



HMT MAX 200 MAGNETIC DRILLING MACHINE

OPERATING INSTRUCTIONS

PLEASE READ CAREFULLY BEFORE USE

This MAX 200 Machine
(Serial No _____) is CE Approved.

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1. Before Use.

1.1 Operating Guide.

Read this manual carefully and understand all the requirements fully before operating this machine, or serious injuries may result.

Please contact Holemaker Technology or your local distributor immediately if there are any items missing or the machine is not in full working order upon delivery.

Holemaker Technology or the distributors are not obliged to repair or replace any part that has been damaged by careless operation, misuse for any reasons, such as: poor lubrication, inadequate maintenance, inappropriate operation environment or improper operation.

1.2 Safety Regulations.

- ◎ To maintain workplace safety, working regulations should be observed by all personnel present in the workplace.
- ◎ The workplace should be clean and tidy.
- ◎ Do not expose the machine to dangerous environmental elements not intended for its operation.
- ◎ Provide sufficient light in the workplace.

- ⊙ Do not use with a Pacemaker or other implanted medical devices. Electromagnetism can cause damage/interference.
- ⊙ Cleaning, greasing, general maintenance and other adjustments should only be made to the machine when the power cable is removed.
- ⊙ Servicing should only be carried out by a qualified technician.
- ⊙ Do not leave the machine unattended while running.
- ⊙ The magnetic base should always be secured by the safety strap in case of power loss.
- ⊙ The use of cutting lubricant is recommended during the drilling process.
- ⊙ Make sure the tool is intended for the job.
- ⊙ Electro- Magnetic Drilling Machines should only be used by skilled person(s).
- ⊙ Follow all Safety Regulations at all times when operating this machine.

1.3 Warning Symbols

To ensure safe & proper operation, there are six symbols showing on the machine and are explained below. Do not remove warning symbols from the machine.

Warning Symbols:



General warning



Use earplugs



Read the manual



Wear safety shoes



Use safety glasses




Wear appropriate work clothes



Always use a safety belt when working horizontally or overhead.
Maximum cutter size 200mm diameter.
Slug ejects at the end of cut.
Use the lubricant system installed on the machine with high performance cutting oil.

1.4 Specification Plate

HMT	MAX 200
Voltage	1 x 230V (50/60Hz) 
Power Input	3600W
RPM	410/170
Core Drill	Ø12mm-Ø200mm
Max. Cutting Depth	110mm
Magnetic Adhesion: 3900kg	Tool Holder: MT4

CAUTION!

Always use a safety belt when working horizontally or overhead.

Maximum cutter size 200mm diameter.

Slug ejects at the end of cut.

Use the lubricant system installed on the machine with high performance cutting oil.



General warning



Use earplugs



Read the manual



Wear safety shoes



Use safety glasses



Wear appropriate work clothes

2. Features.

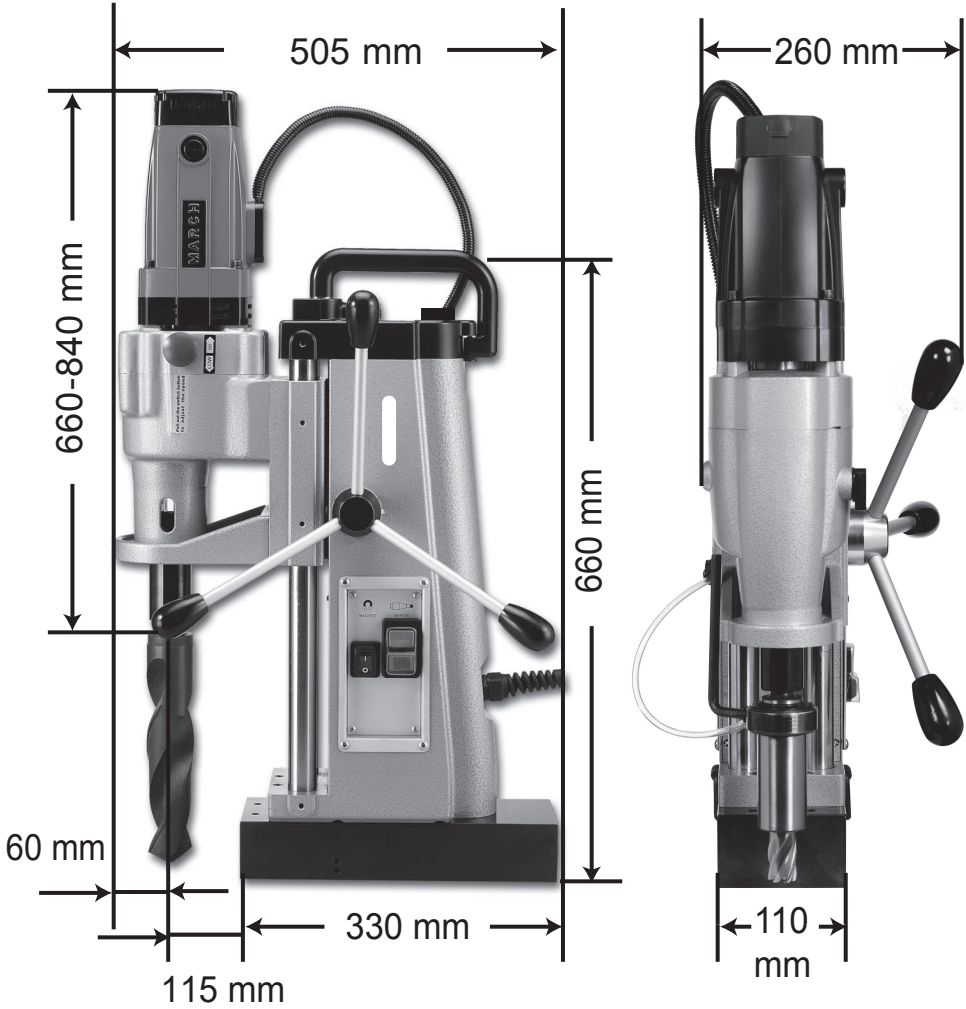
2.1 Functions of the Machine.

1. Highly efficient and stable drilling, offering precision results.
2. Variable speed functions, for both drilling and countersinking.
3. Internal protected coolant feed system.
4. Powerful and durable motor with long life expectancy.
5. Waterproof and dust proof switchgear, ensuring safety & reliability.
6. Emergency stop function.
7. Current Overload protection.
8. Reversible Capstan arm, can be fixed on both sides of the machine.
9. Control panel assembly can be fixed on both sides of the machine.
10. High power Electro-Magnetic Base for cutting stability.

2.2 Technical Data.

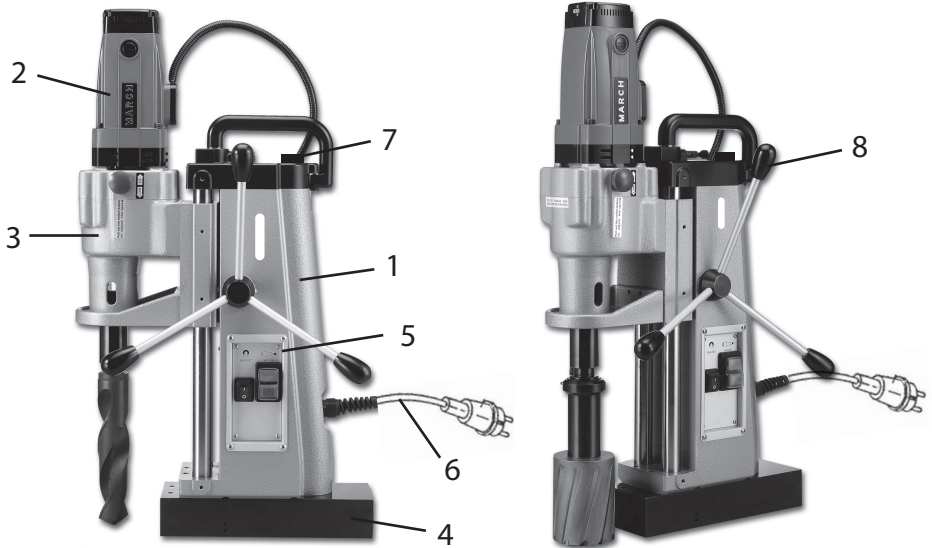
Technical Data MAX 200	
Power Input	3600W
Voltage	230V/50H/z 110V/60H/z
RPM	Two Speed High 410/170 Low 150/70
Core Drill	Φ12mm - Φ200mm
Max Cutting Depth	110mm
Twist Drill	up to ϕ 44mm with Morse Taper
Tool Holder	MT4
Magnetic Adhesion	3900kg
Weight	53kg

2.3 Machine Dimensions.



3. Overview.

3.1 Machine Features.

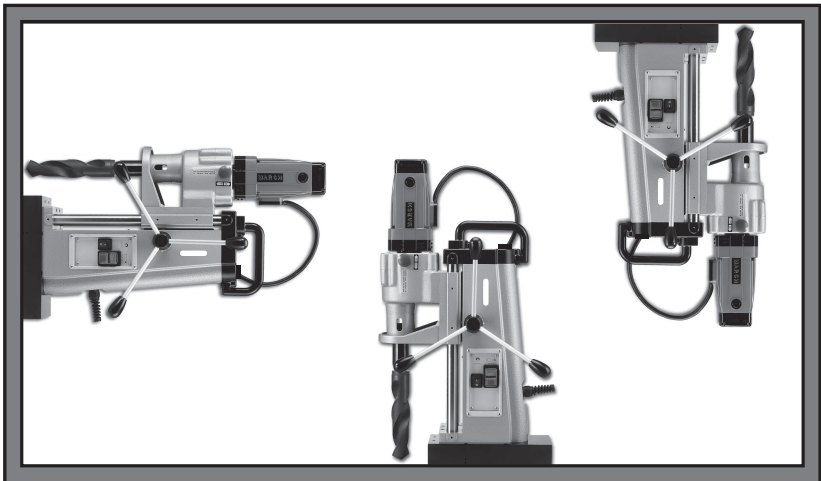


- 1. Body
- 2. Motor
- 3. Gearbox

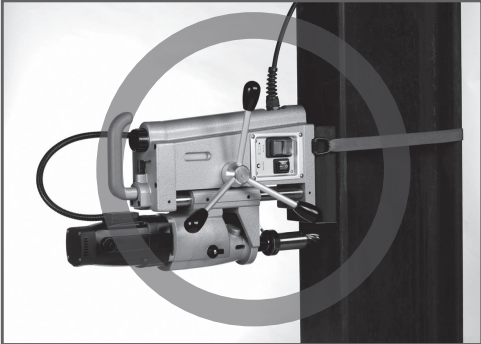
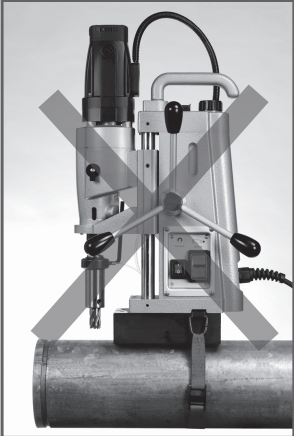
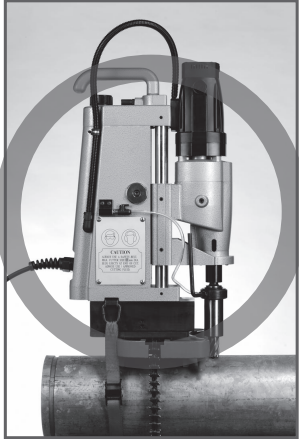
- 4. Magnet
- 5. Control panel assembly
- 6. Main cable assembly

- 7. Oil bottle assembly
- 8. Capstan arm

3.2 Operating Positions.



3.3 Correct Usage.



3.4 Power Supply Requirements.

An Inadequate input power supply may seriously affect the output power of the machine.

It is important that this machine uses a dedicated power supply, separate from other machinery and is correctly connected to the power supply.

Table for power supply requirements:

W	Voltage	Breaker capacity	Wire size
3600	110V	26A	2mm ²
3600	230V	13A	1.5mm ²

3.5 Power Connections.

- (1) Make sure the power supply is consistent with machine voltage.
- (2) The power cable should be grounded.
- (3) Check the cables on the machine for any sign of damage.
- (4) Check the switches for any signs of damage before connecting to the power supply.

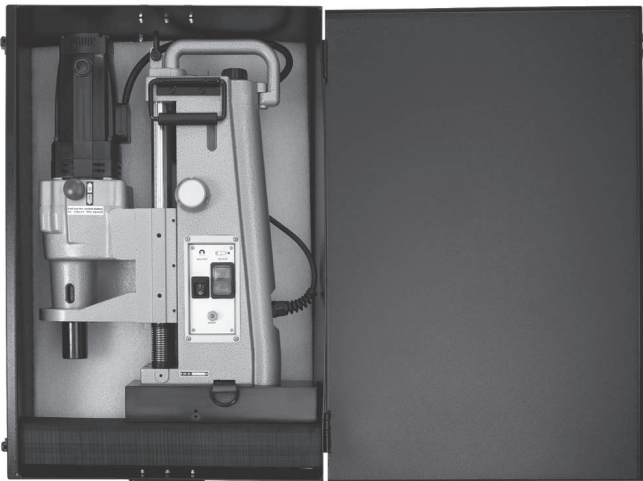
3.6 Safety Devices.

The Motor will stop automatically when the magnetic base is turned off or the power is cut.

The machine features a Current Overload Cutout switch which may trip if the current exceeds the recommended level.

This will need to be reset by pressing in before the motor can be restarted.

3.7 Machine Packaging.



Metal Carrying Case with wheels

(We recommend using the carrying case during transportation to protect the machine)

4. Operation.

4.1 Operation Procedure.

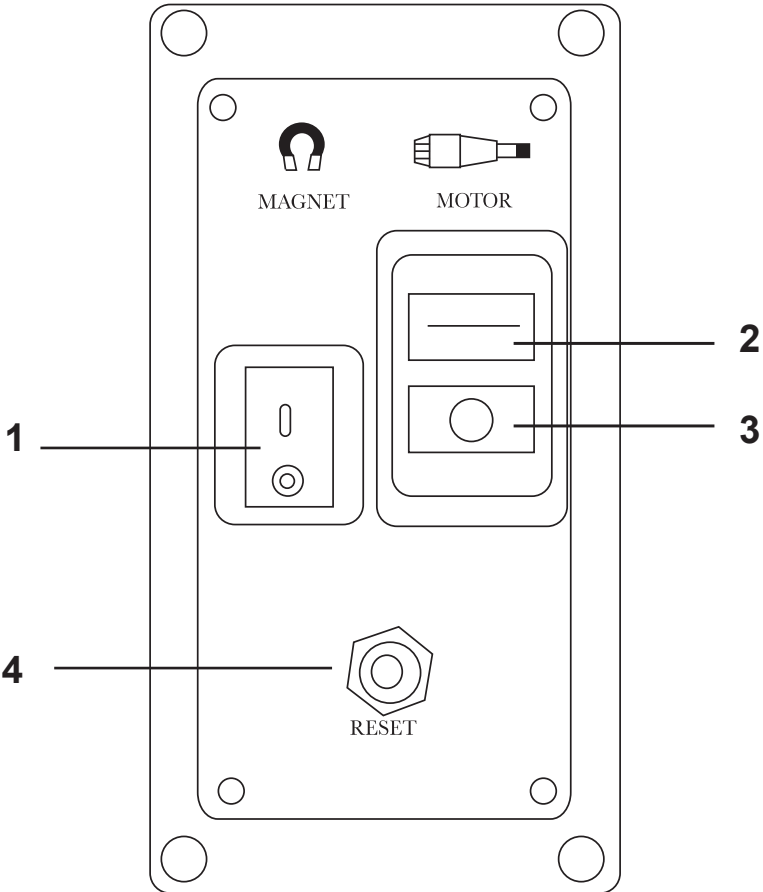
Check the following points before starting the machine:

- (1) Check for any loose connections, broken switches or damaged wiring, before connecting to the power supply.
- (2) Check all Switches are all at the OFF position.
- (3) Check if the specification of the power supply is consistent with the voltage of the machine.
- (4) The workpiece must be magnetic.
- (5) Check the machine base and the workpiece to ensure they are flat, clean & free from debris.
- (6) The thickness of the material should be in excess of 10mm. Paints and other surface treatments can affect the holding force of the magnet.
- (7) The magnetic base should fit on the workpiece completely. Do not use over pre-drilled holes.
- (8) Check the level of cutting fluid is sufficient.
- (9) Wear appropriate Personal Protective Equipment according to the safety markings and work environment.
- (10) Only use cutting tools within the working specifications of the machine.

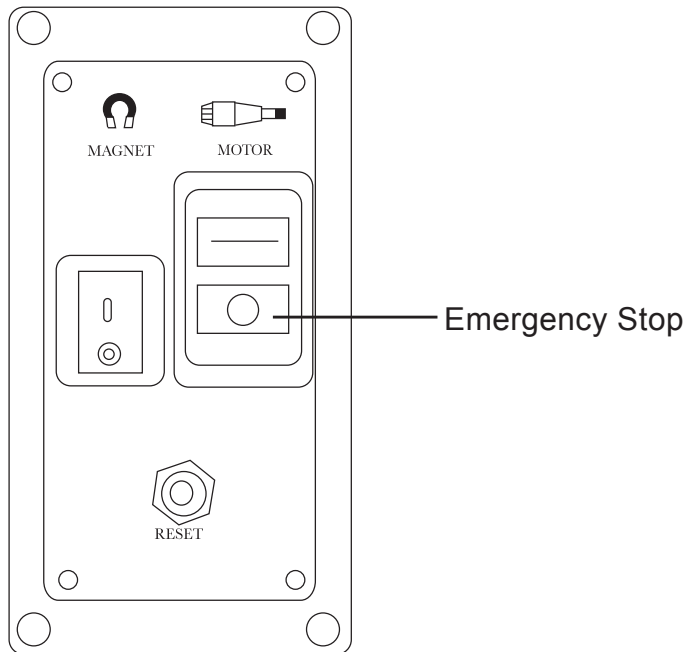
- (11) Fit the appropriate cutting tool, mark out the position of the hole and position the machine carefully.
(The thickness of the workpiece should be consistent and smooth)
- (12) Move the machine base by hand to check the holding force of the magnetic base; raise and lower the motor to check if the hole position is well aligned.
- (13) Turn on the flow of cutting fluid before turning on the Motor. Feed the tool down slowly. When the pin pushes against the steel the cutting fluid will flow. Feed the cutter down gently.
When using twist drill, apply your own cutting fluid.
- (14) When the cutter has completed the cut, the slug will eject.
Be mindful of your position and of those around you.
A machine above the operators waist should also be well secured with safety straps. Provision should also be made for ejection of the slugs when working at head height or higher.
- (15) Check the safety straps for their usability both before and after drilling. Replace any broken or defective straps immediately.
- (16) Turn off the power to the Motor, then turn off the power of the Magnetic base. Thoroughly clean the debris after use.
Also clean any residual cutting fluid off the machine.
To resume a drilling process, repeat the above procedure to operate the machine.
- (17) Unplug the machine, clean and take anti-rust measures.
Store in the metal carry case provided.

4.2 Control Panel.

- 1.Magnet ON/OFF Switch
- 2.Motor ON Switch
- 3.Motor OFF Switch
- 4.Overload Protection



4.3 Emergency Stop.



4.4 Adjustment of the Machine.

Stop using the machine immediately if the slides become loose during operation.

Adjust the gap by following the steps below:

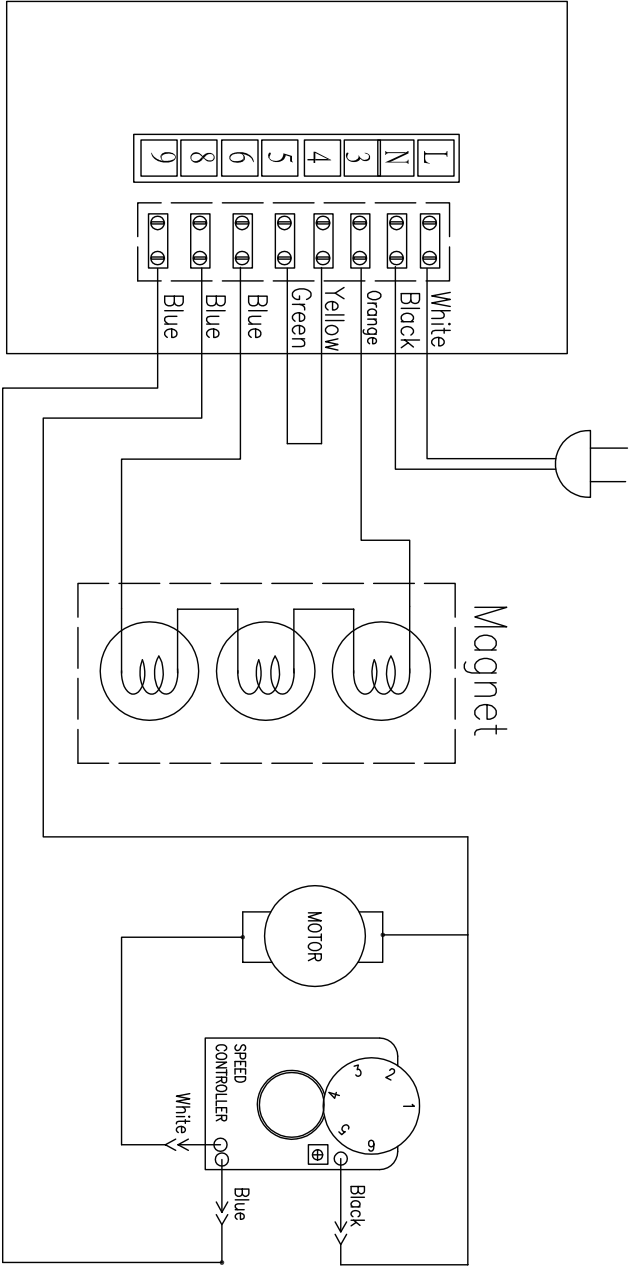
1. Loosen the bolts on the rails.
2. Adjust the set screws on the right side of the machine.
(Adjust the gap between the slide and the rail.)
3. Refasten the bolts on the rails after adjustment.

5 Electrical Safety.

5.1 General Warning.

1. Ensure the working environment is safe.
2. Do not operate the machine in an environment where flammable materials are present, or the possibility of explosions.
3. Do not use the machine in wet areas to avoid electrocution.
4. Never perform any maintenance to the machine without removing the power cable first.
5. Maintenance should only be carried out by qualified technicians.
6. Never alter the electrical circuit design of the machine.
7. Contact with a bare wire can cause severe injury or even death.
8. A wet machine or cable increases the risk of electrocution.
9. Do not join extension cords over 12m.
10. Check the power cable regularly for signs of damage to the outer insulating sheath. Replace the cable immediately if there is any damage.

5.2 Wiring Diagram.



- Specifications:
- AC 115V / 26A
 - AC 230V / 13A
 - Speed 40% to Max.
- Features:
- Softstart
 - Tacho Control
 - Full wave feedback
 - Overload protection

6. Maintenance.

Regular Maintenance of the machine is recommended to keep it in good and safe working order, to provide you with years of trouble free use.

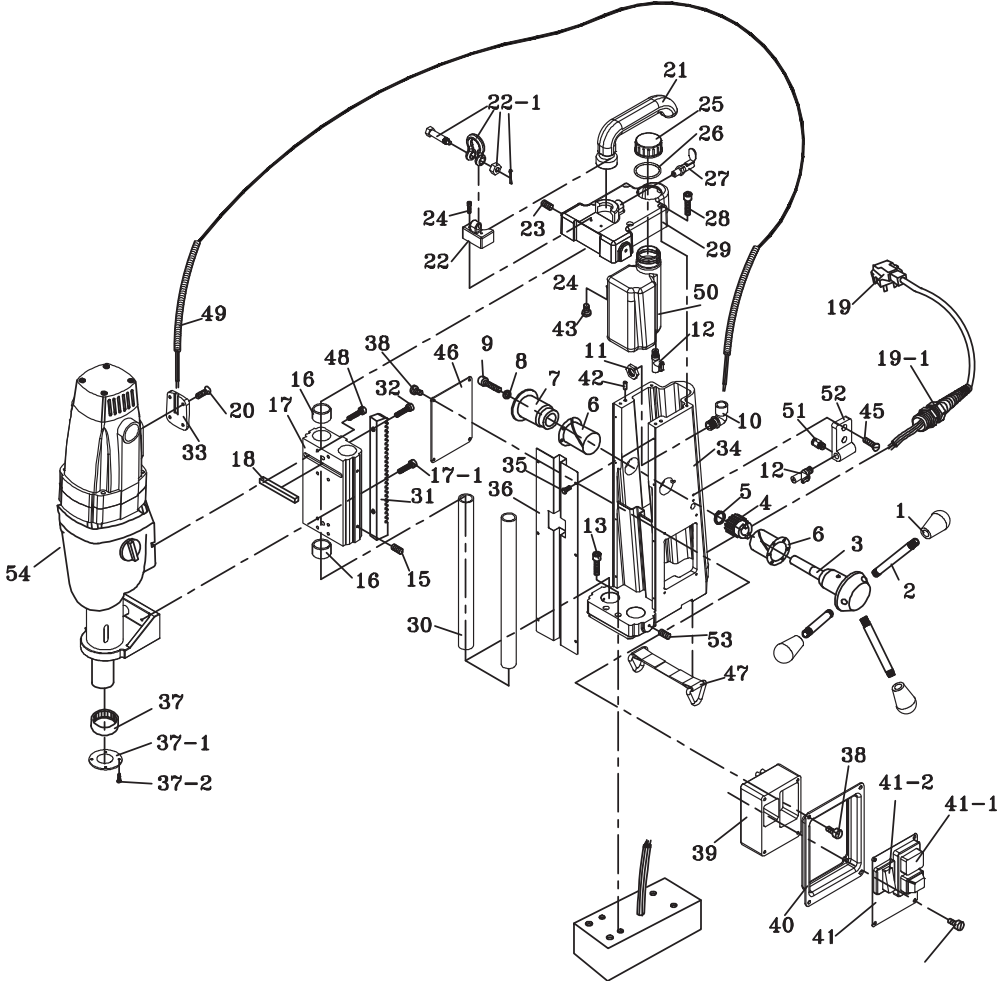
6.1 General Maintenance.

1. Unplug the power cable before maintaining the machine.
2. Check all the mechanisms are working correctly, move freely and are well greased.
3. Check Safety Straps for any wear or defects.
4. Remove the tool from the machine after use.
5. Clean the cutting debris and residual cutting fluid from the machine, especially on the the slides & pinion.
6. Empty the excess cutting fluid from the reservoir when not in use.
7. Regularly check the Carbon Brushes in the motor.
8. Replace the carbon brushes immediately when they become less than 5mm in length, worn brushes can cause other damage.
9. Regularly apply grease on the slides & pinion of the machine.
10. Store the machine in the Metal Carrying Case supplied.

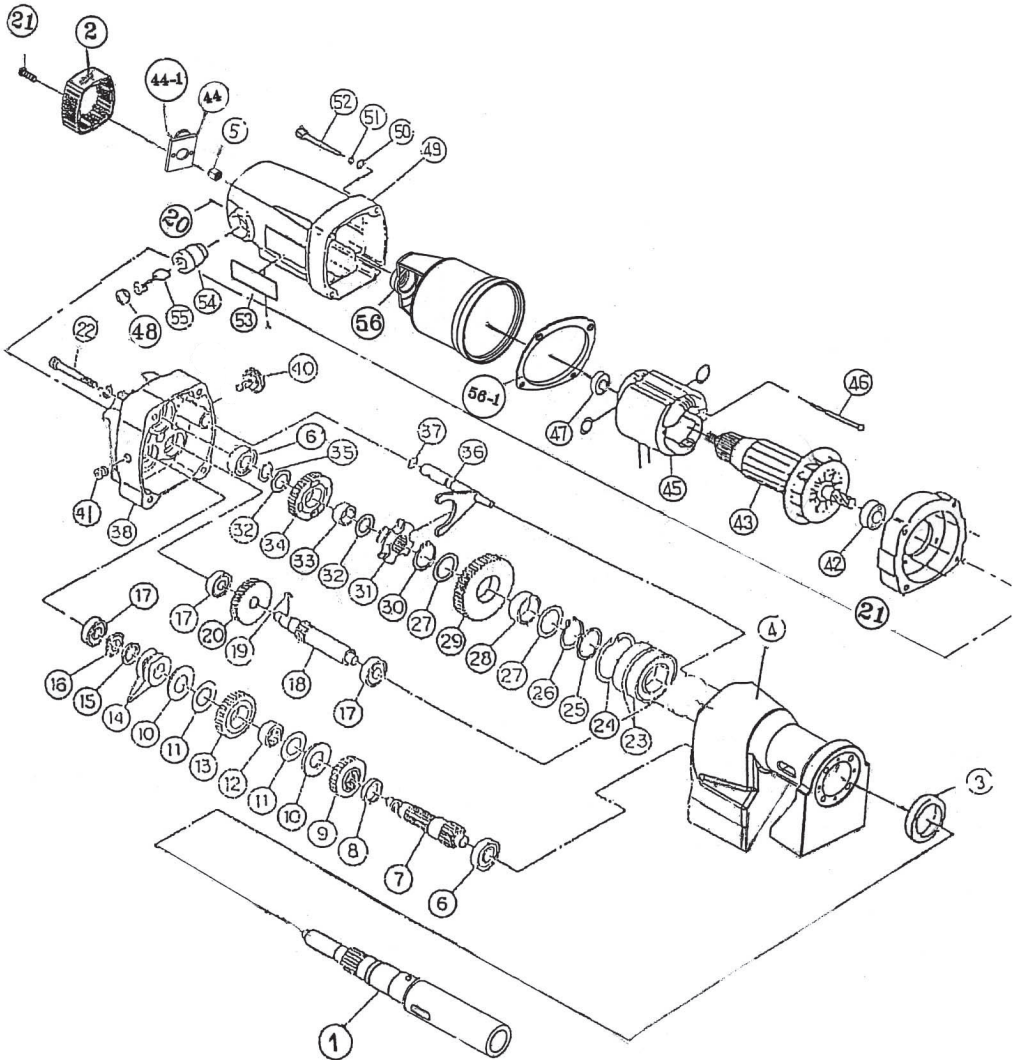
7. Trouble Shooting.

Problem	Probable cause	Remedy
The motor stops during operation whilst the magnetic base remains functional	Overload protection for the motor has tripped	Cool down the machine before reusing it.
	The fuse has blown.	Replace with a new fuse.
The motor stops during operation and the magnetic base loses holding force	The leakage breaker has tripped	Reset the leakage breaker
	The plug is damaged	Replace the plug
	The machine is defective	Contact the manufacturer or distributor
Leakage breaker in the distribution panel tripped	Too many machines are connected to the same power supply	It is recommended this machine uses a dedicated power supply
No magnetic force or insufficient magnetic force	The magnetic base or workpiece is not clean	Clean workpiece and remove any debris
	The workpiece is not magnetically conductive	The magnet will only work on magnetically conductive materials
	Defective machine	Contact the manufacturer or distributor
No cutter lubrication with fluid during the process	Lack of cutting fluid	Refill cutting fluid
	The flow of cutting fluid is not turned on	Turn on the flow of cutting fluid

8. Appendix 1. Exploded View 1.



Appendix 2. Exploded View 2.



Appendix 3. Parts List.

MAX 200 - Complete Machine		
Part No	Component	Qty
1	Capstan ball	3
2	Capstan arm	3
3	Capstan pinion shaft	1
4	Pinion	1
5	Snap ring	1
6	Pinion bearing	2
7	Pinion shaft collar	1
8	Shakeproof washer	1
9	Socket head cap screw	1
10	Coolant elbow	1
11	Hex nut	1
12	Valve	2
13	Socket head cap screw	4
14	Magnet base	1
15	Socket set screw	4
16	Bush	4
17	Slide	1
17-1	Socket head cap screw	4
18	Key	1
19	Mains cable assembly	1
19-1	Cable fixture	1
20	Countersunk screw	4
21	Handle	1
22	Handle fixture	1
22-1	Lifting bolt	1
23	Socket set screw	2
24	Socket head cap screw	2
25	Oil bottle cover	1
26	O ring	1
27	Fixing bolt	1
28	Socket head cap screw	4
29	Housing cover	1
30	Steel tube	2
31	Rack	1
32	Socket head cap screw	2
33	Cable cover	1

Appendix 3. Parts List

MAX 200 - Motor & Gearbox			
Part No		Component	Qty
1		Arbor spindle	1
2		End cap	1
3		Seal	1
4		Gearbox assembly	1
5		Speed sensor	1
6		Ball bearing	2
7		Third pinion (H)	1
8		Thrust washer	1
9		Spacer	1
10		Shakeproof washer	2
11		Thrust washer	2
12		Shakeproof washer	1
13		Third gear	1
14		Disk spring	3
15		Metal collar	1
16		Lock nut	1
17		Ball bearing	2
18		Second pinion	1
19		Key	1
20		Second gear	1
21		Inner cap	1
22		Screw	4
23		Ball bearing	2
24		Circlip	1
25		Metal collar	2
26		Circlip	1
27		Metal collar	1
28		Metal	1
29		Final gear (L)	1
30		Circlip	1
31		Shift ring	1
32		Metal collar	2

Appendix 3. Parts List.

MAX 200 - Motor & Gearbox		
No	Component	Qty
33	Metal	1
34	Final gear (H)	1
35	Circlip	1
36	Shift lever	1
37	Seal	1
38	Inner gearplate	1
40	Gear selector	1
41	Screw	1
42	Ball bearing	2
43	Rotor	1
44	Speed controller assembly	1
44-1	Screw	2
45	Stator	1
46	Screw	2
47	Ball bearing	1
48	Carbon brush cover	2
49	Motor housing	1
50	Metal collar	4
51	Disk seal	4
52	Socket head cap screw	4
53	Logo plate	1
54	Brush holder	2
55	Carbon brush 7x17	2
56	Aluminum bush	1
56-1	Insulation spacer	1

