

MODELS

FCJ 65S3

FCJ 65V3

Hitachi Power Tools

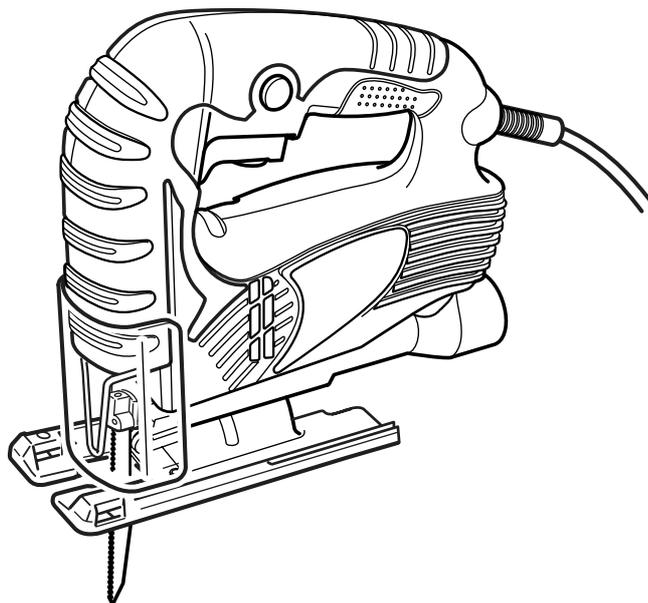
JIG SAW

FCJ 65S3

FCJ 65V3

**TECHNICAL DATA
AND
SERVICE MANUAL**

F



LIST Nos. FCJ 65S3: G839
FCJ 65V3: G838

Nov. 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:

Symbol Utilized	Competitor	
	Company Name	Model Name
C-1	BOSCH	PST650

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1. PRODUCT NAME

Hitachi Electric Jig Saw, 65 mm Models FCJ 65S3 and FCJ 65V3

2. MARKETING OBJECTIVE

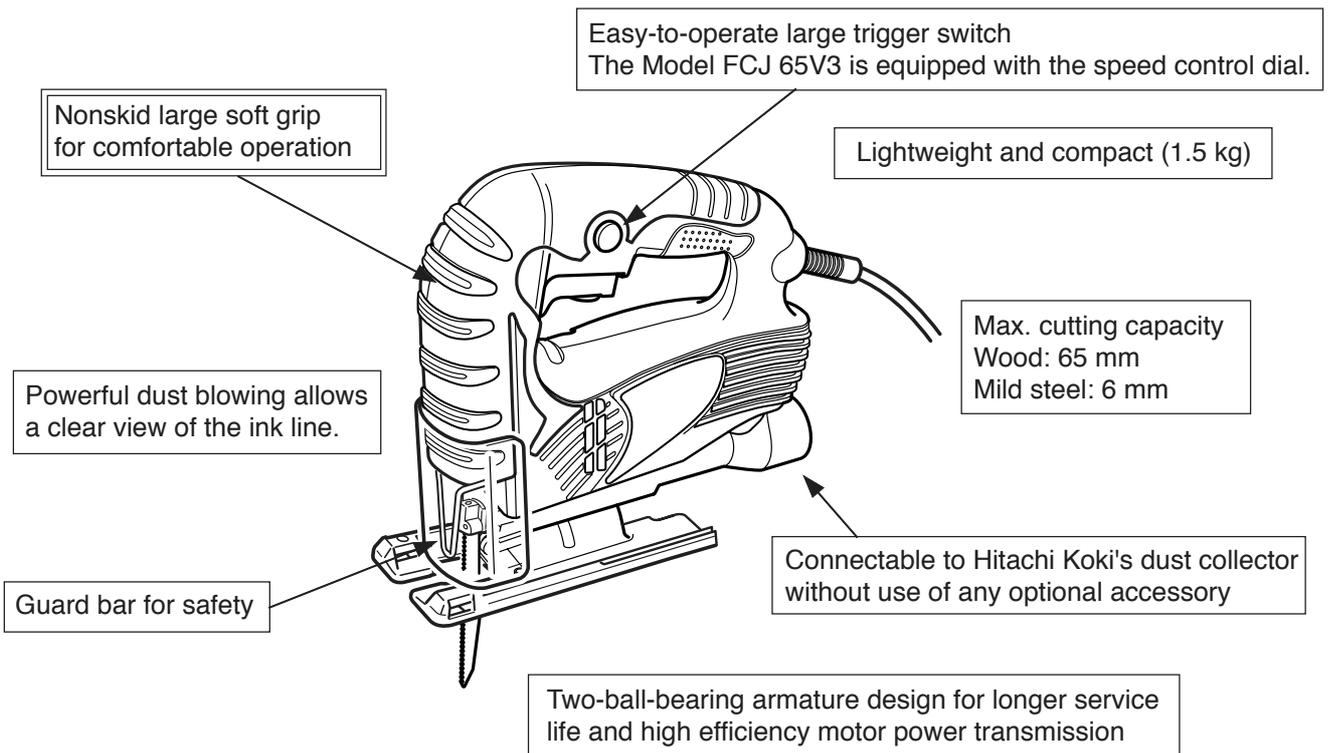
Almost ten years passed since the development of the current Model FCJ 55/VA. There is an increasing demand for a newly designed low-price jig saw that is connectable to a dust collector. To correspond to this demand, the Model FCJ 55/VA is upgraded to the new Models FCJ 65S3 and FCJ 65V3. The key features of the Models FCJ 65S3 and FCJ 65V3 are as follows:

- Higher cutting capacity 65 mm
- Low price
- Easy-to-operate large trigger switch
- Comfortable soft grip
- Connectable to Hitachi Koki's dust collector through the connection nozzle without use of any optional accessory
- Guard bar for safety
- Higher-power blower

3. APPLICATIONS

- Cutting various lumber and pocket cutting
- Cutting mild steel plate, aluminum plate and copper plate
- Cutting synthetic resins, such as phenol resin and vinyl chloride
- Cutting thin and soft construction materials

4. SELLING POINTS



4-1. Selling Point Descriptions

(1) Higher cutting capacity

The Models FCJ 65S3 and FCJ 65V3 can cut wood workpieces up to 65 mm in thickness in the same manner as 7-inch circular saws. They are convenient because each model can be widely used for home-use applications that do not require a circular saw level cutting speed, such as curved cutting (used as a jig saw) and cutting of thick workpieces.

(2) Nonskid large soft grip

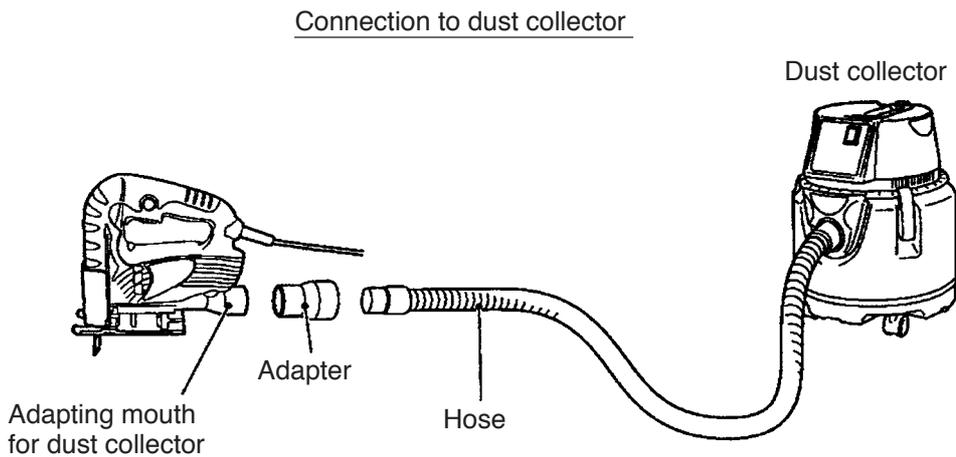
Most of the conventional soft grips cover only the handle. The Models FCJ 65S3/FCJ 65V3 are equipped with the nonskid grip that largely covers both the handle and the housing (front side) to prevent slipping even if the operator holds the Models FCJ 65S3/FCJ 65V3 in various ways.

(3) Large-trigger switch for more convenient operation

Adoption of a large trigger switch (room enough for two fingers) ensures easier triggering for improved control and operation.

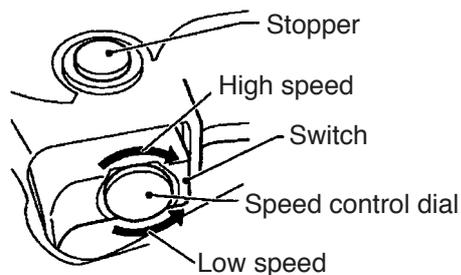
(4) Nozzle for connection with dust collector (standard accessory)

The Models FCJ 65S3 and FCJ 65V3 are connectable to the Hitachi Koki's dust collector through the standard connection nozzle without use of any optional accessory for cutting operation in a clean environment.



(5) Trigger switch with speed control dial (Model FCJ 65V3 only)

The Model FCJ 65V3 has the trigger switch with speed control dial. The triggering amount can be adjusted to keep at a speed suitable for each job.

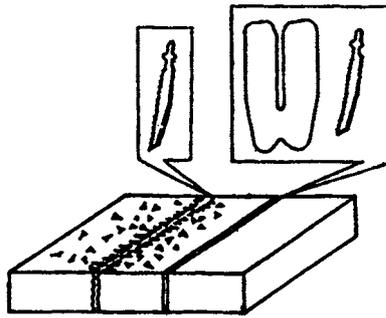


(6) Guard bar for safety

The guard bar prevents contact of the operator's fingers with the blade.

(7) Splinter guard protects easily splintered materials

Use of the splinter guard can significantly reduce cut-surface roughness of wood materials.



(8) Two-ball-bearing armature design for longer service life and high efficiency motor power transmission

The ball bearings are employed on both sides of the armature to improve durability and reliability.

(9) Lightweight and compact

Bearings	Maker	HITACHI		C-1
	Model	FCJ 65S3/FCJ 65V3	FCJ 55/FCJ 55VA	
Dimensions	Length (mm)	197 (7-3/4")	185 (7-1/4")	214 (8-1/2")
	Height (mm)	195 (7-3/4")	186 (7-3/8")	199 (7-7/8")
	Width (mm)	67 (2-5/8")	67 (2-5/8")	67.5 (2-5/8")
Weight (kg)		1.5 (3.3 lbs.)	1.4 (3.1 lbs.)	1.7 (3.8 lbs.)

5. SPECIFICATIONS

Item		Model		FCJ 65S3	FCJ 65V3
Performance		Max. cutting thickness	Wood	65 mm (2-5/8")	
			Mild steel plate	6 mm (1/4")	
		Min. cutting radius	Without guide	25 mm (1")*	
Tilting angle of base		Right/left: 0 to 45°			
Power source		AC single phase 50/60 Hz			
Type of motor		Single phase AC commutator motor			
Outer frame		Glassfiber reinforced polycarbonate resin + elastomer			
Insulation		Double insulation			
Type of switch		Trigger switch w/stopper		Trigger switch w/stopper (Variable speed type w/adjust knob)	
Voltage (V)		110	220	230	240
Full-load output (A)		3.8	1.9	1.8	1.8
Power consumption		400 (W)			
Number of stroke		3,000/min		0 to 3,000/min	
Length of stroke		18 mm (45/64")			
Weight	Product	1.5 kg (3.3 lbs.) (Exclud. cord)			
	Packed	1.9 kg (4.2 lbs.)			
Cord		2-cord cabtire cord Nominal sectional area: 0.75 mm ² (1.2 x 10 ⁻³ inch ²) Length: 2.5 m (8.2 ft.)			
Standard accessories		Jig saw blade No. 31..... 1 pc. Chip cover 1 pc. Splinter guard 1 pc. Hex. bar wrench 1 pc.			

* Based on plate thickness of 18 mm (45/64") or less, and use of saw blade Nos. 2 and 3.

	Item	Code No.
Optional accessories	Blade (No. 1) (5 pcs.)	879330
	Blade (No. 2) (5 pcs.)	879331
	Blade (No. 3) (5 pcs.)	879332
	Blade (No. 4) (5 pcs.)	879333
	Blade (No. 5) (5 pcs.)	879334
	Blade (No. 6) (5 pcs.)	879335
	Blade (No. 31) (5 pcs.)	879356
	Blade (No. 41) (5 pcs.)	879357
	Guide	879391

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons

			HITACHI		C-1
			FCJ 65S3/FCJ 65V3	FCJ 55/FCJ 55VA	
Capacity	Wood	mm	65 (2-5/8")	55 (2-5/32")	65 (2-5/8")
	Mild steel	mm	6 (1/4")	3 (1/8")	6 (1/4")
Power input		W	400	400	450
Number of stroke		1/min	3000/0 to 3000	3000/0 to 3000	3100
Length of stroke		mm	18 (3/4")	18 (3/4")	22 (7/8")
Base tilting angle		deg	L/R 45°	L/R 45°	L/R 45°
Weight		kg	1.5 (3.3 lbs.)	1.4 (3.1 lbs.)	1.7 (3.8 lbs.)
Actual weight		kg	1.5 (3.3 lbs.)	1.4 (3.1 lbs.)	1.7 (3.8 lbs.)
Soft grip		—	○	×	×
Splinter guard		—	○	○	×
Speed control dial		—	×/○	×/○	×
Dimensions	Length	mm	197 (7-3/4")	185 (7-1/4")	214 (8-1/2")
	Height	mm	195 (7-3/4")	186 (7-3/8")	199 (7-7/8")
	Width	mm	67 (2-5/8")	67 (2-5/8")	67.5 (2-5/8")
Standard accessories			Jig saw blade No. 31 ... 1 pc. Chip cover 1 pc. Splinter 1 pc. Hex. bar wrench 1 pc.	Jig saw blade No. 31 ... 1 pc. Chip cover 1 pc. Splinter 1 pc. Hex. bar wrench 1 pc.	Jig saw blade 1 pc. Chip cover 1 pc.

* Subject to change by area.

6-2. Comparison of Cutting Speeds

Cutting speeds fluctuate widely depending on cutting conditions. The data in the tables below were obtained while minimizing fluctuations as much as possible. Also, all plunger speeds were set to full (maximum speed), and blades recommended by each manufacturer for the materials cut were used. Thrust (pressing force) was limited to 2 kg, within the range of normal cutting thrust.

○ Cutting of wood, 18 mm (45/64") thick

Cutting speed [mm (ft)/min]

Maker	Model	200 (0.6)	400 (1.3)	600 (2.0)	800 (2.6)	1000 (3.3)	1200 (3.9)
HITACHI	FCJ65V3						■
	FCJ55VA2				■		
C-1	—						■

○ Cutting of soft steel plate, 2 mm (5/64") thick

Cutting speed [mm (ft)/min]

Maker	Model	100 (0.3)	200 (0.6)	300 (1.0)	400 (1.3)
HITACHI	FCJ65V3				■
	FCJ55VA2		■		
C-1	—				■

7. PRECAUTIONS IN SALES PROMOTION

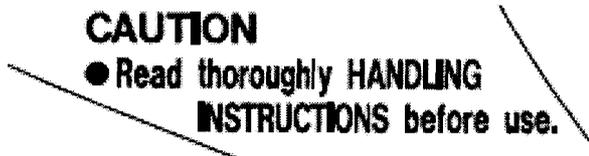
In the interest of promoting the safest and most efficient use of the Models FCJ 65S3 and FCJ 65V3 Jig Saws by all of our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the 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 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 electric jig saw 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. Cautions on the Name Plate

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



7-3. Overload Durability Characteristics

The Models FCJ 65S3 and FCJ 65V3 have been designed specifically for home use, and their ability to withstand overload is inferior to jig saws for professional use. Because oleo metal and polycarbonate resin are used for the bearings and external components respectively, heat generation is high and heat radiation is inferior. Customers should be cautioned that use of these models for professional level work could result in melting of the oleo metal components and possible serious damage to other sections.

7-4. Use of Guide Roller

The new models are equipped with a guide roller which supports the load applied on the blade and bearing during cutting operation, and helps prevent breakage of the blade and early wear of the bearing. When using the guide roller, users should be instructed to pay particular attention to the following items described in the Instruction Manual.

- (1) Use a blade having a straight back portion (the back of the blade that contacts the guide roller) which is 50 mm (2") or more in length (see Fig. a.). If a blade with an inclined back portion (see Fig. b.) is used, it will cause excessive force on the plunger assembly, resulting in early malfunction of the bearing and the guide roller.
- (2) The guide roller should be mounted so that its roller gently contacts the back of the blade. If the roller is pressed too strongly against the blade during use, it will cause early malfunction of the bearing and other parts, as described in paragraph (1), above.

(3) When cutting thick plate materials which apply a particularly heavy load on the blade, be sure to mount the guide roller before the cutting operation. As failure to mount the guide roller before cutting such materials will result in early malfunction of the bearing portion, particular precaution is necessary.

○ Use a blade with a straight back portion 50 mm (2") or more in length.

✗ Do not use a blade with an inclined back.

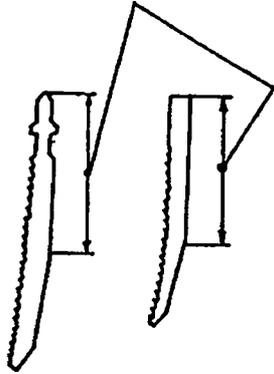


Fig. a

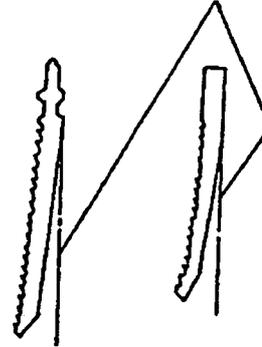


Fig. b

8. BLADES

8-1. Applicable Blade

Maker	Blade shape and dimensions	Installation
HITACHI		○
		○
C-1		○

NOTE: As illustrated on the right, the guide roller can become jammed in the recessed portion of the jig saw blade, causing damage to the blade and/or guide roller. Accordingly, it is necessary to withdraw the guide roller so that it will not contact the blade. In addition, the thickness of the jig saw blade must be 1.3 mm (3/64") or less.

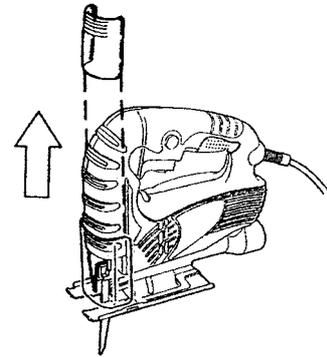
9. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the part numbers in the Model FCJ 65V3 Parts List. The disassembly and reassembly procedures are the same for the Model FCJ 65S3, with the exception of the switch and the wiring diagrams. Where the part numbers are different, those in parentheses are for the Model FCJ 65S3.

9-1. Disassembly

9-1-1. Removal of the Chip Cover [1]

In the same manner as it is slid up and down for positioning, slide the Chip Cover [1] upward to remove it from the main body.



How to remove the chip cover

9-1-2. Removal of the Guard Bar [2]

Stretch both ends of the Guard Bar [2] and remove it from the main body.

9-1-3. Disassembly of housing (B)

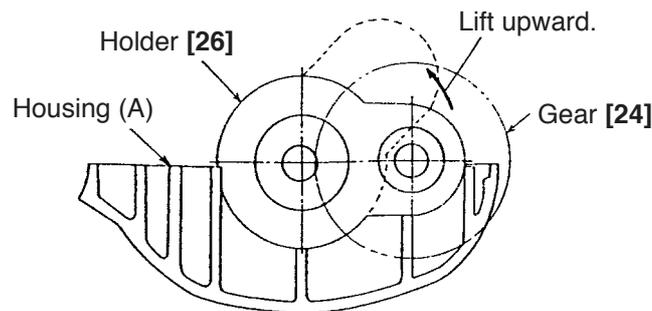
(1) Remove the Hex. Socket Hd. Bolt M4 x 16 [19] with the Hex. Bar Wrench 3 mm [501] (standard accessory), and remove the Base [11] and the Roller Holder [17].

(2) Remove the seven Tapping Screws (W/Flange) D4 x 20 (Black) [7], and take off housing (B) of Housing (A). (B) Set [4].

9-1-4. Disassembly of the gear

(1) From housing (A) of Housing (A).(B) Set [4], take out the Plunger [22] and the Plunger Holder [21] (two pieces).

(2) Lift the Gear [24] upward and remove it from the Holder [26]. Washer (C) [25] can be removed at the same time.



Gear removal procedure

9-1-5. Disassembly of the plunger

Loosen the Seal Lock Hex. Socket Hd. Bolt M3 x 8 [34] and remove the Blade Holder [32], Plunger Holder [21] and Felt [33].

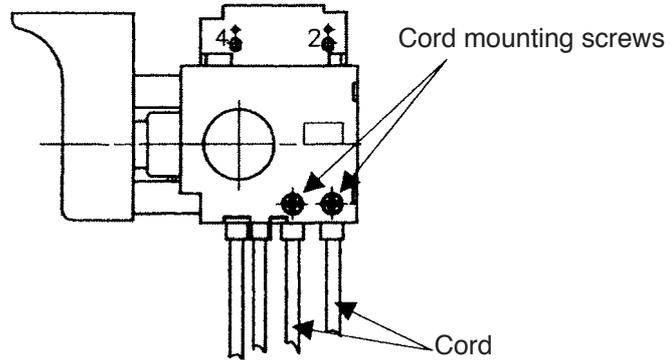
9-1-6. Disassembly of the armature and stator

(1) From housing (A) of Housing (A).(B) Set [4], remove the Brush Holders [15], and take out the Carbon Brushes [14] (two pieces).

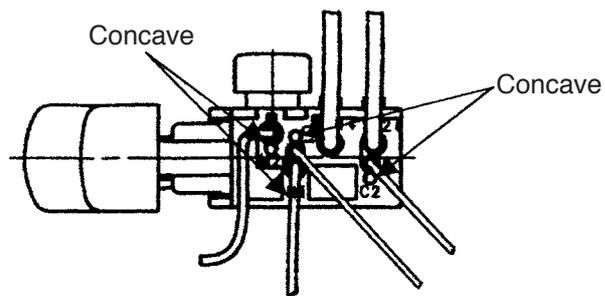
(2) From housing (A) of Housing (A).(B) Set [4], remove the Holder [26], Stator Ass'y [30] and Armature [28] in a single body. Then separate the individual parts.

9-1-7. Removal of the Switch (1P Pillar Type) [5]

Loosen the cord mounting screws of the Switch (1P Pillar Type) [5] and pull out the cord.



To remove the internal wires of the Stator Ass'y [30] and the Noise Suppressor [6], insert a small-diameter screwdriver or a pin into the concave next to each terminal and pull the internal wire lightly.



9-2. Reassembly

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

9-2-1. Wiring Connection

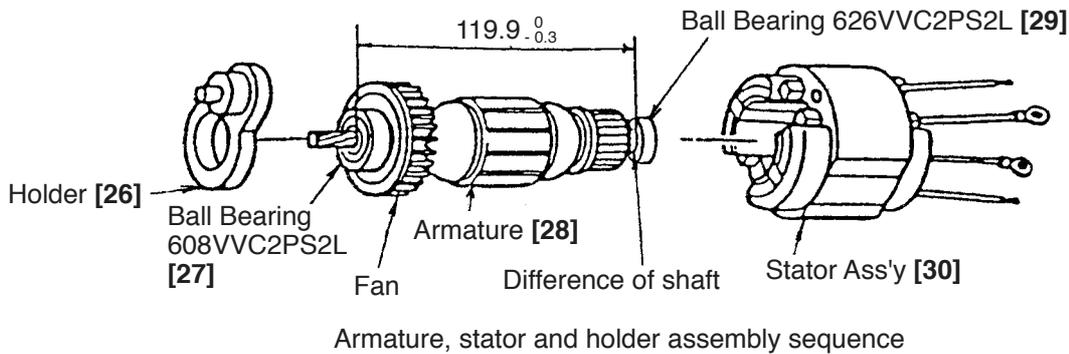
Referring to the wiring diagrams and leadwire arrangements in item 9-5.

9-2-2. Reassembly of the armature and the stator

(1) Press-fit the Ball Bearing 608VVC2PS2L [27] and the Ball Bearing 626VVC2PS2L [29] onto the Armature [28].

Stop press-fitting when the Ball Bearing 608VVC2PS2L [27] comes in contact with the fan. With vernier calipers or a similar tool, check that the press-fit dimension is $119.9_{-0.3}^0$. As excessive press-fitting can cause deformation or other damage to the fan, particular attention is required. Also, if press-fitting is insufficient, it will cause loss of thrust of the Armature [28], resulting heat generation. Accordingly, press-fit the Ball Bearing 626VVC2PS2L [29] until it butts against the stepped portion of the shaft.

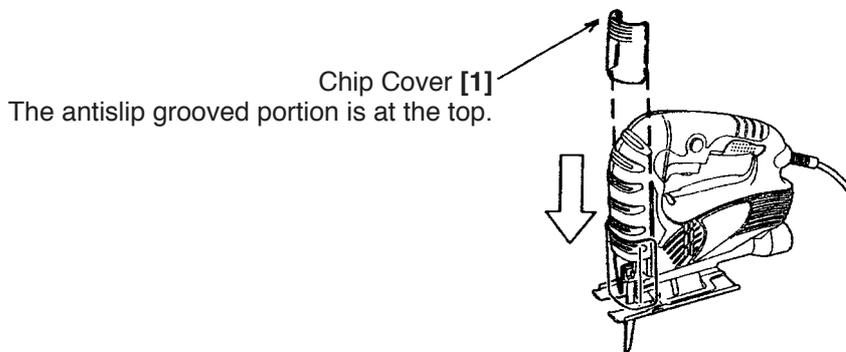
(2) Insert the Armature [28] into the Holder [26] and put the assembly into the Stator Ass'y [30].



9-2-3. Others

(1) When re-mounting housing (A) of Housing (A).(B) Set [4], be very careful to ensure that the leadwires are not excessively slack, and that they are not pinched between components during reassembly.

(2) When reassembling the Chip Cover [1] onto the main body, be sure it is mounted in the correct direction.



9-3. Lubrication

- | | | |
|---|---|-----------------------------|
| <ul style="list-style-type: none">○ Housing (A) and housing (B): 13 g each○ Tooth section of the Gear [24]○ Pinion section of the Armature [28]○ Contact section of the Plunger [22] and the Plunger Holder [21] | } | Hitachi Motor Grease No. 29 |
| <ul style="list-style-type: none">○ Pin of the Holder [26]○ Washer (C) [25]○ Inside diameter of the Gear [24] and the sliding surfaces of the Connecting Piece [23] and Washer (C) [25]○ Inside and outside diameters of the Connecting Piece [23] | } | ATTOLUB MS No. 2 |

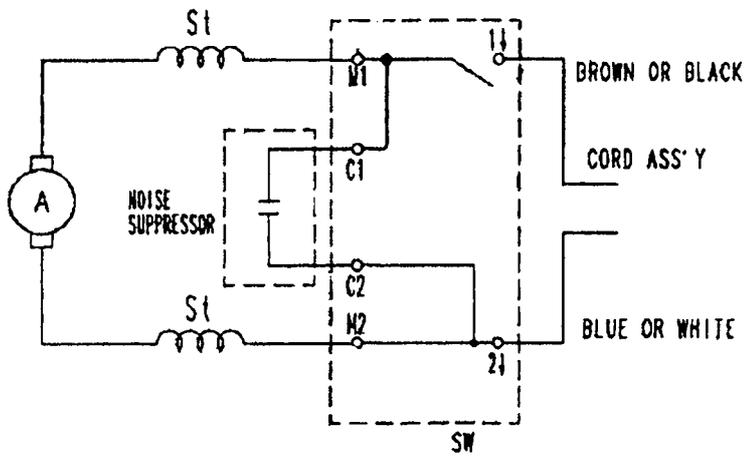
9-4. Tightening Torques

- | | |
|------------------------------------|-------------------------------|
| • Tapping Screw (W/Flange) D4 x 20 | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm) |
| • Tapping Screw (W/Flange) D4 x 16 | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm) |
| • Hex. Socket Hd. Bolt M3 x 8 | 1.5 ± 0.5 N·m (15 ± 5 kgf·cm) |
| • Hex. Socket Hd. Bolt M4 x 8 | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm) |
| • Hex. Socket Hd. Bolt M4 x 16 | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm) |

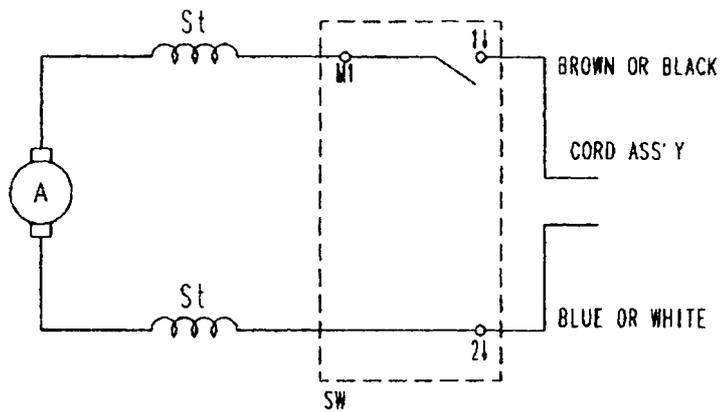
9-5. Wiring Diagram

(1) Model FCJ 65S3

(a) Products with noise suppressor

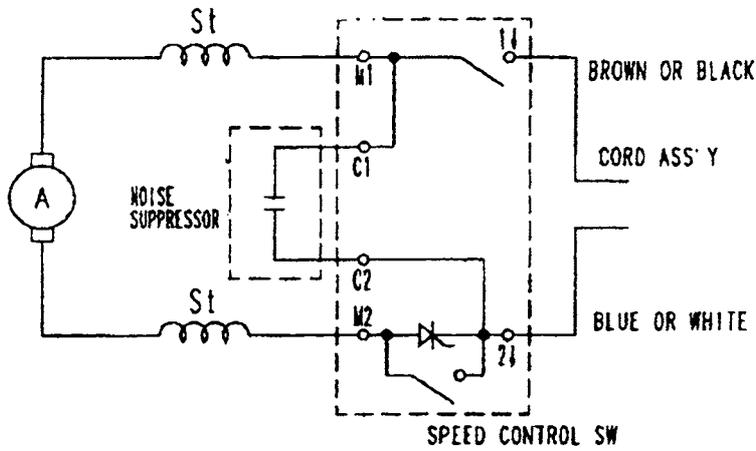


(b) Products without noise suppressor

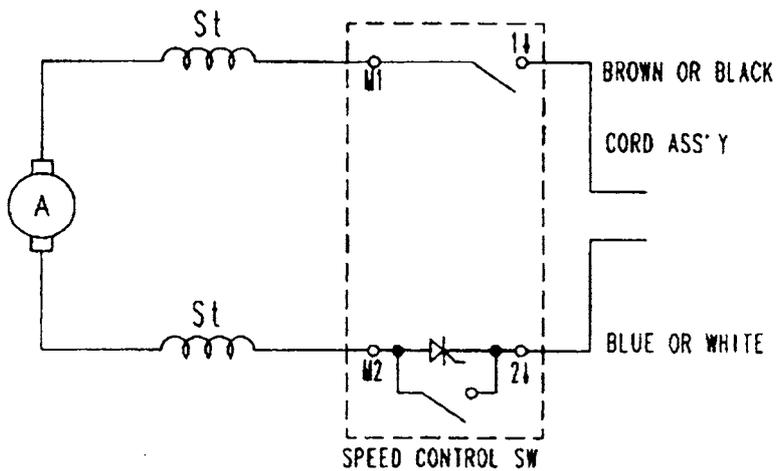


(2) Model FCJ 65V3

(a) Products with noise suppressor

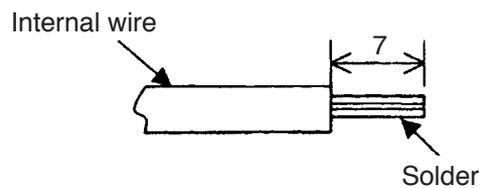


(b) Products without noise suppressor



9-6. Connection to the Switch

Solder the tips of the internal wires of the Stator Ass'y [30] and the Noise Suppressor [6]. Then insert them into the terminals of the Switch (1P Pillar Type) [5].



9-7. Insulation Tests

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

9-8. No-Load Current Values

After 30 minutes of no-load operation, current values should be as follows:

110 V	} Less than 1.8 A	220 V	Less than 1.0 A
115 V		230 V	Less than 0.9 A
120 V		240 V	Less than 0.9 A
127 V			

10. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block;">FCJ 65V3</div> <div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block;">FCJ 65S3</div>		Work Flow						
			<div style="border: 1px solid black; border-radius: 10px; padding: 2px; display: inline-block;">General Assembly</div>	Base Roller Holder	Housing (A).(B) Set			
			Chip Cover Guard Cover	Stator Ass'y Armature Ball Bearing (608VV) Ball Bearing (626VV)				
				Plunger Holder Plunger Connecting Piece Gear Holder Felt Blade Holder				
				Switch Cord Armor Cord Armor Carbon Brush x 2				

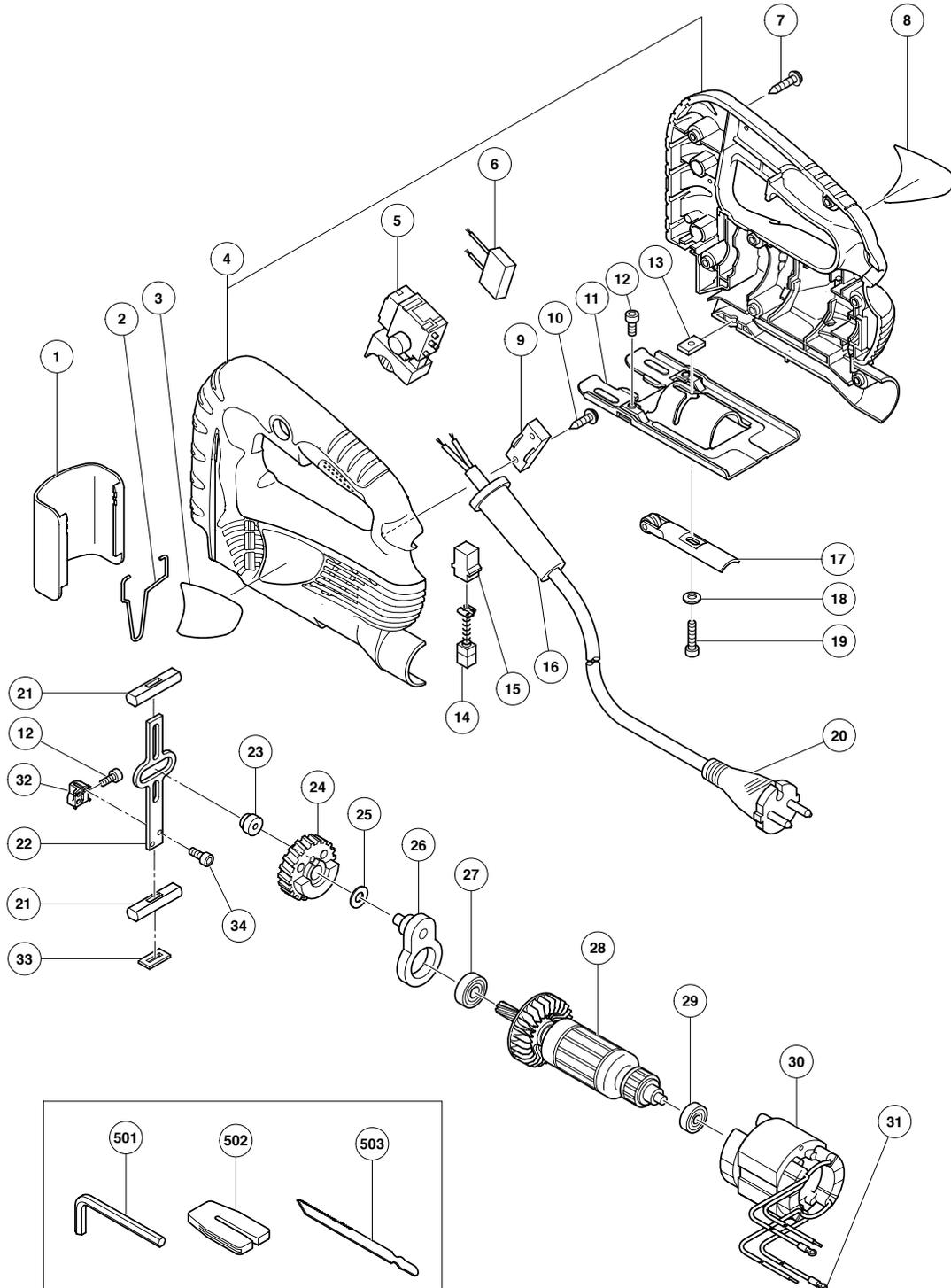
ELECTRIC TOOL PARTS LIST

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Model FCJ 65S3

(E1)



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Model FCJ 65V3

(E1)

