



# Operation and Maintenance Instructions Geared-Head Lathe

Model PL-1340E-1



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## 1.0 IMPORTANT SAFETY INSTRUCTIONS

**Read and understand the entire owner's manual before attempting to set up or operate this lathe.**

1. Read and understand the entire owner's manual before attempting assembly or operation.
  2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
  3. Replace the warning labels if they become obscured or removed.
  4. This lathe is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a lathe, do not use until proper training and knowledge have been obtained.
  5. Do not use this lathe for other than its intended use. If used for other purposes, Baileigh Industrial®, disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
  6. Always wear approved safety glasses/face shields while using this lathe. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses.
  7. Before operating this lathe, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Remove all loose clothing and confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do not wear gloves.
  8. Wear ear protectors (plugs or muffs) during extended periods of operation.
  9. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contain 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 paint.
    - Crystalline silica from bricks, cement and other masonry products.
    - Arsenic and chromium from chemically treated lumber.
- Your risk of exposure 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 face or dust masks that are specifically designed to filter out microscopic particles.
10. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
  11. Make certain the switch is in the OFF position before connecting the machine to the power supply.
  12. Make certain the machine is properly grounded.
  13. Make all machine adjustments or maintenance with the machine unplugged from the power source.
  14. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
  15. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately after maintenance is complete.
  16. Check damaged parts. Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
  17. Do not use power tools in damp/wet locations or other dangerous environments. Do not expose them to rain. Keep work area well lighted. Provide for adequate space surrounding work area and non-glare, overhead lighting.
  18. Keep the floor around the machine clean and free of scrap material, oil and grease.
  19. Keep visitors a safe distance from the work area. Keep children away.
  20. Make your workshop child proof with padlocks, master switches or by removing starter keys.

21. Give your work undivided attention. Looking around, carrying on a conversation and “horse-play” are careless acts that can result in serious injury.
22. Maintain a balanced stance at all times so that you do not fall or lean against moving parts. Do not overreach or use excessive force to perform any machine operation. Never force the cutting action.
23. Do not operate the lathe in flammable or explosive environments. Do not use in a damp environment or expose to rain.
24. Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it was not designed. The right tool will do the job better and more safely.
25. Use recommended accessories; improper accessories may be hazardous.
26. Maintain tools with care. Keep cutting tools sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
27. Do not attempt to adjust or remove tools during operation. Disconnect tools before servicing; when changing accessories, such as blades, bits, cutters, and the like.
28. Never stop a rotating chuck or workpiece with your hands.
29. Choose a low spindle speed when working unbalanced workpieces, and for threading and tapping operations.
30. Do not exceed the maximum speed of the workholding device.
31. Do not exceed the clamping capacity of the chuck.
32. Secure Work. For safety and use of both hands, use clamps or a vise to hold work when practical.
33. Workpieces longer than 3 times the chucking diameter must be supported by the tailstock or a steady rest.
34. Avoid small chuck diameters with large turning diameters.
35. Avoid short chucking lengths and small chucking contact.
36. Turn off the machine and disconnect from power before cleaning. Use a brush to remove shavings or debris — do not use your hands.
37. Do not stand on the machine. Serious injury could occur if the machine tips over.
38. Never leave the machine running unattended. Turn the power off and do not leave the machine until moving parts come to a complete stop.
39. Remove loose items and unnecessary work pieces from the area before starting the machine.
40. Direction of feed — feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
41. Installation work and electrical wiring must be done by qualified electrician in accordance with all applicable codes and standards.
42. Tighten all locks before operating.
43. Rotate workpiece by hand before applying power.
44. Rough out workpiece before installing on faceplate.
45. Do not mount split workpiece or one containing knot.
46. Use lowest speed when starting new workpiece.

## Safety Devices

**⚠ WARNING** Do not bypass, remove, or override safety devices built into this machine. Injury or death to yourself or those nearby may result. Possible consequences include parts flying off at high speed, contact with moving parts, electrocution, and clothing being pulled into the machine.

The lathe includes the following safety devices:

### Lockable Main Switch (Figure 1-1)

When the main switch is switched off ("0" position), the current supply to the lathe is interrupted. In the "0" position, the main switch can be secured against accidental or unauthorized activation using a padlock.



Figure 1-1

### Emergency-Stop Button (Figure 1-2)

Pressing the emergency-stop button switches the lathe off. Turn the button clockwise to restart the machine.



Figure 1-2

Familiarize yourself with the following safety notices used in this manual:

**⚠ CAUTION** This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

**⚠ WARNING** This means that if precautions are not heeded, it may result in serious injury or possibly even death.

### Chuck Shield with Position Switch (Figure 1-3)

Raise the chuck shield to gain access to the chuck and spindle. When the chuck shield is lowered into place, the position switch is activated, allowing the machine to be turned on.

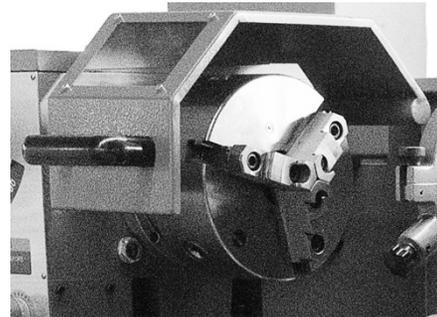


Figure 1-3

### Headstock End Panel with Position Switch (Figure 1-4)

When the headstock end panel cover is in place, the position switch is activated, allowing the machine to be turned on.



Figure 1-4

**The Overload Clutch** on the feed shaft prevents overloading of the machine.

**Safety Screws** for the camlock bolts on the workpiece holder.

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## 3.0 Warranty and Service

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 an 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 an 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 an 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 an 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 10 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 INCIDENTAL, 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 Majeure.** 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, lightning, 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 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 attorney 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 Industrial issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh Industrial 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 [Baileigh-Service@jpwindustries.com](mailto:Baileigh-Service@jpwindustries.com).

## 4.0 About this Manual

This manual is provided by Baileigh Industrial, covering the safe operation and maintenance procedures for a Baileigh Mode PL-1340E-1 Lathe. This manual contains instructions on installation, safety precautions, general operating procedures, and maintenance instructions. Your machine has been designed and constructed to provide consistent, long-term operation if used in accordance with the instructions as set forth in this document.

Technical Support handles questions on setup, operation, schematics, warranty issues, and individual parts needed. Our Technical Support department can be reached at 920-684-4990.

If there are questions or comments, please contact your local supplier or Baileigh Industrial. We can also be reached at our web site: [www.baileigh.com](http://www.baileigh.com).

Retain this manual for future reference. If the machine transfers ownership, the manual should accompany it.

### **WARNING**

**Read and understand the entire contents of this manual before attempting assembly or operation! Failure to comply may cause serious injury!**

Register your product online - <https://baileigh.com/product-registration>



## 5.0 Product Identification

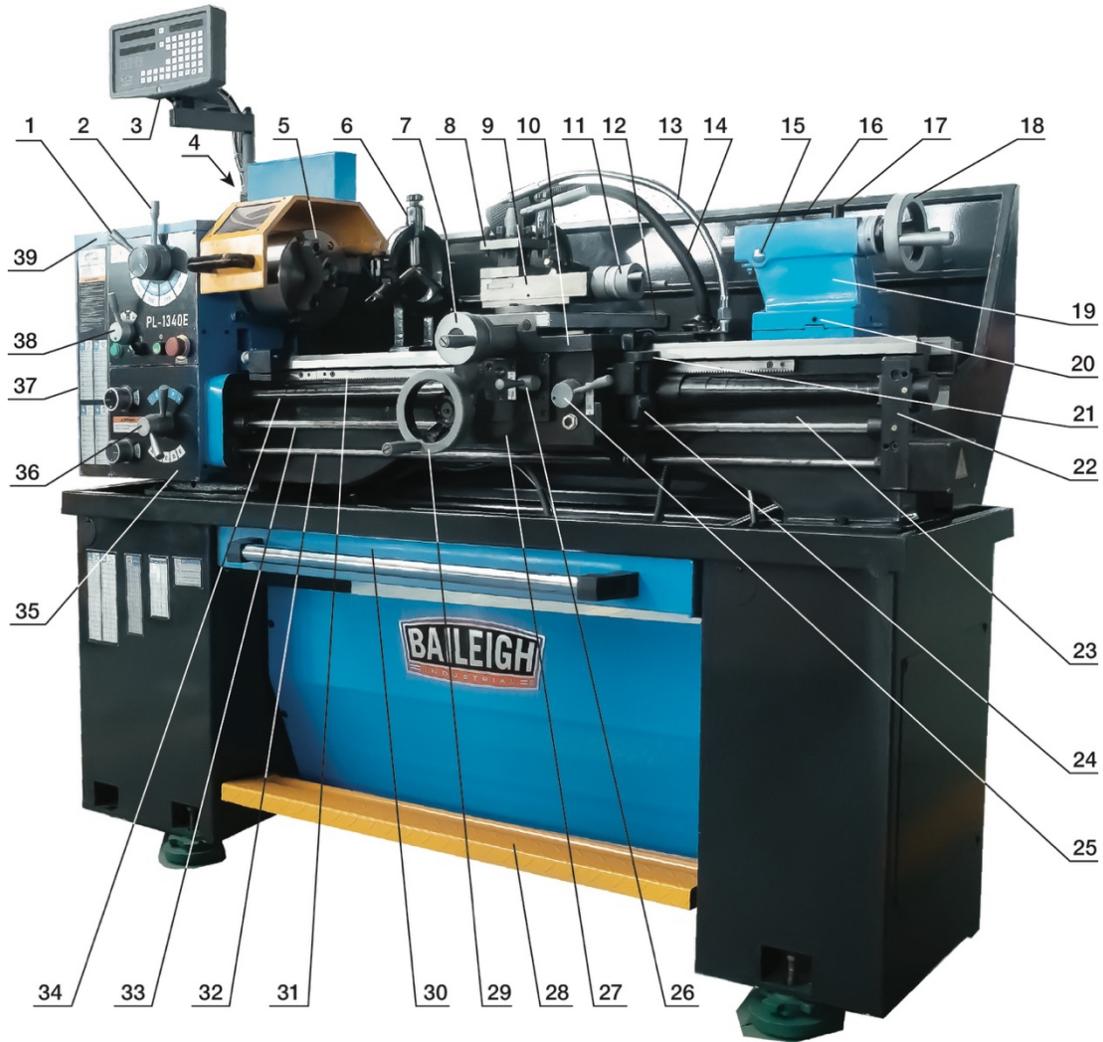


Figure 5-1: Product Identification

- |  |                                     |
|--|-------------------------------------|
| 1. RPM Selector Lever                          | 21. Threading Dial Indicator        |
| 2. Low or High Speed Selector Lever            | 22. Support Body                    |
| 3. Digital Readout (DRO)                       | 23. Bed                             |
| 4. Electric Control Panel (in rear, not shown) | 24. Forward/Reverse Selector        |
| 5. Spindle with Three-Jaw Chuck                | 25. Half Nut Engagement Lever       |
| 6. Steady Rest                                 | 26. Feed Axis Selector              |
| 7. Cross Slide Traverse Handwheel              | 27. Apron                           |
| 8. Tool Post                                   | 28. Foot Brake                      |
| 9. Compound Slide                              | 29. Longitudinal Traverse Handwheel |
| 10. Carriage                                   | 30. Chip Tray                       |
| 11. Compound Slide Traverse Handwheel          | 31. Rack                            |
| 12. Cross Slide                                | 32. Control Rod                     |
| 13. Coolant System                             | 33. Feed Rod                        |
| 14. Work Light                                 | 34. Leadscrew                       |
| 15. Quill Clamp Body                           | 35. Gearbox                         |
| 16. Tailstock Quill Clamp Lever                | 36. Feed Rate/Thread Selectors      |
| 17. Tailstock Clamp Lever                      | 37. Gearbox Cover                   |
| 18. Quill Traverse Handwheel                   | 38. Feed Direction Selector         |
| 19. Tailstock                                  | 39. Headstock                       |
| 20. Tailstock Set-Over Screw                   |                                     |

## 6.0 Specifications

Stock Number .....	<b>BA1-11223</b>
Model Number.....	PL-1340E-1
Main Motor .....	2HP, 1PH, 230V, 60Hz, 9.3A
Motor Output .....	1.5kw
Voltage .....	230V
Transformer.....	JBK5-63V/A, 240V, 24V Output
Coolant Pump .....	TYPE YYB12TH 40W 12L/min 3360r/min 230V 60HZ 0.41A
Work Lamp.....	JC34A, 24V, 3W
Swing Over Bed .....	13" (330mm)
Swing Over Cross Slide .....	8.7" (220mm)
Swing Over Gap.....	16.9" (430mm)
Length of Gap .....	7.5" (190mm)
Swing Over Support.....	7.8" (198mm)
Center Height.....	6.5" (166mm)
Distance Between Centers.....	39" (1000mm)
Bed Width.....	7.3" (186mm)
Bed Height .....	11.41" (290mm)
Spindle Bore.....	2" (51mm)
Spindle Nose.....	D1-5
Taper in Spindle Nose.....	MT-6
Number of Spindle Speeds .....	8
Range of Spindle Speeds .....	90-2000 RPM
Number of Longitudinal & Cross Feeds .....	40 / 40
Range of Longitudinal Feeds .....	0.0011" – 0.0367"
Range of Cross Feeds .....	0.0032" – 0.1068"
Number of Inch Threads .....	32
Range of Inch Threads.....	4 – 56 TPI
Number of Metric Threads .....	32
Range of Metric Threads.....	0.4 – 7mm
Range of M.P. Threads .....	0.2 – 3.5MP
Range of D.P. Threads .....	8 – 120DP
Maximum Tool Size.....	20 x 20mm
Maximum Compound Slide Travel .....	3.9" (100mm)
Maximum Cross Slide Travel .....	6.7" (170mm)
Maximum Carriage Travel.....	34.6" (880mm)
Tailstock Spindle Travel .....	4.1" (105mm) $\varnothing$ 1.3" ( $\varnothing$ 32mm)
Taper in Tailstock Spindle.....	MT-3
Steady Rest Capacity.....	0.4" – 2.9" (10 – 73mm)
Follow Rest Capacity .....	0.4" – 2.4" (10 – 60mm)
Three-Jaw Chuck Diameter .....	7.9" (200mm)
Gross Weight .....	1411 lbs. (640kg)
Net Weight .....	1131 lbs. (513kg)
Machine Overall Dimensions .....	71" x 29.1" x 51.6" (1805 x 740 x 1310mm)

*The specifications in this manual were current at the time of publication. Baileigh Industrial reserves the right to change specifications at any time and without prior notice, without incurring obligations.*

## 7.0 Setup and Assembly

### 7.1 Shipping Contents

- 1 Lathe
- 1 Digital Readout (DRO)
- 1 Steady Rest
- 1 Follow Rest
- 1 8" Three-Jaw Chuck
- 1 8" Four-Jaw Chuck
- 1 12" Face Plate
- 1 Splash Guard
- 1 Chip Tray
- 1 Tool Box
- 1 Lamp
- 1 Chuck Guard with Limit Switch
- 1 Coolant Pump System
- 1 Leadscrew Cover
- 3 Cam Locks (on face plate)
- 3 Socket Head Cap Screws (on face plate)

#### **Tool Box:**

- 3 Open-End Wrenches  
(10/12, 14/17, 17/19mm)
- 1 Oil Can
- 1 Hex Key Set (3, 4, 5, 6, 8, 10mm)
- 2 Shear Pins (5 x 35mm)
- 1 T-Handle Chuck Wrenches
- 1 Tool Post Wrench
- 2 MT-3 Centers
- 1 MT-3 Live Center
- 1 MT-6 – MT-4 Center Sleeve
- 1 Key for Cam Locks
- 1 Crosspoint Screwdriver
- 1 Flathead Screwdriver
- 1 40T Gear
- 1 42T Gear
- 1 43T Gear
- 1 44T Gear
- 1 46T Gear
- 1 48T Gear
- 1 52T Gear
- 1 56T Gear
- 1 60T Gear
- 1 63T Gear
- 1 85T Gear
- 1 100T Gear
- 6 Leveling Pads
- 6 Leveling Bolts with Hex Nuts
- 1 Owner's Manual, DRO Instructions,  
Inspection Sheet, Warranty Card, Pre-  
Shipment check list, Packing List



Figure 7-1

### 7.2 Uncrating and Installation

**⚠ WARNING** The machine is heavy. Use an appropriate lifting device and use extreme caution when moving the machine to its final location. Failure to comply may cause serious injury.

**⚠ WARNING** Confirm that all suspension equipment is properly rated and in good condition for lifting lathe. Do not allow anyone beneath or near load while lifting.

1. Finish removing the wooden crate from around the lathe.
2. Unbolt the lathe from the bottom of the shipping crate.
3. Choose a location for the lathe that is level, dry, well-lit, and has enough room to service it on all four sides. The lathe must sit on a solid foundation. A concrete floor is the best base for the machine.
4. Move the carriage and tailstock to the far right of the bed and lock in place to help balance the machine. To further balance the load, loosen the carriage lock bolt, disengage the half nut lever, put the feed control lever in neutral, and use the carriage handwheel to move the carriage next to the tailstock.

- Place two steel rods or pipes (of sufficient strength) into holes (A, Figure 7-2) of lathe stand. Sling the lathe with properly rated straps. **Do not lift by the spindle.** With adequate lifting equipment, slowly raise the lathe off the bottom of the shipping crate. Make sure lathe is balanced before moving.



Figure 7-2

### Locating and Positioning Machine

The lathe is shipped with six leveling bolts installed in the base. Six leveling pads are shipped with the lathe. The lathe can be installed using the installed leveling bolts and leveling pads, or can be attached to the floor using J-bolts set in the concrete floor. Using J-bolts require careful placement of the J-bolts so they align with the base mounting holes. The J-bolts must be set in concrete and the concrete must fully cure before installing the machine. J-bolts and bolts and nuts are not provided. J-bolt size is M10 x 330 (L:mm). See Figure 7-3 for J-bolt installation.

- Carefully and slowly lower the lathe to leveling pads or installed J-bolts. Hard bumps or crashes can damage the machine, the leveling bolts/pads, or the J-bolts, causing the machine to be inaccurate.

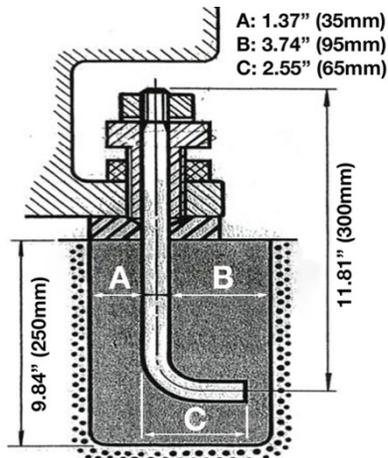


Figure 7-3: J-Bolt Installation

### Leveling the Lathe

The lathe must be on a level plane; that is, the headstock and tailstock center points must remain aligned throughout the tailstock travel, with the bed ways free of twist and parallel to the operational center line.

**A lathe which is not properly leveled will be inaccurate**, producing tapered cuts. Also, the center point of the headstock will vary as it is positioned along the bed, thus requiring constant readjustment of the set of the tailstock.

- Check for level condition using a machinist's precision level on the bedways, both front-to-back and side-to-side (see Figure 7-4). Take the reading in one direction every ten inches. Make sure the ways are clean and free of any debris before placing a level upon them.

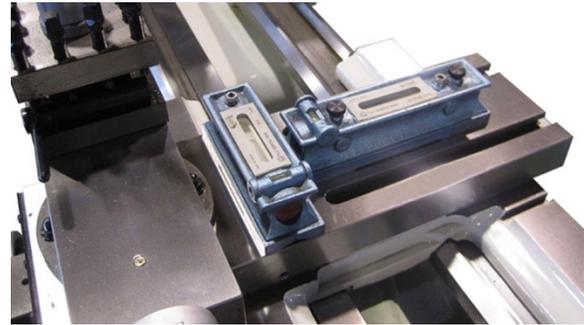


Figure 7-4: Leveling

- Adjust the foot leveling bolts to achieve proper machine level. Tighten leveling bolt nuts evenly when the machine is leveled.
- Inspect leveling occasionally, especially if the lathe accuracy begins to diminish.

### Cleaning Components

- Clean all rust-protected surfaces using a mild commercial solvent, kerosene, or diesel fuel. Do not use paint thinner, gasoline, or lacquer thinner. These will damage painted surfaces. Cover all cleaned surfaces with a light film of Mobil DTE® Oil Heavy Medium.
- Open the end panel. Clean all components of the end gear assembly and coat all gears with a heavy, non-slinging grease, like Mobilith® AW 1.

## 7.3 Chuck Preparation

**⚠ WARNING** Read and understand all directions for chuck preparation. Failure to comply may cause serious injury and/or damage to the lathe.

**Note:** Before removing the chuck from the spindle, place a way board across the bedways under the chuck to prevent damage to the bedways should the chuck fall from your hands. Alternatively, many users make a wood chuck cradle that sits atop the ways and accepts the chuck's specific diameter, making installation and removal easier. Figure 6 shows an example.

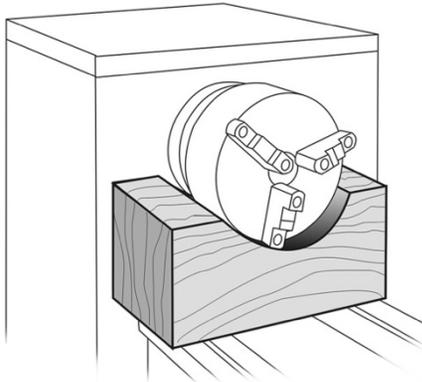


Figure 7-4: Chuck Cradle

Refer to Figures 7-5 & 7-6.

1. Support the chuck. Using the supplied chuck key, turn six camlocks (A) counterclockwise. Line up the camlock index mark (B) with the cam release mark (C) for removal.
2. Carefully remove the chuck from the spindle and place on an adequate work surface.
3. Inspect the camlock studs. Make sure they have not become cracked or broken during transit. Clean all parts thoroughly with solvent. Also, clean the spindle and camlocks.
4. Cover all chuck jaws and scroll inside the chuck with Mobilith® AW2. Cover the spindle, cam locks, and chuck body with a light film of Mobil DTE® Oil Heavy Medium.
5. Lift the chuck to the spindle nose and press onto the spindle. Tighten in place by turning the six camlocks (A) clockwise. The camlock index mark (B) should be between the two "V" indicator arrows (D). If the index mark is not between the two arrows, remove the chuck and adjust the camlock studs (E). To do this, remove the cap-head locking screws (F) and set each stud so the scribed ring (G) is flush with the rear face of the chuck, with the slot lining up with the locking screw hole.
6. Install chuck and tighten in place.

**ATTENTION:** Only when the incised line on the chuck lines up with that on the spindle, can the chuck be mounted.

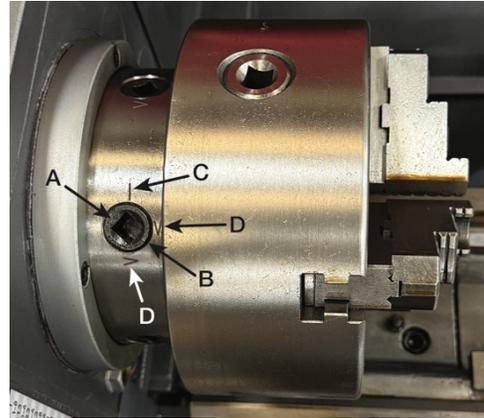


Figure 7-5

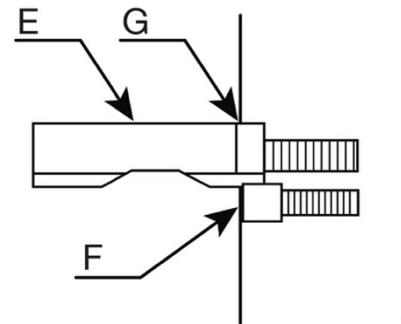


Figure 7-6

## 8.0 Lubrication

**⚠ CAUTION** The lathe must be serviced at all lubrication points, and all reservoirs must be filled to operating level before the lathe is placed into service. Failure to comply may cause severe damage to the lathe.

1. **Headstock** – The bearings of the headstock turn in an oil bath. Oil must reach three-quarters of oil level sight glass (see Figure 8-1). Top off with Mobil DTE® Oil Heavy Medium. Fill by removing headstock cover. To drain oil, open the end panel and remove the change gears with swing frame (A, Figure 8-2) Remove drain plug (B, Figure 8-2). Check oil level regularly. Make the first oil change after one month of operation. Clean out any metal shavings. Then, change oil in the headstock every two months.
2. **External Gears** - Coat all gears with a heavy, non-slinging grease, see Figure 8-2.
3. **Gear Shaft** - Remove the set screw (C, Figure 8-2) and oil with a couple drops of Mobil DTE® Oil Heavy Medium once weekly.
4. **Gearbox** - Oil must be up to indicator mark in oil level sight glass (A, Figure 8-3). Remove the oil filling plug (B, Figure 8-3). Top off with

Mobil DTE® Oil Heavy Medium. Drain oil by removing drain plug (D, Figure 8-2). Make the first oil change after operating three months. Then, change oil in the gearbox every six months.



Figure 8-1: Headstock Oil Level Sight Glass

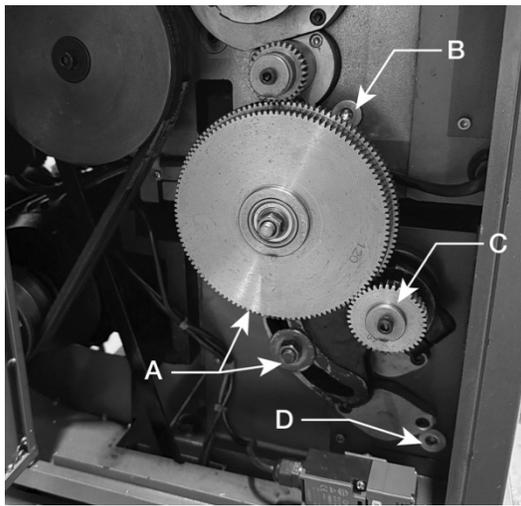


Figure 8-2

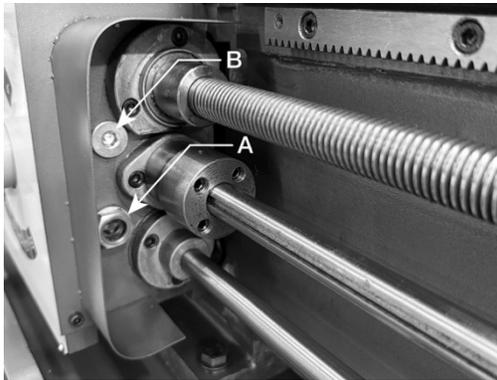


Figure 8-3

5. **Apron** - Oil must be up to indicator mark in oil level sight glass (A, Figure 8-4). Top off with Mobil DTE® Oil Heavy Medium. Fill by removing oil filling plug (B, Figure 8-4). Drain oil by removing drain plug located on the bottom of the apron. Make the first oil change after operating three months. Then, change oil annually.

6. **Feed Axis Selector** - Lubricate ball oiler (C, Figure 8-4) once daily with Mobil DTE® Oil Heavy Medium.
7. **Carriage** - Lubricate ball oilers (D, Figure 8-4) once daily with Mobil DTE® Oil Heavy Medium.
8. **Threading Dial Indicator** - Lubricate ball oiler (E, Figure 8-4) once daily with Mobil DTE® Oil Heavy Medium.
9. **Compound Slide** - Lubricate ball oiler (A, Figure 8-5) once daily with Mobil DTE® Oil Heavy Medium.
10. **Longitudinal and Cross Slide** - Lubricate ball oilers (B, Figure 8-5) once daily with Mobil DTE® Oil Heavy Medium.
11. **Longitudinal Feed Handwheel** - Lubricate ball oiler (C, Figure 8-5) once daily with Mobil DTE® Oil Heavy Medium.
12. **Tailstock** - Lubricate two ball oilers (D, Figure 8-5) once daily with Mobil DTE® Oil Heavy Medium.
13. **Leadscrew/Feed Rod** - Lubricate two ball oilers once daily (E, Figure 8-5) with Mobil DTE® Oil Heavy Medium.

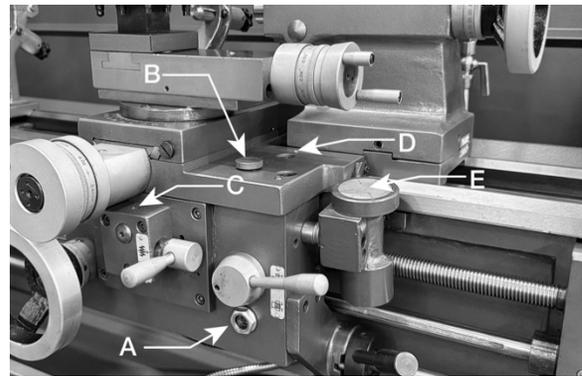


Figure 8-4

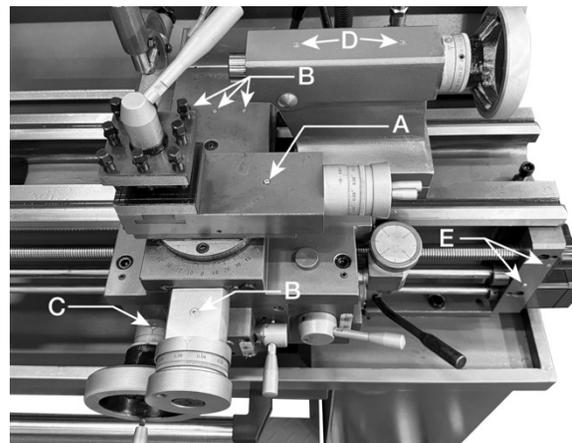


Figure 8-5

## 9.0 Coolant Preparation

**CAUTION** Follow coolant manufacturer's recommendations for use, care and disposal.

1. Remove access cover on tailstock end at the rear base of the lathe. Make sure coolant pump has not shifted during transport.
2. Pour four gallons (approximate) of coolant mix into the chip pan.
3. After connecting machine to power, turn coolant on/off switch to ON position. Make sure coolant is cycling properly.
4. Replace access cover.

## 10.0 Electrical Connections

**WARNING** Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded while in use to help protect the operator from electrical shock and possible fatal injury.

The PL-1340E-1 lathe is rated at 2HP, 1PH, 230V only. Confirm power available at the lathe's location is the same rating as the lathe.

Turn feed direction selector (A, Figure 10-1) to the right. If the electrical connections are correct, the spindle/chuck will rotate counterclockwise as viewed from the tailstock. If the spindle/chuck rotates clockwise, move the feed direction selector to the neutral position and disconnect the lathe from the power source. Switch any two of the three power leads (not the green ground wire) and reconnect the lathe to the power source. Recheck spindle rotation.



Figure 10-1

## 11.0 General Description

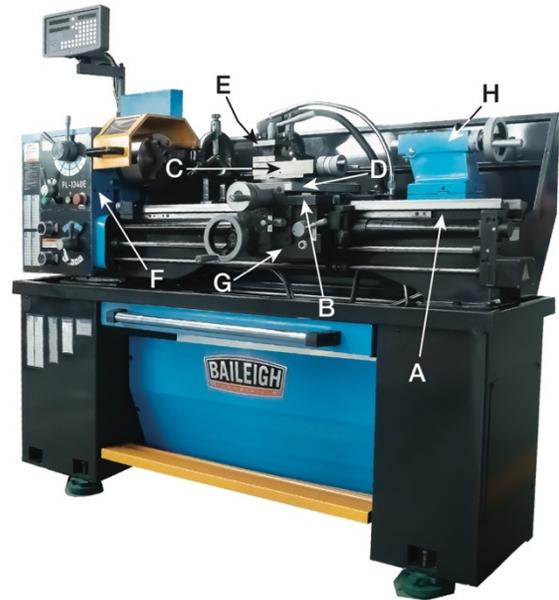


Figure 11-1

### 11.1 Lathe Bed

The lathe bed (A, Figure 11-1) is made of high-grade cast iron. By combining high cheeks with strong cross ribs, a bed provides low vibration and high rigidity. Two precision-ground V-slideways, reinforced by heat hardening and grinding, are an accurate guide for the carriage and headstock. The main drive motor is mounted to the rear of the bed.

### 11.2 Carriage

The carriage (B, Figure 11-1) is made from high-quality cast iron. The sliding parts are smooth-ground. The cross-slide is mounted on the carriage and moves on a dovetailed slide, which can be adjusted for play by means of the gibs.

The compound slide (C, Figure 11-1), which is mounted on the cross slide (D, Figure 11-1), can be rotated through 360°. The compound slide and the cross slide travel in a dovetail slide and have adjustable gibs.

### 11.3 Four Way Tool Post

The four-way tool post (E, Figure 11-1) is mounted on the compound slide and allows up to four tools to be mounted simultaneously. Remember to use at least two clamping screws when installing a cutting tool.

### 11.4 Headstock

The headstock (F, Figure 11-1) is cast from high-grade, low-vibration cast iron. It is mounted to the bed by four bolts with two adjusting bolts for alignment. In the head, the spindle is mounted on two precision taper roller bearings. The hollow spindle has Morse Taper #5 with a 1-1/2" bore.

## 11.5 Apron

The apron (G, Figure 11-1) is mounted to the carriage. In the apron a half nut is fitted. The half nut gibs can be adjusted from the outside. The half nut is engaged by use of a lever. Quick travel of the apron is accomplished by means of a bed-mounted rack and pinion, operated by a hand wheel on the front of the apron.

## 11.6 Tailstock

The tailstock (H, Figure 11-1) slides on a v-way and can be locked at any location by a clamping lever. The tailstock has a heavy-duty spindle with a Morse Taper #3.

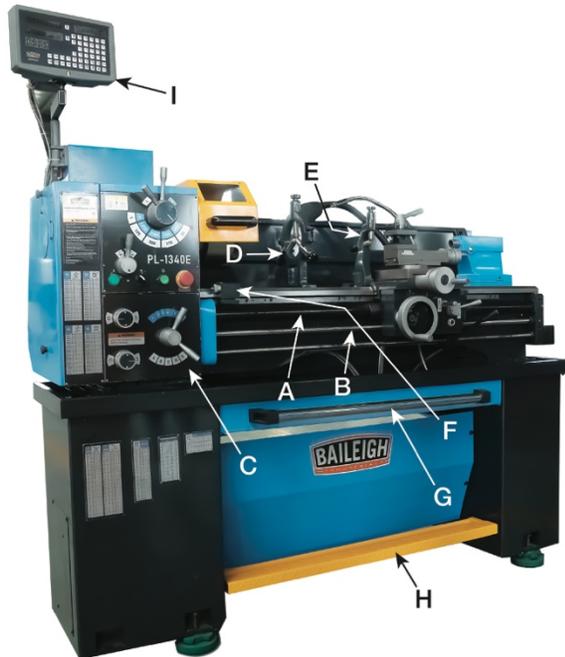


Figure 11-2

## 11.7 Leadscrew and Feed Rod

The leadscrew (A, Figure 11-2) and feed rod (B, Figure 11-2) are mounted on the front of the machine bed. They are connected to the gearbox at the left for automatic feed and lead. They are supported by bushings on both ends. Both are equipped with brass shear pins.

## 11.8 Gear Box

The gear box (C, Figure 11-2) is made from high quality cast iron and is mounted to the left side of the machine bed.

## 11.9 Steady Rest

The steady rest (D, Figure 11-2) serves as a support for shafts on the free tailstock end. The steady rest is mounted on the bedways and secured from below with a bolt, nut and locking plate. The sliding fingers require continuous lubrication at the contact points with the workpiece to prevent premature wear.

## 11.10 Follow Rest

The traveling follow rest (E, Figure 11-2) is mounted on the saddle and follows the movement of the turning tool. Only two fingers are required as the turning tool takes the place of the third. The follow rest is used for tuning operations on long, slender workpieces. It prevents the workpiece from flexing under the pressure of the cutting tool.

The sliding fingers are set similar to the steady rest, free of play, but not binding. The sliding fingers require continuous lubrication at the contact points with the workpiece to prevent premature wear.

## 11.11 Micro Carriage Stop

(F, Figure 11-2) Can be used during manual feed operation. The dial can be turned for fine tuning the position of the stop. The micro carriage stop can be moved along the bed by loosening the two socket-head cap screws beneath the stop.

## 11.12 Chip Tray

(G, Figure 11-2) Tray can be pulled out to clean the stand.

## 11.13 Foot Brake

(H, Figure 11.2): The connecting rod mechanism is in the bed stand. The braking device is in the pulley of the headstock. Press the pedal to stop all lathe functions. (**Caution:** Lathe still has power.)

## 11.14 Digital Readout (DRO)

(I, Figure 11.2): The digital readout enables the machine operator to precisely control the lathe operations. Instructions for operating the DRO is included with the machine.

## 12.0 Controls



Figure 12-1

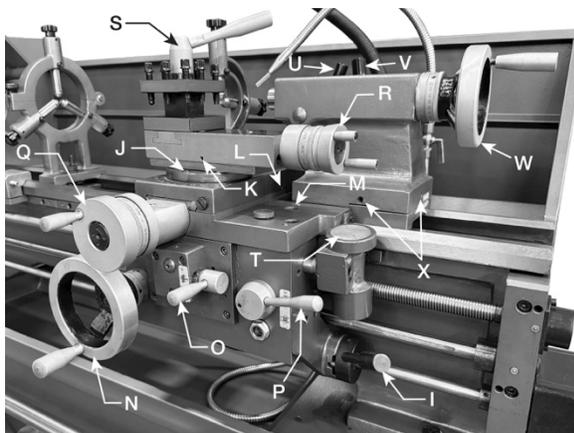


Figure 12-2

7. **High/Low Speed Selector Lever (G, Figure 12-1)** - Move to the left for low-speed range. Move to the right for high-speed range.
  8. **Feed Rate/Thread Selector (H, Figure 12-1)** - Use knobs and handles to set desired feed or lead rates.
  9. **Forward/Reverse Selector (I, Figure 12-2)** - Pull lever up for clockwise spindle rotation (reverse). Push lever down for counterclockwise spindle rotation (forward). Neutral position is a center detent and the spindle remains idle.
  10. **Compound Rest Lock (J, Figure 12-2)** - Turn hex nut clockwise to lock and counterclockwise to unlock.
  11. **Compound Slide Lock (K, Figure 12-2)** - Turn set screw clockwise to tighten and counterclockwise to loosen.
  12. **Cross Slide Lock (L, Figure 12-2)** - Turn set screw clockwise and tighten to lock. Turn counterclockwise and loosen to unlock.
- ⚠ CAUTION** Cross slide lock screw must be unlocked before engaging automatic feeds or damage to the lathe may occur.
13. **Carriage Lock (M, Figure 12-2)** - Turn hex socket cap screw clockwise and tighten to lock. Turn counterclockwise and loosen to unlock.
- ⚠ CAUTION** Carriage lock screw must be unlocked before engaging automatic feeds or damage to lathe may occur.
14. **Longitudinal Traverse Handwheel (N, Figure 12-2)** - Rotate hand wheel clockwise to move the apron assembly toward the tailstock (right). Rotate the wheel counterclockwise to move the apron assembly toward the headstock (left).
  15. **Feed Axis Selector (O, Figure 12-2)** - Push lever to the left and down to activate the crossfeed function. Pull lever to the right and up to activate the longitudinal function.
  16. **Half Nut Engagement Lever (thread cutting) (P, Figure 12-2)** - Move the lever down to engage. Move the lever up to disengage.
  17. **Cross Traverse Handwheel (Q, Figure 12-2)** - Rotate clockwise or counterclockwise to move or position.
  18. **Compound Slide Traverse Handwheel (R, Figure 12-2)** - Rotate clockwise or counterclockwise to move or position.
  19. **Tool Post Clamping Lever (S, Figure 12-2)** - Rotate counterclockwise to loosen and clockwise to tighten. Rotate the tool post when the lever is unlocked.
1. **Emergency Stop Switch (A, Figure 12-1)** - depress to stop all machine functions.
- ⚠ CAUTION** Lathe will still have power. Turn clockwise to re-set.
2. **Jog Switch (B, Figure 12-1)** - Depress and release to advance spindle momentarily.
  3. **Coolant ON/OFF Switch (C, Figure 12-1)** - Turns coolant pump on and off.
  4. **Power Indicator Light (D, Figure 12-1)** - Lit whenever lathe has power.
  5. **Feed Direction Selector (E, Figure 12-1)** - Selects carriage travel direction when the chuck is rotating.
  6. **RPM Speed Selector Lever (F, Figure 12-1)** - Use to select one of four spindle speeds in either high or low range (eight speeds total).

20. **Threading Dial Indicator** (T, Figure 12-2) – Engage by pushing into the leadscrew. Pull out to disengage. The dial indicator and chart will specify at which point a thread can be entered.
21. **Tailstock Quill Clamp Lever** (U, Figure 12-2) – Lift up to lock the spindle. Push down to unlock.
22. **Tailstock Clamp Lever** (V, Figure 12-2) – Lift up lever to lock. Push down lever to unlock.
23. **Tailstock Quill Traverse Handwheel** (W, Figure 12-2) – Rotate clockwise to advance the quill. Rotate counterclockwise to retract the quill.
24. **Tailstock Off-Set Adjustment** (X, Figure 12-2) – Three set screws located on the tailstock base are used to off-set the tailstock for cutting tapers. Loosen lock screw on tailstock end. Loosen one side set screw while tightening the other until the amount of off-set is indicated on scale. Tighten lock screw.

## 13.0 Operation

**CAUTION** Only change speed, gear, and feed settings when the lathe is completely stopped. Failure to comply may cause machine damage.

### 13.1 Before Each Use

Before each use, run the machine at 250 RPM for 10 minutes to thoroughly lubricate the bearings. This will raise the temperature of the lubricating oil and ensure it adheres to gear surfaces.

For minimum wear, disengage the threading dial indicator when not in use. See *Section 13.7.1 Threading Dial Indicator* for further instructions.

### 13.2 Speed Adjustment

**CAUTION** Only change speed when the lathe is completely stopped. Failure to comply may cause machine damage.

1. Move the High/Low Speed Selector Lever (A, Figure 13-1) to either the High or Low setting.
2. Move the RPM Speed Selector Lever (B, Figure 13-1) to the desired RPM.

### 13.3 Feed and Thread Selection

1. Reference the Feed/Thread Tables (C, Figure 13-1) NOTE: Additional Feed/Thread Tables are located beside the chuck key.
2. Move Feed Rate/Thread Selector dials and handles (D, Figure 13-1) to the appropriate positions, according to the Feed/Thread Tables.

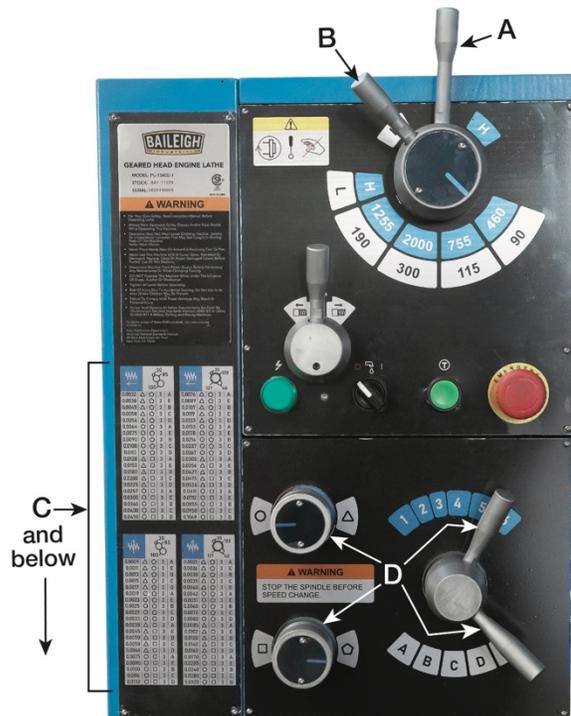


Figure 13-1

### 13.4 Change Gear Replacement

**Note:** the 30T, 120T, 127T, and 40T gears are factory-installed in the end-gear compartment. This combination will cover most inch feeds and threads under normal circumstances.

To change the gears, follow the steps below.

1. Disconnect the machine from the power source.
2. Remove the end panel.
3. Remove smaller gears socket head cap screws (A, Figure 13-2) and large gear hex nut (B, Figure 13-2). Loosen quadrant hex nut (C, Figure 13-2). Move the quadrant out of the way.
4. Change gears to match the Feed/Thread Tables. Thoroughly clean the new gears before installation. Firmly tighten the socket head cap screws and large gear hex nut.
5. Move the quadrant so the large gear meshes with the smaller gears, then tighten to secure it in place. Note: Make sure there is backlash of 0.002" – 0.003" between gears. Setting the gears too tightly will cause excessive noise and wear.
6. Close the cover and connect the machine to the power source.

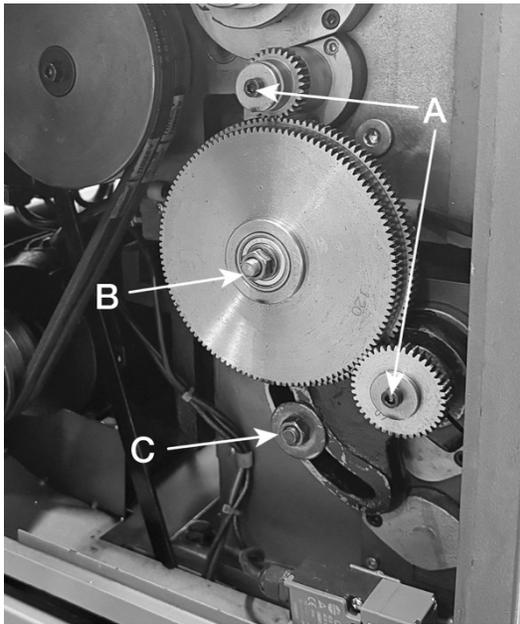


Figure 13-2

### 13.5 Automatic Feed Operation and Feed Changes

1. Move the forward/reverse selector (A, Figure 13-3) up or down depending on desired direction.

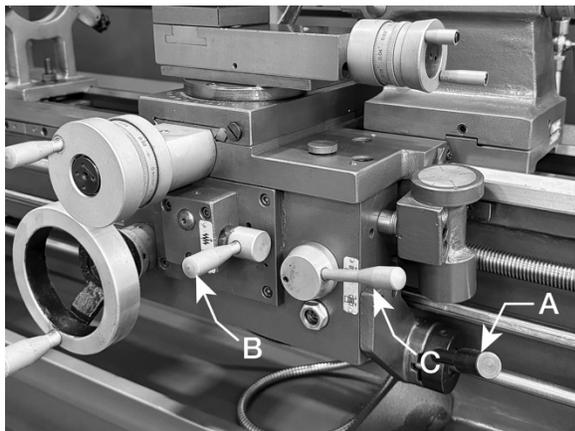


Figure 13-3

2. Set the Feed Rate/Thread Selector Dials and handles (A, Figure 13-4) to desired position.
3. Move Feed Direction Selection Lever (B, Figure 13-4) either right or left, depending on the desired direction. This starts the feed rod rotating.
4. Push Feed Axis Selector Lever (B, Figure 13-3) to the left and down to engage crossfeed. Push lever to the right and up to engage longitudinal feed.



Figure 13-4

### 13.6 Powered Carriage Travel

Push Feed Axis Selector Lever (B, Figure 13-3) to the left and down to engage crossfeed. Pull lever to the right and up to engage longitudinal feed.

### 13.7 Thread Cutting

All feed, threads, and gear requirements are provided on the feed/thread tables attached to the front of the gearbox and beside the chuck key. To obtain the desired thread, install all the correct gears as specified in the tables. Failure to do so will give incorrect threads.

1. Set the feed rate/thread selector dials and handles (A, Figure 13-4) to the desired positions. The leadscrew will start rotating. There are 31 thread pitch settings for Imperial and 26 thread pitch settings for Metric. Refer to the feed/thread tables attached to the gearbox.
2. Choose direction of thread cut by turning the feed direction selector (B, Figure 13-4) at the headstock.
3. Make sure the feed axis selector (B, Figure 13-3) is disengaged (neutral position) before engaging the half nut engagement lever. There is an interlock mechanism between the auto-feeding and the thread-cutting half-nut engagement.

4. If cutting Imperial threads, read the threading dial indicator and engage the half nut engagement lever (C, Figure 13-3) by moving it downward. It will engage with the leadscrew to obtain the longitudinal travel of carriage (the thread cutting feed). See *Section 13.7.1 Threading Dial Indicator* for proper use of dial.
5. If cutting metric threads, engage the half nut engagement lever by moving it downward. The half nut must remain engaged once the start point has been selected and the half nut is initially engaged (the threading dial cannot be used).

### 13.7.1 Threading Dial Indicator

The threading dial indicator (Figure 13-5) is installed on the right side of the apron. The indicator is used when cutting imperial threads and indicates when to engage the half nut to begin threading.

The indicator face has eight lines and four numbers (see Figure 13-5). An indicator pin is located at the bottom of the rim (A, Figure 13-5). The dial is mounted on a shaft with a small gear at the opposite end (B, Figure 13-6).

By loosening a socket capscrew (A, Figure 13-6), you can pivot the housing to either engage or disengage the gear from the leadscrew (C, Figure 13-6). When engaged, the dial will turn as the spindle rotates. If the dial does not turn, readjust the housing position. For minimum wear, disengage the threading dial indicator when not in use.

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

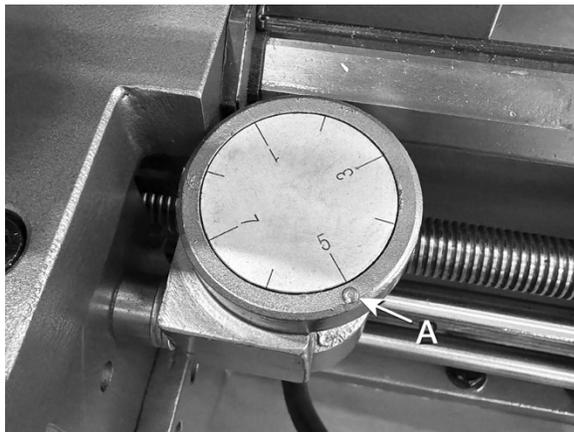


Figure 13-5 – Threading Dial Indicator

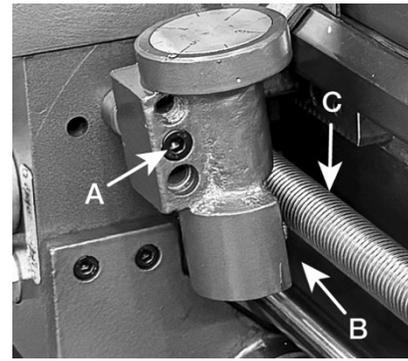


Figure 13-6 – Adjusting Threading Dial Indicator

#### Example:

1. Using the Thread Dial Table (see Figure 13-7) to cut 20-threads-per-inch, engage the half nut when 1, 2, 3, or 4 is at the indicator pin.
2. Determine how long you want the thread to be. When you reach that length, disengage the half nut.
3. Return the carriage to the beginning of the cut.
4. Set the next depth for the next cutting pass.
5. Watch the dial and engage the half nut at the same mark as started in step 1.
6. Repeat the procedure until you have reached the desired thread depth.

#### Note: Scale values are as follows:

- 1 = Engage on 1
- 1.3 = Engage on 1 or 3
- 1-4 = Engage any number, 1 thru 4
- 1-8 = Engage any number, 1 thru 8

INDICATOR TABLE			
TPI	Scale	TPI	Scale
4	1-4	23	1
4 1/2	1	24	1-8
4		26	1.3
5	1	28	1-4
5 1/2	1	32	1.3
5	1.3	36	1-4
6 1/2	1	38	1.3
7	1	40	1-8
8	1-8	44	1-4
9	1	46	1.3
9 1/2	1	48	1-8
10	1.3	52	1-4
11	1	56	1-8
11 1/2	1	64	1-8
12	1-4	72	1-8
13	1	76	1-4
14	1.3	80	1-8
16	1-8	88	1-8
18	1.3	92	1-8
19	1	96	1-8
20	1-4	104	1-8
22	1.3	112	1-8

Figure 13-7 – Thread Dial Table

## 14.0 Adjustments

**⚠ CAUTION** Adjustments to the lathe, especially those involving alignments of bearings, spindle, leadscrew, clutch, etc., should only be performed by qualified personnel, as improper alignments can damage the machine and/or create a safety hazard.

**⚠ WARNING** Turn off main switch and press emergency stop button before making adjustments to lathe.

### 14.1 Saddle Adjustment

1. Loosen four hex nuts (A, Figure 14-1) found on the bottom rear of the cross slide.
2. Turn each of the four set screws (B, Figure 14-1) equally with a hex wrench until a slight resistance is felt. Do not over-tighten.
3. Move the carriage with the hand wheel and determine if the amount of drag is to your preference. Readjust the setscrews as necessary to achieve the desired drag.
4. Hold socket set screw firmly with a hex wrench and tighten hex nut to lock in place.
5. Move the carriage again and adjust if necessary. **Note:** Over-adjustment will cause excessive premature wear of the gibs.

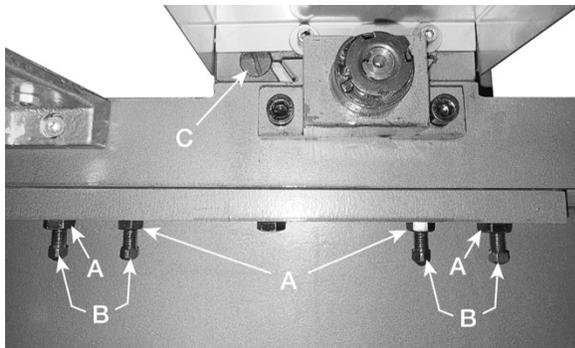


Figure 14-1

### 14.2 Cross Slide Adjustment

If the cross slide is too loose, follow procedure below to tighten:

1. Loosen the rear gib screw (C, Figure 14-1) approximately one turn.
2. Tighten front gib (A, Figure 14-2) screw a quarter turn. Turn the cross slide handwheel to see if the cross slide is still loose. If it is still loose, tighten the front screw a bit more and try again.
3. When cross slide is adjusted correctly, snug rear gib screw. Do not overtighten; this will cause premature wear on the gib and mating parts.

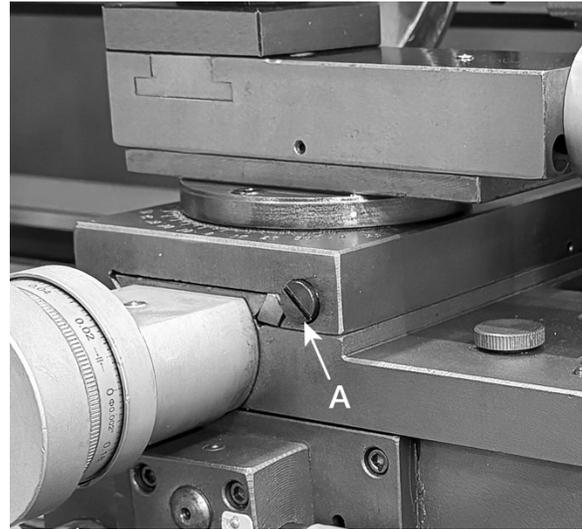


Figure 14-2

### 14.3 Compound Slide Adjustment

To adjust the compound slide, follow the same procedures as for the cross slide, except adjust the compound slide front and rear gib screws.

### 14.4 Tailstock Adjustment

If the handle will not lock the tailstock securely, use the following procedure:

1. Lower handle to the unlocked position.
2. Slide tailstock to an area that will allow you to reach under the tailstock.
3. Tighten tailstock clamping nut 1/4 turn, and re-test for proper locking. Repeat as necessary.

### 14.5 Headstock Alignment

The headstock has been factory-aligned and should not require adjustment. However, if adjustment is deemed necessary, follow the procedure below to align the headstock.

1. Using an engineer's precision level on the bedways, make sure the lathe is level side-to-side and front-to-back. If the lathe is not level, correct to a level condition before proceeding. Re-test alignment if any leveling adjustments were made.
2. From steel bar stock of approximately two inches in diameter, cut a piece approximately eight inches long.
3. Place two inches of bar stock into chuck and tighten chuck (see Figure 14-3). Do not use the tailstock or center to support the other end.
4. Set up and cut along five inches of the bar stock.
5. Using a micrometer, measure the bar stock next to the chuck and at the end. The measurement should be the same.

- If the measurements are not the same and adjustment is required, loosen the four bolts (A, Figure 14-3) that hold the headstock to the bed. Do not loosen completely; some drag should remain. Note: Two bolts are on the chuck side of the headstock, and the other two bolts are behind the large gear behind the end panel door.
- Loosen two hex nuts (B, Figure 14-3) found on the two adjusting bolts located on the backside of headstock. Adjust the bolts (C, Figure 14-3) for alignment and tighten hex nuts. Tighten the headstock bolts and make another cut. Keep adjusting screws after each cut until the bar stock measurements are the same. Tighten all headstock bolts and jam nuts on adjusting screws.

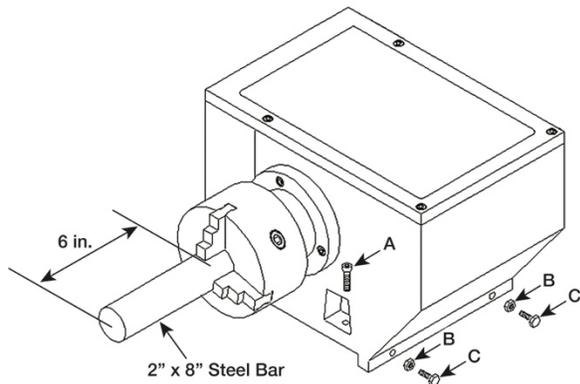


Figure 14-3: Headstock Alignment

### 14.6 Removing Gap Bridge

- Using an open-end wrench, tighten the two hex nuts (A, Figure 14-4). This will cause the taper pins (B, Figure 14-4) to release. Remove the taper pins.
- Remove the four hex socket cap screws (C, Figure 14-4) with a hex key wrench.
- Gap bridge can now be removed.

### 14.7 Installing Gap Bridge

- Clean the bottom and the ends of the gap bridge thoroughly.
- Set gap bridge in place and align.
- Remove nuts (A, Figure 14-4) from the taper pins (B, Figure 14-4).
- Slide taper pins in their respective holes and seat using a mallet. Install nuts on the taper pins finger tight.
- Install four socket head cap screws (C, Figure 14-4) and tighten securely.



Figure 14-4

### 14.8 Chuck Jaw Reversal

To hold stock with larger diameters, the three jaws on the scroll chuck are reversible. See Figure 14-5. Loosen two screws with the provided hex key, remove the jaw, and rotate it 180 degrees. Reinstall the jaw and tighten each screw in increments until fully tightened.

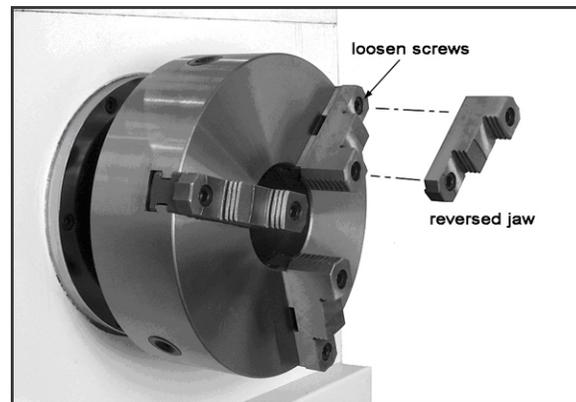


Figure 14-5: Chuck Jaw Reversal

### 14.9 Belt Replacement/Adjustment

- Disconnect machine from power source.
- Open end gear cover, remove lower rear cover and lower side cover. This will expose the motor and v-belts.
- Loosen three motor base plate bolts (A, Figure 14-6). Place scrap piece of wood under motor to act as lever. Lift motor up and block temporarily.
- Remove belt. Install new belt onto pulleys.
- Lift up motor and remove temporary blocking.

- Tension belt by tapping down on or pushing down on motor base plate (B, Figure 14-6) and tightening the three motor base plate bolts. The target tension is 1mm of deflection for every 100mm of belt span.
- Install covers and connect lathe to the power source.

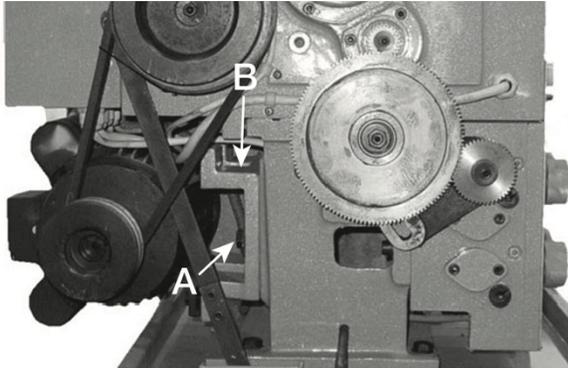


Figure 14-6: Belt Adjustment

### 14.10 Aligning Tailstock to Headstock

- Fit a 12" ground steel bar between centers of the headstock and tailstock (Figure 14-7).
- Fit a dial indicator to the top slide and traverse the bar's centerline.

If adjustment is needed, align the tailstock using the off-set screws (A, Figure 14-8) until the tailstock is aligned.

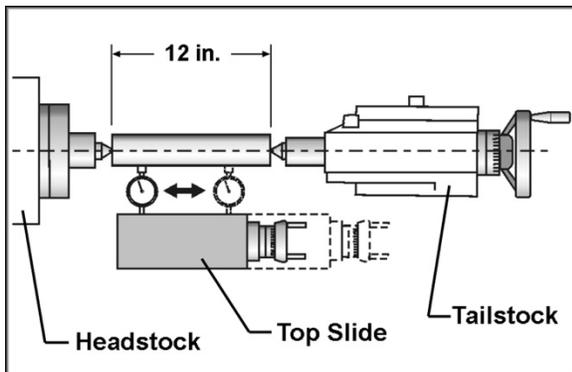


Figure 14-7: Tailstock/Headstock Alignment

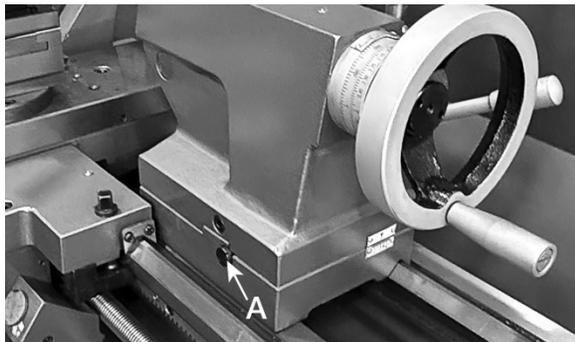


Figure 14-8

### 14.11 Shear Pin Replacement

The lead screw and feed shaft are equipped with shear pins, which are designed to break in order to protect the drive system against overload. A broken shear pin must be replaced.

Knock out the broken pin; line up the holes and insert new pin.

### 14.12 Steady Rest Adjustment

Always lubricate the fingers with grease before using the steady rest. The point at which the fingers contact the workpiece require continuous lubrication to prevent premature wear.

To set the steady rest (see Figure 14-9):

- Loosen hex nut (A) to slide steady rest along the ways.
- Loosen knurled collar handle (B) until it can be pivoted out of the slot.
- Loosen three locking screws (C), and back off the fingers (D) using handles (E).
- Pivot open the collar on its hinge and position the workpiece.
- Slide the follow rest to desired position. Firmly tighten hex nut (A).
- Close the collar and tighten the knurled collar handle (B).
- Set the fingers (D) snugly to workpiece and secure by tightening locking screws (C). Note: Fingers should be snug but not overly tight.

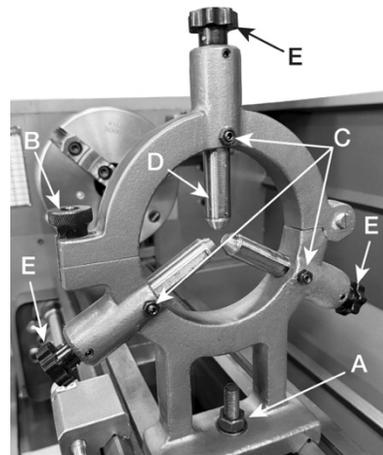


Figure 14-9: Steady Rest Adjustment

### 14.13 Follow Rest Adjustment

The follow rest mounts to the saddle with two socket head cap bolts. The follow rest should be mounted so that locking knobs point away from chuck.

The sliding fingers are set similar to those on the steady rest – free of play but not binding.

Always lubricate the fingers sufficiently with grease before operating.

## 15.0 Lubrication Schedule and General Maintenance

Regularly scheduled maintenance is crucial to ensure a long service life for your machine. The schedule below shows general cleaning, lubrication points and coolant replacement information for this machine. **Turn off main switch and press emergency stop button before lubricating.** Follow local regulations for disposal of used coolant/lubricants. Minimize direct skin contact with lubricants and coolants and wear eye protection when pouring coolant in case of splash.

Mobile DTE® Oil Heavy Medium is recommended for the SAE-20W machine oil.

If the brand of oil is ever changed, it is recommended that you flush and clean the reservoir first to prevent any compatibility issues.

Table 1

Section	Element	Action	Lubricant	Frequency
7.3	Chuck	Grease jaws and scroll	#2 lithium tube grease	periodically
7.3	Spindle/cam locks/ chuck body	light coat of oil	SAE-20W machine oil	periodically
	All exposed metal surfaces	light coat of oil	SAE-20W machine oil	frequently
8.0	Headstock	Drain and fill	SAE-20W machine oil	- after 30 days, - every 2 months
8.0	Gearbox	Drain and fill	SAE-20W machine oil	- after first 3 months, - every 6 months
8.0	Apron and Saddle	Drain and fill	SAE-20W machine oil	- after first 3 months, - then annually
8.0	Leadscrew; Feed Rod; Spindle Direction Control Axle	Fill at ball oilers	SAE-20W machine oil	daily (1 or 2 times per shift)
	Travel Setting Rod	Fill at (1) ball oiler	SAE-20W machine oil	as needed
8.0	Cross slide	Fill at (2) ball oilers	SAE-20W machine oil	daily
8.0	Compound rest	Fill at (2) ball oilers	SAE-20W machine oil	daily
8.0	Tailstock	Fill at (1) ball oiler	SAE-20W machine oil	daily
9.0	Coolant reservoir	(follow coolant manufacturer's directions)	Coolant of choice, approx. 4 gallons	(follow coolant manufacturer's directions)
11.9	Steady Rest	Lubricate finger shafts and contact points	Lead-based grease	before each use
11.10	Follow Rest	Lubricate finger shafts and contact points	Lead-based grease	before each use
14.9	V-belts	Inspect and tighten if needed		periodically

# 16.0 Thread and Feed Chart

 					 				
0.0032	△	△	3	A	0.0076	△	△	3	A
0.0038	△	△	3	E	0.0089	△	△	3	E
0.0045	△	△	3	B	0.0107	△	△	3	B
0.0050	△	△	3	C	0.0119	△	△	3	C
0.0056	△	△	3	D	0.0133	△	△	3	D
0.0064	○	△	3	A	0.0153	○	△	3	A
0.0075	○	△	3	E	0.0178	○	△	3	E
0.0090	○	△	3	B	0.0214	○	△	3	B
0.0100	○	△	3	C	0.0237	○	△	3	C
0.0113	○	△	3	D	0.0267	○	△	3	D
0.0128	△	□	3	A	0.0305	△	□	3	A
0.0150	△	□	3	E	0.0356	△	□	3	E
0.0180	△	□	3	B	0.0427	△	□	3	B
0.0200	△	□	3	C	0.0475	△	□	3	C
0.0225	△	□	3	D	0.0534	△	□	3	D
0.0257	○	□	3	A	0.0611	○	□	3	A
0.0300	○	□	3	E	0.0712	○	□	3	E
0.0360	○	□	3	B	0.0855	○	□	3	B
0.0400	○	□	3	C	0.0950	○	□	3	C
0.0450	○	□	3	D	0.1068	○	□	3	D

 					 				
0.0009	△	△	3	A	0.0021	△	△	3	A
0.0011	△	△	3	E	0.0026	△	△	3	E
0.0013	△	△	3	B	0.0030	△	△	3	B
0.0015	△	△	3	C	0.0035	△	△	3	C
0.0017	△	△	3	D	0.0040	△	△	3	D
0.0019	○	△	3	A	0.0042	○	△	3	A
0.0023	○	△	3	E	0.0051	○	△	3	E
0.0025	○	△	3	B	0.0060	○	△	3	B
0.0029	○	△	3	C	0.0070	○	△	3	C
0.0033	○	△	3	D	0.0080	○	△	3	D
0.0038	△	□	3	A	0.0085	△	□	3	A
0.0045	△	□	3	E	0.0102	△	□	3	E
0.0050	△	□	3	B	0.0120	△	□	3	B
0.0058	△	□	3	C	0.0140	△	□	3	C
0.0066	△	□	3	D	0.0160	△	□	3	D
0.0075	○	□	3	A	0.0170	○	□	3	A
0.0090	○	□	3	E	0.0205	○	□	3	E
0.0100	○	□	3	B	0.0240	○	□	3	B
0.0116	○	□	3	C	0.0280	○	□	3	C
0.0132	○	□	3	D	0.0320	○	□	3	D

mm					T.P.I.					
 					 					
0.4	△	△	5	B	40	4	○	□	6	E
0.45	△	△	4	B	40	4½	○	□	5	C
0.5	△	△	2	B	40	5	○	□	5	B
0.6	△	△	6	B	44	5½	○	□	5	B
0.7	△	△	1	B	46	5¾	○	□	5	B
0.75	△	△	6	D	40	6	○	□	5	E
0.8	○	△	5	B	52	6½	○	□	5	B
0.9	○	△	4	B	40	7	○	□	5	A
1.0	○	△	2	B	40	8	△	□	6	E
1.2	○	△	6	B	40	9	△	□	5	C
1.25	○	△	2	D	40	10	△	□	5	B
1.4	○	△	1	B	44	11	△	□	5	B
1.5	○	△	6	D	46	11½	△	□	5	B
1.6	△	□	5	B	40	12	△	□	5	E
1.75	○	△	1	D	52	13	△	□	5	B
1.8	△	□	4	B	40	14	△	□	5	A
2.0	△	□	2	B	40	16	○	△	6	E
2.25	△	□	4	D	40	18	○	△	5	C
2.4	△	□	6	B	40	20	○	△	5	B
2.5	△	□	2	D	44	22	○	△	5	B
2.8	△	□	1	B	46	23	○	△	5	B
3.0	△	□	6	D	40	24	○	△	5	E
3.2	○	□	5	B	52	26	○	△	5	B
3.5	△	□	1	D	40	28	○	△	5	A
3.6	○	□	4	B	40	32	△	△	6	E
4.0	○	□	2	B	40	36	△	△	5	C
4.5	○	□	4	D	40	40	△	△	5	B
4.8	○	□	6	B	44	44	△	△	5	B
5.0	○	□	2	D	46	46	△	△	5	B
5.6	○	□	1	B	40	48	△	△	5	E
6.0	○	□	6	D	52	52	△	△	5	B
7.0	○	□	1	D	40	56	△	△	5	A

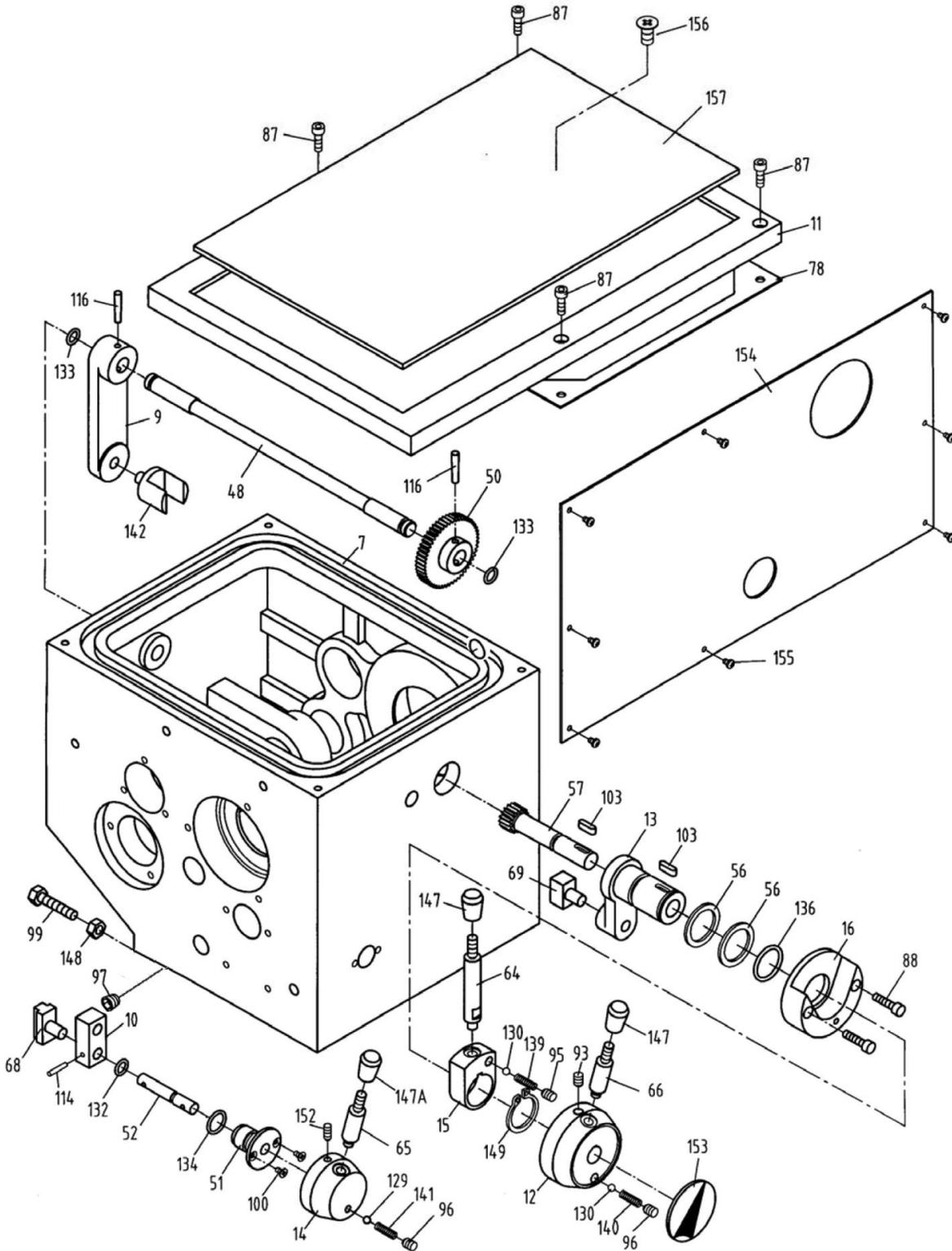
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0.3	△	◇	6	B	
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0.4	○	◇	5	B	
0.45	○	◇	4	B	
0.5	○	◇	2	B	
0.6	○	◇	6	B	
0.7	○	◇	1	B	
0.75	○	◇	6	D	
0.8	△	□	5	B	
0.9	△	□	4	B	
1.0	△	□	2	B	
1.2	△	□	6	B	
1.25	△	□	2	D	
1.4	△	□	1	B	
1.5	△	□	6	D	
1.6	○	□	5	B	
1.75	△	□	1	D	
1.8	○	□	4	B	
2.0	○	□	2	B	
2.25	○	□	4	D	
2.4	○	□	6	B	
2.5	○	□	2	D	
2.8	○	□	1	B	
3.0	○	□	6	D	
3.5	○	□	1	D	

63 120		D.P.							
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		E	C	B	B	B	E	B	A
Z4		40	40	40	44	48	44	56	43
○	□	8	9	10	11	12	13	14	15
△	□	16	18	20	22	24	26	28	30
○	◇	32	36	40	44	48	52	56	60
△	◇	64	72	80	88	96	104	112	120

# 17.0 Replacement Parts

To order parts or reach our service department, call 1-920-684-4990 Monday through Friday. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

## 17.1.1 Headstock Assembly I – Exploded View

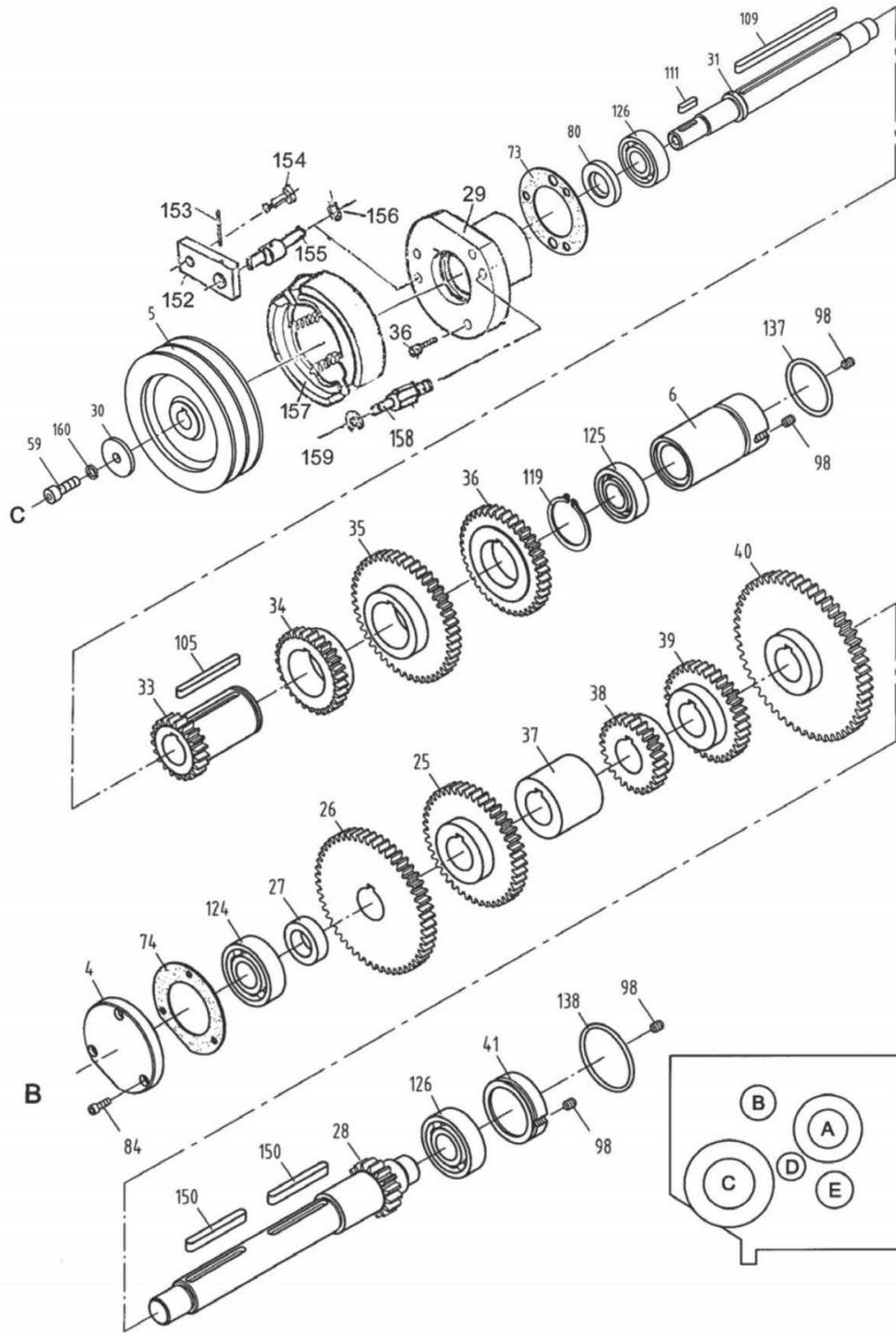


## 17.1.2 Headstock Assembly I – Parts List

Index	Part No.	Description	Size	Qty
7	**	Gear Box		1
9	**	Shift Lever		1
10	**	Shaft Housing		1
11	**	Cover		1
12	**	Handle Hub		1
13	**	Shaft Collar		1
14	**	Handle Hub		1
15	**	Handle Block		1
16	**	Hub		1
48	**	Shaft		1
50	**	Gear	1.25m51T	1
51	**	Collar		1
52	**	Shaft		1
56	**	Washer		2
57	**	Gear Shaft	1.25m17T	1
64	**	Handle		1
65	**	Handle		1
66	**	Handle		1
68	**	Shift Fork		1
69	**	Shift Fork		1
78	**	Gasket		1
87	**	Hex Socket Cap Screw	M6 x 20	4
88	**	Hex Socket Cap Screw	M6 x 25	2
93	**	Set Screw	M6 x 18	1
95	**	Set Screw	M8 x 8	1
96	**	Set Screw	M6 x 12	2
97	**	Plug	Z1/4	1
97A	**	Oil Drai Plug		1
99	**	Hex Cap Screw	M8 x 40	2
100	**	Screw	M4 x 8	4
103	**	Key	5 x 15	2
114	**	Pin	4 x 18	1
116	**	Pin	5 x 30	2
129	**	Steel Ball	5	1
130	**	Steel Ball	6	2
132	**	O-Ring	10 x 1.9	1
133	**	O-Ring	14 x 2.4	2
134	**	O-Ring	20 x 2.4	2
136	**	O-Ring	30 x 3.1	1
139	**	Spring	1 x 6 x 7	1
140	**	Spring	1 x 6 x 20	1
141	**	Spring	0.9 x 4.4 x 20	1
142	**	Shift Fork		1
147	**	Knob	M8 x 40	2
147A	**	Knob		1
148	**	Nut	M8	2
149	**	C-Clip	30	1
152	**	Set Screw	M6 x 12	1
153	**	Round Sign Plate		1
154	**	Label		1
155	**	Screw	M3 x 5	8
156	**	Screw	M10 x 18	1
157	**	Rubber Mat		1
	**	Oil Sight Glass (not show)		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

### 17.1.3 Headstock Assembly II – Exploded View

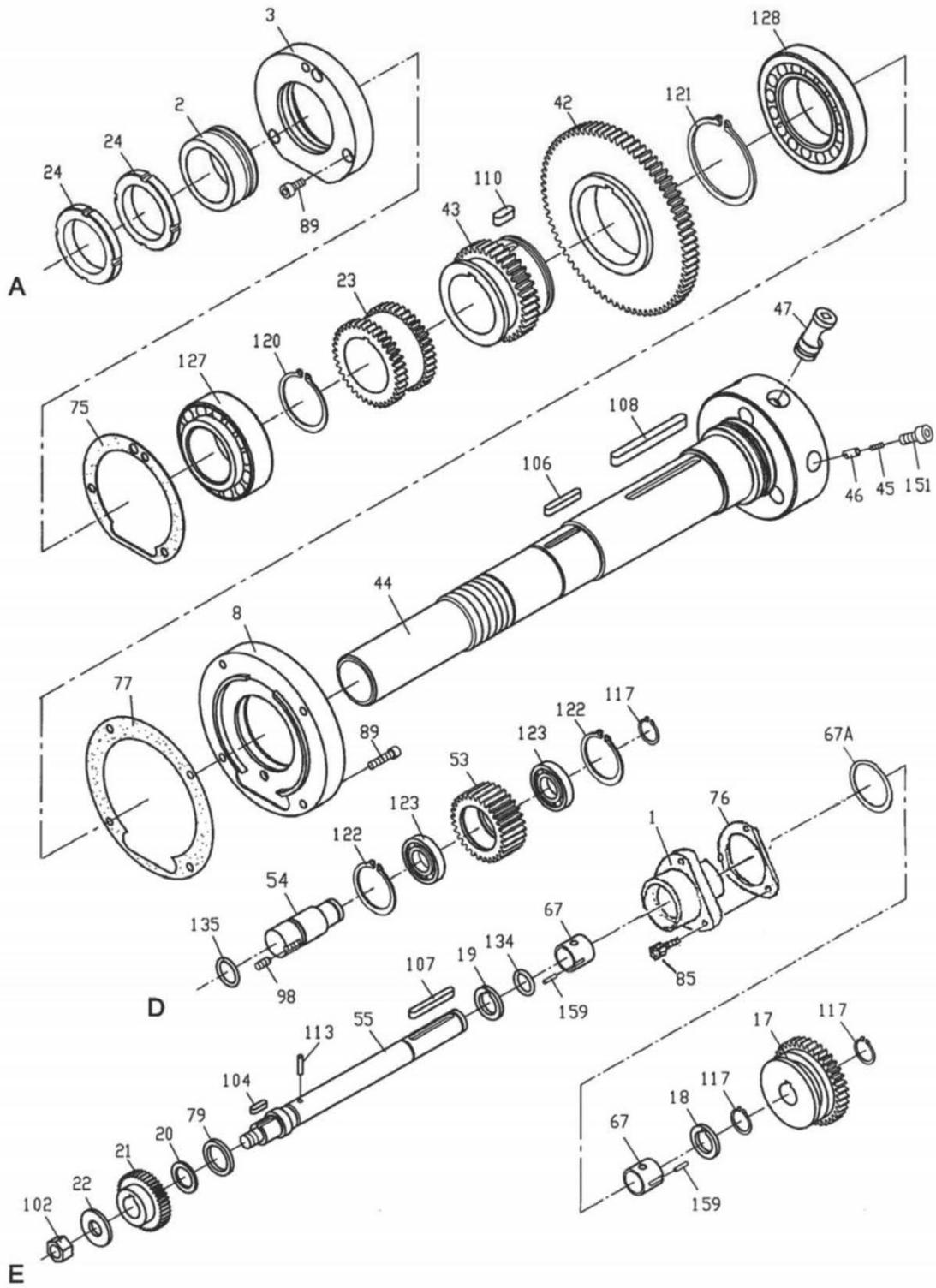


### 17.1.4 Headstock Assembly II – Parts List

Index	Part No.	Description	Size	Qty
4	**	Rear CoverBox		1
5	**	Pulley		1
6	**	Plug		1
25	**	Gear	2m43T	1
26	**	Gear	2m51T	1
27	**	Spacer		1
28	**	Gear Shaft	2.25m16T	1
29	**	Cover		1
30	**	Washer		1
31	**	Shaft		1
32	**	Washer		1
33	**	Collarw/Gear	2m21T	1
34	**	Gear	2m29T	1
35	**	Gear	2m46T	1
36	**	Gear	2m38T	1
37	**	Collar		1
38	**	Gear	2m26T	1
39	**	Gear	2m34T	1
40	**	Gear	2.25m53T	1
41	**	Plug		1
59	**	Socket Head Cap Screw	M8x20	1
73	**	Gasket		1
74	**	Gasket		1
80	**	Oil Seal	20x40	1
84	**	Hex Sockte Cap Screw	M4x12	3
86	**	Hex Sockte Cap Screw	M6x12	3
98	**	Set Screw	M6x8	4
105	**	Key	5x50	1
109	**	Key	6x120	1
111	**	Key	5x20	1
119	**	C-Cli	35	1
124	**	Bearling	20x47x14	1
125	**	Bearling	17x40x12	1
126	**	Bearling	20x47x14	2
137	**	O-Ring	40X3.1	1
138	**	O-Ring	47X3.1	1
150	**	Key	6x55	2
152	**	Connecting Board		1
153	**	Pin	5x25	1
154	**	Shaft		1
155	**	Break Shaft		1
156	**	Circlip	12	1
157	JT1-3014	Spindle Brake		1
158	**	Positioning Axla		1
159	**	Circlip	8	1
160	**	Washer		1
	JT1-3015	V-belt (not shown)	A838	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

### 17.1.5 Headstock Assembly III – Exploded View

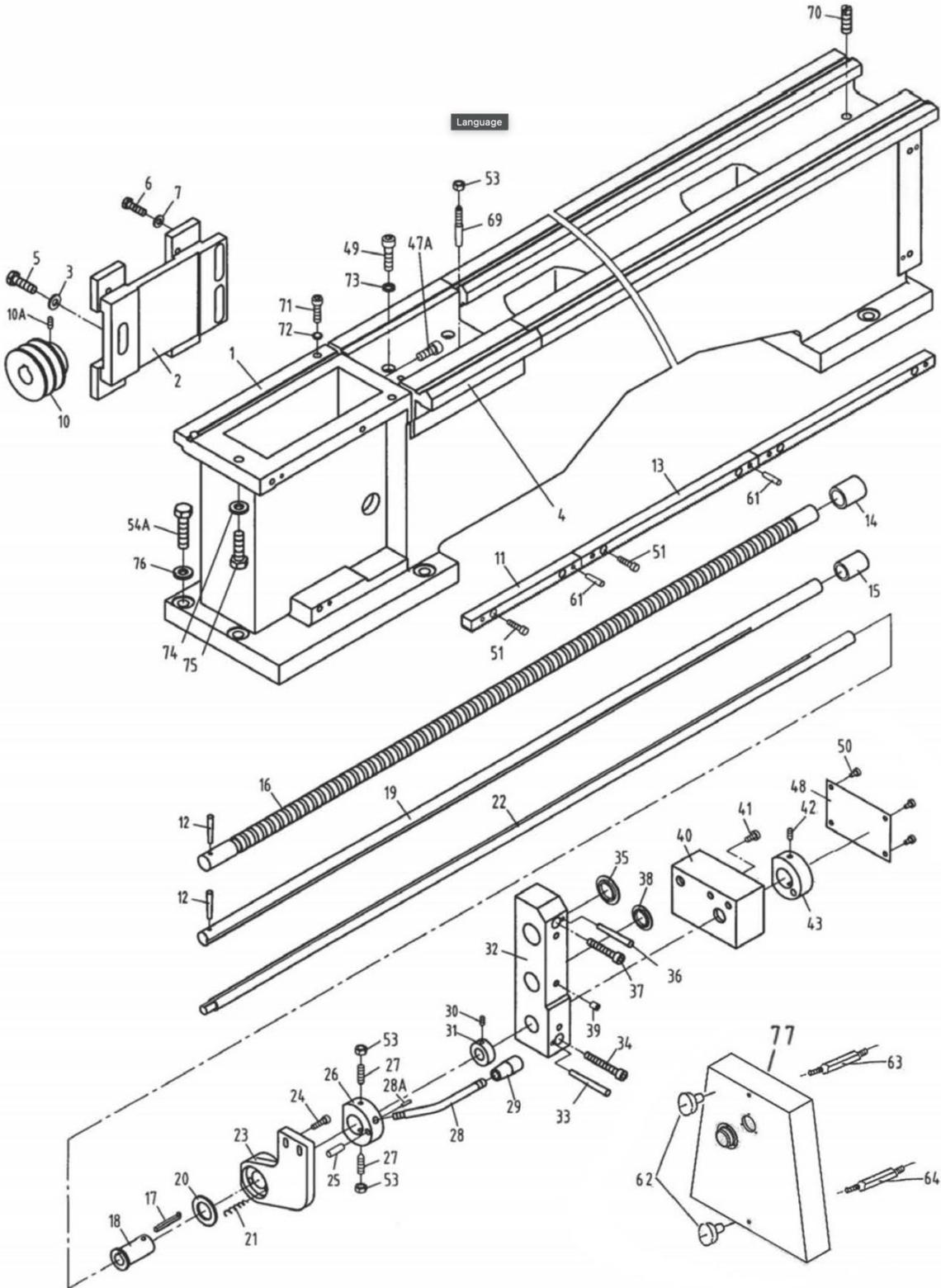


### 17.1.6 Headstock Assembly III – Parts List

Index	Part No.	Description	Size	Qty
1	**	Collar		1
2	**	Collar		1
3	**	Rear Cover		1
8	**	Front Cover		1
17	**	Gear	2m37T	1
18	**	Spacer		1
19	**	Washer		1
20	**	Washer		1
21	**	Gear	1.25m32T	1
22	**	Washer	12	1
23	**	Gear	2m37T	1
24	**	Lock Nut		2
42	**	Gear	2.25m74T	1
43	**	Gear	2.25m37T	1
44	**	Spindle		1
45	**	Spring	0.6 x 4 x 16	3
46	**	Pin		3
47	**	Cam		3
53	**	Gear	2m30T	1
54	**	Shaft		1
55	**	Shaft		1
67	**	Collar		2
67A	**	O-ring	32 x 3.1	1
75	**	Gasket		1
76	**	Gasket		1
77	**	Gasket		1
79	**	Oil Seal		1
85	**	Hex Socket Cap Screw	M5 x 16	4
89	**	Hex Socket Cap Screw	M6 x 25	7
98	**	Set Screw	M6 x 8	1
102	**	Hex Nut	M12	1
104	**	Key	5 x 18	1
106	**	Key	6 x 40	1
107	**	Key	6 x 50	1
108	**	Key	8 x 85	1
110	**	Key	8 x 18	1
113	**	Pin	3 x 10	1
117	**	C-Clip	20	2
120	**	C-Clip	50	1
121	**	C-Clip	72	1
122	**	C-Clip	42	2
123	**	Bearing	20 x 42 x 8	2
127	**	Bearing	50 x 90 x 20	1
128	**	Bearing	60 x 110 x 22	1
134	**	O-Ring	20 x 2.4	1
135	**	O-Ring	25 x 2.4	1
151	**	Hex Socket Cap Screw	M8 x 18	3
159	**	Pin	2 x 16	2

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.2.1 Bed Assembly I – Exploded View



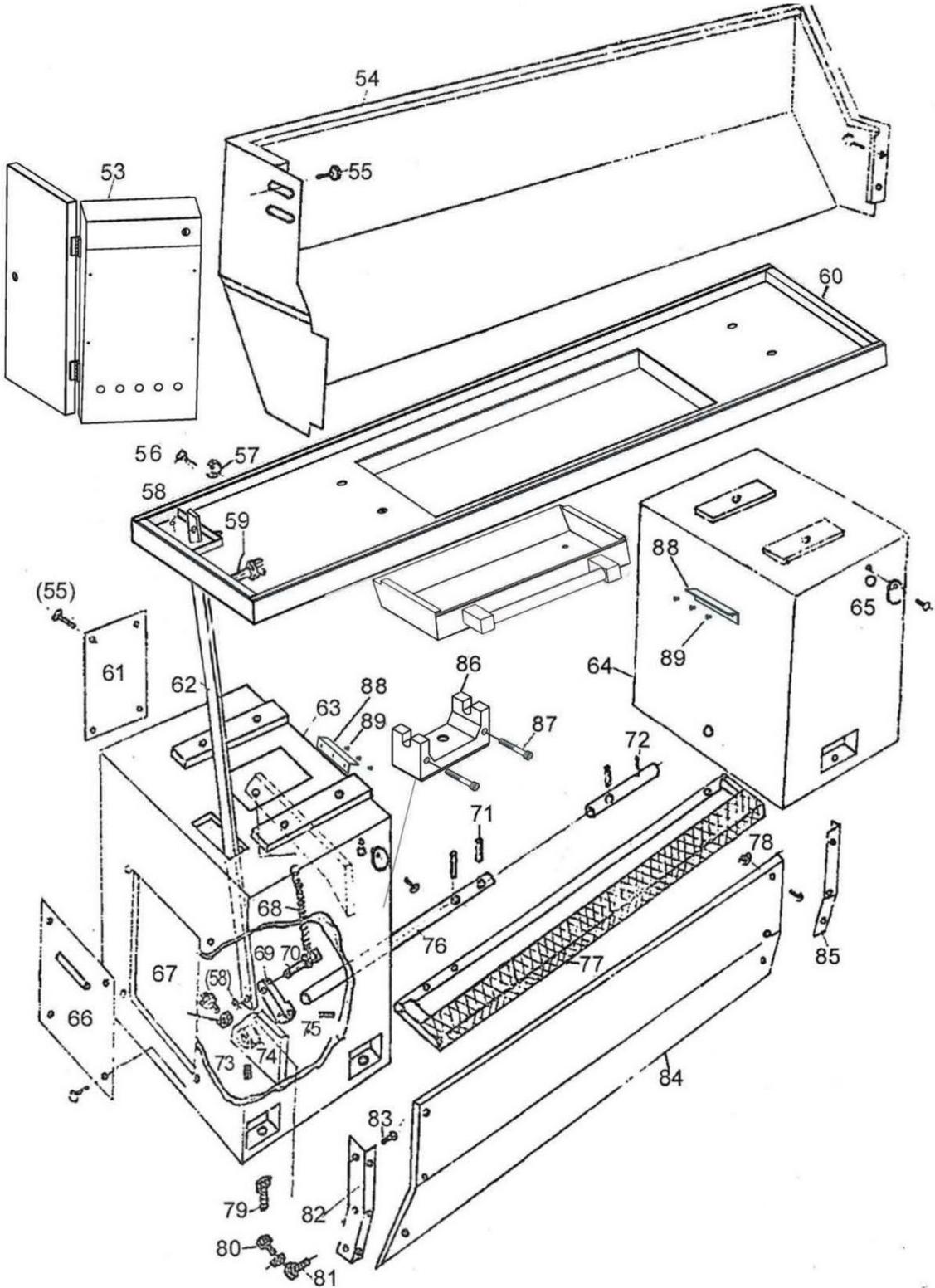
## 17.2.2 Bed Assembly I – Parts List

Index	Part No.	Description	Size	Qty
1	**	BedRear		1
2	**	Motor Base		1
3	**	Washer	M10	3
4	**	Gap		1
5	**	Hex Cap Bolt	M10X35	3
6	**	Hex Cap Bolt	M8X25	4
7	**	Washer		4
9	**	Screw	M5X8	3
10	**	Pulley		1
10A	**	Set Screw	M6X12	1
11	JT1-3034	Rack		1
13	JT1-3035	Rack		2
12	**	Pin	5x35	2
14	**	Collar		1
15	**	Collar		1
16	**	Lead Screw	GHB-1340A	1
	**	Lead Screw	BDB-1340A	1
17	**	key		1
18	**	Collar		1
19	**	Feed Rod	GHB-1340A	1
	**	Feed Rod	BDB-1340A	1
20	**	Brake Ring		1
21	**	Spring	1x7.5x25	1
22	**	Shaft	GHB-1340A	1
	**	Shaft	BDB-1340A	1
23	**	Bracket		1
24	**	Hex Socket Cap Screw	M6x22	4
25	**	Pin	M4x12	1
26	**	Handle Hub		1
27	**	Screw	M8x28	2
28	**	Handle		1
28A	**	Pin	3x10	1
29	**	Knob	BM10x50	1
30	**	Set Screw	M5x8	1
31	**	Collar		1
32	**	Bracket		1
33	**	Pin	6x70	1
34	**	Hex Socket Cap Screw	M8x65	1
35	**	O-Ring	47X3.1	1
36	**	Key	6x55	2
37	**	Hex Socket Cap Screw	M8x60	2
38	**	Plug		1
39	**	Oil Ball	8	3
40	**	Swich Box		1
41	**	Hex Socket Cap Screw	M8x20	4
42	**	Screw	M6x16	1
43	**	Bushing		1
47A	**	Set Screw	M10x12	148
	**	Switch Box Cover		1
49	**	Hex Socket Cap Screw	M10X35	4
50	**	Socket Head Cap Screw	M5X10	4
51	**	Hex Socket Cap Screw	M6x25	8
53	**	Hex Socket Cap Screw	M8	4
54A	**	Hex Cap Bolt	M12X60	6

Index	Part No.	Description	Size	Qty
61	**	Pin	6x30	6
62	**	Lock Nut		2
63	**	Screw		1
64	**	Shaft		1
69	**	Pin	8x60	2
70	**	Set Screw	M12X40	1
71	**	Hex Socket Cap Screw	M8X35(BDB)	2
	**	Hex Socket Cap Screw	M8X40(GHB)	2
72	**	Lock Washer	M8	4
73	**	Lock Washer	M10	4
74	**	Washer	M8(BDB)	2
	**	Washer	M8(GHB)	4
75	**	Hex Socket Cap Screw	M8x45	2
76	**	Washer	12	6
77	**	Cover		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.2.3 Bed Assembly II – Exploded View



## 17.2.4 Bed Assembly II – Parts List

Index	Part No.	Description	Size	Qty
53	**	Electrical box		1
56	**	Screw	M6×20	4
57	**	Washer	Ø6	4
58	**	Pin	2×12	1
59	**	Pin		1
60	**	Oil plate		1
62	**	Brake Pull Rod		1
63	**	Left Mounting Feet		1
64	**	Right Mounting Feet		1
65	**	Round Cover		2
66	**	Cover Plate		1
67	**	Cap-Shape Screw		1
68	**	Draw Spring		1
69	**	Pedal Arm		1
70	**	Pin		1
71	**	Pin	3×25	3
72	**	Shaft		1
73	**	Screw	M8x6	1
74	**	Nut		1
75	**	Pin	3×25	1
76	**	Pedal Shaft	1	1
77	**	Brake (750) pedal	750mm	1
78	**	Screw	M5x10	6
80	**	Screw	M12x50	1
81	**	Screw	M10x60	1
82	**	Base support plate		5
83	**	Socket Set Screw	M6x10	6
84	**	Front plate		1
85	**	Base plate		1
86	**	Chuck key support		1
87	**	Socket head cap srew	M8x56	2
88	**	Support		2
89	**	Allen screw	M6x10	6

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

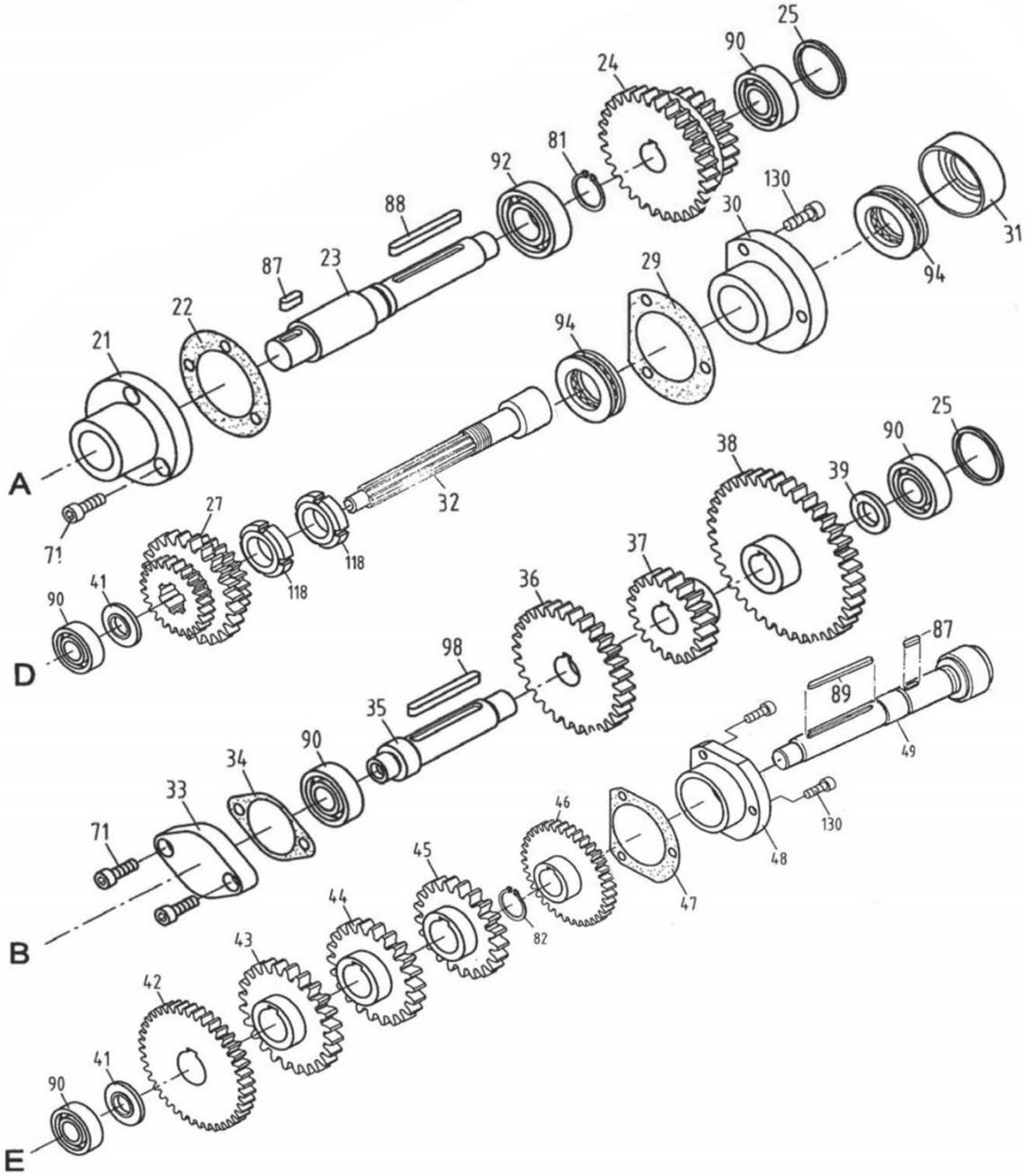


### 17.3.2 Gear Box Assembly I – Parts List

Index	Part No.	Description	Size	Qty
1	**	Castin		1
2	**	Right cover		1
3	**	Left cove		1
4	**	Slipper		1
5	**	Lever		1
6	**	Lever		1
7	**	Slipper		1
8	**	Shaft		1
10	**	Handle Base		2
11	**	Lever		1
12	**	Handle Base		1
13	**	Cover		1
14	JT1-3036	Gasket		1
15	**	Slipper		1
17	**	Lever		1
18	**	Plate		2
19	**	Handle		1
20	**	Slipper		1
67	**	Screw	M4x6	4
68	**	Tapered Tap	ZG3/8"	2
69	**	Socket Head Cap Screw	M8x65	3
70	**	Socket Head Cap Screw	M6x25	8
72	**	Pin	5x30	4
73	**	Pin	5x40	2
75	**	Knob	MB10x50	2
77	**	Spring	0.8x5x25	5
78	**	Socket Set Screw	M8x10	5
79	**	Steel Ball	6.5	5
80	**	C-clip	40	2
83	**	O-Ring	40x3.1	2
84	**	O-Ring	30x3.1	2
85	**	Screw	M3x6	6
86	**	Key	5x8	1
87	**	Oil Sight Glass	12	1
107	**	Tapered Tap	Z1/4"	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.3.3 Gear Box Assembly II – Exploded View

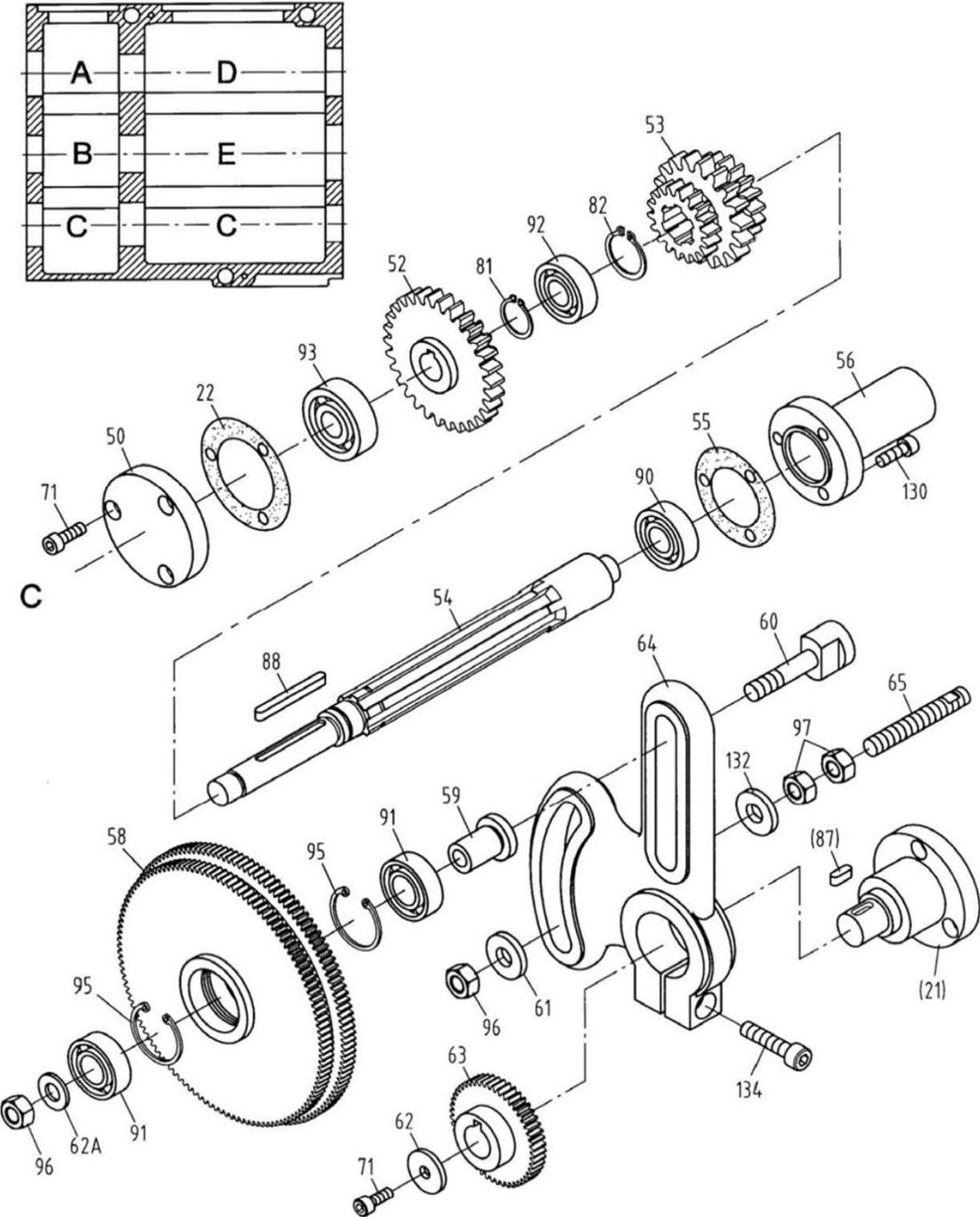


### 17.3.4 Gear Box Assembly II – Parts List

Index	Part No.	Description	Size	Qty
21	**	Cover		1
22	**	Gasket		1
23	**	Shaft		1
24	**	Gear	2.5m30T,20T	1
25	**	Washer		2
27	**	Gear	2.25m,3.25m,2.5m24T	
29	**	Gasket		
30	**	Bushing		1
31	**	Washer		1
32	**	Shaft		1
33	**	End cover		1
34	**	Gasket		1
35	**	Shaft		1
36	**	Gear	2.5m30T	1
37	**	Gear	2.5m20T	1
38	**	Gear	2.5m40T	1
39	**	Washer		2
41	**	Washer		2
42	**	Gear	2.25m40T	1
43	**	Gear	3.25m24	1
44	**	Gear	3.25m22T	1
45	**	Gear	3.25m21	1
46	**	Cear	2.5m36	1
47	**	Gaske		1
48	**	Flange		1
49	**	Shaft		1
71	**	Socket Head CapScrew	M6×16	5
81	**	C-clip	20	1
82	**	C-clip	25	1
87	**	Key	5×14	1
88	**	Key	5×50	1
89	**	Key	8×110	1
90	**	Bearing	6202	5
92	**	Bearing	6004	1
94	**	Thrust Bearing	51105	2
98	**	Key	5×5	1
118	**	Round Nut	M24x1.5	2
130	**	Socket Head CapScrew	M6×12	6

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.3.5 Gear Box Assembly III – Exploded View

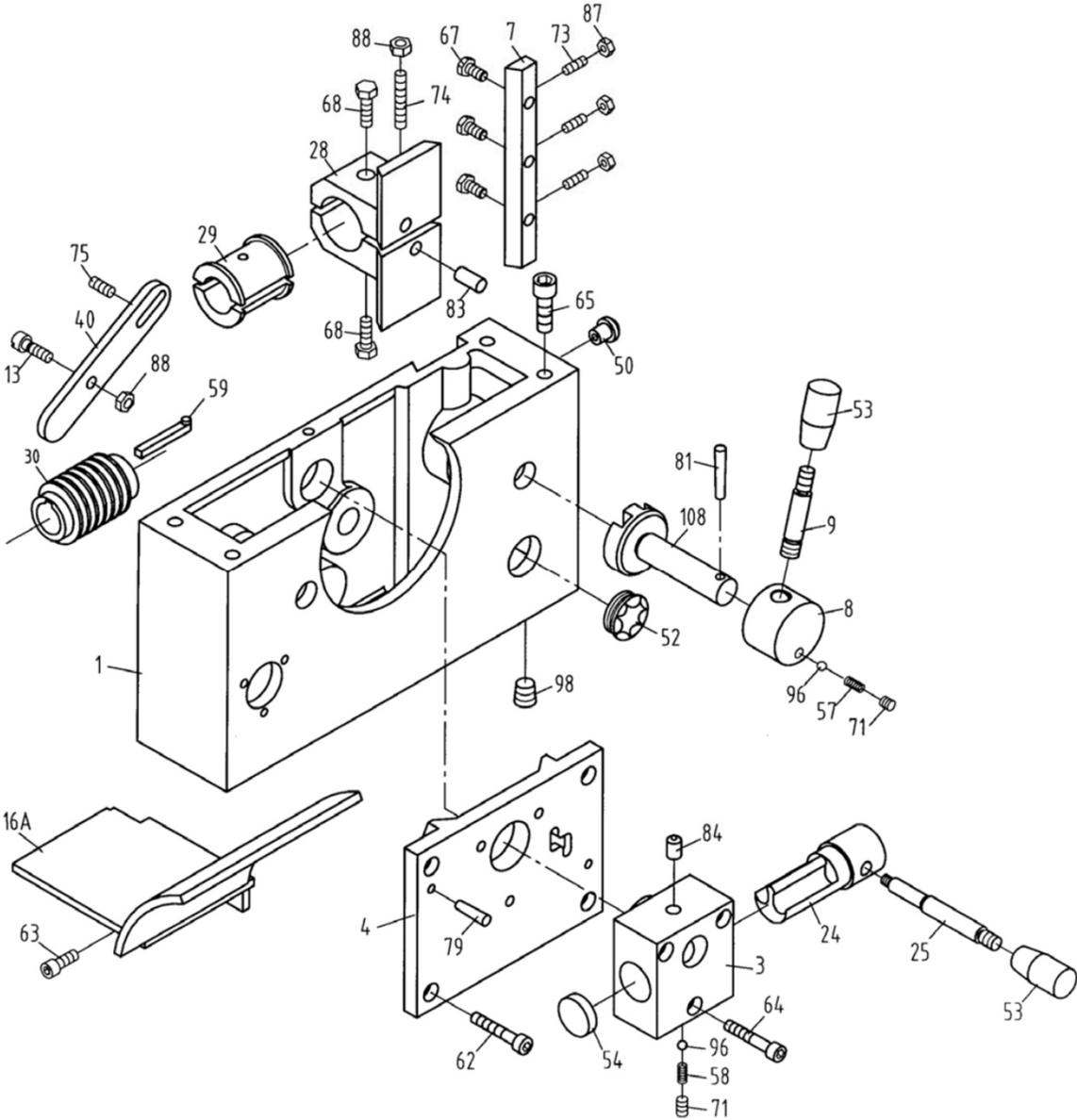


### 17.3.6 Gear Box Assembly III – Parts List

Index	Part No.	Description	Size	Qty
21	**	Cover		1
22	**	Gasket		1
50	**	End Cover		1
52	**	Gear	.5m30T, 15T	1
53	**	Gear	2.25m, 3.25m, 2.5m18T	1
54	**	Key shaft		1
55	**	Gasket		1
56	**	Cover		1
58	**	Gear	1.25m120T, 127T	1
59	**	Collar		1
60	**	Screw		1
61	**	Washer		1
62	**	Washer		2
62A	**	Washer		1
63	**	Gear	1.25m48T	5
64	**	Gear Frame		1
65	**	Screw rod		1
71	**	Socket Head Cap Screw	M6 x 16	4
81	**	C-clip	20	1
82	**	C-clip	25	1
87	**	Key	5 x 14	1
88	**	Key	5 x 50	1
90	**	Bearing	6202	1
91	**	Bearing	6103	2
92	**	Bearing	6004	1
93	**	Thrust Bearing	6302	1
95	**	C-clip	35	2
96	**	Hex Nut	M10	1
97	**	Hex Nut	M12	3
130	**	Socket Head Cap Screw	M6 x 12	3
132	**	Washer		1
134	**	Hex Socket Cap Screw	M8 x 30	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

### 17.4.1 Apron Assembly I – Exploded View



## 17.4.2 Apron Assembly I – Parts List

Index	Part No.	Description	Size	Qty
1	**	Casting		1
3	**	Housing		1
4	**	Cover		1
7	**	Gib		1
8	**	Handle Hub		1
9	**	Handle		1
13	**	Gear Pin		1
16A	**	Bracket		1
24	**	Shift Lever		1
25	**	Shift Handle		1
28	**	Bracket		1
29	JT1-3016	Half Nut		1
30	JT1-3017	Worm	2m1T	1
40	**	Bar		1
50	**	Oil Filler Plug		1
52	**	Oil Sight		1
53	**	Knob		1
57	**	Spring		1
58	**	Spring		1
59	JT1-3018	Key		1
62	**	Hex Socket Cap Screw	M6 x 12	4
63	**	Hex Socket Cap Screw	M6 x 16	1
64	**	Hex Socket Cap Screw	M6 x 25	2
65	**	Hex Socket Cap Screw	M8 x 30	4
67	**	Screw	M5 x 16	3
68	**	Set Screw	M6 x 12	2
71	**	Set Screw	M6 x 6	3
73	**	Set Screw	M5 x 16	3
74	**	Set Screw	M6 x 35	1
75	**	Set Screw	M6 x 10	1
79	**	Pin	5 x 20	2
81	**	Pin	5 x 32	1
83	**	Pin	8n6 x 12	2
84	**	Oiler	8	2
87	**	Hex Nut	M5	3
88	**	Hex Nut	M6	2
96	**	Steel Ball	5	2
98	**	Plug	Z1/4"	1
108	**	Half Nut Controlling Shaft		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

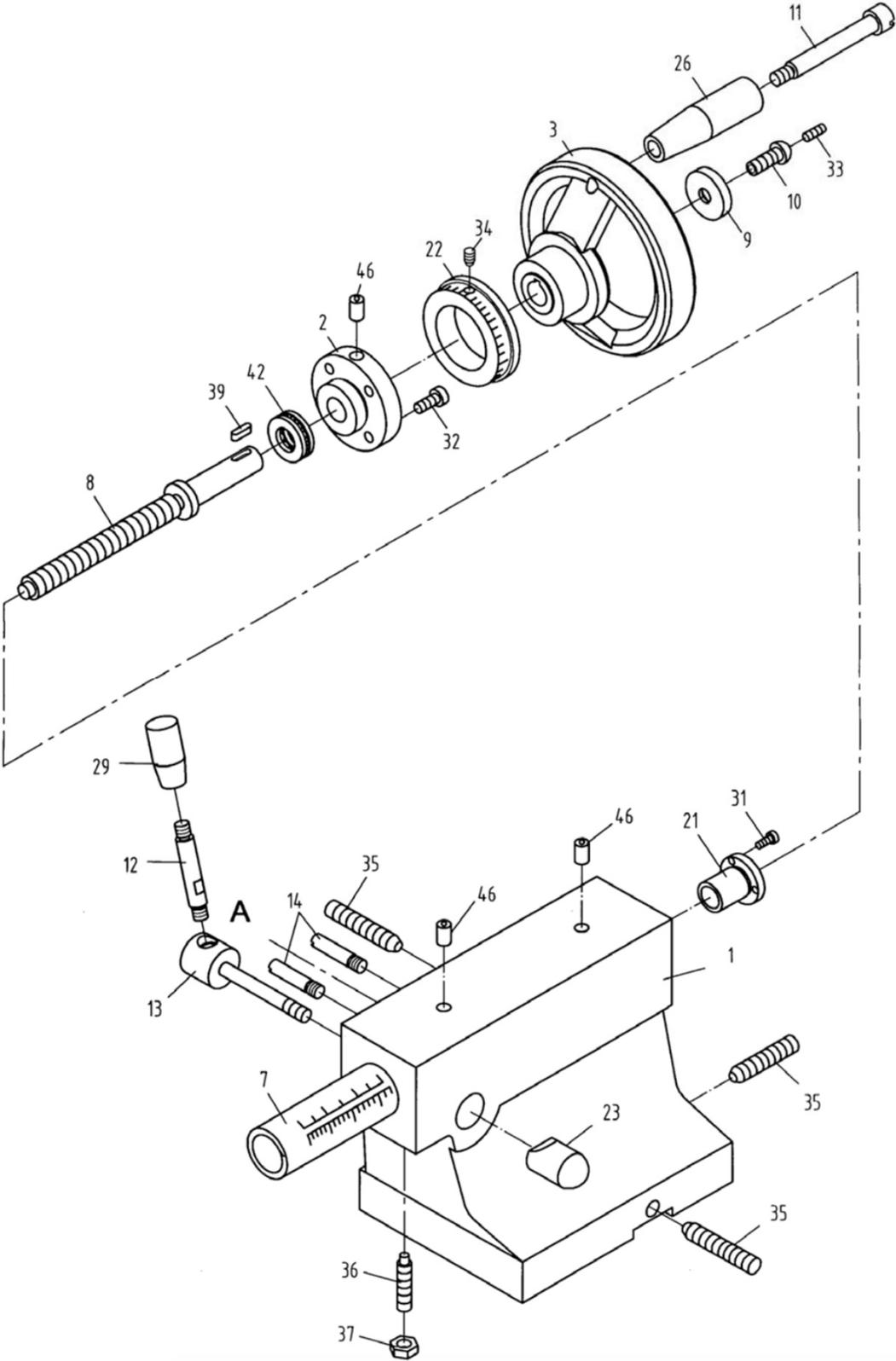


## 17.4.4 Apron Assembly II – Parts List

Index	Part No.	Description	Size	Qty
2	**	Handwhel		2
5A	**	Hub		1
10	**	Index Ring		1
11	**	Cover		1
12	**	Shaft	1.5m14T	1
14	JT1-3020	Gear Shaft	1.5m13T	1
15	**	Gear	1.5m60T	1
16	**	Shaft		1
17	**	Collar		1
18	**	Gear	1.5m30T	1
19	**	Gear	1.5m40T	1
22	**	Gear		1
26	**	Gear	1.5m40T	1
31	JT1-3019	Gear	2m22T	1
32	**	Shaft		1
33	**	Gear	1.5m18	1
34	**	Shaft		1
41	**	Screw		1
42	**	Washer		1
43	**	Washer		1
44	**	Washer		1
56	**	Handle		1
60	**	Hex Socket CapScrew	M5×12	2
61	**	SetScrew	M6×6	1
64	**	Hex Socket CapScrew	M6×25	3
69	**	Screw	M6×10	2
72	**	Set Screw	M6×10	1
77	**	Screw	M6×12	1
78	**	Pin	3×25	1
80	**	Pin	5×30	2
82	**	Pin	5×25	3
84	**	Oiler	8	1
92	**	O-Ring	20×2.4	1
95	**	Key	A5×18	1
105	**	Collar		1
106	**	Washer		1
107	**	Shaft Plug		1
109	**	Key	5×1	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.5.1 Tailstock Assembly I – Exploded View

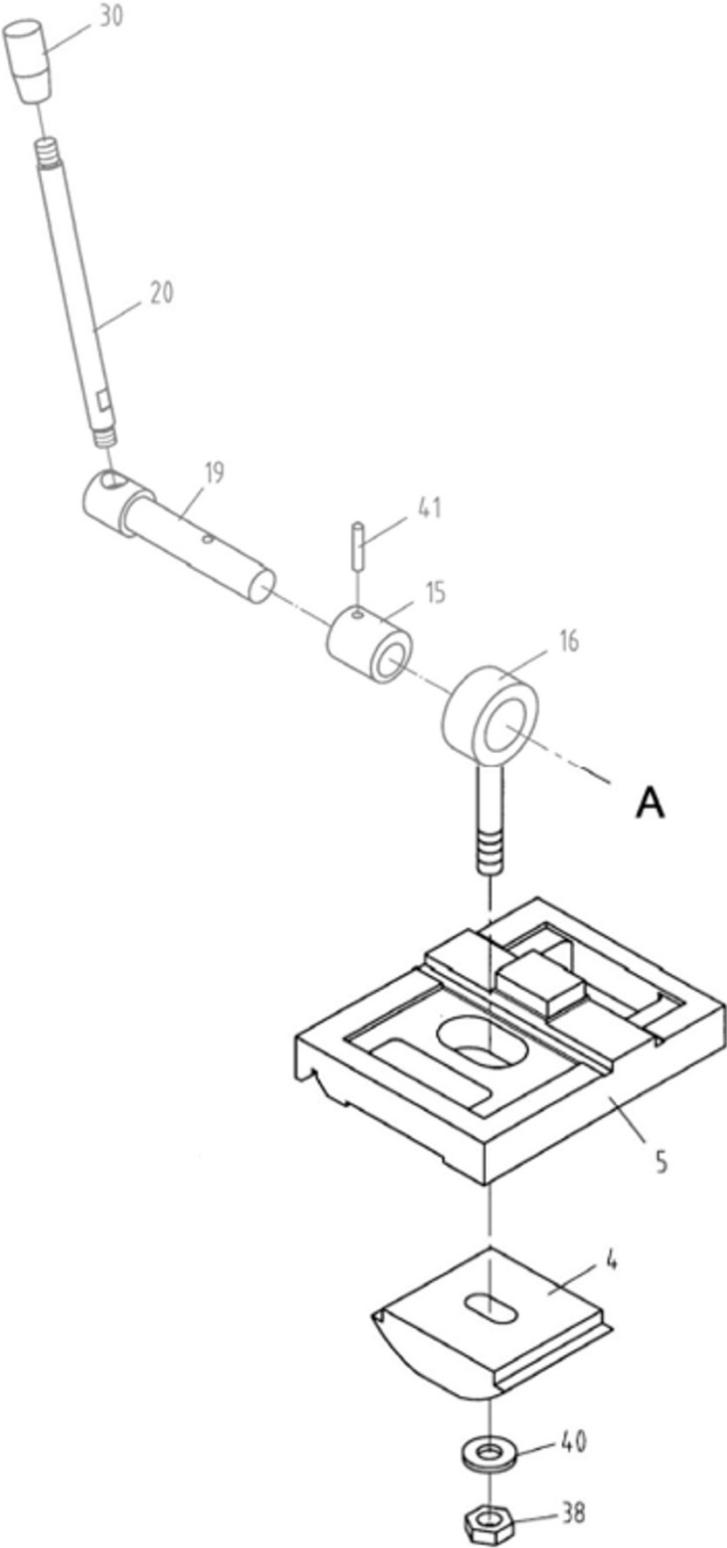


## 17.5.2 Tailstock Assembly I – Parts List

Index	Part No.	Description	Size	Qty
1	**	Casting		1
2	**	Flange Cover		1
3	**	Hand Wheel		1
7	JT1-3033	Quill		1
8	JT1-3032	Screw		1
9	**	Washer		1
10	**	Screw	M8 x 20	1
11	**	Screw		1
12	**	Lever		1
13	**	Shaft		1
14	**	Screw		2
21	JT1-3031	Nut		1
22	**	Index Ring		1
23	**	Pivot Block		1
26	**	Handle		1
29	**	Handle	M8 x 40	1
31	**	Hex Socket Cap Screw	M4 x 10	3
32	**	Hex Socket Cap Screw	M6 x 16	4
33	**	Set Screw	M5 x 20	1
34	**	Set Screw	M6 x 8	1
35	**	Set Screw	M10 x 45	3
36	**	Screw	M8 x 35	1
37	**	Hex Nut	M8	1
39	**	Key	4 x 15	1
42	**	Bearing	8 102	1
46	**	Oil Ball	8	3
	**	Live Center (not shown)	MT3	1
	**	Arrow Plate (not shown)		1
	**	Scale Plate (not shown)		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.5.3 Tailstock Assembly II – Exploded View

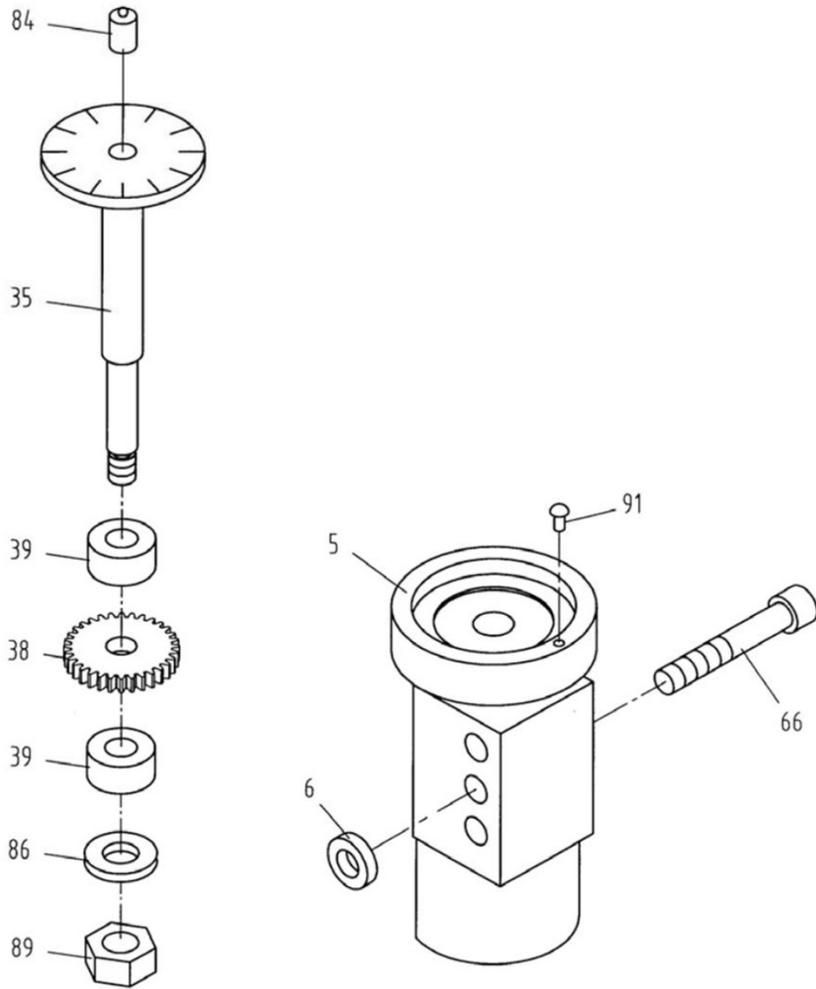


## 17.5.4 Tailstock Assembly II – Parts List

Index	Part No.	Description	Size	Qty
4	**	Clamp Plate		1
5	**	Base		1
15	**	Collar		1
16	**	Screw		1
19	**	Shaft		1
20	**	Lever		1
30	**	Handle	M10 x 50	1
38	**	Hex Nut	M12	1
40	**	Washer	M12	1
41	**	Pin	5 x 25	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

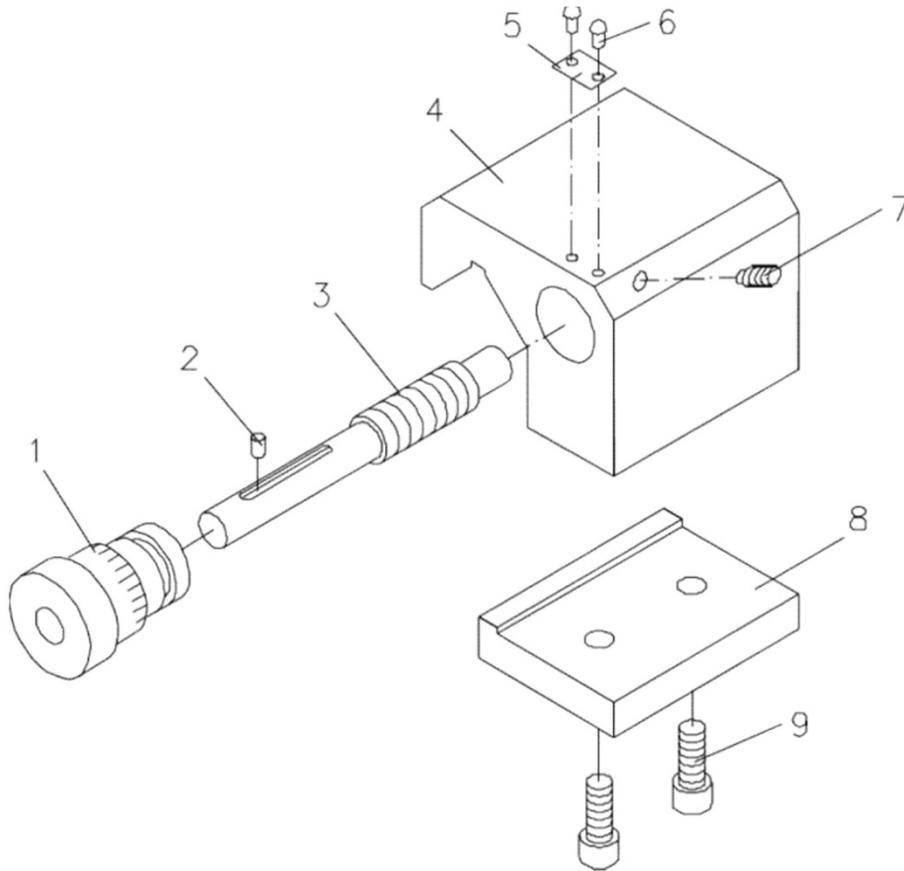
### 17.6.1 Tread Dial Assembly – Exploded View & Parts List



Index	Part No.	Description	Size	Qty
5.....	**	Threading Dial Body .....		1
6 .....	**	Washer .....		1
35 .....	**	Threading Dial Shaft .....		1
38 .....	**	Gear .....	1m32T .....	1
39 .....	**	Spacer.....		2
66 .....	**	Hex Socket Cap Screw .....	M8 x 50 .....	1
84 .....	**	Oiler.....	8 .....	1
86 .....	**	Lock Washer .....	M8 .....	1
89 .....	**	Hex Nut.....	M8 .....	1
91 .....	**	Rivet .....	3 x 8 .....	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

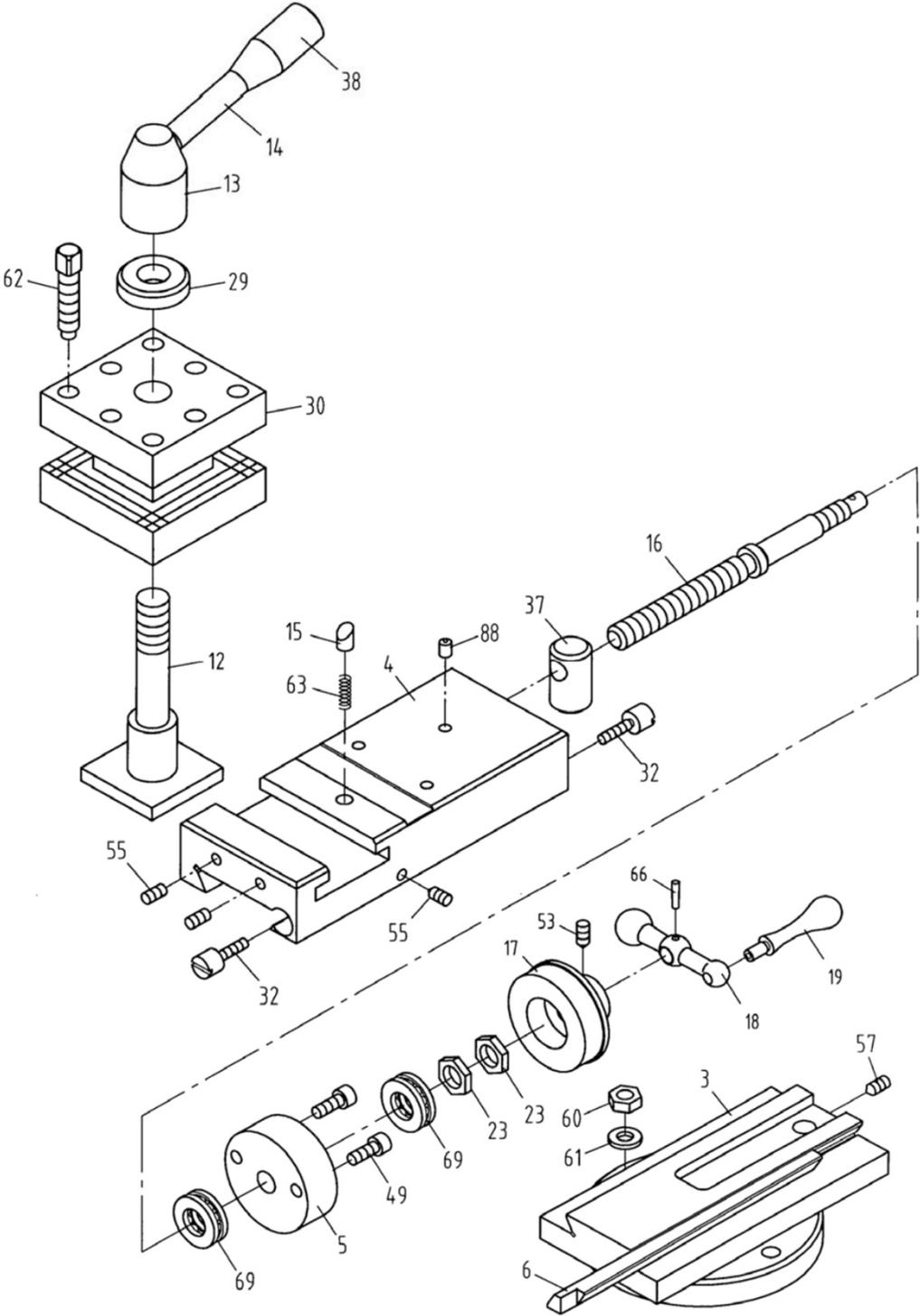
### 17.7.1 Micro Carriage Stop Assembly – Exploded View & Parts List



Index	Part No.	Description	Size	Qty
1.....	** .....	Dial.....	.....	1
2.....	** .....	Pin.....	B3 x 6.....	1
3.....	** .....	Axle.....	.....	1
4.....	** .....	Stop.....	.....	1
5.....	** .....	Indicator Plate.....	.....	1
6.....	** .....	Pin.....	3 x 8.....	2
7.....	** .....	Socket Set Screw.....	M6 x 10.....	1
8.....	** .....	Clamping Plate.....	.....	1
9.....	** .....	Hex Socket Cap Screw.....	M6 x 20.....	2

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.8.1 Top Slide, Tool Post, Saddle, and Cross Slide I – Exploded View

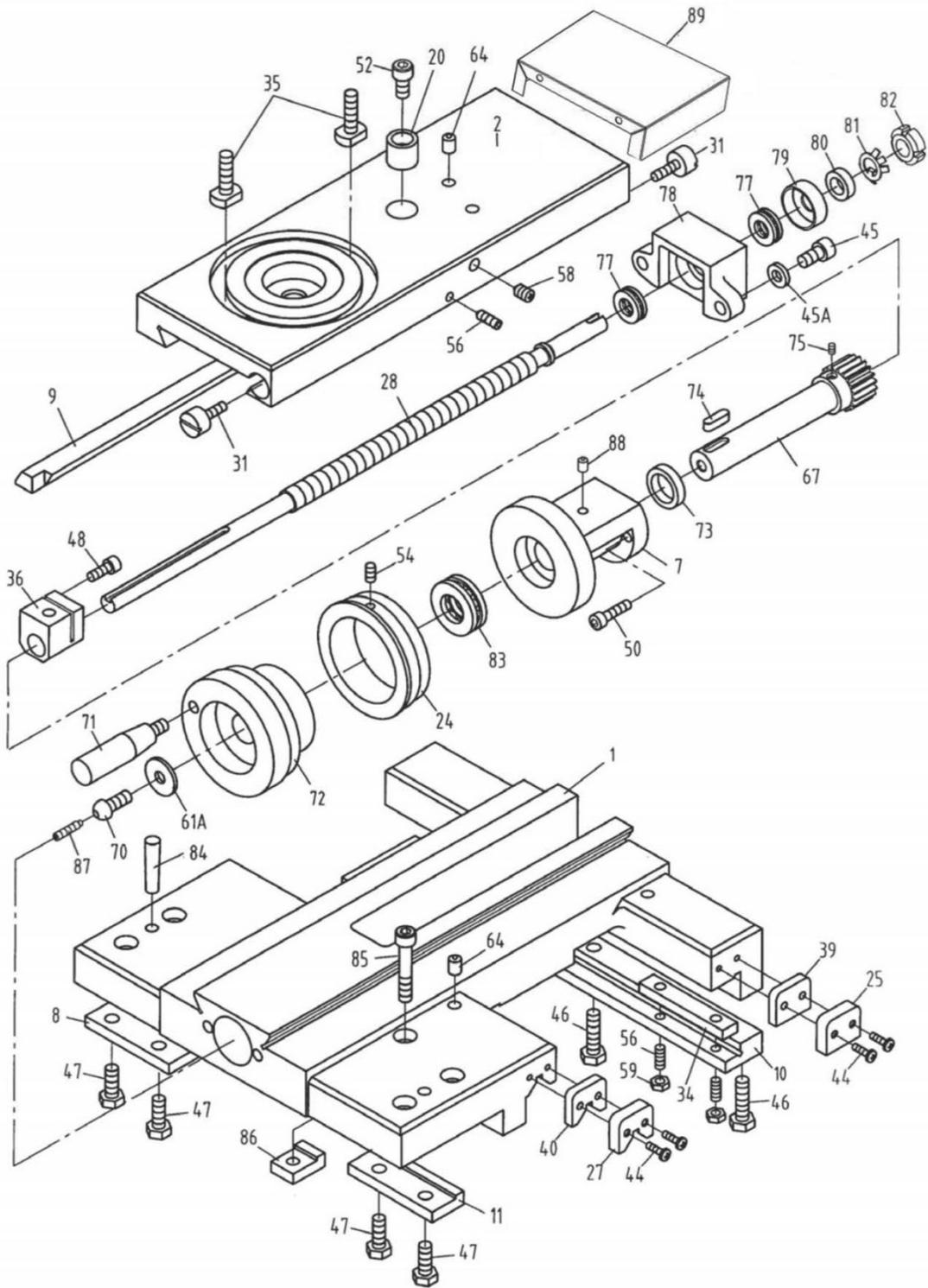


## 17.8.2 Top Slide, Tool Post, Saddle, and Cross Slide I – Parts List

Index	Part No.	Description	Size	Qty
3	**	Swivel Slide		1
4	**	Top Slide		1
5	**	Collar		1
6	JT1-3021	Gib		1
12	**	Screw		1
13	**	Handle Base		1
14	**	Handle Shaft		1
15	**	Stop		1
16	JT1-3022	Screw		1
17	**	Index Ring		1
18	**	Ball Handle		1
19	**	Handle		1
23	**	Nut		2
29	**	Washer		1
30	**	Post Base		1
32	**	Gib Adjusting Screw		2
37	JT1-3023	Nut		1
38	**	Knob		1
49	**	Hex Socket Cap Screw	M6 x 20	2
53	**	Set Screw	M6 x 6	1
55	**	Set Screw	M6 x 10	3
57	**	Set Screw	M8 x 8	1
60	**	Hex Nut	M8	2
61	**	Washer	M8	1
62	**	Screw	M10 x 40	8
63	**	Spring	0.6 x 4x 18	1
66	**	Pin	3 x 16	1
69	**	Ball Bearing		2
	**	Top Slide Assembly w/o Tool Post		1
70	**	Screw	M8 x 20	1
88	**	Oil Ball	6	1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

### 17.8.3 Top Slide, Tool Post, Saddle, and Cross Slide II – Parts List

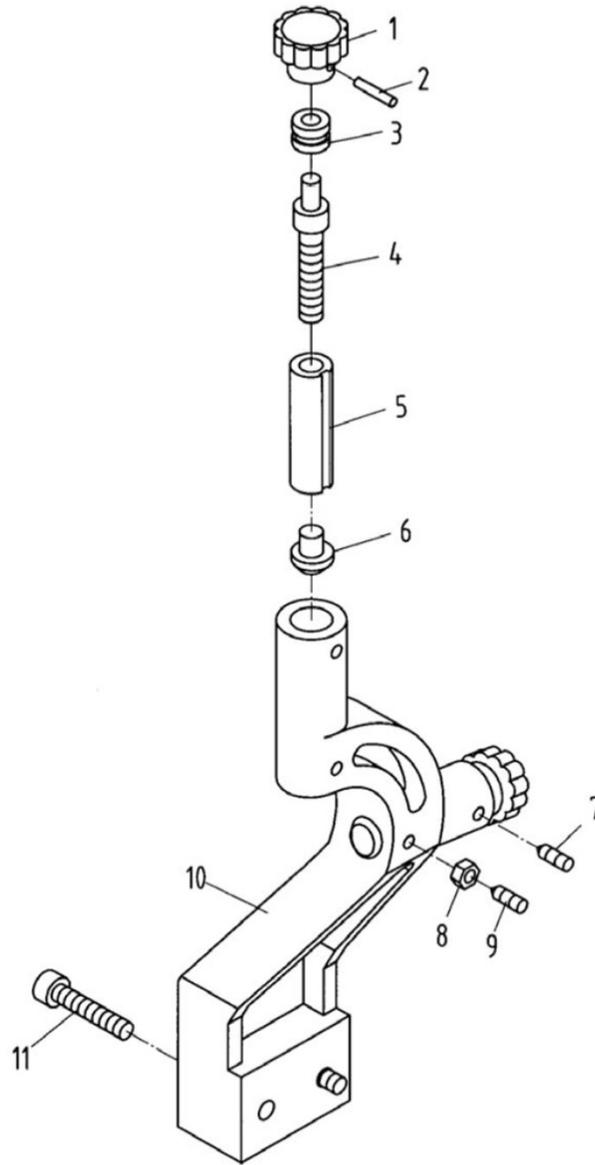


## 17.8.4 Top Slide, Tool Post, Saddle, and Cross Slide II – Parts List

Index	Part No.	Description	Size	Qty
1	**	Saddle		1
2	**	Cross Slide		1
7	**	Bearing Housing		1
8	**	Strip		1
9	JT1-3026	Gib		1
10	**	Strip		1
11	**	Front Strip		1
20	**	Collar		1
24	**	Index Ring		1
25	JT1-3027	Plate		2
27	JT1-3028	Plate		2
28	JT1-3024	Screw		1
31	**	Gib Adjusting Screw		2
34	**	Gib Strip		2
35	**	T-Bolt		2
36	JT1-3025	Nut		1
39	JT1-3029	Wiper		2
40	JT1-3030	Wiper		2
44	**	Screw	M4 x 12	8
45	**	Hex Socket Cap Screw	M8 x 25	2
45A	**	Lock Washer	M8	2
46	**	Screw	M8 x 20	3
47	**	Screw	M8 x 20	4
48	**	Hex Socket Cap Screw	M6 x 16	1
50	**	Hex Socket Cap Screw	M6 x 25	2
52	**	Hex Socket Cap Screw	M8 x 16	1
54	**	Set Screw	M6 x 8	1
56	**	Set Screw	M6 x 25	5
58	**	Set Screw	M8 x 10	1
59	**	Hex Nut	M6	4
61	**	Washer	M8	1
61A	**	Washer		1
64	**	Oil Ball	8	5
67	**	Gear Shaft		1
70	**	Screw	M8 x 20	1
71	**	Handle		1
72	**	Compound Handle		1
73	**	Spacer		1
74	**	Key		1
75	**	Set Screw	M3 x 8	1
76	**	Key	5 x 5 x 30	1
77	**	Thrust Bearing	8101	2
78	**	Bearing Housing		1
79	**	Bearing Dust Cover		1
80	**	Washer		1
81	**	Star Washer		1
82	**	Locking Nut		1
83	**	Thrust Bearing	8104	1
84	**	Taper Pin	8 x 40	2
85	**	Hex Socket Cap Screw	M8 x 50	1
86	**	Locking Washer		1
87	**	Screw	M5 x 20	1
88	**	Oil Ball	6	1
89	**	Splash Guard		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

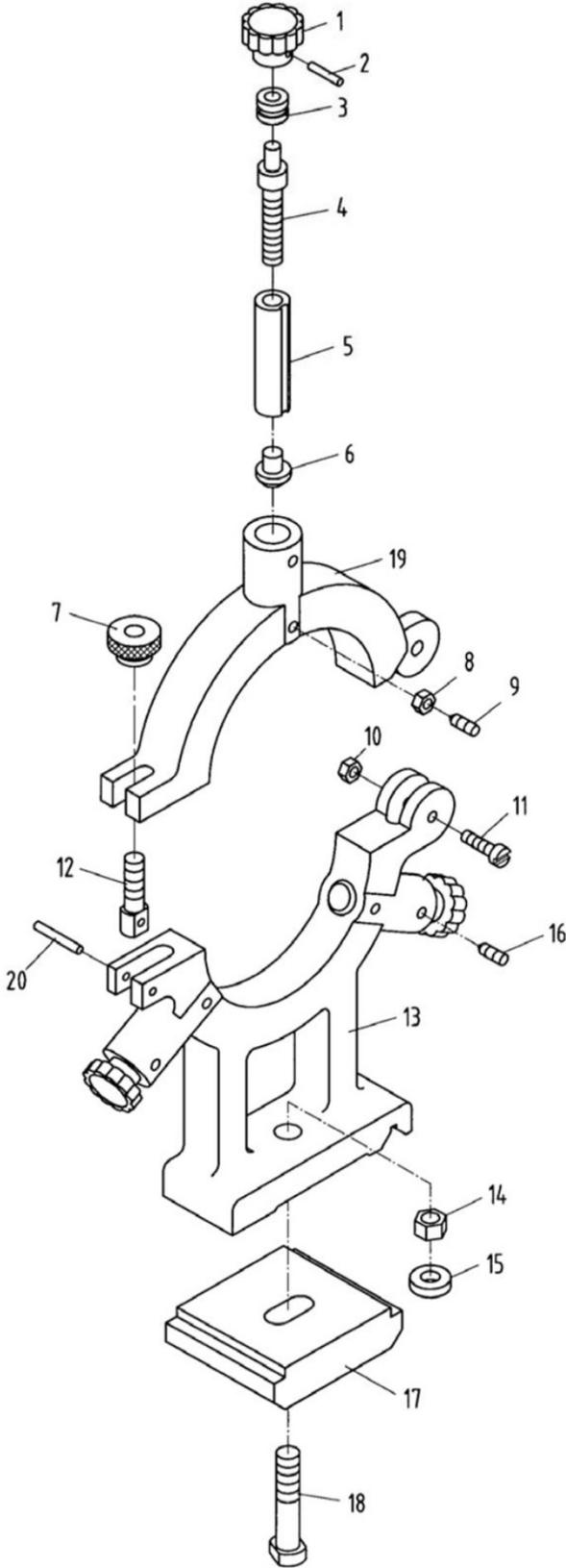
### 17.9.1 Follow Rest Assembly – Exploded View & Parts List



Index	Part No.	Description	Size	Qty
1.....	**	Knob.....		2
2.....	**	Pin.....	3 x 18.....	2
3.....	**	Bushing.....		2
4.....	**	Screw.....		2
5.....	**	Sleeve.....		2
6.....	**	Brass Finger.....		2
7.....	**	Set Screw.....	M6 x 8.....	2
8.....	**	Nut.....	M6.....	2
9.....	**	Set Screw.....	M6 x 16.....	2
10.....	**	Base Casting.....		1
11.....	**	Hex Socket Cap Screw.....	M8 x 35.....	2
.....	**	Follow Rest Complete.....		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

17.10.1 Steady Rest Assembly – Exploded View

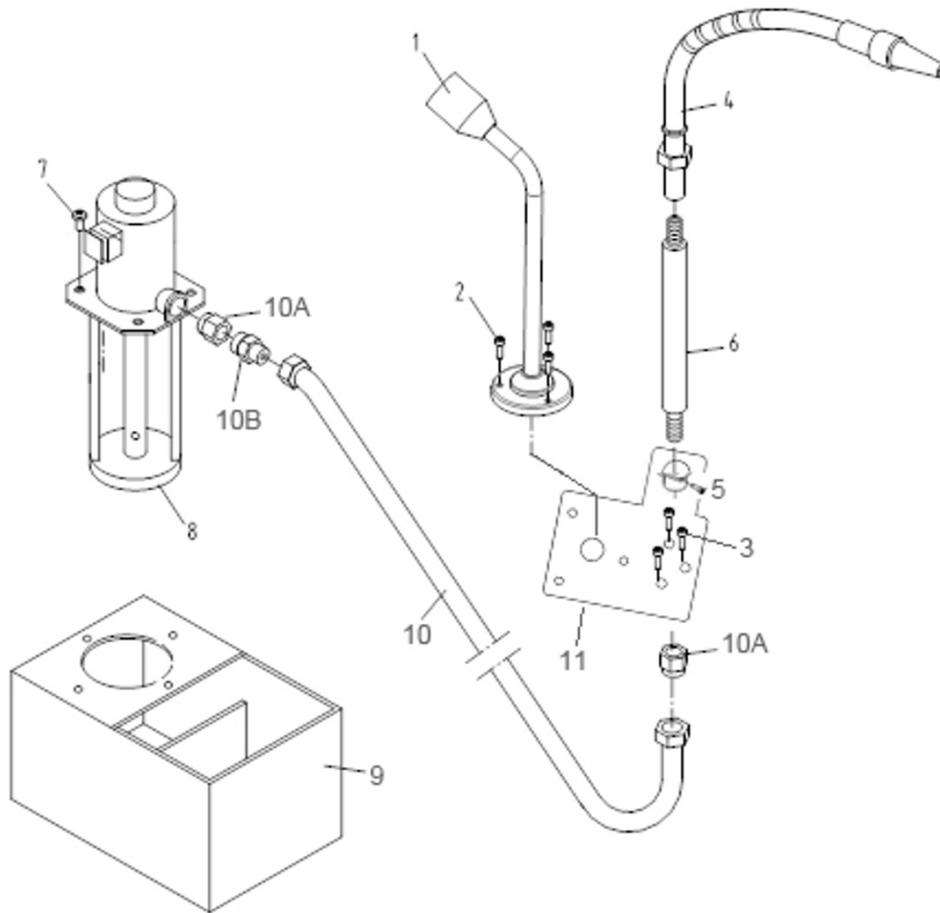


## 17.10.2 Steady Rest Assembly – Parts List

Index	Part No.	Description	Size	Qty
1	**	Knob		3
2	**	Pin	3 x 18	3
3	**	Bushing		3
4	**	Screw		3
5	**	Sleeve		3
6	**	Brass Finger		3
7	**	Lock Knob		1
8	**	Nut	M6	3
9	**	Set Screw	M6 x 16	3
10	**	Nut	M6	1
11	**	Bolt	M6 x 30	1
12	**	Pivot Bolt		1
13	**	Base Casting		1
14	**	Nut	M12	1
15	**	Flat Washer	M12	1
16	**	Set Screw	M6 x 8	3
17	**	Clamp Rod		1
18	**	Clamp Screw		1
19	**	Top Casting		1
20	**	Pin	5 x 25	1
	**	Steady Rest Complete		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

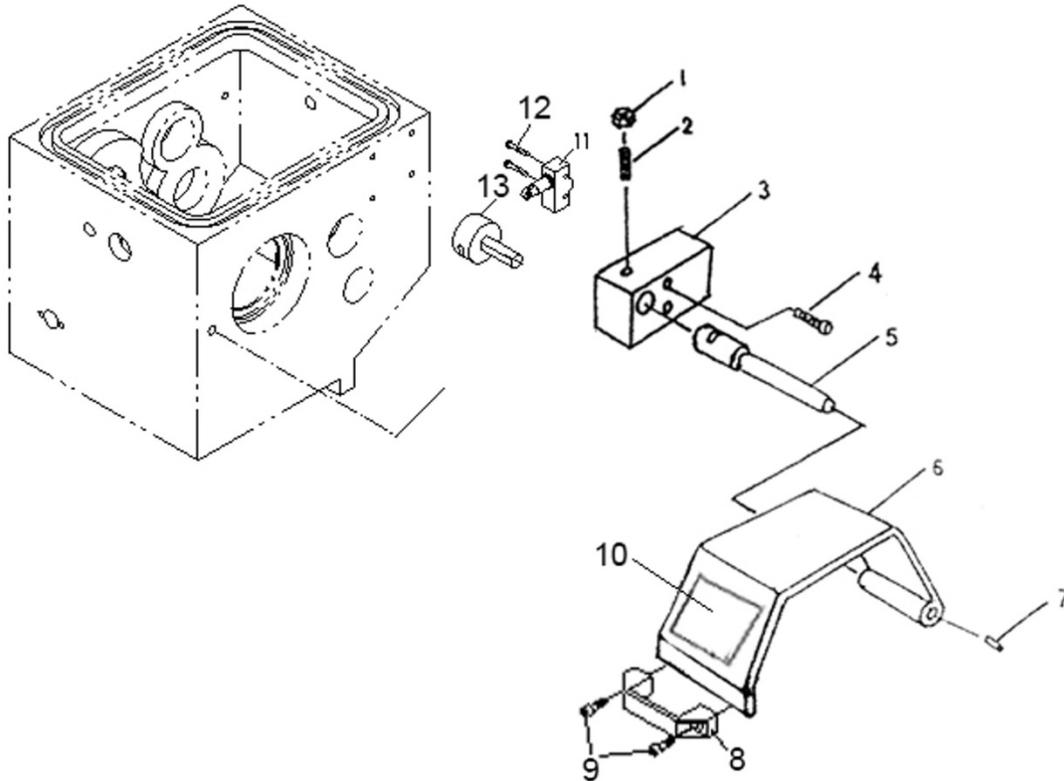
### 17.11.1 Coolant and Work Light Assembly – Exploded View & Parts List



Index	Part No.	Description	Size	Qty
1	**	Work Light		1
2	**	Hex Socket HdCap Screw	M6x20	3
3	**	Hex Socket HdCap Screw	M5x20	3
4	**	Coolant Nozzle	C2-77	3
5	**	Hex Socket HdCap Screw	M6x16	1
6	**	Rubber Tube		1
7	**	Hex Socket HdCap Screw	M6x10	4
8	**	Coolant Pump	3PH	1
9	**	Coolant Tank		1
10	**	Tube	600 mm	1
10A	**	Pipe Joint		1
10B	**	Pipe Joint		1
11	**	Support		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

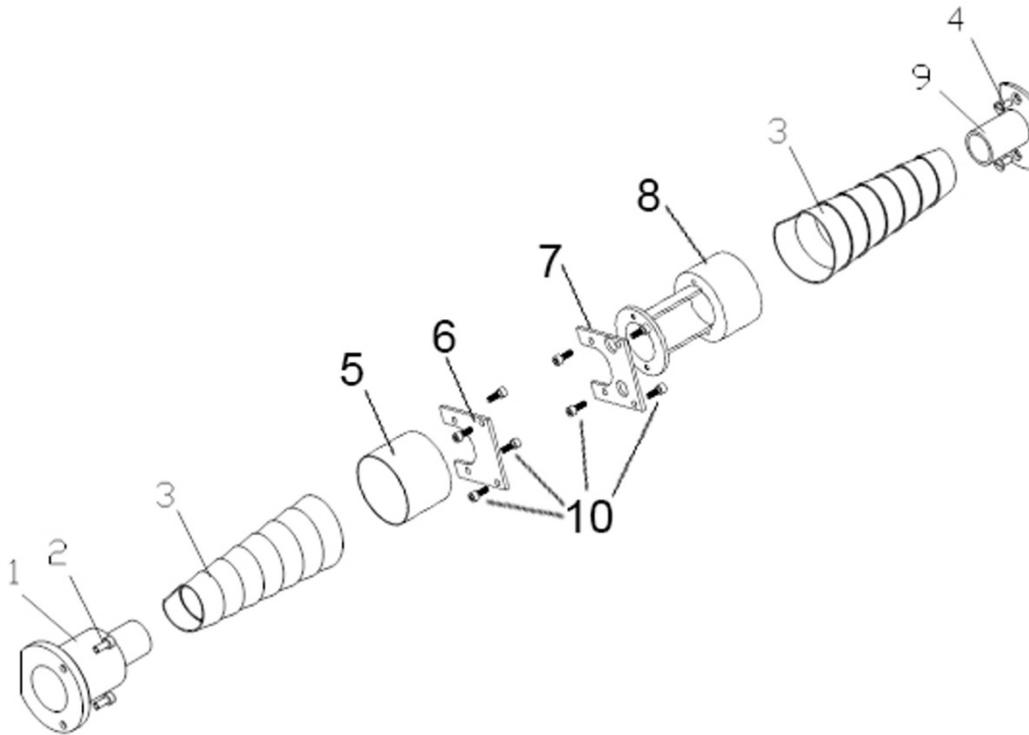
### 17.12.1 Chuck Guard Assembly – Exploded View & Parts List



Index	Part No.	Description	Size	Qty
1	**	Nut	M6	1
2	**	Hex Socket Cap Screw	M6x16	1
3	**	Switch Box		1
4	**	Hex Socket Cap Screw	M6x45	2
5	**	Shaft		1
6	**	Protecting cover		1
7	**	Pin	M4x12	1
8	**	Handle		1
9	**	Hex Socket Cap Screw	M6x12	2
10	**	Protecting Guard Visual Glass	6	5
11	**	Stroke Switch (op.)	TM-1307	1
12	**	Slotted Pan Head Screw (op.)	M4x25	2
13	**	Shaft (op.)		1

\*\* These parts are shown for reference only and are not available for order individually. Non-proprietary parts, such as fasteners, can usually be found at local hardware stores.

### 17.13.1 Lead Screw Cover Assembly – Exploded View & Parts List

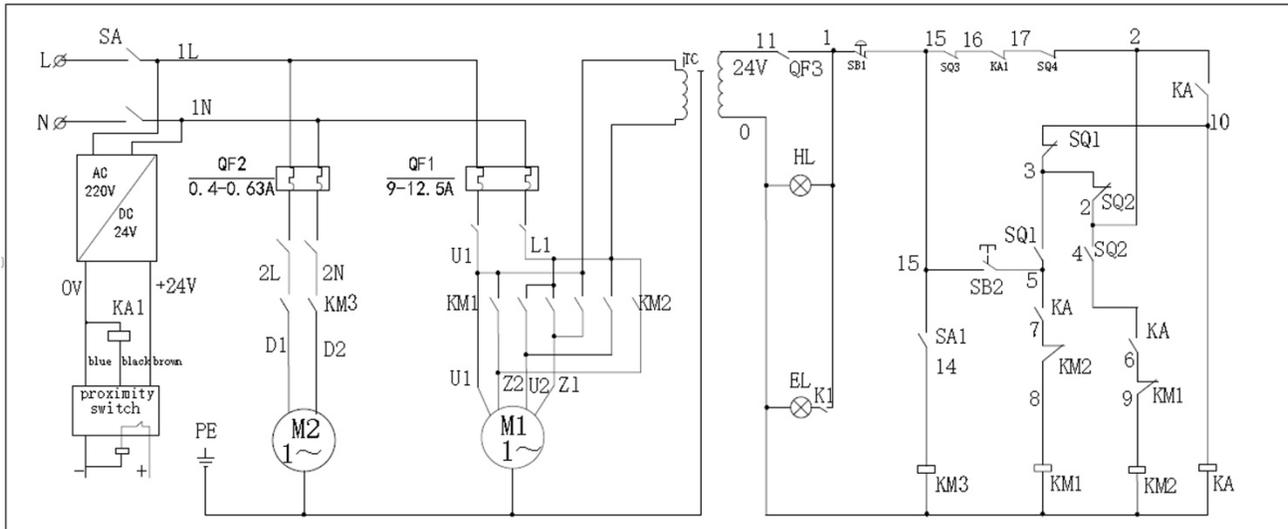


Index	Part No.	Description	Size	Qty
1	**	Left Flange		1
2	**	Hex Socket HdCap Screw	M5x12	2
3	**	Telescoping Sleeve		2
4	**	Hex Socket HdCap Screw	M5x12	2
5	**	Cover		1
6	**	Left Flange Bracket		1
7	**	Right Flange Bracket		1
8	**	Cover		1
9	**	Right Flange		1
10	**	Hex Socket HdCap Screw	M8x6	8

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# 18.0 Wiring Diagrams

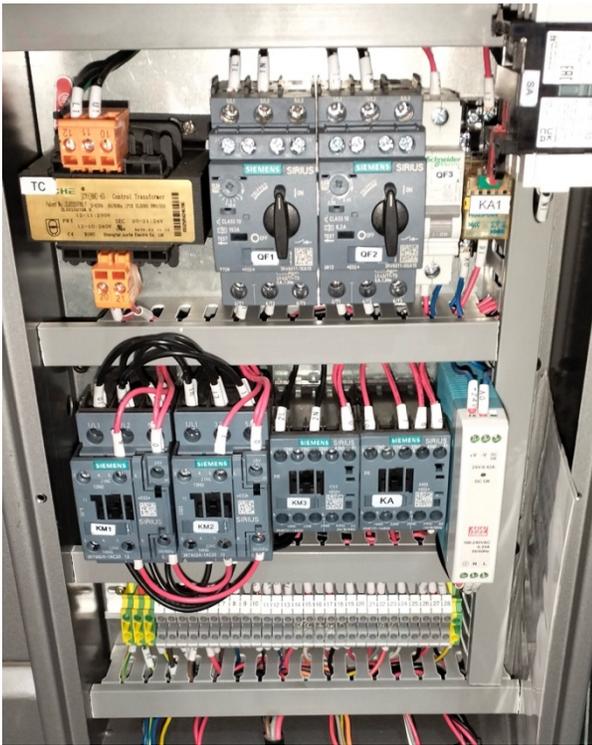
## 18.1 PL-1340E-1 Wiring Diagram



Index	Part No.	Description	Type	Spec.
SA.....**		Power Switch Schneider.....	V01. AC-3 S: lth: 20A.....	690V50/60Hz
QF1.....**		Thermal protector Siemens.....	3RV6011-1KA15 9-12.5A.....	600V 12.5A
QF2.....**		Thermal protector Siemens.....	3RV6011-OEA15 0.4-0.63A.....	400V 100KAS
QF3.....**		Circuit Breaker Schneider.....	OSMC65H1D3/1PD3.....	240V
TC.....JT1-3038.....		Transformer.....	JCY-63VA.....	240V 24V
SB1.....JT1-3039.....		E-Stop Button.....	YW-E01.....	Ui: 600V lth: 10A
KM1.....**		AC Contactor Siemens.....	3RT6024-1AC20 12A.....	Ui=690V ie=40A 24V/50HZ
KM2.....**		AC Contactor Siemens.....	3RT6024-1AC20 12A.....	Ui=690V ie=40A 24V/50HZ
KM3.....**		AC Contactor Siemens.....	3RH6131-1AB00 10A.....	Ui=690V 10A 240V AC
KA.....**		Contactory Relay.....	3RH6131-1AB00.....	24V 50/60Hz
KA1.....**		Intermediate Relay.....	RU2S-D24.....	DC24V
SA1.....**		Pump Switch.....	YW-E10 24V.....	AC15 240V 3A
SB2.....**		Jog Button.....	YW-E10.....	Ui: 600v lth: 10A
SQ.....**		Proximity Switch.....	PNP NC, 4mm.....	DC6-36V
SQ1.....JT1-3037.....		Spindle Forward Switch.....	TM-1704.....	15A 250VAC
SQ2.....JT1-3037.....		Spindle Forward Switch.....	TM-1704.....	15A 250VAC
SQ3.....JT1-3040.....		Foot Brake Switch.....	TM-1701.....	15A 250VAC
SQ4.....**		Door Switch OMRON.....	D4NS-1AF.....	AC15 3A 240V
M1.....**		Motor.....	YL-90L-4.....	230V 60Hz 9.3A 1.5 KW
M2.....**		Pump CSA.....	MC-8150 90W 1PH.....	0.7/0.4A 120/240V
EL.....**		Work Lamp.....	24V 3W.....	LED
HL.....**		Power Light.....	YW-EQ 24V.....	24VAC LED
PS.....**		Power Source.....	MW MDR-10-24.....	100/240V AC
.....JT1-3041.....		Limit Switch for Belt Cover.....	M: QKS8.....	

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