

# CORE DRILL OPERATIONS MANUAL



**MODEL :**

**MIAA-15**



## ***SAFETY***



To Maintain the operation safety,  
make sure read and understand  
this instruction book **BEFORE**  
operating this equipment.



# **SAFETY**



**NOTE:** Since this is general instruction for safety, some of them may not be applicable to some of your machines.

1. Use your machine properly.  
Don't use your machine for applications not recommended in the instruction manual.
2. Safe operation by proper handling.  
Follow the instructions in this manual to use your machine properly.  
Do not allow children and others who are not familiar with operation to use your machine.
3. Avoid moisture  
It could cause electric shocks.  
Do not use your machine in rain, damp, wet places, etc. Do not allow oil or liquid to enter the machine.  
Excessive moisture is shock hazards and worsen insulation of the motor.
4. Protection against shock hazards  
Make sure that the power source is provided with an earth leakage breaker.  
An earth leakage breaker is available from an electric appliance shop.  
Ground your machine unless it is double insulated.
5. Precaution against ignition and explosion.  
Motor emits sparks during operation and when switched on and off.  
Never use your machine in the presence of flammable and explosive atmosphere such as lacquer ,paint, benzene, thinner, gasoline, gaseous fumes, adhesives and the like.  
Operation in such environments is very hazardous.

6. Keep work area clean and well lit.  
Cluttered, dark work areas invite accidents.
7. Keep bystanders away.  
Bystanders, especially children should be kept at a safe distance from the work area.
8. Insist on genuine accessories and cutting tools.  
Use recommended cutting tools and accessories. The use of accessories other than recommended is hazardous.
9. Use right parts in right place.  
Be sure cutting tools and accessories are properly installed in a right place and right way.  
It is hazardous to use the machine with accessories loose fitted or tightened too much by means of unrecommended tools.  
Do not remove secured cover or screws which are essential for safety.
10. Check before each use.  
Never forget to remove tools such as a spanner or screwdriver used for inspection and installation.  
Since such tools could be flung away at starting, operation with such tools attached is very dangerous.  
Make a habit of checking that locking devices are removed from your machine before turning it on.
11. Full open vents on motor  
The vents on the motor is essential for motor cooling. Do not cover the vents on your motor to shut off dust.  
Do not insert metal pin etc through the vents. It is shock hazards.

12. Dress properly.

Wear proper dress for operation. Do not wear ties, loose fitted sleeves, knitted gloves, etc. They may be caught in moving parts. Wear safety cap, rubber gloves and rubber-soled shoes to ensure safety.

13. Protect eyes with safety glasses.

Use safety glasses during operation. Safety glasses should be worn during sawing. Safety glasses are available from machine and tool shops. Wear a dust mask for dusty operation.

14. Maintain balance and control

Unstable and unbalanced operation is dangerous.  
Keep proper footing and balance all the time.

15. Use power of specified voltage.

Use your machine at nameplate voltage.  
If the machine is operated at higher voltage than specified, it will decrease efficiency, and abnormally increase motor speed, resulting in machine failure.

16. Do not force your machine.

Do not use your machine and accessories for a purpose for which they are not designed. Excessive force not only damages your machine but also is hazardous.

17. Do not carry a plugged in machine with your finger on the switch. It could cause injury by accidental starting.

18. Keep hands away from all cutting edges and moving parts.

Never touch cutting edges and moving parts during operation.

19. Stop operation when abnormalities are found.

When the machine fails to perform properly or any abnormalities are found, stop

operation immediately and have it inspected and repaired.

20. Unplug machine when it is not in use

Unplug the machine after each use or before changing accessories, cleaning, inspection or at the time of power outage.

Before plugging the machine, always check that the switch is off to avoid accidental starting.

21. Do not abuse cord.

Never carry your machine by its cord or disconnect it by yanking the cord from the outlet.

It could cause disconnection or short circuit. Keep the cord away from cutting edges and heat, etc. If the cord is damaged, stop operation right away and have it replaced or repaired.

22. Handle machine with care.

Take care not to hit or drop the machine. It could cause cracks, deformation or damage on the enclosures and others.

23. Always keep cutting edge sharp and clean.

24. Maintain your machine carefully.

Keep your machine clean. Especially keep the motor and switch free from dust and dirt. Keep the cord away from oil and grease to protect it from damages.

25. Periodical inspection ensures safety.

Periodically inspect your machine for safe, efficient usage.

26. Inspection and repairs at the authorized service center.

Contact our sales agents or service center for inspection or repairs. When replacing parts, insist on the specified genuine parts.

27. Store idle machine with care

When not in use, store your machine in a dry, secured place.

Keep out of reach of children. Avoid wet, damp and rainy places such as under eaves.

Storage in such places deteriorates insulation and is shock hazards.

# ***USE OF CORE DRILL***

## **1. BE SURE TO TAKE MEASURES AGAINST ELECTRIC SHOCK.**

Make sure the power source is provided with an earth leakage breaker. If not, use earth leakage breaker. It is available from an electric appliance shop. To ensure safety, it is recommended to wear rubber gloves and rubber boots.

## **2. KEEP WATER OUT OF MOTOR INTERIOR.**

If water enters the motor interior, insulation performance drops, which may cause electric shock and burning.

## **3. BE SURE TO FEED WATER DURING DRILLING.**

Since overheat of a diamond bit shortens its service life, be sure to feed water during operation. Do not recycle waste water.

## **4. SECURE INSTALLATION OF MACHINE**

Install your machine securely. Insecure installation hampers normal operation and is very hazardous.

## **5. USE DIAMOND BIT.**

This drill is designed for use with a diamond bit. Do not use other cutting tools than a diamond bit.

## **6. DO NOT APPLY UNDUE FORCE.**

If you apply undue force to a drill, the motor will be overheated. Drilling capacity drops and service life will be shortened.

## **7. START DRILLING AFTER ROTATION HAS INCREASED ENOUGH.**

Turn on the switch and wait until rotational speed increase completely, and then start drilling.

## **8. KEEP HAND OFF ROTATING BIT.**

Pay extensive care never to touch a rotating bit. It is very hazardous, causing serious injury.

9. OPERATION AT HIGH PLACES.

When a drill is operated at a high place, secure it on a safe and stable place.

10. CARE FOR DRILLING IN CONCRETE STRUCTURE.

Check embedded wiring in a wall, floor, ceiling, etc. before starting operation.

11. DO NOT USE A DRILL UPWARDS.

Since water is always used for operation, upward operation causes water to get into motor interior, which is very dangerous. Never use drill for upward operation.

12. CARE FOR DRILLING THROUGH FLOOR.

When drilling a hole through the floor, a core often drop from a bit at the time of penetration. So provide protection for personnel and material below the area.

13. WHEN ABNORMALITIES OCCUR, TURN OFF THE SWITCH IMMEDIATELY.

Turn off the switch immediately if a diamond bit stops or abnormal noises are heard during operation.

14. CLEAN MAIN BODY AFTER OPERATION.

After operation, water drops, chips, etc lie on the main body.

15. Built in controllable clutch system

(1) If you apply undue force to a drill or DIAMOND BIT stuck by steel bar suddenly, we design clutch system to protect DIAMOND BIT and motor.

While drilling through steel bar, CIRCUIT PROTECTOR might be energized, causing motor stop. In this case, raise DIAMOND BIT once, get BIT TIP away from the work surface, and then reset SWITCH on.

SWITCH can not be reset with BIT TIP rest on the work surface because CIRCUIT PROTECTOR would be energized again.

(2) If current doesn't achieve its specific current but clutch system energizes, then you have to adjust clutch. Please refer Chapter 9 (page 16.17) to adjust clutch.

# STANDARD ACCESSORIES

- 1. Water collector -----1
- 2. Spanner -----1
- 3. Spanner -----1
- 4. Anchor set -----1
  - Which includes
  - (a) Anchor W1/2 -----2
  - (b) Square washer 1/2"-----1
  - (c) Bolt W1/2"\*120mm -----1
  - (d) Hex. Nut W1/2" -----1
  - (e) Driving holder 1/2"-----1

# APPLICATION

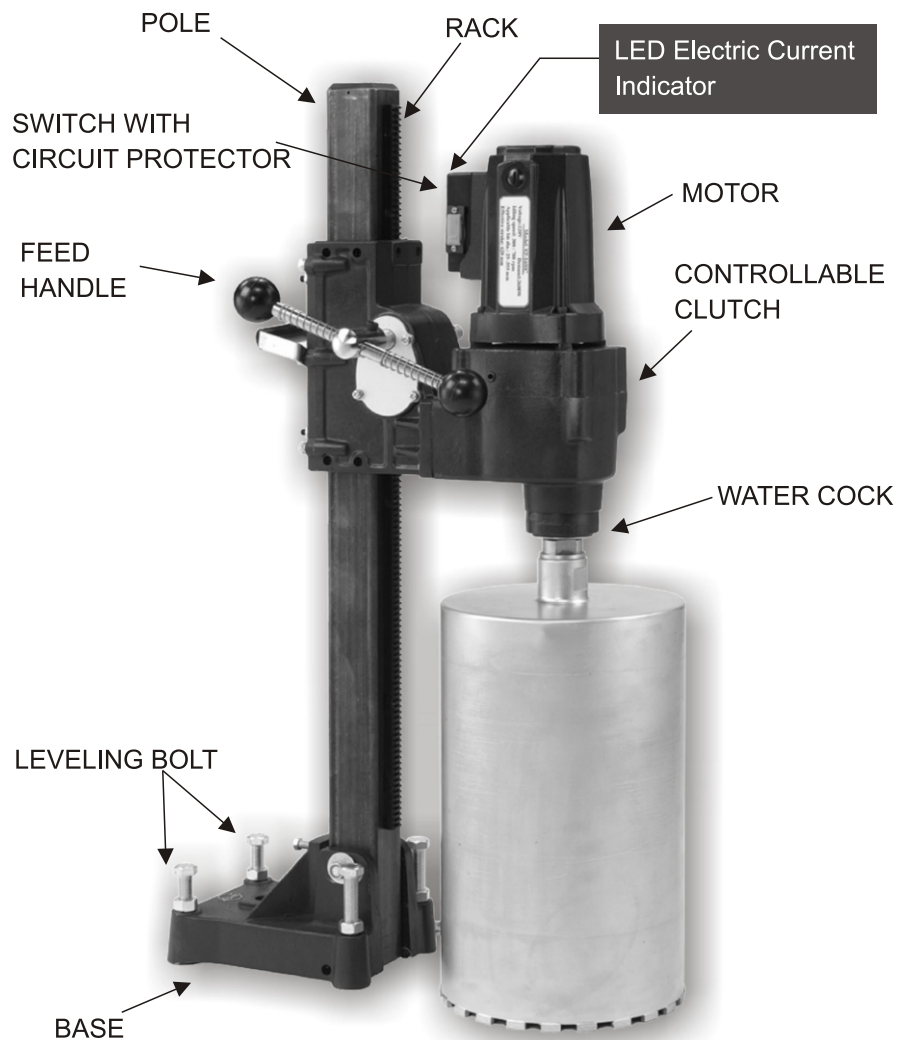
Sampling test pieces in concrete, masonry, brick and asphalt.  
Drilling in reinforced concrete for the purpose of piping and wiring for air-conditioning, telephone, electricity, water and gas supply etc.



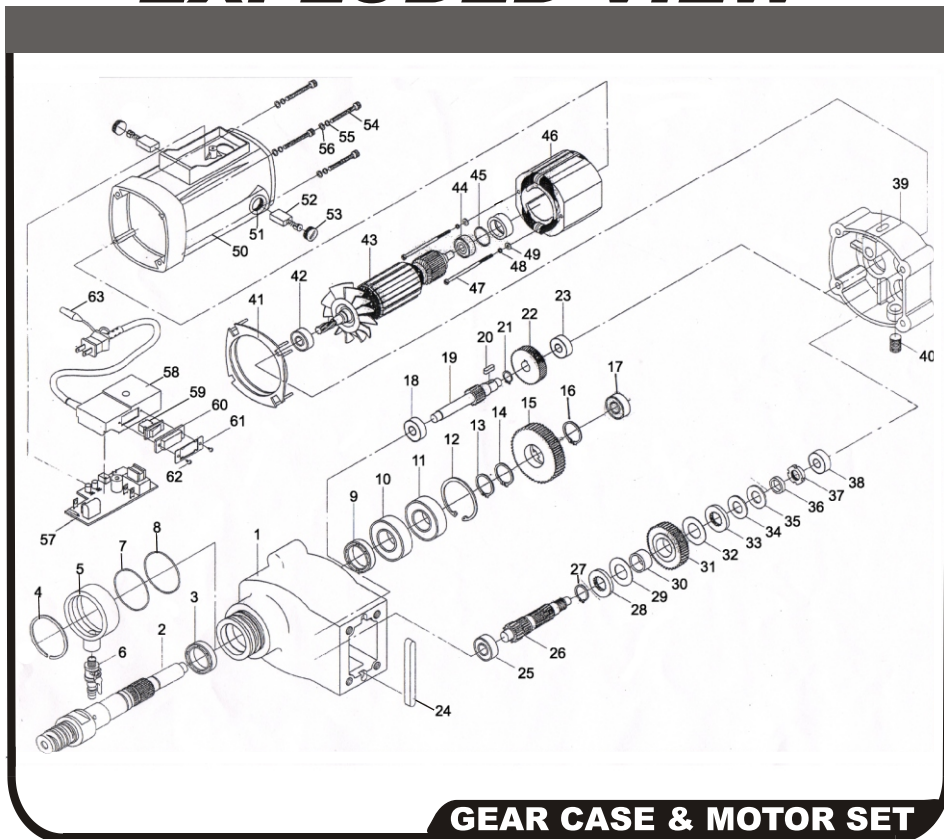
# ***SPECIFICATIONS***

Model Spec	<b><u>MIAA-15</u></b>
<b>VOLTAGE</b>	110V (60Hz)
<b>DEMAND</b>	2400W
<b>IDLING SPEED</b>	850 rpm
<b>TWO-SPEED</b>	NO
<b>APPLICABLE BIT DIAMETER</b>	1"-6"
<b>EFFECTIVE STROKE</b>	20"
<b>HEIGHT</b>	30"
<b>WEIGHT</b>	35 lbs

# ***DESCRIPTION***

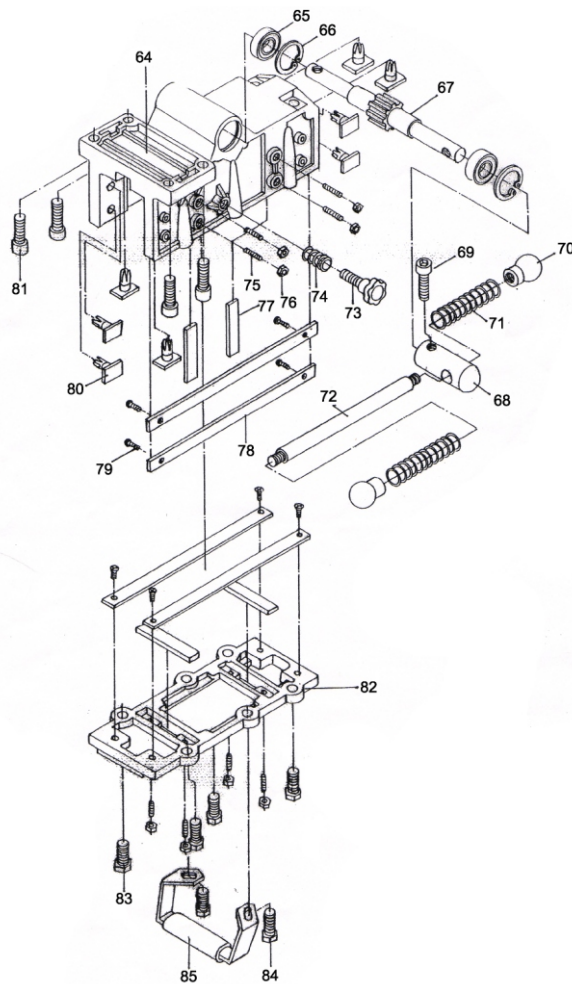


# ***EXPLODED VIEW***



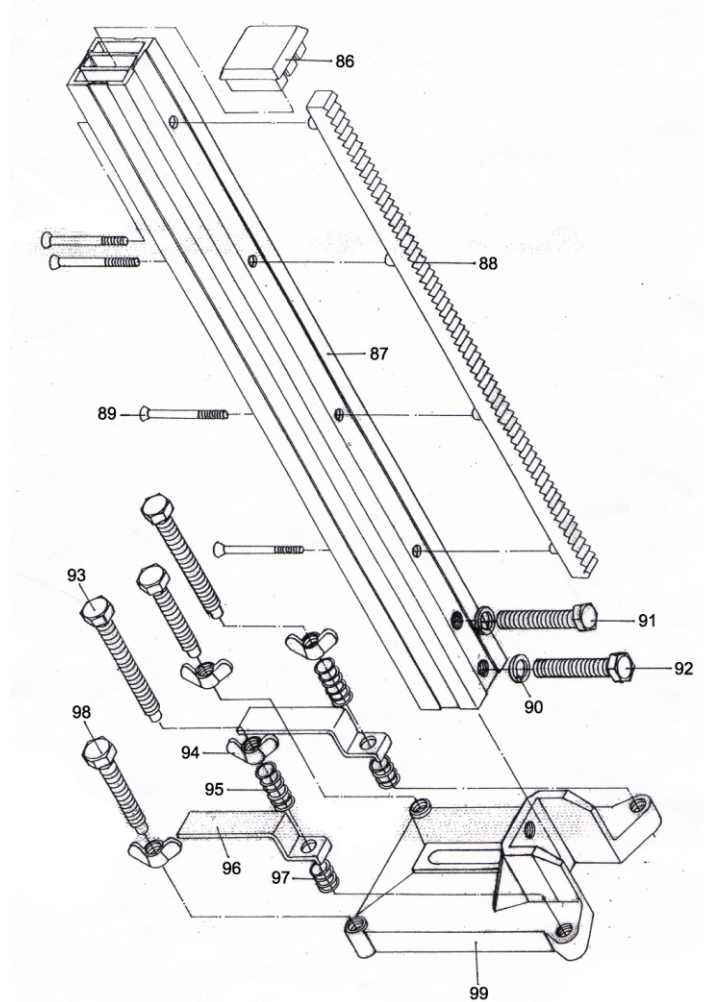
**GEAR CASE & MOTOR SET**

# ***EXPLODED VIEW***



**FEEDING HOUSE**

# ***EXPLODED VIEW***



**POLE BASE**

# ***SPARE PARTS LIST***

## **GEAR CASE SET**

#	ITEM	QTY	PART NO.
1	Gear Case	1	2704001
2	Main Shaft	1	2704002
3	Seal 28x42x8	1	2704003
4	Snap Ring IS63	1	2704004
5	Water Supply Cover	1	2704005
6	Water Cock	1	2704006
7	O-ring 49x2	1	2704007
8	O-ring 49x2	1	2704008
9	Seal 28x40x8	1	2704009
10	Bearing 6005	1	2704010
11	Bearing 6005	1	2704011
12	Snap Ring R47	1	2704012
13	Snap Ring S25	1	2704013
14	Snap Ring S25	1	2704014
15	First Gear	1	2704015
16	Snap Ring S20	1	2704016
17	Bearing 6001ZZ	1	2704017
18	Bearing 6200ZZ	1	2704018
19	First Pinion	1	2704019
20	Woodruff Key 5X12	1	2704020
21	Snap Ring S13	1	2704021
22	Second Gear	1	2704022
23	Bearing 6200ZZ	1	2704023
24	Woodruff Key 10x105	1	2704024
25	Bearing 6901ZZ	1	2704025
26	Second Pinion	1	2704026
27	Snap Ring	1	2704027
28	Plate	1	2704028
29	Friction Plate	1	2704029
30	Metal	1	2704030

# ***SPARE PARTS LIST***

## **GEAR CASE SET**

<b>#</b>	<b>ITEM</b>	<b>QTY</b>	<b>PART NO.</b>
31	Third Gear	1	2704031
32	Friction Plate	1	2704032
33	Plate	1	2704033
34	Disk Spring	1	2704034
35	Disk Spring	1	2704035
36	Metal Collar	1	2704036
37	Fine U-Nut	1	2704037
38	Bearing 6200ZZ	1	2704038
39	Diaphragm	1	2704039
40	Plug	1	2704040
41	Baffle	1	2704041

# SPARE PARTS LIST

## MOTOR SET

#	ITEM	QTY	PART NO.
42	Bearing 6201	1	2704042
43	Armature	1	2704043
44	Bearing 6200ZZ	1	2704044
45	Filling Ring 6200	1	2704045
46	Field	1	2704046
47	Field Screw M5X85	2	2704047
48	Spring Washer M5	2	2704048
49	Washer M5	2	2704049
50	Motor House	1	2704050
51	Brush Tube	2	2704051
52	Carbon Brush	2	2704052
53	Brush Cover	2	2704053
54	Screw M6X45	4	2704054
55	Spring Washer M6	4	2704055
56	Washer M6	4	2704056
57	LED Indicator	1	2704057
58	Switch Box	1	2704058
59	Power Switch	1	2704059
60	Switch Cover	1	2704060
61	Switch Plate	1	2704061
62	Screw 1/8X1/4	2	2704062
63	Electric Cable	1	2704063
64	Feeding House	1	2704064




# SPARE PARTS LIST

## FEEDING HOUSE SET

#	ITEM	QTY	PART NO.
65	Bearing 6003ZZ	2	2704065
66	Snap Ring R-35	2	2704066
67	Feed Shaft	1	2704067
68	Feeding Head	1	2704068
69	Screw M8 X 25	1	2704069
70	Knob	2	2704070
71	Spring	2	2704071
72	Feeding Handle	1	2704072
73	Knob Bolt	1	2704073
74	Spring	1	2704074
75	Screw M6 X 20	8	2704075
76	Hex Nut M6	8	2704076
77	Plate	4	2704077
78	Friction Plate-Long	4	2704078
79	Screw 5/32 X 1/2	8	2704079
80	Friction Plate-Short	8	2704080
81	Screw M8 X 30	4	2704081
82	Feeding House Cover	1	2704082
83	Screw M8 X 20	6	2704083
84	Screw M8 X 20	2	2704084
85	Handle	1	2704085
86	Pole Cover	1	2704086

# SPARE PARTS LIST

## POLE BASE SET

#	ITEM	QTY	PART NO.
87	Pole 	1	2704087
88	Rack	1	2704088
89	Screw M6 X 55	4	2704089
90	Spring Washer	2	2704090
91	Screw M12 X 75	1	2704091
92	Screw M12 X 65	1	2704092
93	Screw M12 X 100	2	2704093
94	Nut M12	4	2704094
95	Spring	2	2704095
96	Water Collector Fixed Plate	2	2704096
97	Spring	2	2704097
98	Screw M12 X 75	2	2704098
99	Base	1	2704099
100	Water Collector	1	2704100
101	Water Collector Rubber	1	2704101
102	Water Collector Strip	1	2704102
103	Spanner	1	2704103
104	Spanner	1	2704104
105	Anchor 1/2"	2	2704105
106	Driving Holder	1	2704106
107	Bolt 1/2"	1	2704107
108	Flat Washer 1/2"	1	2704108
109	Hex.Nut 1/2"	1	2704109

# ***NOTES TO USERS***

## **CHECK THE FOLLOWING BEFORE STARTING OPERATION.**

### 1. Checking of earth leakage breaker

Before starting to use your drill, make sure that the power source for the machine is provided with earth leakage breaker in accordance with safety rules and regulations and technical standards on electric equipment.

### 2. Before plugging the machine, check the following.

#### (a) Check service voltage.

Use your machine at nameplate voltage.

If a machine is connected with voltage exceeding nameplate voltage, motor speed will abnormally increase, which may lead to machine break-down.

(Note) Do not use your machine with D.C. power. It is hazardous and damages the machine.

#### (b) Make sure that the switch is off

If a machine is plugged in with the switch (circuit protector) turned on, it will abruptly start and could lead to an unexpected accident.

To prevent accidental starting, from a habit to make sure the switch is off before plugging your machine.

#### (c) Check a power receptacle.

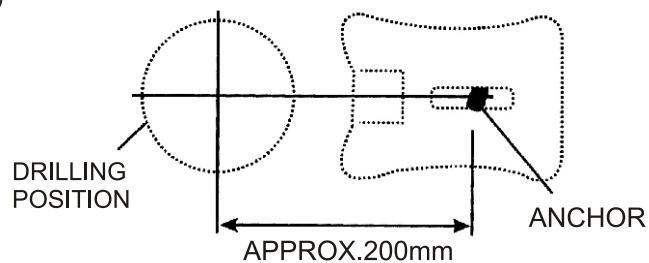
If a plug can not be snugly fitted into a receptacle or come loose easily out of a receptacle, repairs are required.

Have your nearby repair shop repair it. Use of defective appliances causes overheating and invites accidents.

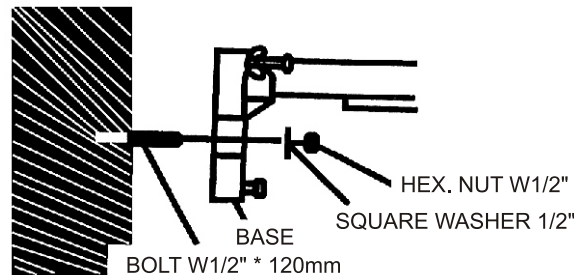
# OPERATING INSTRUCTIONS

## A. Machine Installation

1. Drill an anchor hole of 14.3mm to 14.5mm dia. And 55mm depth, at the position 200mm away from the center of a drilling hole, using a hammer drill etc.  
Only one anchor is sufficient for anchoring. The use of a W 1/2" anchor is recommended when using with a bit of 130mm or more. ( The machine can be installed any place around the drilling hole. )



2. Remove chips in the hole with a dust blower.
3. Drive an attached anchor W1/2" securely into the hole using a driving holder 1/2".  
(If the anchor is not secured tight enough, the machine could move or fall during operation. )
4. Screw an attached bolt W 1/2"\*120mm into the anchor.
5. Secure the machine temporarily with an attached hex nut W1/2" and square washer 1/2".



6. Locate the machine properly. Make horizontal, vertical and angle adjustment by means of leveling bolts at four corners of the base.  
After completing adjustment on location and leveling, tighten the hex. nut W1/2" and anchor the machine correctly.

## B. Cutter Attachment & Water Supply

1. Thread DIAMOND BIT onto DRILL end. By applying a little coating of grease then, the bit will be removed easily.

Use our recommended DIAMOND BIT. The use of an un-recommended bit could lead to insufficient performance of the machine.

2. Connect a hose between WATER COCK and a water source for water feeding.

The water cock can accept either a vinyl hose (Internal dia. 15mm) or a one touch coupler (female).

When you connect vinyl hoses, secure them with a hose band.

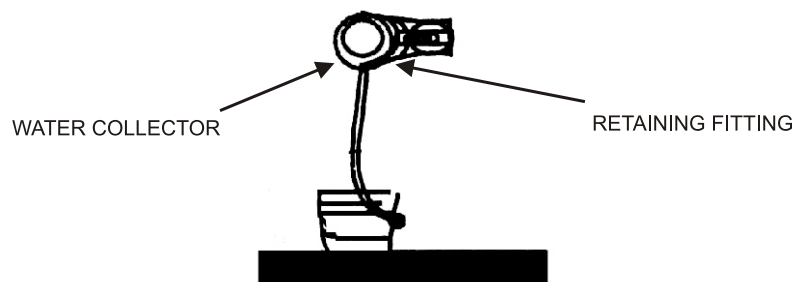
When a water source is not available nearby, the use of a water tank T-13L (optional accessories) is recommended.

3. Use WATER COLLECTOR (If equipped) at a site where waste water is not allowed to spatter.

Retain WATER COLLECTOR by means of RETAINING FITTING in such a way that the drain hole of WATER COLLECTOR should face right downward.

Tighten the wing nuts on RETAINING FITTING to such a extent that the cushion rubber of WATER COLLECTOR should closely fit the concrete surface.

(The nuts can be easily tightened by lightly pressing WATER COLLECTOR)



4. Connect a vinyl hose (internal dia. 15mm) with the drain hole of WATER COLLECTOR and place the other end of the hose into a bucket etc.

(In the case water is disposed because water flows downward naturally. So this type of water disposal may not work well for drilling in a horizontal surface like floor.)

## C. Start Drilling

1. Make sure the DRILL SWITCH(CIRCUIT PROTECTOR)is OFF before plugging your machine.

**NOTE:**

Never fail to supply water onto DIAMOND BIT. The operation without water will damages bit tip.

2. Start water feeding. Water supply can be adjusted by the knob of WATER COCK. Water flow as thick as a pencil (8-10mm dia.) is recommended.

3. Turn the switch on and start drilling by turning FEED HANDLE.

Press lightly DIAMOND BIT on the work surface. To prevent BIT from wondering, apply light pressure on FEED HANDLE down to 5mm depth. After that, keep drilling with uniform pressure. It is recommended to apply such pressure, only a forefinger can perform drilling.

When drilling through rebar during operation, reduce pressure on FEED HANDLE to avoid overloading on MOTOR.

**NOTE: DIAMOND BIT can perform drilling with light force.**

Do not apply excessive force.

Too much force reduces motor speed resulting in slow operation.

Excessive force energizes CIRCUIT PROTECTOR.

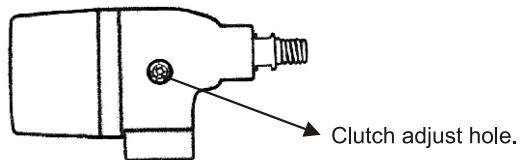
Such operation does not only shorten the life of DIAMOND BIT but also leads to motor failure.

**NOTE: While drilling through rebar, CIRCUIT PROTECTOR might be energizes, causing motor stop. In this case, raise DIAMOND BIT once, get BIT TIP away from the work surface, and then reset SWITCH on.**

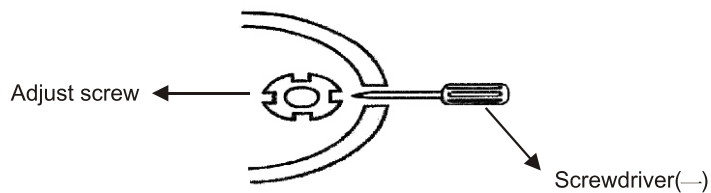
**SWITCH can not be reset with BIT TIP rest on the work surface because CIRCUIT PROTECTOR would be energized again.**

**NOTE:** While current are not achieve indicate current of this machine but clutch idling, means DIAMOND BIT idling but motor still operating, then you have to do adjustment as following:

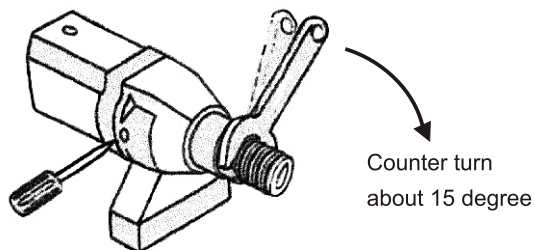
- (1)First of all, use hexagon spanners (5mm) to loosen screw which inside the adjust hole.

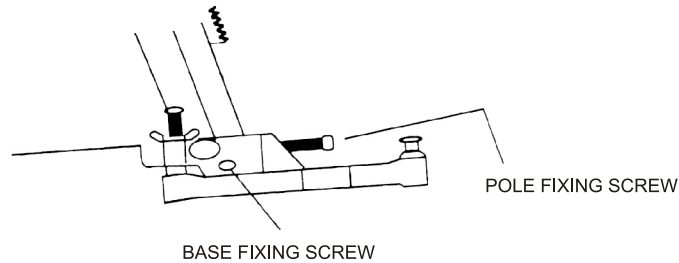


- (2)Second, use screwdriver(—) to let ADJUST SCREW which inside the system get stuck.



- (3)Use spanner which our machine enclosed to hold the DIAMOND BIT and counter turn about 15 degree till tighten the clutch.





#### 4. Variable angle rail design.

Allows for variable drilling angle.

First, use two spanners of No.17 to loosen BASE FIXING SCREW.

Second, use spanner No.14 to loosen POLE FIXING SCREW, then angle rail can be adjust.

After adjustment, fixed BASE FIXING SCREW and POLE FIXING SCREW.

#### 5. LED ELECTRIC CURRENT INDICATOR

LED electric current indicator improves drilling efficiency, protects mechanism and prolongs working life.

Keep in yellow light during drilling.

If it shows in red light, please slow down the drill speed to prevent motor overheat.

An current of each light as following:

(1) First Green light : current are under 12A.

(2) Second Green light: current between 12A-16A.

(3) Third Green light: current between 16A-20A.

(4) Fourth yellow light: current between 20A-24A.

(5) Fifth red light: current are above 24A.

#### 6. After completion of drilling, turn off SWITCH, stop water supply and extract DIAMOND BIT.

Entire operation is complete by cleaning the area.

**NOTE:** Cores often drop from DRILL BIT at the completion of the hole. Use extreme care in operation at high places.

**NOTE:** If POLE & MOTOR is not securely clamped, chattering sound is generated and it deteriorates the life of DIAMOND BIT extremely. Make frequent clamp adjustments to avoid rattling.

**NOTE:** if core is stuck in DIAMOND BIT at the completion of drilling, use a hammer or chisel and remove the stuck core by chipping little by little.



# TROUBLESHOOTING

Fault	Immediate action	Reason	Remedy
Bit is stuck	Turn SWITCH off	Steel bar or stone, etc. Is caught between core and BIT	Try to rotate BIT in both directions using spanner and to lift it out
		During drilling, Base wanders.(Defective installation)	Reset BASE securely and re-start drilling.
		Because of excessive wear, bit tip has become flush with shank.	Replace BIT.
Drilling is slow in normal operation	Check waste water.	If waste water is contaminated with steel chip , DRILL is cutting rebar.	Adjust pressure on FEED HANDLE so as not to overload MOTOR.
	Check Bit for abrasion.	BIT is worn.	Replace BIT.
		Diamond is not exposed on TIP surface.	Dress BIT.
		Chips are deposited on BIT face.	Increase water feed pressure.
			Dress or brush BIT with a wire brush.
		Steel chips are scorched on BIT face.	Remove steel chips.
		MAIN SHAFT sways.	Replace MAIN SHAFT.
SHANK Get worn		BIT is deformed	Repair or replace BIT.
		Chips are not well discharged	Increase water pressure.
			Increase water supply.

## **MAINTENANCE & INSPECTION**

### **CAUTION**

Be sure to turn SWITCH off and unplug the machine before maintenance and inspection.

#### 1. Checking of DIAMOND BIT

The use of a worn DIAMOND BIT dulls cutting, and overload the motor, and efficiency will also be decreased. Replace a worn bit right away.

#### 2. Checking of carbon brush

Carbon brushes included in the motor unit are consumables.

The excessive abrasion of carbon brushes would cause motor failure. Accordingly, when they are abraded up to the wear limit line(5mm), replace them with new ones.

Keep them clean so that they can slide freely within the brush holder.

#### **NOTE:**

In replacement, be sure to use our genuine carbon brush. You can remove carbon brushes by detaching CARBON CAP (see DESCRIPTION) using a straight blade screwdriver. After replacement, tighten CARBON CAP securely.

#### 3. Handling of MOTOR

The winding of MOTOR can be called the heart of this machine.

Pay attention not to flaw or stain the winding with washing oil or water etc.

#### **NOTE:**

Dust or dirt inside MOTOR is likely to cause motor failure. After each use, let MOTOR idle and feed air into MOTOR to drive dust and dirt out.

## ***MAINTENANCE & INSPECTION***

### **4. Cleaning of surface**

Wipe dirt and stains on the enclosure surface.

Keep cord sheath clean from damage. If it is damaged, replace it.

### **5. Checking of attaching screws**

Carry out periodical checking of attaching screws for looseness. If any screw is found loose, tighten it.

The use of the machine with loose screws is very hazardous.

### **6. Storage of machine and accessories**

Store idle machines and accessories in a secured place. The following places are not suitable for storage.

Where children can reach and take out the goods with ease.

Wet and damp places.

Where the goods are subject to extreme temperature changes.

Where the goods are exposed to direct sunlight.

Where inflammable, explosive substances are stored.

(Do not store the goods in these places.)

## ***REPAIRS***

This machine has been manufactured with rigorous accuracy.

Accordingly, in case the machine should fail, never try to repair by yourself, but contact our agent nearby your work place.

# ***ANOTHER INSTRUCTION***

## **1. LED ELECTRIC CURRENT INDICATOR**

Led electric current indicator improves drilling efficiency, protects mechanism and prolongs working life.

2. Keep the YELLOW light on during drilling.
3. If it shows in red light, please slow down the drill speed to prevent motor overheat.
4. If you stop drilling and finished, please turn KNOB to N position to release the core bit.

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Please call us if for any reason you are having difficulty that cannot be resolved with the troubleshooting guide included in the back of this manual. We would like to help.

Give us a call at  
**1-800-321-5336**  
or e-mail us at  
**dp@diamondproducts.com**

To better service our customers as expediently as possible, please make sure that you have the manufacturing serial number at hand before contacting us.



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