

# Hitachi Power Tools

SERVICE MANUAL

LIST Nos.  
G 18ST: F227  
G 18SW2: F228  
G 23ST: F229  
G 23SW2: F230  
Dec. 2014

PRODUCT NAME .....

Hitachi 180 mm Disc Grinder

Models G 18ST, G 18SW2

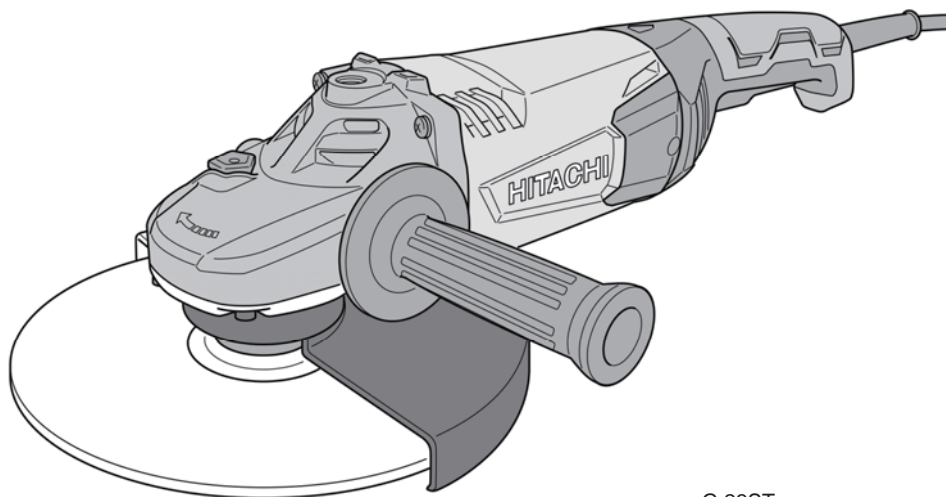
Hitachi 230 mm Disc Grinder

Models G 23ST, G 23SW2

## CONTENTS

REPAIR GUIDE .....	1
1. Precautions on disassembly and reassembly .....	1
STANDARD REPAIR TIME (UNIT) SCHEDULES .....	8

G



G 23ST

**HITACHI**

**Hitachi Koki Co., Ltd.**  
International Sales Division

# REPAIR GUIDE

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

## 1. Precautions on disassembly and reassembly

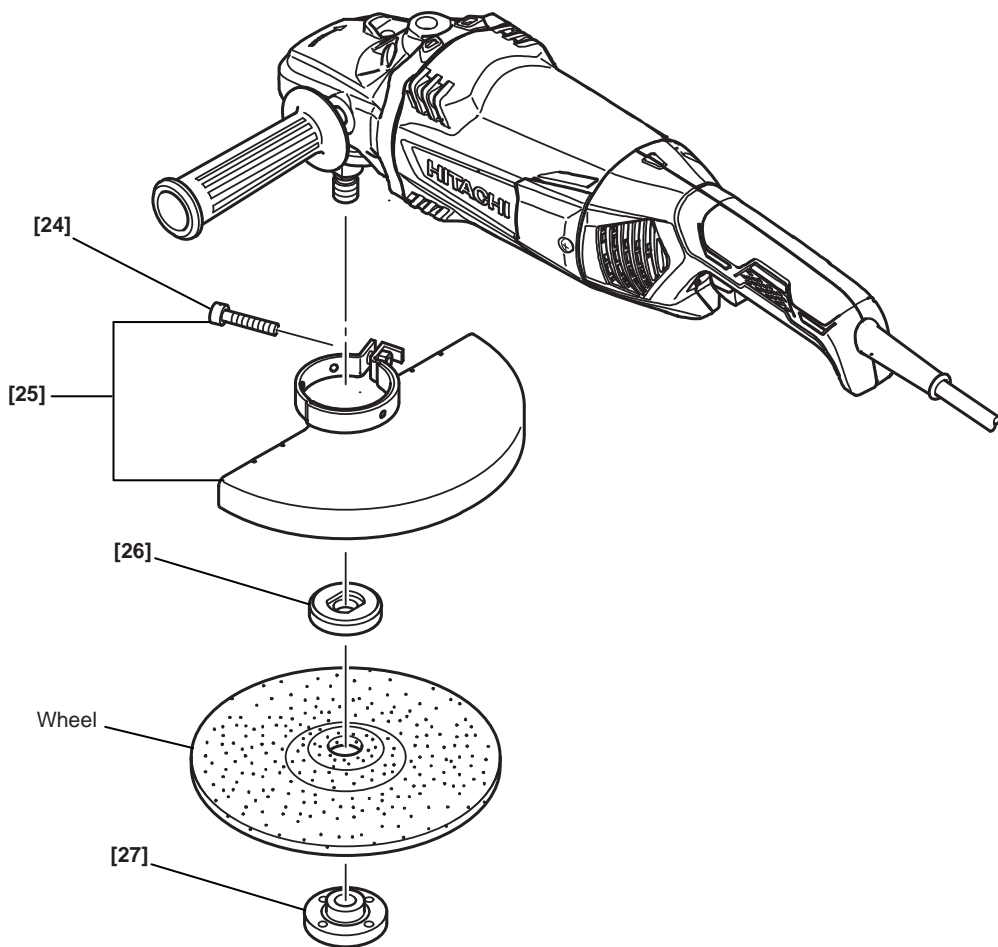
The **[Bold]** numbers in the descriptions below correspond to the numbers in the Parts List and the exploded assembly diagram for the Models G 18ST, G 18SW2, G 23ST, and G 23SW2.

### Disassembly

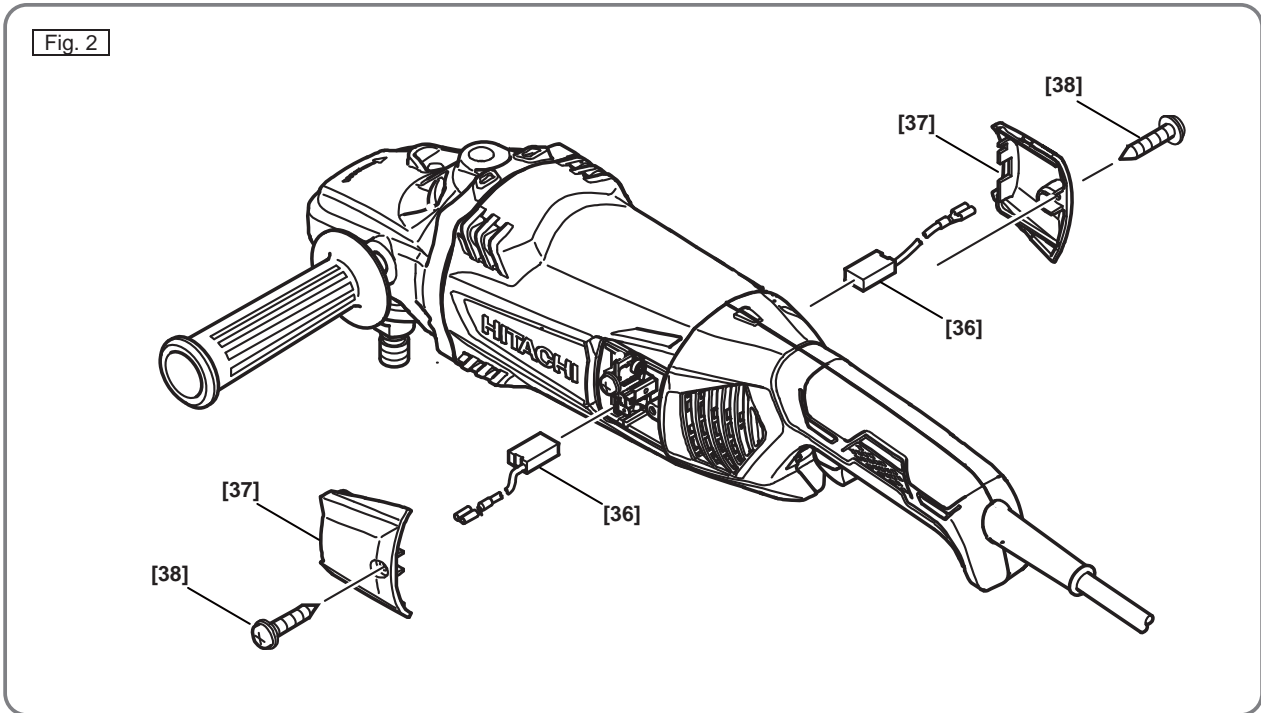
#### 1. Removal of the armature

- (1) Loosen the Wheel Nut **[27]** and remove the wheel and Wheel Washer (C) **[26]**.
- (2) Loosen the Bolt M8 x 25 **[24]** and remove the Wheel Guard Ass'y **[25]**.

Fig. 1



(3) Loosen the Tapping Screws D4 x 16 [38] and remove the Brush Cover [37]. Then take out the Carbon Brushes (1 Pair) [36].

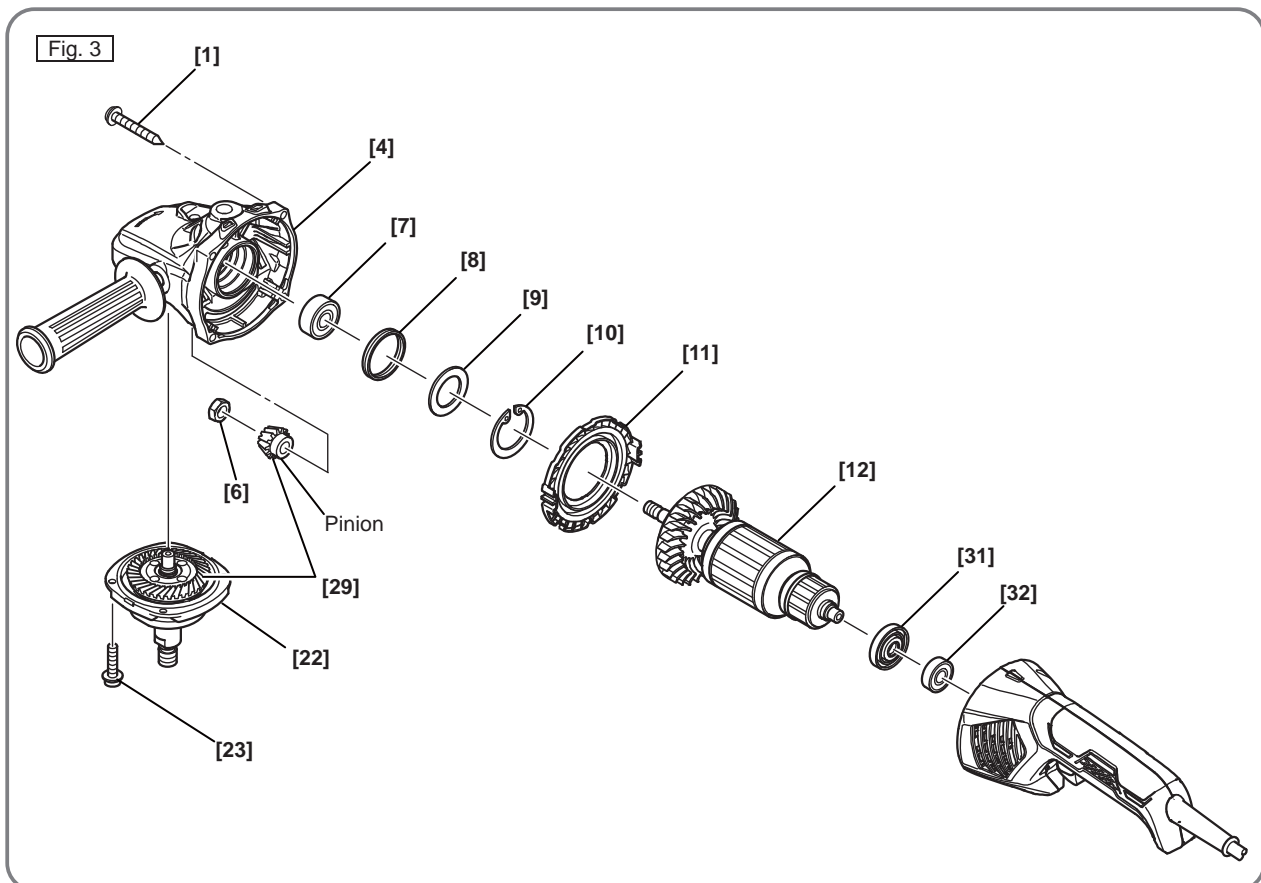


(4) Remove the four Tapping Screws D5 x 35 [1]. The Armature [12] can then be taken out together with the Gear Cover Ass'y [4], Packing Gland [22] and related parts as shown in Fig. 3.

(5) Loosen the four Bolts M5 x 16 [23]. Remove the Packing Gland [22] and related parts.

(6) Remove the Special Nut M10 [6] and extract the pinion of the Gear and Pinion Set [29].

(7) Carefully extract the Armature [12] from the Gear Cover Ass'y [4].



## 2. Removal of the dust seal

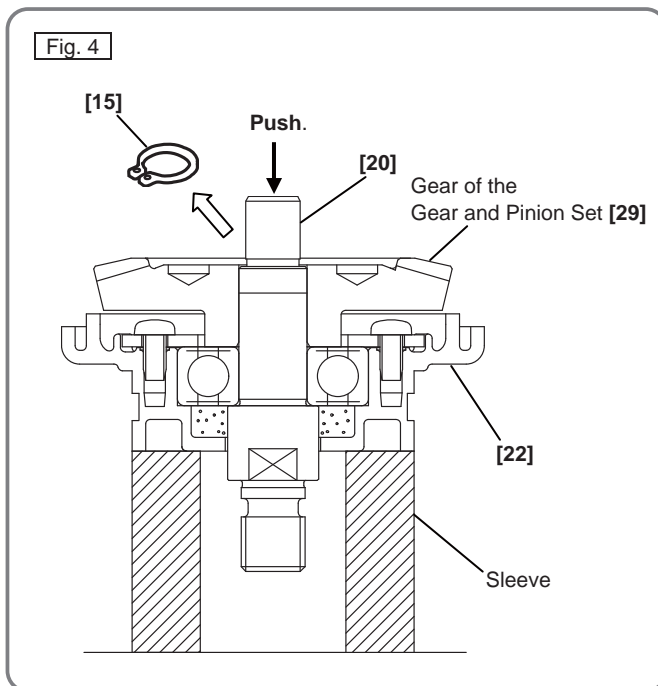
- (1) Insert the hooks of the J-204 bearing puller between the commutator and the Dust Seal [31] from both sides, and fix the hooks with the wing bolts.
- (2) Place the J-204 bearing puller on a supporting jig and push down on the armature shaft with a hand press to remove the Dust Seal [31] together with the Ball Bearing 6000VV [32]. Replace the Dust Seal [31] with new one because it is damaged by the removal of the Ball Bearing 6000VV [32].

## 3. Removal of the stator ass'y

- (1) After removing the Armature [12], disconnect the internal wires connected to the Brush Holders [34] and the Switch [40].
- (2) Remove the Stator [30] from the Housing [33]. If the Stator [30] cannot be easily removed from the Housing [33], disassembly can be facilitated by heating the Housing [33] to a temperature of approximately 60°C (140°F) with an appropriate heating device.

## 4. Removal of the gear and pinion set

- (1) Loosen the four Bolts M5 x 16 [23] and remove the Packing Gland [22] together with the Spindle [20] and the gear of the Gear and Pinion Set [29] from the Gear Cover Ass'y [4] in a single body.
- (2) Remove the Retaining Ring [15] from the Spindle [20].
- (3) When it is necessary to remove the gear of the Gear and Pinion Set [29] from the Spindle [20], it is highly recommended that the special repair tools described below are utilized.

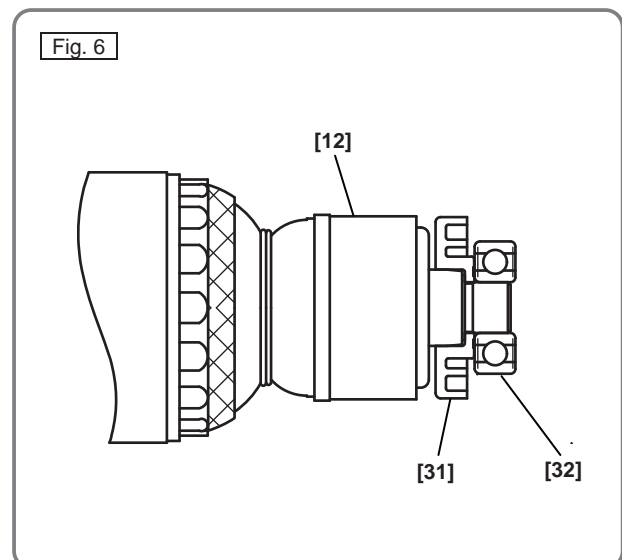
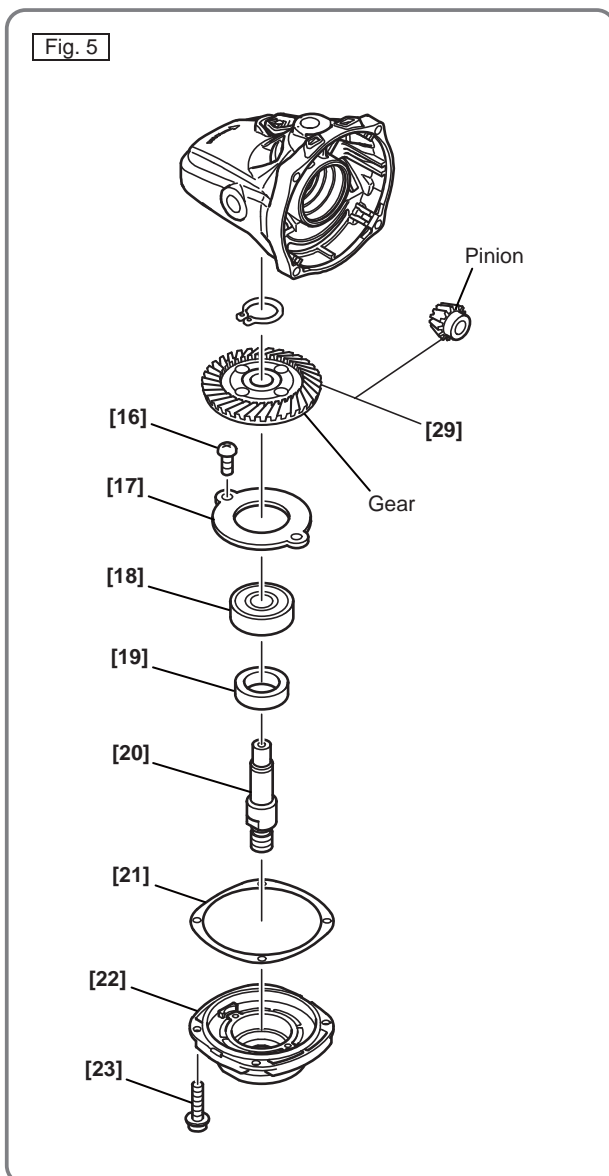


**NOTE:** Place the assembly on a sleeve that matches the dimension of the Packing Gland [22] and push down on the top of the Spindle [20] with a hand press to remove the gear of the Gear and Pinion Set [29] as shown in Fig. 4.

## Reassembly

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

- (1) Apply machine oil to Felt Packing (B) [19] then mount it to the Packing Gland [22] to increase the dust resistance.
- (2) Generously lubricate the teeth of the Gear and Pinion Set [29] with grease. Rub grease onto the teeth with your fingers so that the grease reaches each tooth bottom. Note that under-lubricated Gear and Pinion Set [29] may wear at a faster rate.
- (3) When replacing the Armature [12] and the Ball Bearing 6000VV [32] on the commutator side, press inward on the Dust Seal [31] while taking care of its direction until the end face of the Dust Seal [31] hits against the butting surface of the Armature [12] and make sure that the Dust Seal [31] cannot turn freely as shown in Fig. 6. The Dust Seal [31] is an important element for improved dust protection of the Ball Bearing 6000VV [32]. Be sure to use a new one at every disassembly work of the Ball Bearing 6000VV [32].
- (4) Apply Three Bond TB 1406 screw locking agent to the following screws. (See Fig. 5.)
  - Two Machine Screws M5 x 10 [16] which fix Bearing Cover (B) [17] in place
  - Four Bolts M5 x 16 [23] which fix the Packing Gland [22] in place



(5) Arrange the internal wires as shown in Fig. 7 and Fig. 8 being careful not to connect in wrong direction or position and not to get the internal wires caught in parts.

Fig. 7

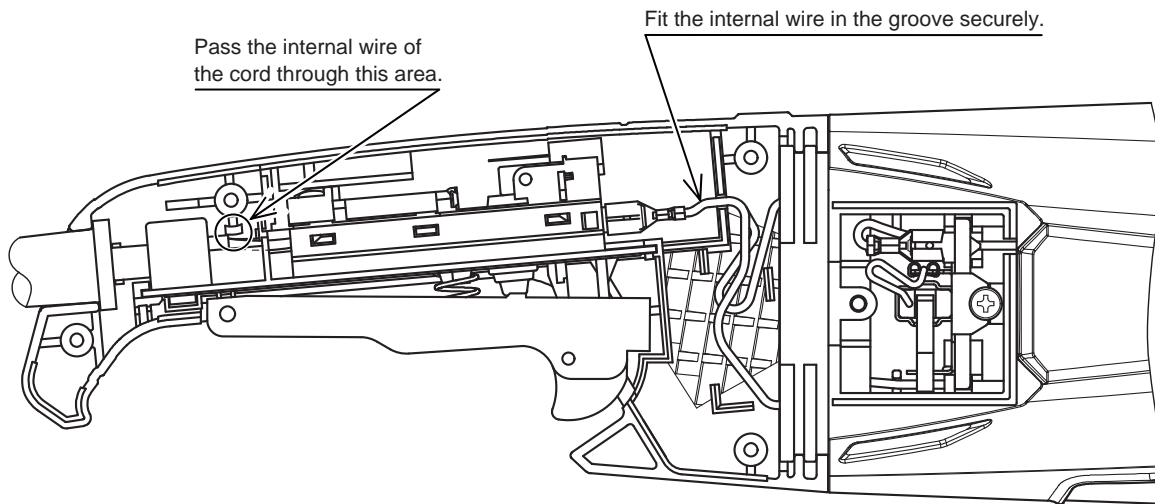
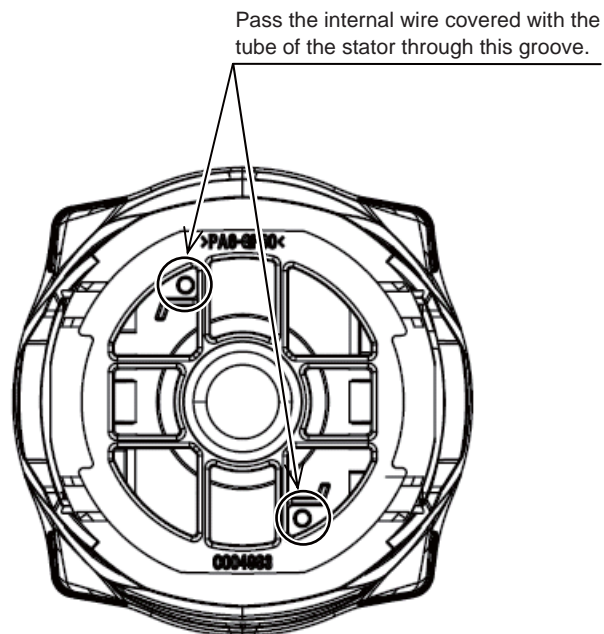
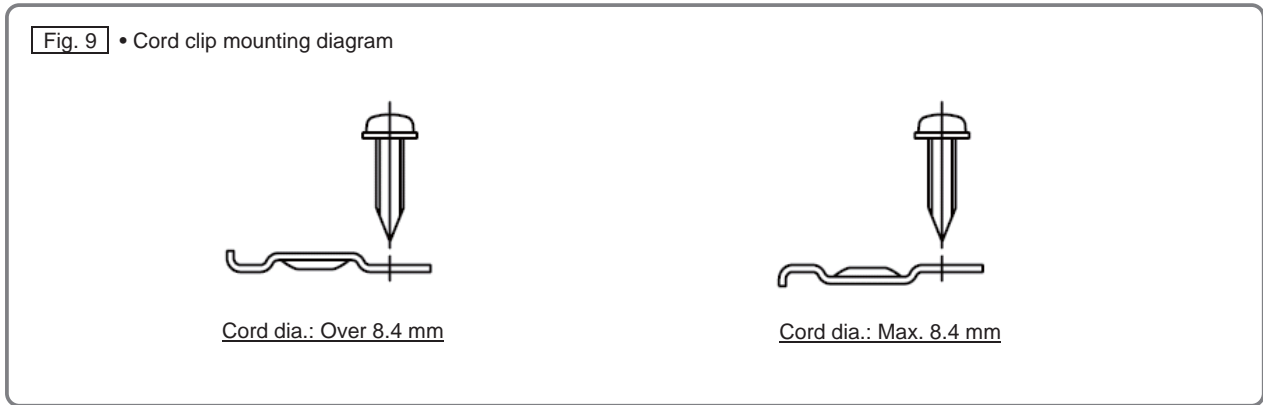


Fig. 8



(6) Mount the cord clip as shown in Fig. 9 being careful of the direction.



## Lubrication points and type of lubricant

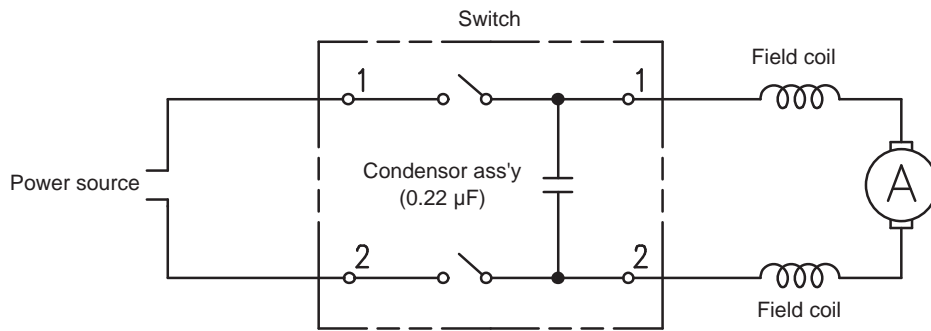
Pinion chamber of the Gear Cover Ass'y **[4]** -----50 g of COSMO DYNAMAX EP No. 1  
 Generously rub grease onto the gear, pinion and inner circumference of the metal.

## Tightening torque

Tapping Screws D4 x 16 <b>[35]</b> <b>[38]</b>	-----	2.0 ± 0.5 N•m (20 ± 5 kgf•cm, 1.5 ± 0.4 ft-lbs.)
Tapping Screw D5 x 35 <b>[1]</b>	-----	3.4 ± 0.7 N•m (35 ± 7 kgf•cm, 2.5 ± 0.5 ft-lbs.)
Bolt M5 x 16 <b>[23]</b>	-----	7.8 ± 1.5 N•m (80 ± 15 kgf•cm, 5.8 ± 1.1 ft-lbs.)
Special Nut M10 <b>[6]</b>	-----	20.4 ± 3.1 N•m (200 ± 30 kgf•cm, 14.4 ± 2.2 ft-lbs.)
Machine Screw M5 x 10 <b>[16]</b>	-----	5.9 ± 1.5 N•m (60 ± 15 kgf•cm, 4.3 ± 1.1 ft-lbs.)

## Wiring diagram

Fig. 10 • Wiring diagram



## Insulation tests

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

Insulation resistance: After the switch is turned on, more than 10 MΩ by 500 V DC megohm meter between live parts and accessible metal parts.

Dielectric strength: After the switch is turned on, there must be no trouble when the voltage indicated below is provided between live parts and accessible metal parts.

Less than 150 V of the rated voltage: 3,000 V x 3 sec.

More than 150 V of the rated voltage: 4,400 V x 3 sec.

## No-load current value

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

Voltage	110 V	120 V	127 V	220 V	230 V	240 V
Current max.	7.2 A	5.7 A	6.0 A	3.7 A	3.9 A	3.2 A



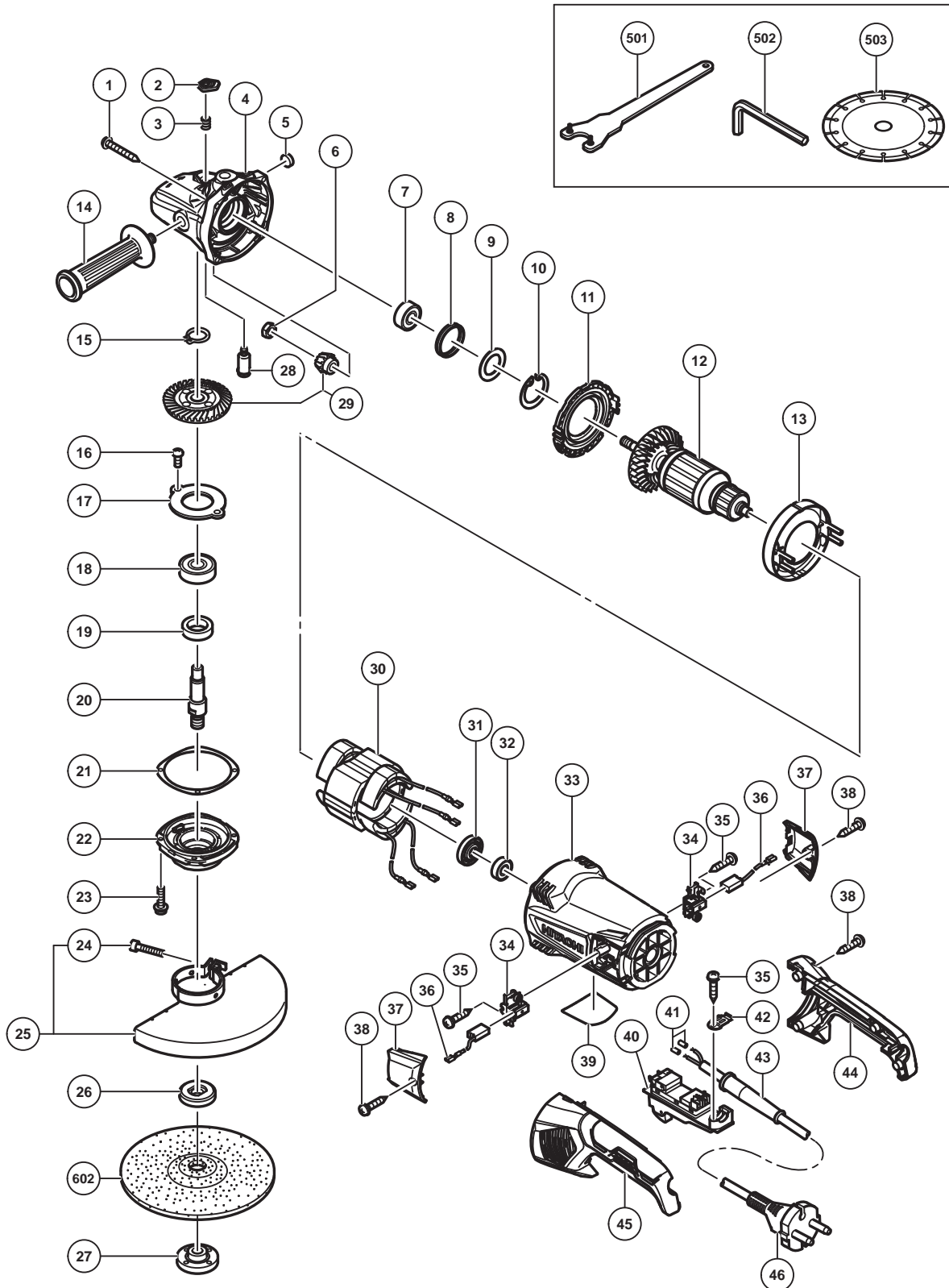
# STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.	
	Fixed								
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 18ST</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 18SW2</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 23ST</div> <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">G 23SW2</div>		Work Flow							
			Wheel Guard Ass'y						
				Gear Cover Ass'y	Ball Bearing (6301VV) Rubber Ring Armature Dust Seal Ball Bearing (6000VV)		Housing Stator		
		General Assembly		Seal Plate	Gear and Pinion Set		Bearing Cover (B) Ball Bearing (6302VV) Felt Packing (B) Packing Gland Spindle		
		Handle (B)	Handle (A) Switch Cord						

## ELECTRIC TOOL PARTS LIST

■ DISC GRINDER  
Model G 18ST

2014.12.11  
(E1)



## PARTS

G 18ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	323209	TAPPING SCREW (W/FLANGE) D5 X 35 (BLACK)	4		
2	337641	PUSHING BUTTON	1		
3	320219	SPRING	1		
4	337650	GEAR COVER ASS'Y	1	INCLUD.2,3,5,7-10,28	
5	937033	FELT WASHER	1		
6	320226	SPECIAL NUT M10	1		
7	6301VV	BALL BEARING 6301VVCMP2L	1		
8	330031	RUBBER RING	1		
9	337642	WASHER	1		
10	948391	RETAINING RING FOR D40 HOLE	1		
11	337640	FAN GUIDE (B)	1		
*	12	360982C	ARMATURE 110V	1	
*	12	360982E	ARMATURE 220V-230V	1	
*	12	360982F	ARMATURE 240V	1	
13	337639	FAN GUIDE (A)	1		
14	937981	SIDE HANDLE FOR M14	1		
15	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1		
16	949236	MACHINE SCREW M5 X 10 (10 PCS.)	2		
17	320229	BEARING COVER (B)	1		
18	6302VV	BALL BEARING 6302VVCMP2L	1		
19	990852	FELT PACKING (B)	1		
20	320234	SPINDLE	1		
21	320228	SEAL PLATE	1		
22	320227	PACKING GLAND	1		
23	994192	HEX. SOCKET HD. BOLT (W/FLANGE) M5 X 16	4		
24	949760	HEX. SOCKET HD. BOLT M8 X 25 (10 PCS.)	1		
25	338291	WHEEL GUARD ASS'Y	1	INCLUD.24	
26	937907Z	WHEEL WASHER (C)	1		
27	937909Z	WHEEL NUT M14 X 2	1		
28	306890	LOCK PIN	1		
29	337919	GEAR AND PINION SET	1		
*	30	340888C	STATOR 110V	1	
*	30	340888E	STATOR 220V-230V	1	
*	30	340888F	STATOR 240V	1	
31	330029	DUST SEAL	1		
32	6000VV	BALL BEARING 6000VVCMP2L	1		
33	337643	HOUSING	1		
34	337646	BRUSH HOLDER	2		
35	984750	TAPPING SCREW (W/FLANGE) D4 X 16	3		
*	36	999059	CARBON BRUSH (1 PAIR)	2	
*	36	999059	CARBON BRUSH (1 PAIR)	1	FOR BRA
*	36	999093	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	1	FOR BRA
37	337649	BRUSH COVER	2		
38	305812	TAPPING SCREW (W/FLANGE) D4 X 16 (BLACK)	6		
39		NAME PLATE	1		
*	40	320239	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	OFF/ON LOCK
*	40	320238	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	OFF/LOCK
41	981373	TUBE (D)	2		
42	331336	CORD CLIP	1		
*	43	958049	CORD ARMOR D8.2	1	



### STANDARD ACCESSORIES

G 18ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
501	325491	WRENCH	1		
502	872422	HEX. BAR WRENCH 6MM	1		
* 503		DIAMOND CUTTER 180MM-D22.2 HOLE	1	FOR EUROPE,RUS SUPPLIED WITH ITEM NO.601	

### OPTIONAL ACCESSORIES

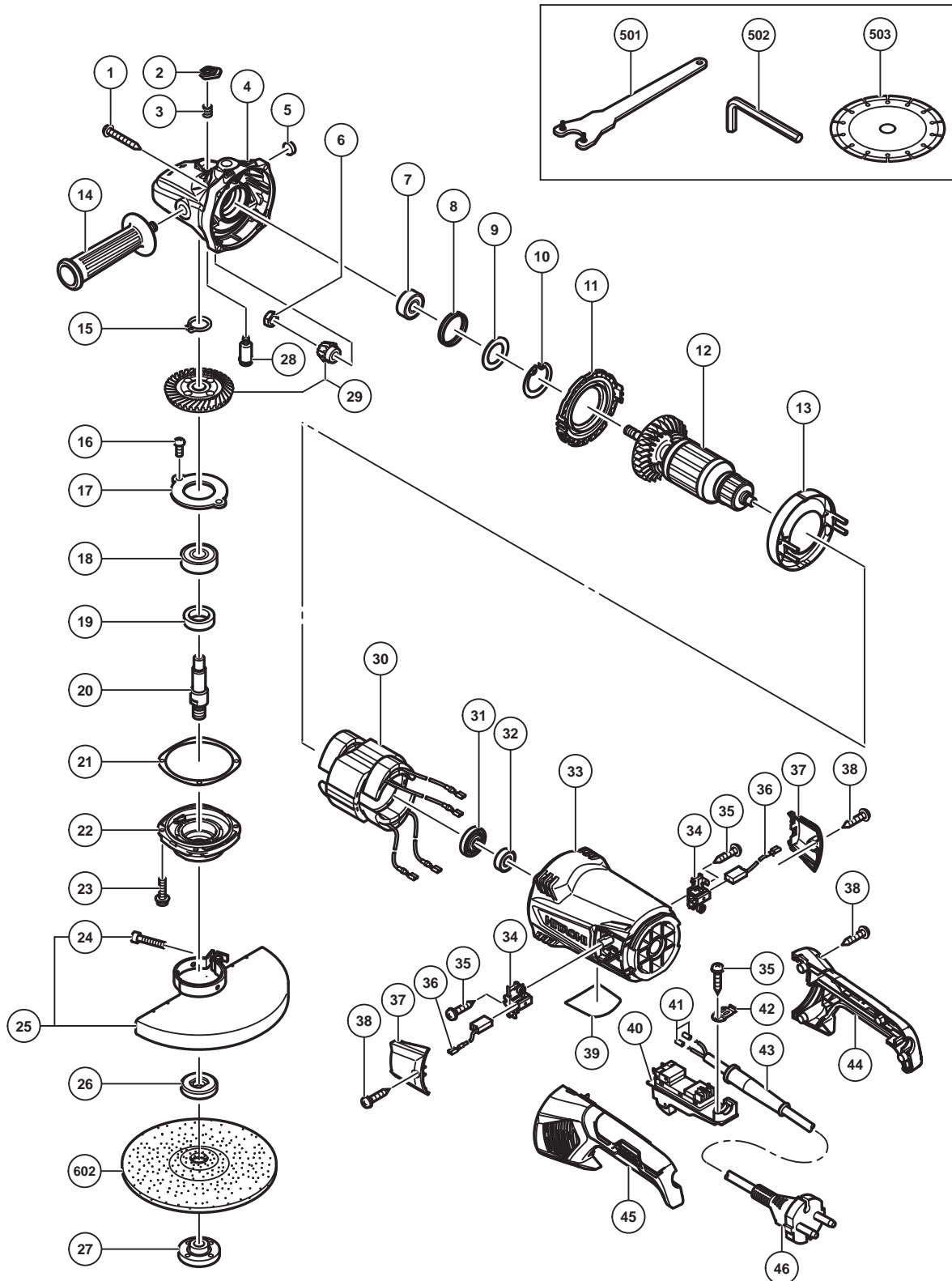
ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
* 601	305459	DIAMOND WHEEL (SEGMENT) 180MM-D22.2 HOLE	1	FOR EUROPE,RUS	
602	316824	D. C. WHEELS 180MM A24R (25 PCS.)	1		
603	310337	SUPER WASHER	1		
604	323993	PIPE HANDLE SET	1	INCLUD.605	
605	985597	BOLT M14	2	FOR PIPE HANDLE	
606	332795	WHEEL GUARD BASE SET	1	WITH BASE FOOT	
607	332796	WHEEL GUARD (FOR CUTTING)	1	WITHOUT BASE FOOT	

## ELECTRIC TOOL PARTS LIST

DISC GRINDER  
Model G 18SW2

2014.12.11

(E1)



**PARTS**

G 18SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	323209	TAPPING SCREW (W/FLANGE) D5 X 35 (BLACK)	4		
2	337641	PUSHING BUTTON	1		
3	320219	SPRING	1		
4	337650	GEAR COVER ASS'Y	1	INCLUD.2,3,5,7-10,28	
5	937033	FELT WASHER	1		
6	320226	SPECIAL NUT M10	1		
7	6301VV	BALL BEARING 6301VVCMP2L	1		
8	330031	RUBBER RING	1		
9	337642	WASHER	1		
10	948391	RETAINING RING FOR D40 HOLE	1		
11	337640	FAN GUIDE (B)	1		
*	12	360982C	ARMATURE 110V	1	
*	12	360982D	ARMATURE 120V-127V	1	
*	12	360982E	ARMATURE 220V-230V	1	
*	12	360982F	ARMATURE 240V	1	
13	337639	FAN GUIDE (A)	1		
14	937981	SIDE HANDLE FOR M14	1		
15	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1		
16	949236	MACHINE SCREW M5 X 10 (10 PCS.)	2		
17	320229	BEARING COVER (B)	1		
18	6302VV	BALL BEARING 6302VVCMP2L	1		
19	990852	FELT PACKING (B)	1		
*	20	320234	SPINDLE	1	
*	20	321541	SPINDLE	1	FOR PAN (120V)
21	320228	SEAL PLATE	1		
22	320227	PACKING GLAND	1		
23	994192	HEX. SOCKET HD. BOLT (W/FLANGE) M5 X 16	4		
24	949760	HEX. SOCKET HD. BOLT M8 X 25 (10 PCS.)	1		
*	25	338291	WHEEL GUARD ASS'Y	1	INCLUD.24
*	25	338293	WHEEL GUARD ASS'Y	1	INCLUD.24 FOR PAN (120V)
*	26	937907Z	WHEEL WASHER (C)	1	
*	26	937922P	WHEEL WASHER (B) FOR D5/8' HOLE	1	FOR PAN (120V)
*	27	937909Z	WHEEL NUT M14 X 2	1	
*	27	937923P	WHEEL NUT 5/8'-11UNC	1	FOR PAN(120V)
28	306890	LOCK PIN	1		
29	337919	GEAR AND PINION SET	1		
*	30	340888C	STATOR 110V	1	
*	30	340888D	STATOR 120V-127V	1	
*	30	340888E	STATOR 220V-230V	1	
*	30	340888F	STATOR 240V	1	
31	330029	DUST SEAL	1		
32	6000VV	BALL BEARING 6000VVCMP2L	1		
33	337643	HOUSING	1		
34	337646	BRUSH HOLDER	2		
35	984750	TAPPING SCREW (W/FLANGE) D4 X 16	3		
*	36	999059	CARBON BRUSH (1 PAIR)	2	
*	36	999059	CARBON BRUSH (1 PAIR)	1	FOR BRA,CHN
*	36	999093	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	1	FOR BRA,CHN
37	337649	BRUSH COVER	2		
38	305812	TAPPING SCREW (W/FLANGE) D4 X 16 (BLACK)	6		





**STANDARD ACCESSORIES**

G 18SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
501	325491	WRENCH	1	
502	872422	HEX. BAR WRENCH 6MM	1	
* 503		DIAMOND CUTTER 180MM-D22.2 HOLE	1	FOR HOL,RUS SUPPLIED WITH ITEM NO.601

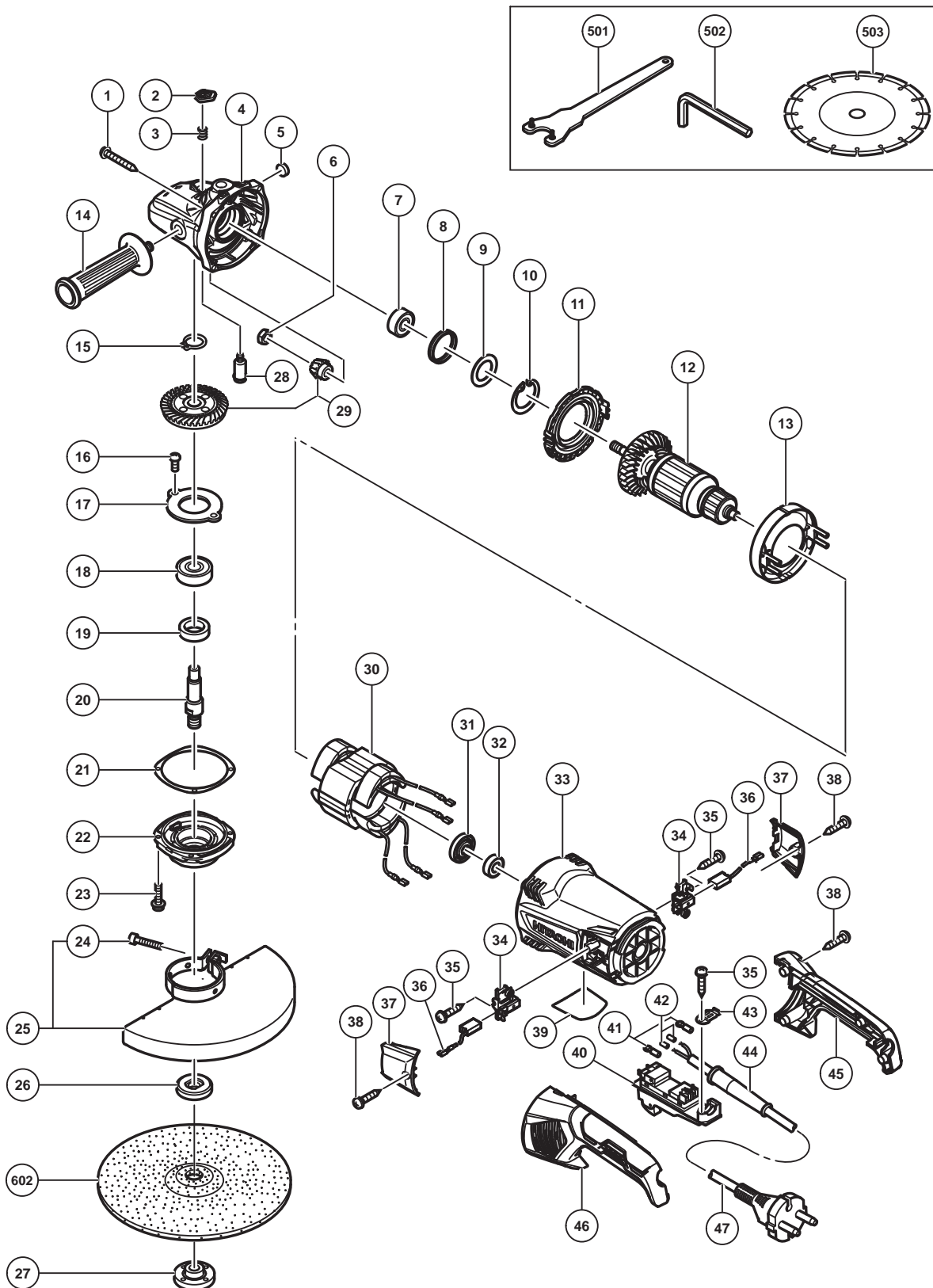
**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 601	305459	DIAMOND WHEEL (SEGMENT) 180MM-D22.2 HOLE	1	FOR HOL,RUS
602	316824	D. C. WHEELS 180MM A24R (25 PCS.)	1	
603	310337	SUPER WASHER	1	
604	323993	PIPE HANDLE SET	1	INCLUD.605
605	985597	BOLT M14	2	FOR PIPE HANDLE
606	332795	WHEEL GUARD BASE SET	1	WITH BASE FOOT
607	332796	WHEEL GUARD (FOR CUTTING)	1	WITHOUT BASE FOOT

## ELECTRIC TOOL PARTS LIST

■ DISC GRINDER  
Model G 23ST

2014.12.11  
(E1)



## PARTS

G 23ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	323209	TAPPING SCREW (W/FLANGE) D5 X 35 (BLACK)	4		
2	337641	PUSHING BUTTON	1		
3	320219	SPRING	1		
4	337650	GEAR COVER ASS'Y	1	INCLUD.2,3,5,7-10,28	
5	937033	FELT WASHER	1		
6	320226	SPECIAL NUT M10	1		
7	6301VV	BALL BEARING 6301VVCMP2L	1		
8	330031	RUBBER RING	1		
9	337642	WASHER	1		
10	948391	RETAINING RING FOR D40 HOLE	1		
11	337640	FAN GUIDE (B)	1		
*	12	360982C	ARMATURE 110V	1	
*	12	360982D	ARMATURE 120V-127V	1	
*	12	360982U	ARMATURE ASS'Y 120V	1	INCLUD.31,32
*	12	360982E	ARMATURE 220V-230V	1	
*	12	360982F	ARMATURE 240V	1	
13	337639	FAN GUIDE (A)	1		
14	937981	SIDE HANDLE FOR M14	1		
15	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1		
16	949236	MACHINE SCREW M5 X 10 (10 PCS.)	2		
17	320229	BEARING COVER (B)	1		
18	6302VV	BALL BEARING 6302VVCMP2L	1		
19	990852	FELT PACKING (B)	1		
*	20	320234	SPINDLE	1	
*	20	321541	SPINDLE	1	FOR USA,CAN,PAN (120V)
21	320228	SEAL PLATE	1		
22	320227	PACKING GLAND	1		
23	994192	HEX. SOCKET HD. BOLT (W/FLANGE) M5 X 16	4		
24	949760	HEX. SOCKET HD. BOLT M8 X 25 (10 PCS.)	1		
*	25	338292	WHEEL GUARD ASS'Y	1	INCLUD.24
*	25	338294	WHEEL GUARD ASS'Y	1	INCLUD.24 FOR USA,CAN,PAN (120V)
*	25	338293	WHEEL GUARD ASS'Y	1	INCLUD.24 FOR USA,CAN
*	26	937907Z	WHEEL WASHER (C)	1	
*	26	334456	WHEEL WASHER (C)	1	FOR USA,CAN
*	27	937909Z	WHEEL NUT M14 X 2	1	
*	27	937923P	WHEEL NUT 5/8"-11UNC	1	FOR USA,CAN,PAN (120V)
28	306890	LOCK PIN	1		
29	330688	GEAR AND PINION SET	1		
*	30	340888C	STATOR 110V	1	
*	30	340888D	STATOR 120V-127V	1	
*	30	340888E	STATOR 220V-230V	1	
*	30	340888F	STATOR 240V	1	
31	330029	DUST SEAL	1		
32	6000VV	BALL BEARING 6000VVCMP2L	1		
*	33	337643	HOUSING	1	
*	33	338296	HOUSING	1	FOR FRA
34	337646	BRUSH HOLDER	2		
35	984750	TAPPING SCREW (W/FLANGE) D4 X 16	3		
*	36	999059	CARBON BRUSH (1 PAIR)	2	
*	36	999059	CARBON BRUSH (1 PAIR)	1	FOR BRA



**STANDARD ACCESSORIES**

G 23ST

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
501	325491	WRENCH	1	
502	872422	HEX. BAR WRENCH 6MM	1	
* 503		DIAMOND CUTTER 230MM-D22.2 HOLE	1	FOR EUROPE,RUS SUPPLIED WITH ITEM NO.601

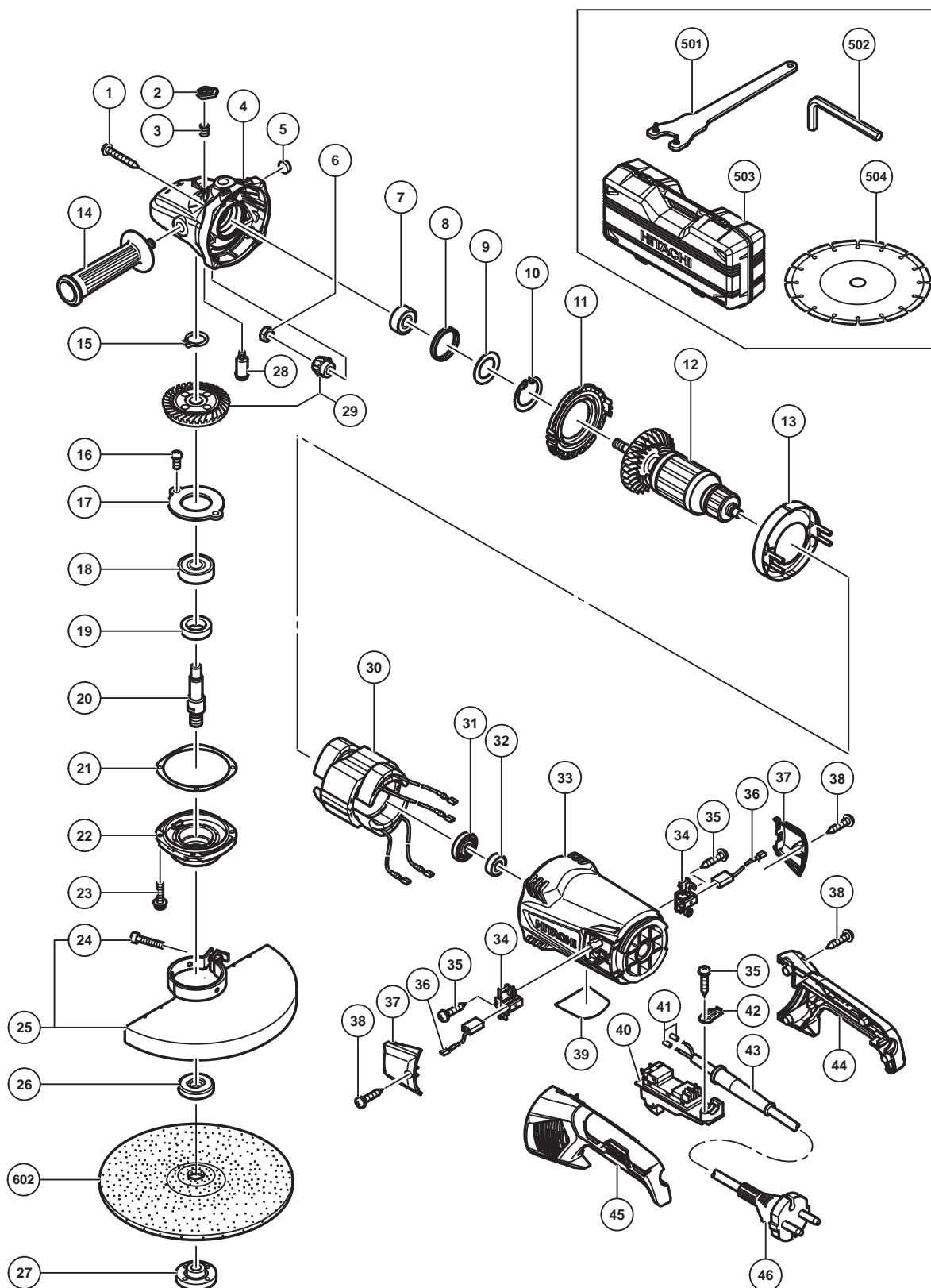
**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 601	994275	DIAMOND WHEEL (SEGMENT) 230MM-D22.2 HOLE	1	FOR EUROPE,RUS
602	316825	D. C. WHEELS 230MM A24R (25 PCS.)	1	
603	310337	SUPER WASHER	1	
604	323993	PIPE HANDLE SET	1	INCLUD.605
605	985597	BOLT M14	2	
606	332797	WHEEL GUARD (FOR CUTTING)	1	
* 607	316824	D. C. WHEELS 180MM A24R (25 PCS.)	1	FOR USA,CAN
* 608	332795	WHEEL GUARD BASE SET	1	WITH BASE FOOT FOR USA,CAN
* 609	332796	WHEEL GUARD (FOR CUTTING)	1	WITHOUT BASE FOOT FOR USA,CAN

## ELECTRIC TOOL PARTS LIST

■ DISC GRINDER  
Model G 23SW2

2014.12.11  
(E1)



**PARTS**

G 23SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	323209	TAPPING SCREW (W/FLANGE) D5 X 35 (BLACK)	4		
2	337641	PUSHING BUTTON	1		
3	320219	SPRING	1		
4	337650	GEAR COVER ASS'Y	1	INCLUD.2,3,5,7-10,28	
5	937033	FELT WASHER	1		
6	320226	SPECIAL NUT M10	1		
7	6301VV	BALL BEARING 6301VVCMP2L	1		
8	330031	RUBBER RING	1		
9	337642	WASHER	1		
10	948391	RETAINING RING FOR D40 HOLE	1		
11	337640	FAN GUIDE (B)	1		
*	12	360982C	ARMATURE 110V	1	
*	12	360982D	ARMATURE 120V-127V	1	
*	12	360982E	ARMATURE 220V-230V	1	
*	12	360982F	ARMATURE 240V	1	
13	337639	FAN GUIDE (A)	1		
14	937981	SIDE HANDLE FOR M14	1		
15	939542	RETAINING RING FOR D12 SHAFT (10 PCS.)	1		
16	949236	MACHINE SCREW M5 X 10 (10 PCS.)	2		
17	320229	BEARING COVER (B)	1		
18	6302VV	BALL BEARING 6302VVCMP2L	1		
19	990852	FELT PACKING (B)	1		
*	20	320234	SPINDLE	1	
*	20	321541	SPINDLE	1	FOR PAN (120V)
21	320228	SEAL PLATE	1		
22	320227	PACKING GLAND	1		
23	994192	HEX. SOCKET HD. BOLT (W/FLANGE) M5 X 16	4		
24	949760	HEX. SOCKET HD. BOLT M8 X 25 (10 PCS.)	1		
*	25	338292	WHEEL GUARD ASS'Y	1	INCLUD.24
*	25	338294	WHEEL GUARD ASS'Y	1	INCLUD.24 FOR PAN (120V)
26	937907Z	WHEEL WASHER (C)	1		
*	27	937909Z	WHEEL NUT M14 X 2	1	
*	27	937923P	WHEEL NUT 5/8"-11UNC	1	FOR PAN (120V)
28	306890	LOCK PIN	1		
29	330688	GEAR AND PINION SET	1		
*	30	340888C	STATOR 110V	1	
*	30	340888D	STATOR 120V-127V	1	
*	30	340888E	STATOR 220V-230V	1	
*	30	340888F	STATOR 240V	1	
31	330029	DUST SEAL	1		
32	6000VV	BALL BEARING 6000VVCMP2L	1		
33	337643	HOUSING	1		
34	337646	BRUSH HOLDER	2		
35	984750	TAPPING SCREW (W/FLANGE) D4 X 16	3		
*	36	999059	CARBON BRUSH (1 PAIR)	2	
*	36	999059	CARBON BRUSH (1 PAIR)	1	FOR BRA,CHN
*	36	999093	CARBON BRUSH (AUTO STOP TYPE) (1 PAIR)	1	FOR BRA,CHN
37	337649	BRUSH COVER	2		
38	305812	TAPPING SCREW (W/FLANGE) D4 X 16 (BLACK)	6		
39		NAME PLATE	1		

PARTS

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
*	40	320239	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	OFF/ON LOCK
*	40	320238	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	OFF/LOCK
*	40	338295	SWITCH (2P PILLAR TYPE) W/SAFETY LOCK	1	OFF/LOCK FOR GBR (110V)
*	41	981373	TUBE (D)	2	
*	41	961820	TUBE (D)	2	FOR BRA (127V),GBR (110V)
	42	331336	CORD CLIP	1	
*	43	958049	CORD ARMOR D8.2	1	
*	43	940778	CORD ARMOR D10.7	1	
*	43	337918	CORD ARMOR D11.6	1	
	44	337654	HANDLE (D)	1	
	45	337653	HANDLE (C)	1	
*	46	500492Z	CORD	1	(CORD ARMOR D10.7)
*	46	500493Z	CORD	1	(CORD ARMOR D8.2) FOR VIE,INA,IND, PAN (220V)
*	46	500496Z	CORD	1	(CORD ARMOR D10.7) FOR VIE,PHI,CHN
*	46	500435Z	CORD	1	(CORD ARMOR D8.2) FOR SIN (230V),MAL
*	46	500474Z	CORD	1	(CORD ARMOR D10.7) FOR SIN (110V)
*	46	500497Z	CORD	1	(CORD ARMOR D10.7) FOR NZL
*	46	500494Z	CORD	1	(CORD ARMOR D10.7) FOR GBR (230V)
*	46	500495Z	CORD	1	(CORD ARMOR D11.6) FOR GBR (110V)
*	46	500453Z	CORD	1	(CORD ARMOR D10.7) FOR PAN (120V)
*	46	500487Z	CORD	1	(CORD ARMOR D8.2) FOR BRA (220V)
*	46	500498Z	CORD	1	(CORD ARMOR D11.6) FOR BRA (127V)



**STANDARD ACCESSORIES**

G 23SW2

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
501	325491	WRENCH	1	
502	872422	HEX. BAR WRENCH 6MM	1	
503	333932	CASE	1	
* 504		DIAMOND CUTTER 230MM-D22.2 HOLE	1	FOR EUROPE,RUS SUPPLIED WITH ITEM NO.601

**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 601	994275	DIAMOND WHEEL (SEGMENT) 230MM-D22.2 HOLE	1	FOR EUROPE,RUS
602	316825	D. C. WHEELS 230MM A24R (25 PCS.)	1	
603	310337	SUPER WASHER	1	
604	323993	PIPE HANDLE SET	1	INCLUD.605
605	985597	BOLT M14	2	
606	332797	WHEEL GUARD (FOR CUTTING)	1	