

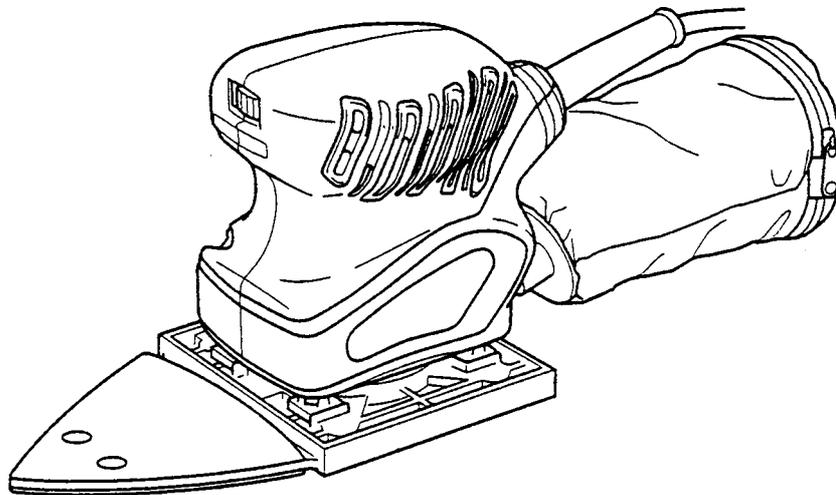
MODEL

**SV 12SH**

# Hitachi Power Tools

**ORBITAL SANDER  
SV 12SH**

**TECHNICAL DATA  
AND  
SERVICE MANUAL**



LIST No. 0354

Jan. 2005

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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	BO4561



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## 1. PRODUCT NAME

Hitachi Orbital Sander, Model SV 12SH

## 2. MARKETING OBJECTIVE

The Model SV 12SH is a new orbital sander developed to fill out our orbital sander series. The Model SV 12SH has the following features.

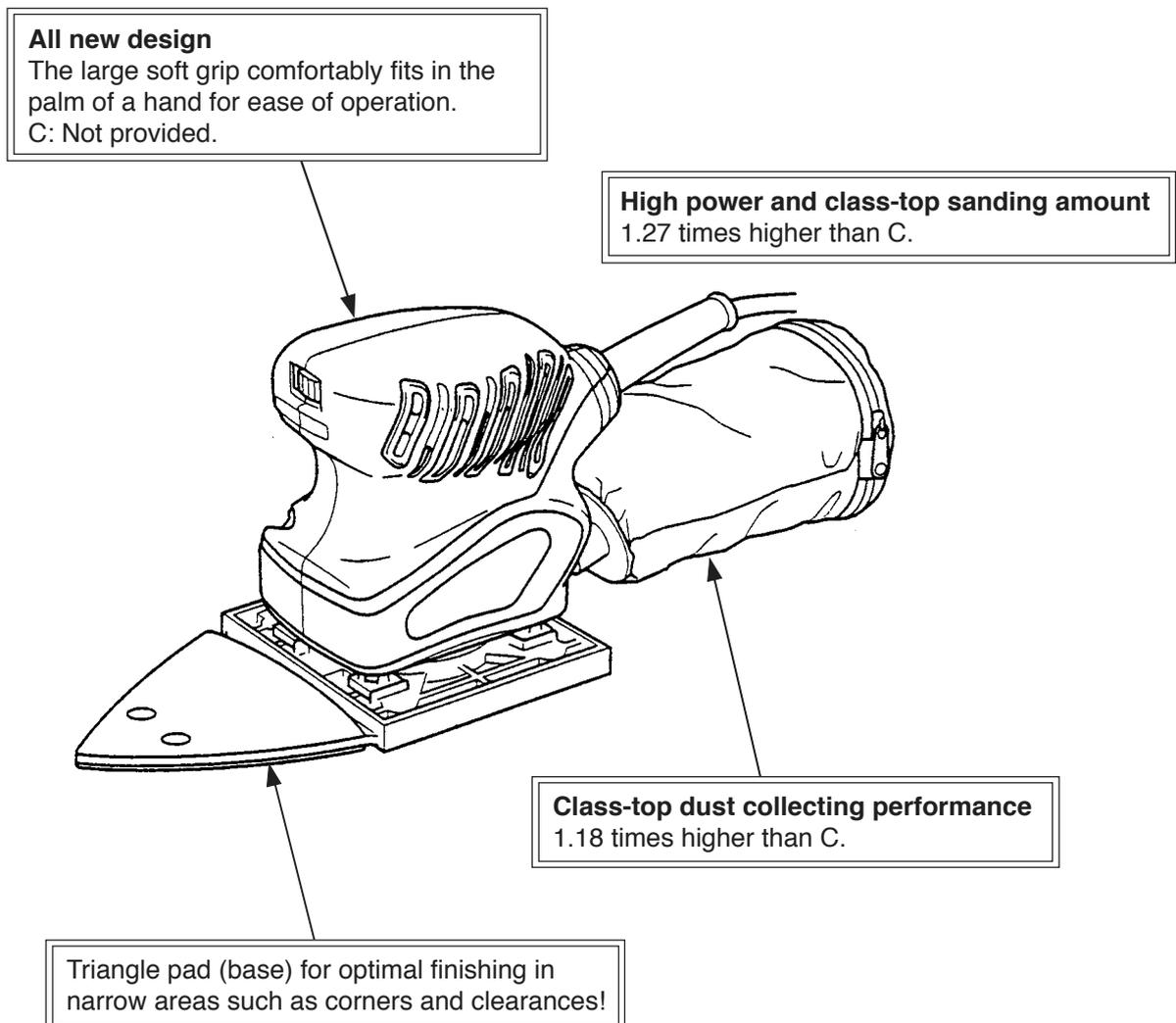
- (1) Triangle pad (base) for optimal finishing in narrow areas such as corners and clearances
- (2) High power and class-top sanding amount
- (3) Class-top dust collecting performance
- (4) All new design. The large soft grip comfortably fits in the palm of a hand for ease of operation.

## 3. APPLICATIONS

The Model SV 12SH is used for the following applications generally in narrow areas such as corners and clearances.

- 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) Triangle pad (base) for optimal finishing in narrow areas such as corners and clearances!

The Model SV 12SH is equipped with a triangle pad (base). It is very convenient for finishing in narrow areas such as corners and undersides of stairs, which is impossible for the conventional orbital sanders.

(2) High power and class-top sanding amount

Maker	Model	Sanding amount	Sanding ratio
HITACHI	SV 12SH	56 g	100
C		44 g	79

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

Maker	Model	Maximum output	Maximum output ratio
HITACHI	SV 12SH	101 W	100
C		92 W	91

(3) Class-top dust collecting performance

Maker	Model	Percentage of dust collection	Dust collection ratio
HITACHI	SV 12SH	71 %	100
C		60 %	85

\* 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: AA100

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

The Model SV 12SH 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	Square: 110 mm x 100 mm (4-1/2" x 4") Triangle: 96 mm x 96 mm x 96 mm (3-3/4" x 3-3/4" x 3-3/4")															
Sanding pad size	110 mm x 190 mm (4-1/2" x 7-1/2")															
Orbital diameter	1.5 mm (1/16")															
Power source	AC single phase 50 Hz or 60 Hz															
Voltage, current and power input	<table border="1"> <thead> <tr> <th>110 V</th> <th>120 V</th> <th>220 V</th> <th>230 V</th> <th>240 V</th> </tr> </thead> <tbody> <tr> <td>1.9 A</td> <td>1.7 A</td> <td>0.95 A</td> <td>0.91 A</td> <td>0.87 A</td> </tr> <tr> <td colspan="5" style="text-align: center;">200 W</td> </tr> </tbody> </table>	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				
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)	1.0 kg (2.2 lbs.)														
	Gross	1.5 kg (3.3 lbs.)														
Packaging	Corrugated cardboard box															
* Standard accessories	<ul style="list-style-type: none"> <li>• Sanding paper (Velcro type) (Square) ..... 1</li> <li>• Sanding paper (Velcro type) (Triangle) ..... 2</li> <li>• Dust bag ..... 1</li> </ul>															

\*: Depends on the market.

## 6. COMPARISONS WITH SIMILAR PRODUCTS

Item		Maker · Model		HITACHI	C
				SV 12SH	
Name plate and catalog specifications	Sanding paper size	Square	mm	110 x 100 (4-1/2" x 4")	112 x 102 (4-1/2" x 4")
		Triangle	mm	96 x 96 x 96 (3-3/4" x 3-3/4" x 3-3/4")	95 x 95 x 95 (3-3/4" x 3-3/4" x 3-3/4")
	Sanding pad size		mm	110 x 190 (4-1/2" x 7-1/2")	112 x 190 (4-3/8" x 7-1/2")
	Orbital diameter		mm	1.5 (1/16")	1.5 (1/16")
	Power input		W	200 (120 V, 1.7 A)	160 (115 V, 1.6 A)
	No-load noise level		/min	14,000	14,000
	Weight (excludes cord)		kg	1.0 (2.2 lbs.)	0.95 (2.1 lbs.)
Max. output *1		W	101	92	
No-load noise level *1		dB	82	85	
No-load vibration level *1		dB	107	109	
Overall height		mm	133 (5-1/4")	135 (5-1/4")	
Soft-touch grip				Provided	Provided
Standard accessories *1				Sanding paper (1 pc.) (Velcro type/square) Sanding paper (2 pcs.) (Velcro type/triangle) Dust bag (1 pc.)	Sanding paper (3 pcs.) (Velcro type/square) Sanding paper (3 pcs.) (Velcro type/triangle) Dust bag (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 12SH 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.

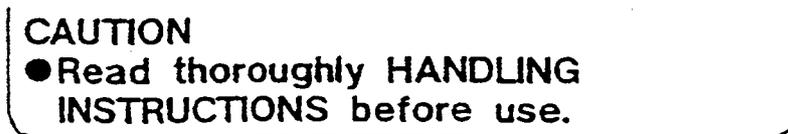
### 7-2. Precautions on Nameplate

Each Model SV 12SH 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 Australia



## 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 **[23]** and the Stator **[20]**

- ① Remove the four Seal Lock Screws M4 x 10 **[16]**, and remove the Base **[15]** and Felt **[32]**.
- ② Remove the two Tapping Screws (W/Flange) D4 x 16 **[31]**, and remove the Fan Guide **[30]**.
- ③ Keeping a screwdriver inserted into the clearance of the Balance Fan **[25]**, remove the Seal Lock Flat Hd. Screw M4 x 12 **[29]**. Remove the Washer **[28]**, Ball Bearing 6001DDCMPS2L **[27]**, Dust Washer **[26]** and Balance Fan **[25]**.
- 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 (1 Pair) **[13]** together with the Brush Holder **[12]**. Lift the Stator **[20]** and pull out the Armature **[23]**.
- ⑥ After pulling out the Armature **[23]**, disconnect the Internal Wire (Brown) **[5]**, Internal Wire (B) (Blue) **[22]**, Tab Terminal (Blue) **[6]** and Tab Terminal (Brown) **[21]** from the terminals of the Stator **[20]**. Then pull out the Stator **[20]**.

### 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 **[26]**

Be sure to mount the Dust Washer **[26]** in correct direction as shown in Fig. 1. Otherwise, the Ball Bearing 6001DDCMPS2L **[27]** can be damaged at an early stage.

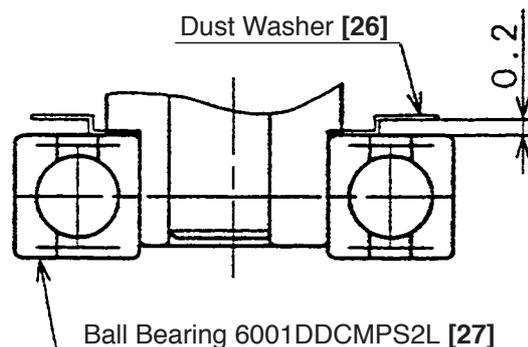


Fig. 1

(2) Wiring the Stator [20]

When wiring the Stator [20], 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.

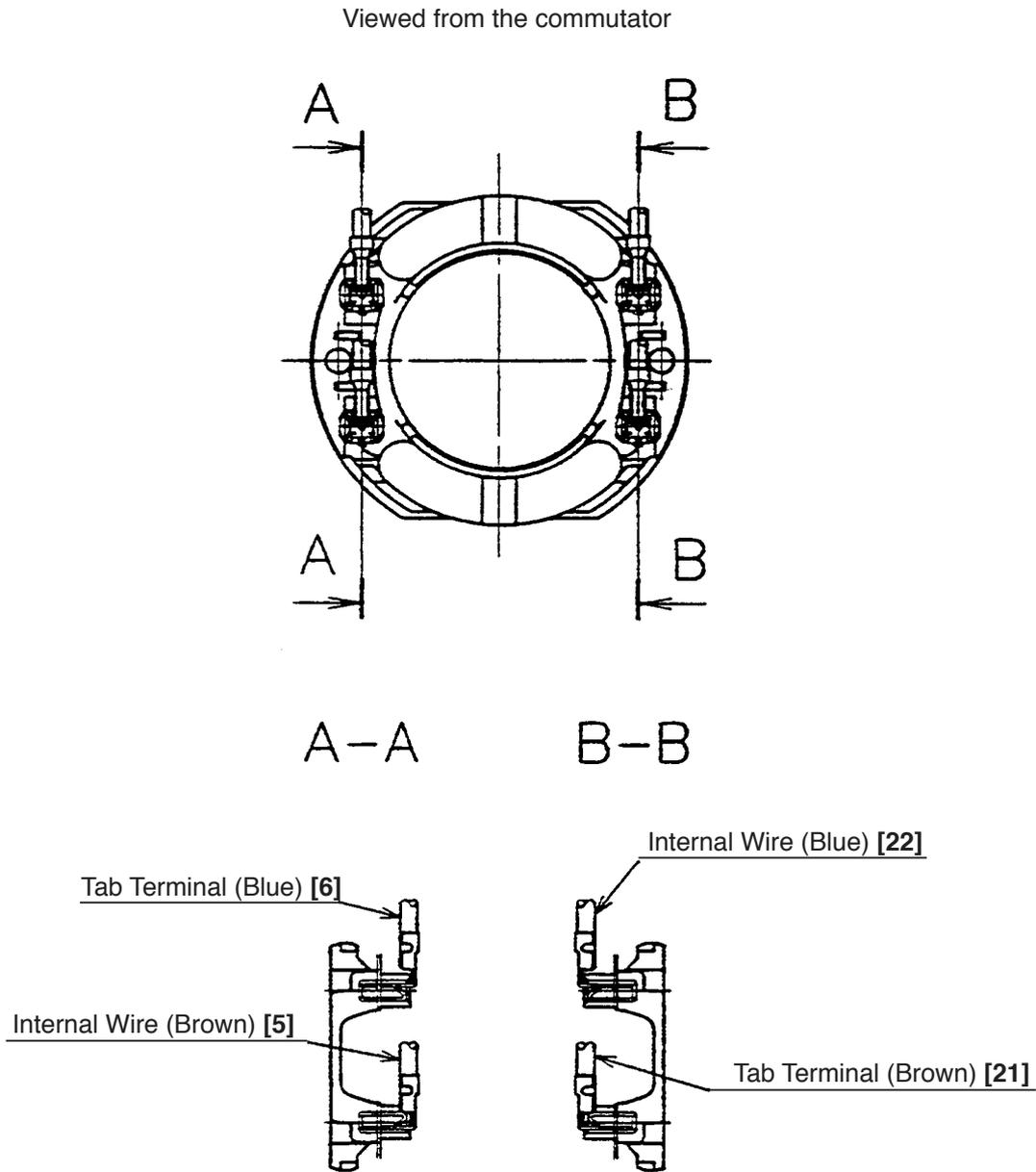


Fig. 2

**8-3. Tightening Torque**

- |  |  |
|--|--|
| (1) Tapping Screw (W/Flange) D4 x 20 (Black) [2] ..... | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.) |
| (2) Tapping Screws (W/Flange) D4 x 16 [7] [31] .....   | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.) |
| (3) Seal Lock Screw M4 x 10 [16] .....                 | 1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.) |
| (4) Seal Lock Flat Hd. Screw M4 x 12 [29] .....        | 1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.) |

### 8-4. Wiring Diagram

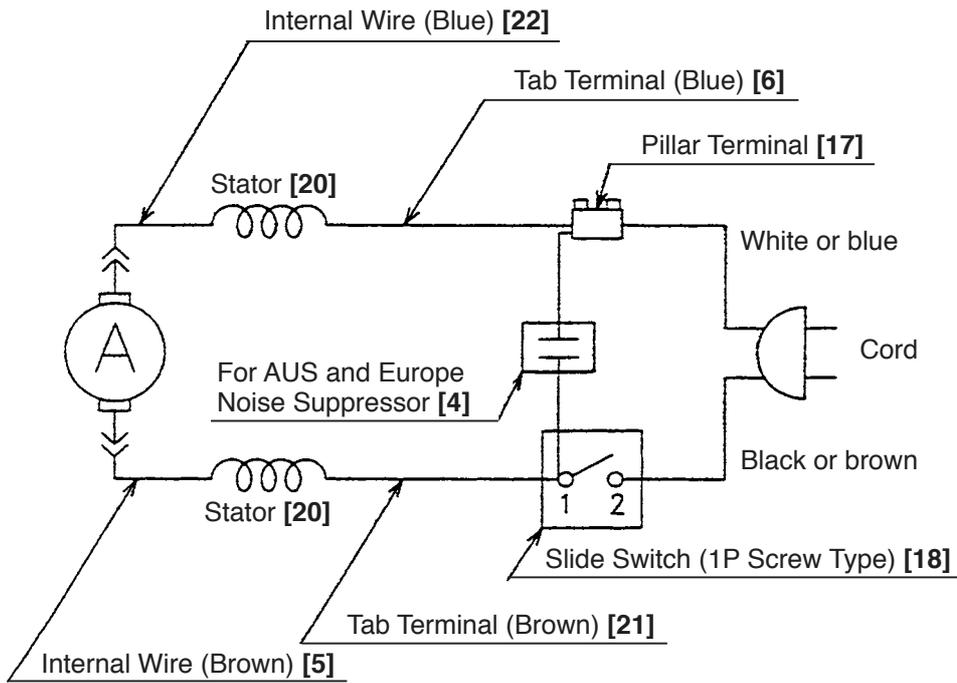


Fig. 3

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

## ELECTRIC TOOL PARTS LIST

■ ORBITAL SANDER  
Model SV 12SH

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(E1)

