

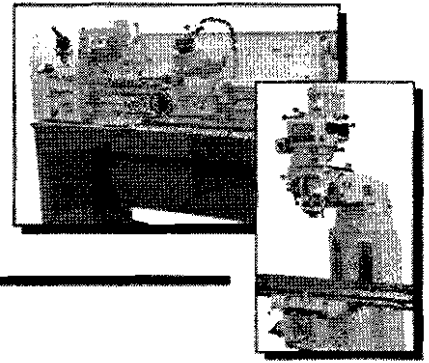


MACHINERY DIVISION

6465 18 MILE ROAD
STERLING HEIGHTS, MI 48314

PHONE:
(586) 731-3600 • 1-800-860-1740

FAX:
(586) 731-7464 • 1-800-862-1740



MODEL GHD-40 DRILL PRESS

THANK YOU FOR PURCHASING WITH KBC MACHINERY. ALL KBC MACHINES ARE BACKED BY OUR 1 YEAR PARTS REPLACEMENT WARRANTY. WHEN USED AS INTENDED, AND WITH PROPER MAINTENANCE THIS MACHINE WILL PROVIDE YOU WITH YEARS OF TROUBLE-FREE SERVICE. IF YOU NEED PARTS SIMPLY FILL OUT THE PARTS REQUEST FORM, AND FAX OR E-MAIL YOUR REQUEST. ALL OTHER QUESTIONS PLEASE CONTACT US @ :

**KBC MACHINERY
6465 18 MILE ROAD
STERLING HEIGHTS, MI 48314
PH (800) 860-1740
FAX (800) 862-1740
MACHINERY@KBCTOOLS.COM
WWW.KBCTOOLSANDMACHINERY.COM**



PARTS REQUEST FORM

YOUR COMPANY NAME:

STATE/PROVINCE

YOUR NAME

PHONE # + EXT

FAX #

MACHINE INFO:

MAKE/MANUFACTURER

MODEL NUMBER

YEAR MADE

SERIAL#

PARTS REQUESTED:

PART#

DESCRIPTION

PLEASE INCLUDE COPY(S) OF THE PARTS DRAWING FROM THE
MANUAL AND CIRCLE THE PARTS NEEDED

FAX PARTS REQUEST TO (800) 862-1740

E-MAIL PARTS REQUEST TO: machinery@kbctools.com

THANKS; KBC MACHINERY - MICHIGAN

OPERATION MANUAL
FOR
GEARED HEAD DRILLING & MILLING
MACHINE Model : GHD-40

**WARNING:FAILURE TO FOLLOW THESE RULES
MAY RESULT IN SERIOUS PERSONAL INJURY**

As with all machinery there are certain hazards involved with operation and use of the machine ,Using the machine with respect and caution will considerably lessen the possibility of personal injury. However,if normal safety precautions are overlooked or ignored,personal injury to the operator may result.

This machine was designed for certain applications only.We strongly recommends that this machine.NOT be modified and/or used for any application other than for which it was designed. If yor have any questions relative to its application DO NOT use the machine until you have had detail instruction from your dealer.

SAFETY RULES FOR ALL TOOLS

1.FOR YOUR OWN SAFETY,READ INSTRUCTION MAMUAL BEFORE OPERATING THE TOOL .Learn the tool's application and limitations as well as the specific hazards peculiar to it.

2.KEEP GUARDS IN PLACE and in working order.

3.GROUND ALL TOOLS. If tool is equipped with three-prong plug,it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle,the adapter lug must be attached to a know ground. Never remove the third prong .

4.REMOVE ADJRSTING KEYS AND WRENCHES.

Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on."

5.KEEP WORK AREA CLEAN.

Cluttered areas and benches invite accidents.

6.DONT USE IN DANGERORS ENVIRONMENT.

Don't use power tools in damp or wet locations, or expose them to rain.
keep work area well-lighted.

7.KEEP CHILDREN AND VISITORS AWAY. All children and visitors shold be kept a safe distance from work area.

8.MAKE WORDSHOP CHILDROOF-with padlocks, master switches, or by removing starter keys.

9.DONT FORCE TOOL.It will do the job better and be safer at the rate for which it was designed.

10.USE RIGHT TOOL.

Don't force tool or attachment to do a job for which it was designed .

11.WEAR PROPER APPAREL. No loese clothing , gloves,neckties, rings, bracelets,or other jewelry to get caught in moving parts.Nonslip foot wear is recommended.Wear protective hair covering to contain long hair.

12.ALWAYS WEAR EYE PROTECTION. Refer to ANSIZ87. 1 Standard for appropriate recommendations.Also use face or dust mask if cutting operation is dusty.

13.SECURE WORK. Use clamps or a vise to hold work when practical.It's safer than using your hand and frees both hands to operate tool.

14.DONT OVERREACH.

Keep proper footing and balance at all times.

15.MAINTAIN TOOLS IN TOP CONDITION.

Keep tools sharp and clean for best and safest performance . Follow instructions for lubricating and changing accessories.

16.DISCONNECT TOOLS before servicing and when changing accessories such as blades, bits, cutters,ect.

17.USE RECOMMENDED ACCESSORIES.

Consult the owner's manual for recommended accessories. The use of improper accesories may cause hazards.

18.AVOID ACCIDENTAL STARTING.

Make sure switch is in " OFF " position before plugging in power cord.

19.NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

20.CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function check for alignment of moving parts binding of moving parts, breakage of parts mountig, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

21.DIRECTION OF FEED.Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

22.NEVER LEAVE TOOL RUNNING UNATTENDED .TURN POWER OFF.Don't leave tool until it comes to a complete stop.

23.DRUGS , ALCOHOL, MEDICATION.Do not operate tool while under the influence of drug,alcohol or any medication.

24.MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY while motor is being mounted ,connected or reconnected.

ADDITIONAL SAFETY RULES FOR MILL DRILL

1. BE SURE drill bit or cutting tool is securely locked in the chuck.
2. BE SURE chuck key is removed from the chuck before turning on power.
3. ADJUST the table or depth stop to avoid drilling into the table.
4. SHUT OFF the power , remove the drill bit or cutting tool, and clean the table before leaving the machine.
5. CAUTION. When practical, use clamps or a vise to secure workpiece to keep the workpiece from rotating with the drill bit or cutting tool.
6. WARNING: FOR Your Own Safety-Don't wear gloves when operating a mill/drill.

SPECIFICATIONS:

Max.drilling capacity	31.5mm(MT3) 40mm(MT4)
Diameter of vertical milling	32mm
Spindle taper	MT3,MT4 or R8
Dimension of base	650mm × 450mm
Spindle speeds range	50Hz 75~1600 60Hz 90~1970
Distance spindle	272.5mm
Worktable travel	X 370mm Y 190mm
Dimension of worktable	600mm × 190mm
Spindle travel	120mm
Spindle speeds	6
Motor	1.1KW
Dimeter of column	φ 115mm
N. W/G.W	340/390Kg
Max.distance spindle nose to worktable	610mm
Max..distance spindle nose to base	1180mm
Package size	820mm × 720mm × 1830mm

WARNING:GHANGE SPEED ONLY WHEN MACHINE IS STOPPED
SPEED CHANGE

LEVERS RPM	L1	L2	L3	H1	H2	H3
60HZ	90	210	345	670	1180	1970
50HZ	75	170	280	540	960	1600

CHANGING THE GEAR BOX OIL:

Tilt the head stock over as shown in Fig 1. 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.

CLEANING:

(1) Your machine has been coated with a heavy grease to protect it in shiping. 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 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 lubuication are:

- (1) Internal spline drive assembly. Keep this area well lubuicated with a good grade non-hardening grease, such as Fiske Company "Lubriplate", 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(SAE20) 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 SAE68 oil in level . **CHANGE OIL EVERY ONE YEAR.**
- (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 parafin bar, do this only by turning the sheaves by hand . Do not apply with motor running.

USE OF MAIN MACHINE PARTS

- (1) To raise and lower the head by head handle.
- (2) Equipped with an electric switch for tapping operation clockwise or counterclock wise.
- (3) To adjust the quick or slow feeding by feed handle.
- (4) To adjust the table left and right travel by table handle wheel.
- (5) To adjust the table fore and aft travel by table handle wheel.
- (6) To operate the spindle handle wheel for micro feed.
- (7) To adjust the scale size according to working need.

PRECAUTION FOR OPERATION

Check all parts for proper conditon before operation; if normal safety precautions are noticed carefully, this machine can provide you withstanding 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. 1. 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 drilled. Turn to the degrees you wish on the scale, then screw the 3.

(4) Adjustment of the lifting table

(a) Loosening the locking handles, rocking the crank to move the lifting table up and down along the column, when arrived the height of your request, tighten the handles to prevent loose.

(b) When need to working large parts, loosening the locking handles, rotating the lifting table of 180° , then tighten the handles, and place the part on the base to work on it.

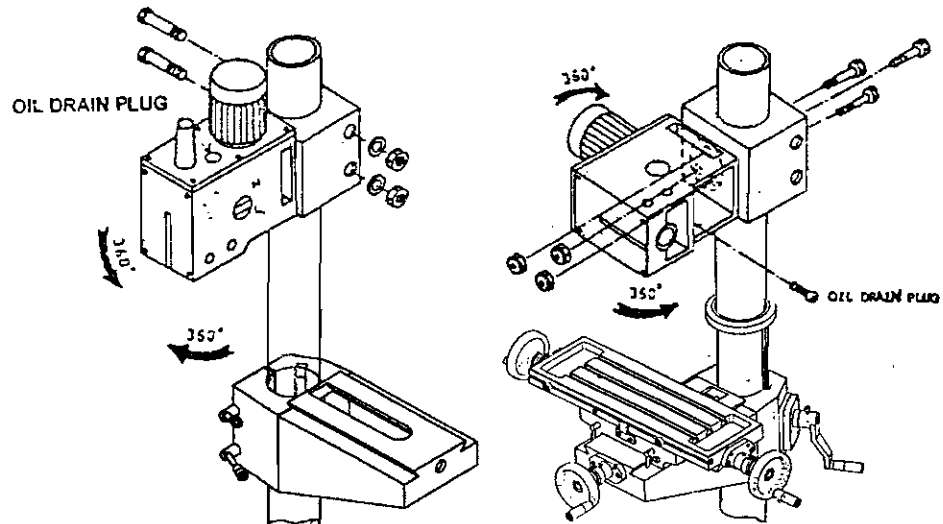


Fig 1

QUILL RETURN SPRING ADJUSTMENT:

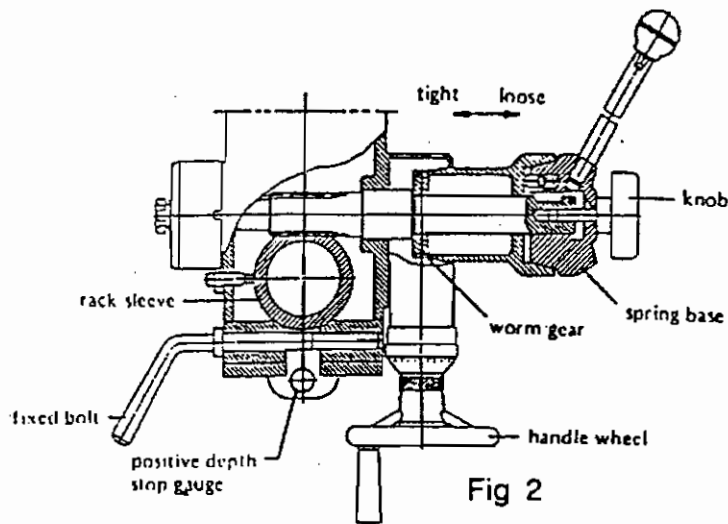
Spring tension for return of spindle, after hole drilling, has been pre-set at the factory. No further adjustment should be attempted unless absolutely necessary. Adjustment will probably be required if a multiple spindle drilling or tapping head is used. If adjustment is necessary, loosen lock screw 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 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.

(4) Preparing for Dring (see fig.2)(Except addition power feed system).

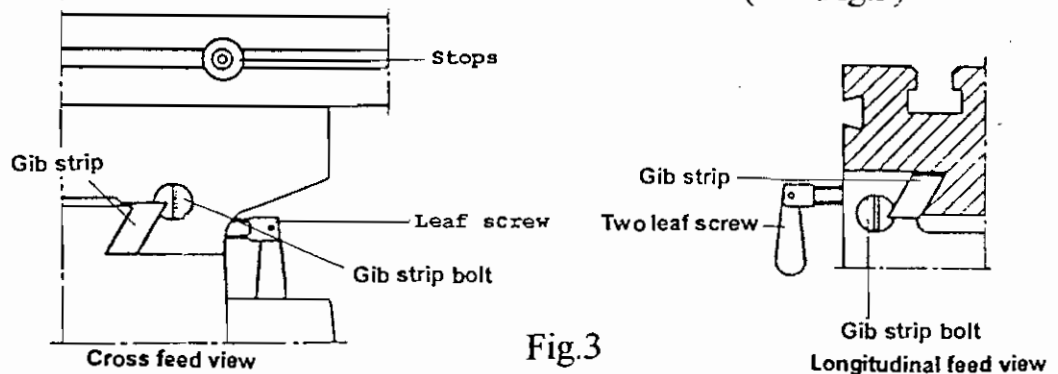
Turn off the knob make loose the taper body of worm gear and spring base. Then we decide spindle stroke setting the positive depth stop gauge for drilling blind hole or Free state for pass hole.

(5) Preparing for Milling (see fig.2)(Except addition power feed system).

- (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 work piece machining height.
- (c) Lock the rack sleeve at the desired height with fixed bolt.



- ADJUSTING TABLE SLACK AND COMPENSATE FOR WEAR(see fig .3)
- (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 jib 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.3)



(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 located 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.

TO CHANGE TOOLS

(1)Removing Face Mill or Drill Chuck Arbor.

Losen 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 losse, 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 and 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 raper drill out.

SPECIFICATION OF T-SLOT

The size of T-solt on table as fig.4 .

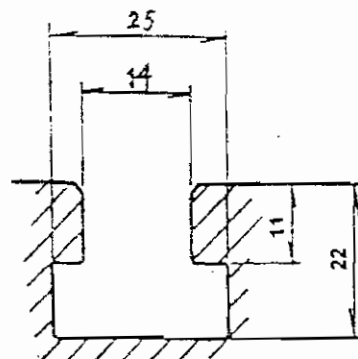
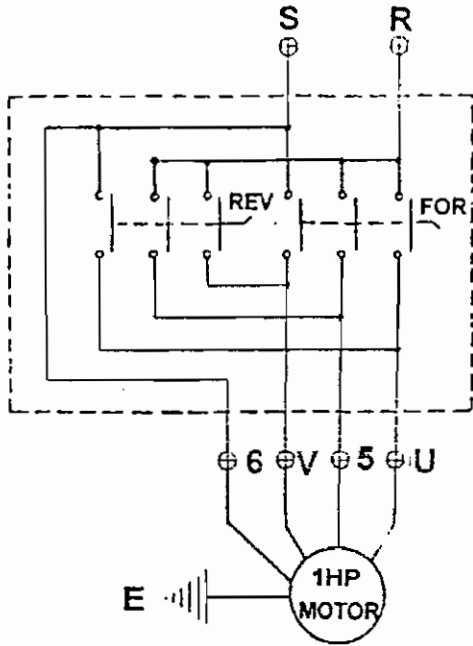
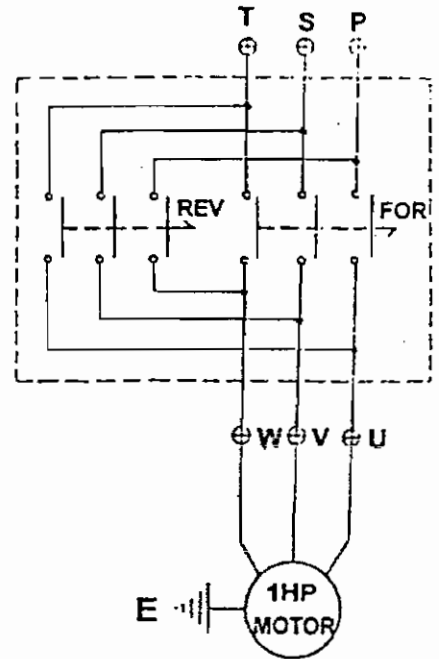


Fig.4



1. SINGLE(1) PHASE MODEL



2. 3PHASE MODEL

ELECTRICAL WIRING DIAGRAM

TROUBLE SHOOTING HINTS

TROUBLE	PROBABLE CAUSE	REMEDY
Excessive Vibration	<ol style="list-style-type: none"> 1. Motor out-of -balance. 2. Bad motor 	<ol style="list-style-type: none"> 1. Balance or replace problem motor. 2. Replace motor.
Motor Stalls	<ol style="list-style-type: none"> 1. Over feeding . 2. Dull drill. 3 Motor not building up to running speed 4. Bad motor 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Excessive vibration. 2. Improper quill adjustment. 3. Noisy spline 4. Noisy motor 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Excessive speed. 2. Chips not clearing. 3. Dull tool 4 Feed reate too slow 5. Rotation of drill incorrect. 6 Failure to use cutting oil or coolant(on steel). 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1 No drill spot 2. Cutting lips on drill off center 3. Quill loose in head. 4. Bearing play 	<ol style="list-style-type: none"> 1. Center punch or center drill workpiece 2. Regrind drill 3. Tighten quill 4 Check bearings and reseal or replace if necessary.
Excessive drill runout or wobbie	<ol style="list-style-type: none"> 1. Bent drill. 2 Bearing play 3 Drill not seated properly in chucks 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1 Failure to clamp workpiece or work holding device to table 	<ol style="list-style-type: none"> 1. Clamp workpiece or work holding device to table surface

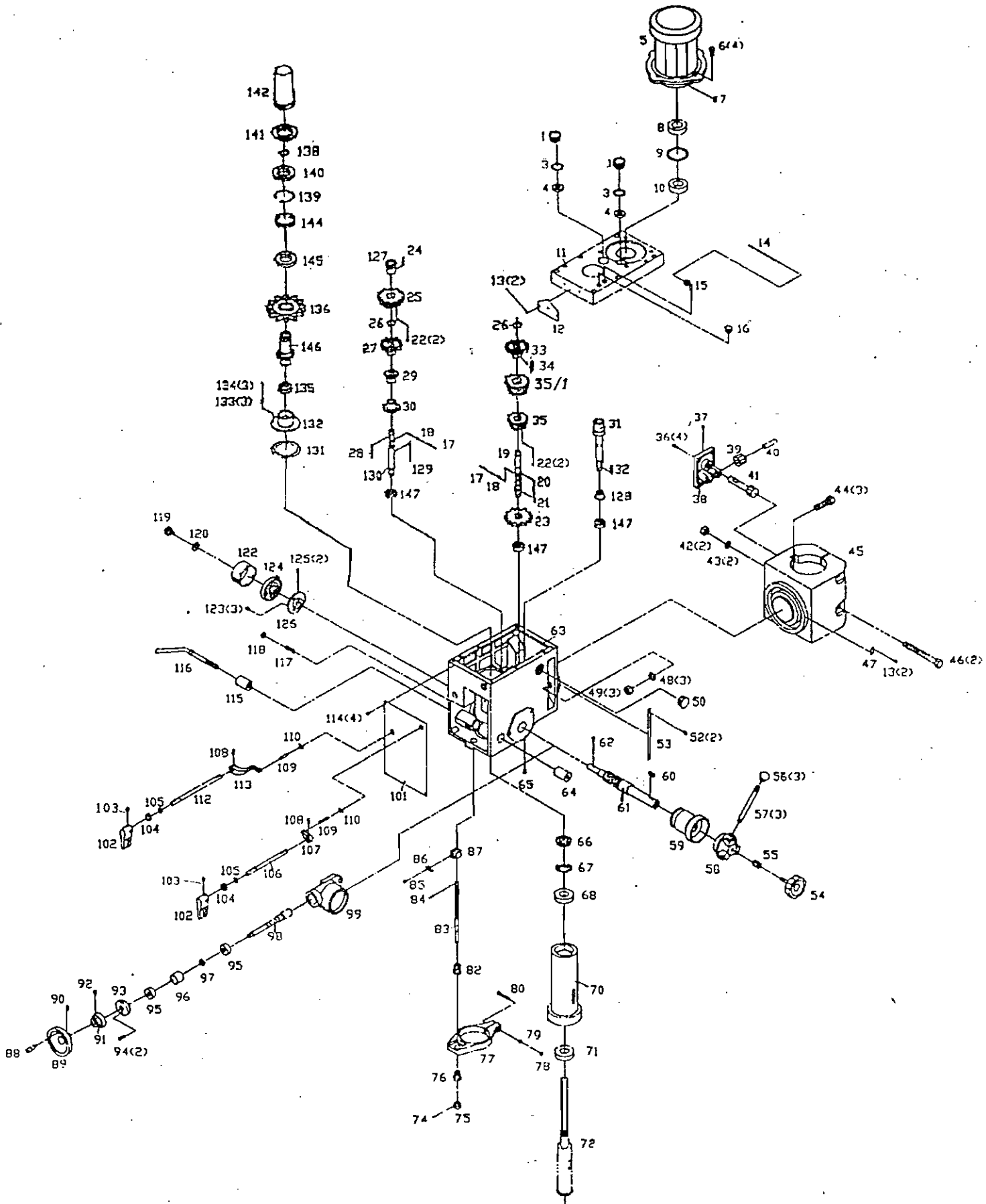
Spindle Head Parts:

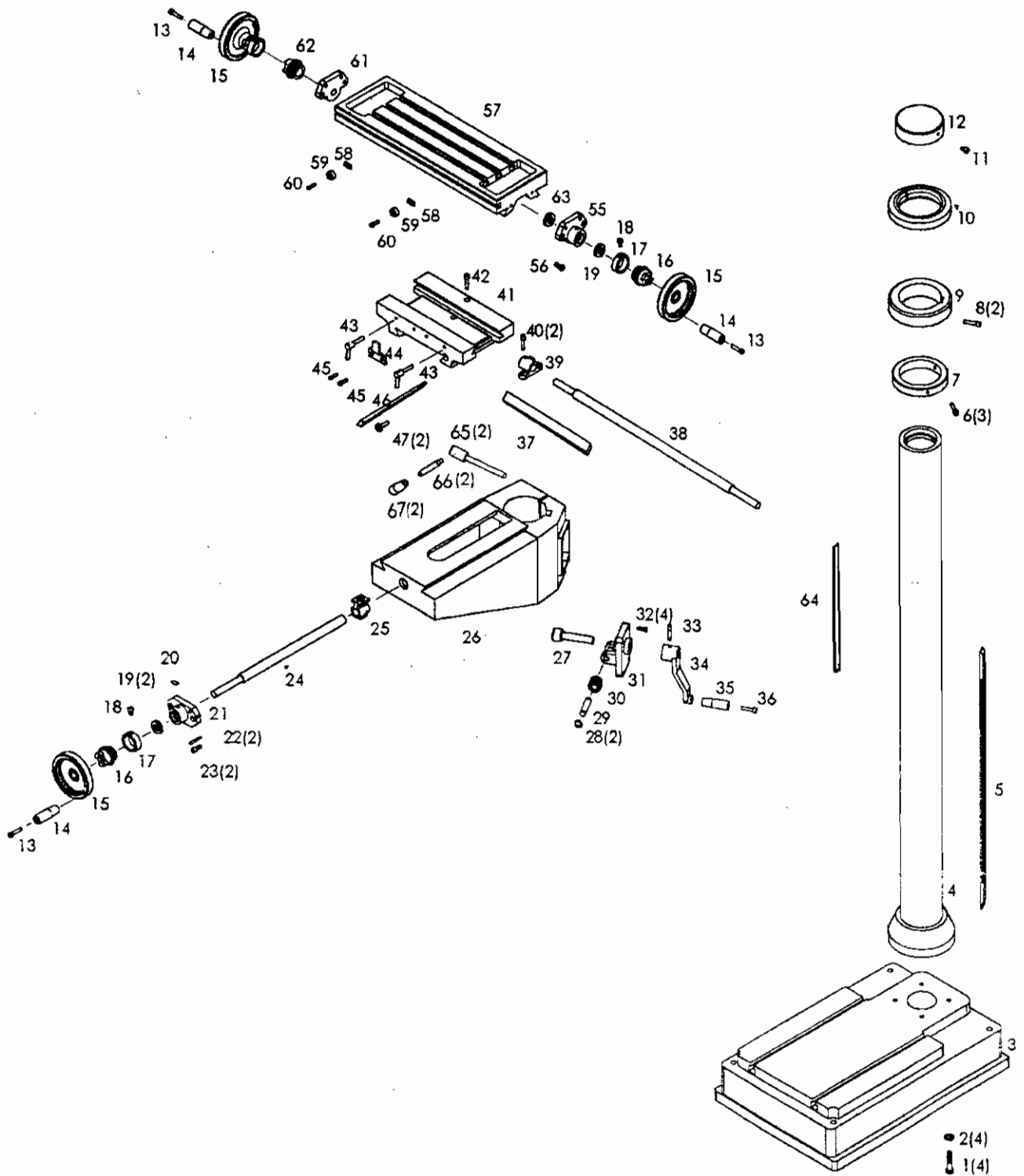
1.Cap	42. Nut
3.Retaining Ring	43. Washer
4.Ball Bearing	44. Bolt
5.Motor	45. To raise And Lower Body
6.Screw	46. Bolt
7.Key	47. Zero Site Board
8.Oil Seal	48. Washer
9.Retaining Ring	49. Nut
10.Ball Bearing	50. Oil pointer
11.Head Body Cover	52. Screw
12.Trademark	53. Degree-Meter
13.Rivet	54. Big Ripple Handle
14.Soft pipe	55. Spring
15.Radiator	56. Handle Ball
16.Oil Filler Plug	57. Handle Rod
17.Spring	58. Handle Body
18.Steel Ball	59. Worm Gear
19.Shaft II	60. Key
20.Key	61. Pion Shaft
21.Screw	62. Screw
23.Gear	63. Head Body
24.Key	64. Fixed Tight Collar(Thread)
25.Gear	65. Screw
26.Retaining Ring	66. Lock Nut
27.Gear	67. Lock Washer
28.Key	68. Ball Bearing
29.Gear	70. Sleeve
30.Gear	71. Ball Bearing
31.Shaft	72. Spindle
32.Key	73. Bearing Cap
33.Gear	74. Pin
34.Key	75. Knob
35.Gear	76. Support Base
35/1.Gear	77. Feed Base
36.Screw	78. Nut
37.Oil cup	79. Washer
38.Bracket	80. Screw
39.Gear	82. Fixed Nut
40. Shaft	83. Graduated Rod
41. Worm Shaft	84. Pin
	85. Screw
	86.Scale-Board

87.Fixed Bolt	131.Airtight Ring
88.Turn Handle	132.Airtight Base
89.Handle wheel	133.Washer
90.Screw	134.Screw
91.Graduation Plate	135.Oil Seal
92.Screw	136.Gear
93.Worm Cover	138.Retaining Ring
94.Screw	139.Retaining Ring
95.Ball Bearing	140.Ball Bearing
96.Separating Ring	141.Arbor Bolt Cover Base
97.Retaining Ring	142.Arbor Bolt Cover
98.Worm shaft	143.Electric Box
99.Feed Cover	143/1.Switch
101.Name Plate	144.Separating Ring
102.Speed Lever	145.Ball Bearing
103.Pin	146.Splined Sleeve
104.Oil Seal	147.Ball Bearing
105.Retaining Ring	
106.Lever Shaft(Right)	
107.Lever(Right)	
108.Screw	
109.Pin	
110.Lever Bracket	
112.Lever Shaft (Left)	
113.Lever (Left)	
114.Screw	
115.Fixed Tight Collar	
116.Handle Rod	
117.Screw	
118.Nut	
119.Small Ripple Handle	
120.Washer	
122.Spring Cap	
123.Screw	
124.Spring Plate	
125.Pin	
126.Spring Base	
127.Gear	
128.Gear	
129.Key	
130.Shaft III	

Base Parts:

- | | |
|------------------------|----------------------|
| 1.Screw | 36.Screw |
| 2.Washer | 37.Gib Strip |
| 3.Base | 38.Guide Screw Nut |
| 4.Column | 39.Guide Screw |
| 5.Low Rack | 40.Screw |
| 6.Screw | 41.Slip Saddle |
| 7.Fixed Ring | 42.Screw |
| 8.Screw | 43.Lock Handle |
| 9.Locked Guide Ring | 44.Stop Lump |
| 10.Guide Ring | 45.Screw |
| 11.Screw | 46.Gib Strip |
| 12.Column Lid | 47.Screw |
| 13.Screw | 55.Right Support |
| 14.Turn Handle | 56.Screw |
| 15.Handwheel | 57.Table |
| 16.Dial Clutch | 58.Ladder-shaped Nut |
| 17.Graduation Plate | 59.Stop Lump |
| 18.Screw | 60.Screw |
| 19.Bearing | 61.Left Support |
| 20. Zero Site Board | 62.Left Clutch |
| 21.Guide Screw Support | 63.Bearing |
| 22.Pin | 64.Up Rack |
| 23.Screw | 65.Screw |
| 24.Guide Screw | 66.Handle Rod |
| 25.Guide Screw Nut | 67.Knob |
| 26.Lifting Table | |
| 27.Worm Shaft | |
| 28.Retaining Ring | |
| 29.Shaft | |
| 30.Helical Gear | |
| 31.End Cover | |
| 32.Screw | |
| 33.Screw | |
| 34.Rocker Handle | |
| 35.Turn Handle | |





GEARED HEAD DRILLING & MILLING

MACHINE Model GHD-40

QUALITY CERTIFICATE

MAX.DRILLING CAPACITY 31.5mm

MAX.FACE MILLING CAPACITY 80mm

MAX.END MILLING CAPACITY 32mm

SERIAL No.:

	QUALITY CERTIFICATE	Page :1
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**The machine has passed the quality inspection
approved to delivery.**

Director of the plant

Date:

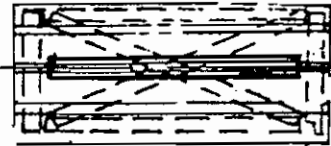
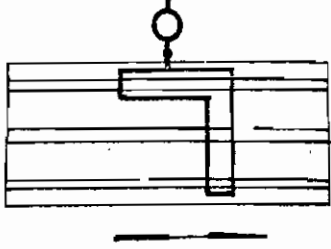
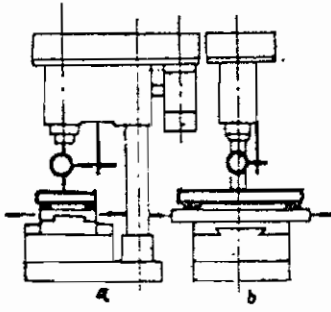
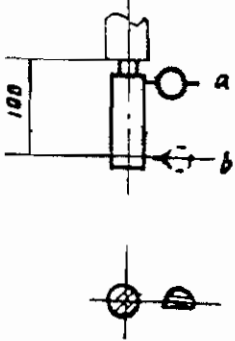
Chief of the inspection department

Date:

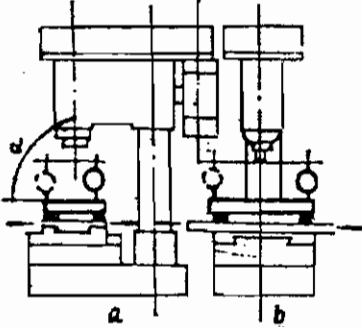
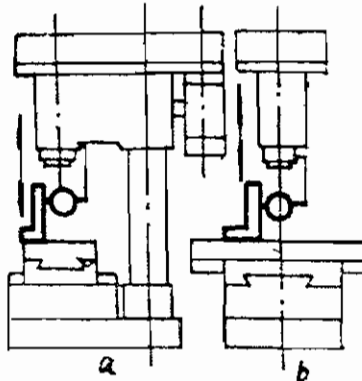
QUALITY CERTIFICATE

Page: 2

Accuracy inspection table

No.	Inspecting item	Sketch	Permissible error(mm)	Measured error
1	Flatness of working table		0.04/300	m3
2	Squareness of longitudinal movement to cross movement of working table		0.08/300	m6
3	Parallelism of working table plate to working table movement a. cross b. longitudinal		a.0.04/100 b.0.08/300	m3 m5
4	Radial runout of the spindle taper axis a. near spindle nose b. At a distance of 100mm from spindle nose		a.0.02 b.0.04	m15 m3

Accuracy inspection table

No.	Inspecting item	Sketch	Permissible error(mm)	Measured error
5	Flatness of working table		a.0.10/200 $\alpha \leq 90^\circ$ b.0.10/200	r b a < 90° r f
6	Squareness of longitudinal movement to cross movement of working table		a.0.08/100 b.0.08/100	r y r f

**PACKING LIST FOR
GEARED HEAD DRILLING & MILLING MACHINE GHD-40**

Series No: G/W:		Dimension: N/W:			
No.	Name	Spec.	Model	Quantity	Remark
1	Geared head milling & drilling machine	40	GHD-40	1	
2	Draw bar	M16		1	
3	Adapter	3/4		1	
4	Taper shank for drilling chuck			1	
5	Drilling chuck	Φ 1~ Φ 13		1	
6	Elevating lever			1	
7	Arbor			1	
8	T slot bolt	M12 × 50		2	
9	Spanner	24		1	
10	Hexagon bolt	M12 × 135		4	To fix the base
11	Oil gun			1	
12	Washer	12		4	
13	Nut	M12		4	
14	Instruction Manual			1	
15	Certificate of inspection			1	
16	Packing list			1	

Packing inspector _____

Date: _____