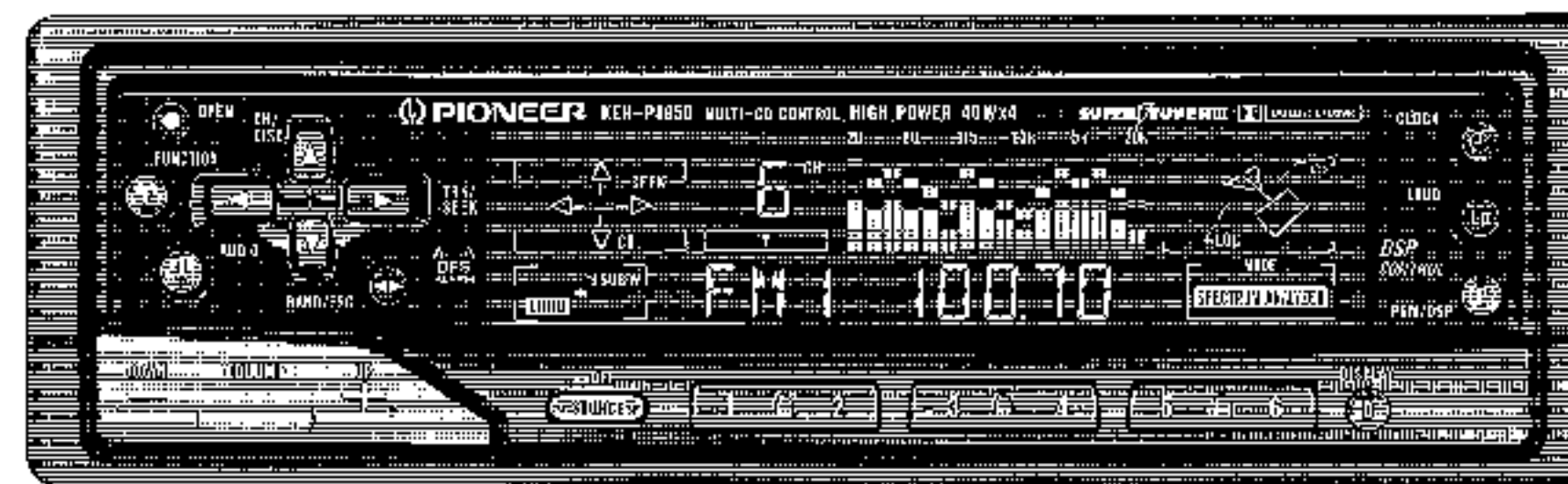


Service Manual

PIONEER
The Art of Entertainment

KEH-P8650/ES



ORDER NO.
CRT2002

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

KEH-P8650 ES

KEH-P7650 ES

NOTE:

- See the separate manual CX-631(CRT1640) for the cassette mechanism description.
- The cassette mechanism assy employed in this model is one of X-2L series
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- This model has no CD test mode.
For the operations in the CD test mode, refer to the CD player's Service Manual.
- This device employs an inverter as the power supply for EL. The inverter has an output voltage reach approximately 200 volts(AC). Utmost care should be used not to suffer from a possible electric shock, accordingly.

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1. SAFETY INFORMATION

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

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING

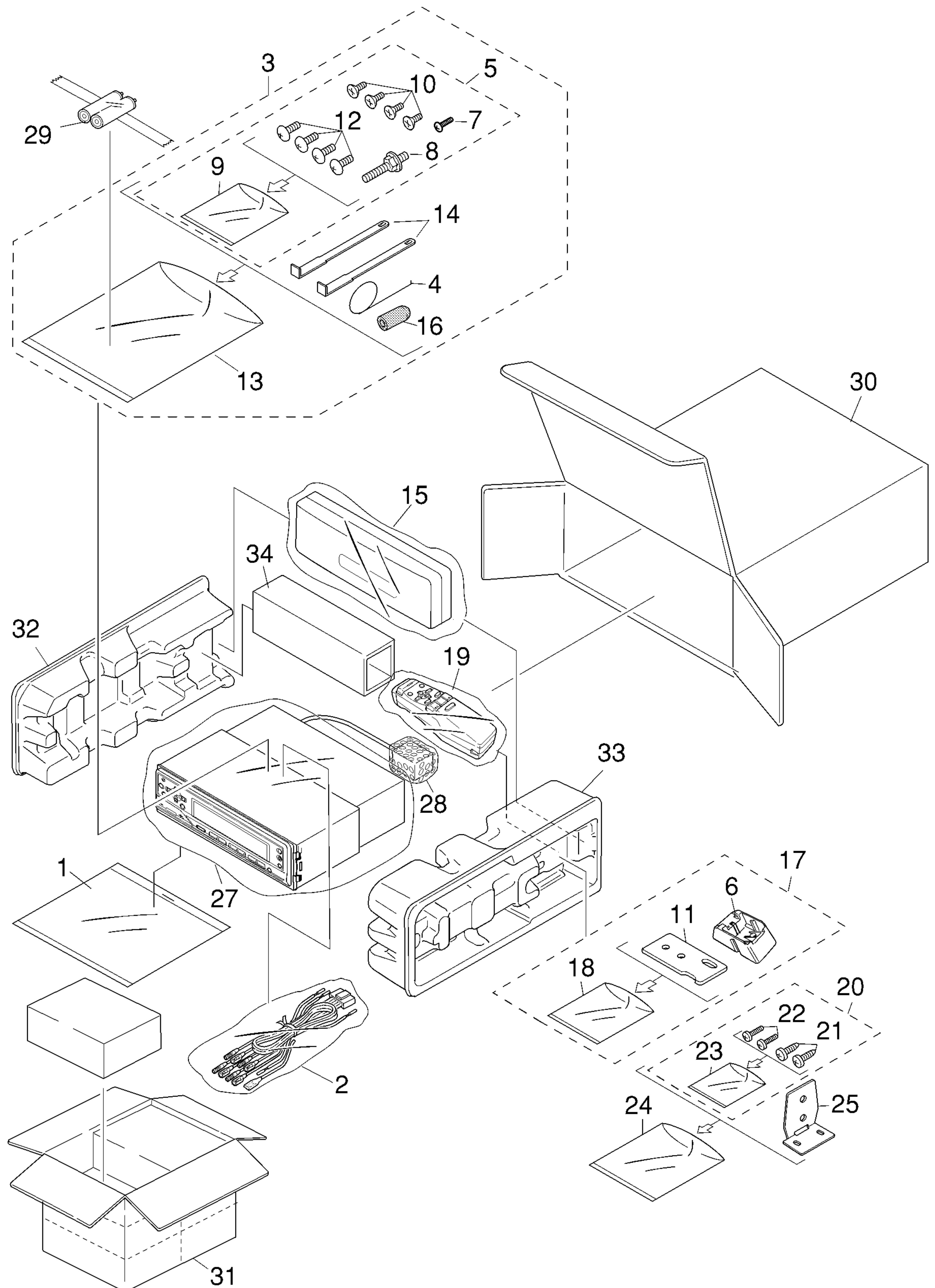


Fig. 1

KEH-P8650,P7650

NOTE:

- Parts marked by “ * ” are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▼ mark on the product are used for disassembly.

(1)PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1-1	Polyethylene Bag	CEG1116	17	Base Assy	CEA2344
1-2	Owner's Manual	See Contrast table	18	Polyethylene Bag	CZE3188
1-3	Owner's Manual	See Contrast table	19	Remote Control Assy	See Contrast table
1-4	Installation Manual	See Contrast table	20	Screw Assy	CZE3198
* 1-5	Label	CRW1370	21	Screw(x2)	BNC40P120FZK
2	Cord Assy	CDE5336	22	Screw(x2)	BPZ30P100FZK
3	Accessory Assy	CEA2067	* 23	Polyethylene Bag	CEG-127
4	Spring	CBH-865	* 24	Polyethylene Bag	CZE3201
5	Screw Assy	CEA2069	25	Bracket	CZN6467
* 6	Base	CZN6466	26	.....
7	Screw	CBA1120	27	Polyethylene Bag	CEG-162
8	Screw	CBA1284	28	Air Cushioned Bag	CEG1192
* 9	Polyethylene Bag	CEG-127	29	Battery	CEX1006
10	Screw(x4)	CRZ50P090FMC	30	Carton	See Contrast table
* 11	Sheet	CZN3371	31	Contain Box	See Contrast table
12	Screw(x4)	TRZ50P080FMC	32	Protector	CHP1687
* 13	Polyethylene Bag	CEG-158	33	Protector	CHP1688
14	Handle(x2)	CNC5395	34	Spacer	CHW1433
15	Case Assy	CXA7194			
16	Bush	CNV1009			

(2) CONTRAST TABLE

KEH-P8650/ES and KEH-P7650/ES have the same construction except for the following:

Mark No.	Symbol & Description	Part No.	
		KEH-P8650/ES	KEH-P7650/ES
1-2	Owner's Manual	CRD2394	CRD2401
1-3	Owner's Manual	CRD2395	CRD2402
1-4	Installation Manual	CRD2396	CRD2403
19	Remote Control Assy	CXB1156	CXB1157
30	Carton	CHG3301	CHG3305
31	Contain Box	CHL3301	CHL3305

● Owner's Manual

Model	Part No.	Language
KEH-P8650/ES	CRD2394	English, Spanish
	CRD2395	Portuguese,Arabic
KEH-P7650/ES	CRD2401	English, Spanish
	CRD2402	Portuguese,Arabic

● Installation Manual

Model	Part No.	Language
KEH-P8650/ES	CRD2396	English, Spanish,Portuguese,Arabic
KEH-P7650/ES	CRD2403	English, Spanish,Portuguese,Arabic

2.2 EXTERIOR

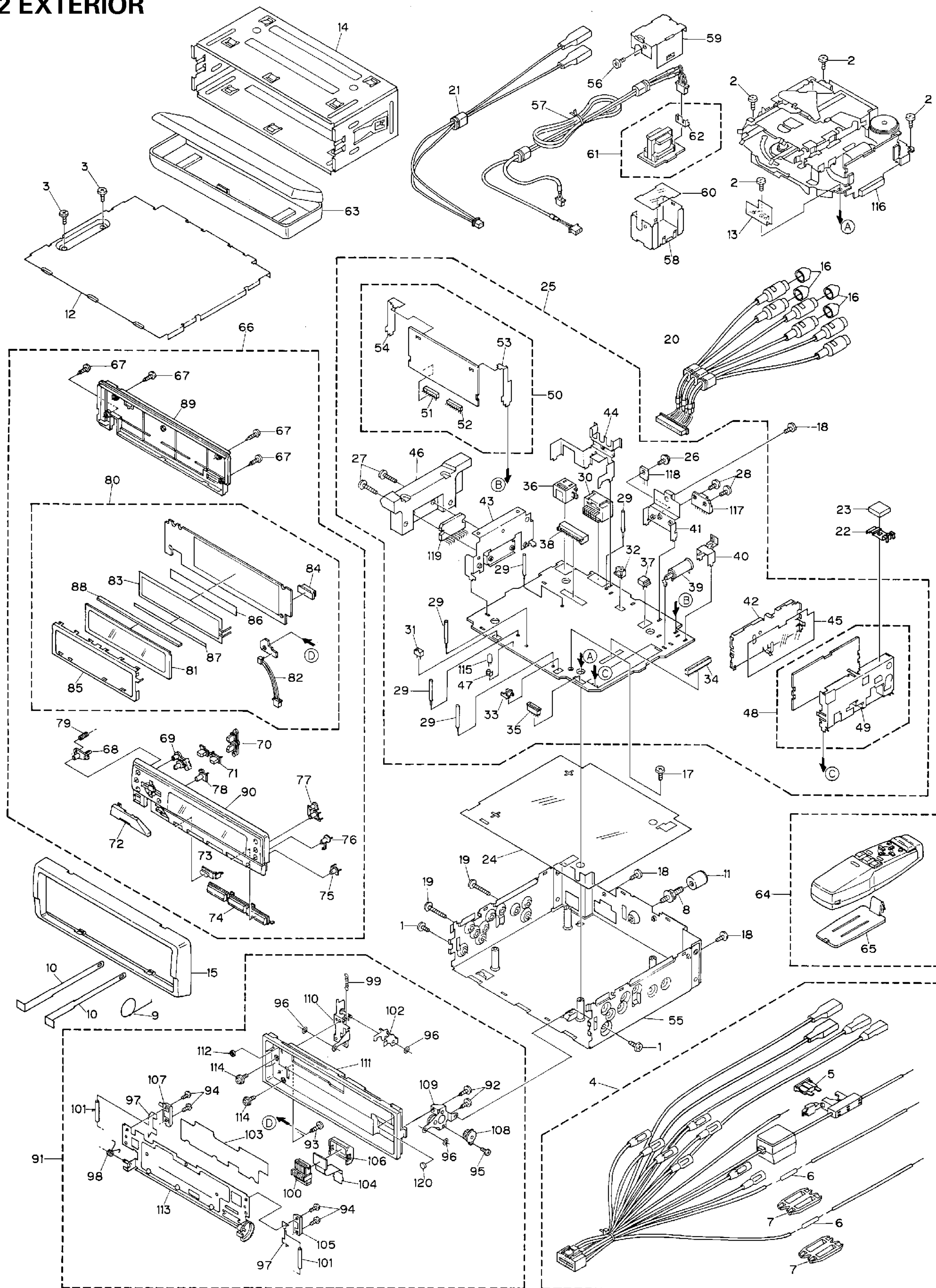


Fig. 2

● EXTERIOR

(1)PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BMZ30P040FMC	46	Heat Sink	CNR1419
2	Screw	BSZ26P050FMC	47	Holder	CNV1906
3	Screw	BSZ30P060FMC	48	FM/AM Tuner Unit	CWE1485
4	Cord Assy	CDE5336	49	Holder	CNC6555
5	Fuse(10A)	CEK1136	50	Spectrum Analyzer Main Unit	See Contrast table
6	Resistor	RS1/2PMF102J	51	Plug(CN461)	See Contrast table
7	Cap	CNS1472	52	Plug(CN151)	See Contrast table
8	Spring	CBH-865	53	Holder	See Contrast table
9	Screw	CBA1284	54	Holder	See Contrast table
10	Handle	CNC5395	55	Chassis Unit	See Contrast table
11	Bush	CNV1009	56	Screw	BSZ26P050FMC
12	Case	CNB2193	57	Cord	MDE9001
13	Shield	CNC6357	58	Holder	MNC9001
14	Holder	CNC6798	59	Holder	MNC9002
15	Panel	CNS4320	60	Insulator	MNM9001
16	Cap	CNV2680	61	Inverter Unit	MWM9001
17	Screw	BSZ30P055FUC	62	Plug(CN101)	CKS1224
18	Screw	BSZ30P060FMC	63	Case Assy	CXA7194
19	Screw	BSZ30P200FMC	64	Remote Control Assy	See Contrast table
20	Cord	See Contrast table	65	Battery Cover	CNS4406
21	Cord	CDE5410	66	Detach Grille Assy	See Contrast table
22	Earth Board	CNC6681	67	Screw	BPZ20P080FZK
23	Spacer	CNM4913	68	Button(OPEN)	CAC4971
24	Insulator	CNM5243	69	Button(A,F)	CAC4972
25	Tuner Amp Unit	See Contrast table	70	Button(▲,▼)	CAC4973
26	Screw	ASZ26P080FMC	71	Button(◀,▶)	CAC4974
27	Screw	BSZ26P160FMC	72	Button(-,+)	CAC4976
28	Screw	BSZ30P060FMC	73	Button(SOURCE)	CAC4977
29	Clamper	CEF1005	74	Button(1 — 6)	CAC5379
30	Plug(CN601)	CKM1187	75	Button(D)	CAC4979
31	Plug(CN674)	CKS-783	76	Button(P)	CAC4980
32	Plug(CN671)	CKS1222	77	Button(CLOCK,LD)	CAC4982
33	Plug(CN672)	CKS1236	78	Button(BAND)	CAC5222
34	Connector(CN751)	CKS1730	79	Spring	CBH1844
35	Connector(CN673)	CKS2239	80	Keyboard Unit	See Contrast table
36	Connector(CN301)	CKS3408	81	LCD	See Contrast table
37	Connector(CN602)	CKS3596	82	Cord	CDE4387
38	Connector(CN201)	CKS3606	83	EL(CN1902)	CEL1493
39	Antenna Jack(CN401)	CKX1056	84	Connector(CN1901)	CKS2733
40	Holder	CNC4569	85	Holder	CNC6920
41	Holder	CNC5491	86	Double Side Seal	CNM5301
42	Holder	CNC6356	87	Spacer	CNM5449
43	Holder	CNC6361	88	Connector	CNV4817
44	Holder	CNC6644	89	Cover Unit	CXA9802
45	Insulator	CNM4684	90	Grille Unit	See Contrast table

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Panel Assy	CXB1336	106	Cover	CNV3965
92	Screw	BPZ20P050FMC	107	Holder	CNV4979
93	Screw	BPZ20P060FZK	108	Damper Unit	CXA7159
94	Screw	CBA1082	109	Holder Unit	CXA7793
95	Screw	CBA1176	110	Holder Unit	CXA9806
96	Washer	CBF1001	111	Panel Unit	CXB1226
97	Spring	CBH1528	112	Cushion	CNM5486
98	Spring	CBH1660	113	Holder Unit	CXB1239
99	Spring	CBH1696	114	Screw	IMS20P040FZK
100	Connector	CKS2780	115	Lamp(IL671)	CEL1263
101	Roller	CLA3247	116	Cassette Mechanism Module	See Contrast table
102	Arm	CNC7130	117	IC(IC606)	PA2024A
103	Sheet	CNM5142	118	Transistor(Q674)	2SD1189
104	PCB	CNP4440	119	IC(IC251)	TDA7386
105	Holder	CNV2141	120	Cushion	CNM4253

(2) CONTRAST TABLE

KEH-P8650/ES and KEH-P7650/ES have the same construction except for the following:

Mark No.	Symbol & Description	Part No.	
		KEH-P8650/ES	KEH-P7650/ES
20	Cord	CDE5222	CDE5219
25	Tuner Amp Unit	CWM5333	CWM5335
50	Spectrum Analyzer Main Unit	CWM5339	Not used
51	Plug(CN461)	CKS1615	Not used
52	Plug(CN151)	CKS1616	Not used
53	Holder	CNC6676	Not used
54	Holder	CNC6788	Not used
55	Chassis Unit	CXB1529	CXB1556
64	Remote Control Assy	CXB1156	CXB1157
66	Detach Grille Assy	CXB1332	CXB1335
80	Keyboard Unit	CWM5063	CWM5417
81	LCD	CAW1407	CAW1408
90	Grille Unit	CXB1534	CXB1539
116	Cassette Mechanism Module	EXK3335	EXK3315

2.3 CASSETTE MECHANISM MODULE

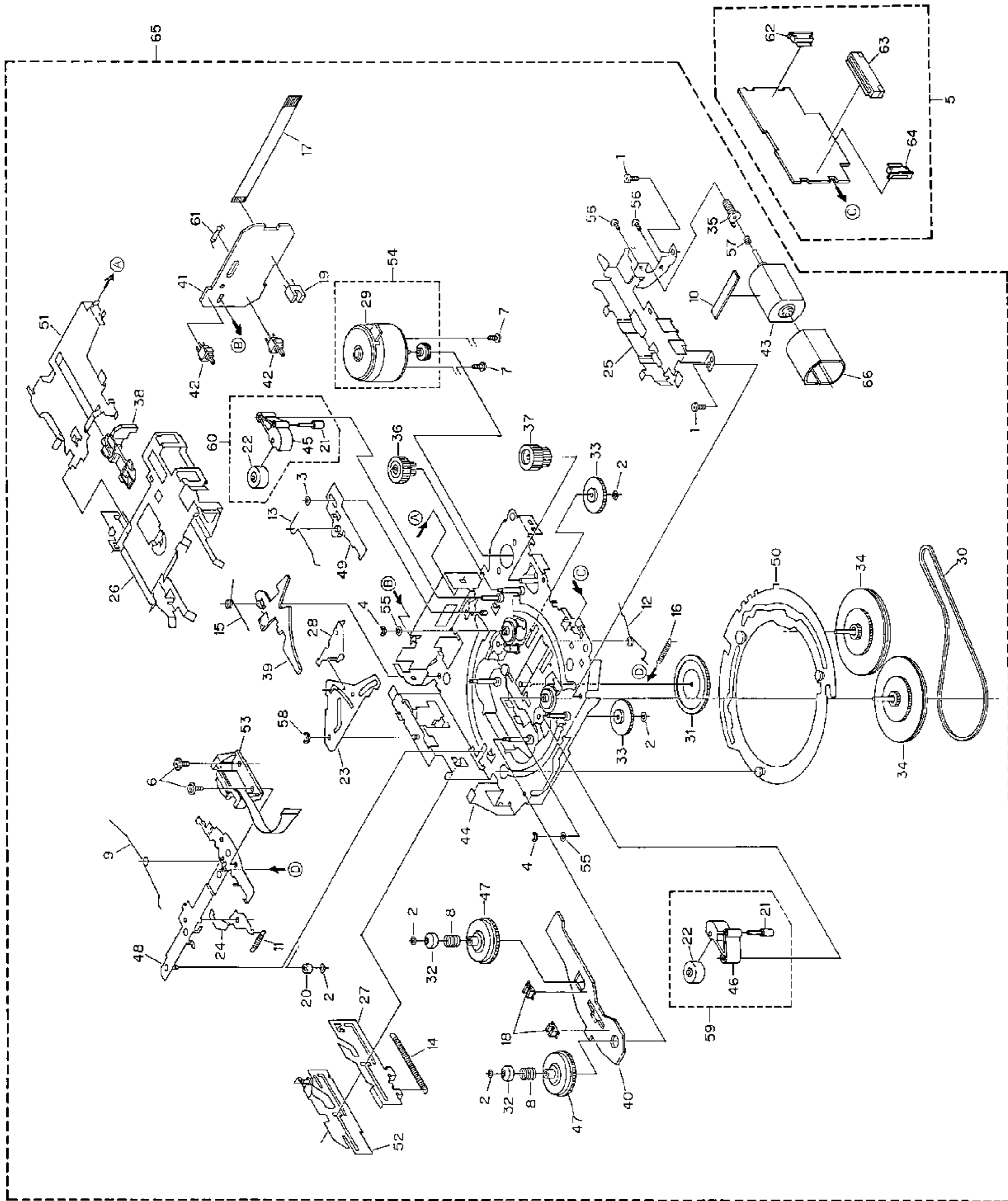


Fig. 3

● CASSETTE MECHANISM MODULE

(1)PARTS LIST

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Screw	BSZ20P040FMC	36	Worm Wheel	ENV1440
2	Washer	CBF1037	37	Gear	ENR1028
3	Washer	CBF1038	38	Lever	ENV1442
4	Washer	CBG1003	39	Arm	ENV1445
5	Deck Unit	See Contrast table	40	Gathering P.C.Board	ENX1037
6	Screw	EBA1028	41	Gathering P.C.Board	ENX1038
7	Screw	EBA1037	42	Switch(S1,S2)	ESG1004
8	Spring	EBH1531	43	Motor Unit(M2)	EXA1485
9	Spring	EBH1575	44	Chassis Unit	EXA1511
10	Cushion	EWM1034	45	Pinch Holder	ENV1485
11	Spring	EBH1515	46	Pinch Holder	ENV1486
12	Spring	EBH1587	47	Reel Unit	EXA1456
13	Spring	EBH1517	48	Head Base Unit	EXA1457
14	Spring	EBH1518	49	Lever Unit	EXA1438
15	Spring	EBH1519	50	Gear Unit	EXA1436
16	Spring	EBH1537	51	Frame Unit	EXA1458
17	Cord	EDD1015	52	Lever Unit	EXA1439
18	Photo-interrupter(EGN2,3)	EGN1006	53	Head Assy(HD1)	EXA1452
19	Photo-interrupter(EGN1)	EGN1005	54	Motor Unit(M1)	EXA1454
20	Roller	ENR1031	55	Washer	HBF-179
21	Shaft	ELA1373	56	Screw	BMZ20P022FMC
22	Pinch Roller	ENV1518	57	Spring	EBH1545
23	Arm	ENC1396	58	Washer	YE20FUC
24	Arm	ENC1397	59	Pinch Holder Unit	EXA1529
25	Guide	ENC1398	60	Pinch Holder Unit	EXA1528
26	Holder	ENC1417	61	Resistor(R1)	RD1/4HM181J
27	Lever	ENC1448	62	Connector(CN253)	CKS2129
28	Arm	ENC1401	63	Connector(CN251)	CKS1711
29	Motor	EXM1027	64	Connector(CN252)	CKS2127
30	Belt	ENT1027	65	Spare Unit	See Contrast table
31	Gear	ENV1347	66	Shield	See Contrast table
32	Collar	ENV1508			
33	Gear	ENV1350			
34	Flywheel	ENV1410			
35	Worm Gear	ENV1439			

(2) CONTRAST TABLE

KEH-P8650/ES and KEH-P7650/ES have the same construction except for the following:

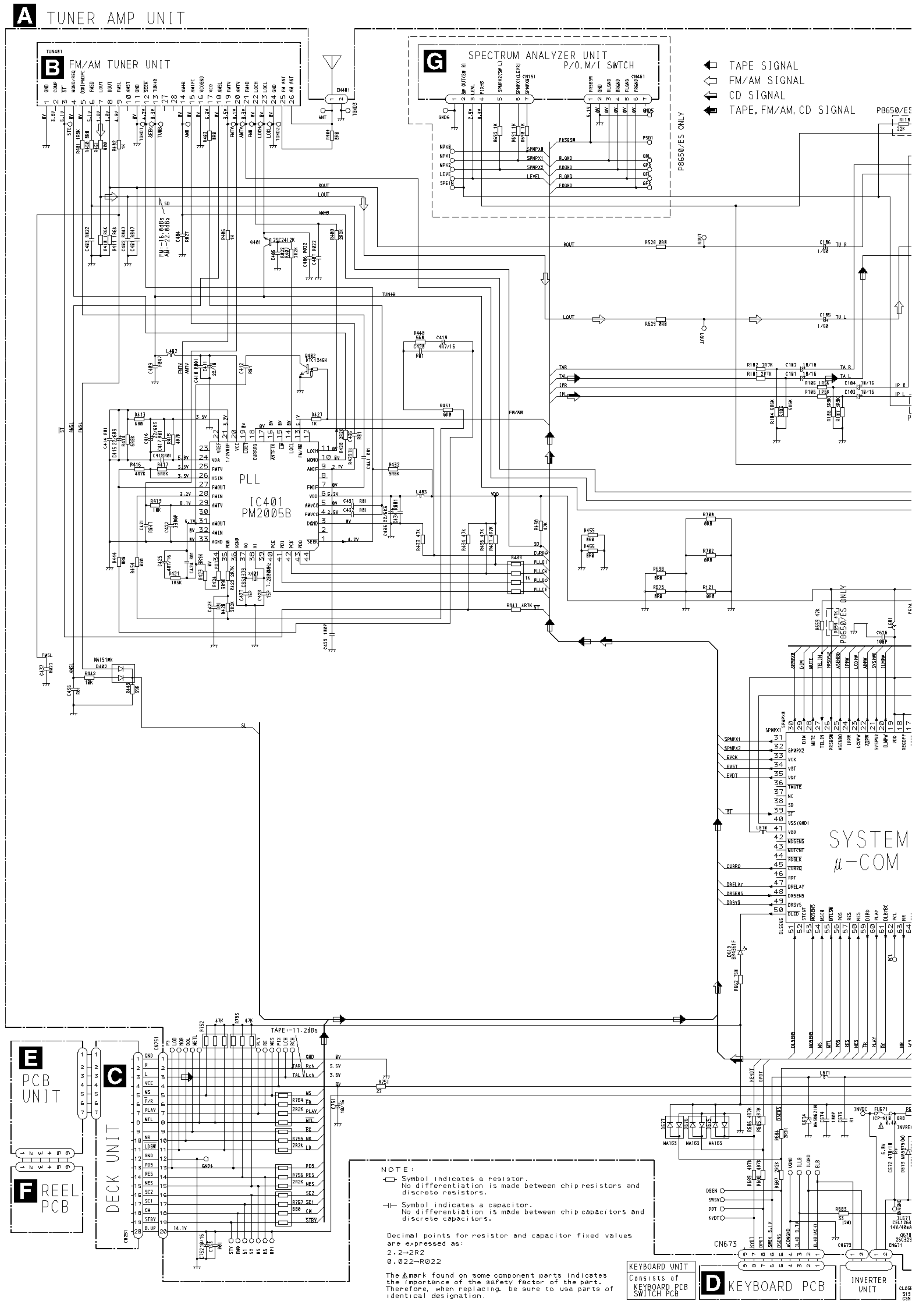
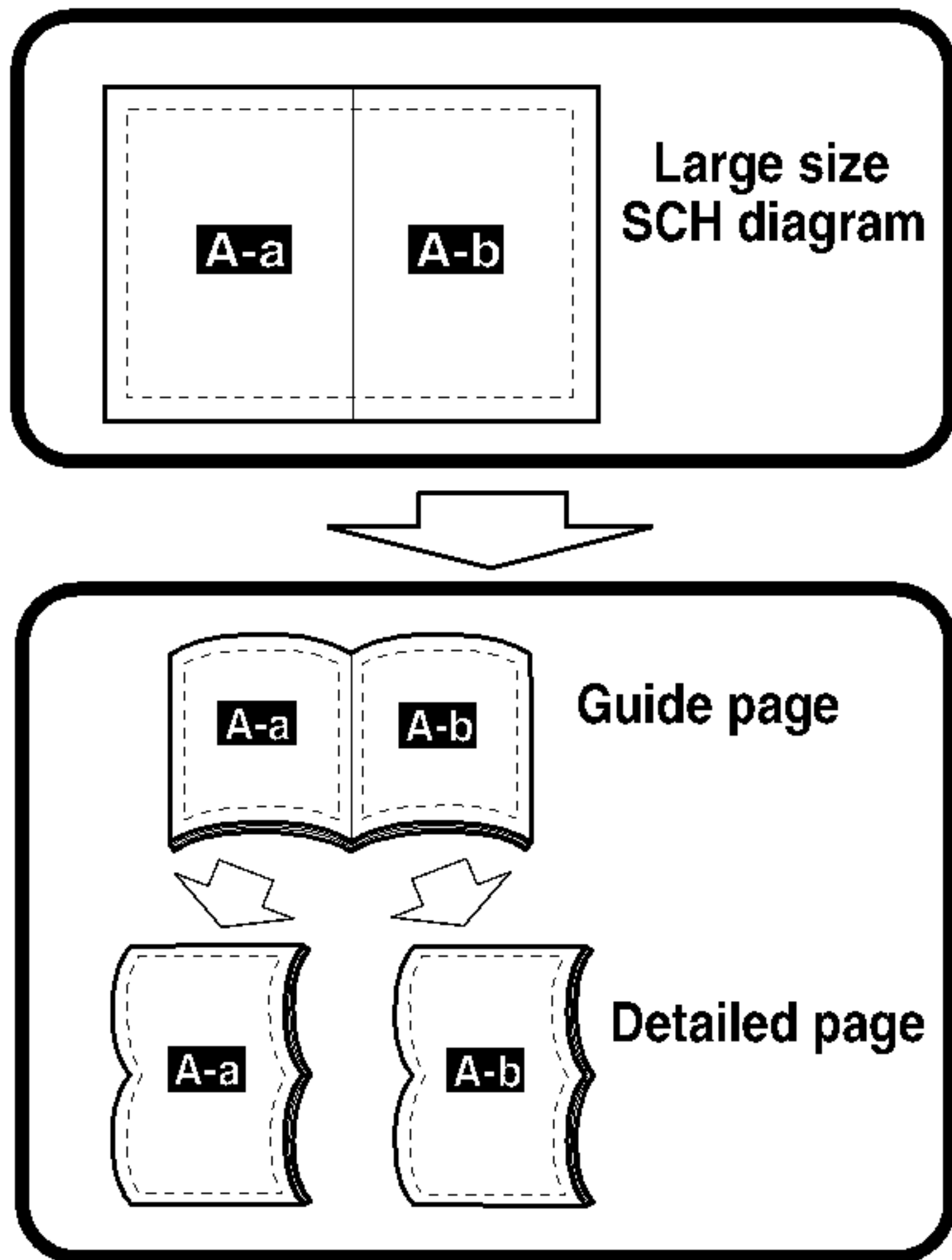
Mark No.	Symbol & Description	Part No.	
		KEH-P8650/ES	KEH-P7650/ES
5	Deck Unit	CWM1008	CWM1007
65	Spare Unit	CXA3029	CXA3028
66	Shield	ENC1410	Not used

3. SCHEMATIC DIAGRAM

3.1 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

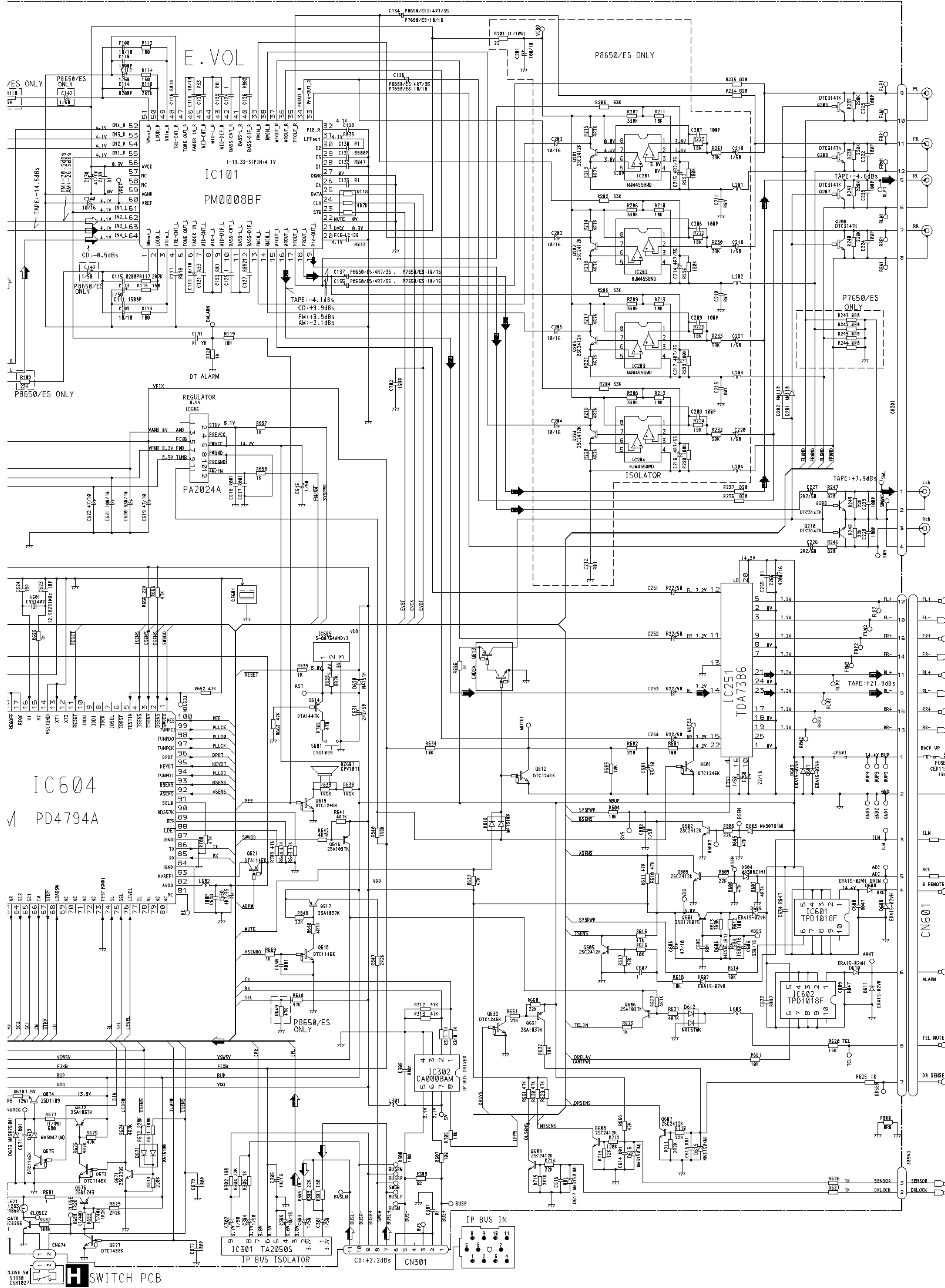
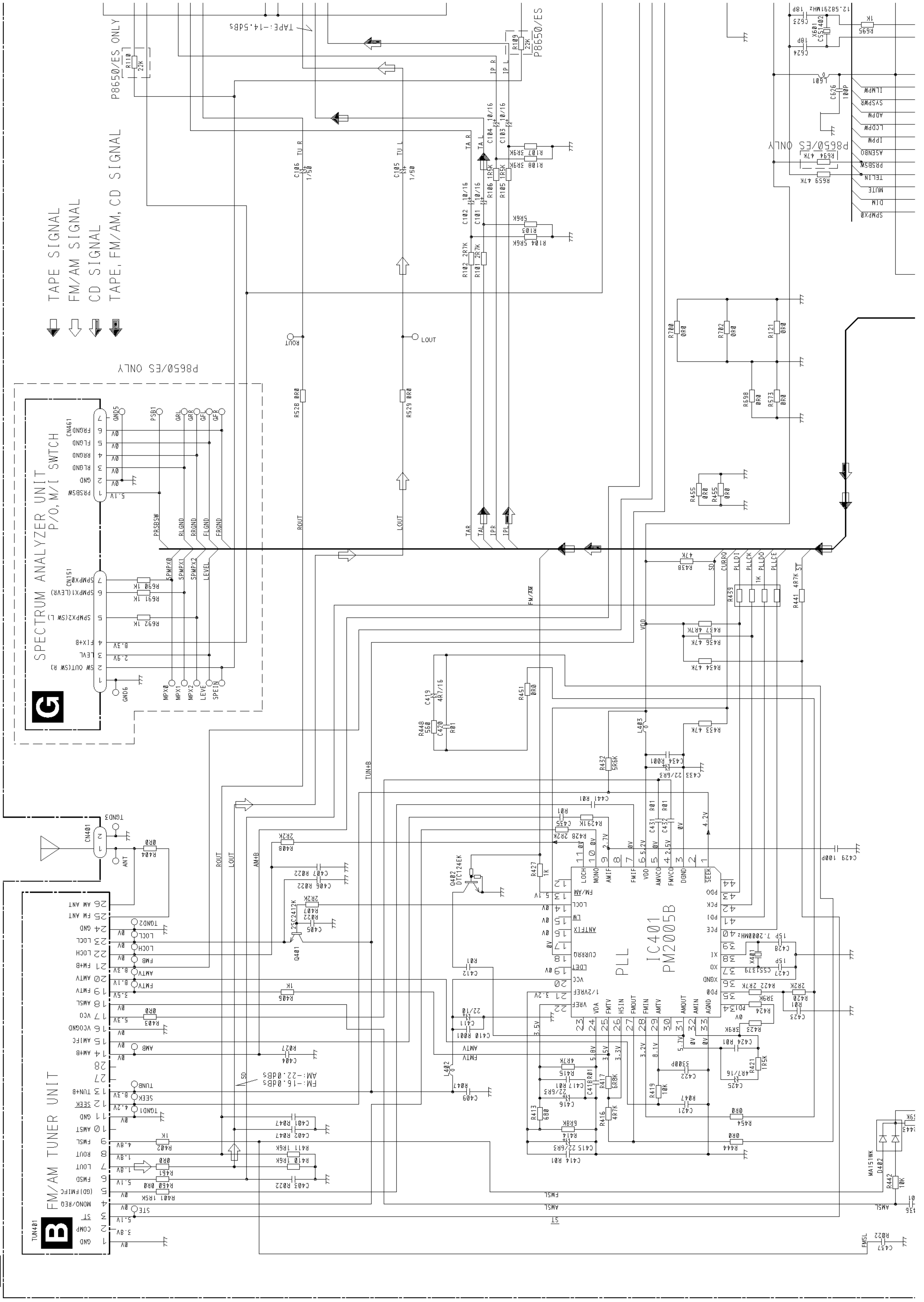


Fig. 4

A-a A-b

A TUNER AMP UNIT

A-a



↓ TAPE SIGNAL
 ↓ FM/AM SIGNAL
 ↓ CD SIGNAL
 ↓ TAPE, FM/AM, CD SIGNAL

G

SPECTRUM ANALYZER UNIT
P/O, M/I SWITCH

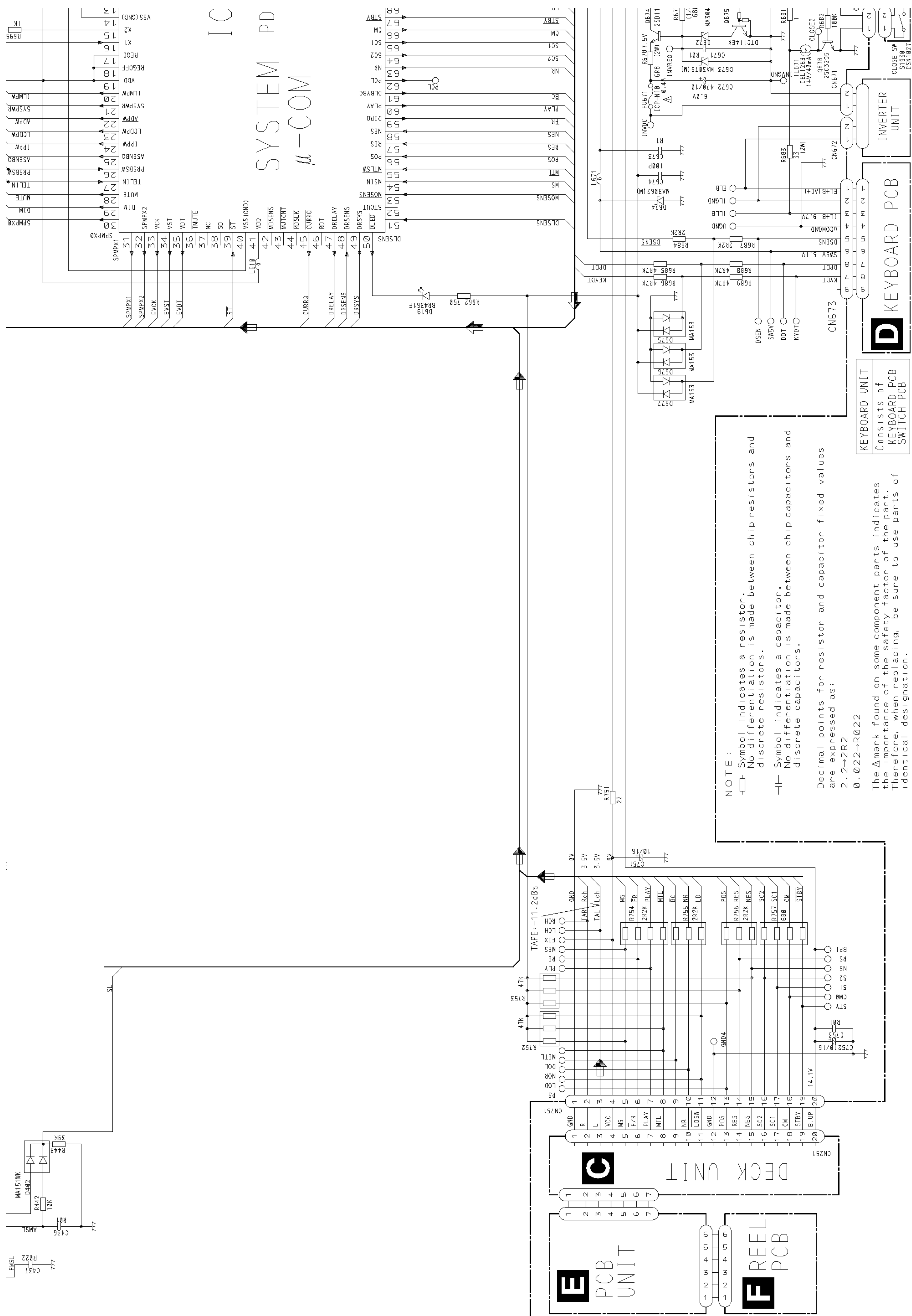
1 SW OUT(SW R)
 2 EVL
 3 2.9V
 4 FIX+B
 5 SPMPX2(SW L)
 6 SPMPX1(LEVR)
 7 SPMPX1(LEVR)
 8 GND
 9 R592 1K
 10 R591 1K
 11 R590 1K
 12 GND
 13 P/SB5W
 14 GND
 15 R581
 16 GND
 17 GND
 18 GND
 19 GND
 20 GND
 21 GND
 22 GND
 23 GND
 24 GND
 25 FM ANT
 26 AM ANT

B

FM/AM TUNER UNIT

1 GND
 2 COMP
 3 3.0V
 4 MONO/REO
 5 (GD) FM/FC
 6 FM/SD
 7 LOUT
 8 ROUT
 9 FM/SL
 10 FM/SL
 11 GND
 12 SEEK
 13 TUN+B
 14 AM+B
 15 AM/FC
 16 VCOGND
 17 VCO
 18 AM/SL
 19 FM/TV
 20 AM/TV
 21 FM+B
 22 LOCH
 23 LOCL
 24 GND
 25 FM ANT
 26 AM ANT

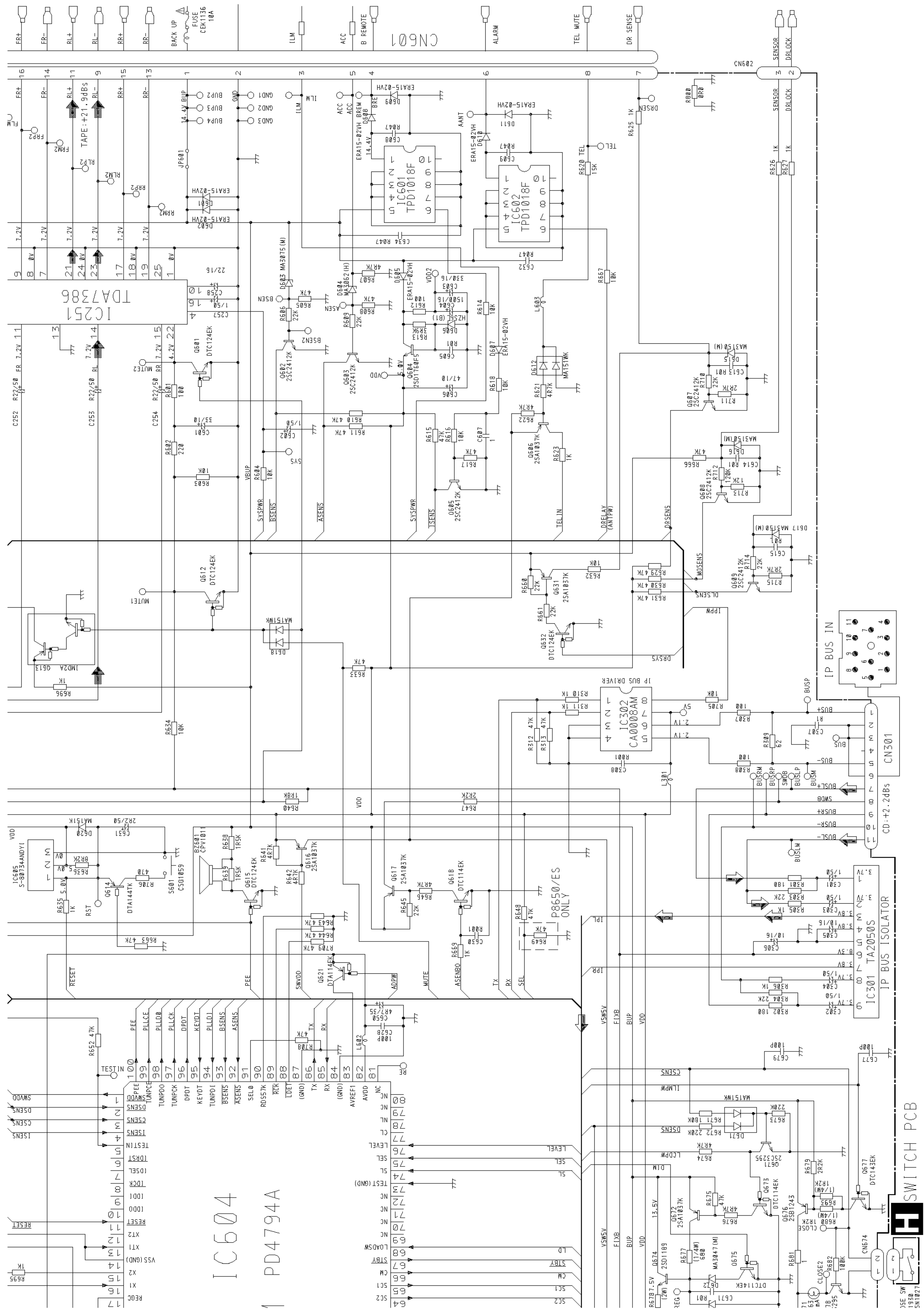
TUN481



A-a A-b

Fig. 5

A-a
Ab



SWITCH PCB

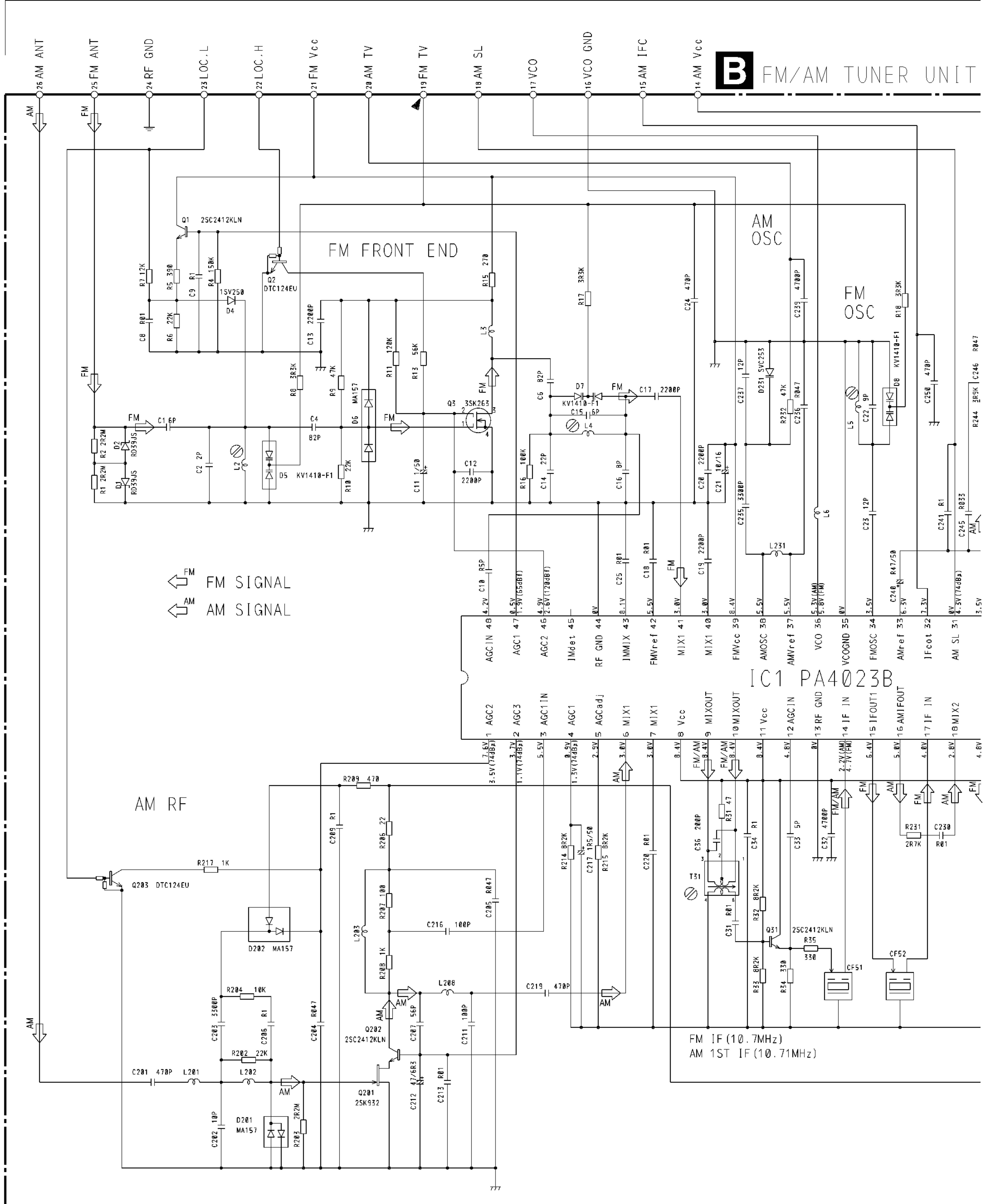
Fig. 6



3.2 FM/AM TUNER UNIT

A

B FM/AM TUNER UNIT



B

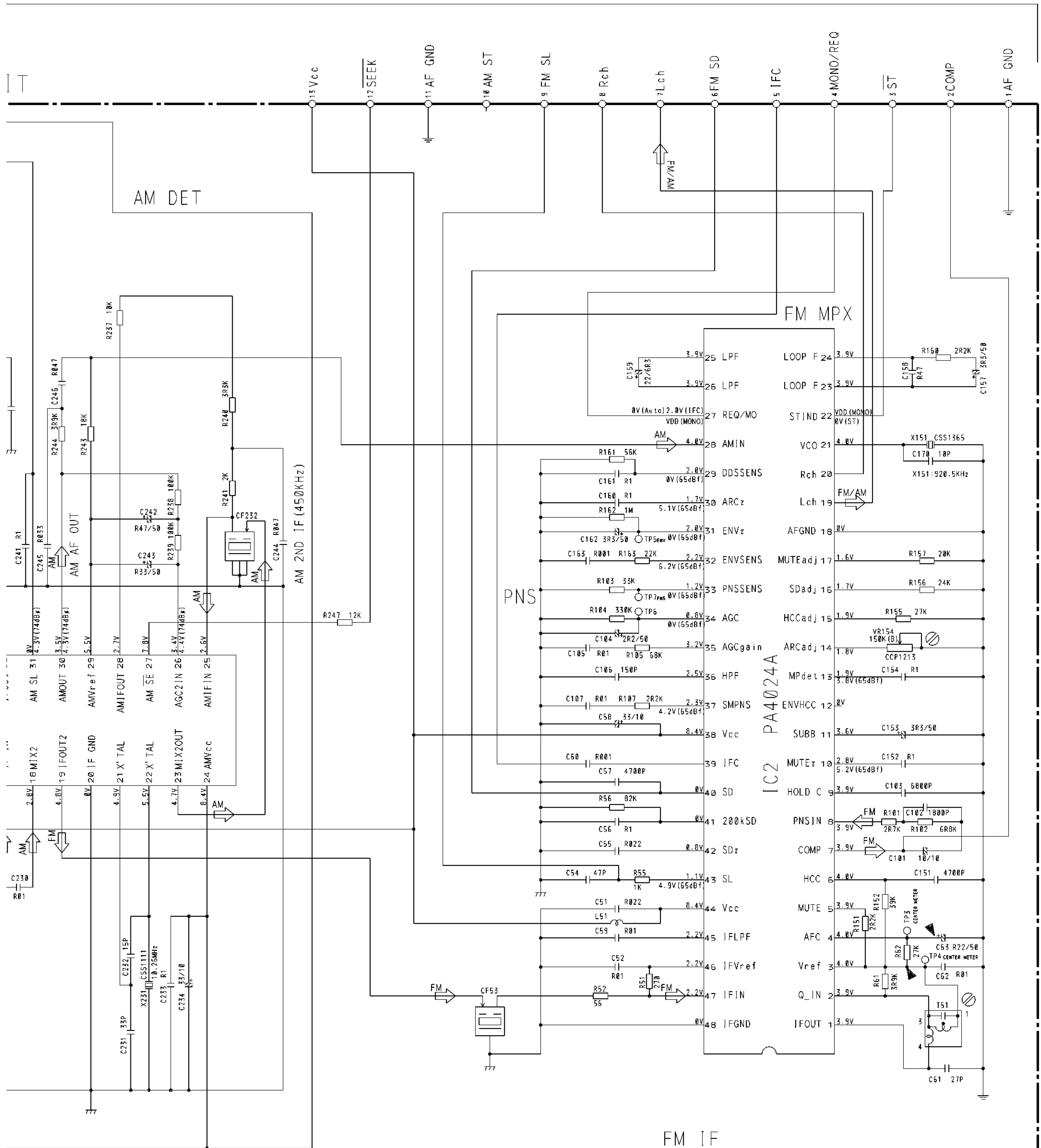
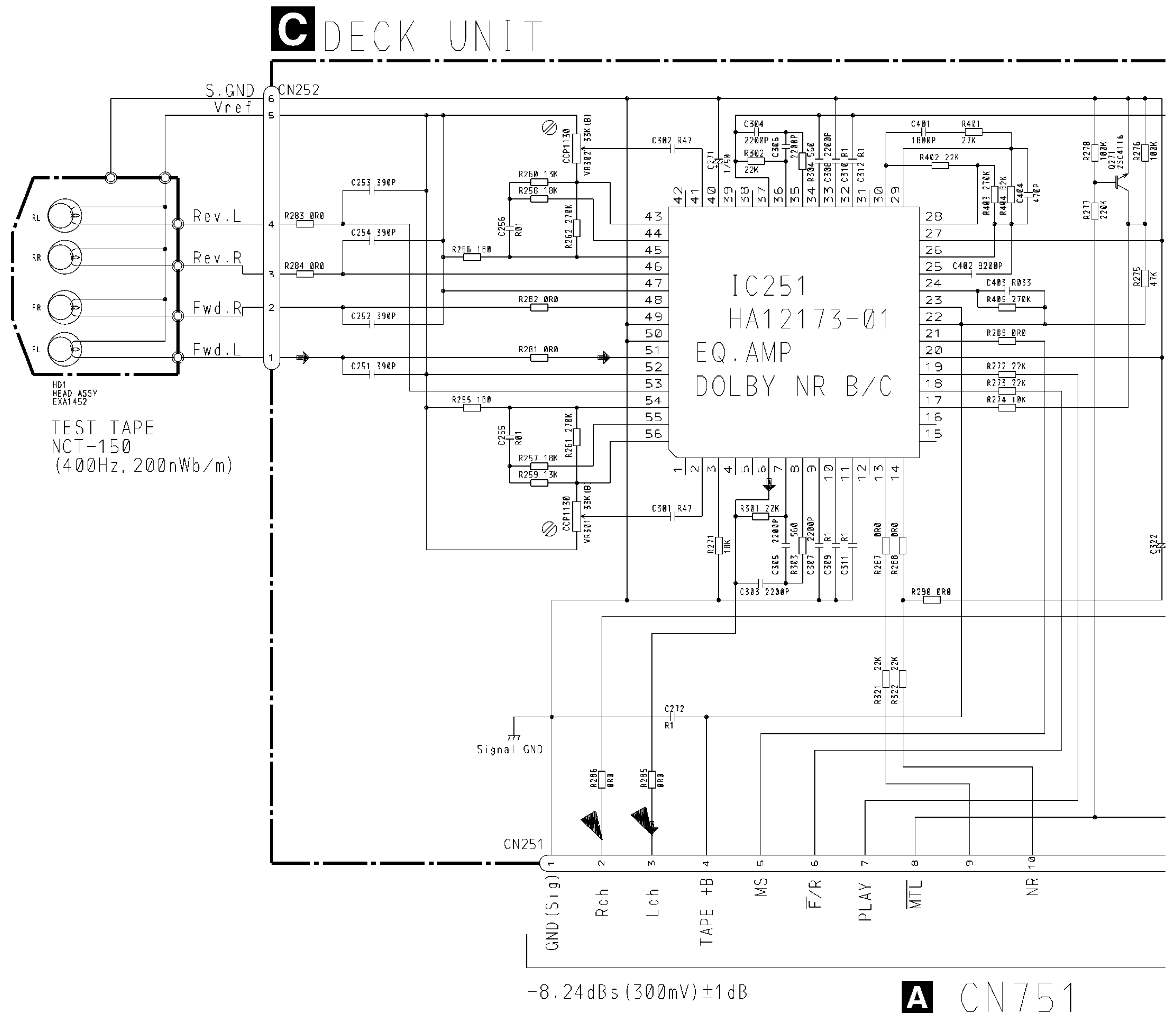


Fig. 7



3.3 CASSETTE MECHANISM MODULE

● KEH-P8650/ES



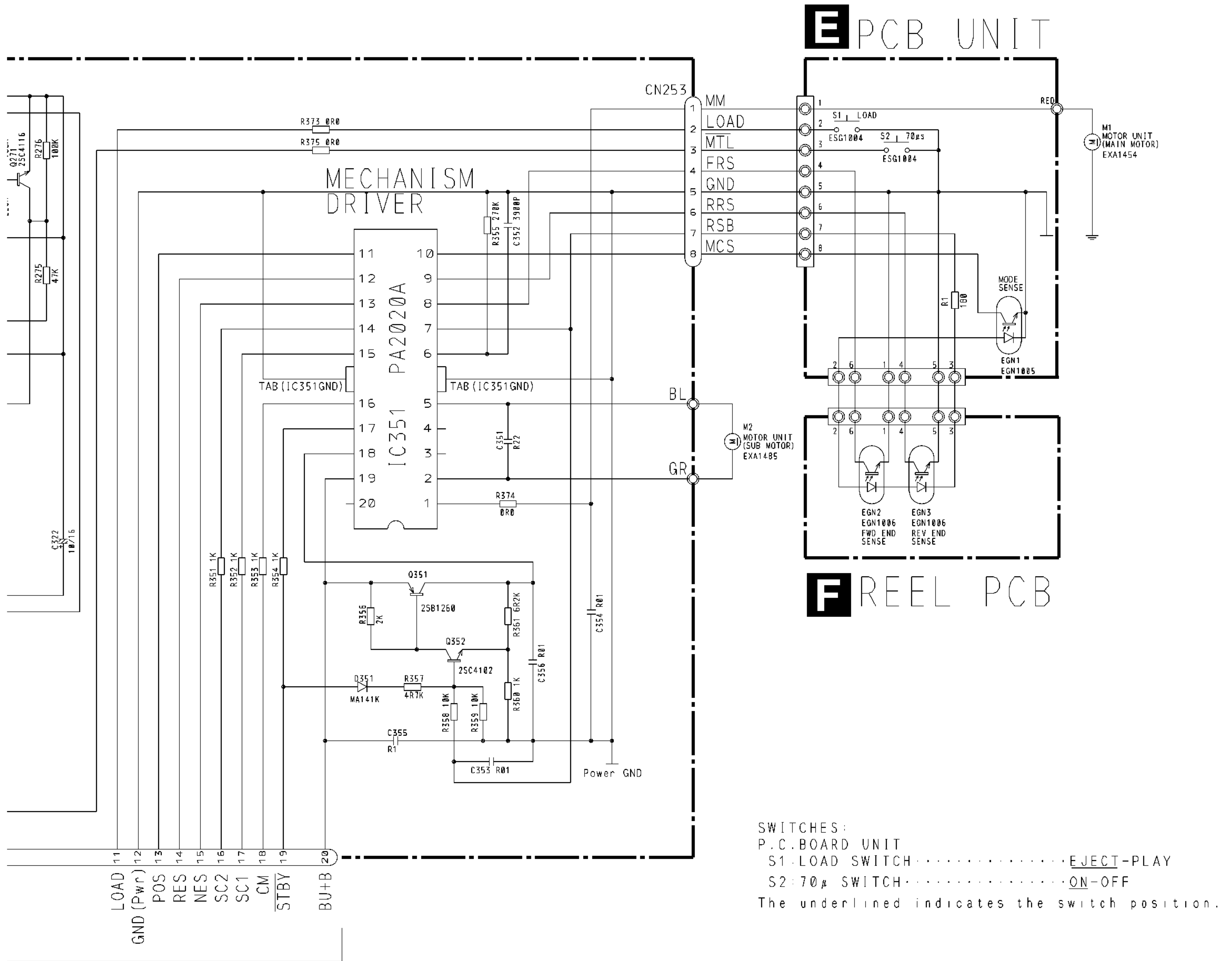
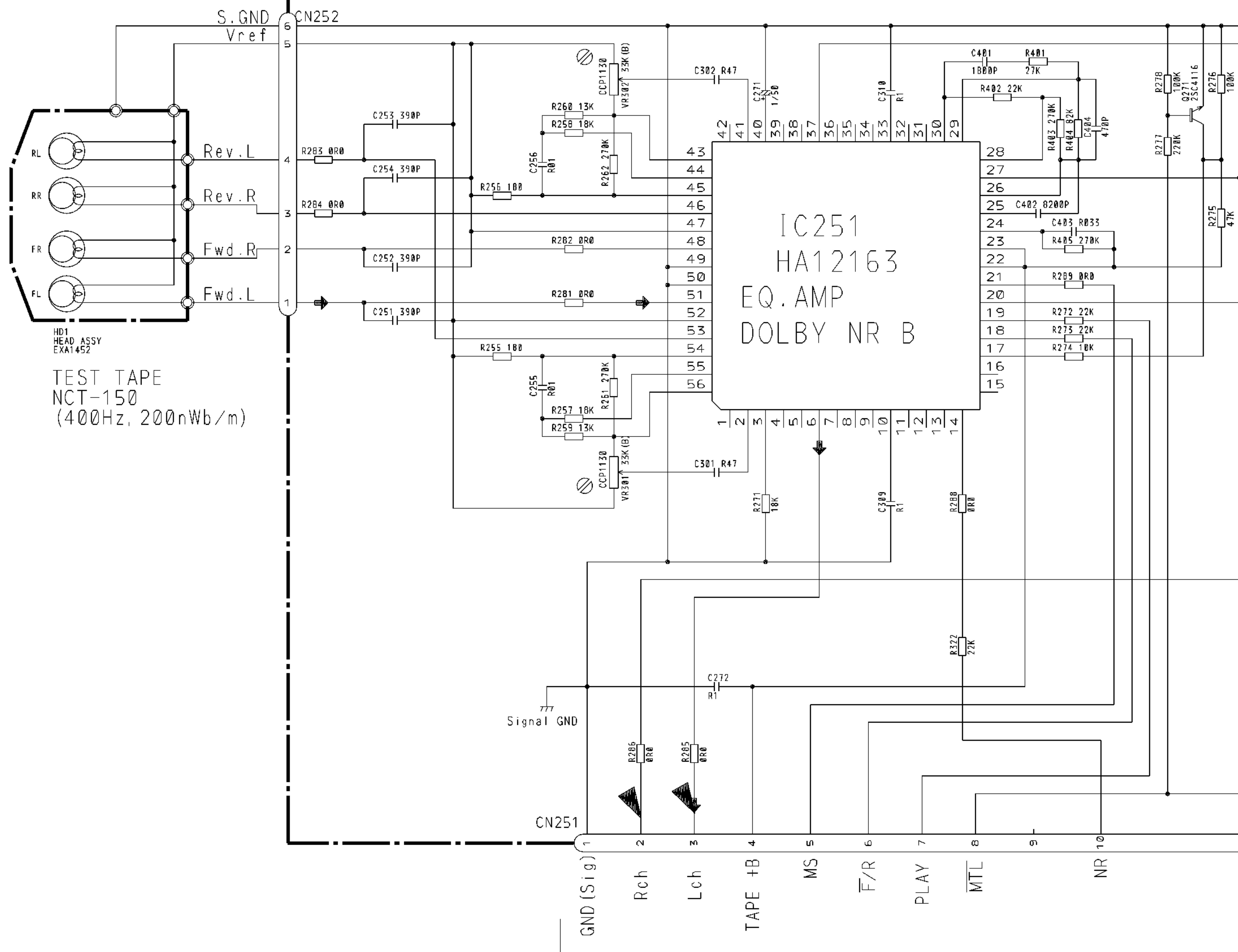


Fig. 8

C DECK UNIT



-8.24dBs (300mV) ±1dB

A CN751

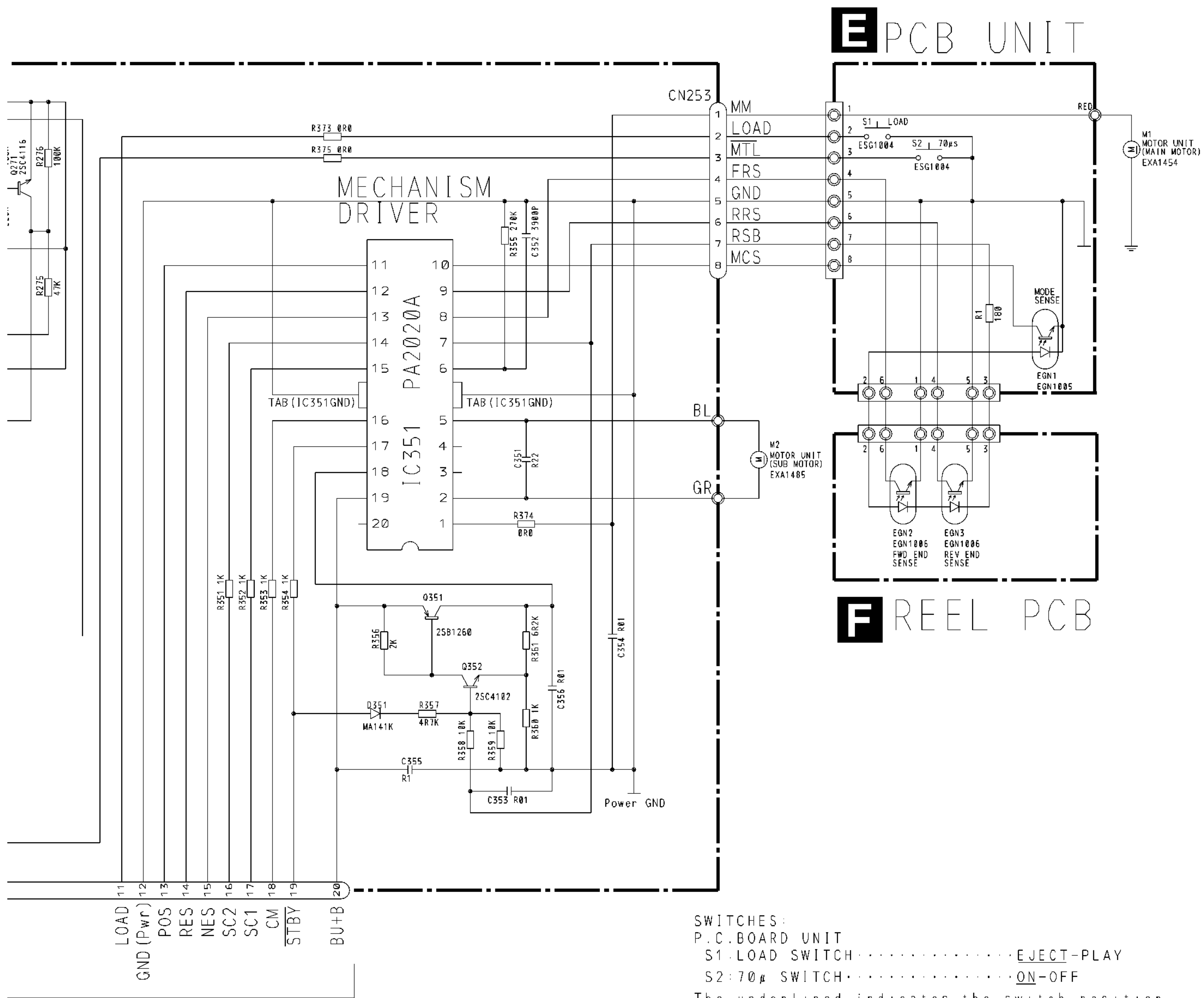


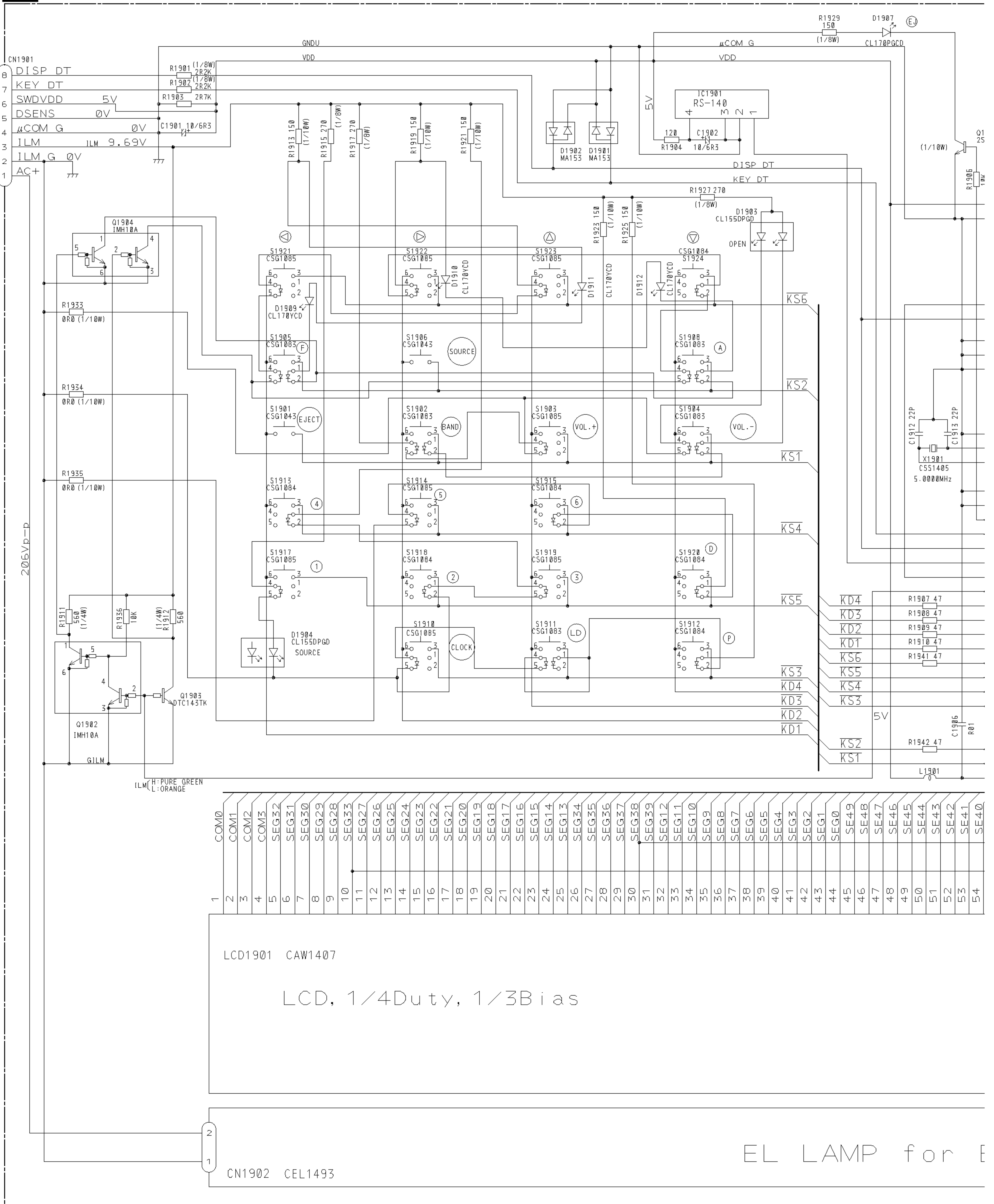
Fig. 9

3.4 KEYBOARD PCB

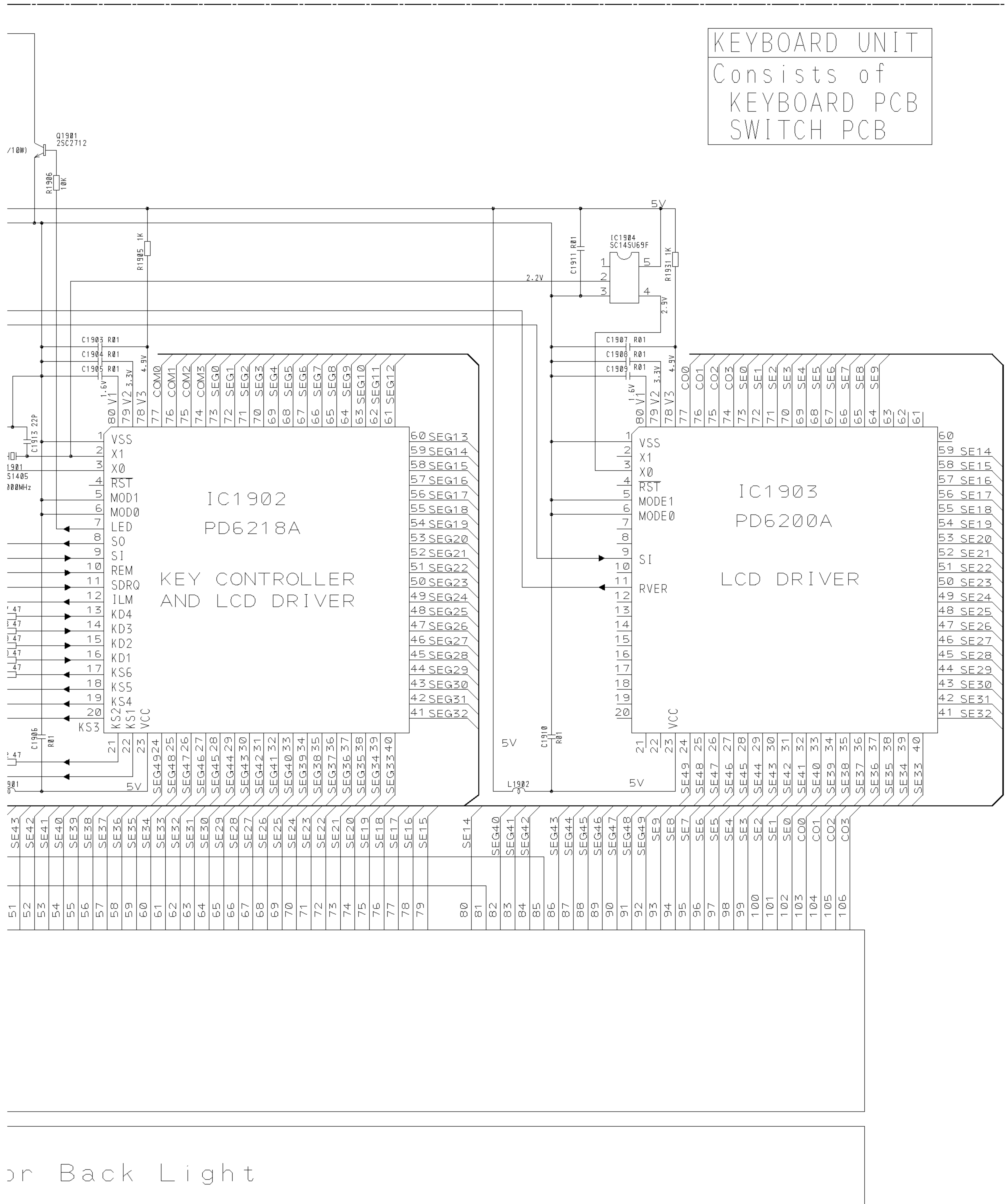
● KEH-P8650/ES

D KEYBOARD PCB

A CN673



KEYBOARD UNIT
Consists of
KEYBOARD PCB
SWITCH PCB



or Back Light

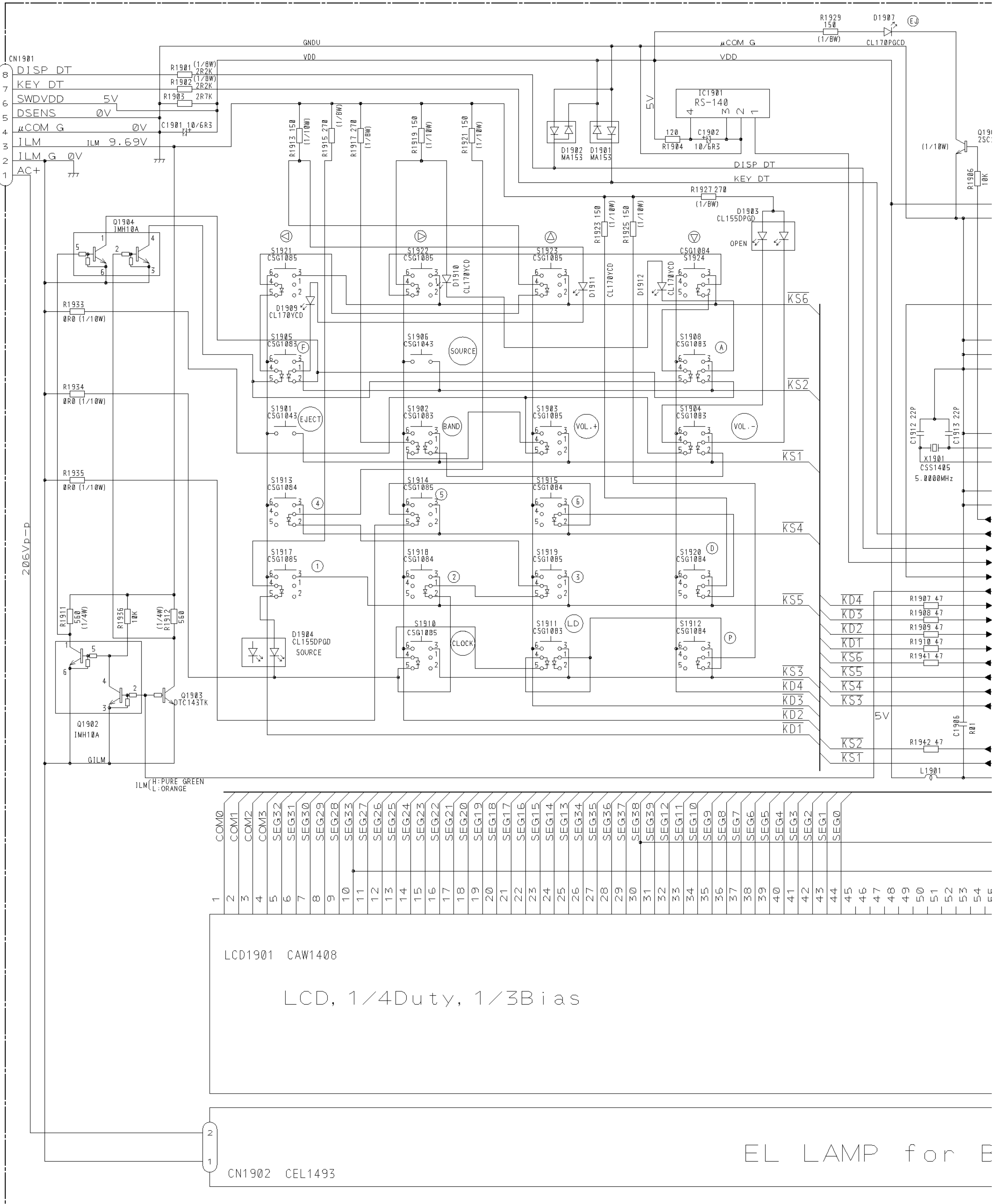
Fig. 10



● KEH-P7650/ES

D KEYBOARD PCB

A CN673



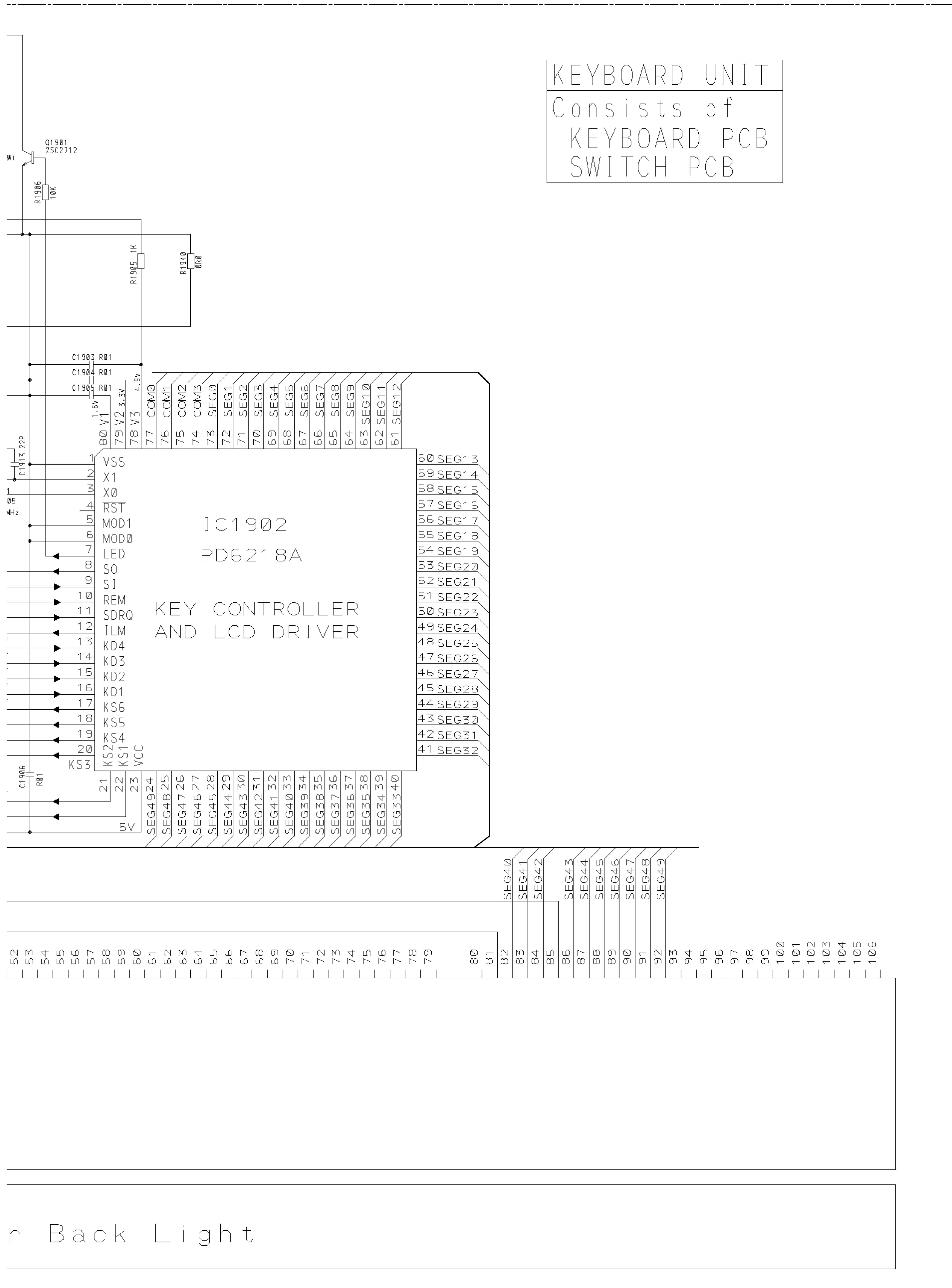
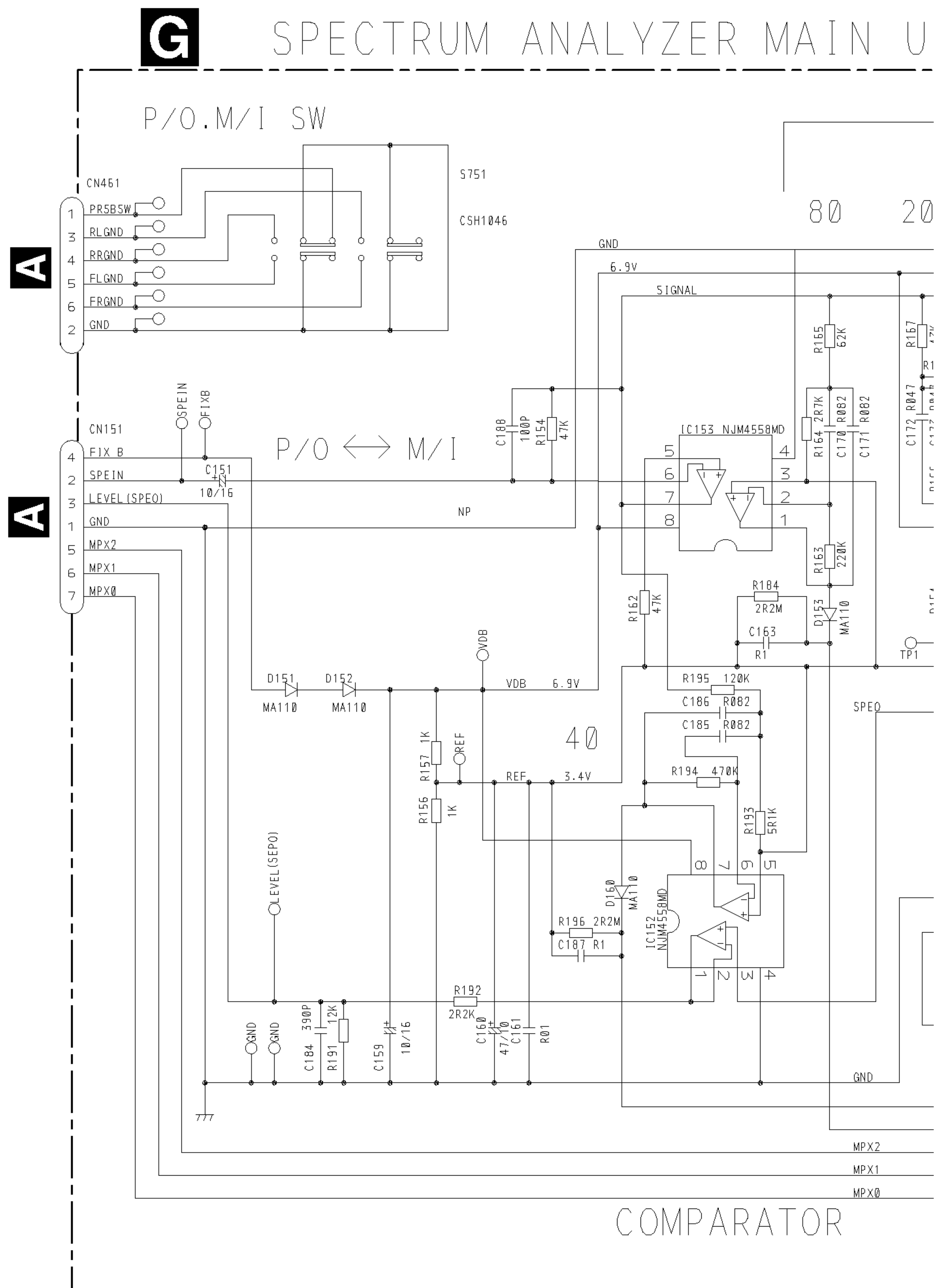


Fig. 11



3.5 SPECTRUM ANALYZER MAIN UNIT



N UNIT

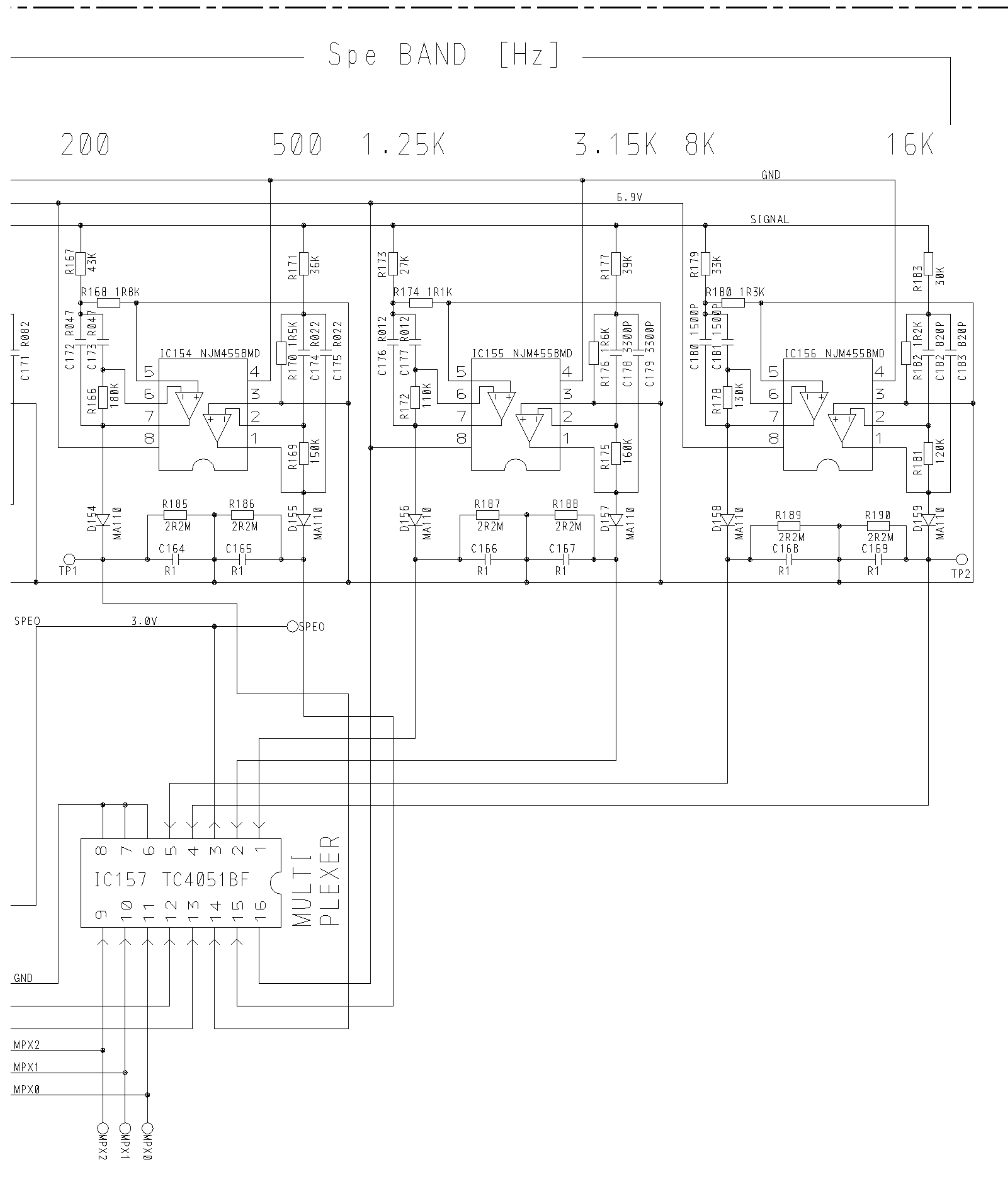


Fig. 12

4. PCB CONNECTION DIAGRAM

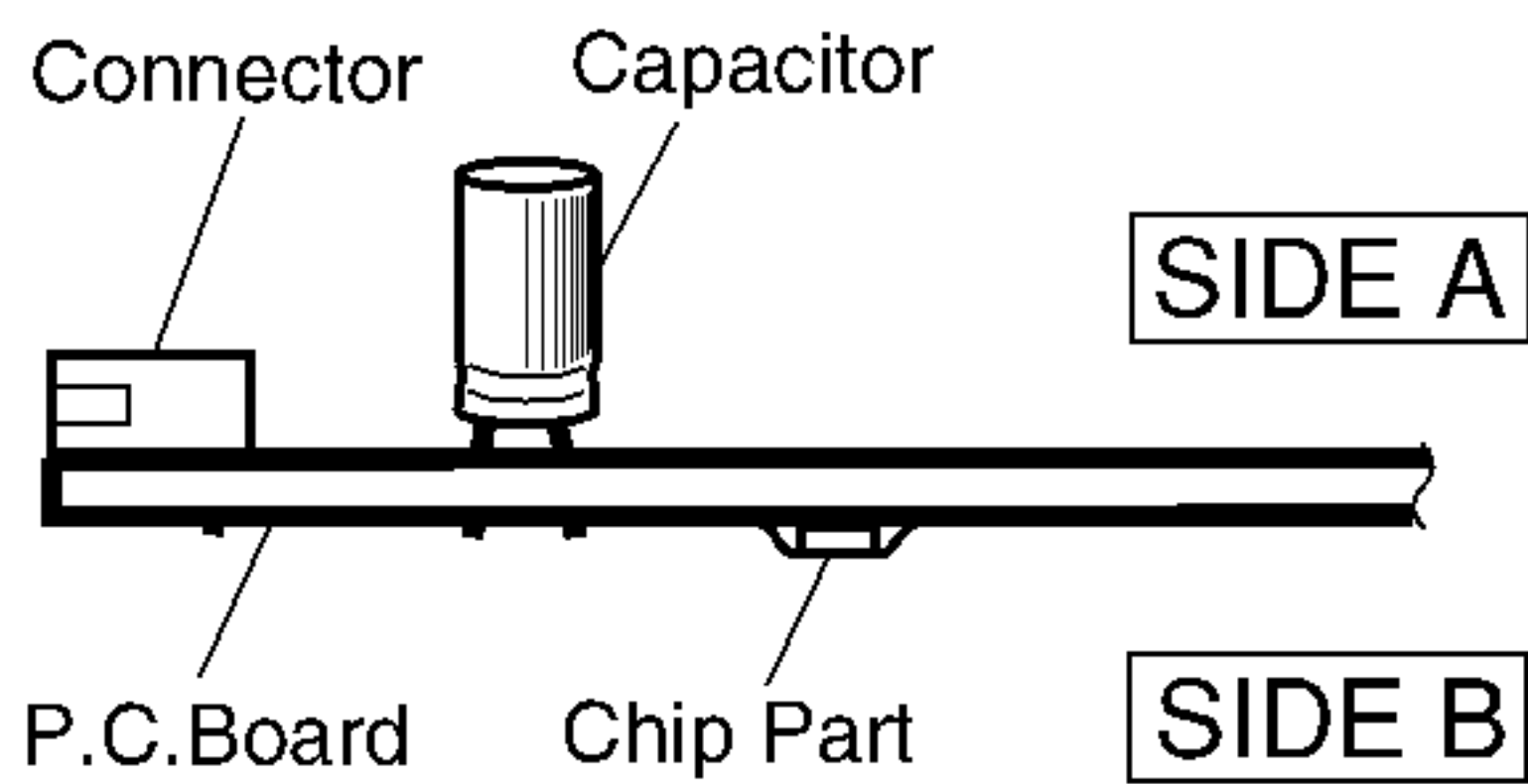
4.1 TUNER AMP UNIT, SWITCH PCB

NOTE FOR PCB DIAGRAMS

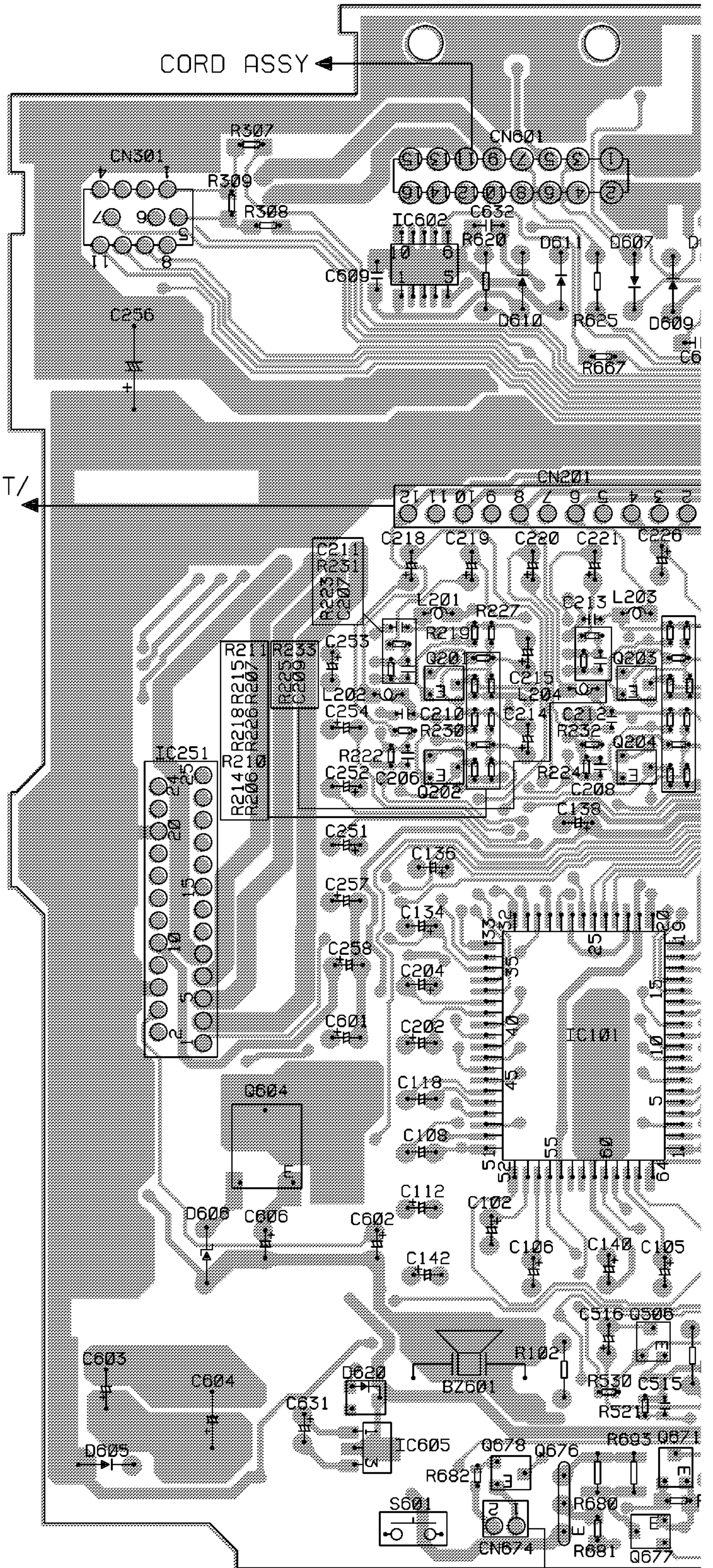
1. The parts mounted on this PCB include all necessary parts for several destination.

For further information for respective destinations, be sure to check with the schematic diagram.

2. Viewpoint of PCB diagrams

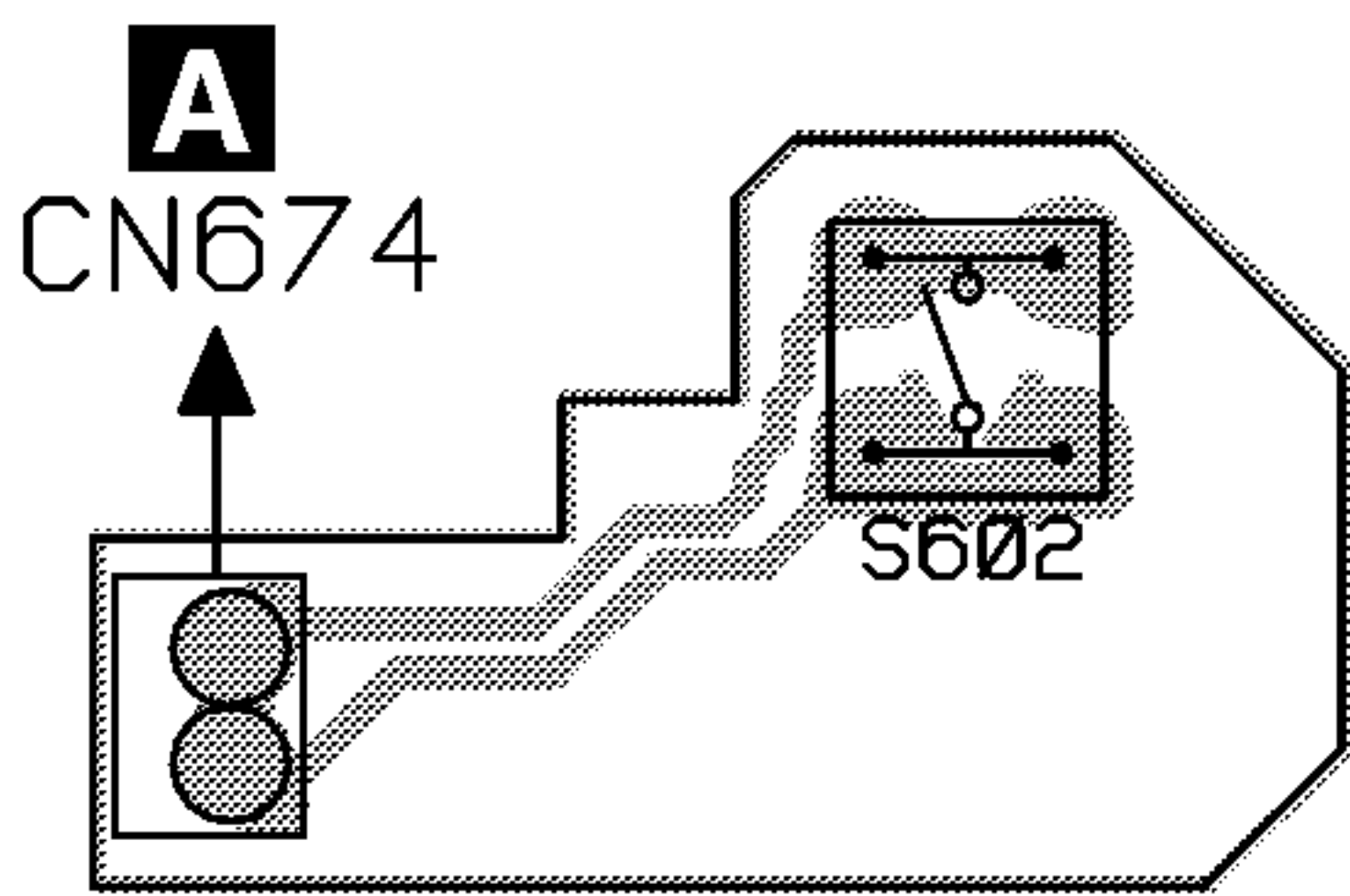


A TUNER AMP UNIT



IC, Q	ADJ
IC606	Q674
IC602	IC601
	Q675
	Q673
Q605	IC603
	Q609
	Q631
	Q617
Q606	IC302
	IC401
Q618	Q632
	Q402
	IC301
	Q201
	Q203
	Q621
IC251	Q204
	Q202
	IC604
	IC101
	IC552
	Q604
	IC502
	Q502
	Q507
	IC551
Q506	Q505
	Q676
	Q671
IC605	Q678
	Q677

H SWITCH PCB



SIDE A

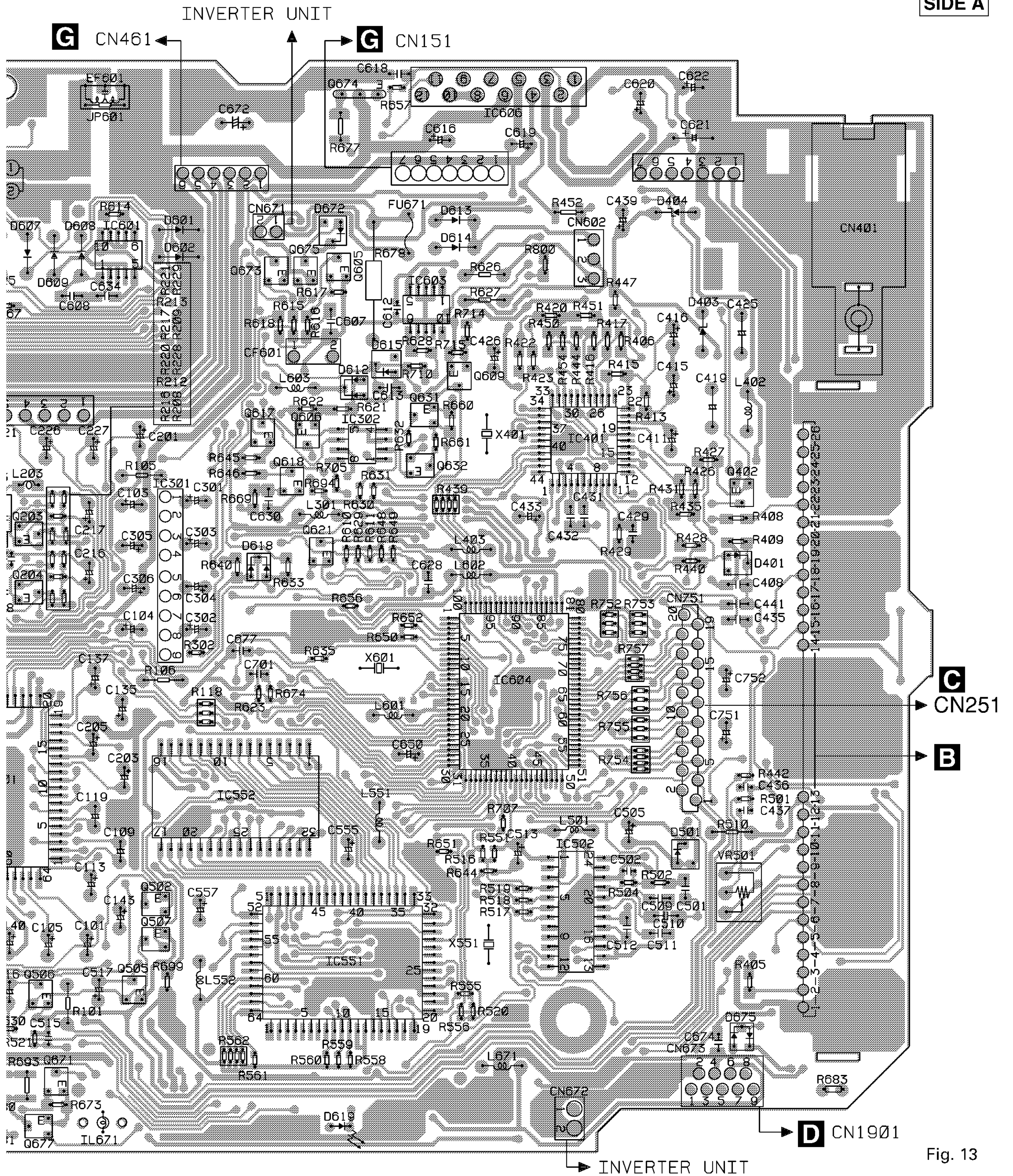
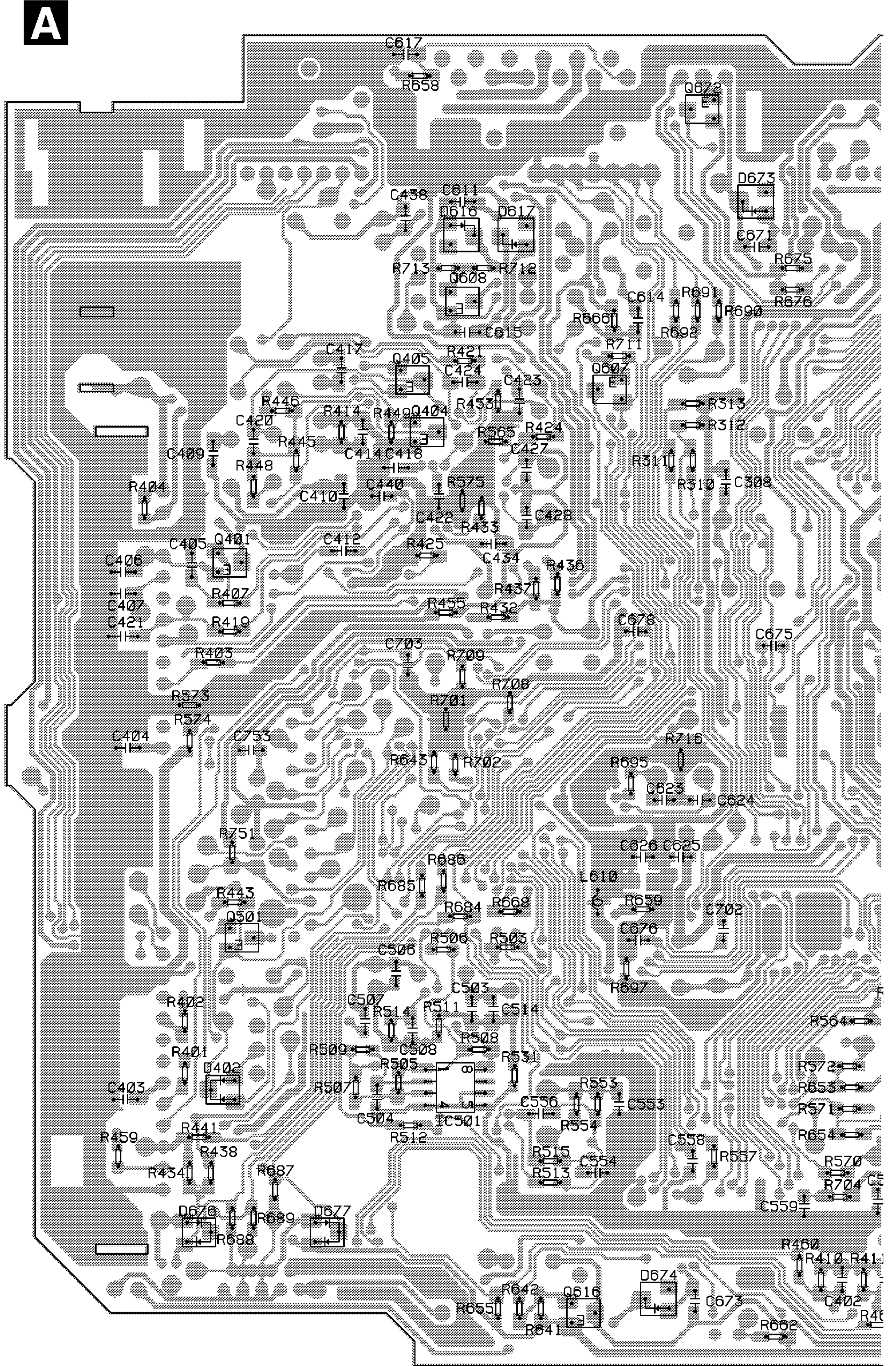
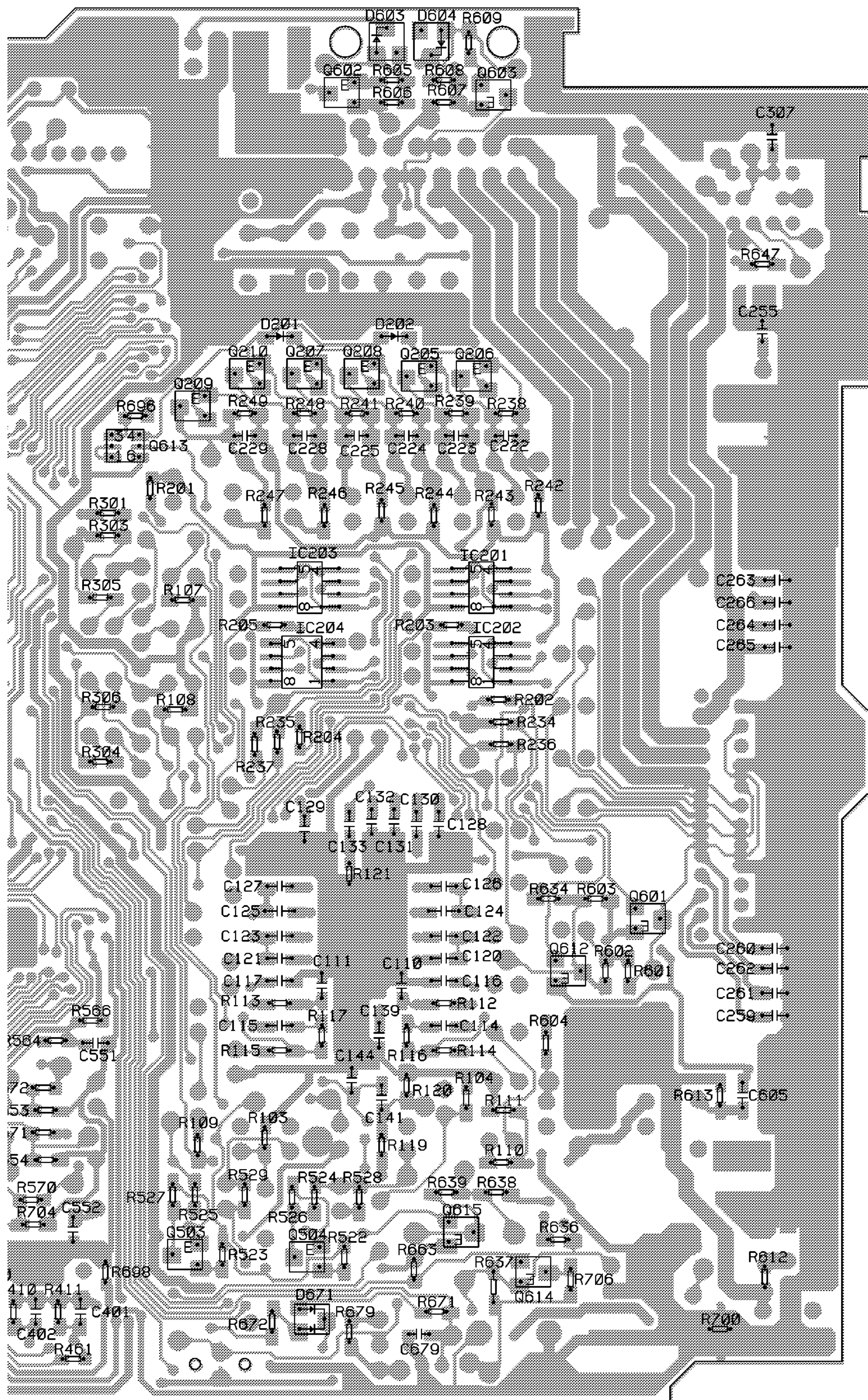


Fig. 13



SIDE B



- IC, Q
- Q672 Q602 Q603
- Q608
- Q405 Q607 Q207 Q210 Q208 Q205 Q206
- Q209
- Q404
- Q613
- Q401
- IC203 IC201
- IC204 IC202
- C263
- C266
- C264
- C265
- Q601
- Q501
- Q612
- C260
- C262
- C261
- C259
- IC501
- Q615
- Q503 Q504
- Q614
- Q616

Fig. 14

4.2 FM/AM TUNER UNIT

SIDE A

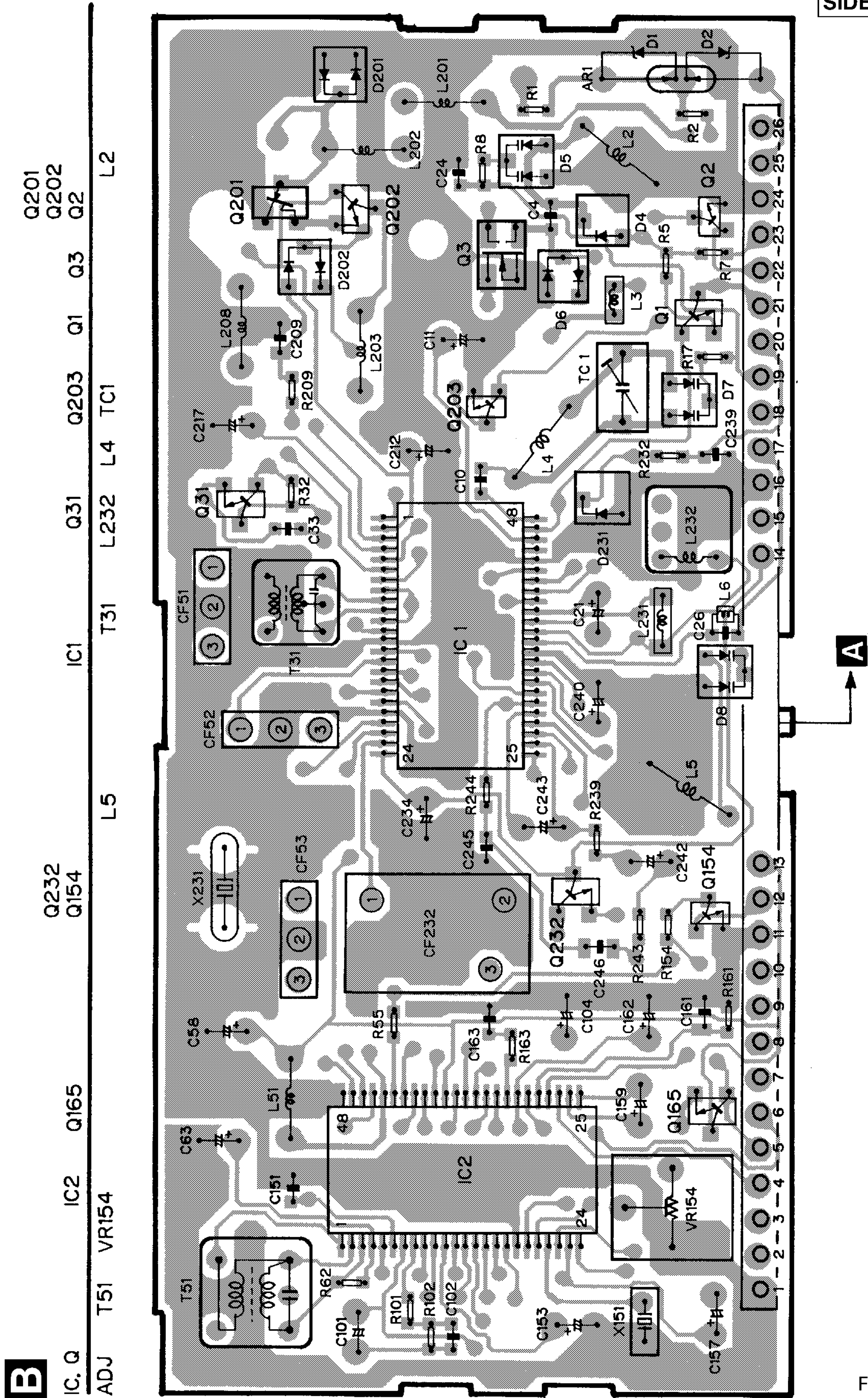


Fig. 15



SIDE B

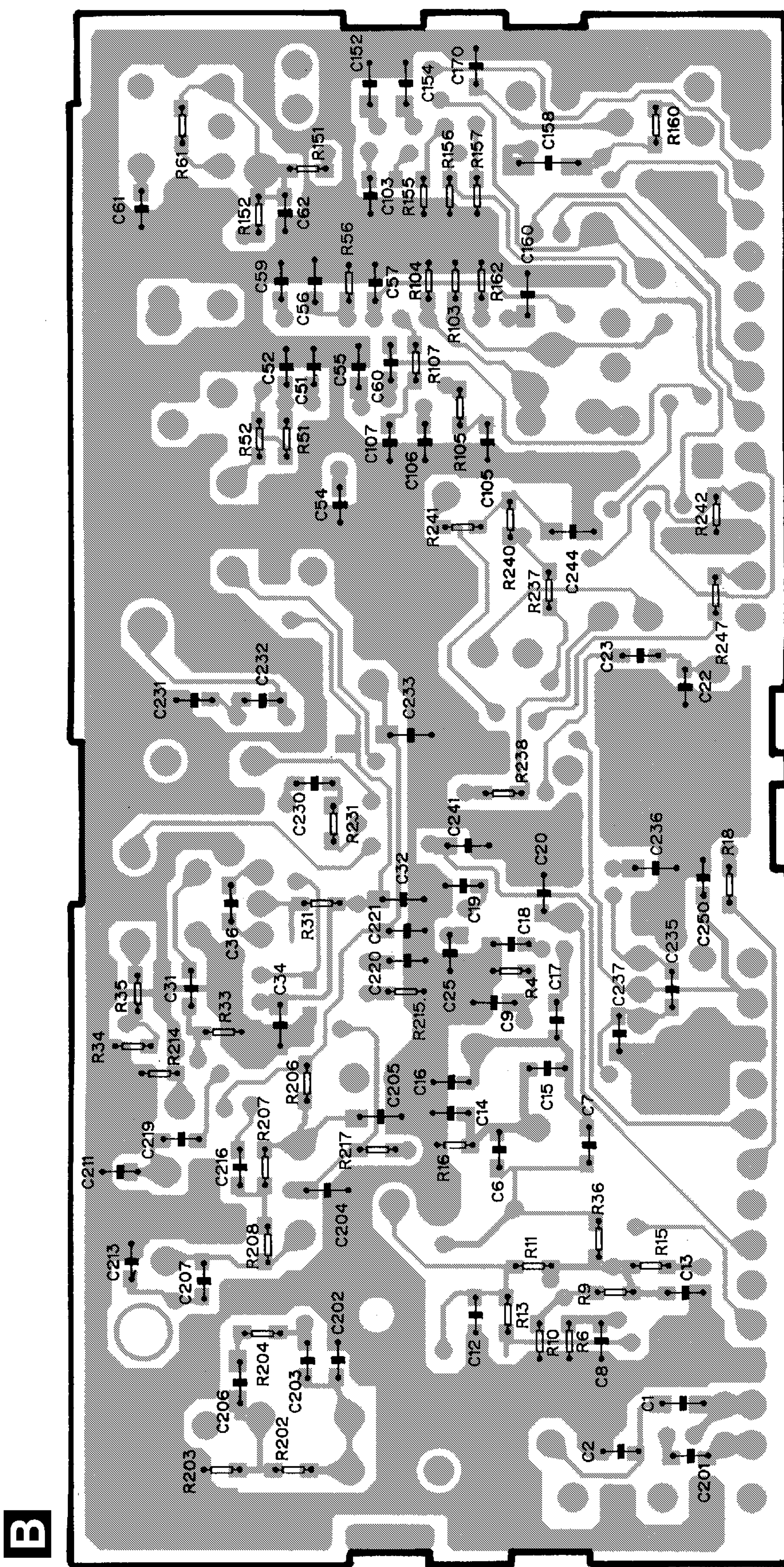


Fig. 16

B

4.3 CASSETTE MECHANISM MODULE

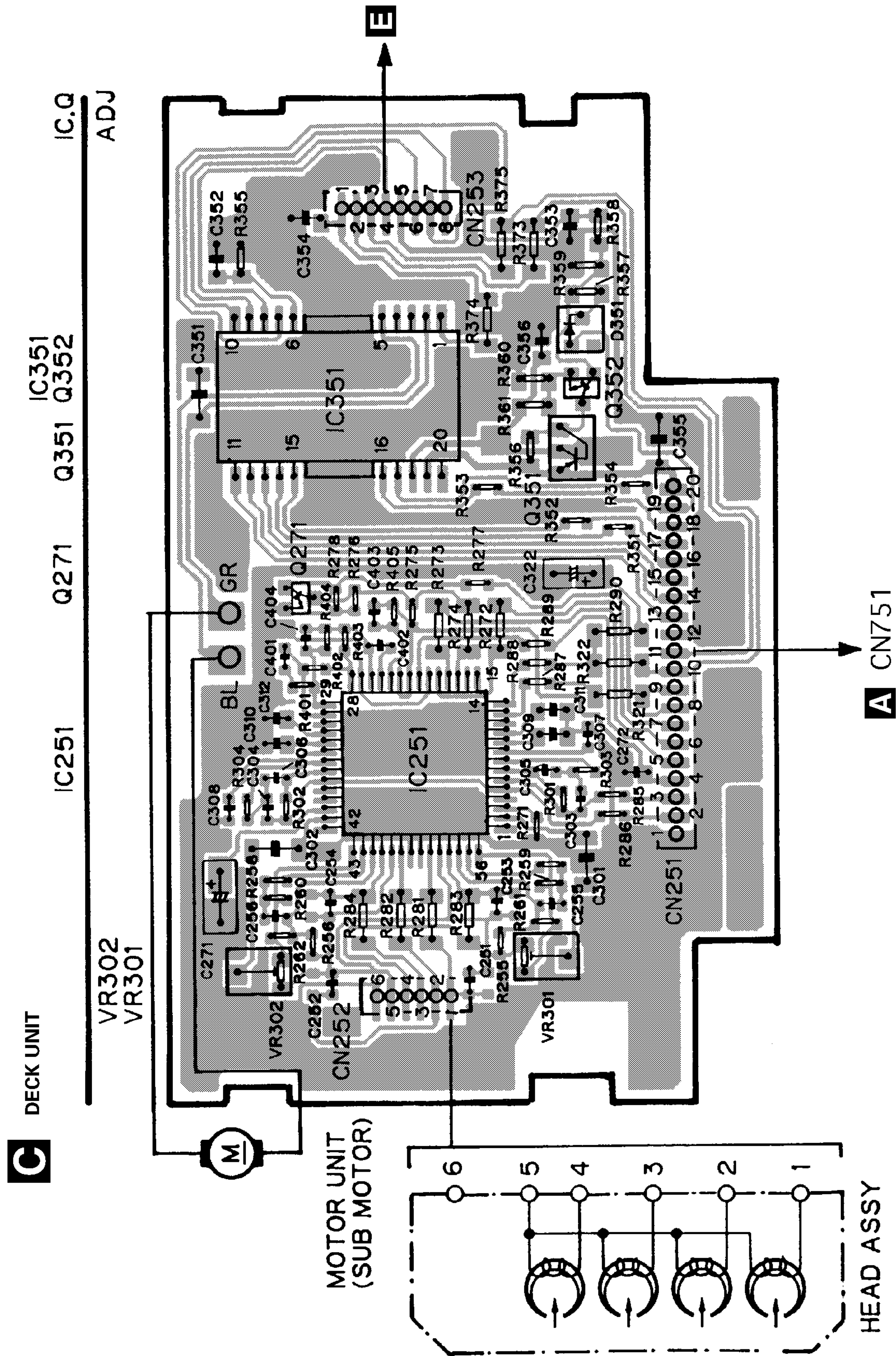


Fig. 17



E PCB UNIT

SIDE A

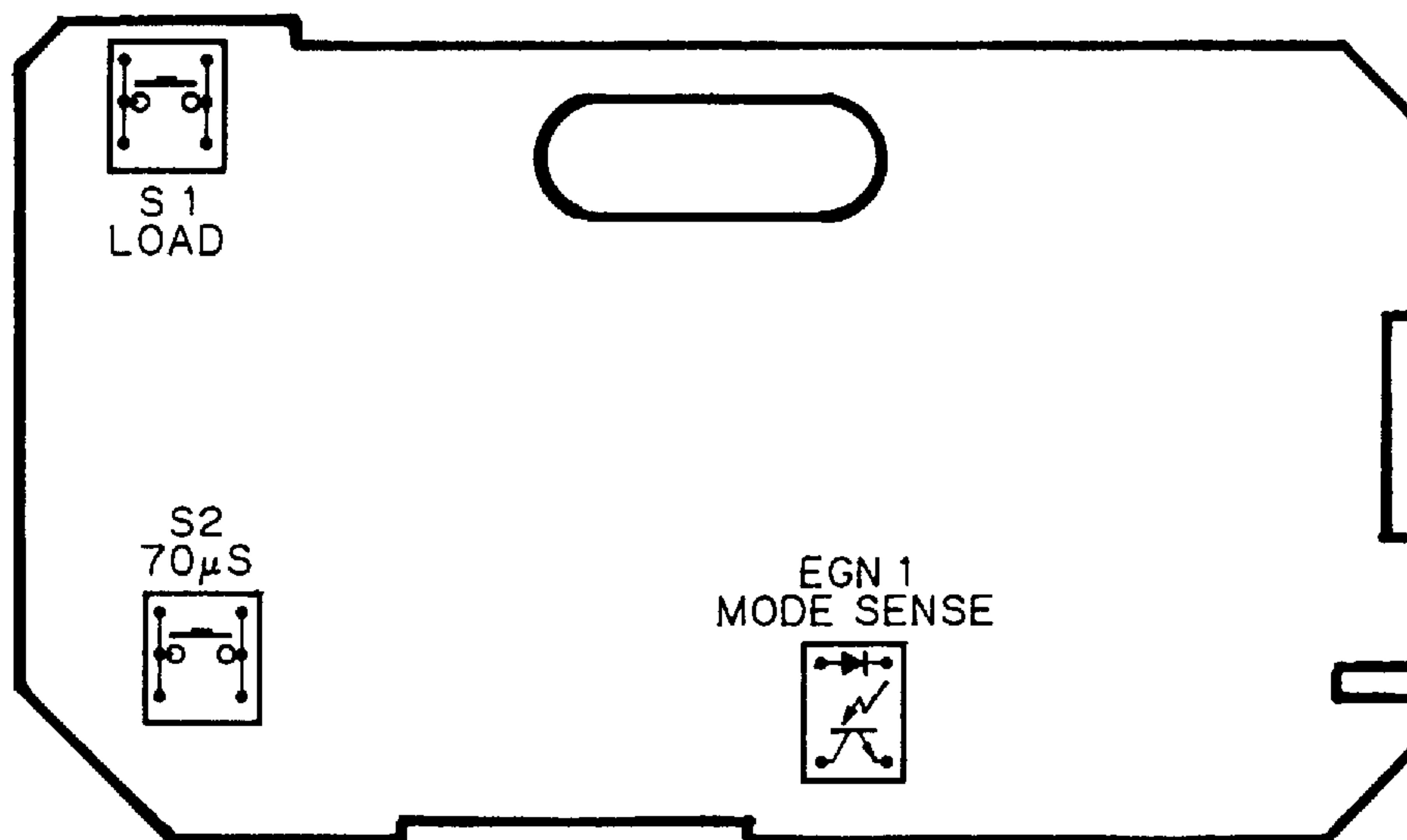


Fig. 18

E PCB UNIT

SIDE B

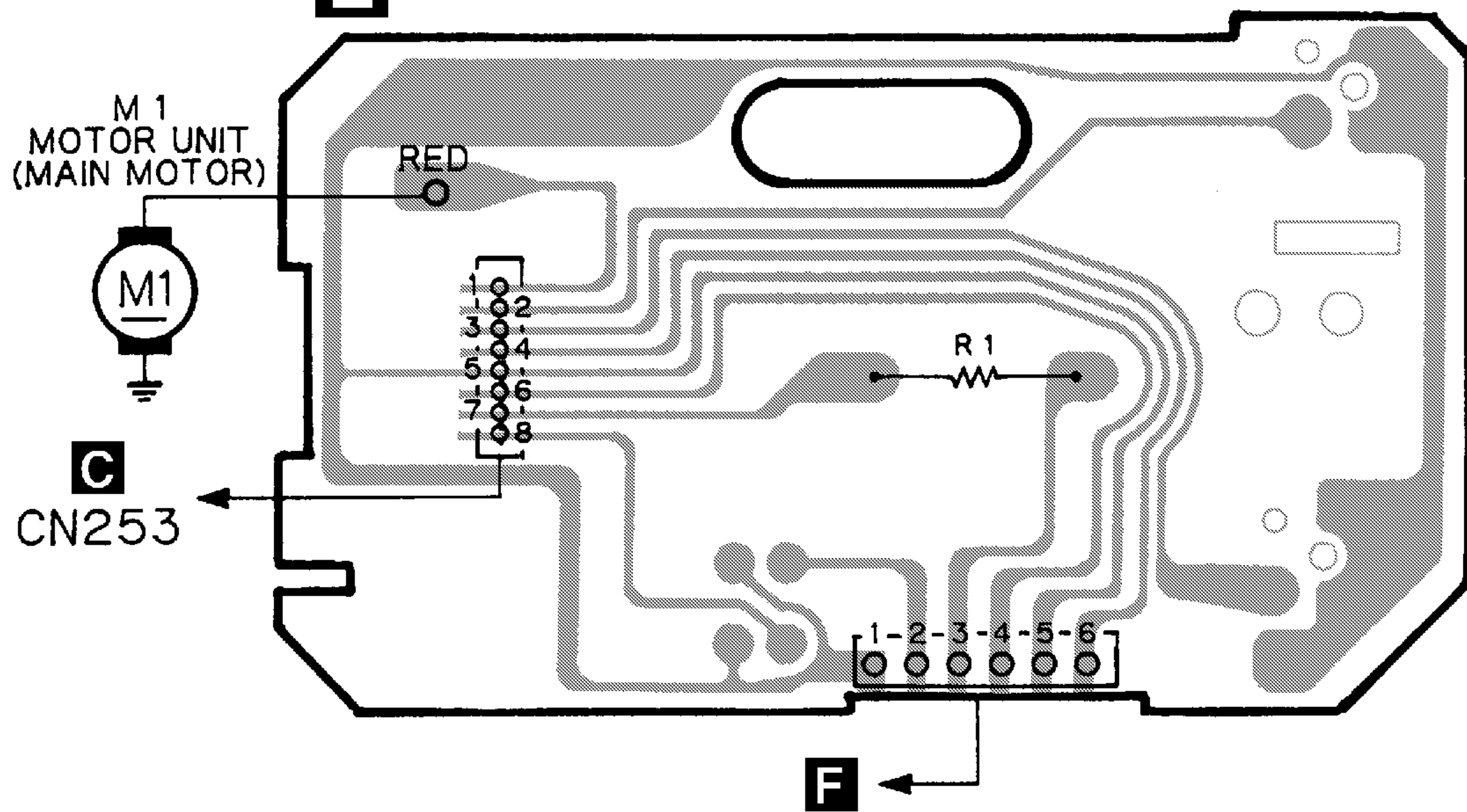


Fig. 19

F REEL PCB

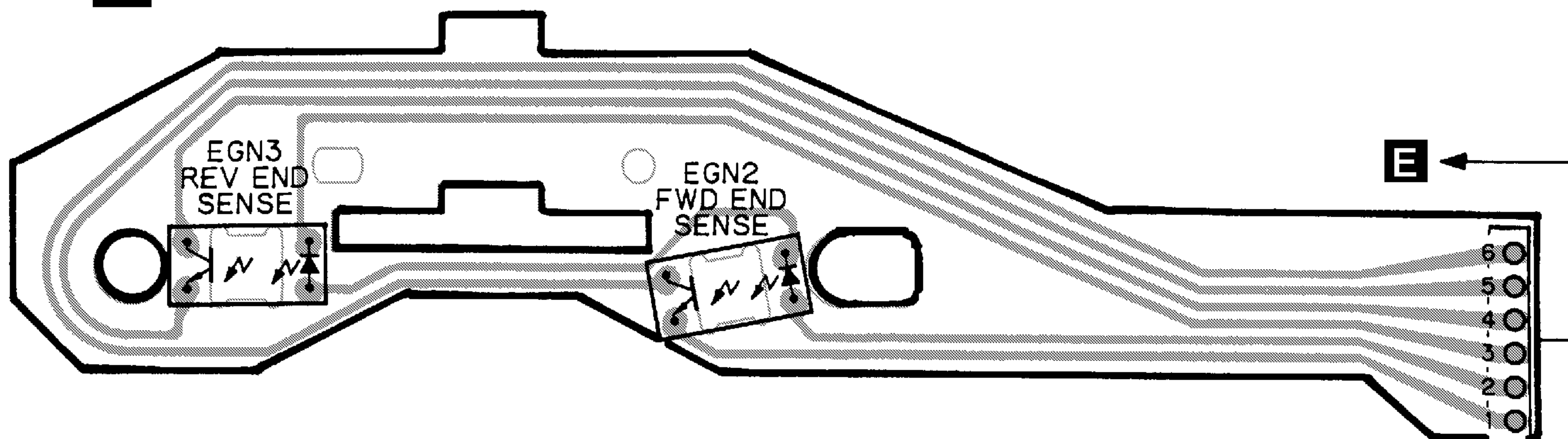
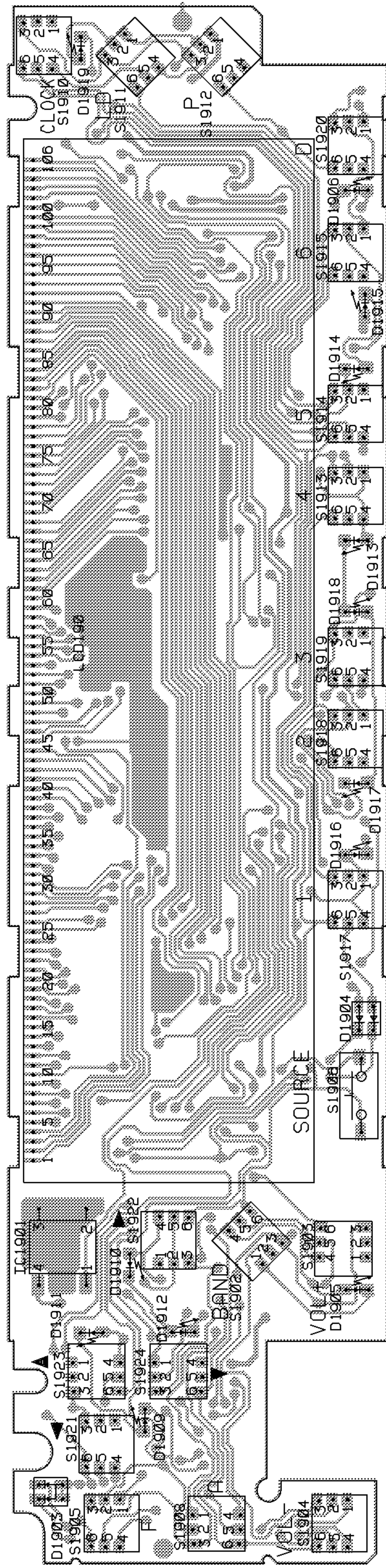


Fig. 20

4.4 KEYBOARD PCB

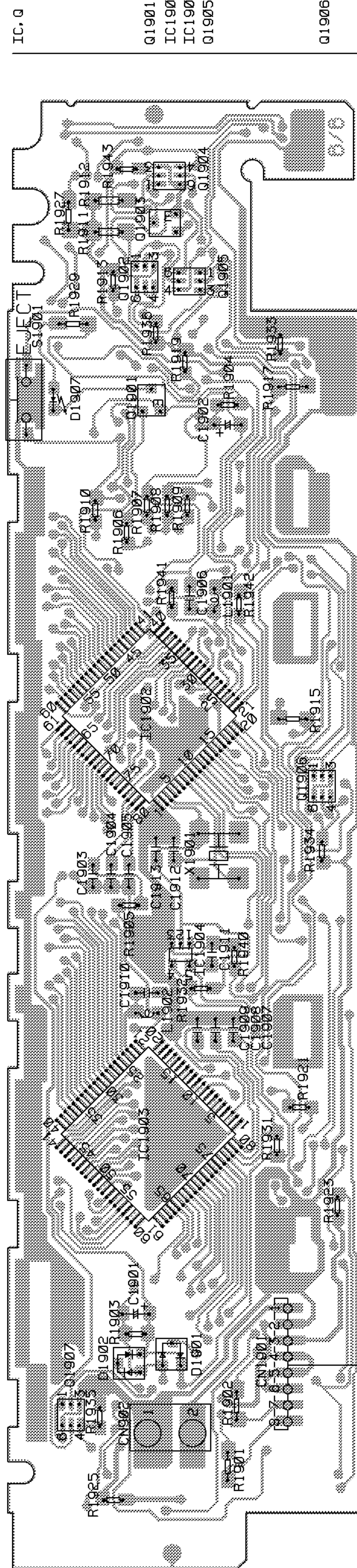
● KEH-P8650/ES

SIDE A



IC. Q
IC1901
01907

SIDE B



IC. Q
01901 01905 01902
IC1903 IC1902
IC1904 01904
01905
01906

A
CN673



Fig. 21

Fig. 22

● KEH-P7650/ES

SIDE A

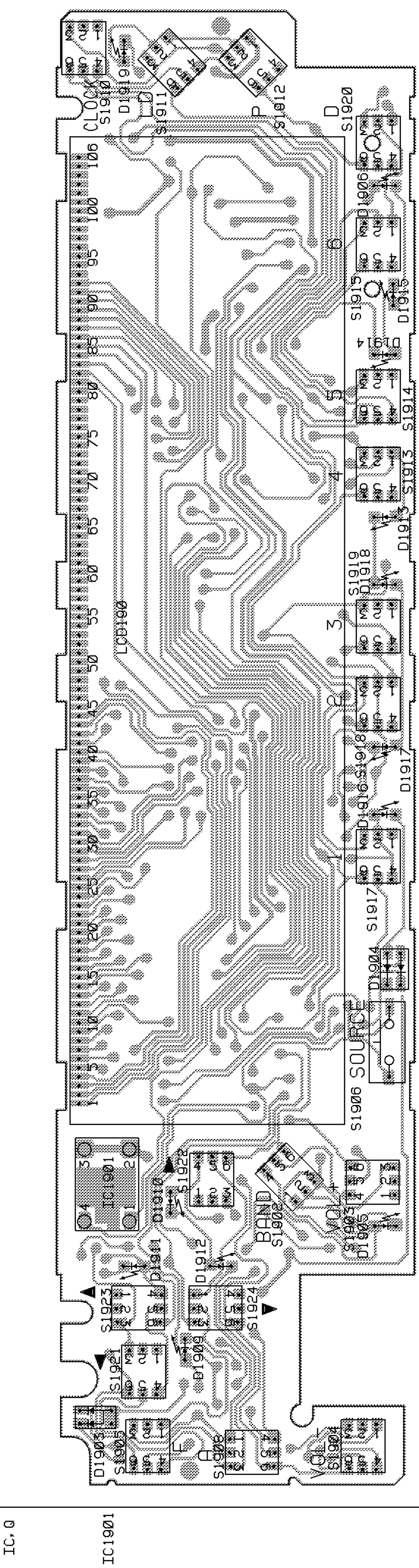


Fig. 23

SIDE B

IC.0

- Q1907
- Q1904
- Q1903
- Q1901
- Q1902
- IC1902
- Q1905

60010

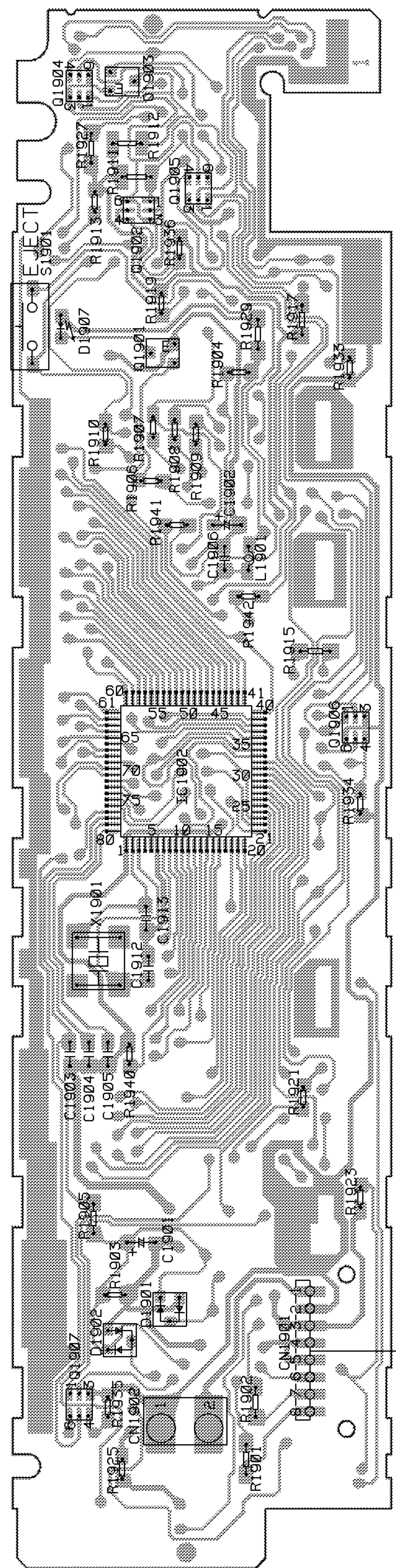


Fig. 24

4.5 SPECTRUM ANALYZER MAIN UNIT

● KEH-P8650/ES

SIDE A

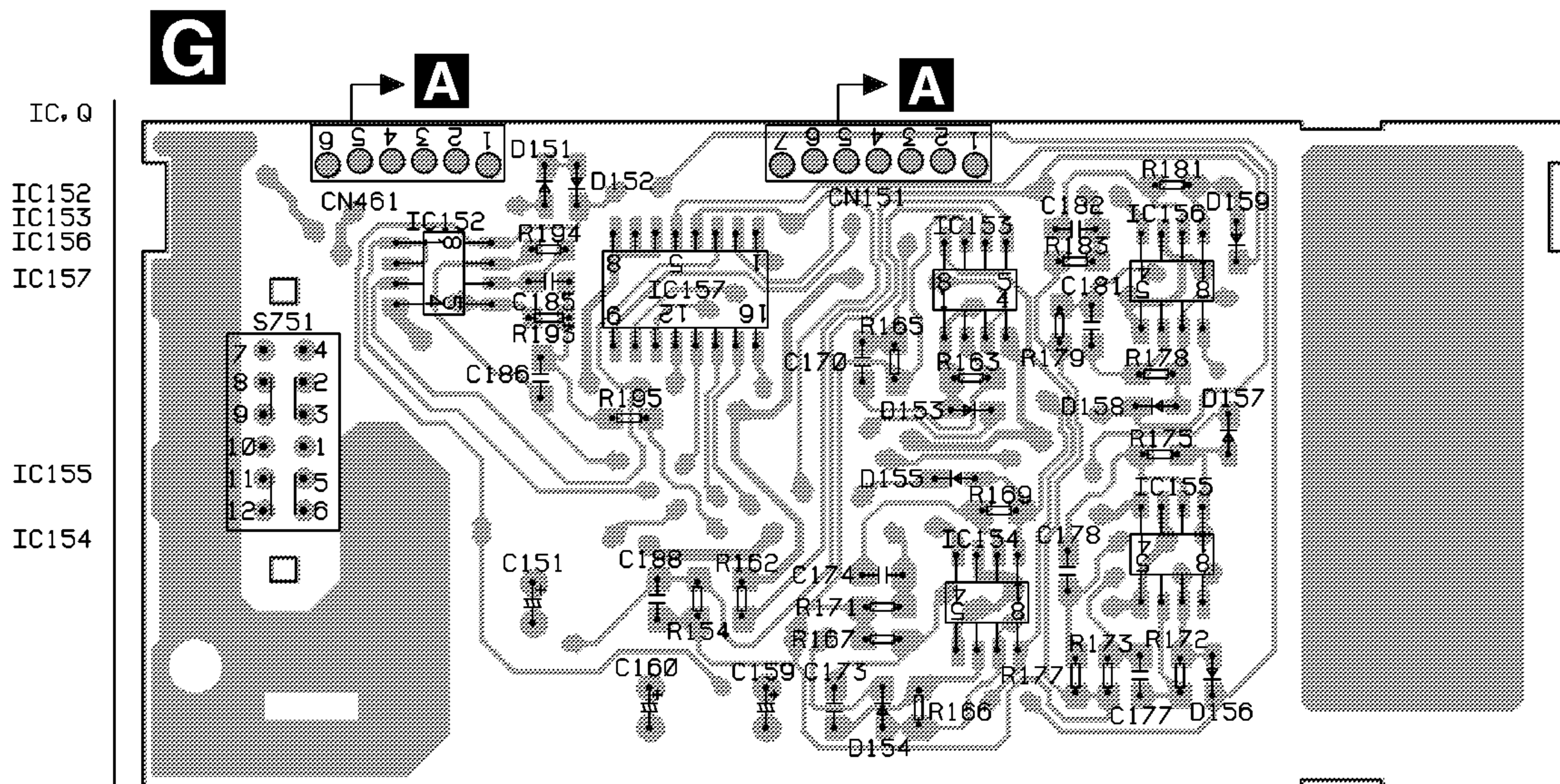


Fig. 25

SIDE B

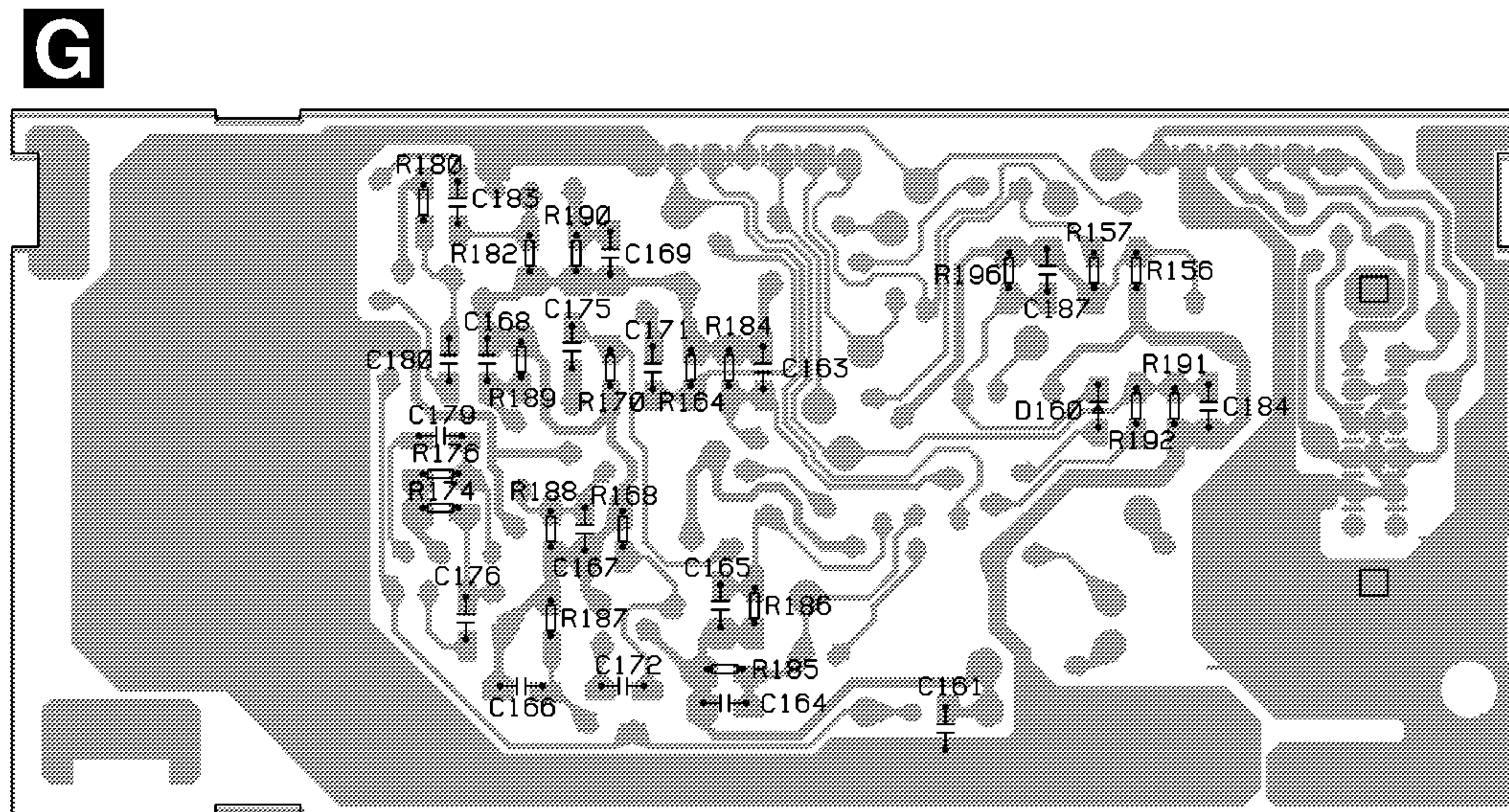


Fig. 26

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 & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
B Unit Number : CWE1485		R 13	RS1/16S563J
Unit Name : FM/AM Tuner Unit		R 15	RS1/16S271J
MISCELLANEOUS		R 16	RS1/16S104J
IC 1 IC	PA4023B	R 17	RS1/16S332J
IC 2 IC	PA4024A	R 18	RS1/16S332J
Q 1 Transistor	2SC2412KLN	R 31	RS1/16S470J
Q 2 Transistor	DTC124EU	R 32	RS1/16S822J
Q 3 FET	3SK263	R 33	RS1/16S822J
		R 34	RS1/16S331J
		R 35	RS1/16S331J
Q 31 Transistor	2SC2412KLN	R 51	RS1/16S271J
Q 201 FET	2SK932	R 52	RS1/16S560J
Q 202 Transistor	2SC2412KLN	R 55	RS1/16S102J
Q 203 Transistor	DTC124EU	R 56	RS1/16S823J
D 1 Diode	RD39JS	R 61	RS1/16S392J
D 2 Diode	RD39JS	R 62	RS1/16S273J
D 4 Diode	1SV250	R 101	RS1/16S272J
D 5 Diode	KV1410-F1	R 102	RS1/16S682J
D 6 Diode	MA157	R 103	RS1/16S333J
D 7 Diode	KV1410-F1	R 104	RS1/16S334J
D 8 Diode	KV1410-F1	R 105	RS1/16S683J
D 201 Diode	MA157	R 107	RS1/16S222J
D 202 Diode	MA157	R 151	RS1/16S222J
D 231 Diode	SVC253	R 152	RS1/16S393J
L 2 Coil	CTC1108	R 155	RS1/16S273J
L 3 Inductor	LCTB2R2K2125	R 156	RS1/16S243J
L 4 Coil	CTC1108	R 157	RS1/16S203J
L 5 Coil	CTC1107	R 160	RS1/16S222J
L 6 Inductor	LCTBR15K1608	R 161	RS1/16S563J
L 51 Ferri-Inductor	LAU150K	R 162	RS1/16S105J
L 201 Ferri-Inductor	LAU4R7K	R 163	RS1/16S223J
L 202 Ferri-Inductor	LAU330K	R 202	RS1/16S223J
L 203 Inductor	CTF1287	R 203	RS1/16S225J
L 208 Inductor	LAU121K	R 204	RS1/16S103J
L 231 Inductor	LCTA3R3J3225	R 206	RS1/16S220J
T 31 Coil	CTE1116	R 207	RS1/16S101J
T 51 Coil	CTC1136	R 208	RS1/16S102J
CF 51 Ceramic Filter	CTF1290	R 209	RS1/16S471J
CF 52 Ceramic Filter	CTF1290	R 214	RS1/16S822J
CF 53 Ceramic Filter	CTF1290	R 215	RS1/16S822J
CF 232 Ceramic Filter	CTF1348	R 217	RS1/16S102J
X 151 Resonator 920.5kHz	CSS1365	R 231	RS1/16S272J
X 231 Crystal Resonator 10.26MHz	CSS1111	R 232	RS1/16S473J
VR 154 Semi-fixed 150kΩ(B)	CCP1213	R 237	RS1/16S103J
RESISTORS		R 238	RS1/16S104J
R 1	RS1/16S225J	R 239	RS1/16S104J
R 2	RS1/16S225J	R 240	RS1/16S332J
R 4	RS1/16S154J	R 241	RS1/16S202J
R 5	RS1/16S391J	R 243	RS1/16S183J
R 6	RS1/16S223J	R 244	RS1/16S392J
R 7	RS1/16S123J	R 247	RS1/16S123J
R 8	RS1/16S332J		
R 9	RS1/16S473J		
R 10	RS1/16S223J		
R 11	RS1/16S124J		

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====Circuit Symbol & No.====Part Name	Part No.
CAPACITORS	
C 1	CCSQCH6R0D50
C 2	CCSRCK2ROC50
C 4	CCSRCH820J50
C 6	CCSRCH820J50
C 8	CKSRYP103K25
C 9	CKSQYB104K16
C 10	CCSRCKR50C50
C 11	CEJA1R0M50
C 12	CKSRYP222K50
C 13	CKSRYP222K50
C 14	CCSRCH220J50
C 15	CCSRCH6R0D50
C 16	CCSRCH8R0D50
C 17	CKSRYP222K50
C 18	CKSRYP103K25
C 19	CKSRYP222K50
C 20	CKSRYP222K50
C 21	CEJA100M16
C 22	CCSRTH9R0D50
C 23	CCSRTH120J50
C 24	CCSRCH471J50
C 25	CKSRYP103K25
C 31	CKSRYP103K25
C 32	CKSQYB472K50
C 33	CCSRCH5R0C50
C 34	CKSQYB104K16
C 36	CCSRRH201J50
C 51	CKSRYP223K25
C 52	CKSRYP103K25
C 54	CCSRCH470J50
C 55	CKSQYB223K25
C 56	CKSQYB104K16
C 57	CKSRYP472K50
C 58	CEJA330M10
C 59	CKSRYP103K25
C 60	CKSRYP102K50
C 61	CCSRCH270J50
C 62	CKSRYP103K25
C 63	CEJAR22M50
C 101	CEJANP100M10
C 102	CKSRYP182K50
C 103	CKSRYP682K25
C 104	CEJA2R2M50
C 105	CKSRYP103K25
C 106	CCSRCH151J50
C 107	CKSRYP103K25
C 151	CKSRYP472K50
C 152	CKSQYB104K16
C 153	CEJA3R3M50
C 154	CKSQYB104K16
C 157	CEJA3R3M50
C 158	CKSYB474K16
C 159	CEJA220M6R3
C 160	CKSQYB104K16
C 161	CKSQYB104K16
C 162	CEJA3R3M50
C 163	CKSRYP102K50
C 170	CCSRCH100D50
C 201	CCSRCH471J50
C 202	CCSRCH100D50
C 203	CKSRYP332K50
C 204	CKSQYB473K16
C 205	CKSQYB473K16
C 206	CKSQYB104K16
C 207	CCSRCH560J50

====Circuit Symbol & No.====Part Name	Part No.
C 209	CKSQYB104K16
C 211	CCSRCH101J50
C 212	CEJA470M6R3
C 213	CKSRYP103K25
C 216	CCSRCH101J50
C 217	CEJA1R5M50
C 219	CCSRCH471J50
C 220	CKSRYP103K25
C 230	CKSRYP103K25
C 231	CCSRCH330J50
C 232	CCSRCH150J50
C 233	CKSQYB104K16
C 234	CEJA330M10
C 235	CKSRYP332K50
C 236	CKSQYB473K16
C 237	CCSRCH120J50
C 239	CKSRYP472K50
C 240	CEJAR47M50
C 241	CKSQYB104K16
C 242	CEJAR47M50
C 243	CEJAR33M50
C 244	CKSQYB473K16
C 245	CKSRYP333K16
C 246	CKSQYB473K16
C 250	CCSRCH471J50

A Unit Number : CWM5333
 Unit Name : Tuner Amp Unit (KEH-P8650/ES)

MISCELLANEOUS

IC 101	IC	PM0008BF
IC 201	IC	See Contrast table
IC 202	IC	See Contrast table
IC 203	IC	See Contrast table
IC 204	IC	See Contrast table
IC 251	IC	TDA7386
IC 301	IC	TA2050S
IC 302	IC	CA0008AM
IC 401	IC	PM2005B
IC 601	IC	TPD1018F
IC 602	IC	TPD1018F
IC 604	IC	PD4794A
IC 605	IC	S-80734ANDYI
IC 606	IC	PA2024A
Q 201	Transistor	See Contrast table
Q 202	Transistor	See Contrast table
Q 203	Transistor	See Contrast table
Q 204	Transistor	See Contrast table
Q 205	Transistor	DTC314TK
Q 206	Transistor	DTC314TK
Q 207	Transistor	DTC314TK
Q 208	Transistor	DTC314TK
Q 209	Transistor	DTC314TK
Q 210	Transistor	DTC314TK
Q 401	Transistor	2SC2412K
Q 402	Transistor	DTC124EK
Q 601	Transistor	DTC124EK
Q 602	Transistor	2SC2412K
Q 603	Transistor	2SC2412K
Q 604	Transistor	2SD1760F5
Q 605	Transistor	2SC2412K
Q 606	Transistor	2SA1037K
Q 607	Transistor	2SC2412K
Q 608	Transistor	2SC2412K
Q 609	Transistor	2SC2412K

====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
Q 612 Transistor	DTC124EK	RESISTORS	
Q 613 Transistor	IMD2A		
Q 614 Transistor	DTA144TK	R 101	RD1/4PU272J
Q 615 Transistor	DTC124EK	R 102	RD1/4PU272J
Q 616 Transistor	2SA1037K	R 103	RS1/10S562J
		R 104	RS1/10S562J
Q 617 Transistor	2SA1037K	R 105	RD1/4PU152J
Q 618 Transistor	DTC114EK		
Q 621 Transistor	DTA114EK	R 106	RD1/4PU152J
Q 631 Transistor	2SA1037K	R 107	RS1/10S392J
Q 632 Transistor	DTC124EK	R 108	RS1/10S392J
		R 109	See Contrast table
Q 671 Transistor	2SC3295	R 110	See Contrast table
Q 672 Transistor	2SA1037K		
Q 673 Transistor	DTC114EK	R 112	RS1/10S101J
Q 674 Transistor	2SD1189	R 113	RS1/10S101J
Q 675 Transistor	DTC114EK	R 114	RS1/10S151J
		R 115	RS1/10S151J
Q 676 Transistor	2SB1243	R 116	RS1/10S272J
Q 677 Transistor	DTC143EK		
Q 678 Transistor	2SC3295	R 117	RS1/10S272J
D 201 Diode	MA110	R 118	RA3C472J
D 202 Diode	MA110	R 119	RS1/10S183J
		R 120	RS1/10S102J
D 402 Chip Diode	MA151WK	R 121	RS1/10S0R0J
D 601 Diode	ERA15-02VH		
D 602 Diode	ERA15-02VH	R 201	See Contrast table
D 603 Diode	MA3075(M)	R 202	See Contrast table
D 604 Diode	MA3062(H)	R 203	See Contrast table
		R 204	See Contrast table
D 605 Diode	ERA15-02VH	R 205	See Contrast table
D 606 Diode	HZS6L(B1)		
D 607 Diode	ERA15-02VH	R 206	See Contrast table
D 608 Diode	ERA15-02VH	R 207	See Contrast table
D 609 Diode	ERA15-02VH	R 208	See Contrast table
		R 209	See Contrast table
D 610 Diode	ERA15-02VH	R 210	See Contrast table
D 611 Diode	ERA15-02VH		
D 612 Chip Diode	MA151WK	R 211	See Contrast table
D 615 Diode	MA3150(M)	R 212	See Contrast table
D 616 Diode	MA3150(M)	R 213	See Contrast table
		R 214	See Contrast table
D 617 Diode	MA3150(M)	R 215	See Contrast table
D 618 Chip Diode	MA151WK		
D 619 LED	BR4361F	R 216	See Contrast table
D 620 Chip Diode	MA151K	R 217	See Contrast table
D 671 Chip Diode	MA151WK	R 218	See Contrast table
		R 219	See Contrast table
D 672 Diode	MA3047(M)	R 220	See Contrast table
D 673 Diode	MA3075(M)		
D 674 Diode	MA3062(M)	R 221	See Contrast table
D 675 Diode	MA153	R 222	See Contrast table
D 676 Diode	MA153	R 223	See Contrast table
		R 224	See Contrast table
D 677 Diode	MA153	R 225	See Contrast table
L 201 Inductor	See Contrast table		
L 202 Inductor	See Contrast table	R 226	See Contrast table
L 203 Inductor	See Contrast table	R 227	See Contrast table
L 204 Inductor	See Contrast table	R 228	See Contrast table
		R 229	See Contrast table
L 301 Ferri-Inductor	LAU2R2K	R 230	See Contrast table
L 402 Ferri-Inductor	LAU101K		
L 403 Ferri-Inductor	LAU2R2K	R 231	See Contrast table
L 601 Ferri-Inductor	LAU2R2K	R 232	See Contrast table
L 602 Ferri-Inductor	LAU101K	R 233	See Contrast table
		R 234	RS1/10S821J
L 603 Ferri-Inductor	LAU2R2K	R 235	RS1/10S821J
L 610 Inductor	LCTB2R7K2125		
L 671 Ferri-Inductor	LAU2R2K	R 236	RS1/10S821J
CF 601 Filter	CTF1071	R 237	RS1/10S821J
X 401 Crystal Resonator 7.200MHz	CSS1379	R 238	RS1/10S224J
		R 239	RS1/10S224J
X 601 Resonator 12.58291MHz	CSS1402	R 240	RS1/10S224J
S 601 Switch	CSG1059		
IL 671 Lamp 14V 40mA	CEL1263	R 241	RS1/10S224J
FU 671 0.4A Fuse	ICP-N10	R 246	RS1/10S821J
	Sectrum Analyzer Main Unit	R 247	RS1/10S821J
		R 248	RS1/10S223J
BZ 601 FM/AM Tuner Unit	CWE1485	R 249	RS1/10S223J
	Buzzer		
	CPV1011		

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====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
R 301	RS1/10S181J	R 610	RS1/16S473J
R 302	RS1/16S181J	R 611	RS1/16S473J
R 303	RS1/10S223J	R 612	RS1/10S101J
R 304	RS1/10S223J	R 613	RS1/10S392J
R 305	RS1/10S102J	R 614	RS1/10S103J
R 306	RS1/10S102J	R 615	RS1/10S473J
R 307	RS1/10S101J	R 616	RS1/10S103J
R 308	RS1/10S101J	R 617	RS1/16S473J
R 309	RS1/10S620J	R 618	RS1/10S103J
R 310	RS1/10S102J	R 620	RD1/4PU153J
R 311	RS1/10S102J	R 621	RS1/10S472J
R 312	RS1/10S473J	R 622	RS1/10S472J
R 313	RS1/10S473J	R 623	RS1/16S102J
R 401	RS1/10S152J	R 625	RD1/4PU102J
R 402	RS1/10S102J	R 626	RD1/4PU102J
R 403	RS1/10S0R0J	R 627	RD1/4PU102J
R 404	RS1/10S0R0J	R 629	RS1/16S473J
R 406	RS1/10S102J	R 630	RS1/16S473J
R 407	RS1/10S222J	R 631	RS1/16S473J
R 408	RS1/10S222J	R 632	RS1/16S103J
R 410	RS1/10S162J	R 633	RS1/10S473J
R 411	RS1/10S162J	R 634	RS1/10S103J
R 413	RS1/10S681J	R 635	RS1/16S102J
R 414	RS1/10S682J	R 636	RS1/10S822J
R 415	RS1/10S472J	R 638	RS1/10S152J
R 416	RS1/10S472J	R 639	RS1/10S152J
R 417	RS1/10S682J	R 640	RS1/10S182J
R 419	RS1/10S103J	R 641	RS1/10S472J
R 420	RS1/10S222J	R 642	RS1/10S472J
R 421	RS1/10S152J	R 643	RS1/10S473J
R 422	RS1/10S272J	R 644	RS1/16S473J
R 423	RS1/10S392J	R 645	RS1/10S223J
R 424	RS1/10S392J	R 646	RS1/10S472J
R 427	RS1/10S102J	R 647	RS1/10S222J
R 428	RS1/10S222J	R 648	RS1/16S473J
R 429	RS1/10S102J	R 649	See Contrast table
R 432	RS1/10S562J	R 652	RS1/16S473J
R 433	RS1/10S473J	R 655	RS1/10S473J
R 434	RS1/10S473J	R 656	RS1/16S223J
R 436	RS1/10S473J	R 657	RS1/16S102J
R 437	RS1/10S472J	R 658	RS1/10S102J
R 438	RS1/10S473J	R 659	RS1/10S473J
R 439	RA4C102J	R 660	RS1/10S223J
R 441	RS1/10S472J	R 661	RS1/16S223J
R 442	RS1/16S103J	R 662	RS1/10S751J
R 443	RS1/10S393J	R 663	RS1/10S473J
R 444	RS1/10S0R0J	R 666	RS1/10S473J
R 448	RS1/10S561J	R 667	RS1/10S103J
R 451	RS1/10S0R0J	R 669	RS1/10S102J
R 454	RS1/10S0R0J	R 671	RS1/10S184J
R 455	RS1/10S0R0J	R 672	RS1/10S224J
R 460	RS1/10S0R0J	R 673	RS1/10S224J
R 461	RS1/10S0R0J	R 674	RS1/16S472J
R 528	RS1/10S0R0J	R 675	RS1/10S473J
R 529	RS1/10S0R0J	R 676	RS1/10S472J
R 573	RS1/10S0R0J	R 677	RS1/4S681J
R 601	RS1/10S101J	R 678	RS2PMF6R8J
R 602	RS1/10S221J	R 679	RS1/10S222J
R 603	RS1/10S103J	R 680	RS1/4S122J
R 604	RS1/10S103J	R 681	RS1/10S1R0J
R 605	RS1/10S473J	R 682	RS1/16S104J
R 606	RS1/10S223J	R 683	RS2PMF330J
R 607	RS1/10S472J	R 684	RS1/10S222J
R 608	RS1/10S473J	R 685	RS1/10S472J
R 609	RS1/10S223J	R 686	RS1/10S472J

====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
R 687	RS1/10S222J	C 137	See Contrast table
R 688	RS1/10S472J	C 138	See Contrast table
R 689	RS1/10S472J	C 139	CKSQYB104K16
R 690	See Contrast table	C 140	CEJA100M16
R 691	See Contrast table	C 141	CKSQYB104K16
R 692	See Contrast table	C 142	See Contrast table
R 693	RS1/4S122J	C 143	See Contrast table
R 694	See Contrast table	C 201	See Contrast table
R 695	RS1/10S102J	C 202	See Contrast table
R 696	RS1/10S102J	C 203	See Contrast table
R 698	RS1/10S0R0J	C 204	See Contrast table
R 700	RS1/10S0R0J	C 205	See Contrast table
R 702	RS1/10S0R0J	C 206	See Contrast table
R 705	RS1/16S103J	C 207	See Contrast table
R 706	RS1/10S471J	C 208	See Contrast table
R 708	RS1/10S473J	C 209	See Contrast table
R 709	RS1/10S473J	C 210	See Contrast table
R 710	RS1/10S223J	C 211	See Contrast table
R 711	RS1/10S272J	C 212	See Contrast table
R 712	RS1/10S124J	C 213	See Contrast table
R 713	RS1/10S123J	C 214	See Contrast table
R 714	RS1/10S223J	C 215	See Contrast table
R 715	RS1/10S272J	C 216	See Contrast table
R 716	RS1/10S0R0J	C 217	See Contrast table
R 751	RS1/10S220J	C 218	See Contrast table
R 752	RA3C473J	C 219	See Contrast table
R 753	RA3C473J	C 220	See Contrast table
R 754	RA4C222J	C 221	See Contrast table
R 755	RA3C222J	C 222	CCSQCH101J50
R 756	RA3C222J	C 223	CCSQCH101J50
R 757	RA4C681J	C 224	CCSQCH101J50
R 800	RS1/10S0R0J	C 225	CCSQCH101J50
		C 226	CEJA2R2M50
		C 227	CEJA2R2M50
		C 228	CCSQCH101J50
		C 229	CCSQCH101J50
		C 251	CEJAR22M50
		C 252	CEJAR22M50
		C 253	CEJAR22M50
		C 254	CEJAR22M50
		C 255	CKSQYB104K16
		C 256	CCH1178
		C 257	CEJA1R0M50
		C 258	CEJA220M16
		C 301	CEJA1R0M50
		C 302	CEJA1R0M50
		C 303	CEJA1R0M50
		C 304	CEJA1R0M50
		C 305	CEJA100M16
		C 306	CEJA100M16
		C 307	CKSQYB104K16
		C 308	CKSQYB102K50
		C 401	CKSQYB473K16
		C 402	CKSQYB473K16
		C 403	CKSQYB223K25
		C 404	CKSQYB273K25
		C 405	CKSQYB223K25
		C 406	CKSQYB223K25
		C 407	CKSQYB223K25
		C 409	CKSQYB473K16
		C 410	CKSQYB102K50
		C 411	CEJA220M10
		C 412	CKSQYB103K25
		C 414	CKSQYB103K25
		C 415	CEJA220M6R3
		C 132	CKSQYB473K16
		C 133	CKSQYB104K16
		C 134	See Contrast table
		C 135	See Contrast table
		C 136	See Contrast table

CAPACITORS

4700µF/16V

====Circuit Symbol & No.====Part Name	Part No.
C 416	CEJA220M6R3
C 417	CKSQYB103K25
C 418	CKSQYB103K25
C 419 4.7μF/16V	CCH1250
C 420	CKSQYB103K25
C 421	CKLSR473K16
C 422	CKSQYB332K50
C 423	CKSQYB103K25
C 424	CKSQYB103K25
C 425 4.7μF/16V	CCH1250
C 427	CCSQCH150J50
C 428	CCSQCH150J50
C 429	CCSQCH101J50
C 431	CKSQYB103K25
C 432	CKSQYB103K25
C 433	CEJA220M6R3
C 434	CKSQYB102K50
C 435	CKSQYB103K25
C 436	CKSRYB103K25
C 437	CKSRYB223K25
C 441	CKSQYB103K50
C 601	CEJA330M10
C 602	CEJA1R0M50
C 603	CEAS331M16
C 604 1500μF/16V	CCH1201
C 605	CKSQYB103K25
C 606	CEJA470M10
C 607	CKSYB105K16
C 608	CKSQYB473K16
C 609	CKSQYB473K16
C 613	CKSQYB103K25
C 614	CKSQYB103K25
C 615	CKSQYB103K25
C 616	CEJA1R0M50
C 617	CKSQYB102K50
C 618	CKSQYB102K50
C 619	CEAS470M10
C 620 330μF/10V	CCH1181
C 621	CEAS101M10
C 622	CEAS470M10
C 623	CCSQCH180J50
C 624	CCSQCH180J50
C 626	CCSQCH101J50
C 628	CCSQCH101J50
C 630	CKSQYB102K50
C 631	CEJA2R2M50
C 632	CKSQYB473K16
C 634	CKSQYB473K16
C 650	CEJA4R7M35
C 671	CKSQYB103K25
C 672	CEAS471M10
C 673	CKSQYB104K16
C 674	CCSQCH101J50
C 677	CCSQCH101J50
C 679	CCSQCH101K50
C 702	CCSQCH101J50
C 751	CEJA100M16
C 752	CEJA100M16
C 753	CKSQYB103K25

====Circuit Symbol & No.====Part Name Part No.

CONTRAST TABLE of TUNER AMP UNIT

KEH-P8650/ES and KEH-P7650/ES have the same construction except for the following:

Symbol & Description	Part No.	
	KEH-P8650/ES	KEH-P7650/ES
Spectrum Analyzer Main Unit	CWM5339	Not used
IC 201,202,203,204 IC	NJM4558MD	Not used
Q 201,202 Transistor	2SC2412K	Not used
Q 203,204 Transistor	2SC2412K	Not used
L 201,202 Inductor	LCTB2R2K2125	Not used
L 203,204 Inductor	LCTB2R2K2125	Not used
R 109 110	RS1/10S223J	Not used
R 201	RS1/10S220J	Not used
R 202,203,204,205	RS1/10S333J	Not used
R 206,207,208,209	RS1/16S334J	Not used
R 210,211,212,213	RS1/16S103J	Not used
R 214,215,216,217	RS1/16S472J	Not used
R 218,219,220,221	RS1/16S472J	Not used
R 222,223,224,225	RS1/16S183J	Not used
R 226,227,228,229	RS1/16S184J	Not used
R 230,231,232,233	RS1/16S393J	Not used
R 242,243,244,245	Not used	RS1/10S0R0J
R 649,694	RS1/16S473J	Not used
R 690,691,692	RS1/10S102J	Not used
C 134,135,136,137	CEJA4R7M35	CEJA100M16
C 142,143	CEJA1R0M50	Not used
C 201	CEJA101M10	Not used
C 202,203,204,205	CEWAR100M16	Not used
C 206,207,208,209	CCSRCH101J50	Not used
C 210,211,212,213	CKSRYB103K25	Not used
C 214,215,216,217	CEJA4R7M35	Not used
C 218,219,220,221	CEJA1R0M50	Not used

G Unit Number : CWM5339
Unit Name : Spectrum Analyzer Main Unit (KEH-P8650/ES)

MISCELLANEOUS

IC 152	IC	NJM4558MD
IC 153	IC	NJM4558MD
IC 154	IC	NJM4558MD
IC 155	IC	NJM4558MD
IC 156	IC	NJM4558MD
IC 157	IC	TC4051BF
D 151	Diode	MA110
D 152	Diode	MA110
D 153	Diode	MA110
D 154	Diode	MA110
D 155	Diode	MA110
D 156	Diode	MA110
D 157	Diode	MA110
D 158	Diode	MA110
D 159	Diode	MA110
D 160	Diode	MA110
S 751	Slide Switch	CSH1046

RESISTORS

R 154	RS1/10S473J
R 156	RS1/10S102J
R 157	RS1/10S102J
R 162	RS1/10S473J
R 163	RS1/10S224J

====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
R 164	RS1/10S272J	C Unit Number : EWM1008	
R 165	RS1/10S623J		Unit Name : Deck Unit (KEH-P8650/ES)
R 166	RS1/10S184J	MISCELLANEOUS	
R 167	RS1/10S433J	IC 251	IC HA12173-01
R 168	RS1/10S182J	IC 351	IC PA2020A
R 169	RS1/10S154J	Q 271	Transistor 2SC4116
R 170	RS1/10S152J	Q 351	Transistor 2SB1260
R 171	RS1/10S363J	Q 352	Transistor 2SC4102
R 172	RS1/10S114J	D 351	Diode MA141K
R 173	RS1/10S273J	VR 301	Semi-fixed 33kΩ(B) CCP1130
R 174	RS1/10S112J	VR 302	Semi-fixed 33kΩ(B) CCP1130
R 175	RS1/10S164J	RESISTORS	
R 176	RS1/10S162J	R 255	RS1/16S181J
R 177	RS1/10S393J	R 256	RS1/16S181J
R 178	RS1/10S134J	R 257	RS1/16S183J
R 179	RS1/10S333J	R 258	RS1/16S183J
R 180	RS1/10S132J	R 259	RS1/16S133J
R 181	RS1/10S124J	R 260	RS1/16S133J
R 182	RS1/10S122J	R 261	RS1/16S274J
R 183	RS1/10S303J	R 262	RS1/16S274J
R 184	RS1/10S225J	R 271	RS1/16S183J
R 185	RS1/10S225J	R 272	RS1/8S223J
R 186	RS1/10S225J	R 273	RS1/8S223J
R 187	RS1/10S225J	R 274	RS1/8S103J
R 188	RS1/10S225J	R 275	RS1/16S473J
R 189	RS1/10S225J	R 276	RS1/16S104J
R 190	RS1/10S225J	R 277	RS1/16S224J
R 191	RS1/10S123J	R 278	RS1/16S104J
R 192	RS1/10S222J	R 281	RS1/8S0R0J
R 193	RS1/10S512J	R 282	RS1/8S0R0J
R 194	RS1/10S474J	R 283	RS1/8S0R0J
R 195	RS1/10S124J	R 284	RS1/8S0R0J
R 196	RS1/10S225J	R 285	RS1/16S0R0J
CAPACITORS		R 286	RS1/16S0R0J
C 151	CEJA100M16	R 287	RS1/16S0R0J
C 159	CEJA100M16	R 288	RS1/16S0R0J
C 160	CEJA470M10	R 289	RS1/16S0R0J
C 161	CKSQYB103K25	R 290	RS1/8S0R0J
C 163	CKSQYB104K25	R 301	RS1/16S223J
C 164	CKSQYB104K25	R 302	RS1/16S223J
C 165	CKSQYB104K25	R 303	RS1/16S561J
C 166	CKSQYB104K25	R 304	RS1/16S561J
C 167	CKSQYB104K25	R 321	RS1/8S223J
C 168	CKSQYB104K25	R 322	RS1/8S223J
C 169	CKSQYB104K25	R 351	RS1/16S102J
C 170	CKSQYB823K25	R 352	RS1/16S102J
C 171	CKSQYB823K25	R 353	RS1/16S102J
C 172	CKSQYB473K25	R 354	RS1/16S102J
C 173	CKSQYB473K25	R 355	RS1/10S274J
C 174	CKSQYB223K25	R 356	RS1/10S202J
C 175	CKSQYB223K25	R 357	RS1/10S472J
C 176	CKSQYB123K25	R 358	RS1/10S103J
C 177	CKSQYB123K25	R 359	RS1/10S103J
C 178	CKSQYB332K50	R 360	RS1/10S102J
C 179	CKSQYB332K50	R 361	RS1/10S622J
C 180	CKSQYB152K50	R 373	RS1/8S0R0J
C 181	CKSQYB152K50	R 374	RS1/8S0R0J
C 182	CKSQYB821K50	R 375	RS1/8S0R0J
C 183	CKSQYB821K50	R 401	RS1/16S273J
C 184	CKSQYB391K50	R 402	RS1/16S223J
C 185	CKSQYB823K25	R 403	RS1/16S274J
C 186	CKSQYB823K25	R 404	RS1/16S823J
C 187	CKSQYB104K25	R 405	RS1/16S274J
C 188	CCSQSL101J50		

KEH-P8650,P7650

====Circuit Symbol & No.====Part Name	Part No.
CAPACITORS	
C 251	CKSRYB391K50
C 252	CKSRYB391K50
C 253	CKSRYB391K50
C 254	CKSRYB391K50
C 255	CKSRYB103K25
C 256	CKSRYB103K25
C 271	CEV1R0M50
C 272	CKSQYB104K16
C 301	CKSYB474K16
C 302	CKSYB474K16
C 303	CKSRYB222K50
C 304	CKSRYB222K50
C 305	CKSRYB222K50
C 306	CKSRYB222K50
C 307	CKSRYB222K50
C 308	CKSRYB222K50
C 309	CKSQYB104K16
C 310	CKSQYB104K16
C 311	CKSQYB104K16
C 312	CKSQYB104K16
C 322	CEV100M16
C 351	CKSYB224K25
C 352	CKSQYB392K50
C 353	CKSQYB103K50
C 354	CKSQYB103K50
C 355	CKSYB104K50
C 356	CKSQYB103K50
C 401	CKSRYB182K50
C 402	CKSRYB822K25
C 403	CKSRYB333K16
C 404	CKSRYB471K50

C Unit Number : EWM1007
Unit Name : Deck Unit (KEH-P7650/ES)

MISCELLANEOUS	
IC 251	IC HA12163
IC 351	IC PA2020A
Q 271	Transistor 2SC4116
Q 351	Transistor 2SB1260
Q 352	Transistor 2SC4102
D 351	Diode MA141K
VR 301	Semi-fixed 33kΩ (B) CCP1130
VR 302	Semi-fixed 33kΩ (B) CCP1130
RESISTORS	
R 255	RS1/16S181J
R 256	RS1/16S181J
R 257	RS1/16S183J
R 258	RS1/16S183J
R 259	RS1/16S133J
R 260	RS1/16S133J
R 261	RS1/16S274J
R 262	RS1/16S274J
R 271	RS1/16S183J
R 272	RS1/8S223J
R 273	RS1/8S223J
R 274	RS1/8S103J
R 275	RS1/16S473J
R 276	RS1/16S104J
R 277	RS1/16S224J
R 278	RS1/16S104J
R 281	RS1/8S0R0J
R 282	RS1/8S0R0J
R 283	RS1/8S0R0J
R 284	RS1/8S0R0J

====Circuit Symbol & No.====Part Name	Part No.
R 285	RS1/16S0R0J
R 286	RS1/16S0R0J
R 288	RS1/16S0R0J
R 289	RS1/16S0R0J
R 322	RS1/8S223J
R 351	RS1/16S102J
R 352	RS1/16S102J
R 353	RS1/16S102J
R 354	RS1/16S102J
R 355	RS1/10S274J
R 356	RS1/10S202J
R 357	RS1/10S472J
R 358	RS1/10S103J
R 359	RS1/10S103J
R 360	RS1/10S102J
R 361	RS1/10S622J
R 373	RS1/8S0R0J
R 374	RS1/8S0R0J
R 375	RS1/8S0R0J
R 401	RS1/16S273J
R 402	RS1/16S223J
R 403	RS1/16S274J
R 404	RS1/16S823J
R 405	RS1/16S274J
CAPACITORS	
C 251	CKSRYB391K50
C 252	CKSRYB391K50
C 253	CKSRYB391K50
C 254	CKSRYB391K50
C 255	CKSRYB103K25
C 256	CKSRYB103K25
C 271	CEV1R0M50
C 272	CKSQYB104K16
C 301	CKSYB474K16
C 302	CKSYB474K16
C 309	CKSQYB104K16
C 310	CKSQYB104K16
C 351	CKSYB224K25
C 352	CKSQYB392K50
C 353	CKSQYB103K50
C 354	CKSQYB103K50
C 355	CKSYB104K50
C 356	CKSQYB103K50
C 401	CKSRYB182K50
C 402	CKSRYB822K50
C 403	CKSRYB333K16
C 404	CKSRYB471K50

Keyboard Unit
Consists of
·Keyboard PCB
·Switch PCB

DH Unit Number : CWM5063
Unit Name : Keyboard Unit (KEH-P8650/ES)

MISCELLANEOUS	
IC 1901	HIC RS-140
IC 1902	IC PD6199A
IC 1903	IC PD6200A
IC 1904	IC SC14SU69F
Q 1901	Transistor 2SC2712
Q 1902	Transistor IMH10A
Q 1903	Transistor DTC143TK
Q 1904	Transistor IMH10A
Q 1905	Transistor IMH10A
Q 1906	Transistor IMH10A

====Circuit Symbol & No.====Part Name	Part No.	====Circuit Symbol & No.====Part Name	Part No.
Q 1907 Transistor	IMH10A	R 1929	RS1/8S151J
D 1901 Diode	MA153	R 1931	RS1/10S102J
D 1902 Diode	MA153	R 1936	RS1/10S103J
D 1903 LED	CL155DPGD	R 1941	RS1/10S470J
D 1904 LED	CL155DPGD	R 1942	RS1/10S470J
		CAPACITORS	
D 1905 LED	CL170DCD	C 1901	CSZS100M6R3
D 1906 LED	CL170DCD	C 1902	CSZS100M6R3
D 1907 LED	CL170PGCD	C 1903	CKSQYB103K50
D 1909 LED	CL170DCD	C 1904	CKSQYB103K50
D 1910 LED	CL170DCD	C 1905	CKSQYB103K50
		C 1906	CKSQYB103K50
D 1911 LED	CL170DCD	C 1907	CKSQYB103K50
D 1912 LED	CL170DCD	C 1908	CKSQYB103K50
D 1913 LED	CL170DCD	C 1909	CKSQYB103K50
D 1914 LED	CL170DCD	C 1910	CKSQYB103K50
D 1915 LED	CL170DCD	C 1911	CKSQYB103K50
D 1916 LED	CL170DCD	C 1912	CCSQCH220J50
D 1917 LED	CL170DCD	C 1913	CCSQCH220J50
D 1918 LED	CL170DCD	Keyboard Unit Consists of ·Keyboard PCB ·Switch PCB	
D 1919 LED	CL170DCD		
L 1901 Inductor	LCTB2R2K2125	DH Unit Number : CWM5417 Unit Name : Keyboard Unit (KEH-P7600R/EW)	
L 1902 Inductor	LCTB2R2K2125	MISCELLANEOUS	
X 1901 Resonator 5.0000MHz	CSS1405	IC 1901 HIC	RS-140
S 1901 Switch	CSG1043	IC 1902 IC	PD6199A
S 1902 Push Switch	CSG1099	Q 1901 Transistor	2SC2712
S 1903 Push Switch	CSG1085	Q 1902 Transistor	IMH10A
		Q 1903 Transistor	DTC143TK
S 1904 Push Switch	CSG1099	Q 1904 Transistor	IMH10A
S 1905 Push Switch	CSG1099	Q 1905 Transistor	IMH10A
S 1906 Switch	CSG1043	Q 1906 Transistor	IMH10A
S 1908 Push Switch	CSG1099	Q 1907 Transistor	IMH10A
S 1910 Push Switch	CSG1085	D 1901 Diode	MA153
		D 1902 Diode	MA153
S 1911 Push Switch	CSG1099	D 1903 LED	CL155DPGD
S 1912 Push Switch	CSG1078	D 1904 LED	CL155DPGD
S 1913 Push Switch	CSG1084	D 1905 LED	CL170DCD
S 1914 Push Switch	CSG1085	D 1906 LED	CL170DCD
S 1915 Push Switch	CSG1084	D 1907 LED	CL170PGCD
		D 1909 LED	CL170DCD
S 1917 Push Switch	CSG1085	D 1910 LED	CL170DCD
S 1918 Push Switch	CSG1084	D 1911 LED	CL170DCD
S 1919 Push Switch	CSG1085	D 1912 LED	CL170DCD
S 1920 Push Switch	CSG1084	D 1913 LED	CL170DCD
S 1921 Push Switch	CSG1085	D 1914 LED	CL170DCD
		D 1915 LED	CL170DCD
S 1922 Push Switch	CSG1085	D 1916 LED	CL170DCD
S 1923 Push Switch	CSG1085	D 1917 LED	CL170DCD
S 1924 Push Switch	CSG1084	D 1918 LED	CL170DCD
S 1930 Switch	CSN1027	D 1919 LED	CL170DCD
CN 1902 EL	CEL1493	L 1901 Inductor	LCTB2R2K2125
LCD1901 LCD	CAW1407	X 1901 Resonator 5.0000MHz	CSS1405
RESISTORS		S 1901 Switch	CSG1043
R 1901	RS1/8S222J	S 1902 Push Switch	CSG1099
R 1902	RS1/8S222J	S 1903 Push Switch	CSG1085
R 1903	RS1/10S272J	S 1904 Push Switch	CSG1099
R 1904	RS1/10S121J	S 1905 Push Switch	CSG1099
R 1905	RS1/10S102J	S 1906 Switch	CSG1043
		S 1908 Push Switch	CSG1099
R 1906	RS1/10S103J	S 1910 Push Switch	CSG1085
R 1907	RS1/10S470J	S 1911 Push Switch	CSG1099
R 1908	RS1/10S470J	S 1912 Push Switch	CSG1078
R 1909	RS1/10S470J	S 1913 Push Switch	CSG1084
R 1910	RS1/10S470J		
		R 1919	RS1/10S151J
R 1911	RS1/4S561J	R 1921	RS1/10S151J
R 1912	RS1/4S561J	R 1923	RS1/10S151J
R 1913	RS1/10S151J	R 1925	RS1/10S151J
R 1915	RS1/8S271J	R 1927	RS1/8S271J
R 1917	RS1/8S271J		

KEH-P8650,P7650

====Circuit Symbol & No.====Part Name	Part No.
S 1914 Push Switch	CSG1085
S 1915 Push Switch	CSG1084
S 1917 Push Switch	CSG1085
S 1918 Push Switch	CSG1084
S 1919 Push Switch	CSG1085
S 1920 Push Switch	CSG1084
S 1921 Push Switch	CSG1085
S 1922 Push Switch	CSG1085
S 1923 Push Switch	CSG1085
S 1924 Push Switch	CSG1084
S 1930 Switch	CSN1027
CN 1902 EL	CEL1493
LCD1901 LCD	CAW1408
RESISTORS	
R 1901	RS1/8S222J
R 1902	RS1/8S222J
R 1903	RS1/10S272J
R 1904	RS1/10S121J
R 1905	RS1/8S102J
R 1906	RS1/10S103J
R 1907	RS1/10S470J
R 1908	RS1/10S470J
R 1909	RS1/10S470J
R 1910	RS1/10S470J
R 1911	RS1/4S561J
R 1912	RS1/4S561J
R 1913	RS1/10S151J
R 1915	RS1/8S271J
R 1917	RS1/8S271J
R 1919	RS1/10S151J
R 1921	RS1/10S151J
R 1923	RS1/10S151J
R 1925	RS1/10S151J
R 1927	RS1/8S271J
R 1929	RS1/8S151J
R 1936	RS1/10S103J
R 1940	RS1/10S0R0J
R 1941	RS1/10S470J
R 1942	RS1/10S470J

====Circuit Symbol & No.====Part Name	Part No.
CAPACITORS	
C 1901	CSZS100M6R3
C 1902	CSZS100M6R3
C 1903	CKSQYB103K50
C 1904	CKSQYB103K50
C 1905	CKSQYB103K50
C 1906	CKSQYB103K50
C 1912	CCSQCH220J50
C 1913	CCSQCH220J50

E Unit Number :
Unit Name : PCB Unit

S 1	Switch (Load)	ESG1004
S 2	Switch (70µS)	ESG1004
EGN 1	Photo-Interrupter	EGN1005
R 1	Resistor	RD1/4PM181J

F Unit Number :
Unit Name : Reel PCB

EGN 2	Photo-Interrupter	EGN1006
EGN 3	Photo-Interrupter	EGN1006

Miscellaneous Parts List

M 1	Motor Unit (Main)	EXA1454
M 2	Motor Unit (Sub)	EXA1485
HD 1	Head Assy	EXA1452

6. ADJUSTMENT

● Connection Diagram

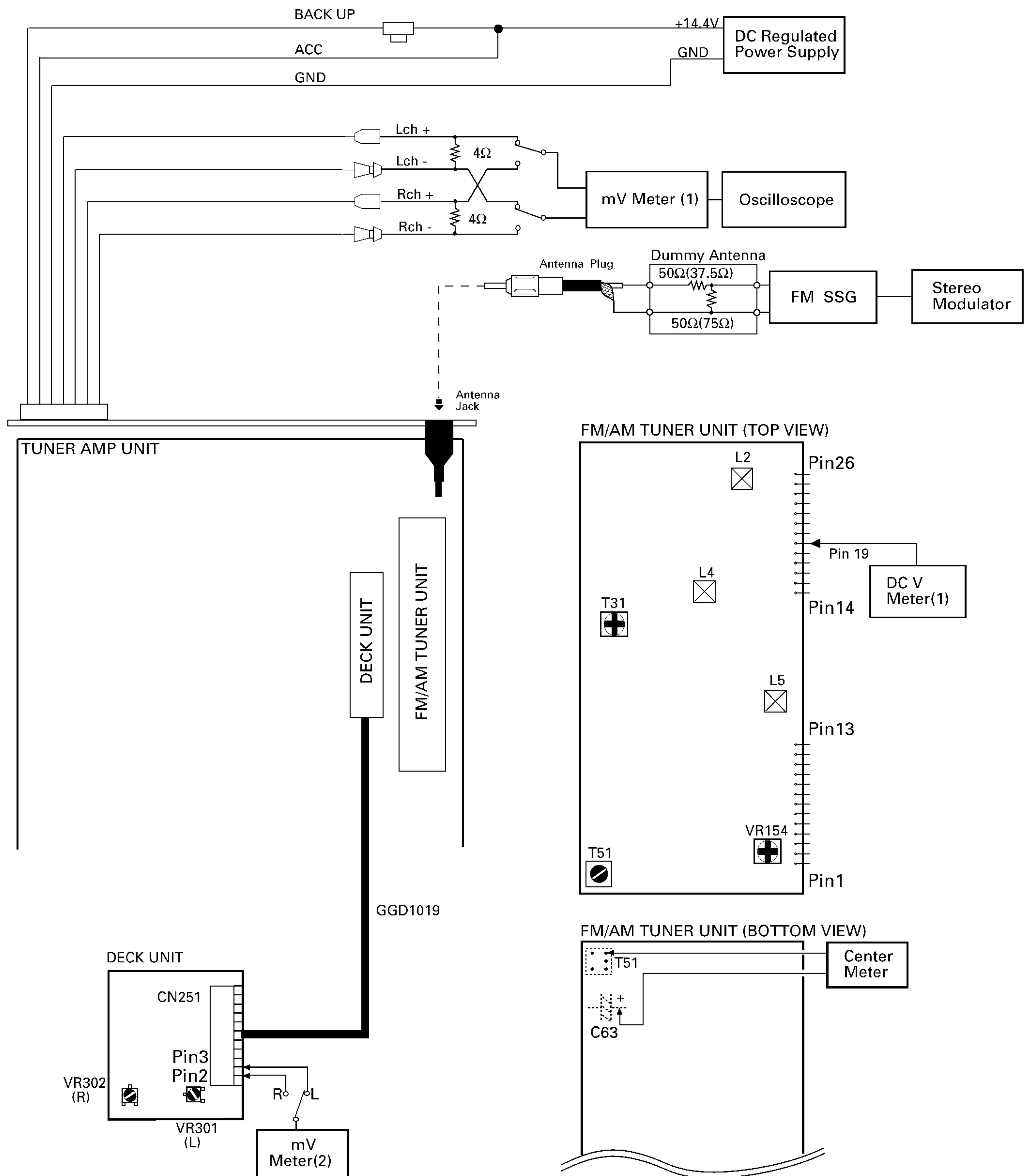


Fig. 27

KEH-P8650,P7650

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.) or 400Hz 100%(75kHz Dev.)

S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

FM ADJUSTMENT

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
TUN Volt	1	.....	.....	108.0	L5	DC V Meter(1) : 6V
IF	2	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	3	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	4	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
IFT	5	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	6	98.1 S	40	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

DOLBY B/C NR ADJUSTMENT(KEH-P8650/ES)

No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR301(Lch),VR302(Rch)	mV Meter(2) : - 8.24dBs+1.5dB, - 0.5dB (DOLBY NR Switch : OFF)

DOLBY B NR ADJUSTMENT(KEH-P7650/ES)

No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR301(Lch),VR302(Rch)	mV Meter(2) : - 8.24dBs ± 1.0dB (DOLBY NR Switch : OFF)

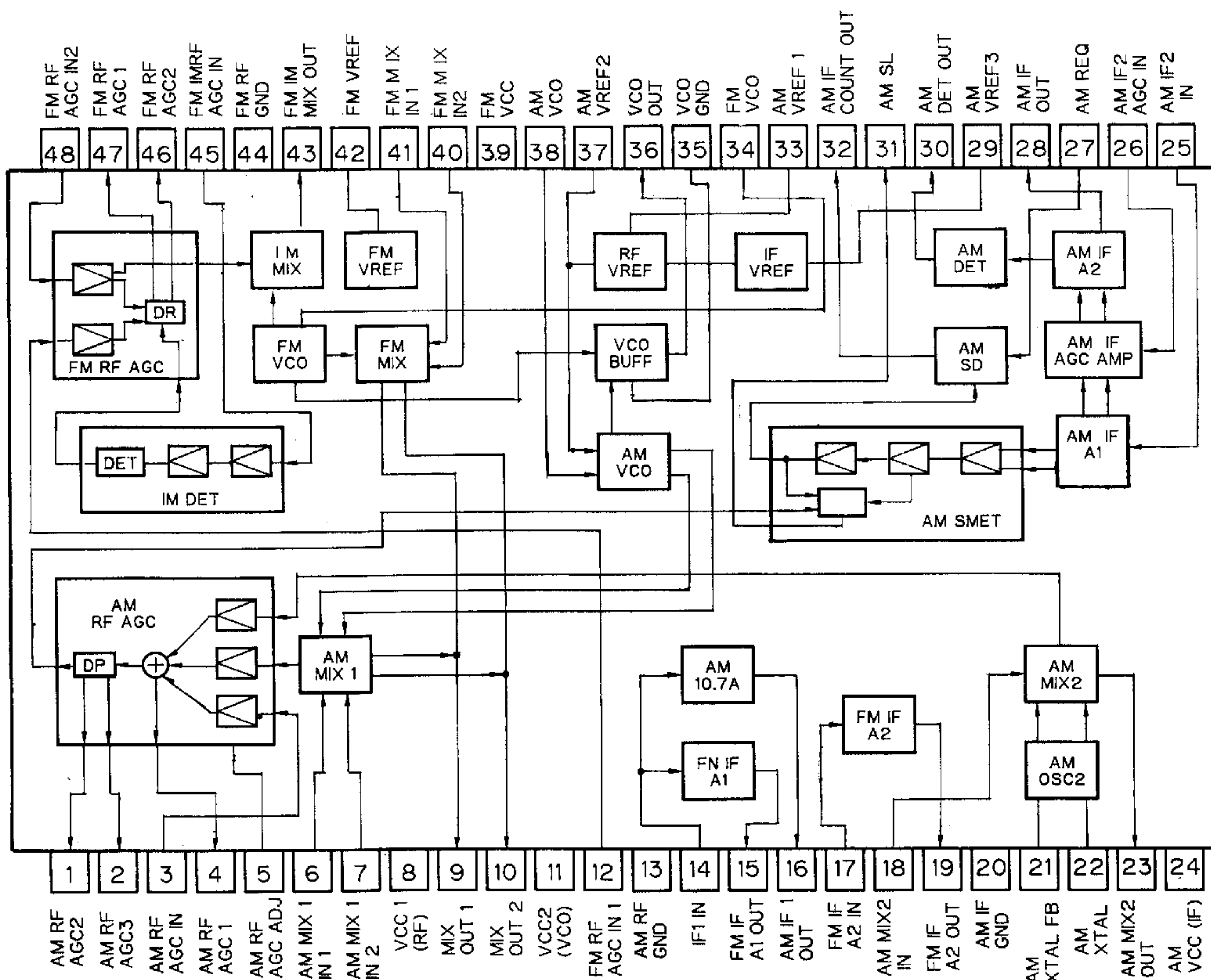
● For Repair of the Cassette Mechanism Module, Use the Extension-Cord Tool GGD1019.

7. GENERAL INFORMATION

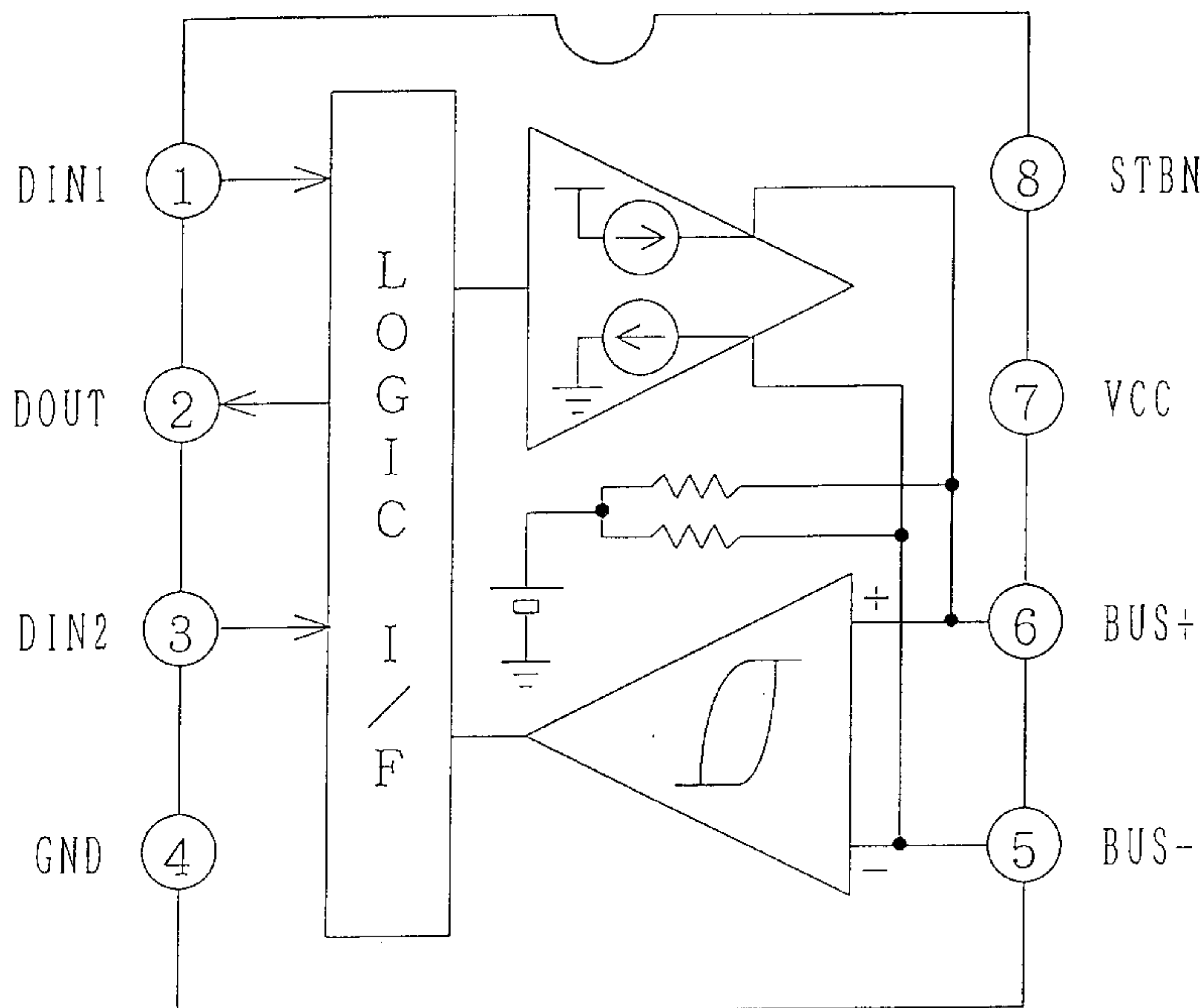
7.1 PARTS

7.1.1 IC

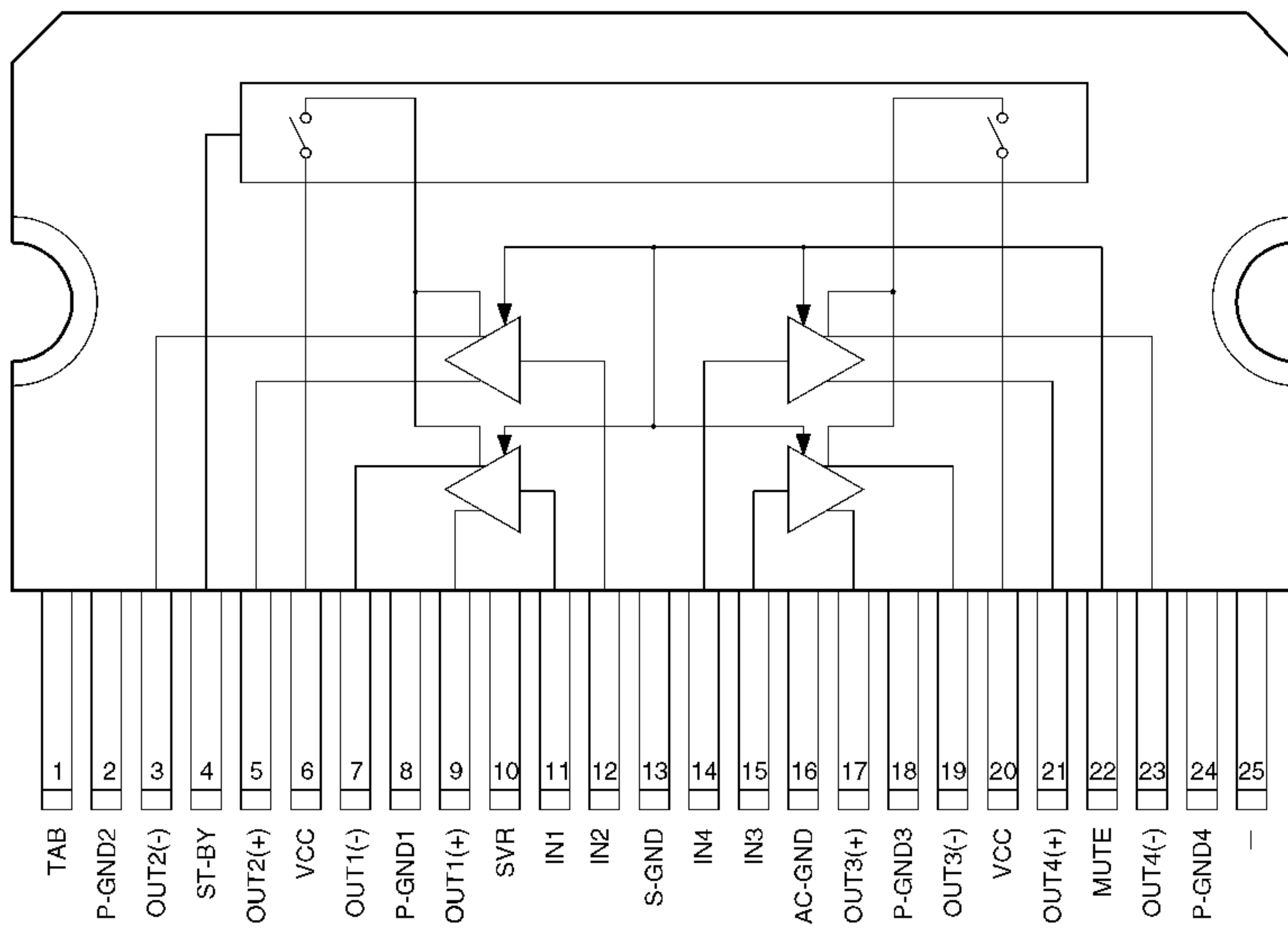
PA4023B



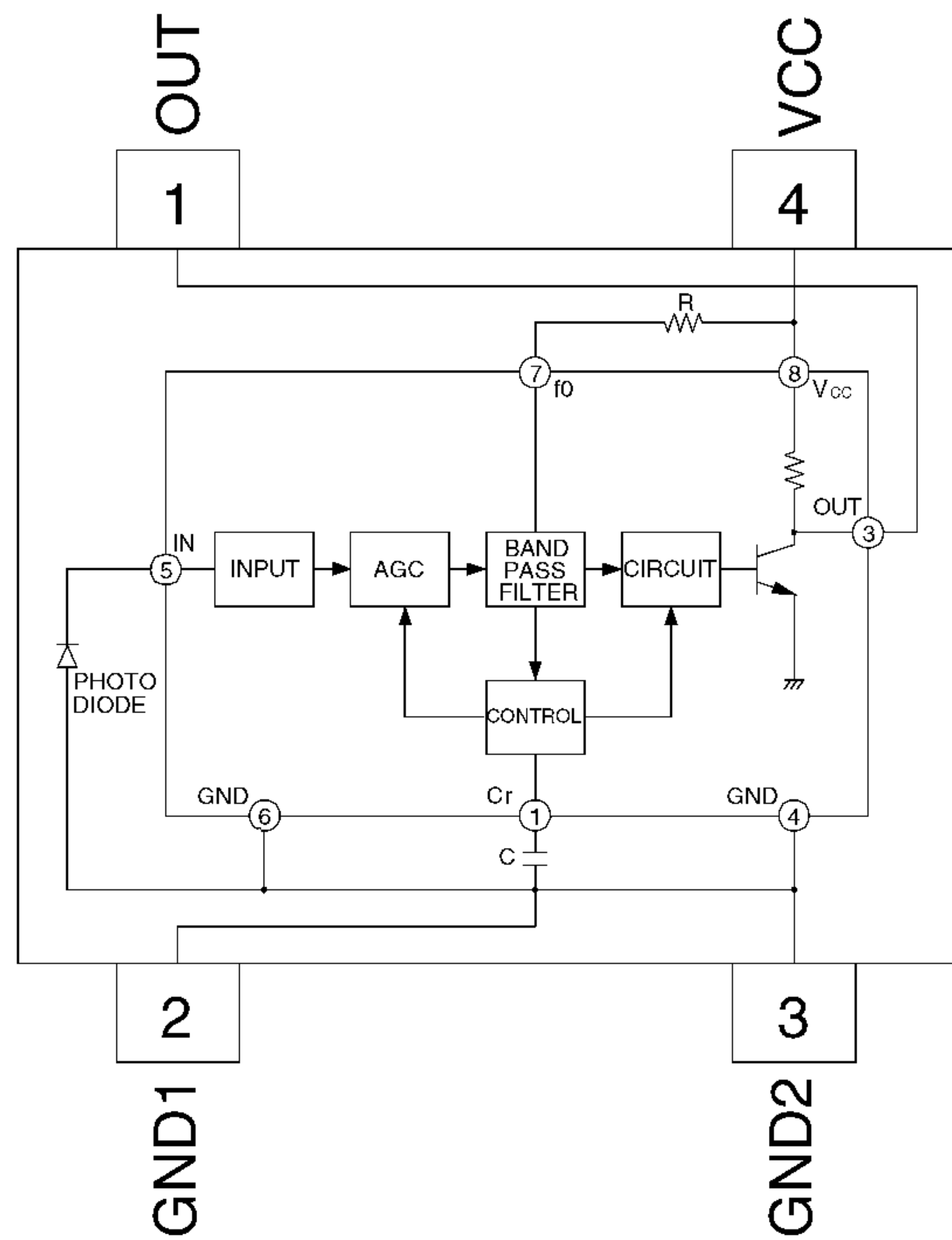
PM0008BF



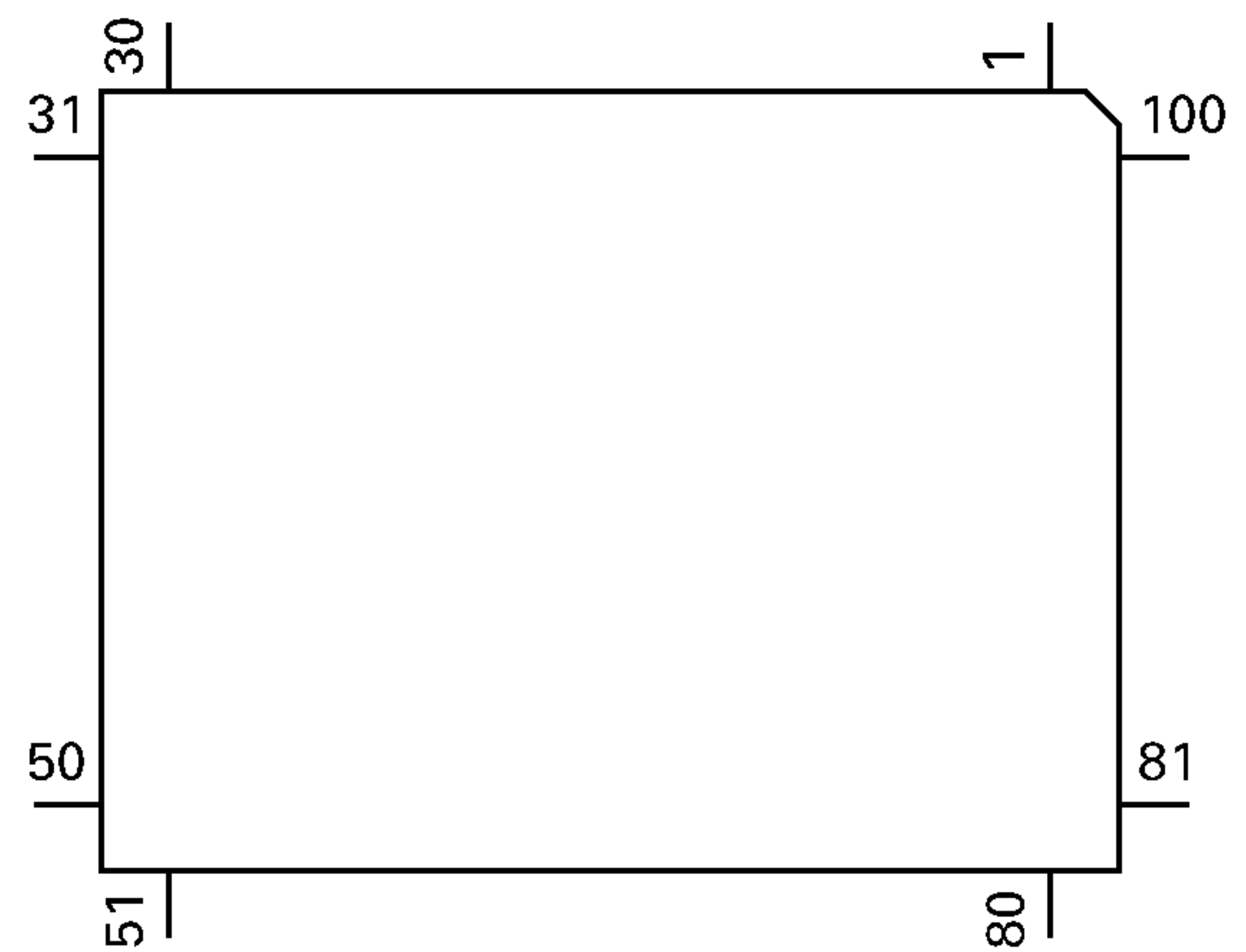
TDA7386



RS-140



*PD4794A



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

● Pin Functions (PD4794A)

Pin No.	Pin Name	I/O	Function and Operation
1	SWVDD	O	Keyboard unit power supply control output
2	DSENS	I	Grille detach sense
3	CSENS	I	Flap close sense input
4	ISENS	I	Illumination sense input
5	TESTIN	I	Test program mode input
6	IDRSTO		Not used
7	IDSEL		Not used
8	IDCK		Not used
9	IDDI		Not used
10	IDDO		Not used
11	RESET	I	Reset input
12	XT2		(open)
13	XT1	I	(VSS)
14	VSS		(GND)
15	X2		Crystal oscillator connection pin
16	X1	I	Crystal oscillator connection pin
17	REGC		(VDD)
18	REGOFF		(VDD)
19	VDD		Power supply
20	ILMPW	O	Illumination power supply control output
21	SYSPWR	O	System power control output
22	ADPW	O	A/D converter power output
23	LCDPW	O	LCD back light power supply control output
24	IPPW	O	Power supply control output for IP BUS interface IC
25	ASENBO	O	Slave power supply control output
26	PRSBSW	I	Preout/Main in switching
27	TELIN	I	TEL MUTE input
28	MUTE	O	Mute output
29	DIM	O	Dimmer select output
30	SPMPX0	O	MPX output for spectrum analyzer 0
31	SPMPX1	O	MPX output for spectrum analyzer 1
32	SPMPX2	O	MPX output for spectrum analyzer 2
33	VCK	O	Clock output for electronic volume
34	VST	O	Strobe pulse output for electronic volume
35	VDT	O	Data output for electronic volume
36	TMUTE		Not used
37	NC		Not used
38	SD		Not used
39	ST	I	FM stereo input
40	VSS		GND
41	VDD		Power supply
42	MDSSENS		Not used
43	MUTCNT		Not used
44	RDSLK		Not used
45	CURRO	O	Tuner voltage FIX output
46	RDT		Not used
47	DRELAY	O	External relay output
48	DRSENS	I	Door open/close sense input
49	DRSYS	O	Door system select output
50	DLED	O	Alarm LED output
51	DLENS	I	Door lock sense input
52	STCUT		Not used
53	MOSENS	I	Motion/window damage sensor input
54	MSIN	I	MS sense input
55	MTLSW	I	Metal sense input
56	POS	I	Position sense input
57	RES	I	Cassette mechanism reverse end sense input

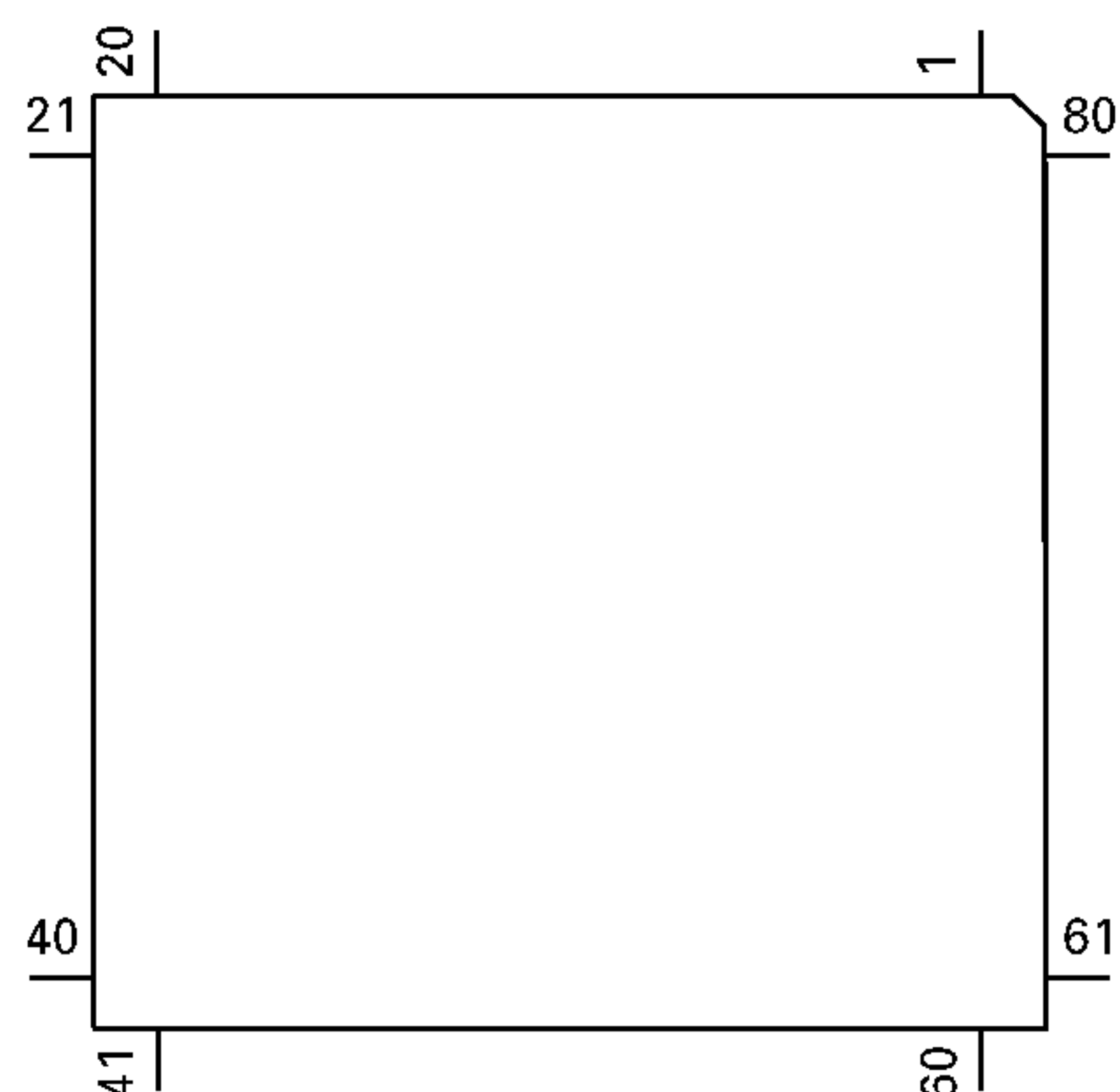
Pin No.	Pin Name	I/O	Function and Operation
58	NES	I	Cassette mechanism forward end sense input
59	DIRO	O	Head F/R select output
60	PLAY	O	MS gain select output
61	DLBYBC	O	Dolby B/C select output
62	PCL	O	Clock adjustment output
63	NR	O	NR output
64	SC2	O	Cassette mechanism sub motor control2 output
65	SC1	O	Cassette mechanism sub motor control1 output
66	CM	O	Cassette mechanism capstan motor control output
67	STBY	O	Drive control output
68	LOADSW	I	Tape loading input
69-72	NC		Not used
73	TEST	I	Test terminal
74	SL	I	Signal level input
75	SEL	I	Select input for the destination
76	LEVEL	I	Level input for spectrum analyzer
77	CL		Not used
78	NL	I	Noise level input
79-81	NC		Not used
82	AVDD		A/D converter analog power supply (VDD)
83	AVREF1		(VDD)
84	GND		GND
85	RX	I	IP BUS data input
86	TX	O	IP BUS data output
87	GND		GND
88	LDET		Not used
89	RCK		Not used
90	RDS57K		Not used
91	SEL0		Not used
92	ASENS	I	ACC power sense input
93	BSENS	I	Back up power sense input
94	TUNPDI	I	PLL IC data input
95	KEYDT	I	Display data input
96	DPDT	O	Display data output
97	TUNPCK	O	PLL IC clock
98	TUNPDO	O	PLL data output
99	TUNPCE	O	PLL IC chip enable
100	PEE	O	Beep tone output

● Pin Functions (PD6218A)

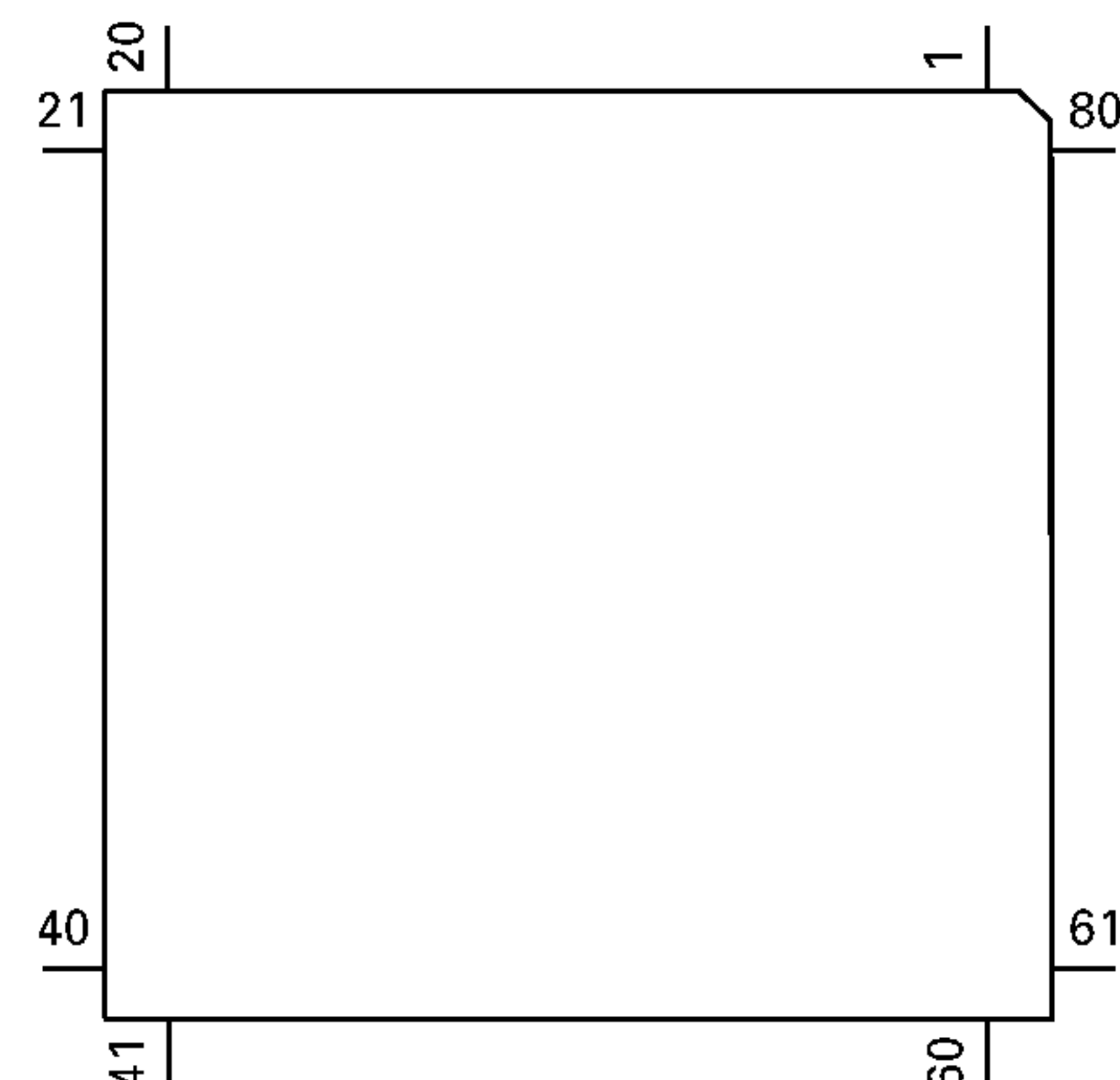
Pin No.	Pin Name	I/O	Format	Function and Operation
1	VSS			GND
2	XI	I		Crystal oscillator connection pin
3	XO	I		Crystal oscillator connection pin
4	RST			Not used
5,6	MOD1,0	I		Model select input
7	LED	O	C	LED control output
8	SO	O	C	Key data output
9	SI	I		Serial data input
10	REM	I		Remote control reception
11	SDRQ	I		Reception error request input
12	ILM	O	C	Illumination color select output
13-16	KD4-KD1	I		Key sense input
17-22	KST6-1	O	N	Key strobe output
23	VCC			Power supply terminal
24-73	SEG49-0	O		LCD segment output
74-77	COM3-0	O		LCD common output
78-80	V3-V1			LCD Power supply terminal

Format	Meaning
C	C MOS
N	N channel open drain

*PD6218A



*PD6200A



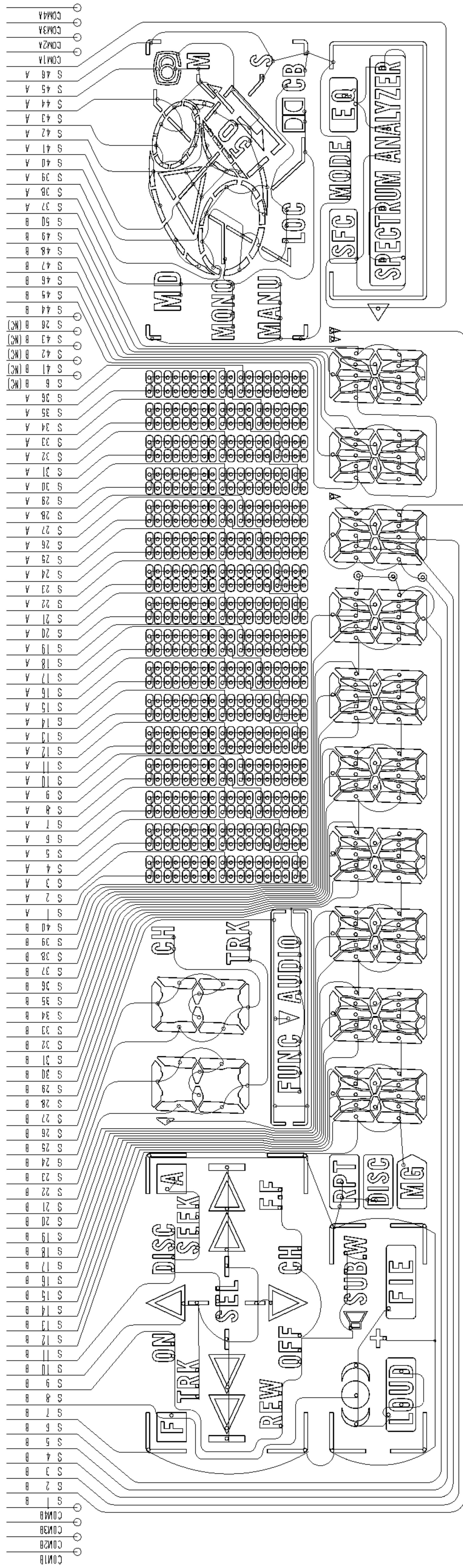
● Pin Functions (PD6200A)

Pin No.	Pin Name	I/O	Function and Operation
1	VSS		GND
2	XI		Not used
3	XO	I	Crystal oscillator connection pin
4	RST		Not used
5,6	MOD1,0	I	Model select input
7,8	NC		Not used
9	SI	I	Serial data input
10	NC		Not used
11	RVER	O	Reception error output
12-22	NC		Not used
23	VCC		Power supply terminal
24-59	SE49-14	O	LCD segment output
60-63	NC		Not used
64-73	SE9-0	O	LCD segment output
74-77	CO3-0	O	LCD common output
78-80	V3-V1		LCD Power supply terminal

7.1.2 DISPLAY

● CAW1407 (KEH-P8650/ES)

SEGMENT



COMMON

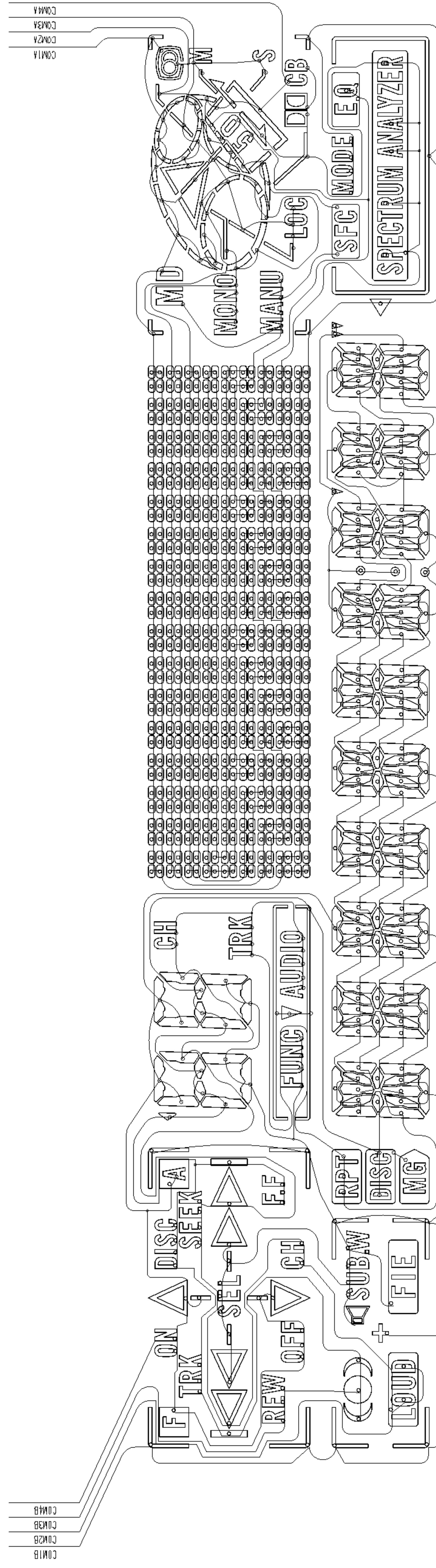
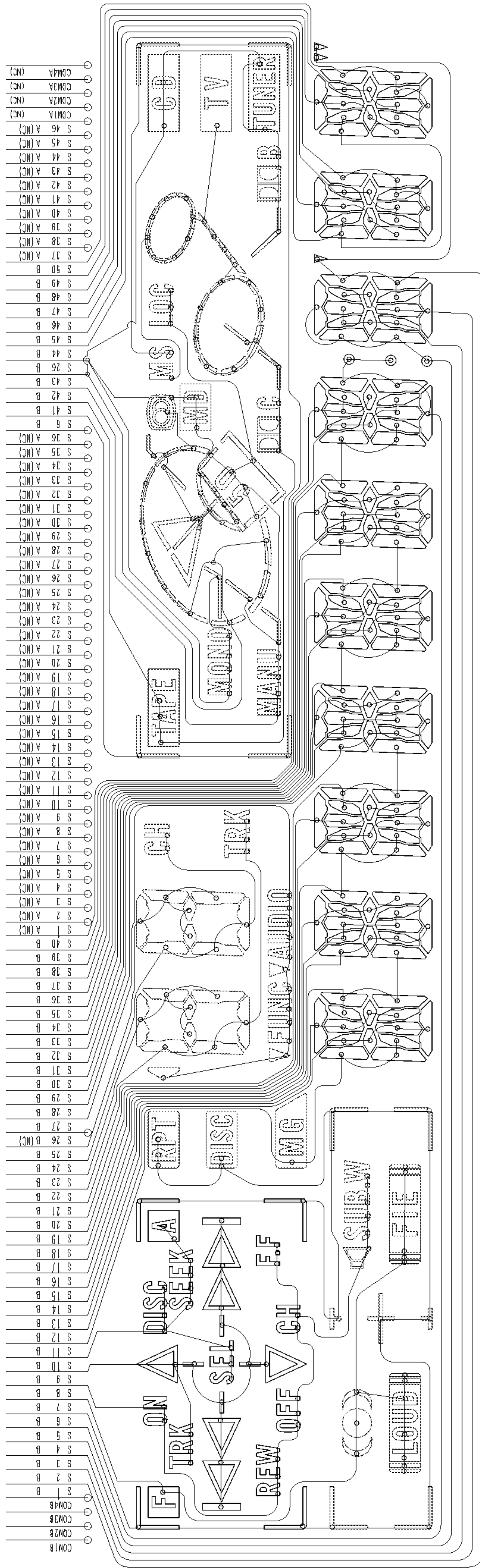


Fig. 28

● CAW1408 (KEH-P7650/ES)

SEGMENT



COMMON

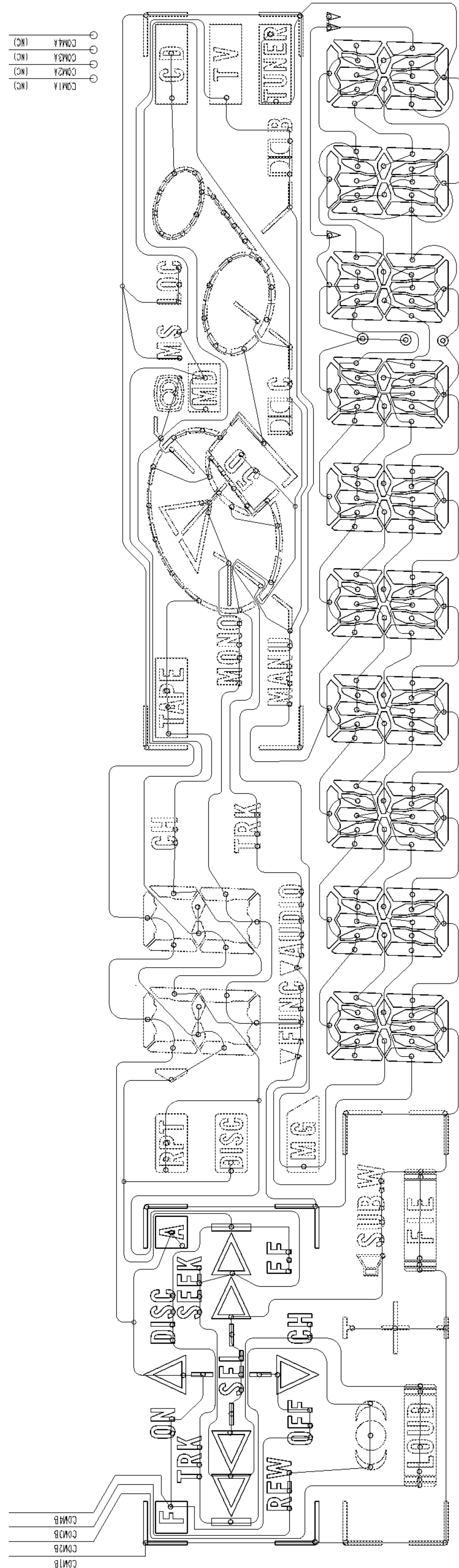


Fig. 29

7.2 DISASSEMBLY

● Removing the Case(not shown)

1. Remove the two screws.
2. Insert and turn a flat screwdriver to remove the case.

● Removing the Cassette Mechanism Module (not shown)

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the Cassette Mechanism Module.

● Removing the Detach Grille Assy(Fig.30)

1. Press the OPEN button, and then pull Detach Grille Assy.

● Removing the Panel Assy(Fig.30)

1. Remove the two screws, and disconnect the two connectors.
2. Disengage the stoppers at two locations indicated by arrows.
3. Remove the Panel Assy.

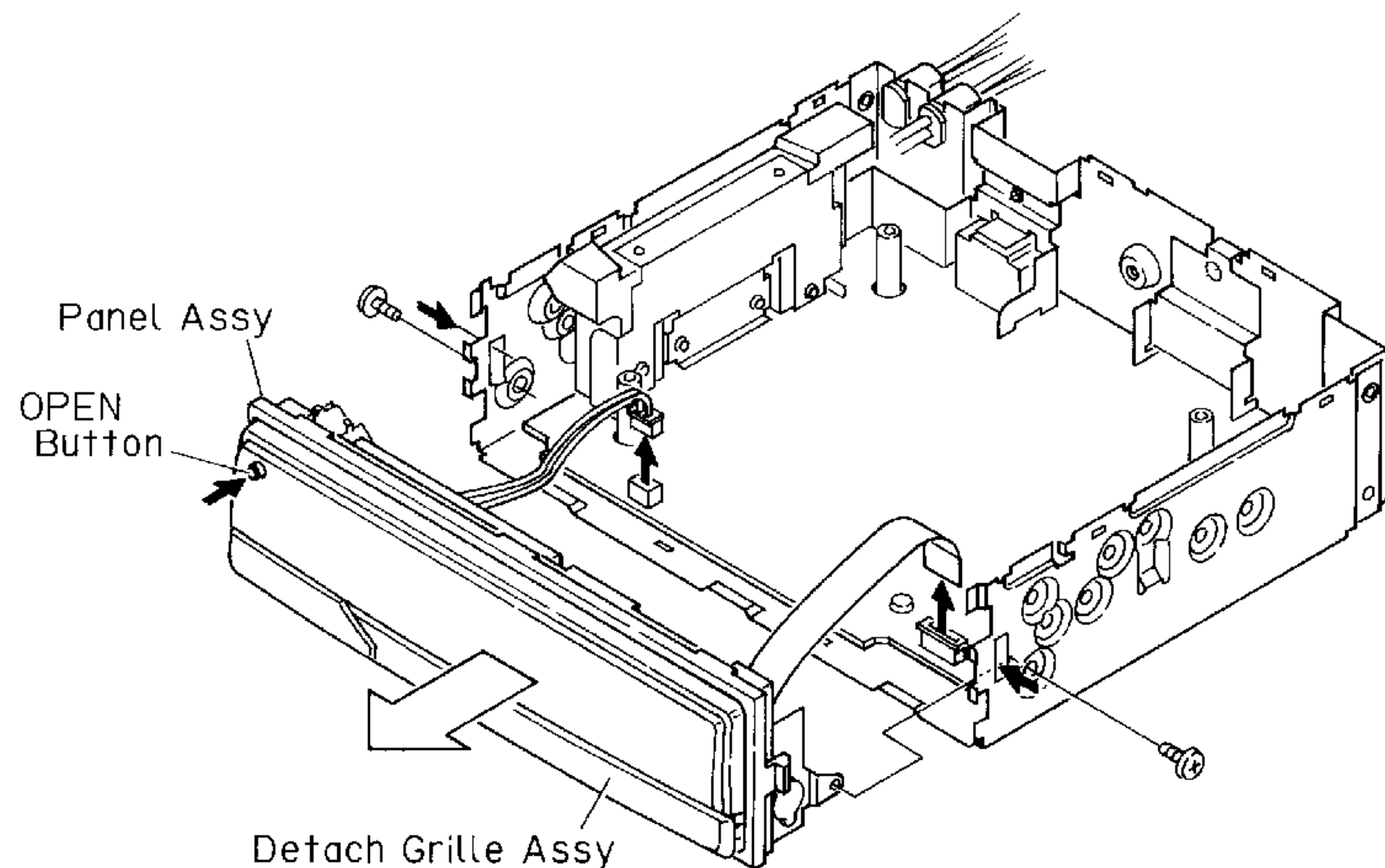


Fig. 30

● Removing the Tuner Amp Unit(Fig.31)

1. Remove the two screws A and three screws B.
2. Remove the one screw C.
3. Unbend the tabs at two locations indicated by arrows until straight.
4. Raise up on Tuner Amp Unit.

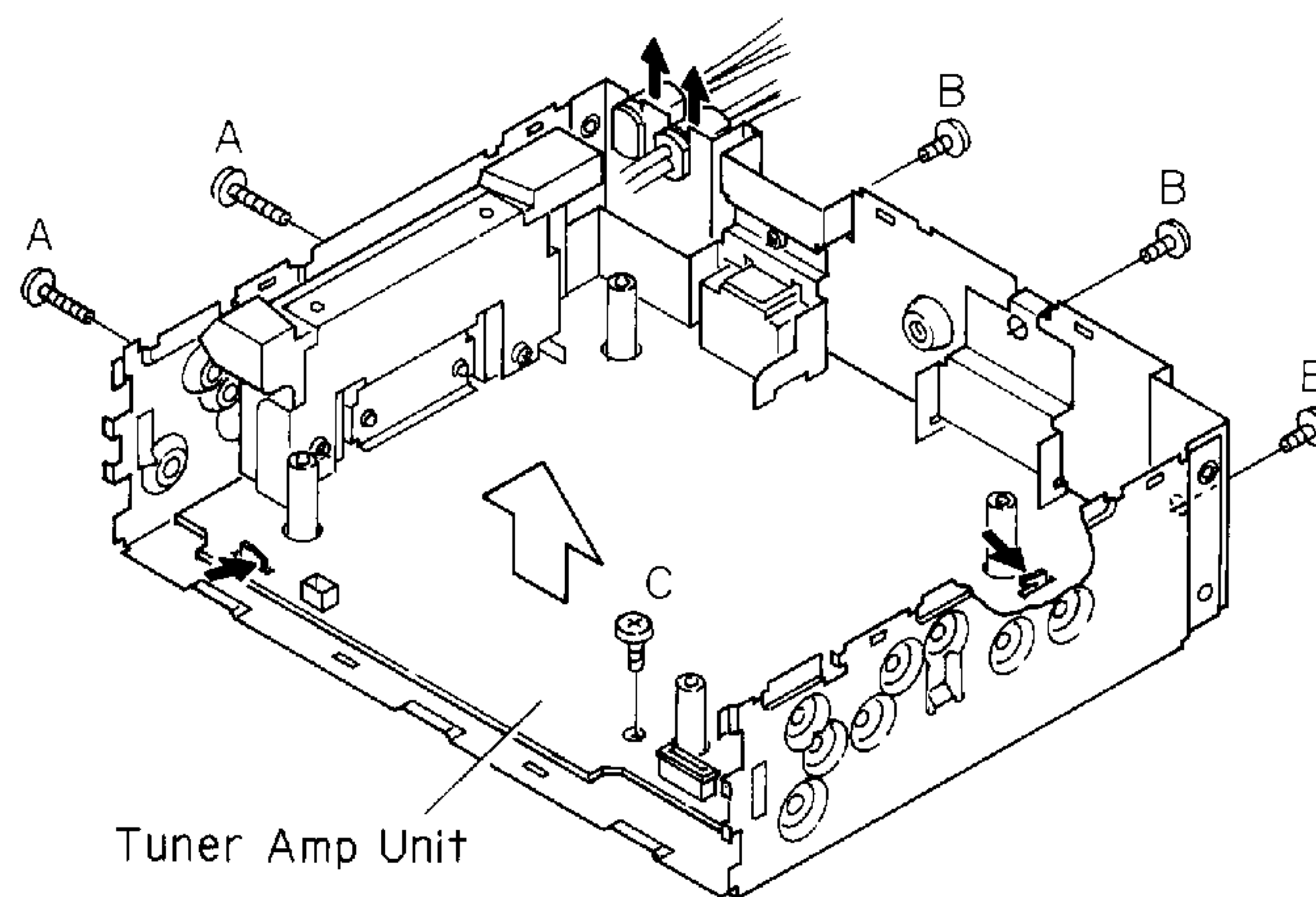


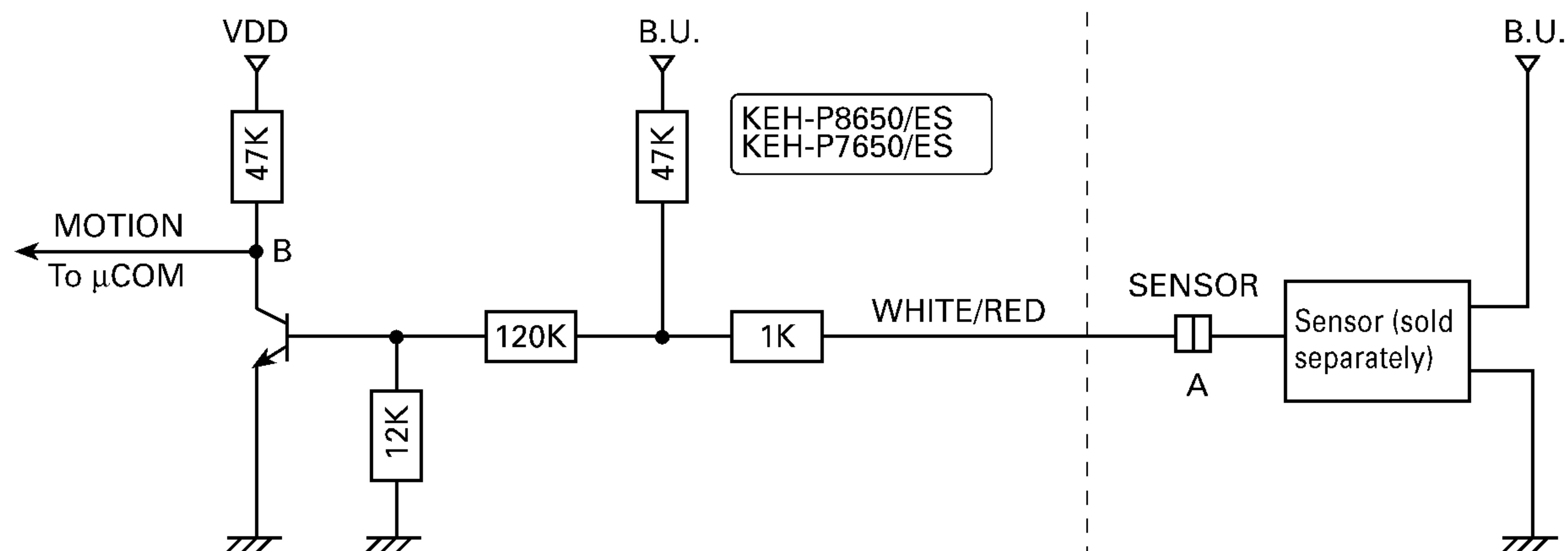
Fig. 31

7.3 EXPLANATION

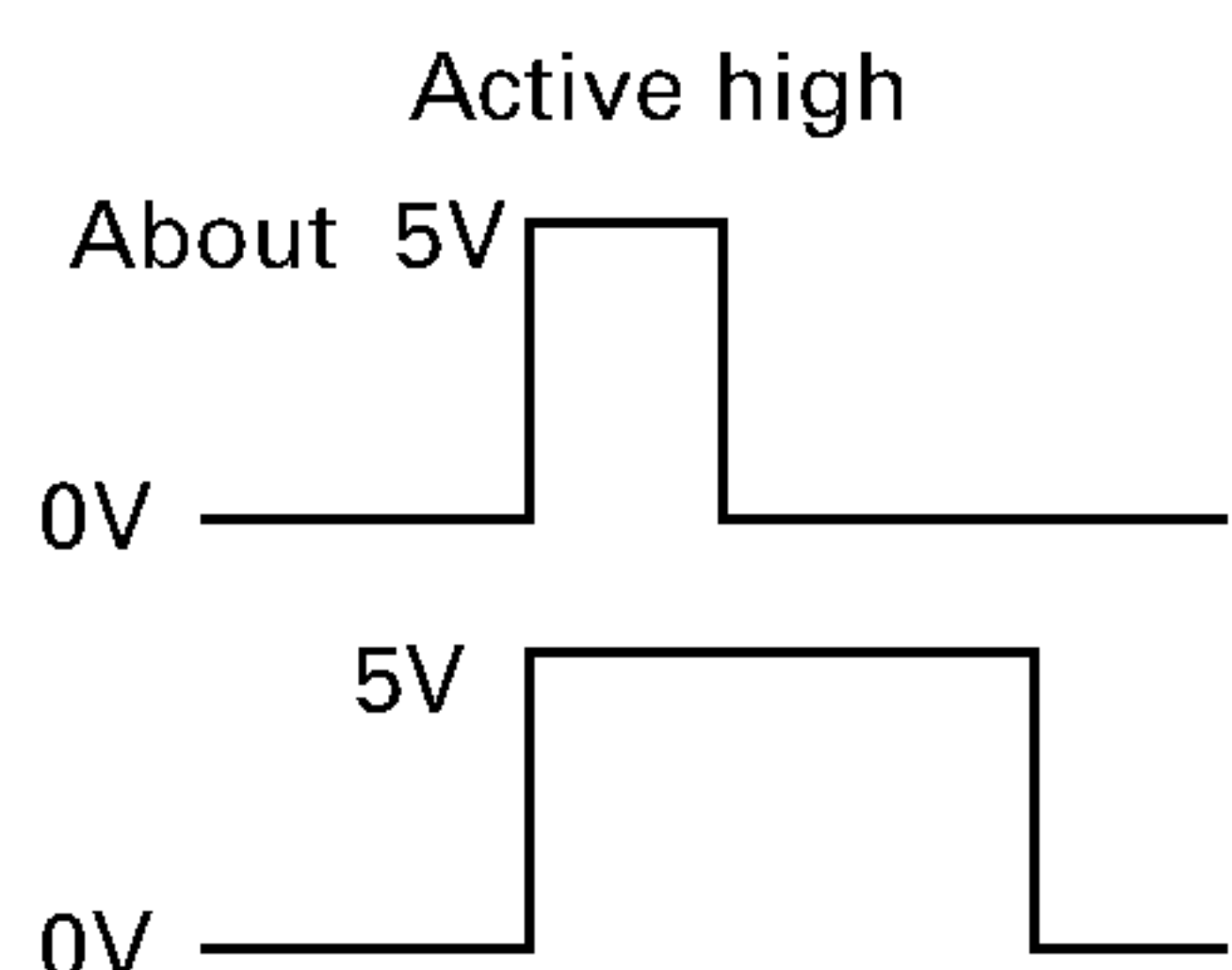
7.3.1 CIRCUIT DESCRIPTION

1) SENSOR

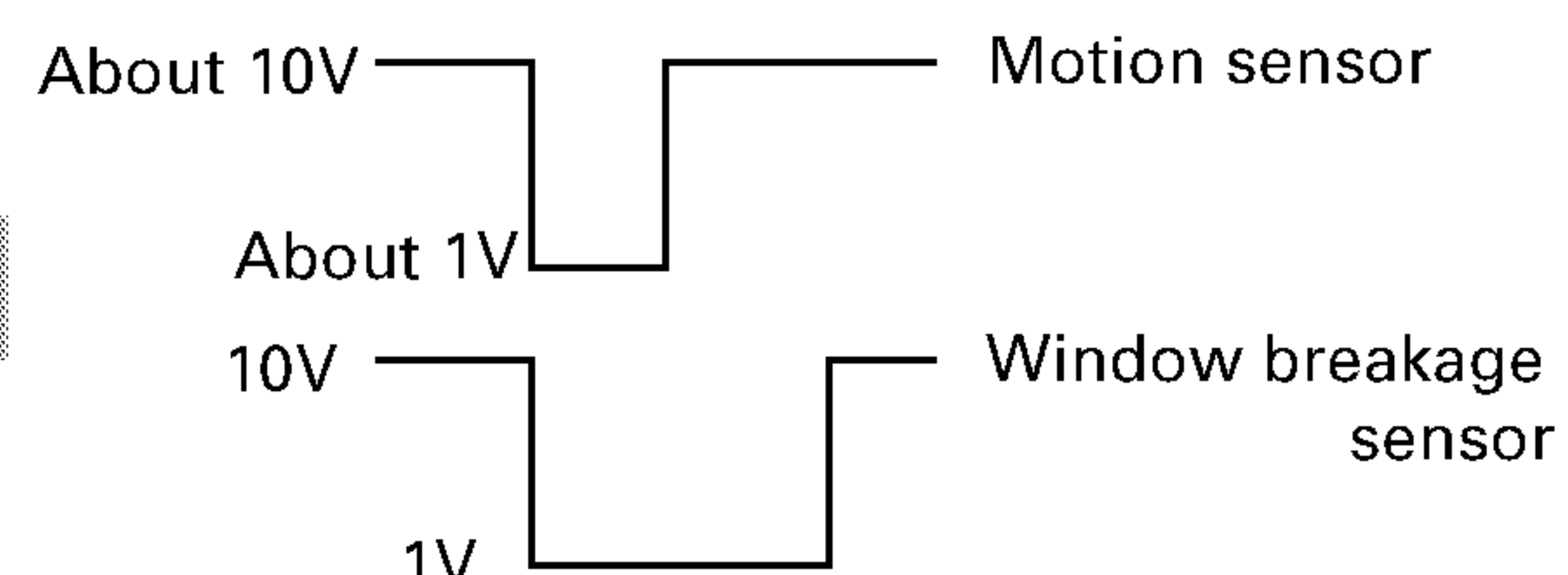
Install sensors sold separately, such as a motion sensor and window breakage sensor.



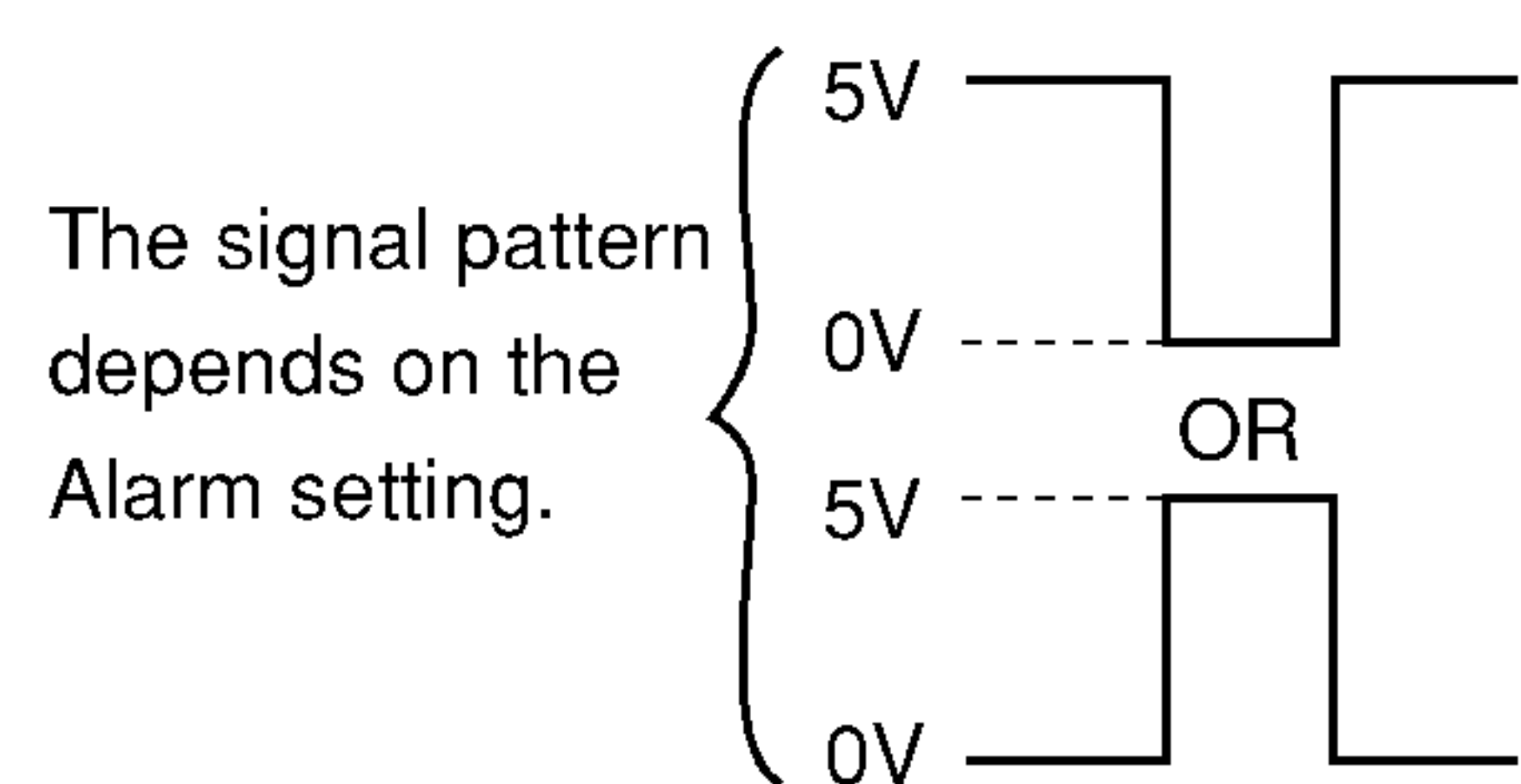
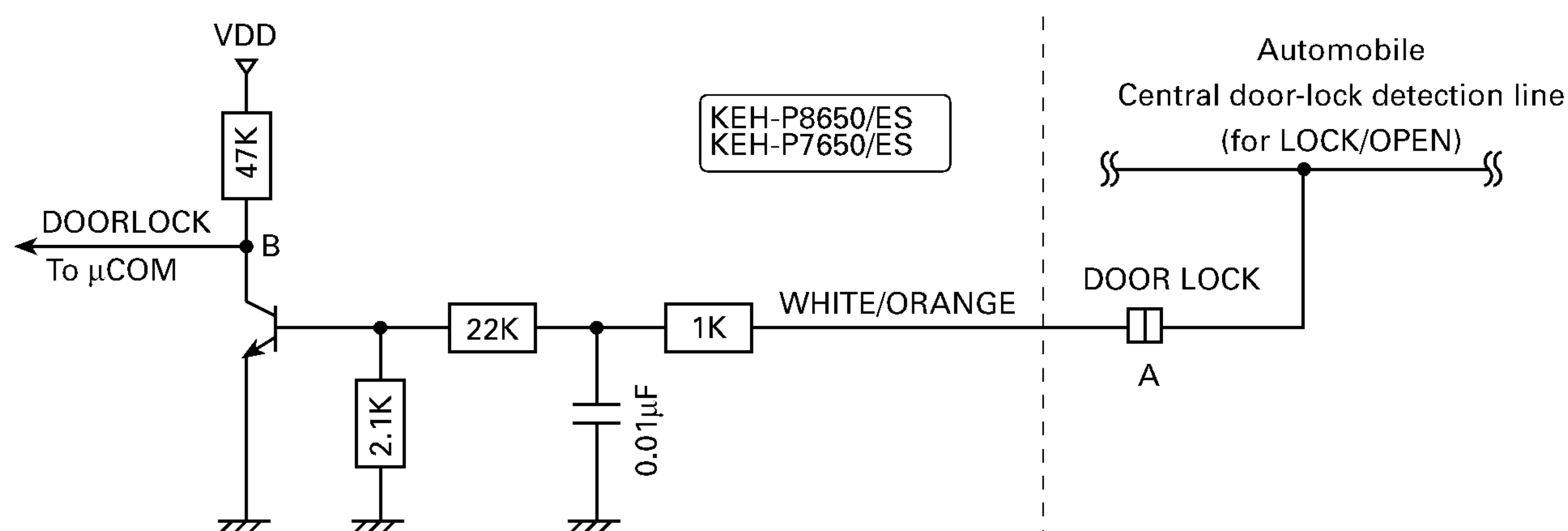
Point-B waveform (when a motion is sensed)



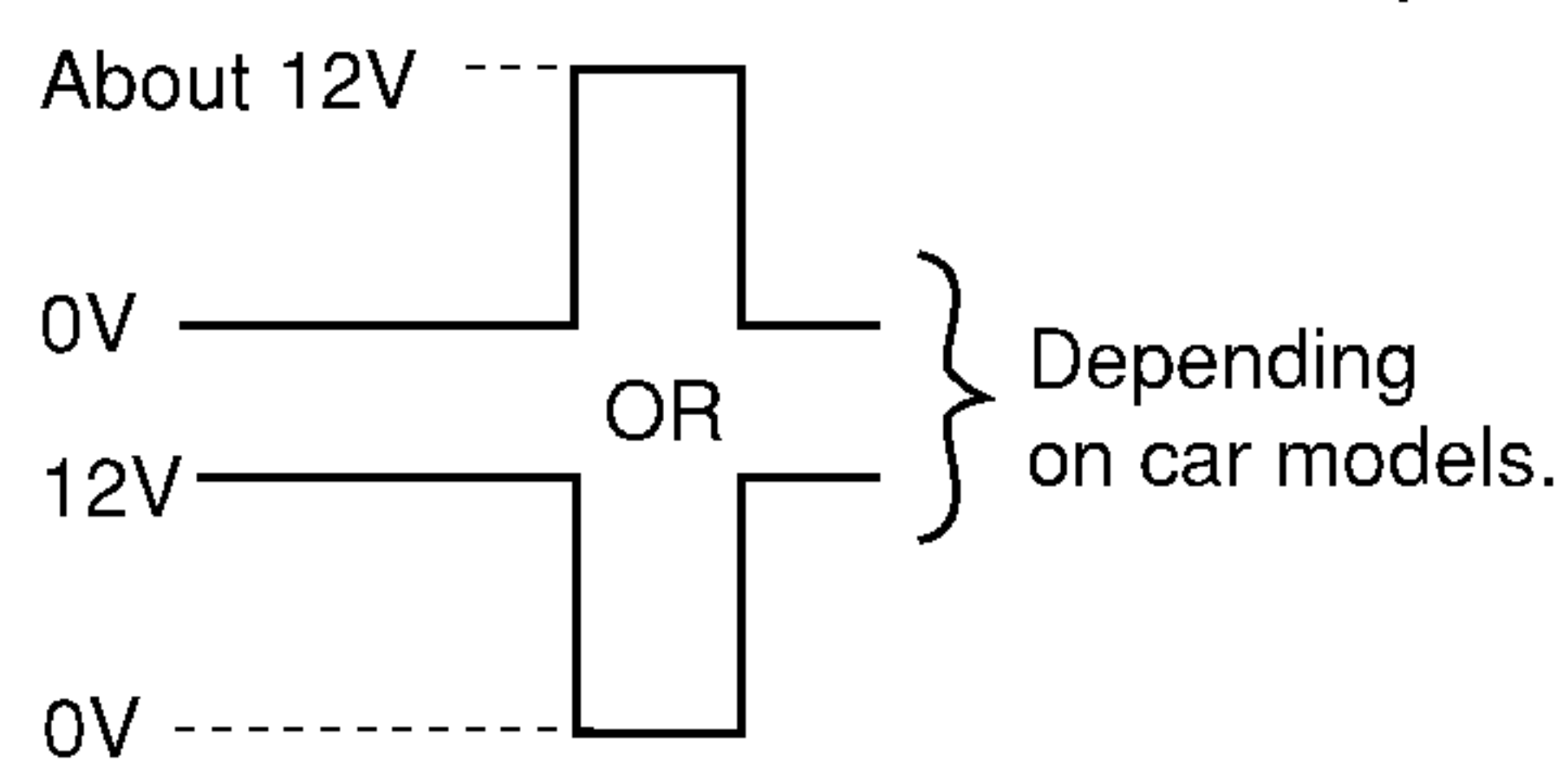
Point A waveform (when a motion is sensed)



2) DOOR LOCK

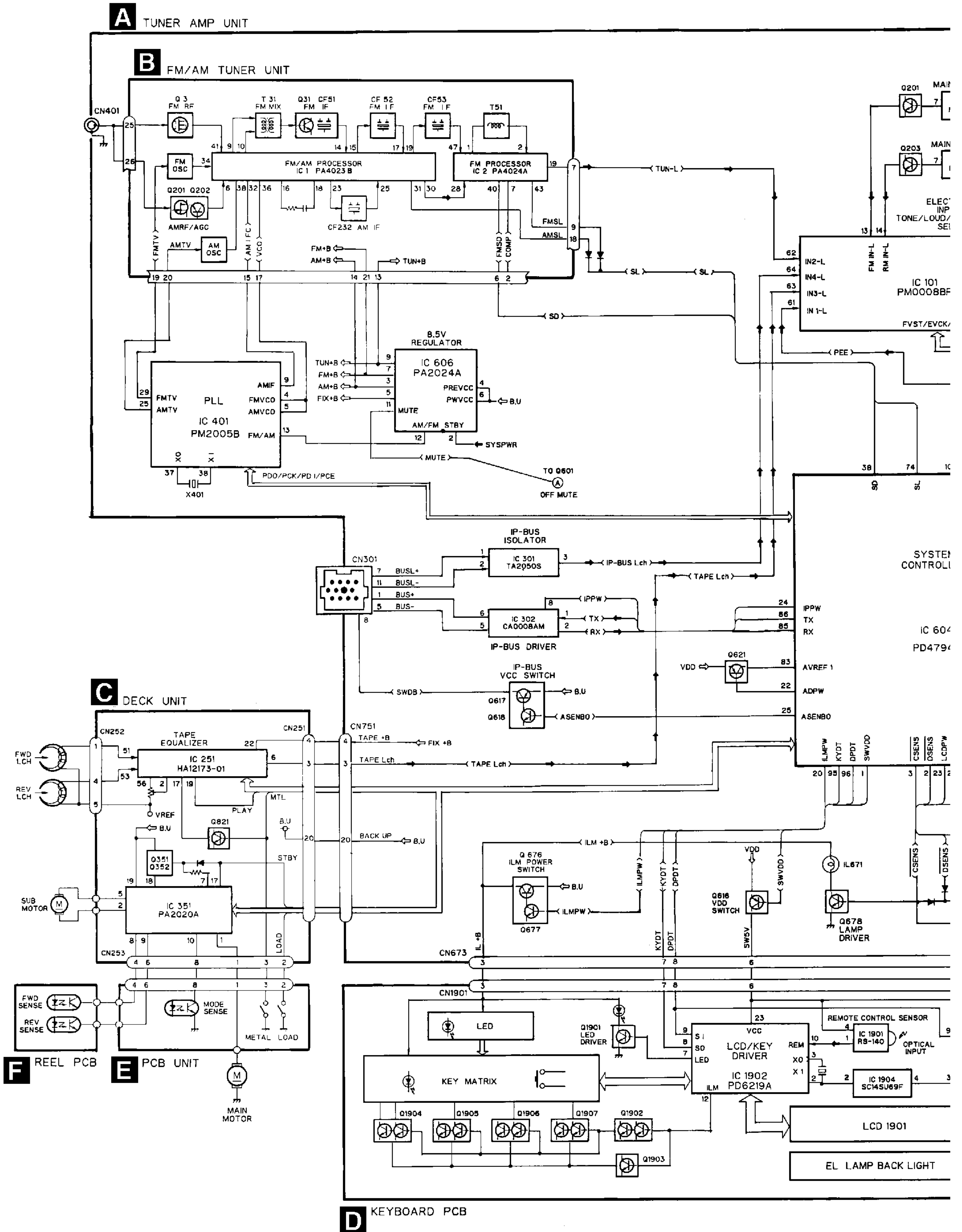


Point-A waveform (when the door is locked or open)



7.3 BLOCK DIAGRAM

● KEH-P8650/ES



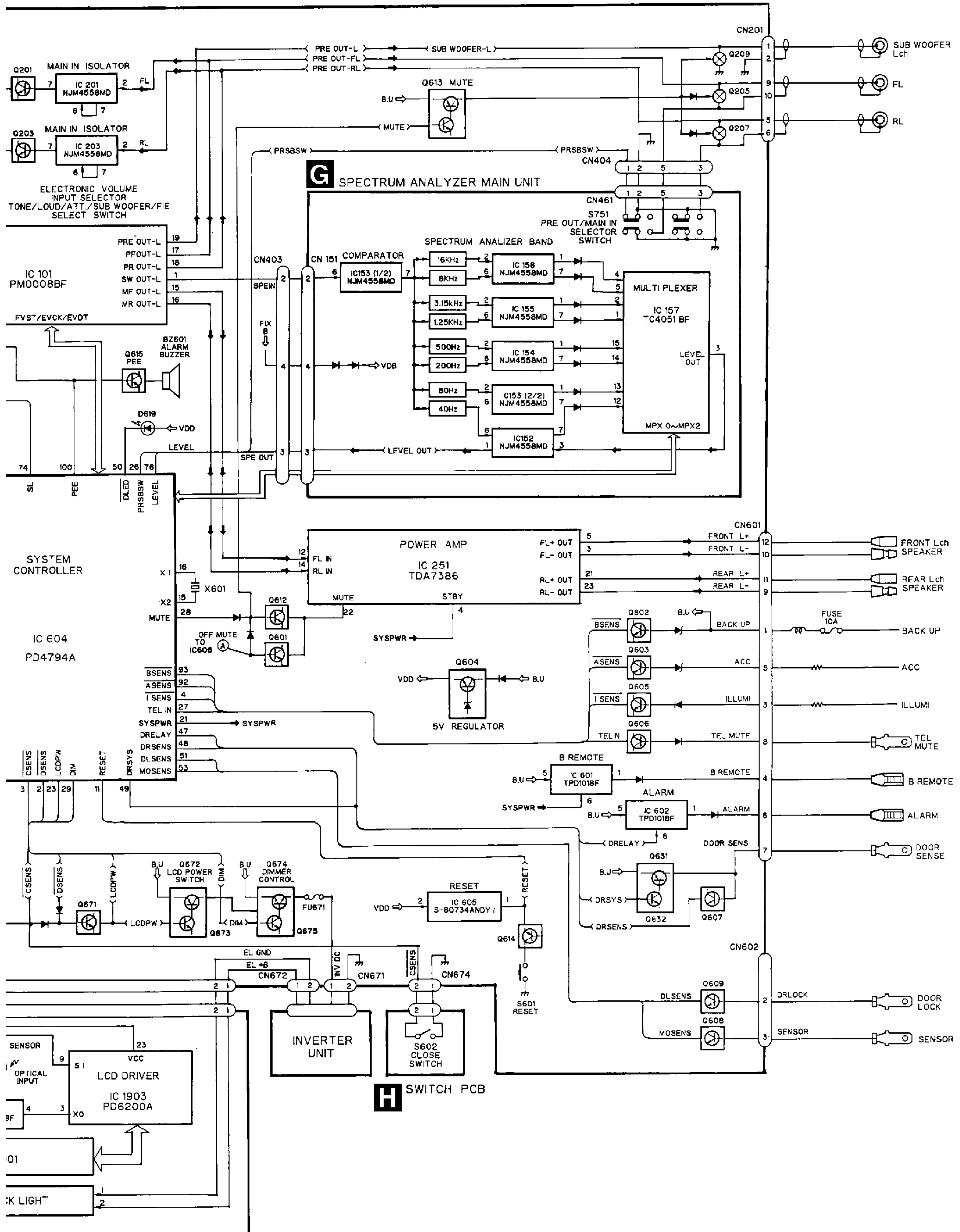
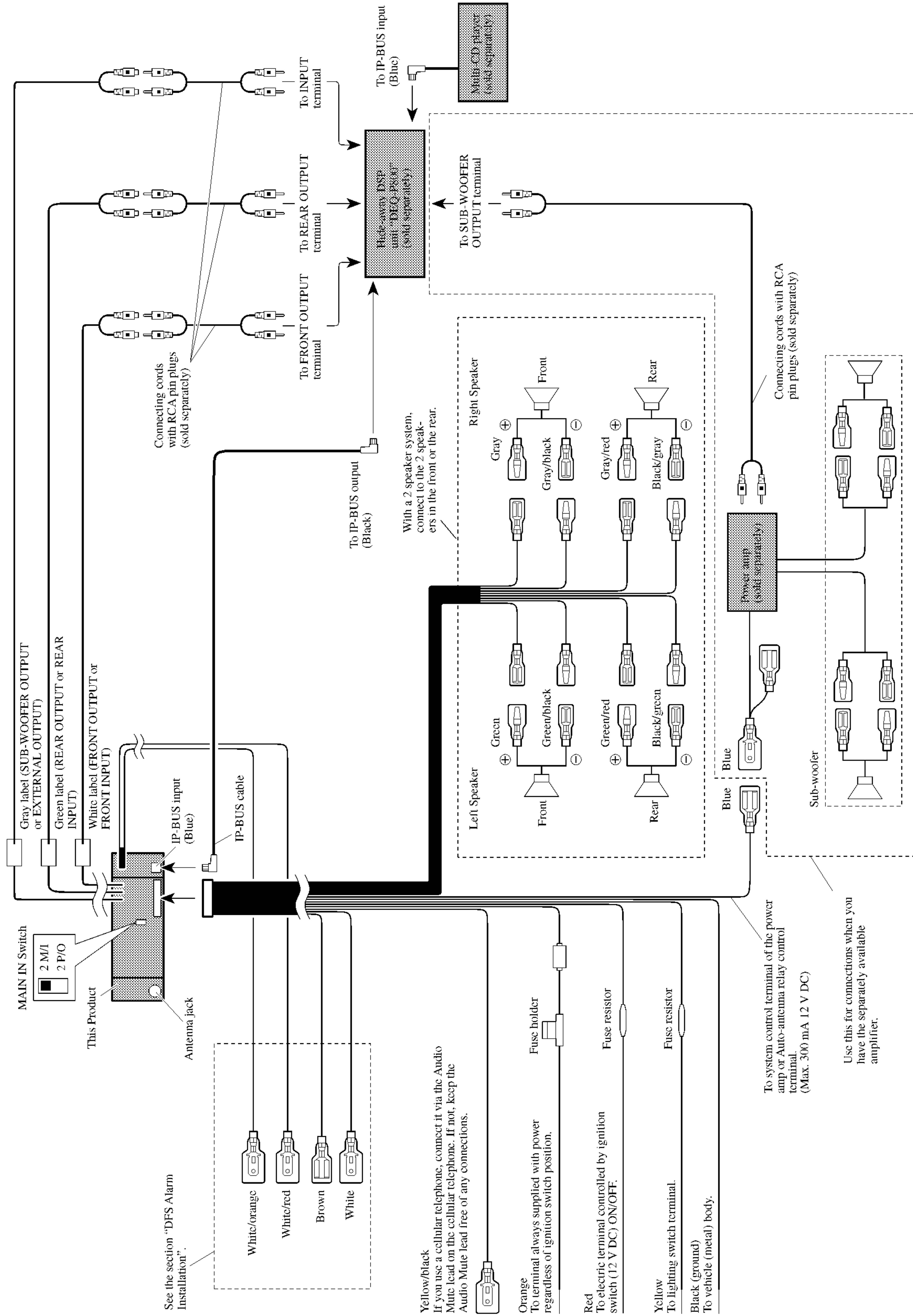


Fig. 32

8. OPERATIONS AND SPECIFICATIONS

Fig. 33

Connecting the Units



Connecting the Units

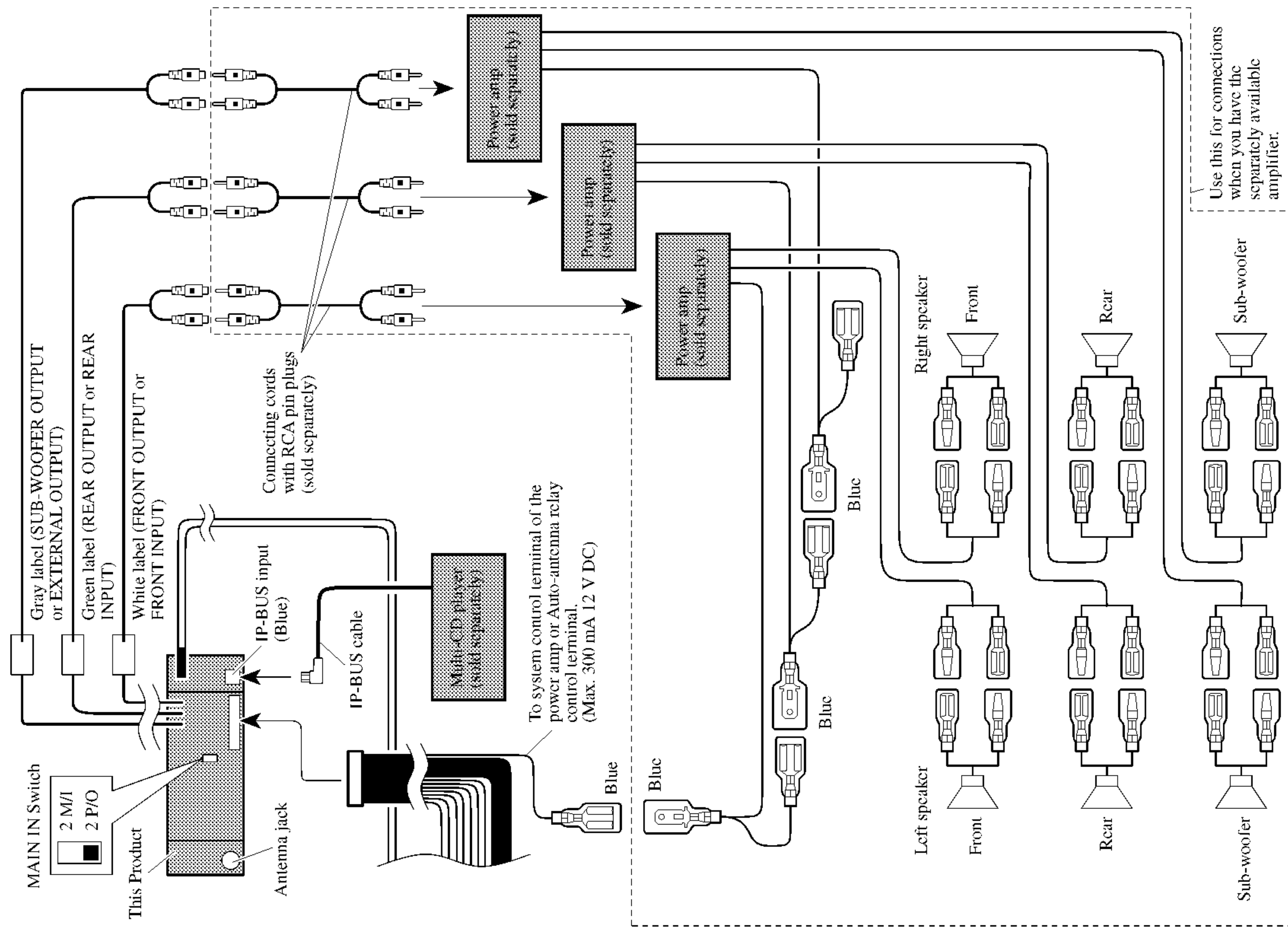
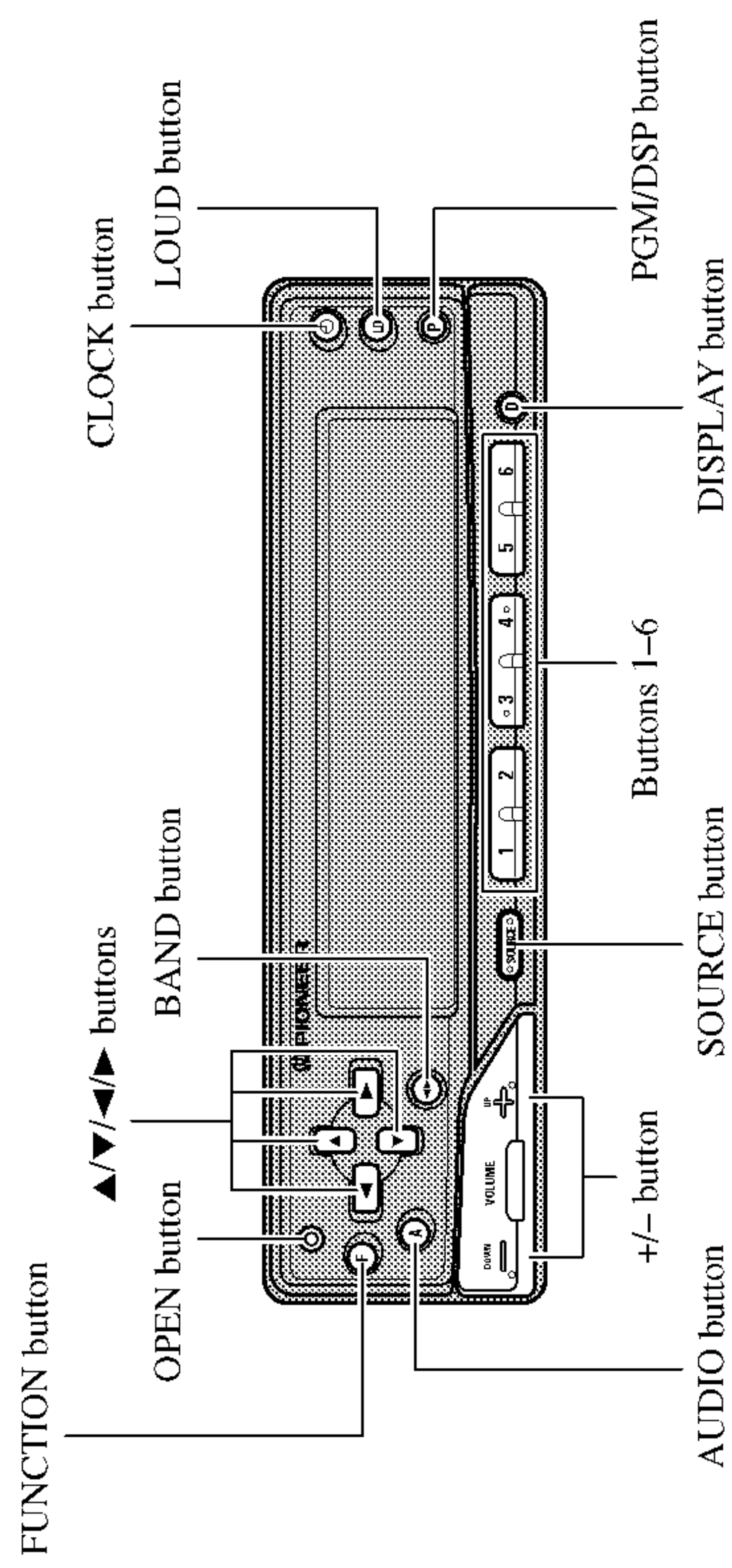


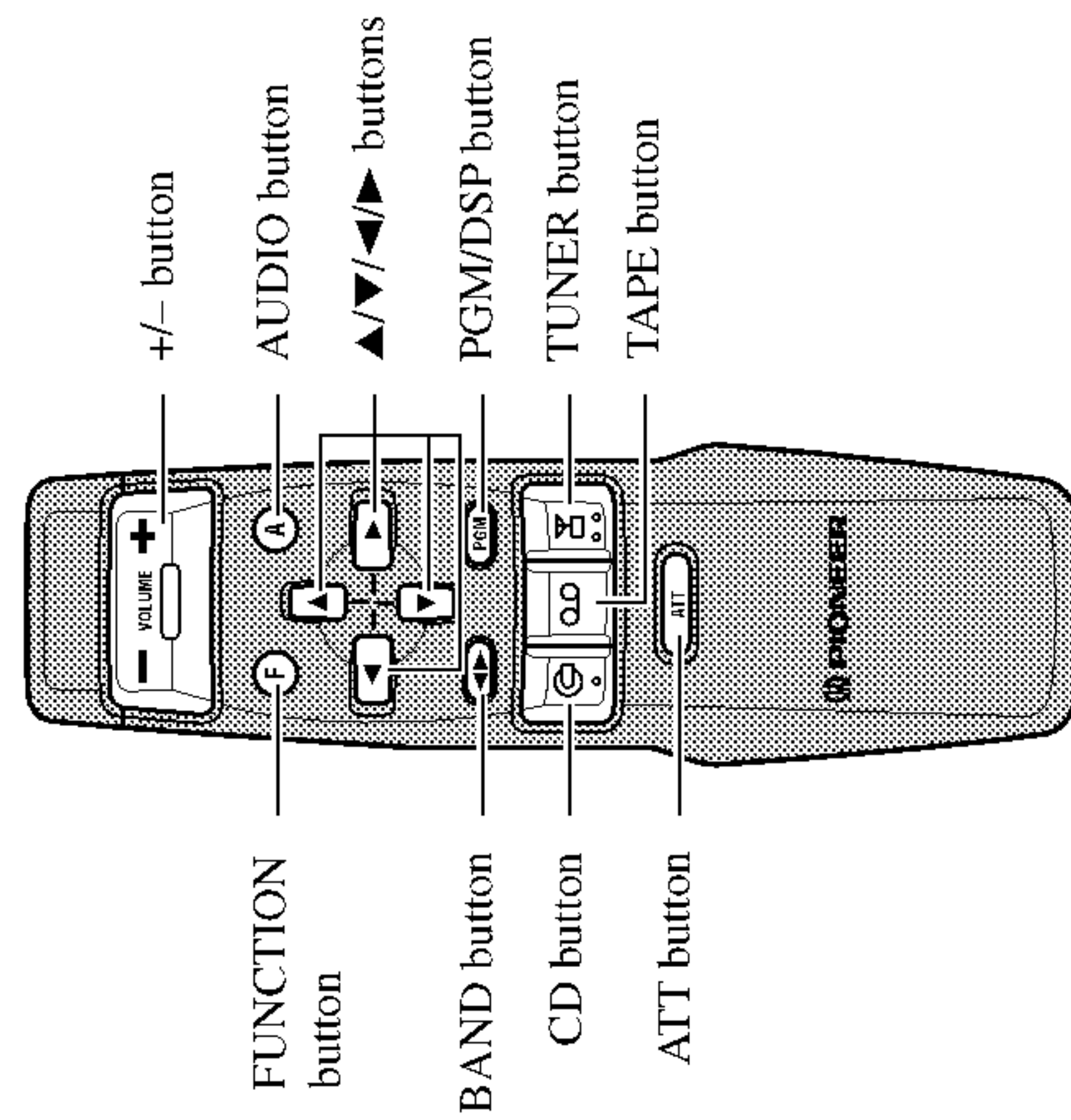
Fig. 34

Key Finder

■ **Head Unit**



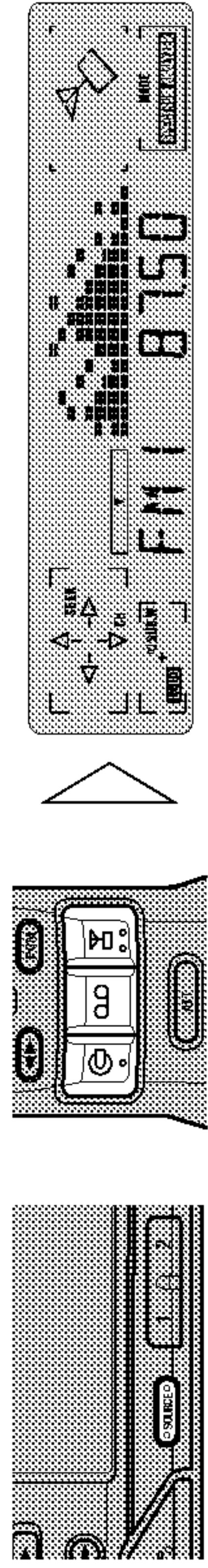
■ **Remote Controller**



Basic Operation

Switching Power ON/OFF

- Select the desired source (such as the tuner).



■ Head Unit

Each press of the SOURCE button selects the desired source in the following order:

CD player (one disc only) → Tuner → Tape → Multi-CD player → AUX
To switch the sources OFF, hold down the SOURCE button for 1 second or more.

■ Remote Controller

Each press of the button selects the desired source in the following order:

TUNER button : Tuner → OFF
TAPE button : Tape → OFF
CD button : CD player (one disc only) → Multi-CD player → OFF

Note:

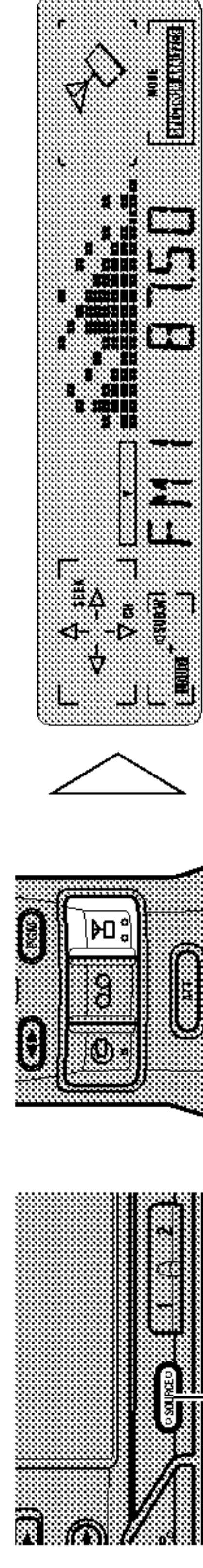
- In the following cases, the sound source will not change:
 - * No Multi-CD player is connected to this product.
 - * No CD player is connected to this product.
 - * No cassette tape is set in this product.
 - * No magazine is set in the Multi-CD player.
 - * No disc is set in the CD player.
 - * AUX (external input) is set to OFF.

Tuner Operation

Reset the AM tuning step from 9 kHz (the factory preset step) to 10 kHz when using the tuner in North, Central or South America.

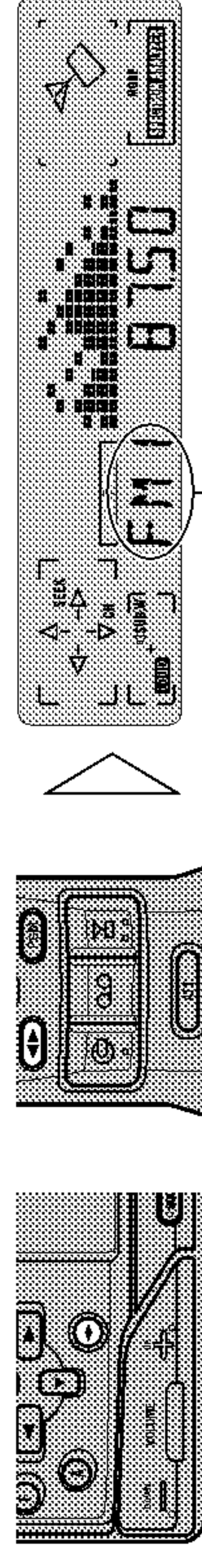
Basic Operation of Tuner

1. Select Tuner.



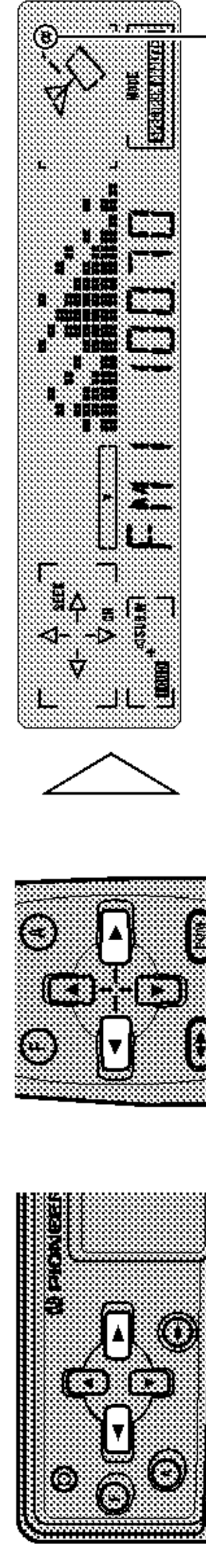
Each press changes the Source ...

2. Select the desired band.



FM1 → FM2 → FM3 → AM

3. Tune the receiver to a higher or lower frequency.



This product's tuner lets you select the tuning by changing the length of the time you press the button.

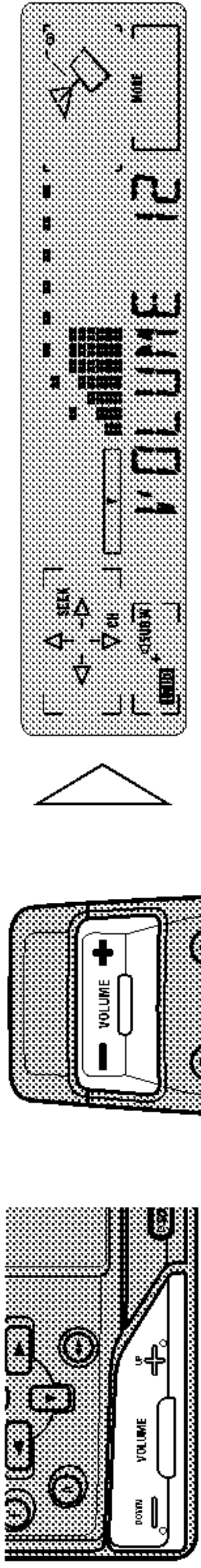
Manual Tuning (step by step)	0.3 seconds or less
Seek Tuning (automatically)	0.3 – 2 seconds
Manual Tuning (continuously)	2 seconds or more

Note:

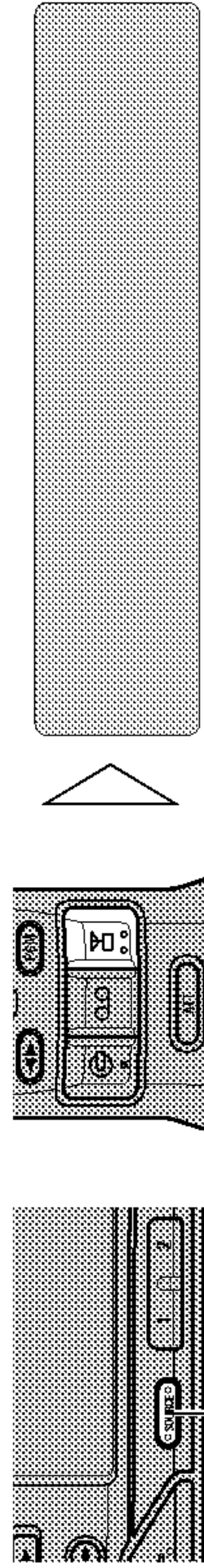
- "O" indicator lights when a stereo station is selected.
- To select a weak broadcasting station that cannot be tuned in with the Seek Tuning function, tune in with Manual Tuning.

Tuner Operation

4. Raise or lower the volume.



5. Turn the source OFF.

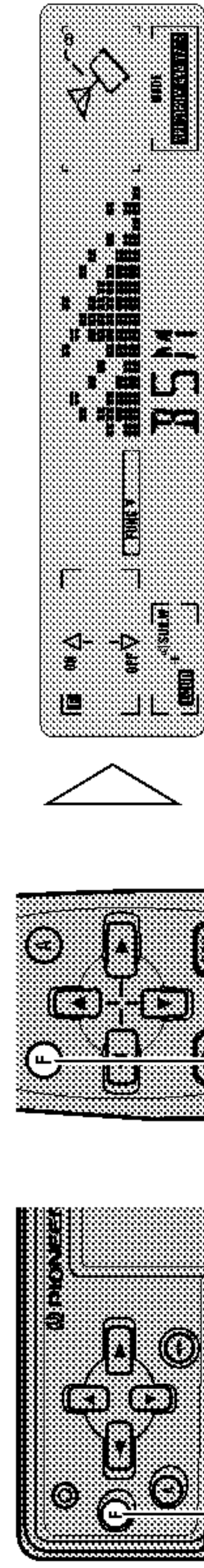


Hold for 1 second

Entering the Function Menu

In this menu you can select tuner functions.

- Select the desired mode in the Function Menu.



Each press changes the Mode ...

Each press changes the Mode ...

Each press of the FUNCTION button selects the mode in the following order:
BSM → LOCAL

To cancel the Function Menu, press the BAND button.

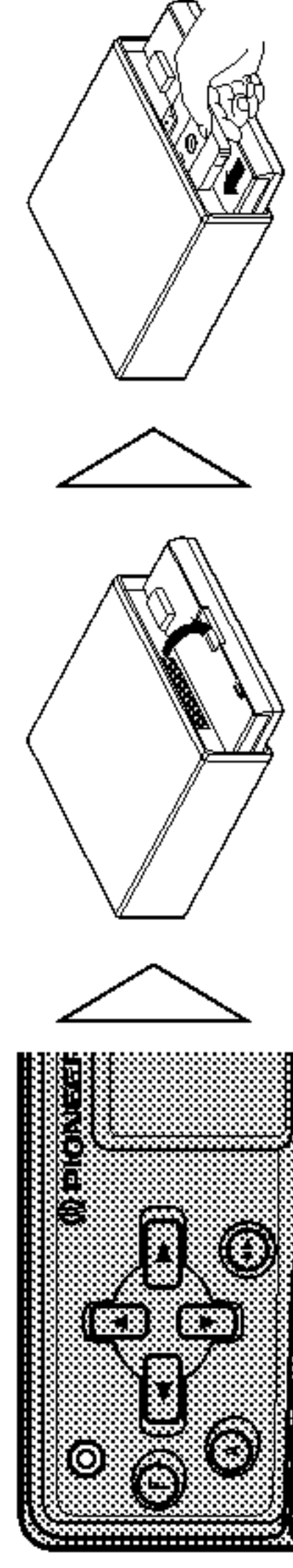
Note:

- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

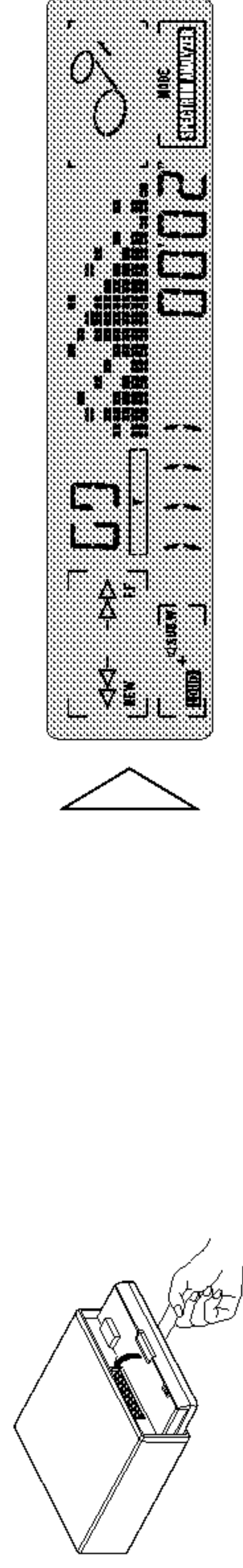
Using the Cassette Player

Basic Operation of Cassette Player

1. Open the front panel and insert the cassette tape.

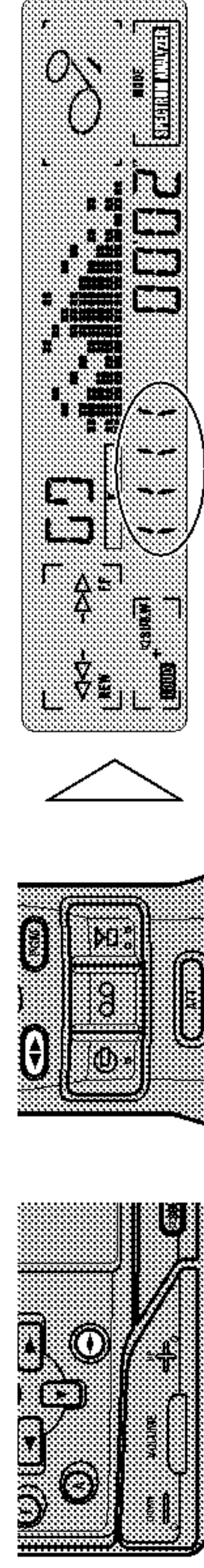


2. Close the front panel by swinging it gently upward.

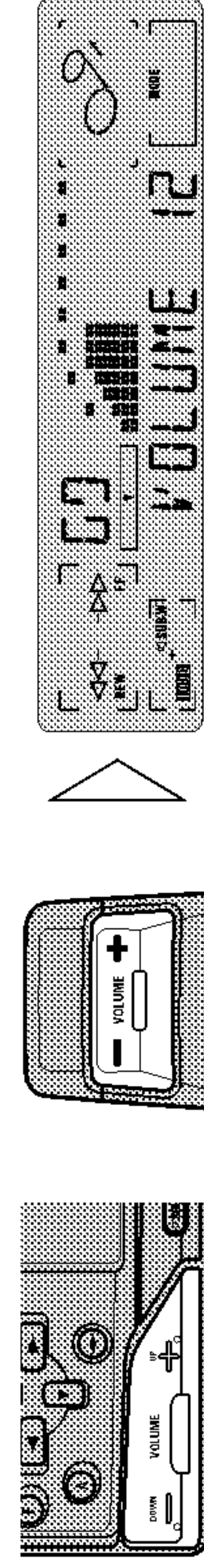


“METAL” appears on the display for 2 seconds when a metal or chrome tape is inserted. Nothing is displayed for a normal tape.

3. Switch tape playback from side A to side B, or vice versa.

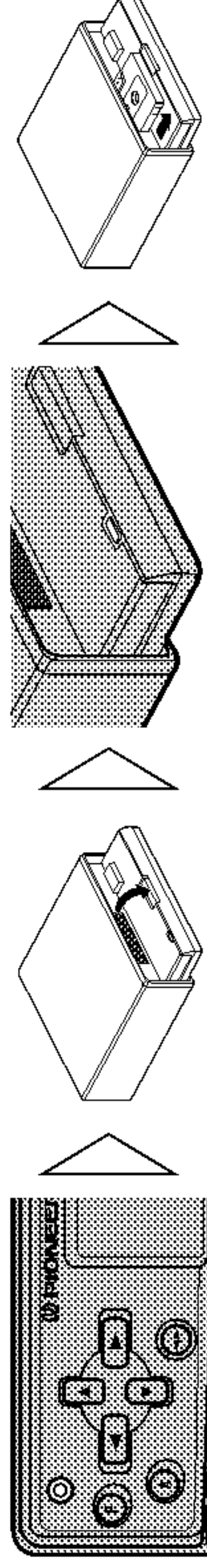


4. Raise or lower the volume.



Using the Cassette Player

5. Open the front panel and remove the cassette tape.



Be sure to close the front panel after removing the cassette tape.

Note:

- The Tape function can only be turned ON/OFF with the cassette tape remaining in this product. (See page 64.)

■ Continuous Playback Time

During tape playback, the continuous playback time is displayed.

- The continuous playback time count starts at 00'00" at the following times.
 - * When a tape is inserted.
 - * When the tape direction is changed.
 - * When you rewind the tape side currently playing back to the beginning.
- The continuous playback time count is halted at the following times.
 - * When the power is turned OFF.
 - * When you switch to another source.
 - * When fast-forwarding/rewinding and while the Music Search function is operating.

Fast Forward/Rewind and Music Search

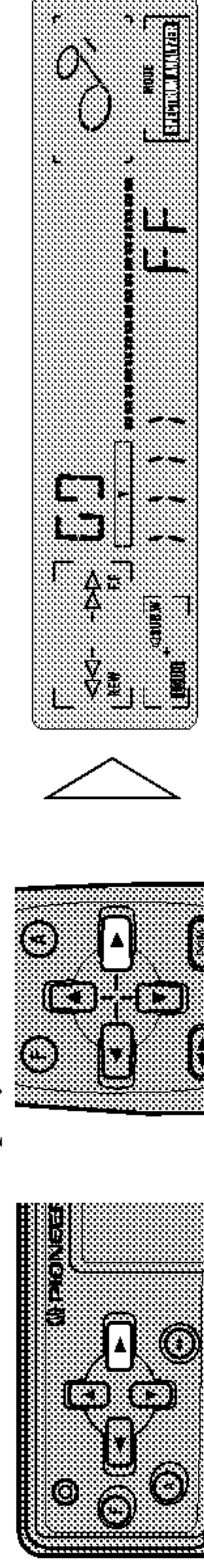
■ Fast Forward and Forward-Music Search

While "FF" is displayed, the system fast-forwards the cassette tape to the end of the current side.

While "F-MS" is displayed, the system winds the cassette tape forward to the beginning of the next song, then play begins from that point.

• Select the desired mode in the following order:

FF → F-MS → Normal playback



Note:

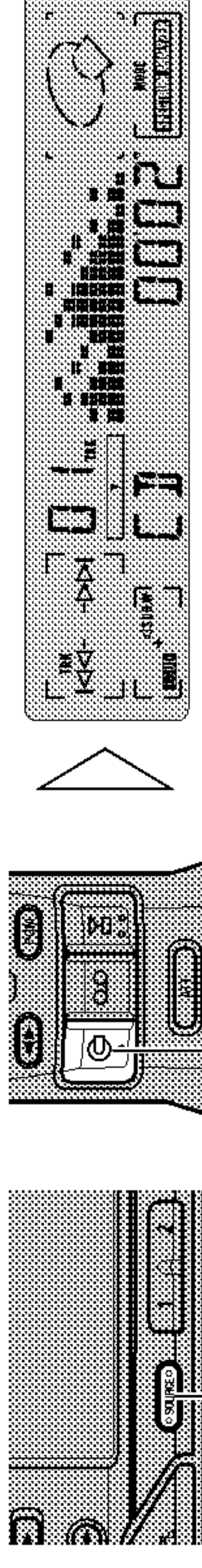
- Fast Forward (FF) and Forward-Music Search (F-MS) can be canceled by pressing the BAND button during FF or F-MS operation.

Using CD Player (one disc only)

This product can control a CD player (one disc only).

Basic Operation of CD Player

1. Select the CD player source.



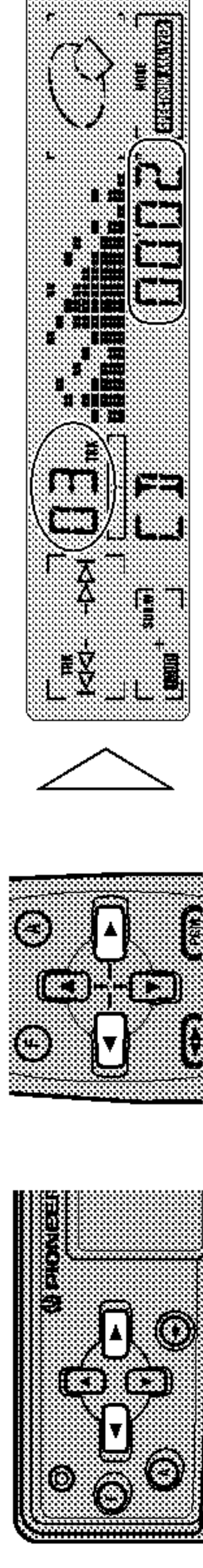
Each press changes the Source ...

Each press changes the Source ...

Note:

- The CD player is selected only when a CD is loaded.
- If the CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the CD player owner's manual.

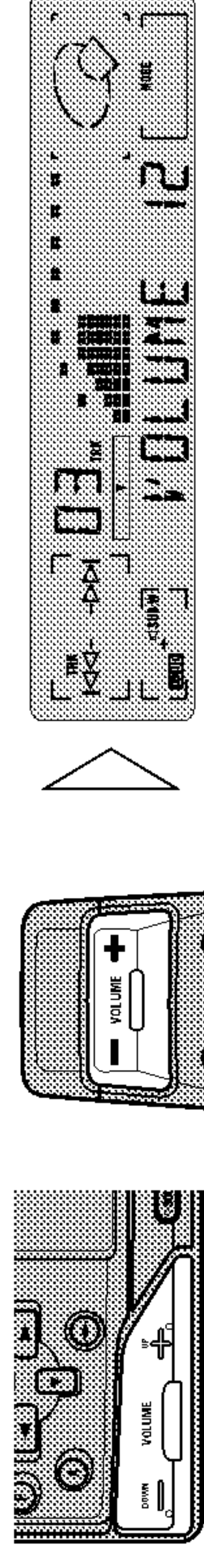
2. Select the desired track (or fast-forward/reverse, per the chart below).



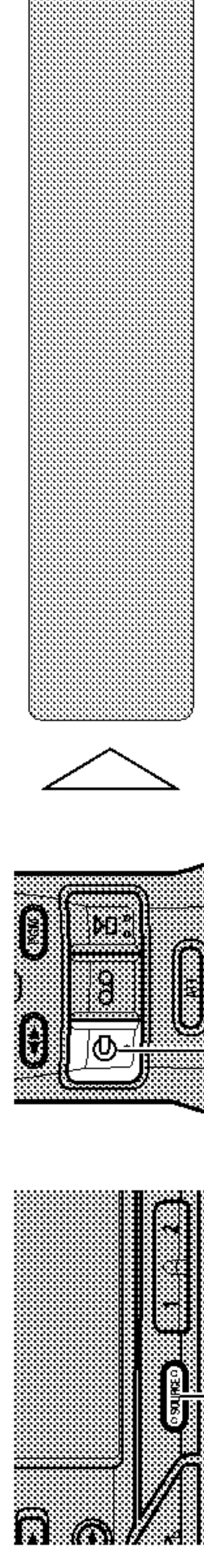
This product lets you select the track search function or fast-forward/reverse function by changing the length of the time you press the button.

Track search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

3. Raise or lower the volume.



4. Turn the source OFF.



Hold for 1 second

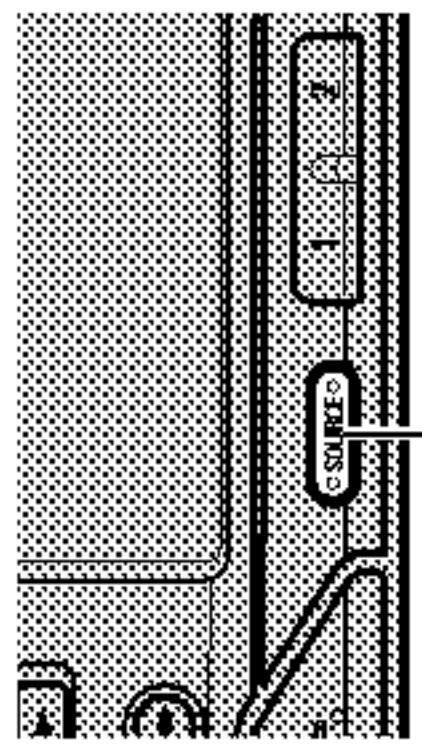
Each press changes the Source ...

Using Multi-CD Players

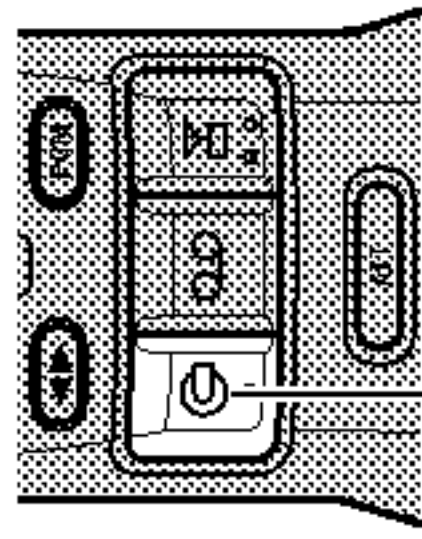
This product can control one or more multi-CD players.

Basic Operation of Multi-CD Players

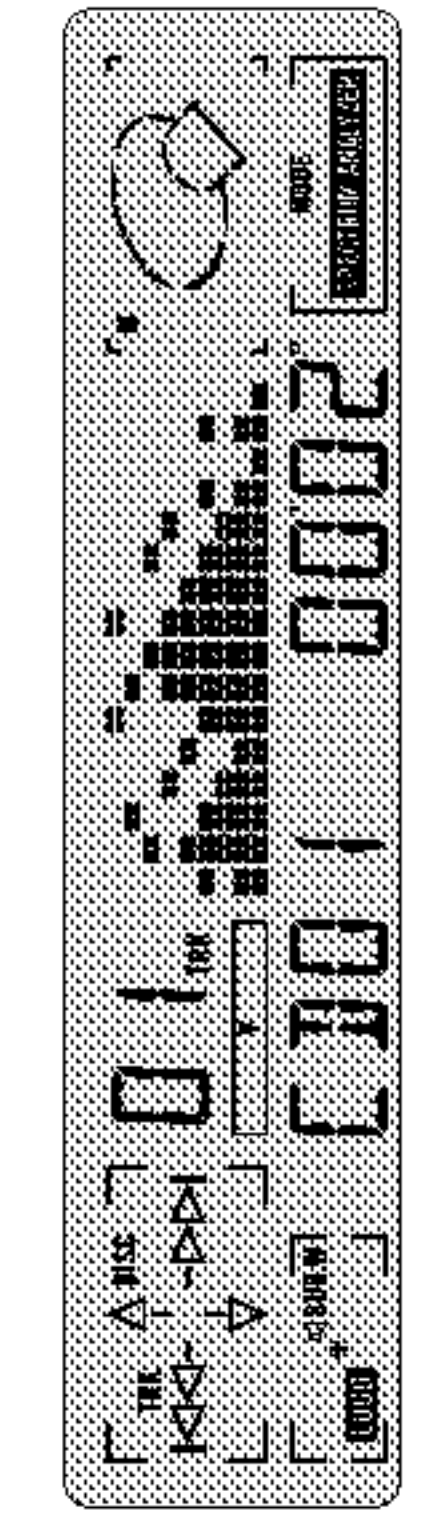
1. Select the multi-CD player source.



Each press changes the Source ...



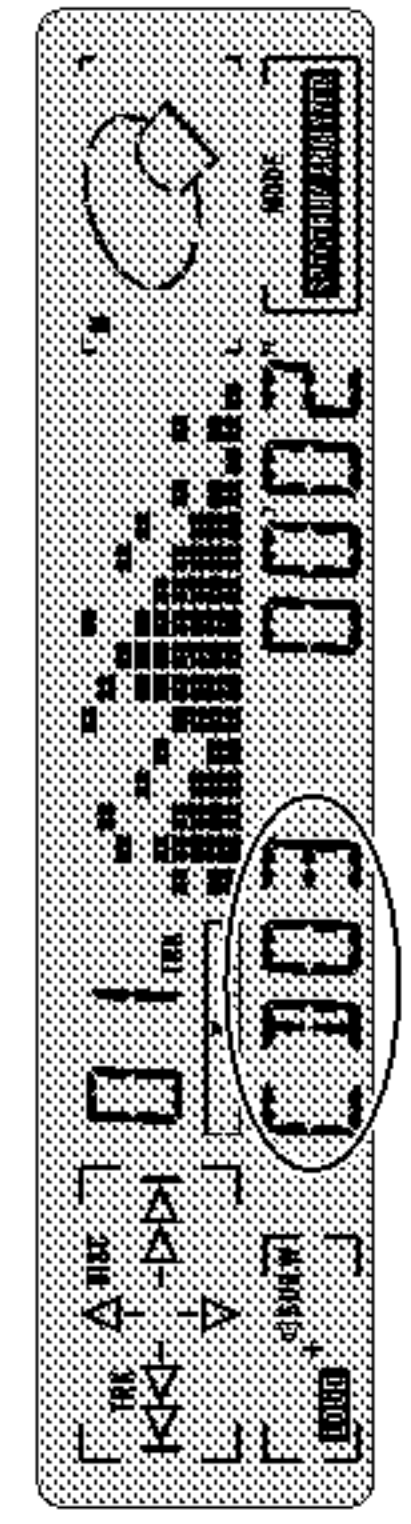
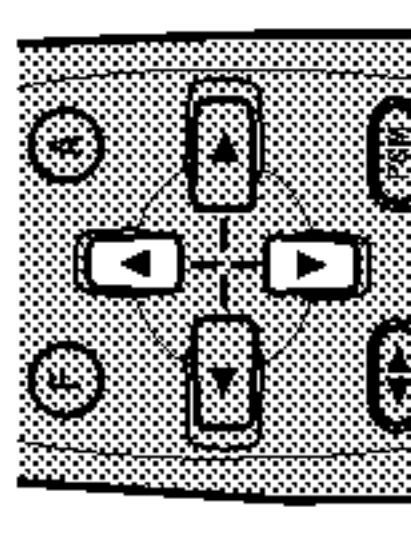
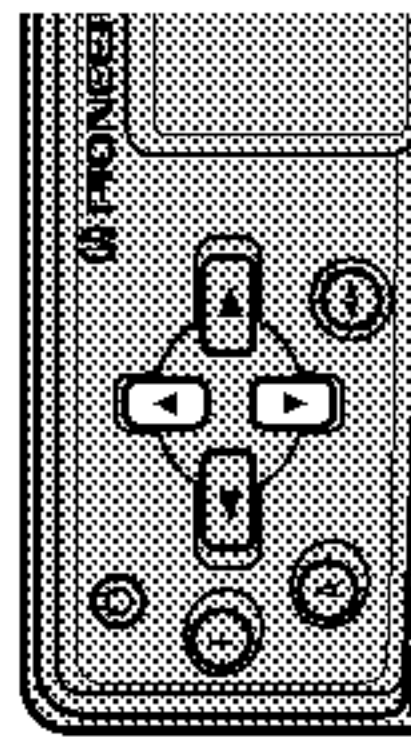
Each press changes the Source ...



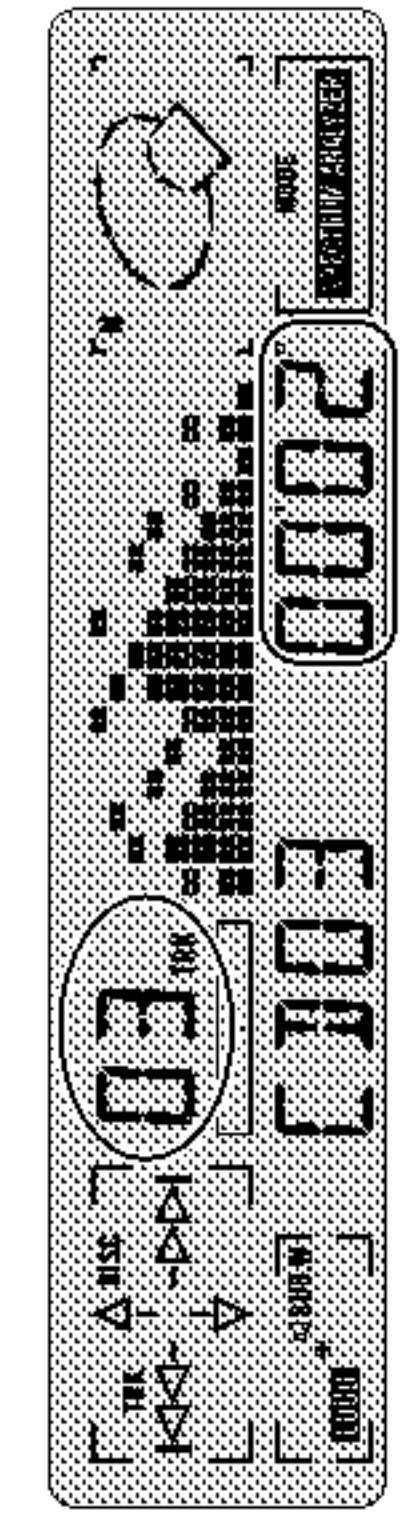
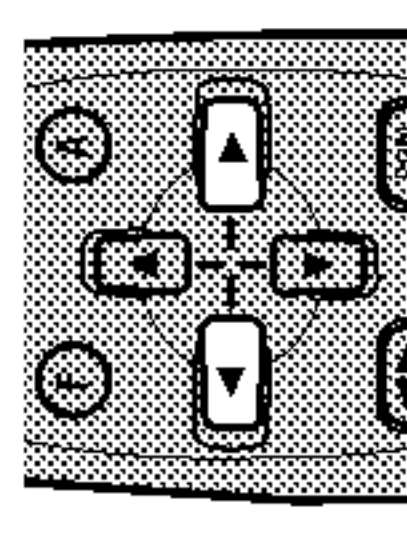
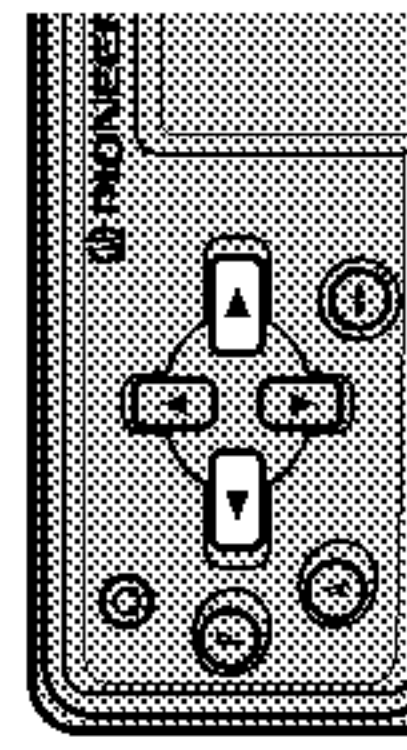
Note:

- The multi-CD player may perform a preparatory operation, such as verifying the presence of a disc or reading disc information, when the power is turned ON or a new disc is selected for playback. "READY" is displayed.
- If the multi-CD player cannot operate properly, an error message such as "ERROR-14" is displayed. Refer to the multi-CD player owner's manual.
- If there are no discs in the multi-CD player magazine, "NO DISC" is displayed.

2. Select the desired disc.



3. Select the desired track (or fast-forward/reverse, per the chart below).

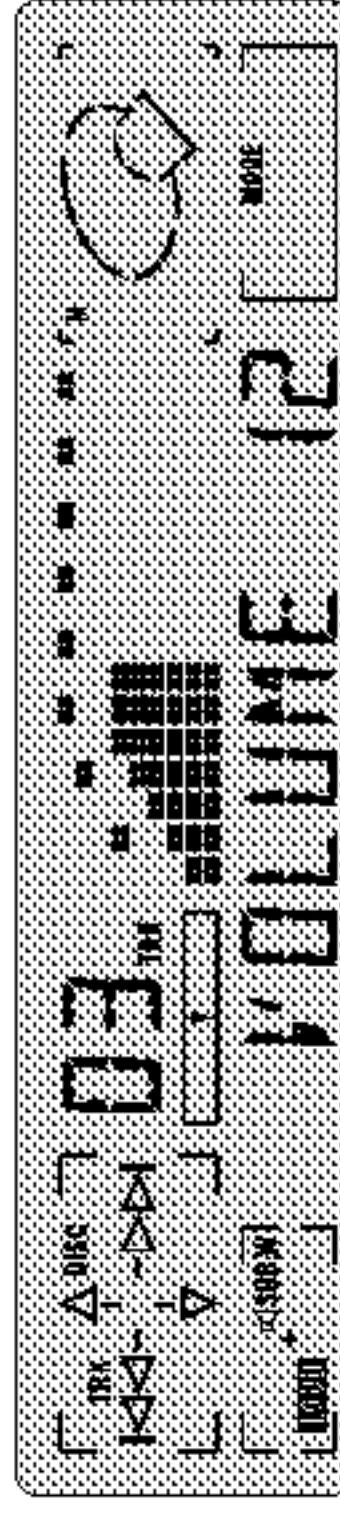
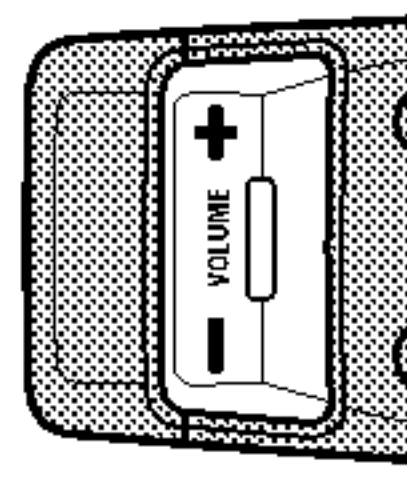
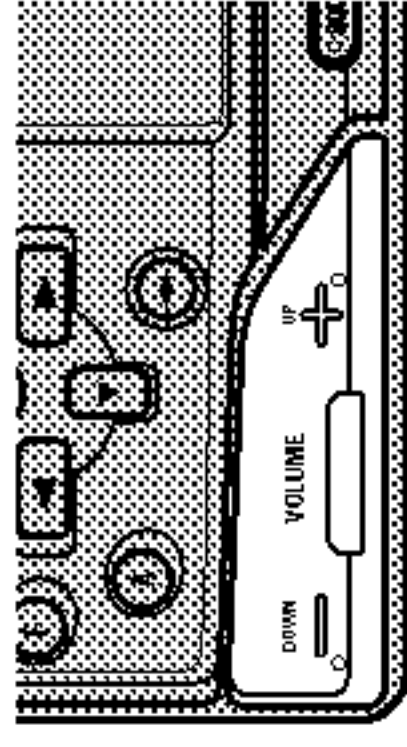


This product lets you select the track search function or fast-forward/reverse function by changing the length of the time you press the button.

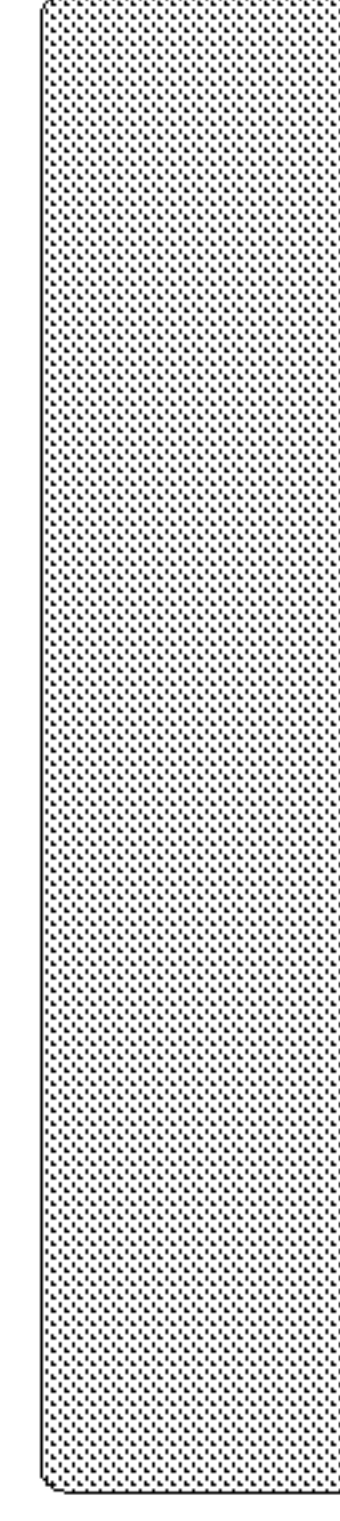
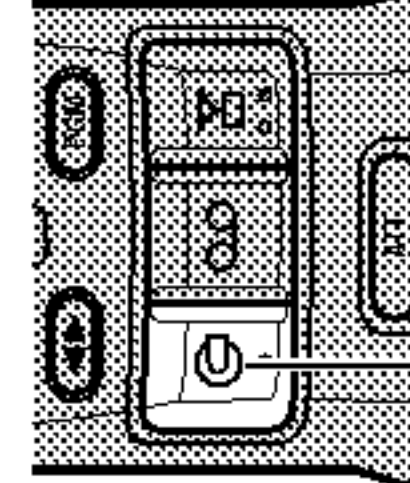
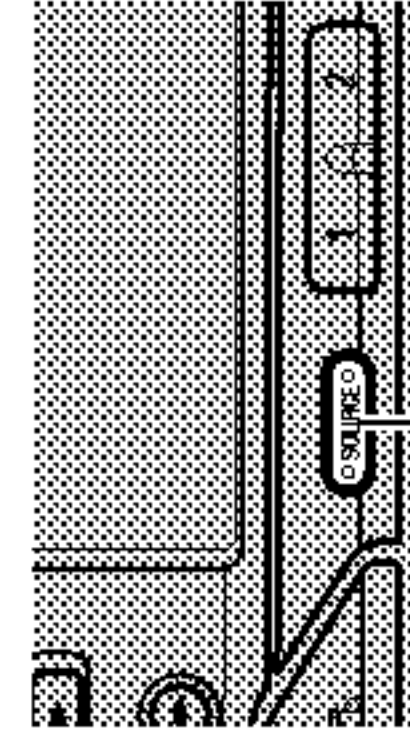
Track search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

Using Multi-CD Players

4. Raise or lower the volume.



5. Turn the source OFF.



Hold for 1 second

Each press changes the Source ...

Playing Discs on a 50-Disc Type Multi-CD Player

When a magazine is loaded into a 50-Disc type multi-CD player, information on all the discs in the magazine is read.

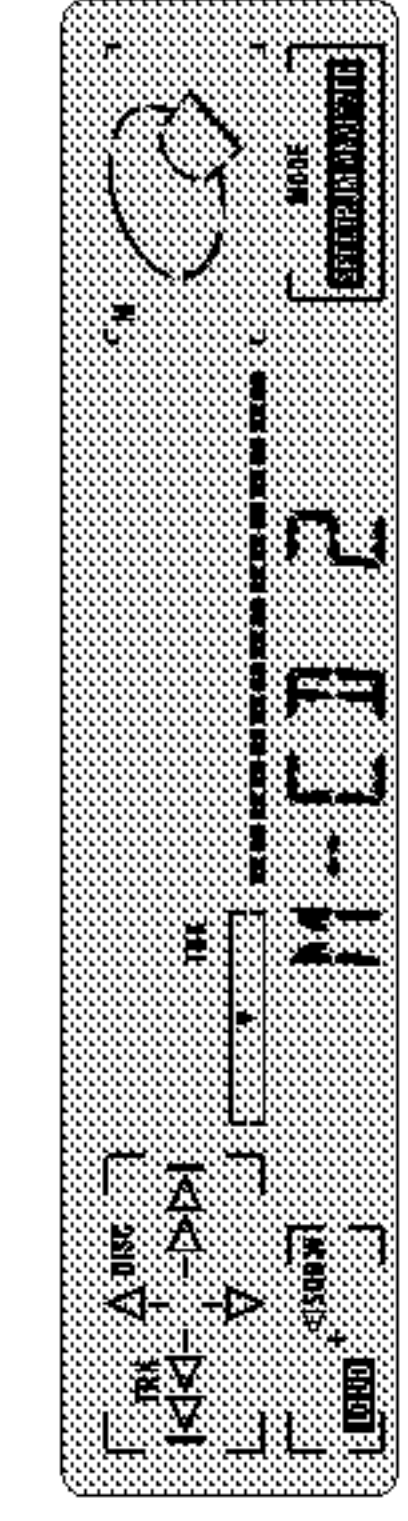
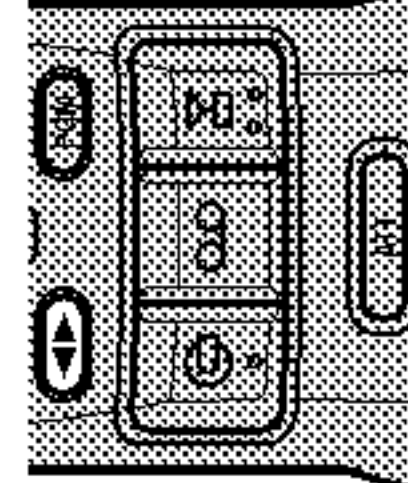
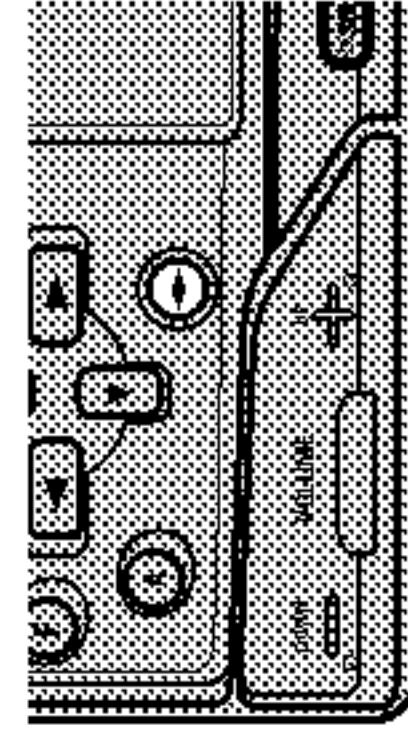
If you start playing a disc on a 50-Disc type multi-CD player before reading of information on all discs has been completed, reading of information stops part way through. This will prevent you from using a number of functions. (If you try and use these functions, "NOT READY" is displayed.)

If this happens, reading of information begins again when you switch to a component other than 50-Disc type multi-CD player.

Switching the Multi-CD Player

It is possible to connect up to three multi-CD players by means of a multiple installation adapter. When two or more multi-CD players are installed, their priorities must be specified. Follow the multi-CD player instructions carefully, and set the address switches properly.

- Select the multi-CD player you want to use.



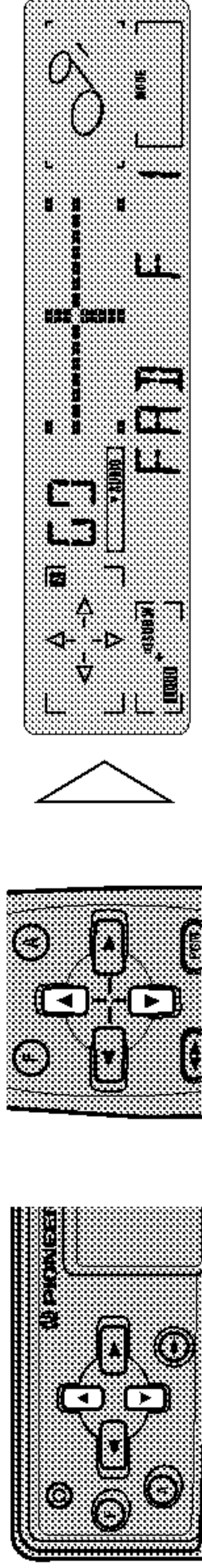
M-CD 1 → M-CD 2 → M-CD 3

Audio Adjustment

Balance Adjustment

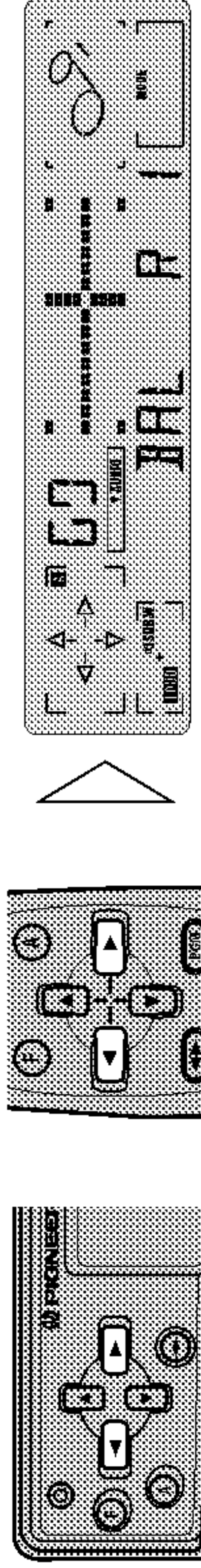
This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. Select the **Fader/Balance mode (FAD)** in the Audio Menu.
2. Shift the balance progressively to the front or rear speakers.



“FAD F15” – “FAD R15” is displayed as it moves from front to rear.
 (“FAD F9” – “FAD R9” is displayed as it moves from front to rear when a Hide-away DSP “DEQ-P800” is connected to this product.)

3. Shift the balance to the left or right speaker, respectively.



“BAL L9” – “BAL R9” is displayed as it moves from left to right.
 To cancel the Audio Menu, press the BAND button.

Note:

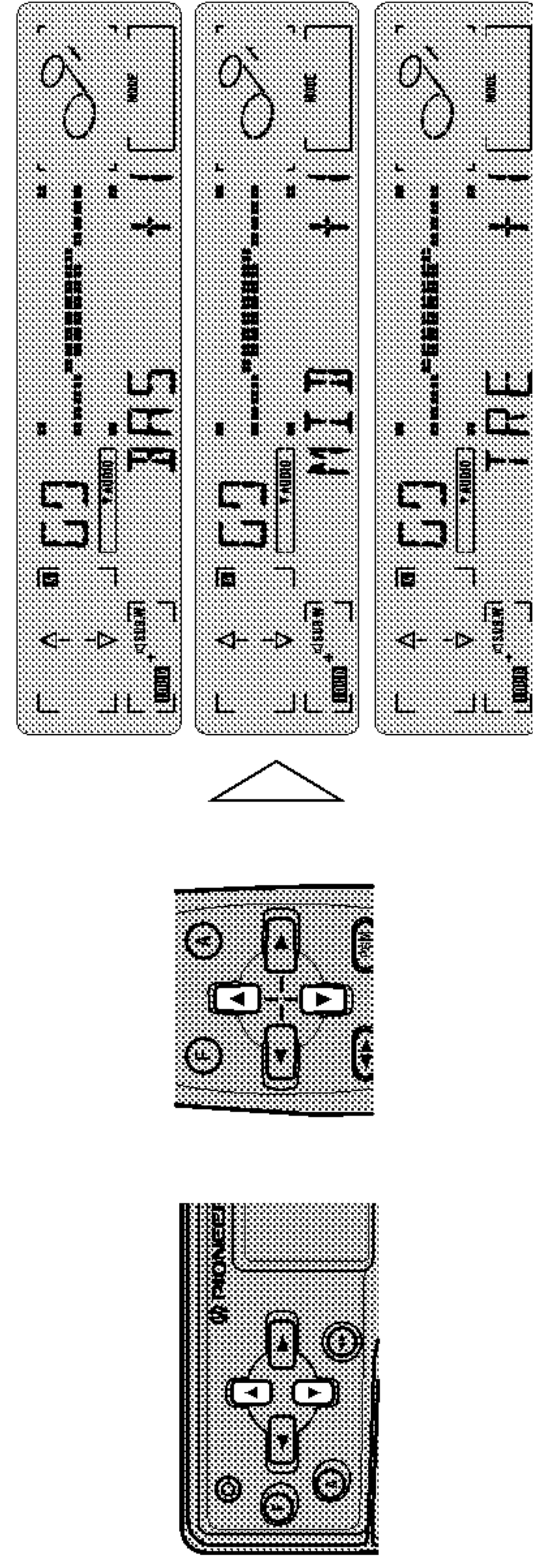
- “FAD 0” is the proper setting when 2 speakers are in use.
- You cannot shift the balance progressively to the front or rear speakers when a DSP (except the Hide-away DSP) is connected to this product.

Audio Adjustment

Bass/Middle/Treble Adjustment

This product is equipped with three tone adjustment modes, the Bass (BAS), Middle (MID) and Treble (TRE) modes. It is possible to select a different tone adjustment setting for each source. The CD player (one disc only) and multi-CD player(s) are set to the same tone adjustment setting automatically.

1. Select bass mode (BAS), middle mode (MID) or treble mode (TRE) in the Audio Menu.
2. Increase or decrease the intensity of the Bass, Middle or Treble, whichever is selected.



The display shows “BAS +4” – “BAS -8” when you adjust the Bass.
 The display shows “MID +6” – “MID -6” when you adjust the Middle.
 The display shows “TRE +6” – “TRE -6” when you adjust the Treble.

3. Repeat steps 1–2 above for the other Bass or Treble Adjustment.

To cancel the Audio Menu, press the BAND button.

Specifications

General

Power source	..... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system	..... Negative type
Max. current consumption	..... 10 A
Dimensions	
(DIN) (chassis)	..... 178 (W) × 50 (H) × 150 (D) mm
(nose)	..... 188 (W) × 58 (H) × 18 (D) mm
(D)	..... 178 (W) × 50 (H) × 155 (D) mm
(nose)	..... 170 (W) × 48 (H) × 13 (D) mm
Weight	..... 1.5 kg

Amplifier

Continuous power output is 20 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.

Maximum power output	..... 40 W × 4
Load impedance	..... 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance	..... 500 mV/1 kΩ
Sub-woofer output	
Crossover frequency	..... 50 Hz, 80 Hz, 125 Hz
Crossover slope	..... –18 dB/oct
Tone controls	
(Bass)	..... +8 – –16 dB (80 Hz)
(Middle)	..... ±12 dB (400 Hz)
(Treble)	..... ±12 dB (10 kHz)
Loudness contour	..... +10 dB (100 Hz), +7 dB (10 kHz) (volume: –30 dB)

Cassette player

Tape	..... Compact cassette tape (C-30 – C-90)
Tape speed	..... 4.76 cm/sec. (+0.14 cm/sec. –0.05 cm/sec.)
Fast forward/rewinding time	.. Approx. 100 sec. for C-60
Wow & flutter	..... 0.09% (WRMS)
Frequency response	..... Metal: 30 – 19,000 Hz (±3 dB)
Stereo separation	..... 45 dB
Signal-to-noise ratio	
..... Metal: * Dolby C NR IN: 73 dB (IEC-A network)	
Dolby B NR IN: 67 dB (IEC-A network)	
Dolby NR OUT: 61 dB (IEC-A network)	
* : KEH-P8650/ES only	

FM tuner

Frequency range	..... 87.5 – 108 MHz
Usable sensitivity	
..... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)	
50 dB quieting sensitivity	..... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	..... 70 dB (IEC-A network)
Distortion	..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	..... 30 – 15,000 Hz (±3 dB)
Stereo separation	..... 40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	..... 531 – 1,602 kHz (9 kHz)
..... 530 – 1,710 kHz (10 kHz)	
Usable sensitivity	..... 18 μV (25 dB) (S/N: 20 dB)
Selectivity	..... 50 dB (±9 kHz)
..... 50 dB (±10 kHz)	

Note:

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