



# TAP 50 DRILLING MACHINE

## OPERATOR'S MANUAL



BEFORE USE, ENSURE EVERYONE USING THIS MACHINE READS AND UNDERSTANDS  
ALL SAFETY AND OPERATING INSTRUCTIONS IN THIS MANUAL .

Serial #.....

Date of Purchase.....

# STEELMASTER TAP 50 DRILLING MACHINE

IMPORTED & DISTRIBUTED BY



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- The complete machine or tool is returned, freight prepaid to ITM or one of its authorised service agents as directed by ITM, and is found to have a material or constructional defect.
- The machine or tool has not been subject to misuse, neglect or damage by accident.
- The fault is not a result of normal "wear and tear".
- Written permission has been received from ITM prior to commencement of repair.
- Repairs, tampering or modification carried out by unauthorised personnel will void all warranty.
- Consumable items such as cutting tools, pilot pins, saw blades, grinding wheels etc. are NOT covered by warranty.

Our goods come with guarantees which cannot be excluded under the Australian Consumer Law. You are entitled to replacement or refund for a major failure and to compensation for other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

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# SAFETY INSTRUCTIONS



READ OPERATOR'S MANUAL BEFORE YOU START TO WORK WITH THE MACHINE.

## 1. Safety Instructions

The TAP50 Magnetic Base Drilling Machine should be used only to applications stated in the manual. Using in other applications may lead to personal injury and machine damage.

### 1.1. Read And Save All Instructions For Future Reference

When using electric tools, basic safety precautions should always be followed to reduce risk of fire, electric shock and personal injury.

### 1.2. Safety Requirements

1. Keep Work Area Clean
2. Consider Work Area Environment
  - Do not expose power tools to rain.
  - Do not use power tools in damp or wet locations.
  - Keep work areas well lit.
  - Do not use tool in presence of flammable liquids or gases.
3. Guard against Electric Shock
  - Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.
4. Keep Children Away
  - Do not let visitors contact tool or extension cord.
5. Store Idle Tools
  - When not in use, tools should be stored in dry and high or locked-up place, out of reach of children.
6. Do Not Force Tool
  - It will do the job better and safer at the rate for which it was intended.
7. Use Right Tool
  - Do not force small tool or attachment to do the job of a heavy-duty tool.
  - Do not use tool for purpose not intended - for example; do not use a circular saw for cutting tree limbs or logs.
8. Dress Properly
  - Do not wear loose clothing or jewellery; they can be caught in moving parts.
  - Rubber gloves and non-skid footwear are recommended when working outdoors.
  - Wear protective hair covering to contain long hair.
9. Use Safety Glasses
  - Also use face or dust mask if cutting operation is dusty.
10. Do Not Abuse Electrical Cord
  - Never carry tool by cord or yank it to disconnect from receptacle.
  - Keep cord from heat, oil and sharp edges.
11. Secure Work

## SAFETY INSTRUCTIONS

Use clamps or a vice to hold work. It is safer than using your hand and it frees both hands to operate tool.

12. Do Not Overreach  
Keep proper footing and balance at all times.
13. Maintain Tools with Care  
Keep tools sharp and clean for better and safer performance.  
Follow instructions for lubricating and changing accessories.  
Inspect tool cords periodically and if damaged, have repaired by authorized service facility.  
Inspect extension cords periodically and replace if damaged.  
Keep handles dry, clean and free from oil and grease.
14. Disconnect Tools  
Unplug when not in use, before servicing and when changing accessories, such as blades, bits and cutters.
15. Remove Adjusting Keys and Wrenches  
Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. Avoid Unintentional Starting  
Do not carry plugged-in tool with fingers on switches.  
Be sure switches are off when plugging in.
17. Outdoor Use Extension Cords  
When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. Stay Alert (Do not use when taking medications that may cause drowsiness.)  
Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. Check Damaged Parts  
Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it operates properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may effect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service centre. Do not use this tool if switches do not turn it on and off. Have defective switches replaced by authorized service centre.



WARNING! SAFETY RULES MUST BE CLOSELY OBSERVED.

# SAFETY INSTRUCTIONS

## 1.3. Special Safety Requirements

1. Read and follow operator's manual thoroughly. If you cannot locate your operator's manual contact ITM ([www.industrialtool.com.au](http://www.industrialtool.com.au)) for an additional FREE copy.
2. DO NOT touch rotating cutter or parts.
3. Always stop machine completely and unplug from power source before changing cutters, cleaning clips, refilling lubrication or performing adjustments.
4. Never wear loose clothing or gloves when working near cutting area or machine arbor.
5. Always wear eye protection. Any tool can shatter.
6. Always use safety chain or strap provided with machine.
7. Always use proper tooling, keep cutters securely fastened.
8. DO NOT use dull or broken cutters.
9. Beware of ejected slugs at end of cut, they become HOT during the cut.
10. Magnet will not hold properly on thin materials under 3/8" (9.5mm), rough or dirty surfaces.
11. Keep all safety features functioning and working properly.
12. Keep bottom of magnet burr free and clear of chips and debris.
13. To reduce the risk of electrical shock, DO NOT remove or alter electrical panels or use machine in damp areas.
14. Use only authorized service centres for repairs.

TAP50 drilling machine must be connected to "protected power source" which is properly grounded.

Improperly connecting the grounding wire can result in the risk of electrical shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use tool if the cord or plug is damaged, have it repaired before using. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician. The TAP50 must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. If in doubt of proper grounding, call a qualified electrician.

# SAFETY INSTRUCTIONS

## 1.4. Specifications

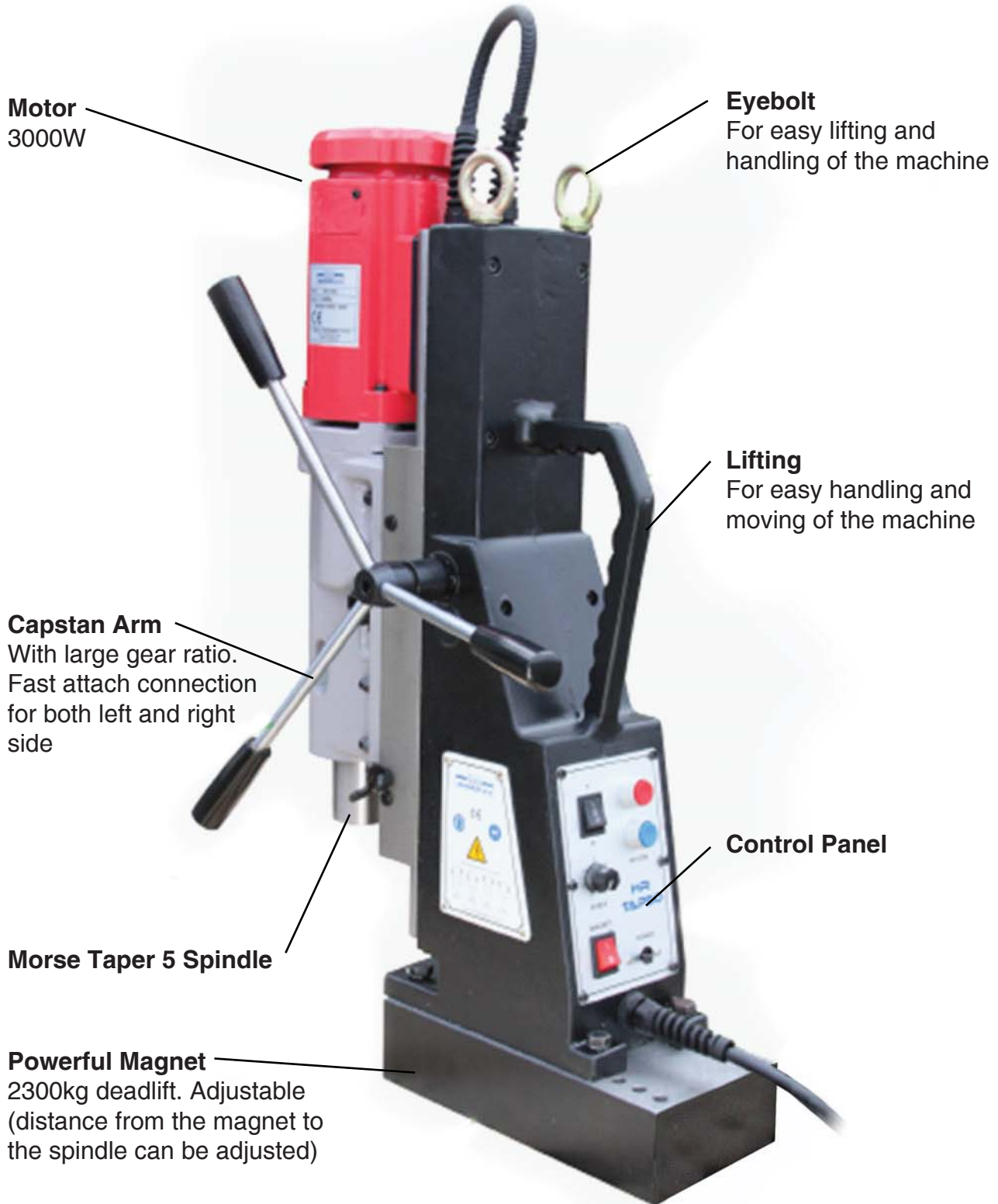
Maximum hole cutting capacity	Ø 200mm
Maximum tapping capacity	M52
Spindle bore	Morse Taper 5
Speed	2 gear variable: 1st gear: 20 - 40RPM 2nd gear: 45 - 110RPM
Motor	Single phase 230V - 25-60Hz
Total power consumption (motor & magnet)	3000W
Width (with handles)	300mm
Length	540mm
Height (min / max)	710mm / 975mm
Stroke	305mm
Net Weight	53kg
Magnet	
Magnet dimensions	140 x 295mm
Magnetic dead lift (min 25mm plate thickness and 20°C)	2300kg
Vibration Level	< 2,5 m/s <sup>2</sup>

## 1.5. Package Contents

- 1x TAP50 Magnetic Base Drilling Machine
- 1x 5 Morse Taper Arbor to suit 1-1/4" Shank Cutters (can be swapped for 3/4" shank arbor)
- 1x Drift Key
- 3x Handles and Hub
- 1x 5mm T Handle
- 1x Magnetic Brush Swaft Clean Up Tool
- 1x 17mm Spanner
- 1x Safety Chain
- 1x 5L Pressurised Coolant System
- 1x 4-5 Morse Taper Sleeve
- 1x 3-5 Morse Taper Sleeve
- 1x Operators Manual

# OPERATION

## 2. Operation





# OPERATION

## 2.1. Stopping & Starting The Machine

Before starting the motor, always make sure to turn on the magnetic switch first. When the magnet is activated, the motor can be started with red start button.

Stopping the motor must always be done with the blue stop switch. Never stop the machine with the main current / magnetic switch. It is dangerous, and can also cause damage to the electronics of the machine.

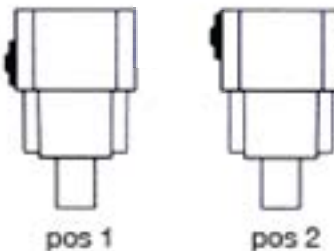
## 2.2. Variable Speed Control



The machine has 2 gears and variable speed adjustment.

Adjust the speed during drilling to achieve the optimum combination of speed and feed (see separate section on the proper feeding). The speed in the table below shows the individual speed range for each gear level. Each gear level (1-2) can be adjusted steplessly. All speeds are listed without charge. i.e. that the actual speed during drilling is less, depending on the engine load is subjected.

Position	RPM (no load)
1	20 - 40 rpm
2	45 - 110 rpm



## OPERATION

### 2.3. Use Of Cutting Fluid



The use of cutting fluids is absolutely necessary when drilling with steel cutters. Always use the correct cutting oil intended for use. Other oils may provide insufficient lubrication under different temperatures.

When cutting with hard and difficult materials and a deep hole, it may be advantageous to provide cutting oil under pressure.

For TAP50 it is recommended to use a pressure can instead of a regular oil tank. The pressure canister has a hose with a quick coupling and the valve on the pressure canister can be used to regulate the oil supply.

Cutting oil (or paste) must always be supplied through the centre of the cutter so that the oil goes inside out during drilling.

Application of cutting oil outside the cutter will not provide the necessary lubrication inside the cutter and cause a faster heating of the plug formed in the cutter. The heat will cause the plug to expand and often result in a broken cutter.

### 2.4. 1-1/4" Weldon Shank



TAP50 uses the 5 Morse Taper spindle drilling. To be used with metal cutters, there is a necessity to use a 1.1/4" adapter. For this application a 1-1/4" Weldon Shank is the most common. This shank has the dimension of Ø31mm, 75 x 60mm and has 2 surfaces for the locking screws.

When using large cutters, it is extremely important that the cutter is properly fastened in the adaptor before drilling begins. Incorrect attachment can cause damage to the cutter and adaptor. Always make sure to use the following procedure to fasten the cutter:

- Always disconnect the power supply when you are change cutter or are doing adjustments to the machine.
- Insert cutter with pilot into the spindle. Make sure that the 2 locking surfaces are completely in relation to the 2 screws. Press the cutter shank completely into the adaptor.
- First tighten one single screw gently so that the screw turns the cutter into position. Help rotate the cutter if necessary.
- Tighten the screw, release and tighten the screw again.
- Tighten the second screw properly followed by tightening the first screw again.



# OPERATION

## 2.5. Adjustment Of The Slide

For the machine to work well, it is essential that the slide that controls the core feeding movements, can be moved in an easy and controlled way without lateral movement or vibration.

Periodic adjustment of the slide is performed as follows:



- Stand the machine upwards on a steel plate in a vertical position and raise the slide up to the highest possible position by turning the capstan arm.
- Clean the slide and apply thin machine oil on the sliding surfaces.
- Loosen the 2 screws that hold the bearing bracket and lower the slide to the lowest position.
- Starting by adjusting the middle screws. Then adjust all the screws gently until slight resistance is achieved.
- Move the slide up and down a few times to test the movement. Make the necessary adjustments. Make sure all screws are equally tightened and ensure thta the slide moves up and down without any sideways movement.

## 2.6. Tips For Keeping Your Machine In Correct Working Order

In order to 'get the best life' out of your magnetic drill machine, always keep in good working order. A well maintained machine is a happy machine.

A number of items must always be checked on magnetic drilling machines.

Always before starting any job, make sure the machine is in good working order and that there are no damaged or loose parts. Any loose parts must be tightened.

Before proceeding with any maintenance work, be certain that the power supply is disconnected.

	Everyday	Once a Week	Once a Month
Visual check on machine for damage	X		
Operation of machine	X		
Check of magnetic base	X		
Check of brush wear		X	
Check Alignment of machine			X
Check of grease			X
Check armature			X

## OPERATION

### Visually check the machine for damage.

Machine must be checked before operation for any signs of damage that will affect the operation of the machine. Particular notice must be taken of the mains cable, if the machine appears to be damaged it should not be used failure to do so may cause injury or death.

### Check operation of the machine.

The machines operation must be checked to ensure that all components are working correctly.

### Machines Carbon Brushes.

The Machines Brushes should be checked to make sure there is no abnormal wear present. This should be checked at least once a week if used frequently. If the brush has worn more than 2/3 the original length the brushes should be changed. Failure to do so may cause damage to the machine.

### Machines Magnetic base.

Before every operation the magnetic base should be checked to make sure that the base is flat and there is no damage present. An uneven magnet base will cause the magnet not to hold as efficiently and may cause injury to the operator.

### Adjustment of slide and bearing bracket Alignment.

An essential requirement of the machine is that the slide can move in a smooth and controlled manner, free of lateral movement and vibration.

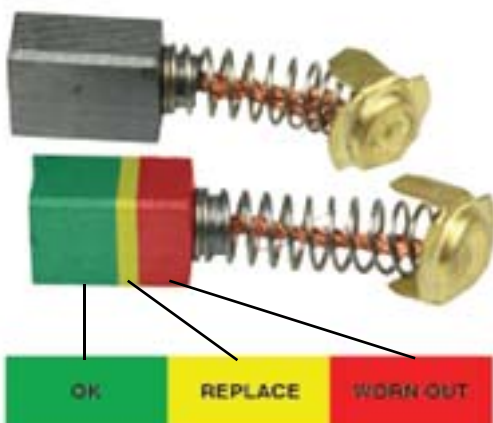
This situation can be maintained by periodic adjustment of the slide and is accomplished.

### Check machines grease.

The gearbox grease should be checked once a month to ensure all moving components are covered to prevent wear. The grease should be changed at least once a year to ensure you gain the best from the machine.

### Check Armature of the machine.

This should be checked at least 1 per month to see that there are visual signs of damage to the body or to the commutator. Some signs of wear will be seen on the commutator over a period of time. This is normal as this is the part that comes in contact with the brushes but any signs of abnormal damage and the part should be replaced.



The motor on this machine has brushes. The brushes should be checked regularly to detect any abnormal wear.

With regular use brushes should be checked at least once per week.

Brushes that are worn more than 2/3 of its normal length, should be replaced. Failure to do so may cause motor damage or repairs of larger scope.

The brushes on the left is just an illustration and therefore differ in appearance.

## OPERATION



With regular use, the armature should be checked at least once per month. Look for visible damage or wear to the armature body and the commutator (commutator are brass plates which the brushes are touching).

The brushes will naturally wear on the commutator. This is normal. Look for damages in plates that have lifted or loose brass boards. Change the armature if damage or excessive wear is found.

If much coal dust is found on the commutator, use compressed air to low clean.

The armature on the left is just an illustration and therefore may differ in appearance.

<b>1) Magnetic base won't hold effectively</b>	<i>Material being cut may be too thin for efficient holding.</i>	Attach an additional piece of metal under work-piece where magnet will be located, or mechanically clamp magnetic base to work-piece.
	<i>Swarf or dirt under magnet.</i>	Clean magnet.
	<i>Irregularity on magnet contact or work-piece.</i>	Use extreme care; file any imperfections flush to surface.
	<i>Insufficient current going to magnet during drilling cycles.</i>	Confirm power supply and output from control unit, check supply cable.
<b>Cutter skips out of centre-punch mark at initiation of cut</b>	<i>Magnetic base is not holding effectively.</i>	See causes and remedies above.
	<i>Worn arbor bushing and/or ejector collar.</i>	Replace! Only a few thousandths wear permissible. New arbor bushing is needed.
	<i>Too much feed pressure at start of cut.</i>	Light pressure only is needed until a groove is cut. The groove then serves as a stabilizer.
	<i>Cutter is dull, worn, chipped or incorrectly sharpened.</i>	Replace or re-sharpen. Sharpening service is available.
	<i>Poor centre-punch mark; weak pilot spring; pilot not centred in centre-punch mark.</i>	Improve centre-punch and/or replace worn parts
	<i>Worn or bent pilot, worn pilot hole.</i>	Replace part or parts
	<i>Loose bolts on motor bushing support bracket, main casting or loose gib adjusting set screws.</i>	Adjust where necessary

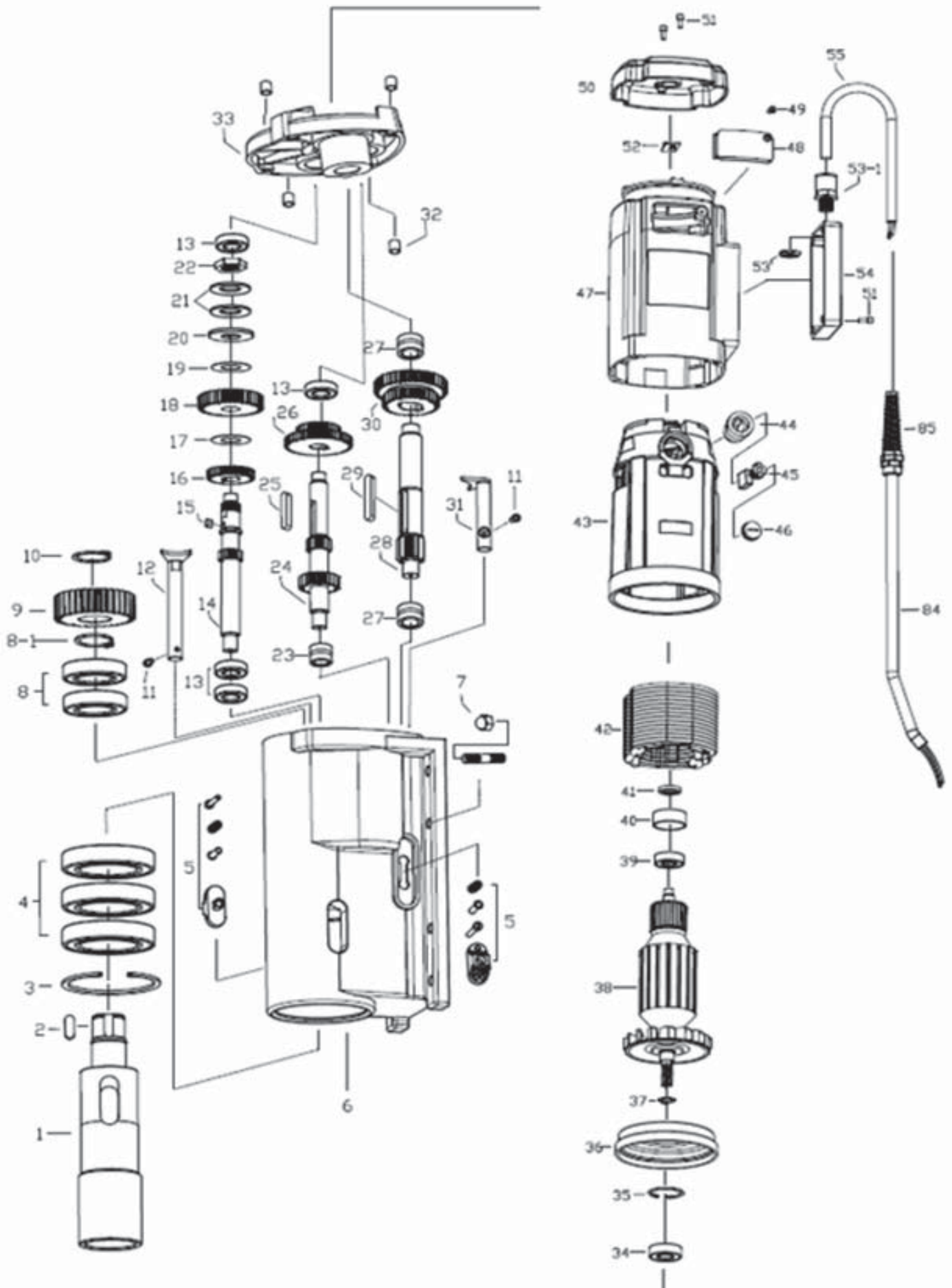
## SOLUTIONS FOR DRILLING PROBLEMS

<b>Excessive drilling pressure required</b>	<i>Incorrectly re-sharpened, worn or chipped cutter.</i>	Re-sharpen or replace.
	<i>Coming down on swarf lying on surface of work-piece.</i>	Take care not to start a cut on swarf.
	<i>Gibs out of adjustment or lack of lubrication.</i>	Adjust setscrews, and lubricate.
	<i>Swarf accumulated (packed) inside cutter.</i>	Clear cutter.
<b>Excessive cutter breakage</b>	<i>Steel swarf or dirt under cutter.</i>	Remove cutter, clean part thoroughly and replace.
	<i>Incorrectly re-sharpened or worn cutter.</i>	Always have a new cutter on hand to refer to for correct tooth geometry, together with instruction sheet.
	<i>Cutter skipping.</i>	See causes and remedies (2).
	<i>Slide-ways need adjustment.</i>	Tighten sideways.
	<i>Cutter not attached tightly to arbor.</i>	Retighten.
	<i>Insufficient use of cutting oil or unsuitable type of oil.</i>	Inject oil of light viscosity into the coolant-inducing ring and check that oil is being metered into cutter when pilot is depressed. If not, check pilot groove and arbor internally for dirt or apply oil externally. (Even a small amount of oil is very effective).
<b>Excessive cutter wear</b>	<i>See cause and remedy above</i>	
	<i>Incorrectly re-sharpened cutter.</i>	Refer to instructions and a new cutter for proper tooth geometry.
	<i>Insufficient or spasmodic cutting pressure.</i>	Use sufficient steady pressure to slow the drill down. This will result in optimum cutting speed and chip load.

## TROUBLE SHOOTING

Neither Magnet or Motor is working	<ul style="list-style-type: none"> <li>• The magnetic switch is not powered</li> <li>• Damaged or defective wiring</li> <li>• Damaged or defective fuse</li> <li>• Faulty magnetic switch</li> <li>• Defective control box</li> <li>• Faulty power supply</li> </ul>
Magnet is active, but motor does not turn	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Brushes are stuck or too worn</li> <li>• Faulty magnetic switch</li> <li>• Defective stop/start switch</li> <li>• Defective control box</li> <li>• Defective armature or field</li> </ul>
Motor runs but magnet is not getting activated	<ul style="list-style-type: none"> <li>• Faulty magnet</li> <li>• Defective control box</li> </ul>
The cutter breaks and/or making holes larger than the size of the cutter	<ul style="list-style-type: none"> <li>• Clearance in the machines controls and/or slide function</li> <li>• Bent or sprung shaft</li> <li>• Curved centre point</li> <li>• Faulty or insufficient magnetic holding power</li> <li>• Contact between the magnet and workpiece</li> </ul>
The motor is pulling heavily and/or stops	<ul style="list-style-type: none"> <li>• Bent or warped shaft</li> <li>• Bearing bracket adjusted incorrectly</li> <li>• Contamination between spindle and bearing bracket</li> </ul>
Noise in the motor/gearbox	<ul style="list-style-type: none"> <li>• Worn bearing between gearbox and motor</li> <li>• Damaged drives in the gearbox</li> <li>• Low amount of grease in the gearbox</li> </ul>
The motor scores, brush fires and little or no power	<ul style="list-style-type: none"> <li>• Damaged Armature</li> <li>• Damaged Field</li> <li>• Damaged or Worn Brushes</li> </ul>
The motor does not start or stop	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Contaminated reader</li> <li>• Defective or loose magnet in reader for speed control</li> <li>• Damaged or defective brushes</li> </ul>
Heavy feed motion	<ul style="list-style-type: none"> <li>• Slide adjustments are tightened too hard</li> <li>• The slides, sliding surfaces are too dry</li> <li>• Shaft/Rack are contaminated</li> </ul>
Magnetic holding power is too low	<ul style="list-style-type: none"> <li>• Damaged or deceptive wiring</li> <li>• The work area/surface is not clean and/or dry</li> <li>• The work area/surface has poor magnetic ability</li> <li>• The work area/surface is not flat</li> <li>• The work area/surface is too thin (thinner than 10mm)</li> </ul>
Motor only runs at maximum RPM	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Faulty control box</li> </ul>
The operator receives an electric shock	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Faulty magnet</li> <li>• The motor is heavily polluted</li> </ul>
Fuse blows when magnet is activated	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Faulty magnet switch</li> <li>• Defective control box</li> <li>• Faulty magnet</li> </ul>
Fuse blows when starting the motor	<ul style="list-style-type: none"> <li>• Damaged or defective wiring</li> <li>• Defective armature and/or field</li> <li>• Motors running too fast</li> <li>• Worn brushes</li> <li>• Defective control box</li> </ul>

# PARTS BREAKDOWN



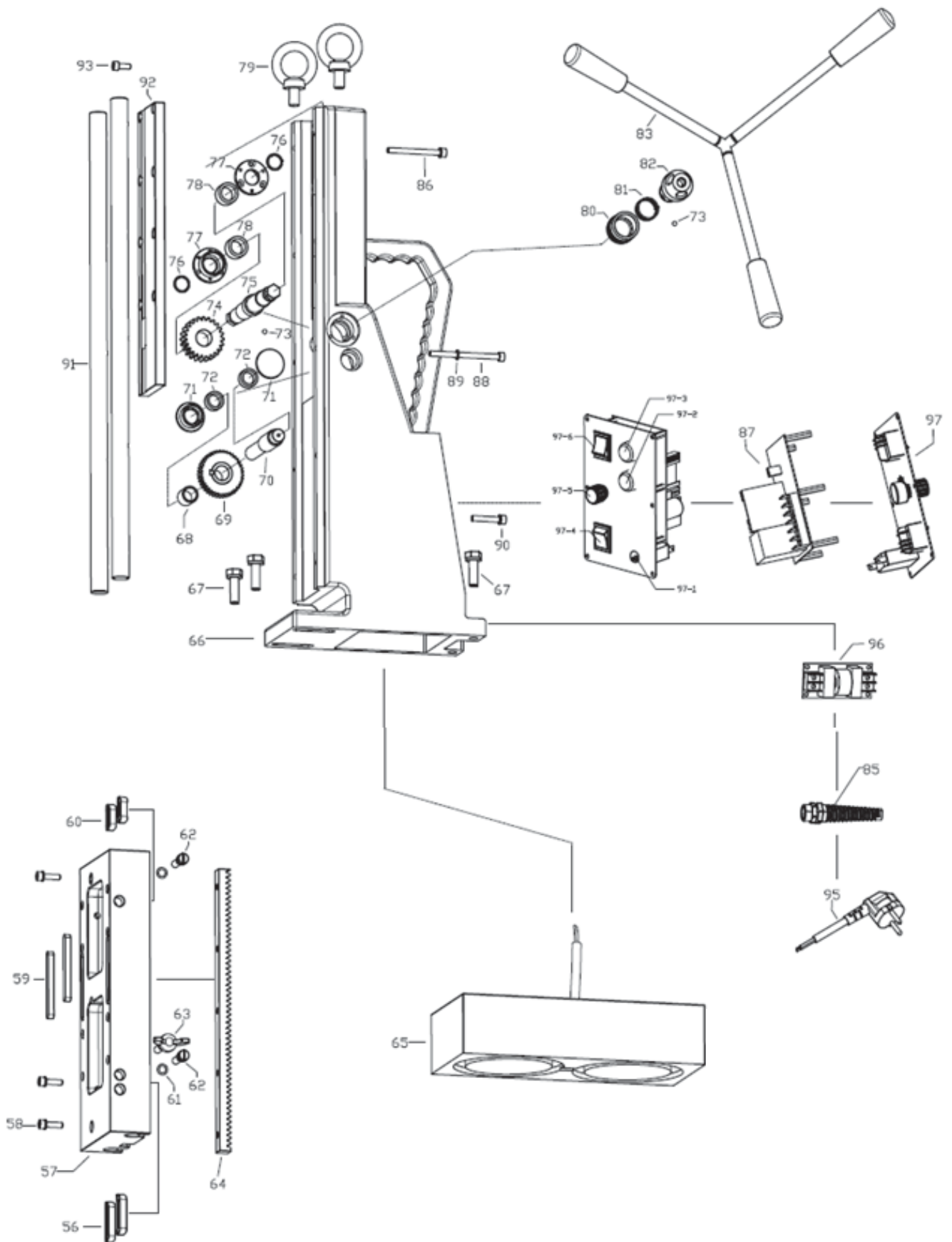


## PARTS BREAKDOWN

Pos.	Ant.	Beskrivelse	Art.nr.:
		Electric motor and gearbox complete	TAP5A00
		Gear box complete	TAP5A01
1	1	Spindle	TAB5001
2	2	Spindle - key	TAP5002
3	1	Spindle lock ring	TAP5003
4	3	Bearing 6010 2RS	TAP5004
5	2 sett	Knob Assy	TAP5005
6	1	Gear box	TAP5006
7	8	M8 cap nut	TAP5007
8	2	Bearing 6006 2 RS	TAP5008
9	1	Main gear	TAP5009
10	1	Main gear lockri	TAP5010
11	2	Wrench bolt M4xL25	TAP5011
12	1	Change cock 1	TAP5012
13	2	Bearing 6001 2RS C3	TAP5013
14	1	First pinion	TAP5014
15	1	First pinion key	TAP5015
16	1	First gear 1	TAP5016
17	1	First gear washer - 0,5T	TAP5017
18	1	First gear 2	TAP5018
19	1	First gearwasher - 0,5T	TAP5019
20	1	First gearwasher - 3T	TAP5020
21	2	First gear spring washer	TAP5021
22	1	First gear lock nut	TAP5022
23	1	Bearing TA1215Z	TAP5023
24	2	Second pinion	TAP5024
25	1	Second pinion slide key	TAP5025
26	1	Second gear assy	TAP5026
27	1	Bearing TA 1416Z	TAP5027
28	1	Third pinion	TAP5028
29	1	Third pinion slide key	TAP5029

Pos.	Ant.	Beskrivelse	Art.nr.:
30	1	Third gear assy	TAP5030
31	1	Change cock 2	TAP5031
32	2	Pin Ø 8mm	TAP5032
33	1	Inner cover	TAP5033
34	1	Bearing 6202 2RS	TAP5034
35	1	Lock ring	TAP5035
36	1	Fan guide	TAP5036
37	1	Lock ring	TAP5037
38	1	Armature shaft	TAP5038
39	1	Bearing 6201 2 RS C3	TAP5039
40	1	Bearing bushing	TAP5040
41	1	Magnet ring	TAP5041
42	1	Stator	TAP5042
43	1	Armature inner housing	TAP5043
44	2	Carbon holder	TAP5044
45	2	Carbon (set)	TAP5045
46	2	Carbon cap	TAP5046
47	1	Armature housing	TAP5047
48	2	Armature housing cover	TAP5048
49	2	Bolt M4xL6	TAP5049
50	1	Armature housing cover	TAP5050
51	8	Bolt M4xL10	TAP5051
52	1	PCB (magnet ring)	TAP5052
53	1	Cable grand	TAP5053
54	1	Wire cover	TAP5054
55	1	Wire hose	TAP5055
84	1	Wire hose	TAP5084
85	1	Cable grand PGS 13,5	TAP5085

# PARTS BREAKDOWN



## PARTS BREAKDOWN

Pos.	Ant.	Beskrivelse	Art.nr.:
56	2	Breake 47-14	TAP5056
57	1	Slide	TAP5057
58	5	Bolt M6xL35	TAP5058
59	2	Slide key	TAP5059
60	2	Breake 30 - 40	TAP5060
61	4	O-ring	TAP5061
62	4	Bolt	TAP5062
63	2	Stopper	TAP5063
64	1	Rack gear	TAP5064
65	1	Magnet	TAP5065
66	1	Frame body	TAP5066
67	4	Bolt M12xL25	TAP5067
68	1	Plastic bushing	TAP5068
69	1	Side second gear	TAP5069
70	1	Side second pinion	TAP5070
71	2	Side second pinion cover 1	TAP5071
72	2	Bearing HK 1512	TAP5072
73	7	Ball Ø 5 mm	TAP5073
74	1	Side first gear	TAP5074
75	1	Side first pinion	TAP5075
76	2	Lock ring	TAP5076
77	2	Side first pinion cover	TAP5077
78	2	Bearing TA1715Z	TAP5078
79	2	Eye bolt M12	TAP5079

Pos.	Ant.	Beskrivelse	Art.nr.:
80	1	Handle shaft cover	TAP5080
81	1	Handle shaft cover spring	TAP5081
82	1	Main handle shaft	TAP5082
83	1	Main shaft handle	TAP5083
85	1	Cable guard PGS 13,5	TAP5085
86	4	Bolt M6xL50	TAP5086
87	1	Main PCB	TAP5087
88	2	Bolt M6xL85	TAP5088
89	10	Bolt washer M6	TAP5089
90	4	Bolt M6xL35	TAP5090
91	2	Slide bar	TAP5091
92	1	Handle gear cover	TAP5092
93	8	Bolt M6xL12	TAP5093
95	1	Plug	TAP5095
97	1	Control panel complete	TAP5097
97-1	1	Main power switch	TAP5097-1
97-2	1	Magdrill offswitch	TAP5097-2
97-3	1	Magdrill on switch	TAP5097-3
97-4	1	Magnet switch	TAP5097-4
97-5	1	Speed control switch	TAP5097-5
97-6	1	F/R switch	TAP5097-6