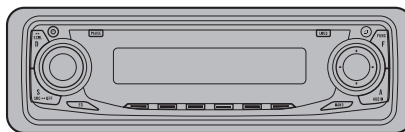


Service Manual



DEH-P460MP/XM/UC

ORDER NO.
CRT3171

MULTI-CD CONTROL HIGH POWER CD/MP3/WMA PLAYER WITH FM/AM TUNER

DEH-P460MP

/XM/UC

DEH-P4600MP

/XM/UC

DEH-P4650MP

/XM/ES

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

Model No.	Order No.	Mech.Module	Remarks
CX-3098	CRT3179	S10WMAcode2	CD Mech. Module:Circuit Description, Mech. Description, Disassembly



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

SAFETY INFORMATION

CAUTION

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

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

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

● 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 56.
3. After replacing the pickup unit, be sure to check the grating.(See p.52.)

[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.

COMPACT
disc
DIGITAL AUDIO



CONTENTS

	SAFETY INFORMATION	2
	1. SPECIFICATIONS	5
A	2. EXPLODED VIEWS AND PARTS LIST	8
	2.1 PACKING	8
	2.2 EXTERIOR.....	10
	2.3 CD MECHANISM MODULE.....	14
	3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM	16
	3.1 BLOCK DIAGRAM	16
	3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE).....	18
	3.3 KEYBOARD UNIT	24
	3.4 CD MECHANISM MODULE(GUIDE PAGE)	26
	4. PCB CONNECTION DIAGRAM	36
	4.1 TUNER AMP UNIT.....	36
B	4.2 PANEL UNIT	40
	4.3 KEYBOARD UNIT	41
	4.4 CD CORE UNIT(S10WMA).....	42
	5. ELECTRICAL PARTS LIST	44
	6. ADJUSTMENT	50
	6.1 CD ADJUSTMENT.....	50
	6.2 CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT	52
	6.3 ERROR MODE	54
	6.4 SYSTEM MICROCOMPUTER TEST PROGRAM	55
	7. GENERAL INFORMATION	56
	7.1 DIAGNOSIS	56
	7.1.1 DISASSEMBLY	56
C	7.1.2 CONNECTOR FUNCTION DESCRIPTION	59
	7.2 PARTS.....	60
	7.2.1 IC	60
	7.2.2 DISPLAY	69
	7.3 OPERATIONAL FLOW CHART	71
	7.4 CLEANING.....	72
	8. OPERATIONS	73

1. SPECIFICATIONS

● DEH-P460MP/XM/UC

General

Power source	14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	5 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 157 mm (7 × 2 × 6-1/8 in.)
Nose	188 × 58 × 19 mm (7-3/8 × 2-1/4 × 3/4 in.)
D	
Chassis	178 × 50 × 162 mm (7 × 2 × 6-3/8 in.)
Nose	170 × 46 × 14 mm (6-3/4 × 1-3/4 × 1/2 in.)
Weight	1.4 kg (3 lbs)

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) (IHF-A network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WMA decoding format	Ver. 7, 8 & 9
WAV signal format	Linear PCM & MS ADPCM

FM tuner

Frequency range	87.9 – 107.9 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 (IHF-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)
Three-signal intermodulation (desired signal level)	30 dBf (two undesired signal level: 100 dBf)

AM tuner

Frequency range	530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 μ V (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IHF-A network)



Note

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

● DEH-P4600MP/XM/UC

General

Power source 14.4 V DC (10.8 – 15.1 V allowable)
 Grounding system Negative type
 Max. current consumption 10.0 A

Backup current 5 mA or less

Dimensions (W × H × D):

DIN

Chassis 178 × 50 × 157 mm
 (7 × 2 × 6-1/8 in.)
 Nose 188 × 58 × 19 mm
 (7-3/8 × 2-1/4 × 3/4 in.)

D

Chassis 178 × 50 × 162 mm
 (7 × 2 × 6-3/8 in.)
 Nose 170 × 46 × 14 mm
 (6-3/4 × 1-3/4 × 1/2 in.)

Weight 1.4 kg (3 lbs)

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 ± 12 dB

Mid

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

High

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

Loudness contour

Low +3.5 dB (100 Hz), +3 dB (10 kHz)
 Mid +10 dB (100 Hz), +6.5 dB (10 kHz)

High +11 dB (100 Hz), +11 dB (10 kHz)
 (volume: -30 dB)

CD player

System Compact disc audio system

Usable discs Compact disc

Signal format:

Sampling frequency 44.1 kHz

Number of quantization bits

..... 16; linear

Frequency characteristics ... 5 – 20,000 Hz (± 1 dB)

Signal-to-noise ratio 94 dB (1 kHz) (IHF-A network)

Dynamic range 92 dB (1 kHz)

Number of channels 2 (stereo)

MP3 decoding format MPEG-1 & 2 Audio Layer 3

WMA decoding format Ver. 7, 8 & 9

WAV signal format Linear PCM & MS ADPCM

FM tuner

Frequency range 87.9 – 107.9 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 (IHF-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)

Three-signal intermodulation (desired signal level)

..... 30 dBf (two undesired signal level: 100 dBf)

AM tuner

Frequency range 530 – 1,710 kHz (10 kHz)

Usable sensitivity 18 μ V (S/N: 20 dB)

Signal-to-noise ratio 65 dB (IHF-A network)



Note

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

● DEH-P4650MP/XM/ES

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 network)
Dynamic range	92 dB (1 kHz)
Number of channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WMA decoding format	Ver. 7, 8 & 9
WAV signal format	Linear PCM & MS ADPCM

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)

Infrared remote control

Wavelength	940 nm ± 50 nm
Output	typ; 12 mw/sr per Infrared LED



Note

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

2. EXPLODED VIEWS AND PARTS LIST

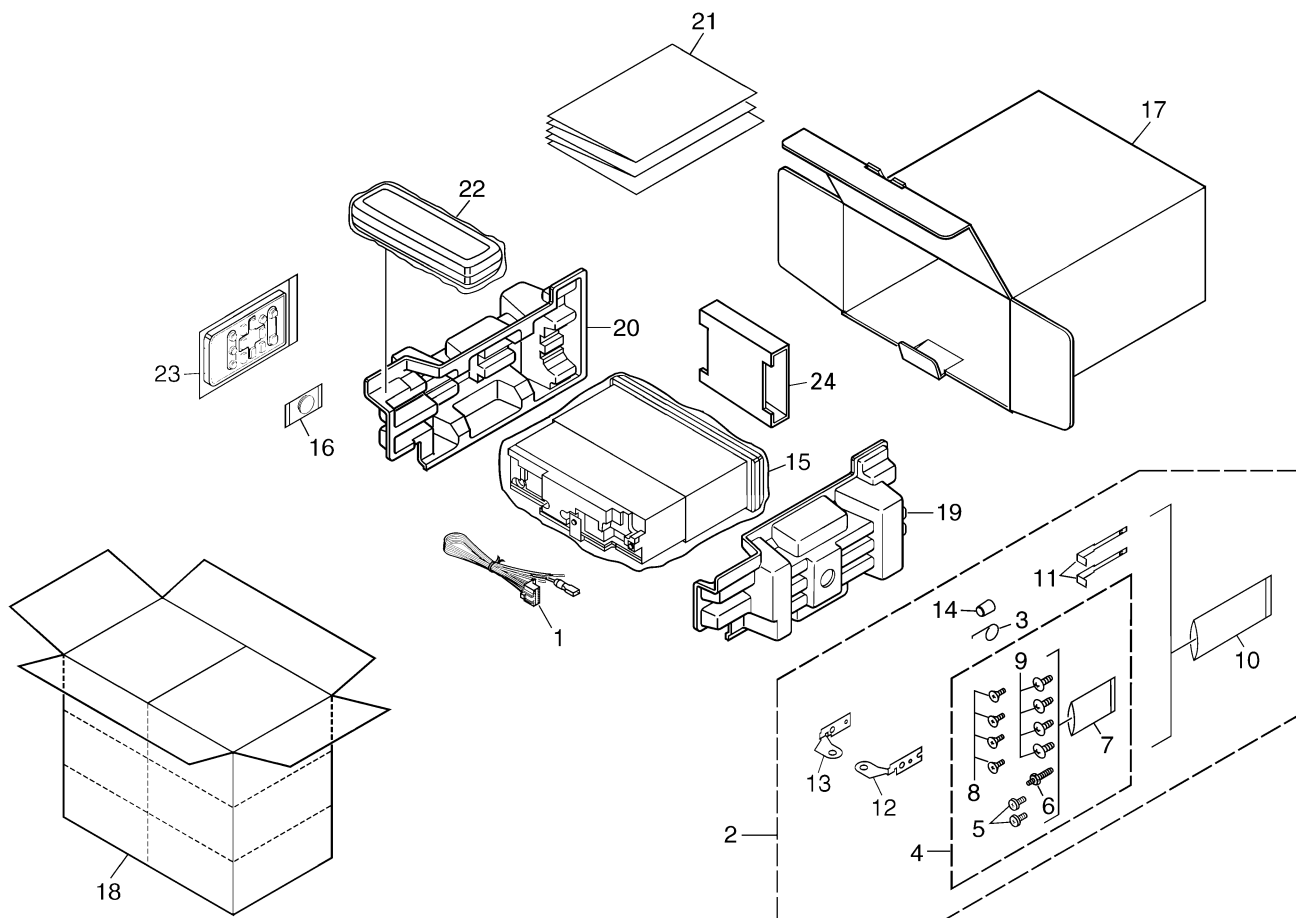
NOTES : • Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.

• Screw 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.)

2.1 PACKING



(1) PACKING SECTION PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE7060			
2	Accessory Assy	See Contrast table(2)	* 16	Battery	CEX1065
3	Spring	CBH1650	17	Carton	See Contrast table(2)
4	Screw Assy	See Contrast table(2)	18	Contain Box	See Contrast table(2)
5	Fixing Screw	See Contrast table(2)	19	Protector	CHP2663
			20	Protector	CHP2664
6	Screw	CBA1650			
* 7	Polyethylene Bag	CEG-127	21-1	Owner's Manual	See Contrast table(2)
8	Screw	CRZ50P090FTC	21-2	Owner's Manual	See Contrast table(2)
9	Screw	TRZ50P080FTC	21-3	Installation Manual	See Contrast table(2)
* 10	Polyethylene Bag	CEG-158	* 21-4	Warranty Card	See Contrast table(2)
			* 21-5	Card	See Contrast table(2)
11	Handle	CNC5395			
12	Holder	See Contrast table(2)	* 21-6	Caution Card	See Contrast table(2)
13	Holder	See Contrast table(2)	22	Case Assy	See Contrast table(2)
14	Bush	CNV3930	23	Remote Control Unit	CXC3173
15	Polyethylene Bag	See Contrast table(2)	24	Inner Box	XHW7001

(2) CONTRAST TABLE

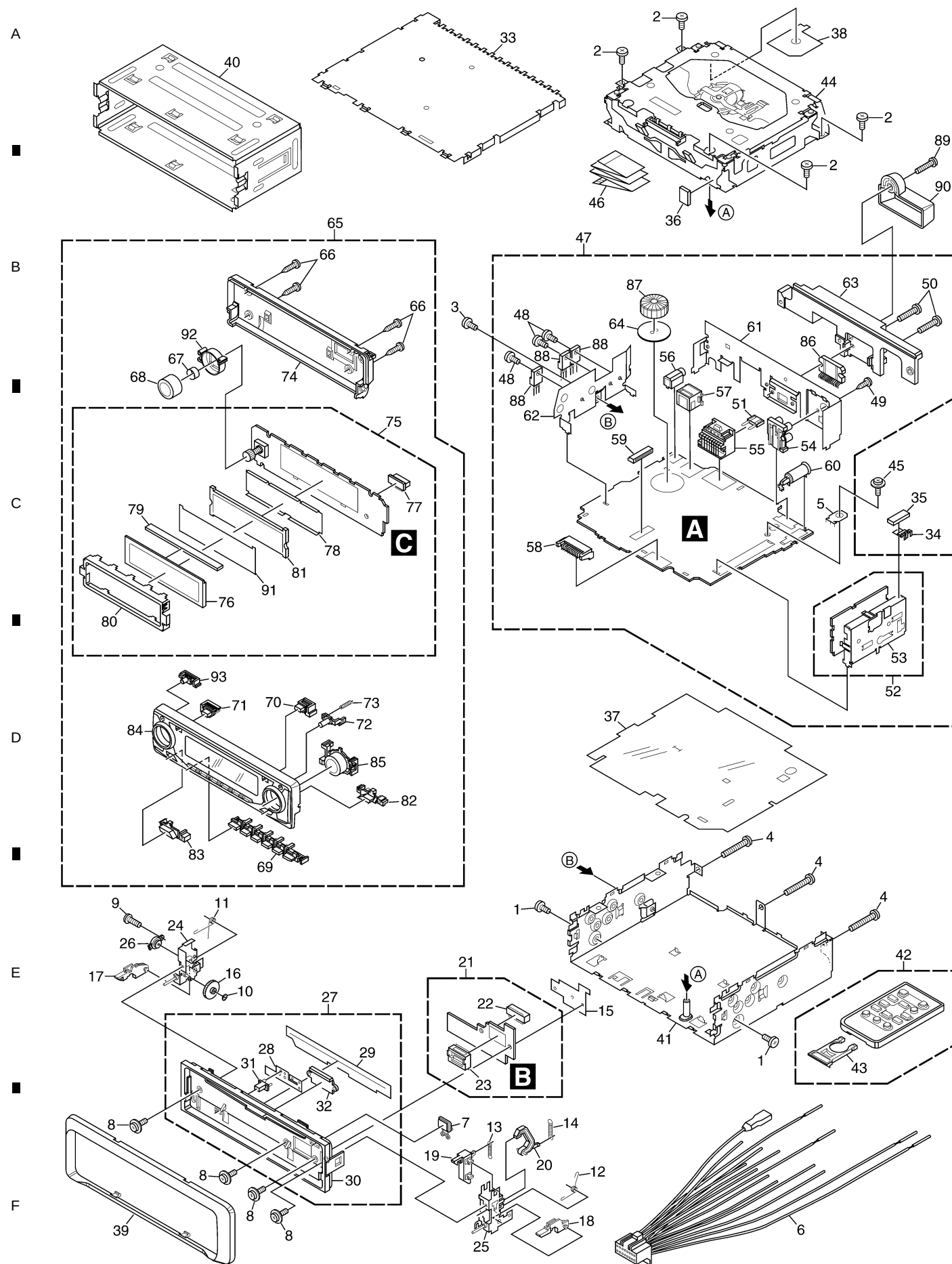
DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC and DEH-P4650MP/XM/ES are constructed the same except for the following:

Mark No.	Symbol and Description	Parts No.		
		DEH-P460MP/XM/UC	DEH-P4600MP/XM/UC	DEH-P4650MP/XM/ES
2	Accessory Assy	CEA3376	CEA3376	CEA3439
4	Screw Assy	CEA3848	CEA3848	CEA3849
5	Fixing Screw	BPZ20P060FZK	BPZ20P060FZK	Not used
12	Holder	CND1249	CND1249	Not used
13	Holder	CND1250	CND1250	Not used
15	Polyethylene Bag	CEG1173	CEG1173	CEG-162
17	Carton	XHG7016	XHG7013	XHG7011
18	Contain Box	XHL7016	XHL7013	XHL7011
21-1	Owner's Manual	XRD7030	XRD7028	XRD7021
21-2	Owner's Manual	Not used	Not used	XRD7022
21-3	Installation Manual	XRD7031	XRD7029	XRD7023
* 21-4	Warranty Card	CRY1070	Not used	Not used
* 21-5	Card	Not used	ARY1048	Not used
* 21-6	Caution Card	Not used	CRP1294	Not used
22	Case Assy	Not used	Not used	CXB3520

● Owner's Manual, Installation Manual

Model	Parts No.	Language
DEH-P460MP/XM/UC	XRD7030	English, French, Spanish
	XRD7031	
DEH-P4600MP/XM/UC	XRD7028	
	XRD7029	
DEH-P4650MP/XM/ES	XRD7021	English, Spanish, Portuguese(B)
	XRD7022	Arabic, Traditional Chinese
	XRD7023	English, Spanish, Portuguese(B), Arabic, Traditional Chinese

2.2 EXTERIOR



(1) EXTERIOR SECTION PARTS LIST

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	
1	Screw	BMZ30P040FZK	51	Fuse(10A)	CEK1208	A
2	Screw	BSZ26P060FTC	52	FM/AM Tuner Unit	CWE1646	
3	Screw	BSZ30P060FTC	53	Holder	CND1054	
4	Screw	BSZ30P200FTC	54	Pin Jack(CN352)	See Contrast table(2)	
5	Terminal(CN402)	VNF1084	55	Plug(CN981)	CKM1376	
6	Cord Assy	CDE7060	56	Connector(CN801)	See Contrast table(2)	
7	Button(EJECT)	CAC7752	57	Connector(CN101)	CKS3408	
8	Screw(M2x4.5)	CBA1647	58	Plug(CN831)	CKS3537	
9	Screw(M2x4)	CBA1649	59	Connector(CN721)	CKS3837	
10	Washer	CBF1038	60	Antenna Jack(CN401)	CKX1056	B
11	Spring	CBH2650	61	Holder	See Contrast table(2)	
12	Spring	CBH2651	62	Holder	CND1352	
13	Spring	CBH2652	63	Heat Sink	CNR1668	
14	Spring	CBH2653	64	Insulator	XNM7031	
15	Holder	CND1254	65	Detachable Assy	See Contrast table(2)	
16	Gear	CNV5997	66	Screw	BPZ20P100FZK	
17	Arm	CNV7400	67	Spring	CBL1470	
18	Arm	CNV7401	68	Knob	See Contrast table(2)	
19	Arm	CNV7402	69	Button(1-6)	XAC7005	C
20	Arm	CNV7403	70	Button(LOUD)	XAC7020	
21	Panel Unit	CWM8758	71	Button(PAUSE)	XAC7019	
22	Socket(CN1950)	CKS3550	72	Button(OPEN)	See Contrast table(2)	
23	Connector(CN1951)	CKS4806	73	Spring	XBH7001	
24	Holder Unit	CXB9501	74	Cover	XNS7013	
25	Holder Unit	CXB9502	75	Keyboard Unit	See Contrast table(2)	
26	Damper Unit	CXB9503	76	LCD(LCD1901)	See Contrast table(2)	
27	Service Panel Unit	CXX1691	77	Connector(CN1901)	CKS4524	
28	Spring	CBL1512	78	Sheet	XNM7006	D
29	Cover	CNM6854	79	Connector	XNV7006	
30	Panel	CNS7245	80	Holder	XNC7002	
31	Pin	CNV6486	81	Lighting Conductor	XNV7005	
32	Lighting Conductor	CNV6487	82	Button(BAND)	XAC7021	
33	Case	CNB2870	83	Button(EQ)	XAC7022	
34	Earth Plate	CNC8915	84	Sub Grille Assy	See Contrast table(2)	
35	Cushion	CNM8890	85	Sub Button Assy(SELECT)	See Contrast table(2)	
36	Insulator	CNM7682	86	IC(IC301)	PAL007A	
37	Insulator	CNM7935	87	Choke Coil(L981)	CTH1280	E
38	Insulator	CNM8174	88	Transistor(Q752,901,911)	2SD2375	
39	Panel	See Contrast table(2)	89	Screw	See Contrast table(2)	
40	Holder Unit	CXB6681	90	Holder	See Contrast table(2)	
41	Chassis Unit	CXB9528	91	Sheet	See Contrast table(2)	
42	Remote Control Unit	CXC3173	* 92	Lighting Conductor	XNV7012	
43	Cover	CNS7068	93	Button(CLOCK)	See Contrast table(2)	
44	CD Mechanism Module(S10CODE2)	CXK5665				
45	Screw	ISS26P055FTC				
46	Cable	CDE7189				
47	Tuner Amp Unit	See Contrast table(2)				F
48	Screw	ASZ26P060FTC				
49	Screw	BPZ26P080FTC				
50	Screw	BSZ26P160FTC				

(2) CONTRAST TABLE

DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC and DEH-P4650MP/XM/ES are constructed the same except for the following:

Mark No.	Symbol and Description	Parts No.		
		DEH-P460MP/XM/UC	DEH-P4600MP/XM/UC	DEH-P4650MP/XM/ES
39	Panel	CNS6935	XNS7070	CNS6935
47	Tuner Amp Unit	XWM7023	XWM7023	XWM7024
54	Pin Jack(CN352)	CKB1051	CKB1051	CKB1057(CN351)
56	Connector(CN801)	CKS4124	CKS4124	Not used
61	Holder	CND1325	CND1325	CND1237
65	Detachable Assy	XXA7132	XXA7133	XXA7134
68	Knob	XAA7009	XAA7003	XAA7009
72	Button(OPEN)	XAC7026	XAC7012	XAC7026
75	Keyboard Unit	XWM7031	XWM7031	XWM7032
76	LCD(LCD1901)	XAW7004	XAW7004	XAW7002
84	Sub Grille Assy	XXA7147	XXA7148	XXA7149
85	Sub Button Assy(SELECT)	XXA7229	XXA7228	XXA7229
89	Screw	Not used	BMZ40P140FTC	Not used
90	Holder	Not used	CNV7619	Not used
91	Sheet	Not used	Not used	XNM7008
93	Button(CLOCK)	XAC7016	XAC7024	XAC7016



5



6



7



8



A



B



C



D



E



F



5



6

DEH-P460MP/XM/UC



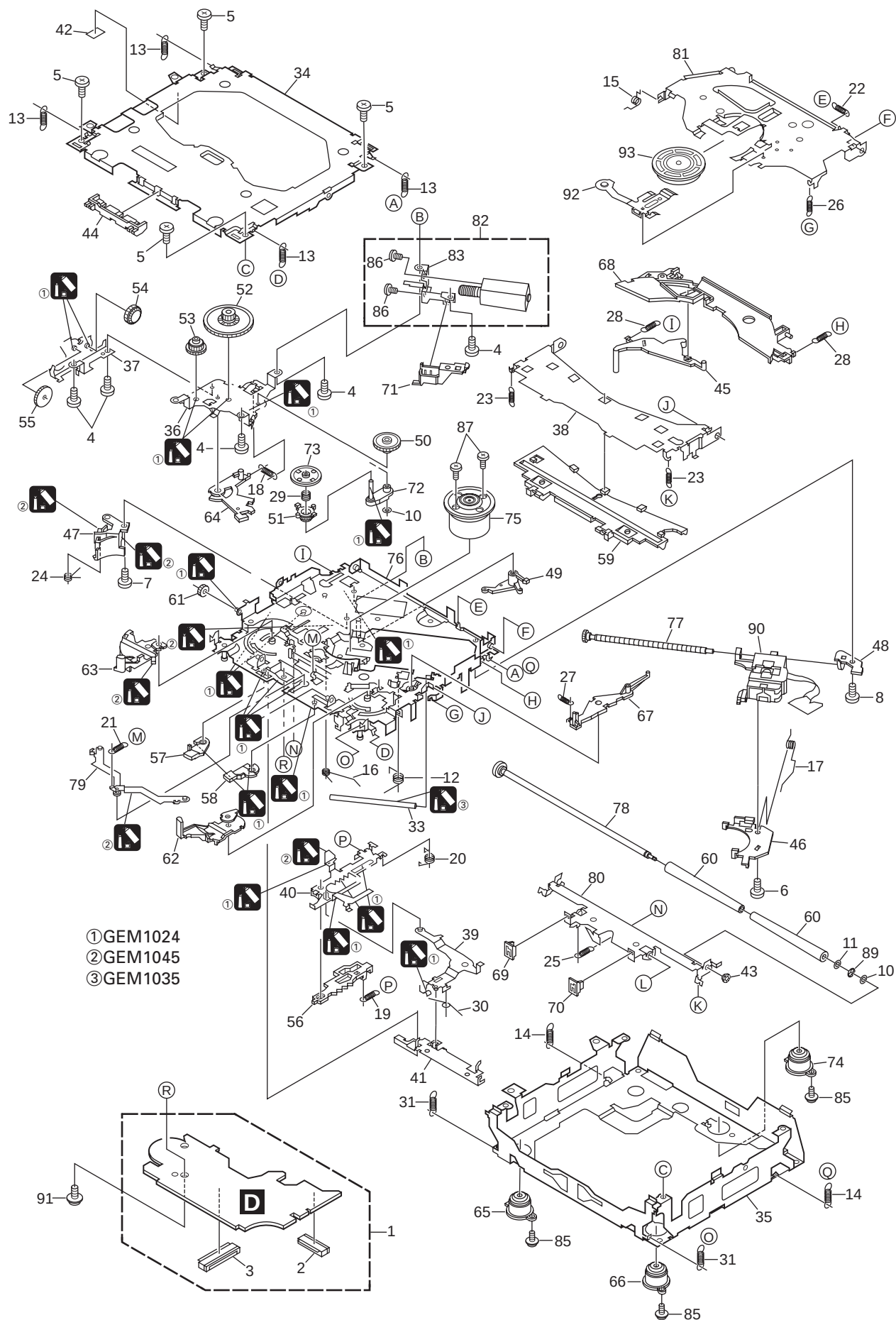
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8



2.3 CD MECHANISM MODULE



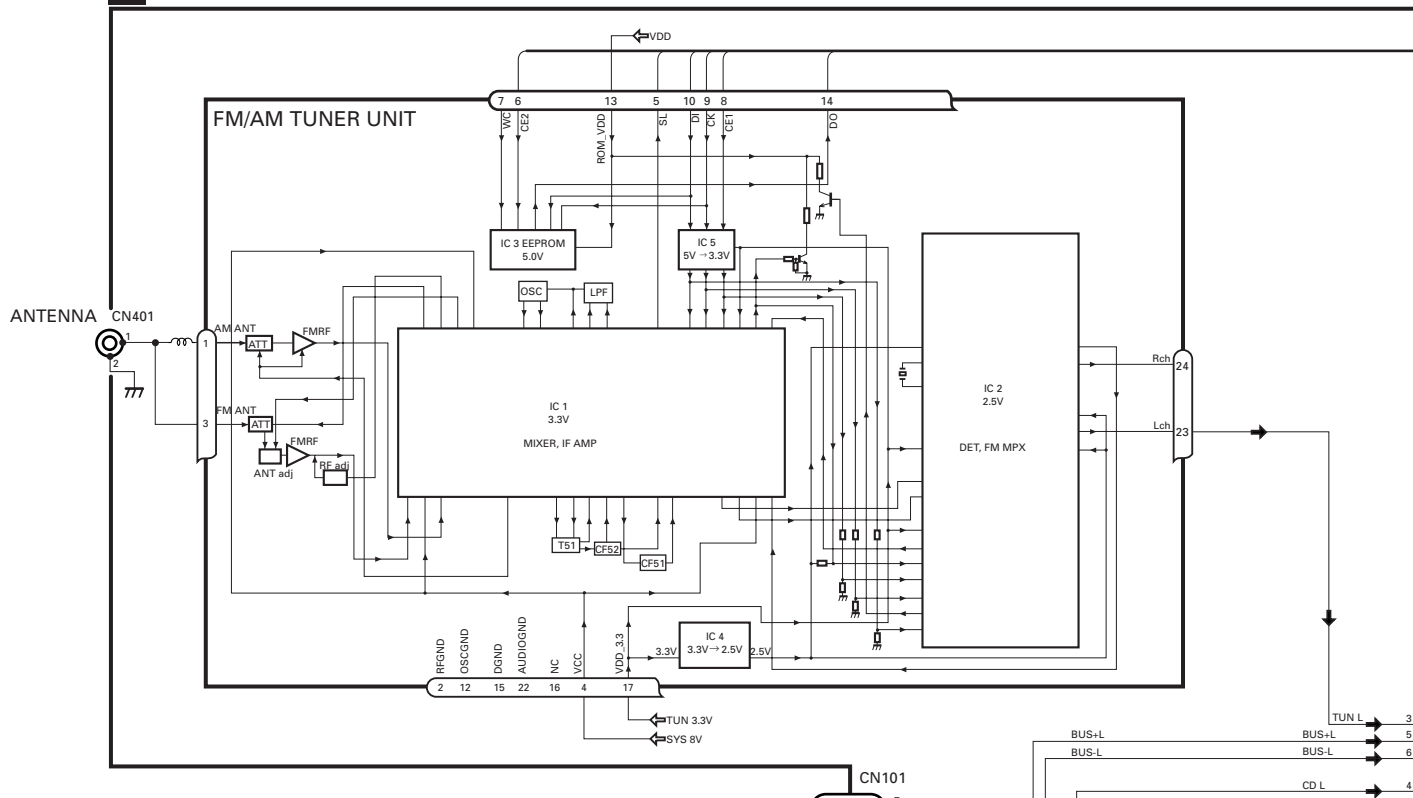
CD MECHANISM MODULE SECTION PARTS LIST

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>	
1	CD Core Unit(S10WMA)	CWX2851	51	Gear	CNV7208	A
2	Connector(CN101)	CKS4182	52	Gear	CNV7209	
3	Connector(CN901)	CKS4017	53	Gear	CNV7210	
4	Screw	BMZ20P035FTC	54	Gear	CNV7211	
5	Screw	BSZ20P040FTC	55	Gear	CNV7212	
6	Screw(M2x4)	CBA1362	56	Rack	CNV7214	
7	Screw(M2x3)	CBA1511	57	Arm	CNV7215	
8	Screw(M2x3)	CBA1527	58	Arm	CNV7216	
9			59	Guide	CNV7217	
10	Washer	CBF1038	60	Roller	CNV7218	B
11	Washer	CBF1060	61	Gear	CNV7219	
12	Spring	CBH2390	62	Arm	CNV7221	
13	Spring	CBH2606	63	Arm	CNV7220	
14	Spring	CBH2607	64	Arm	CNV7222	
15	Spring	CBH2608	65	Damper	CNV7313	
16	Spring	CBH2609	66	Damper	CNV7314	
17	Spring	CBH2610	67	Arm	CNV7341	
18	Spring	CBH2735	68	Arm	CNV7342	
19	Spring	CBH2612	69	Guide	CNV7360	
20	Spring	CBH2613	70	Guide	CNV7361	C
21	Spring	CBH2614	71	Holder	CNV7437	
22	Spring	CBH2615	72	Arm	CNV7805	
23	Spring	CBH2616	73	Gear	CNV7595	
24	Spring	CBH2617	74	Damper	CNV7618	
25	Spring	CBH2620	75	Motor Unit(M1)	CXB6007	
26	Spring	CBH2621	76	Chassis Unit	CXC2318	
27	Spring	CBH2641	77	Screw Unit	CXB8729	
28	Spring	CBH2642	78	Gear Unit	CXC2397	
29	Spring	CBH2643	79	Arm Unit	CXC2316	D
30	Spring	CBH2659	80	Arm	CND1896	
31	Spring	CBH2688	81	Arm	CND1894	
32			82	Motor Unit(M2)	CXB8933	
33	Shaft	CLA4441	83	Bracket	CNC9985	
34	Frame	CNC9962	84			
35	Frame	CNC9963	85	Screw(M2x5)	EBA1028	
36	Bracket	CNC9966	86	Screw	JFZ20P020FTC	
37	Bracket	CND1895	87	Screw	JGZ17P022FTC	E
38	Arm	CNC9968	88			
39	Arm	CND1909	89	Washer	YE20FTC	
40	Lever	CND2032	90	Pickup Unit(P10)(Service)	CXX1641	
41	Lever	CNC9984	91	Screw	IMS26P030FTC	
42	Sheet	CNM8134	92	Spring	CBL1635	
43	Collar	CNV7798	93	Clamper	CNV7197	
44	Guide	CNV7799				
45	Arm	CNV7800				
46	Rack	CNV7199				
47	Holder	CNV7201				F
48	Holder	CNV7202				
49	Arm	CNV7203				
50	Gear	CNV7207				

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

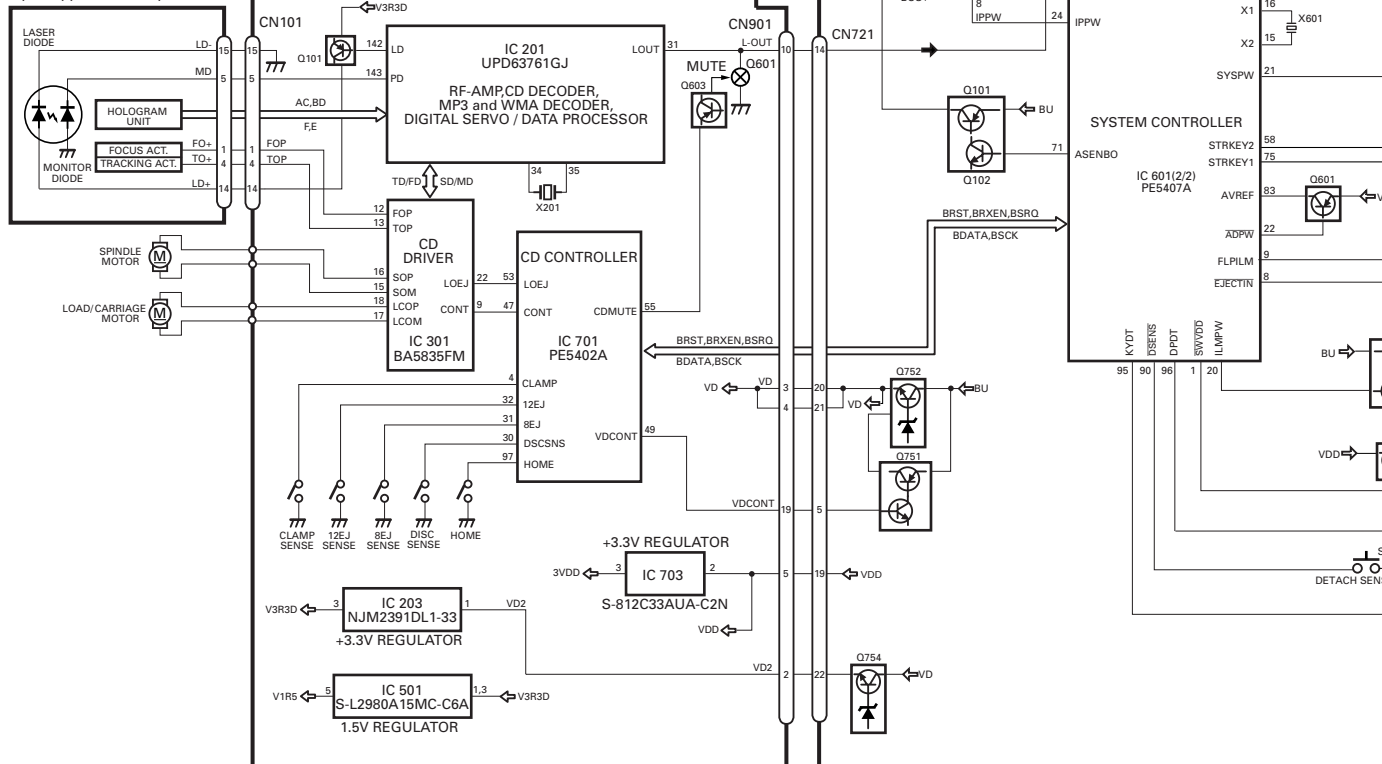
3.1 BLOCK DIAGRAM

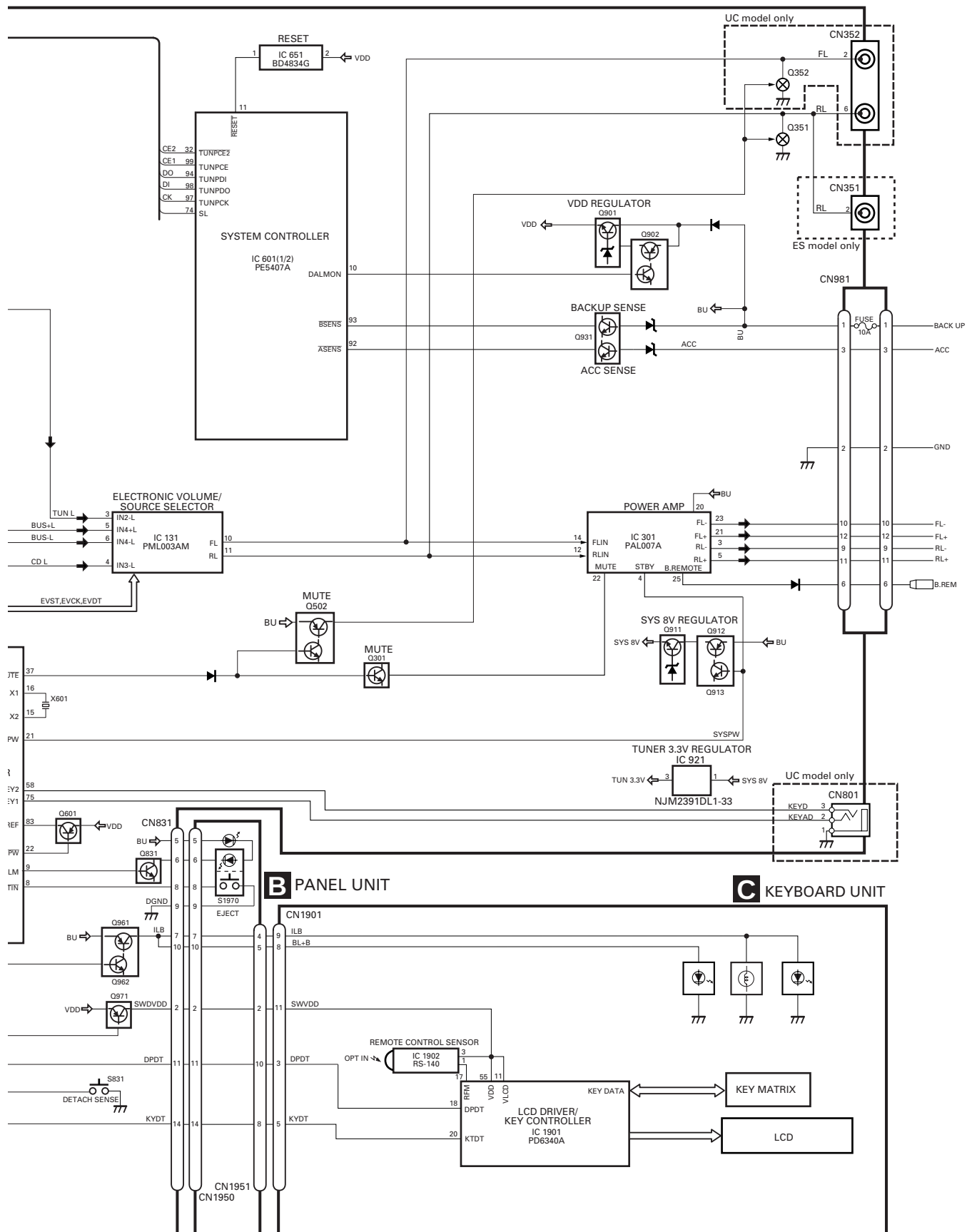
A TUNER AMP UNIT



D CD CORE UNIT(S10WMA)

PICKUP UNIT (P10)(SERVICE)

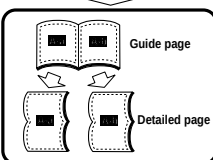
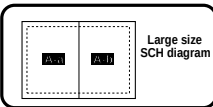
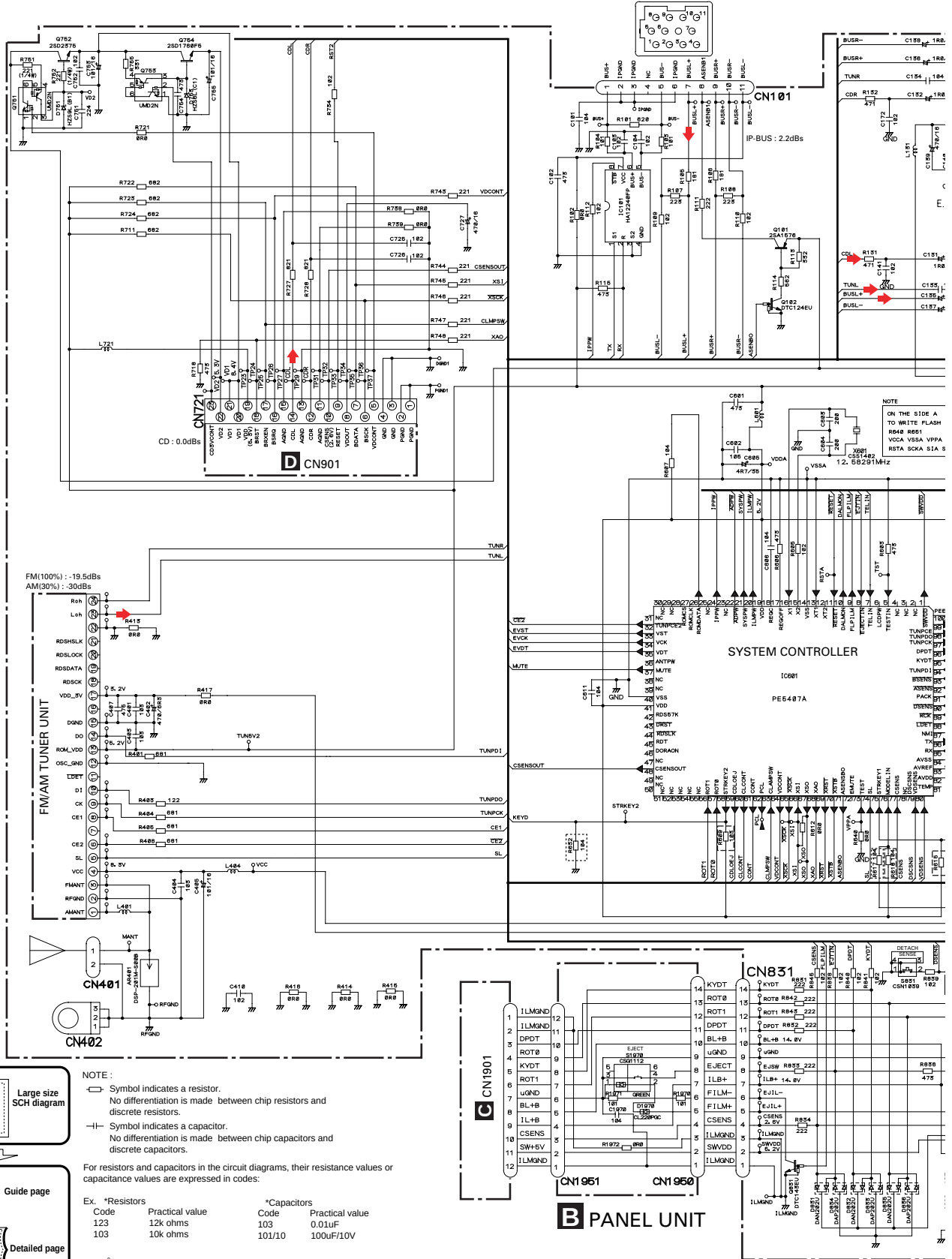




3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

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

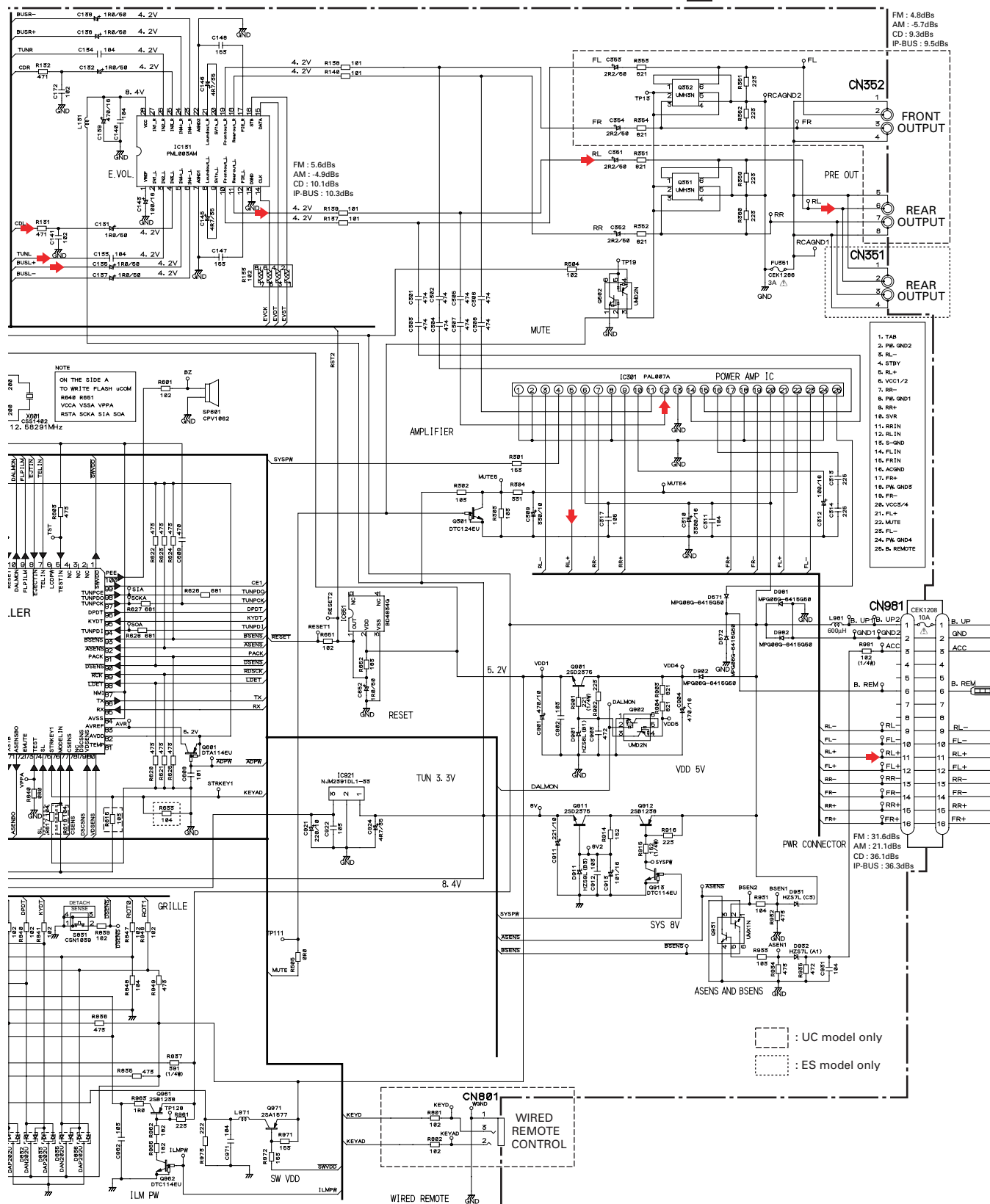
A-a



A B

A-b

A TUNER AMP UNIT



A

B

C

D

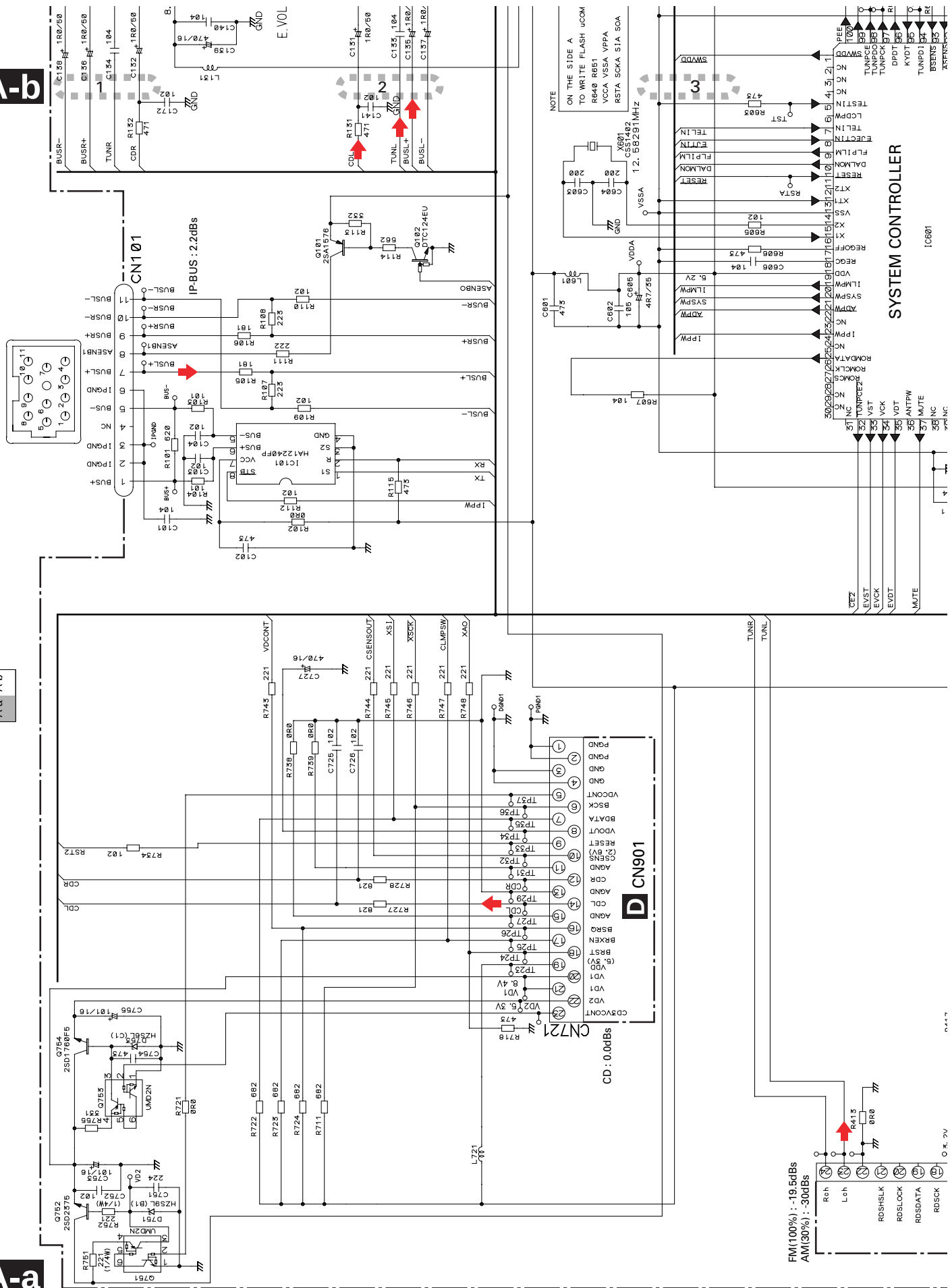
E

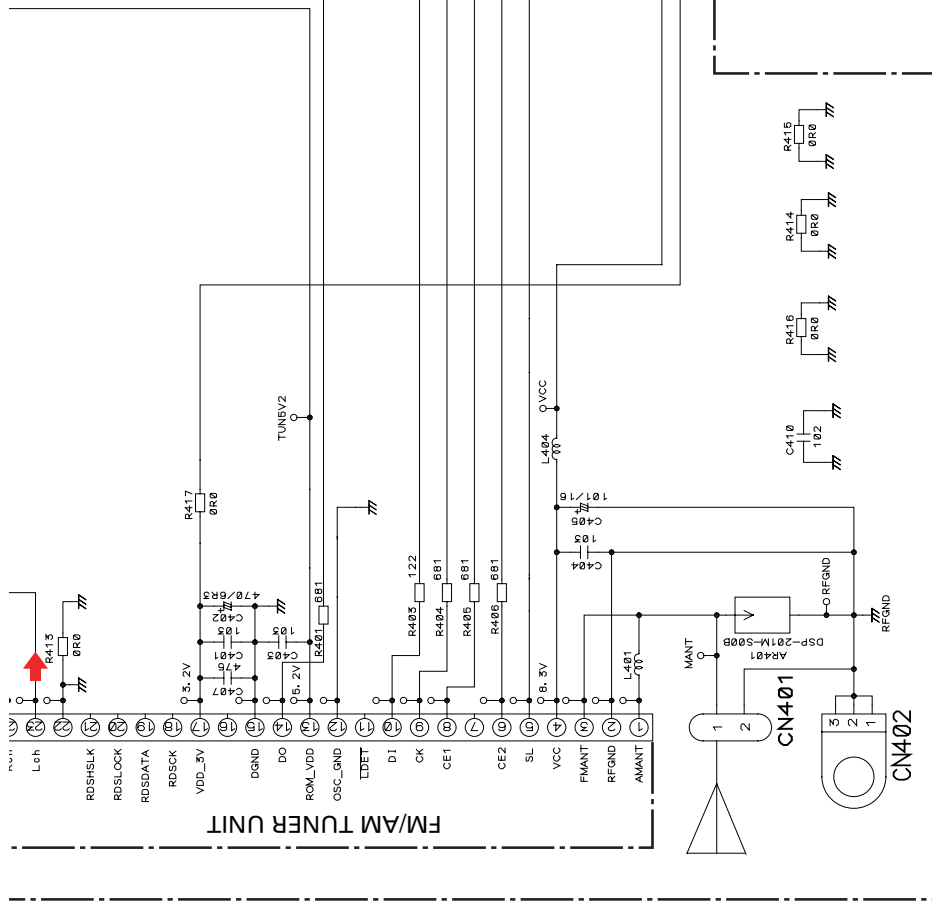
F

A-b

A-a	A-b
-----	-----

A-a





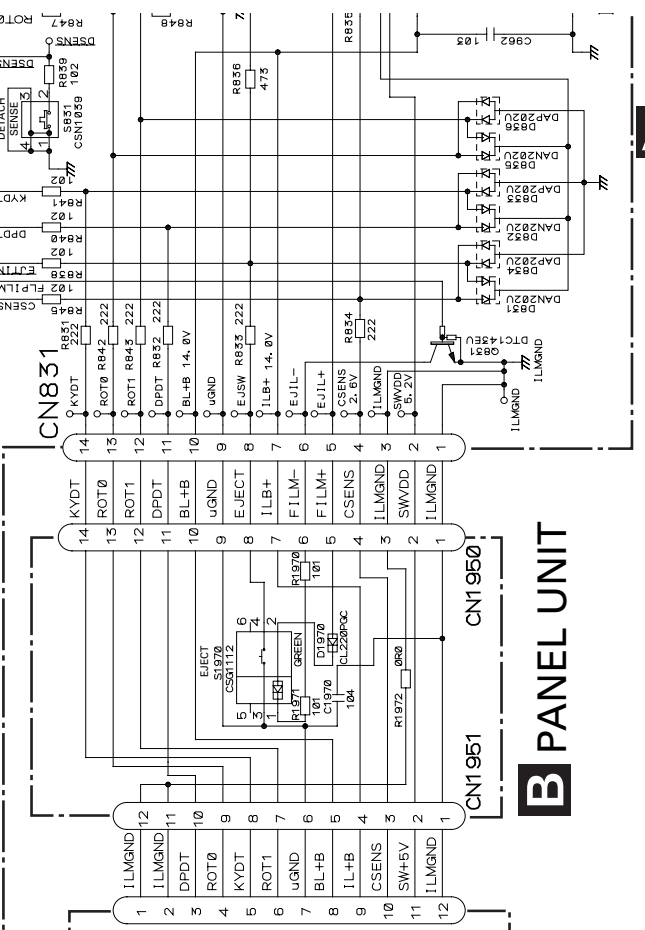
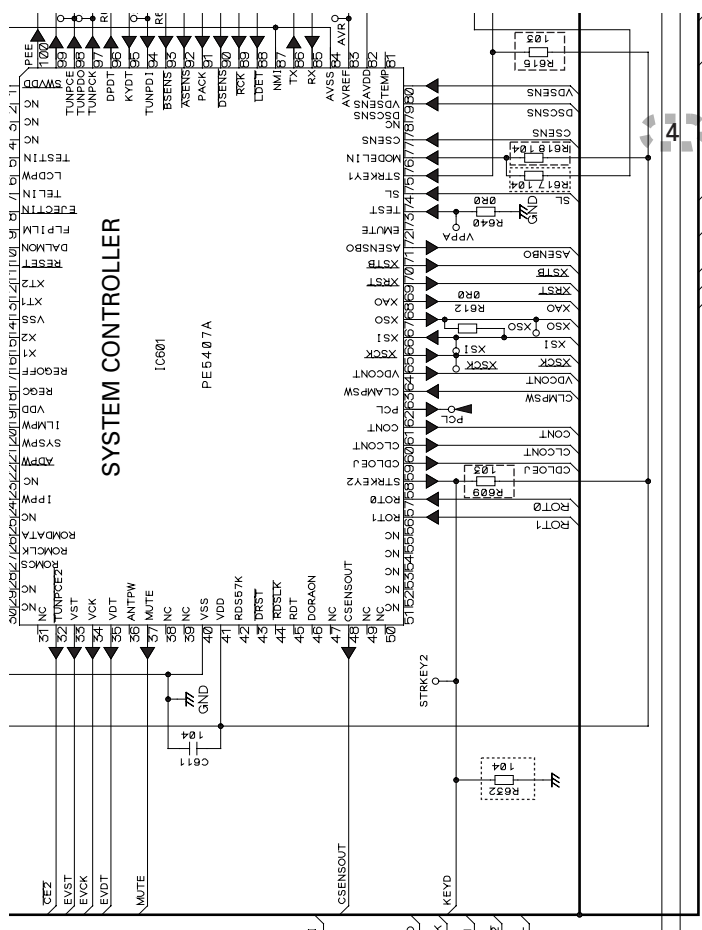
NOTE :

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

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

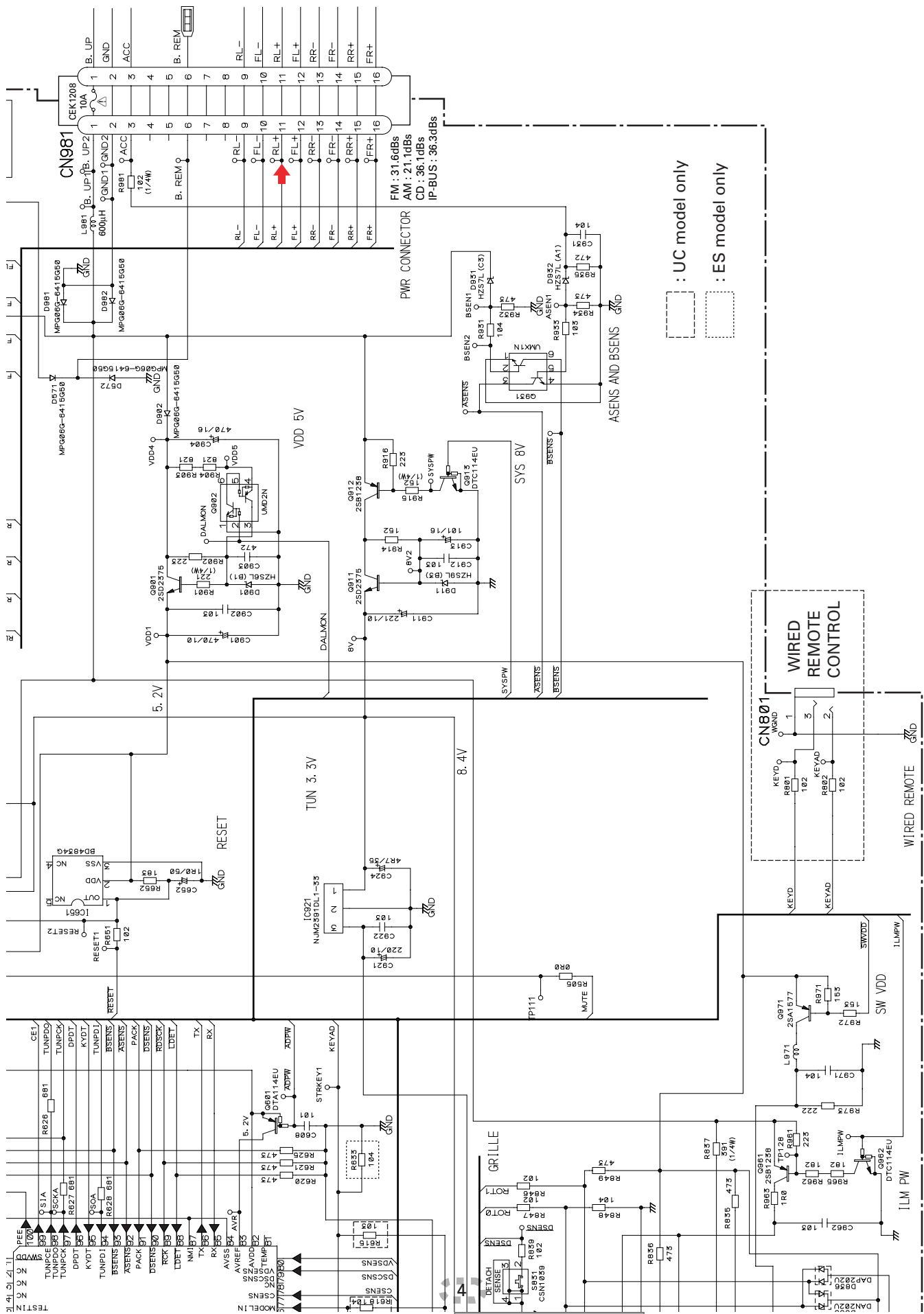
Ex. *Resistors		*Capacitors	
Code	Practical value	Code	Practical value
123	12k ohms	103	0.01uF
103	10k ohms	101/10	100uF/10V

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



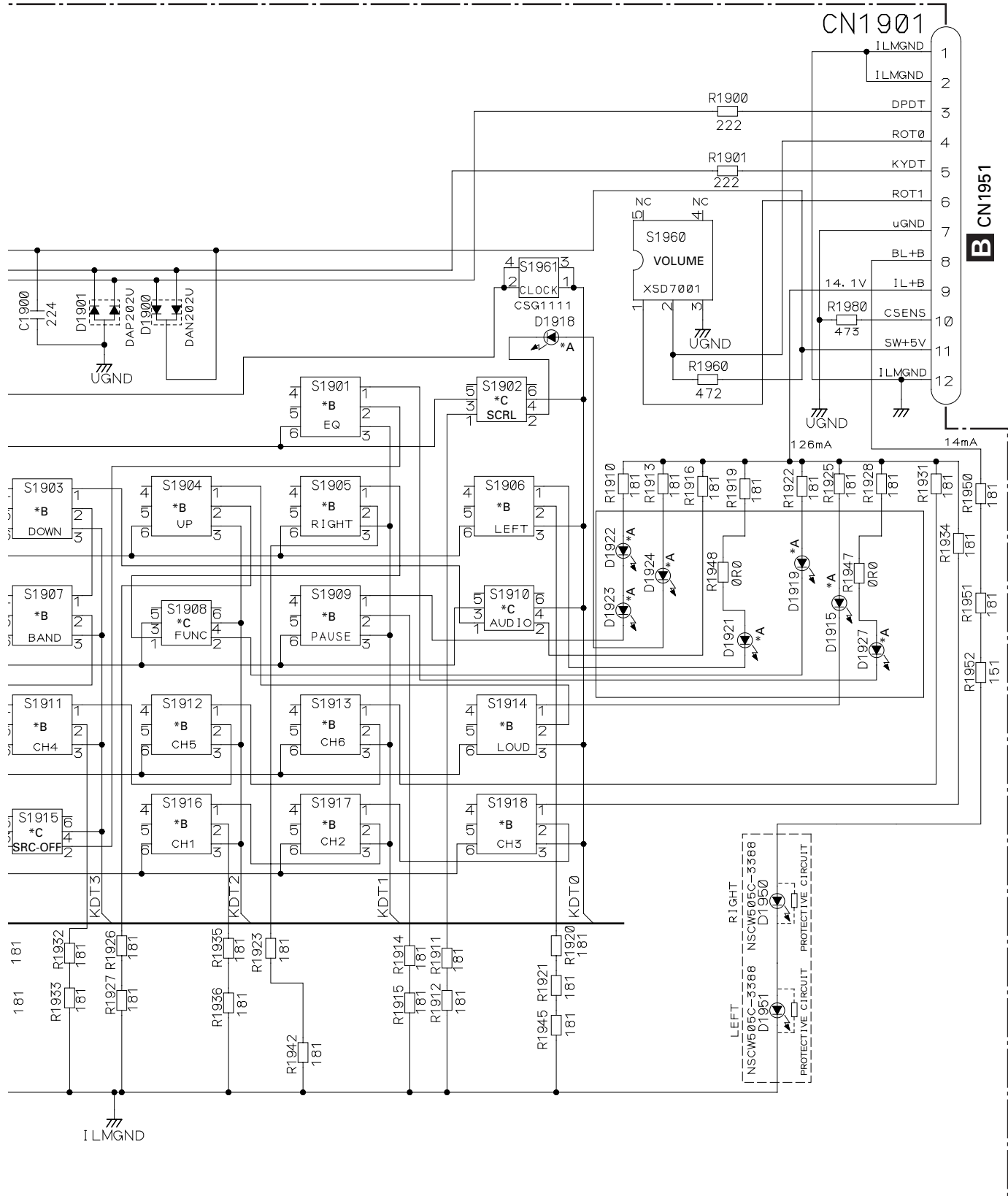
B PANEL UNIT

A-b



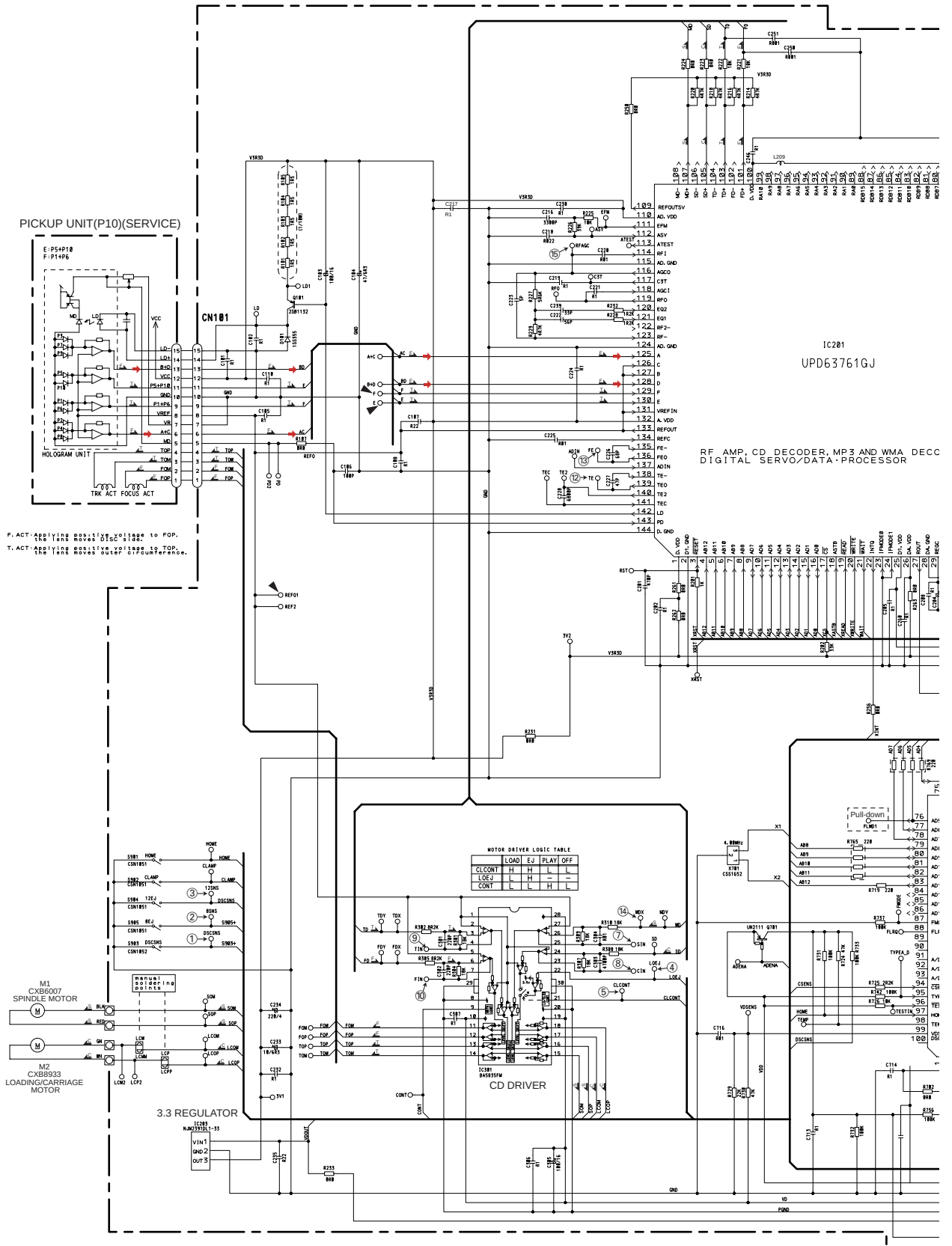
DEH-P460MP/XM/UC

C KEYBOARD UNIT



3.4 CD MECHANISM MODULE(GUIDE PAGE)

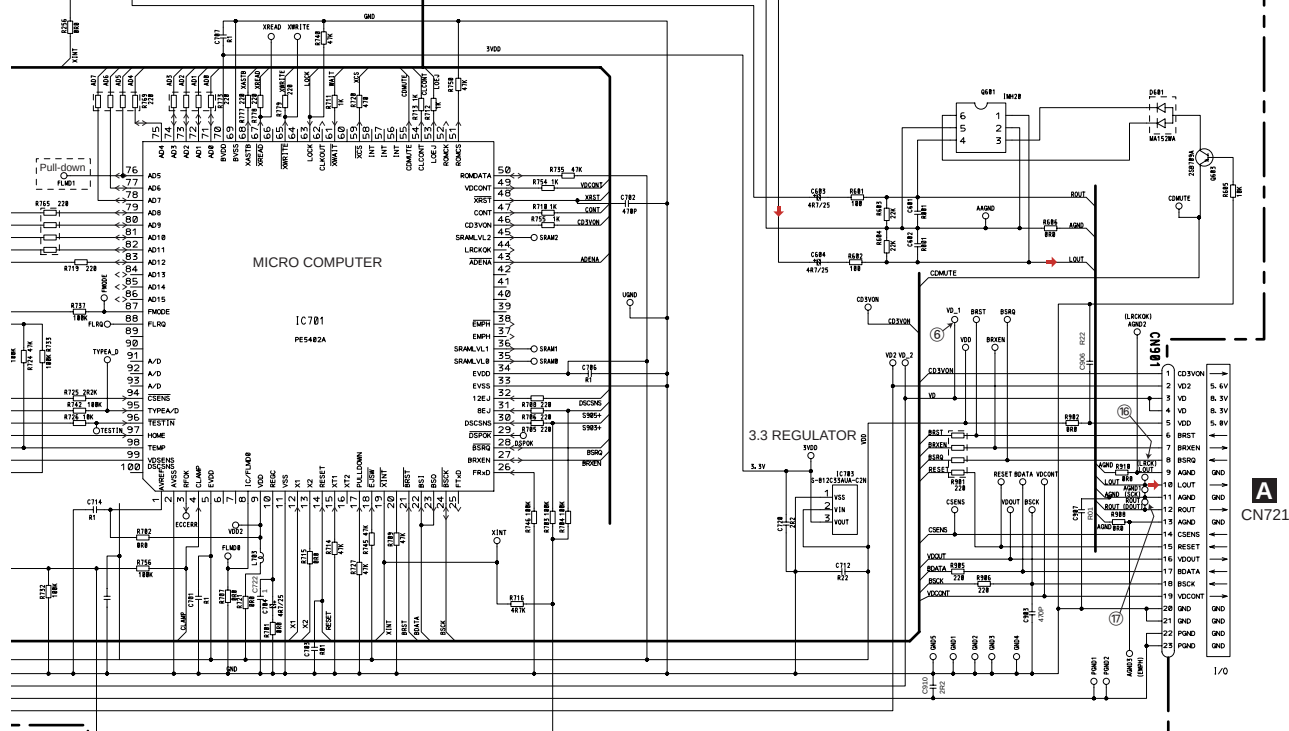
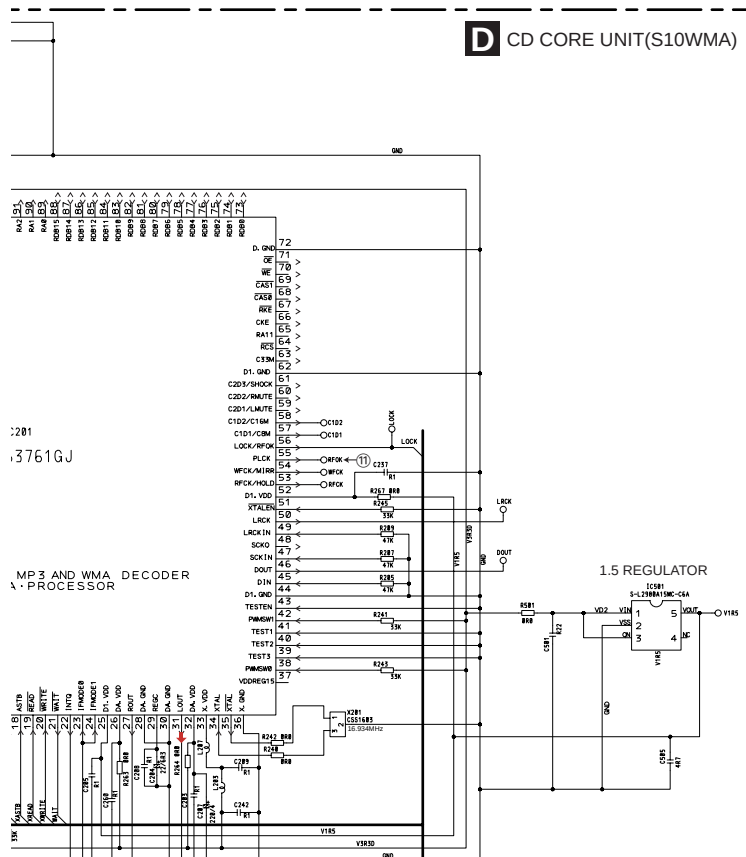
D-a

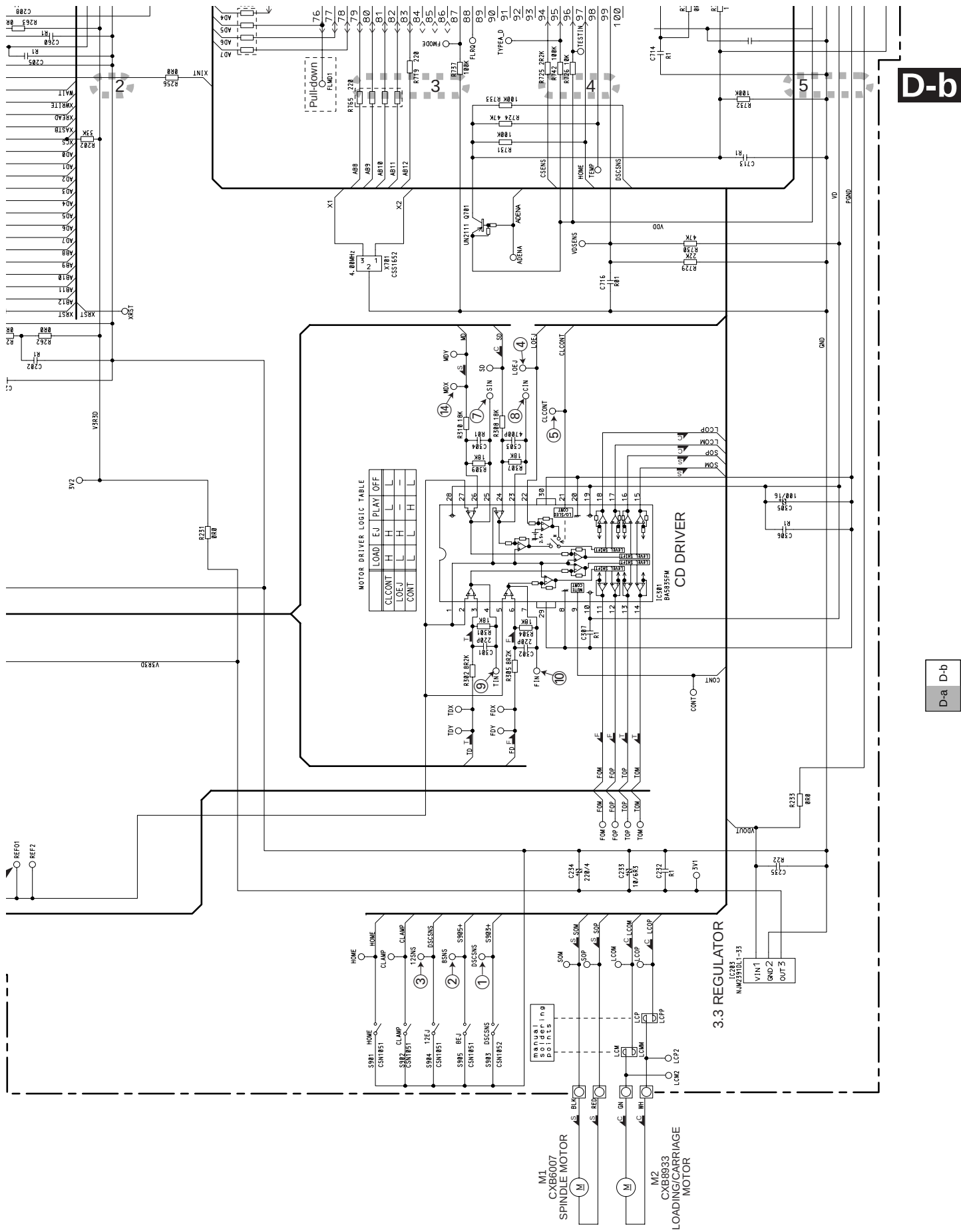


D

D-b

D CD CORE UNIT(S10WMA)





D-b

D-a D-b

D-a

A B C D E F

1 2 3 4

D-a D-b

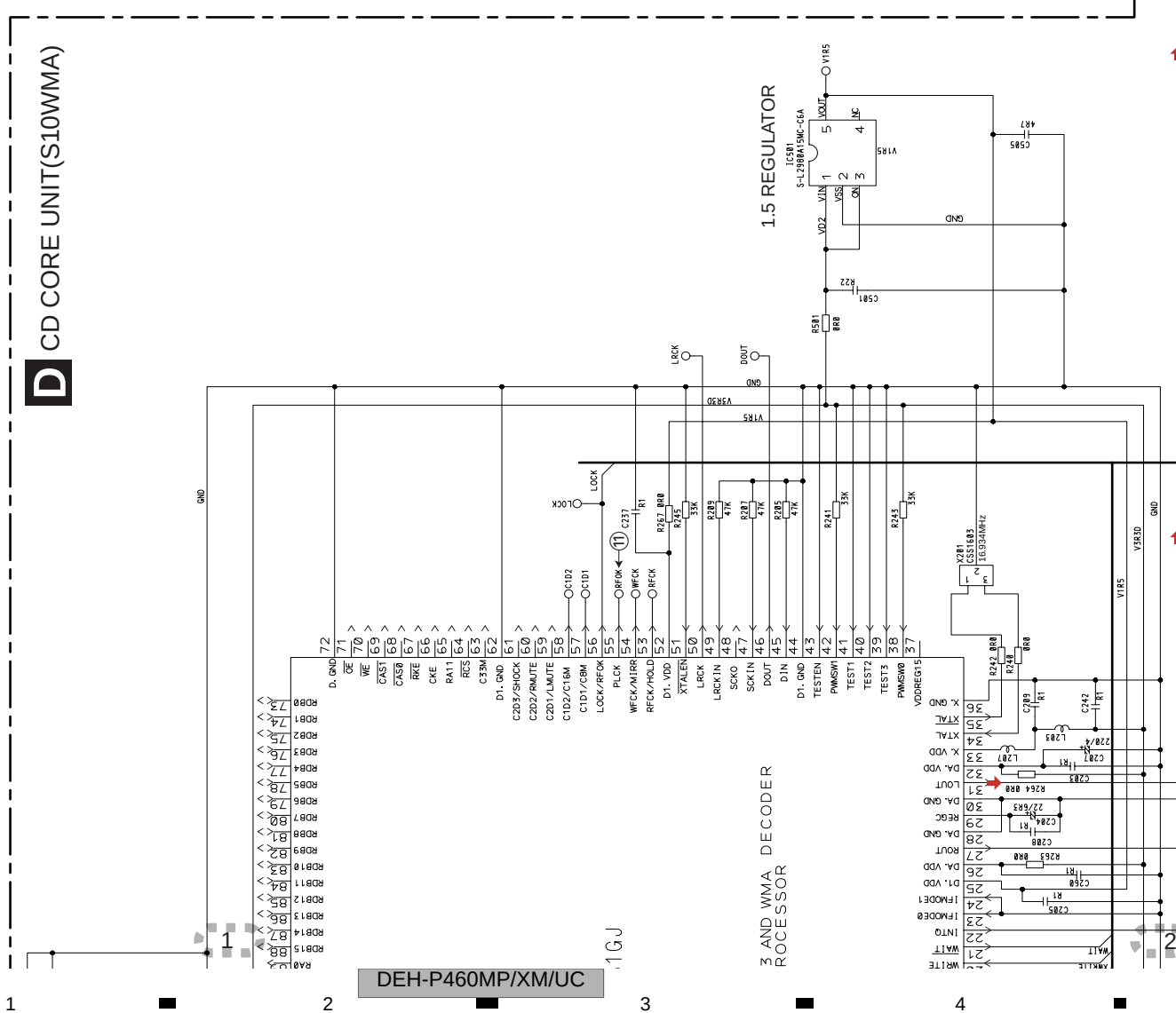
D-b

CD CORE UNIT(S10WMA)

NOTE1) GND ...CD LSI, RFAMP, CPU
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.

SWITCHES:
CD CORE UNIT(S10WMA)
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.

SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE

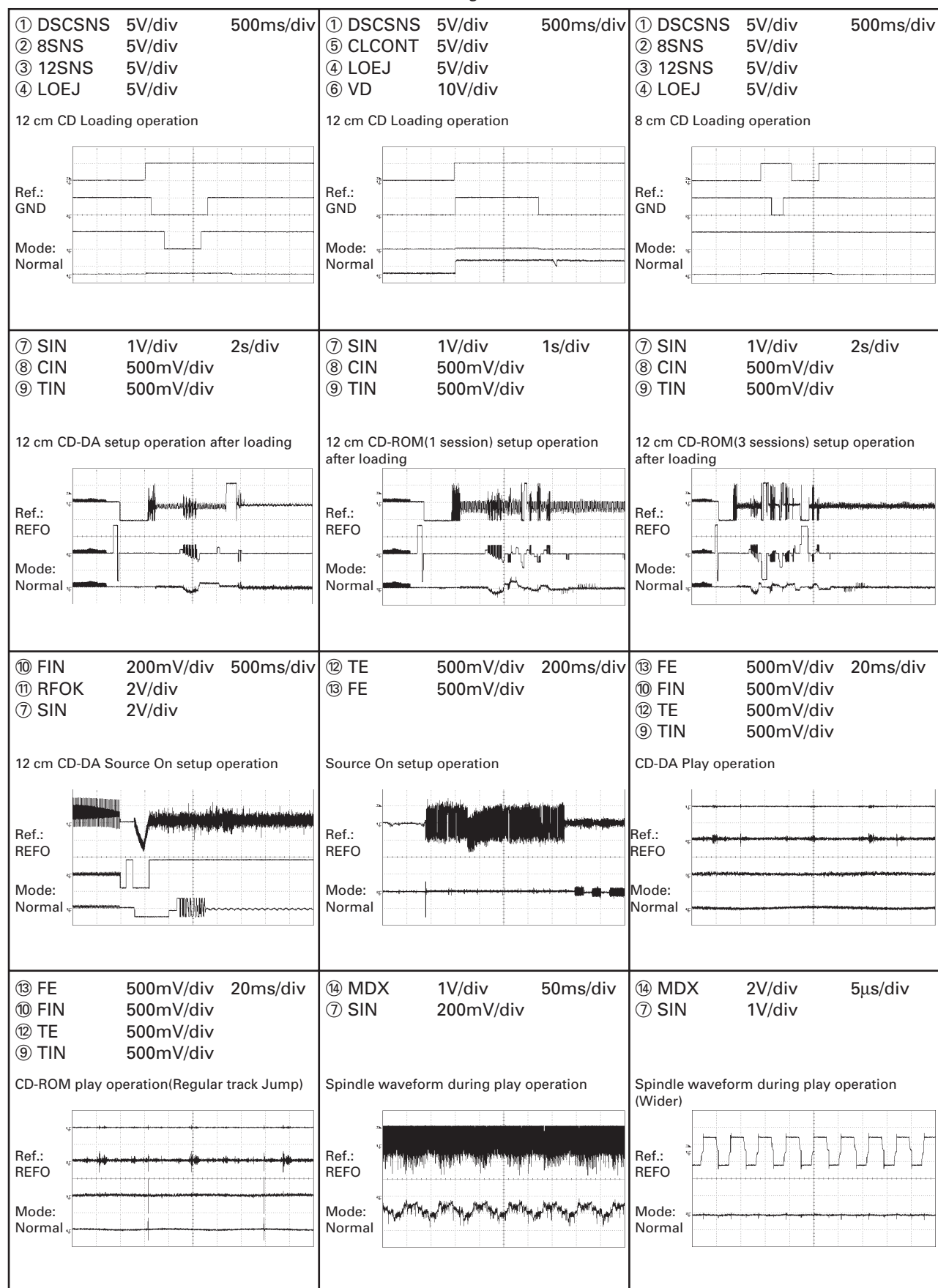


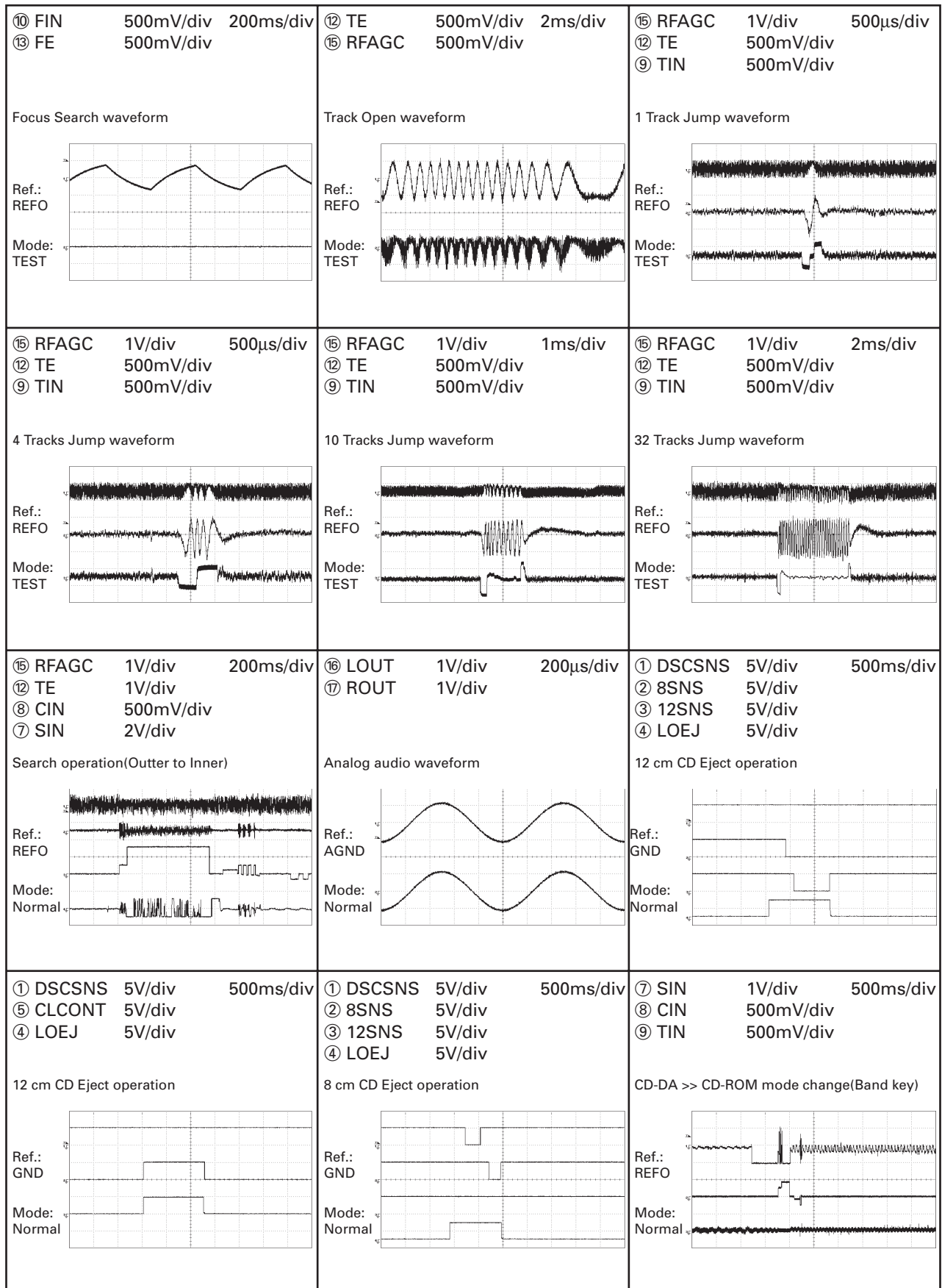


DEH-P460MP/XM/UC

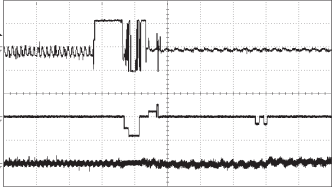
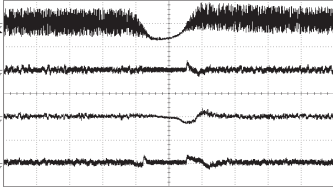
Waveforms

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





A

⑦ SIN 1V/div 500ms/div ⑧ CIN 500mV/div ⑨ TIN 500mV/div CD-ROM >> CD-DA mode change(Band key) Ref.: REFO Mode: Normal 	⑮ RFAGC 1V/div 500μs/div ⑨ TIN 1V/div ⑫ TE 1V/div ⑩ FIN 1V/div Black dot(800μm) during play Ref.: REFO Mode: Normal 	

B

C

D

E

F



5



6



7



8



A



B



C



D



E



F



5



6

DEH-P460MP/XM/UC



7



8



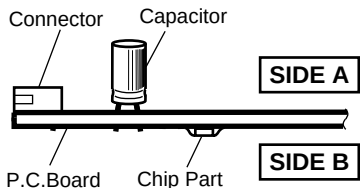
4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

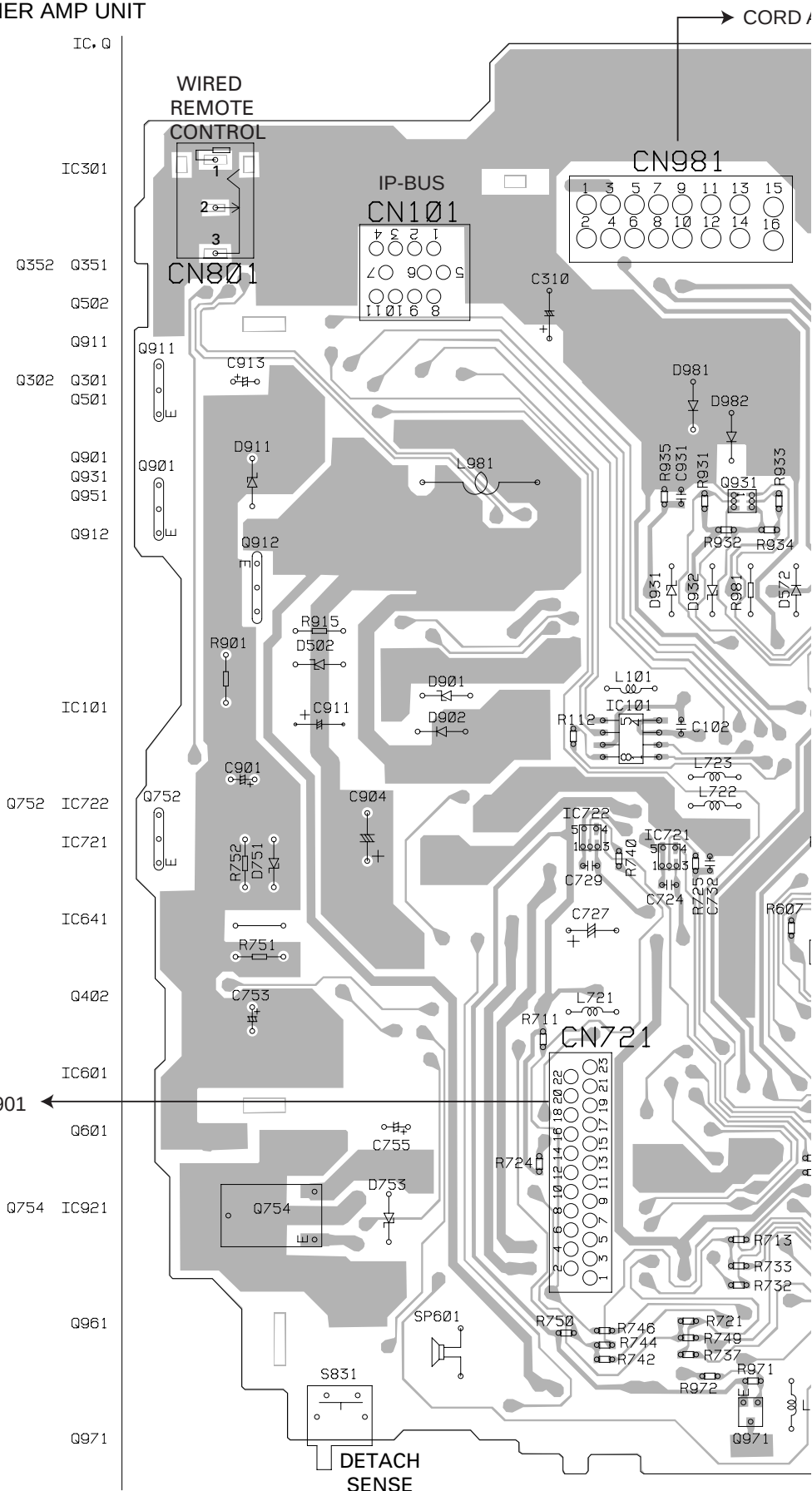
NOTE FOR PCB DIAGRAMS

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



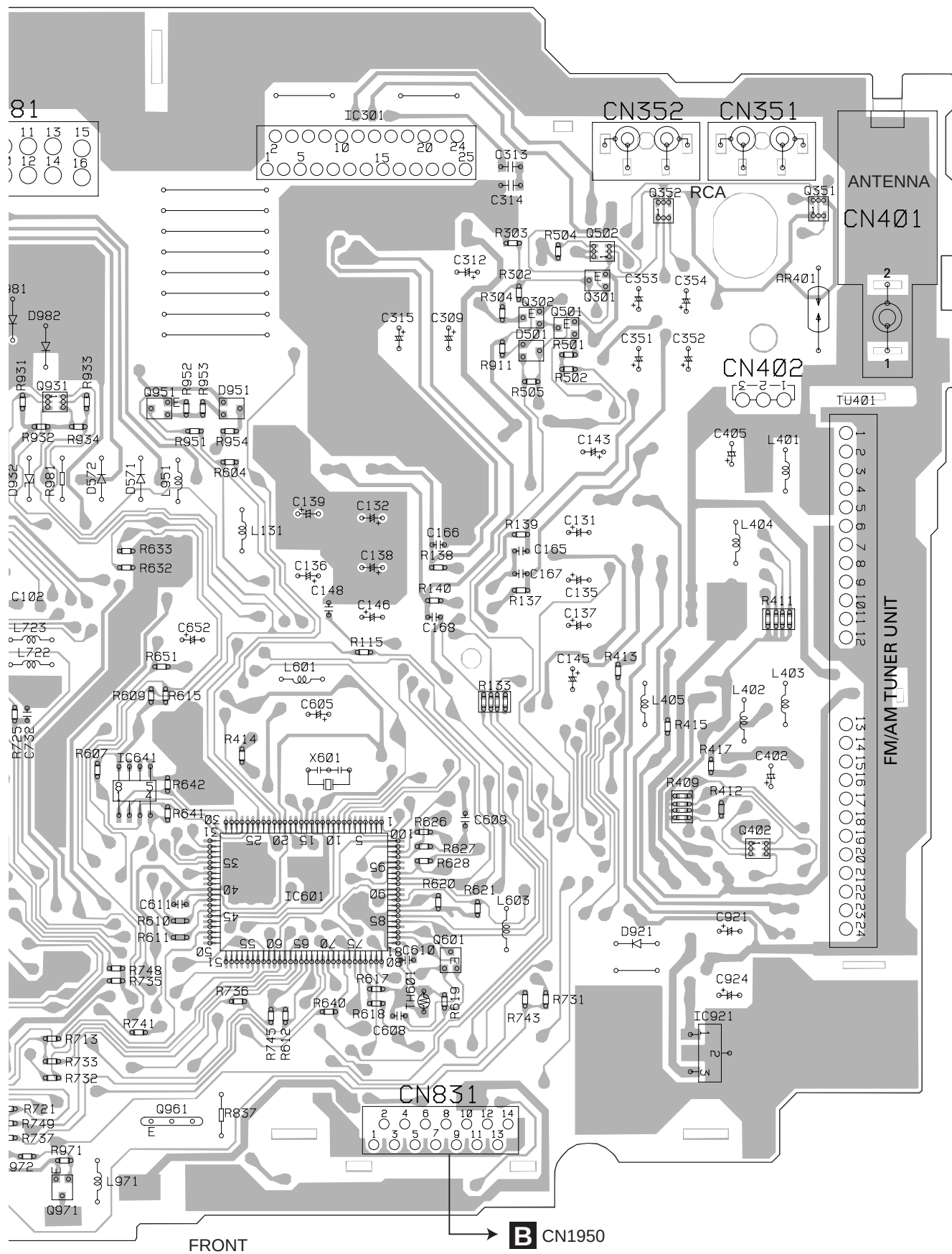
A TUNER AMP UNIT



A

SIDE A

→ CORD ASSY

**B** CN1950

DEH-P460MP/XM/UC

B

C

D

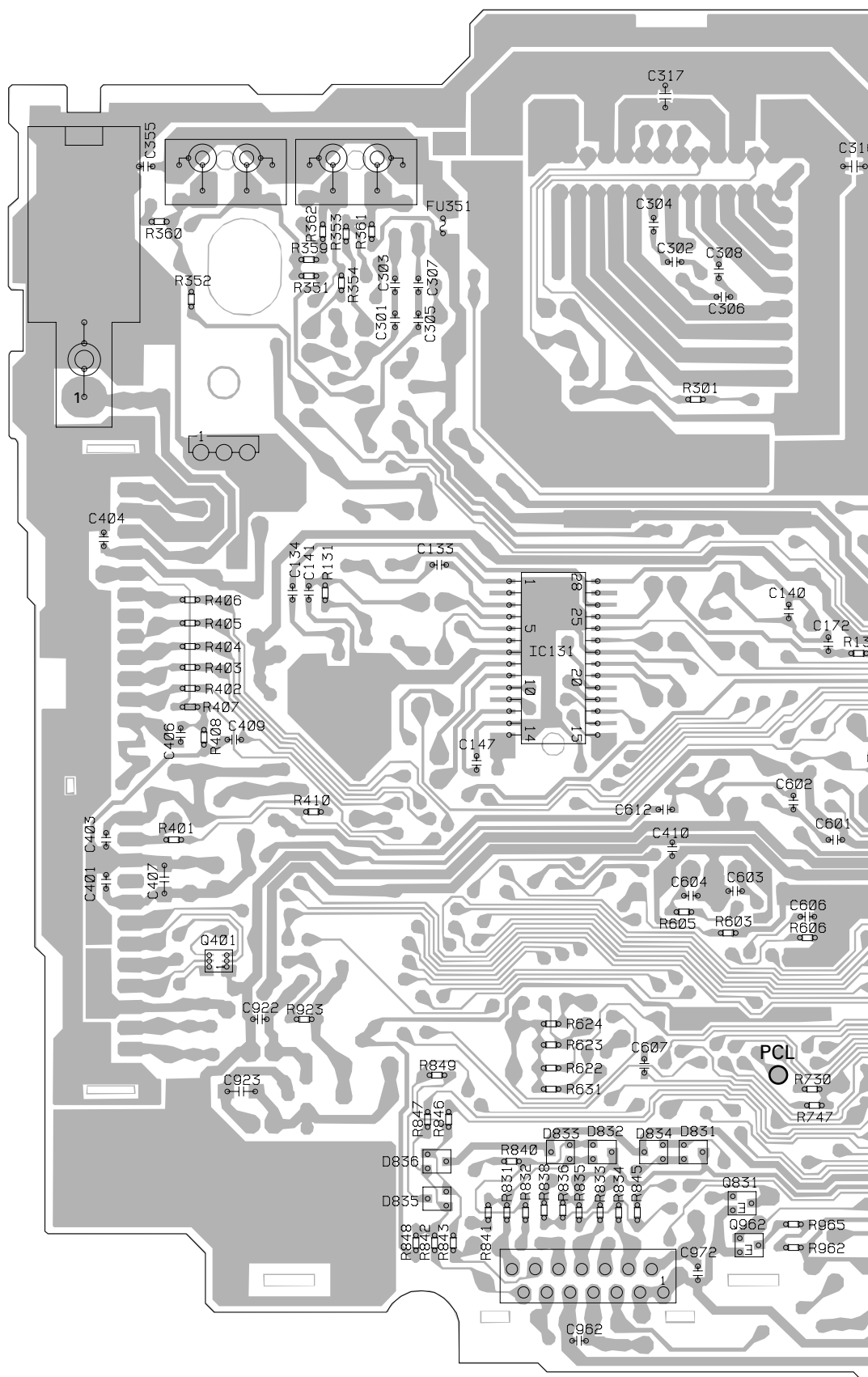
E

F

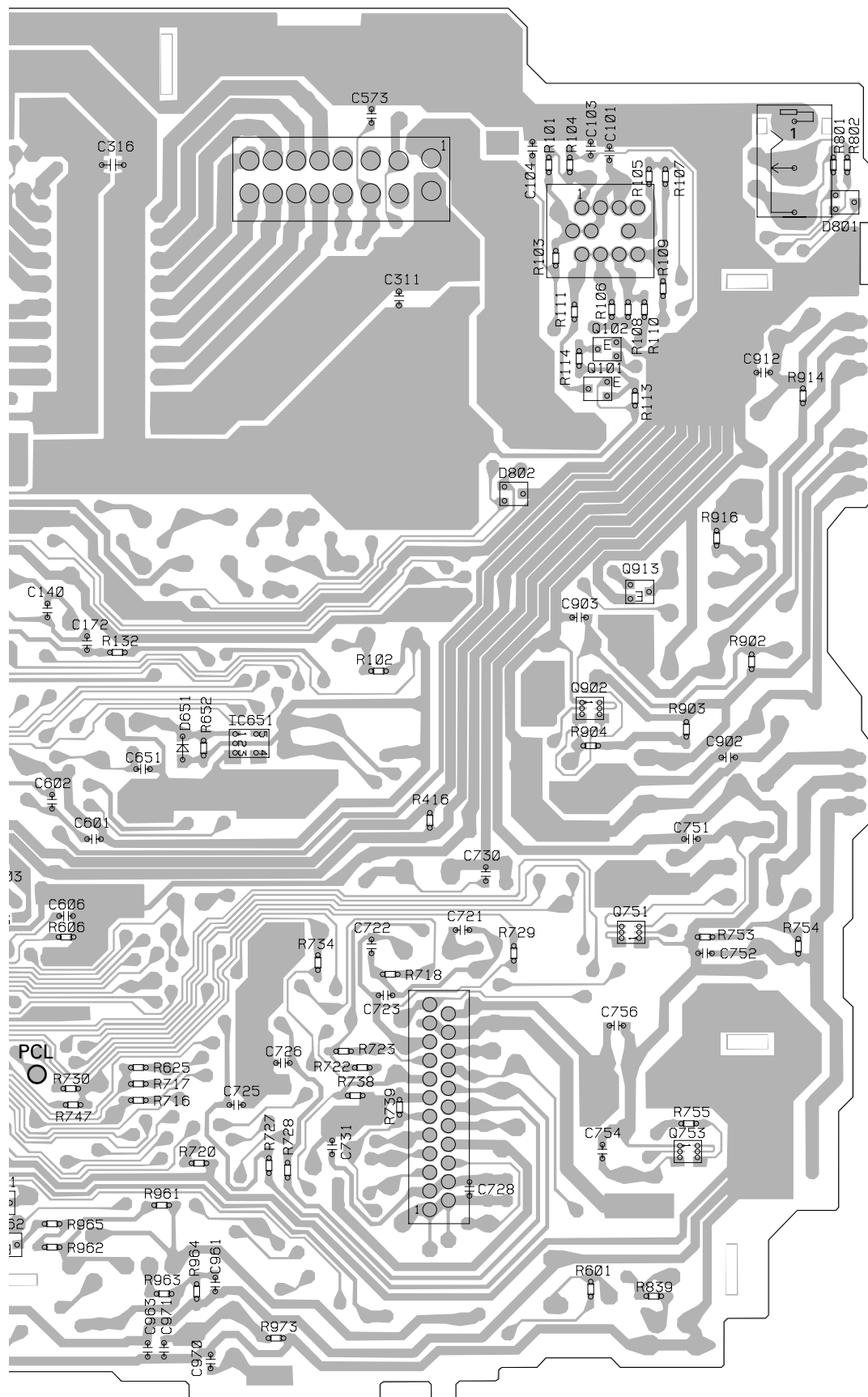
A



TUNER AMP UNIT



SIDE B



IC, Q

Q102

Q101

Q913

IC131

Q902

IC651

Q751

Q401

Q753

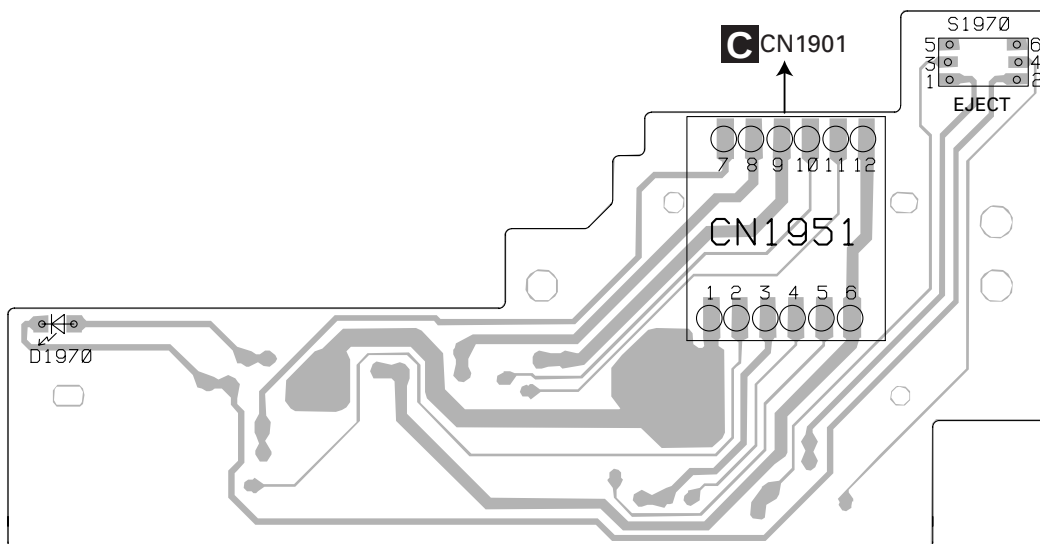
Q831

Q962

4.2 PANEL UNIT

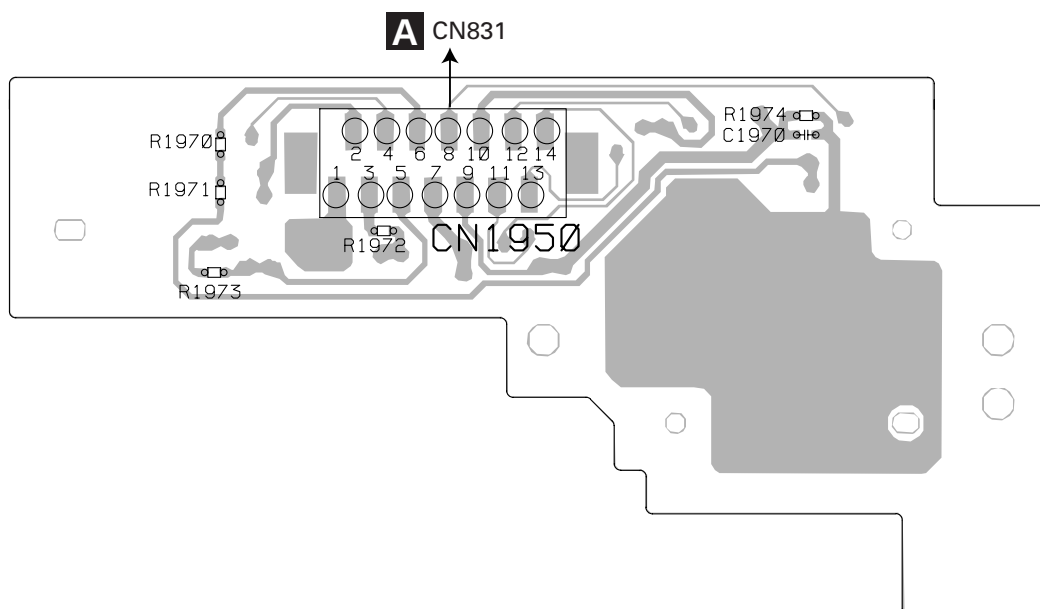
B PANEL UNIT

SIDE A



B PANEL UNIT

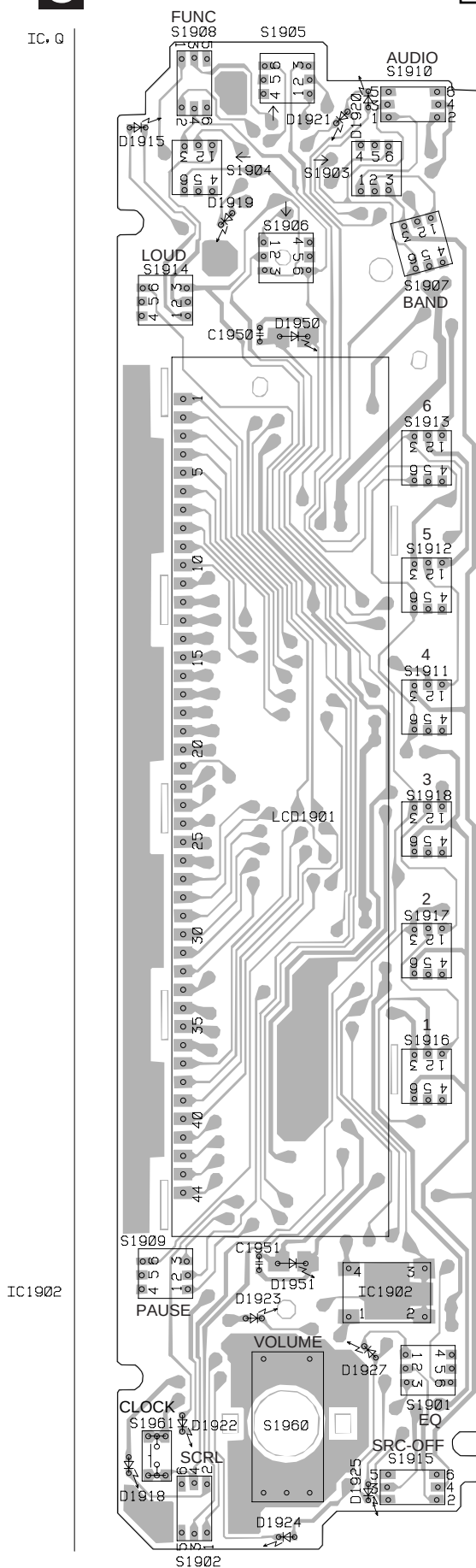
SIDE B



4.3 KEYBOARD UNIT

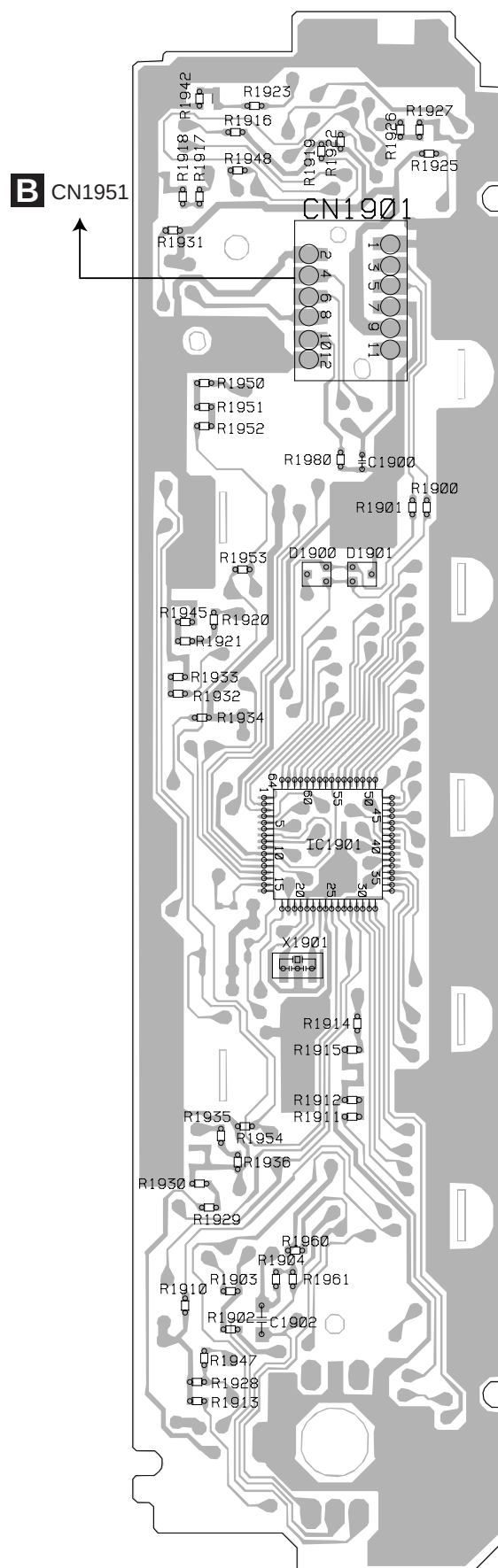
C KEYBOARD UNIT

SIDE A



C KEYBOARD UNIT

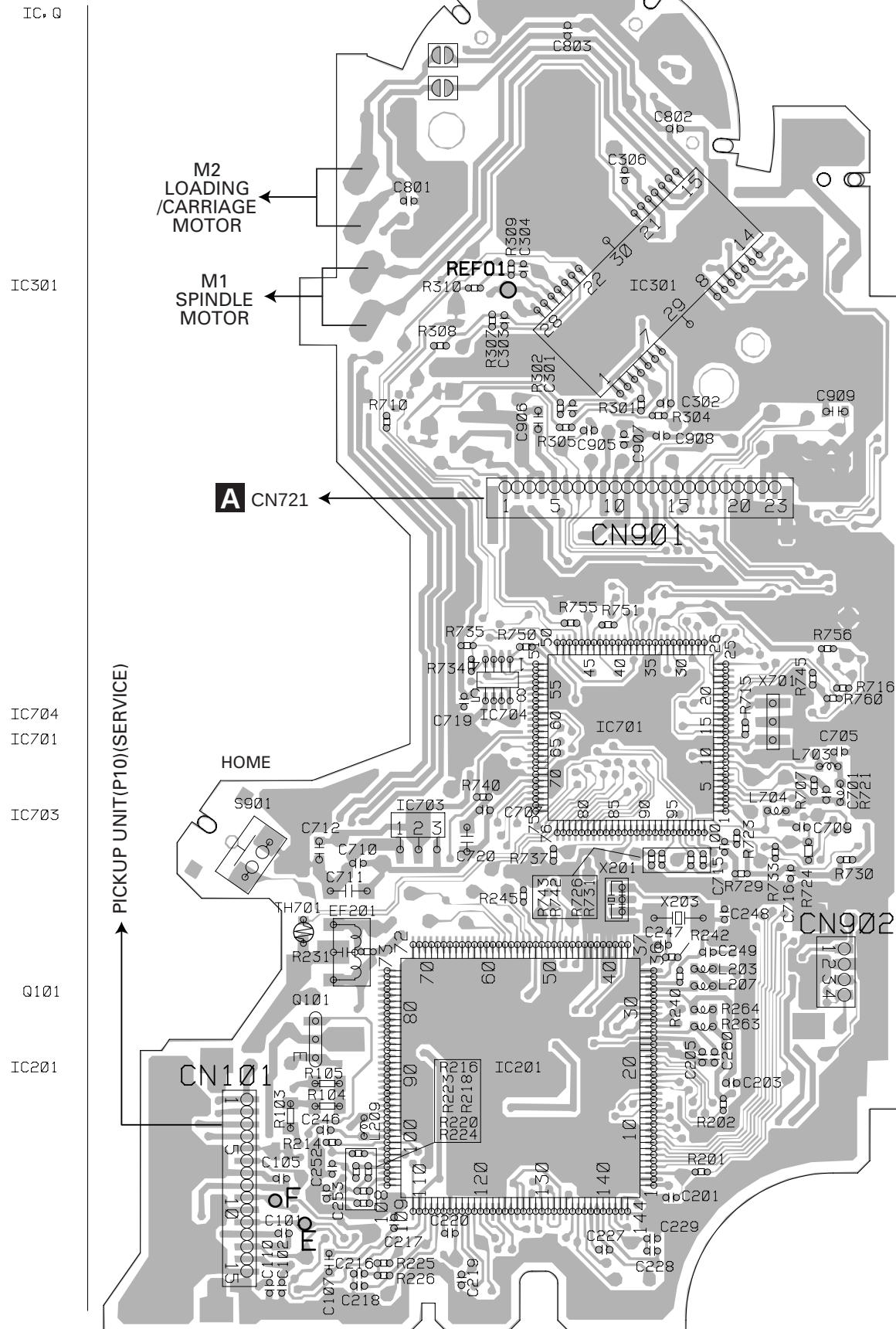
SIDE B



4.4 CD CORE UNIT(S10WMA)

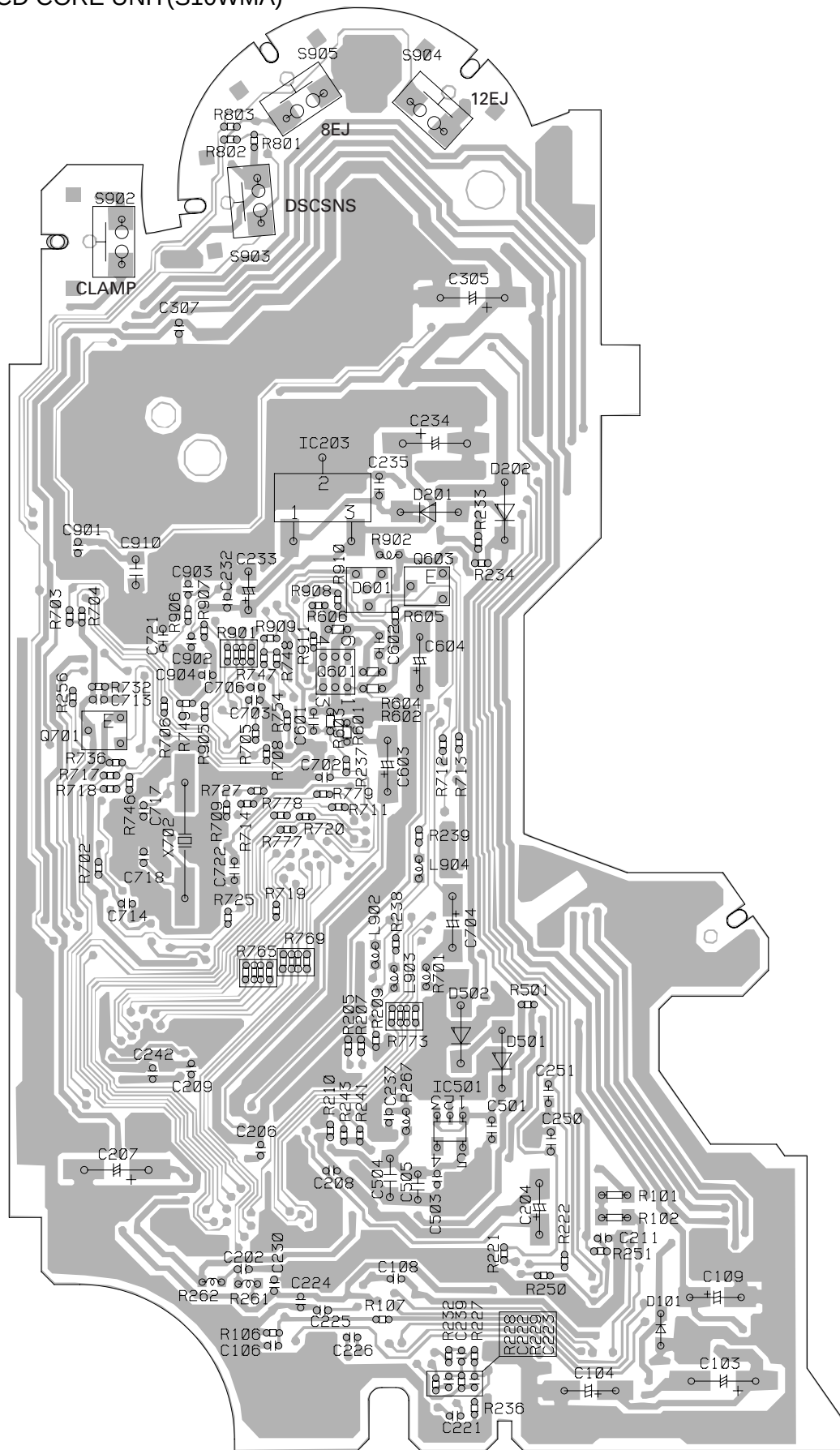
D CD CORE UNIT(S10WMA)

SIDE A



D CD CORE UNIT(S10WMA)

SIDE B



5. ELECTRICAL PARTS LIST

NOTE:

- 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 No.

Circuit Symbol and No.

Part No.

A

Unit Number: XWM7023(DEH-P460MP, P4600MP)
:XWM7024(DEH-P4650MP)

Unit Name: Tuner Amp Unit

MISCELLANEOUS

IC 101	IC	HA12240FP
IC 131	IC	PML003AM
IC 301	IC	PAL007A
IC 601	IC	PE5407A
IC 651	IC	BD4834G

IC 921	IC	NJM2391DL1-33
Q 101	Transistor	2SA1576
Q 102	Transistor	DTC124EU
Q 301	Transistor	DTC124EU
Q 351	Transistor	UMH3N

Q 352	Transistor (DEH-P460MP, P4600MP)	UMH3N
Q 502	Transistor	UMD2N
Q 601	Transistor	DTA114EU
Q 751	Transistor	UMD2N
Q 752	Transistor	2SD2375

Q 753	Transistor	UMD2N
Q 754	Transistor	2SD1760F5
Q 831	Transistor	DTC143EU
Q 901	Transistor	2SD2375
Q 902	Transistor	UMD2N

Q 911	Transistor	2SD2375
Q 912	Transistor	2SB1238
Q 913	Transistor	DTC114EU
Q 931	Transistor	UMX1N
Q 961	Transistor	2SB1238

Q 962	Transistor	DTC114EU
Q 971	Transistor	2SA1577
D 571	Diode	MPG06G-6415G50
D 572	Diode	MPG06G-6415G50
D 751	Diode	HZS9L(B1)

D 753	Diode	HZS6L(C1)
D 831	Diode	DAN202U
D 832	Diode	DAN202U
D 833	Diode	DAP202U
D 834	Diode	DAP202U

D 835	Diode	DAN202U
D 836	Diode	DAP202U
D 901	Diode	HZS6L(B1)
D 902	Diode	MPG06G-6415G50
D 911	Diode	HZS9L(B3)

D 931	Diode	HZS7L(C3)
D 932	Diode	HZS7L(A1)
D 981	Diode	MPG06G-6415G50
D 982	Diode	MPG06G-6415G50
L 131	Inductor	LACU2R2K

L 401	Inductor	LACU4R7K
L 404	Inductor	LACU1R0K
L 601	Inductor	LACU2R2K
L 721	Inductor	LACU2R2K
L 971	Inductor	LACU2R2K

L 981	Choke Coil 600μH	CTH1280
X 601	Radiator 12.58291MHz	CSS1402
S 831	Switch(DETACH SENSE)	CSN1039
FU351	Fuse 3A	CEK1286
	Fuse 10A	CEK1208

SP601	FM/AM Tuner Unit	CWE1646
AR401	Buzzer	CPV1062
	Surge Protector	DSP-201M-S00B

RESISTORS

R 101	RS1/16S620J
R 102	RS1/16S0R0J
R 103	RS1/16S101J
R 104	RS1/16S101J
R 105	RS1/16S181J

R 106	RS1/16S181J
R 107	RS1/16S223J
R 108	RS1/16S223J
R 109	RS1/16S102J
R 110	RS1/16S102J

R 111	RS1/16S222J
R 112	RS1/16S102J
R 113	RS1/16S332J
R 114	RS1/16S562J
R 115	RS1/16S473J

R 131	RS1/16S471J
R 132	RS1/16S471J
R 133	RAB4C102J
R 137	RS1/16S101J
R 138	RS1/16S101J

R 139	RS1/16S101J
R 140	RS1/16S101J
R 301	RS1/16S153J
R 302	RS1/16S103J
R 303	RS1/16S103J

R 304	RS1/16S331J
R 351	RS1/16S821J
R 352	RS1/16S821J

DEH-P460MP/XM/UC

<u>Circuit Symbol and No.</u>		<u>Part No.</u>
R 353	(DEH-P460MP, P4600MP)	RS1/16S821J
R 354	(DEH-P460MP, P4600MP)	RS1/16S821J
R 359		RS1/16S223J
R 360		RS1/16S223J
R 361	(DEH-P460MP, P4600MP)	RS1/16S223J
R 362	(DEH-P460MP, P4600MP)	RS1/16S223J
R 401		RS1/16S681J
R 403		RS1/16S122J
R 404		RS1/16S681J
R 405		RS1/16S681J
R 406		RS1/16S681J
R 413		RS1/16S0R0J
R 414		RS1/16S0R0J
R 415		RS1/16S0R0J
R 416		RS1/16S0R0J
R 417		RS1/16S0R0J
R 504		RS1/16S102J
R 505		RS1/16S0R0J
R 601		RS1/16S102J
R 603		RS1/16S473J
R 605		RS1/16S102J
R 606		RS1/16S473J
R 607		RS1/16S104J
R 609	(DEH-P460MP, P4600MP)	RS1/16S103J
R 612		RS1/16S0R0J
R 615	(DEH-P460MP, P4600MP)	RS1/16S103J
R 617	(DEH-P4650MP)	RS1/16S104J
R 618	(DEH-P460MP, P4600MP)	RS1/16S104J
R 620		RS1/16S473J
R 621		RS1/16S473J
R 622		RS1/16S473J
R 623		RS1/16S473J
R 624		RS1/16S473J
R 625		RS1/16S473J
R 626		RS1/16S681J
R 627		RS1/16S681J
R 628		RS1/16S681J
R 632	(DEH-P4650MP)	RS1/16S104J
R 633	(DEH-P4650MP)	RS1/16S104J
R 640		RS1/16S0R0J
R 651		RS1/16S102J
R 652		RS1/16S183J
R 711		RS1/16S682J
R 718		RS1/16S473J
R 721		RS1/16S0R0J
R 722		RS1/16S682J
R 723		RS1/16S682J
R 724		RS1/16S682J
R 727		RS1/16S821J
R 728		RS1/16S821J
R 734		RS1/16S102J
R 738		RS1/16S0R0J
R 739		RS1/16S0R0J
R 743		RS1/16S221J
R 744		RS1/16S221J
R 745		RS1/16S221J
R 746		RS1/16S221J
R 747		RS1/16S221J
R 748		RS1/16S221J
R 751		RD1/4PU221J

<u>Circuit Symbol and No.</u>		<u>Part No.</u>
R 752		RD1/4PU221J
R 755		RS1/16S331J
R 801	(DEH-P460MP, P4600MP)	RS1/16S102J
R 802	(DEH-P460MP, P4600MP)	RS1/16S102J
R 831		RS1/16S222J
R 832		RS1/16S222J
R 833		RS1/16S222J
R 834		RS1/16S222J
R 835		RS1/16S473J
R 836		RS1/16S473J
R 837		RD1/4PU391J
R 838		RS1/16S102J
R 839		RS1/16S102J
R 840		RS1/16S102J
R 841		RS1/16S102J
R 842		RS1/16S222J
R 843		RS1/16S222J
R 845		RS1/16S102J
R 846		RS1/16S102J
R 847		RS1/16S102J
R 848		RS1/16S104J
R 849		RS1/16S473J
R 901		RD1/4PU221J
R 902		RS1/16S223J
R 903		RS1/16S821J
R 904		RS1/16S821J
R 914		RS1/16S152J
R 915		RD1/4PU152J
R 916		RS1/16S223J
R 931		RS1/16S104J
R 932		RS1/16S473J
R 933		RS1/16S103J
R 934		RS1/16S473J
R 935		RS1/16S472J
R 961		RS1/16S223J
R 962		RS1/16S182J
R 963		RS1/16S1R0J
R 965		RS1/16S182J
R 971		RS1/16S153J
R 972		RS1/16S153J
R 973		RS1/16S222J
R 981		RD1/4PU102J

CAPACITORS

C 101	CKSRYB104K16
C 102	CKSRYB473K25
C 103	CKSRYB102K50
C 104	CKSRYB102K50
C 131	CEJQ1R0M50
C 132	CEJQ1R0M50
C 133	CKSRYB104K16
C 134	CKSRYB104K16
C 135	CEJQ1R0M50
C 136	CEJQ1R0M50
C 137	CEJQ1R0M50
C 138	CEJQ1R0M50
C 139	CEJQ470M16
C 140	CKSRYB104K16
C 141	CKSRYB102K50

Circuit Symbol and No.**Part No.**

C 143	CEJQ100M16
C 145	CEJQ4R7M35
C 146	CEJQ4R7M35
C 147	CKSRYB153K50
C 148	CKSRYB153K50

C 172	CKSRYB102K50
C 301	CKSRYB474K10
C 302	CKSRYB474K10
C 303	CKSRYB474K10
C 304	CKSRYB474K10

C 305	CKSRYB474K10
C 306	CKSRYB474K10
C 307	CKSRYB474K10
C 308	CKSRYB474K10
C 309	CEJQ330M10

C 310	3300μF/16V	CCH1486
C 311		CKSRYB104K25
C 312		CEHAR100M16
C 313		CKSQYB225K10
C 314		CKSQYB225K10

C 317		CKSQYB105K16
C 351		CEJQ2R2M50
C 352		CEJQ2R2M50
C 353	(DEH-P460MP, P4600MP)	CEJQ2R2M50
C 354	(DEH-P460MP, P4600MP)	CEJQ2R2M50

C 401	CKSRYB103K50
C 402	CEJQ470M6R3
C 403	CKSRYB103K50
C 404	CKSRYB103K50
C 405	CEJQ101M16

C 407	CKSYB475K10
C 410	CKSRYB102K50
C 601	CKSRYB473K25
C 602	CKSRYB105K10
C 603	CCSRCH200J50

C 604	CCSRCH200J50
C 605	CEJQ4R7M35
C 606	CKSRYB104K16
C 608	CCSRCH101J50
C 609	CCSRCH470J50

C 611		CKSRYB104K16
C 652		CEJQ1R0M50
C 725		CKSRYB102K50
C 726		CKSRYB102K50
C 727	470μF/16V	CCH1331

C 751	CKSRYB224K10
C 752	CKSRYB102K50
C 753	CEJQ101M16
C 754	CKSRYB473K25
C 755	CEJQ101M16

C 901		CEJQ470M10
C 902		CKSRYB103K50
C 903		CKSRYB472K50
C 904	470μF/16V	CCH1331
C 911		CEJQ221M10

C 912	CKSRYB103K50
C 913	CEJQ101M16
C 921	CEJQ220M10
C 922	CKSRYB103K50
C 924	CEJQ4R7M35

Circuit Symbol and No.**Part No.**

C 931	CKSRYB104K25
C 962	CKSRYB103K50
C 971	CKSRYB104K25



Unit Number: XWM7031(DEH-P460MP, P4600MP)
:XWM7032(DEH-P4650MP)

Unit Name: Keyboard Unit

MISCELLANEOUS

IC 1901	IC	PD6340A
IC 1902	IC	RS-140
D 1900	Diode	DAN202U
D 1901	Diode	DAP202U
D 1915	LED	CL-195PG-CD
D 1918	LED	CL-195PG-CD
D 1919	LED	CL-195PG-CD
D 1921	LED	CL-195PG-CD
D 1922	LED	CL-195PG-CD
D 1923	LED	CL-195PG-CD
D 1924	LED	CL-195PG-CD
D 1927	LED	CL-195PG-CD
D 1950	LED	NSCW505C-3388
D 1951	LED	NSCW505C-3388
X 1901	Ceramic Resonator 4.97MHz	CSS1573

S 1901	Switch	CSG1107
S 1902	Push Switch	CSG1112
S 1903	Switch	CSG1107
S 1904	Switch	CSG1107
S 1905	Switch	CSG1107

S 1906	Switch	CSG1107
S 1907	Switch	CSG1107
S 1908	Push Switch	CSG1112
S 1909	Switch	CSG1107
S 1910	Push Switch	CSG1112

S 1911	Switch	CSG1107
S 1912	Switch	CSG1107
S 1913	Switch	CSG1107
S 1914	Switch	CSG1107
S 1915	Push Switch	CSG1112

S 1916	Switch	CSG1107
S 1917	Switch	CSG1107
S 1918	Switch	CSG1107
S 1960	Encoder(VOLUME)	XSD7001
S 1961	Push Switch	CSG1111

LCD1901	LCD (DEH-P460MP, P4600MP)	XAW7004
LCD1901	LCD (DEH-P4650MP)	XAW7002

RESISTORS

R 1900	RS1/16S222J
R 1901	RS1/16S222J
R 1902	RS1/16S2R2J
R 1904	RS1/16S121J
R 1910	RS1/16S181J

R 1911	RS1/16S181J
R 1912	RS1/16S181J
R 1913	RS1/16S181J
R 1914	RS1/16S181J
R 1915	RS1/16S181J

Circuit Symbol and No.		Part No.	Circuit Symbol and No.		Part No.	
R 1916		RS1/16S181J	IC 203	IC	NJM2391DL1-33	
R 1917		RS1/16S181J	IC 301	IC	BA5835FM	A
R 1918		RS1/16S181J	IC 501	IC	S-L2980A15MC-C6A	
R 1919		RS1/16S181J	IC 701	IC	PE5402A	
R 1920		RS1/16S181J	IC 703	IC	S-812C33AUA-C2N	
R 1921		RS1/16S181J	Q 101	Transistor	2SB1132	
R 1922		RS1/16S181J	Q 601	Transistor	IMH20	
R 1923		RS1/16S181J	Q 603	Transistor	2SB709A	
R 1925		RS1/16S181J	Q 701	Transistor	UN2111	
R 1926		RS1/16S181J	D 101	Diode	1SS355	
R 1927		RS1/16S181J	D 601	Diode	MA152WA	
R 1928		RS1/16S181J	L 203	Inductor	CTF1389	
R 1929		RS1/16S181J	L 207	Inductor	CTF1389	B
R 1930		RS1/16S181J	L 209	Inductor	CTF1389	
R 1931		RS1/16S181J	L 703	Inductor	CTF1389	
R 1932		RS1/16S181J	X 201	Ceramic Resonator 16.934MHz	CSS1603	
R 1933		RS1/16S181J	X 701	Ceramic Resonator 4.00MHz	CSS1652	
R 1934		RS1/16S181J	S 901	Switch(HOME)	CSN1051	
R 1935		RS1/16S181J	S 902	Switch(CLAMP)	CSN1051	
R 1936		RS1/16S181J	S 903	Spring Switch(DSCSNS)	CSN1052	
R 1942		RS1/16S181J	S 904	Switch(12EJ)	CSN1051	
R 1945		RS1/16S181J	S 905	Switch(8EJ)	CSN1051	
R 1947		RS1/16S0R0J	RESISTORS			
R 1948		RS1/16S0R0J	R 101		RS1/10S1R5J	C
R 1950		RS1/16S181J	R 102		RS1/10S1R5J	
R 1951		RS1/16S181J	R 103		RS1/10S1R5J	
R 1952		RS1/16S151J	R 104		RS1/10S1R5J	
R 1960		RS1/16S472J	R 105		RS1/10S1R5J	
R 1980		RS1/16S473J	R 107		RS1/16SS0R0J	
CAPACITORS			R 201		RS1/16SS102J	
C 1900		CKSRYB224K10	R 202		RS1/16SS333J	
C 1902		CKSYF106Z10	R 205		RS1/16SS473J	
B			R 207		RS1/16SS473J	
Unit Number:CWM8758			R 209		RS1/16SS473J	D
Unit Name:Panel Unit			R 214		RS1/16SS472J	
MISCELLANEOUS			R 216		RS1/16SS472J	
D 1970	LED	CL220PGC	R 218		RS1/16SS472J	
S 1970	Push Switch(EJECT)	CSG1112	R 220		RS1/16SS472J	
RESISTORS			R 221		RS1/16SS103J	
R 1970		RS1/16S101J	R 222		RS1/16SS103J	
R 1971		RS1/16S101J	R 223		RS1/16SS0R0J	
R 1972		RS1/16S0R0J	R 224		RS1/16SS0R0J	
CAPACITORS			R 225		RS1/16SS103J	
C 1970		CKSRYB104K16	R 226		RS1/16SS393J	
D			R 227		RS1/16SS562J	E
Unit Number:CWX2851			R 228		RS1/16SS122J	
Unit Name:CD CORE UNIT(S10WMA)			R 229		RS1/16SS472J	
MISCELLANEOUS			R 231		RS1/16SS0R0J	
IC 201	IC	UPD63761GJ	R 232		RS1/16SS122J	
			R 233		RS1/16SS0R0J	
			R 240		RS1/16SS0R0J	
			R 241		RS1/16SS333J	
			R 242		RS1/16SS0R0J	
			R 243		RS1/16SS333J	
			R 245		RS1/16SS333J	
			R 250		RS1/16SS0R0J	F
			R 256		RS1/16SS0R0J	
			R 261		RS1/16S0R0J	

Circuit Symbol and No.**Part No.****Circuit Symbol and No.****Part No.**

R 262 RS1/16S0R0J
 R 263 RS1/16S0R0J
 R 264 RS1/16S0R0J
 R 267 RS1/16S0R0J
 R 301 RS1/16SS183J

R 777 RS1/16SS221J
 R 778 RS1/16SS221J
 R 779 RS1/16SS221J
 R 901 RAB4CQ221J
 R 902 RS1/16S0R0J

R 302 RS1/16SS822J
 R 304 RS1/16SS183J
 R 305 RS1/16SS822J
 R 307 RS1/16SS183J
 R 308 RS1/16SS183J

R 905 RS1/16SS221J
 R 906 RS1/16SS221J
 R 908 RS1/16SS0R0J
 R 910 RS1/16SS0R0J

CAPACITORS

R 309 RS1/16SS183J
 R 310 RS1/16SS183J
 R 501 RS1/16SS0R0J
 R 601 RS1/16S101J
 R 602 RS1/16S101J

C 101 CKSSYB104K10
 C 102 CKSSYB104K10
 C 103 100μF/16V CCH1504
 C 104 47μF/6.3V CCH1506
 C 105 CKSSYB104K10

R 603 RS1/16S223J
 R 604 RS1/16S223J
 R 605 RS1/16SS103J
 R 606 RS1/16S0R0J
 R 701 RS1/16S0R0J

C 106 CCSSCH101J50
 C 107 CKSRYB224K16
 C 108 CKSSYB104K10
 C 110 CKSSYB104K10
 C 201 CKSSYB471K50

R 702 RS1/16SS0R0J
 R 703 RS1/16SS104J
 R 704 RS1/16SS104J
 R 705 RS1/16SS221J
 R 706 RS1/16SS221J

C 202 CKSSYB104K10
 C 203 CKSSYB104K10
 C 204 22μF/6.3V CCH1507
 C 205 CKSSYB104K10
 C 207 220μF/4V CCH1590

R 707 RS1/16SS0R0J
 R 708 RS1/16SS221J
 R 709 RS1/16SS473J
 R 710 RS1/16SS102J
 R 711 RS1/16SS102J

C 208 CKSSYB104K10
 C 209 CKSSYB104K10
 C 216 CKSSYB332K50
 C 217 CKSSYB104K10
 C 218 CKSSYB223K16

R 712 RS1/16SS102J
 R 713 RS1/16SS102J
 R 714 RS1/16SS473J
 R 715 RS1/16SS0R0J
 R 716 RS1/16SS472J

C 219 CKSSYB104K10
 C 220 CKSSYB103K16
 C 221 CKSSYB104K10
 C 222 CCSSCH560J50
 C 223 CCSSCH5R0C50

R 719 RS1/16SS221J
 R 720 RS1/16SS471J
 R 721 RS1/16S0R0J
 R 724 RS1/16S473J
 R 725 RS1/16SS222J

C 224 CKSSYB104K10
 C 225 CKSSYB103K16
 C 226 CCSSCH680J50
 C 227 CCSSCH470J50
 C 228 CKSSYB682K25

R 726 RS1/16SS103J
 R 727 RS1/16SS473J
 R 729 RS1/16SS223J
 R 730 RS1/16SS473J
 R 731 RS1/16SS104J

C 230 CKSSYB104K10
 C 232 CKSSYB104K10
 C 233 10μF/6.3V CCH1470
 C 234 220μF/4V CCH1590
 C 235 CKSRYB224K16

R 732 RS1/16SS104J
 R 733 RS1/16SS104J
 R 735 RS1/16SS473J
 R 737 RS1/16SS104J
 R 740 RS1/16SS473J

C 237 CKSSYB104K10
 C 239 CCSSCH330J50
 C 242 CKSSYB104K10
 C 246 CKSSYB104K10
 C 250 CKSRYB102K50

R 742 RS1/16SS104J
 R 745 RS1/16SS473J
 R 746 RS1/16SS104J
 R 750 RS1/16SS473J
 R 754 RS1/16SS102J

C 251 CKSRYB102K50
 C 260 CKSSYB104K10
 C 301 CKSSYB221K50
 C 302 CKSSYB221K50
 C 303 CKSSYB472K25

R 755 RS1/16SS102J
 R 756 RS1/16SS104J
 R 765 RAB4CQ221J
 R 769 RAB4CQ221J
 R 773 RAB4CQ221J

C 304 CKSSYB103K16
 C 305 100μF/16V CCH1504
 C 306 CKSSYB104K10
 C 307 CKSSYB104K10

	5		6		7		8	
<u>Circuit Symbol and No.</u>			<u>Part No.</u>					
C	501		CKSRYB224K16					
C	505		CKSQYB475K6R3					
C	601		CCSRCH102J50					
C	602		CCSRCH102J50					
C	603	4.7μF/25V	CCH1568					
C	604	4.7μF/25V	CCH1568					
C	701		CKSSYB104K10					
C	702		CKSSYB471K50					
C	703		CKSSYB103K16					
C	704	4.7μF/25V	CCH1592					
C	706		CKSSYB104K10					
C	707		CKSSYB104K10					
C	712		CKSRYB224K16					
C	713		CKSSYB104K10					
C	714		CKSSYB104K10					
C	716		CKSSYB103K16					
C	720		CKSQYB225K10					
C	722		CKSRYB105K10					
C	903		CKSSYB471K50					
C	906		CKSRYB224K16					
C	907		CKSSYB103K16					
C	910		CKSQYB225K10					

Miscellaneous Parts List

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

6. ADJUSTMENT

6.1 CD ADJUSTMENT

A

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:

- 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.
- 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.
- 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:

- During ejection, do not press any other keys than the EJECT key until the loaded disc is ejected.
- 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.
- For the TR jump modes except 100TR, the track jump operation will continue even if the key is released.
- For the CRG move and 100TR jump modes, the tracking loop will be closed at the same time when the key is released.
- 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.

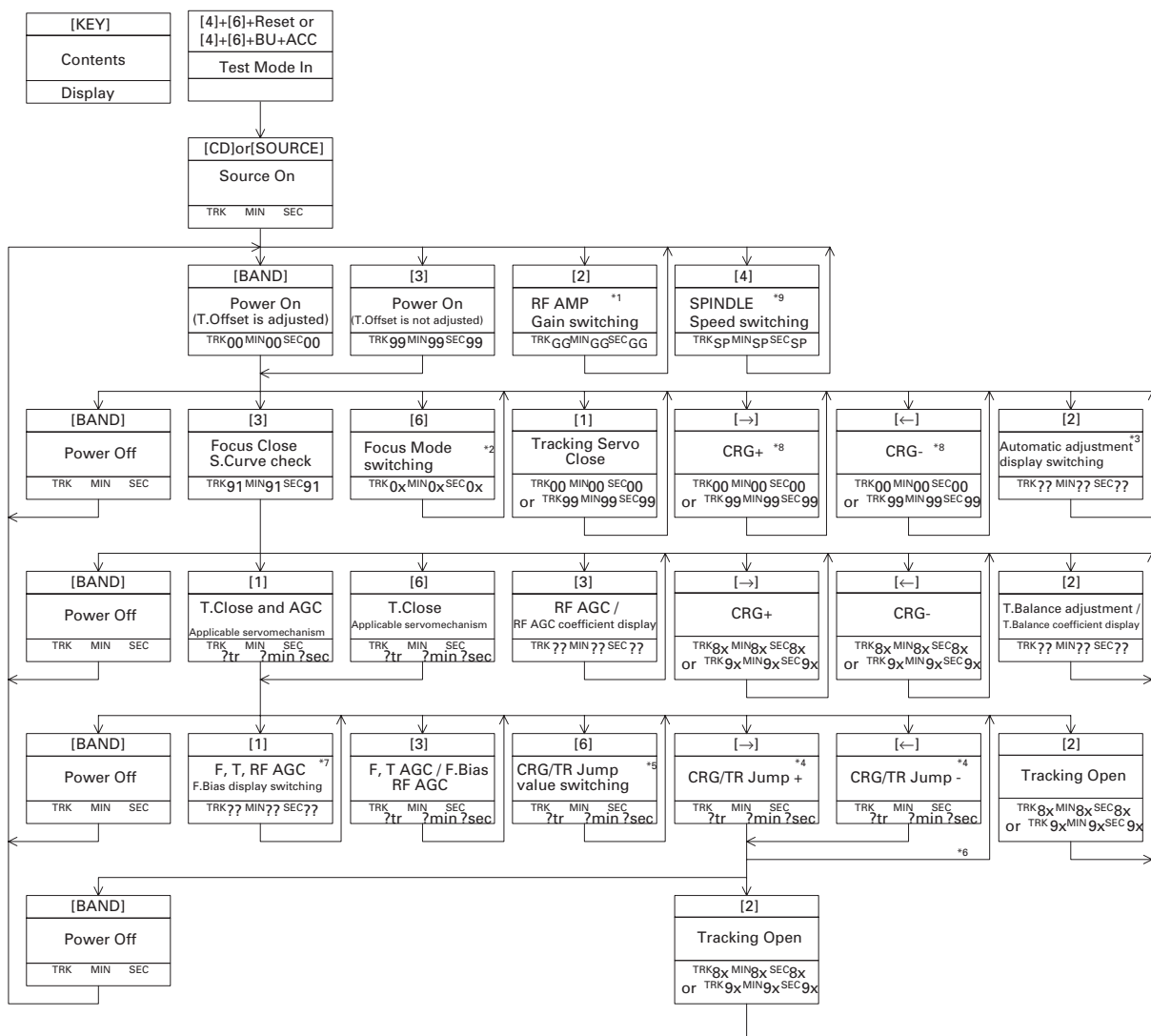
C

D

E

F

Flow Chart



- *1) TYP → -6dB → -12dB
 TRK MIN SEC → TRK 06 MIN 06 SEC 06 → TRK 12 MIN 12 SEC 12
- *2) Focus Close → S.Curve ckeck setting → 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 → T.Offset Display → Switch to the order of the original display
- *4) 1TR / 32TR / 100TR
- *5) Single TR → 32TR → 100TR → CRG Move
 9x(8x) : 91(81) 92(82) 93(83) 94(84)
- *6) Only at the time of CRG Move, 100TR Jump
- *7) TRK/MIN/SEC → F.AGC → T.AGC → F.Bias → RF AGC
- *8) CRG motor voltage = 2[V]
- *9) TYP(1X) → 2X → 1X
 TRK MIN SEC → TRK 22 MIN 22 SEC 22 → TRK 11 MIN 11 SEC 11
- As for the double speed (2x), audio output cannot be supported.
- TYP(2X) → 1X → 2X
 TRK MIN SEC → TRK 11 MIN 11 SEC 11 → TRK 22 MIN 22 SEC 22

[Key]	Operation
[BAND]	Power On/Off
[→]	CRG + / TR Jump + (Direction of the external surface)
[←]	CRG - / TR Jump - (Direction of the internal surface)
[1]	T.CLS and AGC and Applicable servomechanism / AGC, AGC display switching
[2]	RF Gain switching / Offset adjustment display / T.Balance adjustment / T.Open
[3]	F.Close, S.Curve / Rough Servo and RF AGC / F, T, RF AGC
[4]	SPDL 1X/2X switching As for the double speed (2x), audio output cannot be supported.
[5]	Error Rate measurement 1st-ON : ERR count beginning(30Sec) 2nd-ON : BER display data[%]
[6]	F. 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 :

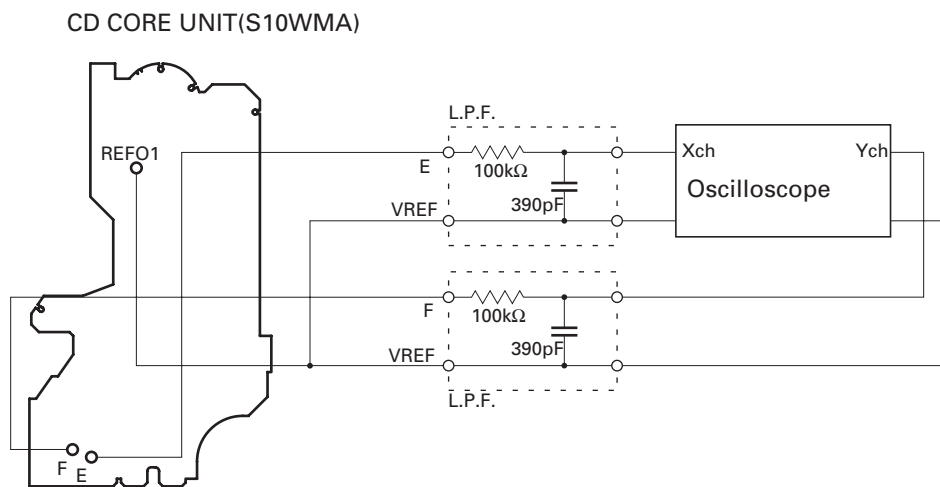
To check that the grating is within an acceptable range when the PU unit is changed.

• 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

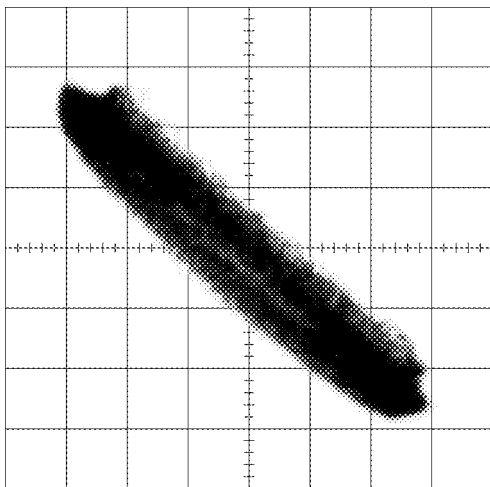
Reloading the disc changes the clamp position and may decrease the "wobble".

Grating waveform

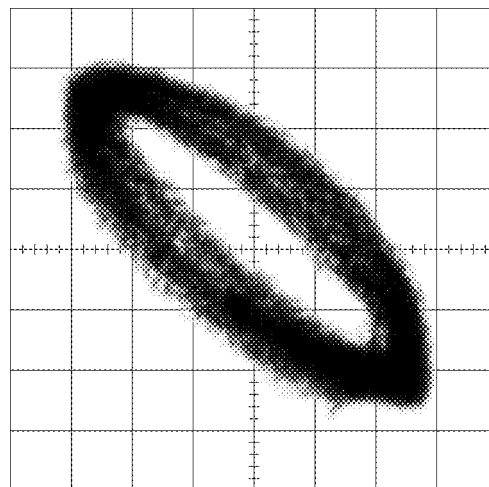
Ech → Xch 20mV/div, AC

Fch → Ych 20mV/div, AC

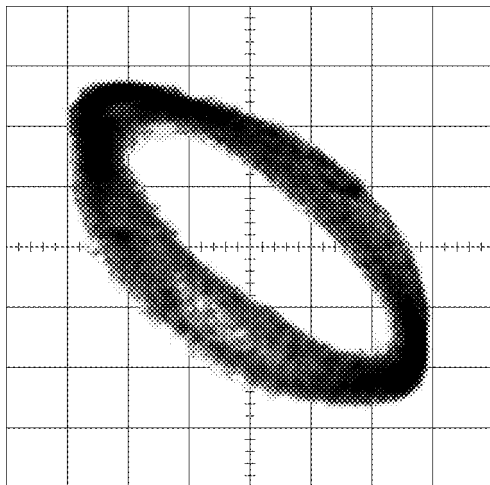
0°



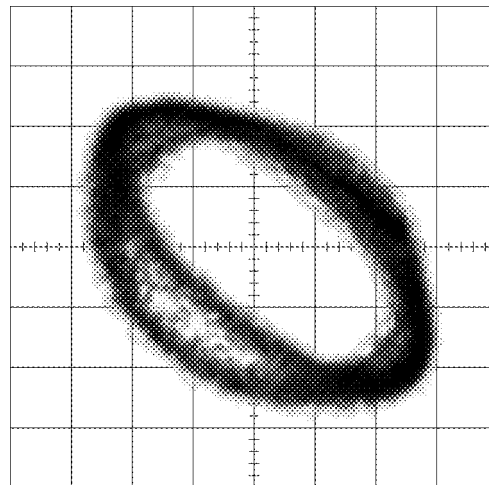
30°



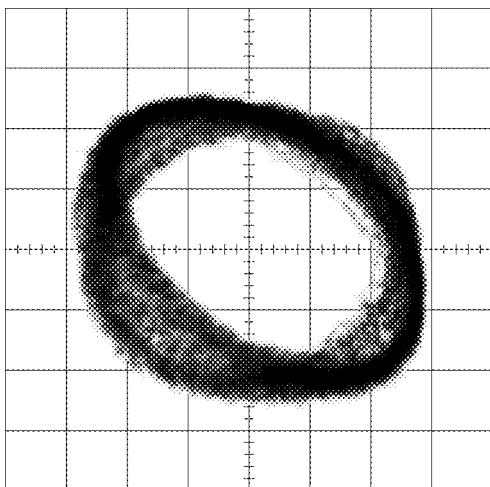
45°



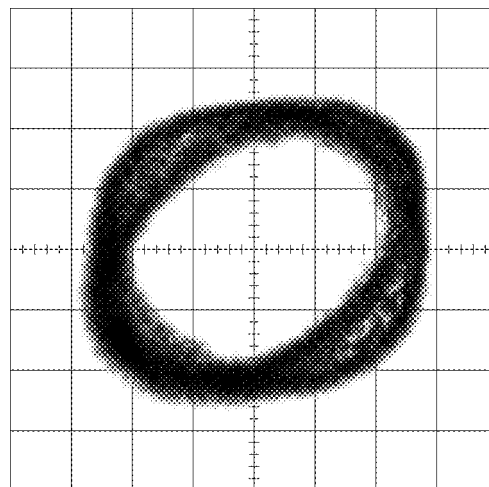
60°



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.

6.4 SYSTEM MICROCOMPUTER TEST PROGRAM



● PCL output

In the normal operation mode (with the detachable panel installed, the ACC switched ON, the standby mode cancelled), shift the TESTIN (Pin 5) terminal to H.

The clock signal is output from the PCL terminal (Pin 62).

The frequency of the clock signal is 786.432kHz that is one 4th of the fundamental frequency.

The clock signal should be $786.432\text{kHz} \pm 32\text{Hz}$.

If the clock signal is out of the range, the X'tal (X601) should be replaced with new one.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 DISASSEMBLY

● Removing the Case (not shown)

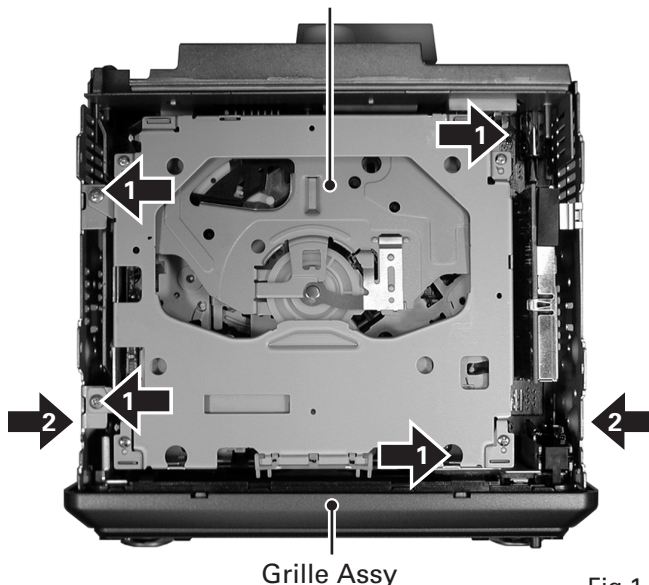
1. Remove the Case.

● Removing the CD Mechanism Module (Fig.1)

1 Remove the four screws.

Disconnect the connector and then remove the CD Mechanism Module.

CD Mechanism Module



Grille Assy

Fig.1

● Removing the Tuner Amp Unit (Fig.2)

1 Remove the screw and then remove the Holder.

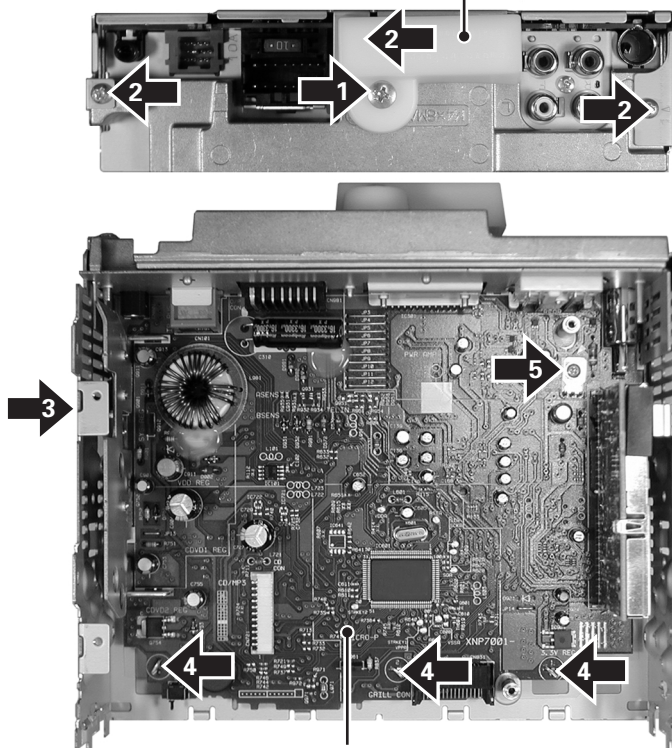
2 Remove the three screws.

3 Remove the screw.

4 Straighten the tabs at three locations indicated.

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

Holder

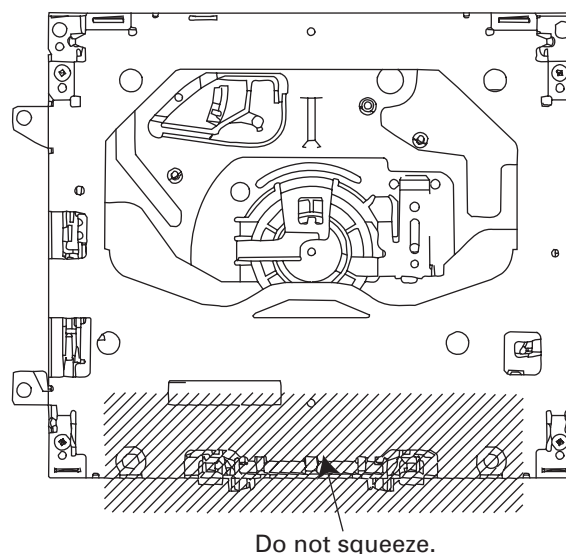


Tuner Amp Unit

Fig.2

● How to hold the Mechanism Unit

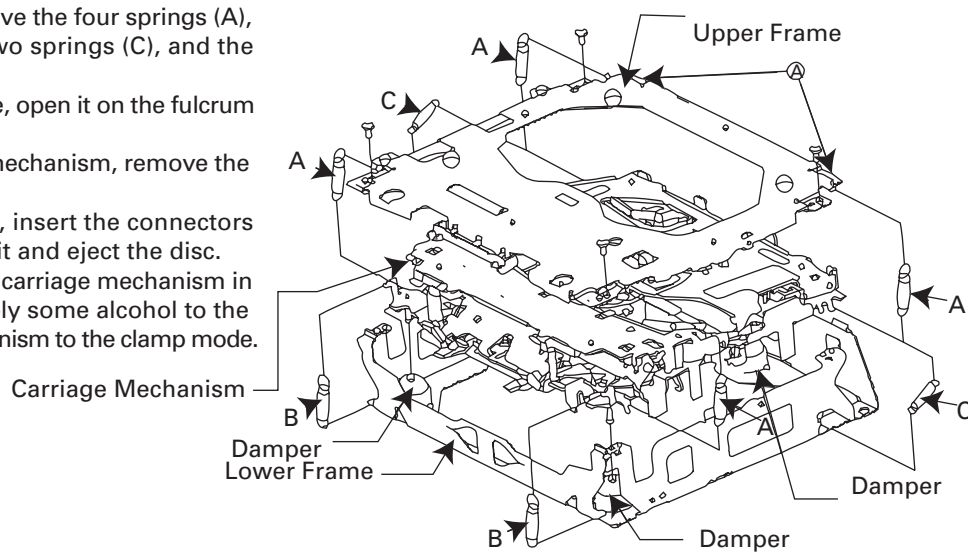
1. Hold the top and bottom frame.
2. Do not squeeze top frame's front portion too tight, because it is fragile.



● 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.

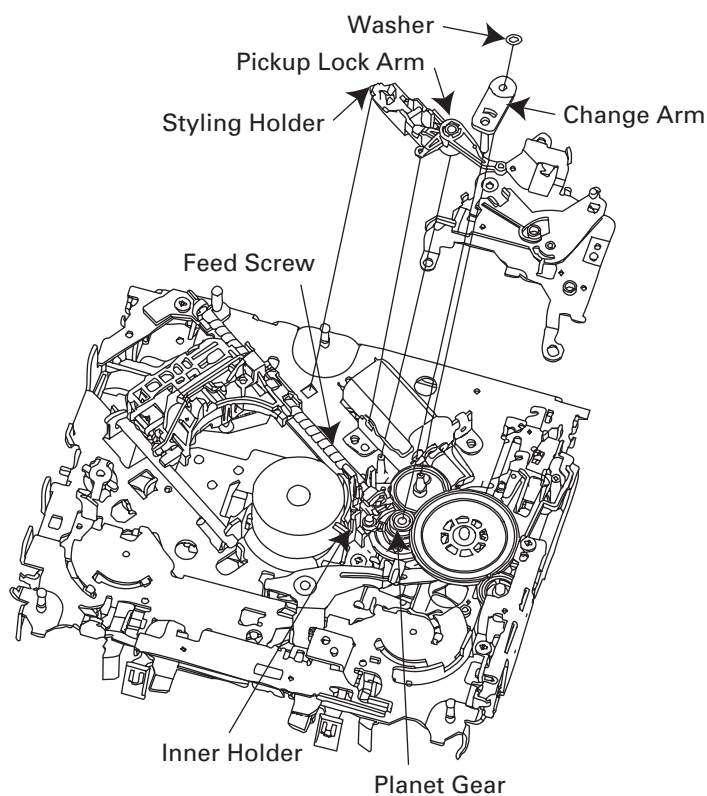
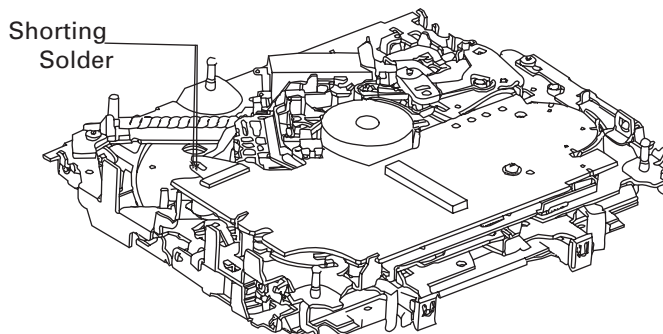
Caution: Before installing the carriage mechanism in the frames, be sure to apply some alcohol to the dampers and set the mechanism to the clamp mode.



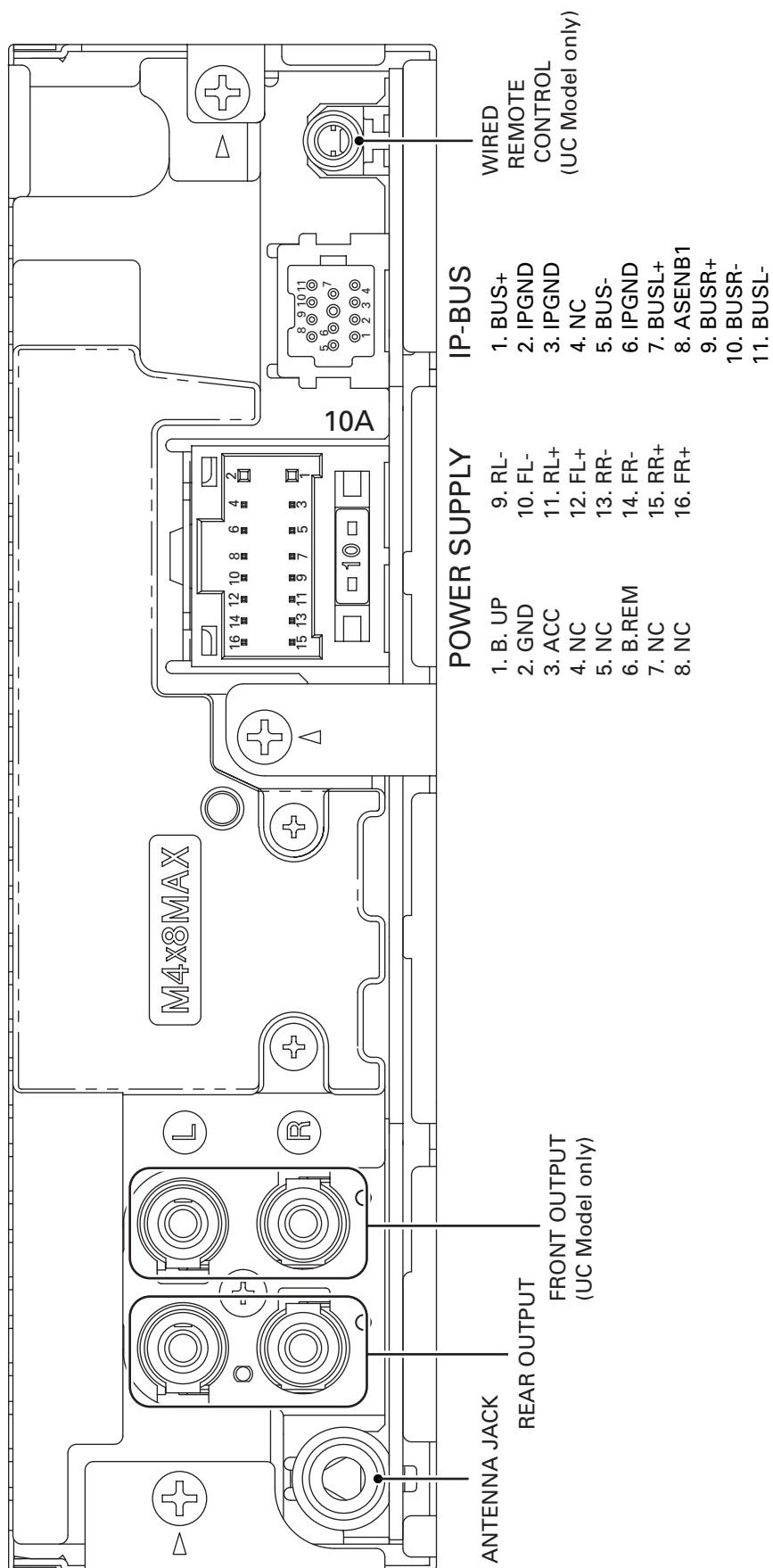
● Removing the Pickup Unit

1. Apply shorting solder to the Pickup flexible cable.
Disconnect the cable.
2. Set the mechanism to the clamp mode.
3. Remove the lead wires from the inner holder.
4. Remove the washer, styling holder, change arm, and pickup lock arm.
5. 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



7.2 PARTS

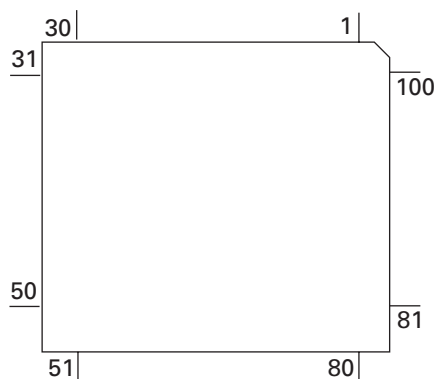
7.2.1 IC

● Pin Functions(PE5407A)

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			Not used
7	TELIN	I		Telephone mute input
8	EJECTIN	I		Eject sense input
9	FLPILM	O	C	Flap illumination output
10	DALMON	O	C	For consumption low-current output
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			Regulator operation specification signal
18	REGC			Capacitor for regulator connect pin
19	VDD			Power supply
20	ILMPW	O	C	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			Not used
28	ROMCS			Not used
29-31	NC			Not used
32	TUNPCE2	O	C	PLL chip enable output2
33	VST	O	C	E.VOL : Strobe output
34	VCK	O	C	E.VOL : Clock output
35	VDI	O	C	E.VOL : Data output
36	ANTPW			Not used
37	MUTE	O	C	System mute output
38, 39	NC			Not used
40	VSS			GND
41	VDD			Power supply
42	RDS57K			Not used
43	DRST			Not used
44	RDSLK			Not used
45	RDT			Not used
46	DORAON			Not used
47	NC			Not used
48	CSENSOUT	O	C	CSENS state output
49-55	NC			Not used
56,57	ROT1,0	I		Rotary encoder pulse input 1,0
58	STRKEY2	O	C	Steering remote controller output
59	CDLOEJ	O	C	CD : Load Moter Load/Eject output
60	CLCONT	O	C	CD : Driver input switch output
61	CONT	O	C	CD : Servo driver power supply control output
62	PCL	O	C	Clock adjustment output
63	CLAMPSW	I		Clamp SW input
64	VDCONT	O	C	CD : VD power control output
65	XSCK	O	C	CD LSI clock output
66	XSI	I		CD LSI data input
67	XSO	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	C	CD LSI strobe output

Pin No.	Pin Name	I/O	Format	Function and Operation
71	ASENSBO	O	C	IP-BUS : Slave power supply control output
72	EMUTE			Not used
73	TEST	I		GND
74	SL	I		TUNER : Signal level input
75	STRKEY1	I		Steering remote controller input
76	MODELIN			Not used
77	CSENS	I		Flap close sense input
78	NC			Not used
79	DSCSNS	I		CD : Disc insert sense input
80	VDSENS	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	C	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	C	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

* PE5407A

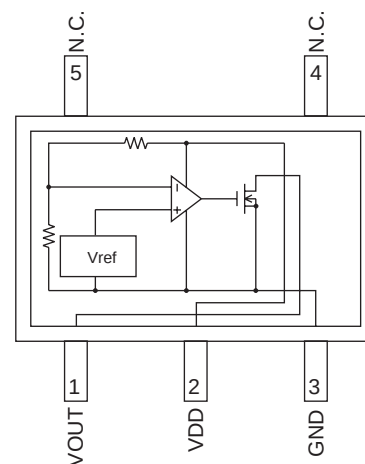


IC's marked by * are MOS type.

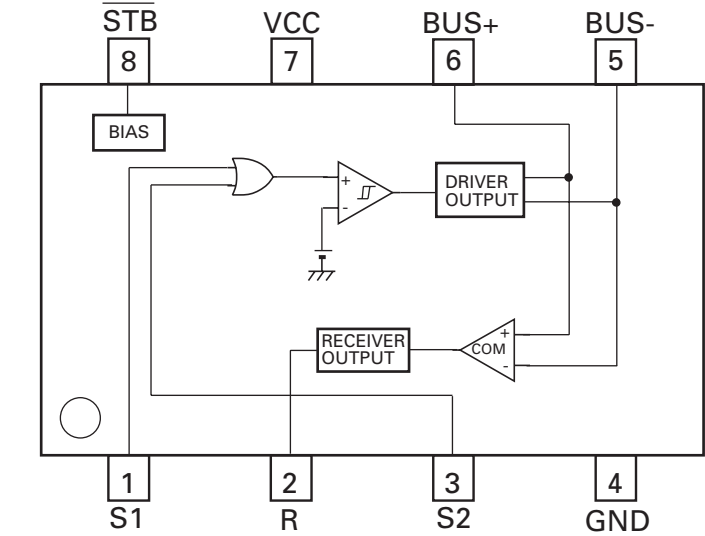
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

Format	Meaning
C	CMOS

BD4834G



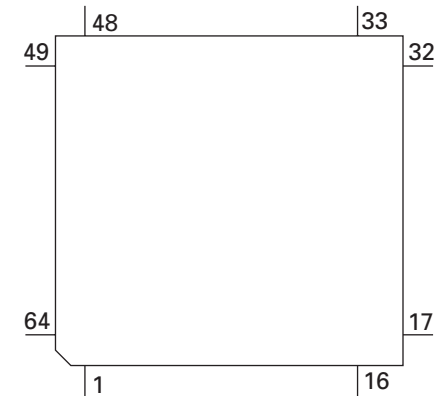
HA12240FP



● 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	XO		Crystal oscillator connection pin
23	XI		Crystal oscillator connection pin
24	VSS		GND
25,26	KDT2,3	I	Key data input
27,28	KST5,4	O	Key strobe output
29-55	SEG39-13	O	LCD segment output
56	VDD		Power supply
57-64	SEG12-5	O	LCD segment output

*PD6340A



Pin Functions(PE5402A)

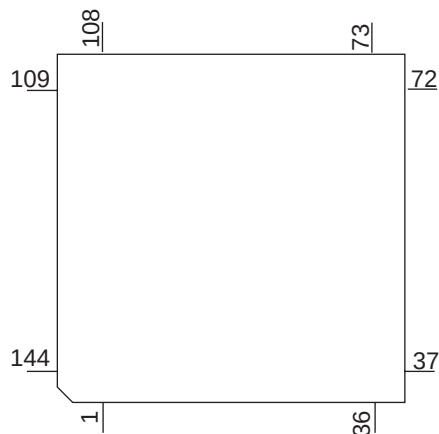
Pin No.	Pin Name	I/O	Format	Function and Operation
1	AVREF			A power supply Positive power supply(5V)
2	AVSS			A power supply GND
3	RFOK	O	C	Output of state of RFOK
4	CLAMP	I	C	CLAMP SW sense input
5	EVDD			E power supply Positive power supply
6	PWM			For changer(PWM)
7	NC			Not used
8	IC/FLMD0			IC : VSS direct connection/FLMOD0 : Pull-down
9	VDD			Positive power supply(5V)
10	REGC			Connected to the capacity stabilizing output of the regulator
11	VSS			GND
12	X1	I		Oscillator connection for mainclock
13	X2			Oscillator connection for mainclock
14	RESET	I		System reset input
15	XT1	I		Connected to the oscillator for subclock (connected to VSS via the resistor)
16	XT2			Connected to the oscillator for subclock(Open)
17	PULLDOWN	I		Connected to EVDD or EVSS via the resistor
18	EJSW	I	C	Eject key input
19	XINT		C	CD LSI interruption signal input
20	NC			Not used
21	BRST	I		P-Bus reset input
22	BSI	I		P-Bus serial data input
23	BSO	O	C	P-Bus serial data output
24	BSCK	I/O	/C	P-Bus serial clock input/output
25	FTXD	O	C	For flash rewriting(transmitted signal)
26	FRXD	I		For flash rewriting(received signal)
27	BRXEN	I/O	/C	It is possible to receive P-Bus
28	BSRQ	I/O	/C	P-Bus service request demand
29	DSPOK	I		DSP microcomputer initialization OK input
30	DSCSNS(S903)	I		Disc state sense input
31	8EJ(S905)	I		Input of detection of 8 cm disc ejection
32	12EJ(S904)	I		Input of detection of 12 cm disc ejection
33	EVSS			E power supply GND
34	EVDD			E power supply Positive power supply
35, 36	SRAMLEVEL0, 1	O	C	SRAM level meter output
37	EMPH	O	C	Emphasis information output
38	EMPH	O	C	Emphasis information output
39-42	NC			Not used
43	ADENA	O	C	A/D reference voltage supply control output
44	LRCKOK	O	C	(DOUT mute output)
45	SRAMLEVEL2	O	C	SRAM level meter output
46	CD3VON	O	C	CD +3.3V power supply control output
47	CONT	O	C	Servo driver power supply control output
48	XRST	O	C	CD LSI reset control output
49	VDCONT	O	C	VD power supply control output
50	ROMDATA	I/O	/C	E2PROM data input/output
51	ROMCS	O	C	E2PROM chip selection output
52	ROMCK	O	C	E2PROM clock output
53	LOEJ	O	C	The direction change output of LOAD/EJECT
54	CLCONT	O	C	Driver input change output
55	CDMUTE	O	C	CD mute control output
56-58	INT			For changer(Interruption at the edge)
59	XCS	O	C	CD LSI chip selection output
60	NC			Not used
61	XWAIT	I		CD LSI write control signal output
62	CLKOUT	O	C	Internal system clock output(Open)
63	LOCK	I		Spindle lock input
64	NC			Not used
65	XWRITE	O		CD LSI write control signal output

Pin Functions(UPD63761GJ)

Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Power supply for digital circuits
2	D1.GND		GND for 1.6V digital circuits
3	RESET	I	Input of reset
4-8	AB12-8	I	Address bus 12-8 from the microcomputer
9-16	AD7-0	I/O	Address/data bus 7-0 to the microcomputer
17	$\overline{CS}$	I	Chip selection
18	ASTB	I	Address strobe
19	READ	I	Control signals(read)
20	WRITE	I	Control signals(write)
21	WAIT	O	Control signals(wait)
22	INTQ	O	Interruption signals to the external microcomputer
23, 24	IFMODE0, 1	I	Switching the microcomputer I/F 0, 1
25	D1.VDD		Power supply for 1.6V digital circuits
26	DA.VDD		Power supply for DAC
27	ROUT	O	Output of audio for the right channel
28	DA.GND		GND for DAC
29	REGC		Connected to the capacitor for band gap
30	DA.GND		GND for DAC
31	LOUT	O	Output of audio for the left channel
32	DA.VDD		Power supply for DAC
33	X.VDD		Power supply for the crystal oscillator
34	XTAL	I	Connected to the crystal oscillator(16.9344MHz)
35	$\overline{XTAL}$	O	Connected to the crystal oscillator(16.9344MHz)
36	X.GND		Ground for the crystal oscillator
37	VDDREG15		Control of 1.6V regulator
38	PWMSW0	I	Setup 0 for PWM output(SD, MD)
39-41	TEST3-1	I	Connected to GND
42	PWMSW1	I	Setup 1 for PWM output(FD, TD)
43	TESTEN	I	Connected to GND
44	D1.GND		GND for 1.6V 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	$\overline{XTALEN}$	I	Permission to oscillate 16.9344MHz
52	D1.VDD		Power supply for 1.6V digital circuits
53	RFCK/HOLD	O	Output of RFCK/HOLD signal
54	WFCK/MIRR	O	Output of WFCK/MIRR signal
55	PLCK	O	Output of PLCK
56	LOCK/RFOK	O	Output of LRCK/Output of RFOK
57	C1D1/C8M	O	Information on error correction/C8M : 8MHz
58	C1D2/C16M	O	Information on error correction/C16M : 16MHz
59	C2D1/RMUTE	O	Information on error correction/Mute for Rch
60	C2D2/LMUTE	O	Information on error correction/Mute for Lch
61	C2D3/SHOCK	O	Information on error correction/Detection of vibration
62	D1.GND		GND for 1.6V digital circuits
63	C33M	O	Output of 33.8688MHz(CLK for SDRAM)
64	($\overline{RCS}$)	O	DRAM $\overline{CS}$
65	RA11	O	Output of DRAM address 11
66	(CKE)	O	Output of DRAM CKE
67	$\overline{RAS}$	O	Output of DRAM $\overline{RAS}$
68	$\overline{CAS0}$ (LDQM)	O	Output of DRAM lower $\overline{CAS}$ (LDQM)
69	$\overline{CAS1}$ (UDQM)	O	Output of DRAM upper $\overline{CAS}$ (UDQM)
70	$\overline{WE}$	O	Output of DRAM $\overline{WE}$
71	OE(CAS)	O	Output of DRAM OE(CAS)
72	D.GND		Ground for digital circuits
73-88	RDB0-15	I/O	Input/output of DRAM data0-15
89-99	RA0-10	O	Output of DRAM address0-10

Pin No.	Pin Name	I/O	Function and Operation
100	D.VDD		Power supply for digital circuits
101	FD+	O	Output of focus drive PWM +
102	FD-	O	Output of focus drive PWM -
103	TD+	O	Output of tracking drive PWM +
104	TD-	O	Output of tracking drive PWM -
105	SD+	O	Output of thread drive PWM +
106	SD-	O	Output of thread drive PWM -
107	MD+	O	Output of spindle drive PWM +
108	MD-	O	Output of spindle drive PWM -
109	REFOUTSV	O	REFOUT for servo
110	AD.VDD		Power supply for ADC
111	EFM	O	Output of EFM signals
112	ASY	I	Input of asymmetry
113	ATEST	O	Analog tests
114	RFI	I	Input of RF
115	AD.GND		Ground for the analog system
116	AGCO	O	Output of RF
117	C3T	O	Connection to the capacitor for detecting 3T
118	AGCI	I	Input of AGC
119	RFO	O	Output of RF(AGC)
120, 121	EQ2, 1	I	Equalizer 2, 1
122	RF2-	I	Reversal input of RF2
123	RF-	I	Reversal input of RF
124	A.GND		Ground for the analog system
125	A	I	Input of A
126	C	I	Input of C
127	B	I	Input of B
128	D	I	Input of D
129	F	I	Input of F
130	E	I	Input of E
131	VREFIN	I	Input of reference voltage
132	A.VDD		Power supply for the analog system
133	REFOUT	O	Output of reference voltage
134	REFC	I	Connected to the capacitor for output of REFOUT
135	FE-	I	Reversal input of FE
136	FEO	O	Output of FE
137	ADIN	I	Input of FE, TE A/D converter
138	TE-	I	Reversal input of TE
139	TEO	O	Output of TE
140	TE2	O	TE2
141	TEC	I	TEC
142	LD	O	Output of LD
143	PD	I	Input of PD
144	D.GND		Ground for digital circuits

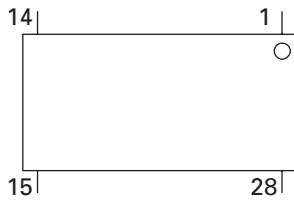
* UPD63761GJ



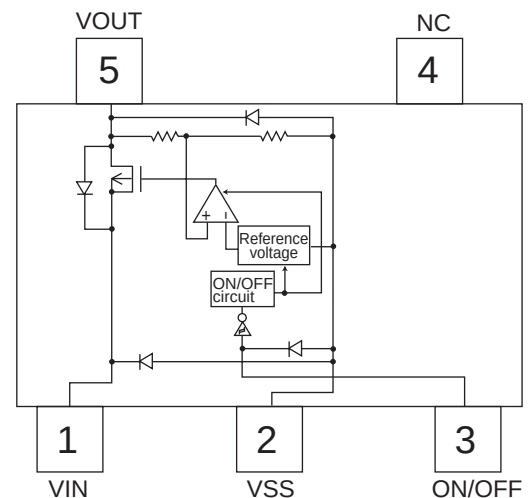
Pin Functions(BA5835FM)

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

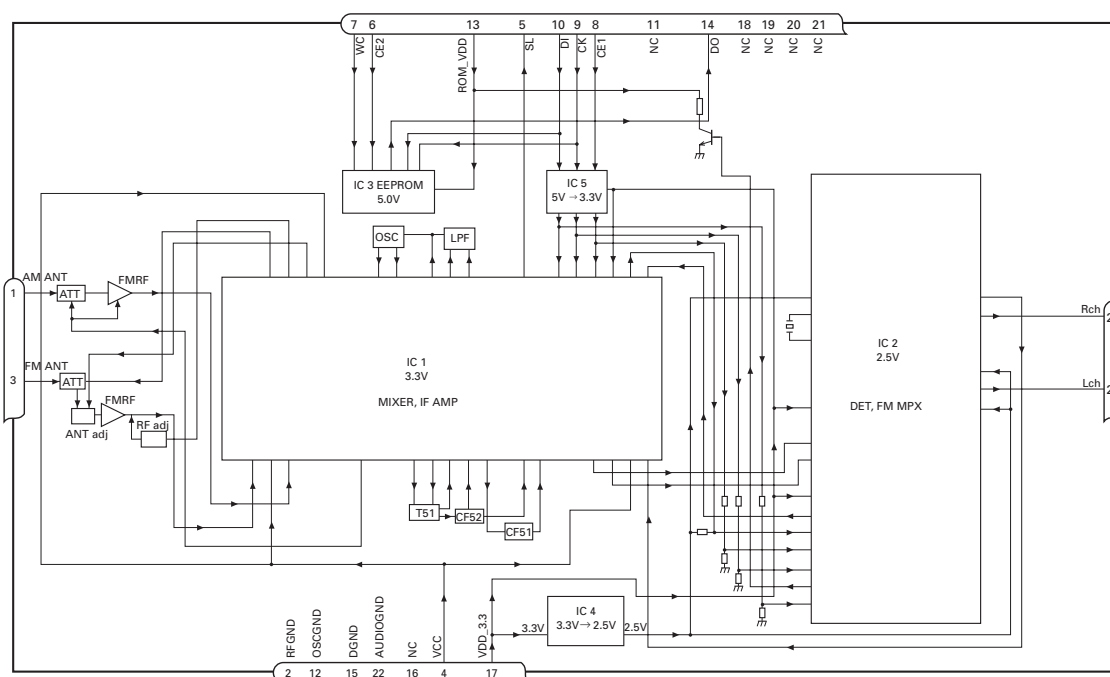
BA5835FM



* S-L2980A15MC-C6A



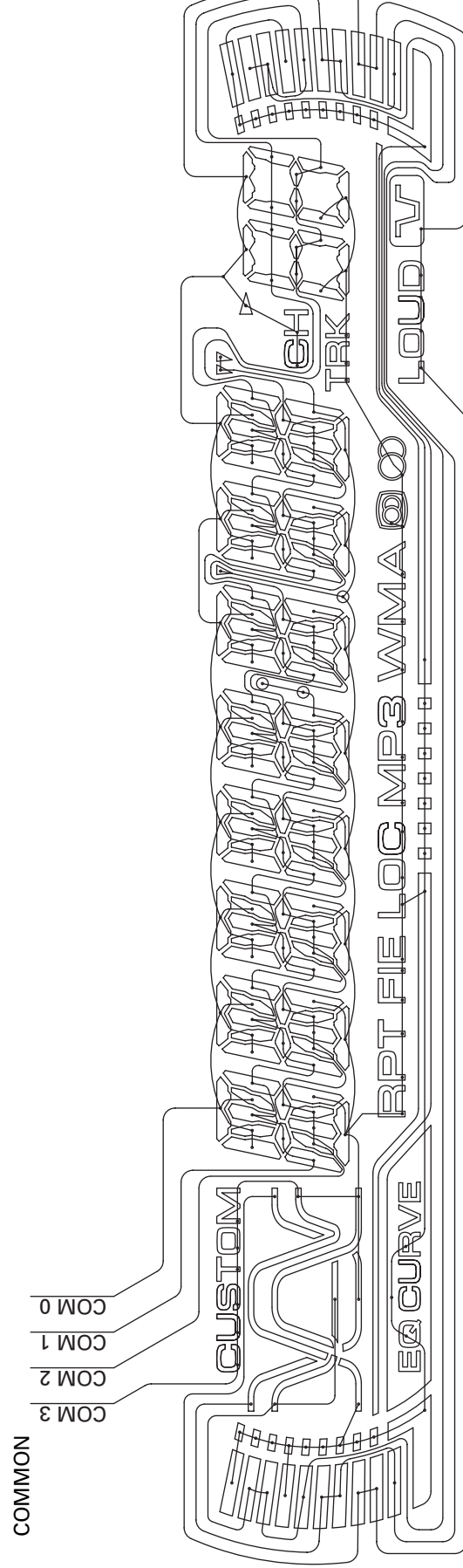
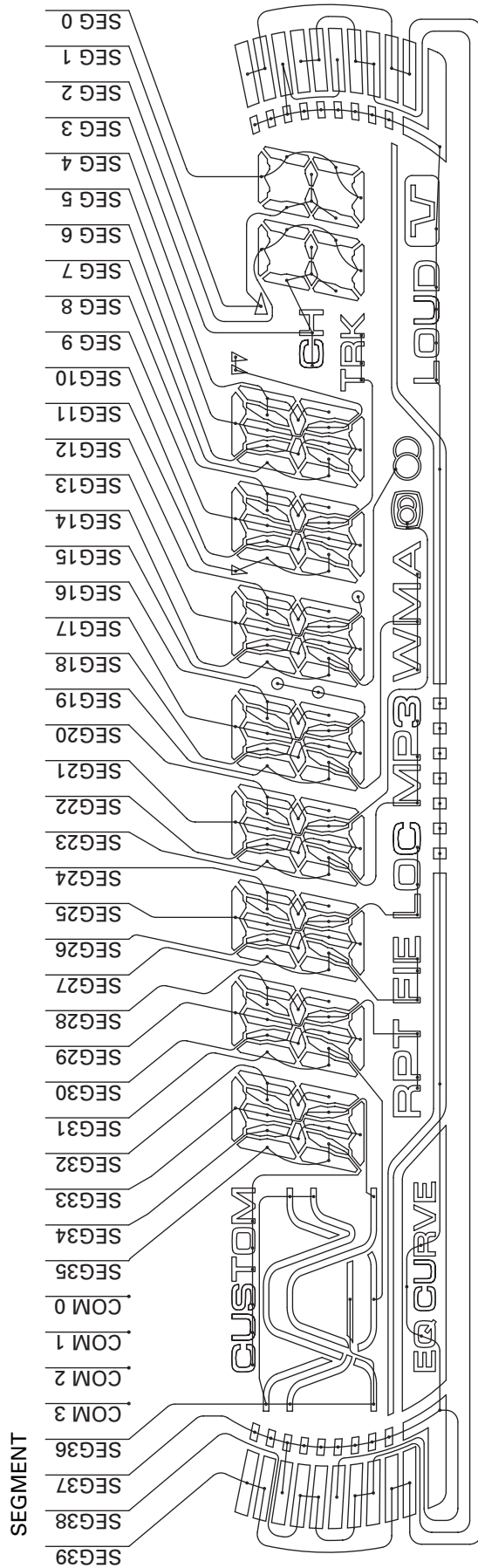
FM/AM Tuner Unit



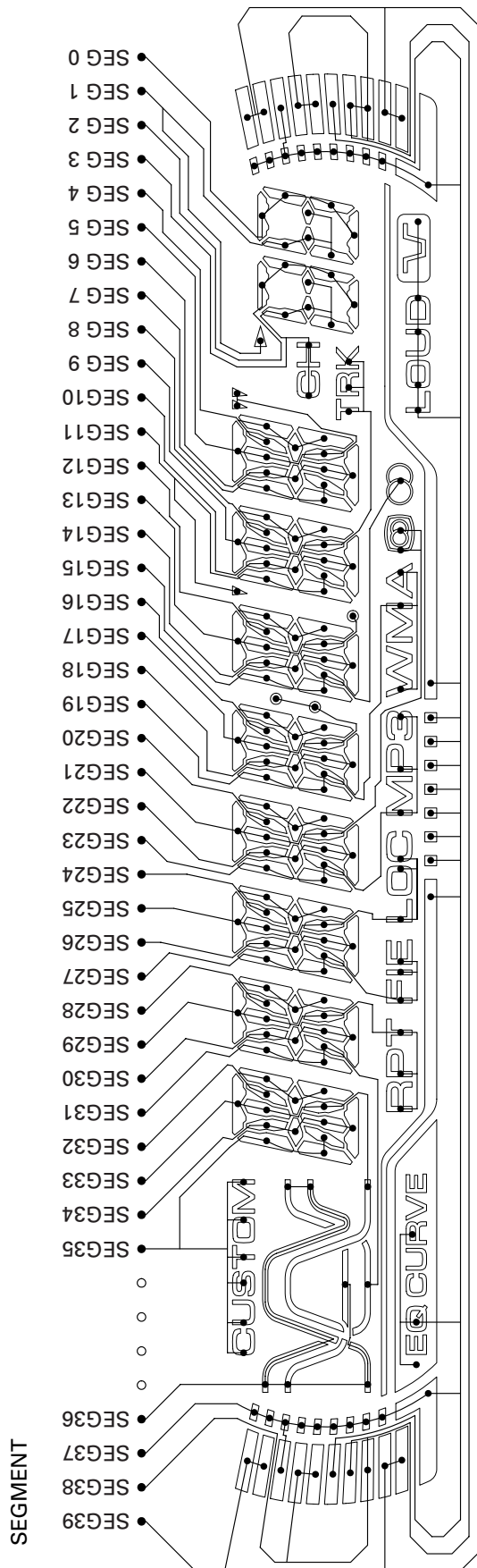
No.	Symbol	I/O	Explain	
1	AMANT	I	AM antenna input	AM antenna input high impedance AMANT pin is connected with an all antenna by way of 4.7μH. (LAU type inductor) A series circuit including an inductor and a resistor is connected with RF ground for the countermeasure against the hum of power transmission 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(XAW7004)(DEH-P460MP/XM/UC, DEH-P4600MP/XM/UC)

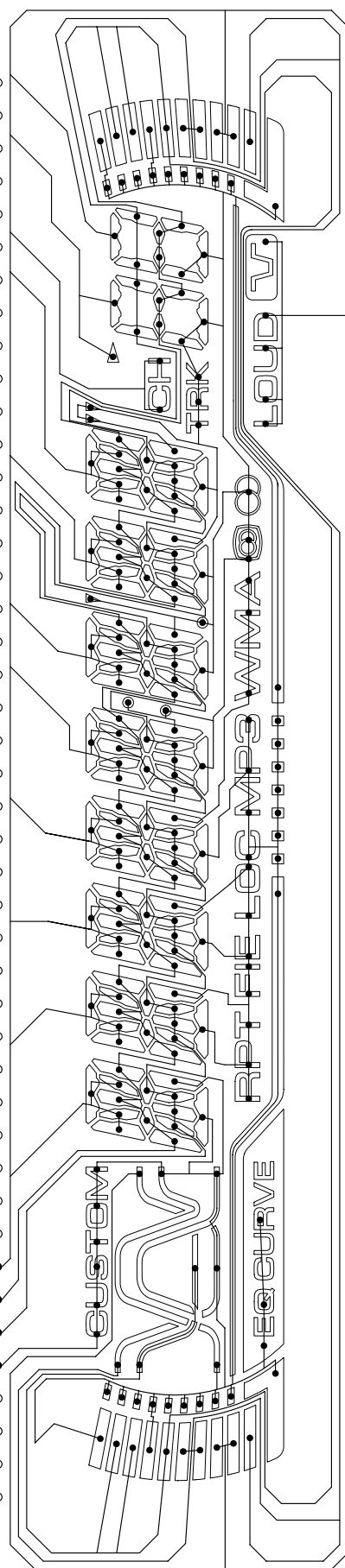


● LCD(XAW7002)/(DEH-P4650MP/XM/ES)

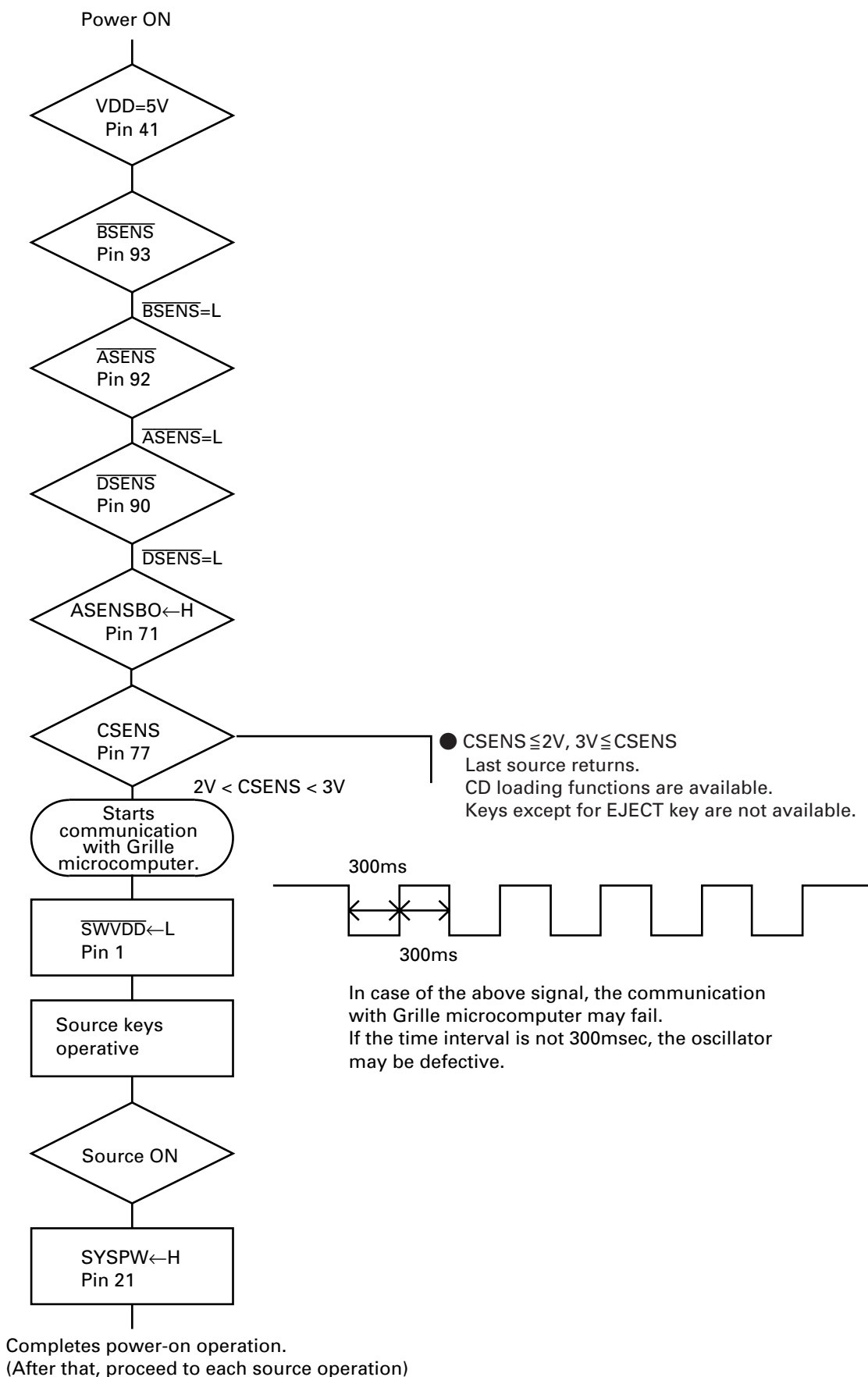


COMMON

COM 0
COM 1
COM 2
COM 3



7.3 OPERATIONAL FLOW CHART



7.4 CLEANING

A



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

B

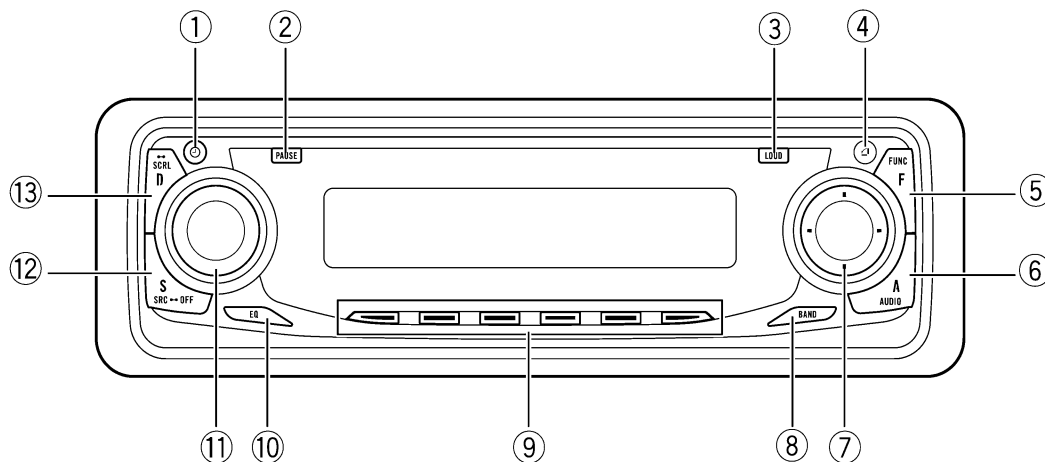
C

D

E

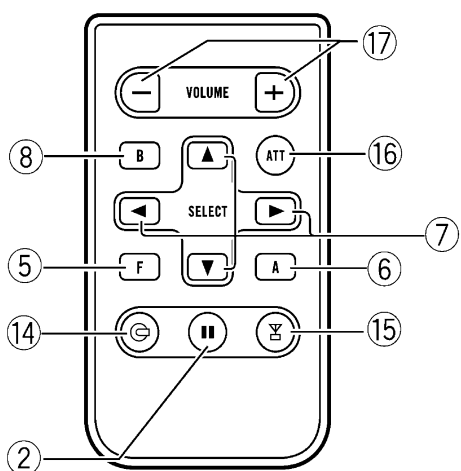
F

8. OPERATIONS



Head unit

- ① **CLOCK button**
Press to change to the clock display.
- ② **PAUSE button**
Press to turn pause on or off.
- ③ **LOUDNESS button**
Press to turn loudness on or off.
- ④ **OPEN button**
Press to open the front panel.
- ⑤ **FUNCTION button**
Press to select functions.
- ⑥ **AUDIO button**
Press to select various sound quality controls.
- ⑦ **▲/▼/◀/▶ buttons**
Press to do manual seek tuning, fast forward, reverse and track search controls. Also used for controlling functions.
- ⑧ **BAND button**
Press to select among three FM and one AM bands and cancel the control mode of functions.
- ⑨ **1-6 buttons**
Press for preset tuning and disc number search when using a multi-CD player.
- ⑩ **EQ button**
Press to select various equalizer curves.
- ⑪ **VOLUME**
When you press **VOLUME**, it extends outward so that it becomes easier to turn. To retract **VOLUME**, press it again. Rotate to increase or decrease the volume.
- ⑫ **SOURCE button**
This unit is turned on by selecting a source. Press to cycle through all of the available sources.
- ⑬ **DISPLAY button**
Press to select different displays. 



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.

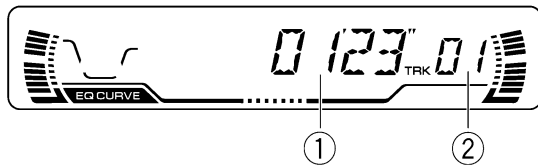
⑯ **ATT button**

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

⑰ **VOLUME button**

Press to increase or decrease the volume. ▢

Playing a CD



These are the basic steps necessary to play a CD with your built-in CD player. More advanced CD operation is explained starting on the next page.

① Play time indicator

Shows the elapsed playing time of the current track.

② Track number indicator

Shows the track currently playing.

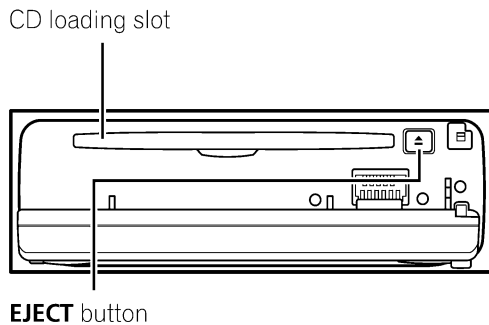
1 Press OPEN to open the front panel.

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.



- 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.

4 Use VOLUME to adjust the sound level.

Rotate to increase or decrease the volume.

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

- If you select the search method to **ROUGH**, pressing and holding ◀ or ▶ enables you to search every ten track in the current disc.

6 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.



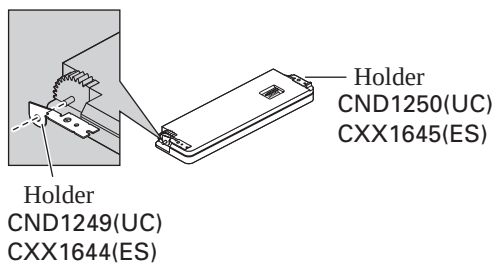
Notes

- 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.
- When a CD TEXT disc is inserted, the disc and track titles begin to scroll to the left automatically. ■

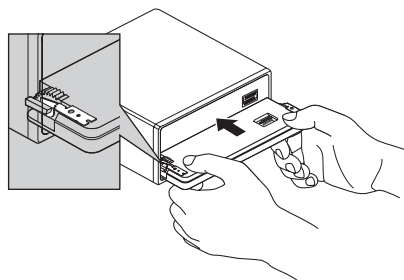
Fixing the Front Panel

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.

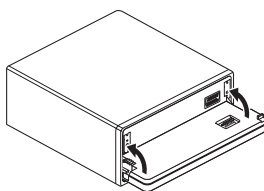
1. Attach the holders to both sides of the front panel.



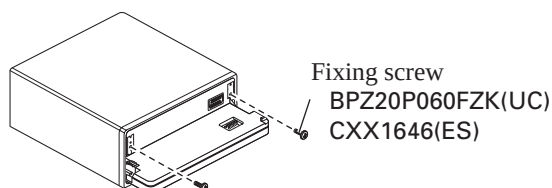
2. Replace the front panel to the unit.



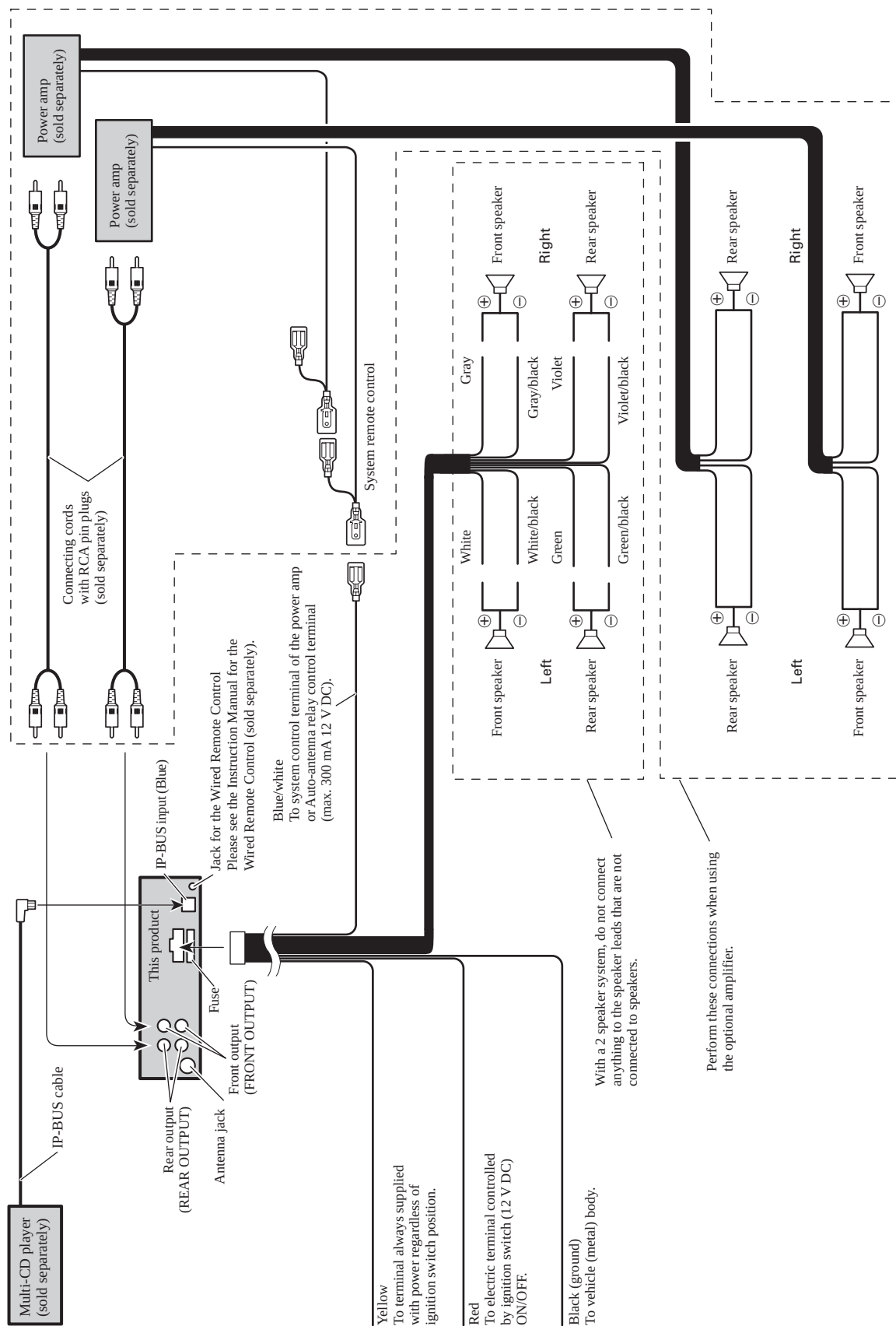
3. Flip the holders into upright positions.



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



● CONNECTION DIAGRAM



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