



MODEL H 90SC

1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY:

The circled numbers in the descriptions below correspond to the item numbers in the Parts List and exploded diagram.

1-1. Disassembly:

(NOTE) If it is difficult to loosen and remove the fixing bolts, use an appropriate heating device to heat them to approximately 80°C (176°F).

(1) Disassembly of the Armature (100):

- A. Remove the two M4 x 10 Hex. Socket Hd. Bolts (90), and disassemble the Cap Cover (91) and the Carbon Brushes (93).
- B. Loosen the M8 Lock Nut (Nylon Insert) (48), and remove the M8 Washer (47). Then, while pressing on the Switch Handle side, pull the Side Handle (55) and Handle Holder (A) (56) from the Handle Shaft (51). Next, pull off the Switch Handle side and gently tap the end of the Handle Shaft (51) on one side to loosen and remove the Holder (A) (53) and Handle Dampers (54) (4 pcs) from one side. The Handle Shaft (51) can then be extracted from the Housing Ass'y (86).
- C. Remove the four M10 x 60 Hex. Socket Hd. Bolts (59) and two M10 x 55 Hex. Socket Hd. Bolts (67), and take off the Gear Cover (60). At the same time, also remove the First Gear (69) and Second Gear (70). Next, by inserting a minus screwdriver or similar tool into one of the air vents of the Inner Cover (77) and lifting it upwards, the Inner Cover (77), Armature (100), Crank Shaft (85), and connected parts can be removed in a single body.
- D. As illustrated in Fig. 8, support the Inner Cover (77) with an appropriate tubular jig (100 mm inner dia.), and push down on the pinion end of the Armature (100) with an arbor press to separate the Armature from the Inner Cover (77). At this time, be very careful not to lose the Bearing Washer (75) which is mounted on the fan ass'y portion of the Armature.

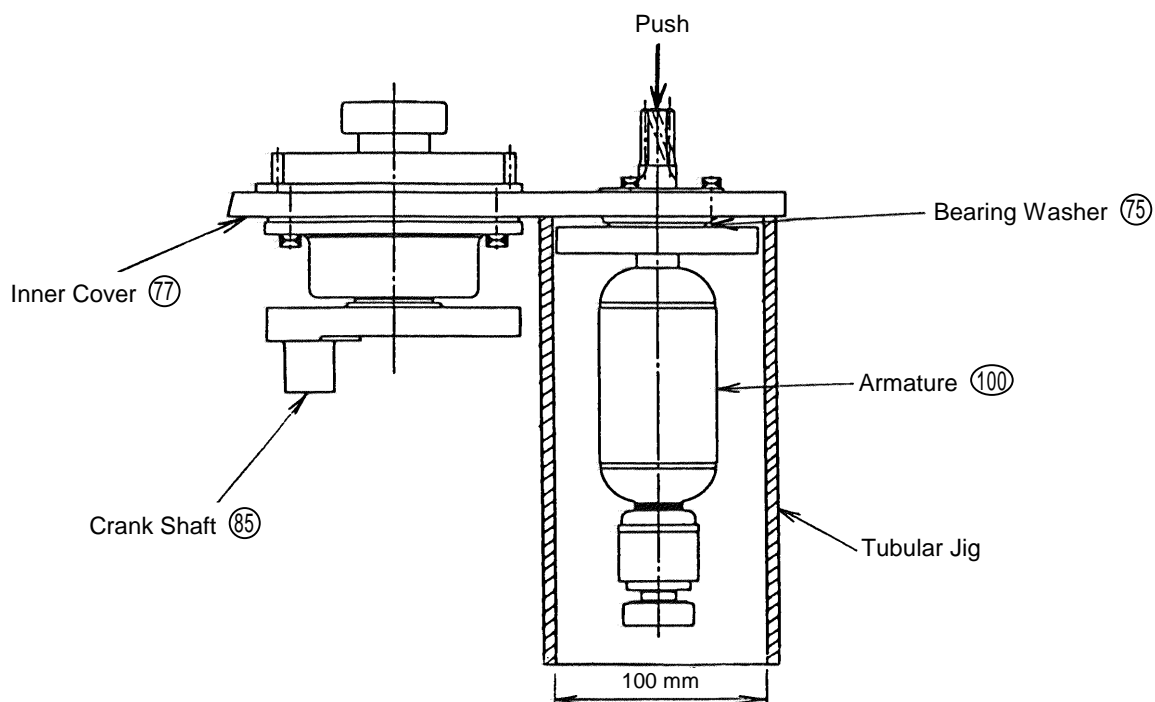


Fig. 8

(2) Disassembly of the Crank Shaft (85) Section:

Remove the four M8 x 18 Hex. Socket Hd. Bolts (82). As illustrated in Fig. 9, support the lower surface of the Inner Cover (77) with an appropriate tubular jig (100 mm inner dia.), apply an appropriate steel rod (maximum diameter of 19 mm) to the end surface of the Crank Shaft (85), and push it downward with an arbor press. The 6204ZZCM Ball Bearing (63), Distance Ring (A) (64), Distance Ring (B) (66), Distance Ring (C) (78), Final Gear (65), 4 x 4 x 12 Feather Keys (84) Bearing Boss (81), 6305ZZCM Ball Bearing (79) and Crank Shaft (85) can then be removed from the Inner Cover (77).

Then, remove the three M5 x 12 Hex. Socket Hd. Bolts (72), and take off Bearing Cover (A) (73) and the 6203VVCM Ball Bearing (74).

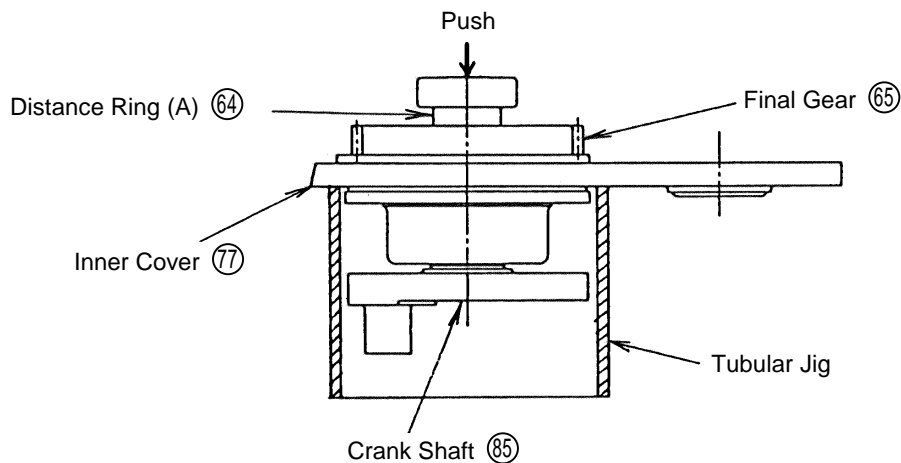


Fig. 9

(3) Disassembly of the Front Cover (5) Section:

Secure the Cylinder Case (15) in a vise, and heat the Cylinder Case mounting portion of the Front Cover (5) to a temperature of approx. 80°C (176°F) with an appropriate heating device. Then, remove the six M12 x 40 Bolts (4). The Front Cover (5) together with the Second Hammer (9) and the Hammer Holder (12) can then be removed from the Cylinder Case (15) in a single body. The Damper (13) can then be taken out.

(4) Removal of O-Ring (A) (11):

As O-Ring (A) (11) is installed in the inner portion of the Hammer Holder (12), it may be difficult to remove. As illustrated in Fig. 10, pry O-Ring (A) upward gently with a small minus screwdriver, being very careful not to damage the surface of the O-Ring.

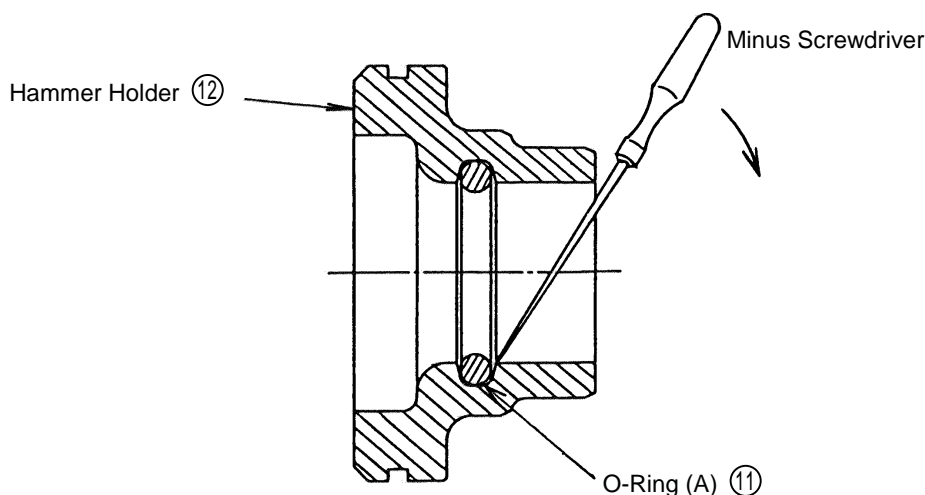


Fig. 10

(5) Removal of the Striker (19) and Related Parts:

Remove the four M10 x 45 Seal Lock Bolts (16), and separate the Cylinder Case (15) from the Housing Ass'y (86). From the Cylinder Case, take out the Striker (19), Piston (20) and Connecting Rod Ass'y (23) in a single body. Next, remove the O-Ring (P-46) (22) from the back of the Piston, and pull out the Piston Pin (21). The Piston (20) can then be separated from the Connecting Rod Ass'y (23). Finally, tap gently on the end of the Piston to remove the Striker (19).

(6) Disassembly of the Switch (43) and Related Parts:

Pry off the E-Type Retaining Ring (27) with a small minus screwdriver, pull out the Pin (25), and remove the Switch Lever (26). Then, remove the two M6 x 30 Hex. Socket Hd. Bolts (28) on the Handle (B) side and the two D4 x 20 Tapping Screws (50), and remove Handle (B) (49).

1-2. Reassembly:

Reassembly can be accomplished by following the disassembly procedure in reverse. However, special attention should be given to the following items.

(1) Reassembly of the Crank Shaft (85):

Mount the Bearing Boss (81), Oil Seal (83) and 6305ZZCM Ball Bearing (79), and Distance Ring (C) (78) onto the Crank Shaft (85), and secure the Bearing Boss (81) to the Inner Cover (77) with the four M8 x 18 Hex. Socket Hd. Bolts (82). Support the inner race of the 6305ZZCM Ball Bearing (79) with a J-127-5 Sleeve (Special Repair Tool, Part No. 970899), and press fit the Crank Shaft (85) into 6305ZZCM the Ball Bearing (79). Then, insert Distance Ring (B) (66) and the two 4 x 4 x 12 Feather Keys (84) onto the Crank Shaft (85) and press fit the Final Gear (65). Finally, press fit the 6204ZZCM Ball Bearing (63) and Distance Ring (A) (64) onto the Crank Shaft (85).

(2) Reassembly of the Armature (100):

Press fit the 6203VVCM Ball Bearing (74) into the Inner Cover (77), cover it with Bearing Cover (A) (73), and secure the assembly with the three M5 x 12 Hex. Socket Hd. Bolts (72).

(3) Reassembly of the Striker (19):

Push the Striker (19) into the inside of the Piston (20) until a 'hissing' sound is heard. When the hissing sound is heard, the Striker is properly inserted in the Piston. (The hissing is the sound of the compressed air escaping from the Piston when the Striker reaches the respiratory chambers within the Piston.) In this state, align the piston pin inserting holes of the Piston (20) and Connecting Rod Ass'y (23), and insert the Piston Pin (21). Finally, mount the O-Ring (P-46) (22) in the groove at the rear portion of the Piston (20).

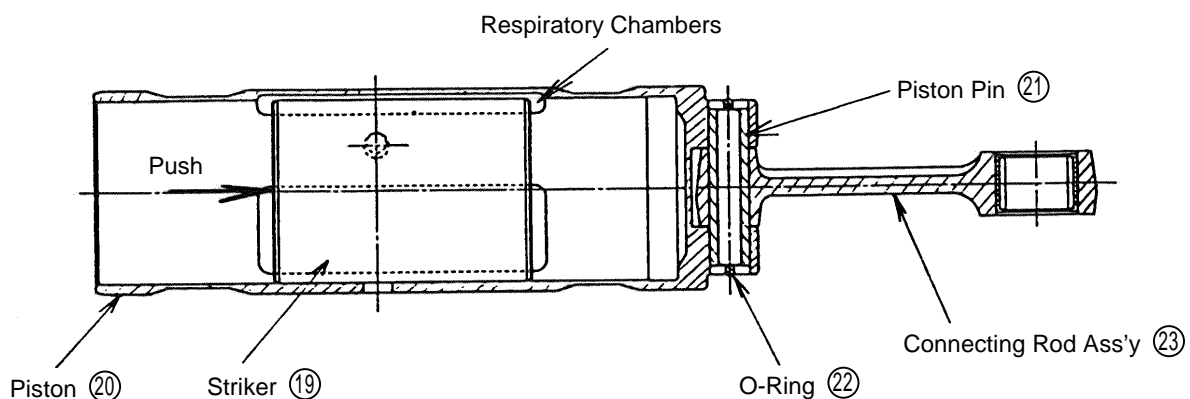


Fig. 11

(4) Reassembly of the Oil Seal (83):

When mounting the Oil Seal (83) in the Bearing Boss (81), carefully ensure that they are mounted in the proper direction as described below.

A. Mounting of the Oil Seal (83):

As illustrated in Fig. 12, the lip side of the Oil Seal (83) must be facing in the same direction in which the Crank Shaft (85) is assembled.

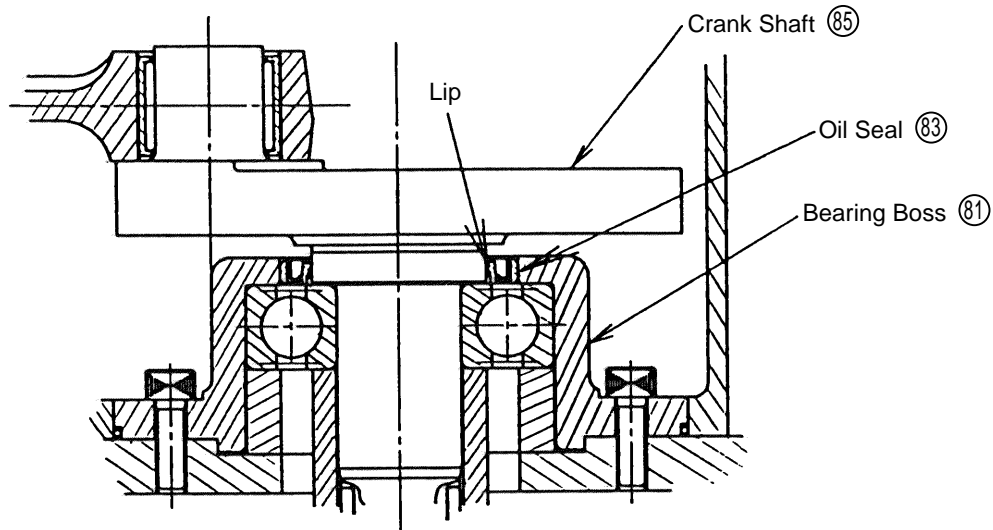


Fig. 12

(CAUTION) When assembling Oil Seals and O-Rings, thoroughly coat them with grease (Part No. 980927), and be very careful not to damage them.

(5) Safety Guidance in Wiring Work:

The Switch (43) is flexibly supported by the Support (45) to protect it from excessive vibration and extend its service life.

The outer surfaces of lead wires are covered by Vinyl Tubes (38). The vinyl tubes are utilized to protect the lead wires from damage. Ensure without fail that they are properly mounted during reassembly. When reassembling the Lead Wire Holder (96), carefully ensure it is properly installed between Tail Cover (97) and Housing Ass'y (86).

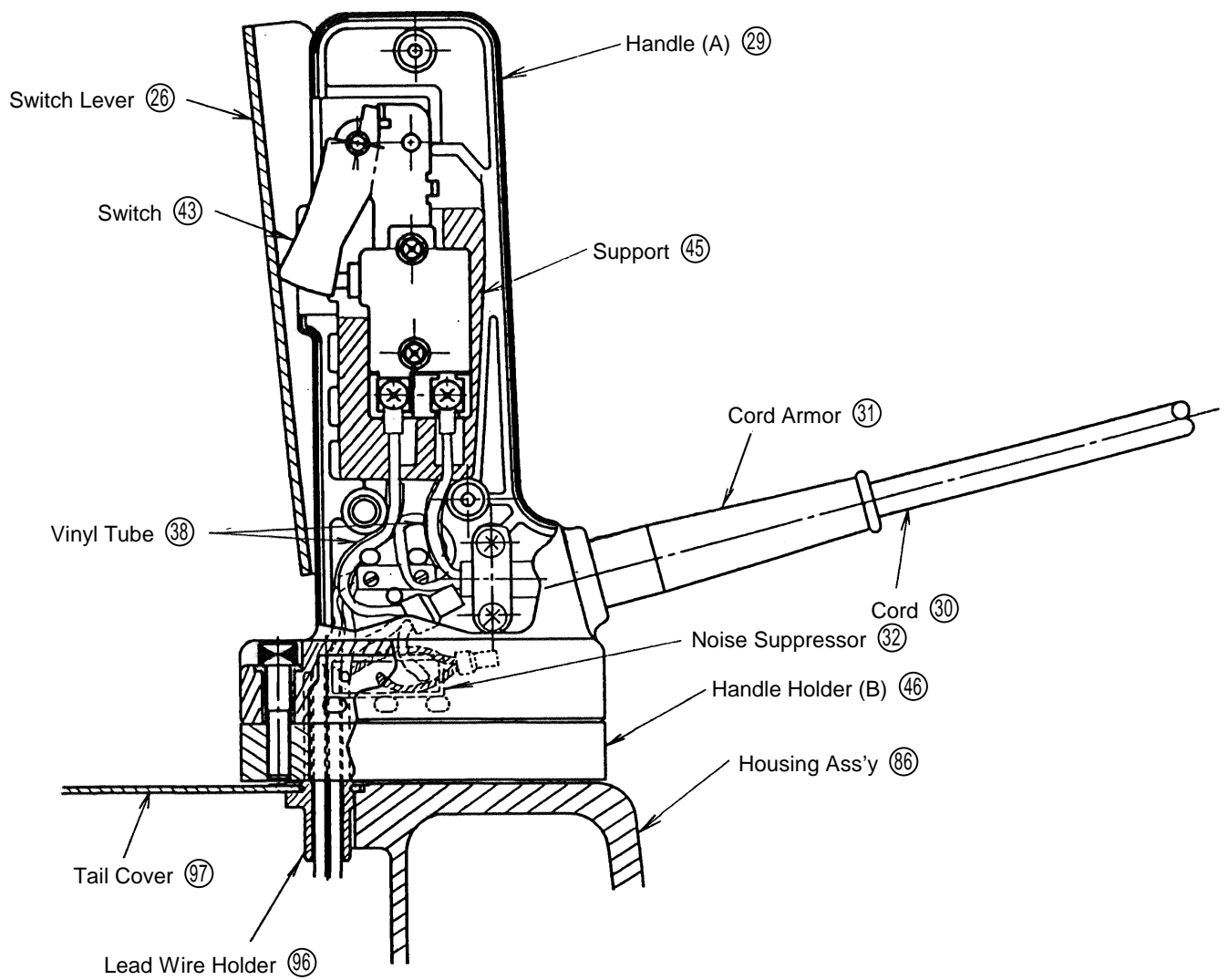


Fig. 14

1-3. Use of Screw Locking Agents:

- (1) Coat the threaded portions of all M4, M5, M6, M8 and M10 Hexagon Socket Hd. Bolts with TB1401 Screw Locking Agent prior to tightening them.
- (2) The M10 x 45 Bolts ⑩ and M12 x 40 Bolts ④, which fasten the Cylinder Case ⑮ and Front Cover ⑤ respectively, are special bolts and must be replaced with new genuine Hitachi parts if they are loosened.

(CAUTION) If fastening bolts come loose from vibration, it could cause serious damage to the machine. Ensure without fail that TB1401 Screw Locking Agent is applied as directed above prior to reassembly.

Before applying the TB1401, carefully clean any grease or other foreign matter from the male and female threads with gasoline, thinner or similar cleaning solvents.

1-4. Tightening Torques:

M4 Hexagon Socket Hd. Bolts	45 ± 5	kg-cm (39.1 ± 4.3 lb-in)
M5 Hexagon Socket Hd. Bolts	$80 \begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$	kg-cm ($69.5 \begin{smallmatrix} +17.4 \\ 0 \end{smallmatrix}$ lb-in)
M6 Hexagon Socket Hd. Bolts	$100 \begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$	kg-cm ($86.9 \begin{smallmatrix} +17.4 \\ 0 \end{smallmatrix}$ lb-in)
M8 Hexagon Socket Hd. Bolts	$200 \begin{smallmatrix} +20 \\ 0 \end{smallmatrix}$	kg-cm ($173.8 \begin{smallmatrix} +17.4 \\ 0 \end{smallmatrix}$ lb-in)
M10 Hexagon Socket Hd. Bolts	$300 \begin{smallmatrix} +30 \\ 0 \end{smallmatrix}$	kg-cm ($260 \begin{smallmatrix} +26 \\ 0 \end{smallmatrix}$ lb-in)
M12 Hexagon Socket Hd. Bolts	$500 \begin{smallmatrix} +30 \\ 0 \end{smallmatrix}$	kg-cm ($434.4 \begin{smallmatrix} +26 \\ 0 \end{smallmatrix}$ lb-in)

(NOTE) If above bolts are tightened more than the designated values, it may cause breakage. Without fail, tighten the Bolts according to above specified values.

1-5. Wiring Diagram:

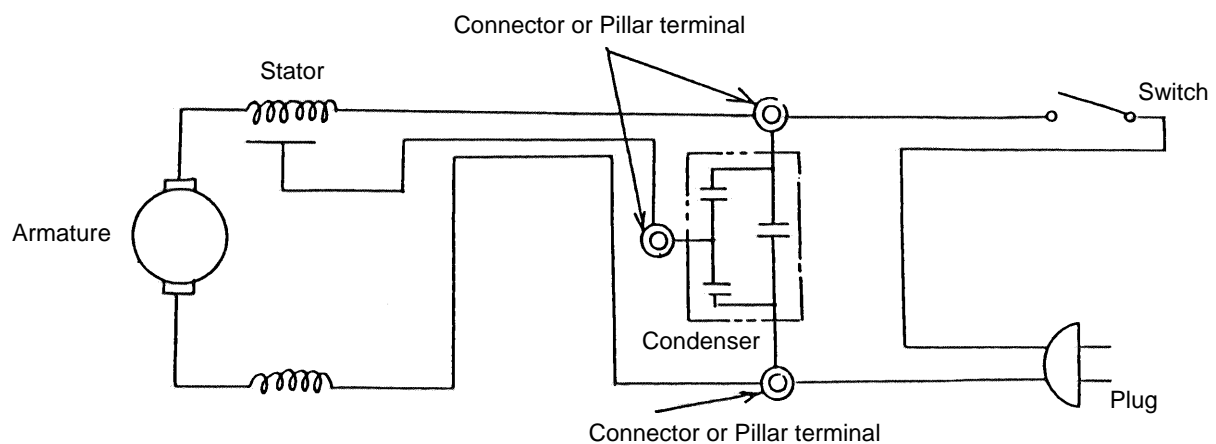


Fig. 15

1-6. Insulation Tests:

After disassembly for repair servicing, the insulation resistance should be measured and the dielectric strength test (withstand voltage test) performed.

Insulation resistance: $7M \Omega$ or greater Dielectric strength: Normal after applying 4000 V for one minute.

1-7. No-Load Current Value:

After no-load operation for 30 minutes, the no-load current value should be as follows:

3.6 A or less at 220 V, 50/60 Hz

5.8 A or less at 110 V, 50/60 Hz

5.7 A or less at 115 V, 50/60 Hz

5.5 A or less at 120 V, 50/60 Hz

5.3 A or less at 127 V, 50/60 Hz

3.5 A or less at 230 V, 50/60 Hz

3.4 A or less at 240 V, 50/60 Hz