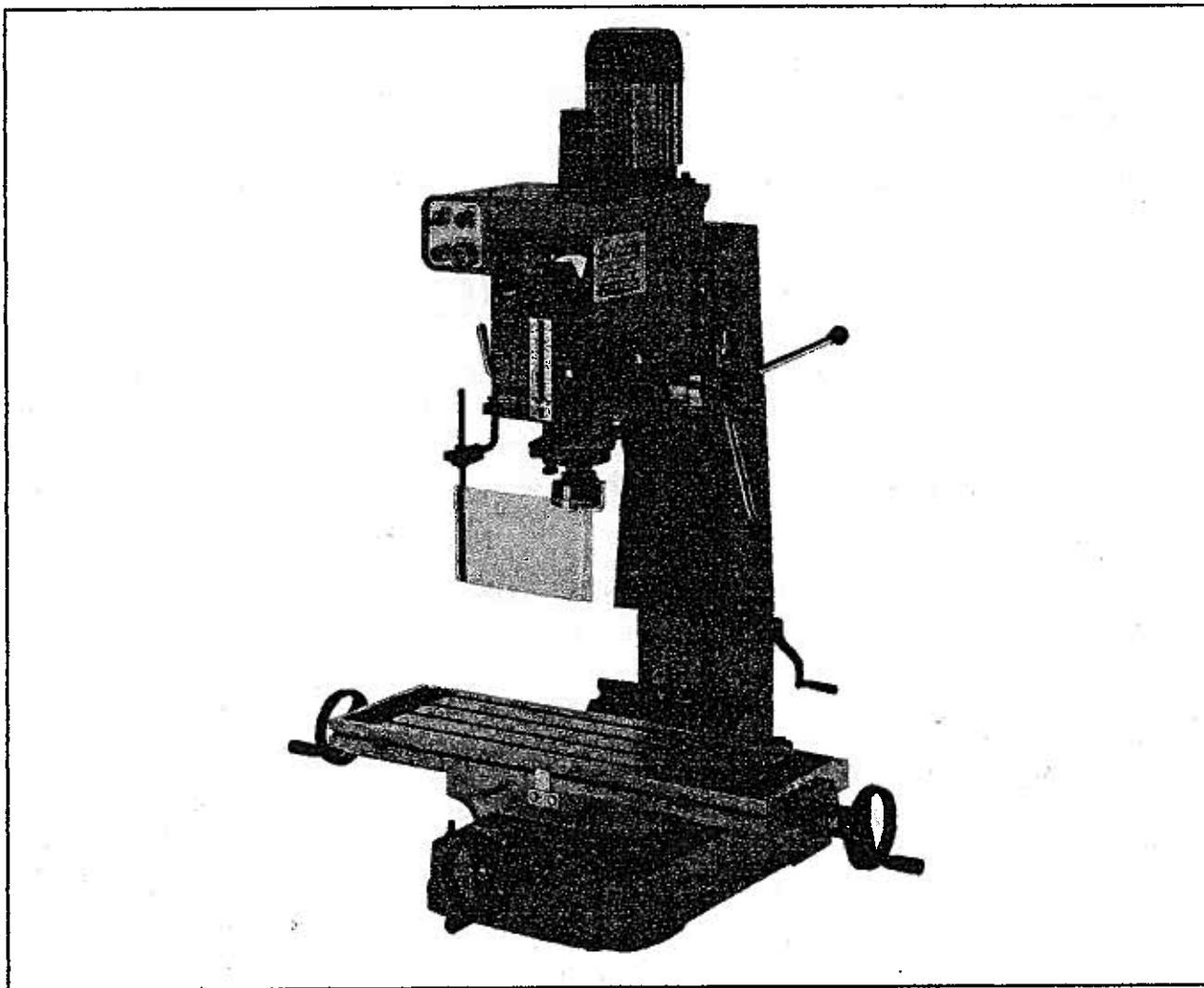


Grizzly
Industrial, Inc.®

MODEL G0519
MILL/DRILL/TAPPING MACHINE
OWNER'S MANUAL





WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.



MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G0519 MILL/DRILL/TAPPING MACHINE

Product Dimensions:

Weight..... 620 lbs.
 Length/Width/Height..... 31-1/2 x 46-1/2 x 57 in.
 Foot Print (Length/Width)..... 24 x 15-3/4 in.

Shipping Dimensions:

Type..... Wood Crate
 Content..... Machine
 Weight..... 673 lbs.
 Length/Width/Height..... 31 x 35 x 46 in.

Electrical:

Switch..... Push Button/Reversing
 Switch Voltage..... 220V
 Cord Length..... 10 ft.
 Cord Gauge..... 18 gauge
 Recommended Breaker Size..... 10 amp
 Plug..... No
 Phase Converter..... G5842, G5844

Motors:

Main

Type..... TEFC Induction
 Horsepower..... 1 HP
 Voltage..... 220V
 Prewired..... 220V
 Phase..... Three
 Amps..... 4-1/4A
 Speed..... 1725 RPM
 Cycle..... 60 Hz
 Number Of Speeds..... 1
 Power Transfer Gear Drive
 Bearings..... Shielded, Permanently Lubricated

Main Specifications:

Operation Info

Spindle Travel..... 4-3/4 in.
 Swing..... 20-1/2 in.
 Longitudinal Table Travel..... 21-5/8 in.
 Cross Table Travel..... 7-7/8 in.
 Head Travel..... 15-3/4 in.
 Head Tilt..... Left and Right 90 deg.
 Max. Dist Spindle To Column..... 10-1/4 in.
 Max. Dist Spindle To Table..... 20 in.
 Drilling Cap For Cast Iron..... 1-5/8 in.
 Drilling Cap For Steel..... 1-5/8 in.
 No. Of Vert. Spindle Speeds..... 6
 Range Of Vert. Spindle Speeds..... 120, 210, 340, 670, 1180, 1970 RPM
 Quill Dia..... 3 in.

The information contained herein is deemed accurate as of 3/5/2007 and represents our most recent product specifications. Due to our ongoing improvement efforts, this information may not accurately describe items previously purchased.

Table Info

Table Length.....	32-1/4 in.
Table Width.....	9-1/2 in.
Table Thickness.....	1-3/4 in.
No. Of T Slots.....	4
T Slots Width.....	1/2 in.
T Slots Height.....	7/8 in.
T Slots Centers.....	2-1/4 in.
Stud Size.....	3/8 in.

Lead Screw Info

Lead Screw Diameter.....	0.950 in.
Lead Screw TPI.....	10
Lead Screw Length.....	38 in.

Construction

Spindle Housing Const.....	Cast Iron
Table Const.....	Precision Ground Cast Iron
Head Const.....	Cast Iron
Column Const.....	Cast Iron
Base Const.....	Precision Ground Cast Iron
Paint.....	Enamel

Other

Collars Calibrated.....	0.001 in.
Optional Stand.....	G5944
Mobile Base.....	G7314

Spindle Info

Spindle Taper.....	R-8
End Milling Cap.....	1-1/8 in.
Face Milling Cap.....	3 in.
Draw Bar Diameter.....	7/16 in.
Draw Bar TPI.....	7/16 - 20
Draw Bar Length.....	16-3/4 in.
Spindle Bearings.....	Ball Bearing

Other Specifications:

Country Of Origin	China
Warranty	1 Year
Serial Number Location	ID Label on Head Casting
Assembly Time	45 minutes

Features:

- Tapping Switch
- Auto and Manual Feed Reverse
- Eye Shield
- Quill Lock
- Reversing Switch
- Direct Drive

The information contained herein is deemed accurate as of 3/5/2007 and represents our most recent product specifications. Due to our ongoing improvement efforts, this information may not accurately describe items previously purchased.

SECTION 1: SAFETY

WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

- 1. READ THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.**
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.

WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Maintain stability and balance at all times.
23. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.

WARNING

Additional Safety for Milling Machines

- 1. UNDERSTANDING CONTROLS.** Make sure you understand the use and operation of all controls.
- 2. SAFETY ACCESSORIES.** Always use a chip guard in addition to your safety glasses when milling to prevent bodily injury.
- 3. WORK HOLDING.** Before starting the machine, be certain the workpiece has been properly clamped to the table. NEVER hold the workpiece by hand when using the mill.
- 4. CHUCK KEY SAFETY.** Always remove your chuck key, drawbar wrench, and any service tools immediately after use.
- 5. SPINDLE SPEEDS.** Select the spindle speed that is appropriate for the type of work and material. Allow the mill/drill to gain full speed before beginning a cut.
- 6. POWER DISRUPTION.** In the event of a local power outage during use of the mill, turn **OFF** all switches to avoid possible sudden start up once power is restored.
- 7. SPINDLE DIRECTION CHANGES.** Never reverse spindle direction while the mill/drill is in motion.
- 8. STOPPING SPINDLE.** DO NOT stop the mill/drill using your hand against the chuck.
- 9. BE ATTENTIVE.** DO NOT leave mill/drill running unattended for any reason.
- 10. MACHINE CARE AND MAINTENANCE.** Never operate the mill with damaged or worn parts. Maintain your mill in proper working condition. Perform routine inspections and maintenance promptly. Put away adjustment tools after use.
- 11. DISCONNECT POWER.** Make sure the mill is turned **OFF**, disconnected from its power source and all moving parts have come to a complete stop before starting any inspection, adjustment, or maintenance procedure.
- 12. AVOIDING ENTANGLEMENT.** Keep loose clothing articles such as sleeves, belts or jewelry items away from the mill spindle. Never wear gloves when operating the mill.
- 13. TOOL HOLDING.** Always use the proper tools for the material you are milling. Make sure they are held firmly in the proper tool holder for the job.
- 14. CLEAN-UP.** DO NOT clear chips by hand. Use a brush, and never clear chips while the mill is turning.
- 15. CUTTING TOOL INSPECTION.** Inspect drills and end mills for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked cutting tools immediately. Handle new cutting tools with care. Leading edges are very sharp and can cause lacerations.
- 16. EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

WARNING

Like all machines there is danger associated with this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

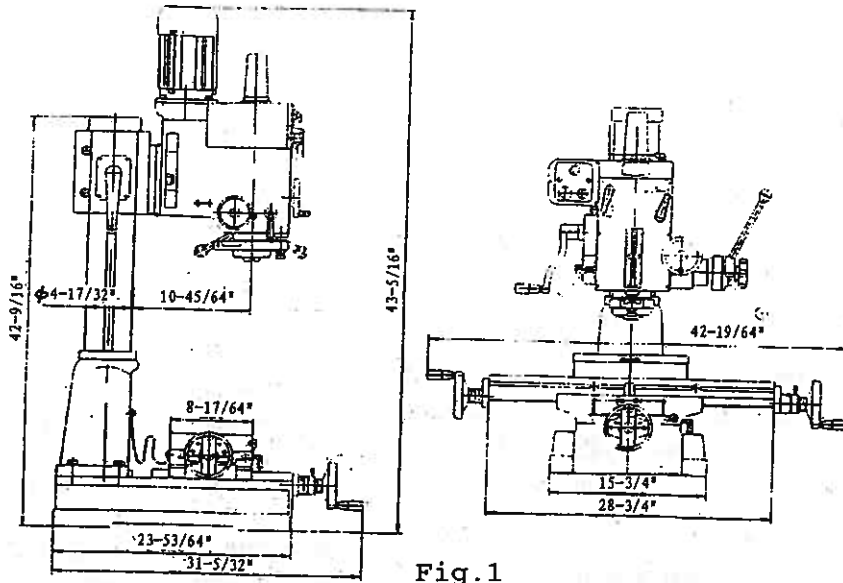


Fig.1

G0519

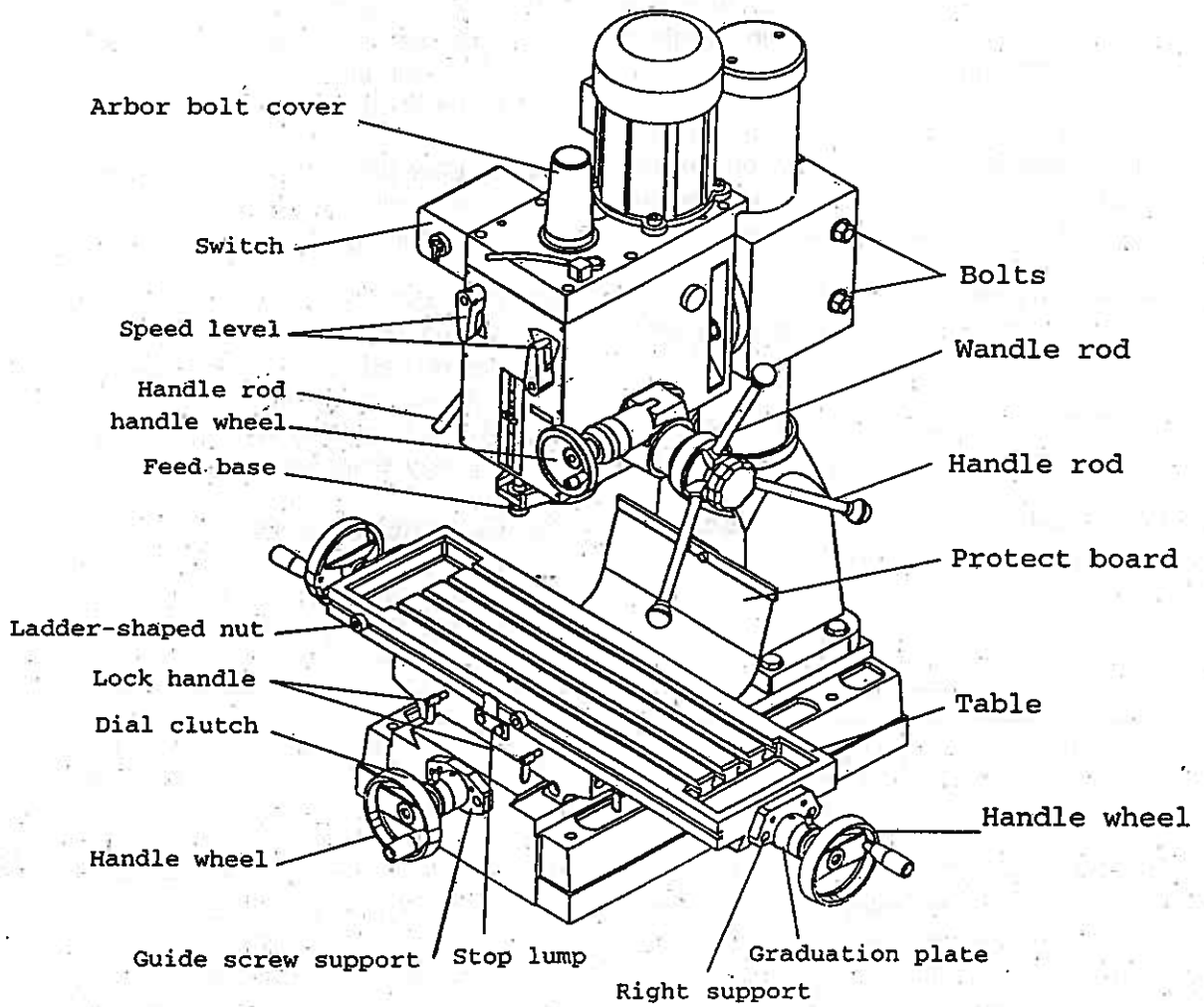


Fig.2

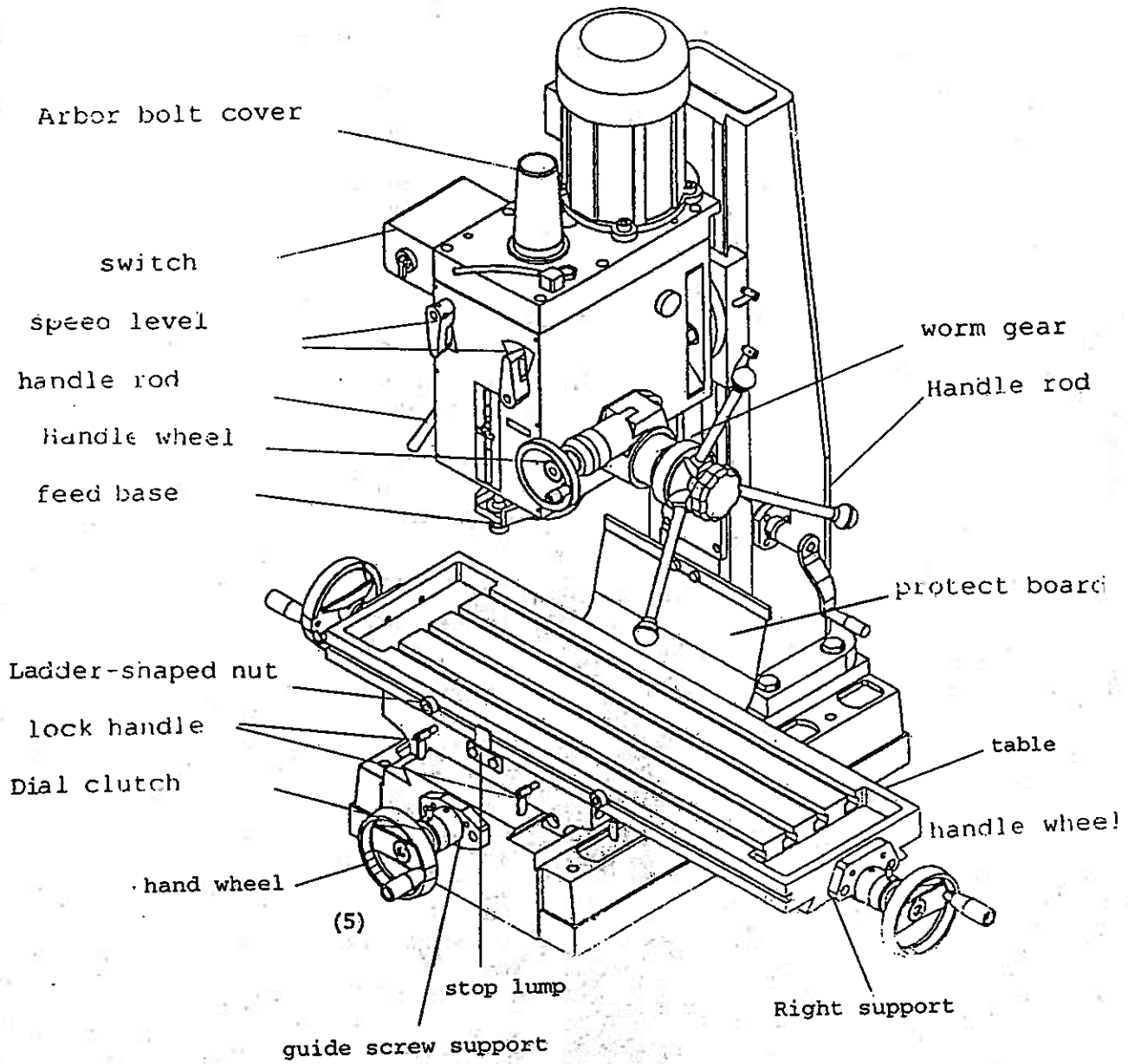


Fig.3

Speed changing

The main driving route of the machine is as follows: motor ---three groups of gears----splined sleeve ---spindle , when using a motor with a 1400r/min as power, 6 spindle speeds from 95 r/min to 1600 r/min can be obtained by shifting the position of sliding gears. If it is needed to change the spindle speed. **Please turn off the power at first**, then turn the changing -speed handle to the required position.

Note: Before changing the speed, the power must be turned off at first.

r/min	L1	L2	L3	H1	H2	H3
50Hz	95	170	280	540	960	1600
60Hz	120	210	345	670	1180	1970

There are two forms of the spindle feeding mechanism. One is the direct feeding form: The spindle feeding is performed by the drilling handle on the gear shaft directly. Under this condition, the spindle feeds 88mm as the gear shaft turns one time. The other form is micro-feeding form: when the hand feeding wheel drives the worm gear through the cone clutch driving the gear shaft to feed the spindle. The spindle feed 2.5mm as the hand feeding wheel turns one time

CLEANING

- 1) Your machine has been coated with a heavy grease to protect it in shipping. This coating should be completely removed before operating the machine. Commercial degreaser, kerosene or similar solvent may be used to remove the grease from the machine, but avoid getting solvent on belts or other rubber parts.
- 2) After cleaning, coat all bright work with a light lubrication. Lubricate all points with a medium consistency machine oil.

Lubrication

All ball bearings in your mill/drill are sealed for life, requiring no lubrication. Points requiring lubrication are:

- 1) Internal spline drive assembly. Keep this area well lubricated with a good grade non-hardening grease. Insert grease in the hole at the top of spindle pulley spline driver. lube twice yearly.
- 2) A light film of oil applied to the quill and column will reduce wear, prevent rust, and assure ease of operation.
- 3) Quill return spring should receive oil (SAE 20) once yearly. Remove cover plate and apply oil with squirt can or small brush.
- 4) **IMPORTANT:** The gear box should be oiled with a lubricant such as SAE 68 oil in level. **CHANGE OIL EVERY ONE YEAR.**

CHANGE THE GEAR BOX OIL: Tilt the head stock over as shown in Fig 2. Open the

oil drain plug to allow the oil to drain from the opening completely. Then lock the oil drain plug and turn the head to be upright position. Remove the oil filler plug fill the oil to the gear box until the oil lever reach the middle of oil fluid lever indicator. Then lock the plug.

5) Apply Lubriplate to quill pinion every 90 days.

Note: use extreme care when performing this operation and keep hands clear of pinch points. When using paraffin bar, do this only by turning the sheaves by hand. Do not apply with motor running.

PRECAUTION FOR OPERATION

Check all parts for proper condition before operation; if normal safety precautions are noticed carefully, this machine can provide you with standing of accurate service.

1) Before operation

a) Fill the lubricant.

b) In order to keep the accurate precision, the table must be free from dust and oil deposits.

c) Check to see that the tools are correctly set and the workpiece is set firmly.

d) Be sure the speed is not set too fast.

e) Be sure everything is ready before use.

2) After operation

a) Turn off the electric switch.

b) Turn down the tools.

c) Clean the machine and coat it with lubricant.

d) Cover the machine with cloth to keep out the dust.

3) Adjustment of head

a) To raise and lower the head, loosen the two heavy duty head lock nuts shown in Fig.4. Use the left side head handle to raise and lower the head on its rack and pinion mechanism. When the desired height is reached, tighten the bolts to avoid vibration.

b) Head may be rotated 360° by loosening the same bolts mentioned above. Adjust the head to the desired angle, then fix the heavy duty head locknuts. It is tighten the same time to fix the head if drilling & milling too much.

c) Unscrew 3 nuts while the workpiece needs to be bevel drilled. Turn to the degrees you wish on the scale, then screw the 3.

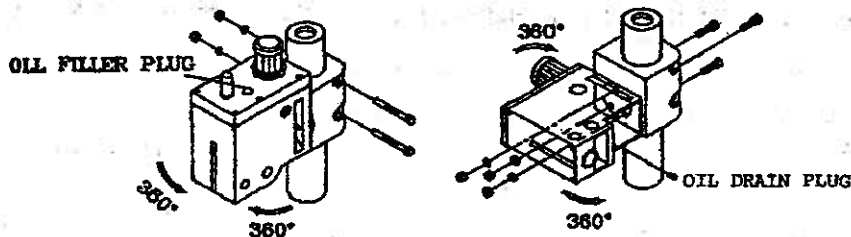


Fig. 4

4) Preparing for drilling (see Fig.5).

Turn off the knob make loose the taper body of worm gear and spring base. Then we decide spindle stroke setting the positive depth stop gauge for drilling blind hole or free state for pass hole.

5) Preparing for milling (see Fig.5).

a) Adjust the positive depth stop gauge to highest point position.

b) Turn tight of the knob be use to taper friction force coupling the worm gear and spring base. Then turning the handle wheel by micro set the spindle of workpiece machining height.

c) Lock the rack sleeve at the desired height with fixed bolt.

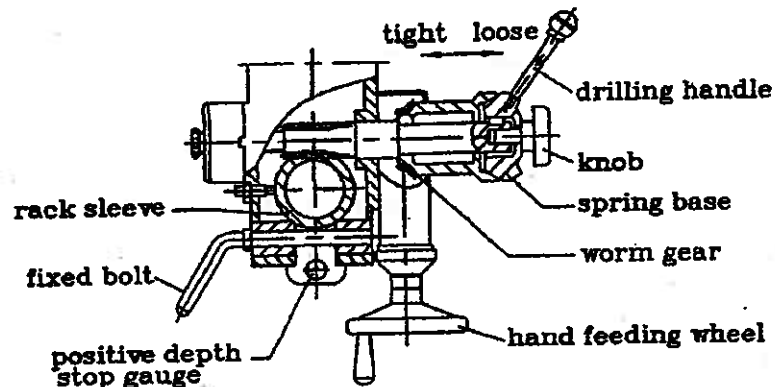


Fig.5

Quill return spring adjustment:

Spring tension for return of spindle, after hole drilling, has been pre-set at the factory. No further adjustment should be attempted unless absolutely necessary. Adjustment will probably be required if a multiple spindle drilling or tapping head is used. If adjustment is necessary, loosen lock screw while holding quill spring housing. Do not allow the housing to turn in your hand, or spring will unwind. Turn entire housing assembly clockwise the number of turns necessary to cause the quill to return to its up position. (Note: The flat of the spring housing pilot is lined up with the spring loading hole on the body of the spring housing.)

Reset lockscrew make sure point of screw mates to flat on the housing journal.

Adjusting table slack and compensate for wear (see Fig.6)

- 1) Your machine is equipped with jib strip adjustment to compensate for wear and excess slack on cross and longitudinal travel.
- 2) Clockwise rotation the job strip bolt with a big screw for excess slack otherwise a little counter clockwise if too tight.
- 3) Adjust the jib strip bolt until feel a slight drag when shifting the table.

Clamping, table base, and machine base (see Fig.6)

- 1) When milling longitudinal feed, it is advisable to lock the cross feed table travel to insure the accuracy of your work. To do this, tighten the small leaf screw on the right side of the table base.
- 2) To tighten the longitudinal feed travel of the table for cross feed milling, tighten the two small leaf screw on the front of the table base.
- 3) Adjustable travel stops are provided on the front of the table for control of cross travel and the desired milling length.

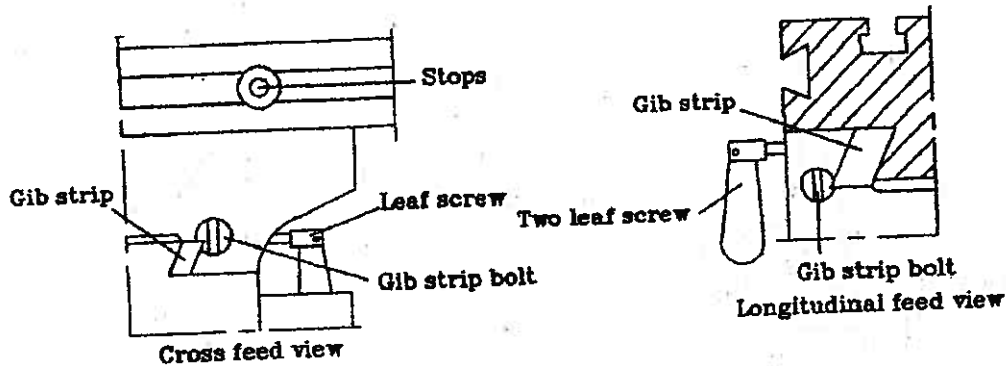
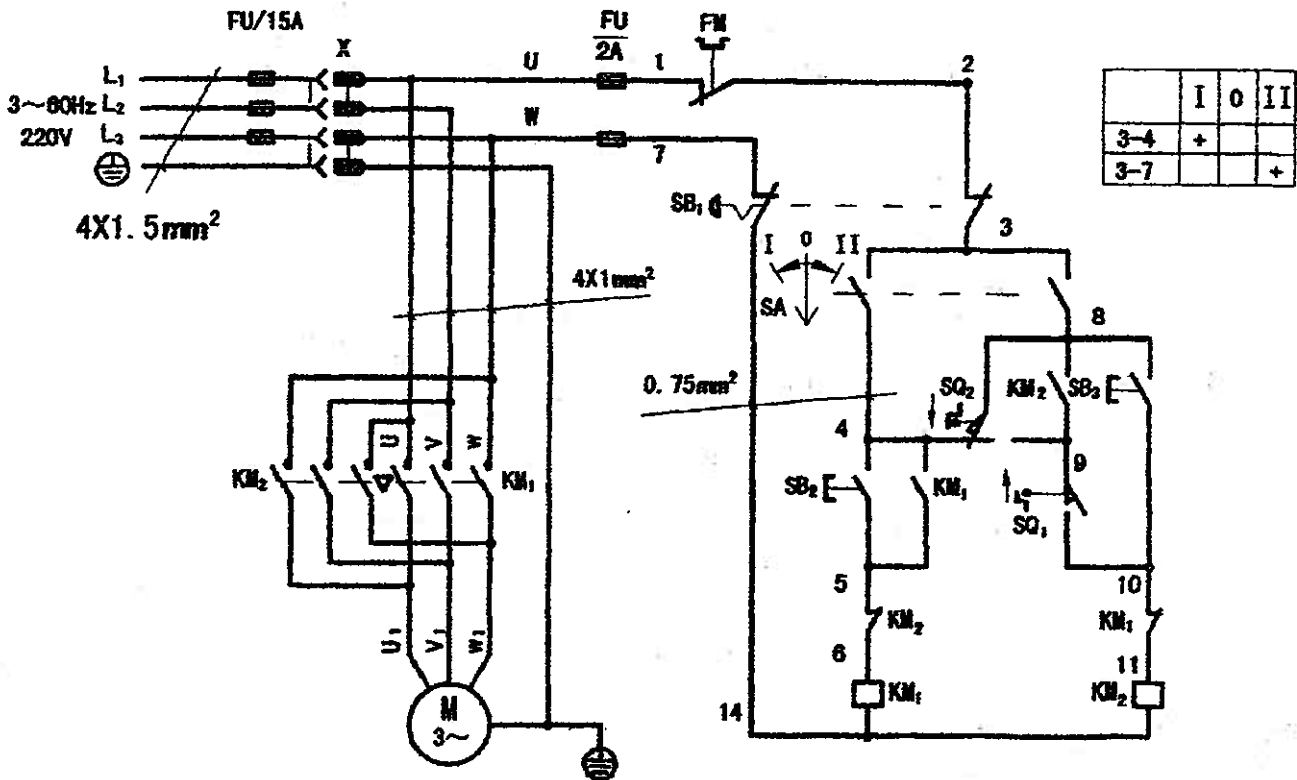


Fig.6

To change tool

- 1) Removing face mill or drill chuck arbor.
Loosen the arbor bolt at the top of the spindle shaft approximately 2 turns with a wrench. Rap the top of the arbor bolt with a mallet. After taper has been broken loose, holding chuck arbor on hand and turn detach the arbor bolt with the other hand.
- 2) To install face mill or cutter arbor.
Insert cutter and cutter arbor into the taper of spindle. Tighten arbor bolt detach securely, but do not over-tighten.
- 3) Removing taper drills.
 - a) Turn down the arbor bolt insert the taper drill into the spindle shaft.
 - b) Turn the rapid down handle rod down until the oblong hole in the rack sleeve appears. Line up this hole with the hole in the spindle. Insert key punch through holes and strike lightly with a mallet. This will force the taper drill out.

Electric system



Operation instructions:

1. DRILLING:

Turn the switch to the position of "DRILLING " push the "START" button.

At emergency, please push the "EMERGENCY STOP" button.

2. TAPPING:

Turn the switch to the position of "TAPPING" set up the tapping septh stop. Push the "START" button.

When the spindle reaches the depth you set up , the microswitch "SQ2"will work and the spindle will reverse. When it reaches the upper microswitch "SQ1", the machine will stop.

At emergency, please push the "EMERGENCY STOP"button and the machine will stop immediately. Then , loose the "EMERGENCY STOP"button. Push the "REVERSE"button and the spindle will reverse.

NOTE:

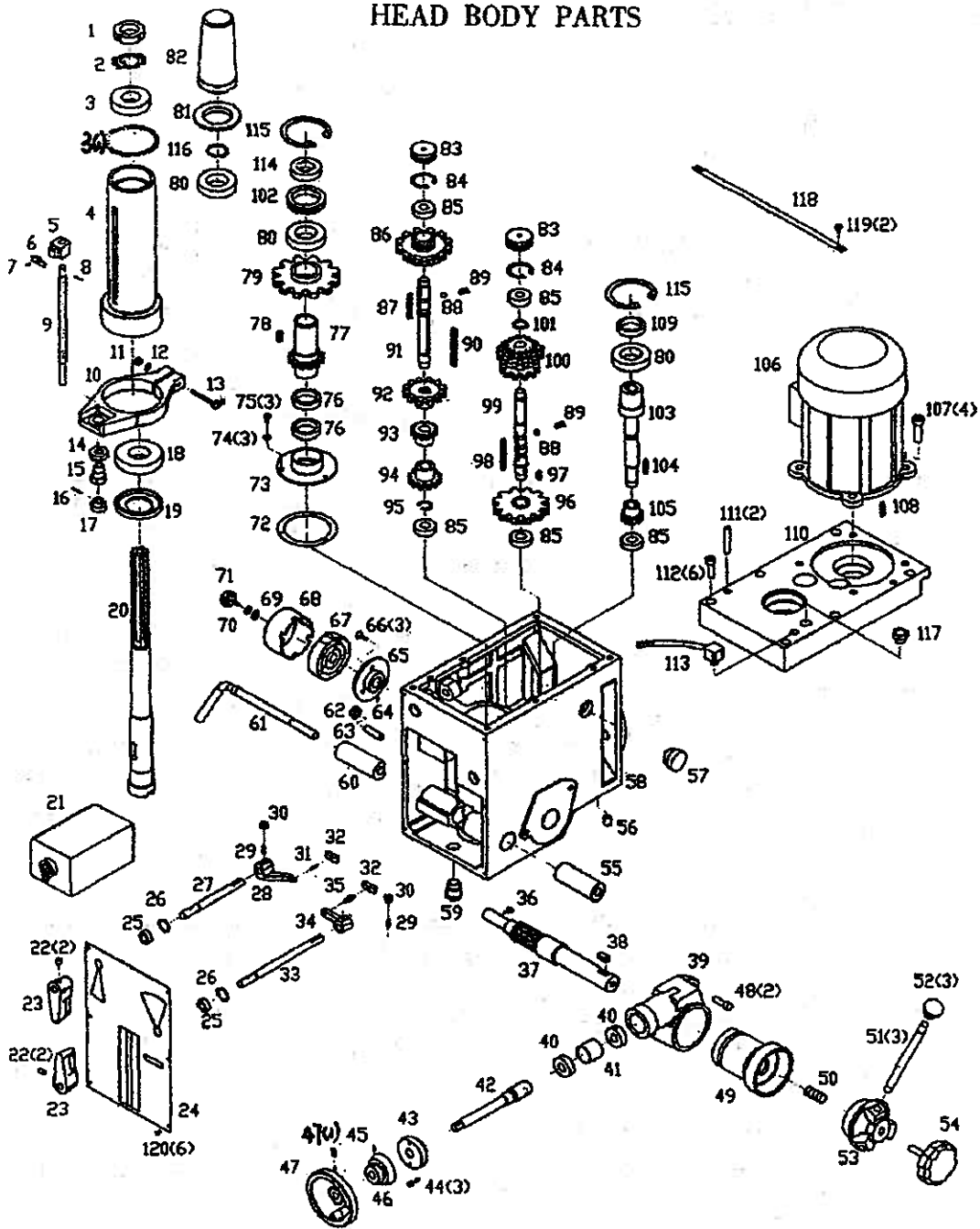
When the upper microswitch "SQ1" is active, the "REVERSE"button will become a "JOG"button and you can shift gear with the "JOG"button.

3.Attached please find the electricity diagram.

TROUBLE SHOOTING HINTS

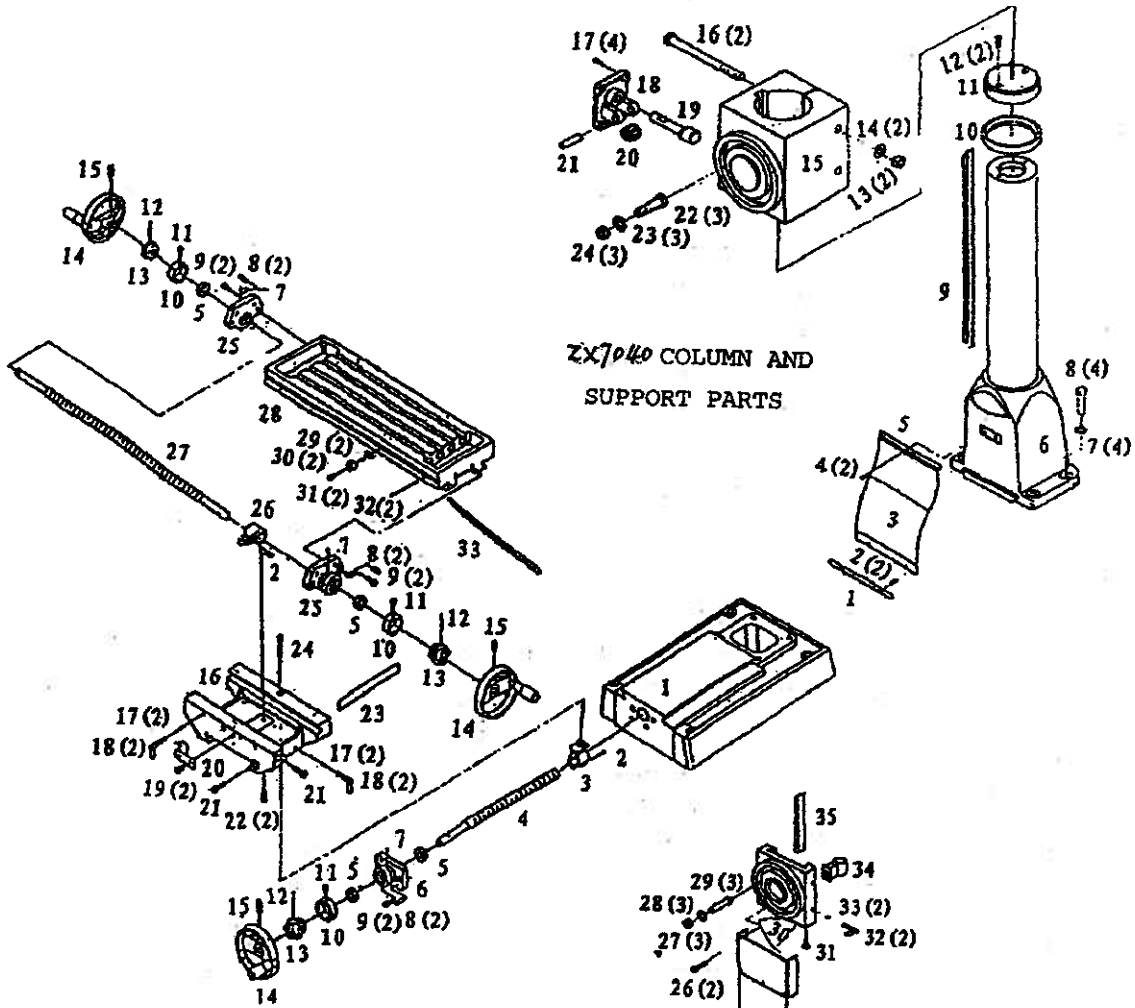
TROUBLE	PROBABLE CAUSE	REMEDY
Excessive vibration	1 Motor out-of-balance 2 Bad motor	1 Balance or replace problem motor 2 Replace motor
Motor stalls	1 Over feeding 2 Dull drill 3 Motor not building up to running speed 4 Bad motor	1 Reduce feed rate 2 Sharpen drill and keep sharp 3 Replace or repair motor. Check fuses in all three legs on three phase motors and replace if necessary 4 Replace motor
Noisy operation	1 Excessive vibration 2 Improper quill adjustment 3 Noisy spline 4 Noisy motor	1 Check remedy under excessive vibration 2 Adjust quill 3 Lubricate spline 4 Check motor bearings or for loose motor fan
Drill or tool heats up or burns work	1 Excessive speed 2 Chips not clearing 3 Dull tool 4 Feed rotate too slow 5 Rotation of drill incorrect 6 Failure to use cutting oil or coolant (on steel)	1 Reduce speed 2 Use pecking operation to clear chips 3 Sharpen tool or replace 4 Increase feed enough to clear chips 5 Reverse motor rotation 6 Use cutting oil or coolant on steel
Drill leads off	1 No drill spot 2 Cutting lips on drill off center 3 Quill loose in head 4 Bearing play	1 Center punch or center drill workpiece 2 Re grind drill 3 Tighten quill 4 Check bearings and reseal or replace if necessary
Excessive drill runout or wobble	1 Bent drill 2 Bearing play 3 Drill not seated properly in chucks	1 Replace drill .do not attempt to straighten 2 Replace or reseal bearings 3 Loosen, reseal and tighten chuck
Work or fixture comes loose or spins	Failure to clamp workpiece or work holding device to table	Clamp workpiece or work holding device to table surface

HEAD BODY PARTS



G0519 HEAD BODY

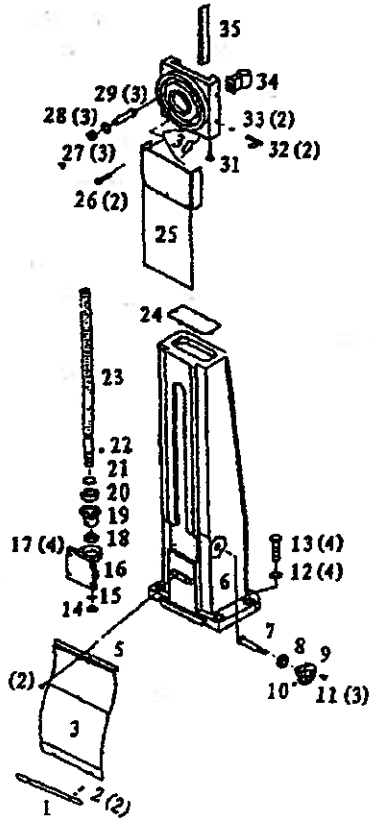
1	lock nut	41	separating ring	81	arbor bolt cover base
2	lock washer	42	worm shaft	82	arbor bolt cover
3	ball bearing	43	worm cover	83	cap
3(1)	washer	44	screw	84	retainging ring
4	sleeve	45	screw	85	ball bearing
5	fixed bolt	46	graduation plate	86	gear
6	scale-board	47	handle wheel	87	key
7	screw	47(1)	screw	88	steel ball
8	pin	48	screw	89	spring
9	graduated rod	49	worm gear	90	key
10	feed base	50	spring	91	shaftIII
11	nut	51	handle rod	92	gear
12	washer	52	handle ball	93	gear
13	screw	53	handle body	94	gear
14	nut	54	big ripple handle	95	retainging ring
15	support	55	fixed tight collar	96	gear
16	pin	56	oil cover	97	key
17	knob	57	oil pointer	98	key
18	ball bearing	58	head body	99	shaft II
19	bearing cup	59	fixed nut	100	gear
20	spindle	60	fixed tight collar	101	retainging ring
21	electric box	61	handle rod	102	separating ring
22	screw	62	nut	103	motor shaft
23	speed lever	63	screw	104	key
24	name plate	64	pin	105	gear
25	oil seal	65	spring base	106	motor
26	retainging ring	66	washer	107	screw
27	lever shaft(left)	67	spring plate	108	key
28	lever(left)	68	spring cap	109	oil seal
29	screw	69	washer	110	head body cover
30	nut	70	washer	111	pin
31	pin	71	small ripple handle	112	screw
32	lever bracket	72	airtight ring	113	pipe radiator
33	lever shaft(right)	73	airtight base	114	oil seal
34	lever(right)	74	washer	115	retainging ring
35	pin	75	screw	116	retainging ring
36	screw	76	oil seal	117	oil cap
37	pinion shaft	77	gear	118	degree-meter
38	key	78	key	119	screw
39	feed cover	79	gear	120	screw
40	ball bearing	80	ball bearing		



ZX7040 COLUMN AND SUPPORT PARTS

BASE PARTS

G0519 COLUMN AND SUPPORT



G0519 BASE PARTS

1 base	12 pin	23 gib strip
2 screw	13 dial clutch	24 screw
3 guide screw nut	14 handwheel	25 right support
4 protect board	15 screw	26 guide screw nut
5 ball bearing	16 slip saddle	27 guide screw
6 guide screw support	17 steel ball	28 table
7 oil cup	18 lock handle	29 ladder-shaped nut
8 pin	19 screw	30 stop lump
9 screw	20 stop lump	31 screw
10 graduation plate	21 gib srew nut	32 oil cup
11 screw	22 bolt	33 gib strip screw

COLUMN AND SUPPORT PARTS

1 protect board slice	9 rack	17 screw
2 bolt	10 link	18 bracket
3 protect board	11 column lid	19 worm shaft
4 bolt	12 washer	20 gear
5 protect board fixed	13 nut	21 shaft
6 column	14 washer	22 bolt
7 washer	15 toraise and lower	23 washer
8 bolt	16 bolt	24 nut

COLUMN AND SUPPORT PARTS

1 protect board slice	13 bolt	24 column nut
2 bolt	14 round nut	25 artidust plate
3 protect board	15 tab washer for round nut	26 screw
4 bolt		27 nut
5 protect board fixed	16 head raise bracket	28 washer
6 column	17 screw	29 boit
7 gear shaft	18 ball bearing	30 toruise and lower
8 ball bearing	19 gear	31 screw
9 head raise bracket	20 ball bearing	32 lock handle
10 oil cup	21 retainger ring	33 steel ball
11 screw	22 key	34 column nut
12 washer	23 guide screw	35 grib strip

WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of 1 year to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

Grizzly INDUSTRIAL, INC. WARRANTY CARD

Name _____
 Street _____
 City _____ State _____ Zip _____
 Phone # _____ Email _____ Invoice # _____
 Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. Of course, all information is strictly confidential.

1. How did you learn about us?

Advertisement Friend Catalog
 Card Deck Website Other:

2. Which of the following magazines do you subscribe to?

<input type="checkbox"/> Cabinet Maker	<input type="checkbox"/> Popular Mechanics	<input type="checkbox"/> Today's Homeowner
<input type="checkbox"/> Family Handyman	<input type="checkbox"/> Popular Science	<input type="checkbox"/> Wood
<input type="checkbox"/> Hand Loader	<input type="checkbox"/> Popular Woodworking	<input type="checkbox"/> Wooden Boat
<input type="checkbox"/> Handy	<input type="checkbox"/> Practical Homeowner	<input type="checkbox"/> Woodshop News
<input type="checkbox"/> Home Shop Machinist	<input type="checkbox"/> Precision Shooter	<input type="checkbox"/> Woodsmith
<input type="checkbox"/> Journal of Light Cont.	<input type="checkbox"/> Projects in Metal	<input type="checkbox"/> Woodwork
<input type="checkbox"/> Live Steam	<input type="checkbox"/> RC Modeler	<input type="checkbox"/> Woodworker West
<input type="checkbox"/> Model Airplane News	<input type="checkbox"/> Rifle	<input type="checkbox"/> Woodworker's Journal
<input type="checkbox"/> Modeltec	<input type="checkbox"/> Shop Notes	<input type="checkbox"/> Other:
<input type="checkbox"/> Old House Journal	<input type="checkbox"/> Shotgun News	

3. What is your annual household income?

\$20,000-\$29,000 \$30,000-\$39,000 \$40,000-\$49,000
 \$50,000-\$59,000 \$60,000-\$69,000 \$70,000+

4. What is your age group?

20-29 30-39 40-49
 50-59 60-69 70+

5. How long have you been a woodworker/metalworker?

0-2 Years 2-8 Years 8-20 Years 20+ Years

6. How many of your machines or tools are Grizzly?

0-2 3-5 6-9 10+

7. Do you think your machine represents a good value? Yes No

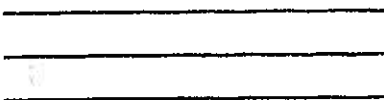
8. Would you recommend Grizzly Industrial to a friend? Yes No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: We never use names more than 3 times. Yes No

10. Comments: _____

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GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069



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