

PRODUCT NAME

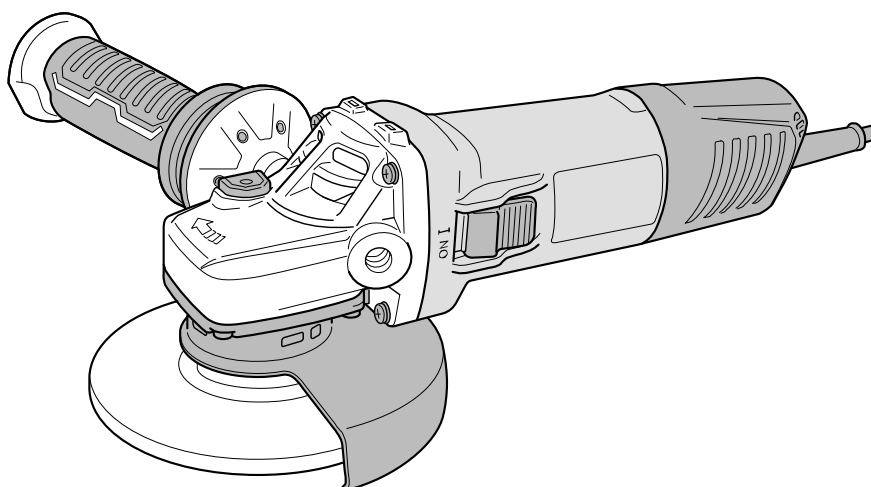
Disc Grinder

Models 115 mm (4-1/2") G 12SW2

125 mm (5") G 13SW2

G

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REPAIR GUIDE

WARNING: Before attempting disassembly, be sure to turn off the power switch and disconnect the power cord plug from the outlet.

1. Precautions on disassembly and reassembly

[Bold] numbers in the description below correspond to the item numbers in the parts lists and exploded assembly diagrams for the Models G 12SW2 and G 13SW2.

Disassembly

1. Removal of the armature and stator

- (1) Loosen the Tapping Screw (W/Flange) D4 x 20 (Black) [50] and pull out the Tail Cover [49]. Remove the Carbon Brushes (1 Pair) [35] from the Brush Holders [34].
- (2) Loosen the four Seal Lock Screws (W/Sp. Washer) M4 x 14 [15] and remove the Packing Gland [14] ass'y and Lever Holder [16].
- (3) Loosen the four Tapping Screws (W/Flange) D4 x 25 (Black) [1] that fix the Gear Cover [3] to remove the Armature [10] from the Housing [33] together with the Diffuser [9]. At this time, check that the Rubber Bushing [29] is fitted in the housing ball bearing chamber.
- (4) Loosen the Special Nut M7 [4] that fixes the Gear and Pinion Set [24] and remove the Gear and Pinion Set [24].
- (5) Disconnect the four internal wires of the Stator [26] from the Pushing Button Switch [41] and Brush Holders [34].
- (6) Remove the Fan Guide [25] and Stator [26] from the Housing [33].

NOTE: • If the Stator [26] is hard to remove from the Housing [33], heat the Housing [33] up to about 60°C to facilitate removal. Then pull out the Rubber Bushing [29].

- Each internal wire of the Stator [26] is covered with a heat shrinkable tube. Do not bend the internal wires repeatedly and do not peel off the heat shrinkable tube when removing the Stator [26] from the Housing [33]. Otherwise, the internal wires may be disconnected.
- Do not apply excessive force to the terminals of the Stator [26] when removing them from the Pushing Button Switch [41] and Brush Holders [34]. Otherwise, the terminals of the Stator [26] may be broken.

2. Removal of the rubber bushing

Insert the J-201 spring hook (special repair tool, Code No. 970977) between the Rubber Bushing [29] assembled in the Housing [33] and the housing ball bearing chamber, and then pull out the Rubber Bushing [29].

3. Removal of the dust seal

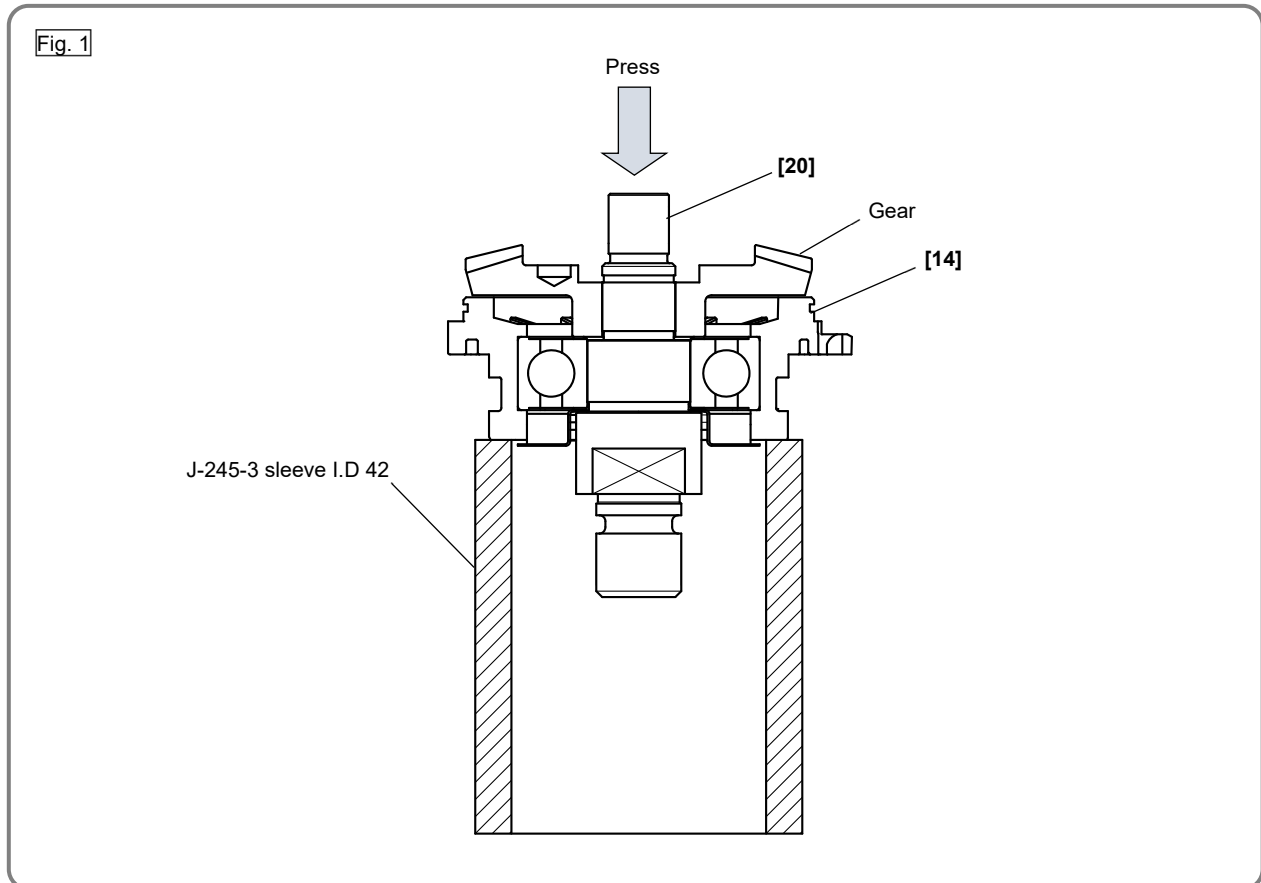
- (1) Insert the hooks of the J-204 bearing puller (special repair tool, Code No. 970982) between the Ball Bearing 698SS [28] and the Dust Seal [27] and fix the hooks with the wing bolts.

NOTE: Be careful not to insert the hooks excessively.

- (2) Put the bearing puller on an appropriate stand. Press down on the armature shaft with a hand press and pull out the Ball Bearing 698SS [28].
- (3) Pull out the Dust Seal [27] from the armature shaft.

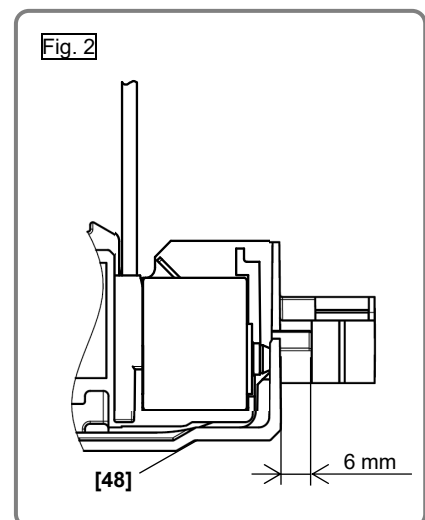
4. Removal of the gear and spindle

- (1) Loosen the four Seal Lock Screws (W/Sp. Washer) M4 x 14 [15] and remove the Packing Gland [14] from the Gear Cover [3].
- (2) Remove the Retaining Ring for D12 Shaft [12] that secures the gear to the Spindle [20].
- (3) When it is necessary to remove the gear from the Spindle [20], it is highly recommended that the special repair tool J-245-3 sleeve I.D 42 (Code No. 307720) described below is utilized. Place the assembly on a sleeve that matches the dimension of the Packing Gland [14] and press down on the top of the Spindle [20] with a hand press to remove the gear as shown in Fig. 1.



5. Removal of the pushing button switch

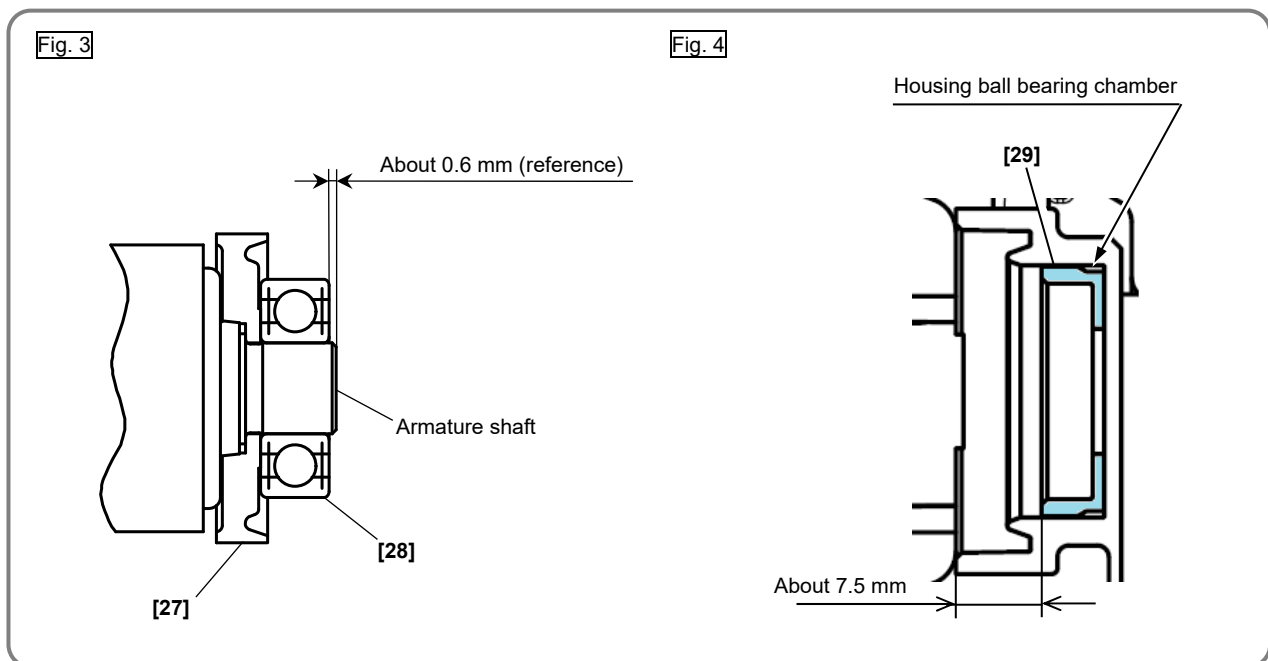
- (1) Disconnect the two internal wires of the Stator [26] and two internal wires of the Noise Suppressor [45] from the Pushing Button Switch [41].
- (2) Remove the Cord [51] from the side rib of the Housing [33].
- (3) Push the Slide Bar [48] and Slide Knob [46]. Make a 6-mm gap between the Slide Bar [48] and Housing [33] as shown in Fig. 2. Pull the Pushing Button Switch [41].
- (4) Remove the Cord [51] from the Pushing Button Switch [41].



Reassembly

Reverse the disassembly procedure to reassemble. Note the following points.

- (1) Rub grease into the teeth of the Gear and Pinion Set [24] with your fingers so that the grease reaches each tooth bottom. Note that under-lubricated Gear and Pinion Set [24] may wear at a faster rate.
- (2) When replacing the Armature [10] and the Ball Bearing 698SS [28] on the commutator side, press the Dust Seal [27] in while carefully noting its direction until the end face of the Dust Seal [27] contacts the butting surface of the Armature [10], and check that the Dust Seal [27] cannot turn freely. (See Fig. 3.) The Dust Seal [27] is an important element for improved dust protection of the Ball Bearing 698SS [28]. Be sure to replace the Dust Seal [27] with new one at every disassembly work. Fit the Rubber Bushing [29] into the housing ball bearing chamber before mounting the Armature [10]. (See Fig. 4.)



- (3) When mounting the Stator [26] into the Housing [33], insert it while being careful about correctly placing the internal wires of the Stator [26] as shown in Fig. 5. Be careful when pulling out the internal wires of the Stator [26] as they have different lengths.

Connect the four internal wires of the Stator [26] correctly as shown in Fig. 6.

NOTE: • Be careful not to put the internal wire of the Carbon Brush (1 Pair) [35] on the top of the Brush Holder [34] when connecting the internal wires of the Stator [26] or when connecting the Carbon Brush (1 Pair) [35].

- Each internal wire of the Stator [26] is covered with a heat shrinkable tube. Do not bend the internal wires repeatedly and do not peel off the heat shrinkable tube when mounting the Stator [26] to the Housing [33]. Otherwise, the internal wires may be disconnected.
- Do not apply excessive force to the terminals of the Stator [26] when inserting them into the Pushing Button Switch [41] and Brush Holders [34]. Otherwise, the terminals of the Stator [26] may be broken.

Fig. 5

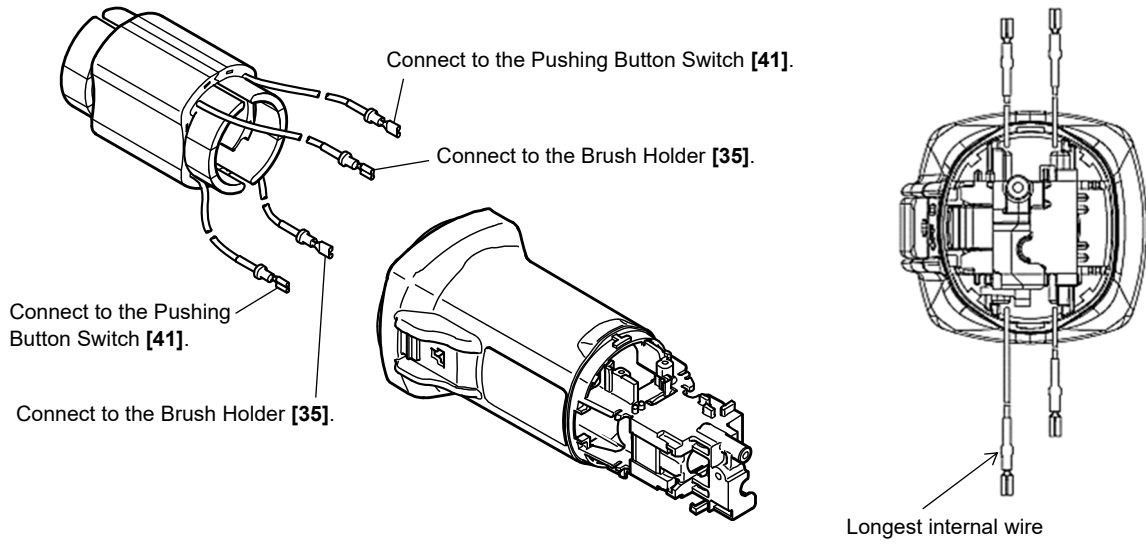
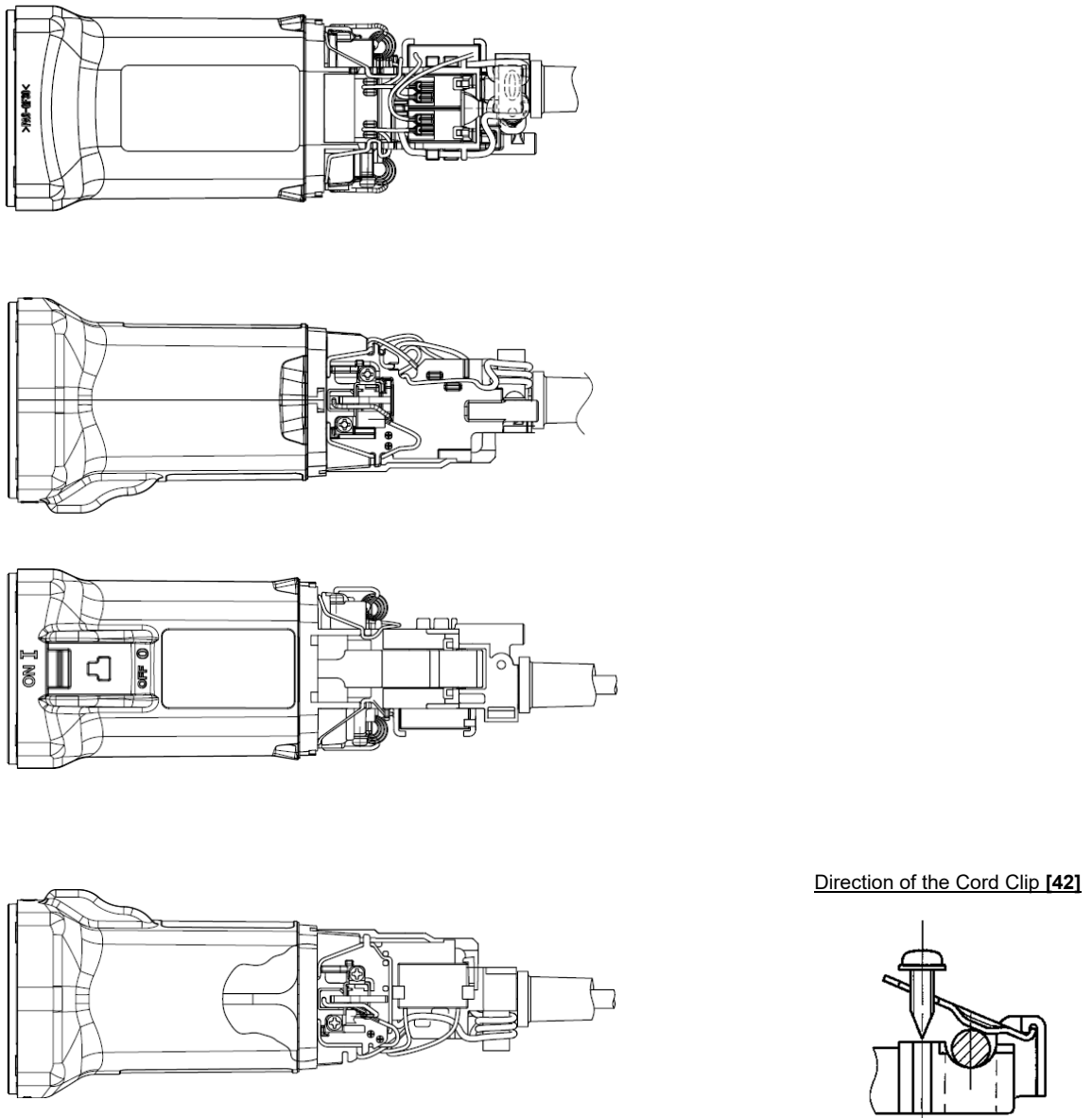
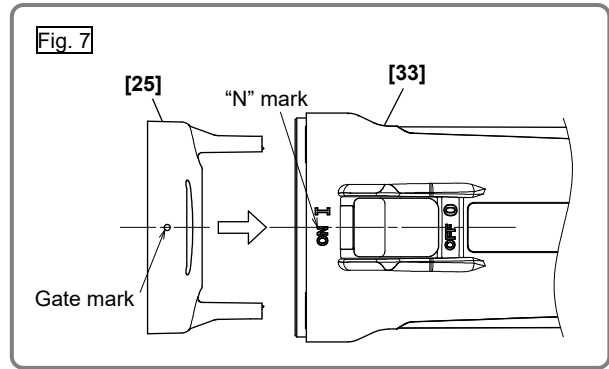


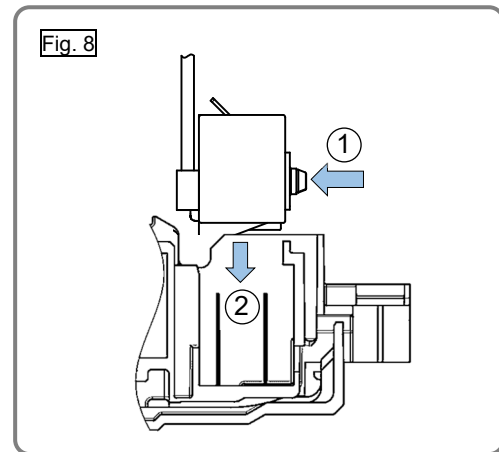
Fig. 6



- (4) Be sure to soak the inner diameter of the Felt Packing [17] with machine oil. Otherwise, its dust sealing function will fail to work properly, resulting in premature damage to the ball bearing of the Packing Gland [14]. Wipe the Felt Packing [17] lightly with a rag before mounting.
- (5) Mount the Fan Guide [25] in proper direction by matching the gate mark on the Fan Guide [25] with the "N" mark on the Housing [33] as show in Fig. 7.



- (6) Do not catch the pigtail of the Carbon Brush (1 Pair) [35] in the Tail Cover [49] when mounting the Tail Cover [49].
- (7) Secure the Gear Cover [3] to the Housing [33] by tightening the four Tapping Screws (W/Flange) D4 x 25 (Black) [1] before mounting the Packing Gland [14] to the Gear Cover [3]. If the Packing Gland [14] is mounted to the Gear Cover [3] first, the Tapping Screws (W/Flange) D4 x 25 (Black) [1] cannot be tightened. Tighten three of the four Seal Lock Screws (W/Sp. Washer) M4 x 14 [15] except the one for securing the Lever Holder [16]. Mount the Lever [31] and Retaining Ring D4 [32] to the Lever Holder [16]. Hook the Spring [30] on the Lever [31]. Then tighten the remaining Seal Lock Screw (W/Sp. Washer) M4 x 14 [15].
- (8) Mount the Pushing Button Switch [41] according to the following steps.
- Attach the Cord [51] to the Pushing Button Switch [41].
 - Mount the Pushing Button Switch [41] while pressing the pressing point of the Pushing Button Switch [41] as shown in Fig. 8.



Lubrication point and type of lubricant

NOTE: Use a brush when rubbing grease.

- (1) When replacing the Gear Cover [3], lubricate the inner circumference of the needle bearing with 0.3 g of Cosmo grease KMC No. 1 (Code No. 378134).
- (2) Rub 18 g of Cosmo grease KMC No. 1 into the pinion chamber of the Gear Cover [3].
- (3) Rub 2 g of Cosmo grease KMC No. 1 into the teeth of the gear.
- (4) Rub 0.7 g of Cosmo grease KMC No. 1 into the teeth of the pinion.

Tightening torque

Item No.	Part name	Tightening torque		
		N•m	lbf•ft	kgf•cm
[1]	Tapping Screw (W/Flange) D4 x 25 (Black)	2.0 ± 0.5	1.5 ± 0.4	20 ± 5
[4]	Special Nut M7	7.4 ± 0.5	5.5 ± 0.4	75 ± 5
[15]	Seal Lock Screw (W/Sp. Washer) M4 x 14	1.8 ± 0.4	1.3 ± 0.3	18 ± 4
[37]	Tapping Screw D3 x 8	0.74 - ⁰ / _{0.25}	0.54 - ⁰ / _{0.18}	7.5 - ⁰ / _{2.5}
[43]	Tapping Screw (W/Flange) D4 x 16	2.0 ± 0.5	1.5 ± 0.4	20 ± 5
[50]	Tapping Screw (W/Flange) D4 x 20 (Black)	2.0 ± 0.5	1.5 ± 0.4	20 ± 5

Insulation test

Measure the insulation resistance and dielectric strength after reassembly.

- Insulation resistance: 7 MΩ or higher (as measured with a 500 VDC megohm tester)
- Dielectric strength: 4,000 VAC/minute, with no abnormalities

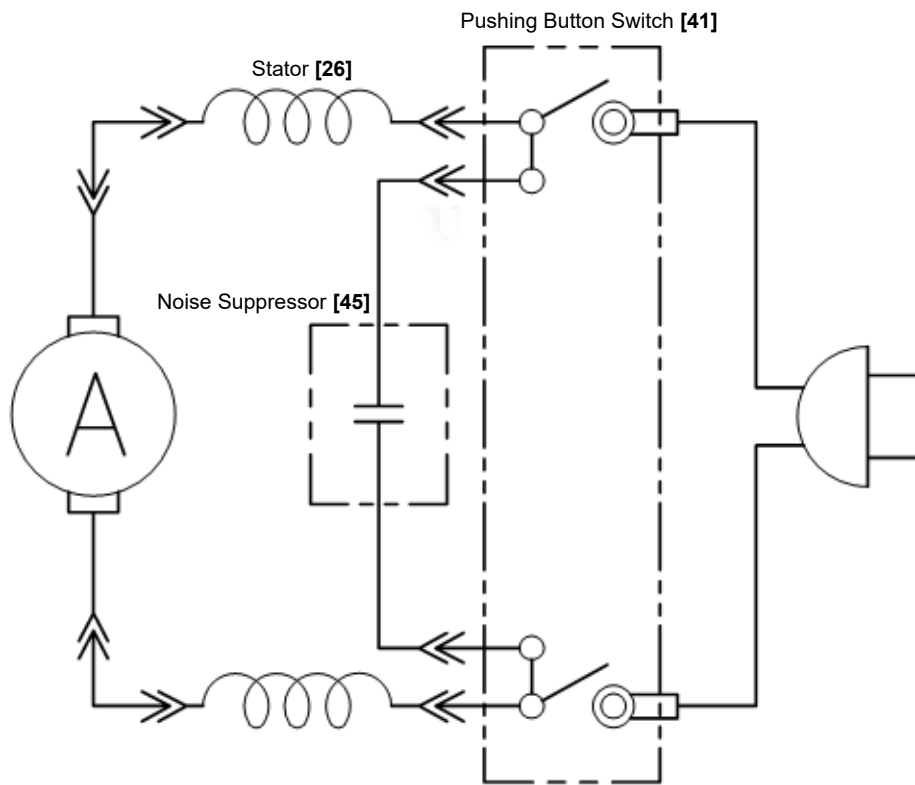
No-load current value

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

Voltage	230 V
Current max.	2.6 A

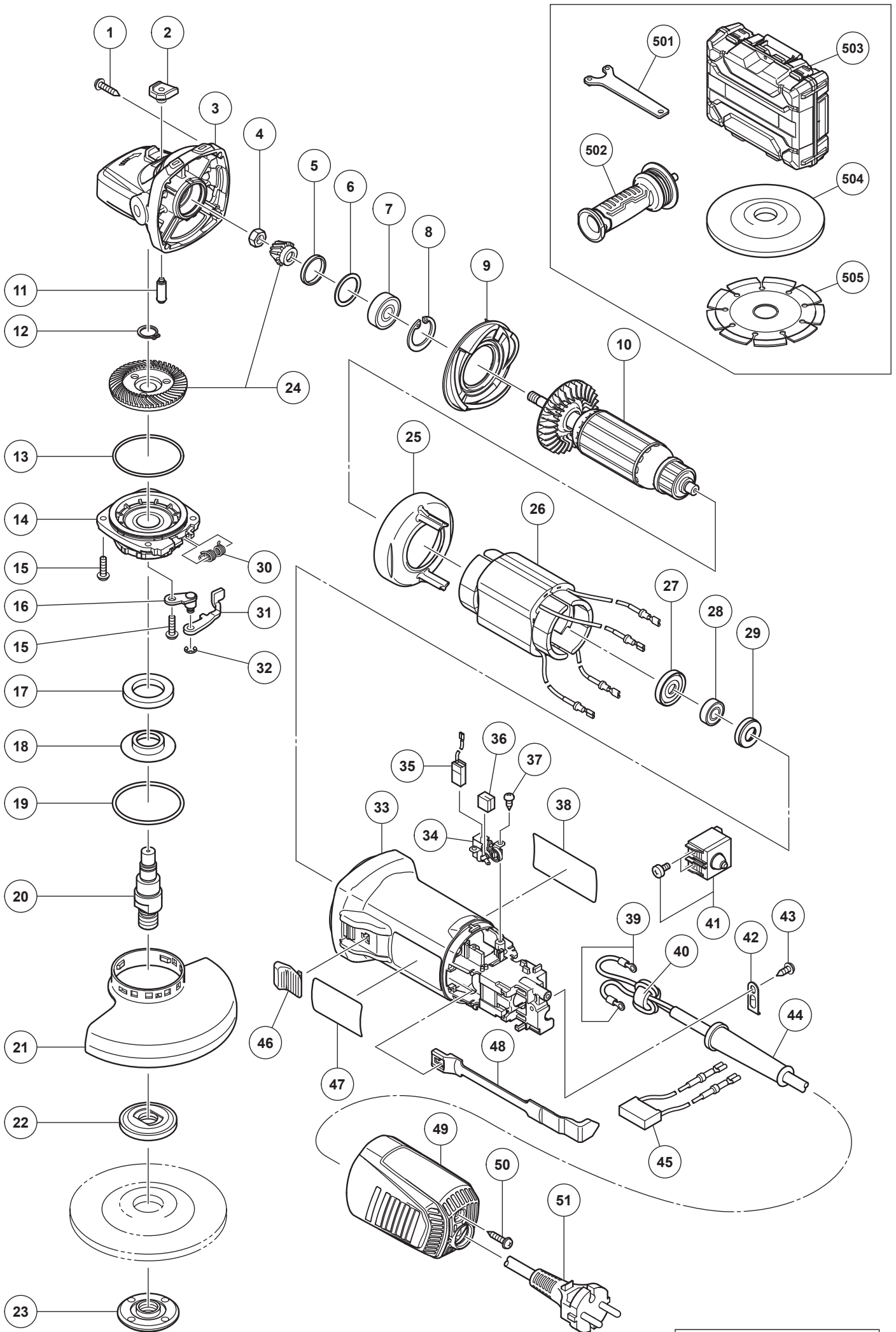
Wiring diagram

Fig. 9



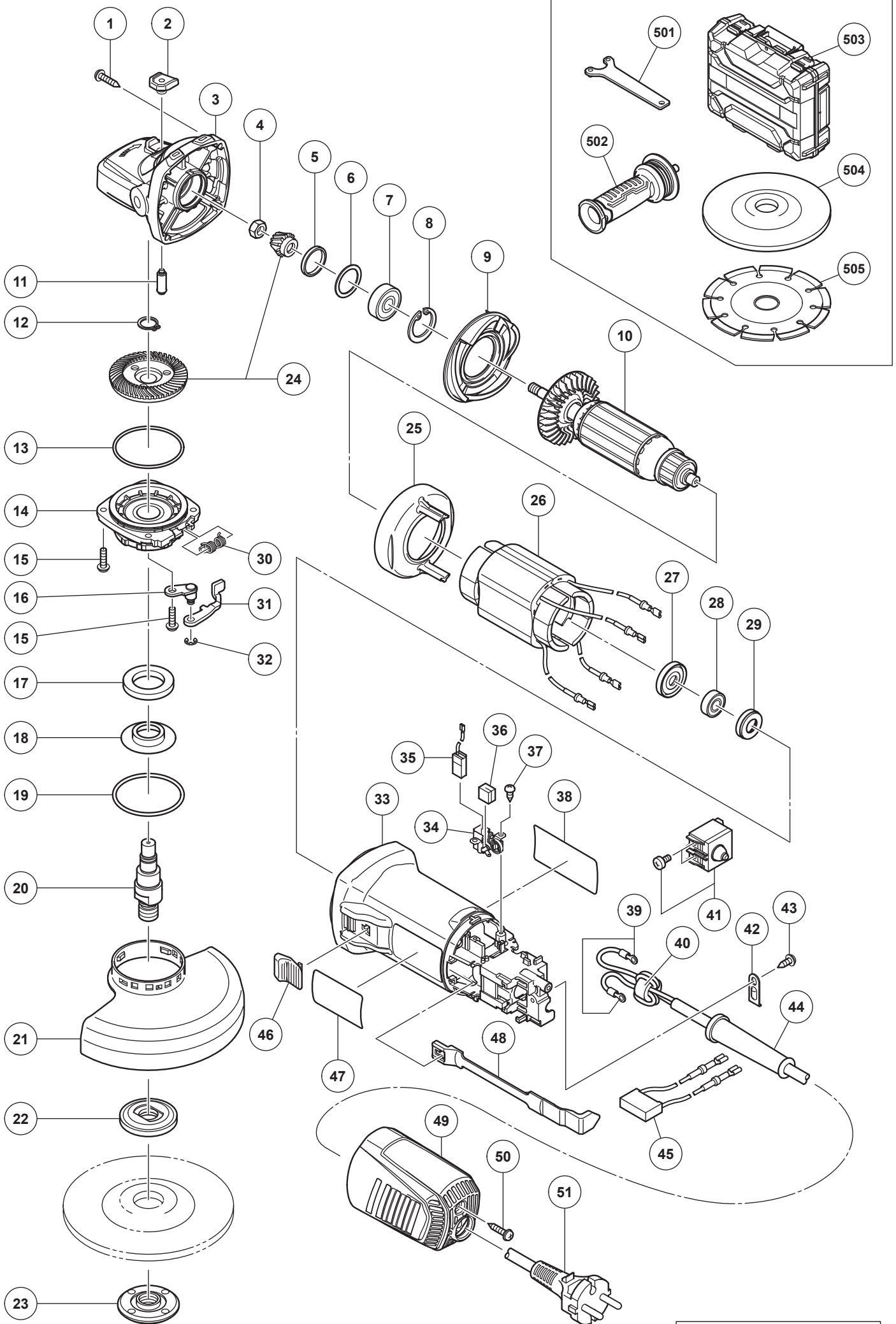
STANDARD REPAIR TIME (UNIT) SCHEDULES

Model	Repair time	10	20	30	40	50	60 min.
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 12SW2</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 13SW2</div>		Work Flow					
			Housing Stator Slide Bar Slide Switch Knob Rubber Bushing				
	General Assembly	Brush Holder Noise Suppressor Cord Clip	Pushing Button Switch Tail Cover Cord Cord Armor Ferrite Core				
				Armature Dust Seal Ball Bearing 698SS Special Nut M7 Pinion (Gear and Pinion Set)	Gear Cover Seal Ring (A) Washer (C) Ball Bearing 629VV Retaining Ring for D26 Hole Lock Pin Pushing Button Diffuser	Packing Gland Spindle Felt Packing Fringer Gear (Gear and Pinion Set) Retaining Ring for D12 Shaft O-ring Lever Holder Lever Spring Retaining Ring D4	



MODEL
G12SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	307028	TAPPING SCREW (W/FLANGE) D4 X 25 (BLACK)	4	
2	336535	PUSHING BUTTON	1	
3	375889	GEAR COVER	1	INCLUD. 2, 11
4	301941	SPECIAL NUT M7	1	
5	308543	SEAL RING (A)	1	
6	980866	WASHER (C)	1	
7	629VVM	BALL BEARING 629VV	1	
8	939554	RETAINING RING FOR D26 HOLE (10 PCS.)	1	
9	336542	DIFFUSER	1	
10	360970E	ARMATURE 230 V	1	
11	301943	LOCK PIN	1	
12	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1	
13	375899	O-RING	1	
14	375887	PACKING GLAND	1	
15	376226	SEAL LOCK SCREW (W/SP. WASHER) M4 X 14	4	
16	375894	LEVER HOLDER	1	
17	376227	FELT PACKING	1	
18	376228	FRINGER	1	
19	375900	O-RING	1	
20	378660	SPINDLE	1	
21	375903	WHEEL GUARD	1	
22	376067	WHEEL WASHER	1	
23	339579	WHEEL NUT M14	1	
24	375888	GEAR AND PINION SET	1	
25	336530	FAN GUIDE	1	
26	340936E	STATOR 230 V	1	
27	336536	DUST SEAL	1	
28	336871	BALL BEARING 698SS	1	
29	309929	RUBBER BUSHING	1	
30	376229	SPRING	1	
31	375892	LEVER	1	
32	6685336	RETAINING RING D4	1	
33	378268	HOUSING	1	
34	336537	BRUSH HOLDER	2	
35	999088	CARBON BRUSH (1 PAIR)	2	
36	336872	CUSHION SPONGE	2	
37	328210	TAPPING SCREW D3 X 8	4	
38		NAME PLATE	1	
39	980063	TERMINAL	2	
40	334379	FERRITE CORE	1	
41	376230	PUSHING BUTTON SWITCH 220 V-240 V	1	
42	937631	CORD CLIP	1	
43	305720	TAPPING SCREW (W/FLANGE) D4 X 12	1	
44	953327	CORD ARMOR D8.8	1	
45	375898	NOISE SUPPRESSOR	1	
46	314428	SLIDE KNOB	1	
47		BRAND LABEL	1	
48	378269	SLIDE BAR	1	
49	370047	TAIL COVER	1	
50	301653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	1	
51	500409Z	CORD	1	(CORD ARMOR D8.8)
STANDARD ACCESSORIES				
501	938332Z	WRENCH	1	
502	336865	SIDE HANDLE	1	
503	378265	CASE	1	
504	316821	D. C. WHEELS 115 MM A36Q (25 PCS.)	1	
505		DIAMOND CUTTER 115 MM-D22.2 HOLE	1	SUPPLIED WITH ITEM NO. 601
OPTIONAL ACCESSORIES				
601	994314	DIAMOND WHEEL (SEGMENT) 115 MM-D22.2 HOLE	1	
602	376167	CUTTING GUARD CLIP (115 MM)	1	



MODEL
G13SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	307028	TAPPING SCREW (W/FLANGE) D4 X 25 (BLACK)	4	
2	336535	PUSHING BUTTON	1	
3	375889	GEAR COVER	1	INCLUD. 2, 11
4	301941	SPECIAL NUT M7	1	
5	308543	SEAL RING (A)	1	
6	980866	WASHER (C)	1	
7	629VVM	BALL BEARING 629VV	1	
8	939554	RETAINING RING FOR D26 HOLE (10 PCS.)	1	
9	336542	DIFFUSER	1	
10	360970E	ARMATURE 230 V	1	
11	301943	LOCK PIN	1	
12	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1	
13	375899	O-RING	1	
14	375887	PACKING GLAND	1	
15	376226	SEAL LOCK SCREW (W/SP. WASHER) M4 X 14	4	
16	375894	LEVER HOLDER	1	
17	376227	FELT PACKING	1	
18	376228	FRINGER	1	
19	375900	O-RING	1	
20	378660	SPINDLE	1	
21	375904	WHEEL GUARD	1	
22	376067	WHEEL WASHER	1	
23	339579	WHEEL NUT M14	1	
24	375888	GEAR AND PINION SET	1	
25	336530	FAN GUIDE	1	
26	340936E	STATOR 230 V	1	
27	336536	DUST SEAL	1	
28	336871	BALL BEARING 698SS	1	
29	309929	RUBBER BUSHING	1	
30	376229	SPRING	1	
31	375892	LEVER	1	
32	6685336	RETAINING RING D4	1	
33	378268	HOUSING	1	
34	336537	BRUSH HOLDER	2	
35	999088	CARBON BRUSH (1 PAIR)	2	
36	336872	CUSHION SPONGE	2	
37	328210	TAPPING SCREW D3 X 8	4	
38		NAME PLATE	1	
39	980063	TERMINAL	2	
40	334379	FERRITE CORE	1	
41	376230	PUSHING BUTTON SWITCH 220 V-240 V	1	
42	937631	CORD CLIP	1	
43	305720	TAPPING SCREW (W/FLANGE) D4 X 12	1	
44	953327	CORD ARMOR D8.8	1	
45	375898	NOISE SUPPRESSOR	1	
46	314428	SLIDE KNOB	1	
47		BRAND LABEL	1	
48	378269	SLIDE BAR	1	
49	370047	TAIL COVER	1	
50	301653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	1	
51	500409Z	CORD	1	(CORD ARMOR D8.8)
STANDARD ACCESSORIES				
501	938332Z	WRENCH	1	
502	336865	SIDE HANDLE	1	
503	378265	CASE	1	
504	316822	D. C. WHEELS 125 MM A36Q (25 PCS.)	1	
505		DIAMOND CUTTER 125 MM-D22.2 HOLE	1	SUPPLIED WITH ITEM NO. 601
OPTIONAL ACCESSORIES				
601	994325	DIAMOND WHEEL (SEGMENT) 125 MM-D22.2 HOLE	1	