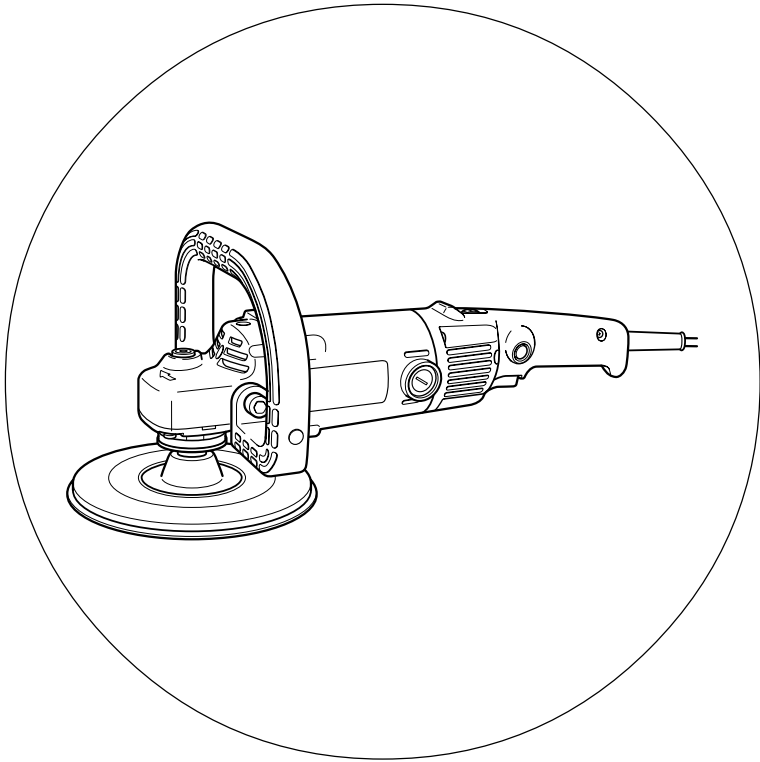


HITACHI

磨光抛光双用机 Electronic Sander Polisher

SP 18VA

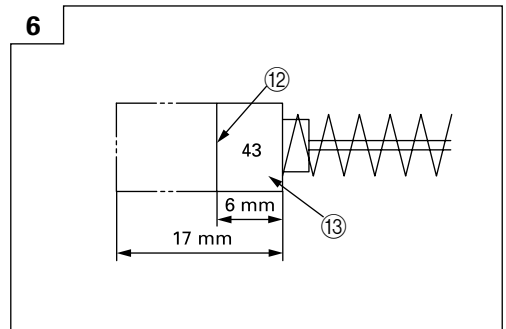
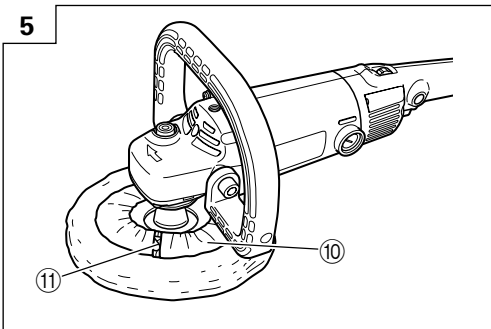
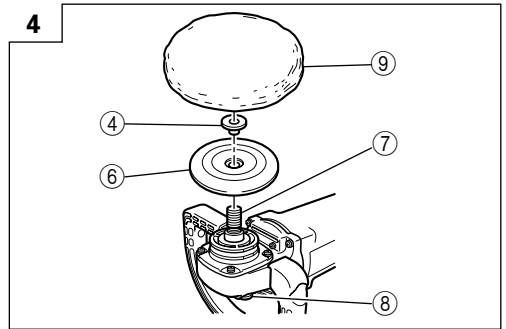
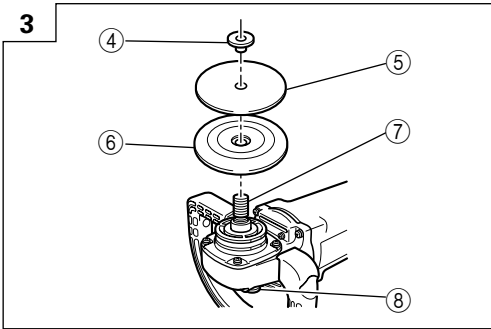
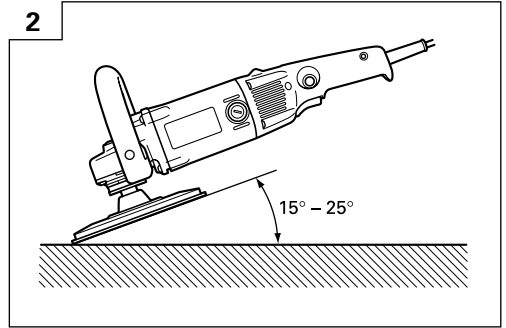
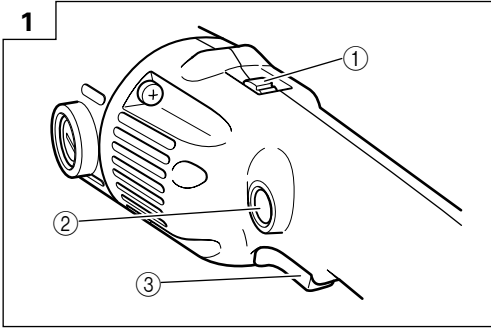
使用说明书
HANDLING INSTRUCTIONS



使用前务请详加阅读

Read through carefully and understand these instructions before use.

Hitachi Koki



①	转盘	Dial
②	锁定键	Lock button
③	触发开关	Switch trigger
④	垫片螺帽	Washer nut
⑤	砂盘	Sanding disc
⑥	橡胶垫圈	Rubber pad
⑦	轴	Spindle
⑧	锁定销	Lock pin
⑨	毛罩	Wool bonnet
⑩	护罩	Hood
⑪	收起多余的线	Tuck the excess string in
⑫	磨损极限	Wear limit
⑬	碳刷号	No. of carbon brush

一般安全规则

警告！

阅读说明

没有按照以下列举的说明而使用或操作将导致触电、着火和/或严重伤害。

在所有以下列举的警告中术语“电动工具”指市电驱动（有线）电动工具或电池驱动（无线）电动工具。

保存这些说明

1) 工作场地

- a) 保持工作场地清洁和明亮。
混乱和黑暗的场地会引发事故。
- b) 不要在易爆环境，如有易燃液体、气体或粉尘的环境下操作电动工具。
电动工具产生的火花会点燃粉尘或气体。
- c) 让儿童和旁观者离开后操纵电动工具。
分心会使你放松控制。

2) 电气安全

- a) 电动工具插头必须与插座相配。
绝不能以任何方式改装插头。
需接地的电动工具不能使用任何转换插头。
未经改装的插头和相配的插座将减少触电危险。
- b) 避免人体接触接地表面，如管道、散热片和冰箱。
如果你身体接地会增加触电危险。
- c) 不得将电动工具暴露在雨中或潮湿环境中。
水进入电动工具将增加触电危险。
- d) 不得滥用电线。
绝不能用电线搬运、拉动电动工具或拔出其插头。
让电动工具远离热、油、锐边或运动部件。
受损或缠绕的电线会增加触电危险。
- e) 当在户外使用电动工具时，使用适合户外的外接电线。
适合户外使用的电线将减少触电危险。

3) 人身安全

- a) 保持警觉，当操作电动工具时关注所从事的操作并保持清醒。
切勿在有疲倦、药物、酒精或治疗反应下操作电动工具。
在操作电动工具期间精力分散会导致严重人身伤害。
- b) 使用安全装置。始终配戴护目镜。
安全装置，诸如适当条件下的防尘面具、防滑安全鞋、安全帽、听力防护等装置能减少人身伤害。
- c) 避免突然起动。
确保开关在插入插头时处于关断位置。
手指放在已接通电源的开关上或开关处于接通时插入插头可能会导致危险。

d) 在电动工具接通之前，拿掉所有调节钥匙或扳手。
遗留在电动工具旋转零件上的扳手或钥匙会导致人身伤害。

e) 手不要伸得太长。
时刻注意脚下和身体平衡。
这样在意外情况下能很好地控制电动工具。

f) 着装适当。
不要穿宽松衣服或佩带饰品。
让你的头发、衣服和袖子远离运动部件。
宽松衣服、佩饰或长发可能会卷入运动部件。

g) 如果提供了与排屑装置、集尘设备连接用的装置，则确保他们连接完好且使用得当。
使用这些装置可减少碎屑引起的危险。

4) 电动工具使用和注意事项

- a) 不要滥用电动工具，根据用途使用适当的电动工具。
选用适当的设计额定值的电动工具会使你工作更有效、更安全。
- b) 如果开关不能接通或关断工具电源，则不能使用该电动工具。
不能用开关来控制的电动工具是危险的且必须进行修理。
- c) 在进行任何调节、更换附件或贮存电动工具之前，必须从电源上拔掉插头和/或将电池盒断开电源。
这种防护性措施将减少电动工具突然起动的危险。
- d) 将闲置电动工具贮存在儿童所及范围之外，并且不要让不熟悉电动工具或对这些说明不了解的人操作电动工具。
电动工具在未经训练的用户手中是危险的。
- e) 保养电动工具。检查运动件的安装偏差或卡住、零件破损情况和影响电动工具运行的其他条件。
如有损坏，电动工具必须在使用前修理好。
许多事故由维护不良的电动工具引发。
- f) 保持切削刀具锋利和清洁。
保养良好的有锋利切削刃的刀具不易卡住而且容易控制。
- g) 按照使用说明书以及打算使用的电动工具的特殊类型要求的方式，考虑作业条件和进行的作业来使用电动工具、附件和工具的刀头等。
将电动工具用作那些与要求不符的操作可能会导致危险情况。

5) 维修

- a) 将你的电动工具送交专业维修人员，必须使用同样的备件进行更换。
这样将确保所维修的电动工具的安全性。

注意事项

不可让儿童和体弱人士靠近工作场所。
应将不使用的工具存放在儿童和体弱人士接触不到的地方。

砂磨，砂光，钢丝砂光，抛光或砂磨切割操作的通用安全警告

- a) 该电动工具是用于实现砂光机，抛光机功能的。阅读随该电动工具提供的所有安全警告、说明、图解和规定。
不了解以下所列所有说明将导致电击、着火和/或严重伤害。
- b) 不推荐用该电动工具进行诸如砂磨、刷光或切断等操作。
电动工具不按指定的功能去操作，可能会发生危险和引起人身伤害。
- c) 不使用非工具制造商推荐和专门设计的附件。
否则该附件可能被装到你的电动工具上，而它不能保证安全操作。
- d) 附件的额定速度必须至少等于电动工具上标出的最大速度。
附件以比其额定速度大的速度运转会发生爆裂和飞溅。
- e) 附件的外径和厚度必须在电动工具额定能力范围之内。
不正确的附件尺寸不能得到充分防护或控制。
- f) 砂轮、法兰盘、靠背垫或任何其他附件的轴孔尺寸必须适合于安装到电动工具的主轴上。
带轴孔的、与电动工具安装件不配的附件将会失稳、过度振动并会引起失控。
- g) 不要使用损坏的附件。在每次使用前要检查附件，例如砂轮是否有碎片和裂缝，靠背垫是否有裂缝、撕裂或过度磨损，钢丝刷是否松动或金属丝是否断裂。如果电动工具或附件跌落了，检查是否有损坏或安装没有损坏的附件。检查和安装附件后，让自己和旁观者的位置远离旋转附件的平面，并以电动工具最大空载速度运行1min。
损坏的附件通常在该试验时会碎裂。
- h) 戴上防护用品。根据适用情况，使用面罩、安全护目镜或安全眼镜。适用时，戴上防尘面具、听力保护器、手套和能挡小磨料或工件碎片的工作围裙。
眼防护罩必须挡住各种操作产生的飞屑。防尘面具或口罩必须能过滤操作产生的颗粒。长期暴露在高强度噪声中会引起失聪。
- i) 让旁观者与工作区域保持一安全距离。任何进入工作区域的人必须戴上防护用品。

- 工件或破损附件的碎片可能会飞出并引起紧靠着操作区域的旁观者的伤害。切割附件触及带电导线会使电动工具外露的金属零件带电，并使操作者触电。
- j) 当在切割附件有可能切割到暗线或自身电线的场所进行操作时，只能通过绝缘握持面来握住电动工具。
切割附件碰到一根带电导线可能会使电动工具的外露金属零件带电并使操作者发生电击危险。
- k) 使软线远离旋转的附件。
如果控制不当、软线可能被切断或缠绕，并使得你的手或手臂可能被卷入旋转附件中。
- l) 直到附件完全停止运动才放下电动工具。
旋转的附件可能会抓住表面并拉动电动工具而让你失去对工具的控制。
- m) 当携带电动工具时不要开动它。
意外地触及旋转附件可能会缠绕你的衣服而使附件伤害身体。
- n) 经常清理电动工具的通风口。
电动机风扇会将灰尘吸进机壳，过多的金属粉末沉积会导致电气危险。
- o) 不要在易燃材料附件操作电动工具。
火星可能会点燃这些材料。
- p) 不要使用需用冷却液的附件。
用水或其他冷却液可能会导致电腐蚀或电击。

反弹和相关警告

反弹是因卡住或缠绕住的旋转砂轮、靠背垫、或其他附件而产生的突然反作用力。卡住或缠绕会引起旋转附件的迅速堵转，随之使失控的电动工具在卡住点产生与附件旋转方向相反的运动。
例如，如果砂轮被工件缠绕或卡住，伸入卡住点的砂轮边缘可能会进入材料表面而引起砂轮爬出或反弹。砂轮可能飞向或飞离操作者，这取决于砂轮在卡住点的运动方向。在此条件下砂轮也可能碎裂。
反弹是电动工具误用和/或不正确操作工序或条件的结果，可以通过采取以下给出的适当预防措施得以避免。

- a) 保持紧握电动工具，使你的身体和手臂处于正确状态以抵抗反弹力。如有辅助手柄，则要一直使用，以便最大限度控制住起动时的反弹力或反力矩。

如采取合适的预防措施，操作者就可以控制反力矩或反弹力。

- b) 绝不能将手靠近旋转附件。
附件可能会反弹碰到手。
- c) 不要站在发生反弹时电动工具可能移动到的地方。
反弹将在缠绕点驱使工具逆砂轮运动方向运动。
- d) 当在尖角、锐边等处作业时要特别小心。避免附件的弹跳和缠绕。
尖角、锐边和弹跳具有缠绕旋转附件的趋势并引起反弹的失控。
- e) 不要附上锯链、木雕刀片或带齿锯片。
这些锯片会产生频繁的反弹和失控。

砂光操作的专用安全警告

- a) 当砂光时，不要使用超大砂盘纸。选用砂盘纸时应按照制造商的推荐。
超出砂光垫盘的大砂盘纸有撕裂的危险并且会引起缠绕、砂盘的撕裂或反弹。

规格

电压（按地区）*	(110V, 120V, 220V, 230V, 240V) ~
输入功率*	1250 W*
无负荷速度	0 - 3400 min ⁻¹
砂盘的尺寸，外径×内径	180×22 mm
重量（不含线缆、标准附件）	2.8 kg

* 当须改变地区时应检查产品上的铭牌。

标准附件

- (1) 橡胶垫圈 1
 - (2) 环形柄（带螺栓和衬垫） 1
 - (3) 扳手 1
- 标准附件可能不预先通告而径予更改。

抛光操作的专用安全警告

- a) 不允许抛光帽或附带绳索有任何松动部分而随意旋转，收拢或调整松动的附带绳索。
松动而旋转的附带绳索会将手指缠住或在工件上卡住。

使用磨光抛光两用机时的注意事项

1. 千万不要装上砂轮，并象使用角磨机那样去试着使用磨光抛光两用机。
2. 使用时，要抓紧磨光抛光两用机上的手柄和机边的边柄。
否则在操作过程中，电动机所产生的反作用力将可能引起危险或达不到操作的目的。
3. 确保使用时产生的火花不会造成伤害或损害，例如不要溅到身体或易燃物上。
4. 请始终戴上安全眼镜和耳塞，必要时请使用手套、围裙和头盔等其他个人防护用品。
5. 请始终采取视力和听力保护。
必要时，应使用其他个人防护用品，如防尘面罩、手套、头盔和围裙等。

用途

- 金属表面的打磨。
- 油漆前的金属表面的初步磨光，金属表面上的铁锈或旧漆的清除。
- 木工件的最后加工，接合面或装配面上木料的突出部分。
- 油漆前的木材表面的初步磨光。

- 诸如汽车、火车、电梯、电冰箱、缝纫机、洗衣机、金属器械等涂有油漆的金属表面的抛光和打亮。
- 涂有清漆的木制家具表面的抛光等。
- 合成树脂和硬橡胶制品的打亮。

作业之前

1. 电源

确认所使用的电源与工具铭牌上标示的规格是否符合。

注意：

请勿在直流电源下操作。

2. 电源开关

确认电源开关是否切断。若电源开关接通，则插头插入电源插座时电动工具将出其不意地立刻转动，从而招致严重事故。

3. 延伸电缆

若作业场所移到离开电源的地点，应使用足够粗和额定容量的延伸线缆，并且要尽可能地短些。

4. 检查锁定销

在接通电动工具的电源开关之前，请按锁定销二、三次以检查锁定销。（参见图 3、4）

5. 固定环形柄

用螺栓和衬垫将环形柄固定在齿轮盖上。

磨光抛光双用机的实际应用

增大触发开关上的压力可提高马达的转速，松开触发开关则马达停止转动。

要进行连续操作时，拉出触发开关后按下锁定键；要由锁定位置使马达停止转动时，完全拉出触发开关后松开即可。根据需要转动转盘可调整马达的转速。朝“6”方向转动可提高转速，朝“1”方向转动可降低转速（图 1）。

请选择适合作业的马达转速。下表给出相应于转盘上各种显示的马达转速并指出所适合工作的类型。

转盘指示	每分钟转速	工作类型
1	600	抛光
2	1100	
3	1700	
4	2300	磨光
5	2900	
6	3400	

注意：

转动转盘时，不能使之超越转盘上的“6”或“1”。

1. 磨光机操作

- (1) 本机用于在砂盘轻压于抛光（磨光）面的状态下提供足够的抛光（磨光）力：它具有电子控制电路以保证即使在负载的状态下马达也不会减速。因此，无需用力将砂盘按压在加工面上，否则会导致马达过载，而使过载断电装置启动并切断马达的电源。遇此情况时，请关闭电源开关并调整到正确的马达转速位置。
- (2) 请勿将整个砂盘面按压在材料表面上。如图 2 所示，应使磨光机相对于材料表面处于约 15 度至 25 度的角度，以使砂盘的外缘部分接触材料表面。
- (3) 作业结束后须知：将开关转至 OFF 位置后，在砂盘完全停止转动后方可放下磨光机。这不但可以防止重大事故的发生，而且还可以减少吸入机器内部的灰尘和碎屑。

2. 抛光机操作

- (1) 弯曲的加工面和平整的加工面均可有效地进行抛光。请勿过分用力地将抛光机按压在加工材料面上。抛光机自身的重量已足以进行有效的抛光作业。过分用力按压将导致抛光不良或可能会导致马达过载。
- (2) 应根据加工材料和所需的表面抛光要求来选择砂盘、抛光剂和蜡。采用下述方法可获得最佳的抛光效果：

- 使用细密砂盘，用磨光机进行初步抛光。
- 使用抛光剂和（或）蜡，用毛罩进行抛光。请在材料加工面上涂少量抛光剂和（或）蜡并用毛罩进行抛光。

注意：

在作业中请注意不要使橡皮绝缘线接触到毛罩或砂盘。否则，可能发生缠绕的危险。

砂盘和毛罩的安装和拆卸

1. 操作磨光机时（图 3）

- (1) 将砂盘放置在橡胶垫圈上后，将垫片螺帽拧紧固定于轴上。
- (2) 按锁定销以固定轴，并用板钳拧紧垫片螺帽。

- (3) 要拆卸砂盘时，请按照上述相反的步骤进行。
2. 操作抛光机时（图 4）
- (1) 通过橡胶垫圈插入垫片螺帽并将它拧紧固定于轴上。
- (2) 按锁定销以固定轴，并用板钳拧紧垫片螺帽。
- (3) 如图 5 所示，用毛罩的护罩缠绕橡胶垫圈，并通过缠紧并系住其拉线来固定橡胶垫圈。务请将多余的线收入毛罩内以防止它在抛光作业中飞出。

注意：

日立牌电动工具的维修、改造和检查须由经日立公司授权的维修中心进行。

当要求维修或其他保养服务时，若将此零部件一览表与电动工具一起呈交给经日立公司授权的维修中心，将有助于维修或保养工作。

在操作和维修电动工具时，必须遵守贵国制定的安全的有关规则 and 标准。

注意：

毛罩安装不当可能会导致振动。

- (4) 要拆卸毛罩时，请按照上述相反的步骤进行。

注意：

- 请用板钳拧紧垫片螺帽盘。
- 松开锁定销后，请确认锁定销已回到其正常位置。

改造：

日立牌电动工具经常加以改善和改造以采用最新的先进技术。

因此，某些零部件〔例如代码号和（或）设计〕可能变更，恕不另行通知。

注：

为求改进，本手册所载规格可能不预先通告而径予更改。

维护和检查

1. 检查安装螺钉

要经常检查安装螺钉是否紧固妥善。若发现螺钉松了，应立即重新扭紧，否则会导致严重的事故。

2. 检查碳刷（图 6）

电动机上的碳刷是一种消耗品，其磨耗度一旦超出了“磨耗极限”，电动机将发生障碍。因此，磨耗了的碳刷应立即更换新件。此外，碳刷必需常保干净状态，这样才能在刷握里自由滑动。

3. 碳刷的更换

用一字形头螺丝刀拆卸刷盖，碳刷就可简单地取下。

4. 电动机的维护

电动机绕线是电动工具的心脏部。应仔细检查有无损伤，是否被油液或水沾湿。

5. 清洁锁定销部分

如果锁定销部分变脏，请及时清洁。

6. 维修零部件一览表

- A：项目号
- B：代码号
- C：使用数
- D：备注

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, SANDING, WIRE BRUSHING, POLISHING OR ABRASIVE CUTTING-OFF OPERATIONS

- a) **This power tool is intended to function as a sander or polisher. 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 grinding, 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.

- k) **Position the cord clear of the spinning accessory. If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.**

- l) **Never lay the power tool down until the accessory has come to a complete stop.**

The spinning accessory may grab the surface and pull the power tool out of your control.

- m) **Do not run the power tool while carrying it at your side.**

Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.

- n) **Regularly clean the power tool's air vents.**

The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.

- o) **Do not operate the power tool near flammable materials.**

Sparks could ignite these materials.

- p) **Do not use accessories that require liquid coolants. Using water or other liquid coolants may result in electrocution or shock.**

KICKBACK AND RELATED WARNINGS

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

- a) **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up.**

The operator can control torque reactions or kickback forces, if proper precautions are taken.

- b) **Never place your hand near the rotating accessory. Accessory may kickback over your hand.**

- c) **Do not position your body in the area where power tool will move if kickback occurs.**

Kickback will propel the tool in direction opposite to the wheel's movement at the point of snagging.

- d) Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.** Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.
- e) Do not attach a saw chain woodcarving blade or toothed saw blade.** Such blades create frequent kickback and loss of control.

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

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.**

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.

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.

- 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. 3, 4)

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. 1).

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	
5	2900	For Sanding
6	3400	

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. 2, 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.

(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 cord 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. 3)

(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.

2. For Polisher operation (Fig. 4)

(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. 5, 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.

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. 6)

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.

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

A : Item No.

B : Code No.

C : No. Used

D : Remarks

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.

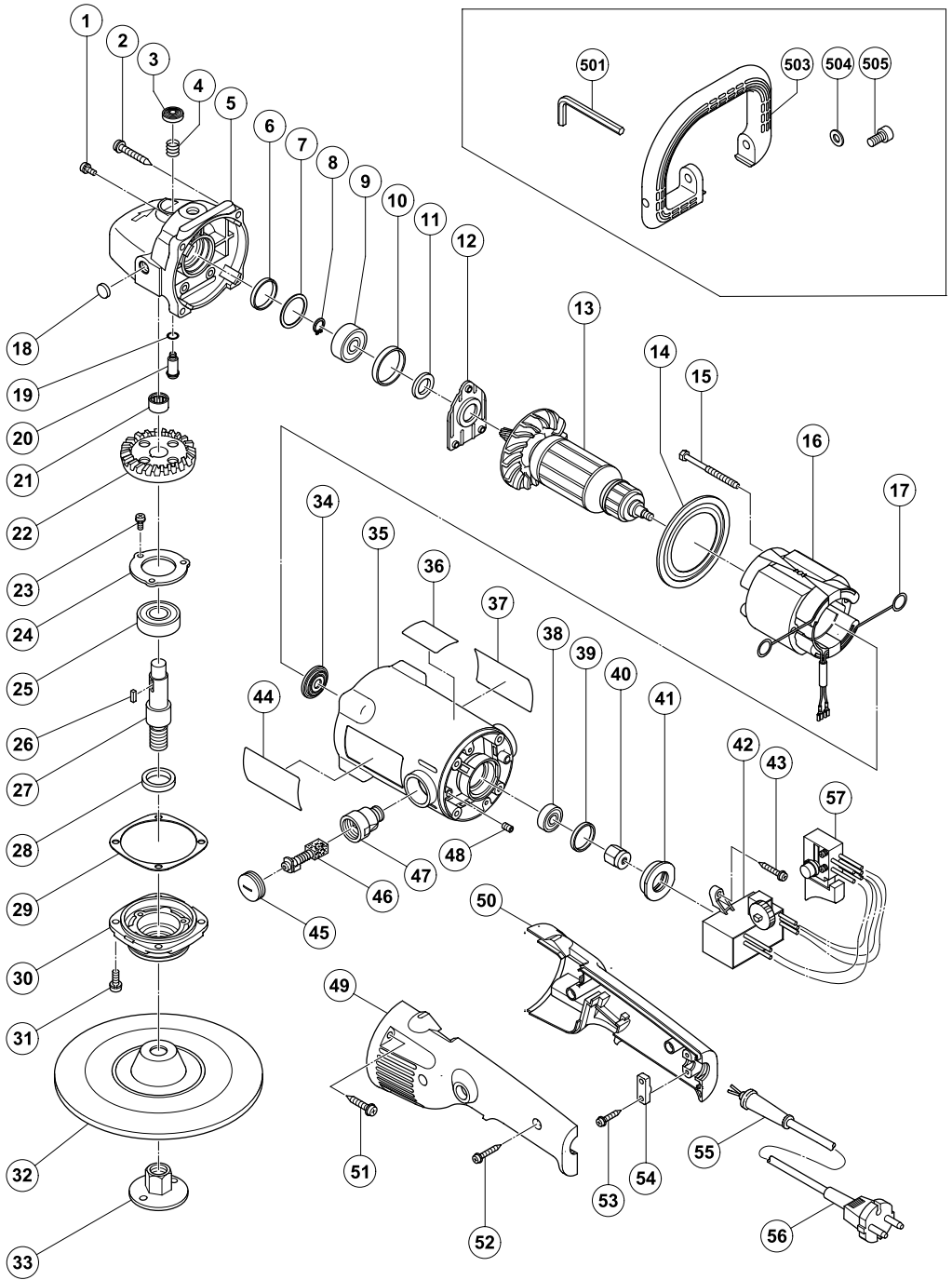
MODIFICATIONS:

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.



A	B	C	D
1	303255	3	M4 × 10
2	305507	4	D5 × 30
3	306888	1	
4	306889	1	
5	320936	1	INCLUD. 3, 4, 18-21
6	315055	1	
7	315054	1	
8	939540	1	
9	6200DD	1	6200DDCMPS2L
10	315053	1	
11	315052	1	
12	315051	1	
13-1	360576U	1	110V-120V "9, 11, 34, 38"
13-2	360576E	1	220V-240V
14	315046	1	
15	961501	2	D5 × 60
16-1	340526C	1	110V "17"
16-2	340526D	1	120V "17"
16-3	340526E	1	220V-240V "17"
17	930703	2	
18	315049	1	
19	320218	1	
20	315050	1	
21	871397	1	NTN HK1210
22	320937	1	
23	987201	3	M4 × 10
24	937077	1	
25	6202DD	1	6202DDCMPS2L
26	940533	1	3 × 3 × 10
27	320943	1	
28	315062	1	
29	315060	1	
30	315061	1	
31	315636	4	M5 × 14
32	953247Z	1	D14
33	953246Z	1	M14
34	315047	1	
35	320945	1	INCLUD. 39, 41, 47, 48
36	320948	1	
37	-----	1	
38	608VVM	1	608VVC2PS2L
39	995662	1	
40	318721	1	
41	320946	1	
42	320941	1	"57"
43	305095	2	D4 × 20
44	-----	1	
45	945161	2	
46	999043	2	
47	958900	2	
48	938477	2	M5 × 8
49	320939	1	
50	320938	1	
51	302089	4	D5 × 20
52	302086	2	D4 × 20
53	984750	2	D4 × 16
54	937631	1	
55	953327	1	
56	-----	1	
57	321449	1	
501	955857	1	8MM
502	937913Z	1	
503	320949	1	
504	949434	2	M10
505	949844	2	M10 × 20

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