1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the parts list and exploded assembly diagram.

1-1. Disassembly

(1) Piston and Striker

Remove the four M5 x 16 Nylock Bolts **[37]** at the Crank Case Cover Ass'y **[39]**, and remove the latter.

Remove the four M6 Nylock Bolts **[71]** at the Cylinder Case **[70]** and pull the Cylinder Case out of the Crank Case **[41]**. Pull out the Piston Pin **[67]** and remove the Piston **[66]**. Remove the Connecting Rod Ass'y **[68]** from the Crank Shaft **[43]** by removing the Retaining Ring for D12 Shaft **[42]**.

Pull out the Striker **[63]** by hammering on the Cylinder Case with a plastic hammer. If it is difficult to pull out the Striker, push the removed Piston together with the Connecting Rod Ass'y into the Cylinder **[59]** and quickly pull them out, and the Striker will jump out together with the Piston.

(2) Removing Gears from the Crank Case

Remove the Slip Clutch Ass'y **[36]** by hammering on the Crank Case **[41]** end face on the Gear Cover **[52]** side with a plastic hammer.

The First Gear **[50]** can be removed by supporting the flat surface of the Crank Case for mounting the Rubber Seal **[40]** on a flat-top table and releasing the Crank Shaft **[43]** from press-fitting by pushing it from the Gear Cover side using a hand press.

The Slip Clutch Ass'y can be removed with the following procedure. First pull out the Ball Bearing 629VV **[35]** with a bearing puller (Code No. 970804), support the Washer (A) **[29]** on a sleeve as shown in Fig. 16 and release the Bevel Pinion **[24]** from the press-fitting by pushing it from the Spacer **[34]** side using a hand press. When removing the Gear Holder **[30]** from the Second Gear **[33]**, it is recommended to keep them inside a vinyl bag during disassembly to prevent the Springs (C) **[31]** and Needle Pins **[32]** from scattering.

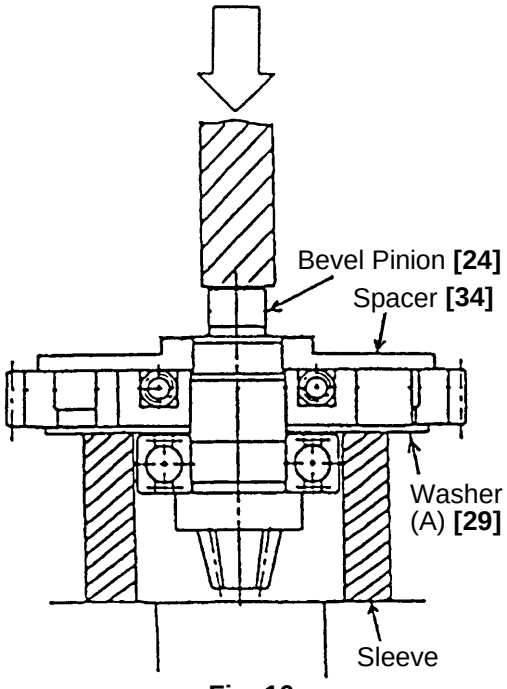


Fig. 16

(3) Disassembly of the tool holder

Slide the Grip **[2]** fully in direction indicated by the arrow as shown in Fig. 16 and remove the Front Cap **[1]** (since the Front Cap is made of rubber, grasp its outer face and strongly pull it to remove). This allows the Grip, Needle Holder **[3]**, Retainer Spring **[9]**, Needle Rollers (2 pcs.) **[4]** and Spring Holder **[10]** to be separated from the Retainer Sleeve **[5]**.

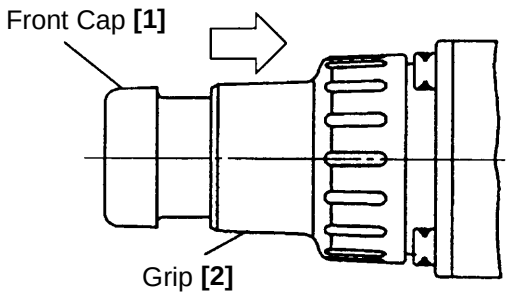


Fig. 17

(4) Disassembling the Retainer Sleeve and Cylinder

As shown in Fig. 18, keep the Retaining Ring D38 **[11]** open with the snap ring remover, insert a flat-blade screwdriver into the gap, and pry with the screwdriver to remove it.Remove the Sleeve (A) **[12]** and remove the four D6 x 6 Needle Pins **[57]** so that the Retainer Sleeve **[5]** and Cylinder **[59]** can be removed and the Second Hammer **[8]** taken out.

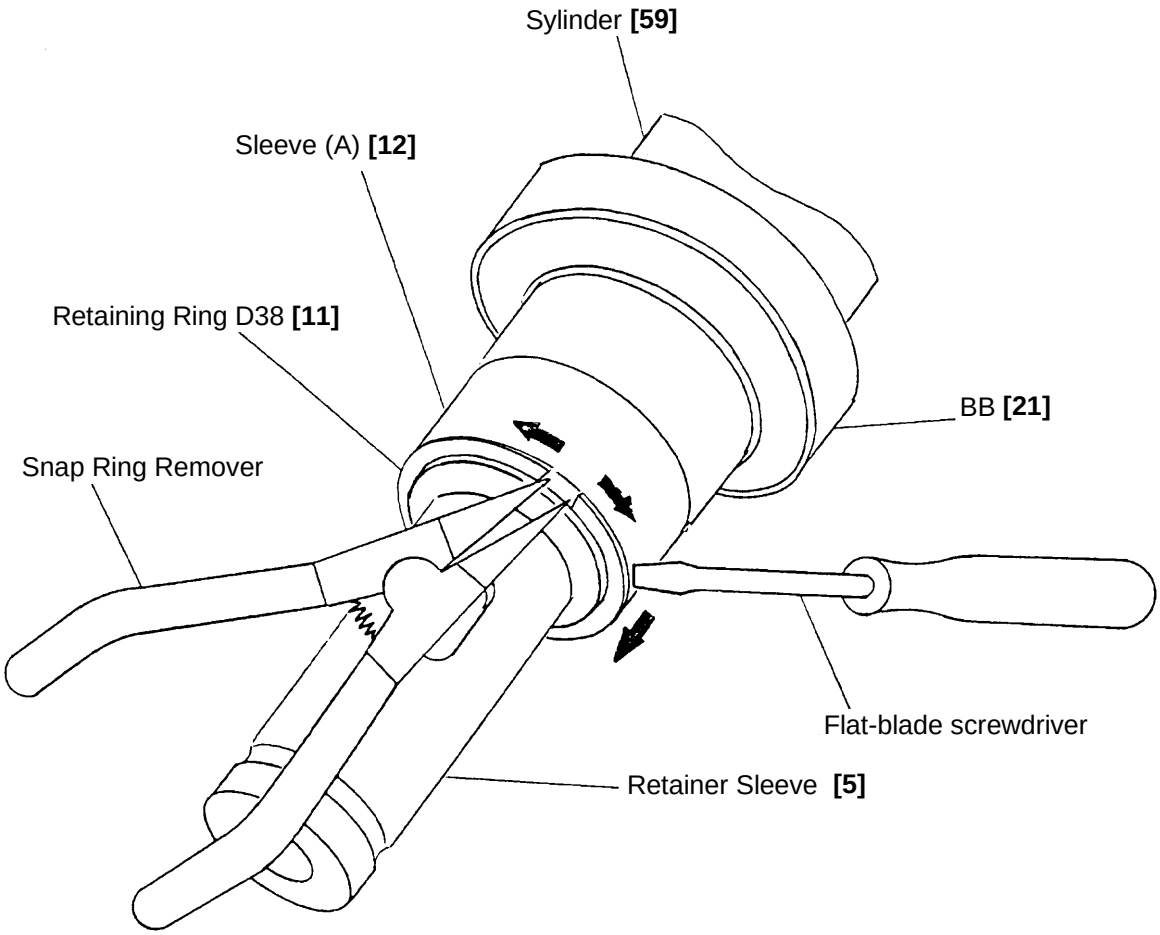


Fig. 18

(5) Plug (A) and (B) Ass'ys

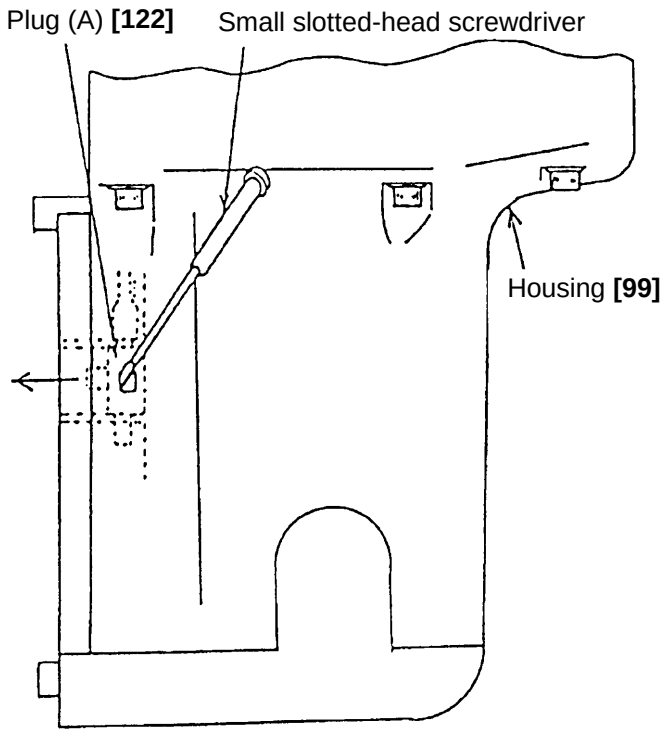


Fig. 19

Remove the M5 x 16 Nylock Bolt (W/Flange) **[37]** and the D5 x 25 Tapping Screw (W/Flange) (black) **[118]** and remove the Handle **[108]** from the Housing **[99]** and Crank Case **[41]**.

Then, as indicated in Fig. 19, insert a small slotted-head screwdriver into the square hole of the Housing and pull out the Plug (A) Ass'y **[122]** in the direction indicated by the arrow while pushing on the projection with the tip of the screwdriver.

Pull the Stator **[95]** Internal Wire out of the Plug (A) Ass'y by hand. The Plug (B) Ass'y **[123]** can be removed from the Handle in the same way as the Plug (A) Ass'y.

1-2. Reassembly

Perform generally in reverse to the disassembly procedure, with some notes to be taken as indicated below.

(1) Application of lubricant

Apply special grease (for hammer and hammer drill) to the Needle Bearing **[69]** of the Connecting Rod Ass'y **[68]**, the O-Rings **[64]** of the Striker **[63]** and Piston **[66]**, O-Ring (C) **[7]**, Oil Seal **[16]**, Oil Seal (A) **[26]**, and Oil Seal (B) **[46]**. Fill 40 g in the Crank Case **[41]** on the Connecting Rod side and 20 g in the Cylinder Case. Apply power tool grease No. 29 to the Needle Bearing **[49]** and Armature Pinion. Fill 20 g of power tool grease No. 29 in the Gear Cover.

(2) Oil seal and others

Take care not to scratch or cut the Rubber Seal **[40]** of the Crank Case **[41]**, O-Rings **[64]** of Piston and Striker, Oil Seals (A) **[26]** and (B) **[46]** of Crank Case and O-Ring **[15]** of Cylinder Case, Oil Seal **[16]** of Front Cover **[14]**, O-Ring (C) **[7]** of Second Hammer **[8]** and O-Ring **[91]** of Gear Cover **[52]**.

(3) Slip Clutch Ass'y

Press-fit the Ball Bearing 6002DD **[27]** into the Bevel Pinion **[24]** and insert the Washer **[28]** and then the Washer (A) **[29]** into the Bevel Pinion. After mounting the 3 x 3 x 8 Feather Key **[25]** in the Bevel Pinion, press-fit the Gear Holder **[30]** into the Bevel Pinion.

Next, install the Second Gear **[33]** on the outer circumference of the Gear Holder and place the Needle Pins **[32]** without inclination as indicated in Fig. 20, then press in the Springs (C) **[31]**. Fill the spaces "B" in Fig. 20 with No. 29 power tool grease, 2 g for each (8 g in total) and press in the Spacer **[34]** and then Ball Bearing 629VV **[35]**.

When reassembly of the Slip Clutch is complete, retain the Slip Clutch Ass'y on the Second Gear block J-271 (Code No. 313499) by clamping it in a vise, put the Socket Ass'y J-272 (Code No. 313500) over the teeth of Bevel Pinion, and make sure that slipping takes place by turning it in the direction "C" (clockwise when viewed from above) with a wrench.

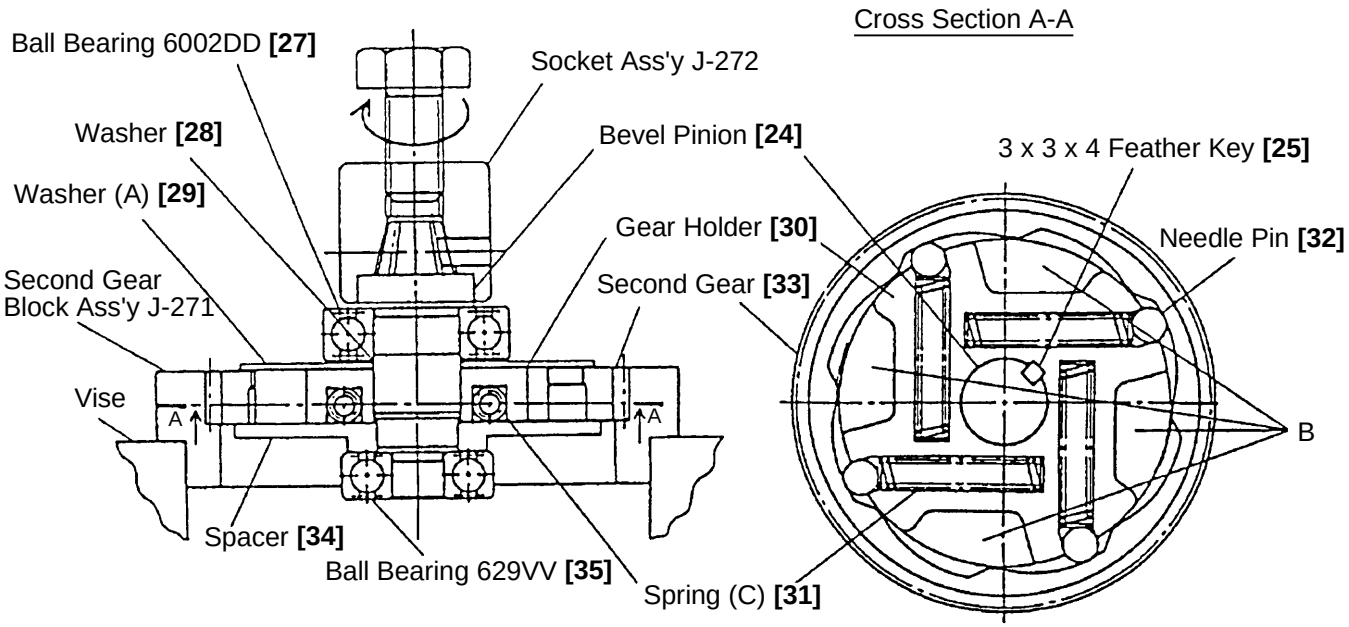


Fig. 20

(4) Carbon Brush Inspection

The motor section incorporates a pair of Carbon Brushes **[102]**, which are consumable items. Since significantly worn Carbon Brushes may cause a motor failure, they should be replaced with new ones when they reach approximately their maximum wear limit (7 mm). Be sure to use the Hitachi 12Z Carbon Brushes as indicated in Fig. 21. Keep the Carbon Brushes clean and free from dust so that they can freely slide within the Brush Holder.

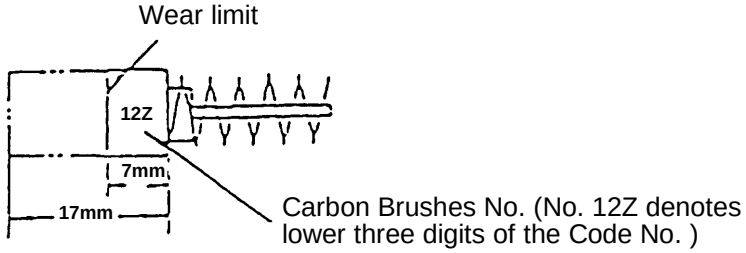


Fig. 21

1-3. Screw Locking Agent TB 1401

Apply screw locking agent ThreeBond TB1401 to all of the M5 Hexagon Socket Head Bolts (expect for M7 for Front Cover mounting and M6 Hexagon Socket Head Bolts for Cylinder Case mounting, which are special bolts to be treated as service parts).

(Note) Be sure to apply screw locking agent ThreeBond TB1401 to the threads during reassembly, as the bolts loosened with vibration may cause damage to the tool body.

1-4. Tightening Torque

M4 Hexagon Socket Head Bolt ····· 4.4 ± 0.5 Nm (45 ± 5 kgfcm)

M5 Hexagon Socket Head Bolt ····· 7.9 $^{+2.0}_{0}$ Nm (80 $^{+20}_{0}$ kgfcm)

D4 Tapping Screw ·····2.0 ±0.5 Nm (20 ± 5 kgfcm)

D5 Tapping Screw ·····2.0± 0.5 Nm (30 ± 5 kgfcm)

Handle Mounting Bolt ·····3.9 ± 0.5 Nm (40 ± 5 kgfcm)

(Nylock Bolt (W/Flange) M5 x 16)

Crank Case Cover Mounting Bolt ··· 4.9 ± 1.0 Nm (50 ± 10 kgfcm)

(Nylock Bolt (W/Flange) M5 x 16)

Housing Mounting Bolt ····· 3.9 ± 0.5 Nm (40 ± 5 kgfcm)

(Nylock Bolt (W/Flange) M5 x 25)

Front Cover Mounting Bolt ·····9.8 $^{+2.0}_{0}$ Nm (100 $^{+20}_{0}$ kgfcm)

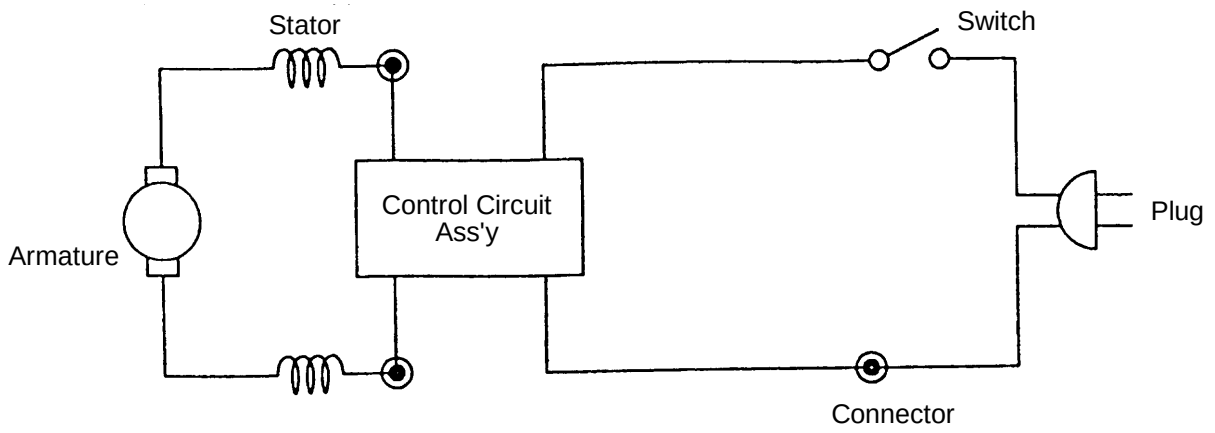
(Nylock High Tension Bolt M7 x 25)

Cylinder Case Mounting Bolt ····· 9.8 $^{+2.0}_{0}$ Nm (100 $^{+20}_{0}$ kgfcm)

(Nylock Bolt (W/Flange) M6 x 25)

1-5. Wiring Diagrams

* For products without noise suppressor



* For products with noise suppressor

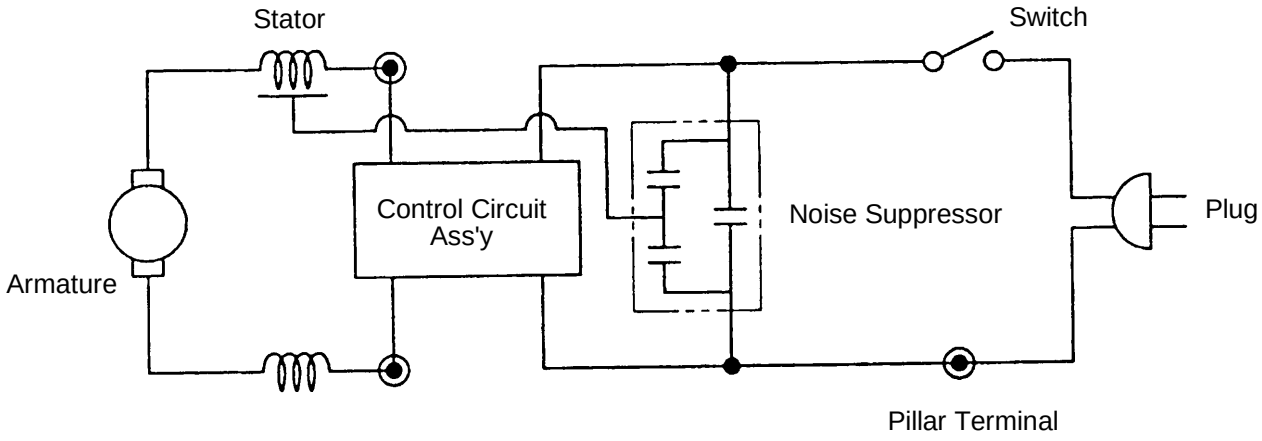


Fig. 21

1-6. Insulation Test

On completion of disassembly and repair, measure the insulation resistance and dielectric strength.

Insulation Resistance : 7 MΩ or more with DC 500 V Megohm Tester

Dielectric Strength : AC 4,000 V/1 minute, with no abnormalities ·····220 V - 240 V
(and 110 V for U.K. products)

AC 2,500 V/1 minute, with no abnormalities ·····110 V - 127 V
(except U.K. products)

1-7. No-Load Current Values

After no-load operation for 30 minutes, the no-load current values should be as follows.

Voltage	110 V	115 V	120 V	127 V	220 V	230 V	240 V
Current (A) Max.	6.4 A	6.1 A	5.9 A	5.5 A	3.2 A	3.1 A	2.9 A

2. STANDARD REPAIR TIME (UNIT) SCHEDULES