

MODELS

SV 13YA

SV 13YB

Hitachi

Power Tools

RANDOM ORBIT SANDER

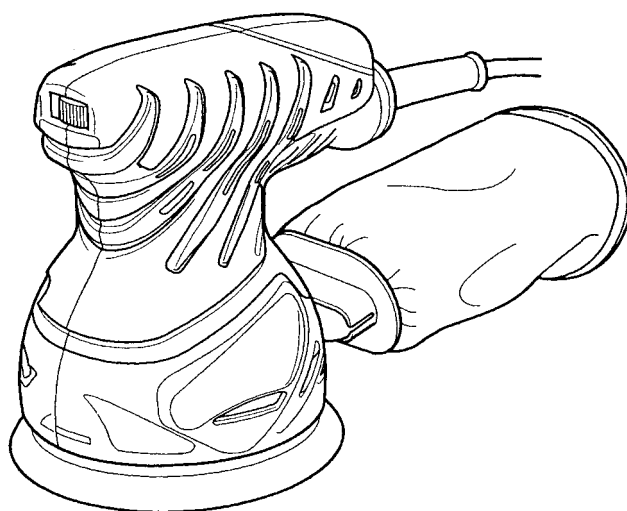
SV 13YA

SV 13YB

TECHNICAL DATA

AND

SERVICE MANUAL



LIST Nos. SV 13YA: 0356
SV 13YB: 0355

Jun. 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
A1	DEWALT	DW423K
A2		DW421
B1	PORTER CABLE	333VS
B2		333
C1	MAKITA	BO5012
C2		BO5010

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1. PRODUCT NAME

Hitachi Random Orbit Sander, Model SV 13YA (Variable speed)

Model SV 13YB

2. MARKETING OBJECTIVE

The scale of the random sander market is large. With the introduction of two palm-grip random orbit sanders Model SV 13YA (variable speed type) and the Model SV 13YB (single speed type), we fill out our line of sanders and aim to increase sales.

- (1) High sanding performance
- (2) High 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

- Roughing or finishing of wood work and metal surfaces
- Preliminary sanding of wood work and metal surfaces before painting
- Paint removal
- Rust removal

4. SELLING POINTS

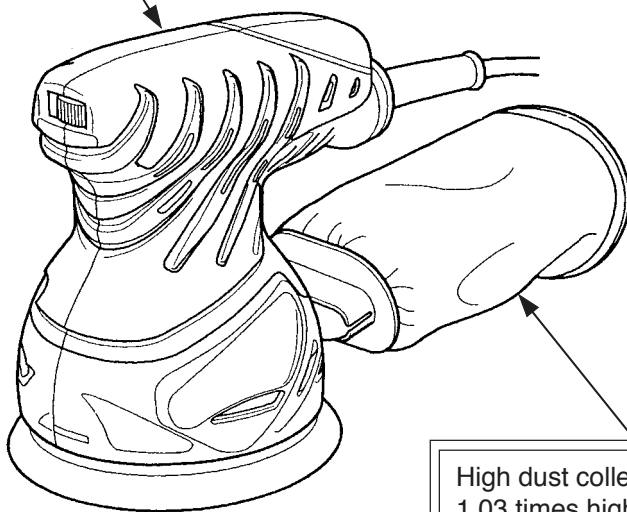
All new design

The large soft grip comfortably fits in the palm of a hand for ease of operation.
A1, A2, B1, B2 and C1: Not provided

Equipped with electronic control devices. (SV 13YA only)
Variable speed control
Stable speed control

High sanding performance

1.43 times higher compared to A1 and A2
1.54 times higher compared to B1 and B2
1.03 times higher compared to C1 and C2



High dust collecting performance
1.03 times higher compared to A1 and A2
2.12 times higher compared to B1 and B2
The same as C1 and C2

4-1. Selling Point Descriptions

(1) High sanding performance

Maker	Model	Sanding amount	Sanding amount
HITACHI	SV 13YA/SV 13YB	80 g	100
A1, A2		56 g	70
B1, B2		52 g	65
C1, C2		77 g	97

(2) High dust collecting performance

Maker	Model	Percentage of dust collection	Dust collection ratio
HITACHI	SV 13YA/SV 13YB	70 %	100
A1, A2		65 %	93
B1, B2		33 %	48
C1, C2		70 %	100

*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: A-P80

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

The Models SV 13YA and SV 13YB have a large soft grip that comfortably fits in the palm of a hand (double molded housing with elastomer). C1 has a small soft grip. It is easier to operate than A1, A2, B1, B2, C1 and C2.

5. SPECIFICATIONS

5-1. Specifications

Item		SV 13YA					SV 13YB				
Sanding paper size (outer diameter)		125 mm (5")									
Sanding pad size (outer diameter)		125 mm (5")									
Orbital diameter		3.2 mm (1/8")									
Power source		AC single phase					AC single phase 50 Hz or 60 Hz				
Voltage, current and power input		110 V 50 Hz	120 V 60 Hz	220 V 50 Hz	230 V 50 Hz	240 V 50 Hz	110 V	120 V	220 V	230 V	240 V
		—	2.4 A	—			2.2 A	2.0 A	1.1 A	1.1 A	1.0 A
		230 W	—	230 W			230 W				
Type of motor		AC single phase commutator motor									
Enclosure		<ul style="list-style-type: none">• HousingGlassfiber reinforced polycarbonate (green) and elastomer (black)• Lower coverGlassfiber reinforced polycarbonate (black)									
Type of switch		Slide switch									
No-load speed		7,000 — 12,000/min					12,000/min				
Weight	Net* (excludes cord)	1.4 kg (3.1 lbs.)									
	Gross	3.1 kg (6.8 lbs.)					1.8 kg (4.0 lbs.)				
Packaging		Plastic case (in corrugated cardboard sleeve)					Corrugated cardboard box				
* Standard accessories		<ul style="list-style-type: none">• Sanding paper 1• Dust bag 1									

* : Depends on the market.

6. COMPARISONS WITH SIMILAR PRODUCTS

Maker · Model Item			HITACHI		A1	A2	B1	B2	C1	C2
			SV 13YA	SV 13YB						
Name plate and catalog specifications	Sanding paper size (outer diameter)	mm	125 (5")		125 (5")		125 (5")		125 (5")	
	Sanding pad size (outer diameter)	mm	125 (5")		125 (5")		125 (5")		125 (5")	
	Orbital diameter	mm	3.2 (1/8")		2.4 (3/32")		2.4 (3/32")		3.2 (1/8")	
	Power input (120 V)	W	— (2.4 A)	230 (2.0 A)	— (2.0 A)	— (2.0 A)	— (2.4 A)	— (2.4 A)	— (2.0 A)	— (2.0 A)
	No-load speed	/min.	7,000 — 12,000	12,000	7,000 — 12,000	12,000	5,000 — 12,000	12,000	4,000 — 12,000	12,000
	Weight (excludes cord)	kg	1.4 (3.1 lbs.)	1.4 (3.1 lbs.)	1.5 (3.3 lbs.)	1.4 (3.1 lbs.)	1.5 (3.3 lbs.)	1.4 (3.1 lbs.)	1.3 (2.9 lbs.)	1.2 (2.7 lbs.)
Max. output *1		W	154	119	103		—		109	
No-load noise level *1		dB	79		79		78		79	
No-load vibration level *1		dB	122		124		123		123	
Overall height		mm	145 (5-11/16")		152 (6")	140 (5-1/2")	165 (6-1/2")	161 (6-5/16")	146 (5-12/16")	145 (5-11/16")
Soft-touch grip			Provided		Not provided		Not provided		Provided (small)	Not provided
Standard accessories *1			Sanding paper (1 pc.) Dust bag (1 pc.)		Dust bag (1 pc.) Brake (1 pc.)		Sanding paper (1 pc.) Dust bag (1 pc.)		Sanding paper (1 pc.) Dust bag (1 pc.)	

7. PRECAUTIONS IN SALES PROMOTION

In the interest of promoting the safest and most efficient use of the Models SV 13YA and SV 13YB Random Orbit Sanders 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.

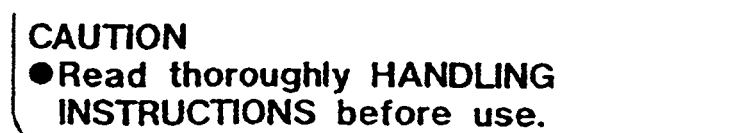
7-2. Precaution on Nameplate

The Models SV 13YA and SV 13YB are provided with a nameplate which lists basic precautions (illustrated below) in the use each. Carefully ensure that the customer fully understands and follows these precautions before using the tool.

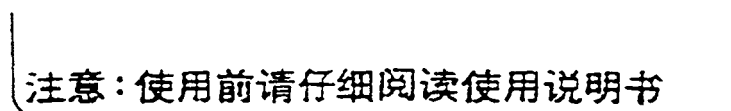
(1) For the U.S.A. and Canada



(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 numbers in the parts List and the exploded assembly diagram for the Model SV 13YA, and the **<Bold>** numbers to those in the Parts list and the exploded assembly diagram for the Model SV 13YB.

8-1. Disassembly

(1) Removal of the Armature [24] <23> and the Stator [23] <22>

- ① Remove the three Seal Lock Screws (W/Washers) M4 x 16 (Black) [35] <34> and remove the surrounding parts such as the Pad (Pressure Sensitive Type) [34] <33>, Bearing Cover [33] <32> and Brake [32] <31>.
- ② Remove the two Tapping Screws (W/Flange) D4 x 20 (Black) [2] <2> and remove Lower Cover (A) [13] <12>, Lower Cover (B) [4] <4> and O-ring [3] <3>. The acuminate driver etc. are inserted between the O-ring [3] <3> and the groove of the housing and the O-ring [3] <3> is detached.
- ③ Remove Seal Lock Flat Hd. Screw M4 x 12 [31] <30> while suppressing Balance Fan [26] <25> by the hand so that Balance Fan [26] <25> should not rotate. Remove the Washer [30] <29>, Ball Bearing 6002DDWCMP2L [29] <28>, Bearing Holder [28] <27>, Dust Washer [27] <26> and Balance Fan [26] <25>.
- ④ Remove the five Tapping Screws (W/Flange) D4 x 20 (Black) [2] <2>, and remove Housing (A).(B) Set [1] <1>.
- ⑤ Remove the Carbon Brush (1 Pair) [22] <21> together with the Brush Holder [21] <20>. Lift the Stator [23] <22> and pull out the Armature [24] <23>.
- ⑥ After pulling out the Armature [24] <23>, disconnect the Internal Wire (Brown) [16] <15>, Internal Wire (Blue) [19] <18>, Tab Terminal (Blue) [17] <16>, Tab Terminal (Brown) [20] <19> from the terminals of the Stator [23] <22>. Then pull out the Stator [23] <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 [27] <26>

Be sure to mount the Dust Washer [27] <26> in correct direction as shown in Fig. 1. Otherwise, the Ball Bearing 6002DDWCMP2L [29] <28> can be damaged at an early stage.

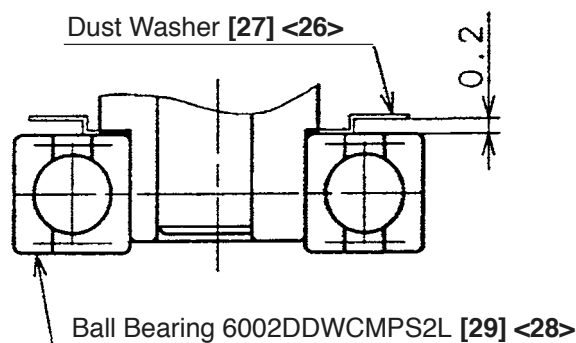


Fig. 1

(2) Wiring the Stator [23] <22>

When wiring the Stator [23] <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.

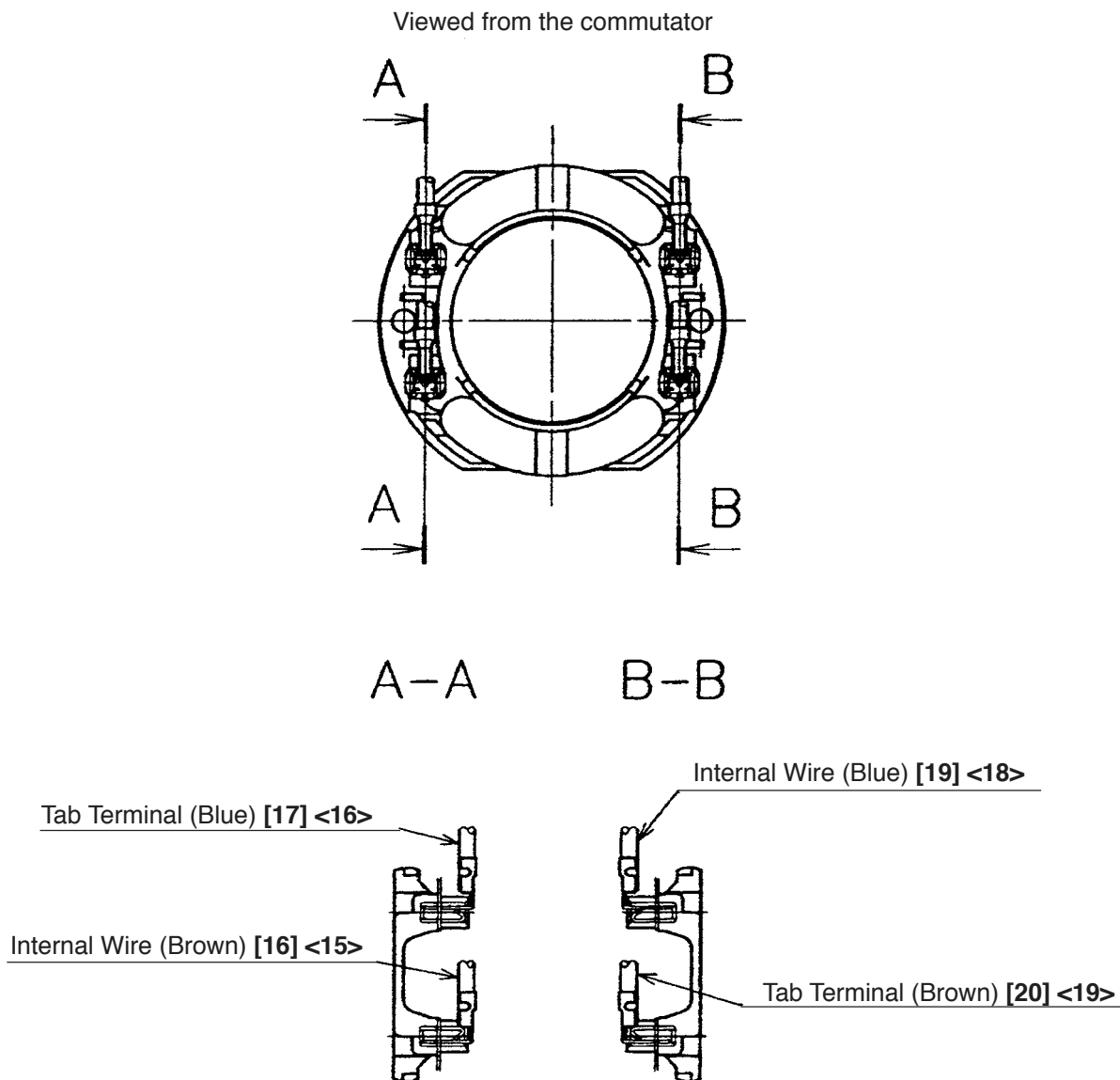


Fig. 2

8-3. Tightening Torque

- | | |
|--|--|
| (1) Tapping Screw (W/Flange) D4 x 20 (Black) [2] <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] <6> | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.) |
| (3) Seal Lock Flat Hd. Screw M4 x 12 [31] <30> | 1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.) |
| (4) Seal Lock Screw (W/Washers) M4 x 16 (Black) [35] <34> | 1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.) |

8-4. Wiring Diagram

(1) Model SV 13YA

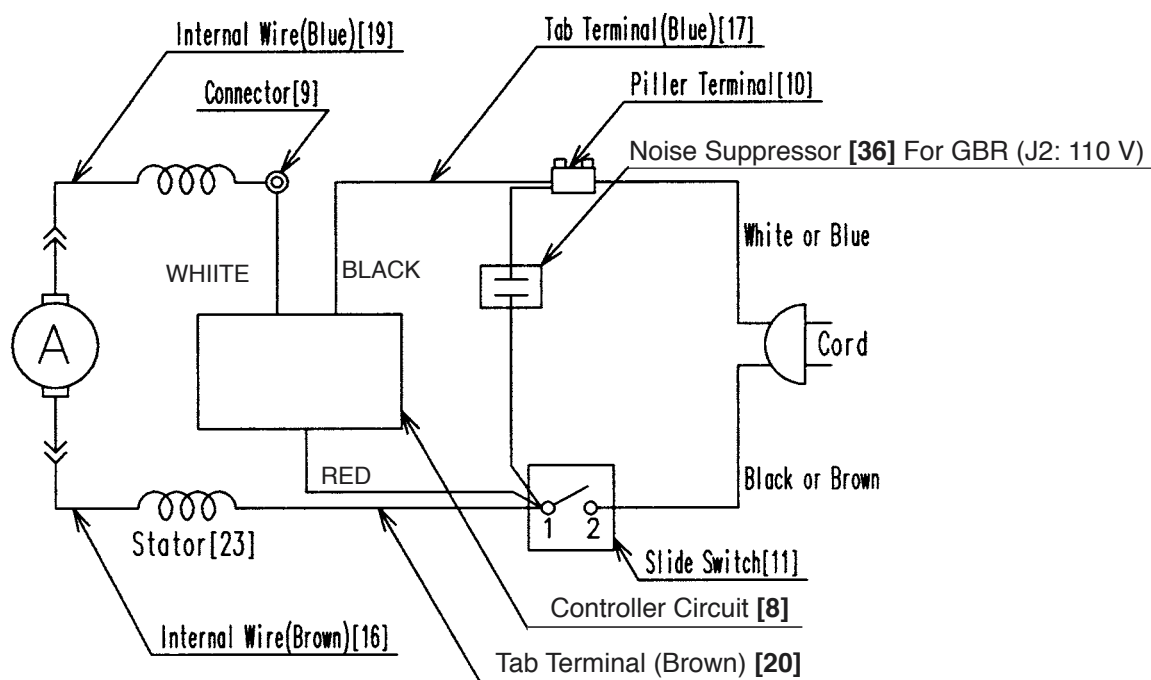


Fig. 3

(2) Model SV 13YB

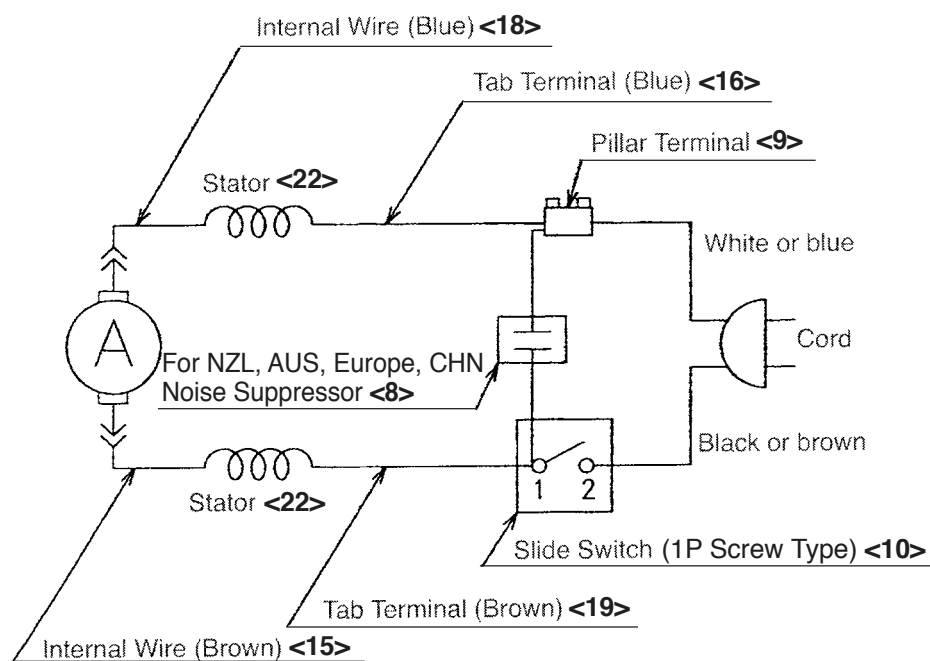


Fig. 4

8-5. Insulation Tests

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

Insulation resistance: 7 M Ω or more with DC 500V 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.	SV 13YA	2.5	2.3	1.3		1.2
	SV 13YB	2.0	1.8	1.0		0.9

9. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
SV 13YA		Work Flow						
SV 13YB								

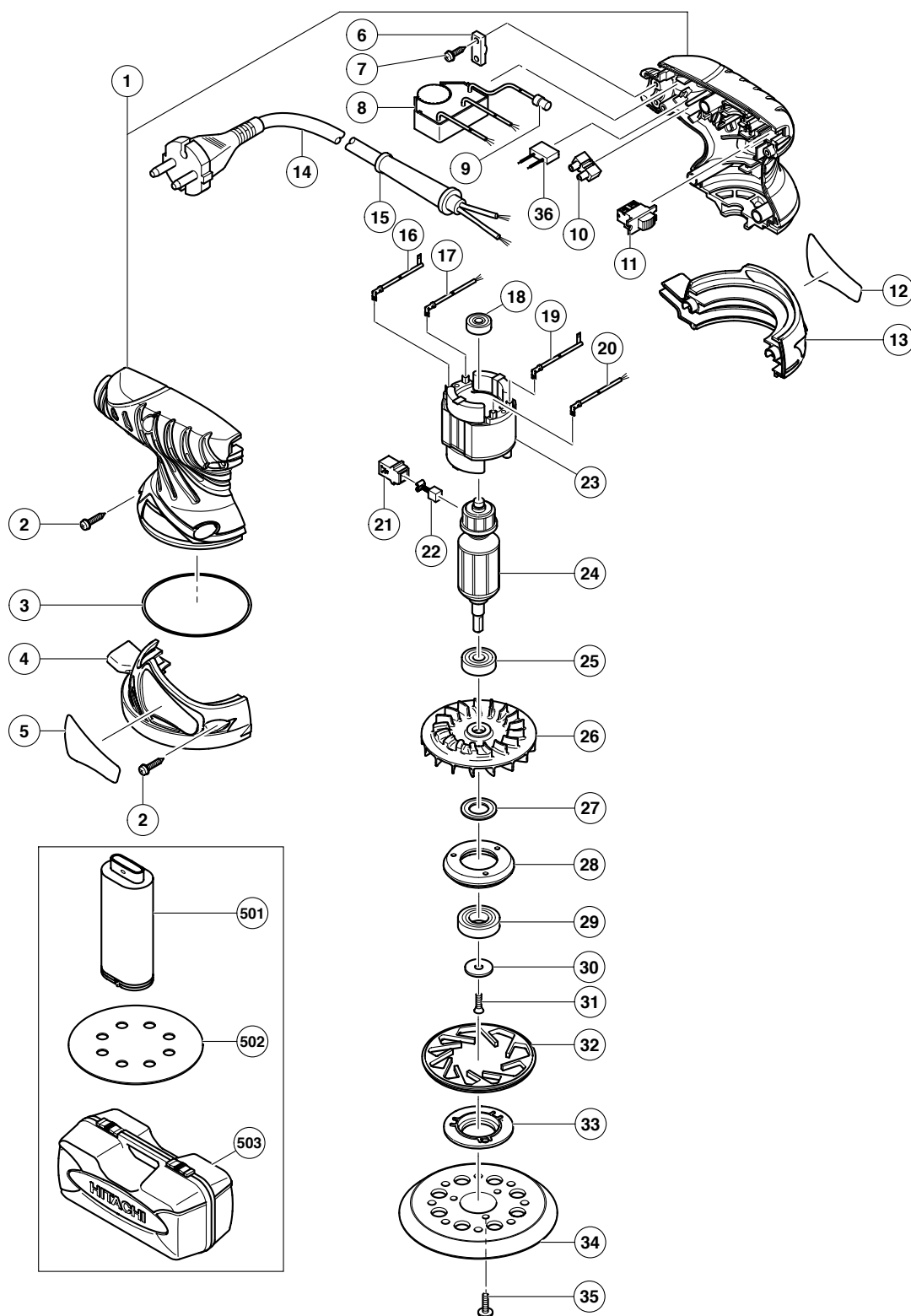
ELECTRIC TOOL PARTS LIST

■ RANDOM ORBIT SANDER

2005 · 6 · 15

Model SV 13YA

(E1)



PARTS

SV 13YA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	324-249	HOUSING (A).(B) SET	1		
2	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	7		
3	993-195	O-RING	1		
4	324-207	LOWER COVER (B)	1		
5		NAME PLATE	1		
6	937-631	CORD CLIP	1		
7	984-750	TAPPING SCREW (W/FLANGE) D4X16	2		
* 8	324-245	CONTROLLER CIRCUIT 110V	1	FOR GBR (110V)	
* 8	324-246	CONTROLLER CIRCUIT 120V	1	FOR USA, CAN	
* 8	324-248	CONTROLLER CIRCUIT 220V	1	FOR CHN	
* 8	324-244	CONTROLLER CIRCUIT 230V	1		
* 8	324-247	CONTROLLER CIRCUIT 240V	1	FOR AUS	
9	959-140	CONNECTOR 50091 (10 PCS.)	1		
10	938-307	PILLAR TERMINAL	1		
11	311-948	SLIDE SWITCH (1P SCREW TYPE)	1		
12		HITACHI LABEL	1		
13	324-206	LOWER COVER (A)	1		
* 14	500-409Z	CORD	1	(CORD ARMOR D8.8)	
* 14	500-461Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (110V)	
* 14	500-435Z	CORD	1	(CORD ARMOR D8.8) FOR GBR (230V)	
* 14	500-447Z	CORD	1	(CORD ARMOR D8.8) FOR SUI	
* 14	500-240Z	CORD	1	(CORD ARMOR D8.8) FOR USA, CAN	
* 14	500-439Z	CORD	1	(CORD ARMOR D8.8) FOR AUS, NZL	
* 14	500-468Z	CORD	1	(CORD ARMOR D8.8) FOR CHN	
15	953-327	CORD ARMOR D8.8	1		
16	322-764	INTERNAL WIRE (BROWN)	1		
17	322-761	TAB TERMINAL (BLUE)	1		
18	626-VVM	BALL BEARING 626VVC2PS2L	1		
19	322-763	INTERNAL WIRE (BLUE)	1		
20	322-762	TAB TERMINAL (BROWN)	1		
21	930-483	BRUSH HOLDER	2		
22	999-041	CARBON BRUSH (1 PAIR)	2		
* 23	340-616C	STATOR 110V	1		
* 23	340-616D	STATOR 120V	1		
* 23	340-616E	STATOR 220V-230V	1		
* 23	340-616F	STATOR 240V	1		
* 24	360-696C	ARMATURE 110V	1		
24	360-696U	ARMATURE ASS'Y 120V	1	INCLUD. 17, 24	
* 24	360-696E	ARMATURE 220V-230V	1		
* 24	360-696F	ARMATURE 240V	1		
25	629-VVM	BALL BEARING 629VVC2PS2L	1		
26	324-521	BALANCE FAN	1		
27	324-208	DUST WASHER	1		
28	324-212	BEARING HOLDER	1		
29	600-2DW	BALL BEARING 6002DDWCMP2L	1		
30	309-422	WASHER	1		
31	993-244	SEAL LOCK FLAT HD. SCREW M4X12	1		
32	324-210	BRAKE	1		
33	324-211	BEARING COVER	1		
34	324-209	PAD (PRESSURE SENSITIVE TYPE)	1		
35	307-109	SEAL LOCK SCREW (W/WASHERS) M4X16 (BLACK)	3		

PARTS

SV 13YA

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STANDARD ACCESSORIES

SV 13YA

[illegible]

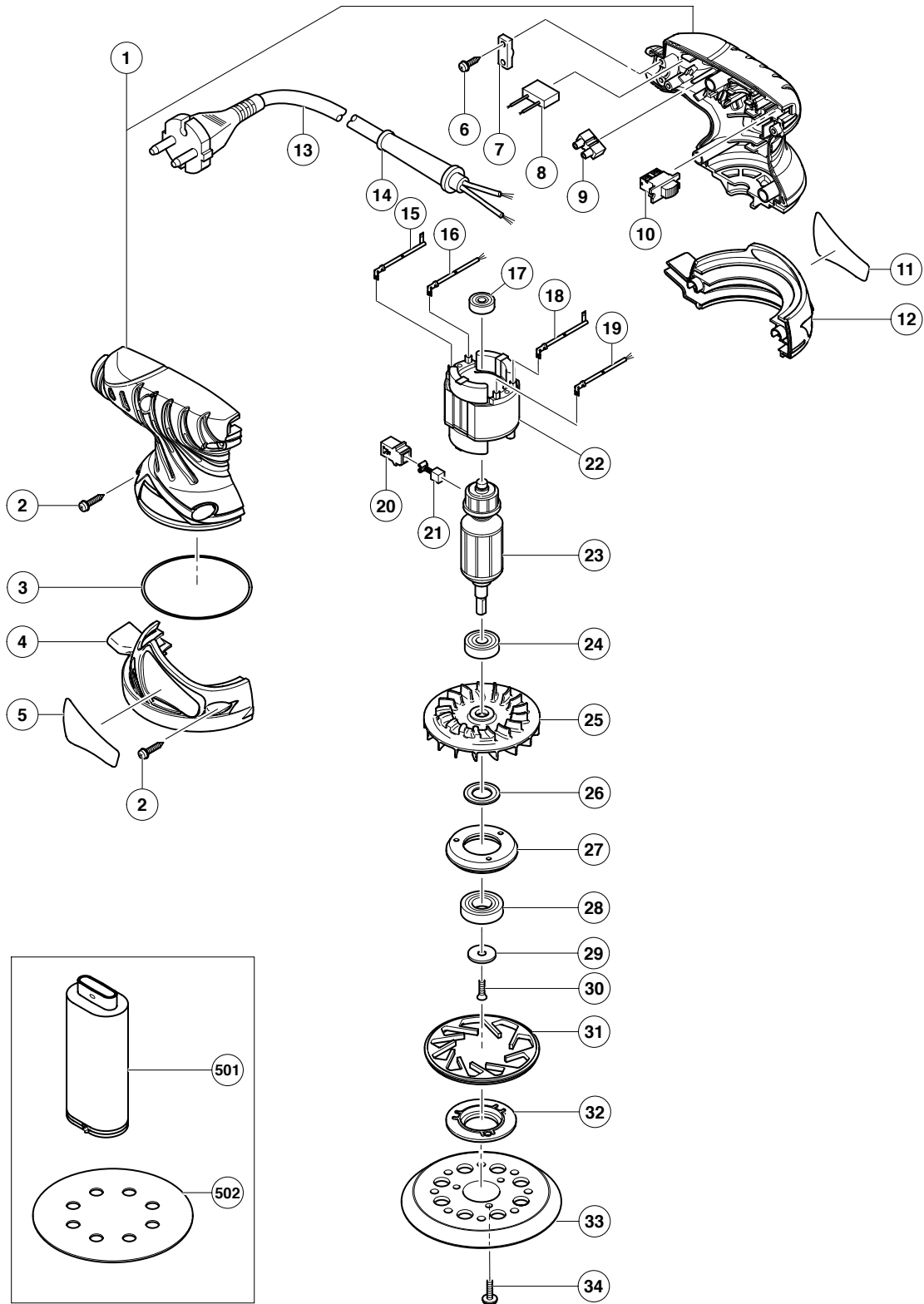
OPTIONAL ACCESSORIES

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ELECTRIC TOOL PARTS LIST

■ RANDOM ORBIT SANDER Model SV 13YB

2005 · 6 · 1
(E1)



PARTS

SV 13YB

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	324-214	HOUSING (A).(B) SET	1		
2	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	7		
3	993-195	O-RING	1		
4	324-207	LOWER COVER (B)	1		
5		NAME PLATE	1		
6	984-750	TAPPING SCREW (W/FLANGE) D4X16	2		
7	937-631	CORD CLIP	1		
*	8	930-039 NOISE SUPPRESSOR	1	FOR AUS, NZL, GBR, EUROPE, FIN, NOR, SWE, DEN, CHN	
	9	938-307 PILLAR TERMINAL	1		
	10	311-948 SLIDE SWITCH (1P SCREW TYPE)	1		
	11		1	HITACHI LABEL	
	12	324-206 LOWER COVER (A)	1		
*	13	500-409Z CORD	1	(CORD ARMOR D8.8)	
*	13	500-468Z CORD	1	(CORD ARMOR D8.8) FOR THA, CHN	
*	13	500-240Z CORD	1	(CORD ARMOR D8.8) FOR USA, CAN	
*	13	500-423Z CORD	1	(CORD ARMOR D8.8) FOR SIN	
*	13	500-439Z CORD	1	(CORD ARMOR D8.8) FOR AUS, NZL	
*	13	500-461Z CORD	1	(CORD ARMOR D8.8) FOR GBR	
	14	953-327 CORD ARMOR D8.8	1		
	15	322-764 INTERNAL WIRE (BROWN)	1		
	16	322-761 TAB TERMINAL (BLUE)	1		
	17	626-VVM BALL BEARING 626VVC2PS2L	1		
	18	322-763 INTERNAL WIRE (BLUE)	1		
	19	322-762 TAB TERMINAL (BROWN)	1		
	20	930-483 BRUSH HOLDER	2		
	21	999-041 CARBON BRUSH (1 PAIR)	2		
*	22	340-618C STATOR 110V	1		
*	22	340-618D STATOR 120V	1		
*	22	340-618E STATOR 220V-230V	1		
*	22	340-618F STATOR 240V	1		
*	23	360-698C ARMATURE 110V	1		
*	23	360-698U ARMATURE ASS'Y 120V	1	INCLUD. 17, 24	
*	23	360-698E ARMATURE 220V-230V	1		
*	23	360-698F ARMATURE 240V	1		
	24	629-VVM BALL BEARING 629VVC2PS2L	1		
	25	324-521 BALANCE FAN	1		
	26	324-208 DUST WASHER	1		
	27	324-212 BEARING HOLDER	1		
	28	600-2DW BALL BEARING 6002DDWCMP2L	1		
	29	309-422 WASHER	1		
	30	993-244 SEAL LOCK FLAT HD. SCREW M4X12	1		
	31	324-210 BRAKE	1		
	32	324-211 BEARING COVER	1		
	33	324-209 PAD (PRESSURE SENSITIVE TYPE)	1		
	34	307-109 SEAL LOCK SCREW (W/WASHERS) M4X16 (BLACK)	3		

SV 13YB

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SV 13YB

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