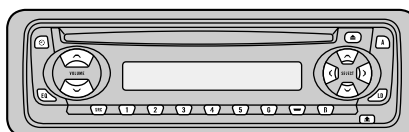


Service Manual

DEH-1400/XM/UC



ORDER NO.
CRT2754

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-1400

DEH-14

XM/UC

XM/UC

COMPACT
disc
DIGITAL AUDIO

● 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 38).
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 35).
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

CAUTION

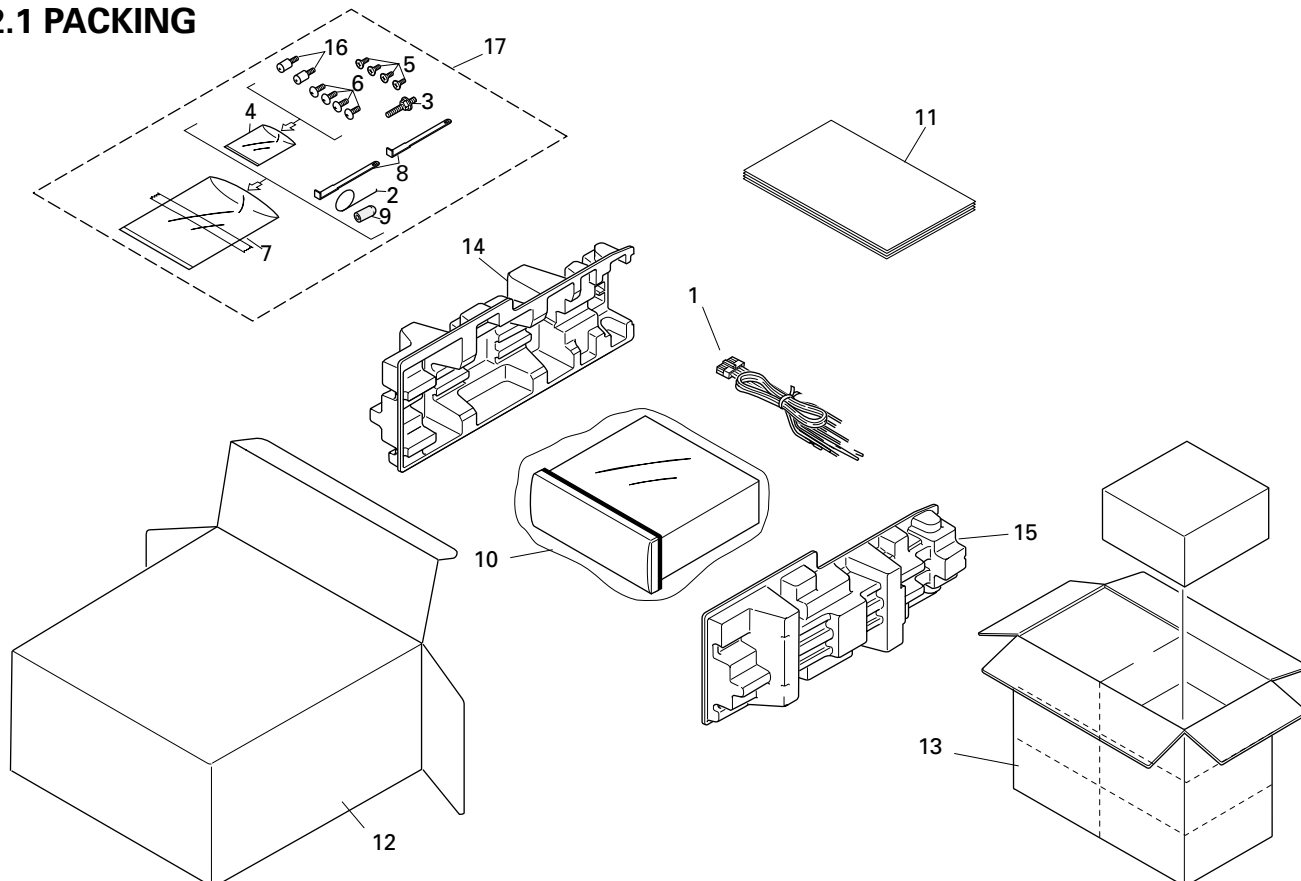
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

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	CDE6468		11-1 Owner's Manual	CRD3487
	2 Spring	CBH1650		11-2 Installation Manual	CRD3492
	3 Screw	CBA1002	*	11-3 Card	ARY1048
*	4 Polyethylene Sheet	CNM4338		12 Carton	See Contrast table(2)
	5 Screw	CRZ50P090FMC		13 Contain Box	See Contrast table(2)
	6 Screw	TRZ50P080FMC		14 Protector	CHP2421
*	7 Polyethylene Bag	CEG-158		15 Protector	CHP2422
	8 Handle	CNC5395		16 Screw(M3x4)	CBA1488
	9 Bush	CNV3930		17 Accessory Assy	CEA2781
	10 Polyethylene Bag	CEG1173			

(2) CONTRAST TABLE

DEH-1400/XM/UC and DEH-14/XM/UC are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		DEH-1400/XM/UC	DEH-14/XM/UC
12	Carton	CHG4489	CHG4493
13	Contain Box	CHL4489	CHL4493

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-1400/XM/UC	CRD3487	English, French, Spanish
DEH-14/XM/UC	CRD3492	



(1) EXTERIOR SECTION PARTS LIST

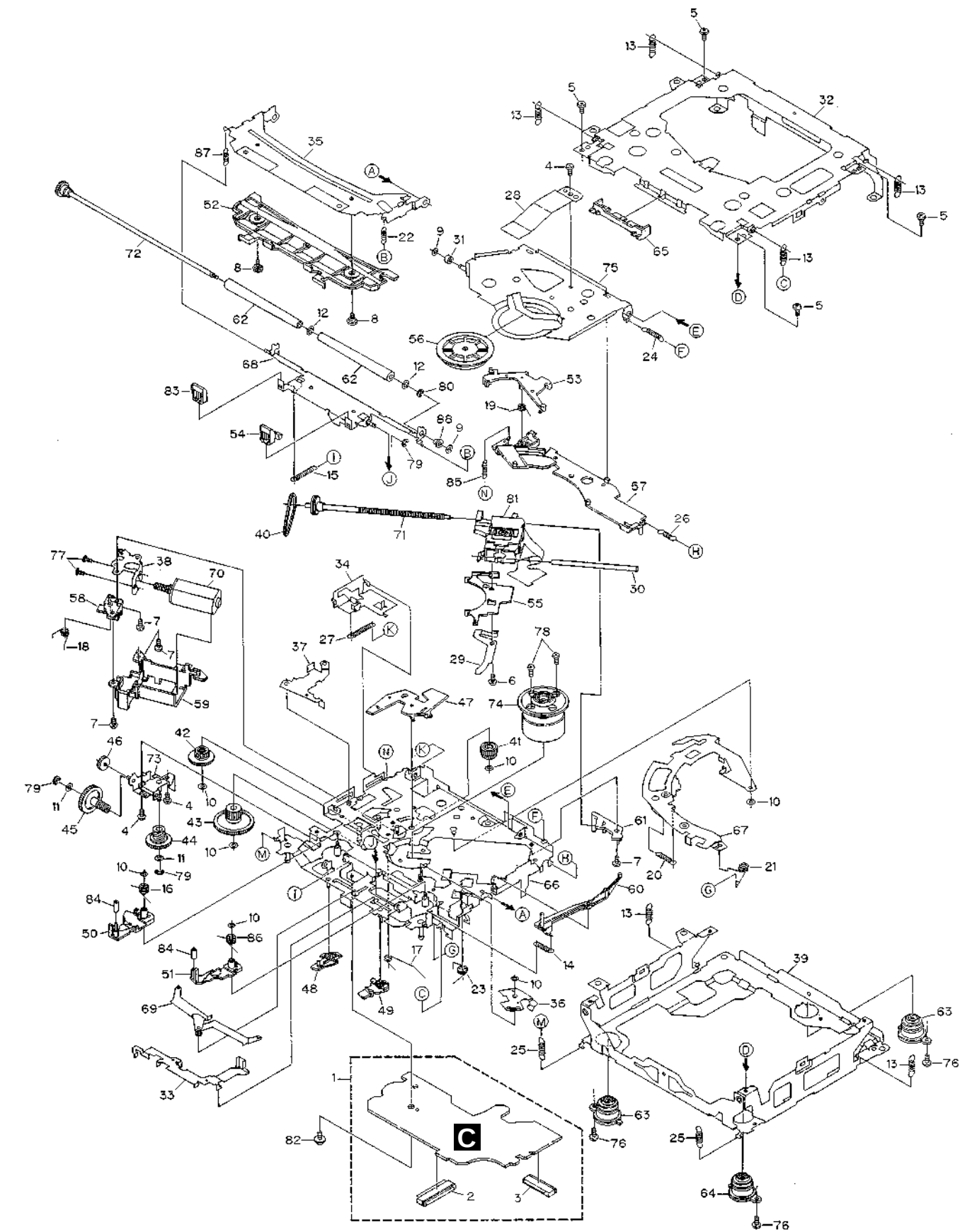
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P100FMC	36	Button(VOL+,-)	CAC7182
2	Screw	BSZ26P060FMC	37	Button(SRC)	CAC7187
3	Screw	BSZ30P060FMC	38	Button(EJECT)	CAC7183
4	Cord Assy	CDE6468	39	Button(CLOCK)	CAC7298
5			40	Button(A,LD)	CAC7184
6	Cable	CDE6610	41	Button(1-6)	CAC7180
7	Fuse(10A)	CEK1136	42	Spring	CBH2210
8	CD Mechanism Module(S9ANA)	CXK5501	43	Cover	CNS6720
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	CWM7942	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	CWE1563	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	CNS6722
27	Insulator	CNM6949	62	Arm	CNV4692
28	Heat Sink	CNR1583	63	Arm	CNV4728
29	Holder Unit	CXB6681	64	Arm	CNV5576
30	Chassis Unit	CXB7816	65	Screw	IMS20P030FZK
31	Detach Grille Assy	See Contrast table(2)	66	Screw	ISS26P055FUC
32	Screw	BPZ20P100FZK	67	IC(IC361)	TDA7386
33	Button(DETACH)	CAC5789	68	Transistor(Q501,910)	2SD2396
34	Button(EQ)	CAC7186	69		
35	Button(SELECT)	CAC7181	70	Panel	CNS6344

(2) CONTRAST TABLE

DEH-1400/XM/UC and DEH-14/XM/UC are constructed the same except for the following:

Mark No.	Symbol and Description	Part No.	
		DEH-1400/XM/UC	DEH-14/XM/UC
31	Detach Grille Assy	CXB8748	CXB8749
44	Keyboard Unit	CWM7955	CWM7956
45	LCD	CAW1723	CAW1716
53	Grille Unit	CXB8745	CXB8746

2.3 CD MECHANISM MODULE



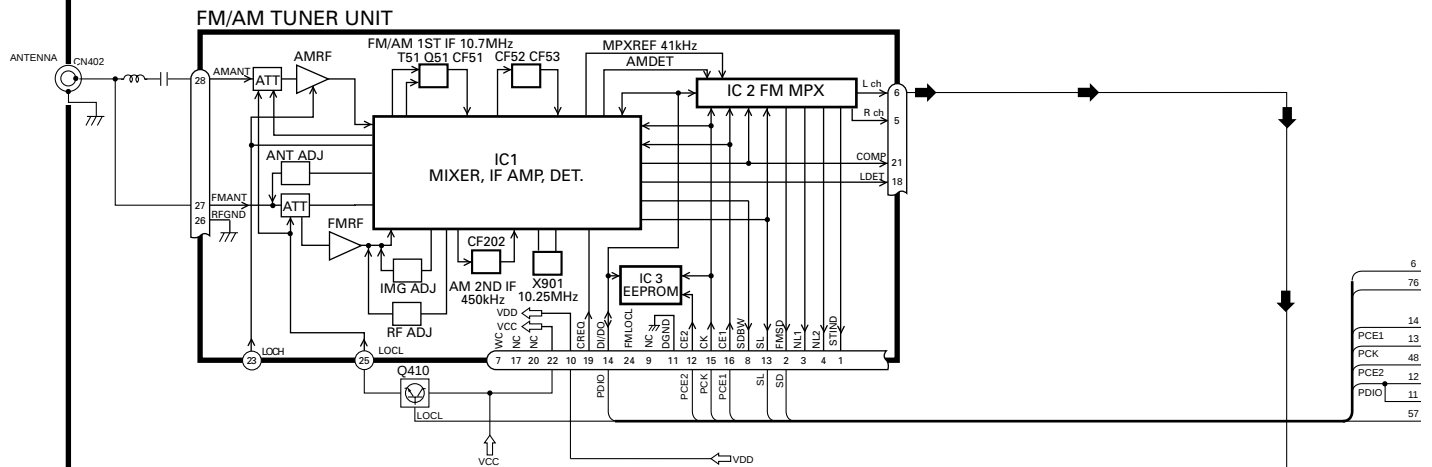
● CD MECHANISM MODULE SECTION PARTS LIST

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			

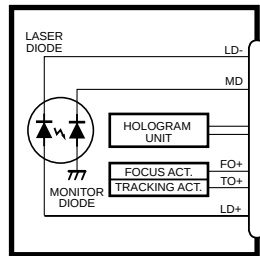
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

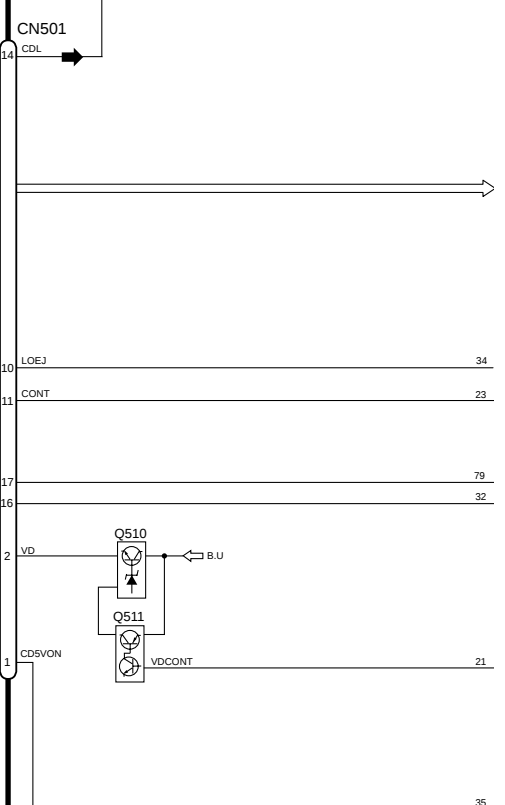
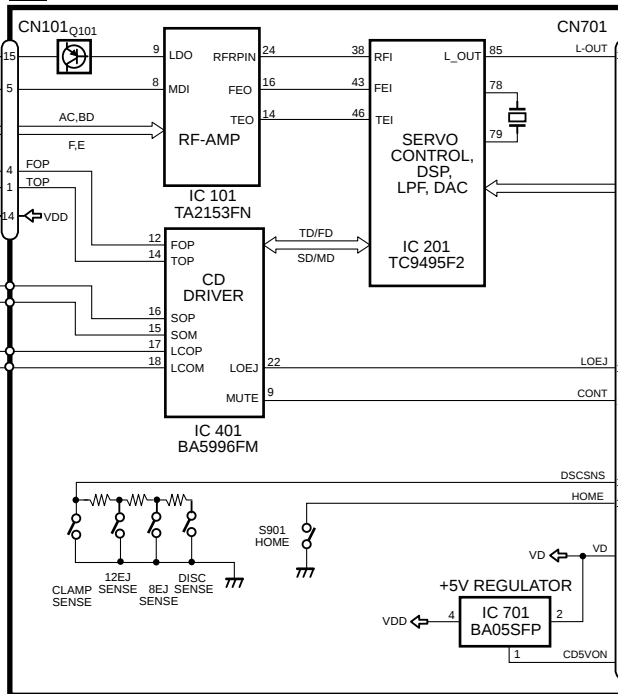
A TUNER AMP UNIT



B PICKUP UNIT (SERVICE)(P9)



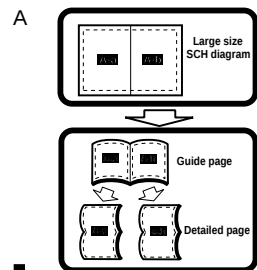
C CONTROL UNIT



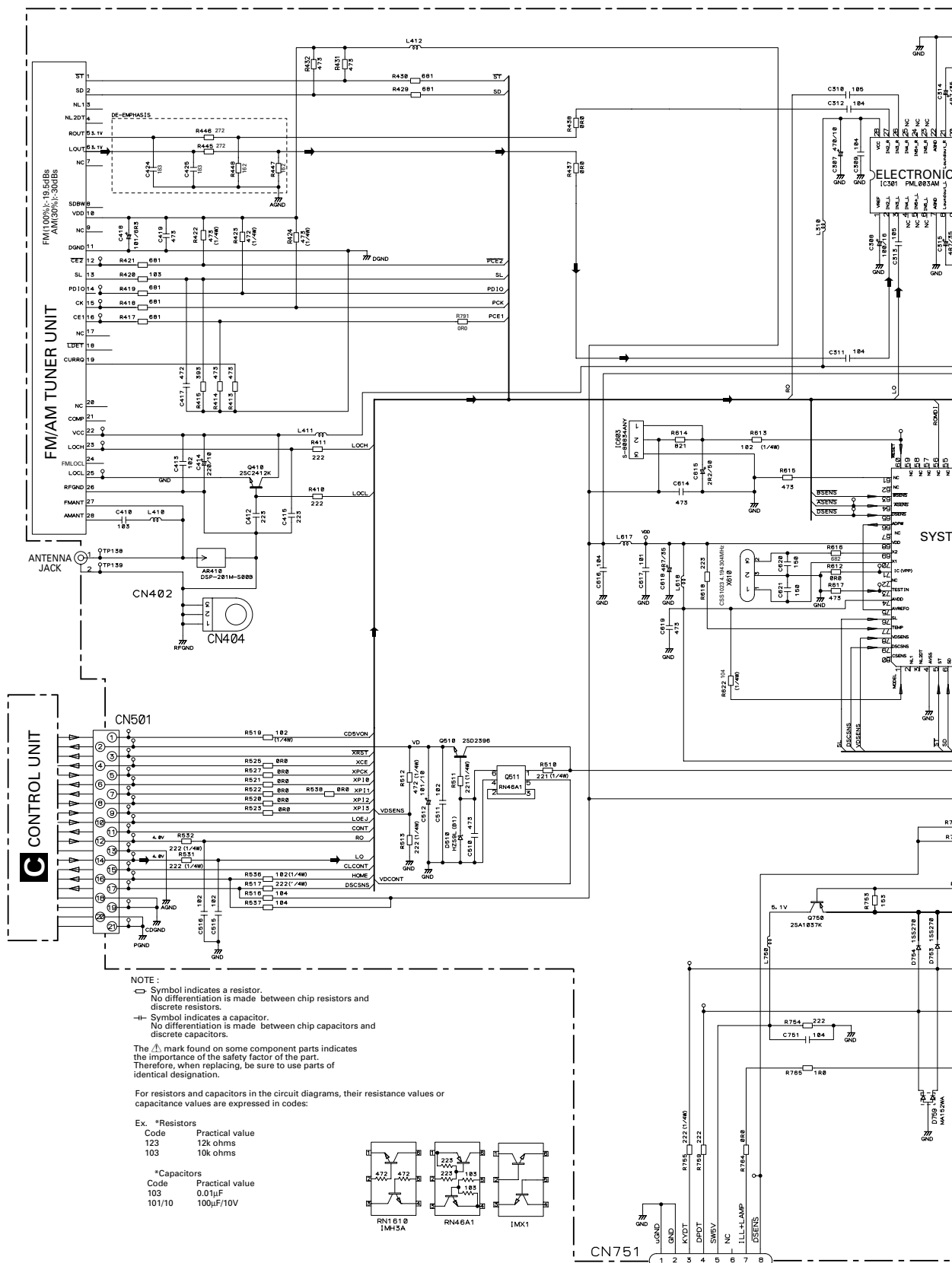
3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

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

A-a

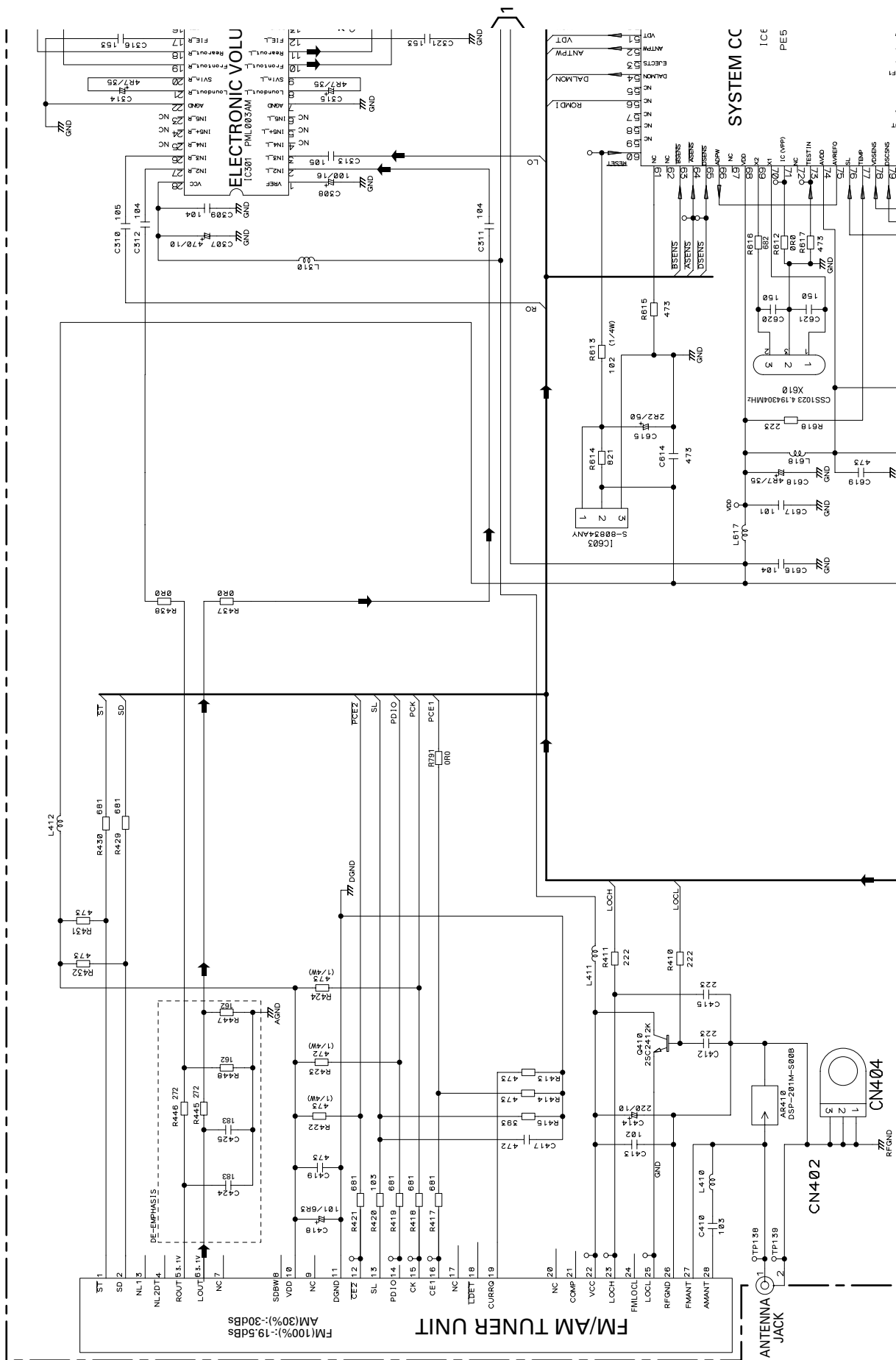


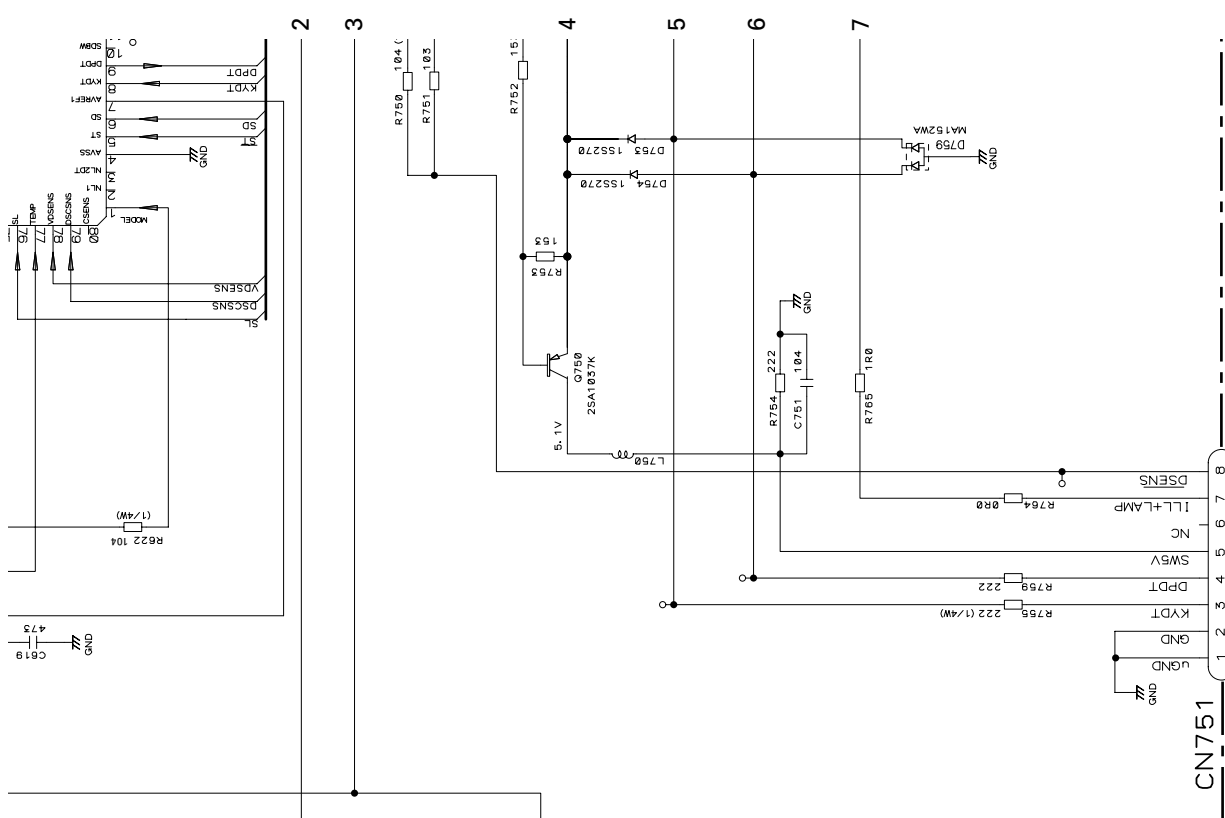
B



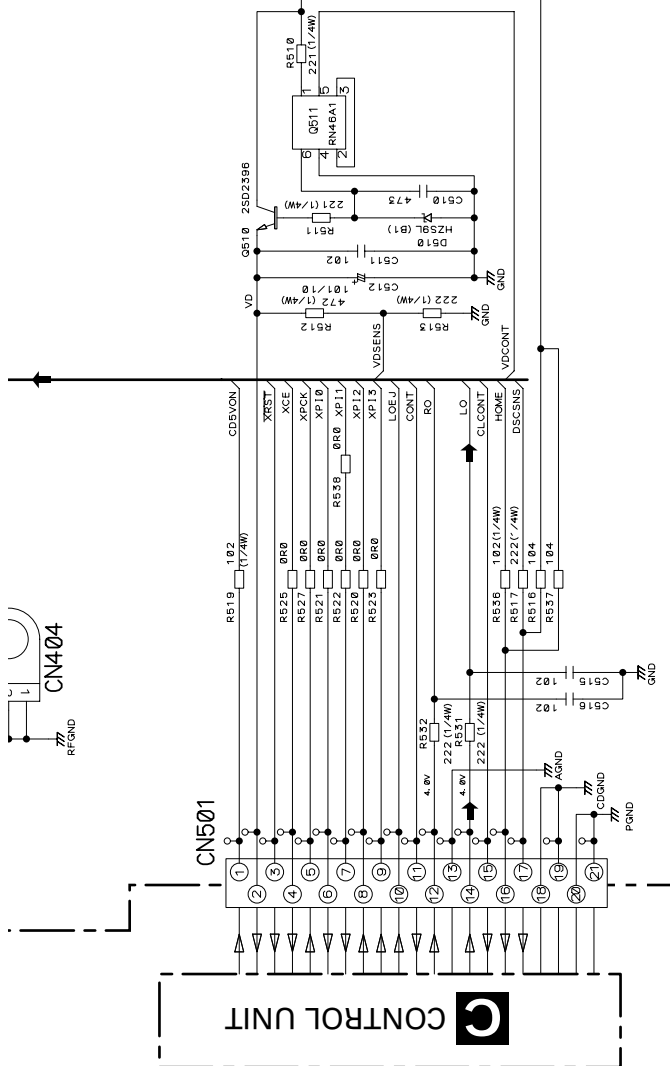
A-a A-b

A-a





B CN1800

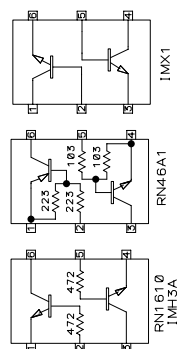


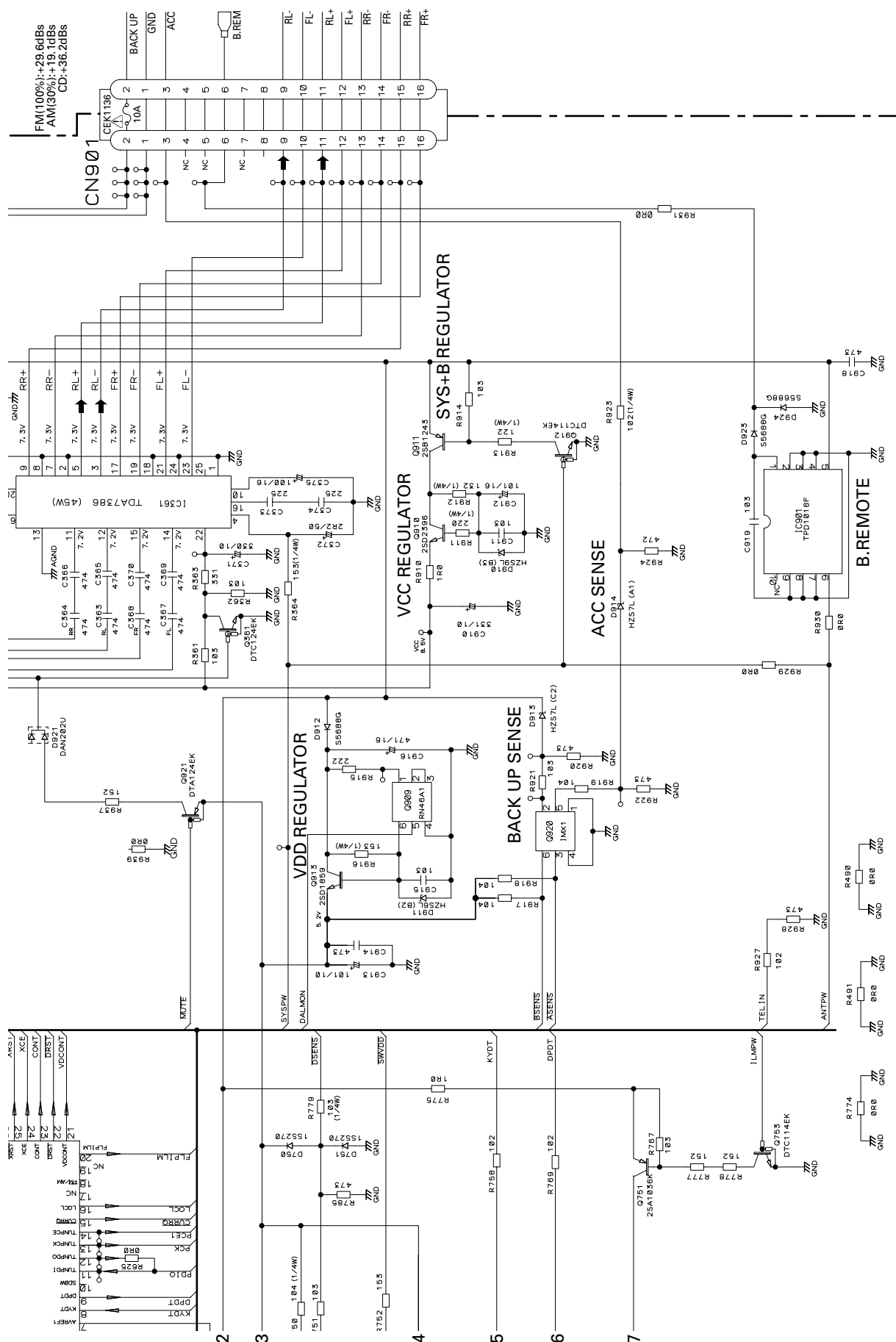
NOTE:
 □ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 □ Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

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:

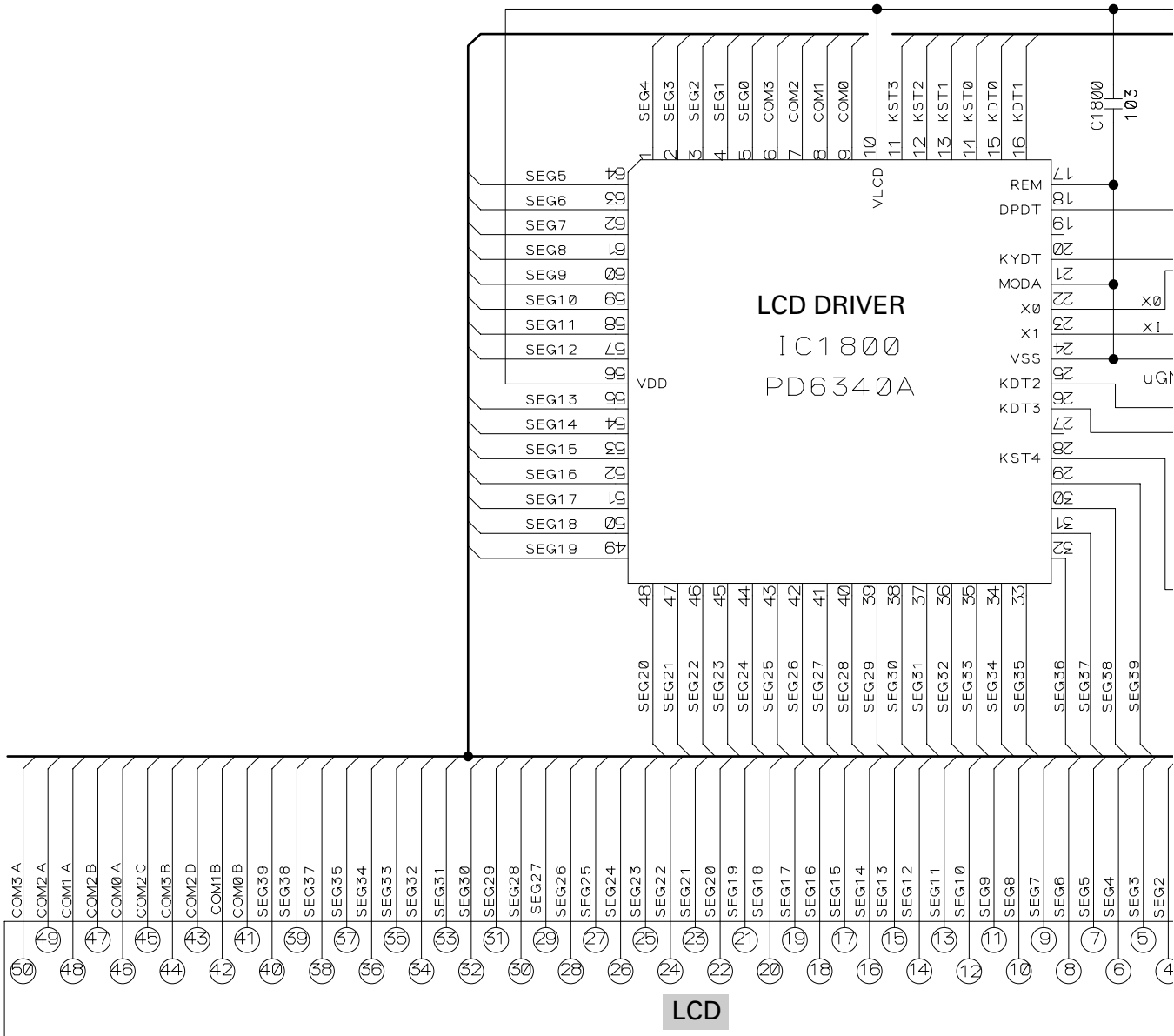
Ex. *Resistors	
Code	Practical value
123	12k ohms
103	10k ohms
*Capacitors	
Code	Practical value
103	0.01uF
101/10	100uF/10V



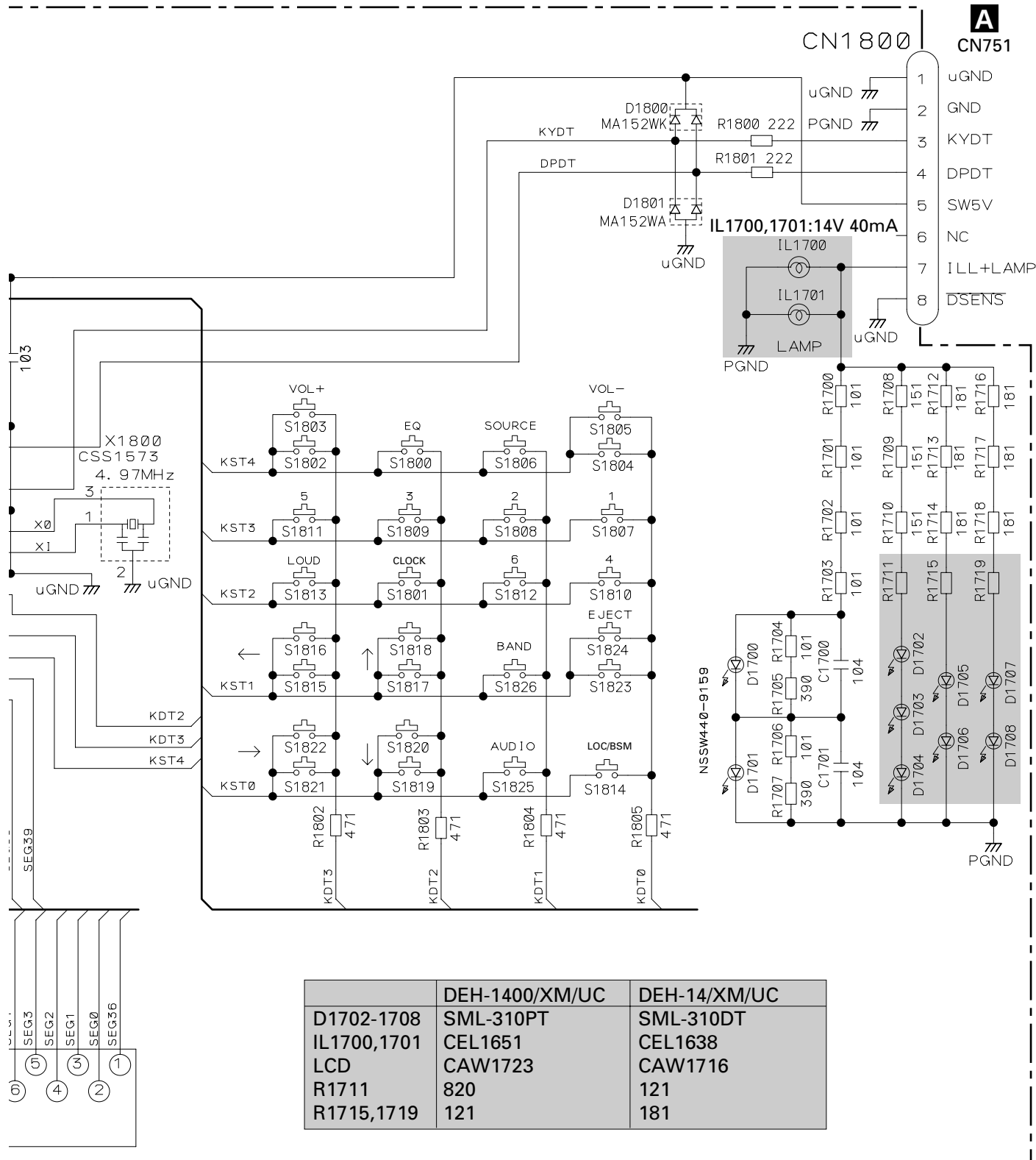


3.3 KEYBOARD UNIT

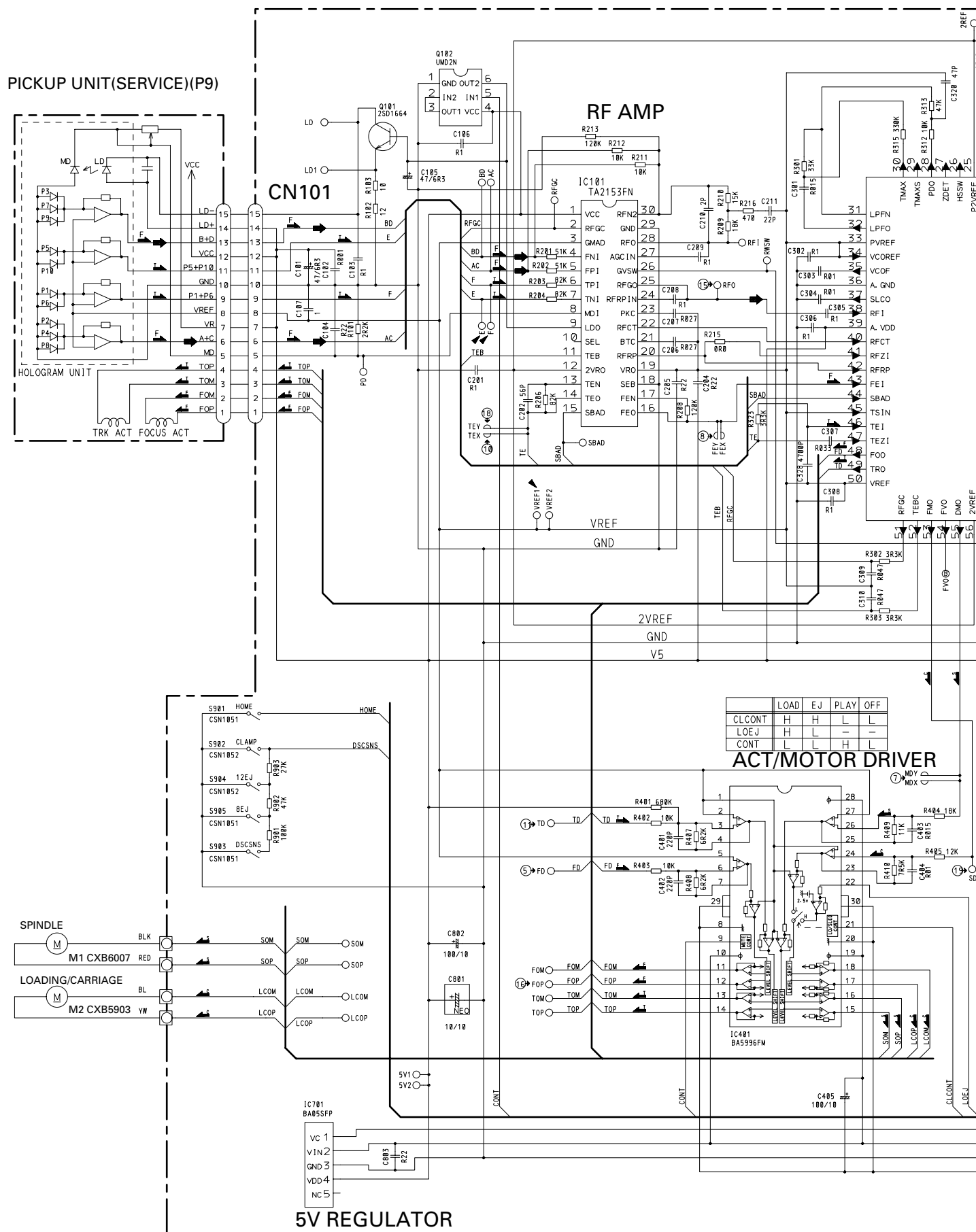
B KEYBOARD UNIT

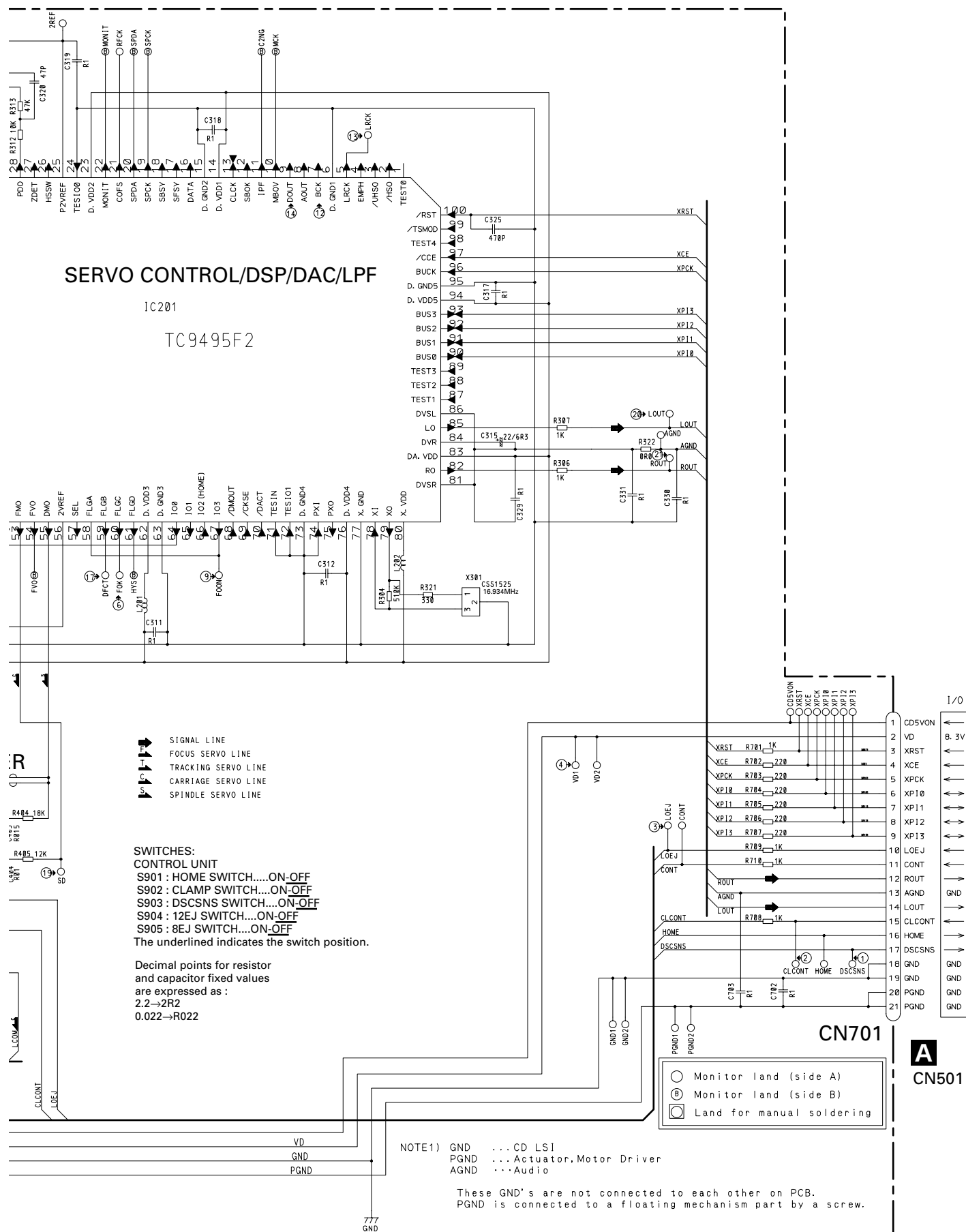


LCD



3.4 CD MECHANISM MODULE

 CONTROL UNIT




A

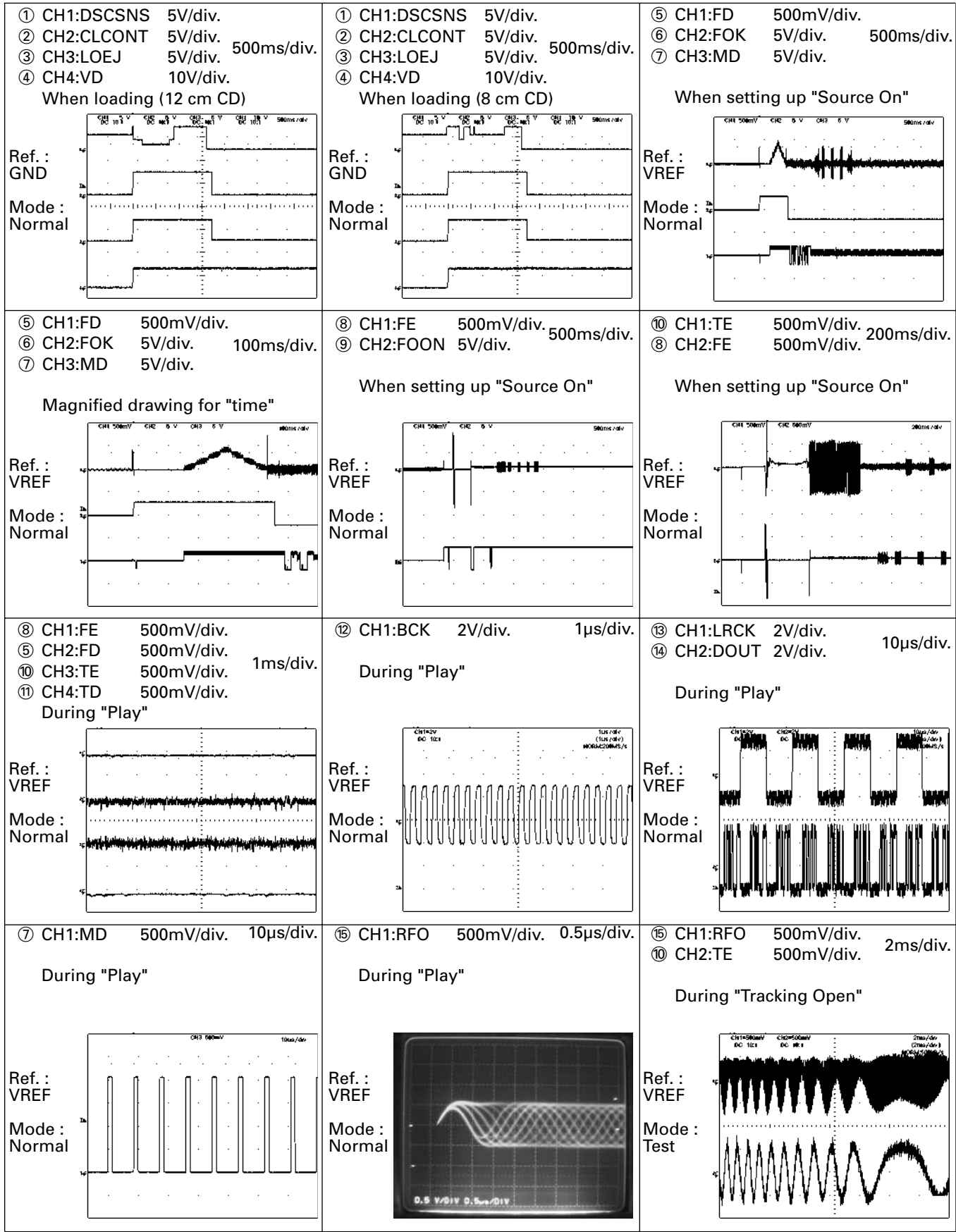
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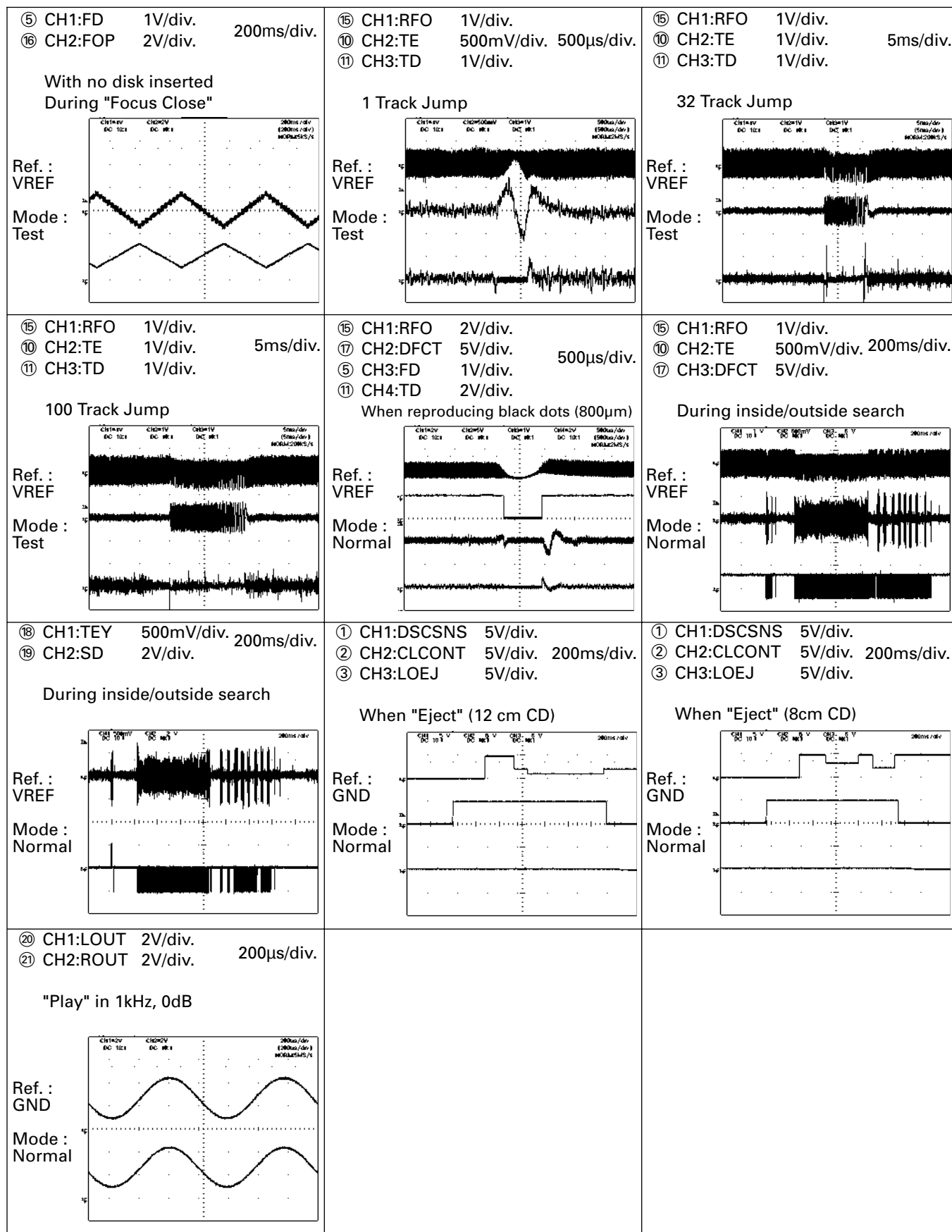
C

D

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

● Waveforms





DEH-1400,14

4. PCB CONNECTION DIAGRAM

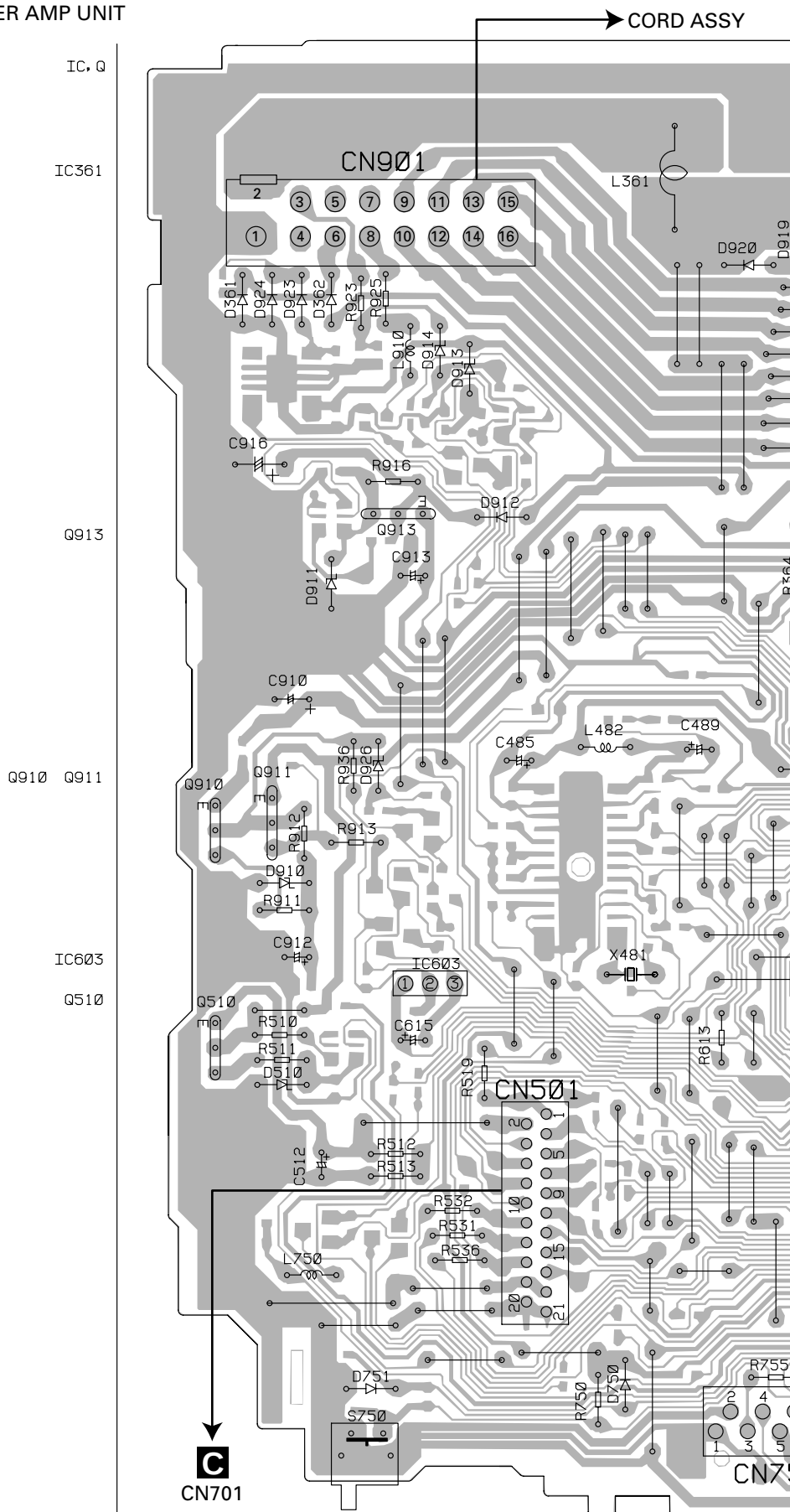
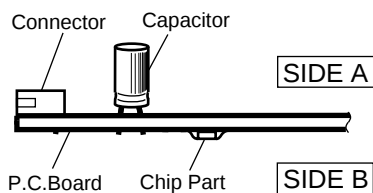
4.1 TUNER AMP UNIT

A TUNER AMP UNIT

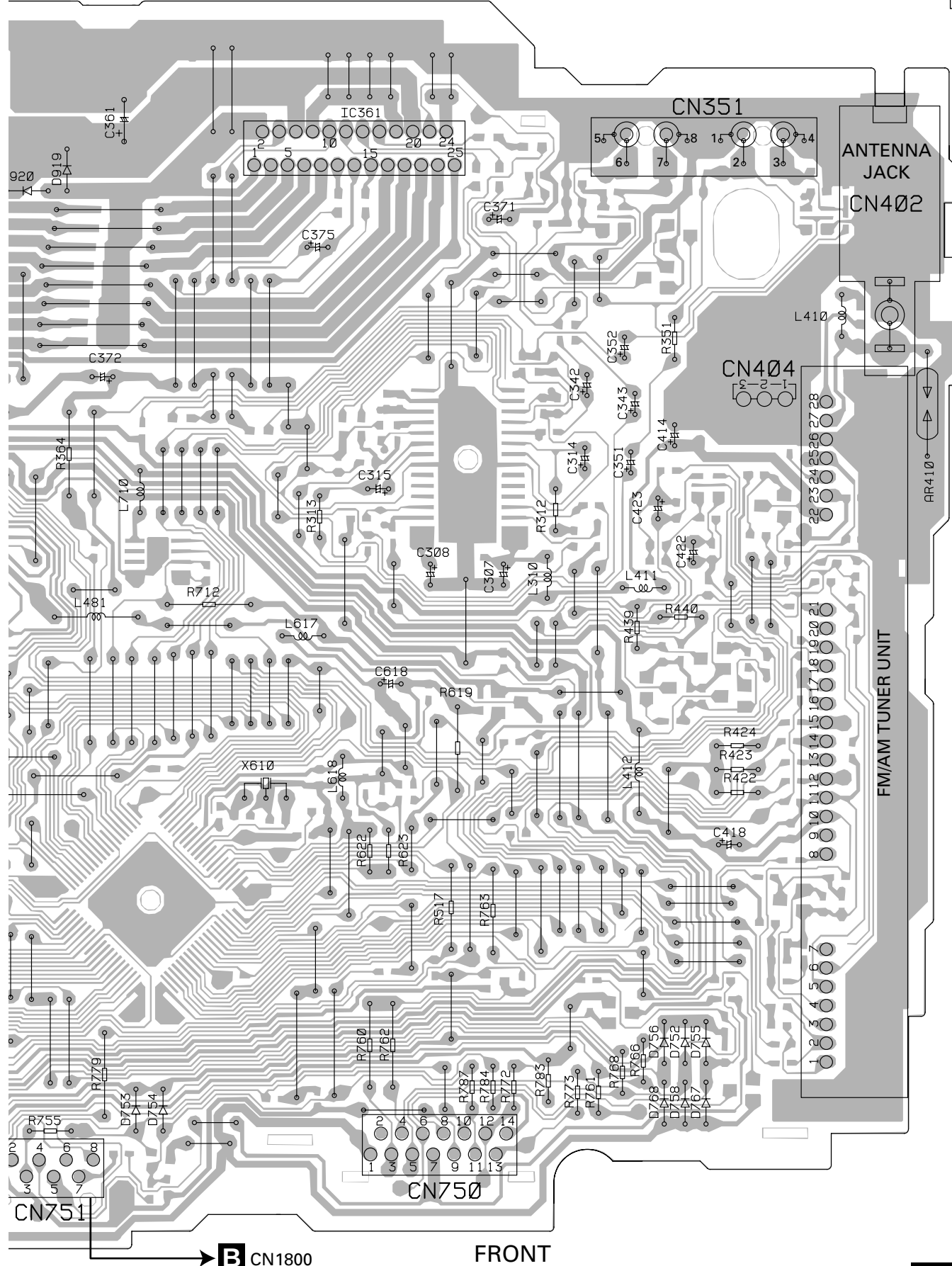
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.

For further information
for respective destina-
tions, be sure to check

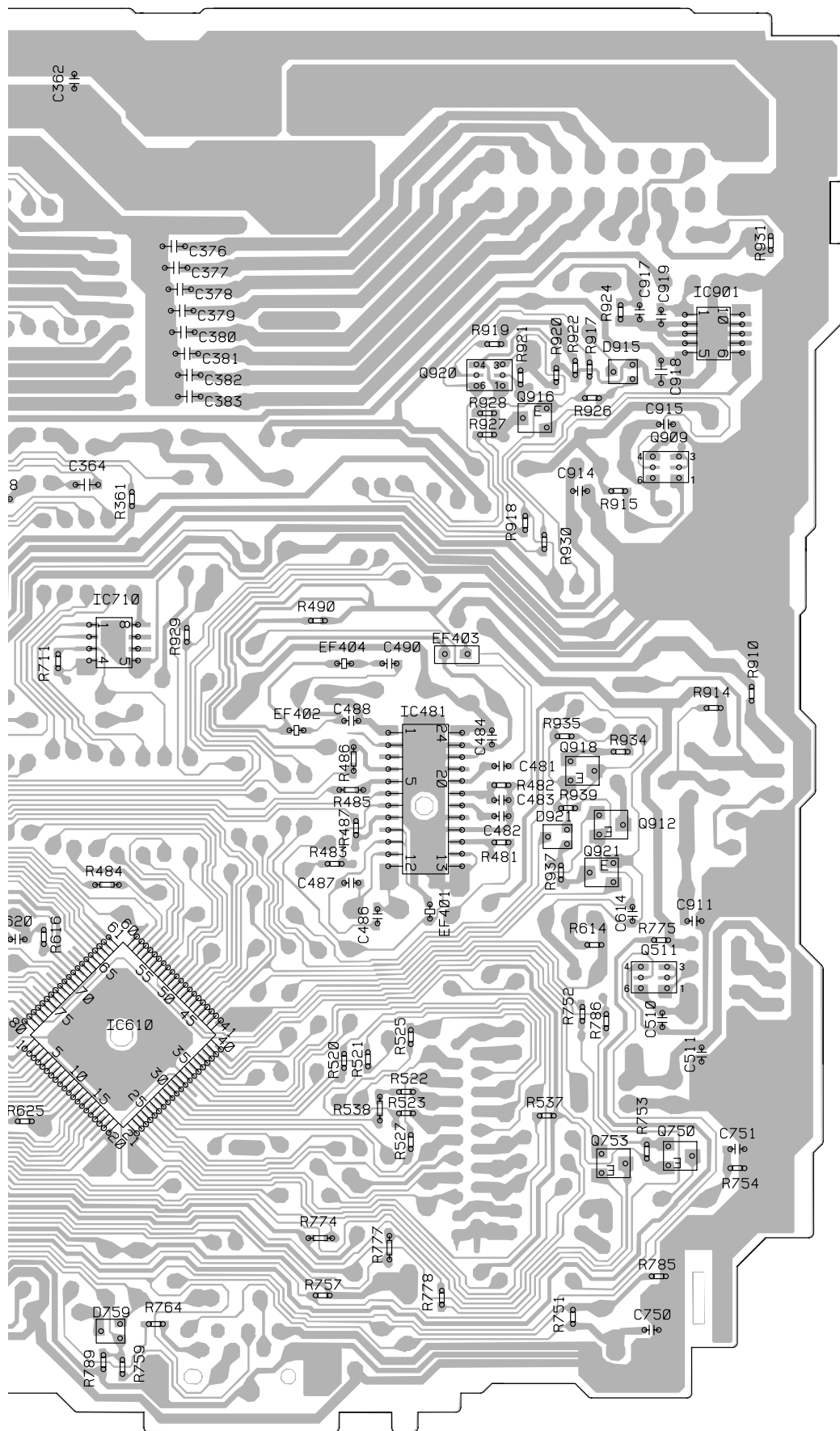


SIDE A

**B** CN1800

FRONT

A



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-1400,14
4.2 KEYBOARD UNIT

A

B

C

D

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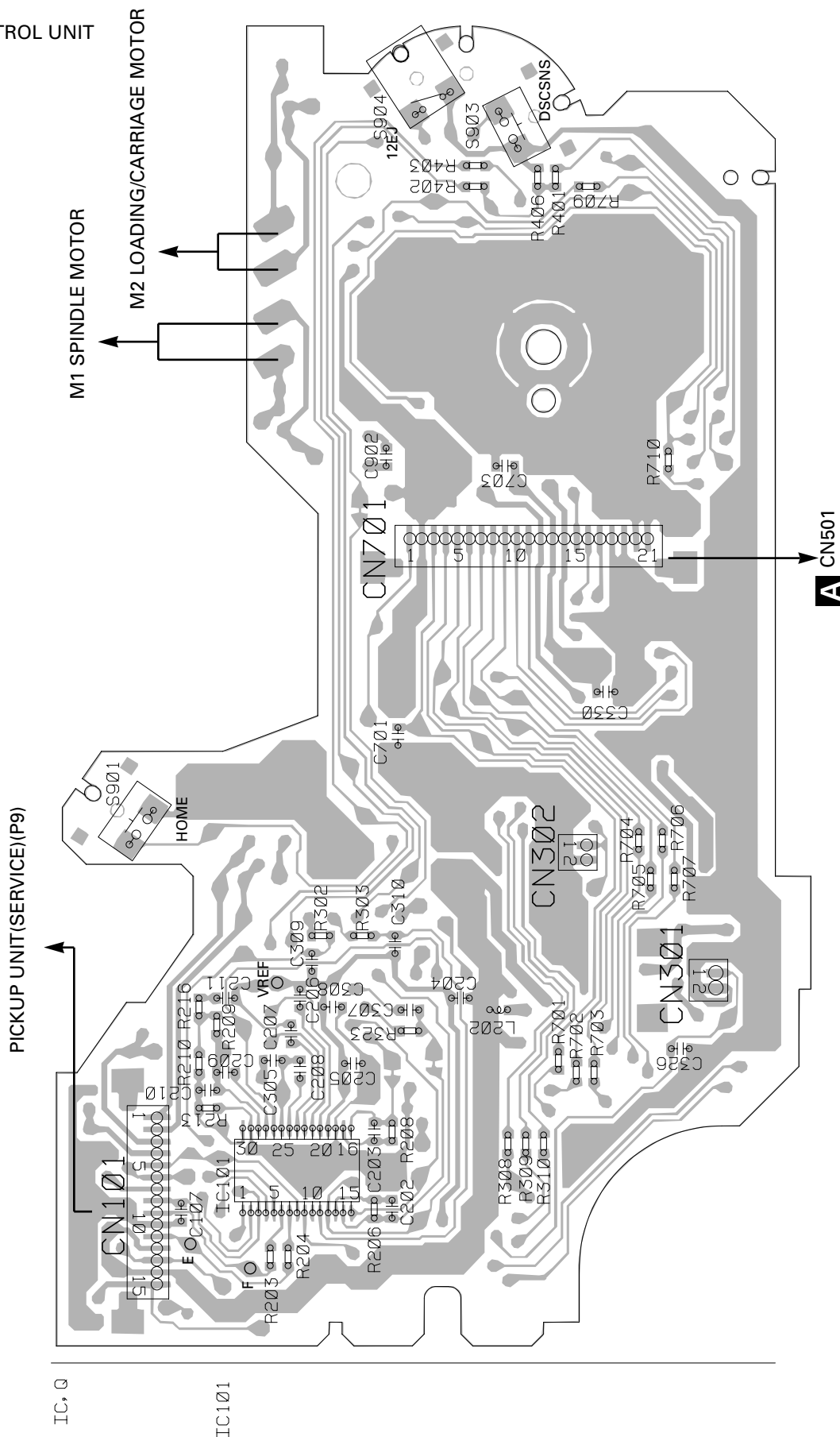
3

4

4.3 CD MECHANISM MODULE

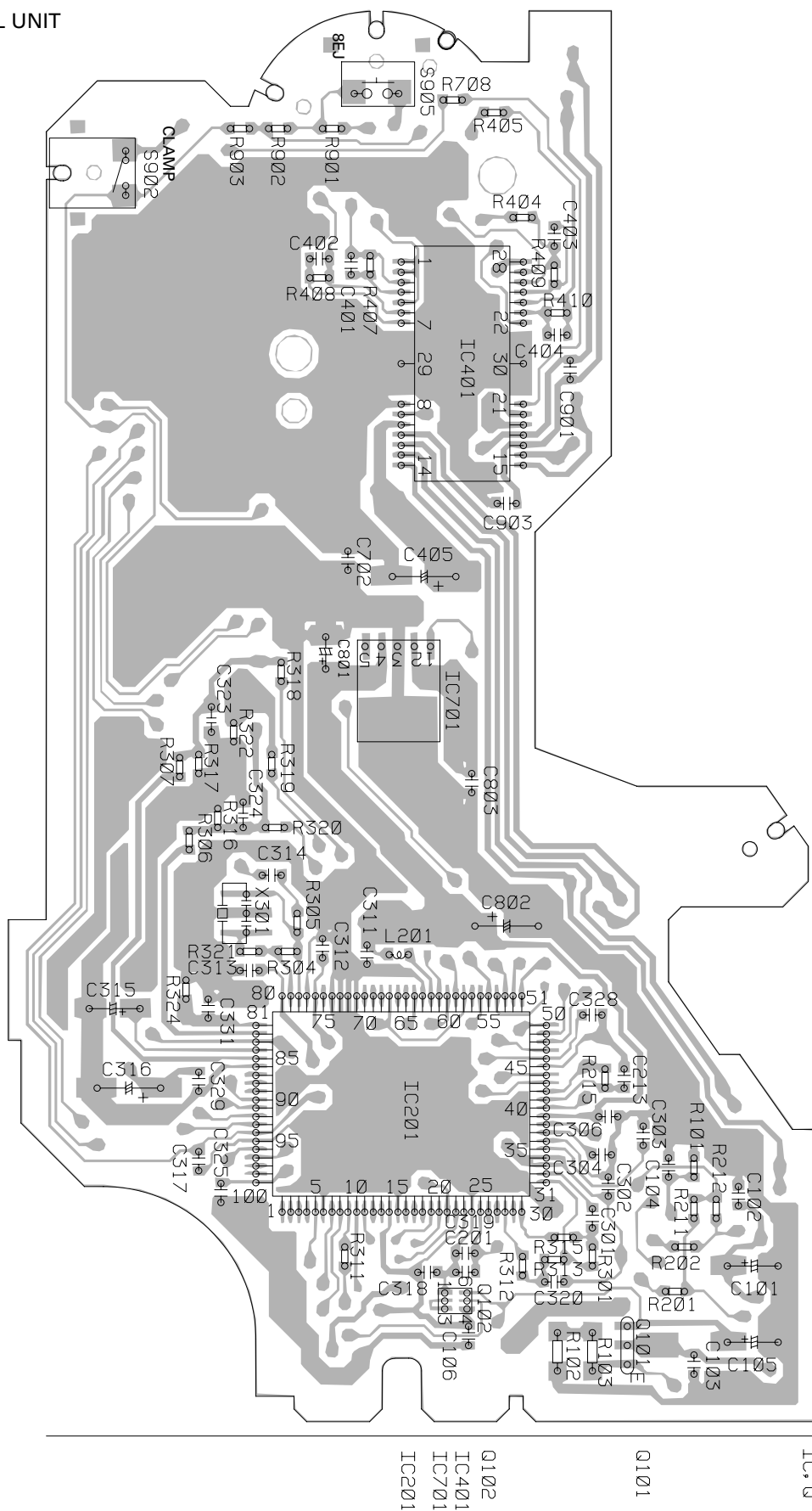
C CONTROL UNIT

SIDE A



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 : CWM7942 Unit Name : Tuner Amp Unit		RESISTORS	
MISCELLANEOUS		R 310	RS1/16S101J
IC 301 IC	PML003AM	R 311	RS1/16S101J
IC 361 IC	TDA7386	R 314	RS1/16S101J
IC 603 IC	S-80834ANY	R 315	RS1/16S101J
IC 610 IC	PE5262A	R 351	RD1/4PU821J
IC 901 IC	TPD1018F	R 352	RS1/16S821J
Q 351 Transistor	IMH3A	R 353	RS1/16S223J
Q 359 Transistor	DTA124EK	R 354	RS1/16S223J
Q 361 Transistor	DTC124EK	R 355	RS1/16S0R0J
Q 410 Transistor	2SC2412K	R 361	RS1/16S103J
Q 510 Transistor	2SD2396	R 362	RS1/16S331J
Q 511 Transistor	RN46A1	R 363	RD1/4PU153J
Q 750 Transistor	2SA1037K	R 364	RS1/16S222J
Q 751 Transistor	2SA1036K	R 410	RS1/16S222J
Q 753 Transistor	DTC114EK	R 411	
Q 909 Transistor	RN46A1	R 413	RS1/16S473J
Q 910 Transistor	2SD2396	R 414	RS1/16S473J
Q 911 Transistor	2SB1243	R 415	RS1/16S393J
Q 912 Transistor	DTC114EK	R 417	RS1/16S681J
Q 913 Transistor	2SD1859	R 418	RS1/16S681J
Q 920 Transistor	IMX1	R 419	RS1/16S103J
Q 921 Transistor	DTA124EK	R 420	RS1/16S681J
D 510 Diode	HZS9L(B1)	R 421	RD1/4PU473J
D 750 Diode	1SS270	R 422	RD1/4PU472J
D 751 Diode	1SS270	R 423	
D 753 Diode	1SS270	R 424	RD1/4PU473J
D 754 Diode	1SS270	R 429	RS1/16S681J
D 759 Diode	MA152WA	R 430	RS1/16S681J
D 910 Diode	HZS9L(B3)	R 431	RS1/16S473J
D 911 Diode	HZS6L(B2)	R 432	RS1/16S473J
D 912 Diode	S5688G	R 437	RS1/16S0R0J
D 913 Diode	HZS7L(C2)	R 438	RS1/16S0R0J
D 914 Diode	HZS7L(A1)	R 445	RS1/16S272J
D 919 Diode	S5688G	R 446	RS1/16S272J
D 920 Diode	S5688G	R 447	RS1/16S162J
D 921 Diode	DAN202U	R 448	RS1/16S162J
D 923 Diode	S5688G	R 490	RS1/16S0R0J
D 924 Diode	S5688G	R 510	RD1/4PU221J
L 310 Inductor	LAU1R0K	R 511	RD1/4PU221J
L 361 Choke Coil 600μH	CTH1221	R 512	RD1/4PU472J
L 410 Ferri-Inductor	LAU4R7K	R 513	RD1/4PU222J
L 411 Ferri-Inductor	LAU2R2K	R 516	RS1/16S104J
L 412 Ferri-Inductor	LAU2R2K	R 517	RD1/4PU222J
L 617 Ferri-Inductor	LAU101K	R 519	RD1/4PU102J
L 618 Ferri-Inductor	LAU2R2K	R 520	RS1/16S0R0J
L 750 Ferri-Inductor	LAU2R2K	R 521	RS1/16S0R0J
X 610 Crystal Resonator 4.194304MHz	CSS1023	R 522	RS1/16S0R0J
AR 410 Surge Protector	DSP-201M-S00B	R 523	RS1/16S0R0J
FM/AM Tuner Unit	CWE1563	R 525	RS1/16S0R0J
		R 527	RS1/16S0R0J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 531	RD1/4PU222J	C 321	CKSRYB153K25
R 532	RD1/4PU222J	C 324	CCSRCH100D50
R 536	RD1/4PU102J	C 326	CCSRCH100D50
R 537	RS1/16S104J	C 327	CCSRCH100D50
R 538	RS1/16S0R0J	C 329	CCSRCH100D50
R 612	RS1/16S0R0J	C 351	CEJQ2R2M50
R 613	RD1/4PU102J	C 352	CEJQ2R2M50
R 614	RS1/16S821J	C 361	CCH1368
R 615	RS1/16S473J	C 362	CKSRYB104K25
R 616	RS1/16S682J	C 363	CKSQYB474K16
R 617	RS1/16S473J	C 364	CKSQYB474K16
R 618	RS1/16S223J	C 365	CKSQYB474K16
R 622	RD1/4PU104J	C 366	CKSQYB474K16
R 625	RS1/16S0R0J	C 367	CKSQYB474K16
R 712	RD1/4PU104J	C 368	CKSQYB474K16
R 750	RD1/4PU104J	C 369	CKSQYB474K16
R 751	RS1/16S103J	C 370	CKSQYB474K16
R 752	RS1/16S153J	C 371	CEJQ330M10
R 753	RS1/16S153J	C 372	CEJQ2R2M50
R 754	RS1/16S222J	C 373	CKSQYB225K10
R 755	RD1/4PU222J	C 374	CKSQYB225K10
R 758	RS1/16S102J	C 375	CEJQ100M16
R 759	RS1/16S222J	C 410	CKSQYB103K25
R 764	RS1/16S0R0J	C 412	CKSRYB223K50
R 765	RS1/16S1R0J	C 413	CKSRYB102K50
R 767	RS1/16S103J	C 414	CEJQ220M10
R 769	RS1/16S102J	C 415	CKSRYB223K50
R 774	RS1/16S0R0J	C 417	CKSRYB472K50
R 775	RS1/16S1R0J	C 418	CEJQ101M6R3
R 777	RS1/16S152J	C 419	CKSRYB473K50
R 778	RS1/16S152J	C 424	CKSRYB183K25
R 779	RD1/4PU103J	C 425	CKSRYB183K25
R 791	RS1/16S0R0J	C 510	CKSRYB473K50
R 910	RS1/16S1R0J	C 511	CKSRYB102K50
R 911	RD1/4PU220J	C 512	CEJQ101M10
R 912	RD1/4PU132J	C 515	CKSRYB102K50
R 913	RD1/4PU122J	C 516	CKSRYB102K50
R 914	RS1/16S103J	C 614	CKSRYB473K50
R 915	RS1/16S222J	C 615	CEJQ2R2M50
R 916	RD1/4PU153J	C 616	CKSRYB104K25
R 917	RS1/16S104J	C 617	CCSRCH101J50
R 918	RS1/16S104J	C 618	CEJQ4R7M35
R 919	RS1/16S104J	C 619	CKSRYB473K50
R 920	RS1/16S473J	C 620	CCSRCH150J50
R 921	RS1/16S103J	C 621	CCSRCH150J50
R 922	RS1/16S473J	C 751	CKSRYB104K25
R 923	RD1/4PU102J	C 910	CCH1326
R 924	RS1/16S472J	C 911	CKSRYB103K50
R 927	RS1/16S102J	C 912	CEJQ101M16
R 928	RS1/16S473J	C 913	CEJQ101M10
R 929	RS1/16S0R0J	C 914	CKSRYB473K50
R 930	RS1/16S0R0J	C 915	CKSRYB103K50
R 931	RS1/16S0R0J	C 916	CCH1331
R 937	RS1/16S152J	C 918	CKSQYB473K50
R 939	RS1/16S0R0J	C 919	CKSRYB103K50

CAPACITORS

C 307	CEJQ470M10
C 308	CEJQ100M16
C 309	CKSRYB104K25
C 310	CKSRYB105K6R3
C 311	CKSRYB104K25
C 312	CKSRYB104K25
C 313	CKSRYB105K6R3
C 314	CEJQ4R7M35
C 315	CEJQ4R7M35
C 316	CKSRYB153K25

B Unit Number : CWM7955(DEH-1400/XM/UC)
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

DEH-1400,14

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

LCD

CAW1723

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 : CWM7956(DEH-14/XM/UC)
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1800 IC	PD6340A
D 1700 LED	NSSW440-9159
D 1701 LED	NSSW440-9159
D 1702 LED	SML-310DT
D 1703 LED	SML-310DT

D 1704 LED	SML-310DT
D 1705 LED	SML-310DT
D 1706 LED	SML-310DT
D 1707 LED	SML-310DT
D 1708 LED	SML-310DT

D 1800 Diode	MA152WK
D 1801 Diode	MA152WA
X 1800 Ceramic Resonator 4.97MHz	CSS1573
IL 1700 Lamp 14V 40mA	CEL1638
IL 1701 Lamp 14V 40mA	CEL1638

LCD

CAW1716

RESISTORS

R 1700	RS1/16S101J
R 1701	RS1/16S101J
R 1702	RS1/16S101J
R 1703	RS1/16S101J
R 1708	RS1/16S151J

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

R 1719	RS1/16S181J
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

C Unit Number : CWX2481
Unit Name : Control Unit

MISCELLANEOUS

IC 101 IC	TA2153FN
IC 201 IC	TC9495F2
IC 401 IC	BA5996FM
IC 701 IC	BA05SFP
Q 101 Transistor	2SD1664

Q 102 Transistor	UMD2N
L 201 Inductor	CTF1546
L 202 Inductor	CTF1546
X 301 Ceramic Resonator 16.934MHz	CSS1525
S 901 Spring Switch(HOME)	CSN1051

S 902 Spring Switch(CLAMP)	CSN1052
S 903 Spring Switch(DSCSNS)	CSN1051
S 904 Spring Switch(12EJ)	CSN1052
S 905 Spring Switch(8EJ)	CSN1051

RESISTORS

R 101	RS1/16S222J
R 102	RS1/8S120J
R 103	RS1/8S100J
R 201	RS1/16S513J
R 202	RS1/16S513J

R 203	RS1/16S823J
R 204	RS1/16S823J
R 206	RS1/16S823J
R 208	RS1/16S124J
R 209	RS1/16S183J

R 210	RS1/16S153J
R 211	RS1/16S103J
R 212	RS1/16S103J
R 213	RS1/16S124J
R 215	RS1/16S0R0J

R 216	RS1/16S471J
R 301	RS1/16S333J
R 302	RS1/16S332J
R 303	RS1/16S332J
R 304	RS1/16S514J

R 306	RS1/16S102J
R 307	RS1/16S102J
R 312	RS1/16S103J
R 313	RS1/16S473J
R 315	RS1/16S334J

====Circuit Symbol and No.==Part Name	Part No.	====Circuit Symbol and No.==Part Name	Part No.
R 321	RS1/16S331J	C 402	CKSRYB221K50
R 322	RS1/16S0R0J	C 403	CKSRYB153K25
R 323	RS1/16S332J	C 404	CKSRYB103K50
R 401	RS1/16S684J	C 405	CEV101M10
R 402	RS1/16S103J	C 702	CKSRYB104K16
R 403	RS1/16S103J	C 703	CKSRYB104K16
R 404	RS1/16S183J	C 801 10μF/10V	CCH1349
R 405	RS1/16S123J	C 802	CEV101M10
R 407	RS1/16S622J	C 803	CKSRYB224K16
R 408	RS1/16S622J		
R 409	RS1/16S113J		
R 410	RS1/16S752J		
R 701	RS1/16S102J		
R 702	RS1/16S221J		
R 703	RS1/16S221J		
R 704	RS1/16S221J		
R 705	RS1/16S221J		
R 706	RS1/16S221J		
R 707	RS1/16S221J		
R 708	RS1/16S102J		
R 709	RS1/16S102J		
R 710	RS1/16S102J		
R 901	RS1/16S104J		
R 902	RS1/16S473J		
R 903	RS1/16S273J		

Miscellaneous Parts List

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

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

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 :

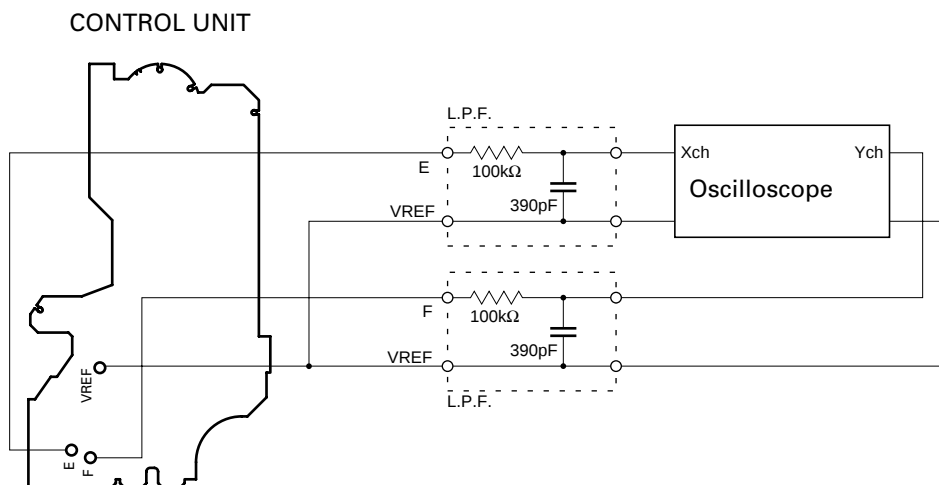
To check that the grating is within an acceptable range when the PU unit is changed.

• 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

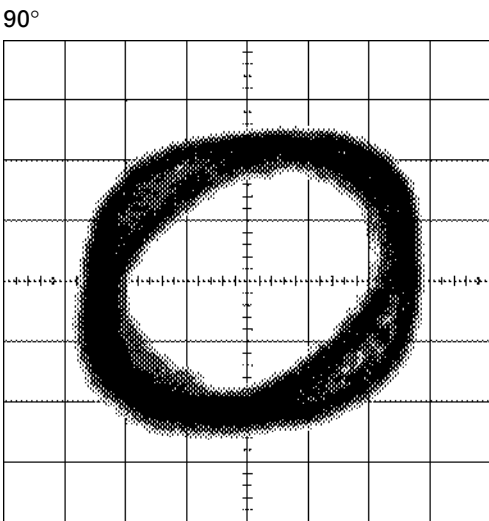
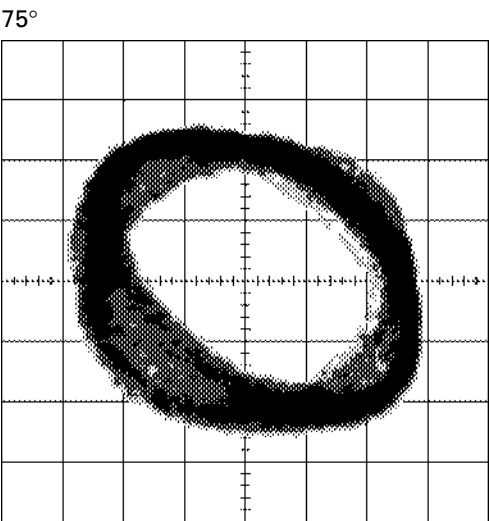
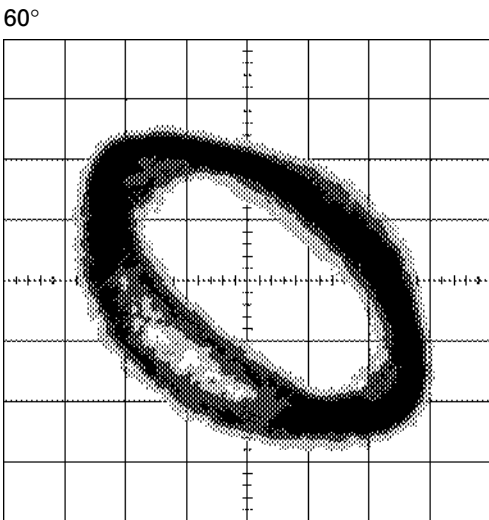
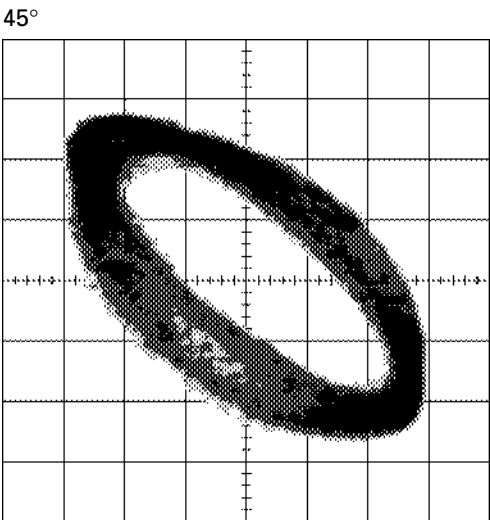
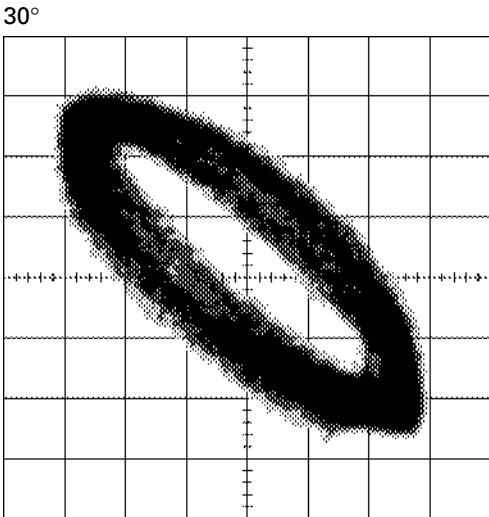
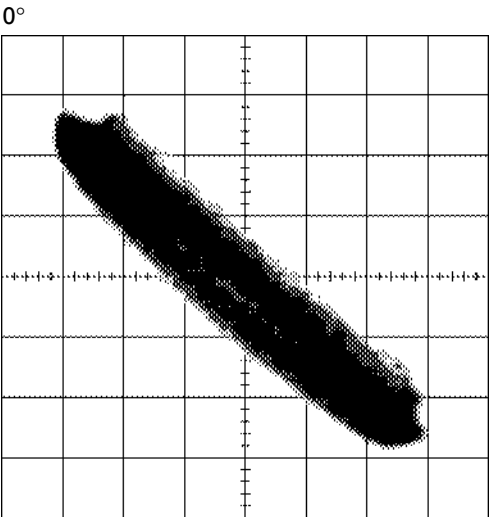
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• 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



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 Com- munication 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)

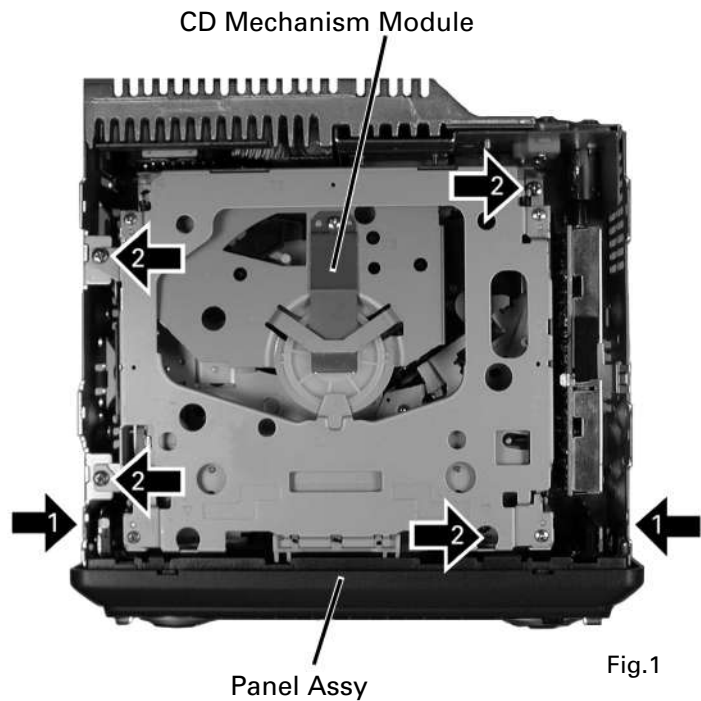
1. Remove the Case.

● Panel Assy (Fig.1)

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

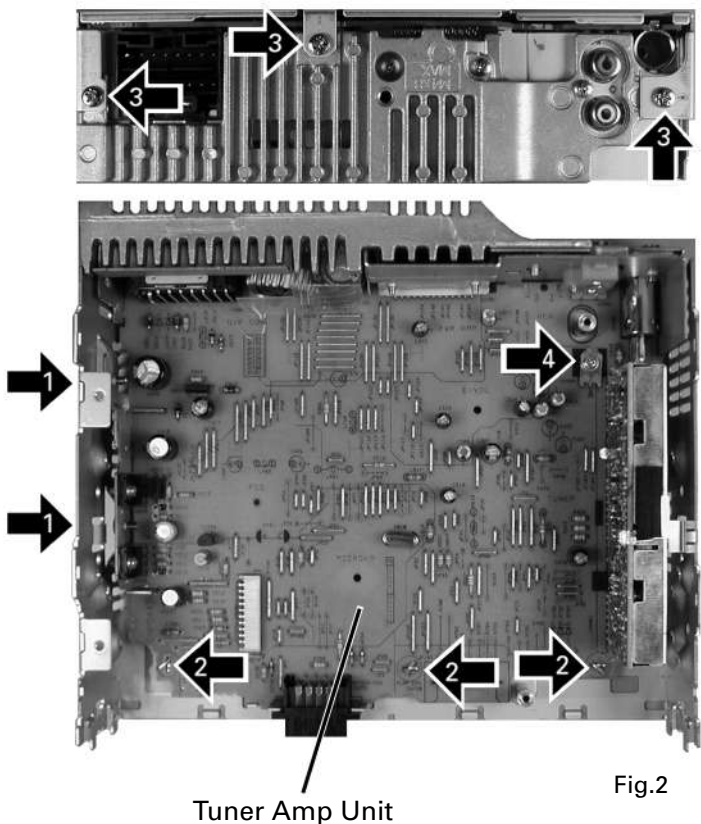
● Removing the CD Mechanism Module (Fig.1)

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



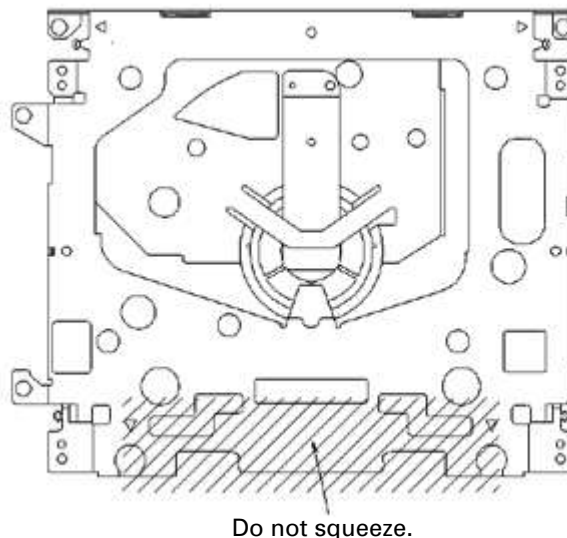
● Removing the Tuner Amp Unit (Fig.2)

- ➡ 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.

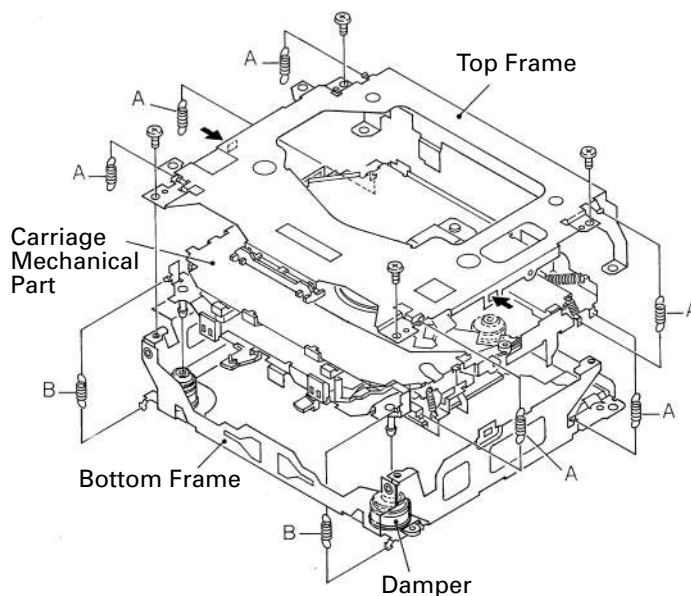


● How to remove the Top and Bottom Frame

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.

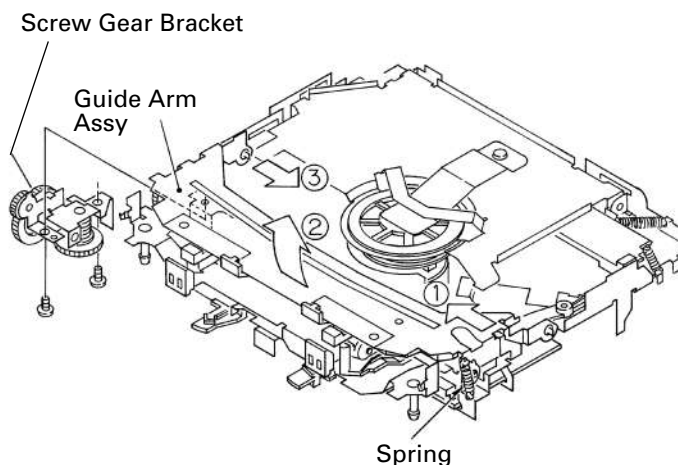
(Caution)

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.

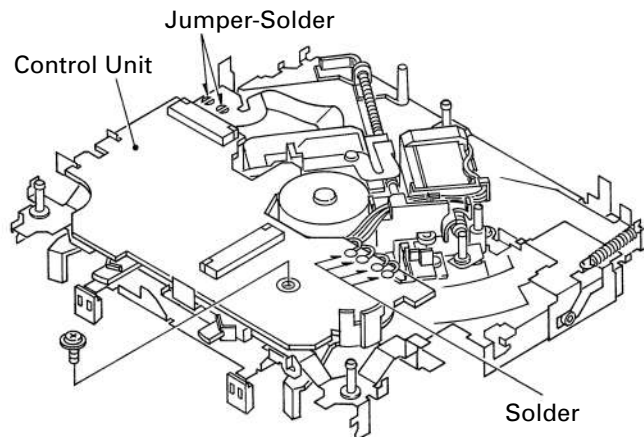


● How to remove the Control Unit

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.

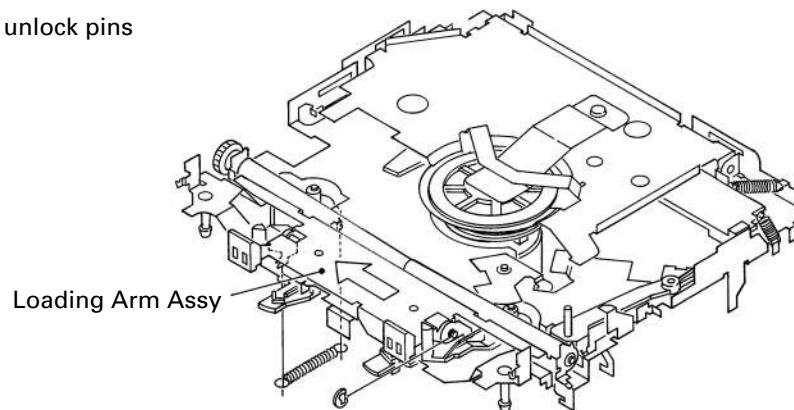
(Caution)

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).

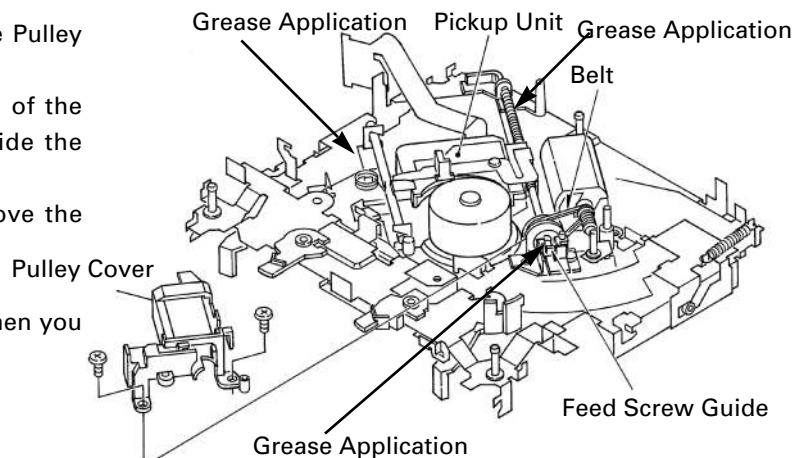


● How to remove the Pickup Unit

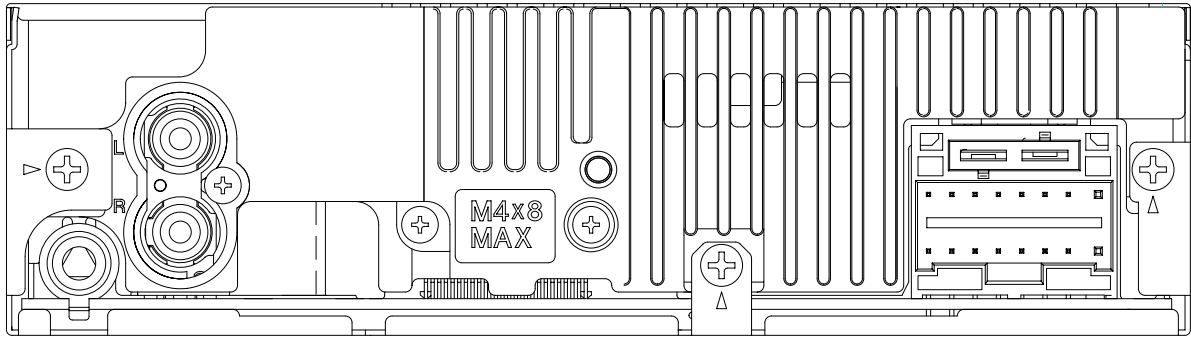
1. Unscrew 2 pieces of screws, then remove the Pulley Cover.
2. Remove the Feed Screw unit from the pawl of the Feed Screw Guide (The pawl is located inside the guide).
3. Remove the belt from the Pulley, then remove the Pickup unit.

(Caution)

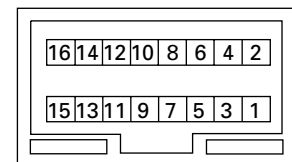
Make sure not to stain the belt with grease when you fix the belt.



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. NC
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(PE5262A)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	MODEL1	I		Model select input
2,3	NC			Not used
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	NC			Not used
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	NC			Not used
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	NC			Not used
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	NC			Not used
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
55-59	NC			Not used
60	RESET	I		Reset input
61,62	NC			Not used
63	BSENS	I		Back up power sense input
64	ASENS	I		ACC power sense input
65	DSENS	I		Grille detach sense
66	ADPW	O	C	A/D converter power supply output
67	NC			Not used

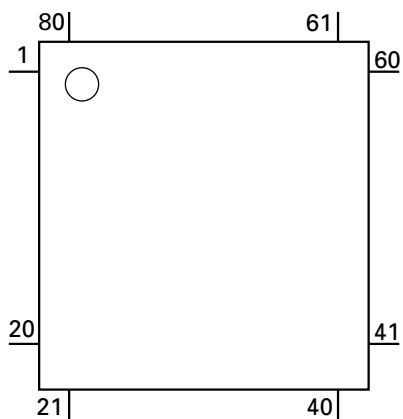
Pin No.	Pin Name	I/O	Format	Function and Operation
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1	I		Crystal oscillator connection pin
71	IC(VPP)			Connect to GND
72	NC			Not used
73	TESTIN	I		Test program mode input
74	AVDD			Positive power supply terminal for analog circuit
75	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.

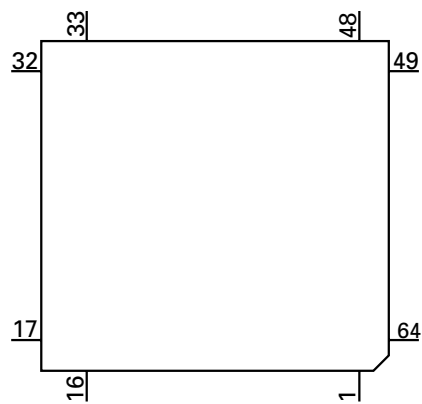
*PE5262A



● 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

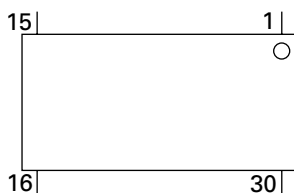
*PD6340A



● 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

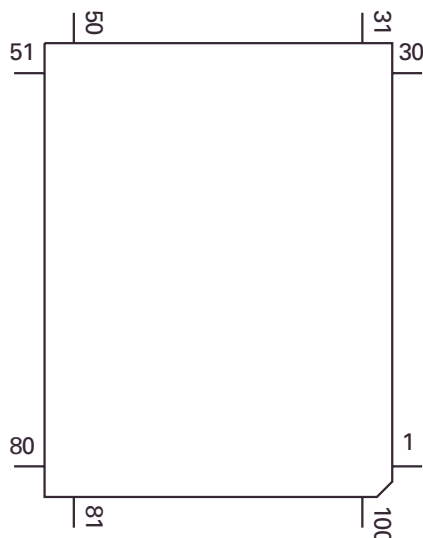


● Pin Functions(TC9495F2)

Pin No.	Pin Name	I/O	Function and Operation
1	TESTO		Test mode terminal
2	HSO	O	Replay speed flag output terminal
3	UHSO	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	CLK	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

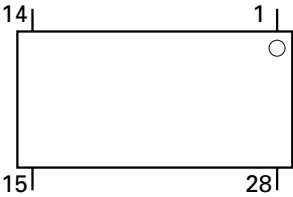
*TC9495F2



● 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

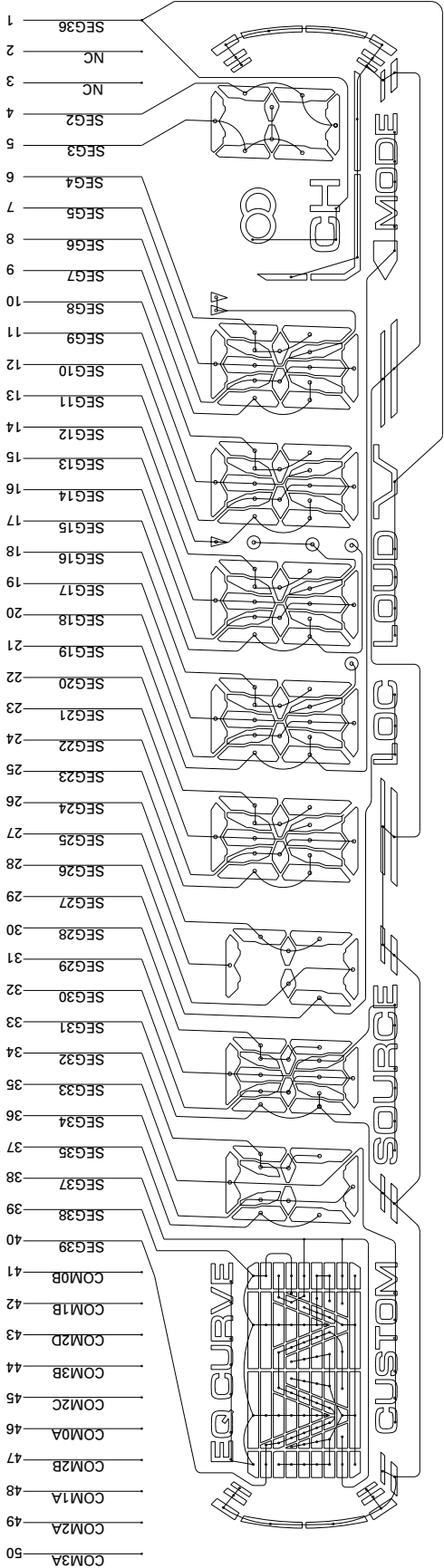
BA5996FM



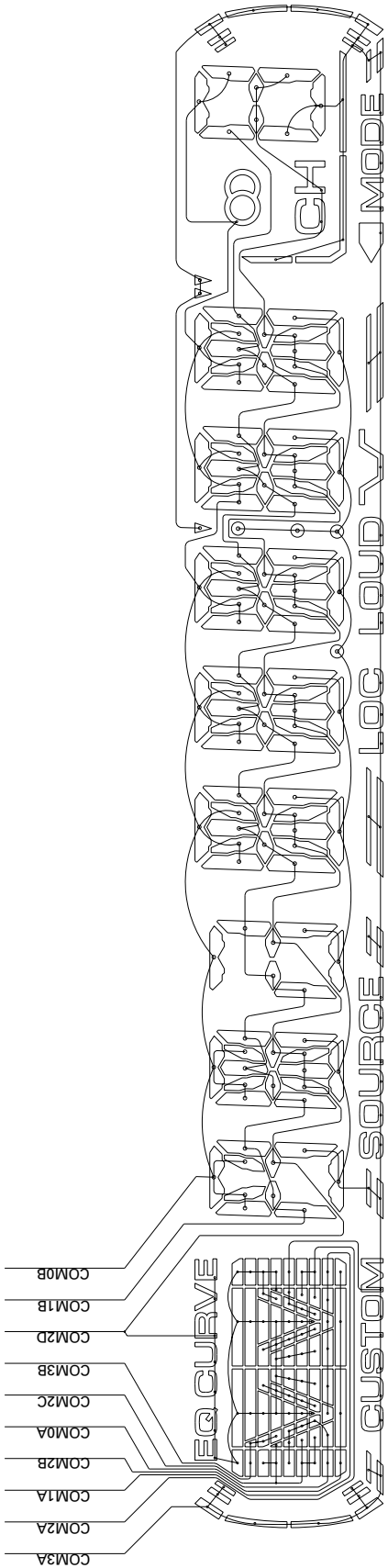
7.2.2 DISPLAY

● CAW1723(DEH-1400/XM/UC), CAW1716(DEH-14/XM/UC)

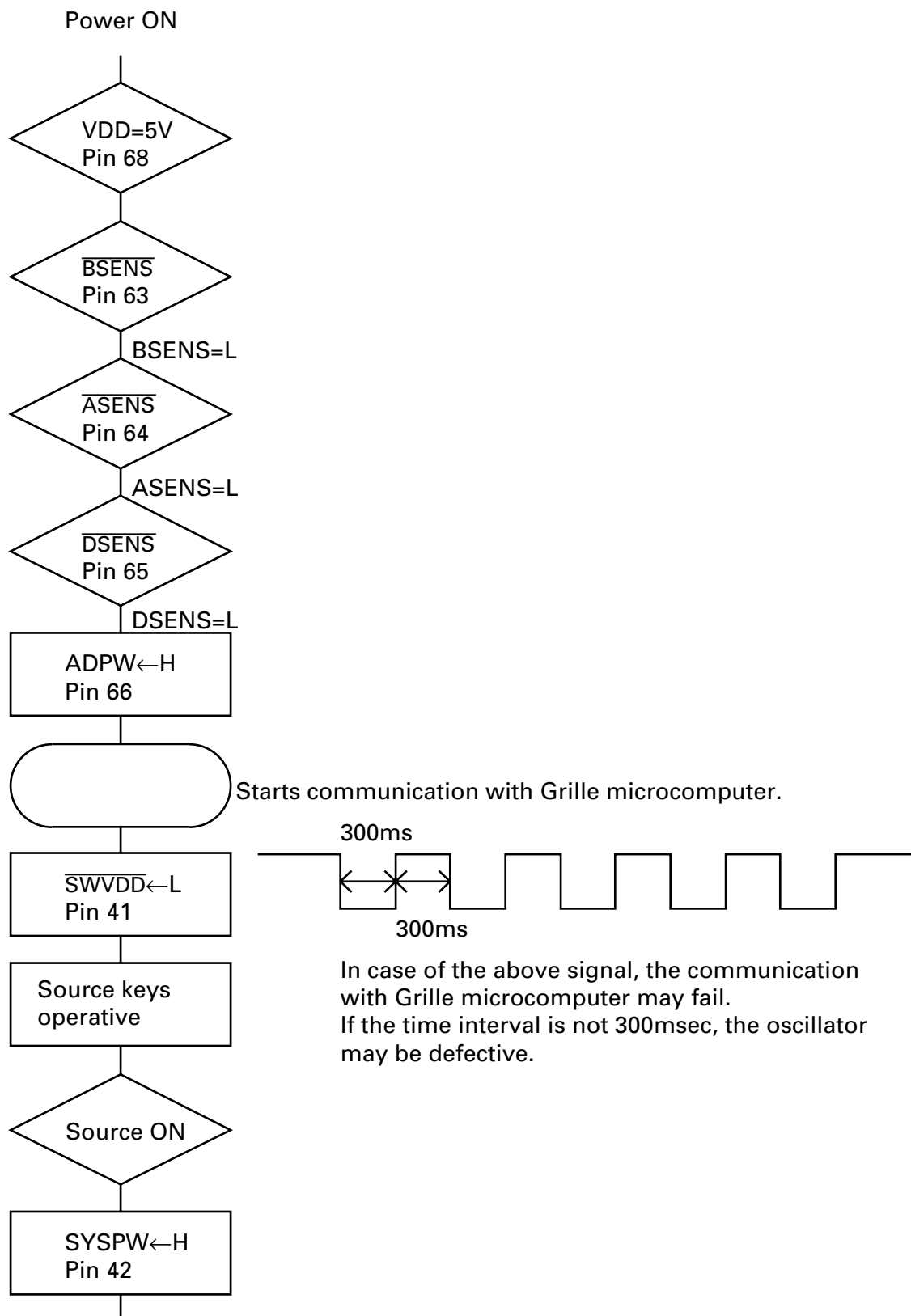
SEGMENT



COMMON

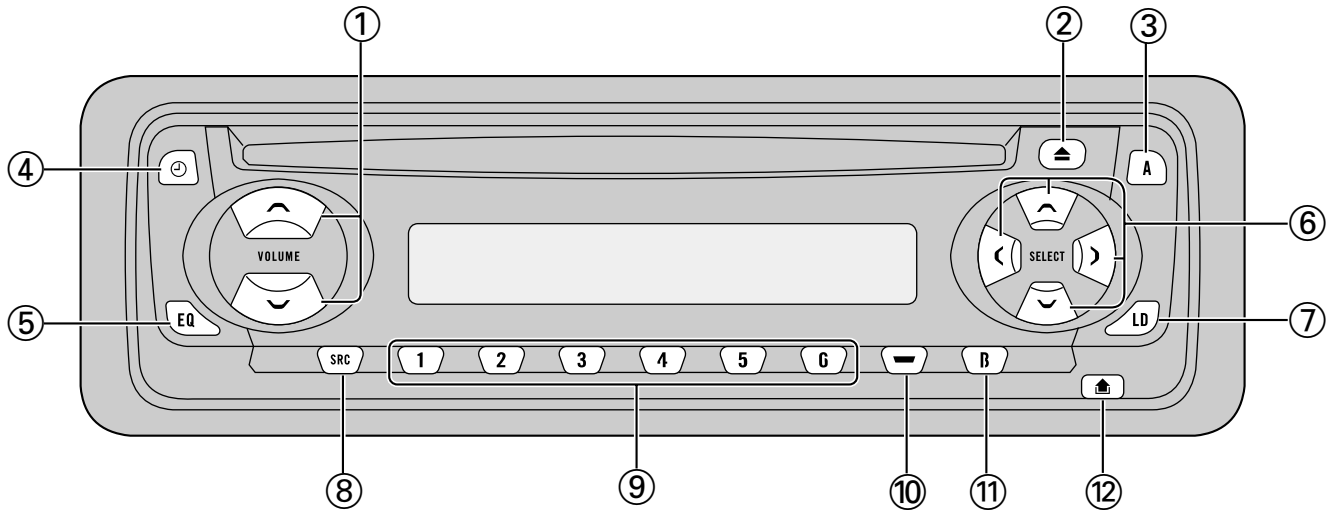


7.3 OPERATIONAL FLOW CHART



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 **CLOCK button**
Press to switch clock display 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 three FM and one AM band and cancel the control mode of functions.
- 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

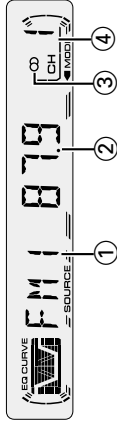
- When no disc is set in this product, built-in CD player source will not change.
- When this unit's blue/white lead is connected to the car's auto-antenna relay control terminal, the car's antenna extends when this unit's source is switched on. To retract the antenna, switch the source off. 

Turning the unit off

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

Tuner

Listening to the radio



- BAND indicator**
Shows which band the radio is tuned to, AM or FM.
- FREQUENCY indicator**
Shows to which frequency the tuner is tuned.
- 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, FM1, FM2, FM3 for FM or AM.

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.

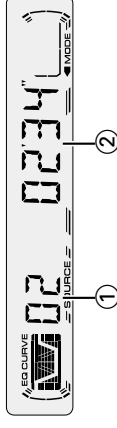


Note

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

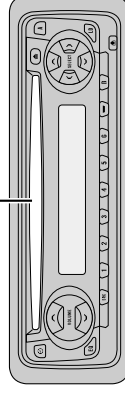
Built-in CD player

Playing a CD



- TRACK NUMBER indicator**
Shows the track currently playing.
 - PLAY TIME indicator**
Shows the elapsed playing time of the current track.
- Insert a CD into the CD loading slot.
Playback will automatically start.

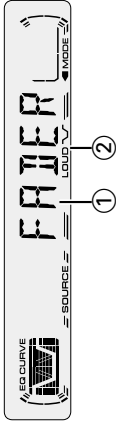
CD loading slot



- You can eject a CD by pressing CD EJECT.
- After a CD has been inserted, press SOURCE to select the built-in CD player.
 - Use VOLUME to adjust the sound level.
When you press VOLUME up/+, the volume is raised and when pressed down/–, the volume is lowered.

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:

- FADER (balance adjustment)—EQ (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 FADER.
Press AUDIO until FADER 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.
 - F15 – R15 is displayed as the front/rear speaker balance moves from front to rear.
 - 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:L9 – BAL:R9 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
SBASS	Super bass
PWRFL	Powerful
NTRL	Natural
VOCAL	Vocal
CSTM	Custom
FLAT	Flat

- CSTM is an adjusted equalizer curve that you create.
- When 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 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 PWRFL then the title of that previously selected equalizer curve will be displayed, such as SBASS, NTRL, VOCAL, CSTM, or FLAT. 

Adjusting equalizer curves

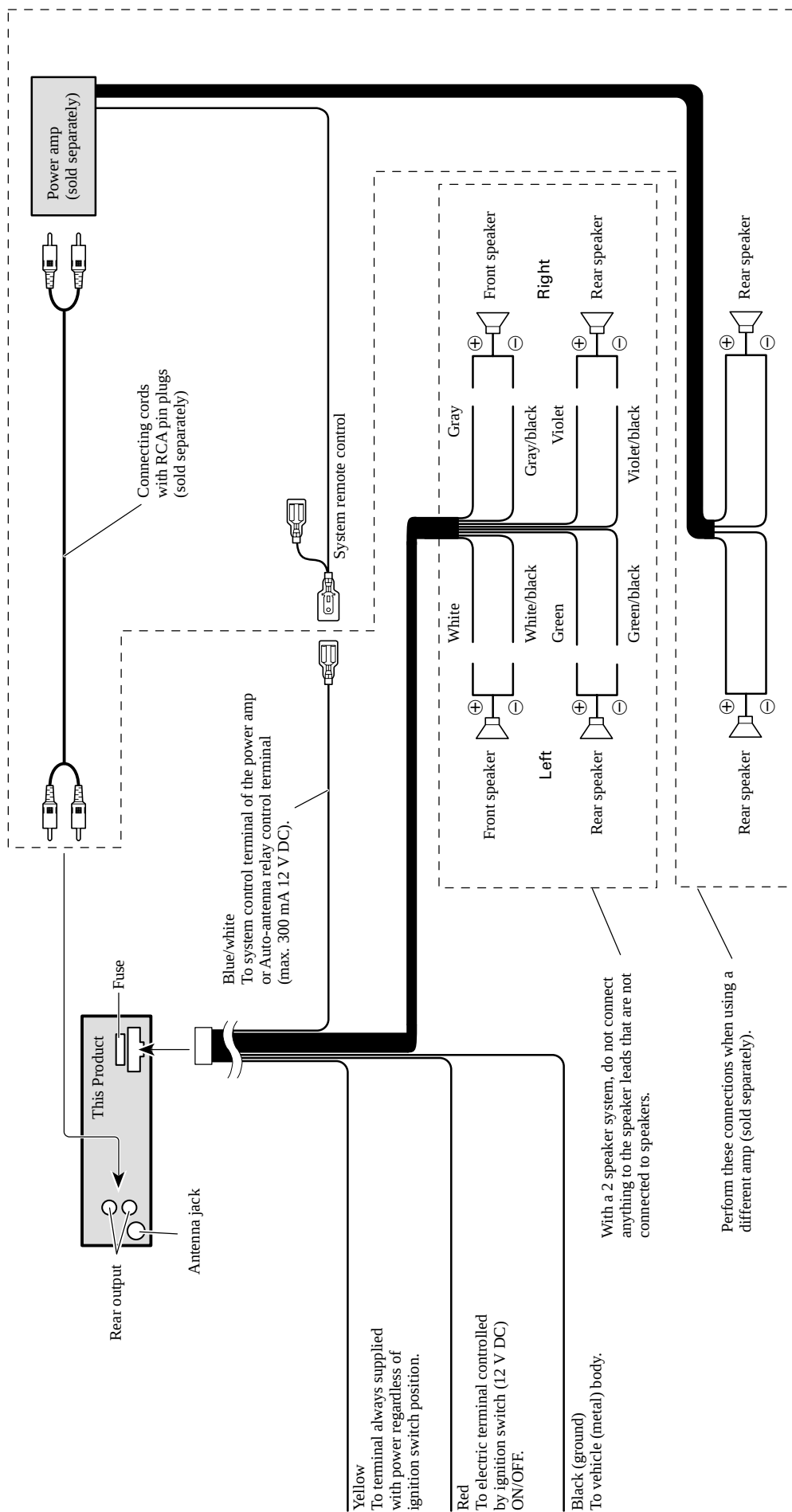
You can adjust the currently selected equalizer curve setting as desired. Adjusted equalizer curve settings are memorized in CSTM.

- 1 Press AUDIO to select the equalizer mode. Press AUDIO until EQ appears in the display.
- 2 Select the band you want to adjust with /.
L (low) —M (mid) —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 CSTM is selected, the newly adjusted curve will replace the previous curve. Then a new curve with CSTM 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	3 mA
Dimensions (W × H × D): (DIN)	
Chassis	178 × 50 × 157 mm (7 × 2 × 6-1/8 in)
Nose	188 × 58 × 19 mm (7-3/8 × 2-1/4 × 3/4 in)
(D)	
Chassis	178 × 50 × 162 mm (7 × 2 × 6-3/8 in)
Nose	170 × 48 × 14 mm (7 × 1-7/8 × 1/2 in)
Weight	1.3 kg (2.9 lbs)
Audio	
Continuous power output is 20W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output	45 W × 4
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) (IHF-A network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)
FM tuner	
Frequency range	87.9 – 107.9 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 (IHF-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)
Selectivity	70 dB
Three-signal intermodulation (desired signal level)	
.....	30 dBf (two undesired signal level: 100 dBf)
AM tuner	
Frequency range	530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 µV (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)



Note

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