Magnetic Drilling Machine

MAGPRO 200M52

OPERATOR'S MANUAL

JEPSON POWER GMBH
ERNST-ABBE-STRAßE 5
D - 52249 ESCHWEILER

Email: info@jepson.de
Web: www.drycutter.com
Tel:(+49) (0) 2403 64 55 0

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—MT5 (1 1/4" bore)	YES/NO
4	Pilot Pin for 25mm cutters	YES/NO
5	Pilot Pin for 50mm cutters	YES/NO
6	6mm Hexagon Key	YES/NO
7	Drill drift	YES/NO

[1] SPECIFICATIONS OF MODEL MAGPRO 200M52

Model		MAGPRO 200M52	
Voltages		**110/230V, 50/60Hz**	
Power (input)		2,850W	
Magnet Size		295 x 140 x 70 mm	
Magnet Force on 20mm thick plate		26,800N	
Overall Dimensions (H x W x L)		730(955) x 280 x 455	
Stroke		330mm	
RPM (No LOAD)		1st.	45/60
		2nd.	90/115
		3rd.	180/235
		4th.	315/435
Net Weight		52 kg	
Packing Weight			
Hole capa.	Drilling	Ø 56mm	
	Cutting	Ø 200mm	
	Tapping	M52	

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 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.

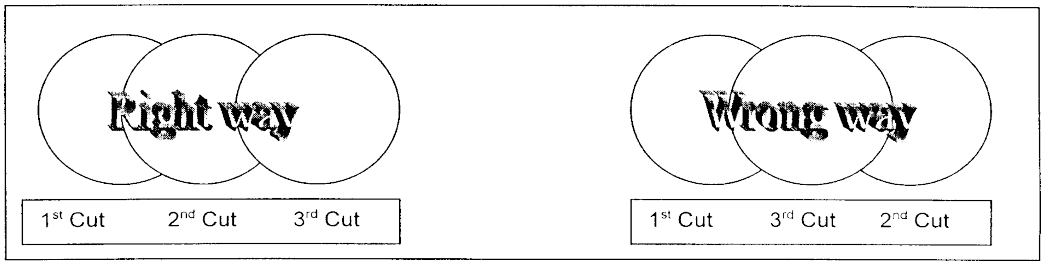
- Regularly inspect the machine and check that nuts and screws are tight.

- 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 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 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:

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

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

[6] MOUNTING OF CUTTERS

The machine has normal MT5 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.

[5] 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.

[6] 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 45/60

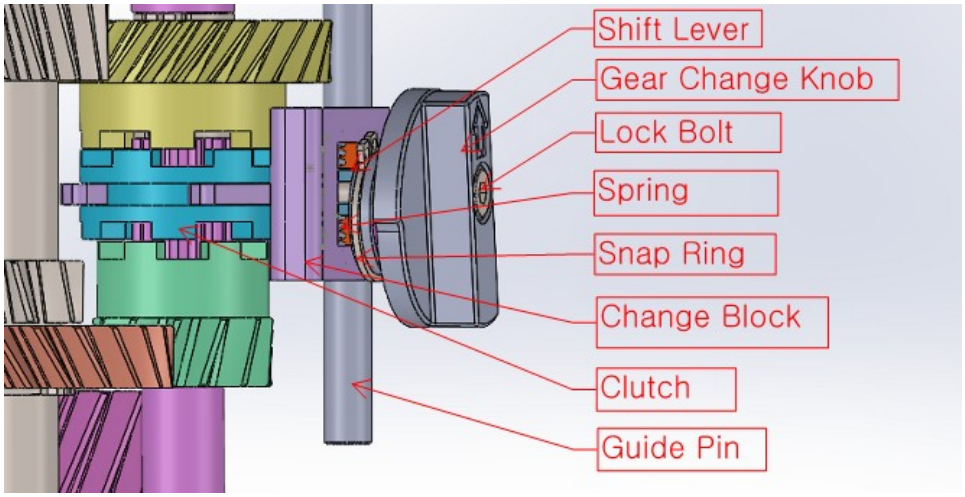

2nd 90/115


3rd 180/235


4th 315/435

--NO LOAD RPM of each gear--

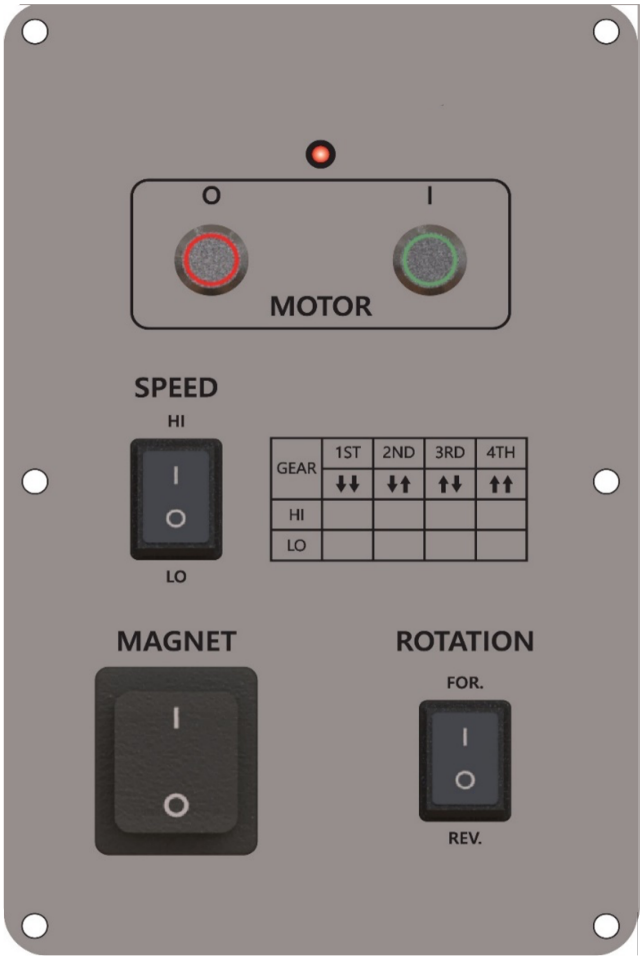
3. Disassembly and Assembly Procedure of Gear Shift Mechanism



1) Place the gear in neutral position and loosen the LOCK BOLT of the KNOB.
2) Separate Gear Change KNOB.
3) Pull out the guide pin from the change block.

For assembly, follow the steps in reverse order.

[7] CONTROL PANEL



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

② **SPEED** :

- HI : Gear RPM
- LO : Electronic RPM

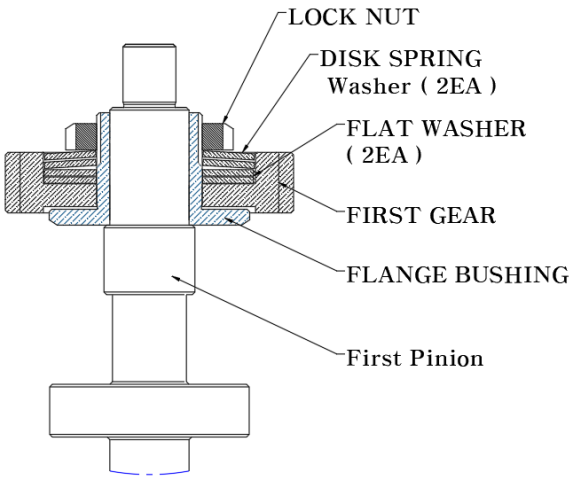
③ **ROTATION SWITCH**

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

④ **LED : Indication of Overcurrent**

[8] PROTECTION-GEAR SLIP

MAGPRO 200M52 has slip system for protection
against overload in cutters **at first gear**.
Adjust the torque of LOCK NUT
with torque wrench.
Normally MAGPRO 200M52 is set at 100 Nm



[9] GIB ADJUSTMENT

1. New Sliding System : This machines has a very innovative and stable sliding system. It consists of 3 main parts ; Slide Board, Precisely Ground Bar & Adjustment Gib.
It helps to cut comparatively bigger holes easier than the standard dove-tail system without any problematic movement in sliding area.
2. Gib Adjustment : Adjust the Gib using side bolts loose or tight, if necessary.

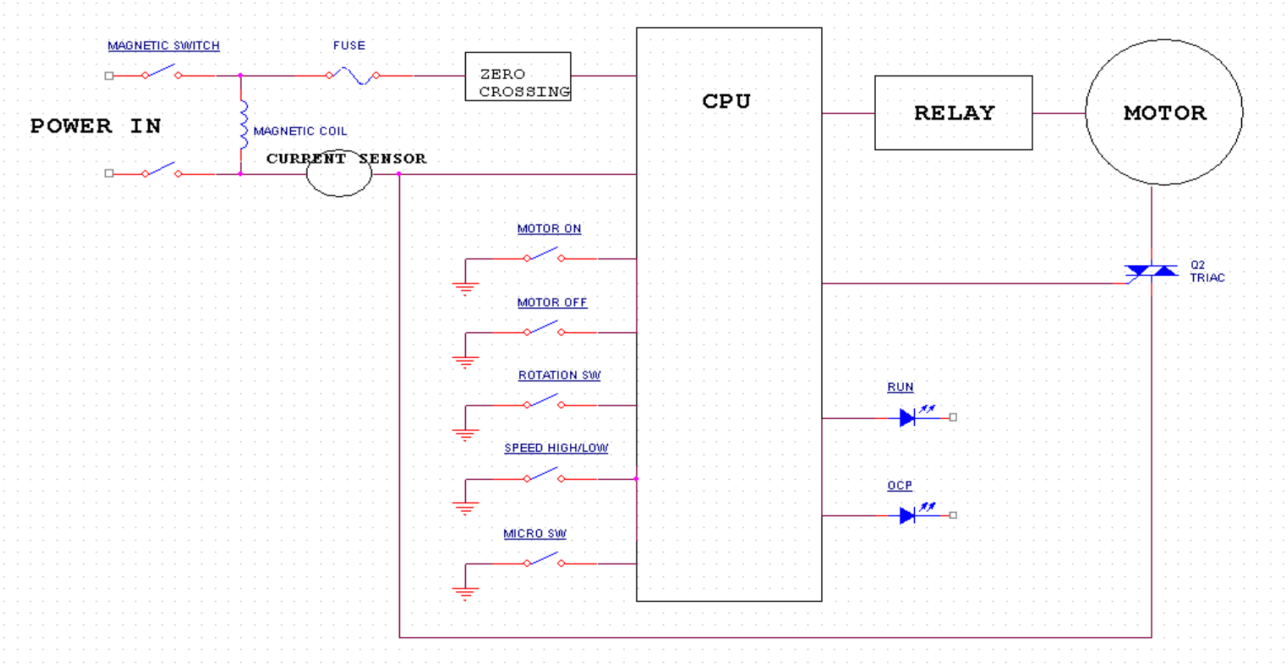
[10] OVERLOAD PROTECTION

MAGPRO 200M52 is an extreme heavy duty machine. So it has an electronic overload protection system for unexpected over-torque during drilling or tapping.

Normally the sensor is set at 20A(230V)/30A(110V) at factory. But if necessary it can be adjusted.

[11] CIRCUIT & CONNECTION WIRINGDIAGRAM

1. CIRCUIT



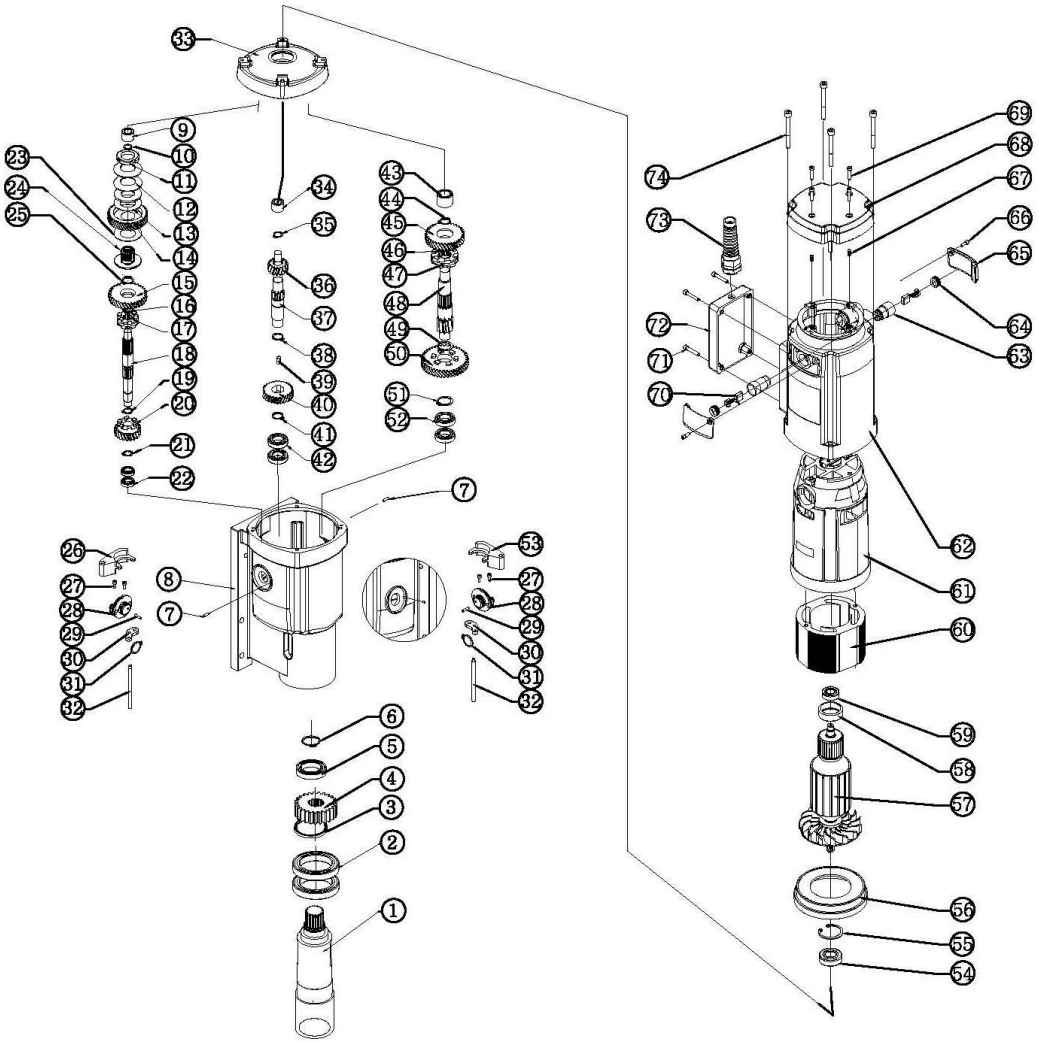
WARNING - THIS APPLIANCE MUST BE GROUNDED!

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] PART LIST

PART A

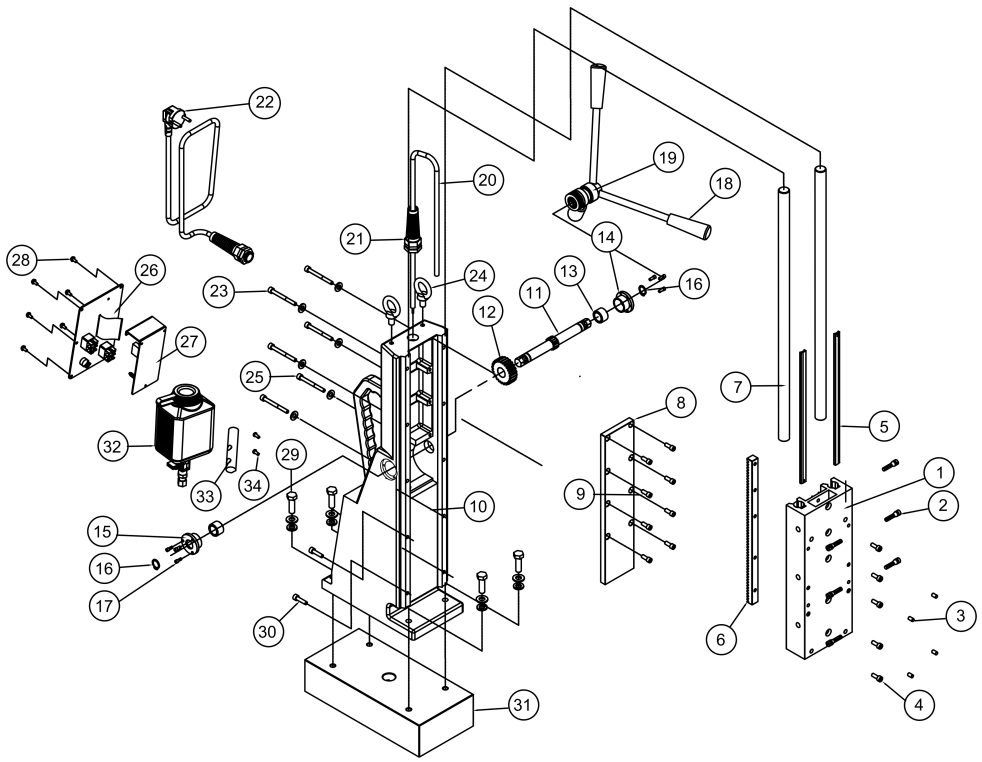


NO.	PART NO.	PART NAME	Q'ty
1	A01	SPINDLE	1
2	A02	BALL BEARING 6910ZZ	2
3	A03	OIL SEAL	1
4	A04	MAIN GEAR	1
5	A05	BALL BEARING 6906 2RSC3	1
6	A06	SNAP RING	1
7	A07	PIN	1
8	A08	GEAR BOX	1
9	A09	NEEDLE BEARING NK 1012	1
10	A10	SNAP RING	1
11	A11	LOCKET NUT AN04	1
12	A12	DISK SPRING	1
13	A13	WASHER	1
14	A14	FIRST GEAR	1
15	A15	FIRST GEAR H	1
16	A16	SNAP RING	1
17	A17	FIRST CLUTCH	1
18	A18	FIRST PINION	1
19	A19	SNAP RING	1
20	A20	FIRST GEAR L	1
21	A21	SNAP RING	1
22	A22	BEARING 6800ZZ	2
23	A23	BUSH PIN Φ3*8L	1
24	A24	SLIP BUSH	2
25	A25	SNAP RING	1
26	A26	FIRST CHANGE BLOCK	2
27	A27	SOCKET BOLT M3	1
28	A28	GEAR CHANGE KNOB	1
29	A29	PIN Φ3*8L	1
30	A30	GUIDE BRACKET	1
31	A31	SNAP RING	1
32	A32	GUIDE PIN	1
33	A33	INNER COVER	1
34	A34	NEEDLE BEARING NK 1012	1

NO.	PART NO.	PART NAME	Q'ty
35	A35	SNAP RING	1
36	A36	SECOND PINION GEAR	1
37	A37	SECOND PINION	1
38	A38	SNAP RING	1
39	A39	KEY	1
40	A40	SECOND GEAR L	1
41	A41	SNAP RING	1
42	A42	BEARING 6902 ZZ	2
43	A43	NEEDLE BEARING NK 1416	1
44	A44	SNAP RING	1
45	A45	THIRD GEAR H	1
46	A46	SNAP RING	1
47	A47	THIRD CLUTCH	1
48	A48	THIRD PINION	1
49	A49	SNAP RING	1
50	A50	THIRD GEAR L	1
51	A51	SNAP RING	1
52	A52	BEARING 6902 ZZ	2
53	A53	THIRD CHANGE BLOCK	1
54	A54	BEARING 6202 2RSC3	1
55	A55	SNAP RING	1
56	A56	FAN GUIDE	1
57	A57	ARMATURE ASS'Y	1
58	A58	RUBBER BUSHING	1
59	A59	BEARING NTN 6201UU	1
60	A60	STATOR	1
61	A61	MOTOR INNER COVER	1
62	A62	MOTOR HOUSING	1
63	A63	CARBON BRUSH HOLDER	2
64	A64	CARBON BRUSH CAP	2
65	A65	SIDE HOUSING COVER	2
66	A66	SOCKET BOLT M4	2
67	A67	SOCKET BOLT M5	2
68	A68	HOUSING CAP	1
69	A69	SOCKET BOLT M4	4

NO.	PART NO.	PART NAME	Q'ty
70	A70	CARBON BRUSH	2
71	A71	SOCKET BOLT M4	4
72	A72	WIRE COVER	1
73	A73	CABLE GRAND ASS'Y	1
74	A74	SOCKET BOLT M6	4

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	GIB	2
6	B06	RACK GEAR	1
7	B07	RAIL BAR	2
8	B08	SLIDE PLATE	1
9	B09	HEX SOCKETBOLT M5-L12	8

NO.	PART NO.	PART NAME	Q'ty
10	B10	MAIN FRAME	1
11	B11	SLIDE PINION	1
12	B12	SLIDE GEAR	1
13	B13	BEARING TA1715Z	2
14	B14	SLIDE PINION R-COVER	1
15	B15	SLIDE PINION L-COVER	1
16	B16	SNAP RING STW-17	2
17	B17	HEX BOLT M4 X L10	4
18	B18	HANDLE	3
19	B19	HANDLE JOINT ASS'Y	1
20	B20	WIRE HOSE	1
21	B21	CABLE GLAND ASS'Y	1
22	B22	POWER CABLE	1
23	B23	HEX SOCKET BOLT M6-L60	4
24	B24	EYE BOLT M10 X L20	2
25	B25	HEX SOCKET BOLT M6-L80	2
26	B26	CONTROL PANEL, WITH SWITCH	1
27	B27	MAIN PCB	1
28	B28	HEX BOLT M4-L10	4
29	B29	HEX FLAT BOLT M10-L35	4
30	B30	HEX SOCKETBOLT M6-L25	4
31	B31	ELECTROMAGNET	1
32	B32	COOLANT TANK ASS'Y	1
33	B33	COOLANT TANK HOLDER	1
34	B34	HEX SOCKETBOLT M4-L12	2