

IDEAL

DIAMOND DRILL WITH WATER SOURCE

ID CDC250

Part No.: 26551

OPERATION INSTRUCTIONS



Read though carefully and understand these instructions before use.

GENERAL POWER TOOL SAFETY WARNINGS

(For All Power Tools)

⚠ WARNING! Read and understand all instructions. *Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.*

Save all warnings and instructions for future reference.

The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

Work Area Safety

1. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
2. **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 or fumes.*
3. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

Electrical Safety

4. **Power tool plugs must match the outlet. Never modify the plug in anyway.** **Do not use any adapter plugs with earthed (grounded) power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
5. **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.*
6. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
7. **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.*
8. **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.*

9. **If operating a power in a damp location is unavoidable, use a residual current device (RCD) protected supply.** *Use of an RCD reduces the risk of electric shock.*

NOTE: The term “residual current device (RCD)” may be replaced by the term “ground fault circuit interrupter (GFCI)” or “earth leakage circuit breaker (ELCB)”.

Personal Safety

10. **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.*
11. **Use personal protective equipment. Always wear eye protection.** *Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
12. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and /or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.**
13. **Remove any adjusting key or wrench before turning the tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
14. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
15. **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.*
16. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of dust collection can reduce dust-related hazards.*

Power Tool Use and Care

17. **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.*

18. **Do not use tool if switch does not turn it on or off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*
19. **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
20. **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.*
21. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
22. **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*
23. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*

Service

24. **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.*

VOLTAGE WARNING:

Before connecting the machine to a power source (receptacle, outlet, etc.), be sure the voltage supplied is the same as that specified on the nameplate of the machine. A power source with voltage greater than that specified for the machine can result in **SERIOUS INJURY** to the user, as well as damage to the machine. If in doubt, **DO NOT PLUG IN THE MACHINE**. Using a power source with voltage less than nameplate rating is harmful to the motor.

SPECIFICATIONS

Rated Power Input	3800 W
No-Load Speed	390/1100/min
Drilling Capacity	Ø250 mm
Drilling Depth	1000 mm (Extended)
Net Weight	25 kg

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

ADDITIONAL SAFETY RULES

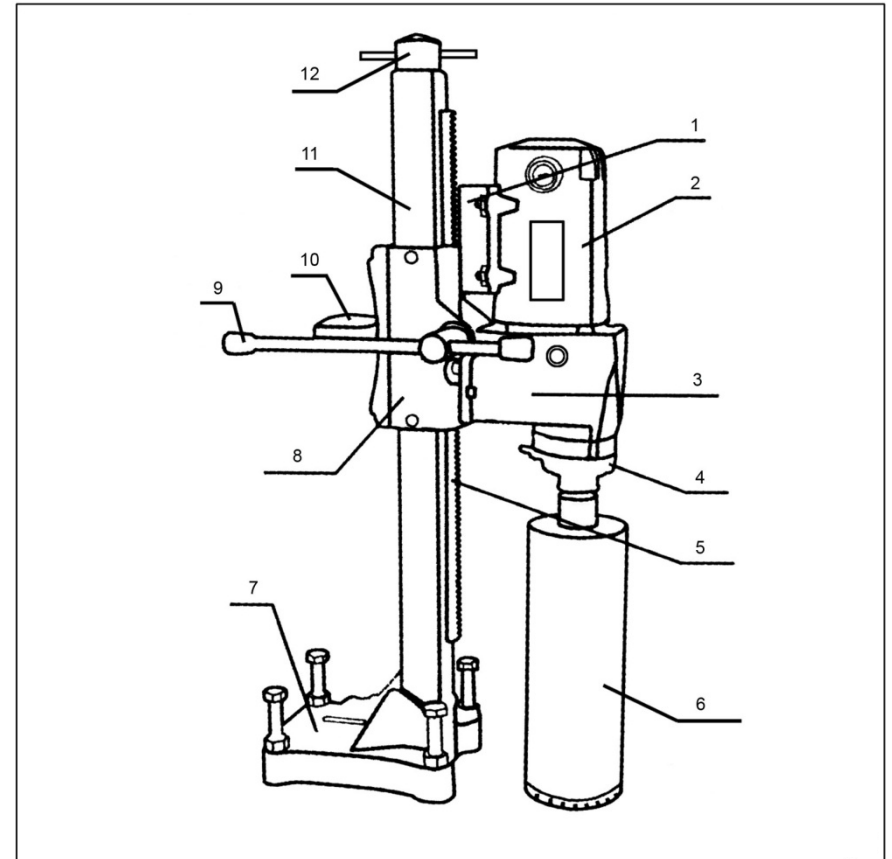
1. Always use a RCD (residual current-operated device) interrupter protection, with actuating current not more than 30mA and actuating time not more than 0.1s, and regularly check the operation sensitivity of the protector; or use an isolating transformer to connect with the mains network.
2. Check the earth (ground) connection of the plug before plugging in the machine.
3. Always check the fault-current safety switch for correct functioning before starting a drilling operation.
4. Wear sensible, protective clothing and footwear plus safety goggles, work gloves, ear protectors and a hard hat (or helmet).
5. Do not switch on the machine under load condition; this might cause personal injury or damage to the machine.
6. Ensure work area is tidy, well lit and ventilated. In case of operation in a closed room or basement, make sure that the air is in good condition (plenty of oxygen, no toxic gas) before operation.
7. Hold the machine only by insulated surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.

8. Ensure that no water is allowed to get into the drive unit during operation. Do not expose motor to rain or snow.
9. Do not drill near flammable/explosive gases, liquids or solids. Never drill into walls/floors containing gas/water pipes or electrical cables. If in doubt, check both sides using a metal detector or cable avoiding tool.
10. Take appropriate precautions to ensure that, in the event of a drilling core dropping out, no personal injury or material damage will result.
11. Keep cable and hose away from cutting area, and away from the heat, oil, and sharp edges.
12. Keep hands away from cutting edges and all rotating parts.
13. Ensure the core bit has an adequate, constant supply of water for cooling lubrication. This also allows the drilled-out material to be swilled from the bore hole.
14. Do not use this machine for dry boring.
15. Do not block the air intake of the motor as its cooling capacity would then decrease and the motor could burn out.
16. This machine is not for hand-held use. Always install the machine securely.
17. In case the ceiling drilling required, be sure to fix the water collector securely and pay attention so that the water will not leak out of the collector.
18. Do not leave this machine unattended while the motor is running.
19. Keep the machine clean, paying special attention to the motor and switch. Clean up regularly rather than at end of hire period.
20. Treat core bits with care. Avoid knocking them or allowing them to drop onto the work-surface.

SAVE THESE INSTRUCTIONS.

WARNING! MISUSE or failure to follow the safety rules stated in this instruction manual may cause serious personal injury.

GENERAL DESCRIPTION

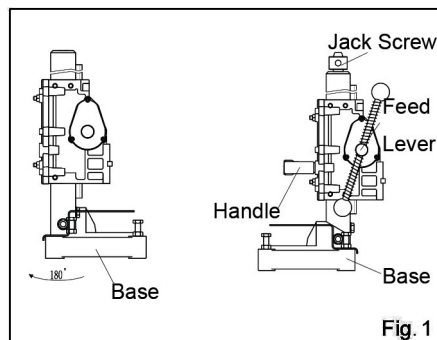


- | | |
|---|-----------------|
| 1. Fault-current Safety Switch | 7. Base |
| 2. Motor | 8. Feed Slider |
| 3. Gear Housing | 9. Feed Lever |
| 4. Waterseal Assembly (Inner with seals on both ends) | 10. Handle Grip |
| 5. Rack | 11. Column |
| 6. Core Bit | 12. Jack Screw |

INSTRUCTIONS FOR OPERATION

1. Assembling

Unpack and take out the machine. Firstly assemble the column, base and motor, etc, as per showed in Fig. 1.



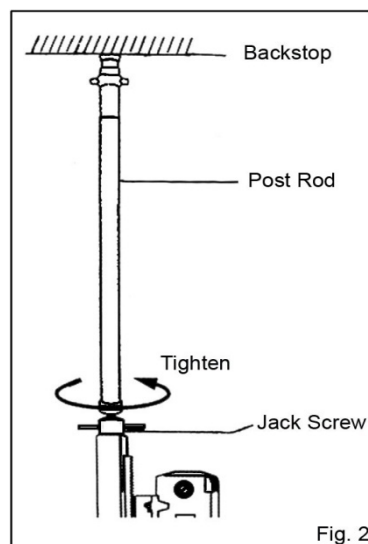
2. Securing the Machine

Secure the machine tightly and on an even keel is much important to ensure the drilling operation correctly and safely. Usually there're two ways to secure the machine as follows:

➤ Securing by Post Rod

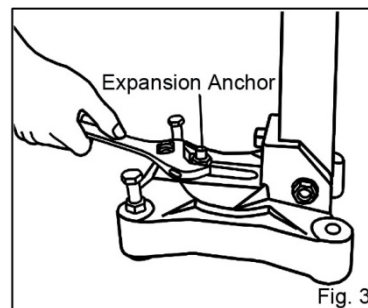
To secure by post rod(s), usually use two nestable post rods.

First fix the nested two post rods at a suitable length and then place them between the jack screw head of the column and backstop. The machine will be secured tightly by tightening the jack screw counterclockwise. (Fig. 2)



➤ Securing by Expansion Anchor

Drill an anchor hole by a rotary hammer at a position according to the position of the hole to be drilled. Clean the anchor hole and secure the expansion anchor. Set the base with column passing the expansion anchor through the slot of base. (Fig. 3)



CAUTION:

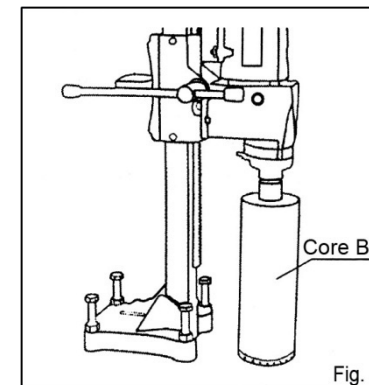
No matter how to secure the machine, take care to turn all four adjustment screws to compensate for irregularities in the ground surface finally and ensure the core bit is vertical to the working surface.

3. Installing or Removing the Core Bit

Caution! Always be sure that the machine is switched OFF and unplugged before installing or removing the bit.

Clean the core bit before installation. Apply a light coat of grease to the core bit thread. (This can make the bit be easier to remove after operation.) Screw the selected core bit onto the drive spindle. Make sure that the threads of the core bit and the drive spindle are matching. Otherwise, use a suitable adapter. (Fig. 4)

Run the machine at an idle after tightening the core bit to check the running vibration of the core bit.



To remove the bit, use a wrench to hold the drive spindle and a wrench to loosen the core bit.

Always unscrew the core bit from the drive unit when the drilling task is finished. With wet-drilling operations in particular, there is also a danger of the core bit becoming corroded, making it difficult to remove.

CAUTION:

Wear protective gloves when replacing/removing the core bit. The core bit can become hot after prolonged operation of the machine.

4. Switch Operation

Plug in power and press the green button "I", the machine start. Press the red button, the machine stop working. This machine is equipped with a fault-current safety switch. The fault-current safety switch will automatically low the voltage when overloaded occurs. Pull up the drill core which rotates

slowly. It is a notice that just overloaded. The motor is fine. Turn off the motor and restarted it. You can restart work. (Fig. 5)

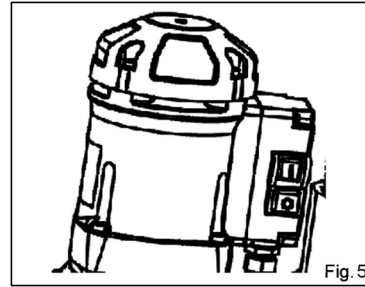


Fig. 5

5. Gear adjustment

When the gear needs adjust, pull out the knob and move it up or down, so that clutch block match the gear. If it failed, the drive spindle should be rotated and move the knob.

If move the knob up to the fast position, less than 160mm holes will suit this speed. If down(the driver spindle direction), it is lower position, holes between 160mm-250mm will suit for it. (Fig. 6)

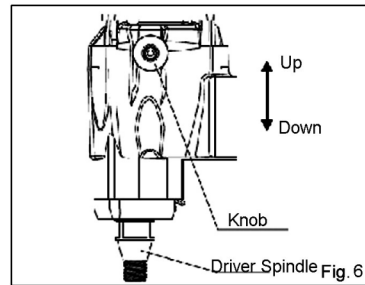


Fig. 6

6. Boring/Drilling Operation

Ensure that the machine is securely placed. Install the selected diamond core bit onto the drive spindle and connect the water hose to water cock on the machine. Switch on the machine under no-load condition, turn on the water cock and start drilling gently when water flows out from the core bit.

Slowly advance the diamond core bit at beginning, otherwise the core bit may be vibrated. After drilling depth reaches 5 mm, apply pressure for constant cutting.

When the turning speed of the motor drops obviously in drilling operation, it means the motor is overloaded, properly decrease the feed pressure immediately. If fumes or peculiar smells be noted in drilling operation, switch off the machine immediately for a rest to avoid the motor be overloaded and burned out.

CAUTION:

- ⦿ Steady, even pressure assures true running, accurate holes, and longer bit life. A constant bit speed must be maintained at all times and should be applied, so the bit is constantly cutting.
- ⦿ Overload will damage the motor and the diamond core bit. Insufficient pressure will polish the diamond core bit, reducing the drilling efficiency.
- ⦿ Do not boring/drilling without water supply. Optimum drilling performance will only be achieved if the diamond core bit is provided with a constant supply of water.
- ⦿ Do not switch the machine on and off in an attempt to free a blocked diamond core bit, because it will lead to the fatal damage of the electrical parts of the motor.
- ⦿ Do not block the air intake of the motor during boring/drilling operation.
- ⦿ When the diamond core bit becomes blunt, drilling into sandstone or a sharpening stone to a depth of 10 mm to 15 mm to sharpen the core bit.

7. Material to Be Drilled

CAUTION:

- ⦿ In drilling it is most important to understand the object material to be drilled. Materials such as sand, gravel and broken stone are usually used for concrete and asphalt. The grain size of mixture and the mixing ratio of the sand materials greatly affect drilling.
- ⦿ Different material characteristics (concrete, steel-reinforced concrete, porous or solid masonry) require different and varying feed pressures on the diamond core bit.

When steel reinforcing rods are encountered while drilling in steel reinforced concrete, the current will be increased suddenly which may cause vibration of the motor, decrease the feed pressure to maintain a constant turning speed or the diamond core bit may be damaged.

When drilling in poor quality of concrete with sand, gravel, and steel piece, the diamond core bit may be blocked with instantaneous overload of the machine and automatically break of the switch caused by overcurrent. Shut down the machine

immediately and free the diamond core bit. Restart the drilling operation after dressing the core bit.

When woodblocks, thick asphalt layers or asphalt felts are encountered in drilling operation, the current will also be increased, decrease the feed pressure and drill gently.

8. Removal of the Drilling Core

Take care to slow the feed rate before the core bit drilling through ceilings, walls, etc, to avoid the drilling core be blocked in the diamond core drilling crown and difficult to be taken out.

If the drilling core remains hanging in the diamond core drilling crown after the core-drilling operation is complete, the bit must be unscrewed from the drive spindle and be flushed with water to remove scraps, and then the drilling core can be knocked out with a wood rod.

If the core-drilling operation does not penetrate fully, the drilling core can be broken up by inserting a tool such as a chisel into the drilling gap. If the drilling core cannot be secured, use a tool such as a hammer drill to make an angled hole into the drilling core, and insert a rod to extract it.

CAUTION:

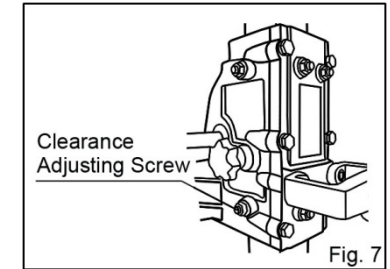
- ⊙ When carrying out vertical drilling, e.g. in a ceiling, note that the drilling core normally drops out as soon as the hole is complete! Take appropriate steps to ensure that personal injury or material damage does not result.
- ⊙ Never hit the casing of the drilling core with a metal item such as a hammer or wrench in order to loosen the drilling core. This will cause the casing pipe to become dented, which will make blocking of the drilling core even more likely on future occasions. The diamond core drilling crown may then be rendered unusable.
- ⊙ Take care not to damage the diamond core bit when removing the drilling core.

9. Clearance Adjustment

Avoid the machine be vibrated in drilling operation. When the clearance between the feed slider and the rack (the column) becomes larger, vibration will be occurred.

Check the clearance adjusting screws to determine whether they are loose and adjust the clearance properly by tightening the clearance adjusting screws.

There're two clearance adjusting screws on the feed slider both above and below the handle grip, and another two on the left side of the feed slider. (Fig. 7)



MAINTENANCE AND INSPECTION

CAUTION:

Always be sure that the machine is switched off and unplugged before attempting to perform inspection or maintenance.

1. After Use

The machine should be inspected 15 days after primary use. Inspection should be done at least two times each quarter according to the amount of the use the machine received. Arrange the inspection according to operation plan is recommended, for example, inspect the machine after the finish of a project, and then store it. Disassemble the diamond core bit before storing the machine, and apply a coat of grease to the drive spindle and the core bit thread for protection.

2. Inspection Items

- Inspect the shell (such as motor housing, gear housing and feed slider, etc.) for cracks and damage.
- Inspect all mounting screws for looseness.
- Inspect the cable for damage.
- Inspect the plugs for damage.
- Inspect whether the switch actuates properly and without any damage.

- Inspect whether the electric protective device is under good condition.
- Inspect whether the mechanical protective device is under good condition.
- Inspect whether the rotation parts are nimble and without any block.

3. Inspecting Insulation Resistance

Use a 500V megohmmeter to measure the insulation resistance between electriferous parts and shell, the resistance should not be less than 7 MΩ.

4. Inspecting and Replacing Carbon Brushes

Remove and check the carbon brushes regularly. Replace when they wear down to the limit mark (Fig. 8).

Keep the carbon brushes clean and free to slip in the holders. Both carbon brushes should be replaced at the same time. Use only identical carbon brushes.

Use a screwdriver to remove the brush holder caps. Take out the worn carbon brushes, insert new ones and secure the brush holder caps. (Fig. 9)

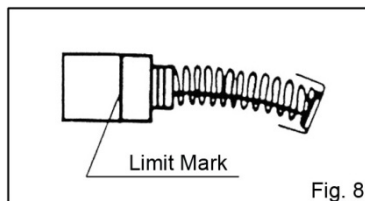


Fig. 8

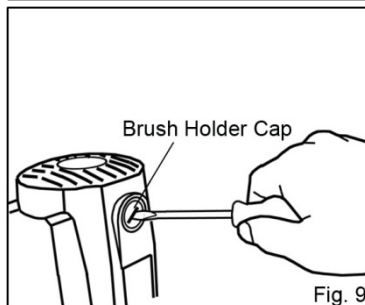


Fig. 9

5. Replacing Oil Seal(s)

Replace the oil seal(s) in time in case water leakage is found at the waterseal assembly. Loosen the three screws on the waterseal assembly by a hex. wrench to release the waterseal assembly, take out the worn oil seal(s), insert new one(s) and reinstall the waterseal assembly. (Fig. 10)

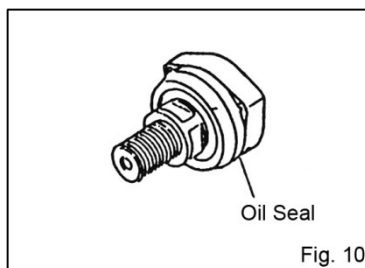


Fig. 10

6. Inspecting Clutch System

This machine has inner clutch system to prevent the damage of gear parts. (Fig.

11)

Frequent slip may occur when the clutch system becomes loose after using this machine for some time. Take out the gear spindle assembly from gear housing and use a torque wrench to tighten the nut on it with an appropriate torque of 44 N·m to 47 N·m. Finally reinstall the gear spindle assembly into the gear housing.

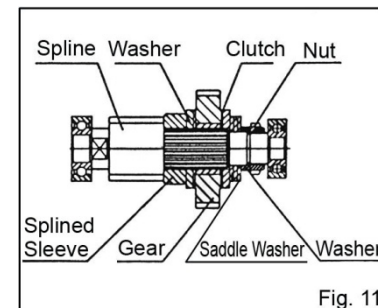


Fig. 11

7. Cleaning

Clean dust and debris from vents. Keep the machine handles clean, dry and free of oil or grease.

Use only mild soap and a damp cloth to clean this machine since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include: gasoline, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia.

Never use flammable or combustible solvents around this machine.

CAUTION:

To reduce the risk of injury, electric shock and damage to the machine, never immerse this machine in liquid or allow a liquid to flow inside the machine.

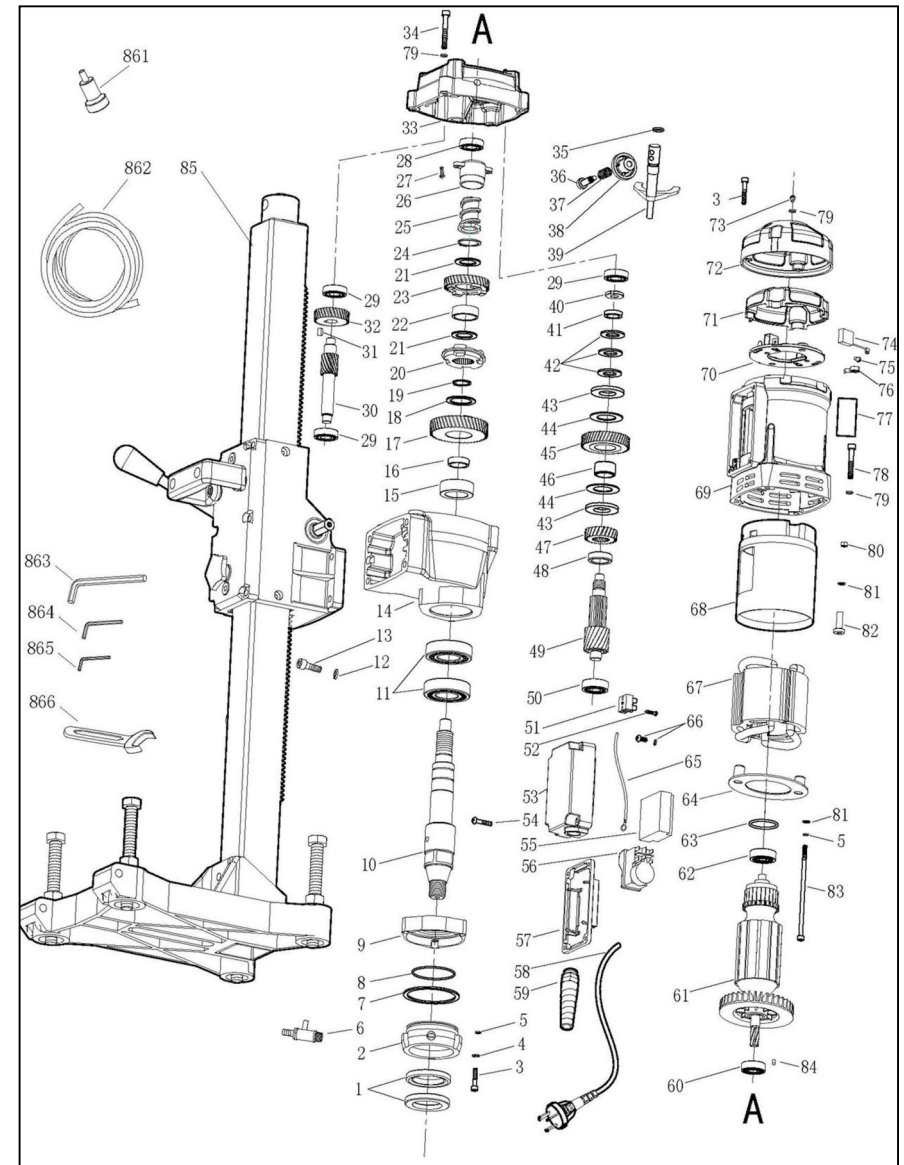
WARNING!

To maintain product SAFETY and RELIABILITY, repairs, any other maintenance or adjustment should be performed by authorized centers, always using original replacement parts.

※ Damaged cord must be replaced by a special cord purchased from authorized service center.

TROUBLESHOOTING

Fault	Possible Reason	Remedy
The motor does not run when pug in and switch on the machine.	• The power is faulty.	• Inspect and repair the power.
	• Non-reset or poor contact of the breaker of the fault-current safety switch.	• Inspect and repair the switch or change it.
	• Wear out or poor contact of carbon brush(es).	• Replace both carbon brushes.
	• Broken circuit of armature or stator coil.	• Inspect armature and stator, or replace it (them).
Big or annular sparks occurs on the commutator.	• Broken or short circuit of armature coil.	• Repair or replace the armature.
	• Poor contact of carbon brush(es) or insufficient pressure of the spring of carbon brush(es).	• Adjust pressure of the spring of carbon brush(es) or replace both carbon brushes.
	• Serious abrasion of commutator.	• Replace a new armature.
Vibration of the machine.	• Poor fastening of the machine base.	• Reinstall the base and secure the machine.
	• The clearance between the feed slider and the rack (the column) becomes larger.	• Tighten the track iron liner, and adjust the clearance.
	• Looseness of the tightening screws for connecting the feed slider and the drive unit.	• Inspect the tightening screws.
Slow speed of boring/drilling.	• Bit abrasion.	• Sharpen or replace the bit.
	• Poor quality of concrete with sand, steel piece, etc.	• Stop operation and dress the core bit.
	• Vibration of the machine.	• Adjust and tighten all connecting screws.
Diamond core drilling crown jams or cuts only with difficulty.	• Loose material or metal debris have jammed up the mechanism.	• Break up the drilling core and remove loose items.
	• Casing pipe is out-of-true or damaged.	• Replace the core bit.



EXPLANATION OF GENERAL VIEW

1	Oil Seal	26	Ring
2	Seal Holder	27	Pan Head Screw M4×12
3	Hex. Socket Head Screw M5×25	28	Ball Bearing 6002ZZ
4	Spring Washer	29	Ball Bearing 6201VV
5	Washer	30	Gear Shaft 3#
6	Water Valve	31	Flat Key A 5×10×5
7	Retaining Ring for Hole	32	Gear 2#
8	O Ring	33	Gear Housing Cover
9	Fixing Ring	34	Hex. Socket Head Screw M6×45
10	Drive Spindle	35	O Ring
11	Ball Bearing 6206-2RZ	36	Screw M6×31.5
12	Spring Washer 8	37	Spring
13	Hex Socket Head Screw M8×30	38	Knob
14	Gear Housing	39	Shifter Assembly
15	Spindle Sleeve	40	(Round) Nut M16×1.5
16	Gear Sleeve 8#	41	Washer
17	Gear 8#	42	Saddle Washer
18	Washer	43	Clutch
19	Circlip for Shaft 28	44	Copper Clutch
20	Clutch	45	Gear 4#
21	Washer	46	Locking Sleeve
22	Gear Sleeve 6#	47	Gear 5#
23	Gear 6#	48	Washer
24	Circlip for Shaft 22	49	Splined Sleeve 7#
25	Jack Screw	50	Ball Bearing 6202ZZ

EXPLANATION OF GENERAL VIEW

51	Terminal Block	74	Carbon Brush
52	Pan Head Screw M5×10 (with Spring and Flat Washer)	75	Pan Head Screw M4×6
53	Switch Container	76	Coil Spring
54	Hex. Socket Head Screw M5×35	77	Nameplate
55	Fault-Current Safety Switch	78	Hex Socket Head Screw M6×40
56	Switch	79	Spring Washer 6
57	Fixed plate	80	Lock Nut M5
58	Cord	81	Washer 5
59	Strain Relief	82	Insulation Sleeve
60	Ball Bearing 6202VV	83	Hex Socket Head Screw M5×125
61	Armature Assembly	84	Rubber Pin
62	Ball Bearing 6300 VV	85	Lifting Assembly
63	O Ring	861	Pipe Connector
64	Baffle Plate	862	Water Pipe
65	Wire	863	Hex Wrench
66	Pan Head Screw M5×10 (with Spring and Flat Washer)	864	Hex Wrench
67	Stator Assembly	865	Hex Wrench
68	Stator Cover	866	Wrench
69	Motor Housing		
70	Carbon Brush Holder Assembly		
71	Rear Cover Sleeve		
72	Rear Cover		
73	Pan Head Screw M6×8		