TABLE OF CONTENTS

SPECIFICATIONS ................................. Page 1
LOCATION OF CONTROLS ......................... Page 2
EXPLODED VIEW ................................ Page 3
KEYBOARD PARTS LIST .......................... Page 4
STAND EXPLODED VIEW KS-EP-97 ............... Page 4
PARTS LIST ..................................... Pages 5/6
BLOCK DIAGRAM ................................ Page 7
PHONES PCB ASSY & CIRCUIT DIAGRAM ....... Page 8
JACK PCB ASSY ................................ Page 8
CIRCUIT DIAGRAM JACK PCB ASSY ............ Page 9
BEAT & TEMPO PCB ASSY & CIRCUIT DIAGRAM Page 10
MAIN PCB ASSY ................................ Page 10
CIRCUIT DIAGRAM MAIN PCB ASSY .......... Page 11
CONTROL PCB ASSY & CIRCUIT DIAGRAM ..... Page 12
RIGHT CONTACT PCB ASSY w/RUBBER CONTACT & CIRCUIT DIAGRAM Page 13
LEFT CONTACT PCB ASSY w/RUBBER CONTACT & CIRCUIT DIAGRAM Page 13
TEST MODE .................................... Pages 14/15

SPECIFICATION

KEYBOARD
- 88 Weighted Keys with Touch-Sensitivity

KEYBOARD MODE
- Whole, Layer

MAX. POLYPHONY
- 64 Voices

TONES
- 8 Tones with layer possibility
  (Piano1, Piano2, E.Piano, Vibraphone, Harpsichord, Organ, Strings, Choir)

MASTER TUNING
- Keys Tuning (0.1Hz Steps) 415.3Hz ~ 466.2Hz

TRANSPOSE
- Key Transpose (-6 ~ +5 Semitone step)

EFFECTS
- Reverb/On/Off
- Chorus/On/Off

METRONOME
- Beat: 0, 2, 3, 4, 6
- Volume: 8 levels
- Sounds: 3 types

TRACKS
- 1 Track

SONG
- 1 song

NOTE STORAGE
- Approx. 5,000 notes

TEMPO
- Quarter note = 40 ~ 208

RESOLUTION
- 96 ticks per quarter note

CONTROL
- Play/Stop, Rec, Tempo

RATED POWER OUTPUT
- 7W x 2

SPEAKERS
- 12cm x 2

CONNECTORS
- Output Jacks (L/Mono, R)
- Input Jacks (L/Mono, R)
- Pedal connector x 2 (Damper, Soft)
- Headphone Jack x 2 (Stereo)
- MIDI In Connector, MIDI Out Connector

POWER SUPPLY
- ACJ - 12V 2A AC-Adaptor

POWER CONSUMPTION
- 1700mA

DIMENSIONS
- 1302(W) x 339 (D) x 108 (H) mm (without music stand)
- 1308(W) x 370 (D) x 767 (H) mm (with music stand)

WEIGHTS
- 12.5 Kg. (without music stand)
- 21.2 Kg. (with music stand)

SUPPLIED ACCESSORIES
- AC-Adaptor (ACJ Type)
- Owner's Manual
- Pedal Switch (DP-6)

OPTIONS
- (See Parts List on page 5-6)

DISASSEMBLY
LOCATION OF CONTROLS

REAR VIEW

LED DIODE TLHR4401 - RED
Cod. 15029284R1

BLACK KNOB W/IVORY POINTER D.12 H.16,5
Cod. K2478287

2-BUTTON GROUP 8x8 (TRASPAREN)
Cod. K2478285

2 BUTTON GROUP 12x8 (BLACK)
Cod. K2478286

BLACK KNOB W/IVORY POINTER D.12 H.16,5
Cod. K2478287

LED SPR - 325 MVWT31
Cod. 01121689

LED SPR - 325 MVWT31
Cod. 01121689

2-BUTTON GROUP 8x8 (TRASPAREN)
Cod. K2478285

LED DIODE TLHR4401 - RED
Cod. 15029284R1

5P DIN SOCKET YKFS1-5054 (2PCS)
Cod. 13429825

JACK SOCKET HLJ7101-01-3010
Cod. 13449283

POWER SWITCH KNOB N. 901-BLACK
Cod. 22488183

DC SUPPLY SOCKET HEC 2305-01-230
Cod. 13449726

For PHONES
JACK SOCKET YK8 21-5006
Cod. 13449252

> Power
Volume
Reverb Chorus
Piano 1
Piano 2
E.Piano
Vibrato
Harmonic
Organ
Strings
Choir
Tempo
LMT
MIDI
Out
In
Damper
Soft
R. Input
L. Input
R. Output
L. Output
Stereo
Mono
Stereo
Mono

Use Roland A/C Adapter Only

EP-97 Dec, 1999
**EXPLODED VIEW**

<table>
<thead>
<tr>
<th>No.</th>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>7711605000</td>
<td>VARN + SILK, TOP CABINET</td>
</tr>
<tr>
<td>2</td>
<td>K2248125</td>
<td>GRILL FILOUS SPEAKER</td>
</tr>
<tr>
<td>3</td>
<td>7711606000</td>
<td>VARN + SILK, SOCKET SUPPORT</td>
</tr>
<tr>
<td>4</td>
<td>K2198107</td>
<td>PLASTIC MUSIC REST</td>
</tr>
<tr>
<td>5</td>
<td>K2418103</td>
<td>SPEAKER 4 OHM 120.20B/FX</td>
</tr>
<tr>
<td>6</td>
<td>7711602000</td>
<td>CONTROL PCB ASSY</td>
</tr>
<tr>
<td>7</td>
<td>7711603000</td>
<td>BEAT &amp; TEMPO PCB ASSY</td>
</tr>
<tr>
<td>8</td>
<td>K2268157</td>
<td>VIBRATION DAMPER PL45 (SHORT)</td>
</tr>
<tr>
<td>9</td>
<td>K2268156</td>
<td>ANTIDUST COVER PH5</td>
</tr>
<tr>
<td>10</td>
<td>7711601000</td>
<td>MAIN PCB ASSY</td>
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<tr>
<td>11</td>
<td>7711500000</td>
<td>JACK PCB ASSY</td>
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<td>12</td>
<td>7711500000</td>
<td>HEADPHONE PCB ASSY</td>
</tr>
<tr>
<td>13</td>
<td>7698908000</td>
<td>88-KEY TP8 KEYPAD ASSY</td>
</tr>
<tr>
<td>14</td>
<td>K2248150</td>
<td>FELT WASHER 1/D 7 E/D 13 TH 1,5</td>
</tr>
</tbody>
</table>

(SCREW)

A  J2289112  SCREW 3.5x13 TCTC H:8 BRUN.
B  J2289125  SCREW 2.9x10 TCTC PR TROP
C  J2289115  SCREW 3.5x8.5 TCT PR TFR H:8
D  J2289108  SELF LOCK, SCREW M3x10 TCTC H:6
E  J2289113  NUT 3MA H:3
F  J2139102  TOOTHED WASHER 1/D 3
G  J2289102  SELF TAP, SCREW 2.9x10 TCTC
H  J2289128  SELF TAP, SCREW 3.5x19 TCTC PR8Z

---

3
KEYBOARD PARTS LIST

88 KEY TP/8P KEYBOARD ASSY (7698908000)

STAND EXPLODED VIEW & PARTS LIST (KS-EP-97)

PART LIST

<table>
<thead>
<tr>
<th>No.</th>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>K1128121</td>
<td>RIGHT SIDE FRAME</td>
</tr>
<tr>
<td>2</td>
<td>K1128123</td>
<td>LEFT SIDE FRAME</td>
</tr>
<tr>
<td>3</td>
<td>K1148141</td>
<td>REAR CROSS BAR 1132 mm</td>
</tr>
<tr>
<td>4</td>
<td>K235810101</td>
<td>FOOT F/SIDE PANEL (STAND)</td>
</tr>
<tr>
<td>5</td>
<td>K2128113</td>
<td>KEYBOARD HINGE CHASSIS</td>
</tr>
<tr>
<td>6</td>
<td>J2329107</td>
<td>JOINT BOLT ASSY</td>
</tr>
<tr>
<td>7</td>
<td>J2289186</td>
<td>SCREW 3,5x16 TC PR TFR BRUN</td>
</tr>
<tr>
<td>8</td>
<td>J2329101</td>
<td>SCREW DRIVER TYPE 2</td>
</tr>
<tr>
<td>9</td>
<td>2232541401</td>
<td>HINGES F/HEADPHONES</td>
</tr>
</tbody>
</table>
### Parts List EP-97 (117V/230V/230VE)

#### Part Numbers and Descriptions

**Notation:**
- MB = Main Board
- JB = Jack Board
- LCB = Left Contact Board
- RCB = Right Contact Board
- CB = Control Board
- BTB = Beat & Tempo Board
- HB = Headphone Board

**Safety Precautions:**
- Modules enclosed in the outer shell are handle warning devices.
- Use only replacement parts specified.
- Failure to completely fill the above items with correct number and description will result in delays or even undeliverable replacement.

**Replacement:**
- Marked parts should be made on a unit basis. Replacement parts are available by parts number.

#### Component for EMC

*NOTE:*
- Use only listed parts for replacement.
- The parts marked have Safety-Related characteristics.

#### Keyboards

- **Left Contact Board (LCB)**
- **Main Board (MB)**
- **Beat & Tempo Board (BTB)**
- **Jack Board (JB)**
- **Control Board (CB)**

#### CASING

- **# 7711504000** VARNISHED BOTTOM EP-97 1
- **# 7711605000** VARNISH-SILK TOP CABINET EP-97 1
- **# 7711606000** VARNISH-SILK SOCKET SUPPORT EP-97 1

#### JACK, SOCKET

- **# 13449262** DC SUPPLY SOCKET HEC 2305-01-230 JK1 on JB
- **# 13449263** SOCKET JACK YKB-21-5000 JK2 on JB
- **# 13449264** JACK SOCKET YHJ7101-10-301 JK3 on JB
- **# 13429255** SP DIN SOCKET YKF51-5054 (2PCS) JK1 on JB

#### SPEAKER

- **# 22488183** POWER SPEAKER SW21488183 2

#### POWER SUPPLY

- **# 01451578** I.C. DAC AK4324-VF-E2 IC18 on MB
- **# 01519994** I.C. K52581910 (OP AMP) IC7 on MB

**NOTE:**
- For details, refer to KEYBOARD PARTS LIST (Page 4)

### Capacitors

- **# 01519995** RESISTOR ARRAY E0K-101-230 JA1 on MB
- **# 01519996** RESISTOR ARRAY E0K-101-230 JA1 on MB
- **# 01529287** BLACK KNOB W/IVORY POINTER D.12 H.16.5 3
- **# 01529288** 2-BUTTON GROUP 8X9 (TRANSER.PASS) 3
- **# 01529289** 2-BUTTON GROUP 12X9 (BLACK) 5

### Resistors

- **# 01670891** I.C. PQ3DZ53U (REGULATOR) IC8 on MB
- **# 01671901** I.C. PQ05DZ11 (REGULATOR) IC2 on MB

### PCB ASSY

- **# 7711602000** CONTROL PCB ASSY EP-97 1
- **# 7711603000** BEAT & TEMPO PCB ASSY EP-97 1
- **# 7711604000** HEADPHONE PCB ASSY EP-77/97 1

**NOTE:**
- When ordering any parts listed in the parts list, please specify the following items in the order sheet.

### RESISTORS

- **# 15019995** RESISTOR ARRAY E0K-101-230 JA1 on MB
- **# 15029320** LED DIODE TLFH4401 - GREEN LED106 on MB
- **# 15029321** LED DIODE TLFH4401 - RED LED101-105 on MB

### Switches

- **# 01675152** PUSH SWITCH SDKLA1-B SW1 on JB
- **# 01675153** SWITCH TP-1010A / EVQ-PAE-50 R SW101-115 on CB

### Diodes

- **# 01501998** LED SPR-325MVWT31 LED107 on MB
- **# 01502931** LED SPR-325MVWT31 LED108 on MB

### Transistors

- **# 15199994** RESISTOR ARRAY E0K-101-230 JA1 on MB
- **# 01519995** RESISTOR ARRAY E0K-101-230 JA1 on MB

### Inductors, Coil Filters

- **# 12449382** NOISE SUP. PLT1-853C FL1 on JB
- **# 12449383** NOISE SUP. EXC-ELDR. 25V L1, 2, 4, 6 on PB

### Connectors

- **# 13386899** 20P FEMALE CONNECTOR AMP 1.27 C5N.6 on MB / CN5 on LCB
- **# 03943911** 20P MALE CONNECTOR P 2.5 M CN4 on MB

### Crystal, Resonators

- **# 00894034** QUARTZ 16.000 MHZ MA-406 X1 on MB
- **# 00369012** QUARTZ 24.576 MHZ MA-406 X2 on MB

### Power Supply

- **# 01451578** I.C. DAC AK4324-VF-E2 IC18 on MB
- **# 01519994** I.C. K52581910 (OP AMP) IC7 on MB

### Capacitors

- **# 15129114** TRANSISTOR 2SC-1815 0B on MB

**NOTE:**
- All parts are new (Initial Parts).
### Wiring, Cable

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>K3468211</td>
<td>2P Cable (100) -1C</td>
<td>From CN4 on JB to SPEAKERS</td>
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<tr>
<td>K3468178</td>
<td>20P Flat Cable (44) -2C/D</td>
<td>From CN5 on MB to CN1 on LCB</td>
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<tr>
<td>K3468165</td>
<td>20P Cable Assy (24) -2C</td>
<td>From CN6 on MB to CN1 on RCB</td>
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<tr>
<td># 7715151000</td>
<td>2P Coaxial Cable Assy (20) -2C P2 DR</td>
<td>From CN6 on JB to CN1 on RCB</td>
</tr>
<tr>
<td># 7715151000</td>
<td>7P Cable Assy (60/60) -2C P2</td>
<td>From CN3 on JB to CN5 on PB + Left Speaker</td>
</tr>
<tr>
<td>7695620000</td>
<td>4P CBL Assy (40) -2C P2</td>
<td>From CN4 on MB to CN103 on BTB</td>
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<tr>
<td>7695907000</td>
<td>4P Cable Assy (6) -2C P2</td>
<td>From CN2 on LCB to CN2 on RCB</td>
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<tr>
<td>7699516000</td>
<td>7P Cable Assy (20) -2C P2</td>
<td>From CN2 on MB to CN2 on JB</td>
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<tr>
<td>7699418000</td>
<td>10P Cable Assy (38) -2C P2</td>
<td>From CN3 on MB to CN101 on CB</td>
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<tr>
<td># 7711510000</td>
<td>2P Coaxial CBL Assy (20) -2C P2</td>
<td>From CN6 on MB to CN102 on CB</td>
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<tr>
<td># 7711511000</td>
<td>7P Coaxial CBL Assy (68/60) -2C P2</td>
<td>From CN3 on MB to CN102 on CB + Left Speaker</td>
</tr>
<tr>
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<td>10P Cable Assy (38) -2C P2</td>
<td>From CN3 on MB to CN101 on CB</td>
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<tr>
<td>01121226</td>
<td>11P Cable Assy (9) -2C P2</td>
<td>From CN8 on MB to CN1 on JB</td>
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### Screws

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<tr>
<td>J2289122</td>
<td>Screw 2.2X8 TC BRUN</td>
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<td>J2289123</td>
<td>Screw 2.9X10 TC 7.000</td>
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<td>J2289124</td>
<td>Self-tap Screw 3.5X9 TCTCPRBZ</td>
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<tr>
<td>J2289125</td>
<td>Screw 2.9X10 TC PR TROP</td>
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<td>J2289128</td>
<td>Self-tap Screw 3.5X19 TCTCPRBRUN</td>
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<tr>
<td>J2289181</td>
<td>Screw 2.9X16 TC PR BRUN</td>
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<tr>
<td>J2289182</td>
<td>Self Lock Screw 3X10 TCTC PR TROP</td>
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<td>J2289183</td>
<td>Screw 2.9X16 TC PR BRUN</td>
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<tr>
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<td>Screw 2.9X16 TC PR BRUN</td>
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<td>Screw 3.5X9.5 TPR TFR H.8</td>
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<td>Screw 3.5X13 TCTC H.8</td>
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<tr>
<td>J2289187</td>
<td>Screw 3.5X13 TCTC H.8</td>
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### Packing

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<td>K2638169</td>
<td>Right Polyst. End-Side</td>
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<tr>
<td>K2638170</td>
<td>Left Polyst. End-Side</td>
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<tr>
<td>K2678116</td>
<td>Cartene Envelope HD 70X190</td>
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<td>K2678106</td>
<td>Polyethylene Envelope 40X55</td>
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<tr>
<td># K2616214</td>
<td>Outer Packing EP-97</td>
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### Miscellaneous

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<td>K2268128</td>
<td>Red Felt MM. 1250X7X1</td>
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<tr>
<td># K2268150</td>
<td>Antis木 Cover Pl45</td>
<td>1</td>
</tr>
<tr>
<td># K2268157</td>
<td>Vibration Dumper Pl45 (Short) EP77/97</td>
<td>1</td>
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<tr>
<td># K2268158</td>
<td>Felt WASHER ID 7. ED 15 TH 1.5</td>
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<tr>
<td>1342692301</td>
<td>Power Supply Socket Holder N”2</td>
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<tr>
<td>J2168101</td>
<td>Toothed WASHER I/D 3</td>
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<td>K168101</td>
<td>Spacer For LED H 2.8 D.E. 5</td>
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<tr>
<td>K168102</td>
<td>Spacer Filed H 12 HEX.</td>
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<td>LED Spacer H 1.8 E.D.9</td>
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<td>J2359101</td>
<td>Spacer 3M Art. SJ5012</td>
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### Accessories

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<td>K6018361</td>
<td>O.Manual (IT/ES/SP/EN) EP-77/97</td>
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<tr>
<td>J00591031</td>
<td>Pedal W/Cable DP-6</td>
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<tr>
<td>2244610102</td>
<td>Adaptor ACJ 230V 12V 2A SA (230V)</td>
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<tr>
<td># 2244610102</td>
<td>Adaptor ACJ 230V 12V 2A SA (230V)</td>
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<tr>
<td># 2244612010</td>
<td>Adaptor ACJ 120V 12V 7.5A SA (117V)</td>
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### Parts List Stand KS-EP-97

<table>
<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>K235810101</td>
<td>Foot F/Side Panel (Stand)</td>
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</tr>
<tr>
<td>K1128121</td>
<td>Right Side Frame</td>
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<tr>
<td>K1128123</td>
<td>Left Side Frame</td>
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<tr>
<td>K1145141</td>
<td>Rear Cross Bar 1072 MM.</td>
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<tr>
<td>J2289186</td>
<td>Screw 3.5X16 TCTCPR H.8 BRUN</td>
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</tr>
<tr>
<td>J2359101</td>
<td>Screwdriver Type 2</td>
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<td>J2359107</td>
<td>Joint Bolt Assy</td>
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<tr>
<td>K3693134</td>
<td>Right Polyst. End-Side</td>
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</tr>
<tr>
<td>K3693135</td>
<td>Left Polyst. End-Side</td>
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</tr>
<tr>
<td>K3693136</td>
<td>Middle Polyst. End-Side</td>
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<tr>
<td>K268102</td>
<td>Carton Plate MM. 1440X440</td>
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<tr>
<td># K2618216</td>
<td>Outer Packing KS-EP-97</td>
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<tr>
<td>K22584101</td>
<td>Hinges for Headphones</td>
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<td>K2128113</td>
<td>Keyboard Hinge Chassis</td>
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<tr>
<td># K6018362</td>
<td>Mounting Scheme KS-EP-77/97</td>
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</table>
PHONES PCB ASSY & CIRCUIT DIAGRAM

ASSY 7711504000

View from component side

JACK PCB ASSY

ASSY 7711505000

View from component side
CIRCUIT DIAGRAM (JACK PCB ASSY)
BEAT & TEMPO PCB ASSY & CIRCUIT DIAGRAM

ASSY 7711603000

View from component side

MAIN PCB ASSY

ASSY 7711601000

View from component side
CIRCUIT DIAGRAM (MAIN PCB ASSY)
CONTROL PCB ASSY & CIRCUIT DIAGRAM

ASSY 7711602000

View from component side
If device error does not occur, version will be displayed after Device Check.
If device error occurs, press the [Demo] button. Then, version will be displayed.

[Version Display]
<table>
<thead>
<tr>
<th>1.00 1.01 1.02 1.03 1.04 1.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demo</td>
</tr>
<tr>
<td>Metro</td>
</tr>
<tr>
<td>Play</td>
</tr>
<tr>
<td>Rec</td>
</tr>
</tbody>
</table>

And now, you can find out ep-97 by checking Cho/Rev LED.

ep-97

Chorus LED -
Reverb LED @

Press the [Demo] button, then you can go Button/LED Check.

2. Button/LED Check

At first, all LED turn on.
By pressing each buttons, each LED turn off and piano sound is on.
After all LED is off, you can go to Effect Check.

[Each button's sound]
[REV]=C4
[CHO]=C#4
[Tone1]=D4
[Tone2]=D#4
[Tone3]=E4
[Tone4]=F4
[Tone5]=F#4
[Tone6]=G4
[Tone7]=G#4
[Tone8]=A4
[Sound]=A#4
[Metro RED]=B4
[Metro GRN]=C5
[PLAY]=C#5
[Rec]=D5
[Demo]=D#5

You can jump to Effect Check by pressing the [Rev] + [Demo] buttons.

3. Effect Check

* Demo --> Go to Panning Check.
@ Metro --> Make a piano sound with Chorus effect.
@ Play --> Make a piano sound with Reverb effect.
@ Rec --> Make a piano sound with Resonance effect.

4. Panning Check

@ Demo --> Go to Tempo & Beat Check.
@ Metro --> Make a C3 sine-wave sound from left.
@ Play --> Make a C#4 square-wave sound from right.
@ Rec --> Make a C4 sine-wave sound from center.
5. Tempo & Beat Check (A/D)

<table>
<thead>
<tr>
<th>Tempo Knob</th>
<th>Rev</th>
<th>Cho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>Center</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Right</td>
<td>-</td>
<td>*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beat knob</th>
<th>Metro</th>
<th>Play</th>
<th>Rec</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>*</td>
<td>*</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4</td>
<td>-</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>6</td>
<td>-</td>
<td>-</td>
<td>*</td>
</tr>
</tbody>
</table>

Press the [Demo] button, then you can go to Pedal/MIDI Check.

6. Pedal/MIDI Check

Connect the MIDI Out to the MIDI In.

[ep-97]
- Demo
  @ Metro --> Display Soft Pedal status. (6-1)
  @ Play --> Display Damper Pedal status. (6-1)
  * Rec --> Display MIDI status. (6-2)

After detecting each pedal's A/D max(7FH)/min(00H) value and MIDI connection on/off, you can automatically exit TestMode.

(6-1) Notation of Pedal status:
#Unchecked. @
#A/D value is max(pedal is depressed): *
#A/D value is min(pedal is released): -

#If two pedal's A/D value move simultaneously, the pedal status returns to be Unchecked.
#If A/D value is max(7FH), bell sound is on.

(6-2) Notation of MIDI status:
#Unchecked. @
#While connecting MIDI Out to MIDI In. *
#While cutting off MIDI connection. -

Press the [Rev]+[Demo] buttons. Then, you can exit TestMode.

7. End
All LED is blinking.
If you press the [Demo] button, you can start TestMode once again.