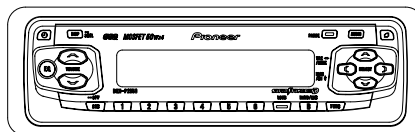


Service Manual



DEH-P2550/XM/ES

ORDER NO.
CRT2983

MULTI-CD CONTROL HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-P2550

XM/ES, XN/ES



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

Model No.	Order No.	Mech. Module	Remarks
CX-3026	CRT2944	S10	CD Mech. Module:Circuit Description, Mech.Description, Disassembly



For details, refer to "Important symbols for good services".

PIONEER CORPORATION

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PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

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.

[Important symbols for good services]

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

1. Product safety



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

2. Adjustments



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

3. Cleaning



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

4. Shipping mode and shipping screws



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

5. Lubricants, glues, and replacement parts



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

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● CD Player Service Precautions



1. Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
2. To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment(shorting-solder) by referring to "the DISASSEMBLY" on page 41.
3. After replacing the pickup unit, be sure to check the grating.(See p.38.)

1. SPECIFICATIONS

General

Rated power source	14.4 V DC (allowable voltage range: 12.0 – 14.4 V DC)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	5 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 157 mm
Nose	188 × 58 × 19 mm
D	
Chassis	178 × 50 × 162 mm
Nose	170 × 46 × 14 mm
Weight	1.4 kg

Audio

Continuous power output is 22 W per channel minimum into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output	50 W × 4
Load impedance	4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance	2.2 V/1 k Ω

Equalizer (3-Band Parametric Equalizer):

Low

Frequency	40/80/100/160 Hz
Q Factor	0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain	±12dB

Mid

Frequency	200/500/1k/2k Hz
Q Factor	0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain	±12dB

High

Frequency	3.15k/8k/10k/12.5k Hz
Q Factor	0.35/0.59/0.95/1.15 (+6 dB when boosted)
Gain	±12dB

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 net- work)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

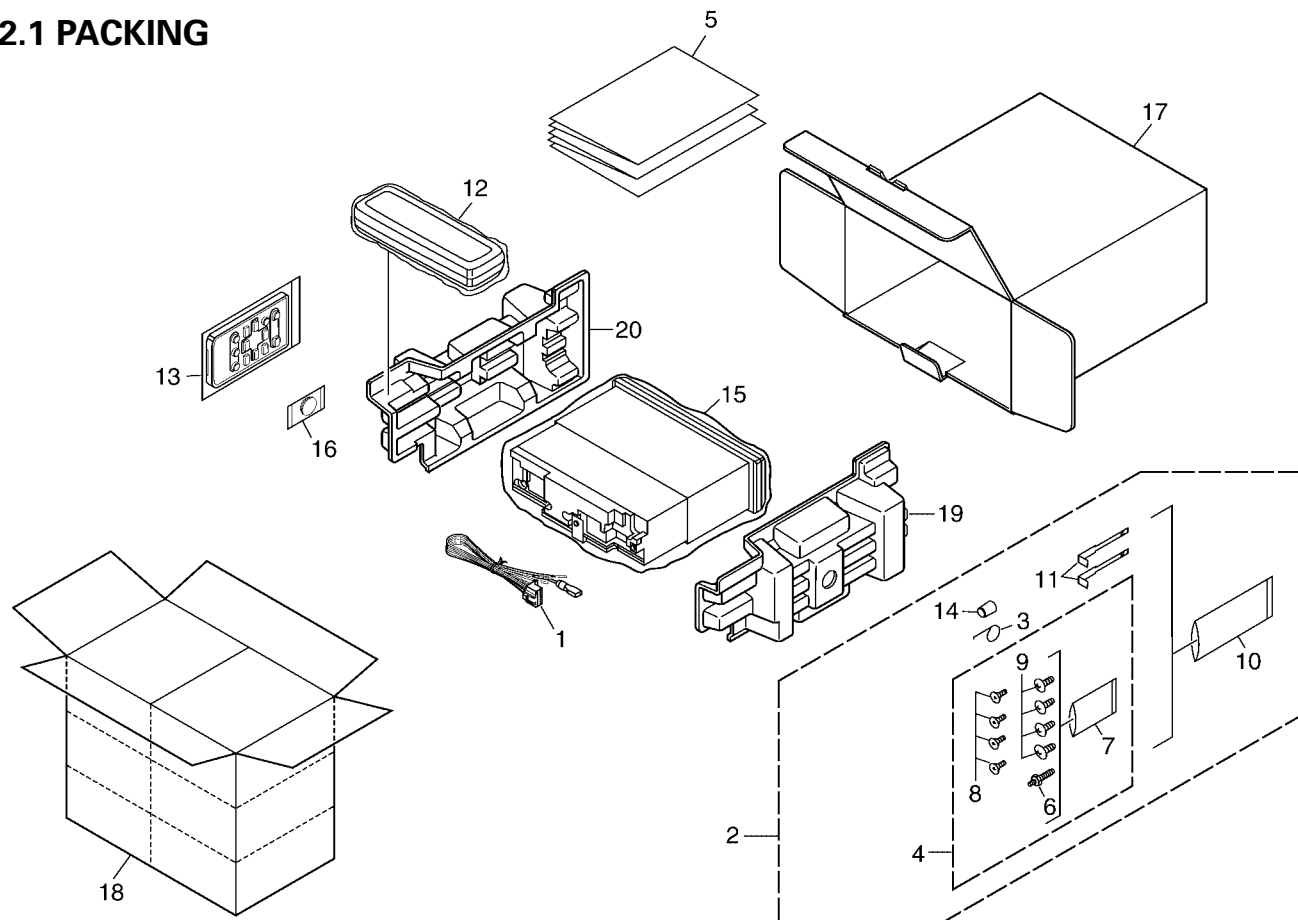
Frequency range	87.5 – 108.0 MHz
Usable sensitivity	8 dBf (0.7 μ V/75 Ω , mono, S/N: 30 dB)
50 dB quieting sensitivity	10 dBf (0.9 μ V/75 Ω , mono)
Signal-to-noise ratio	75 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response	30 – 15,000 Hz (± 3 dB)
Stereo separation	45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	531 – 1,602 kHz (9 kHz) 530 – 1,640 kHz (10 kHz)
Usable sensitivity	18 μ V (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▽ mark on the product are used for disassembly.
- For the applying amount of lubricants or glue, follow the instructions in this manual.
(In the case of no amount instructions, apply as you think it appropriate.)

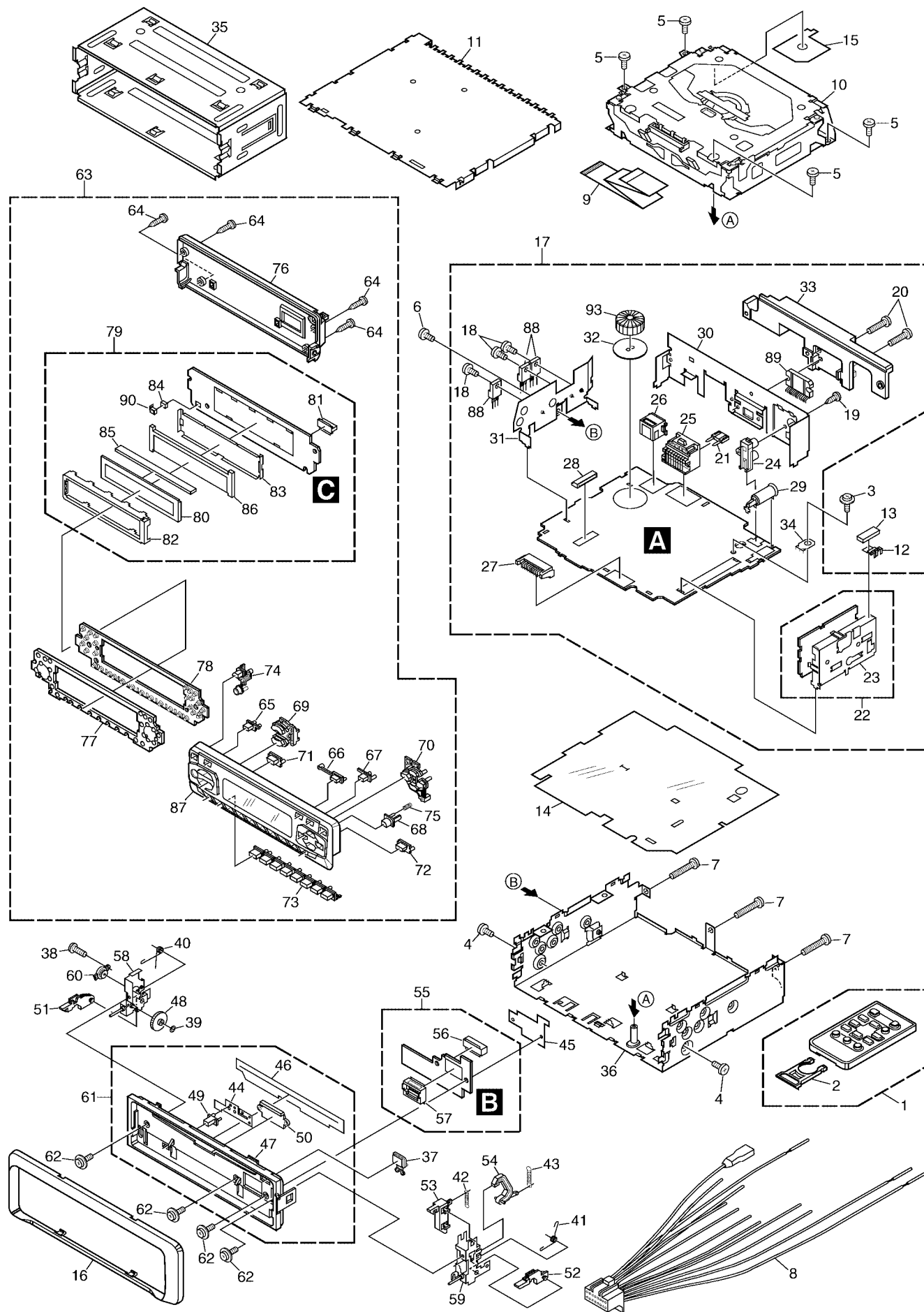
● PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE7060	14	Bush	CNV3930
2	Accessory Assy	CEA3439	15	Polyethylene Bag	CEG1173
3	Spring	CBH1650	* 16	Battery	CEX1065
4	Screw Assy	CEA3437	17	Carton(DEH-P2550/XM/ES)	CHG4961
5-1	Owner's Manual	CRD3690		Carton(DEH-P2550/XN/ES)	CHG4975
5-2	Owner's Manual	CRD3691	18	Contain Box(DEH-P2550/XM/ES)	CHL4975
5-3	Installation Manual	CRD3692		Contain Box(DEH-P2550/XN/ES)	CHL4961
6	Screw	CBA1002	19	Protector	CHP2663
* 7	Polyethylene Bag	CEG-127	20	Protector	CHP2664
8	Screw	CRZ50P090FTC			
9	Screw	TRZ50P080FTC			
* 10	Polyethylene Bag	CEG-158			
11	Handle	CNC5395			
12	Case Assy	CXB3520)			
13	Remote Control Unit	CXC1265			

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-P2550/XM/ES	CRD3690	English, Spanish, Portuguese(B)
DEH-P2550/XN/ES	CRD3691	Traditional Chinese, Arabic
	CRD3692	English, Spanish, Portuguese(B), Traditional Chinese, Arabic

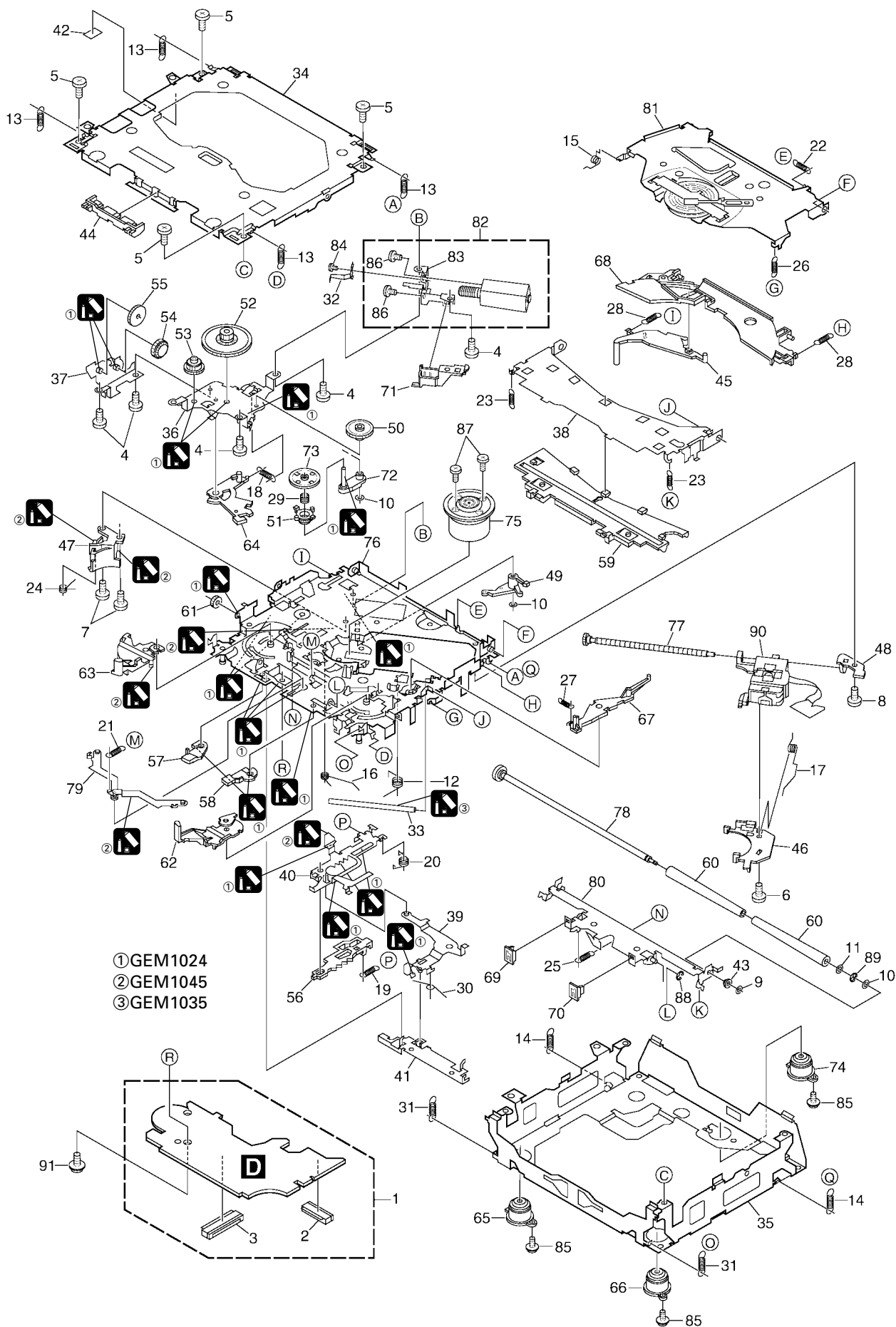
2.2 EXTERIOR



● EXTERIOR SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	Remote Control Unit	CXC1265	46	Cover	CNM6854	
2	Cover	CNS7068	47	Panel	CNS7245	
3	Screw	ISS26P055FTC	48	Gear	CNV5997	
4	Screw	BMZ30P040FZK	49	Pin	CNV6486	
5	Screw	BSZ26P060FTC	50	Lighting Conductor	CNV6487	
6	Screw	BSZ30P060FTC	51	Arm	CNV7400	
7	Screw	BSZ30P200FTC	52	Arm	CNV7401	
8	Cord Assy	CDE7060	53	Arm	CNV7402	
9	Cable	CDE7188	54	Arm	CNV7403	
10	CD Mechanism Module(S10)	CXK5600	55	Panel Unit	CWM8758	B
11	Case	CNB2793	56	Socket(CN1950)	CKS3550	
12	Earth Plate	CNC8915	57	Connector(CN1951)	CKS4462	
13	Cushion	CNM4870	58	Holder Unit	CXB9501	
14	Insulator	CNM7935	59	Holder Unit	CXB9502	
15	Insulator	CNM8174	60	Damper Unit	CXB9503	
16	Panel	CNS6935	61	Service Panel Unit	CXX1691	
17	Tuner Amp Unit	CWM8619	62	Screw	IMS20P045FZK	
18	Screw	ASZ26P060FTC	63	Detach Grille Assy	CXB9604	
19	Screw	BPZ26P080FTC	64	Screw	BPZ20P100FZK	C
20	Screw	BSZ26P160FTC	65	Button(DISP)	CAC7779	
21	Fuse(10A)	CEK1208	66	Button(PAUSE)	CAC7780	
22	FM/AM Tuner Unit	CWE1646	67	Button(AUDIO)	CAC7781	
23	Holder	CND1054	68	Button(OPEN)	CAC7782	
24	Pin Jack(CN351)	CKB1059	69	Button(VOLUME)	CAC7810	
25	Plug(CN981)	CKM1376	70	Button(SELECT)	CAC7812	
26	Connector(CN101)	CKS3408	71	Button(SRC)	CAC7785	
27	Plug(CN831)	CKS3537	72	Button(FUNC)	CAC7786	
28	Connector(CN721)	CKS3835	73	Button(1-6)	CAC7787	
29	Antenna Jack(CN401)	CKX1056	74	Button(CLK, EQ)	CAC7808	D
30	Holder	CND1237	75	Spring	CBH2630	
31	Holder	CND1352	76	Cover	CNS7269	
32	Insulator	CNM8245	77	Lighting Conductor	CNV7421	
33	Heat Sink	CNR1668	78	Rubber	CNV7422	
34	Terminal(CN402)	VNF1084	79	Keyboard Unit	CWM8635	
35	Holder Unit(DEH-P2550/XM/ES)	CXB6681	80	LCD(LCD1901)	CAW1759	
	Holder(DEH-P2550/XN/ES)	CNC8659	81	Connector(CN1901)	CKS4524	
36	Chassis Unit	CXB9528	82	Holder	CNC9757	
37	Button(EJECT)	CAC7752	83	Sheet	CNM7647	E
38	Screw(M2x2)	CBA1176	84	Cushion	CNM8092	
39	Washer	CBF1038	85	Connector	CNV6440	
40	Spring	CBH2650	86	Lighting Conductor	CNV7495	
41	Spring	CBH2651	87	Grille Unit	CXB9632	
42	Spring	CBH2652	88	Transistor(Q752, 901, 911)	2SD2375	
43	Spring	CBH2653	89	IC(IC301)	PAL007A	
44	Spring	CBL1512	90	IC(IC1902)	TSOP4840SB1	
45	Holder	CND1254	91		
			92		
			93	Choke Coil(L981)	CTH1280	F

2.3 CD MECHANISM MODULE

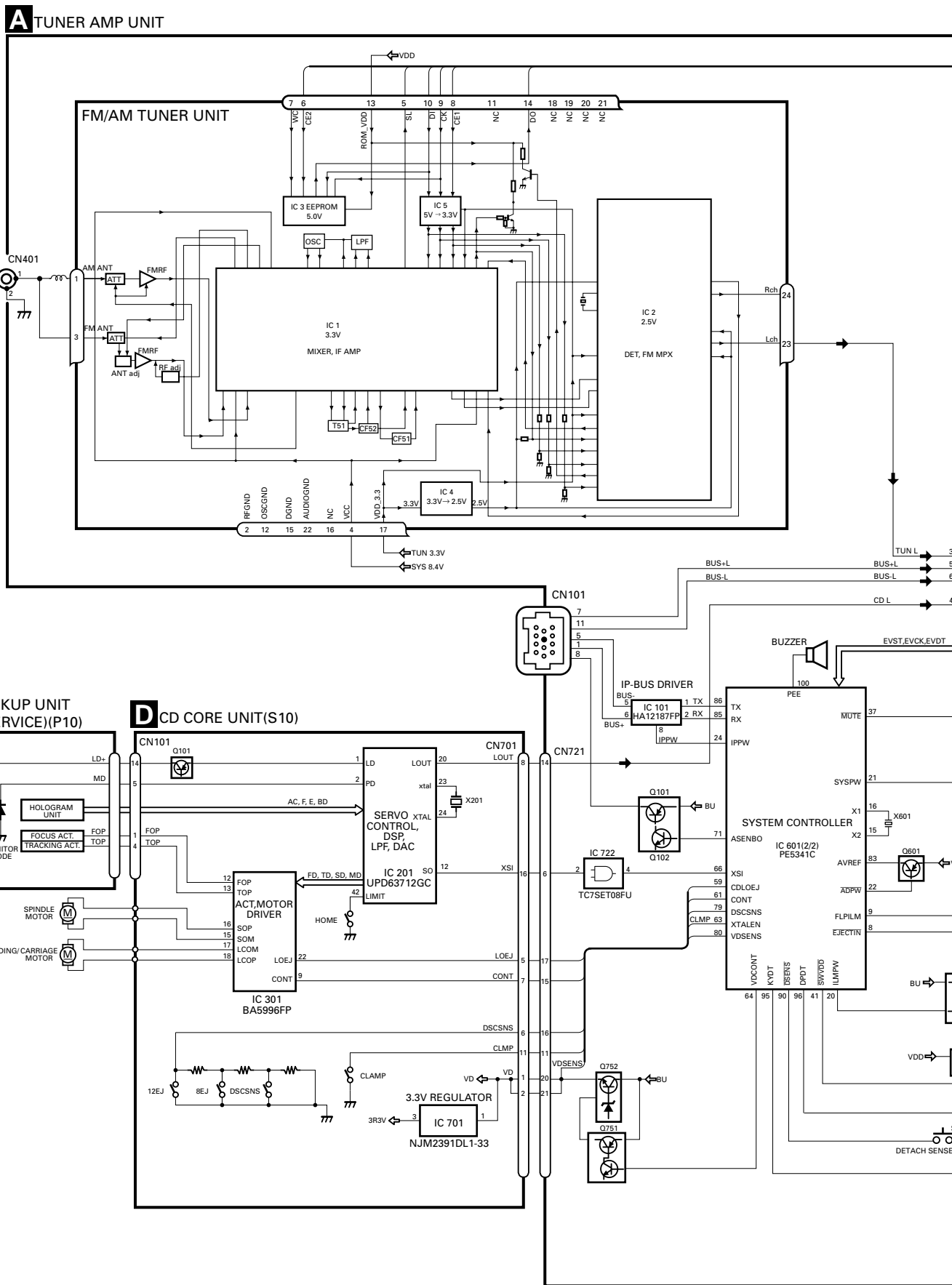


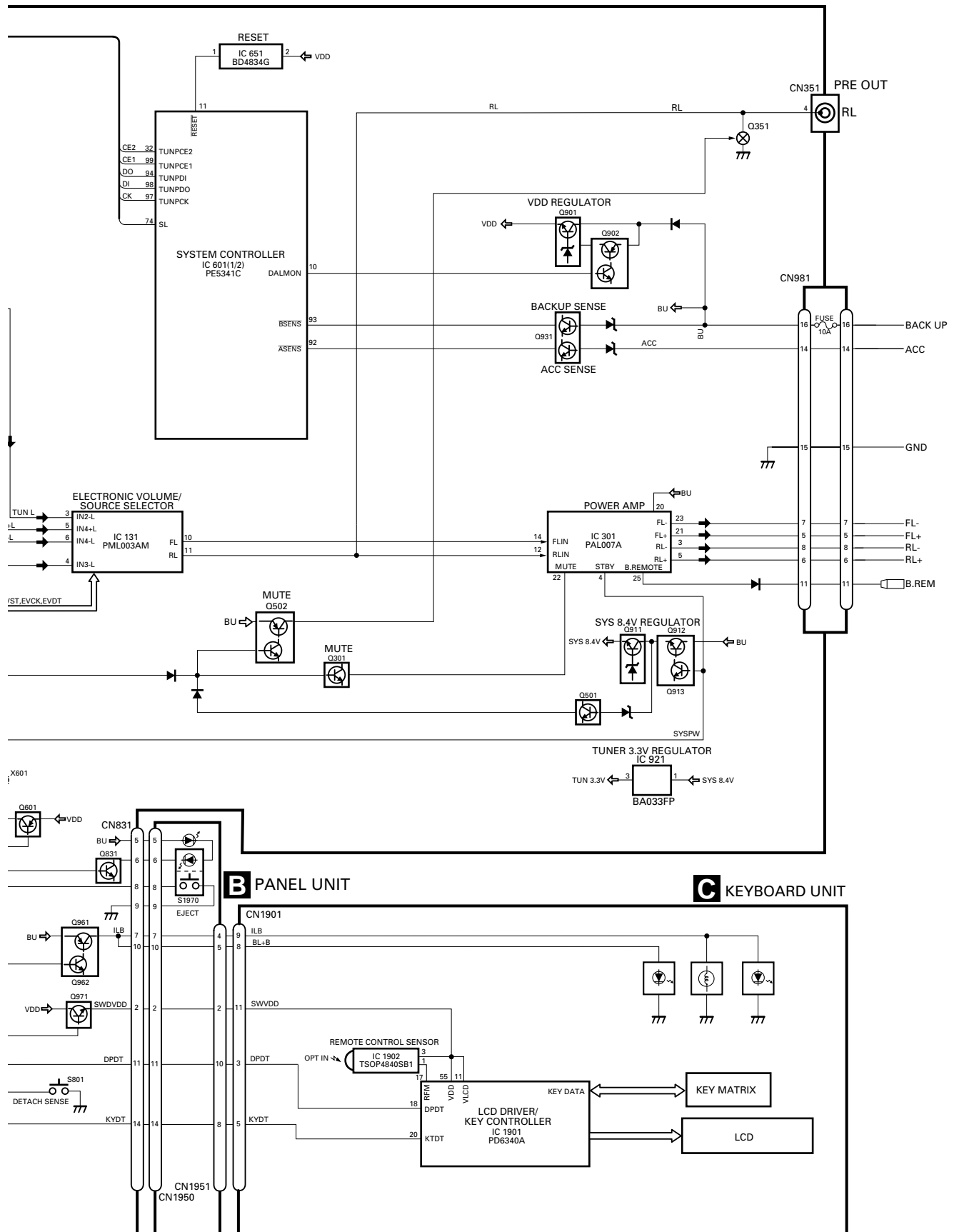
● CD MECHANISM MODULE SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	CD Core Unit(S10)	CWX2708	46	Rack	CNV7199
2	Connector(CN101)	CKS4182	47	Holder	CNV7201
3	Connector(CN701)	CKS4188	48	Holder	CNV7202
4	Screw	BMZ20P035FTC	49	Arm	CNV7203
5	Screw	BSZ20P040FTC	50	Gear	CNV7207
6	Screw(M2x4)	CBA1362	51	Gear	CNV7208
7	Screw(M2x3)	CBA1511	52	Gear	CNV7209
8	Screw(M2x3)	CBA1527	53	Gear	CNV7210
9	Washer	CBF1037	54	Gear	CNV7211
10	Washer	CBF1038	55	Gear	CNV7212
11	Washer	CBF1060	56	Rack	CNV7214
12	Spring	CBH2390	57	Arm	CNV7215
13	Spring	CBH2606	58	Arm	CNV7216
14	Spring	CBH2607	59	Guide	CNV7217
15	Spring	CBH2608	60	Roller	CNV7218
16	Spring	CBH2609	61	Gear	CNV7219
17	Spring	CBH2610	62	Arm	CNV7221
18	Spring	CBH2611	63	Arm	CNV7220
19	Spring	CBH2612	64	Arm	CNV7222
20	Spring	CBH2613	65	Damper	CNV7313
21	Spring	CBH2614	66	Damper	CNV7314
22	Spring	CBH2615	67	Arm	CNV7341
23	Spring	CBH2616	68	Arm	CNV7342
24	Spring	CBH2617	69	Guide	CNV7360
25	Spring	CBH2620	70	Guide	CNV7361
26	Spring	CBH2621	71	Holder	CNV7437
27	Spring	CBH2641	72	Arm	CNV7444
28	Spring	CBH2642	73	Gear	CNV7595
29	Spring	CBH2643	74	Damper	CNV7618
30	Spring	CBH2659	75	Motor Unit(M1)	CXB6007
31	Spring	CBH2688	76	Chassis Unit	CXB8728
* 32	Spring	CBL1614	77	Screw Unit	CXB8729
33	Shaft	CLA3845	78	Gear Unit	CXB8731
34	Frame	CNC9962	79	Arm Unit	CXB8732
35	Frame	CNC9963	80	Arm Unit	CXB8735
36	Bracket	CNC9966	81	Arm Unit	CXB8852
37	Bracket	CNC9967	82	Motor Unit(M2)	CXB8933
38	Arm	CNC9968	83	Bracket	CNC9985
39	Arm	CNC9973	84	Screw	JFZ20P020FTC
40	Lever	CNC9983	85	Screw(M2x5)	EBA1028
41	Lever	CNC9984	86	Screw	JFZ20P020FTC
42	Sheet	CNM8134	87	Screw	JGZ17P022FTC
43	Collar	CNV6906	88	Washer	YE15FTC
44	Guide	CNV6925	89	Washer	YE20FTC
45	Arm	CNV7198	90	Pickup Unit(Service)(P10)	CXX1641
			91	Screw	IMS26P030FMC

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

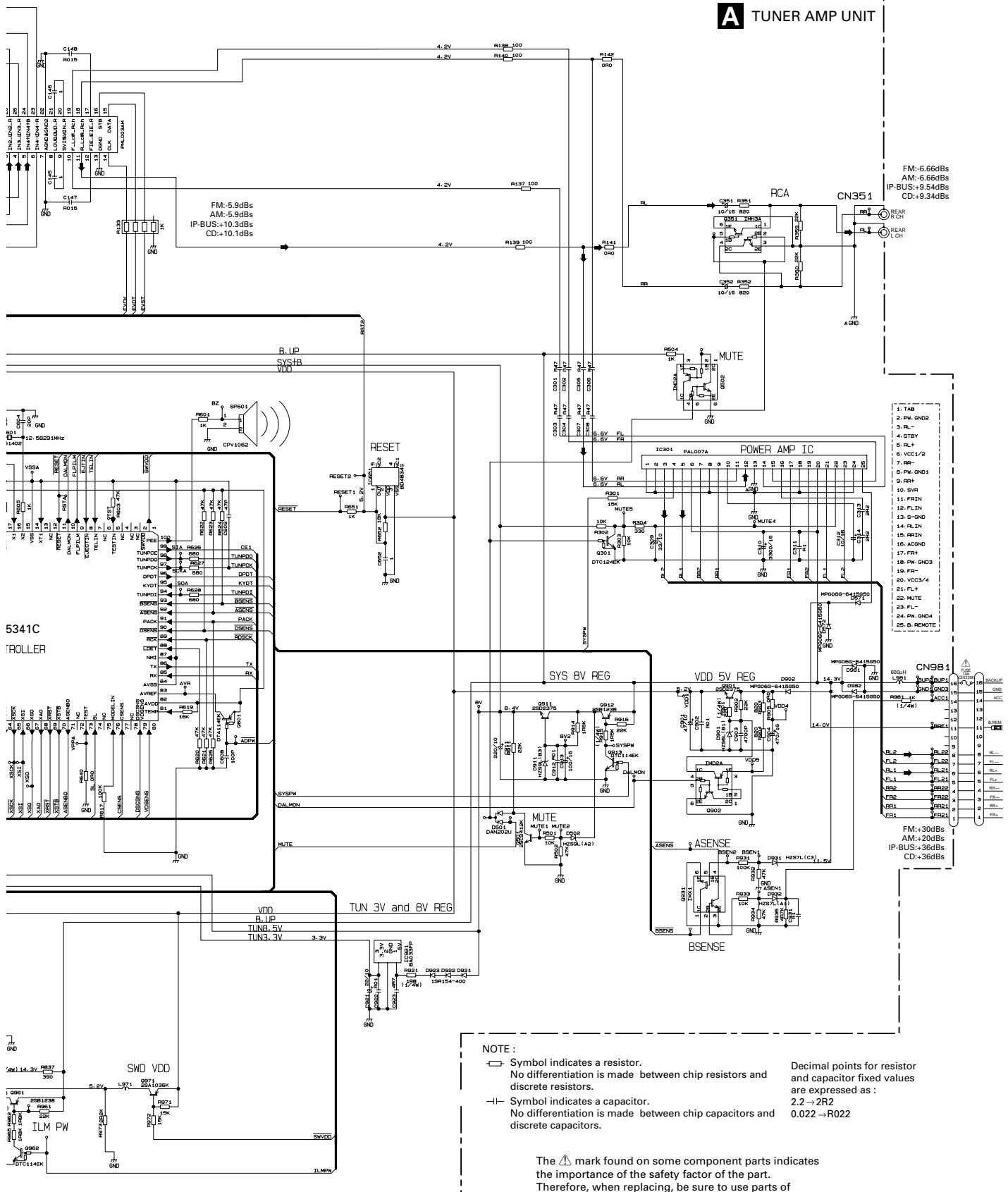
3.1 BLOCK DIAGRAM



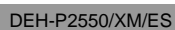


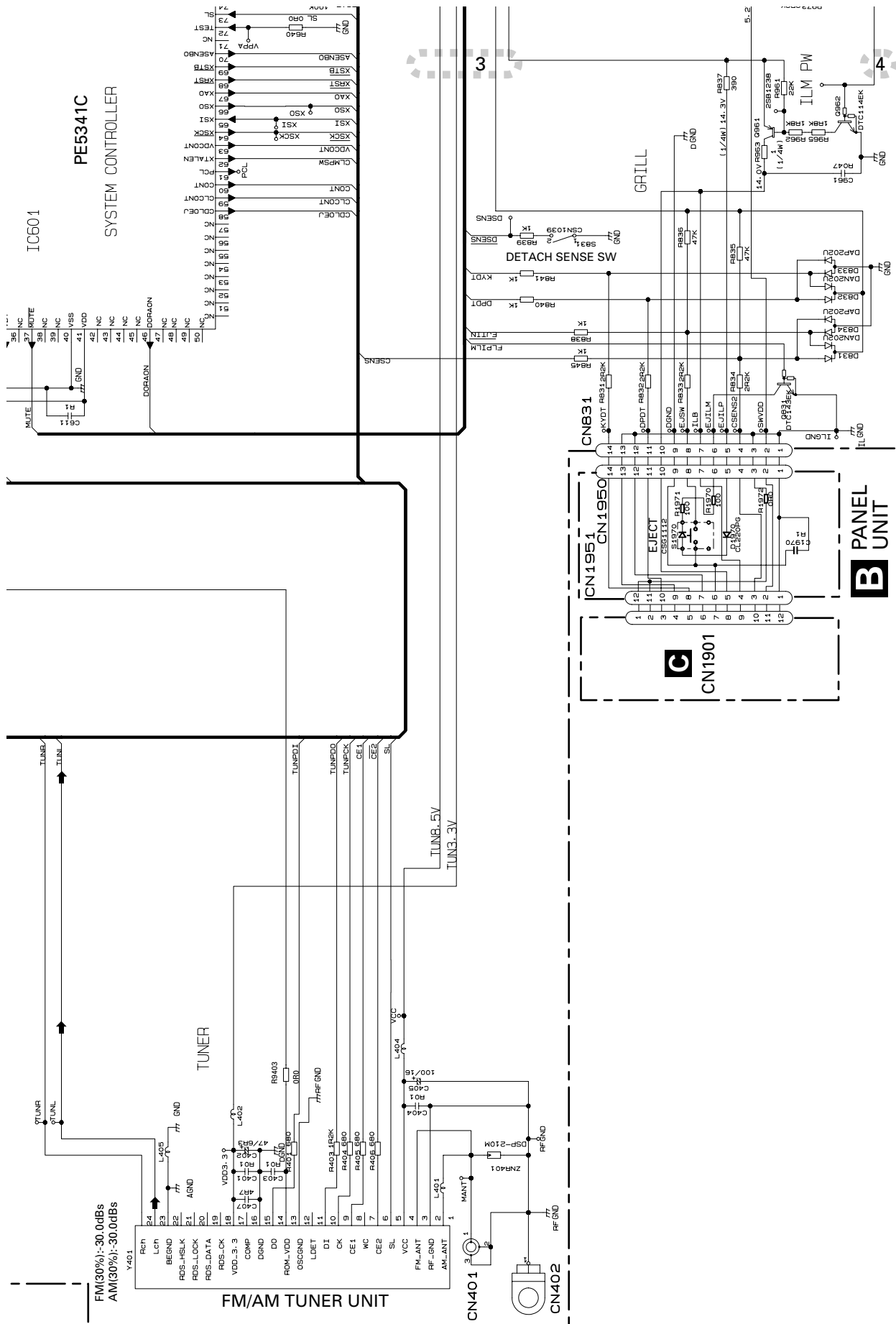
A-b

A TUNER AMP UNIT



A-a

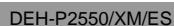


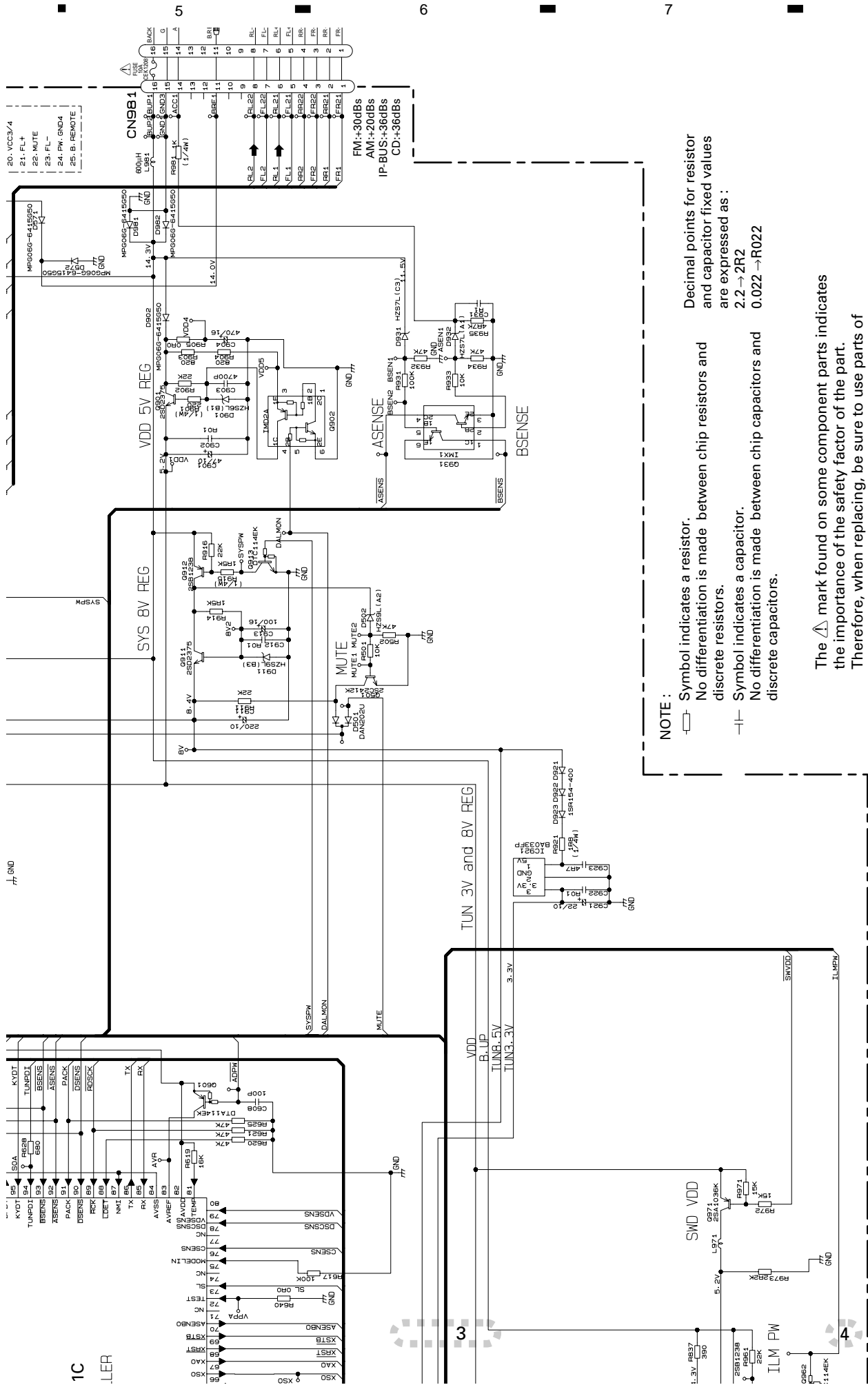


A-b

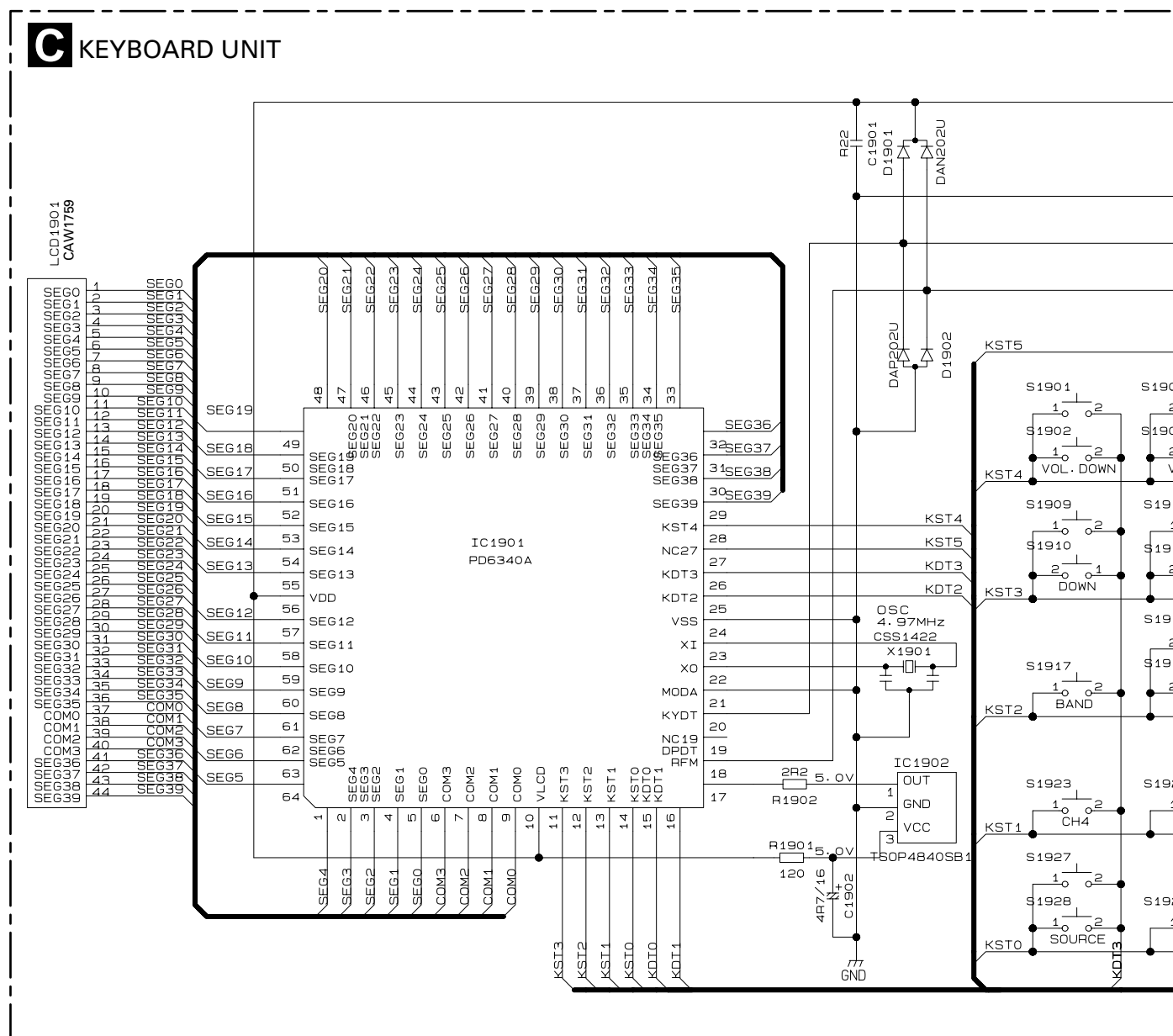
A-a A-b

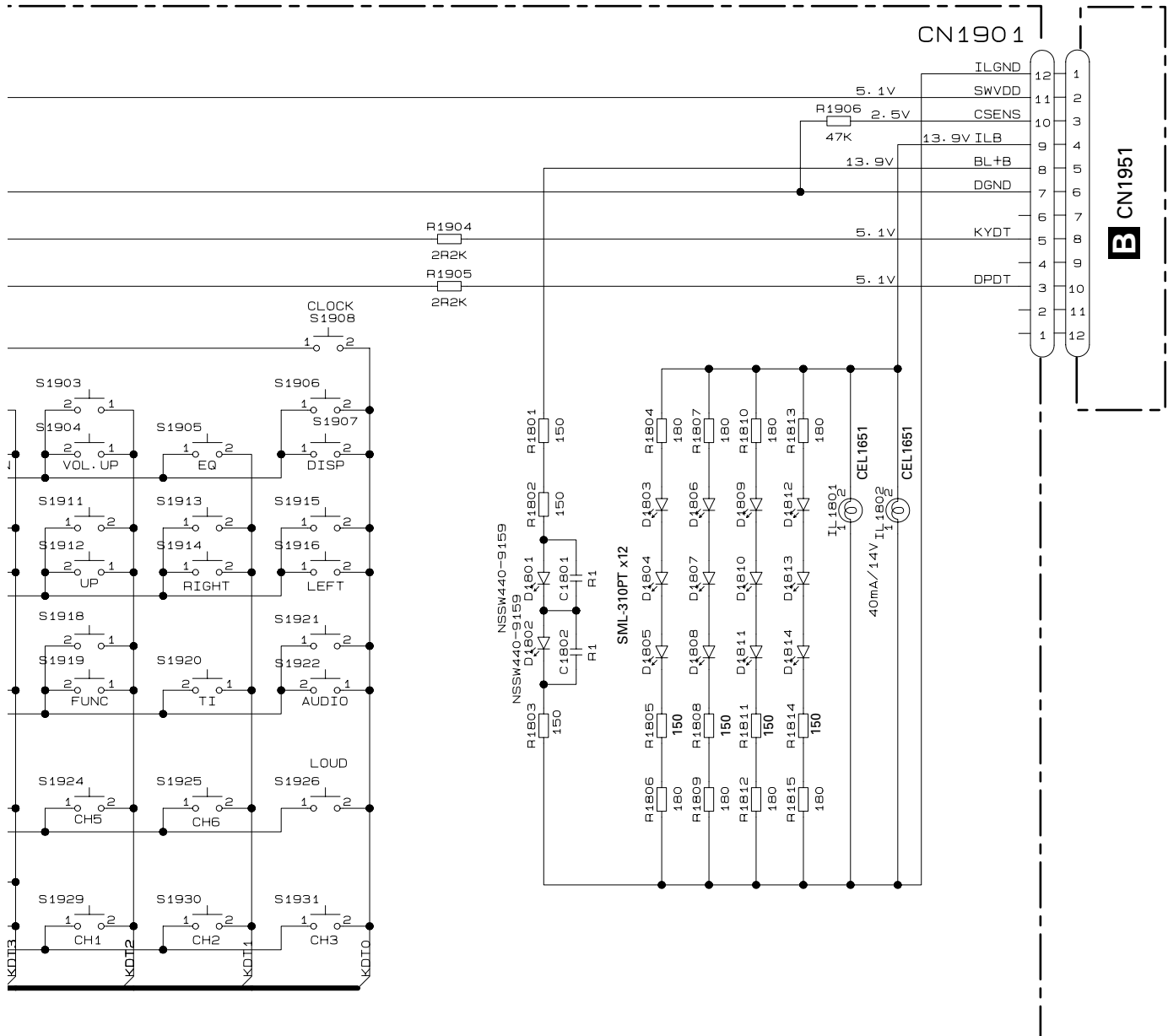
A-a B





3.3 KEYBOARD UNIT





3.4 CD MECHANISM MODULE

A

B

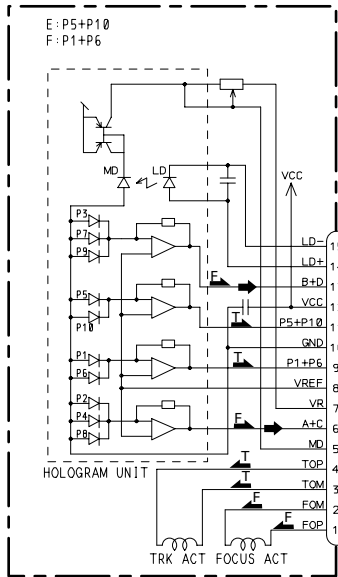
C

D

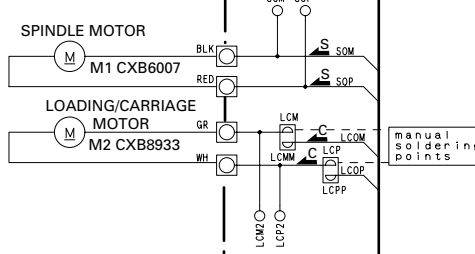
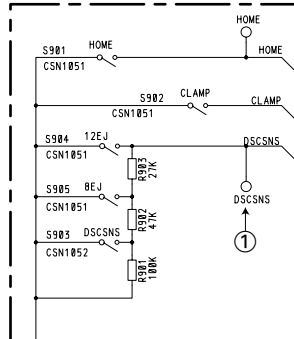
E

F

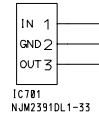
Pickup Unit(Service)(P10)



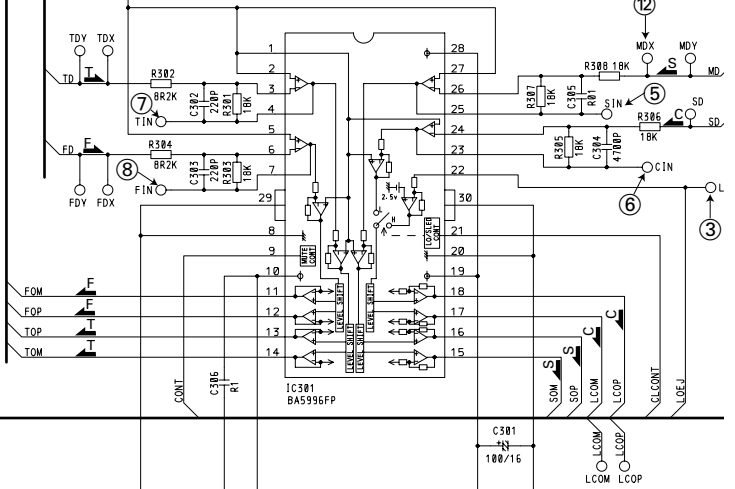
F. ACT: Applying positive voltage to FOP, the lens moves DISC side.
T. ACT: Applying positive voltage to TOP, the lens moves outer circumference.



3.3V REGULATOR

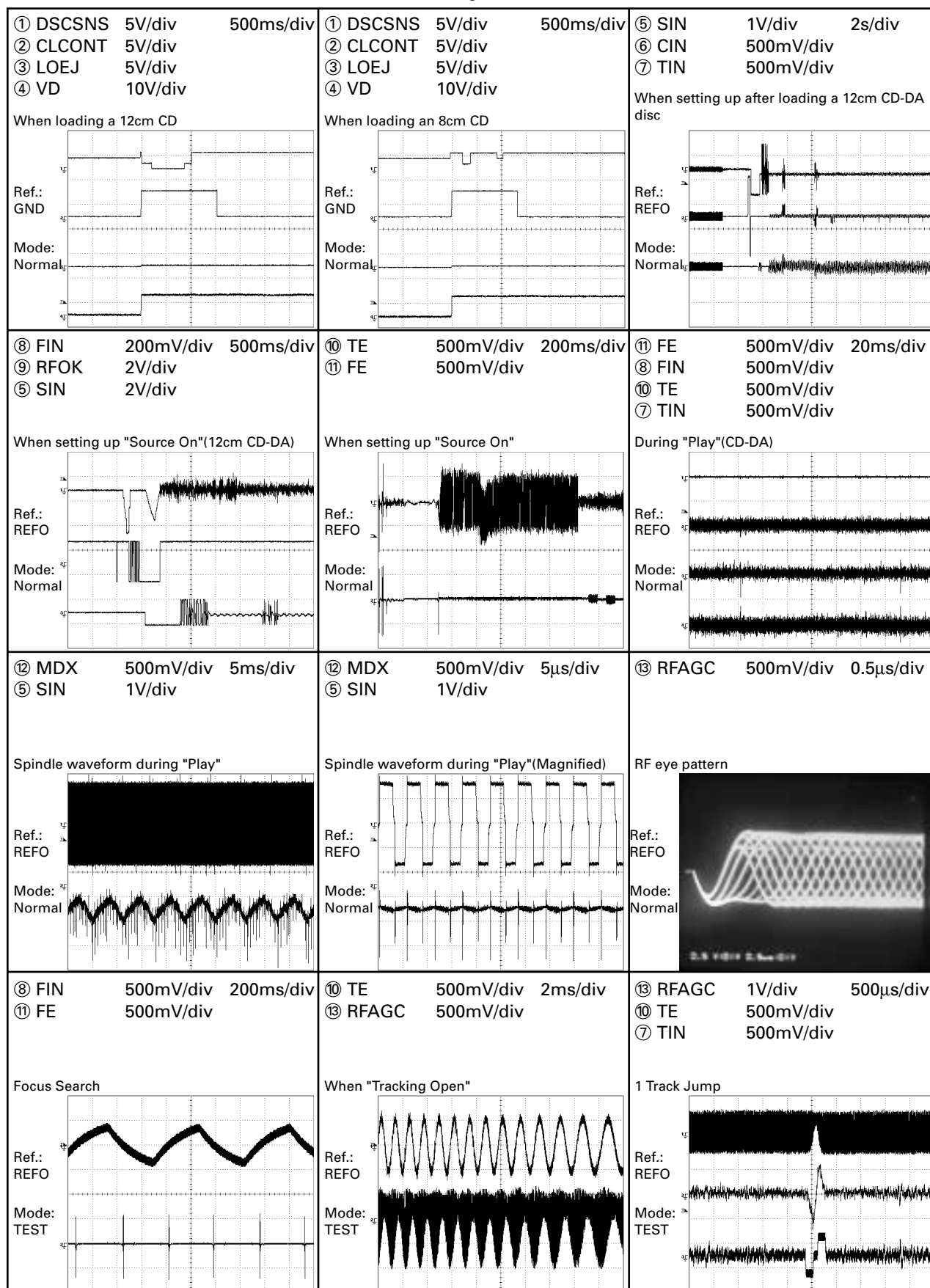


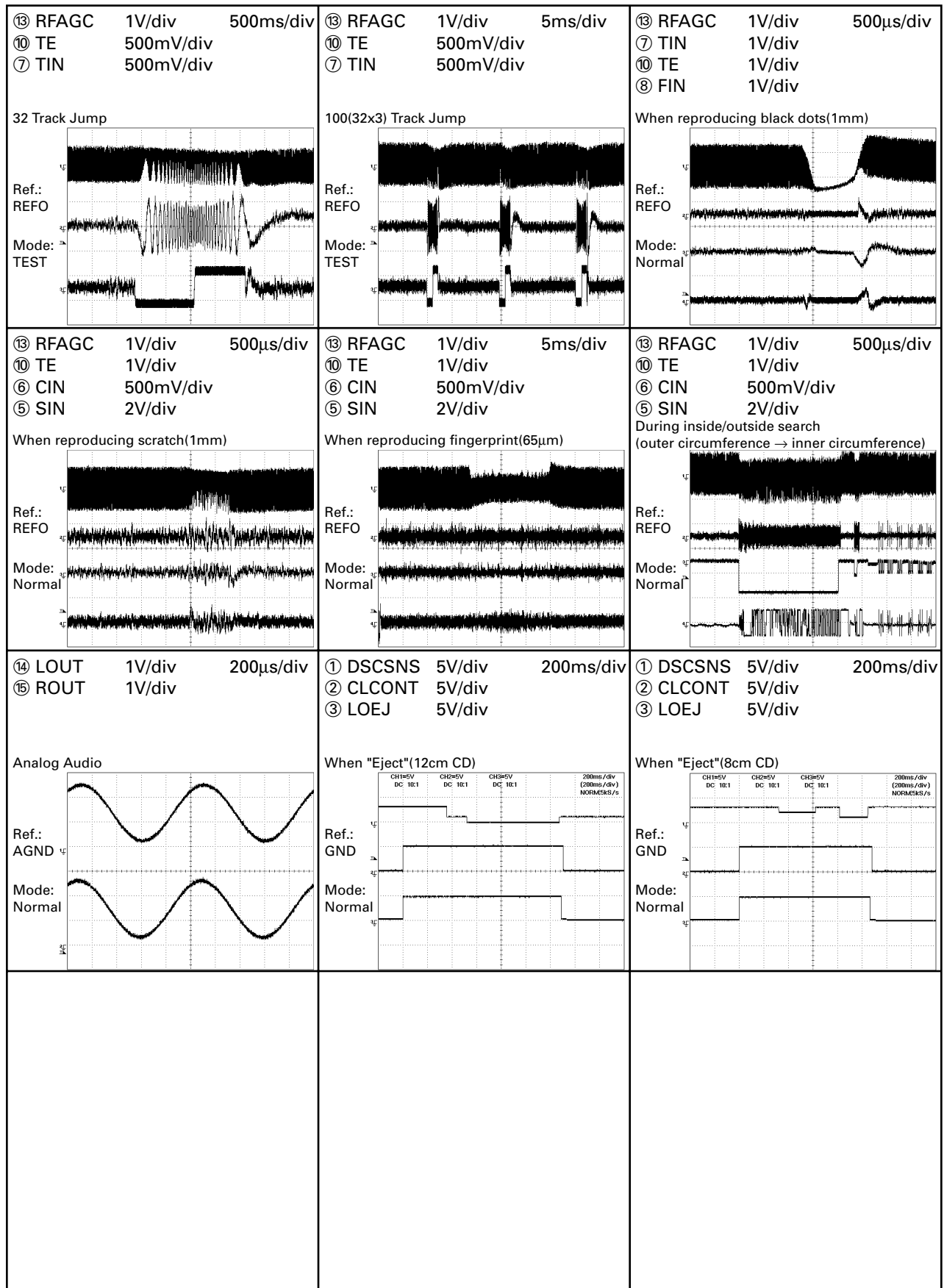
MOTOR DRIVER



Waveforms

Note : 1. The encircled numbers denote measuring points in the circuit diagram.
2. Reference voltage REFO1(1.65V)





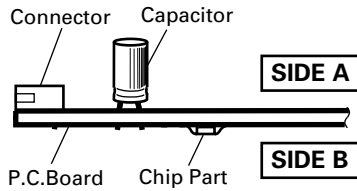
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

NOTE FOR PCB DIAGRAMS

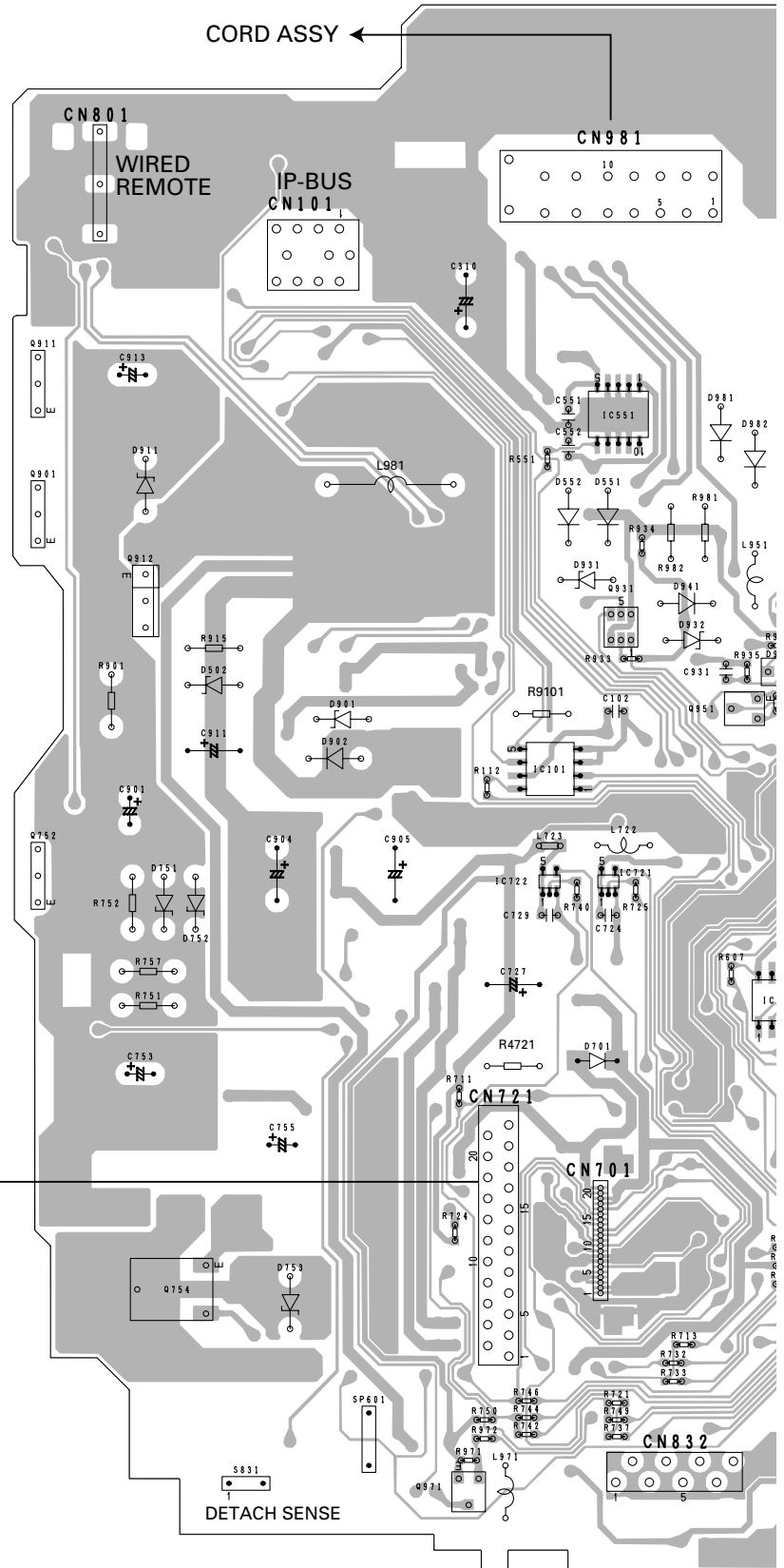
1.The parts mounted on this PCB include all necessary parts for several destination.
For further information for respective destinations, be sure to check with the schematic diagram.

2.Viewpoint of PCB diagrams



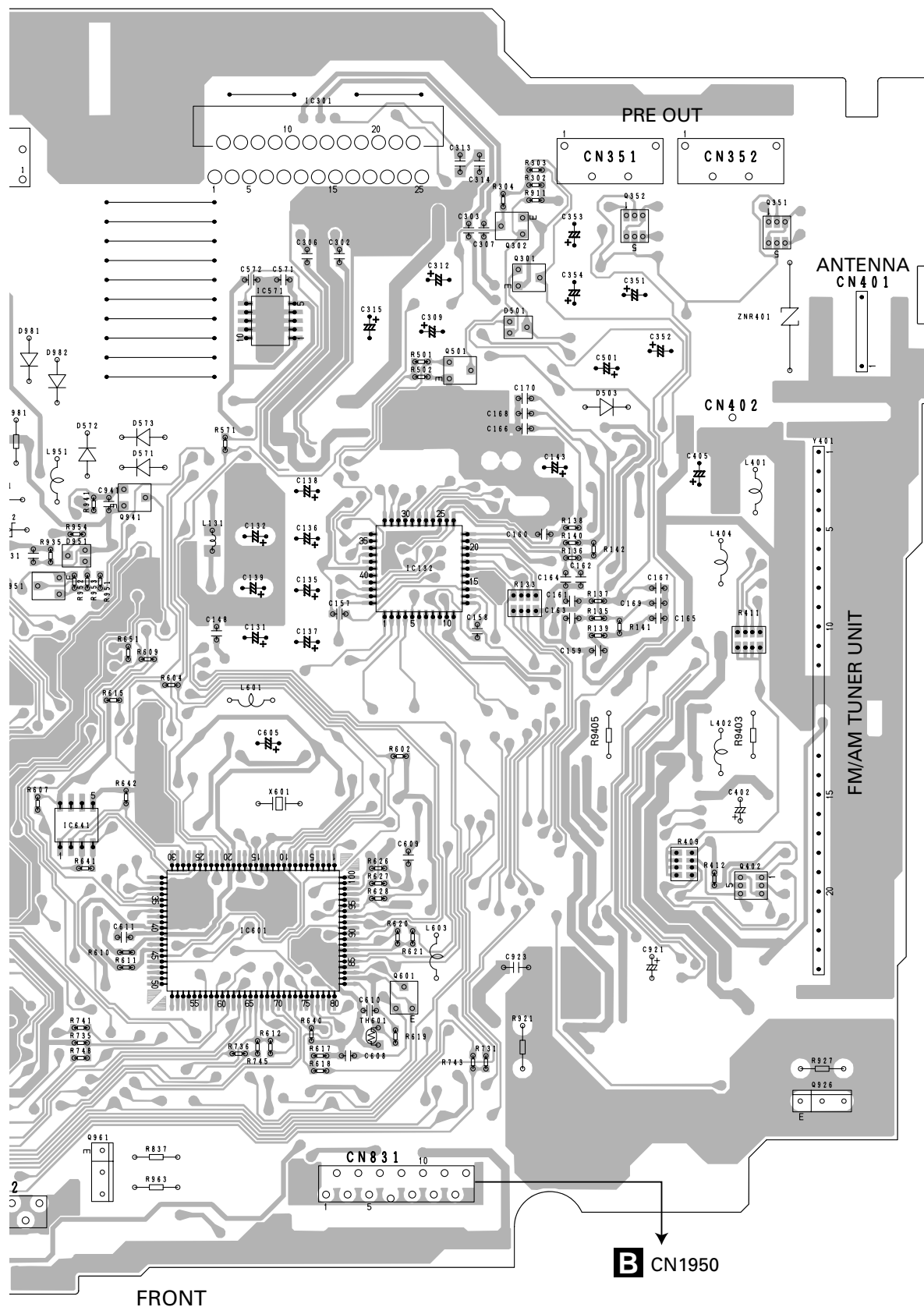
A TUNER AMP UNIT

D CN701



A

SIDE A



B CN1950

A

A



TUNER AMP UNIT

B

C

D

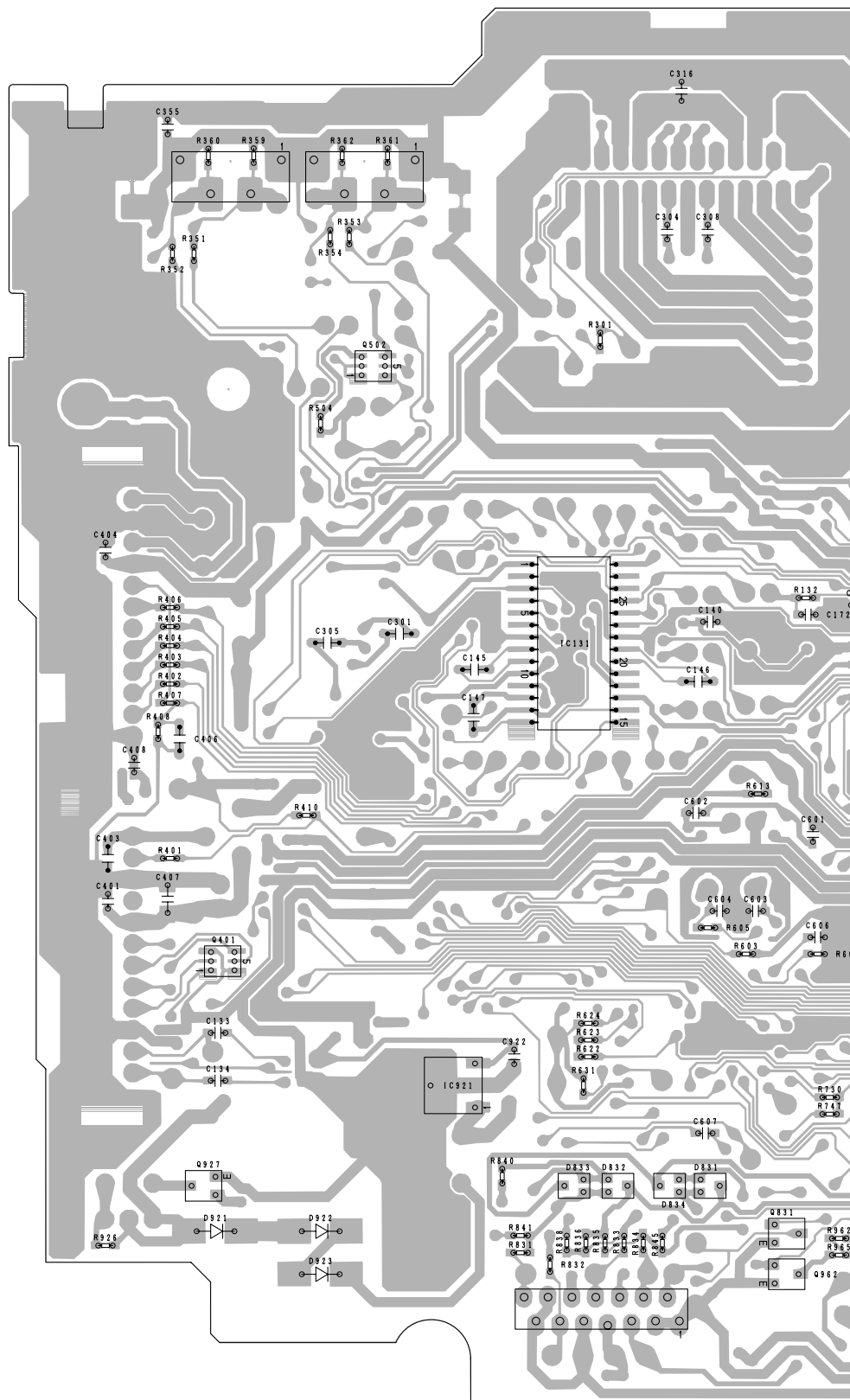
E

F

IC,Q

Q102
Q502
Q101Q913
IC131IC651
Q902
IC653Q753
Q751
Q401

IC921

Q927
Q831
Q962

SIDE B

A

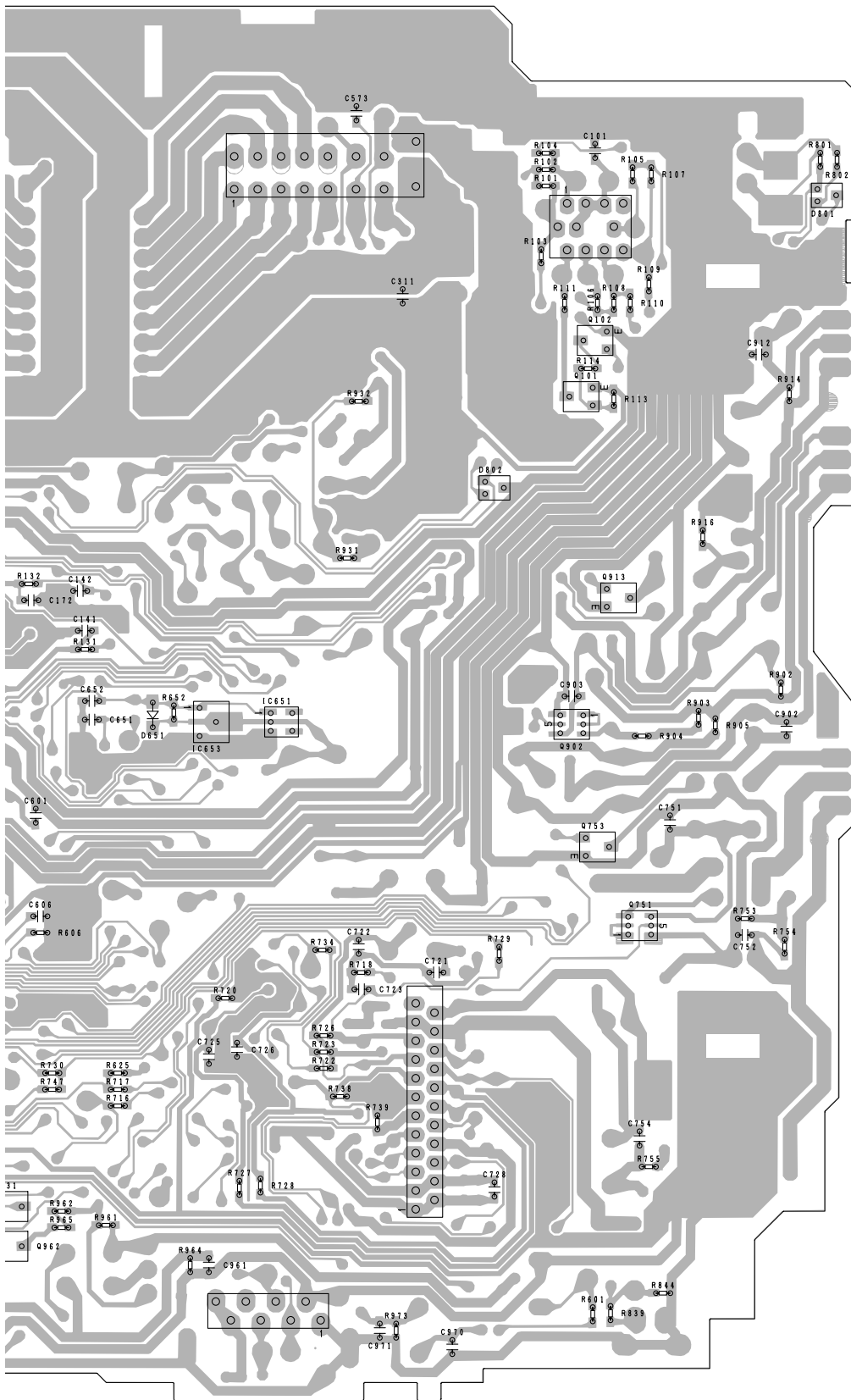
B

C

D

E

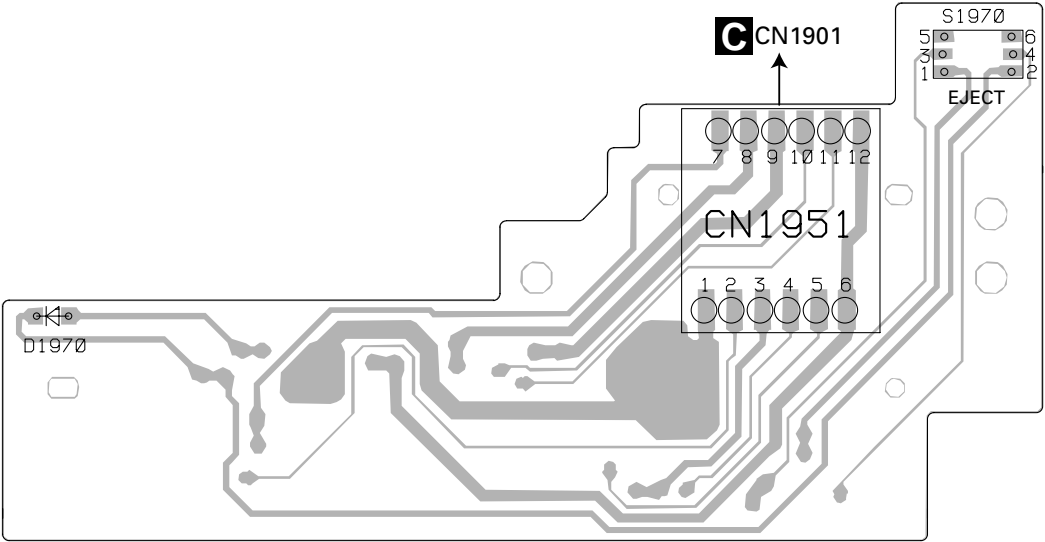
F



4.2 PANEL UNIT

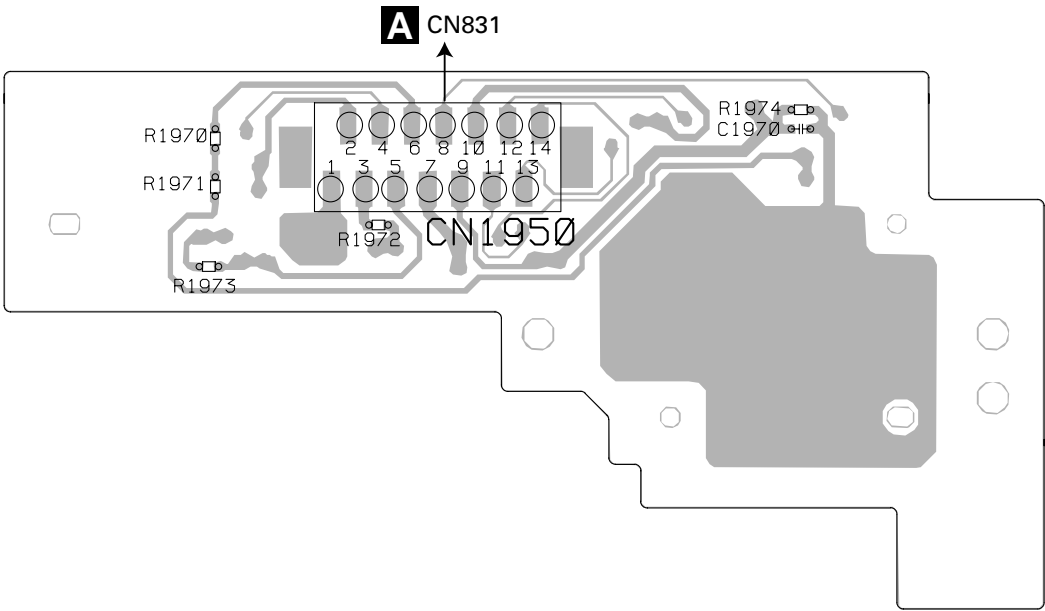
B PANEL UNIT

SIDE A

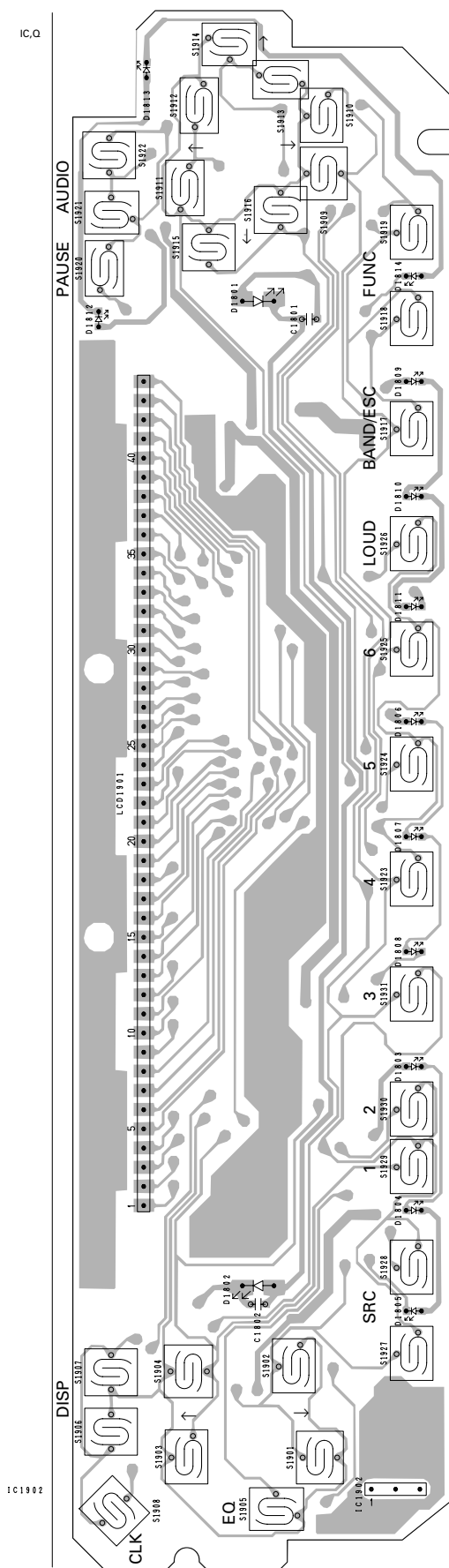


B PANEL UNIT

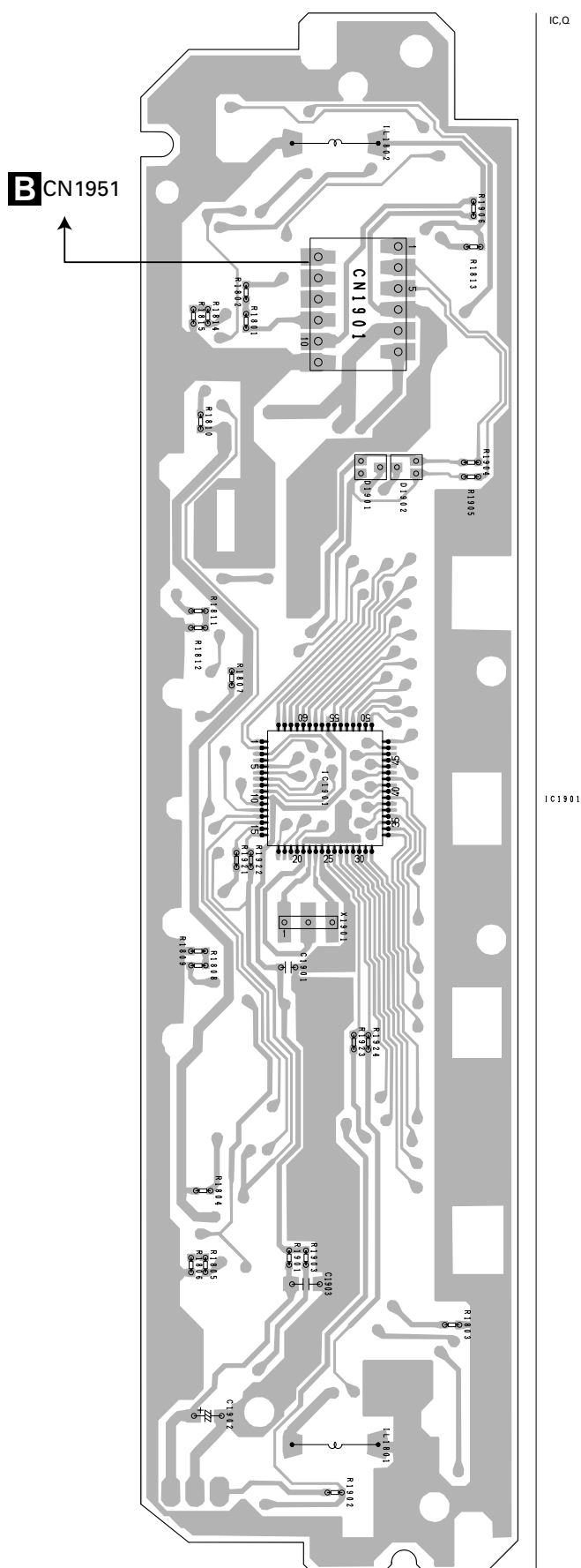
SIDE B



SIDE A



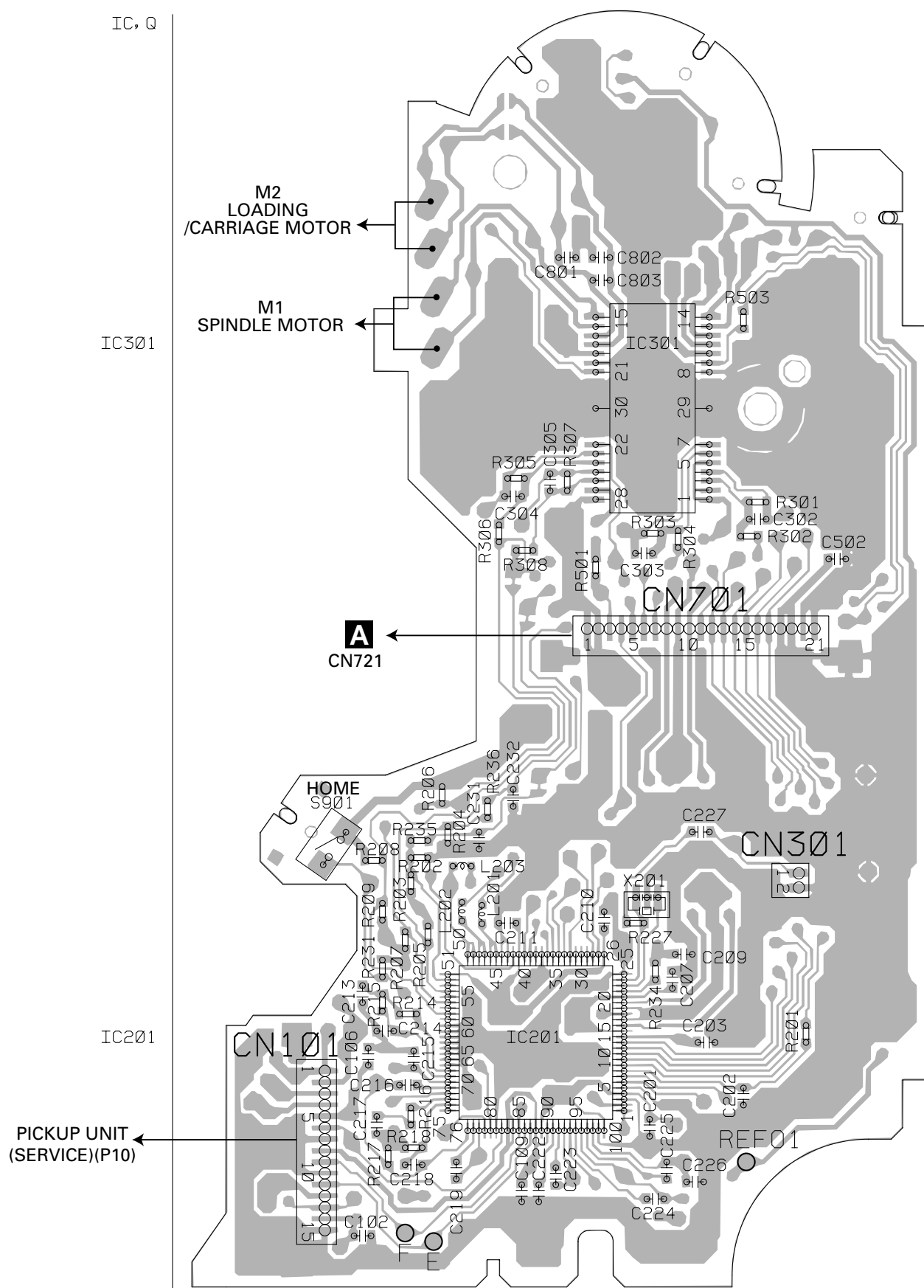
SIDE B



4.4 CD MECHANISM MODULE

D CD CORE UNIT(S10)

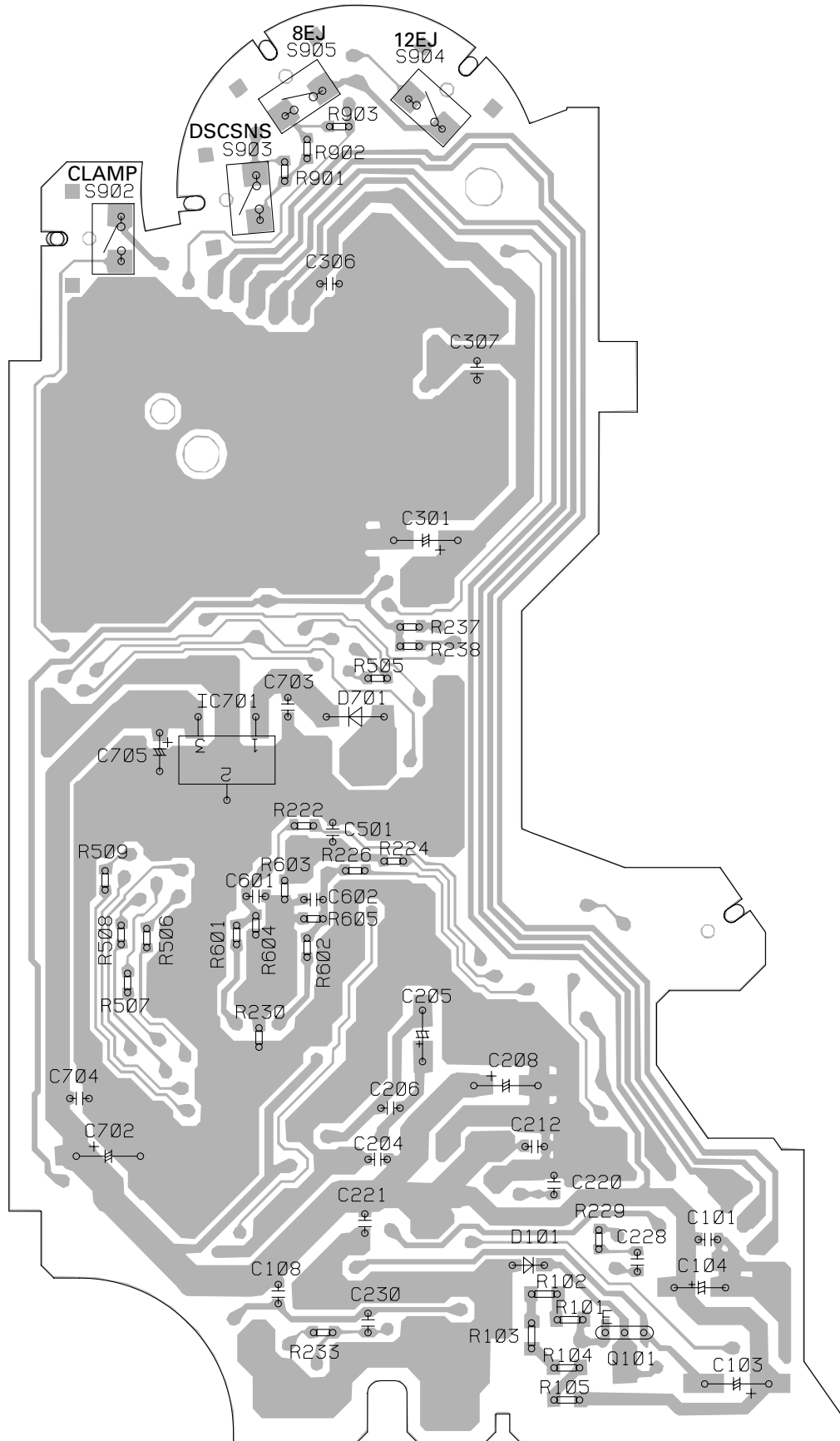
SIDE A



D

30

DEH-P2550/XM/ES



IC, Q

IC701

Q101

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 : CWM8619 Unit Name : Tuner Amp Unit		L 405	Inductor	LAU2R2K
			L 601	Inductor	LAU2R2K
			L 971	Inductor	LAU2R2K
			L 981	Choke Coil 600μH	CTH1280
			X 601	Radiator 12.58291MHz	CSS1402
			S 831	Switch(DETACH SENSE)	CSN1039
			SP 601	Buzzer	CPV1062
				Fuse 10A	CEK1208
				FM/AM Tuner Unit	CWE1646
MISCELLANEOUS			RESISTORS		
IC 101	IC	HA12187FP	R 101		RS1/16S150J
IC 131	IC	PML003AM	R 102		RS1/16S470J
IC 301	IC	PAL007A	R 103		RS1/16S101J
IC 601	IC	PE5341C	R 104		RS1/16S101J
IC 651	IC	BD4834G	R 105		RS1/16S181J
IC 722	IC	TC7SET08FU	R 106		RS1/16S181J
IC 921	IC	BA033FP	R 107		RS1/16S223J
Q 101	Transistor	2SA1037K	R 108		RS1/16S223J
Q 102	Transistor	DTC124EK	R 109		RS1/16S102J
Q 301	Transistor	DTC124EK	R 110		RS1/16S102J
Q 351	Transistor	IMH3A	R 111		RS1/16S222J
Q 501	Transistor	2SC2412K	R 112		RS1/16S103J
Q 502	Transistor	IMD2A	R 113		RS1/16S332J
Q 601	Transistor	DTA114EK	R 114		RS1/16S562J
Q 751	Transistor	IMD2A	R 131		RS1/16S0R0J
Q 752	Transistor	2SD2375	R 132		RS1/16S0R0J
Q 831	Transistor	DTC143EK	R 133		RAB4C102J
Q 901	Transistor	2SD2375	R 137		RS1/16S101J
Q 902	Transistor	IMD2A	R 138		RS1/16S101J
Q 911	Transistor	2SD2375	R 139		RS1/16S101J
Q 912	Transistor	2SB1238	R 140		RS1/16S101J
Q 913	Transistor	DTC114EK	R 141		RS1/16S0R0J
Q 931	Transistor	IMX1	R 142		RS1/16S0R0J
Q 961	Transistor	2SB1238	R 301		RS1/16S153J
Q 962	Transistor	DTC114EK	R 302		RS1/16S103J
Q 971	Transistor	2SA1036K	R 303		RS1/16S103J
D 501	Diode	DAN202U	R 304		RS1/16S331J
D 502	Diode	HZS9L(A2)	R 351		RS1/16S821J
D 571	Diode	MPG06G-6415G50	R 352		RS1/16S821J
D 572	Diode	MPG06G-6415G50	R 359		RS1/16S223J
D 751	Diode	HZS9L(B1)	R 360		RS1/16S223J
D 831	Diode	DAN202U	R 401		RS1/16S681J
D 832	Diode	DAN202U	R 403		RS1/16S122J
D 833	Diode	DAP202U	R 404		RS1/16S681J
D 834	Diode	DAP202U	R 405		RS1/16S681J
D 901	Diode	HZS6L(B1)	R 406		RS1/16S681J
D 902	Diode	MPG06G-6415G50	R 501		RS1/16S103J
D 911	Diode	HZS9L(B3)	R 502		RS1/16S473J
D 921	Diode	1SR154-400	R 504		RS1/16S102J
D 922	Diode	1SR154-400	R 601		RS1/16S102J
D 923	Diode	1SR154-400	R 603		RS1/16S473J
D 931	Diode	HZS7L(C3)	R 605		RS1/16S102J
D 932	Diode	HZS7L(A1)	R 606		RS1/16S473J
D 981	Diode	MPG06G-6415G50	R 607		RS1/16S104J
D 982	Diode	MPG06G-6415G50	R 617		RS1/16S104J
ZNR 401	Arrester	DSP-201M			
L 131	Inductor	LCTA2R2J2520			
L 401	Ferri-Inductor	LAU4R7K			
L 402	Inductor	LAU1R0K			
L 404	Inductor	LAU1R0K			

F

====Circuit Symbol and No.====Part Name	Part No.
C 911	CEJQ221M10
C 912	CKSRYB103K50
C 913	CEJQ101M16
C 921	CEJQ220M10
C 922	CKSRYB103K50
C 923	CKSYB475K10
C 931	CKSRYB104K25
C 961	CKSRYB473K50

C Unit Number : CWM8635
Unit Name : Keyboard Unit

MISCELLANEOUS

IC 1901	IC	PD6340A
IC 1902	IC	TSOP4840SB1
D 1801	LED	NSSW440-9159
D 1802	LED	NSSW440-9159
D 1803	LED	SML-310PT
D 1804	LED	SML-310PT
D 1805	LED	SML-310PT
D 1806	LED	SML-310PT
D 1807	LED	SML-310PT
D 1808	LED	SML-310PT
D 1809	LED	SML-310PT
D 1810	LED	SML-310PT
D 1811	LED	SML-310PT
D 1812	LED	SML-310PT
D 1813	LED	SML-310PT
D 1814	LED	SML-310PT
D 1901	Diode	DAN202U
D 1902	Diode	DAP202U
X 1901	Ceramic Resonator 4.97MHz	CSS1422
IL 1801	Lamp 14V 40mA	CEL1651
IL 1802	Lamp 14V 40mA	CEL1651
LCD1901	LCD	CAW1759

RESISTORS

R 1801	RS1/16S151J
R 1802	RS1/16S151J
R 1803	RS1/16S151J
R 1804	RS1/16S181J
R 1805	RS1/16S151J
R 1806	RS1/16S181J
R 1807	RS1/16S181J
R 1808	RS1/16S151J
R 1809	RS1/16S181J
R 1810	RS1/16S181J
R 1811	RS1/16S151J
R 1812	RS1/16S181J
R 1813	RS1/16S181J
R 1814	RS1/16S151J
R 1815	RS1/16S181J

R 1901	RS1/16S121J
R 1902	RS1/16S2R2J
R 1904	RS1/16S222J
R 1905	RS1/16S222J
R 1906	RS1/16S473J

CAPACITORS

C 1801	CKSRYB104K16
C 1802	CKSRYB104K16
C 1901	CKSRYB224K10
C 1902	CSZS4R7M16

====Circuit Symbol and No.====Part Name	Part No.
B Unit Number : CWM8758 Unit Name : Panel Unit	

MISCELLANEOUS

D 1970	LED	CL220PGC
S 1970	Push Switch(EJECT)	CSG1112

RESISTORS

R 1970	RS1/16S101J
R 1971	RS1/16S101J
R 1972	RS1/16S0R0J

CAPACITORS

C 1970	CKSRYB104K16
--------	--------------

D Unit Number : CWX2708
Unit Name : CD Core Unit(S10)

MISCELLANEOUS

IC 201	IC	UPD63712GC
IC 301	IC	BA5996FP
IC 701	IC	NJM2391DL1-33
Q 101	Transistor	2SB1132
D 101	Diode	1SS355
D 701	Diode	1SR154-400
X 201	Ceramic Resonator 16.934MHz	CSS1603
S 901	Spring Switch(HOME)	CSN1051
S 902	Spring Switch(CLAMP)	CSN1051
S 903	Spring Switch(DSCSNS)	CSN1052
S 904	Spring Switch(12EJ)	CSN1051
S 905	Spring Switch(8EJ)	CSN1051

RESISTORS

R 101	RS1/10S1R5J
R 102	RS1/10S1R5J
R 103	RS1/10S1R5J
R 104	RS1/10S1R5J
R 105	RS1/10S1R5J
R 201	RS1/16S102J
R 202	RS1/16S1002D
R 203	RS1/16S1002D
R 204	RS1/16S1002D
R 205	RS1/16S1002D
R 206	RS1/16S1002D
R 207	RS1/16S1002D
R 208	RS1/16S1002D
R 209	RS1/16S1002D
R 214	RS1/16S103J
R 215	RS1/16S393J
R 216	RS1/16S122J
R 217	RS1/16S562J
R 218	RS1/16S472J
R 234	RS1/16S0R0J
R 235	RS1/16S103J
R 236	RS1/16S103J
R 301	RS1/16S183J
R 302	RS1/16S822J
R 303	RS1/16S183J
R 304	RS1/16S822J
R 305	RS1/16S183J
R 306	RS1/16S183J
R 307	RS1/16S183J
R 308	RS1/16S183J

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

Part No.

R	501		RS1/16S102J
R	503		RS1/16S102J
R	505		RS1/16S102J
R	506		RS1/16S221J
R	507		RS1/16S221J
R	508		RS1/16S221J
R	509		RS1/16S221J
R	601		RS1/16S101J
R	602		RS1/16S101J
R	603		RS1/16S0R0J
R	901		RS1/16S104J
R	902		RS1/16S473J
R	903		RS1/16S273J

CAPACITORS

C	101		CKSRYB104K16
C	102		CKSRYB104K16
C	103	100μF/16V	CCH1504
C	104	47μF/6.3V	CCH1506
C	106		CCSRCH101J50
C	108		CKSRYB224K16
C	109		CKSRYB224K16
C	201		CKSRYB104K16
C	202		CKSRYB471K50
C	203		CKSRYB104K16
C	205	22μF/6.3V	CCH1507
C	206		CKSRYB103K25
C	207		CKSRYB104K16
C	208	100μF/6.3V	CCH1505
C	209		CKSRYB104K16
C	210		CKSRYB104K16
C	211		CKSRYB104K16
C	212		CKSRYB104K16
C	213		CKSRYB332K50
C	214		CKSRYB473K25
C	215		CKSRYB104K16
C	216		CKSRYB103K25
C	217		CCSRCH560J50
C	218		CCSRCH5R0C50
C	219		CKSRYB104K16
C	220		CKSRYB104K16
C	221		CKSRYB104K16
C	222		CKSRYB103K25
C	223		CCSRCH680J50
C	224		CCSRCH470J50
C	225		CKSRYB682K50
C	231		CKSRYB102K50
C	232		CKSRYB102K50
C	301	100μF/16V	CCH1504
C	302		CCSRCH221J50
C	303		CCSRCH221J50
C	304		CKSRYB472K50
C	305		CKSRYB103K25
C	306		CKSRYB104K16
C	501		CKSRYB103K25
C	502		CKSRYB103K25
C	702	100μF/16V	CCH1504
C	703		CKSRYB224K16
C	704		CKSRYB104K16
C	705	10μF/6.3V	CCH1470

Miscellaneous Parts List

M	1	Pickup Unit(Service)(P10)	CXX1641
M	2	Motor Unit(SPINDLE)	CXB6007
M	2	Motor Unit(LOADING/CARRIAGE)	CXB8933

6. ADJUSTMENT

6.1 CD ADJUSTMENT

1) Cautions on adjustments

- In this product the single voltage (3.3V) is used for the regulator. The reference voltage is the REFO1 (1.65V) instead of the GND.

If you should mistakenly short the REFO1 with the GND during adjustment, accurate voltage will not be obtained, and the servo's misoperation will apply excessive shock to the pickup. To avoid such problems:

a. Do not mix up the REFO1 with the GND when connecting the (-) probe of measuring instruments. Especially on an oscilloscope, avoid connecting the (-) probe for CH1 to the GND.

b. In many cases, measuring instruments have the same potential as that for the (-) probe. Be sure to set the measuring instruments to the floating state.

c. If you have mistakenly connected the REFO1 to the GND, turn off the regulator or the power immediately.

- Before mounting and removing filters or leads for adjustment, be sure to turn off the regulator.

- For stable circuit operation, keep the mechanism operating for about one minute or more after the regulator is turned on.

- In the test mode, any software protections will not work. Avoid applying any mechanical or electrical shock to the mechanism during adjustment.

- The RFI and RFO signals with a wide frequency range are easy to oscillate. When observing the signals, insert a resistor of 1k ohms in series.

- The load and eject operation is not guaranteed with the mechanism upside down. If the mechanism is blocked due to mistaken eject operation, reset the product or turn off and on the ACC to restore it.

2) Test mode

This mode is used to adjust the CD mechanism module.

- To enter the test mode.

While pressing the 4 and 6 keys at the same time, reset.

- To exit from the test mode.

Turn off the ACC and back up.

Notes:

a. During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.

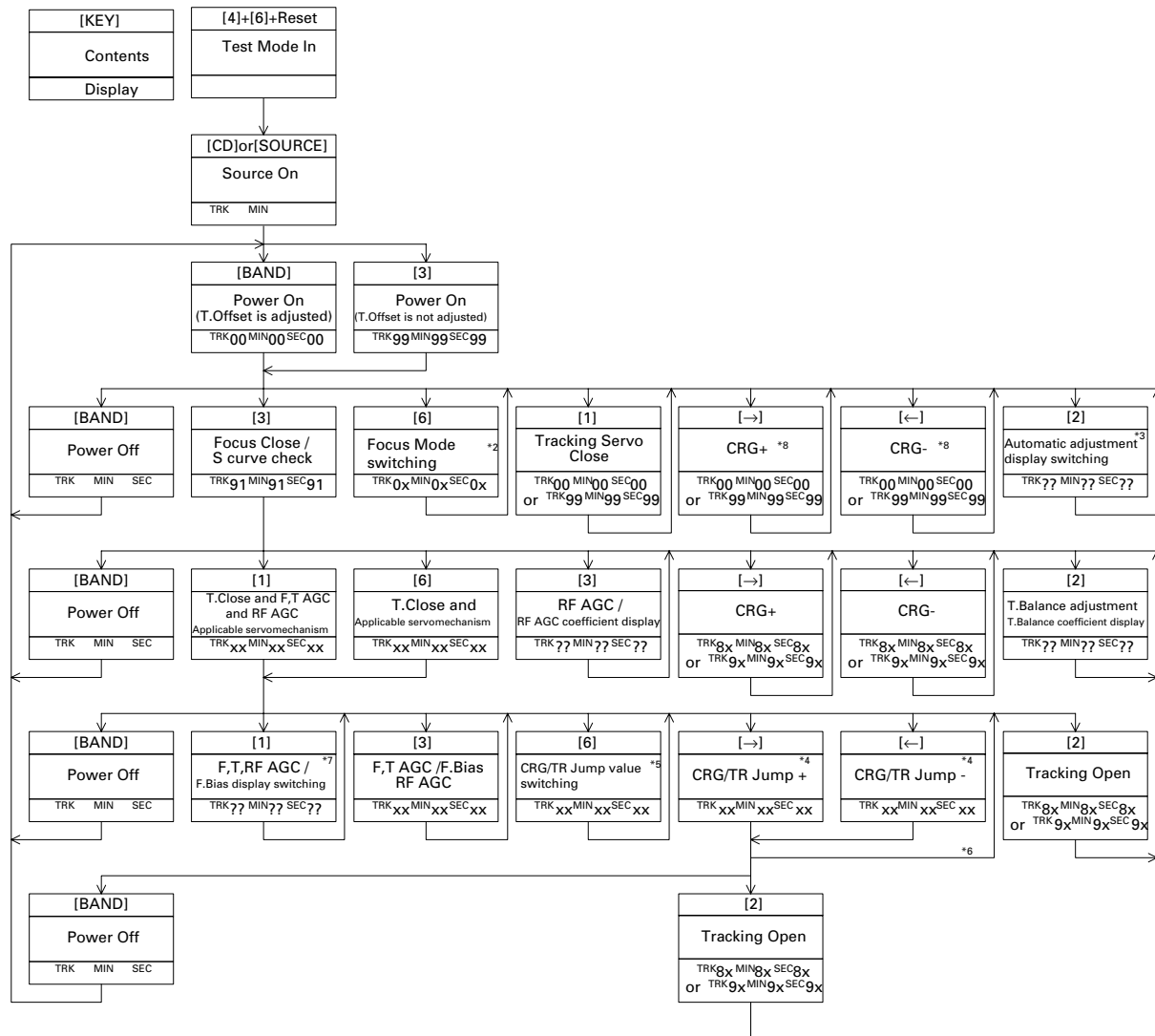
b. If you have pressed the (→) key or (←) key during focus search, turn off the power immediately to protect the actuator from damage caused by the lens stuck.

c. For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.

d. For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.

e. When the power is turned off and on, the jump mode is reset to the single TR (91), the RF amp gain is set to 0dB, and the auto-adjustment values are reset to the default settings.

● Flow Chart



*1) $\begin{matrix} \text{TRK} & \text{MIN} & \text{SEC} \\ \text{TYP} & \rightarrow & -12\text{dB} \\ & \text{TRK 12 MIN 12 SEC 12} \end{matrix}$

*2) Focus Close \rightarrow S.Curve \rightarrow F EQ measurement setting
 TRK 00 MIN 00 SEC 00 TRK 01 MIN 01 SEC 01 TRK 02 MIN 02 SEC 02
 (TRK 99 MIN 99 SEC 99)

*3) F.Offset Display \rightarrow RF.Offset Display \rightarrow T.Offset Display

*4) 1TR/32TR/100TR

*5) Single TR \rightarrow 32TR \rightarrow 100TR \rightarrow CRG Move
 9x(8x) : 91(81) 92(82) 93(83) 94(84)

*6) Only at the time of CRG Move or 100TR Jump

*7) TRK/MIN/SEC \rightarrow F.AGC \rightarrow T.AGC Gain \rightarrow F.bias \rightarrow RF AGC

*8) CRG motor voltage = 2[V]

[Key]	Operation
	Test Mode
[BAND]	Power On / Off
[→]	CRG + / TR Jump + (Direction of the external surface)
[←]	CRG - / TR Jump - (Direction of the internal surface)
[1]	CLS and AGC and Applicable servomechanism / AGC, AGC display switching
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T.Open
[3]	Close, S.Curve / Rough Servo and RF AGC / F, T, RF AGC
-	SPDL 1X / 2X switching (Double-speed compatibility only)
-	Gop measurement
[6]	Focus Mode switching / Tracking Close / CRG, TR Jump switching

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 :

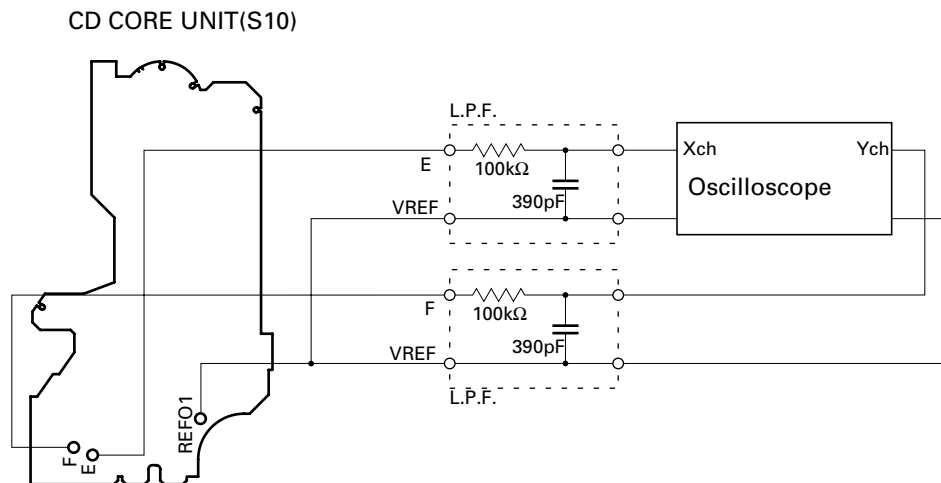
To check that the grating is within an acceptable range when the PU unit is changed.

• 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, REFO1 |
| • Disc | • ABEX TCD-782 |
| • Mode | • TEST MODE |



• Checking Procedure

1. In test mode, load the disc and switch the 3V regulator on.
2. Using the → and ← buttons, move the PU unit to the innermost track.
3. Press key 3 to close focus, the display should read "91". Press key 2 to implement the tracking balance adjustment the display should now read "81". Press key 3. The display will change, returning to "81" on the fourth press.
4. 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.
5. 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.

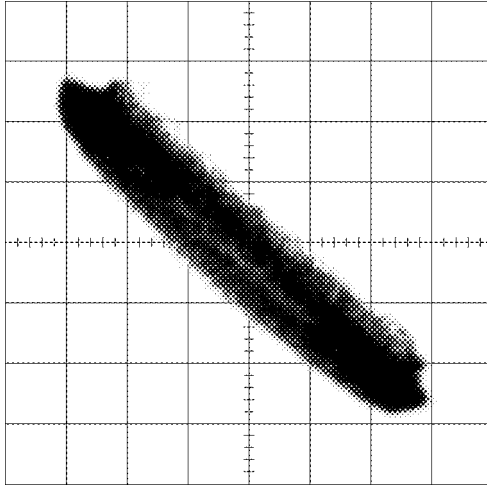
• Hint

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

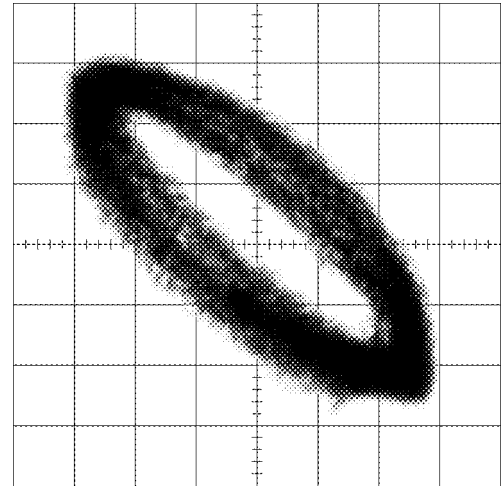
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

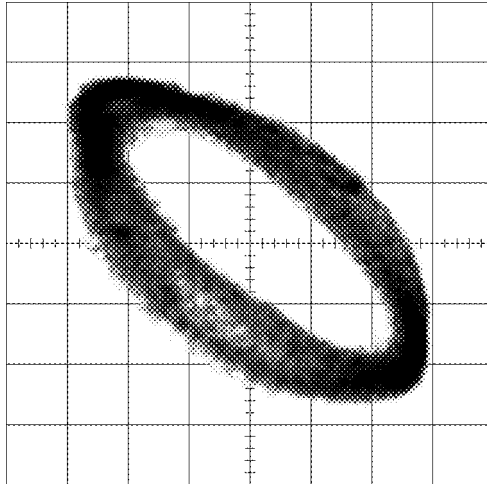
0°



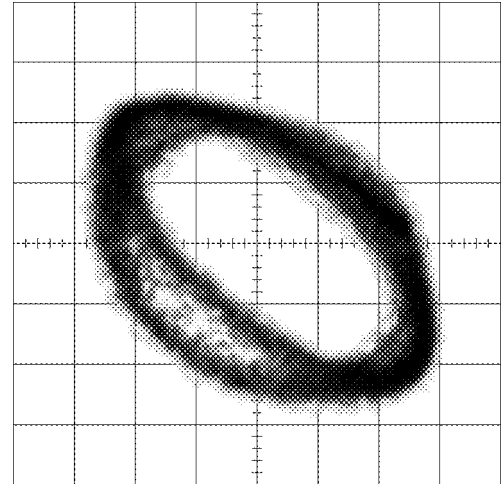
30°



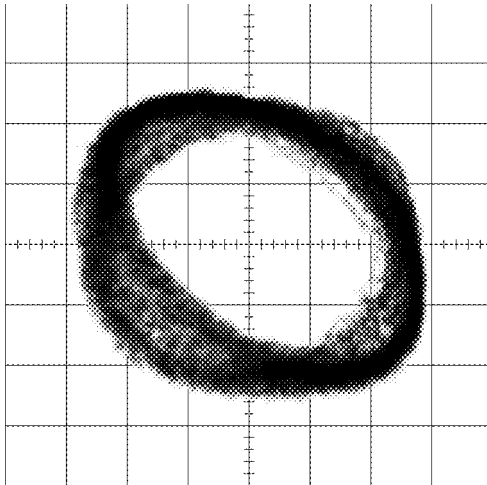
45°



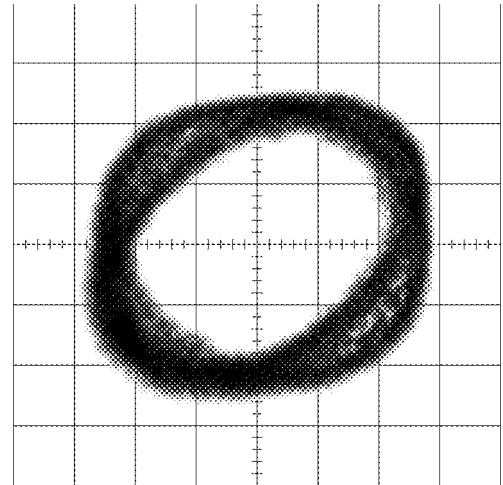
60°



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 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.

● Removing the CD Mechanism Module (Fig.1)

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

● Removing the Grille Assy (Fig.1)

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

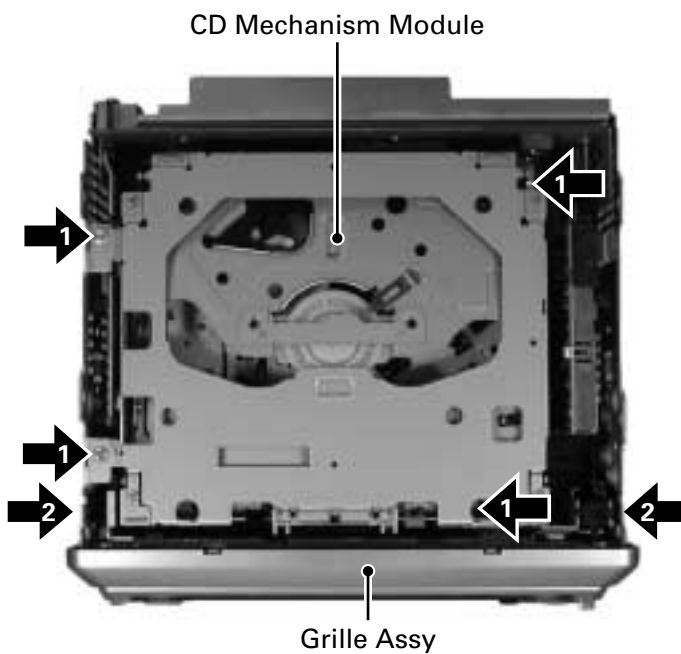


Fig.1

● Removing the Tuner Amp Unit (Fig.2)

1 Remove the screw.

2 Remove the three screws.

3 Straight the tabs at three locations indicated.

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

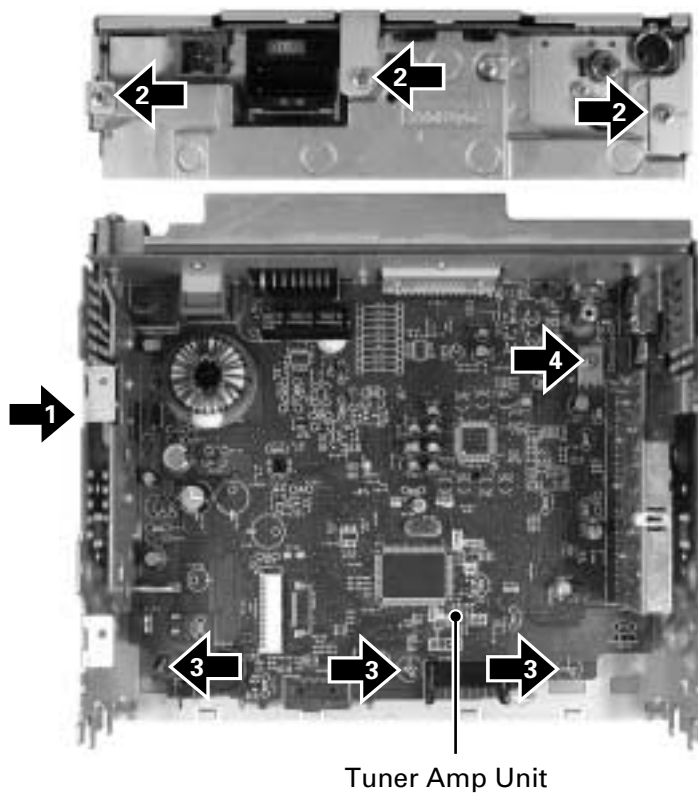
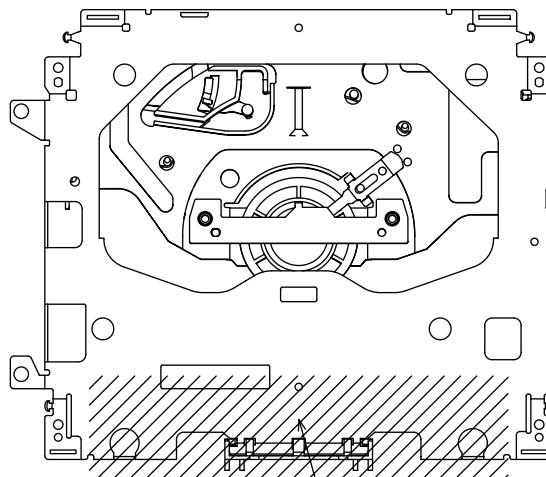


Fig.2

● 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.

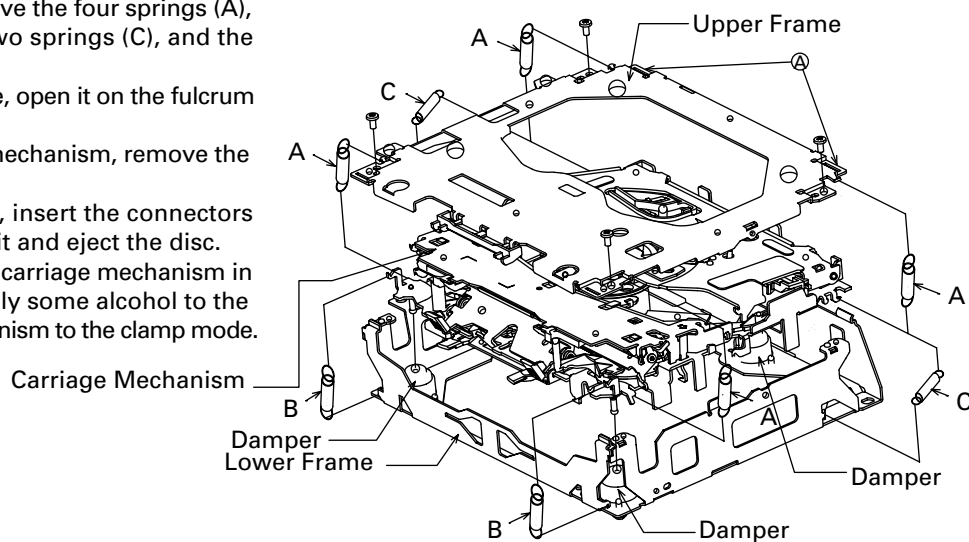


Do not squeeze.

● Removing the Upper and Lower Frames

1. With a disc clamped, remove the four springs (A), the two springs (B), the two springs (C), and the four screws.
2. To remove the upper frame, open it on the fulcrum A.
3. While lifting the carriage mechanism, remove the three dampers.
4. With the frames removed, insert the connectors coming from the main unit and eject the disc.

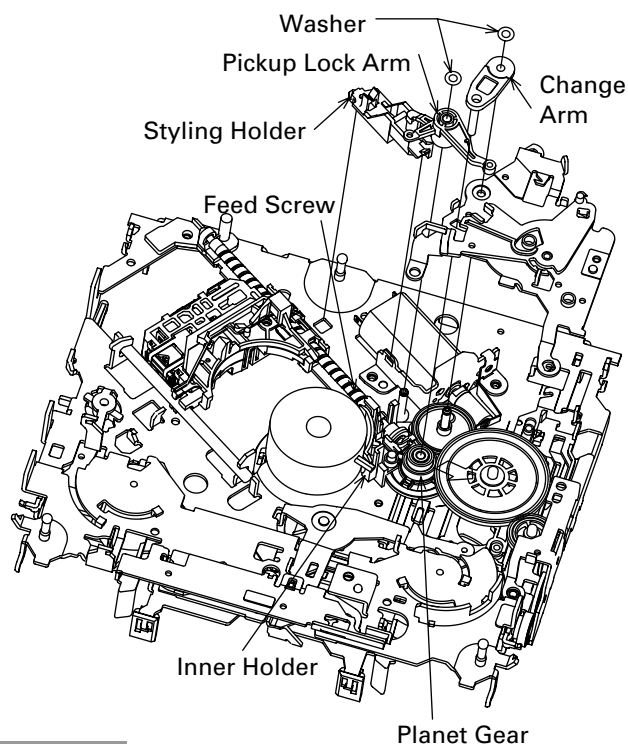
Caution: Before installing the carriage mechanism in the frames, be sure to apply some alcohol to the dampers and set the mechanism to the clamp mode.



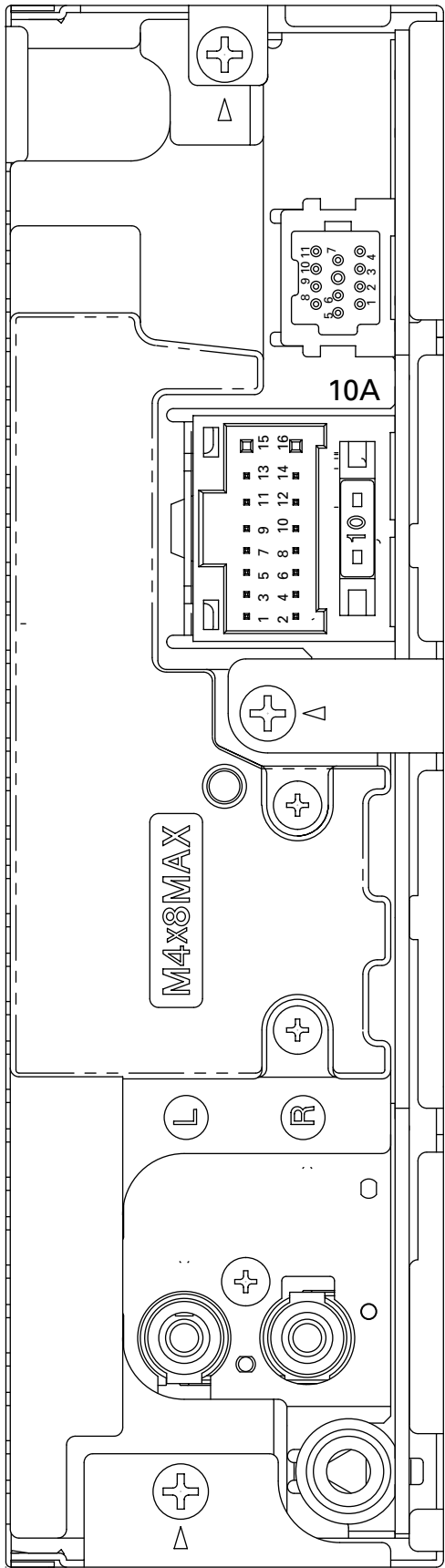
● Removing the Pickup Unit

1. Set the mechanism to the clamp mode.
2. Remove the lead wires from the inner holder.
3. Remove the two washers, styling holder, change arm, and pickup lock arm.
4. While releasing from the hook of the inner holder, lift the end of the feed screw.

Caution: In assembling, move the planet gear to the load/eject position before setting the feed screw in the inner holder.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



- | | | |
|--------|-------------|------------------|
| 1. FR+ | 9. NC | 1. BUS+ |
| 2. RR- | 10. NC | 2. GND |
| 3. FR- | 11. B.REM | 3. GND |
| 4. RR+ | 12. NC | 4. NC |
| 5. FL+ | 13. NC | 5. BUS- |
| 6. RL+ | 14. ACC | 6. GND |
| 7. FL- | 15. GND | 7. BUS L+ INPUT |
| 8. RL- | 16. BACK UP | 8. ASEN B |
| | | 9. BUS R+ INPUT |
| | | 10. BUS R- INPUT |
| | | 11. BUS L- INPUT |

7.2 PARTS

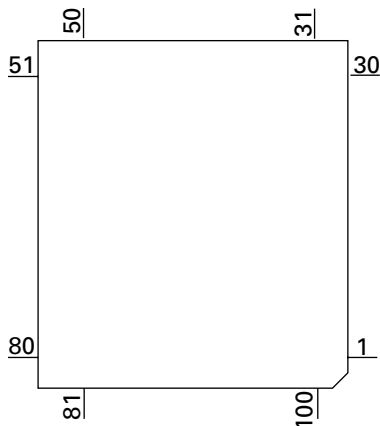
7.2.1 IC

● Pin Functions(PE5341C)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	SWVDD	O	C	Grille : Chip enable output
2-4	NC			Not used
5	TESTIN	I		Test program mode input
6	LCDPW	O	C	LCD back light power supply control output
7	TELIN	I		Telephone mute input
8	EJECTIN	I		Eject sense input
9	FLPILM	I		Flap illumination input
10	DALMON	I/O	C	For consumption low-current
11	RESET	I		Reset input
12	XT2			Not used
13	XT1	I		Clock connection pin
14	VSS			GND
15	X2			Crystal oscillator connection pin
16	X1	I		Crystal oscillator connection pin
17	REGOFF	I		Regulator operation specification signal
18	REGC			Capacitor for regulator connect pin
19	VDD			Power supply
20	ILMPW	O		Illumination power supply control output
21	SYSPW	O	C	System power control output
22	ADPW	O	C	A/D converter power supply control output
23	NC			Not used
24	IPPW	O	C	Power supply control output for IP BUS interface IC
25	NC			Not used
26	ROMDATA	O	C	ROM correction data output
27	ROMCLK	O	C	ROM correction clock output
28	ROMCS	O		ROM correction chip select output
29-31	NC			Not used
32	TUNPCE2	O		PLL chip enable output2
33	VST	O		E.VOL : Strobe output
34	VCK	O		E.VOL : Clock output
35	VDI	O		E.VOL : Data output
36	ANTPW	O		Antenna power output
37	MUTE	O	C	System mute output
38, 39	NC			Not used
40	VSS			GND
41	VDD			Power supply
42	RDS57K	I		57kHz count pulse input
43	DRST	O	C	RDS : Decoder reset output
44	RDSLK	I	C	RDS : Decoder clock input
45	RDT	O	C	RDS : Decoder data input
46	DORAON	O	C	TUNER : 3V power supply
47-57	NC			Not used
58	STRKEY2	I		Steering remote controller input
59	CDLOEJ	O	C	CD : Load Motor Load/Eject output
60	CLCONT	I		CD : Driver input switch output
61	CONT	O	C	CD : Servo driver power supply control output
62	PCL	O	C	Clock adjustment
63	CLAMPSW	I		Clamp SW input
64	VDCONT	O	C	CD : VD power control output
65	XSC(KTSCK)	O		CD LSI clock output
66	XSI(TSI)	I		CD LSI data input
67	XSO(TSO)	O	C	CD LSI data output
68	XAO	O	C	CD LSI command/data control output
69	XRST	O	C	CD : LSI reset control output
70	XSTB	O		CD LSI strobe output
71	ASENBO	O		IP-BUS : Slave power supply control output
72	EMUTE	O		E.VOL : Mute control output
73	TEST			GND
74	SL	I	C	TUNER : Signal level input
75	STRKEY1	I	C	Steering remote controller input

Pin No.	Pin Name	I/O	Format	Function and Operation
76	MODELIN	I		Model select input
77	CSENS	I		Flap close sense input
78	NC			Not used
79	DSCSNS	I		CD : Disc insert sense input
80	VDSSENS	I		CD : VD voltage sense input
81	TEMP	I		CD : Temperature sense input
82	AVDD			A/D converter power supply terminal
83	AVREF			A/D converter reference voltage terminal
84	AVSS			GND
85	RX	I		IP-BUS : Data input
86	TX	O		IP-BUS : Data output
87	NMI			GND
88	LDET	I		PLL lock sense input
89	RCK	I		RDS : Clock input
90	DSSENS	I		Grille detach sense input
91	PACK	I		PACK input
92	ASENS	I		ACC power sense input
93	BSSENS	I		Back up power sense input
94	TUNPDI	I		PLL IC data input
95	KYDT	I		Grille data input
96	DPDT	O	C	Grille data output
97	TUNPCK	O		PLL clock output
98	TUNPDO	O	C	PLL data output
99	TUNPCE	O	C	PLL chip enable output
100	PEE	O	C	Beep tone output

* PE5341C

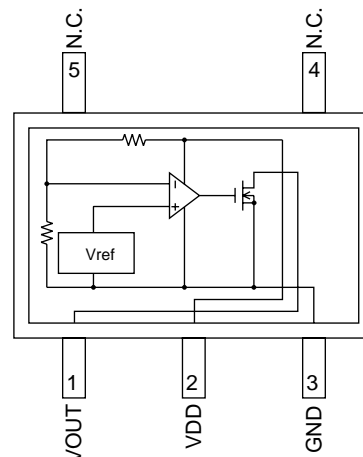


IC's marked by * are MOS type.

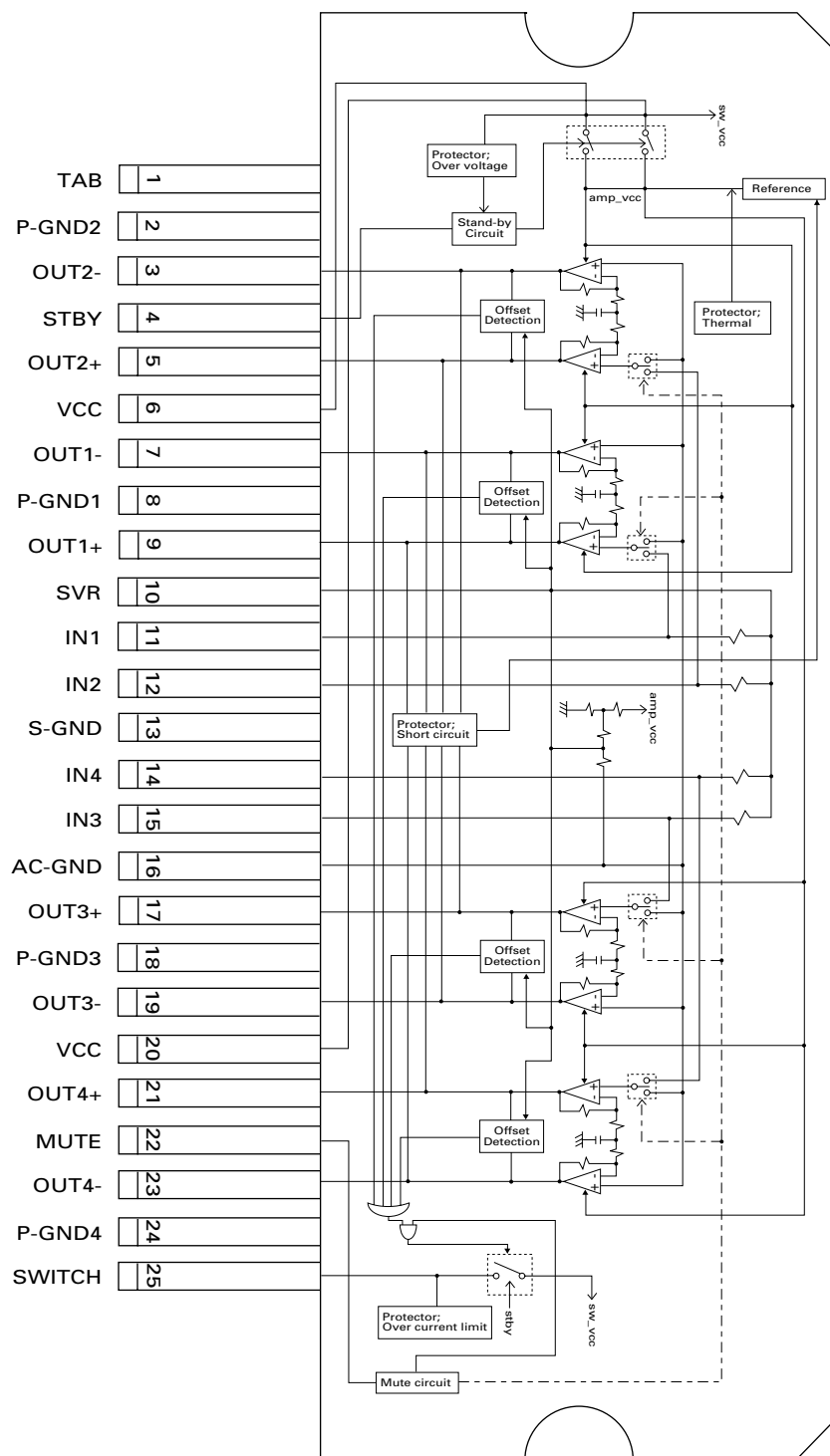
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

Format	Meaning
C	CMOS

BD4834G



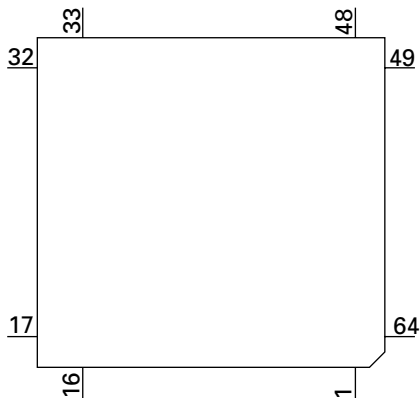
PAL007A



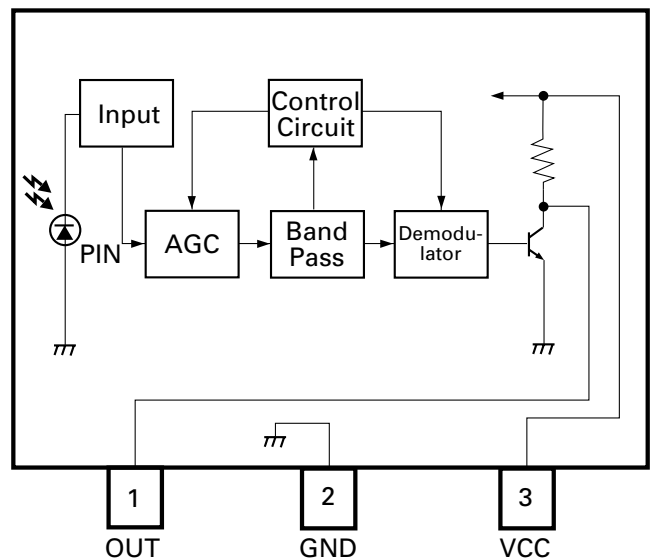
● Pin Functions (PD6340A)

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 input
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



TSOP4840SB1

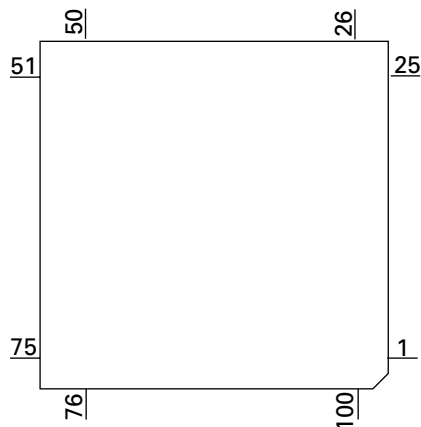


● Pin Functions(UPD63712GC)

Pin No.	Pin Name	I/O	Function and Operation
1	LD	O	Output of LD
2	PD	I	Input of PD
3	PN	I	Assignment of pickup polarity
4	AVDD		Power supply for the analog system
5	DGND		Ground for digital circuits
6	RFOK	O	Output of RFOK
7	INTQ	O	Interruption signals to the external microcomputer
8	RST	I	Input of reset
9	A0	I	Command/Parameter discrimination signal input
10	STB	I	Data strobe signal input
11	SCK	I	Serial data clock input
12	SO	O	Serial data output
13	SI	I	Serial data input
14	DVDD		Power supply for digital circuits
15	DAVDD		Power supply for DAC
16	ROUT	O	Output of audio for the right channel
17	DAGND		GND for DAC
18	REGC		Connected to the capacitor for band gap
19	DAGND		GND for DAC
20	LOUT	O	Output of audio for the left channel
21	DAVDD		Power supply for DAC
22	XVDD		Power supply for the crystal oscillator
23	XTAL	O	Connected to the crystal oscillator
24	XTAL	I	Connected to the crystal oscillator
25	XGND		Ground for the crystal oscillator
26	DVDD		Power supply for digital circuits
27	C1D1	O	Information on error correction
28	C1D2	O	Information on error correction
29	C2D1	O	Information on error correction
30	C2D2	O	Information on error correction
31	C2D3	O	Information on error correction
32	LOCK	O	Output of LOCK
33	MIRR	O	MIRR signal
34	HOLD	O	HOLD signal
35	PLCK	O	Output of PLCK
36	C16M	O	Output of 16.9344MHz
37	DGND		Ground for digital circuits
38	TX	O	DAI output
39	EMPH	O	Pre-emphasis information output
40	FLAG	O	The flag for which output sound data cannot be corrected is outputted
41	DVDD		Power supply for digital circuits
42	LIMIT	I	Signal is inputted when the register can be read
43	XTALEN	I	Permission to oscillate
44	DGND		Ground for digital circuits
45	DIN	I	Input of audio data
46	DOUT	O	Output of audio data
47	SCKIN	I	Clock input for audio data
48	SCKO	O	Clock output for audio data
49	LRCKIN	I	Input of LRCK for audio data
50	LRCK	O	Output LRCK for audio data
51	DVDD		Power supply for digital circuits
52	FD+	O	Output of focus drive PWM
53	FD-	O	Output of focus drive PWM
54	TD+	O	Output of tracking drive PWM
55	TD-	O	Output of tracking drive PWM
56	SD+	O	Output of thread drive PWM
57	SD-	O	Output of thread drive PWM
58	MD+	O	Output of spindle drive PWM
59	MD-	O	Output of spindle drive PWM
60	DGND		Ground for digital circuits

Pin No.	Pin Name	I/O	Function and Operation
61	TESTEN	I	Connected to GND
62-66	TEST4-0	I	Connected to GND
67	ADGND		GND for DAC
68	EFM	O	Output of EFM signals
69	ASY	I	Input of asymmetry
70	ADVDD		Power supply for DAC
71	RFI	I	Input of RF
72, 73	EQ2, 1		Equalizer 2, 1
74	RF-	I	Reversal input of RF
75	RF2-	I	Reversal input of RF2
76	AGCO	O	Output of RF
77	AGCI	I	Input of AGC
78	RFO	O	Output of RF
79	ATEST	O	Analog tests
80	C3T		Connection to the capacitor for detecting 3T
81	AGND		Ground for the analog system
82	A	I	Input of A
83	C	I	Input of C
84	B	I	Input of B
85	D	I	Input of D
86	F	I	Input of F
87	E	I	Input of E
88	VREFIN	I	Photo-detector input bias voltage
89	AVDD		Power supply for the analog system
90	REFOUT	O	Output of reference voltage
91	REFC		Connected to the capacitor for output of REFOUT
92	FE-	I	Reversal input of FE
93	FEO	O	Output of FE
94	ADCIN	I	TEST
95	TE-	I	Reversal input of TE
96	TEO	O	Output of TE
97	TE2	O	TE2
98	TEC	I	TEC
99	AGND		Ground for the analog system
100	PWMSW	I	Servo PWM mode switching

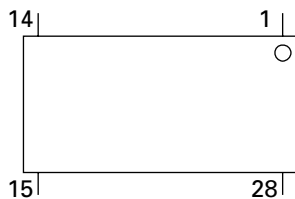
* UPD63712GC



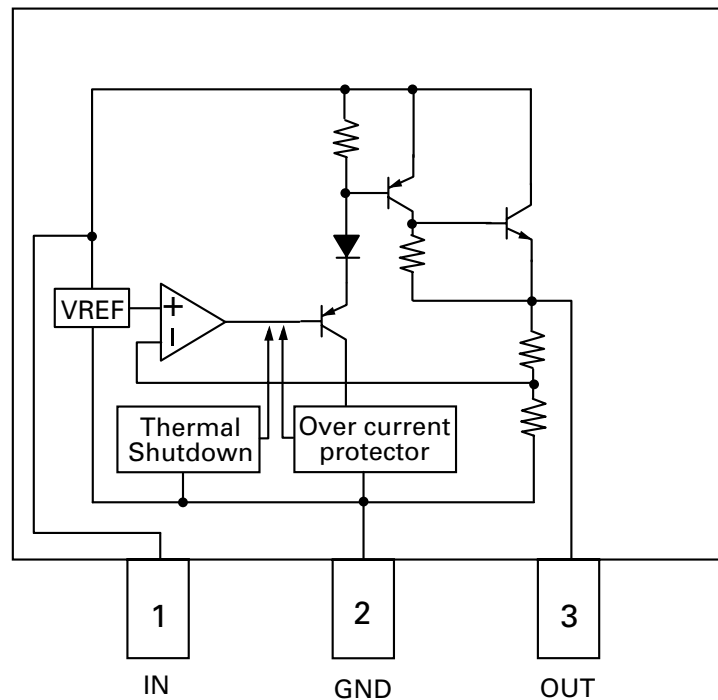
Pin Functions(BA5996FP)

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	OPINLSL	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

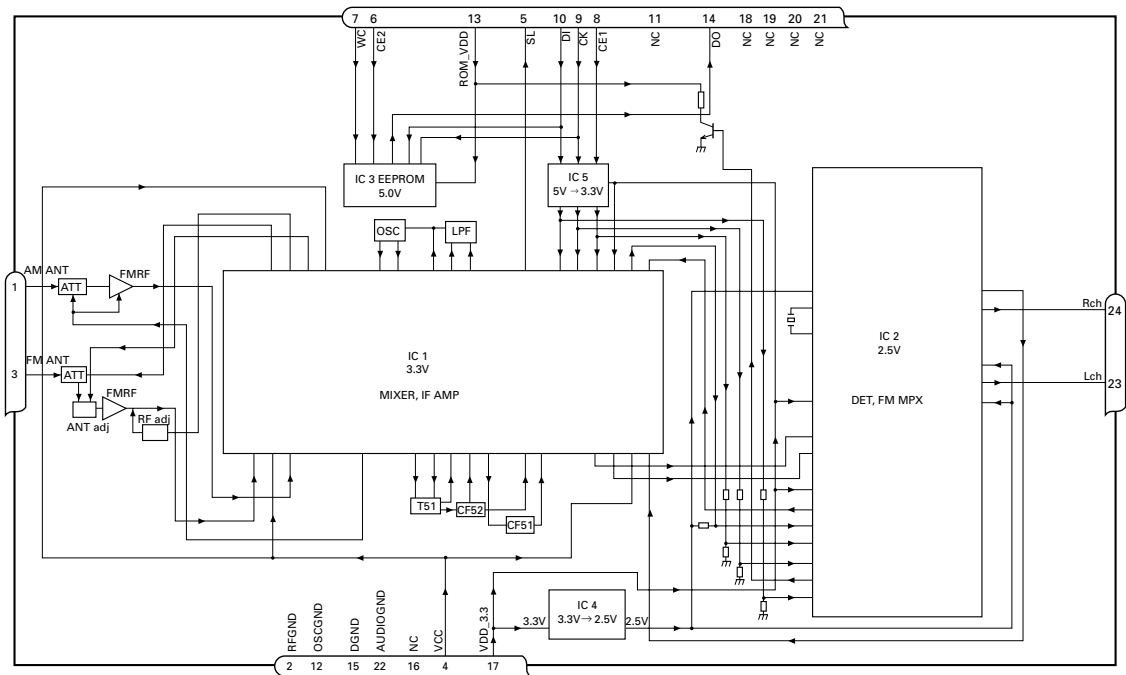
BA5996FP



NJM2391DL1-33



● FM/AM Tuner Unit

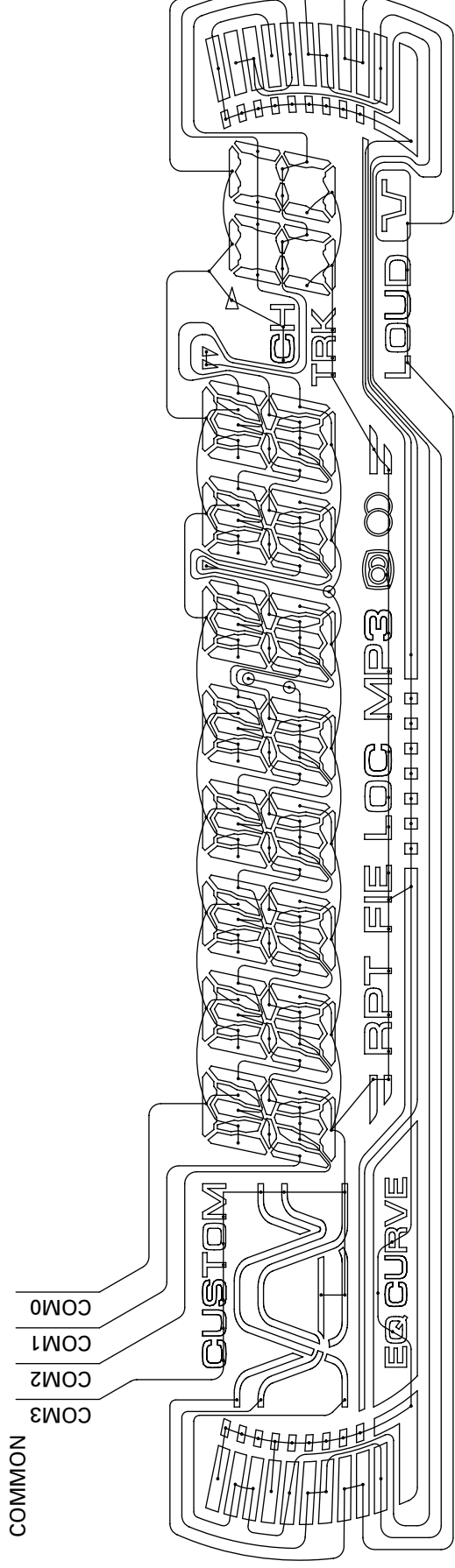
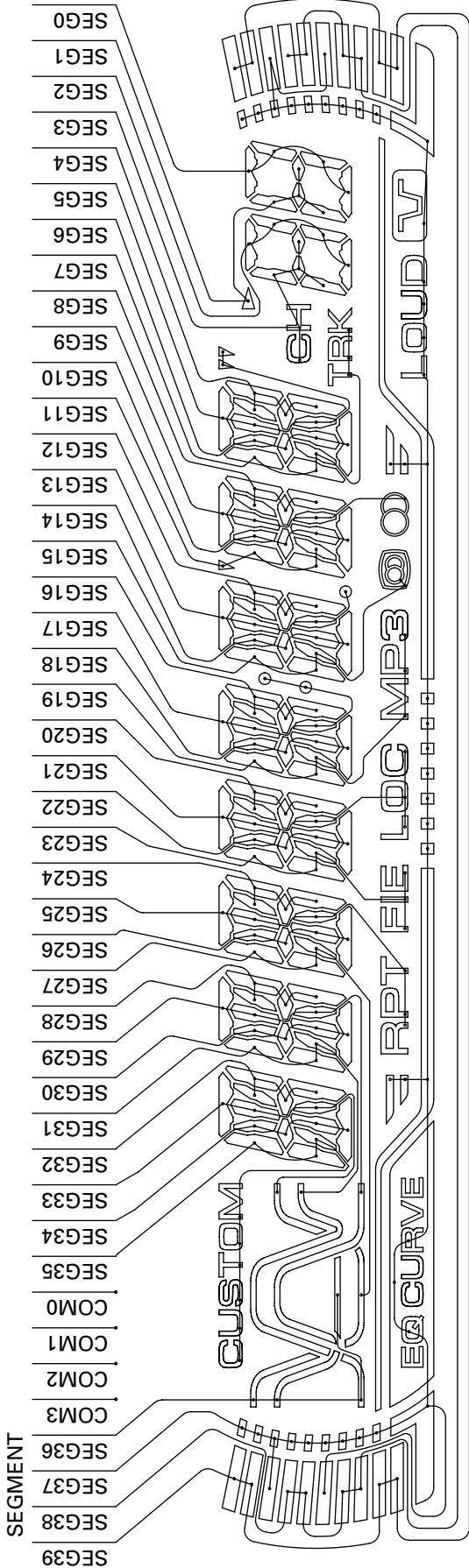


No.	Symbol	I/O	Explain	
1	AMANT	I	AM antenna input	AM antenna input high impedance AMANT pin is connected with an all antenna by way of 4.7μH. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the ham of power transmission line.
2	RFGND		RF ground	Ground of antenna block
3	FMANT	I	FM antenna input	Input of FM antenna 75Ω Surge absorber(DSP-201M-S00B) is necessary.
4	VCC		power supply	The power supply for analog block. D.C 8.4V ± 0.3V
5	SL	O	signal level	Output of FM/AM signals level
6	CE2	I	chip enable-2	Chip enable for EEPROM "Low" active
7	WC	I	write control	You can write EEPROM, when EEPROM write control is "Low". Ordinary non connection
8	CE1	I	chip enable-1	Chip enable for AF•RF "High" active
9	CK	I	clock	Clock
10	DI	I	data in	Data input
11	NC		non connection	Not used
12	OSCGND		osc ground	Ground of oscillator block
13	ROM_VDD		power supply	Power supply for EEPROM pin 13 is connected with a power supply of micro computer.
14	DO	O	data out	Data output
15	DGND		digital ground	Ground of digital block
16	NC		non connection	Not used
17	VDD_3.3		power supply	The power supply for digital block. 3.3V ± 0.2V
18	NC		non connection	Not used
19	NC		non connection	Not used
20	NC		non connection	Not used
21	NC		non connection	Not used
22	AUDIOGND		audio ground	Ground of audio block
23	L ch	O	L channel output	FM stereo "L-ch" signal output or AM audio output
24	R ch	O	R channel output	FM stereo "R-ch" signal output or AM audio output

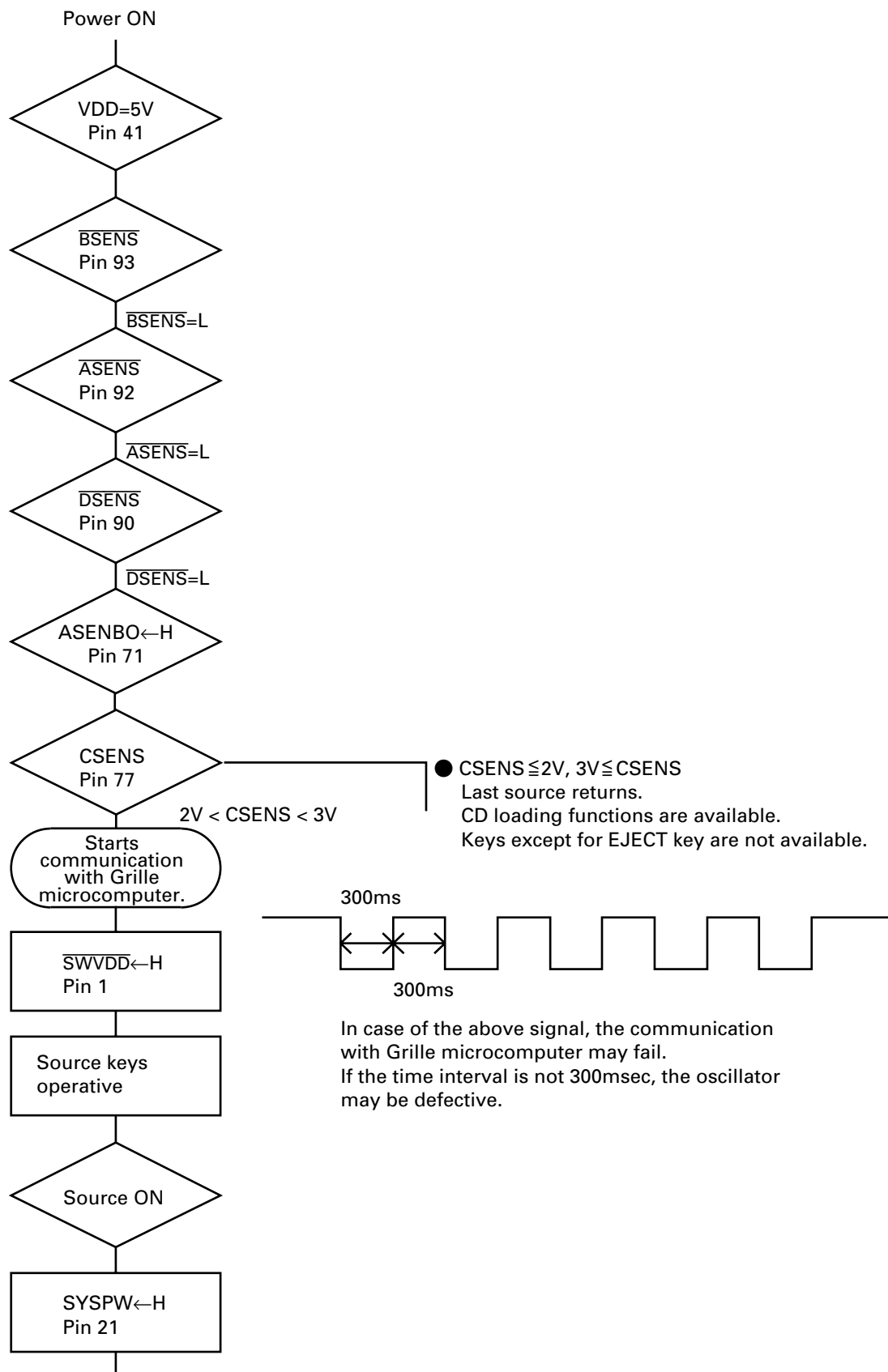
7.2.2 DISPLAY

● LCD(CAW1759)

A
B
C
D
E
F



7.3 OPERATIONAL FLOW CHART



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

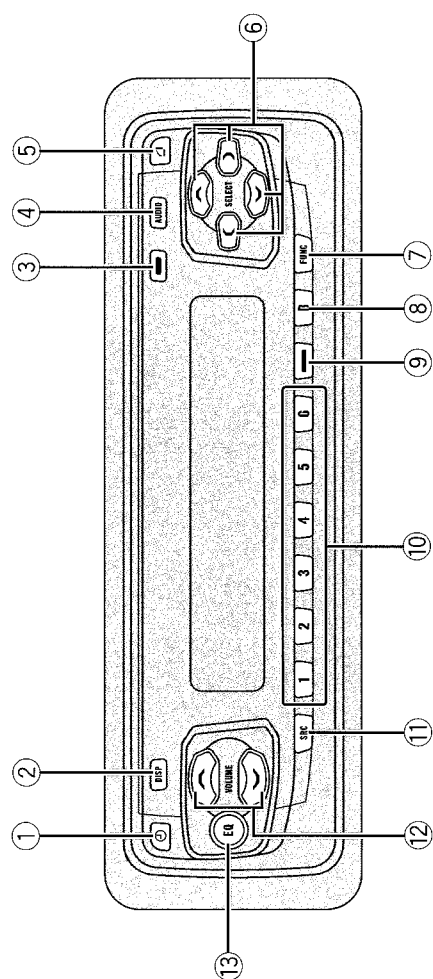
7.4 CLEANING



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

Portions to be cleaned	Cleaning tools
CD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

8. OPERATIONS



Head unit

① **CLOCK button**
Press to change to the clock display.

② **DISPLAY button**
Press to select different displays.

③ **PAUSE button**
Press to turn pause on or off.

④ **AUDIO button**
Press to select various sound quality controls.

⑤ **OPEN button**
Press to open the front panel.

⑥ **▲/▼/◀/▶ buttons**
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.

⑦ **FUNCTION button**
Press to select functions.

⑧ **BAND button**

Press to select among three FM and one AM bands and cancel the control mode of functions.

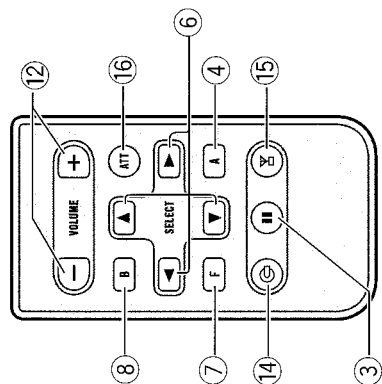
⑨ **LOUDNESS button**
Press to turn loudness on or off.

⑩ **1-6 buttons**
Press for preset tuning and disc number search when using a multi-CD player.

⑪ **SOURCE button**
This unit is turned on by selecting a source. Press to cycle through all of the available sources.

⑫ **VOLUME**
Press to increase or decrease the volume.

⑬ **EQ button**
Press to select various equalizer curves.



Remote control

Operation is the same as when using the button on the head unit. See the explanation of the head unit about the operation of each button with the exception of **ATT**, which is explained below.

⑭ **CD button**
Press to select the built-in or multi-CD player as the source.

⑮ **TUNER button**
Press to select the tuner as the source.

⑯ **ATT button**
Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

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.

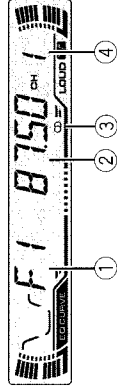
- 1 When using the head unit, press SOURCE to select a source.**
Press **SOURCE** repeatedly to switch between the following sources:
Built-in CD player—Television—Tuner—Multi-CD player—External unit 1—External unit 2—AUX
- 2 When using the remote control, press TUNER or CD to select a source.**
Press each button repeatedly to switch between the following sources:
TUNER, Television—Tuner—Sources off
CD: Built-in CD player—Multi-CD player—Sources off

Notes

- In the following cases, the sound source will not change:
 - When a unit corresponding to each source is not connected to this unit.
 - When no disc is set in this unit.
 - When no magazine is set in the multi-CD player.
 - When the AUX (auxiliary input) is set to off.
- External unit refers to a Pioneer product (such as one available in the future) that, although incompatible as a source, enables control of basic functions by this unit. Two external units can be controlled by this unit. When two exter-

Tuner

Listening to the radio



These are the basic steps necessary to operate the radio.

Important

If you are using this unit in North, Central or South America, reset the AM tuning step.

- ① Band indicator**
Shows which band the radio is tuned to, AM or FM.
 - ② Frequency indicator**
Shows to which frequency the tuner is tuned.
 - ③ Stereo (SD) indicator**
Shows that the frequency selected is being broadcast in stereo.
 - ④ Preset number indicator**
Shows what preset has been selected.
- 1 Press SOURCE to select the tuner.**
Press **SOURCE** until tuner is selected as the source.
 - 2 Use VOLUME to adjust the sound level.**
Press to increase or decrease the volume.
 - 3 Press BAND to select a band.**
Press **BAND** until the desired band is displayed, **F1, F2, F3** for FM or **AM**.

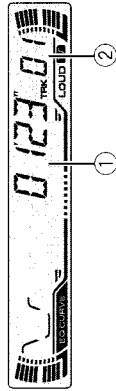
Note

When the frequency selected is being broadcast in stereo the stereo (SD) indicator will light.

- 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.

Built-in CD Player

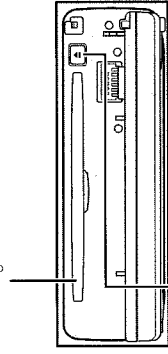
Playing a CD



These are the basic steps necessary to play a CD with your built-in CD player.

- ① **Play time indicator**
Shows the elapsed playing time of the current track.
- ② **Track number indicator**
Shows the track currently playing.
- 1 **Press OPEN to open the front panel.**
CD loading slot appears.
 - After a CD has been inserted, press **SOURCE** to select the built-in CD player.
- 2 **Insert a CD into the CD loading slot.**
Playback will automatically start.

CD loading slot

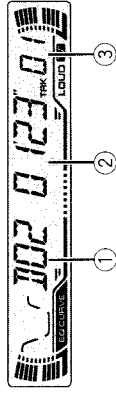


EJECT button

- You can eject a CD by pressing **EJECT**.
 - To avoid a malfunction, make sure that no metal object comes into contact with the terminals when the front panel is open.
- 3 **Close the front panel.**

Multi-CD Player

Playing a CD



You can use this unit to control a multi-CD player, which is sold separately. These are the basic steps necessary to play a CD with your multi-CD player.

- ① **Disc number indicator**
Shows the disc currently playing.
- ② **Play time indicator**
Shows the elapsed playing time of the current track.
- ③ **Track number indicator**
Shows the track currently playing.
- 1 **Press SOURCE to select the multi-CD player.**
Press **SOURCE** until multi-CD is selected as the source.

- 2 **Use VOLUME to adjust the sound level.**
Press to increase or decrease the volume.

- 3 **Select a disc you want to listen to with the 1-6 buttons.**
For discs located at 1 to 6, press the corresponding number button.
If you want to select a disc located at 7 to 12, press and hold the corresponding numbers such as **1** for disc 7, until the disc number appears in the display.
 - You can also sequentially select a disc by pressing **▲/▼**.

- 4 **To perform fast forward or reverse, press and hold ◀ or ▶.**

- 5 **To skip back or forward to another track, press ◀ or ▶.**
Pressing **▶** skips to the start of the next track. Pressing **◀** once skips to the start of the current track. Pressing again will skip to the previous track.

Notes

- When the multi-CD player performs the preparatory operations, **READY** is displayed.
- If the multi-CD player does not operate properly, an error message such as **ERROR-11** may be displayed. Refer to the multi-CD player owner's manual.
- If there are no discs in the multi-CD player magazine, **NO DISC** is displayed. □

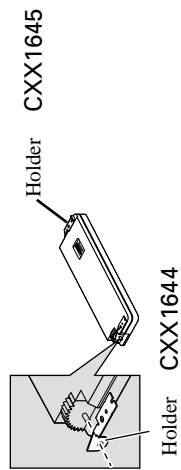
50-disc multi-CD player

Only those functions described in this manual are supported for 50-disc multi-CD players. □

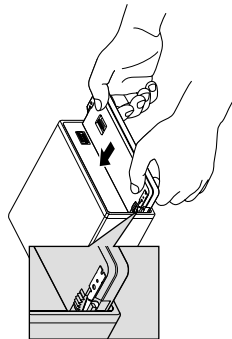
Fixing the Front Panel

If you do not operate the Detaching and Replacing the Front Panel Function, use the supplied fixing screws and fix the front panel to this unit.

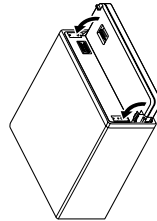
1. Attach the holders to both sides of the front panel.



2. Replace the front panel to the unit.



3. Flip the holders into upright positions.



4. Fix the front panel to the unit using fixing screws.

