



Operating Instructions and Parts Manual 14" x 40" Woodturning Lathe

Model JWL-1440VS



Shown with optional 20-inch extension bed (#719401)

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1.0 Warranty and Service

JET warrants every product it sells against manufacturers' defects. If one of our tools needs service or repair, please contact Technical Service by calling 1-800-274-6846, 8AM to 5PM CST, Monday through Friday.

Warranty Period

The general warranty lasts for the time period specified in the literature included with your product or on the official JET branded website.

- JET products carry a limited warranty which varies in duration based upon the product. (See chart below)
- Accessories carry a limited warranty of one year from the date of receipt.
- Consumable items are defined as expendable parts or accessories expected to become inoperable within a reasonable amount of use and are covered by a 90 day limited warranty against manufacturer's defects.

Who is Covered

This warranty covers only the initial purchaser of the product from the date of delivery.

What is Covered

This warranty covers any defects in workmanship or materials subject to the limitations stated below. This warranty does not cover failures due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair, alterations or lack of maintenance. JET woodworking machinery is designed to be used with Wood. Use of these machines in the processing of metal, plastics, or other materials may void the warranty. The exceptions are acrylics and other natural items that are made specifically for wood turning.

Warranty Limitations

Woodworking products with a Five Year Warranty that are used for commercial or industrial purposes default to a Two Year Warranty. Please contact Technical Service at 1-800-274-6846 for further clarification.

How to Get Technical Support

Please contact Technical Service by calling 1-800-274-6846. **Please note that you will be asked to provide proof of initial purchase when calling.** If a product requires further inspection, the Technical Service representative will explain and assist with any additional action needed. JET has Authorized Service Centers located throughout the United States. For the name of an Authorized Service Center in your area call 1-800-274-6846 or use the Service Center Locator on the JET website.

More Information

JET is constantly adding new products. For complete, up-to-date product information, check with your local distributor or visit the JET website.

How State Law Applies

This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty

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

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Product Listing with Warranty Period

90 Days – Parts; Consumable items; Light-Duty Air Tools
1 Year – Motors; Machine Accessories; Heavy-Duty Air Tools; Pro-Duty Air Tools
2 Year – Metalworking Machinery; Electric Hoists, Electric Hoist Accessories; Woodworking Machinery used for industrial or commercial purposes
5 Year – Woodworking Machinery
Limited Lifetime – JET Parallel clamps; VOLT Series Electric Hoists; Manual Hoists; Manual Hoist Accessories; Shop Tools; Warehouse & Dock products; Hand Tools

NOTE: JET is a division of JPW Industries, Inc. References in this document to JET also apply to JPW Industries, Inc., or any of its successors in interest to the JET brand.

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3.0 Safety warnings

1. Read and understand the entire owner's manual before attempting assembly or operation.
2. This wood 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 wood lathe, do not use it until the proper training and knowledge have been obtained.
3. Always wear approved safety glasses/face shields while using this machine.
4. Make certain the machine is properly grounded.
5. Before operating the machine, remove tie, rings, watches, other jewelry, and roll sleeves up past the elbows. Remove all loose clothing and confine long hair. Do **not** wear gloves.
6. Keep the floor around the machine clean and free of scrap material, oil and grease.
7. Keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
8. Do **not** over reach. Maintain a balanced stance at all times, so that you do not fall or lean against rotating parts.
9. Make all machine adjustments or maintenance with the machine unplugged from the power source.
10. Use the right tool. Do not force a tool or attachment to do a job that it was not designed to do.
11. Replace warning labels if they become obscured or removed.
12. Make certain the switch is in the **OFF** position before connecting the machine to the power supply.
13. Give your work undivided attention. Looking around, carrying on a conversation and "horse-play" are careless acts that can result in serious injury.
14. Keep visitors a safe distance from the work area.
15. Use recommended accessories; improper accessories may be hazardous.
16. Read and understand warnings posted on the machine and in this manual. Failure to comply

with all of these warnings may cause serious injury.

17. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contain 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, cement and other masonry products.
 - Arsenic and chromium from chemically treated lumber.Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as face or dust masks that are specifically designed to filter out microscopic particles.
18. Do not operate this lathe while under the influence of drugs, alcohol or any medication.
19. Keep tools sharp and clean for safe and best performance. Dull tools can grab in the workpiece and be jerked from the operator's hands, causing serious injury.
20. Check the condition of the stock to be turned. Make sure it is free of knots, warpage, checked ends, improperly made or cured glue joints and other conditions which can cause it to be thrown out of the lathe.
21. Securely fasten spur and live centers to the material being used.
22. Check centers and tapers in the headstock and tailstock to be sure they are free of dirt or rust, and oil lightly before inserting centers.
23. Test each set-up by revolving the workpiece by hand to ensure it clears the tool rest and bed. Check the setup at the lowest speed before increasing to operating speed.
24. Use the correct cutting tool for the operation to be performed and keep all tools sharp.
25. Use low speeds for roughing and for long or large diameter work. If vibration occurs, stop the machine and correct the cause.
26. When sanding, remove the tool rest from the machine, apply light pressure and use a slow speed to avoid heat buildup.
27. When turning large diameter pieces, such as bowls, always operate the lathe at low speeds. See the speed recommendation chart in sect. 14.

28. Do not attempt to engage the spindle lock pin until the spindle has stopped. If leaving the machine area, turn lathe off and wait until the spindle stops before departing.
29. Make no adjustments except speed changes with the spindle rotating, and always disconnect the machine from the power source when performing maintenance to avoid accidental starting or electrical shock.
30. Provide for adequate space surrounding work area and non-glare, overhead lighting.
31. When stopping the lathe, never grab the part or faceplate to slow it down. Let the work coast to a stop.
32. Use only JET factory authorized replacement parts and accessories; otherwise, the warranty and guarantee are null and void.
33. Do not use this JET wood lathe for other than its intended purpose. If used for other purposes, JET, disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.

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

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

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

4.0 About this manual

This manual is provided by JET, covering the safe operation and maintenance procedures for a JET Model JWL-1440VS Woodturning Lathe. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. Your machine has been designed and constructed to provide consistent, long-term operation if used in accordance with the instructions as set forth in this document.

This manual is not intended to be an exhaustive guide to lathe operational methods, use of after-market accessories, choice of stock, and such. Additional knowledge may be obtained from experienced users or trade articles. Whatever accepted methods are used, always make personal safety a priority.

If there are questions or comments, please contact your local supplier or JET. JET can also be reached at our web site: www.jettools.com.

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

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

5.0 Specifications

Model number **JWL-1440VS**

Stock numbers:

Lathe with Leg Set 719400K
Lathe only 719400
Leg Set only 719402
Bed Extension 20", with tool post (optional accessory) 719401

Motor and electricals:

Motor type totally enclosed fan cooled, induction, capacitor start
Horsepower 1HP (0.746 kW)
Phase single
Voltage 115/230V (prewired 115V)
Cycle 60Hz
Listed FLA (full load amps 115V/230V) 11/5.5 A
Starting amps 10 A
Running amps (no load) 6.6 A
Start capacitor 200MFD, 125VAC
Run capacitor 30µF, 250VAC
Power transfer V-belt
Variable drive Reeves Drive, with variable speed within established range
On/off switch toggle switch with removable safety key
Motor speed 1720 RPM
Power cord 3/C 16 AWG (300V)
Power cord length 6 ft. (183cm)
Power plug installed (115V) 5-15P UL
Power requirements single phase
Recommended circuit and fuse/breaker size¹ 20A (115V), or 15A (230V)

¹ subject to local/national electrical codes.

Capacities:

Working distance between centers 40" (1016mm)
Working distance between centers, optional 20" bed ext. mounted 60-3/4" (1543mm)
Maximum distance between spindle face and tailstock quill, optional 20" bed ext. mounted 62-1/2" (1587mm)
Swing over bed 14-1/2" (370mm)
Swing over tool rest base 11" (280mm)
Number of indexing positions positive locking, 10 degree increments
Swing over 20" bed extension in low position (optional accessory) 32-1/2" (826 mm)

Headstock and Spindle:

Spindle taper #2 Morse
Spindle thread size 1" x 8 TPI
Spindle speed (RPM) variable within 400 to 3000
Headstock spindle bore 3/8" (10mm)
Spindle direction forward
Headstock movement sliding and 360 deg. rotation
Headstock rotation positive lock positions 0, 30, 60, 90, 120, 180, 270 deg.

Tailstock:

Tailstock quill taper #2 Morse
Tailstock bore 5/16" (9mm)
Tailstock quill travel 4-1/4" (108mm)
Tailstock quill thread acme, 5/8-11UNC (LH)

Materials:

Legs cast iron
Bed cast iron
Headstock cast iron
Tailstock cast iron
Tailstock quill hardened HRC20 steel, with laser etched scale
Tool support and base cast iron

Dimensions:

Tool rest.....	12" (305mm)
Leg footprint	54" x 20" (1372mm x 508mm)
Bed length.....	53" (1346mm)
Bed width.....	8" (203mm)
Overall height, floor to top of headstock, without levelers	47" (1194mm)
Distance floor to spindle centerline (approximate).....	44" (1117mm)
Tool rest post diameter	1" (25.4mm)
Shipping dimensions (Lathe only).....	56"L x 21"W x 21.65"H (1420mm x 530mm x 550mm)
Shipping dimensions (Leg Set only).....	33"L x 22.83"W x 17.71"H (840mm x 580mm x 450mm)
Overall dimensions, assembled with Legs	74"L x 18"W x 49"H (1880 mm x 458mm x 1244mm)
Overall dimensions, assembled without Legs.....	74"L x 18"W x 18.26"H (1880 mm x 458mm x 464mm)
Bed Extension length (<i>optional accessory</i>).....	20" (508mm)

Weights:

	<i>Net</i>	<i>Shipping</i>
Lathe only	220 lb (100 kg)	270 lb (123 kg)
Leg Set only	132 lb (60 kg)	143 lb (65 kg)
Optional Bed Extension only	49.5 lb (22.5 kg)	56 lb (25 kg)

The specifications in this manual were current at time of publication, but because of our policy of continuous improvement, JET reserves the right to change specifications at any time and without prior notice, without incurring obligations.

5.1 JWL-1440VS hole pattern

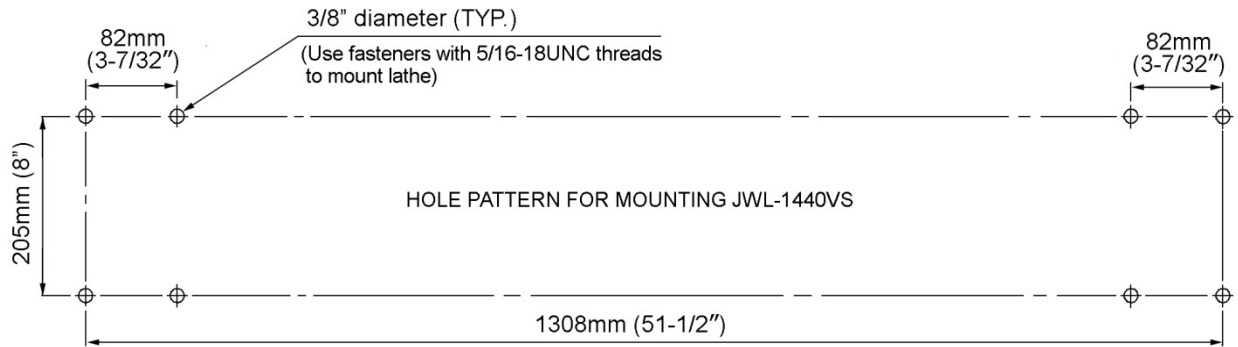


Figure 1

6.0 Setup and assembly

6.1 Shipping contents

Carton contents for # 719400K (see Figure 2)

- 1 Lathe bed with headstock, tool support and tailstock – A
- 2 Legs – B
- 1 Spindle index pin – C
- 1 Spur center – D
- 1 Live cone center – E
- 1 Knockout rod – F
- 1 Faceplate – G
- 1 Tool rest – H
- 1 Faceplate wrench – J
- 1 Tool rest extension – K
- 4 Levelers – L
- 1 Operating Instructions & Parts Manual
- 1 Warranty Card
- 1 Hardware Package (JWL1440-HP1) – M
 - 8 Socket Head Cap Screws, 5/16 X 1-1/4
 - 8 Lock Washers, 5/16
 - 8 Flat Washers, 5/16

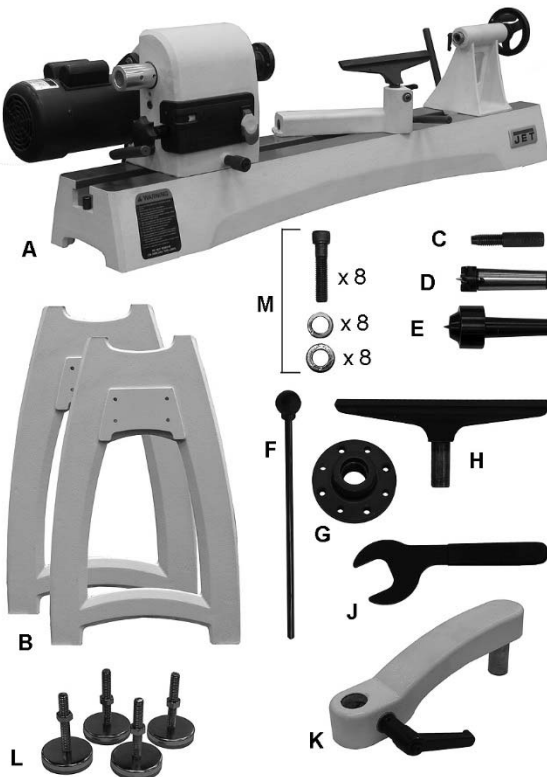


Figure 2
(not to scale)

6.2 Unpacking and cleanup

1. Remove all smaller items from main carton. Do not discard carton or packing material until lathe is assembled and running satisfactorily.
2. Inspect contents for shipping damage; if any is found, report it to your distributor.
3. Compare contents of shipping carton with the contents list in this manual. Report shortages, if any, to your distributor. **Note:** Check lathe first – some parts may have been pre-installed.

If you did not purchase the leg set and are mounting the lathe to a bench or table, continue with section 6.3. If you purchased the leg set, skip to section 6.4.

6.3 Mounting lathe to bench

1. Unscrew the stud (N, Figure 3) from each end of the bed.
2. Loosen the locking handles on headstock, tool rest and tailstock, and slide these items off the bed. (Refer to section 8.0 for detailed instructions on adjusting or removing these items.)

CAUTION

The headstock is heavy. Use an assistant to help remove.

3. Refer to Figure 1 for mounting hole sizes and spacing in the lathe bed. The bed has four 5/16"-18UNC threaded holes. Use appropriate fasteners (bolts and washers) to secure lathe to bench or table from underneath.



Figure 3

6.4 Installing leg set

Refer to Figure 4.

6mm hex key required

1. Unscrew the stud (N, Figure 3) from each end of bed.
2. Remove headstock, tailstock and tool rest support from bed. (Refer to sect. 8.0 for detailed instructions on adjusting and removing these items.)
3. Carefully turn bed upside down. Place a mat or cardboard beneath it to prevent scratching the bed ways.

4. Install legs with eight 5/16" screws, lock washers and flat washers (Figure 4), and 6mm hex key.
5. Tighten screws firmly.

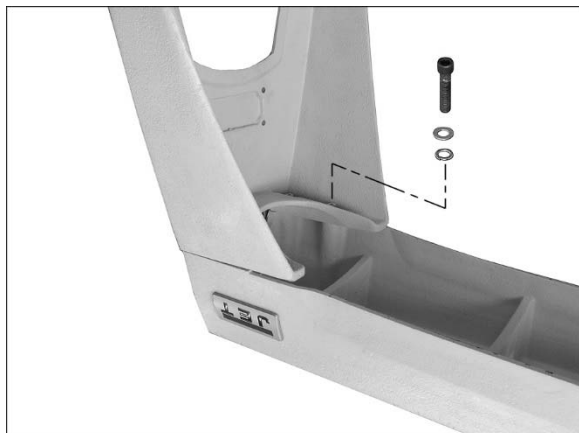


Figure 4

6. Install the four levelers (Figure 5). These can be adjusted later.



Figure 5

7. With help from an assistant, raise bed and leg assembly right-side up.

CAUTION Bed and leg assembly is heavy. Use care when lifting.

8. Rotate the levelers (Figure 5) as needed to establish level for the lathe. Tighten the hex nut on each leveler against the leg casting.
9. Install headstock, tool support and tailstock, and both studs (N, Figure 3).

6.5 Mounting bed extension (optional accessory)

8mm hex key required.

The 20" bed extension (p/n 719401) is optional and purchased separately. See your JET dealer for information. If you did not purchase the bed extension, proceed to section 6.6.

The bed extension can be mounted to the upper or lower holes of the lathe. Mounting in upper holes increases the spindle length capacity of the lathe. Mounting the extension to the lower holes allows use of the tool support during outboard turning.

1. Slide tailstock away from edge of bed.
2. Have an assistant hold bed extension flush to end of lathe bed, and insert four 3/8" socket head cap screws with lock washers and flat washers, provided with the bed extension (P, Figure 6). Snug screws just enough to hold bed extension to lathe bed.
3. Unscrew stud from lathe bed (N₁), and insert it into hole at end of bed extension (N₂).
4. Adjust bed extension to lathe bed, aligning the surface and the inside ways as closely as possible.

IMPORTANT: Top surface of bed extension **must** be flush with surface of lathe bed, and inside ways must be aligned, to allow smooth movement of tailstock across joint.

5. Slide tailstock over joint where beds meet, so that clamping nut is centered over joint (Figure 14). Lock tailstock clamping handle; this will align the beds.
6. Securely tighten screws (P) in bed extension.
7. Unlock tailstock and slide it back and forth to test smoothness of the joint. Make further adjustments if needed.

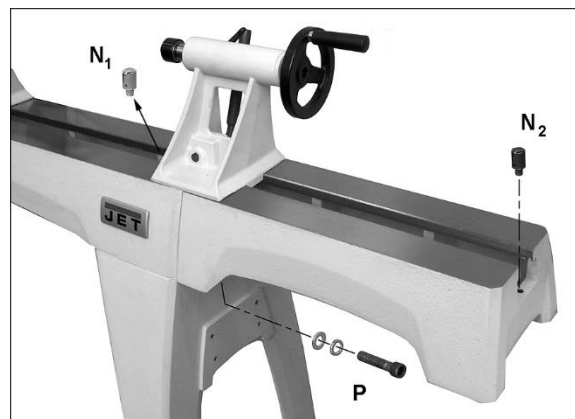


Figure 6

6.6 User-made storage shelf

A shelf may be constructed below the bed, using the ledges inside the lathe legs (Figure 7).

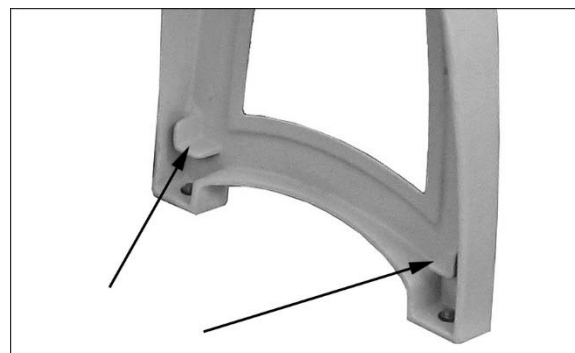


Figure 7

7.0 Electrical connections

⚠WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

The JWL-1440VS Lathe is rated at 115/230V power, and is pre-wired for 115 volt. The lathe comes with a plug designed for use on a circuit with a *grounded outlet* that looks similar to the one pictured in **A**, Figure 8.

Before connecting to power source, be sure switch is in *off* position.

It is recommended that the lathe, when operated on **115 volt power**, be connected to a dedicated 20 amp circuit with a 20 amp circuit breaker or time-delay fuse marked "D". When operated on **230 volt power**, it is recommended that the lathe be connected to a dedicated 15 amp circuit with a 15 amp circuit breaker or time-delay fuse marked "D". **Local codes take precedence over recommendations.**

7.1 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.

⚠WARNING 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. Failure to comply may cause serious or fatal injury.

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 **A**, Figure 8. An adapter, shown in **B** and **C**, may be used to connect this plug to a 2-pole receptacle as shown in **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 **D**, Figure 8. The tool has a grounding plug that looks like the plug illustrated in **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.

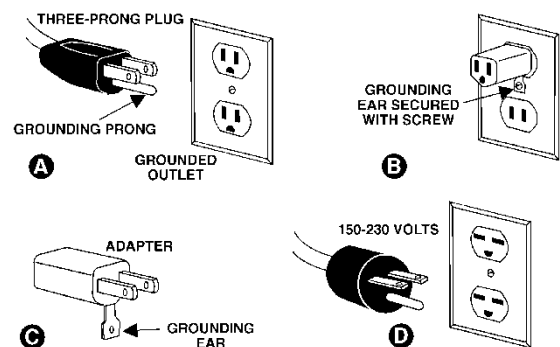


Figure 8

7.2 Voltage conversion

To switch the incoming power leads for 230 volt operation:

1. Remove the junction box cover on the motor and reconnect the leads according to the diagram inside the cover. A similar diagram is found at the back of this manual. (Note: In the event of discrepancies, the diagram inside junction box takes precedence.)
2. Remove the 120V plug on the end of the motor cord and replace it with a UL/CSA listed plug rated for 240V.

Alternatively, the lathe may be “hard-wired” to the power source. If you are hard-wiring the lathe to a panel, make sure a disconnect is available for the operator. During hard-wiring of the Lathe, make sure the fuses have been removed or the breakers have been tripped in the circuit to which the Lathe will be connected. Place a warning placard on the fuse holder or circuit breaker to prevent it being turned on while the machine is being wired.

7.3 Extension cords

The use of extension cords is discouraged; try to position equipment within reach of the power source. If an extension cord becomes necessary, be sure it is 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 recommended size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Ampere Rating		Volts	Total length of cord in feet			
More Than	Not More Than		25	50	100	150
		120	25	50	100	150
		240	50	100	200	300
			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	

Extension Cord Recommendations

Table 1

8.0 Adjustments

8.1 Headstock sliding

Push handle (A, Figure 9) toward motor to unlock. Headstock will slide freely along the length of the bed. Retighten handle before operating lathe.

8.2 Headstock rotation

1. Loosen handle (A, Figure 9).
2. Unscrew the knurled knob (B) counter-clockwise until it can be pulled outward.
3. Pull knob outward and rotate headstock to desired position. The headstock has seven positive locking positions. **NOTE:** Be careful not to pinch your fingers against the bed as you rotate the headstock.

4. Release knob (B) and it will seat itself with an audible click when the headstock reaches a positive lock position.
5. Tighten handle (A) by pulling it away from the motor.
6. Rotate knob (B) clockwise until it engages the threads.

WARNING Always tighten handle (A) firmly before operating lathe.

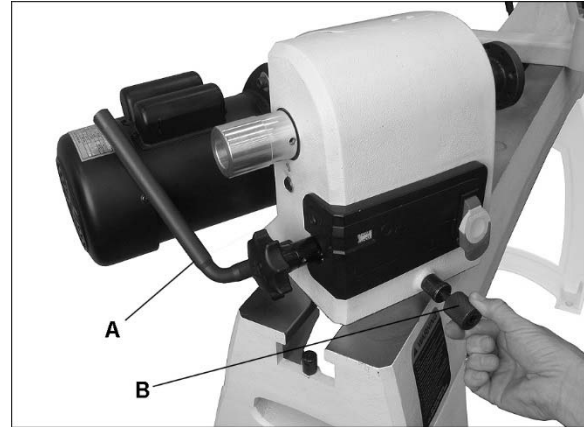


Figure 9

8.3 Tailstock movement

To slide tailstock, push locking handle (C, Figure 10) down toward the bed. Push locking handle upright to lock tailstock in position.

To move the quill, loosen the lock handle (D) and rotate the handwheel (E).

WARNING Make sure tailstock is locked to bed (C, Figure 10) and quill is tightened (E) before turning a spindle on the lathe.

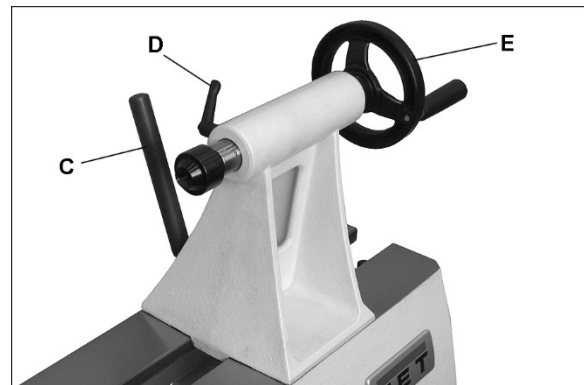


Figure 10

To remove headstock, tailstock or toolrest base from bed, unscrew and remove either of the studs (see N, Figure 3). After remounting these items on the lathe, reinstall studs.

For most turning operations, except outboard turning, the headstock is positioned at the left end of bed, and the tailstock moved to accommodate the workpiece.

8.4 Cam tightness

The clamping mechanisms of headstock, tailstock and tool rest base are pre-set by the manufacturer, and should not require adjustment.

If one of them does not tighten properly against the bed when the locking handle is tightened, adjust it as follows. (Figure 11 uses the tailstock as the example.)



Figure 11

1. Remove stud from end of lathe bed, and slide tailstock off.
2. Turn tailstock on its side, and tighten lock nut (F, Figure 11) to increase cam pressure, or loosen the nut to relieve cam pressure.
3. Mount tailstock on bed and lock it to verify adjustment. Repeat as needed.
4. Reinstall stud.

8.5 Tool rest

A 12-inch tool rest is provided with your lathe. It is designed to allow adjustment for height, position on the bed, and angle to the work.

Loosen locking handle on tool rest base (G, Figure 12) to slide base forward or back, and to angle it to the bed. Tighten locking handle firmly before operating lathe.

Loosen handle (H, Figure 12) to raise or lower tool rest and angle it to the work. Tighten handle before operating lathe.

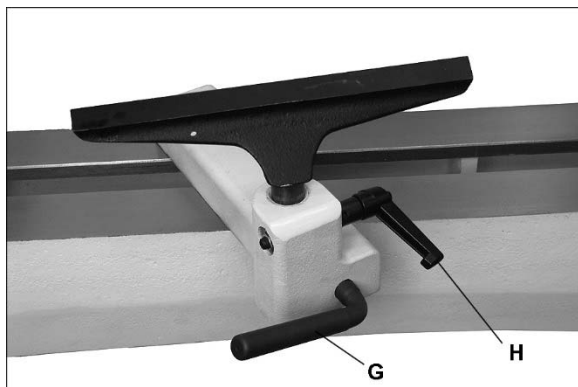


Figure 12

8.6 Tool rest extension

The extension (J, Figure 13) mounts to the tool rest base and offers greater reach for the tool rest when turning off the bed using the headstock at an angle, as shown.

Make sure the clamp bushings (K, Figure 13) are pulled apart sufficiently to accept the post of the extension.

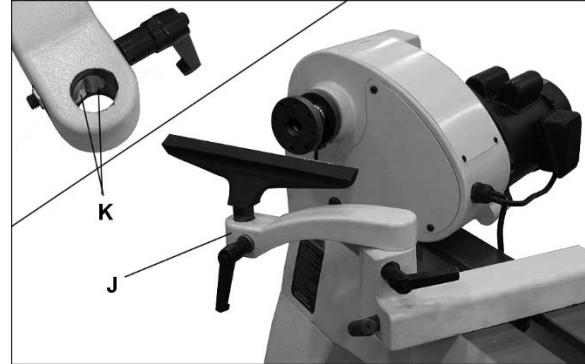


Figure 13

8.7 Locking handles

Locking handles, such as H, Figure 12, are adjustable. Simply lift out on handle, rotate it on the pin, then release it, making sure it seats itself on the pin.

8.8 Spindle indexing

Indexing is used to create evenly spaced features in a work piece, while keeping the lathe spindle locked; for example, when cutting flutes on a spindle blank with a hand-held router, while the spindle blank is secured between lathe centers.

The JWL-1440VS lathe provides 36 indexing positions. These are identified in the chart in *section 15.0*.



Figure 14

1. Rotate spindle using the handwheel until the index pin (L, Figure 14) aligns with the desired hole.
2. Screw the index pin into the hole until it engages the spindle.

3. Perform the desired procedure.
4. Unscrew the index pin until the spindle is released. Rotate spindle to next desired hole, and repeat.

CAUTION Remove spindle index pin before starting lathe.

IMPORTANT: Do not use index pin to lock spindle, which will cause unnecessary wear to the pin. Use spindle lock for this purpose.

8.9 Spur center: Installing/removing

The live center is installed into the headstock spindle. The live center should first be mounted to your workpiece, and then installed into the spindle. See section 10.4.

1. Disconnect lathe from power source.
2. Clean the tapered end of the center, and the inside of the headstock spindle, then push the center into the headstock spindle.
3. To *remove* a live center, first remove workpiece from lathe. Insert knockout rod (Figure 15) through hole in handwheel and tap the tapered end of the spur center.

IMPORTANT: Hold the center by either placing your thumb and forefinger on outside diameter of spur center, or wrapping the center with a rag. The center can be damaged if allowed to fall.

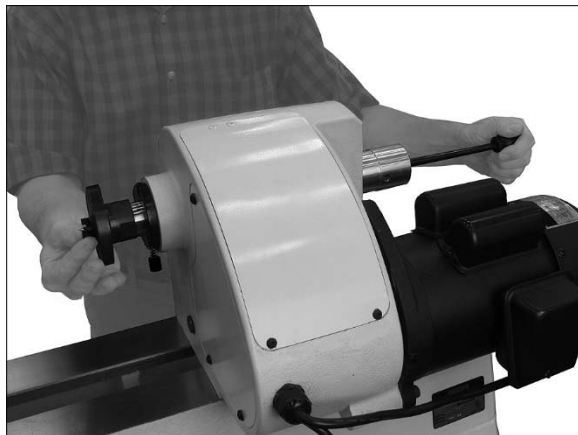


Figure 15

8.10 Live center: Installing/removing

The live center is installed into the tailstock quill.

1. Disconnect lathe from power source.
2. Clean the tapered end of the center and the inside of the tailstock quill, then push the center into the quill. Test the insertion by attempting to pull the center out of the quill by hand. It should remain secure within the quill.
3. Always tighten the quill locking handle (M, Figure 16), once the live center has been properly positioned in the workpiece. Make

sure the keyway (N, Figure 16) in the quill is aligned with the locking handle.

To remove the live center:

4. Back off the tailstock and remove workpiece from lathe.
5. Loosen quill lock handle (M, Figure 16).
6. Rotate the handwheel counterclockwise to retract quill all the way, until the live center comes out. *Hold the center while doing this to prevent it from falling.*

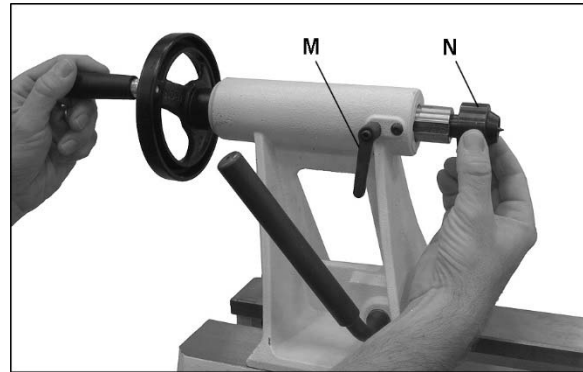


Figure 16

8.11 Spindle lock

Push spindle lock pin (P, Figure 17), and rotate the spindle slightly until the pin goes entirely into the recess. Continue to hold spindle lock pin in the recess.



Figure 17

8.12 Face plate: Installing/removing

1. Disconnect lathe from power source.
2. Mount the face plate to your workpiece.
3. Engage spindle lock pin.
4. Install face plate onto threads of headstock spindle and rotate clockwise as far as it will go.
5. Face plate is now ready for turning.
6. To *remove* the face plate, engage spindle lock, and turn face plate counterclockwise with face plate wrench.

8.13 Checking center alignment

When the headstock is returned from outboard position, the alignment between centers should be checked.

1. Lock the headstock in normal spindle turning position.
2. Slide the tailstock toward the headstock until the centers almost touch (see Figure 18). Lock the tailstock in position.
3. View the center points from top and side to make sure they align.
4. If the centers do not align, unlock the headstock and pivot it slightly. There should be enough “play” in the headstock to adjust for this alignment. Lock the headstock when finished.

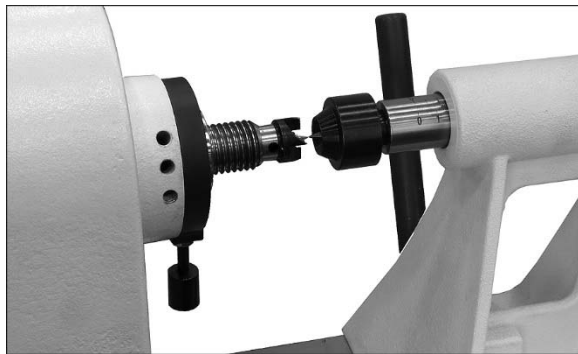


Figure 18

9.0 Operating controls

Refer to Figure 19.

On/off switch (A): Pull to start lathe, push to stop. The safety key (A₁) can be removed to prevent unauthorized use of lathe. The safety key must be inserted to restart the lathe.

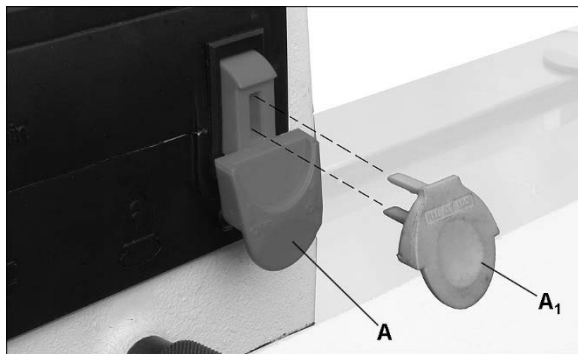


Figure 19

⚠WARNING If a power outage should occur during operation, the lathe will immediately restart when power is resumed if the start switch is still engaged. Push switch immediately to OFF position in the event of a power outage.

Speed control handle: Rotate handle (B, Figure 20) to set speed, which is displayed as RPM (revolutions per minute) in the adjoining window (C).

⚠WARNING Do not start lathe at maximum speed when a workpiece is mounted in the lathe. Start at lower speed and gradually increase to desired speed.

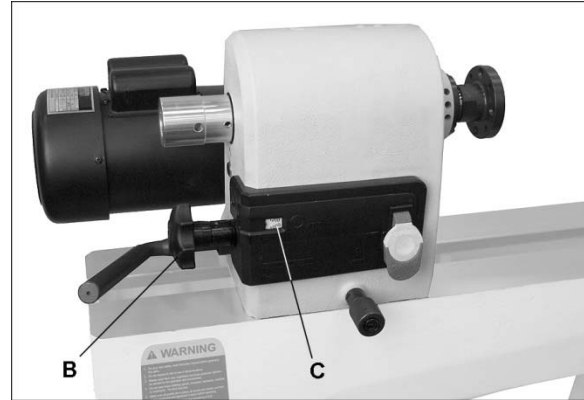


Figure 20

The JWL-1440VS contains a Reeves or “split-pulley” system.

As speed is increased, via the speed change handle, the *spindle pulley* widens and the belt drops down to the smaller diameter between the pulley halves. Conversely, the *motor pulley*, which is spring-loaded so that it adjusts automatically to the movement of the spindle pulley, gets narrower, drawing the belt outward toward the larger diameter. When the speed is decreased, the pulleys act in opposite fashion.

⚠CAUTION Change speed while the lathe spindle is turning to avoid overstressing the belt.

10.0 Operation

The information which follows is general in nature and not intended to be a complete course in woodturning. Nothing can replace the knowledge gained by talking with experienced woodturners or consulting books or trade magazines. Above all, simple trial and error will aid in developing proficiency in the craft.

10.1 Inspection

Before operating the lathe, check that everything is in proper working order:

1. Level your machine; use the leveling feet to help reduce vibration.
2. Check bearings; adjust only if endplay exists.
3. Check belt; it should be snug but not overly tight.

4. Bed ways; keep clean, use steel wool to remove any rust spots, and apply paste wax to prevent buildup of rust and finishes.
5. Tool rest; use a mill file to remove nicks and dings.
6. Spindle tapers; should be clean and free of dust and chips for proper seating of tapers.
7. Tailstock; clean and lubricate quill and locking device.
8. Lighting; proper lighting is essential to eliminate shadows and reduce eye strain.

10.2 Turning Tools

If possible, select only quality, high-speed steel turning tools. High-speed steel tools hold an edge and last longer than ordinary carbon steel. As one becomes proficient in turning, a variety of specialty tools for specific applications can be acquired. The following tools provide the basics for most woodturning projects (see Figure 21):

Skews – 1-1/2" and 1" or 1-1/4", used to make finishing cuts and details.

Large Roughing Gouge – 1" to 1-1/4", used to eliminate waste wood.

Spindle Gouges – 1/4", 3/8", 1/2", used to turn beads, coves and other details.

Deep Fluted Bowl Gouge – 1/4", 3/8" and 1/2", used for turning bowls & plates.

Square Scraper (Bedan) – 3/8" or 1/2", used to create square shoulders.

Large Round Nose (Domed) Scraper – 1-1/2", used to reduce ridges on interior of bowls, round edges of bowls, etc.

Parting Tool - 1/8", used for scraping, making a cut-off, or to set diameters for sizing.

For safety and best performance, *keep tools sharp*. If a tool stops cutting or requires excessive pressure to make a cut, it needs to be sharpened. A number of brand name sharpening jigs and fixtures are available; however, a woodturner should learn to sharpen tools freehand.

For best results, use a slow speed grinder (1800 rpm) fitted with a 60-grit aluminum oxide wheel (for shaping) and a 100-grit alum. oxide wheel (for final sharpening and touchup). The grinder should be located near your lathe and at a comfortable height. A diamond dresser will keep the wheels true and eliminate glazing.

Never allow the tool to rest in one place on the wheel, keep it moving and use a light touch.

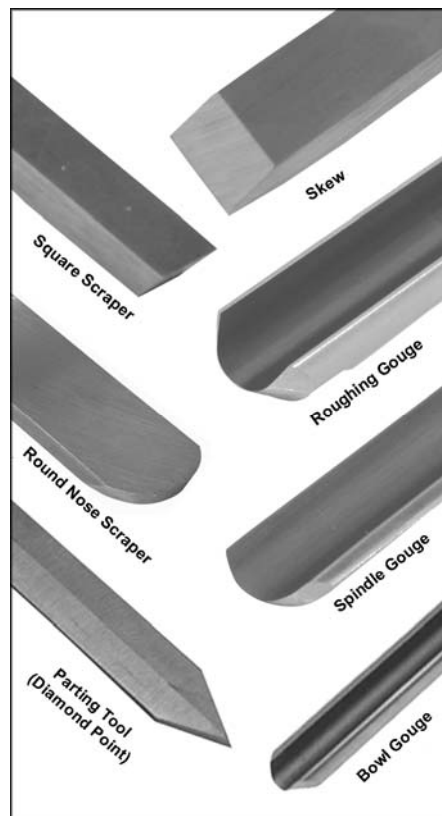


Figure 21

Basic Turning Tools

Carbon steel tools can overheat easily and should be cooled frequently. If the edge turns blue, it has lost its temper and should be ground past the blue area. High-speed steel tools are not as likely to overheat, but can be damaged if allowed to get red hot. High-speed steel tools should not be quenched for cooling. Honing with a diamond lap or slipstone will save trips to the grinder and keep the edge fresh.

10.3 Spindle Turning

Spindle turning takes place between the centers of the lathe. It requires a spur or drive center in the headstock and a live or dead center in the tailstock. A cup center rather than a cone center in the tailstock will often reduce the risk of splitting the stock.

Figure 22 shows the basic profile shapes in spindle turning.

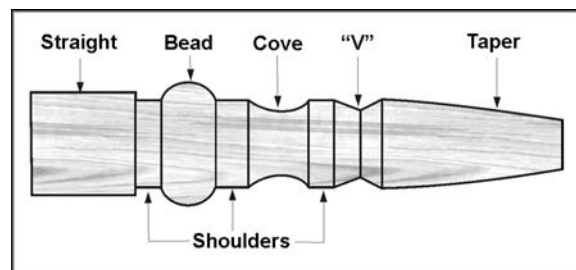


Figure 22

10.4 Stock Selection

Stock for spindles should be straight grained and free of checks, cracks, knots and other defects. It should be cut 1/8" to 1/4" larger than the finished diameter and may require additional length so the ends can be removed later. Larger stock should have the corners removed to produce an octagon making the piece easier to rough down to a cylinder.

1. With a combination square, or plastic center finder for round stock, locate and mark center on each end of the workpiece. Accuracy is not critical on full rounds but extremely important on stock where square sections are to remain. Put a dimple in the stock with an awl or nail, or use a spring-loaded automatic center punch.
2. Extremely hard woods may require kerfs cut into the ends of the stock (Figure 23) using a band saw, so the wood will accept the spur center and the live center.

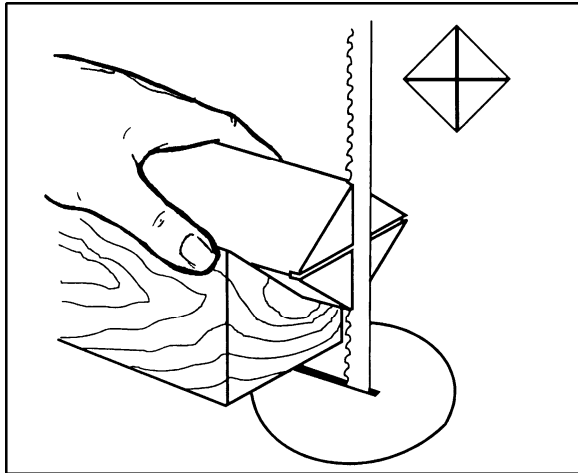


Figure 23

3. Drive the spur center about 1/4" into the workpiece, using a wood mallet or dead blow hammer as shown in Figure 24. Be careful that you do not split the workpiece.

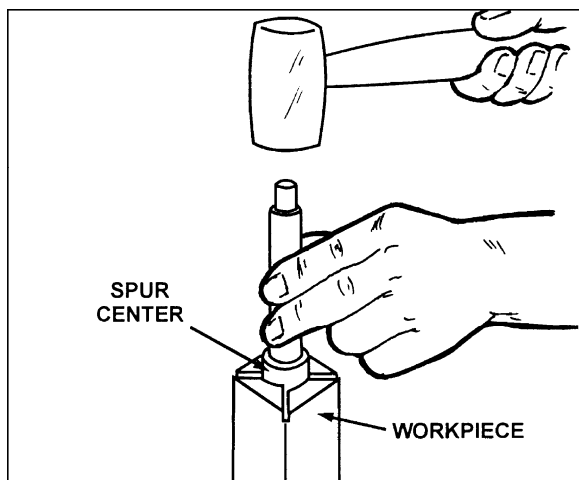


Figure 24

CAUTION Never use a steel face hammer and never drive the workpiece onto the spur center while it is mounted in the Lathe spindle.

4. Make sure headstock is locked to lathe bed.
5. Clean tapered end of spur center and inside of headstock spindle.
6. Insert tapered end of spur center (with the attached workpiece) into headstock spindle.
7. Support the workpiece while bringing the tailstock into position about 1-inch away from end of workpiece. Lock tailstock to bed.
8. Advance tailstock quill with the handwheel in order to seat the live center into the workpiece. Use enough pressure to secure the workpiece between the centers so that it won't fly off, but do not use excessive pressure.
9. Tighten quill locking handle.

CAUTION The tailstock quill is capable of exerting excessive pressure against the workpiece and the headstock. Apply only sufficient force with tailstock to hold workpiece securely in place. Excessive pressure can overheat center bearings and damage both workpiece and lathe.

10. Move tool rest into position. It should be parallel to workpiece, just below the centerline and approximately 1/8" to 1/4" from the corners of the workpiece to be turned, as in Figure 25. Tighten tool rest base to Lathe bed.
11. Rotate workpiece by hand to check for proper clearance.
12. Start lathe at lowest speed and bring it up to the appropriate RPM for the size of workpiece used. Consult digital readout on the headstock.

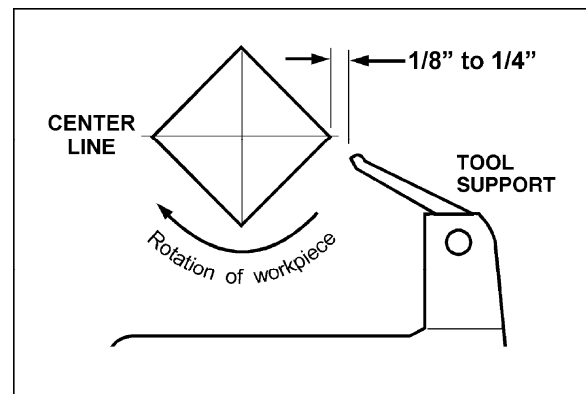


Figure 25

10.5 Cutting Techniques

10.5.1 Roughing Out

1. Begin with a large roughing gouge. Place the tool on the tool rest with the heel of the tool on the surface to be cut.
2. Slowly and gently raise tool handle until cutting edge comes into contact with the workpiece.
3. Beginning about 2" from the tailstock end of the workpiece, roll the flute (hollowed-out portion) of the tool in the direction of the cut. See Figure 26. Make long sweeping cuts in a continuous motion to rough the piece down to a cylinder.
4. Keep as much of the bevel of the tool as possible in contact with the workpiece to ensure control and avoid catches. **NOTE:** Always cut down-hill, or from large diameter to small diameter. Always work *toward* the end of a work-piece, never start cutting at the end.

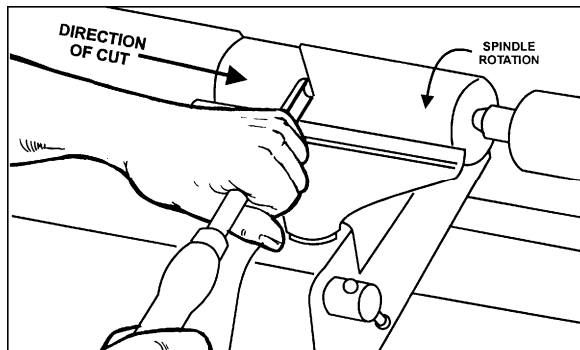


Figure 26

5. Once the workpiece is roughed down to a cylinder, smooth it with a large skew. Keep the skew handle perpendicular to the spindle and use only the center third of the cutting edge for a long smoothing cut (touching one of the points of the skew to the spinning workpiece may cause a catch and ruin the workpiece).
6. Add details to the workpiece with skew, parting tool, scraper or spindle gouge.

10.5.2 Beads

1. Make a parting cut for what is to be a bead to the desired depth. Place the parting tool on the tool support and move tool forward to make the full bevel of the tool come into contact with the workpiece. Gently raise handle to make cut to the appropriate depth.
2. Repeat for other side of the bead.
3. Using a small skew or spindle gouge, start in the center between the two cuts and cut down each side to form the bead. Roll the tool in direction of cut.

10.5.3 Coves

1. Use a spindle gouge. With the flute of the tool at 90 degrees to the workpiece, touch the point of the tool to the workpiece and roll in towards the bottom of the cove. See Figure 27. **Stop at the bottom; attempting to go up the opposite side may cause the tool to catch.**

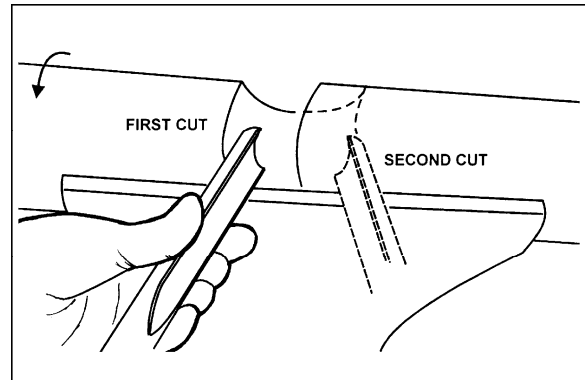


Figure 27

2. Move the tool over the desired width of the cove.
3. With the flute facing the opposite direction, repeat step 1 for other side of cove. Stop at bottom of cut.

10.5.4 "V" Cuts

1. Use the long point of the skew. (**NOTE:** Do not press the long point of the skew directly into the workpiece to create the "V"; this will result in a burned or burnished "V" with fibers being rolled up at both sides.)
2. Lightly mark the center of the "V" with the tip of the skew.
3. Move the point of the skew to the right half of the desired width of your cut.
4. With the bevel parallel to the right side of the cut, raise the handle and push the tool in to the desired depth, as shown in Figure 28.

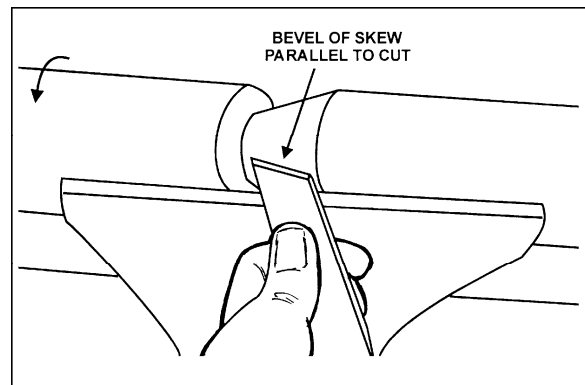


Figure 28

5. Repeat from the left side. The two cuts should meet at the bottom and leave a clean "V" cut.

- Additional cuts may be taken to add to either the depth or width of the cut.

10.5.5 Parting Off

- Use parting tool.
- Adjust lathe speed to lower RPM for parting through a workpiece.
- Place tool on tool support and raise the handle until it starts to cut and continue to cut toward center of workpiece.
- Loosely hold on to the piece in one hand as it separates from the waste wood.

10.5.6 Sanding and Finishing

Leaving clean cuts will reduce the amount of sanding required. Move the tool support out of the way, adjust the lathe to a **low speed**, and begin with fine sandpaper (120 grit or finer). Coarser sandpaper will leave deep scratches that are difficult to remove, and dull crisp details on the spindle. Progress through each grit without skipping grits (for example, do not jump from 120 grit to 220 grit). Fold the sandpaper into a pad; do not wrap sandpaper around your fingers or the workpiece. To apply a finish, the workpiece can be left on the lathe.

Turn off lathe and use a brush or paper towel to apply the finish. Remove excess finish before restarting lathe. Allow to dry and sand again with 320 or 400 grit sandpaper. Apply second coat of finish and buff.

10.6 Face Plate and Bowl Turning

Face plate turning is normally done on the inboard side of the headstock over the bed. Larger workpieces must be turned on the outboard side (remove tailstock and tool support base, and slide headstock to opposite end of bed).

10.6.1 Mounting Stock

Use of a face plate is the most common method for holding a block of wood for turning bowls and plates:

- Select stock at least 1/8" to 1/4" larger than each dimension on the finished workpiece.
- Always select the largest diameter face plate that can be used for the workpiece to be turned.
- True one surface of the workpiece for mounting against the face plate.
- Using the face plate as a template, mark the location of the mounting holes on the workpiece, and drill pilot holes of the appropriate size. Face plates are drilled for No. 12 screws. (Phillips and square drive screws will hold up better than slotted screws. Steel

metal screws are case hardened with deeper and sharper threads than wood screws.)

If the mounting screws on the face plate interfere with the workpiece, a glue or waste block can be used:

- Make a block the same diameter as the face plate, Figure 29. Both waste block and workpiece should have flat surfaces for gluing.
- Glue the block to the workpiece. Avoid using brown paper or newspaper between the waste block and workpiece. It may work fine if you are using scrapers, but a slight catch with a bowl gouge can separate the two.

NOTE: When using a waste block, be careful with the adhesive you select. Dry workpieces can be bonded with ordinary white or yellow glue but must be clamped to ensure a good bond. Green workpieces require cyanoacrylate type glue.

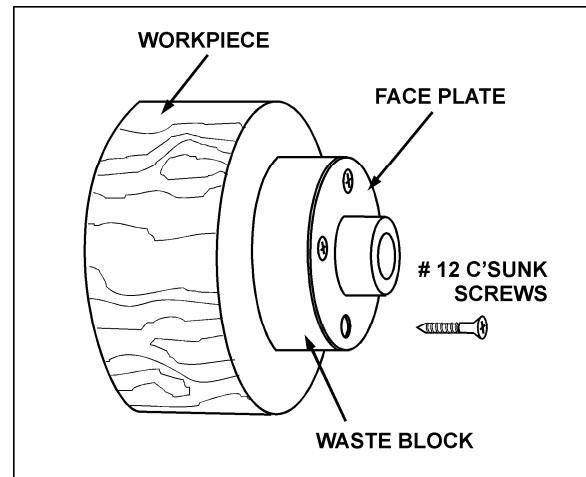


Figure 29

10.6.2 Faceplate or Chuck?

While faceplates are the simplest, most reliable method of holding a block of wood for turning, chucks can also be used. As there are dozens of chucks to choose from, the woodturner should first consider all the different types of turning that will be done, and read reports or discuss with other turners who own chucks before making a decision.

A chuck is not a requirement, but is handy when working on more than one piece at a time. Rather than removing screws, you simply open the chuck and change workpieces.

The most popular ones are four jaw scroll chucks with a variety of jaws to accommodate different size tenons. Most also come with a screw chuck as well.

10.6.3 Wood Selection

Firewood is the cheapest, most widely available stock to use while learning to turn bowls. Simply waste wood for a while practicing turning techniques. Develop skill with each tool before attempting to make a finished piece. It is best to start with dry wood, without worrying about drying or distortion. Once turning becomes comfortable, try green wood which cuts very easily. As the turner gains experience, he or she will find extraordinary grain and figure in the form of burls, crotches and bark inclusions.

10.6.4 Checks and Cracks

Green wood will check and crack. For best results, leave logs in as long a length as you can handle. As the material starts to dry, surface cracks will develop on the ends of the log. Cut off two to three inches and you should find good, sound wood. Also cut the log in half along the pith to avoid having it in the finished piece. Most checks radiate from the pith.

As you turn bowls from green wood, make sure you maintain a consistent wall thickness throughout the piece. Leaving a piece thick in some areas and thin in others will cause the wood to dry unevenly and promote checks and cracks.

10.6.5 Distortion

Distortion is a problem associated with turning green wood. It will vary from one type of wood to the next. Typically, fruitwoods tend to distort more than others. It also varies with the time of year the tree was cut and how the logs are stored.

10.6.6 Tools for Bowl Turning

The deep fluted bowl gouge is the most essential and versatile tool for most bowl and plate turning. The bowl gouge is heavier and easier to control than other types of gouges. It also allows removal of wood much faster and with less vibration than other gouges. Most average sized bowl work can be accomplished with a 3/8" or 1/2" bowl gouge.

A 1/4" bowl gouge is best suited for smaller bowls and light finishing cuts. Larger 3/4" and 1" bowl gouges are only used for extremely large pieces.

Large domed scrapers can also be used to help clean up the interior surfaces of bowls. A light touch with the scraper slightly tilted will eliminate some of the ridges occasionally left by an inexperienced bowl gouge.

10.7 Bowl Turning Techniques

10.7.1 To Shape Outside of Bowl

1. Odd shaped burls, crotches and other irregular shaped blanks require special preparation before mounting in a chuck or onto a faceplate. Remove the bark, if there is any,

from what appears to be the center of the top of the workpiece.

2. Drive spur center into the top of the workpiece with a mallet or dead blow hammer.
3. Slip the spur center into the headstock taper and bring the tailstock with a live or ball bearing center into position. Lock the tailstock to the bed and advance the tailstock spindle in order to seat the cup center into the workpiece. Tighten the ram locking handle.
4. Turn workpiece by hand to ensure proper clearance.
5. Start lathe at lowest speed and bring it up to the maximum safe speed for the size of work to be turned. If the machine starts to vibrate, lower the speed until vibration stops.
6. Rough out the outside of the bowl with the 1/2" deep fluted bowl gouge, holding the handle of the tool firmly against your hip. For best control, use your whole body to move the gouge through the workpiece.
7. As the bowl takes shape, work on the bottom (tailstock end) to accommodate attaching a face plate.
8. Turn a short tenon (about 1/8" long) the size of the hole in the faceplate. See Figure 30. This will allow centering the workpiece when the faceplate is attached.

(NOTE: If you plan to use a chuck, turn a tenon of the appropriate length and diameter to fit your chuck.)

9. Stop the lathe, remove workpiece and attach face plate or chuck (see section 10.6.1 "Mounting Stock").

⚠ WARNING The surfaces of faceplate and workpiece should mount flush to each other.

10. Finish turning the outside of bowl with 1/2" or 3/8" bowl gouge. Leave additional material at base of bowl for support while turning interior. This will be removed later.

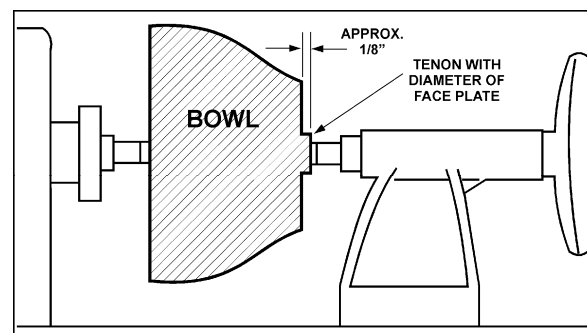


Figure 30

10.7.2 To Shape Interior of Bowl

1. Stop lathe and move tailstock away. (You may want to remove the center from the tailstock to avoid bumping it with your elbow.)
2. Adjust tool support in front of the bowl just below centerline, at a right angle to the lathe ways.
3. Rotate workpiece by hand to check clearance.
4. Face off top of bowl by making a light shearing cut across the top of workpiece, from rim to center.
5. Place 1/2" bowl gouge on tool support at center of the workpiece with the flute facing top of bowl. The tool handle should be level and pointed toward the four o'clock position, as shown in Figure 31.

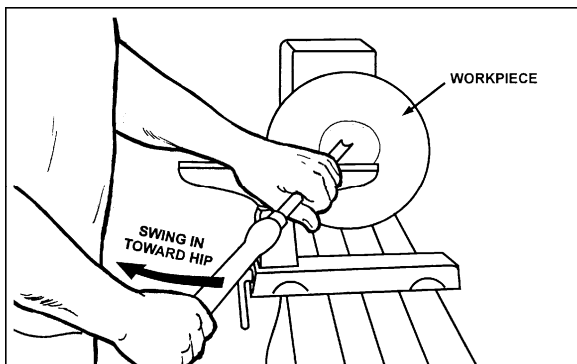


Figure 31

6. Use the left hand to control cutting edge of gouge, while right hand swings tool handle toward your body (Figure 31). The flute should start out facing top of workpiece, and rotate upward as it moves deeper into the bowl to maintain a clean even curve. As the tool goes deeper into the bowl, progressively work out toward the rim. It may be necessary to turn the tool support into the piece as you get deeper into the bowl.

(NOTE: Try to make one, very light continuous movement from the rim to the bottom of the bowl to ensure a clean, sweeping curve through the piece.)

Should there be a few small ridges left, a light cut with a large domed scraper can even out the surface.)

7. Develop wall thickness at the rim and maintain it as you work deeper into the bowl (Once the piece is thin toward the bottom, you cannot make it thinner at the rim). When the interior is finished, move the tool support to exterior to re-define bottom of bowl. (General rule of thumb: the base should be approximately 1/3 the overall diameter of the bowl).
8. Work the tight area around faceplate or chuck with 1/4" bowl gouge.

9. Begin the separation with a parting tool, but do not cut all the way through yet.

10.7.3 Sanding and Finishing

1. Remove the tool support and adjust lathe speed to approximately 500 RPM. Higher speeds can build friction while sanding and cause heat check in some woods.
2. Begin with fine sandpaper (120 grit) and progress through each grit, using only light pressure. Coarser sandpaper tends to leave deep scratches that are hard to eliminate. Use power-sanding techniques to avoid concentric sanding marks around your finished piece. Avoid rounding over the rim and foot with sandpaper; try to keep details crisp. Finish sanding with 220 grit.
3. Remove sanding dust with tack rags or compressed air and, with lathe turned off, apply first coat of finish. Let stand for several minutes, wipe off excess. Allow to dry before sanding again with 320 or 400 grit sandpaper.
4. Turn lathe back on and continue the separation cut almost all the way through the base. Stop at about 3" and use a small fine tooth saw to separate the bowl from the waste.
5. Apply second finish coat and allow to dry before buffing.

11.0 Maintenance

⚠WARNING Before doing maintenance on the lathe, disconnect it from the electrical supply by pulling out the plug or switching off the main switch. Failure to comply may cause serious injury.

11.1 General procedures

Maintenance on the lathe should be performed at periodic intervals to ensure that the machine is in proper working order, that all fasteners are tight, and all necessary adjustments have been made. Inspection and maintenance should be performed at least twice a year, but more frequently if the lathe receives constant use.

Clean and oil the lathe bed so that headstock, tailstock and tool rest base will slide easily. Clean any rust spots that may develop on the bed with a commercial rust remover.

Use compressed air to blow out the interior of the headstock, in order to keep sawdust and chips from accumulating on belts and sheaves. Also blow off debris that accumulates in the motor fan.

Frequently clean out the Morse tapers on both headstock and tailstock. Commercially available taper cleaners may be acquired from tool stores.

Bearings are permanently lubricated and sealed, and do not require further lubrication.

11.2 Pulley lubrication

After every 200 working hours, or every 30 days, use a grease gun to insert a good quality, all-

purpose grease into the zerk fitting on the motor shaft (Figure 32) and the groove of the main spindle (Figure 33).

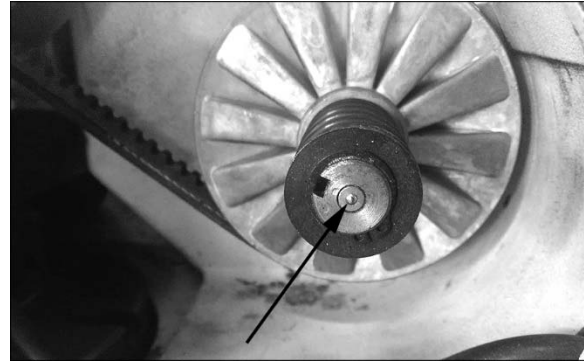


Figure 32

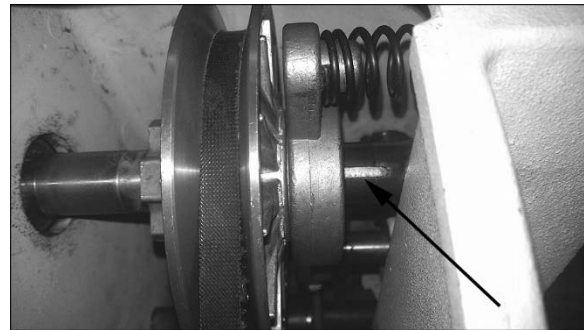


Figure 33

11.3 Belt and bearings replacement

Changing belt and bearings can be a difficult task, and should be performed by a JET authorized service center. Remove headstock and take it to a service center for servicing.

12.0 Optional accessory

This accessory item, purchased separately, can enhance the functionality of your lathe. Contact your dealer to order, or call JET at the phone number on the cover.



71940120" Extension Bed w/ Post

13.0 Troubleshooting the JWL-1440VS Lathe

Table 3

Symptom	Possible Cause	Correction
Motor fails to develop full power.	Power line overloaded.	Correct overload condition.
	Undersized wires in supply system, or extension cord is too long.	Increase supply wire size.
	Running capacitor is bad.	Replace running capacitor.
	Worn motor.	Replace motor.
Motor or spindle stalls or will not start.	Excessive cut.	Reduce depth of cut.
	Worn or broken belt.	Replace belt.
	Improper cooling of motor.	Blow out sawdust from motor housing fan.
	Starting or Running capacitor is bad.	Replace capacitor.
	Centrifugal switch is bad.	Replace centrifugal switch.
	Worn spindle bearings.	Replace bearings.
	Worn motor.	Replace motor.
Excessive vibration.	Workpiece warped, out of round, has major flaw, was improperly prepared for turning, or RPM is set too high.	Correct problem by planing or sawing workpiece, or discard entirely and use new workpiece. Reduce RPM.
	Worn spindle bearings.	Replace spindle bearings.
	Worn drive belt.	Replace drive belt.
	Motor mount bolts are loose.	Tighten bolts.
	Lathe on uneven surface.	Adjust leveling feet.
Tools tend to grab or dig in.	Dull tools.	Keep tools sharp.
	Tool rest set too low.	Reposition tool rest height.
	Tool rest set too far from workpiece.	Reposition tool rest closer to workpiece.
	Improper tool being used.	Use correct tool for operation.
Headstock moves when applying pressure with Tailstock.	Locking handle not tight.	Tighten handle.
	Excessive pressure being applied by tailstock.	Slide headstock to left end, lock firmly, then apply pressure to workpiece with tailstock. Apply <i>only</i> sufficient force with tailstock to hold workpiece securely in place.
Tailstock moves when applying pressure.	Cam lock nut needs adjusting.	Tighten cam lock nut.
	Excessive pressure being applied by tailstock.	Slide tailstock to right side of lathe against the stop. Move headstock into position and apply pressure to workpiece with tailstock.
	Lathe bed and tailstock mating surfaces are greasy or oily.	Remove tailstock and clean surfaces with a cleaner/degreaser. Re-apply light coat of oil to lathe bed surface.

14.0 Recommended Lathe Speeds (per diameter of workpiece)

Diameter of Work	Roughing RPM	General Cutting RPM	Finishing RPM
Under 2"	1520	3000	3000
2" to 4"	760	1600	2290
4" to 6"	510	1080	1500
6" to 8"	380	810	1125
8" to 10"	300	650	900
10" to 12"	255	540	750
12" to 14"	220	460	640

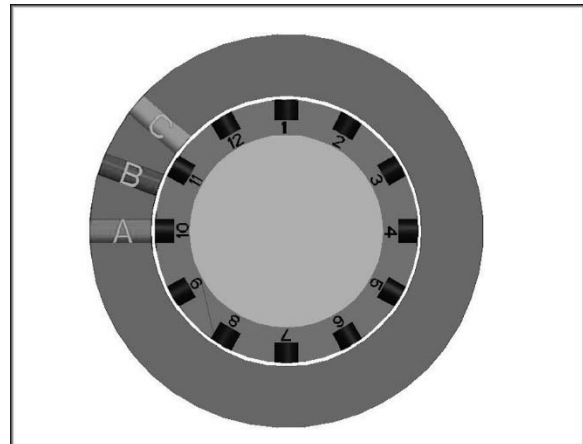
Table 4

15.0 Indexer Positions

How to use the chart

A diagram of the indexer is shown at right, as viewed from the tailstock end of the Lathe. Points A, B and C are the holes in the head casting. The holes in the spindle collar may be considered as numbered 1 through 12.

Example: You wish to rout 9 flutes on your spindle blank. Locate the "9" in the "No. of Flutes" column; each flute angle will be 40°. The index pin should first be inserted into hole combination "A-1". Make your first flute at this position. Back off the index pin and rotate the spindle until the index pin can be inserted into hole combination "A-5"; this will be followed by "A-9". Succeeding flutes will be made with the index pin in the B position: "B-3", "B-7" and so on



No. of Flutes 360° divided by...	Angle	Letter #	Letter #	Letter #
1	360.00	A 1		
2	180.00	A 1,7		
3	120.00	A 1,5,9		
4	90.00	A 1,4,7,10		
5	72.00	-----		
6	60.00	A 1,3,5,7,9,11		
8*	45.00	A 1,4,7,10		
9	40.00	A 1,5,9	B 3,7,11	C 1,5,9
10	36.00	-----		
12	30.00	A 1 to 12		
15	24.00	-----		
16	22.50	-----		
18	20.00	A 1,3,5,7,9,11	B 1,3,5,7,9,11	C 1,3,5,7,9,11
20	18.00	-----		
24*	15.00	A 1 to 12		
30	12.00	-----		
36	10.00	A 1 to 12	B 1 to 12	C 1 to 12
<i>other interesting patterns...</i>				
9	-----	A 1,5,9	B 1,5,9	C 1,5,9

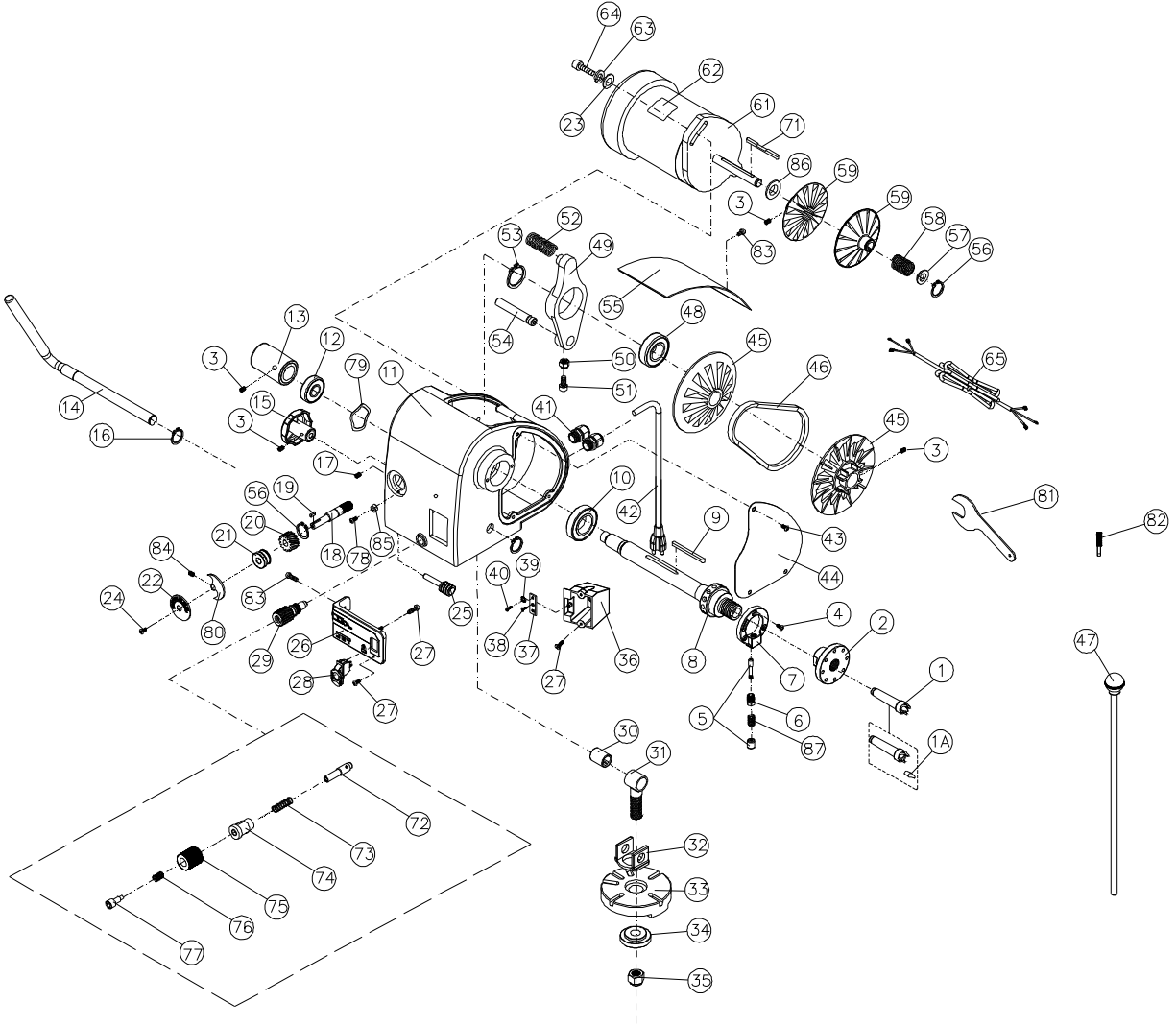
NOTE: A dashed line indicates that particular set of angles is not possible with the indexer.

* For 8 or 24 flutes, perform the first sequence, then rotate the workpiece by hand to the needed position and repeat the same sequence.

16.0 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, 8:00 a.m. to 5:00 p.m. CST. Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

16.1.1 JWL-1440VS Headstock Assembly – Exploded View

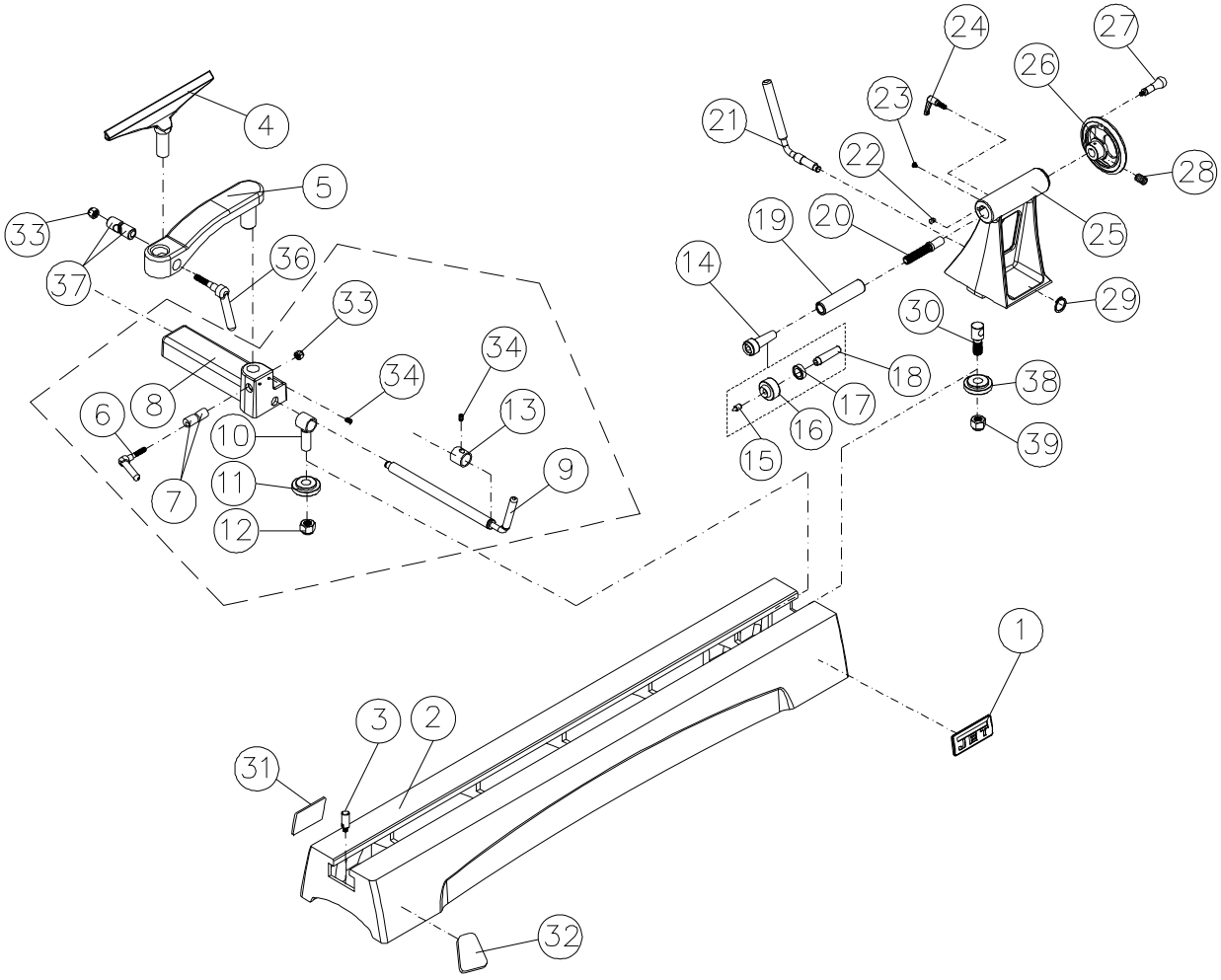


16.1.2 JWL-1440VS Headstock Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	JML-3	Spur Center	MT2	1
1A	JML-3A	Center Point for Spur Center		1
2	JWL1440-102	Faceplate	3"	1
3	6295796	Nylon Insert Socket Set Screw	1/4-20 x 3/8"	6
4	JWL1440-104	Socket Head Button Screw	#10-24 x 3/4"	3
5	JWL1440-105	Spindle Lock Pin		1
6	JWL1440-106	Stud		1
7	JWL1440-107	Cover		1
8	JWL1440-108	Spindle	1"-8TPI	1
9	JWL1442-104	Key	4x4x80 mm	1
10	BB-6205ZZ	Ball Bearing	6205ZZ	1
11	JWL1440-111	Headstock		1
12	BB-6304VV	Ball Bearing	6304VV	1
13	JWL1440-113	Handwheel		1
14	JWL1440-114	Eccentric Rod		1
15	JWL1440-115	Knob		1
16	JWL1442-124	C-ring	S19	2
17	TS-0267091	Set Screw	1/4"-20 x 1"	1
18	JWL1440-118	Worm		1
19	JWL1440-119	Key	4x4x10 mm	1
20	JWL1440-120	Gear		1
21	JWL1440-121	Bushing		1
22	JWL1440-122	Speed Chart (includes Disc Plate)		1
23	TS-0680031	Flat Washer	5/16"	2
24	JWL1440-124	Socket Flat Head Screw	1/4"-20 x 3/8"	2
25	4224B-521	Worm		1
26	JW1440-126	Control Panel		1
27	TS-081C052	Pan Head Screw	#10-24 x 3/4"	4
28	JWL1442-118	Switch		1
29	JWL1440-129	Pivot Pin Assembly (includes #72 thru 77)		1
30	JWL1442-127	Bushing		1
31	JWL1442-128A	Bolt		1
32	JWL1442-129	Support Bracket		1
33	JWL1440-133	Index Bracket		1
34	JWL1442-154	Clamp		1
35	TS-0650081	Nylon Nut	3/4"-10	1
36	JWL1440-136	Switch Box		1
37	JWL1015-171	Ground Plate		1
38	JWL1015-163	Tapping Screw	M3.5 x 6	1
39	TS-0733041	External Tooth Lock Washer	1/4"	2
40	TS-1533032	Pan Head Screw	M5 x 10	2
41	JWL1440-141	Strain Relief		2
42	JWL1440-142	Power Cord		1
43	TS-2246102	Socket Head Button Screw	M6 x 10	3
44	JWL1440-144	Motor Cover		1
45	JWL1442-161	Spindle Pulley Assembly		1
46	JWL1440-146	V-Belt	RPF 2240	1
47	JWL1442-164	Knock Out Rod		1
48	BB-6006ZZ	Ball Bearing	6006ZZ	1
49	JWL1442-145	Shift Lever Bracket		1
50	TS-0561011	Nut	1/4"-20	1
51	TS-0207061	Socket Head Cap Screw	1/4"-20 x 1"	1
52	JWL1442-142	Spring		1
53	JWL1442-144	C-ring	S30	1
54	JWL1236-20	Rack		1
55	JWL1440-155	Cover		1
56	JWL1442-139	C-Ring	S16	2
57	JWL1440-157	Sleeve		1
58	JWL1440-158	Spring		1
59	JWL1440-159	Motor Pulley Assembly		1

Index No.	Part No.	Description	Size	Qty
61	JWL1440-161	Motor (includes #62)		1
	JWL1440-MF	Motor Fan (not shown)		1
	JWL1440-MFC	Motor Fan Cover (not shown)		1
	JWL1440-CS	Centrifugal Switch (not shown)		1
	JWL1440-CC	Capacitor Cover (not shown)		2
	JWL1440-SC	Starting Capacitor (not shown)	200MFD, 125VAC	1
	JWL1440-RC	Running Capacitor (not shown)	30µf, 250VAC	1
	JWL1440-DC	Dust Cover (not shown)		1
62	JWL1440-162	Motor Label		1
63	TS-0720081	Lock Washer	5/16"	2
64	TS-0208071	Socket Head Cap Screw	5/16"-18 x 1-1/4"	2
65	JWL1440-165	Motor Cord		1
71	JWL1440-171	Key		1
72	JWL1440-172	Pivot Index Pin		1
73	JWL1442-175	Spring		1
74	JWL1442-176	Index Bushing		1
75	JWL1442-173	Index Knob		1
76	JWL1442-172	Spring		1
77	JWL1440-177	Socket Head Cap Screw		1
78	TS-0206031	Socket Head Cap Screw	#10-24 x 5/8"	1
79	JWL1442-108	Wave Washer		1
80	JWL1440-180	Speed Limiter		1
81	JWL1221VS-269	Wrench (includes Rubber Sleeve)		1
82	3520B-271	Spindle Index Pin		1
83	TS-0253031	Socket Head Button Screw	#10-24 x 1/2"	3
84	TS-0267021	Set Screw	1/4"-20 x 1/4"	2
85	TS-0560071	Hex Nut	#10-24	1
86	TS-155010	Flat Washer	M16	1
87	JWL1221VS-132	Spring		1

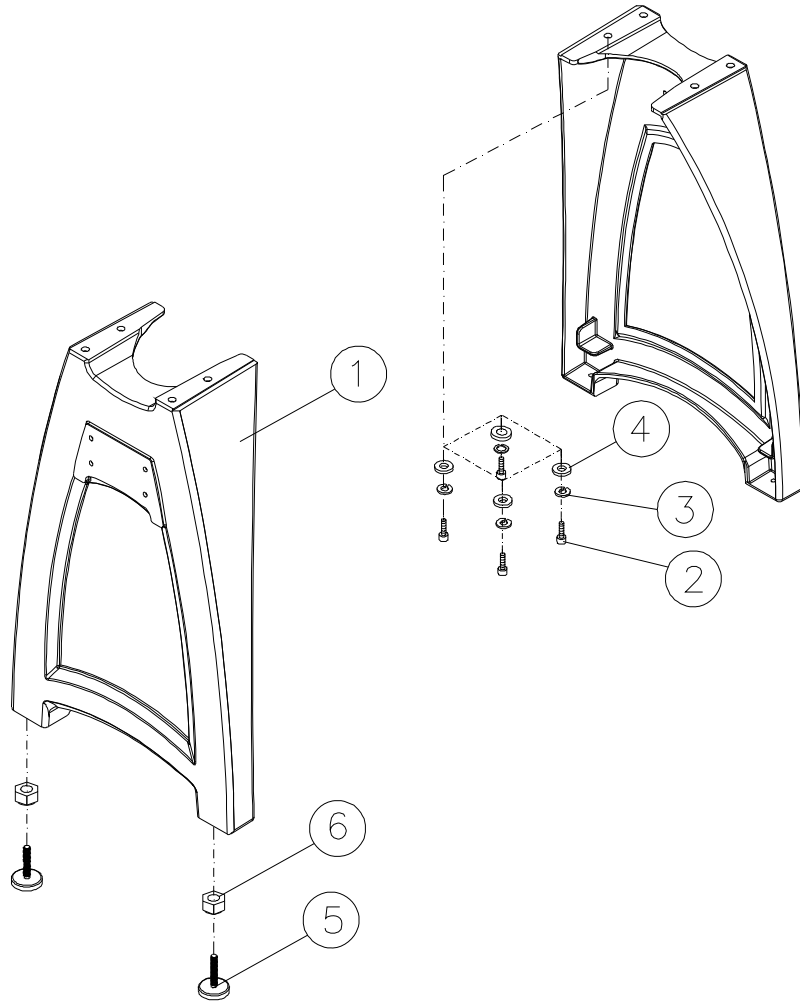
16.2.1 JWL-1440VS Bed Assembly – Exploded View



16.2.2 JWL-1440VS Bed Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	JET-113	JET Nameplate		1
2	JWL1440-202	Bed		1
3	JWL1440-203	Stud		2
4	JWL1442-205	Tool Rest	12"	1
5	JWL1440-205	Tool Rest Extension		1
	JWL1440-TBA	Tool Rest Base Assembly (includes #6 thru 13, 33, 34)		1
6	JWL1440-206	Handle		1
7	JWL1440-207	Tool Rest Lock Bushing Set		1
8	JWL1440-208	Tool Rest Base		1
9	JWL1442-210A	Tool Support Rod		1
10	JWL1442-128	Clamp Bolt		1
11	JWL1442-154	Clamp		1
12	TS-0650081	Nylon Nut	3/4"-10	1
13	JWL1440-213	Bushing		1
14	708331	Live Center Assembly (includes #15 thru 18)		1
15	JML-52A	Center Point for Live Center		1
16	JML-52	Live Center Head		1
17	BB-6002ZZ	Ball Bearing	6002ZZ	1
18	JML-54	Live Center Shaft		1
	JWL1440-TA	Tailstock Assembly (includes #19 thru 30, 38, 39)		1
19	JWL1440-219	Quill	MT-2	1
20	JWL1440-220	Lead Screw		1
21	JWL1440-221	Tailstock Rod		1
22	JWL1221VS-227	Key		1
23	TS-0253032	Socket Head Button Screw	#10-32x1/2"	1
24	JML-59A	Tailstock Lock Handle		1
25	JWL1440-225	Tailstock Casting		1
26	JWL1440-226	Handwheel		1
27	JWL1442-211	Handle		1
28	TS-0267041	Set Screw	1/4"-20x 3/8"	2
29	JWL1440-229	C-Ring	S-12	1
30	JWL1440-230	Bolt		1
31	JWL1440-231	ID Label		1
32	JWL1221VS-211	Warning Label		1
33	TS-0570031	Hex Nut	3/8"	2
34	TS-0267021	Set Screw	1/4"-20x1/4"	4
36	JWL1440-206	Handle		1
37	JWL1440-207	Tool Rest Lock Bushing Set		1
38	JWL1442-154	Clamp		1
39	TS-0650081	Nylon Nut	3/4"-10	1

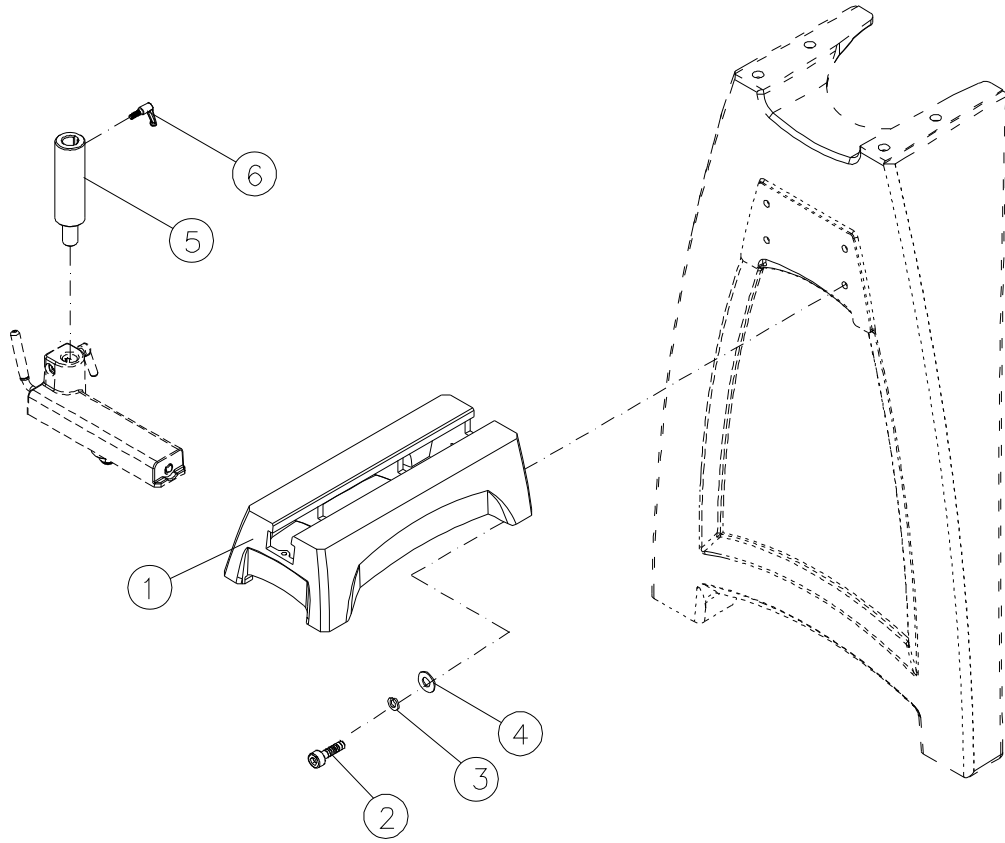
16.3.1 JWL-1440VS Leg Set – Exploded View



16.3.2 JWL-1440VS Leg Set – Parts List

Index No.	Part No.	Description	Size	Qty
.....	719402	JWL-1440VS Leg Set (includes #1 thru 6)	1
1	JWL1440-401	Leg	2
2	TS-0208071	Socket Head Cap Screw	5/16"-18x1-1/4"	8
3	TS-0720081	Lock Washer	5/16"	8
4	TS-0680031	Flat Washer	5/16"	8
5	JWL1642-206	Adjustable Foot	3/8"	4
6	TS-0561031	Hex Nut	3/8"-16	4
.....	JWL1440-HP1	Hardware Package (includes #2,3,4)	4

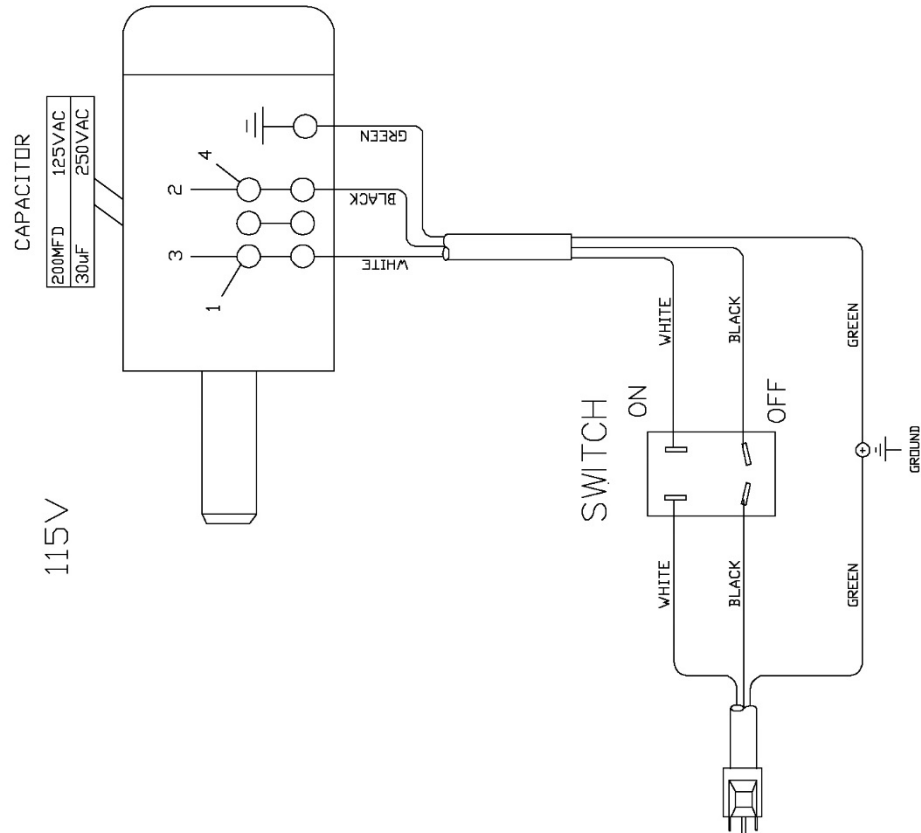
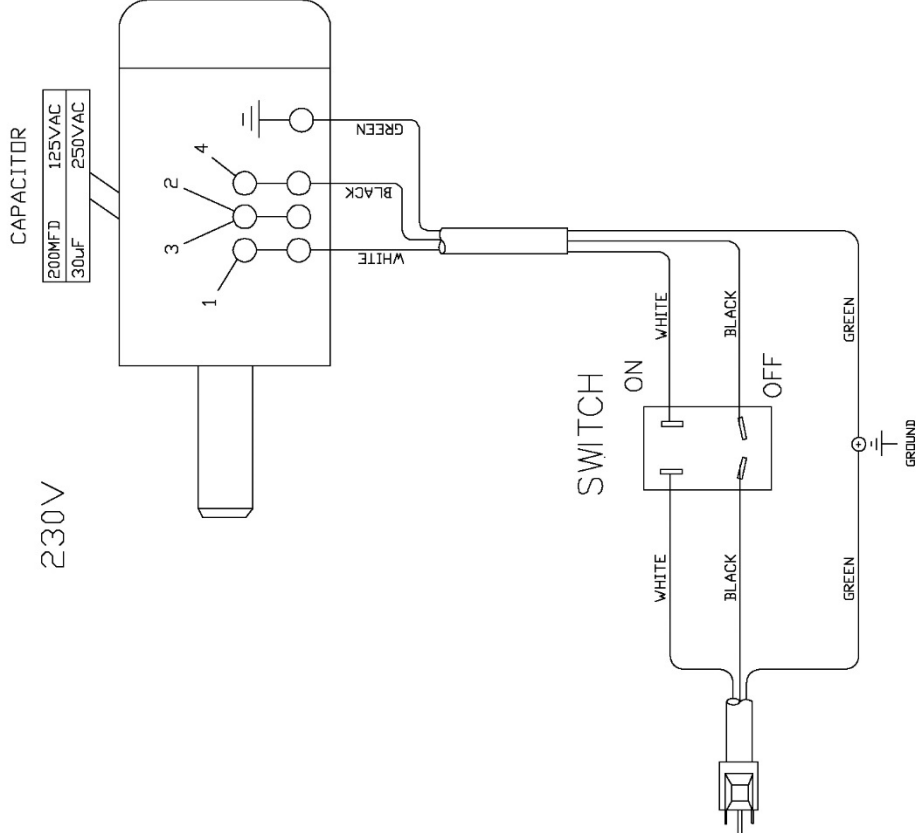
16.4.1 JWL-1440VS Extension Bed Assembly (OPTIONAL) – Exploded View



16.4.2 JWL-1440VS Extension Bed Assembly (OPTIONAL) – Parts List

Index No.	Part No.	Description	Size	Qty
.....	719401	20" Extension Bed w/ Post (includes #1 thru 6)	1
1	JWL1440-301	Extension Bed	20"	1
2	TS-0209071	Socket Head Cap Screw	3/8"-16x1-1/2"	4
3	TS-0720091	Lock washer	3/8"	4
4	TS-0680041	Flat Washer	3/8"	4
5	3520B-310	Extension Post	1
6	6294763	Locking Handle	1

17.0 Electrical Connections



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