



# MODEL DH 50SA1

## 1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY:

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

### 1-1. Disassembly:

#### 1-1-1. Disassembly of the Tool Retainer:

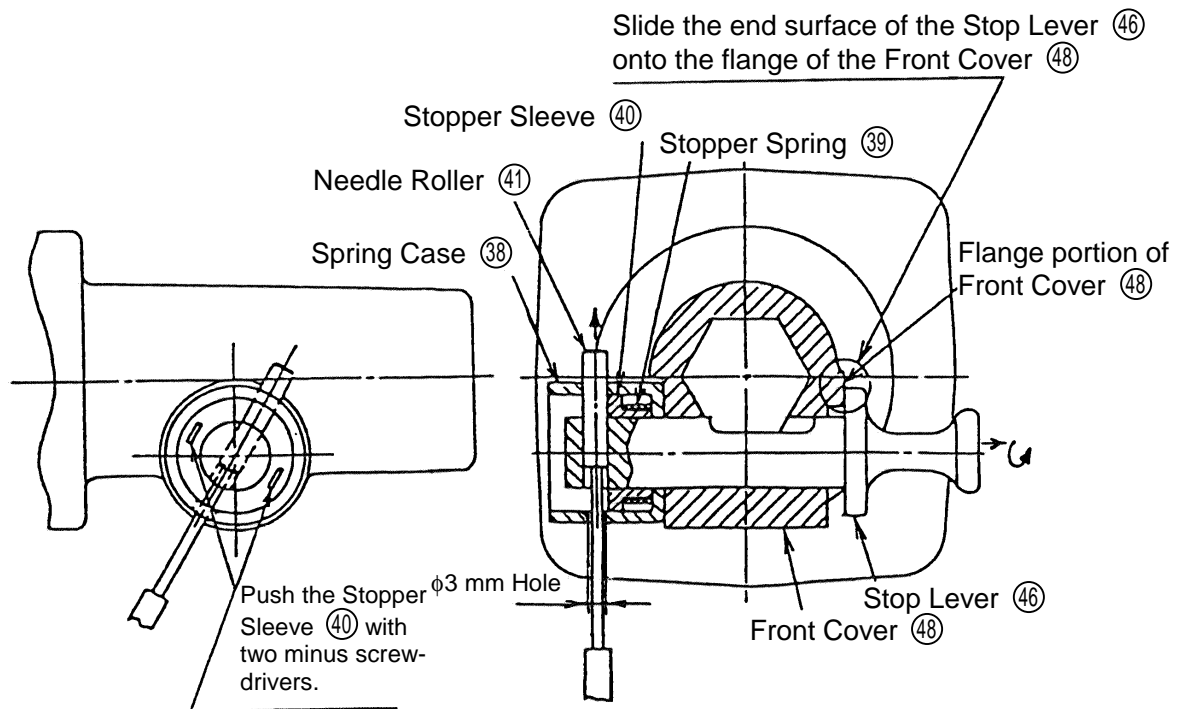


Fig. 6

Disassembly procedures are illustrated in Fig. 6. Pull the Stop Lever (46) outward in the direction indicated by the arrow, and turn it slightly so that its end surface comes to rest on the flange portion of the Front Cover (48). Next, turn the Spring Case (38) so that the hole of the Spring Case (38) is aligned with the Needle Roller (41). Push in the Stopper Sleeve (40) with two minus screwdrivers to compress the Stopper Spring (39), and insert a steel rod (less than 3 mm [0.118"] in diameter) into the 3 mm (0.118") diameter hole of the Spring Case (38) to push out the Needle Roller (41). The Stop Lever (46), the Stopper Sleeve (40) and the Stopper Spring (39) can then be taken off.

#### 1-1-2. Piston and Striker O-Rings:

Loosen the four M6 x 35 Hexagon Socket Hd. Bolts (9) which fasten the Cylinder Case Ass'y (8), and remove the Cylinder Case Ass'y (8) from the Crank Case (25). As the Piston (7) remains in the Crank Case side, simply remove the C-Type Retaining Ring (15) and disassemble the Connecting Rod Ass'y (16) from the Crank Shaft (21). The Striker (4) can be removed by lightly tapping the Cylinder Case Ass'y (8) with a plastic hammer. If it cannot be easily removed, push the reassembled Connecting Rod Ass'y (16) and Piston (7) back into the Cylinder (36), and pull them out again sharply. The Striker (4) should come out at the same time.

#### 1-1-3. Disassembly of the Cylinder:

When the Cylinder Case Ass'y (8) is removed from the Crank Case (25) and the Front Cover (48) is removed from the Cylinder Case Ass'y (8), the Third Gear (14), Damper Washer (52), Damper (53), Washer (54), Second Hammer (51) and Cylinder (36) can all be taken out.

#### 1-1-4. Removal of the Gears Within the Crank Case:

The slip clutch portion can be removed by lightly tapping with a plastic hammer the end surface of the Crank Case (25) where the Gear Cover (110) was mounted. To remove the First Gear (95), remove the D47 C-Type Retaining Ring (22) and push down on the Gear Cover side of the Crank Shaft (21) with a hand press to release the pressure fitting. The First Gear (95) and related parts can then be separated. To disassemble the slip clutch portion, secure a J-137 Second Gear Block Ass'y (Special Repair Tool Code No. 970917) in a vise, insert the Second Gear (100) in the block ass'y as illustrated in Fig. 7, and loosen the M6 x 6 Hexagon Socket Hd. Set Screw (105). Finally, loosen the Special Nut (104) by turning it counter-clockwise with a J-122 Wrench (Special Repair Tool, Code No. 970884), and disassemble the remaining parts. At this time, be very careful not to lose the seventeen Steel Balls (101) which are installed between the Second Gear (100) and the Clutch Plate (102).

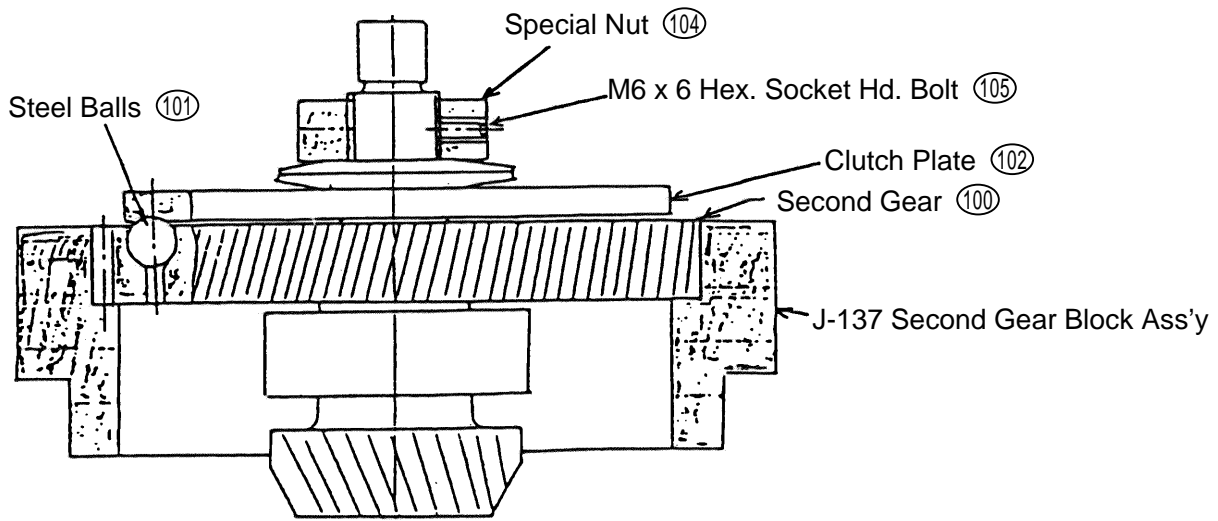


Fig. 7

#### 1-1-5. Disassembly of the Handle:

After the four M5 x 14 Hexagon Socket Hd. Bolts (28) have been removed, Handles (A) and (B) (87) (82) can be removed from the main body.

### 1-2. Reassembly:

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

#### 1-2-1. Application of Special Grease:

Coat Special Grease (Code No. 980927) on the following:

- The Needle Bearing of the Connecting Rod Ass'y (16).
- The O-Rings (5) on the Piston (7) and Striker (4).
- The O-Ring (50) on the Second Hammer (51).
- The inner and outer surfaces of the Cylinder (36).
- The bearing portion of the Cylinder Case (8).

Please refer to paragraph 7-3 for replacement of the grease within the hammering section.

#### 1-2-2. Reassembly of the Tool Retainer:

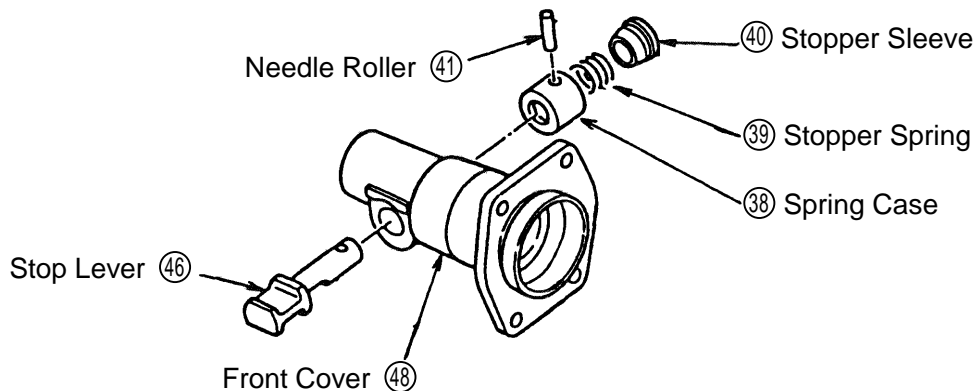


Fig. 8

Coat grease (Molub Alloy #777-1, Code No. 971042, is recommended) on the shaft portion of the Stop Lever (46), and reassemble it by referring to Fig. 8 above and Fig. 6 in paragraph 1-1-1.

#### 1-2-3. O-Rings and Oil Seal:

Be very careful not to damage the O-Rings (49, 50, 5, 12, 20, 23, 98) and the Oil Seal (112) during reassembly.

#### 1-2-4. Reassembly of the Slip Clutch Portion:

First, press fit the Ball Bearing (99) onto the Third Pinion (97). Then, mount the Second Gear (100), and insert the 17 Steel Balls (101) into the retaining holes on the Second Gear (100). Next, mount the Clutch Plate (102) and the Belleville Spring (103) and temporarily tighten the Special Nut (104).

Secure a J-137 Second Gear Block Ass'y in a vise, mount the Second Gear (100) in the block ass'y as illustrated in Fig. 9, and tighten the Special Nut (104) with a J-122 Wrench. Next, turn the unit upside down in the block ass'y so that the Second Gear (100) is positioned as illustrated in Fig. 10, and fit a J-138 Socket Ass'y and J-139 Spacer to the Third Pinion (97). Finally, using an appropriate torque wrench as indicated, adjust the slip torque of the Third Pinion (97) to 3.8 - 4.1 kg-m (330 - 356 lbs-in) through adjustment of the tightness of the Special Nut.

On completion of adjustment, tighten the M6 x 6 Hexagon Socket Hd. Set Screw (105) to a rated torque of 30 kg-cm (26 lbs-in).

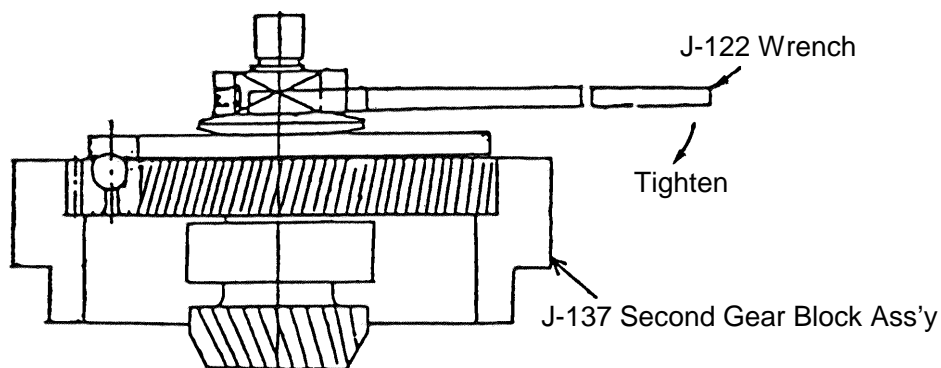
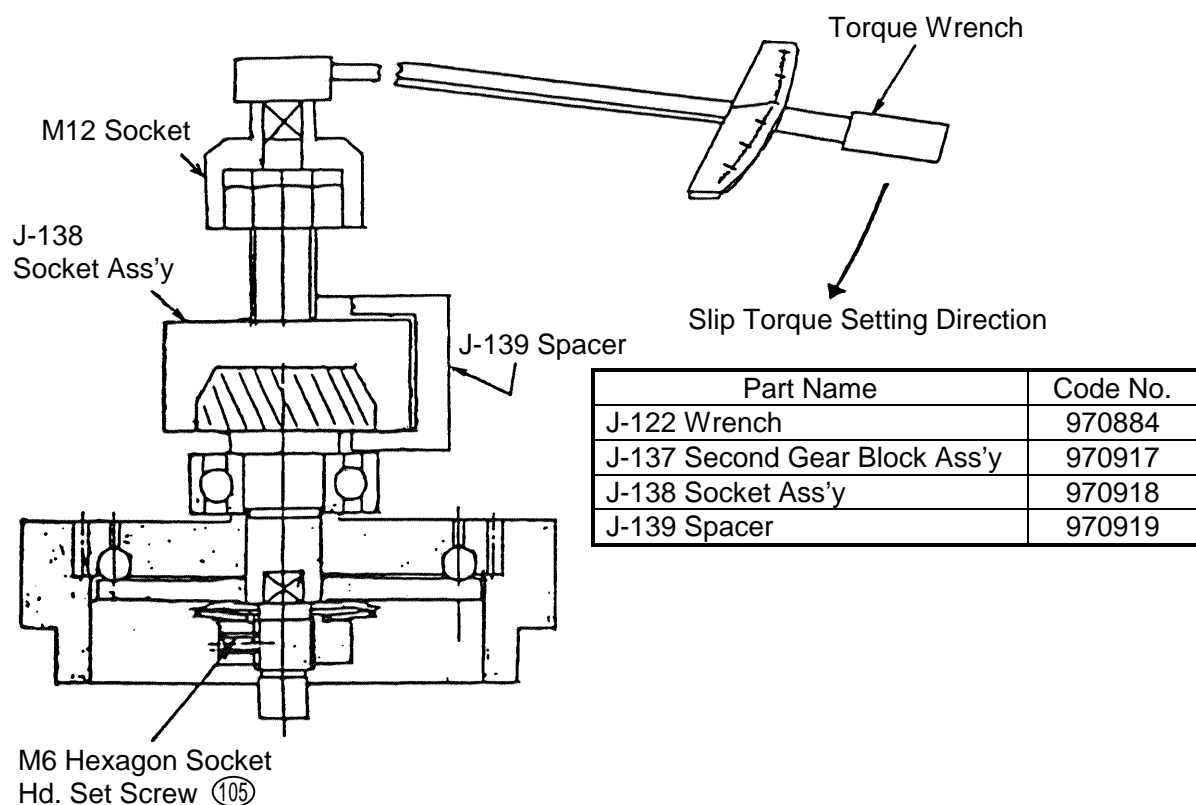


Fig. 9



**Fig. 10**

### 1-3. Adhesives and Screw Locking Agents:

As loosening of screws and bolts due to vibration could cause serious damage to the main body of the tool, thoroughly remove grease and dirt from male and female threads with gasoline, thinner or similar solvent, and coat the threaded portions of each of the screws and nuts listed in paragraph 1-4 with Three-Bond TB 1401 Screw Locking Agent before tightening them to rated torque.

### 1-4. Tightening Torques:

D4 Tapping Screws (67), (81), (85)	20 ± 5 kg-cm (17.4 ± 4.3 lb-in)
D5 Tapping Screws (57), (69), (79)	30 ± 5 kg-cm (26 ± 4.3 lb-in)
M4 Hexagon Socket Hd. Bolts (17)	45 ± 5 kg-cm (39 ± 4.3 lb-in)
M5 Hexagon Socket Hd. Bolts (28)	80 <sup>+20</sup> / <sub>0</sub> kg-cm (69.4 <sup>+17.3</sup> / <sub>0</sub> lb.in)
M6 Hexagon Socket Hd. Bolts (9), (93)	100 <sup>+20</sup> / <sub>0</sub> kg-cm (86.7 <sup>+17.3</sup> / <sub>0</sub> lb.in)
M6 x 60 Hex. Socket Hd. Bolts which fix the Housing (62)	50 <sup>+20</sup> / <sub>0</sub> kg-cm (43.4 <sup>+17.3</sup> / <sub>0</sub> lb-in)
M8 Hexagon Socket Hd. Bolts (30), (47)	400 ± 10 kg-cm (346.9 ± 8.7 lb-in)

### 1-5. Insulation Tests:

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

Insulation Resistance: 7M  $\Omega$  or more with DC500 V Megohm Tester.

Dielectric Strength: AC4000 V/1 minute, with no abnormalities..... 220 V - 240 V  
(and 110V for U.K. products)  
AC2500 V/1 minute, with no abnormalities..... 110 V - 127 V  
(except U.K. products)

### 1-6. No-Load Current Value:

The no-load current value after the hammer drill is operated under no-load condition for 30 minutes should be as follows:

Voltage	110 V	115 V	120 V	127 V	220 V	130 V	240 V
Current (A) Max.	6.0 A	5.7 A	5.5 A	5.2 A	3.0 A	2.9 A	2.8 A