Specifications

Keyboard: 45-key keyboard with Velocity Sensitivity (TP-7 BA type)
Display: 3 x 7 segments display view control
Realtime controllers: Data Entry Knob, Touch Controller, Expression Bar, Hold Button, D-Beam
Memories: 128 Patches
Connections: MIDI In, Out; DC IN (adaptor)
Power supply: Battery-operated, Optional AC/DC Adaptor ACA (DC 9V)
Dimension: 1010 (W) x 195 (D) x 102 (H) mm
Weight: 3.0 Kg
Supplied accessories: 6 x dry batteries (AA type), MIDI cable, Owner’s Manual, Shoulder strap

Specifications subject to change without prior notice. All other trademarks mentioned in this manual are the property of the respective companies.
PARTS LIST AX-7

SAFETY PRECAUTIONS:

This manual shows the circuit diagrams and parts layout.  The original parts list is following items in the order shown on this diagram and are for replacement.

NOTE:

# = New (Initial Parts)
A = New (Initial Parts) for RES but already used by RJA

The parts marked have safety-related characteristics. Use only listed parts for replacement.

COMPONENTS FOR EMC:

Failure to properly fill the above items with correct number and description will result in delayed or even undelivered replacement.

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Consideration on Parts Ordering:

* When ordering any parts listed in the parts list, please specify the following items in the order sheet.
  
<table>
<thead>
<tr>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION MODEL NUMBER</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>22575241</td>
<td>Sharp Key C-20/50</td>
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<tr>
<td>15</td>
<td>2247017300</td>
<td>Knob (orange) DAC-15D</td>
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* Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

* Components for EMC:

** Key Points for Viewing the Diagram:**

- **RCB** = Right Control Board
- **LCB** = Left Control Board
- **CPU** = CPU Board
- **CB** = Contact B.
- **CDB** = D-Beam Board

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45 KEY KEYBOARD TP-7/BA Code: 7695105000

KEYBOARD PARTS LIST

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<thead>
<tr>
<th>PARTS</th>
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<th>DESCRIPTION MODEL NUMBER</th>
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</thead>
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<td># 7772503000</td>
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<tr>
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<td># 7772502000</td>
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<tr>
<td>DISPLAY PCB ASSY AX-7</td>
<td>1</td>
<td># 7772506000</td>
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<td>CPU PCB ASSY AX-7</td>
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<td># 7772504000</td>
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<tr>
<td>CONTACT PCB ASSY + RUBBER AX1</td>
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IC

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<td>DIP CMOS IC21 on CPU</td>
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<td>1524971111</td>
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TRANSISTOR

<table>
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<td>1535970150</td>
<td>1</td>
<td>2SC-1032R</td>
<td>Q4 on CPU</td>
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TEST MODE

ITEMS REQUIRED:
- MIDI cable;

HOW TO VISUALIZE THE SYSTEM PROGRAM VERSION
Turn the instrument on, while keeping pressed the button 2 of section PATCH.
After a few seconds, the display will visualize a writing identifying the software version:
\[ \text{i.e.: VER 100 - 04 oct 2001} \]

To exit, turn the instrument off.

HOW TO CARRY OUT THE FACTORY SETUP
Turn the instrument on while keeping the button WRITE pressed.
After a few seconds, the display will visualize the writing Factory setup.

The Factory Setup function re-establishes the instrument's factory settings.

HOW TO ENTER TEST MODE
Turn the instrument on while keeping pressed the button 1 of section PATCH.

After a few seconds, the display will visualize the following writing:
\[ \text{TEST ROLAND AX-7 VERSION 1.00} \]

Then the display visualizes:

Every button of section Patch corresponds to a test to carry out.

Button 1  ⇒  Panel check ("F": Front, "R": Rear);
Button 2  ⇒  Keyboard check
Button 3  ⇒  Memory check

Turn the instrument off to exit test mode.

Note: After carrying out the tests, the instrument automatically performs the Factory Setup.

1) PANEL CHECK (FRONT / REAR)
Once entered test mode, press button 1. The display visualizes:

If you press button 1, you check the Front Control Panel.
If you press button 2, you check the Rear Control panel (MIDI, D-Beam, HOLD and Battery).

Press EXIT to come back to the previous menu.

a) Front Panel check (Controls)
Once you have entered the control panel check, press button 1:
The display visualizes:

If you press the button 1, you check the buttons.
If you press the button 2, you check the LEDs.
If you press the button 3, you check the Controls (Expression bar, Touch controller, Data entry).

Buttons check
Once you have entered the front panel test mode, press button 1.
The display visualizes pict. A:

If you press the buttons of the control panel one after the other, the display will visualize their name.
When you release the button, the display will visualize: OFF (See pict. B).
Press EXIT and WRITE at the same time to exit.
The test procedure automatically goes back to the previous menu.

Note: It is not possible to go on to the following step if this test is not carried out correctly.
If you exit the test before checking all the buttons, the display indicates the name of the untested buttons.
Press EXIT to go back to the main menu.

LED check
Once you have entered the control panel check, press button 2.
The control panel LEDs and the display segments will light in sequence.
Press EXIT to leave this test.
The test procedure automatically goes back to the previous menu.

Control check (Expression bar, Touch controller, Data entry)
Once you have entered the control panel check, press button 3.
The display visualizes:

Pressing the button 1, you check the Expression bar.
Pressing the button 2, you check the Touch controller.
Pressing the button 3, you check the Data entry potentiometer.

Expression bar
Once you have pressed the button 1, the display visualizes:
Pict. A (value 0) if the Expression bar is released;
Pict. B (value 127) if the Expression bar is completely pressed.
Press EXIT to leave.
Press EXIT again to go back to the main menu.

Touch controller

Once you have pressed button 2, the display visualizes:
Pict. A (Value 0), if you don’t touch the touch controller or if you touch it in the middle (please see the reference sign on the touch controller);
Pict. B (Value 63), if you press the touch controller from the middle rightwards;
Pict. C (Value - 63), if you press the touch controller from the middle leftwards.

Press EXIT to leave.
Press EXIT again to go back to the main menu.

Data entry

Once you have pressed button 3, the display visualizes:
Pict. A (value 0) if the potentiometer slider is in low position;
Pict. B (value 127) if the potentiometer slider is in high position.

Press EXIT to leave.
Press EXIT again to go back to the main menu.

b) Rear panel (HOLD, D-Beam, Battery, MIDI)

Once you have entered the rear panel test mode rear panel, press button 2.
The display visualizes:

Press button 1, to check HOLD switch and D-Beam.
Press button 2, to check the Power battery.
Press button 3, to check the MIDI.

HOLD switch and D-Beam check

Once you have entered the rear panel test mode, press button 1.
The display visualizes:

Press button 1, to check the HOLD switch.
Press button 2, to check the D-Beam.

HOLD switch

If you press the HOLD switch, the display visualizes the status ON (Pict. A); when you release the HOLD switch, the display visualizes its new status OFF (Pict. B).

Press EXIT to leave.
Press EXIT again to go back to the main menu.

D-Beam

Make sure that the value of the D-Beam controller ranges from 0 (Pict. A) to 127 (Pict. B) depending on the vertical distance of your hand from the infrared LEDs of the D-Beam.
When standing still, the value shown must be 0.

Press EXIT to leave.
Press EXIT again to go back to the main menu.

Power Battery check

Once you have entered the rear panel test mode, press button 2.
The display visualizes a value representing the power battery charge level, expressed in % value (i.e.: 100 = 100 %).

Press EXIT to leave.
Press EXIT again to go back to the main menu.

Midi check

Once you have entered in the rear panel test mode, press button 3.
The display visualizes:

Connect MIDI IN and MIDI OUT sockets by a Midi cable.
In case of correct data transmission and reception, the display visualizes the writing "go".
In case of failure, the display visualizes "0 - 1".

Press EXIT to leave.
Press EXIT again to go back to the main menu.
2) KEYBOARD CHECK

Once you have entered test mode, press the button 2:
The display visualizes:

Connect the Midi outputs (OUT) to the Midi in of another musical instrument or of a dedicated equipment, provided of a sound source.
Press the keyboard keys. When the keys are released, the display visualizes OFF.
When you press a key, you hear a Piano sound and the display visualizes the velocity level (from 0 to 127).

Press EXIT to leave.
Press EXIT again to go back to the main menu.

3) MEMORY CHECK

Once you have entered in test mode, press button 3.
The display visualizes:

The instrument carries out the DEVICE CHECK (Pict. A) automatically.

Caution: Don't turn the power off during this test. If the power goes off accidentally, carry out the test again.
At the end of all the tests, make sure the display visualizes the writing "go" (Pict. B). This means that the instrument memory has been implemented correctly. In case the display visualizes the writing "Err", it means that the memory is damaged.

Press EXIT to leave.
To exit, turn the power off.

Note 1: When you turn the power on again, the Factory Setup is carried out automatically.
Note 2: If you press EXIT when the display visualizes the main menu, you enter test mode again.
CPU PCB ASSY
ASSY 7772505000

View from component side
CIRCUIT DIAGRAM (CPU PCB ASSY 2/3)

PULSE:
FREQUENCY: 6.2MHz
DUTY: 12.5%
PULSE WIDTH: 20μS
View from component side
RIGHT CONTROL PCB ASSY & CIRCUIT DIAGRAM

ASSY 7772501000

View from component side

To DBeam Board

From Main Board (CN6)

All switches are EVQPAE05R.
All LEDs are 3SLR37VR3F.