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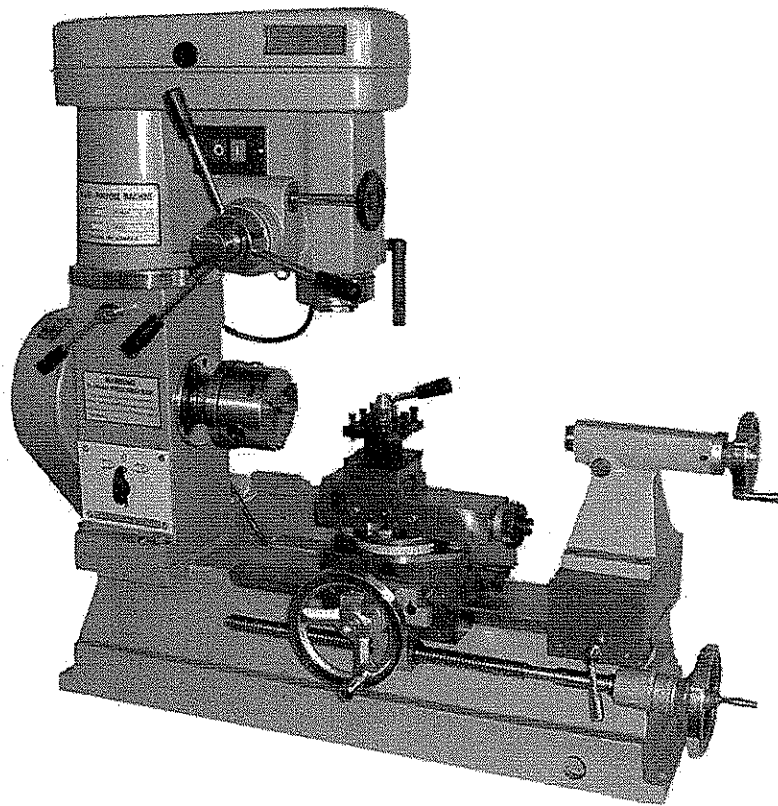
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ITEM: 143352

Lathe Milling and Drilling Machine Combo

User's Manual



Assembly and Operation Instructions

MADE IN CHINA

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Preface

For technical questions and replacement parts, please call 1-800-556-7885.

Thank you very much for choosing a NORTHERN TOOL & EQUIPMENT CO., Product! For future reference, please complete the owner's record below:

Model: _____ Purchase Date: _____

Save the receipt, warranty and these instructions. It is important that you read the entire instruction sheet to become familiar with this product before you begin using it.

This machine is designed for certain applications only. Northern Tool & Equipment strongly recommends that this machine is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Northern Tool & Equipment to determine if it can or should be performed on the product.

Before using this product, please read the following instructions carefully.

Note

This Lathe is a light-duty multipurpose machine designed for turning, drilling, and milling metal and other materials. It can be widely applied for single part and mass production in all kinds of small-sized enterprises and repair industries.

When properly maintained and correctly used, this machine will provide a long service life of steady precision. Proper maintenance and usage are also required to ensure the personal safety of the operator.

Hence, you must carefully read and completely understand all the chapters of this Manual - especially the chapter on Safety Instruction - before installing, adjusting, using and maintaining this machine.

During production, it is possible that small modifications to some sections of this machine were made. Please understand this if you find there are any differences between the Assembly and Operation Instruction and the actual machine.

1. Safety Instructions

- 1.1. Keep the workshop as safe as possible; consider the safety of both the operator and visitors.
- 1.2. Read this Operation Instruction in detail before operating this machine, and never use this machine to do any job over its designed capacity. Understand the risk of harm when operating the machine. Especially, remember that changing speed or any parts should be carried out only after the machine is completely stopped.
- 1.3. Ensure that the tool is properly grounded to prevent electrical shock.
- 1.4. Before operating, all the spanners and wrenches must be removed from the machine for safety.
- 1.5. Keep the operating environment clean and orderly to help prevent accidents.
- 1.6. Keep children away while operating the machine.
- 1.7. Inspect the machine for damaged parts; make sure the machine is in normal condition before operating it.
- 1.8. Avoid unintentional starting. Before connecting the power, make sure the main switch is in the OFF position.
- 1.9. The workpiece must be clamped tight and reliably, or personal injuries or damage to the machine may occur.
- 1.10. Only recommended accessories should be used on the machine. Before operating, make sure you know how to use them. Use proper tools suitable to the processing being performed.
- 1.11. While operating, please wear proper working clothing, safety shoes, cap and protective glasses. Do not wear loose clothes or jewelry. Keep long hair, clothing and gloves away from moving parts.
- 1.12. After switching on the power, never touch any live parts with your hands.
- 1.13. Never touch the running spindle, workpiece, tool or other moving parts with hands or other methods.
- 1.14. Be sure to switch OFF the power before making maintenance, installation and inspection or before changing the chuck, jaw, belt, tools, etc.
- 1.15. Never move or damage the warning plates mounted on the machine.
- 1.16. Never put obstacles around the machine. The work area should be wide enough to ensure proper footing and balance.
- 1.17. Before operating the machine, make sure you are familiar with the transmission system and all the functions of the handles of the machine; and check to make sure the changing handles are in their stated normal positions.
- 1.18. To ensure the service life of the guiding rails, pay attention to the cleanliness and lubrication of the rail surface. Especially when processing cast workpieces, it is necessary to regularly clean the scrapers on the rails.
- 1.19. To maintain the precision of the machine, be extremely careful when removing or remounting any pivotal parts of the machine.
- 1.20. Periodically check the tension of belt, making proper adjustment to reduce any vibration.
- 1.21. When stopping the machine, turn OFF the unit's power first, then the main power supply.

2. Technical Specifications and Parameters:

For Turning

Max. Swing over Bed:	14 "
Max. Turning Diameter (for medium carbon steel):	1 -1/2 "
Max. Distance between Centers:	11-13/16 "
Max. longitudinal Stroke:	8-1/4 "
Max. Transverse Stroke:	5-3/4 "
Morse Taper of Spindle Hole:	No. 3
Bore Diameter of Spindle:	3/4 "
Morse Taper of Tailstock Hole:	No. 2
Spindle Speed:	500, 900, 1600 RPM
Turning Motor:	370W

For Drilling and Milling

Max. Drilling Diameter:	5/8 "
Morse Taper of Drilling and Milling Spindle Hole:	No. 2
Max. Diameter of End Mill:	1/2 "
Max. Diameter of Facer:	2-1/2 "
Max. Stroke of Milling Quill:	3 "
Spindle Speeds:	5 steps 430 – 2000RPM (220V) 4 steps 430 – 1500RPM (110V)
Drilling and Milling Motor:	370W

Others

Area of Bench (L x W):	6 " × 8 "
Turn-Round of Drilling – Milling Box:	± 90 °
Overall Dimensions (L x W x H):	35 " × 23 " × 32 "
Net Weight:	326 lbs.

3. The Transmission System

A Diagram of the Transmission System (See Fig. 1)

Main Transmission Parts (See Table 1)

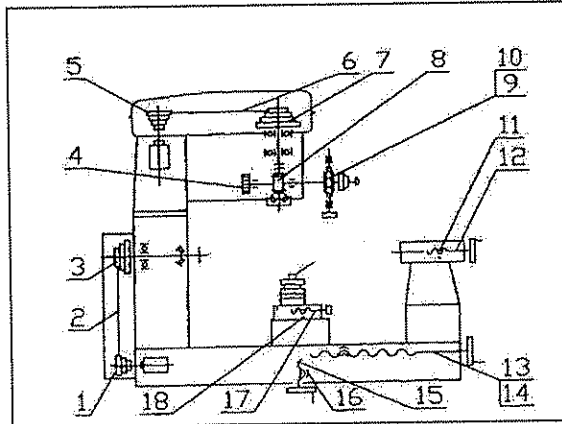


Fig. 1. Diagram of Transmission System of the Lathe

Table 1 of Main Transmission Parts

Series No.	Description	Series No.	Description
1	Motor Pulley	10	Worm
2	V-Belt A—1000	11	Nut
3	Pulley	12	Tailstock Thread
4	Coiled Spring	13	Longitudinal Thread
5	Motor Pulley	14	Longitudinal Nut
6	V-Belt A-710	15	Transverse Thread
7	Big Pulley	16	Transverse Nut
8	Gear	17	Toolpost Thread
9	Worm Gear	18	Nut

Transmission of the Spindle

The spindle motor drives the belt pulley (1), and through the Belt (2), drives the belt pulley (3) to realize the spindle transmission.

Transmission of Drilling and Milling

The drilling and milling motor drives the motor pulley (5), and through the belt (6), drives the belt pulley (7) to realize the spindle transmission.

Longitudinal and Transverse Transmission

The longitudinal feed transmission is carried out by longitudinal thread (13) and nut (14); the transverse feed transmission is carried out by transverse thread (15) and nut (16).

Transmission of Tool Post

The tool post feed transmission is performed by tool post thread (17) and nut (18).

Tailstock Transmission

The tailstock feed transmission is achieved by tailstock thread (12) and nut (11).

4. Electrical System

This machine is powered by two separate AC motors. The motion of turning motor is controlled by a combination switch SA, and the motion of drilling and milling motor by a button switch SB. For safety purposes, the machine should be grounded. A 10A fuse should be fixed in front of the supply socket to maintain short circuit protection (see Fig. 2).

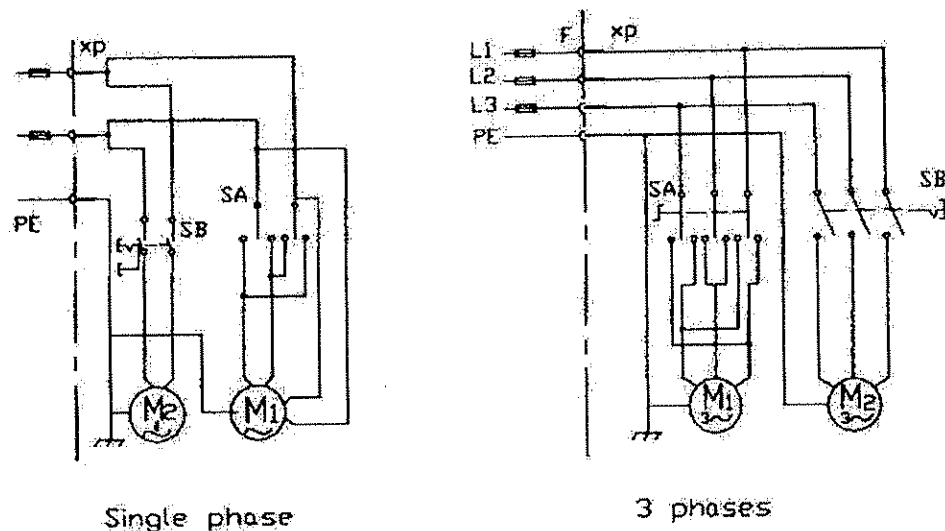


Fig. 2. The Diagram of Electrical System

5. Lubricating System

As shown in Fig. 3, all oil points should be oiled manually with #30 engine oil according to the requirements in Fig 4. Lubricating Diagram. The surfaces of rails and quill, and leading thread, tool post, and tailstock should be oiled according to their operation conditions. All bearings should be cleaned and greased once per year.

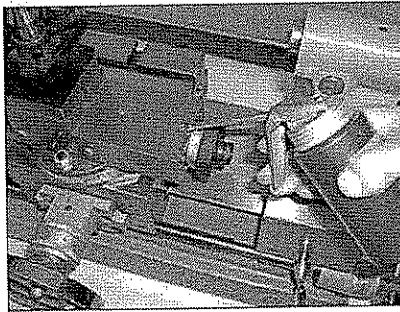


Fig. 3.

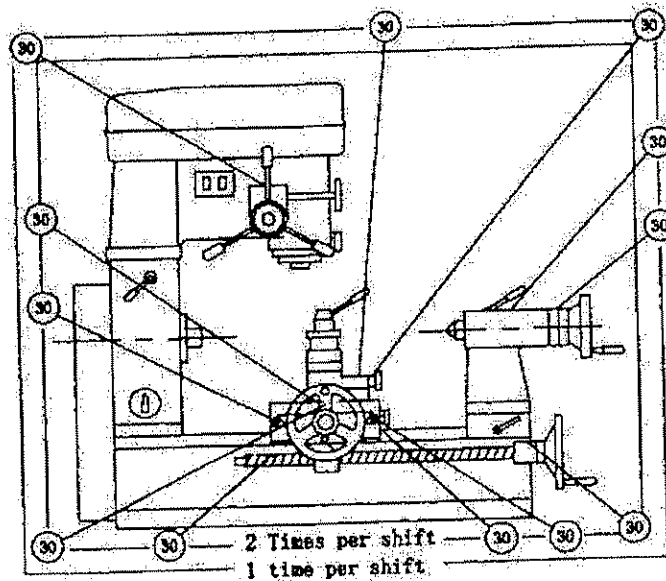


Fig. 4. Lubricating Diagram

6. Installation of the Machine

6.1. This machine has been inspected and tested before delivery. Once it is installed properly on its pedestal, it can be operated at any moment. The machine is covered with water-proof and oil-resisting cloth, fixed tightly on salver and packed in wooden crate. In the crate, there is one box of accessories.

6.2. The steel fastening straps around the crate are in a tensioned condition. Cut off the straps with iron sheet shears. When removing the straps, the workers should wear eye-protecting glasses and gloves. Please take care since the sheared edges are very sharp. After taking off the straps, remove the nails and unpack the wooden crate.

6.3. Open the box of accessories and check the accessories according to the photo shown below (Fig.5). Check them with the Packing List (page 44).

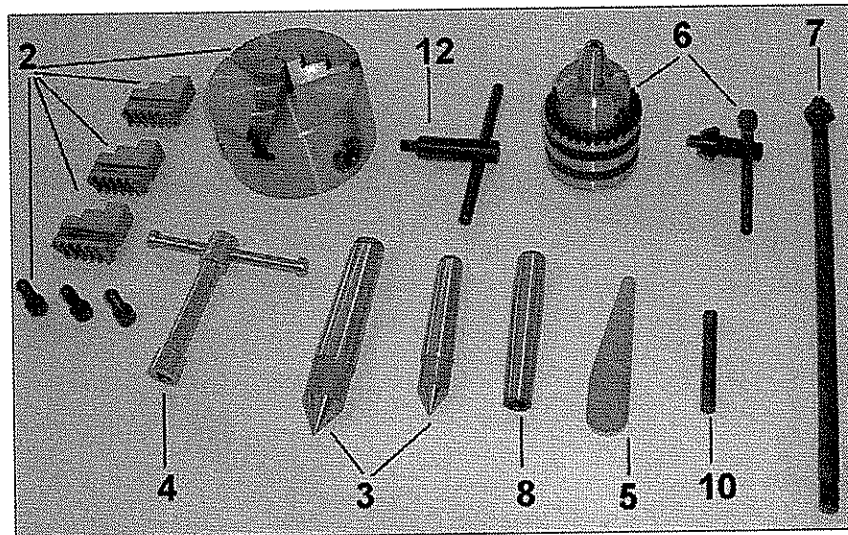


Fig. 5.

6.4. When installing the machine, the user should provide a solid pedestal to hold the machine. The pedestal should be level and well adjusted. The installation location should allow enough area for operating. On the left of the machine, there should be enough area for turning rod material.

6.5. On the surface of the machine, there is a protective layer of oil which can be cleaned with noncorrosive kerosene or petroleum solvent. After installation and cleaning, the machine should be lubricated.

7. Operation of the Lathe

7.1. Diagram of the Operating System (see Fig. 6)

For the main control parts, refer to Table 2.

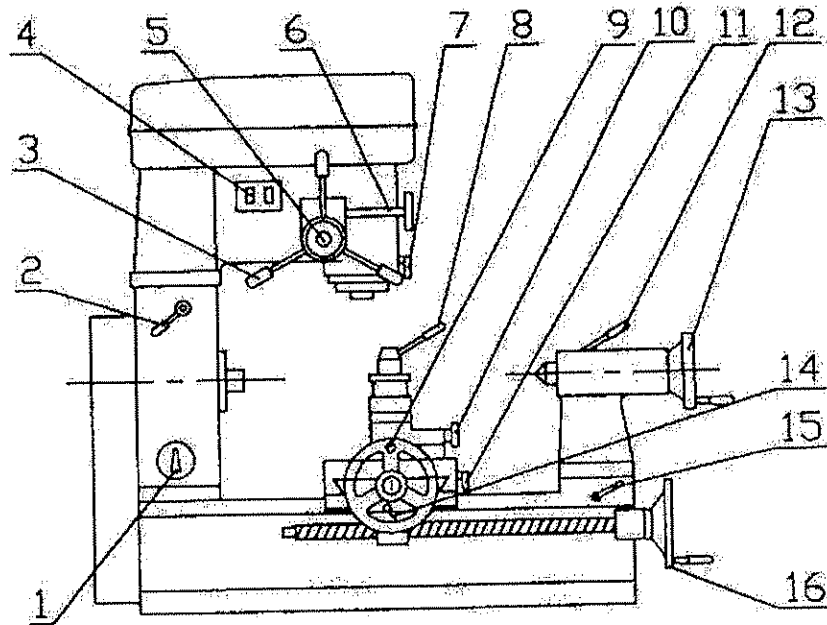


Fig. 6. Diagram of Operating System

Table 2. Main Control Parts

Series No.	Description	Series No.	Description
1	Combination Switch	9	Transverse Wheel
2	Handle for Locking Box	10	Tool post Handle Wheel
3	Drilling/Milling Feed Handle	11	Transverse Lock Handle
4	Button Switch	12	Tailstock Quill Lock Handle
5	Clutch Handle	13	Tailstock Hand Wheel
6	Fine-Feed Handle	14	Longitudinal Lock Handle
7	Handle for Locking Quill	15	Handle for Locking Tailstock
8	Handle for Locking Tool Post	16	Longitudinal Handle Wheel

7.2. Preparations before Operating the Machine

First of all, loosen all the locking handles;

Turn the Handle for Locking Box (2) counter-clockwise to turn the drilling/milling head;

Loosen the Handle for Locking Quill (7) to lift or lower the quill;

Loosen the Longitudinal Lock Handle (14) to perform the longitudinal motion of the lower slide;

Loosen the Transverse Lock Handle (11) to adjust the transverse motion of the bench;

Loosen the Handle for Locking Tailstock (15) to move the tailstock;

Loosen the Tailstock Quill Lock Handle (12) and turn the Tailstock Hand Wheel (13) to adjust the quill forward and backward;

While operating, be sure the relevant Locking Handles are locked;

While moving the lower slide, bench and tailstock, adjust relevant fix screws and Locking Handles to proper positions so that the sliding parts can be moved steadily and reliably, and the hand wheels turned easily;

NOTE: For packing reasons, the feeding handle of bench was mounted inwards; For operating, it should be remounted outwards as shown in Fig. 7.

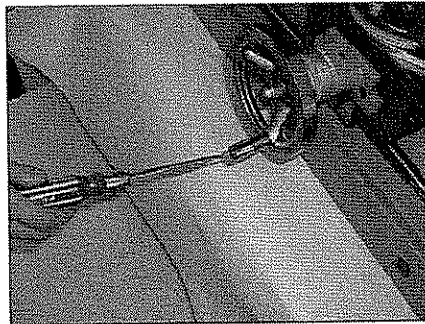


Fig. 7.

7.3. Operation of Electrical System

The combination switch (1) controls the spindle for forward rotation, reverse rotation and stop. Turn the handle in right direction for forward rotation of the spindle; keep it in middle position for stop; turn it in left direction for reverse rotation. **ATTENTION:** Only when the spindle stops completely can rotation direction be changed.

The button switch (4) is to control the motion of the drilling/milling motor. The green button is for starting and the red button for stopping.

7.4. Operation for Drilling and Milling feed

The drilling and milling feeds are carried out manually. For the vertical directions of drilling and milling, there is a fine-feed mechanism. Pull out the Clutch Handle (5) (as shown in Fig.8) and turn the Handle (3) to achieve quick feed; Push in the Handle (5) (as shown in Fig.9) and use the Fine-Feed Handle (6) for fine-feed applications (as shown in Fig.10)

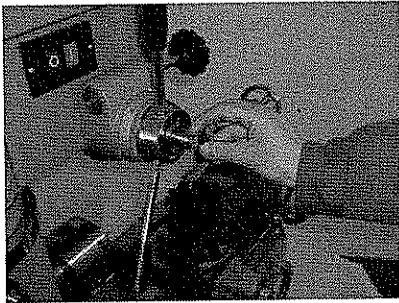


Fig. 8

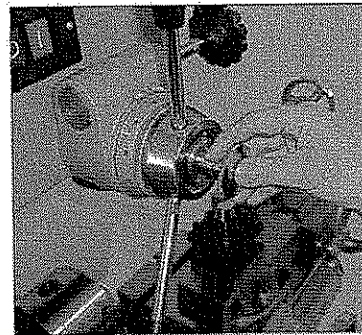


Fig. 9

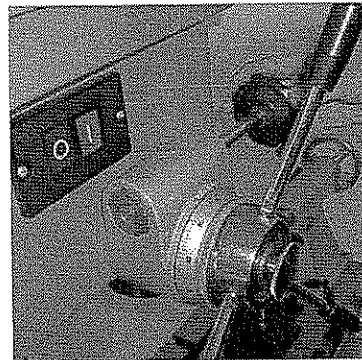


Fig.10

7.5. Operation of Longitudinal and Transverse Feeds

Turn the Longitudinal Handle Wheel (16) to make the feed motion of lower slide; turn the Transverse Wheel (9) to carry on the feed motion of bench.

7.6. Operation of Tailstock

As shown in Fig.11, the tailstock can provide support to workpiece from the right side. It can move along the bed and stop at any position on the bed. It can support the center, drill, reamer, tapping head and other tools. The specification of center is No.2. After loosening the Handle for Locking Tailstock (15), the tailstock can be moved to the left or right. After positioning the tailstock, it should be locked by the Handle for Locking Tailstock (15). After loosening the Tailstock Quill Lock Handle (12), the forward and backward functions of the quill can be carried out by turning the Tailstock Hand Wheel (13). After positioning, the Tailstock Quill Lock Handle (12) should be locked.

ATTENTION:

When the speed of spindle is too high, a live center should be used.

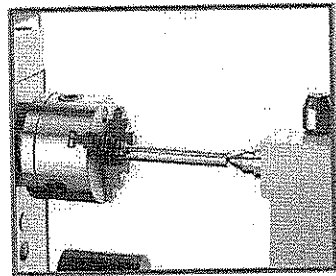


Fig. 11

7.7. Operation of Tool Post

The compound tool post mounted on the bench (Fig. 12) can be rotated to keep an angle with the turning axis for turning a bevel face or conical surface. The tool is mounted on the tool rest of the compound tool post. The graduations on front of the base of tool post are from left 60° to right 60° . By turning the Tool post Handle Wheel (10), fine feed can be achieved. By rotating the Handle for Locking Tool post (8) counter-clockwise, the upper section of the compound tool post can be moved to the right and the lower section can be used as a bench clamp (as in Fig.13). When clamping workpiece with the bench clamp, the torque rod (a small rod) in the accessories can be used for clamping or releasing the workpiece by inserting the rod into the round hole of Tool Post Handle Wheel (10).

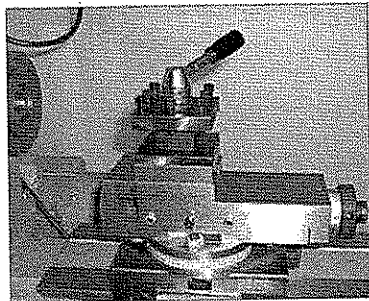


Fig. 12

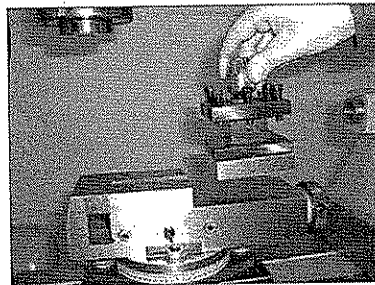


Fig. 13

7.8. Operation for Changing the Speed of Drilling/Milling Spindle

7.8.1. For this machine, the speed of Drilling/Milling Spindle is changed by the belt pulley. When using 220V power, the speed is 5 steps of 430 – 2000 RPM; When using 110V power, the speed is 4 steps of 430 – 1500 RPM. Please refer to the speed plate on the drilling/milling box cover. (as shown in Fig. 14)



Fig. 14

7.8.2. By loosening the middle pushing bolt and the fixing bolt of motor (as shown in Fig. 15), the position of the belt can be shifted for changing the speed. After shifting the belt position, retighten the pushing blot and the motor fixing bolt in turn.

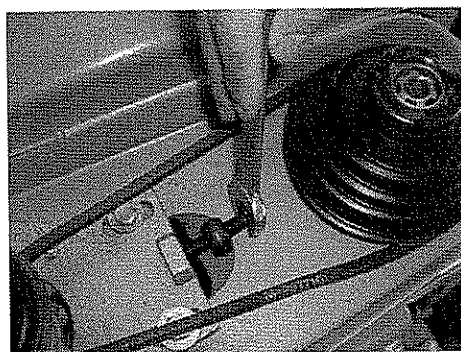


Fig. 15

7.9. Operation for Changing the Speed of Turing Spindle

7.9.1. The speed of turning spindle can be changed through the belt pulley.

The speed is 3 steps of 500, 900 and 1600 RPM.

Please refer to the speed plate on bedstock cover.

(as shown in Fig.16)

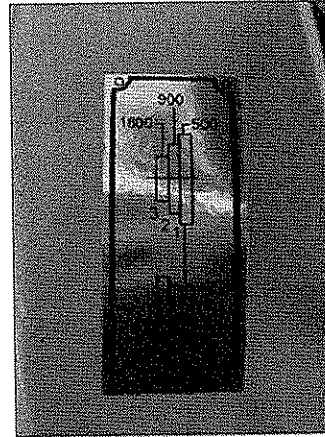


Fig. 16

7.9.2. As shown in Fig. 17, open the cover of turning spindle. Loosen the motor fixing nut (as in Fig.18) to change the belt position. After changing the belt position on the pulley, retighten the fixing nut.

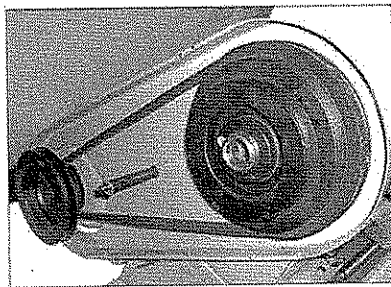


Fig. 17

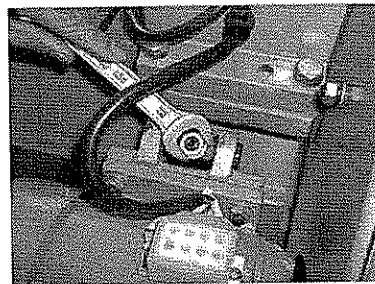


Fig. 18

7.10. Operation for Mounting the Drilling/ Milling Tool (with power OFF)

- 7.10.1. The taper hole of the drilling/milling spindle is Morse No.2. So, the drill, drill chuck, milling cutter and cutter chuck with Morse No.2 of shank can be used, but the tools with R8 shank cannot be used. This machine is supplied with a Morse Taper No.2 shank and drill chuck, which can be directly mounted on the taper hole of the drilling/milling spindle.

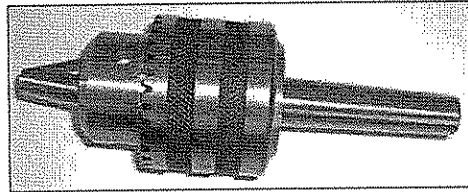


Fig.19

The Mounting and demounting procedures:

- a). First, insert the taper shank into the drill chuck as shown in Fig. 19.

- b). Then, put the taper shank on chuck into the taper hole of spindle as in Fig. 20.

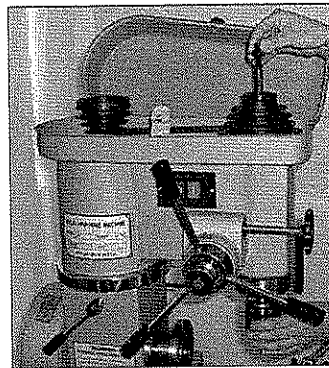


Fig. 20

- c). Pass the draw bar in the accessories through the drilling/milling spindle from the top, and tighten it into the taper shank. Then, fasten the nut of the draw bar with a wrench, as shown in Fig. 21

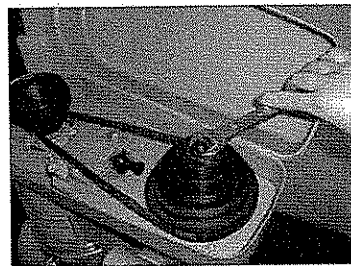


Fig. 21

d). When demounting, lightly knock the draw bar adown with a hammer to remove the chuck, or milling cutter. At the same time, be careful to catch the chuck or milling cutter, or let it fall so it isn't damaged (as shown in Fig. 22).

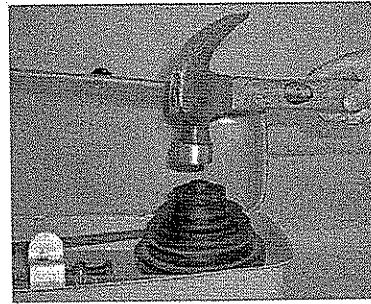


Fig. 22

e). If using a taper shank with a flat end (as shown in Fig.23), the taper shank can be directly inserted into the taper hole of the spindle. ATTENTION: Its flat end should be aligned with the long slot in the spindle. When demounting, move the quick-moving handle to lower the sliding sleeve until the long slot comes out, then lock the sliding sleeve as shown in Fig. 24. Put the tool-withdrawing wedge, included in the accessories, into the long slot of the sliding sleeve, and lightly knock it with a hammer as shown in Fig. 25. Take care to catch the taper shank.

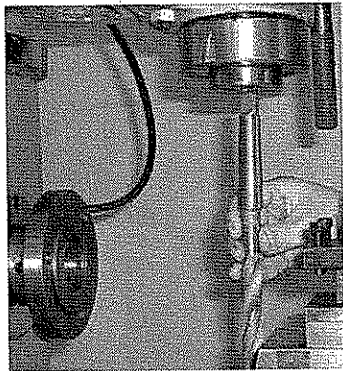


Fig. 23

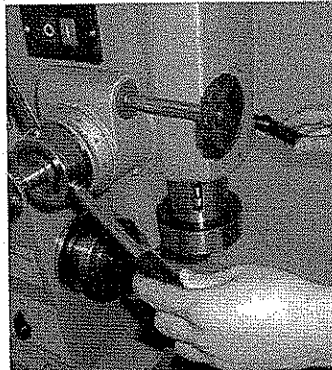


Fig. 24

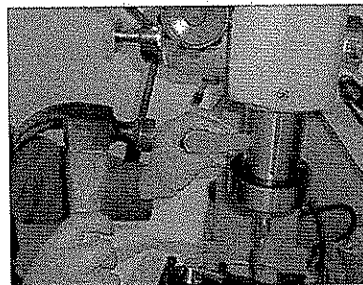


Fig. 25

7.11. Operation for Mounting the Spindle Chuck (in power OFF state)

- 7.11.1. With a screwdriver, take off the pushing screw on the flange, and then, unscrew the flange as shown in Fig. 26.

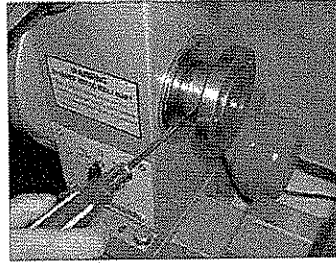


Fig. 26

- 7.11.2. With an inner-hexagon L-key, fasten the flange on to the spindle chuck tightly, as shown in Fig. 27.

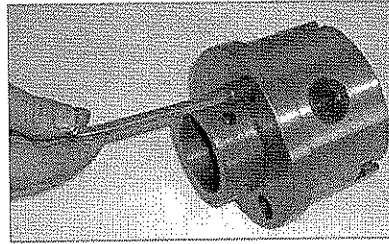


Fig. 27

- 7.11.3. Mount the spindle chuck along with the flange on to the spindle (as shown in Fig. 28), and then refasten the pushing screw with a screwdriver.

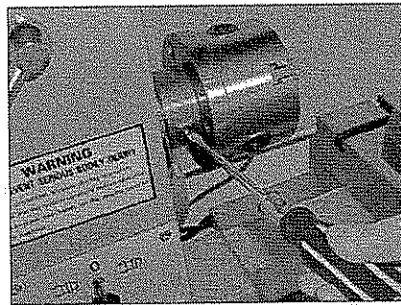


Fig. 28

7.11.4. When demounting the spindle chuck, be careful NOT to catch the chuck with hands as shown in Fig. 29. Instead, a wooden cradle should be put on the rail as a support in order to avoid hurting your hands (see Fig.30).

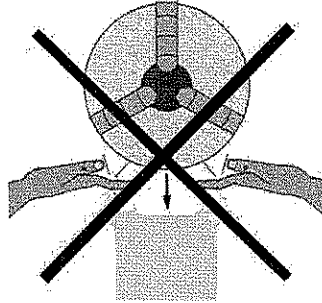


Fig. 29

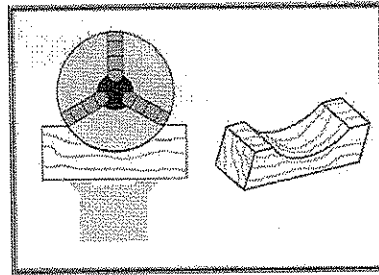


Fig. 30

7.11.5. Each of the positive and negative clamping jaws of the spindle chuck has four clamping ways for workpiece, as shown in Fig. 31.

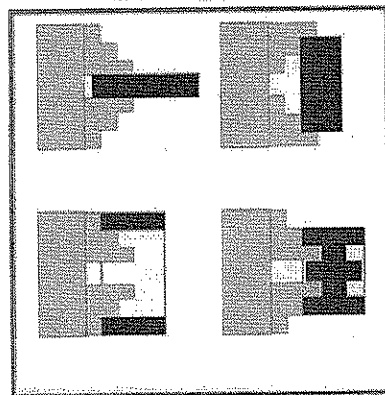


Fig. 31

7.11.6. The spindle chuck is supplied with two sets of positive and negative clamping jaws, on which 1, 2, and 3 is indicated, as shown in Fig. 32.

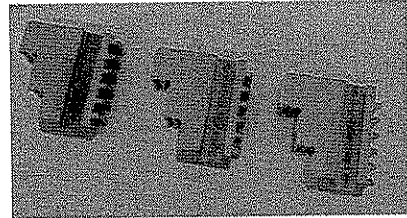


Fig. 32

7.11.7. Demounting the clamping jaws of spindle chuck: By turning the chuck key counter-clockwise, the three clamping jaws of the chuck can then be taken off along the slots, as shown in Fig. 33.

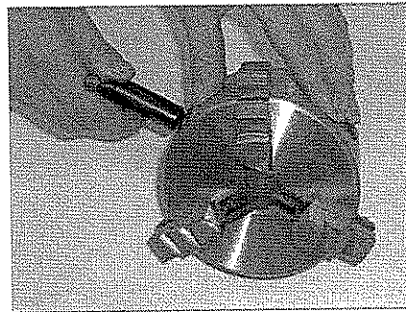


Fig. 33

7.11.8. Mounting the clamping jaws of the spindle chuck: Loosen the clamping slots with the chuck key until the lead thread appears. Put jaw No. 1 into jaw guide rails (as shown in Fig.34). Then, turn the chuck key clockwise until the lead thread comes into view again (while watching the counter-clockwise direction of the chuck), and put the jaw No.2 into the jaw guide rails. And then, mount the jaw No. 3 in turn.

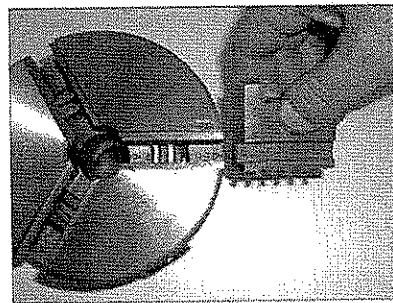


Fig. 34

8. Adjustment of the Machine

8.1. Adjusting the Clearances of the Turning Spindle and Drilling/Milling Spindle:

After operating the machine for a long period of time, clearances will result on the turning spindle adjusting the round nut with locking slot in the end of the spindle. For the turning spindle, clearance adjustment can be made by readjusting the round nut with locking slot on the end of the spindle. For adjusting the clearance of drilling/milling spindle, the big belt pulley and the spline sleeve assembly should be demounted first, then the round nut with locking slot on the top end of the spindle should be readjusted.

8.2. Adjustment of the Beveled Gib of Lower Slide:

After a lengthy operation, the beveled gib will be worn. Therefore, the tightening screw of the beveled gib should be adjusted,(as shown in Fig. 35) with a screwdriver until the lower slide can move evenly and freely.

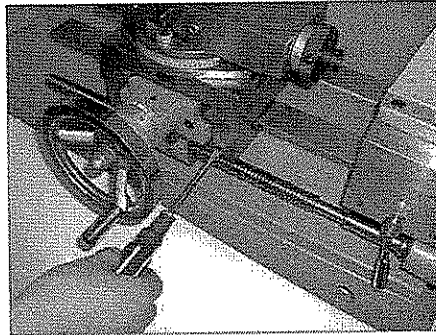


Fig. 35

8.3. Adjustment of the Beveled Gib of Bench:

As shown in Fig. 36, make the adjustment until the bench can move evenly and freely.

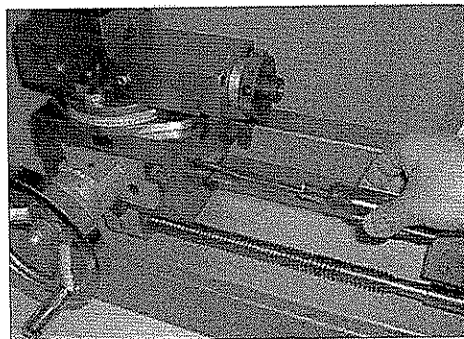


Fig. 36

8.4. Adjustment of the Beveled Gib of Tailstock: As shown in Fig.37, make the adjustment until the tailstock can move on the bed evenly and freely.

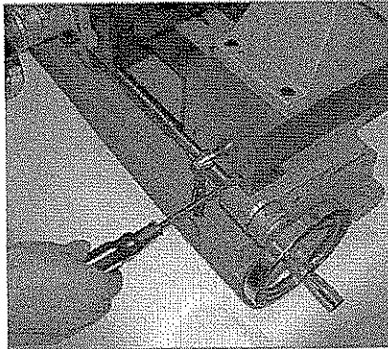


Fig.37

8.5. Adjustment of the Beveled Gib of Tool Post: As shown in Fig. 38, with an inner-hexagon L-key, adjust the tightening screw of tool post until the post can be fed evenly and freely.



Fig. 38

9. Maintenance of the Machine

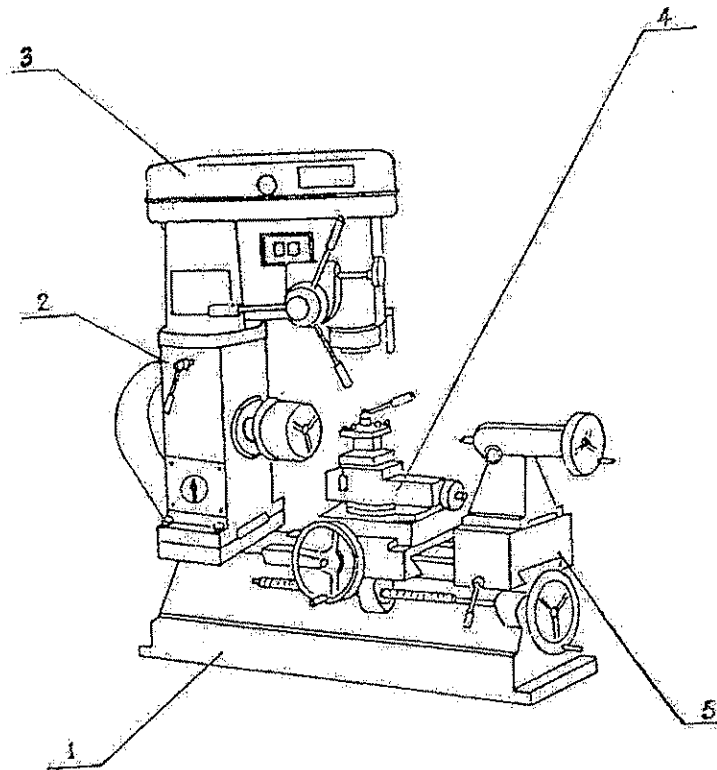
This machine is a highly finished precision lathe. The bearing surfaces of the bench and below the lower slide are hand-lapped. If there are any rusty spots or knock-out on the rails, or any cutting chips deposited between the closely jointing sections, the precision accuracy of the machine can be affected. After operation, the machine should be maintained as follows:

After operation, the machine should be cleaned with a clean oilcloth. For parts that rust easily, especially the finely ground parts, you must be keep a layer of oil or grease film on them for protection.

Never put wrenches, cutters, files or other tools on the guide rails, where notches or burrs can affect its accuracy.

Before mounting the chuck, center, connecting rod, or draw bar onto the spindles, or to the mandrel of the tailstock, first wipe them with clean oilcloth. At the same time, clean the inside surfaces of spindles with a long rod wrapped with oilcloth. Cutting chips and dust on the center or on the top end of the spindle can scrape their surfaces and affect the linearity of their mating parts.

Before each operation, lubricate the machine according to the Diagram of Lubrication.



TEST CERTIFICATION

This machine has been tested and found qualified for delivery

(Attached with Inspection Accuracy Table)

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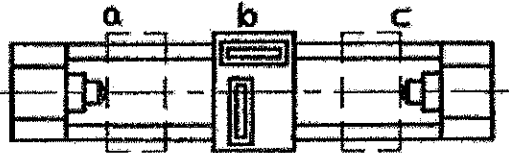

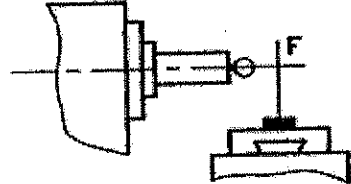
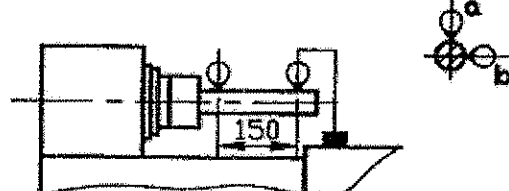
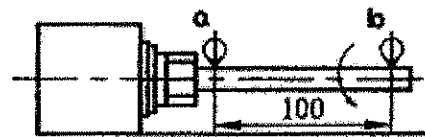
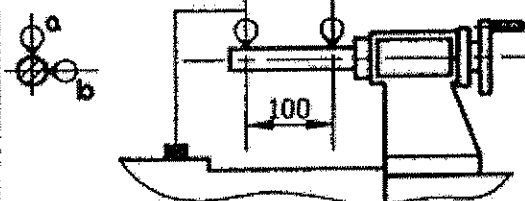
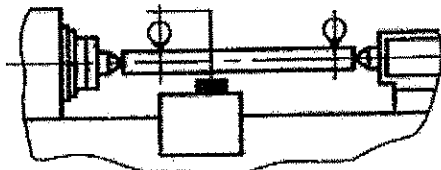
Chief of Inspection Dept:

Plant Director:

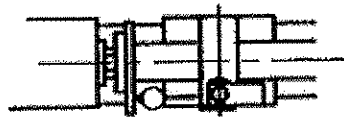
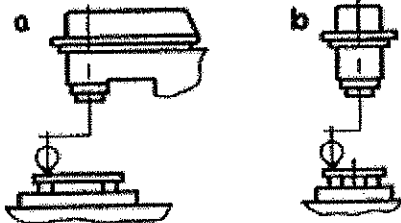
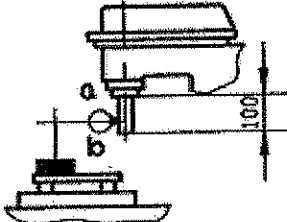
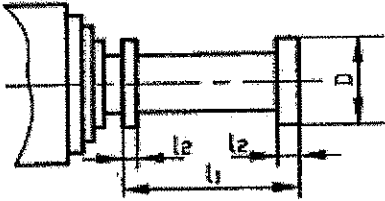
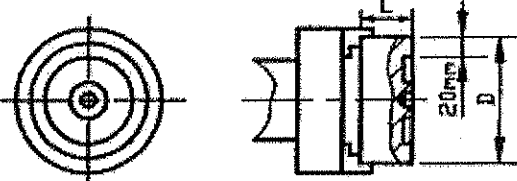
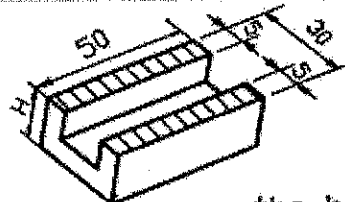
Date _____

Date _____

Inspection Accuracy Table(mm)

No.	Item	Inspecting Sketch	Allowable Tolerance
G ₀	Leveling for the machine		0.08/1000
G ₁	Linearity of carriage moving in the level		0.08
G ₂	Axial float of the spindle		0.03
G ₃	Parallelism of the turning spindle axis to the carriage moving		a:0.04 b:0.05 Only onward deviation allowed
G ₄	Runout of the axis of spindle taper hole of the headstock		a:0.03 Near the spindle end b:0.04 100mm away from the end
G ₅	Parallelism of the axis of tailstock sleeve to the carriage moving		a:0.04 b:0.04
G ₆	Equal - height of the axis between the headstock and tailstock centres to the carriage		0.05

Inspection Accuracy Table(mm)

No.	Item	Inspecting Sketch	Allowable Tolerance
G ₇	Perpendicularity of lateral moving of the transverse tool post to the spindle axis		0.07/100
G ₈	Perpendicularity of the rotation axis of the drilling - milling spindle to the table face		a:0.15/200 b:0.15/200
G ₉	Runout of the axis of the drilling - milling spindle hole		a:0.03 Near the spindle end b:0.05 100mm away from the end
P ₁	Cylindricity of excircle finishing	 <p>D=30 l_{2max}=20mm</p>	0.05 Measured on a length of 50mm
P ₂	Flatness of face fine cutting	 <p>L_{max}=30 D=80</p>	0.08
P ₃	Parallelism of the milled surface to the base face	 <p>the base face</p>	0.08

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Packing List

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Case No.

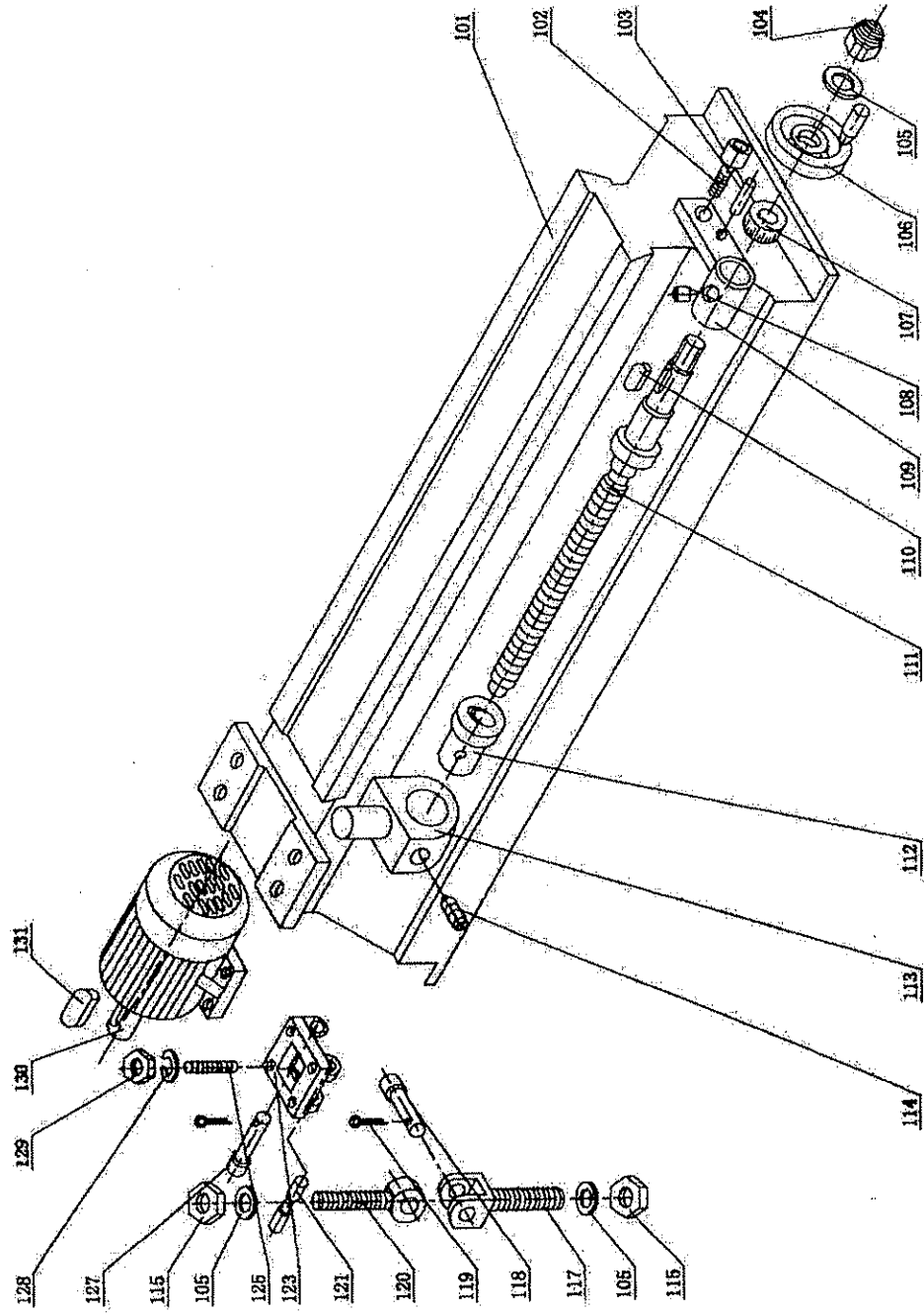
Gross weight 210kg Net weight 148kg

Size of box (L×W×H) 115cm×58cm×96cm

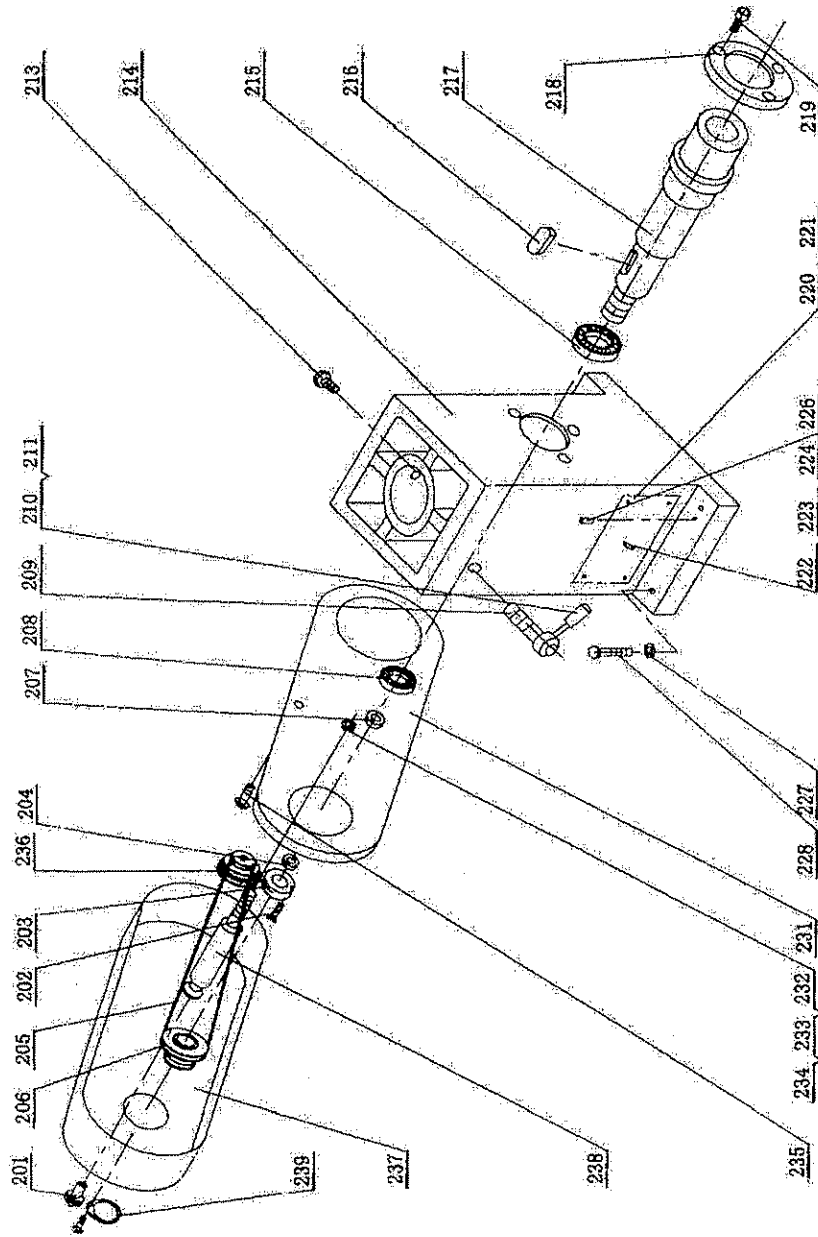
No.	Description	Specification	Quan.
1	A main machine tool	L-H007	1
2	Three-jaw chuck	Ø100	1
3	Dead centre	Morse No. 2 and No. 3	1 for each
4	Pressing cutter wrench		1
5	Wedge		1
6	Drilling chuck	JS16	1
7	Drawing bar		1
8	Drill taper stock		1
9	Flange		1
10	Locking lever		1
11	Technical document		1
12	Chuck Key		1

Packing Inspector _____

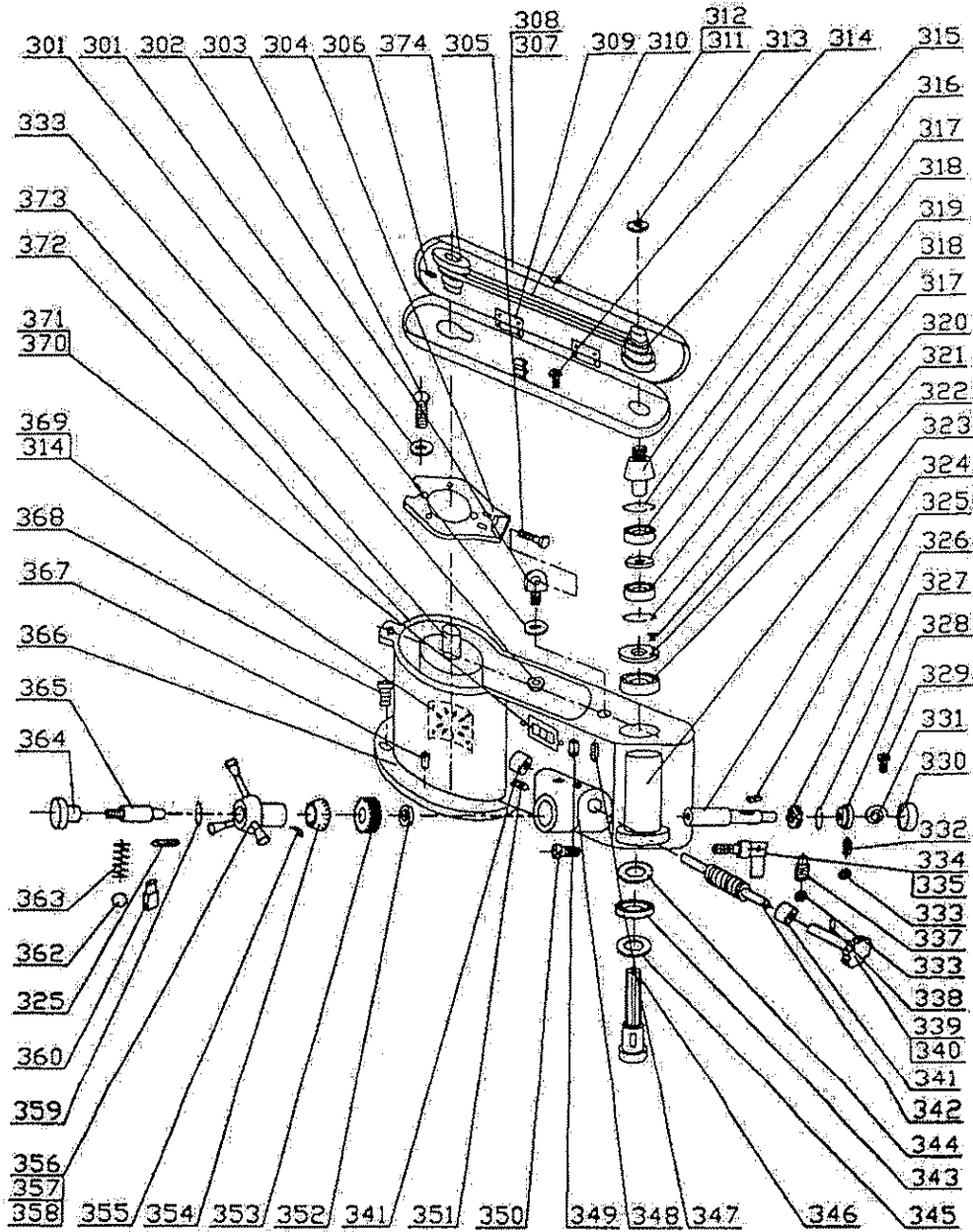
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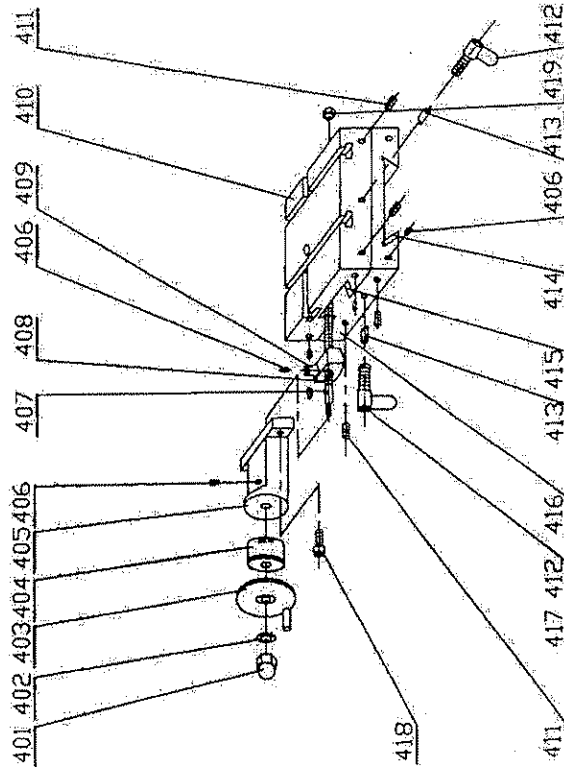
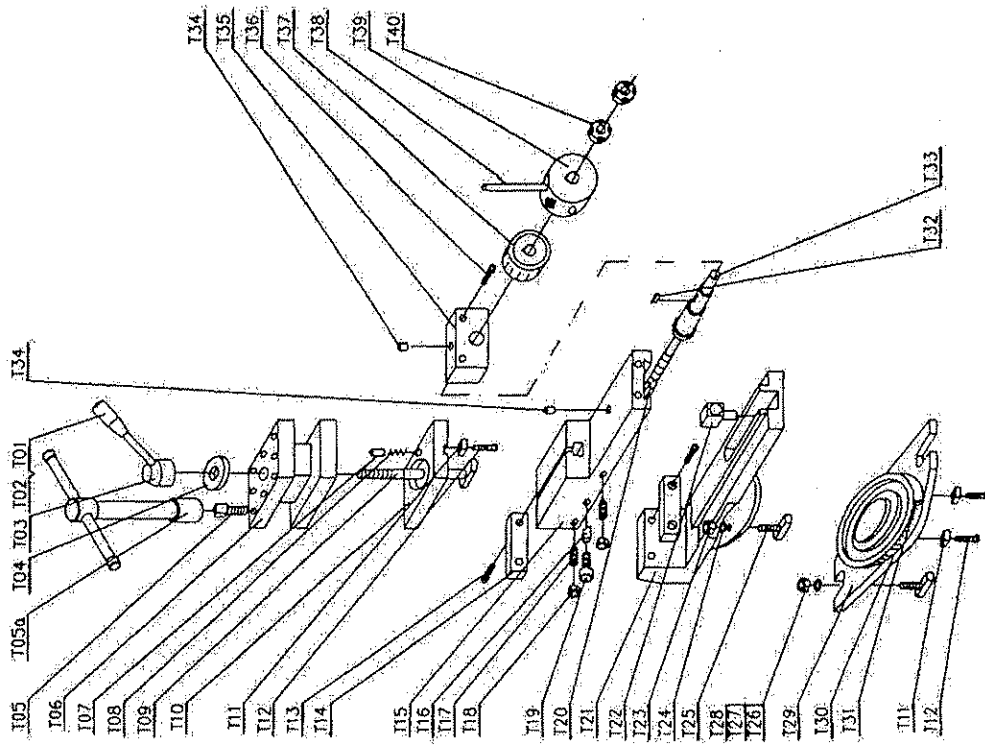
Part 1 Bed



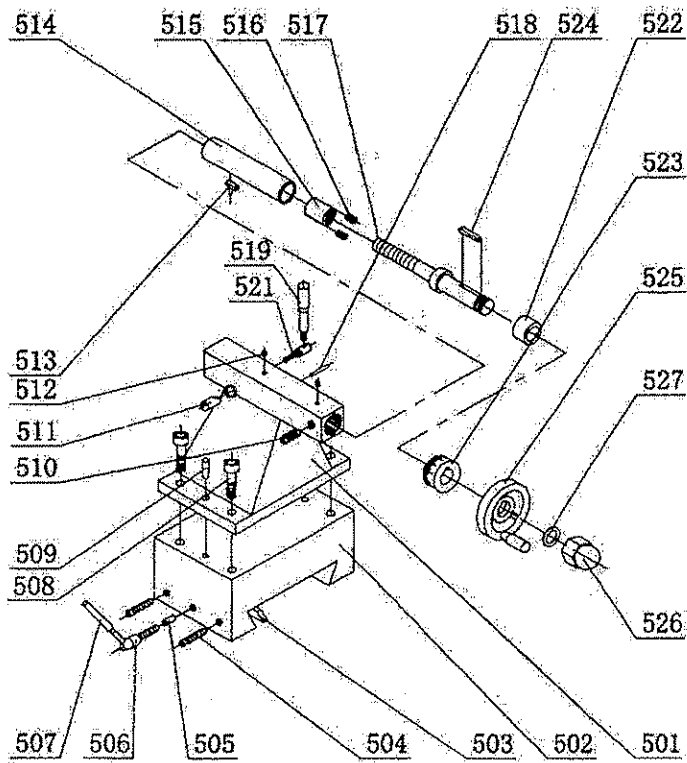
Part 2 Head stock



Part 3: Drilling-milling Box



Part 4 Work Bench



Part 5 Tailstock

BED

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
101	L-H007.1-01	bed	1	
102	GB70-85	socket cap screw M6×16	2	
103	GB117-86	taper bolt 3×12	2	
104	GB923-88	dome nut M10	1	
105	GB97-85	flat washer 10	3	
106	GB4141.22-84	hand wheel B12×125	1	
107	B-40×12×15	graduated disk	1	
108	GB1155-74	oil cup 6	1	
109	L-H007.1-08	lead screw support	1	
110	GB1096-79	flat key 4×30	1	
111	L-H007.1-03	lead screw	1	
112	L-H007.1-05	lead screw nut	1	
113	L-H007.1-04	lead screw nut holder	1	
114	GB71-85	conical pointed tightening screw M6×8	1	
115	GB6170-85	hexagon nut M10	1	
117	L-H007.1-12	holding device	1	
118	L-H007.1-13	pin bolt	1	
119	GB91-86	splint pin 2.5×16	2	
120	L-H007.1-10	dog bolt	1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
121	L-H007.1-09	revolving axis	1	
123	L-H007.1-14	motor frame	1	
125	GB899-88	double-end bolt M8×22	4	
127	L-H007.1-11	pin bolt	1	
128	GB93-87	spring washer 8	4	
129	GB6170-86	hexagon nut M8	4	
130		motor	1	
131	GB1096-79	flat key 5×30	1	

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HEADSTOCK					
ITEM	PART NO.	NAME & SPEC.		QUAN.	REMARKS
201	L-H007.2-12	round head handle		1	
202	GB68-85	countersink screw M5×8		1	
203	JB24-79	slotted round nut M33×1.5		1	
204	L-H007.2-07	washer		1	
205	GB1171-76	V-belt A-1000		1	
206	L-H007.2-08	spindle pulley		1	
207	L-H007.2-06	bearing retainer ring		1	
208	GB297-84	bearing E207		1	
209	L-H007.2-05	lock bolt		1	
210	GB4141.15-84	handle lever BM8×63		1	
211	GB4141.14-84	long handle cannula BM8×40		1	
213		reducer D97-4-16		1	
214	L-H007.2-04	headstock housing		1	
215	GB297-84	bearing E7208		1	
216	GB1096-79	flat key 10×25		1	
217	L-H007.2-05	spindle		1	
218	L-H007.2-14	end cover		1	
219	GB70-85	socket cap screw M6×16		3	
220	L-H007.2-16	switch cover		1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
221	GB68 - 85	countersink screw M5×12	4	
222	GB68 - 85	countersink screw M4×8	2	
223	L - H007.2 - 13	switch nut	2	
224	HZ10 - 10P/4	combined switch	1	
			1	
226	GB118 - 86	internal screw conical pin 8×40	2	
227	GB93 - 87	spring washer 12	4	
228	GB5782 - 85	hexagon bolt M12×45	4	
			3	
231	L - H007.2 - 10	internal cover	1	
232	GB6170 - 86	hexagon nut M6	1	
233	GB93 - 87	spring washer 8	1	
234	GB97 - 85	flat washer 8	1	
235	GB67 - 85	slotted panhead screw M5×8	4	
236	L - H007.1 - 02	motor pulley	1	
237	L - H007.2 - 09	cover	1	
238	L - H007.2 - 11	double screw bolt	1	
239	L - H009.2 - 20	bore cover	1	

DRILLING & MILLING BOX

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
301	GB97-85	flat washer 10	4	
302	L-H007.3-08	adjuster	1	
303	GB5783-86	hexagon bolt M8×25	3	
304	L-H007.3-04	adjusting plate for supporting motor	1	
305	GB5783-86	hexagon bolt M10×35	3	
306	GB75-85	long cylindrical head tightening screw M6×16	1	
307	L-H007.3-05	lower cover	1	
308	L-H007.3-06	upper cover	1	
309		cross linking 40	2	
310	GB1171-74	V-belt O-710	1	
311	ZQ4124-57	handle	1	
312	GB818-88	cross recess panhead screw M6×15	1	
313	GB812-88	round nut M30×1.5	1	
314	GB67-85	slotted panhead screw M5×8	10	
315	L-H007.3-09	big pulley	1	
316	L-H007.3-10	spline housing	1	
317	GB893-87	circlip 62	2	
318	GB276-84	bearing 206	2	
319	L-H06-117	bearing spacer ring	1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
320	GB68 - 85	countersink screw M4×8	1	
321	GB24 - 79	slotted round nut M24×1.5	1	
322	GB276 - 84	bearing 205	1	
323	L - H06 - 24	spindle sliding bush	1	
324	L - H007.3 - 12	spindle	1	
325	GB1096 - 79	flat key 8×25	2	
326	L - H06 - 50	cylindrical gear	1	
327	GB894 - 87	circlip for shaft 25	1	
328	L - H06 - 52	spring base	1	
329	GB67 - 85	panhead screw M5×8	1	
330	ZQ4124 - 59	spring - box cover	1	
331	L - H06 - 53	pan - shaped spring	1	
332	GB71 - 85	conical pointed tightening screw M10×30	1	
333	GB6170 - 85	hexagon nut M10	3	
334	ZQ4124 - 38	clamping rod	1	
335	ZQ4124 - 39	clamping lever	1	
337	GB72 - 85	conical pointed dog screw M10×40	1	
338	GB117 - 85	taper bolt 3×20	2	
339	L - H06 - 37	fitting lever	1	
340	GB4141.20 - 84	hand wheel 8×63	1	
341	L - H007.3 - 21	shaft sleeve	2	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
342	L-H06-32	worm	1	
343	GB297-84	single-row taper roller bearing E7207	1	
344	L-H06-26	dust ring	1	
345	L-H06-25	rubber washer	1	
346	L-H06-27	shaft for drilling & milling	1	
347	GB71-85	conical pointed tightening screw M6×10	1	
348	L-H007.3-17	worm-gear case	1	
349	GB1155-74	oil cup 6	1	
350	GB70-85	socket cap screw M6×16	3	
351	GB73-85	slotted flat-end tightening screw M4×6	1	
352	L-H06-47	washer	1	
353	L-H007.3-14	gear	1	
354	L-H06-42	scale ring	1	
355	L-H06-43	plate spring	1	
356	L-H007.3-19	handle body	1	
357	L-H007.3-20	handle lever	3	
358	GB4141.14-84	long handle cannula BM10×50	3	
359	GB894-87	circclip for shaft 32	1	
360	L-H007.3-15	banking pin	1	
362	GB308-74	steel ball 6	1	
363	L-H06-31	spring	1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
364	GB1358-73	clutch handle BM10×40	1	
365	L-H007.3-16	banking shalf	1	
366	L-H007.3-01	connecting swivel plate	1	
367	GB117-85	taper bolt 6×40	1	
368	GB70-85	socket cap screw M6×20	6	
369	L-H007.3-02	cover sheet	1	
370	KA0-5	push button	1	
371	GB818-85	cross recess panhead screw M4×10	2	
372	L-H007.3-03	drilling & milling box	1	
373	TZD-370	motor	1	
374	L-H007.3-07	motor pulley	1	
375	Z7020.2-14	eccentric shaft	1	
376	GB71-85	conical pointed tightening screw M6×10	1	

TOOL POST

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
T01	GB4141.15-84	handle lever BM8×75	1	
T02	GB4141.14-84	handle sleeve BM8×40	1	
T03		handle locking holder	1	
T04		washer	1	
T05a		T shaped wrench (pressing cutter wrench)	1	
T05	GB83-88	square pressing screw M8×22	8	
T06		tool apron	1	
T07		positioning cap	1	
T08		spring	1	
T09		locking shaft	1	
T10		tool apron backer	1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
T11		positioning block	3	
T12	GB819 - 85	cross recess head countersink screw M4 × 10	3	
T13	GB70 - 85	socket cap screw M5 × 10	4	
T14		clamping block	2	
T15		movable clamp	1	
T16		sloping block	1	
T17	GB71 - 85	conical pointed tightening screw M5 × 15	2	
T18	GB6170 - 86	nut M5	2	
T19	GB70 - 85	socket cap screw M5 × 10	1	
T20		spacer block	1	
T21		fixed clamp	1	
T22		nut	1	
T23	GB6172	nut M8	2	
T24	GB97	flat washer 8	2	
T25	GB37	T - shaped screw bolt M8 × 26	2	
T26	GB6170	nut M10	2	
T27	GB97	flat washer 10	2	
T28	GB37	T - shaped screw bolt M10 × 26	2	
T29		basement	1	
T30		graduated staff guage	1	
T31	GB876 - 86	hollow rivet	2	
T32	GB1096 - 79	flat key 4 × 20	1	

ITEM	PART NO.	NAME & SPEC	QUAN.	REMARKS
T33		lead screw	1	
T34	GB1155 - 74	oil cup 6	2	
T35		lead screw base	1	
T36	GB70 - 85	socket cap screw M6 × 16	2	
T37		scale ring	1	
T38		locking lever	1	
T39		hand wheel	1	
T40	GB812 - 88	round nut	2	

TABLE

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
401	GB923 - 84	capped nut M10	1	
402	GB97 - 85	flat washer 10	1	
403	GB4141.22 - 84	hand wheel B12 × 125	1	
404	B - 50 × 12 × 50	graduated disk	1	
405	L - H007.4 - 16	lead screw post	1	
406	GB1155 - 74	oil cup 6	4	
407	GB1096 - 79	flat key 4 × 30	1	
408	L - H007.4 - 21	lead screw	1	
409	L - H007.4 - 20	nut	1	
410	L - H007.4 - 02	table	1	
411	GB72 - 85	conical pointed tightening screw M8 × 20	4	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
412	ZQ4124 - 48	locking handle	2	
413	L - H007.4 - 18	sloping block	2	
414	L - H007.4 - 19	spacer block	1	
415	L - H007.4 - 22	spacer block	1	
416	L - H007.4 - 01	lower slide plate	1	
417	ZQ4124 - 48	locking handle lever	2	
418	GB70 - 85	socket cap screw M16×16	2	
419	GB6172 - 86	hexage thin nut M10	1	

TAIL STOCK

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
501	L - H007.5 - 06	tailstock	1	
502	L - H007.5 - 01	tailstock seating	1	
503	L - H007.5 - 02	spacer block	1	
504	GB71 - 85	conical pointed tightening screw M8×30	2	
505	L - H007.5 - 15	sloping block	1	
506	L - H007.5 - 14	clamp shaft	1	
507	L - H007.5 - 16	handel	1	
508	GB70 - 85	socket cap screw M6×16	4	
509	GB117 - 85	taper bolt 4×25	2	
510	GB71 - 85	conical pointed tightening screw M6×10	1	
511	L - H007.5 - 04	clamp block	1	
512	GB1155 - 74	oil cup	2	
513	L - H007.5 - 08	T - shaped embody flat key	1	

ITEM	PART NO.	NAME & SPEC.	QUAN.	REMARKS
514	L-H007.5-06	tailstock core shaft	1	
515	L-H007.5-09	nut	1	
516	GB73-85	flat end tightening screw M4×8	3	
517	L-H007.5-12	tailstock lead screw	1	
518	GB119-85	cylinder pin 5×20	1	
519	GB4141.15-84	handle lever BM8×65	1 set	including long handle cannula
521	L-H007.5-03	check lock shaft	1	
522	L-H007.5-13	supporting sleeve	1	
523	L-H007.5-10	graduated disk	1	
524	GB1096-79	flat key 4×20	1	
525	GB4141.22-84	tailstock hand wheel B12×100	1	
526	GB923-88	capped nut M10	1	
527	GB97-86	flat washer 10	1	