JEI DRILLING AND CUTTING SOLUTIONS

OPERATOR'S MANUAL

MAGBEAST HM200T

Magnetic Drilling Machine

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CONTENTS OF THE MANUAL.

	List of Contents with Magbeast HM200T Drilling Machine	Check List
1	Operator's Manual	YES/NO
2	Coolant Bottle	YES/NO
3	Arbor—MT5 (1 1/4" bore)	YES/NO
5	6mm Hexagon Key	YES/NO
6	Drill Drift	YES/NO

[1] SPECIFICATIONS OF MAGBEAST HM200T DRILLING MACHINE

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

Motor Unit	
Voltages	230v/60Hz 110v/50-60Hz
Normal full load output	2850 W
Magnet Size	295 x 140 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.**	2,200kg/26,800N
Overall Dimensions	
Height - maximum extended	955mm
Height - minimum	730mm
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 the 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.

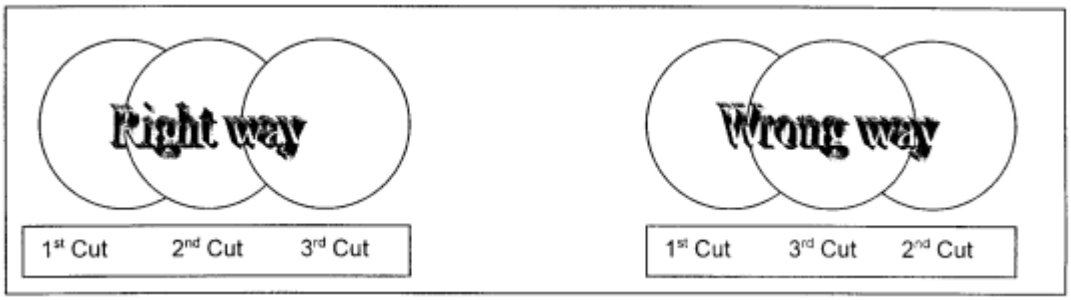
• Ensure that the coolant bottle contains sufficient cutting oil to complete the required operating duration. Refill as required.

• 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 pressing 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 1.5mm² 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 center-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.
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	Steel swarf or dirt under	Remove cutter, clean part

cutter breakage	cutter Incorrectly re-sharpened or worn cutter Cutter skipping Slide-ways need adjustment Cutter not attached tightly to arbor	thoroughly and replace Always have a new cutter on hand to refer to for correct tooth geometry, together with instruction sheet See causes and remedies (2) Tighten slide-way Retighten
	Insufficient use of cutting oil or unsuitable type of oil Incorrect speed selection.	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. Select appropriate speed.
5)) Excessive cutter wear	Incorrectly re-sharpened cutter. Insufficient or spasmodic cutting pressure	Refer to instructions and a new cutter for proper tooth geometry Use sufficient steady pressure to slow the drill down. This will result in optimum cutting speed and chip load.

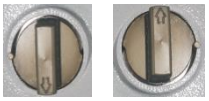
[7] SPEED SELECTION—Speed Adjustable with volume switch

1. Method of Gear Change

The machines are equipped with a mechanical four-speed gearbox.
Please just turn the lever to the right or left to change gear.
It is not necessary to set the gear in neutral to change gear.(patented)

2. Gear Selection

1st40/60



2nd90/130

3rd170/240

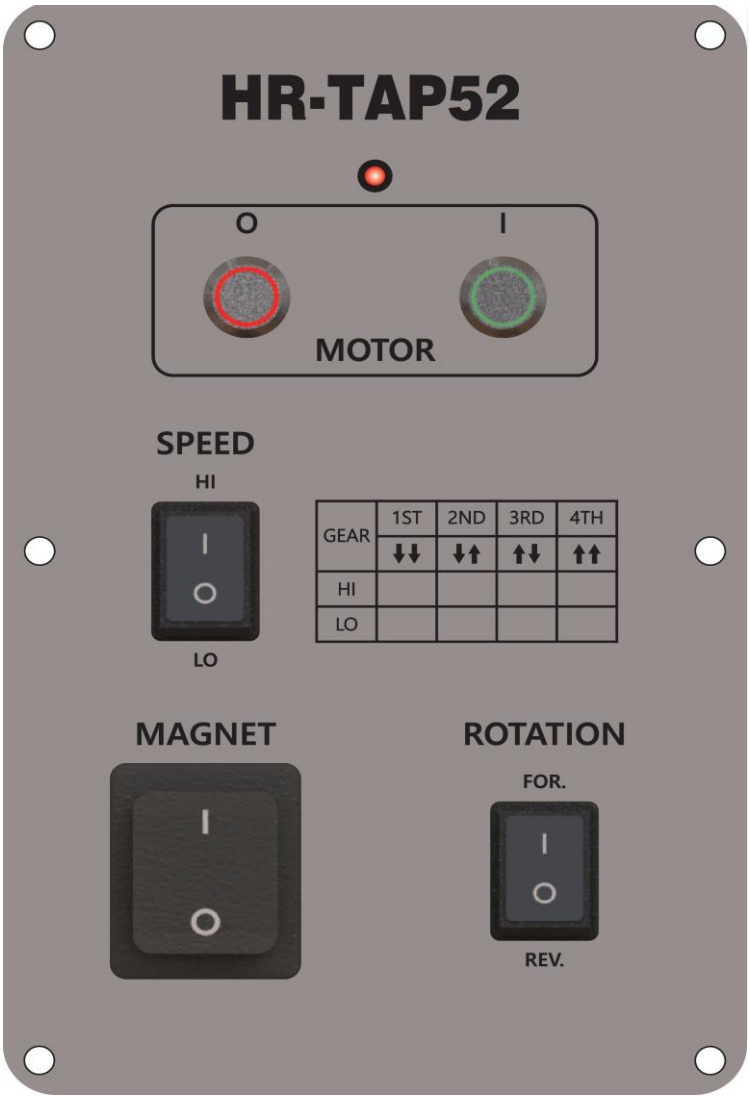
4th380/545

--NO LOAD RPM of each gear--

[8] OVERLOAD PROTECTION

HM200T-200 is extreme heavy duty machine. So it has electronic overload protection system for unexpected over-torque during drilling or tapping.
Nomally the sensor is set at 14~15A at factory. But if necessary it can be adjusted.

[9] CONTROL PANEL



① **MAGNET SWITCH**: Main switch of Machine

②**SPEED** :

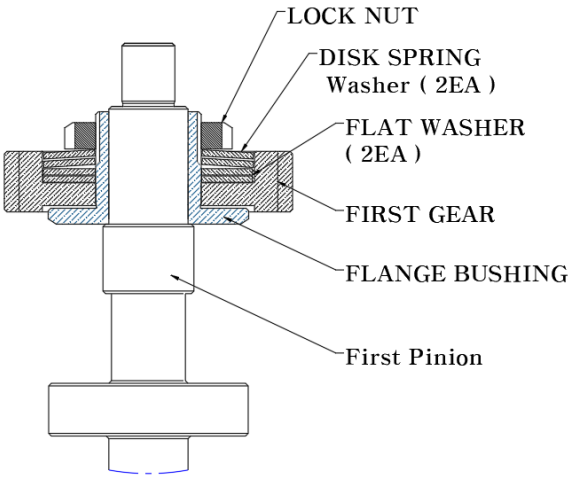
- HI: GEAR RPM
- LO: Electronic RPM, About 75% of HI

③ **ROTATION SWITCH**

- FOR: Forwarding (CW: Clockwise)
- REV.: Reverse (CCW: Counter Clockwise)

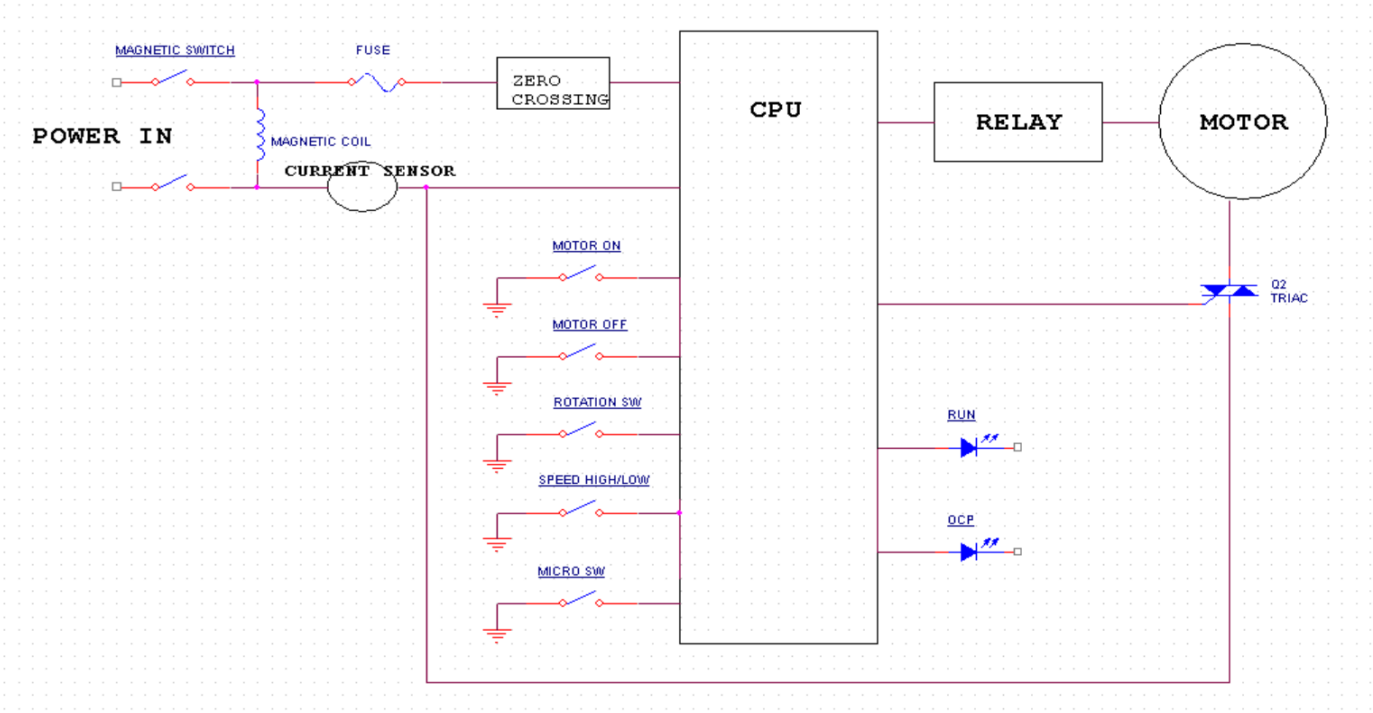
[10] PROTECTION-GEAR SLIP

HM200T has a slip system for protection.
against overload in cutters **at first gear**.
Adjust the torque of LOCK NUT
with torque wrench.
Normally HM200T is set at 80 Nm



[11] CIRCUIT & CONNECTION WIRINGDIAGRAM

1. **CIRCUIT**



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**.

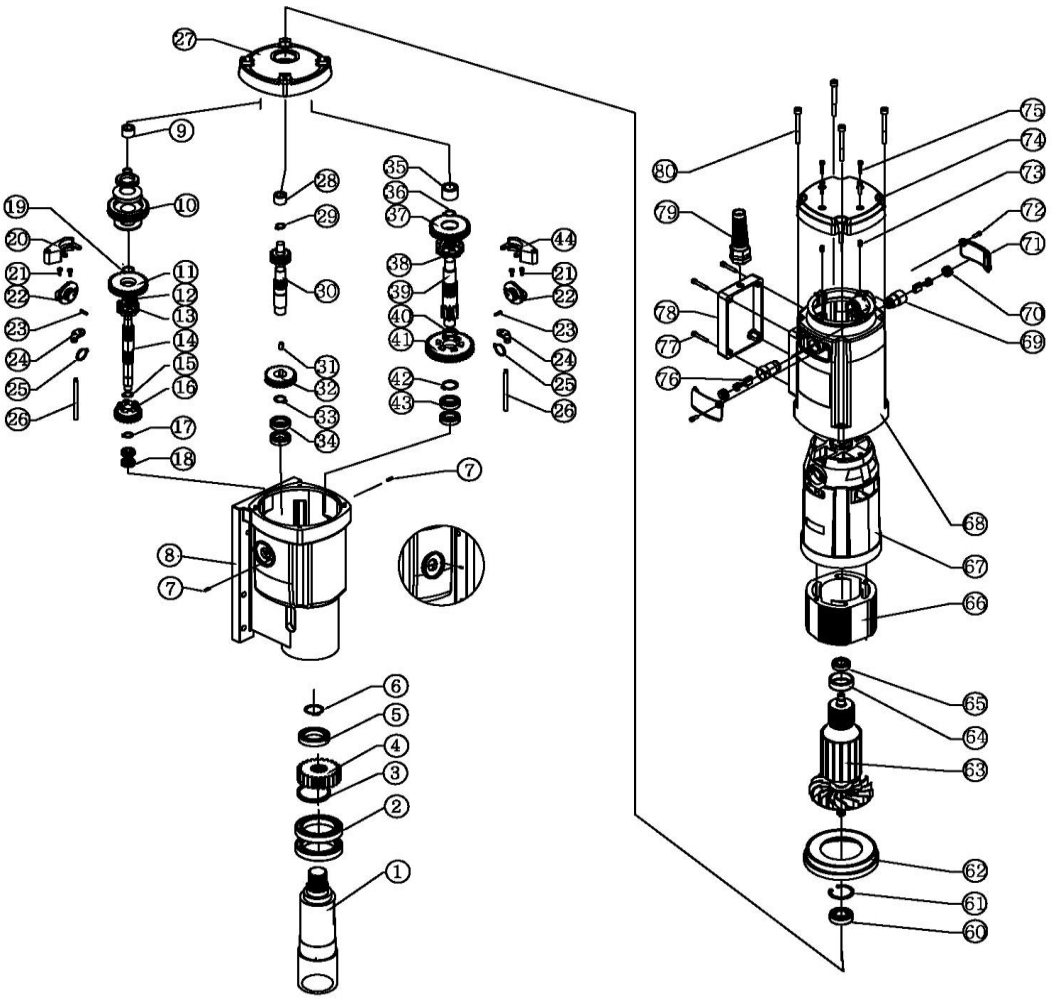
[12] GIB ADJUSTMENT

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

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

[13] PART LIST

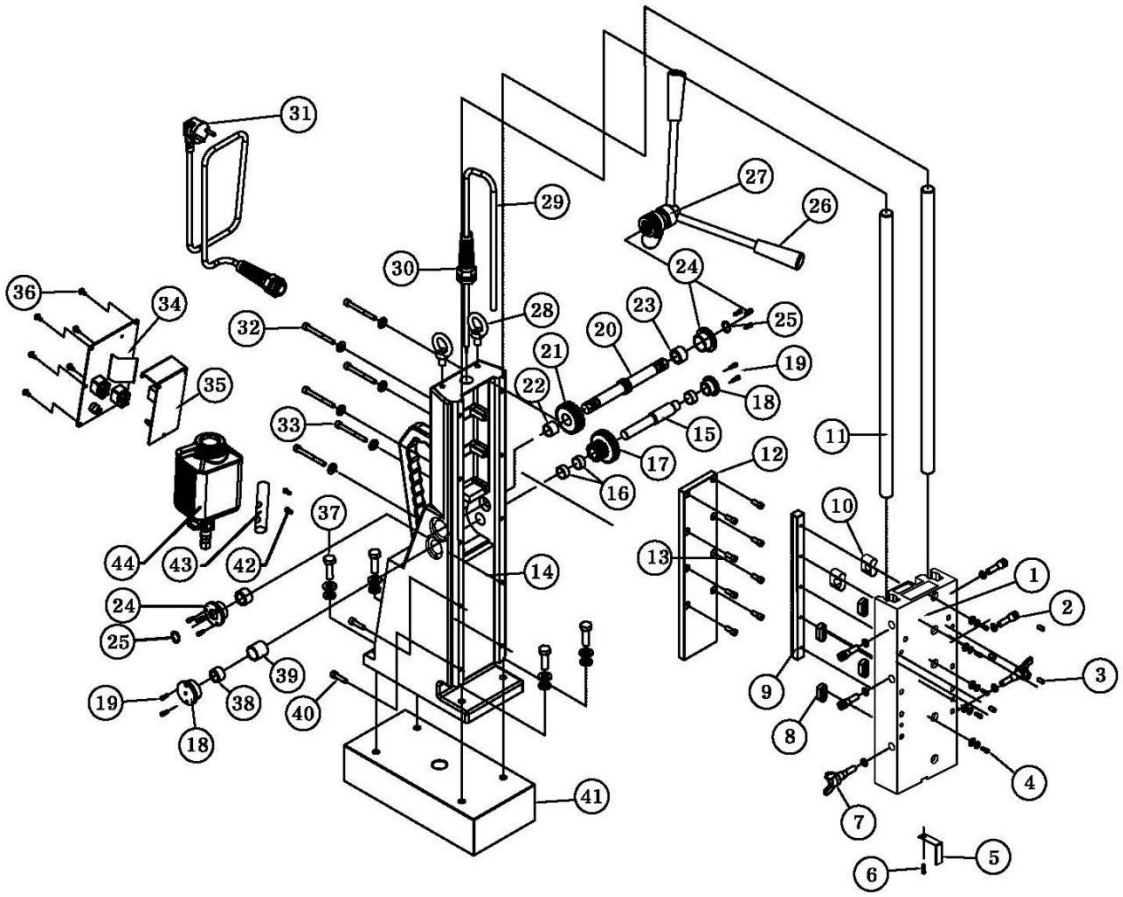
PART A



NO.	PART NO.		PART NAME	Q'ty
1	HM200T	A01	SPINDLE	1
2	HM200T	A02	BALL BEARING 6910ZZ	2
3	HM200T	A03	OIL SEAL	1
4	HM200T	A04	MAIN GEAR	1
5	HM200T	A05	BALL BEARING 6906 2RSC3	1
6	HM200T	A06	SNAP RING	1
7	HM200T	A07	PIN	2
8	HM200T	A08	GEAR BOX	1
9	HM200T	A09	NEEDLE BEARING NK 1012	1
10	HM200T	A10	FIRST GEAR	1
11	HM200T	A11	FIRST GEAR M	1
12	HM200T	A12	SNAP RING	1
13	HM200T	A13	FIRST CLUTCH	1
14	HM200T	A14	FIRST PINION	1
15	HM200T	A15	SNAP RING	1
16	HM200T	A16	FIRST GEAR L	1
17	HM200T	A17	SNAP RING	1
18	HM200T	A18	BEARING 6800ZZ	2
19	HM200T	A19	SNAP RING	1
20	HM200T	A20	FIRST CHANGE BLOCK	1
21	HM200T	A21	SOCKET BOLT M3	4
22	HM200T	A22	GEAR CHANGE KNOB	2
23	HM200T	A23	PIN Φ3*8L	2
24	HM200T	A24	GUIDE BRACKET	2
25	HM200T	A25	SNAP RING	2
26	HM200T	A26	GUIDE PIN	2
27	HM200T	A27	INNER COVER	1
28	HM200T	A28	NEEDLE BEARING NK 1012	1
29	HM200T	A29	SNAP RING	1
30	HM200T	A30	SECOND PINION	1
31	HM200T	A31	KEY	1
32	HM200T	A32	SECOND GEAR L	1
33	HM200T	A33	SNAP RING	1
34	HM200T	A34	BEARING 6902 ZZ	2
NO.	PART NO.		PART NAME	Q'ty

35	HM200T	A35	NEEDLE BEARING RLM1416	1
36	HM200T	A36	SNAP RING	1
37	HM200T	A37	THIRD GEAR H	1
38	HM200T	A38	THIRD CLUTCH	1
39	HM200T	A39	THIRD PINION	1
40	HM200T	A40	SNAP RING	1
41	HM200T	A41	THIRD GEAR L	1
42	HM200T	A42	SNAP RING	1
43	HM200T	A43	BEARING 16001 ZZ	2
44	HM200T	A44	THIRD CHANGE BLOCK	1
60	HM200T	A60	BEARING 6202 2RSC3	1
61	HM200T	A61	SNAP RING	1
62	HM200T	A62	FAN GUIDE	1
63	HM200T	A63	ARMATURE ASS'Y	1
64	HM200T	A64	RUBBER BUSHING	1
65	HM200T	A65	BEARING NTN 6201UU	1
66	HM200T	A66	STATOR	1
67	HM200T	A67	MOTOR INNER COVER	1
68	HM200T	A68	MOTOR HOUSING	1
69	HM200T	A69	CARBON BRUSH HOLDER	2
70	HM200T	A70	CARBON BRUSH CAP	2
71	HM200T	A71	SIDE HOUSING COVER	2
72	HM200T	A72	SOCKET BOLT M4	2
73	HM200T	A73	SOCKET BOLT M5	2
74	HM200T	A74	HOUSING CAP	1
75	HM200T	A75	SOCKET BOLT M4	4
76	HM200T	A76	CARBON BRUSH	2
77	HM200T	A77	SOCKET BOLT M4	4
78	HM200T	A78	WIRE COVER	1
79	HM200T	A79	CABLE GRAND ASS'Y	1
80	HM200T	A80	SOCKET BOLT M6	4

PART B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NO.	PART NO.		PART NAME	Q'ty
1	HM200T	B01	SLIDE	1
2	HM200T	B02	O-RING ASSEMBLED STOPPER BOLT	4
3	HM200T	B03	PIN PI6-L10	4
4	HM200T	B04	HEX SOCKET BOLT M6-L15	5
5	HM200T	B05	ARBOR STOPPER	1
6	HM200T	B06	HEX SOCKET BOLT M5-L10	1
7	HM200T	B07	WING BOLT M8-L20	2
8	HM200T	B08	GIB A	4
9	HM200T	B09	RACK GEAR	1
NO.	**PART NO.**		**PART NAME**	**Q'ty**
10	HM200T	B10	GIB B	2
11	HM200T	B11	RAIL BAR	2
12	HM200T	B12	SLIDE PLATE	1
13	HM200T	B13	HEX SOCKETBOLTM6-L15	8
14	HM200T	B14	MAIN FRAME	1
15	HM200T	B15	SLIDE SECOND PINION	1
16	HM200T	B16	BUSHING 15-15-1.5T	2
17	HM200T	B17	SLIDE SECOND GEAR ASS'Y	1
18	HM200T	B18	SLIDE SECOND PINION COVER	2
19	HM200T	B19	HEX SOCKETBOLT M4-L10	10
20	HM200T	B20	SLIDE FIRST PINION	1
21	HM200T	B21	SLIDE FIRST GEAR	1
22	HM200T	B22	BUSHING 17-15-1.5T	1
23	HM200T	B23	BEARING TA1715Z	2
24	HM200T	B24	SLIDE FIRST PINION COVER	2
25	HM200T	B25	SNAP RING STW-17	2
26	HM200T	B26	HANDLE ASS'Y	3
27	HM200T	B27	HANDLE JOINT ASS'Y	1
28	HM200T	B28	EYE BOLT M10-L20	2
29	HM200T	B29	WIRE HOSE	1
30	HM200T	B30	CABLE GLAND ASS'Y	1
31	HM200T	B31	POWER CABLE	1
32	HM200T	B32	HEX SOCKETBOLT M6-L60	4
33	HM200T	B33	HEX SOCKETBOLT M6-L80	2
34	HM200T	B34	CONTROL PANEL, WITH SWITCH	1
35	HM200T	B35	MAIN PCB	1
36	HM200T	B36	TRUSS HEAD BOLT M4-L10	6
37	HM200T	B37	HEX FLAT BOLT M10-L35	4
38	HM200T	B38	BEARING HK1512	2
39	HM200T	B39	HANDLE FIRST GEAR GUIDE	1
40	HM200T	B40	HEX SOCKETBOLT M6-L25	4
41	HM200T	B41	ELECTROMAGNET	1
42	HM200T	B42	HEX SOCKETBOLT M4-L20	2
43	HM200T	B43	COOLANT TANK BRACKET	1
44	HM200T	B44	COOLANT TANK ASS'Y	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.....

4 / 2nd February 2023

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