SPECIFICATIONS

LX-80

<Turntable Section>
  Drive system
    Fully automatic belt-drive turntable system
  Motor
    DC electronically regulated motor
  Turntable platter
    Aluminum alloy diecast
  Speeds
    33-1/3 and 45 rpm
  Wow & flutter
    0.055% (WRMS)
  S/N ratio
    70 dB (DIN-B)

<Tonearm Section>
  Type
    Linear tracking type, straight Dynamic type
  Effective arm length
    139.5 mm
  Tracking error
    10′

<Cartridge>
  Type
    VM type
  Frequency response
    20—20,000 Hz
  Output voltage
    2.5 mV

<General>
  Power requirements
    LX-80 U
    AC 120 V, 60 Hz
    LX-80 E
    AC 220 V, 50/60 Hz
    LX-80 K
    AC 240 V, 50/60 Hz
    LX-80 H
    AC 120 V/220 V/240 V switchable, 50/60 Hz
  Power consumption
    10 W
  Dimensions
    330(W) x 85(H) x 330(D) mm
    (13" x 3-3/8" x 13")
  Weight
    3.2 kg (7 lbs.)
  Accessories
    EP adaptor

- Design and specifications are subject to change without notice.

LX-120

<Turntable Section>
  Drive system
    Frequency generated direct drive system
  Motor
    4-phase 8-pole linear torque DD
  Speeds
    33-1/3 and 45 rpm
  Wow & flutter
    0.045% (WRMS)
  S/N ratio
    75 dB (DIN-B)

<Tonearm Section>
  Type
    Linear tracking type, straight Dynamic type
  Effective arm length
    139.5 mm
  Tracking error
    10′

<Cartridge>
  Type
    VM type
  Frequency response
    20—20,000 Hz
  Output voltage
    2.5 mV (1 kHz 3.45 cm/sec)

<General>
  Power requirements
    LX-120 U
    AC 120 V, 60 Hz
    LX-120 E
    AC 220 V, 50/60 Hz
    LX-120 K
    AC 240 V, 50/60 Hz
    LX-120 H
    AC 120 V/220 V/240 V switchable, 50/60 Hz
  Power consumption
    15 W
  Dimensions
    330(W) x 85(H) x 330(D) mm
    (13" x 3-3/8" x 13")
  Weight
    3.5 kg (7.7 lbs.)
  Accessories
    EP adaptor

- Design and specifications are subject to change without notice.
### ELECTRICAL MAIN PARTS LIST (LX-80, 120)

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
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<tbody>
<tr>
<td>32</td>
<td>IC-2000-380</td>
<td>IC, LAD30005</td>
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<tr>
<td>32</td>
<td>IC-2000-381</td>
<td>IC, LAD31005</td>
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<tr>
<td>32</td>
<td>IC-2000-390</td>
<td>IC, LDN7754</td>
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### CAPACITORS

<table>
<thead>
<tr>
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<th>Description</th>
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</thead>
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<tr>
<td>D135</td>
<td>87-020-038</td>
<td>LED, PM9715-20 (QIN-43)</td>
</tr>
<tr>
<td>D136</td>
<td>87-020-039</td>
<td>LED, PM9715-20 (QIN-53)</td>
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<tr>
<td>D137</td>
<td>87-020-040</td>
<td>LED, PM9715-20 (QIN-63)</td>
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<tr>
<td>D138</td>
<td>87-020-041</td>
<td>LED, PM9715-20 (QIN-73)</td>
</tr>
<tr>
<td>D139</td>
<td>87-020-042</td>
<td>LED, PM9715-20 (QIN-83)</td>
</tr>
<tr>
<td>D140</td>
<td>87-020-043</td>
<td>LED, PM9715-20 (QIN-93)</td>
</tr>
<tr>
<td>D141</td>
<td>87-020-044</td>
<td>LED, PM9715-20 (QIN-103)</td>
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### FUSE

<table>
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<th>Part No.</th>
<th>Description</th>
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<tr>
<td>87-034-878</td>
<td>AC CORD (1)</td>
<td></td>
</tr>
<tr>
<td>87-034-879</td>
<td>AC CORD (2)</td>
<td></td>
</tr>
<tr>
<td>87-034-880</td>
<td>AC CORD (3)</td>
<td></td>
</tr>
<tr>
<td>87-034-881</td>
<td>AC CORD (4)</td>
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</table>

### COILS

<table>
<thead>
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<th>Part No.</th>
<th>Description</th>
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<tr>
<td>87-038-893</td>
<td>PHOTO INTERRUPTER DP-2556CB</td>
<td></td>
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<tr>
<td>87-038-894</td>
<td>PHOTO INTERRUPTER DP-2556CB</td>
<td></td>
</tr>
</tbody>
</table>

### BLOCK DIAGRAM

**Note:** Combination Circuit Board

The parts listed in the electrical parts list which are indicated by an asterisk (*) are supplied at one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination Circuit Board: 84-131-610

PCB-A 84-131-611

PCB-B 84-131-612

PCB-C 84-131-613

Combination Circuit Board: 84-133-630

PCB-D 84-133-631

PCB-E 84-133-632

---

**MAIN CIRCUIT BOARD SECTION**

**PCB-A**

**MAIN CIRCUIT BOARD**

C102 87-018-044 CAP, CERAMIC, S 1000P

C103 87-018-045 CAP, CERAMIC, S 1000P

C104 87-018-046 CAP, CERAMIC, S 1000P

C105 87-018-047 CAP, CERAMIC, S 1000P

C106 87-018-048 CAP, CERAMIC, S 1000P

**PCB-B**

**REMOTE CIRCUIT BOARD**

J1 84-131-617 STEREO JACK 3.5, M/M, (REMOTE)

**POWER CIRCUIT BOARD SECTION**

**PCB-C**

**POWER CIRCUIT BOARD**

**PCB-D**

**POSITION SENSOR CIRCUIT BOARD SECTION**

**PCB-E**

**ANGLE SENSOR CIRCUIT BOARD SECTION**

---

**Note:** Combination Circuit Board

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Combination Circuit Board: 84-131-610

PCB-A 84-131-611

PCB-B 84-131-612

PCB-C 84-131-613

Combination Circuit Board: 84-133-630

PCB-D 84-133-631

PCB-E 84-133-632

---

**Note:** Combination Circuit Board

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PCB-A 84-131-611

PCB-B 84-131-612

PCB-C 84-131-613

Combination Circuit Board: 84-133-630

PCB-D 84-133-631

PCB-E 84-133-632

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**Note:** Combination Circuit Board

The parts listed in the electrical parts list which are indicated by an asterisk (*) are supplied at one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination Circuit Board: 84-131-610

PCB-A 84-131-611

PCB-B 84-131-612

PCB-C 84-131-613

Combination Circuit Board: 84-133-630

PCB-D 84-133-631

PCB-E 84-133-632

---
Note: Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination Circuit Board:
- 84-131-610
- 84-131-611
- 84-131-612
- 84-131-613
- 84-133-630
- 84-133-631
- 84-133-632
- 84-133-633

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Never to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and storage.
2. To use solder iron less than 40W less than 260°C of power consumption for soldering. But do not overheat more than 10 sec.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltage of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ( )

Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.
NOTES:
1) DC 8 (+) power supply.
2) The voltage is the reference value measured with a
   20 k-ohms/V DC when there are no signals.
3) Resistors with no designation have a rated power of
   1W and a tolerance of ±5%.
4) Capacitors with no designation have a dielectric strength
   of less than 500V.
5) The only capacitor tolerance indicated are ±5% (Y)
   and ±10% (X).
6) Ceramic capacitor symbols:
   - H: For temperature compensation (SL)
   - I: High dielectric constant system (YY)
   - E: High dielectric constant system (YW, YP, YZ)
   - K: Semiconductor ceramic
   - T: For temperature compensation (SH)

Explanation of symbols:
- Bi-polarized capacitor

Safety component symbol
This symbol is given to important parts which serve to
maintain the safety of the product, and which are made
to conform to special safety specifications.
Therefore, when replacing a component with this
symbol, make absolutely sure that you use a designat-
ed part.

This schematic diagram is subject to change without
notice in the interests of improved performance.
IC Pin Description

As to TA7354P (IC4) and MS4547 (IC5), see the service manual of LX-20.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Pin mark</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>3</td>
<td>REMOTE</td>
<td>Remote control input. Start at the rise to &quot;HIGH&quot; from &quot;LOW&quot;.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>5</td>
<td>POST 0</td>
<td>Detects the amount of movement of the tone arm by counting the position sensor input pulses.</td>
</tr>
<tr>
<td>6</td>
<td>POST 1</td>
<td>Tone arm movement range detection input. The arm may move within a certain range at &quot;L&quot; level.</td>
</tr>
<tr>
<td>7</td>
<td>UP-S</td>
<td>Tone arm UP sensor input. &quot;H&quot; during UP operation.</td>
</tr>
<tr>
<td>8</td>
<td>DN-S</td>
<td>Tone arm DOWN sensor input. &quot;H&quot; during DOWN operation.</td>
</tr>
<tr>
<td>9-10, 11</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>13</td>
<td>Vpp</td>
<td>GND</td>
</tr>
<tr>
<td>14</td>
<td>Vss</td>
<td>+12 V</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>16-19</td>
<td>S1-S1</td>
<td>Key inputs</td>
</tr>
<tr>
<td>20-23</td>
<td>S2-S2</td>
<td>Key matrix outputs</td>
</tr>
<tr>
<td>24</td>
<td>Xs</td>
<td>Clock output. 6 Vpp, 500 kHz</td>
</tr>
<tr>
<td>25</td>
<td>Xs</td>
<td>Clock input. 12 Vpp, 470 kHz</td>
</tr>
<tr>
<td>26</td>
<td>Vos</td>
<td>+12 V</td>
</tr>
<tr>
<td>27</td>
<td>RPM</td>
<td>Phonostage ON/OFF control output. Rotates at &quot;L&quot; and stops at &quot;H&quot;</td>
</tr>
<tr>
<td>28</td>
<td>RPM</td>
<td>Phonostage speed control output. &quot;L&quot;: 33 rpm. &quot;H&quot;: 45 rpm</td>
</tr>
<tr>
<td>29</td>
<td>M1</td>
<td>+12 V</td>
</tr>
<tr>
<td>30</td>
<td>M2</td>
<td>+12 V</td>
</tr>
<tr>
<td>31</td>
<td>PRGT1</td>
<td>Program No. LED indication outputs. Lit at &quot;H&quot;.</td>
</tr>
<tr>
<td>32</td>
<td>PRGT1</td>
<td>Program No. LED indication outputs. Lit at &quot;H&quot;.</td>
</tr>
<tr>
<td>33</td>
<td>REPEAT</td>
<td>REPEAT indication output. Lit at &quot;H&quot;.</td>
</tr>
<tr>
<td>34</td>
<td>D.S</td>
<td>Disc sensor input. The rise to &quot;H&quot; from &quot;L&quot; is set to become the input.</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>41</td>
<td>MS</td>
<td>Performance finish signal input.</td>
</tr>
<tr>
<td>42</td>
<td>Ss</td>
<td>Record size detection input. The rise from &quot;L&quot; to &quot;H&quot; is the input.</td>
</tr>
<tr>
<td>43</td>
<td>Sa</td>
<td>Key matrix output.</td>
</tr>
<tr>
<td>44-46</td>
<td></td>
<td>Not used.</td>
</tr>
<tr>
<td>47</td>
<td>UP</td>
<td>Arm UP output. &quot;H&quot; during arm UP operation.</td>
</tr>
<tr>
<td>48</td>
<td>DOWN</td>
<td>Arm DOWN output. &quot;H&quot; during arm DOWN operation.</td>
</tr>
<tr>
<td>49</td>
<td>RIGHT</td>
<td>Arm rightward movement output. &quot;H&quot; during arm movement to the right.</td>
</tr>
<tr>
<td>50</td>
<td>LEFT</td>
<td>Arm leftward movement output. &quot;H&quot; during arm movement to the left.</td>
</tr>
<tr>
<td>51</td>
<td>RST</td>
<td>RESET input. Reset when &quot;H&quot; level is supplied for the period of 3.6 ms or more.</td>
</tr>
<tr>
<td>52</td>
<td></td>
<td>Not used.</td>
</tr>
</tbody>
</table>

S/M Code No. 85-007 2/2
Preparation for Adjustment

Adjusting components are covered with two plates ... Plate O and Plate U. Before performing the following adjustment, remove the plate O, which is under the tonearm, by pushing against with a screwdriver from the bottom side, and take off the plate U, which is on the right hand corner, with a knife.

4 < Disc Sensor (D Sensor) Adjustment >
Complete the "Stylus Height" adjustment before performing the following procedure.
1) Switch the sensitivities selector to the "NORMAL" position.
2) LX-80: To stop the turntable, remove the belt from the motor pulley.
   LX-120: To stop the turntable, catch the turntable by hand.
3) Put a mark on the test disc (ATR-004) as follows: Draw a line between the center hole and the halfway point of the 7th feed groove, which is located between the 8th track "no sound groove" and the 7th track "no sound groove", with even. Then put an arrow mark on the label at right angle against the above line as shown in Fig. 4.

5 < Auto-In/Out Adjustment >
Place the test disc (ATR-003) in the 45 rpm speed mode. Turn the adjusting screw so that the auto-in count becomes 32 ± 2 in 17 cm disc mode, and confirm that the auto-out count becomes 13 or more in 17 cm disc mode. Then rotate, in 30 cm disc mode, that the auto-in count becomes 26 to 28 and the auto-out count makes 11 to 14.

6 < Stylus Drop Position Fine Adjustment >
By adjusting SFR3, a drop position of the stylus enables to be varied by 1 to 2 mm right or left.

Fig. 4

![Fig. 4](image)

4.2 mm
Center hole
7.6 mm
Flutter 3 Khz
0 mm
No sound groove
8 mm
Equivalent pinched Test disc ATR-004

Fig. 6

![Fig. 6](image)

4) Connect oscillator to the test point TP-2 (D sensor) with 10 mm probe.
5) Set the test disc so that the arrow mark points to the arc rest.
6) Move the tonearm by pressing the "MANUAL" key until it passes through the 7th feed groove. Observe waveform in the oscilloscope. As waveform of 3.0 to 3.5 V will be occurred when the tonearm passed through the 7th feed groove.
If not, adjust SFR1 for the specified value.

Sensitivity selector | NORMAL
---|---
Speed mode | 33 rpm

Waveshape occurring when passing through the 7th feed groove

Fig. 5

3.0 - 3.5 V

7) Return the tonearm to the arc rest once and perform Step 6 once in order to confirm the specification.
CIRCUIT DESCRIPTION

PROGRAM TUNE-SELECTION MECHANISM

1. Outline

When the tuner is selected by the program button operation and the START button is pressed, the arm moves to the internal circumference while it is kept in the UP state. The inter-turn position is detected by the disc sensor during this movement and memorized by the microcomputer. The size is sensed simultaneously at this time. The arm moves to the internal circumference moves to the 1st tune of the program and is lowered. When the performance starts (when the arm is lowered), the MS circuit works; when the re-tune state continues for 1.5 sec or more, the circuit makes the arm move UP and the arm moves to the 2nd tune, (1 sec to the next tune directly without returning to the arm rest.)

3. Disc sensor circuit

4. MS circuit

(a) When the arm is lowered, output of Q311, Q312 is released and the signal enters the MS circuit.
(b) When the arm comes to the 1st position, the inter-turn sensor of the inter-turn position which was sensed previously during the arm UP operation, the microprocessor (IC7) starts to monitor the MS signal.
(c) When the re-tune state continues for 1.5 sec or more, the inter-turn sensor and the arm lift. (However, when the programmed numbers continue, the arm does not lift but the performance is continued as it is.)

Note: The drop position of the stylus enables to be varied in the range of 1 to 1.5 mm.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
   1) Soldering of lead-wire ends
      * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
      * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
   4) Location of all kinds of insulators
   5) Setting of voltage selector switch
      * Set the Voltage Selector Switch to 240V, 220V, or 120V, according to your Local Voltage.
5. After repaired, the insulation resistance or leakage current shall be measured with 500 ± 5V D.C and shall be not less than 1MΩ.

Measuring Point

![Measuring Point Diagram]

Rating: More than 1MΩ/500V DC

Ground Cable(3)  AC Power Cord(4)
DISASSEMBLY INSTRUCTIONS

1. Bottom Lid Removal
   1) Remove the dust cover and turntable.
   2) Remove the 5 screws to detach the bottom lid.
      (See Figure 1)

   ![Fig. 1]

2. Main C.B. Removal
   1) Remove the 2 screws and unhook the 3 holders.
      (See Figure 2)

   ![Fig. 2]

3. Bottom Cabinet Removal
   1) Remove the 5 screws. (See Figure 3)

   ![Fig. 3]

   2) Move the tonearm to the illustrated position to detach
      the main cabinet upward.

   ![Fig. 4]
The following check method may be useful for servicing, because these models (LX-80, 120) are provided with no main bottom chassis.

4. C.B. Check by Turntable Operation

1) General operation enables to be performed even though raised the front side of the cabinet by 7~8cm. So, set the turntable with using of cassette cases as shown and check the circuit board from the component side. (See Figure - 5)

Note: Set the turntable flat when performing the adjustments, otherwise correct figures can not be obtained.

5. Mechanism Part Replacement and C.B. Check by Tonearm Operation (with Turntable Removed)

1) Detach the turntable and turn the cabinet upside down.
2) Remove the mechanism chassis and set it as illustrated, placing in parallel with the circuit board. Take care of the tonearm leadwires, otherwise the tonearm may be stuck.

3) Stop the phono motor by pulling off the motor connector, if necessary.

6. Blind Plate Removal

Before performing the adjustment, remove the blind plate because the adjusting pins are situated underneath this plate. Proceed as follows:

1) Move the tonearm to the illustrated position. (See Figure - 7)

2) Insert a screwdriver into the illustrated opening on the bottom cabinet and push against the blind plate to take off. (See Figure - 8)
## PARTS LIST

### MECHANICAL PARTS

<table>
<thead>
<tr>
<th>Part No. changed to</th>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Common Model</th>
<th>Q'ty</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>84-133-011</td>
<td>84-133-018</td>
<td>DUST COVER Ass'y (LX-80)</td>
<td>LX-30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DUST COVER Ass'y (LX-120)</td>
<td>*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>★84-132-016</td>
<td>★84-132-017</td>
<td>★84-132-043</td>
<td>★84-131-044</td>
<td>RUBBER SHEET (LX-80) (H. E. K only)</td>
</tr>
<tr>
<td>3</td>
<td>★84-133-008</td>
<td>★84-128-001</td>
<td>TURN-TABLE (LX-80)</td>
<td>TURN-TABLE (LX-120)</td>
<td>LX-30</td>
</tr>
<tr>
<td></td>
<td>84-133-213</td>
<td>84-124-239</td>
<td>RUBBER BELT T.T (LX-80)</td>
<td>SPACER T.T</td>
<td>LX-70</td>
</tr>
<tr>
<td>4</td>
<td>★84-131-035</td>
<td>★84-131-040</td>
<td>PLATE U R</td>
<td>SCREW</td>
<td>LX-70</td>
</tr>
<tr>
<td>5</td>
<td>★84-131-028</td>
<td>★84-131-029</td>
<td>SCREW</td>
<td>SCREW</td>
<td>*</td>
</tr>
<tr>
<td>6</td>
<td>★84-131-024</td>
<td>★84-131-025</td>
<td>C-SPRING, EARTH (LX-120)</td>
<td>C-SPRING, EARTH (LX-80)</td>
<td>*</td>
</tr>
<tr>
<td>7</td>
<td>★84-132-018</td>
<td>★84-131-046</td>
<td>MAIN CABINET Ass'y F (LX-80)</td>
<td>MAIN CABINET Ass'y F (LX-120)</td>
<td>*</td>
</tr>
<tr>
<td>8</td>
<td>★84-133-009</td>
<td>★84-132-024</td>
<td>KNOB, SPEED</td>
<td>HOLE SHAFT Ass'y F (LX-80)</td>
<td>*</td>
</tr>
<tr>
<td>9</td>
<td>★84-133-225</td>
<td>★84-133-012</td>
<td>C-SPRING, EARTH (LX-120)</td>
<td>RUBBER FOOT</td>
<td>LX-30</td>
</tr>
<tr>
<td>10</td>
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## ACCESSORIES/PACKAGE LIST

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