

MODELS

G 12SA3

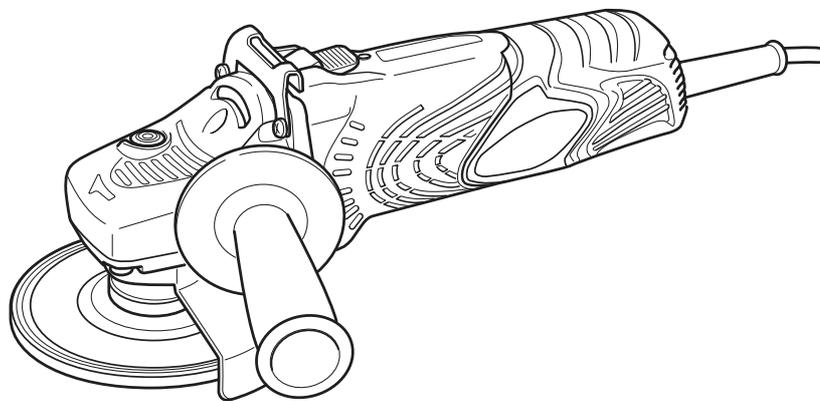
G 13SB3

Hitachi Power Tools

**DISC GRINDER
G 12SA3
G 13SB3**

**TECHNICAL DATA
AND
SERVICE MANUAL**

G



LIST Nos. G 12SA3: E272
G 13SB3: E271

Dec. 2005

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
H	METABO	W10-125QUICK
B	BOSCH	GWS10-125C



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1. PRODUCT NAME

Hitachi Electric Disc Grinder, Model G 12SA3 [115 mm (4-1/2")]

Model G 13SB3 [125 mm (5")]

2. MARKETING OBJECTIVE

The current disc grinders Models G 12SA2 and G 13SB2 have obtained high evaluation in power, durability and operability with the slide switch. However, five years passed since their development and now the competitors are introducing high-power products to correspond to the market demand for compact and powerful products.

The new Models G 12SA3 and G 13SB3 are the upgraded versions of the current Models G 12SA2 and G 13SB2, featuring high power input (1300 W) to compete with the competitors. In addition, the appearance adopted the aggressive design which attached great importance to operability.

Vigorous sales promotion and market share increases are anticipated with the introduction of the new Models G 12SA3 and G 13SB3.

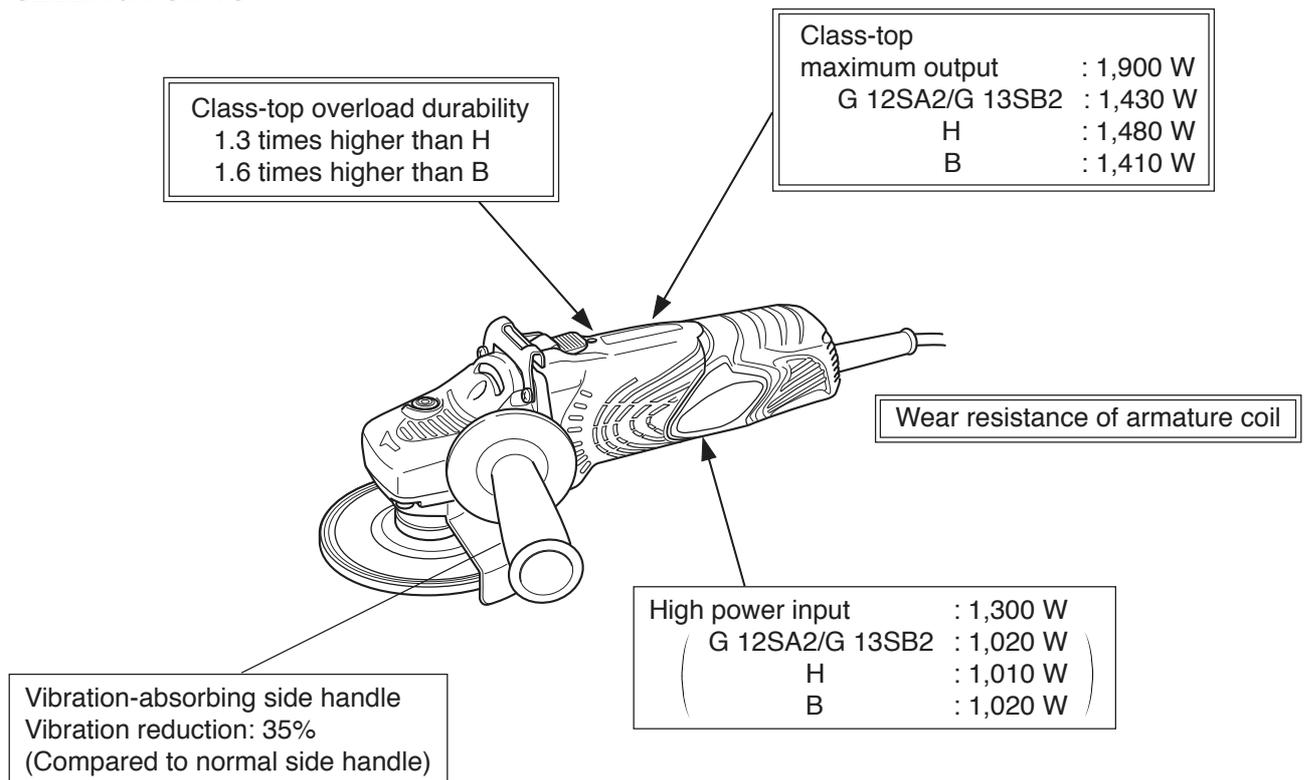
The key features of the Models G 12SA3 and G 13SB3 in comparison with the previous models are as follows:

- 1) Increased power input and maximum output
- 2) Increased overload durability
- 3) Increased wear resistance of the armature coil

3. APPLICATIONS

- Deburring diecast products and finishing iron, bronze, aluminum and diecast products
- Finishing welds and torch-cut surfaces
- Cutting soft steel materials
- Grooving and cutting concrete and other stone materials

4. SELLING POINTS



4-1. Class-top Overload Durability

The Models G 12SA3 and G 13SB3 provide class-top overload durability thanks to an improved cooling mechanism and a high-power motor.

Practical test data: Comparison of torque when the stator coil temperature rise is 200° K

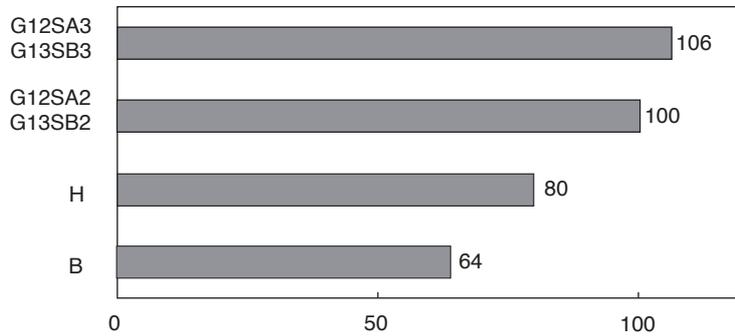


Fig. 1

4-2. Wear Resistance of Armature Coil

Fan side of the armature coil is sealed with protect tape and wedges at commutator side of the armature coil are extended by 4 to 5.5 mm to minimize wear of the armature coil caused by dust.

The service life of the armature coil is 2 times longer than the conventional models as a result of the gravel suction test (gravel is forcibly sucked through the vents of the tail cover).

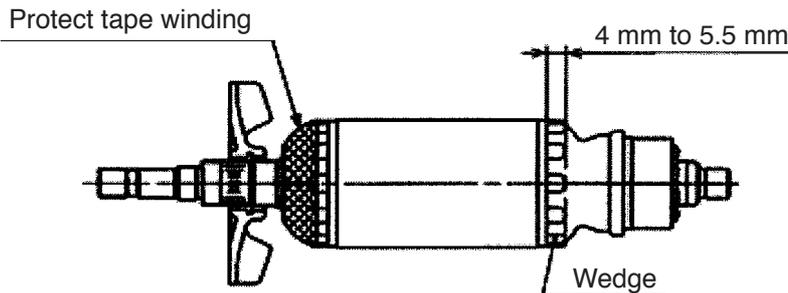


Fig. 2

4-3. Vibration-absorbing Side Handle

Vibration-absorbing side handle for vibration reduction: Vibration to side handle is reduced to 35 %.

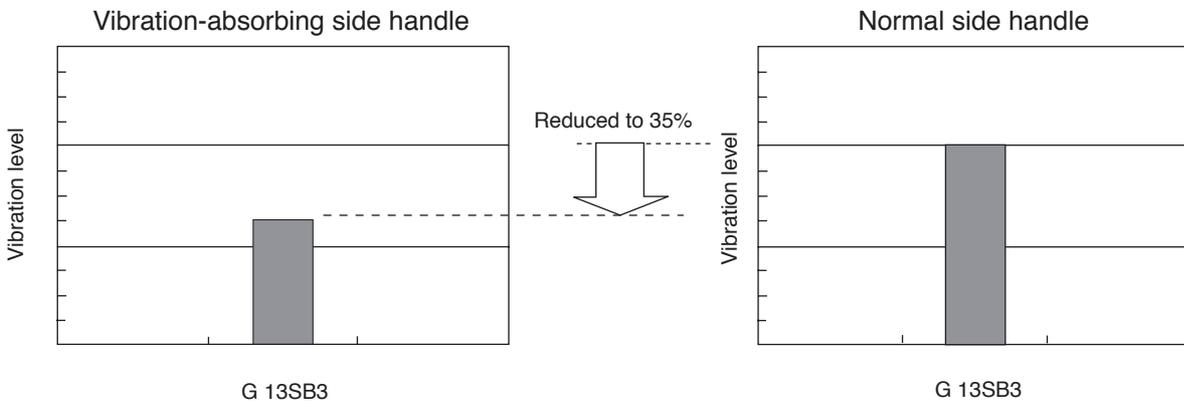


Fig. 3

5. SPECIFICATIONS

Item		Model	G 12SA3	G 13SB3															
Depressed-center wheels	Dimensions		O.D. 115 mm (4-1/2") x Thickness 6 mm (1/4") x I.D. 22.2 mm (7/8")	O.D. 125 mm (5") x Thickness 6 mm (1/4") x I.D. 22.2 mm (7/8")															
	Max. practical peripheral speed		4,800 m/min (15,756 ft/min)																
	Type		A, 36, Q, B																
	Spindle thread		U.S.A., Canada: 5/8-11 UNC Other countries: M14 x 2																
Power source			AC single phase 50 or 60 Hz																
Voltage and power input			<table border="1"> <thead> <tr> <th>Voltage (V)</th> <th>Current (A)</th> <th>Power input (W)</th> </tr> </thead> <tbody> <tr> <td>110</td> <td>8.0</td> <td>830</td> </tr> <tr> <td>120</td> <td>8.0</td> <td>910</td> </tr> <tr> <td>230</td> <td>6.0</td> <td>1,300</td> </tr> <tr> <td>240</td> <td>5.7</td> <td>1,300</td> </tr> </tbody> </table>		Voltage (V)	Current (A)	Power input (W)	110	8.0	830	120	8.0	910	230	6.0	1,300	240	5.7	1,300
		Voltage (V)	Current (A)	Power input (W)															
		110	8.0	830															
		120	8.0	910															
		230	6.0	1,300															
240	5.7	1,300																	
No-load speed		110, 120 V: 10,000/min 230, 240 V: 11,000/min																	
Type of motor		AC single phase commutator motor																	
Enclosure			Housing (Black) } Polyamide resin with glassfiber Tail cover (Green) } Gear cover, packing gland Aluminum alloy diecasting																
Type of switch		Slide switch																	
Weight	Net: *(Main body)		1.9 kg (4.2 lbs.)																
	Gross:		3.2 kg (7.1 lbs.)	3.3 kg (7.2 lbs.)															
Type of packing		Corrugated cardboard box																	
Standard accessories			Depressed-center wheel 115 mm (4-1/2") 1 Side handle 1 Wrench 1	Depressed-center wheel 125 mm (5") 1 Side handle 1 Wrench 1															
Optional accessories			Super washer (Code No. 310338) Vibration-absorbing side handle (Code No. 325496)																

* Net weight excludes cord, side handle, depressed-center wheel, wheel nut, wheel washer and wheel guard.

6. COMPARISONS WITH SIMILAR PRODUCTS

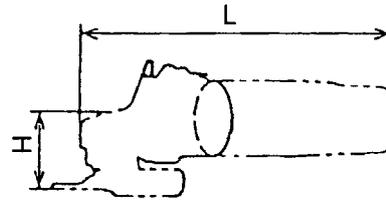
6-1. Specification Comparisons

Maker	HITACHI		H	B
	G 12SA3 G 13SB3	G 12SA2 G 13SB2		
Capacity:	115/125	115/125	125	125
Depressed-center wheel dia. (mm)	(4-1/2"/5")	(4-1/2"/5")	(5")	(5")
Power input *1 (W)	1,300	1,020	1,010	1,020
Power output *1 (W)	860	740	570	540
Max. power output *1 (W)	1,900	1,430	1,480	1,410
No-load speed *1 (/min)	11,000	10,000	10,000	11,000
No-load sound pressure level (dB)	86	84	85	84
Service life of carbon brushes *2 (hr)	160	210	—	125
Weight *3 (kg)	1.9 (4.2 lbs.)	1.9 (4.2 lbs.)	1.8 (4.0 lbs.)	1.6 (3.5 lbs.)
(Actual weight) (kg)	2.1 (4.5 lbs.)	2.1 (4.5 lbs.)	1.9 (4.2 lbs.)	1.7 (3.7 lbs.)
Dimensions	L (mm)	283 (11-9/64")	285 (11-1/4")	298 (11-23/32")
	H (mm)	70 (2-3/4")	70 (2-3/4")	75 (2-61/64")

*1 Depends on market

*2 Service life of carbon brushes in the continuous rated load test

*3 Weight without cord, side handle, depressed-center wheel, wheel nut, wheel washer and wheel guard



6-2. Comparisons in Torque vs. Rotation Speed and Stator Coil Temperature Rise

Figure 4 shows comparisons of the rotation speed and the stator coil temperature rise between a competitive model with respect to torque. Torque represents the magnitude of load, i.e., the amount of pressing force, cutting depth and forward force in actual cutting jobs. This shows that a powerful motor is less likely to burn out because it has both a minimum drop of rotation speed even at a greater torque and a lower stator coil temperature rise at the same torque.

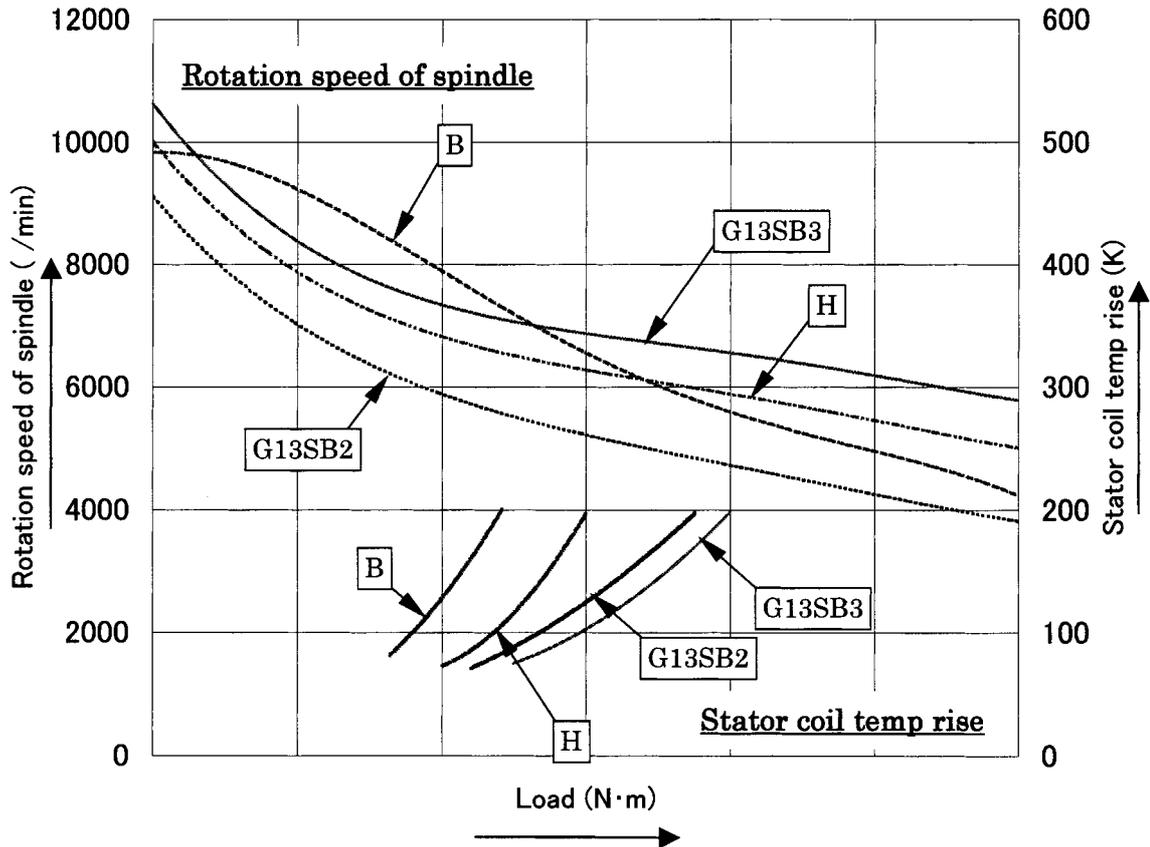


Fig. 4 Comparisons in torque vs. rotation speed and stator coil temperature rise

Figure 4 indicates:

- (1) The Models G 12SA3 and G 13SB3 keep higher rotation speed than the Models G 12SA2/G 13SB2, H and B in the heavy load range. This means that the working efficiency of the Models G 12SA3 and G 13SB3 is superior to the Models G 12SA2/G 13SB2, H and B.
- (2) The stator coil temperature rise of the Models G 12SA3 and G 13SB3 is lower than that of the Models G 12SA2/G 13SB2, H and B. This means that the Models G 12SA3 and G 13SB3 are resistant to burn out even at a heavy load operation and their motors are tough.

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Models G 12SA3 and G 13SB3 Disc Grinders by all of our customers, it is very important that at the time of sale, the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Name Plate or Caution Plate attached to each tool.

7-1. Handling Instructions

Although every effort is made in each step of design, manufacture and inspection to provide protection against safety hazards, the dangers inherent in the use of any electric power tool cannot be completely eliminated. Accordingly, general precautions and suggestions for the use of electric power tools, and specific precautions and suggestions for the use of the disc grinders are listed in the Handling Instructions to enhance the safe and efficient use of the tool by the customer. Salespersons must be thoroughly familiar with the contents of the Handling Instructions to be able to offer appropriate guidance to the customer during sales promotion.

7-2. Caution on Name Plate

Each tool is provided with a Name Plate which contains the following basic safety precautions in the use of the tool.

(1) For European countries



(2) For New Zealand and Australia

CAUTION

Read thoroughly HANDLING INSTRUCTIONS before use.

(3) For U.S.A. and Canada

WARNING

To reduce the risk of injury, user must read and understand instruction manual.

Always use proper guards when grinding and wear eye protection.

Use only accessories rated at least * /min.

AVERTISSEMENT

Afin de réduire les risques de blessure, l'utilisateur doit lire et bien comprendre le mode d'emploi.

Utilisez toujours un outil muni d'un protecteur adéquat et portez des lunettes ou une visière.

N'utilisez que des accessoires prévus pour au moins * /min.

* G 12SA3: 13,300

G 13SB3: 12,000

7-3. Precautions on Usage

Never press the pushing button while the depressed-center wheel is rotating.

If the pushing button is pressed while the depressed-center wheel is rotating, the spindle will stop immediately.

In such a case, there is a danger that the wheel nut may be loosened so that the depressed-center wheel flies off unexpectedly to cause possible serious injury.

8. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the numbers in the Parts List and the exploded assembly diagram for the Model G 12SA3, and the **<Bold>** numbers to those in the Parts List and the exploded assembly diagram for the Model G 13SB3.

8-1. Disassembly

(1) Disassembly of the armature (Fig. 5)

1. Loosen the Machine Screw M5 x 20 **[29]** **<29>** and remove the Wheel Guard Ass'y **[31]** **<31>**.
2. Loosen the two Tapping Screws (W/Flange) D4 x 45 **[51]** **<57>** and remove the Tail Cover **[53]** **<59>**.
3. Remove the two Carbon Brushes (1 Pair) **[42]** **<48>** from the Brush Holders **[43]** **<49>**.
4. Remove the four Tapping Screws D5 x 25 (Black) **[1]** **<1>**. The Armature **[12]** **<12>** can then be taken out simultaneously with the Gear Cover Ass'y **[4]** **<4>**, Packing Gland **[25]** **<25>**, and related parts.
5. Remove the four Seal Lock Screws (W/Sp. Washer) M5 x 16 **[26]** **<26>**.
The Packing Gland **[25]** **<25>** can then be taken out together with the Spindle **[28]** **<28>** and the Gear **[20]** **<20>**.
6. After removing the two Seal Lock Screws (W/Sp. Washer) M4 x 10 **[18]** **<18>**, the Armature **[12]** **<12>** can be extracted together with the Bearing Cover **[11]** **<11>** and the related parts.
7. Carefully wrap the Armature **[12]** **<12>** with a soft, clean rag to protect it from being damaged, and clamp it securely in a vise. Then, remove the Nut M8 **[5]** **<5>** and extract the Pinion **[6]** **<6>**.
8. For the models indicated under Fig. 5, the Ball Bearing 629T12DDC3PS2-L **[9]** **<9>** can be removed from the Armature **[12]** **<12>** 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 **[11]** **<11>** can be easily taken off.

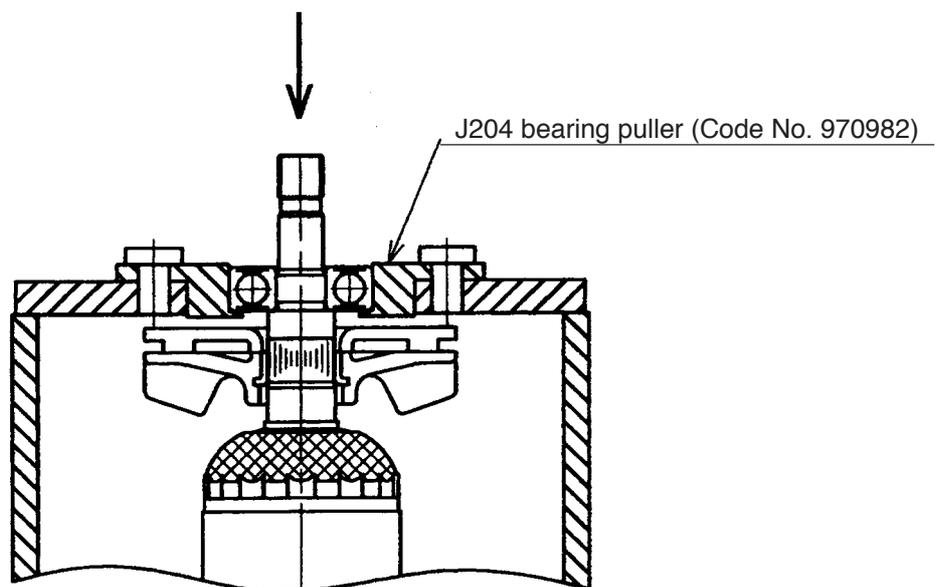


Fig. 5

(2) Disassembly of the dust seal

1. Insert the hooks of the J-204 bearing puller between the commutator and the Dust Seal [16] <16> from both sides, and fix the hooks with the wing bolts.
2. Place the J-204 bearing puller on a supporting jig and push down on the armature shaft with a hand press to remove the Dust Seal [16] <16> together with the Ball Bearing 608VVC2PS2L [17] <17>. Replace the Dust Seal [16] <16> with new one because it is damaged by the removal of the Ball Bearing 608VVC2PS2L [17] <17>.

(3) Disassembly of the stator

1. After removing the Armature [12] <12> and the Pushing Button Switch [39] <45>, disconnect the lead wires connected to the Brush Holders [43] <49>.
2. Loosen the two Hex. Hd. Tapping Screws D4 x 70 [14] <14> and remove the Stator [15] <15> from the Housing [37] <43>. If the Stator [15] <15> cannot be easily removed from the Housing [37] <43>, disassembly can be facilitated by heating the Housing [37] <43> to a temperature of approximately 60°C (140°F) with an appropriate heating device.

(4) Disassembly of the gear (Fig. 6)

1. Loosen the four Seal Lock Screws (W/Sp. Washer) M5 x 16 [26] <26> fixing the Packing Gland [25] <25>, and remove the Packing Gland [25] <25> from the Gear Cover Ass'y [4] <4>.
2. Support the bottom of the Packing Gland [25] <25> with a jig, and push down on the upper portion of the Spindle [28] <28> with a hand press until the end surface of the Feather Key 3 x 3 x 8 [27] <27> contacts the Ball Bearing 6201DDCMPS2L [23] <23> and the Spindle [28] <28> cannot be pushed down any more.
(Step 2)
3. Turn the Packing Gland [25] <25> upside down and fix it, then push down the Spindle [28] <28>. (Step 3)
4. Insert the steel plate between the Gear [20] <20> and the Packing Gland [25] <25>, and push down the Spindle [28] <28> with a hand press to remove it. (Step 4)

- Replace the Ball Bearing 6201DDCMPS2L [23] <23> with new one every time should the gear be disassembled because the stress while pulling out the gear is applied to the Ball Bearing 6201DDCMPS2L [23] <23>.

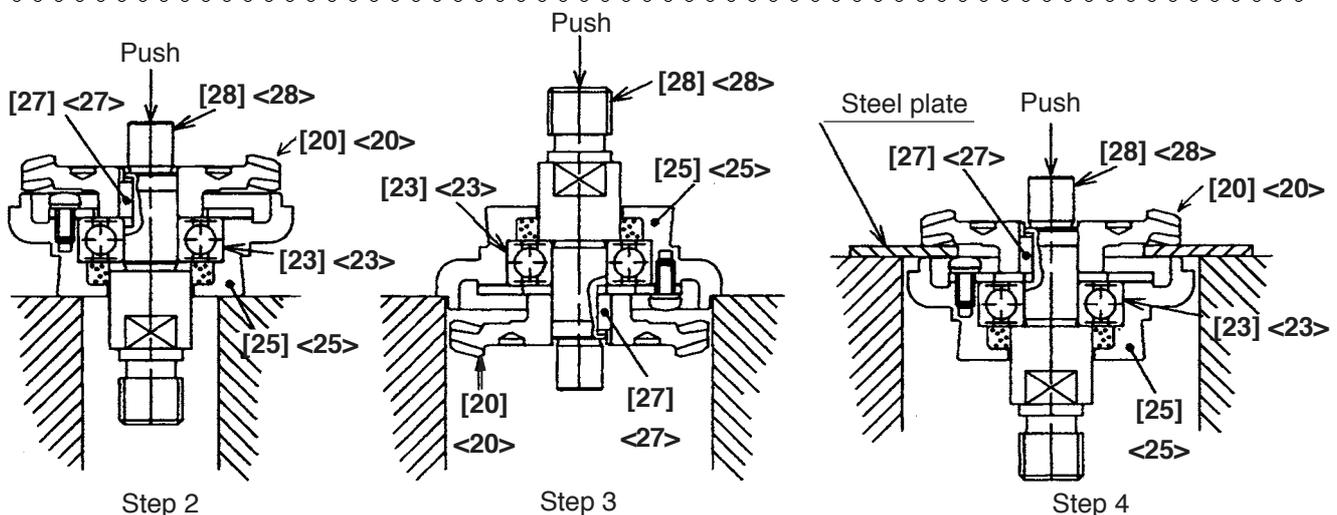


Fig. 6

(5) Removal of the Slide Knob [36] <42>

1. Loosen the two Tapping Screws (W/Flange) D4 x 45 [51] <57> and remove the Tail Cover [53] <59>.
2. Hold the Housing [37] <43> and raise the Slide Bar [41] <47> until the Slide Knob [36] <42> moves to the "ON" position.
3. Check that the Slide Knob [36] <42> has not moved to the "ON-LOCK" position, and push down the Slide Knob [36] <42> until it clicks while keeping the Slide Bar [41] <47> raised.
4. Raise the Slide Knob [36] <42> straight up and remove it keeping the Slide Bar [41] <47> raised.

(6) Removal of the Pushing Button Switch [39] <45>

1. Loosen the two Tapping Screws (W/Flange) D4 x 45 [51] <57> and remove the Tail Cover [53] <59>.
2. Turn the Switch Holder [45] <51> for the Housing [37] <43> in the arrow "A" direction and remove the Switch Holder [45] <51> from the Housing [37] <43>. (See Fig. 7.)
3. Pressing the Pushing Button Switch [39] <45> in the arrow "A" direction, press the latches of the Switch Holder [45] <51> in the arrow "B" direction with a small flat-blade screwdriver to remove the Pushing Button Switch [39] <45> from the Switch Holder [45] <51>. (See Fig. 8.)

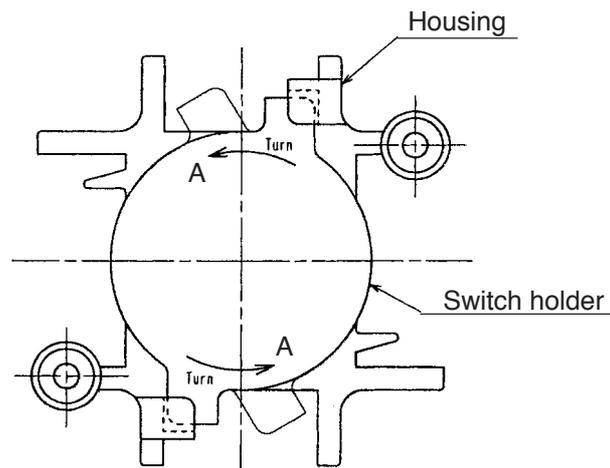


Fig. 7

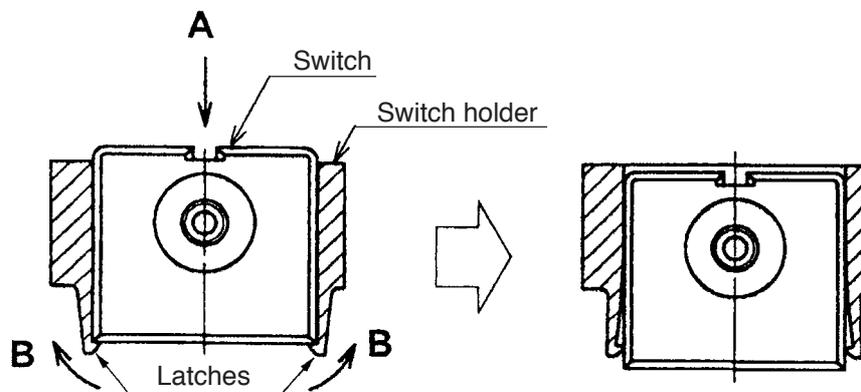


Fig. 8

8-2. Reassembly

Put the parts together in the reverse order of disassembly, with the precautions given below.

(1) Generously lubricate the teeth of the Gear [20] <20> and the Pinion [6] <6> with grease. Rub grease onto the teeth with your fingers so that the grease reaches each tooth bottom. Note that under-lubricated Gear [20] <20> and Pinion [6] <6> may wear at a faster rate.

(2) When replacing the Armature [12] <12> and the Ball Bearing 608VVC2PS2L [17] <17> on the commutator side, press inward on the Dust Seal [16] <16> while taking care of its direction until the end face of the Dust Seal [16] <16> hits against the butting surface of the Armature [12] <12> and make sure that the Dust Seal [16] <16> cannot turn freely. (See Fig. 9.)

The Dust Seal [16] <16> is an important element for improved dust protection of the Ball Bearing 608VVC2PS2L [17] <17>. Be sure to use a new one at every disassembly work of the Ball Bearing 608VVC2PS2L [17] <17>.

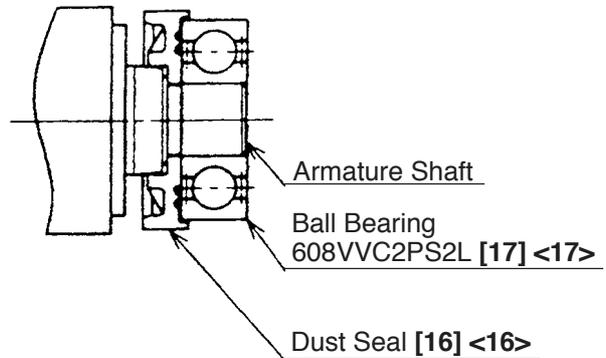


Fig. 9

(3) Apply Three Bond TB 1406 Screw Locking Agent to the following screws.

- Two Seal Lock Screws (W/Sp. Washer) M4 x 10 [18] <18> which fix the Bearing Cover [11] <11> in place.
- Three Seal Lock Screws (W/Sp. Washer) M4 x 8 [21] <21> which fix Bearing Cover (B) [22] <22> in place.
- Four Seal Lock Screws (W/Sp. Washer) M5 x 16 [26] <26> which fix the Packing Gland [25] <25> in place.

(4) [Only for U.K. (110 V)]

When connecting the Terminal [46] <52> to the internal wire (the middle wire among three) of the Noise Suppressor [40] <46>, strip the insulation sheath on the internal wire by about 6 mm and press-connect it together with the Terminal [46] <52> with a clamping tool available on the market. (See Fig. 10.)

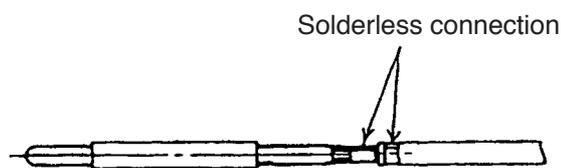


Fig. 10

(5) Check that the spring end does not hold the pigtail when mounting the carbon brush. Do not catch the pigtail in the tail cover when mounting the tail cover. (See Fig. 11.)

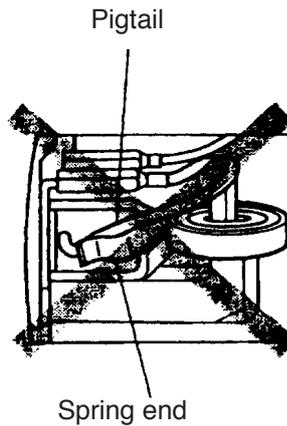


Fig. 11

(6) When replacing the Gear Cover Ass'y [4] <4>, lubricate the needle bearing with mixed oil.

Mixed oil: Mixture of Hitachi power tool grease No. 2 (Unilube No. 00) and turbine oil

- Mixture ratio ... 1:1 (weight ratio)
- Volume ... 0.5 cc

8-3. Lubrication Points and Types of Lubricant

Pinion chamber of the Gear Cover Ass'y [4] <4> Nippeco grease (SEP-3A) 15 g

Generously rub grease onto the gear and the pinion.

Needle bearing Mixed oil 0.5 cc

Mixed oil: Mixture of Hitachi power tool grease No. 2 (Unilube No. 00) and turbine oil
Mixture ratio 1:1 (weight ratio)

8-4. Tightening Torque

Tapping Screws D4 [14] <14> [51] <57> 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)

Seal Lock Screws (W/Sp. Washer) M4 [18] <18> [21] <21> ... 1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.)

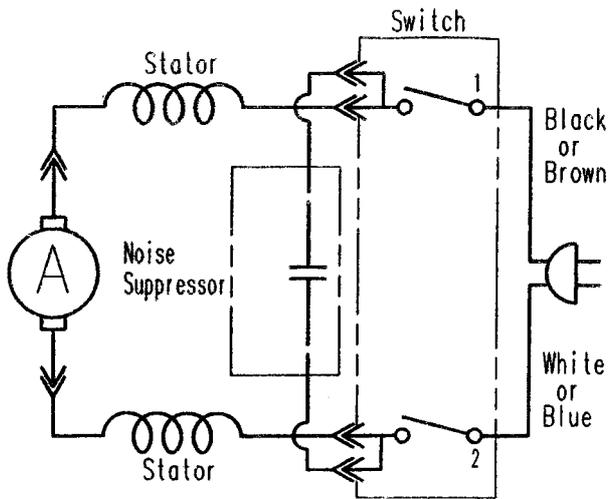
Tapping Screw D5 x 25 (Black) [1] <1> 2.9 ± 0.5 N·m (30 ± 5 kgf·cm, 2.2 ± 0.4 ft-lbs.)

Seal Lock Screw (W/Sp. Washer) M5 x 16 [26] <26> 3.4 ± 0.7 N·m (35 ± 7 kgf·cm, 2.5 ± 0.5 ft-lbs.)

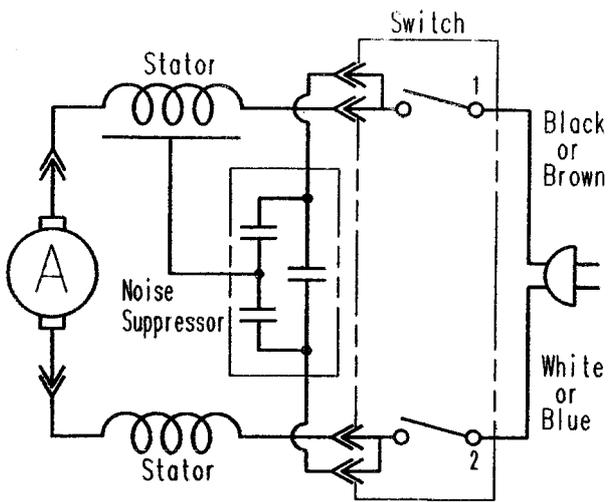
Nut M8 [5] <5> 13.7 ± 2.0 N·m (140 ± 20 kgf·cm, 10.1 ± 1.5 ft-lbs.)

8-5. Wiring Diagrams

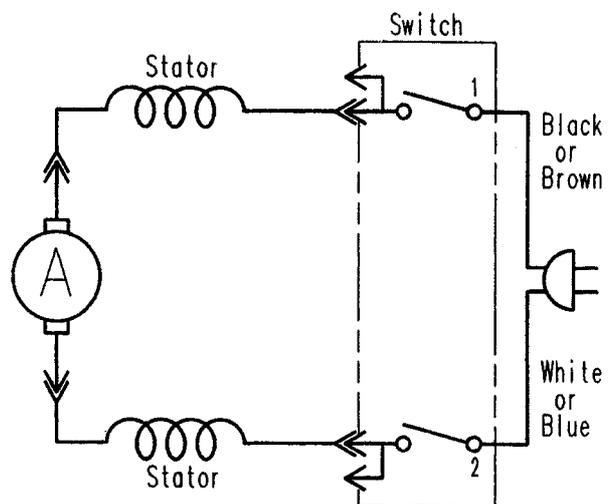
(1) For European countries, Australia and New Zealand



(2) For the U.K. (110 V)



(3) For the U.S.A. and Canada



8-6. Insulation Tests

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

Insulation resistance: 10 M Ω or more with DC 500 V megohm tester

Dielectric strength test: AC 4,400 V/3 minutes, with no abnormalities 220 V -- 240 V products
AC 3,000 V/3 minutes, with no abnormalities 110 V -- 127 V products

8-7. No-load Current Value

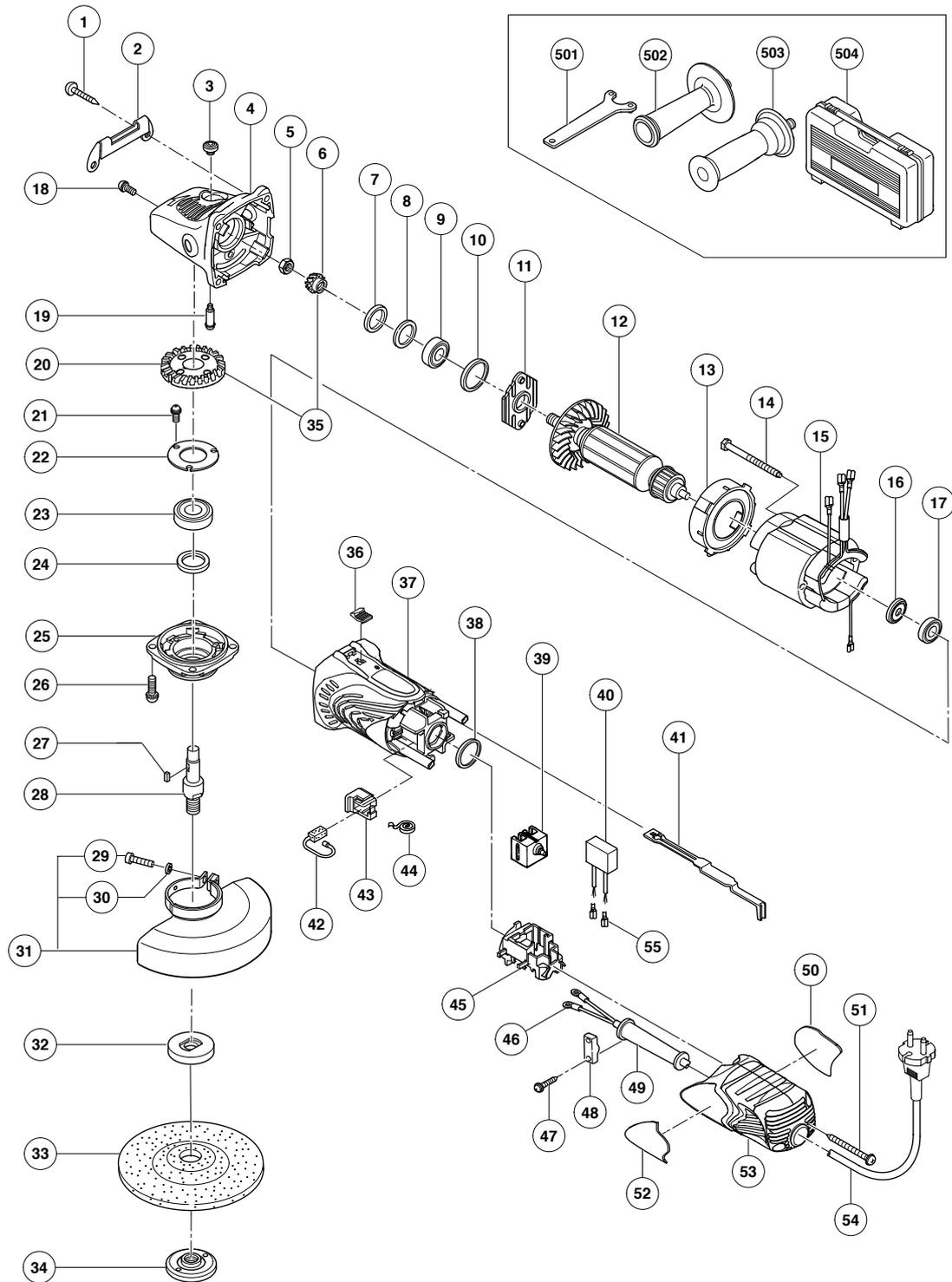
After no-load operation for 30 minutes, the no-load current value should be as follows.

Voltage (V)	110	120	230	240
Current (A) max.	3.4	3.2	2.1	2.0

ELECTRIC TOOL PARTS LIST

DISC GRINDER
Model G 12SA3

2005 · 12 · 23
(E1)



PARTS

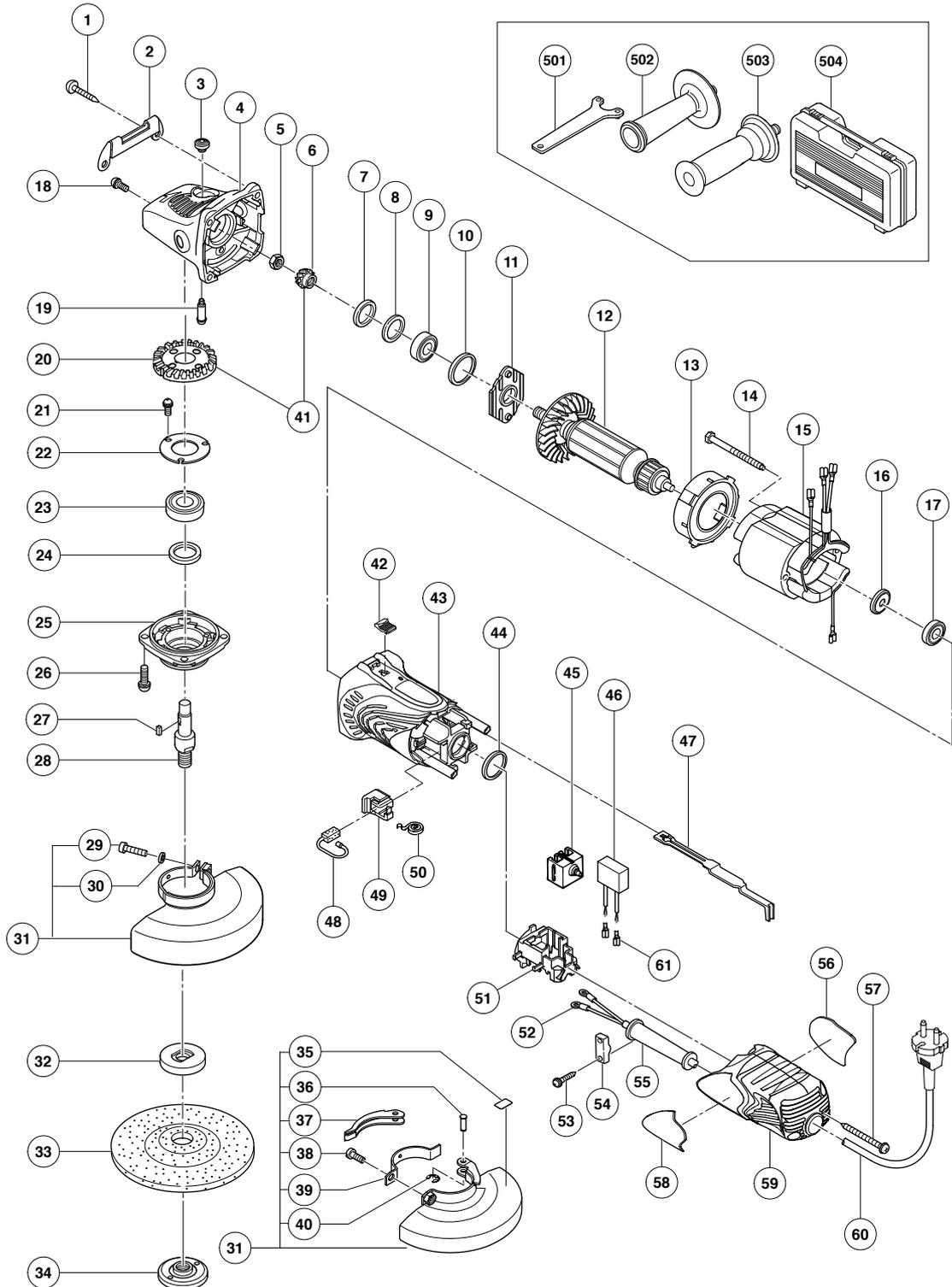
G 12SA3

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	320-523	TAPPING SCREW D5X25 (BLACK)	4	
2	325-053	GUARD PLATE	1	
3	301-944	PUSHING BUTTON	1	
4	321-737	GEAR COVER ASS'Y	1	INCLUD. 3, 19
5	949-558	NUT M8 (10 PCS.)	1	
6	308-541	PINION	1	
7	308-543	SEAL RING (A)	1	
8	980-866	WASHER (C)	1	
9	629-T12	BALL BEARING 629T12DDC3PS2-L	1	
10	957-754	RUBBER RING	1	
11	321-734	BEARING COVER	1	
* 12	360-734U	ARMATURE ASS'Y 120V	1	INCLUD. 9, 16, 17
* 12	360-734E	ARMATURE 230V-240V	1	
13	321-732	FAN GUIDE	1	
14	982-021	HEX. HD. TAPPING SCREW D4X70	2	
* 15	340-645D	STATOR 120V	1	
* 15	340-645E	STATOR 230V	1	
* 15	340-645F	STATOR 240V	1	
16	315-877	DUST SEAL	1	
17	608-VVM	BALL BEARING 608VVC2PS2L	1	
18	303-255	SEAL LOCK SCREW (W/SP. WASHER) M4X10	2	
19	301-943	LOCK PIN	1	
20	321-736	GEAR	1	
21	991-207	SEAL LOCK SCREW (W/SP. WASHER) M4X8	3	
22	936-680	BEARING COVER (B)	1	
23	620-1DD	BALL BEARING 6201DDCMPS2L	1	
24	308-546	FELT PACKING	1	
25	308-545	PACKING GLAND	1	
26	307-046	SEAL LOCK SCREW (W/SP. WASHER) M5X16	4	
27	944-109	FEATHER KEY 3X3X8	1	
* 28	994-301	SPINDLE (A)	1	
* 28	994-302	SPINDLE (B)	1	FOR USA, CAN
29	949-241	MACHINE SCREW M5X20 (10 PCS.)	1	
30	949-454	SPRING WASHER M5 (10 PCS.)	1	
31	319-656	WHEEL GUARD ASS'Y	1	INCLUD. 29, 30
* 32	937-817Z	WHEEL WASHER	1	
* 32	937-928Z	WHEEL WASHER (A) FOR D16 HOLE	1	FOR USA, CAN
33	316-821	D. C. WHEELS 115MM A36Q (25 PCS.)	1	
* 34	994-324	WHEEL NUT M14	1	
* 34	937-923P	WHEEL NUT 5/8"-11UNC	1	FOR USA, CAN
35	321-735	GEAR AND PINION ASS'Y	1	INCLUD. 6, 20
36	314-428	SLIDE KNOB	1	
37	325-050	HOUSING	1	
38	321-733	RUBBER RING	1	
39	319-319	PUSHING BUTTON SWITCH	1	
* 40	930-039	NOISE SUPPRESSOR	1	EXCEPT FOR USA, CAN
41	325-051	SLIDE BAR	1	
42	999-088	CARBON BRUSH (1 PAIR)	2	
43	317-810	BRUSH HOLDER	2	
44	308-536	SPRING	2	
45	325-054	SWITCH HOLDER	1	

ELECTRIC TOOL PARTS LIST

DISC GRINDER
Model G 13SB3

2005 · 12 · 23
(E1)



PARTS

G 13SB3

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	320-523	TAPPING SCREW D5X25 (BLACK)	4	
2	325-053	GUARD PLATE	1	
3	301-944	PUSHING BUTTON	1	
4	321-737	GEAR COVER ASS'Y	1	INCLUD. 3, 19
5	949-558	NUT M8 (10 PCS.)	1	
6	308-541	PINION	1	
7	308-543	SEAL RING (A)	1	
8	980-866	WASHER (C)	1	
9	629-T12	BALL BEARING 629T12DDC3PS2-L	1	
10	957-754	RUBBER RING	1	
11	321-734	BEARING COVER	1	
* 12	360-743C	ARMATURE 110V	1	
* 12	360-734U	ARMATURE ASS'Y 120V	1	INCLUD. 9, 16, 17
* 12	360-734E	ARMATURE 230V-240V	1	
13	321-732	FAN GUIDE	1	
14	982-021	HEX. HD. TAPPING SCREW D4X70	2	
* 15	340-645C	STATOR 110V	1	
* 15	340-645D	STATOR 120V	1	
* 15	340-645E	STATOR 230V	1	
* 15	340-645F	STATOR 240V	1	
16	315-877	DUST SEAL	1	
17	608-VVM	BALL BEARING 608VVC2PS2L	1	
18	303-255	SEAL LOCK SCREW (W/SP. WASHER) M4X10	2	
19	301-943	LOCK PIN	1	
20	321-736	GEAR	1	
21	991-207	SEAL LOCK SCREW (W/SP. WASHER) M4X8	3	
22	936-680	BEARING COVER (B)	1	
23	620-1DD	BALL BEARING 6201DDCMPS2L	1	
24	308-546	FELT PACKING	1	
25	308-545	PACKING GLAND	1	
26	307-046	SEAL LOCK SCREW (W/SP. WASHER) M5X16	4	
27	944-109	FEATHER KEY 3X3X8	1	
* 28	994-301	SPINDLE (A)	1	
* 28	994-302	SPINDLE (B)	1	FOR USA, CAN
* 29	949-241	MACHINE SCREW M5X20 (10 PCS.)	1	
* 30	949-454	SPRING WASHER M5 (10 PCS.)	1	
* 31	320-192	WHEEL GUARD ASS'Y	1	INCLUD. 29, 30
* 31	311-742	WHEEL GUARD ASS'Y	1	INCLUD. 35-40 FOR ITA, FRG, BEL, FRA, ESP, HOL
* 32	937-817Z	WHEEL WASHER	1	
* 32	937-928Z	WHEEL WASHER (A) FOR D16 HOLE	1	FOR USA, CAN
33	316-822	D. C. WHEELS 125MM A36Q (25 PCS.)	1	
* 34	994-324	WHEEL NUT M14	1	
* 34	937-923P	WHEEL NUT 5/8"-11UNC	1	FOR USA, CAN
* 35	311-492	LABEL	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
* 36	311-744	SET PIN	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
* 37	311-743	LEVER	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
* 38	880-734	MACHINE SCREW (W/WASHERS) M5X25 (BLACK)	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
* 39	311-491	SET PIECE (B)	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
* 40	874-759	RETAINING RING (E-TYPE) FOR D2.5 SHAFT	1	FOR ITA, FRG, BEL, FRA, ESP, HOL
41	321-735	GEAR AND PINION ASS'Y	1	INCLUD. 6, 20
42	314-428	SLIDE KNOB	1	

