MAGBEAST®

OPERATOR MANUAL AND PART LIST.

MAGBEAST 5

Magnetic Drilling Machine

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CONTENTS OF THE MANUAL.

	List of Contents with Magbeast 5 Drilling Machine	Check List
1	Operator's Manual	YES/NO
2	Coolant Bottle	YES/NO
3	Arbor—MT5 (1 1/4" bore)	YES/NO
4	Pilot Pin for 200mm cutters	YES/NO
5	4mm Hexagon Key	YES/NO
6	3mm Hexagon Key	YES/NO

[1] SPECIFICATIONS OF MAGBEAST 5 DRILLING MACHINE

Maximum hole cutting capacity in .2/.3C steel = 200mm dia. x 75mm deep
Tapping up to M52

Motor Unit	
Voltages	230v/60Hz
Normal full load output	3,000 W
Magnet Size	210 x 105 x 70 mm
Magnet Force at 20°C with 25mm minimum plate thickness **The use on any material less than 25mm thick will progressively reduce the magnetic performance. If possible, substitute material should be positioned under the magnet and work piece to equate to a suitable material thickness. If this is not possible, an alternative secure method of restraining the machine MUST be used.**	2,200kgf
Overall Dimensions	
Height - maximum extended	975mm
Height - minimum	685mm
Width (including Hand wheel)	280mm
Length Overall (including Guard)	455mm
Stroke	330mm
Net Weight	52kgs
Maximum hand/arm vibration magnitude (measured at handle during operation in accordance with ISO5349, using a 22mm cutter through 13mm MS plate)	0.82 m/s^2
Estimate of likely daily vibration exposure. Operation 30 holes @ 2 minute/hole.	0.29m/s^2 A(8)
Average noise level during cutting at operator's ear position.	89dB(A)

READ BEFORE USING THE MACHINE

[2] SAFETY PROCEDURES

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

- Do **NOT** use in wet or damp conditions. Failure to do so may result in personal injury.

- Do **NOT** use in the presence of flammable liquids or gases. Failure to do so may result in personal injury.

- ALWAYS SECURE THE MACHINE WITH THE SAFETY CHAIN WHEN WORKING VERTICALLY OR OVERHEAD BEFORE STARTING TO OPERATE.

- Always wear approved eye and ear protection when the equipment is in operation. Failure to do so may result in personal injury.

- Disconnect from the power source when changing cutters or working on the machine.

- When changing cutters, or removing swarf, ALWAYS wear approved gloves.

- ALWAYS ENSURE CUTTER RETAINING SCREWS ARE SECURE – they sometimes vibrate loose when the machine is in continuous use.

- Regularly clear the work area and machine of swarf and dirt, paying particular attention to the underside of the magnet base.

- With a gloved hand, and after switching off, remove any swarf which might have gathered around the cutter and arbor before proceeding with the next hole.

- Before operating the machine, always remove tie, rings, watches and any loose adornments which might entangle with the rotating machinery.

- Should the cutter become 'fast' in the work piece, stop the motor immediately to prevent personal injury. Disconnect from the power source and turn arbor to and fro. DO NOT ATTEMPT TO FREE THE CUTTER BY SWITCHING THE MOTOR ON AND OFF.

- If the machine is accidentally dropped, always thoroughly examine the machine for signs of damage and check that it functions correctly before trying to drill a hole.

- Regularly inspect the machine and check that nuts and screws are tight.

- Always ensure when using the machine in an inverted position that only the minimum amount of coolant is used and that care is taken to ensure that coolant does not drip on to the motor unit.

- On completion of the cut, a slug will be ejected. DO NOT operate the machine if the ejected slug may cause injury.

[3] OPERATING INSTRUCTIONS

• Keep the inside of the cutter clear of swarf. It restricts the operating depth of the cutter.

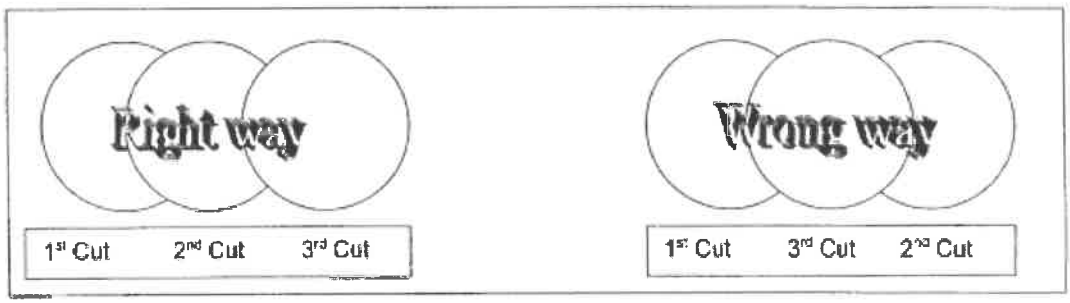
• Ensure that the coolant bottle contains sufficient cutting oil to complete the required operating duration. Refill as required.

• Occasionally depress the pilot to ensure cutting fluid is being correctly metered.

• To start the machine, first switch on the magnet. And then start the motor by depressing the GREEN start button.

• Apply light pressure when commencing to cut a hole until the cutter is introduced into the work surface. Excessive pressure is undesirable, it does not increase the speed of penetration.

• Always ensure that the slug has been ejected from the previous hole before commencing to cut the next.



(Right) (Wrong)

• Always cut overlapping holes as illustrated above – do not use excessive pressure and ensure cutting fluid is reaching teeth of the cutter.

• If the slug sticks in the cutter, move the machine to a flat surface, switch on the magnet and gently bring the cutter down to make contact with the surface. This will usually straighten a cocked slug and allow it to eject normally.

• Cutter breakage is usually caused by insecure anchorage and a loosely fitting slide. (Refer to routine maintenance instructions).

[4] EXTENSION CABLE SELECTION

The machines are factory fitted with a 2 meter length of cable having three conductors 1.5mm^2 LIVE, NEUTRAL and EARTH.

If it becomes necessary to fit an extension cable from the power source, care must be taken in using a cable of adequate capacity. Failure to do so will result in a loss of traction by the magnet and a reduction of power from the motor.

Assuming a normal AC supply of the correct voltage, it is recommended that the following extension

lengths shall not be exceeded:

For 110v supply: **3.5metres of 3 core x 1.5mm²**

For 230v supply: **26metres of 3 core x 1.5mm² or**
17metres of 3 core x 1.0mm²

ALWAYS DISCONNECT THE MACHINE FROM THE POWER SOURCE WHEN CHANGING CUTTERS.

[5] MOUNTING OF CUTTERS

The machine has been made to accept MT5 Arbor.
The following procedure is to be used when mounting cutters.

- Take appropriate pilot and place through hole in shank of cutter.

- Insert shank of cutter into 1 1/4" bore of arbor, ensuring alignment of two drive flats with socket screws.

- Tighten both screws using hexagon key.

[6] Trouble Shooting Guide

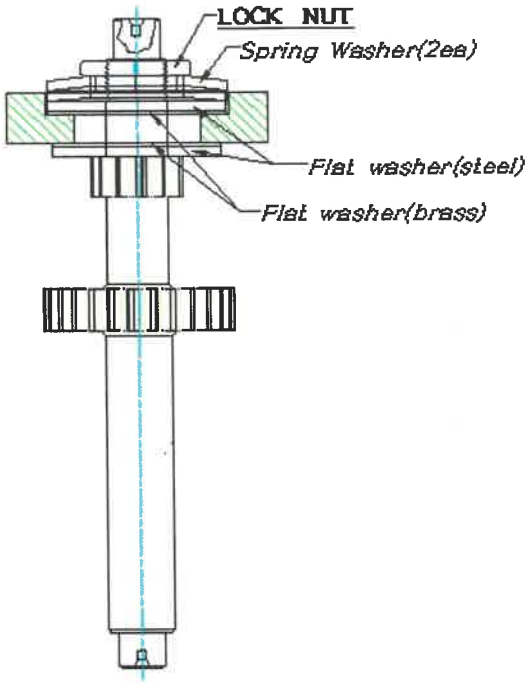
Problem	Cause	Remedy
1) Magnetic base won't hold effectively	Material being cut may be too thin for efficient holding of magnet	Attach an additional piece of metal under work-piece where magnet will be located, or mechanically clamp magnetic base to work-piece
	Swarf or dirt under magnet	Clean magnet
	Irregularity on magnet face or work-piece	Use extreme care, file only imperfections flush to surface
	Insufficient current going to magnet during drilling cycle	Confirm power supply and output from control unit.
2) Cutter skips out of centre-punch mark at initiation of cut	Magnetic base is not holding effectively.	See causes and remedies above.
	Too much feed pressure at start of cut.	Light pressure until a groove is cut. The groove then serves as a stabilizer.
	Cutter is worn, chipped or incorrectly sharpened	Replace or re-sharpen. Sharpening service is available.
	Poor Centre - punch mark; weak pilot spring; pilot not centered in Centre - punch mark.	Improve Centre - punch and/or replace worn parts.
	Worn or bent pilot, worn pilot hole	Replace parts.

Problem	Cause	Remedy
3) Excessive drilling pressure required.	Incorrectly re-sharpened, worn or chipped cutter	Re-sharpen or replace
	Coming down on swarf lying on surface of work-piece	Clean work-piece. Take care not to start a cut on swarf
	Gibs out of adjustment or lack of lubrication	Lubricate gib and/or adjust grub screws
	Swarf accumulated (packed) inside cutter	Clear cutter
	Incorrect speed selection.	Select appropriate speed.
4) Excessive cutter breakage	Steel swarf or dirt under cutter	Remove cutter, clean part thoroughly and replace
	Incorrectly re-sharpened or worn cutter	Always have a new cutter on hand to refer to for correct tooth geometry, together with instruction sheet
	Cutter skipping	See causes and remedies (2)
	Slide-ways need adjustment	Tighten slide-way
	Cutter not attached tightly to arbor	Retighten

	Insufficient use of cutting oil or unsuitable type of oil	Fill arbor with an oil of light viscosity and check to be sure 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.
	Incorrect speed selection.	Select appropriate speed.
5) Excessive cutter wear	Incorrectly re-sharpened cutter.	Refer to instructions and a new cutter for proper tooth geometry
	Insufficient or spasmodic cutting pressure	Use sufficient steady pressure to slow the drill down. This will result in optimum cutting speed and chip load.

[7] GEAR PROTECTION-Gear Slip

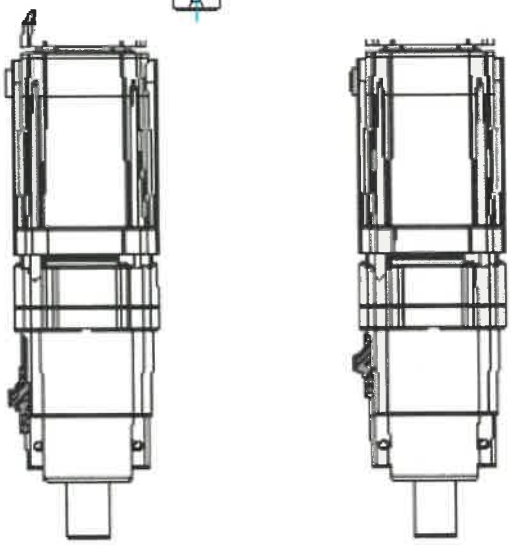
Gears have slip system for protection
against overload in cutters.
Adjust the torque of LOCK NUT
with torque wrench.
Normally the Magbeast 5 is set at 15 Nm.



[8] SPEED SELECTION—Speed Adjustable with volume switch

1. Method of Gear Change

The machines are equipped with
a mechanical two-speed gearbox.
Select the required speed by pressing-in,
shifting and engaging.
Change the speed only when
the machine is not running,
and support the gear-changing
by slightly rotating the spindle.



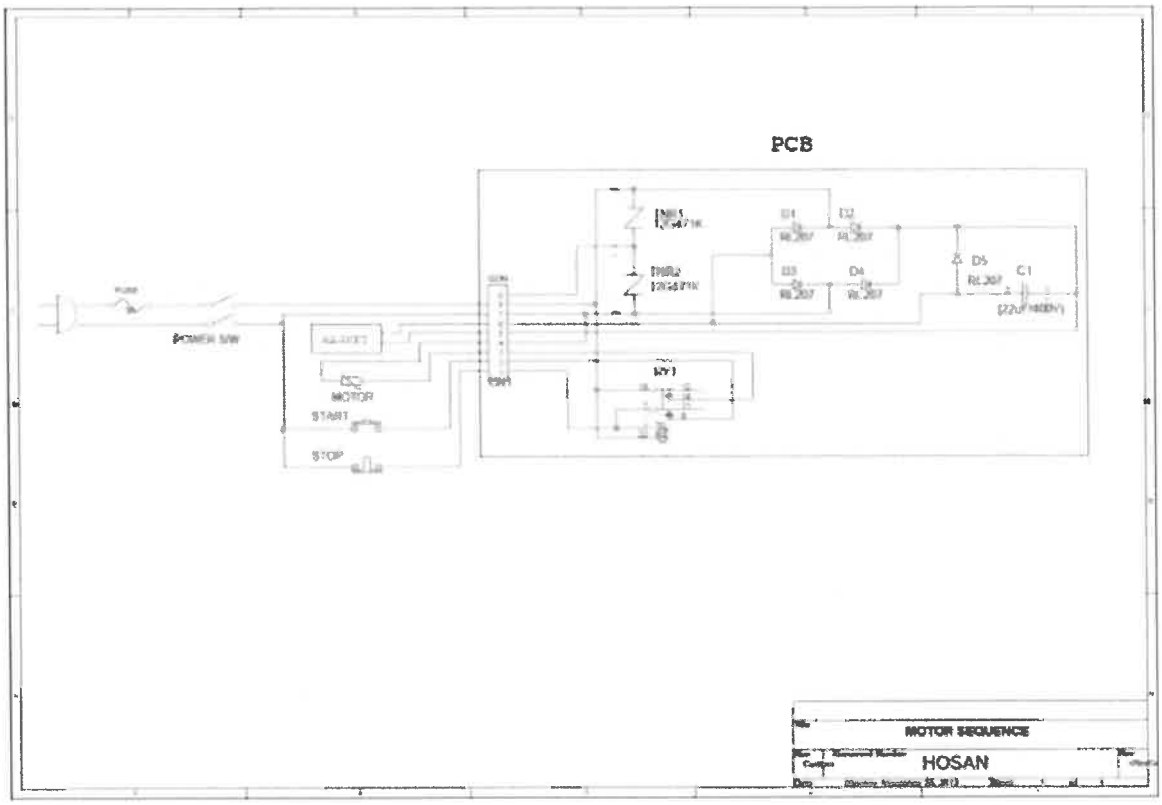
--NO LOAD RPM of each gear--

[9] OVERLOAD PROTECTION

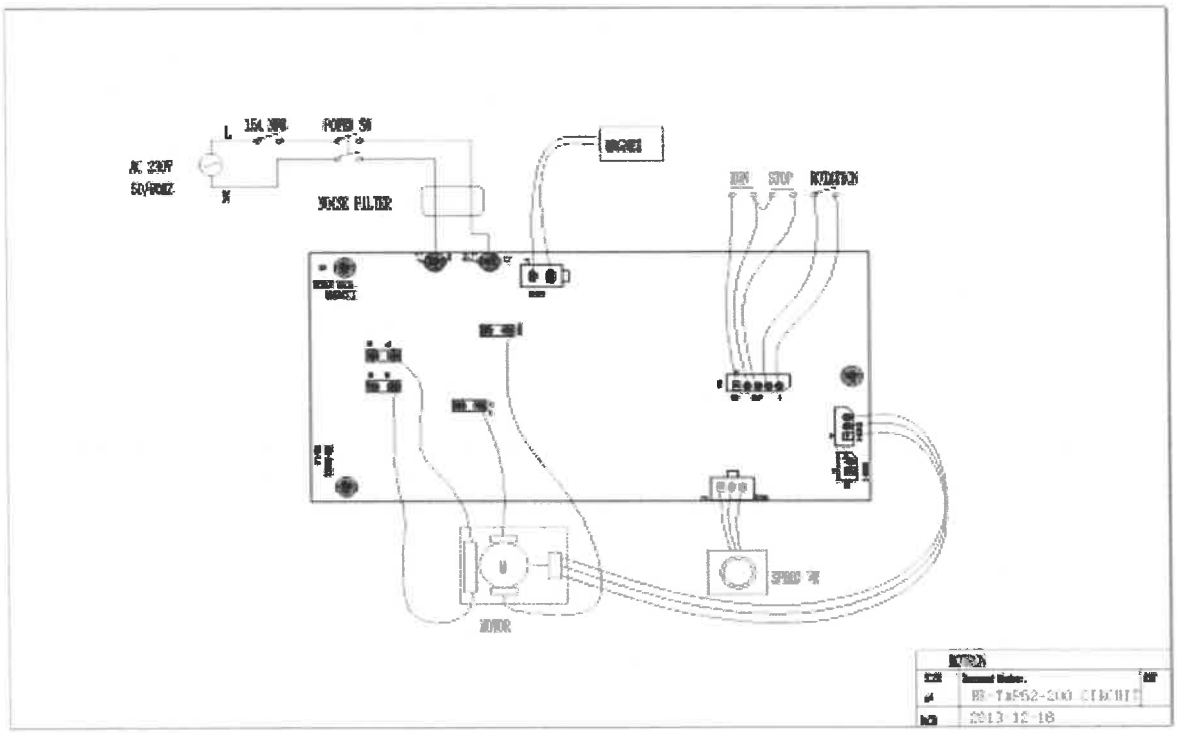
The Magbeast 5 is extreme heavy duty machine. So it has electronic overload protection system for unexpected over-torque during drilling or tapping.
Normally the sensor is set at 14~15A at factory. But if necessary it can be adjusted

[10] CIRCUIT & CONNECTION WIRING DIAGRAM

1. CIRCUIT



2. CONNECTION WIRING DIAGRAM



WARNING - THIS APPLIANCE MUST BE EARTHED!

Insulation Resistance Test

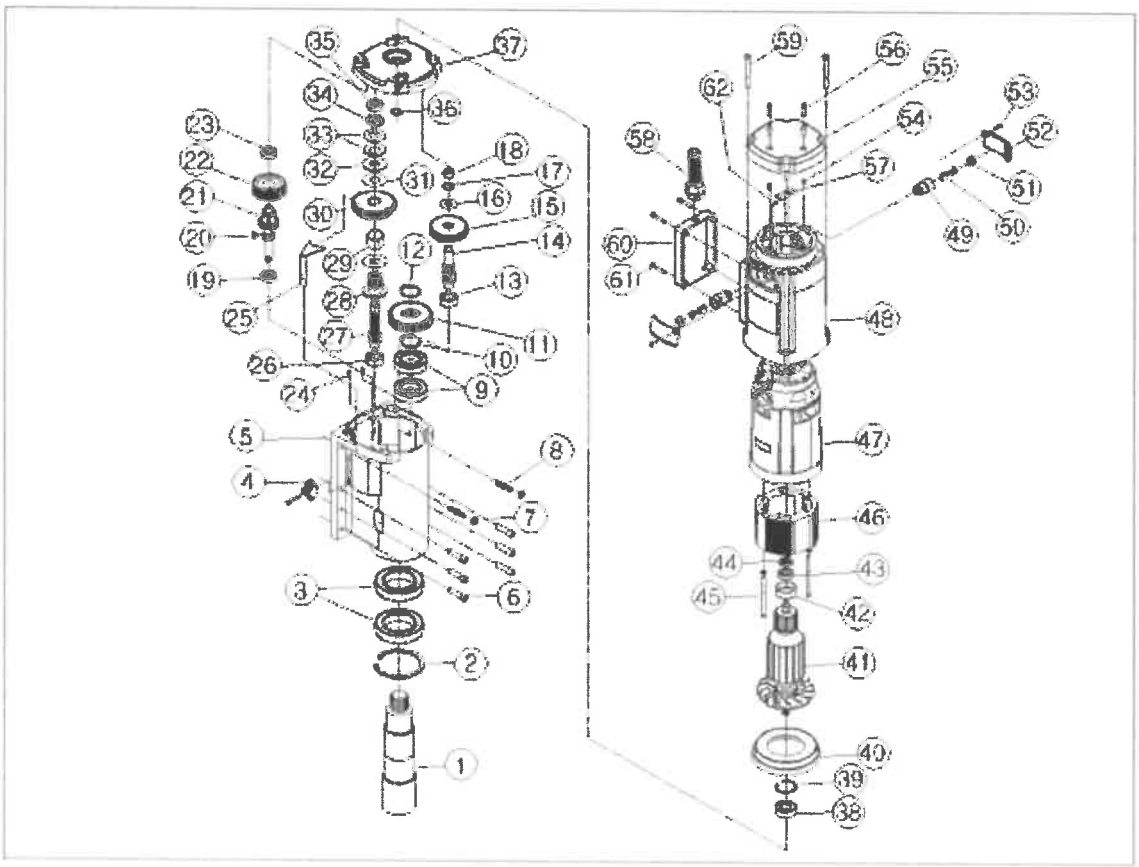
With the magnet switch in the ON position, apply a voltage of 1.5kv between the live connection on the mains plug and the frame of the machine for a duration of 7 seconds. The reading obtained should not fall below infinity. Should a fault be indicated, it **must be found and rectified**.

[11] GIB ADJUSTMENT -- Patented

1. New Sliding System: Machines have very exotic and stable sliding system. It consists of 3 main parts; Slide Board, Precisely Ground Bar & Adjustment Gib.
Basically it has very wear-resistant structure and keeps first condition as time goes.
It helps to cut comparatively bigger holes easier than normal dove-tail system without any bad movement in sliding area.

2. Gibb Adjustment: Adjust the Gibb using side bolts loose or tight, if necessary.

[12] PART LIST

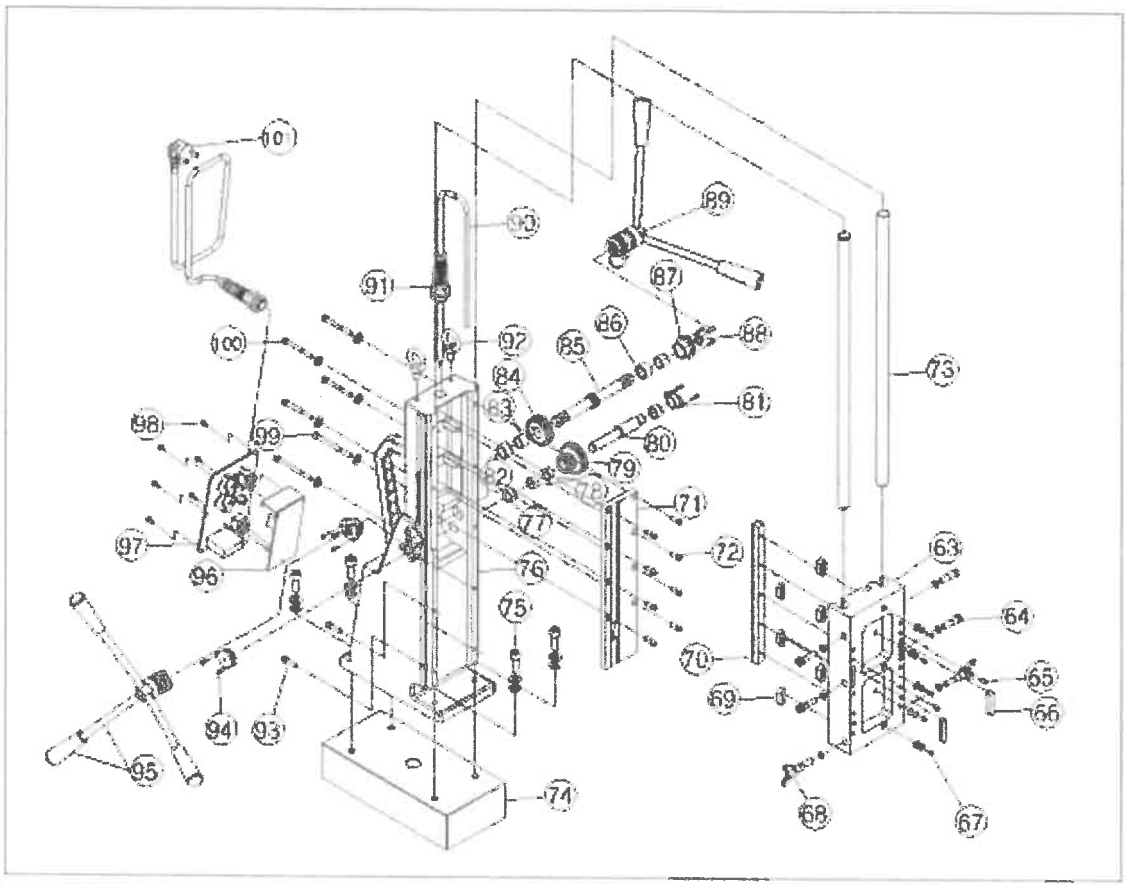


MAGBEAST 5 Diagram 1

NO	PART NO.	DESCRIPTION	Q'ty
1	MB5-TAP52A01	SPINDLE	1
2	MB5-TAP52A02	SNAP RING RTW-80	1
3	MB5-TAP52A03	BEARING NTN6010ZZ	2
4	MB5-TAP52A04	GEAR CHANGER ASS'Y	1
5	MB5-TAP52A05	GEAR BOX	1
6	MB5-TAP52A06	HEX-SOCKET HEAD SCREW M8-L30	6
7	MB5-TAP52A07	M8 NUT	2
8	MB5-TAP52A08	HEX-SOCKET SET SCREW(w/washer) M8-L45	2
9	MB5-TAP52A09	BEARING 600UU	2

NO	PART NO.	DESCRIPTION	Q'ty
10	MB5-TAP52A10	SNAPRING STW-30	1
11	MB5-TAP52A11	MAIN GEAR	1
12	MB5-TAP52A12	SNAPRING STW-28	1
13	MB5-TAP52A13	NIDDLE BEARING RNA4902	1
14	MB5-TAP52A14	THIRD PINION	1
15	MB5-TAP52A15	THIRD GEAR	1
16	MB5-TAP52A16	FLAT WASHER 16.2-32-0.5T	1
17	MB5-TAP52A17	SNAPRING STW-18	1
18	MB5-TAP52A18	NIDDLE BEARING RNA1416	1
19	MB5-TAP52A19	BEARING 6001	1
20	MB5-TAP52A20	LOCK NUT KEY 5x5x10x2R	1
21	MB5-TAP52A21	FIRST PINION	1
22	MB5-TAP52A22	FIRST GEAR	1
23	MB5-TAP52A23	BEARING 6201UU	1
24	MB5-TAP52A24	PIN Ø4-L10	1
25	MB5-TAP52A25	GEAR COUPLING	1
26	MB5-TAP52A26	NIDDLE BEARING RNA4902	1
27	MB5-TAP52A27	SECOND PINION	1
28	MB5-TAP52A28	BUSHING	2
29	MB5-TAP52A29	DU BUSHING 202312	1
30	MB5-TAP52A30	SECOND GEAR	2
31	MB5-TAP52A31	SLIP-DISK	1
32	MB5-TAP52A32	SLIP-WASHER	1
33	MB5-TAP52A33	DISK SPRING 20.3 x 40.5 x2.2T	1
34	MB5-TAP52A34	LOCK NUT 20 x 1.5P	1
35	MB5-TAP52A35	BEARING 6201UU	1
36	MB5-TAP52A36	SNAPRING STW-15	1
37	MB5-TAP52A37	INNER COVER	1
38	MB5-TAP52A38	BEARING 6202UU	2
39	MB5-TAP52A39	SNAPRING RTW-35	1
40	MB5-TAP52A40	FAN GUIDE	

NO	PART NO.	DESCRIPTION	Q'ty
41	MB5-TAP52A41	ARMATURE ASS'Y	1
42	MB5-TAP52A42	BEARING RUBBER BUSHING	1
43	MB5-TAP52A43	BEARING	1
44	MB5-TAP52A44	MAGNET RING	1
45	MB5-TAP52A45	HEX-SOCKET SCREW M5-L80	2
46	MB5-TAP52A46	FIELD ASS'Y	1
47	MB5-TAP52A47	INNER HOUSING	1
48	MB5-TAP52A48	MOTOR HOUSING	1
49	MB5-TAP52A49	CARBON HOLDER	2
50	MB5-TAP52A50	CARBON ASS'Y	2
51	MB5-TAP52A51	CARBON CAP	2
52	MB5-TAP52A52	CARBON HOLDER COVER	2
53	MB5-TAP52A53	HEX-SOCKET SCREW M4-L10	2
54	MB5-TAP52A54	SET SCREW M4-10	2
55	MB5-TAP52A55	HOUSING CAP	1
56	MB5-TAP52A56	HEX-SOCKET SCREW M4-L15	4
57	MB5-TAP52A57	MAGNET RING PCB	1
58	MB5-TAP52A58	CABLE GLAND	1
59	MB5-TAP52A59	HEX-SOCKET SCREW M6-L60	4
60	MB5-TAP52A60	WIRE COVER	1
61	MB5-TAP52A61	HEX-SOCKET SCREW M4-L35	4
62	MB5-TAP52A62	PCB LEADWIRE	1



MAGBEAST 5 Diagram 2			
NO	**PART NO.**	**DESCRIPTION**	**Q'ty**
63	MB5-TAP52A63	SLIDE	1
64	MB5-TAP52A64	SLIDE BAR CONTROL SCREW M8-L20	4
65	MB5-TAP52A65	ROLL PIN Ø4-L20	4
66	MB5-TAP52A66	KEY 8x8x30x2R	2
67	MB5-TAP52A67	HEX-SOCKET SCREW(w/washer) M6-L25	5
68	MB5-TAP52A68	WING BOLT M8-L20	2
69	MB5-TAP52A69	SLIDE BREAK 30-13.8-H9	6
70	MB5-TAP52A70	RACK GEAR	1
71	MB5-TAP52A71	BACK COVER	1
72	MB5-TAP52A72	HEX-SOCKET SCREW M6-L20	8
73	MB5-TAP52B73	RAIL BAR	1
74	MB5-TAP52A74	MAGNET ASS'Y	1
75	MB5-TAP52A75	HEX-SOCKET SCREW(w/washer) M10-L35	4

76	MB5-TAP52A76	MAIN FRAME	1
77	MB5-TAP52A77	NIDDLE BEARING HK1512	2
78	MB5-TAP52A78	BUSHING 15-15-1.5T	2
79	MB5-TAP52A79	SIDE FIRST GEAR ASS'Y	1
80	MB5-TAP52A80	SIDE FIRST PINION	1
81	MB5-TAP52A81	BEARING COVER	2
82	MB5-TAP52A82	NIDDLE BEARING TA1715	2
83	MB5-TAP52B83	DU BUSHING 17-20-1.5T	2
84	MB5-TAP52A84	SIDE SECOND GEAR	1
85	MB5-TAP52A85	SIDE SECOND PINION	1
86	MB5-TAP52A86	BUSHING 17-20-1.5T	1
87	MB5-TAP52A87	FIRST PINION BEARING COVER ASS'Y	1
88	MB5-TAP52A88	SNAPRING STW-17	1
89	MB5-TAP52A89	MAIN HANDLE JOINT ASS'Y	1
90	MB5-TAP52A90	WIRE HOSE	1
91	MB5-TAP52A91	CABLE GLAND	1
92	MB5-TAP52A92	EYE BOLT M10-L20	2
93	MB5-TAP52B93	HEX-SOCKET SCREW(w/washer) M6-L35	4
94	MB5-TAP52A94	HEX-SOCKET SCREW(w/washer) M4-L10	10
95	MB5-TAP52A95	HANDLE BAR ASS'Y	3
96	MB5-TAP52A96	MAIN PCB ASS'Y	1
97	MB5-TAP52A97	CONTROL PANEL ASS'Y	1
98	MB5-TAP52A98	PAN HEADED SCREW M4-10	6
99	MB5-TAP52A99	HEX-SOCKET SCREW(w/washer) M6-L80	2
100	MB5-TAP52A100	HEX-SOCKET SCREW(w/washer) M4-L60	4
101	MB5-TAP52A101	PLUG	1

WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the Magbeast 5 Drilling Machine with Magnetic Base to be free of defects in material and workmanship under normal use for a period of 12 months from date of sale.
This warranty does not cover cutters, damage or wear that arise from misuse, accident, tempering or any other causes not related to defects in workmanship or material.

Date of production.....

Serial number .....

Date of sale.....

Signature of seller.....

1.02 / 22nd August 2014

WE RESERVE THE RIGHT TO MAKE CORRECTIONS
AND MODIFICATIONS IN THIS MANUAL WITHOUT PRIOR NOTICE