

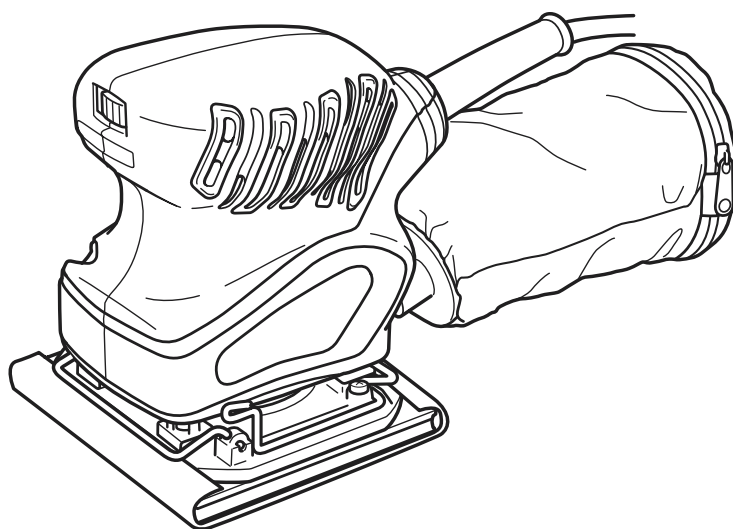
MODEL

**SV 12SG**

# Hitachi Power Tools

**ORBITAL SANDER  
SV 12SG**

**TECHNICAL DATA  
AND  
SERVICE MANUAL**



LIST No. 0353

Jun. 2004

**S**

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
C	MAKITA	B04552/B04553



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## 1. PRODUCT NAME

Hitachi Orbital Sander, Model SV 12SG

## 2. MARKETING OBJECTIVE

The Model SV 12SF orbital sander has been on the market for 9 years. To meet a demand for a remodeled, we now offer totally renewed design for increased competitiveness and expanded sale. The Model SV 12SG has been developed to upgrade and replace the current Models SV 8SA, SV 12SA and SV 12SF.

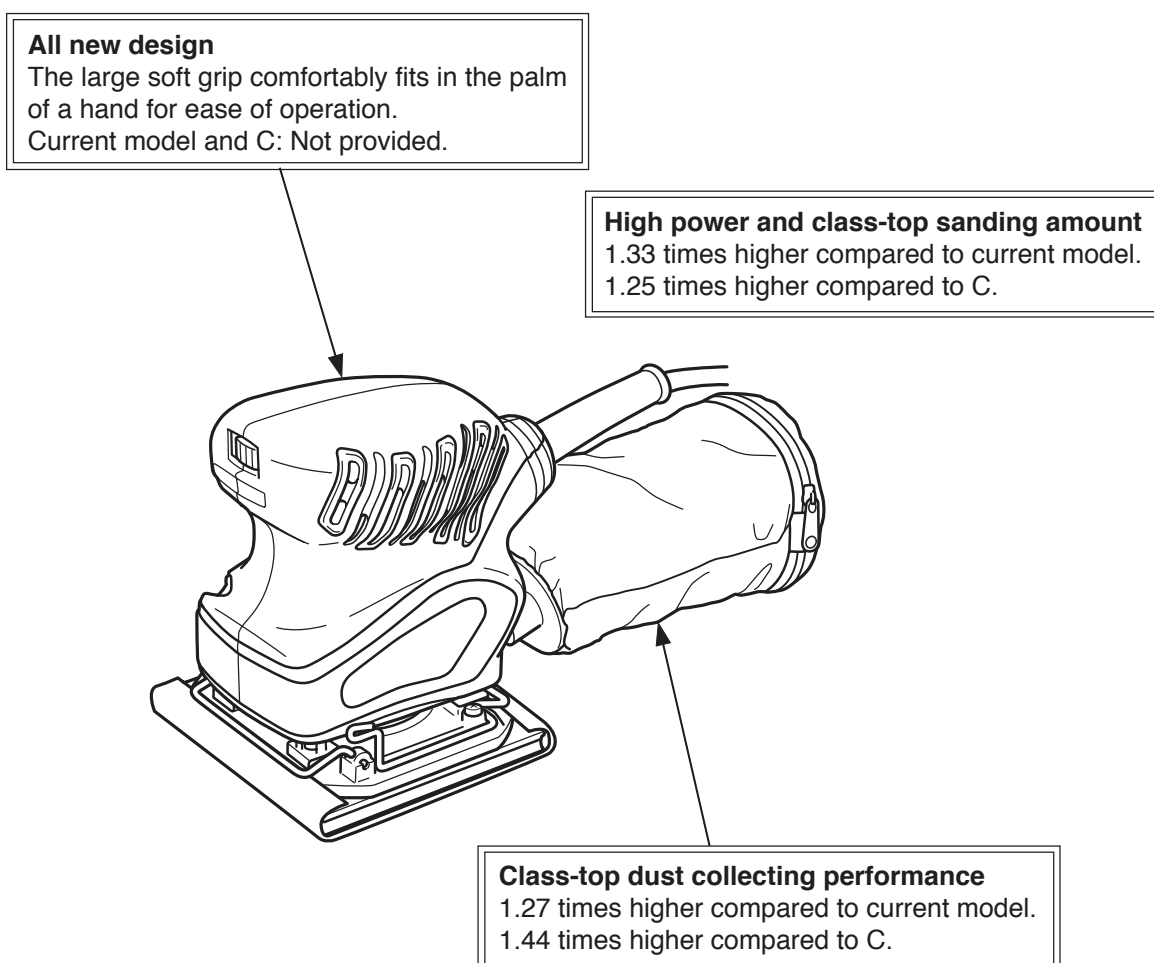
The key features of the Model SV 12SG are as follows:

- (1) High power and class-top sanding amount
- (2) Class-top dust collecting performance
- (3) All new design. The large soft grip comfortably fits in the palm of a hand for ease of operation.

## 3. APPLICATIONS

- Finish polishing of woodwork surface
- Sanding surface of woodwork or sheet metal prior to painting, etc.

## 4. SELLING POINTS



#### 4-1. Selling Point Descriptions

##### (1) High power and class-top sanding amount

Maker	Model	Sanding amount	Sanding ratio
HITACHI	SV 12SG	20 g	100
	SV 12SF	15 g	75
C		16 g	80

Maker	Model	Rated input	Rated input ratio
HITACHI	SV 12SG	200 W (120 V, 1.7 A)	100 (100)
	SV 12SF	200 W (115 V, 1.4 A)	100 (82)
C		160 W (115 V, 1.6 A)	80 (94)

Maker	Model	Maximum output	Maximum output ratio
HITACHI	SV 12SG	101 W	100
	SV 12SF	90 W	89
C		92 W	91

##### (2) Class-top dust collecting performance

Maker	Model	Percentage of dust collection	Dust collection ratio
HITACHI	SV 12SG	56 %	100
	SV 12SF	44 %	79
C		39 %	70

\* Testing conditions for measurement of the sanding amount and the percentage of dust collection

Workpiece: Lauan

Pressing load: 29.4 N (3 kgf)

Sanding time: 15 minutes

Sanding paper: WA100

##### (3) All new design. The large soft grip comfortably fits in the palm of a hand for ease of operation.

The Model SV 12SG has a large soft grip that comfortably fits in the palm of a hand (double molded housing with elastomer). It is easier to operate than the current model and C.

## 5. SPECIFICATIONS

### 5-1. Specifications

Item		Specifications				
Sanding paper size		114 mm x 140 mm (4-1/2" x 5-1/2")				
Sanding pad size		110 mm x 100 mm (4-3/8" x 4")				
Orbital diameter		1.5 mm (1/16")				
Power source		AC single phase 50 Hz or 60 Hz				
Voltage, current and power input		110 V	120 V	220 V	230 V	240 V
		1.9 A	1.7 A	0.95 A	0.91 A	0.87 A
		200 W				
Type of motor		AC single phase commutator motor				
Enclosure		<ul style="list-style-type: none"> <li>• Housing ..... Glassfiber reinforced polycarbonate (green) and elastomer (black)</li> <li>• Base ..... Glassfiber reinforced polycarbonate (black)</li> </ul>				
Type of switch		Slide switch				
No-load speed		14,000/min.				
Weight	Net*(excludes cord)	1.1 kg (2.4 lbs.)				
	Gross	1.6 kg (3.5 lbs.)				
Packaging		Corrugated cardboard box				
* Standard accessories		<ul style="list-style-type: none"> <li>• Sanding paper ..... 1</li> <li>• Dust bag ..... 1</li> </ul>				

\*: Depends on the market.

## 6. COMPARISONS WITH SIMILAR PRODUCTS

Item			HITACHI		C
			SV 12SG	SV 12SF	
Name plate and catalog specifications	Sanding paper size	mm	114 x 140 (4-1/2" x 5-1/2")	114 x 140 (4-1/2" x 5-1/2")	115 x 140 (4-1/2" x 5-1/2")
	Sanding pad size	mm	110 x 100 (4-3/8" x 4")	110 x 100 (4-3/8" x 4")	116 x 104 (4-1/2" x 4")
	Orbital diameter	mm	1.5 (1/16")	1.5 (1/16")	1.5 (1/16")
	Power input	W	200 (120 V, 1.7 A)	200 (115 V, 1.4 A)	160 (115 V, 1.6 A)
	No-load noise level	/min	14,000	14,000	14,000
	Weight (excludes cord)	kg	1.1 (2.4 lbs.)	1.1 (2.4 lbs.)	0.95 (2.1 lbs.)
Max. output *1		W	101	90	92
No-load noise level *1		dB	79	84	83
No-load vibration level *1		dB	114	125	119
Overall height		mm	137 (5-3/8")	139 (5-1/2")	137 (5-3/8")
Soft-touch grip			Provided	Not provided	Not provided
Standard accessories *1			Sanding paper (1 pc.) Dust bag (1 pc.)	Sanding paper (1 pc.) Dust bag (1 pc.)	Sanding paper (6 pcs.) Dust bag (1 pc.) Punch plate (1 pc.)

\*1: Depends on the market.

## 7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Model SV 12SG Orbital Sander 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 nameplate 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 tool cannot be completely eliminated. Accordingly, general precautions and suggestions for the use of the hand shear are listed in the Handling Instructions to enhance the safe, 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.

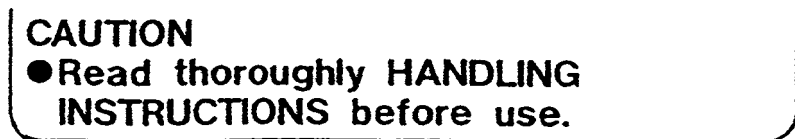
### 7-2. Precautions on Nameplate

Each Model SV 12SG is provided with a nameplate which lists basic safety precautions (illustrated below) in its use. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

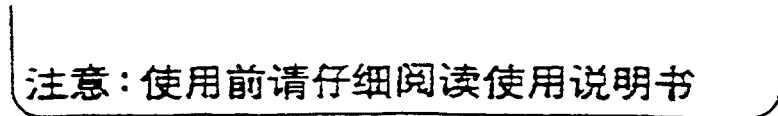
(1) For the U. S. A. and Canada



(2) For New Zealand and Australia



(3) For China





## 8. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

### 8-1. Disassembly

#### (1) Removal of the Armature [25] and the Stator [22]

- ① Remove the four Machine Screws M4 x 10 [18], and remove the surrounding parts such as the Pad [17], Base [16] and Felt [34].
- ② Remove the two Tapping Screws (W/Flange) D4 x 16 [33], and remove the Fan Guide [32].
- ③ Keeping a screwdriver inserted into the clearance of the Balance Fan [27], remove the Seal Lock Flat Hd. Screw M4 x 12 [31]. Remove the Washer [30], Ball Bearing 6001DDCMPS2L [29], Dust Washer [28] and Balance Fan [27].
- ④ Remove the four Tapping Screws (W/Flange) D4 x 20 (Black) [2], and remove Housing (A).(B) Set [3].
- ⑤ Remove the Carbon Brush [13] together with the Brush Holder [12]. Lift the Stator [22] and pull out the Armature [25].
- ⑥ After pulling out the Armature [25], disconnect the Internal Wire (Brown) [5], Internal Wire (Blue) [24], Tab Terminal (Blue) [6] and Tab Terminal (Brown) [23] from the terminals of the Stator [22]. Then pull out the Stator [22].

### 8-2. Reassembly

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

#### (1) Assembly of the Dust Washer [28]

Be sure to mount the Dust Washer [28] in correct direction as shown in Fig. 1. Otherwise, the Ball Bearing 6001DDCMPS2L [29] can be damaged at an early stage.

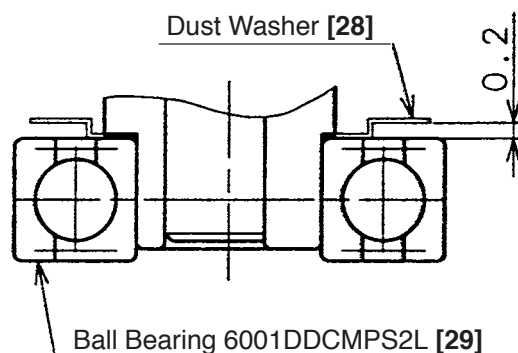


Fig. 1

## (2) Wiring the Stator [22]

When wiring the Stator [22], be sure to insert each terminal in correct direction as shown in Fig. 2. At this time, securely insert each terminal as far as it will go.

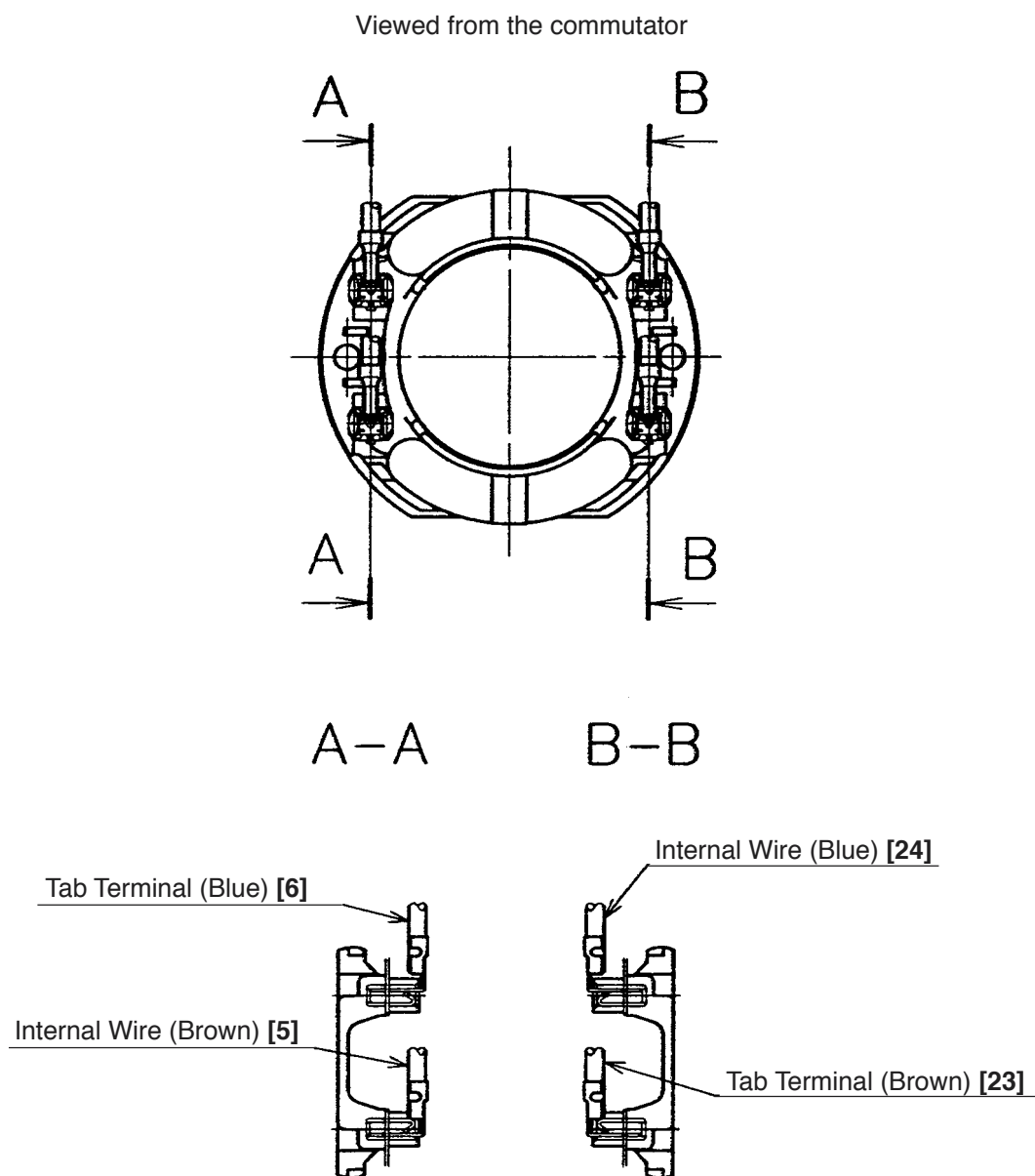


Fig. 2

## 8-3. Tightening Torques

(1) Tapping Screw (W/Flange) D4 x 20 (Black) [2] .....	2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)
(2) Tapping Screws (W/Flange) D4 x 16 [7] [33] .....	2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)
(3) Tapping Screw (W/Flange) D4 x 10 (Black) [15] .....	2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)
(4) Machine Screw M4 x 10 [18] .....	1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.)
(5) Seal Lock Flat Hd. Screw M4 x 12 [31] .....	1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.)

8-4. Wiring Diagram

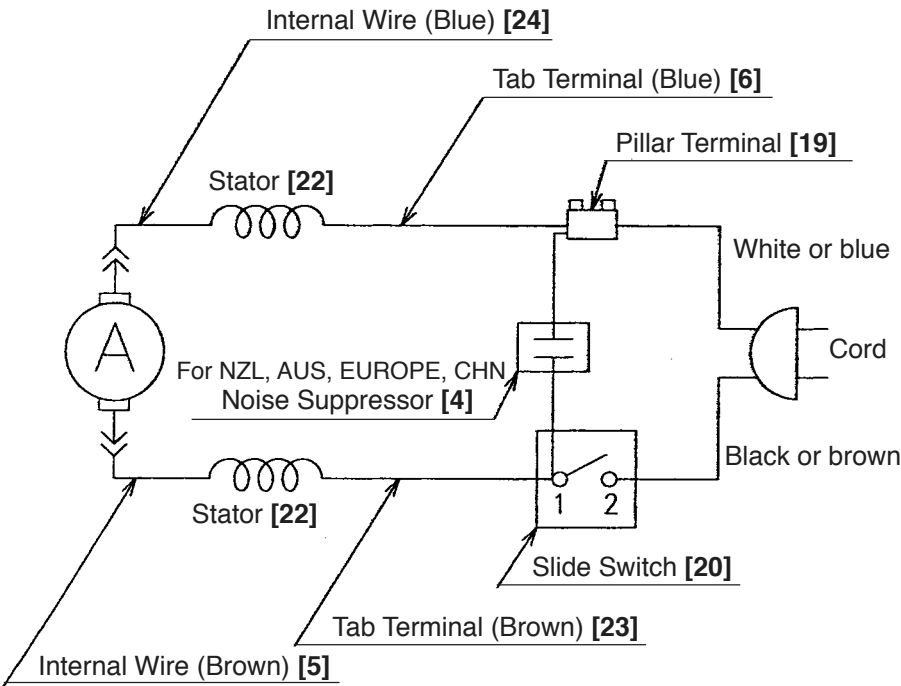


Fig. 3

8-5. Insulation Tests

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

Insulation resistance: 7 M  $\Omega$  or more with DC 500 V megohm tester

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities ..... 220 V – 240 V  
AC 2,500 V/1 minute, with no abnormalities ..... 110 V – 127 V

8-6. No-load Current Value

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

Voltage (V)	110 V	120 V	220 V	230 V	240 V
Current (A) max.	1.50	1.45	0.75		

9. STANDARD REPAIR TIME (UNIT) SCHEDULES

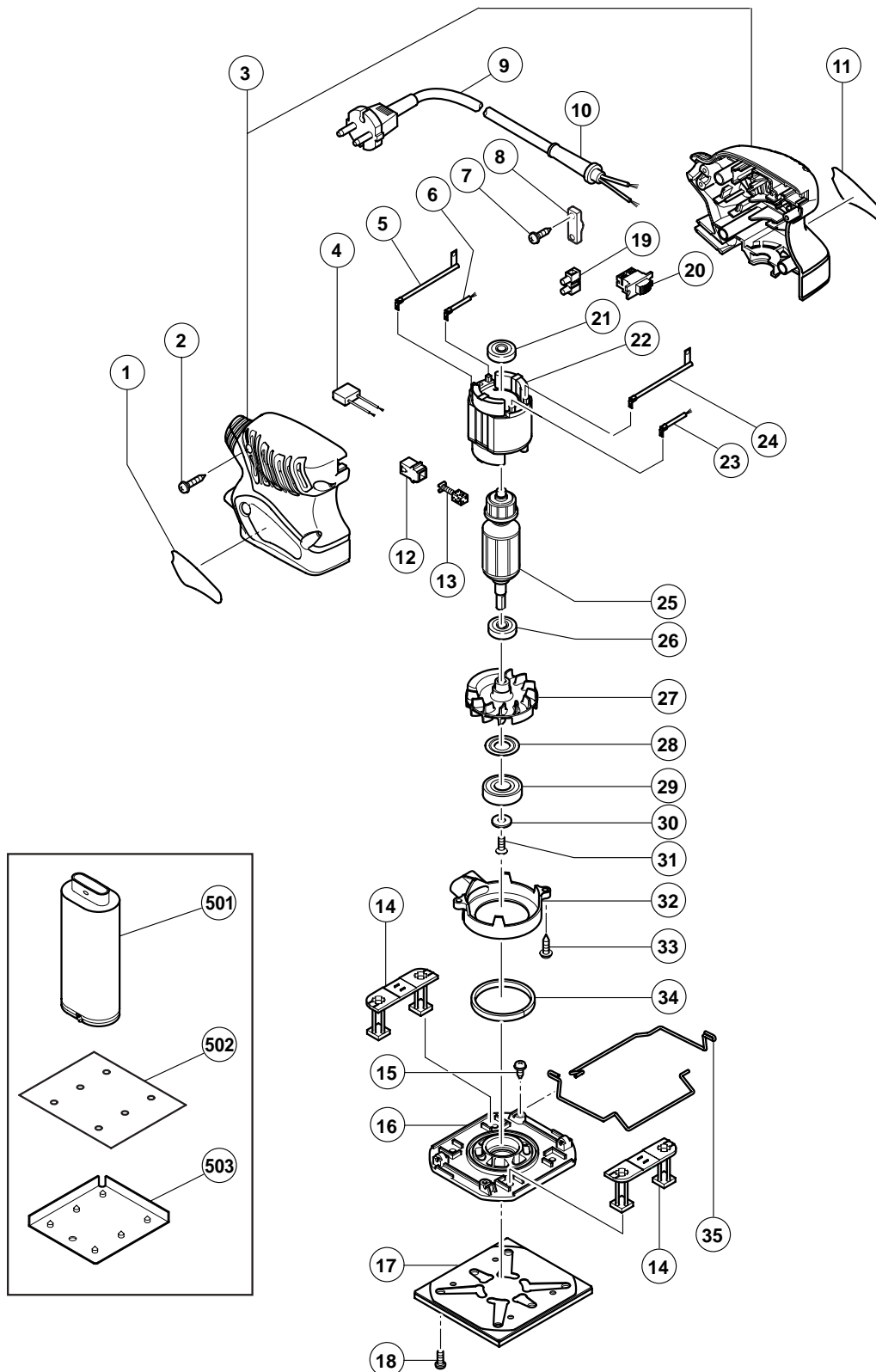
MODEL	Fixed	Variable	10	20	30	40	50	60 min.
SV 12SG	General Assembly	Work Flow						
				Slide Switch Cord Cord Armor				
				Housing (A).(B) Set Stator				
				Ball Bearing 626VV Ball Bearing 629VV Balance Fan Fan Guide	Armature			
				Leg x 2				
		Paper Clip x 2		Base Ball Bearing 6001DD				

## ELECTRIC TOOL PARTS LIST

### ■ ORBITAL SANDER Model SV 12SG

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(E1)



# PARTS

SV 12SG

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1		NAME PLATE	1		
2	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	4		
3	322-766	HOUSING (A).(B) SET	1		
* 4	930-039	NOISE SUPPRESSOR	1	FOR NZL, AUS, GBR, EUROPE, NOR, SUI, CHN	
5	322-764	INTERNAL WIRE (BROWN)	1		
6	322-761	TAB TERMINAL (BLUE)	1		
7	984-750	TAPPING SCREW (W/FLANGE) D4X16	2		
8	937-631	CORD CLIP	1		
* 9	500-409Z	CORD	1	(CORD ARMOR D8.8)	
* 9	500-439Z	CORD	1	(CORD ARMOR D8.8) FOR NZL, AUS	
* 9	500-423Z	CORD	1	(CORD ARMOR D8.8) FOR SIN	
* 9	500-240Z	CORD	1	(CORD ARMOR D8.8) FOR USA, CAN	
* 9	500-435Z	CORD	1	(CORD ARMOR D8.8) FOR HKG, GBR (230V)	
* 9	500-461Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)	
* 9	500-447Z	CORD	1	(CORD ARMOR D8.8) FOR SUI	
* 9	500-468Z	CORD	1	(CORD ARMOR D8.8) FOR CHN	
10	953-327	CORD ARMOR D8.8	1		
11		HITACHI LABEL	1		
12	930-483	BRUSH HOLDER	2		
13	999-041	CARBON BRUSH (1 PAIR)	2		
14	322-756	LEG	2		
15	311-945	TAPPING SCREW (W/FLANGE) D4X10 (BLACK)	2		
16	322-759	BASE	1		
* 17	310-354	FELT PAD (PERFORATED)	1		
* 17	310-355	PAD (PRESSURE SENSITIVE TYPE, PERFORATED)	1	FOR FRA, BEL, SUI	
* 17	311-978	PAD (QUICK STICK TYPE, PERFORATED)	1	FOR USA, CAN	
18	949-216	MACHINE SCREW M4X10 (10 PCS.)	4		
19	938-307	PILLAR TERMINAL	1		
20	311-948	SLIDE SWITCH (1P SCREW TYPE)	1		
21	626-VVM	BALL BEARING 626VVC2PS2L	1		
* 22	340-578C	STATOR 110V	1		
* 22	340-578D	STATOR 120V	1		
* 22	340-578E	STATOR 220V-230V	1		
* 22	340-578F	STATOR 240V	1		
23	322-762	TAB TERMINAL (BROWN)	1		
24	322-763	INTERNAL WIRE (BLUE)	1		
* 25	360-637C	ARMATURE 110V	1		
* 25	360-637U	ARMATURE ASS'Y 120V	1	INCLUD. 21, 26	
* 25	360-637E	ARMATURE 220V-230V	1		
* 25	360-637F	ARMATURE 240V	1		
26	629-VVM	BALL BEARING 629VVC2PS2L	1		
27	322-757	BALANCE FAN	1		
28	993-052	DUST WASHER	1		
29	600-1DD	BALL BEARING 6001DDCMPS2L	1		
30	987-169	WASHER	1		
31	993-244	SEAL LOCK FLAT HD. SCREW M4X12	1		
32	322-758	FAN GUIDE	1		
33	984-750	TAPPING SCREW (W/FLANGE) D4X16	2		
34	311-946	FELT	1		
35	322-760	PAPER CLIP	2		

## SV 12SG

[illegible]

## OPTIONAL ACCESSORIES

[illegible]





