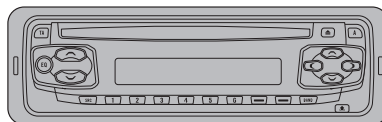


Service Manual



DEH-1500R/XU/EW

ORDER NO.
CRT2969

HIGH POWER CD PLAYER WITH RDS TUNER

DEH-1500R XU/EW

DEH-1530R XU/EW

HIGH POWER CD PLAYER WITH FM/MW/LW TUNER

DEH-1510 XU/EE



● 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 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

A SAFETY INFORMATION

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

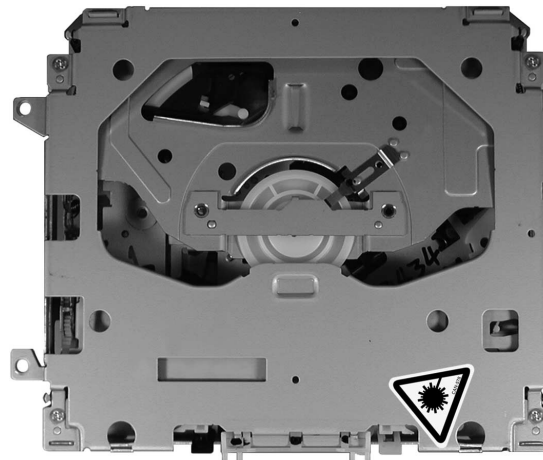
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

1. Safety Precautions for those who Service this Unit.

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

Caution:

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



4. Specifications of Laser Diode

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

Wavelength = 800 nanometers

[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 47.
3. After replacing the pickup unit, be sure to check the grating.(See p.44.)
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. SPECIFICATIONS

EW model

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	Less than 3mA
Dimensions (W × H × D):	
Chassis	178 × 50 × 157 mm
Nose	188 × 58 × 19 mm
Weight	1.3 kg

Audio

Maximum power output	45 W × 4
Continuous power output	25 W × 4 (DIN 45324, +B=14.4 V)
Load impedance	4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance	2.2 V/1 kΩ
Equalizer (3-Band 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 network)
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 μV/75 Ω mono, S/N: 30 dB)
50 dB quieting sensitivity	10 dBf (0.9 μV/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)
Selectivity	80 dB (±200 kHz)

MW tuner

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

LW tuner

Frequency range	153 – 281 kHz
Usable sensitivity	30 μV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

EE model

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	Less than 5mA
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 157 mm
Nose	188 × 58 × 19 mm
D	
Chassis	178 × 50 × 162 mm
Nose	170 × 48 × 14 mm
Weight	1.3 kg

Audio

Maximum power output	45 W × 4
Continuous power output ...	25 W × 4 (DIN 45324, +B=14.4 V)
Load impedance	4 Ω (4 – 8 Ω allowable)
Preout max output level/output impedance	2.2 V/1 kΩ
Equalizer (3-Band 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 network work)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)

FM tuner

Frequency range	65 – 74 MHz
	87.5 – 108.0 MHz
Usable sensitivity	10 dBf (0.9 μV/75 Ω mono, S/N: 30 dB)
50 dB quieting sensitivity	14 dBf (1.4 μV/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)

MW tuner

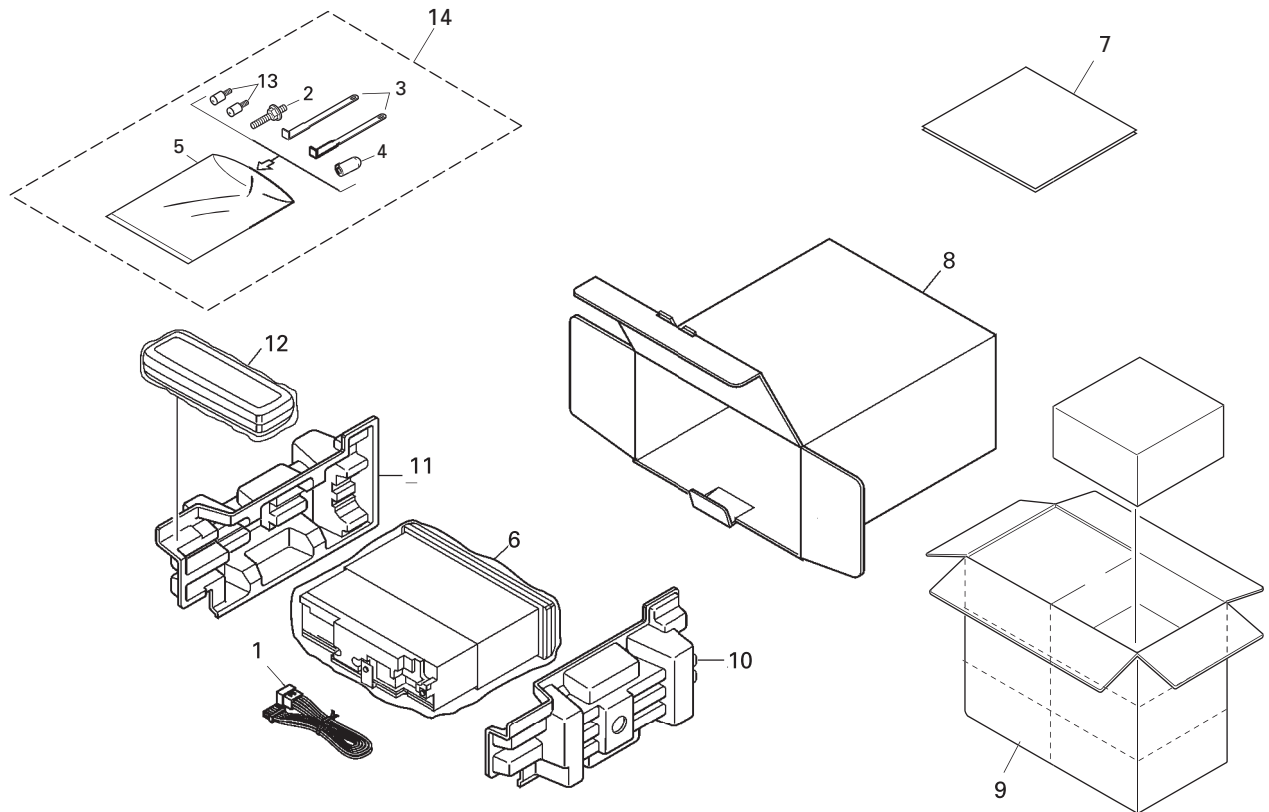
Frequency range	531 – 1,602 kHz (9 kHz)
Usable sensitivity	18 μV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

LW tuner

Frequency range	153 – 281 kHz
Usable sensitivity	30 μV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING(EW model)



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.)

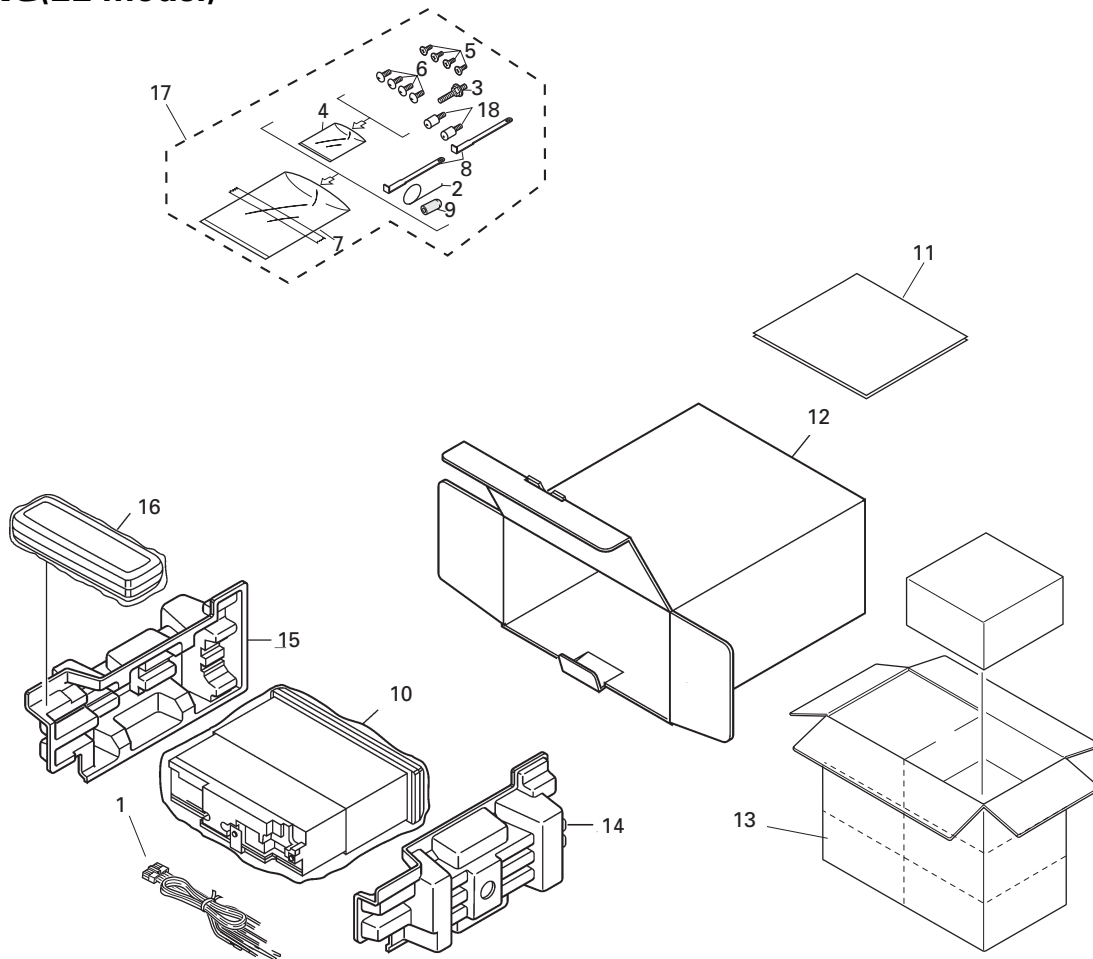
● PACKING(EW model) SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE7059	8	Carton(DEH-1500R)	CHG4985
2	Screw	CBA1002		Carton(DEH-1530R)	CHG4986
3	Handle	CNC5395	9	Contain Box(DEH-1500R)	CHL4985
4	Bush	CNV3930		Contain Box(DEH-1530R)	CHL4986
*	5 Polyethylene Bag	E36-615	10	Protector	CHP2663
	6 Polyethylene Bag	CEG-162	11	Protector	CHP2664
	7-1 Owner's Manual	CRD3662	12	Case Assy	CXB3520
	7-2 Installation Manual	CRD3663	13	Fixing Screw(M2x4)	CBA1488
*	7-3 Passport	CRY1013	14	Accessory Assy	CEA3094
*	7-4 Warranty Card	CRY1157			

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-1500R/XU/EW	CRD3662	English,Spanish,German,
DEH-1530R/XU/EW	CRD3663	French,Italian,Dutch

2.2 PACKING(EE model)



● PACKING(EE model) SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE7209	11-2	Installation Manual	CRD3671
2	Spring	CBH1650	*	11-3 Warranty Card	CRY1157
3	Screw	CBA1002	12	Carton	CHG4990
*	4 Polyethylene Bag	CEG-127	13	Contain Box	CHL4990
5	Screw	CRZ50P090FTC	14	Protector	CHP2663
6	Screw	TRZ50P080FTC	15	Protector	CHP2664
*	7 Polyethylene Bag	CEG-158	16	Case Assy	CXB3520
8	Handle	CNC5395	17	Accessory Assy	CEA3438
9	Bush	CNV3930	18	Fixing Screw(M2 x 4)	CBA1488
10	Polyethylene Bag	CEG-162			
11-1	Owner's Manual	CRD3670			

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-1510/XU/EE	CRD3670	English,Russian
	CRD3671	

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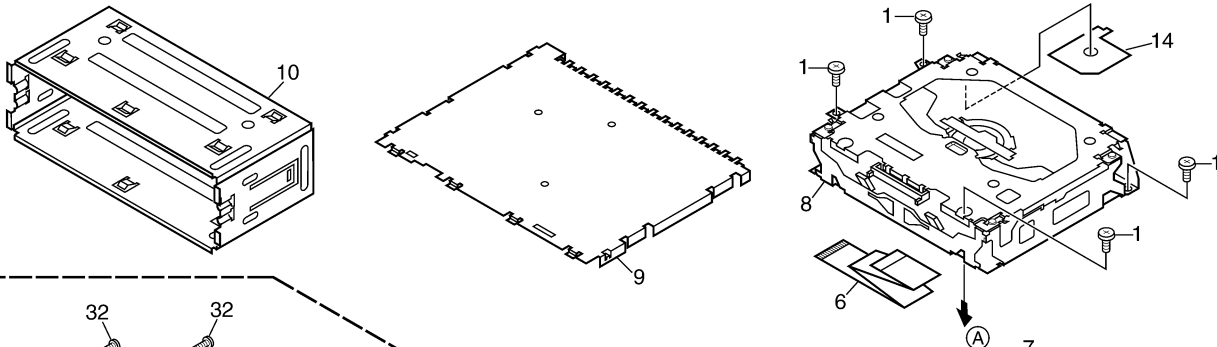
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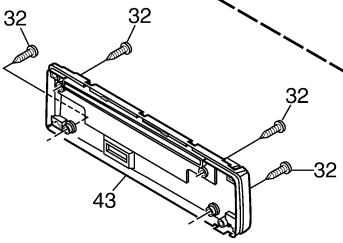
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2.3 EXTERIOR(EW model)

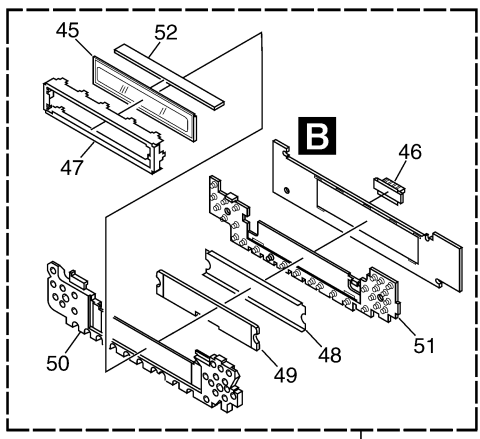
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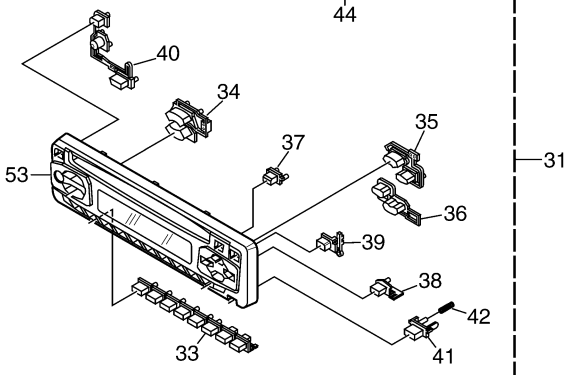
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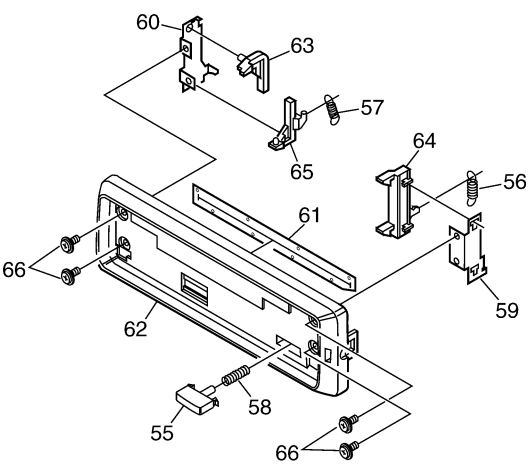
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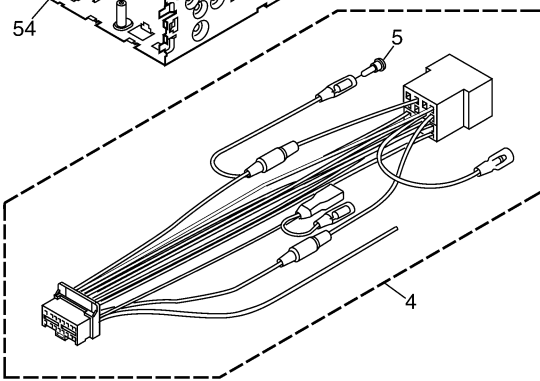
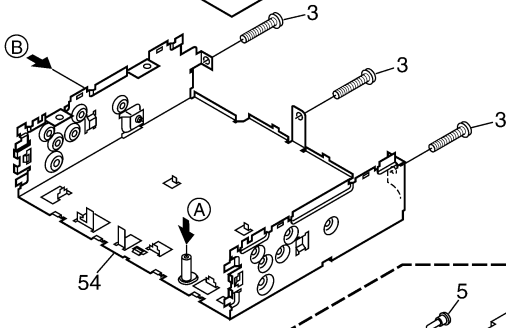
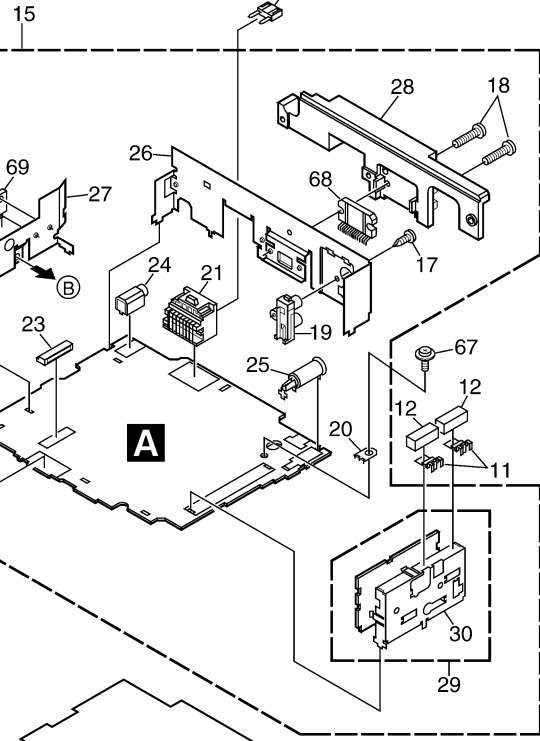
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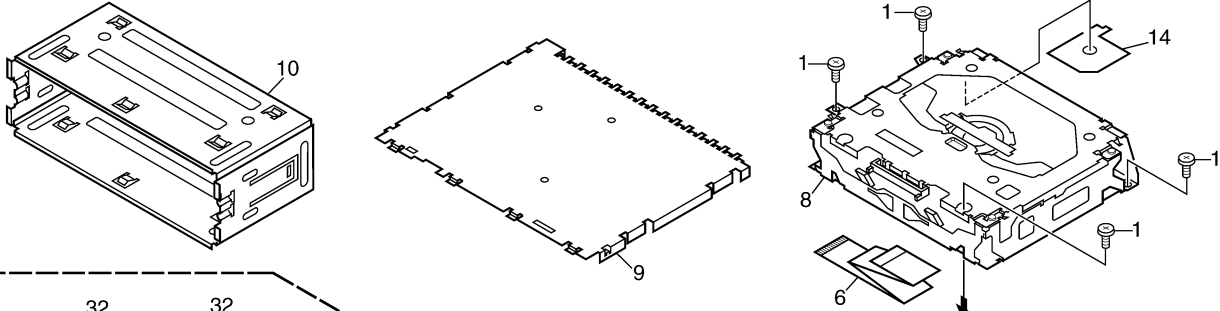


● EXTERIOR(EW model) SECTION PARTS LIST

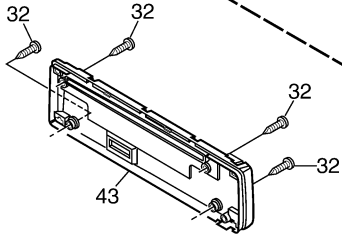
Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	Screw	BSZ26P060FTC		Keyboard Unit(DEH-1530R)	CWM8573	A
2	Screw	BSZ30P060FTC	45	LCD(LCD1801)	CAW1731	
3	Screw	BSZ30P200FTC	46	Connector(CN1801)	CKS3580	
4	Cord Assy	CDE7059	47	Holder	CNC9617	
5	Cap	CKX-003				
6	Cable	CDE7113	48	Sheet	CNM7932	
7	Fuse(10A)	CEK1208	49	Lens	CNV7060	
8	CD Mechanism Module(S10)	CXK5600	50	Lighting Conductor	CNV7367	
9	Case	CNB2793	51	Rubber	CNV7368	
10	Holder	CNC8659	52	Connector	CNV7369	B
11	Earth Plate	CNC8915	53	Grille Unit(DEH-1500R)	CXB9504	
12	Cushion	CNM8275		Grille Unit(DEH-1530R)	CXB9866	
13	Insulator	CNM8059	54	Chassis Unit(DEH-1500R)	CXB9541	
14	Insulator	CNM8174		Chassis Unit(DEH-1530R)	CXB9544	
15	Tuner Amp Unit(DEH-1500R)	CWM8521	55	Button	CAC4836	
	Tuner Amp Unit(DEH-1530R)	CWM8565				
16	Screw	ASZ26P060FTC	56	Spring	CBH1835	
17	Screw	BPZ26P080FTC	57	Spring	CBH2208	
18	Screw	BSZ26P160FTC	58	Spring	CBH2367	
19	Pin Jack(CN352)	CKB1028	59	Bracket	CNC6791	
20	Terminal(CN402)	CKF1059	60	Holder	CNC8042	C
21	Plug(CN901)	CKM1376	61	Cover	CNM6276	
22	Connector(CN831)	CKS3581	62	Panel(DEH-1500R)	CNS7522	
23	Connector(CN651)	CKS3835		Panel(DEH-1530R)	CNS7129	
24	Connector(CN621)	CKS4124	63	Arm	CNV4692	
25	Antenna Jack(CN401)	CKX1056	64	Arm	CNV4728	
26	Holder	CND1235	65	Arm	CNV5576	
27	Holder	CND1328	66	Screw	IMS20P030FZK	
28	Heat Sink	CNR1668	67	Screw	ISS26P055FTC	
29	FM/AM Tuner Unit	CWE1645	68	IC(IC302)	TDA7386	D
30	Holder	CND1054	69	Transistor(Q911,921,991)	2SD2375	
31	Detach Grille Assy(DEH-1500R)	CXB9441				
	Detach Grille Assy(DEH-1530R)	CXB9568				
32	Screw	BPZ20P100FZK				
33	Button(1-6)	CAC7739				
34	Button(Volume)	CAC7740				
35	Button(Up)	CAC7741				
36	Button(Down)	CAC7742				E
37	Button(Eject)	CAC7743				
38	Button(Band)	CAC7745				
39	Button(Audio)	CAC7746				
40	Button(SRC-EQ)	CAC7747				
41	Button(DEH-1500R)	CAC7753				
	Button(DEH-1530R)	CAC5929				
42	Spring	CBH2210				
43	Cover(DEH-1500R)	CNS7232				
	Cover(DEH-1530R)	CNS7353				
44	Keyboard Unit(DEH-1500R)	CWM8523				F

2.4 EXTERIOR(EE model)

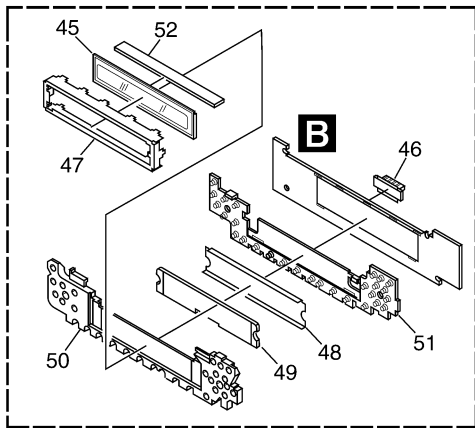
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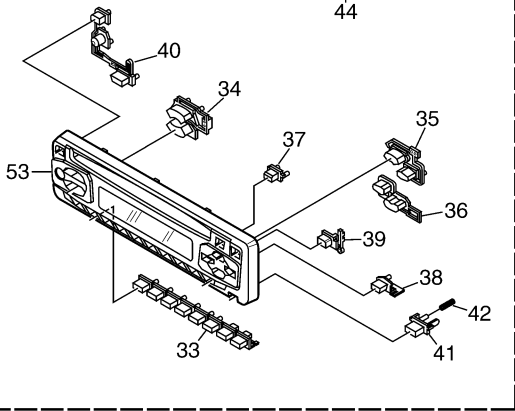
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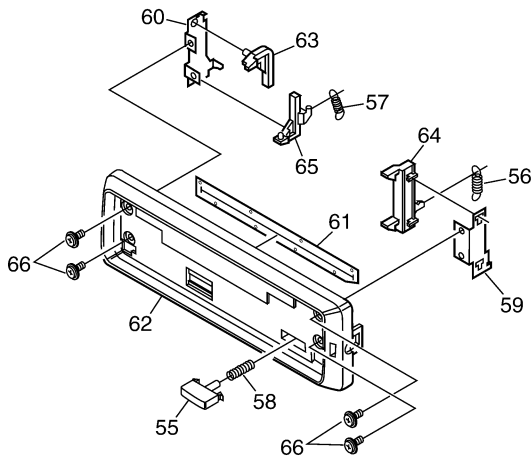
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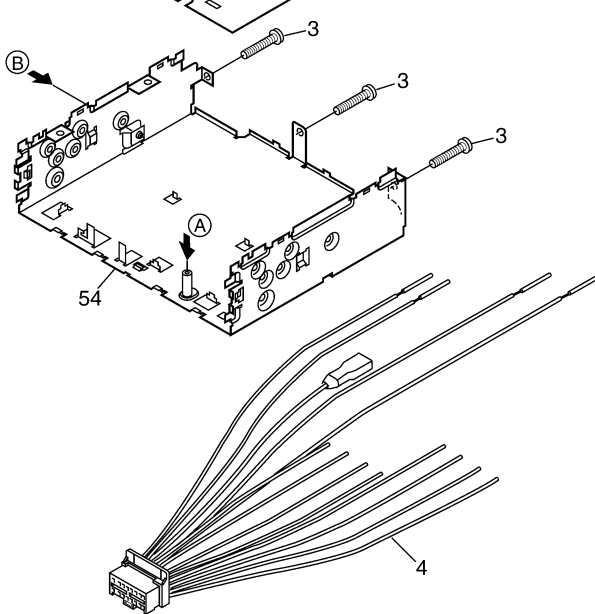
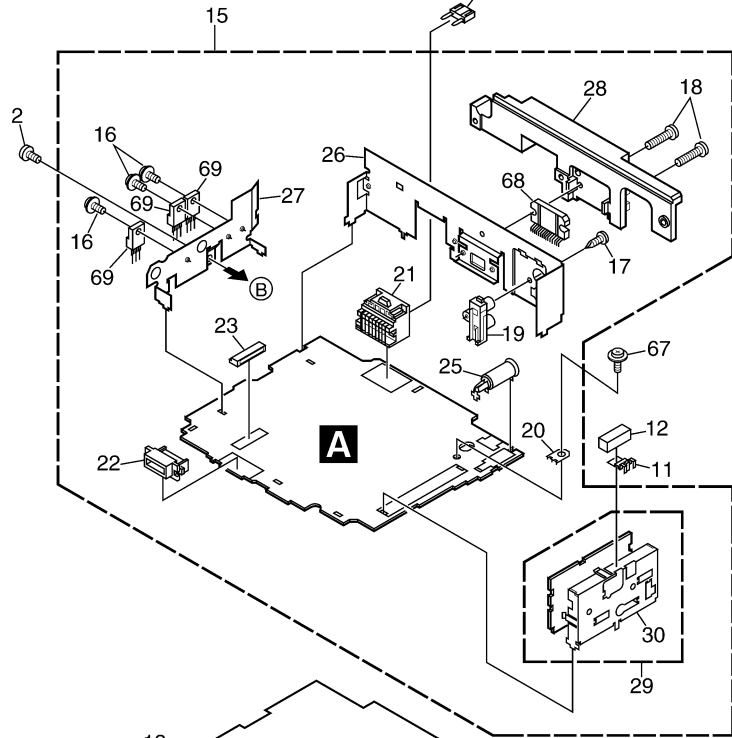
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● EXTERIOR(EE model) SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	Screw	BSZ26P060FTC	49	Lens	CNV7060	A
2	Screw	BSZ30P060FTC	50	Lighting Conductor	CNV7367	
3	Screw	BSZ30P200FTC				
4	Cord Assy	CDE7209	51	Rubber	CNV7368	
5		52	Connector	CNV7369	
6	Cable	CDE7113	53	Grille Unit	CXB9868	
7	Fuse(10A)	CEK1208	54	Chassis Unit	CXB9542	
8	CD Mechanism Module(S10)	CXK5600	55	Button	CAC4836	
9	Case	CNB2793	56	Spring	CBH1835	B
10	Holder	CNC8659	57	Spring	CBH2208	
11	Earth Plate	CNC8915	58	Spring	CBH2367	
12	Cushion	CNM8275	59	Bracket	CNC6791	
13	Insulator	CNM8059	60	Holder	CNC8042	
14	Insulator	CNM8174	61	Cover	CNM6276	
15	Tuner Amp Unit	CWM8567	62	Panel	CNS7238	
16	Screw	ASZ26P060FTC	63	Arm	CNV4692	
17	Screw	BPZ26P080FTC	64	Arm	CNV4728	
18	Screw	BSZ26P160FTC	65	Arm	CNV5576	
19	Pin Jack(CN352)	CKB1028	66	Screw	IMS20P030FZK	C
20	Terminal(CN402)	CKF1059	67	Screw	ISS26P055FTC	
21	Plug(CN901)	CKM1376	68	IC(IC302)	TDA7386	
22	Connector(CN831)	CKS3581	69	Transistor(Q911,921,991)	2SD2375	
23	Connector(CN651)	CKS3835				
24					
25	Antenna Jack(CN401)	CKX1056				
26	Holder	CND1241				
27	Holder	CND1328				
28	Heat Sink	CNR1668				D
29	FM/AM Tuner Unit	CWE1648				
30	Holder	CND1054				
31	Detach Grille Assy	CXB9570				
32	Screw	BPZ20P100FZK				
33	Button(1-6)	CAC7739				
34	Button(Volume)	CAC7740				
35	Button(Up)	CAC7741				
36	Button(Down)	CAC7742				
37	Button(Eject)	CAC7743				
38	Button(Band)	CAC7745				E
39	Button(Audio)	CAC7746				
40	Button(SRC-EQ)	CAC7749				
41	Button	CAC7753				
42	Spring	CBH2210				
43	Cover	CNS7232				
44	Keyboard Unit	CWM8575				
45	LCD(LCD1801)	CAW1735				
46	Connector(CN1801)	CKS3580				
47	Holder	CNC9617				F
48	Sheet	CNM7932				

2.5 CD MECHANISM MODULE

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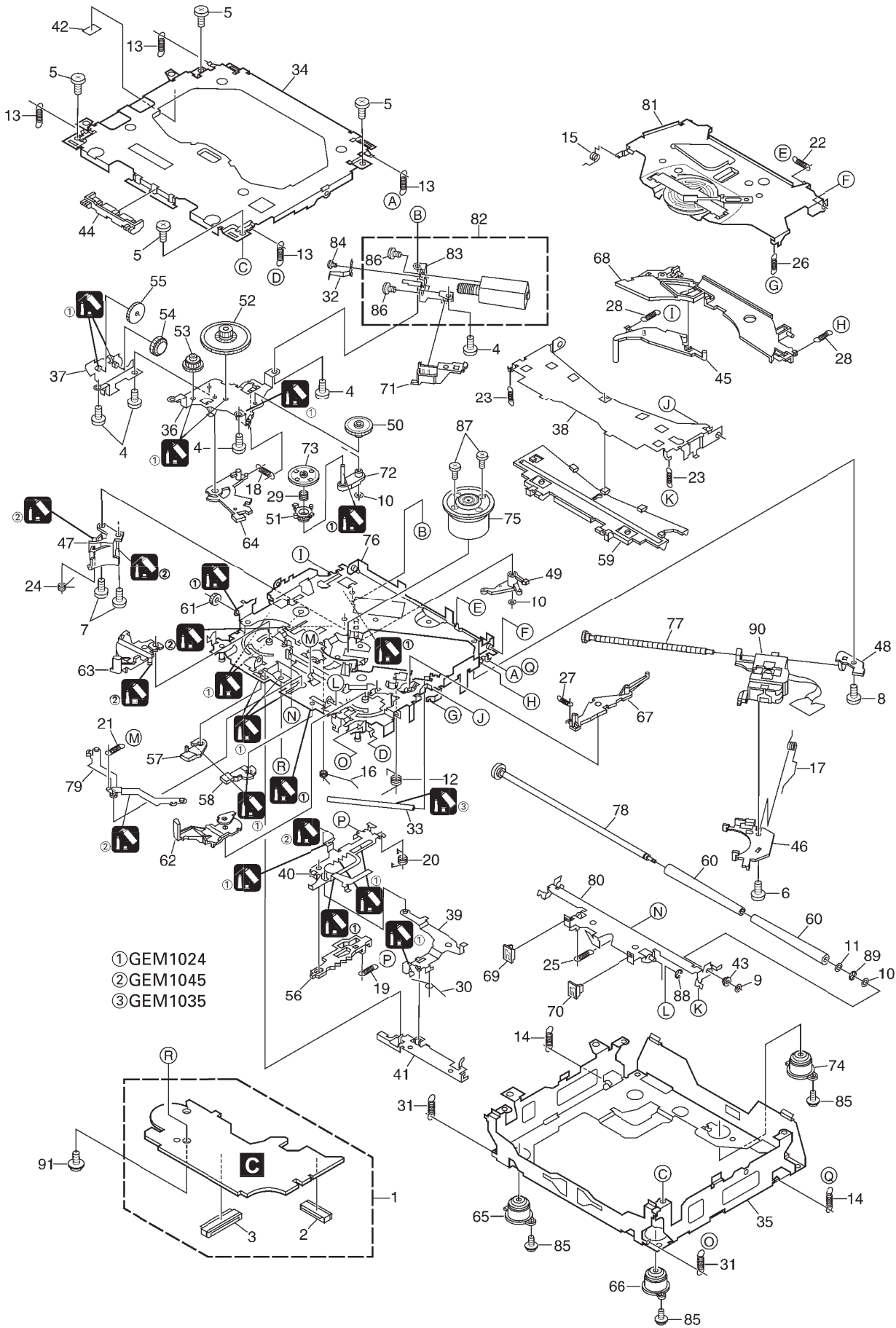
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● CD MECHANISM MODULE SECTION PARTS LIST

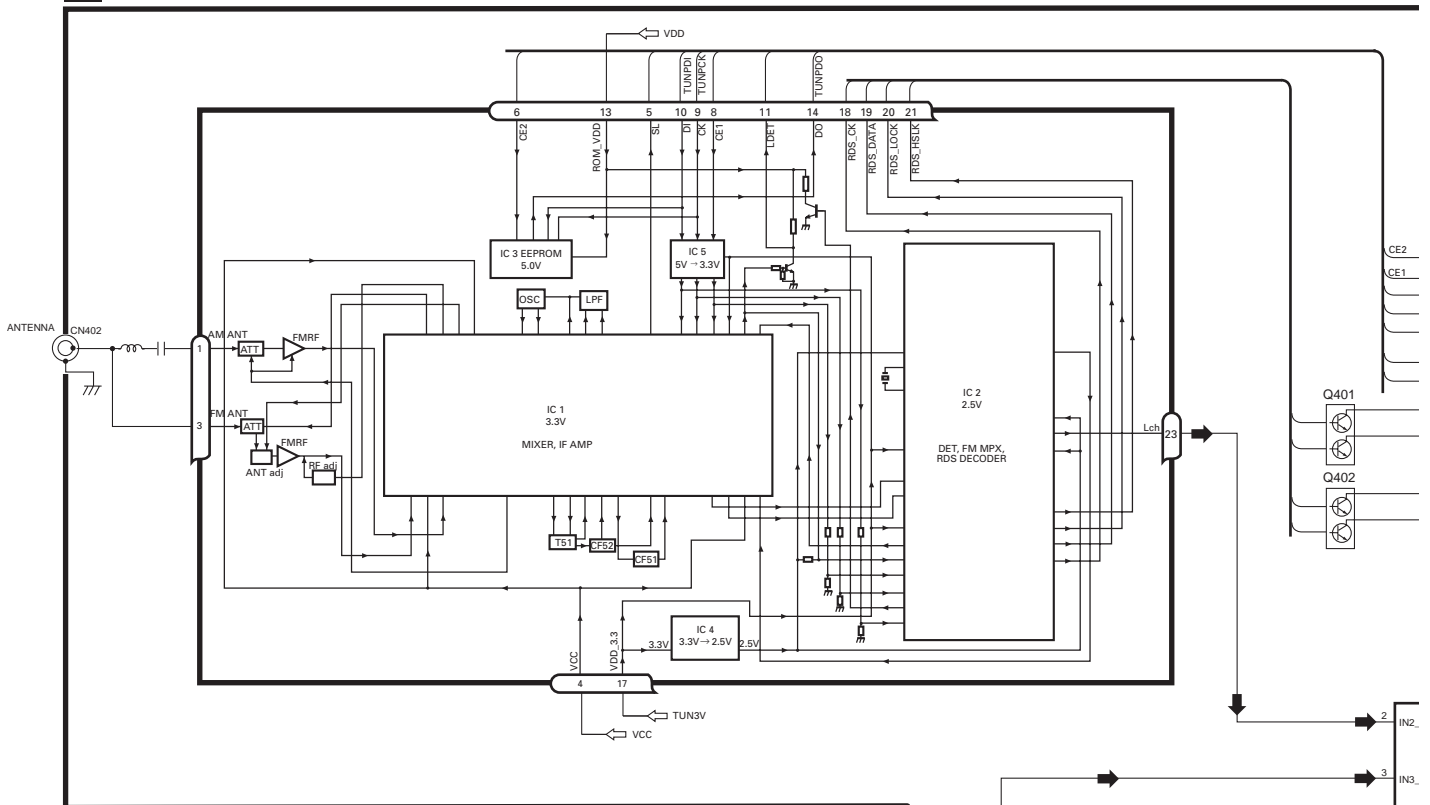
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	CD Core Unit(S10)	CWX2708	48	Holder	CNV7202
2	Connector(CN101)	CKS4182	49	Arm	CNV7203
3	Connector(CN701)	CKS4188	50	Gear	CNV7207
4	Screw	BMZ20P035FTC			
5	Screw	BSZ20P040FTC	51	Gear	CNV7208
			52	Gear	CNV7209
6	Screw(M2x4)	CBA1362	53	Gear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

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

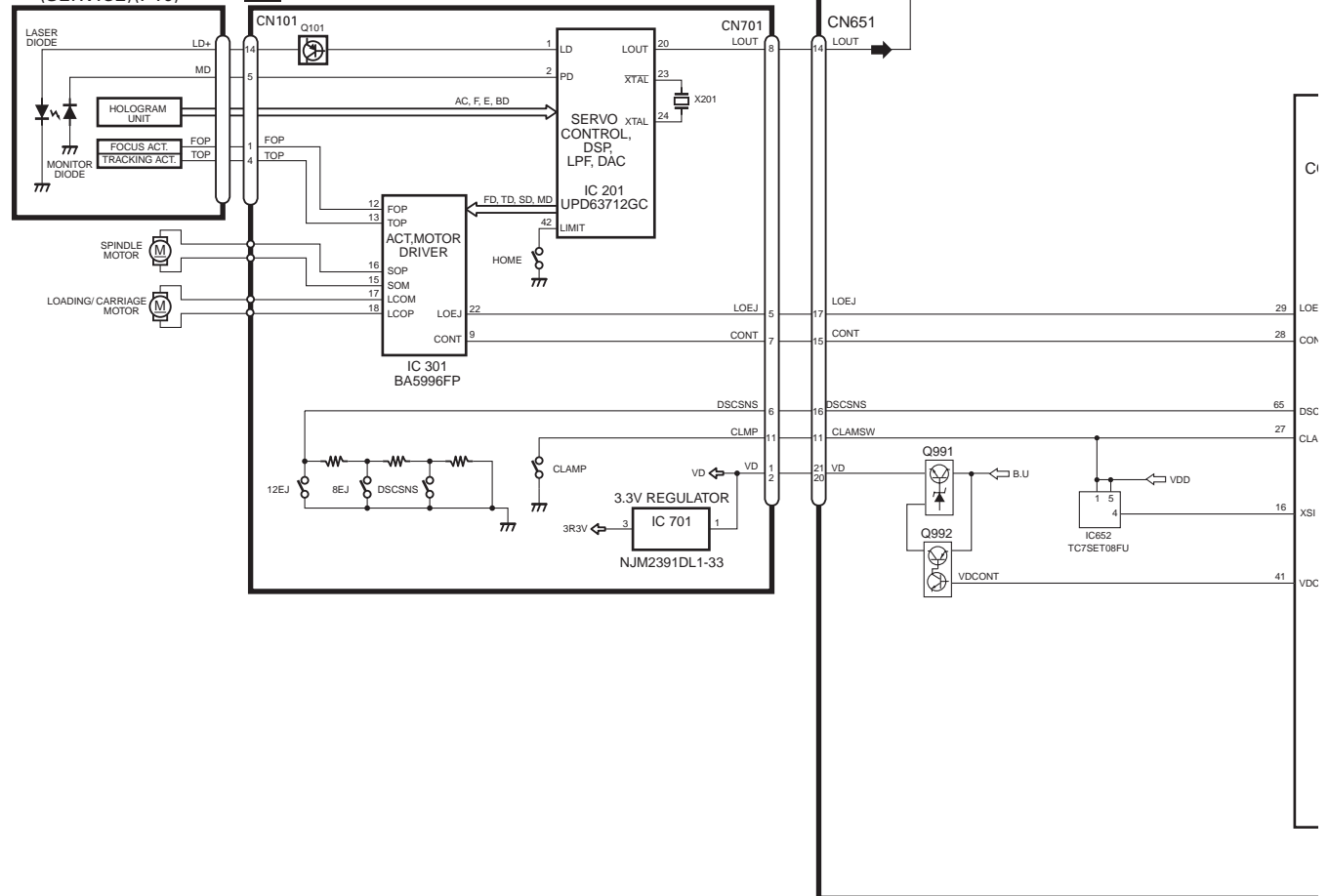
● EW MODEL

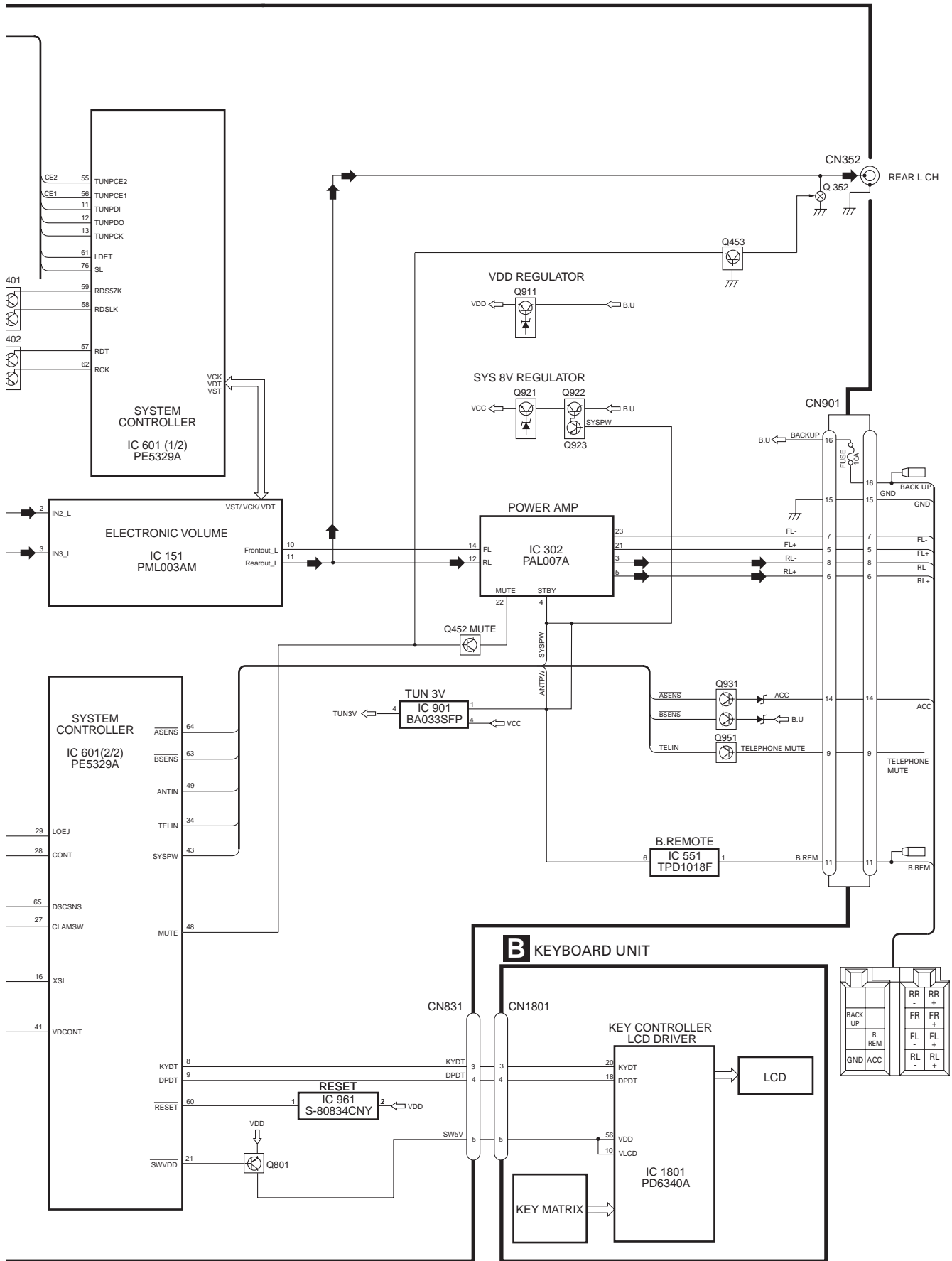
A TUNER AMP UNIT



PICKUP UNIT (SERVICE)(P10)

C CD CORE UNIT(S10)



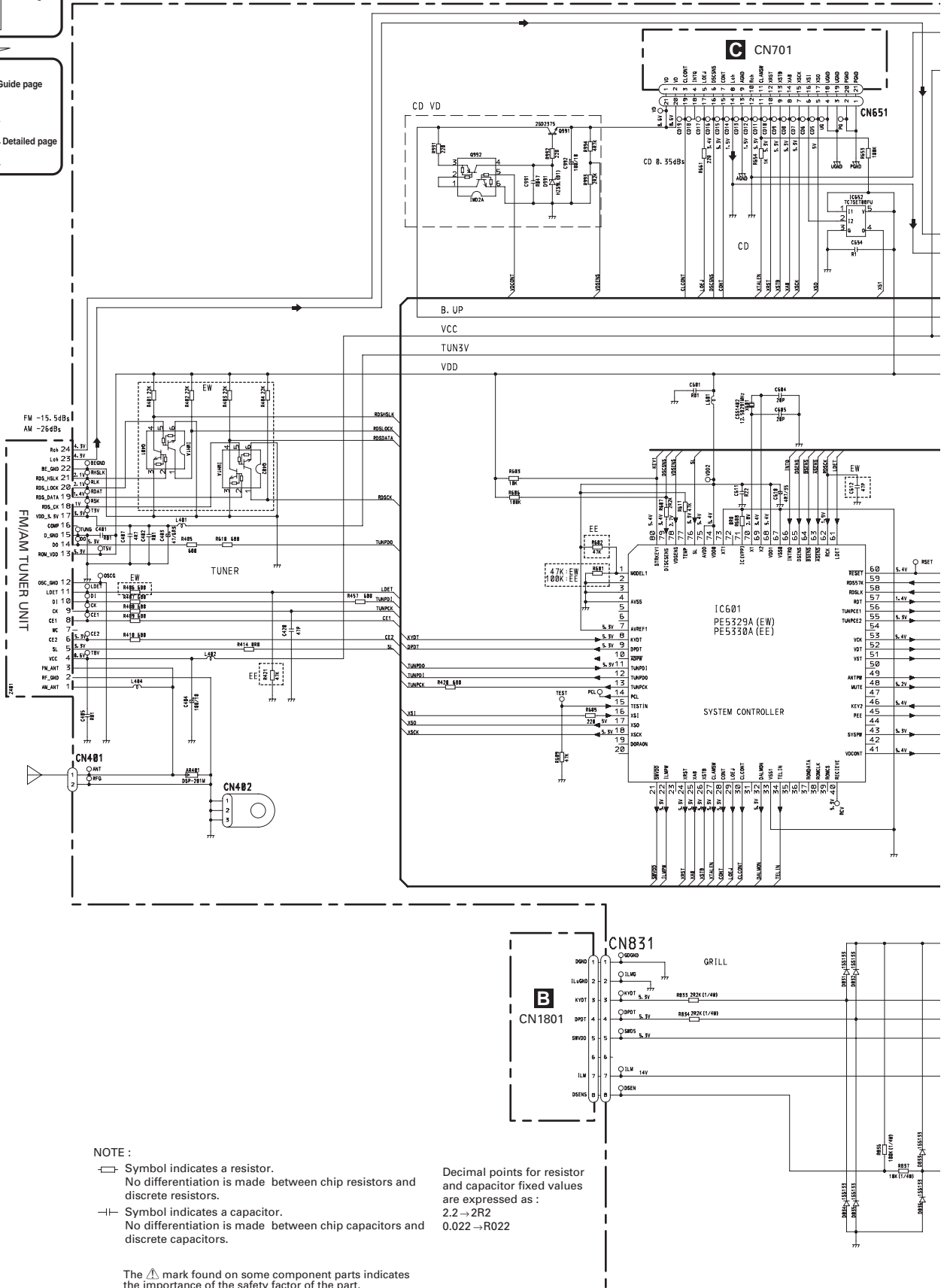
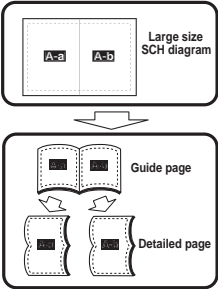


A
B
C
D
E
F

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

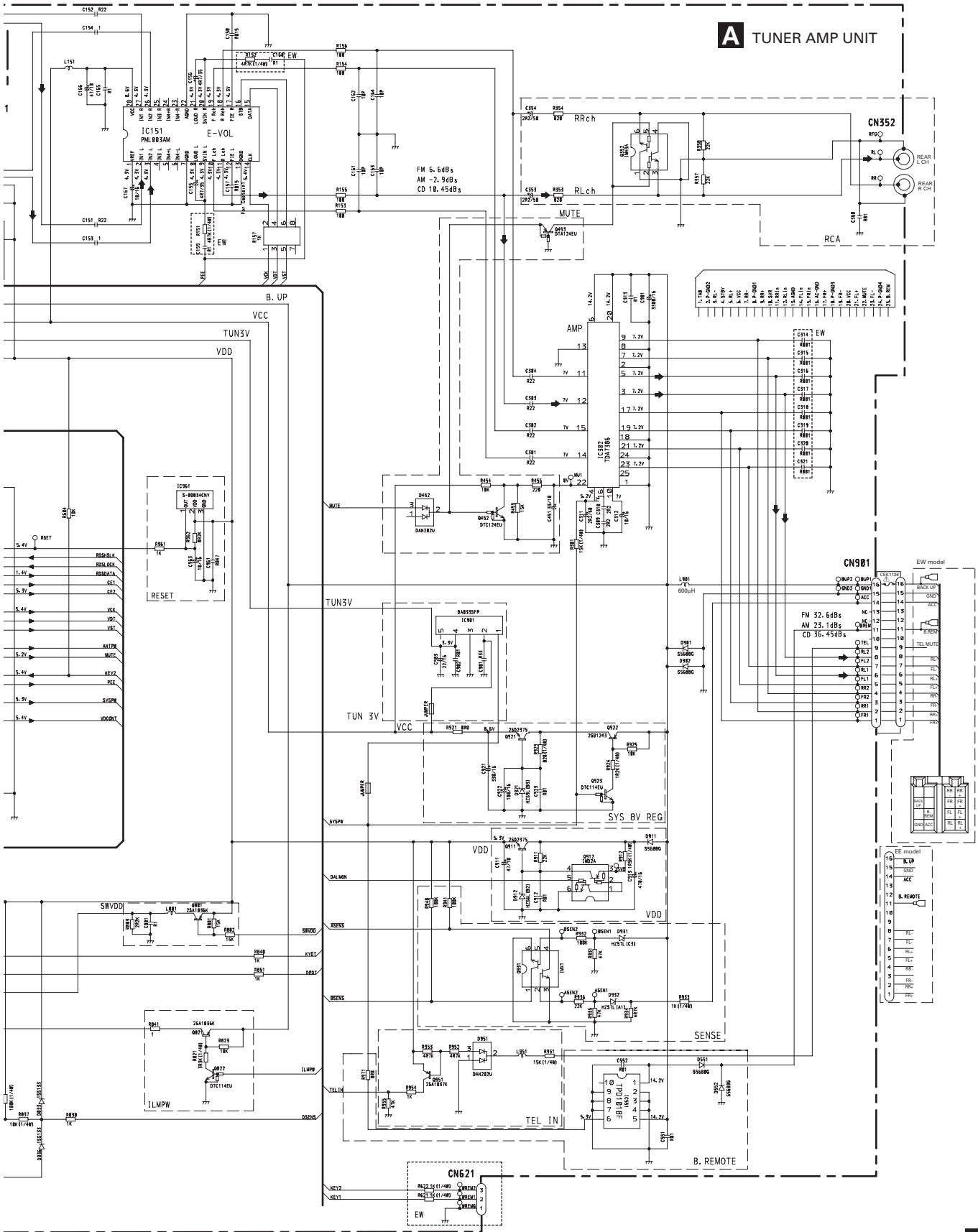
Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".

A-a



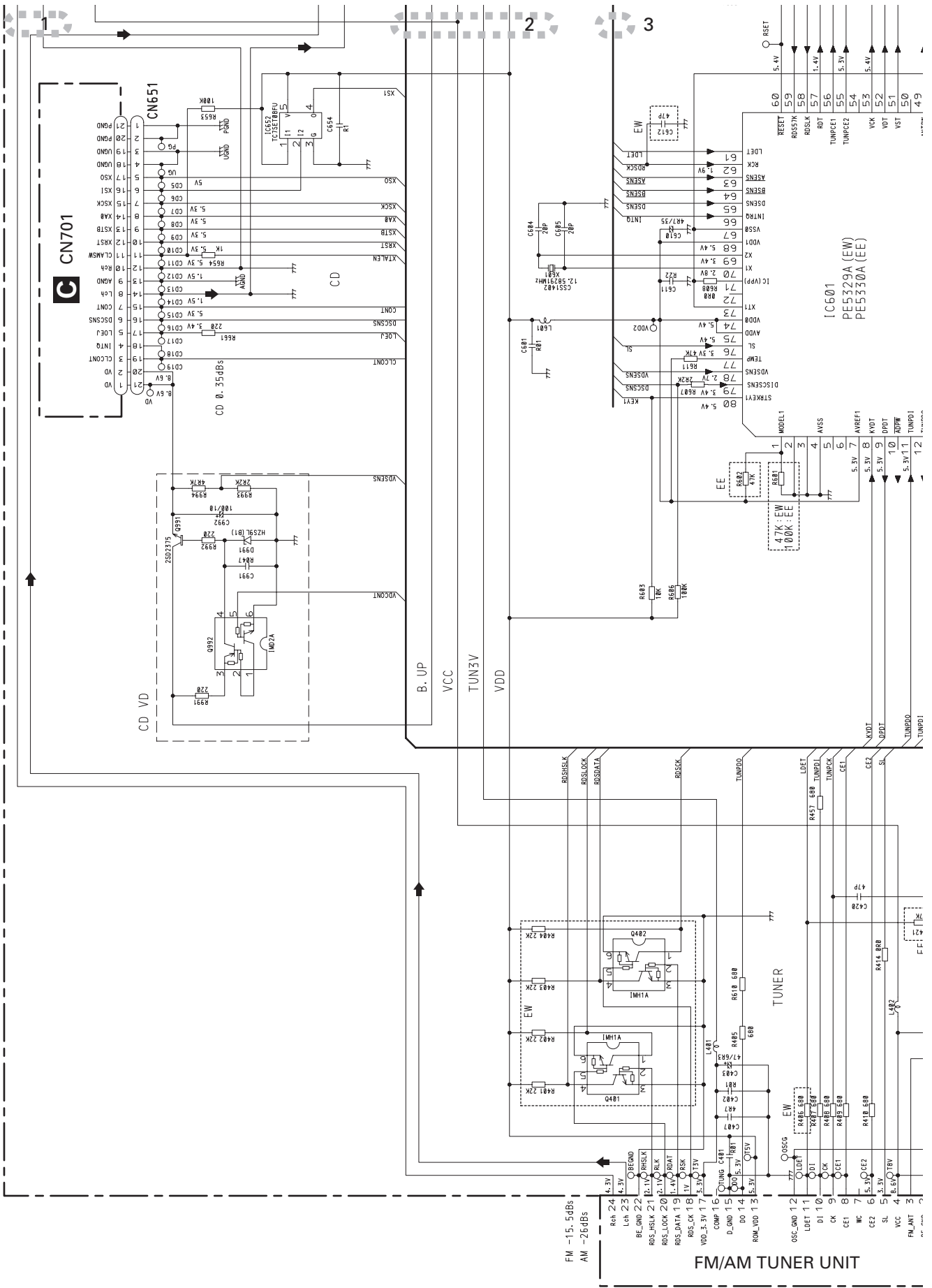
A

A-b



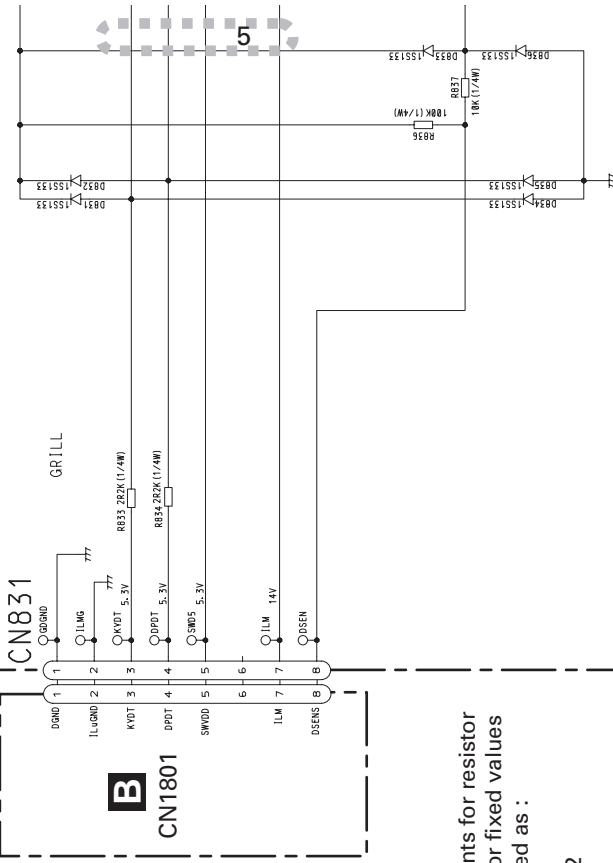
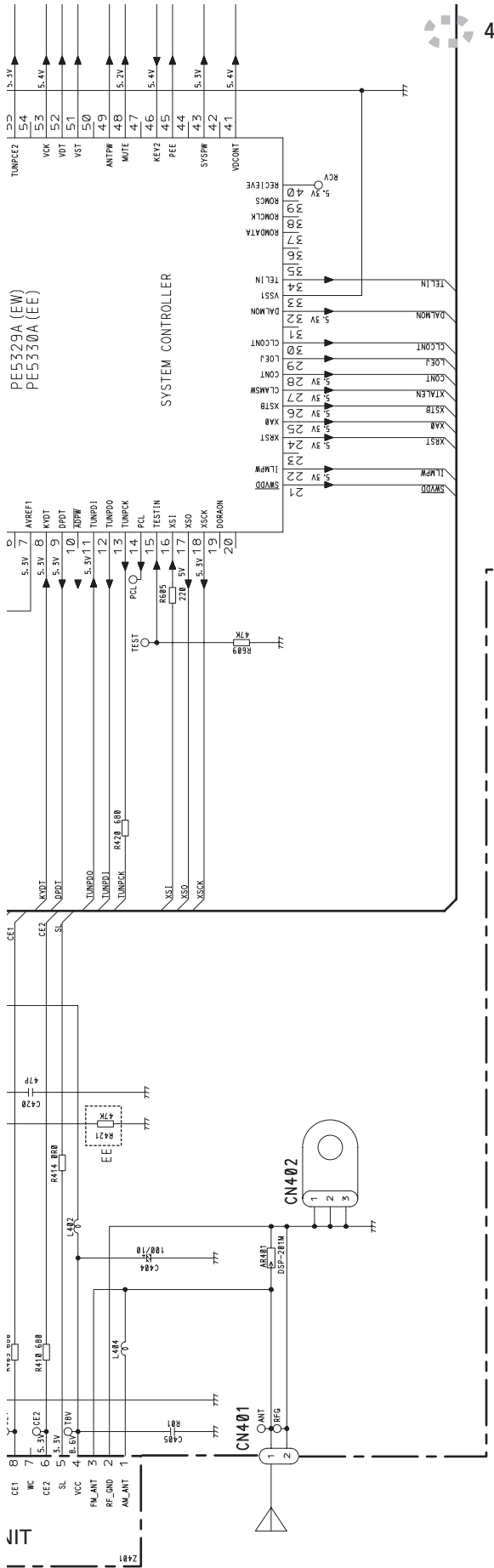
A
B
C
D
E
F

A-b



A-a

A B C D E F



NOTE :

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

Decimal points for resistor and capacitor fixed values are expressed as :
 2.2 → 2R2
 0.022 → R022

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

A-b

A-a
A-b

A-a

A

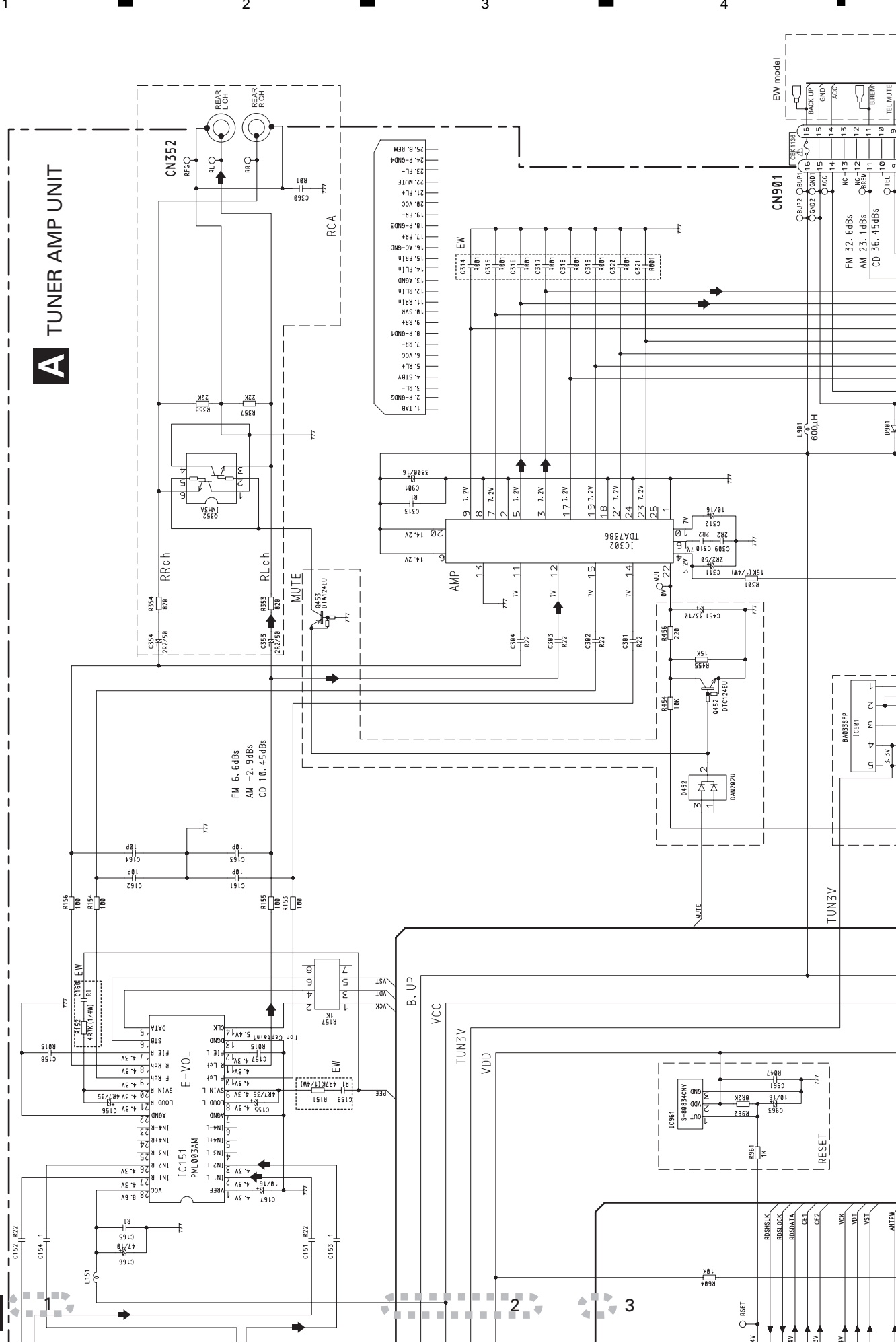
B

C

D

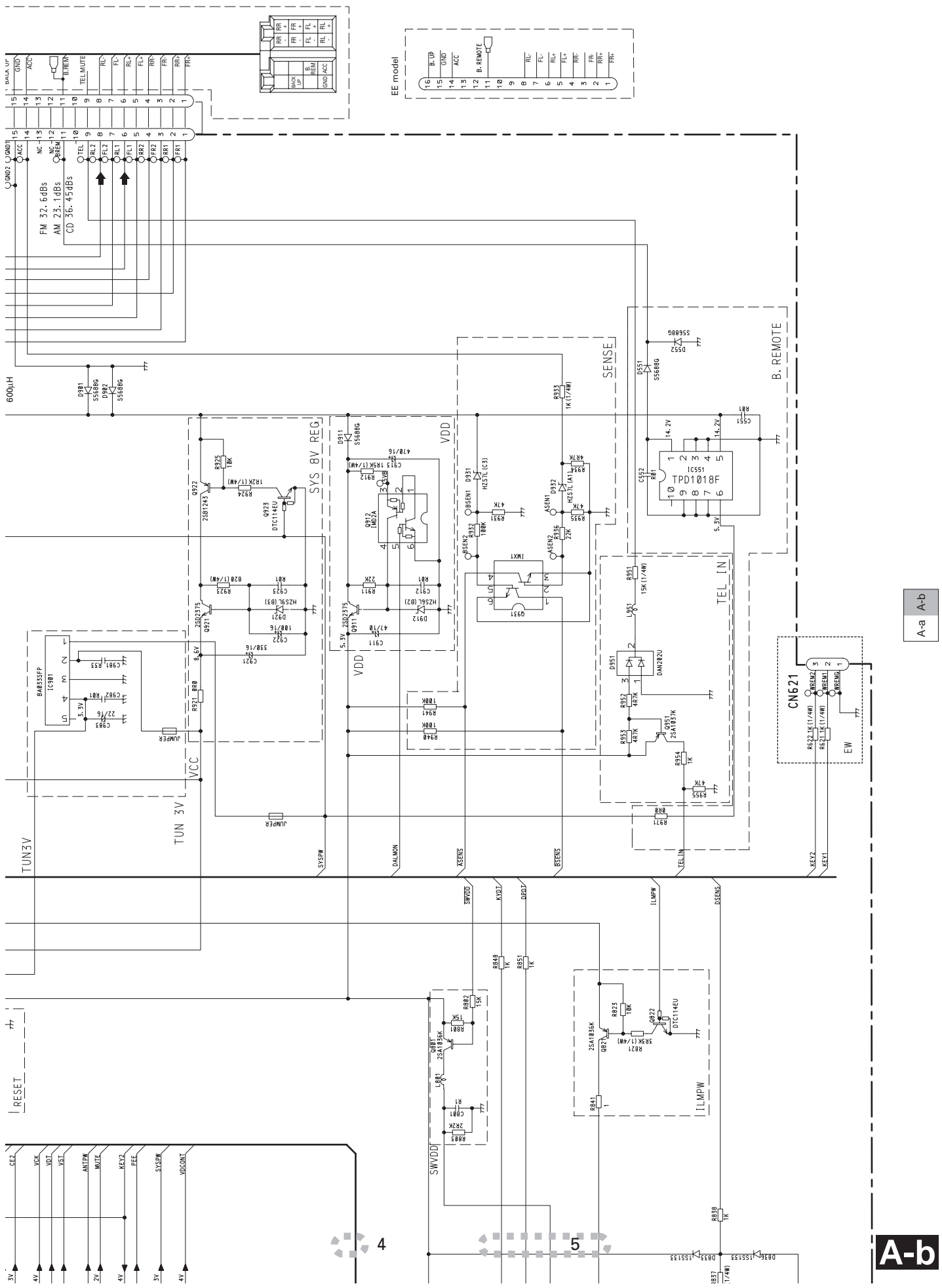
E

F



A-a A-b

A-b



5

6

7

8

A

B

C

D

E

F

A-a
A-b

A-b

23

3.3 KEYBOARD UNIT

A

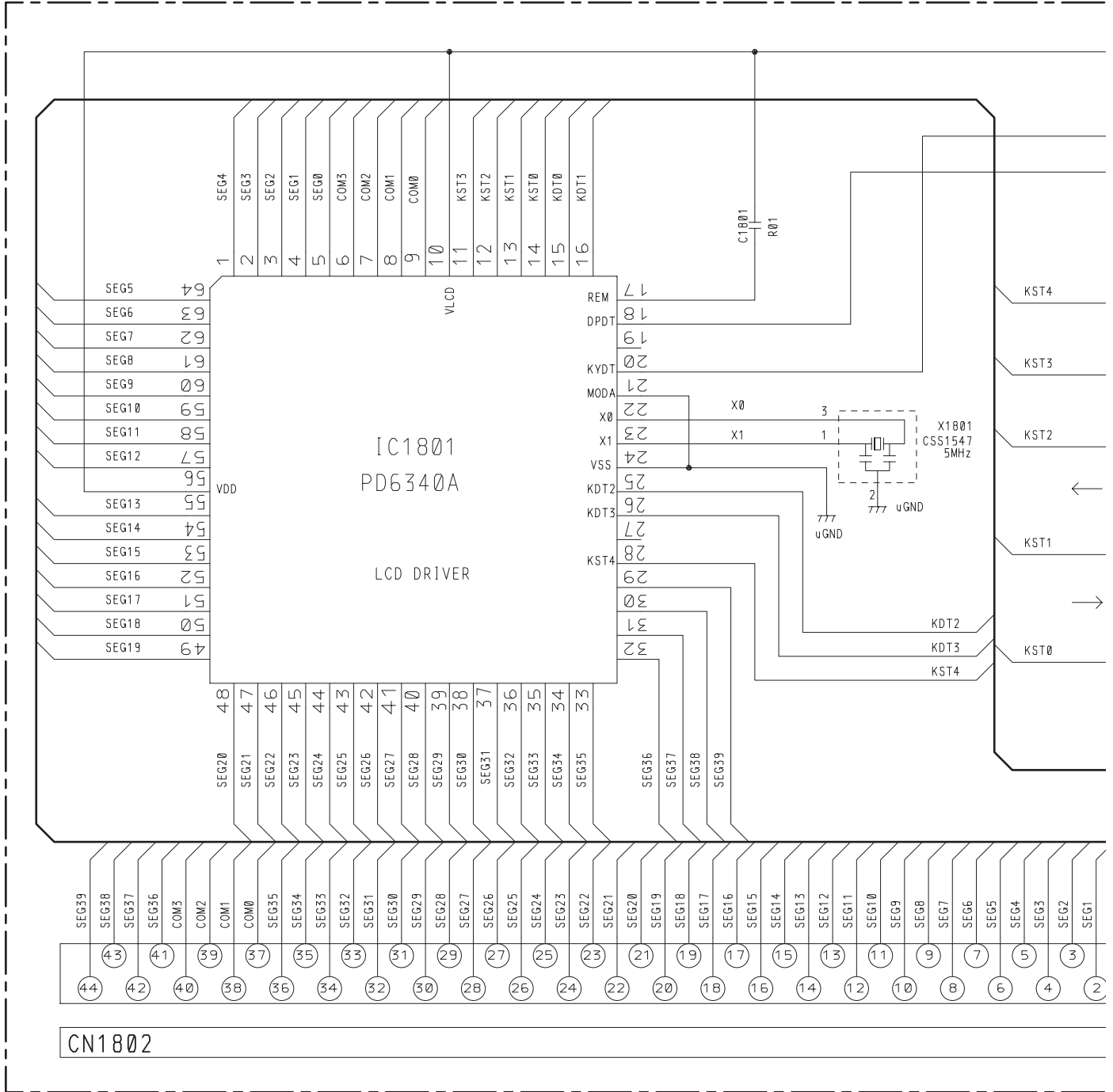
B

C

D

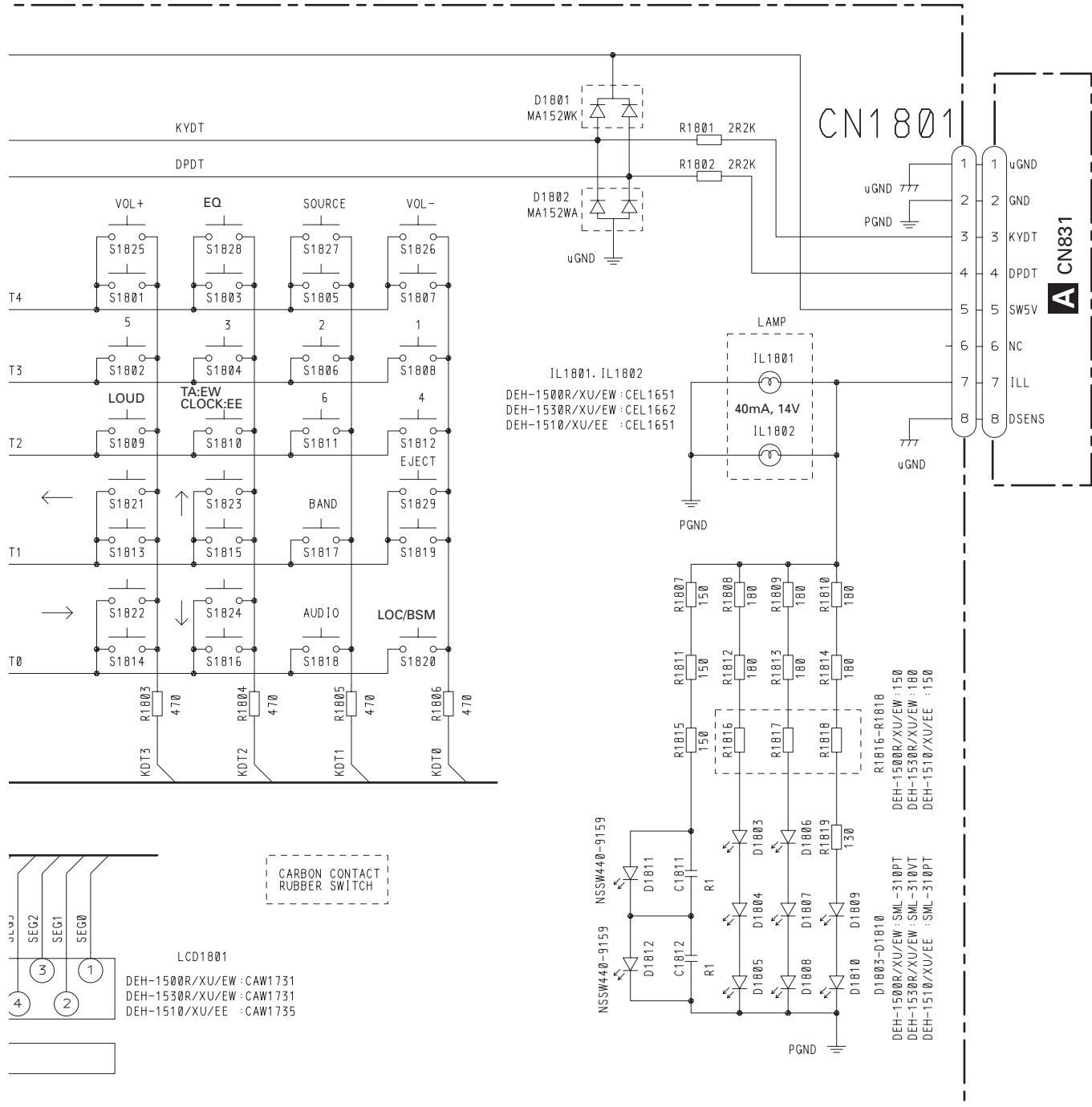
E

F



B

B KEYBOARD UNIT



B

3.4 CD MECHANISM MODULE

A

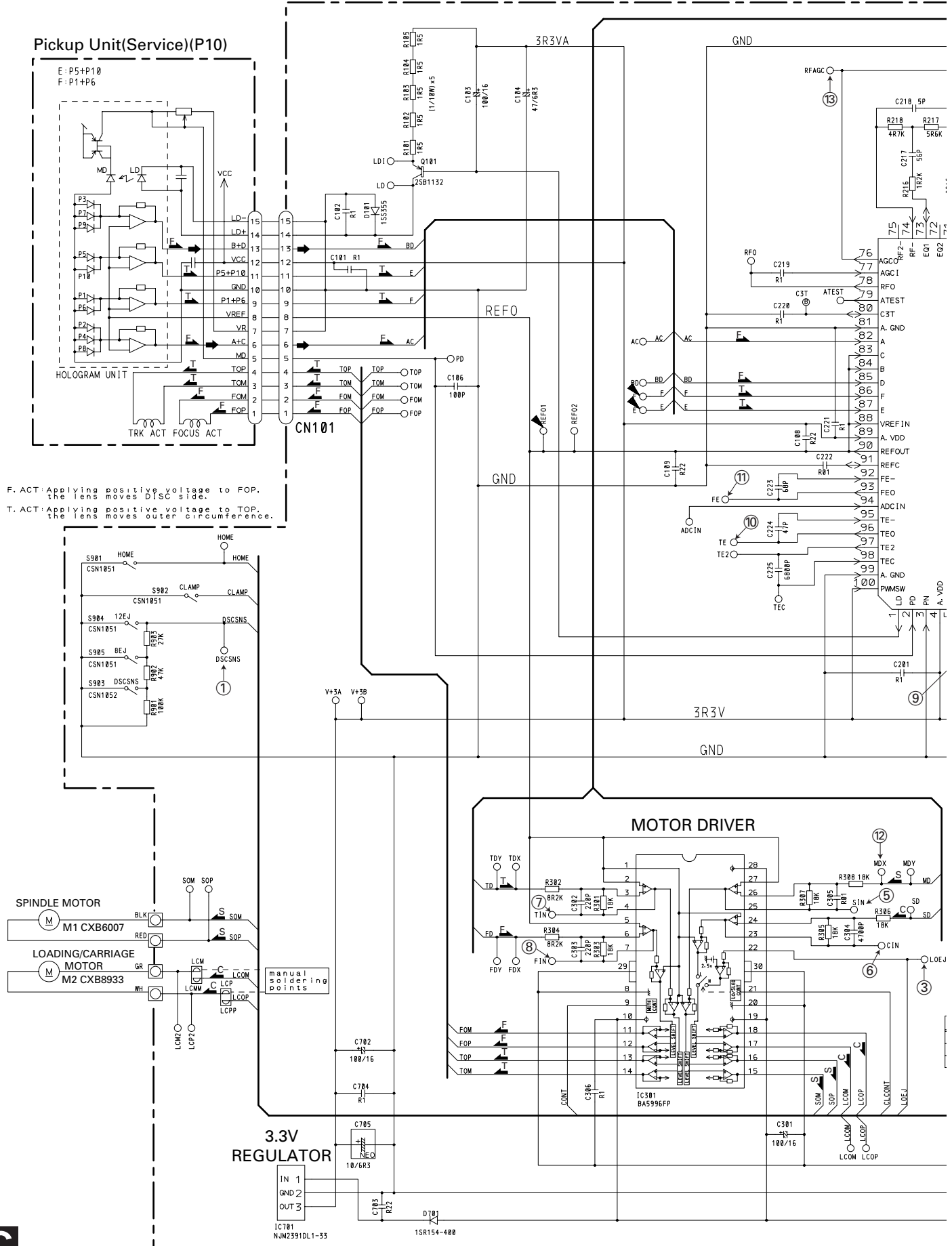
B

C

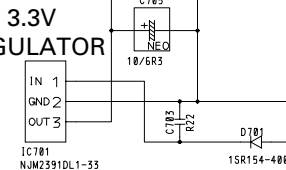
D

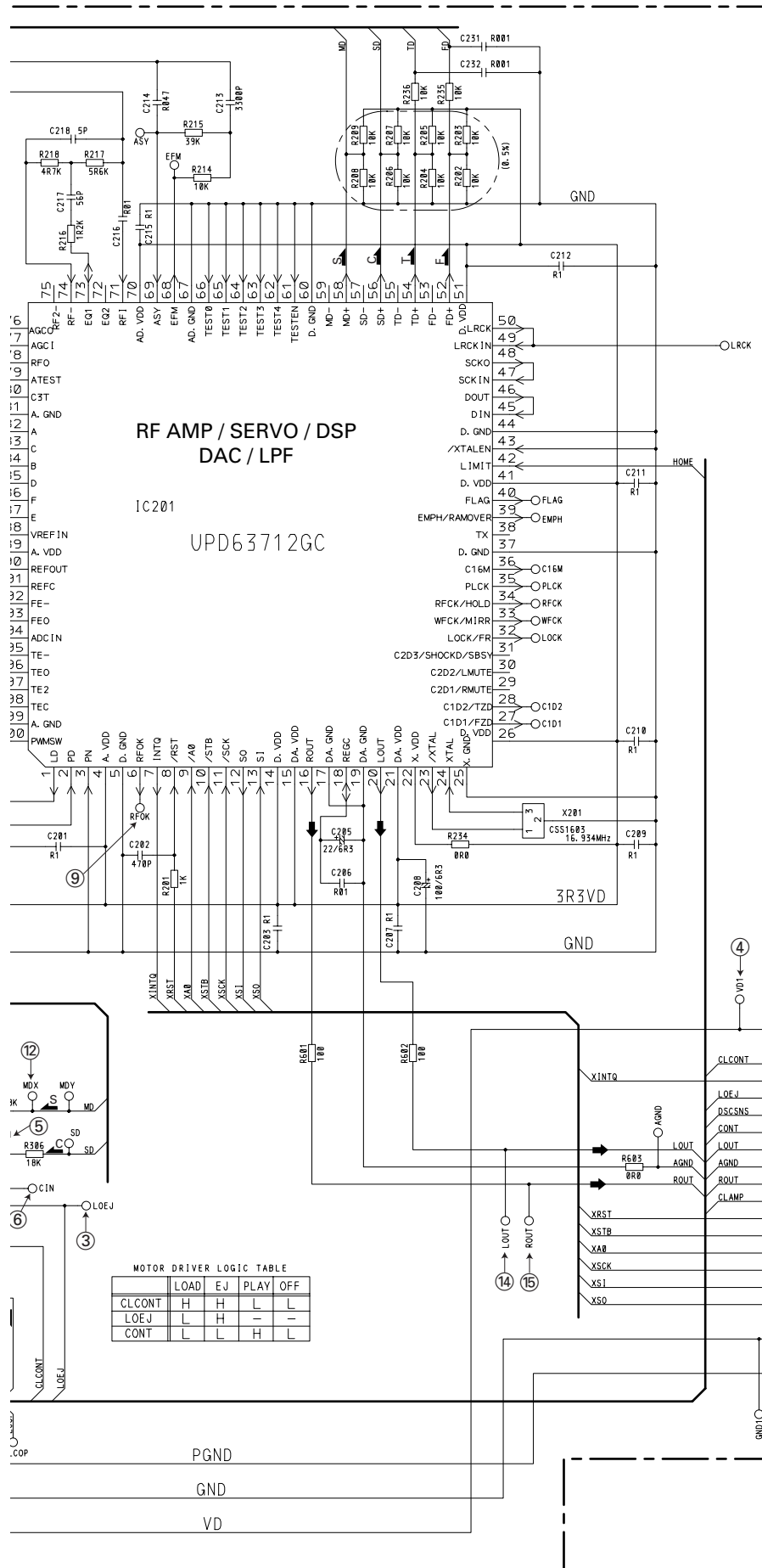
E

F



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





**RF AMP / SERVO / DSP
DAC / LPF**

IC201
UPD63712GC

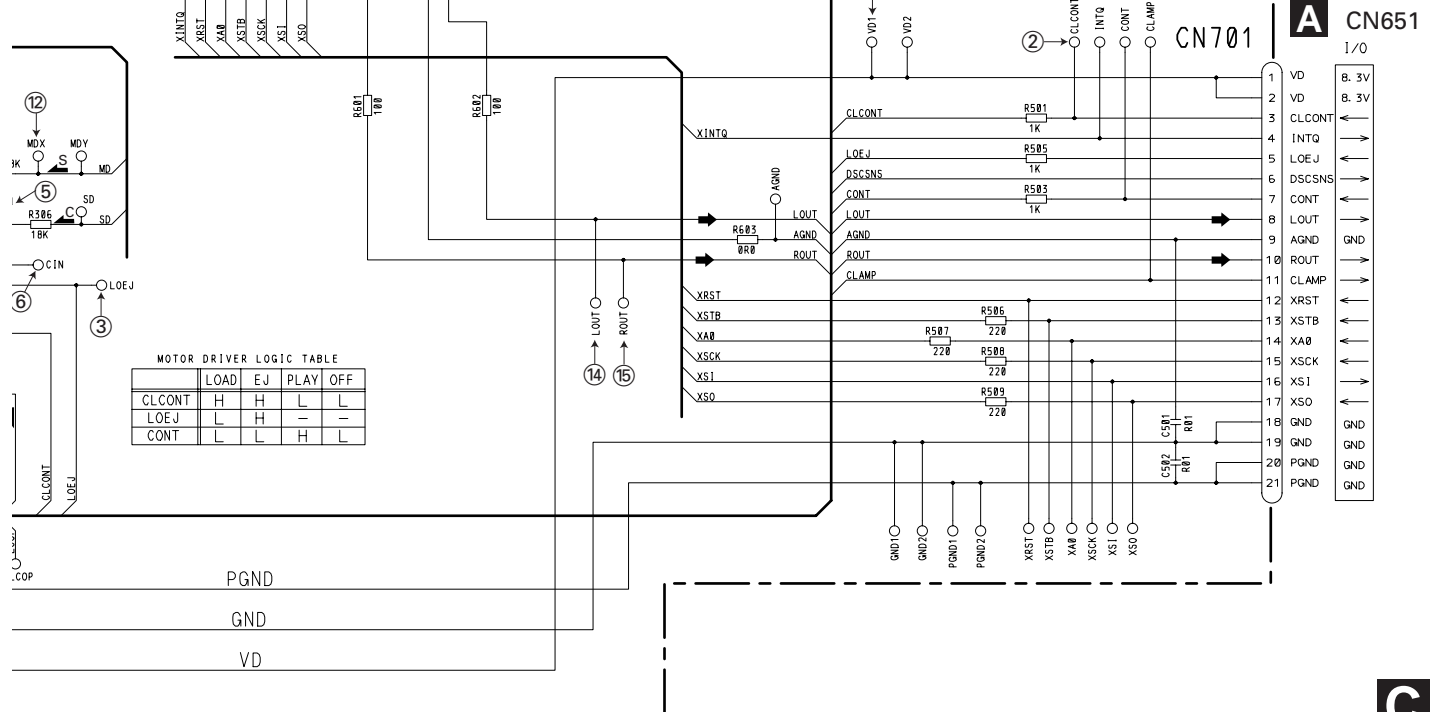
- S** SIGNAL LINE
- F** FOCUS SERVO LINE
- T** TRACKING SERVO LINE
- C** CARRIAGE SERVO LINE
- S** SPINDLE SERVO LINE

SWITCHES:
 CD CORE UNIT
 S901 : HOME SWITCH.....ON-OFF
 S902 : CLAMP SWITCH.....ON-OFF
 S903 : DSCSNS SWITCH.....ON-OFF
 S904 : 12EJ SWITCH.....ON-OFF
 S905 : 8EJ SWITCH.....ON-OFF
 The underlined indicates the switch position.

NOTE1)
 GND ...CD LSI
 PGND ...Actuator, Motor Driver
 AGND ...Audio
 These GND's are not connected to each other on PCB.
 PGND is connected to a floating mechanism part by a screw.

- Monitor land (side A)
- ⊖ Monitor land (side B)
- ⊗ Land for manual soldering

C CD CORE UNIT (S10)



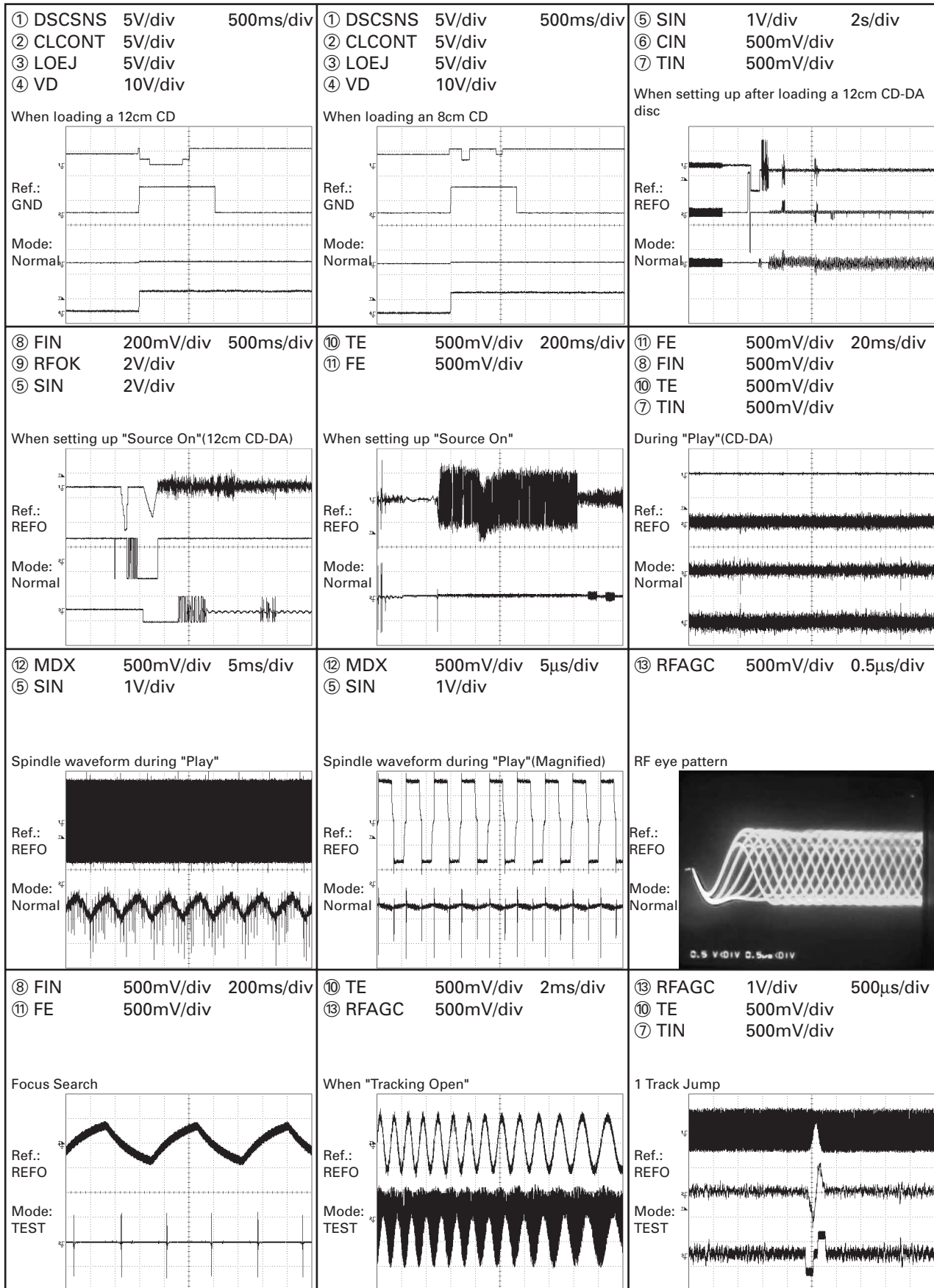
MOTOR DRIVER LOGIC TABLE

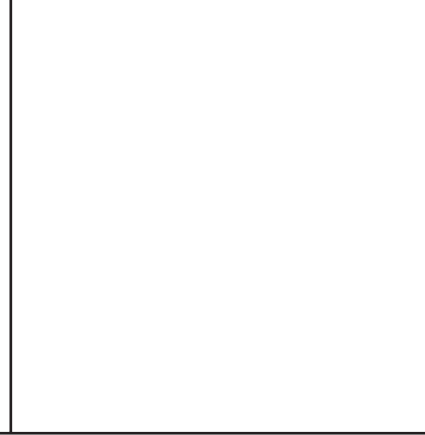
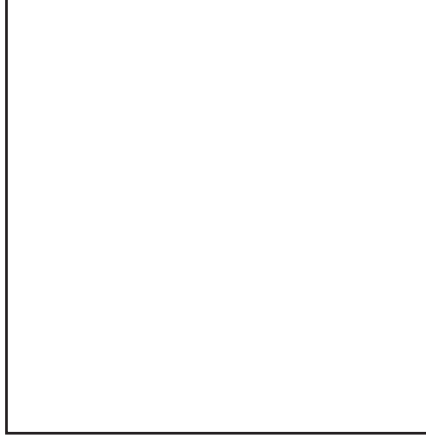
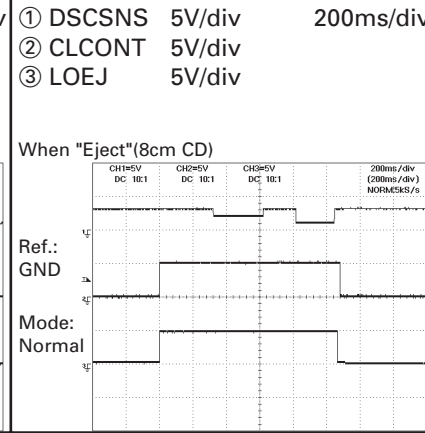
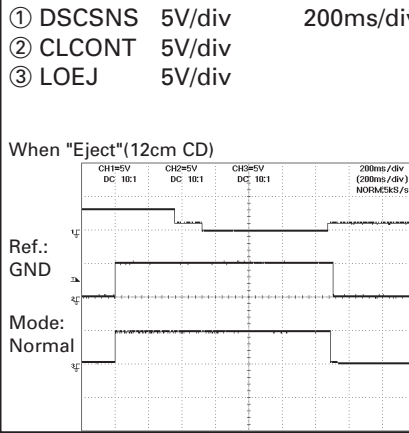
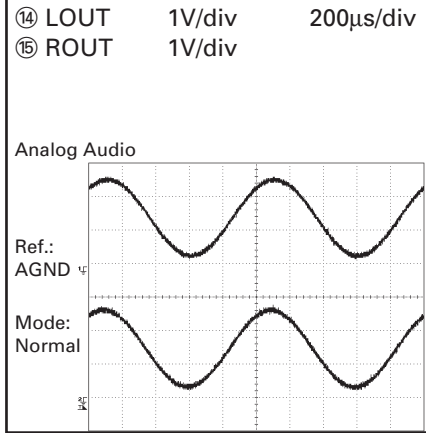
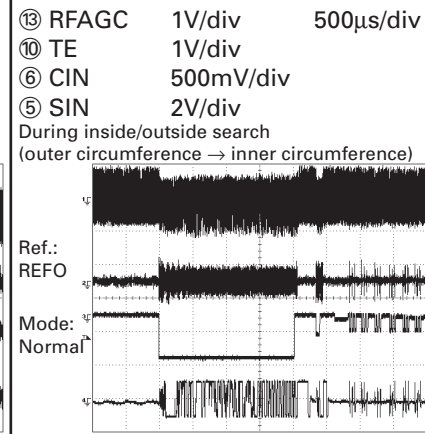
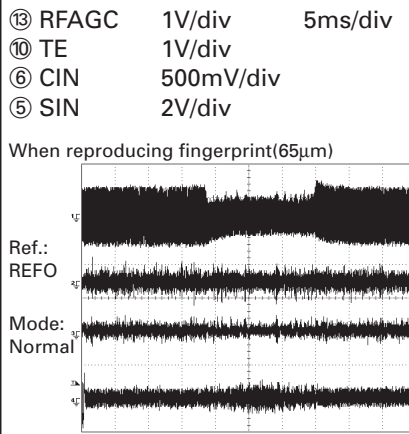
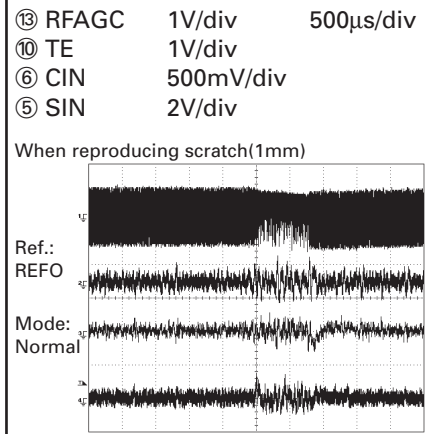
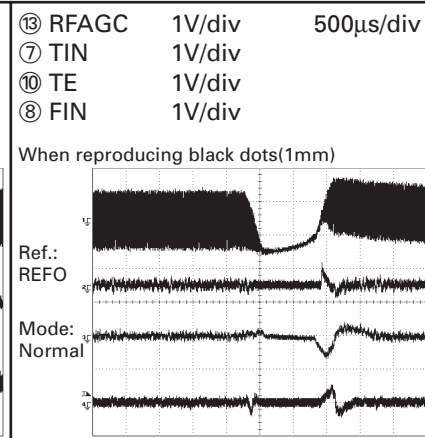
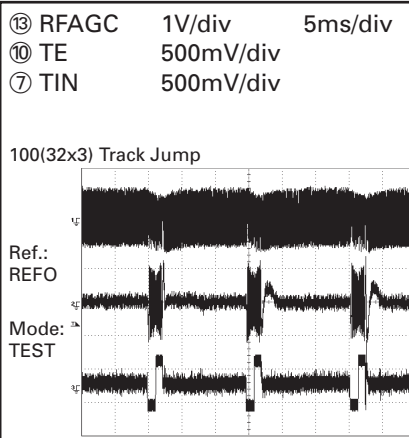
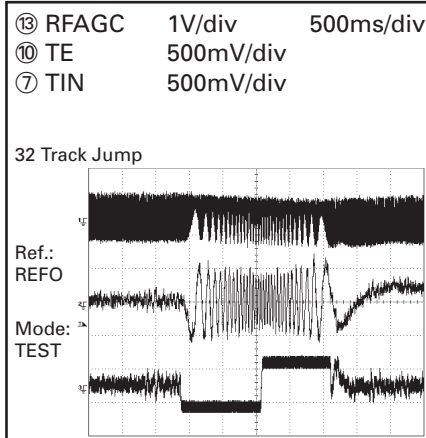
	LOAD	EJ	PLAY	OFF
CLCONT	H	H	L	L
LOEJ	L	H	-	-
CONT	L	L	H	L

A
B
C
D
E
F

Waveforms

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





A

B

C

D

E

F

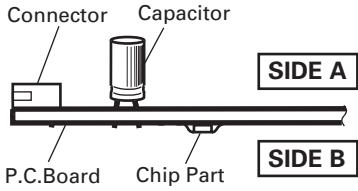
4. PCB CONNECTION DIAGRAM

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

IC, Q

IC302

Q921

Q911

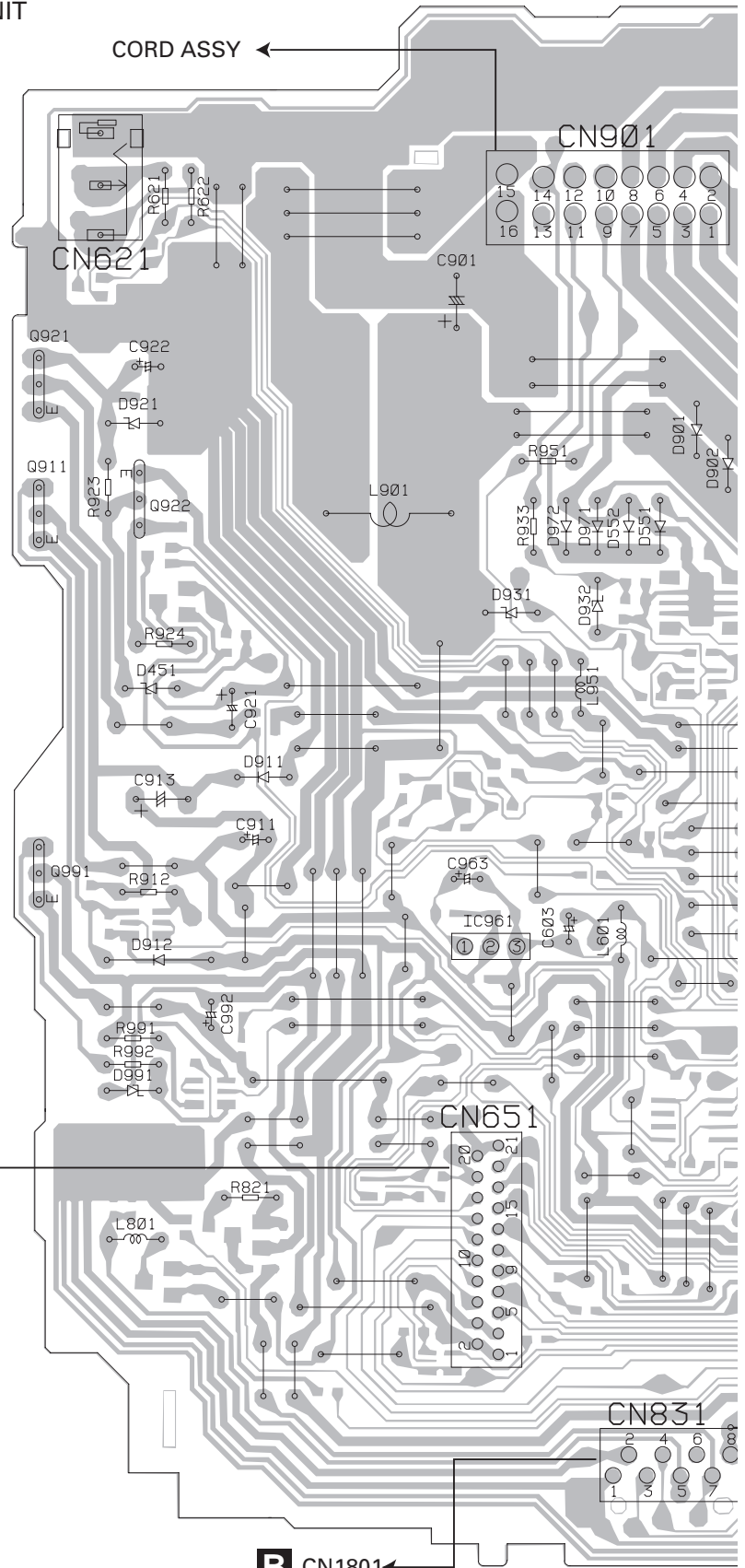
Q922

Q991

IC961

Q983

CORD ASSY ←

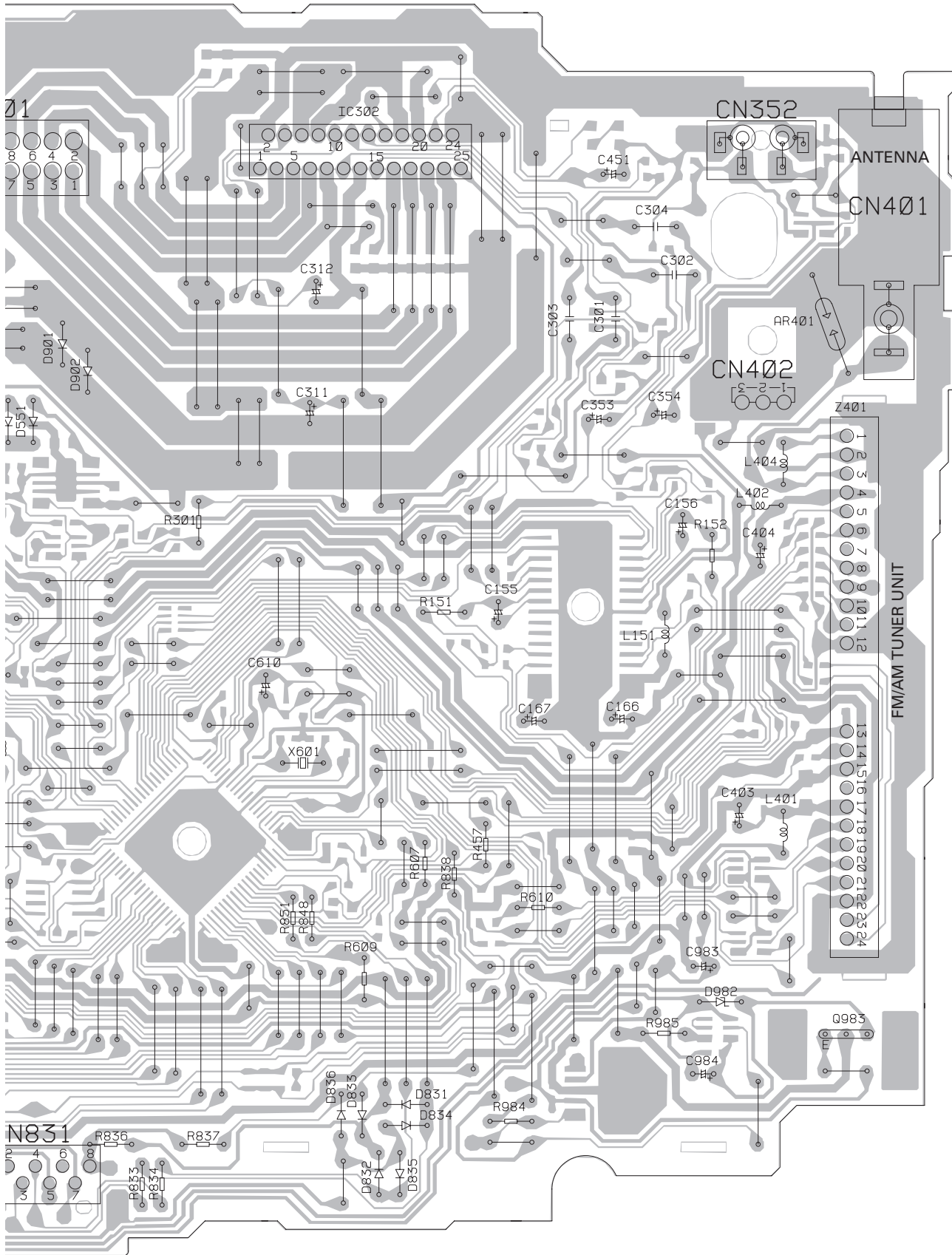


C CN701 ←

B CN1801 ←

A

SIDE A



FRONT

A

A

A TUNER AMP UNIT

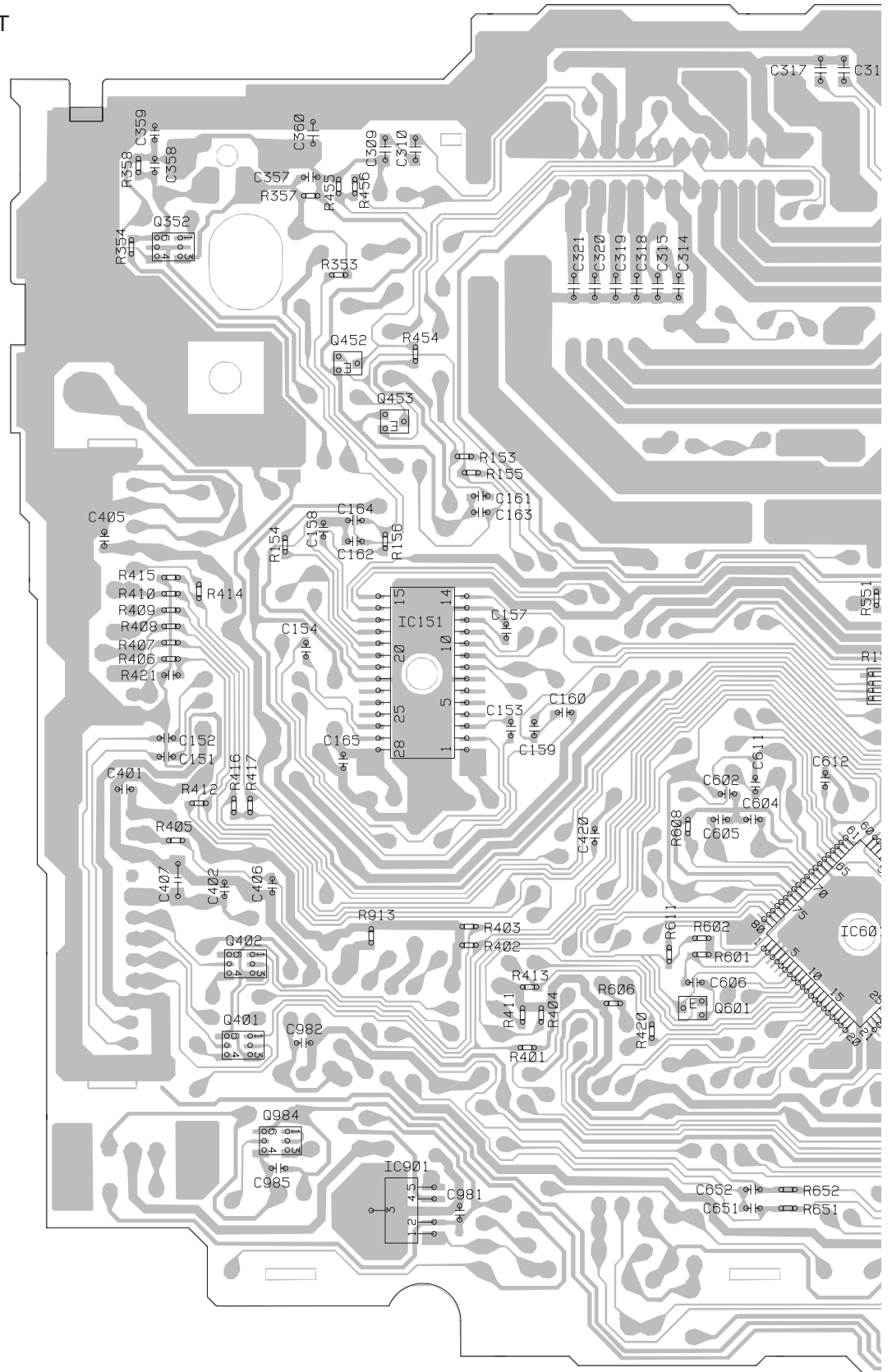
B

C

D

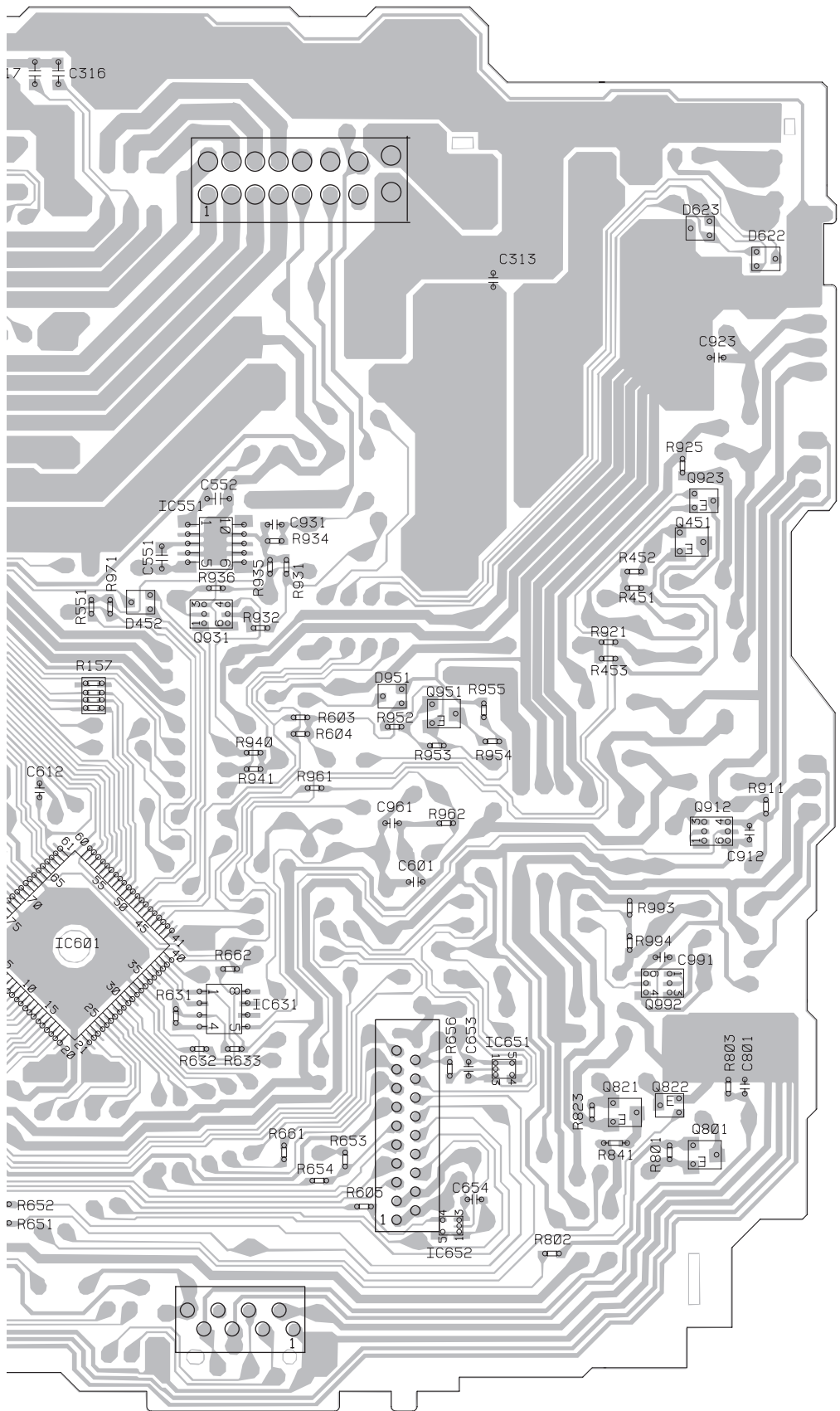
E

F



A

SIDE B



- IC. Q
- Q352
- Q452
- Q453
- Q923
- IC551
- Q451
- IC151
- Q931
- Q951
- Q912
- IC601
- Q402
- IC631
- Q992
- Q601
- Q401
- IC651
- Q821
- Q822
- Q984
- Q801
- IC901
- IC652

A
B
C
D
E
F

A

4.2 KEYBOARD UNIT

B KEYBOARD UNIT **SIDE A**

B KEYBOARD UNIT **SIDE B**

A

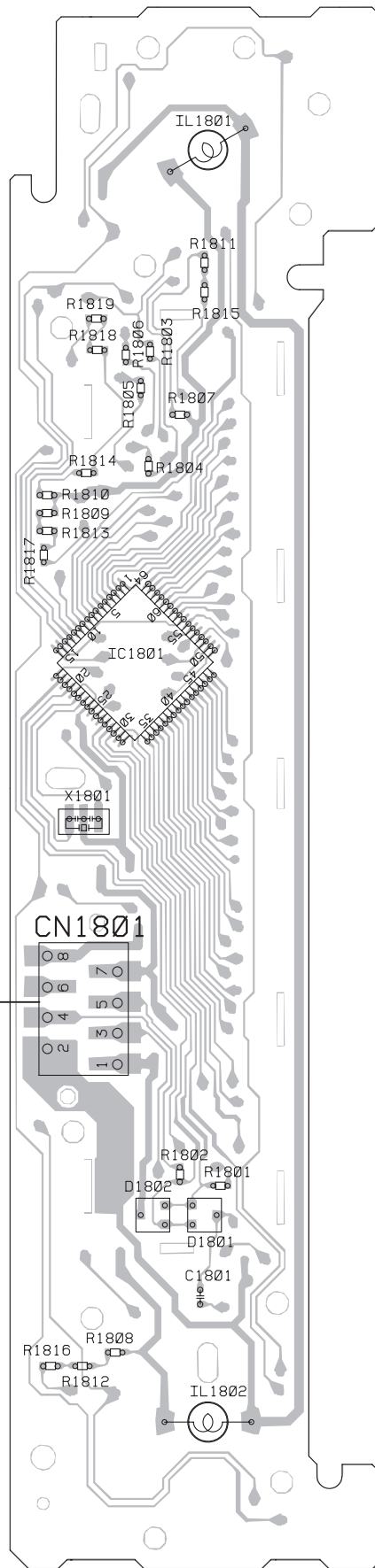
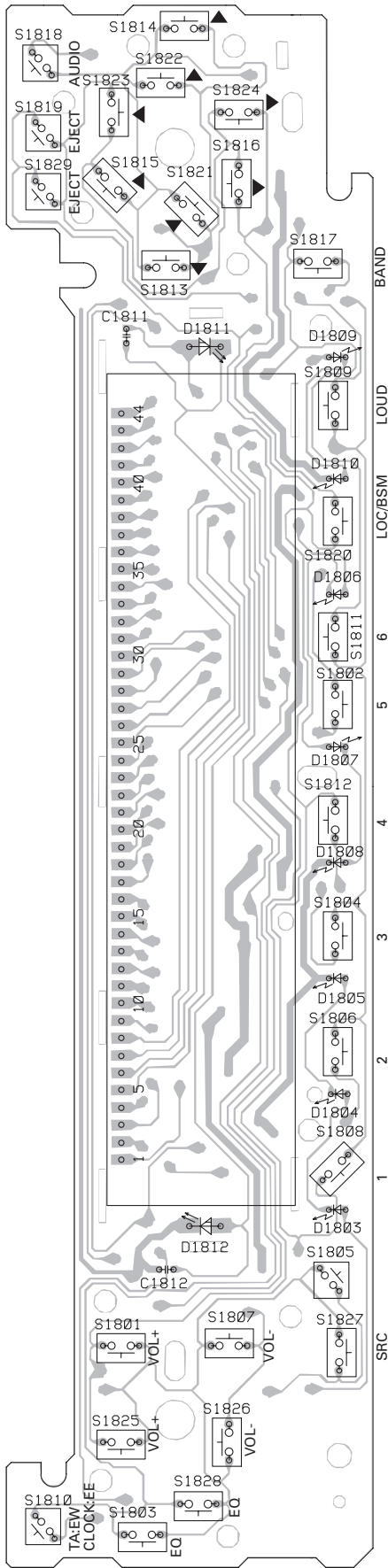
B

C

D

E

F



IC, Q

IC1801

A
CN831

B

A

B

C

D

E

F

4.3 CD MECHANISM MODULE

C CD CORE UNIT(S10)

SIDE A

A

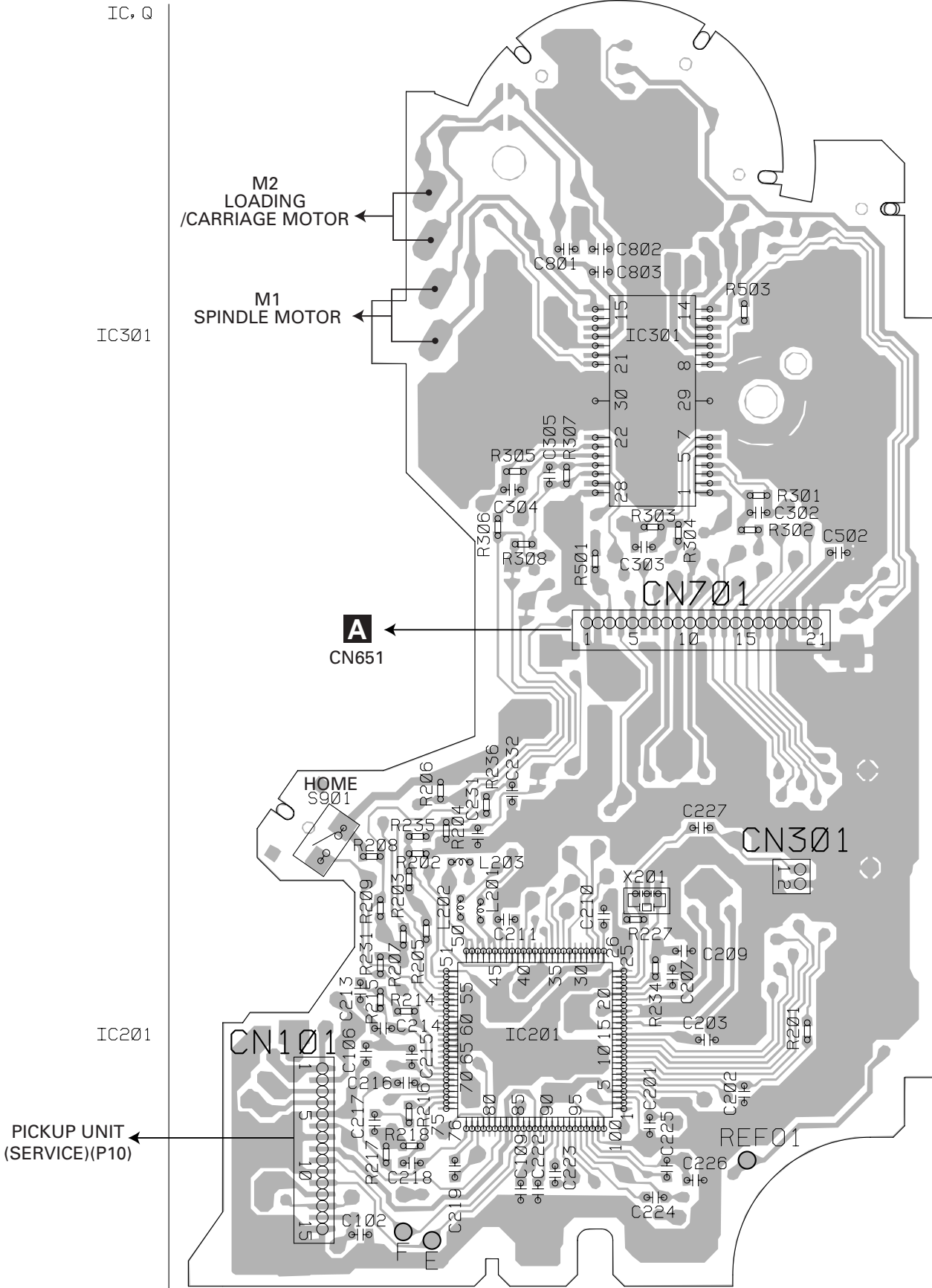
B

C

D

E

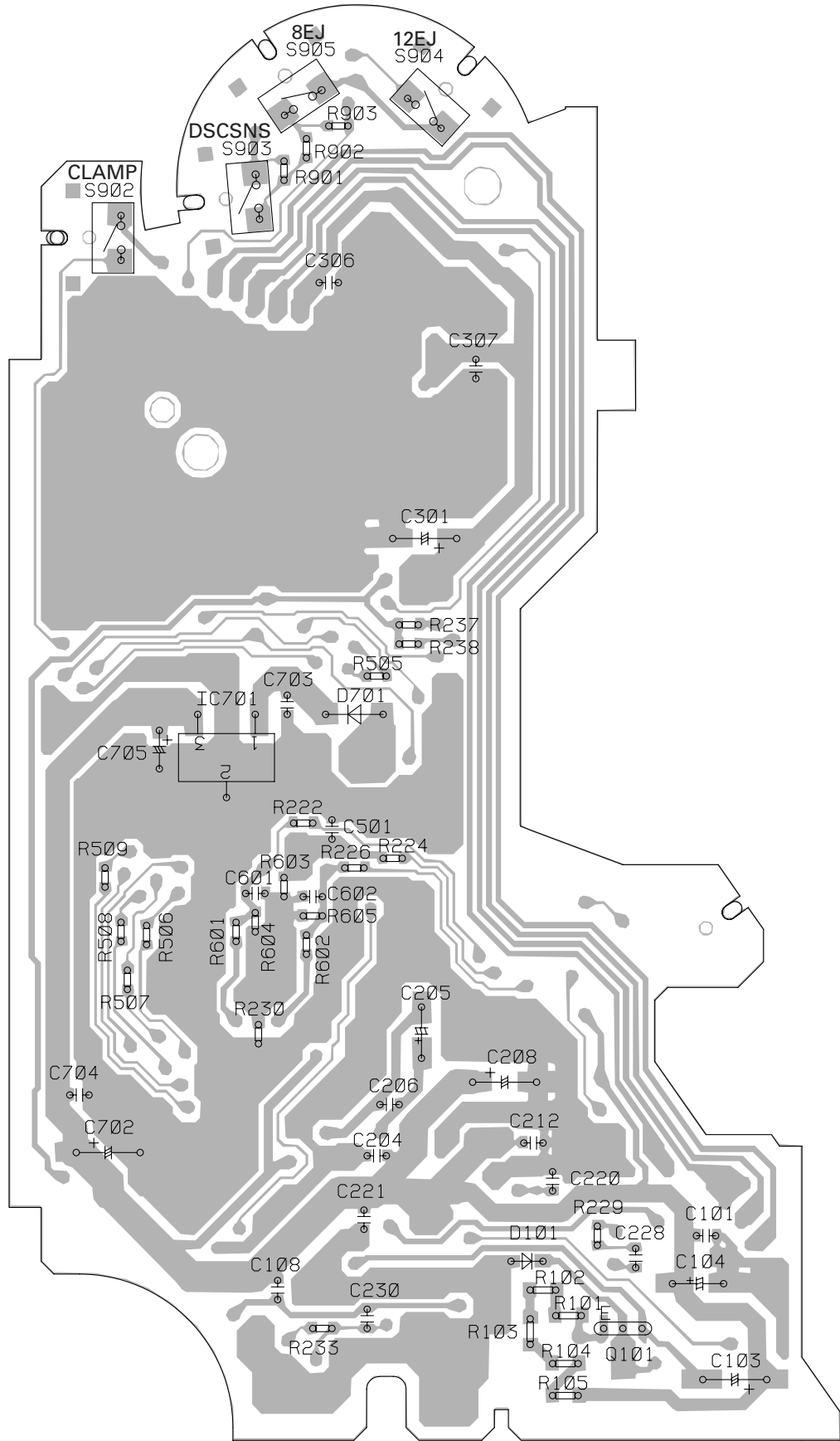
F



C

C CD CORE UNIT(S10)

SIDE B



IC, Q

IC701

Q101

A
B
C
D
E
F

C

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 : CWM8521(DEH-1500R)		L 901 Choke Coil 600μH	CTH1280
Unit Number : CWM8565(DEH-1530R)		L 951 Inductor	LAU2R2K
Unit Name : Tuner Amp Unit		X 601 Radiator 12.58291MHz	CSS1402
		AR 401 Arrester	DSP-201M
			FM/AM Tuner Unit
			CWE1645
MISCELLANEOUS		RESISTORS	
IC 151 IC	PML003AM	R 151	RD1/4PU472J
IC 302 IC	TDA7386	R 152	RD1/4PU472J
IC 551 IC	TPD1018F	R 153	RS1/16S101J
IC 601 IC	PE5329A	R 154	RS1/16S101J
IC 652 IC	TC7SET08FU	R 155	RS1/16S101J
IC 901 IC	BA033SFP	R 156	RS1/16S101J
IC 961 IC	S-80834CNY	R 157	RAB4C102J
Q 352 Transistor	IMH3A	R 301	RD1/4PU153J
Q 401 Transistor	IMH1A	R 353	RS1/16S821J
Q 402 Transistor	IMH1A	R 354	RS1/16S821J
Q 452 Transistor	DTC124EU	R 357	RS1/16S223J
Q 453 Transistor	DTA124EU	R 358	RS1/16S223J
Q 801 Transistor	2SA1036K	R 401	RS1/16S223J
Q 821 Transistor	2SA1036K	R 402	RS1/16S223J
Q 822 Transistor	DTC114EU	R 403	RS1/16S223J
Q 911 Transistor	2SD2375	R 404	RS1/16S223J
Q 912 Transistor	IMD2A	R 405	RS1/16S681J
Q 921 Transistor	2SD2375	R 406	RS1/16S681J
Q 922 Transistor	2SB1243	R 407	RS1/16S681J
Q 923 Transistor	DTC114EU	R 408	RS1/16S681J
Q 931 Transistor	IMX1	R 409	RS1/16S681J
Q 951 Transistor	2SA1037K	R 410	RS1/16S681J
Q 991 Transistor	2SD2375	R 414	RS1/16S0R0J
Q 992 Transistor	IMD2A	R 420	RS1/16S681J
D 452 Diode	DAN202U	R 454	RS1/16S103J
D 551 Diode	S5688G	R 455	RS1/16S153J
D 552 Diode	S5688G	R 456	RS1/16S221J
D 831 Diode	1SS133	R 457	RD1/4PU681J
D 832 Diode	1SS133	R 601	RS1/16S473J
D 833 Diode	1SS133	R 603	RS1/16S103J
D 834 Diode	1SS133	R 604	RS1/16S103J
D 835 Diode	1SS133	R 605	RS1/16S221J
D 836 Diode	1SS133	R 606	RS1/16S104J
D 901 Diode	S5688G	R 607	RD1/4PU222J
D 902 Diode	S5688G	R 608	RS1/16S0R0J
D 911 Diode	S5688G	R 609	RD1/4PU473J
D 912 Diode	HZS6L(B2)	R 610	RD1/4PU681J
D 921 Diode	HZS9L(B3)	R 611	RS1/16S473J
D 931 Diode	HZS7L(C3)	R 621	RD1/4PU102J
D 932 Diode	HZS7L(A1)	R 622	RD1/4PU102J
D 951 Diode	DAN202U	R 653	RS1/16S104J
D 991 Diode	HZS9L(B1)	R 654	RS1/16S102J
L 151 Inductor	LAU2R2K	R 661	RS1/16S221J
L 401 Inductor	LAU1R0K	R 801	RS1/16S153J
L 402 Inductor	LAU1R0K	R 802	RS1/16S153J
L 404 Ferri-Inductor	LAU4R7K	R 803	RS1/16S222J
L 601 Inductor	LAU1R0K		
L 801 Inductor	LAU2R2K		

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.	
R 821	RD1/4PU332J	C 317	CKSQYB102K50	A
R 823	RS1/16S103J	C 318	CKSQYB102K50	
R 833	RD1/4PU222J	C 319	CKSQYB102K50	
R 834	RD1/4PU222J	C 320	CKSQYB102K50	
R 836	RD1/4PU104J	C 321	CKSQYB102K50	
R 837	RD1/4PU103J	C 353	CEJQ2R2M50	
R 838	RD1/4PU102J	C 354	CEJQ2R2M50	
R 841	RS1/16S1R0J	C 360	CKSQYB103K50	
R 848	RD1/4PU102J	C 401	CKSRYB103K50	
R 851	RD1/4PU102J	C 402	CKSRYB103K50	
R 911	RS1/16S223J	C 403	CEJQ470M6R3	
R 912	RD1/4PU152J	C 404	CEJQ101M10	B
R 921	RS1/16S0R0J	C 405	CKSRYB103K50	
R 923	RD1/4PU821J	C 407	CKSYB475K10	
R 924	RD1/4PU122J	C 420	CCSRCH470J50	
R 925	RS1/16S103J	C 451	CEJQ330M10	
R 931	RS1/16S473J	C 551	CKSQYB103K50	
R 932	RS1/16S104J	C 552	CKSQYB103K50	
R 933	RD1/4PU102J	C 601	CKSRYB103K50	
R 934	RS1/16S472J	C 604	CCSRCH200J50	
R 935	RS1/16S473J	C 605	CCSRCH200J50	
R 936	RS1/16S223J	C 610	CEJQ4R7M35	
R 940	RS1/16S104J	C 611	CKSRYB224K16	
R 941	RS1/16S104J	C 612	CCSRCH470J50	
R 951	RD1/4PU153J	C 654	CKSRYB104K16	
R 952	RS1/16S472J	C 801	CKSRYB104K16	C
R 953	RS1/16S472J	C 901	CCH1494	
R 954	RS1/16S102J	C 911	CEJQ470M10	
R 955	RS1/16S473J	C 912	CKSRYB103K50	
R 961	RD1/4PU102J	C 913	CCH1331	
R 962	RS1/16S822J	C 921	CCH1326	
R 971	RS1/16S0R0J	C 922	CEJQ101M16	
R 991	RD1/4PU221J	C 923	CKSRYB103K50	
R 992	RD1/4PU221J	C 961	CKSRYB473K50	
R 993	RS1/16S222J	C 963	CEJQ100M16	
R 994	RS1/16S472J	C 981	CKSRYB334K10	
CAPACITORS		C 982	CKSRYB103K50	
C 151	CKSRYB224K16	C 983	CEJQ220M16	
C 152	CKSRYB224K16	C 991	CKSRYB473K50	D
C 153	CKSRYB105K10	C 992	CEJQ101M10	
C 154	CKSRYB105K10	A Unit Number : CWM8567(DEH-1510)		
C 155	CEJQ4R7M35	Unit Name : Tuner Amp Unit		
C 156	CEJQ4R7M35	MISCELLANEOUS		
C 157	CKSRYB153K50	IC 151	IC	PML003AM
C 158	CKSRYB153K50	IC 302	IC	TDA7386
C 159	CKSRYB104K16	IC 551	IC	TPD1018F
C 160	CKSRYB104K16	IC 601	IC	PE5330A
C 161	CCSRCH100D50	IC 652	IC	TC7SET08FU
C 162	CCSRCH100D50	IC 901	IC	BA033SFP
C 163	CCSRCH100D50	IC 961	IC	S-80834CNY
C 164	CCSRCH100D50	Q 352	Transistor	IMH3A
C 165	CKSRYB104K16	Q 452	Transistor	DTC124EU
C 166	CEJQ470M10	Q 453	Transistor	DTA124EU
C 167	CEJQ100M16	Q 801	Transistor	2SA1036K
C 301	CFTNA224J50	Q 821	Transistor	2SA1036K
C 302	CFTNA224J50	Q 822	Transistor	DTC114EU
C 303	CFTNA224J50	Q 911	Transistor	2SD2375
C 304	CFTNA224J50	Q 912	Transistor	IMD2A
C 309	CKSQYB225K10	Q 921	Transistor	2SD2375
C 310	CKSQYB225K10	Q 922	Transistor	2SB1243
C 311	CEJQ2R2M50	Q 923	Transistor	DTC114EU
C 312	CEJQ100M16	Q 931	Transistor	IMX1
C 313	CKSRYB104K16	Q 951	Transistor	2SA1037K
C 314	CKSQYB102K50	Q 991	Transistor	2SD2375
C 315	CKSQYB102K50	Q 992	Transistor	IMD2A
C 316	CKSQYB102K50			F

	====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
A	D 452 Diode	DAN202U	R 661	RS1/16S221J
	D 551 Diode	S5688G	R 801	RS1/16S153J
	D 552 Diode	S5688G	R 802	RS1/16S153J
			R 803	RS1/16S222J
	D 831 Diode	1SS133	R 821	RD1/4PU332J
	D 832 Diode	1SS133		
	D 833 Diode	1SS133	R 823	RS1/16S103J
	D 834 Diode	1SS133	R 833	RD1/4PU222J
	D 835 Diode	1SS133	R 834	RD1/4PU222J
			R 836	RD1/4PU104J
	D 836 Diode	1SS133	R 837	RD1/4PU103J
	D 901 Diode	S5688G		
	D 902 Diode	S5688G	R 838	RD1/4PU102J
	D 911 Diode	S5688G	R 841	RS1/16S1R0J
B	D 912 Diode	HZS6L(B2)	R 848	RD1/4PU102J
			R 851	RD1/4PU102J
	D 921 Diode	HZS9L(B3)	R 911	RS1/16S223J
	D 931 Diode	HZS7L(C3)		
	D 932 Diode	HZS7L(A1)	R 912	RD1/4PU152J
	D 951 Diode	DAN202U	R 921	RS1/16S0R0J
	D 991 Diode	HZS9L(B1)	R 923	RD1/4PU821J
			R 924	RD1/4PU122J
			R 925	RS1/16S103J
	L 151 Inductor	LAU2R2K		
	L 401 Inductor	LAU1R0K	R 931	RS1/16S473J
	L 402 Inductor	LAU1R0K	R 932	RS1/16S104J
	L 404 Ferri-Inductor	LAU4R7K	R 933	RD1/4PU102J
	L 601 Inductor	LAU1R0K	R 934	RS1/16S472J
			R 935	RS1/16S473J
	L 801 Inductor	LAU2R2K		
	L 901 Choke Coil 600µH	CTH1280		
C	L 951 Inductor	LAU2R2K	R 936	RS1/16S223J
	X 601 Radiator 12.58291MHz FM/AM Tuner Unit	CSS1402 CWE1648	R 940	RS1/16S104J
			R 941	RS1/16S104J
			R 951	RD1/4PU153J
	AR 401 Arrester	DSP-201M	R 952	RS1/16S472J
	RESISTORS		R 953	RS1/16S472J
			R 954	RS1/16S102J
	R 153	RS1/16S101J	R 955	RS1/16S473J
	R 154	RS1/16S101J	R 961	RD1/4PU102J
	R 155	RS1/16S101J	R 962	RS1/16S822J
	R 156	RS1/16S101J		
	R 157	RAB4C102J	R 971	RS1/16S0R0J
			R 991	RD1/4PU221J
	R 301	RD1/4PU153J	R 992	RD1/4PU221J
	R 353	RS1/16S821J	R 993	RS1/16S222J
D	R 354	RS1/16S821J	R 994	RS1/16S472J
	R 357	RS1/16S223J		
	R 358	RS1/16S223J		
			CAPACITORS	
	R 405	RS1/16S681J	C 151	CKSRYB224K16
	R 407	RS1/16S681J	C 152	CKSRYB224K16
	R 408	RS1/16S681J	C 153	CKSRYB105K10
	R 409	RS1/16S681J	C 154	CKSRYB105K10
	R 410	RS1/16S681J	C 155	CEJQ4R7M35
	R 414	RS1/16S0R0J	C 156	CEJQ4R7M35
	R 420	RS1/16S681J	C 157	CKSRYB153K50
	R 421	RS1/16S473J	C 158	CKSRYB153K50
	R 454	RS1/16S103J	C 161	CCSRCH100D50
	R 455	RS1/16S153J	C 162	CCSRCH100D50
E	R 456	RS1/16S221J	C 163	CCSRCH100D50
	R 457	RD1/4PU681J	C 164	CCSRCH100D50
	R 601	RS1/16S104J	C 165	CKSRYB104K16
	R 602	RS1/16S473J	C 166	CEJQ470M10
	R 603	RS1/16S103J	C 167	CEJQ100M16
	R 604	RS1/16S103J	C 301	CFTNA224J50
	R 605	RS1/16S221J	C 302	CFTNA224J50
	R 606	RS1/16S104J	C 303	CFTNA224J50
	R 607	RD1/4PU222J	C 304	CFTNA224J50
	R 608	RS1/16S0R0J	C 309	CKSQYB225K10
	R 609	RD1/4PU473J	C 310	CKSQYB225K10
	R 610	RD1/4PU681J	C 311	CEJQ2R2M50
	R 611	RS1/16S473J	C 312	CEJQ100M16
	R 653	RS1/16S104J	C 313	CKSRYB104K16
F	R 654	RS1/16S102J	C 353	CEJQ2R2M50

====Circuit Symbol and No.====Part Name	Part No.	====Circuit Symbol and No.====Part Name	Part No.
C 354	CEJQ2R2M50	R 1812	RS1/16S181J
C 360	CKSQYB103K50	R 1813	RS1/16S181J
C 401	CKSRYB103K50	R 1814	RS1/16S181J
C 402	CKSRYB103K50	R 1815	RS1/16S151J
C 403	CEJQ470M6R3		
C 404	CEJQ101M10	R 1816 (DEH-1500R,1510)	RS1/16S151J
C 405	CKSRYB103K50	R 1816 (DEH-1530R)	RS1/16S181J
C 407	CKSYB475K10	R 1817 (DEH-1500R,1510)	RS1/16S151J
C 420	CCSRCH470J50	R 1817 (DEH-1530R)	RS1/16S181J
C 451	CEJQ330M10	R 1818 (DEH-1500R)	RS1/16S151J
C 551	CKSQYB103K50	R 1818 (DEH-1530R,1510)	RS1/16S181J
C 552	CKSQYB103K50	R 1819	RS1/16S131J
C 601	CKSRYB103K50		
C 604	CCSRCH200J50		
C 605	CCSRCH200J50		
C 610	CEJQ4R7M35		
C 611	CKSRYB224K16		
C 654	CKSRYB104K16		
C 801	CKSRYB104K16		
C 901	CCH1494		
C 911	CEJQ470M10		
C 912	CKSRYB103K50		
C 913	CCH1331		
C 921	CCH1326		
C 922	CEJQ101M16		
C 923	CKSRYB103K50		
C 961	CKSRYB473K50		
C 963	CEJQ100M16		
C 981	CKSRYB334K10		
C 982	CKSRYB103K50		
C 983	CEJQ220M16		
C 991	CKSRYB473K50		
C 992	CEJQ101M10		
B Unit Number : CWM8523(DEH-1500R) Unit Number : CWM8573(DEH-1530R) Unit Number : CWM8575(DEH-1510) Unit Name : Keyboard Unit		C Unit Number : CWX2708 Unit Name : CD Core Unit(S10)	
MISCELLANEOUS		MISCELLANEOUS	
IC 1801 IC	PD6340A	IC 201 IC	UPD63712GC
D 1801 Diode	MA152WK	IC 301 IC	BA5996FP
D 1802 Diode	MA152WA	IC 701 IC	NJM2391DL1-33
D1803-1810 LED(DEH-1500R)	SML-310PT	Q 101 Transistor	2SB1132
D1803-1810 LED(DEH-1530R)	SML-310VT	D 101 Diode	1SS355
D 1811 LED	NSSW440-9159	D 701 Diode	1SR154-400
D 1812 LED	NSSW440-9159	X 201 Ceramic Resonator 16.934MHz	CSS1603
X 1801 Ceramic Resonator 5.00MHz	CSS1547	S 901 Spring Switch(HOME)	CSN1051
IL 1801 Lamp 14V 40mA(DEH-1500R,1510)	CEL1651	S 902 Spring Switch(CLAMP)	CSN1051
IL 1801 Lamp 14V 40mA(DEH-1530R)	CEL1662	S 903 Spring Switch(DSCSNS)	CSN1052
IL 1802 Lamp 14V 40mA(DEH-1500R,1510)	CEL1651	S 904 Spring Switch(12EJ)	CSN1051
IL 1802 Lamp 14V 40mA(DEH-1530R)	CEL1662	S 905 Spring Switch(8EJ)	CSN1051
LCD1801 LCD(DEH-1500R,1530R)	CAW1731		
LCD1801 LCD(DEH-1510)	CAW1735		
RESISTORS		RESISTORS	
R 1801	RS1/16S222J	R 101	RS1/10S1R5J
R 1802	RS1/16S222J	R 102	RS1/10S1R5J
R 1803	RS1/16S471J	R 103	RS1/10S1R5J
R 1804	RS1/16S471J	R 104	RS1/10S1R5J
R 1805	RS1/16S471J	R 105	RS1/10S1R5J
R 1806	RS1/16S471J	R 201	RS1/16S102J
R 1807	RS1/16S151J	R 202	RS1/16S1002D
R 1808	RS1/16S181J	R 203	RS1/16S1002D
R 1809	RS1/16S181J	R 204	RS1/16S1002D
R 1810	RS1/16S181J	R 205	RS1/16S1002D
R 1811	RS1/16S151J	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
		R 501	RS1/16S102J

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

B CAPACITORS

C 101		CKSRYB104K16
C 102		CKSRYB104K16
C 103	100 μ F/16V	CCH1504
C 104	47 μ F/6.3V	CCH1506
C 106		CCSRCH101J50
C 108		CKSRYB224K16
C 109		CKSRYB224K16
C 201		CKSRYB104K16
C 202		CKSRYB471K50
C 203		CKSRYB104K16
C 205	22 μ F/6.3V	CCH1507
C 206		CKSRYB103K25
C 207		CKSRYB104K16
C 208	100 μ F/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	100 μ F/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	100 μ F/16V	CCH1504
C 703		CKSRYB224K16
C 704		CKSRYB104K16
C 705	10 μ F/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.

A

B

C

D

E

F

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 :

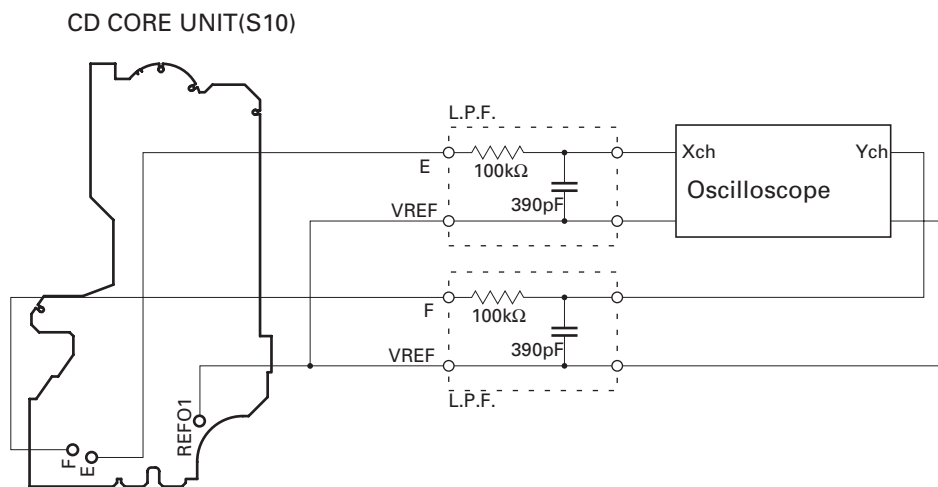
To check that the grating is within an acceptable range when the PU unit is changed.

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

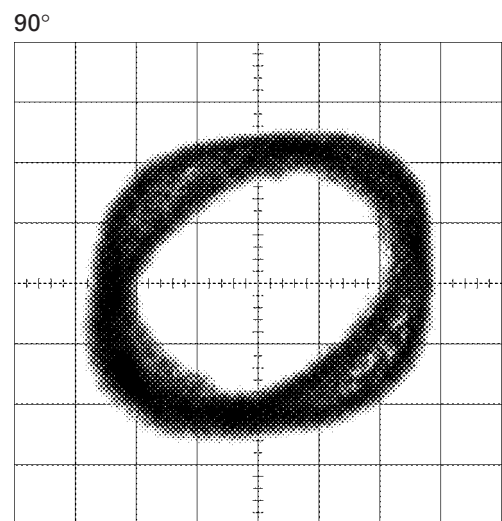
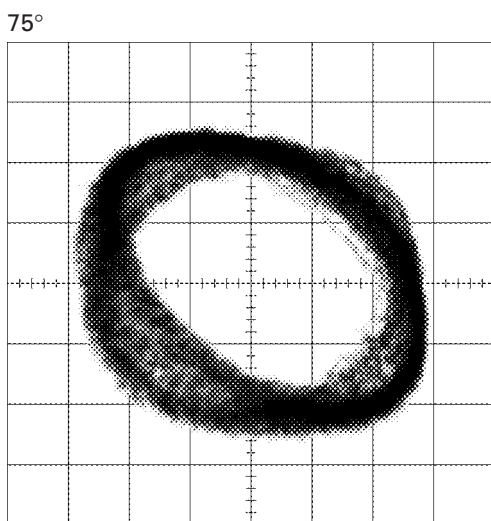
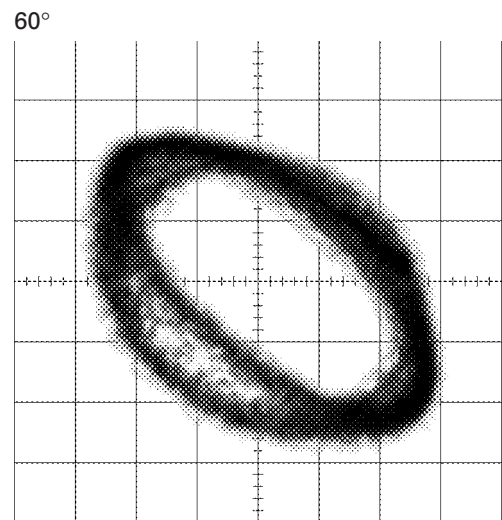
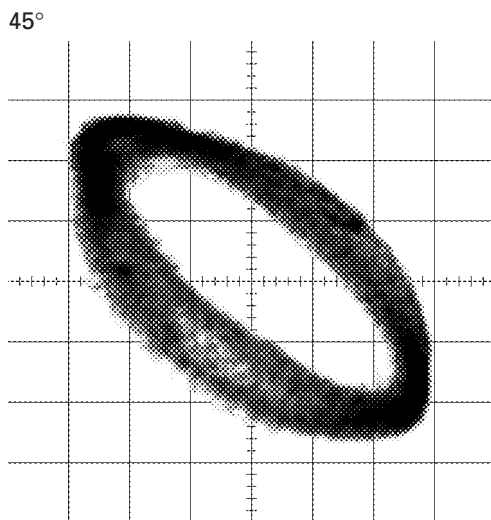
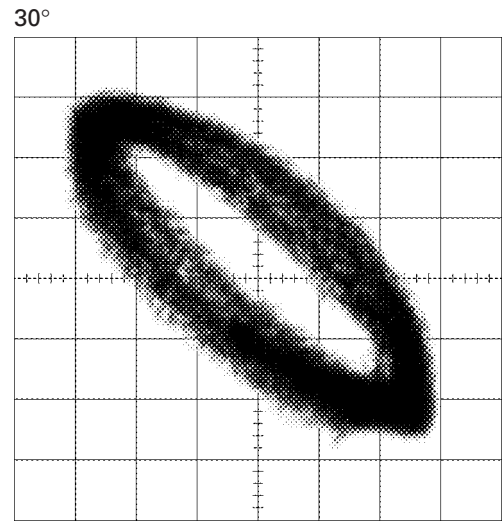
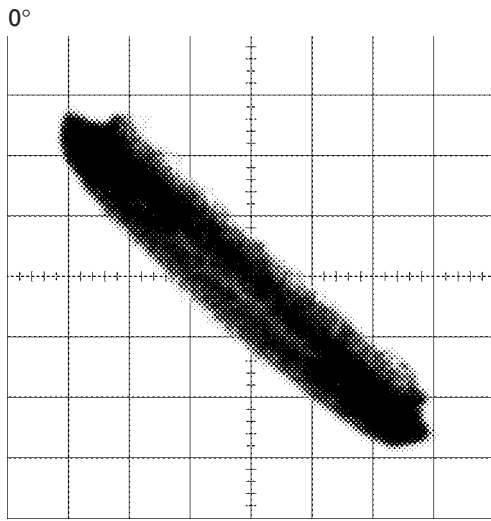
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• 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



A

B

C

D

E

F

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

ERROR-xx

6-digit display

ERR-xx

4-digit display

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 Release the two latches and then remove the Grille Assy.

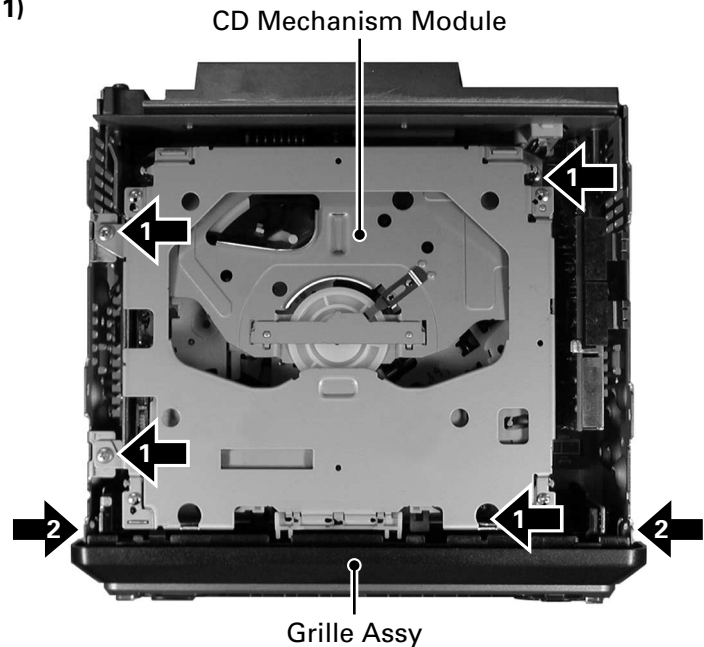


Fig.1

● 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.

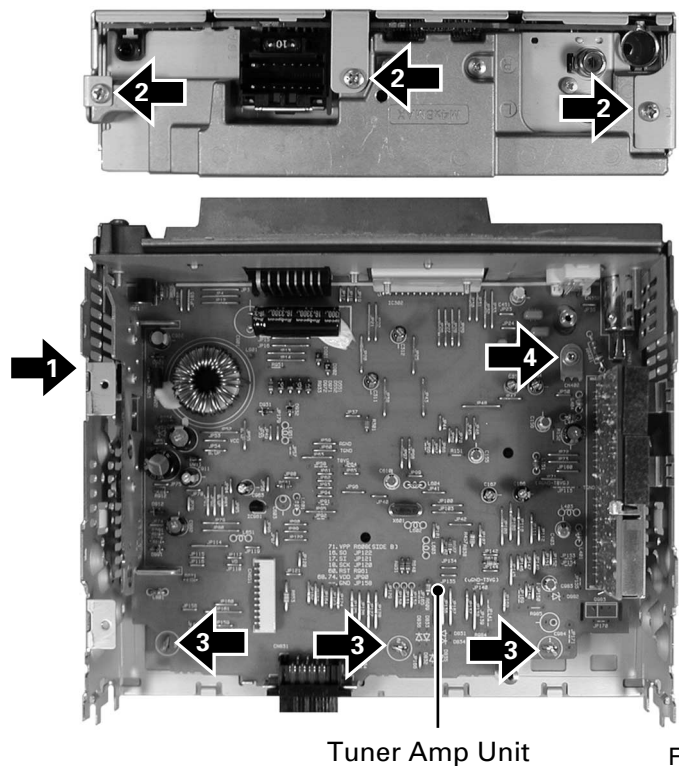


Fig.2

A

● How to assemble Keyboard Unit

1. Assemble them in order from "1" to "8". (See the figure below.)

2. After that, bend the crows (7 in total) until they get the right angles with the marks printed on "8".

Note) If "5" is not set collectly, defective contact may occur on "6".

To avoid this problem, hold "5" using "7" just before putting "8".

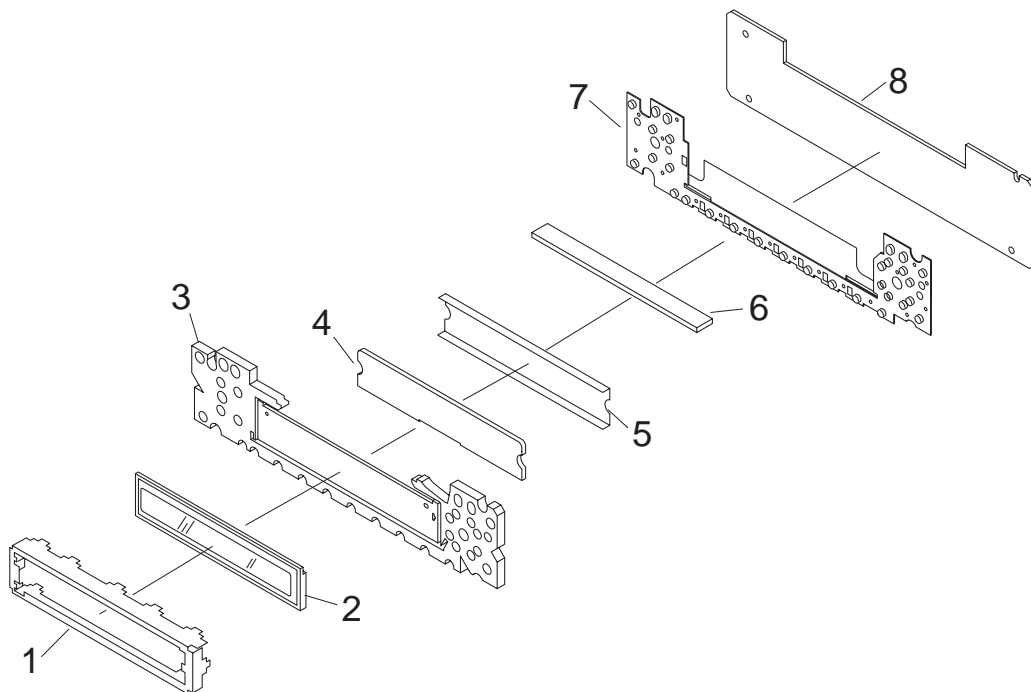
B

C

D

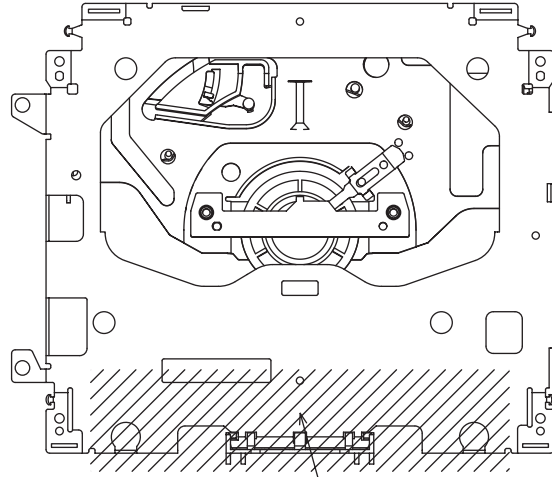
E

F



● How to hold the Mechanical Unit

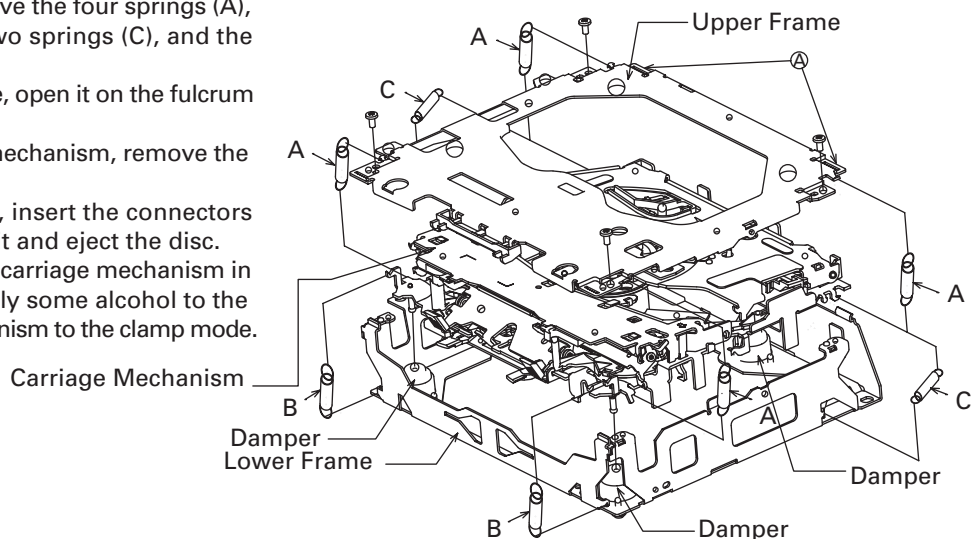
1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



Do not squeeze.

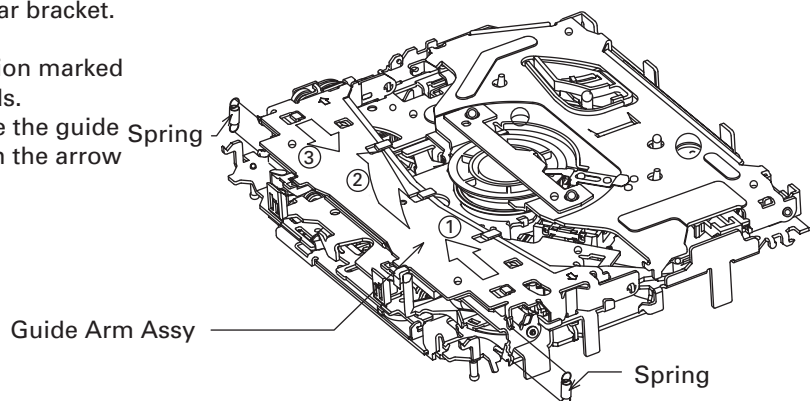
● Removing the Upper and Lower Frames

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.

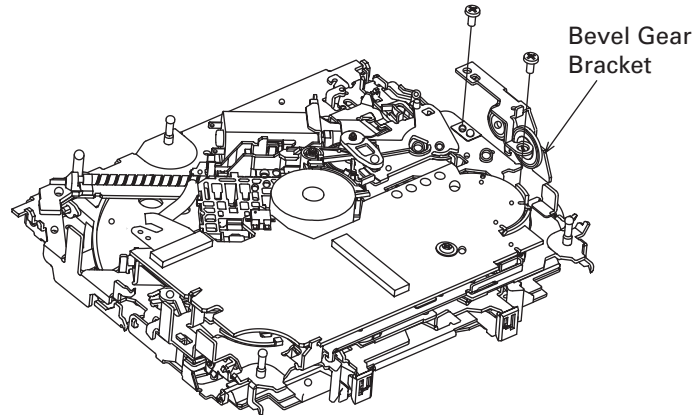


● Removing the Guide Arm Assy

1. Remove the upper and lower frames and set the mechanism to the clamp mode.
2. Remove the two springs.
3. Remove the two screws and bevel gear bracket. Note that the gears come off.
4. Slide the guide arm Assy in the direction marked with the arrow (1) and open it upwards.
5. At the angle of about 45 degrees, slide the guide arm Assy in the direction marked with the arrow (3) to remove it.



A



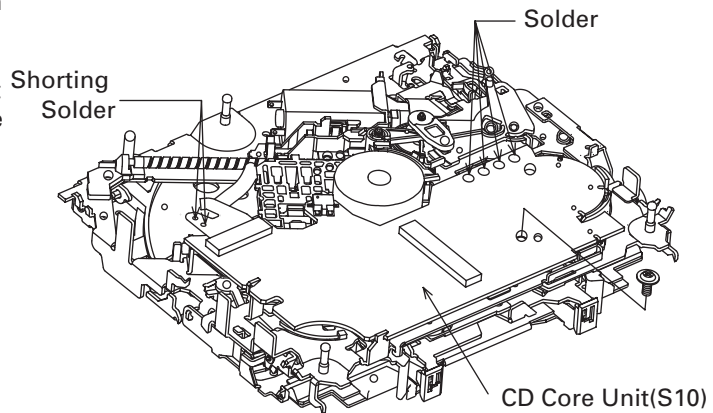
B

● Removing the CD Core Unit(S10)

1. Apply shorting solder to the Pickup flexible cable. Disconnect the cable.
2. Remove the solder from the four leads, and loosen the screw.
3. Remove the CD core unit(S10).

Caution: When assembling the CD core unit(S10), set the mechanism to the clamp mode to protect the switches from any damage.

C

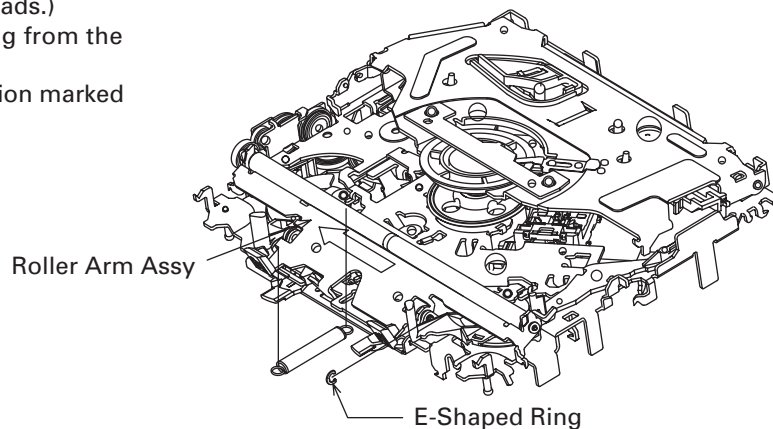


D

● Removing the Roller Arm Assy

1. Remove the guide arm Assy and set the mechanism to the eject mode.
2. Remove the CD core unit(S10). (You do not have to remove the solder from the four leads.)
3. Remove the spring and E-shaped ring from the fulcrum shaft.
4. Slide the roller arm Assy in the direction marked with an arrow.

E

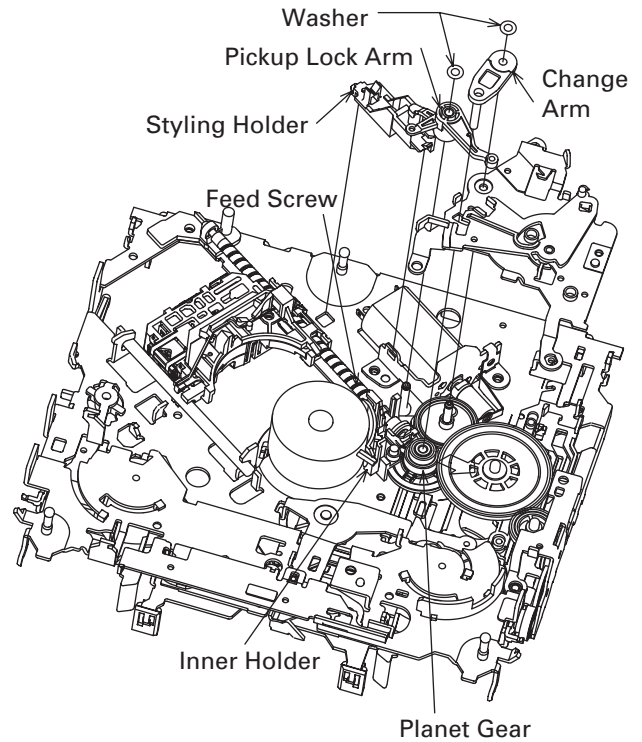


F

● Removing the Pickup Unit

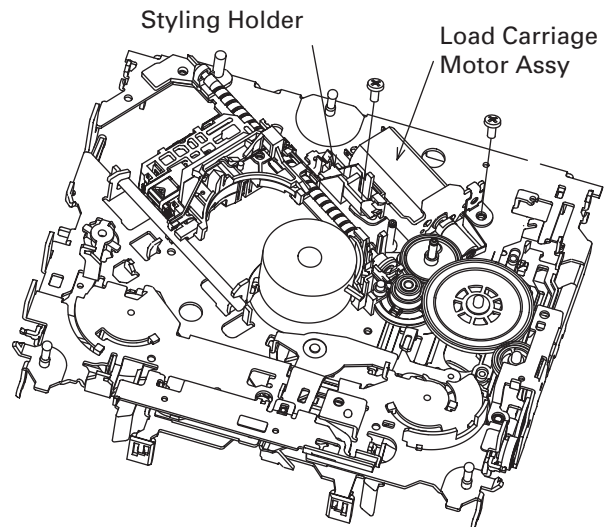
1. Set the mechanism to the clamp mode.
2. Remove the lead wires from the inner holder.
3. Remove the two washers, styling holder, change arm, and pickup lock arm.
4. While releasing from the hook of the inner holder, lift the end of the feed screw.

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

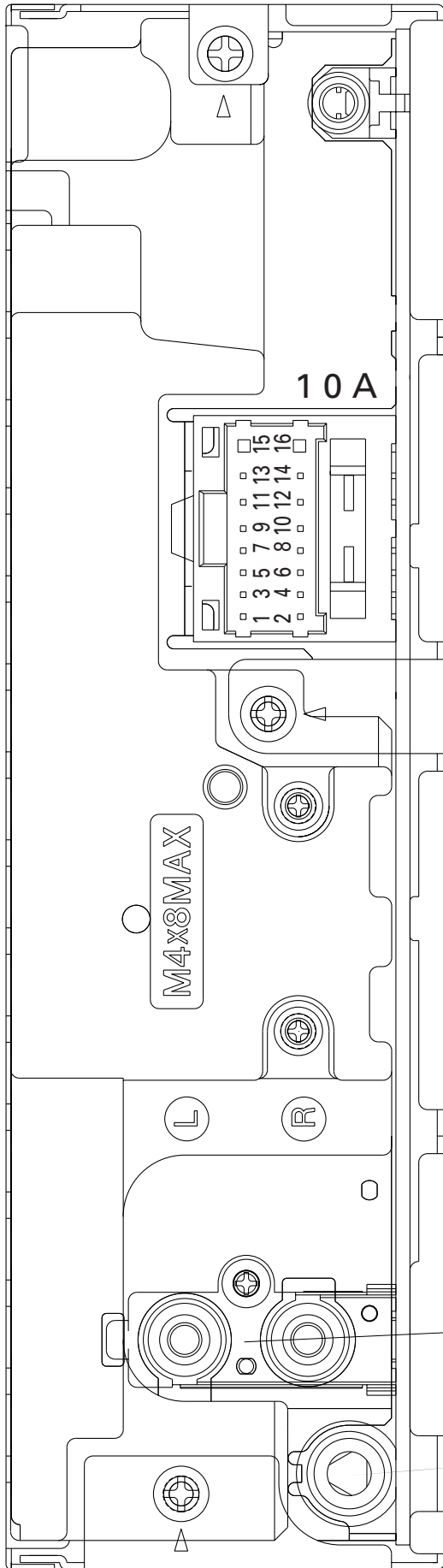


● Removing the Load Carriage Motor Assy

1. Release the leads from the styling holder and remove the holder.
2. Remove the two screws.
3. Remove the load carriage motor Assy.



7.1.2 CONNECTOR FUNCTION DESCRIPTION



Pin No.	Pin No.
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16

ANTENNA PRE OUT

7.2 PARTS

7.2.1 IC

● Pin Functions (PE5329A,PE5330A)

Pin No.	Pin Name	I/O	Function and Operation
1	MODEL1		Model port 1
2,3	NC		Not used
4	AVSS		A/D GND
5,6	NC		Not used
7	AVREF1		A/D converter reference voltage
8	KYDT	I	Key data input
9	DPDT	O	Display data output
10	ADPW	O	A/D converter power supply output
11	TUNPDI	I	PLL IC data input
12	TUNPDO	O	PLL IC data output
13	TUNPCK	O	PLL IC clock output
14	PCL	O	Clock adjustment output
15	TESTIN	I	Test program mode input
16	XSI	I	Serial data input
17	XSO	O	Serial data output
18	XSCK	O	Serial data clock output
19,20	NC		Not used
21	SWVDD	O	Keyboard unit power supply control output
22	ILMPW	O	Illumination power supply control output
23	NC		Not used
24	XRST	O	CD LSI reset output
25	XA0	O	CD LSI identification control signal output
26	XSTB	O	CD LSI strobe output
27	CLAMSW	O	Disc clamp switch output (CD)
28	CONT	O	Servo driver power supply control output
29	LOEJ	O	CD load motor LOAD/EJECT direction exchange output
30	CLCONT	O	Driver input select output
31	NC		Not used
32	DALMON	O	Stand-by output
33	VSS1		GND
34	TELIN	O	Telephone mute output
35,36	NC		Not used
37	ROMDATA	O	ROM collection data output
38	ROMCLK	O	ROM collection clock output
39	ROMCS	O	ROM collection chip select output
40	RECIEVE		During RDS data reception output
41	VDCONT	O	VD control output
42	NC		Not used
43	SYSPW	O	System power supply control output
44	NC		Not used
45	PEE	O	Beep tone output
46	KEY2	I	Key data input (Remote control)
47	NC		Not used
48	MUTE	O	System mute output
49	ANTPW	O	Antenna output
50	NC		Not used
51	VST	O	Strobe pulse output for electronic volume
52	VDT	O	Data output for electronic volume
53	VCK	O	Clock output for electronic volume
54	NC		Not used
55	TUNPCE2	O	EEPROM chip enable output 2
56	TUNPCE1	O	EEPROM chip enable output 1
57	RDT	O	RDS demodulation data input
58	RDSLK	I	RDS LK signal input
59	RDS57K	I	RDS 57kHz pulse count input
60	RESET	I	Reset input
61	LDET	I	PLL lock sense input

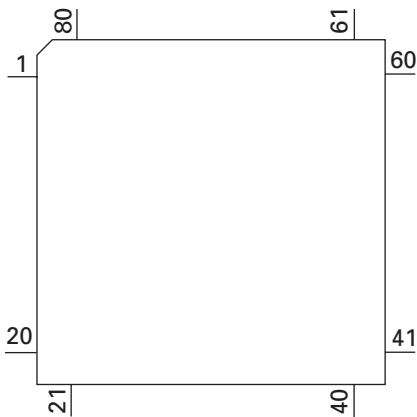
A

Pin No.	Pin Name	I/O	Function and Operation
62	RCK	I	RDS demodulation clock input
63	ASENS	I	ACC sense input
64	BSENS	I	Back up sense input
65	DSSENS	I	Grille detach sense input
66	INTRQ	I	ATAPI HOST interrupt request input
67	VSS0		GND
68	VDD1		Power supply
69	X2		Crystal oscillator connection pin
70	X1		Crystal oscillator connection pin
71	IC(VPP)		Connect to GND
72	NC		Not used
73	XT1		Connect to GND
74	VDD0		Power supply
75	AVDD		Positive power supply terminal for analog circuit
76	SL	I	SD level input from tuner
77	NC		Not used
78	VDSSENS	I	VD power supply voltage sense input
79	DISCSSENS	I	CD DISC sense input
80	STRKEY1		Key data (Remote control)

B

C

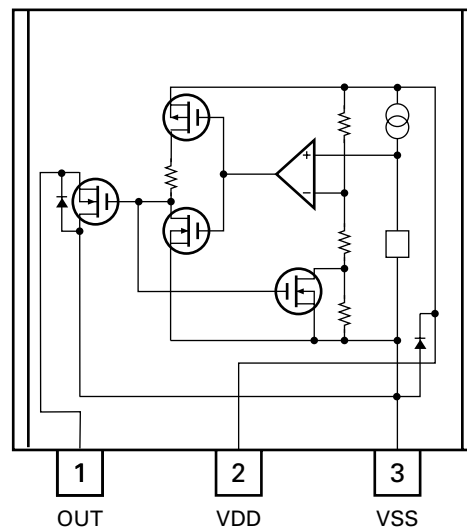
*PE5329A,PE5330A



D

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

*S-80834CNY



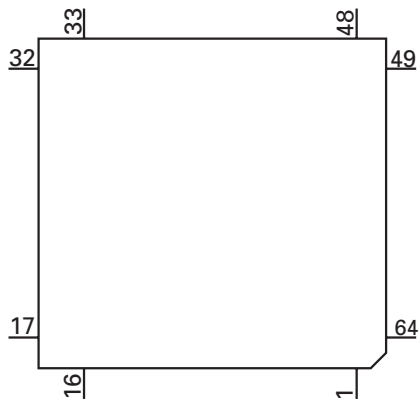
E

F

● 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

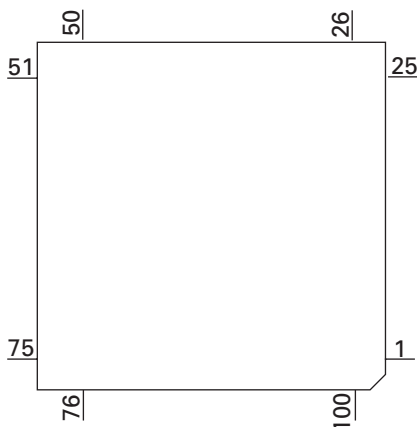


● Pin Functions(UPD63712GC)

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

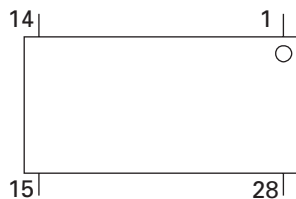
* UPD63712GC



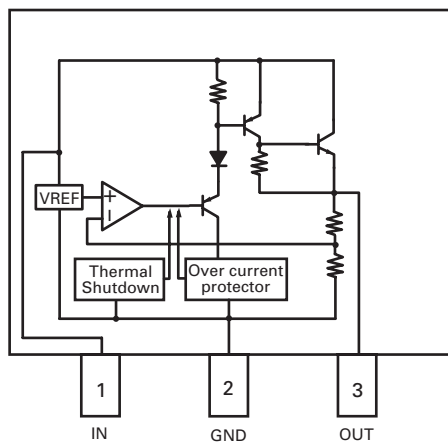
Pin Functions(BA5996FP)

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

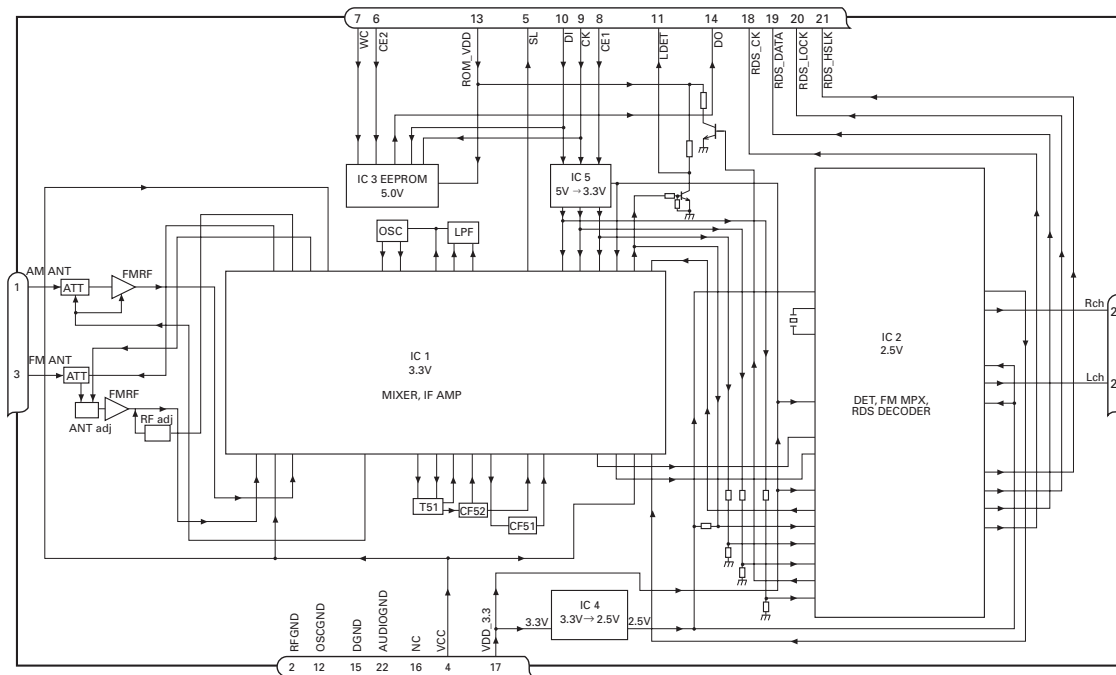


NJM2391DL1-33



EW model

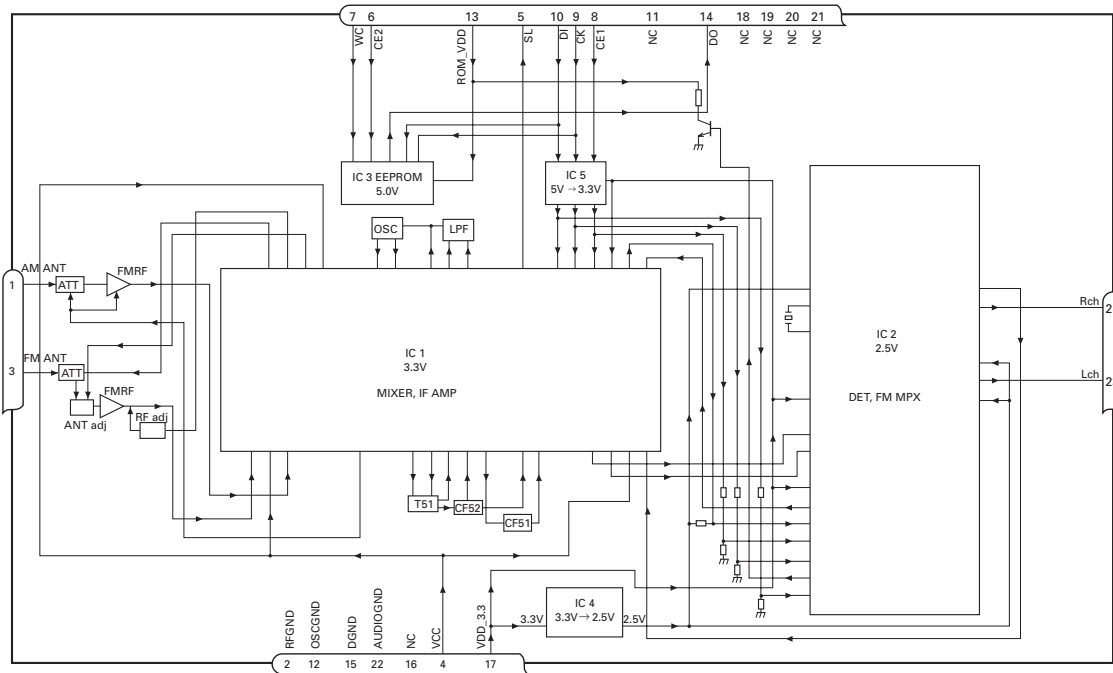
● FM/AM Tuner Unit



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	LDET	O	lock detector "Low" active
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	RDS_CK	O	RDS clock Output of RDS clock(2.5V)
19	RDS_DATA	O	RDS data Output of RDS data(2.5V)
20	RDS_LOCK	O	RDS lock Output unit "High" active(2.5V) (RDS_LOCK turns over by the external transistor. "Low" active)
21	RDS_HSLK	O	RDS high speed lock Output unit "High" active(2.5V)(RDS_HSLK turns over by the external transistor. "Low" active)
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

EE model

● FM/AM Tuner Unit

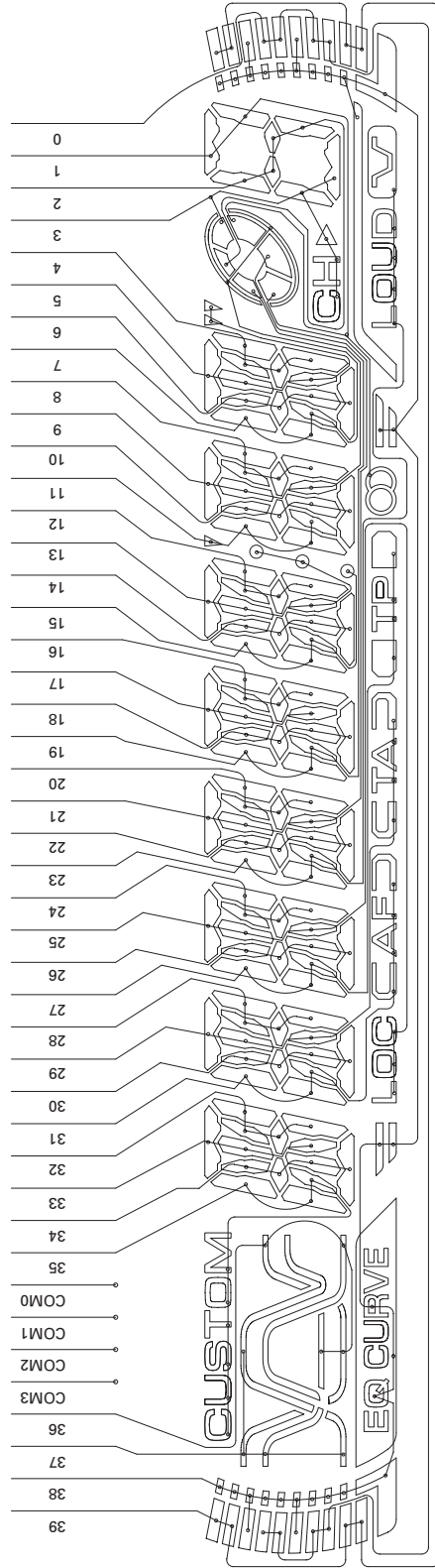


No.	Symbol	I/O	Explain	
1	AMANT	I	AM antenna input	AM antenna input high impedance AMANT pin is connected with an all antenna by way of $4.7\mu\text{H}$. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the ham of power 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 $8.4\text{V} \pm 0.3\text{V}$
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. $3.3\text{V} \pm 0.2\text{V}$
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

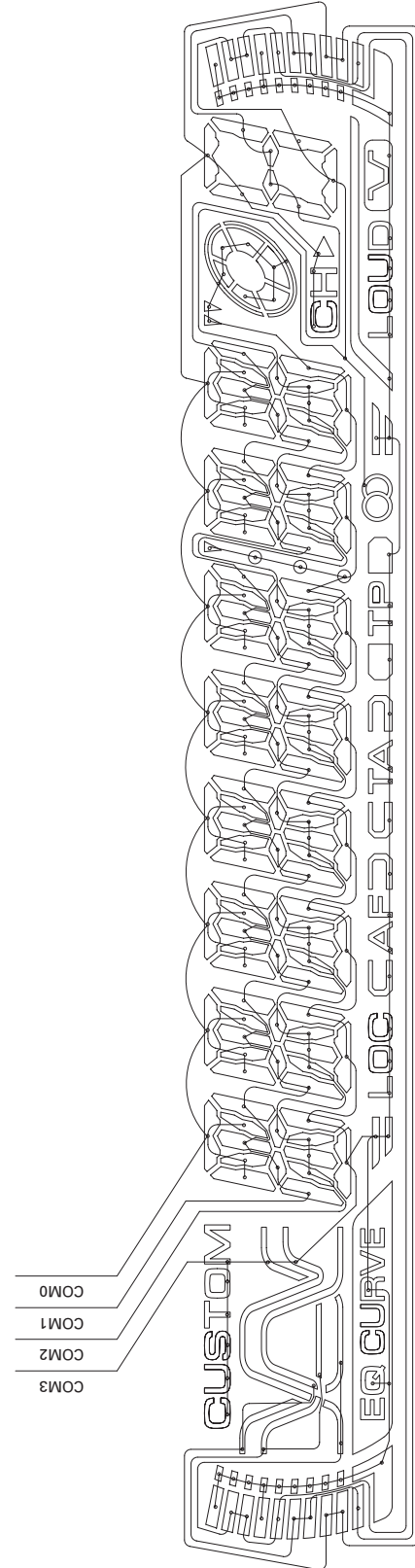
7.2.2 DISPLAY

● LCD(CAW1731)(EW model)

SEGMENT



COMMON



A

B

C

D

E

F

● LCD(CAW1735)(EE model)

A

B

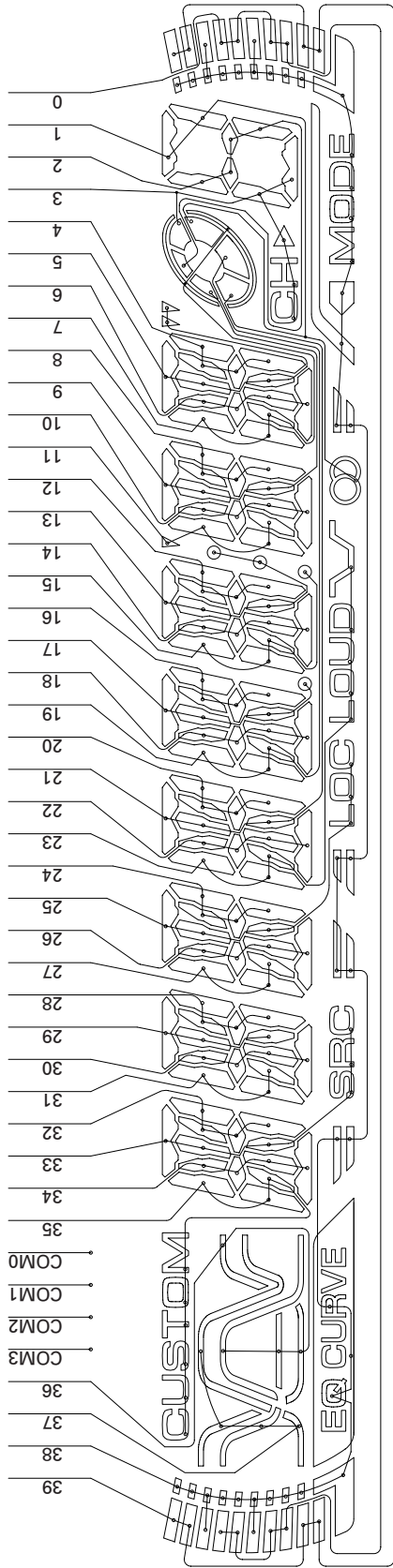
C

D

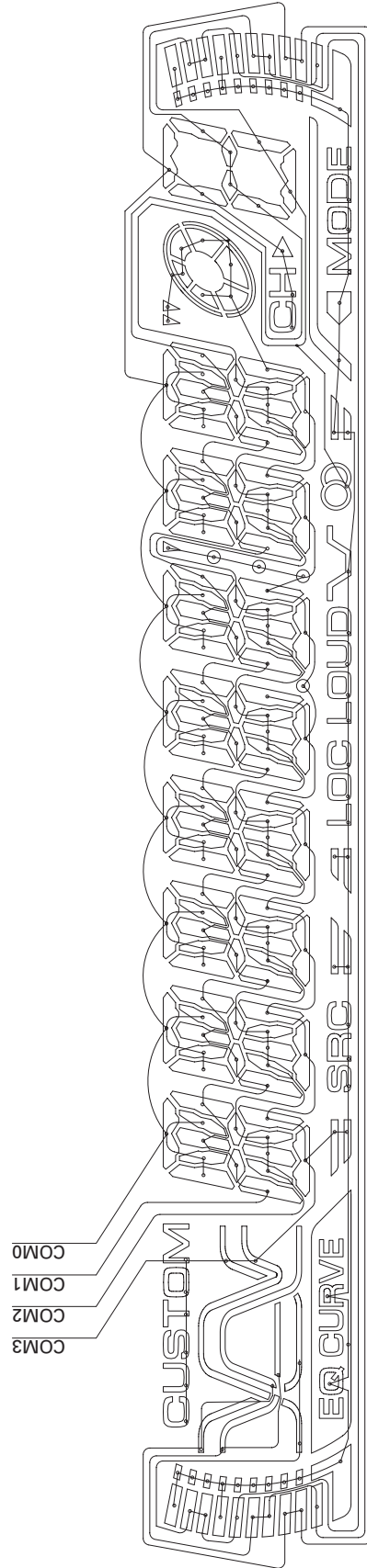
E

F

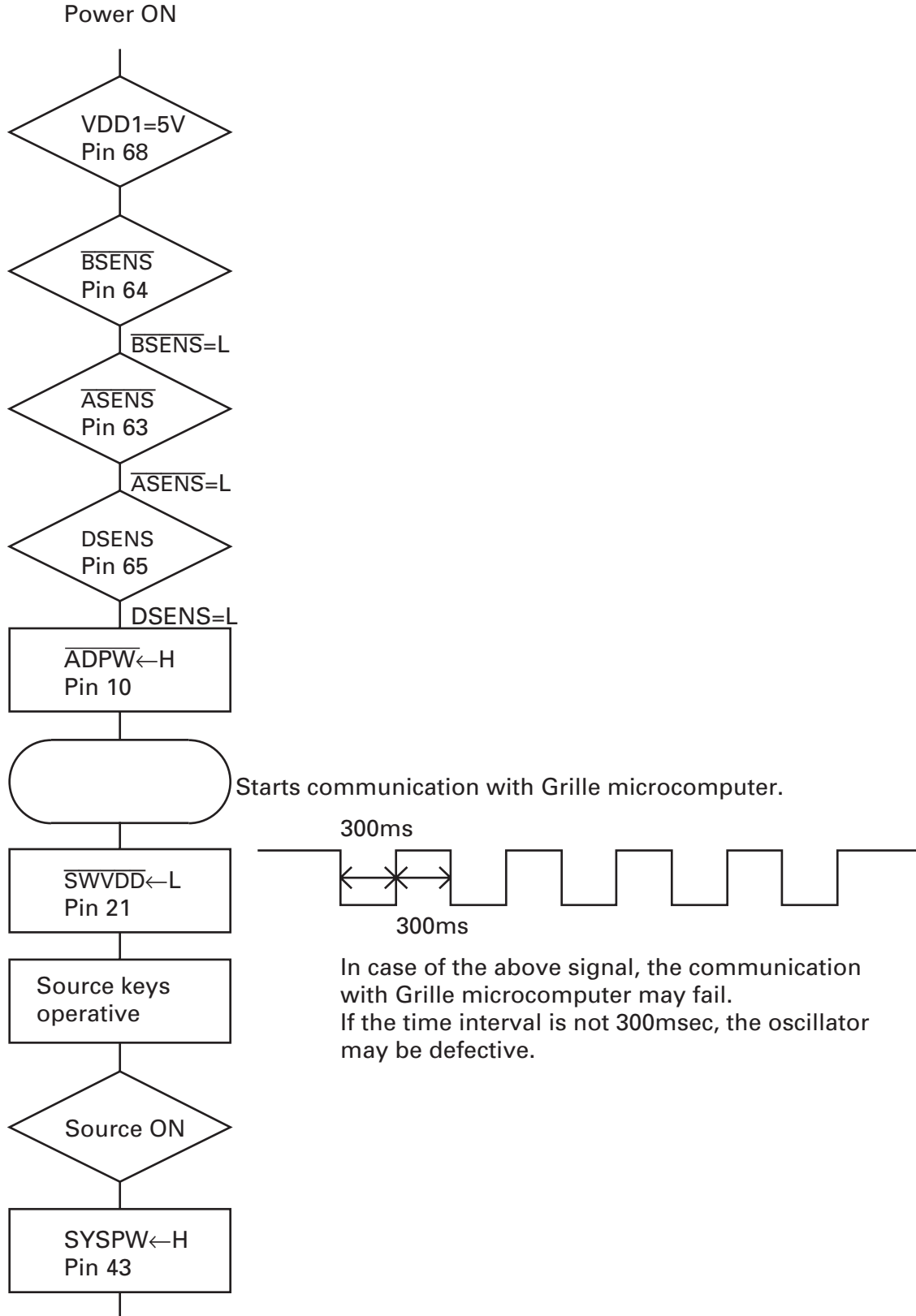
SEGMENT



COMMON



7.3 OPERATIONAL FLOW CHART



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

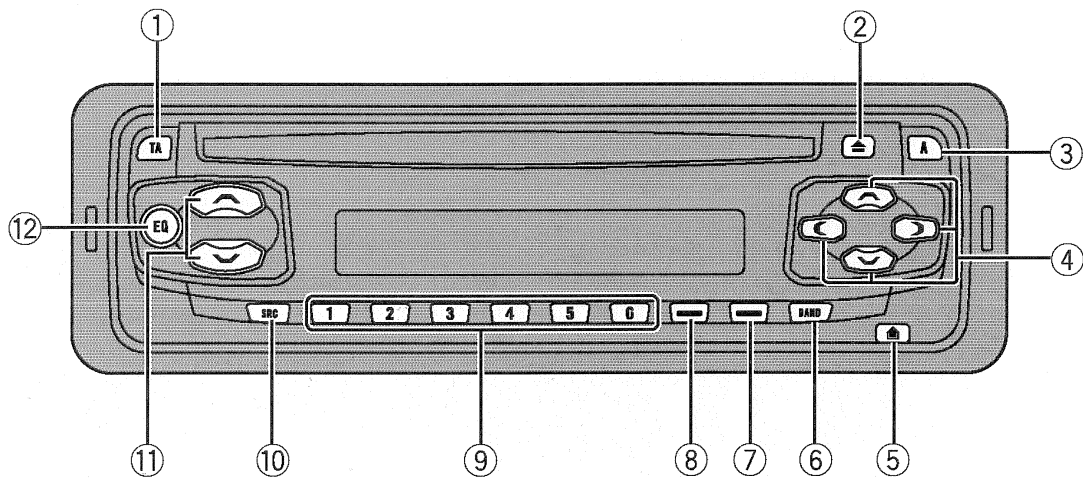
7.4 CLEANING

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

● EW model



Head unit

① TA button

Press to turn traffic announcements function on or off.

② EJECT button

Press to eject a CD from your built-in CD player.

③ AUDIO button

Press to select various sound quality controls.

④ ▲/▼/◀/▶ buttons

Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.

⑤ DETACH button

Press to remove the front panel from the head unit.

⑥ BAND button

Press to select among two FM and MW/LW bands and cancel the control mode of functions.

⑦ LOUDNESS button

Press to turn loudness on or off.

⑧ LOCAL/BSM button

Press to turn local function on or off. Press and hold to turn BSM function on or off.

⑨ 1-6 buttons

Press for preset tuning.

⑩ SOURCE button

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

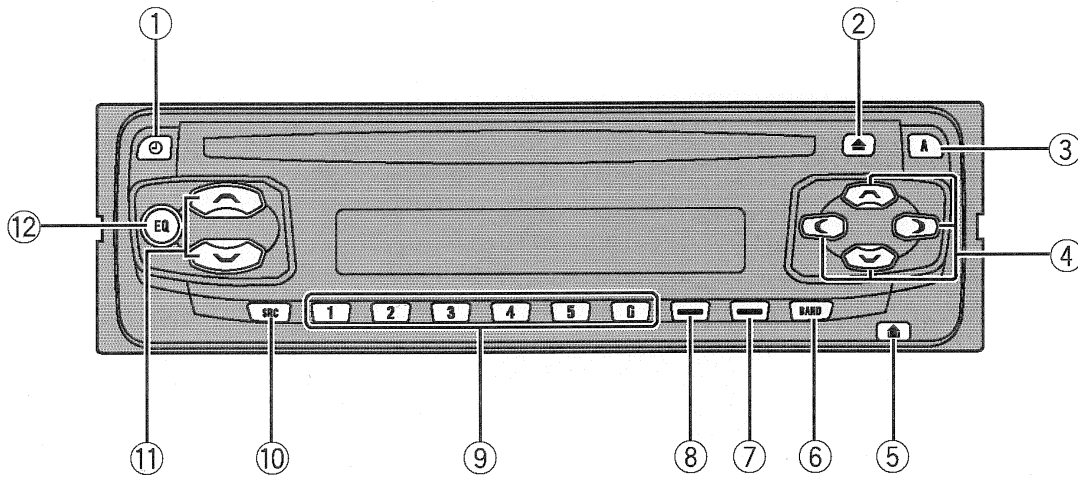
⑪ VOLUME button

Press to increase or decrease the volume.

⑫ EQ button

Press to select various equalizer curves. ▣

● **EE model**



Head unit

① **CLOCK button**

Press to change to the clock display.

② **EJECT button**

You can eject a CD by pressing **EJECT**.

③ **AUDIO button**

Press to select various sound quality controls.

④ **▲/▼/◀/▶ buttons**

Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.

⑤ **DETACH button**

Press **DETACH** to release the front panel.

⑥ **BAND button**

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

⑦ **LOUDNESS button**

Press to turn loudness on or off.

⑧ **LOCAL/BSM button**

Press to turn local function on or off.
Press and hold to turn BSM function on or off.

⑨ **1-6 buttons**

Press for preset tuning.

⑩ **SOURCE button**

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

⑪ **VOLUME**

Press to increase or decrease the volume.

⑫ **EQ button**

Press to select various equalizer curves.

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

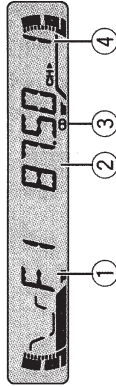
- When no disc has been set in the unit, the source will not switch to the built-in CD player.
- When this unit's blue/white lead is connected to the car's auto-antenna relay control terminal, the car's antenna extends when this unit's source is turned on. To retract the antenna, turn the source off.

Turning the unit off

- **Press SOURCE and hold until the unit turns off.**

Tuner

Listening to the radio



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

1 Band indicator

Shows which band the radio is tuned to, MW, LW or FM.

2 Frequency indicator

Shows to which frequency the tuner is tuned.

3 Stereo (O) 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.

2 Use VOLUME to adjust the sound level.

When you press **VOLUME** up/+, the volume is raised and when pressed down/–, the volume is lowered.

3 Press BAND to select a band.

Press **BAND** until the desired band is displayed, **F1**, **F2** for FM or **MW/LW**.

4 To perform manual tuning, press ◀ or ▶ with quick presses.

The frequencies move up or down step by step.

5 To perform seek tuning, press and hold ◀ or ▶ for about one second and release.

The tuner will scan the frequencies until a broadcast strong enough for good reception is found.

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

Note

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

Storing and recalling broadcast frequencies

If you press any of the preset tuning buttons **1–6** you can easily store up to six broadcast frequencies for later recall with the touch of a button.

- **When you find a frequency that you want to store in memory press a preset tuning button 1–6 and hold until the preset number stops flashing.**

The number you have pressed will flash in the preset number indicator and then remain lit. The selected radio station frequency has been stored in memory.

The next time you press the same preset tuning button **1–6** the radio station frequency is recalled from memory.

Notes

- Up to 12 FM stations, 6 for each of the two FM bands, and 6 MW/LW stations can be stored in memory.

Tuner

- You can also use ▲ and ▼ to recall radio station frequencies assigned to preset tuning buttons 1-6. □

Tuning in strong signals

Local seek tuning lets you tune in only those radio stations with sufficiently strong signals for good reception.

- Press **LOCAL/BSM** to turn local seek tuning on. LOC appears in the display.
- When you want to return to normal seek tuning, press **LOCAL/BSM** to turn local seek tuning off. □

Storing the strongest broadcast frequencies

BSM (best stations memory) lets you automatically store the six strongest broadcast frequencies under preset tuning buttons 1-6 and once stored there you can tune in to those frequencies with the touch of a button.

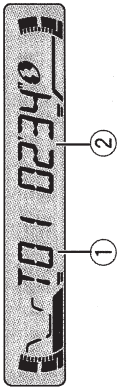
- Press **LOCAL/BSM** and hold until the **BSM** turns on.
 - While **BSM** is flashing the six strongest broadcast frequencies will be stored under preset tuning buttons 1-6 in order of their signal strength. When finished, **BSM** stops flashing.
 - To cancel the storage process, press **LOCAL/BSM**.

Note

Storing broadcast frequencies with BSM may replace broadcast frequencies you have saved using 1-6. □

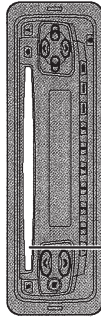
Built-in CD Player

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

- The built-in CD player plays one, standard, 12-cm or 8-cm (single) CD at a time. Do not use an adapter when playing 8-cm CDs.
- Do not insert anything other than a CD into the CD loading slot.
- If you cannot insert a disc completely or if after you insert a disc the disc does not play, check that the label side of the disc is up.
- Press **EJECT** to eject the disc, and check the disc for damage before inserting the disc again.
- If the built-in CD player does not operate properly, an error message such as **ERROR-11** may be displayed. Refer to *Understanding built-in CD player error messages*. □

Repeating play

Repeat play lets you hear the same track over again.

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

Note


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

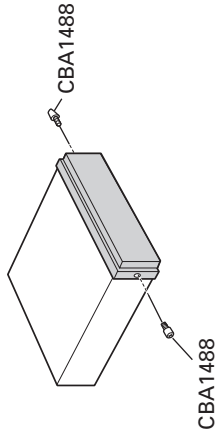
Pausing CD playback

Pause lets you temporarily stop playback of the CD.

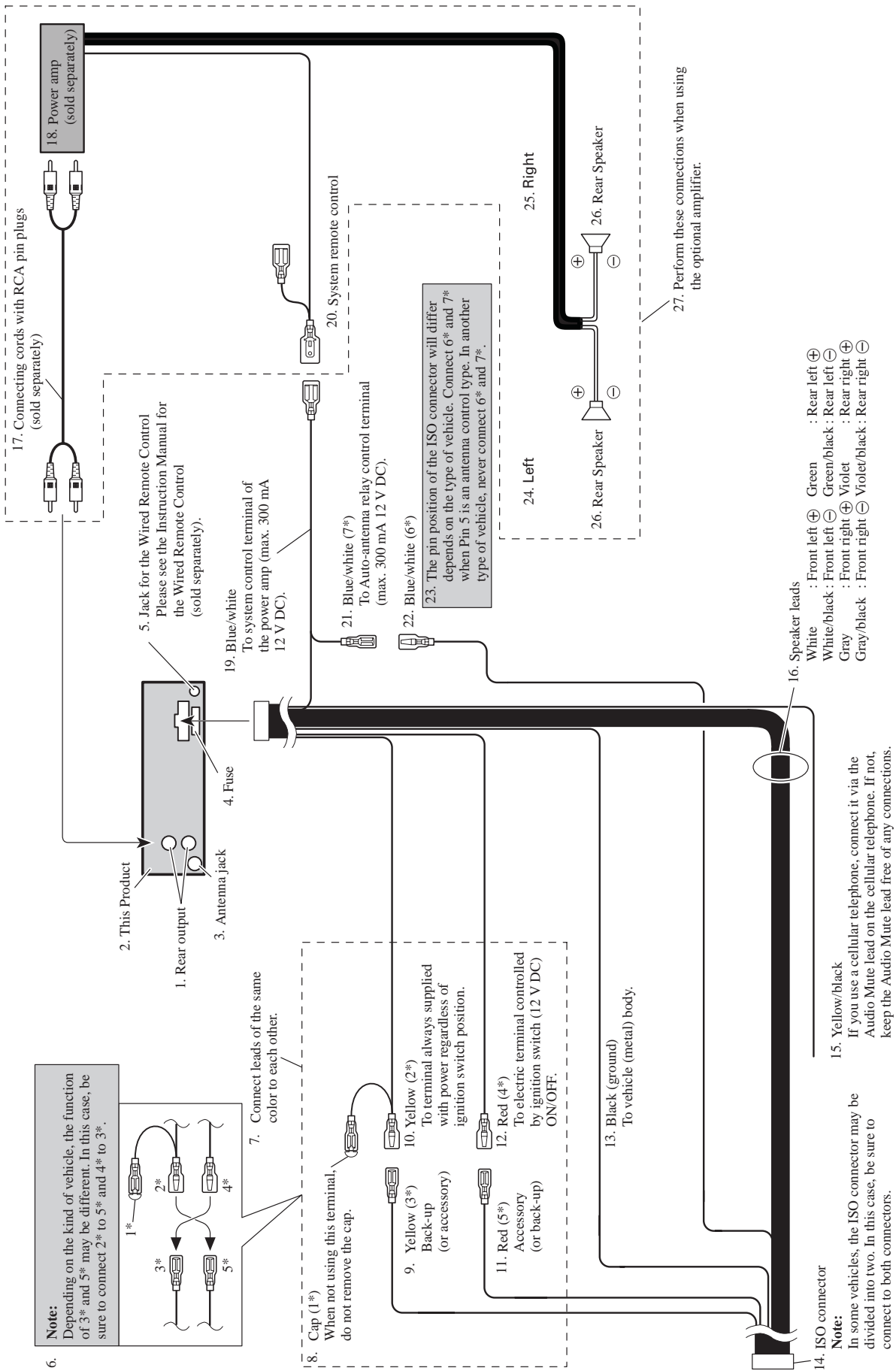
Built-in CD Player

About the fixing screws for the front panel.

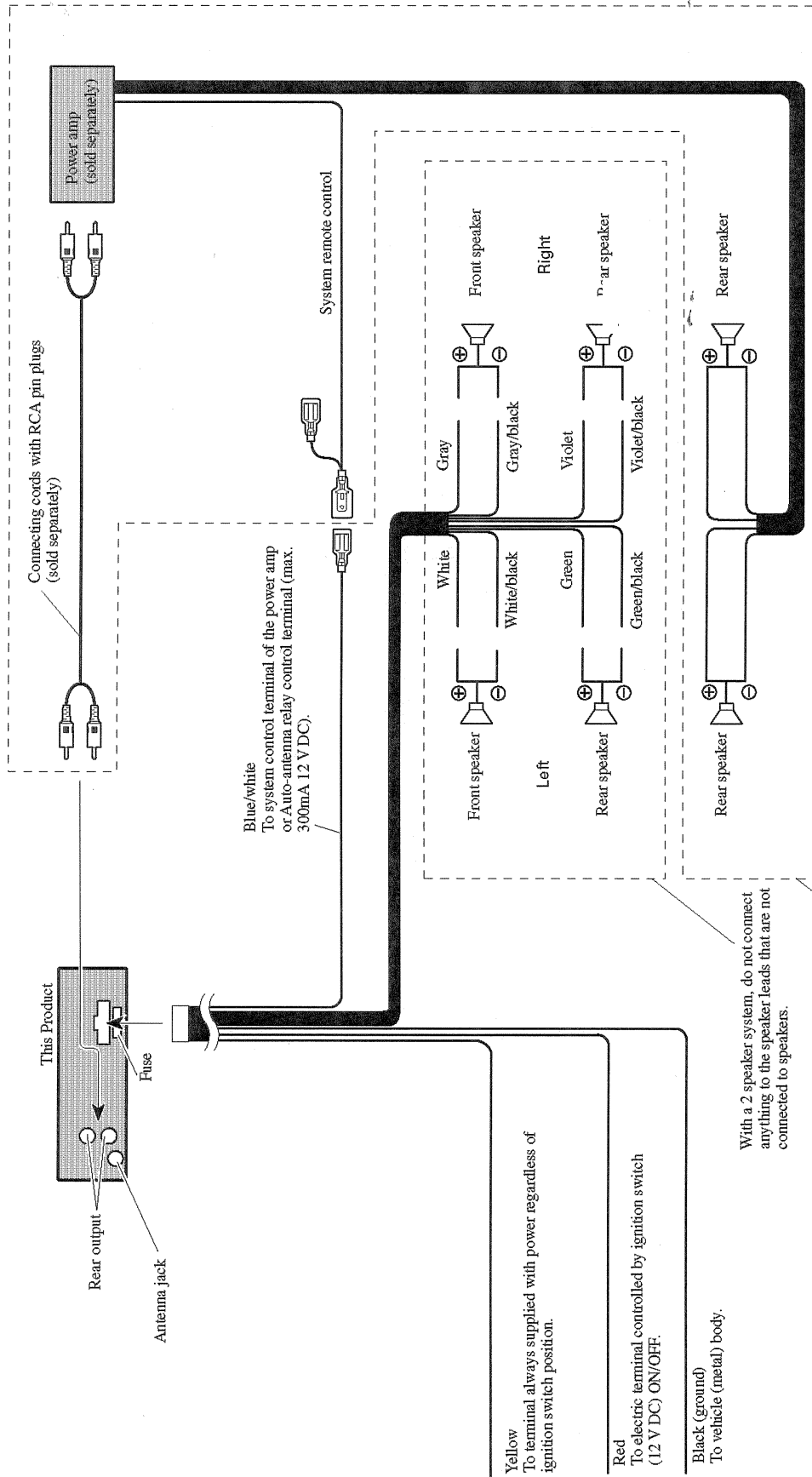
- 1 Press 6 to turn pause on.**
PAUSE appears in the display. Play of the current track pauses.
- 2 Press 6 to turn pause off.**
Play will resume at the same point that you turned pause on. 



A
B
C
D
E
F



● EE model



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