Magnetic Drilling Machine

MAGPRO 150M42

OPERATOR'S MANUAL

JEPSON POWER GMBH
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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 - MT4 (1 1/4" bore)	YES/NO
4	Pilot Pin of 7.98 dia. for cutting1″ depth	YES/NO
5	Pilot Pin of 7.98 dia. for cutting2″ depth	YES/NO
6	6mm Hexagon Key	YES/NO
7	Ejector pin	YES/NO

[1] SPECIFICATIONS OF JEPSON MAGNETIC DRILLING MACHINE

Model		**MAGPRO 150M42**
Voltages		110/230V, 50/60Hz
Power (input)		2,400W
Magnet Size		270 x 135 x 70 mm
Magnet Force on 20mm thick plate		17,600N
Overall Dimensions (H x W x L)		**790(530) x 205 x 300**
Stroke		**190 (240) mm**
RPM (No LOAD)		**1st. 60/80,**
		2nd.125/165
		3rd. 205/275,
		4th. 410/545
Net Weight		**42.5kg**
Packing Weight		
Hole capacity	Drilling	46mm
	Cutting	150mm
	Tapping	M42

Maximum hand/arm vibration magnitude: 0.82 m/s²
(measured at handle during operation in accordance with ISO5349, using a 22mm cutter through 13mm MS plate)

Average noise level during cutting at operator's 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.

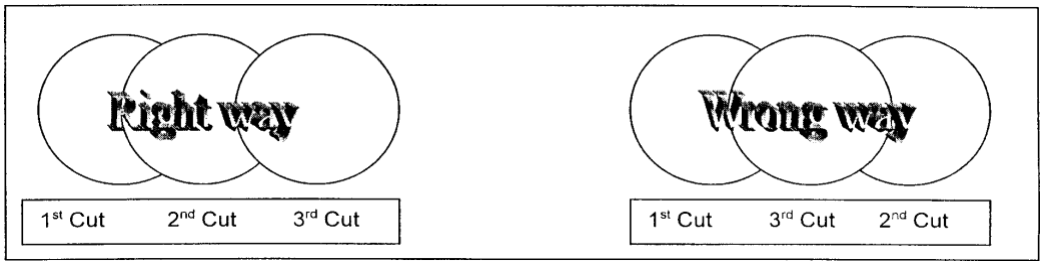
- Regularly inspect the machine and check that nuts and screws are tight.

- 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 in

[3] OPERATING INSTRUCTIONS

- Keep the inside of the cutter clear of swarf. It restricts the operating depth ofthe cutter.
- Ensure that the coolant bottle contains sufficient cutting oil to complete therequired 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 bydepressing 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 notincrease the speed of penetration.
- Always ensure that the slug has been ejected from the previous hole beforecommencing to cut the next.



(Right) (Wrong)

- Always cut overlapping holes as illustrated above – do not use excessive pressureand 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 fittingslide.(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 sowill 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:

Max. Length, m	IEC Standard, **mm²**
10	1.50
15	2.00

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

[5] MOUNTING OF CUTTERS

The machine has normal MT4 shank, 1-1/4" bore.
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" 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 wheremagnet will be located, or mechanically clamp magneticbase 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 goingto magnet during drilling cycle	Confirm power supply andoutput from control unit.
2) Excessive drilling pressure required.	Incorrectly re-sharpened, worn or chipped cutter	Re-sharpen or replace
	Gibs out of adjustmentor lack of lubrication	Lubricate gib and/or adjust grub screws
	Swarf accumulated (packed) inside cutter	Clear cutter
	Incorrect speed selection.	Select appropriate speed.

Problem	Cause	Remedy
3) Excessive cutter breakage	Incorrectly resharpened, worn or chipped cutter	Remove cutter, clean part thoroughly and replace
	The concentricity of the machine spindle is not accurate.	**Adjust the concentricity of machine.**
	Slide-ways need adjustment	Tighten slide-way
	Cutter not attachedtightly 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 sureoil is being metered into cutter when pilot is depressed.
	Incorrect speed selection.	Select appropriate speed.
4) Slide base easily slips or drops.	Gibs out of adjustment	Tighten handle adjustment bolt. Adjust the gib more tightened.
5) Arbor tang broken easily	The coupling of the arbor and spindle is not accurately formed.	After removing the arbor, reassemble it and verify that the arbor does not move.
6) Machine doesn't run after the jump	Switch contact undesirable	Repair and change switch
	Brush and commutator poor contact	Repair or replace the electric brush
	Armature or stator coil burn out	Repair or replace the armature or stator
	Pcb is down or Fuse is tripped	Repair or replace the pcb, Replace the fuse.

[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 (Indication of arrow is based on worker's position)

1st- 60/80

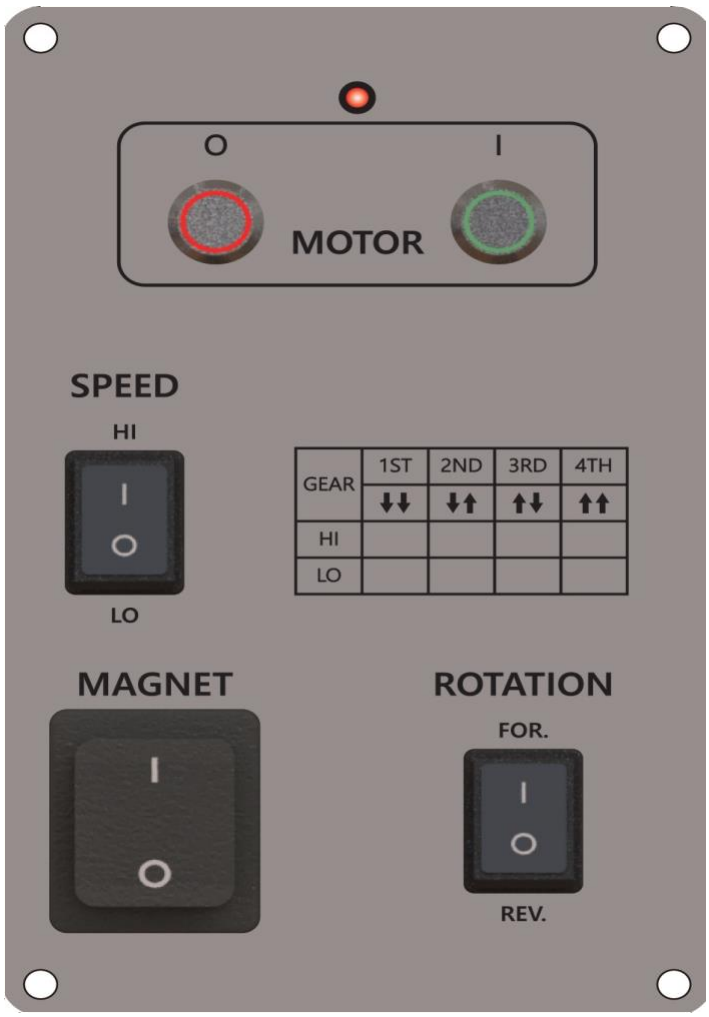
2nd-125/165

3rd-205/275

4th- 410/545

--NO LOAD RPM of each gear--

[8] 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: Counterclockwise)

[9] CIRCUIT

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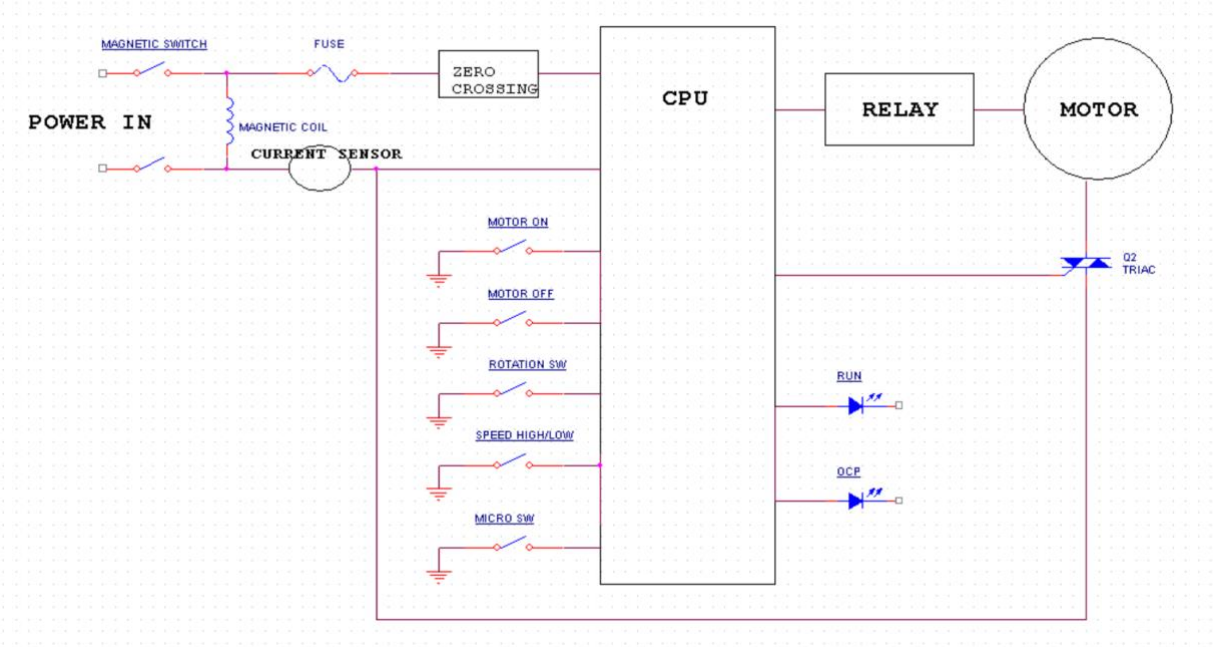


WARNING - THIS APPLIANCE MUST BE EARTHED!

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**.

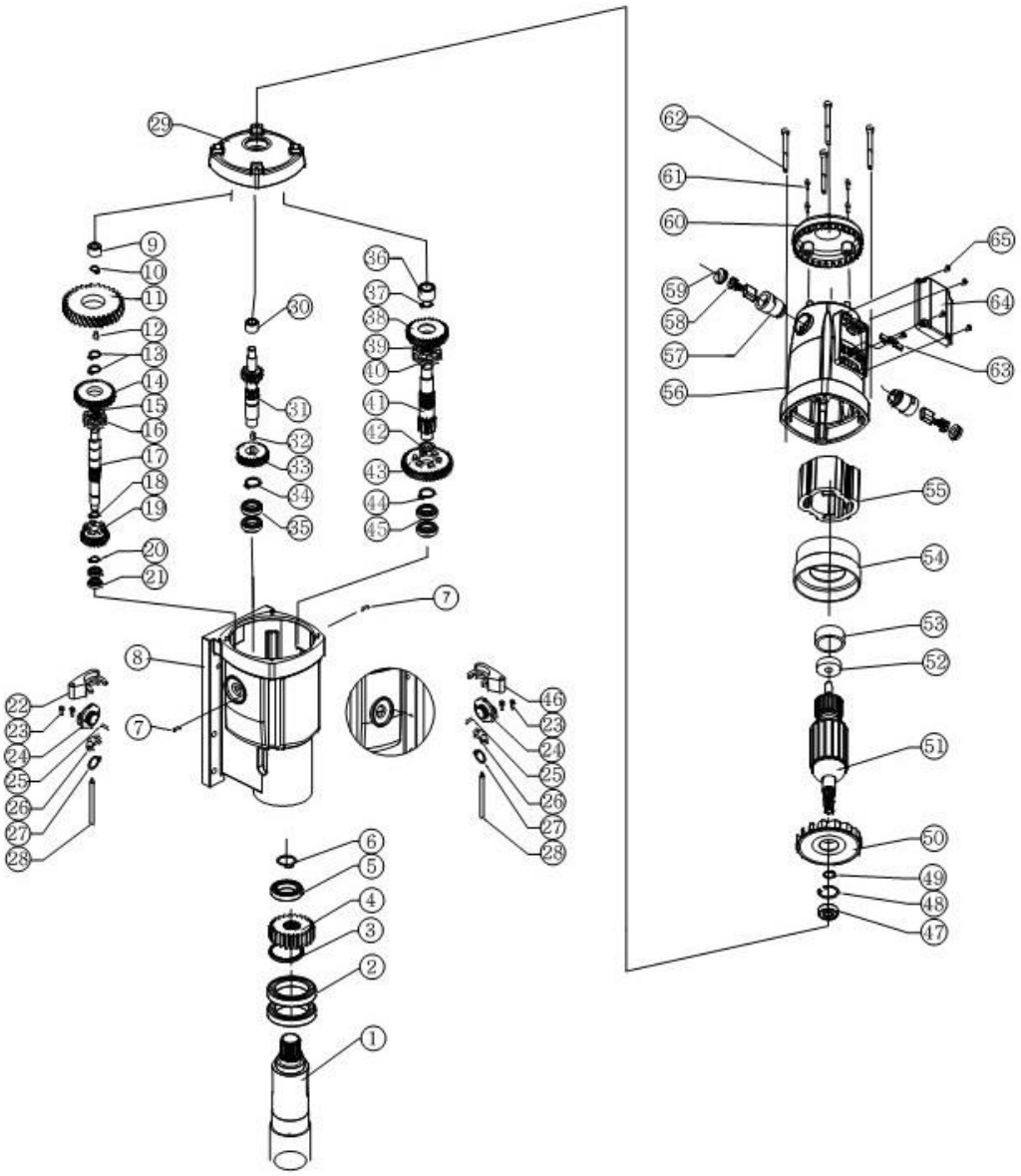
[10] SLIDE & GIB ADJUSTMENT -- Patented

1. New Sliding System: Machines have very exotic and stable sliding system. It consists of 3 main parts: Slide Board, Precisely ground Rail 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. Gib Adjustment: Adjust the Gib using side bolts loose or tight, if necessary.

[11] PART LIST

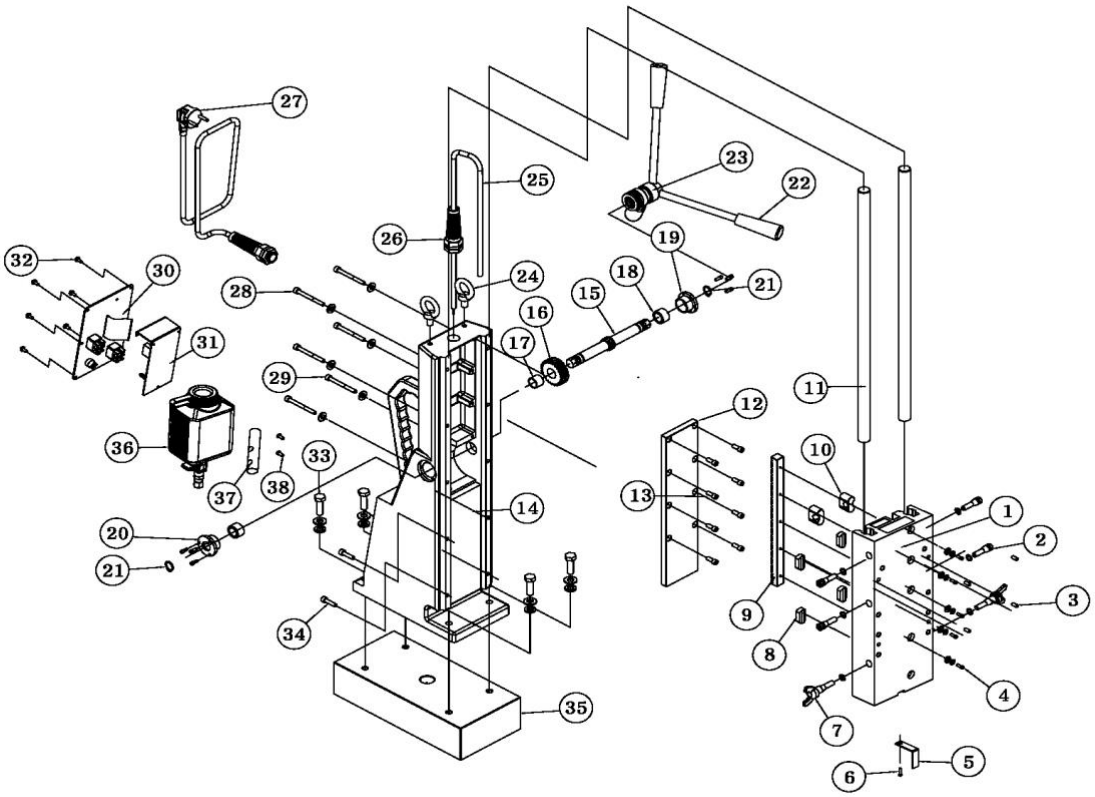
[PART A]



NO.	PART NO.	PART NAME	Q'ty
1	A01	SPINDLE	1
2	A02	BALL BEARING 6906 ZZ	2
3	A03	OIL SEAL	1
4	A04	MAIN GEAR 38T	1
5	A05	BALL BEARING 6908 ZZ	1
6	A06	SNAP RING	1
7	A07	PIN	2
8	A08	GEAR BOX	1
9	A09	NEEDLE BEARING NK 1012	1
10	A10	SNAP RING	1
11	A11	FIRST GEAR 42T	1
12	A12	KEY	1
13	A13	SNAP RING	2
14	A14	FIRST GEAR H 33T	1
15	A15	SNAP RING	1
16	A16	FIRST CLUTCH	1
17	A17	FIRST PINION	1
18	A18	SNAP RING	1
19	A19	FIRST GEAR L 22T	1
20	A20	SNAP RING	1
21	A21	BEARING 6800 ZZ	2
22	A22	FIRST CHANGE BLOCK	1
23	A23	SOCKET BOLT M3	4
24	A24	GEAR CHANGE KNOB	2
25	A25	PIN Φ3*8L	2
26	A26	GUIDE BRACKET	2
27	A27	SNAP RING	2
28	A28	GUIDE PIN	2
29	A29	INNER COVER	1
30	A30	NEEDLE BEARING NK 1012	1
31	A31	SECOND PINION	1
32	A32	KEY	1
33	A33	SECOND GEAR 27T	1
34	A34	SNAP RING	1

NO.	PART NO.	PART NAME	Q'ty
35	A35	BEARING 6800 ZZ	2
36	A36	NEEDLE BEARING NK1012	1
37	A37	SNAP RING	1
38	A38	THIRD GEAR H 36T	1
39	A39	SNAP RING	1
40	A40	THIRD CLUTCH	1
41	A41	THIRD PINION	1
42	A42	SNAP RING	1
43	A43	THIRD GEAR L 42T	1
44	A44	SNAP RING	1
45	A45	BEARING 6901 ZZ	2
46	A46	THIRD CHANGE BLOCK	1
47	A47	BEARING 6201 RSC3	1
48	A48	SNAP RING	1
49	A49	SNAP RING	1
50	A50	FAN	1
51	A51	ARMATURE ASS'Y	1
52	A52	RUBBER BUSHING	1
53	A53	BEARING 6200 ZZC3	1
54	A54	FAN GUIDE	2
55	A55	STATOR	2
56	A56	MOTOR HOUSING	2
57	A57	CARBON BRUSH HOLDER	1
58	A58	CARBON BRUSH	4
59	A59	CARBON BRUSH CAP	4
60	A60	HOUSING CAP	1
61	A61	HEX SOCKET BOLT M5	2
62	A62	HEX SOCKET BOLT M5 X L65	2
63	A63	WIRE SUPPORTER	1
64	A64	SIDE HOUSING COVER	2
65	A65	HEX SOCKET BOLT M4 X L10	2

[PART B]



NO.	PART NO.	PART NAME	Q'ty
1	B01	SLIDE	1
2	B02	O-RING ASSEMBLED STOPPER BOLT	4
3	B03	PIN PI6-L10	4
4	B04	HEX SOCKET BOLT M6-L15	5
5	B05	ARBOR STOPPER	1
6	B06	HEX SOCKET BOLT M5-L10	1
7	B07	WING BOLT M8-L20	2
8	B08	GIB A	4
9	B09	RACK GEAR	1

NO.	PART NO.	PART NAME	Q'ty
10	B10	GIB B	2
11	B11	RAIL BAR	2
12	B12	SLIDE PLATE	1
13	B13	HEX SOCKETBOLTM6-L15	8
14	B14	MAIN FRAME	1
15	B15	SLIDE PINION	1
16	B16	SLIDE GEAR	1
17	B17	BUSHING 17-15-1.5T	1
18	B18	BEARING TA1715Z	2
19	B19	SLIDE PINION R-COVER	1
20	B20	SLIDE PINION L-COVER	1
21	B21	SNAP RING STW-17	2
22	B22	HANDLE	3
23	B23	HANDLE JOINT ASS'Y	1
24	B24	EYE BOLT M10-L20	2
25	B25	WIRE HOSE	1
26	B26	CABLE GLAND ASS'Y	1
27	B27	POWER CABLE	1
28	B28	HEX SOCKETBOLT M6-L60	4
29	B29	HEX SOCKETBOLT M6-L80	2
30	B30	CONTROL PANEL, WITH SWITCH	1
31	B31	MAIN PCB	1
32	B32	TRUSS HEAD BOLT M4-L10	4
33	B33	HEX FLAT BOLT M10-L35	4
34	B34	HEX SOCKETBOLT M6-L25	4
35	B35	ELECTROMAGNET	1
36	B36	COOLANT TANK ASS'Y	1
37	B37	COOLANT TANK HOLDER	1
38	B38	HEX SOCKETBOLT M4-L20	2