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User Instruction Manual

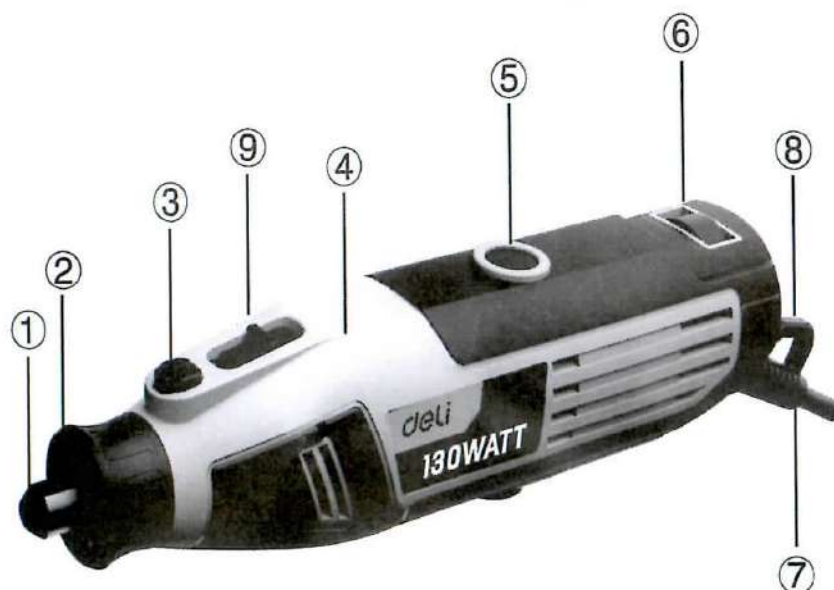
MINI DRINDER DL-DM03-E1



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1 Electric Grinder Diagram



This diagram is for reference only

Machine appearances vary as per different models, and actual product shall prevail!

| Serial No. | Name | Serial No. | Name |
|------------|------------------|------------|-------------|
| ① | Chuck lock cap | ⑥ | Speed knob |
| ② | Housing lock cap | ⑦ | Power cords |
| ③ | Shaft lock | ⑧ | Shackle |
| ④ | Machine housing | ⑨ | Switch |
| ⑤ | Carbon brush | | |

2 General Safety Warnings for Electric Tool

⚠Warning

Read all warnings and instructions. Failure to obey the following warnings and instructions will cause electric shock, fire and/or serious injury. Save all warnings and instruction manual for future reference.

In all following warnings, the term "electric tool" refers to powered driven (wired) electric tool or battery-driven (wireless) electric tool.

Workplace safety

1. Keep workplace clean and bright. Chaotic and dark venues will lead to accidents.
2. Do not operate electric tool in an explosive environment, such as an environment with flammable liquid, gas or dust. Sparks from electric tool will ignite dust or gas.
3. When operating electric tool, keep away from children and bystanders. Inattention will cause the operator to lose control of the tool.

Electrical safety

1. Electric tool plug must match the socket. Never modify the plug in any manner. Do not use any adapter plug for the electric tool in need of grounding. Unmodified plug and matched socket will reduce electric shock danger.
2. Avoid human touch with grounded surface such as pipes, cooling fins and refrigerators. If your body is grounded, it will increase electric shock danger.
3. Do not expose electric tool to rain or humid environment. Water entering electric tool will increase electric shock danger.
4. Do not abuse wires. Never use wires to move, pull or unplug electric tool. Keep wires away from heat sources, oils, sharp edges or moving parts. Damaged or entangled wires will increase electric shock danger.
5. When using electric tool outdoors, use extension cords suitable for outdoors, and the wires suitable for outdoors will reduce electric shock danger.
6. If it is unavoidable to operate electric tool in a humid environment, use the power supply with residual current device [RCD] protection. RCD can be used to reduce electric shock danger.

Personal safety

1. Keep alert. When operating electric tool, focus on the operation and keep sober. Do not operate electric tool, when you feel tired or have drug, alcohol or treatment reaction. Momentary negligence when operating electric tool will cause serious personal injury.
2. Use personal protective device. Always wear goggles and safety device. For example, the use of dust masks, non-slip safety shoes, helmets, hearing protection and other devices under appropriate conditions can reduce personal injury.
3. Prevent accidental start. Ensure the switch in off position before connecting power supply and/or battery box, picking up or moving the tool. Putting fingers on the connected power switch or inserting plug when the switch is connected may cause danger.

4. Before electric tool is connected, take off all adjustment keys or wrenches. The wrenches or keys left on rotating parts of electric tool will cause personal injury.
5. Do not stretch hands too long, and always note standing point and body balance, so as to control electric tool in this way under unexpected circumstances.
6. Dress properly, rather than wear loose clothes or accessories. Keep clothes, gloves and hair away from moving parts. Loose clothes, accessories and long hair may get caught in moving parts.
7. If a device for connecting with chip removal and dust collection equipment is provided, make sure they are connected well and used properly. The use of these devices may reduce the danger caused by dusts and chips.
8. Do not treat lightly due to familiarity arising from frequent use of tools, or ignore tool safety guidelines. A careless action may cause serious injury in an instant.

Electric tool use and precautions

1. Do not force the use of electric tool, but use appropriate electric tool according to applications. The selection of a proper electric tool designed as per the rated value will make your work more effective and safer.
2. If power supply of the tool cannot be connected or turned off by the switch, this electric tool cannot be used. Electric tool that cannot be controlled by the switch is dangerous and must be repaired.
3. Before making any adjustment, changing accessories or storing electric tool, the charger must be unplugged from power supply. This protective measure will reduce the danger for sudden start of electric tool.
4. Store idle electric tool out of children's reach, and do not allow people who are unfamiliar with electric tool or unaware of these instructions to operate electric tool. Electric tool is dangerous in the hands of untrained users.
5. Maintain electric tool and its accessories. Check installation deviation or jamming of moving parts, damage of parts and other conditions affecting operation of electric tool. If damaged, electric tool must be repaired before use. Many accidents are caused by poorly maintained electric tools.
6. Keep cutting tools sharp and clean. Properly maintained cutters with sharp cutting edges are not easily jammed and easy to control.
7. Use electric tool, accessories and working cutterheads in accordance with the instruction manual and special type of electric tool that you intend to use, while considering operation conditions and operations performed. Electric tool used for operations at variance with the requirements may lead to dangerous situations.
8. Keep the handle and grip surface dry, clean and free of grease. Under unexpected circumstances, wet and slippery handle cannot guarantee grip safety and tool control.

Repair

Electric tool is repaired by professional repair personnel using the same spare parts, which will ensure safety of electric tool repaired.

Wear earmuffs. Exposure to noise will cause hearing impairment.

Use auxiliary handle provided with the tool. Missing operation will cause personal injury.

When operating in the place where cutting accessories may touch concealed wires or their flexible wires, grip the tool through the insulated grip surface. If cutting accessories touch the live lead, the exposed metal parts of tool are live, and thus the operator will suffer electric shock.

3 General Safety Rules for Electric Grinder

General Safety Warnings for Electric Grinder

1. This electric tool is used for achieving cutting and sanding functions of the grinding wheel machine. Read all safety warnings, instructions, illustrations and regulations provided with this electric tool. Failure to understand all instructions below will cause electric shock, fire and/or serious injury.
2. This electric tool is not recommended for operations such as brushing and wire brush. If electric tool is not operated according to the designated functions, it may result in danger and cause personal injury.
3. Do not use accessories not recommended by tool manufacturer or specially designed. Otherwise such accessories may be installed on your electric tool, but it cannot guarantee safe operation.
4. The rated speed of accessories must be at least equal to the maximum speed marked on electric tool. Explosion and splashing will occur when accessories run at a speed greater than its rated speed.
5. The outer diameter and thickness of accessories must fall within the rated capacity of electric tool. Incorrect accessory dimensions cannot achieve adequate protection or control.
6. Shaft hole dimensions of grinding wheel, flange plate, back pad or any other accessories must be fit to install on the electric tool spindle. Accessories that bear shaft hole unmatched with electric tool mounting will lose stability, vibrate excessively and cause out of control.
7. Do not use damaged accessories. Before each use, check accessories, for example, whether grinding wheel has fragments and cracks, whether back pad is cracked, torn or excessively worn, and whether wire brush is loose or metal wire broken.

If electric tool or accessories fall down, check for damage or install undamaged accessories. After checking and installing accessories, allow the position of yourself and bystanders away from the plane of rotating accessories, and run at maximum no-load speed of electric tool for 1 min. Damaged accessories will usually shatter during this test.

8. Wear protective equipment. Use face shield, safety goggles or safety glasses, as applicable. When applicable, wear dust mask, hearing protector, gloves and work apron that guards against small abrasives or workpiece fragments. Eye shield must guard against flying chips from various operations. Dust masks or masks must be able to filter particles from the operation. Long-term exposure to high-intensity noise will cause hearing impairment.
9. Keep bystanders a safe distance from the work area. Anyone entering the work area must wear protective equipment. Fragments of workpieces or broken accessories may fly out and cause injury to bystanders close to the operating area. If cutting accessories touch the live lead, the exposed metal parts of electric tool are live, and the operator will suffer electric shock.
10. When operating in the place where cutting accessories may cut concealed wires or own wires, grip electric tool only through the insulated grip surface. If cutting accessories touch a live lead, the exposed metal parts of electric tool may be live, and put the operator in danger of electric shock.
11. Keep flexible wires away from rotating accessories. If improperly controlled, flexible wires may be cut or entangled, and your hands or arms may get caught in rotating accessories.
12. Do not put down electric tool until accessories completely stop moving. Rotating accessories may grab the surface and pull electric tool, causing you to lose control of the tool.
13. Do not activate electric tool when carrying it. Accidental contact with rotating accessories may entangle your clothes and make accessories hurt you.
14. Frequently clear electric tool vent. Motor fan will suck dusts into the housing, and excessive metal powder deposition will cause electrical hazard.
15. Do not operate electric tool near flammable materials. Sparks may ignite these materials.
16. Do not use accessories that require coolant. Using water or other coolants may cause electrical corrosion or electric shock.

Rebound and relevant warnings

Rebound is the sudden reaction force due to jammed or entangled rotating grinding wheel, back pad, wire brush or other accessories. Jamming or entanglement will cause rapid stalling of rotating accessories, thereupon making the runaway electric tool move in the opposite direction of accessory rotation at the jamming point.

For example, if grinding wheel gets entangled or jammed by workpiece, the edge of grinding wheel that protrudes into the jamming point may enter material surface, hence causing grinding wheel to creep out or rebound. Grinding wheel may fly toward or away from the operator, depending on its moving direction at the jamming point. Grinding wheel may also shatter under such conditions.

Rebound is the result of electric tool misuse or incorrect operating procedures or conditions, which can be avoided by taking the following proper preventive measures.

1. Keep gripping electric tool firmly, and put your body and arms in a correct state to resist rebound force. If there is an auxiliary handle, use it all the time to maximize the control of rebound force or counter-torque when starting. With appropriate preventive measures, the operator can control counter-torque or rebound force.
2. Never put hands near rotating accessories. Accessories may rebound and touch hands.
3. Do not stand where electric tool may move when rebound occurs. The rebound will drive the tool to move in the reverse direction of grinding wheel movement at the entangling point.
4. Special care is required to operate at places such as pointed corners and sharp edges. Avoid bouncing and entanglement of accessories. Pointed corners, sharp edges and bouncing tend to entangle rotating accessories and cause bouncing out of control.
5. Do not attach saw chain, wood carving blade or toothed saw web. These saw webs will cause frequent rebound and loss of control.

Special safety warnings for grinding and sanding cut operation

1. Grinding wheel is used for recommended purpose only. For example: do not grind with the side of cut-off wheel. The force applied to the side of grinding wheel may shatter it.
2. Always choose an undamaged flange plate with proper size and shape for the selected grinding wheel. An appropriate flange plate that supports grinding wheel can reduce the likelihood of grinding wheel breakage. The flange plate of cut-off wheel can differ from that of grinding wheel.
3. Do not use worn grinding wheel left over from large-sized electric tool. Grinding wheel used on large-sized electric tool is not suitable for high-speed working conditions of small-sized tool and may burst.

Special safety warnings for grinding wheel cut operation

1. Do not “clamp” cut-off wheel or apply excessive pressure. Do not try to perform too deep cut. Overstressing grinding wheel adds load on it when cutting, prone to entangling or jamming, and increases the likelihood of rebound or grinding wheel burst.
2. Neither point your body toward rotating wheel, nor stand behind it. When moving grinding wheel away from the operating point beside the operator, possible rebound will push the rotating wheel and electric tool toward you.
3. When grinding wheel gets jammed or the cut is interrupted for whatever reason, turn off electric tool and hold it still until grinding wheel stops completely. Never try to make cut-off wheel away from the cut while it is still running, otherwise a rebound will occur. Investigate and take corrective measures to eliminate the cause of grinding wheel jamming.
4. Do not restart cut operation on the workpiece. Carefully proceed with the cut again after grinding wheel reaches full speed. If electric tool is restarted on the workpiece, grinding wheel may be jammed, creep out or rebound.
5. Supporting sheets or supersized workpieces can minimize the danger of grinding wheel jamming and rebound. Large workpieces sag by their own weight. Supports must be placed near the cutting line of workpiece and near the edge of workpiece on both sides of grinding wheel.
6. Take extra care when performing “blind cut” into walls or other blind spots. Protruding grinding wheel may cut into gas or water pipes, wires or objects rebounded therefrom.

4 Installation & Function Instructions

Installation instruction

Insert accessories

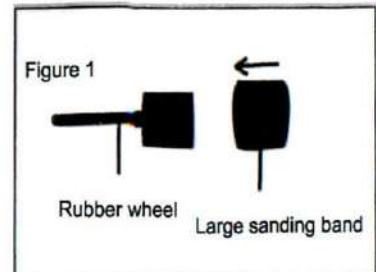
Press and hold shaft lock, loosen chuck lock cap counterclockwise, insert the desired accessories, confirm the largest contact area at assembled accessory axis and chuck, and tighten chuck lock cap. The small wrench in accessories may assist with tightening, and please do not tighten using pliers, since it may cause deformation of the nut.

Note: When installing or removing accessories, make sure to confirm tool switch is off and power unplugged.

1. When the product cannot rotate or it rotates at a slow speed, please turn off the switch and unplug it immediately.
2. Please check wall thickness of chuck on a regular basis, especially when using the same chuck for a long time.
3. After use, please make sure to unplug the power.
4. Please do not repair electric tool on your own.
5. Do not keep it in a running state without personnel on site.
6. Do not use or store tool in a humid environment.

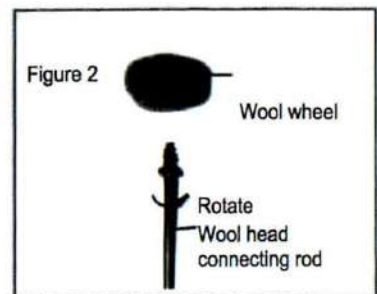
Assemble large sanding band and rubber wheel (Figure 1)

1. Put large sanding band in rubber wheel.
2. Properly tighten screws on rubber wheel, and confirm large sanding band evenly fixed on rubber wheel.



Assemble wool wheel and wool head connecting rod (Figure 2)

1. Rotate the thread on front end of wool head connecting rod into the fixing hole at the center of wool wheel.
2. No feeling of covered tightening, the front end of thread shall not feel protruding out of wool wheel.



Assemble flexible shaft (Figure 3)

1. Turn off power switch.
2. Loosen and dismount housing lock cap.
3. Press spindle lock without releasing it, and rotate the axis until jamming in position, unable to rotate.
4. After the spindle is locked, use accessory wrench to loosen chuck nut (do not remove chuck lock cap).
5. After passing the cable inside flexible shaft through chuck lock cap and chuck, fix chuck in the axis, and confirm inner cable and chuck firmly matched.
6. Press spindle lock again without releasing it. Rotate the axis until jamming in position, unable to rotate.
7. After the spindle is locked, use accessory small wrench to lock chuck lock cap and tighten it.
8. Lock the fixing nut of outer cable of flexible shaft on the fixing thread of original housing lock cap and tighten it.

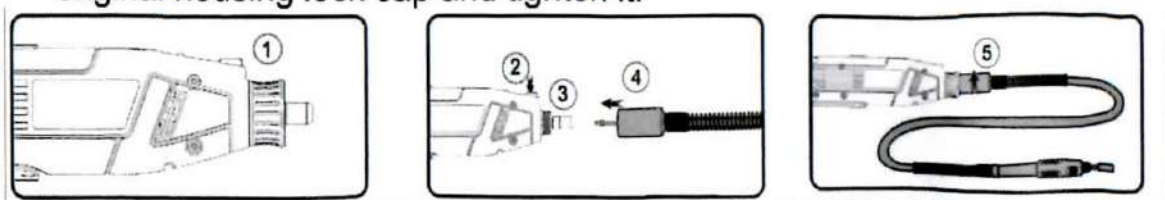
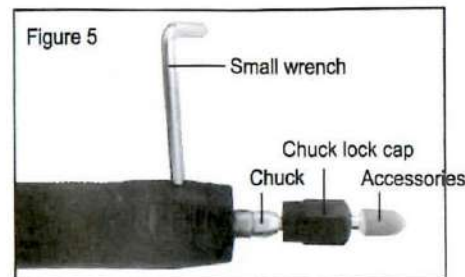
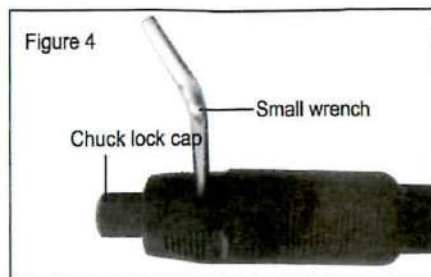


Figure 3

Mount accessories on flexible shaft (Figure 4 and Figure 5)

1. Turn off power switch and unplug the power.
2. Insert L-shaped fixing wrench into the axis fixing hole beside the arrow, and turn chuck lock cap in the opposite direction of arrow to loosen it (Figure 4).
3. Insert the desired accessories, and confirm the largest contact area at assembled accessory axis and chuck (Figure 5)
4. Tighten chuck lock cap. The small wrench in accessories may assist with tightening, and please do not tighten using pliers, since it may cause deformation of the nut.

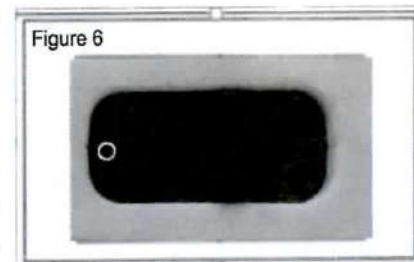


Function instruction

Power switch (Figure 6)

1. Firmly hold the body, and ensure your fingers away from rotating parts.
2. Turn the switch to "I" position to power on.
3. Turn the switch to "O" position to power off.

Note: Check whether power supply voltage matches that on the data plate. After ensuring consistent voltage, insert the plug into power socket.

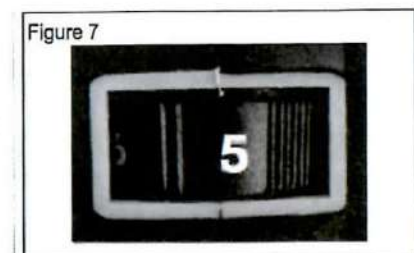


Variable speed control (Figure 7)

1. To adjust speed, turn the speed knob forward or backward.
2. The higher number displayed, the faster speed.

Note:

1. The number displayed is for guidance only, and correct speed depends on accessories used and type of materials processed.
2. The speed is not adjustable during work.



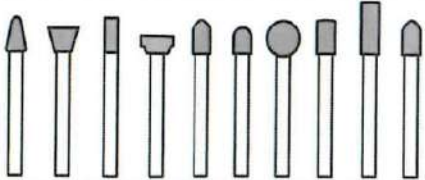
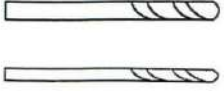
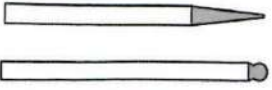
Use tips and cautions


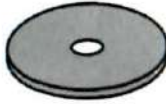
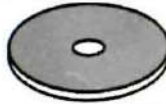

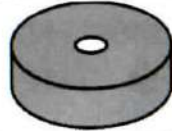
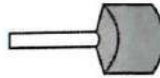

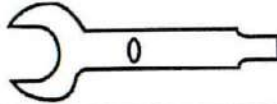



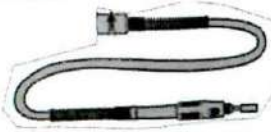
1. Since product temperature will rise after long-term use, turn off power at this time, and do not use it again until it cools down.
2. To ensure running stability, oil the spindle on a regular basis.
3. Do not apply excessive radial pressure when polishing, washing, sanding or grinding. If excessive force is applied on the spindle, it will affect product accuracy.
4. Please maintain a keen sense of touch when executing delicate work.
5. When drilling hole in metal materials, please use center punch to mark the drilling point first, so that your drill bit will not skew or slip.
6. Please make sure to confirm the largest contact area when assembling accessory axis and chuck.

Note:

1. Apply only moderate pressure to the workpiece, and allow it to process at a constant speed. It is not the greater pressure applied, the earlier work finished. On the contrary, excessive pressure will slow down or stop the machine, and overload the motor. For the sake of your safety, use a vise or screw to clamp small workpieces.
2. In case of overloading, the motor may be damaged, manual force will not make this tool run faster, but forcibly turning tool will only reduce work efficiency and may burn out the motor, and non-compliant work will reduce tool life and may damage the processed workpiece.
3. Avoid motor damage: if the tool is operated persistently at a low speed, it is important to occasionally take it off load; operate the tool occasionally off load, and add to full speed for 1 minute allowing cool air to cool down the motor.

Accessory description and use instruction

| Serial No. | Picture | Accessories | Use |
|------------|---|-----------------|--|
| 1 |  | Grinding head | Metal, rivet surface polishing |
| 2 |  | Drill bit | Drill soft surfaces such as wood, plastics and fiber |
| 3 |  | Grinding needle | Wood grinding, metal, carving |

| | | | |
|----|---|-----------------------------|--|
| 4 |  | Chuck | Install different accessories such as grinding head and drill bit |
| 5 |  | Resin cutting disc | When using cutting cutting blade, cut along its edge only |
| 6 |  | Sandpaper sheet | Polish wood, fiber |
| 7 |  | Grindstone | Recondition grinding head |
| 8 |  | Wool wheel | Polish metal and plastics |
| 9 |  | Rubber ring | Use with sanding band installed |
| 10 |  | Wool head connecting rod | Use with wool wheel |
| 11 |  | Small wrench | Tighten and loosen chunk |
| 12 |  | Sanding band | Polish rough surface remove rust from metal surface, polish rubber surface |
| 13 |  | Cutting disc connecting rod | Use with cutting blade |
| 14 |  | L-shaped fixing wrench | Use when installing fixing accessories to flexible shaft |
| 15 |  | Flexible shaft | Use for low speed carving |

Use the machine as specified

This product can be used for drilling, grinding, polishing, sharpening, carving, cutting and removing rust. This tool can be used on materials such as metal, glass, wood and ceramics. To achieve optimum performance of product, please maintain constant speed without applying excessive pressure. The working principle is that please control at a low-speed gear to use for polishing of large-sized accessories, and use a high-speed gear for carving and grinding of small-sized accessories.

Product parameters

| | |
|---------------------|------------------|
| Cargo No. | DL-DM03-E1 |
| Rated voltage | 220V-230V~ |
| Rated frequency | 50Hz |
| Rated power | 130W |
| Rated speed | 10000-35000r/min |
| Chuck specification | φ3.2mm |
| Switch position | Front |
| Insulation level | Class II |

Warning

1. Use safety glasses, preferably wear a mask in the event of lots of chips or dusts, and make sure to always wear goggles.
2. Do not arbitrarily drill holes in machine parts during use to prevent electric leakage.
3. When putting down electric grinder after work, first confirm whether electric grinder stops completely, otherwise it will damage other objects.
4. In case of accidental damp, damage caused by falling or natural damage after long-term use, please hand it over to a professional for repair in time, and use only after passing insulation test.
5. During use, ensure air inlet and outlet of the machine unclogged by debris to prevent from damaging the machine by heat.
6. When replacing accessories, take off the plug.
7. If the product cannot rotate or it rotates at a slow speed, please unplug immediately.
8. Please check wall thickness of chuck on a regular basis, especially when using the same chuck for a long time.
9. When the machine is running, please do not press and tighten shaft lock, and make sure to unplug the power after use.
10. Please do not repair electric tool on your own.
11. Do not keep it in a running state without personnel on site.

5 Troubleshooting

| Failures | Causes | Troubleshooting Methods |
|--|--|---|
| The motor does not run after power is connected | <ol style="list-style-type: none"> 1. Power cut 2. Loose joint 3. Poor contact or inaction of switch 4. Carbon brush does not touch commutator surface | <ol style="list-style-type: none"> 1. Repair power 2. Check all joints 3. Repair or replace switch 4. Replace carbon brush |
| With strange sound after power is connected, do not rotate or rotate very slowly | <ol style="list-style-type: none"> 1. Switch contact burned out 2. Mechanical part stuck | <ol style="list-style-type: none"> 1. Repair or replace switch 2. Check mechanical part |
| Ring fire or large spark arises from the commutator | <ol style="list-style-type: none"> 1. Armature short circuit 2. Poor contact of carbon brush and commutator 3. Unsmooth and unclean commutator surface | <ol style="list-style-type: none"> 1. Repair or replace armature 2. Replace carbon brush 3. Remove debris and make commutator surface smooth and clean |

Remarks: Non-professionals shall not disassemble the machine for repair, to avoid machine failure caused by improper repair

6 Repair & Service

Repair and cleaning

1. Before repairing electric tool or replacing parts and accessories, make sure to unplug from the socket.
2. Keep both electric tool and ventilation gap clean to improve work quality and safety.
3. If dust cover is damaged, replace it immediately, and preferably entrust the customer service of our company to replace it. Clean tool connector after completion of each operation.
4. All electric tools of the company have undergone strict quality inspection. If the machine still fails, please deliver it to customer service authorized by the company for repair.

When inquiring and ordering accessories, make sure to provide models of the machine parts.

Service and customer inquiry

For relevant machine decomposition diagram, spare part data and other relevant warranty, repair or part replacement matters, please consult a qualified dealer.

Product Warranty Card

Dear users :

Thank you for buying our products. In order to ensure your profit, users who buy our products can contact local distributor or Specified repair stations with invoice and warranty cards if the product failures due to quality problems.

Warranty Notice:

1. From _____ (Year/Month/Day) to _____ (Year/Month/Day),

If the failure happen in normal use, our company will provide free warranty, parts replacement and other services according to the failure situation.

2. This warranty card and purchase invoice are the voucher of after-sales service provided by our company to customers. The card must be detailed only after filling in the following form and affixing the official seal with the distributor.

3. In one of the following cases, free warranty service will be invalid, and maintenance fees will be required:

- (1) Exceed the expiration date;
- (2) Failure or damage caused by not following the requirements of the product manual, maintenance or improper storage;
- (3) Failure or damage caused by disassembling, repairing or modification of the product without the permission of our company;
- (4) Machine breakdown or damage caused by force majeure;
- (5) Consumable accessories.

This card is issued with the product. One card for one machine, to ensure that you can fully enjoy the right to free warranty service provided by the company, please keep this card properly, lost will not be replaced.

Purchase Date: _____ (Year/Month/Day)

Product Certificate

Inspector:

01

Date of manufacture:

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Reserved for future use

Version: 1.0

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