JEPSON POWER® GERMANY
Leading Through Innovation

Magnetic Drilling Machine

MAGPRO 60 AUTOMATIC

OPERATOR'S MANUAL

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CONTENTS OF THE MANUAL.

	List of Contents with Magnetic Drill Unit	Check List
1	Operator's Manual	YES/NO
2	Coolant Bottle	YES/NO
3	Arbor--MT2 (3/4" bore)	YES/NO
4	Pilot Pin for 25mm cutters	YES/NO
5	Pilot Pin for 50mm cutters	YES/NO
6	5mm Hexagon Key	YES/NO
7	Drill drift	YES/NO

[MP 60 AUTOMATIC]

[1] SPECIFICATIONS OF JEPSON POWER MAGNETIC DRILLING MACHINE [MODEL MP60SEMI]

Maximum hole cutting capacity in .2/.3C steel = 50mm dia. x 75mm deep

Motor Unit	
Voltages	220V/240 (100/110V), 50/60Hz
Normal full load output	1,550 W
Magnet Size	178 x 94 x 44 mm
Magnet Force at 20°C with 20mm minimum plate thickness **The use on any material less than 20mm 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.**	1,350kgf
Overall Dimensions	
Height - maximum extended	620mm
Height - minimum	555mm
Width (including Hand wheel)	240mm
Length Overall	310mm
Stroke	190mm
AUTOFEEDING (No LOAD)	22mm/Min.
RPM (No LOAD)	1st. 230, 2st. 550
Net Weight	19.5kgs
Average noise level during cutting at operators ear position.	90dB(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 workpiece, 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.

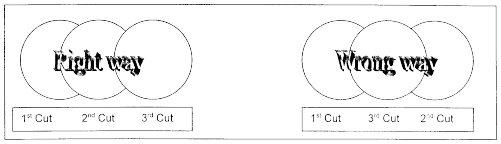
● Ensure that the coolant bottle contains sufficient cutting oil to complete the required operating duration. Refill as required.

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

● **Cutting(Auto-feeding) Procedure**

1. Set handle feeding mode to Auto-feeding
2. Switch on the magnet.
3. Start the motor by depressing the GREEN start button. Then handle will be fed automatically. Feeding speed is about 20.0mm/min.
4. About 3 seconds after cutting is finished, the motor stops automatically.
5. CHANGE THE HANDLE TO MANUAL MODE.
6. Slide up the motor for next hole cutting.

● 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 MT2 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 3/4" dia. bore of arbor, ensuring alignment of two drive flats with socket screws.

- Tighten both screws using hexagon key.

[6] REMEDIES FOR HOLE MAKING PROBLEMS

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 asa 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 centred 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] 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

1st 240

2nd565

--NO LOAD RPM of each gear--

3. Gear Selection per cutter sizes.

In case of cutting normal mild steel with cutters under 30mm dia. 2nd gear is recommendable. And for cutter over 30mm dia. 1st gear should be selected.

But actually for cutters around 25~30 mm dia. It depends on the material to be cut.

[8] SAFETY SYSTEMS

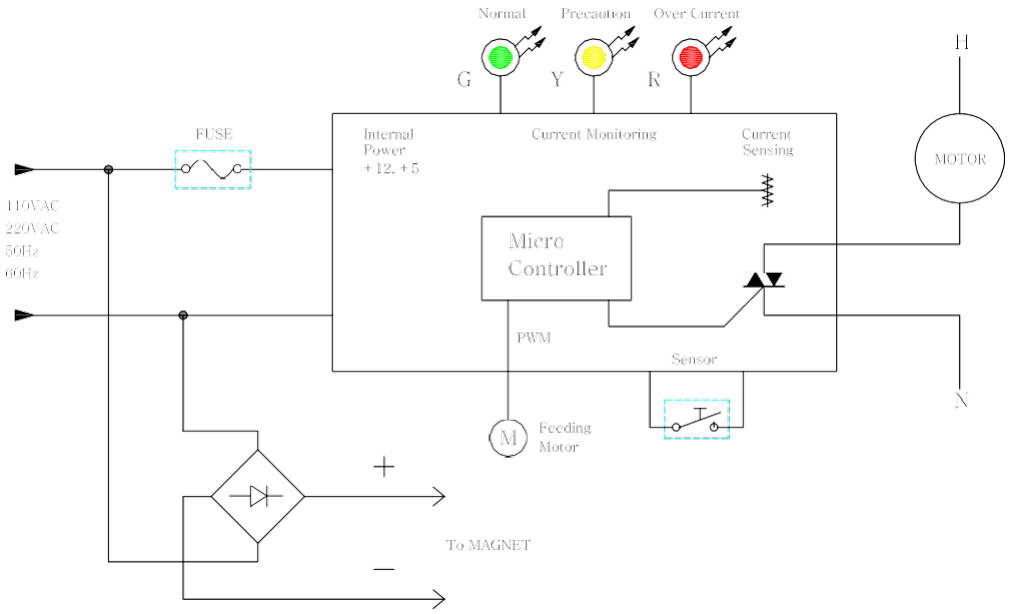
1) Movement Sensor : In case of any change in magnetic field, the motor will stop immediately. This is to prevent unexpected danger during operating due to magnet force failure.

**** Sensor Switch : This sensor is option. In case sensor is not necessary, You can switch it off.**

2) Automatic Stop in case of over torque : In case of excessive torque at cutter motor will stop immediately. This is to prevent cutter breakage dueto over torque.

3) Automatic speed control : This machine has automatic speed control system for the torque. This is to guarantee more effective cutting work. Specially there is more torque when cutting is almost finished. At that time the sensor reduce the speed a little down to prevent cutter breakage.

[9] CIRCUIT



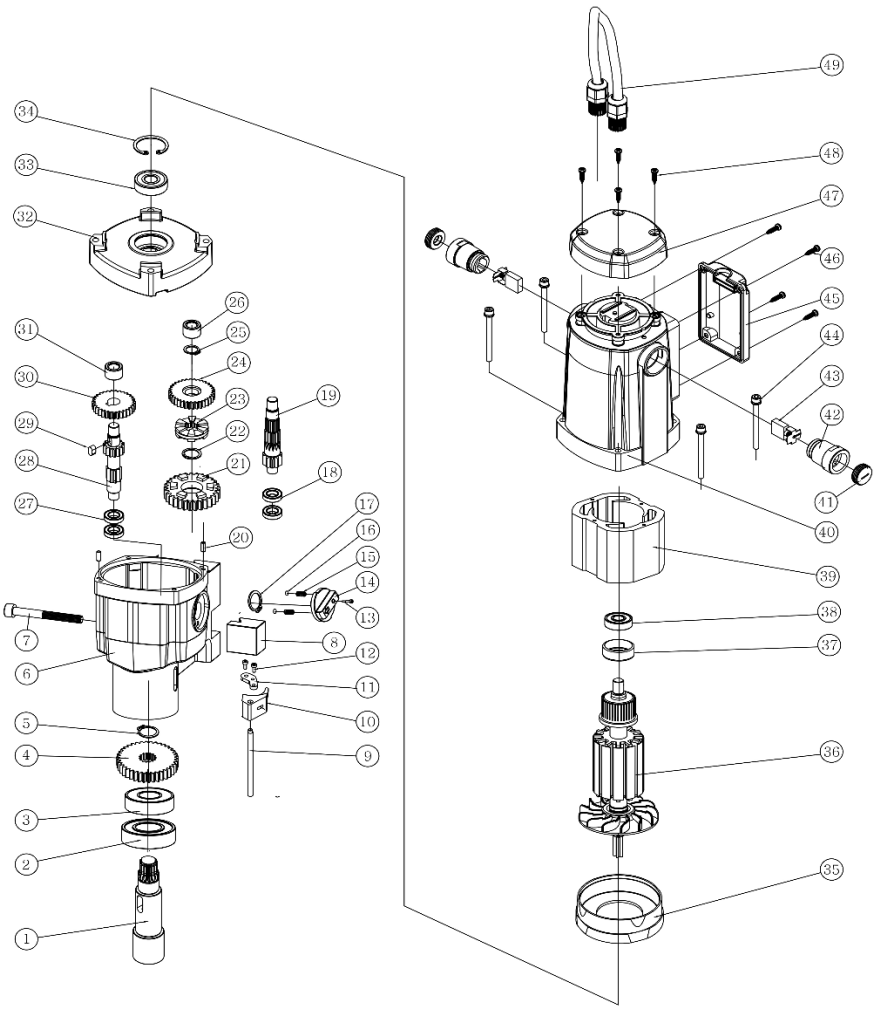
WARNING - THIS APPLIANCE MUST BE EARTHED!

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**.

[10] PART LIST

[PART A]

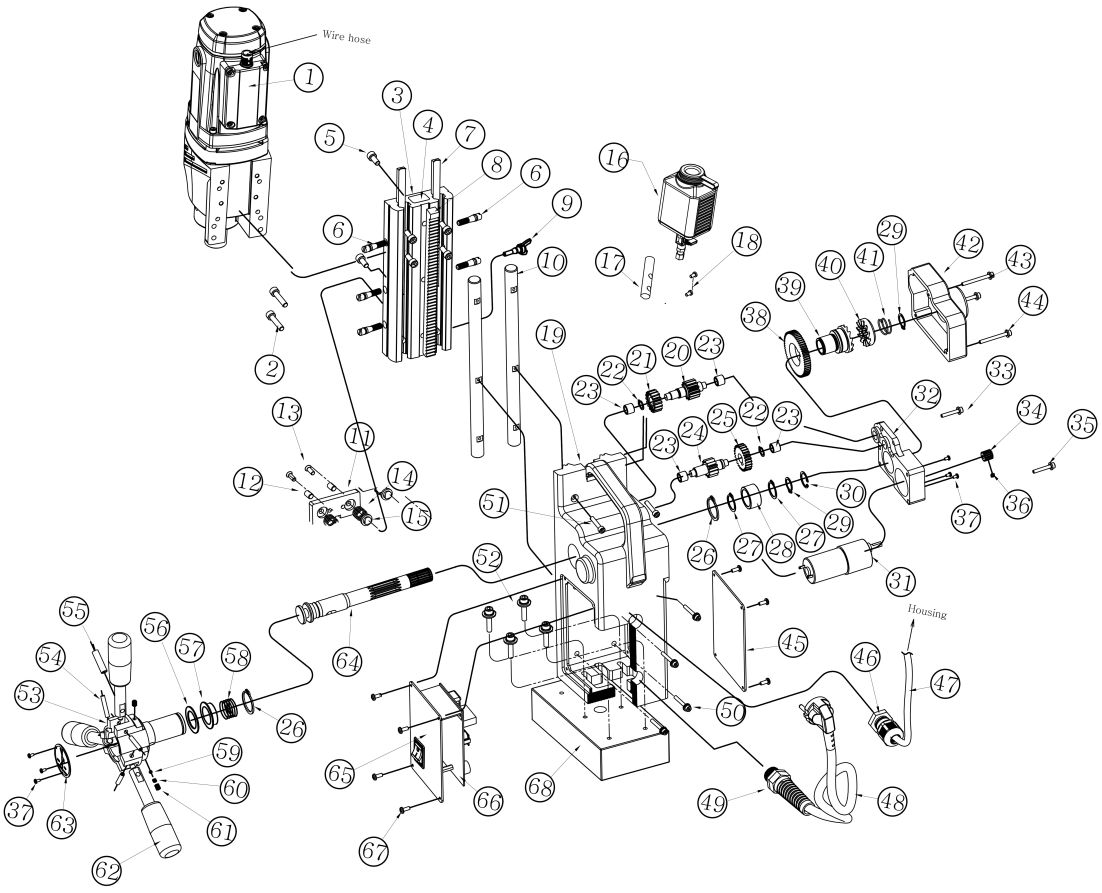


NO	PART NO.	PART NAME	Q'ty
1	A01	SPINDLE	1
2	A02	BALL BEARING, 6205 ZZ	1
3	A03	BALL BEARING, 6204 2RS	1
4	A04	MAIN GEAR	1
5	A05	SNAP RING, STWN17	1
6	A06	GEAR BOX	1
7	A07	HEX WRENCH BOLT, M8*55L	1
8	A08	DOVETAIL GIB	1

NO	PART NO.	PART NAME	Q'ty
9	A09	GUIDE PIN , Ø5*55L	1
10	A10	SECOND GEAR CHANGER	1
11	A11	GUIDE BRACKET	1
12	A12	HEX WRENCH BOLT M3 x 10L	2
13	A13	PIN, Ø3*6L M4 x 20L	1
14	A14	GEAR CHANGE KNOB	1
15	A15	KNOB SPRING	2
16	A16	BALL, Ø5	2
17	A17	SNAP RING, STEN18	1
18	A18	BALL BEARING, 6800ZZC3	2
19	A19	SECOND PINION	1
20	A20	PIN, Ø4*10L	1
21	A21	SECOND GEAR-L	2
22	A22	SNAP RING, ISTW15	2
23	A23	SECOND CLUTCH	1
24	A24	SECOND GEAR-H	1
25	A25	SNAP RING, STW13	1
26	A26	NEEDLE BEARING, NK1012	1
27	A27	BALL BEARING, 6800ZZC3	2
28	A28	FIRST PINION	1
29	A29	KEY 5*5*8L	1
30	A30	FIRST GEAR	1
31	A31	NEEDLE BEARING, NK1012	1
32	A32	INNER COVER	1
33	A33	BALL BEARING, 6201 2RSC3	1
34	A34	SNAP RING R32	1
35	A35	FAN GUIDE	1
36	A36	ARMATURE ASS'Y	1
37	A37	RUBBER BUSHING	1
38	A38	BALL BEARING, 6000 ZZC3	1
39	A39	STATOR ASS'Y	1
40	A40	MOTOR HOUSING	1

NO	PART NO.	PART NAME	Q'ty
41	A41	CARBON CAP	2
42	A42	CARBON HOLDER	2
43	A43	CARBON BRUSH ASS'Y	2
44	A44	HEX WRENCH BOLT, M5*50L	4
45	A45	WIRE COVER	1
46	A46	TAPPING SCREW, M4*15L	4
47	A47	HOUSING CAP	1
48	A48	TAPPING SCREW, M4*25L	4
49	A49	CABLE ASSY	1

[PART2]



AHS50 PART2			
NO	PART NO.	PART NAME	Q'ty
1	B 01	MOTOR & GEARBOX ASS'Y	1
2	B 02	HEX SOCKET HEAD SCREW M6-L30	2
3	B 03	SLIDE	1
4	B 04	SLIDE END CAP	1
5	B 05	HEX SOCKET HEAD SCREW M6-L15	7
6	B 06	ORING ASSEMBLED STOPPER BOLT	4
7	B 07	GIB STRIP	2
8	B 08	RACK GEAR	1
9	B 09	WING BOLT M6-L15	2
10	B 10	RAIL BAR	1
11	B 11	SLIDE BREAK HUB	1
12	B 12	SOCKET SET SCREW M10-L12	2
13	B 13	FLAT HEAD SCREW M5-L13	2

NO	PART NO.	PART NAME	Q'ty
14	B 14	BRAKE SPRING	2
15	B 15	SLIDE BRAKE	2
16	B 16	COOLANT TANK ASS'Y	1
17	B 17	COOLANT HANGER	1
18	B 18	HEX SOCKET HEAD SCREW M5-L25	2
19	B 19	MAIN FRAME	1
20	B 20	HANDLE FIRST PINION	1
21	B 21	HANDLE FIRST GEAR	1
22	B 22	SNAPRING STW-10	2
23	B 23	BEARING HK0810	4
24	B 24	HANDLE SECOND PINION	1
25	B 25	HANDLE SECOND GEAR	1
26	B 26	SNAPRING STW-28	2
27	B 27	SNAPRING STW-20	1
28	B 28	BEARING TA2215Z	1
29	B 29	SNAPRING STW-16	1
30	B 30	SNAPRING RTW-20	1
31	B 31	DC GEAR MOTOR	1
32	B 32	INSIDE GEAR HUB	1
33	B 33	HEX SOCKET HEAD SCREW M4-L20	1
34	B 34	DC MOTOR GEAR	1
35	B 35	HEX SOCKET HEAD SCREW M4-L35	1
36	B 36	SOCKET SET SCREW M4-L4	1
37	B 37	PAN HEAD SCREW M3-L5	6
38	B 38	FEEDING GEAR	1
39	B 39	HANDLE RACHET GEAR A	1
40	B 40	HANDLE RACHET GEAR B	1
41	B 41	RACHET GEAR SPRING	1
42	B 42	HANDLE SIDE COVER	1
43	B 43	HEX SOCKET HEAD SCREW M4-L40	2
44	B 44	HEX SOCKET HEAD SCREW M4-L50	1
45	B 45	WARNING PANEL	1

NO	PART NO.	PART NAME	Q'ty
46	B 46	CABLE GLAND, PG13.5	1
47	B 47	CABLE	1
48	B 48	POWER CABLE	1
49	B 49	CABLE GLAND ASS'Y	1
50	B 50	HEX SOCKET HEAD SCREW M5-L30	4
51	B 51	HEX SOCKET HEAD SCREW M5-L25	2
52	B 52	HEX SOCKET HEAD SCREW M6-L30	2
53	B 53	HANDLE JOINT	1
54	B 54	PIN PI5-L28	3
55	B 55	PIN PI8-L30	1
56	B 56	Cu WASHER	1
57	B 57	HANDLE SPRING CAP	1
58	B 58	HANDLE SPRING	1
59	B 59	BALL PI4.8	3
60	B 60	BALL SPRING	3
61	B 61	SOCKET SET SCREW M6-L12	3
62	B 62	HANDLE ASS'Y 3ea	1
63	B 63	HANDLE PANEL	1
64	B 64	HANDLE SHAFT	1
65	B 65	CONTROL PANEL	1
66	B 66	MAIN PCB	1
67	B 67	TRUSS HEAD SCREW M4-L10	8
68	B 68	ELECTROMAGNET	1