



MODEL G 13YC

1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY:

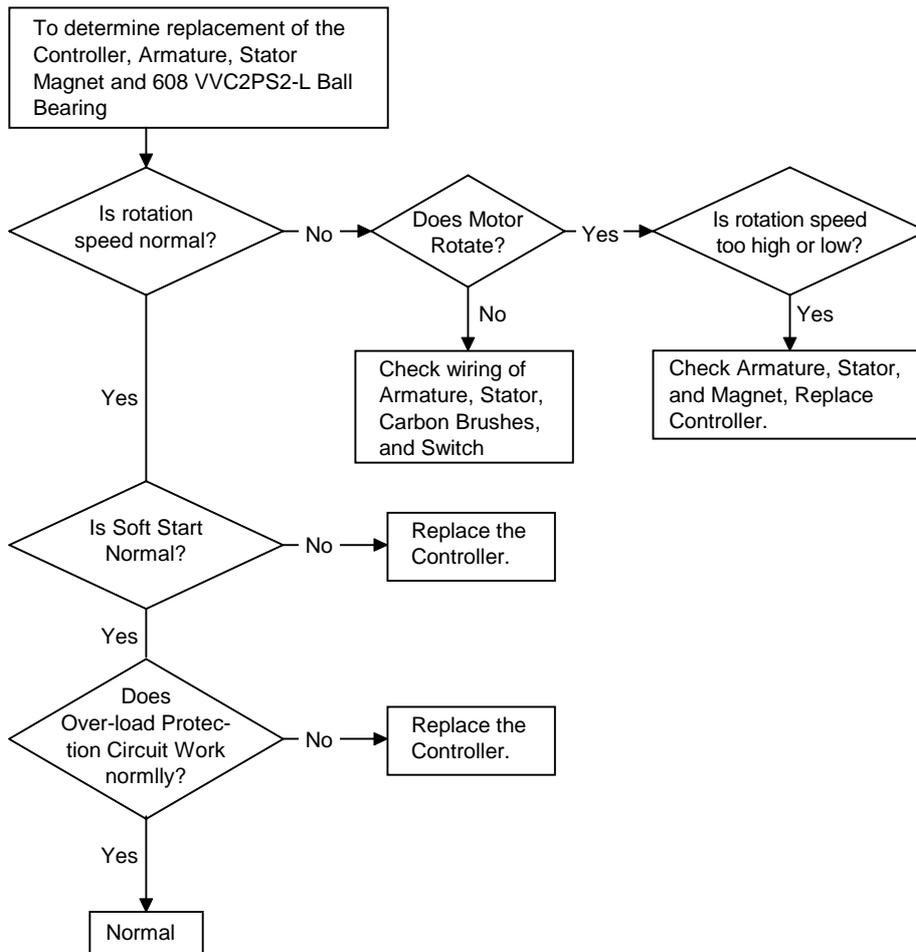
1-1. Precautions in Maintenance and Repair:

During repair and maintenance, particular attention must be given to the following items:

- (1) Without fail, remove the plug from the power source outlet to prevent accidental starting of the tool.
- (2) Remove the grinding wheel to prevent it from being damaged.
- (3) Do not strike the main body of the tool with a hammer or similar tool. The electronic control circuit built into the Controller can be damaged by the impact of a hammer or similar tool. Under no circumstances should such tools be used when the Controller is assembled in the main body.
- (4) Do not attempt to remove the internal parts of the Controller. The Controller is the very “brain” of the tool, and should never be disassembled.
- (5) When reassembling the tool, ensure without fail that the Magnet is properly installed. Also, note that the Magnet is left-hand threaded, and must be turned counter-clockwise to mount in on the Armature. On reassembly, tighten the Magnet (42) onto the Armature with a rated torque of $1.27 \pm 0.29\text{N}\cdot\text{m}$ ($13 \pm 3\text{kg}\cdot\text{cm}$).

(NOTE) When disassembled, never place the Magnet in the vicinity of metal particles or shavings. Should such metal particles adhere to the Magnet, they could cause malfunction of the control circuit and/or serious damage to the commutator-side ball bearing of the Armature.

(6) Controller Troubleshooting Chart:



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

1-2. Disassembly of the Armature Ass'y:

- (1) Loosen the two M5 x 20 Screws (30) and remove the Wheel Guard Ass'y (33).
- (2) Loosen the two D4 x 35L Tapping Screws (47) and the D4 x 20L Tapping Screw (48), and remove Tail Covers A and B (58) (46).
- (3) Remove the two Carbon Brushes (49) from the Brush Holders (50).
- (4) Remove the four D5 x 25 Tapping Screws (2).
- The Armature Ass'y (13) can then be taken out simultaneously with the Gear Cover Ass'y (4), Packing Gland (26), and related parts.
- (5) Remove the four M5 x 16L Seal Lock Screws (27).
- The Packing Gland (26) can then be taken out together with the Spindle (29) and Gear (20).
- (6) After removing the three M4 x 10 Seal Lock Screws (1), the Armature (13) can be extracted together with the Bearing Cover (12), and related parts.
- (7) Carefully wrap the Armature Ass'y (13) with a soft, clean rag to protect it from being damaged, and clamp it securely in a vise. Then, remove the M7 Nut (5), and extract the Pinion (6).
- (8) For the models indicated under Fig. 1, the Ball Bearing (9) can be removed from the Armature (13) by utilizing a J-204 Bearing Puller (special repair tool Code No. 970982) as illustrated. After the Ball Bearing has been removed, the Bearing Cover (12) can be easily taken off.

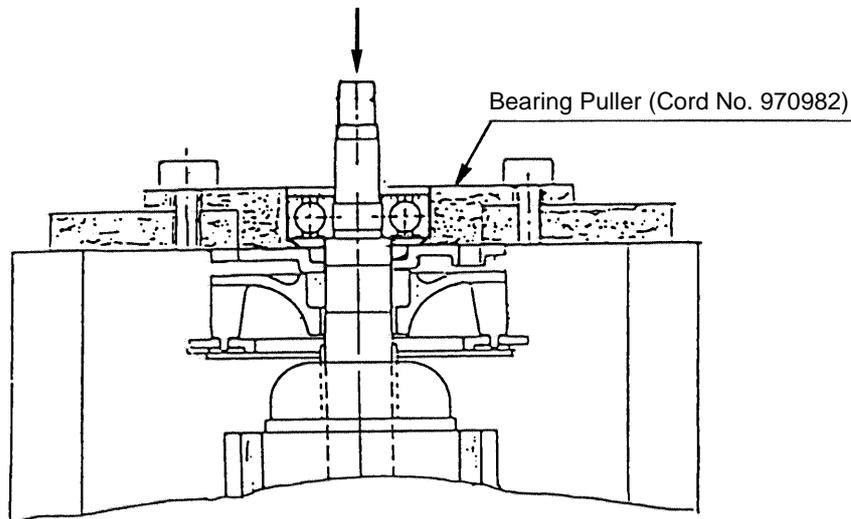


Fig. 1

1-3. Disassembly of the Controller Ass'y:

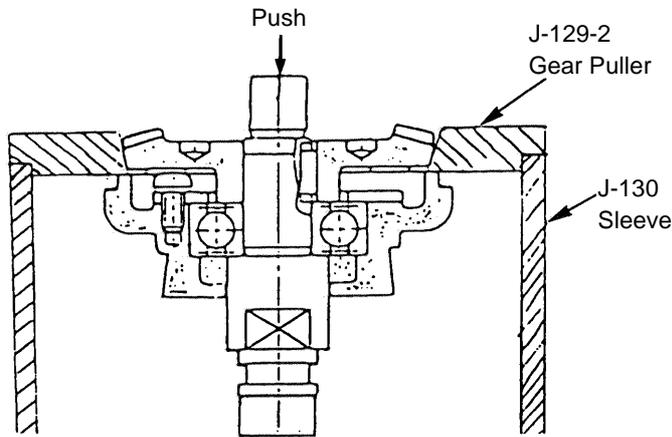
- (1) After removing Tail Covers (A) and (B) (58) (46), disconnect the Pillar Terminal (45) and Connector (44) that connect the leadwires.
- (2) Strip off the Dust Seal (59), and disconnect the leadwires from the Switch (60).
- (3) Loosen the two D4 x 16L Tapping Screws (53), and remove the Cord Clip (55).
- (4) Remove the Paddle lever (64) and related parts.
- (5) Remove the D4 x 16L Tapping Screw (53).

1-4. Disassembly of the Stator Ass'y:

- (1) After removing the Armature Ass'y (13) and Controller (43), disconnect the leadwires connected to the Brush Holders (50).
- (2) Loosen the two D4 x 70L Hex. Hd. Tapping Screws (15) and remove the Stator Ass'y (16) from the Housing (39). If the Stator Ass'y (16) cannot be easily removed from the Housing (39), disassembly can be facilitated by heating the Housing (39) to a temperature of approximately 60°C (140°F) with an appropriate heating device.

1-5. Disassembly of the Gear:

- (1) Loosen the four M5 x 16L Seal Lock Screws (27), and remove the packing Gland (26) together with the Spindle (29), and Gear (20) from the Cover Ass'y (4) in a single body.
- (2) When it is necessary to remove the Gear (20) from the Spindle (29), it is highly recommended that the special repair tools described below be utilized.



As illustrated in Fig. 2, support the angled surface of the Gear (20) with a J-129-2 Gear Puller (special repair tool, Code No. 970906), rest the J-129-2 Gear Puller on a J-130 Sleeve (special repair tool, Code No. 970907), and push down on the tip of the Spindle (29) with a hand press to remove the Gear (20).

Fig. 2-1

In the event J-129-2 Gear Puller cannot be inserted, expand the gap between the Gear (20) and the Packing Gland (26) as shown below, and extract the Gear with a J-166 Bearing Puller (Special Repair Tool, Code No. 970947).

- (a) Support the Packing Gland (26) as shown in Fig. 2-2, and push the Spindle (29) downward approximately 2 mm.
- (b) Turn the Packing Gland (26) over, support it as shown in Fig. 2-3, and push the Spindle (29) downward approximately 2 mm. In this way, expand the gap between the Gear (20) and Packing Gland (26) as shown in Fig. 2-4.

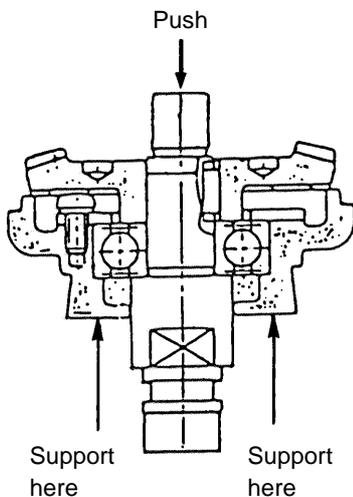


Fig. 2-2

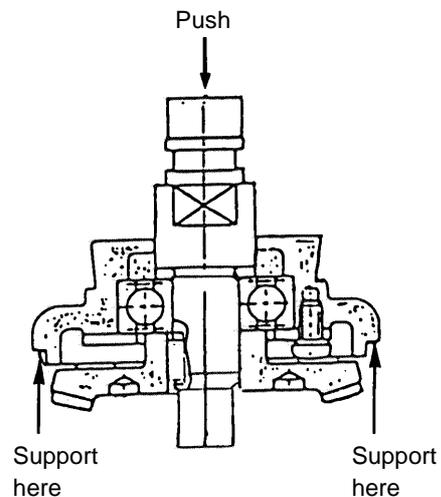


Fig. 2-3

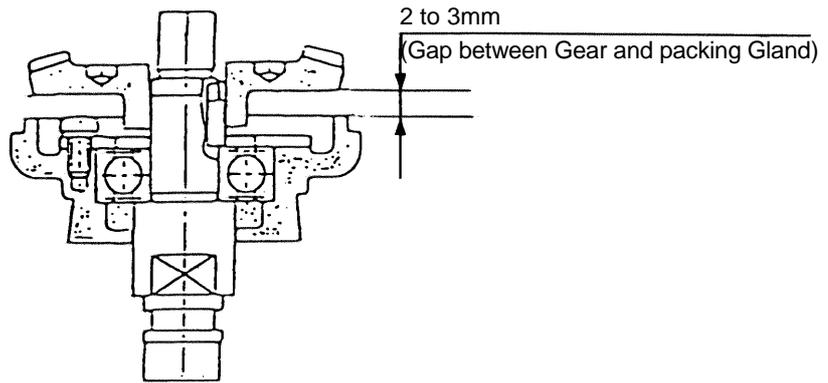


Fig. 2-4

1-6. Reassembly:

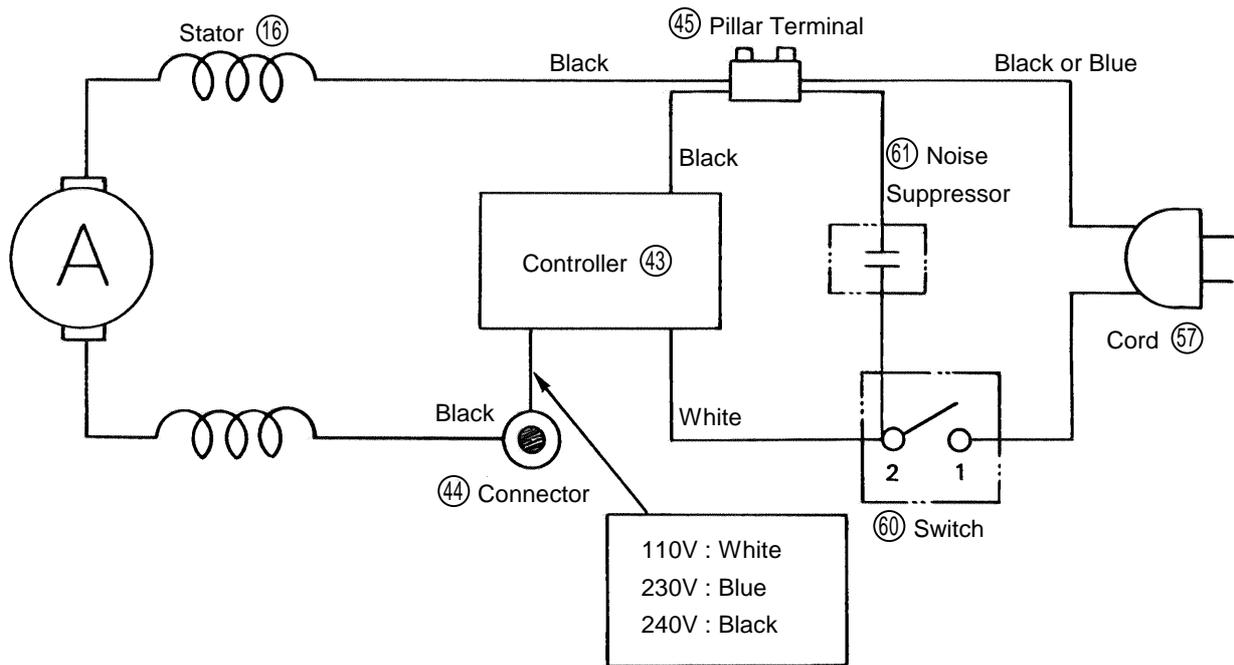
Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

- (1) After disassembly, thoroughly remove old grease from the inside of the Gear Cover Ass'y (4), and insert 15g of new grease (Nippeco JF-375, Code No. 930036, is recommended) prior to reassembly. When inserting grease, apply it to the Pinion Gear tooth surfaces, and to the Needle Bearing inside the Gear Cover.
- (2) When replacing the Ball Bearing on the commutator side of the Armature, be very careful to ensure that Dust Cover (A) (17) is assembled in the proper direction. Dust Seal (A) (17) plays an important role in dustproofing of the Ball Bearing, and must be replaced with a new one if disassembled.
- (3) In the event the Dust Seal (59) is removed, ensure without fail that it is replaced with a new one at reassembly.
- (4) Apply Three Bond TB1406 Screw Locking Agent to the following screws.
 - Three M4 x 10 Seal Lock Screws (1) which fix Bearing Cover (12).
 - Three M4 x 8 Seal Lock Screws (21) which fix Bearing Cover (B) (22).
 - Four M5 x 16 Seal Lock Screws (27) which fix Packing Gland (26).

1-7. Tighting Torques of Each Screw:

- D3 Tapping Screw (51) 0.74 ± 0.15 [N·m] (7.5 ± 1.5 kgf·cm)
- D4 Tapping Screw (W/Flange) (41) (48) (53)
and D4 Hex. Hd. Tapping Screw (15) 1.96 ± 0.49 [N·m] (20 ± 5 kgf·cm)
- D5 Tapping Screw (2) 2.94 ± 0.49 [N·m] (30 ± 5 kgf·cm)
- M4 Seal Lock Screw (W/Sp. Washer) (1) (21) 1.76 ± 0.39 [N·m] (18 ± 4 kgf·cm)
- M5 Seal Lock Screw (W/Sp. Washer) 3.43 ± 0.69 [N·m] (35 ± 7 kgf·cm)
- Magnet (M6 Left Hand Thread) (42) 1.27 ± 0.29 [N·m] (13 ± 3 kgf·cm)
- M7 Special Nut (5). 5.88 ± 0.98 [N·m] (60 ± 10 kgf·cm)

1-8. Winding Diagram:



1-9. Insulation Tests:

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

Insulation Resistance: 7MΩ or more with DC500V Megohm Tester.

Dielectric Strength: AC4000V/1 minute, with no abnormalities 220V - 240V
(and 110V for U.K. products)

AC2500V/1 minute, with no abnormalities 110V - 127V
(except U.K. products)

CAUTION

- Ensure without fail that the insulation resistance measurement and dielectric strength test are conducted between the plugblade and some portion of the external metal frame, such as the gear cover.

Never carry out these tests between the two blades of the plug.

This could cause burning out of the control element.

1-10. Gear Backlash Value:

Gear backlash should be maintained at a value of 2 mm or less measured at the external periphery portion of the grinding disc.

1-11. No-Load Current Value:

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

Voltage	110V	230V	240V
Current (A) Max.	5A	2.5A	2.5A

2. STANDARD REPAIR TIME (UNIT) SCHEDULES:

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
G 13Y			Work Flow					
	Complete assy						Housing Stator assy	
	Fixed Time:			Pinion	Armature aasy Gear cover BB (x 2) Felt packing (A)			
	Switch } 0 min Wheel guard } 0 min Handle (A) } 0 min Handle (B) } 0 min		Wheel guard					
				BB (gear cover side) Sleeve Seal packing (B)	Gear		BB (packing ground side) Felt packing Packing ground Spindle	
	Cord assy 10 min Others 20 min		Handle (B)	Handle (A) Controller assy Trigger switch (A) Cord Lead plate assy				