

SERVICE MANUAL

CONCERT-15/25/

35/45/55

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KORG

1. SPECIFICATIONS

FOR C-45/55

Keyboard	: 88 keys (A0-C8) with velocity sensitivity
Voices	: Pianol, Piano2, Electric Piano1, Electric Piano2, Harpsichord, Vibes, Bass/Guitar/Drums, Organ1, Organ2, Strings
Polyphony	: 16 Notes (C-45) / 32 Notes (C-55)
Effects	: Advanced Surround (Room, Stage, Hall, Echo, Tremolo, Chorus, Bright, Soft)
Recorder	: Maximum 3,400 notes, Tempo, Metronome, Track1, Track2, Repeat, Record, Start/Stop, Reset with Bounce Function
Controls	: Volume, Power, Key Transpose, Pitch, Touch, Transitional Classical Music Tuning
Pedal controls	: Damper, Soft, Sostenuto
Connections	: HEADPHONES, AUX IN(L,R), AUX OUT(L,R), MIDI IN/OUT/THRU, PEDALS
Color and Gain	: Simulated Black Walnut
Main Amplifier	: 30W x 2 (C-45) / 40W x 2 (C-55)
Speakers	: 6in. x 2 (16cm x 2) (C-45) 6in., 4in. x 2, 2in. x 2 (16cm, 10cm x 2, 5.4cm x 2) (C-55)
Power Consumption	: 45W (C-45) / 120W (C-55)
Power Supply	: Local Voltage-AC, 50/60Hz
Dimensions	: 54in.(W) x 19in.(D) x 33in.(H) (1382 x 491.5 x 844mm)
Weight	: 113lbs. (51.4kg) (C-45) / 120lbs. (54.8kg) (C-55)
Accessories	: Key Cover, Music Stand

FOR C-35

Keyboard	: 88 keys (A0-C8) with velocity sensitivity
Voices	: Piano, Electric Piano, Harpsichord, Vibes, Organ, Strings
Polyphony	: 16 Notes
Effects	: Advanced Surround (Room, Hall, Chorus, Bright, Soft)
Recorder	: Maximum 3,400 notes, Tempo, Metronome, Track1, Track2, Repeat, Record, Start/Stop, Reset with Bounce Function
Keyboard Mode	: Single, Layer, Split (MIDI Multi)
Controls	: Volume, Power, Key Transpose, Pitch, Touch, Transitional Classical Music Tuning
Pedal controls	: Damper, Soft, Sostenuto
Connections	: HEADPHONES, AUX IN(L,R), AUX OUT(L,R), MIDI IN/OUT/THRU, PEDALS
Color and Gain	: Simulated Black Walnut
Main Amplifier	: 30W x 2
Speakers	: 6in. x 2 (16cm x 2)
Power Consumption	: 45W
Power Supply	: Local Voltage-AC, 50/60Hz
Dimensions	: 54in.(W) x 18in.(D) x 32in.(H) (1382 x 456.5 x 815mm)
Weight	: 98lbs. (44.7kg)
Accessories	: Key Cover, Music Stand

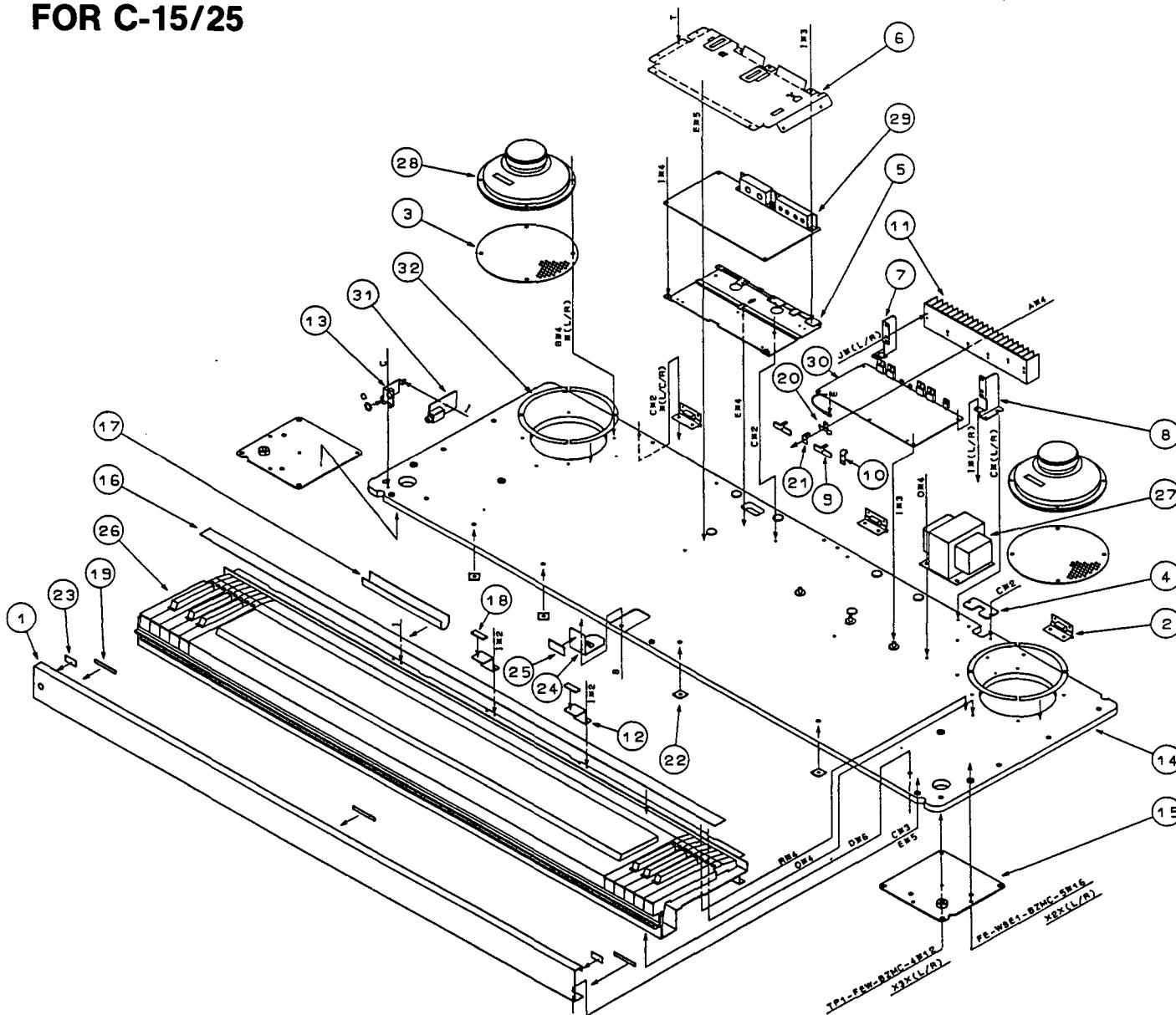
FOR C-15/25

Keyboard	: 88 keys (A0-C8) with velocity sensitivity
Voices	: Piano, Electric Piano, Harpsichord, Vibes, Organ
Polyphony	: 16 Notes
Effects	: Advanced Surround (Room, Hall) (C-25 only)
Keyboard Mode	: Single, Layer(MIDI Multi)
Controls	: Volume, Power, Key Transpose, Pitch
Pedal Controls	: Damper, Soft/Sostenuto
Connections	: HEADPHONES, AUX IN(L,R), AUX OUT(L,R), MIDI IN/OUT
Power Supply	: Local Voltage-AC, 50/60 Hz
Main Amplifier	: 30W x 2
Speakers	: 6in. x 2(16cm x 2)
Power Consumption	: 45W
Color and Gain	: Simulated Black Walnut
Dimensions	: 54in.(W) x 18in.(D) x 32in.(H) (1382 x 456.5 x 815 mm)
Weight	: 92lbs. (41.8kg) (C-15) / 97lbs. (44.4kg) (C-25)
Accessories	: Key Cover(C-25 only), Music Stand

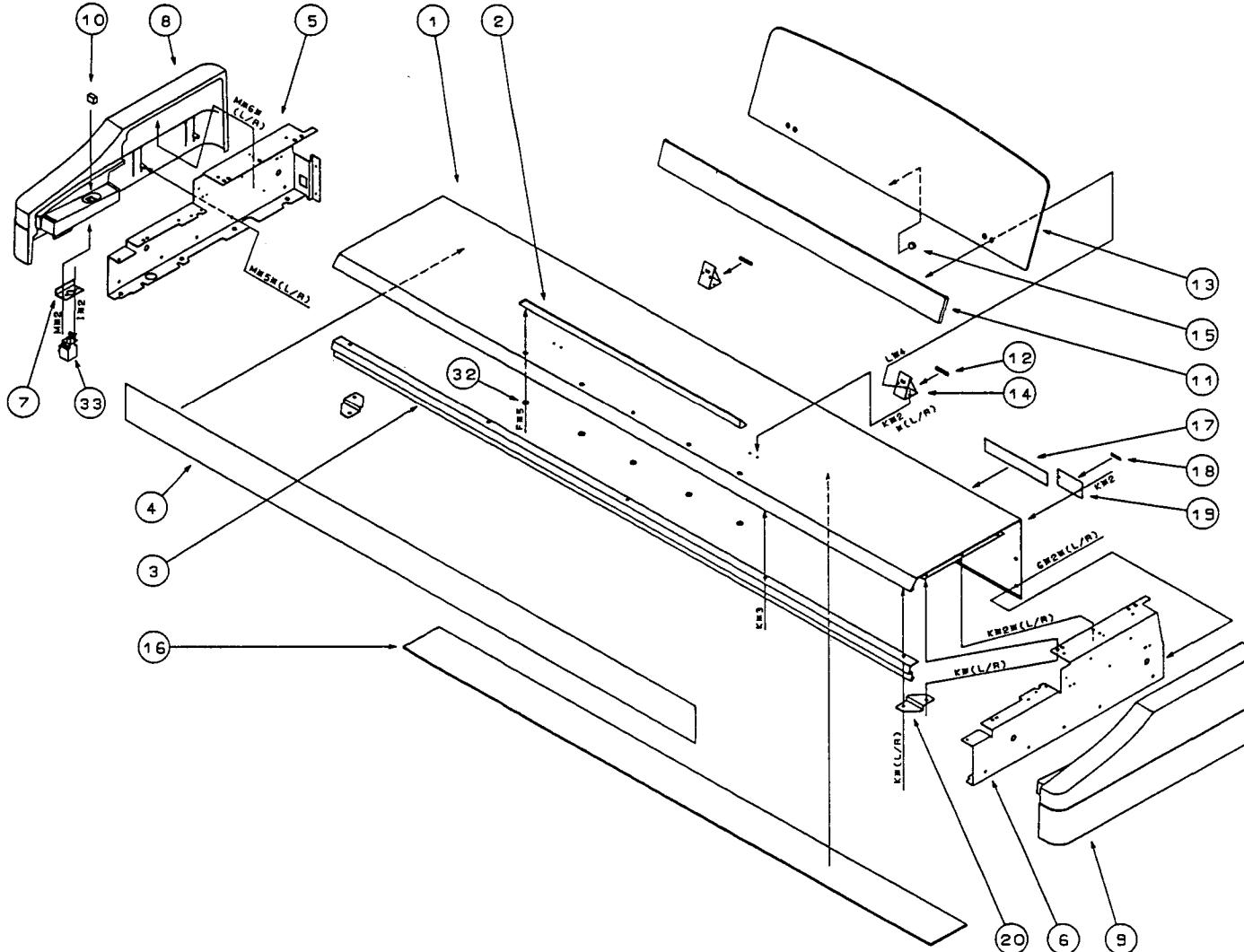
Note : Design and specifications are subject to change without prior notice.

2. STRUCTURAL DIAGRAM

FOR C-15/25



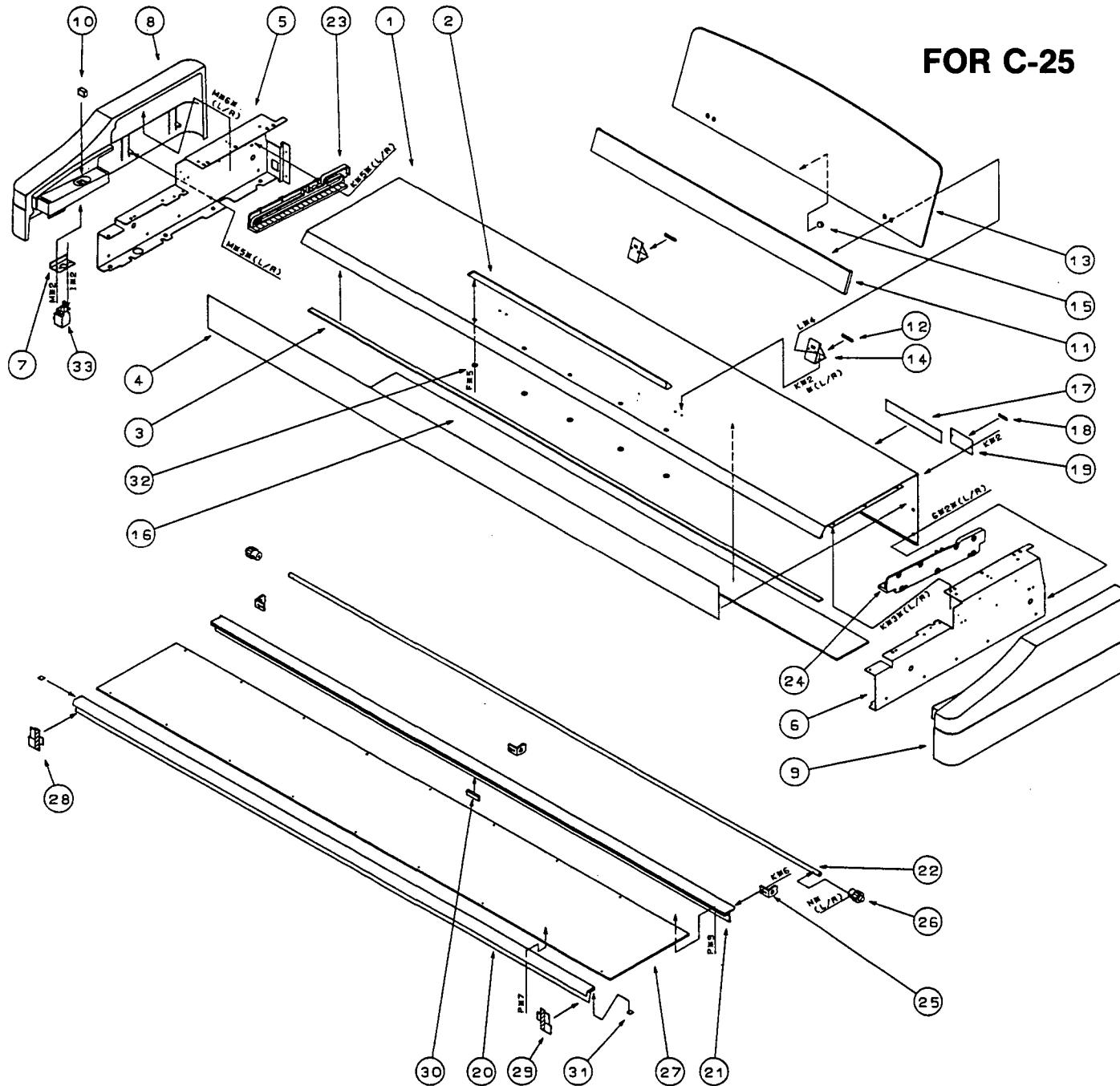
FOR C-15



PART NO	SCREWS	PART CODE
A	SCREW FE B ZNC 3 x 12	705030312
B	SCREW FE B ZNC 4 x 22	705030422
C	SCREW FE FEW BZNC 4 x 14	707060414
D	SCREW FE WSE1 BZNC 5 x 25	790081525
E	SCREW TPI B BZNC 3 x 10	715060310
F	SCREW TP2G FEW BZNC 3 x 6	727030308
G	SCREW TP2G FEW BZNC 3 x 8	727060308
H	SCREW CT B ZNC 3 x 6	715230306
I	SCREW CT B ZNC 3 x 8	715230308
J	SCREW CT B ZNC 4 x 10	715230410
K	SCREW CT B BZNC 3 x 6	715260308
L	SCREW PLAX B BZNC 3 x 6	745060306
M	SCREW PLAX B BZNC 3 x 8	745060308
N	SCREW NLFE F BZNC 3 x 10	701160310
O	SCREW NLFE FEW BZNC 4 x 14	707160414
P	SCREW PT B BZNC 2.6 x 5	715362805
Q	NUT VV BZNC 12	773061200
R	SCREW TPI B BZNC 3.5 x 12	715063512
S	SCREW FE FEW BZNC 4 x 18	707060418
T	SCREW TPI FEW ZNC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-120/S TOP PLATE 1 ASSEMBLY	641026400
2	X-921 MUSIC STOPPER A	-----
3	X-120 FRONT PANEL 4	641029100
4	SLIT MASK	-----
5	X-122 SIDE CHASSIS L	641026205
6	X-122 SIDE CHASSIS R	641026206
7	X-526/527 METAL FITTING OF SW	640082500
8	X-122 SIDE PLATE L	646041100
9	X-122 SIDE PLATE R	646041101
10	X-825 POWER SW KNOB BLK	620021600
11	X-921 MUSIC STAND	646035700
12	X-921 HINGE CAP	629010907
13	X-120 MUSIC STAND PLATE (S)	630017800
14	X-120 MUSIC STAND PLATE (S)	630017900
15	X-921 MUSIC STAND HINGE	641014900
16	RUBBER STOPPER 3	500014200
17	CUSHION KOC-E40327	-----
18	SERVICE MAN CAUTION SEAL	-----
19	SERIAL NO SEAL	-----
20	NAME PLATE	-----
20	X-120 SUPPORT ANGLE	641033700
32	WASHER	-----
33	POWER SW SDDGA1103A TV-5	375010400

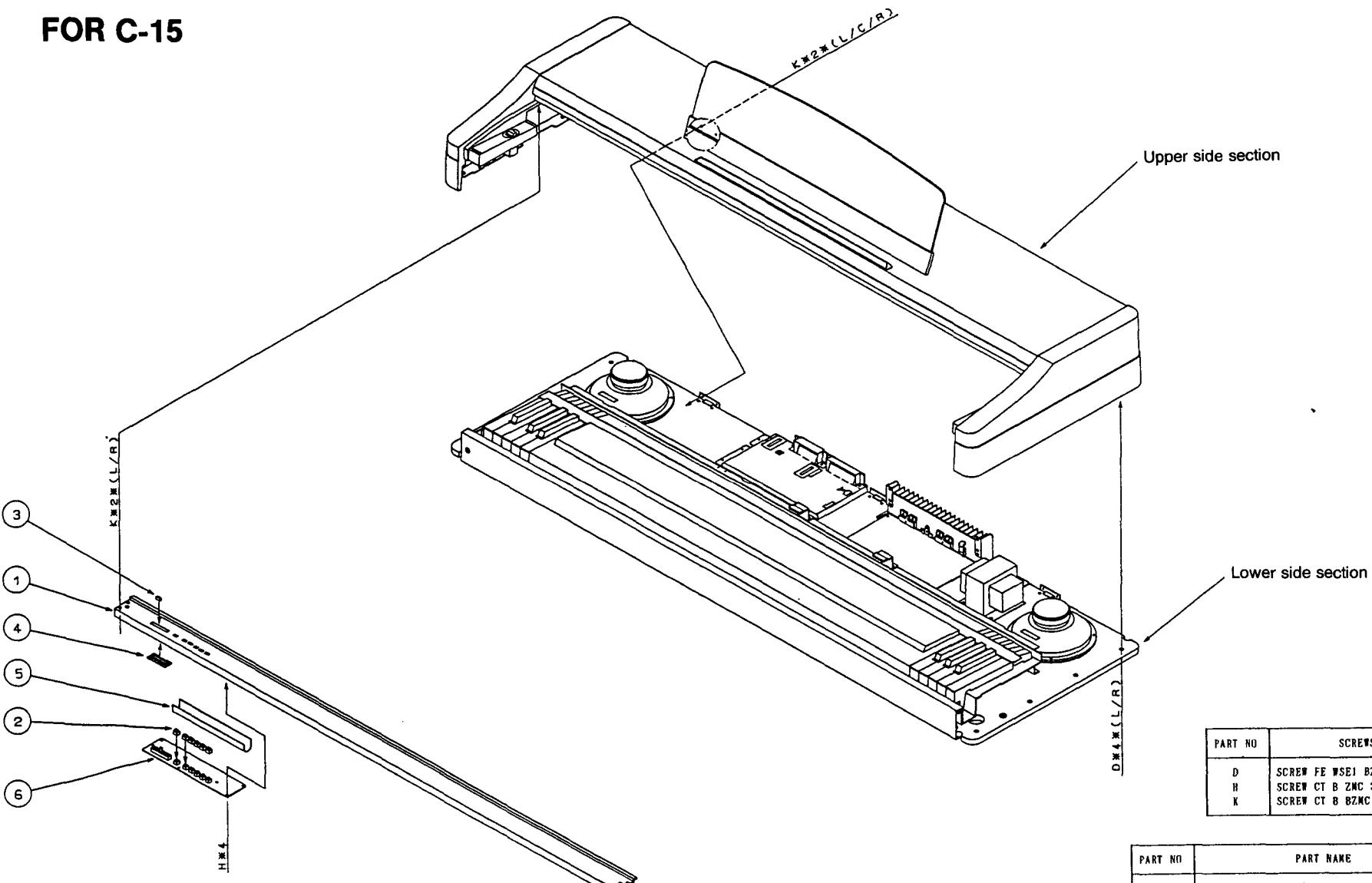
FOR C-25



PART NO	SCREWS	PART CODE
A	SCREW FE B ZNCG 3 x 12	705030312
B	SCREW FE B ZNCG 4 x 22	705030422
C	SCREW FE FEW BZNC 4 x 14	707060414
D	SCREW FE WSEI BZNC 5 x 25	790061625
E	SCREW TP1 B BZNC 3 x 10	715060310
F	SCREW TP2G FEW BZNC 3 x 6	727030306
G	SCREW TP2G FEW BZNC 3 x 8	727060308
H	SCREW CT B ZNCG 3 x 6	715230306
I	SCREW CT B ZNCG 3 x 8	715230308
J	SCREW CT B ZNCG 4 x 10	715230410
K	SCREW CT B BZNC 3 x 8	715260308
L	SCREW PLAX B BZNC 3 x 6	745060306
M	SCREW PLAX B BZNC 3 x 8	745060308
N	SCREW NLFE F BZNC 3 x 10	701160310
O	SCREW NLFE FEW BZNC 4 x 14	707160414
P	SCREW PT B BZNC 2.6 x 5	715362605
Q	NUT VN BZNC 12	773061200
R	SCREW TP1 B BZNC 3.5 x 12	715063512
S	SCREW FE FEW BZNC 4 x 18	707060418
T	SCREW TP1 FEW BZNC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-121 TOP PLATE 2 ASSEMBLY	641032500
2	X-921 MUSIC STOPPER A	-----
3	FELT FOR KEYBOARD (LARGE)	550009901
4	SLIT MASK	-----
5	X-122 SIDE CHASSIS L	641026205
6	X-122 SIDE CHASSIS R	641026206
7	X-526/527 METAL FITTING OF SW	640082500
8	X-122 SIDE PLATE L	646041100
9	X-122 SIDE PLATE R	646041101
10	X-825M POWER SW KNOB BLK	620021600
11	X-921 MUSIC STAND	646035700
12	X-921 HINGE CAP	629010907
13	X-120 MUSIC STAND PLATE (S)	630017900
13	X-120 MUSIC STAND PLATE (S)	630017800
14	X-921 MUSIC STAND HINGE	641014900
15	RUBBER STOPPER 3	500014200
16	CUSHION KOC-F40327	-----
17	SERVICE MAN CAUTION SEAL	-----
18	SERIAL NO SEAL	-----
19	NAME PLATE	-----
20	X-122 KEY COVER PANEL A ASSEMBLY	641026202
21	X-122 KEY COVER PANEL B ASSEMBLY	641026203
22	X-922/923 SHAFT	641018500
23	X-121 RACK I L	646041200
24	X-121 RACK I R	646041201
25	SHAFT COLLAR	646041500
26	X-922 GEAR	646035900
27	X-922 KEY COVER	630012800
28	KEY COVER FELT L	-----
29	KEY COVER FELT R	-----
30	PANEL FELT	-----
31	PANEL CUSHION	-----
32	WASHER	-----
33	X-825M POWER SW KNOB BLK	620021600

FOR C-15

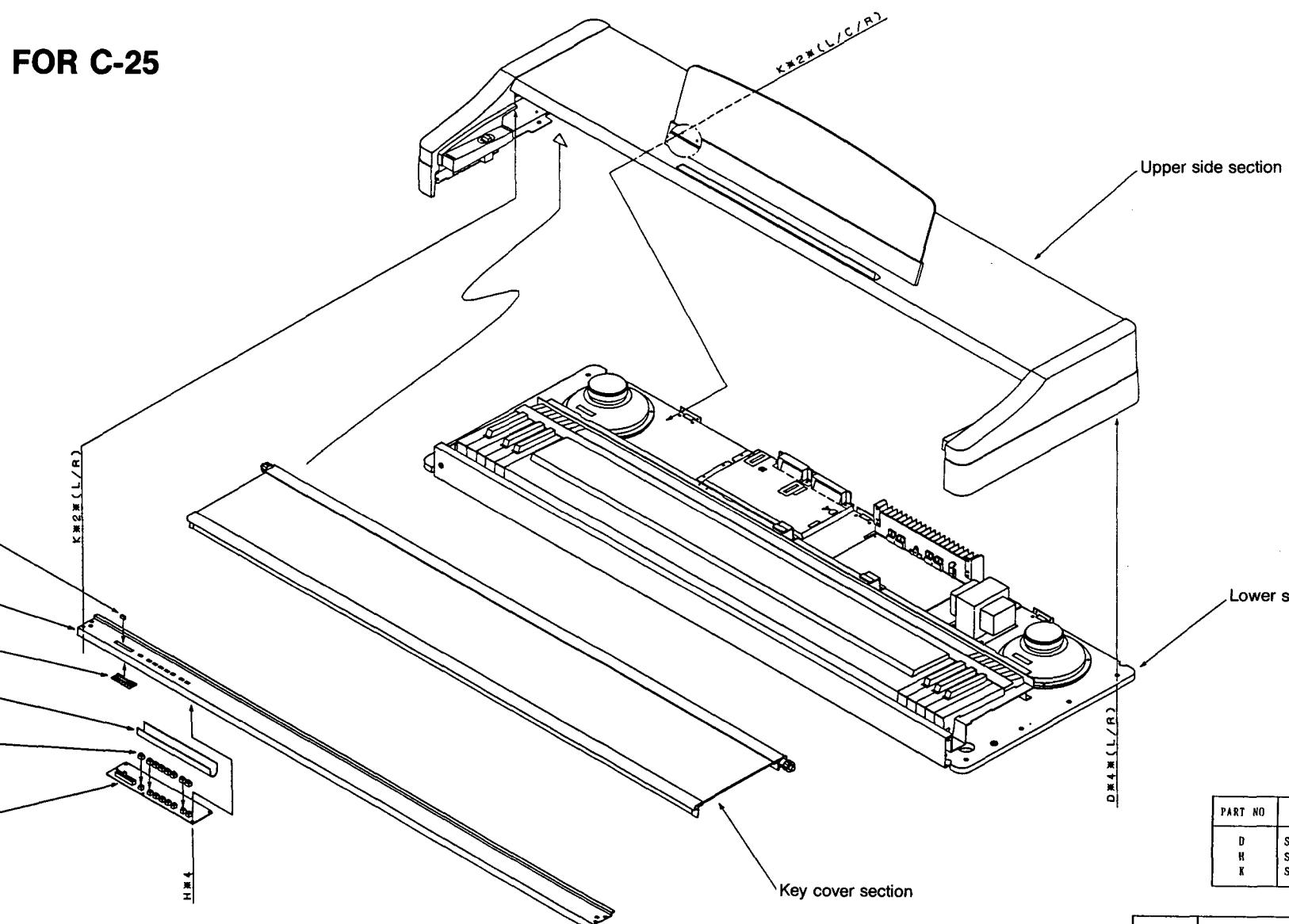


PART NO	SCREWS	PART CODE
D	SCREW FE WSE1 BZNC 5 x 25	790081525
H	SCREW CT B ZNC 3 x 6	715230306
K	SCREW CT B BZNC 3 x 8	715260308

PART NO	PART NAME	PART CODE
1	X-120 FRONT PANEL I	641028900
2	X-921 TACT SW KNOB NO.1	620022300
3	SLIDE VR KNOB	620022500
4	SLIDE VR ESCUSHION 30 NO.1	646041400
5	CUSHION (2)	500011702
6	P.C.B. BOARD KLM-1547/C-15 (PANEL)	001154700

FOR C-25

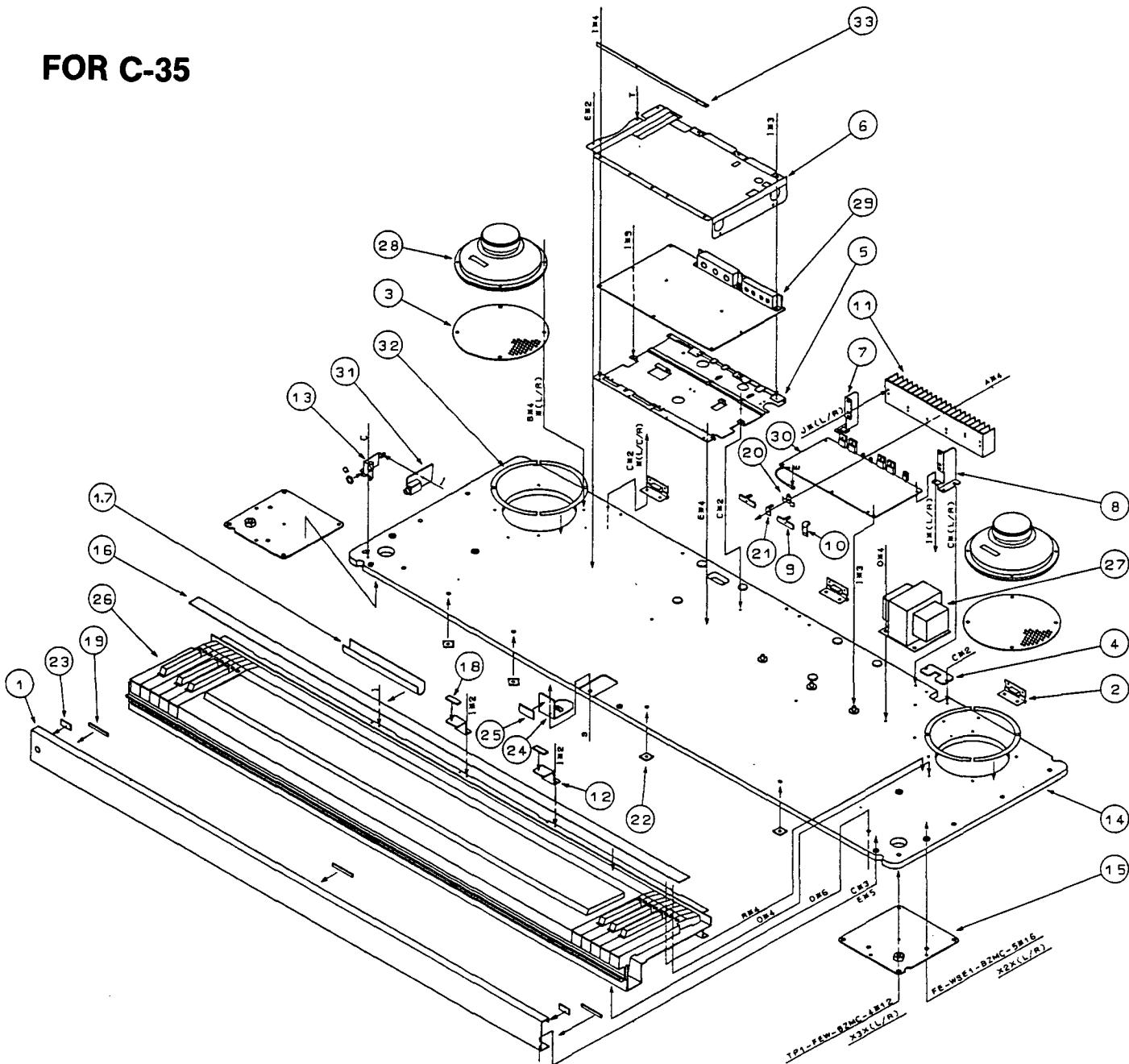
8



PART NO	SCREWS	PART CODE
D	SCREW FE WSEJ BZMC 5 x 25	790061525
H	SCREW CT B ZNC 3 x 6	715230306
K	SCREW CT B BZNC 3 x 8	715280308

PART NO	PART NAME	PART CODE
1	X-121 FRONT PANEL 2	641029000
2	X-921 TACT SW KNOB NO.1	620022300
3	SLIDE VR KNOB	620022500
4	SLIDE VR ESCUSHION 30 NO.1	646041400
5	CUSHION (2)	500011702
6	P.C.BOARD KLM-1547/C-25 (PANEL)	001154701

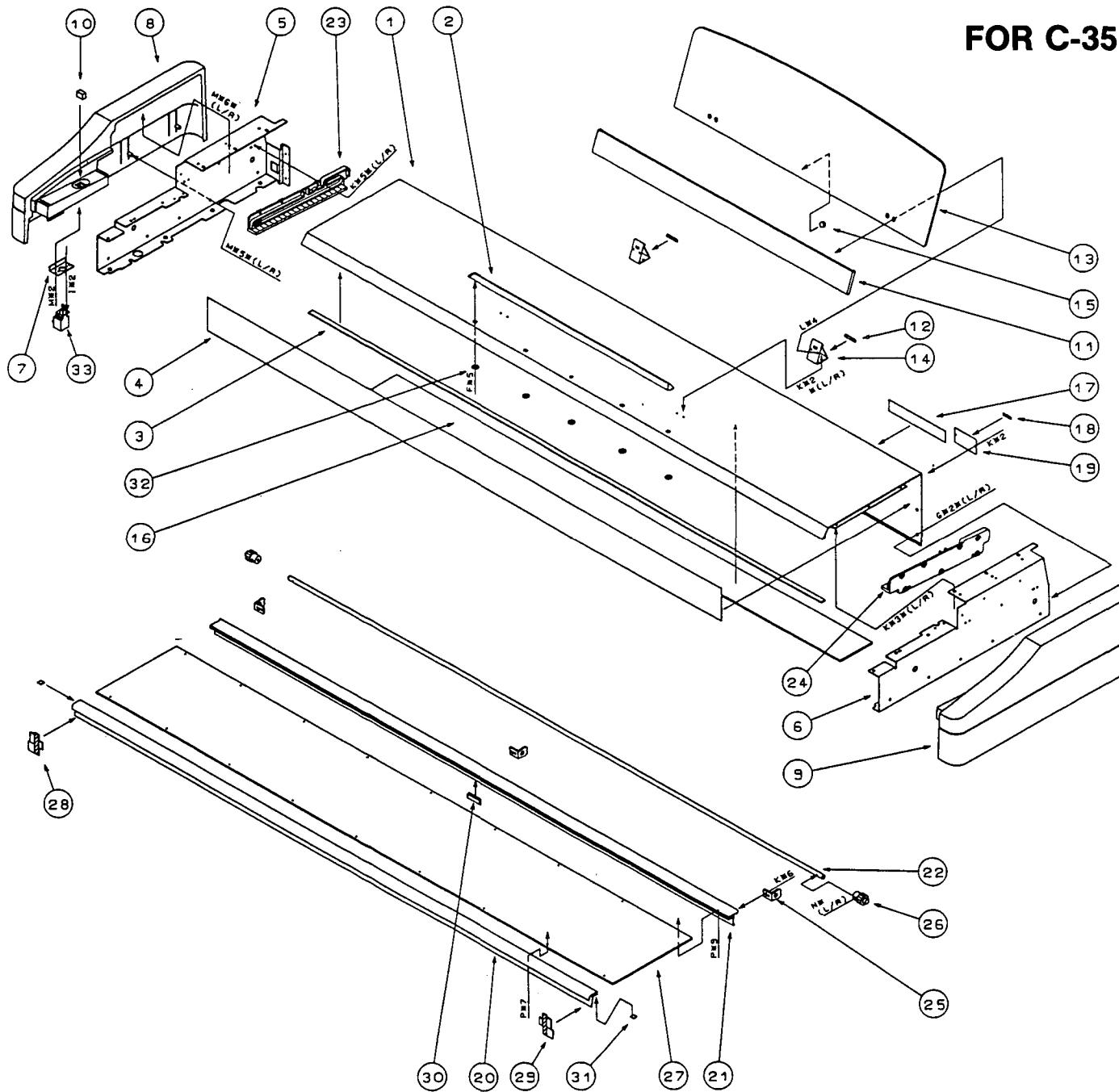
FOR C-35



PART NO	SCREWS	PART CODE
A	SCREW FE B ZMC 3 x 12	705030312
B	SCREW FE B ZMC 4 x 22	705030422
C	SCREW FE FEW BZMC 4 x 14	707060414
D	SCREW FE WSE1 B BZMC 5 x 25	790061525
E	SCREW TP1 B BZMC 3 x 10	715060310
F	SCREW TP2C FEW BZMC 3 x 6	727060306
G	SCREW TP2G FEW BZMC 3 x 8	727060308
H	SCREW CT B ZMC 3 x 6	715230306
I	SCREW CT B ZMC 3 x 8	715230308
J	SCREW CT B ZMC 4 x 10	715230410
K	SCREW CT B BZMC 3 x 8	715260306
L	SCREW PLAX B BZMC 3 x 6	745060306
M	SCREW PLAX B BZMC 3 x 8	745060308
N	SCREW NLFE F BZMC 3 x 10	701160310
O	SCREW NLFE FEW BZMC 4 x 14	707160414
P	SCREW PT B BZMC 2.6 x 5	715362605
Q	NUT VN BZMC 12	773061200
R	SCREW TP1 B BZMC 3.5 x 12	715083512
S	SCREW FE FEW BZMC 4 x 18	707060418
T	SCREW TP1 FEW BZMC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-921 FRONT BAR	641014800
2	X-122 HINGE 2	641026204
3	SPEAKER NET (LARGE)	630013900
4	X-921 BUSHING PLATE	641016600
5	X-122 SHIELD CHASSIS (LARGE)	641026200
6	X-122 SHIELD SHEET (LARGE)	580031200
7	X-122 HEAT SINK ANGLE L	641026210
8	X-122 HEAT SINK ANGLE R	641026211
9	X-122 L TYPE ANGLE (LARGE)	641026900
10	X-122 L TYPE ANGLE (SMALL)	641026901
11	X-122 HEAT SINK I	641026209
12	X-120 PANEL SUPPORT	641030400
13	X-122 PHONE JACK CHASSIS	641027800
14	X-122 BOTTOM PLATE	645014000
15	X-122 STAND PLATE (F)	
16	FELT FOR KEYBOARD (LARGE)	550009901
17	CUSHION (2)	500011702
18	X-120 STOPPER FELT	550014900
19	X-921 SPACER FOR FRONT BAR	500017600
20	X-120 HOLDER SPRING V3	641031500
21	X-120 SPRING STOPPER 3	641031400
22	X-120 STOPPER PLATE	641031300
23	CUSHION R (FOR FRONT BAR)	500011801
24	X-122 FRONT BAR SPACER	641032100
25	X-120 FRONT BAR RUBBER T=3mm	500019300
26	KEYBOARD AE-88 VC53080	420003801
27	POWER TRANSFORMER TC-044	400013100
28	SPEAKER FF16G-0846 16cm	410003600
29	P.C. BOARD KLM-1566 (MAIN)	001156535
30	P.C. BOARD KLM-1568 (P.SUPPLY)	001156835
31	P.C. BOARD KLM-1569 (HEADPHONE)	001156890
32	SPONGE TAPE	
33	X-122 SHIELD ANGLE	641033300

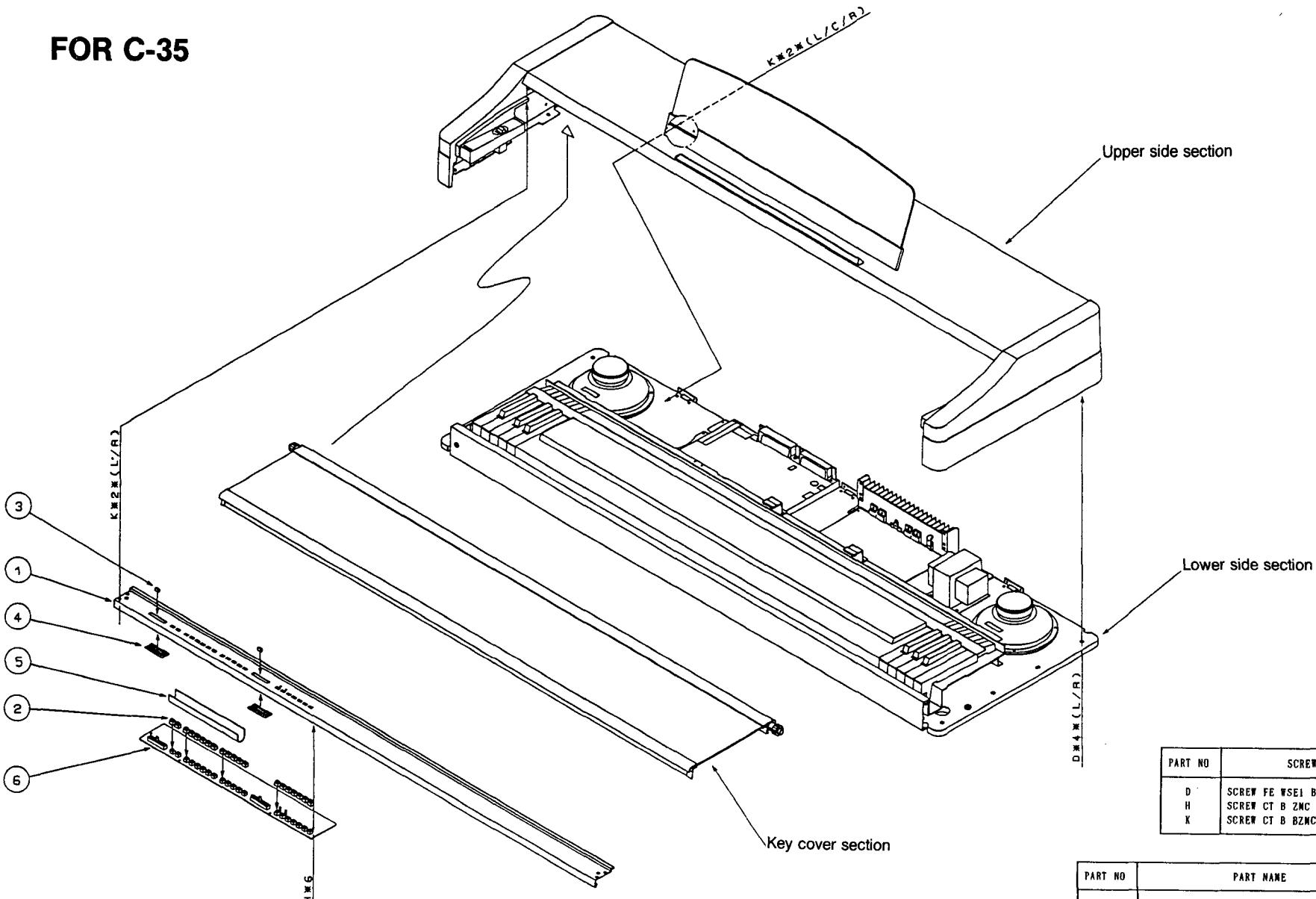
FOR C-35



PART NO	SCREWS	PART CODE
A	SCREW FE B ZNC 3 x 12	705030312
B	SCREW FE B ZNC 4 x 22	705030422
C	SCREW FE FEW BZNC 4 x 14	707060414
D	SCREW FE WSEI BZNC 5 x 25	790081525
E	SCREW TP1 B BZNC 3 x 10	715060310
F	SCREW TP2G FEW BZNC 3 x 6	727060308
G	SCREW TP2G FEW BZNC 3 x 8	727060308
H	SCREW CT B ZNC 3 x 6	715230306
I	SCREW CT B ZNC 3 x 8	715230308
J	SCREW CT B BZNC 3 x 10	715230410
K	SCREW CT B BZNC 3 x 8	715260308
L	SCREW PLAX B BZNC 3 x 6	745060308
M	SCREW PLAX B BZNC 3 x 8	745060308
N	SCREW NLFE F BZNC 3 x 10	701160310
O	SCREW NLFE FEW BZNC 4 x 14	707160414
P	SCREW PT B BZNC 2.6 x 5	715362605
Q	NUT VN BZNC 12	773081200
R	SCREW TP1 B BZNC 3.5 x 12	715063512
S	SCREW FE FEW BZNC 4 x 18	707060418
T	SCREW TP1 FEW ZMC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-122 TOP PLATE 3 ASSEMBLY	641026207
2	X-921 MUSIC STOPPER A	646036600
3	KEY COVER FELT	-----
4	SLIT MASK	-----
5	X-122 SIDE CHASSIS L	641026205
6	X-122 SIDE CHASSIS R	641026206
7	X-526/527 METAL FITTING OF SW	640082500
8	X-122 SIDE PLATE L	646041100
9	X-122 SIDE PLATE R	646041101
10	X-825W POWER SW KNOB BLK	620021600
11	X-921 MUSIC STAND	646035700
12	X-921 HINGE CAP	629010907
13	X-122 MUSIC STAND PLATE (S)	630082500
14	X-921 MUSIC STAND HINGE	641014900
15	RUBBER STOPPER 3	500014200
16	CUSHION	-----
17	SERVICE MAN CAUTION 3	-----
18	SERIAL NO SEAL	-----
19	NAME PLATE	-----
20	X-122 KEY COVER PANEL A ASSEMBLY	641026202
21	X-122 KEY COVER PANEL B ASSEMBLY	641026203
22	X-922/923 SHAFT	641016500
23	X-121 RACK 1 L	646041200
24	X-121 RACK 1 R	646041201
25	SHAFT COLLAR	646041500
26	X-922 GEAR	646035900
27	X-922 KEY COVER	630012800
28	KEY COVER FELT L	-----
29	KEY COVER FELT R	-----
30	PANEL FELT	-----
31	PANEL CUSHION	-----
32	WASHER KOC-C40868	-----
33	POWER SW SDDGA1103A TV-5	375010400

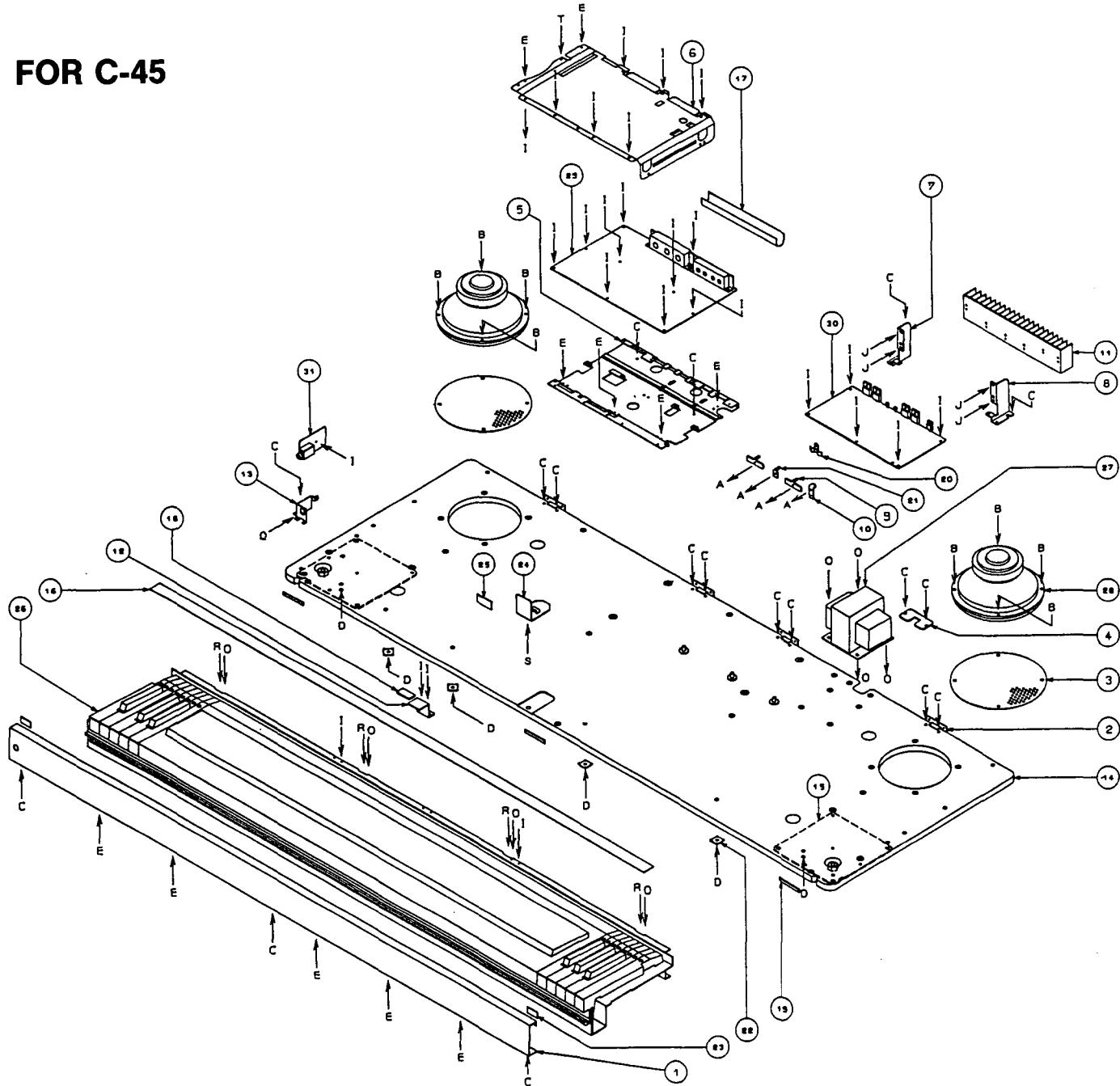
FOR C-35



PART NO	SCREWS	PART CODE
D	SCREW FE WSE1 BZNC 5 x 25	790061525
H	SCREW CT B ZNC 3 x 6	715230306
K	SCREW CT B BZNC 3 x 8	715260308

PART NO	PART NAME	PART CODE
1	X-122 FRONT PANEL 3	640100100
2	X-921 TACT SW KNOB NO.1	620022300
3	SLIDE VR KNOB	62002500
4	SLIDE VR ESCUSHION 30 NO.1	646041400
5	CUSHION (2)	500011702
6	P.C.B. BOARD KLN-1566 (PANEL)	001156600

FOR C-45

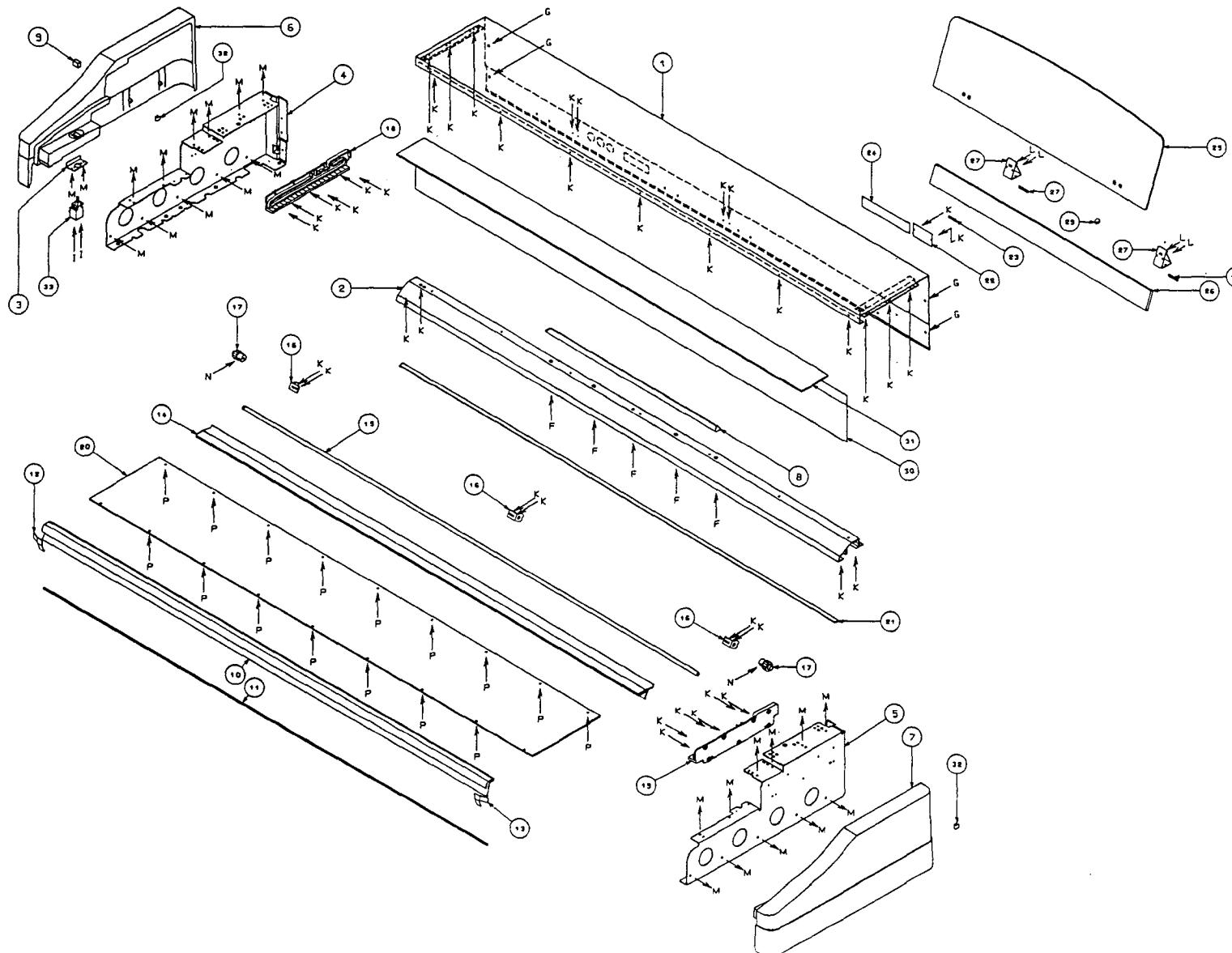


PART NO	SCREWS & NUTS	PART CODE
A	FE B ZMC 3 x 12	705030312
B	FE B ZMC 4 x 22	705030422
C	FE FEW BZNC 4 x 14	707060414
D	FE WSEI BZNC 5 x 25	790061525
E	TP1 B BZNC 3 x 10	715060310
F	TP2G FEW ZNC 3 x 6	727060306
G	TP2G FEW BZNC 3 x 8	727060308
H	CT B ZMC 3 x 8	715230308
I	CT B ZMC 3 x 8	715230308
J	CT B ZMC 4 x 10	715230410
K	CT B BZNC 3 x 8	715260308
L	PLAX B BZNC 3 x 8	745060308
M	PLAX B BZNC 3 x 8	745060308
N	NLFE FEW BZNC 3 x 10	701160310
O	NLFE FEW BZNC 4 x 14	707160414
P	PT B BZNC 2.6 x 5	715362605
Q	VN ZNC 12	773061200
R	TPI B BZNC 3.5 x 12	715083512
S	FE FEW BZNC 4 x 18	707060418
T	TPI FEW ZNC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-921 FRONT BAR	641014800
2	X-122 HINGE 2	641026204
3	SPEAKER NET (LARGE)	630013900
4	X-921 BUSHING PLATE	641016600
5	X-122 SHIELD CHASSIS (LARGE)	641026200
6	SHIELD SHEET (LARGE)	-----
7	X-122 HEAT SINK ANGLE L	641026210
8	X-122 HEAT SINK ANGLE R	641026211
9	X-122 L TYPE ANGLE (LARGE)	641026900
10	X-122 L TYPE ANGLE (SMALL)	641026901
11	X-122 HEAT SINK I	641026209
12	X-120 PANEL SUPPORT	641030400
13	X-122 PHONE JACK CHASSIS	641027800
14	X-122 BOTTOM PLATE I	645014300
15 *	X-122 STAND PLATE (F)	-----
16	FELT FOR KEYBOARD (LARGE)	550009901
17	CUSHION (2)	500011702
18	X-120 STOPPER FELT	550014900
19	X-921 SPACER FOR FRONT BAR	500017600
20	X-120 HOLDER SPRING V3	641031500
21	X-120 SPRING STOPPER 3	641031400
22	X-120 STOPPER PLATE	641031300
23	CUSHION R (FOR FRONT BAR)	500011801
24	SPACER 2 (FOR FRONT BAR)	641032100
25	RUBBER CUSHION (FOR FRONT BAR)	-----
26	KEYBOARD AE-88	420003801
27	POWER TRANSFORMER TC-044	400013100
28	SPEAKER FFI66-0846 16cm	410003800
29	P.C. BOARD KLM-1565 C-45(MAIN)	001156801
30	P.C. BOARD KLM-1568 C-55(P.SUPPLY)	001156803
	P.C. BOARD KLM-1569 (HEADPHONE)	001156900

* PART NO 15 is included in the X-123 BOTTOM PLATE I (645014300).

FOR C-45



PART NO	SCREWS & NUTS	PART CODE
A	FE B ZMC 3 x 12	705030312
B	FE B ZMC 4 x 22	705030422
C	FE FEW BZMC 4 x 14	707060414
D	FE WSE1 BZMC 5 x 25	790061525
E	TP1 B BZMC 3 x 10	716060310
F	TP2G FEW ZMC 3 x 6	727030308
G	TP2G BZMC 3 x 8	727060308
H	CT B ZMC 3 x 6	715230308
I	CT B ZMC 3 x 8	715230308
J	CT B ZMC 4 x 10	715230410
K	CT B BZMC 3 x 8	715260308
L	PLAX B BZMC 3 x 6	745080306
M	PLAX B BZMC 3 x 8	745060308
N	NLFE F BZMC 3 x 10	70160310
O	NLFE FEW BZMC 4 x 14	707160414
P	PT B BZMC 2.6 x 5	715362805
Q	VN B ZMC 12	773061200
R	TP1 B BZMC 3.5 x 12	715063512
S	FE FEW BZMC 4 x 18	707060418
T	TP1 B ZMC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-123 TOP PLATE 1 ASSEMBLY	641028500
2	X-123/124 FRONT GRILL	641028700
3	X-526/527 METAL FITTING OF SW	640082500
4	X-123 SIDE CHASSIS L	640099800
5	X-123 SIDE CHASSIS R	640099901
6	X-123/124 SIDE PLATE L	646041900
7	X-123/124 SIDE PLATE R	646041901
8 *	X-921 MUSIC STOPPER A	-----
9	X-825N POWER SW KNOB BLK	620021600
10	X-123/124 KEY COVER PANEL A	641028701
11 *	KEY COVER PANEL CUSHION	-----
12 *	X-123 KEY COVER FELT L	-----
13 *	X-123 KEY COVER FELT R	-----
14	X-123/124 KEY COVER PANEL B	641028702
15	X-922/923 SHAFT	641016500
16	SHAFT COLLAR	646041500
17	X-922 GEAR	646035900
18	X-123 RACK 2 L	646042300
19	X-123 RACK 2 R	646042301
20	X-922 KEY COVER	630012800
21 *	X-120 KEY COVER FELT	-----
22	NAME PLATE	-----
23	SERIAL NO SEAL	-----
24	SERVICE MAN CAUTION 3	-----
25	X-123 MUSIC STAND PLATE (G)	830017400
26	X-921 MUSIC STAND	646035700
27	X-921 MUSIC STAND HINGE	641014900
28	X-921 HINGE CAP	629010907
29	RUBBER STOPPER 3	500014200
30 *	SLIT MASK	-----
31 *	TOP PLATE CUSHION	-----
32 *	SIDE PLATE FELT	-----
33	POWER SW SDDGA103A TV-5	375010400

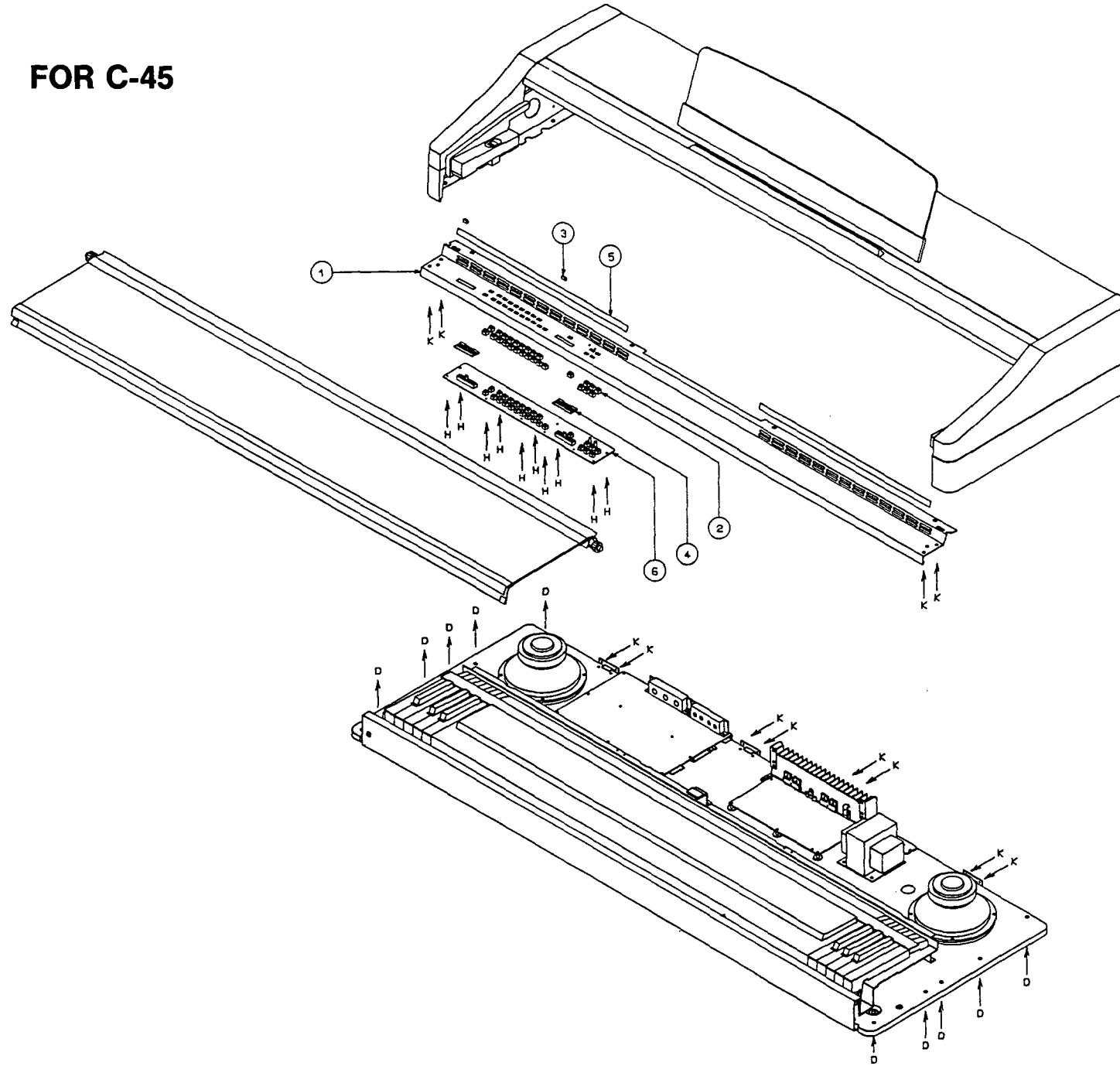
* PART NO 8 and 21 are included in the X-123/124 FRONT GRILL (641028700).

* PART NO 11~13 are included in the X-123/124 KEY COVER PANEL A (641028701).

* PART NO 30 and 31 are included in the X-123 TOP PLATE 1 ASSEMBLY (641028500).

* PART NO 32 is included in the X-123/124 SIDE PLATE L/R (646041900/646041901).

FOR C-45

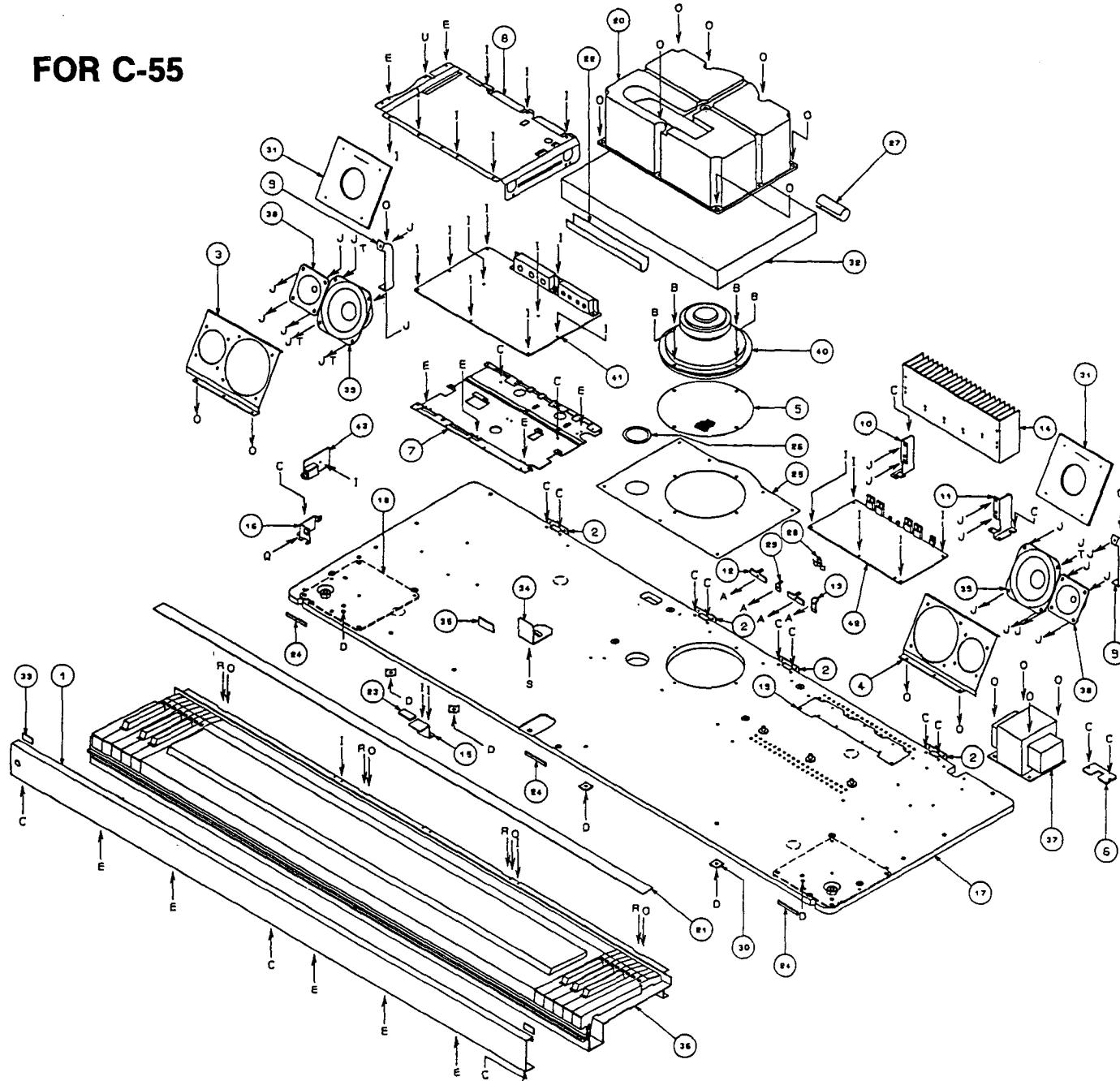


PART NO	SCREWS & NUTS	PART CODE
A	FE B ZMC 3 x 12	705030312
B	FE B ZMC 4 x 22	705030422
C	FE FEW BZNC 4 x 14	707080414
D	FE WSEI BZNC 5 x 25	790081525
E	TP1 B BZNC 3 x 10	715080310
F	TP2G FEW BZNC 3 x 6	727030308
G	TP2G FEW BZNC 3 x 8	727080308
H	CT B ZNC 3 x 6	715280308
I	CT B ZNC 3 x 8	715230308
J	CT B ZNC 4 x 10	715280410
K	CT B BZNC 3 x 8	715260308
L	PLAX B BZNC 3 x 6	745080308
M	PLAX B BZNC 3 x 8	745080308
N	NLFE F BZNC 3 x 10	701160310
O	NLFE FEW BZNC 4 x 14	707160414
P	PT B BZNC 2.8 x 5	715382605
Q	VN ZNC 12	773081200
R	TP1 B BZNC 3.5 x 12	715083512
S	FE FEW BZNC 4 x 18	707080418
T	TP1 FEW BZNC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-123 FRONT PANEL	840100000
2	X-921 TACT SW KNOB NO1	820022300
3	SLIDE VR KNOB	620022500
4	SLIDE VR ESCUSHION 30 NO1	846041400
5 *	FRONT MASK	-----
6	P.C. BOARD KLN-1567 C-45/55(PANEL)	001158700

* PART NO 5 is included in the X-123 FRONT PANEL (840100000).

FOR C-55

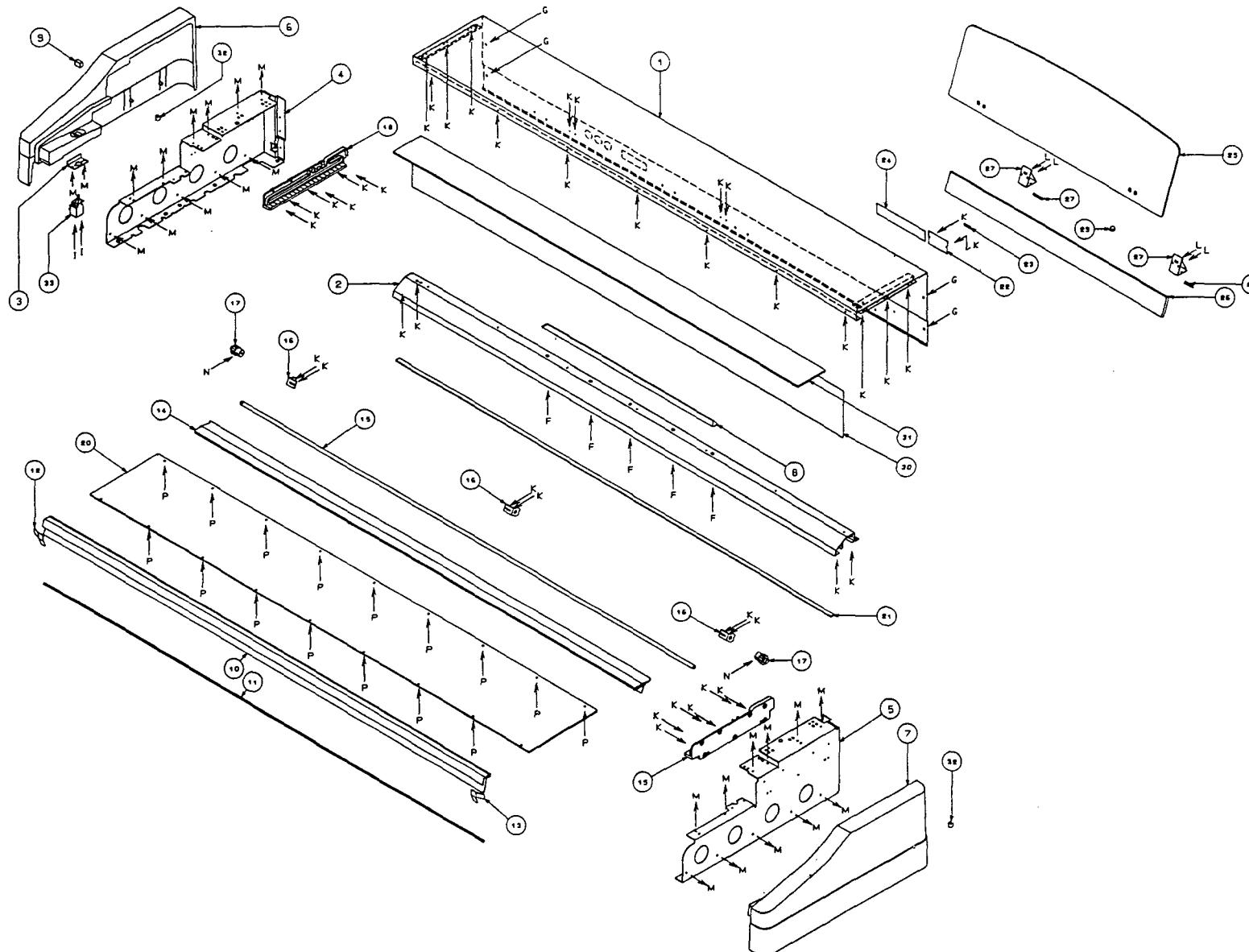


PART NO	SCREWS & NUTS	PART CODE
A	FE B ZMC 3 x 12	705030312
B	FE B ZMC 4 x 22	705030422
C	FE FEW BZMC 4 x 14	707080414
D	FE WSEL BZMC 6 x 25	790061525
E	TPI B BZMC 3 x 10	715060310
F	TP2G FEW ZMC 3 x 6	727060306
G	TP2G FEW BZMC 3 x 8	727060308
H	CT B ZMC 3 x 6	715230308
I	CT B ZMC 3 x 8	715230308
J	CT B ZMC 4 x 10	715230410
K	CT B BZMC 3 x 8	715280308
L	PLAX B BZMC 3 x 6	745060306
M	PLAX B BZMC 3 x 8	745060308
N	NLFE F BZMC 3 x 10	701160310
O	NLFE FEW BZMC 4 x 14	707160414
P	PT B BZMC 2.6 x 5	715362605
Q	VN ZMC 12	773061200
R	TPI B BZMC 3.5 x 12	715063512
S	FE FEW BZMC 4 x 18	707080418
T	WM ZMC 4	780030400
U	TPI FEW ZMC 3 x 14	717080314

PART NO	PART NAME	PART CODE
1	X-921 FRONT BAR	641014800
2	X-122 HINGE 2	641026204
3	X-124 SPEAKER CHASSIS L	641026602
4	X-124 SPEAKER CHASSIS R	641026603
5	SPEAKER NET (LARGE)	640096300
6	X-921 BUSHING PLATE	641016800
7	X-122 SHIELD CHASSIS (LARGE)	641026200
8	SHIELD SHEET (LARGE)	
9	X-124 SPEAKER ANGLE	641027000
10	X-122 HEAT SINK ANGLE L	641026210
11	X-122 HEAT SINK ANGLE R	641026211
12	X-122 L TYPE ANGLE (LARGE)	641026900
13	X-122 L TYPE ANGLE (SMALL)	641026901
14	X-124 HEAT SINK 2	641026601
15	X-120 PANEL SUPPORT	641030400
16	X-122 PHONE JACK CHASSIS	641027800
17	X-124 BOTTOM PLATE 2	645014400
18 *	X-122 STAND PLATE (F)	-----
19 *	X-921 RADIATION COVER	-----
20	X-123 SPEAKER BOX ASSEMBLY	640041700
21	FELT FOR KEYBOARD (LARGE)	550009901
22	CUSHION (2)	500011702
23	X-120 STOPPER FELT	550014900
24	X-921 SPACER FOR FRONT BAR	500017600
25	X-124 GASKET (LARGE)	500018700
26	X-124 PACKING	500018900
27	X-124 CORD PACKING 1	500018800
28	X-120 HOLDER SPRING Y3	641031500
29	X-120 SPRING STOPPER 3	641031400
30	X-120 STOPPER PLATE	641031300
31	X-922 FELT	550014700
32	X-124 FELT FOR WOOFER	550015300
33	CUSHION R (FOR FRONT PANEL)	500011801
34	X-122 FRONT BAR SPACER	641032100
35	RUBBER STOPPER 3	500014200
36	KEYBOARD AE-88	420003801
37	POWER TRANSFORMER TC-045	400013200
38	SPEAKER FT50-L5	410003300
39	SPEAKER FF102-K3 10cm	410003300
40	SPEAKER FF168-B3SE	410003700
41	P.C. BOARD KLM-1565 C-55(MAIN)	001158502
42	P.C. BOARD KLM-1568 C-55(P.SUPPLY)	001158801
43	P.C. BOARD KLM-1569 (HEADPHONE)	001156900

* PART NO 18 and 19 are included in the X-124 BOTTOM PLATE 2 (645014400).

FOR C-55

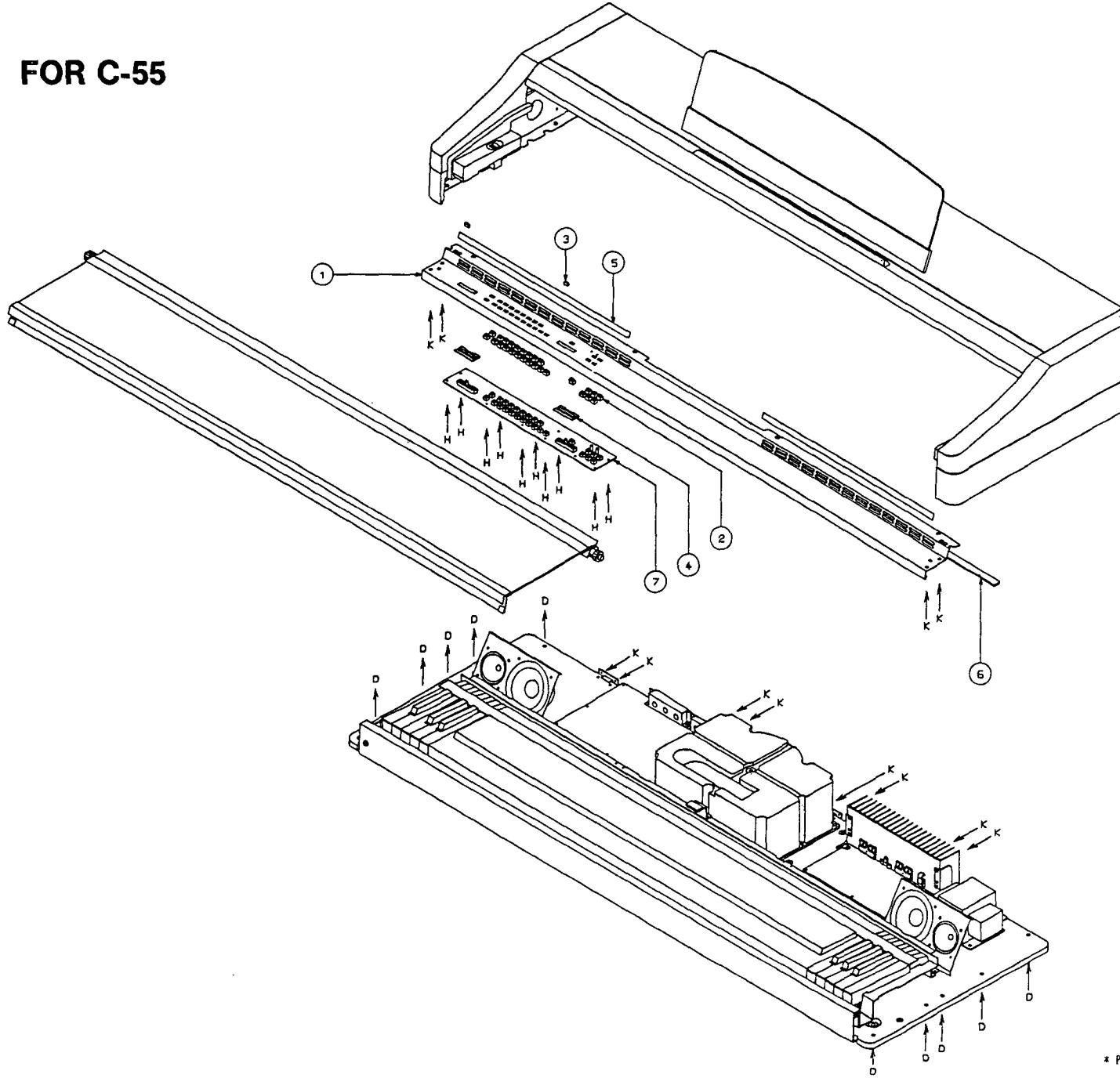


PART NO	SCREWS & NUTS	PART CODE
A	FE B ZNC 3 x 12	705030312
B	FE B ZNC 4 x 22	705030422
C	FE FEW BZNC 4 x 14	707060414
D	FE WSEI BZNC 5 x 25	780061525
E	TP1 B BZNC 3 x 10	715060310
F	TP2G FEW BZNC 3 x 6	727030308
G	TP2G FEW BZNC 3 x 8	727060308
H	CT B BZNC 3 x 6	715203088
I	CT B ZNC 3 x 8	715203088
J	CT B ZNC 4 x 10	715230410
K	CT B BZNC 3 x 8	715260308
L	PLAX B BZNC 3 x 6	745060308
M	PLAX B BZNC 3 x 8	745060308
N	NLFE F BZNC 3 x 10	701160310
O	NLFE F BZNC 4 x 14	701160414
P	PT B BZNC 2.6 x 5	715362605
Q	VN ZNC 12	773061200
R	TP1 B BZNC 3.5 x 12	715063512
S	FE FEW BZNC 4 x 18	707060418
T	WN ZNC 4	780030400
U	TP1 FEW ZNC 3 x 14	717030314

PART NO	PART NAME	PART CODE
1	X-124 TOP PLATE 2 ASSEMBLY	641026600
2	X-123/124 FRONT GRILL	641026700
3	X-528/527 METAL FITTING OF SW	640082500
4	X-123 SIDE CHASSIS L	640099900
5	X-123 SIDE CHASSIS R	640099901
6	X-123/124 SIDE PLATE L	646041900
7	X-123/124 SIDE PLATE R	646041901
8 *	X-921 MUSIC STOPPER A	-----
9	X-825M POWER SW KNOB BLK	620021600
10	X-123 KEY COVER PANEL A	641026701
11 *	KEY COVER PANEL CUSHION	-----
12 *	X-123 KEY COVER FELT L	-----
13 *	X-123 KEY COVER FELT R	-----
14	X-123/124 KEY COVER PANEL B	641026702
15	X-922/923 SHAFT	641016500
16	SHAFT COLLAR	646041500
17	X-922 GEAR	646035900
18	X-123 RACK 2 L	646042300
19	X-123 RACK 2 R	646042301
20	X-922 KEY COVER	630012800
21 *	X-120 KEY COVER FELT	-----
22	NAME PLATE	-----
23	SERIAL NO SEAL	-----
24	SERVICE MAN CAUTION 3	630017400
25	X-123 MUSIC STAND PLATE (G)	646035700
26	X-921 MUSIC STAND	641014900
27	X-921 MUSIC STAND HINGE	641014900
28	X-921 HINGE CAP	629010907
29	RUBBER STOPPER 3	500014200
30 *	SLIT MASK	-----
31 *	TOP PLATE CUSHION	-----
32 *	SIDE PLATE FELT	-----
33	POWER SW SDDGA1103A TV-5	375010400

* PART NO 8 and 21 are included in the X-123/124 FRONT GRILL (641026700).
* PART NO 11~13 are included in the X-123 KEY COVER PANEL A (641026701).
* PART NO 30 and 31 are included in the X-124 TOP PANEL 2 ASSEMBLY (641026600).
* PART NO 32 is included in X-123/124 SIDE PLATE L/R (646041900/646041901).

FOR C-55

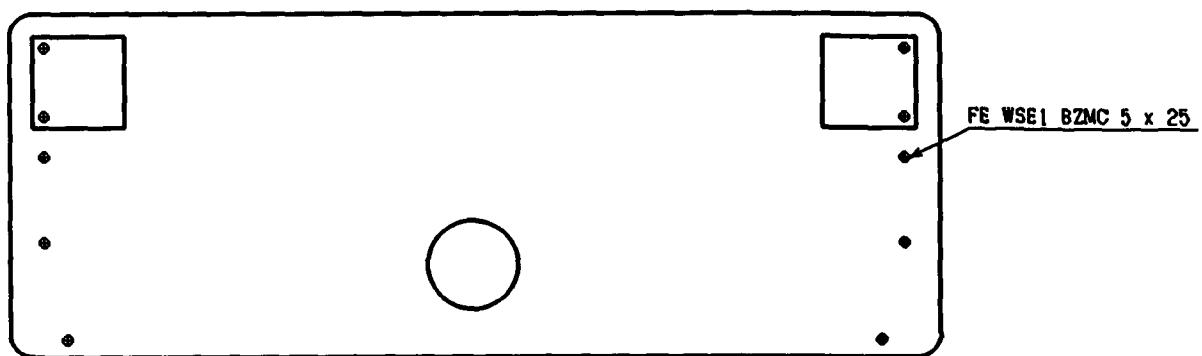


PART NO	SCREWS & NUTS		PART CODE	
A	FE	B	ZNC 3 x 12	705030312
B	FE	B	ZNC 4 x 22	705030422
C	FE	FEW	BZNC 4 x 14	707060414
D	FE	WSEI	BZNC 5 x 25	790081525
E	TP1	B	BZNC 3 x 10	715060310
F	TP2G	FEW	BZNC 3 x 6	727030306
G	TP2G	FEW	BZNC 3 x 8	727060308
H	CT	B	ZNC 3 x 6	715230308
I	CT	B	ZNC 3 x 8	715230308
J	CT	B	ZNC 4 x 10	715230410
K	CT	B	BZNC 3 x 8	715260308
L	PLAX	B	BZNC 3 x 6	745060308
M	PLAX	B	BZNC 3 x 8	745060308
N	NLFE	F	BZNC 3 x 10	701160310
O	NLFE	F	BZNC 4 x 14	707160414
P	PT	B	BZNC 2.6 x 5	715362605
Q	VN	ZNC	12	773081200
R	TP1	B	BZNC 3.5 x 12	715063512
S	FE	FEW	BZNC 4 x 18	707060418
T	WM	ZNC	4	780030400
U	TP1	FEW	ZNC 3 x 14	717030314

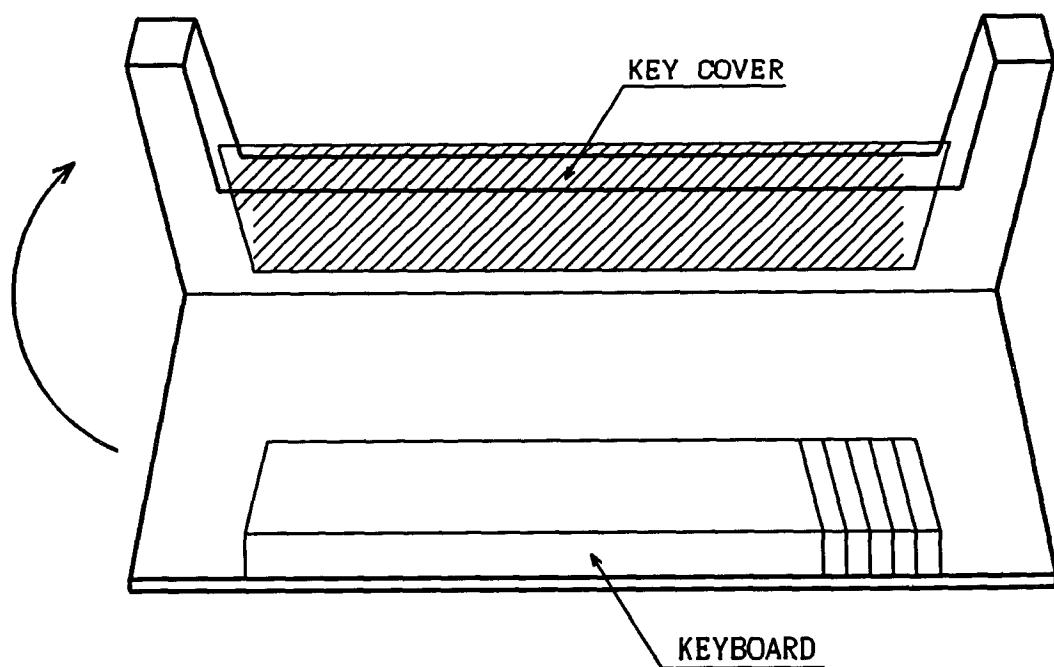
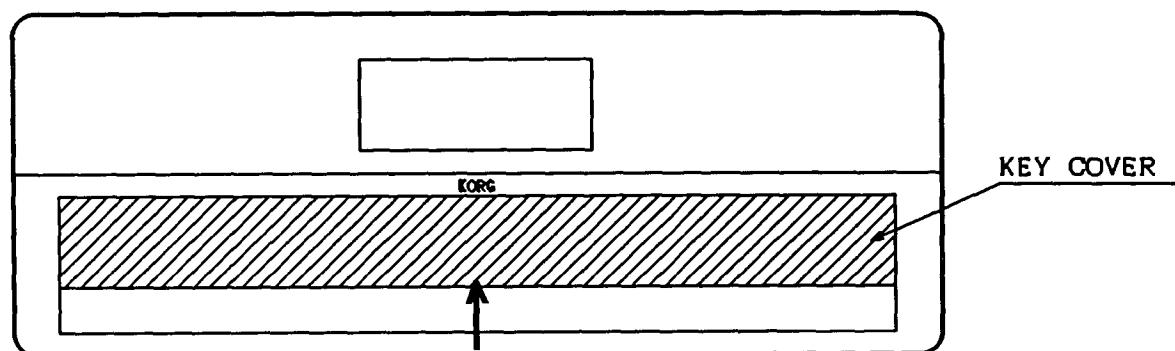
PART NO	PART NAME	PART CODE
1	X-124 FRONT PANEL	640100001
2	K-921 TACT SW KNOB NO1	620022300
3	SLIDE VR KNOB	620022500
4	SLIDE VR ESCUSHION 30 NO1	646041400
5 *	FRONT MASK	-----
6 *	FRONT PANEL CUSHION	-----
7	P.C. BOARD KLM-1567 C-46/55(PANEL)	001156700

* PART NO 5 and 6 are included in the X-124 FRONT PANEL (640100001).

FRONT SIDE

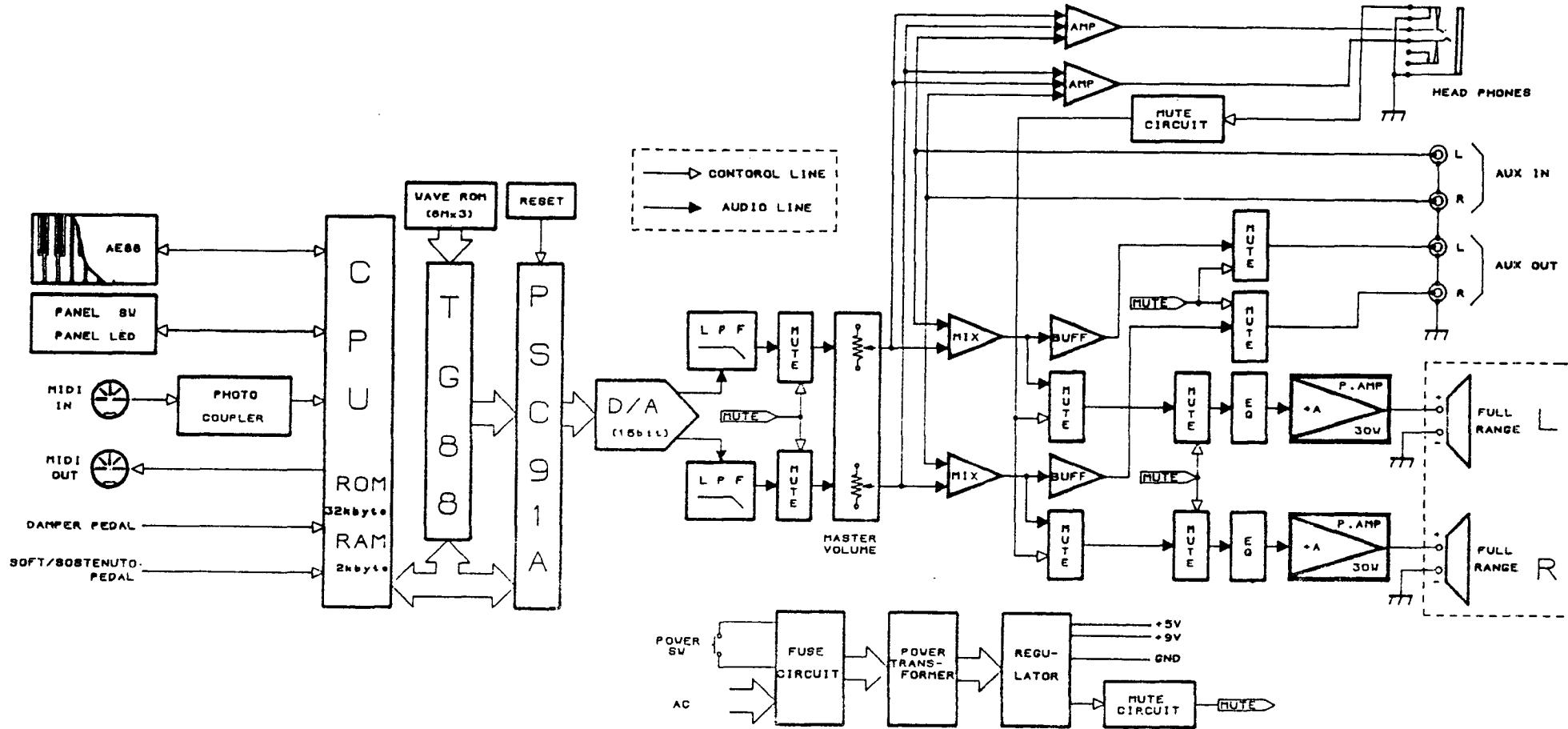


REAR SIDE

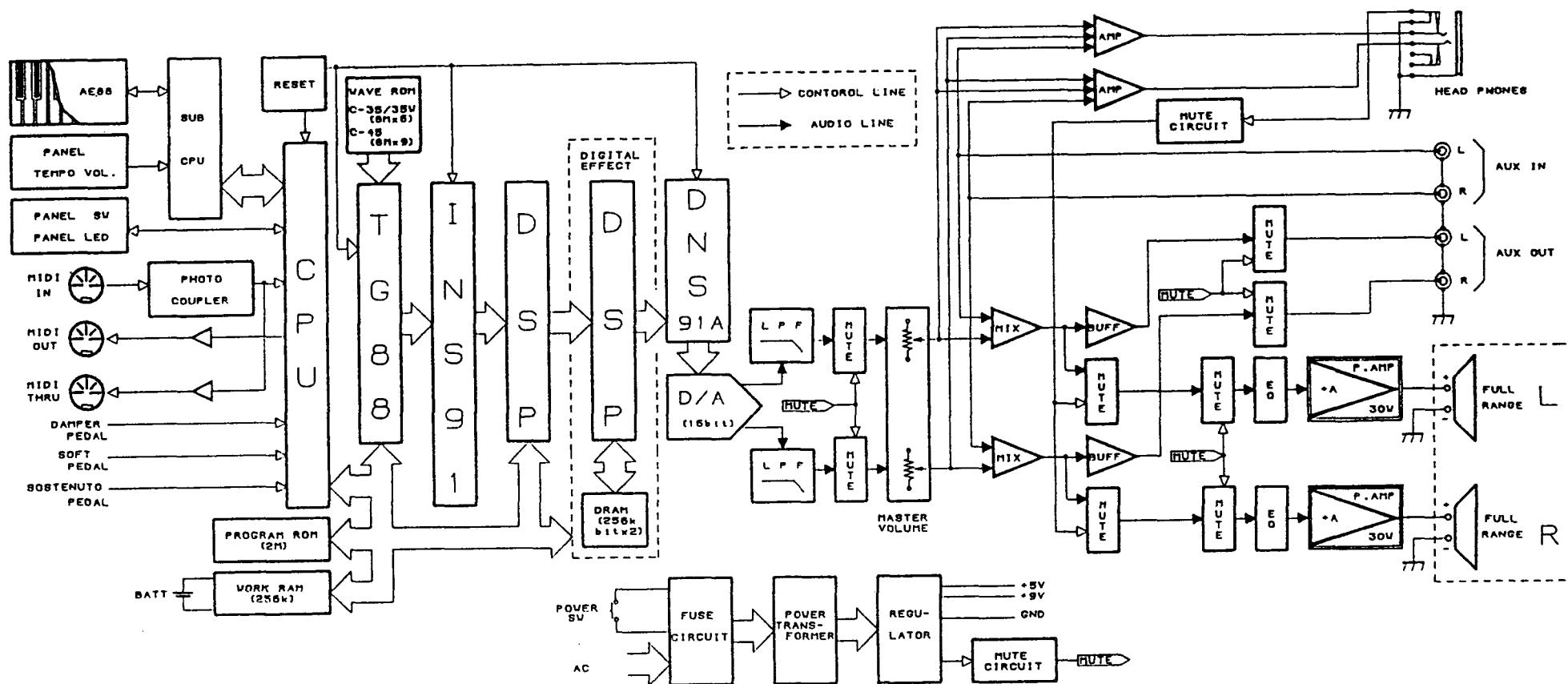


3. BLOCK DIAGRAM

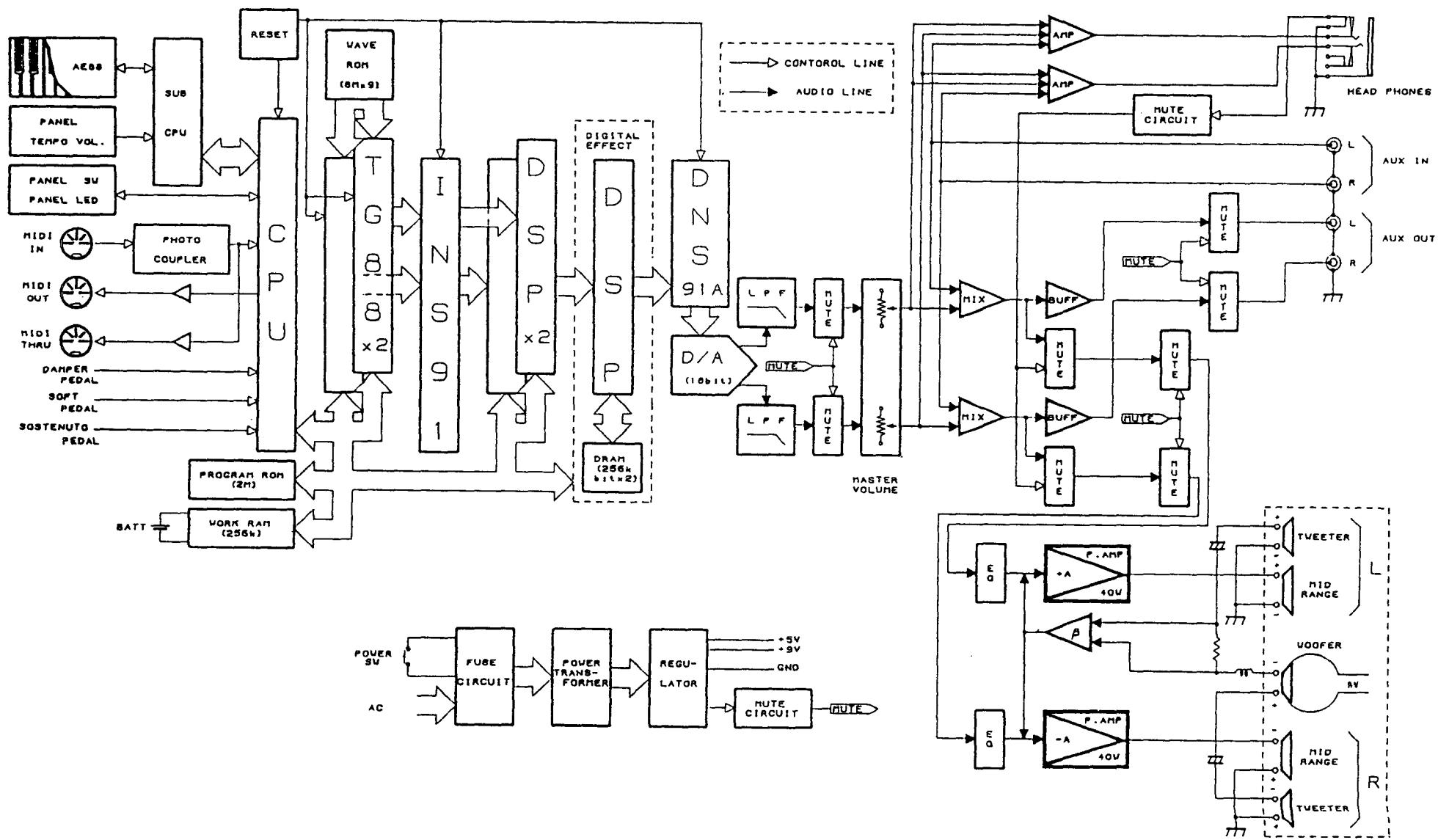
61



For C-15/15S



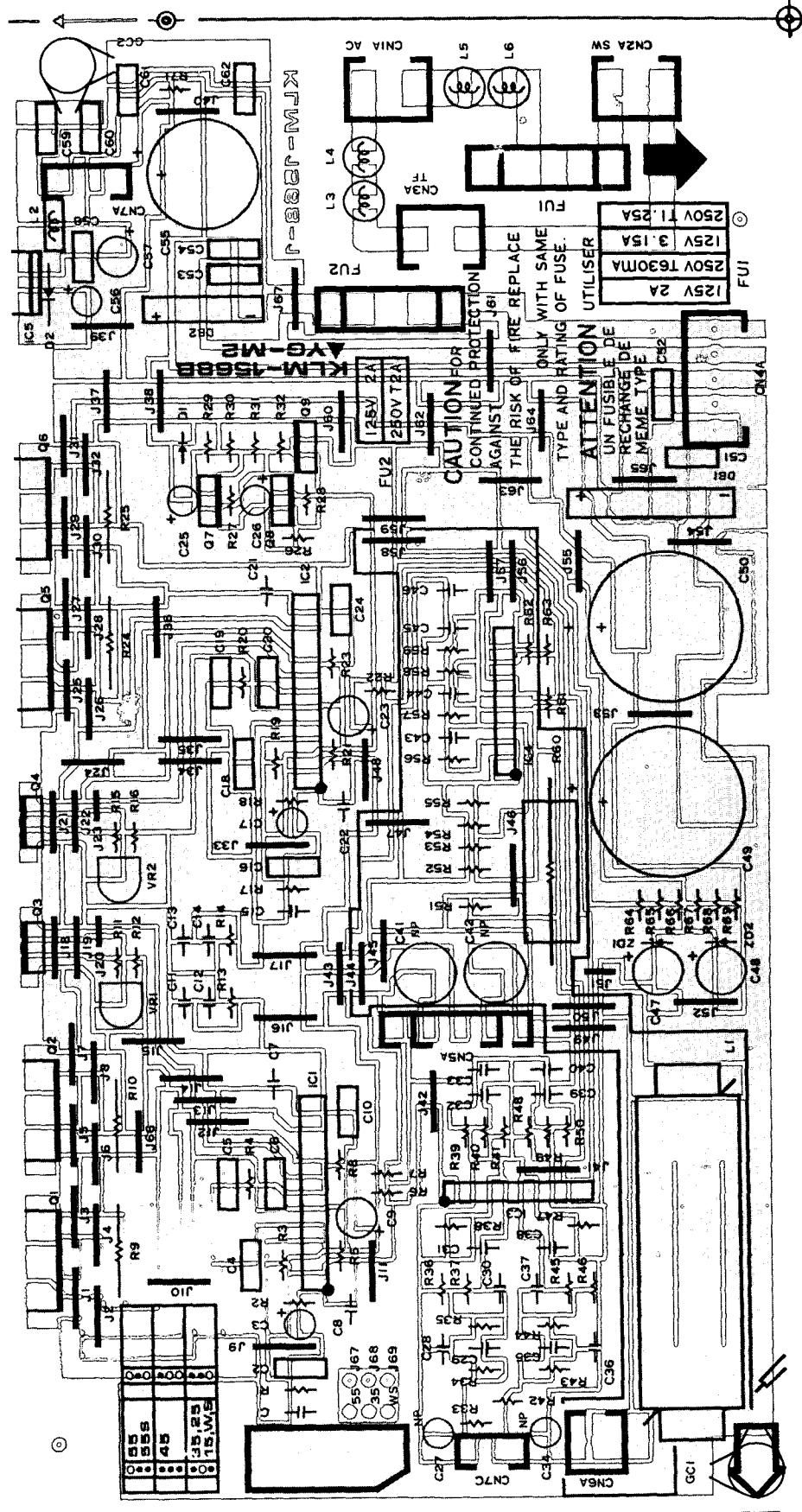
For C-35/45



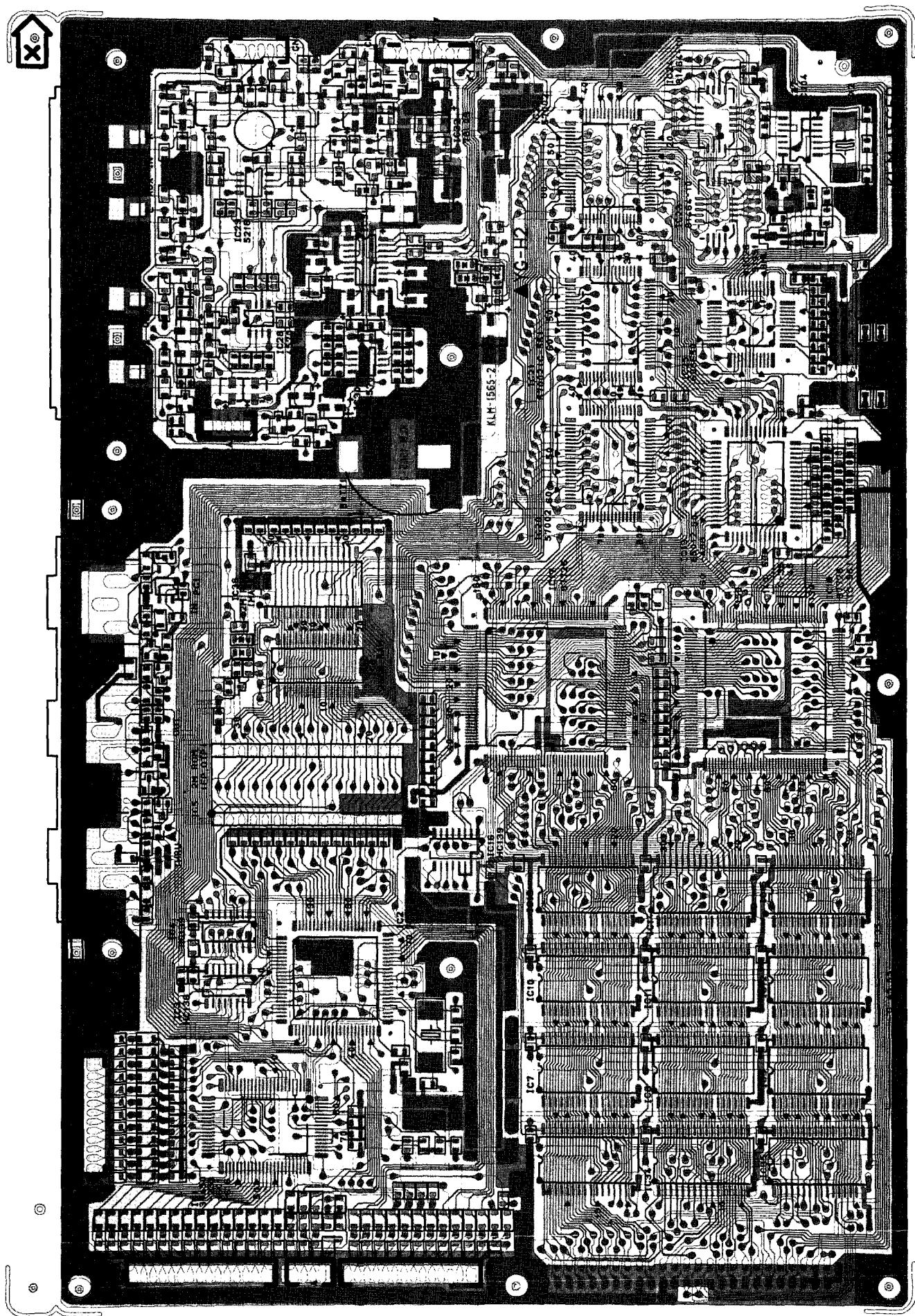
For C-55

4. P.C. BOARD

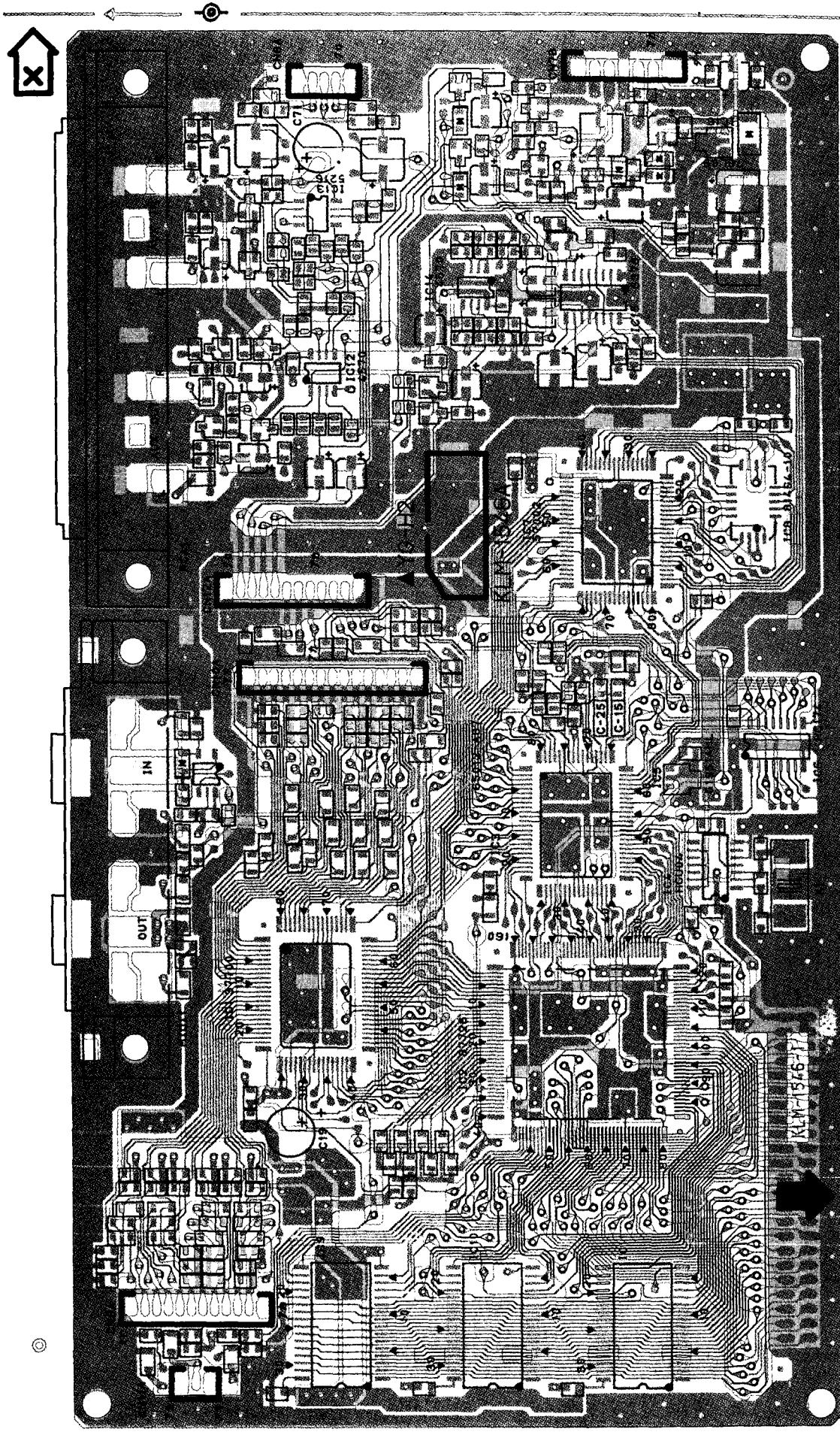
KLM-1568B



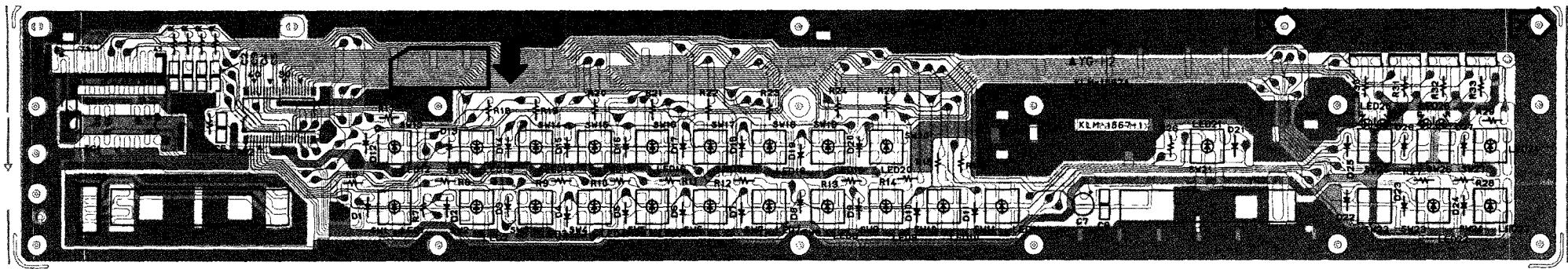
KLM-1565B



KLM-1546A

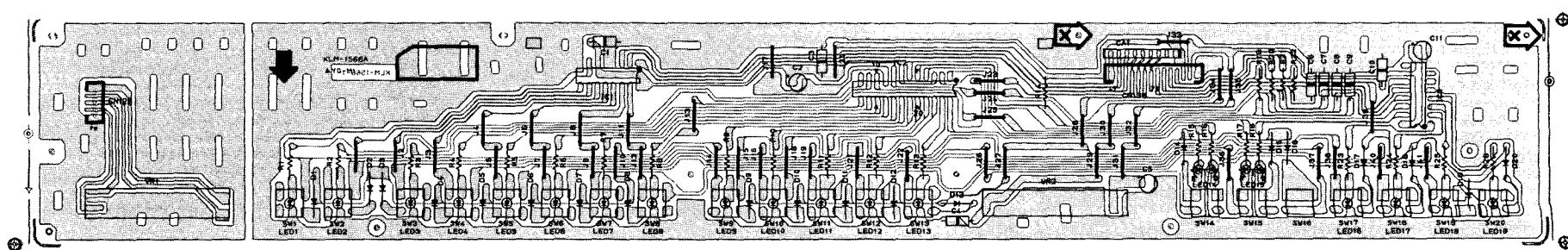


KLM-1567A

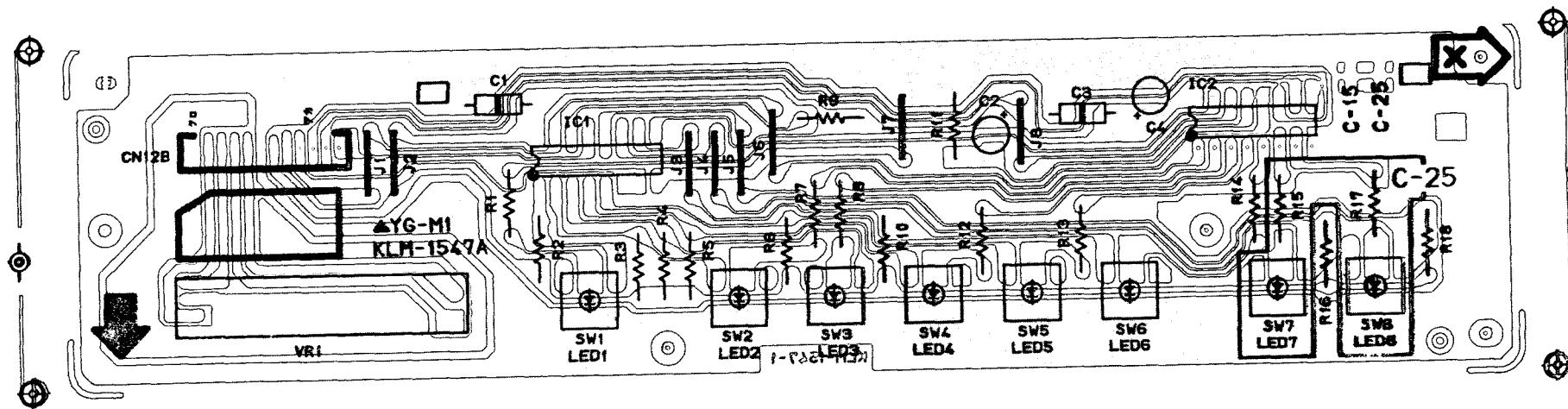


25

KLM-1566A

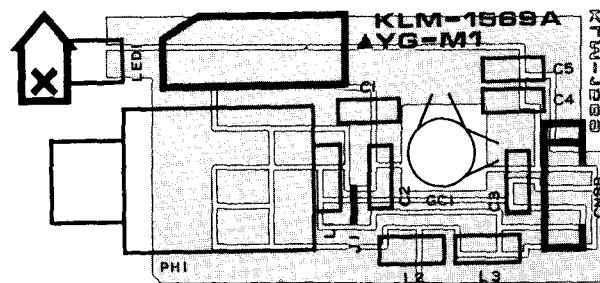


KLM-1547A

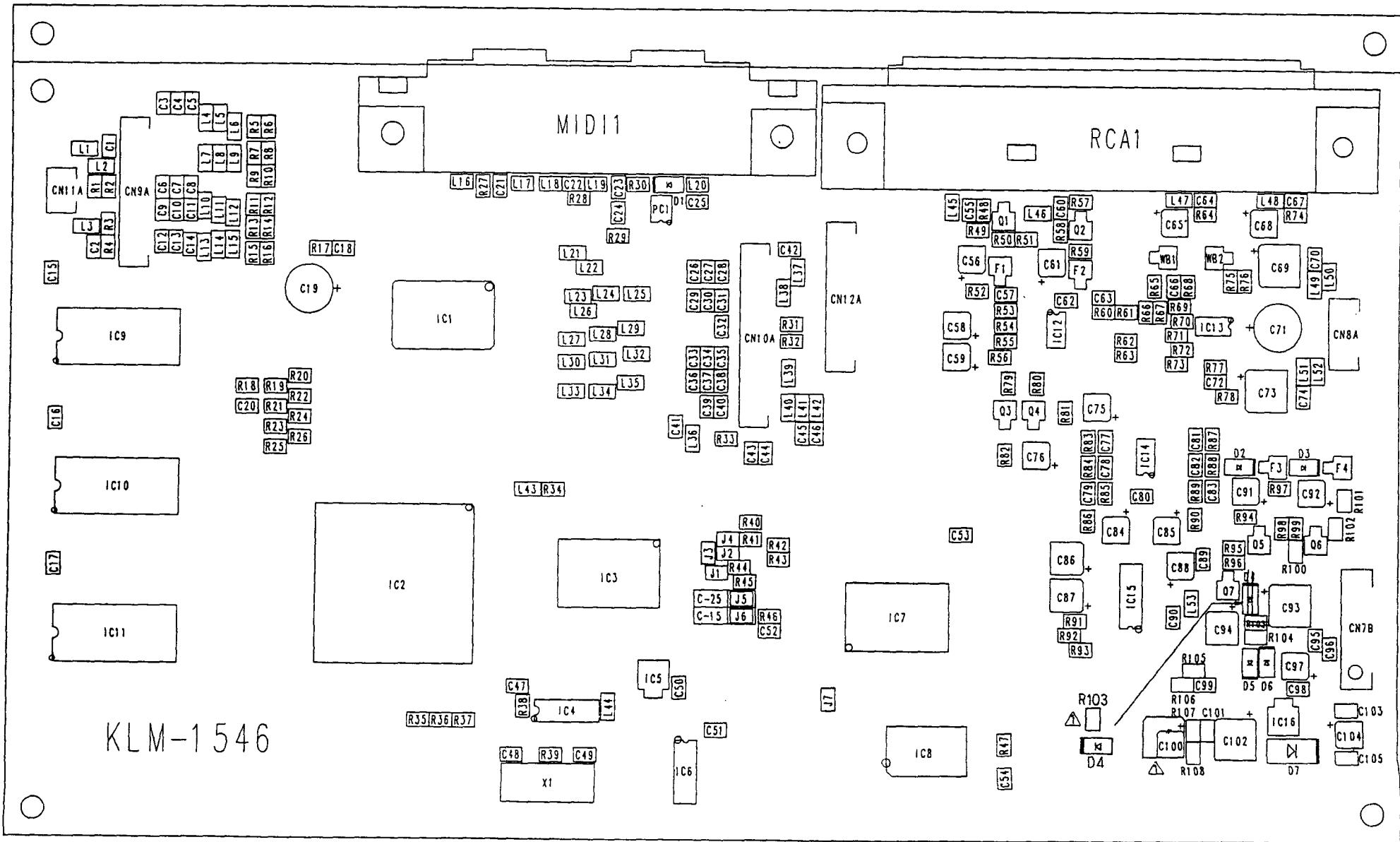


26

KLM-1569A

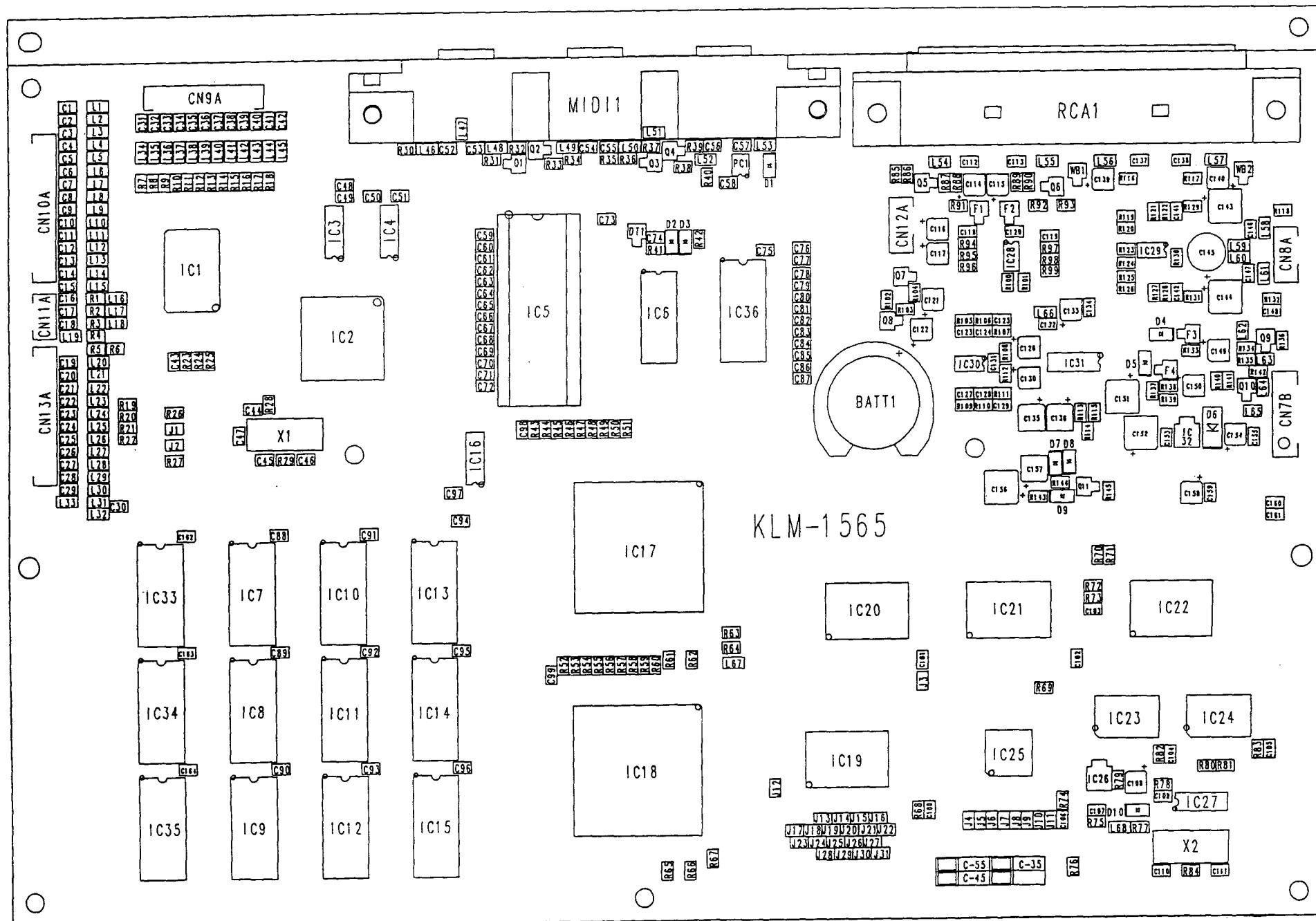


KLM-1546



KLM-1565

KLM-1565



5. DIAGNOSTIC TEST

DIAGNOSTIC TEST FOR C-15

0. «Start-up of Test Mode»

Connect a MIDI cable with the MIDI IN/OUT, power on the system while holding down both the MIDI/TRANSPOSE and PIANO switches and the test mode will start.

Once the test mode has started, an LED on the panel goes on and off in the following sequence:

MIDI/TRANSPOSE, PIANO, E.PIANO, HARPSI, VIBES, ORGAN

The operating switches on the test mode are as follows:

MIDI/TRANSPOSE: Moves from the test mode to the normal mode.

ORGAN: Returns to the last check.

PIANO: Proceeds to the next check.

1. «Internal check»

Once the test mode has started up correctly, the following checks are made automatically:

1) MAIN ROM WRITE/READ CHECK

If an error is found in this check, the PIANO LED goes on and off. Check the SYSTEM ROM (IC5).

2) WAVE ROM READ CHECK

If an error is found in this check, the MIDI/TRANSPOSE LED and the LED which relates to each IC go on and off.

IC NO.	IC9	IC11
LED NAME	PIANO	E.PIANO

3) MIDI IN/OUT CHECK

A loop test for the MIDI IN/OUT is made in this check.

If an error is found, the E.PIANO LED goes on and off.

4) TG VOICE CHECK

If a voice error in the IC17 is found, the HARPSI LED goes on and off.

2. «Checks of Panel Switch»

1) PANEL SWITCH ALL OFF CHECK

If the internal check has been completed normally, the test automatically moves to this check.

At this time, remove the MIDI cable connected to the MIDI IN/OUT.

Make sure that the LEDs of all the switches on the panel are unlit.

If any switch is set to ON, an LED for the switch lights up and the test mode stops.

2) PANEL SWITCH ON/OFF CHECK

If the PANEL SWITCH ALL OFF CHECK has been completed normally, the test moves to this check automatically.

In this check step, successively press the switches whose LEDs go on and off to check their operations.

Make sure that the MIDI/TRANSPOSE LED goes on and off, then press the MIDI/TRANSPOSE SW. And an LED for the next switch will go on and off.

The sequence of the switches to be checked is as follows:

MIDI/TRANSPOSE, PIANO, E.PIANO, HARPSI, VIBES, ORGAN

Once the HALL switch check has been completed, the test proceeds to the next check automatically.

3. «Pedal Check»

This check is made in a status that the stand pedal is connected to the product.

If this check is not required, press the PIANO switch to proceed to the next check.

1) PEDAL ALL OFF CHECK

This check is used to make sure that all the pedals are in the OFF status.

If any switch is in the OFF status, an LED lights up and then the test mode stops.

The pedals correspond to the following LEDs:

SOFT/SOSTENUTE=PIANO, DAMPER=HARPSI

2) PEDAL ON/OFF CHECK

If the PEDAL ALL OFF CHECK is over, the LEDs for the PIANO and HARPSI go on and off.

When a pedal corresponding to the LED is operated, the LED changes from the 'going on and off' to 'lighting' status. If you set the pedal to OFF, make sure that the LED goes out.

If two pedals are in the ON status simultaneously, a related LED lights up and then the test mode stops.

4. 《KEYBOARD check》

When the test moves to the KEYBOARD check, the PIANO LED will light up.

Press all the keys with moderate strength one by one from the highest KEY (C8).

The error messages in this check are as follows:

- 1) If the key stress is unfit, the VIBES LED lights up and a warning sound is issued.
- 2) If a key with a lower tone than that of the key to be checked is pressed, the PIANO LED lights up and a warning sound is issued.
- 3) If a key with a higher tone than that of the key to be checked is pressed, the ORGAN LED lights up and a warning sound is issued.

Unless the check is made correctly, the test can never proceed to the next key check. Once the all the keys have been checked, the test moves to the TG check automatically.

5. <TG check>

When the test moves to the TG check, the E.PIANO LED lights up.

- * In this check, because of a too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

In addition, if a test waveform from the headphone is checked, set the master volume at 0 once and then make this check.

The check is made by connecting an oscilloscope with the AUX OUT L/R.

- 1) If you press the A0 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L.
- 2) If you press the B0 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.
- 3) If you press the C1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES L.
- 4) If you press the D1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES R.

If an abnormal condition is found in the check, examine the IC17 and then its peripheral circuit.

If the TG check is over, press the PIANO switch to proceed to the next check.

6. <AUX IN check>

If the test moves to the AUX IN check, the HARPSI LED lights up.

The check is made by connecting an oscilloscope with the AUX OUT L/R. Connect the oscillator to the AUX IN L/R on the rear panel.

- 1) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN L on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT L is a SIN wave of 1KHz/1.2Vp-p.

- 2) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN R on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT R is a SIN wave of 1KHz/1.2Vp-p.

If the check is over, press the PIANO switch to proceed to the next check.

7. 《Residual Noise》

If the test moves to the residual noise check, the VIBES LED lights up.

The check is made by connecting a noise meter with the AUX OUT L/R and PHONE.

- 1) Make sure that the residual noise of AUX OUT L is -82dBm or less.
- 2) Make sure that the residual noise of AUX OUT R is -82dBm or less.
- 3) Make sure that the residual noise of PHONES L is -70dBm or less.
- 4) Make sure that the residual noise of PHONES R is -70dBm or less.

If the check is over, press the PIANO switch to proceed to the next check.

8. 《Speaker Check》

If the test moves to the speaker check, the ORGAN LED lights up.

- 1) Press the A0 key to make sure that the sound is heard through the middle-pass speaker L.
- 2) Press the B0 key to make sure that the sound is heard through the middle-pass speaker R.

If the check is over, press the PIANO switch to move from the test mode to the normal mode.

DIAGNOSTIC TEST FOR C-25

0. «Start-up of Test Mode»

Connect a MIDI cable with the MIDI IN/OUT, power on the system while holding down both the MIDI/TRANSPOSE and PIANO switches and the test mode will start.

Once the test mode has started, an LED on the panel goes on and off in the following sequence:

MIDI/TRANSPOSE, PIANO, E.PIANO, HARPSI, VIBES, ORGAN

The operating switches on the test mode are as follows:

MIDI/TRANSPOSE: Moves from the test mode to the normal mode.

ORGAN: Returns to the last check.

PIANO: Proceeds to the next check.

1. «Internal check»

Once the test mode has started up correctly, the following checks are made automatically:

1) MAIN ROM WRITE/READ CHECK

If an error is found in this check, the PIANO LED goes on and off. Check the SYSTEM ROM (IC5).

2) WAVE ROM READ CHECK

If an error is found in this check, the MIDI/TRANSPOSE LED and the LED which relates to each IC go on and off.

IC NO.	IC9	IC11
LED NAME	PIANO	E.PIANO

3) MIDI IN/OUT CHECK

A loop test for the MIDI IN/OUT is made in this check.

If an error is found, the E.PIANO LED goes on and off.

4) TG VOICE CHECK

If a voice error in the IC17 is found, the HARPSI LED goes on and off.

2. «Checks of Panel Switch»

1) PANEL SWITCH ALL OFF CHECK

If the internal check has been completed normally, the test automatically moves to this check.

At this time, remove the MIDI cable connected to the MIDI IN/OUT.

Make sure that the LEDs of all the switches on the panel are unlit.

If any switch is set to ON, an LED for the switch lights up and the test mode stops.

2) PANEL SWITCH ON/OFF CHECK

If the PANEL SWITCH ALL OFF CHECK has been completed normally, the test moves to this check automatically.

In this check step, successively press the switches whose LEDs go on and off to check their operations.

Make sure that the MIDI/TRANSPOSE LED goes on and off, then press the MIDI/TRANSPOSE SW. And an LED for the next switch will go on and off.

The sequence of the switches to be checked is as follows:

MIDI/TRANSPOSE, PIANO, E.PIANO, HARPSI, VIBES, ORGAN, ROOM, HALL

Once the HALL switch check has been completed, the test proceeds to the next check automatically.

3. «Pedal Check»

This check is made in a status that the stand pedal is connected to the product.

If this check is not required, press the PIANO switch to proceed to the next check.

1) PEDAL ALL OFF CHECK

This check is used to make sure that all the pedals are in the OFF status.

If any switch is in the OFF status, an LED lights up and then the test mode stops.

The pedals correspond to the following LEDs:

SOFT/SOSTENUTE=PIANO, DAMPER=E.PIANO

2) PEDAL ON/OFF CHECK

If the PEDAL ALL OFF CHECK is over, the LEDs for the PIANO and E.PIANO go on and off.

When a pedal corresponding to the LED is operated, the LED changes from the 'going on and off' to 'lighting' status. If you set the pedal to OFF, make sure that the LED goes out.

If two pedals are in the ON status simultaneously, a related LED lights up and then the test mode stops.

4. 《KEYBOARD check》

When the test moves to the KEYBOARD check, the PIANO LED will light up.

Press all the keys with moderate strength one by one from the highest KEY (C8).

The error messages in this check are as follows:

- 1) If the key stress is unfit, the VIBES LED lights up and a warning sound is issued.
- 2) If a key with a lower tone than that of the key to be checked is pressed, the PIANO LED lights up and a warning sound is issued.
- 3) If a key with a higher tone than that of the key to be checked is pressed, the ORGAN LED lights up and a warning sound is issued.

Unless the check is made correctly, the test can never proceed to the next key check. Once all the keys have been checked, the test moves to the DSP check automatically.

- 1) If you press the A0 key, make sure that a test waveform with the lower 4 bits of IC17 boosted by the DSP is output from the AUX OUT L. This waveform includes many noises because it is generated from being boosted by the DSP.

However, this is not a trouble except if the waveform is distorted extremely.

- 2) If you press the B0 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L.
- 3) If you press the C1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.
- 4) If you press the D1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES L.
- 5) If you press the E1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES R.

If an abnormal condition is found in the check, examine the IC17 and then its peripheral circuit.

If the TG check is over, press the PIANO switch to proceed to the next check.

7. «AUX IN check»

If the test moves to the AUX IN check, the VIBES LED lights up.

The check is made by connecting an oscilloscope with the AUX OUT L/R. Connect the oscillator to the AUX IN L/R on the rear panel.

- 1) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN L on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT L is a SIN wave of 1KHz/1.2Vp-p.

- 2) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN R on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT R is a SIN wave of 1KHz/1.2Vp-p.

If the check is over, press the PIANO switch to proceed to the next check.

5. <DSP check>

If the test moves to the DSP check, the E.PIANO LED lights up.

- * In this check, because of too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

This check is for the test waveform of DSP (IC22).

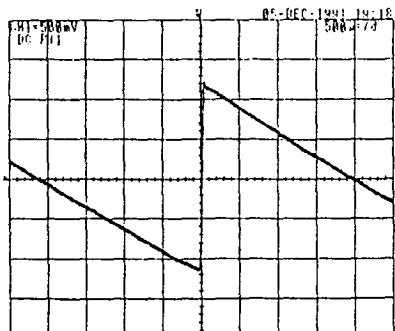
The check is made by connecting an oscilloscope with the AUX OUT L/R.

- 1) If you press the A0 key, a test waveform for the IC22 is output from the AUX OUT L.
- 2) If you press the B0 key, a test waveform for the IC22 is output from the AUX OUT R.
- 3) If you press the C1 key, a test waveform is output from the AUX OUT L/R alternatively.

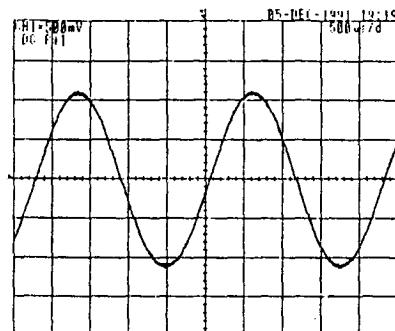
This check is made for the D_RAM of DSP.

If any abnormal condition is found in the check, examine the IC for each related item and then its peripheral circuit.

If the check is over normally, press the PIANO switch to proceed to the next check.



DSP test waveform



TG test waveform

6. <TG check>

When the test moves to the TG check, the HARPSI LED lights up.

- * In this check, because of a too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

In addition, if a test waveform from the headphone is checked, set the master volume at 0 once and then make this check.

The check is made by connecting an oscilloscope with the AUX OUT L/R.

8. 《Residual Noise》

If the test moves to the residual noise check, the ORGAN LED lights up.

The check is made by connecting a noise meter with the AUX OUT L/R and PHONE.

- 1) Make sure that the residual noise of AUX OUT L is -82dBm or less.
- 2) Make sure that the residual noise of AUX OUT R is -82dBm or less.
- 3) Make sure that the residual noise of PHONES L is -70dBm or less.
- 4) Make sure that the residual noise of PHONES R is -70dBm or less.

If the check is over, press the PIANO switch to proceed to the next check.

9. 《Speaker Check》

If the test moves to the speaker check, the ROOM LED lights up.

- 1) Press the A0 key to make sure that the sound is heard through the middle-pass speaker L.
- 2) Press the B0 key to make sure that the sound is heard through the middle-pass speaker R.

If the check is over, press the PIANO switch to move from the test mode to the normal mode.

DIAGNOSTIC TEST FOR C-35

0. «Start-up of Test Mode»

Connect a MIDI cable with the MIDI IN/OUT, power on the system while holding down both the MIDI/TRANSPOSE and SPLIT switches and the test mode will start.

Once the test mode has started, an LED on the panel goes on and off in the following sequence:

MIDI/TRANSPOSE, SPLIT, PIANO, E.PIANO, HARPSI, VIBES, ORGAN, STRINGS, ROOM, HALL, CHORUS, BRIGHT, SOFT, TRACK1(R), TRACK1(G), TRACK2(R), TRACK2(G), START/STOP, RESET, REPEAT, METRONOME

The operating switches on the test mode are as follows:

MIDI/TRANSPOSE: Moves from the test mode to the normal mode.

STRINGS: Returns to the last check.

PIANO: Proceeds to the next check.

1. «Internal check»

Once the test mode has started up correctly, the following checks are made automatically:

1) MAIN ROM WRITE/READ CHECK

If an error is found in this check, the PIANO LED goes on and off. Check the SYSTEM ROM (IC5).

2) WAVE ROM READ CHECK

If an error is found in this check, the MIDI/TRANSPOSE LED and the LED which relates to each IC go on and off.

IC NO.	IC13	IC15	IC10	IC12
LED NAME	PIANO	E.PIANO	HARPSI	VIBES

3) MIDI IN/OUT CHECK

A loop test for the MIDI IN/OUT is made in this check.

If an error is found, the E.PIANO LED goes on and off.

4) TG VOICE CHECK

If a voice error in the IC17 is found, the HARPSI LED goes on and off.

5) KSP CHECK

If an error is found in this check, the VIBES LED goes on and off.

Examine both the IC1 (M37450M4) and IC2 (UPD70325GJ-10-5BG).

2. 《Checks of Panel Switch & TEMPO VOLUME》

1) PANEL SWITCH ALL OFF CHECK

If the internal check has been completed normally, the test automatically moves to this check.

At this time, remove the MIDI cable connected to the MIDI IN/OUT.

Make sure that the LEDs of all the switches on the panel are unlit.

If any switch is set to ON, an LED for the switch lights up and the test mode stops.

2) PANEL SWITCH ON/OFF & TEMPO VOLUME CHECK

If the PANEL SWITCH ALL OFF CHECK has been completed normally, the test moves to this check automatically.

In this check step, successively press the switches whose LEDs go on and off to check their operations.

Make sure that the MIDI/TRANSPOSE LED goes on and off, then press the MIDI/TRANSPOSE SW. And an LED for the next switch will go on and off.

The sequence of the switches to be checked is as follows:

MIDI/TRANSPOSE, SPLIT, PIANO, E.PIANO, HARPSI, VIBES, ORGAN, STRINGS, ROOM, HALL, CHORUS, BRIGHT, SOFT

If the SOFT switch check is over, a green LED for the TRACK1 goes on and off automatically. Then, the test moves to the TEMPO VOLUME check.

In this check step, you can make the check with a bar-graph which is constructed with the LEDs for the MIDI/TRNSPOSE, SPLIT, E.PIANO, HARPSI, VIBES, ORGAN, and STRINGS.

Make sure that eight LEDs light up with the TEMPO VOLUME set to FAST and that they go out with it set to SLOW.

If the TEMPO VOLUME check is over and then you press the TRACK1 switch, make sure that a green LED for the TRACK2 goes on and off.

If you press the TRACK2 switch, make sure that a red LED for the TRACK1 and TRACK2 go on and off.

The sequence of the switches to be checked is as follows:

TRACK1, TRACK2, RECORD, START/STOP, RESET, REPEAT, METRONOME

Once the METRONOME switch check has been completed, the test proceeds to the next check automatically.

3. 《Pedal Check》

This check is made in a status that the stand pedal is connected to the product.

If this check is not required, press the PIANO switch to proceed to the next check.

1) PEDAL ALL OFF CHECK

This check is used to make sure that all the pedals are in the OFF status.

If any switch is in the OFF status, an LED lights up and then the test mode stops.

The pedals correspond to the following LEDs:

SOFT=ROOM, SOSTENUTE=HALL, DAMPER=CHORUS

2) PEDAL ON/OFF CHECK

If the PEDAL ALL OFF CHECK is over, the LEDs for the ROOM, HALL and CHORUS go on and off.

When a pedal corresponding to the LED is operated, the LED changes from the 'going on and off' to 'lighting' status. If you set the pedal to OFF, make sure that the LED goes out.

If two pedals or more are in the ON status simultaneously, a related LED lights up and then the test mode stops.

4. 《KEYBOARD check》

When the test moves to the KEYBOARD check, the PIANO LED will light up.

Press all the keys with moderate strength one by one from the highest KEY (C8).

The error messages in this check are as follows:

- 1) If the key stress is unfit, the VIBES LED lights up and a warning sound is issued.
- 2) If a key with a lower tone than that of the key to be checked is pressed, the PIANO LED lights up and a warning sound is issued.
- 3) If a key with a higher tone than that of the key to be checked is pressed, the STRINGS LED lights up and a warning sound is issued.

Unless the check is made correctly, the test can never proceed to the next key check. Once the all the keys have been checked, the test moves to the DSP check automatically.

5. 《DSP check》

If the test moves to the DSP check, the E.PIANO LED lights up.

- * In this check, because of too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

This check is for the test waveform of DSP (IC20, 22).

The check is made by connecting an oscilloscope with the AUX OUT L/R.

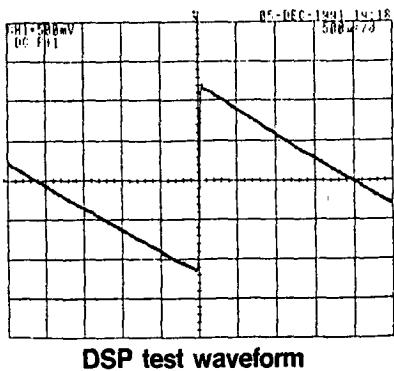
- 1) If you press the A0 key, a test waveform for the IC22 is output from the AUX OUT L.
- 2) If you press the B0 key, a test waveform for the IC22 is output from the AUX OUT R.
- 3) If you press the C1 key, a test waveform is output from the AUX OUT L/R alternatively.

This check is made for the D_RAM of DSP.

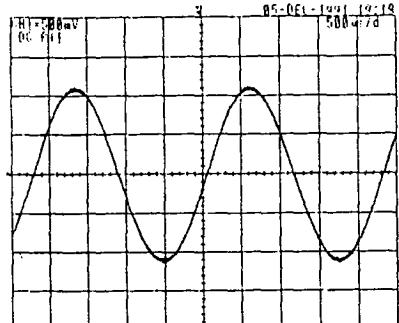
- 4) If you press the D1 key, a test waveform for the IC20 is output from the AUX OUT L. (S00)
- 5) If you press the E1 key, a test waveform for the IC20 is output from the AUX OUT R. (S00)
- 6) If you press the F1 key, a test waveform for the IC20 is output from the AUX OUT L. (S01)
- 7) If you press the G1 key, a test waveform for the IC20 is output from the AUX OUT R. (S01)

If any abnormal condition is found in the check, examine the IC for each related item and then its peripheral circuit.

If the check is over normally, press the PIANO switch to proceed to the next check.



DSP test waveform



TG test waveform

6. <TG check>

When the test moves to the TG check, the HARPSI LED lights up.

- * In this check, because of a too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

In addition, if a test waveform from the headphone is checked, set the master volume at 0 once and then make this check.

The check is made by connecting an oscilloscope with the AUX OUT L/R.

- 1) If you press the A0 key, make sure that a test waveform with the lower 4 bits of IC17 boosted by the DSP is output from the AUX OUT L. This waveform includes many noises because it is generated from being boosted by the DSP.
However, this is not a trouble except that the waveform is distorted extremely.
- 2) If you press the B0 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L.
- 3) If you press the C1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.
- 4) If you press the D1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES L.
- 5) If you press the E1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES R.

If an abnormal condition is found in the check, examine the IC17 and then its peripheral circuit.

If the TG check is over, press the PIANO switch to proceed to the next check.

7. «AUX IN check»

If the test moves to the AUX IN check, the VIBES LED lights up.

The check is made by connecting an oscilloscope with the AUX OUT L/R. Connect the oscillator to the AUX IN L/R on the rear panel.

- 1) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN L on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT L is a SIN wave of 1KHz/1.2Vp-p.

- 2) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN R on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT R is a SIN wave of 1KHz/1.2Vp-p.

If the check is over, press the PIANO switch to proceed to the next check.

8. 《Residual Noise》

If the test moves to the residual noise check, the ORGAN LED lights up.

The check is made by connecting a noise meter with the AUX OUT L/R and PHONE.

- 1) Make sure that the residual noise of AUX OUT L is -82dBm or less.
- 2) Make sure that the residual noise of AUX OUT R is -82dBm or less.
- 3) Make sure that the residual noise of PHONES L is -70dBm or less.
- 4) Make sure that the residual noise of PHONES R is -70dBm or less.

If the check is over, press the PIANO switch to proceed to the next check.

9. 《Speaker Check》

If the test moves to the speaker check, the STRINGS LED lights up.

- 1) Press the A0 key to make sure that the sound is heard through the middle-pass speaker L.
- 2) Press the B0 key to make sure that the sound is heard through the middle-pass speaker R.

If the check is over, press the PIANO switch to move from the test mode to the normal mode.

DIAGNOSTIC TEST FOR C-45

0. «Start-up of Test Mode»

Connect a MIDI cable with the MIDI IN/OUT, power on the system while holding down both the MIDI/TRANSPOSE and SPLIT switches and the test mode will start.

Once the test mode has started, an LED on the panel goes on and off in the following sequence:

SPLIT, MIDI/TRANSPOSE, PIANOI, ROOM, PIANOII, STAGE, E.PIANOI, HALL, E.PIANOII, ECHO, HARPSI, TREMOLO, VIBES, CHORUS, B/G/D, BRIGHT, ORGANI, SOFT, ORGANII, STRINGS, METRONOME, TRACK1(R), TRACK1(G), START/STOP, TRACK2(R), TRACK2(G), RESET, REPEAT

The operating switches on the test mode are as follows:

MIDI/TRANSPOSE: Moves from the test mode to the normal mode.

STRINGS: Returns to the last check.

PIANOI: Proceeds to the next check.

1. «Internal check»

Once the test mode has started up correctly, the following checks are made automatically:

1) MAIN ROM WRITE/READ CHECK

If an error is found in this check, the PIANOI LED goes on and off. Check the SYSTEM ROM (IC5).

2) WAVE ROM READ CHECK

If an error is found in this check, the MIDI/TRANSPOSE LED and the LED which relates to each IC go on and off.

IC NO.	IC13	IC15	IC10	IC12	IC7	IC9
LED NAME	PIANOI	PIANOII	E.PIANOI	E.PIANOII	HARPSI	VIBES

3) MIDI IN/OUT CHECK

A loop test for the MIDI IN/OUT is made in this check.

If an error is found, the PIANOII LED goes on and off.

4) TG VOICE CHECK

If a voice error in the IC17 is found, the E.PIANOI LED goes on and off.

5) KSP CHECK

If an error is found in this check, the HARPSI LED goes on and off.
Examine both the IC1 (M37450M4) and IC2 (UPD70325GJ-10-5BG).

2. <<Checks of Panel Switch & TEMPO VOLUME>>

1) PANEL SWITCH ALL OFF CHECK

If the internal check has been completed normally, the test automatically moves to this check.

At this time, remove the MIDI cable connected to the MIDI IN/OUT.

Make sure that the LEDs of all the switches on the panel are unlit.

If any switch is set to ON, an LED for the switch lights up and the test mode stops.

2) PANEL SWITCH ON/OFF & TEMPO VOLUME CHECK

If the PANEL SWITCH ALL OFF CHECK has been completed normally, the test moves to this check automatically.

In this check step, successively press the switches whose LEDs go on and off to check their operations.

Make sure that the MIDI/TRANSPOSE LED goes on and off, then press the MIDI/TRANSPOSE SW. And an LED for the next switch will go on and off.

The sequence of the switches to be checked is as follows:

MIDI/TRANSPOSE, ROOM, STAGE, HALL, ECHO, TREMOLO, CHORUS, BRIGHT, SOFT, SPLIT, PIANOI, PIANOII, E.PIANOI, E.PIANOII, HARPSI, VIBES, B/G/D, ORGANI, ORGANII, STRINGS

If the STRINGS switch check is over, an LED for the METRONOME goes on and off automatically. Then, the test moves to the TEMPO VOLUME check.

In this check step, you can make the check with a bar-graph which is constructed with the LEDs for the ROOM, STAGE, HALL, ECHO, TREMOLO, CHORUS, BRIGHT and SOFT.

Make sure that eight LEDs light up with the TEMPO VOLUME set to FAST and that they go out with it set to SLOW.

If the TEMPO VOLUME check is over and then you press the METRONOME switch, make sure that a green LED for the TRACK1 goes on and off.

If you press the TRACK1 switch, make sure that a green LED for the TRACK2 goes on and off.

The sequence of the switches to be checked is as follows:

METRONOME, TRACK1, TRACK2, REPEAT, RECORD, START/STOP, RESET

Once the RESET switch check has been completed, the test proceeds to the next check automatically.

3. 《Pedal Check》

This check is made in a status that the stand pedal is connected to the product.

If this check is not required, press the PIANO1 switch to proceed to the next check.

1) PEDAL ALL OFF CHECK

This check is used to make sure that all the pedals are in the OFF status.

If any switch is in the OFF status, an LED lights up and then the test mode stops.

The pedals correspond to the following LEDs:

SOFT=ROOM, SOSTENUTE=STAGE, DAMPER=HALL

2) PEDAL ON/OFF CHECK

If the PEDAL ALL OFF CHECK is over, the LEDs for the ROOM, STAGE and HALL go on and off.

When a pedal corresponding to the LED is operated, the LED changes from the 'going on and off' to 'lighting' status. If you set the pedal to OFF, make sure that the LED goes out.

If two pedals or more are in the ON status simultaneously, a related LED lights up and then the test mode stops.

4. 《KEYBOARD check》

When the test moves to the KEYBOARD check, the ROOM LED will light up.

Press all the keys with moderate strength one by one from the highest KEY (C8).

The error messages in this check are as follows:

- 1) If the key stress is unfit, the VIBES LED lights up and a warning sound is issued.
- 2) If a key with a lower tone than that of the key to be checked is pressed, the PIANO1 LED lights up and a warning sound is issued.
- 3) If a key with a higher tone than that of the key to be checked is pressed, the STRINGS LED lights up and a warning sound is issued.

Unless the check is made correctly, the test can never proceed to the next key check. Once all the keys have been checked, the test moves to the DSP check automatically.

5. 《DSP check》

If the test moves to the DSP check, the STAGE LED lights up.

- * In this check, because of too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

This check is for the test waveform of DSP (IC20, 21, 22).

The check is made by connecting an oscilloscope with the AUX OUT L/R.

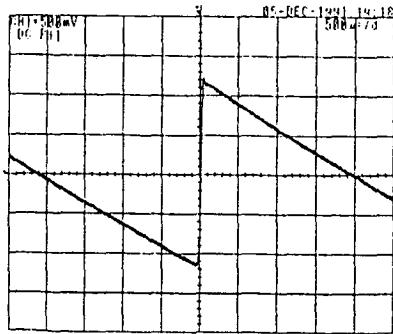
- 1) If you press the A0 key, a test waveform for the IC22 is output from the AUX OUT L.
- 2) If you press the B0 key, a test waveform for the IC22 is output from the AUX OUT R.
- 3) If you press the C1 key, a test waveform is output from the AUX OUT L/R alternatively.

This check is made for the D_RAM of DSP.

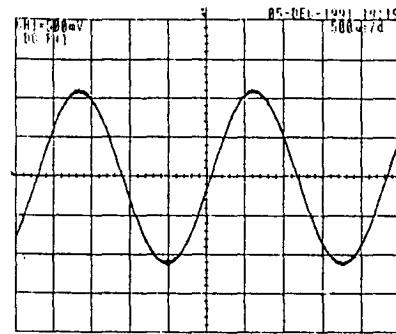
- 4) If you press the D1 key, a test waveform for the IC20 is output from the AUX OUT L. (S00)
- 5) If you press the E1 key, a test waveform for the IC20 is output from the AUX OUT R. (S00)
- 6) If you press the F1 key, a test waveform for the IC20 is output from the AUX OUT L. (S01)
- 7) If you press the G1 key, a test waveform for the IC20 is output from the AUX OUT R. (S01)

If any abnormal condition is found in the check, examine the IC for each related item and then its peripheral circuit.

If the check is over normally, press the PIANO1 switch to proceed to the next check.



DSP test waveform



TG test waveform

6. «TG check»

When the test moves to the TG check, the HALL LED lights up.

- * In this check, because of a too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

In addition, if a test waveform from the headphone is checked, set the master volume at 0 once and then make this check.

The check is made by connecting an oscilloscope with the AUX OUT L/R.

- 1) If you press the A0 key, make sure that a test waveform with the lower 4 bits of IC17 boosted by the DSP is output from the AUX OUT L. This waveform includes many noises because it is generated from being boosted by the DSP.
However, this is not a trouble except that the waveform is distorted extremely.
- 2) If you press the B0 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L.
- 3) If you press the C1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.
- 4) If you press the D1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES L.
- 5) If you press the E1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES R.

If an abnormal condition is found in the check, examine the IC17 and then its peripheral circuit.

If the TG check is over, press the PIANOI switch to proceed to the next check.

7. <AUX IN check>

If the test moves to the AUX IN check, the ECHO LED lights up.

The check is made by connecting an oscilloscope with the AUX OUT L/R. Connect the oscillator to the AUX IN L/R on the rear panel.

- 1) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN L on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT L is a SIN wave of 1KHz/1.2Vp-p.

- 2) Input a SIN wave of 1KHz/0.6Vp-p to the AUX IN R on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT R is a SIN wave of 1KHz/1.2Vp-p.

If the check is over, press the PIANOI switch to proceed to the next check.

8. <Residual Noise>

If the test moves to the residual noise check, the TREMOLO LED lights up.

The check is made by connecting a noise meter with the AUX OUT L/R and PHONE.

- 1) Make sure that the residual noise of AUX OUT L is -82dBm or less.
- 2) Make sure that the residual noise of AUX OUT R is -82dBm or less.
- 3) Make sure that the residual noise of PHONES L is -70dBm or less.
- 4) Make sure that the residual noise of PHONES R is -70dBm or less.

If the check is over, press the PIANO! switch to proceed to the next check.

9. <Speaker Check>

If the test moves to the speaker check, the CHORUS LED lights up.

- 1) Press the A0 key to make sure that the sound is heard through the middle-pass speaker L.
- 2) Press the B0 key to make sure that the sound is heard through the middle-pass speaker R.

If the check is over, press the PIANO! switch to move from the test mode to the normal mode.

DIAGNOSTIC TEST FOR C-55

0. «Start-up of Test Mode»

Connect a MIDI cable with the MIDI IN/OUT, power on the system while holding down both the MIDI/TRANSPOSE and SPLIT switches and the test mode will start.

Once the test mode has started, an LED on the panel goes on and off in the following sequence:

SPLIT, MIDI/TRANSPOSE, PIANOI, ROOM, PIANOII, STAGE, E.PIANOI, HALL, E.PIANOII, ECHO, HARPSI, TREMOLO, VIBES, CHORUS, B/G/D, BRIGHT, ORGANI, SOFT, ORGANII, STRINGS, METRONOME, TRACK1(R), TRACK1(G), START/STOP, TRACK2(R), TRACK2(G), RESET, REPEAT

The operating switches on the test mode are as follows:

MIDI/TRANSPOSE: Moves from the test mode to the normal mode.

STRINGS: Returns to the last check.

PIANOI: Proceeds to the next check.

1. «Internal check»

Once the test mode has started up correctly, the following checks are made automatically:

1) MAIN ROM WRITE/READ CHECK

If an error is found in this check, the PIANOI LED goes on and off. Check the SYSTEM ROM (IC5).

2) WAVE ROM READ CHECK

If an error is found in this check, the MIDI/TRANSPOSE LED and the LED which relates to each IC go on and off.

IC NO.	IC13	IC15	IC10	IC12	IC7	IC9
LED NAME	PIANOI	PIANOII	E.PIANOI	E.PIANOII	HARPSI	VIBES

3) MIDI IN/OUT CHECK

A loop test for the MIDI IN/OUT is made in this check.

If an error is found, the PIANOII LED goes on and off.

4) TG VOICE CHECK

If a voice error in the IC17 is found, the E.PIANOI LED goes on and off.

If a voice error in the IC18 is found, the E.PIANOII LED goes on and off.

5) KSP CHECK

If an error is found in this check, the HARPSI LED goes on and off.

Examine both the IC1 (M37450M4) and IC2 (UPD70325GJ-10-5BG).

2. 《Checks of Panel Switch & TEMPO VOLUME》

1) PANEL SWITCH ALL OFF CHECK

If the internal check has been completed normally, the test automatically moves to this check.

At this time, remove the MIDI cable connected to the MIDI IN/OUT.

Make sure that the LEDs of all the switches on the panel are unlit.

If any switch is set to ON, an LED for the switch lights up and the test mode stops.

2) PANEL SWITCH ON/OFF & TEMPO VOLUME CHECK

If the PANEL SWITCH ALL OFF CHECK has been completed normally, the test moves to this check automatically.

In this check step, successively press the switches whose LEDs go on and off to check their operations.

Make sure that the MIDI/TRANSPOSE LED goes on and off, then press the MIDI/TRANSPOSE SW. And an LED for the next switch will go on and off.

The sequence of the switches to be checked is as follows:

MIDI/TRANSPOSE, ROOM, STAGE, HALL, ECHO, TREMOLO, CHORUS, BRIGHT, SOFT, SPLIT, PIANOI, PIANOII, E.PIANOII, E.PIANOII, HARPSI, VIBES, B/G/D, ORGANI, ORGANII, STRINGS

If the STRINGS switch check is over, an LED for the METRONOME goes on and off automatically. Then, the test moves to the TEMPO VOLUME check.

In this check step, you can make the check with a bar-graph which is constructed with the LEDs for the ROOM, STAGE, HALL, ECHO, TREMOLO, CHORUS, BRIGHT and SOFT.

Make sure that eight LEDs light up with the TEMPO VOLUME set to FAST and that they go out with it set to SLOW.

If the TEMPO VOLUME check is over and then you press the METRONOME switch, make sure that a green LED for the TRACK1 goes on and off.

If you press the TRACK1 switch, make sure that a green LED for the TRACK2 goes on and off.

The sequence of the switches to be checked is as follows:

METRONOME, TRACK1, TRACK2, REPEAT, RECORD, START/STOP, RESET

Once the RESET switch check has been completed, the test proceeds to the next check automatically.

3. «Pedal Check»

This check is made in a status that the stand pedal is connected to the product.

If this check is not required, press the PIANOI switch to proceed to the next check.

1) PEDAL ALL OFF CHECK

This check is used to make sure that all the pedals are in the OFF status.

If any switch is in the OFF status, an LED lights up and then the test mode stops.

The pedals correspond to the following LEDs:

SOF~~T~~=ROOM, SOSTENUTE=STAGE, DAMPER=HALL

2) PEDAL ON/OFF CHECK

If the PEDAL ALL OFF CHECK is over, the LEDs for the ROOM, STAGE and HALL go on and off.

When a pedal corresponding to the LED is operated, the LED changes from the 'going on and off' to 'lighting' status. If you set the pedal to OFF, make sure that the LED goes out.

If two pedals or more are in the ON status simultaneously, a related LED lights up and then the test mode stops.

4. «KEYBOARD check»

When the test moves to the KEYBOARD check, the ROOM LED will light up.

Press all the keys with moderate strength one by one from the highest KEY (C8).

The error messages in this check are as follows:

- 1) If the key stress is unfit, the VIBES LED lights up and a warning sound is issued.
- 2) If a key with a lower tone than that of the key to be checked is pressed, the PIANO1 LED lights up and a warning sound is issued.
- 3) If a key with a higher tone than that of the key to be checked is pressed, the STRINGS LED lights up and a warning sound is issued.

Unless the check is made correctly, the test can never proceed to the next key check. Once the all the keys have been checked, the test moves to the DSP check automatically.

5. «DSP check»

If the test moves to the DSP check, the STAGE LED lights up.

- * In this check, because of too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

This check is for the test waveform of DSP (IC20, 21, 22).

The check is made by connecting an oscilloscope with the AUX OUT L/R.

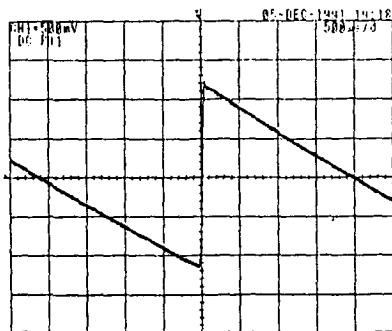
- 1) If you press the A0 key, a test waveform for the IC22 is output from the AUX OUT L.
- 2) If you press the B0 key, a test waveform for the IC22 is output from the AUX OUT R.
- 3) If you press the C1 key, a test waveform is output from the AUX OUT L/R alternatively.

This check is made for the D_RAM of DSP.

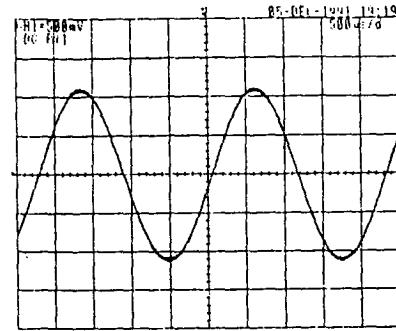
- 4) If you press the D1 key, a test waveform for the IC21 is output from the AUX OUT L. (S00)
- 5) If you press the E1 key, a test waveform for the IC21 is output from the AUX OUT R. (S00)
- 6) If you press the F1 key, a test waveform for the IC21 is output from the AUX OUT L. (S01)
- 7) If you press the G1 key, a test waveform for the IC21 is output from the AUX OUT R. (S01)
- 8) If you press the A1 key, a test waveform for the IC20 is output from the AUX OUT L. (S00)
- 9) If you press the B1 key, a test waveform for the IC20 is output from the AUX OUT R. (S00)

If any abnormal condition is found in the check, examine the IC for each related item and then its peripheral circuit.

If the check is over normally, press the PIANO1 switch to proceed to the next check.



DSP test waveform



TG test waveform

6. <TG check>

When the test moves to the TG check, the HALL LED lights up.

- * In this check, because of a too large test waveform output, be sure to start the check after inserting a plug for muting into the headphone jack to prevent any sound from being produced through the speakers.

In addition, if a test waveform from the headphone is checked, set the master volume at 0 once and then make this check.

The check is made by connecting an oscilloscope with the AUX OUT L/R.

- 1) If you press the A0 key, make sure that a test waveform with the lower 4 bits of IC17 boosted by the DSP is output from the AUX OUT L. This waveform includes many noises because it is generated from being boosted by the DSP.

However, this is not a trouble except that the waveform is distorted extremely.

- 2) If you press the B0 key, make sure that a test waveform with the lower 4 bits of IC18 boosted by the DSP is output from the AUX OUT L. This waveform includes many noises because it is generated from being boosted by the DSP.

However, it is not a trouble except if the waveform is distorted extremely.

- 3) If you press the C1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L.

- 4) If you press the D1 key, make sure that a test waveform for the IC18 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.

- 5) If you press the E1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L and that for the IC18 (880Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.

- 6) If you press the F1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/2.3Vp-p) is output from the AUX OUT L and that for the IC18 (880Hz SIN wave/2.3Vp-p) is output from the AUX OUT R.

- 7) If you press the G1 key, make sure that a test waveform for the IC17 (440Hz SIN wave/10.8Vp-p) is output from the PHONES L.

- 8) If you press the A1 key, make sure that a test waveform for the IC18 (440Hz SIN wave/10.8Vp-p) is output from the PHONES R.

If an abnormal condition is found in the check, examine the IC17 and IC18 and then their peripheral circuits.

If the TG check is over, press the PIANOI switch to proceed to the next check.

7. 《AUX IN check》

If the test moves to the AUX IN check, the ECHO LED lights up.

The check is made by connecting an oscilloscope with the AUX OUT L/R. Connect the oscillator to the AUX IN L/R on the rear panel.

1) Input a SIN wave of 1KHz/0.6p-p to the AUX IN L on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT L is a SIN wave of 1KHz/1.2V.

2) Input a SIN wave of 1KHz/0.6p-p to the AUX IN R on the rear panel.

At this time, make sure that the waveform which is output to the AUX OUT R is a SIN wave of 1KHz/1.2Vp-p.

If the check is over, press the PIANOI switch to proceed to the next check.

8. 《Residual Noise》

If the test moves to the residual noise check, the TREMOLO LED lights up.

The check is made by connecting a noise meter with the AUX OUT L/R and PHONE.

1) Make sure that the residual noise of AUX OUT L is -82dBm or less.

2) Make sure that the residual noise of AUX OUT R is -82dBm or less.

3) Make sure that the residual noise of PHONES L is -70dBm or less.

4) Make sure that the residual noise of PHONES R is -70dBm or less.

If the check is over, press the PIANOI switch to proceed to the next check.

9. 《Speaker Check》

If the test moves to the speaker check, the CHORUS LED lights up.

- 1) Press the A0 key to make sure that the sound is heard through the middle-pass speaker L.
- 2) Press the B0 key to make sure that the sound is heard through the middle-pass speaker R.
- 3) Press the C1 key to make sure that the sound is heard through the high-pass speaker L.
- 4) Press the D1 key to make sure that the sound is heard through the high-pass speaker R.
- 5) Press the E1 key to make sure that a sound is heard through the low-pass speaker.

If the check is over, press the PIANO1 switch to move from the test mode to the normal mode.

6. HARDWARE SPECIFICATIONS

MAIN ICs FOR C-15/25

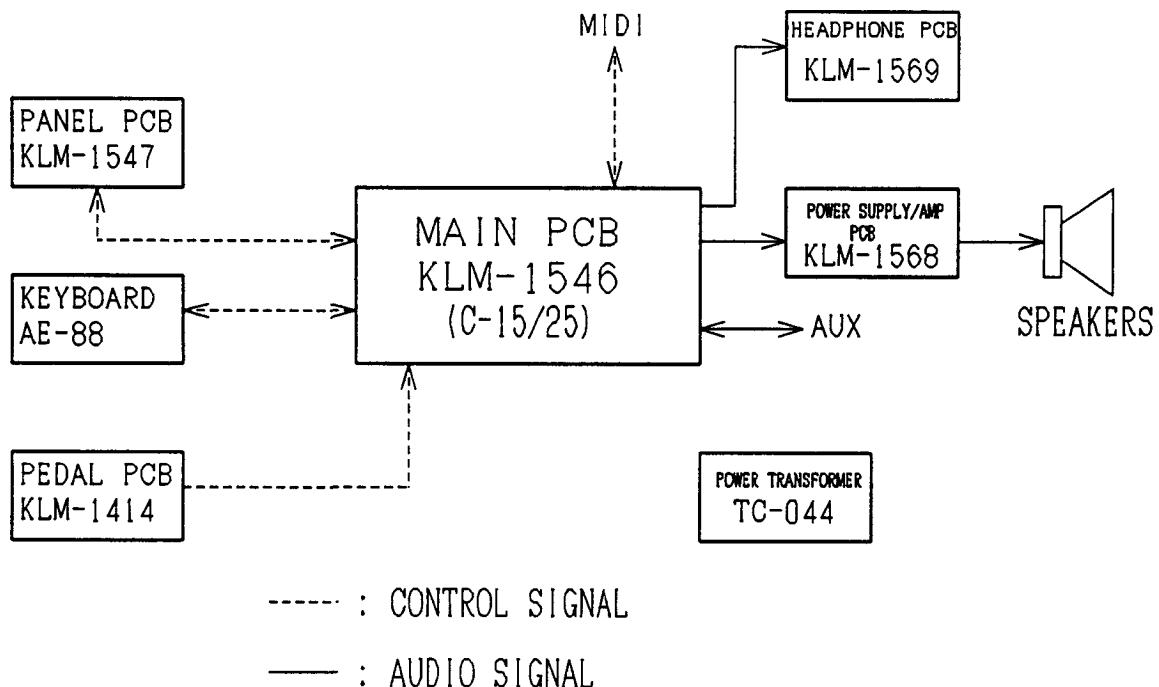
CPU : M37000M4A-186FP
TG88 : MB87726PF..... Tone Generator
PSC91A : μ PD65012GF-A87-3B9.... Parallel to Serial Converter
DSP : TMS57002PH (C-25)..... Digital Signal Processor
DAC : μ PD6376GS-E2..... Digital to Analog Converter
WAVE ROM : μ PD27C8001 EGW-382
 -383
 -384

MAIN ICs FOR C-35/45/55

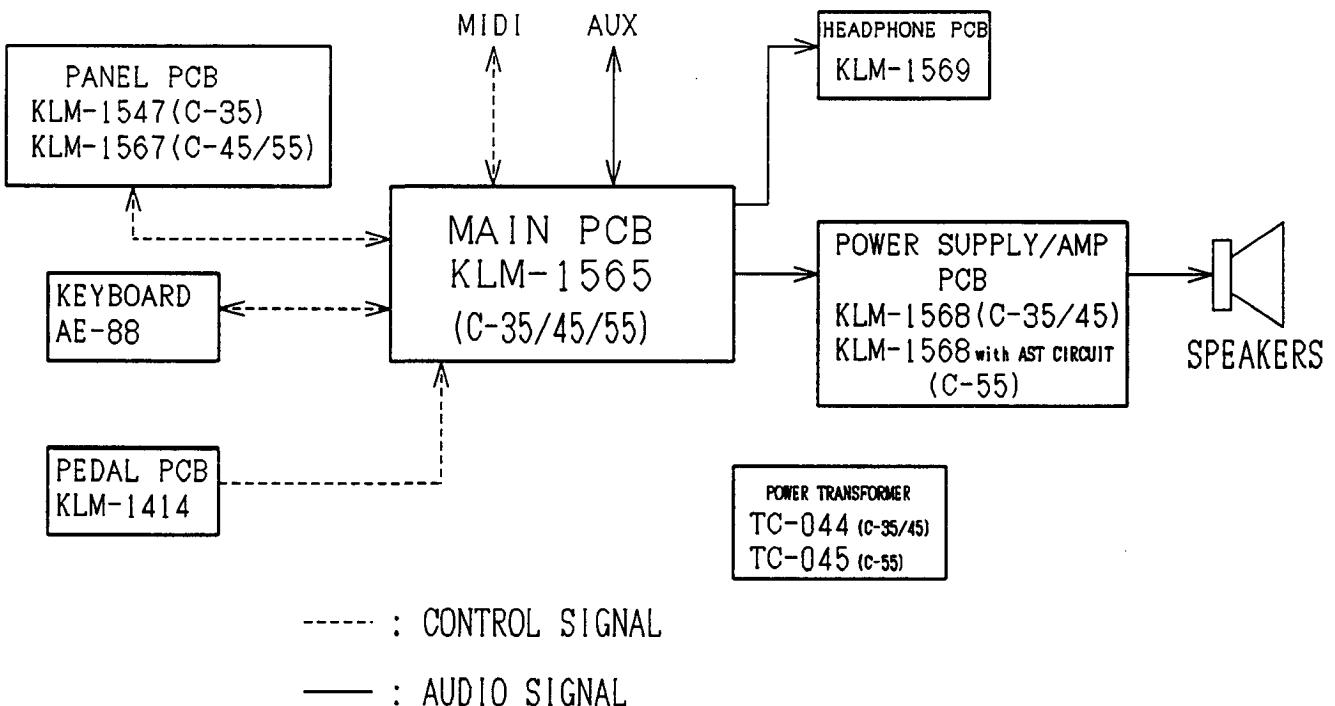
MAIN CPU : UPD70325GJ-10(V25)
SUB CPU : M37450M4-616FP(KSP3)... Key Scan Processor
 (or 601FP, 233FP)
TG88 : MB87726FP..... Tone Generator
INS91 : UPD65012GF-A88..... TG-DSP Interface
DNS91 : MB606E50..... Digital Noise Shaper
DSP : TMS57002PH..... Digital Signal Processor
DAC : UPD63200(C-55)..... Digital to Analog Converter
 UPD6376 (C-35/45)..... Digital to Analog Converter
WAVE ROM : UPD23C8001EGW-371~376
 LH5381E0~E2

Product Name	WAVE ROM
C-35	UPD23C8001EGW-371~376(8M x 6)
C-45/55	UPD23C8001EGW-371~376(8M x 6) LH5381E0~E2(8M x 3)

HARDWARE SPECIFICATIONS FOR C-15/25



HARDWARE SPECIFICATIONS FOR C-35/45/55



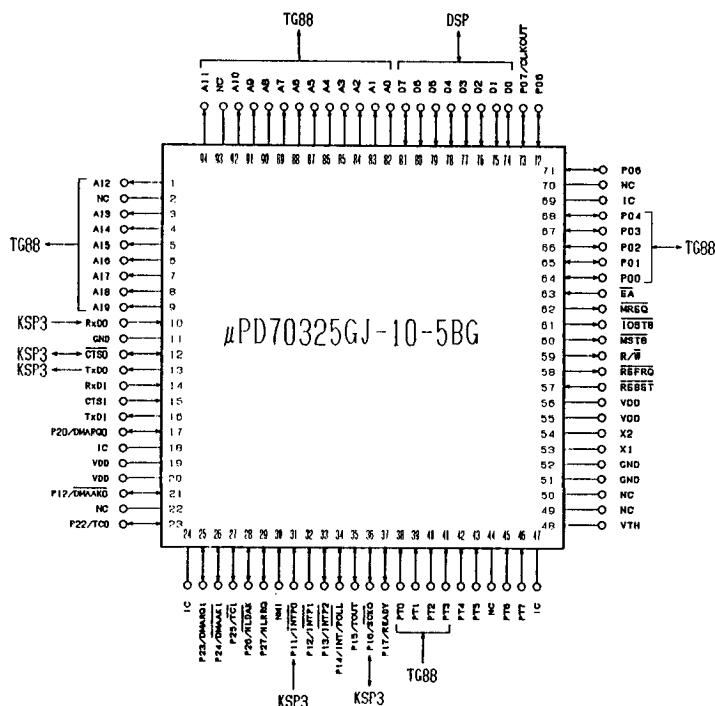
QUICK TABLE OF THE BOARD CONFIGURATION BY TYPES

PRODUCTS	MAIN PCB	PANEL PCB	HEADPHONE PCB	POWER SUPPLY / AMP PCB
C-15	KLM-1546 (001154600) TG : TG88 x 1 WAVE_ROM : UPD23C8001 x 3 (EGW-382~384) DAC : UPD6376GS-E2 DSP : NO MOUNTED	KLM-1547 (001154700) SW : 6 PCS. (with LED)	KLM-1569 (001156902)	KLM-1568 (001156802) NO AST CIRCUIT HEAT SINK (SMALL)
C-25	KLM-1546 (001154601) TG : TG88 x 1 WAVE_ROM : UPD23C8001 x 3 (EGW-382~384) DAC : UPD6376GS-E2 DSP : TMS57002PH x 1	KLM-1547 (001154701) SW : 8 PCS. (with LED)	KLM-1569 (001156902)	KLM-1568 (001156802) NO AST CIRCUIT HEAT SINK (SMALL)
C-35	KLM-1565 (001156500) TG : TG88 x 1 WAVE_ROM : UPD23C8001 x 6 (EGW-371~376) DAC : UPD6376GS-E2 DSP : TMS57002PH x 2	KLM-1566 (001156600) SW : 17 PCS. (with LED) : 3 PCS.	KLM-1569 (001156900)	KLM-1568 (001156800) NO AST CIRCUIT HAET SINK (SMALL)
C-45	KLM-1565 (001156501) TG : TG88 x 1 WAVE_ROM : UPD23C8001 x 6 (EGW-371~376) LH5381E x 3 (E0~E2) DAC : UPD6376GS-E2 DSP : TSM57002PH x 2	KLM-1567 (001156700) SW : 24 PCS. (with LED) : 3 PCS.	KLM-1569 (001156900)	KLM-1568 (001156803) NO AST CIRCUIT HEAT SINK (SMALL) ※The constants for an AMP circuit are different in the C-15, C-25 and C-35.
C-55	KLM-1565 (001156502) TG : TG88 x 2 WAVE_ROM : UPD23C8001 x 6 (EGW-371~376) LH5381E x 3 (E0~E2) DAC : UPD63200GS-E2 DSP : TSM57002PH x 3	KLM-1567 (001156700) SW : 24 PCS. (with LED) : 3 PCS.	KLM-1569 (001156900)	KLM-1568 (001156801) AST CIRCUIT HEAT SINK (LARGE)

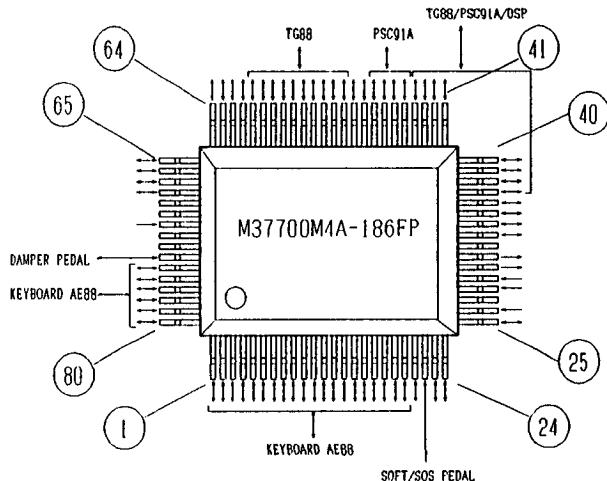
※ TG88 : MB87726 WAVE_ROM : UPD23C8001EGW (8M), LH5381E (8M) () : PART CODE

7. REFERENCE DATA

CPU (μ PD70325) PIN ASSIGNMENT



CPU (M37700M4-186FP) PIN ASSIGNMENT



CPU (M37700M4-186FP) PIN FUNCTION

PIN MARK	PIN NAME	I/O	PIN MARK	PIN NAME	I/O
VCC, VSS	POWER SUPPLY	---	P00-P07	I/O PORT P0	I/O
CNVSS	CNVSS	I	P10-P17	I/O PORT P1	I/O
RESET	RESET IN	I	P20-P27	I/O PORT P2	I/O
XIN	CLOCK IN	I	P30-P37	I/O PORT P3	I/O
XOUT	CLOCK OUT	O	P40-P47	I/O PORT P4	I/O
E	ENABLE OUT	O	P50-P57	I/O PORT P5	I/O
BYTE		I	P60-P67	I/O PORT P6	I/O
AVCC, AVSS	ANALOG VCC	---	P70-P77	I/O PORT P7	I/O
	ANALOG VSS	---	P80-P87	I/O PORT P8	I/O
VREF	REFERENCE VOLT.	I			

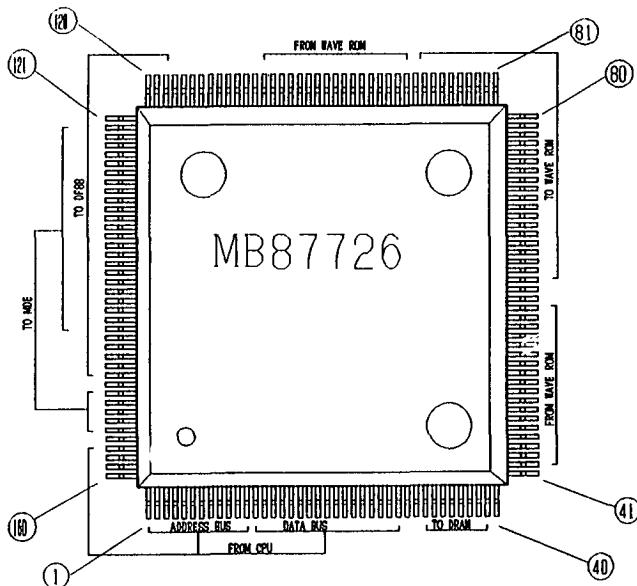
CPU (μ PD70325) PIN FUNCTION

MARK	I/O	FUNCTION
P00-P06	I/O	I/O port for SW SCAN
P07	I/O	I/O port (NC)
NMI	I	Non maskable interrupt request
INTPO	I	Interrupt request
P12	I	MODE
P13	I	MODE
P14	O	Output port for MUTE
P15	O	Output port for sub CPU
P16	O	Output port for
P17	I/O	I/O port (NC)
P20-27	I/O	I/O port for
PT0-PT7	I	Input port
IOSTB	O	I/O strobe
MREQ	O	Memory request
DO-D7	I/O	8_bit data bus
AO-A19	O	20_bit address bus
RXD0	I	Serial data input for
RXD1	I	Serial data input for
CTS0	I/O	CTS input
CTS1	I	CST input
TXD0	O	Serial data output
TXD1	O	Serial data output
SCK0	O	Serial clock output
X1,X2	---	System clock terminal
RESET	I	Reset signal input
REFRQ	O	Refresh pulse output
R/W	O	Read/Write strobe
MSTB	O	Memory strobe
VTH	I	Reference voltage input
VDD	---	Power supply (+)
GND	---	Ground
IC	---	Internal connector
EA	---	External memory access

TG88 (MB87726FP)

The TG88 is a tone generator IC. The sound source of TG88 should be connected with an external wave memory IC. In addition, the total voice of this IC is regarded as 32 voices. However, in case of the C-series, the total voice is 16 voices, since 2 oscillators are cross-fade to be 1 voice. In case of the C-55, its total voice becomes 32 voices since two TG88s are available.

TG88 (MB87726FP) PIN ASSIGNMENT



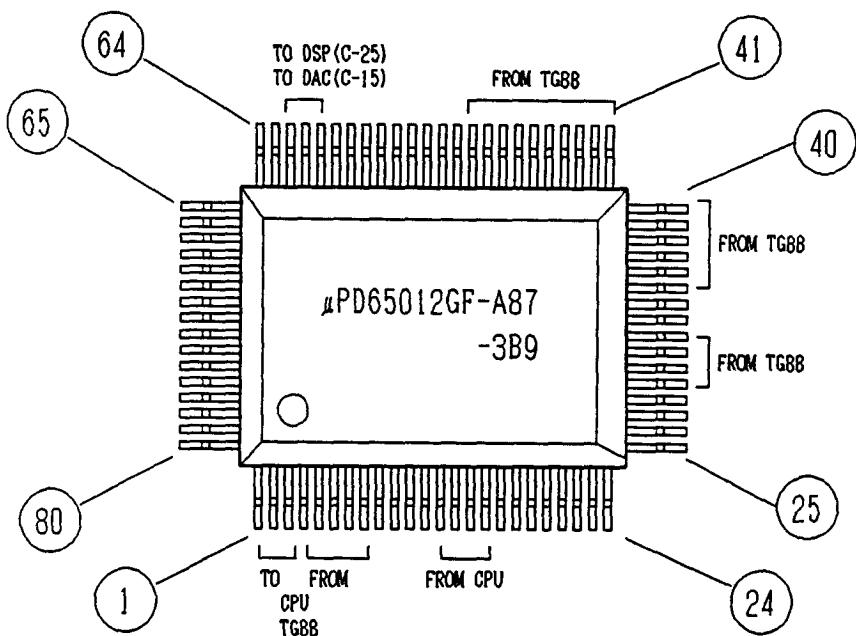
TG88 (MB87726FP) PIN FUNCTION

PIN NAME	I/O	FUNCTION
VDD	-	+5V
VSS	-	GND
SMODE	I	Sub TG Mode (H:Sub TG L:Master TG)
FMODE	I	Sampling Rate Switch (H:48KHz L:30KHz)
XRESET	I	Low Active Initial Clear
CLK	I	Master Clock
XCRO	O	System Counter Reset for Sub TG Chip
XCRI	I	System Counter Reset from Master TG Chip
TEST0-3	I	Test Mode Selector
XCSI	I	Chip Select
XWRI	I	Write Pulse Input from CPU
XRDI	I	Read Pulse Input from CPU
A0-9	I	Address Input from CPU
D0-7	I/O	Data Input from CPU
D8-15	I/O	Data Input for 16bit Data Bus
DMODE	I	CPU I/F Data Bus Sysize Select (L:8bit H:16bit)
EWDO-15	I	Even-address Wave Data In (from Wave ROM)
OWDO-15	I	Odd-address Wave Data In (from Wave ROM)
WA0-19	O	Address Bus for Wave ROM or RAM
WB0-3	O	Bank Number Out for Wave ROM (16 Banks)
ODO-19	O	Voice Data Out for External Filters or MDE
VNO-4	O	Voice Number Out
RASO-3	O	for D-RAM
CASO-3	O	for D-RAM
OWEO-3	O	Write Enable for MDE
OWEF	O	Write Enable for New Filter Chip (MB87727)

PSC91A (μ PD65012GF-A87-3B9)

The PSC91A is a CPU interface IC to link between the CPU - TG88 and the CPU - DSP, respectively. In addition, this IC converts the 20-bit parallel data of TG88 into the 16-bit serial data of DAC (μ PD6376) or DSP (TMS57002PH).

PSC91A (μ PD65012GF-A87-3B9) PIN ASSIGNMENT



μ PD65012GF-A87-3B9 (PSC91A) I/O FUNCTION

Pin No	I/O	MARK									
1	0	D07	21	-	NC	41	I	TD10	61	I	BCLK
2	0	D06	22	0	TGCS	42	I	TD11	62	0	PO
3	0	D05	23	0	XWR	43	I	TD12	63	0	P1
4	I	D4	24	0	XRD	44	I	TD13	64	0	P2
5	I	D3	25	0	EXCS	45	I	TD14	65	0	P3
6	I	D2	26	I	LEO	46	I	TD15	66	0	P4
7	I	D1	27	I	LE1	47	I	TD16	67	I	P5
8	I	D0	28	I	TDO	48	I	TD17	68	I	P6
9	0	DPCS	29	I	TD1	49	I	TD18	69	I	P7
10	-	VDD	30	I	TD2	50	I	TD19	70	I	SFT1
11	-	GND	31	I	TD3	51	0	RES0	71	-	GND
12	-	GND	32	-	GND	52	-	GND	72	-	VDD
13	I	A12	33	-	GND	53	-	GND	73	-	VDD
14	I	A13	34	-	VDD	54	I	MCKI	74	I	SFT0
15	I	A14	35	I	TD4	55	-	VDD	75	I	TES0
16	I	A15	36	I	TD5	56	-	NC	76	I	TES1
17	I	RXW	37	I	TD6	57	I	XRES	77	0	MS0
18	I	E	38	I	TD7	58	0	MUTE	78	I	MS1
19	-	NC	39	I	TD8	59	0	SD0	79	0	INVO
20	0	CLK0	40	I	TD9	60	0	LRCK	80	I	INV1

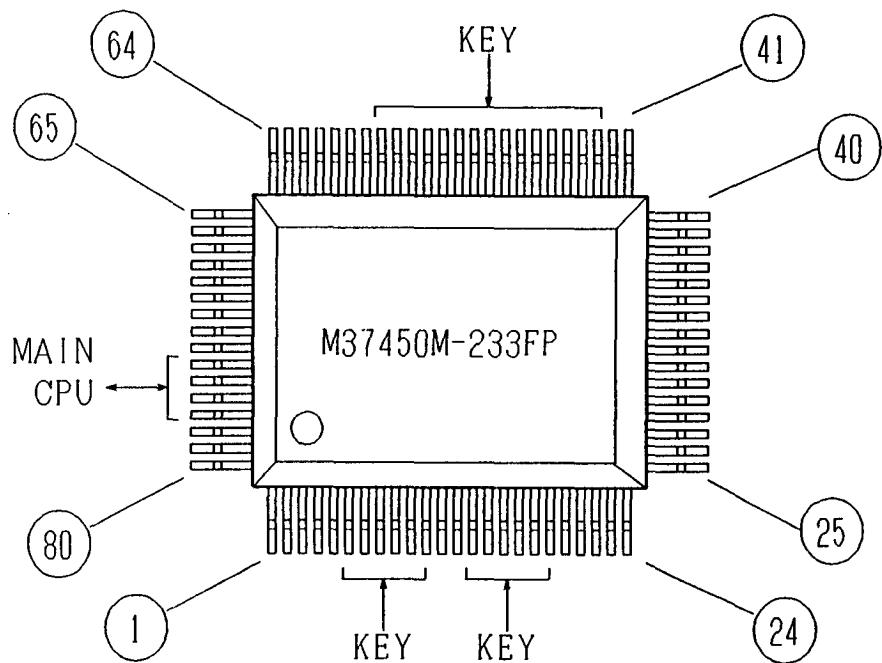
PSC91A PIN FUNCTION

MARK	I/O	FUNCTION
D	(IN)	:DATA IN . FROM TG88
LE0-1	(IN)	:LATCH ENABLE . FROM TG88
SDO	(OUT)	:16bit SERIAL DATA OUT . TO μ PD6376 & DSP(TI)
BCLK	(OUT)	:bit CLOCK FOR PCM DATA SERIAL OUT . TO μ PD6376 & DSP(TI)
LRCK	(OUT)	:L/R CLOCK FOR PCM DATA SERIAL OUT . TO μ PD6376 & DSP(TI)
XRES	(IN)	:SYSTEM RESET . FROM M51951AML
RES0	(OUT)	:RESET OUT . TO CPU
MUTE	(OUT)	:MUTE OUT . FOR ANALOG
MCKI	(IN)	:MASTER CLOCK IN (32MHz)
CLKO	(OUT)	:CLOCK OUT (16MHz) . TO CPU
TES0	(IN)	:TEST MODE SELECT . GND
TES1	(IN)	:TEST CLOCK IN . GND(4MHz)
E	(IN)	:ENABLE IN . FROM CPU
R/XW	(IN)	:R/W IN . FROM CPU
XRD	(OUT)	:READ PULSE OUT . TO TG88
XWR	(OUT)	:WRITE PILSE OUT . TO TG88
A12-A15	(IN)	:ADDRESS IN . FROM CPU
TGCS	(OUT)	:CHIP SELECT TO TG88
EXCS	(OUT)	:NOT USED
DPCS	(OUT)	:CHIP SELECT TO DSP
INV1	(IN)	:PANEL SW CONTROL SIG IN . FROM CPU
INVO	(OUT)	:PANEL SW CONTROL SIG OUT . TO CPU
MSI	(IN)	:MIDI SERIAL IN . FROM CPU
MSO	(OUT)	:MIDI SERIAL OUT
SFT0-1	(IN)	:SHIFT CONTROL IN
P5-7	(IN)	:PORT IN
DO-4	(IN)	:DATA BUS
PO-4	(OUT)	:PORT OUT
DO5-07	(OUT)	:DATA BUS

KSP3 (M37450M4-616FP, 601FP or 233FP)

The KSP3 is an IC to read both keyboard data and tempo volume data and output them to the CPU.

KSP3 (M37450M4-616FP, 601FP or 233FP) PIN ASSIGNMENT

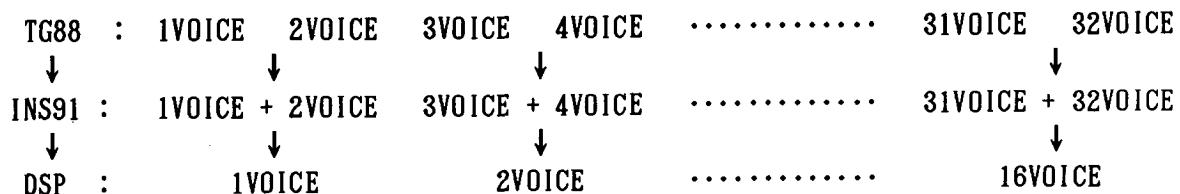


M37450M-4-601FP PIN FUNCTION

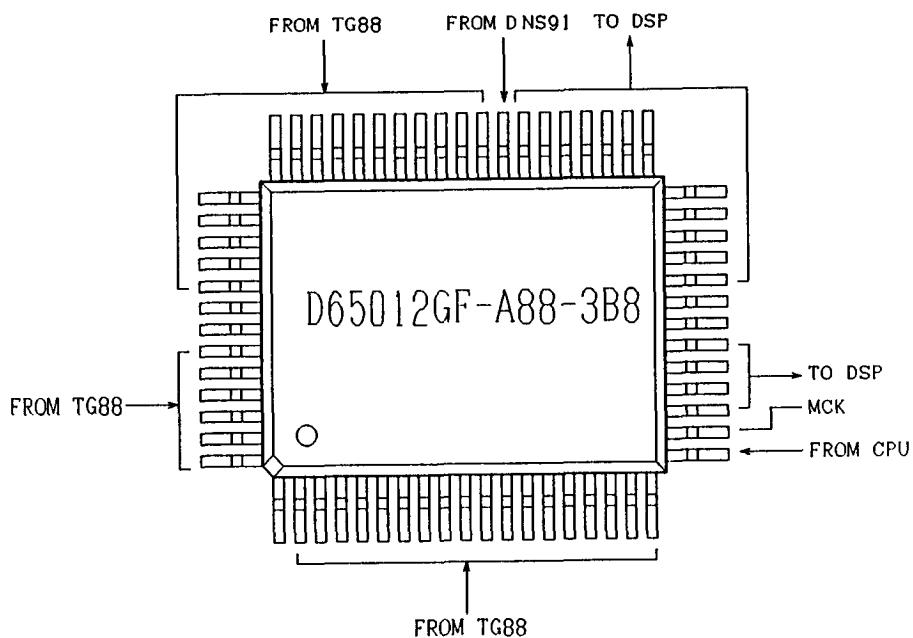
PIN MARK	PIN NAME	I/O	PIN MARK	PIN NAME	I/O
VCC, VSS	POWER SUPPLY	-	P50~P57	I/O PORT 5	I/O
CNVSS	CNVSS	I	P60~P67	I/O PORT 6	I/O
RESET	RESET IN	I	VREF	REFERENCE VOLT.	I
XIN	CLOCK IN	I	ADVREF	A-D REF. VOLTAGE	I
XOUT	CLOCK OUT	O	DAVREF	D-A REF. VOLTAGE	I
¢	TIMMING OUT	O	AVSS	ANALOG VSS	-
SYNC	SYNC SIGNAL OUT	O	AVCC	ANALOG VCC	-
R/W	READ/WRITE	O	D-A1	ANALOG OUT	O
	STATUS OUT		D-A2		O
P00~P07	I/O PORT 0	I/O	RD	READ SIG. OUT	O
P10~P17	I/O PORT 1	I/O	WR	WRITE SIG. OUT	O
P20~P27	I/O PORT 2	I/O	RESETOUT	RESET SIG. OUT	O
P30~P37	I/O PORT 3	I/O	RXD	SERIAL DATA IN	I
P40~P42	I/O PORT 4	I	TXD	SERIAL DATA OUT	O

INS91 (μ PD65012GF-A88)

The INS91, which is a CPU interface IC of TG88 and DSP, converts 32-voice data from the TG88 into 16-voice data, and outputs it to the DSP as (8-bit x 3) data. In addition, this IC has two lines of such functions, which enables one TG88 and two DSPs to be connected together with.



INS91 (μ PD65012GF-A88) PIN ASSIGNMENT



INS91 (μ PD65012GF-A88-3B9) PIN FUNCTION

MARK	PIN NO	I/O	FUNCTION
IA	41~56, 59~62	I	Data input from TG88
IB	63, 64, 2~19	I	Data input from TG88
OA	32~39	O	Data output to DSP
OB	22~25, 28~31	O	Data output to DSP
MCK	21	I	Master clock input (16MHz)
LRIN	40	I	L/R clock input from DNS91
XRES	20	I	System reset input from CPU

CHECK POINTS FOR THE INS91

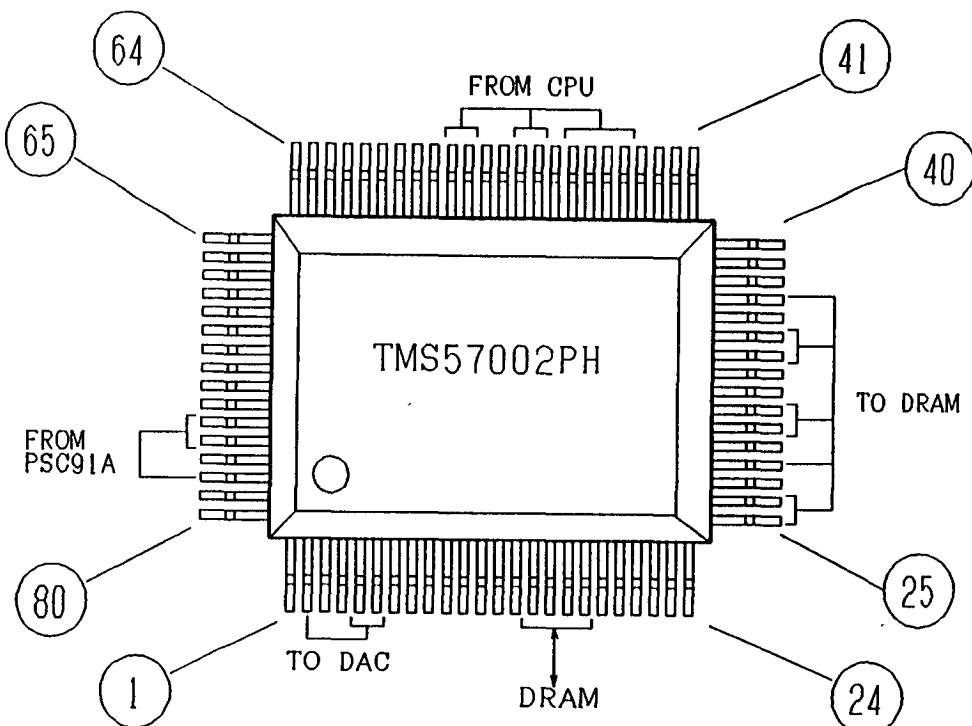
1. Is the power source (GND, +5V) normal ?
--Check the power supply board for its trouble or board pattern.
2. Is the XRES terminal in an "H" level ?
--Check the reset IC for its trouble or board pattern.
3. Is the master clock (MCLK) input ?
--Check the crystal OSC and DNS91 for their troubles or board patterns.
4. Is the LR clock input to the LRIN terminal ?
--Check the DNS91 for its trouble or board pattern.
5. Is data from the TG88 (IA19 to 0, IB19 to 0) input to the INS91 ?
--Check the TG88 for its trouble or board pattern.
6. Is data output from the data-out (OA7 to 0, OB7 to 0) of the INS91 ?
--Check the INS91 for its trouble or board pattern.

If the above checks are normal, the INS91 is also regarded as normal.

DSP (TMS57002PH)

The DSP is a digital filter/effect IC. The C-55 uses two DSPs for the digital filter. For the connection, output from one DSP is input to a serial port of the other DSP, and then output to the DSP for effect as mixed voice-data. This IC is not used for the C-15.

DSP (TMS57002PH) PIN ASSIGNMENT



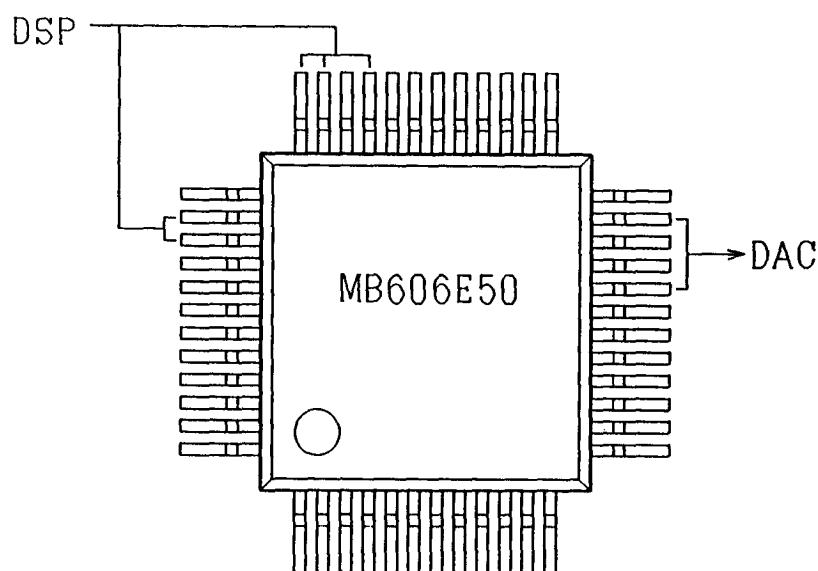
DSP (TMS57002PH) PIN FUNCTION

PIN NO	MARK	I/O	FUNCTION	PIN NO	MARK	I/O	FUNCTION
1	SYPOL	I	Edge select for SYNC.signal 0 : ↓, 1 : ↑	40	TEST2	I	Test
2	BCKO	I	Bit_clock for serial data	41	EA8	O	Address Bus
3			no used	42	EA9	O	Address Bus (MSB)
4			no used.	43			no used
5	LRCKO	I	L/R clock for serial data	44			no used
6	SO0	O	Serial data output0	45	D0	I	Parallel port (LSB)
7	SO1	O	Serial data output1	46	D1	I	Parallel port
8	CAS	O	Column address strobe	47	D2	I	Parallel port
9	RAS	O	Row address strobe	48	D3	I	Parallel port
10	CLKSEL	I	Clock frequency select 0 : 512fs, 1 : 256fs	49			no used
11	CLKIN	I	Master clock input	50	D4	I	Parallel port
12	VSS	---	Power supply	51	D5	I	Parallel port
13	VSS	---	Power supply	52	VCC	---	Power supply
14	WE	O	Write enable	53	VCC	---	Power supply
15	ED7	I/O	Data Bus (MSB)	54	D6	I	Parallel port
16	ED6	I/O	Data Bus	55	D7	I	Parallel port
17	ED5	I/O	Data Bus	56	PC0	O	Program counter0
18	ED4	I/O	Data Bus	57	BIO	I	BIO control
19	ED3	I/O	Data Bus	58	OVFA	O	ALU overflow flag
20	ED2	I/O	Data Bus	59	OVFM	O	MAC overflow flag
21			no used	60	RS	I	Reset
22			no used	61			no used
23	ED1	I/O	Data Bus	62			no used
24	ED0	I/O	Data Bus (LSB)	63	EMPTY	O	Buffer empty
25	EA0	O	Address Bus (LSB)	64	MUTE	I	Mute
26	EA1	O	Address Bus	65	CS	I	Chip select
27			no used	66	WR	I	Write enable
28	EA2	O	Address Bus	67	PLOAD	I	Program load
29			no used	68			no used
30	EA3	O	Address Bus	69	CLOAD	I	Coefficient load
31	EA4	O	Address Bus	70	STRB	I	Data strobe
32	VSS	---	Power supply	71			no used
33	VCC	---	Power supply	72	VCC	---	Power supply
34	EA5	O	Address Bus	73	VSS	---	Power supply
35	EA6	O	Address Bus	74			no used
36			no used	75	BCKI	I	Bit clock input
37	EA7	O	Address Bus	76	LRCKI	I	L/R clock input
38	TEST0	I	Test	77			no used
39	TEST1	I	Test	78	S10	I	Serial data input0
				79	S11	I	Serial data input1
				80	SYNC	I	Synchronizing signal

DNS91 (MB606E50)

The DNS91 is a digital noise shaper IC. This IC cuts off the noises which occurs when voice data is D/A converted.

DNS91 (MB606E50) PIN ASSIGNMENT



DNS91 (MB606E50) PIN I/O

PIN NO	MARK	I/O	PIN NO	MARK	I/O
1	NC	---	25	NC	---
2	NC	---	26	NC	---
3	NC	---	27	FS0	I
4	TEST0	I	28	FS1	I
5	TEST1	I	29	NC	---
6	VSS	---	30	CKB1	O
7	NC	---	31	VSS	---
8	NC	---	32	CKB0	O
9	NC	---	33	SDI	I
10	NC	---	34	LRB1	O
11	NC	---	35	LRB0	O
12	NC	---	36	LRCK1	I
13	CKBSEL	I	37	BCKB1	O
14	DASEL	I	38	BCKB0	O
15	BSEL0	I	39	BCK1	I
16	BSEL1	I	40	VN4	I
17	MASTER	I	41	MCLK	I
18	VSS	---	42	VSS	---
19	VDD	---	43	VDD	---
20	BCK0	O	44	XRES	I
21	LS0	O	45	NC	---
22	RS0	O	46	NC	---
23	WDCK0	O	47	NC	---
24	MUTE	O	48	NC	---

INPUT TERMINALS

SDI : Serial data input
BCKI : Bit_clock input
LRCKI : L/R_clock input
VN4 : L/R_clock input from master
MCK : Master clock input
XRES : System reset
FS1 : Master clock frequency select
FS0 : Master clock frequency select
DASEL : DAC select
BSEL1 : Bus select
BSEL2 : Bus select
MASTER : Master/Slave select for L/R clock
CKBSEL : Dividing select for master clock to DSP
TEST1 : Mute test mode select
TEST2 : Mute test mode select

OUTPUT TERMINALS

RSO : Rch serial data output
LSO : Lch serial data output
BCKO : Bit_clock output
WDCKO : Word_clock output
BCKB0 : Bit_clock output0 for DSP
BCKO1 : Bit_clock output1 for DSP
LRB0 : L/R_clock output0 for DSP
LRB1 : L/R_clock output1 for DSP
CKB0 : Master clock output0 for DSP
CKB1 : Master clock output1 for DSP
MUTE : Mute output

CHECK POINTS FOR THE DNS 91

Function :

The DNS91 is an IC to be used in the C-35/45/55, and has two functions. The one function serves to convert the L/R signal output of DSP (TMS57002) for effect into a sampling rate enlarged up to 8 times (31.25KHz x 8 = 250KHz), make a noise shaping processing, and then send it to the D/A converter.

The other function is used to receive a VN4 pulse of the TG88 (MB87726) (this pulse is synchronized with a sampling frequency of 31.25KHz) and then output signals (LRB0, 1, BCKB0, 1) to synchronize the DSP, TG88 and INS91.

Check-point in the noise shaping part :

If this IC includes a poor noise shaping, the following symptoms are shown ;

1. No sound is heard.
2. Only the large noises are issued.

The check-points at this time are as follows ;

1. Are the master clock and reset signal input to the DNS91 ?
2. Is the power source of the DNS91 (GND, +5V) normal?
3. Are respective clocks output from the terminals BCKO and WDCKO of the DNS91 ?
4. Is a signal from the DSP input to the DNS91 ? (Is serial data input to the SDI terminal every time a key is played ?)

If the above checks are normal but no serial data is output from the D/A converter output terminal (LSO, RSO) of the DNS91, or if some data is output from the D/A converter output terminal (LSO, RSO) in a condition that no serial data is input from the DSP to SDI terminal, it is thought that a trouble has occurred in the noise shaping part of the DNS91.

Check-point in the synchronous signal part ;

Also if the synchronous signal part is poor, the same symptom as in the noise shaping part is given. The check-points at this time are as follows ;

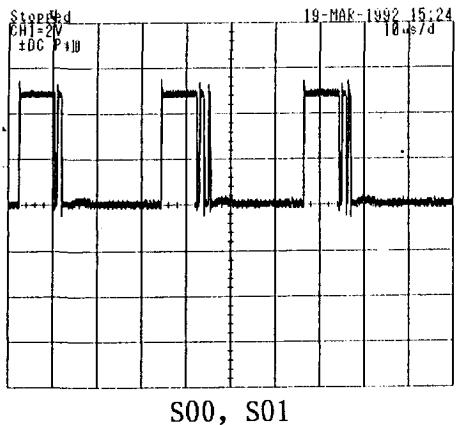
1. Are both a master clock and a reset signal input to the DNS91 ?
2. Is a VN4 signal (pulse signal of 31.25KHz) from the TG88 (MB87726) input to the DNS91 ?
3. Is a pulse signal output from the synchronous signal terminal of the DNS91 ?

LRBO, 1 ... 31.25KHz
BCKO, 1 ... 2MHz
CKOUT ... 8MHz

If the above checks are normal, the synchronous signal part of the DNS91 is also regarded as normal.

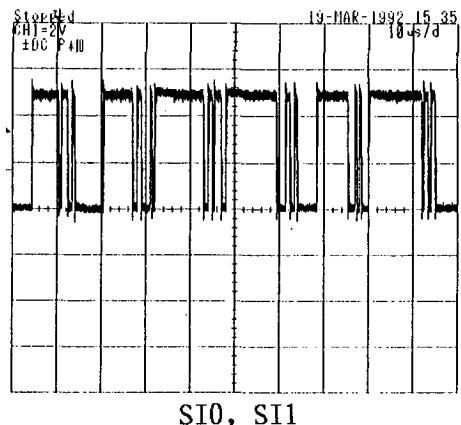
CHECKPOINTS FOR THE ICs

TMS57002PH



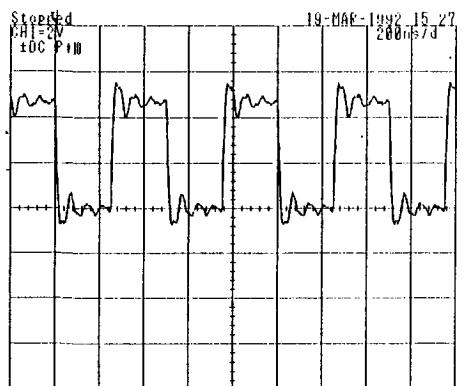
S00, S01

S00, S01 The IC21 to be used only for the C-55 outputs data at or after the 17th voice.

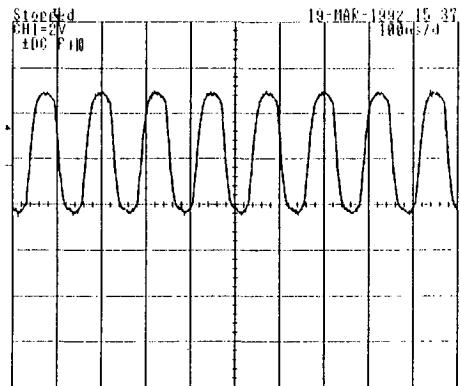


SI0, SI1

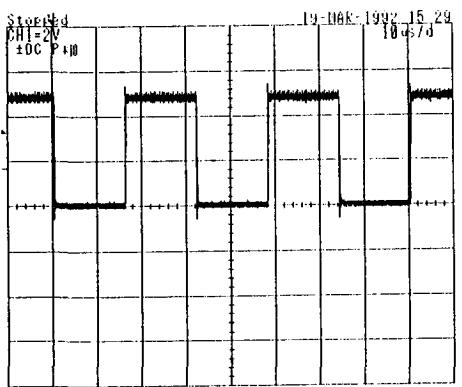
SI0, SI1 For the SI1, data is only input for the 16th voice.



BCK0, BCK1

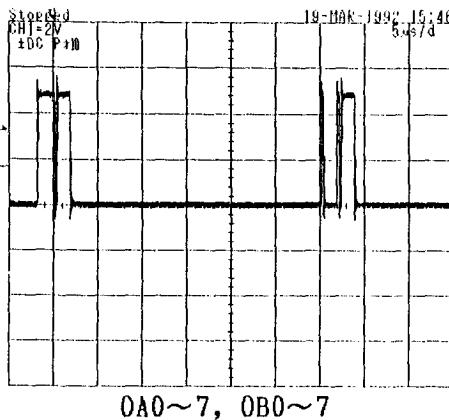


CLK



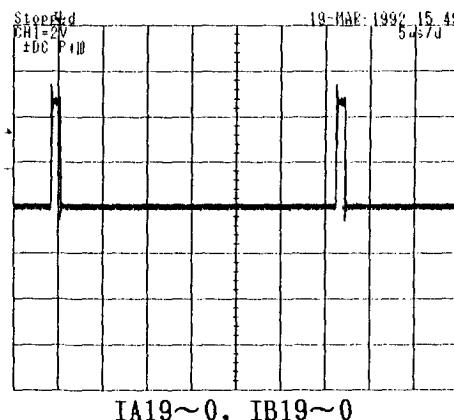
LRCK0, LRCK1

μ PD65012GF-A88-3B9



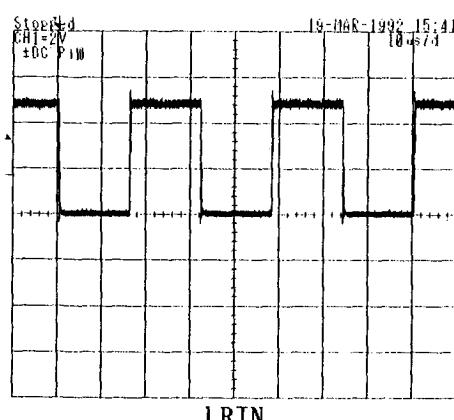
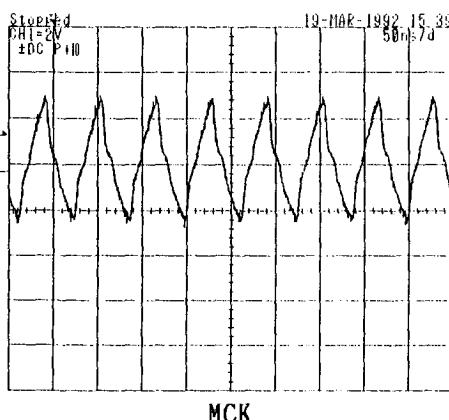
OAO~7 In case of C-55:

The OAs 0 to 7 output data up to the 16th voice,
and the OBs 0 to 7 output data at or after the 17th
voice.

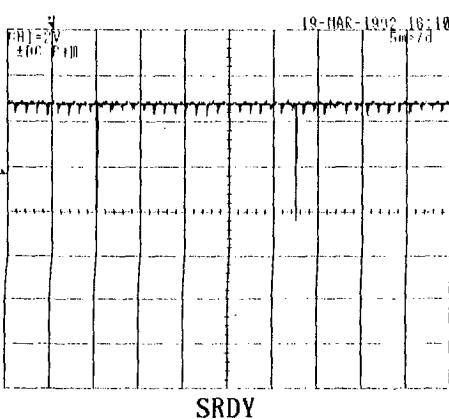
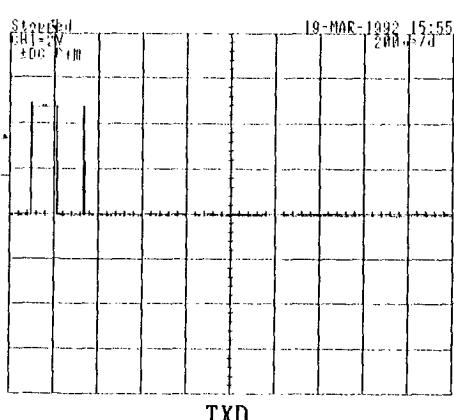
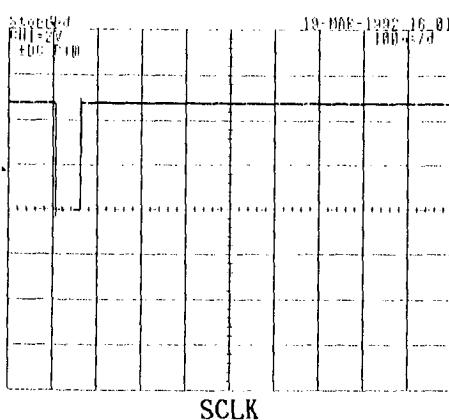


IAO-19 In case of C-55:

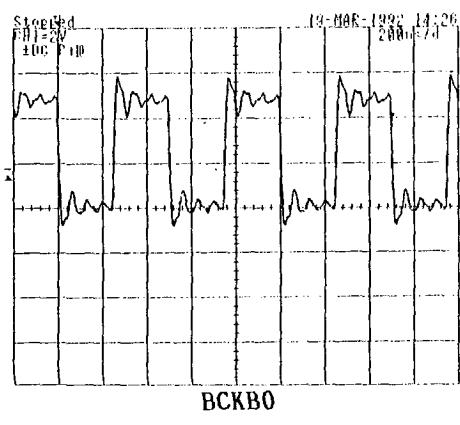
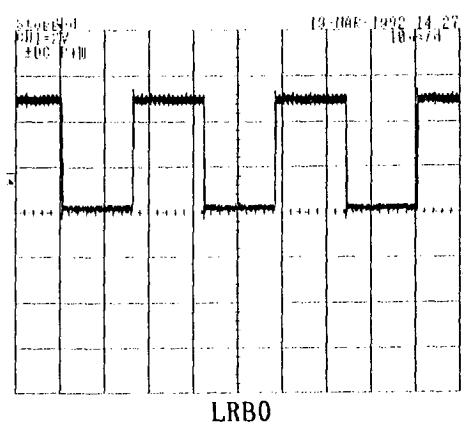
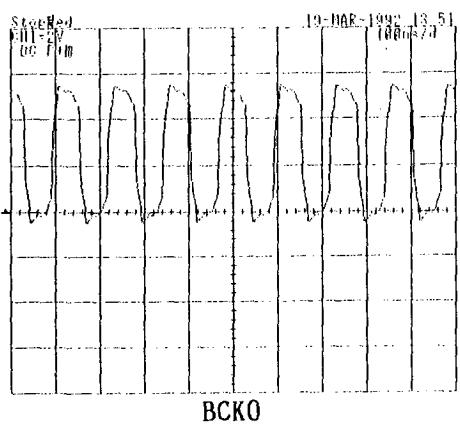
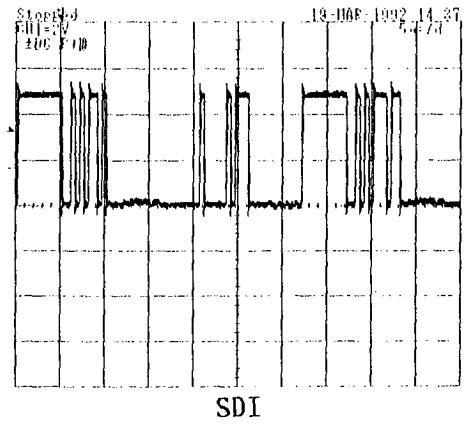
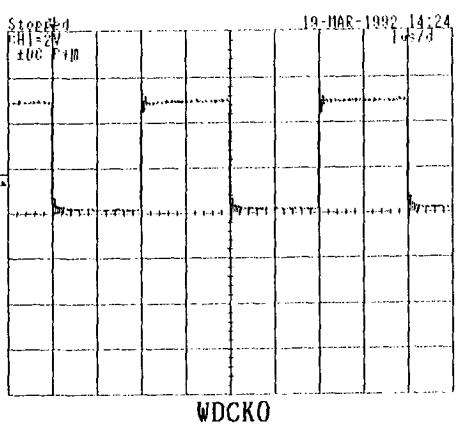
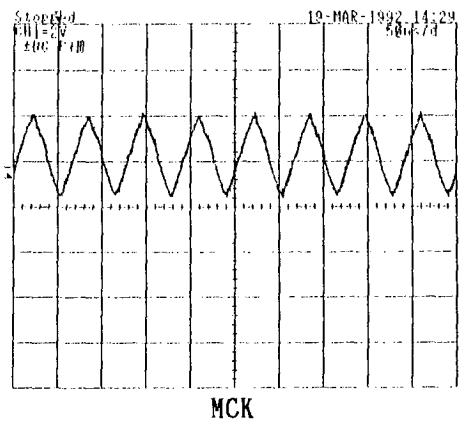
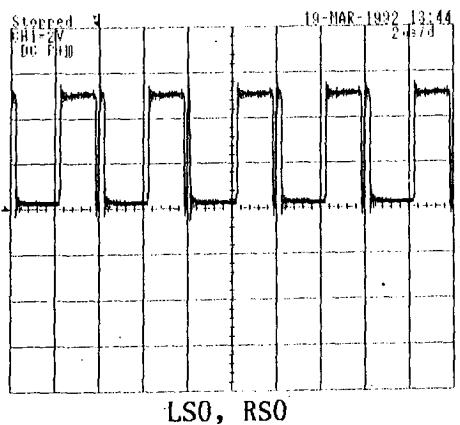
The IAs 0 to 19 input data up to the 16th voice,
and the IBs 0 to 19 input data at or after the 17th
voice.



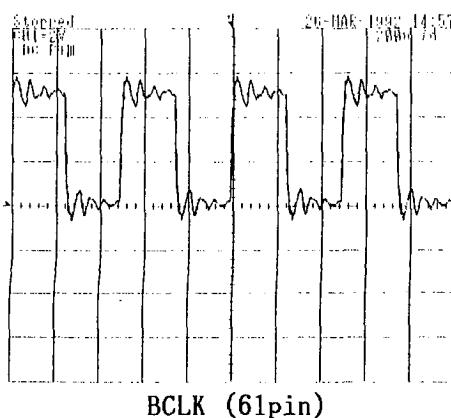
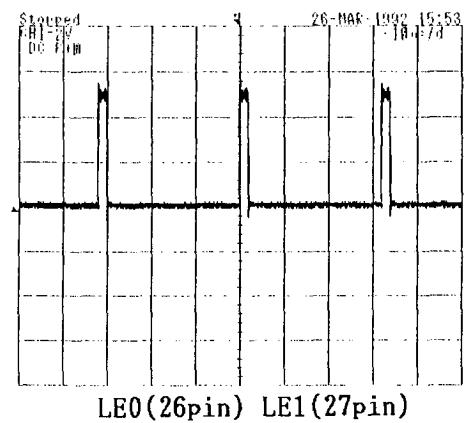
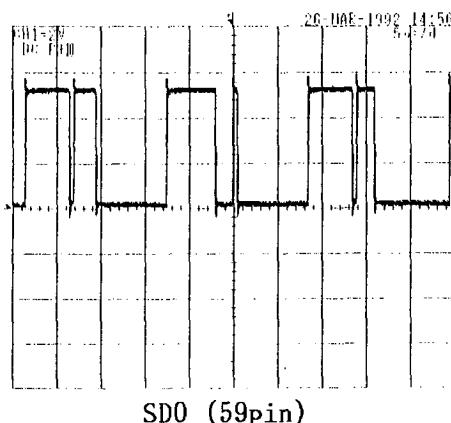
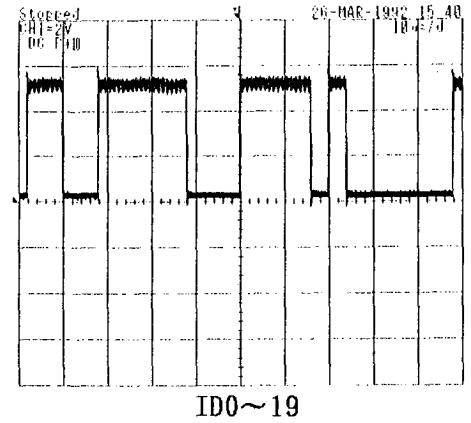
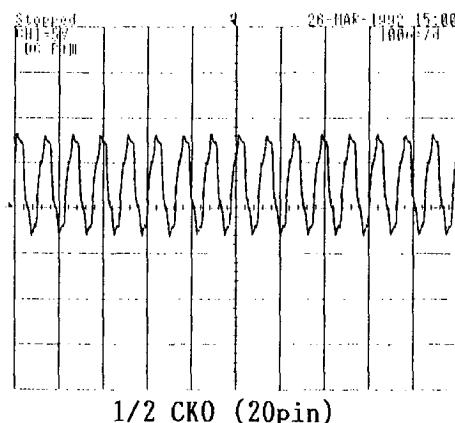
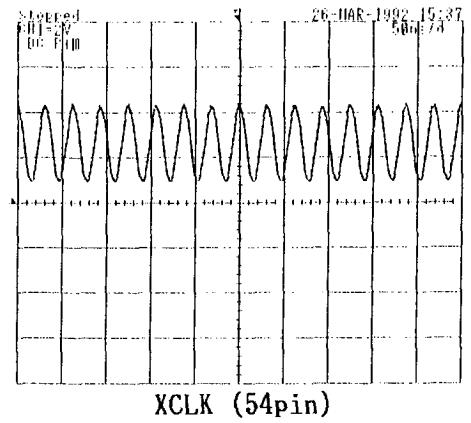
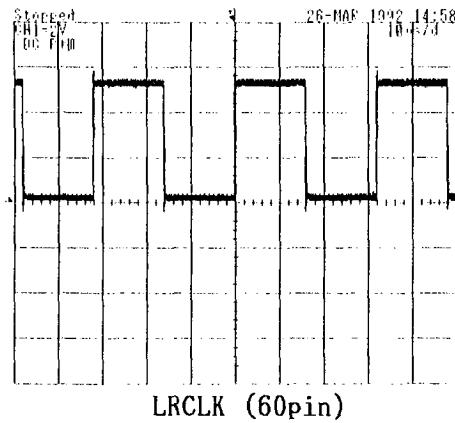
M37450M4



MB606E50

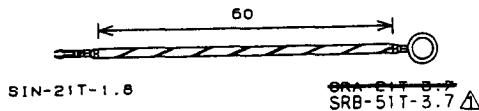


μ PD65012GF-A87-3B9

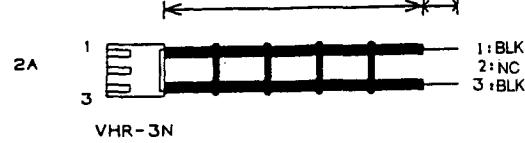


FOR HARNESSES

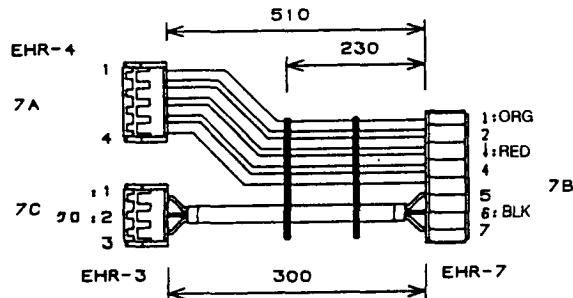
HNS-1643
(ALL: GND LINE OF AMP.)



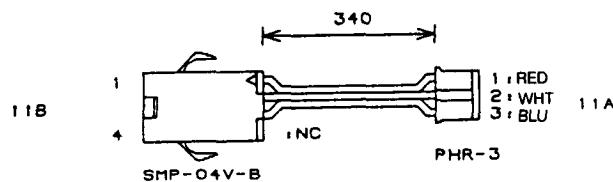
HNS-1635
(C-15>45, AMP-P.SW)



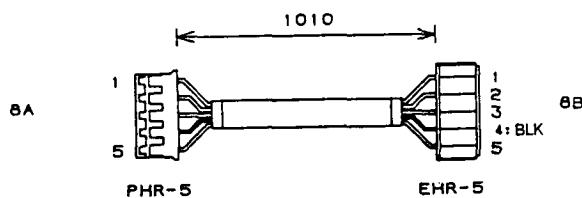
HNS-1636
(C-15/25/35, AMP-MAIN)



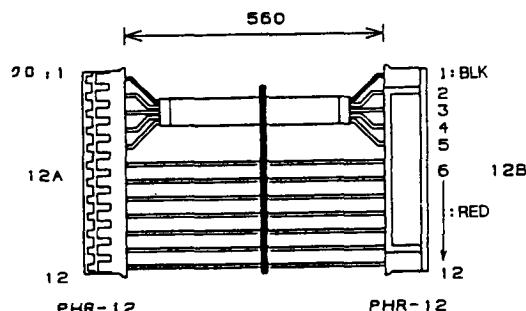
HNS-1638
(C-15/25, MAIN-PED (Upper))



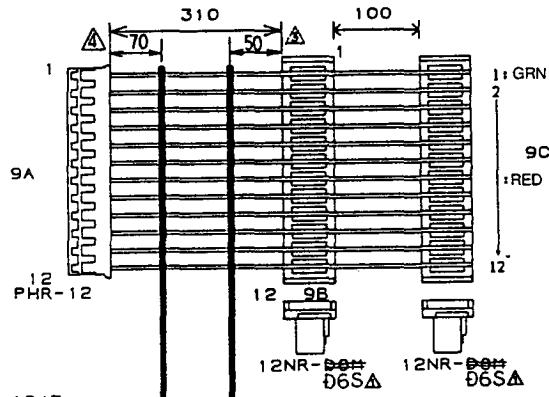
HNS-1639
(C-15/25/35, MAIN-HP)



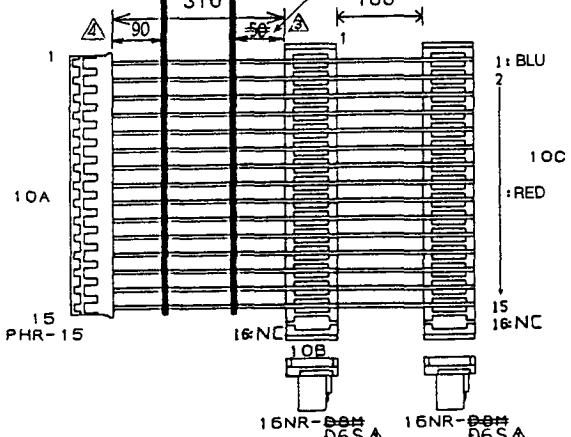
HNS-1640
(C-15/25, MAIN-PAN)



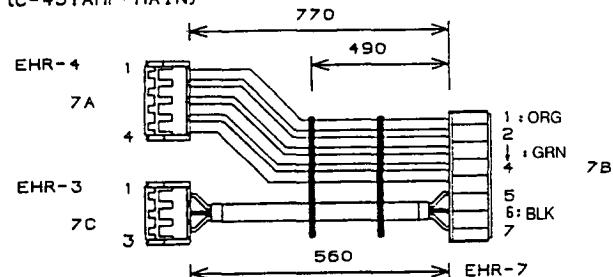
HNS-1642
(C-15/25/35, MAIN-KEY)



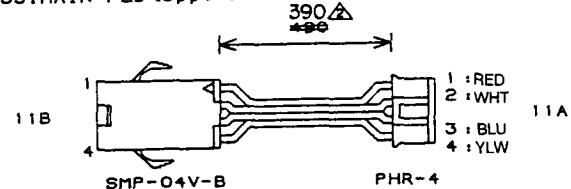
HNS-1643



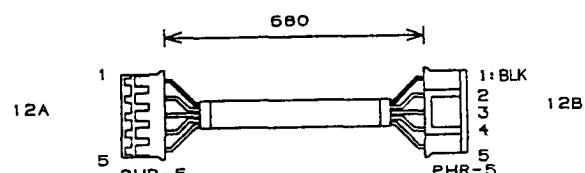
HNS-1739
(C-45, AMP-MAIN)

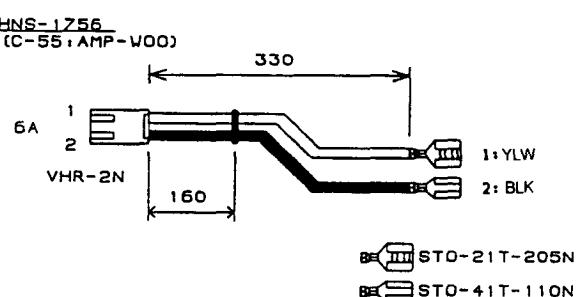
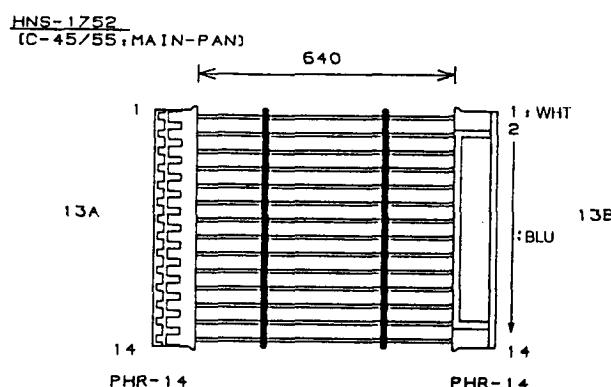
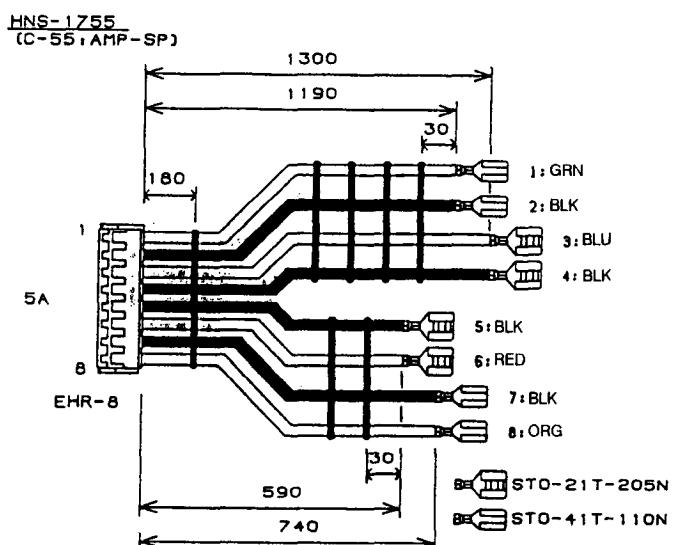
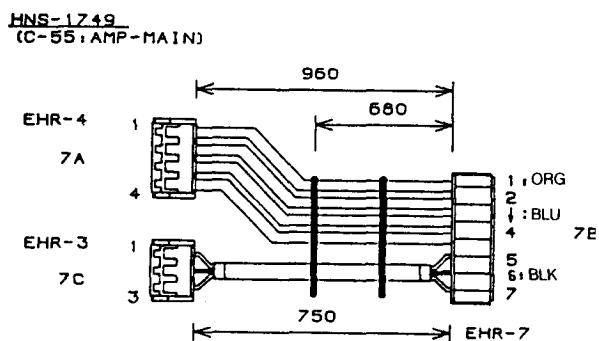
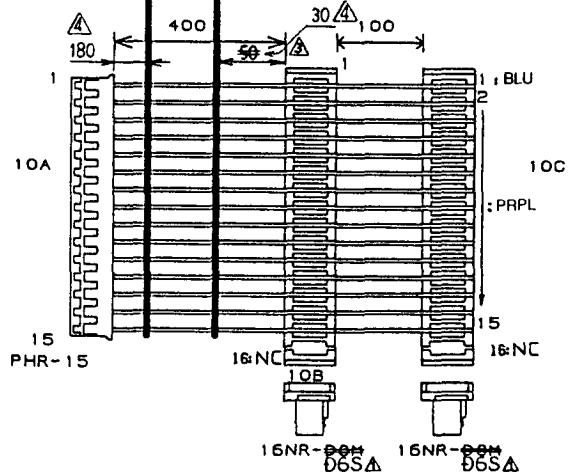
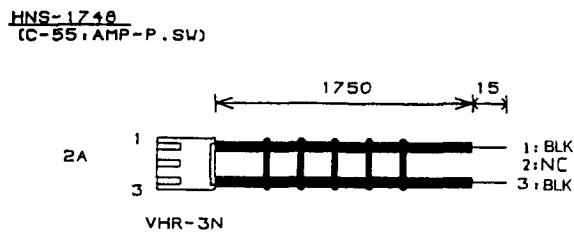
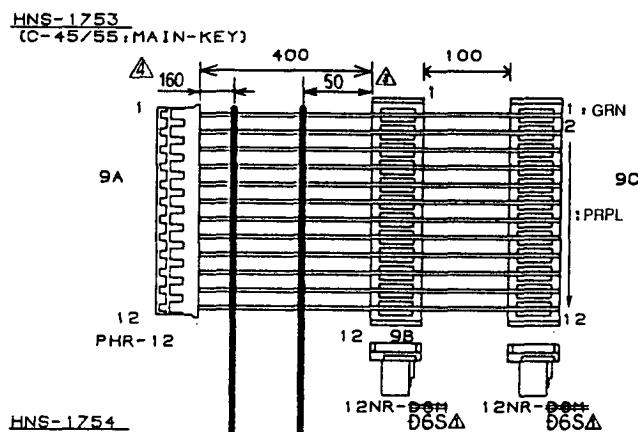
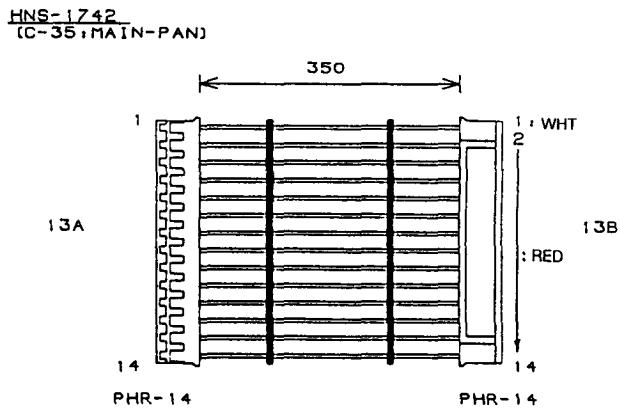


HNS-1740
(C-35, MAIN-PED (Upper))

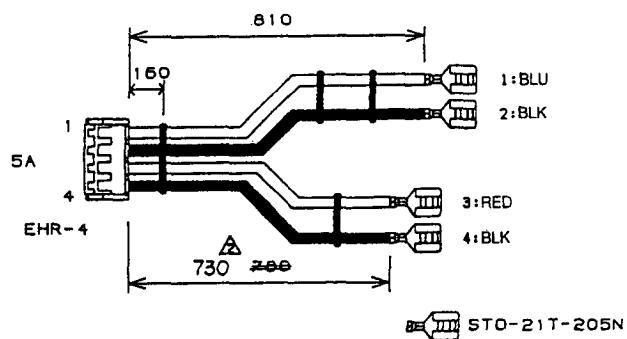


HNS-1741
(C-35>55, MAIN-VOL)

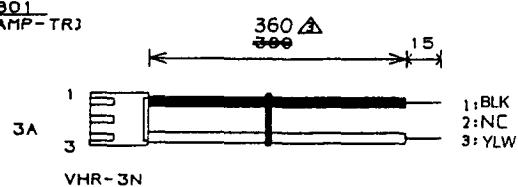




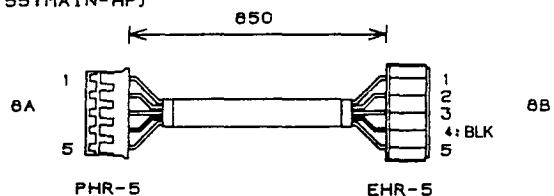
HNS-1757
(C-15/25/35; AMP-SP)



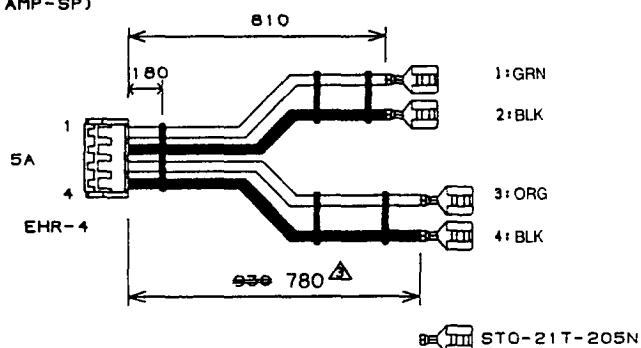
HNS-1801
(ALL; AMP-TR)



HNS-1802
(C-45/55; MAIN-HP)



HNS-1810
(C-45; AMP-SP)



7. PARTS LIST

FOR C-15

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
001154600	P.C. BOARD ASSEMBLY KLM-1546 C-15	M. PART	MAIN	1
001154700	P.C. BOARD ASSEMBLY KLM-1547 C-15	M. PART	PANEL	1
001156802	P.C. BOARD ASSEMBLY KLM-1568 C-15/25	M. PART	POWER SUPPLY	1
001156902	P.C. BOARD ASSEMBLY KLM-1569 C-15/25	M. PART	HEADPHONE	1

300002100	TR 2SA1670	1568		2
302003700	TR 2SC4385	1568		2
304000070	TR 2SA812-T1 (M5-7)	1546		1
304000090	TR 2SA988-T	1568		1
304020020	TR 2SC2785 T K	1568		2
304020230	TR 2SC3661-TA/TB(3K)	1546		6
304020260	TR 2SC1845-T ALL	1568		2

304060070	FET 2SK433-T12-C	1546		2
304060120	FET 2SJ125-T12-C	1546		2

310011300	BRIDGE DIODE DBF-20C	1568		1
310011900	BRIDGE DIODE RBA-402	1568		1

314001300	DIODE 1SS-133 T-77	1568		1
314001400	DIODE RLS-73 TE-11	1546		6
314024700	ZENER DIODE RD12ESB2-T1	1568		2
314025700	DIODE SR1M-2 TP-B	1568		1
314026100	DIODE RLR4001TE-21	1546		1
315000500	DOUBLE DIODE MC-2840-T12-1	1546		2

320001180	IC UPC1270H	1568	POWER AMP	2
320001242	IC UPC4570HA	1568	OP_AMP	1
320001300	IC UPD65012GF-A87-3B9	1546	PSC91A	1
320004217	IC HD74HC166P	1547	HC_MOS	1
320009057	IC NJM-7805FA	1568	REGULATOR	1
320011146	IC M66312P	1547	LED DRIVER	1
320011160	IC M37700M4A-219FP	1546	CPU	1
320012084	IC MB87726PF (QFP160)	1546	TG88	1
324001006	IC UPD74HCU04GS-E2 (SOP)	1546	HC_MOS	1
324001015	IC UPC4570G2-E2 (SOP)	1546	OP_AMP	2
324001023	IC UPD6376GS-E2	1546	DAC	1
324001044	IC UPD23C8001EGW-382-E2	1546	WAVE_ROM	1
324001045	IC UPD23C8001EGW-383-E2	1546	WAVE_ROM	1
324001046	IC UPD23C8001ECW-384-E2	1546	WAVE_ROM	1
324009014	IC NJM78L16UA-TE1	1546	REGULATOR	1
324011004	IC M5216FP-73A (8PSOP)	1546	OP_AMP	1
324011016	IC M51951AML-600C	1546	RESET	1

334000800	PHOTO COUPLER PC-400	1546		1

335400030	CRYSTAL OSC MA-505(32MHZ)TE2412L	1546		1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
350002210	SEMI FIXED VR RH0615C 13 1K	1568		2
365008000	SLIDE VR RS30112AC00JB 10KBX2	1547		1
375010400	POWER SW SDDCA1103A TV-5	M. PART		1
375010600	TACT SW SKHJTQ001A	1547		6
400013400	POWER TRANSFORMER TC-044A	M. PART		1
402004600	COIL 2943-666673	1568		4
		1569		3
404000100	FERRITE BEAD BL03RN2-R62T4-F	1568		1
404000110	COIL BLM32A06PT	1546		53
410003600	SPEAKER FF166-0846 16cm	M. PART		2
420003801	KEYBOARD AE-88 VC53060	M. PART		1
422006500	KEY TYPE C VC50710	M. PART		---
422006501	KEY TYPE D VC50720	M. PART		---
422006502	KEY TYPE E VC50730	M. PART		---
422006503	KEY TYPE F VC50740	M. PART		---
422006504	KEY TYPE G VC50750	M. PART		---
422006505	KEY TYPE A VC50760	M. PART		---
422006506	KEY TYPE B VC50770	M. PART		---
422006507	KEY TYPE A' VC50810	M. PART		---
422006508	KEY TYPE C' VC50780	M. PART		---
422006509	KEY TYPE BLACK VC50830	M. PART		---
422006510	KEY SPRING VC79510	M. PART		---
422008012	KEY CONTACT PCB VC79630 AE-88/76	M. PART		1
422008014	KEY CONTACT PCB VC79650 AE-88	M. PART		1
422008015	KEY CONTACT PCB VC79660 AE-88	M. PART		1
454005600	PHONE JACK YKB21-5006	M. PART		1
454006000	2P DIN JACK JXT0692-01-010	1546		1
454006500	PIN JACK JPJ0730-01-500 (4P)	1546		1
464002300	FUSE 125V 2A SB2	M. PART	117US	2
		M. PART	117CN	2
		M. PART	117EX	2
		M. PART	100JP	2
484061801	FUSE 250V T830MA	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230GE	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
464061801	FUSE 250V T630mA	M. PART	240AU	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
464062301	FUSE 250V T2.0A	M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220GE	1
		M. PART	230FR	1
		M. PART	230GE	1
		M. PART	230WG	1
		M. PART	230SE	1
		M. PART	230SC	1
		M. PART	240AF	1
		M. PART	240UK	1
471050201	CONNECTOR TOP B2P3-VH		1568	3
471050500	CONNECTOR TOP B5P-VH		1568	1
471060300	CONNECTOR TOP B3B-EH		1568	1
471060400	CONNECTOR TOP B4B-EH		1568	2
471060500	CONNECTOR TOP B5B-EH		1569	1
471060700	CONNECTOR TOP B7B-EH		1546	1
471070300	CONNECTOR TOP B3B-PH		1546	1
471070500	CONNECTOR TOP B5B-PH		1546	1
471071200	CONNECTOR TOP B12B-PH		1546	2
			1547	1
471071500	CONNECTOR TOP B15B-PH		1546	1
475001635	HARNESS HNS-1635	M. PART		1
475001636	HARNESS HNS-1636	M. PART		1
475001638	HARNESS HNS-1638	M. PART		1
475001639	HARNESS HNS-1639	M. PART		1
475001640	HARNESS HNS-1640	M. PART		1
475001642	HARNESS HNS-1642	M. PART		1
475001643	HARNESS HNS-1643	M. PART		1
475001757	HARNESS HNS-1757	M. PART		1
475001801	HARNESS HNS-1801	M. PART		1
500011702	CUSHION (2)	M. PART		2
500011801	CUSHION R (FOR FRONT BAR)	M. PART		2
500014200	RUBBER STOPPER 3	M. PART		1
500017600	X-921 SPACER FOR FRONT BAR	M. PART		6
500019300	X-120 RUBBER FOR FRONT BAR T=3mm	M. PART		1
515002300	FUSE HOLDER S-N5057 #01		1568	4

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		2
540008601	SPIRAL CLIP CS-6	M. PART		15
540017500	SPIRAL CLIP CP-1S		1547	2
550009901	FELT FOR KEYBOARD (LARGE)	M. PART		1
550014900	X-120 STOPPER FELT	M. PART		2
550015400	CUSHION	M. PART		2
580031300	X-120 SHIELD SHEET (SMALL)	M. PART		1
600004200	AC CORD HP-11J/DCB-10	M. PART	100JP	1
600004300	AC CORD DP-70/DCB-10	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1
600004500	AC CORD DAP-100/DCB-10	M. PART	240AU	1
600004600	AC CORD DEP-101/DCB-10	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
620021600	X-825M POWER SW KNOB BLK	M. PART		1
620022300	X-921 TACT SW KNOB NO. 1	M. PART		6
620022500	SLIDE VR KNOB	M. PART		1
629010907	X-921 HINGE CAP	M. PART		2
630013900	SPEAKER NET (LARGE)	M. PART		2
630017800	X-120 MUSIC STAND PLATE (S)	M. PART	100JP	1
630017900	X-120 MUSIC STAND PLATE (S)	M. PART	220GE	1
		M. PART	230SC	1
		M. PART	117EX	1
		M. PART	230SE	1
		M. PART	220SE	1
		M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220SC	1
		M. PART	240UK	1
		M. PART	230WG	1

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
630017900	X-120 MUSIC STAND PLATE (S)	M.PART	117CN	1
		M.PART	117US	1
		M.PART	220WG	1
		M.PART	220FR	1
		M.PART	240AF	1
		M.PART	230FR	1
		M.PART	230GE	1
640082500	X-526/527 METAL FITTING OF SW	M.PART		1
640084600	GROUNDING CONTACT		1568	1
			1569	1
641014800	X-921 FRONT BAR	M.PART		1
641014900	X-921 MUSIC STAND HINGE	M.PART		2
641016800	X-921 BUSHING PLATE	M.PART		1
641026204	X-122 HINGE 2	M.PART		3
641026205	X-122 SIDE CHASSIS L	M.PART		1
641026206	X-122 SIDE CHASSIS R	M.PART		1
641026209	X-122 HEAT SINK 1	M.PART		1
641026210	X-122 HEAT SINK ANGLE L	M.PART		1
641026211	X-122 HEAT SINK ANGLE R	M.PART		1
641026400	X-120/S TOP PLATE 1 ASSEMBLY	M.PART		1
641026800	X-122 STAND PLATE (F)	M.PART		2
641026900	X-122 L TYPE ANGLE (LARGE)	M.PART		2
641026901	X-122 L TYPE ANGLE (SMALL)	M.PART		1
641027800	X-122 PHONE JACK CHASSIS	M.PART		1
641028900	X-120 FRONT PANEL 1	M.PART		1
641029100	X-120 FRONT PANEL 4	M.PART		1
641030200	X-120 SHIELD CHASSIS (SMALL)	M.PART		1
641030400	X-120 PANEL SUPPORT	M.PART		2
641031300	X-120 STOPPER PLATE	M.PART		4
641031400	X-120 SPRING STOPPER 3	M.PART		1

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
641031500	X-120 HOLDER SPRING V3	M.PART		1
641032100	X-122 FRONT BAR SPACER	M.PART		1
641033700	X-120 SUPPORT ANGLE	M.PART		2
645014000	X-122 BOTTOM PLATE	M.PART		1
646035700	X-921 MUSIC STAND	M.PART		1
646036600	X-921 MUSIC STOPPER A	M.PART		1
646041100	X-122 SIDE PLATE L	M.PART		1
646041101	X-122 SIDE PLATE R	M.PART		1
646041400	SLIDE VR ESCUSHION 30 NO.1	M.PART		1

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PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
001154601	P.C. BOARD ASSEMBLY KLM-1546 C-25	M. PART	MAIN	1
001154701	P.C. BOARD ASSEMBLY KLM-1547 C-25	M. PART	PANEL	1
001156802	P.C. BOARD ASSEMBLY KLM-1568 C-15/25	M. PART	POWER SUPPLY	1
001156902	P.C. BOARD ASSEMBLY KLM-1569 C-15/25	M. PART	HEADPHONE	1
300002100	TR 2SA1670	1568		2
302003700	TR 2SC4385	1568		2
304000070	TR 2SA812-T1 (M5-7)	1546		1
304000090	TR 2SA988-T	1568		1
304020020	TR 2SC2785 T K	1568		2
304020230	TR 2SC3661-TA/TB(3K)	1546		6
304020260	TR 2SC1845-T ALL	1568		2
304060070	FET 2SK433-T12-C	1546		2
304060120	FET 2SJ125-T12-C	1546		2
310011300	BRIDGE DIODE DBF-20C	1568		1
310011900	BRIDGE DIODE RBA-402	1568		1
314001300	DIODE ISS-133 T-77	1568		1
314001400	DIODE RLS-73 TE-11	1546		6
314024700	ZENER DIODE RD12ESB2-T1	1568		2
314025700	DIODE SRIM-2 TP-B	1568		1
314026100	DIODE RLR4001TE-21	1546		1
315000500	DOUBLE DIODE MC-2840-T12-1	1546		2
320001180	IC UPC1270H	1568	POWER AMP	2
320001242	IC UPC4570HA	1568	OP_AMP	1
320001300	IC UPD65012GF-A87-389	1546	PSC91A	1
320004217	IC HD74HC166P	1547	HC_MOS	1
320009057	IC NJM-7805FA	1568	REGULATOR	1
320011146	IC M66312P	1547	LED DRIVER	1
320011160	IC M37700M4A-219FP	1546	CPU	1
320012084	IC MB87726PF (QFP160)	1546	TG88	1
320021142	IC TMS57002PH	1546	DSP	1
324001006	IC UPD74HCU04GS-E2	(SOP)	HC_MOS	1
324001015	IC UPC4570G2-E2	(SOP)	OP.AMP	2
324001023	IC UPD6376GS-E2	1546	DAC	1
324001044	IC UPD23C8001EGW-382-E2	1546	WAVE_ROM	1
324001045	IC UPD23C8001EGW-383-E2	1546	WAVE_ROM	1
324001046	IC UPD23C8001EGW-384-E2	1546	WAVE_ROM	1
324004069	IC HD74HC174PER	1546	HC_MOS	1
324009014	IC NJM78L15UA-TE1	1546	REGULATOR	1
324011004	IC M5216FP-73A	(8PSOP)	OP_AMP	1
324011016	IC M51951AML-600C	1546	RESET	1
324012001	IC MB81464-10PD-G-BB-RS2-EF	1546	D_RAM	1
334000800	PHOTO COUPLER PC-400	1546		1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
335400030	CRYSTAL OSC MA-505(32MHZ)TE2412L	1546		1
350002210	SEMI FIXED VR RH0615C 13 1K	1568		2
365008000	SLIDE VR RS30112AC00JB 10KBX2	1547		1
375010400	POWER SW SDDGA1103A TV-5	M. PART		1
375010600	TACT SW SKHJTQ001A	1547		8
400013400	POWER TRANSFORMER TC-044A	M. PART		1
402004600	COIL 2943-666673	1568		4
404000100	FERRITE BEAD BL03RN2-R62T4-F	1568		1
404000110	COIL BLM32A06PT	1546		53
410003600	SPEAKER FF166-0846 16cm	M. PART		2
420003801	KEYBOARD AE-88 VC53060	M. PART		1
422006500	KEY TYPE C VC50710	M. PART		---
422006501	KEY TYPE D VC50720	M. PART		---
422006502	KEY TYPE E VC50730	M. PART		---
422006503	KEY TYPE F VC50740	M. PART		---
422006504	KEY TYPE G VC50750	M. PART		---
422006505	KEY TYPE A VC50760	M. PART		---
422006506	KEY TYPE B VC50770	M. PART		---
422006507	KEY TYPE A' VC50810	M. PART		---
422006508	KEY TYPE C' VC50780	M. PART		---
422006509	KEY TYPE BLACK VC50830	M. PART		---
422006510	KEY SPRING VC79510	M. PART		---
422008012	KEY CONTACT PCB VC79630 AE-88/76	M. PART		1
422008014	KEY CONTACT PCB VC79650 AE-88	M. PART		1
422008015	KEY CONTACT PCB VC79660 AE-88	M. PART		1
454005600	PHONE JACK YKB21-5006	1569		1
454006000	2P DIN JACK JXT0692-01-010	1546		1
454006500	PIN JACK JPJ0730-01-500 (4P)	1546		1
464002300	FUSE 125V 2A SB2	M. PART	117US	2
		M. PART	117CN	2
		M. PART	117EX	2
		M. PART	100JP	2
464061801	FUSE 250V T630MA	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AU	1
		M. PART	230GE	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
464061801	FUSE 250V T630MA	M. PART	240AF	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	220SC	1
		M. PART	240UK	1
		M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220GE	1
		M. PART	230FR	1
464062301	FUSE 250V T2.0A	M. PART	230GE	1
		M. PART	230WG	1
		M. PART	230SE	1
		M. PART	230SC	1
		M. PART	240AF	1
		M. PART	240UK	1
471050201	CONNECTOR TOP B2P3-VH	1568		3
471050500	CONNECTOR TOP B5P-VH	1568		1
471060300	CONNECTOR TOP B3B-EH	1568		1
471060400	CONNECTOR TOP B4B-EH	1568		2
471060500	CONNECTOR TOP B5B-EH	1569		1
471060700	CONNECTOR TOP B7B-EH	1546		1
471070300	CONNECTOR TOP B3B-PH	1546		1
471070500	CONNECTOR TOP B5B-PH	1546		1
471071200	CONNECTOR TOP B12B-PH	1546		2
		1547		1
471071500	CONNECTOR TOP B15B-PH	1546		1
475001635	HARNESS HNS-1635	M. PART		1
475001636	HARNESS HNS-1636	M. PART		1
475001638	HARNESS HNS-1638	M. PART		1
475001639	HARNESS HNS-1639	M. PART		1
475001640	HARNESS HNS-1640	M. PART		1
475001642	HARNESS HNS-1642	M. PART		1
475001643	HARNESS HNS-1643	M. PART		1
475001757	HARNESS HNS-1757	M. PART		1
475001801	HARNESS HNS-1801	M. PART		1
500011702	CUSHION (2)	M. PART		2
500011801	CUSHION R (FOR FRONT BAR)	M. PART		2
500014200	RUBBER STOPPER 3	M. PART		1
500017600	X-921 SPACER FOR FRONT BAR	M. PART		6
500019300	X-120 RUBBER FOR FRONT BAR T=3mm	M. PART		1
515002300	FUSE HOLDER S-N5057 #01	1568		4

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		2
540008601	SPIRAL CLIP CS-6	M. PART		15
540017500	SPIRAL CLIP CP-1S	1547		2
550009901	FELT FOR KEYBOARD (LARGE)	M. PART		1
550014900	X-120 STOPPER FELT	M. PART		2
550015400	CUSHION	M. PART		2
580031300	X-120 SHIELD SHEET (SMALL)	M. PART		1
600004200	AC CORD HP-11J/DCB-10	M. PART	100JP	1
600004300	AC CORD DP-70/DCB-10	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1
600004500	AC CORD DAP-100/DCB-10	M. PART	240AU	1
600004600	AC CORD DEP-101/DCB-10	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
620021600	X-825M POWER SW KNOB BLK	M. PART		1
620022300	X-921 TACT SW KNOB NO.1	M. PART		8
620022500	SLIDE VR KNOB	M. PART		1
629010907	X-921 HINGE CAP	M. PART		2
630012800	X-922 KEY COVER	M. PART		1
630013900	SPEAKER NET (LARGE)	M. PART		2
630017800	X-120 MUSIC STAND PLATE (S)	M. PART	100JP	1
630017900	X-120 MUSIC STAND PLATE (S)	M. PART	220GE	1
		M. PART	230SC	1
		M. PART	117EX	1
		M. PART	230SE	1
		M. PART	220SE	1
		M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220SC	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
630017900	X-120 MUSIC STAND PLATE (S)	M. PART	240UK	1
		M. PART	230WG	1
640082500	X-526/527 METAL FITTING OF SW	M. PART		1
640084600	GROUNDING CONTACT		1568	1
			1569	1
641014800	X-921 FRONT BAR	M. PART		1
641014900	X-921 MUSIC STAND HINGE	M. PART		2
641016500	X-922/923 SHAFT	M. PART		1
641018600	X-921 BUSHING PLATE	M. PART		1
641026202	X-122 KEY COVER PANEL A ASSEMBLY	M. PART		1
641026203	X-122 KEY COVER PANEL B ASSEMBLY	M. PART		1
641026204	X-122 HINGE 2	M. PART		3
641026205	X-122 SIDE CHASSIS L	M. PART		1
641026206	X-122 SIDE CHASSIS R	M. PART		1
641026209	X-122 HEAT SINK 1	M. PART		1
641026210	X-122 HEAT SINK ANGLE L	M. PART		1
641026211	X-122 HEAT SINK ANGLE R	M. PART		1
641026800	X-122 STAND PLATE (F)	M. PART		2
641026900	X-122 L TYPE ANGLE (LARGE)	M. PART		2
641026901	X-122 L TYPE ANGLE (SMALL)	M. PART		1
641027800	X-122 PHONE JACK CHASSIS	M. PART		1
641029000	X-121 FRONT PANEL 2	M. PART		1
641030200	X-120 SHIELD CHASSIS (SMALL)	M. PART		1
641030400	X-120 PANEL SUPPORT	M. PART		2
641031300	X-120 STOPPER PLATE	M. PART		4
641031400	X-120 SPRING STOPPER 3	M. PART		1
641031500	X-120 HOLDER SPRING V3	M. PART		1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
641032100	X-122 FRONT BAR SPACER	M. PART		1
641032500	X-121 TOP PLATE 2 ASSEMBLY	M. PART		1
645014000	X-122 BOTTOM PLATE	M. PART		1
646035700	X-921 MUSIC STAND	M. PART		1
646035900	X-922 GEAR	M. PART		2
646036600	X-921 MUSIC STOPPER A	M. PART		1
646041100	X-122 SIDE PLATE L	M. PART		1
646041101	X-122 SIDE PLATE R	M. PART		1
646041200	X-121 RACK 1 L	M. PART		1
646041201	X-121 RACK 1 R	M. PART		1
646041400	SLIDE VR ESCUSHION 30 NO.1	M. PART		1
646041500	SHAFT COLLAR	M. PART		3

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PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
001156500	P.C. BOARD ASSEMBLY KLM-1565 C-35	M. PART	MAIN	1
001156600	P.C. BOARD ASSEMBLY KLM-1566	M. PART	PANEL	1
001156800	P.C. BOARD ASSEMBLY KLM-1568 C-35	M. PART	POWER SUPPLY	1
001156900	P.C. BOARD ASSEMBLY KLM-1569 C-35	M. PART	HEADPHONE	1
300002100	TR 2SA1670	1568		2
302003700	TR 2SC4385	1568		2
304000070	TR 2SA812-T1 (M5-7)	1565		1
304000090	TR 2SA988-T	1568		1
304020020	TR 2SC2785 T K	1568		2
304020150	TR 2SC1623-T1B (L7)	1565		4
304020230	TR 2SC3661-TA/TB(3K)	1565		6
304020260	TR 2SC1845-T ALL	1568		2
304030130	TR FA1A4M-T1B	1565		1
304060070	FET 2SK433-T12-C	1565		2
304060120	FET 2SJ125-T12-C	1565		2
310011300	BRIDGE DIODE DBF-20C	1568		1
310011900	BRIDGE DIODE RBA-402	1568		1
312010900	LED GL3ED8	1566		2
314000300	DIODE 1S-2473 T-77	1566		20
314001300	DIODE 1SS-133 T-77	1568		1
314001400	DIODE RLS-73 TE-11	1565		9
314024700	ZENER DIODE RD12ESB2-T1	1568		2
314025700	DIODE SR1M-2 TP-B	1568		1
314026100	DIODE RLR4001TE-21	1565		1
315000500	DOUBLE DIODE MC-2840-T12-1	1565		2
320001180	IC UPC1270H	1568	POWER AMP	2
320001242	IC UPC4570HA	1568	OP_AMP	1
320001310	IC UPD65012GF-A88-3B8	1565	INS91	1
320001350	IC UPD70325GJ-10-5BG (94P QFP)	1565	CPU	1
320004108	IC HD74HC138P	1568	HC_MOS	1
320009057	IC NJW-7805FA	1568	REGULATOR	1
320011146	IC M66312P	1566	LED DRIVER	1
320011151	IC M66310P	1566	LED DRIVER	1
320011152	IC M37450M4-816FP	1565	KSP	1
320012084	IC MB87728PF (QFP180)	1565	TG88	1
320012124	IC MB606E50PF-G-BND (QFP 48)	1565	DNS91	1
320021142	IC TMS57002PH	1565	DSP	2
324001006	IC UPD74HCU04GS-E2 (SOP)	1565	HC_MOS	1
324001015	IC UPC4570G2-E2 (SOP)	1565	OP_AMP	2
324001023	IC UPD6376GS-E2	1565	DAC	1
324001037	IC UPD43256AGU-10/I2L-E2	1565	S_RAM	1
324013006	IC LH532HK1	1565	MASK_ROM	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
324001038	IC UPD23C8001EGW-371-E2 (SOP)	1565	WAVE_ROM	1
324001039	IC UPD23C8001EGW-372-E2 (SOP)	1565	WAVE_ROM	1
324001040	IC UPD23C8001EGW-373-E2 (SOP)	1565	WAVE_ROM	1
324001041	IC UPD23C8001EGW-374-E2 (SOP)	1565	WAVE_ROM	1
324001042	IC UPD23C8001EGW-375-E2 (SOP)	1565	WAVE_ROM	1
324001043	IC UPD23C8001EGW-376-E2 (SOP)	1565	WAVE_ROM	1
324004003	IC HD74HC139FPER	1565	HC-MOS	2
324004050	IC HD74HC138FPER	1565	HC-MOS	1
324009014	IC NJM78L15UA-TE1	1565	REGULATOR	1
324011004	IC M5216FP-73A (8PSOP)	1565	OP-AMP	1
324011007	IC M51951BML-600	1565	RESET	1
324012001	IC MB81464-10PD-G-BB-RS2-EF	1565	D_RAM	2
334000600	PHOTO COUPLER PC-410K-TP	1565		1
335400030	CRYSTAL OSC MA-505(32MHZ)TE2412L	1565		1
335400040	CRYSTAL OSC MA-505(20MHZ)TE2412L	1565		1
350002210	SEMI FIXED VR RH0615C 13 1K	1568		2
365007800	SLIDE VR RS30111AC00NB 10KB	1566		1
365008000	SLIDE VR RS30112AC00JB 10KBX2	1566		1
375010000	TACT SW SKHJAC003A	1566		3
375010400	POWER SW SDDGA1103A TV-5	M. PART		1
375010600	TACT SW SKHJTQ001A	1566		17
400013400	POWER TRANSFORMER TC-044A	M. PART		1
402004600	COIL 2943-666673	1568		4
		1569		3
404000100	FERRITE BEAD BL03RN2-R62T4-F	1568		1
404000110	COIL BLM32A06PT	1565		68
410003600	SPEAKER FF166-0846 16cm	M. PART		2
420003801	KEYBOARD AE-88 VC53060	M. PART		1
422008500	KEY TYPE C VC50710	M. PART		---
422006501	KEY TYPE D VC50720	M. PART		---
422006502	KEY TYPE E VC50730	M. PART		---
422006503	KEY TYPE F VC50740	M. PART		---
422006504	KEY TYPE G VC50750	M. PART		---
422006505	KEY TYPE A VC50760	M. PART		---
422006506	KEY TYPE B VC50770	M. PART		---
422006507	KEY TYPE A' VC50810	M. PART		---
422006508	KEY TYPE C' VC50780	M. PART		---
422006509	KEY TYPE BLACK VC50830	M. PART		---

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
422006510	KEY SPRING VC79510	M. PART	---	
422008012	KEY CONTACT PCB VC79630 AE-88/76	M. PART	1	
422008014	KEY CONTACT PCB VC79650 AE-88	M. PART	1	
422008015	KEY CONTACT PCB VC79660 AE-88	M. PART	1	
454005600	PHONE JACK YKB21-5006	1569	1	
454006500	PIN JACK JPJ0730-01-500	1565	1	
454007700	DIN JACK VF64730	1565	1	
464002300	FUSE 125V 2A SB2	M. PART	117US	2
		M. PART	117CN	2
		M. PART	117EX	2
		M. PART	100JP	2
464061801	FUSE 250V T630mA	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AU	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
464062301	FUSE 250V T2.0A	M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220GE	1
		M. PART	230FR	1
		M. PART	230GE	1
		M. PART	230SC	1
		M. PART	230WG	1
		M. PART	230SE	1
		M. PART	240UK	1
		M. PART	240AF	1
471050201	CONNECTOR TOP B2P3-VH	1568	3	
471050500	CONNECTOR TOP B5P-VH	1568	1	
471060300	CONNECTOR TOP B3B-EH-A	1568	1	
471060400	CONNECTOR TOP B4B-EH-A	1568	2	
471060500	CONNECTOR TOP B5B-EH-A	1569	1	
471060700	CONNECTOR TOP B7B-EH-A	1565	1	
471070400	CONNECTOR TOP B4B-PH-K-S	1565	1	
471070500	CONNECTOR TOP B5B-PH-K-S	1565	2	
		1568	1	
471071200	CONNECTOR TOP B12B-PH-K-S	1565	1	
471071400	CONNECTOR TOP B14B-PH-K-S	1565	1	
		1566	1	
471071500	CONNECTOR TOP B15B-PH-K-S	1565	1	

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
475001635	HARNESS HNS-1635	M. PART	1	
475001636	HARNESS HNS-1636	M. PART	1	
475001639	HARNESS HNS-1639	M. PART	1	
475001642	HARNESS HNS-1642	M. PART	1	
475001643	HARNESS HNS-1643	M. PART	1	
475001740	HARNESS HNS-1740	M. PART	1	
475001741	HARNESS HNS-1741	M. PART	1	
475001742	HARNESS HNS-1742	M. PART	1	
475001757	HARNESS HNS-1757	M. PART	1	
475001801	HARNESS HNS-1801	M. PART	1	
500011702	CUSHION (2)	M. PART	1	
500011801	CUSHION R (FOR FRONT BAR)	M. PART	2	
500014200	RUBBER STOPPER 3	M. PART	1	
500017600	X-921 SPACER FOR FRONT BAR	M. PART	6	
500019300	X-120 RUBBER FOR FRONT BAR T=3mm	M. PART	1	
515002300	FUSE HOLDER S-N5057 #01	1568	2	
520001700	LITHIC BATTERY CR2032	1565	1	
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART	1	
525000900	DATA LINE FILTER 044S-800502	M. PART	2	
540007200	WIRE BAND PLT-1M	M. PART	8	
540008600	SPIRAL CLIP CS-8	M. PART	2	
540008601	SPIRAL CLIP CS-6	M. PART	15	
540017500	SPIRAL CLIP CP-1S	1566	2	
550009901	FELT FOR KEYBOARD (LARGE)	M. PART	1	
550014900	X-120 STOPPER FELT	M. PART	2	
550015400	CUSHION	M. PART	2	
575014900	LED SPACER LS-15-10.2 L=10.2mm	1566	2	
580031200	X-122 SHIELD SHEET (LARGE)	M. PART	1	
600004200	AC CORD HP-11J/DCB-10	M. PART	100JP	1
600004300	AC CORD DP-70/DCB-10	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1
600004500	AC CORD DAP-100/DCB-10	M. PART	240AU	1
600004600	AC CORD DEP-101/DCB-10	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
600004600	AC CORD DEP-101/DCB-10	M.PART	230GE	1
		M.PART	230SC	1
		M.PART	240UK	1
620021600	X-825M POWER SW KNOB BLK	M.PART		1
620022300	X-921 TACT SW KNOB NO.1	M.PART		20
620022500	SLIDE VR KNOB	M.PART		2
629010907	X-921 HINGE CAP	M.PART		2
630012800	X-922 KEY COVER	M.PART		1
630013900	SPEAKER NET (LARGE)	M.PART		2
630016800	X-120 MUSIC STAND PLATE (S)	M.PART	100JP	1
630017900	X-120 MUSIC STAND PLATE (S)	M.PART	220GE	1
		M.PART	117US	1
		M.PART	240GE	1
		M.PART	240AF	1
		M.PART	230WG	1
		M.PART	240AU	1
		M.PART	230SE	1
		M.PART	230FR	1
		M.PART	230GE	1
		M.PART	240UK	1
		M.PART	230SC	1
		M.PART	117EX	1
		M.PART	117CN	1
640082500	X-526/527 METAL FITTING OF SW	M.PART		1
640084600	GROUNDING CONTACT	1568		1
		1569		1
640084900	GROUND SPRING (A)	M.PART		1
640100100	X-122 FRONT PANEL 3	M.PART		1
641014800	X-921 FRONT BAR	M.PART		1
641014900	X-921 MUSIC STAND HINGE	M.PART		2
641016500	X-922/923 SHAFT	M.PART		1
641016600	X-921 BUSHING PLATE	M.PART		1
641026200	X-122 SHIELD CHASSIS (LARGE)	M.PART		1

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
641026202	X-122 KEY COVER PANEL A ASSEMBLY	M.PART		1
641026203	X-122 KEY COVER PANEL B ASSEMBLY	M.PART		1
641026204	X-122 HINGE 2	M.PART		3
641026205	X-122 SIDE CHASSIS L	M.PART		1
641026206	X-122 SIDE CHASSIS R	M.PART		1
641026207	X-122 TOP PLATE 3 ASSEMBLY	M.PART		1
641026209	X-122 HEAT SINK 1	M.PART		1
641026210	X-122 HEAT SINK ANGLE L	M.PART		1
641026211	X-122 HEAT SINK ANGLE R	M.PART		1
641026800	X-122 STAND PLATE (F)	M.PART		2
641026900	X-122 L TYPE ANGLE (LARGE)	M.PART		2
641026901	X-122 L TYPE ANGLE (SMALL)	M.PART		1
641027800	X-122 PHONE JACK CHASSIS	M.PART		1
641030400	X-120 PANEL SUPPORT	M.PART		2
641031300	X-120 STOPPER PLATE	M.PART		2
641031400	X-120 SPRING STOPPER 3	M.PART		1
641031500	X-120 HOLDER SPRING V3	M.PART		1
641032100	X-122 FRONT BAR SPACER	M.PART		1
641033300	X-122 SHIELD ANGLE	M.PART		1
645014000	X-122 BOTTOM PLATE	M.PART		1
646035700	X-921 MUSIC STAND	M.PART		1
646035900	X-922 GEAR	M.PART		2
646036600	X-921 MUSIC STOPPER A	M.PART		1
646041100	X-122 SIDE PLATE L	M.PART		1
646041101	X-122 SIDE PLATE R	M.PART		1
646041200	X-121 RACK 1 L	M.PART		1
646041201	X-121 RACK 1 R	M.PART		1

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PART CODE	PART NAME/SPECIFICATION	P.C.BOARD	NOTE	Q'TY
646041400	SLIDE VR ESCUSHION 30 NO.1	M.PART		2
646041500	SHAFT COLLAR	M.PART		3
649007400	BATTERY HOLDER	1565		1

PART CODE	PART NAME/SPECIFICATION	P.C.BOARD	NOTE	Q'TY
001156501	P.C.BORAD ASSEMBLY KLM-1565 C-45	M.PART	MAIN	1
001156700	P.C.BORAD ASSEMBLY KLM-1567 C-45/55	M.PART	PANEL	1
001156803	P.C.BORAD ASSEMBLY KLM-1568 C-45	M.PART	POWER SUPPLY	1
001156900	P.C.BORAD ASSEMBLY KLM-1569	M.PART	HEADPHONE	1
300002100	TR 2SA1670	1568		2
302003700	TR 2SC4385	1568		2
304000070	TR 2SA812-T1 (M5-7)	1565		1
304000090	TR 2SA988-T	1568		1
304020020	TR 2SC2785 T K	1568		2
304020110	TR BN1A4M-T	1567		4
304020150	TR 2SC1623-T1B (L7)	1565		4
304020230	TR 2SC3661-TA/TB(3K)	1565		6
304020260	TR 2SC1845-T ALL	1568		2
304030130	TR FA1A4M-T1B	1565		1
304060070	FET 2SK433-T12-C	1565		2
304060120	FET 2SJ125-T12-C	1565		2
310011300	BRIDGE DIODE DBF-20C	1568		1
310011900	BRIDGE DIODE RBA-402	1568		1
312010900	LED GL3ED8	1567		2
314001300	DIODE 1SS-133 T-77	1567		27
		1568		1
314001400	DIODE RLS-73 TE-11	1565		9
314024700	ZENER DIODE RD12ESB2-T1	1568		2
314025700	DIODE SRIM-2 TP-B	1568		1
314026100	DIODE RLR400ITE-21	1565		1
315000500	DOUBLE DIODE MC-2840-T12-1	1565		2
320001180	IC UPC1270H	1568	POWER AMP	2
320001242	IC UPC4570HA	1568	OP_AMP	1
320001310	IC UPD65012GF-A88-3B8	1565	INS91	1
320001350	IC UPD70325GJ-10-5BG (94P QFP)	1565	CPU	1
320004108	IC HD74HC138	1567	HC_MOS	1
320009057	IC NJM-7805FA	1568	REGULATOR	1
320011123	IC M66313FP (SOP)	1567	LED DRIVER	1
320011152	IC M37450M4-616FP	1565	KSP	1
320012084	IC MB87726PF (QFP160)	1565	TG88	1
320012124	IC MB606E50PF-G-BND (QFP 48)	1565	DNS91	1
320021142	IC TMS57002PH	1565	DSP	2
324001006	IC UPD74HCU04GS-E2 (SOP)	1565	HC_MOS	1
324001015	IC UPC4570G2-E2 (SOP)	1565	OP_AMP	2
324001023	IC UPD6376GS-E2	1565	DAC	1
324001037	IC UPD43256AGU-10/12L-E2	1565	S_RAM	1
324001038	IC UPD23C8001EGW-37I-E2 (SOP)	1565	WAVE_ROM	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
324001039	IC UPD23C8001EGW-372-E2 (SOP)	1565	WAVE_ROM	1
324001040	IC UPD23C8001EGW-373-E2 (SOP)	1565	WAVE_ROM	1
324001041	IC UPD23C8001EGW-374-E2 (SOP)	1565	WAVE_ROM	1
324001042	IC UPD23C8001EGW-375-E2 (SOP)	1565	WAVE_ROM	1
324001043	IC UPD23C8001EGW-376-E2 (SOP)	1565	WAVE_ROM	1
324004003	IC HD74HC139FPER	1565	HC-MOS	2
324004050	IC HD74HC138FPER	1565	HC-MOS	1
324009014	IC NJW78L15UA-TE1	1565	REGULATOR	1
324011004	IC M5216FP-73A (8PSOP)	1565	OP_AMP	1
324011007	IC M51951BML-600C	1565	RESET	1
324012001	IC MB81464-1OPD-G-BB-RS2-EF	1565	D_RAM	2
324013002	IC LH5381E0	1565	WAVE_ROM	1
324013003	IC LH5381E1	1565	WAVE_ROM	1
324013004	IC LH5381E2	1565	WAVE_ROM	1
324013006	IC LH532HK1	1565	MASK_ROM	1
334000600	PHOTO COUPLER PC-410K-TP	1565		1
335400030	CRYSTAL OSC MA-505(32MHZ)TE2412L	1565		1
335400040	CRYSTAL OSC MA-505(20MHZ)TE2412L	1565		1
350002210	SEMI FIXED VR RH0815C 13 1K	1568		2
365007800	SLIDE VR RS30111AC00NB 10KB	1567		1
365008000	SLIDE VR RS30112AC00JB 10KBX2	1567		1
375010000	TACT SW SKHJAC003A	1567		3
375010400	POWER SW SDDGA1103A TV-5	M.PART		1
375010600	TACT SW SKHJTQ001A	1567		24
400013400	POWER TRANSFORMER TC-044A	M.PART		1
402004800	COIL 2943-666673	1568		4
		1569		3
404000100	FERRITE BEAD BL03RN2-R62T4-F	1568		1
404000110	COIL BLM32A06PT	1565		68
410003600	SPEAKER FF166-0846 16cm	M.PART		2
420003801	KEYBOARD AE-88 VC53060	M.PART		1
422006500	KEY TYPE C VC50710	M.PART		---
422006501	KEY TYPE D VC50720	M.PART		---
422006502	KEY TYPE E VC50730	M.PART		---
422006503	KEY TYPE F VC50740	M.PART		---
422006504	KEY TYPE G VC50750	M.PART		---
422006505	KEY TYPE A VC50760	M.PART		---

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
422006506	KEY TYPE B VC50770	M.PART		---
422006507	KEY TYPE A' VC50810	M.PART		---
422006508	KEY TYPE C' VC50780	M.PART		---
422006509	KEY TYPE BLACK VC50830	M.PART		---
422006510	KEY SPRING VC79510	M.PART		---
422008012	KEY CONTACT PCB VC79630 AE-88/76	M.PART		1
422008014	KEY CONTACT PCB VC79650 AE-88	M.PART		1
422008015	KEY CONTACT PCB VC79660 AE-88	M.PART		1
454005600	PHONE JACK YKB21-5006	1569		1
454006500	PIN JACK JP0730-01-500 (4P)	1565		1
454007700	DIN JACK VF64730 (3P)	1565		1
464002300	FUSE 125V 2A SB2	M.PART	117US	2
		M.PART	117CN	2
		M.PART	117EX	2
464061801	FUSE 250V T630mA	M.PART	100JP	2
		M.PART	220GE	1
		M.PART	240GE	1
		M.PART	240AU	1
		M.PART	240AF	1
		M.PART	230GE	1
		M.PART	230FR	1
		M.PART	230SE	1
		M.PART	230WG	1
		M.PART	230SC	1
		M.PART	240UK	1
464062301	FUSE 250V T2.0A	M.PART	240AU	1
		M.PART	240GE	1
		M.PART	220GE	1
		M.PART	230FR	1
		M.PART	230GE	1
		M.PART	230SC	1
		M.PART	230WG	1
		M.PART	230SE	1
		M.PART	240UK	1
		M.PART	240AF	1
471050201	CONNECTOR TOP B2P3-VH	1568		3
471050500	CONNECTOR TOP B5P-VH	1568		1
471060300	CONNECTOR TOP B3B-EH-A	1568		1
471060400	CONNECTOR TOP B4B-EH-A	1568		2
471060500	CONNECTOR TOP B5B-EH-A	1569		1
471060700	CONNECTOR TOP B7B-EH-A	1565		1
471070400	CONNECTOR TOP B4B-PH-K-S	1565		1
471070500	CONNECTOR TOP B5B-PH-K-S	1565		2
		1567		1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
471071200	CONNECTOR TOP B12B-PH-K-S	1565		1
471071400	CONNECTOR TOP B14B-PH-K-S	1565		1
		1567		1
471071500	CONNECTOR TOP B15B-PH-K-S	1565		1
475001635	HARNESS HNS-1635	M. PART		1
475001739	HARNESS HNS-1739	M. PART		1
475001741	HARNESS HNS-1741	M. PART		1
475001750	HARNESS HNS-1750	M. PART		1
475001752	HARNESS HNS-1752	M. PART		1
475001753	HARNESS HNS-1753	M. PART		1
475001754	HARNESS HNS-1754	M. PART		1
475001801	HARNESS HNS-1801	M. PART		1
475001802	HARNESS HNS-1802	M. PART		1
475001810	HARNESS HNS-1810	M. PART		1
500011702	CUSHION (2)	M. PART		2
500011801	CUSHION R (FOR FRONT BAR)	M. PART		2
500014200	RUBBER STOPPER 3	M. PART		1
500016100	X-922 CUSHION	M. PART		1
500017600	X-921 SPACER FOR FRONT BAR	M. PART		3
500019300	X-120 RUBBER FOR FRONT BAR T=3mm	M. PART		1
515002300	FUSE HOLDER S-N5057 #01	1568		4
520001700	LITHIC BATTERY CR2032	1565		1
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
525000900	DATA LINE FILTER 044S-800502	M. PART		2
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		2
540008601	SPIRAL CLIP CS-6	M. PART		15
540017500	SPIRAL CLIP CP-1S	1567		1
550009901	FELT FOR KEYBOARD (LARGE)	M. PART		1
550014900	X-120 STOPPER FELT	M. PART		1
550015000	X-120 KC FELT	M. PART		1
550015200	X-123 KC FELT L	M. PART		1
550015201	X-123 KC FELT R	M. PART		1
575014900	LED SPACER LS-15-10.2 L=10.2mm	1567		2
600004200	AC CORD HP-11J/DCB-10	M. PART	100JP	1
600004300	AC CORD DP-70/DCB-10	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
600004500	AC CORD DAP-100/DCB-10	M. PART	240AU	1
600004600	AC CORD DEP-101/DCB-10	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
620021600	X-825M POWER SW KNOB BLK	M. PART		1
620022300	X-921 TACT SW KNOB NO.1	M. PART		27
620022500	SLIDE VR KNOB	M. PART		2
629010907	X-921 HINGE CAP	M. PART		2
630012800	X-922 KEY COVER	M. PART		1
630013900	SPEAKER NET (LARGE)	M. PART		2
630017400	X-123 MUSIC STAND PLATE (G)	M. PART	100JP	1
630018000	X-123 MUSIC STAND PLATE (G)	M. PART	220GE	1
		M. PART	117US	1
		M. PART	240GE	1
		M. PART	240AF	1
		M. PART	230WG	1
		M. PART	240AU	1
		M. PART	230SE	1
		M. PART	230FR	1
		M. PART	230GE	1
		M. PART	240UK	1
		M. PART	230SC	1
		M. PART	117EX	1
		M. PART	117CN	1
640082500	X-526/527 METAL FITTING OF SW	M. PART		1
640084600	GROUNDING CONTACT	1568		1
		1569		1
640099900	X-123 SIDE CHASSIS L	M. PART		1
640099901	X-123 SIDE CHASSIS R	M. PART		1
641010000	X-123 FRONT PANEL 1	M. PART		1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
641014800	X-921 FRONT BAR	M. PART		1
641014900	X-921 MUSIC STAND HINGE	M. PART		2
641016500	X-922/923 SHAFT	M. PART		1
641016600	X-921 BUSHING PLATE	M. PART		1
641026200	X-122 SHIELD CHASSIS (LARGE)	M. PART		1
641026204	X-122 HINGE 2	M. PART		4
641026209	X-122 HEAT SINK 1	M. PART		1
641026210	X-122 HEAT SINK ANGLE L	M. PART		1
641026211	X-122 HEAT SINK ANGLE R	M. PART		1
641026500	X-123 TOP PLATE 1 ASSEMBLY	M. PART		1
641026700	X-123/124 FRONT GRILL	M. PART		1
641026701	X-123/124 KEY COVER PANEL A	M. PART		1
641026702	X-123/124 KEY COVER PANEL B	M. PART		1
641026800	X-122 STAND PLATE (F)	M. PART		2
641026900	X-122 L TYPE ANGLE (LARGE)	M. PART		2
641026901	X-122 L TYPE ANGLE (SMALL)	M. PART		1
641027800	X-122 PHONE JACK CHASSIS	M. PART		1
641030400	X-120 PANEL SUPPORT	M. PART		1
641031300	X-120 STOPPER PLATE	M. PART		4
641031400	X-120 SPRING STOPPER 3	M. PART		1
641031500	X-120 HOLDER SPRING V3	M. PART		1
641032100	X-122 FRONT BAR SPACER	M. PART		1
645014300	X-123 BOTTOM PLATE 1	M. PART		1
646035700	X-921 MUSIC STAND	M. PART		1
646035900	X-922 GEAR	M. PART		2

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
646036600	X-921 MUSIC STOPPER A	M. PART		1
646041400	SLIDE VR ESCUSHION 30 NO.1	M. PART		2
646041500	SHAFT COLLAR	M. PART		3
646041900	X-123/124 SIDE PLATE L	M. PART		1
646041901	X-123/124 SIDE PLATE R	M. PART		1
646042300	X-123 RACK 2 L	M. PART		1
646042301	X-123 RACK 2 R	M. PART		1
649007400	BATTERY HOLDER		1565	1

FOR C-55

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
001156502	P.C. BOARD ASSEMBLY KLM-1565/C-55	M. PART	MAIN	1
001156700	P.C. BOARD ASSEMBLY KLM-1567/C-45/55	M. PART	PANEL	1
001156801	P.C. BOARD ASSEMBLY KLM-1568/C-55	M. PART	POWER SUPPLY	1
001156900	P.C. BOARD ASSEMBLY KLM-1569	M. PART	HEADPHONE	1
300002100	TR 2SA1670	1568		2
302003700	TR 2SC4385	1568		2
30400070	TR 2SA812-T1 (M5-7)	1565		1
30400090	TR 2SA988-T	1568		1
304020020	TR 2SC2785 T K	1568		2
304020110	TR BN1A4M-T	1567		4
304020150	TR 2SC1623-T1B (L7)	1565		4
304020230	TR 2SC3661-TA/TB(3K)	1565		6
304020260	TR 2SC1845-T ALL	1568		2
304030130	TR FA1A4M-T1B	1565		1
304060070	FET 2SK433-T12-C	1565		2
304060120	FET 2SJ125-T12-C	1565		2
310011300	BRIDGE DIODE DBF-20C	1568		1
310011900	BRIDGE DIODE RBA-402	1568		1
312010900	LED GL3ED8	1567		2
314001300	DIODE ISS-133 T-77	1568		1
		1567		27
314001400	DIODE RLS-73 TE-11	1565		9
314024700	ZENER DIODE RD12ESB2-T1	1568		2
314025700	DIODE SRIM-2 TP-B	1568		1
314026100	DIODE RLR4001TE-21	1565		1
315000500	DOUBLE DIODE MC-2840-T12-1	1565		2
320001180	IC UPC1270H	1568	POWER AMP	2
320001242	IC UPC4570HA	1568	OP_AMP	2
320001297	IC UPD63200GS	1565	DAC	1
320001310	IC UPD65012GF-A88-3B8	1565	INS91	1
320001350	IC UPD70325GJ-10-5BG (94P QFP)	1565	CPU	1
320004108	IC HD74HC138	1567	HC_MOS	1
320009057	IC NJM-7805FA	1568	REGULATOR	1
320011123	IC M66313FP (SOP)	1567	LED DRIVER	1
320011152	IC M37450M4-616FP	1565	KSP	1
320012084	IC MB87726PF (QFP160)	1565	TG88	2
320012124	IC MB806E50PF-G-BND (QFP 48)	1565	DNS91	1
320021142	IC TMS57002PH	1565	DSP	3
324001006	IC UPD74HCU04GS-E2 (SOP)	1565	HC_MOS	1
324001015	IC UPC4570G2-E2 (SOP)	1565	OP_AMP	2
324001037	IC UPD43256AGU-10/12L-E2	1565	S_RAM	1

PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
324001038	IC UPD23C8001EGW-371-E2 (SOP)	1565	WAVE_ROM	1
324001039	IC UPD23C8001EGW-372-E2 (SOP)	1565	WAVE_ROM	1
324001040	IC UPD23C8001EGW-373-E2 (SOP)	1565	WAVE_ROM	1
324001041	IC UPD23C8001EGW-374-E2 (SOP)	1565	WAVE_ROM	1
324001042	IC UPD23C8001EGW-375-E2 (SOP)	1565	WAVE_ROM	1
324001043	IC UPD23C8001EGW-376-E2 (SOP)	1565	WAVE_ROM	1
324004003	IC HD74HC139FPER	1565	HC-MOS	2
324004050	IC HD74HC138FPER	1565	HC-MOS	1
324009014	IC NJM78L15UA-TE1	1565	REGULATOR	1
324011004	IC M5216FP-73A (8PSOP)	1565	OP_AMP	1
324011007	IC M51951BML-600C	1565	RESET	1
324012001	IC MB81464-10PD-G-BB-RS2-EF	1565	D_RAM	2
324013002	IC LH5381E0	1565	WAVE_ROM	1
324013003	IC LH5381E1	1565	WAVE_ROM	1
324013004	IC LH5381E2	1565	WAVE_ROM	1
324013006	IC LH532HK1	1565	MASK_ROM	1
334000600	PHOTO COUPLER PC-410K-TP	1565		1
335400030	CRYSTAL OSC MA-505(32MHZ)TE2412L	1565		1
335400040	CRYSTAL OSC MA-505(20MHZ)TE2412L	1565		1
350002210	SEMI FIXED VR RH0615C 13 1K	1568		2
365007800	SLIDE VR RS30111AC00NB 10KB	1567		1
365008000	SLIDE VR RS30112AC00JB 10KBX2	1567		1
375010000	TACT SW SKHJAC003A	1567		3
375010400	POWER SW SDDGA1103A TV-5	M. PART		1
375010600	TACT SW SKHJTQ001A	1567		24
400013200	POWER TRANSFORMER TC-045	M. PART		1
402004500	COIL 1.8MH	1568		1
402004600	COIL 2943-666673	1568		4
		1569		3
404000100	FERRITE BEAD BL03RN2-R62T4-F	1568		1
404000110	COIL BLM32A06PT	1565		68
410003300	SPEAKER FT50-L5	M. PART		2
410003700	SPEAKER FF166-835E	M. PART		1
410003800	SPEAKER FF102-K3 10cm	M. PART		2
420003801	KEYBOARD AE-88 VC53060	M. PART		1
422006500	KEY TYPE C VC50710	M. PART		---
422006501	KEY TYPE D VC50720	M. PART		---
422006502	KEY TYPE E VC50730	M. PART		---
422006503	KEY TYPE F VC50740	M. PART		---

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
422006504	KEY TYPE G VC50750	M. PART	---	
422006505	KEY TYPE A VC50760	M. PART	---	
422006506	KEY TYPE B VC50770	M. PART	---	
422006507	KEY TYPE A' VC50810	M. PART	---	
422006508	KEY TYPE C' VC50780	M. PART	---	
422006509	KEY TYPE BLACK VC50830	M. PART	---	
422006510	KEY SPRING VC79510	M. PART	---	
422008012	KEY CONTACT PCB VC79630 AE-88/76	M. PART	1	
422008014	KEY CONTACT PCB VC79650 AE-88	M. PART	1	
422008015	KEY CONTACT PCB VC79660 AE-88	M. PART	1	
454005600	PHONE JACK YKB21-5006	1569	1	
454006500	PIN JACK JPJ0730-01-500 (4P)	1565	1	
454007700	DIN JACK VF64730 (3P)	1565	1	
464002300	FUSE 125V 2A SB2	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1
		M. PART	100JP	1
464002500	FUSE 125V 3.15A SB3.15	M. PART	117US	1
		M. PART	117CN	1
		M. PART	117EX	1
		M. PART	100JP	1
464062101	FUSE 250V T1.25A	M. PART	220GE	1
		M. PART	240GE	1
		M. PART	240AU	1
		M. PART	240AF	1
		M. PART	230GE	1
		M. PART	230FR	1
		M. PART	230SE	1
		M. PART	230WG	1
		M. PART	230SC	1
		M. PART	240UK	1
464062301	FUSE 250V T2.0A	M. PART	240AU	1
		M. PART	240GE	1
		M. PART	220GE	1
		M. PART	230FR	1
		M. PART	230GE	1
		M. PART	230SC	1
		M. PART	230WG	1
		M. PART	230SE	1
		M. PART	240UK	1
		M. PART	240AF	1
471050200	CONNECTOR TOP B2P-VH	1568	1	
471050201	CONNECTOR TOP B2P3-VH	1568	3	

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
471050500	CONNECTOR TOP B5P-VH	1568		1
471060300	CONNECTOR TOP B3B-EH	1568		1
471060400	CONNECTOR TOP B4B-EH	1568		1
471060500	CONNECTOR TOP B5B-EH	1569		1
471060700	CONNECTOR TOP B7B-EH	1565		1
471060800	CONNECTOR TOP B8B-EH	1568		1
471070400	CONNECTOR TOP B4B-PH	1565		1
471070500	CONNECTOR TOP B5B-PH	1565		2
		1567		1
471071200	CONNECTOR TOP B12B-PH	1565		1
471071400	CONNECTOR TOP B14B-PH	1565		1
		1567		1
471071500	CONNECTOR TOP B15B-PH	1565		1
475001741	HARNESS HNS-1741	M. PART		1
475001748	HARNESS HNS-1748	M. PART		1
475001749	HARNESS HNS-1749	M. PART		1
475001750	HARNESS HNS-1750	M. PART		1
475001752	HARNESS HNS-1752	M. PART		1
475001753	HARNESS HNS-1753	M. PART		1
475001754	HARNESS HNS-1754	M. PART		1
475001755	HARNESS HNS-1755	M. PART		1
475001756	HARNESS HNS-1756	M. PART		1
475001801	HARNESS HNS-1801	M. PART		1
475001802	HARNESS HNS-1802	M. PART		1
500011702	CUSHION (2)	M. PART		3
500011801	CUSHION R (FOR FRONT BAR)	M. PART		2
500014200	RUBBER STOPPER 3	M. PART		1
500016100	X-922/923 PANEL CUSHION	M. PART		1
500017600	X-921 SPACER FOR FRONT BAR	M. PART		3
500018700	X-124 GASKET FOR WOOFER (LARGE)	M. PART		1
500018800	X-124 CORD PACKING 1	M. PART		1
500018900	X-124 PACKING 2	M. PART		1
500019300	X-120 RUBBER FOR FRONT BAR T=3mm	M. PART		1
515002300	FUSE HOLDER S-N5057 #01	1568		4
520001700	LITHIC BATTERY CR2032	1568		1
525000100	DATA LINE FILTER ESD-R-25D-B	M. PART		1
525000900	DATA LINE FILTER 044S-800502	M. PART		2
540007200	WIRE BAND PLT-1M	M. PART		8
540008600	SPIRAL CLIP CS-8	M. PART		2
540008601	SPIRAL CLIP CS-6	M. PART		17
540017500	SPIRAL CLIP CP-1S	1567		2

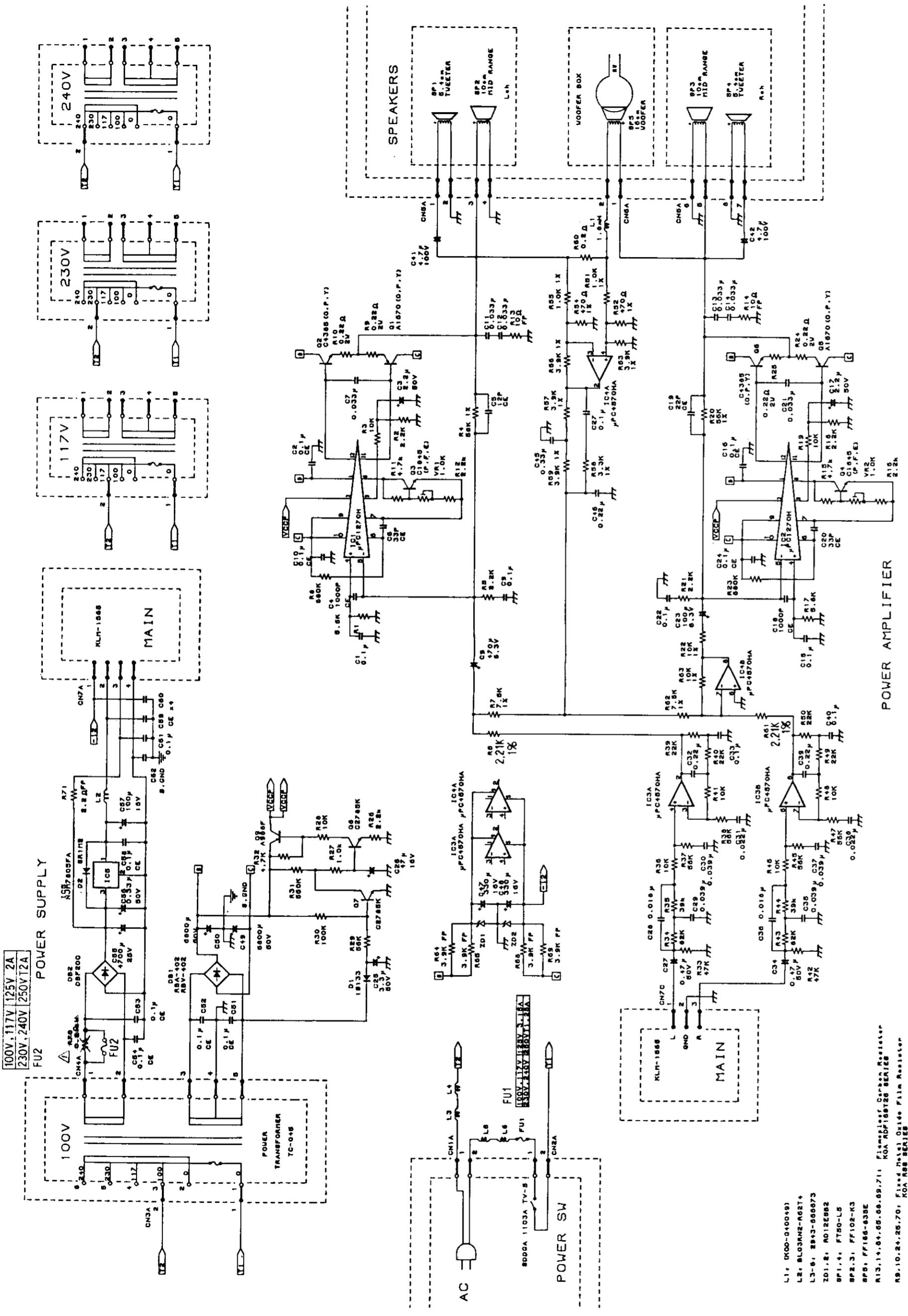
PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
550009901	FELT FOR KEYBOARD (LARGE)	M.PART		1
550014700	X-922 FELT	M.PART		2
550014900	X-120 STOPPER FELT	M.PART		1
550015000	X-120 KC FELT	M.PART		1
550015200	X-123 KC FELT L	M.PART		1
550015201	X-123 KC FELT R	M.PART		1
550015300	X-124 FELT FOR WOOFER	M.PART		1
575014900	LED SPACER LS-15-10.2 L=10.2mm	1567		2
600004200	AC CORD HP-11J/DCB-10	M.PART	100JP	1
600004300	AC CORD DP-70/DCB-10	M.PART	117US	1
		M.PART	117CN	1
		M.PART	117EX	1
600004500	AC CORD DAP-100/DCB-10	M.PART	240AU	1
600004600	AC CORD DEP-101/DCB-10	M.PART	220GE	1
		M.PART	240GE	1
		M.PART	240AF	1
		M.PART	230GE	1
		M.PART	230FR	1
		M.PART	230SE	1
		M.PART	230WG	1
		M.PART	230SC	1
		M.PART	240UK	1
620021600	X-825M POWER SW KNOB BLK	M.PART		1
620022300	X-921 TACT SW KNOB NO.1	M.PART		27
620022500	SLIDE VR KNOB	M.PART		2
629010907	X-921 HINGE CAP	M.PART		2
630012800	X-922 KEY COVER	M.PART		1
630017400	X-123 MUSIC STAND PLATE (G)	M.PART	100JP	1
630018000	X-123 MUSIC STAND PLATE (G)	M.PART	220GE	1
		M.PART	117US	1
		M.PART	240GE	1
		M.PART	240AF	1
		M.PART	230WG	1
		M.PART	240AU	1
		M.PART	230SE	1
		M.PART	230FR	1
		M.PART	230GE	1

PART CODE	PART NAME/SPECIFICATION	P.C.BORD	NOTE	Q'TY
630018000	X-123 MUSIC STAND PLATE (G)	M.PART	240UK	1
		M.PART	230SC	1
		M.PART	117EX	1
		M.PART	117CN	1
640082500	X-526/527 METAL FITTING OF SW	M.PART		1
640084600	GROUNDING CONTACT		1568	1
			1569	1
640086300	SPEAKER NET (LARGE)	M.PART		1
640099900	X-123 SIDE CHASSIS L	M.PART		1
640099901	X-123 SIDE CHASSIS R	M.PART		1
640100001	X-124 FRONT PANEL	M.PART		1
641014800	X-921 FRONT BAR	M.PART		1
641014900	X-921 MUSIC STAND HINGE	M.PART		2
641016500	X-922/923 SHAFT	M.PART		1
641016600	X-921 BUSHING PLATE	M.PART		1
641016700	X-921 RADIATION COVER	M.PART		1
641026200	X-122 SHIELD CHASSIS (LARGE)	M.PART		1
641026204	X-122 HINGE 2	M.PART		4
641026210	X-122 HEAT SINK ANGLE L	M.PART		1
641026211	X-122 HEAT SINK ANGLE R	M.PART		1
641026600	X-124 TOP PLATE 2 ASSEMBLY	M.PART		1
641026601	X-124 HEAT SINK 2	M.PART		1
641026602	X-124 SPEAKER CHASSIS L	M.PART		1
641026603	X-124 SPEAKER CHASSIS R	M.PART		1
641026700	X-123/124 FRONT GRILL	M.PART		1
641026701	X-123/124 KEY COVER PANEL A	M.PART		1
641026702	X-123/124 KEY COVER PANEL B	M.PART		1
641026800	X-122 STAND PLATE (F)	M.PART		2

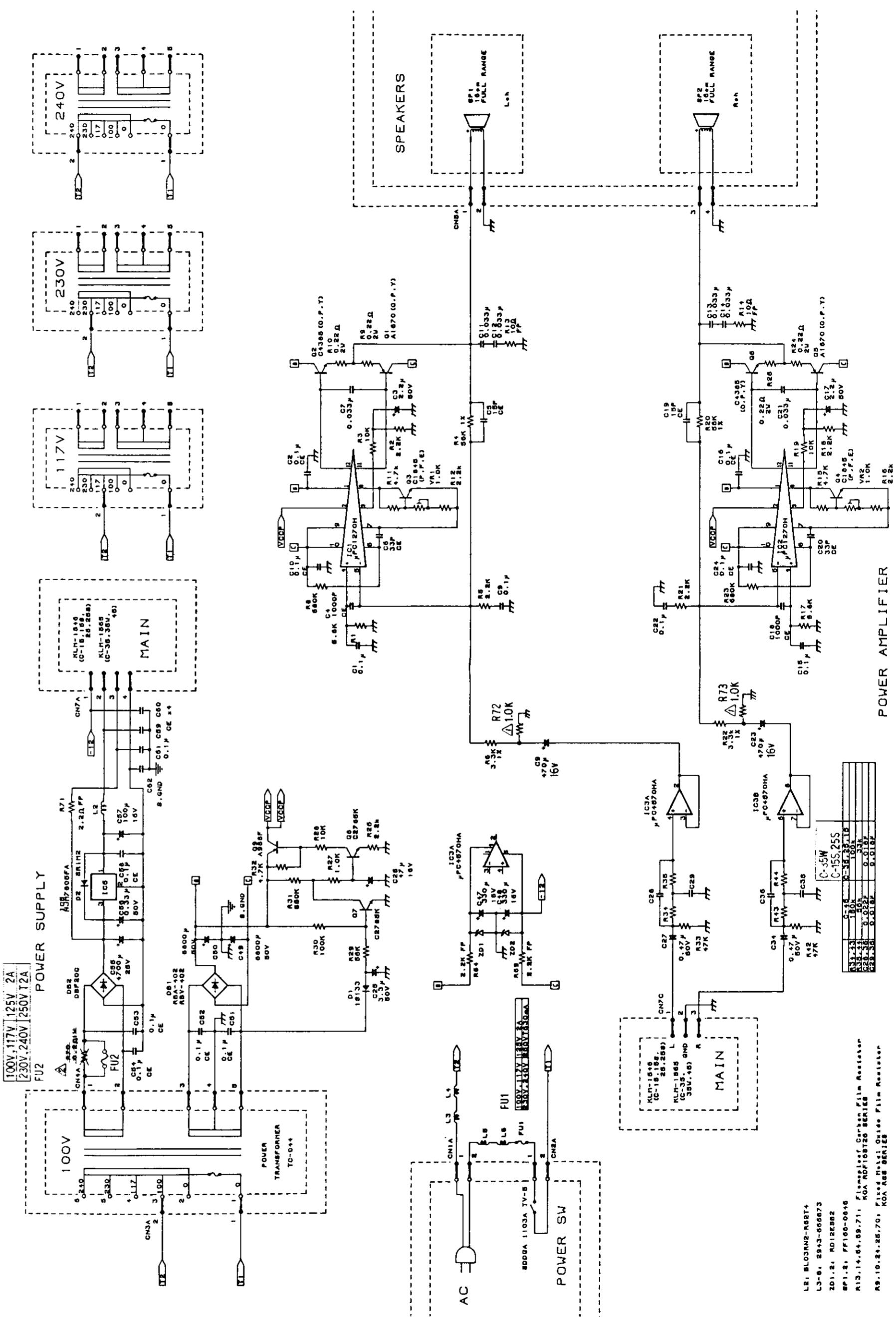
PART CODE	PART NAME/SPECIFICATION	P.C. BOARD	NOTE	Q'TY
641026900	X-122 L TYPE ANGLE (LARGE)	M. PART		2
641026901	X-122 L TYPE ANGLE (SMALL)	M. PART		1
641027000	X-124 SPEAKER ANGLE	M. PART		2
641027800	X-122 PHONE JACK CHASSIS	M. PART		1
641030400	X-120 PANEL SUPPORT	M. PART		1
641031300	X-120 STOPPER PLATE	M. PART		4
641031400	X-120 SPRING STOPPER 3	M. PART		1
641031500	X-120 HOLDER SPRING V3	M. PART		1
641032100	X-122 FRONT BAR SPACER	M. PART		1
645014400	X-124 BOTTOM PLATE 2	M. PART		1
646035700	X-921 MUSIC STAND	M. PART		1
646035900	X-922 GEAR	M. PART		2
646036600	X-921 MUSIC STOPPER A	M. PART		1
646041400	SLIDE VR ESCUSHION 30 NO.1	M. PART		2
646041500	SHAFT COLLAR	M. PART		3
646041700	X-123 SPEAKER BOX ASSEMBLY	M. PART		1
646041900	X-123/124 SIDE PLATE L	M. PART		1
646041901	X-123/124 SIDE PLATE R	M. PART		1
646042300	X-123 RACK 2 L	M. PART		1
646042301	X-123 RACK 2 R	M. PART		1
649007400	BATTERY HOLDER		1565	1

8. CIRCUIT DIAGRAM

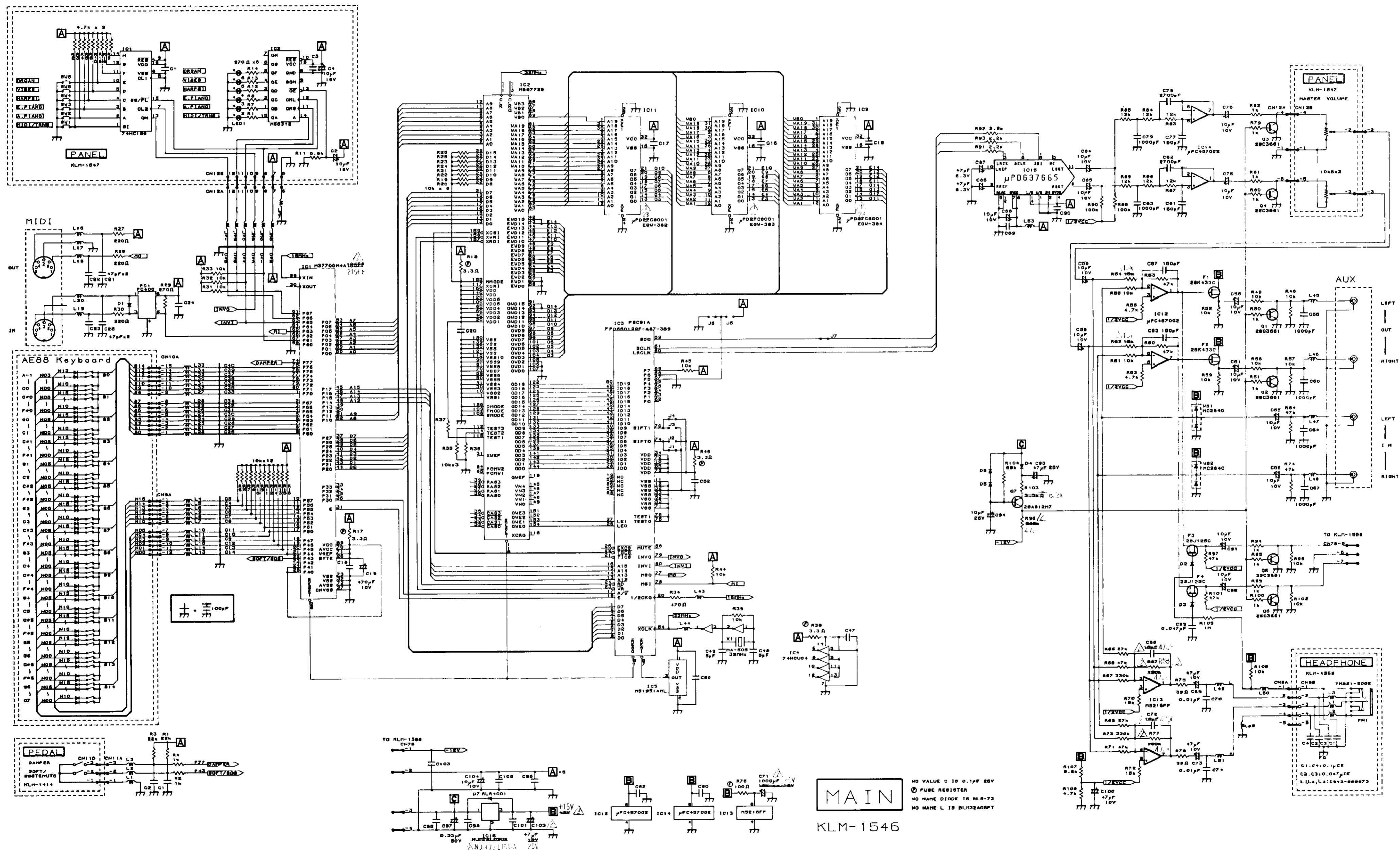
KLM-1568 for C-55/55S



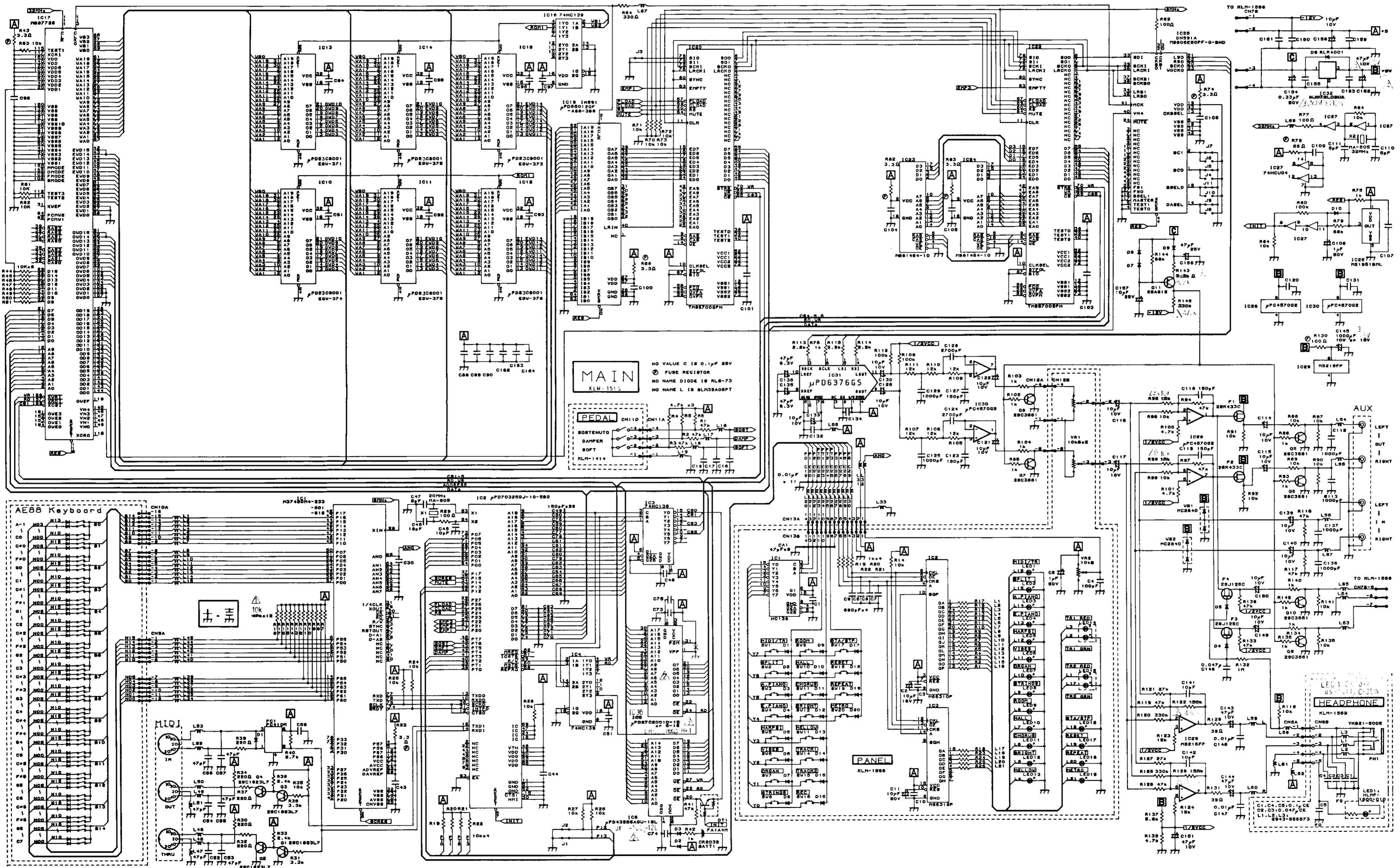
KLM-1568 for C-15/15S, 25/25S, 35/35W, 45



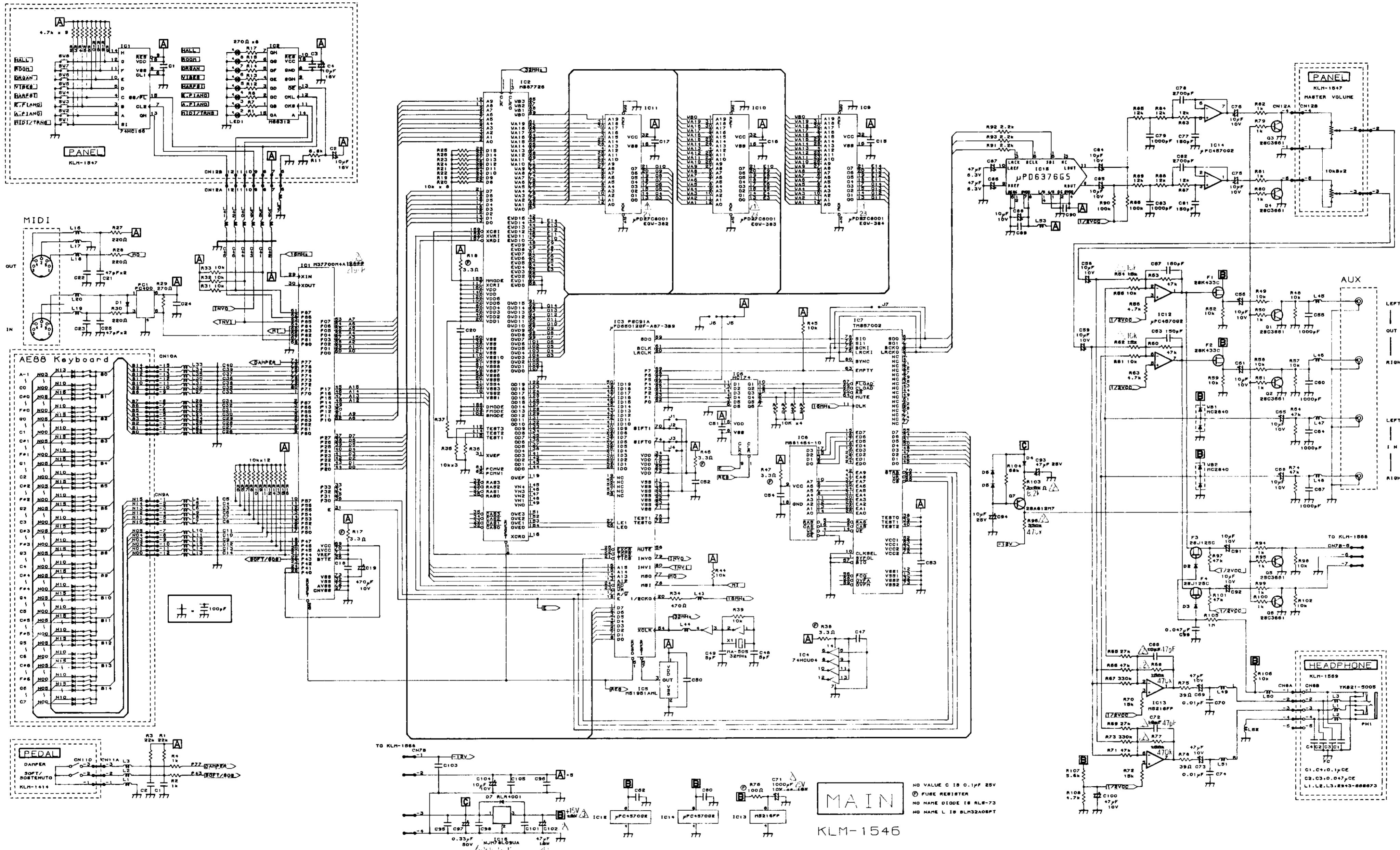
KLM-1546, 1547, 1569, 1414 for C-15/15S



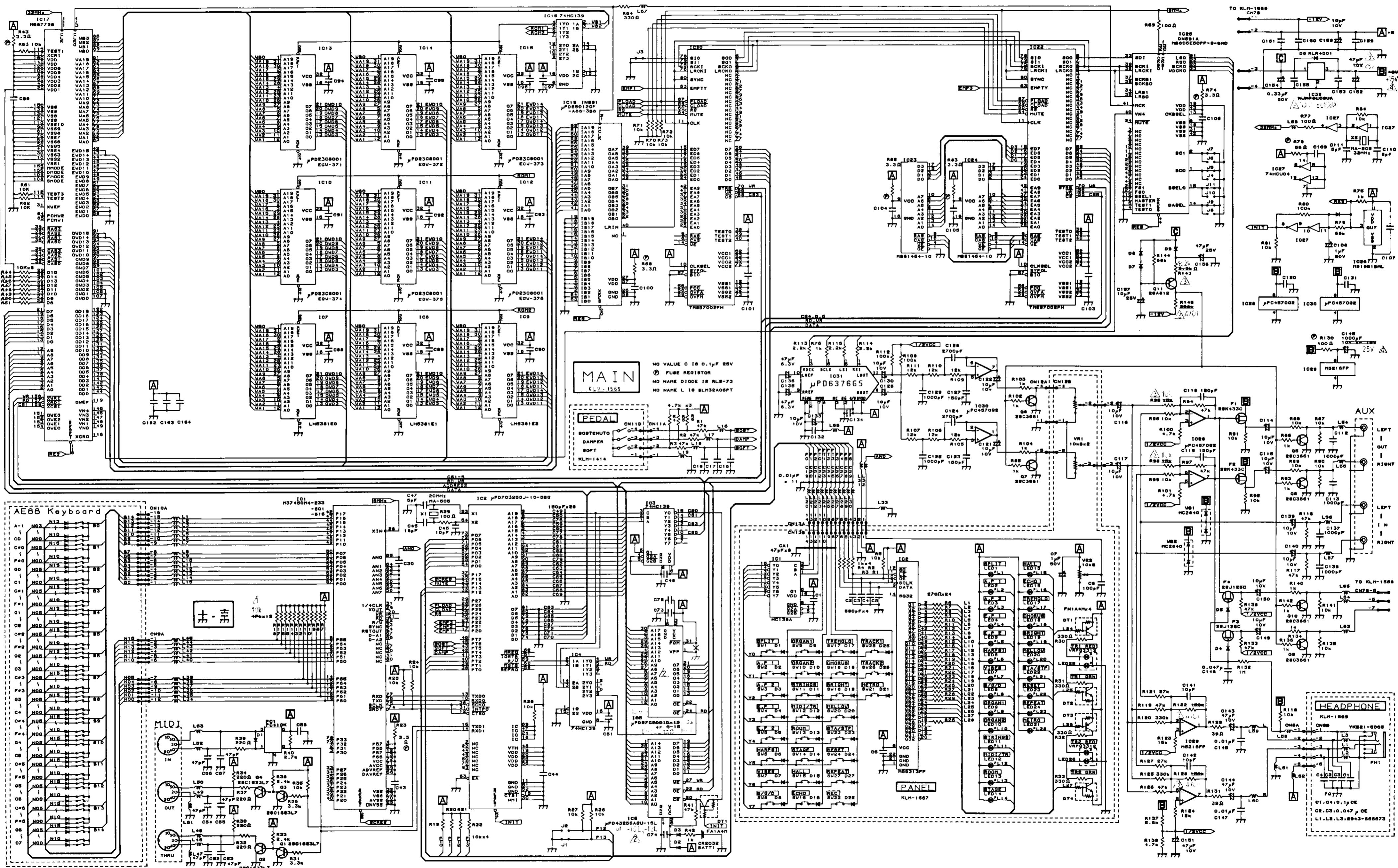
KLM-1565, 1567, 1569, 1414 for C-35/35W



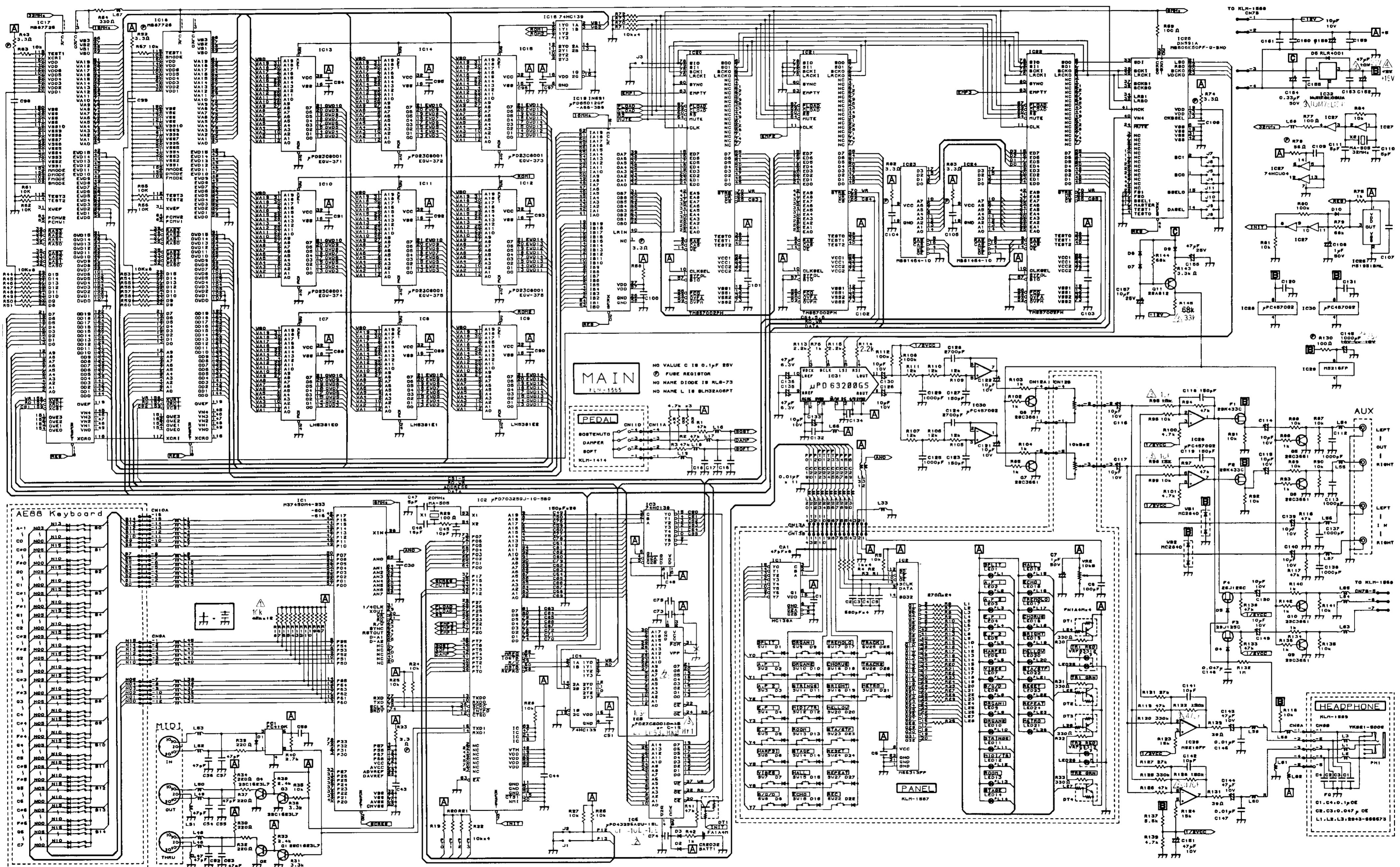
KLM-1546, 1547, 1569, 1414 for C-25/25S



KLM-1565, 1567, 1569, 1414 for C-45



KLM-1565, 1567, 1569, 1414 for C-55/55S



KORG

KORG INC. 15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo 168
