OPERATOR'S MANUAL

METAL LATHE
MODEL: PL-1340

Book 1 of 2

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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without a RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 30 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTIAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.

Force Majuere. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing, and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator's manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorneys' fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the u.s. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.
10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
Returned materials must be received at Baileigh in new condition and in original packaging.
Altered items are not eligible for return.
Buyer is responsible for all shipping charges.
A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:
Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at sales@baileighindustrial.com

INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine. (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

DESCRIPTION

The Baileigh **PL-1340** is a precision gear head lathe that is capable of producing extremely accurate parts in less time. The large gearbox allows for large threading and feed capabilities. Ground and hardened gears are standard in the gearbox and headstock. The **PL-1340** comes standard with a factory installed Mitutoya DRO (digital read out), a three jaw chuck, a steady rest and follow rest, and a halogen work light. Each lathe has Meehanite® castings with hardened and ground ways coated with Turcite-B® for longer wear and tight tolerances.

In this manual you will find:

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Set-up and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

- After receiving your equipment remove the protective crating. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

- Take necessary precautions while loading / unloading or moving the machine to avoid any injuries. Refer to the related chapter of this Manual for the best way of handling the machine.

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.

SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

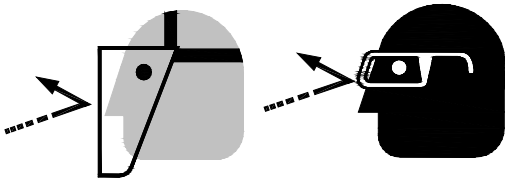
A signal word – **DANGER**, **WARNING**, or **CAUTION** is used with the safety alert symbol. **DANGER** identifies a hazard or unsafe practice that will result in severe **Injury or Death**.

Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.

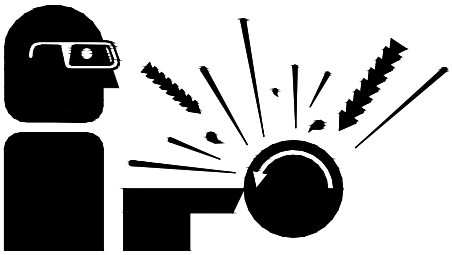
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



ROTATING CHUCK CAN CUT, DISMEMBER, SNAG, and ENTRAP

Keep hands and body clear while operating. Flying chips, sparks, and other particles can cause serious injury or death.



DUST HAZARD

Wear appropriate dust mask when using this machinery.

HIGH VOLTAGE

USE CAUTION IN HIGH VOLTAGE AREAS.
DO NOT assume the power to be off.

(MAKE SURE PROPER LOCKOUT PROCEDURES ARE FOLLOWED)

PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.

WARNING - Operator Safety Precautions

1) **Read and understand the Operator's manual before using the lathe.**

2) **These lathes are fast, powerful machines which can cause severe bodily injury or death if not used properly and safety guidelines are not followed.**

3) **Always disconnect the lathe from the power supply before performing any service work, adjustments, or changing of tooling.**

4) **Do not wear clothing or jewelry that can become entangled in the moving machinery. Tie back long loose hair when operating the machine.**

5) **Remember - Safety is a combination of common sense and alertness at all times whether the machine is running or not. Never operate while under the influence of drugs or alcohol, or when tired.**

6) **Make sure lathe operators are properly trained. Untrained operators can be seriously injured. If the machine is not being used, disconnect and lockout the power to prevent unauthorized use of the machine.**

7) **Never leave adjustment tools or lathe chuck wrenches in the chuck or near any moving part of the machine. They can become dangerous projectiles causing serious personal injury or death.**

8) **Follow maintenance instructions and lubrication schedules to ensure the machine is in good working condition at all times.**

9) **Set up a scheduled machine inspection to look for damaged parts, loose hardware, misaligned components, or other conditions that will affect the safe operation of the machine.**

10) **Always use correct tooling and inserts for the job at hand, and make sure they are sharp to decrease strain on the machine components.**

11) **Study and understand the speed and feed charts on the machine and in this manual to avoid overloading the machine and causing possible tool damage.**

12) **Retro-fitting or purchasing a manual lathe with interlocking guards can help reduce the risk of entanglement or being hit with projectiles while operating the machine.**

WARNING - Operator Safety Precautions (cont.)

13) **Make sure guarding does not prevent the operator from performing the necessary job tasks in a safe manner.**

14) **Guards should not obscure the operator's view when extending beyond the depth of the chuck.**

15) **Always inspect the chuck and piece part in the chuck. Be aware of any potential catch points capable of causing serious personal injury or death.**

16) **To avoid injuries during start-up, make sure the piece part, tooling, and tool post have adequate clearance. Always set correct RPM for the size part being turned. If the speed is set too high for a large piece part there is a chance it could be ejected from the chuck causing serious personal injury or death.**

17) **Always support the piece part as necessary when it extends from the chuck using a lathe center in the tail stock or by using either a steady rest or a follow rest.**

18) **When the chuck and piece part are in motion, NEVER reach over, under, or around the piece part to make an adjustment or to retrieve anything.**

19) **ALWAYS STOP THE LATHE when removing metallic or plastic shavings from the piece part or the tooling. NEVER use your bare hands.**

WARNING

All machinery poses a potential for danger when being operated. Accidents result from lack of machine knowledge and failure to pay attention. Always be cautious and alert to the potential for serious injury. Follow safety rules and precautions to lessen the chances of an accident.

CAUTION

No list of operator safety precautions can be complete as every shop has different surroundings and working conditions. Always put safety first as it applies to your work environment. Failure to do so can result in personal injury or equipment damage,

TECHNICAL SPECIFICATIONS

Swing Over Bed	13" (330mm)
Swing Over Cross Slide	7.79" (198mm)
Swing in Gap	18.750" (477mm)
Distance Between Centers	40" (1016mm)
Length of Gap	4.5" (114mm)
Width of Bed	7.375" (188mm)
Spindle Nose	D1-4"
Spindle Bore	1.50" (38mm)
Spindle Bore Taper	Morse #5
Spindle Speeds	8 (70-2000 rpm)
Travel of Top Slide	2.68" (68mm)
Travel of Cross Slide	6.29" (160mm)
Max. Tool Selection	.625" x .625" (16mm x 16mm)

Leadscrew Thread Pitch	8 T.P.I.
Longitudinal Feed Range	0.002" - 0.0548"/rev. (0.05 - 1.4 mm/rev)
Cross Feed Range	0.007" - 0.0187"/rev (0.178 - 0.475 mm/rev)
Metric Thread Range	0.4 - 7 mm
Tailstock Diameter	1.65" (42mm)
Tailstock Travel	4.5" (115mm)
Tailstock Taper	Morse #3
Power Requirements	220V, 1Ph
Horsepower	2 Hp (1.5Kw)
Shipping Dimensions (L x W x H)	79" x 33" x 59" (2007 x 838 x 1500mm)
Shipping Weight	1,628 lbs (740Kg)

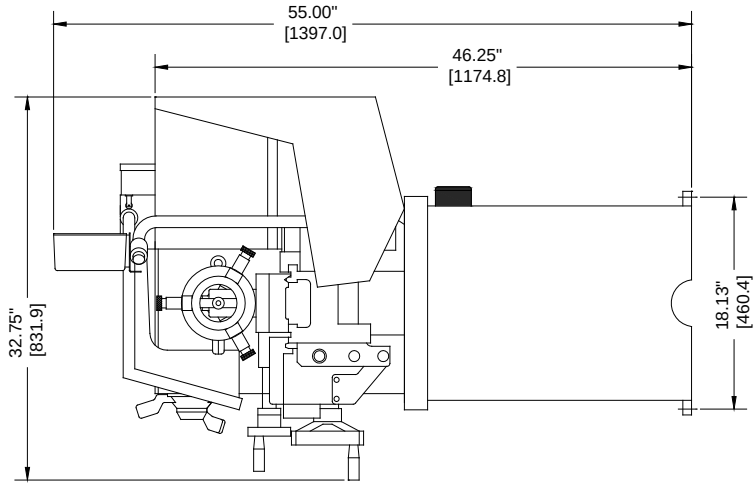
Specifications subject to change without notice

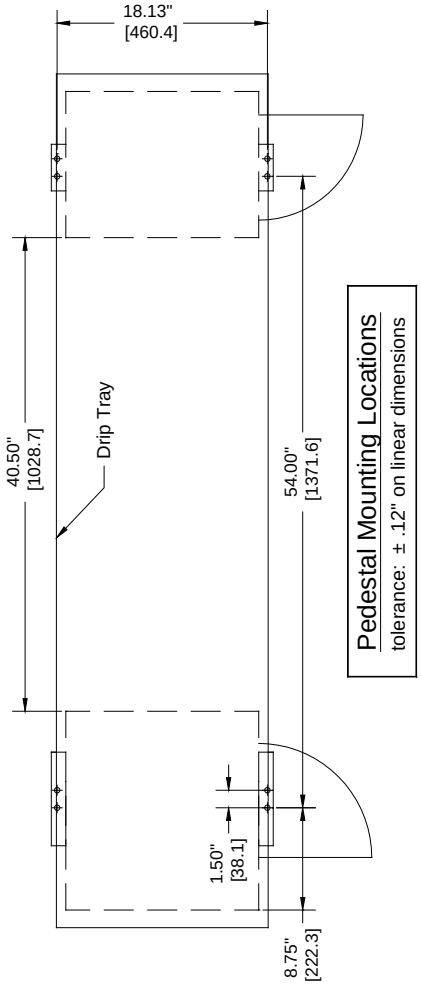
Machine Features

- **Mitutoyo 2-axis digital readout**
- **6” (152mm) three jaw chuck**
- **8-step spindle speed**
- **Integrated coolant system with splash guard**
- **Steady rest**
- **Follow rest**
- **4-way quick change tool post**
- **Foot brake**
- **Headstock chuck guard with micro switch safety cut-off**
- **Heavy duty welded stand**
- **220V single phase**

Note: *The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*

OVERALL DIMENSIONS





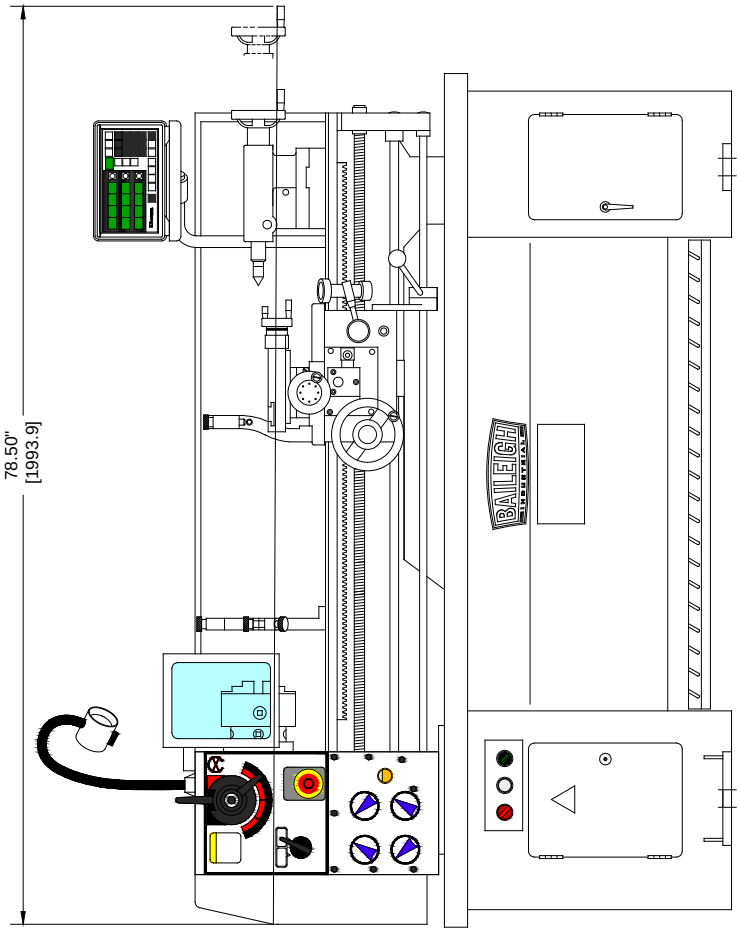


figure 1

TRANSPORTING THE MACHINE

Caution: Lifting and carrying operations should be carried out by skilled workers, such as truck operator, crane operator, etc. Also, it is necessary to keep in mind that having a large clearance area around the machine is important for efficient and safe working conditions.

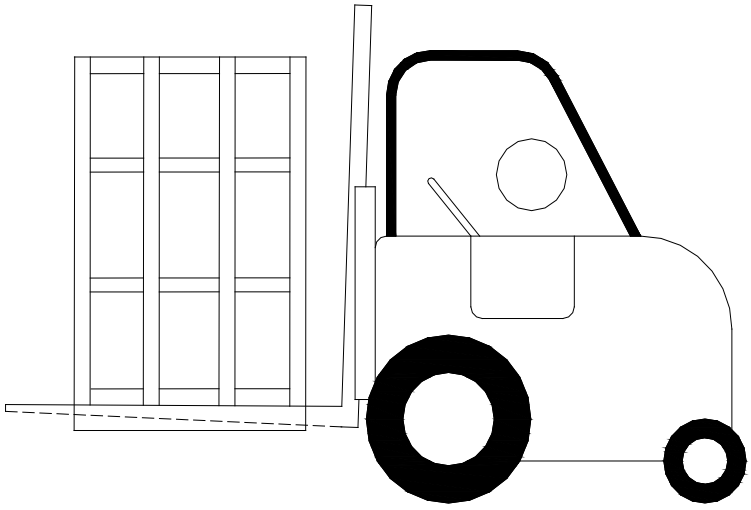


figure 2

When transporting in its own packaging,
use a forklift truck or hand trolley.

UNPACKING AND CHECKING CONTENTS

Your Baileigh **PL-1340** metal lathe is shipped in (1) wooden crate.

WARNING: **SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.**

After removing the crate, carefully check the machine over for any damage. Remove all items from the tool box and do a complete inventory.

UNPACKING AND CHECKING CONTENTS (cont.)

	PARTS INVENTORY	QTY.
A	Tool Box	1
B	Lathe Centers	2
C	Tapered Sleeve	1
D	Chuck Tool - small	1
E	Chuck Tool - large	1
F	Lubricating Bottle	1
G	Screw Drivers	2
H	Brake Pads (set)	1
I	Handle	1
J	Key Handle	1
K	Foot Pads	4
L	Chuck Handle - (2) pc	1
M	Foot brake cable	1
N	Allen Wrench Set (1.5-10mm)	1
O	Reversing Jaws	3
P	Gears 30T, 54T, 56T, 57T, 63T, 66T, 69T, 78T	8
Q	Open End Wrenches	4
R	Bolts - M10 x 35mm (not shown)	3
S	Touchup Paint (not shown)	2

UNPACKING AND CHECKING CONTENTS (cont.)

CLEANING

Your machine may be shipped with a rustproof waxy oil coating and grease on the exposed unpainted metal surfaces. To remove this protective coating, use a degreaser or solvent cleaner. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.
Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

CAUTION: When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

LIFTING AND MOVING THE LATHE

WARNING: Serious personal injury or death can occur if safe lifting and moving practices are not followed. Consult the services of a professional rigger if you have any doubts about your lifting equipment capacities or your own abilities.

Lifting and Moving the Lathe (cont.)

1. If you will be using lift straps to raise the machine, make sure they are in good condition and each one capable of lifting 2,000 lbs. (912 kg.) Make sure the lift straps are routed in such a way as not to damage the lead screw, feed rod, and control rod. Also be careful not to damage the cables from the DRO (digital read out) to the linear scales.

2. REMEMBER, the headstock carries most of the weight of the lathe. Double check the weight ratings and connections before doing the actual lift. Verify that the load is properly balanced by lifting it an inch or two (25-50mm).

3. Avoid any sudden accelerations or change of direction while the lathe is lifted.

LEVELLING AND ANCHORING THE MACHINE

After the machine has been uncrated and cleaned, the support cabinets should be sited on a level, concrete floor. The accuracy of any machine depends on the precise placement of it to the mounting surface. Use a precision level on the bedways to make further adjustments. Place a steel foot pad under each of the leveling screws for support. Anchor the machine to the floor, as shown in (fig. 3) using bolts and expansion plugs or sunken tie rods that connect through holes in the base of the support cabinets. Recheck for a level condition.

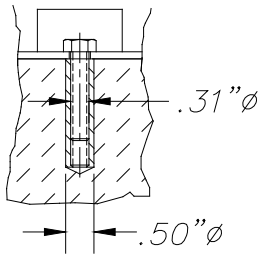


figure 3

IMPORTANT:

- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- Keep the floor free of oil and make sure it is not slippery.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.

ELECTRICAL

CAUTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!
Check if the available power supply is the same as listed on the machine nameplate.

WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

Motor Specifications

Your machine is wired for 220 volt, 60Hz alternating current. Before connecting the tool to the power source, make sure the machine is cut off from power source.

Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with an amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your machine. Before connecting the motor to the power line, make sure the switch is in the "**OFF**" position and be sure that the electric current is of the same characteristics as indicated on the tool.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. When attaching a cord and plug, the plug must fit a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, **DO NOT** connect the equipment-grounding conductor to a live terminal.

- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.
- Repair or replace damaged or worn cord immediately.

Extension Cord Safety

Extension cord should be in good condition and meet the minimum wire gauge requirements listed below:

	LENGTH		
AMP RATING	25ft	50ft	100ft
0-6	16	16	16
7-10	16	16	14
11-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No
	WIRE GAUGE		

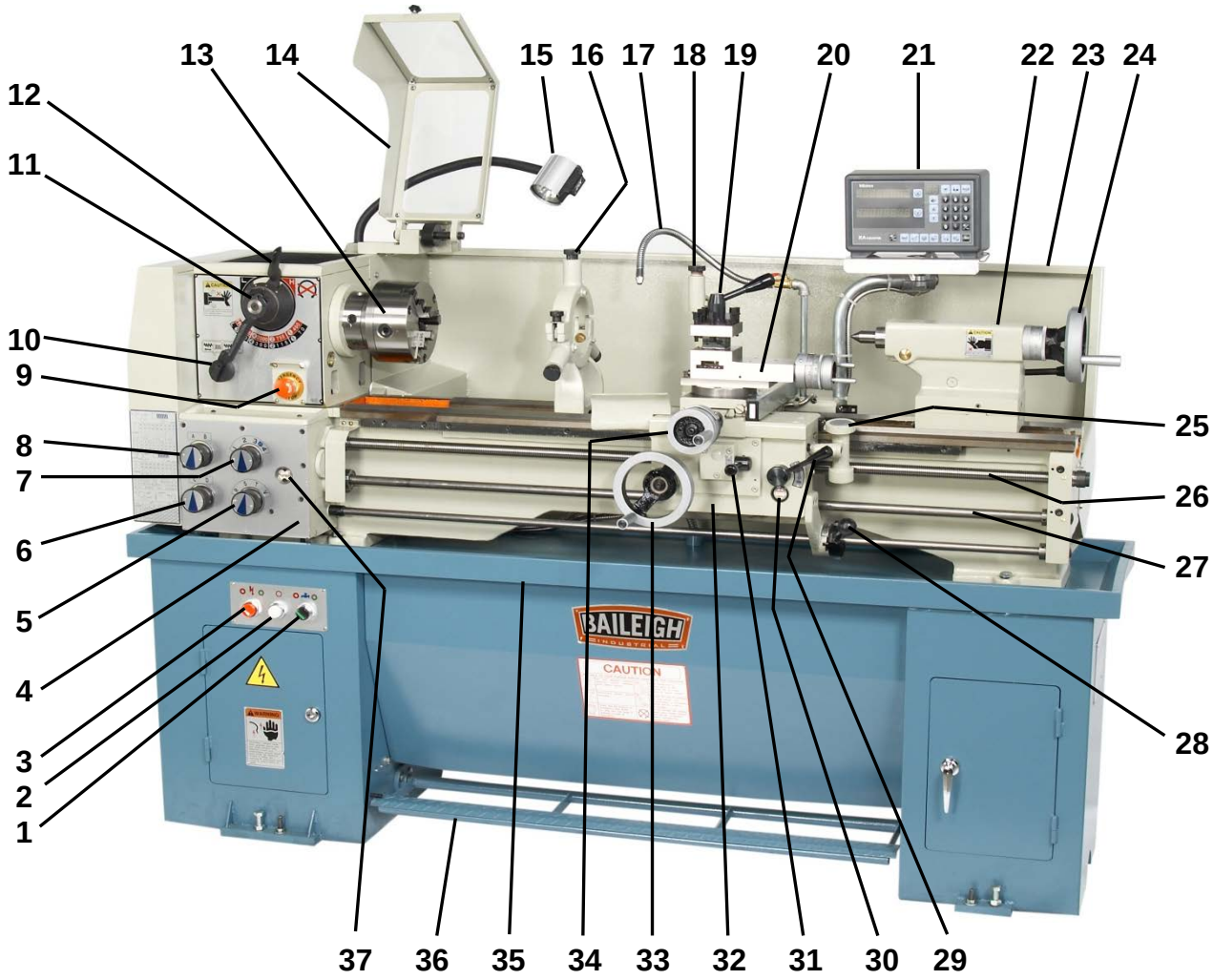
An undersized cord decreases line voltage, causing loss of power and overheating. All cords should use a ground wire and plug pin. Replace any damaged cords immediately.

Power cord connection:

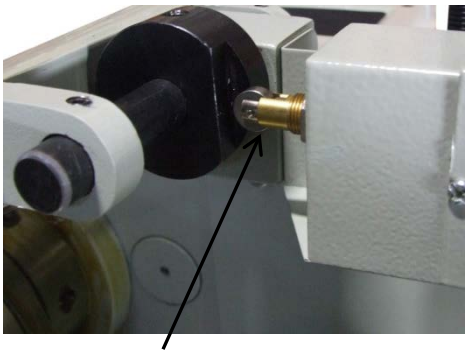
1. Locate the junction box at the rear of the lathe and remove the cover. (fig. 4)
2. Insert a fitting into the open hole at the bottom of the enclosure to grip the power cord (supplied by customer).
3. Connect the two power wires to the terminals labeled **R** and **S**. Connect the ground wire (typically green) to the **E** ground terminal. (Check that the screws are securely tightened.)
4. Inspect the power cord for any damage incurred during installation.

figure 4

GETTING TO KNOW YOUR MACHINE

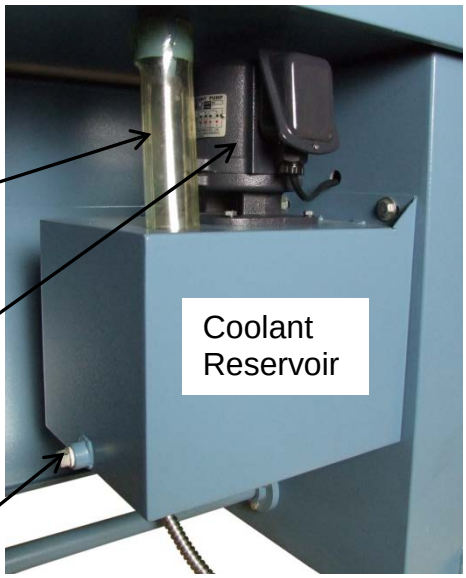


1. Coolant Selector
2. Power "ON" Light
3. Main Power Switch
4. Gear Box
5. Feed Selector Knob
6. Feed Selector Knob
7. Feed Selector Knob
8. Feed Selector Knob
9. E-Stop Button
10. Feed Direction Selector
11. Speed Selector Handle
12. Hi-Spd Lo-Spd Handle
13. Spindle and Chuck
14. Chuck Guard
15. Halogen Work Light
16. Steady Rest
17. Coolant Nozzle
18. Follow Rest
19. Tool Post
20. Top Slide
21. 2 axis Digital Readout
22. Tailstock
23. Splash Guard
24. Tailstock Quill Handwheel
25. Threading Dial Indicator
26. Leadscrew
27. Feed Rod
28. Fwd / Rev Lever
29. Engage Lever
30. Oil Sight Gauge
31. Feed Selector
32. Apron
33. Longitudinal Handwheel
34. Cross Trav. Handwheel
35. Drain Pan
36. Foot Brake
37. Oil Sight Gauge



Guard Switch

Inlet
Hose

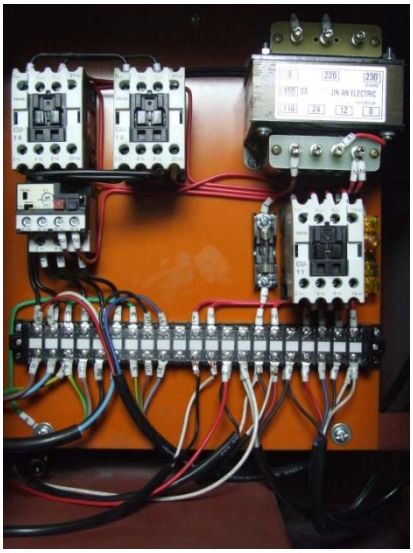


Coolant Pump

Drain Plug

Rear of Machine

figure 5



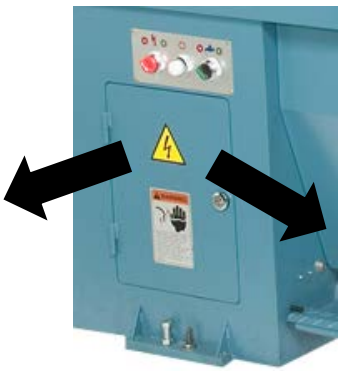


figure 6

Located inside the door of the left base support is the electrical panel (shown at left) and the brake switch with push / pull cable (shown at right).

Steady Rest

The steady rest on the **PL-1340** lathe is used to support long, small diameter stock that otherwise could not be turned. The steady rest can also be used in place of the tailstock when access to the cutting tool is required at the outboard end of the piece part. By loosening the nut in the base, the steady rest can be re-positioned along the slide rails.

figure 7

Live Center

The live center is used when the chuck alone can not support longer length material. Stock that extends beyond the chuck more than three times its diameter should be supported by the live center. The barrel of the tailstock and the end of the live center have a Morse #3 taper. Before inserting the live center, wipe it clean and make sure the barrel entry is also clean. Insert the end of the live center into the barrel until it seats. To remove the live center, crank the barrel "**OUT**" until you you see the knockout tool insertion slot (fig. 9). Insert a knockout tool into the slot and give it a sharp tap to push out the live center. You can also insert the tool and crank the barrel "**IN**" which will push out the live center. Be sure to catch the live center as it is extracted to avoid damaging the sharp point.

figure 8

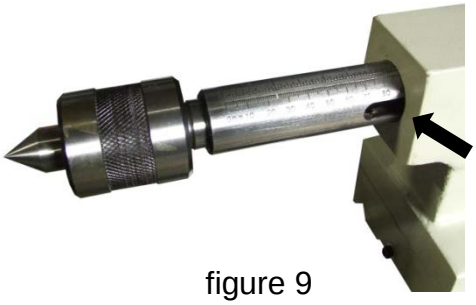


figure 9

Follow Rest

The follow rest is typically used for small diameter stock to prevent the piece part from “springing” under pressure from the tool. The follow rests, which are opposite the tool post, act as supports to counter balance the force exerted on the piece part by the tool. The tool and the supports form a triangle around the part to help minimize vibration. The follow rest has two adjustable brass points to allow rotation of jobs without causing abrasive scratches. The soft points will need replacement when they wear out.

figure 10

Tailstock

The tailstock consists of the base, base lock, barrel, barrel lock, handwheel, body, and screw.

The tailstock on a lathe has many functions including supporting the piece part opposite the headstock. It also has a barrel imprinted with graduations in millimeters and inches and a #3 Morse taper for securing drill bits, and centers. The tailstock can be easily set or adjusted for alignment or non-alignment with respect to the center of the spindle. By turning the tailstock handwheel you can advance or retract the barrel in the tailstock.

Both live and dead centers have 60° conical points to fit center holes in the end of the cylindrical piece part.

figure 11

figure 12

Quick Change Tool Post

The **PL-1340** lathe comes with a quick change four-way tool post. It is mounted on top of the compound slide and can be loaded with a maximum of four tools.

figure 13

LATHE SETUP

WARNING

DO NOT start the lathe until all machine assembly has been completed and you have been properly trained and understand all control functions. When performing machine assembly make sure to follow proper lockout / tagout procedures. Failure to comply could result in accidental starting of the lathe resulting in **SERIOUS OPERATOR INJURY OR DEATH.**

Lubrication

The Baileigh **PL-1340** lathe comes pre-lubricated from the factory. It is still recommended to review the lubrication procedure located in the Maintenance section of this manual. This will help you to become familiar with the locations of lubrication fittings and areas where lubrication is required.

Chuck

The **PL-1340** metal lathe has a 6” (160mm) 3-jaw chuck already installed. This is a scroll- type chuck which means that all three jaws close together and are self-centering.
The 3-jaw chuck has Cam lock mounting. Note that there are lines stamped on the cam and on the chuck (fig. 14). These indicate whether the cam is in a locked position or an unlocked position where the chuck can be removed. A chuck key is used to turn the locking cams as shown in (fig. 15).

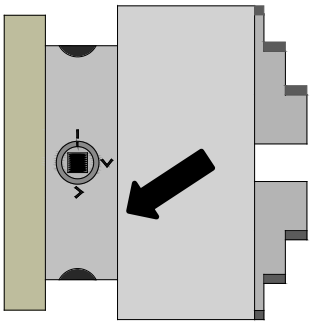


figure 14

WARNING

NEVER leave a chuck key in the chuck if the machine is not in use. If the lathe is accidentally started with the key in place, it can become a projectile and cause serious **INJURY OR DEATH.**

figure 15

To Remove a Chuck

1) Lay a piece of plywood on the lathe bed directly beneath the chuck. This will help protect the ways if the chuck should fall.

CAUTION: Use extreme care when installing or removing a chuck so that your hands do not become trapped between the chuck and the plywood.

2) Turn the first cam counterclockwise (**ccw**) using the chuck key until the line on the cam is aligned with the line on the spindle housing as shown in (fig. 16).

3) Rotate the spindle housing to access the remaining cams and turn each one counterclockwise (**ccw**) until the marks are aligned. Make sure to support the chuck with one hand as you turn the last cam. You should now be able to remove the chuck.

4) If the chuck is still tight on the spindle, tap the back of the chuck with a wooden or rubber mallet while supporting the bottom of the chuck with your other hand. If needed, rotate the chuck a bit, and tap again. Make sure all the marks on the cams and spindle are properly aligned.

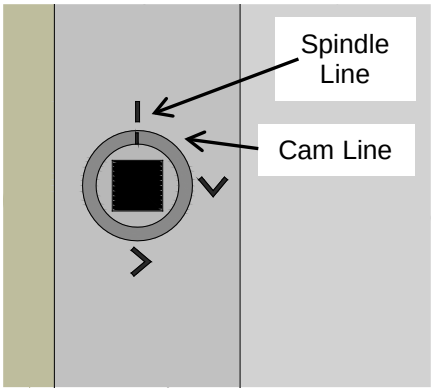


figure 16

To Install a Chuck

1) Lay a piece of plywood on the lathe bed directly beneath the spindle housing. This will help protect the ways if the chuck should fall.

2) Lift the chuck up to the spindle and insert the camlock pins into the face of the spindle.

3) While supporting the weight of the chuck, use the chuck key to turn one of the cams until the cam line is between the two "V" marks on the spindle as shown in (fig. 17).

4) Rotate the spindle and repeat step 3 for the rest of the cams.

5) Starting with the first cam, snug up the cams.

6) Finally go around and tighten all of the cams.

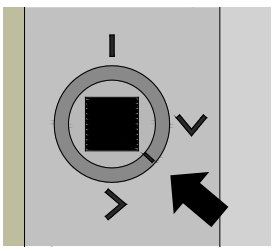


figure 17

OPERATING CONTROLS

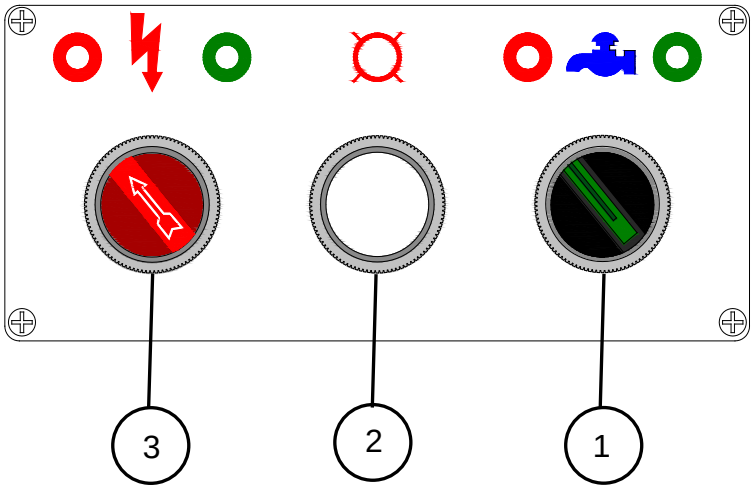


figure 18

- Two position switch (**3**) powers the machine. Counterclockwise (**ccw**) for **OFF** and clockwise (**cw**) for **ON**.
- White indicator light (**2**) will be lit when machine is powered up.
- Two position switch (**1**) to start and stop the coolant pump. Green is for **START** and RED is for **STOP.**
- Pressing the **E-Stop** button (**9**) will immediately stop the machine in the event of incorrect operation or a dangerous situation. Twist the emergency stop button clockwise (**cw**) to reset.

CAUTION: Never change spindle speeds while the motor or spindle is in motion.

Spindle Speeds

The speed of the spindle is set by the position of the two speed control handles as shown in (fig. 19). Handle (**12**) selects between Low speed (**L**) and High speed (**H**). Handle (**11**) selects between the available speeds. Spindle speed is measured in RPM (revolutions per minute). The following spindle speeds are possible: **70**, **115**, **190**, **300**, **460**, **755**, **1255**, and **2000**.

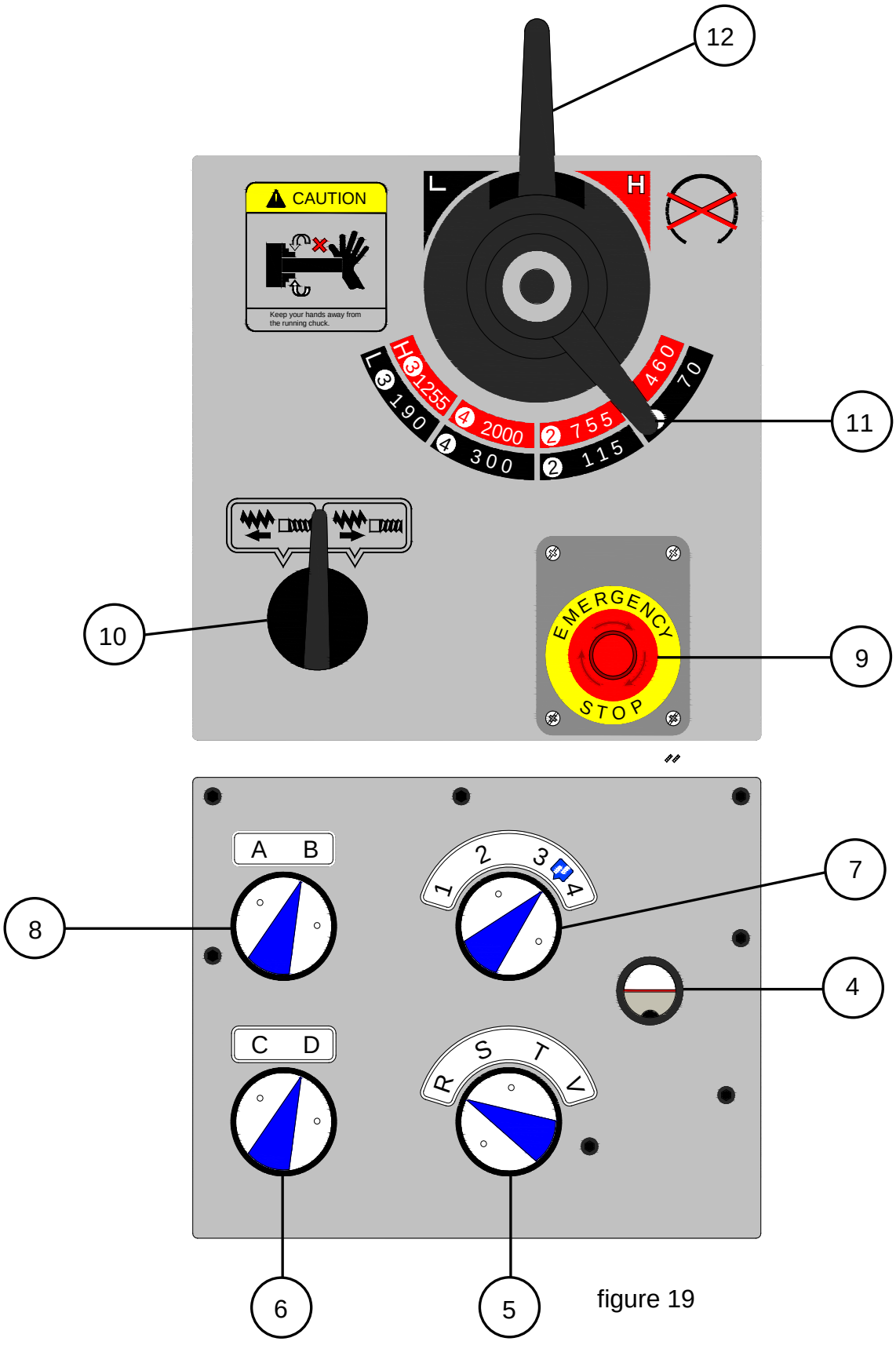

12
CAUTION
Keep your hands away from the running chuck.
L
H
L 3 190
H 3 1255
4 300
4 2000
2 115
2 755
460
70
11
10
EMERGENCY
STOP
9
A B
8
1 2 3 4
7
4
C D
R S T V
6
5

figure 19

Feed Direction

CAUTION: Never change spindle speeds while the motor or spindle is in motion.

The **PL-1340** lathe can cut both left and right while feeding or threading, and across the ways when performing facing operations. The feed direction is controlled with the selection handle (**10**) and is shown in the neutral position in (fig, 19). When rotated to the left position the apron will move to the left along the bed, as indicated by the arrow, or the cross feed will travel away from the operator.

Rotating the handle to the right will reverse the direction of the feeding or threading.

NOTE: Never force any of the selection handles on the lathe. If a handle will not engage, rotate the chuck carefully by hand, while applying light pressure to the selector handle. As the chuck rotates, the gears will align, allowing the selector handle to engage.

Quick Change Selection Knobs

The four knobs as shown in (fig. 19) are used to change the feed rate or number of threads-per-inch. This part of the lathe is commonly refered to as the Quick Change Gear Box. The two knobs on the left (**8**) **A**, **B**, & (**6**) **C**, **D** and the two knobs on the right (**7**) **1**, **2**, **3**, & **4** and (**5**) **R**, **S**, **T**, & **V** are set to a selected value from the charts on the following page. The charts are also located on the end of the gear shroud which is attached to the left side of the lathe.

Important:
Do not force the selection knobs into position. If they do not engage, carefully rotate the chuck by hand while keeping light pressure on the knob. As the chuck is rotated, it aligns the gears, and the selector handle will engage.

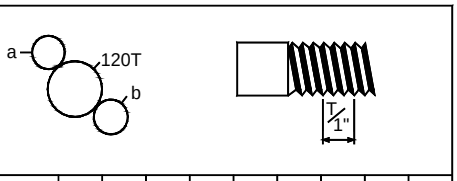
The feed rate charts to the right show some of the more typical settings that might be used. The chart in (fig. 20) shows threads per inch while the chart in (fig. 21) shows distance between threads in (mm).
Besides changing the selection knobs, you may also need to change gears, labeled "**a**" and "**b**" in the diagram(s). The values in the chart(s) for lines "**a**" and "**b**" indicate the number of gear teeth. **Note:** Each gear has the number of teeth stamped on it's face for easy identification.

As an example, we will pick 11 ½ th'ds/in. from the chart. Projecting up in the chart shows "a" as a 60T gear and "b" as a 69T gear. The quick change selection knobs should be set at **1, V, B, & D**.

The chart in (fig. 22) shows the logitudinal and cross feed values in (mm) and (fig. 23) shows the values in (inches). To perform a logitudinal cut in inches, we'll use .0205"/revolution as an example. Gear "**a**" will need to be changed to 60 Tooth. Change the selection knobs to **B**, **D**, and **R.**
If using the metric chart (fig.22) the procedure would be the same.

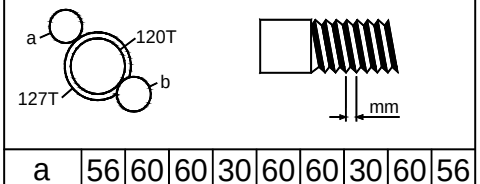
This symbol indicates longitudinal feed.

This symbol indicates cross feed rates.



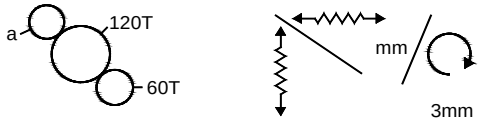
a		60	60	60	60	60	60	56	60	60
b		60	54	57	60	66	69	54	78	63
LEVER		4	1	1	1	1	1	2	1	3
		V	V	V	V	V	V	V	V	V
A	D	4	4½		5	5½		6	6½	7
B	D	8	9	9½	10	11	11½	12	13	14
A	C	16	18	19	20	22	23	24	26	28
B	C	32	36	38	40	44	46	48	52	56

figure 20



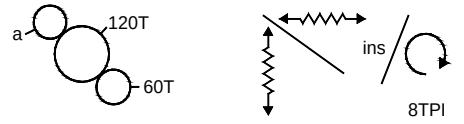
a		56	60	60	30	60	60	30	60	56
b		60	60	60	60	60	60	60	60	63
LEVER		4	1	3	4	1	3	1	3	3
		R	R	S	T	V	R	T	V	V
A	D	7.0	6.0		5		4.5	4.0		
B	D	3.5	3.0		2.5		2.25	2.0	1.8	1.6
A	C	1.75	1.5	1.4	1.25	1.2		1.0	0.9	0.8
B	C		0.75	0.7		0.6		0.5	0.45	0.4

figure 21



a		60T				30T			
LEVER		T	S	R	V	T	S	R	V
A	D	1.392 .380	1.300 .351	1.044 .282	.835 .226	.696 .188	.650 .175	.522 .141	.418 .113
B	D	.696 .188	.650 .176	.522 .141	.418 .113	.348 .094	.325 .088	.261 .070	.208 .056
A	C	.348 .094	.325 .088	.261 .070	.208 .056	.174 .047	.162 .044	.130 .035	.104 .028
B	C	.174 .047	.162 .044	.130 .035	.104 .028	.087 .024	.081 .022	.065 .017	.052 .014

figure 22



a		60T				30T			
LEVER		T	S	R	V	T	S	R	V
A	D	.0548 .0187	.0512 .0175	.0411 .0140	.0328 .0112	.0274 .0094	.0256 .0087	.0205 .0070	.0164 .0058
B	D	.0274 .0094	.0256 .0087	.0205 .0070	.0164 .0056	.0137 .0047	.0128 .0044	.0102 .0035	.0082 .0028
A	C	.0137 .0047	.0128 .0044	.0102 .0035	.0082 .0028	.0069 .0024	.0064 .0022	.0051 .0017	.0041 .0014
B	C	.0069 .0024	.0064 .0022	.0051 .0017	.0041 .0014	.0034 .0012	.0031 .0011	.0025 .0009	.0020 .0007

figure 23

Changing Gears for Thread Selection

In order to cut threads as listed in the charts (fig. 20 & 21) and set longitudinal feed and crossfeed rates (fig. 22 & 23) you will need to make a few gear changes.

figure 24

DISCONNECT POWER TO MACHINE

1) Take off the gear cover (located on the left side of the lathe) by removing the two thumb nuts.

2) Remove the socket bolt or hex nut and flat washer to replace either gear "**a**" or gear "**b**" with another gear. Note: **DO NOT** place anything hard between the gears to prevent rotation or you could break the teeth.

3) Loosen the pivot nut to rotate the bracket.

4) To move the large gears towards or away from the small gears, loosen the slide nut.

5) After the gears are changed out, make sure they mesh properly before tightening the slide nut and pivot nut.

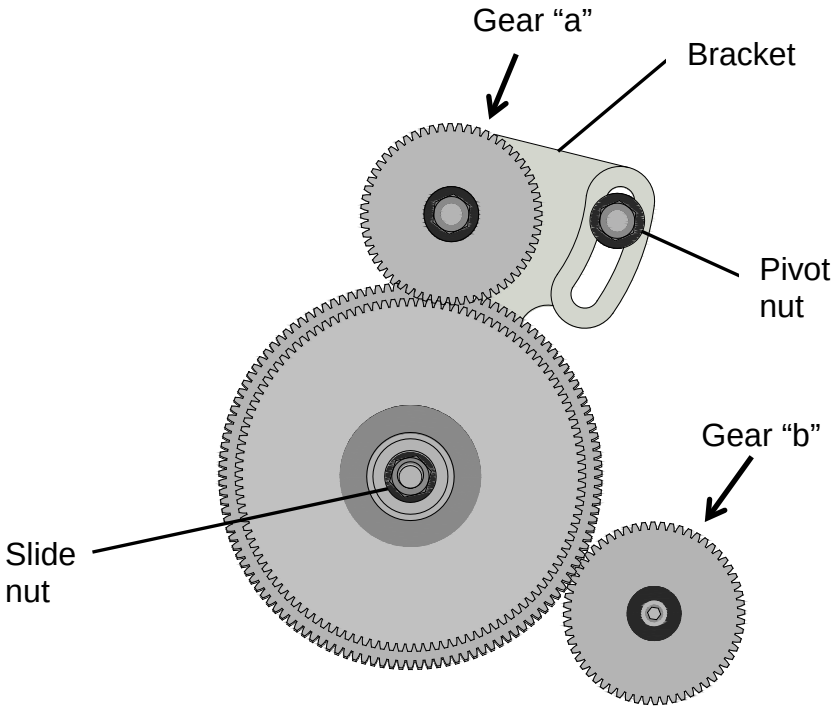


figure 25

Thread tables for Imperial Lead screw

$\frac{I}{120} X \frac{120}{II}$  DP 8TPI

LEVER		2	3	1	2	3	3	2	3
		T	S	V	V	T	R	V	V
I		44	43	60	45	60	60	60	60
II		30	32	42	30	43	43	43	43
A	D	8	10	11	13	9	12	14	15
B	D	16	20	22	26	18	24	28	30
A	C	32	40	44	52	36	48	56	60
B	C	64	80	88	104	72	96	112	120

$\frac{I}{127} X \frac{120}{II}$  MP 8TPI

LEVER		4	1	2	2	1	1	3	3
		T	T	T	T	R	R	R	V
I		60	60	44	44	44	44	60	60
II		43	43	30	36	30	35	43	43
A	D			3	2.5			2.0	1.0
B	D			1.5	1.25		1.2	1.0	0.8
A	C		0.9	0.75		0.7	0.6	0.5	0.4
B	C	0.55	0.45			0.35	0.3	0.25	0.2

Thread tables for Metric Lead screw

$\frac{I}{120} X \frac{120}{II}$  MP 3MM

LEVER		4	1	2	2	1	3	3
		T	T	T	T	R	R	V
I		60	60	44	44	44	60	60
II		43	43	30	36	35	43	43
A	D	-	-	-	2.5	-	2.0	1.6
B	D	-	-	-	1.25	1.2	1.0	0.8
A	C	-	0.9	0.7	-	0.6	0.5	0.4
B	C	0.55	0.45	0.35	-	0.3	0.25	0.2

$\frac{I}{120} X \frac{127}{II}$  DP 3MM

LEVER		2	3	1	3	3	2	3
		T	S	V	T	R	V	V
I		44	43	60	60	60	60	60
II		30	32	42	43	43	43	43
A	D	8	10	11	9	12	14	15
B	D	16	20	22	18	24	28	30
A	C	32	40	44	36	48	56	60
B	C	64	80	88	72	96	112	120

Feed Lever

The Feed Selector handle (**31**) is used to select between the longitudinal and cross slide powered motions. (Fig. 26) shows the handle in the pulled out neutral position. Pull up on the pivot handle to engage the longitudinal motion. To get to the cross slide position from neutral, push in and lower the handle.

Note: Make sure the half nut engagement lever (**29**) is disengaged (at neutral position) before operating the feed selector handle (**31**). There is an interlock mechanism between the auto feeding and the thread cutting engagement.

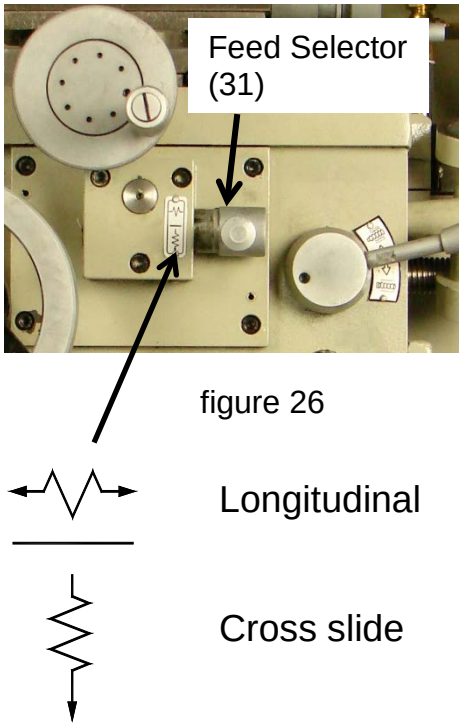


figure 26

Half Nut Engage Lever

The half nut engagement lever (**29**) should be in the down (engaged) position when cutting threads. When in this position the half nut will tighten onto the leadscrew and provide longitudinal travel to the carriage.

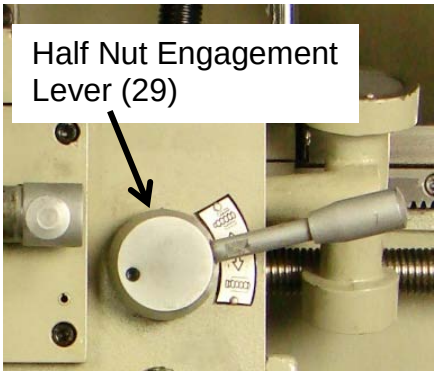
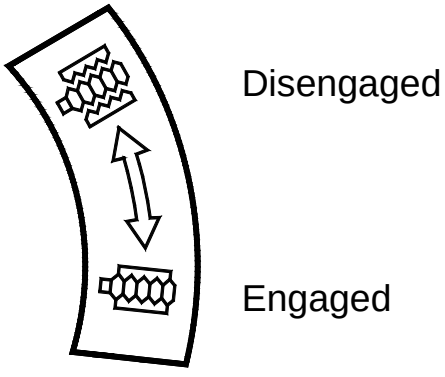


figure 27

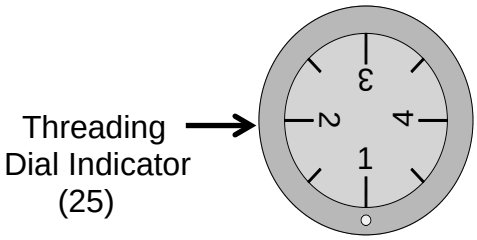


Threading Dial Indicator

The threading dial indicator (**25**) is located on the right hand side of the apron. It is used when cutting imperial threads and tells you when to engage the half nut to begin the threading process. The indicator face has eight lines and four numbers printed on the dial. An indicator pin is located at the bottom of the rim. The dial is mounted to a shaft that has a small gear mounted at the opposite end. By loosening a socket capscrew you can pivot the housing to either engage or disengage from the leadscrew. When engaged the dial will turn as the spindle rotates. If the dial does not turn, re-adjust the housing position.

figure 28

When the half nut is engaged the dial stops turning. By carefully engaging the half nut as the correct number or line passes by the indicator mark, a thread can be established and the lead maintained through multiple passes, until the required depth is reached.



Using the chart in (fig. 29) to cut 20 threads per inch, engage the half nut when the 1,2,3, or 4 is at the indicator mark. You must determine how long you want the thread to be.When you reach that length, disengage the half nut. Return the carriage to the beginning of the cut. Watch the dial and when the 1,2,3, or 4 comes around to the indicator mark, engage the half nut. Repeat the procedure until you have reached the desired depth of thread required.

The other scale values are as follows:

1 = Engage only on one.
1 ● 3 = Engage on 1 or 3
1 – 4 = Engage on 1,2,3, or 4
1 – 8 = Engage on any number or line

INDICATOR TABLE

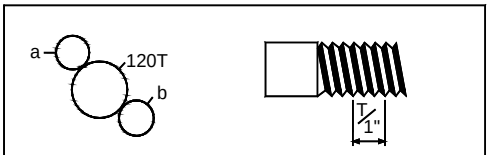
T.P.I	SCALE	T.P.I	SCALE	T.P.I	SCALE
8	1-8	20	1-4	48	1-8
9	1	22	1•3	52	1-4
9½	1	23	1	56	1-8
10	1•3	24	1-8	64	1-8
11	1	26	1•3	72	1-8
11½	1	28	1-4	76	1-4
12	1-4	32	1-8	80	1-8
13	1	36	1-4	88	1-8
14	1•3	38	1•3	92	1-4
16	1-8	40	1-8	96	1-8
18	1•3	44	1-4	104	1-8
19	1	46	1•3	112	1-8

figure 29

Thread Cutting Operation

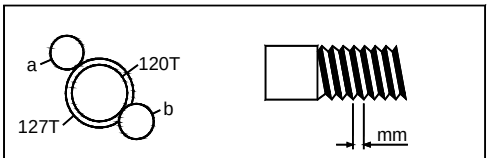
In order to obtain the desired thread, change gears must be installed correctly, using the values in the charts. Failure to do so will result in incorrect threads.

First rotate the leadscrew by moving the feed/thread selector (**31**) to any position and making sure the feed selector knobs (**5**), (**6**), (**7**), & (**8**) are engaged. Operate downward, the thread cutting engagement lever (**29**) and it will engage with the leadscrew to obtain the longitudinal travel of the carriage; namely the thread cutting feed. Make sure the feed axis selector is disengaged (at neutral position) before operating the thread cutting engagement lever (**29**) because there is an interlock mechanism between the auto feeding and thread cutting engagement.
Direction of the thread cutting can be chosen by turning the feed direction selector (**10**) at the headstock. There are 31 thread pitches in Imperial and 32 thread pitches in Diametric as well as 26 Metric thread pitches and 21 Module pitches which can be obtained by turning the feed selector handles (**5**), (**6**), (**7**), & (**8**).



a		60	60	60	60	60	60	56	60	60
b		60	54	57	60	66	69	54	78	63
LEVER		4	1	1	1	1	1	2	1	3
		V	V	V	V	V	V	V	V	V
A	D	4	4½		5	5½		6	6½	7
B	D	8	9	9½	10	11	11½	12	13	14
A	C	16	18	19	20	22	23	24	26	28
B	C	32	36	38	40	44	46	48	52	56

figure 30



a		56	60	60	30	60	60	30	60	56
b		60	60	60	60	60	60	60	60	63
LEVER		4	1	3	4	1	3	1	3	3
		R	R	S	T	V	R	T	V	V
A	D	7.0	6.0		5		4.5	4.0		
B	D	3.5	3.0		2.5		2.25	2.0	1.8	1.6
A	C	1.75	1.5	1.4	1.25	1.2		1.0	0.9	0.8
B	C		0.75	0.7		0.6		0.5	0.45	0.4

figure 31

Carriage Controls

The carriage hand wheel when rotated, allows the cutting tool to travel along the length of the lathe bed. The cross slide hand wheel when turned moves the cross slide in and out perpendicular to the lathe bed. At the top of the carriage is the compound slide which allows linear movement of the cutting tool at any preset angle.

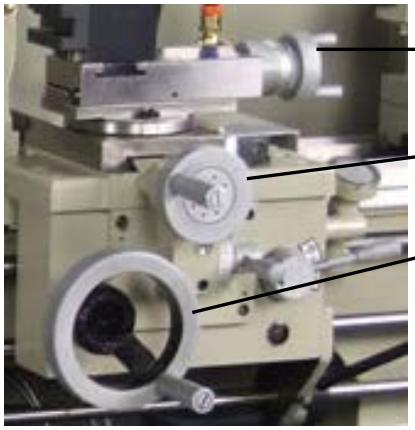


figure 32

Carriage Hand Wheel

Rotating the hand wheel clockwise (**cw**) will move the carriage towards the tailstock. Rotating the hand wheel counterclockwise (**ccw**) will move the carriage towards the headstock. This is helpful when setting up the lathe for turning or when manual movement is required during turning operations.

Compound Slide Hand Wheel

The hand wheel on the top slide controls the position of the cutting tool in relation to the piece part. The top slide is adjustable for any angle. The graduated dial can be adjusted by holding the hand wheel with one hand and turning the dial with the other. Angle adjustments are made by loosening the hex nuts on the base of the top slide.

Cross slide Hand Wheel

The cross slide hand wheel moves the top slide towards and away from the piece part. Turning the hand wheel clockwise (**cw**) moves the slide towards the piece part and counterclockwise (**ccw**) moves the slide away from the part. The graduated dial can be adjusted by holding the hand wheel with one hand and turning the dial with the other.

Spindle Rotation Control

Spindle rotation is controlled from the handle on the right hand side of the carriage as indicated in (fig. 33). Move the handle down and the spindle will rotate in a counterclockwise (**ccw**) direction. Move the handle up and the spindle will rotate in a clockwise (**cw**) direction. The middle (**neutral**) position stops the motor.

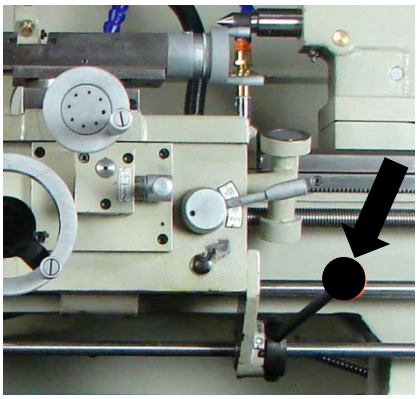


figure 33

Tool Post and Holder

The Baileigh **PL-1340** comes with a quick change tool post and (four) tool holders. Use a minimum of two bolts to hold the tooling in place. It may be necessary to shim the tool so it lines up with the centerline of the chuck. Once the tools are loaded and properly shimmed, loosen the top handle counterclockwise (**ccw**). The tool turret can now be rotated counterclockwise (**ccw**) to select any of the four tools. When the turret is rotated clockwise (**cw**), it will stop at the first position and can then be locked by tightening the top handle in a clockwise (**cw**) direction.

figure 34

Tailstock Controls

(Fig. 35) shows the tailstock whose primary use is for holding centers and drill chucks. Turning the handwheel advances or retracts the barrel in the tailstock. The graduated dial on the handwheel is adjustable. The top lock lever locks the tailstock barrel in place. The side lock lever locks the tailstock in place on the lathe bed.

figure 35

⚠ WARNING

Before powering up machine, make sure Fwd/Rev. handle is in the center (neutral) position. (See fig. 36)
All machinery poses a potential for danger when being operated. Accidents result from lack of machine knowledge and failure to pay attention. Always be cautious and alert to the potential for serious injury. Follow safety rules and precautions to lessen the chances of an accident.

Pin will engage hole when
In neutral position.

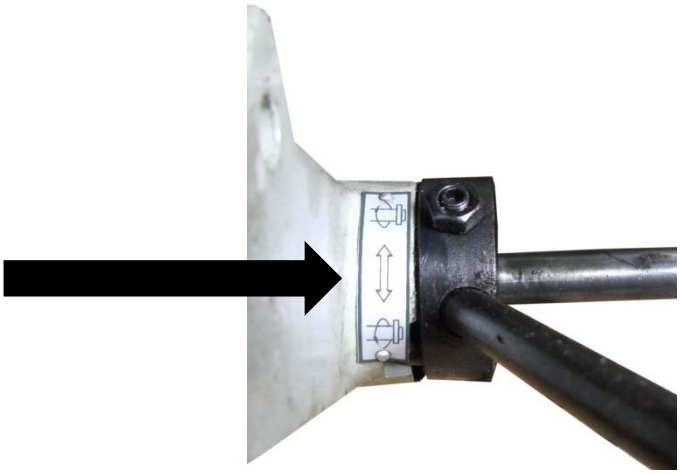


figure 36

TEST RUN (cont.)

6) Select the slowest spindle speed (70 RPM) and let the machine run at that speed for 20 minutes. If everything seems to be functioning normally, increase the spindle speed a step at a time until you reach the maximum speed of 2000 RPM. Fig. 19 shows the handles and decal indicating the various speeds. Run each speed change for approximately 5 minutes. Make sure motor has completely stopped before changing speeds.

that all guarding is in place, and that nothing is obstructing the movement of the chuck.

4) Check that the gearbox and carriage sight glasses show adequate oil levels.

5) Check the tension of the two V-belts located under the gear cover. You should be able to depress the belts about 1/2" (12.7mm) with normal finger pressure. If they are too tight you could damage the shaft bearing.

WARNING: BEFORE PERFORMING THE FOLLOWING ADJUSTMENTS, LOCKOUT POWER TO THE MACHINE.

MACHINE ADJUSTMENTS

Saddle Gib

Before making adjustments to the saddle gib, loosen the setscrew counterclockwise (**ccw**) as indicated by the arrow in (fig. 37).
It is important that the saddle gib be properly adjusted. A loose gib can cause finish issues on a piece part, and a gib that is adjusted too tight can cause premature wear.

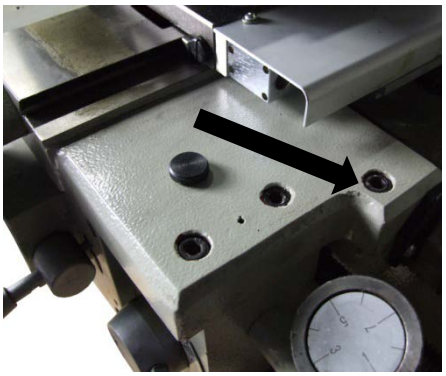


figure 37

The gib adjustment for the saddle is located on the bottom of the back edge of the slide. The tension on the gib is set with four setscrews and jam nuts (2 at each end) as shown in (fig. 38). The gib can be tightened by loosening the jam nuts and tightening the setscrews. Loosening the setscrews will loosen the gib. A 45° turn of the setscrew will give about 0.005” (0.125mm) take up in the gib. When properly adjusted, the gib strip will drag slightly while moving the apron. **DO NOT** over tighten.

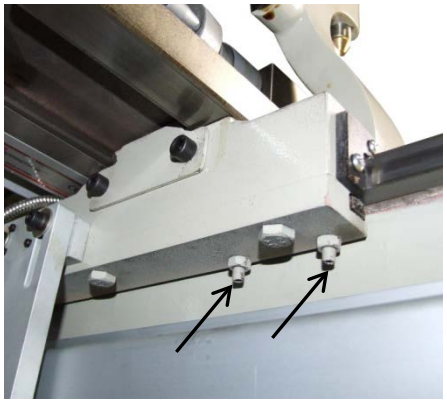


figure 38

Cross-Slide Gib

The gib on the cross-slide (fig. 39) can be adjusted with the screws located at each end. The gib is wedge shaped and by loosening the screw closest to the operator and then tightening the opposite screw, the slide will become looser. Loosening the screw furthest away from the operator and tightening the closer screw will tighten the gib. **DO NOT** over tighten. Adjust the gib so that it creates a slight drag when the slide is in motion. This will indicate that the gib is properly adjusted.

figure 39

Compound Gib

Follow the same procedure as the Cross-slide gib. The gib on the Compound rest (fig. 40) can be adjusted with the screw located at the tool post end. The gib is wedge shaped and by loosening the screw closest to the operator and then tightening the opposite screw, the slide will become looser. Loosening the screw furthest away from the operator and tightening the closer screw will tighten the gib. **DO NOT** over tighten. Adjust the gib so that it creates a slight drag when the slide is in motion. This will indicate that the gib is properly adjusted.

figure 40

Tail Stock Bed Clamp

The angular lock position of the side lock lever can be adjusted by means of a self locking hex head capscrew. It is located on the underside of the tail stock and between the ways of the bed.

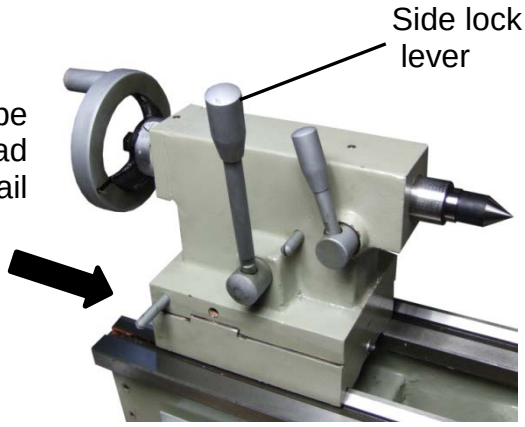


figure 41

Steady Rest

1) To adjust the steady rest, first loosen the three lock nuts shown in (fig. 42).

2) To open the fingers, turn the knurled screws clockwise (**cw**). If a knurled screw turns hard, back out the setscrew a little.

3) Once the piece part is in the chuck and going through the steady rest, tighten the knurled screws counterclockwise (**ccw**) so that the fingers are snug, but not tight against the piece part.

4) Tighten the setscrews and then the lock nuts.

5) Lubricate the brass points with machine oil.

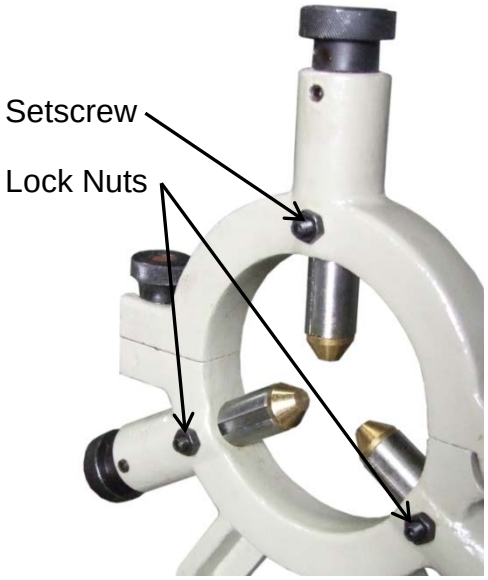


figure 42

Follow Rest

The follow rest is similar to the steady rest except that the third finger is taken up by the tool bit. The follow rest keeps long, small diameter pieces from flexing under the cutting pressure of the tool bit.

1) To adjust the follow rest, first loosen the two lock nuts.

2) To open the fingers, turn the knurled screws clockwise (**cw**). If a knurled screw turns hard, back out the setscrew a little.

3) Once the piece part is in the chuck and going through the follow rest, tighten the knurled screws counterclockwise (**ccw**) so that the fingers are snug, but not tight against the piece part.

4) Tighten the setscrews and then the lock nuts.

5) Lubricate the brass points with machine oil.

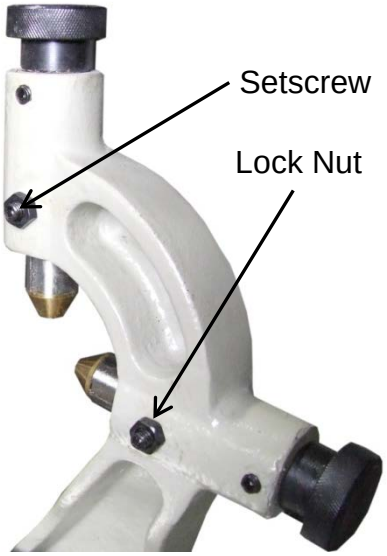


figure 43

Lathe Alignment

When the lathe is installed and ready for use, it is recommended to check the machine alignment before beginning work. Alignment and leveling should be checked regularly to insure continued accuracy.

1) Start with a straight steel bar with a diameter of 2.00” (approx. 50mm) x 10” (254mm long).

2) Span it in the chuck without using the tailstock.

3) Cut off a chip over a length of 6” (152mm).

4) Measure and compare the diameters at Point **A** and Point **B**. They should be the same.

5) To correct a difference in readings, loosen the four headstock hold-down bolts shown in (fig. 45) that hold the headstock to the bed. Adjust the headstock by backing off the jam nuts and re-positioning the adjusting bolts. Repeat steps 4 and 5 until the **A** and **B** dimensions are the same.

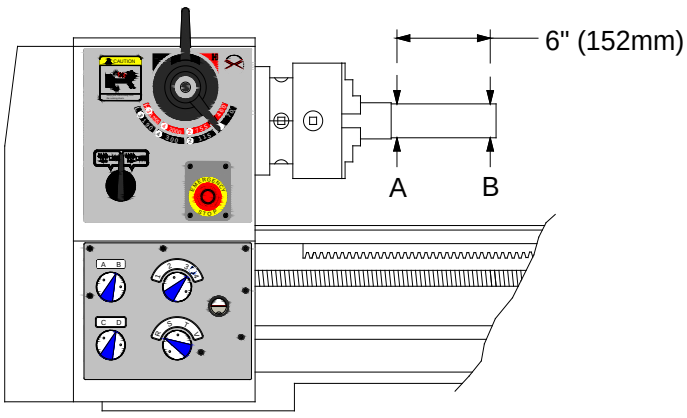


figure 44

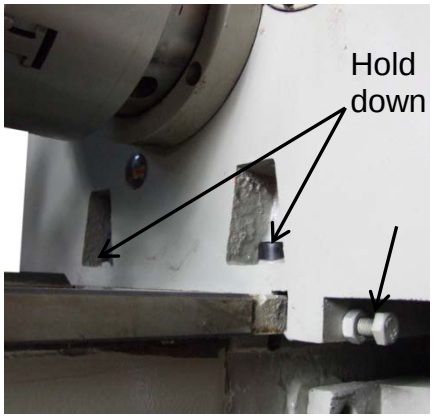


figure 45

Lathe Alignment (cont.)

To perform a tailstock check, use a 12” (305mm) long ground steel bar fitted between the headstock and the tailstock. Check the alignment by fitting a dial test indicator to the top slide and traversing the centerline of the bar.

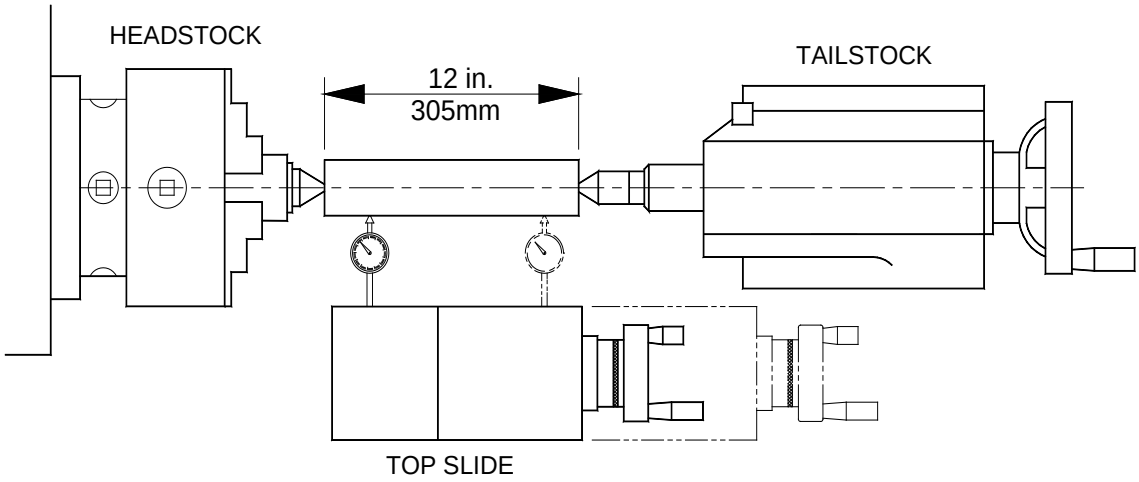


figure 46

To correct any side to side error release the tailstock clamp lever. Using the two adjustment screws on either side of the tailstock base and the scale, lineup the the tailstock to the headstock. Tighten the clamp lever and re-check the alignment until perfect.

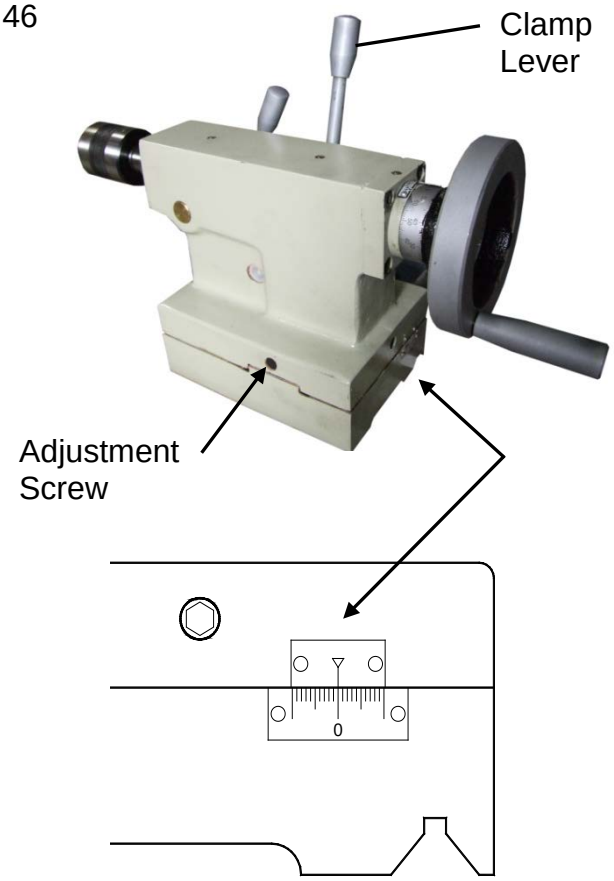


figure 47

V-Belt Removal and Adjustment

WARNING: Always disconnect and lockout electric power to the lathe before servicing.

NOTE: Always replace belts as a matched set of two.

V-belts will stretch through usage. Check the tension of the belts every three months. More often if the lathe is used daily.

1) Remove the gear cover at the headstock end of the machine to have access to the V-belts.

2) Loosen the two bolts as indicated by the arrow in (fig. 48).

3) Slide the motor up to release tension on the belts so they can be removed.

4) Place the new belts onto the pulleys and let the motor down gently.

5) Push the center of each belt as shown in (fig. 49). When properly tensioned the amount of deflection should be approximately 0.75" (19mm).

6) Retighten the motor base capscrews after adjusting or replacing the belts.

7) Replace and secure the gear cover.

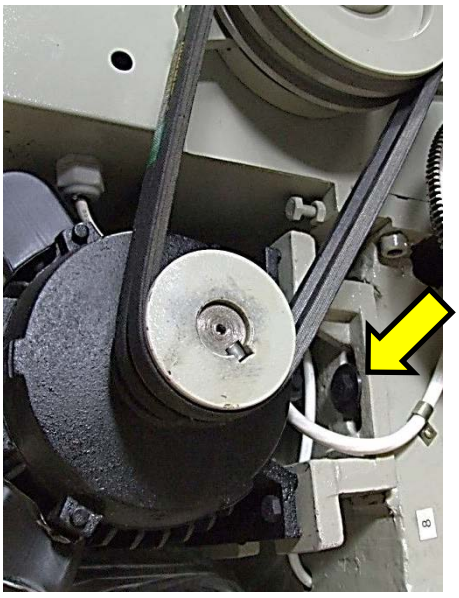


figure 48

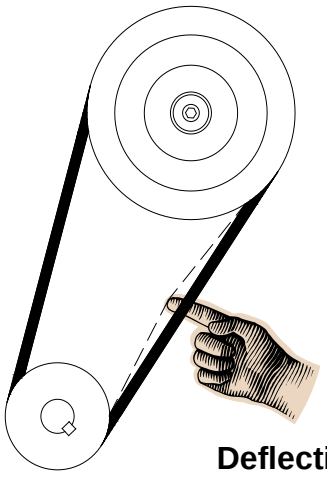


figure 49

LUBRICATION AND MAINTENANCE

WARNING:
Always disconnect and lockout electric power to the lathe before servicing. NEVER lubricate the lathe while it is running.

MAINTENANCE SHOULD BE PERFORMED ON A REGULAR BASIS BY QUALIFIED PERSONNEL

Headstock

The headstock is splash lubricated from an internal reservoir of oil. Ensure that the oil level shows 3/4 full in the oil sight gauge (fig. 50.)
To drain the oil from the headstock, first take off the gear cover. Remove the pipe plug as indicated in (fig. 51). In order to refill the headstock reservoir with oil, you must first remove the chuck guard from the cover and then remove the cover (fig. 52). The first oil change should be made after 3 months, and thereafter once a year with a (Mobil DTE Light 32 viscosity oil or equivalent). After refilling the headstock, replace the cover and the chuck guard. Tighten securely. (**DO NOT OVERTIGHTEN**)

figure 50

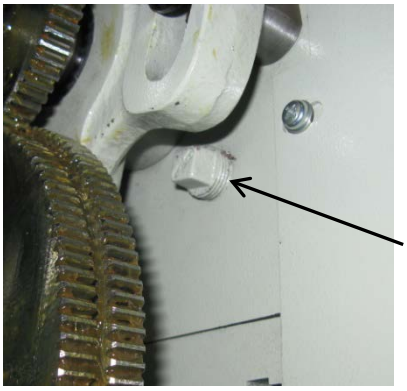


figure 51

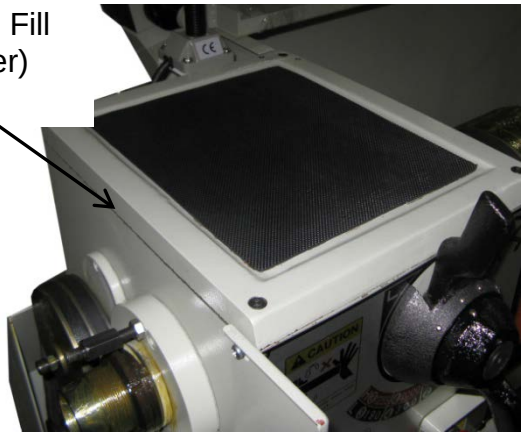


figure 52

Gearbox

The gearbox is splash lubricated from an internal reservoir of oil. Ensure that the oil level shows 3/4 full in the oil sight gauge (fig. 53.) To drain the oil from the gearbox, remove the pipe plug as indicated in (fig. 54). To fill the gearbox reservoir first remove the cover as indicated in (fig. 55). Next remove the small plate to show the fill hole. (fig. 56). The first oil change should be made after 3 months, and thereafter once a year with a (Mobil DTE Light 32 viscosity oil or equivalent)

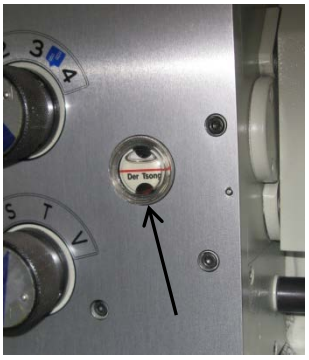


figure 53

figure 54

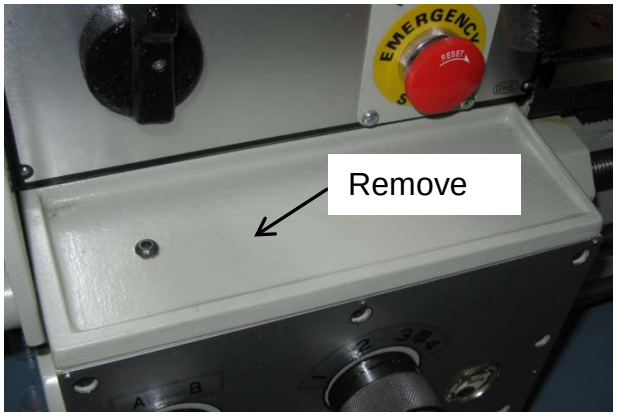


figure 55

figure 56

Apron

The apron is lubricated from an internal reservoir of oil. Ensure that the oil level shows 3/4 full in the oil sight gauge (fig. 57). To drain the oil from the apron, remove the pipe plug as indicated in (fig. 57). Fill the apron reservoir by removing the plug as shown in (fig. 58) The first oil change should be made after 3 months, and thereafter once a year with an (ISO68 30 weight. non detergent oil)

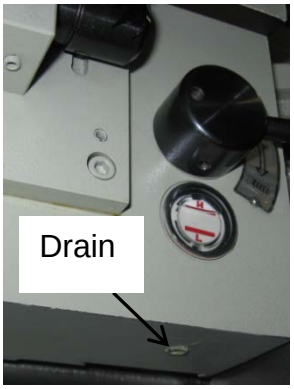


figure 57

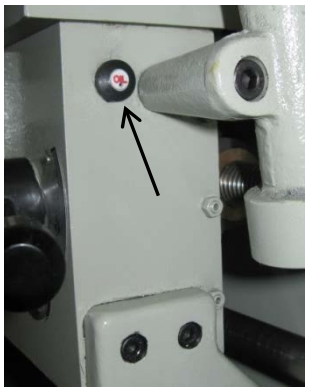


figure 58

LUBRICATION AND MAINTENANCE (cont.)

Remove the gear cover on the left end of the lathe (fig. 59) and lubricate the change gears with a thick machine oil or grease once a month or as needed.

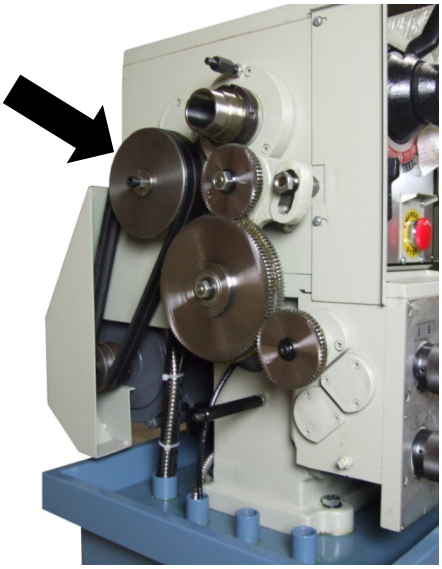


figure 59

Apply lubricant to the oiler points as indicated in (fig. 60) daily. Also oil the cross slide nut , lead screw, and slide ways with a light machine oil or way lubricant on a daily basis. Note: Use a bristle paint brush to first clean the slide ways, lead screw, and feed shaft.

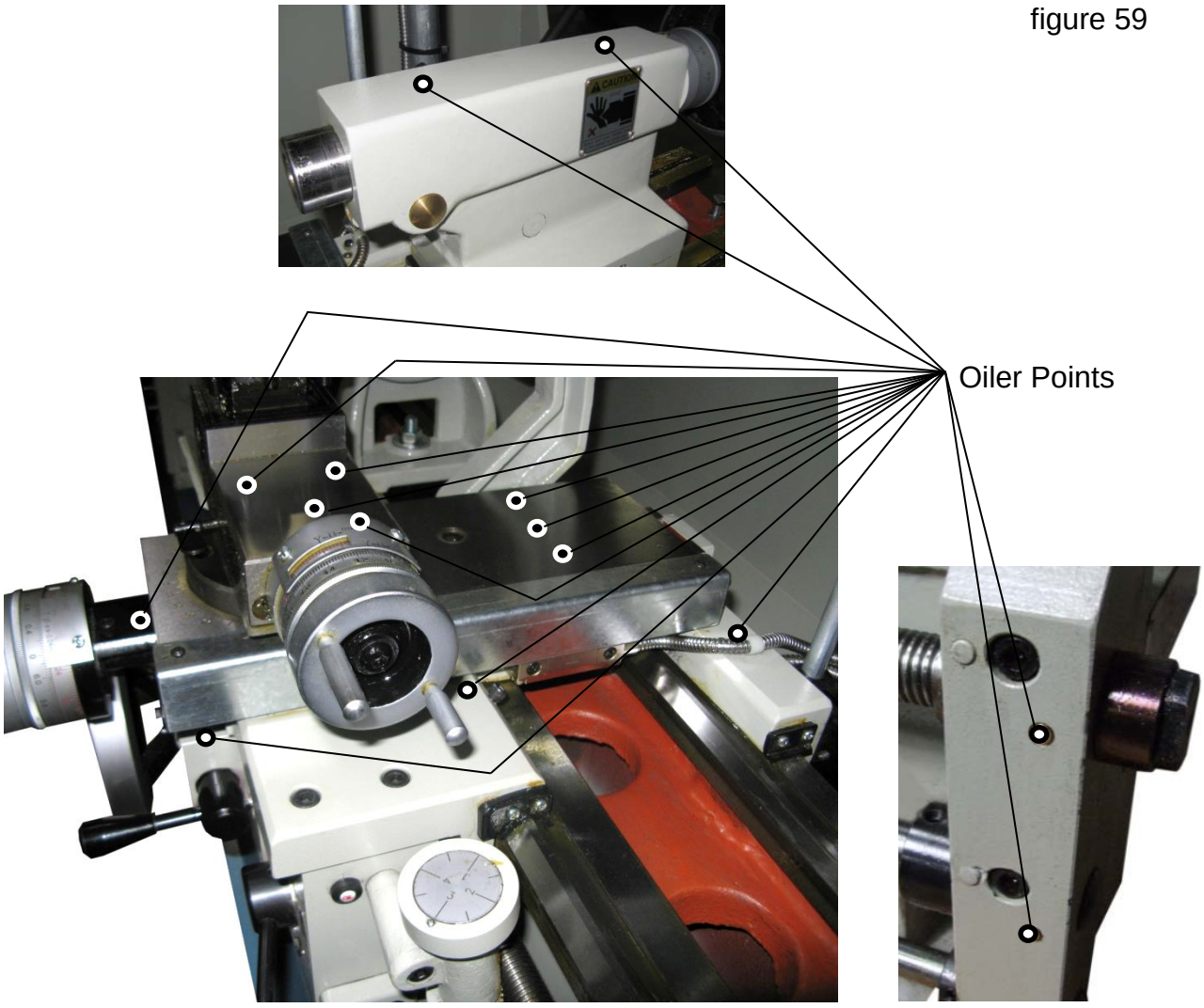


figure 60

LUBRICATION AND MAINTENANCE (cont.)

Daily Maintenance

- Do a general cleaning by removing dust and metal chips from the machine.
- Top off the coolant tank. (80% of full tank capacity)
- Clean drain screen.
- Check that any guarding, shields, and emergency stop are in good working order.
- Wipe down and re-oil slideways.
- Check operation of foot brake.

Weekly Maintenance

- Thoroughly clean the machine including the coolant tank.
- Check sight glasses for gear oil levels (add oil as needed)

3 Month Maintenance

- After initial 3 months replace the headstock, gearbox, and apron oil and then yearly after that.

Oil Disposal

Used oil products must be disposed of in a proper manner following your local regulations.

Accessing and Cleaning the Coolant System

- The coolant tank is located at the back of the lathe. See (fig. 61)
- Remove the plug, drain the coolant from the tank, and wash out any dirt and debris. (Check for anything that might be obstructing the pump inlet.)
- Replace the drain plug and refill the tank with coolant solution.
- Check for leaks.

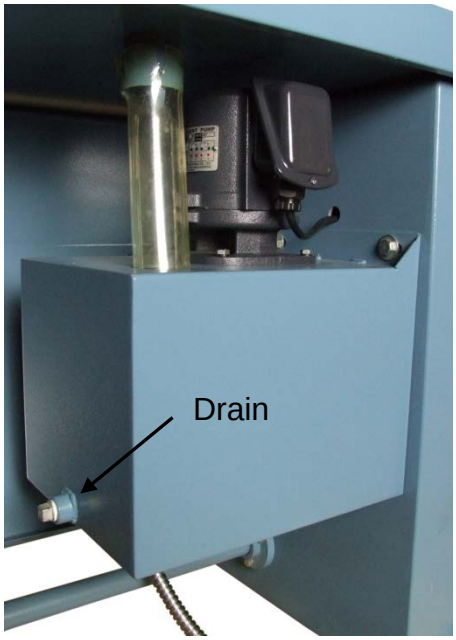


figure 61

Oils for Lubricating Coolant

Any 10:1 (water to coolant) solution will work, however we recommend **Baileigh B-Cool** 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons of coolant .

Storing Machine for Extended Period of Time

If the Lathe is to be inactive for a long period of time, prepare the machine as follows:

- Detach the plug from the electrical supply panel.
- Remove the chuck, steady rest, follow rest, tool post, and tail stock. Cover with a rust protectant.
- Empty and clean the coolant tank.
- Clean and grease the machine so no bare metal is left unprotected.
- Use desiccant bags (if available) to absorb moisture.
- Cover the machine

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any unauthorized modifications.

TECHNICAL SUPPORT

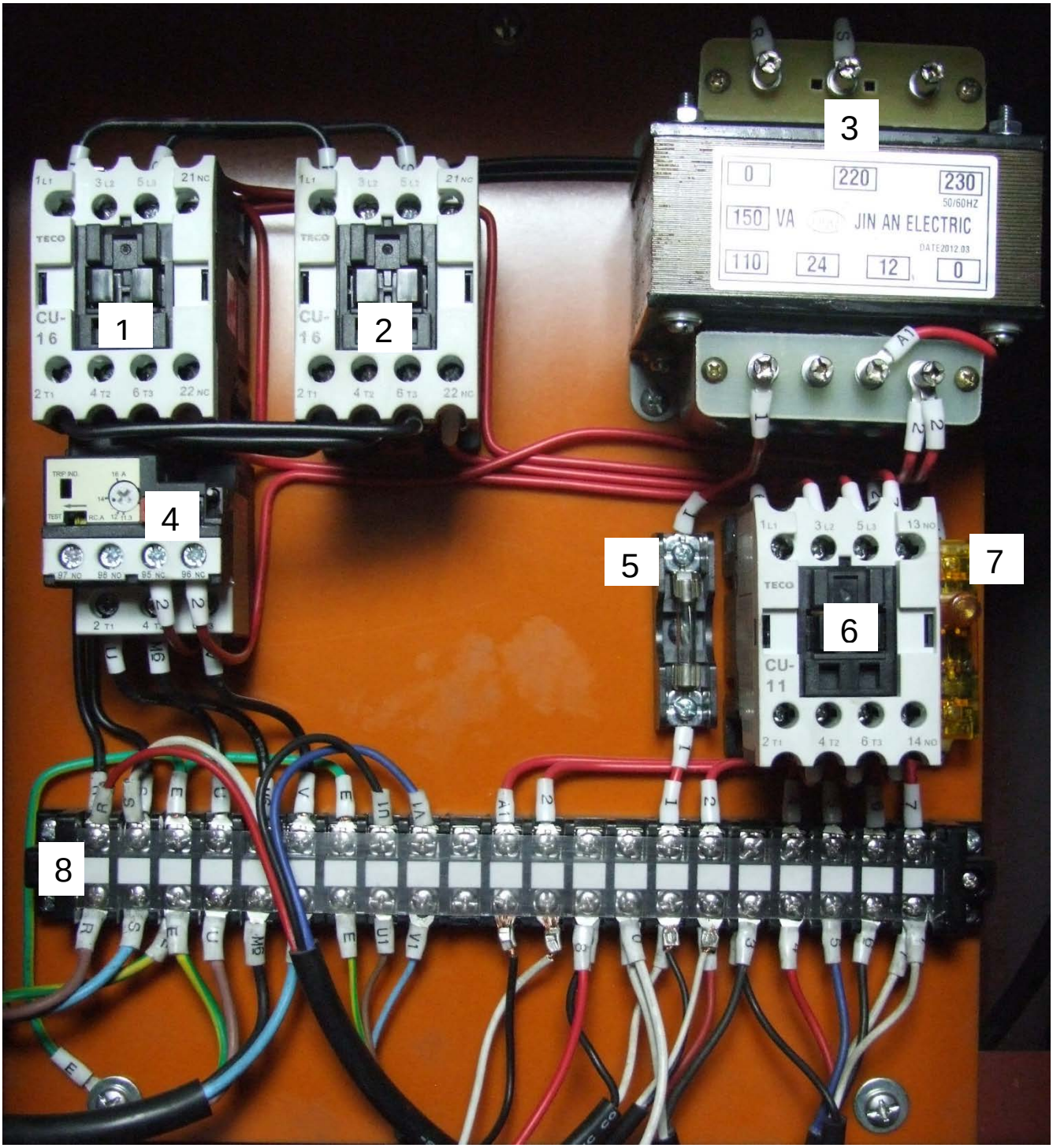
Our technical support department can be reached at **920.684.4990**, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs.

For specific application needs or future machine purchases contact the Sales Department. at: sales@baileighindustrial.com or phone: **920.684.4990**

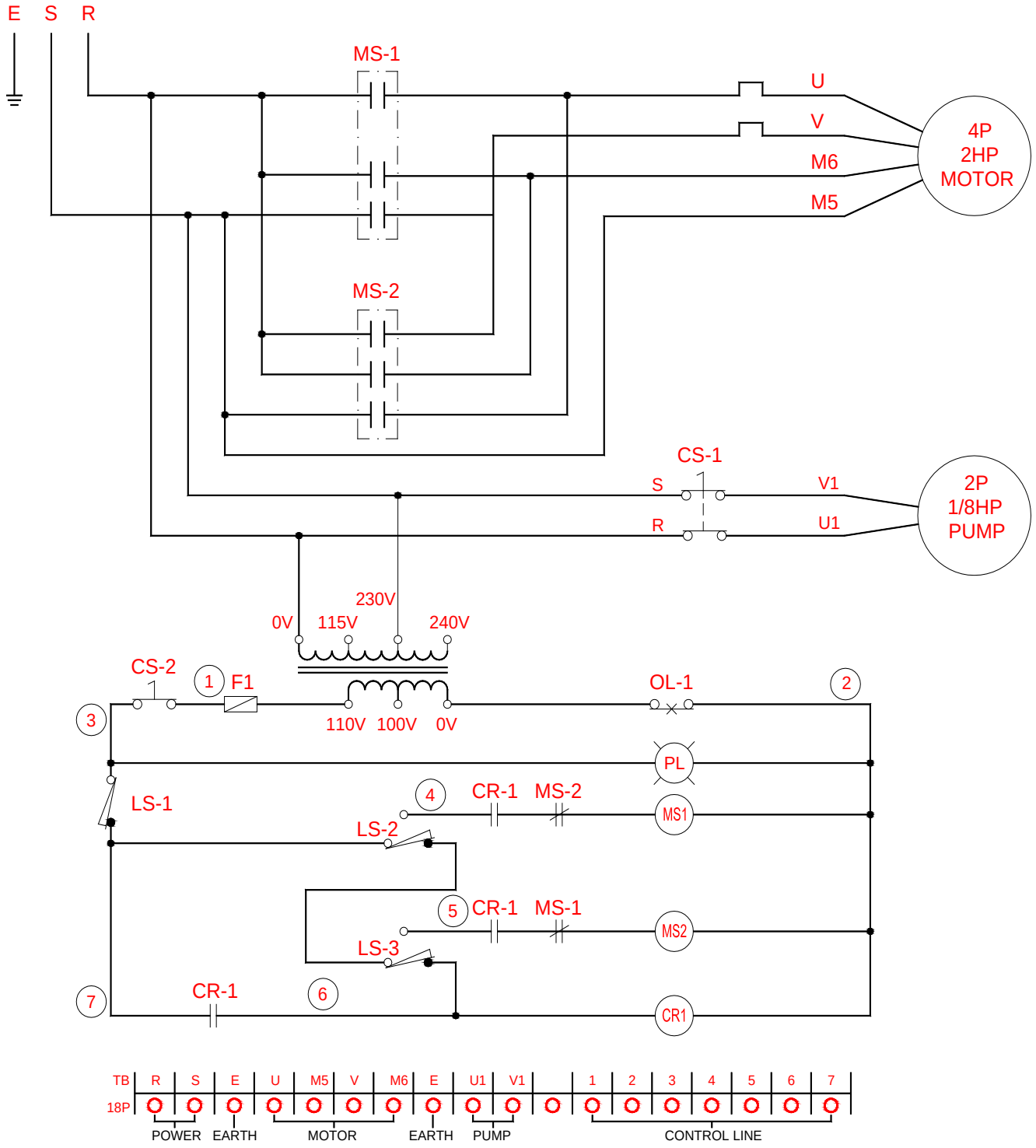
ELECTRICAL PANEL PARTS IDENTIFICATION

ITEM	PART NAME	TAG
1	Magnetic Contactor	MS-1
2	Magnetic Contactor	MS-2
3	Transformer	TR-1
4	Thermal Overload	OL-1
5	Fuse	F1
6	Control Relay	CR-1
7	Fuse	F2
8	Terminal Block - 21	TB-1
9	Coolant Pump Switch	CS-1
10	Main Switch	CS-2
11	Brake Limit Switch	LS-1
12	Forward Microswitch	LS-2
13	Reverse Microswitch	LS-3
14	Pilot Lamp	PL

ELECTRICAL PANEL COMPONENTS



ELECTRICAL SCHEMATIC



TROUBLESHOOTING

WARNING **Disconnect the machine from power source before troubleshooting.**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Motor Does Not Start	1. No power.	Check the power source.
	2. Emergency stop button not reset.	Release the emergency button by turning the knob to the right.
	3. Motor damaged.	Replace motor.
	4. Motor power cable not connected properly.	Check the cable connection and reconnect cable. Change cable if worn out.
	5. Motor circuit breaker tripped.	Reset the breaker to ON position.
	6. Magnetic switch damaged or burned out.	Replace switch.
	7. Transformer damaged.	Replace transformer.
	8. Forward/Reverse lever on the carriage is in neutral.	Make sure lever is either in Forward or Reverse position.
	9. Foot brake limit switch is faulty.	Replace limit switch.
Circut Breaker Trips	1. Short circuit in power cord or plug.	Inspect cord or plug for damaged insulation or shorted wires.
	2. Loose connections or short circuit in motor.	Inspect all motor connections.
	3. Incorrect circuit breaker installed.	Install correct circuit breaker.
Excessive Machine Noise and Overheating	1. Excessive material removal from piece part.	Decrease depth of cut.
	2. Wrong feed rate or spindle speed.	Use correct feed rates and spindle feed values.
	3. V-Belts are slipping.	Inspect, tension, and replace belts.

TROUBLESHOOTING (cont.)

WARNING **Disconnect the machine from power source before troubleshooting.**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Gear Change Levers Will Not Shift	1. Gears not aligned in headstock.	Maintain pressure on the lever while rotating the spindle by hand until the gear falls into place.
Poor Surface Finish	1. Incorrect spindle speed or feed rate. 2. Dull tool or improper tool selection. 3. Depth of cut too much. 4. Too much play in gibs.	Adjust for proper feed rate and spindle speed. Use sharp tools and select proper tool for the application. Use more passes to remove less material. Follow gib adjustment procedure.
Machine Vibrates Excessively at Startup and While Running	1. Piece part is not properly balanced. 2. Check for broken or worn gear. 3. Unbalanced chuck or faceplate.	Re-position piece part so it is centered with the spindle bore. Inspect gears and replace when necessary. Have chuck or faceplate either re-balanced or replaced.
Excessive Vibration of Tool or Machine While Cutting	1. Tool holder is loose. 2. Tool not properly supported in tool holder. 3. Removing too much material from piece part in one pass. 4. Gibs are not properly adjusted. 5. Cutting tool dull or broken.	Clean slide and re-tighten tool holder. No more than 1/3 of tool should extend from holder. Secure tool properly. Take more passes and reduce depth of cut. Check gibs and re-adjust if needed. Re-sharpen or replace cutting tool.

TROUBLESHOOTING (cont.)

WARNING **Disconnect the machine from power source before troubleshooting.**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Cannot Remove Tool From Tailstock Barrel	1. Barrel is not retracted completely into tailstock. 2. Taper not properly cleaned before inserting tool.	Turn the tailstock hand wheel until it pushes the tool out from the barrel. Always clean barrel taper before inserting tool.
Cross Slide, Compound Rest, or Carriage Feed is Loose	1. Gibs need adjustment. 2. Hand wheel is loose. 3. Mechanism for lead screw worn out or in need of adjustment.	Follow procedure to re-adjust gibs. Re-tighten fasteners on hand wheel. Tighten fasteners on lead screw mechanism. Adjust cross slide for backlash.
Hand wheels are Hard to Turn	1. Gibs are dirty. 2. Gibs may be too tight. 3. Cross slide backlash setting too tight.	Remove gibs, clean ways, lubricate, replace and re-adjust gibs. Loosen gibs slightly until wheel turns freely. Loosen slightly until free.
Inconsistant Turning Results on Piece Part	1. Headstock and tailstock not aligned to each other. 2. Bedways are not level front-to-back or side-to-side.	Follow procedure to re-align. Re-level machine as necessary.

TROUBLESHOOTING (cont.)

WARNING **Disconnect the machine from power source before troubleshooting.**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Jaws of Chuck Will Not Move	1. Jaws filled with chips and debris.	Remove and clean the jaws, clean and lubricate chuck threads, replace jaws into chuck.
Carriage Will Not Feed or is Hard to Move	1. Lock lever on carriage is over tightened. 2. Gears broken or not engaged. 3. Gibs may be over tightened.	Loosen lock lever so carriage is free to move. Adjust or replace gears. Loosen gibs slightly.
Tailstock Barrel Will Not Move	1. Barrel lock lever is tight	Loosen lever
Tool Has Short Edge Life	1. Cutting speed too high for application. 2. Crossfeed set too high. 3. Insufficient cooling	Reduce cutting speed. Lower crossfeed. Increase amount of coolant to tool area.

Notes

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