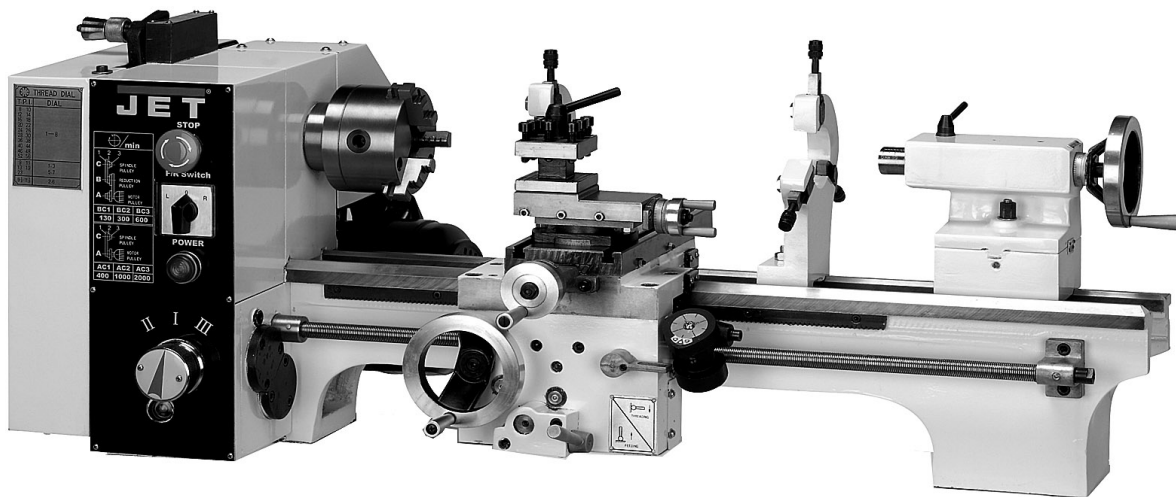


# JET<sup>®</sup>

## Operating Instructions and Parts Manual 9 x 20-inch Belt Drive Bench Lathe Model BD-920W



**WALTER MEIER (Manufacturing) Inc.**  
427 New Sanford Road  
LaVergne, Tennessee 37086  
Ph.: 800-274-6848  
[www.waltermeier.com](http://www.waltermeier.com)

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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.waltermeier.com](http://www.waltermeier.com).

## WARRANTY

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

<b>90</b> DAY WARRANTY	<b>1</b> YEAR WARRANTY	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	<b>2</b> YEAR WARRANTY	Palet Trucks Rigging Equip. Service Jacks Stackers Surface Grinders Tapping Trolleys-Air Trolleys-Electric Web Slings Winches-Electric	<b>3</b> YEAR WARRANTY	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	<b>5</b> YEAR WARRANTY	WW Drill Presses WW Dust Collectors WW Dust Filters WW Dust Fittings WW Jointers WW Lathes WW Planers WW Sanders WW Shapers WW Tablesaws	<b>LIFE</b> LIFETIME WARRANTY	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.

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# 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:

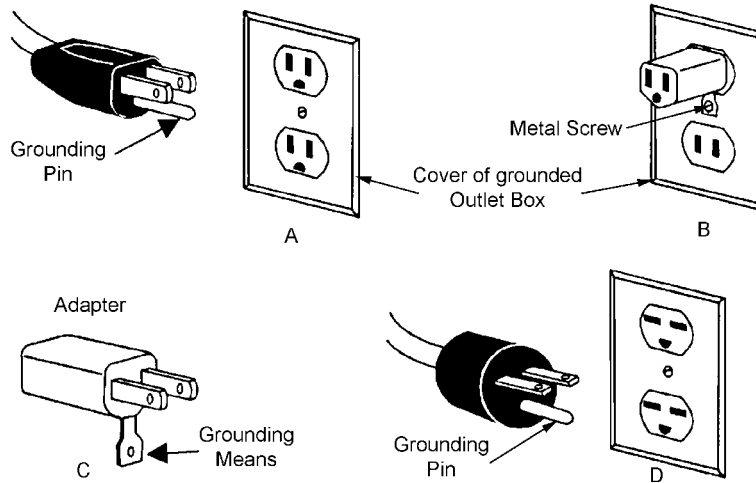
This tool is intended for use on a circuit that has an outlet that looks like the one illustrated in Sketch A. The tool has a grounding plug that looks like the plug illustrated in Sketch A. A temporary adapter, which looks like the adapter illustrated in Sketches B and C, may be used to connect this 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.	150ft.			
		240V	50ft.	100ft.	200ft.	300ft.			
Not	More	AWG							
More	More								
Than	Than								
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
<b>Capacities:</b>	
Swing Over Bed.....	9"
Swing Over Cross Slide.....	5-5/16"
Distance Between Centers .....	20"
<b>Headstock:</b>	
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
<b>Gear Box:</b>	
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
<b>Compound and Carriage:</b>	
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"
<b>Tailstock:</b>	
Tailstock Spindle Travel .....	1-9/16"
Diameter of Tailstock Spindle.....	1-1/16"
Taper in Tailstock Spindle.....	MT-2
<b>Miscellaneous:</b>	
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
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)

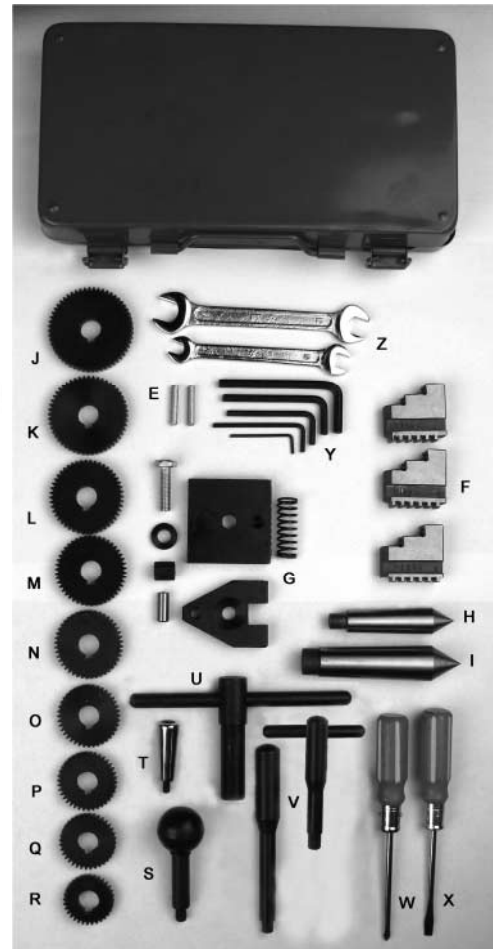
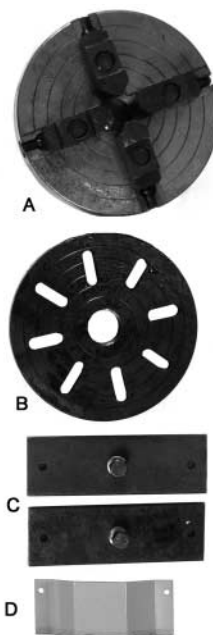


Figure 1

\* 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.

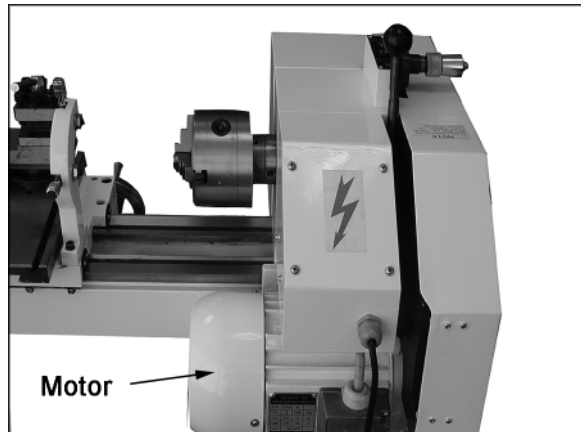


Figure 2

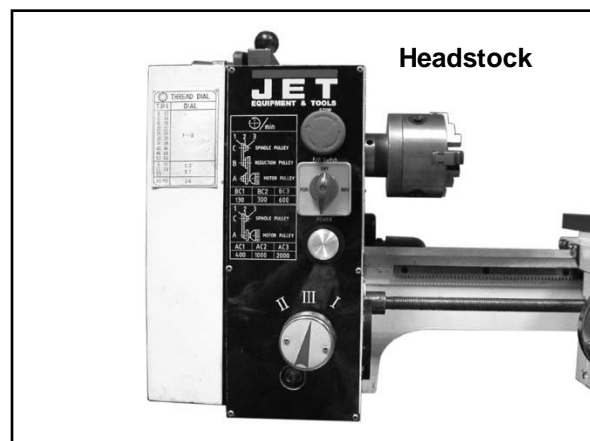


Figure 3

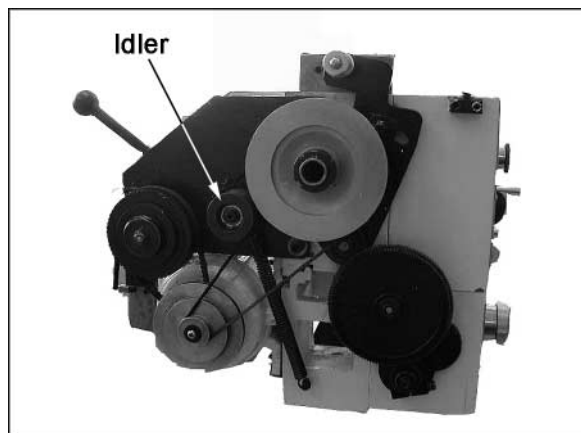


Figure 4

## 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 gibs.

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 gibs, 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).

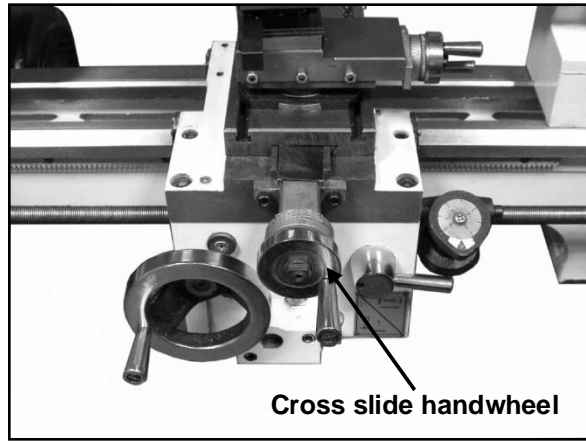


Figure 5

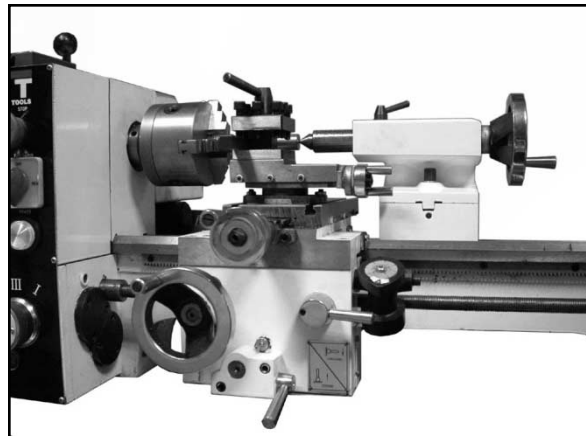


Figure 6

## Apron

The apron (Figure 8) is mounted on the bed. A half nut is fitted to the apron. The half nut gibs 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.

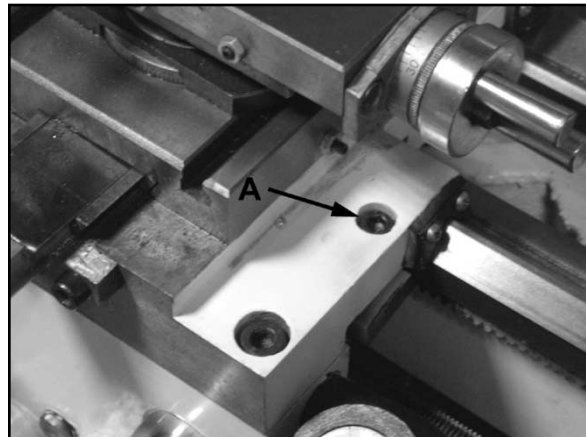


Figure 7

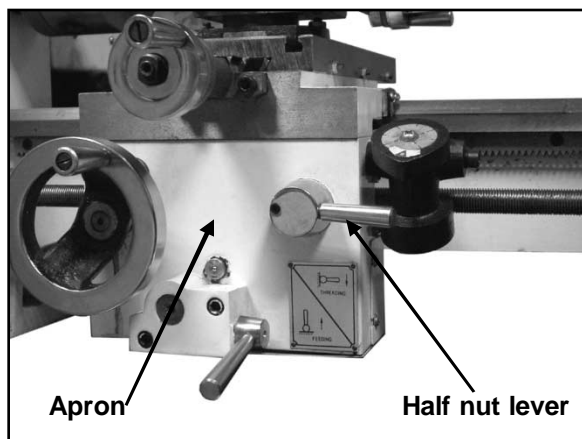


Figure 8

## 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.

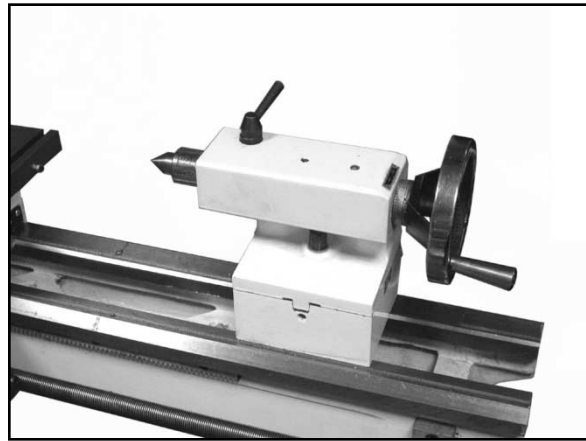


Figure 9

## 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.

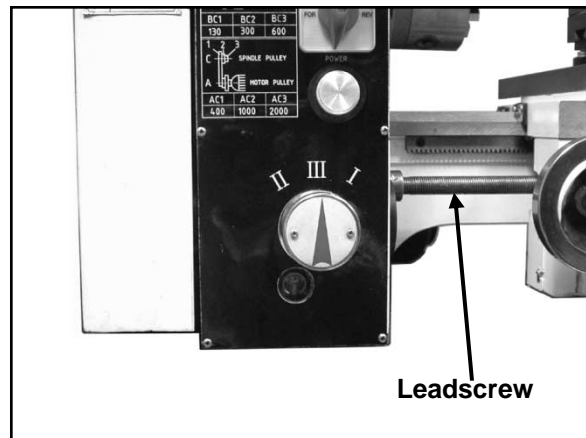


Figure 10

## 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).

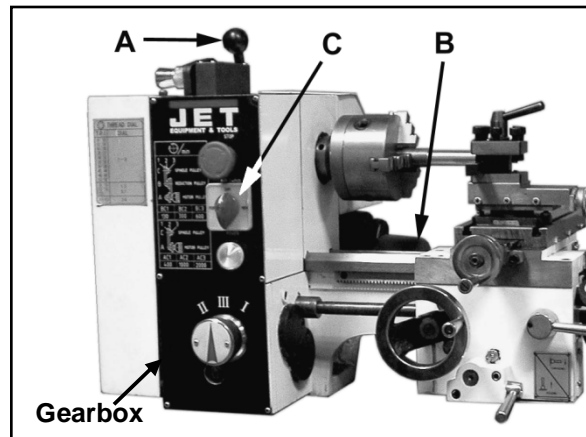


Figure 11

## 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.

# Controls

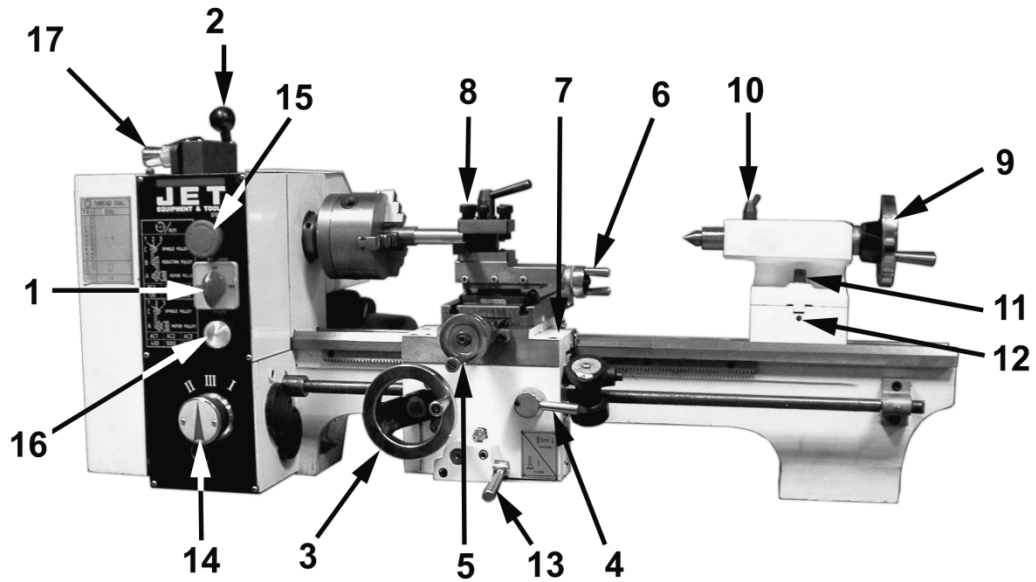


Figure 12

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

# 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.

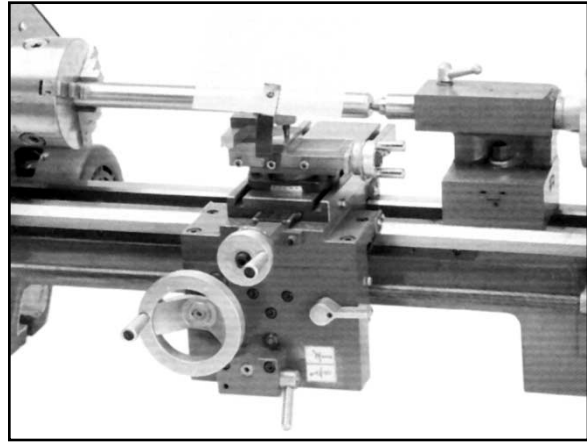


Figure 13

## Manual Turning

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

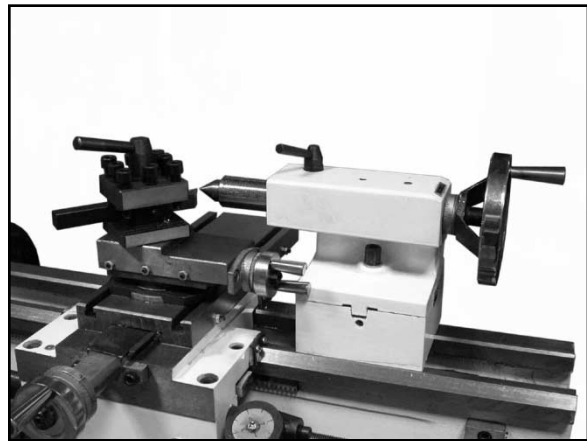


Figure 14

## Longitudinal Turning with Auto-Feed

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

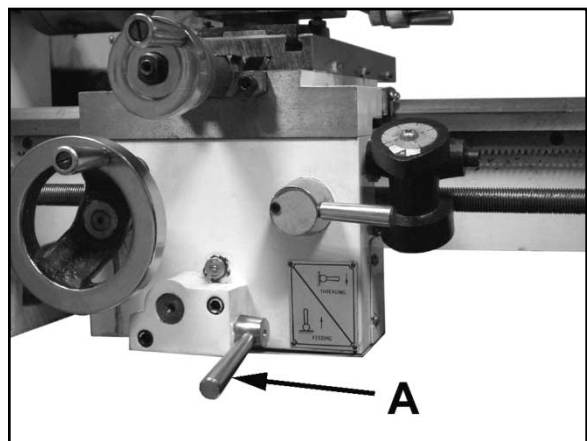


Figure 15

### 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.

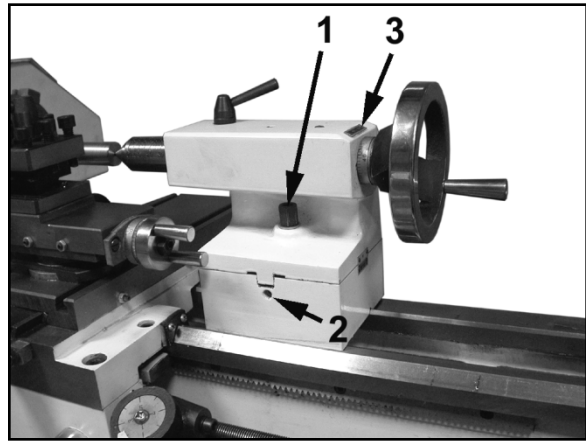


Figure 16

### 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.

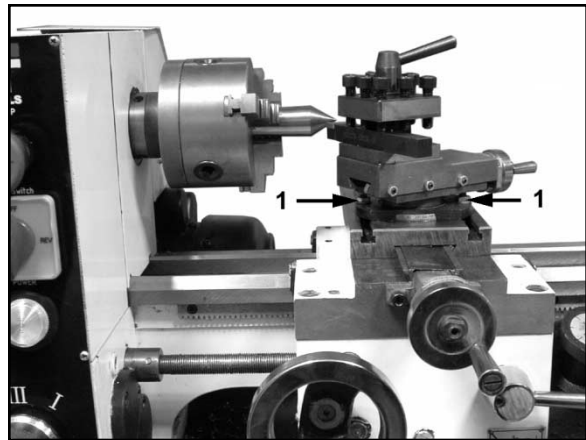


Figure 17

### 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.

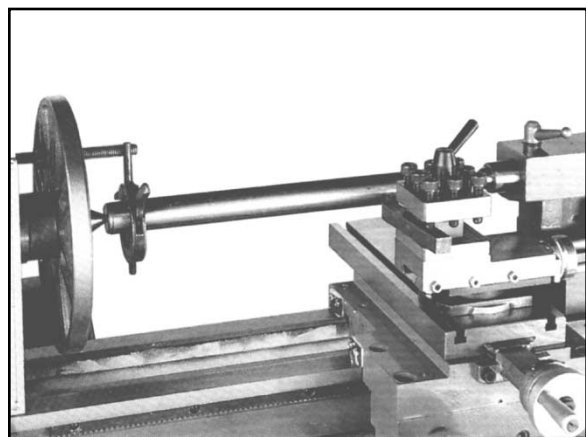


Figure 18

## 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).

## Slip Clutch

To avoid overloading the drive, a safety slip clutch is fitted in the 130 RPM position. Overloading the drive (rattling noise) means the depth of cut is too deep and should be reduced.

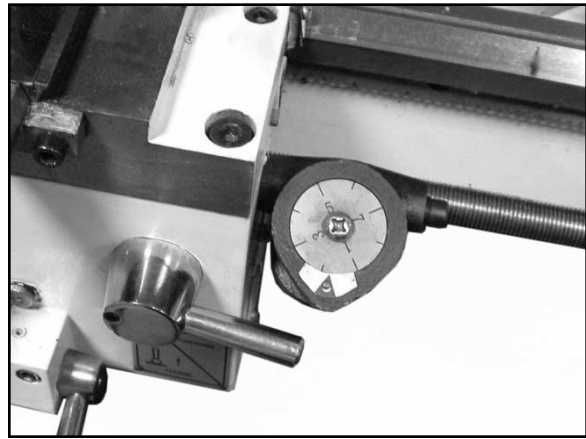


Figure 19

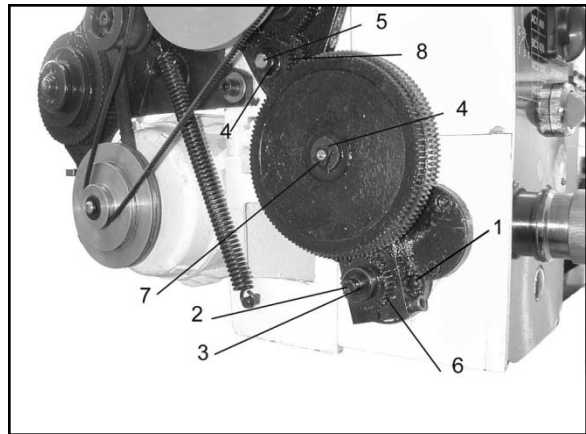


Figure 20

		T.P.I.									
		32	32	32	32	32	32	32	32	32	32
Lever	a	32	36	38	40	44	46	48	52	56	60
	b	8	9	9.5	10	11	11.5	12	13	14	15
		.0370	.0328	.0312	.0296	.0268	.0258	.0246	.0228	.0212	.0198
I	a	16	18	19	20	22	23	24	26	28	30
	b	.0185	.0164	.0156	.0148	.0134	.0129	.0123	.0114	.0106	.0099
		.0092	.0082	.0078	.0074	.0067	.0064	.0062	.0057	.0053	.0049
II	a	32	40	40	56	32	56				
	b	60	60	48	60	32	48				
		1.6	2	2.5	2.8	3	3.5				
III	a	0.8	1	1.25	1.4	1.5	1.75				
	b	0.4	0.5	0.625	0.7	0.75	0.875				

THREAD DIAL	
T.P.I.	DIAL
8	10
12	14
16	18
20	22
24	26
28	30
36	38
40	44
46	48
52	56
9	11
13	19
17	23
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697	703
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709	715
713	719
717	723
721	727
725	731
729	735
733	739
737	743
741	747
745	751
749	755
753	759
757	763
761	767
765	771
769	775
773	779
777	783
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793	799
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805	811
809	815
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817	823
821	827
825	831
829	835
833	839
837	843
841	847
845	851
849	855
853	859
857	863
861	867
865	871
869	875
873	879
877	883
881	887
885	891
889	895
893	899
897	903
901	907
905	911
909	915
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949	955
953	959
957	963
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981	987
985	991
989	995
993	999
997	1003

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.

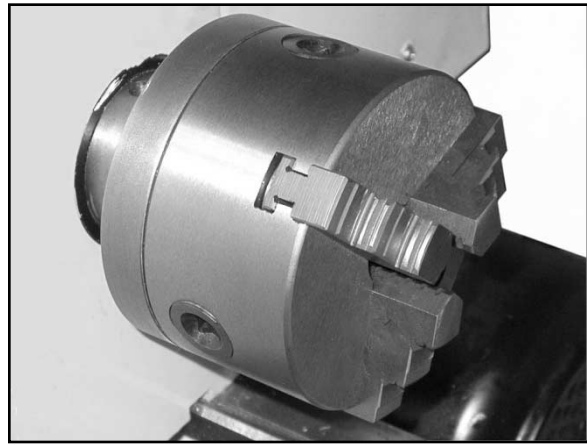


Figure 22

## 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.

## Drill Chuck (Optional)

Use the drill chuck to hold centering drills and twist drills in the tailstock (Figure 24).

## 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.

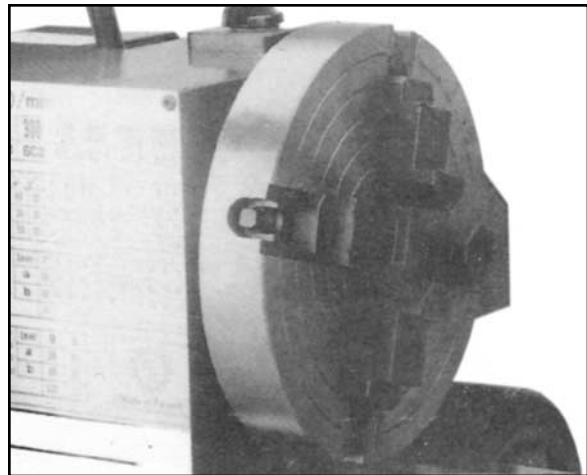


Figure 23

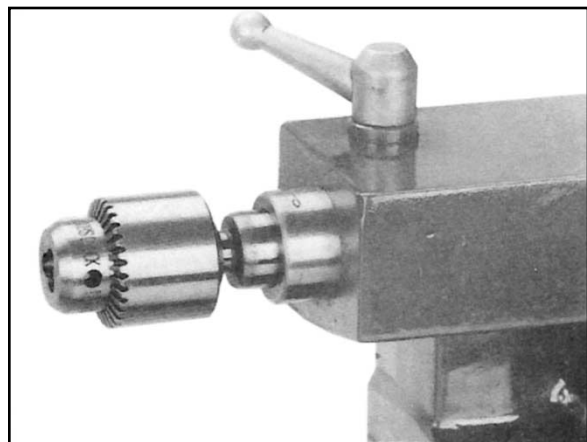


Figure 24

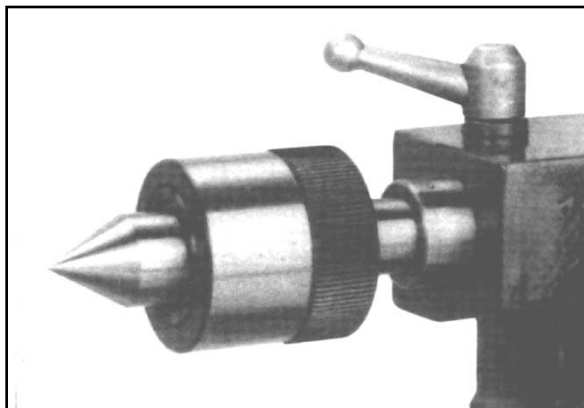


Figure 25



## 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.

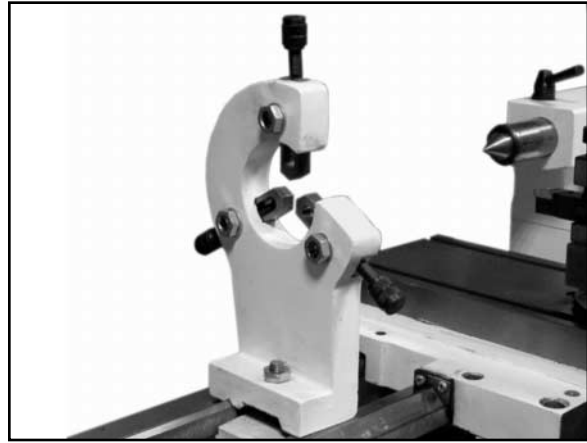


Figure 26

## 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.

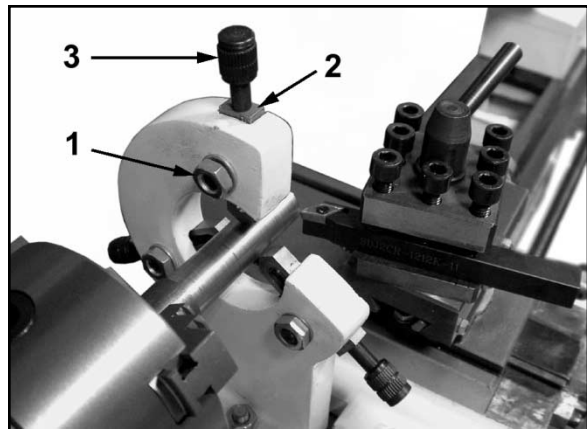


Figure 27

## 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.

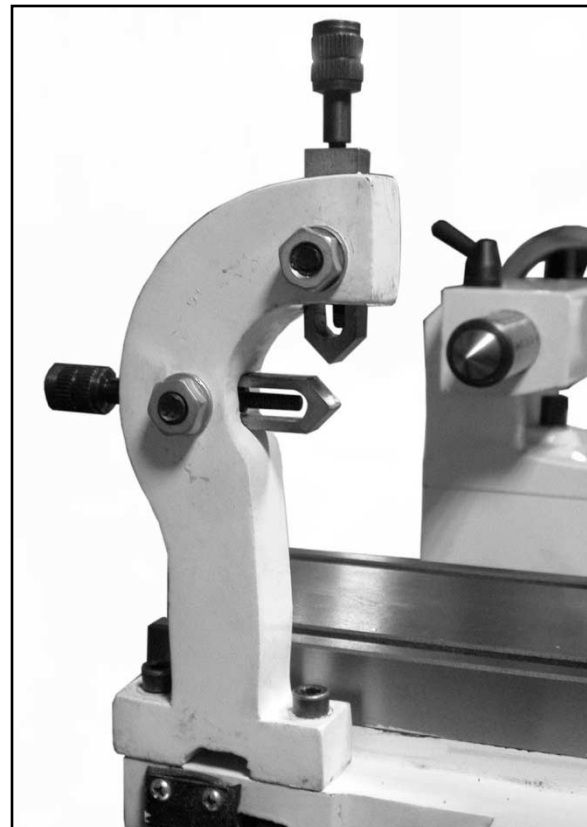


Figure 28

## 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.

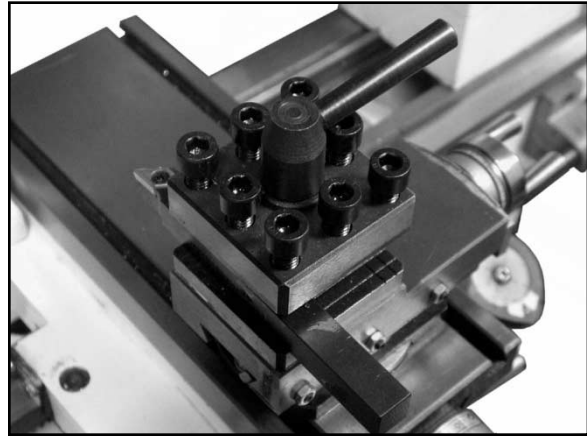


Figure 29

## 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.

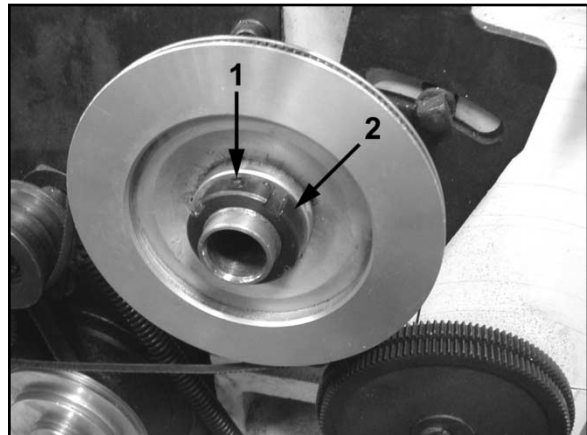


Figure 31

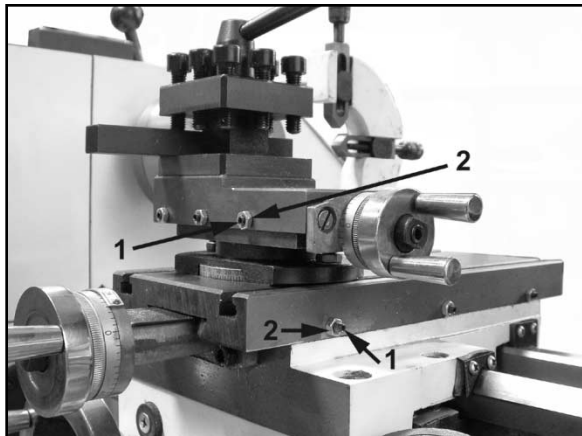


Figure 32

## 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).

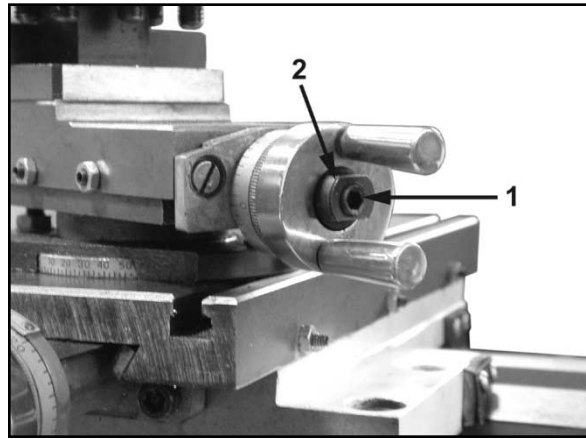


Figure 33

## 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.

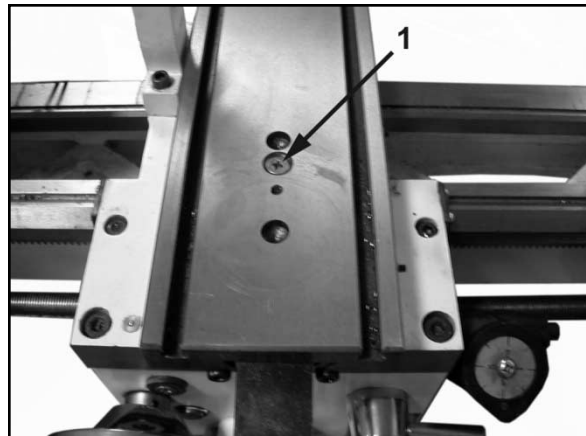


Figure 34

## 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.

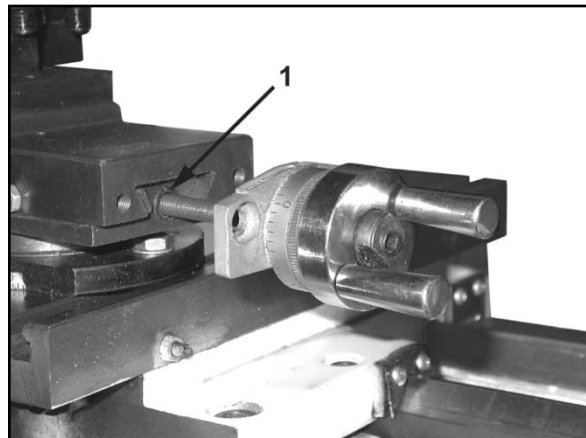


Figure 35

### 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.

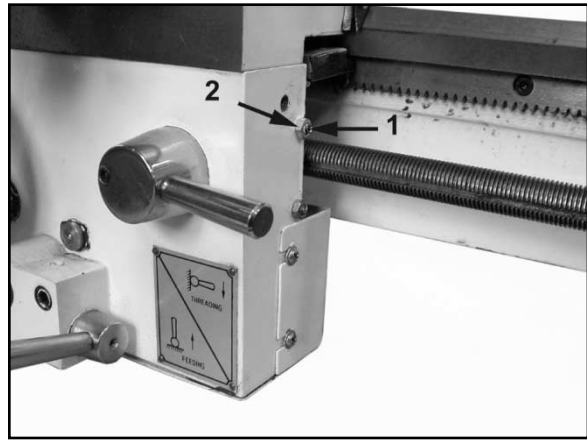


Figure 36

### 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).

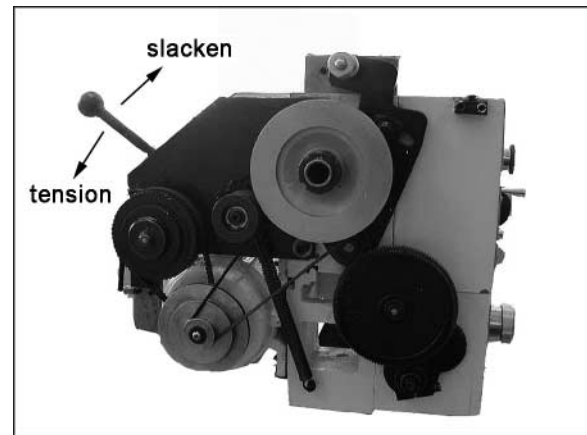


Figure 38



Figure 39

# Lubrication Schedule

(Figures 40 and 41)

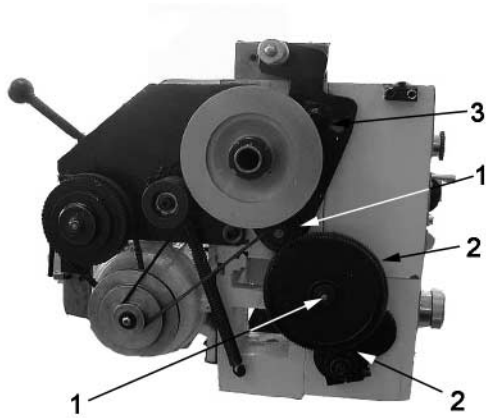


Figure 40

**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.

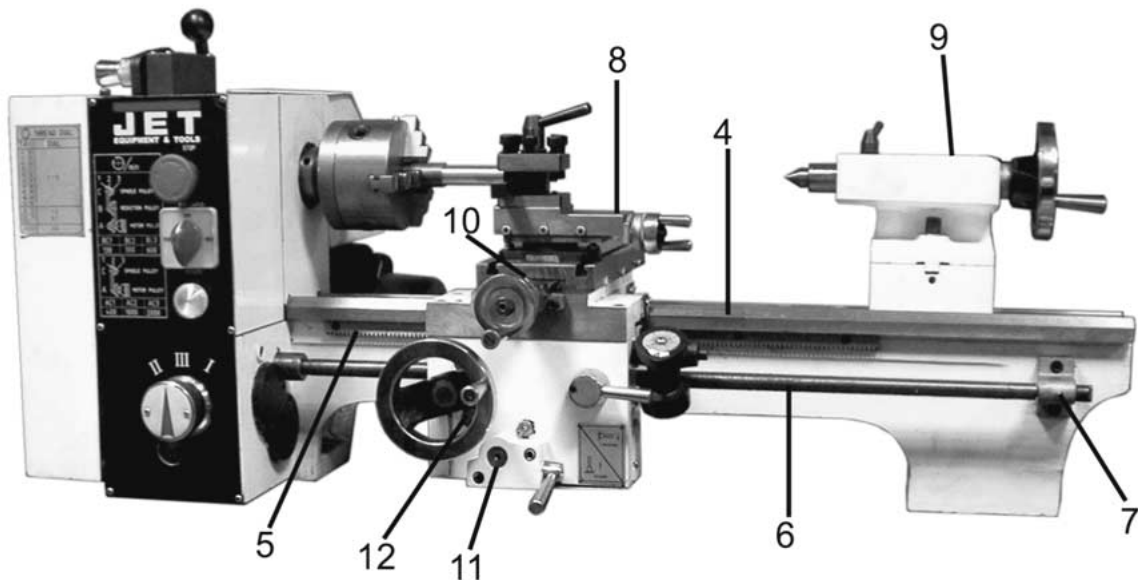
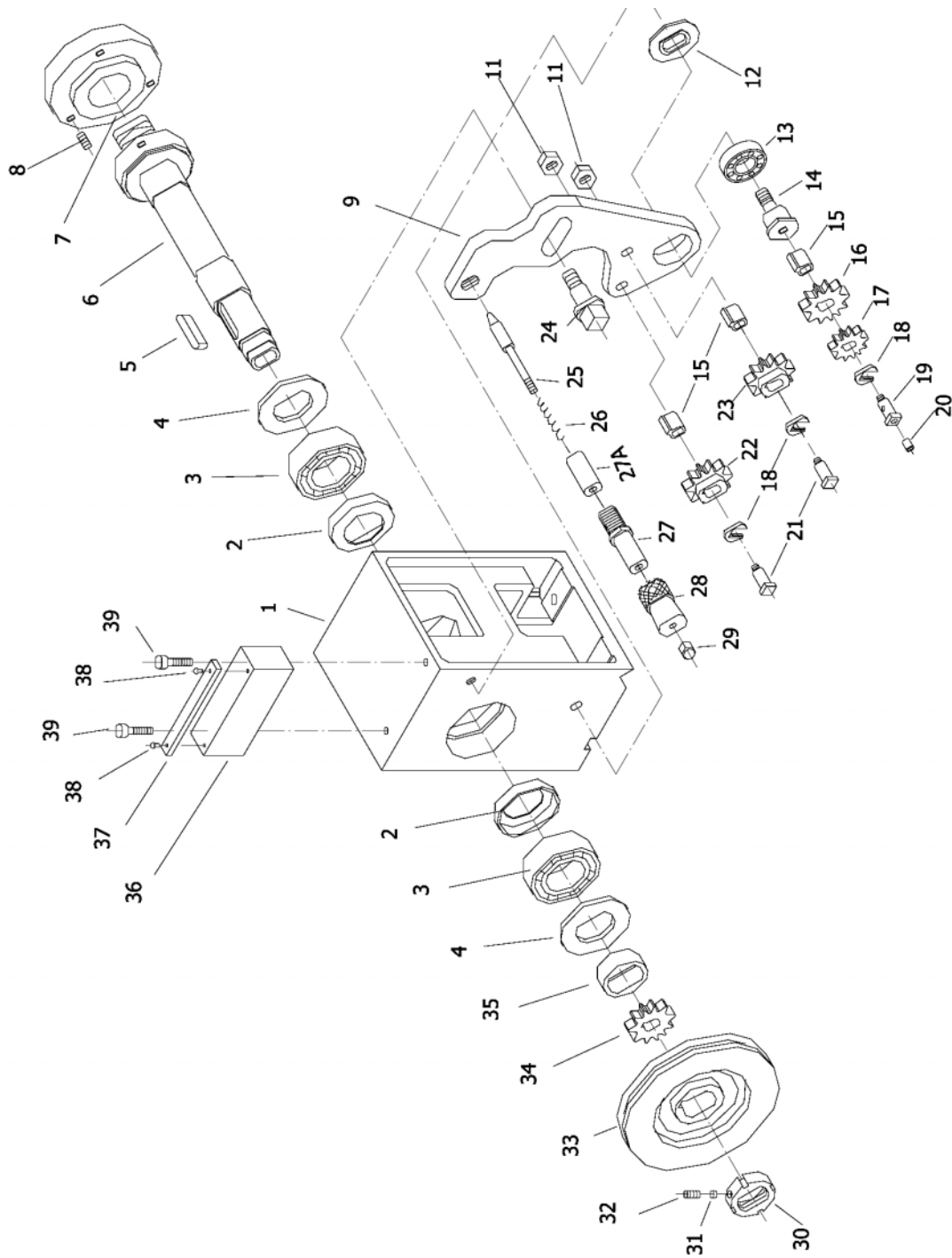


Figure 41

# 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.

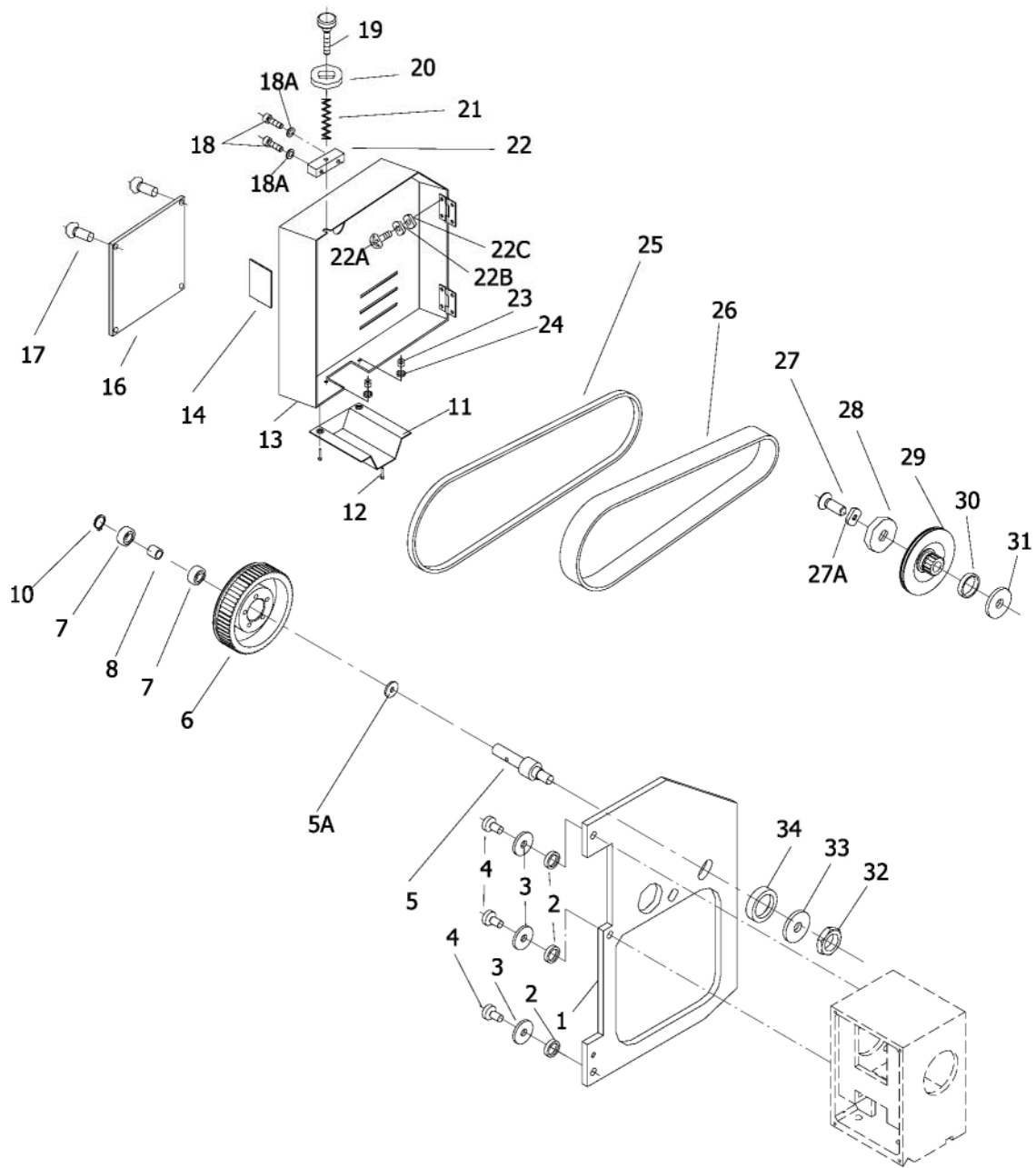
## Headstock Assembly – Exploded View



## 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

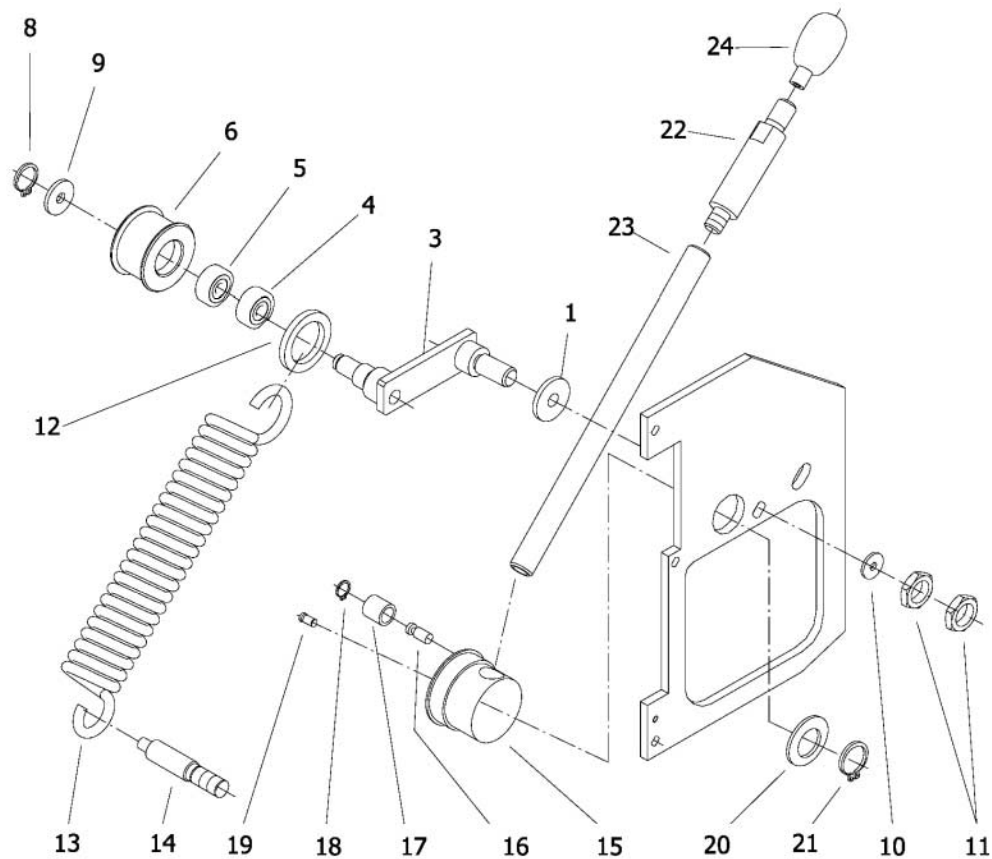




## Drive Assembly – Parts List

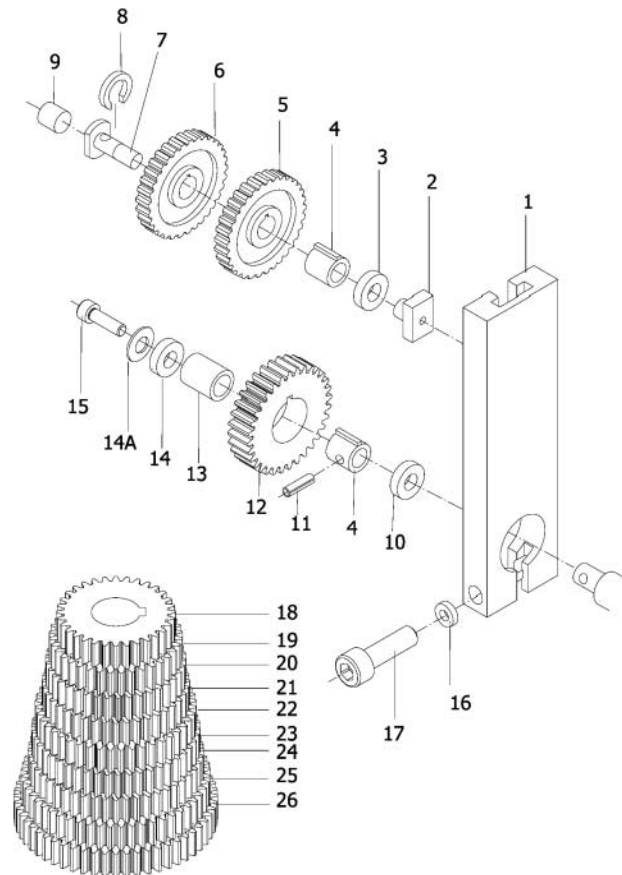
Index No.	Part No.	Description	Size	Qty
.....	BD920N-3J.B.S.	4-inch 3-Jaw Chuck (not shown)		1
.....	BD920N-CJ3	Chuck Jaw Set (set of 3; not shown)		1
.....	BD920N-ST	Spanner Tool for Chuck (not shown)		1
.....	FJ1001	4-Jaw Chuck 1-1/2" x 7 (not shown)		1
.....	FJ1002	1-1/2" x 8 Backplate (not shown)		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



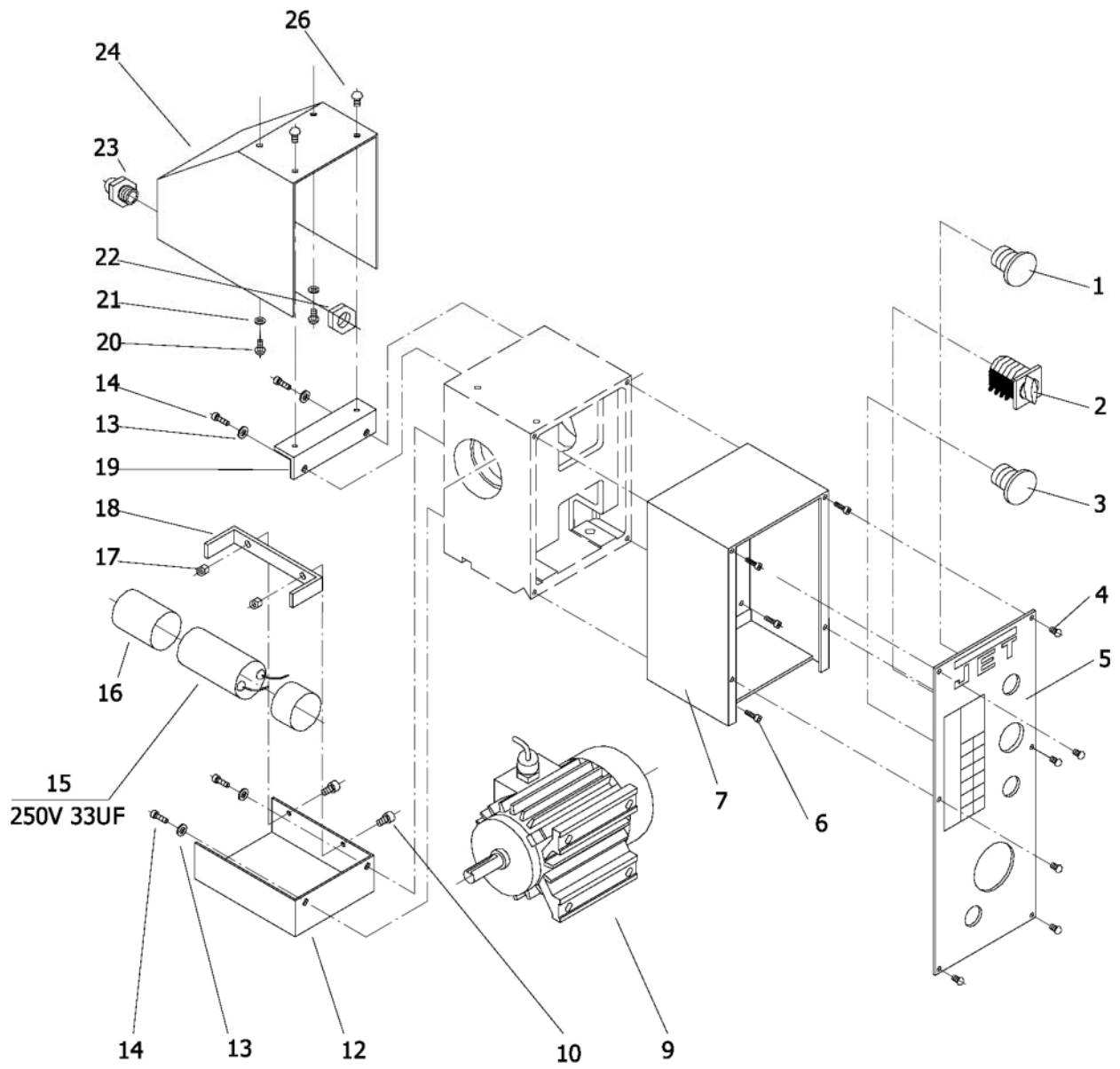
Index No.	Part No.	Description	Size	Qty
1.....	1040N.....	Washer.....	16mm.....	1
3.....	1035A.....	Swing Arm.....		1
4.....	BD920N-TR05.....	Ball Bearing.....	6001RS.....	1
5.....	BD920N-TR05.....	Ball Bearing.....	6001RS.....	1
6.....	1039.....	Roller.....		1
8.....	BD920N-TR08.....	Snap Ring.....	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

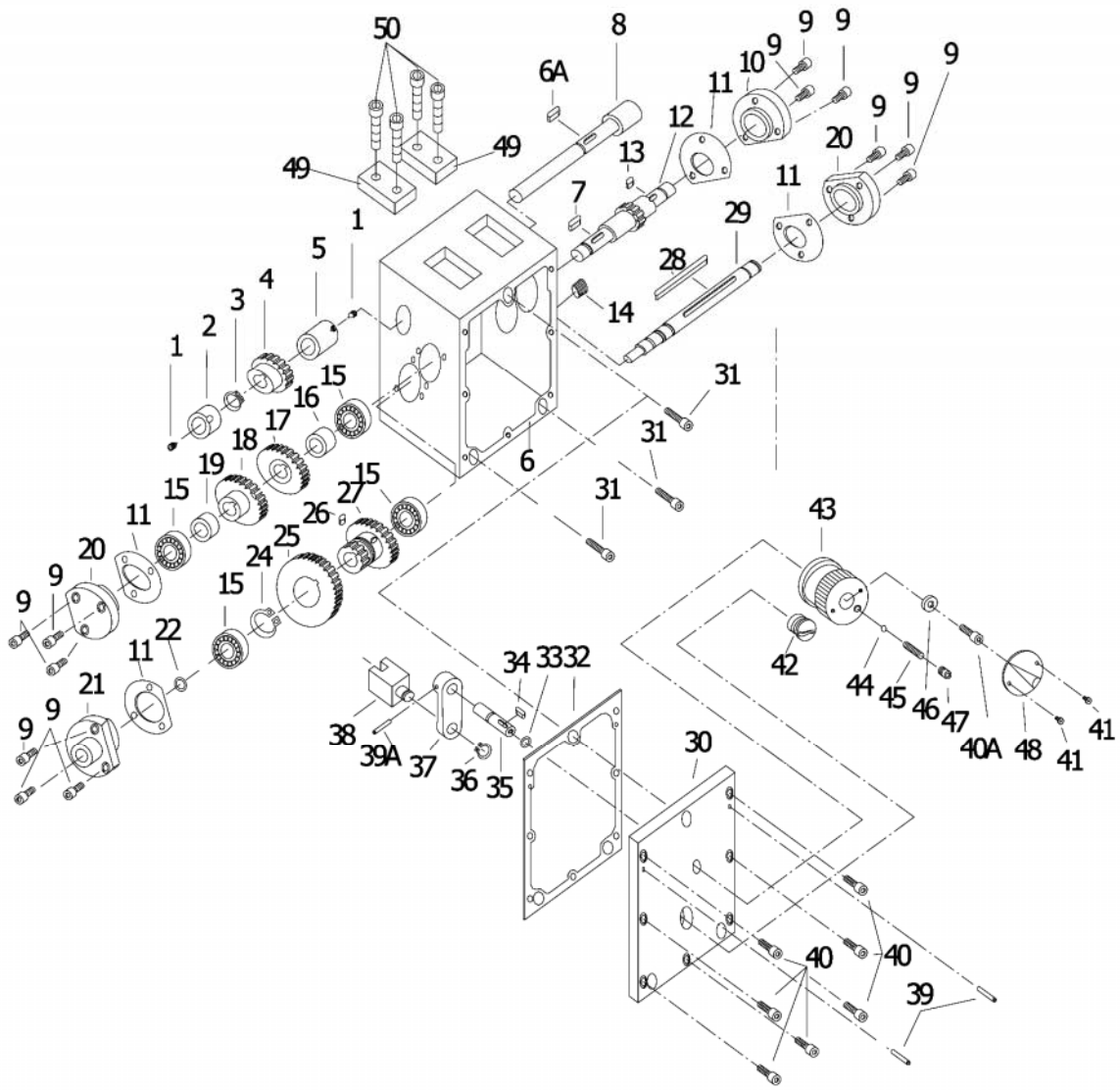
# Electrical Assembly – Exploded View



## 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	Contactora (not shown)		1

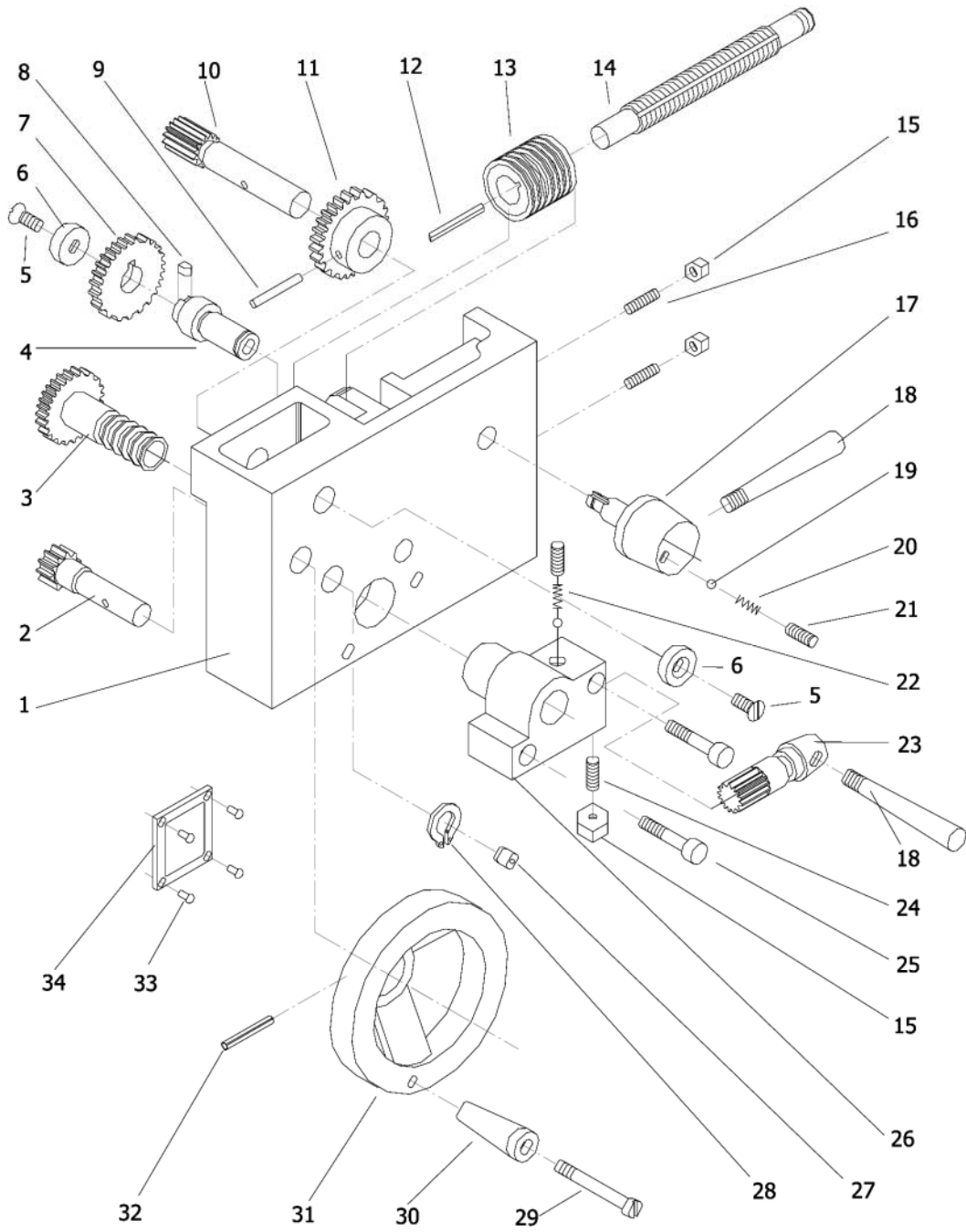
# Gear Box Assembly – Exploded View



## Gear Box Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
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

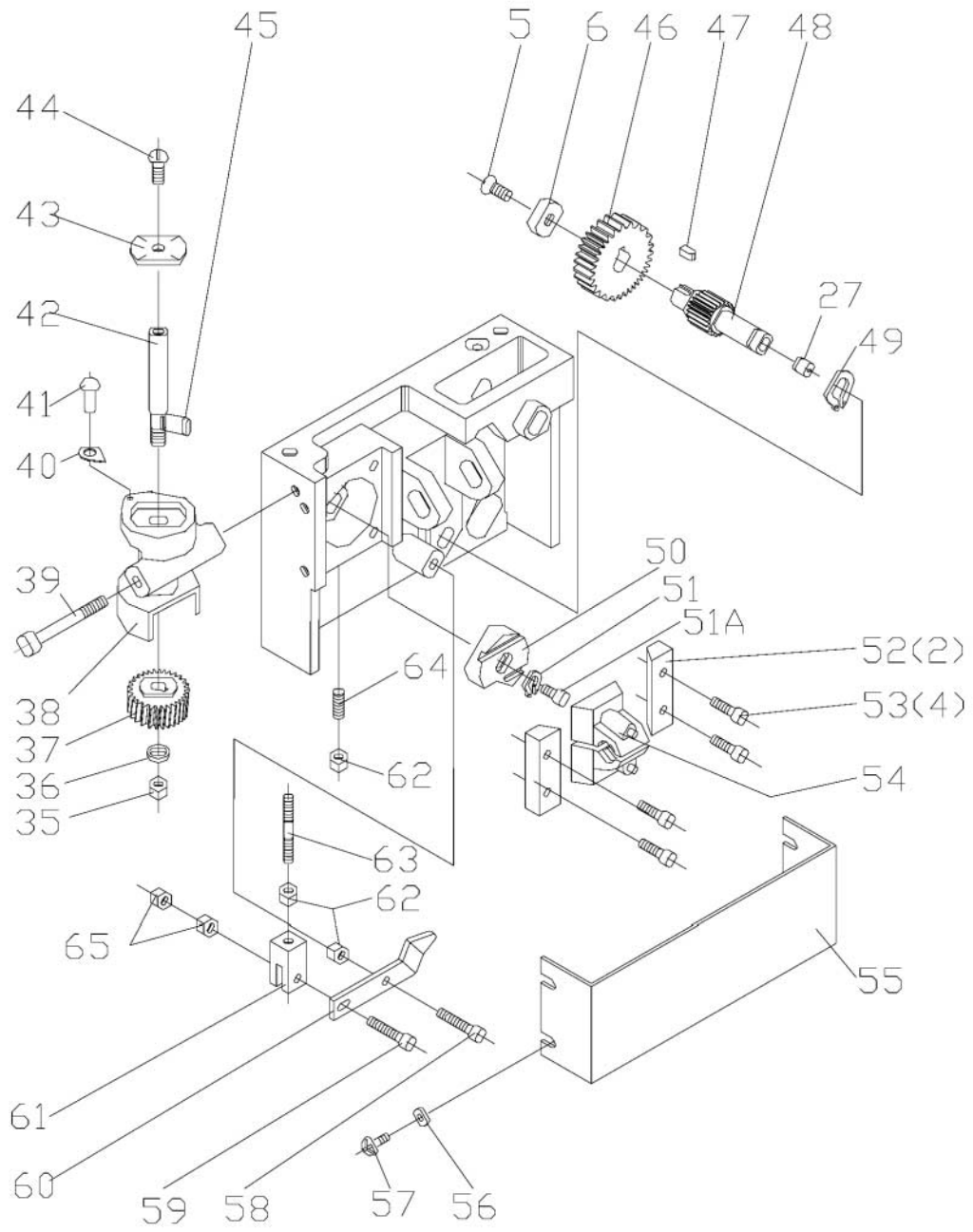




## Apron Assembly – Parts List

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

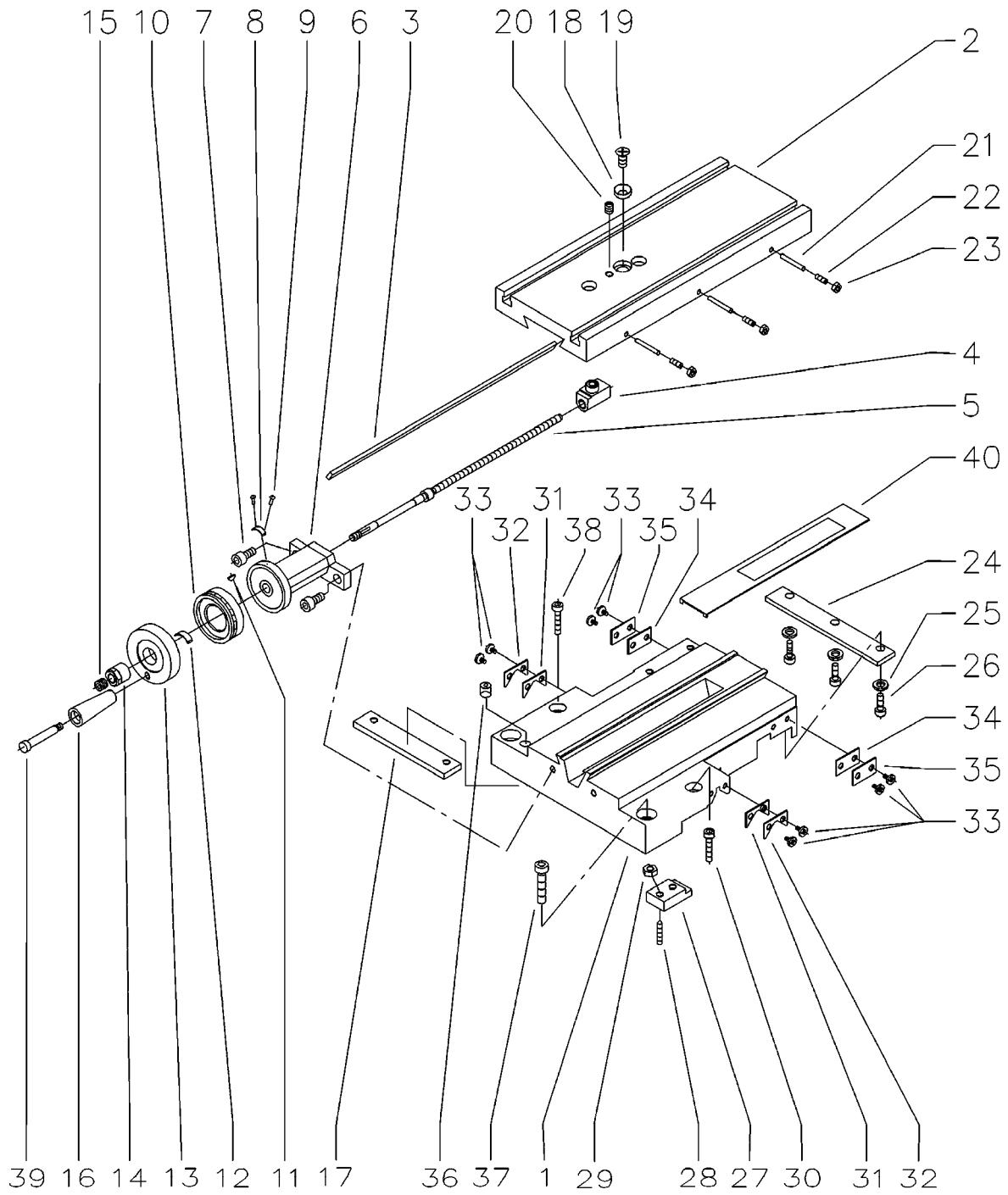
**Apron Assembly (continued) – Exploded View**



## Apron Assembly (continued) – Parts List

Index No.	Part No.	Description	Size	Qty
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

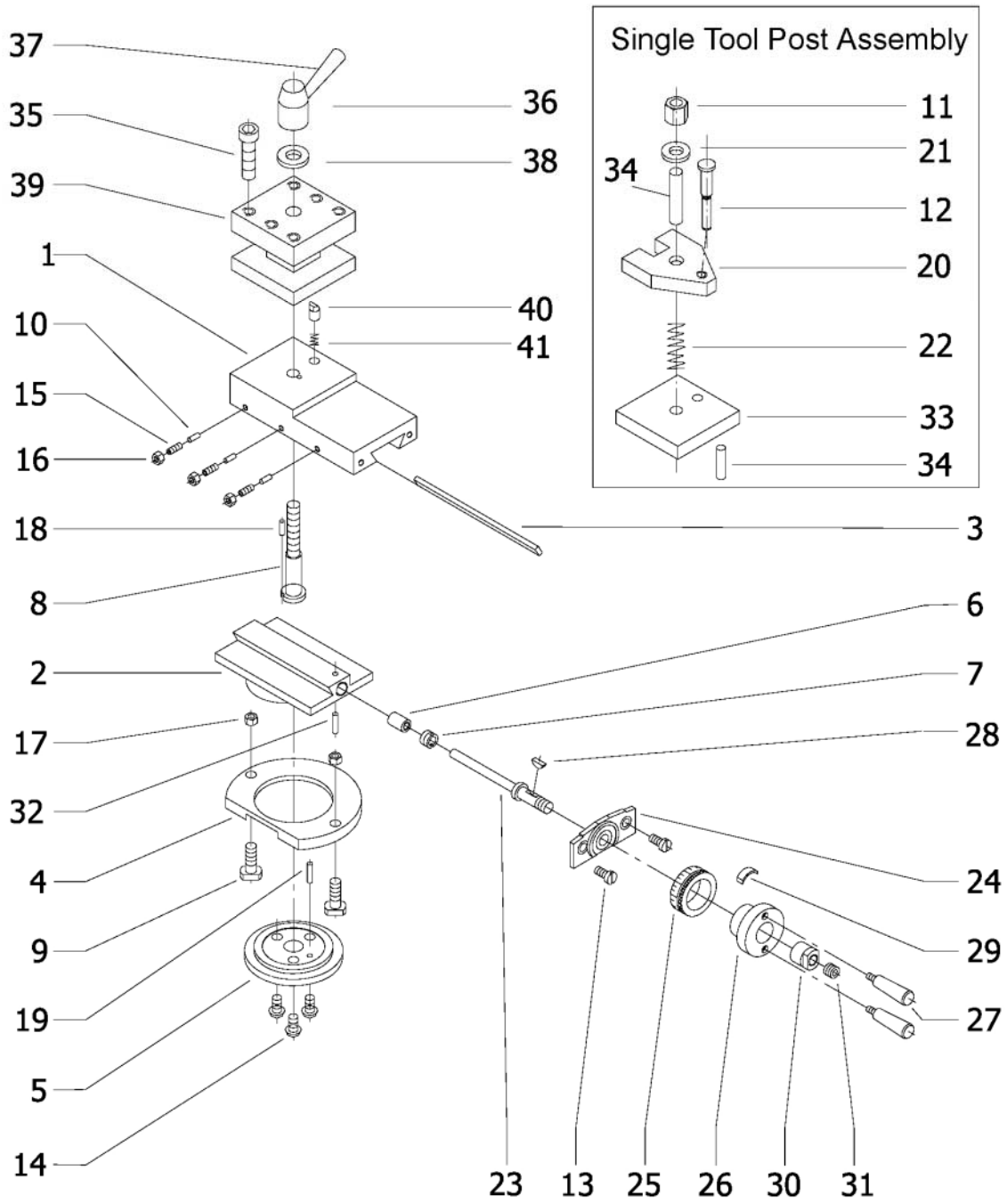
# Saddle and Cross Slide – Exploded View



## Saddle and Cross Slide Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
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



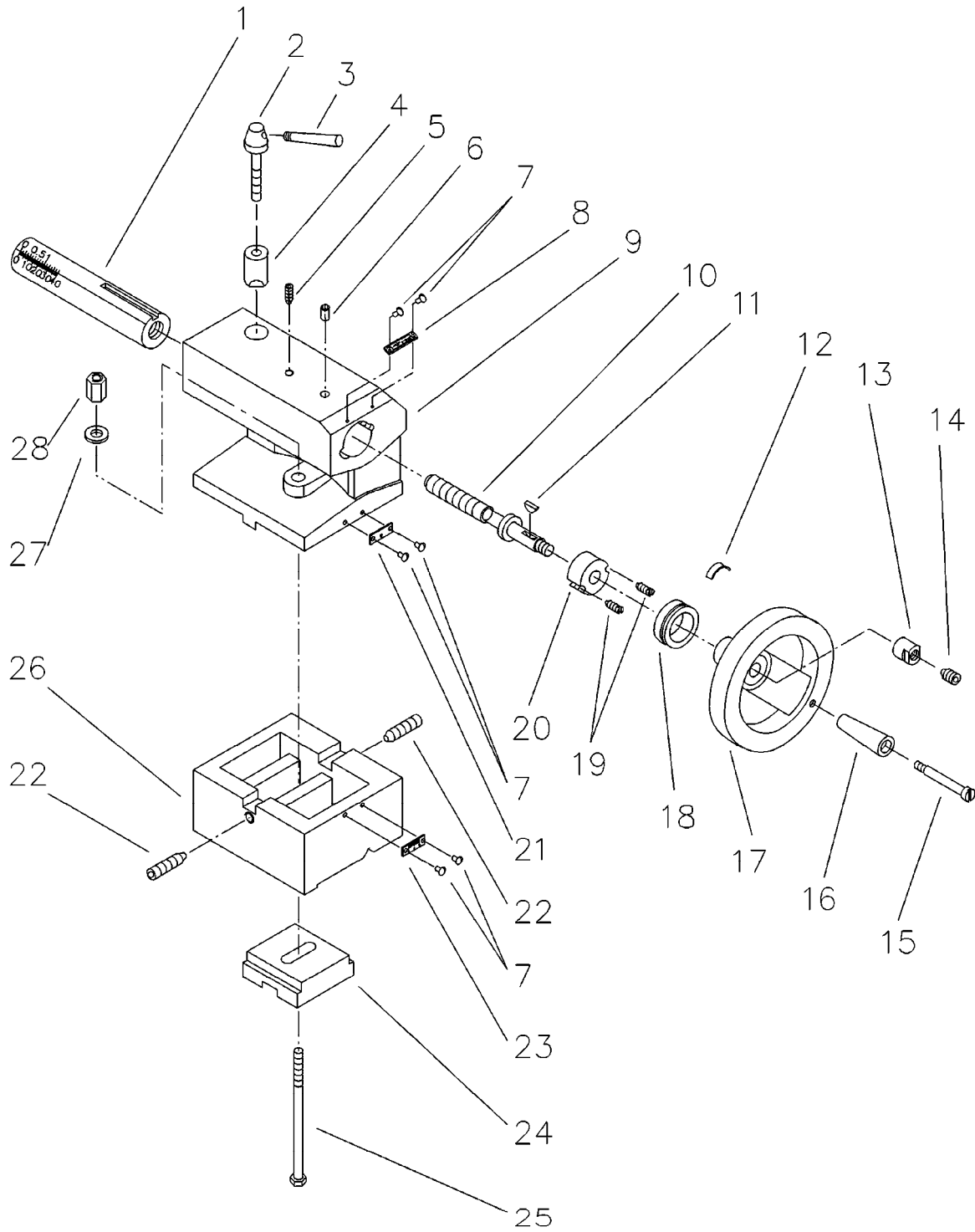
## Top Slide Assembly – Parts List

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

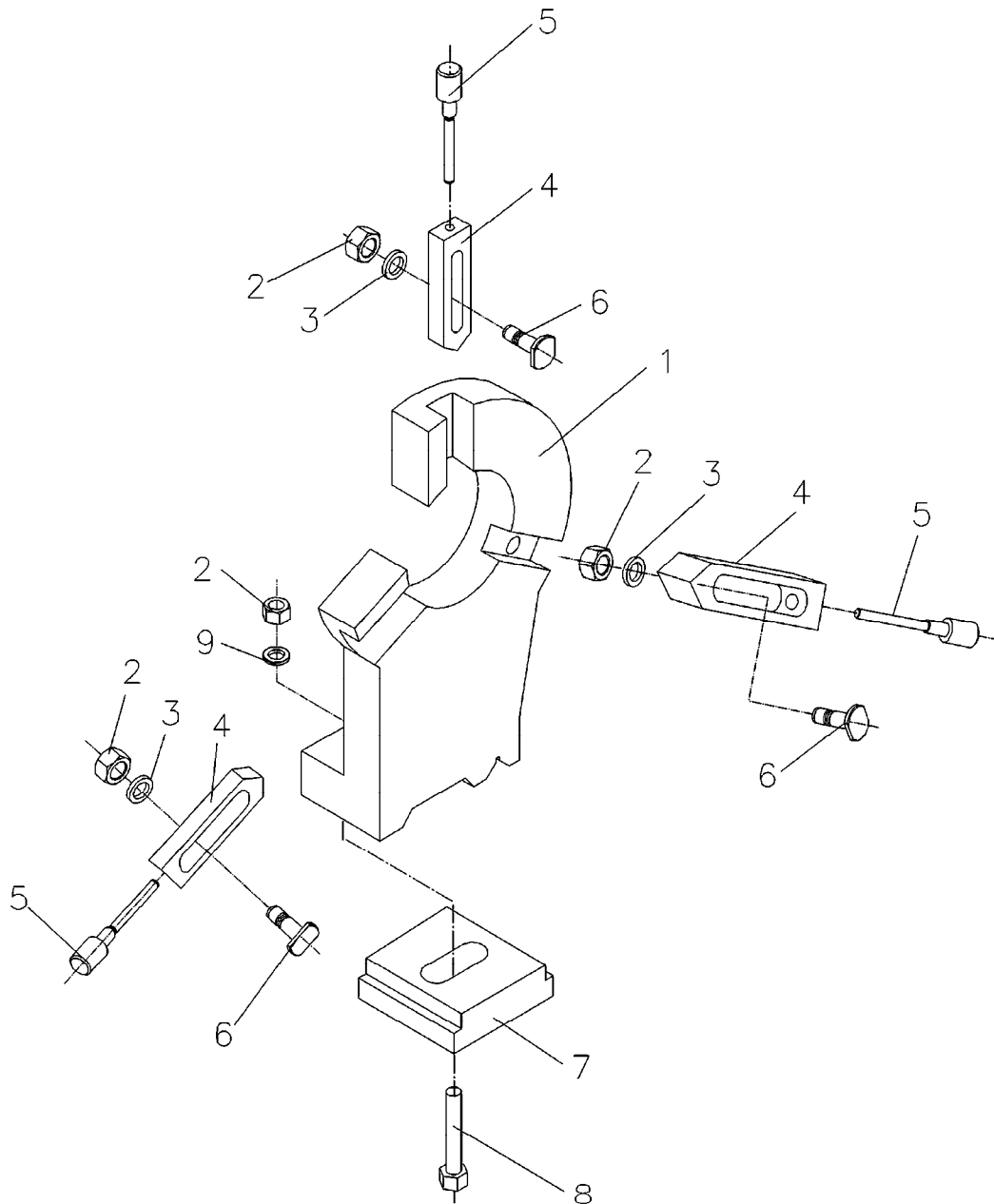




## Tailstock Assembly – Parts List

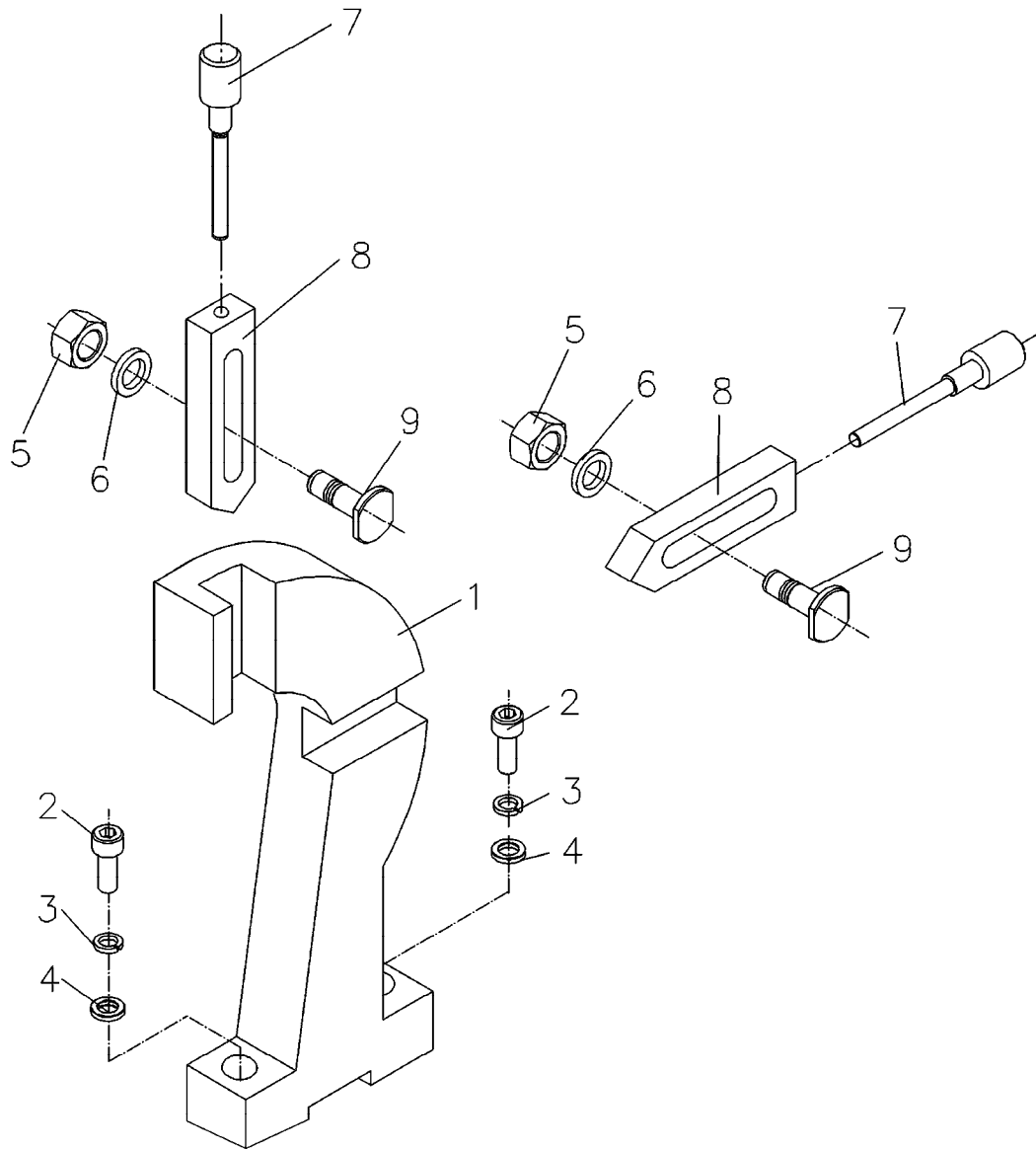
Index No.	Part No.	Description	Size	Qty
1	8009	Tailstock Ram		1
2	8008	Lever		1
3	BD920N-H	Handle		1
4	8001	Clamp		1
5	BD920N-T08	Guide Pin	M5x10	1
6	BD920N-T20	Oil Port	6mm	1
7	BD920N-T19	Rivet	1.5x3mm	6
8	8012	Off Set Indicator Plate		1
9	8005	Tailstock Body		1
10	8010	Leadscrew		1
11	BD920N-T17	Key	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



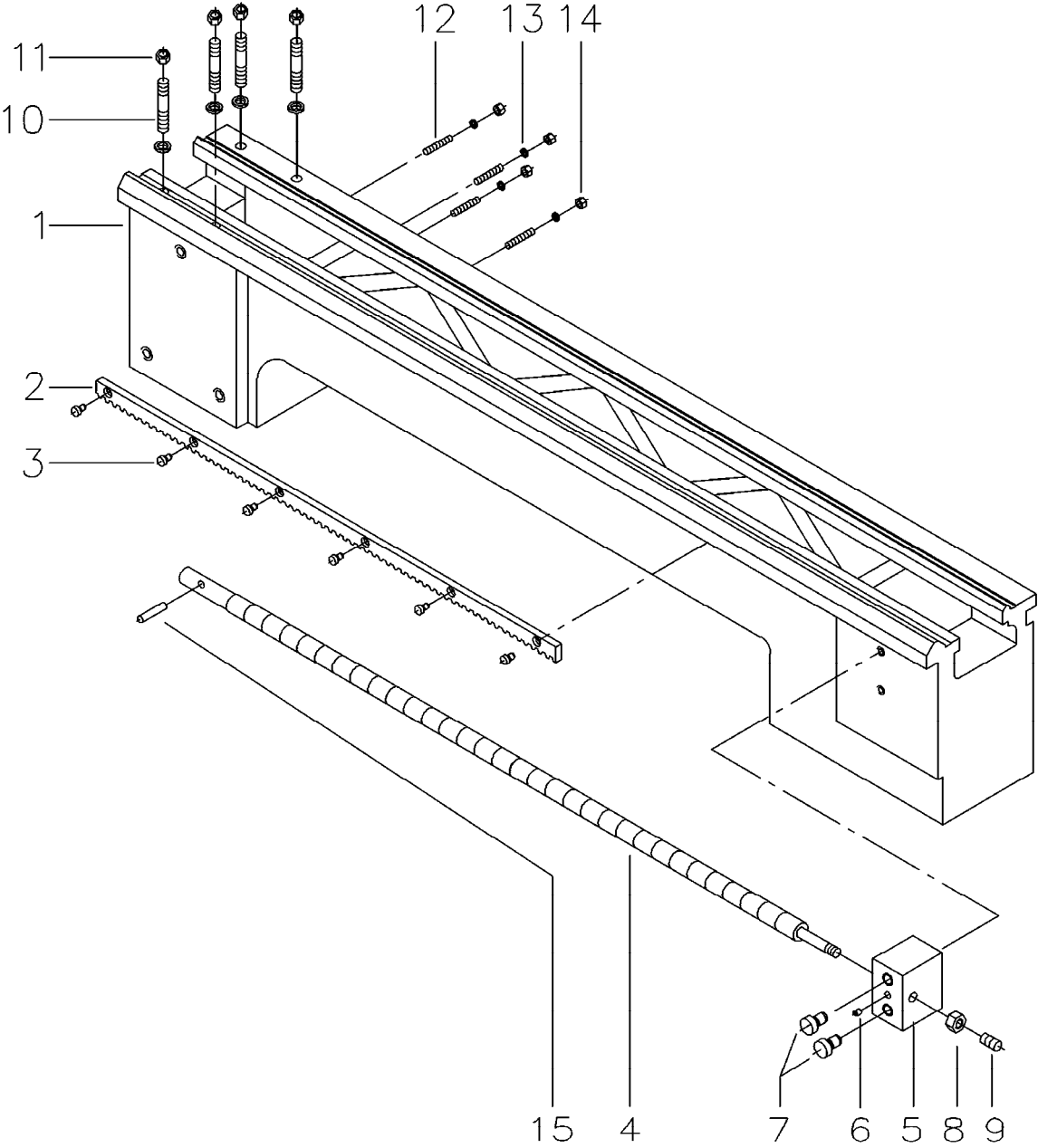
Index No.	Part No.	Description	Size	Qty
.....	BD920N-SR	Steady Rest Complete (index nos. 1-9)		1
1.....	F1001	Rest Casting		1
2.....	TS-1540061	Nut	M8	4
3.....	TS-1550061	Washer	8mm	4
4.....	F1002	Jaw		3
5.....	F1004	Adjusting Screw		3
6.....	F1003	Screw		3
7.....	F1005	Clamping Plate		1
8.....	TS-1490091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

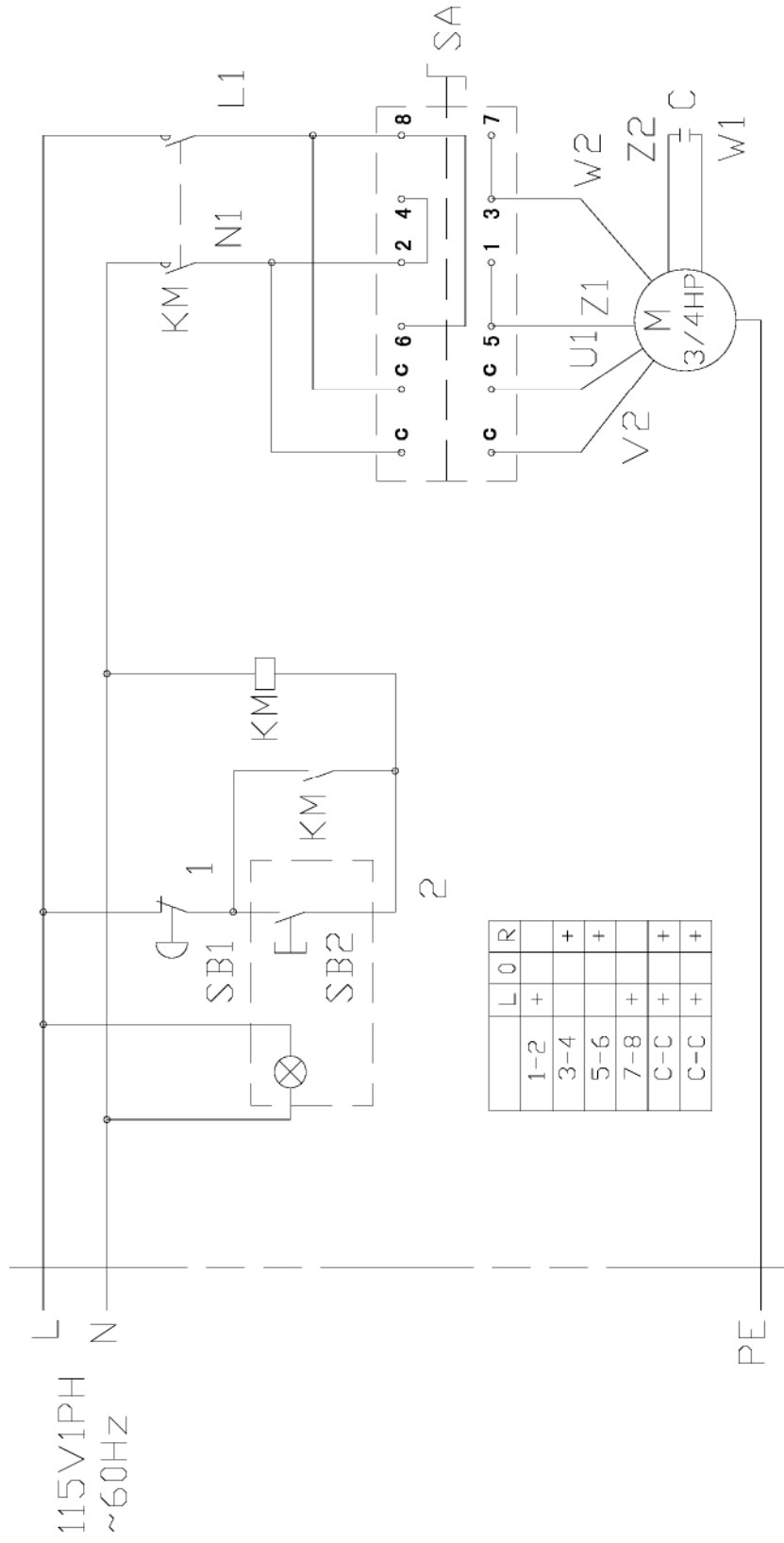
# Lathe Bed Assembly – Exploded View



## 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

# Wiring Diagram







**WALTER MEIER (Manufacturing) Inc.**

427 New Sanford Road  
LaVergne, Tennessee 37086  
Phone: 800-274-6848  
[www.waltermeier.com](http://www.waltermeier.com)