



MODEL FG 12SB

1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the numbers in the Parts Lists and exploded assembly diagrams for FG 12SB.

1-1. Disassembly of the Armature

- (1) Loosen the M5 x 16 Machine Screw **[26]** and remove Wheel Guard (A) Ass'y **[28]**.
- (2) Remove the Brush Caps **[40]**, and take out the Carbon Brushes **[41]**.
- (3) Loosen the D5 x 25 Tapping Screws **[1]**, and remove the Gear Cover Ass'y **[4]**. Separate the Inner Cover **[9]** from the Housing Ass'y **[36]** with a slotted-head screwdriver, and remove the Inner Cover **[9]** together with the Armature **[10]**.
- (4) Holding the Armature **[10]**, loosen the M7 Special Nut **[5]** with a wrench, and remove the Pinion **[6]**.
- (5) Support the Inner Cover **[9]** with a tubular jig (inner diameter 63-72 mm is recommended), and push down on the armature shaft with a hand press to remove the Armature **[10]**. (see Fig. 3)

1-2. Disassembly of the Stator Ass'y

- (1) After removing the Armature **[10]**, disconnect the lead wires of the Stator Ass'y **[12]** from the Slide Switch **[44]**. Then, remove the Brush Terminals **[13]** from the Brush Holders **[42]**.
- (2) Loosen the D4 x 70 Hex. Hd. Tapping Screws **[11]**, and remove the Stator Ass'y **[12]**.

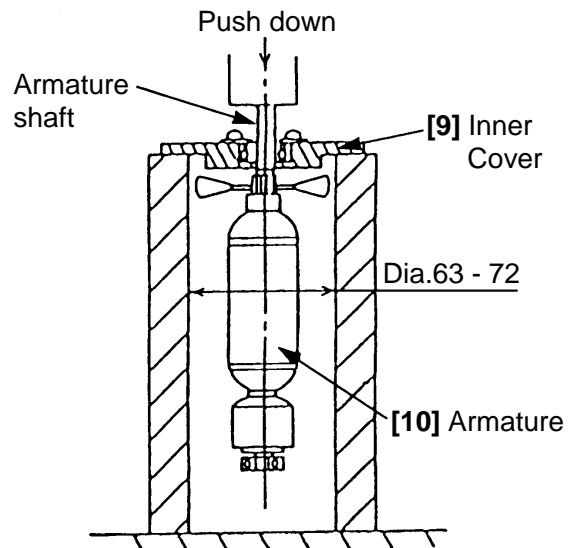


Fig. 3

1-3. Disassembly of the Gear

- (1) Loosen the M4 x 12 Seal Lock Screws **[23]**, and remove the Packing Gland **[22]** together with the Spindle **[25]**, and Gear **[17]** from the Gear Cover Ass'y **[4]** in a single body.
- (2) As illustrated in Fig. 4, support the angled surface of the Gear **[17]** with a J-129 gear puller (special repair tool, Code No. 970905), rest the J-129 gear puller on a J-130 sleeve (special repair tool, Code No. 970907), and push down on the tip of the Spindle **[25]** with a hand press to remove the Gear **[17]**.

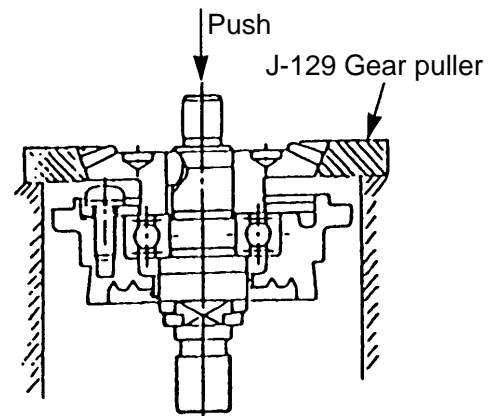


Fig. 4

1-4. Precautions on Reassembly

- 1) Thoroughly coat grease (Hitachi Motor Grease N. P. C. SEP-3A, Code No. 930035, is recommended) on the gear teeth of the gear and pinion. Special attention must be given to ensure that the grease is applied properly all the way to the base of each gear teeth.

Failure to do so could result in early wear and/or damage to the gear and pinion.

- 2) Liberally moisten the inner circumference of the felt packing with machine oil:

Failure to properly moisten the inner circumference of the felt packing could cause early wear and/or damage of the ball bearing.

- 3) When replacing the gear cover assembly with a new one, apply mixed oil into the inner roller of the needle bearing (metal).

Mixed oil: A mixture of Hitachi Power Tool Grease No. 2 (unilube No. 00, Code No. 939302) and turbine oil is recommended.

Mixture ratio: 1:1 (Weight ratio)

Supply amount: 0.5cc

1-5. Amount of Lubricant

- Pinion chamber of Gear Cover Ass'y [4] (supply from Inner cover side)

..... 8gr. of N. P. C. SEP-3A Grease (Code No. 930035).

Also,thoroughly apply grease on the gear teeth of the gear and pinion. (see Para. 1-4.)

- Needle bearing (metal) Mixed oil 0.5cc

Mixed oil: Hitachi Power Tool Grease No. 2 (Code No. 939302) and turbine oil.

Mixture Ratio: 1:1 (Weight ratio)

1-6. Tightening Torque of Each Screw or Nut

- M4 Slotted Hd. Screw [7] and

M4 Seal Lock Screws [18] [23] 1.8 ± 0.5 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs)

- D4 Tapping Screws [11] [43] [46] [52] 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs)

- D5 Tapping Screws [1]..... 2.9 ± 0.5 N·m (30 ± 5 kgf·cm, 2.2 ± 0.4 ft-lbs)

- M7 Special Nut [5]..... 6.4 ± 1.0 N·m (65 ± 10 kgf·cm, 4.7 ± 0.7 ft-lbs)

- M4 Flat Hd. Screw [34]..... $0.6 + \begin{smallmatrix} 0.3 \\ 0 \end{smallmatrix}$ N·m ($6 + \begin{smallmatrix} 3 \\ 0 \end{smallmatrix}$ kgf·cm, $0.4 + \begin{smallmatrix} 0.2 \\ 0 \end{smallmatrix}$ ft-lbs)

1-7. Wiring Diagram

(1) For European countries, South Africa, China, Australia and New Zealand

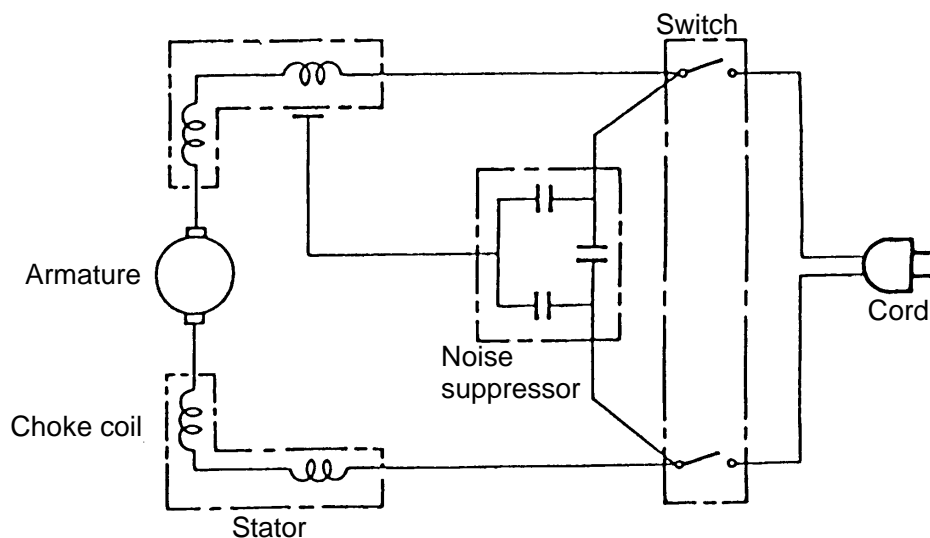


Fig. 5

(2) For other countries

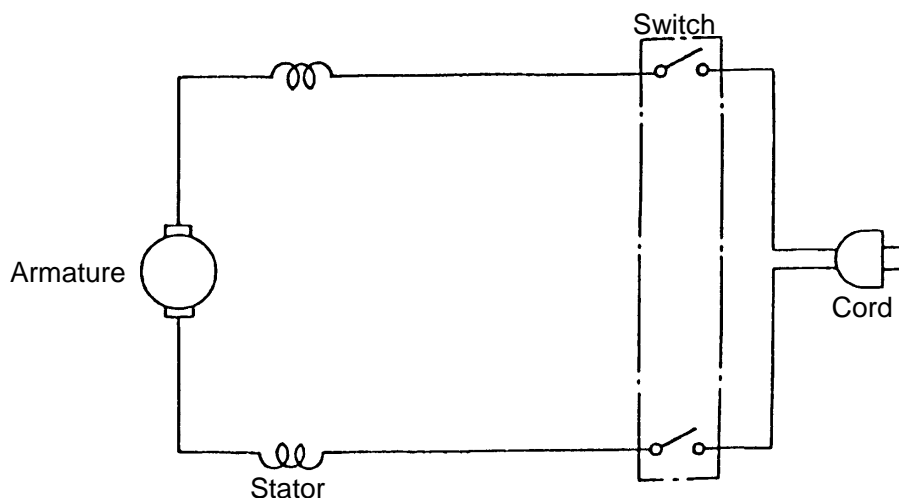


Fig. 6

1-8. Remaining Reassembly

Remaining reassembly can be accomplished by following the disassembly procedures in reverse.

1-9. Insulation Tests

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

Insulation resistance: 7MΩ or more with DC500 V Megohm Tester.

Dielectric strength: AC4000 V/1 minute, with no abnormalities 220 V - 240 V
(and 110 V for U. K. products)
AC2500 V/1 minute, with no abnormalities 110 V - 115 V
(except U. K. products)

1-10. No-Load Current Value

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

Voltage (V)	110	115	220	230	240
Current (A) Max.	2.5	2.5	1.3	1.2	1.2

2. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable Fixed	10	20	30	40	50	60 min.
FG 12SB	<div>General Assembly</div> <div> Fixed Cost Wheel Guard Ass'y } 0 min. Switch Ass'y } Tail Cover } Cord 10 min. Other 20 min. </div>	Work Flow					
		Slide Switch Cord Tail Cover					
				Housing Ass'y Stator Ass'y Slide Bar			
			Pinion Bearing Cover Ball Bearing (608VVMC) Inner Cover Armature Ball Bearing (626VVMC)				
			Pushing Button Gear Cover Ass'y Lock Pin Gear	Bearing Cover (B) Ball Bearing (6001VVMC) Felt Packing Packing Gland Spindle Fringer			
		Wheel Guard Ass'y					