

PROMAC®

941A

METAL LATHE

Original:
GB
Operating Instructions



CE

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**CE-Conformity Declaration
CE-Konformitätserklärung
Déclaration de Conformité CE**

Product / Produkt / Produit:

Metal Lathe
Metalldrehbank
Tour à métaux

941A

Brand / Marke / Marque:

PROMAC

Manufacturer / Hersteller / Fabricant:

JPW (Tool) AG, Tämperlistrasse 5, CH-8117 Fällanden
Schweiz / Suisse / Switzerland

We hereby declare that this product complies with the regulations
Wir erklären hiermit, dass dieses Produkt der folgenden Richtlinie entspricht
Par la présente, nous déclarons que ce produit correspond aux directives suivantes

2006/42/EC

Machinery Directive
Maschinenrichtlinie
Directive Machines

2014/30/EU

electromagnetic compatibility
elektromagnetische Verträglichkeit
compatibilité électromagnétique

designed in consideration of the standards
und entsprechend folgender zusätzlicher Normen entwickelt wurde
et été développé dans le respect des normes complémentaires suivantes

EN ISO 12100:2010

EN ISO 23125:2015

EN 60204-1:2006+A1:2009

EN 61000-6-2:2005

EN 61000-6-4:2007+A1:2011

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WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

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

The owner of this machine/tool 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, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

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



WARNING!

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

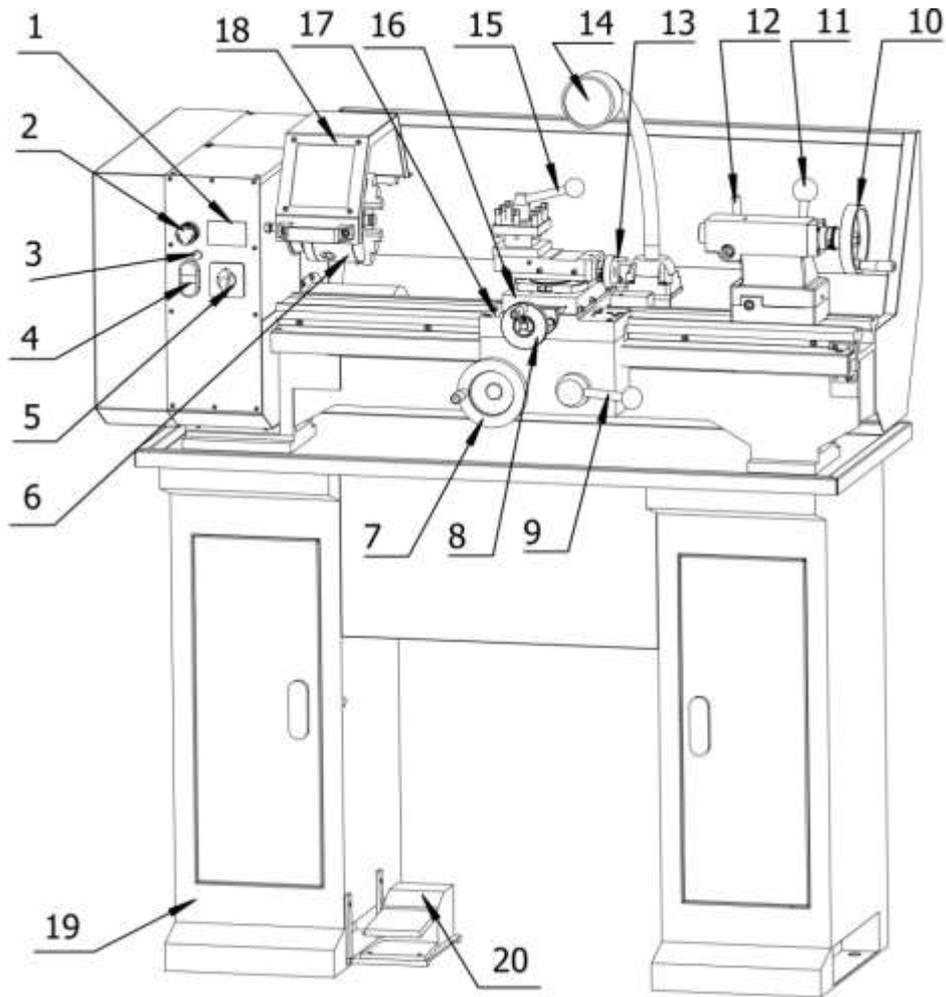
- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

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

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IDENTIFICATION



The following is a list of controls and components on the lathe. Please take time to become familiar with each term and its location. These terms will be used throughout the manual and knowing them is essential to understanding the instructions and terminology used in this manual.

- | | |
|---------------------------------|------------------------------|
| 1. Speed of Spindle(rpm) | 12. Tailstock Center Lock |
| 2. Emergency Stop Switch | 13. Compound Slide Handwheel |
| 3. Lathe Power Indicator Light | 14. Work Light |
| 4. Lathe ON/OFF switch | 15. Tool Post |
| 5. Lathe Forward/Reverse Switch | 16. Cross Slide |
| 6. Lathe Chuck | 17. Carriage |
| 7. Carriage Handwheel | 18. Headstock Eyeshield |
| 8. Cross Slide Handwheel | 19. Work Table |
| 9. Half Nut Lever | 20. Foot Switch |
| 10. Tailstock Barrel Handwheel | |
| 11. Tailstock Clamp Bolt | |

Model 941A Main Parameters

Product Dimensions:

Weight.....180kg
Width (side-to-side) x Depth (front-to-back) x Height.....114 x 60 x 120 cm

Shipping Dimensions:

Type.....Wood Crate
Content.....Machine
Weight..... 225 kg.
Length x Width x Height.....123 x 73 x 140.cm

Electrical:

Minimum Circuit Size.....10 amp
Switch.....Forward/Reverse

Motors: Main

Type..... YL7134
Outpower.....550W
Amps.....4.2 amp (230V)
Speed..... 1400 RPM (50Hz)
Speeds..... 1
Power TransferBelt Drive to Gear
Bearings.....Shielded and Permanently Lubricated

Main Specifications:

Operation Info

Swing Over Bed.....250 mm
Distance Between Centers.....555 mm
Swing Over Cross Slide.....150 mm
Swing Over Saddle.....210 mm
Compound Travel..... 70 mm
Carriage Travel.....565 mm
Cross Slide Travel.....100 mm
Max. Turning Tool Size.....10 x 10mm

Headstock Info

Spindle Bore..... Φ 20 mm
Spindle Size..... Φ 52x11mm
Spindle Taper..... MT#3
Number of Spindle Speeds.....6
Spindle Speeds.....(50Hz) 125, 210, 420, 620, 1000, 2000 rpm
Spindle Bearings.....Tapered Roller + Ball Bearing

Tailstock Info

Tailstock Taper.....	MT#2
Tailstock Barrel Diameter.....	Φ30 mm
Tailstock Barrel Travel.....	50mm

Threading Info of Metric Lathe

Number of Longitudinal Feeds.....	2
Range of Longitudinal Feeds.....	0.1 or 0.2 mm/rpm
Number of Inch Threads.....	6
Range of Inch Threads.....	10 - 44 TPI
Number of Metric Threads.....	15
Range of Metric Threads.....	0.4 - 3 mm

Dimensions

Bed Width.....	135 mm.
Lead screw Diameter.....	20mm
Lead screw Pitch.....	2 mm
Lead screw Length.....	792 mm.
Steady Rest Capacity.....	6 – 40 mm
Follow Rest Capacity.....	6 – 40 mm
Faceplate Size.....	Φ220 mm.
Floor to Center Height.....	335 mm

Construction

Headstock.....	Cast Iron
Headstock Gears.....	Steel
Bed.....	Induction Hardened Cast Iron
Body.....	Cast Iron
Paint.....	Epoxy

SECTION 1: SAFETY

**READ MANUAL BEFORE OPERATING MACHINE.
FAILURE TO FOLLOW INSTRUCTIONS BELOW WILL
RESULT IN PERSONAL INJURY.**

Standard Safety Instructions

- 1. Thoroughly read the Instruction Manual before operating your machine.** Learn the applications, limitations and potential hazards of this machine. Keep the manual in a safe and convenient place for future reference.
- 2. Keep work area clean and well lighted.** Clutter and inadequate lighting invite potential hazards.
- 3. Ground all tools.** If a machine is equipped with a three-prong plug, it must be plugged into a three-hole grounded electrical receptacle or grounded extension cord. If using an adapter to aid in accommodating a two-hole receptacle, ground using a screw to a known ground.
- 4. Wear eye protection at all times.** Use safety glasses with side shields or safety goggles that meet the appropriate standards of the American National Standards Institute (ANSI).
- 5. Avoid dangerous environments.** Do not operate this machine in wet or open flame environments. Airborne dust particles could cause an explosion and severe fire hazard.
- 6. Ensure all guards are securely in place** and in working condition.
- 7. Make sure switch is in the *OFF* position** before connecting power to machine.
- 8. Keep work area clean,** free of clutter, grease, etc.
- 9. Keep children and visitors away.** Visitors must be kept at a safe distance while operating unit.
- 10. Childproof your workshop** with padlocks, master switches or by removing starter keys.
- 11. Stop and disconnect the machine when cleaning, adjusting or servicing.**

12. Do not force tool. The machine will do a safer and better job at the rate for which it was designed.

13. Use correct tool. Do not force machine or attachment to do a job for which it was not designed.

14. Wear proper apparel. Do not wear loose clothing, neck ties, gloves, jewelry, and secure long hair away from moving parts.

15. Remove adjusting keys, rags, and tools. Before turning the machine on, make it a habit to check that all adjusting keys and wrenches have been removed.

16. Avoid using an extension cord. But if you must use one, examine the extension cord to ensure it is in good condition. Immediately replace a damaged extension cord. Always use an extension cord that uses a ground pin and connected ground wire. Use an extension cord that meets the amp rating on the motor nameplate. If the motor is dual voltage, be sure to use the amp rating for the voltage you will be using. If you use an extension cord with an undersized gauge or one that is too long, excessive heat will be generated within the circuit, increasing the chance of a fire or damage to the circuit.

17. Keep proper footing and balance at all times.

18. Lock your mobile base, if used, to prevent the machine from moving during operation.

19. Do not leave machine unattended. Wait until it comes to a complete stop before leaving the area.

20. Perform machine maintenance and care. Follow lubrication and accessory attachment instructions in the manual.

21. If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Then contact our technical support or ask a qualified expert how the operation should be performed.

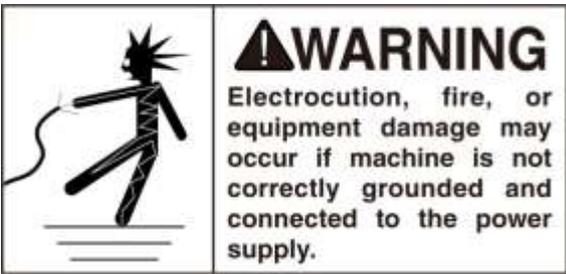
22. Habits—good and bad—are hard to break. Develop good habits in your shop and safety will become second-nature to you.

23. Be aware that certain metal shavings and cutting fluids may cause an allergic reaction in people and animals, especially when cutting fumes can be inhaled. Make sure you know what type of metal and cutting fluid you will be exposed to and how to avoid contamination.

SECTION 2: POWER SUPPLY

Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by a qualified electrician in accordance with all applicable codes and standards.



Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating at 230V.... 5.4 Amps

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result— especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the requirements in the following section

Circuit Requirements

This machine is prewired to operate on a 230V power supply circuit that has a verified ground and meets the following requirements:

- Voltage.....230V**
- Frequency.....50 Hz**
- Phase.....Single-Phase**
- Power Supply Circuit.....10 Amps**

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)



Note: The circuit requirements listed in this manual apply to a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure that the circuit is properly sized for safe operation.

Grounding & Plug Requirements

This machine **MUST** be grounded. In the

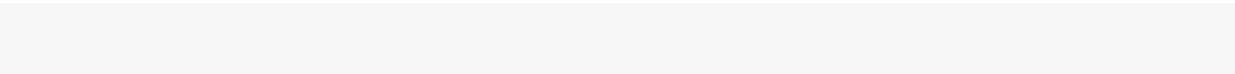
event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current. This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug. The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances.

Voltage: 230V
Minimum Gauge Size.....2 mm²
Maximum Length.....6 m.

Improper connection of the equipment-grounding wire can result in a risk of electric shock. The wire with green (or green-yellow) insulation is the equipment-grounding wire. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding wire to a live (current carrying) terminal. Check with a qualified electrician or service personnel if you do not understand these grounding requirements, or if you are in doubt about whether the tool is properly grounded. If you ever notice that a cord or plug is damaged or worn, disconnect it from power, and immediately replace it with a new one.

Extension Cords

We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis. Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes). Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:



SECTION 3: SETUP

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!

Wear safety glasses during the entire setup process!

The Model C10 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment rated for at least 750 lbs. to move the shipping crate and remove the machine from the crate.

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it.

Save the containers and all packing materials for possible inspection by the carrier or its agent. Otherwise, filing a freight claim can be difficult.

When you are completely satisfied with the condition of your shipment, inventory the contents.



Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Inventory: (Figure 1)	Qty
A. Lathe.....	1
B. 3-Jaw Chuck 125 mm.....	1
C. 3-Jaw Chuck Key.....	1
D. Dead Center MT#3.....	1
E. External Jaws for 3-Jaw Chuck.....	3
F. Dead Center MT#2.....	1
G. The Wrench 42-52.....	1
H. Hex Wrenches 3, 4, 5, 6, 8mm....	1 Each
I. Wrenches 5.5/7 ,8/10, 12/14, 17/19mm.	1 Each
J. V-belt O-737.....	1
K. Oiler.....	1
L. Gear Z30/Z40/Z42/Z50/Z52/Z60/Z66/Z70 /Z75/ Z80	1 Each
M. The Wrench of Knife Rest.....	1
O. Multi Belt PJ590-6.....	1
Q. Instruction Manual.....	1



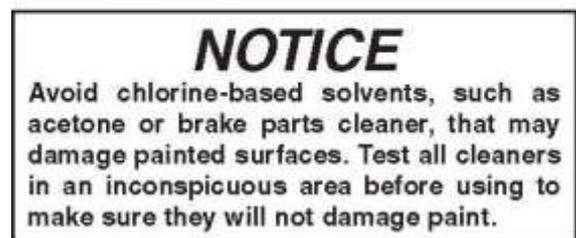
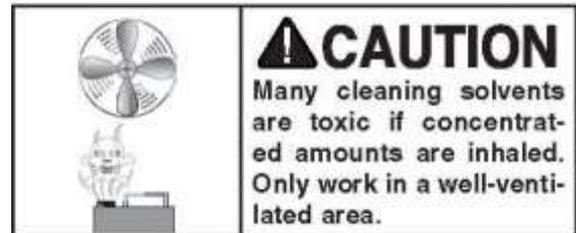
Figure 1 Inventory

Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or degreaser. For thorough cleaning, some parts must be removed. **For optimum performance, clean all moving parts or sliding contact surfaces.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.

WARNING

The oil on the pulley Must be clean, otherwise the slipping of the belt will cause damage to the motor.



Installation Dimensions

The size of the installation hole of lathe see **Figure 2** , Please use the bolts of M12 or 1/2" fixing it.

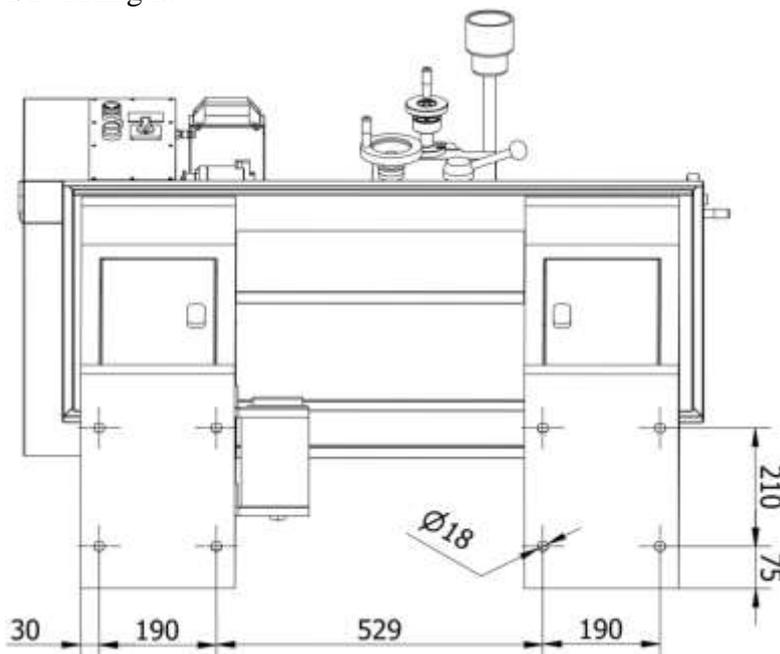


Figure 2 Installation Dimensions

Open the Cover

Lift the lock handle and counter clockwise, open the cover. See **Figure 3**

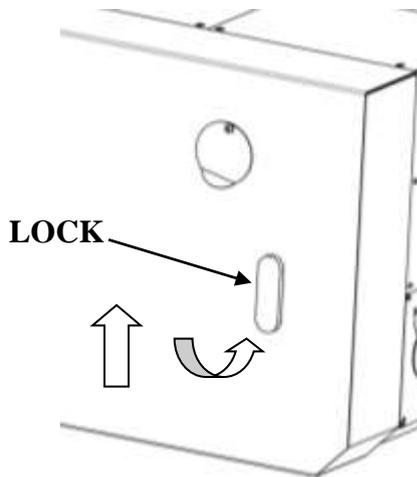


Figure 3

Install belt and Chang speeds

Belt is not installed in the lathe, You need to install their own.

Note: Must wipe on the pulley oil before installation .

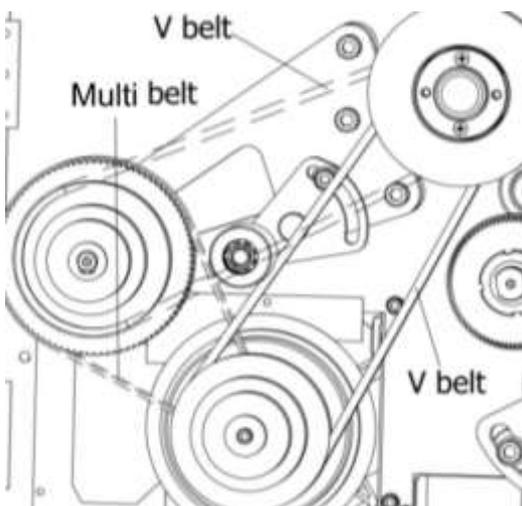


Figure 4.

The lathe has 6 speeds. See **Figure 5**. The belt installed for 3 kinds of low speed as shown by dotted lines in **Figure 4**. The belt installed for 3 kinds of high speed as shown by solid lines in **Figure 4**.

Release M12 nut, clockwise rotate the Adj. handle can be tight the **Multi belt**, Vice versa release.

Release Adj. screw, can be Adjustable tension wheel

See **Figure 5A**

	/min		
	1	2	3
A-B	125	210	420
A-C	620	1000	2000

Figure 5 spindle speeds

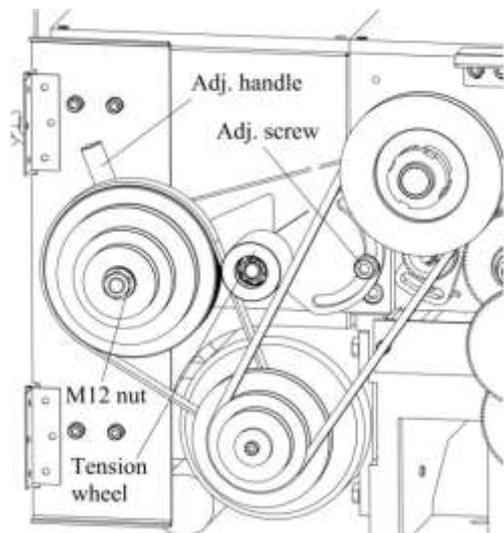


Figure 5A Adj. belt

Test Run Lathe

Before continuing to Operate, test run the lathe to make sure it runs properly.

To test run the lathe, do these steps:

1. Put on safety glasses!
2. Make sure the chuck key is NOT inserted in the chuck, and that the lathe chuck guard is in the down position. Make this step a habit that you perform every time you start the lathe.
3. Familiarize yourself with the lathe controls shown in **Figure 6**. Make sure the STOP button is all the way down before continuing.
4. Clear all tools, components, packing material, etc. away from the cutter head.
5. Plug the machine into the power outlet! The lathe power indicator light should light up. The "Speed of Spindle" should light up.
6. Move the carriage feed lever up to the disengage mode.
7. Flip up the emergency stop button
8. Turn the Fwd/Rev switch to the center "O" position.
9. Turn the selector switch to the "ON" position. The lathe does not start.
10. Turn the Fwd/Rev switch to the right "Fwd" position.
11. Turn the selector switch to the "ON" position. The lathe runs
The lathe power light should light up.
Allow the lathe to run for at least two full minutes to make sure it is running satisfactorily and the chuck is turning clockwise.

Note: If it does not light up, unplug the

machine and check the fuse, your power source, and the connections on the machine before attempting to start the lathe. Call our Tech Support department if you cannot easily resolve the issue.

12. Turn the selector switch to the "OFF" position.

The lathe stops.

13. Turn the Fwd/Rev switch to the right "Rev" position.

14. Turn the selector switch to the "ON" position .

The lathe runs

The lathe power light should light up.

Allow the lathe to run for at least two full minutes

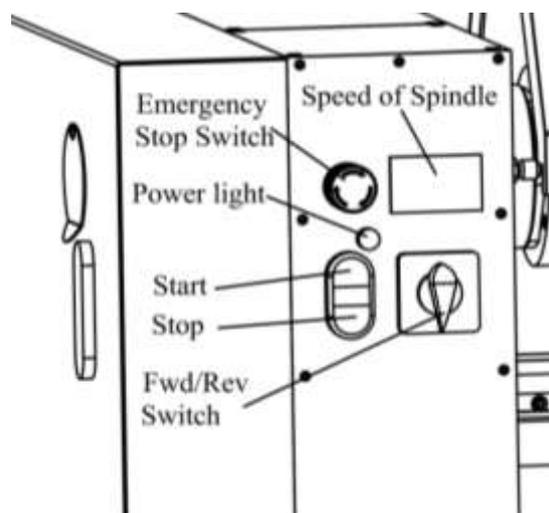


Figure 6: Main lathe control for test run

16. Engage the automatic carriage feed lever.
18. Verify that the carriage moves along the bed, then press the emergency stop button to turn the lathe **OFF**.
19. Disengage the feed lever.

SECTION 4: OPERATE

General

The Model BD-10 will perform many types of operations that are beyond the scope of this manual. Many of these operations can be dangerous or deadly if performed incorrectly.

The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. **If at any time you are experiencing difficulties performing any operation, stop using the machine!**

If you are an inexperienced operator, we strongly recommend that you read books, trade articles, or seek training from an experienced lathe operator before performing any unfamiliar operations. **Above all, your safety should come first!**

Controls

To get the most out of your machine, please take the time to familiarize yourself with the various controls and components shown in the **Figures 7**.

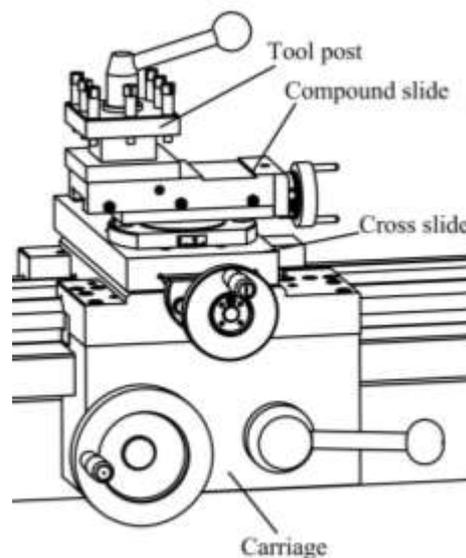
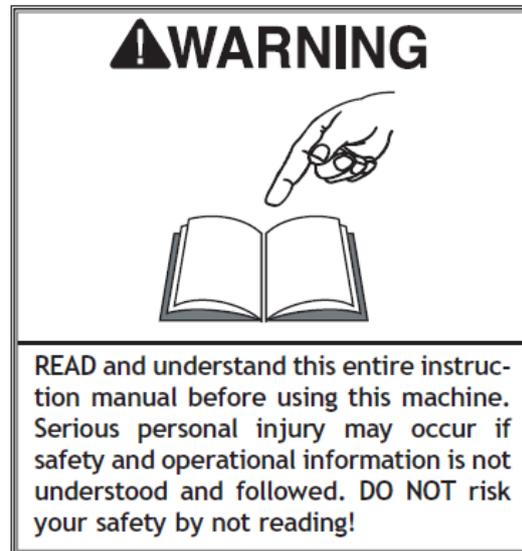


Figure 7 Compound Slide

Removing/Installing Chuck or Faceplate

The BD-10 spindle nose mounting system uses a circular lock plate with slotted holes that are oversized at one end (keyholes). When the lock plate is rotated counterclockwise (as facing the chuck), the studs with mounting nuts can pass through the spindle nose. When the lock plate is rotated toward the back of the lathe, the oversized holes narrow to the size of the studs, allowing the mounting nuts to be tightened against the back of the lock plate, thus, securing the chuck or faceplate.

To remove a chuck or faceplate from the lathe spindle nose, do these steps:

1. DISCONNECT LATHE FROM THE POWER SOURCE!

2. Move the lathe chuck guard away from the chuck.

3. Familiarize yourself with the spindle nose components shown in **Figure 8**.

4. Place a piece of plywood over the bed-ways to protect your hands.

5. Hold the chuck/faceplate with your hand or a chuck key, and using a 17mm wrench, loosen the three chuck mounting nuts on the back of the knurled lock plate. **DO NOT** back the nuts out all the way or they will scratch the metal cover when you rotate the lathe chuck.

6. Rotate the lock plate toward the front of the lathe

7. Remove the chuck/faceplate from the spindle nose by pulling it out (**Figure 9**).

Note: The tolerances are tight, so you may need to tap the chuck/faceplate with a rubber mallet, rotate it 1/4 of a turn, tap it, rotate it, and continue repeating this process until the chuck comes out.

Never use a pry bar or steel hammer to remove the chuck or you will damage machine components!

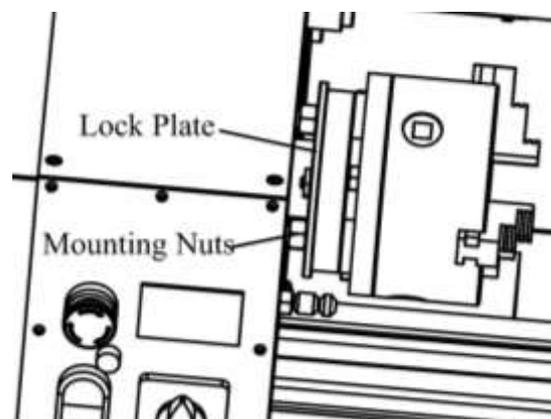
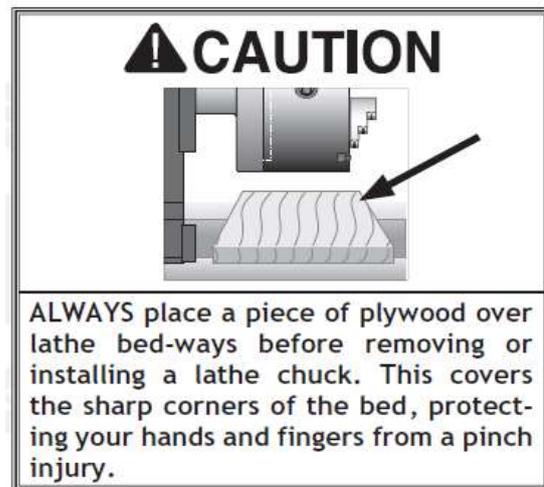


Figure 8 : Spindle nose components

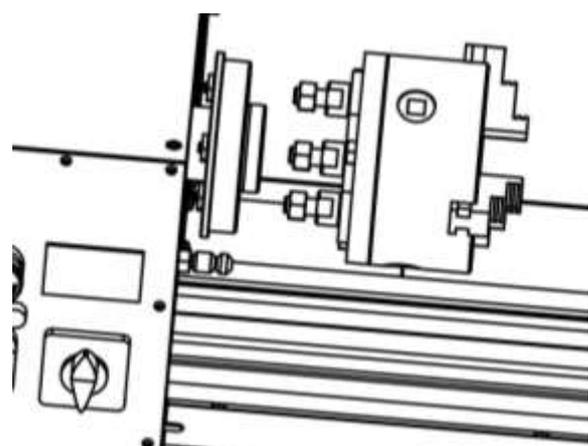


Figure 9 :Removing chuck from spindle nose.

To install a chuck/faceplate, do these steps:

1. DISCONNECT LATHE FROM THE POWER SOURCE!

2. Insert the three mounting studs into the back of the chuck and tighten them down. If you are switching chucks, take the mounting studs out of the previously removed chuck and use them in the chuck you are going to install. Also, make sure that a chuck mounting nut is on each of the studs.

3. Make sure that the knurled lock plate is rotated all the way toward the front of the lathe.

4. Insert the chuck onto the spindle nose.

5. Rotate the knurled lock plate toward the back of the lathe until it stops. If the lock plate will NOT rotate more than a fraction of an inch, then the chuck is not completely inserted. Make sure the chuck is completely inserted so the lock plate can be rotated properly.

6. Hold the chuck/faceplate with your hand or a key. Using a 17mm wrench, snug the three chuck mounting nuts to the back of the knurled lock plate, then final tighten all three with even pressure.

7. Remove all wrenches and chuck keys from the chuck/spindle nose.

8. Move the lathe chuck guard down over the chuck before operating, or the lathe will not start.

Dead Centers

To install the tailstock dead center, do these steps:

1. Familiarize yourself with the tailstock components shown in **Figure 10**.

2. Make sure the dead center and tailstock quill are clean and free of any dirt, dust, grease, or oil. Morse tapers will not interlock when dirt or oil are present on the mounting surfaces.

3. Extend the quill approximately 1".

4. Slide the dead center into the tailstock quill as Shown in **Figure 11** .

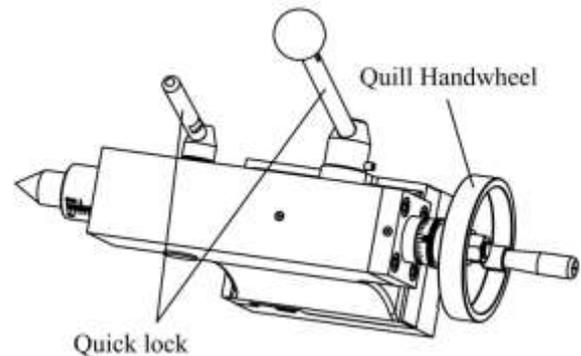


Figure 10. Tailstock components.

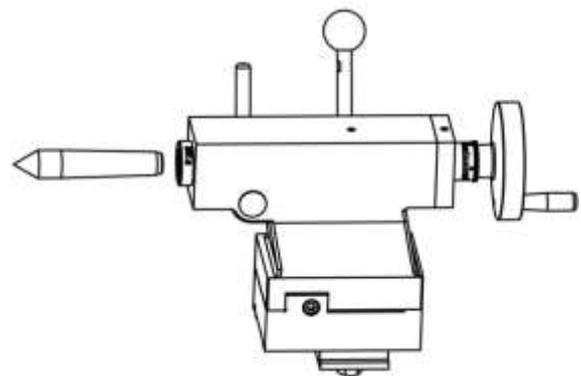


Figure 11 .Inserting dead center into tailstock quill.

To remove the tailstock dead center, do these steps:

1. Use the tailstock handwheel to move the tailstock quill all the way back into the tailstock until the handwheel will no longer turn (this will push the dead center out of the quill).

2. Pull the dead center out of the tailstock quill.

Tailstock Positioning

Longitudinal Positioning

To adjust the tailstock longitudinally, do these steps:

1. Loosen the tailstock Quick lock shown in **Figure 12**.
2. Slide the tailstock into position along the bed, then tighten the clamp nut to secure the tailstock in the new position.

Offset Positioning

The two offset adjustment screws (**Figure 12**) position the tailstock away from the center line for turning tapers.

To offset the tailstock to the left of the center line, do these steps:

1. Loosen the tailstock Quick lock, and using a 3mm hex wrench, loosen the lock screw.
2. Using a 6mm hex wrench, loosen the front offset adjustment screw.
3. Tighten the rear offset adjustment screw to move the tailstock to the desired position, then tighten the front offset adjustment screw.

4. Tighten the lock screw and clamp nut. To offset the tailstock to the right of the center line, follow the instructions above but reverse Steps 3 & 4.

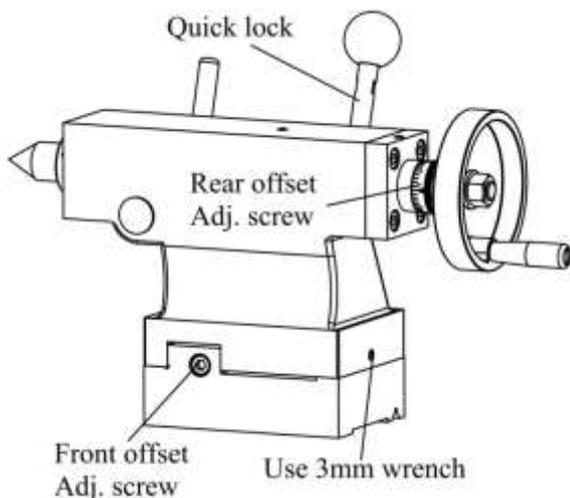


Figure 12 .Tailstock positioning controls.

Cross Slide

The cross slide moves perpendicular to the longitudinal axis and features a scale on the handwheel that displays graduations of one thousandths of an inch (0.002") or 0.05mm.

To adjust the cross slide, do these steps:

1. Using the handwheel, back the cross slide away from your starting point by at least 0.30, then move the cross slide forward to your starting point.

Note: This procedure will clear any free movement (or backlash) in the lead screw so your handwheel scale reading will be accurate.

2. Hold the handwheel still and turn the scale so the "0" mark lines up with the "0.000" mark on the cross slide, as shown in **Figure 13**. As long as you avoid backlash by continuing to move the cross slide in the same direction, the scale on the handwheel will be accurate.

3. After backing the cross slide away from the workpiece, remember to clear the backlash before moving the cross slide forward to the "0" mark for the next cut.

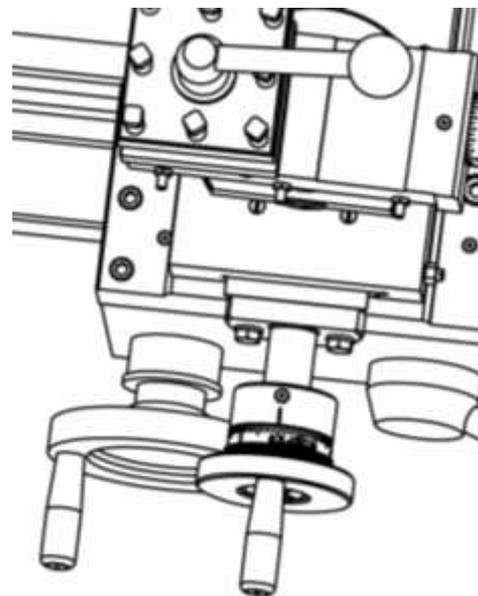


Figure 13 .Cross Slide.

Compound Slide

Similar to the cross slide, the compound slide features a scale that displays graduations of one thousandths of an inch (0.002") or 0.05mm. Unlike the cross slide, the compound slide can be rotated to a set angle and then it can be moved back and forth along the axis of that angle.

To adjust the compound slide, do these steps:

1. Loosen the compound cap screws shown in **Figure 14** to allow it to be rotated.
2. Rotate the compound slide to the angle needed for your procedure.
3. Tighten the compound cap screws, and check the angle again to make sure it did not move during tightening.
4. Use the compound slide handwheel to move the tool back and forth along the axis of the new angle. Similar to adjusting the cross slide handwheel, make sure the threads are engaging and all backlash has been cleared before you set the handwheel scale to "0", or it will not be accurate.

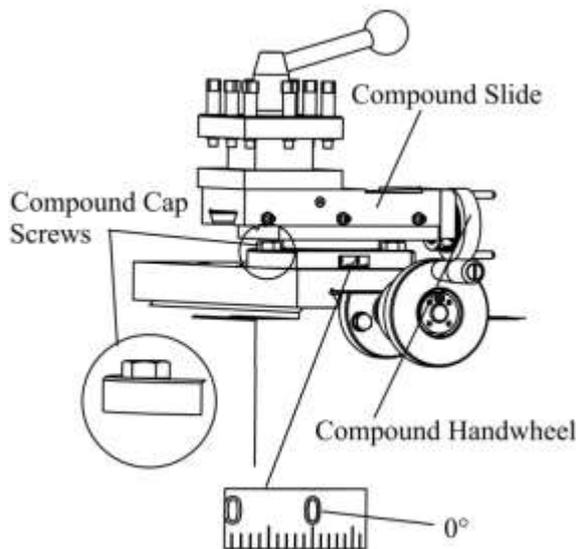


Figure 14 .Loosening the compound Cap screws.

Carriage Handwheel

The carriage handwheel (**Figure 15**) moves the carriage left or right along the bed. This manual control is necessary when setting up the

machine for turning or when manual movement is desired during turning operations.

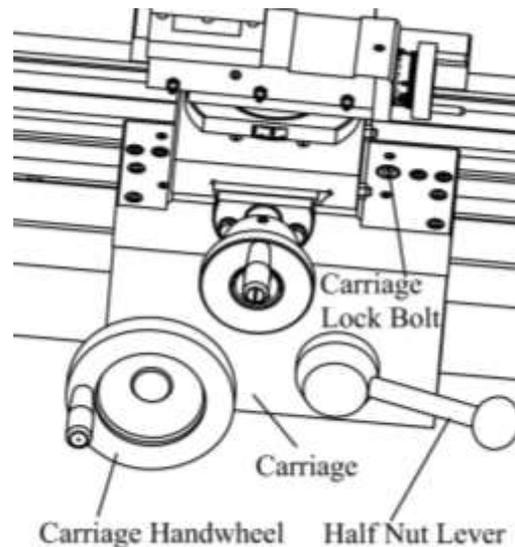


Figure 15 Carriage controls

Half Nut Lever

The half nut lever can be selected by moving the lever to the right as in **Figure 15** and **Figure 16**. Use this position for all feed operations.

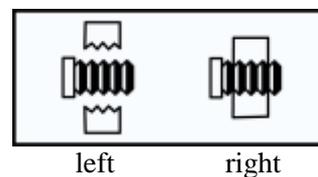


Figure16.

Carriage Lock

The carriage is supplied with a lock bolt on the front right-hand side of the saddle (see **Figure 15**).

This bolt locks the carriage in place for increased rigidity when making face cuts. This lock bolt must be loosened before attempting to move the carriage manually or with the power feed.

Understanding Gear Charts

The Lathe can be geared for a variety of different feed rates, so charts are placed on the drive cover of the lathe that explain how to set up the gear combinations for each type of carriage feed application. Three applications are broken into two categories of charts-turning and threading.

Turning chart: The speeds given on the turning chart represent standard speeds for most types of turning applications. See **Figure 17**.

	mm /	
	0.1	0.2
V-D	33 80	50 80
F-E	90 25	90 33
L	G 90	G 90

Figure 17.

Threading charts : By arranging the gears as shown on the threading charts (see **Figure 19**), you can set up the carriage feed to cut any of the thread pitches indicated.

This is how to read the feed rate charts:

1. The box in the upper left-hand corner of each chart tells whether that chart represents carriage feed movement for metric or imperial threads. These boxes are shaded in **Figure 18**

	1.25	1.5	1.75
D	G 52	G 66	G 80
F-E	75 80	75 80	70 80
L	60 G	50 G	40 G

	10	11
D	G 80	G 80
F-E	66 40	60 40
L	52 G	52 G

Figure 18

	0.4	0.5	0.6	0.7	0.8	1
D	G 80	G 80	G 80	G 80	G 52	G 66
F-E	30 80	30 80	30 50	42 60	60 80	60
L	75 G	80 G	80 G	80 G	75 G	G 80

	1.25	1.5	1.75	2	2.5	3
D	G 52	G 66	G 80	G 70	G 80	G 80
F-E	75 80	75 80	70 80	80	75 80	75 25
L	60 G	50 G	40 G	G 40	30 G	80 G

	10	11	14	19
D	G 80	G 80	G 80	G 80
F-E	66 40	60 40	75 50	50 40
L	52 G	52 G	66 G	76 G

	20	22	40	44
D	G 80	G 80	G 80	G 80
F-E	66 80	60 80	33 52	30 52
L	52 G	52 G	80 G	80 G

	mm /	
	0.1	0.2
V-D	33 80	50 80
F-E	90 25	90 33
L	G 90	G 90

Figure 19 metric char

2. The boxes in the top row of each chart (excluding the box in the left-hand corner) shows the thread pitches listed on that chart. These boxes are shaded in **Figure 20**

	0.4	0.5	0.6	0.7	0.8	1
D	G 80	G 80	G 80	G 80	G 52	G 66
F-E	30 80	30 60	30 50	42 60	60 80	60
L	75 G	80 G	80 G	80 G	75 G	G 80

Figure 20

3. The boxes on the left-hand column (excluding the box in the upper left-hand corner) represent the gear positions on each shaft. These boxes are shaded in **Figure 21** and the shafts are called out with arrows.

mm	0.4		0.5	
Uper Adjustable Shaft →	D	G 80	G 80	
Lower Adjustable Shaft →	F - E	30 80	30 60	
Pivot Shaft →	L	75 G	80 G	

Figure 21

4. Each shaft has room for two positions to mount the gears—a forward position and a rear position. **Figure 22** separates these positions into different shades for you to understand better.

Both forward and rear positions must be filled on the shaft in order for the gears to work properly. A good example of this is the blank spot to the right of gear “F,” as shown in the chart in **Figure 22**.

Although the chart shows this as a blank spot, there should actually be a spacer in this position on the machine. This spacer is not listed on the chart, because the chart only reflects ACTIVE gear positions.

Note: Smaller gears can be used as spacers.

mm	1.25		1.5		1.75	
D	G 52	G 66	G 80			
F - E	75 80	75 80	70 80			
L	60 G	50 G	40 G			

↑ Rear
 ↑ Forward

Figure 22

5. The lines between gears “D” & “E” and gears “F” & “L” on the chart in **Figure 23** indicate where the gears should be engaged.

mm	0.4		0.5		0.6	
D	G 80	G 80	G 80			
F - E	30 80	30 60	30 50			
L	75 G	80 G	80 G			

Figure 23

6. The boxes shaded in **Figure 24** represent the actual gear combinations required to cut the thread pitches.

Here is a real-world example of a gear setup as shown on the chart:

When the lathe is shipped from the factory, it is geared for a carriage feed rate of 0.1mm per spindle revolution, or the gear combination shaded in **Figure 24**.

	mm/⌀	
	0.1	0.2
V - D	33 80	50 80
F - E	90 25	90 33
L	G 90	G 90

Figure 24 Chart showing gear setup for 0.1 mm

Figure 25 shows a profile of the 0.1mm feed rate actual gear setup on the machine. Notice how the gears engage together in the locations displayed on the chart.

Note: On some setups, smaller gears must be used as spacers on the adjustable shafts. In these situations, the smaller gears do not engage with the other gears.

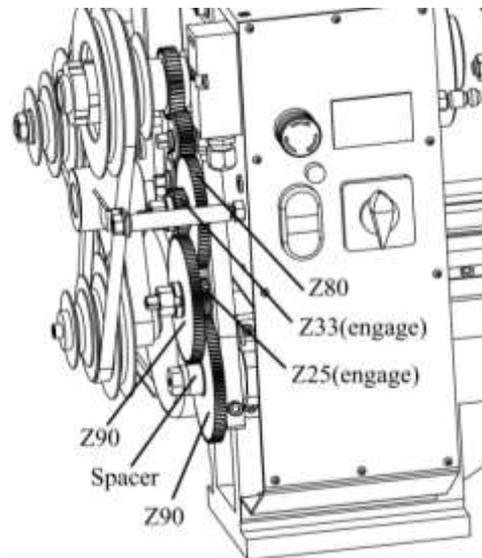


Figure 25 Gear setup for 0.1mm feed rate

Reverse threading

The lathe can be setup to turn left-handed threads. See **Figure 26/ Figure 27/ Figure 28**

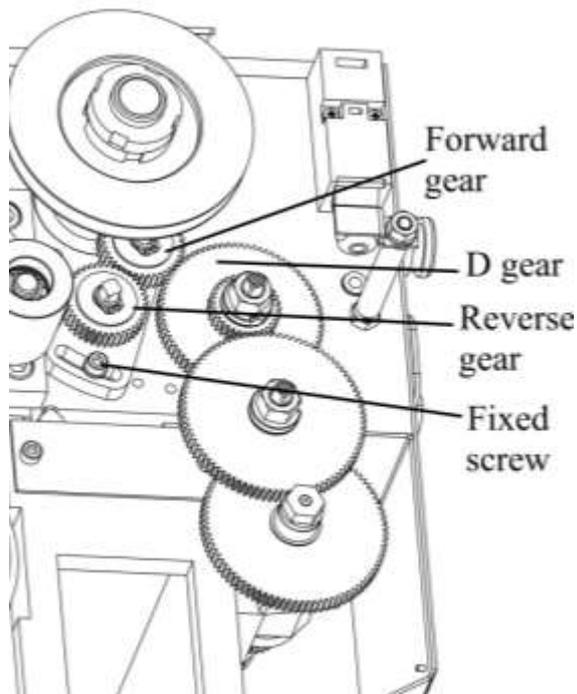


Figure 26 Forward threading

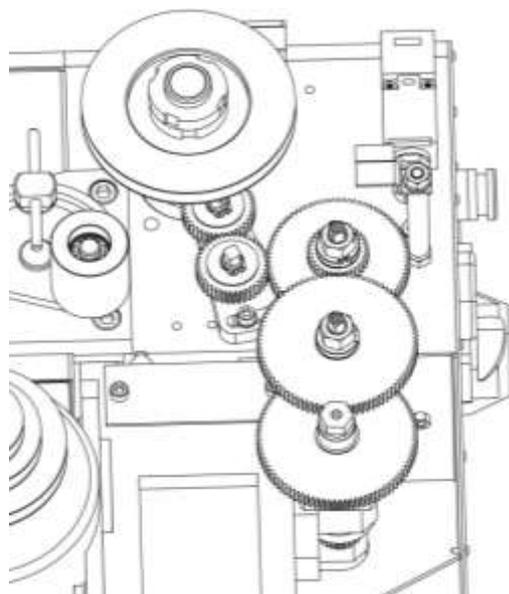


Figure 27 Reverse threading

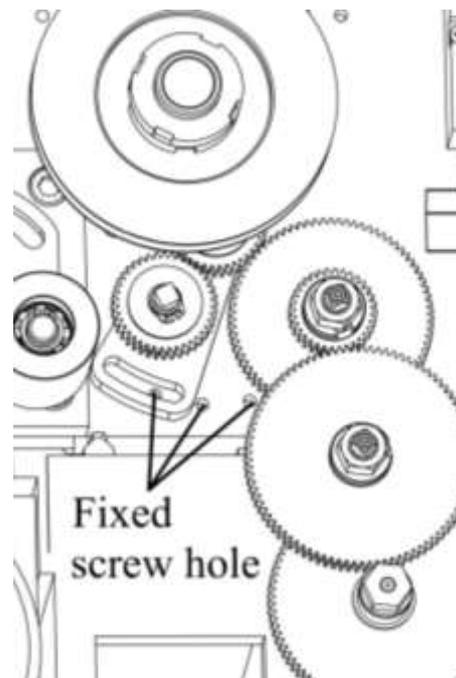


Figure 28 Fixed screw hole

When Forward gear mesh D gear is right-handed threads, see **Figure 26**

When Reverse gear mesh D gear is left-handed threads, see **Figure 27**

There are three hole can be using the Fixed screw, see **Figure 28**

Note: Forward gear and Reverse gear do not mesh D gear at the same time, Otherwise the gears will be damaged.

SECTION 5: MAINTENANCE

Lubrication

Your lathe has numerous moving metal-to-metal contacts that require proper lubrication to help ensure efficient and long-lasting operation.

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.

Before adding lubricant, clean away any debris and grime from the lubrication point to avoid contaminating the lubricant and increasing wear of the moving parts.

DISCONNECT THE LATHE FROM POWER BEFORE PERFORMING LUBRICATION !

Note : The change gears and the ball oilers have the same lubrication

Ball Oilers

Lubricant	Frequency	Qty
ISO 68 or Equivalent Lubricant	Every 8 Hours of Operation	1 Squit From Oil Can

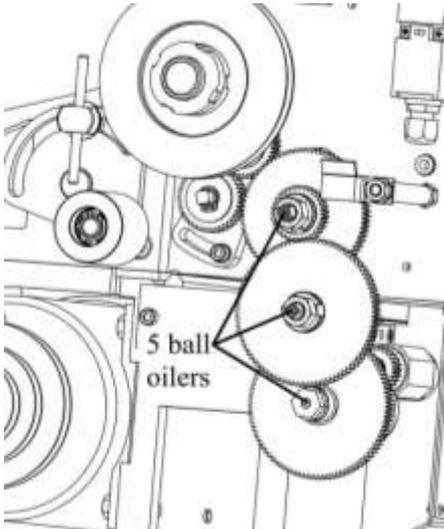


Figure 29

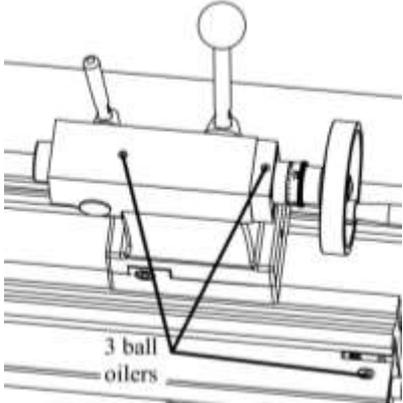


Figure 30

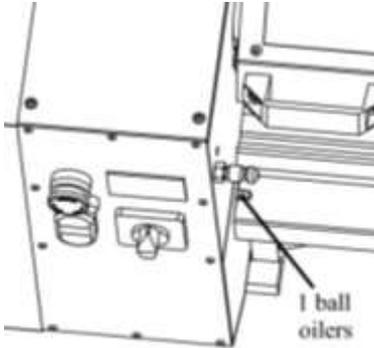


Figure 31

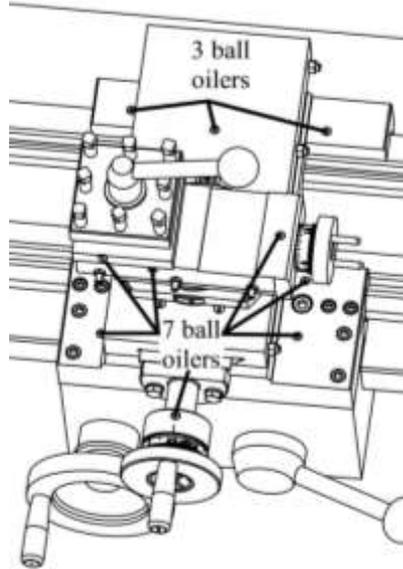


Figure 32

Gibs

There are three gib adjustments for the Model C8—the cross-slide gib, the compound slide gib, and the saddle gib.

Cross-slide Gib—The gib on the cross-slide is adjusted by tightening or loosening the five gib screws located on the right-hand side of the slide (shown in **Figure 33**). Before adjusting the gib screws, loosen their jam nuts.

The gib is held in place by the setscrews. DO NOT overtighten. The gib is properly adjusted when a slight drag is detected while turning the hand crank. This drag should be evenly distributed among the 4 setscrews, so adjust each screw evenly.

Compound Gib—The gib on the compound has four screws that maintain tension on the slide (see **Figure 33**). These screws are held in place with retaining nuts.

To adjust, loosen the retaining nuts and then tighten the screws evenly to achieve a slight drag when turning the hand crank. When proper tension has been achieved, tighten the retaining nuts while maintaining the position of the screw with a hex wrench.

Carriage Gibs—There are four tensioning screws for both the front and rear saddle gibs (see **Figures 34 & 35**).

Before making adjustments to the saddle gib, ensure that the front lock lever is loose by turning it counterclockwise. It is important that the screws are tightened evenly. A slight drag should be detected while turning the hand crank at the end of the lathe.

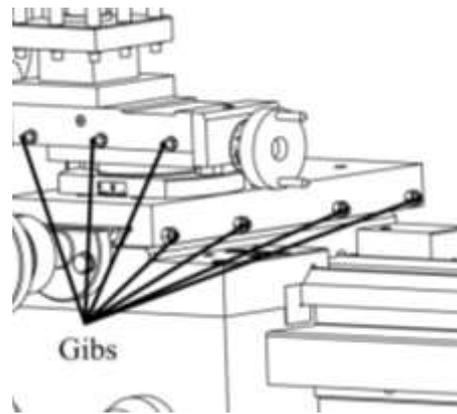


Figure 33 .Cross slide and compound gib screws.

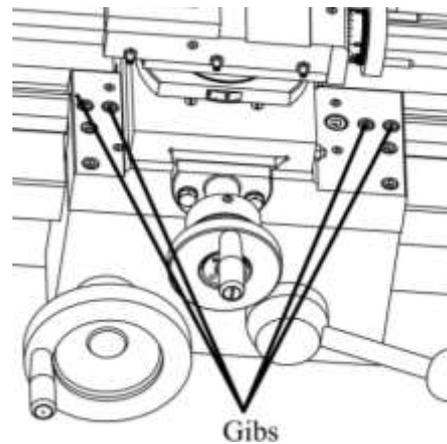


Figure 34 .carriage gibs screws.

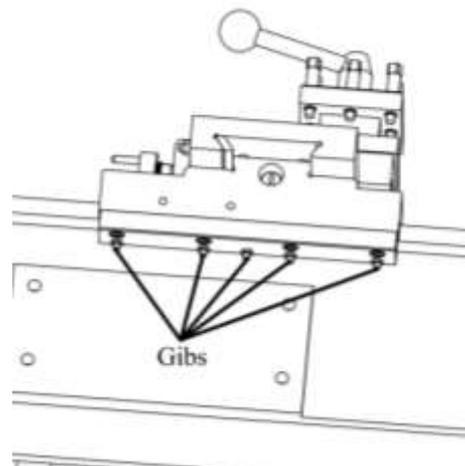


Figure 35. carriage gibs screws.

Bearing Preload

This lathe is shipped from the factory with the spindle bearing preload properly adjusted. If the spindle ever develops excessive end-play and the workpiece finish suffers, you can adjust the bearing preload to remove the unnecessary end-play and improve the workpiece finish.

To adjust the spindle bearing preload:

1. Run the lathe for approximately 20 minutes on high speed to bring the lathe to normal operating temperature.

1. DISCONNECT LATHE FROM POWER!

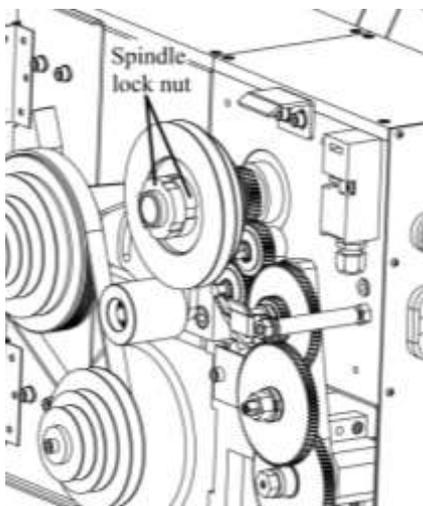


Figure 36

2. Loosen the two **Spindle lock nut** one full turn counterclockwise. (see **Figure 36**)

Note: Use the Wrench 42-52.

3. Place a wooden block over the outboard end of the spindle, and hit it soundly with the heavy dead blow hammer (see **Figure 37**).

Your goal is to slide the spindle forward just enough to introduce spindle end-play that you can feel by hand.

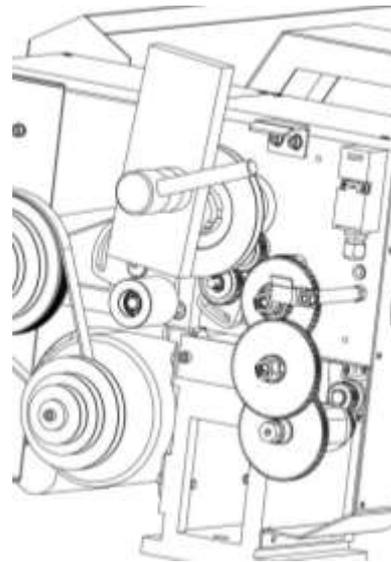


Figure 37

4. Clockwise to tighten the Spindle Lock Nut, Rotating the 3-Jaw Chuck with spindle, Check the spindle bearing preload, Spindle should be no gap, rotating with slight resistance. The need to repeatedly to loosen or tighten the Spindle Lock Nut adjustment.

To confirm that the spindle bearings are correctly preloaded:

1. Reattach all removed lathe components and prepare it for operation.

2. Install the chuck and tighten the jaws into the center.

3. Set the spindle speed to a medium setting.

4. Connect the lathe to power and turn the lathe spindle ON.

5. Let the lathe run for 20 minutes.

6. Turn the spindle OFF, disconnect the lathe from power, then check the temperature of the spindle.

— If the spindle nose is slightly warm to the touch, you have correct bearing preload.

— If the spindle nose is hotter than you can comfortably keep your hand on, the preload is too tight and you must repeat

the bearing preload adjustment procedure. When repeating the procedure, rotate the inner spanner nut a little less during Step 7 in the preceding instructions.

NOTICE

Do not over tighten the outer spanner nut because additional pressure can force the bearings even tighter against the races in the headstock and cause the headstock to compress, crack, or cause bearing failure.

PROMAC[®]

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Wir gewähren Ihnen auf den unten eingetragenen Artikeln Garantie auf die Dauer von 24 Monaten ab Laufdatum. Einzige Voraussetzung: dieses ausgefüllte persönliche Garantie-Zertifikat muss der zur Reparatur eingesandten Maschine beigelegt sein.

Par ce document nous nous engageons à réparer l'article mentionné ci-dessous en garantie pendant une période de 24 mois à partir de la date d'achat. Cette garantie ne sera pas honorée si ce certificat dûment complété n'est pas renvoyé avec la machine en question pour toute réparation.

Modell / Modèle

Namen und Anschrift des Käufers / Nom et adresse de l'acheteur

Serie-Nr. / N° de série

Kaufdatum / Date de l'achat

Händler-Stempel

Cachet du revendeur