 KEYBOARD UNIT

B KEYBOARD UNIT

IC, Q

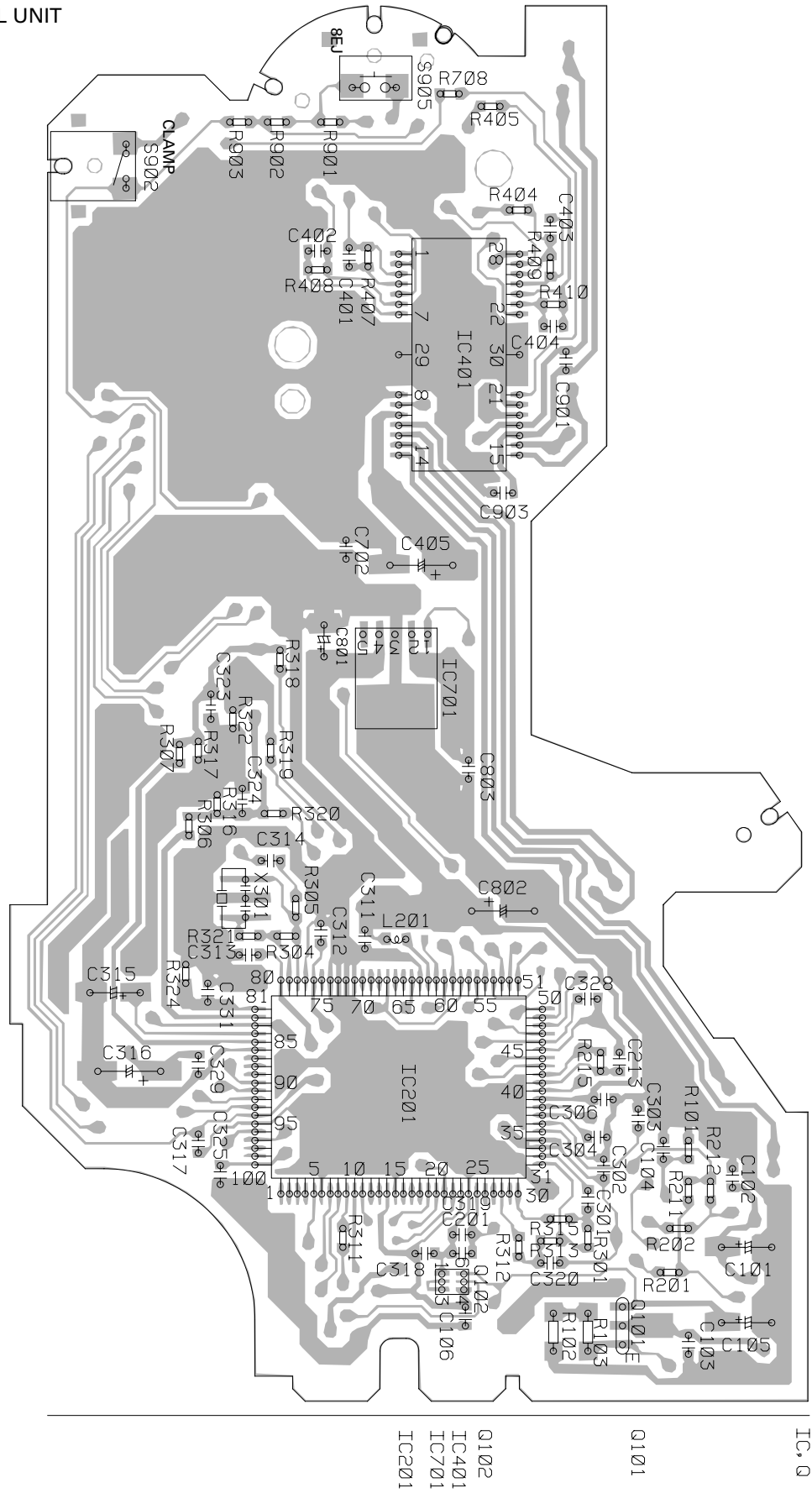
B KEYBOARD UNIT

B KEYBOARD UNIT



C CONTROL UNIT

SIDE B



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.
A Unit Number : CWM7939		L 412 Ferri-Inductor	LAU2R2K
Unit Name : Tuner Amp Unit		L 481 Inductor	LAU100K
MISCELLANEOUS		L 482 Ferri-Inductor	LAU101K
IC 301 IC	PML003AM	L 617 Ferri-Inductor	LAU101K
IC 361 IC	TDA7386	L 618 Ferri-Inductor	LAU2R2K
IC 481 IC	PM4009A	L 750 Ferri-Inductor	LAU2R2K
IC 603 IC	S-80834ANY	L 910 Ferri-Inductor	LAU2R2K
IC 610 IC	PE5260B	X 481 Crystal Resonator 3.648MHz	CSS1447
		X 610 Ceramic Resonator 4.194MHz	DSS1130
IC 901 IC	TPD1018F	EF 401 Inductor	CTF1382
Q 351 Transistor	IMH3A	EF 402 Inductor	CTF1346
Q 359 Transistor	DTA124EK	EF 403 Inductor	CTF1391
Q 361 Transistor	DTC124EK	AR 410 Surge Protector	DSP-201M-S00B
Q 410 Transistor	2SC2412K	FM/AM Tuner Unit	CWE1562
Q 411 Transistor	2SC2412K		
Q 414 Transistor	2SD1757K	RESISTORS	
Q 415 Transistor	2SD1757K	R 310	RS1/16S101J
Q 416 Transistor	2SC2412K	R 311	RS1/16S101J
Q 420 Transistor	RN1610	R 312	RD1/4PU472J
		R 313	RD1/4PU472J
Q 481 Transistor	DTA124EK	R 314	RS1/16S101J
Q 510 Transistor	2SD2396		
Q 511 Transistor	RN46A1	R 315	RS1/16S101J
Q 750 Transistor	2SA1037K	R 351	RD1/4PU821J
Q 751 Transistor	2SA1036K	R 352	RS1/16S821J
		R 353	RS1/16S223J
Q 753 Transistor	DTC114EK	R 354	RS1/16S223J
Q 909 Transistor	RN46A1		
Q 910 Transistor	2SD2396	R 355	RS1/16S0R0J
Q 911 Transistor	2SB1243	R 361	RS1/16S103J
Q 912 Transistor	DTC114EK	R 362	RS1/16S103J
		R 363	RS1/16S331J
Q 913 Transistor	2SD1859	R 364	RD1/4PU153J
Q 916 Transistor	2SA1037K		
Q 920 Transistor	IMX1	R 410	RS1/16S222J
Q 921 Transistor	DTA124EK	R 411	RS1/16S222J
D 510 Diode	HZS9L(B1)	R 412	RS1/16S681J
		R 413	RS1/16S473J
D 750 Diode	1SS270	R 414	RS1/16S473J
D 751 Diode	1SS270		
D 753 Diode	1SS270	R 415	RS1/16S393J
D 754 Diode	1SS270	R 416	RS1/16S681J
D 759 Diode	MA152WA	R 417	RS1/16S681J
		R 418	RS1/16S681J
D 910 Diode	HZS9L(B3)	R 419	RS1/16S681J
D 911 Diode	HZS6L(B2)		
D 912 Diode	S5688G	R 420	RS1/16S103J
D 913 Diode	HZS7L(C2)	R 421	RS1/16S681J
D 914 Diode	HZS7L(A1)	R 422	RD1/4PU473J
		R 423	RD1/4PU472J
D 915 Diode	DAN202U	R 424	RD1/4PU473J
D 919 Diode	S5688G		
D 920 Diode	S5688G	R 425	RS1/16S102J
D 921 Diode	DAN202U	R 426	RS1/16S473J
D 923 Diode	S5688G	R 427	RS1/16S153J
		R 428	RS1/16S681J
D 924 Diode	S5688G	R 429	RS1/16S681J
L 310 Inductor	LAU1R0K		
L 361 Choke Coil 600μH	CTH1221	R 430	RS1/16S681J
L 410 Ferri-Inductor	LAU4R7K	R 431	RS1/16S473J
L 411 Ferri-Inductor	LAU2R2K	R 432	RS1/16S473J
		R 433	RS1/16S474J
		R 434	RS1/16S473J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 435	RS1/16S472J	R 791	RS1/16S0R0J
R 439	RD1/4PU222J	R 910	RS1/16S1R0J
R 440	RD1/4PU222J	R 911	RD1/4PU220J
R 441	RS1/16S223J	R 912	RD1/4PU132J
R 442	RS1/16S223J	R 913	RD1/4PU122J
R 443	RS1/16S224J	R 914	RS1/16S103J
R 444	RS1/16S224J	R 915	RS1/16S222J
R 445	RS1/16S162J	R 916	RD1/4PU153J
R 446	RS1/16S162J	R 917	RS1/16S104J
R 447	RS1/16S272J	R 918	RS1/16S104J
R 448	RS1/16S272J	R 919	RS1/16S104J
R 449	RS1/16S224J	R 920	RS1/16S473J
R 450	RS1/16S681J	R 921	RS1/16S103J
R 481	RS1/16S102J	R 922	RS1/16S473J
R 482	RS1/16S225J	R 923	RD1/4PU102J
R 483	RS1/16S681J	R 924	RS1/16S472J
R 484	RS1/16S102J	R 925	RD1/4PU153J
R 485	RS1/16S102J	R 926	RS1/16S472J
R 486	RS1/16S102J	R 927	RS1/16S102J
R 487	RS1/16S0R0J	R 928	RS1/16S473J
R 488	RS1/16S1R0J	R 929	RS1/16S0R0J
R 510	RD1/4PU221J	R 930	RS1/16S0R0J
R 511	RD1/4PU221J	R 931	RS1/16S0R0J
R 512	RD1/4PU472J	R 937	RS1/16S152J
R 513	RD1/4PU222J	R 939	RS1/16S0R0J
R 516	RS1/16S104J	CAPACITORS	
R 517	RD1/4PU222J	C 307	CEJQ470M10
R 519	RD1/4PU102J	C 308	CEJQ100M16
R 520	RS1/16S0R0J	C 309	CKSRYB104K25
R 521	RS1/16S0R0J	C 310	CKSRYB105K6R3
R 522	RS1/16S0R0J	C 311	CKSRYB104K25
R 523	RS1/16S0R0J	C 312	CKSRYB104K25
R 525	RS1/16S0R0J	C 313	CKSRYB105K6R3
R 527	RS1/16S0R0J	C 314	CEJQ4R7M35
R 531	RD1/4PU222J	C 315	CEJQ4R7M35
R 532	RD1/4PU222J	C 316	CKSRYB153K25
R 536	RD1/4PU102J	C 318	CKSRYB104K25
R 537	RS1/16S104J	C 319	CKSRYB104K25
R 538	RS1/16S0R0J	C 321	CKSRYB153K25
R 612	RS1/16S0R0J	C 324	CCSRCH100D50
R 613	RD1/4PU102J	C 326	CCSRCH100D50
R 614	RS1/16S821J	C 327	CCSRCH100D50
R 616	RS1/16S0R0J	C 329	CCSRCH100D50
R 617	RS1/16S473J	C 351	CEJQ2R2M50
R 618	RS1/16S223J	C 352	CEJQ2R2M50
R 623	RD1/4PU104J	C 361	CCH1368
R 625	RS1/16S0R0J	C 362	CKSRYB104K25
R 712	RD1/4PU104J	C 363	CKSQYB474K16
R 750	RD1/4PU104J	C 364	CKSQYB474K16
R 751	RS1/16S103J	C 365	CKSQYB474K16
R 752	RS1/16S153J	C 366	CKSQYB474K16
R 753	RS1/16S153J	C 367	CKSQYB474K16
R 754	RS1/16S222J	C 368	CKSQYB474K16
R 755	RD1/4PU222J	C 369	CKSQYB474K16
R 758	RS1/16S102J	C 370	CKSQYB474K16
R 759	RS1/16S222J	C 371	CEJQ330M10
R 764	RS1/16S0R0J	C 372	CEJQ2R2M50
R 765	RS1/16S1R0J	C 373	CKSQYB225K10
R 767	RS1/16S103J	C 374	CKSQYB225K10
R 769	RS1/16S102J	C 375	CEJQ100M16
R 774	RS1/16S0R0J	C 376	CKSQYB102K50
R 775	RS1/16S1R0J	C 377	CKSQYB102K50
R 777	RS1/16S152J	C 378	CKSQYB102K50
R 778	RS1/16S152J	C 379	CKSQYB102K50
R 779	RD1/4PU103J	C 380	CKSQYB102K50
		C 381	CKSQYB102K50

====Circuit Symbol and No.==Part Name	Part No.
C 382	CKSQYB102K50
C 383	CKSQYB102K50
C 409	CKSRYB102K50
C 410	CKSQYB103K25
C 412	CKSRYB223K50
C 413	CKSRYB102K50
C 414	CEJQ220M10
C 415	CKSRYB223K50
C 417	CKSRYB472K50
C 418	CEJQ101M6R3
C 419	CKSRYB473K50
C 420	CKSRYB472K50
C 421	CKSRYB223K50
C 422	CEJQ1R0M50
C 423	CEJQ1R0M50
C 424	CKSRYB123K25
C 425	CKSRYB123K25
C 426	CKSRYB182K50
C 481	CCSRCH471J50
C 482	CKSRYB104K25
C 483	CCSRCH471J50
C 484	CKSRYB104K25
C 485	CEJQ220M6R3
C 486	CCSRCH270J50
C 487	CCSRCH270J50
C 488	CKSRYB104K25
C 489	CEJQ220M6R3
C 510	CKSRYB473K50
C 511	CKSRYB102K50
C 512	CEJQ101M10
C 515	CKSRYB102K50
C 516	CKSRYB102K50
C 614	CKSRYB473K50
C 615	CEJQ2R2M50
C 616	CKSRYB104K25
C 617	CCSRCH101J50
C 618	CEJQ4R7M35
C 619	CKSRYB473K50
C 751	CKSRYB104K25
C 910 330μF/16V	CCH1326
C 911	CKSRYB103K50
C 912	CEJQ101M16
C 913	CEJQ101M10
C 914	CKSRYB473K50
C 915	CKSRYB103K50
C 916 470μF/16V	CCH1331
C 918	CKSQYB473K50
C 919	CKSRYB103K50

B Unit Number : CWM7952(DEH-1400R/XM/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1800	IC	PD6340A
D 1700	LED	NSSW440-9159
D 1701	LED	NSSW440-9159
D 1702	LED	SML-310PT
D 1703	LED	SML-310PT
D 1704	LED	SML-310PT
D 1705	LED	SML-310PT
D 1706	LED	SML-310PT
D 1707	LED	SML-310PT
D 1708	LED	SML-310PT
D 1800	Diode	MA152WK
D 1801	Diode	MA152WA
X 1800	Ceramic Resonator 4.97MHz	CSS1573
IL 1700	Lamp 14V 40mA	CEL1651
IL 1701	Lamp 14V 40mA	CEL1651

====Circuit Symbol and No.==Part Name	Part No.
LCD	CAW1632
RESISTORS	
R 1700	RS1/16S101J
R 1701	RS1/16S101J
R 1702	RS1/16S101J
R 1703	RS1/16S101J
R 1708	RS1/16S151J
R 1709	RS1/16S151J
R 1710	RS1/16S151J
R 1711	RS1/16S820J
R 1712	RS1/16S181J
R 1713	RS1/16S181J
R 1714	RS1/16S181J
R 1715	RS1/16S121J
R 1716	RS1/16S181J
R 1717	RS1/16S181J
R 1718	RS1/16S181J
R 1719	RS1/16S121J
R 1800	RS1/16S222J
R 1801	RS1/16S222J
R 1802	RS1/16S471J
R 1803	RS1/16S471J
R 1804	RS1/16S471J
R 1805	RS1/16S471J
CAPACITORS	
C 1700	CKSQYF104Z50
C 1701	CKSQYF104Z50
C 1800	CKSRYB103K50

B Unit Number : CWM7953(DEH-1400RB/XM/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1800	IC	PD6340A
D 1700	LED	NSSW440-9159
D 1701	LED	NSSW440-9159
D 1702	LED	SML-310VT
D 1703	LED	SML-310VT
D 1704	LED	SML-310VT
D 1705	LED	SML-310VT
D 1706	LED	SML-310VT
D 1707	LED	SML-310VT
D 1708	LED	SML-310VT
D 1800	Diode	MA152WK
D 1801	Diode	MA152WA
X 1800	Ceramic Resonator 4.97MHz	CSS1573
IL 1700	Lamp 14V 40mA	CEL1662
IL 1701	Lamp 14V 40mA	CEL1662

LCD	CAW1615
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RESISTORS

R 1700	RS1/16S101J
R 1701	RS1/16S101J
R 1702	RS1/16S101J
R 1703	RS1/16S101J
R 1708	RS1/16S151J
R 1709	RS1/16S151J
R 1710	RS1/16S151J
R 1711	RS1/16S121J
R 1712	RS1/16S181J
R 1713	RS1/16S181J
R 1714	RS1/16S181J
R 1715	RS1/16S181J
R 1716	RS1/16S181J
R 1717	RS1/16S181J
R 1718	RS1/16S181J

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

Part No.

R 1719
R 1800
R 1801
R 1802
R 1803

RS1/16S181J
RS1/16S222J
RS1/16S222J
RS1/16S471J
RS1/16S471J

R 1804
R 1805

RS1/16S471J
RS1/16S471J

CAPACITORS

C 1700
C 1701
C 1800

CKSQYF104Z50
CKSQYF104Z50
CKSRYB103K50

B Unit Number : CWM7954(DEH-1430R/XM/EW)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1800 IC
D 1700 LED
D 1701 LED
D 1702 LED
D 1703 LED

PD6340A
NSSW440-9159
NSSW440-9159
SML-310DT
SML-310DT

D 1704 LED
D 1705 LED
D 1706 LED
D 1707 LED
D 1708 LED

SML-310DT
SML-310DT
SML-310DT
SML-310DT
SML-310DT

D 1800 Diode
D 1801 Diode
X 1800 Ceramic Resonator 4.97MHz
IL 1700 Lamp 14V 40mA
IL 1701 Lamp 14V 40mA

MA152WK
MA152WA
CSS1573
CEL1638
CEL1638

LCD

CAW1632

RESISTORS

R 1700
R 1701
R 1702
R 1703
R 1708

RS1/16S101J
RS1/16S101J
RS1/16S101J
RS1/16S101J
RS1/16S151J

R 1709
R 1710
R 1711
R 1712
R 1713

RS1/16S151J
RS1/16S151J
RS1/16S121J
RS1/16S181J
RS1/16S181J

R 1714
R 1715
R 1716
R 1717
R 1718

RS1/16S181J
RS1/16S181J
RS1/16S181J
RS1/16S181J
RS1/16S181J

R 1719
R 1800
R 1801
R 1802
R 1803

RS1/16S181J
RS1/16S222J
RS1/16S222J
RS1/16S471J
RS1/16S471J

R 1804
R 1805

RS1/16S471J
RS1/16S471J

CAPACITORS

C 1700
C 1701
C 1800

CKSQYF104Z50
CKSQYF104Z50
CKSRYB103K50

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

Part No.



Unit Number : CWX2481
Unit Name : Control Unit

MISCELLANEOUS

IC 101 IC
IC 201 IC
IC 401 IC
IC 701 IC
Q 101 Transistor

TA2153FN
TC9495F2
BA5996FM
BA05SFP
2SD1664

Q 102 Transistor
L 201 Inductor
L 202 Inductor
X 301 Ceramic Resonator 16.934MHz
S 901 Spring Switch(HOME)

UMD2N
CTF1546
CTF1546
CSS1525
CSN1051

S 902 Spring Switch(CLAMP)
S 903 Spring Switch(DSCSNS)
S 904 Spring Switch(12EJ)
S 905 Spring Switch(8EJ)

CSN1052
CSN1051
CSN1052
CSN1051

RESISTORS

R 101
R 102
R 103
R 201
R 202

RS1/16S222J
RS1/8S120J
RS1/8S100J
RS1/16S513J
RS1/16S513J

R 203
R 204
R 206
R 208
R 209

RS1/16S823J
RS1/16S823J
RS1/16S823J
RS1/16S124J
RS1/16S183J

R 210
R 211
R 212
R 213
R 215

RS1/16S153J
RS1/16S103J
RS1/16S103J
RS1/16S124J
RS1/16S0R0J

R 216
R 301
R 302
R 303
R 304

RS1/16S471J
RS1/16S333J
RS1/16S332J
RS1/16S332J
RS1/16S514J

R 306
R 307
R 312
R 313
R 315

RS1/16S102J
RS1/16S102J
RS1/16S103J
RS1/16S473J
RS1/16S334J

R 321
R 322
R 323
R 401
R 402

RS1/16S331J
RS1/16S0R0J
RS1/16S332J
RS1/16S684J
RS1/16S103J

R 403
R 404
R 405
R 407
R 408

RS1/16S103J
RS1/16S183J
RS1/16S123J
RS1/16S622J
RS1/16S622J

R 409
R 410
R 701
R 702
R 703

RS1/16S113J
RS1/16S752J
RS1/16S102J
RS1/16S221J
RS1/16S221J

R 704
R 705
R 706
R 707
R 708

RS1/16S221J
RS1/16S221J
RS1/16S221J
RS1/16S221J
RS1/16S102J

DEH-1400R,1400RB,1430R

====Circuit Symbol and No.===Part Name	Part No.
R 709	RS1/16S102J
R 710	RS1/16S102J
R 901	RS1/16S104J
R 902	RS1/16S473J
R 903	RS1/16S273J

CAPACITORS

C 101	CEV470M6R3
C 102	CKSRYB102K50
C 103	CKSRYB104K16
C 104	CKSRYB224K16
C 105	CEV470M6R3
C 106	CKSRYB104K16
C 107	CKSRYB105K6R3
C 201	CKSRYB104K16
C 202	CCSRCH560J50
C 204	CKSRYB224K16
C 205	CKSRYB224K16
C 206	CKSRYB273K25
C 207	CKSRYB273K25
C 208	CKSRYB104K16
C 209	CKSRYB104K16
C 210	CCSRCK2R0C50
C 211	CCSRCH220J50
C 301	CKSRYB153K25
C 302	CKSRYB104K16
C 303	CKSRYB103K50
C 304	CKSRYB103K50
C 305	CKSRYB104K16
C 306	CKSRYB104K16
C 307	CKSRYB333K16
C 308	CKSRYB104K16
C 309	CKSRYB473K16
C 310	CKSRYB473K16
C 311	CKSRYB104K16
C 312	CKSRYB104K16
C 315	CEV220M6R3
C 317	CKSRYB104K16
C 318	CKSRYB104K16
C 319	CKSRYB104K16
C 320	CCSRCH470J50
C 325	CKSRYB471K50
C 328	CKSRYB472K50
C 329	CKSRYB104K16
C 330	CKSRYB104K16
C 331	CKSRYB104K16
C 401	CKSRYB221K50
C 402	CKSRYB221K50
C 403	CKSRYB153K25
C 404	CKSRYB103K50
C 405	CEV101M10
C 702	CKSRYB104K16
C 703	CKSRYB104K16
C 801 10μF/10V	CCH1349
C 802	CEV101M10
C 803	CKSRYB224K16

Miscellaneous Parts List

M 1	Pickup Unit(Service)(P9)	CXX1480
M 2	Motor Unit(SPINDLE)	CXB6007
M 2	Motor Unit(LOADING/CARRIAGE)	CXB5903

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to VREF(approx. 2.1V) instead of GND.

If VREF and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to VREF and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to VREF with the channel 2 negative probe connected to GND.

Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident VREF comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- The RFI and RFO signals are easy to oscillate because of a wide band. When observing them, insert a resistor of about 1 k Ω to the series.
- This equipment will not guarantee the load ejection operation when the mechanical unit is turned upside down. In particular, if the ejection operation is incorrectly performed and recovery is disabled, the recovery is enabled by resetting a product or turning ACC off to on.

2) Test Mode

This mode is used for adjusting the CD mechanism module of the device.

- Test mode starting procedure
Reset while pressing the **4** and **6** keys together.
- Test mode cancellation
Switch ACC, back-up OFF.
- After pressing the EJECT key, do not press any other key until the disk is completely ejected.
- If the **▶** or **◀** key is pressed while focus search is in progress, immediately turn the power off (otherwise the actuator may be damaged due to adhesion of the lenses).

6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

• Note :

The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• Purpose :

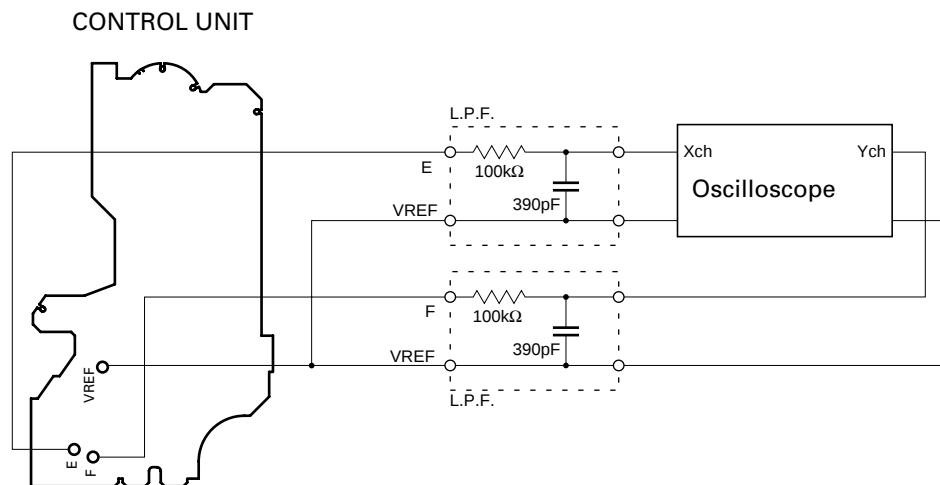
To check that the grating is within an acceptable range when the PU unit is changed.

• Symptoms of Mal-adjustment :

If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• Method :

- | | |
|-----------------------|----------------------------|
| • Measuring Equipment | • Oscilloscope, Two L.P.F. |
| • Measuring Points | • E, F, VREF |
| • Disc | • ABEX TCD-784 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 5V regulator on.
2. The display will change, returning to "81" on the fourth press.
3. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
4. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

• Note

Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• Hint

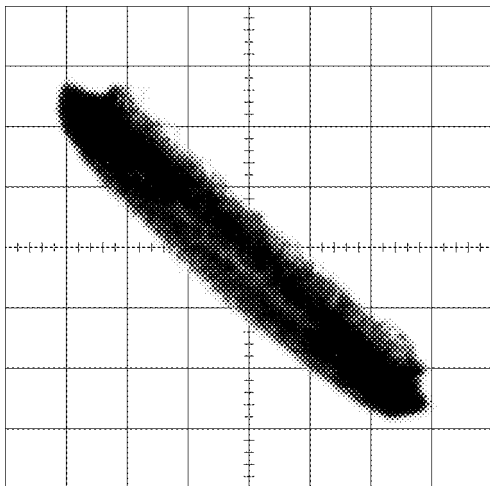
Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

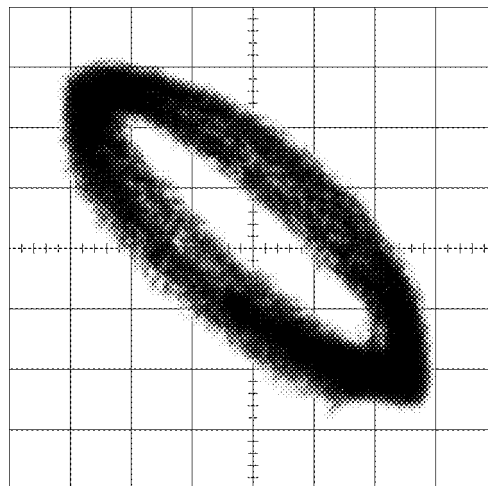
Ech → Xch 20mV/div, AC

Fch → Ych 20mV/div, AC

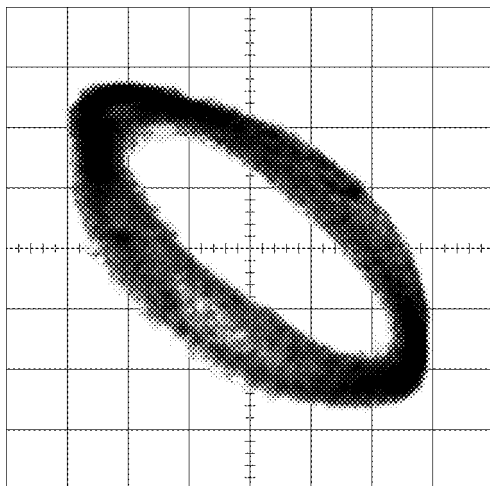
0°



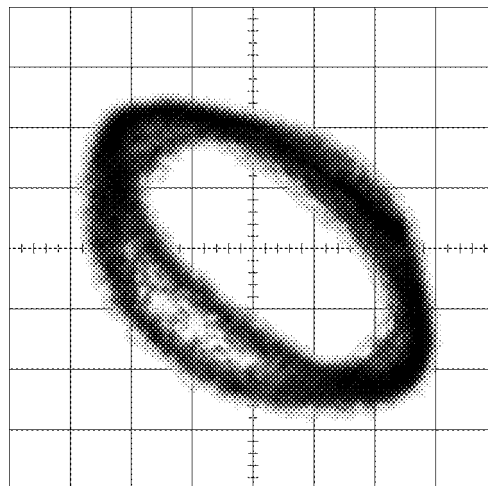
30°



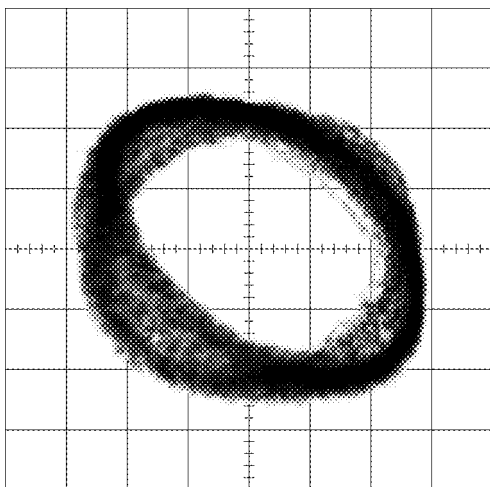
45°



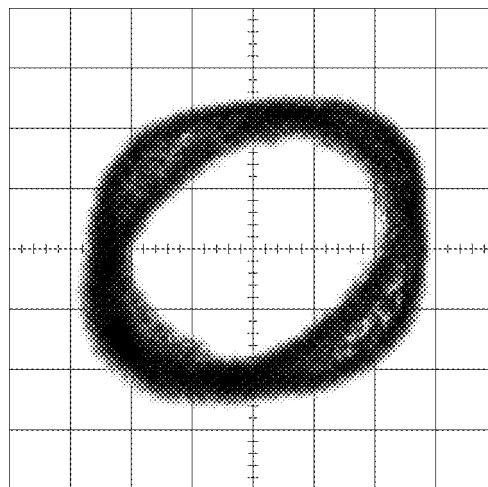
60°



75°



90°



6.3 ERROR MODE

● Error Messages

If a CD is not operative or stopped during operation due to an error, the error mode is turned on and cause(s) of the error is indicated with a corresponding number. This arrangement is intended at reducing nonsense calls from the users and also for facilitating trouble analysis and repair work in servicing.

(1) Basic Indication Method

1) When SERRORM is selected for the CSMOD (CD mode area for the system), error codes are written to DMIN (minutes display area) and DSEC (seconds display area). The same data is written to DMIN and DSEC. DTNO remains in blank as before.

2) Head unit display examples

Depending on display capability of LCD used, display will vary as shown below. xx contains the error number.

8-digit display	6-digit display	4-digit display
ERROR-xx	ERR-xx	E-xx

(2) Error Code List

Code	Class	Displayed error code	Description of the code and potential cause(s)
10	Electricity	Carriage Home NG SERVO LSI Communication Error	CRG can't be moved to inner diameter. CRG can't be moved from inner diameter. → Failure on home switch or CRG move mechanism. Communication error between microcomputer and SERVO LSI.
11	Electricity	Focus Servo NG	Focusing not available. → Stains on rear side of disc or excessive vibrations on REWRITABLE.
12	Electricity	Spindle Lock NG Subcode NG	Spindle not locked. Sub-code is strange (not readable). → Failure on spindle, stains or damages on disc, or excessive vibrations. A disc not containing CD-R data is found. Turned over disc are found, though rarely. CD signal error.
17	Electricity	Setup NG	AGC protection doesn't work. Focus can be easily lost. → Damages or stains on disc, or excessive vibrations on REWRITABLE.
30	Electricity	Search Time Out	Failed to reach target address. → CRG tracking error or damages on disc.
44	Electricity	ALL Skip	Skip setting for all track. (CD-R/RW)
50	Mechanism	CD On Mech Error	Mechanical error during CD ON. → Defective loading motor, mechanical lock and mechanical sensor.
A0	System	Power Supply NG	Power (VD) is ground faulted. → Failure on SW transistor or power supply (failure on connector).

Remarks: Mechanical errors are not displayed (because a CD is turned off in these errors).

Unreadable TOC does not constitute an error. An intended operation continues in this case.

Upper digits of an error code are subdivided as shown below:

1x: Setup relevant errors, 3x: Search relevant errors, Ax: Other errors.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case (not shown)

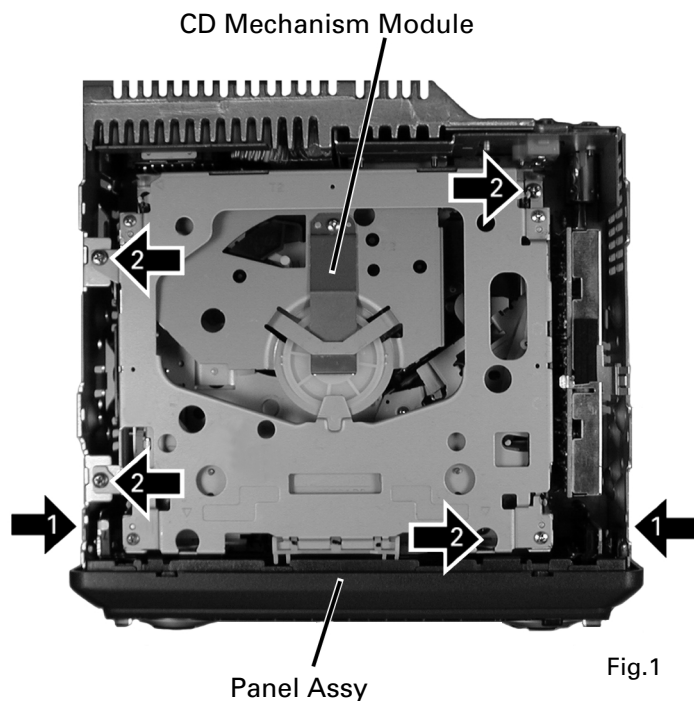
1. Remove the Case.

● Panel Assy (Fig.1)

1 Take the two stoppers off the Chassis and then remove the Panel Assy.

● Removing the CD Mechanism Module (Fig.1)

2 Remove the four screws and then remove the CD Mechanism Module.



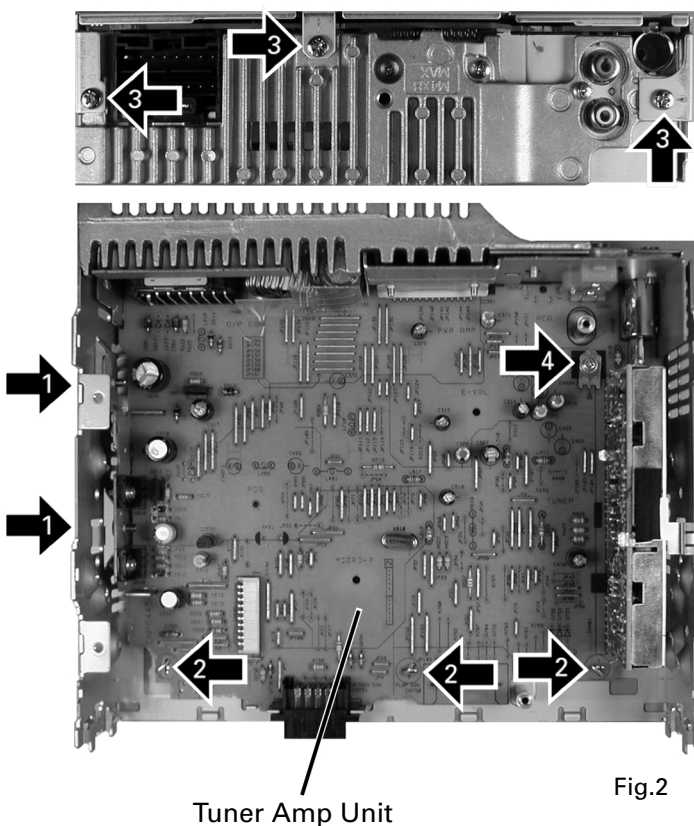
● Removing the Tuner Amp Unit (Fig.2)

1 Remove the two screws.

2 Straight the tabs at three locations indicated.

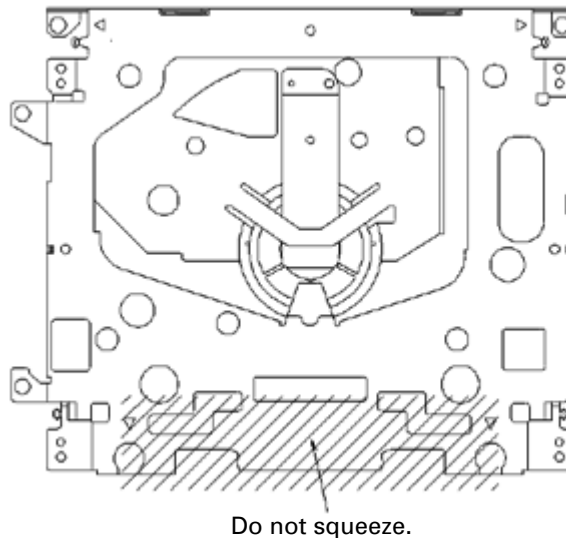
3 Remove the three screws.

4 Remove the screw and then remove the Tuner Amp Unit.



● How to hold the Mechanical Unit

1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.

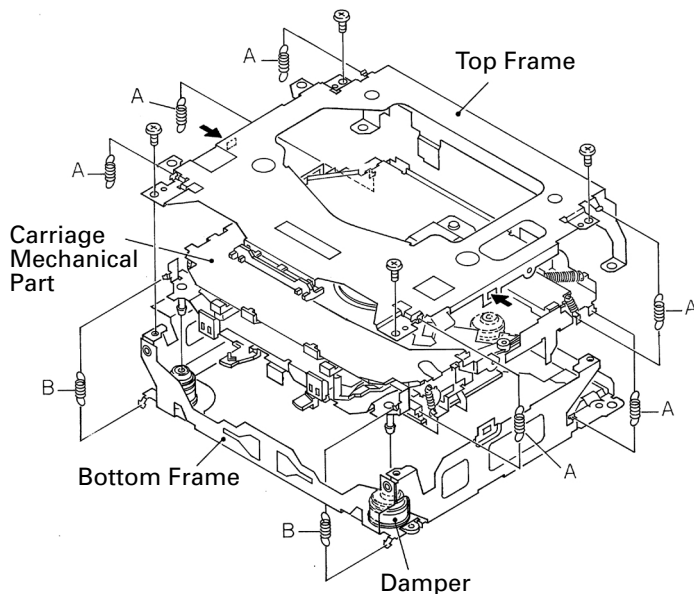


● How to remove the Top and Bottom Frame

1. When the disk is in "clamp" state, unlock Spring A (6 pieces) and Spring B (2 pieces), and unscrew screws (4 pieces).
2. Unlock each 1 of pawl at the both side of the frame, then remove the top frame.
3. Remove the Carriage Mechanical part in such way that; you remove the mechanical part from 3 pieces of Damper while slowly pulling up the part.
4. Now, the top frame has been removed, and under this state, fix the genuine Connector again, and eject the disk.

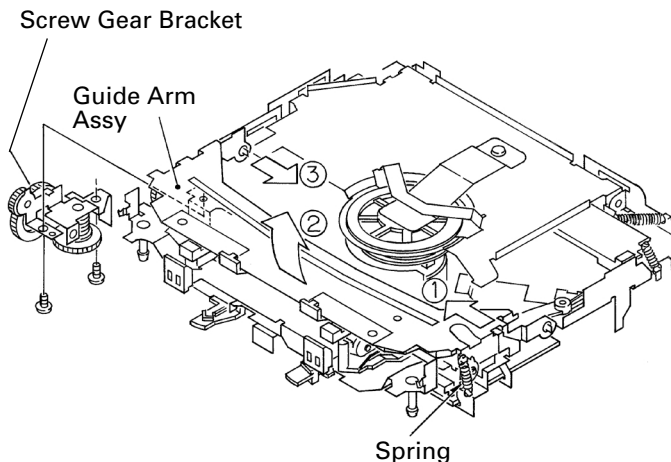
(Caution)

When you reassemble the Carriage Mechanical part, apply a bit of alcohol to Dampers.



● How to remove the Guide Arm Assy

1. Unlock the spring (1 piece) at the right side of the assembly.
2. Unscrew screws (2 pieces), then remove the Screw Gear Bracket.
3. Shift the Guide Arm Assy to the left and slowly rotate it to the upper direction.
4. When the Guide Arm Assy rotates approximately 45 degree, shift the Assy to the right side direction and remove it.

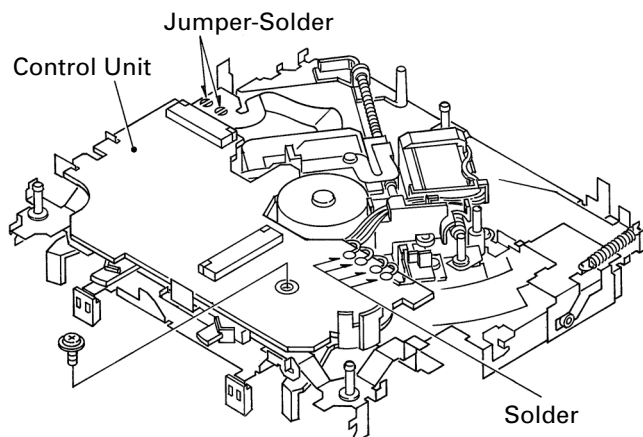


● How to remove the Control Unit

1. Give jumper-solder treatment to the Flexible Wire of the Pickup unit, then remove the wire from the Connector.
2. Remove all 4 points of solder-treatment on the Lead Wire. Also, unscrew the screw(1 piece).
3. Then, Remove the Control unit.

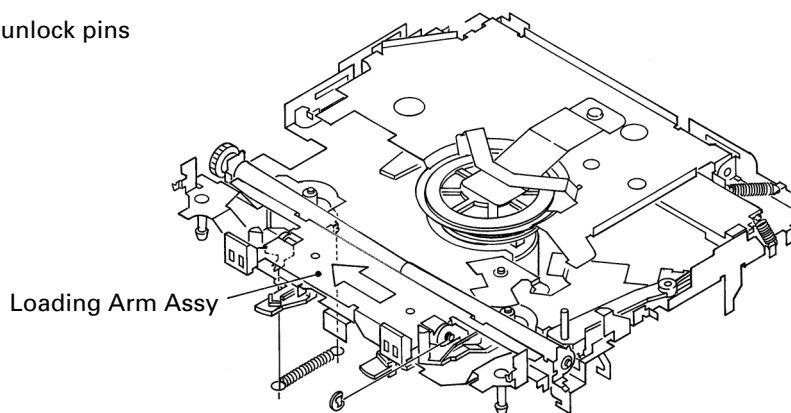
(Caution)

Be careful not to damage SW when you reassemble the Control Unit into the device.



● How to remove the Loading Arm Assy

1. Unlock the spring (1 piece) and remove the E ring (1 piece) of the Fulcrum Shaft.
2. Shift the arm to the left side direction and unlock pins (2 pieces).

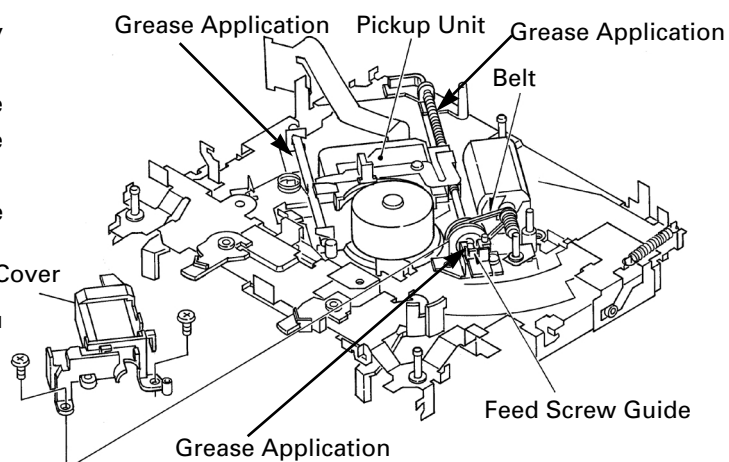


● How to remove the Pickup Unit

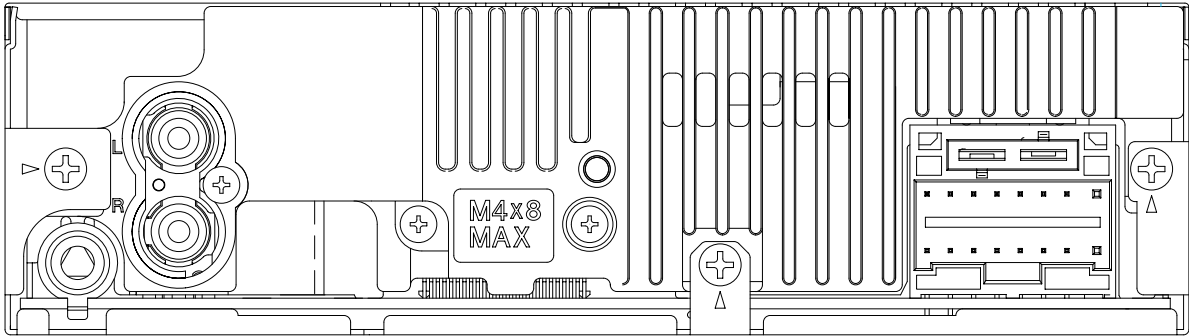
1. Unscrew 2 pieces of screws, then remove the Pulley Cover.
2. Remove the Feed Screw unit from the pawl of the Feed Screw Guide (The pawl is located inside the guide).
3. Remove the belt from the Pulley, then remove the Pickup unit.

(Caution)

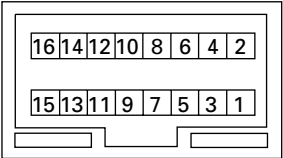
Make sure not to stain the belt with grease when you fix the belt.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



ANTENNA PRE OUT



- 1. GND
- 2. BACK UP
- 3. ACC
- 4. NC
- 5. NC
- 6. B.REM
- 7. NC
- 8. TEL MUTE
- 9. RL-
- 10. FL-
- 11. RL+
- 12. FL+
- 13. RR-
- 14. FR-
- 15. RR+
- 16. FR+

7.2 PARTS

7.2.1 IC

● Pin Functions(PE5260B)

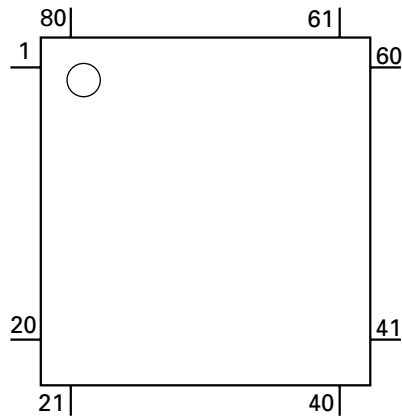
Pin No.	Pin Name	I/O	Format	Function and Operation
1	MODEL1	I		Model select input
2	NL1	I		RDS noise level input
3	NL2DT	I		RDS noise level 2 input
4	AVSS	I		A/D GND
5	ST	I		FM stereo input
6	SD	I		SD input
7	AVREF1			A/D converter reference voltage
8	KYDT	I		Key data input
9	DPDT	O	C	Display data output
10	SDBW	I		SDBW input
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	CURRQ	O		Tuner voltage FIX output
16	LOCL	O	C	Local L output
17	TMUTE	O	C	Tuner mute output
18	FM/AM	O	C	FM/AM power select output
19	NC			Not used
20	FLPILM	O	C	Inside of flap illumination output
21	VDCONT	O	C	VD control output
22	DRST	O	C	RDS decoder reset output
23	CONT	O	C	Servo driver power supply control output
24	XCE	O	C	CD LSI chip enable output
25	XRST	O	C	CD LSI reset output
26	XPCK	O	C	CD LSI clock output
27-30	XPI0-3	I/O	C	CD LSI data input/output
31	CLCONT	O	C	Driver input select output
32	HOME	I	C	Home position detector input
33	VSS			GND
34	LOEJ	O	C	CD load motor LOAD/EJECT direction exchange output
35	CD5VON	O	C	CD +5V power supply control output
36,37	ROT1-0	I		Rotary encoder data input
38	TELIN	I		Telephone mute input
39	RECEIVE	O	N	During RDS data reception output
40	ILMPW	O	C	Illumination power supply control output
41	SWVDD	O	C	Keyboard unit power supply control output
42	SYSPW	O	C	System power supply control output
43	VST	O	C	Strobe pulse output for electronic volume
44	MUTE	O	C	System mute output
45	PEE	O	C	Beep tone output
46	LOCH	O	C	Local H output
47	RDS57K	I		RDS 57kHz pulse count input
48	TUNPCE2	O	C	EEPROM chip enable output
49	PCL	O	C	Clock adjustment output
50	VCK	O	C	Clock output for electronic volume
51	VDT	O	C	Data output for electronic volume
52	ANTPW	O		Antenna output
53	EJECTS	I		Eject key input pin
54	DALMON	O	C	Stand-by output
55-57	NC			Not used
58	RDSLK	I		RDS LK signal input
59	RDT	I		RDS demodulation data input
60	RESET	I		Reset input

Pin No.	Pin Name	I/O	Format	Function and Operation
61	LDET	I		PLL lock sense input
62	RCK	I		RDS demodulation clock input
63	BSENS	I		Back up power sense input
64	ASENS	I		ACC power sense input
65	DSSENS	I		Grille detach sense
66	ADPW	O	C	A/D converter power supply output
67	NC			Not used
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1	I		Crystal oscillator connection pin
71	IC(VPP)			Connect to GND
72	NC			Not used
73	TESTIN	I		Test program mode input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF0			A/D converter reference voltage
76	SL	I		SD level input from tuner
77	TEMP	I		CD temperature sense input
78	VDSENS	I		VD power supply voltage sense input
79	DISCSNS	I		CD DISC sense input
80	CSENS	I		Flap open/close sense input

Output Format	Meaning
C	C MOS output
N	N channel open drain output

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

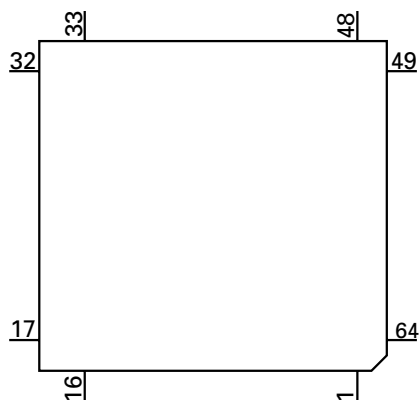
*PE5260B



● Pin Functions (PD6340A)

Pin No.	Pin Name	I/O	Function and Operation
1-5	SEG4-0	O	LCD segment output
6-9	COM3-0	O	LCD common output
10	VLCD		LCD drive power supply
11-14	KST3-0	O	Key strobe output
15,16	KDT0,1	I	Key data input (analogue input)
17	REM	I	Remote control reception
18	DPDT	I	Display data input
19	NC		Not used
20	KYDT	O	Key data output
21	MODA		GND
22	X0		Crystal oscillator connection pin
23	X1		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27	NC		Not used
28	KST4	O	Key strobe output
29-32	NC		Not used
33-55	SEG35-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

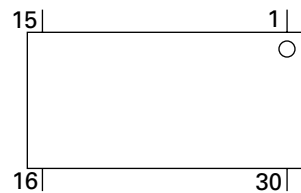
*PD6340A



● Pin Functions(TA2153FN)

Pin No.	Pin Name	I/O	Function and Operation
1	VCC		Power supply voltage terminal
2	RFGC	I	RF amplitude adjustment control signal terminal
3	GMAD	I	AGC amplifier frequency characteristic adjustment terminal
4	FNI	I	Main beam amplifier input terminal
5	FPI	I	Main beam amplifier input terminal
6	TPI	I	Sub beam amplifier input terminal
7	TNI	I	Sub beam amplifier input terminal
8	MDI	O	Monitor photodiode amplifier input terminal
9	LDO	I	Laser diode amplifier output terminal
10	SEL	I	APC circuit ON/OFF signal, LDO terminal control input terminal and bottom and peak detection frequency switching terminals
11	TEB	I	Tracking error balance adjustment signal input terminal
12	2VRO	O	Reference voltage (2VRO) output terminal
13	TEN	I	Tracking error signal generation amplifier reverse phase input terminal
14	TEO	O	Tracking error signal generation amplifier output terminal
15	SBAD	O	Sub beam addition signal output terminal
16	FEO	O	Focus error signal generation amplifier output terminal
17	FEN	I	Focus error signal generation amplifier reverse phase input terminal
18	SEB	I	RFRP generation circuit mode switching terminal
19	VRO	O	Reference voltage (VREF) output terminal
20	RFRP	O	Signal generation amplifier output terminal for track count
21	BTC	I	Bottom detection time constant adjustment terminal for RFCT signal generation
22	RFCT	O	RFRP signal center level output terminal
23	PKC	I	Peak detection time constant adjustment signal for RFCT signal generation
24	RFRPIN	I	Signal generation amplifier input terminal for track count
25	RFGO	O	RF signal amplitude adjustment amplifier output terminal
26	GVSW	I	AGC, FE or TE amplifier gain switching terminal
27	AGCIN	I	RF signal amplitude adjustment amplifier input terminal
28	RFO	O	RF signal generation amplifier output terminal
29	GND	I	GND terminal
30	RFN2	I	RF signal generation amplifier input terminal

TA2153FN

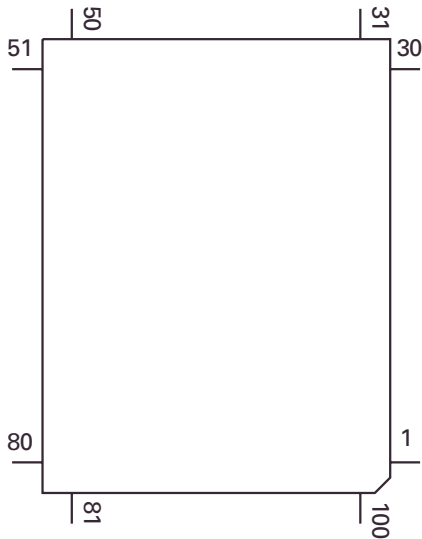


● Pin Functions(TC9495F2)

Pin No.	Pin Name	I/O	Function and Operation
1	TESTO		Test mode terminal
2	H $\overline{\text{SO}}$	O	Replay speed flag output terminal
3	U $\overline{\text{HSO}}$	O	Replay speed flag output terminal
4	EMPH	O	Emphasis flag output terminal for sub code Q data
5	LRCK	O	Channel clock (44.1 kHz) output terminal
6	VSS		Digital ground terminal
7	BCK	O	Bit clock output terminal
8	AOUT	O	Digital audio data output terminal
9	DOUT	O	Digital out output terminal
10	MBOV	O	Buffer memory over signal output terminal
11	IPF	O	Correction flag output terminal
12	SBOK	O	CRCC decision result output for sub code Q data
13	CLCK	I/O	Clock input/output terminal for sub code P-W data read
14	VDD		Digital + power supply terminal (5 V)
15	VSS		Digital ground terminal
16	DATA	O	Sub code P-W data output terminal
17	SFSY	O	Replay-system frame sync signal output terminal
18	SBSY	O	Sub code block sync output terminal
19	SPCK	O	Clock for processor status signal read
20	SPDA	O	Processor status signal output terminal
21	COFS	O	Correction-system frame clock (7.35 kHz) output terminal
22	MONIT	O	LSI internal signal output terminal
23	VDD		Digital + power supply terminal (5 V)
24	TESIO0	I	Test input/output terminal
25	P2VREF		PLL-system only 2VREF terminal
26	HSSW	O	The VREF voltage is reached for double or quad speed.
27	ZDET	O	One-bit DAC zero detection flag output terminal
28	PDO	O	Phase error signal issue between the EFM and PLCK signals
29	TMAXS	O	TMAX detection result output terminal
30	TAMX	O	TMAX detection result output terminal
31	LPFN	I	Reverse input terminal of amplifier for lowpass filter
32	LPFO	O	Output terminal of amplifier for lowpass filter
33	PVREF		PLL-system only VREF terminal
34	VCOREF	I	VCO center frequency reference level terminal
35	VCOF	O	Filter terminal for VCO
36	AVSS		Analog-system ground terminal
37	SLCO	O	Output terminal of DAC for data slice level generation
38	RFI	I	RF signal input terminal
39	AVDD		Analog-system power supply terminal (5 V)
40	RFCT	I	RFRP signal center level input terminal
41	RFZI	I	Input terminal for RFRP signal zero cross
42	RFRP	I	RF ripple signal input terminal
43	FEI	I	Focus error signal input terminal
44	SBAD	I	Sub beam addition signal input terminal
45	TSIN	I	Test input terminal
46	TEI	I	Tracking error input terminal
47	TEZI	I	Input terminal for tracking error or zero cross
48	FOO	O	Focus equalizer output terminal
49	TRO	O	Tracking equalizer output terminal
50	VREF		Analog reference power supply terminal
51	RFGC	O	RF amplitude adjustment control signal output terminal
52	TEBC	O	Tracking balance control signal output terminal
53	FMO	O	Feed equalizer output terminal
54	FVO	O	Speed error signal or feed search EQ output
55	DMO	O	Disc equalizer output terminal
56	2VREF		Analog reference power supply terminal
57	SEL	O	APC circuit ON/OFF signal output terminal

Pin No.	Pin Name	I/O	Function and Operation
58-61	FLGA-D	O	External flag output terminal for internal signal monitor
62	VDD		Digital + power supply terminal (5 V)
63	VSS		Digital ground terminal
64	IO0	O	RF amplifier gain switching terminal
65	IO1	O	Not used
66	IO2	I	HOME detection switch input terminal
67	IO3	O	FocusDrv and signal output terminal
68	DMOUT	I	Field equalizer PWM output terminal for IO0 and IO1 Disc equalizer PWM output terminal for IO2 and IO3
69	CKSE	I	Usually open
70	DACT	I	DAC test mode terminal
71	TESIN	I	Test input terminal
72	TESIO1	I	Test input/output terminal
73	VSS		Digital ground terminal
74	PXI	I	DPS-system clock oscillator circuit input terminal
75	PXO	O	DPS-system clock oscillator circuit output terminal
76	VDD		Digital + power supply terminal (5 V)
77	XVSS		Ground terminal for system clock oscillator circuit
78	XI	I	System clock oscillator circuit input terminal
79	XO	O	System clock oscillator circuit output terminal
80	XVDD		For system clock oscillator circuit + power supply terminal
81	DVSR		R channel D/A converting unit power supply terminal
82	RO	O	R channel data forward rotation output terminal
83	DVDD		D/A converting unit power supply terminal (5 V)
84	DVR		Reference voltage terminal
85	LO	O	L channel forward rotation output terminal
86	DVSL		L channel D/A converting unit power supply terminal
87-89	TEST1-3	I	Test mode terminal
90-93	BUS0-3	I/O	Data input/output terminal for microcomputer interface
94	VDD		Digital + power supply terminal (5 V)
95	VSS		Digital ground terminal
96	BUCK	I	Clock terminal for microcomputer interface
97	CEE	I	Chip enable signal for microcomputer interface
98	TEST4	I	Test mode terminal
99	TSMOD	I	Test mode terminal
100	RST	I	Reset signal input terminal

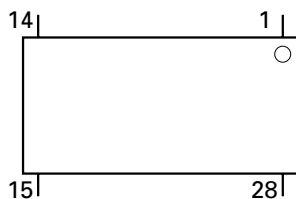
*TC9495F2



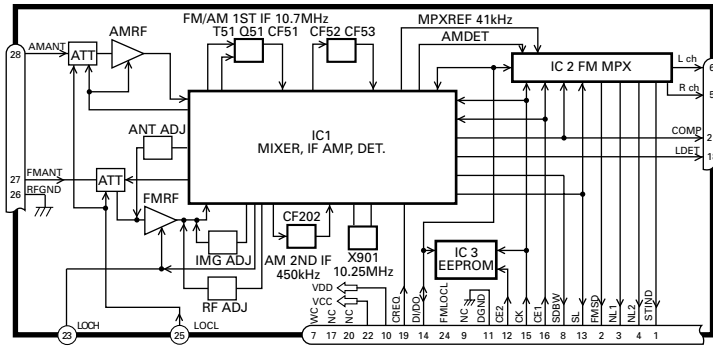
● **Pin Functions(BA5996FM)**

Pin No.	Pin Name	Function and Operation
1	VR	Input pin for reference voltage
2	OPIN2(+)	Input pin for non-inverting input for CH2 preamplifier
3	OPIN2(-)	Input pin for inverting input for CH2 preamplifier
4	OPOUT2	Output pin for CH2 preamplifier
5	OPIN1(+)	Input pin for non-inverting input for CH1 preamplifier
6	OPIN1(-)	Input pin for inverting input from CH1 preamplifier
7	OPOUT1	Output pin for CH1 preamplifier
8	GND	Ground pin
9	MUTE	Mute control pin
10	POWVCC1	Power supply pin for CH1, CH2, and CH3 at "Power" stage
11	VO1(-)	Driver CH1 - Negative output
12	VO1(+)	Driver CH2 - Positive output
13	VO2(-)	Driver CH2 - Negative output
14	VO2(+)	Driver CH2 - Positive output
15	VO3(+)	Driver CH2 - Positive output
16	VO3(-)	Driver CH2 - Negative output
17	VO4(+)	Driver CH4 - Positive output
18	VO4(-)	Driver CH4 - Negative output
19	POWVCC2	Power supply pin for CH4 at "Power" stage
20	GND	Ground pin
21	CNT	Control pin
22	LDIN	Loading input
23	OPOUTSL	Output pin for preamplifier for thread
24	OPINSL	Input pin for preamplifier for thread
25	OPOUT3	CH3 preamplifier output pin
26	OPIN3(-)	Input pin for inverting input for CH3 preamplifier
27	OPIN3(+)	Input pin for non-inverting input for CH3 preamplifier
28	PREVCC	PreVcc

BA5996FM



● FM/AM Tuner Unit

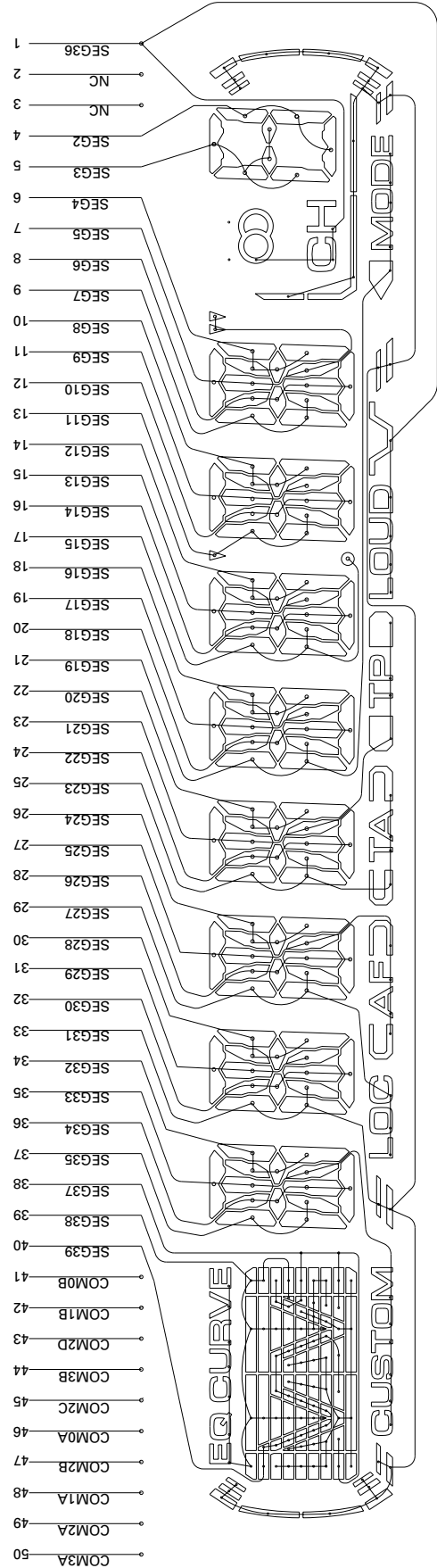


No.	Symbol	I/O	Explain
1	STIND	O	stereo indicator "Low" when the FM stereo signals are received. To be pulled up to the "VDD" at 47kΩ.
2	FMSD	O	FM station detector "High" when signals are received. To be pulled up to the "VDD" at 47kΩ Meanwhile, 10kΩ should be used when taking diver FIX trigger from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

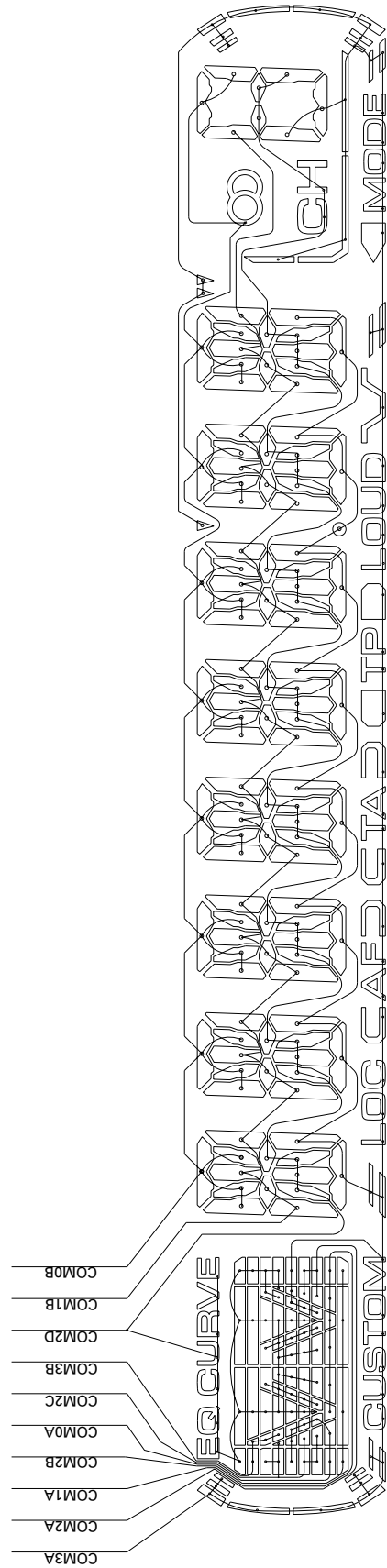
7.2.2 DISPLAY

● CAW1632(DEH-1400R/XM/EW, DEH-1430R/XM/EW), CAW1615(DEH-1400RB/XM/EW)

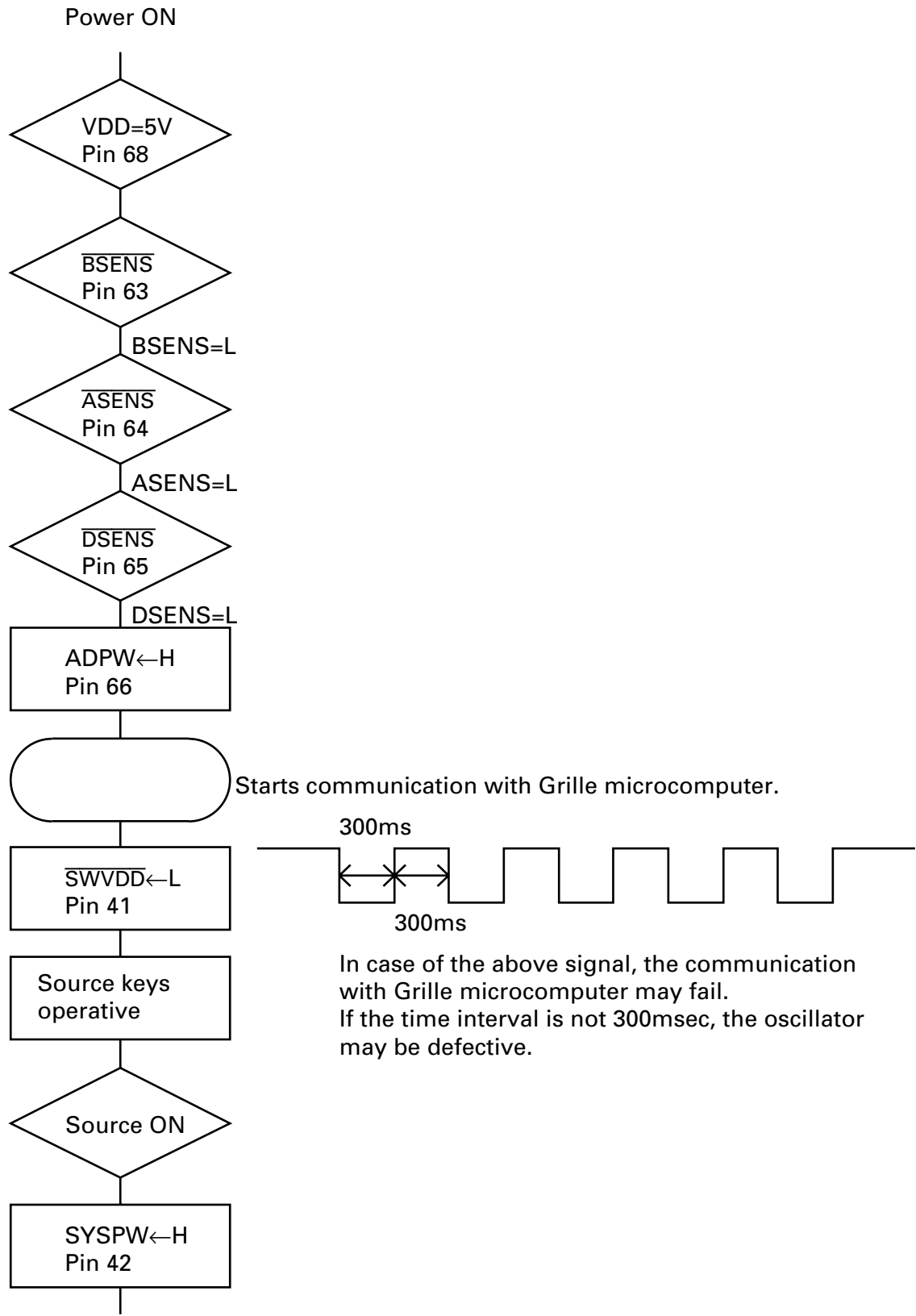
SEGMENT



COMMON



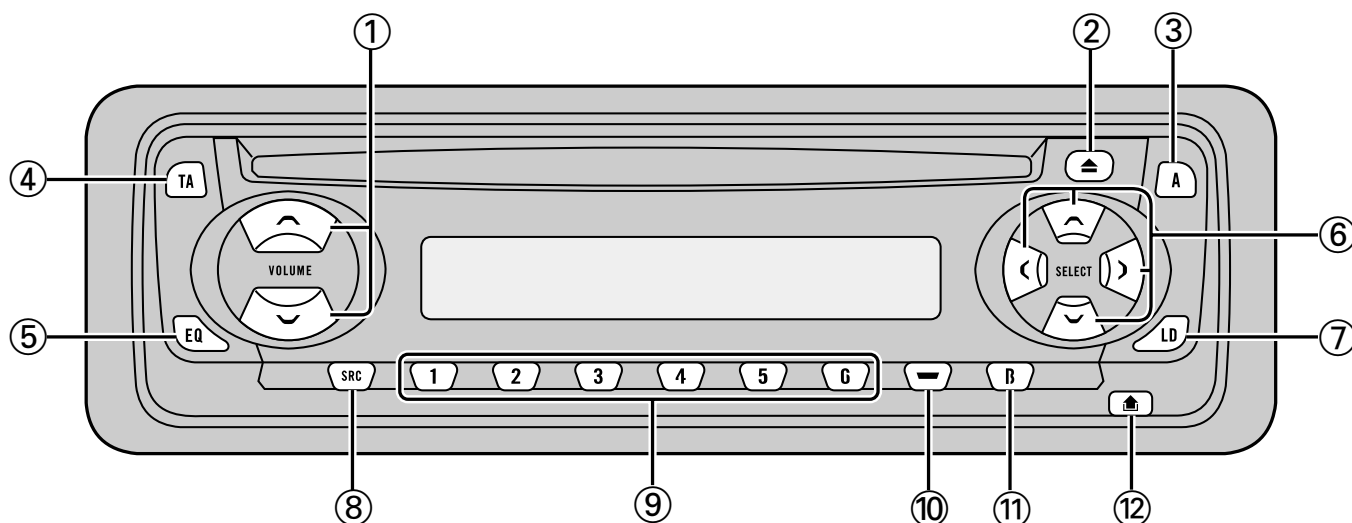
7.3 OPERATIONAL FLOW CHART



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

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS



What's what

- ① **VOLUME button**
Press to increase or decrease the volume.
- ② **CD EJECT button**
Press to eject a CD from your built-in CD player.
- ③ **AUDIO button**
Press to select various sound quality controls.
- ④ **TA button**
Press to switch traffic announcements function on or off.
- ⑤ **EQ button**
Press to select various equalizer curves.
- ⑥ **▲/▼/◀/▶ buttons**
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.
- ⑦ **LOUDNESS button**
Press to switch loudness function on or off.
- ⑧ **SOURCE button**
This unit is switched on by selecting a source. Press to cycle through all of the available sources.
- ⑨ **1-6 (PRESET TUNING) buttons**
Press for preset tuning.
- ⑩ **LOCAL/BSM button**
- ⑪ **BAND button**
Press to select among two FM or MW/LW bands.
- ⑫ **DETACH button**
Press to remove the front panel from the head unit. ▢

Power 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 built-in CD player, load a disc in this unit .

Press SOURCE to select a source.
Press SOURCE repeatedly to switch between the following sources:
Built-in CD player—Tuner



Notes

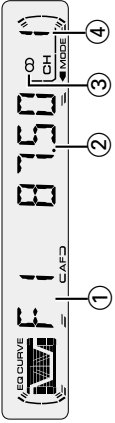
- When no disc is set in this product, built-in CD player source will not change.
- When this unit's blue/white lead is connected to the car's auto-antenna relay control terminal, the car's antenna extends when this unit's source is switched on. To retract the antenna, switch the source off. 

Turning the unit off

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

Tuner

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.

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

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) indicator will light. 

Built-in CD player

Repeating play

Repeat play lets you hear the same track over again.

- 1 Press 5 to turn repeat play on.
RPT appears in the display. The track presently playing will play and then repeat.
- 2 Press 5 to turn repeat play off.
The track presently playing will continue to play and then play the next track.



Note

- If you perform track search or fast forward/reverse, repeat play is automatically cancelled. 

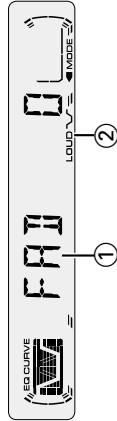
Pausing CD playback

Pause lets you temporarily stop playback of the CD.

- 1 Press 6 to turn pause on.
PAUSE appears in the display. Play of the current track pauses.
- 2 Press 6 to turn pause off.
Play will resume at the same point that you turned pause on. 

Audio Adjustments

Introduction of audio adjustments



- ① **AUDIO display**
Shows the audio adjustments status.
- ② **LOUD indicator**
Appears in the display when loudness is turned on.

Press AUDIO to display the audio function names.

Press AUDIO repeatedly to switch between the following audio functions:

- FAD (balance adjustment)—EQ-L (equalizer)—LOUD (loudness)—FIE (front image enhancer)—SLA (source level adjustment)
- When selecting the FM tuner as the source, you cannot switch to SLA.
- To return to the display of each source, press BAND.



Note

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

Using balance adjustment

You can select a fader/balance setting that provides an ideal listening environment in all occupied seats.

- 1 Press AUDIO to select FAD.
Press AUDIO until FAD appears in the display.
 - If the balance setting has been previously adjusted, BAL will be displayed.
- 2 Press  or  to adjust front/rear speaker balance.
Each press of  or  moves the front/rear speaker balance towards the front or the rear.
 - FAD F15 – FAD R15 is displayed as the front/rear speaker balance moves from front to rear.
 - FAD 0 is the proper setting when only two speakers are used.
- 3 Press  or  to adjust left/right speaker balance.
When you press  or , BAL 0 is displayed. Each press of  or  moves the left/right speaker balance towards the left or the right.
 - BAL L 9 – BAL R 9 is displayed as the left/right speaker balance moves from left to right. 

Using the equalizer

The equalizer lets you adjust the equalization to match car interior acoustic characteristics as desired.

Recalling equalizer curves

There are six stored equalizer curves which you can easily recall at any time. Here is a list of the equalizer curves:

Display	Equalizer curve
SPR-BASS	Super bass
POWERFUL	Powerful
NATURAL	Natural
VOCAL	Vocal
CUSTOM	Custom
EQ FLAT	Flat

- CUSTOM is an adjusted equalizer curve that you create.
- When EQ FLAT is selected no supplement or correction is made to the sound. This is useful to check the effect of the equalizer curves by switching alternatively between EQ FLAT and a set equalizer curve.

Press EQ to select the equalizer.

- If the equalizer has been previously set to an equalizer curve other than POWERFUL then the title of that previously selected equalizer curve will be displayed, such as SPR-BASS, NATURAL, VOCAL, CUSTOM, or EQ FLAT. 

Adjusting equalizer curves

You can adjust the currently selected equalizer curve setting as desired. Adjusted equalizer curve settings are memorized in CUSTOM.

- 1 Press AUDIO to select the equalizer mode.
Press AUDIO until EQ-L/EQ-M/EQ-H appears in the display.

- 2 Select the band you want to adjust with  .
EQ-L (low) —EQ-M (mid) —EQ-H (high)

- 3 Press  or  to adjust the equalizer curve.

Each press of  or  increases or

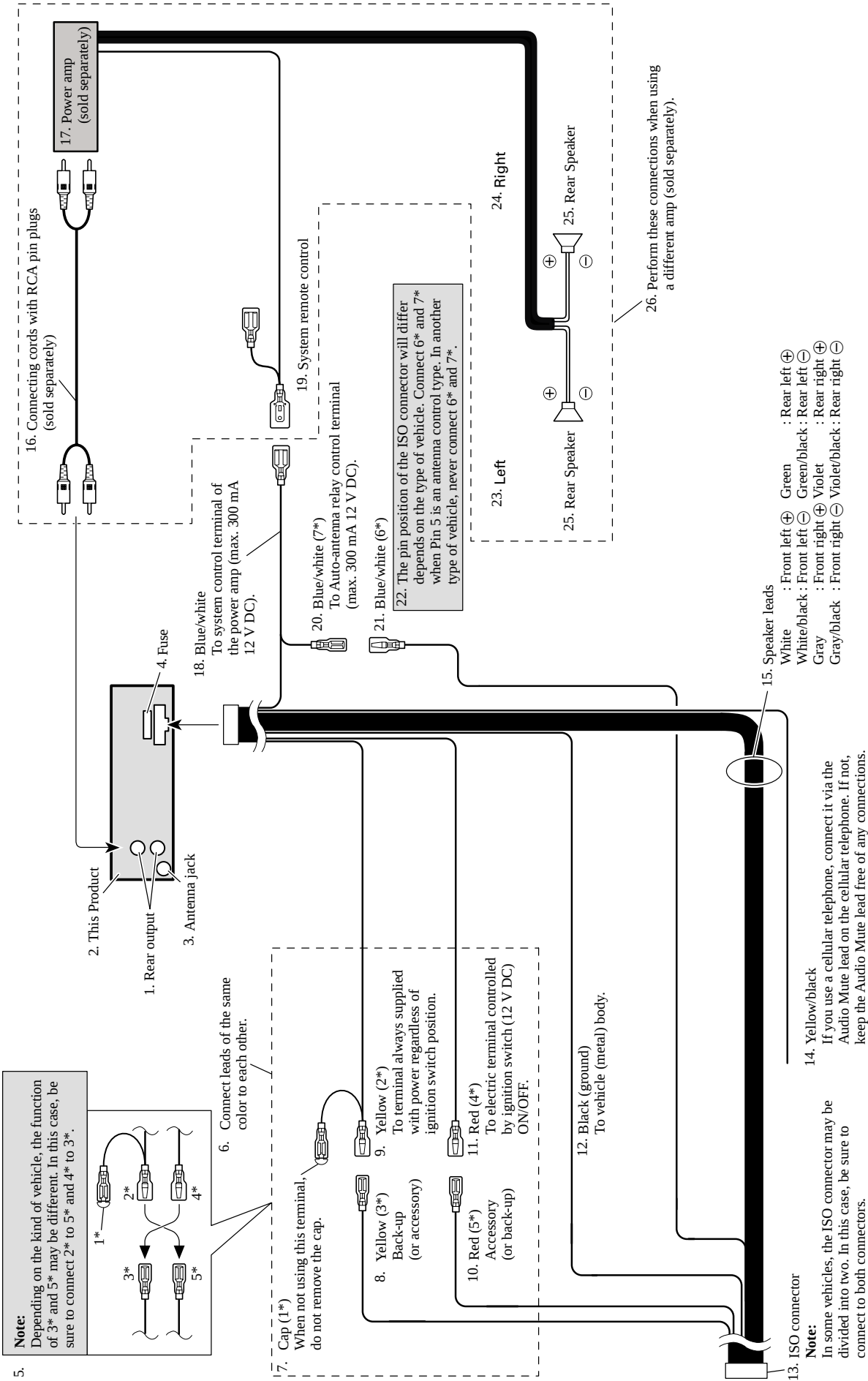
- decreases the equalizer curve respectively.
- +6 – -6 is displayed as the equalizer curve is increased or decreased.

- The actual range of the adjustments are different depending on which equalizer curve is selected.



Note

- If you make adjustments when a curve other than CUSTOM is selected, the newly adjusted curve will replace the previous curve. Then a new curve with CUSTOM appears on the display while selecting the equalizer curve. 



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	5 mA
Dimensions (W × H × D): (DIN)	
Chassis	178 × 50 × 157 mm
Nose	188 × 58 × 19 mm
Weight	1.3 kg

Audio

Maximum power output	45 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)

CD player

System	Compact disc audio system
Usable discs	Compact disc
Signal format:	
Sampling frequency	44.1 kHz
Number of quantization bits	16; linear
Frequency characteristics	
.....	5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio	94 dB (1 kHz) (IEC-A network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)

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. ■