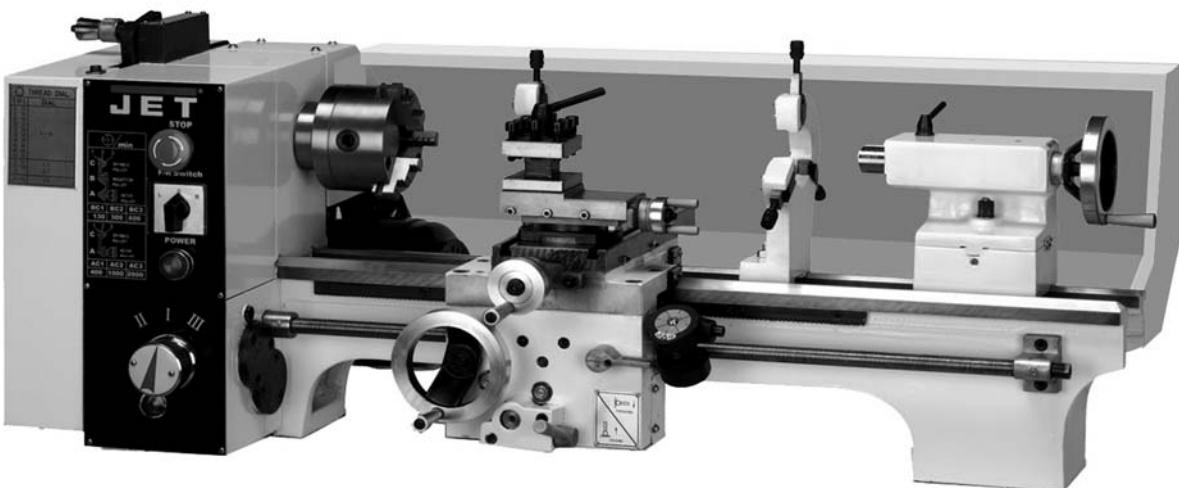




# Operating Instructions and Parts Manual

## 9 x 20-inch Belt Drive Bench Lathe

Model BD-920W



**WALTER MEIER (Manufacturing) Inc.**  
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# Warranty and Service

Walter Meier (Manufacturing) Inc., warrants every product it sells. If one of our tools needs service or repair, one of our Authorized Service Centers located throughout the United States can give you quick service. In most cases, any of these Walter Meier Authorized Service Centers can authorize warranty repair, assist you in obtaining parts, or perform routine maintenance and major repair on your JET® tools. For the name of an Authorized Service Center in your area call 1-800-274-6848.

## MORE INFORMATION

Walter Meier is consistently adding new products to the line. For complete, up-to-date product information, check with your local Walter Meier distributor, or visit [www.jettools.com](http://www.jettools.com).

## WARRANTY

JET products carry a limited warranty which varies in duration based upon the product (MW = Metalworking, WW = Woodworking).

90 DAY WARRANTY	1 YEAR WARRANTY	2 YEAR WARRANTY	3 YEAR WARRANTY	5 YEAR WARRANTY	LIFE LIFETIME WARRANTY		
Lathe Accessories Machine Accessories Mobile Bases Safety Equipment Specialty Items Vise Accessories	Air Tools-Contractor Air Tools-Industrial Air Tools-Light Industrial Lubrication	Body Repair Kits Bottle Jacks Cable Pullers Cold Saws Hoists-Air Hoists-Electric Metal forming Mill/Drills Milling Machines MW Bandsaws MW Drill Presses MW Finishing Equipment MW Lathes MW Precision Vises	Palet Trucks Rigging Equip. Service Jacks Stackers Surface Grinders Tapping Trolleys-Air Trolleys-Electric Web Slings Winches-Electric	WW Benchtop Tools	Beam Clamps Chain Hoist-Manual Lever Hoists Pullers-JCH Models Scissor Lift Tables Screw Jacks Trolleys-Geared Trolleys-Plain Winches-Manual WW Air Filtration WW Bandsaws WW Buffers	WW Drill Presses WW Dust Collectors WW Dust Filters WW Jointers WW Lathes WW Planers WW Sanders	Fastening Tools Mechanics Hand Tools Striking Tools Vises (no -precision) Clamps

*Warranty reverts to 1 Year Warranty if woodworking (WW) products listed above are used for industrial or educational purposes.*

## WHAT IS COVERED?

This warranty covers any defects in workmanship or materials subject to the exceptions stated below. Cutting tools, abrasives and other consumables are excluded from warranty coverage.

## WHO IS COVERED?

This warranty covers only the initial purchaser of the product.

## WHAT IS THE PERIOD OF COVERAGE?

The general JET warranty lasts for the time period specified in the product literature of each product.

## WHAT IS NOT COVERED?

Five Year Warranties do not cover woodworking (WW) products used for commercial, industrial or educational purposes. Woodworking products with Five Year Warranties that are used for commercial, industrial or education purposes revert to a One Year Warranty. This warranty does not cover defects due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair or alterations, or lack of maintenance.

## HOW TO GET SERVICE

The product or part must be returned for examination, postage prepaid, to a location designated by us. For the name of the location nearest you, please call 1-800-274-6848.

You must provide proof of initial purchase date and an explanation of the complaint must accompany the merchandise. If our inspection discloses a defect, we will repair or replace the product, or refund the purchase price, at our option. We will return the repaired product or replacement at our expense unless it is determined by us that there is no defect, or that the defect resulted from causes not within the scope of our warranty in which case we will, at your direction, dispose of or return the product. In the event you choose to have the product returned, you will be responsible for the shipping and handling costs of the return.

## HOW STATE LAW APPLIES

This warranty gives you specific legal rights; you may also have other rights which vary from state to state.

## LIMITATIONS ON THIS WARRANTY

WALTER MEIER LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF THE LIMITED WARRANTY FOR EACH PRODUCT. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG THE IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

WALTER MEIER SHALL IN NO EVENT BE LIABLE FOR DEATH, INJURIES TO PERSONS OR PROPERTY, OR FOR INCIDENTAL, CONTINGENT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OF OUR PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

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# Table of Contents

Warranty and Service.....	2
Table of Contents .....	3
Introduction .....	7
Specifications.....	7
Unpacking .....	8
Contents of the Shipping Container.....	8
Set Up and Preparation for Operation.....	9
General Description .....	9
Controls.....	12
Operation .....	13
Tool Set-Up.....	13
Manual Turning.....	13
Longitudinal Turning with Auto-Feed .....	13
Taper Turning Using Tailstock Off-Set.....	14
Taper Turning by Setting the Top Slide .....	14
Turning Between Centers.....	14
Thread Cutting .....	15
Metric Thread Cutting.....	15
Lathe Accessories.....	16
Adjustment and Replacement .....	18
Adjustment of Main Spindle Bearings .....	18
Adjustment of Cross and Top Slide .....	18
Adjustment of Compound Feed Screw and Float.....	19
Cross Slide Screw.....	19
Compound Slide Spindle Backlash Adjustment .....	19
Adjustment of Half-Nut guide.....	20
Replacing the Shear Pin in the Leadscrew .....	20
Replacing the V-Belt .....	20
Lubrication Schedule.....	21
Replacement Parts.....	22
Headstock Assembly – Exploded View.....	22
Headstock Assembly – Parts List .....	23
Drive Assembly – Exploded View .....	24
Drive Assembly – Parts List.....	25
Tension Roller Assembly – Exploded View & Parts List.....	26
Quadrant Assembly – Exploded View & Parts List.....	27
Electrical Assembly – Exploded View .....	28
Electrical Assembly – Parts List.....	29
Gear Box Assembly – Exploded View.....	30
Gear Box Assembly – Parts List.....	31
Apron Assembly – Exploded View .....	32
Apron Assembly – Parts List .....	33
Apron Assembly ( <i>continued</i> ) – Exploded View .....	34
Apron Assembly ( <i>continued</i> ) – Parts List .....	35
Saddle and Cross Slide – Exploded View.....	36
Saddle and Cross Slide Assembly – Parts List .....	37
Top Slide Assembly – Exploded View .....	38
Top Slide Assembly – Parts List .....	39
Tailstock Assembly – Exploded View.....	40
Tailstock Assembly – Parts List .....	41
Steady Rest Assembly – Exploded View & Parts List.....	42
Travel Rest Assembly – Exploded View & Parts List.....	43
Lathe Bed Assembly – Exploded View .....	44
Lathe Bed Assembly – Parts List .....	45
Wiring Diagram .....	46

# **Warnings**

## **A. GROUNDING INSTRUCTIONS**

### **1. All grounded, cord-connected tools:**

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

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

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn cord immediately.

### **2. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 volts:**

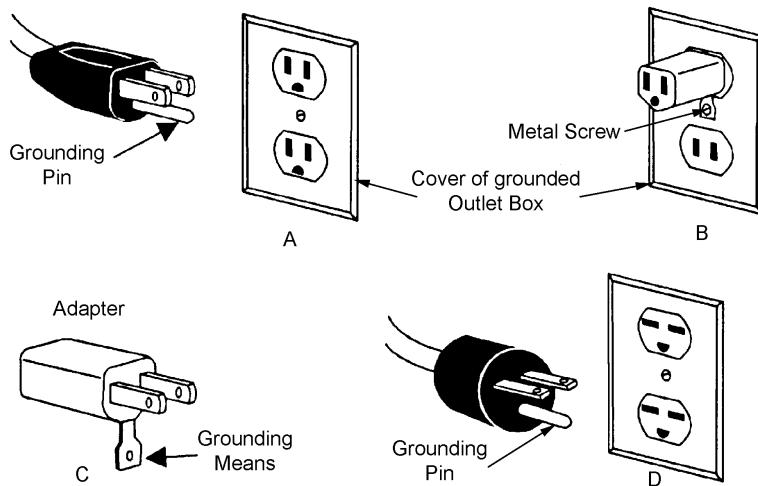
This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A. The tool has a grounding plug that looks like the plug illustrated in Sketch A. A temporary adapter, which looks like the adapter illustrated in Sketches B and C, may be used to connect this plug to a 2-pole receptacle as shown in Sketch B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.(This adapter is not permitted in Canada) The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box.

### **3. Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating between 150 - 250 volts, inclusive:**

This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch D. The tool has a grounding plug that looks like the plug illustrated in Sketch D. Make sure the tool is connected to an outlet having the same configuration as the plug. No adapter is available or should be used with this tool. If the tool must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel; and after reconnection, the tool should comply with all local codes and ordinances.

### **4. Permanently connected tools:**

This tool should be connected to a grounded metal permanent wiring system; or to a system having an equipment-grounding conductor.



## B. FOR ALL TOOLS AS APPLICABLE

1. 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.
2. Replace the warning labels if they become obscured or removed.
3. 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.
4. Do not use this lathe for other than its intended use. If used for other purposes, Walter Meier (Manufacturing) Inc., disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
5. KEEP GUARDS IN PLACE and in working order.
6. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
7. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
8. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
9. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
10. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
11. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
12. USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
13. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
14. ALWAYS USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
15. SECURE WORK. Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
16. DON'T OVERREACH. Keep proper footing and balance at all times.
17. MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
18. Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in serious injury.
19. DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like.
20. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.

21. USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
22. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
23. CHECK DAMAGED PARTS. Before further use of the tool, 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.
24. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
25. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.
26. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
  - Lead from lead based paint
  - Crystalline silica from bricks and cement and other masonry products, and
  - Arsenic and chromium from chemically-treated lumber.
 Your risk from those exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well-ventilated area, and work with approved safety equipment, such as those dust masks that are specifically designed to filter out microscopic particles
27. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
28. Tighten all locks before operating.
29. USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table 1 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

Ampere Rating		Volts	Total length of cord in feet			
			120V	25 ft.	50ft.	100ft.
		240V	50ft.	100ft.	200ft.	300ft.
	Not					
More	More					
Than	Than		AWG			
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	
Only the applicable parts of the Table need to be included. For instance, a 120-volt product need not include the 240-volt heading						

*Table 1  
Minimum Gage for Cord*

# Introduction

This manual is provided by Walter Meier (Manufacturing) Inc., covering the safe operation and maintenance procedures for a JET Model BD-920W Bench Lathe. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. This machine has been designed and constructed to provide years of trouble free operation if used in accordance with instructions set forth in this manual. If there are any questions or comments, please contact either your local supplier or Walter Meier. Walter Meier can also be reached at our web site: [www.waltermeier.com](http://www.waltermeier.com).

## Specifications

Model Number..... BD-920W  
Stock Number ..... 321376

### **Capacities:**

Swing Over Bed .....	9"
Swing Over Cross Slide .....	.5-5/16"
Distance Between Centers.....	20"

### **Headstock:**

Hole Through Spindle .....	7/8"
Spindle Nose .....	1/2" x 8 T.P.I
Taper in Spindle .....	MT-3
Spindle Bearing Type .....	Tapered Roller
Number of Spindle Speeds .....	6
Range of Spindle Speeds .....	130-2000 RPM

### **Gear Box:**

Number of Longitudinal Feeds .....	60
Range of Longitudinal Feeds .....	0.0006" – 0.037"
Number of Inch Threads .....	30
Range of Inch Threads.....	8-60 T.P.I.
Number of Metric Threads .....	18
Range of Metric Threads.....	0.4 – 3.5

### **Compound and Carriage:**

Toolpost Type .....	single and 4-Way
Maximum Tool Size.....	1/2" x 1/2"
Maximum Compound Slide Travel .....	1-7/8"
Maximum Cross Slide Travel .....	5"
Maximum Carriage Travel.....	16"

### **Tailstock:**

Tailstock Spindle Travel .....	1-9/16"
Diameter of Tailstock Spindle .....	1-1/16"
Taper in Tailstock Spindle .....	MT-2

### **Miscellaneous:**

Steady Rest Capacity.....	1/4" – 1-7/8"
Follow Rest Capacity .....	1/4" – 1-1/8"
Length of Bed.....	32"
Width of Bed.....	4-1/2"
Height of Bed .....	6-5/8"
Overall Dimensions .....	40"L x 21"W x 20"H
Main Motor .....	TEFC, 3/4HP, 1PH, 115V, 60Hz
Noise emission (idle) .....	75 dB
Net Weight (approx.) .....	254 lbs.
Shipping Weight (approx.).....	300 lbs.

The above specifications were current at the time this manual was published, but because of our policy of continuous improvement, Walter Meier reserves the right to change specifications at any time and without prior notice, without incurring obligations.

# Unpacking

Open shipping container and check for shipping damage; report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the Lathe is assembled and running properly. Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

## Contents of the Shipping Container

Referring to Figure 1:

- 1 Lathe (not shown)
- 1 6" Four-Jaw Independent Chuck (A)
- 1 Faceplate (B)
- 2 Lifting Plates (C)
- 1 Cover (D)
- 1 4" Three-Jaw Universal Chuck (pre-mounted)
- 1 Four Way Tool Post (pre-mounted)
- 1 Steady Rest (pre-mounted)
- 1 Follow Rest (pre-mounted)
- 1 Operator's Manual (not shown)
- 1 Warranty Card (not shown)
- 2 Shear Pins\* (E)
- 3 Chuck Jaws (F)
- 1 Single Tool Post Assembly\* (G)
- 1 MT-2 Center\* (H)
- 1 MT-3 Center\* (I)
- 1 56T Gear\* (J)
- 1 52T Gear\* (K)
- 1 48T Gear\* (L)
- 1 46T Gear\* (M)
- 1 44T Gear\* (N)
- 1 40T Gear\* (O)
- 1 38T Gear\* (P)
- 1 36T Gear\* (Q)
- 1 32T Gear\* (R)
- 1 Tension Roller Lever (S)
- 1 Handle (T)
- 1 Female Chuck Key\* (U)
- 2 Male Chuck Keys (V)
- 1 #1 Cross Point Screwdriver\* (W)
- 1 #1 Flat Blade Screwdriver\* (X)
- 1 5pc Hex Wrench Set (Y)
- 2 Open End Wrenches – 8/10mm, 12/14mm (Z)

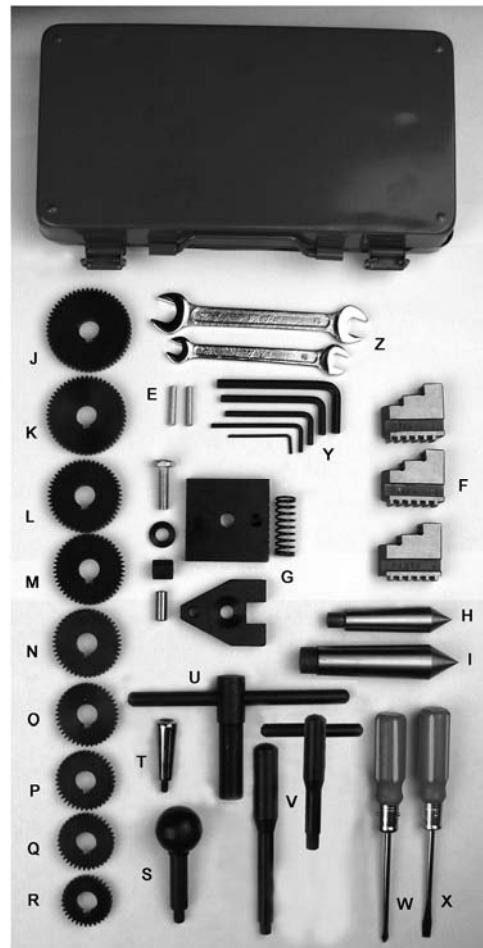
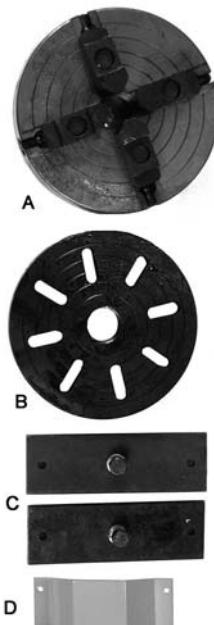


Figure 1

\* parts marked with an asterisk are included in the tool box, stock no. BD920W-TB

### CAUTION

The three jaw chuck and the face plate have a set screw on their flanges that secures them to the threaded spindle. Before removing the three jaw chuck or the faceplate, remove the set screw completely from the flange. Failure to remove the set screw may cause damage to the threads on the spindle. When installing either the jaw chuck or the faceplate, tighten the set screw firmly to prevent the chuck or the faceplate from coming off the spindle during operation.

### WARNING

Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.

# Set Up and Preparation for Operation

To avoid twisting the bed, make sure the location to which the lathe will be moved is absolutely flat and level. Place a machinist's level on the bed ways and check for level side-to-side and front to rear. If stand mounted, the stand must be fastened to the floor. (An optional JET stand is available for this lathe – order stock no. 321374.)

Remove rust protectant from all surfaces with kerosene, diesel oil, or a mild solvent. Do not use gasoline, paint thinner, or lacquer thinner, as these may damage painted surfaces. After cleaning, wipe with a clean, dry cloth and cover all machined surfaces with a light film of machine oil.

Swing open the drive assembly end guard, and mount the cover to the bottom of the guard using three screws. (See Drive Assembly Exploded View, index no. 11, for clarification.)

Carefully read the grounding instructions on pages 4 and 5. It is recommended that the BD920W Lathe be connected to a dedicated, minimum 25 amp circuit with a 25 amp circuit breaker or time delay fuse. **Local codes take precedence over recommendations.**

## General Description

### Lathe Bed

The Lathe bed is made of high-grade iron. By combining high cheeks with strong cross ribs, a bed of low vibration and rigidity is produced. The main motor is mounted to the rear of the bed (Figure 2).

### Headstock

The headstock (Figure 3) is cast from high grade, low vibration cast iron. It is bolted to the bed with four screws and uses four adjusting screws for alignment. In the head the large main spindle is mounted on two precision taper roller bearings. The hollow spindle is a Morse taper No.3 with a 7/8" bore

A quick change of the belt can be accomplished by easing the tension on the idler (Figure 4).

To protect the machine against accidental damage, a clutch is fitted to the reduction pulley at the 130 R.P.M. speed.

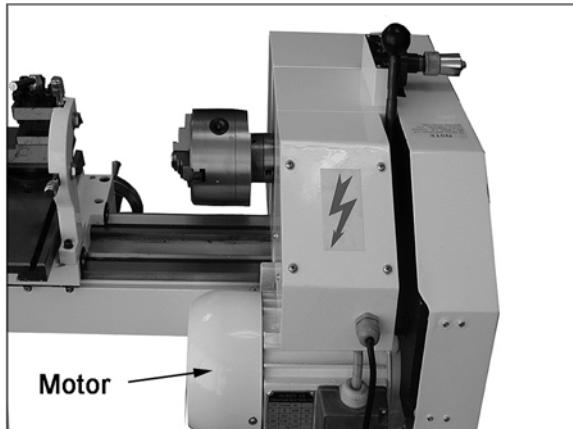


Figure 2

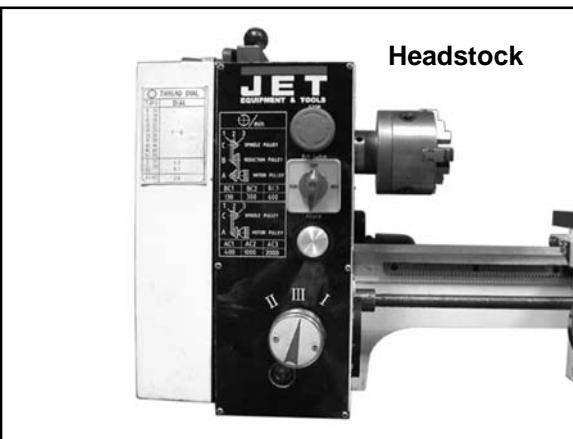


Figure 3

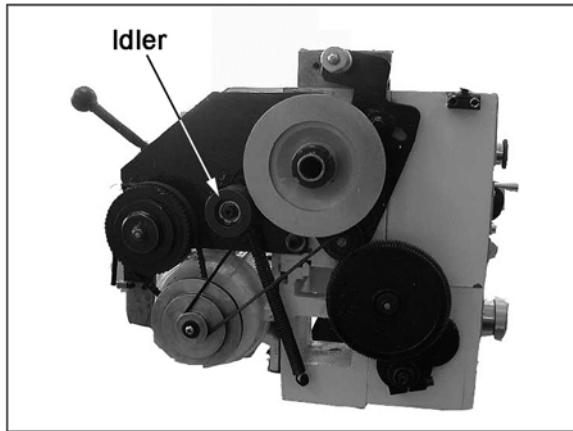


Figure 4

## Carriage

The carriage (Figure 5) is made from high-grade cast iron. The sliding parts are smooth ground. They fit the V on the bed without play. The lower sliding parts can be easily and simply adjusted. The cross slide is mounted on the carriage and moves on a dovetail. Play in the cross slide may be adjusted with the gib.

Move the cross slide using the conveniently positioned handwheel (Figure 5). There is a graduated collar on the handwheel. One graduated mark equals 0.0254 millimeters or 0.001 inches.

The top slide, mounted on the cross slide, can be rotated 360°. The top slide and the cross slide travel in dovetailed slides and have gibbs, adjustable nuts, and graduated collars.

A four-way tool post is fitted on the top slide. The four-way tool post can be converted to a single tool holder with parts enclosed in the toolbox (Figure 6). See *parts breakdown on page 38 for assembly of tool holder*.

For accurate facing operations, the carriage can be locked by tightening the hex socket cap screw (A, Figure 7).

## Apron

The apron (Figure 8) is mounted on the bed. A half nut is fitted to the apron. The half nut gibbs can be adjusted from the outside.

The half nut is engaged by the half nut lever.

The rack mounted on the bed, and a pinion operated by a handwheel on the carriage, allow for quick travel of the apron.

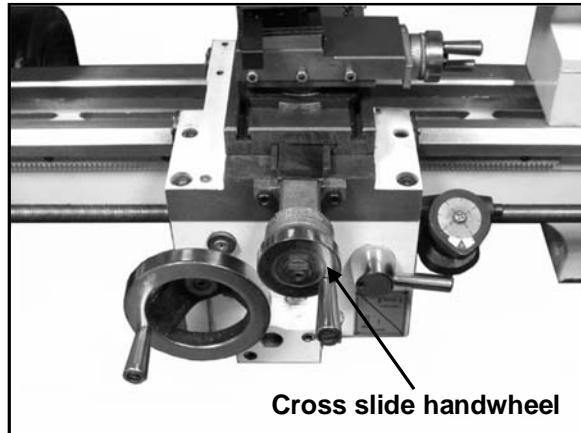


Figure 5

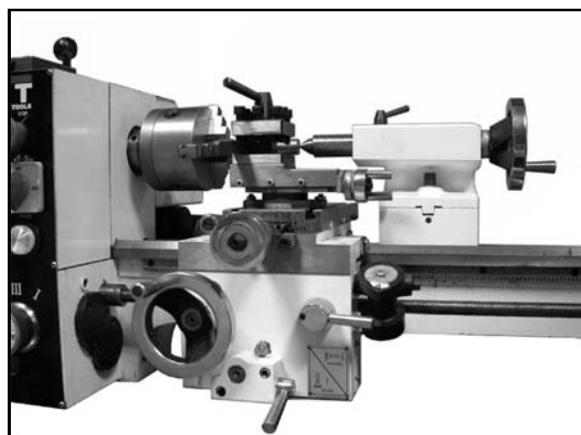


Figure 6



Figure 7

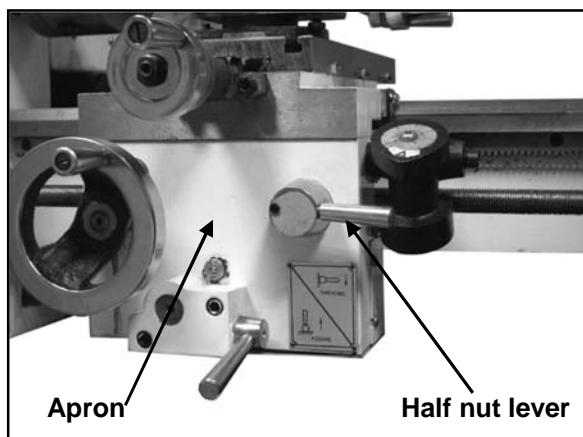


Figure 8

## Tailstock

The tailstock (Figure 9) slides on a V-way and can be clamped at any location. The tailstock has a heavy duty spindle with a Morse taper No.2 socket and a graduated scale. The spindle can be clamped at any location with a clamping lever. The spindle is moved with a handwheel at the end of the tailstock.

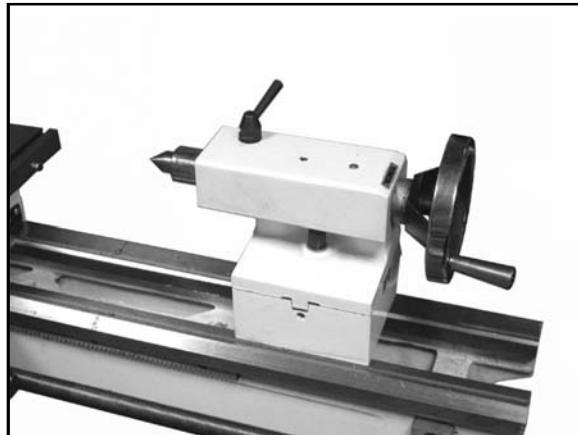


Figure 9

## Lead Screw

The lead screw (Figure 10) is mounted on the front of the machine bed. It is connected to the gearbox at the left for automatic feed and is supported by a bearing on both ends. The nut and setscrew on the right end are designed to take up play on the leadscrew.

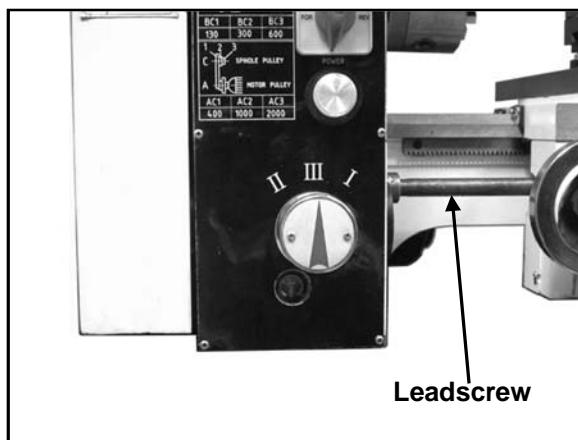


Figure 10

## Gear Box

The gearbox (Figure 11) is made from high quality cast iron and is mounted on the left side of the machine bed. The motor drives through handle changeable speeds. Always raise idler to the disengaged position when changing speeds (Figure 4).

## Drive and Electrical Equipment

The main drive is provided by a single phase, A.C. motor mounted on the rear of the lathe bed. (B, Figure 11)

The forward-reverse switch, emergency stop switch and power light (C, Figure 11) are mounted on the front of the electrical box. The motor condenser is also contained in this box.

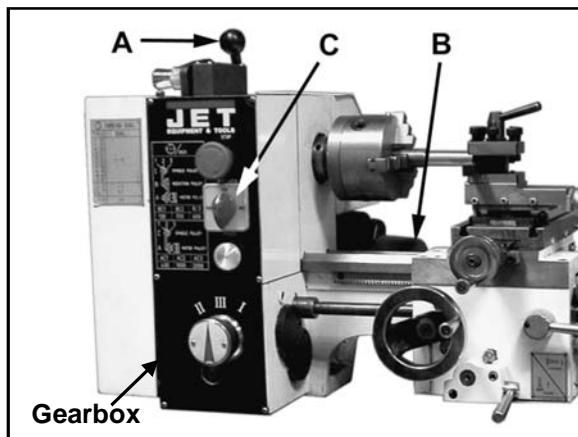


Figure 11

## Controls

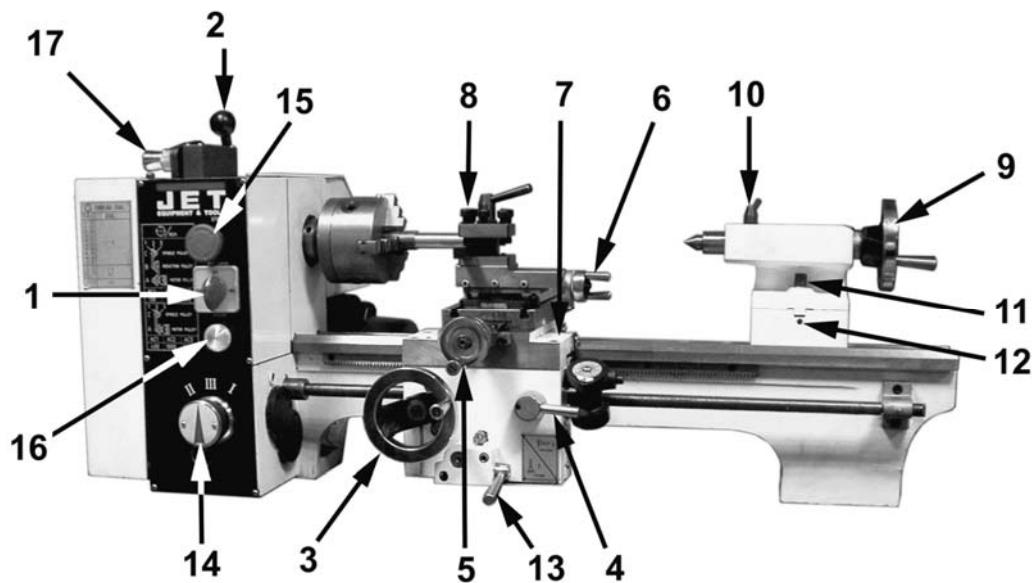


Figure 12

1. Forward/Reverse Switch
2. V-Belt Tension Lever
3. Longitudinal Travel Handwheel
4. Half-Nut Lever
5. Cross Slide Handwheel
6. Top Slide Handwheel
7. Longitudinal Lock Screw
8. Tool Post
9. Tailstock Spindle Handwheel
10. Tailstock Spindle Clamping Lever
11. Tailstock Locking Screw
12. Tailstock Off-Set Adjustment
13. Automatic Feed Lever
14. Gear Box Quick Change Lever
15. Emergency switch
16. Power Light
17. Left/right Screw Lever

# Operation

## Tool Set-Up

The cutting angle is correct when the cutting edge is in line with the center axis of the work piece. The correct height of the tool can be achieved by comparing the tool point with the point of the center mounted in the tailstock. The correct tool height can be obtained by using shims under the tool (Figure 13).

When turning, the tool has a tendency to bend under pressure. For best results, tool overhang should be kept to a minimum of 3/8" or less.

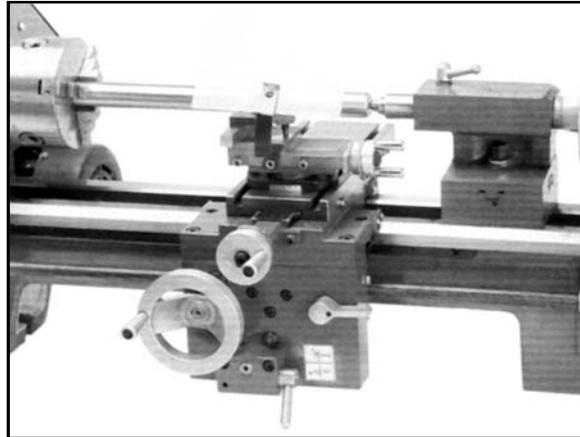


Figure 13

## Manual Turning

Apron travel, cross travel, and top slide handwheels can be operated for longitudinal or cross feeding (Figure 14).

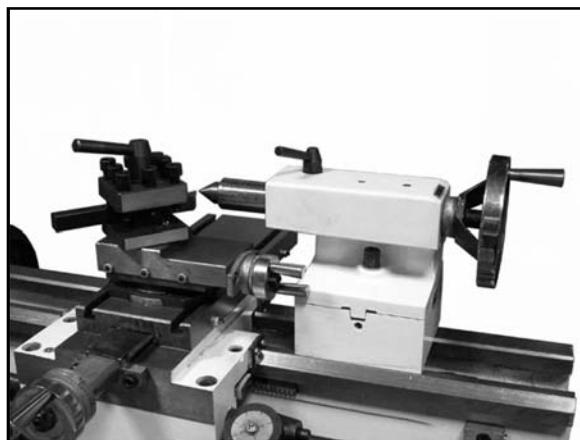


Figure 14

## Longitudinal Turning with Auto-Feed

To use automatic feed, establish the gear combinations as needed, then move lever (A, Figure 15) to engage feed.

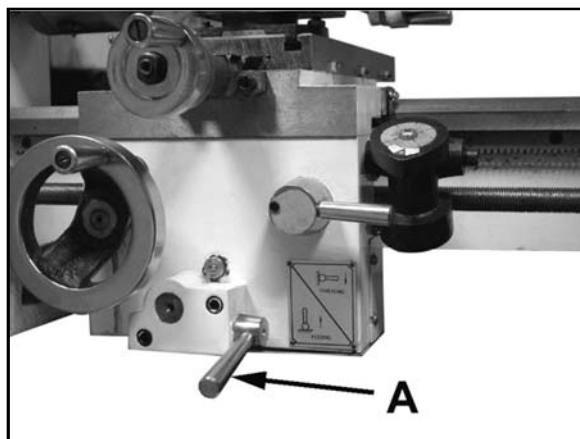


Figure 15

## Taper Turning Using Tailstock Off-Set

Offsetting the tailstock can turn work to side angle of  $5^{\circ}$ . The angle depends on the length of the workpiece.

To off-set the tailstock, loosen locking screw (1, Figure 16) loosen the front adjusting screw (2) and take up the same amount by tightening the rear adjusting screw (3) until the desired taper has been reached. Tighten the front screw to lock the tailstock in position. The workpiece must be held between two centers and driven by a faceplate and driver dog.

After taper turning, the tailstock should be returned to its original position. Turning a test piece with constant adjustment until the piece is absolutely true checks the zero position of the tailstock.

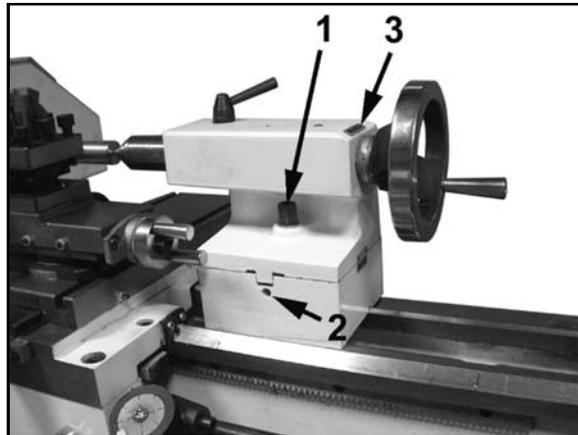


Figure 16

## Taper Turning by Setting the Top Slide

By angling the top slide, tapers may be turned (Figure 17).

Loosen two screws (1, Figure 17); top slide can then be rotated. A graduated scale permits accurate adjustment of the top slide. This method can only be used for short tapers.

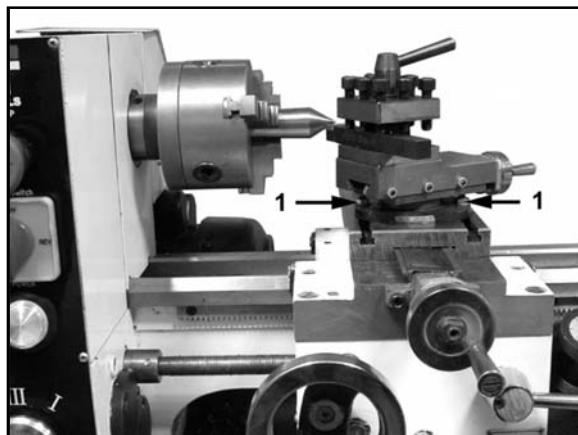


Figure 17

## Turning Between Centers

For turning between centers, it is necessary to remove the chuck from the spindle. Fit the MT-3 center into the spindle nose and the MT-2 center into the tailstock.

Mount the workpiece fitted with the driver dog between the centers. The driver is driven by a catch plate or face plate (Figure 18).

**Note:** Always use a small amount of grease on the tailstock center to prevent center tip from overheating.

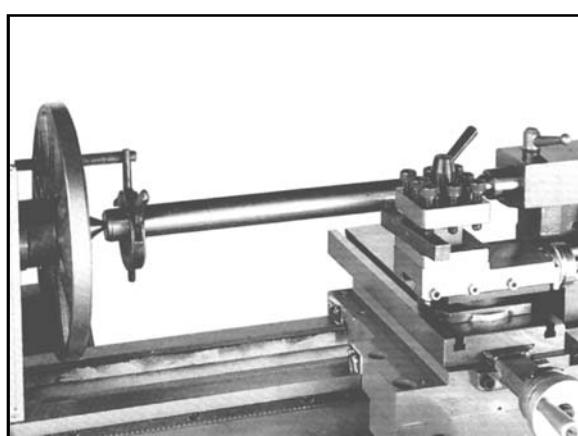


Figure 18

## Thread Cutting

As indicated on the threading charts (see Figure 21), several different threads can be cut using the proper combination of gears and settings. When cutting inch threads, the half nut and threading dial (Figure 19) are used to thread in a conventional manner. The thread dial charts specify at which point a thread can be entered using the threading dial.

## Metric Thread Cutting

The only difference in metric thread cutting is the half nut must be engaged during the entire threading process. The thread dial cannot be utilized.

Set the machine up for the desired thread pitch (according to the metric threading chart on the machine, also shown in Figure 21). Start the machine and engage the half nut. When the tool reaches the part, it will cut the initial threading pass.

When the tool reaches the end of the cut, stop the machine by turning the motor off and at the same time back the tool out of the part so that it clears the thread.

Do not disengage the half nut lever. Reverse the motor direction to allow the cutting tool to traverse back to the starting point. Repeat these steps until you have obtained the desired results.

### Example of Gear Set-up to Cut 10 T.P.I. (Figure 20)

1. Loosen screw (1, Figure 20).
2. Loosen bolt (2). Remove washers (3) and gear (6).
3. Loosen bolt (7) to allow movement in the center gear position.
4. Loosen nuts (5). Remove washer (4) and gear (8).

#### Re-assemble as follows:

1. Install 40-tooth gear in position (6) with bushings, washer, and bolt.
2. Install 32-tooth gear in position (8).
3. The center 127-tooth gear remains in place.
4. Adjust gear to mesh with upper and lower gear and tighten bolt (7).

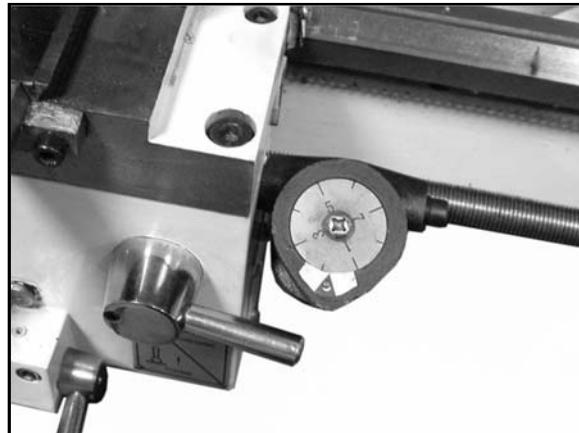


Figure 19

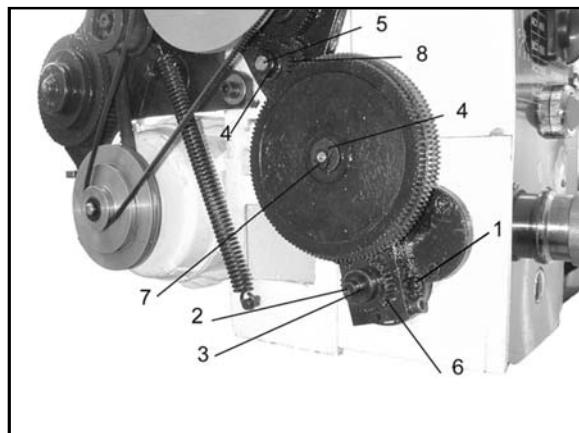


Figure 20

T.P.I.	Lever											
	a	32	32	32	32	32	32	32	32	32	32	32
	b	32	36	38	40	44	46	48	52	56	60	
I	8	9	9.5	10	11	11.5	12	13	14	15		
	.0370	.0328	.0312	.0296	.0268	.0258	.0246	.0228	.0212	.0198		
	16	18	19	20	22	23	24	26	28	30		
II	.0185	.0164	.0156	.0148	.0134	.0129	.0123	.0114	.0106	.0099		
	32	36	38	40	44	46	48	52	56	60		
	.0092	.0082	.0078	.0074	.0067	.0064	.0062	.0057	.0053	.0049		
III	MM	40	35	45	40	40	40	40	40	40	40	
	a	32	40	40	56	32	56					
	b	60	60	48	60	32	48					

THREAD DIAL												
T.P.I. DIAL												
8	10											
12	14											
16	18											
20	22											
24	26											
28	30											
36	38											
40	44											
48	48											
52	56											
1-8												
9	11											
23	19											
1 , 3												
2 , 6												
9-1/2 , 11-1/2												

Figure 21

# Lathe Accessories

## Three Jaw Universal Lathe Chuck

Using this universal chuck (Figure 22), round, triangular, square, hexagonal, octagonal, and twelve-cornered stock may be clamped.

**Note:** new lathes have very tight fitting jaws. This is necessary to ensure accurate clamping and long service life. With repeated opening and closing, the jaws adjust automatically and their operation becomes progressively smoother.

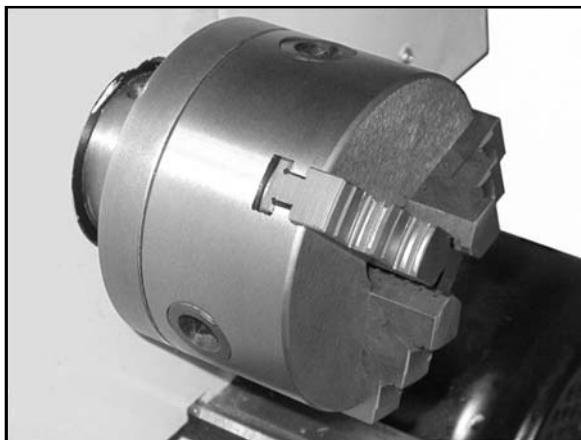


Figure 22

## Four Jaw Independent Lathe Chuck

This special chuck (Figure 23) has four independently adjustable chuck jaws. These permit the holding of asymmetrical pieces and enable the accurate set-up of cylindrical pieces.

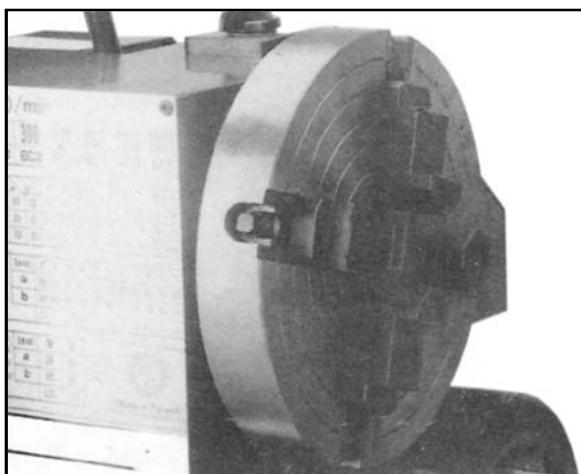


Figure 23

## Morse Taper Arbor (Optional)

An arbor is necessary for mounting the drill chuck in the tailstock. It has a No. 2 Morse Taper (Figure 24).

## Live Center (Optional)

The live center is mounted in ball bearings (Figure 25). Its use is highly recommended for turning at speeds in excess of 600 RPM.

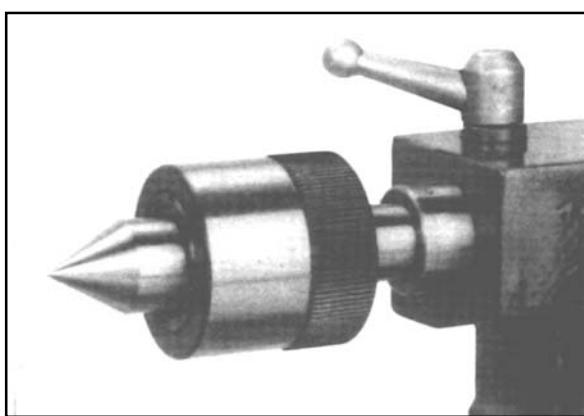


Figure 25

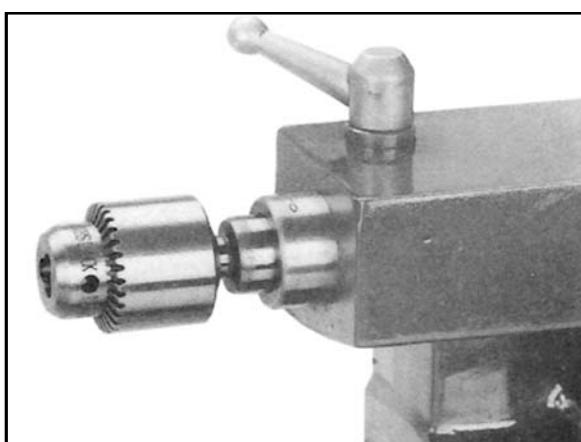


Figure 24

## Steady Rest

The steady rest (Figure 26) serves as a support for shafts on the free tailstock end. For many operations, the tailstock cannot be used as it obstructs the turning tool or drilling tool, and therefore, must be removed from the machine.

The steady rest, which functions as an end support, ensures chatter-free operation. The steady rest is mounted on the bedways and is secured from below with a locking plate. The sliding fingers require continuous lubrication at the contact points to prevent premature wear.

### Setting the Steady Rest

1. Loosen three hex nuts (1, Figure 27).
2. Loosen knurled screw (3, Figure 27) and open the sliding fingers (2, Figure 27) until the steady rest can be moved with its fingers around the workpiece. Secure the steady rest in position.
3. Tighten knurled screws so that fingers are snug but not tight against the workpiece. Tighten three nuts (1, Figure 27). Lubricate the sliding points with machine oil.
4. When, after prolonged operation, the jaws show wear, the tips of the fingers may be filed or remilled.

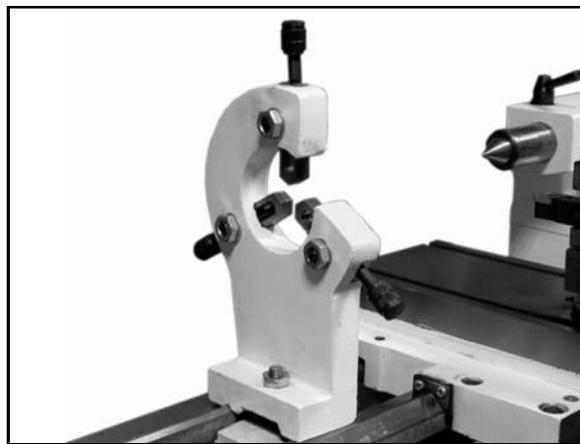


Figure 26

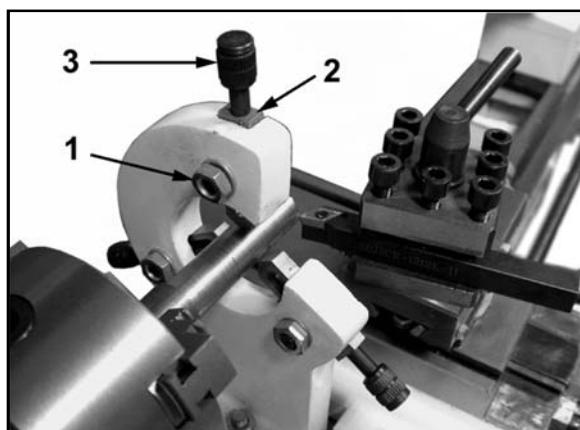


Figure 27

## Follow Rest

The follow rest (Figure 28) is mounted on the saddle and follows the movement of the turning tool. Only two sliding fingers are required. The place of the third finger is taken by the turning tool. The follow rest is used for turning operations on long, slender workpiece. It prevents flexing of the workpiece under pressure from the turning tool.

Set the fingers snug to the workpiece but not overly tight. Lubricate the fingers during operation to prevent premature wear.

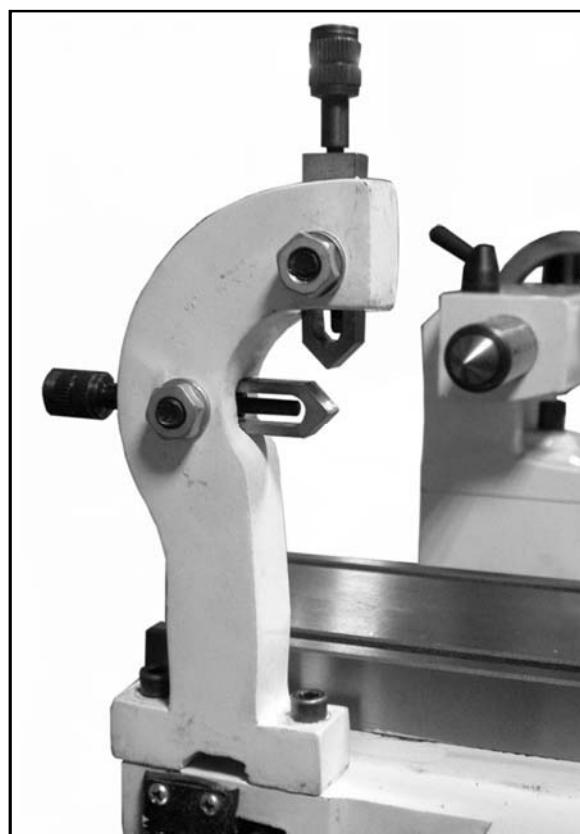


Figure 28

## Four-way Tool Post

The four-way tool post is mounted on the top slide and allows for tools to be clamped. Loosen the center clamp handle to rotate any of the four tools into position (Figure 29).

Use a minimum of two clamping screws when installing a cutting tool.

## Change Gears

There are nine gears (Figure 30) with different numbers of teeth (32, 36, 38, 40, 44, 46, 48, 52 and 56). They can be combined for different speeds and feeds as required. See chart on headstock.

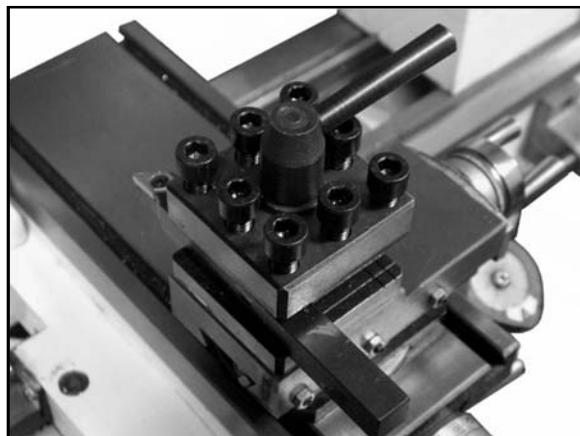


Figure 29

## Adjustment and Replacement

### Adjustment of Main Spindle Bearings

The main spindle bearings are adjusted at the factory. If end play becomes evident after considerable use, the bearings may be adjusted.

Loosen setscrew (1, Figure 31) in the slotted nut (2, Figure 31) on the back of the spindle. Tighten slotted nut until all end play is taken up. The spindle should still revolve freely. **Caution:** excessive tightening or preloading will damage the bearing. Re-tighten set screw (1, Figure 32).



Figure 30

### Adjustment of Cross and Top Slide

Each slide is fitted with a gib strip and can be adjusted with screw (1, Figure 32) fitted with lock nuts (2, Figure 32). Loosen the lock nuts to adjust the screws, and re-tighten lock nuts to secure the setting.

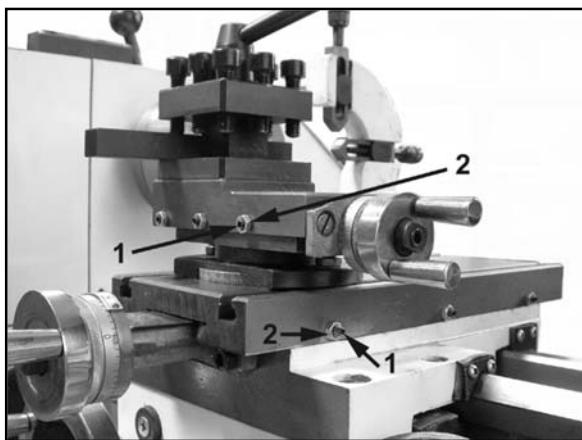


Figure 32

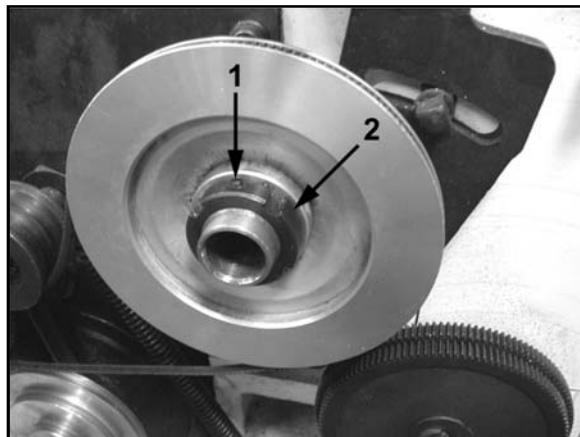


Figure 31

## **Adjustment of Compound Feed Screw and Float**

To adjust the slides on the saddle:

1. Loosen screw (1, Figure 33) and lock nut (2, Figure 33).
18. Adjust the nut until all play has been taken up. Lock the nut (2) with the screw (1).

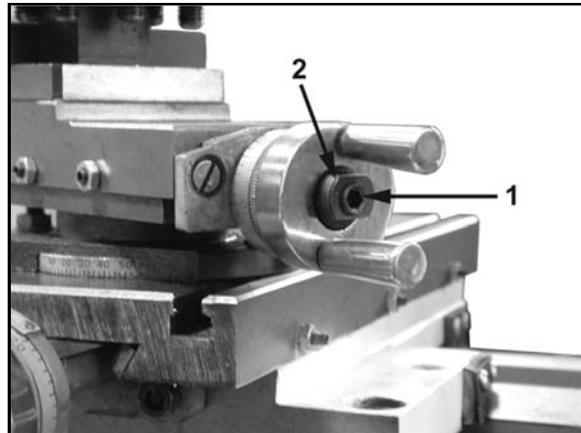


Figure 33

## **Cross Slide Screw**

Remove the compound slide and adjust screw (1, Figure 34) until the backlash between the spindle and the nut is eliminated.

For operator convenience, the compound may be located in two positions on the cross slide.

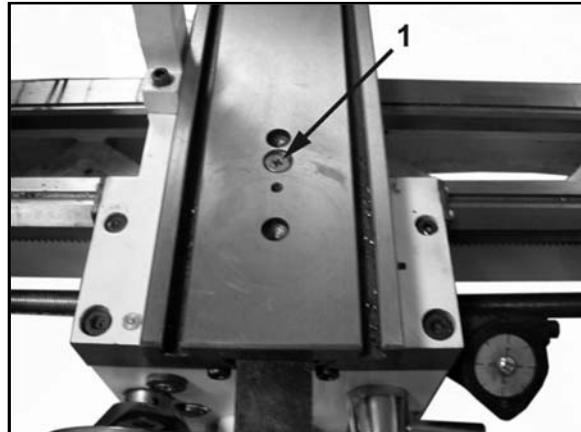


Figure 34

## **Compound Slide Spindle Backlash Adjustment**

Remove two screws holding the spindle bracket in position and unscrew the spindle. Adjust the screw ring (1, Figure 35) until all backlash has been eliminated.

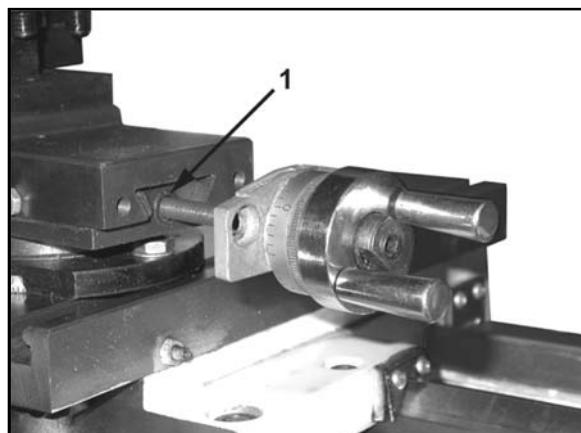


Figure 35

## Adjustment of Half-Nut guide

Loosen two nuts (1, Figure 36) on the right side of the apron and adjust the control screws (2, Figure 36) until both half nuts move freely without play. Tighten both nuts.

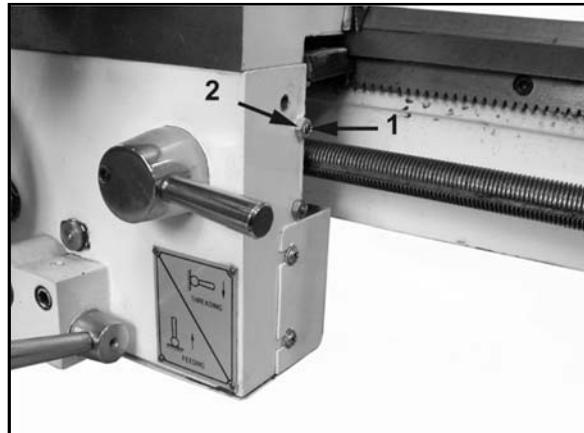


Figure 36

## Replacing the Shear Pin in the Leadscrew

If the shear pin breaks, it must be replaced (Figure 37). To knock out the broken pin, the hex head screw must be loosened and the pinion removed. Take off the sleeve and remove the broken pin from the sleeve and the leadscrew. Replace the sleeve, line up the holes, fit the new pin, and assemble.

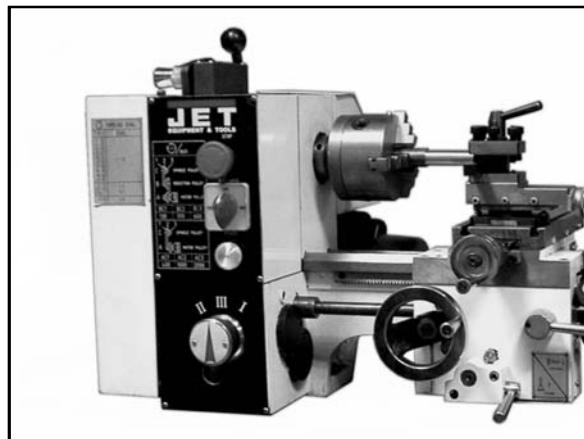


Figure 37

## Replacing the V-Belt

Remove tension on the V-belt by pulling lever toward front of the machine (Figure 38).

Remove belt from the pulley and replace with new belt. Move lever toward motor to tension belt. Close the cover.

**Caution:** to avoid breaking the belt, move the tension lever towards the front of the machine before starting (Figure 39).



Figure 39

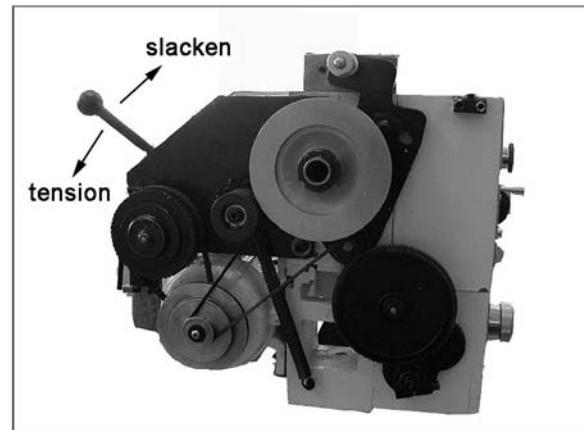


Figure 38

# Lubrication Schedule

(Figures 40 and 41)

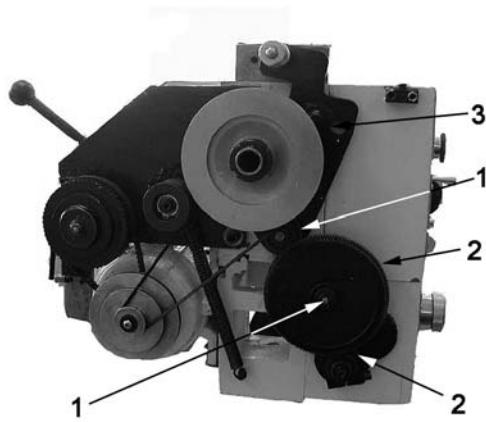
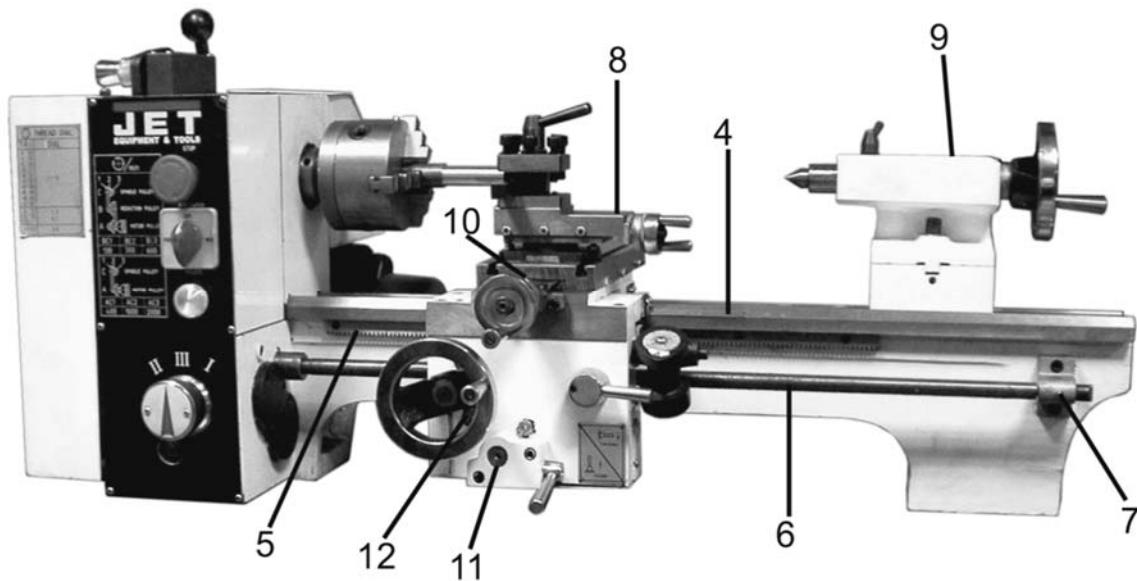


Figure 40

**Note: Lubricate all locations daily.**  
**Grease refers to #2 tube grease.**  
**Oil refers to 20W machine oil.**

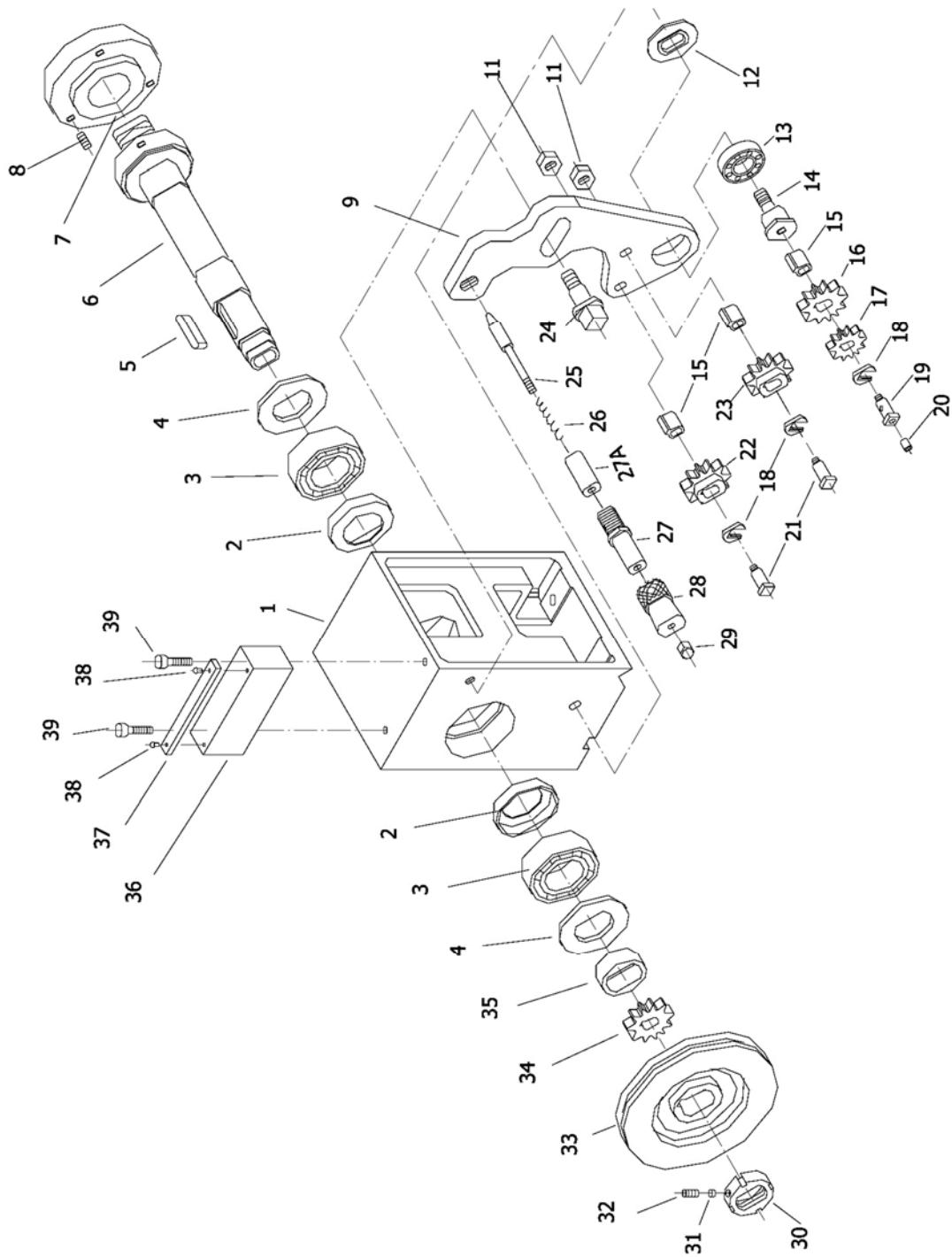
- 1 – 1 to 2 squirts of oil into oil ball on gear hub.
- 2 – Grease teeth of feed and change gears.
  - 1 to 2 squirts of oil into oil ball on gear hub.
- 3 – Lightly Coat gear teeth with oil.
  - 1 to 2 squirts of oil into oil ball on gear hub.
- 4 – Wipe bedways clean and coat lightly with oil.
- 5 – Grease rack over complete length.
- 6 – Clean and oil leadscrew over complete length.
- 7 – 1 to 2 squirts of oil into oil ball on leadscrew bracket.
- 8 – Lightly coat screw and guides of top slide with oil.
- 9 – 1 to 2 squirts of oil into oil ball on top of tailstock body.
- 10 – 1 to 2 squirts of oil into oil ball on top of carriage.
- 11 – 1 to 2 squirts of oil into hub for feed lever.
- 12 – 1 to 2 squirts of oil into two oil balls on apron front.



## Replacement Parts

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848, Monday through Friday (see our website for business hours, [www.waltermeier.com](http://www.waltermeier.com)). Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

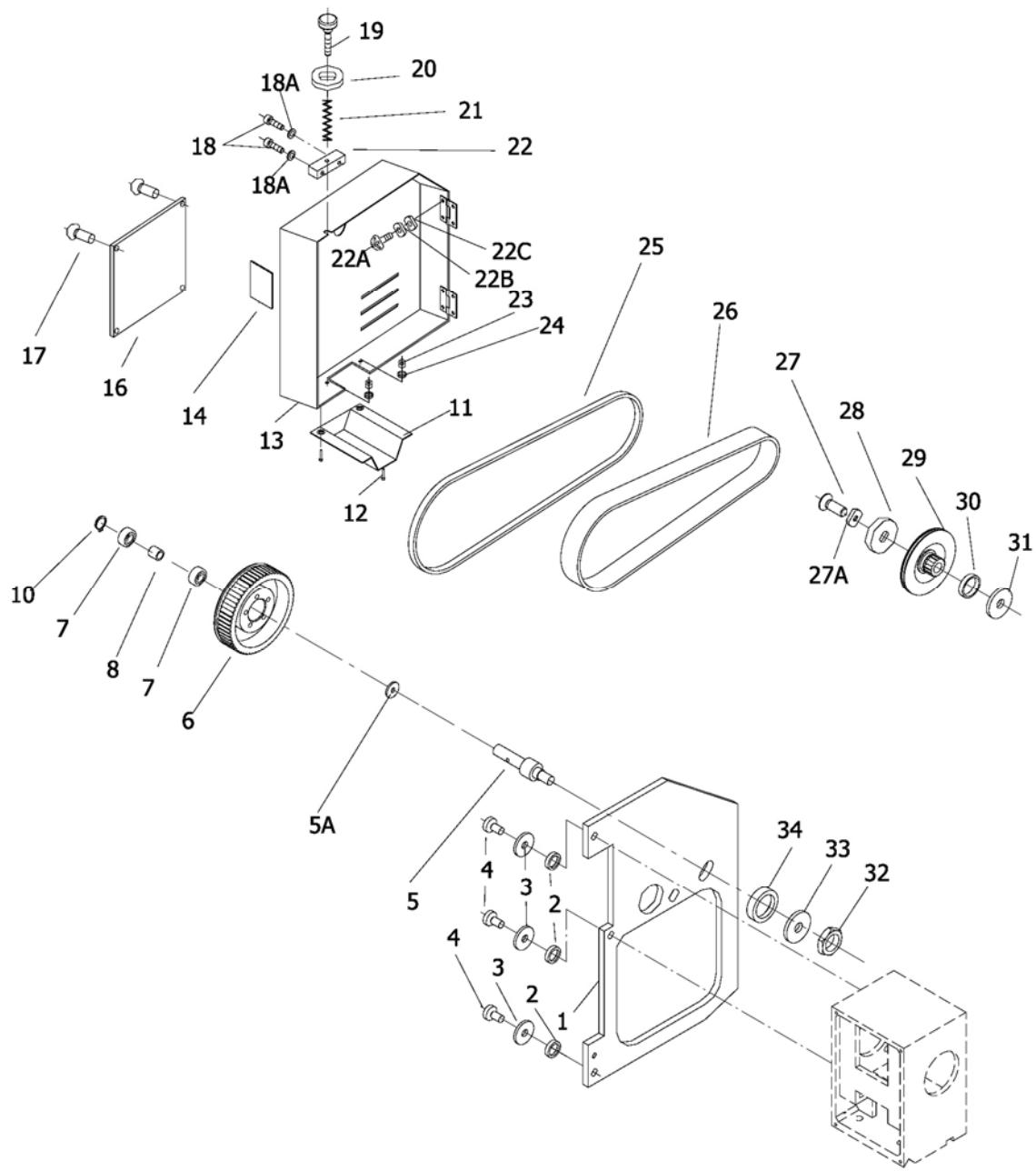
### Headstock Assembly – Exploded View



## Headstock Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1.....	BD920N-1002 .....	Headstock Casting .....		1
2.....	1003 .....	Cover .....		2
3.....	32007 .....	Ball Bearing.....		2
4.....	1005 .....	Gasket .....		2
5.....	BD920W-2008 .....	Key.....	8x5x38mm .....	1
6.....	BD920W-2106.....	Spindle .....		1
7.....	2107/1 .....	Flange Joint.....		1
8.....	TS-1523031 .....	Set Screw .....	M6x10 .....	1
9.....	2133 .....	Bracket.....		1
11.....	GB6170-85 .....	Hex Nut .....	M6.....	2
12.....	2127 .....	Collar .....		1
13.....	61904 .....	Ball Bearing.....	6904Z .....	1
14.....	2126/1 .....	Shaft .....		1
15.....	BD920W-1112.....	Bushing.....		3
16.....	1018 .....	Gear.....	40T .....	1
17.....	2027 .....	Gear.....	32T .....	1
18.....	1013 .....	Washer .....		3
19.....	2126/2 .....	Shaft .....		1
20.....	BD920N-009 .....	Oil Port.....	6mm .....	1
21.....	2128 .....	Shaft .....		2
22.....	BD920W-1110.....	Gear.....	35T .....	1
23.....	BD920W-1111.....	Gear.....	46T .....	1
24.....	BD920W-2130.....	Screw.....		1
25.....	3004 .....	Plunger .....		1
26.....	3005 .....	Spring .....		1
27.....	3003 .....	Bushing.....		1
27A .....	3003A .....	Spacer.....		1
28.....	3006 .....	Handle .....		1
29.....	GB923-88 .....	Cap Nut .....		1
30.....	1012 .....	Round Nut.....	M28x1 .....	1
32.....	GB77-85.....	Set Screw .....	M5x6 .....	1
33.....	1008 .....	Pulley .....		1
34.....	1011 .....	Gear.....	40T .....	1
35.....	1007 .....	Spacer .....		1
36.....	BD920W-1114.....	Bracket.....		1
37.....	BD920W-1115.....	Threading Direction Plate .....		1
38.....	GB818-85.....	Pan Head Screw.....	M3x5 .....	4
39.....	TS-1503091 .....	Hex Socket Cap Screw.....	M6x40 .....	2

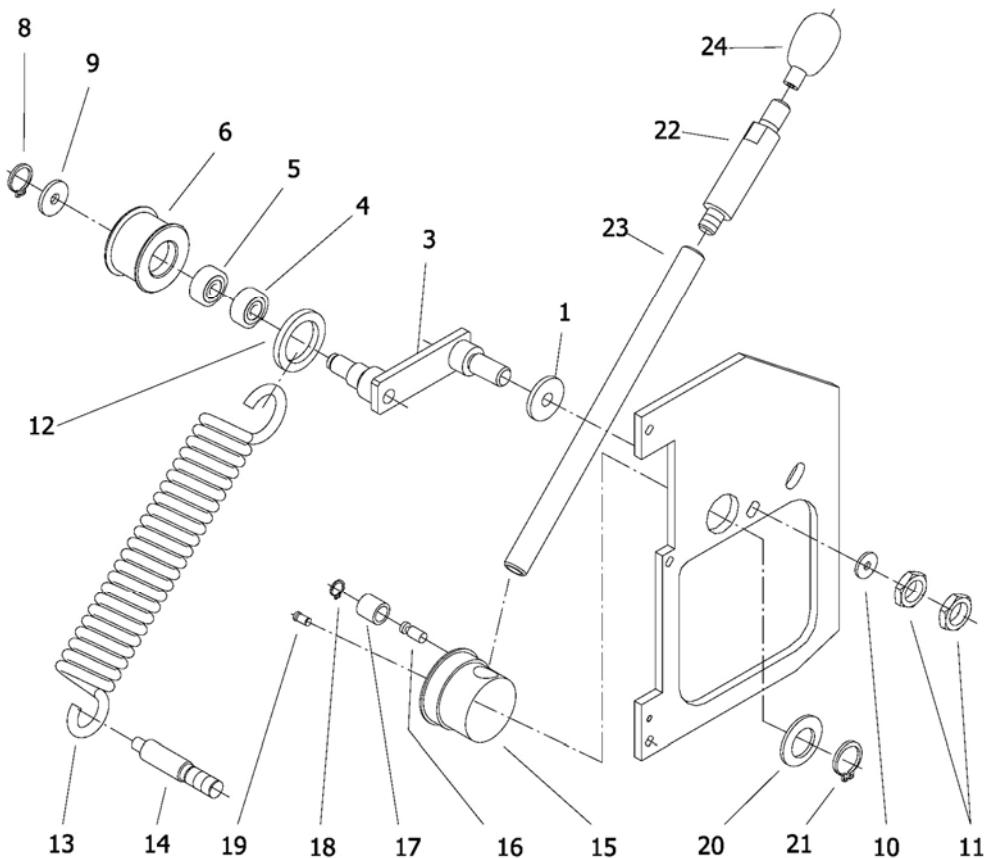
## Drive Assembly – Exploded View



## Drive Assembly – Parts List

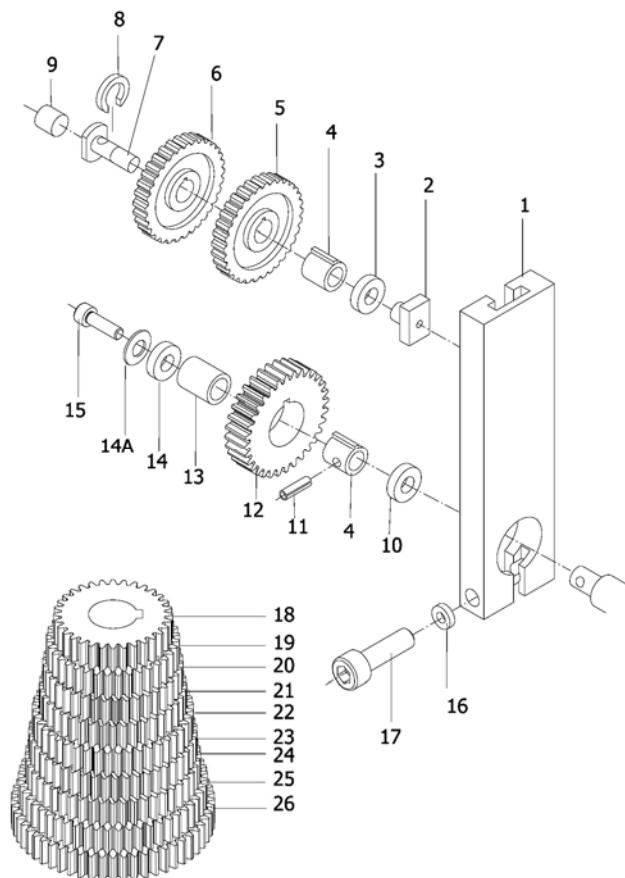
Index No.	Part No.	Description	Size	Qty
	BD920N-3J.B.S.	4-inch 3-Jaw Chuck (not shown)		1
	BD920N-CJ3	Chuck Jaw Set (set of 3; not shown)		1
	BD920N-ST	Spanner Tool for Chuck (not shown)		1
	FJ1001	4-Jaw Chuck 1-1/2" x 7 (not shown)		1
	FJ1002	1-1/2" x 8 Backplate (not shown)		1
	FJ1003	Face Plate 1-1/2" x 8 (not shown)		1
	FJ1004	Spindle with 1-1/2" x 8 TPI (not shown)		1
	BD920N-FCK	Female Chuck Key (not shown)		1
	BD920N-MCK	Male Chuck Key (not shown)		2
1	BD920W-0006	Bracket		1
2	TS-1550061	Flat Washer	8mm	3
3	TS-1551061	Lock Washer	8mm	3
4	TS-1504041	Hex Socket Cap Screw	M8x20	3
5	2113	Shaft		1
5A	1028	Washer		1
6	2112	Pulley		1
7	6001RS	Ball Bearing	6001RS	2
8	2114	Spacer		1
10	GB894-76	Snap Ring	12mm	1
11	2110/1	Cover		1
12	TS-1533032	Pan Head Screw	M5x10	2
13	BD920W-0007	Cover		1
14	2104A	Label – Thread Dial		1
15	BD920W-1108	Machine Label (not shown)		1
16	BD920W-2105	Threading Chart Plate		1
17	TS-1531012	Phillips Pan Head Machine Screw	M3x4	4
18	TS-1503051	Hex Socket Cap Screw	M6x20	2
18A	TS-1550041	Washer	6mm	2
19	TS-1503061	Hex Socket Cap Screw	M6x25	1
20	TS-2361061	Lock Washer	6mm	1
21	BD920W-2003	Spring		1
22	BD920W-2004	Bracket		1
22A	TS-1503011	Socket Head Cap Screw	M6x8	4
22B	TS-2361061	Lock Washer	6mm	4
22C	TS-1550041	Washer	6mm	4
23	TS-1540031	Hex Nut	M5	2
24	TS-1550031	Washer	5mm	4
25	VB-5M710	V-Belt		1
26	VB-170xL050	Cog Belt		1
27	GB818-85	Screw	M6x10	1
27A	GB971-85	Lock Washer	6mm	1
28	BD920W-4033	Washer	6mm	1
29	BD920W-1012	Pulley		1
30	BD920W-1013	Collar		1
31	BD920W-1014	Washer		1
32	TS-1540071	Hex Nut	M10	1
33	TS-2361101	Lock Washer	10mm	1
34	2041/1	Washer	10mm	1
35	BD920N-NOTE	Label – Note: Avoid Breaking (not shown)		1

## Tension Roller Assembly – Exploded View & Parts List



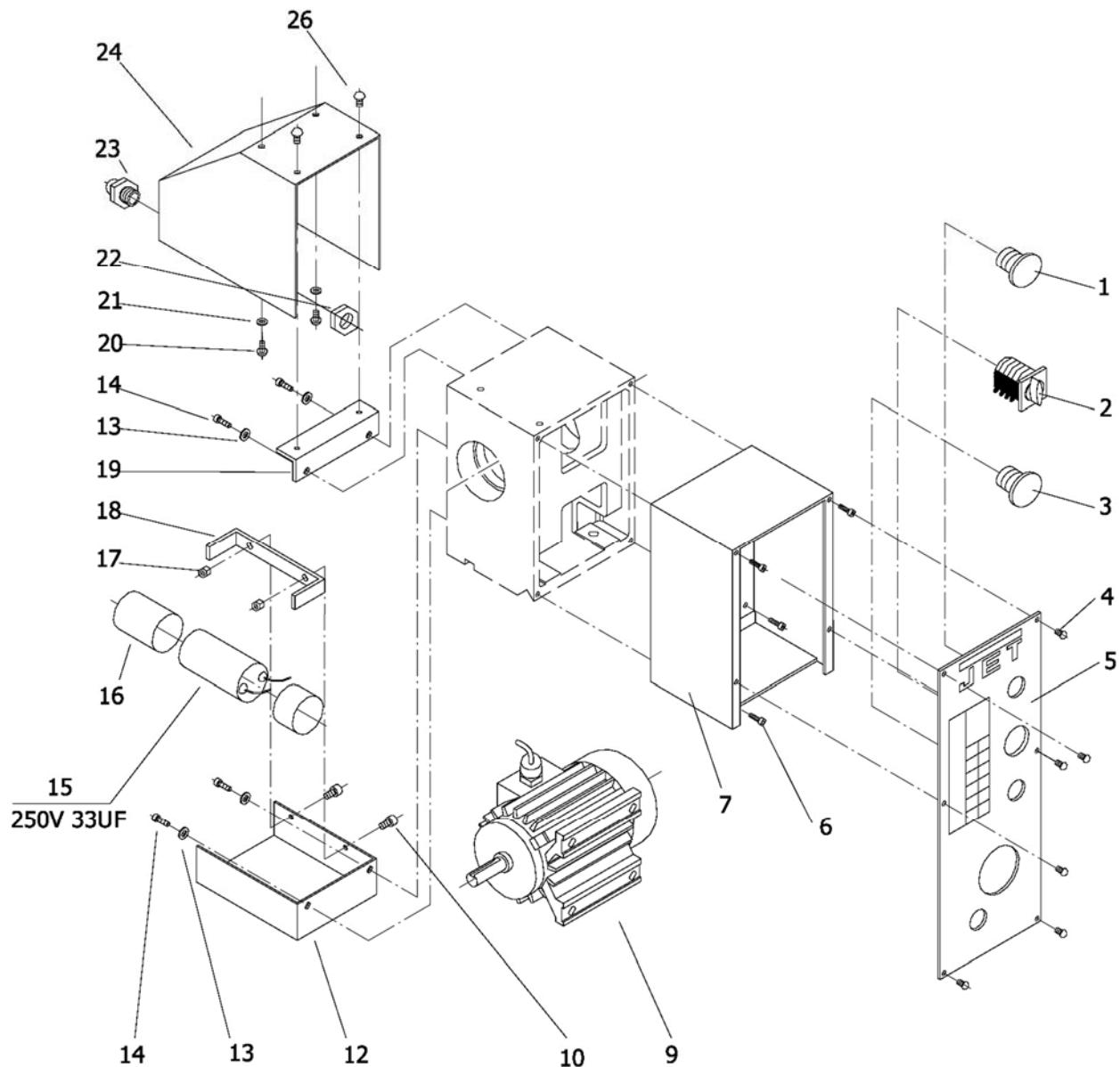
Index No.	Part No.	Description	Size	Qty
1	1040N	Washer	16mm	1
3	1035A	Swing Arm		1
4	BD920N-TR05	Ball Bearing	6001RS	1
5	BD920N-TR05	Ball Bearing	6001RS	1
6	1039	Roller		1
8	BD920N-TR08	Snap Ring	12mm	1
9	1038	Washer	28mm	1
10	TS-1550071	Washer	10mm	1
11	TS-1540071	Nut	M10	2
12	1036	Washer		1
13	1037	Spring		1
14	1050	Stud Bolt		1
15	1032	Toggle		1
16	1051	Pin		1
17	1033	Sleeve		1
18	BD920N-TR18	Snap Ring	6mm	1
19	TS-1524011	Set Screw	M8x8	1
20	1034	Wave Washer		1
21	BD920N-TR21	Snap Ring	35mm	1
22	1042	Lever		1
23	1043	Lever		1
24	1044A	Knob		1

## Quadrant Assembly – Exploded View & Parts List



Index No.	Part No.	Description	Size	Qty
1	2003A	Bracket.....		1
2	2004	T-Nut.....		1
3	TS-1550041	Washer .....		1
4	2009	Bushing.....		2
5	BD920N-2001	Gear.....	127T.....	1
6	BD920N-2002	Gear.....	120T.....	1
7	BD920N-2005	Shaft .....		1
8	BD920N-2006	Washer .....		1
9	BD920N-Q09	Oil Port.....	6mm.....	1
10	TS-1550071	Washer .....	10mm.....	1
11	BD920N-Q11	Spring Pin .....	3x12mm.....	1
12	2071	Gear.....	60T.....	1
13	2008	Spacing Ring .....		1
14	TS-1550041	Washer .....	6mm.....	1
14A	TS-1551041	Lock Washer.....	6mm.....	1
15	TS-1503031	Hex Socket Cap Screw.....	M6x12.....	1
16	TS-1551041	Lock Washer.....	6mm.....	1
17	TS-1503091	Hex Socket Cap Screw.....	M6x40.....	1
18	2070	Gear.....	32T.....	1
19	2011	Gear.....	36T.....	1
20	BD920W-2020	Gear.....	38T.....	1
21	2072	Gear.....	40T.....	1
22	2073	Gear.....	44T.....	1
23	2074	Gear.....	46T.....	1
24	2075	Gear.....	48T.....	1
25	2076	Gear.....	52T.....	1
26	BD920W-2014	Gear.....	56T.....	1

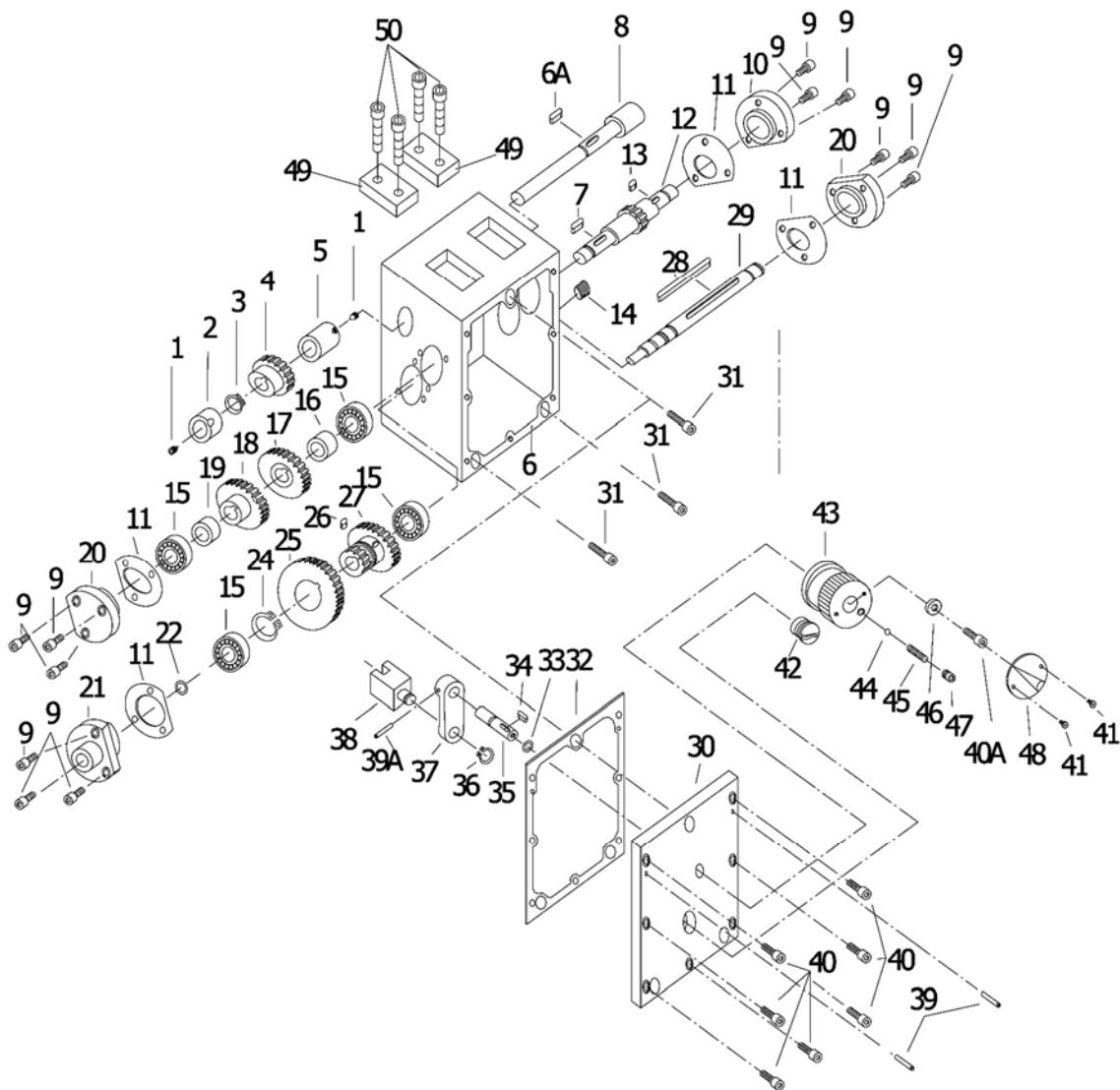
## Electrical Assembly – Exploded View



## Electrical Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	BD920N-E20	EMG Switch		1
2	BD920N-E21	Switch		1
3	BD920N-E22	Indicator Light		1
4	TS-1531012	Phillips Pan Head Machine Screw	M3x5	6
5	BD920W-02001	Plate		1
6	BD920N-E10	Hex Screw	M5x10	4
7	BD920W-1116	Electrical Control Box		1
9	BD920N-E11	Motor	.3/4HP, 115V, 60Hz	1
	BD920N-E11-1	Motor Junction Box Cover		1
	BD920N-MOTORFAN	Motor Fan (not shown)		1
10	TS-1502021	Socket Head Cap Screw	M5x10	2
12	BD920W-1104	Housing		1
13	TS-2361061	Lock Washer	6mm	4
14	TS-1503031	Screw	M6x12	4
15	BD920N-E06	Condenser		1
16	BD920N-E05	Condenser Clip		1
17	TS-1540031	Nut	M5	2
18	BD920N-E16	Capacitor Support		1
19	1103	Bracket		1
20	TS-1533032	Phillips Pan Head Machine Screw	M5x10	2
21	TS-2361051	Lock Washer	5mm	2
22	BD920N-E07	Lock Nut		1
23	BD920N-E08	Screw Coupling		1
24	BD920W-1105	Housing		1
26	GB818-85	Hex Screw	M5x6	4
	3TF31	Contactor (not shown)		1

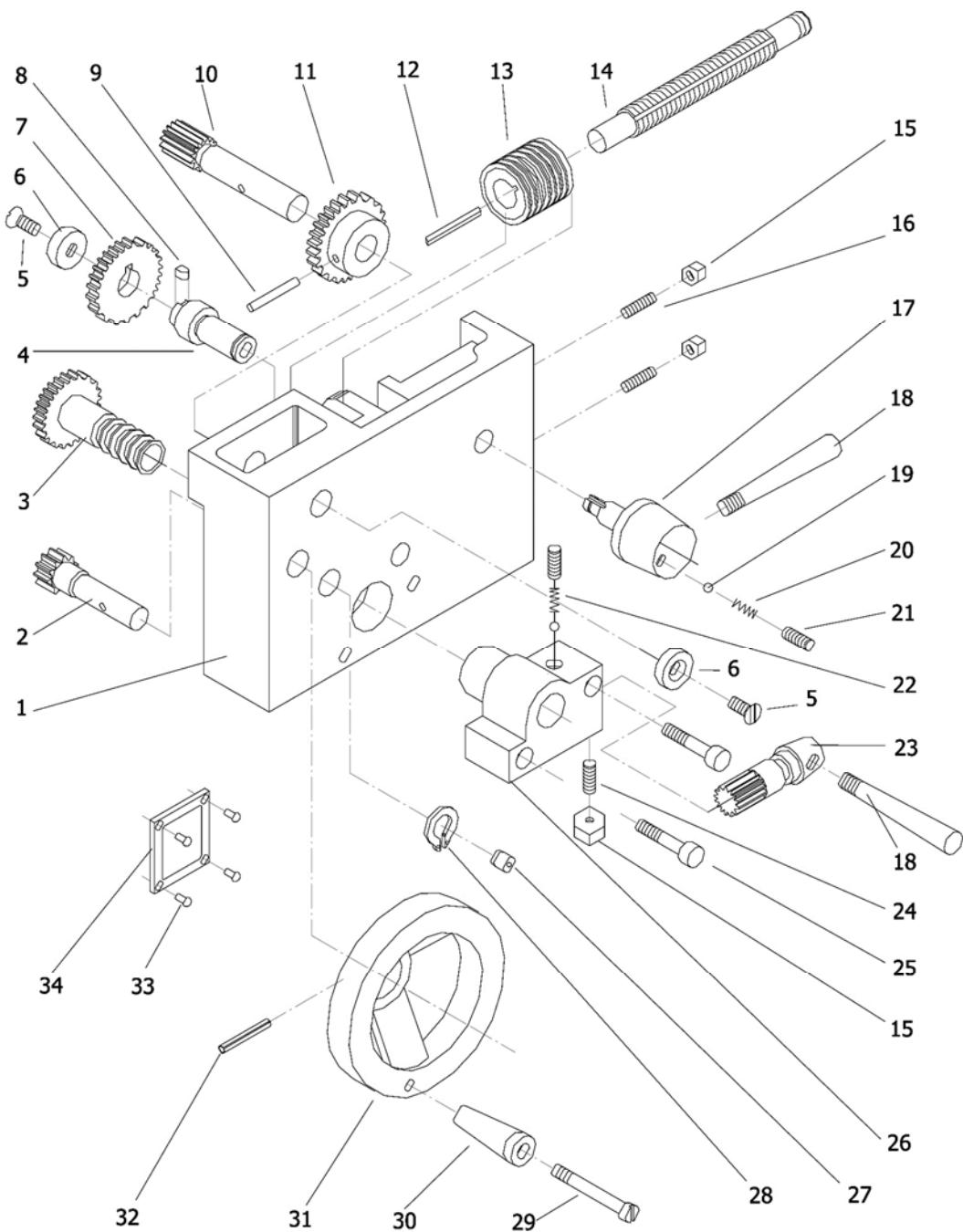
## Gear Box Assembly – Exploded View



## Gear Box Assembly – Parts List

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	TS-1522011	Set Screw .....	M5x6 .....	1
2	BD920N-GB02	Bushing.....		1
3	BD920N-GB15	Snap Ring.....	16mm.....	1
4	CQ6123B-3114	Gear.....	27T.....	1
5	CQ6123B-3115	Bushing.....		1
6	CQ6123B-3101	Gear Box Casting .....		1
6A	CQ6123B-3101A	Key.....	5x8mm.....	1
7	BD920N-GB07	Key.....	5x16mm.....	1
8	CQ6123B-3113	Shaft .....		1
9	TS-1503021	Socket Head Cap Screw.....	M6x10 .....	12
10	CQ6123B-3122	Cover .....		1
11	CQ6123B-3110	Gasket .....		4
12	CQ6123B-3108	Gear Shaft Assembly.....	18T.....	1
13	BD920N-GB13	Key.....	5x10mm.....	1
14	BD920N-05-75	Oil Plug .....		1
15	BB-6202ZZ	Ball Bearing .....	6202ZZ.....	4
16	CQ6123B-3123	Bushing.....		1
17	CQ6123B-3124	Gear.....	27T.....	1
18	CQ6123B-3111	Gear.....	36T.....	1
19	CQ6123B-3109	Bushing.....		1
20	CQ6123B-3107	Cover .....		2
21	CQ6123B-3105	Cover .....		1
22	BD920N-GB22	O-Ring .....	10x1.8mm.....	1
24	BD920W-GB24	Snap Ring .....	30mm.....	1
25	CQ6123B-3103	Gear.....	36T.....	1
26	CQ6123B-3101A	Key.....	5x8mm.....	1
27	CQ6123B-3102	Gear.....	18T, 27T.....	1
28	CQ6123B-3104	Key.....	5x68mm.....	1
29	CQ6123B-3106	Shaft .....		1
30	CQ6123B-3118	Cover .....		1
31	TS-1504041	Socket Head Cap Screw.....	M8x20 .....	3
32	CQ6123B-3117	Gasket .....		1
33	GB3452.1-82	O-Ring .....	8.75x1.8mm .....	1
34	BD920W-79	Key.....	4x12mm.....	1
35	CQ6123B-3116	Shaft .....		1
36	BD920N-TR08	Snap Ring .....	12mm.....	1
37	CQ6123B-3119	Shift Lever .....		1
38	CQ6123B-3120	Shift Fork .....		1
39	BD920N-GB39	Spring Pin .....	4x20mm .....	2
39A	BD920N-GB39A	Spring Pin .....	5x25mm .....	1
40	BD920N-GB40	Socket Head Cap Screw.....	M5x14 .....	7
40A	TS-1503031	Socket Head Cap Screw.....	M6x12 .....	1
41	TS-1531012	Pan Head Machine Screw .....	M3x6 .....	2
42	BD920N-GB42	Oil Sight Glass .....		1
43	BD920N-05-09	Knob .....		1
44	SB-6MM	Steel Ball .....	6mm.....	1
45	GB2089-80	Spring .....	1x6x28mm .....	1
46	BD920N-05-08	Washer .....		1
47	TS-1524011	Set Screw .....	M8x8 .....	1
48	BD920N-05-70	Plate .....		1
49	BD920W-0301	Cover .....		2
50	BD920W-S1	Flat Head Screw .....	M5x8 .....	8

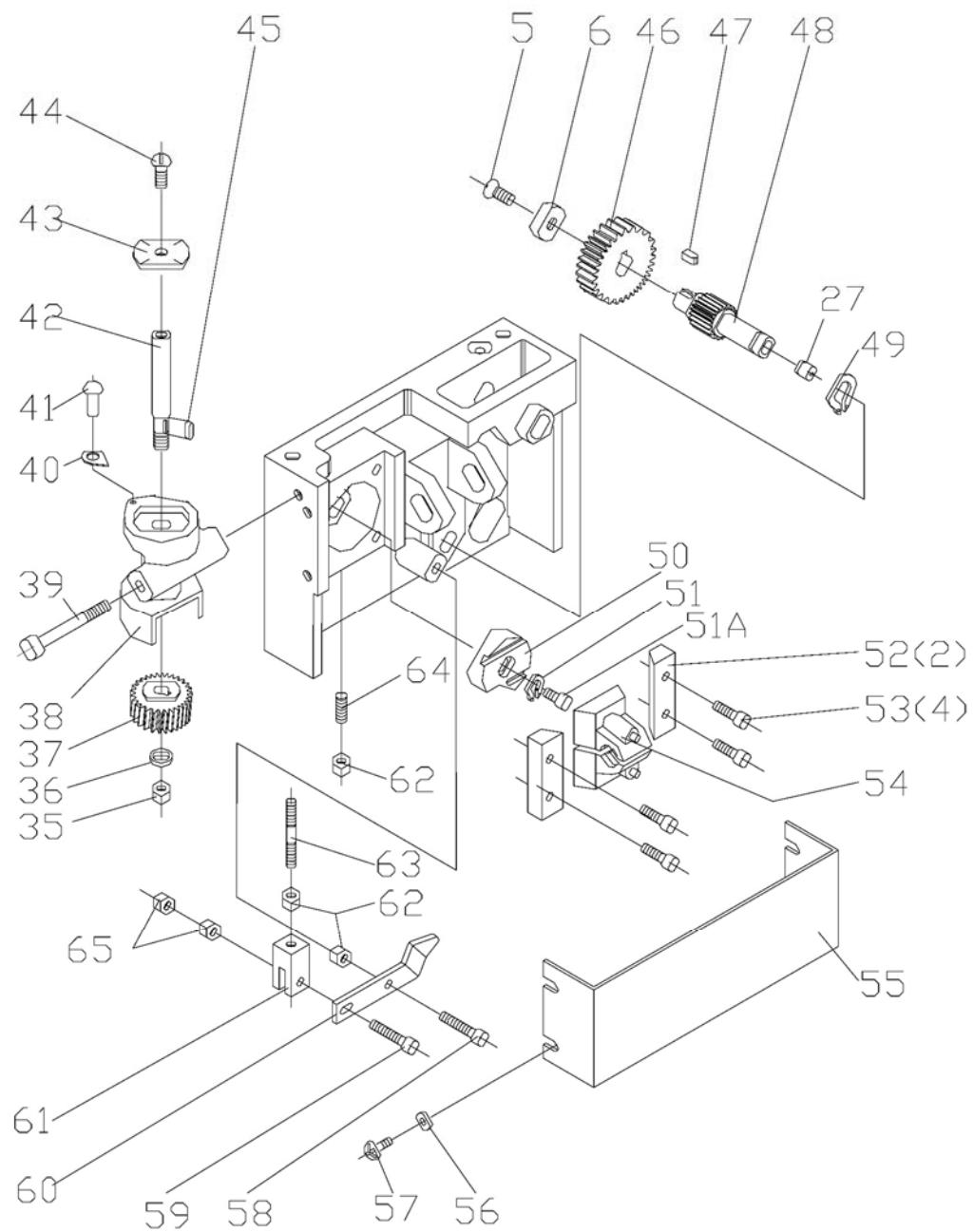
## Apron Assembly – Exploded View



## Apron Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	4006	Apron Casting.....		1
2	4004	Gear.....	17T.....	1
3	4011	Gear.....	36T.....	1
4	4009	Shaft.....		1
5	BD920N-A14	Flat Head Screw.....	M6x8.....	3
6	4005	Washer .....		3
7	4010	Gear.....	41T.....	1
8	BD920N-A26	Key.....	4x6mm.....	1
9	BD920N-A16	Spring Pin .....	4x30mm.....	1
10	4008	Gear.....	12T.....	1
11	4007	Gear.....	43T.....	1
12	BD920W-4012	Key.....	3x28mm.....	1
13	4033	Worm .....		1
14	7003	Feed Screw.....	16TPI .....	1
15	TS-1540021	Nut .....	M4.....	2
16	TS-1521051	Set Screw .....	M4x12 .....	2
17	BD920W-0002	Shaft .....		1
18	4015A	Handle .....		2
19	BD920N-A09	Steel Ball.....	4.5mm.....	2
20	4021	Spring .....		1
21	TS-1523011	Set Screw .....	M6x6 .....	2
22	4025	Spring .....		1
23	4014	Gear.....	13T.....	1
24	TS-1521041	Set Screw .....	M4x10 .....	1
25	TS-1503071	Socket Head Cap Screw.....	M6x30 .....	2
26	4013	Bracket.....		1
27	BD920N-A29	Oil Port.....	6mm.....	2
28	BD920N-A28	Snap Ring .....	14mm.....	1
29	BD920N-4002	Screw.....		1
30	4001	Handle .....		1
31	4003	Hand Wheel .....		1
32	BD920N-A32	Spring Pin .....	4x25mm .....	1
33	BD920N-A36	Rivet.....	2x3mm .....	4
34	4018	Label: Half-Nut Lever .....		1

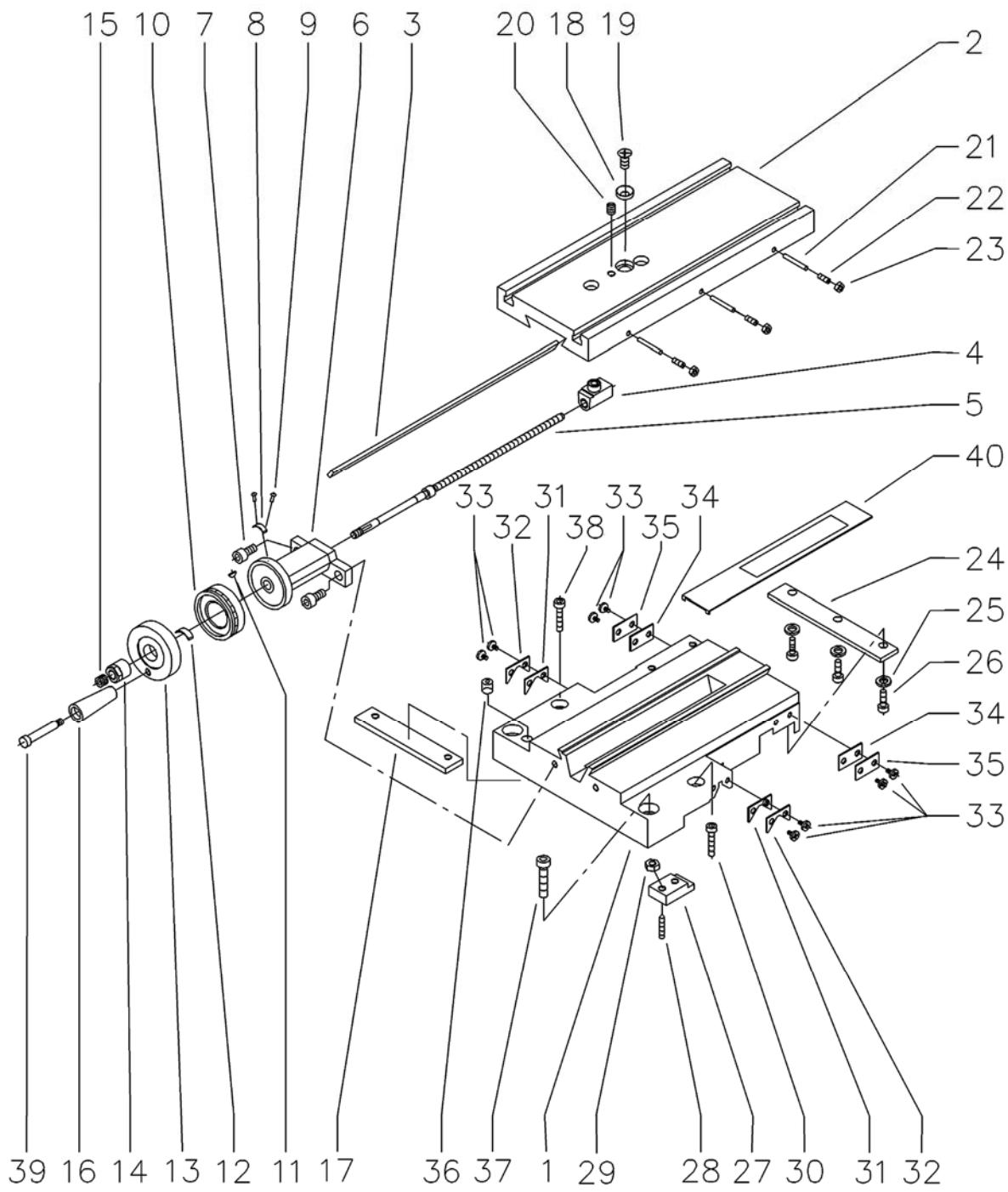
## Apron Assembly (continued) – Exploded View



## Apron Assembly (*continued*) – Parts List

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
35	TS-1540061	Hex Nut.....	M8.....	1
36	TS-1550061	Washer .....	8mm.....	1
37	4029	Worm Gear .....	64T.....	1
38	4036	Thread Dial Body .....		1
39	TS-1503131	Socket Head Cap Screw.....	M6x60 .....	1
40	4024	Pointer .....		1
41	BD920N-A62	Rivet.....	2x3mm.....	1
42	4028	Shaft .....		1
43	4027	Dial.....		1
44	TS-1503011	Socket Head Cap Screw.....	M6x8 .....	1
45	BD920N-A56	Key.....	3x8mm.....	1
46	4012	Worm Gear .....	42T.....	1
47	BD920N-A38	Key.....	4x10mm .....	1
48	4016	Gear.....	18T.....	1
49	BD920N-A40	Ring .....	12mm.....	1
50	4019	Locking Cam.....		1
51	BD920N-A44	Ring .....	4mm.....	1
51A	TS-1501011	Socket Head Cap Screw.....	M4x6 .....	1
52	4020	Guide .....		2
53	TS-1501051	Hex Socket Cap Screw.....	M4x16 .....	4
54	4017	Half Nut.....		1
55	4023	Apron Cover.....		1
56	TS-1550021	Washer .....	4mm.....	4
57	TS-1532021	Pan Head Machine Screw .....	M4x6 .....	4
58	TS-1502041	Socket Head Cap Screw.....	M5x16 .....	1
59	TS-1501061	Socket Head Cap Screw.....	M4x20 .....	1
60	4032	Joint Plate .....		1
61	4030	Control Block .....		1
62	TS-1540031	Hex Nut.....	M5.....	3
63	4031	Screw.....	M5x40 .....	1
64	BD920N-A46	Set Screw .....	M5x25 .....	1
65	TS-1540021	Hex Nut.....	M4.....	2

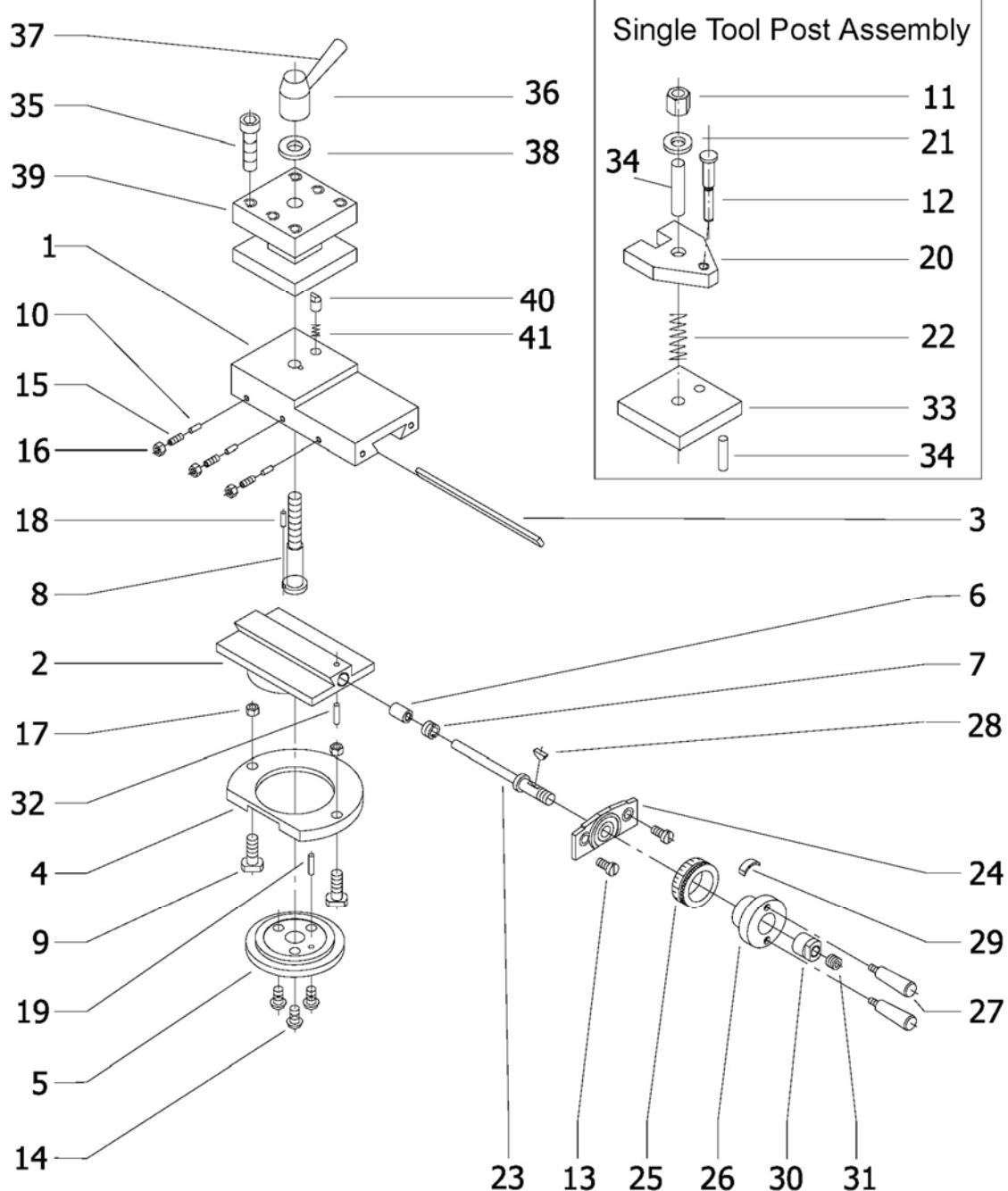
## Saddle and Cross Slide – Exploded View



## Saddle and Cross Slide Assembly – Parts List

<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	5005	Saddle.....		1
2	5006	Cross Slide .....		1
3	5002	Gib .....		1
4	5036	Nut .....		1
5	5018	Lead Screw.....		1
6	5019	Bracket.....		1
7	TS-1503041	Socket Head Cap Screw.....	M6x16 .....	2
8	5026	Plate.....		1
9	BD920N-CS09	Rivet.....	1.5x3mm .....	2
10	5020	Graduated Ring .....		1
11	BD920N-CS11	Key.....	3x10mm .....	1
12	5023	Spring .....		1
13	5021	Hand Wheel.....		1
14	5022	Hex Nut.....		1
15	BD920N-CS15	Set Screw .....	M8x6 .....	1
16	5025	Handle .....		1
17	5003	Slide Block.....		1
18	5037	Bushing.....		1
19	BD920N-A14	Flat Head Screw .....	M6x8 .....	1
20	TS-1523021	Set Screw .....	M6x8 .....	1
21	5001	Pin.....		3
22	TS-1521041	Set Screw .....	M4x10 .....	3
23	TS-1540021	Nut .....	M4 .....	3
24	5016	Slide Block.....		1
25	TS-1550041	Washer .....	M6 .....	3
26	TS-1503041	Socket Head Cap Screw.....	M6x16 .....	3
27	5017	Clip.....		1
28	TS-1523061	Set Screw .....	M6x20 .....	1
29	TS-1540041	Nut .....	M6 .....	1
30	TS-1503061	Socket Head Cap Screw.....	M6x25 .....	1
31	5042	Way Cover .....		2
32	5041	Cover Mount .....		2
33	TS-1432012	Pan Head Screw.....	M4x8 .....	8
34	5040	Way Cover .....		2
35	5039	Cover Mount .....		2
36	BD920N-CS36	Oil Port .....	8mm .....	1
37	TS-1504061	Socket Head Cap Screw.....	M8x30 .....	2
38	TS-1503061	Socket Head Cap Screw.....	M6x30 .....	1
39	5024	Handle Screw .....		1
40	5038	Cover Mount .....		1

## Top Slide Assembly – Exploded View



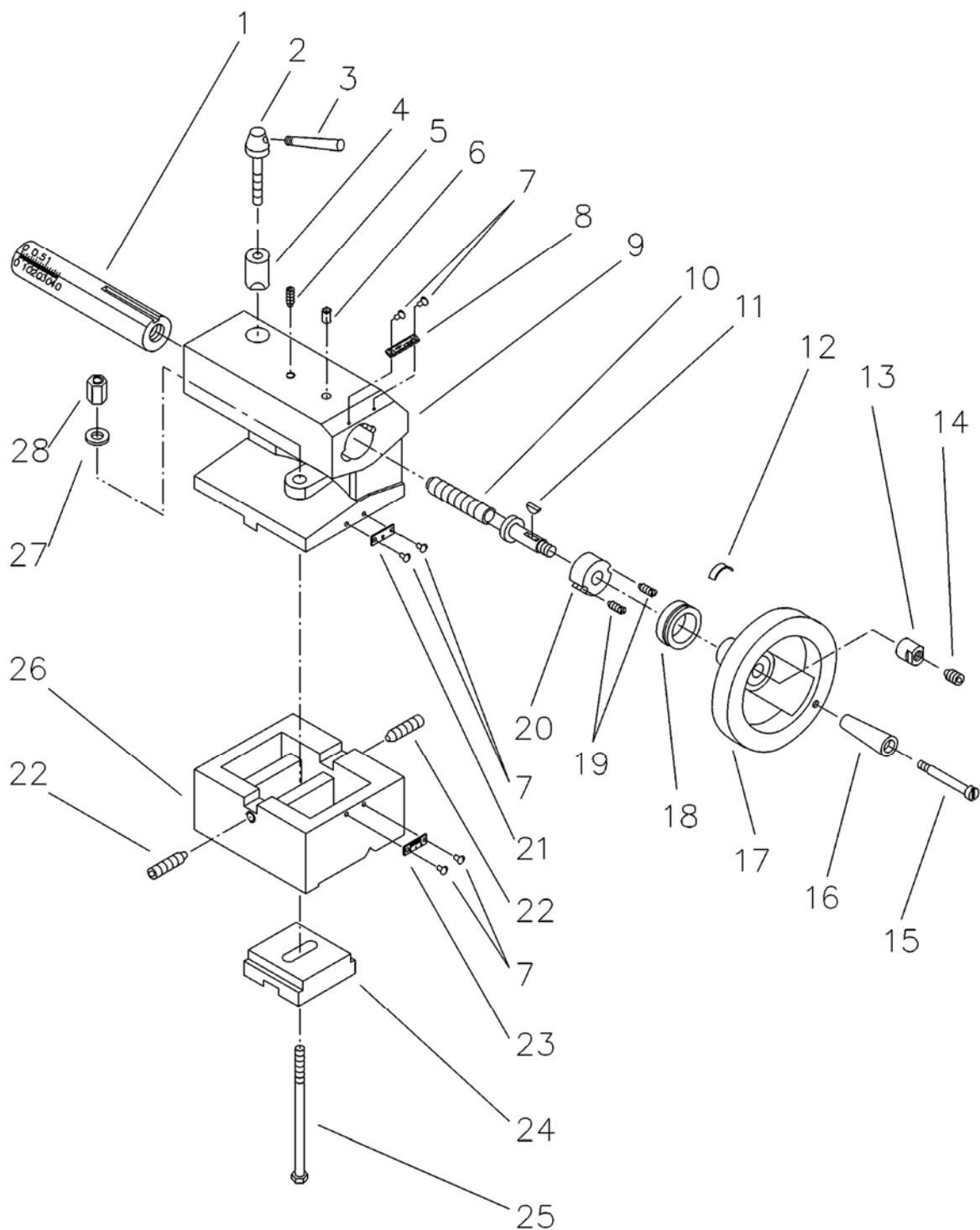
## Top Slide Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
	BD920N-TSA	Top Slide Assembly without Tool Post (index nos. 1-32, 36-38, 40, 41)		1
	BD920N-TP	Four Way Tool Post, Complete (index nos. 35 and 39)		1
1	5011	Longitudinal Slide		1
2	5010	Swivel Base		1
3	5028	Gib		1
4	5008	Clamping Plate		1
5	5009	Micrometer Pan		1
6	5013	Lead Screw Nut		1
7	5014	Adjusting Screw		1
8	5033	Screw		1
9	5007	T-Screw		2
10	5027	Pin		3
13	TS-1502021	Socket Head Cap Screw	M5x10	2
14	BD920N-TS14	Flat Head Screw	M6x10	3
15	TS-1521041	Set Screw	M4x10	3
16	TS-1540021	Nut	M4	3
17	TS-1540041	Nut	M6	2
18	BD920N-TS18	Lock Pin	4x12mm	1
19	BD920N-TS19	Lock Pin	3x14mm	1
23	5012	Lead Screw		1
24	5043	Lead Screw Mount		1
25	5004	Micrometer Collar		1
26	5031	Handwheel		1
27	5015	Handle		2
28	BD920N-TS28	Key	3x13mm	1
29	5023	Feed Spring		1
30	5022	Nut		1
31	BD920N-TS31	Set Screw	M8x6	1
32	BD920N-TS32	Lock Pin	3x12mm	1
35	BD920N-TS35	Bolt	M8x30	8
36	BD920N-H.S.	Handle Seat		1
37	BD920N-H	Handle		1
38	BD920N-TS38	Washer		1
39	BD920N-TS39	4-Way Tool Post		1
40	BD920N-TS40	Pin		1
41	BD920N-TS41	Spring		1

### Single Tool Post Assembly:

	BD920N-STP	Single Tool Post Assembly (contains all items below)		1
11	5032	Nut		1
12	TS-1490051	Hex Cap Screw	M8x30	1
20	5030	Tool Clamp		1
21	BD920N-TS21	Washer	M8	1
22	5034	Spring		1
33	5029	Plate		1
34	5035	Pin	8x20mm	1

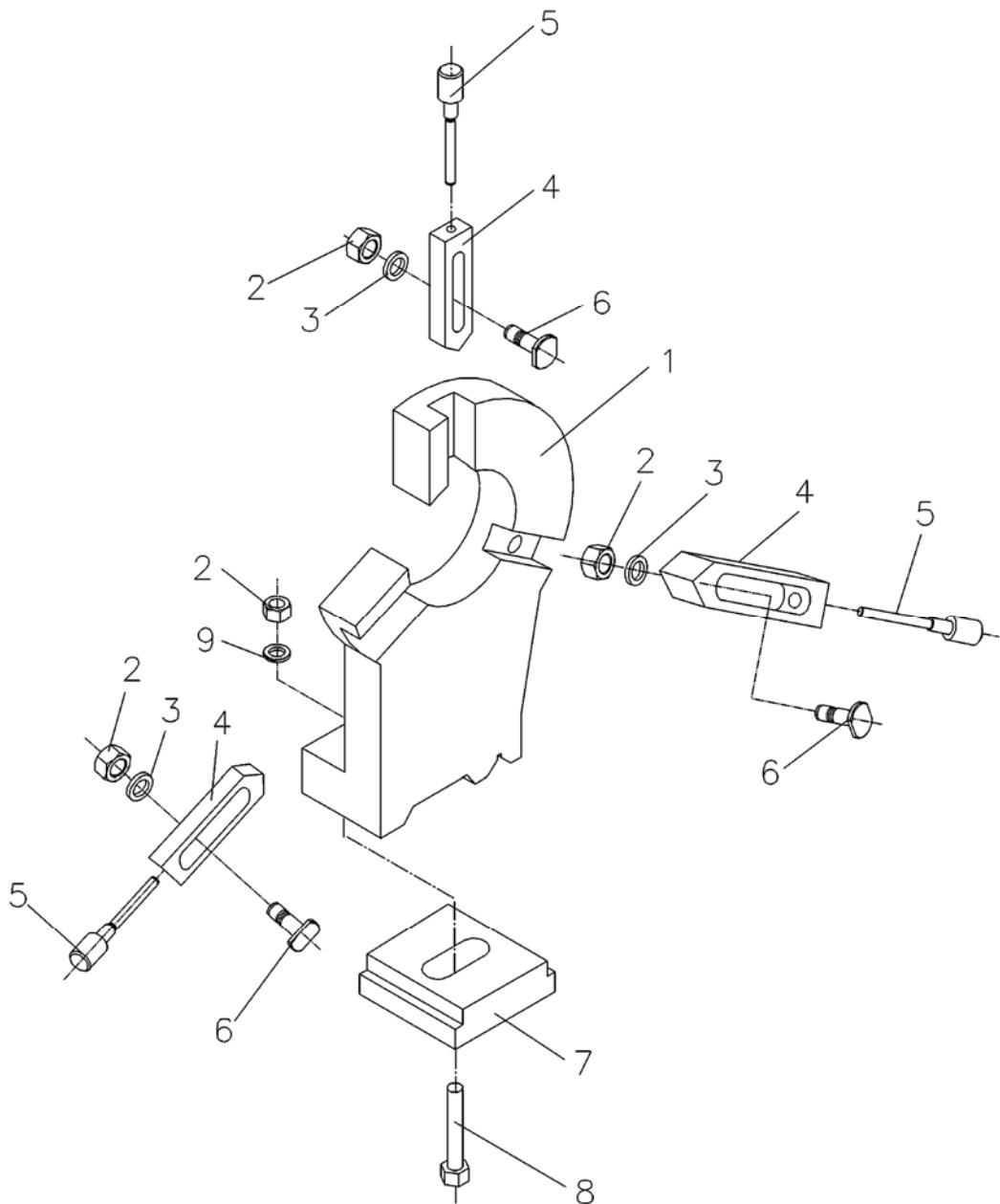
## Tailstock Assembly – Exploded View



## Tailstock Assembly – Parts List

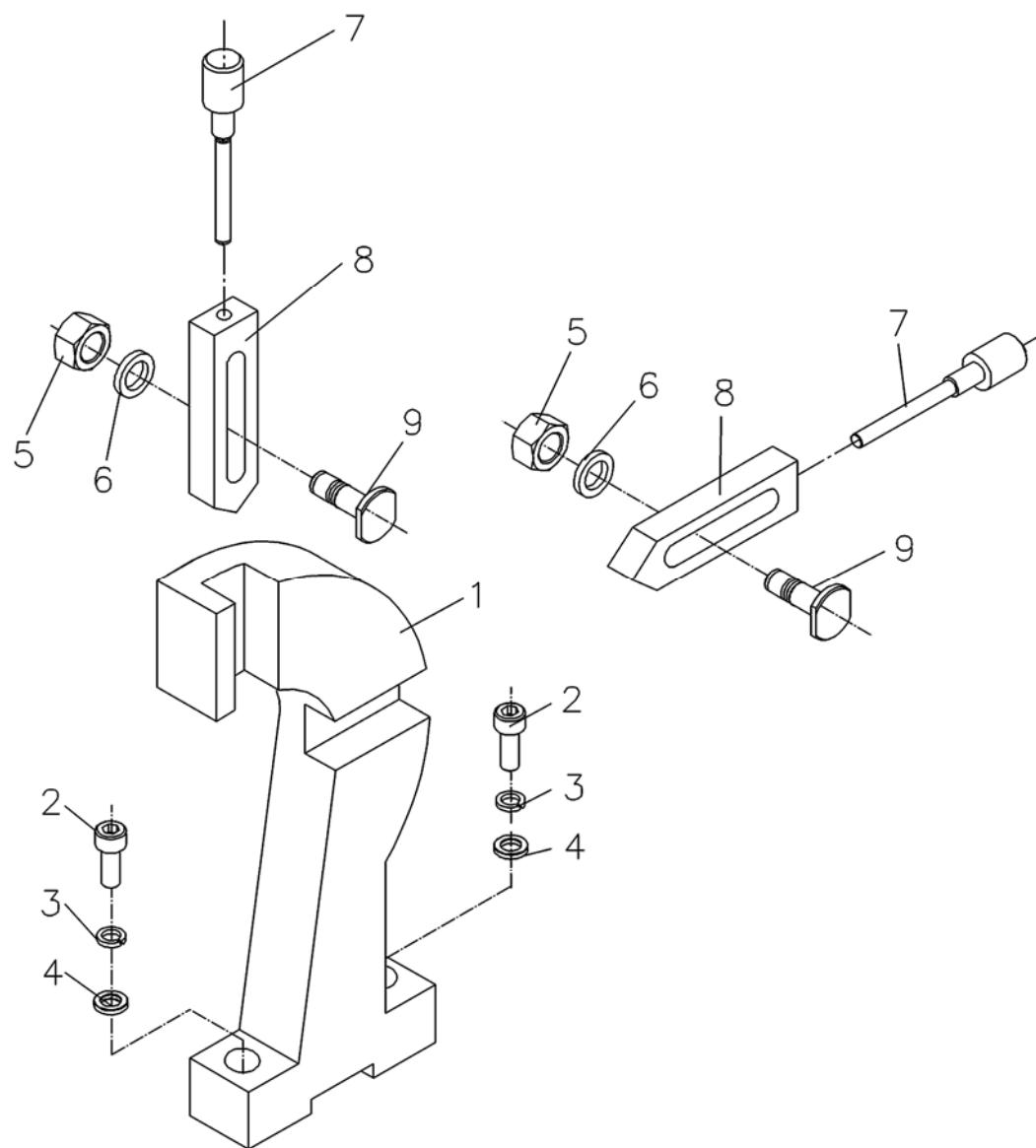
<b>Index No.</b>	<b>Part No.</b>	<b>Description</b>	<b>Size</b>	<b>Qty</b>
1	8009	Tailstock Ram.....		1
2	8008	Lever.....		1
3	BD920N-H	Handle .....		1
4	8001	Clamp .....		1
5	BD920N-T08	Guide Pin.....	M5x10 .....	1
6	BD920N-T20	Oil Port.....	6mm .....	1
7	BD920N-T19	Rivet.....	1.5x3mm .....	6
8	8012	Off Set Indicator Plate.....		1
9	8005	Tailstock Body .....		1
10	8010	Leadscrew .....		1
11	BD920N-T17	Key.....	3x10mm .....	1
12	5023	Feed Spring .....		1
13	BD920N-8014	Nut .....		1
14	TS-1524011	Set Screw .....	M8x8 .....	1
15	BD920N-4002	Screw.....		1
16	4001	Handle .....		1
17	8013	Handwheel.....		1
18	8016	Micrometer Collar .....		1
19	BD920N-T27	Screw.....	M5x6 .....	2
20	8011	Bushing.....		1
21	BD920N-T26	Label.....		1
22	TS-1524061	Set Screw .....	M8x25 .....	2
23	BD920N-T25	Label.....		1
24	8015	Clamping Plate .....		1
25	8007	Screw.....	M8x100 .....	1
26	8002	Tailstock Base .....		1
27	TS-1550061	Washer .....	M8 .....	1
28	8006	Nut .....	M8.....	1

## Steady Rest Assembly – Exploded View & Parts List



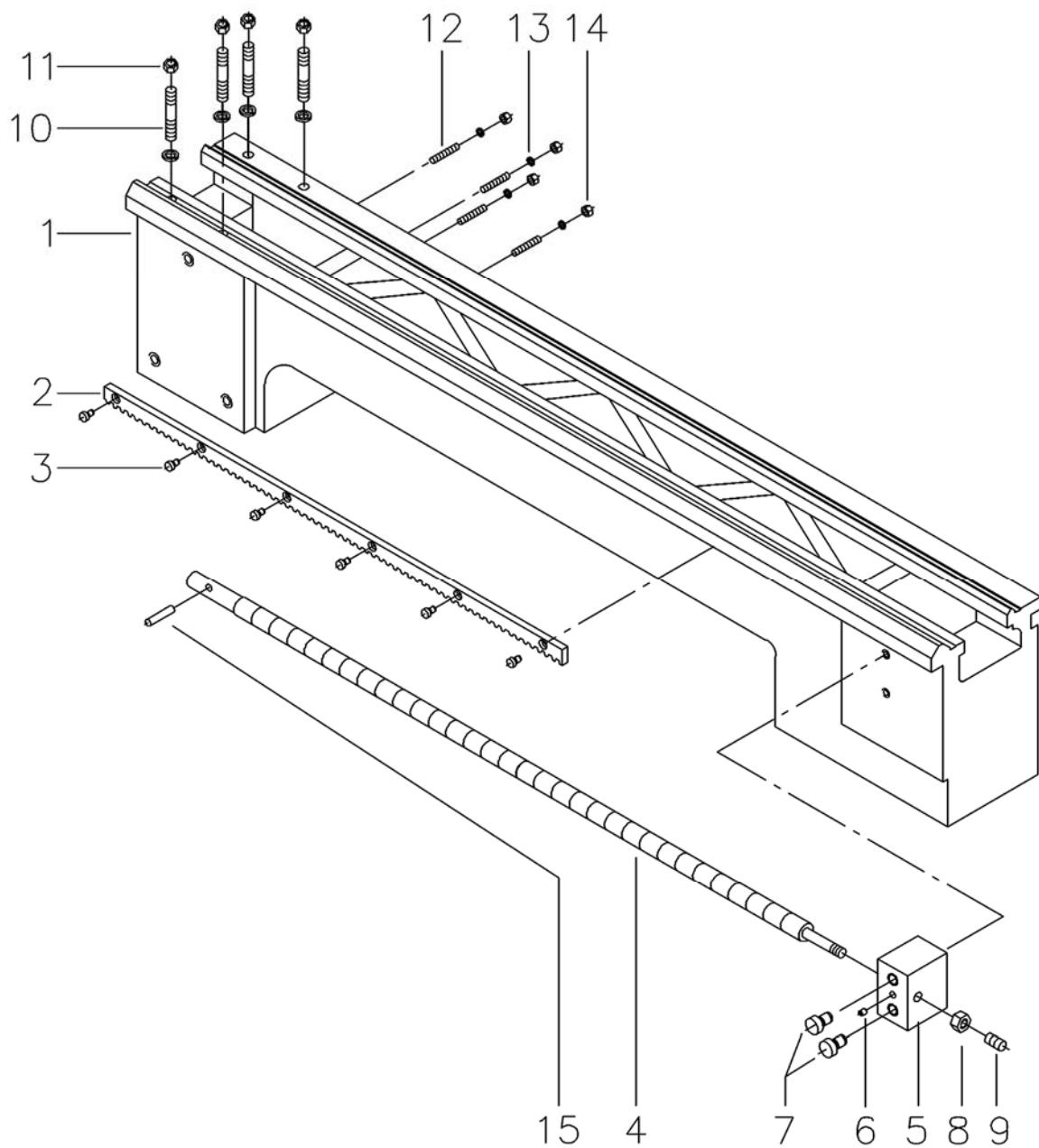
Index No.	Part No.	Description	Size	Qty
	BD920N-SR	Steady Rest Complete (index nos. 1-9)		1
1	F1001	Rest Casting		1
2	TS-1540061	Nut	M8	4
3	TS-1550061	Washer	8mm	4
4	F1002	Jaw		3
5	F1004	Adjusting Screw		3
6	F1003	Screw		3
7	F1005	Clamping Plate		1
8	TS-1490091	Hex Cap Screw	M8x50	1
9	TS-1550061	Washer	8mm	1

## Travel Rest Assembly – Exploded View & Parts List



Index No.	Part No.	Description	Size	Qty
	BD920N-FR	Follow Rest Assembly (index nos. 1-9)		1
1	F2001	Rest Casting		1
2	TS-1503061	Socket Head Cap Screw	M6x25	2
3	TS-1551041	Lock Washer	6mm	2
4	TS-1550041	Washer	6mm	2
5	TS-1540061	Hex Nut	M8	2
6	TS-1551061	Washer	8mm	2
7	F2004	Adjusting Screw		2
8	F2002	Jaw		2
9	F2003	Screw		2

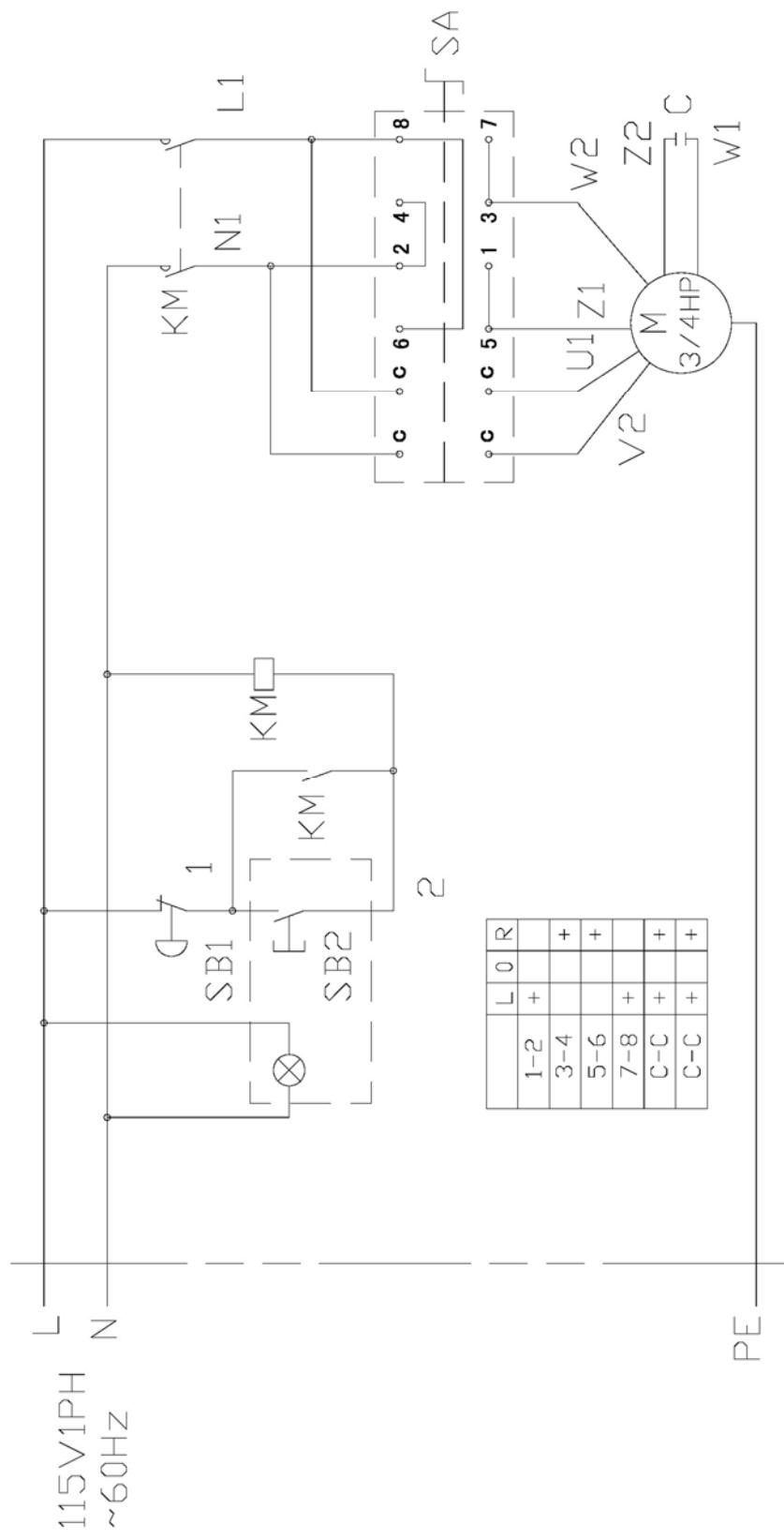
## Lathe Bed Assembly – Exploded View



## Lathe Bed Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	7001	Bed .....		1
2	7002	Rack.....		1
3	TS-1501021	Socket Head Cap Screw.....	M4x8 .....	6
4	7003	Leadscrew .....	16TPI .....	1
5	7004	Bracket.....		1
6	BD920N-B06	Oil Port.....	6mm.....	1
7	TS-1503091	Socket Head Cap Screw.....	M6x40 .....	2
8	7006	Nut .....		1
9	BD920N-B09	Set Screw .....	M8x8 .....	1
10	7005	Stud .....	M8x45 .....	4
10A	TS-1550061	Flat Washer .....	8mm.....	4
10B	TS-1551061	Lock Washer.....	8mm.....	4
11	TS-1540061	Hex Nut.....	M8 .....	4
12	TS-1523081	Set Screw .....	M6x30 .....	4
12A	TS-1550041	Flat Washer .....	6mm.....	4
13	TS-1551041	Lock Washer.....	6mm.....	4
14	TS-1540041	Hex Nut.....	M6 .....	4
15	BD920N-B15	Pin.....	Ø5x25mm .....	1
16	BD920N-B16	Label – Induction Hardened (not shown).....		1
17	BD920N-B17	Rivet (not shown).....		4
18	BD920W-SG	Splash Guard (not shown) .....		1

# Wiring Diagram



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