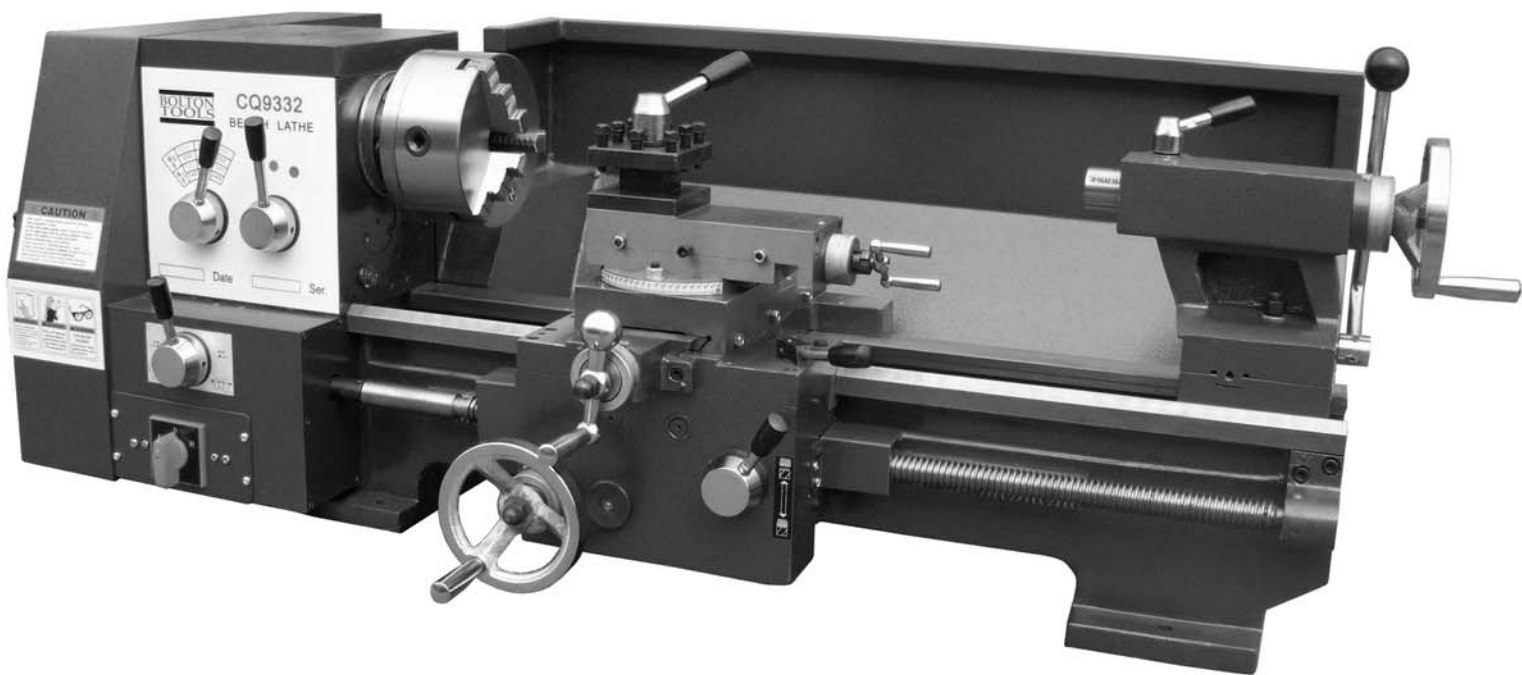


# BOLTON TOOLS

## MODEL CQ9332 OPERATION MANUAL



**COPYRIGHT © AUGUST, 2008 BY BOLTON HARDWARE  
WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE  
OR FORM WITHOUT THE WRITTEN APPROVAL OF BOLTON HARDWARE  
PRINTED IN CHINA**



# **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.**

**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.**

# Table of Contents

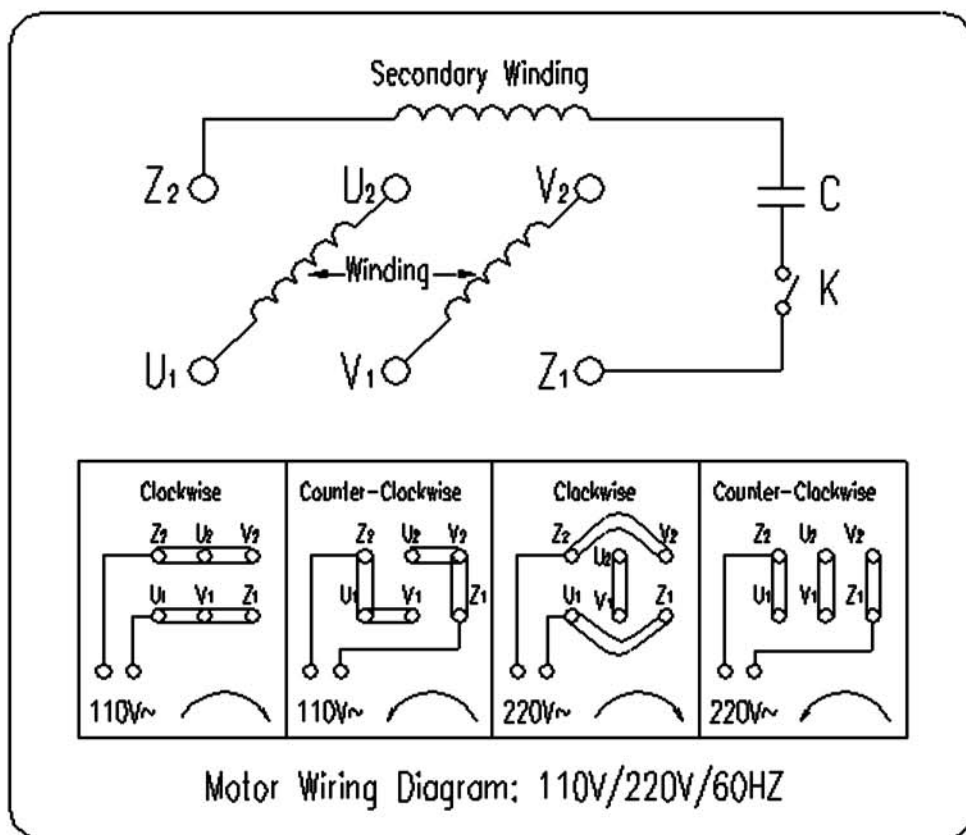
<b>INTRODUCTION .....</b>	<b>1</b>
Machine Data Sheet .....	1
Identification .....	2
<b>SECTION 1: SAFETY .....</b>	<b>3</b>
Safety Instructions for Machinery .....	3
Additional Safety Instructions for Lathe/Mills .....	4
Glossary of Terms .....	5
220V/110V Single-Phase .....	6
<b>SECTION 2: LIFTING AND INSTALLATION .....</b>	<b>7</b>
<b>SECTION 3: LATHE OPERATIONS .....</b>	<b>8</b>
Belt Adjustment or Replacement.....	8
Use the compound rest and the tool post .....	8
Using the Manual Feed Hanwheel .....	9
Use power feed handle .....	9
Use the tailstock .....	10
Driiing with the tailstock .....	10
Setting the spindle speed RPM .....	11
Setting the powe feed rate .....	12
Setup for thread .....	13
Change Gear Chart .....	14
Using the steady rest .....	15
Using the follow rest .....	15
Using the centers .....	16
Mounting the chuck and faceplate .....	17
Replace the jaws .....	18
Using the Four –jaw chuck .....	19
Using the faceplate .....	20
<b>SECTION 4: MAINTENANCE .....</b>	<b>21</b>
Basic Maintenance .....	21
Lubrication Positions List .....	22
Gib Adjustment .....	23
<b>Electrical Component and Connection Index.....</b>	<b>24</b>
<b>Wiring Diagram.....</b>	<b>25</b>
<b>SECTION 5: ACCESSORIES.....</b>	<b>26</b>
<b>SECTION 6: PARTS.....</b>	<b>27</b>
Bed Diagram.....	27
Bed Parts.....	28
Lathe Head Diagram.....	30
Lathe Head Parts.....	31
Tailstock Diagram.....	33
Tailstock Parts.....	34
Left Trestle Diagram.....	35
Left Trestle Parts.....	36
Apron Diagram.....	37
Apron Parts.....	38
Compound Box Diagram.....	40
Compound Box Parts.....	41
Compound Angle Toolpost Diagram.....	42
Compound Angle Toolpost Parts.....	43

# WARNING!

Connection is 110v/60hz for this machine in factory

When customers need access to 220V power supply, **PLEASE TURN OFF THE POWER OF THE MACHINE,** dismount electrical junction box, according to the electrical wiring diagram, and access to 220V power supply wire terminals.

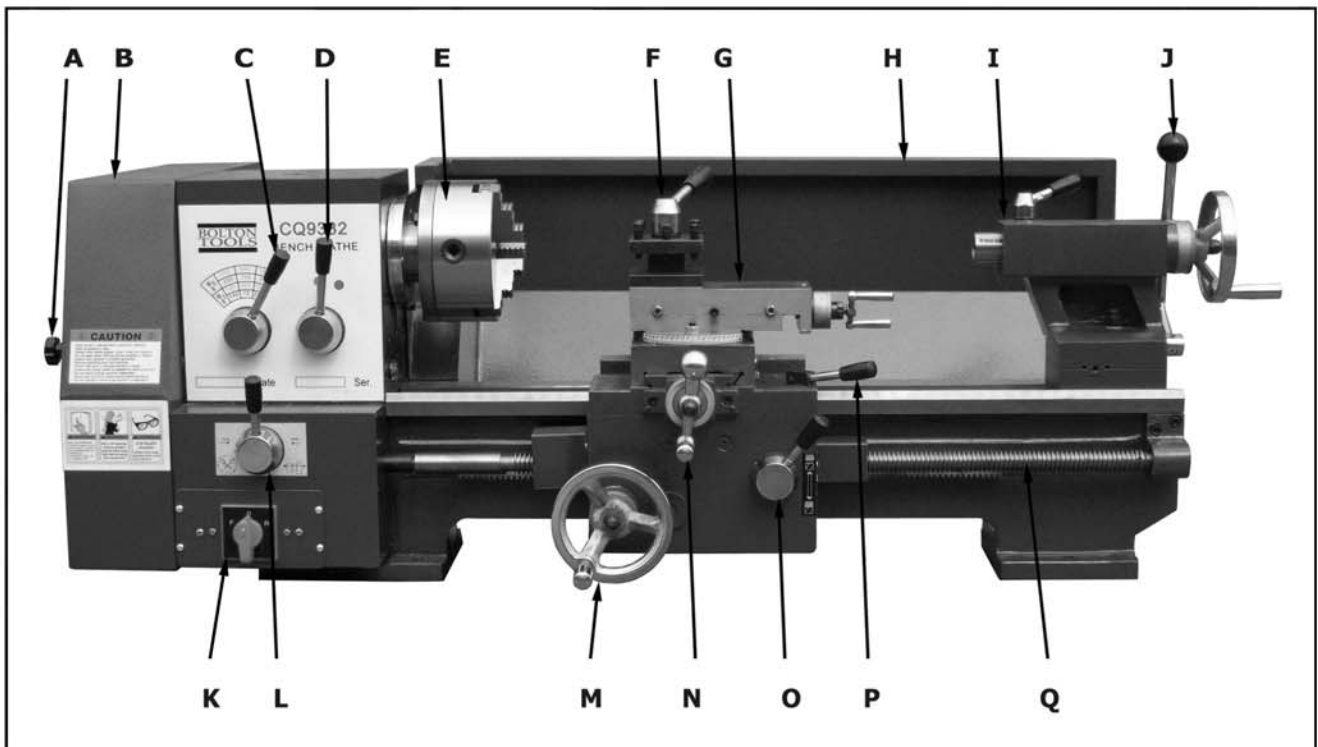
110V/220V Motor



# Machine Data Sheet

<b>Lathe Information</b>	Spindle Bore	1-1/2"
	Lathe Spindle Taper	MT#5
	Distance between centers	23-2/3"
	Swing over bed	12-3/5"
	Swing over work tabel	6-7/10"
	X-Axis working travel	21-2/3"
	Y-Axis working travel	7"
	X-Axis working travel on toolpost	4"
	Tailstock Taper	MT#3
	Tailstock Barrel Travel	3-1/7"
	Number of Lathe Speeds	12
	Lathe Speeds	75, 110, 140, 200, 240, 350, 420, 600, 720, 1050, 1250, 1900 RPM
	Thread Range (inches)	23 @ 9-48 TPI
	Thread Range (metric)	15 @ 0.5-4 mm
<b>Motors</b>	Type	TEFC Capacitor start induction
	Horsepower	1HP
	Voltage	220V / 110V
	Phase	Single
	Amps	5.7A/11.4A
	Speed	1725 RPM
	Cycle	60 Hz
	Power Transfer	Gear Drive
	Bearings	Shielded and Lubricated
<b>Product Dimensions</b>	Approximate Net Weight	485 lbs
	Overall Dimensions	51-1/3" Wide x 24-3/5" Deep x 17-5/7" Tall
	Approximate Shipping Weight	618 lbs
	Crate size	54" X 28" X28"

## IDENTIFICATION



- |                               |  |
|-------------------------------|--|
| <b>A.</b> Side Cover          | <b>J.</b> Tailstock Lock Lever               |
| <b>B.</b> Change Gear Box     | <b>K.</b> Power Switch                       |
| <b>C.</b> Spindle Speed Lever | <b>L.</b> Lead Screw Direction Lever         |
| <b>D.</b> Spindle Range Lever | <b>M.</b> Manual Feed Handwheel              |
| <b>E.</b> 3-Jaw Chuck         | <b>N.</b> Cross Slide Handle                 |
| <b>F.</b> Four-Way Tool Post  | <b>O.</b> Half Nut Lever                     |
| <b>G.</b> Compound Rest       | <b>P.</b> Longitudinal and Cross Slide Lever |
| <b>H.</b> Back Splash         | <b>Q.</b> Lead Screw                         |
| <b>I.</b> Tailstock           |  |

 **WARNING!**

**For your own safety, read instruction manual before operating this machine.**

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

## **Safety Precautions**

- **Keep balance of the machine when lifting in case of the danger of overturn caused by the unbalanced lifting., Only when the machine is fixed firmly, can you use it, or danger will be resulted from vibration.**
- **Users must check and make sure that the power source is right for the machine before operation and with reliable neutral wire, or the operator will suffer the danger from touching the electricity.**
- **This machine isn't equipped with illuminant apparatus. Users must mount it themselves. The mounted illuminator must not generate too strong light, flash light or shadow.**
- **Do not use the machine in bad surroundings, do not put the machine at damp or wet place or expose it to rain. The working place should be dry. Or the machine will be eroded or suffer from leak of circuit.**
- **Non-operators should keep a safety distance from the working area in case of being hurt by the flying piece.**
- **Operators should wear safety glasses in case of being hurt by the iron piece.**
- **Don't put things in the upper pocket. Don't wear things like necklace .Don't put tools and gauges ready to use in wrong place.**
- **Operators should wear work clothes and not with gloves on. Long hair must be bound up to avoid possible dangers of being wound by the running parts.**
- **Stepping-things for the operator must be able to guard against slide. Operators should keep balance of their bodies and not incline bodies or stretch arms too much.**
- **Do not process work pieces exceeding the designed range with the machine.**
- **Work pieces or cutting tools must be fixed firmly and correctly. Spanners or keys must be removed from chucks or drill chucks after the fixation. Operators should be accustomed to check and ensure that the spanners or keys have been removed already before operation.**
- **When operation users should adopt suitable tools, and work pieces must be fixed firmly and never be touched.**
- **Only when the machine is stopped, can you change cutting tools or maintain it.**
- **Operators can never leave the running machine. Only when the machine is stopped and chucks or drill chucks are thoroughly stopped, can they leave.**
- **If any abnormal noise or any other abnormal situation appears during operation, stop the machine immediately and repair it.**
- **Please guard against any other possible dangers.**

 **WARNING!**

## **Additional Safety Rules For This Machine**

**This machine must not be modified for any purpose other than that for which it designed.**

- **You should not operate this machine unless you are thoroughly familiar with metal turning lathes and turning techniques. If there is any doubt whatsoever, you should consult a qualified person.**
- **Do not operate the machine until it is completely assembled, and this entire manual, has been read and understood.**
- **Ensure the proper electrical regulations are followed, and that the machine is properly earthed.**
- **Ensure all chuck keys, spanners and removed from the machine.**
- **Examine the setup carefully, ensuring that nothing could possibly interfere with the rotating workpiece.**
- **Ensure the tool post is secure and cutting tool is adjusted to the correct height.**
- **Ensure your clothing is properly adjusted.**
- **Ensure the workpiece is properly secured.**
- **Make all adjustments with the power off**
- **Always cut at speed for the size and type of material being worked.(refer to a suitable turning manual for cutting speeds.)**
- **When you have finished with machine, always remove and store the cutting tools.**
- **When using a coolant, on no account must suds be allowed to enter the electrical system.**



## Glossary of Terms

The following is a list of common definitions, terms and phrases used throughout this manual as they relate to this lathe/mill and metalworking in general. Become familiar with these terms for assembling, adjusting or operating this machine. Your safety is VERY important to us at Bolton Tools!

**Arbor:** A machine shaft that supports a cutting tool.

**Backlash:** Wear in a screw or gear mechanism that may result in slippage, vibration, and loss of tolerance.

**Collet:** A conical shaped split-sleeve bushing which holds round or rectangular tool and/or work pieces by their outside diameter.

**Cross Slide:** A fixture attached to the lathe carriage that holds the compound rest and can be moved in and out.

**Cutting Speed:** The distance a point on a cutter moves in one minute, expressed in meters or feet per minute.

**Dial Indicator:** An instrument used in setup and inspection work that shows on a dial the amount of error in size or alignment of a part.

**Dividing Head:** A milling machine accessory used to divide a circular object into a number of equal parts.

**Down Milling or Climb Milling:** Feeding the workpiece in the same direction as the cutter rotation.

**End Mill:** A cutter with cutting surfaces on both its circumference and end.

**Facing:** In lathe work, cutting across the end of a workpiece, usually to machine a flat surface.

**Feed:** The movement of a cutting tool into a workpiece.

**Fixture:** A device that securely holds the workpiece in place during cutting operation as opposed to a Jig which is used to hold and guide a workpiece through an operation.

**Gib:** A tapered wedge located along a sliding Member to take up wear or to ensure a proper fit.

**Headstock:** The major lathe component that houses the spindle and motor drive system to turn the workpiece.

**Lathe Center:** A lathe accessory with a 60° Point which is inserted into the headstock or tailstock of the lathe and is used to support the workpiece.

**Leadscrew:** Lathe—The long screw that is driven by the end gears and supplies power to the carriage. Mill—The screws that move the table in longitudinal, transverse, or vertical directions.

**Spindle:** The revolving shaft that holds and drives the workpiece or cutting tool.

**Tailstock:** A moveable fixture opposite of the headstock on a lathe that has a spindle used to support one end of a workpiece and for holding tools.

**Tool Post:** The part of the compound rest that holds the tool holder.

**Turret:** Lathe—A machine fixture that holds multiple tools and can be revolved and indexed to position. Mill—The part of a mill which rotates on the column and can be set to a specific degree.

**Ways:** The precision machined and flat tracks on a lathe or mill on which the carriage, tailstock, and the mill table and knee slide.

**220v -110v Single -Phase**

**Amperage**

This machine under maximum load.

Both motor operating	5.7Amps/220V
	11.4Amps/110V

We recommend connecting your machine to a dedicated and grounded circuit that is rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes.

220V circuit	10 Amps
110V circuit	20 Amps

**Plug (fig1)**

**Grounding**

This machine dedicated and grounded circuit that is rated for the amperage given below. Ensure compliance with wiring codes, without consulting a qualified electrician DO NOT replace a circuit breaker on an existing circuit . All electrical connections must be made in accordance with local codes and ordinances. All electrical connections must be properly installed and grounded.

In the event of an electrical short, grounding reduces the risk of electric shock.

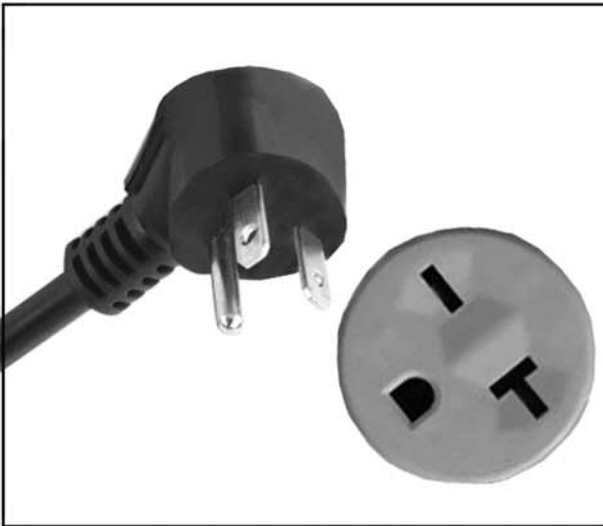
**Extension**

Do not use of extension cords. and arrange properly the placement and install wiring to avoid extension.

If this is very absolutely necessary which use an extension cord at 220v with machine;

The cord is at least a 12 gauge that is no exceed 50 feet, which must contain a ground wire and plug pin.

A qualified electrician must size cords over 50 feet long to prevent motor damage.

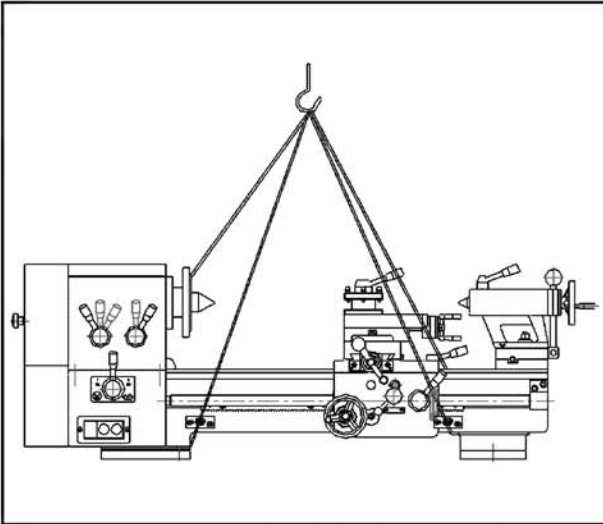


**Figure 1.** Plug and Receptacle.



**Figure 2:** Power switch location.

## SECTION 2 : LIFTING & INSTALLATION -



**Figure 3.** Lifting strap locations.

It is recommended to use the lifting method in **figure 3**. If a forklift is available, it can also be used to lift the machine. When the machine is lifted and installed, you should make it level in case of turnover causing possible danger. The drilling and milling head can't be turned at 180° in case of losing balance.

Please assembly referring to figure Use to level the guide way and the small slide. Fix the machine in the base with bolts.

Prepare the machine location, and install or prepare holes for any floor mounting fasteners.

Use fork lift or 2-ton hoist to operator or 1ton lifting straps and hooks.

Unbolt the crate sides and remove the top and side.

Insert two lifting straps under the bedways and behind the feed rod and the lead screw as shown in fig to balance the load.

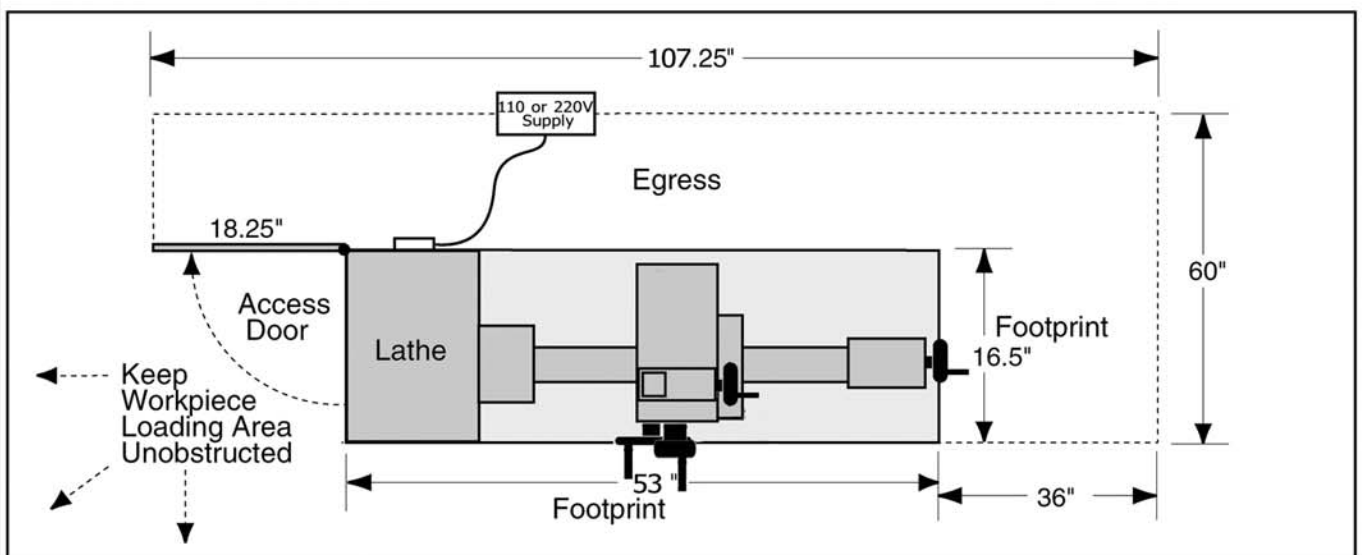
Unbolt the machine from the pallet.

Slowly raise the machine off the pallet and carefully move the machine to prepare location.

With the machine securely resting on the floor, shim between the floor and cabinet base as required to make the ways level at four corner locations as indicated with a machinist's level.

Secure the machine to the floor, but do not over tighten the fasteners.

Recheck the ways to make sure the ways are still level, and re-shim as required.

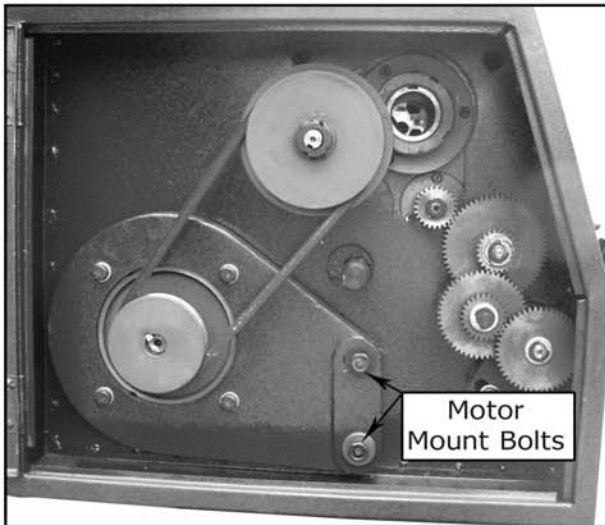


**Figure 4:** Minimum wall clearances.

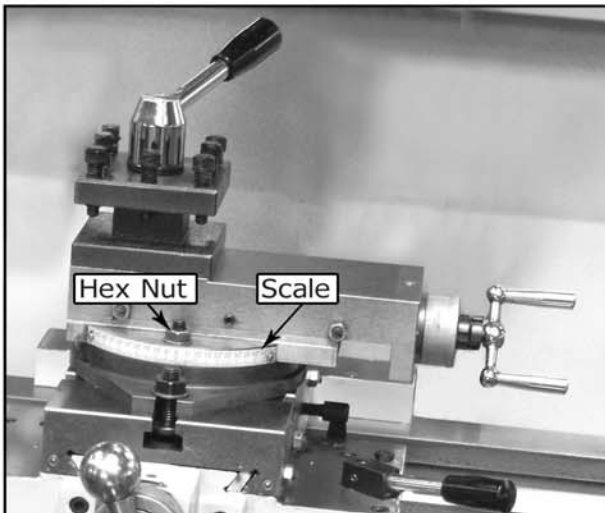
## Belt Adjustment or Replacement

DISCONNECT POWER TO THE LATHE/MILL!

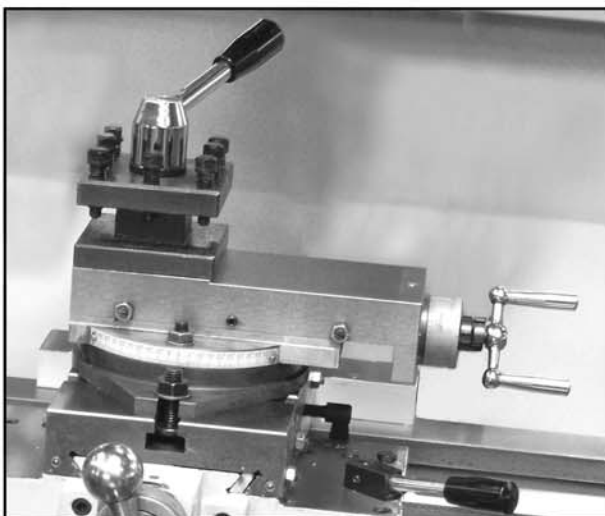
1. Open the change gear door(FIGURE5 )
2. Using a 17mm wrench, loosen the two motor out bolts shown in Figure 5.
3. Grasp the motor and lift upward to de-tension the belt and remove the belt.
4. Use solvent to clean the pulleys of oil and install the new belt.
5. the table shows the various combinations of belt setting(letters and numbers)to achieve the desired speed.
6. let the motor hang to tension the belt, and tighten the two motor mount bolts.
7. close the door and latch it shut.



**Figure 5.** Motor mount bolts.



**Figure 6:** Compound rest, scale, and handwheel.



**Figure 7:** Four-Way Tool Post

## Using the Compound Rest and the Tool post

The compound rest is used to cut tapers on parts or to set the proper infeed angle when threading. It may also be used to cut specific lengths longitudinally, when set parallel to the spindle axis.

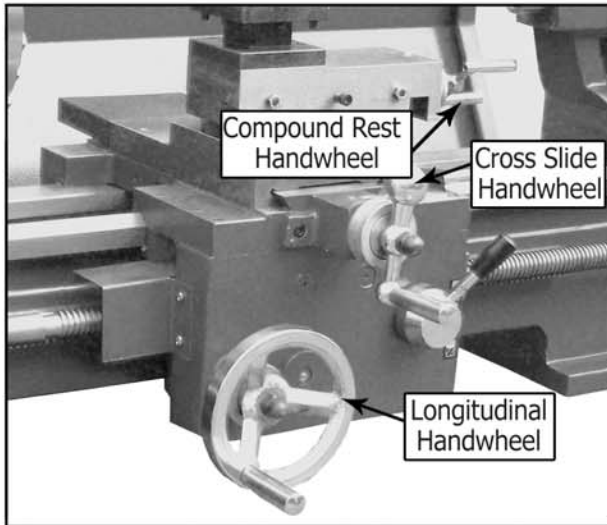
To set the angular position:

1. Loosen the hex nuts, one on each side of the compound rest (see Figure 6).
2. Rotate the compound rest to the desired angular position using the scale.
3. Tighten the two hex nuts. Be sure to not overtighten, as you may strip threads or crack or distort the base casting.

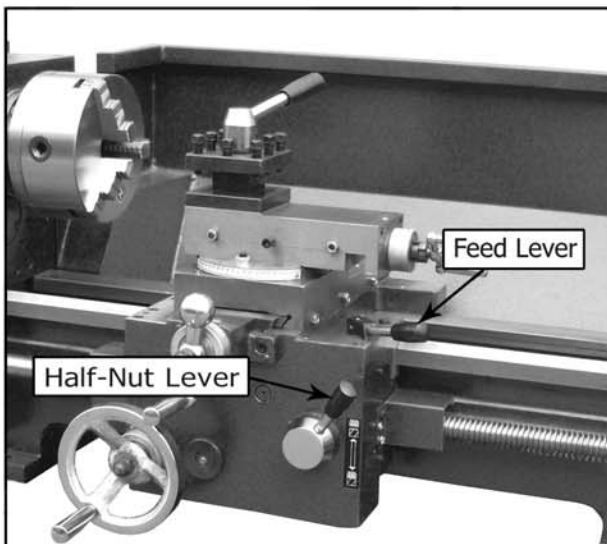
### use the tool post

This tool post (figure7) is mount on top of the compound rest , and maximum four tool to be loaded.

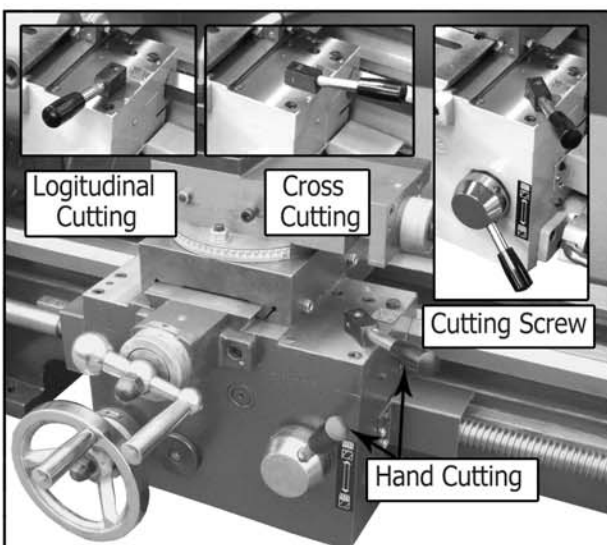
- a. when change the positions of the tool post ,first rotate the top of handle counterclockwise ,this tool post began lossed, rotate it 90° counterclockwise, and then clockwise rotate the tool post to the desired position, rotate clockwise the handle to lock the tool into position.
- b. When rotated the tool post handle by hand and slide the compound rest , must be lossed and adjust lock screw. when machine operating ,must lock the screw of compound rest.



**Figure 8 .** Carriage controls.



**Figure 9:** Compound rest, scale, and handwheel.



**Figure 10 .** Position of the Lever.

## Using the Manual Feed Handwheel

**Notice:** when using manual feed handwheel, the longitudinal and cross slide lever must be at the neutral of the position and the half is loos.

There are three handwheels by use for you can manually move the cutting tool around the lathe /mill.(Figure8)

### Longitudinal Handwheel

When move the carriage left or right along the bed, You can use the longitudinal handwheel, This control is helpful when setting up the machine for turning or when manual movement is desired during turning operations.

### Cross slide Handwheel

Turning the cross slide handwheel clockwise move the top of slide toward the workpiece, turning the dial counterclockwise move the slide away from the work.

### Compound Rest Handwheel

The compound rest handwheel mainly controls the position of the cutting tool relative to the workpiece, turning the dial move the tool post toward or away from the spindle, Adjust angle is depend on the two hex nuts on the base of the compound rest.

### use power feed handles

this machine power feed control by two handle longitudinal and cross slide lever and half nut (figure9, 10)

1. longitudinal and cross slide lever: this position is right top of the compound rest, the half nut is in loos before use. And by which could power feed cutting surface, hole ,face .

when longitudinal and cross slide lever in the 45° position, counter clockwise rotated 45°, for cross power feed, clockwise rotated 45° for longitudinal. before use the longitudinal and cross slide lever must be in the 45° position, and by which could cut screw.

When longitudinal and cross slide lever in the 45° position, drop down the half nut to cutting screw.

2. half nut handle :this position in the right of the apron.

## use the tailstock

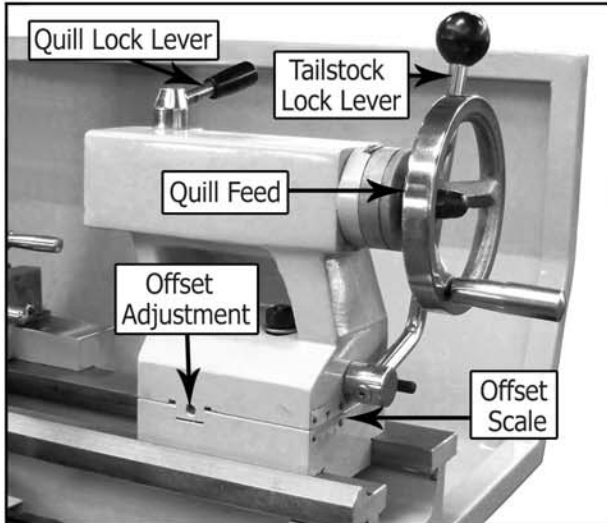
the tailstock can be used to support workpieces with the use of a live or dead center. the lathe can drill I or bore holes in the center of parts if use an MT3# or a drill bit on which the tailstock, can also be offset for cutting shallow tapers. it could be manual locked on the any position of the guild way .

**Lock position:** first adjust the two nuts (figure11), make the two press plant of tailstock and bed can be meet to saitifed push tailstock by hand(gib is 0.5mm),rotate the lock sleeve(the two press plant is tigid each other), tailstock have been locked on the guildway of the bed. if tailstock must support more effort, turn tigid the nut on the top of bolt. by use wrench.

**Tailstock slide:** rotate lock sleeve to loose the press plant and top nut, the tailstock can be slide by hand.

Use tailstock center sleeve.

when need to move the center sleeve, Slide the tailstock to the desired positions and locked, push down counterclockwise the quill lock lever to unlock, turn the quill feed handle(wheel) to move the quill towards the spindle ,or counterclockwise to move away from the spindle. turn clockwise the quill lever to lock the center sleeve in place.

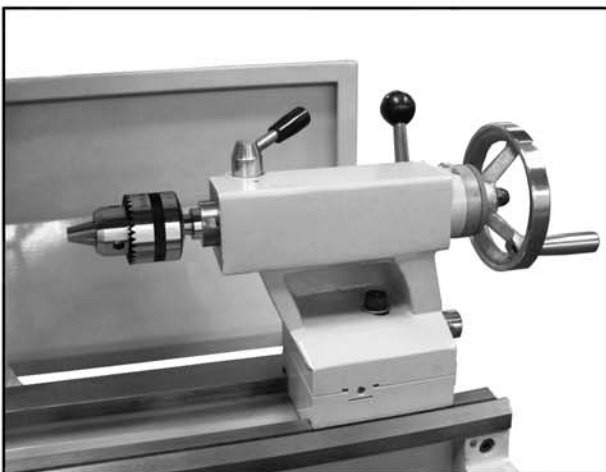


**Figure 11 .** Tailstock and quill lock handles in locked position.

## Drilling with the Tailstock

To install the MT#3 drill chuck:

1. With the tailstock locked, unlock the quill lock lever.
2. Turn the quill feed handle clockwise to extend the quill about one inch.
3. Insert the MT#3 chuck (Figure 12) or an MT#3 tapered drill shank into the quill until the taper is firmly seated.
4. Turn the quill feed handle clockwise to feed the drill bit into a rotating workpiece.
5. To remove the chuck taper, turn the quill feed handle counterclockwise until the chuck is pushed out of the tailstock taper.

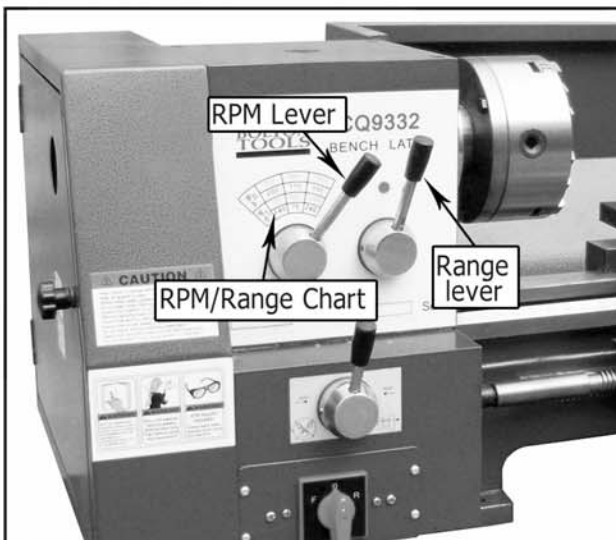


**Figure 12:** Setting up tailstock for drilling.

Cutting Speeds for High Speed Steel (HSS) Cutting Tools	
Workpiece Material	Cutting Speed (sfm)
Aluminum & alloys	300
Brass & Bronze	150
Copper	100
Cast Iron, soft	80
Cast Iron, hard	50
Mild Steel	90
Cast Steel	80
Alloy Steel, hard	40
Tool Steel	50
Stainless Steel	60
Titanium	50
Plastics	300-800
Wood	300-500

**Note:** For carbide cutting tools, double the cutting speed. These values are a guideline only. Refer to the *MACHINERY'S HANDBOOK* for more detailed information.

**Figure 13.** Cutting speed table for HSS cutting tools.



**Figure 14:** Spindle speed selector levers.

## Setting the Spindle RPM

To determine and set the needed spindle **RPM** for cutting:

1. Use the table in Figure 13 to determine the cutting speed required for the workpiece material.
2. Determine the average final diameter of the workpiece in inches, for the cut to be made.
3. Now use the following formula to determine the closest RPM for the cutting operation:

$$\frac{(\text{Cutting Speed} \times 4)}{\text{Diameter of Cut}} = \text{RPM}$$

4. With the calculated RPM, decide on the closest cutting RPM to what you need.
5. Make sure the spindle is completely stopped before proceeding.
6. Move the levers (Figure 14) to get the RPM range that is closest to your calculated RPM:

— The range lever selects BLACK DOT = High or RED DOT = Low.

— The RPM Lever selects the RPM within that range.

### DISCONNECT POWER TO THE LATHE/MILL !

Your machine installed belt by two groove of pulley, there is high speed and low range, the yellow for high speed range, the red for low speed range.(figure14)

Setting high speed rang: mount the end of belt on the major diameter of motor pulley and the other end on the minor diameter of spindle pulley, and then move the levers to get the yellow rpm rang that is you need speed.

Setting low speed rang: mount the end of belt on the minor diameter of motor pulley and the other end on the major diameter of spindle pulley, and then move the levers to get the red rpm rang that is you need speed .

**Failure to follow RPM and feed rate guidelines may threaten operator safety from ejected parts or broken tools.**

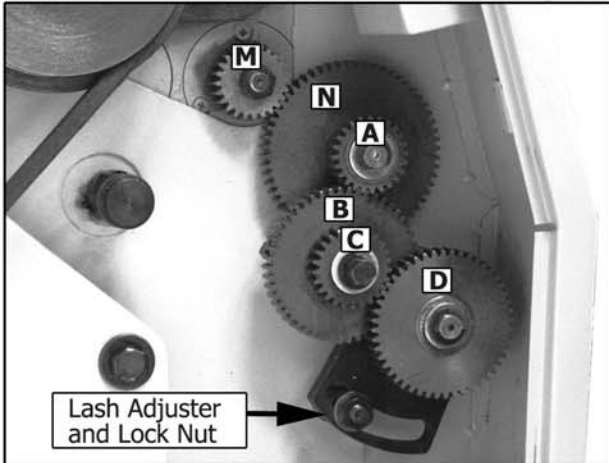
*Note: You may need to rotate the chuck by hand to get the gears to engage.*

## Setting the Power Feed Rate

**DISCONNECT POWER TO THE LATHE/MILL !**

**To set and engage the power feed**

Refer to the CHANGE GEAR LIST on page 15. to Setting parameters of feed rate and thread by combine gear. There are six gears in every group, the code is M,N,A,B,C,D., Figure for the gear installations locations that are referenced by the list. The up column of the list show FAQ feed rate, to be Suitable for cutting surface ,hole, end face.



**Figure 15.** Change gear locations

Inch Threading	Longitudinal Feed				Cross Feed		
	M=24 N=60	M=28 N=35	A B	C D	M=24 N=60	M=28 N=35	
10	5	48 X 30	25 X 48	0.0206	0.0412	0.0044	0.0088
12	6	40 X 30	36 X 32	0.0172	0.0344	0.0036	0.0072
16	8	36 X 28	30 X 48	0.0130	0.0260	0.0028	0.0056
18	9	40 X 30	25 X 48	0.0115	0.0230	0.0024	0.0048
20	10	32 X 32	30 X 48	0.0103	0.0206	0.0022	0.0044
22	11	32 X 32	25 X 44	0.0094	0.0188	0.0020	0.0040
23	11.5	25 X 32	32 X 46	0.0089	0.0178	0.0019	0.0038
24	12	25 X 32	25 X 46	0.0086	0.0172	0.0018	0.0036
25	12.5	25 X 32	30 X 50	0.0082	0.0164	0.00175	0.0035
26	13	25 X 32	32 X 52	0.0079	0.0158	0.0017	0.0034
28	14	25 X 35	30 X 48	0.0074	0.0148	0.0016	0.0032
30	15	24 X 36	30 X 48	0.0069	0.0138	0.0015	0.0030
32	16	25 X 40	30 X 48	0.0065	0.0130	0.0014	0.0028
34	17	25 X 34	24 X 48	0.0061	0.0122	0.0013	0.0026
36	18	25 X 36	24 X 48	0.0057	0.0114	0.0012	0.0024

**Figure 16.** Using the change gear chart.

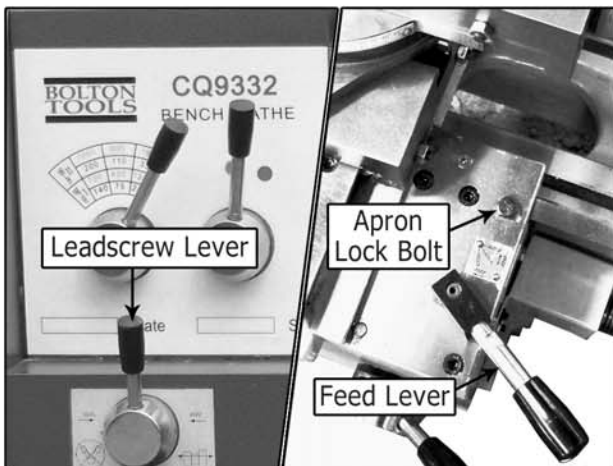
1. If give the longitudinal and cross rate how to combine gear, please see Figure 16. For example: the list shows that 0.0103" of longitudinal travel per revolution of lead screw is need, or 0.0022" of cross travel per revolution of lead screw is need.

Fist loosen the gear plate and swing the assembly out of the way ,remove the required E-rings and swap out the appropriate change gears, install M,N,A gear side by side ,and then install B,C on the gear plant and mount the gear plant on the shaft of the left trestle, install gear D and adjust the gib with C and D, Move the gear plant and adjust gib of B with A gear. when finished and then tighten the lock nut. use the leadscrew lever to select leadscrew rotation direction, loosen the apron lock bolt, and use feed lever to engage the cross slide or longitudinal feed(see Fig.15,17).

**Note:** All change gears are stamped with the number of teeth they have.

## NOTICE

**Feed rate is based on spindle RPM. Pay close attention to the feed rate you have chosen and be ready to disengage the apron. Failure to do this may cause the carriage to crash into the chuck.**



**Figure 17.** Leadscrew and feed levers.



Inch Threading		Longitudinal Feed		Cross Feed	
M	N	A/B	C/D	M	N
M=24	M=28	24/50	25/48	0.0040	0.0080
N=60	N=35	48/36	30/32	0.0206	0.0412
		40/36	30/32	0.0172	0.0344
		35/28	30/48	0.0130	0.0260
		40/28	25/48	0.0115	0.0230
		32/32	30/48	0.0103	0.0206
		32/32	25/44	0.0094	0.0188
		25/32	32/46	0.0089	0.0178
		25/32	32/48	0.0086	0.0172
		25/32	32/50	0.0082	0.0164
		25/32	32/50	0.0079	0.0158
		25/32	32/48	0.0074	0.0148
		24/36	30/48	0.0069	0.0138
		25/40	30/48	0.0065	0.0130
		25/34	24/48	0.0061	0.0122
		25/36	24/48	0.0057	0.0114

Figure 18: Using the change gear chart.

## Setup for Threading

Your lathe is capable of cutting inch and metric threads.

To setup for threading:

**DISCONNECT THE LATHE/MILL FROM POWER!**

Refer to the CHANGE GEAR LIST on page 15. to Setting parameters of thread by combine gear.

- If achieve your need threading how to combine gear, please see Figure 18 .

For example: the list shows 30TPI is need.

Fist loosen the gear plate and swing the assembly out of the way, remove the required E-rings and swap out the appropriate change gears, install M,N,A gear side by side ,and then install B,C on the gear plant and mount the gear plant on the shaft of the left trestle, install gear D and adjust the gib with C and D, Move the gear plant and adjust gib of B with A gear. when finished and then tighten the lock nut. use the leadscrew lever to select leadscrew direction, setup the cutting, compound rest and cross slide to cut your threads and loosen the apron lock bolt.

While threading, keep your hand on the half-nut lever, ready to disengage the apron to avoid any potential for an apron/chuck crash.

- If cutting inch threads, refer to the Thread Dial Table in Figure 38 to use the thread dial.
- If cutting metric threads, do not use the thread dial. Instead, you must leave the half nut engaged until the threading operation is totally complete.

**Note:** All change gears are stamped with the number of teeth they have.

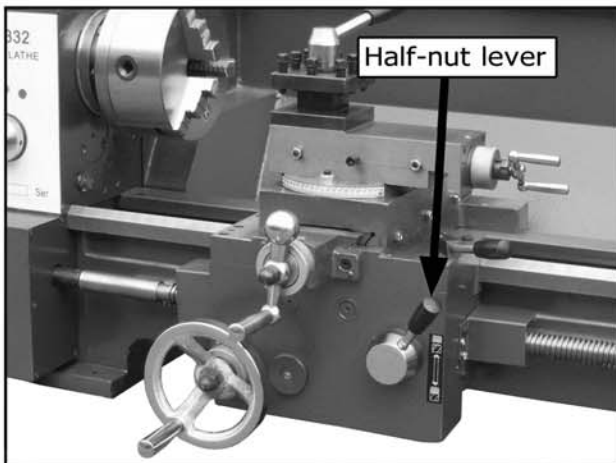


Figure 19: Half-nut lever.

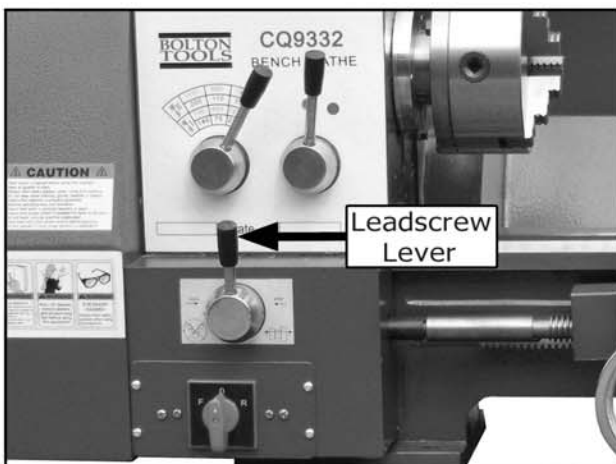
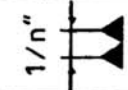
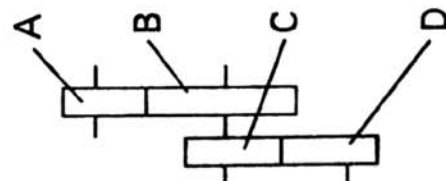
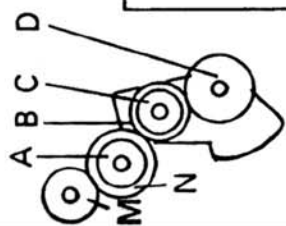


Figure 20: Leadscrew lever.

# SECTION 3 : LATHE OPERATIONS

## Change Gear Chart

M = 24		M = 28		A X C / B X D	M = 24 N = 35	M = 28 N = 35	mm	mm		
M = 24	N = 60	M = 28	N = 35							
10	5	24 X 48 / 50 X 32	0.0040	0.0080	0.0008	0.0017	0.0206	0.0412	0.0044	0.0088
12	6	40 X 30 / 36 X 32	0.0172	0.0344	0.0036	0.0072	0.0172	0.0344	0.0036	0.0072
16	8	35 X 40 / 28 X 32	0.0130	0.0260	0.0028	0.0056	0.0130	0.0260	0.0028	0.0056
18	9	40 X 25 / 30 X 48	0.0115	0.0230	0.0024	0.0048	0.0115	0.0230	0.0024	0.0048
20	10	32 X 30 / 32 X 48	0.0103	0.0206	0.0022	0.0044	0.0103	0.0206	0.0022	0.0044
22	11	32 X 25 / 32 X 44	0.0094	0.0188	0.0020	0.0040	0.0094	0.0188	0.0020	0.0040
23	11.5	25 X 32 / 32 X 46	0.0089	0.0178	0.0019	0.0038	0.0089	0.0178	0.0019	0.0038
24	12	25 X 32 / 32 X 48	0.0086	0.0172	0.0018	0.0036	0.0086	0.0172	0.0018	0.0036
25	12.5	25 X 32 / 32 X 50	0.0082	0.0164	0.00175	0.0035	0.0082	0.0164	0.00175	0.0035
26	13	25 X 32 / 32 X 52	0.0079	0.0158	0.0017	0.0034	0.0079	0.0158	0.0017	0.0034
28	14	25 X 30 / 35 X 48	0.0074	0.0148	0.0016	0.0032	0.0074	0.0148	0.0016	0.0032
30	15	24 X 30 / 36 X 48	0.0069	0.0138	0.0015	0.0030	0.0069	0.0138	0.0015	0.0030
32	16	25 X 30 / 40 X 48	0.0065	0.0130	0.0014	0.0028	0.0065	0.0130	0.0014	0.0028
34	17	25 X 24 / 34 X 48	0.0061	0.0122	0.0013	0.0026	0.0061	0.0122	0.0013	0.0026
36	18	25 X 24 / 36 X 48	0.0057	0.0114	0.0012	0.0024	0.0057	0.0114	0.0012	0.0024
40	20	25 X 24 / 40 X 48	0.0052	0.0104	0.0011	0.0022	0.0052	0.0104	0.0011	0.0022
48	24	25 X 25 / 48 X 50	0.0043	0.0086	0.0009	0.0018	0.0043	0.0086	0.0009	0.0018

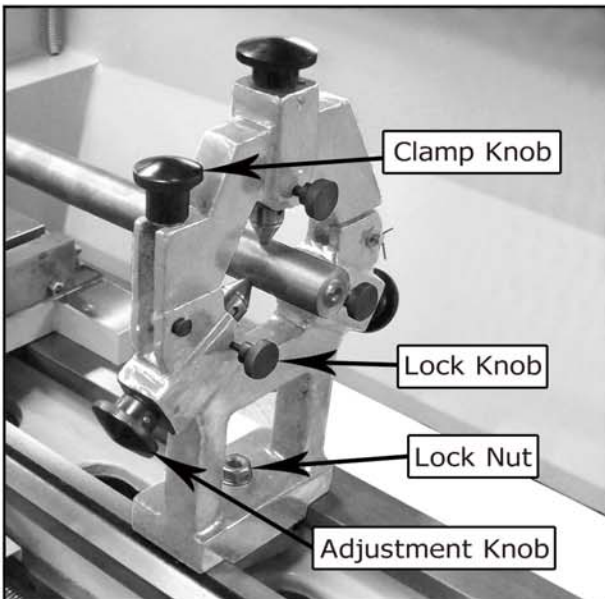


## Using the Steady Rest

The steady rest serves as a support for long shafts. The steady rest can be placed anywhere along the length of the ways.

### To use the steady rest:

1. Carefully place the steady rest on the lathe bedways.
2. Loosen the lock knobs so the finger position can be adjusted (see Figure 21).
3. Loosen the clamp knob (see Figure 21) and open the steady rest so a workpiece can fit inside of the fingers.
4. Position the steady rest where desired. Tighten the lock nut (see Figure 21) at the base of the steady rest to secure in place.
5. Close the steady rest so that the workpiece is inside the fingers and tighten the clamp knob.
6. Turn the adjustment knobs so the fingers are snug against the workpiece and then tighten the lock knobs. Lubricate the finger tips with an anti-seize lubricant during operation.
7. After prolonged use, the fingers will show wear. Either mill or file the tips for a new contact surface.

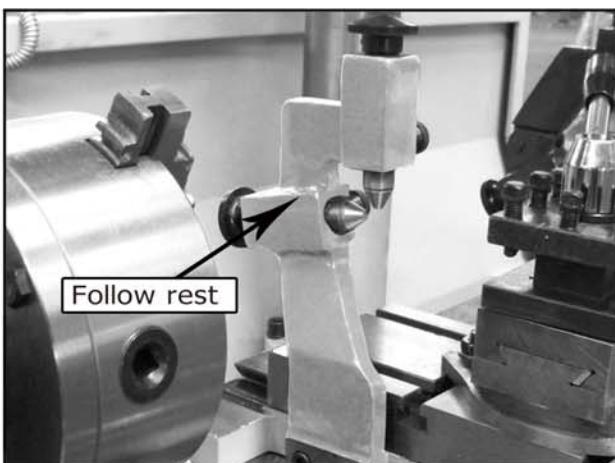


**Figure 21:** Steady rest adjustments.

## Using the Follow Rest

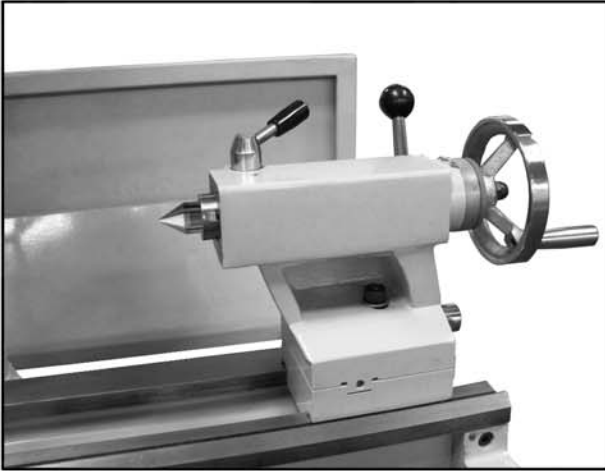
The follow rest in Figure 22 is mounted on the saddle and follows the movement of the tool. The follow rest requires only two fingers, as the cutting tool acts as the third. The follow rest is used on long, slender parts to prevent flexing of the workpiece from the pressure of the cutting tool.

The sliding fingers are set similar to those of the steady rest—free of play but not binding. Always lubricate during operation. After prolonged use, the fingers will need to be milled or filed to clean up the contact surface.



**Figure 22:** Follow rest attachment.

## Using the Centers



**Figure 23:** Inserting dead center.

The dead center is used in the tailstock and lathe spindle to support workpieces. When used in the tailstock, make sure to keep the MT#3 dead center tip and workpiece lubricated to prevent tip galling.

This lathe/mill is also supplied with an MT#5 dead center that fits into the lathe spindle taper.

To install a dead or live center:

1. Feed the quill out about 1" and insert the MT#3 dead center (Figure 23). The mating tapers provide the locking action.
2. Move the tailstock into position and lock in place.
3. Feed the quill into the workpiece.

*Note: Make sure there is a center drilled hole in the end of the workpiece for the dead center.*

4. Lock the quill into place once the live center and the part rotate together. The quill may need to be adjusted during operation.
5. To remove the dead center, retract the quill until the dead center pops free.

### To install the MT#5 dead center in the spindle:

1. DISCONNECT POWER TO THE LATHE/ MILL!
2. Remove the chuck from the spindle.
3. Install the MT#5 dead center in the spindle.
4. Attach the faceplate to the spindle, see Figure 24.

*Note: When using the dead center in the spindle, use a lathe dog so that your part will rotate with the spindle and not spin on the dead center tip.*



**Figure 24:** Faceplate and dead center setup.

### NOTICE

Failure to keep dead center point well lubricated will gall the dead center and workpiece.

## Mounting the Chuck and the Faceplate



**Figure 25:** Chuck mounting components.

The three-jaw scroll chuck has hardened steel jaws that self-center the workpiece within 0.002"-0.003". An extra set of jaws is included for machining larger workpieces.

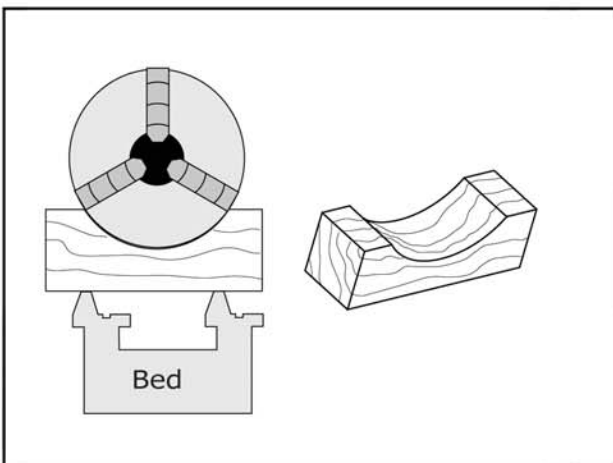
The four-jaw chuck also has hardened steel jaws but are adjusted independently to hold an offcenter workpiece. Each jaw can be removed from the chuck body and reversed for special clamping applications.

The cast-iron faceplate has slots for T-bolts that hold clamping fixtures. This face plate and aftermarket clamping hardware will hold non-cylindrical parts such as castings for many types of turning operations.

Both chucks and the faceplate are removed and installed the same way.

### To remove and install the chuck or face late:

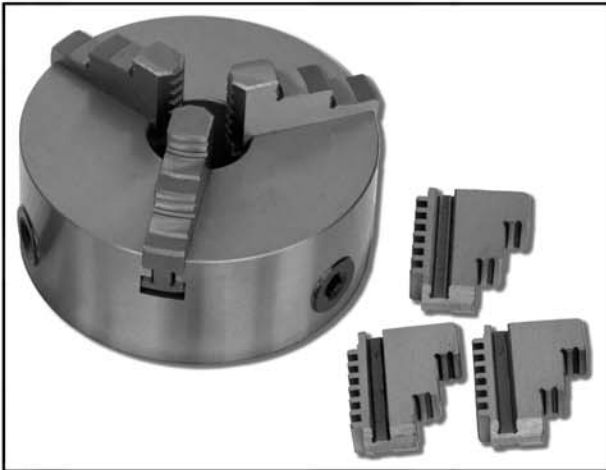
1. DISCONNECT POWER TO THE LATHE/MILL!
2. Lay a chuck cradle or protective layer of plywood ver the bedways to prevent your fingers from being pinched and to protect the precision-ground surfaces (see Figure 26).
3. Use a 14mm wrench and loosen the three hex bolts that secure the chuck to the spindle Figure 25.
4. Support the chuck, and while anticipating the heavy weight of the chuck, remove the three hex bolts and then the chuck.
5. Clean the mating surfaces of the spindle and the new chuck or faceplate with a clean oiled rag.
6. Position the other chuck or faceplate on the spindle flange, making sure it is fully seated, and tighten the hex bolts in several alternating sequences.



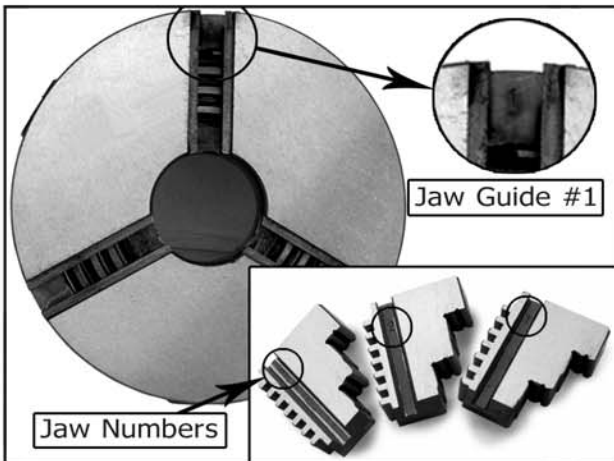
**Figure 26:** Faceplate and dead center setup.

## WARNING!

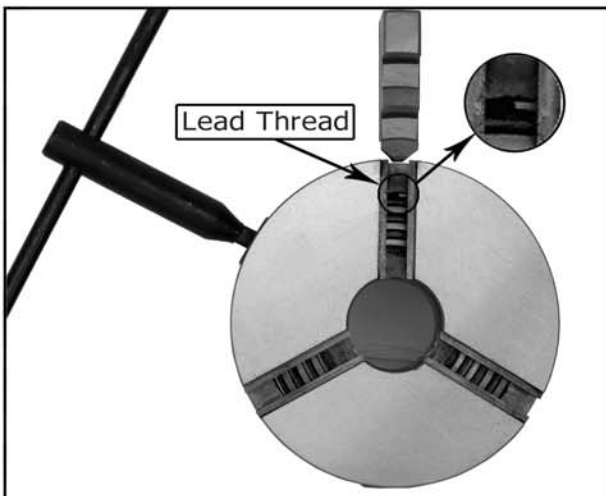
**Securely clamp your workpiece and remove the chuck key! Thrown objects from a lathe/mill can cause serious injury or death to the operator and to bystanders many feet away.**



**Figure 27:** Chuck and jaw selection.



**Figure 28:** Faceplate and dead center setup.



**Figure 29:** Jaw guide number.

## Replacing the Jaws

The three-jaw scroll chuck has removable hardened steel jaws (Figure 27). The outside of the jaws are used to hold the workpiece from the outer diameter.

Numbered from 1–3, the jaws must be used in the matching numbered jaw guides, see Figure 28.

### To remove a set of jaws:

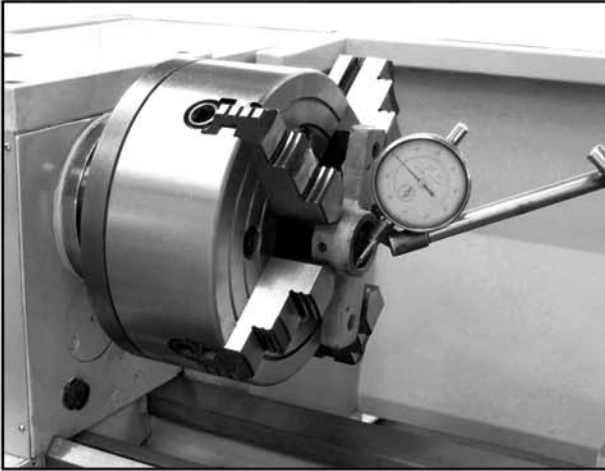
1. DISCONNECT POWER TO THE LATHE/MILL!
2. Place a piece of wood over the ways to protect them from potential damage.
3. Turn the chuck key counterclockwise and back the jaws out.
4. Clean the jaw mating surfaces and apply a film of white lithium grease to the mating surfaces.
5. Set the old jaws aside in a safe place free of moisture and abrasives.
6. Rotate the chuck key clockwise until you see the tip of the scroll-gear lead thread just begin to enter jaw guide #1 (see Figure 29).
7. Insert jaw #1 into jaw guide #1 and hold the jaw against the scroll gear.
8. Rotate the chuck key clockwise one turn to engage the tip of the scroll-gear lead thread into the jaw. Pull on the jaw now and it should be locked into the jaw guide.
9. Repeat the steps on the remaining jaws.

— If installed correctly, the three jaws will converge together at the center of the chuck.

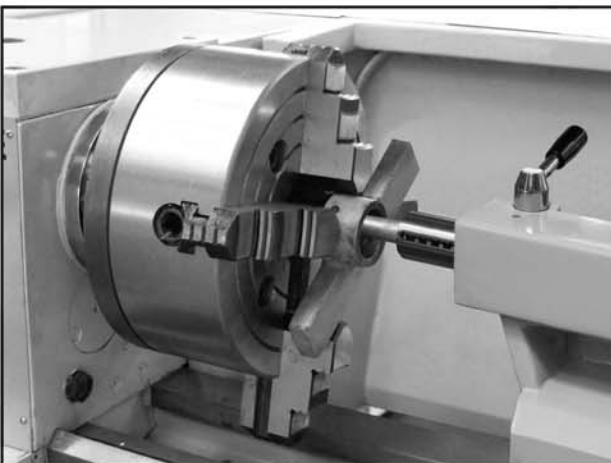
— If the jaws do not come together, repeat this procedure until they do.

**Note:** The chuck need not be removed from the spindle to swap the jaws.

## Using the Four-Jaw Chuck



**Figure 30:** Centering workpiece.



**Figure 31:** Clamping workpiece.

To install the four-jaw chuck:

Refer to the Mounting the Chuck and Faceplate procedures on Page 18 to mount the four-jaw chuck.

**To load a workpiece in the four-jaw chuck:**

1. DISCONNECT POWER TO THE LATHE/MILL!
2. Using the chuck key, open each jaw so the workpiece will lay flat against the chuck face.
3. Support the workpiece.
4. Lock the tailstock and then turn the tailstock quill so the dead center makes contact or is close to the center point of your workpiece (see Figure 31).
5. Turn each jaw until it just makes contact with the workpiece.
6. In an opposing pattern, tighten each jaw in small increments. After you have adjusted the first jaw, continue tightening the opposing jaw. Check the dead center alignment frequently to make sure you have not wandered off your index point due to applying too much pressure to a single jaw.
7. After the workpiece is held in place, back the tailstock away and rotate the chuck by hand. The center point will move if the workpiece is out of center.
8. Make fine adjustments by slightly loosening one jaw and tightening the opposing jaw until the workpiece is precisely aligned. Use a dial indicator for fine tuning adjustments in alignment (see Figure 30).
9. Use a lower RPM when machining heavy eccentric workpieces.

### **WARNING!**

**Securely clamp your workpiece and remove the chuck key! Thrown objects from a lathe/mill can cause serious injury or death to the operator and to bystanders many feet away.**

## Using the Faceplate

The faceplate can be used to turn non-cylindrical parts or for off-center turning by clamping the workpiece to the faceplate.

### To install the faceplate:

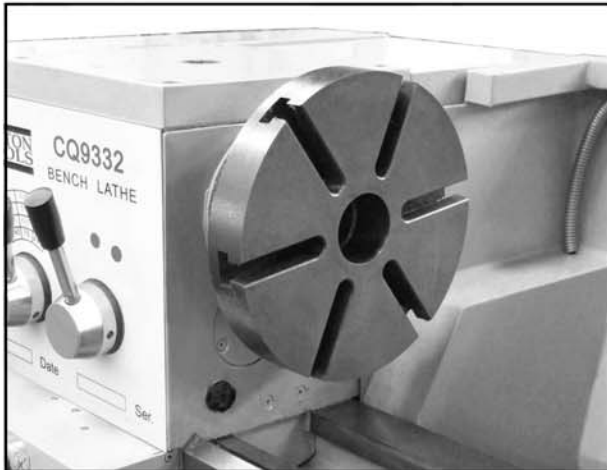
Refer to the Mounting the Chuck and Faceplate procedures on Page 18 to mount the faceplate.

### To load a workpiece:

1. Support the workpiece.
2. Slide the tailstock to the workpiece.
3. Lock the tailstock and then turn the tailstock quill so the dead center makes contact with the center point of your workpiece.
4. Lock the tailstock quill when sufficient pressure is applied to hold the workpiece in place.

**Note:** Depending on the workpiece, some additional support may be needed.

5. Secure the workpiece with a minimum of three independent clamping devices. Failure to follow this step may lead to deadly injury to yourself or bystanders. Take into account rotation and the cutting forces applied to the workpiece when clamping to the faceplate. Make sure your clamping application will not fail!
6. Use a lower RPM when machining heavy eccentric workpieces.



**Figure 32:** Faceplate installed.

### **WARNING!**

Use a minimum of three independent clamping devices when turning eccentric workpieces. Failure to provide adequate clamping will cause workpiece to eject.

### **WARNING!**

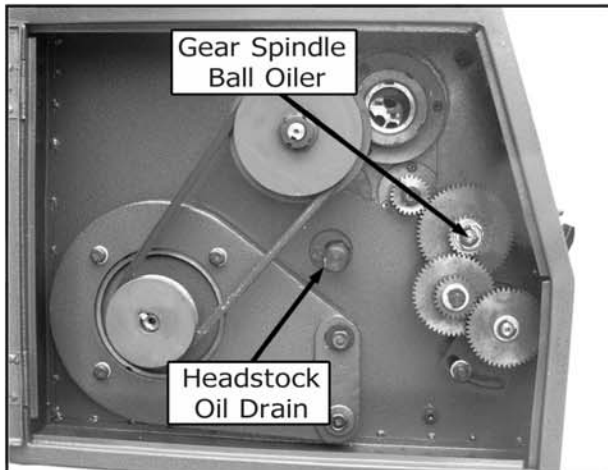
Securely clamp your workpiece and remove the chuck key! Thrown objects from a lathe/mill can cause serious injury or death to the operator and to bystanders many feet away.



## BASIC MAINTENANCE

### **WARNING!**

**Ensure that the machine is unplugged from the power supply before attempting any maintenance.**



**Figure 33:** Start switch & spindle lock location.

**. Inspecting this machine before each time using, and regular periodic maintenance.**

Lubricate the leadscrew (oil point on the leadscrew).

Lubricate the cross slide (oil point behind scale and two on front face of slide).

Lubricate the compound slide (two oil points on top face).

Lubricate the tailstock (two oil points on top face).

**. Clean the machine after each use and oil all machined surfaces.**

. If any play becomes apparent in the slides adjust as follows:

Loosen the lock nuts (compound slide only) of the gib strip adjusting screws (fig shows the screws for the compound slide).

Those for the cross slide are on the right-hand side of the slide, and those for the tail stock are either side of the locking lever.

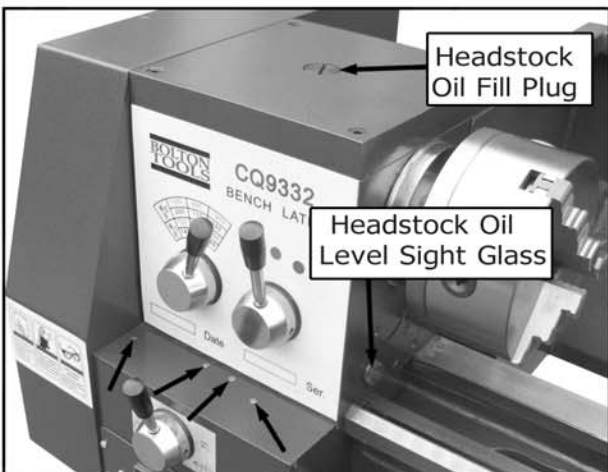
Lightly tighten the screws equally and check that the slide will not move with normal effort on the handle.

Back-off each screw by 1/4 turn (tighten the lock nuts, compound slide only).

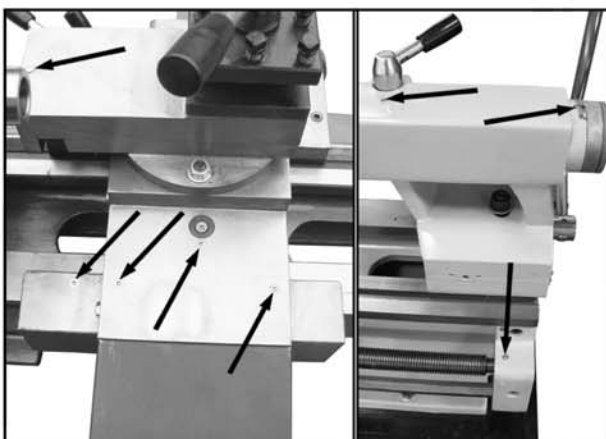
Check that there is no play and that the slide moves smoothly.

. If further adjustment is required, tighten or loosen the screws as necessary by 1/8th of a turn only and recheck.

. Keep the headstock oil level at 3/4 full (see Figure 35), after break in you can change with good quality (such as Mobil®DTE®) after that, each three month change once or more frequently if require.



**Figure 34:** Headstock and Gear box.



**Figure 35:** Typical ball fitting locations.

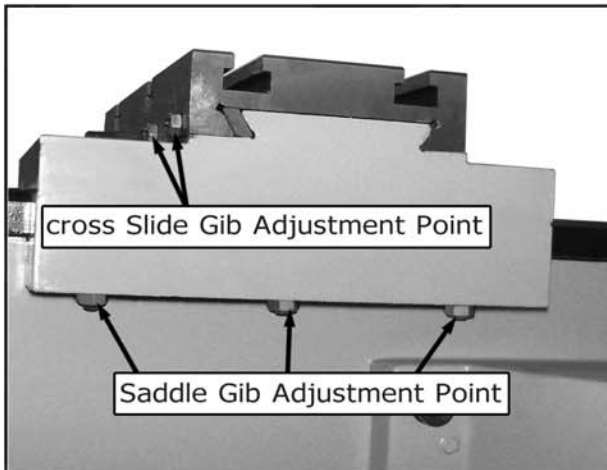
## Lubrication Positions List

Item in figure.	Lubrication Positions	Located Parts	Lubrication Methods	Types Of Lubrication Oil	Lubrication Period
1	Gears, bush bearing	Left trestle	Gun oiling	Machine oil	One year
2	Spindle bearing	Lathe head	Greasing	Grease	1 / year
3	Thrust ball bearing	Left trestle	Greasing	Grease	1 / year
4	Slide way, lead screw, guide surface	Apron parts	gun oiling	Machine oil	2 / day
5	Gears, racks	Apron parts	Greasing	Grease	one month
6	Tool post lead screw, guide surface	Tool carriage	gun oiling	Machine oil	2 /day
7	Longitudinal lead screw	lead screw	gun oiling	Machine oil	2 / day
8	Lathe bed guide	Lathe bed	gun oiling	Machine oil	2 / day
9	Tail stock sleeve	Tailstock	gun oiling	Machine oil	2 / day
10	Tailstock leads crew bush bearing	Tailstock	gun oiling	Machine oil	2 / day
11	Bearing pedestal	Lathe bed	gun oiling	Machine oil	2 / day
12	Cross nut \ lead screw	Small carriage	gun oiling	Machine oil	2 / day
13	Bearing bush	Small carriage	gun oiling	Machine oil	2 / day
14	Thrust bearing	Lead screw pedestal	Greasing	Grease	6 /year
15	Change gear shaft	Compound box	gun oiling	Machine oil	2 / year
16	Bearing	Input pulley	Greasing	Grease	6 /year

**Note.**

- 1) It is recommended to use 3#CA Grease for the "grease" in the table.
- 2) Use 20# machine oil for the "machine oil" in the table.
- 3) The parts lubricated should be cleaned in due .The oil in the carriage should be changed in due. Oil again to the oil sign.

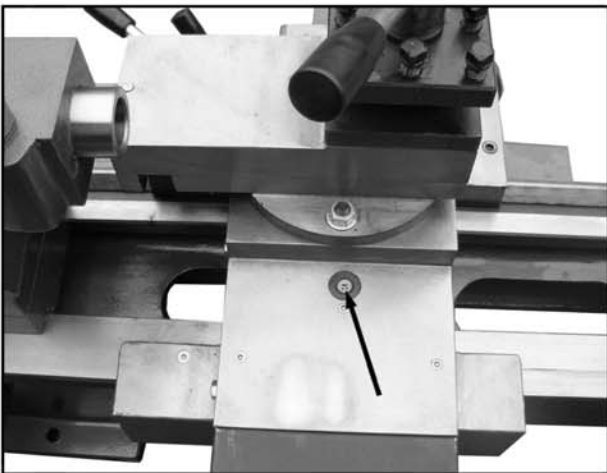
## Gib adjustment



**Figure 36:** Gib adjustment points.

There's a piece of chock between the table and the carriage and also one between the carriage and the bed to adjust the installing clearance which have great effect on the moving stability of the table and the final machining accuracy. The way to judge the width of the clearance is: to pull the table clockwise and counter clockwise alternatively with the hands holding the two ends of the table.

As showed in Fig43,44,45, both side A and side B of the carriage have set screws and screw nuts to adjust the clearances of the chocks. The adjusting method tighten the set screw then loosen it for about 1/5 round, tighten the set screw again with screw nut, finally check the clearance of the table. Repeat this again and again till the clearance is small and the carriage table can be moved smoothly by hand.

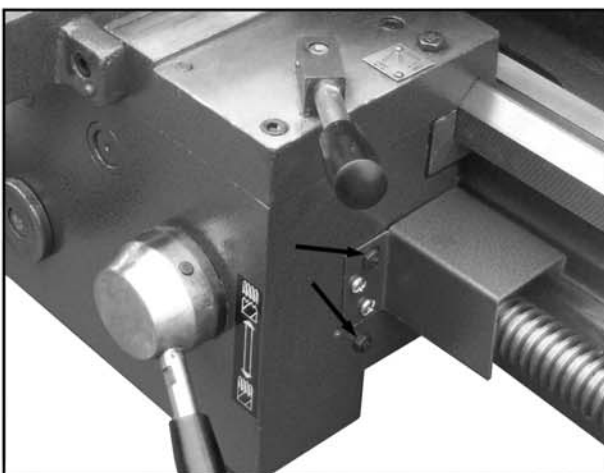


**Figure 37:** Cross slide backlash adjustment cap screw.

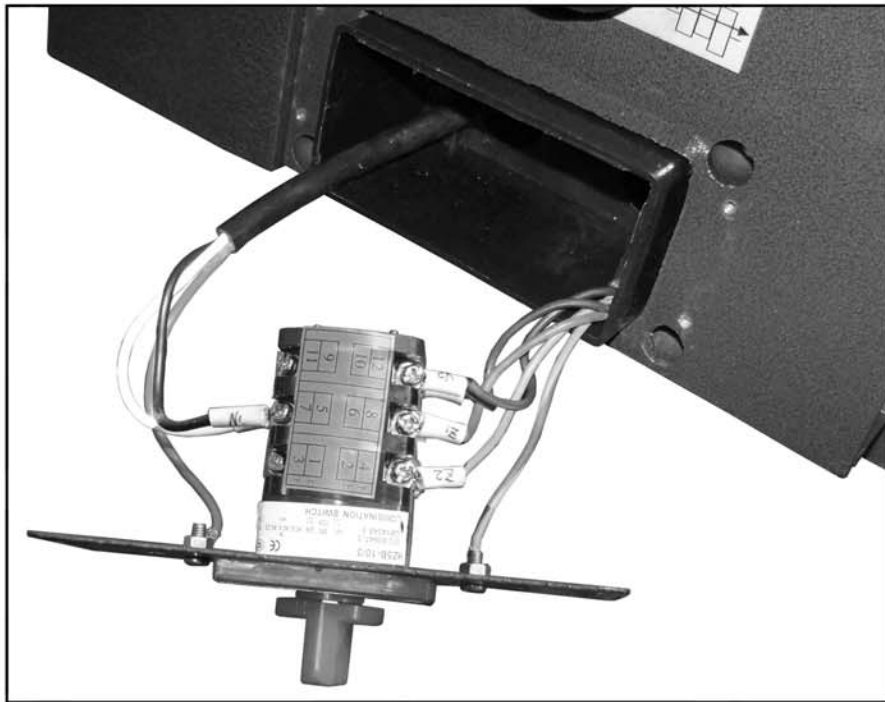
### Gib adjustment

The gibs between top slide and bed slideway, worktable and cross slide adjusted by wedges and nuts had been suitably adjusted before ex works. If any new adjustment is required, please make the judgment and adjustment as per the instructions shown in the picture.

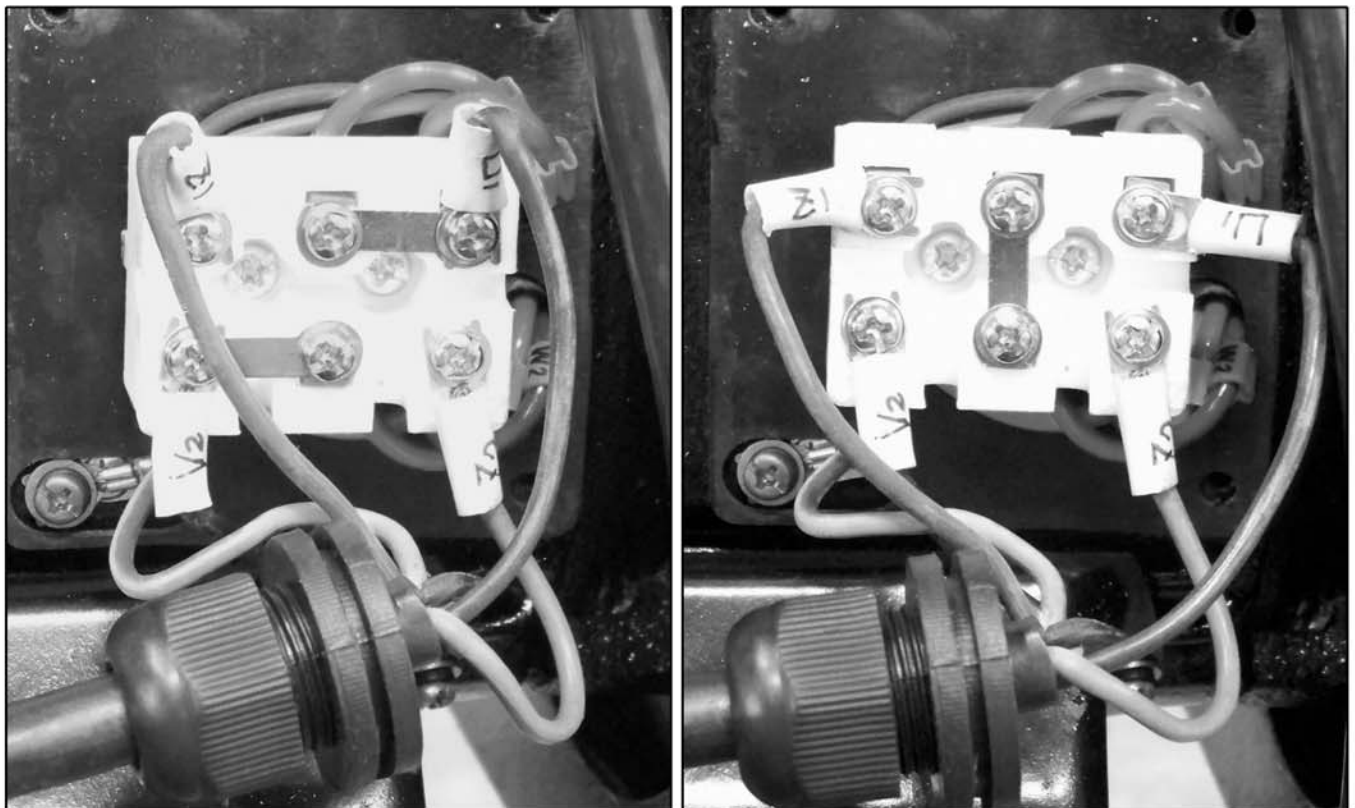
This kind of gib is very important for the accuracy of the lathe movement. ,over –tightening the abrasion of the slideway shall get bigger and it shall be difficult for the carriage to move; damage the slide lead screw ,and half nut. Loose gibs, the movement of the carriage and top slide shall be unsteady and the accurate tooling cannot be achieved. When making adjustment, move the carriage and top slide vertically against the slideway, and decide if the tolerance is too big or not against the feeling of shaking. Moving the carriage and toolpost by handwheels to judge if the gib is small or not against the resistance. No matter the gib is too big or too small, the machine shall be re-adjust. The positions to be adjusted as show for the four gibs, loose the jam nuts and turn the three set screws untill slight tension felt and the gib plates are slightly pre-loaded against the underside of the flat-way, tighten the jam nuts when finished.



**Figure 38:** Half-nut gib adjustment location.

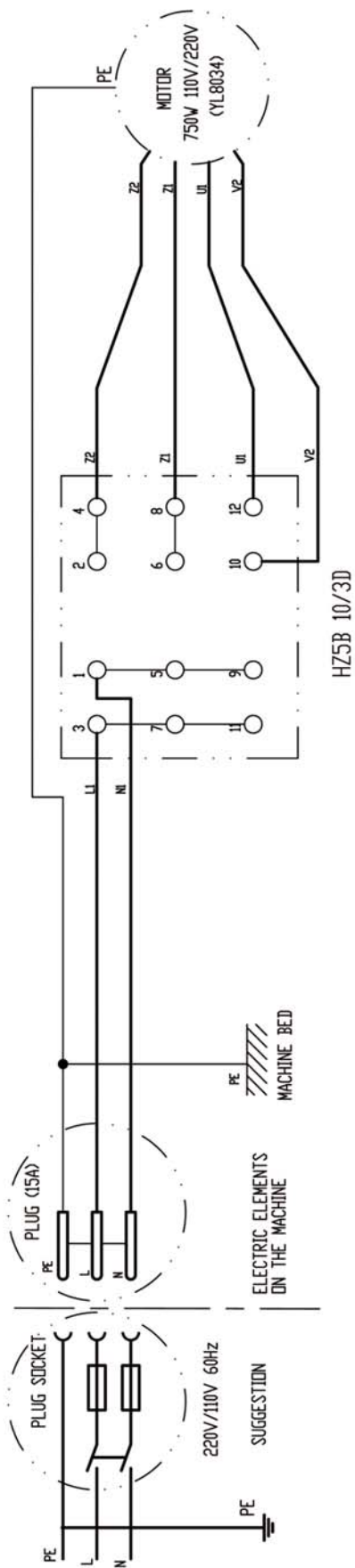


**Figure 39:** Power Switch.

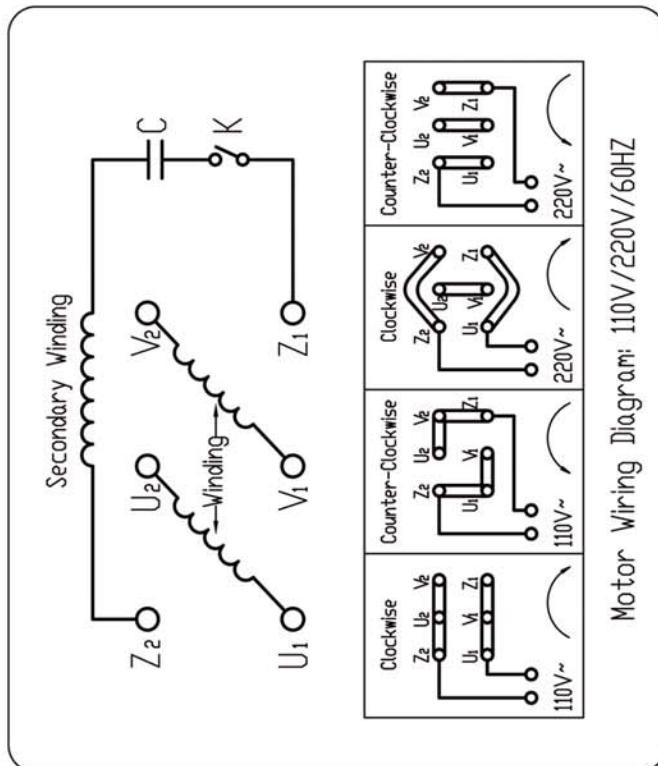


**Figure 40:** Motor connection.

CQ9332 110V/220V ELECTRICAL SYSTEM



110V/220V Motor



Motor Wiring Diagram: 110V/220V/60HZ

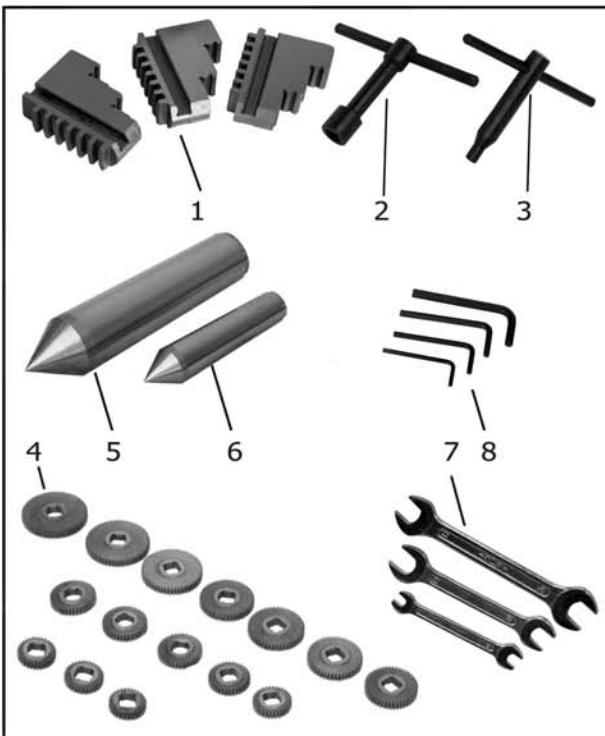
Figure 41: 220V/110V wiring Diagram.

**Standard Accessories**

The parts have been removed from the box, you should have the following items:

Qty

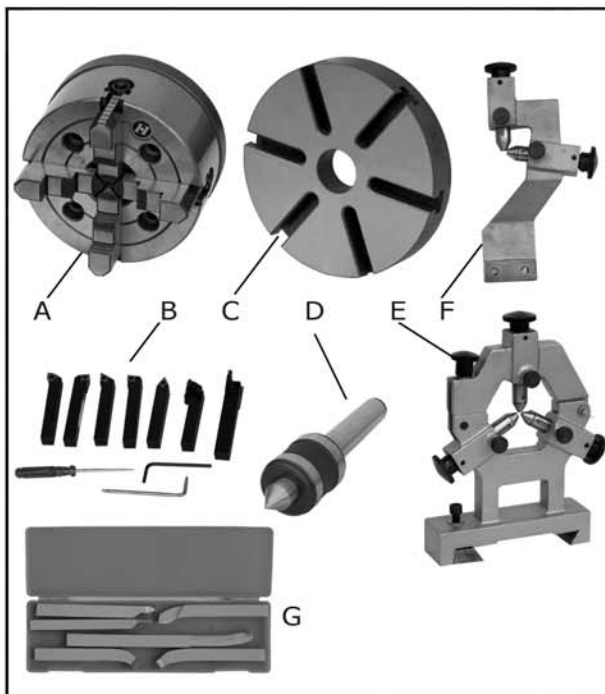
1. Three-jaw Chuck Internal Jaws.....1
2. Tool Post T-handle Wrench.....1
3. Three-jaw Chuck Key.....1
4. Change Gear Set
  - Gear(28&35 Coarse Tooth).....1
  - Change Gear(24-tooth).....1
  - Change Gear(25-tooth).....1
  - Change Gear(27-tooth).....1
  - Change Gear(28-tooth).....1
  - Change Gear(30-tooth).....1
  - Change Gear(32-tooth).....1
  - Change Gear(34-tooth).....1
  - Change Gear(35-tooth).....1
  - Change Gear(36-tooth).....1
  - Change Gear(40-tooth).....1
  - Change Gear(42-tooth).....1
  - Change Gear(44-tooth).....1
  - Change Gear(46-tooth).....1
  - Change Gear(52-tooth).....1
5. Dead Center MT5#.....1
6. Dead Center MT3#.....1
7. Wrench Set(8-10,14-17,17-19).....1 EA
8. Hex Wrench Set(4,5,6,8).....1 EA



**Figure 42:** Standard Accessories.

**Optional Accessories**

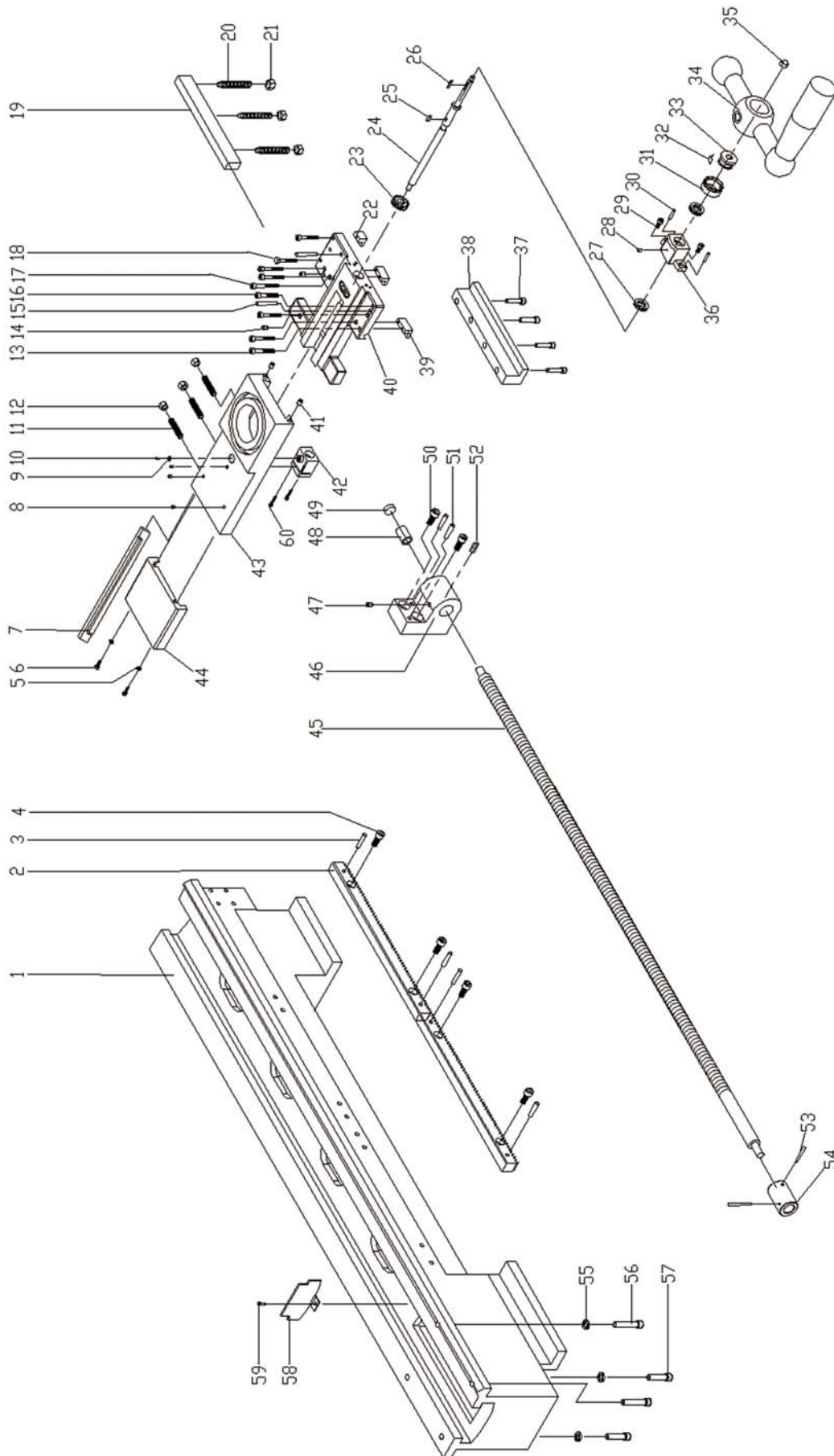
- A. 8" Four-jaw Universal Chuck & blackplate
- B. Turning Tool Set
- C. 8" Faceplate
- D. Rolling Center
- E. Steady Rest
- F. Follow Rest
- G. Turning Tool Set(1)



**Figure 43:** Optional Accessories.

# SECTION 6 : PARTS

## Bed Diagram



## SECTION 6 : PARTS

### Bed Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332B001	Bed	CQ9332-01-001
2	CQ9332B002	Racks	CQ9332-01-003
3	CQ9332B003	Taper pin	6×18 GB117-86
4	CQ9332B004	Hexagon socket cap head screws	M8×16 GB70-85
5	CQ9332B005	Washer	5 GB97.2-85
6	CQ9332B006	Screw	M5×10 GB65-85
7	CQ9332B007	Chock	CQ9332-01-005
8	CQ9332B008	Oil cup	6 GB1155-79
9	CQ9332B009	Washer	CQ9332-01-012
10	CQ9332B010	Screw	M5×12 GB68-85
11	CQ9332B011	Screw	M6×25 GB75-85
12	CQ9332B012	Hexagon nuts	M6 GB6170-86
13	CQ9332B013	Hexagon socket cap head screws	M6×35 GB70-85
14	CQ9332B014	Oil cup	8 GB1155-79
15	CQ9332B015	Taper pin	6×40 GB117-86
16	CQ9332B016	Hexagon socket cap head screws	M6×30 GB70-85
17	CQ9332B017	Hexagon socket cap head screws	M6×45 GB70-85
18	CQ9332B018	Hexagon head bolts	M6×40 GB5782-86
19	CQ9332B019	Chock	CQ9332-01-008
20	CQ9332B020	Hexagon socket set screws with dog point	M8×25 GB79-85
21	CQ9332B021	Hexagon nuts	M8 GB6170-86
22	CQ9332B022	Chain up block	CQ9332-05-027
23	CQ9332B023	Gear	CQ9332-05-006
24	CQ9332B024	Cross feed screw rod	CQ9332-05-004A
25	CQ9332B025	Plain parralleled key	5×16 GB1096-79
26	CQ9332B026	Plain parralleled key	4×18 GB1096-79
27	CQ9332B027	Rolling bearing	8201 GB301-84
28	CQ9332B028	Oil cup	6 GB1155-79
29	CQ9332B029	Hexagon socket cap head screws	M6×16 GB70-85
30	CQ9332B030	Taper pin	5×20 GB117-86
31	CQ9332B031	Dial	AT400-03-006
32	CQ9332B032	Spring lamination	AT300-03-139
33	CQ9332B033	Dial sleeve	AT300-03-138
34	CQ9332B034	Handles with sleeve	12×40 GB4141.9-84
35	CQ9332B035	Nut	M10 GB923-88
36	CQ9332B036	Cross feed screw seat	CQ9332-05-008
37	CQ9332B037	Hexagon socket cap head screws	M8×40 GB70-85
38	CQ9332B038	Behind board	CQ9332-01-007
39	CQ9332B039	Forward board	CQ9332-05-005
40	CQ9332B040	Carriage	CQ9332-05-002
41	CQ9332B041	Oil cup	6 GB1155-79



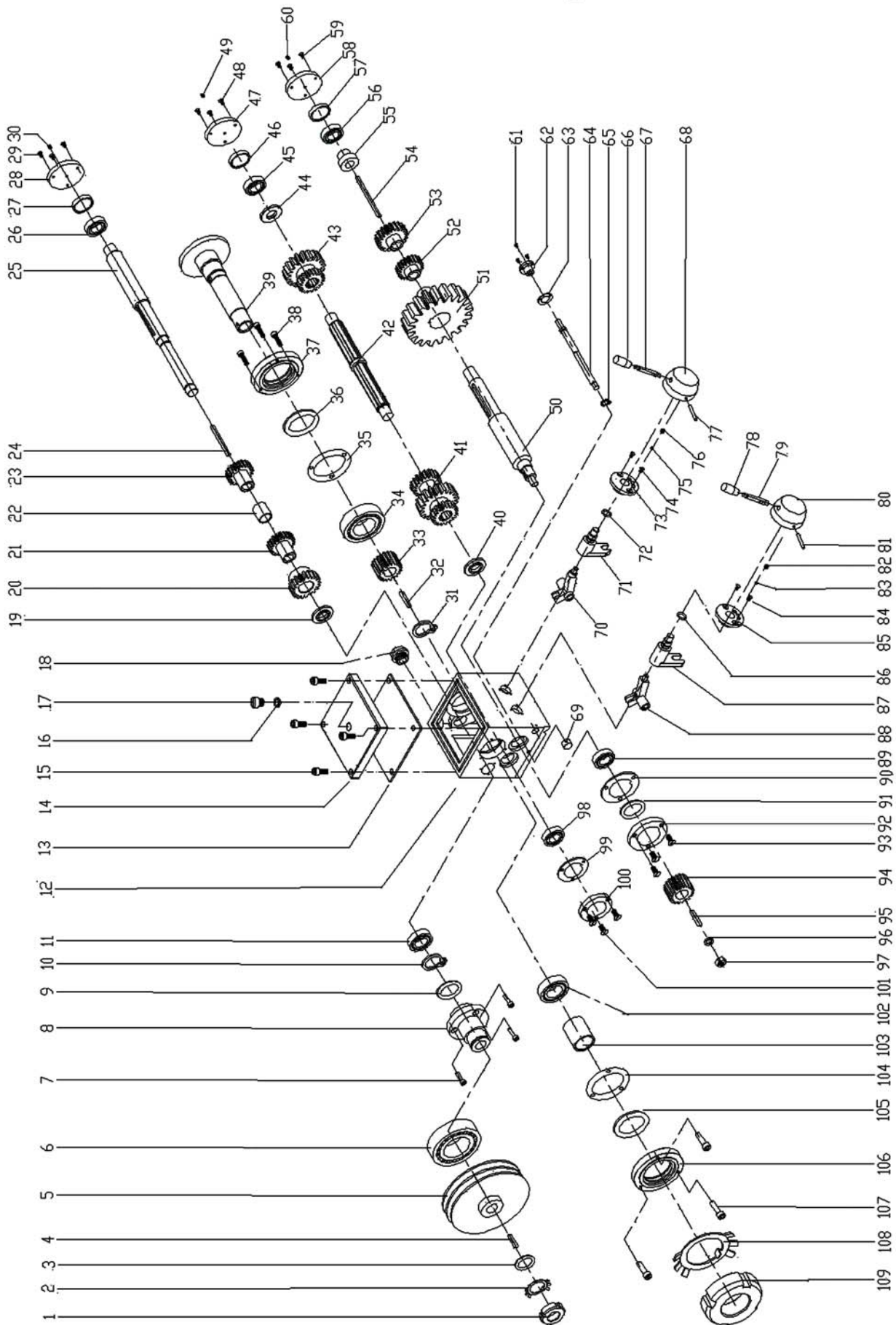
## SECTION 6 : PARTS

### Bed Parts List

NO.	PARTS	DESCRIPTION	
42	CQ9332B042	Cross nut	CQ9332-01-009A
43	CQ9332B043	Middle carriage	CQ9332-01-004
44	CQ9332B044	Shield	CQ9332-00-006
45	CQ9332B045	Longitudinal feed screw	CQ9332-01-002
46	CQ9332B046	Right pedestal	CQ9332-01-006
47	CQ9332B047	Oil cup	6 GB1155-79
48	CQ9332B048	Sleeve	CQ9332-01-010
49	CQ9332B049	Spigots	CQ9332-02-011
50	CQ9332B050	Hexagon socket cap head screws	M8×25 GB70-85
51	CQ9332B051	Taper pin	5×30 GB117-86
52	CQ9332B052	Slotted set screws with cone point	M5×8 GB71-85
53	CQ9332B053	Taper pin	4×20 GB117-86
54	CQ9332B054	Coupling sleeve	AT520-03-014
55	CQ9332B055	Washer	10 GB93-87
56	CQ9332B056	Hexagon socket cap head screws	M10×40 GB70-85
57	CQ9332B057	Hexagon socket cap head screws	M10×35 GB70-85
58	CQ9332B058	Shield	CQ9332-00-016
59	CQ9332B059	Hexagon socket cap head screws	M5×10 GB70-85
60	CQ9332B060	Screw	M4×16 GB65-85

# SECTION 6 : PARTS

## Lathe Head Diagram



## SECTION 6 : PARTS

### Lathe head Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332LH001	Spanner nut	M16×1.5 GB812-88
2	CQ9332LH002	Lock washer for circular nut	16 GB858-88
3	CQ9332LH003	Plain washrs	16 GB97.2-85
4	CQ9332LH004	Plain paralle key	5×16 GB1096-79
5	CQ9332LH005	Spindle pulley	CQ9332A-02-016
6	CQ9332LH006	Taper roller oearing	60206 GB298-89
7	CQ9332LH007	Hexagon socket head screw	M5×12 GB70-85
8	CQ9332LH008	Pulley seat	CQ9332-02-017
9	CQ9332LH009	Felt collar	16 JB/GQ0324-89
10	CQ9332LH010	Circlips for shaft-type A	16 GB894.1-86
11	CQ9332LH011	Single-row ball bearing	203 GB276-89
12	CQ9332LH012	Lathe head	CQ9332A-02-001
13	CQ9332LH013	Pressurize washer	CQ9332-02-002
14	CQ9332LH014	Transmission cover	CQ9332-02-003
15	CQ9332LH015	Hexagon socket head screw	M8×30 GB70-85
16	CQ9332LH016	Rubber ring	30×20×2 T300-04-141
17	CQ9332LH017	Oil port plug	M20×1.5 Q/ZB220-77
18	CQ9332LH018	Oil level indicator	M16×1.5 GB1160.2-89
19	CQ9332LH019	Sleeve spacer	CQ9332-02-049
20	CQ9332LH020	Gear	CQ9332-02-019
21	CQ9332LH021	Gear	CQ9332-02-021
22	CQ9332LH022	Sleeve spacer	CQ9332-02-047
23	CQ9332LH023	Gear	CQ9332-02-022
24	CQ9332LH024	Plain paralle Key	5×70 GB1096-79
25	CQ9332LH025	Spindle shaft	CQ9332-02-024
26	CQ9332LH026	Single-row ball bearing	203 GB276-89
27	CQ9332LH027	Bearing sleeve	CQ9332-02-046
28	CQ9332LH028	Right sleeve	CQ9332-02-026
29	CQ9332LH029	Screw	M5×12 GB819-85
30	CQ9332LH030	Screw	M6×8 GB78-85
31	CQ9332LH031	External snap ring	55 GB894.1-86
32	CQ9332LH032	Thin flat key	12×18 GB1567-79
33	CQ9332LH033	Gear	CQ9332-02-007B
34	CQ9332LH034	Taper roller oearing	D2007112 GB297-84
35	CQ9332LH035	Pressurize washer	CQ9332-02-006
36	CQ9332LH036	Felt collar	68 JB/GQ0324-89
37	CQ9332LH037	Mainshaft bearing oil seal	AT400-04-123
38	CQ9332LH038	Hexagon socket head screw	M5×20 GB70-85
39	CQ9332LH039	Lathe spindle	CQ9332-02-004
40	CQ9332LH040	Sleeve spacer	CQ9332-02-049
41	CQ9332LH041	Gear	CQ9332-02-023
42	CQ9332LH042	Middle shaft	CQ9332-02-028
43	CQ9332LH043	Gear	CQ9332-02-025
44	CQ9332LH044	Sleeve spacer	CQ9332-02-050
45	CQ9332LH045	Single-row ball bearing	203 GB276-89
46	CQ9332LH046	Bearing sleeve	CQ9332-02-046
47	CQ9332LH047	Right sleeve	CQ9332-02-026
48	CQ9332LH048	Screw	M5×12 GB819-85
49	CQ9332LH049	Screw	M6×8 GB78-85
50	CQ9332LH050	Output shaft	CQ9332-02-011
51	CQ9332LH051	Gear	CQ9332-02-010
52	CQ9332LH052	Gear	CQ9332-02-009
53	CQ9332LH053	Gear	CQ9332-02-008
54	CQ9332LH054	Plain paralle Key	5×60 GB1096-79
55	CQ9332LH055	Sleeve spacer	CQ9332-02-030

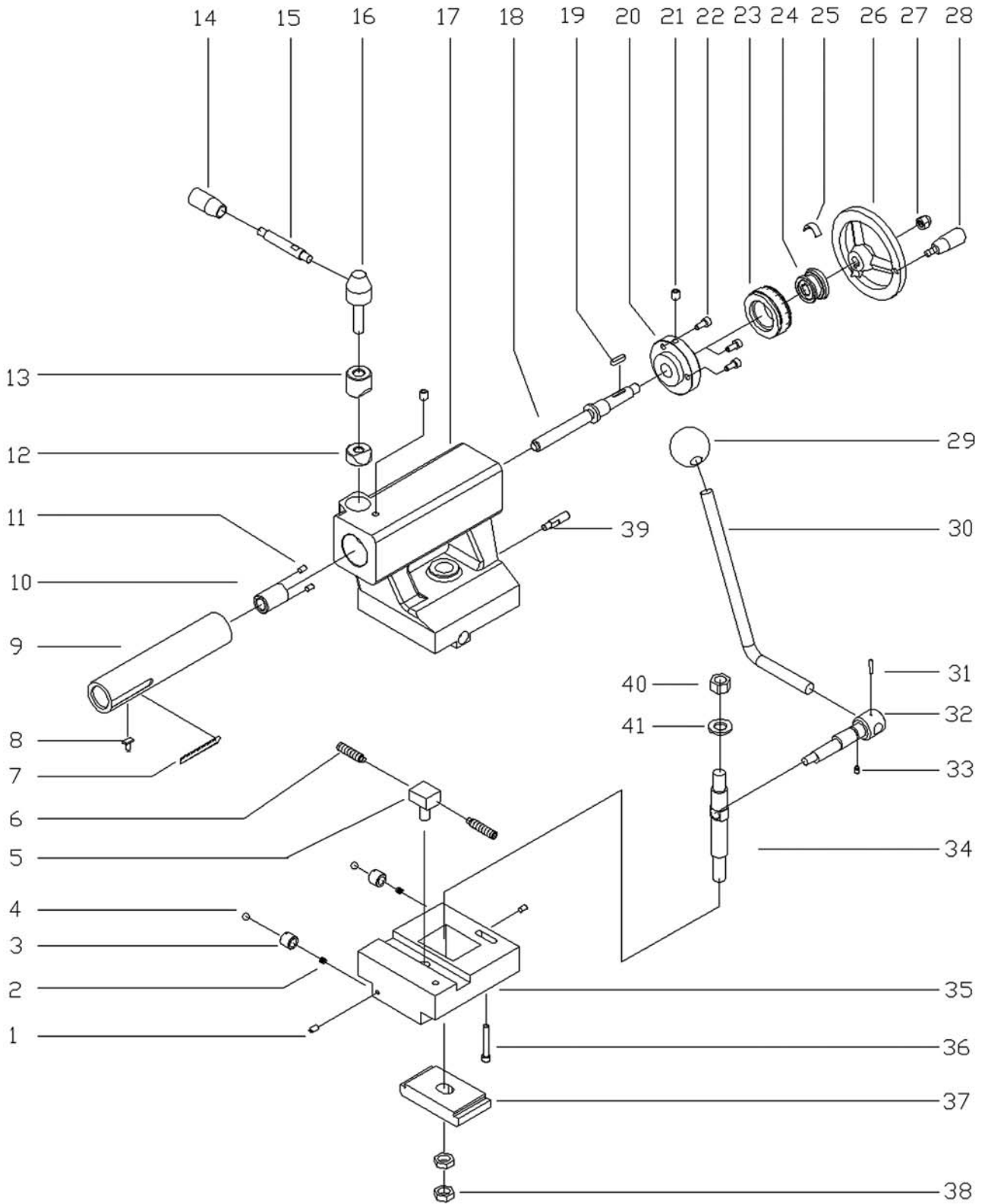
## SECTION 6 : PARTS

### Lathe head Parts List

NO.	PARTS	DESCRIPTION	
56	CQ9332LH056	Single-row ball bearing	203 GB276-89
57	CQ9332LH057	Bearing sleeve	CQ9332-02-046
58	CQ9332LH058	Right sleeve	CQ9332-02-026
59	CQ9332LH059	Screw	M5×12 GB819-85
60	CQ9332LH060	Screw	M6×8 GB78-85
61	CQ9332LH061	Screw	M5×12 GB819-85
62	CQ9332LH062	End cap	CQ9332-02-039
63	CQ9332LH063	Pressurize washer	CQ9332-02-040
64	CQ9332LH064	Shifting fork shaft	CQ9332-02-037
65	CQ9332LH065	External snap ring	12 GB894.1-86
66	CQ9332LH066	KnobB	M8×40 B4141.14-84
67	CQ9332LH067	Handle lever	BM8×63 B4141.15-84
68	CQ9332LH068	Handle seat	12×50 GB4141.19-84
69	CQ9332LH069	Spigots	CQ9332-02-038
70	CQ9332LH070	Right shifting fork	CQ9332-02-033
71	CQ9332LH071	Right shifting fork shaft	CQ9332-02-034
72	CQ9332LH072	O-seal ring	16×2.4 GB1235-76
73	CQ9332LH073	Locating sleeve	AT400-04-127
74	CQ9332LH074	Screw	M5×12 GB819-85
75	CQ9332LH075	Steel ball	6.5 GB308-84
76	CQ9332LH076	Spring	0.8×5×25 B2089-80
77	CQ9332LH077	Pin	5×50 GB117-86
78	CQ9332LH078	Knob	BM8×40 B4141.14-84
79	CQ9332LH079	Handle lever	BM8×63 B4141.15-84
80	CQ9332LH080	Handle seat	12×50 GB4141.19-84
81	CQ9332LH081	Pin	5×50 GB117-86
82	CQ9332LH082	Spring	0.8×5×25 B2089-80
83	CQ9332LH083	Steel ball	6.5 GB308-84
84	CQ9332LH084	Screw	M5×12 GB819-85
85	CQ9332LH085	Locating sleeve	AT400-04-127
86	CQ9332LH086	O-seal ring	16×2.4 GB1235-76
87	CQ9332LH087	Left shifting fork shaft	CQ9332-02-035
88	CQ9332LH088	Left shifting fork	CQ9332-02-036
89	CQ9332LH089	Single-row ball bearing	203 GB276-89
90	CQ9332LH090	Pressurize washer	CQ9332-02-015
91	CQ9332LH091	Felt collar	16 JB/GQ0324-89
92	CQ9332LH092	Left sleeve	CQ9332-02-014
93	CQ9332LH093	Screw	M5×12 GB819-85
94	CQ9332LH094	Gear	CQ9332-02-013
95	CQ9332LH095	Key	4×10 GB1096-79
96	CQ9332LH096	Spring washer	10 GB93-87
97	CQ9332LH097	Hexagon nut	M10 GB6170-86
98	CQ9332LH098	Single-row ball bearing	203 GB276-89
99	CQ9332LH099	Pressurize washer	CQ9332-02-015
100	CQ9332LH100	Sleeve	CQ9332-02-048
101	CQ9332LH101	Screw	M5×12 GB819-85
102	CQ9332LH102	Taper roller bearing	2007110 GB297-84
103	CQ9332LH103	Spring washer	CQ9332-02-044
104	CQ9332LH104	Pressurize washer	CQ9332-02-043
105	CQ9332LH105	Felt collar	50 JB/GQ0324-89
106	CQ9332LH106	End cap	AT400-04-118
107	CQ9332LH107	Hexagon socket head screw	M5×20 GB70-85
108	CQ9332LH108	Lock washer for circular nut	50 GB858-88
109	CQ9332LH109	Spanner nut	M50×1.5 GB812-88

# SECTION 6 : PARTS

## Tailstock Diagram



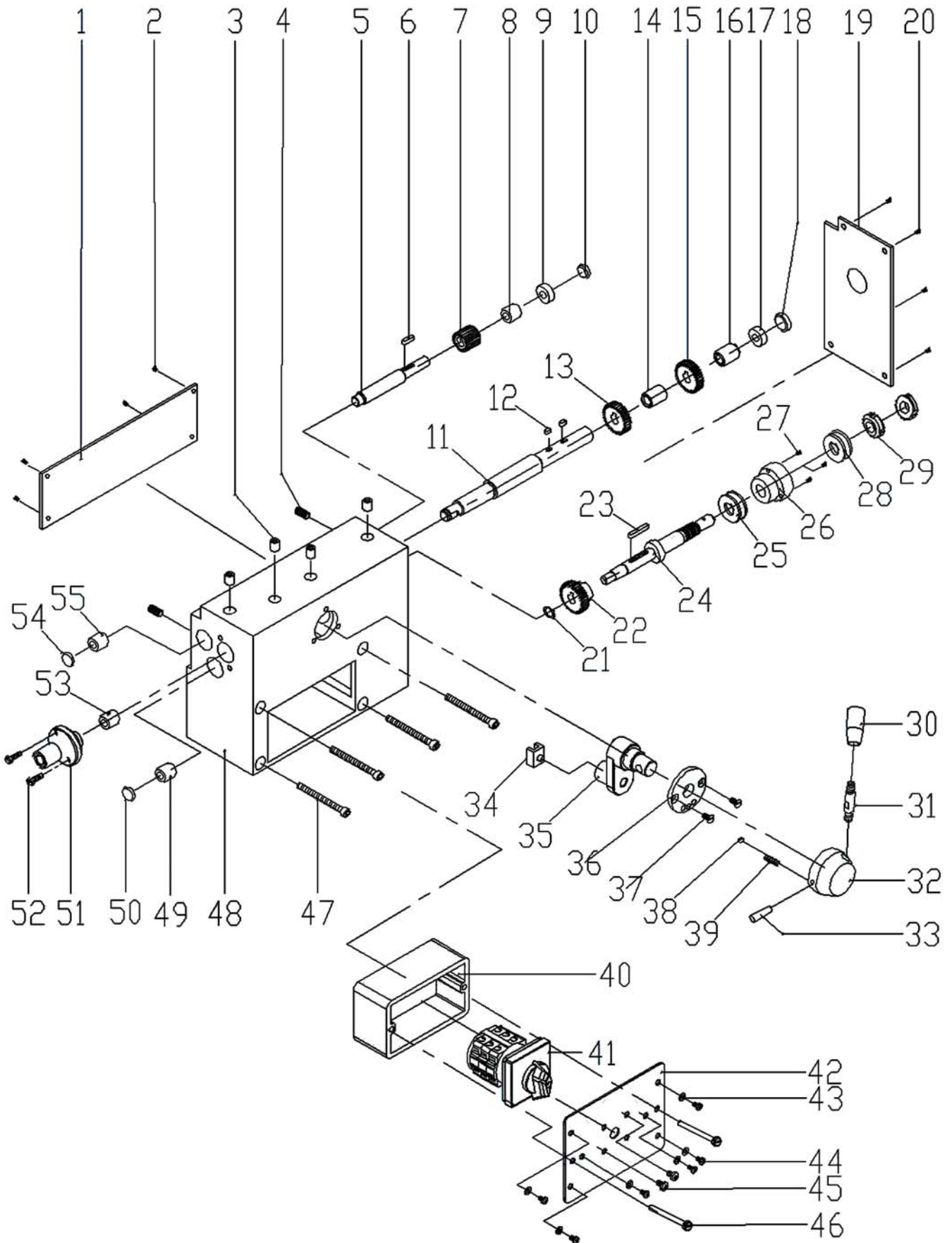
## SECTION 6 : PARTS

### Tailstock Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332TS001	Set screws with cone point	M5×8 GB71-85
2	CQ9332TS002	Spring	1.4×7×30 GB2089-80
3	CQ9332TS003	Oil port plug	CQ9332-03-008
4	CQ9332TS004	Steel ball	GB308-77
5	CQ9332TS005	Tailstock nuts	CQ9332-03-009
6	CQ9332TS006	Hexagon socket set screws with dog point	M8×40 GB79-85
7	CQ9332TS007	Graduated label	AT400-02-108
8	CQ9332TS008	T-key	AT300-02-114
9	CQ9332TS009	Tailstock center sleeve	CQ9332-03-003
10	CQ9332TS010	Tailstock nuts	AT400-02-120
11	CQ9332TS011	Set screws with cone point	M5×10 GB71-85
12	CQ9332TS012	Locking nuts	AT400-02-107
13	CQ9332TS013	Locking sleeve	AT400-02-110
14	CQ9332TS014	Long sleeve knob	BM8×40 GB4141.14-84
15	CQ9332TS015	Handle lever	BM8×40 GB4141.15-84
16	CQ9332TS016	Handle seat	AT280-2-001
17	CQ9332TS017	Tailstock	CQ9332-03-001
18	CQ9332TS018	Tailstock screw stem	AT400-02-113A
19	CQ9332TS019	Plain parallel key	4×28 GB1096-79
20	CQ9332TS020	Sleeve	CQ9332-03-011
21	CQ9332TS021	Oil cup	6 GB1155-79
22	CQ9332TS022	Hexagon socket head screw	M5×12 GB70-85
23	CQ9332TS023	Dial	AT400-02-114
24	CQ9332TS024	Sleeve	AT300-03-138
25	CQ9332TS025	Spring lamination	AT300-03-139
26	CQ9332TS026	Hand wheel	BM12×125 GB4141.22-84
27	CQ9332TS027	Domed cap nuts	M10 GB923-88
28	CQ9332TS028	Handles with sleeve	M6×50 GB4141.5-84
29	CQ9332TS029	Handle ball	M10×32 GB4141.11-84
30	CQ9332TS030	Handle lever	CQ9332-03-007
31	CQ9332TS031	Taper pins	5×26 GB117-86
32	CQ9332TS032	Shaft	CQ9332-03-010
33	CQ9332TS033	Slotted set screws with long dog point	M5×12 GB75-85
34	CQ9332TS034	Pull pole set	CQ9332-03-006
35	CQ9332TS035	Tailstock carriage	CQ9332-03-002
36	CQ9332TS036	Hexagon socket head screw	M6×50 GB70-85
37	CQ9332TS037	Chock	CQ9332-03-004
38	CQ9332TS038	Hexagon thin nuts	M12×1.5 GB6172-86
39	CQ9332TS039	Pin	CQ9332-03-012
40	CQ9332TS040	Hexagon thin nuts	M12 GB6170-86
41	CQ9332TS041	Plain washers	12 GB97.2-85

# SECTION 6 : PARTS

## Left trestle Diagram



## SECTION 6 : PARTS

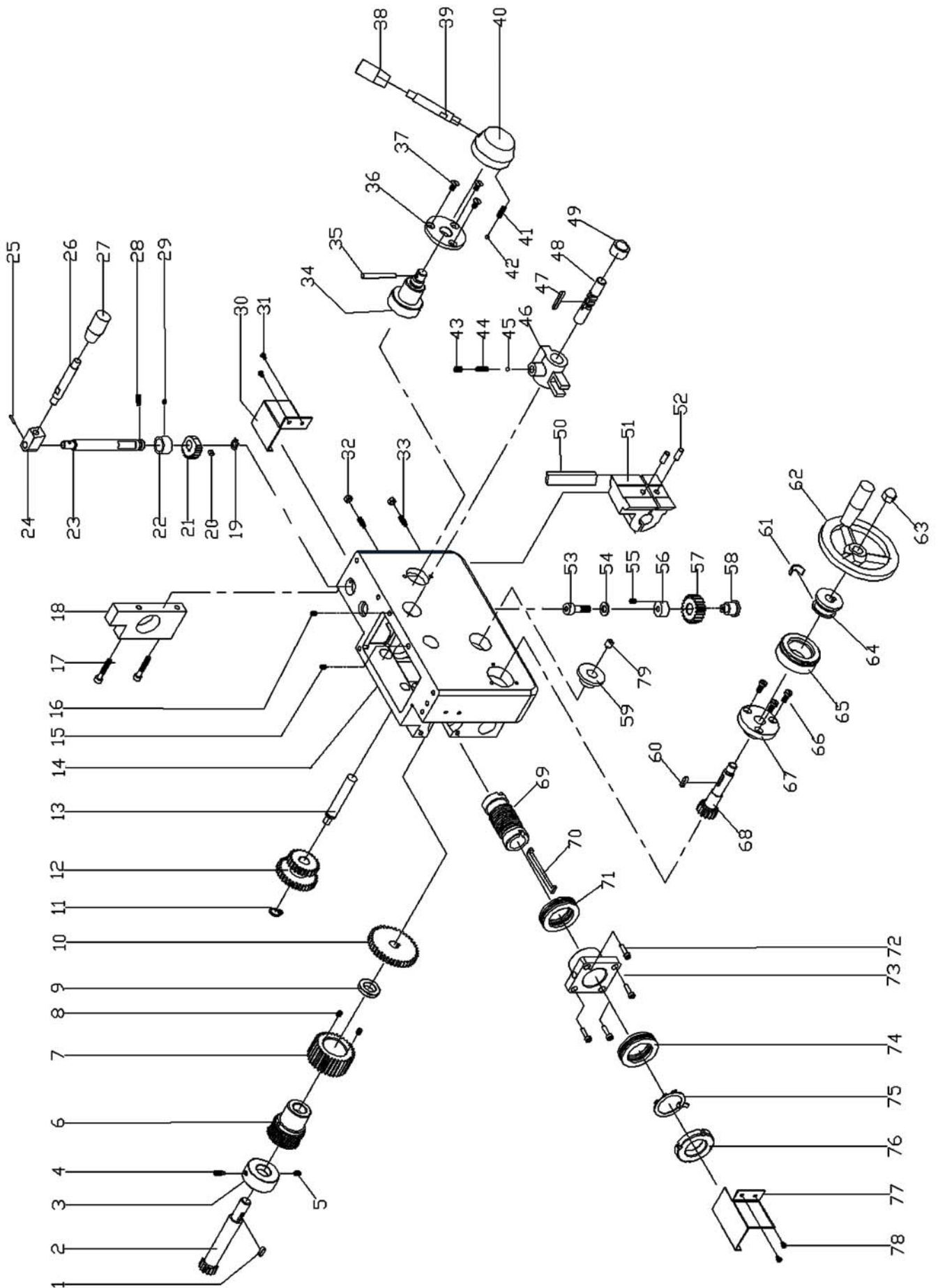
### Left trestle Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332LT001	Transmission cover	CQ9332-04-002
2	CQ9332LT002	Screw	M5×8 GB68-85
3	CQ9332LT003	Oil cup	8 GB1155-79
4	CQ9332LT004	Set screws with cone point	M5×6 GB71-85
5	CQ9332LT005	Shaft	CQ9332-04-004
6	CQ9332LT006	Plain parrale key	5×16 GB1096-79
7	CQ9332LT007	Gear	CQ9332-04-005
8	CQ9332LT008	Sievee spacer	CQ9332-04-007
9	CQ9332LT009	Sievees	CQ9332-04-006
10	CQ9332LT010	Spigots	CQ9332-04-012
11	CQ9332LT011	Shaft	CQ9332-04-010
12	CQ9332LT012	Plain parrale key	5×8 GB1096-79
13	CQ9332LT013	Gear	CQ9332-04-008
14	CQ9332LT014	Sievee spacer	CQ9332-04-009
15	CQ9332LT015	Gear	CQ9332-04-008
16	CQ9332LT016	Sievee spacer	CQ9332-04-007
17	CQ9332LT017	Sievees	CQ9332-04-019
18	CQ9332LT018	Spigots	CQ9332-04-012
19	CQ9332LT019	Transmission cover	CQ9332-04-015
20	CQ9332LT020	Screws	M4×8 GB68-85
21	CQ9332LT021	External snap ring	16 GB894.1-86
22	CQ9332LT022	Gear	CQ9332-04-014
23	CQ9332LT023	Plain parrale key	5×32 GB1096-79
24	CQ9332LT024	Shaft	CQ9332-04-013
25	CQ9332LT025	Bearing	8102 GB301-64
26	CQ9332LT026	Bearing sleeve	AT520-03-109
27	CQ9332LT027	Screws	M5×16 GB818-85
28	CQ9332LT028	Bearing	8102 GB301-64
29	CQ9332LT029	Round nut	M14×1.5 GB812-88
30	CQ9332LT030	Knob	BM8×40 GB4141.14-84
31	CQ9332LT031	Handle lever	BM8×40 GB4141.15-84
32	CQ9332LT032	Handle seat	12×50 GB4141.19-84
33	CQ9332LT033	Taper pin	5×50 GB117-86
34	CQ9332LT034	Shifting yoke	CQ9332-04-020
35	CQ9332LT035	Shifting fork plate	CQ9332-04-003
36	CQ9332LT036	Locating plate	AT300-03-134
37	CQ9332LT037	Slotted countersunk-Head screws	M5×10 GB68-85
38	CQ9332LT038	Steel ball	6.5 GB308-84
39	CQ9332LT039	Spring	0.8×5×25 GB2089-84
40	CQ9332LT040	Switch box	AT300-00-122
41	CQ9332LT041	Switch	CA10-3C
42	CQ9332LT042	Switch board	CQ9332-10-502
43	CQ9332LT043	Washer	4 GB97.1-85
44	CQ9332LT044	Cross recessed pan head screws	M4×8 GB818-85
45	CQ9332LT045	Cross recessed pan head screws	M5×8 GB818-85
46	CQ9332LT046	Slotted pan head screws	M5×60 GB67-85
47	CQ9332LT047	Hexagon socket head screw	M8×80 GB70-85
48	CQ9332LT048	Left trestle	CQ9332-04-001
49	CQ9332LT049	Sievees	CQ9332-04-018
50	CQ9332LT050	Spigots	CQ9332-04-012
51	CQ9332LT051	Pedestal	CQ9332-04-011
52	CQ9332LT052	Hexagon socket head screw	M5×12 GB70-85
53	CQ9332LT053	Sievees	CQ9332-04-019
54	CQ9332LT054	Spigots	CQ9332-04-012
55	CQ9332LT055	Sievees	CQ9332-04-006



# SECTION 6 : PARTS

## Apron Diagram



## SECTION 6 : PARTS

### Apron Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332AP001	Key	6×12 GB1096-79
2	CQ9332AP002	Gear shaft	AT400A-03-203
3	CQ9332AP003	Sleeve	AT400A-03-206
4	CQ9332AP004	Screws	M6×12 GB75-85
5	CQ9332AP005	Set screws with cone point	M6×12 GB71-85
6	CQ9332AP006	Worm gear	AT400A-03-205
7	CQ9332AP007	Gear	CQ9332-05-010
8	CQ9332AP008	Set screws with cone point	M5×8 GB71-85
9	CQ9332AP009	Spring washer	AT400A-03-207
10	CQ9332AP010	Big gear	AT400A-03-241
11	CQ9332AP011	E-clip	20 GB894.1-86
12	CQ9332AP012	Slippage gear	CQ9332-05-007
13	CQ9332AP013	Slippage shaft	CQ9332-05-009
14	CQ9332AP014	Apron body	CQ9332A-05-001
15	CQ9332AP015	Set screws with cone point	M5×16 GB71-85
16	CQ9332AP016	Set screws with cone point	M6×20 GB71-85
17	CQ9332AP017	Hexagon socket head screw	M5×35 GB70-85
18	CQ9332AP018	Apron body right cover	CQ9332A-05-025
19	CQ9332AP019	E-clip	12 GB894.1-86
20	CQ9332AP020	Key	4×8 GB1096-79
21	CQ9332AP021	Gear	CQ9332-05-029
22	CQ9332AP022	Sleeve	CQ9332-05-014
23	CQ9332AP023	Axis	CQ9332-05-013
24	CQ9332AP024	Square handle seat	AT520A-03-213
25	CQ9332AP025	Taper pins	3×20 GB117-86
26	CQ9332AP026	Handle lever	BM8×50 GB4141.15-84
27	CQ9332AP027	Handle sleeve B-plastic	BM8×40 GB4141.14-84
28	CQ9332AP028	Screws	M5×16 GB75-85
29	CQ9332AP029	Set screws with cone point	M5×8 GB71-85
30	CQ9332AP030	Right rod baseboard	CQ9332-00-106
31	CQ9332AP031	Screws	M5×8 GB71-85
32	CQ9332AP032	Hexagon nut	M5 GB6170-86
33	CQ9332AP033	Screws	M5×25 GB75-85
34	CQ9332AP034	Shaft	AT400A-03-212
35	CQ9332AP035	Taper pins	5×50 GB117-86
36	CQ9332AP036	Sleeve	AT400A-03-221
37	CQ9332AP037	Screw	M4×12 GB68-85
38	CQ9332AP038	Handle sleeve B-plastic	BM8×40 GB4141.14-84
39	CQ9332AP039	Handle lever	BM8×40 GB4141.15-84
40	CQ9332AP040	Handle seat	12×50 GB4141.19-84

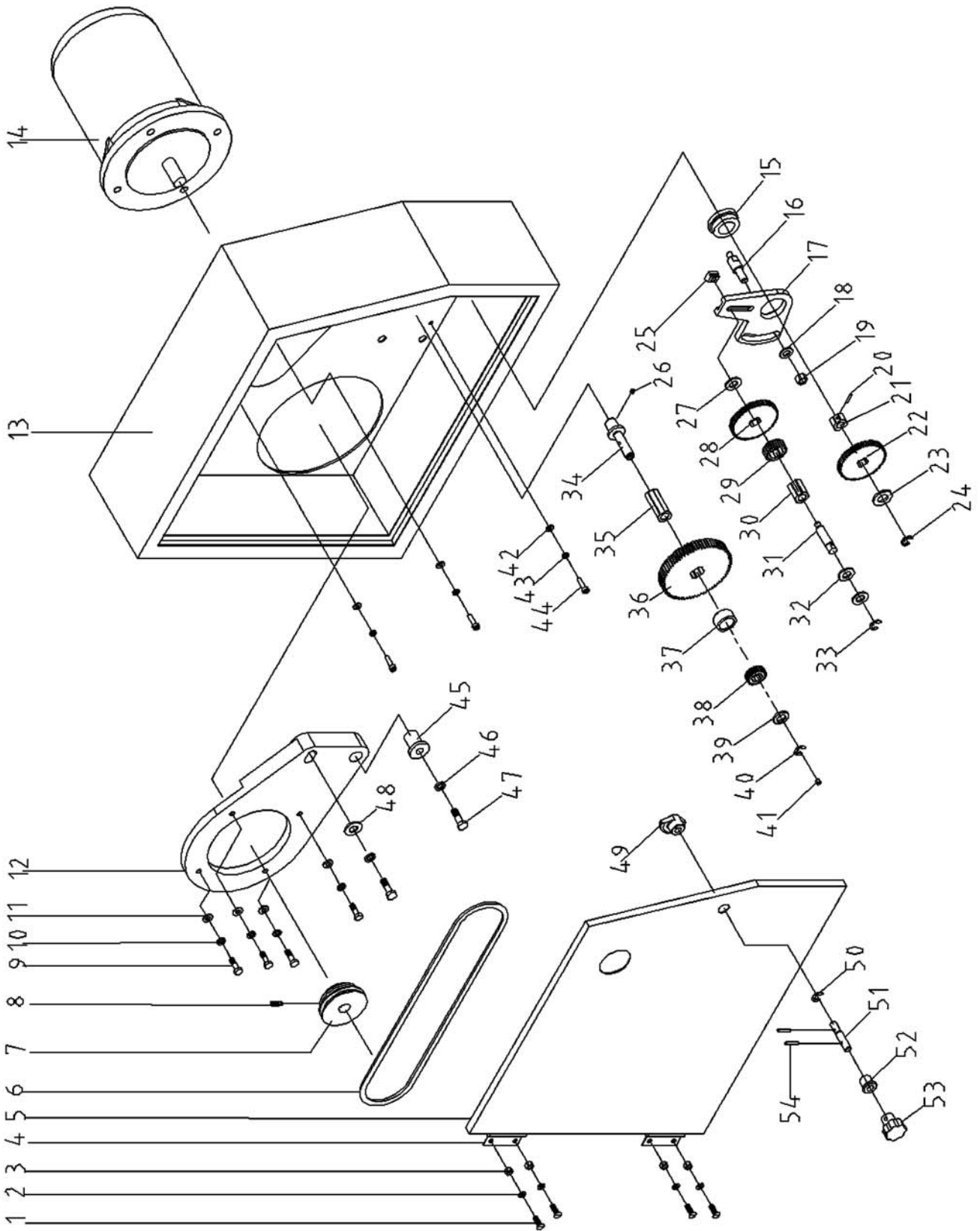
## SECTION 6 : PARTS

### Apron Parts List

NO.	PARTS	DESCRIPTION	
41	CQ9332AP041	Spring	0.8×5 ×25 GB2089-80
42	CQ9332AP042	Steel ball	6.5 GB308-84
43	CQ9332AP043	Flat-point set screw	M6×8 GB73-85
44	CQ9332AP044	Spring	0.6×5 ×15 GB2089-80
45	CQ9332AP045	Steel ball	5 GB308-84
46	CQ9332AP046	Shifting fork	AT400A-03-216
47	CQ9332AP047	Key	5×40 GB1096-79
48	CQ9332AP048	Shifting fork shaft	CQ9332-05-020
49	CQ9332AP049	Sleeve	CQ9332-05-021
50	CQ9332AP050	Chock	AT400-03-127
51	CQ9332AP051	Screw nut	AT400-03-125
52	CQ9332AP052	Column pins	6×18 GB119-86
53	CQ9332AP053	Hexagon socket head screw	M6×25 GB70-85
54	CQ9332AP054	Spring washer	6 GB93-87
55	CQ9332AP055	Set screws with cone point	M4×8 GB71-85
56	CQ9332AP056	Sleeve	CQ9332-05-015
57	CQ9332AP057	Middle gear	CQ9332-05-017
58	CQ9332AP058	Shaft	CQ9332-05-016
59	CQ9332AP059	Bearing sleeve	AT400-03-132
60	CQ9332AP060	Key	4×28 GB1096-79
61	CQ9332AP061	Spring lamination (Leaf spring)	AT300-03-139
62	CQ9332AP062	Hand wheel	B12×125GB4141.22-84
63	CQ9332AP063	Domed cap nuts	M10 GB923-88
64	CQ9332AP064	Sleeve	AT300-03-138
65	CQ9332AP065	Dial	CQ9332-05-012
66	CQ9332AP066	Screw	M4×12 GB65-85
67	CQ9332AP067	Flange sleeve	AT400A-03-227
68	CQ9332AP068	Gear shaft	CQ9332-05-011
69	CQ9332AP069	Worm shaft	CQ9332-05-022
70	CQ9332AP070	Saddle Key	4×28 JB/GQ0217-89
71	CQ9332AP071	Thrust ball bearing	8106 GB301-84
72	CQ9332AP072	Hexagon socket head screw	M5×16 GB70-85
73	CQ9332AP073	Worm shaft	CQ9332-05-023
74	CQ9332AP074	Thrust ball bearing	8106 GB301-84
75	CQ9332AP075	Tang washer	30 GB858-88
76	CQ9332AP076	Round nut	M30×1.5 GB812-88
77	CQ9332AP077	Left rod baseboard	CQ9332-00-105
78	CQ9332AP078	Screws	M5×8 GB71-85
79	CQ9332AP079	Oil cup	8 GB1155-79

**SECTION 6 : PARTS**

**Compound Box Diagram**

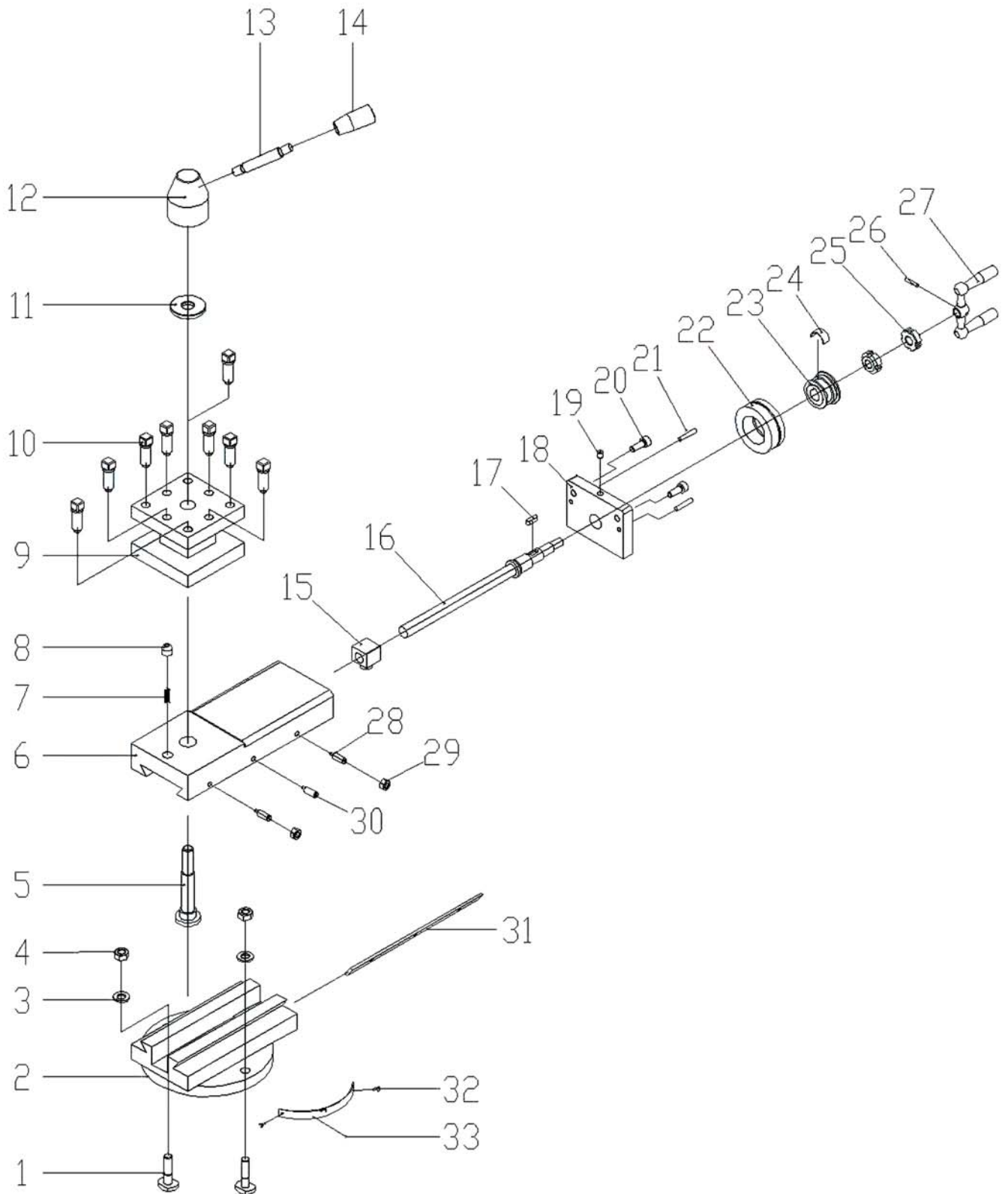


# SECTION 6 : PARTS

## Compound Box Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332CB001	Screws	M4×10 GB65-85
2	CQ9332CB002	Spring washers	4 GB93-87
3	CQ9332CB003	Hexagon nuts	M4 GB6170-86
4	CQ9332CB004	Butt hinge	50 JB/GQ0474-89
5	CQ9332CB005	Door	CQ9332-06-002
6	CQ9332CB006	V-belt o-type	710 GB1171-74
7	CQ9332CB007	Motor pulley	CQ9332-00-002A
8	CQ9332CB008	Screws	M6×8 GB75-85
9	CQ9332CB009	Hexagon heed bolts	M8×25 GB5782-86
10	CQ9332CB010	Spring washers	8 GB93-87
11	CQ9332CB011	Washer	8 GB97.2-85
12	CQ9332CB012	Motor mount plate	CQ9332-00-001
13	CQ9332CB013	Compound box	CQ9332-06-001
14	CQ9332CB014	220/110V Mount,60HZ	JY8034(7500W)
15	CQ9332CB015	Sleeve	CQ9332-04-017
16	CQ9332CB016	Shaft	AT400-03-146
17	CQ9332CB017	Change gear plate	AT400-03-144
18	CQ9332CB018	Washer	10 GB97.2-85
19	CQ9332CB019	Hexagon nut	M10 GB6170-86
20	CQ9332CB020	Parallel key	3×18 GB119-86
21	CQ9332CB021	Spline housing	AT400-03-141
22	CQ9332CB022	Change gear	CQ9332-00-015
23	CQ9332CB023	Washer	12 GB97.2-85
24	CQ9332CB024	"E" rings	9 GB896-86
25	CQ9332CB025	T-nut	AT400-03-143
26	CQ9332CB026	Flat-point screw	M5×6 GB73-85
27	CQ9332CB027	Washer	12 GB97.2-85
28	CQ9332CB028	Change gear	CQ9332-00-015
29	CQ9332CB029	Change gear	CQ9332-00-015
30	CQ9332CB030	Spline housing	AT400-03-145
31	CQ9332CB031	Small shaft	AT400-03-142
32	CQ9332CB032	Washer	12 GB97.2-85
33	CQ9332CB033	"E" rings	9 GB896-86
34	CQ9332CB034	Small shaft	AT400-04-108
35	CQ9332CB035	Spline housing	AT400-04-112
36	CQ9332CB036	Big gear wheel	AT400A-04-109
37	CQ9332CB037	Sleeves	AT400-04-110
38	CQ9332CB038	Change gear	CQ9332-00-015
39	CQ9332CB039	Washer	12 GB97.2-85
40	CQ9332CB040	"E" rings	9 GB896-86
41	CQ9332CB041	Oil cup	6 GB1155-79
42	CQ9332CB042	Washer	6 GB97.2-85
43	CQ9332CB043	Spring washers	6 GB93-87
44	CQ9332CB044	Hexagon socket head screw	M6×16 GB70-85
45	CQ9332CB045	Sleeves	CQ9332-00-007
46	CQ9332CB046	Spring washers	10 GB93-87
47	CQ9332CB047	Hexagon heed bolts	M10×45 GB5782-86
48	CQ9332CB048	Washer	10 GB96-85
49	CQ9332CB049	Door-knob	AT300-05-108
50	CQ9332CB050	"E" rings	6 GB896-86
51	CQ9332CB051	Shaft	AT300-05-110
52	CQ9332CB052	Stationary sleeve	AT300-05-111
53	CQ9332CB053	Star-grip knob	8×32 GB4141.29-84
54	CQ9332CB054	Taper pins	3×18 GB117-86

**Compound Angle Toolpost Diagram**



## SECTION 6 : PARTS

### Compound Angle Toolpost Parts List

NO.	PARTS	DESCRIPTION	
1	CQ9332CAT001	Bolts for T-Slot	CQ9332-08-102
2	CQ9332CAT002	Small carriage	CQ9332-08-104
3	CQ9332CAT003	Plain washers	8 GB97.2-85
4	CQ9332CAT004	Hexagon nuts	M8 GB6170-86
5	CQ9332CAT005	Bolts for	T-Slot CQ9332-08-111
6	CQ9332CAT006	Tollpost seats	CQ9332-08-108
7	CQ9332CAT007	Spring	0.5×5×15 GB2089-80
8	CQ9332CAT008	Locating sleeve	CQ9332-08-109
9	CQ9332CAT009	Tollpost	CQ9332-08-112
10	CQ9332CAT010	Screws	M10×30 GB83-88
11	CQ9332CAT011	Plain washers	CQ9332-08-114
12	CQ9332CAT012	Handle seats	CQ9332-08-110
13	CQ9332CAT013	Handle lever	BM8×65 GB4141.15-84
14	CQ9332CAT014	Long sleeve knobs	BM8×40 GB4141.14-84
15	CQ9332CAT015	Nut	CQ9332-08-106A
16	CQ9332CAT016	Lead screw	CQ9332-08-105A
17	CQ9332CAT017	Plain parallel key	4×12 GB1096-79
18	CQ9332CAT018	Hanger	CQ9332-08-113
19	CQ9332CAT019	Oil cup	6 GB1155-79
20	CQ9332CAT020	Hexagon socket cap head screws	M6×15 GB70-85
21	CQ9332CAT021	Straight pin	4×20 GB117-86
22	CQ9332CAT022	Dial	AT300-08-012A
23	CQ9332CAT023	Sleeve	AT300-03-138
24	CQ9332CAT024	Spring lamination	AT300-03-139
25	CQ9332CAT025	Spanner nut	M10×1 GB812-88
26	CQ9332CAT026	Taper pins	3×16 GB117-86
27	CQ9332CAT027	Bi-Lever balanced handles	8×25 GB4141.10-84
28	CQ9332CAT028	Screws	M6×25 GB75-85
29	CQ9332CAT029	Hexagon nuts	M6 GB6170-86
30	CQ9332CAT030	Screws	M6×20 GB75-85
31	CQ9332CAT031	Chock	CQ9332-08-107
32	CQ9332CAT032	Rivets for name plate	2×5 GB827-86
33	CQ9332CAT033	Name plate	CQ9332-08-116

## Warranty

Bolton Tools Inc. warrants all Bolton Tools machinery to be free of defect from workmanship and materials for a period of one year from the date of original purchase by the original purchaser. This warranty does not apply to damage due directly or indirectly to misuse, lack of maintenance, abuse, negligence, accidents, repairs or alterations outside of our facilities.

To take advantage of this warranty, items that fail under guarantee can be returned to us. Responsibility for safe return of freight is with the customer. Please ensure a clear explanation of the fault is included with any return. If our inspection verifies the defect, we will either repair or replace the product at our discretion or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if it is determined there is no defect, or that the defect resulted from cause not within the scope of our warranty, then the original owner must bear the cost of storing and returning the product. In order to place a warranty claim you must contact our Customer Service Department at (877)888-5913. Proof of purchase must accompany the merchandise.

The sole written warranty and all warranties that may be implied by law include any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty.

We shall in no event be liable for death, injuries to persons or property for incidental, contingent, special or consequential damages arising from the use of our products. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you.



Title: Mr/Mrs/Miss/Ms Surname

Forename:

Address:

Postal Town:

County:

Post Code:

E-mail address:

Product Purchased

Date of Purchase i. e. 01/01/2000

Model No:

Description:

Serial No (IF ANY):

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

Application Type (tick one or more)

Bodyshop

Fleet Maintenance Dept

Industrial Maintenance

Other (Specify)

**Which Publications do you regularly read (tick one or more)**

Popular Mechanics

Hand Loader

Family Handyman

RC Modler

Today's Homeowner

Rifle

Live Steam

Woodshop news

Other (Specify)

Garage

Agricultural Engineer

Local Utility

Home Shop Machinist

Modeltec

Popular Science

Wood

Cabinet Maker

Shop notes

Shotgun News

Journal of light Cont.

**WHERE DO YOU NORMALLY BUY YOUR MACHINE?**

COMPANY:

TOWN:

**HOW MUCH DO YOU SPEND ON TOOLS AND EQUIPMENT PER YEAR?**

UNDER \$200  \$200-500  \$500-800

\$800-1000  \$1000-2000  \$2000+

**WHAT IS YOUR PERCEPTION/EXPERIENCE OF BOLTONTTOOLS?**

PUT A CROSS ON YOU CHOICE

EXCELLENT      GOOD      AVERAGE      BELOW      POOR

PRODUCT QUALITY (ONE ONLY PER LINE)	1	2	3	4	5
PRODUCT RANGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SPARE PART SERVICE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TELESALES SERVICE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
INTERNET SITE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROMOTIONS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WARRANTIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PRODUCT VALUE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DELIVERY	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WHAT ITEMS NOT CURRENTLY INCLUDED WOULD YOU LIKE TO SEE IN OUR CATALOGUE?

**ANY OTHER COMMENTS?**

**THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.**

This information is primarily held for warranty and marketing analysis. From time to time we may update you with information of our newest products. We may also provide your details to other parties where we feel their services or products may be of interest to you. If you do not wish us to mail or forward information using you details please tick here: