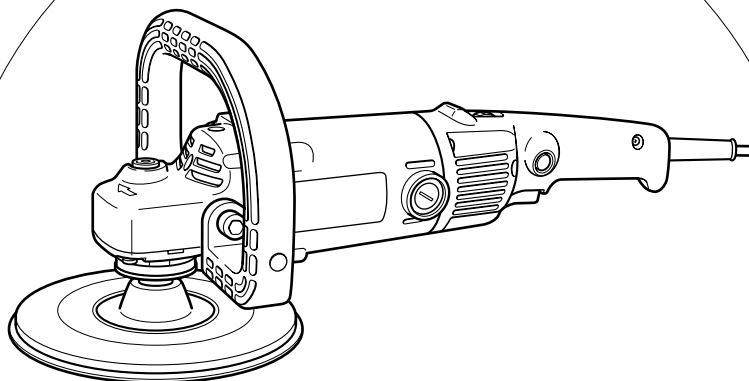


HITACHI

Electronic Sander Polisher Model SP 18VA

Handling instructions



Note:

Before using this Electric Power Tool, carefully read through these HANDLING INSTRUCTIONS to ensure efficient, safe operation. It is recommended that these INSTRUCTIONS be kept readily available as an important reference when using this power tool.



Hitachi Koki

GENERAL SAFETY RULES

WARNING!

Read all instructions

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

1) Work area

- a) **Keep work area clean and well lit.**
Cluttered and dark areas invite accidents.
- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.**
Power tools create sparks which may ignite the dust of fumes.
- c) **Keep children and bystanders away while operating a power tool.**
Distractions can cause you to lose control.

2) Electrical safety

- a) **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.**
Unmodified plugs and matching outlets will reduce risk of electric shock.
- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.**
There is an increased risk of electric shock if your body is earthed or grounded.
- c) **Do not expose power tools to rain or wet conditions.**
Water entering a power tool will increase the risk of electric shock.
- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.**
Damaged or entangled cords increase the risk of electric shock.
- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.**
Use of a cord suitable for outdoor use reduces the risk of electric shock

3) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.**
A moment of inattention while operating power tools may result in serious personal injury.
- b) **Use safety equipment. Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.**
- c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.**
Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.

- d) **Remove any adjusting key or wrench before turning the power tool on.**

A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

- e) **Do not overreach. Keep proper footing and balance at all times.**

This enables better control of the power tool in unexpected situations.

- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.**

Loose clothes, jewellery or long hair can be caught in moving parts.

- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.**

Use of these devices can reduce dust related hazards.

4) Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.**

The correct power tool will do the job better and safer at the rate for which it was designed.

- b) **Do not use the power tool if the switch does not turn it on and off.**

Any power tool that cannot be controlled with the switch is dangerous and must be repaired.

- c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.**

Such preventive safety measures reduce the risk of starting the power tool accidentally.

- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.**

Power tools are dangerous in the hands of untrained users.

- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation.**

If damaged, have the power tool repaired before use.

Many accidents are caused by poorly maintained power tools.

- f) **Keep cutting tools sharp and clean.**

Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

- g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.**

Use of the power tool for operations different from intended could result in a hazardous situation.

5) Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.**

This will ensure that the safety of the power tool is maintained.

PRECAUTION

Keep children and infirm persons away.

When not in use, tools should be stored out of reach of children and infirm persons.

SAFETY WARNINGS COMMON FOR GRINDING OR POLISHING OPERATIONS

- a) **This power tool is intended to function as a grinder or polisher tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool.**

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

- b) **Operations such as sanding, wire brushing or cutting-off are not recommended to be performed with this power tool.**

Operations for which the power tool was not designed may create a hazard and cause personal injury.

- c) **Do not use accessories which are not specifically designed and recommended by the tool manufacturer.**

Just because the accessory can be attached to your power tool, it does not assure safe operation.

- d) **The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool.**

Accessories running faster than their rated speed can break and fly apart.

- e) **The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool.**

Incorrectly sized accessories cannot be adequately guarded or controlled.

- f) **The arbour size of wheels, flanges, backing pads or any other accessory must properly fit the spindle of the power tool.**

Accessories with arbour holes that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.

- g) **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, backing pad for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.**

Damaged accessories will normally break apart during this test time.

- h) **Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments.**

The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtering particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.

- i) **Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.**

Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.

- j) **Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.**

Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and shock the operator.

SAFETY WARNINGS SPECIFIC FOR SANDING OPERATIONS

- a) **Do not use excessively oversized sanding disc paper. Follow manufacturers recommendations, when selecting sanding paper.**

Larger sanding paper extending beyond the sanding pad presents a laceration hazard and may cause snagging, tearing of the disc or kickback.

SAFETY WARNINGS SPECIFIC FOR POLISHING OPERATIONS

- a) **Do not allow any loose portion of the polishing bonnet or its attachment strings to spin freely. Tuck away or trim any loose attachment strings.**

Loose and spinning attachment strings can entangle your fingers or snag on the workpiece.

PRECAUTIONS ON USING ELECTRONIC SANDER POLISHER

1. Never mount a grinding wheel and attempt to use this tool as a disc grinder.
2. Always hold the body handle and side handle of the power tool firmly
Otherwise the counterforce produced may result in inaccurate and even dangerous operation.
3. Ensure that sparks resulting from use do not create a hazard e. g. do not hit persons, or ignite flammable substances.
4. Always use protective safety glasses and hearing protectors, use other personal protective equipment such as gloves, apron and helmet when necessary.
5. Always use eye and ear protection.
Other personal protective equipment such as dust mask, gloves, helmet and apron should be worn when necessary.
If in doubt, wear the protective equipment.

SPECIFICATIONS

Voltage (by areas)*	(110V, 120V, 220V, 230V, 240V) ~
Power input	1250 W*
No load speed	0 – 3400min ⁻¹
Sanding Disc Size outer dia. × inner dia.	180 × 22 mm
Weight (without cord, standard accessories)	2.8 kg

*Be sure to check the nameplate on product as it is subject to change by areas.

STANDARD ACCESSORIES

- (1) Rubber Pad 1
 (2) Loop Handle (with bolt and washer) 1
 (3) Bar Wrench 1
 Standard accessories are subject to change without notice.

APPLICATIONS

- Grinding metal surfaces
- Preliminary sanding of metal surfaces before painting, rust removal, removing old paint before repainting.
- Finishing woodwork, correcting projections of timber from joints or assemblies.
- Preliminary sanding of wood surfaces before applying paint.
- Polishing or shining painted metal surfaces, such as those of automobiles, trains, elevators, refrigerators, sewing machines, washing machines, metal appliances, etc.
- Polishing varnished surfaces of wooden furniture, etc.
- Shining synthetic resin or ebonite products.

PRIOR TO OPERATION

- 1. Power source**
 Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.
CAUTION
 Do not operate on Direct Current power source.
- 2. Power switch**
 Ensure that the power switch is in the OFF position. If the plug is connected to a receptacle while the power switch is in the ON position, the power tool will start operating immediately, which could cause a serious accident.
- 3. Extension cord**
 When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.
- 4. Confirm the lock pin**
 Confirm that the lock pin is disengaged by pushing the lock pin two or three times before switching the power tool on. (See Fig. 1)

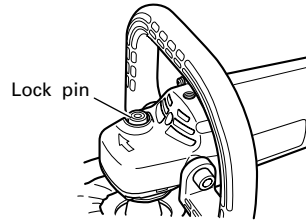


Fig. 1

5. Fixing the loop handle

Fix the loop handle with a bolt and a washer to the gear cover.

PRACTICAL ELECTRONIC SANDER POLISHER APPLICATIONS

Motor speed is increased by increasing pressure on the trigger. Release the trigger to stop. For continuous operation, pull the trigger and then push in the lock button. To stop the motor from the locked position, pull the trigger full, then release it.

Motor speed can be variable as desired by rotating the dial; it is increased by turning the dial towards "6", decreased by turning it towards "1" (Fig. 2).

Select the motor speed appropriate for the work being done. The following table gives the motor speeds corresponding to each indication on the dial scale and shows the types of work for which they are suitable.

Dial Indication	R.P.M.	Type of work
1	600	For Polishing
2	1100	
3	1700	
4	2300	For Sanding
5	2900	
6	3400	

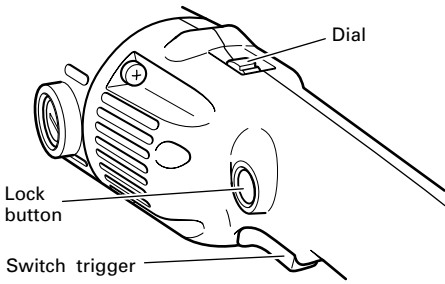


Fig. 2

CAUTION

The dial cannot be rotated further than the “6” or “1” on the scale in their respective directions.

1. Sander operation

(1) This unit is designed to provide sufficient polishing (sanding) power with the disc pressed lightly against the sanding/polishing surface: it is equipped with an electronic control circuit to ensure that the motor will not slow down even when loaded. There is therefore no need to press the sanding disc hard against the surface; doing so can overload the motor, subsequently causing the overload cut device to step into operation by cutting the motor's power supply.

If this should happen, cut the power switch and turn at the correct motor speed.

(2) Do not apply the entire disc surface to the surface of the material. As shown in Fig. 3, the sander should be held at an approximately 15° to 25° angle in relation to the material surface so that the peripheral portion of the sanding disc is offered to the material surface.

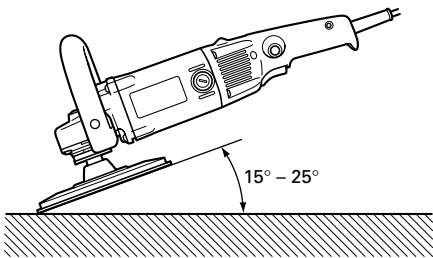


Fig. 3

(3) Precaution immediately after finishing an operation: After turning the switch OFF, do not put the sander down until the sanding disc has come to a complete stop. This precaution will not only prevent a serious accident, but will also reduce the amount of dust and swarf sucked into the machine.

2. Polisher operation:

(1) Curved surfaces as well as flat surfaces can be efficiently finished. Do not excessively push the polisher against the surface of the material. The weight of the polisher alone is sufficient for effective polishing. Excessive pressure will result in a poor finish and cause possible overload to the motor.

- (2) Sanding disc, polishing compound or wax should be selected in accordance with the material and the desired surface finish. Maximum polishing effect will be attained by following the following method:
 - Preliminary polishing with sander using a finegrain sanding disc.
 - Polishing with wool bonnet using polishing compound and/or wax. Apply a small quantity of compound and/or wax on material surface and polish with the wool bonnet.

CAUTION

Carefully guard against permitting the cable to touch the wool bonnet or sanding disc during operation. If the cord touches, there is a danger that it may become entangled.

MOUNTING AND DISMOUNTING THE SANDING DISC AND WOOL BONNET

1. For Sander operation (Fig. 4)

- (1) After placing the sanding disc on the rubber pad, thread the washer nut onto the spindle.
- (2) Press the lock pin to secure the spindle and tighten the washer nut with a wrench.
- (3) To remove the sanding disc, follow the above procedures in reverse.

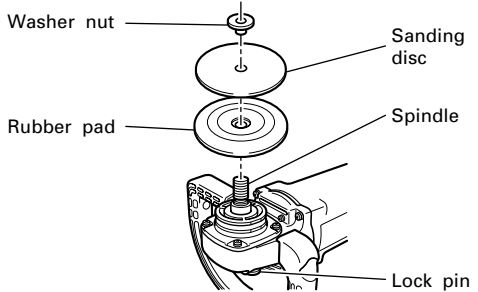


Fig. 4

2. For Polisher operation (Fig. 5)

- (1) Insert the washer nut through the rubber pad and thread it onto the spindle.
- (2) Press the lock pin to secure the spindle and tighten the washer nut with a wrench.
- (3) As shown in Fig. 6, wrap the rubber pad with the hood of the wool bonnet, and firmly secure it by tightening and tying its draw string. Be sure the excess string is firmly tucked inside the wool bonnet to prevent it from flying out while polishing.

CAUTION

Improper fitting of the wool bonnet may cause vibration.

- (4) To remove the wool bonnet, follow the above procedures in reverse.

CAUTIONS

- Use a wrench to tighten the washer nut sufficiently.
- After releasing the lock pin, check to be sure that it has returned to its normal position.

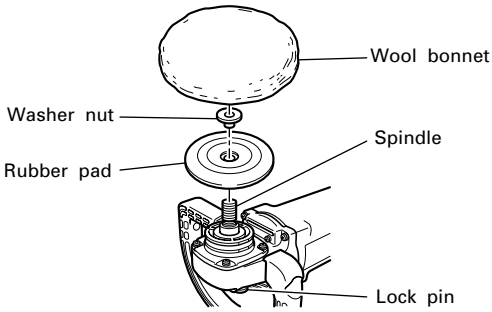


Fig. 5

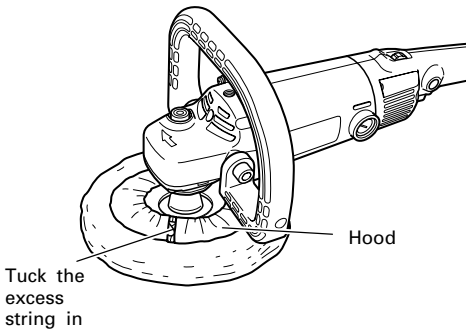


Fig. 6

3. Replacing a carbon brush:

Disassemble the brush cap with a minus-head screwdriver. The carbon brush can then be easily removed.

4. 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.

5. Cleaning lock pin section

If the lock pin section becomes dirty, clean it at once.

6. Service parts list

CAUTION

Repair, modification and inspection of Hitachi Power Tools must be carried out by a Hitachi Authorized Service Center.

This Parts List will be helpful if presented with the tool to the Hitachi Authorized Service Center when requesting repair or other maintenance.

In the operation and maintenance of power tools, the safety regulations and standards prescribed in each country must be observed.

MODIFICATIONS

Hitachi Power Tools are constantly being improved and modified to incorporate the latest technological advancements.

Accordingly, some parts (i.e. code numbers and/or design) may be changed without prior notice.

NOTE

Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.

MAINTENANCE AND INSPECTION

1. 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. Failure to do so could result in serious hazard.

2. Inspecting the carbon brushes (Fig. 7)

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush can result in motor trouble, replace the carbon brush with a new one having the same carbon brush No. shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

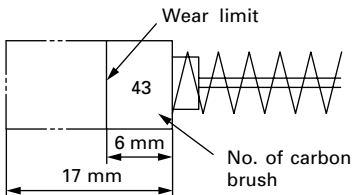
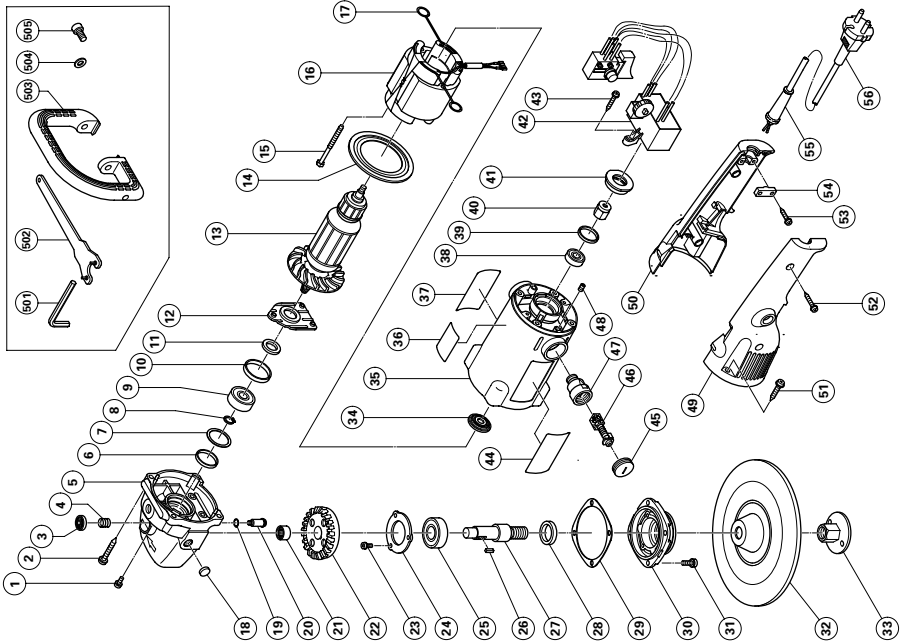


Fig. 7

Item No.	Code No.	No. Used	Remarks	Item No.	Code No.	No. Used	Remarks
1	303-255	3	M4×10	42	1 320-941	1	
2	305-507	4	D5×30	42	2 320-940	1	"GBR (110V)"
3	306-888	1		43	305-095	2	D4×20
4	306-889	1		44		1	
5	320-936	1	"3, 4, 18-21"	45	945-161	2	
6	315-055	1		46	999-043	2	
7	315-054	1		47	958-900	2	
8	939-540	1		48	938-477	2	M5×8
9	620-0DD	1	620DDC MPS2L	49	320-939	1	
10	315-053	1		50	320-938	1	
11	315-052	1		51	302-099	4	D5×20
12	315-051	1		52	302-086	2	D4×20
13	1 360-576U	1	110V-120V "9, 11, 34, 38" 220V-240V	53	984-750	2	D4×16
13	2 360-576E	1		54	937-631	1	
14	315-046	1		55	953-327	1	
15	961-501	2	D5×60	56		1	8MM
16	1 340-526C	1	110V "17"	501	955-857	1	
16	2 340-526E	1	220V-240V	502	937-913Z	1	
17	930-703	2		503	320-949	1	
18	315-049	1		504	949-434	2	M10
19	320-218	1		505	949-844	2	M10×20
20	315-050	1					
21	871-397	1					
22	320-937	1					
23	987-201	3					
24	937-077	1	M4×10				
25	620-2DD	1	620DDC MPS2L				
26	940-533	1	3×3×10				
27	320-943	1					
28	315-062	1					
29	315-060	1					
30	315-061	1					
31	315-636	4	M5×14				
32	953-247Z	1					
33	953-246Z	1					
34	315-047	1					
35	320-945	1	"39, 41, 47, 48"				
36	320-948	1					
37		1					
38	608-VVM	1	608VVC2PS2L				
39	995-662	1					
40	318-721	1					
41	320-949	1					



 **Hitachi Koki Co., Ltd.**

Shinagawa Intercity Tower A, 15-1, Konan 2-chome,
Minato-ku, Tokyo, Japan

801
Code No. C99110311
Printed in Malaysia