



Super Lux Mill

Operation Manual



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Warning: Failure to follow these rules may result in serious personal injury!

As with all machine there are certain hazards involved with the operation and use of the machine. Using the machine with respect and caution will considerably lessen the possibility of personal injury, if normal safety procedures are overlooked or ignored, the operator could be injured or the machine may be damaged.

This machine was designed for certain applications only. We strongly recommend that this machine is not modified and/or used for any other operation other than for which it was designed.

Safety Rules

1. For your own safety, read this instruction manual carefully before operating the machine, learn the machine application and limitations as well as the specific hazards particular to this type of machine.
2. Keep guards in place and in working order.
3. Make sure that the machine is correctly grounded. If the machine is with a three pronged plug, it should be plugged into a three prong socket. If an adaptor is used to accommodate a two-prong socket, the adaptor lug must be attached to a known ground. Never remove the third prong.
4. Remove any adjusting keys and wrenches, form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
5. Keep the work area clean. Cluttered areas and benches invite accidents.
6. Do not use this machine in dangerous environments, do not used this machine in damp or wet locations or expose it to rain. Keep the work area well lit.
7. Children and visitors should be kept away from the machine and a safe distance from the work area.
8. Make the workshop “childproof” with padlocks, master switches or by removing starter switches.
9. Do not force a tool or an attachment to perform a task for which it was not designed.
10. Wear proper safety apparel, loose clothing, gloves, neckties, rings, bracelets and other jewellery to ensure that they do not get caught in moving parts. Non-slip footwear is recommended as is protective hair coverings to contain long hair.
11. Always wear eye protection such as goggles or glasses. Always use a face mask if machining materials that create dust.
12. Make sure that the workpiece is securely clamped, use a vice or suitable clamps. Never use hands to hold a workpiece.
13. Don't overreach, keep a proper footing and balance at all times.
14. Keep tools in top condition, keep tools sharp and clean for the best and safest performance and follow instructions for lubricating and changing accessories.
15. Disconnect the power before carrying out any maintenance or changing accessories such as blades, bits and cutters etc.
16. Only use recommended accessories, the use of improper accessories may cause

injuries to the operator or damage to the machine.

17. Make sure the power switch is in the off position before plugging in the power supply.
18. Never stand on the machine, the machine could tip over or injuries can be caused if the cutting tool is contacted.
19. Check for any damaged parts before using the machine, check the guards and other parts to see that they are functioning correctly. Check the alignment of moving parts and any mounted parts and any other condition that may affect the machines operation. Any damaged components should be removed and either repaired or replaced before starting the machine.
20. Only feed the workpiece into a blade or cutter against the direction of rotation of the blade or cutter.
21. Never leave the tool running unattended, make sure that the machine has come to a complete stop and the power has been turned off before leaving the machine.
22. Do not operate this machine whilst under the influence of alcohol, drug or medication.
23. Make sure that the power supply is disconnected while the motor is being mounted, connected or reconnected.

Additional Safety Rules for Mills

1. Be sure that the drill bit or cutting tool is securely locked in the chuck.
2. Be sure that the chuck key is removed from the chuck before turning on the power.
3. Adjust the table or depth stop to avoid drilling into the table.
4. Shut off the power, remove the cutting tool and clean the table before leaving the machine.
5. Use clamps or a vice to secure the workpiece, do not use your hands as the workpiece can rotate with the drill bit or cutting tool.
6. Do not use gloves when operating a mill to prevent being caught in the rotating parts.

Specification

Max. drilling capacity	32mm
Max. face milling capacity	80mm
Max. end milling capacity	32mm
Table size	240 x 800mm
Cross travel	190mm
Longitudinal travel	560mm
Spindle taper	R8
Spindle stroke	120mm
T-slot size	14mm
Spindle speeds	96-1600rpm
Headstock tilt	±90°
Motor	1kW (1.5hp)
Net weight	300kg
Dimensions (LxWxH)	880 x 780 x 1150mm

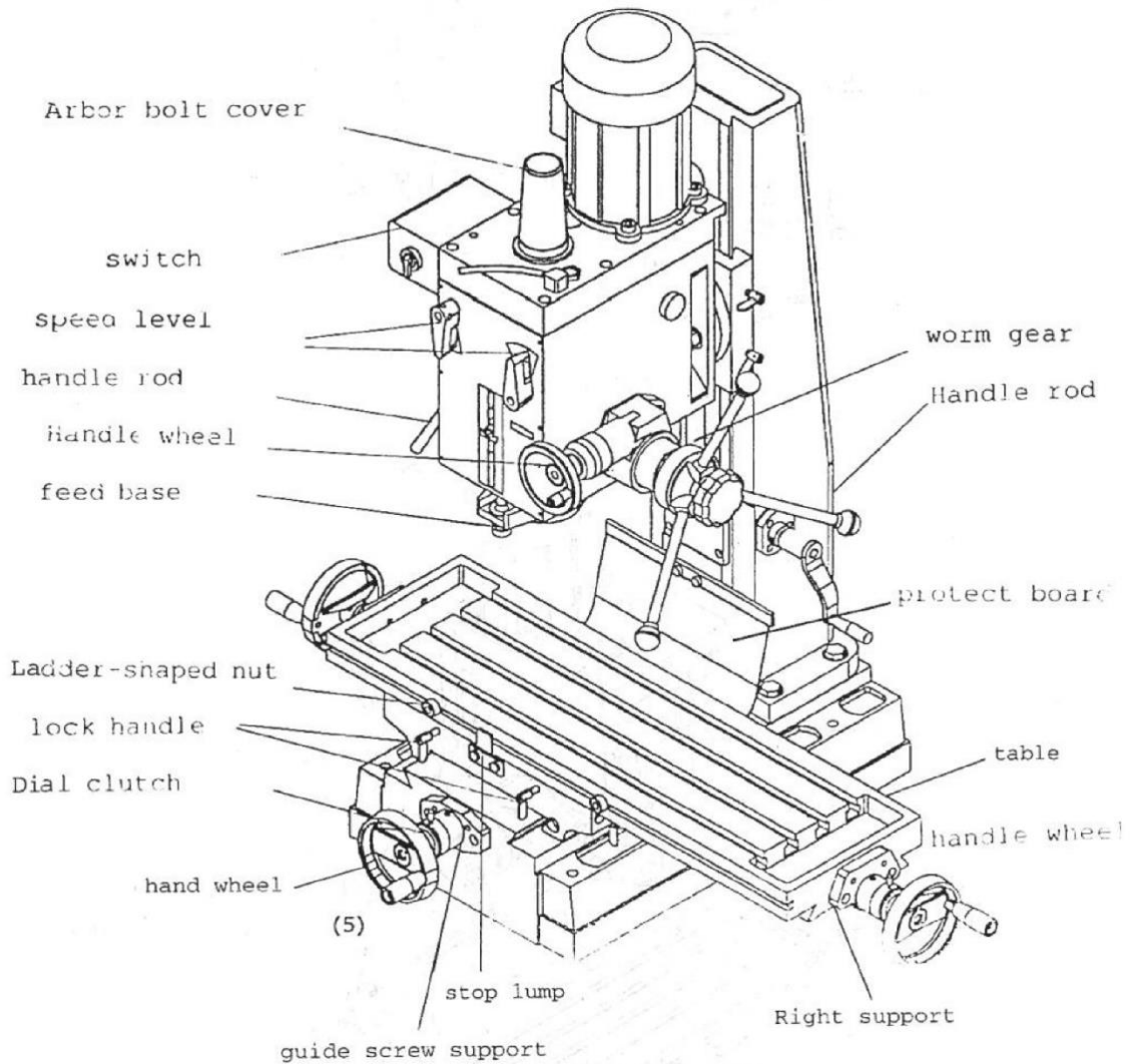


Fig.1

Speed change

The main driving route of the machine is as follows: Motor – three groups of gears – splined sleeve – spindle, when using a motor with 1400rpm as power, six spindle speeds from 120rpm to 1970rpm can be achieved by shifting the position of the sliding gears. Make sure that the spindle has come to a complete stop before changing the spindle speeds, turn off the power and turn the speed change handle to the required position.

There are two forms of spindle feed available on this machine, one is the direct feed form: the spindle feed is performed by the drilling handle on the gear shaft directly. Under this condition, the spindle feeds 88mm as the gear shaft turns once. The other form is the micro feed, when the hand feed wheel drives the worm gear through the cone clutch to drive the gear shaft to feed the spindle. The spindle will feed 2.5mm when the micro feed handwheel is turned once.

Cleaning

1. This machine has been coated with a heavy grease to protect it when it is delivered, 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 drives assembly. Keep this area well lubricated with 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 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 Lubricant to quill pinion every 90 days.
- 6.

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 work-piece 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) Head may be rotated 360° by loosening the two heavy duty head lock nuts. Adjust the head to the desired angle, and then fix the heavy duty head lock nuts. It is tighten the same time to fix the head if drilling too much.
- b) Unscrew nuts while the work-piece needs to be bevel drilling turn to the degrees you wish on the scale, and then screw the nuts.

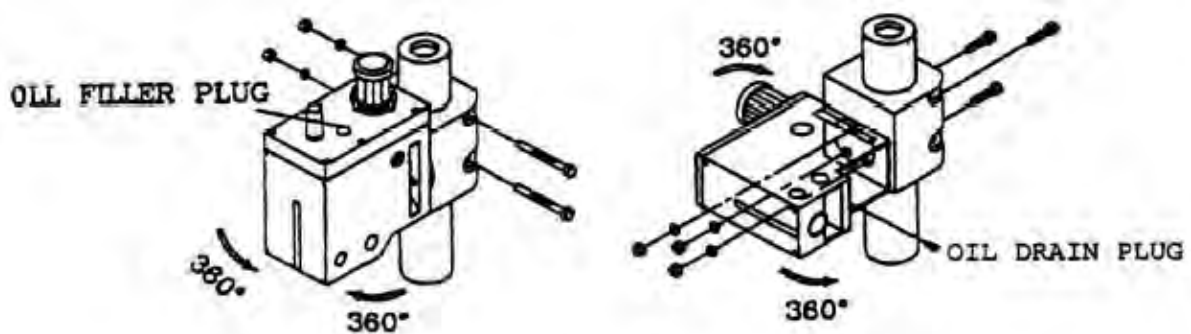


Fig.2

4. Preparing for drilling (see Fig.3).

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.3)

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

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

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

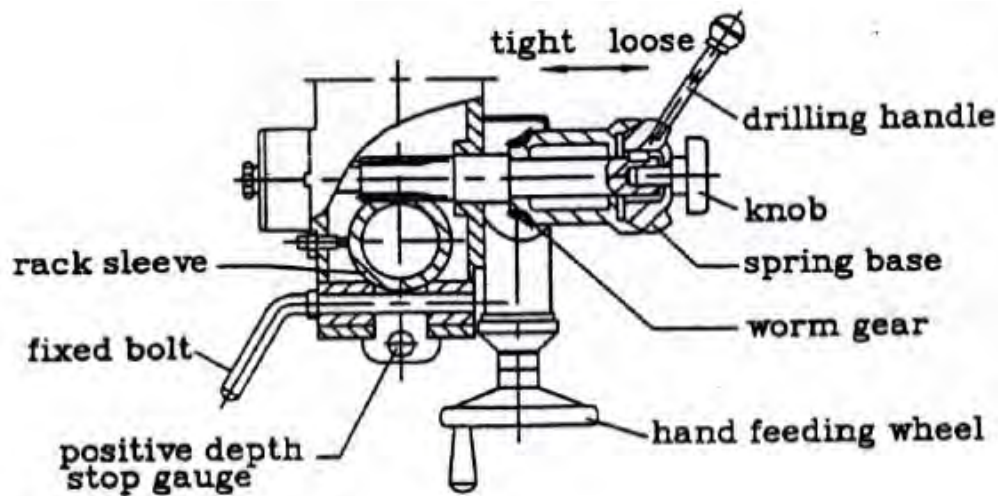


Fig.3

Quill returns 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 lock screw make sure point of screw mates to flat on the housing journal.

Adjusting table slack and compensate for wear (see fig.4)

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.4)

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.

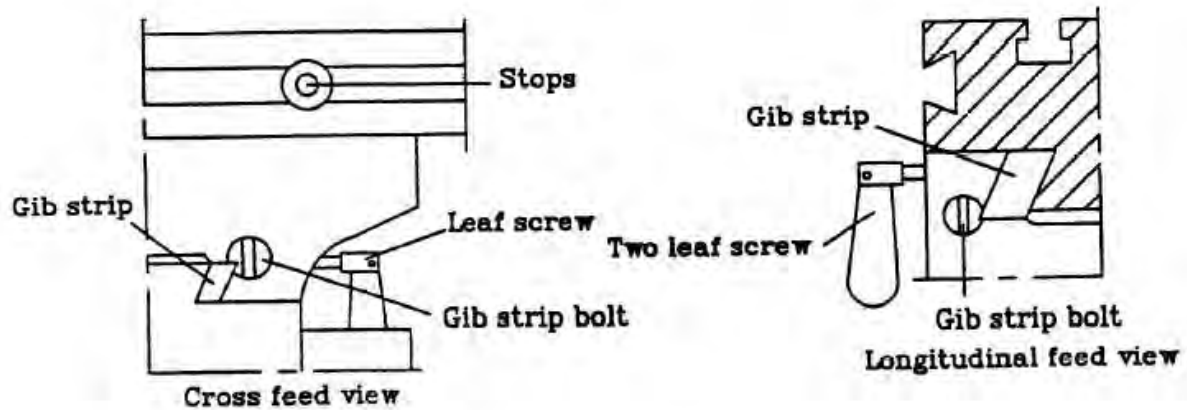
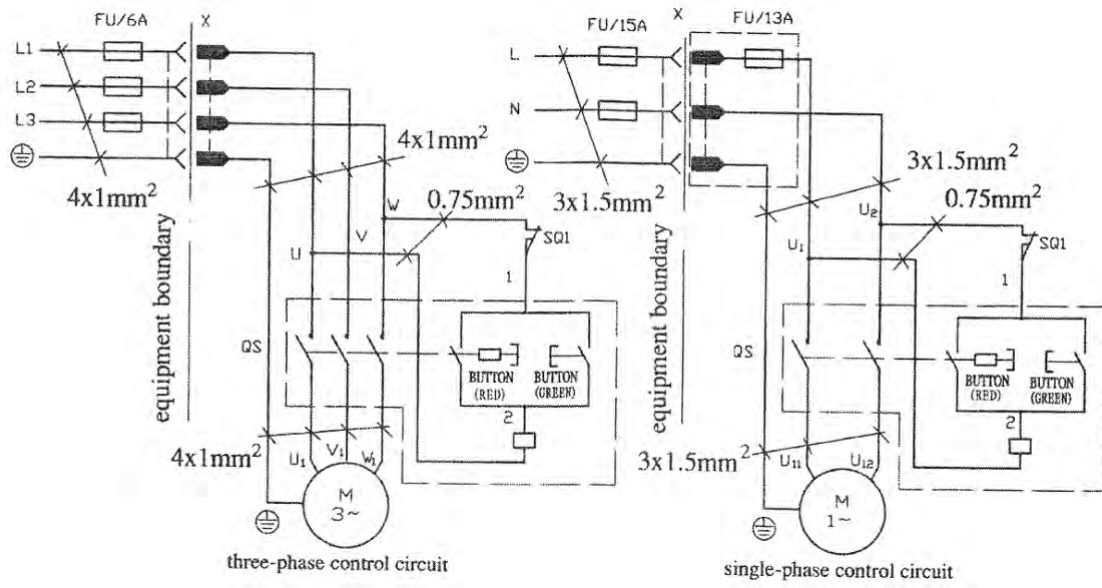


Fig.4

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 key through holes and strike lightly with a mallet. This will force the taper drill out.

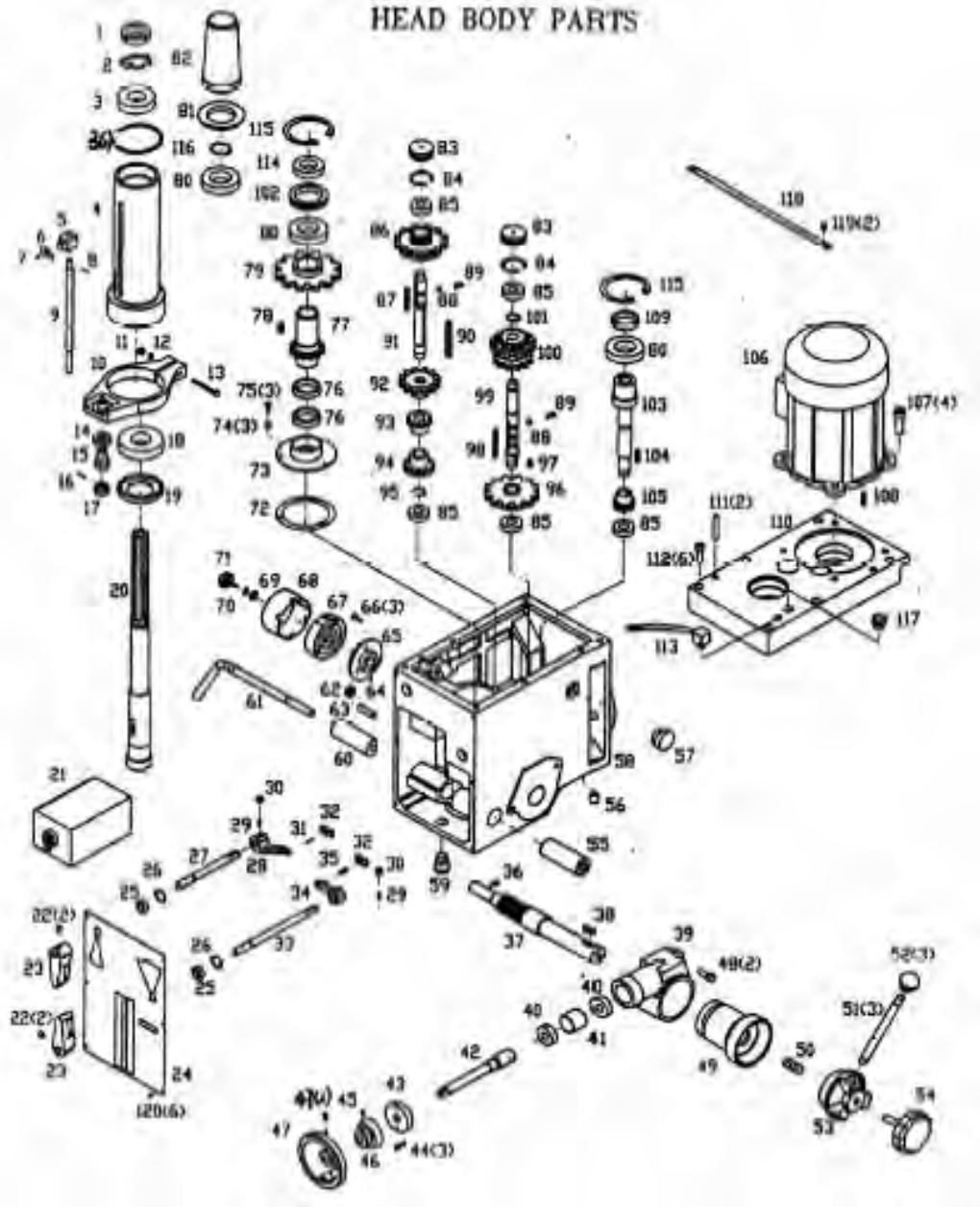
Electric system



Trouble Shooting

Problem	Cause	Solution
Excessive vibration	<ul style="list-style-type: none"> • Motor out-of-balance • Bad Motor 	<ul style="list-style-type: none"> • Balance or replace problem motor • Replace motor
Motor stalls	<ul style="list-style-type: none"> • Over feeding • Dull drill • Motor not building up or running to speed • Bad motor 	<ul style="list-style-type: none"> • Reduce feed rate • Sharpen drill • Replace or repair motor. Check fuses in all three legs on three phase motors if necessary • Replace motor
Noisy operation	<ul style="list-style-type: none"> • Excessive vibration • Improper quill adjustment • Noisy spline • Noisy motor 	<ul style="list-style-type: none"> • Check remedy under excessive vibration • Adjust quill • Lubricate spine • Check motor bearings or for loose motor fan
Drill or tool heats up or burns work	<ul style="list-style-type: none"> • Excessive speed • Chips not clearing • Dull tool • Feed rotate too slow • Incorrect rotation of drill • Failure to use cutting oil or coolant (on steel) 	<ul style="list-style-type: none"> • Reduce speed • Use pecking operation to clear chips • Sharpen tool or replace • Increase feed to clear chips • Reverse motor rotation • Use cutting oil or coolant on steel
Drill leads off	<ul style="list-style-type: none"> • No drill spot • Cutting lips on drill off center • Quill loose in head • Bearing play 	<ul style="list-style-type: none"> • Center punch or center drill work piece • Regrind drill • Tighten quill • Check bearings and repeat or replace if necessary
Excessive drill runout or wobble	<ul style="list-style-type: none"> • Bent drill • Bearing play • Drill not seated properly in chucks 	<ul style="list-style-type: none"> • Replace drill .do not attempt to straighten • Replace or reseal bearings • Loose, reseal and tighten chuck
Work or fixture comes loose or spins	<ul style="list-style-type: none"> • Failure to clamp work-piece or work holding device to table 	<ul style="list-style-type: none"> • Clamp work-piece or work holding device to table surface

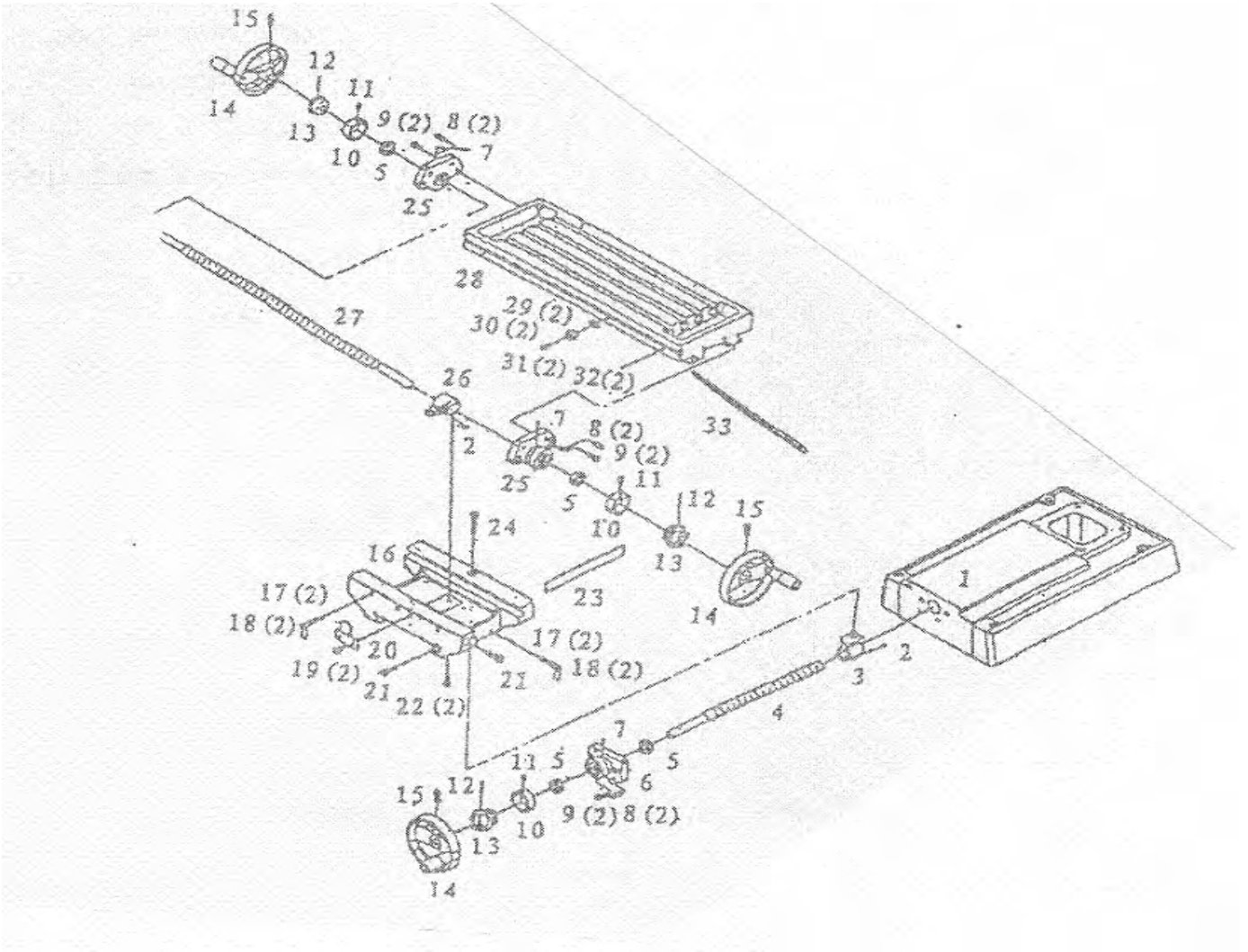
HEAD BODY PARTS



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	retaining 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	shaft III
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	retaining 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	retaining ring
21	electric box	61	handle rod	102	separating ring
22	screw	62	nut	103	motor
23	speed lever	63	screw	104	key
24	name plate	64	pin	105	gear
25	oil seal	65	spring base	106	motor
26	retaining 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	retaining ring
35	pin	75	screw	116	retaining 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		

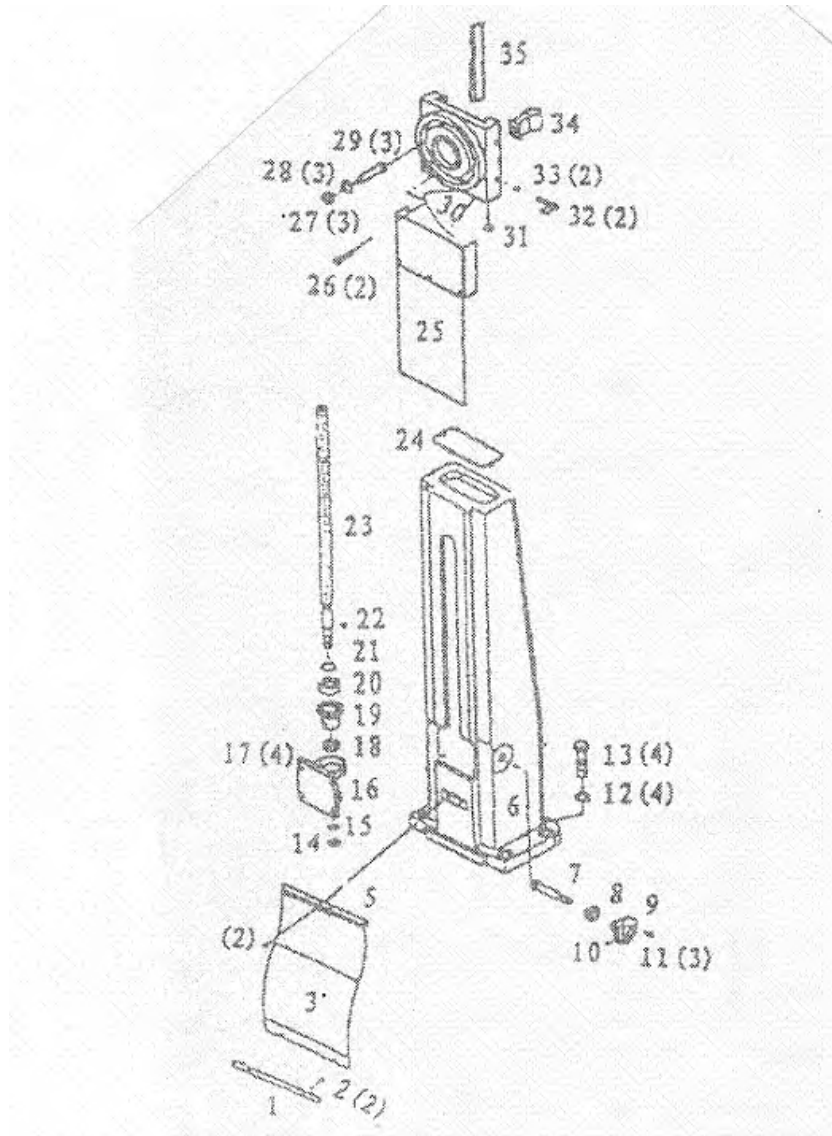
BASE PARTS



Base Parts

NO.	NAME	NO.	NAME
1	Base	18	Lock handle
2	Screw	19	Screw
3	Guide screw nut	20	Stop lump
4	Protect board	21	Gib screw nut
5	Ball bearing	22	Bolt
6	Guide screw support	23	Gib strip
7	Oil cup	24	Screw
8	Pin	25	Right support
9	Screw	26	Guide screw nut
10	Graduation plate	27	Guide screw
11	Screw	28	Table
12	Pin	29	Ladder-shaped nut
13	Dial clutch	30	Stop lump
14	Hand wheel	31	Screw
15	Screw	32	Oil cup
16	Slip saddle	33	Gib strip screw
17	Steel ball		

Column and support



Column and support parts

NO.	NAME	NO.	NAME
1	Protect board slice	19	Gear
2	Bolt	20	Ball bearing
3	Protect board	21	Retainer ring
4	Bolt	22	Key
5	Protect board fixed	23	Guide screw
6	Column	24	Column nut
7	Gear shaft	25	Antirust plate
8	Ball bearing	26	Screw
9	Head raise bracket	27	Nut
10	Oil cup	28	Washer
11	Screw	29	Bit
12	Washer	30	Toruise and lower
13	Bolt	31	Screw
14	Round nut	32	Lock handle
15	Tab washer for round nut	33	Steel ball
16	Head raise bracket	34	Column nut
17	Screw	35	Gib strip
18	Ball bearing		