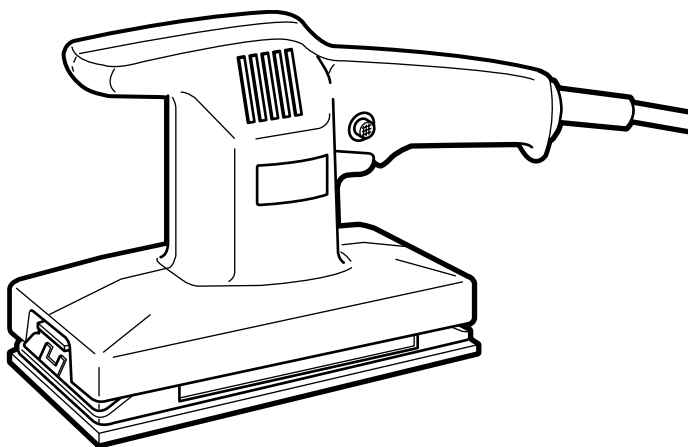


HITACHI

INSTRUCTION MANUAL AND SAFETY INSTRUCTIONS FOR ORBITAL SANDER

MODEL FS 10SA



⚠ WARNING:

Improper and unsafe use of this power tool can result in death or serious bodily injury!

This manual contains important information about product safety. Please read and understand this manual before operating the power tool. Please keep this manual available for others before they use the power tool.



DOUBLE INSULATION

— CONTENTS —

	Page
IMPORTANT INFORMATION	3
MEANINGS OF SIGNAL WORDS	3
SAFETY	
IMPORTANT SAFETY INSTRUCTIONS FOR USING ALL POWER TOOLS	4
IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE ORBITAL SANDER	8
REPLACEMENT PARTS	8
POLARIZED PLUGS	8
USE OF EXTENSION CORD	9
DOUBLE INSULATION FOR SAFER OPERATION	10
OPERATION AND MAINTENANCE	
NAME OF PARTS	11
SPECIFICATIONS	11
ACCESSORIES	12
STANDARD ACCESSORIES	12
OPTIONAL ACCESSORIES	12
APPLICATIONS	12
PRIOR TO OPERATION	13
PRACTICAL OPERATING PROCEDURES	14
HOW TO INSTALL THE OPTIONAL ACCESSORIES	15
MAINTENANCE AND INSPECTION	15
SERVICE AND REPAIRS	16
PARTS LIST	18

IMPORTANT INFORMATION

Read and understand all of the operating instructions, safety precautions and warnings in the Instruction Manual before operating or maintaining this power tool.

Most accidents that result from power tool operation and maintenance are caused by the failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures.

Basic safety precautions are outlined in the "SAFETY" section of this Instruction Manual and in the sections which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by WARNINGS on the power tool and in this Instruction Manual.

Never use this power tool in a manner that has not been specifically recommended by HITACHI, unless you first confirm that the planned use will be safe for you and others.

MEANINGS OF SIGNAL WORDS

WARNING indicates a potentially hazardous situations which, if ignored, could result in serious personal injury.

CAUTION indicates a hazardous situations which, if ignored, could result in moderate personal injury, or could cause machine damage.

NOTE emphasizes essential information.

SAFETY

IMPORTANT SAFETY INSTRUCTIONS FOR USING ALL POWER TOOLS

⚠ WARNING: Death or serious bodily injury could result from improper or unsafe use of power tools. To avoid these risks, follow these basic safety instructions:

READ ALL INSTRUCTIONS

1. NEVER TOUCH MOVING PARTS.

Never place your hands, fingers or other body parts near the tool's moving parts.

2. NEVER OPERATE WITHOUT ALL GUARDS IN PLACE.

Never operate this tool without all guards or safety features in place and in proper working order. If maintenance or servicing requires the removal of a guard or safety feature, be sure to replace the guard or safety feature before resuming operation of the tool.

3. ALWAYS WEAR EYE AND EAR PROTECTOR.

Protect yourself from flying or expelled wood chips, metal particles or other debris by using protective goggles or equivalent eye protector. Wear ear protector to protect yourself from excessive noise.

4. PROTECT YOURSELF AGAINST ELECTRIC SHOCK.

Prevent body contact with grounded surfaces such as pipes, radiators, ranges and refrigeration enclosures. Never operate the tool in damp or wet locations.

5. DISCONNECT TOOLS.

Never leave the tool connected to a power source. Always disconnect the tool from its power source before servicing, inspecting, maintaining, cleaning and before changing or checking any parts.

6. AVOID UNINTENTIONAL STARTING.

Don't carry the tool while it is connected to its power source. Don't carry the tool with your finger near the power switch. Be sure the power switch is in the "off" position before connecting the tool to its power source.

7. STORE TOOL PROPERLY.

When not in use, the tool should be stored in a dry place. Keep out of reach of children. Lock-out the storage area.

8. KEEP WORK AREA CLEAN.

Cluttered areas and benches invite injuries. Clear all work areas and work benches of unnecessary tools, debris, furniture, etc.

9. CONSIDER WORK AREA ENVIRONMENT.

Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit and well ventilated.

Don't use tool in presence of flammable liquids or gases.

Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.

10. KEEP CHILDREN AWAY.

Do not let visitors contact tool or extension cord.

All visitors should be kept safely away from work area.

11. DON'T FORCE TOOL.

It will do the job better and safer at the rate for which it was intended.

12. USE RIGHT TOOL.

Don't force small tool or attachment to do the job of a heavy-duty tool.

Don't use tool for purpose not intended—for example—don't use circular saw for cutting tree limbs or logs.

13. DRESS PROPERLY.

Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors.

Wear protective hair covering to contain long hair.

14. USE FACE, DUST MASK OR RESPIRATOR IF OPERATION IS DUSTY.

All persons in the area where power tools are being operated should also wear face, dust mask or respirator.

15. DON'T ABUSE CORD.

Never carry tool by cord or yank it to disconnect from receptacle.

Keep cord from heat, oil and sharp edges.

16. SECURE WORK.

Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.

17. DON'T OVERREACH.

Keep proper footing and balance at all times.

18. MAINTAIN TOOLS WITH CARE.

Keep tools sharp and clean for better and safer performance.

Follow instructions for lubricating and changing accessories.

Inspect tool cords periodically and if damaged, have repaired by an authorized service center. Inspect extension cords periodically and replace if damaged.

Keep handles dry, clean, and free from oil and grease.

19. REMOVE ADJUSTING KEYS AND WRENCHES.

Keys and adjusting wrenches remove from tool before turning it on.

20. OUTDOOR USE EXTENSION CORD.

When tool is used outdoors, use only extension cord intended for use outdoors and so marked.

21. STAY ALERT.

Watch what you are doing. Use common sense. Do not operate tool when you are tired.

Tools should never be used by you if you are under the influence of alcohol, drugs or medication that makes you drowsy.

22. CHECK DAMAGED PARTS.

Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation.

A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this Instruction Manual.

Have defective switches replaced by the authorized service center.

Do not use tool if switch does not turn it on and off.

23. NEVER USE A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.

Never use a power tool for applications other than those specified in the Instruction Manual.

24. HANDLE TOOL CORRECTLY.

Operate the tool according to the instructions provided herein. Do not drop or throw the tool. Never allow the tool to be operated by children, individuals unfamiliar with its operation or unauthorized personnel.

25. CHECK FOR LIVE WIRES.

Avoid the risk of severe electrical shock by checking for live electrical wires that may be buried in walls, floors or ceilings. The wires should be de-energized before work begins.

26. KEEP ALL SCREWS, BOLTS AND COVERS TIGHTLY IN PLACE.

Keep all screws, bolts, and plates tightly mounted. Check their condition periodically.

27. DO NOT USE POWER TOOLS IF THE PLASTIC HOUSING OR HANDLE ARE CRACKED.

Cracks in the tool's housing or handle can lead to electric shock. Such tools should not be used until repaired.

- 28. BLADES AND ACCESSORIES MUST BE SECURELY MOUNTED TO THE TOOL.**
Prevent potential injuries to yourself or others. Blades, cutting implements and accessories which have been mounted to the tool should be secure and tight.
- 29. KEEP MOTOR AIR VENT CLEAN.**
The tool's motor air vent must be kept clean so that air can freely flow at all times. Check for dust build-up frequently.
- 30. OPERATE POWER TOOLS AT THE RATED VOLTAGE.**
Operate the power tool at voltages specified on their nameplates.
If using the power tool at a higher voltage than the rated voltage, it will result in abnormally fast motor revolution and may damage the unit and burn out the motor.
- 31. NEVER USE A TOOL WHICH IS DEFECTIVE OR OPERATING ABNORMALLY**
If the tool appears to be operating unusually, making abnormal noises, or otherwise appears defective, stop using it immediately and arrange for repairs by a Hitachi authorized service center.
- 32. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.**
Don't leave tool until it comes to a complete stop.
- 33. CAREFULLY HANDLE POWER TOOLS.**
Should a power tool be dropped or struck against hard materials inadvertently it may be deformed, cracked, or damaged.
- 34. DO NOT WIPE PLASTIC PARTS WITH SOLVENT.**
Solvents such as gasoline, thinner, benzine, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents.
Wipe plastic parts with a soft cloth lightly dampened with soapy water and dry thoroughly.
- 35. USE ONLY GENUINE HITACHI REPLACEMENT PARTS.**
Replacement parts not manufactured by Hitachi may void your warranty and can lead to malfunction and resulting injuries. Genuine Hitachi parts are available from your dealer.

IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE ORBITAL SANDER

⚠ WARNING: Death or serious bodily injury could result from improper or unsafe use of disc grinder. To avoid these risks, follow these basic safety instructions:

1. **NEVER** apply water or lubricating oil, otherwise hazards from electrical shocks may result.
2. **ALWAYS** operate the orbital sander safely for correct use.
3. **ALWAYS** securely installing the sanding paper.
4. **ALWAYS** wear a protective mask when operating the sander in confined spaces.

REPLACEMENT PARTS

When servicing use only identical replacement parts.
Repairs should be conducted only by a Hitachi authorized service center.

POLARIZED PLUGS

To reduce the risk of electric shock, this equipment has a polarized plug (one blade is wider than the other).

This plug will fit in a polarized outlet only one way.

If the plug does not fit fully in the outlet, reverse the plug.

If it still does not fit, contact a qualified electrician to install the proper outlet.

Do not change the plug in any way.

USE OF EXTENSION CORD

Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

MINIMUM GAGE FOR CORD SETS

		Total Length of Cord in Feet (Meter)			
		0 - 25 (0 - 7.6)	26 - 50 (7.9 - 15.2)	51 - 100 (15.5 - 30.5)	101 - 150 (30.8 - 45.7)
Ampere Rating		AWG			
More Than	Not More Than				
	0 - 6	18	16	16	14
	6 - 10	18	16	14	12
	10 - 12	16	16	14	12
	12 - 16	14	12	Not Recommended	

⚠ WARNING: Avoid electrical shock hazard. Never use this tool with a damaged or frayed electrical cord or extension cord. Inspect all electrical cords regularly. Never use in or near water or in any environment where electric shock is possible.

DOUBLE INSULATION FOR SAFER OPERATION

To ensure safer operation of this power tool, HITACHI has adopted a double insulation design. "Double insulation" means that two physically separated insulation systems have been used to insulate the electrically conductive materials connected to the power supply from the outer frame handled by the operator. Therefore, either the symbol "□" or the words and "Double insulation" appear on the power tool or on the nameplate.

Although this system has no external grounding, you must still follow the normal electrical safety precautions given in this Instruction Manual, including not using the power tool in wet environments.

To keep the double insulation system effective, follow these precautions:

- Only HITACHI AUTHORIZED SERVICE CENTER should disassemble or assemble this power tool, and only genuine HITACHI replacement parts should be installed.
- Clean the exterior of the power tool only with a soft cloth moistened with soapy water, and dry thoroughly.
Never use solvents, gasoline or thinners on plastic components; otherwise the plastic may dissolve.

**SAVE THESE INSTRUCTIONS
AND
MAKE THEM AVAILABLE TO
OTHER USERS OF THIS TOOL!**

OPERATION AND MAINTENANCE

NOTE:

The information contained in this Instruction Manual is designed to assist you in the safe operation and maintenance of the power tool.

Some illustrations in this Instruction Manual may show details or attachments that differ from those on your own power tool.

NAME OF PARTS

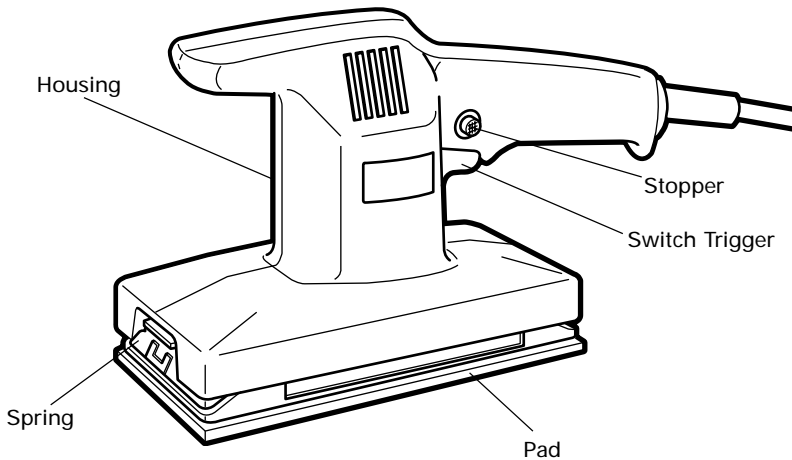


Fig. 1

SPECIFICATIONS

Motor	Single-Phase Series Commutator Motor
Power Source	Single-Phase 115V AC 60Hz
Current	1.7A
Input	180W
No-Load Speed	10,000 rpm
Dia. of Orbit	5/64" (2mm)
Sanding Pad Size	3-5/8" x 7-1/4" (92mm x 184mm)
Sanding Paper Size	3-5/8" x 9" (92mm x 228mm)
Weight	3.1 lbs(1.4kg)

ACCESSORIES

- ⚠ WARNING:** Accessories for this power tool are mentioned in this Instruction Manual.
The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

STANDARD ACCESSORIES

- Sanding paper 3
(Grain: #60, #100, #150 1 each)

OPTIONAL ACCESSORIES .. sold separately

- Sanding paper (3 types)

Grain	Code No.
#60	879371
#100	879373
#150	879375

- Dust Cover (Code No. 879390)
 Adapter (Code No. 963558)

NOTE:

Accessories are subject to change without any obligation on the part of the HITACHI.

APPLICATIONS

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

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power source requirements specified on the product nameplate.

2. Power switch

Ensure that the switch is in the OFF position. If the plug is connected to a receptacle while the switch is in the ON position, the power tool will start operating immediately and can cause serious injury.

3. Extension cord

When the work area is far away from the power source, use an extension cord of sufficient thickness and rated capacity (refer to page 8). The extension cord should be kept as short as practicable.

⚠ WARNING: Damaged cord must be replaced or repaired.

4. Check the receptacle

If the receptacle only loosely accepts the plug, the receptacle must be repaired. Consult an authorized electrician to make appropriate repairs. If such a faulty receptacle is used, it may cause overheating, resulting in firing.

5. Check your working environment

Ensure the following before operation;

- No flammable gas, liquid, or object at worksite.
- Sanding thin steel sheet may cause a high booming sound. In this case, place a rubber mat under the workpiece.
- Take appropriate noise preventive measures to prevent adverse effects on the environment by electrical noise.
- Clear the area of children or unauthorized personnel.

6. Installing the Sanding Papers

Insert a sanding paper while unfastening the spring as shown in Fig. 2. Align the sanding paper in parallel with the pad and pull it tight. Should the sanding paper be loosely mounted, the finishing will become uneven or the sanding paper may be damaged.

(To facilitate mounting the sanding paper)

After engaging the one side of sanding paper, fold the other side 3/8" (10mm) from the edge as shown in Fig. 3. Fold the sanding paper again 3/8" (10mm) from the folded edge.

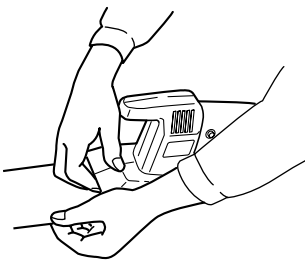


Fig. 2

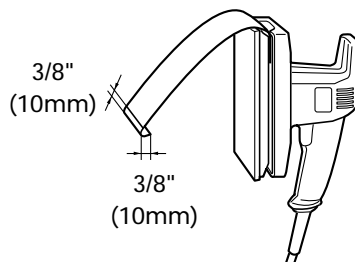


Fig. 3

PRACTICAL OPERATING PROCEDURES

⚠ CAUTION: Never apply water or grinding fluid when sanding.
This could result in electrical shock.

1. Switching the sander ON and OFF

By pulling the trigger and pushing the stopper, the switch will remain ON even when the trigger is released, promoting continuous, efficient operation. By pulling the trigger again, the stopper is released and the switch is turned OFF.

⚠ CAUTION: Never turn the power switch ON when the sander is contacting the surface to be sanded. This is necessary to preclude damage to the material. The same applies when switching the power OFF.

2. How to hold the orbital sander

While gripping the knob with one hand and the handle with the other, lightly press the sander against the surface to be sanded so that the sanding paper uniformly contacts the surface. DO NOT apply excessive pressure to the sander while sanding. Excessive pressure may cause overload of the motor, reduced service life of the sanding paper, and lower sanding or polishing efficiency. Also, while sanding or polishing, never cover the ventilation port on the upper motor housing. This could cause overheating and subsequent damage to the tool.

3. How move the orbital sander

For optimum operating efficiency, alternately move the sander forward and backward at a constant speed and balance.

4. After installing new sanding paper

Movement of the sander may tend to become unsteady after new sanding paper has been installed, because of the new, coarse grain of the paper. This can be avoided by slightly tilting the sander forward or backward during sanding or polishing. Sander movement will become steady as the sanding paper surface becomes properly abraded.

HOW TO INSTALL THE OPTIONAL ACCESSORIES

1. Installing the dust cover

Position the dust cover as shown in Fig. 4. Engage the dust cover rear as shown in Fig. 5 and depress the dust cover front downward.

2. Installing the cleaner

Connect the suction hose to the dust cover hole. (If the suction hose cannot be connected, attach the supplied adaptor and fix with tape.)

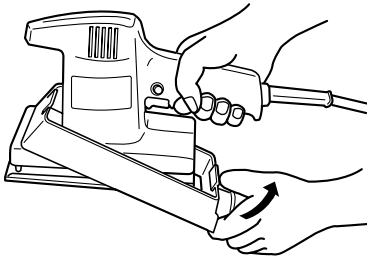


Fig. 4

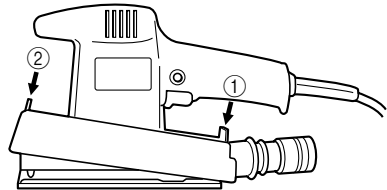


Fig. 5

MAINTENANCE AND INSPECTION

⚠ WARNING: Be sure to switch power OFF and disconnect the plug from the receptacle during maintenance and inspection.

1. Inspecting the sanding paper

Since continuous use of worn sanding paper will definitely result in low sanding or polishing efficiency, replace it with new paper as necessary.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately.

⚠ WARNING: Using this sander with loosen screws is extremely dangerous.

3. Maintenance of the motor

The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

4. Inspecting the carbon brushes

For your continued safety and electrical protection, carbon brush inspection and replacement on this tool should ONLY be performed by a HITACHI AUTHORIZED SERVICE CENTER.

5. Keeping after use

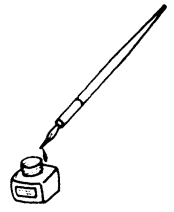
When not in use, the sander should be kept in a dry place out of the reach of children.

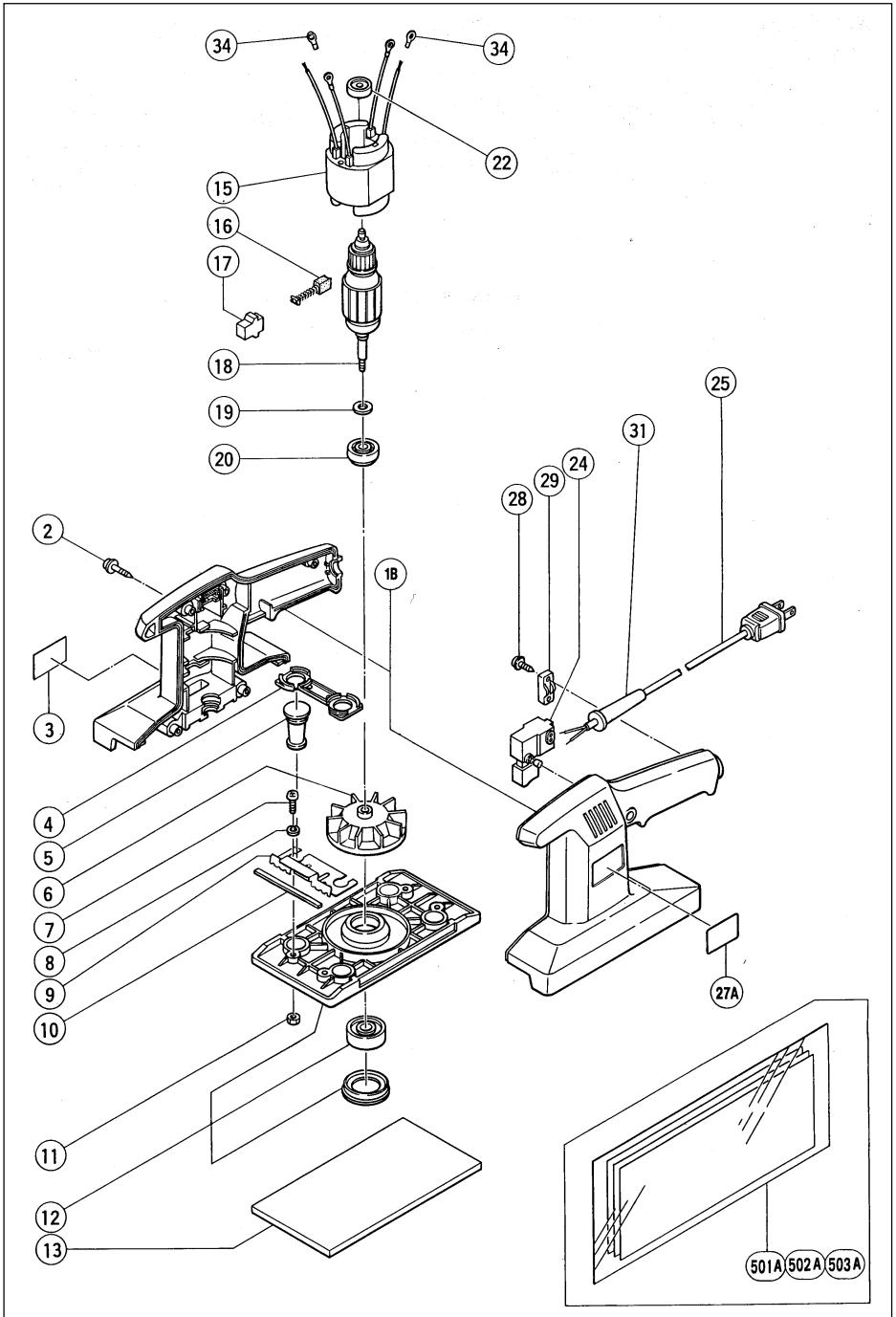
SERVICE AND REPAIRS

All quality power tools will eventually require servicing or replacement of parts because of wear from normal use. To assure that only genuine replacement parts will be used, all service and repairs must be performed by a HITACHI AUTHORIZED SERVICE CENTER, ONLY.

NOTE:

Specifications are subject to change without any obligation on the part of the HITACHI.





Item No.	Part Name
1B	Housing (A)•(B) Set
2	Tapping Screw (W/Washer) D4 × 20
3	Nameplate
4	Leg Holder
5	Leg
6	Fan
7	Machine Screw M4 × 10
8	Spring Washer M4
9	Paper Holder
10	Support
11	Nut M4
12	Base Ass'y
13	Pad
15	Stator
16	Carbon Brush
17	Brush Holder
18	Armature
19	Washer (D)
20	Ball Bearing (608VVMC2EPS2L)
22	Metal
24	Switch
25	Cord
27A	HITACHI Label
28	Tapping Screw (W/Flange) D4 × 16
29	Cord Clip
31	Cord Armor
34	Terminal (A) M3.5

Item No.	Part Name
501A	Sanding Paper G60
502A	Sanding Paper G100
503A	Sanding Paper G150

Parts are subject to change without any obligation on the part of the HITACHI due to improvements.

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