POWERMATIC®

Operating Instructions and Parts Manual

35″ x 20″ Woodturning Lathe

Model 3520C



for serial no. 201035201553 and higher

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1.0 IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THIS LATHE.

WARNING – To reduce risk of injury:

1. Read and understand entire owner's manual before attempting assembly or operation.
2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
3. Replace warning labels if they become obscured or removed.
4. This lathe is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a lathe, do not use until you obtain proper training and knowledge.
5. Do not use this machine for other than its intended use. If used for other purposes, Powermatic disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Always wear protective eyewear when operating machinery. Eyewear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specifications. Use of eyewear which does not comply with ANSI Z87.1 specifications could result in severe injury from breakage of eye protection. (Everyday eyeglasses only have impact resistant lenses; they are NOT safety glasses.)
7. Before operating this machine, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Do not wear loose clothing. Confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do not wear gloves.
8. Wear hearing protection (plugs or muffs) if noise exceeds safe levels.
9. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
10. Make certain the switch is in the **OFF** position before connecting the machine to the power supply. Turn off all controls before unplugging.
11. Make certain the machine is properly grounded. Connect to a properly grounded outlet only. See Grounding Instructions.
12. Make all machine adjustments or maintenance with the machine unplugged from the power source.
13. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
14. Always keep safety guards in place when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately after maintenance is complete.
15. Check damaged parts. Before further use of the machine, carefully check a guard or other part that is damaged to determine if 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. Properly repair or replace a guard or other part that is damaged.
16. Provide for adequate space surrounding work area. Keep work area well-lit with non-glare, overhead lighting.
17. Keep the floor around the machine clean and free of scrap material, oil, and grease.
18. Keep visitors a safe distance from the work area. **Keep children away.**
19. Make your workshop child proof with padlocks, master switches, or by removing starter keys.
20. Give your work undivided attention. Looking around, carrying on a conversation, and "horseplay" are careless acts that can result in serious injury.
21. Always maintain a balanced stance so that you do not fall into the spindle or other moving parts. Do not overreach or use excessive force to perform any machine operation.
22. Use recommended accessories. Improper accessories may be hazardous.
23. Maintain tools with care. Follow instructions for lubricating and changing accessories.
24. Turn off the machine and disconnect from power before cleaning. Use a brush or compressed air to remove chips or debris. Do not use your hands.
25. Do not stand on the machine. Serious injury could occur if the machine tips over.
26. Keep turning tools sharp and clean for the best and safest performance and position the tools properly in relation to the workpiece.
27. Never leave the lathe running unattended. Turn the power off and do not leave the machine until the spindle comes to a complete stop.

28. This lathe is shipped without a power cord. You must permanently connect this lathe to the electrical system in accordance with the National Electrical Code and any other applicable state and local codes. Do not use extension cords with this lathe. Consult a licensed electrician if you are unsure how to properly connect this lathe to the building's electrical system.
29. Remove loose items and unnecessary work pieces from the area before starting the machine.
30. Do not use in dangerous environments. Do not use power tools in damp or wet locations or expose them to rain.
31. Check the workpiece carefully for splits, knots or other obstructions which may cause a safety risk while turning.
32. Adjust the tool support to the proper height and position for the work. Rotate the workpiece by hand to check clearance with the tool support.
33. Select the appropriate speed for the turning job at hand. Start at low speed and allow the lathe to ramp up to operating speed.
34. Never stop a rotating workpiece with your hand.
35. If gluing up a workpiece, always use a high-quality glue of the type necessary for that particular workpiece.

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.

SAVE THESE INSTRUCTIONS

2.0 About This Manual

This manual is provided by Powermatic covering the safe operation and maintenance procedures for a Model 3520C 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 consistent, long-term operation if used in accordance with instructions set forth in this manual.

This manual is not intended to be a complete instruction guide for woodturning practices, choice of stock, use of after-market accessories, etc. 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 about this product, please contact your local supplier or Powermatic. Powermatic can also be reached at our web site: www.powermatic.com.

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

Register your product using the mail-in card provided or register online: www.powermatic.com/product-registration.

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4.0 **Specifications**

Table 1

Model number	**3520C**
Stock number	1353001
Motor and Electricals	
Motor type	Totally enclosed, fan-cooled, induction
Horsepower	2HP (1.5 kW)
Motor phase	3
Motor voltage	220 V
Cycle	60 Hz
Listed FLA (full load amps)	6.2 A
Input power requirements	**230V, 1 phase**
Drive system	Poly V belt, E-type inverter drive, 2-step pulley
VFD input amperage	10 A , 1PH
VFD output to motor	7.5A (3PH)
Power cord	Not supplied
Power plug	Not supplied
Recommended circuit size [1, 3]	20 A
Sound emission without load [2]	78 dB at 20 inches (508mm) from motor
Capacities	
Working distance between centers	36 in. (91 cm) with dual bearing center
Working distance between centers, 20” bed extension mounted	56 in. (142 cm) with dual bearing center
Maximum distance between spindle face and tailstock quill	40-5/8 in. (103 cm)
Swing over bed	20” (508 mm)
Swing over tool rest base	15-3/4 in. (400 mm)
Maximum outboard turning, *optional* bed extension in low position	38 in. (965 mm)
Headstock and spindle	
Spindle speeds (RPM)	low 15-1200; high 40-3200
Spindle thread size	1-1/4” x 8 TPI
Spindle direction	forward/reverse
Headstock spindle taper	#2 Morse
Hole through headstock spindle, diameter	5/8” (16 mm)
Outboard external threads	1-3/16”–18 UNC
Indexing positions	48
Faceplate	3 in. (76.2 mm)
Tailstock	
Tailstock quill taper	#2 Morse
Hole through tailstock quill, diameter	3/8” (9.5 mm)
Tailstock quill travel	4-1/2” (114 mm)
Tailstock quill thread	ACME TR20-4
Tool rest	
Tool rest width	14 in. (356 mm)
Tool rest locking	Bushing
Main materials	
Headstock body	Cast iron
Bed	Cast iron
Legs	Cast iron
Tool rest	Ductile iron, FCD45
Tool rest base	Cast iron
Comparator brackets	Cast iron
Face plate	Cast iron

Dimensions	
Overall size assembled LxWxH	69-1/2 x 36-1/2 x 47 in. (+4 in. riser block) [1766 x 92 x 119 cm (+10 cm riser block)]
Distance floor to spindle centerline (adjustable using levelers)	40-5/8 in. (103 cm) +4 in/10cm riser block)
Bed gap	2.5 in. (63.5 mm)
Footprint of stand	51-3/4”L x 24”W (1315 x 610 mm)
Tool support post diameter	1” (25.4mm)
Riser block height	4” (102 mm)
Weights	
Net weight	726 lb. (330 kg)
Shipping weight	770 lb. (350 kg)

[1] subject to local/national electrical codes.

[2] The specified values are emission levels and are not necessarily to be seen as safe operating levels. As workplace conditions vary, this information is intended to allow the user to make a better estimation of the hazards and risks involved only.

[3] When using long extension cords, circuit size requirements may differ. Most VFD lathes are not compatible with standard GFCI outlets. Consult a certified electrician and/or local electric codes for detailed requirements.

L = length, W = width, H = height

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

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

5.0 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. Some parts can be found in separate boxes packed around the lathe. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

5.1 Contents of Shipping Container

See Figure 5-1.

4 Levelers – **A**
2 Comparator centers – **B**
1 Spur center 1in. – **C**
1 Ball bearing live center – **D**
1 Knockout rod – **E**
1 Live center pin –**F**
1 Face plate 3in. – **G**
1 Tool support, 14in. – **H**
1 Face plate wrench – **I**
1 Tool caddy – **J**
1 Guard bracket – **K**
1 Comparator bracket – **L**
1 Locking handle – **L_1**
2 Leg assemblies – **M**
2 Riser blocks – **N**
1 Lathe bed, headstock, tailstock, banjo – **O**
1 Owner's manual (not shown)
1 Product registration card (not shown)

Fasteners:
4 Hex cap screws 1/2 x 2 – **HP1**
4 Lock washers 1/2 – **HP2**
4 Flat washers 1/2 – **HP3**
8 Socket hd. cap screws 3/8 x 1-3/4 – **HP4**
6 Socket hd. cap screws 3/8 x 1-1/4 – **HP5**
14 Lock washers 3/8 – **HP6**
10 Flat washers 3/8 – **HP7**
1 Lock handle – **HP8**

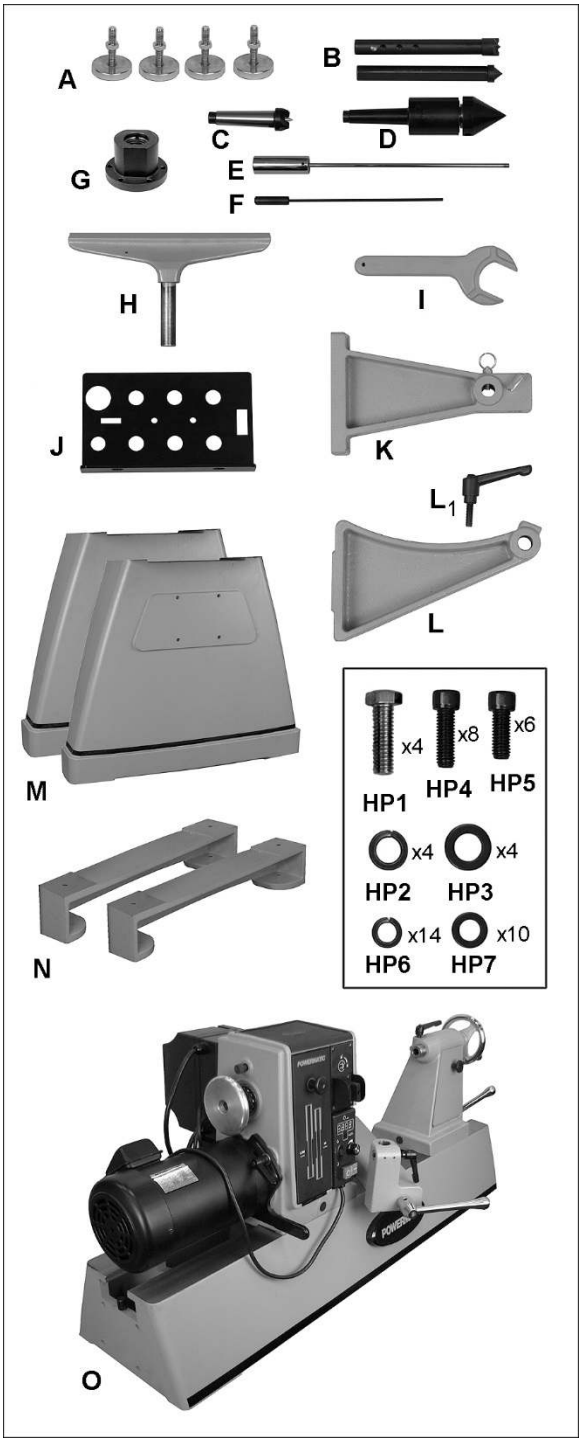


Figure 5-1: contents (not to scale)

6.0 Assembly

6.1 Tools Required for Assembly

14mm open-end wrench (for riser blocks, levelers)
8mm hex wrench (for legs, tool caddy)

⚠WARNING The lathe should be disconnected from power during assembly. Use an assistant or a hoist to help lift items.

1. Remove any screws or straps that hold the lathe parts to the pallet and remove protective wrapping. Set all boxes containing legs and accessories to the side.
2. Before assembling legs, decrease weight on lathe bed: Remove stop bolt at each end of bed, and slide off headstock, tailstock and tool support base (Refer to *sect. 8.1* for any clarification on removing these).

   ⚠WARNING Use a hoist or an assistant to help lift items.
3. Turn lathe bed upside down on shipping pallet (make sure there is nothing beneath that would scratch the bed ways).
4. Install legs to bed with screws and washers (HP4/6/7, Figure 6-1). Tighten screws firmly.

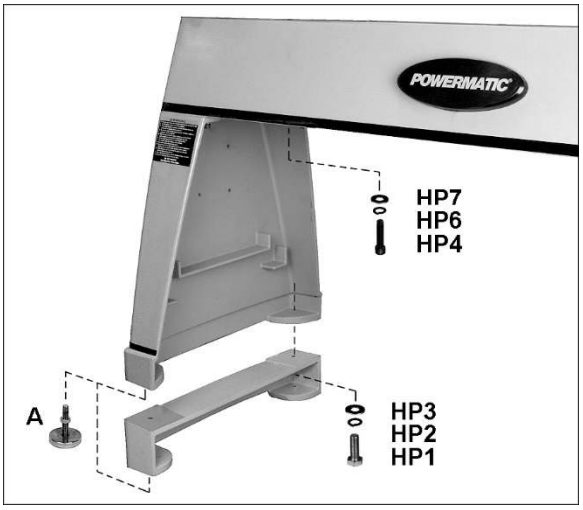


Figure 6-1: installing legs and riser blocks

5. If installing the riser blocks, mount them to the stands with screws and washers (HP1/2/3, Figure 6-1).
6. Screw levelers (A, Figure 6-1) into threaded holes of riser block (or legs if riser block not used). The levelers can be adjusted at any time to ensure the lathe is stable and level. Tighten the hex nuts against bottom of riser block/legs to secure height setting.
7. Use an assistant to help stand the lathe right side up on its legs.
8. The lathe should be located in a dry area, on a sturdy floor, and with sufficient lighting. Leave plenty of space around the machine for operations and routine maintenance work.
9. Exposed metal areas of the lathe, such as bed ways and spindles, have been factory coated with a protectant. This should be removed with a soft cloth and a cleaner-degreaser. Clean the bed areas under headstock, tailstock and tool support base. Do not use an abrasive pad, and do not allow solvents to contact painted or plastic areas.
10. Re-install headstock, tool support base, tailstock and stop bolts.

6.2 Tool Caddy

The tool caddy, shown in Figure 6-2, can be mounted to left or right end of lathe. The left end, near headstock area, is generally preferred for convenience. Use screws and washers (HP5/6/7) to secure tool caddy to threaded holes in lathe leg.

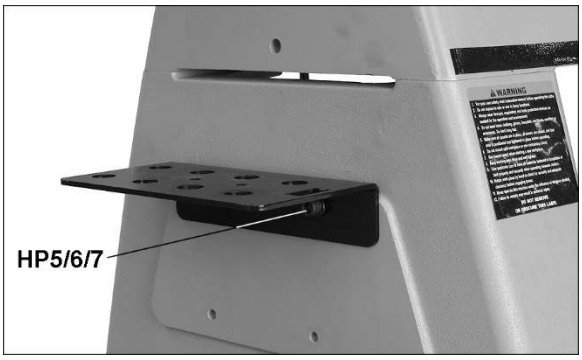


Figure 6-2: installing tool caddy

Accessories can be stored in the tool caddy, including knockout rod, spur center, live center, live center pin, comparator centers, and faceplate wrench.

Accessories can also be stored inside tailstock.

6.3 Brackets

1. Install guard bracket (K, Figure 6-3) to headstock.
2. Install comparator bracket (I, Figure 6-3) to tailstock with fasteners. The bracket holes are slotted for alignment with guard bracket.
3. Install locking handle (L_1, Figure 6-3).

See section 8.8, “Comparator” for further information.

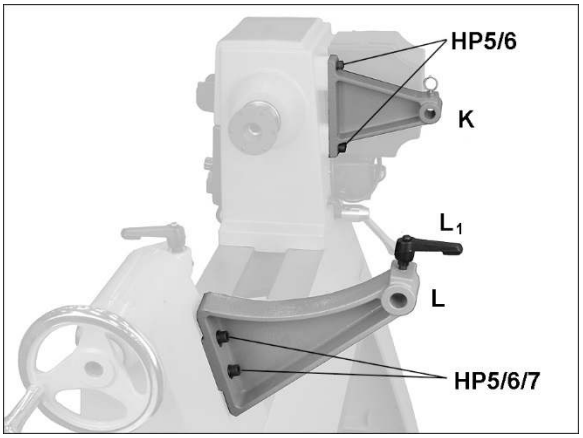


Figure 6-3: installing brackets

6.4 **Guard** (optional accessory)

An optional guard, stock number 6294728, is available for the lathe (see your Powermatic dealer). To mount guard to lathe:

1. On the guard, loosen set screw on outer collar (shown in Figure 6-4) with 4mm hex wrench. Slide outer collar off the guard support rod.

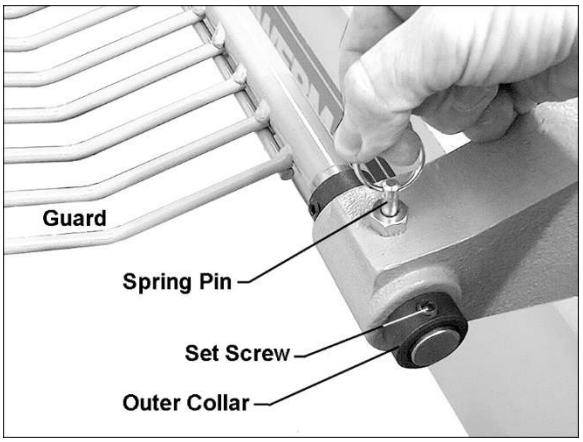


Figure 6-4: installing optional guard

2. Insert guard support rod into mounting bracket at rear of headstock, as shown in Figure 6-4. Lift up on spring pin, as shown, to slide guard support rod into mounting bracket. Release spring pin and it will snap into position as you slide the support rod farther in.
3. Install outer collar and tighten set screw.
4. The guard can be pivoted to one of two positions: Operating mode or tilted back for stock loading (shown in Figure 6-5).
5. Pull up on spring pin, and begin tilting guard, then release spring pin. When guard reaches either of the two positions, the spring pin will engage.

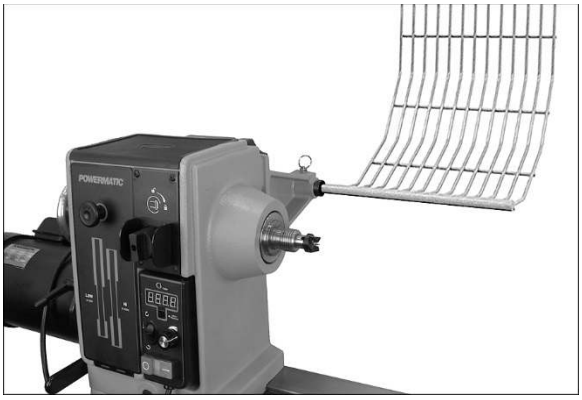


Figure 6-5: optional guard tilted back

6.5 **Bed Extension** (optional accessory)

An optional 20" bed extension assembly, stock number 1353002, is available for the lathe (see your Powermatic dealer). To mount bed extension to lathe:

1. Slide tailstock away from edge of bed.
2. Have an assistant hold the bed extension flush to end of lathe bed, and insert four 3/8 x 1-3/4 socket head cap screws with lock washers and flat washers (provided with extension bed) through top holes and lower slots in bed extension into threaded holes on lathe. See Figure 6-6.

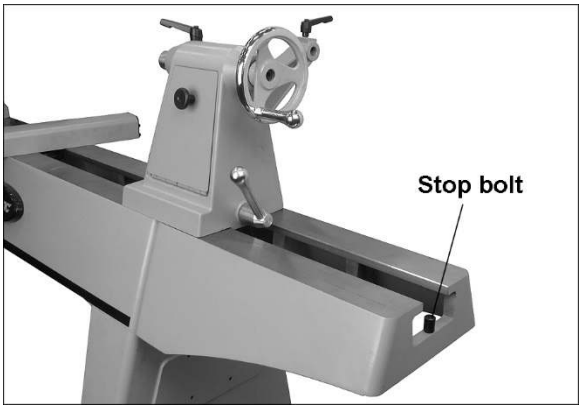


Figure 6-6: optional 20" bed extension

3. Adjust extension bed to lathe bed, aligning the surface and the inside ways as closely as possible. Make the screws snug but not fully tightened.
4. Slide tailstock over joint where beds meet, so that clamping nut is centered over joint (Figure 6-6). Lock tailstock clamping handle; this will align the beds.

   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. Tighten screws securely.
6. Unlock tailstock and slide it back and forth to test smoothness of joint.

7. Unscrew stop bolt from lathe bed (Figure 6-6), and screw it into hole at end of bed extension.

For outboard turning, where headstock is moved to opposite end of lathe to accommodate large bowl blanks, the 20” bed extension can be mounted to the four lower holes on lathe frame. Install the extension post (included with optional bed extension) into the tool rest base. See Figure 6-7.

For large outboard work, an optional outboard turning stand (# 6294732) is available – see sect. 16.4.1.

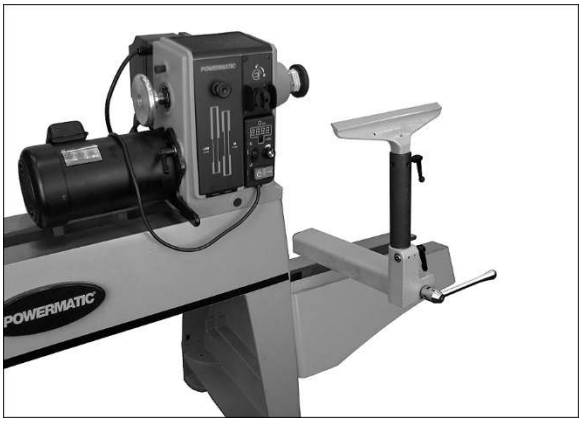


Figure 6-7: outboard turning accessories

6.6 User-Made Shelf (optional)

The double ledges on the inside of the lathe legs provide support for a shelf (not provided), which is convenient for storing larger items while keeping them easily accessible.

Figures 6-8 through 6-10 illustrate three methods of creating a shelf, using common lumber and basic tools.

IMPORTANT TIP: It is unlikely that a full-size shelf can be completely built and then inserted between the lathe legs. Therefore, construct the shelf in pieces and insert screws only after the shelf has been established beneath the lathe.

Shelf Style 1 (Figure 6-8)

Lay two 2x6 boards flat upon the inner ledges. Boards of 49” length are suitable, although 49-1/2” is optimal. Or use 48” boards and place shim stock on the ledges at each end to prevent shifting.

Shelf Style 2 (Figure 6-9)

Lay two 2x4 (or 2x6) boards on edge into the outer ledges. Boards of 49” length are suitable, 49-1/2” optimal.

Cut two pieces from a plywood board, and screw them to the top edges of the 2x4’s. (One full length plywood piece will not fit through the legs of the lathe; use at least two pieces.) Make the plywood pieces flush with the outside edge of the 2x4’s.



Figure 6-8



Figure 6-9

Shelf Style 3: (Figure 6-10)

This is a basket-style shelf consisting of two 2x6’s and dowel rods. The advantage of this design is that most wood chips will fall through the shelf instead of accumulating on it.

Materials used:

2 – 2x6 boards (49” suitable, 49-1/2” optimal).

8 – wood dowels of 4’ length, 5/8” diameter.

1. Mark your hole centers (2” centers) along the length of a 2x6. Place the holes so that the tops of the dowels will be even with the tops of the ledges on the lathe. Also, adjust your hole centers as necessary so that the first and last dowel will begin at approximately the same distance from the ledge at both ends of the lathe.
2. Use a 5/8” spade bit chucked in a drill press or in a portable drill. Bore the holes through one 2x6; this will be the rear piece.
3. On the other 2x6, do not bore through but only deep enough to securely hold the ends of the dowel rods. This will be the front piece and will provide a pleasing appearance at the front of your lathe.
4. When all holes have been bored, place the 2x6’s on edge in the outer ledges of the lathe.

5. Cut the dowel rods to length with a miter saw or hand saw, so that after insertion the rods will be flush with the back of the rear 2x6.
6. Insert the dowel rods through the holes in the rear 2x6, as shown in Figure 6-10.
7. A strip of wood can be screwed to the rear 2x6 to cover the dowel holes and prevent the dowels from working out.

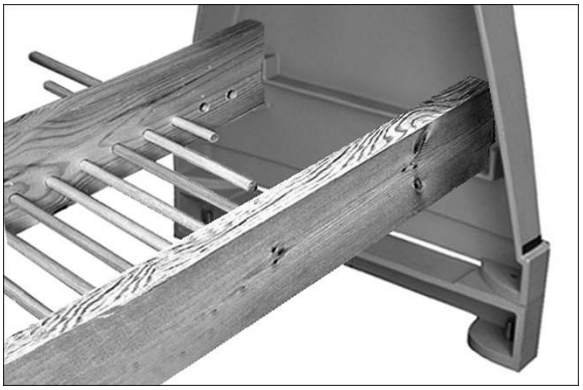


Figure 6-10

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.

This machine must be grounded. 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.

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 person if the grounding instructions are not completely understood or if in doubt as to whether the tool is properly grounded.

Repair or replace a damaged or worn cord immediately.

This lathe is shipped without a power cord. You must permanently connect this lathe to the electrical system in accordance with the National Electrical Code and any other applicable state and local codes. Do not use extension cords with this lathe. Consult a licensed electrician if you are unsure how to properly connect this lathe to the building's electrical system.

During wiring of the lathe, make sure the fuses have been removed or the breaker has 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.

The lathe will operate on single phase, 230 volt power supply. Route the supply cable (not provided) from power source into main switch box behind the headstock (Figure 7-1). Insert the two wires into the two remaining terminals of the rotary switch. See diagram in sect. 16.2 if clarification is needed.

It is recommended that the lathe be connected to a 20 amp circuit with circuit breaker or time delay fuse. **Local codes take precedence over recommendations.**



Figure 7-1: main switch box

8.0 Adjustments

8.1 Headstock/Tailstock Movement

To slide headstock or tailstock, swing locking handle (A, Figure 8-1) backward or forward until head/tailstock can slide freely. When head/tailstock is positioned, swing locking handle until it tightens securely.

To remove headstock, tailstock or tool support base from bed, unscrew and remove stop bolt at either end (see Figure 6-6). NOTE: After re-mounting these items on the lathe, always insert stop bolt.

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

Loosen locking handle (B, Figure 8-1) to advance or retract tailstock quill by rotating handwheel (C). Retighten handle (B).

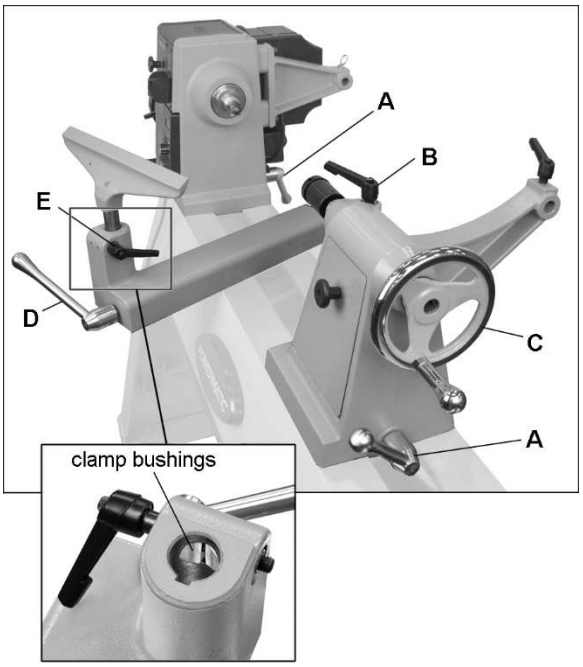


Figure 8-1: headstock, tailstock, tool support

8.2 Tool Support

A 14” tool support 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 (D, Figure 8-1) to slide support base forward or back, and angle it to the bed. Tighten locking handle securely before operating lathe.

Loosen small handle (E, Figure 8-1). Make sure clamp bushings (inset, Figure 8-1) are properly positioned to accept tool support post.

Adjust height of tool support and angle it to the work. Tighten handle (E) before operating lathe.

8.3 Cam Tightness

If headstock, tailstock or tool rest base does not properly tighten down against bed when the locking handle is tightened, adjust as follows. Figure 8-2 uses tailstock as example.

1. Unscrew and remove stop bolt and slide tailstock off end of bed.
2. Turn tailstock on its side and tighten lock nut with a wrench. See Figure 8-2.
3. Mount tailstock on bed and test the adjustment. When adjustments are complete, re-insert stop bolt at end of bed.

8.4 Locking Handles

Locking handles, such as B, Figure 8-1, can be rotated to more convenient position. Lift up on handle, rotate it on pin, then release it, making sure it seats on pin.

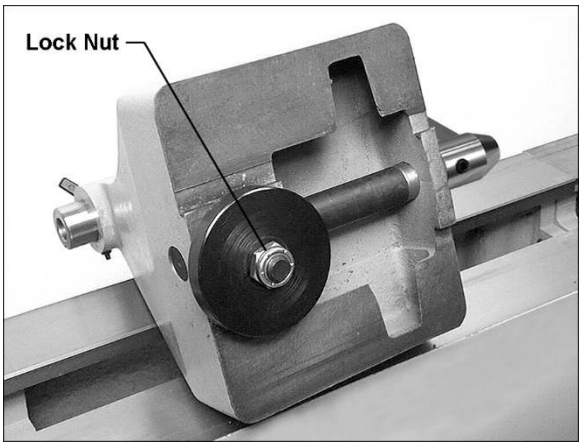


Figure 8-2: cam adjustment

8.5 Ball Bearing Live Center

The live center cap, shown in Figure 8-3, screws clockwise onto the threads of live center body.

To remove cap from live center, first insert live center pin through hole in the live center body as shown in Figure 8-3. If pin will not insert at first, rotate cap until pin can be inserted. The cap can now be removed by holding the body stationary while unscrewing cap.

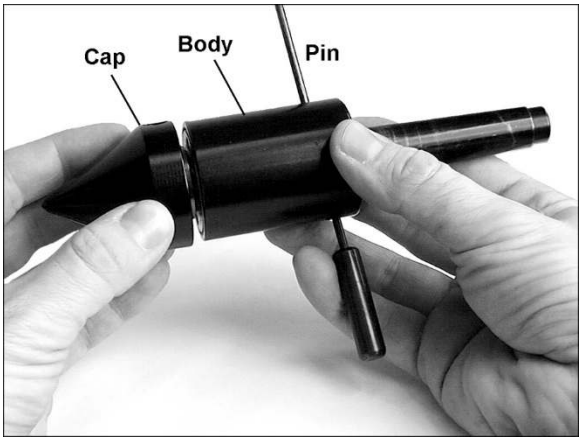


Figure 8-3: live center cap removal

8.6 Indexer

The indexer has 48 evenly spaced holes concentric to the spindle and is used to create evenly spaced features in a workpiece, while keeping the lathe spindle locked; for example, when cutting flutes on a spindle blank with a router, while the spindle blank is secured between lathe centers. When the lathe is powered, the digital readout can be used for easy locating of index positions, as follows.

1. Turn on power switch behind headstock. Spindle should remain off.
2. Push index position button (F, Figure 8-4). Digital readout will change from RPM setting to index setting.
3. Rotate workpiece by hand to desired position, then push in index pin (G, Figure 8-4) and turn workpiece slightly until pin engages hole.

4. Screw index pin (G) into headstock to lock spindle.
5. Cut first flute in workpiece.
6. Push index position button (F) to set engaged index position at zero.
7. Unscrew index pin (G) to release spindle, then rotate workpiece until next desired hole shows on readout.
8. Engage index pin, and rout second flute. Continue process.

   Example: If 6 evenly spaced flutes are needed around full workpiece circumference, use positions 0, 8, 16, 24, 32, and 40.

IMPORTANT: When finished indexing, unscrew and release index pin before turning spindle on!

Readout will revert to RPM setting when lathe spindle is turned on.

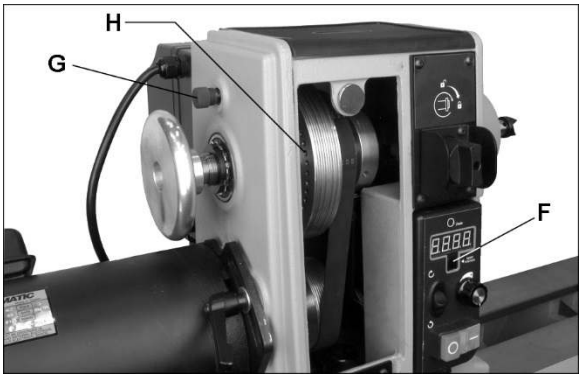


Figure 8-4

8.7 Centers: Installing/Removing

8.7.1 Headstock Center

1. Disconnect lathe from power source.
2. To install a spur center or live center (the spur center should first be mounted to your workpiece; see sect. 10.3 for more details), clean tapered end of center and inside of headstock spindle, then push center into headstock spindle.
3. To remove a spur center or live center, first remove workpiece from lathe. Insert knockout rod (Figure 8-5) through hole in handwheel and firmly tap tapered end of spur center. The sliding collar on the knockout rod helps give the necessary impact without having to use a mallet against the end of the rod.

   IMPORTANT: Hold the center by either placing 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 8-5: center removal

8.7.2 Tailstock Center

1. Install center into tailstock by pushing it into tailstock spindle.
2. To remove a center, loosen locking handle (B, Figure 8-1) and retract quill by rotating handwheel counterclockwise until center dislodges on its own. Do not allow center to fall out of spindle, as it may get damaged.

8.8 Comparator

The spindle comparator consists of two comparator centers inserted into the brackets at rear of lathe. The comparator is used to mount a finished, or "reference" spindle, from which measurements can be taken, the measurements being transferred to the new piece being turned.

⚠WARNING A spindle guard cannot be installed when using spindle comparator. Use caution and wear a face mask when turning without guard installed.

1. Install comparator spur center into guard bracket, by lifting up on plunger and inserting comparator spur center until its point is about even with point of spur center in headstock spindle. See Figure 8-6. The plunger in the bracket must engage one of the holes in the comparator center at this position.

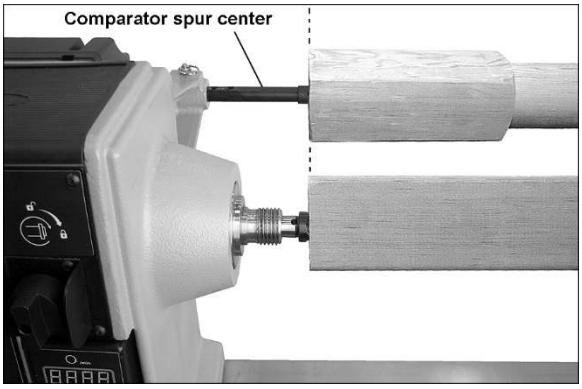


Figure 8-6: comparator

2. Install comparator dead center in the tailstock bracket and tighten locking handle. See Figure 8-7.

3. Mount spur center with the spindle blank that will be turned. Loosen tailstock locking handle, and slide tailstock until live center is about 1inch from spindle blank, then tighten locking handle. Advance live center using tailstock handwheel, until live center is secured in spindle blank.

4. Mount reference spindle between comparator centers, as shown in Figure 8-7.

   NOTE: Reference spindle should be mounted last after adjustment of tailstock and quill has been accomplished with spindle blank. Likewise, when turning operation is complete, remove reference spindle first.

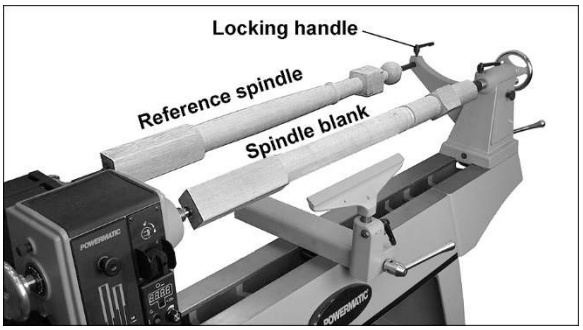


Figure 8-7: comparator
(shown with optional 20" bed extension)

8.9 Face Plate: Installing/Removing

1. Disconnect lathe from power source.
2. Mount face plate to your bowl blank.
3. Rotate spindle lock switch (Figure 8-8) and rotate handwheel slightly until lock engages with spindle.
4. Install face plate onto threads of headstock spindle and rotate clockwise hand tight. When the lathe is turned on (forward rotation), the rotational force will snug the face plate even farther onto the threads.

⚠WARNING If at any time you will be reversing spindle rotation, make sure the two set screws in the face plate are tight! One of these is shown in Figure 8-8. Failure to do this may cause face plate to loosen from headstock spindle.

5. To remove face plate, loosen the two socket set screws (Figure 8-8). Engage spindle lock switch and turn face plate counterclockwise with face plate wrench, as shown.

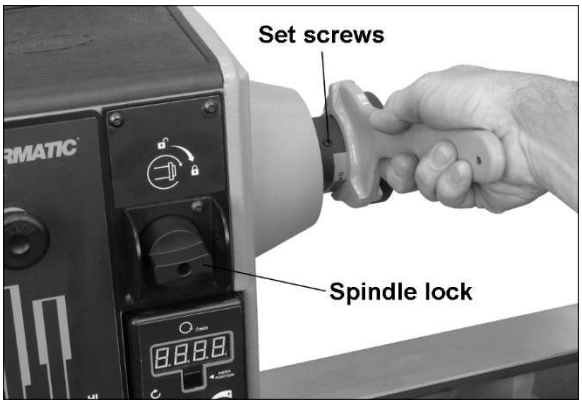


Figure 8-8: faceplate

8.10 Speed Change

1. Disconnect lathe from power source.
2. Pull open access door on headstock.
3. Loosen pivot lock handle (J, Figure 8-9) and lift up tension handle (K, Figure 8-9) to raise motor. Tighten pivot lock handle (J, Figure 8-9) to hold motor in raised position.
4. There should be sufficient slack in belt to reposition it to the other steps on the sheaves. The label on the access door shows the required belt position.
5. Loosen pivot lock handle (J, Figure 8-9) and lower motor to tension belt. Be sure that the Poly-V grooves of belt seat properly in the corresponding groove of sheave. Do not over tension; a very light pressure on the tension handle (K, Figure 8-9) is adequate to prevent belt slippage.
6. Tighten pivot lock handle (J, Figure 8-9).

8.11 Sheave and Belt Alignment

The motor and spindle sheaves are aligned by the manufacturer, but if any service is performed that affects their alignment it is very important that they be realigned. To realign them, loosen the two set screws on spindle sheave (L, Figure 8-9) with a hex wrench, and slide spindle sheave into proper position. Retighten set screws.

When sheaves and belt are properly aligned, there should be no unusual pulsing sounds or noise coming from the belt.

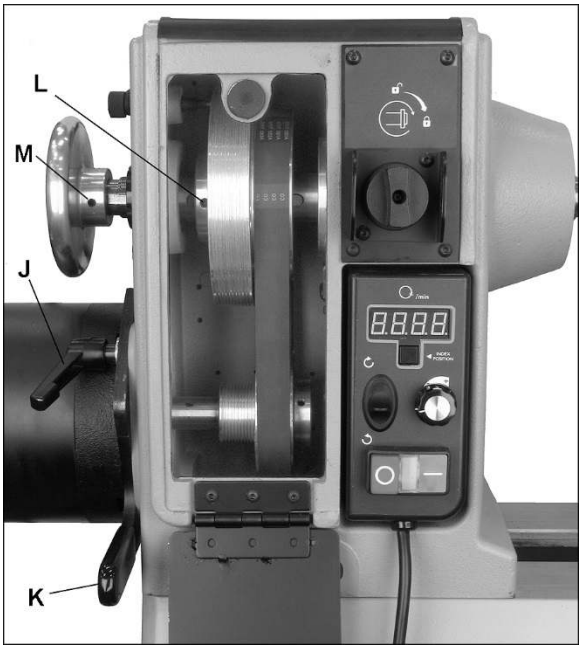


Figure 8-9: sheave/belt alignment

8.12 **Sheave/Drive Belt Replacement**

IMPORTANT: Replacing the spindle sheave or belt can be a difficult procedure. If you do not feel confident performing this action, take the headstock to an authorized Powermatic service center.

1. Disconnect lathe from power source.
2. Loosen lock handle (J, Figure 8-9) and lift up handle (K) to raise motor.
3. Tighten lock handle (J) to hold motor in raised position. Slip belt off pulleys.
4. Loosen two set screws on handwheel (M, Figure 8-9) with a hex key, and pull handwheel off headstock spindle.
5. Loosen and remove bearing lock nut and tabbed lock washer (see O/N, Figure 8-12).
6. Loosen two set screws on sensor collar (R, Figure 8-10).
7. Remove plate (S, Figure 8-10) and spindle lock switch (T, Figure 8-10). Remove inner plate (U, Figure 8-10) and insert hex wrench through hole to loosen set screw in spindle lock collar (Figure 8-11).
8. Slide spindle to the right a short way out of headstock, just enough to remove sheave or belt. NOTE: You may have to tap end of spindle with a wood block to move it. (**Never** use a steel face hammer directly against spindle.)
9. If replacing spindle sheave, loosen two set screws (L, Figure 8-9), and slide sheave off spindle. Install new spindle sheave, loosely securing the two set screws. Make sure the sheave is oriented properly.

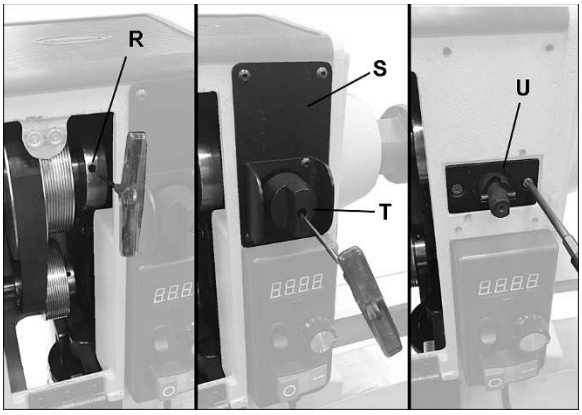


Figure 8-10: sensor and spindle lock collars

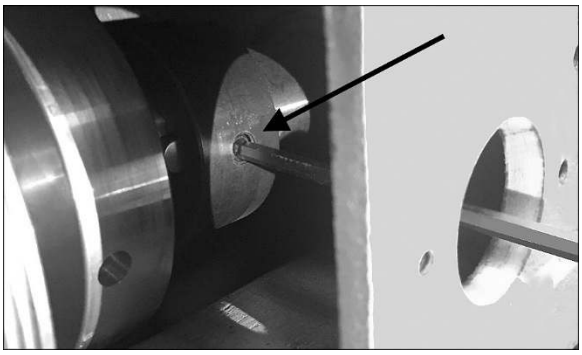


Figure 8-11: loosen spindle lock collar

10. Slide spindle back into place. Position spindle lock collar and sensor collar and tighten set screws.

    IMPORTANT: The sensor collar must be positioned correctly for digital readout to function.
11. Install tabbed lock washer, and bearing lock nut (N/O, Figure 8-12). Check for any spindle play at this point (see sect. 8.13).
12. Reinstall handwheel and tighten set screws (M, Figure 8-9).
13. Reinstall plates and spindle lock switch (Figure 8-10).
14. Align new sheave (see sect. 8.11*)* then tighten two set screws (L, Figure 8-9) securely on sheave.
15. Loosen lock handle (J) and allow motor to lower. Do not over-tension; very light pressure on tension handle (K) is adequate to prevent belt slippage.
16. Retighten lock handle (J).

8.13 Checking Spindle Play

The spindle bearing has been set at the factory for general turning applications. There should be no "end play" or looseness along the spindle's axis. If any looseness should occur, it may be rectified by carefully tightening the bearing lock nut on the spindle, as follows.

1. Use a screwdriver to carefully bend back any tabs on the tabbed lock washer (N, Figure 8-12) that interfere with the insets on the bearing lock nut (O, Figure 8-12).
2. Place the end of a flat head screwdriver down against one of the insets of the bearing lock nut (O, Figure 8-12).
3. Tap the handle of screwdriver with a mallet so that it turns the bearing lock nut (O, Figure 8-12) tighter in a clockwise direction. Rotate bearing lock nut only about 1/16" at a time.

   ⚠CAUTION **Do not over-tighten the bearing lock nut or the spindle bearings will overheat.**

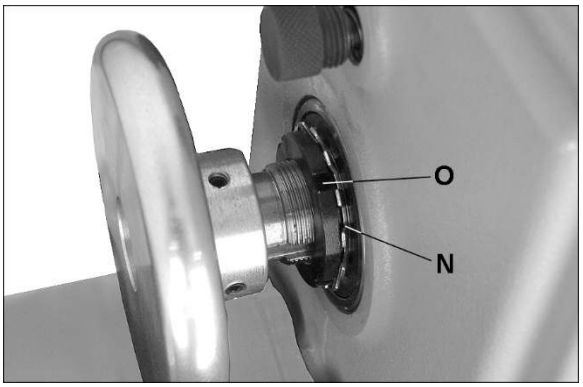


Figure 8-12: correcting spindle play

4. The bearing lock nut should be tightened just enough to remove the end play and the spindle should still rotate very freely. Run the lathe for a time, and check for heat from the spindle bearings. If the bearings are running hot, the bearing lock nut is too tight and should be loosened slightly.
5. After the bearing lock nut (O, Figure 8-12) has been properly adjusted, carefully bend back into place any tabs on the tabbed lock washer (N, Figure 8-12).

9.0 Operating Controls

See Figure 9-1.

(A) Power switch: Activates power flow to inverter and motor.

(B) Spindle on/off: Push green button to activate spindle; red to stop.

NOTE: If there is a power outage while operating the lathe, the lathe will not automatically restart once power is restored. Cycle the on/off switch in order to restart the machine.

(C) Spindle direction: Thia can be activated while spindle is turning – spindle will automatically slow to a stop before reversing direction.

⚠WARNING **When turning with a face plate, make sure both set screws on the face plate are tight (see Figure 8-8) before reversing spindle. Failure to comply may cause face plate to spin loose from spindle.**

(D) Speed control dial: Always start lathe at lowest speed, with dial rotated all the way counter-clockwise.

(E) Digital readout: Displays spindle speed or indexing position.

(F) Indexer position: Push to reset index reference to zero. See sect. 8-6.

(G) Spindle lock.

The control box is removable and has a magnetic base. See inset, Figure 9-1. Pull out and place on any metal surface of lathe.

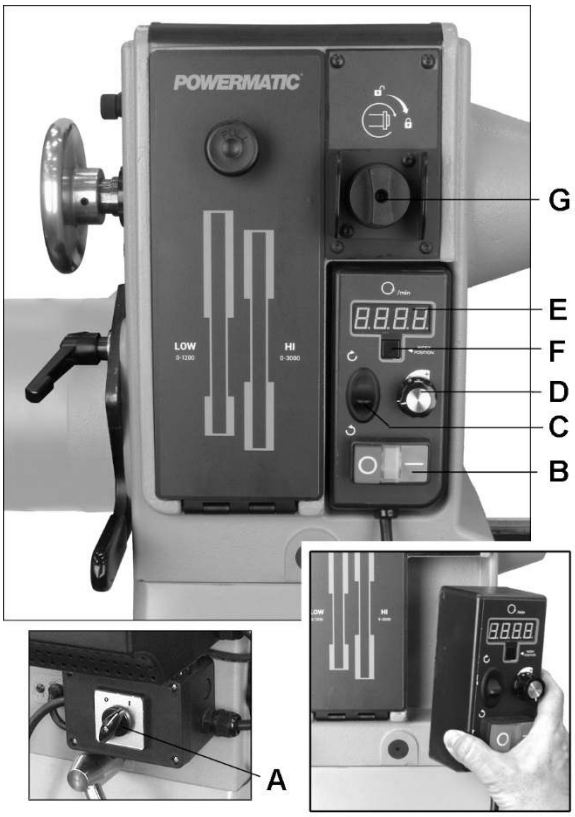


Figure 9-1: operating controls

A.C. Inverter *(mounted to rear of headstock)*

The 3520C Lathe uses the latest technology in A.C. inverter drives to provide infinitely variable spindle speeds within the specified ranges. The inverter controls the speed of the motor by varying the frequency of the voltage supplied to the motor. The inverter provides an acceleration ramp that eliminates the shock of normal starting.

Also, a braking feature eliminates long coasting periods after the lathe is turned off.

The 2-horsepower motor is specially designed for use with inverter drives and is balanced to reduce noise and minimize vibration.

The A.C. Inverter does not require any programming – it is pre-programmed from the factory. Use only the controls on the front of the headstock to operate lathe. If you suspect a problem with the inverter or inverter settings, contact Powermatic technical service at 1-800-274-6846.

⚠CAUTION **A lightning strike or power surge may cause the inverter to fail. When lathe is not in use, disconnect power plug, or have a 3-pole disconnect installed on the power side.**

10.0 Operation

The information which follows is general in nature and not intended to be a complete course in wood turning. Nothing can replace the knowledge gained by discussions with experienced wood-turners or consulting books, trade articles, and internet forums. 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 adjustable levelers to help reduce vibration.
2. Check bearings and adjust if endplay exists.
3. Check belt. It should be snug but not overly tight.
4. Keep bed ways clean. Use steel wool to remove any rust spots and apply paste wax to prevent buildup of rust and finishes.
5. For the tool support, use a mill file to remove nicks and dings.
6. For spindle, tapers should be clean and free of dust and chips for proper seating of tapers.
7. Keep tailstock clean and lubricate quill and locking device.
8. Proper lighting is essential to eliminate shadows and reduce eye strain.

10.2 Turning Tools

If possible, select only fine 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 may be acquired. The following tools provide the basics for most woodturning projects (see Figure 10-1):

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.

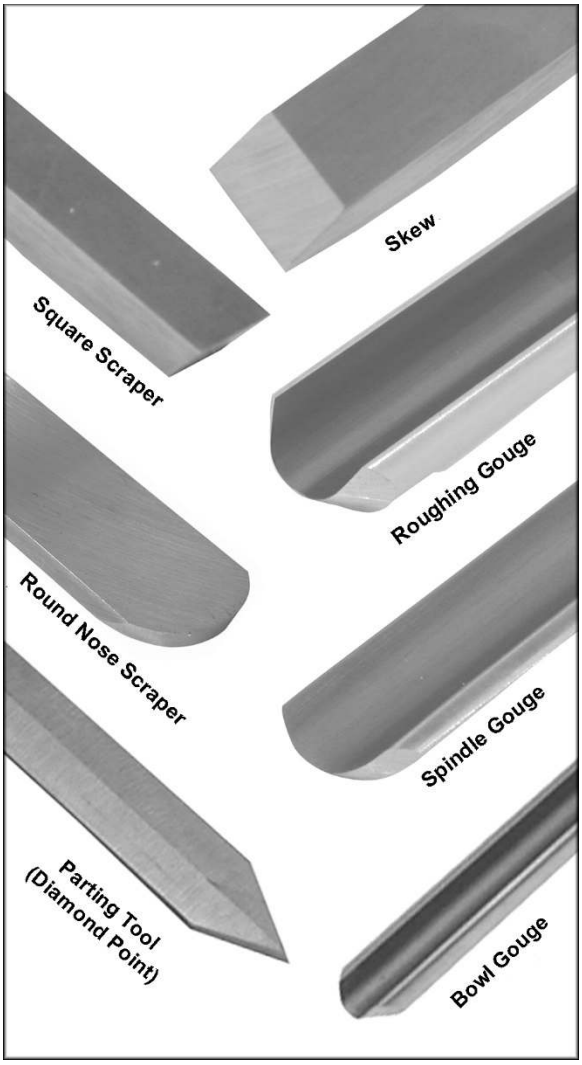


Figure 10-1: Basic Turning Tools

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.

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 10-2 shows the basic profile shapes in spindle turning.

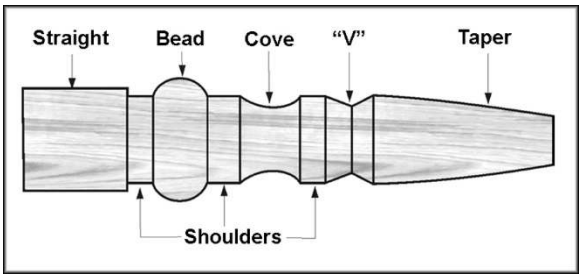


Figure 10-2

10.3.1 **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 the 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 10-3) using a band saw, so the wood will accept the spur center and the live center.

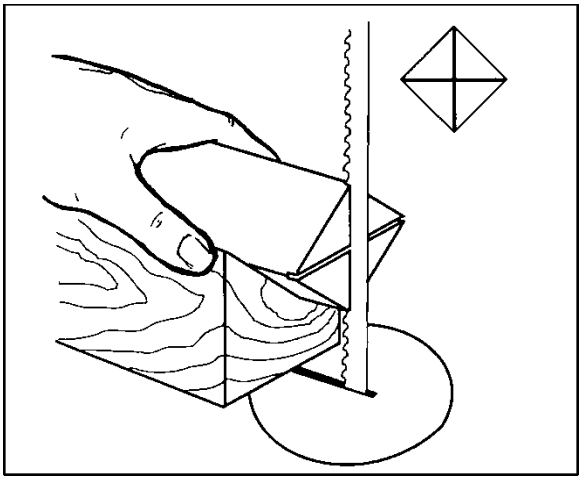


Figure 10-3

3. Drive the spur center about 1/4" into the workpiece, using a wood mallet or dead blow hammer as shown in Figure 10-4. Be careful that you do not split the workpiece. **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 the headstock is locked to the lathe bed.
5. Clean the tapered end of the spur center and the inside of the headstock spindle.
6. Insert the tapered end of the spur center (with the attached workpiece) into the headstock spindle.
7. Support the workpiece while bringing the tailstock into position about 1" away from the end of the workpiece. Lock the tailstock to the bed.

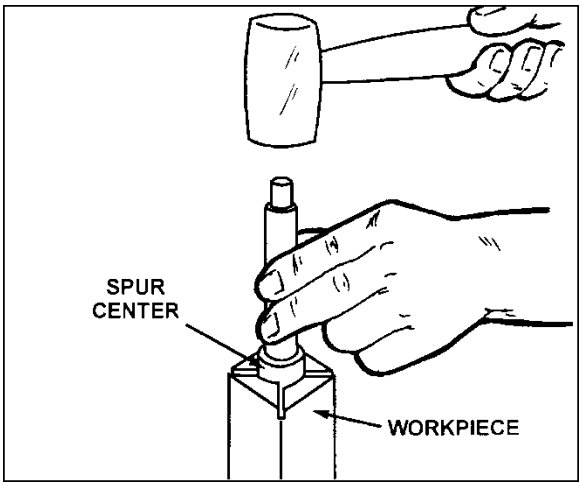


Figure 10-4

8. Advance the tailstock spindle 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 the spindle locking handle.

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

10. Move tool support into position. It should be parallel to the workpiece, just below the centerline and approximately 1/8" to 1/4" from the corners of the workpiece to be turned, as in Figure 10-5. Tighten support 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.

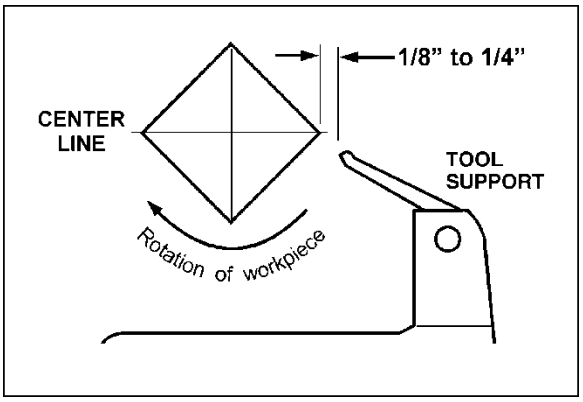


Figure 10-5

10.3.2 Cutting Techniques

Roughing Out

1. Begin with a large roughing gouge. Place the tool on the tool support 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 10-6. Make long sweeping cuts in a continuous motion to rough the piece down to a cylinder.

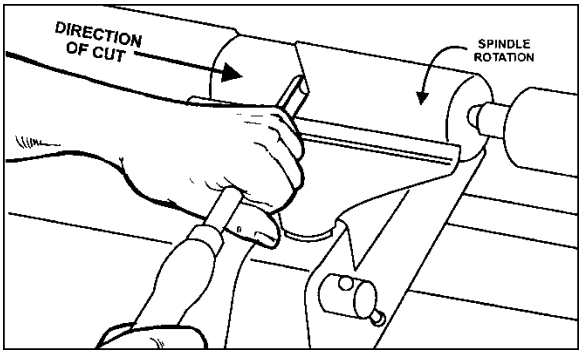


Figure 10-6: roughing out

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.
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.

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.

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 10-7. **Stop at the bottom; attempting to go up the opposite side may cause the tool to catch.**
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.

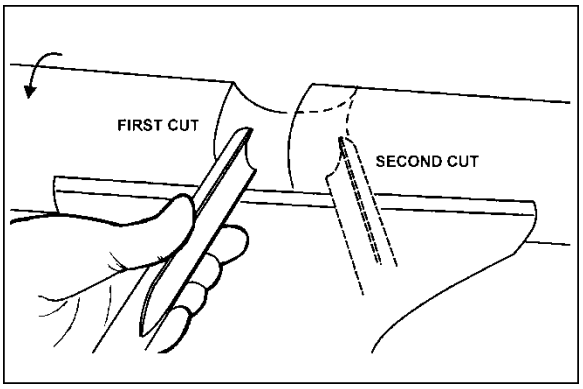


Figure 10-7: coves

"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 10-8.

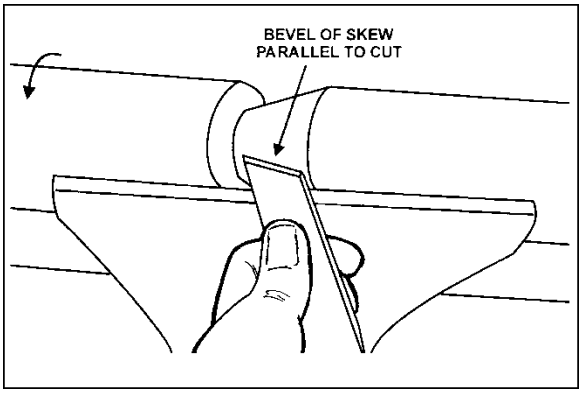


Figure 10-8: V-cuts

5. Repeat from the left side. The two cuts should meet at the bottom and leave a clean "V" cut.
6. Additional cuts may be taken to add to either the depth or width of the cut.

Parting Off

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

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 the 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.

10.4 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 move headstock to opposite end of bed - see Figure 6-7).

10.4.1 Mounting Stock

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

1. Select stock at least 1/8" to 1/4" larger than each dimension on the finished workpiece.
2. Always select the largest diameter face plate that can be used for the workpiece to be turned.
3. True one surface of the workpiece for mounting against the face plate.
4. 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. Sheet 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:

5. Make a block the same diameter as the face plate, Figure 10-9. Both waste block and workpiece should have flat surfaces for gluing.
6. 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.

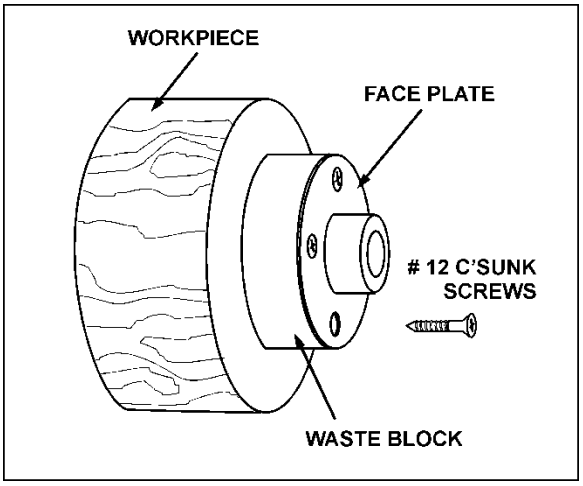


Figure 10-9: faceplate mounting

10.4.2 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.

10.4.3 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.

10.4.4 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.

10.4.5 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.

10.4.6 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.

10.4.7 Bowl Turning Techniques

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 (see *sect. 13.0*). 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 10-10. This will allow centering the workpiece when the faceplate is attached.

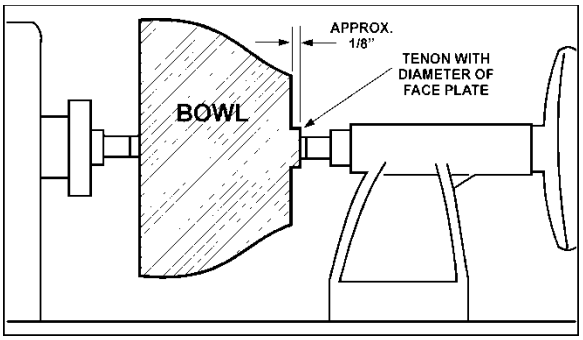


Figure 10-10

9. (NOTE: If you plan to use a chuck, turn a tenon of the appropriate length and diameter to fit your chuck.)
10. Stop the lathe, remove workpiece and attach face plate or chuck (see sect. 10.4.1, Mounting Stock).

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

11. 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.

To Shape Interior of Bowl:

1. Stop the 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 10-11.

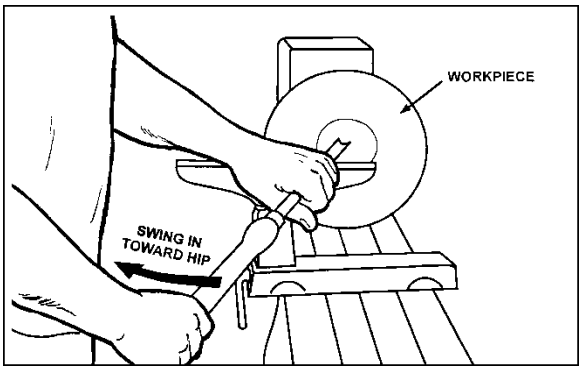


Figure 10-11

6. Use the left hand to control cutting edge of gouge, while right hand swings tool handle around toward your body (Figure 10-11). 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.

10.4.8 Sanding and Finishing

1. Remove the tool support and adjust lathe speed to approximately 500 RPM. High speed 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, then 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 User-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.

Maintenance on the 3520C 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 support base will slide easily. Clean any rust spots that may develop on the bed with a commercial rust remover.

Use compressed air or a vacuum in the headstock interior, to keep sawdust and chips from accumulating on belts and sheaves. Also blow off debris that accumulates on the inverter. **Do not disassemble inverter to clean!**

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

11.1 Additional Servicing

Any other servicing should be performed by an authorized service representative.

12.0 **Optional Accessories**

Below are some of the accessory items available for your 3520C Lathe. These items are purchased separately; contact your Powermatic dealer for more information.

6294740 – Bowl turning tool support (RH)

6294751 – Bowl turning tool support (LH)

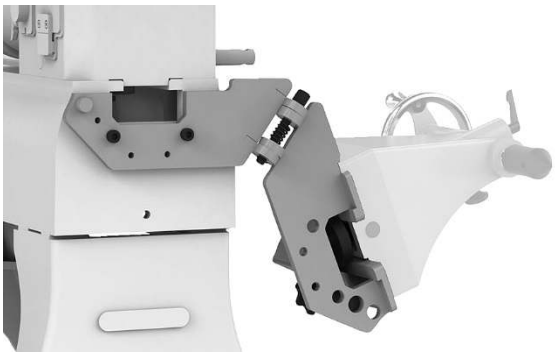


Right hand **Left hand**

6294739 – Tool support, 6-inch



6294721 – Tailstock swing away



6294901 – Lamp holder set



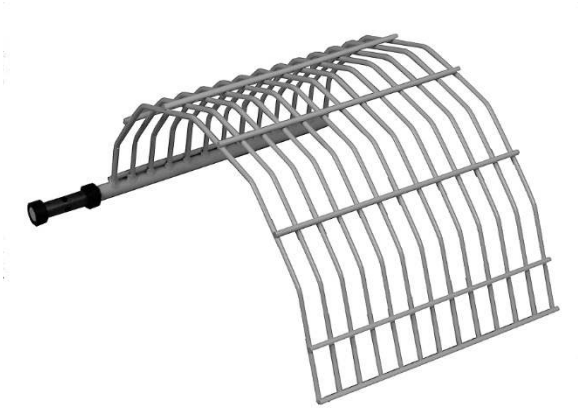
6294732 – Heavy duty outboard turning stand



1353002 – 20-inch bed extension kit



6294728 – Guard Assembly



13.0 **Troubleshooting 3520C Lathe**

Trouble	Probable Cause	Remedy
Motor fails to develop full power.	Power line overloaded.	Correct overload condition.
	Undersize wires in power supply system.	Increase supply wire size.
	Faulty inverter.	Contact Powermatic Technical Service.
	Worn motor.	Replace motor.
Motor or spindle stalls or will not start.	Excessive cut.	Reduce depth of cut.
	Improper belt adjustment or worn or broken belt.	Adjust or replace belt as needed.
	Improper cooling of motor.	Blow out sawdust from motor housing fan.
	Worn spindle bearings.	Replace bearings.
	Worn motor.	Replace motor.
Excessive vibration.	Workpiece warped, out of round, has major flaw, or was improperly prepared for turning.	Correct problem by planing or sawing workpiece or discard entirely and use new workpiece.
	Worn spindle bearings.	Replace spindle bearings.
	Worn drive belt.	Replace drive belt.
	Motor mount lock handle is loose.	Tighten lock handle.
	Lathe on uneven surface.	Adjust levelers.
Lathe runs at one speed only.	Potentiometer faulty.	Replace potentiometer.
	Electronic AC inverter is not programmed properly, or is defective, or there is loose wiring.	Contact Powermatic Technical Service to help identify problem; 800-274-6846.
Tools tend to grab or dig in.	Dull tools.	Keep tools sharp.
	Tool support set too low.	Reposition tool support height.
	Tool support set too far from workpiece.	Reposition tool support closer to workpiece.
	Improper tool being used.	Use correct tool for operation.
Headstock moves when applying pressure with Tailstock.	Headstock not locked to bed.	Tighten headstock locking handle.
	Excessive pressure being applied by tailstock (more than 500 lbs. of force).	Slide headstock to the left end, then apply pressure to workpiece with tailstock. Apply **only** sufficient force with tailstock to hold workpiece securely in place.
Tailstock moves when applying pressure.	Locking handle not tightened.	Tighten locking handle.
	Cam lock nut needs adjusting.	Tighten cam lock nut.
	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 bed surface.

Table 2

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
14″ to 16″	190	400	560
16″ to 20″	175	325	450
20″ to 24″	175	260	375

Table 3

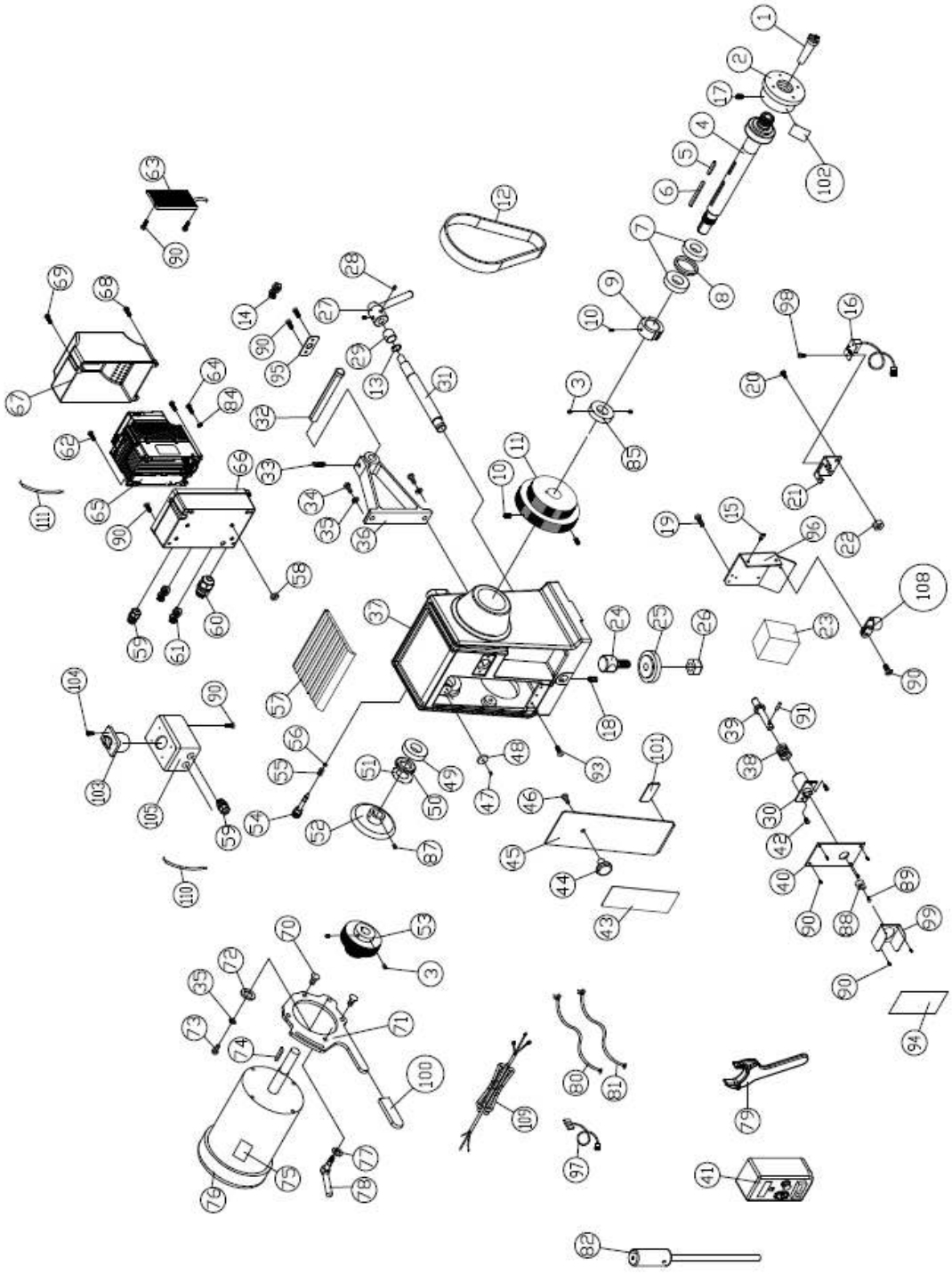
15.0 **Replacement Parts**

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.

Non-proprietary parts, such as fasteners, can be found at local hardware stores, or may be ordered from Powermatic.

Some parts are shown for reference only and may not be available individually.

15.1.1 **3520C Headstock Assembly – Exploded View**



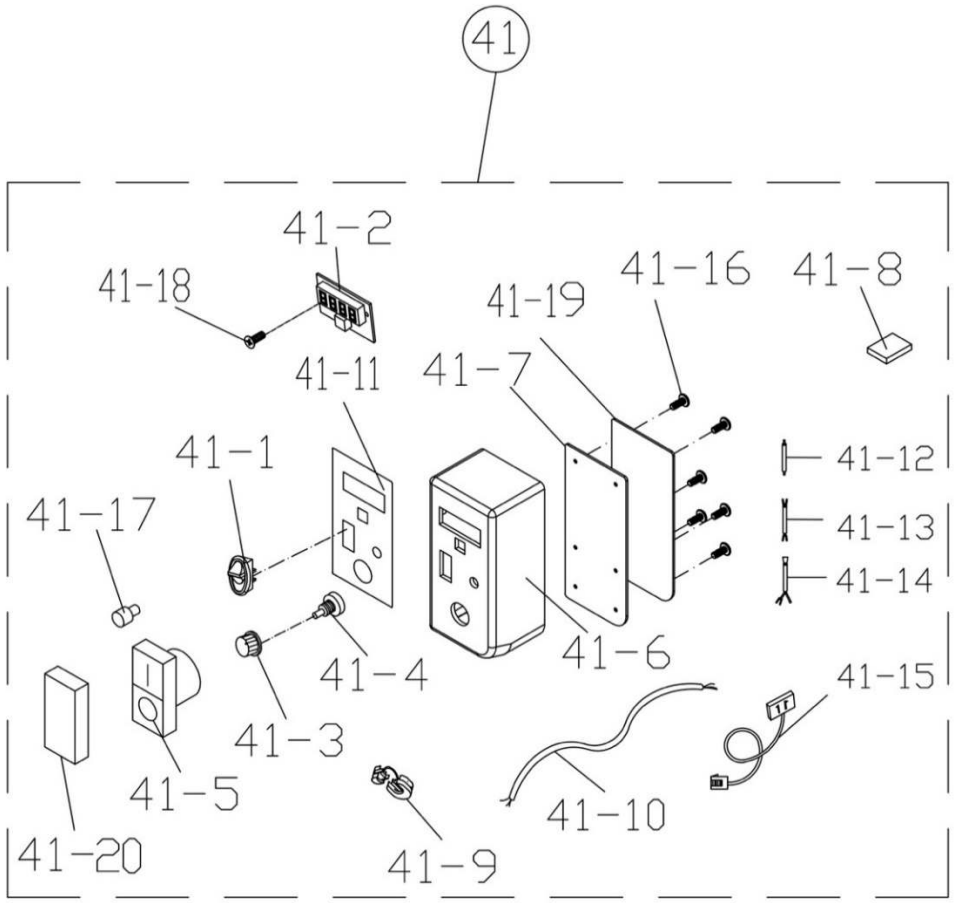
15.1.2 **3520C Headstock Assembly – Parts List**

Index No.	Part No.	Description	Size	Qty
1	JT9-6294725	Spur Center	MT2	1
2	JT9-6294736	Faceplate (includes #17 and 102)	1-1/4-8, Ø 3”	1
3	JT9-6295796	Nylon Insert Socket Set Screw	1/4"-20 x 3/8"	4
4	JT9-3520C-104	Spindle		1
5	JT9-F014007	Flat Key, Dbl Rd Hd	8x8x40mm	1
6	JT9-F014008	Flat Key, Dbl Rd Hd	8x8x80mm	1
7	JT9-BB-6207ZZ	Bearing	6207ZZ	2
8	JT9-3520B-208	Bushing		1
9	JT9-JWL1642-174	Locking Collar		1
10	JT9-TS-0270021	Socket Set Screw	5/16"-18 x 5/16"	3
11	JT9-3520C-111	Spindle Pulley		1
12	JT9-6077228	Belt	260J-10V	1
13	JT9-F006048	C-Retaining Ring, Ext	S-22	1
14	JT9-SR-6P3	Strain Relief	SR-6P3	2
15	JT9-TS-2246252	Socket Head Button Screw	M6-1.0x25	2
16	JT9-JWL1640EVS-125	Sensor with Cable	1	
17	JT9-6295796	Nylon Insert Socket Set Screw	1/4"-20x3/8"	2
18	JT9-3520B-273	Socket Set Screw	#10-24x1"	1
19	JT9-JWL1642-127	Machine Screw	M3-0.5x10	4
20	JT9-F009669	Socket Head Button Screw	#10-24x3/8"	2
21	JT9-3520C-121	Bracket		1
22	JT9-TS-0560071	Hex Nut	#10-24	2
23	JT9-3520C-123	Spindle Encoder PCB Assembly		1
24	JT9-3058001	Clamp Bolt		1
25	JT9-3092095	Clamp		1
26	JT9-6520009	Hex Nylon Lock Nut	5/8"-11	1
27	JT9-3520C-127	Lock Handle Assembly		1
28	JT9-TS-0271031	Socket Set Screw	3/8"-16 x 3/8"	2
29	JT9-6095038	Bushing		1
30	JT9-3520C-130	Spindle Lock Plunger Seat		1
31	JT9-3520C-131	Headstock Eccentric Shaft		1
32	JT9-3520B-275	Spindle Comparator Spur Center		1
33	JT9-6644005	Plunger Retainer		1
34	JT9-TS-0209061	Socket Head Cap Screw	3/8"-16x1-1/4"	2
35	JT9-TS-0720091	Lock Washer	3/8"	3
36	JT9-3064711	Lathe Guard Bracket		1
37	JT9-3520C-137	Headstock Casting		1
38	JT9-3520C-138	Spring		1
39	JT9-3520C-139	Spindle Lock Pin		1
40	JT9-3520C-140	Cover Plate (includes #94)		1
41	JT9-3520C-141	Control Box Assembly		1
42	JT9-F010675	Flat Head Socket Screw	#10-24x3/8"	2
43	JT9-LM000303	Speed Label, 3520C		1
44	JT9-6295717	Knob	M8	1
45	JT9-3520C-145	Access Door (includes #43 and 101)		1
46	JT9-TS-1490021	Hex Cap Screw	M8-1.25x16	1
47	JT9-F010878	Flat Head Socket Screw	M3-0.5x10	2
48	JT9-3520C-148	Magnet		2
49	JT9-BB-6206VV	Bearing	6206VV	1
50	PM9-6864006	Bearing Lock Washer		1
51	JT9-6549006	Bearing Nut		1
52	JT9-3271081	Handwheel		1
53	JT9-3719189	Motor Sheave		1
54	JT9-3520C-154	Spindle Index Pin		1
55	JT9-3520C-155	Spring		1
56	JT9-F006086	C-Retaining Ring, Ext	S-9	1
57	JT9-3520C-157	Cushion		1
58	JT9-TS-1540071	Hex Nut	#10-24	9
59	JT9-JWL1440-141	Strain Relief	M16	3
60	**	Strain Relief	PG-13.5	1

Index No.	Part No.	Description	Size	Qty
61	JT9-SR-6P3	Strain Relief	SR-6P3	1
62	JT9-TS-081C062	Phillips Pan Head Machine Screw	#10-24x1"	4
63	JT9-JWL1642-169	Braking Resistor		1
64	**	Phillips Pan Head Machine Screw	#10-24x1/4"	1
65	JT9-3520C-165	Inverter		1
66	JT9-JWL1640EVS-163	Inverter Lower Box		1
67	JT9-JWL1640EVS-161	Inverter Upper Cover		1
68	JT9-TS-081C062	Phillips Pan Head Machine Screw	#10-24x1"	2
69	JT9-TS-081C052	Phillips Pan Head Machine Screw	#10-24x3/4"	1
70	**	Flat Head Socket Screw	3/8”-16x3/4”	4
71	JT9-3520C-171	Motor Mount Plate		1
72	JT9-TS-0680041	Flat Washer	3/8"	1
73	JT9-TS-0209061	Socket Head Cap Screw	3/8"-16x1-1/4"	1
74	JT9-F014009	Flat Key, Dbl Rd Hd	3/16"x3/16"x2-1/2"	1
75	JT9-LM000302	Motor Label		1
76	JT9-3520C-176	Motor	2HP	1
	JT9-3520C-176JBC	Junction Box Cover		1
	JT9-3520C-176MF	Motor Fan		1
	JT9-3520C-176MFC	Motor Fan Cover		1
77	JT9-TS-0680041	Flat Washer	3/8"	1
78	JT9-3520C-178	Lock Handle	3/8"-16x1"	1
79	JT9-6294744	Face Plate Wrench		1
80	JT9-3520C-180	Motor Cord		1
81	JT9-3520C-181	Signal Cord (Inverter box to Encoder PCB box).		1
82	CM9-6294754	Knockout Rod Assembly		1
84	JT9-TS-0733031	Lock Washer Ext Tooth	#10	1
85	JT9-3520C-185	Sensor Collar		1
87	JT9-TS-0267021	Socket Set Screw	1/4"-20x1/4"	2
88	JT9-3520C-188	Knob		1
89	JT9-TS-2244102	Socket Head Button Screw	M4-0.7x10	1
90	JT9-TS-0253031	Socket Head Button Screw	#10-24x1/2"	19
91	JT9-AP2-16	Spring Pin	Ø6 x 25mm	1
93	JT9-F009669	Socket Head Button Screw BO	#10-24x3/8"	3
94	JT9-3520C-194	Spindle Lock Label		1
95	JT9-3520C-195	Fixed Plate		1
96	JT9-3520C-196	Sensor Bracket		1
97	JT9-3520C-14110	Signal Cable (Remote Box to Inverter)		1
98	JT9-TS-2283102	Pan Head Screw	M3-0.5x10	2
99	JT9-3520C-199	Spindle Lock Guard		1
100	JT9-3520C-1100	Sleeve		1
101	JT9-3520B-294	Warning Label - Belt Adjustment		1
102	PM9-4224B-1124	Warning Label - Faceplate		1
103	JT9-3520C-1103	Main Switch (includes #104)		1
104	CM9-TS-1512021	Flat Head Screw	M4-0.7x12	4
105	JT9-3520C-1105	Main Switch Box		1
106	JT9-3520C-1106	Power Cable (Main switch box to Inverter, not shown)		1
107	JT9-3520C-1107	Strain Relief, Motor (not shown)	7N-2	1
108	JT9-JWL1015-172	Clamp		1
109	**	Power cord		1
110	**	Ground wire (Inverter)	16AWG	1
111	**	Ground wire (Switch Box)	14AWG	1

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

15.2.1 3520C Remote Control Box Assembly – Exploded View

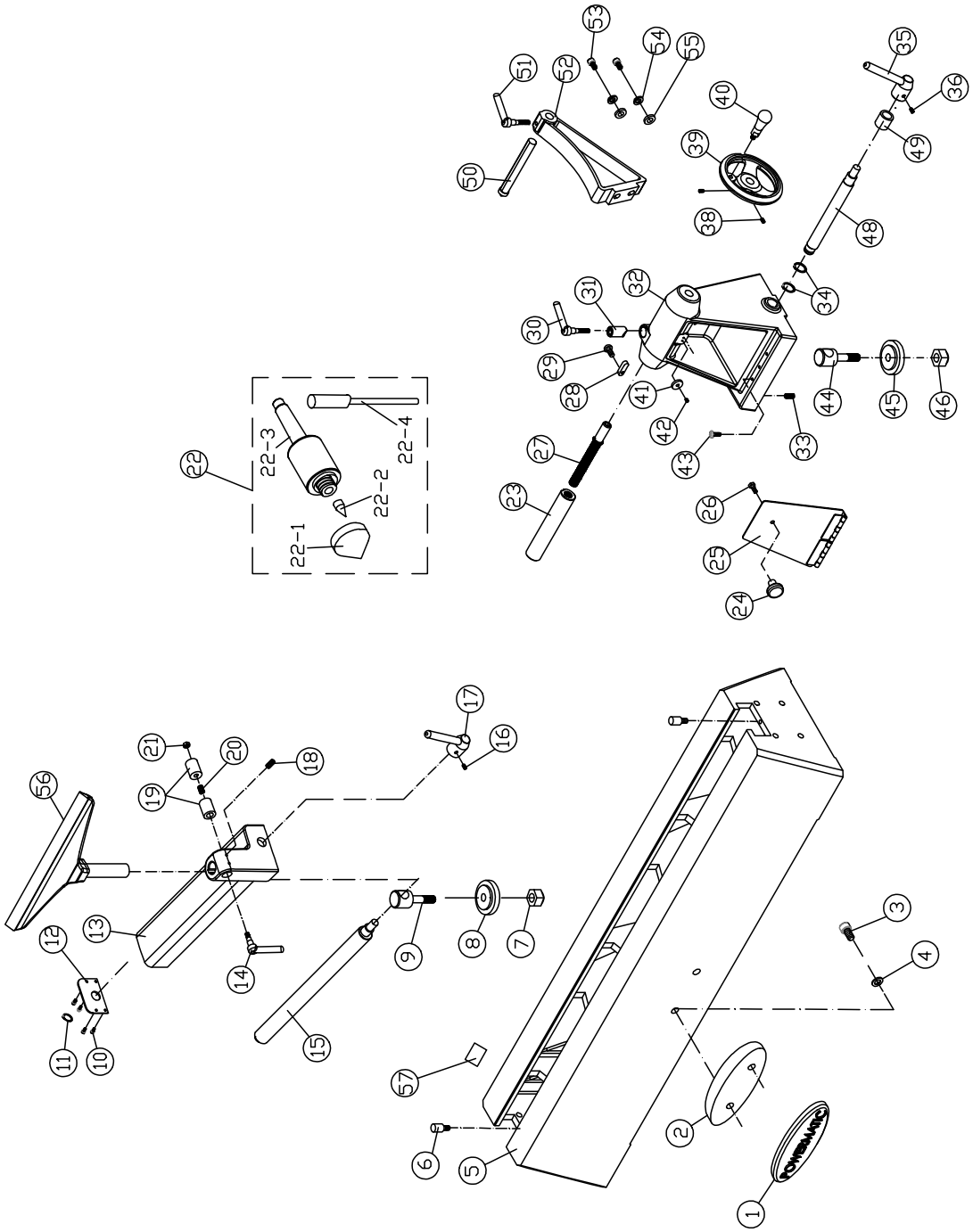


15.2.2 3520C Remote Control Box Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
41	JT9-3520C-141	Remote Control Box Assembly (includes # 41-1 thru 41-18)		1
41-1	PM9-4224B-148	Switch Fwd /Rev		1
41-2	JT9-3520C-1412	Digital Readout Display		1
41-3	**	Knob		1
41-4	JT9-6295915	Control Pot Assembly		1
41-5	JT9-3520C-1415	Control Switch		1
41-6	JT9-3520C-1416	Remote Control Box (includes #41-11)		1
41-7	JT9-3520C-1417	Control Box Back Plate		1
41-8	PM9-4224B-1112	Magnet		1
41-9	JT9-SR-6P3	Strain Relief	SR-6P3	1
41-10	JT9-3520C-14110	Signal Cable (Remote switch box to Inverter)		1
41-11	JT9-3520C-14111	Control Box Label		1
41-12	JT9-3520C-14112	Wire (Control Pot to control switch, White)		2
41-13	JT9-3520C-14113	Wire 2 (for control switch, Brown)		1
41-14	JT9-3520C-14114	Wire 3 (control switch to Fwd /Rev Switch, yellow)		1
41-15	JT9-3520C-14115	Signal Cable		1
41-16	JT9-F010944	Flat Head Socket Screw BO	M3-0.5x20	6
41-17	JT9-3520C-14117	LED Light		1
41-18	JT9-F010987	Flat Head Socket Screw BO	M3-0.5x10	2
41-19	JT9-3520C-14119	Foam Pad		1
41-20	PM1-421	Dust Cover		1

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

15.3.1 **Bed, Banjo and Tailstock Assembly – Exploded View**



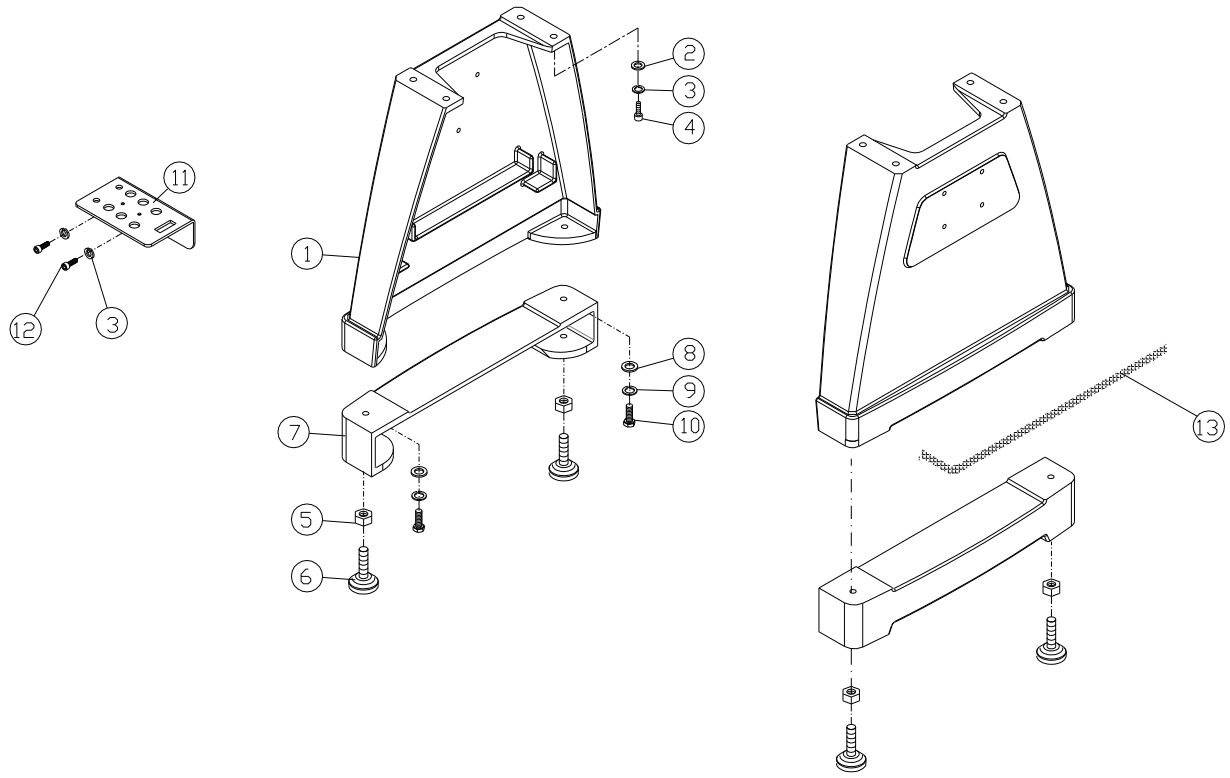
15.3.2 Bed, Banjo and Tailstock Assembly – Parts List

Index No.	Part No.	Description	Size	Qty
1	JT9-3520B-140	Powermatic Nameplate		1
2	JT9-3520C-202	Backer Plate		1
3	CM9-TS-0207071	Socket Head Cap Screw	1/4"-20x1-1/4"	2
4	JT9-TS-0680021	Flat Washer	1/4"	2
5	JT9-3520C-205	Bed		1
6	JT9-6295754	Stop Bolt		2
	JT9-3520C-BA	Banjo Assembly (includes #7 thru 21)		1
7	JT9-TS-0650081	Hex Nylon Lock Nut	3/4"-10	1
8	JT9-6294770	Clamp		1
9	JT9-3058001	Clamp Bolt	3/4"-10	1
10	JT9-6710015	Socket Head Cap Screw	#10-24x1/2"	4
11	JT9-F006048	C-Retaining Ring, Ext	S-22	1
12	JT9-3520C-212	End Cover		1
13	JT9-3520C-213	Tool Rest Support Base		1
14	JT9-JWL1440-206	Locking Handle	3/8"	1
15	JT9-3520C-215	Tool Support Rod		1
16	JT9-TS-0271031	Set Screw	3/8"-16x3/8"	2
17	JT9-3520C-127	Lock Handle Assembly		1
18	JT9-TS-0267021	Set Screw	1/4"-20x1/4"	2
19	JT9-JWL1440-207	Tool Rest Lock Bushing Set		1
20	JT9-3520C-220	Spring		1
21	JT9-TS-0570031	Hex Nut	3/8"-16	1
22	JT9-6295902	Ball Bearing Live Center Assembly (includes #22-1 thru 22-4)		1
22-1	JT9-6295905	Live Center Cap		1
22-2	JT9-6295904	Live Center Tip		1
22-3	JT9-6295903	Live Center Body		1
22-4	JT9-6295906	Live Center Rod		1
	JT9-3520C-TA	Tailstock Assembly (includes #23 thru 49)		1
23	JT9-3520C-223	Tailstock Quill		1
24	JT9-6295717	Knob	M8	1
25	JT9-3520C-225	Cover		1
26	JT9-TS-1490021	Hex Cap Screw	M8-1.25x16	1
27	JT9-3520C-227	Lead Screw		1
28	JT9-JWL1221VS-227	Key		1
29	JT9-F009674	Socket Head Button Screw	#10-32x5/8"	1
30	JT9-6295910	Lock Handle	3/8"	1
31	JT9-3520C-231	Brass Bushing		1
32	JT9-3520C-232	Tailstock		1
33	JT9-6760102	Socket Set Screw	#10-32x1"	1
34	JT9-F006050	C-Retaining Ring, Ext	S-25	2
35	JT9-3520C-127	Lock Handle Assembly		1
36	JT9-TS-0271031	Socket Set Screw	3/8"-16x3/8"	2
38	JT9-TS-0270011	Socket Set Screw	5/16"-18x1/4"	2
39	JT9-3520B-125	Tailstock Handwheel		1
40	JT9-3520B-126	Swivel Handle		1
41	JT9-3520C-148	Magnet		2
42	JT9-F010987	Flat Head Socket Screw BO	M3-0.5x10	2
43	JT9-F009669	Socket Head Button Screw BO	#10-24x3/8"	3
44	JT9-3058001	Clamp Bolt		1
45	JT9-3092095	Clamp		1
46	JT9-6520009	Nylon Lock Hex Nut	5/8"-11	1
48	JT9-3520C-248	Eccentric Rod		1
49	JT9-6095038	Bushing	7/8" x 1" x 7/8"	1
50	JT9-3520B-251	Comparator Rear Center		1
51	JT9-3520C-251	Lock Handle		1
52	JT9-3520B-150	Comparator Rear Bracket		1
53	JT9-TS-0209061	Socket Head Cap Screw	3/8"-16x1-1/4"	2
54	JT9-TS-0720091	Lock Washer	3/8"	2
55	JT9-TS-0680041	Flat Washer	3/8"	2
56	JT9-6294742	Tool Support	14"	1

Index No.	Part No.	Description	Size	Qty
57	JT9-LM000301	I.D Label, 3520C		1
58	JT9-3520C-258	Black Stripe (not shown)	3/4” x 51”	2
59	**	Specification Label, 3520C (not shown)		1

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

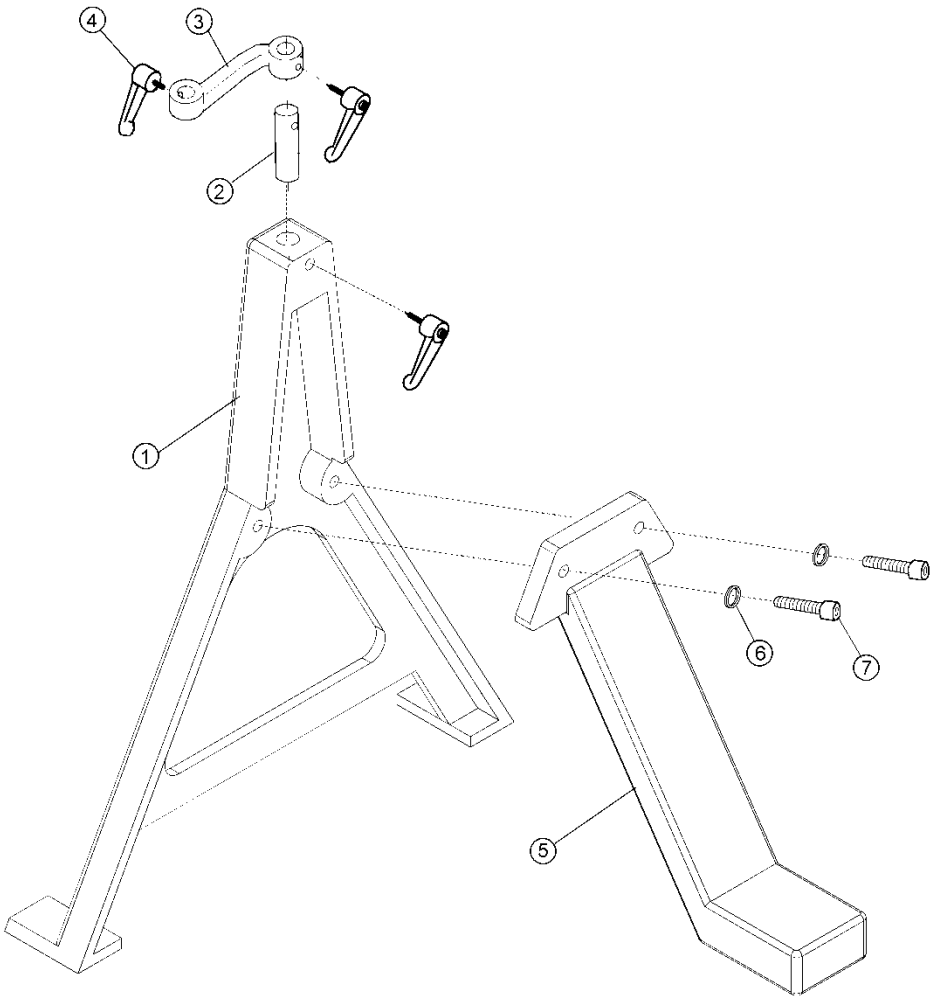
15.4.1 **Stand Assembly – Exploded View**



15.4.2 **Stand Assembly – Parts List**

Index No.	Part No.	Description	Size	Qty
1	JT9-3520C-301	Stand		2
2	JT9-TS-0680041	Flat Washer	3/8"	8
3	JT9-TS-0720091	Lock Washer	3/8"	10
4	JT9-TS-0209061	Socket Head Cap Screw	3/8"-16x1-3/4"	8
5	PM9-4224B-263	Hex Nut	1/2"-12	4
6	PM9-4224B-262	Adjustable Leveler	1/2"-12	4
7	JT9-3520C-307	Riser Block	4”	2
8	JT9-TS-0680061	Flat Washer	1/2"	4
9	JT9-TS-0720111	Lock Washer	1/2"	4
10	JT9-3520C-310	Hex Cap Screw	1/2"-12 x 2"	4
11	JT9-3520B-143	Shelf		1
12	JT9-TS-0209061	Socket Head Cap Screw	3/8-16 x1-1/4”	2
13	JT9-3520C-313	Black Stripe	1/2" x 30”	2
14	JT9-6294773	Warning Label (not shown)		1
	PM9-1353003	Riser Kit (#7 thru 10)		

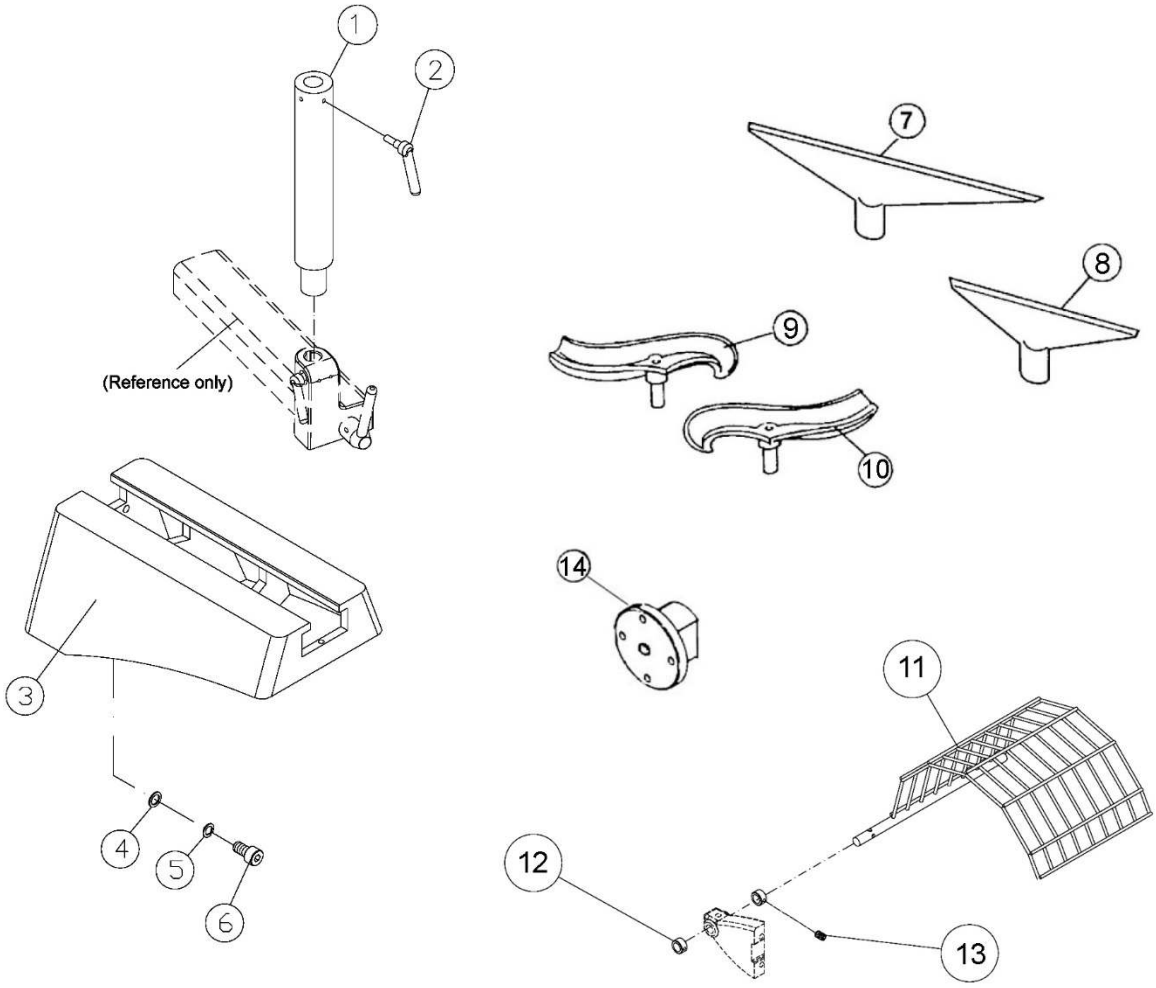
15.5.1 **Optional Accessories: #6294732, Outboard Turning Stand – Exploded View**



15.5.2 **Optional Accessories: #6294732, Outboard Turning Stand – Parts List**

Index No.	Part No.	Description	Size	Qty.
	PM9-6294732	Heavy Duty Outboard Turning Stand Assembly (items 1 thru 7)		
1	JT9-3042503	Turning Stand Base		1
2	JT9-6295897	Offset Tool Support Pin	1.00” diameter	1
3	JT9-6295898	Offset Tool Support Casting	1.00” hole	1
4	WL9-2695026	Screw Lock Assembly		3
5	JT9-3423055	Turning Stand Leg		1
6	JT9-6861700	Lock Washer	5/8”	2
7	JT9-6769002	Socket Head Cap Screw	5/8”-18 x 2”	2

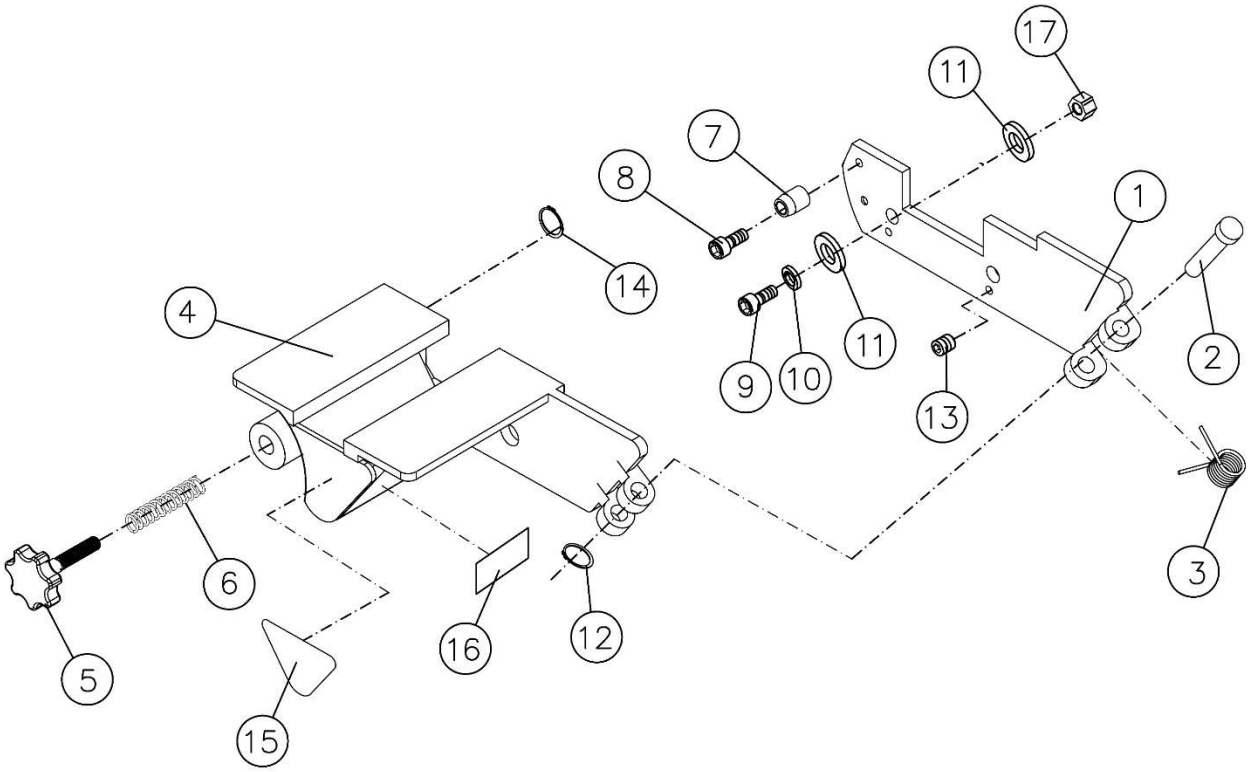
15.6.1 **Optional Accessories: Bed Extension, Face Plate, Tool Supports, Guard – Exploded View**



15.6.2 **Optional Accessories: Bed Extension, Face Plate, Tool Supports, Guard – Parts List**

Index No.	Part No.	Description	Size	Qty.
	PM9-1353002	20” Bed Extension Kit (includes #1 thru 6)		
1	JT9-3520B-310	Extension Post		1
2	JT9-6294763	Locking Handle		1
3	JT9-3520C-403	20” Bed Extension		1
4	JT9-TS-0680041	Flat Washer	3/8”	4
5	JT9-TS-0720091	Lock Washer	3/8”	4
6	JT9-TS-0209081	Socket Head Cap Screw	3/8-16x1-3/4”	4
7	JT9-6294742	14” Tool Support		1
8	PM9-6294739	6” Tool Support		1
9	PM9-6294740	Bowl Turning Tool Support (RH)		1
10	PM9-6294751	Bowl Turning Tool Support (LH)		1
11	JT9-6294728	Guard Assembly		1
12	JT9-6143004	Retaining Collar		2
13	JT9-TS-0270011	Socket Set Screw	5/16-18x1/4”	2
14	JT9-6294736	Faceplate (includes set screws)	1-1/4-8, Ø 3”	1
	JT9-6295902	Ball Bearing Live Center (not shown)		1

15.7.1 **Optional Accessories: #6294721, Tailstock Swing Away – Exploded View**

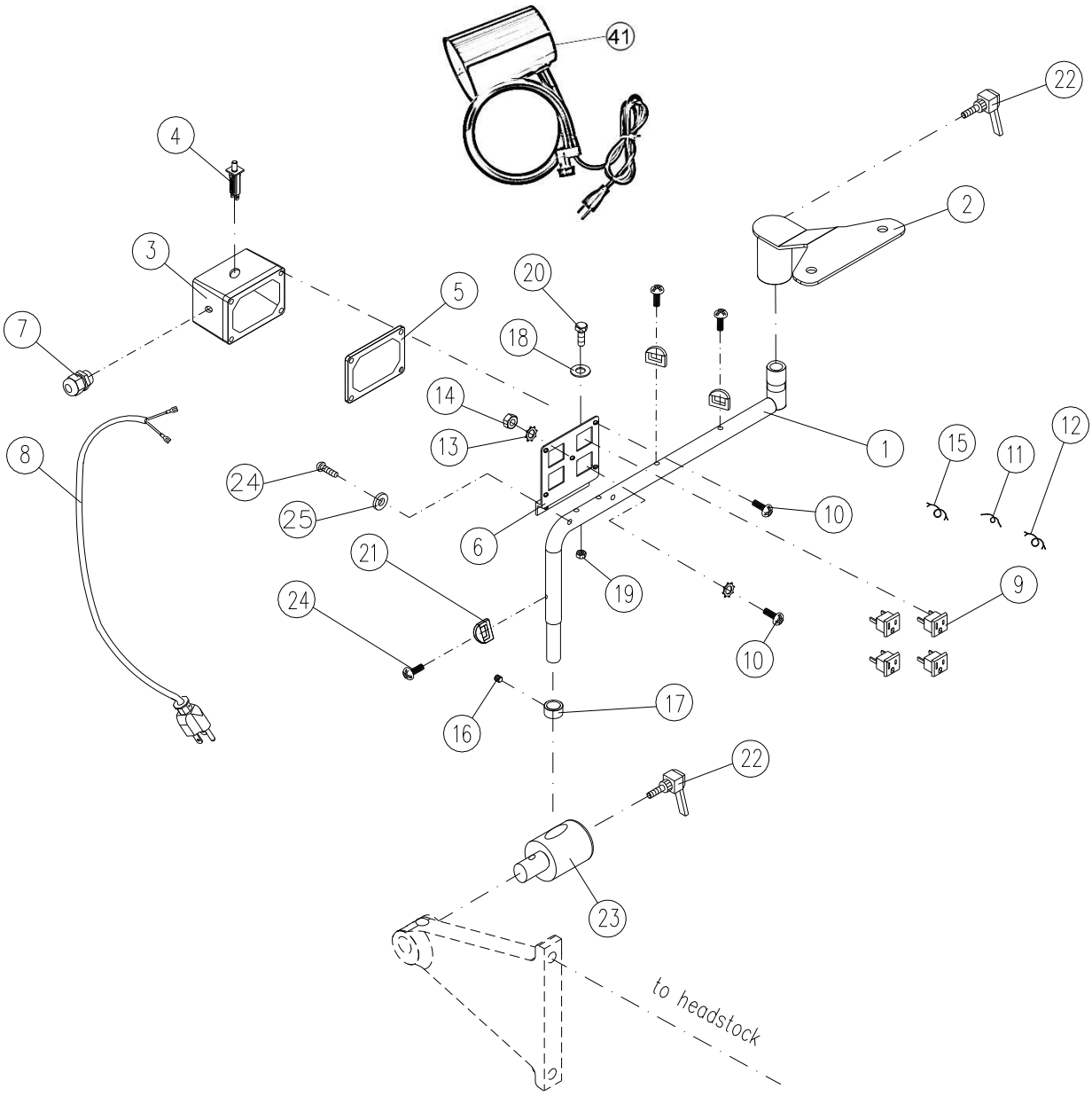


15.7.2 **Optional Accessories: #6294721, Tailstock Swing Away – Parts List**

Index No	Part No	Description	Size	Qty
1	**	Front Plate		1
2	PM9-PMSA-102	Pivot Pin		1
3	PM9-PMSA-103	Twist Spring		1
4	**	Rear Plate		1
5	PM9-PMSA-105	Knob		1
6	PM9-PMSA-106	Spring		1
7	PM9-PMSA-107	Guide Pin		1
8	JT9-TS-0209011	Socket Head Cap Screw	3/8"-16x1/2"	1
9	JT9-TS-0209061	Socket Head Cap Screw	3/8"-16x1-1/4"	2
10	JT9-TS-0720091	Spring Washer	3/8"	2
11	JT9-TS-0680041	Flat Washer	3/8"	4
12	PM9-PMSA-112	C-Ring	S-11	1
13	JT9-TS-0271051	Set Screw	3/8"-16x1/2”	2
14	PM9-PMSA-114	C-Ring	S-9	1
15	PM9-LM000011	Warning Label (EN)		1
	PM9-LM000065	Warning Label (FR)		1
16	PM9-LM000012	ID Label		1
17	JT9-TS-0561031	Hex Nut	3/8”-16	2

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

15.8.1 **Optional Accessories: #6294901, Lamp Holder Set – Exploded View**



15.8.2 **Optional Accessories: #6294901, Lamp Holder Set – Parts List**

Index No	Part No	Description	Size	Qty
	PM9-6294901	Lamp Holder Set (includes #1 thru 25)		1
1	PM9-4224B-301	Support Tube		1
2	PM9-4224B-302	Lamp Holder		1
3	PM9-4224B-303	Junction Box		1
4	PM9-4224B-304	Current Overload Switch	15A	1
5	PM9-4224B-305	Gasket		1
6	PM9-4224B-306	Receptacle Cover Plate		1
7	PM9-4224B-307	Strain Relief	PG11	1
8	PM9-4224B-308	Power Cord	AWG14	1
9	PM9-4224B-309	Socket with Cover		4
10	JT9-TS-1533062	Phillips Pan Head Machine Screw	M5 x 20	5
11	PM9-4224B-311	Jumper (Black)		4
12	PM9-4224B-312	Jumper (White)		3
13	JT9-TS-0733041	Star Washer	M5	2
14	JT9-TS-1540031	Hex Nut	M5	2
15	PM9-4224B-315	Ground Jumper (Green)		4
16	JT9-TS-0270011	Set Screw	5/16”-18 x 1/4”	1
17	JT9-6143004	Retaining Collar		1
18	JT9-TS-1550031	Flat washer	M5	4
19	JT9-TS-1541011	Nylon Hex Nut	M5	2
20	**	Hex Bolt	M5 x 35	2
21	PM9-4224B-321	Cord Restraint		3
22	JT9-JML-59A	Lock Handle		2
23	PM9-4224B-323	Holder Shaft		1
24	JT9-TS-0253031	Socket Head Button Screw	#10-24 x 1/2”	5
25	JT9-TS-069204	Flat Washer	#10	2

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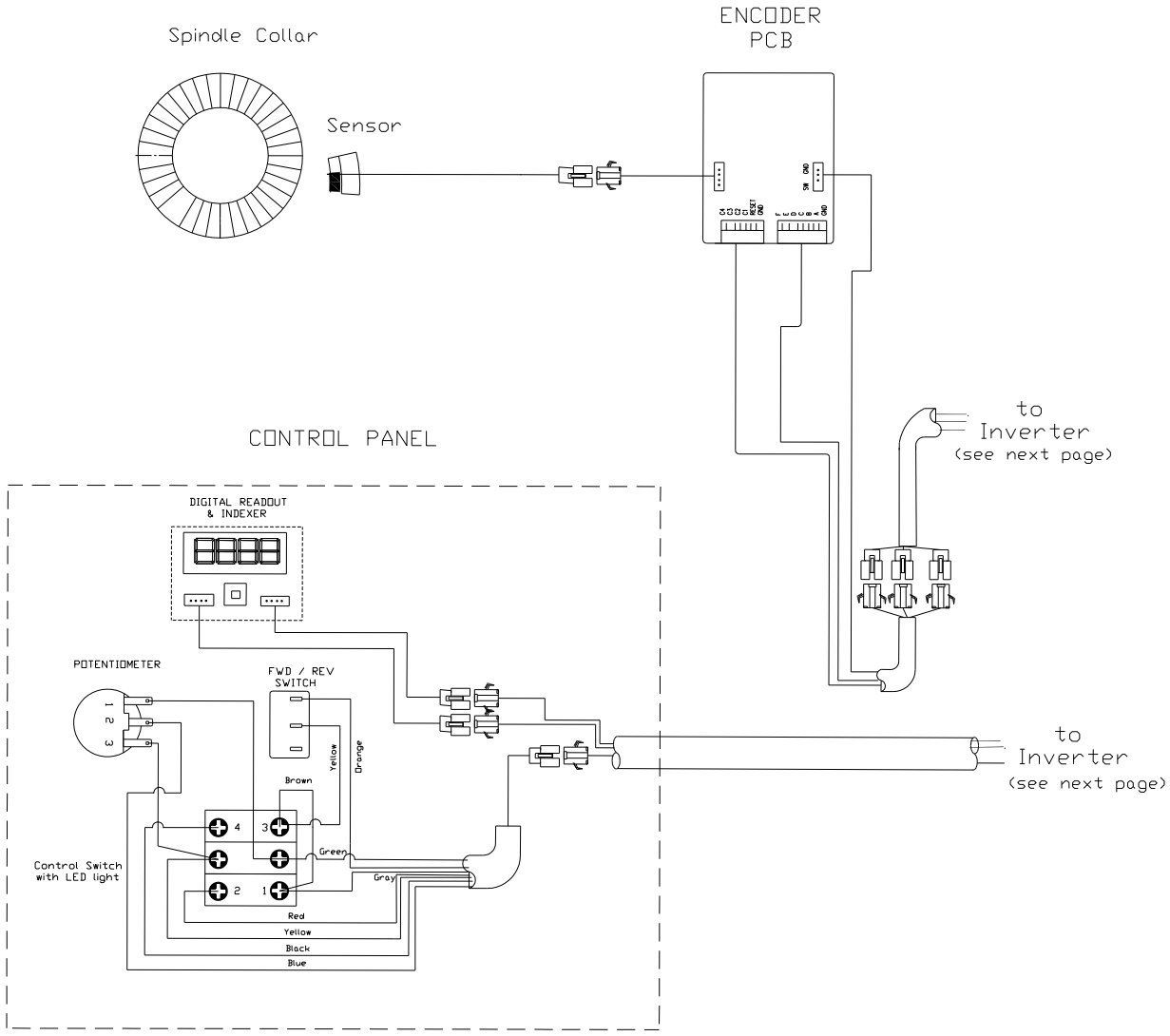
15.8.3 **Lamp Kit – Parts List**

Index No.	Part No.	Description	Size	Qty.
	6294901K	Lamp Kit *(includes #40-44)*		1
40	6294901	Lamp Holder Set *(includes #1 thru 25)*		1
41	6294902	Lamp (bulb not included) *(includes #42-44)*	100W	2
42	*	Stud	M51	2
43	*	Lock Washer, Internal tooth	3/8”	2
44	*	Jam Nut	3/8”	2

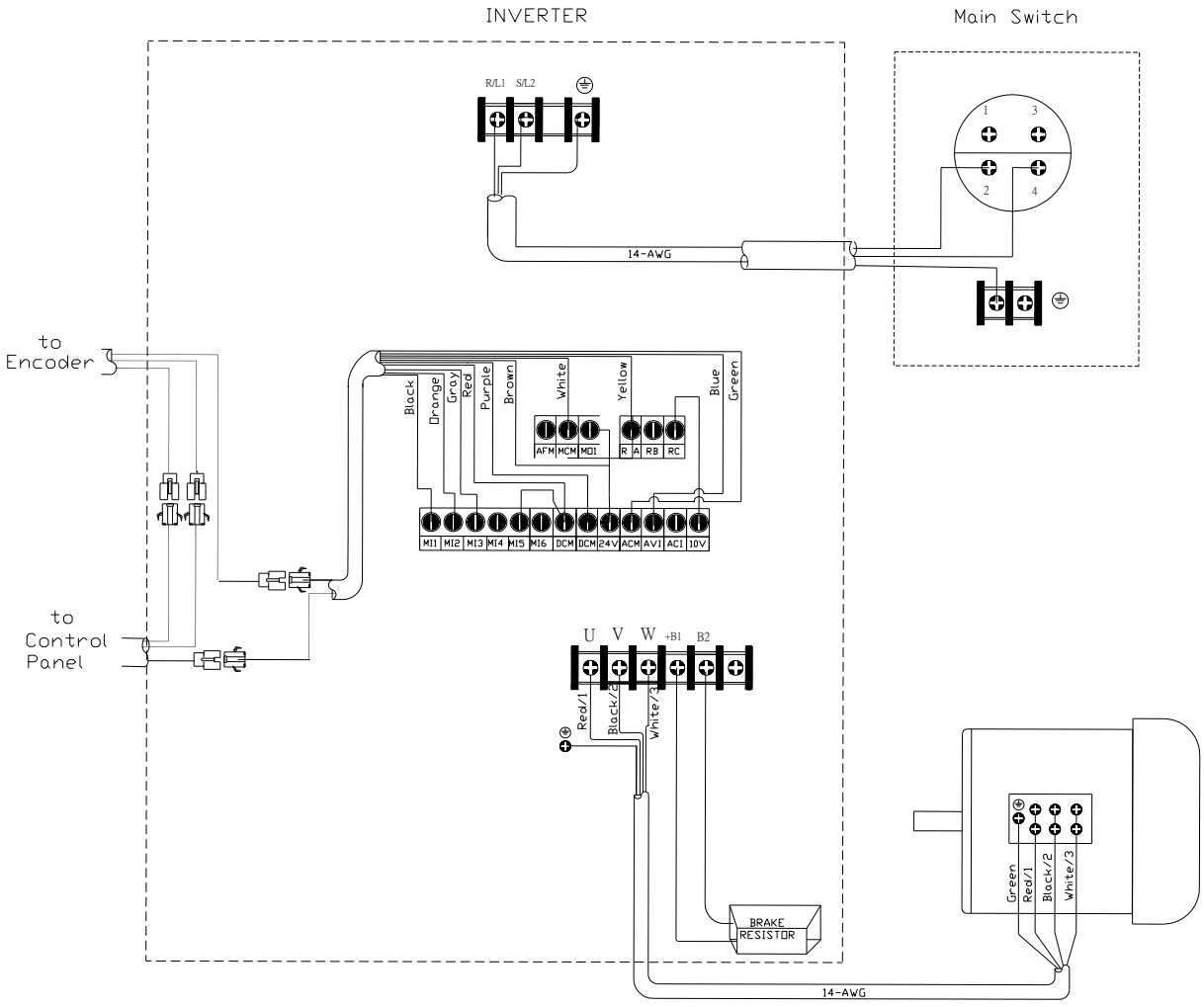
NOTE: Powermatic lamps are supplied by Moffatt. For replacement parts indicated by an asterisk (*), contact Moffatt directly at 800-346-0761.

16.0 **Electrical connections for #1353001 – 3520C Lathe**

16.1 **Wiring diagram 1 of 2**



16.2 **Wiring Diagram 2 of 2**



17.0 **Warranty and Service**

Powermatic® 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 Powermatic branded website.

- Powermatic 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. Powermatic 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. Powermatic 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 Powermatic website.

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

How State Law Applies
This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty
POWERMATIC 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.

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

Powermatic sells through distributors only. The specifications listed in Powermatic printed materials and on the official Powermatic website are given as general information and are not binding. Powermatic reserves the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

Product Listing with Warranty Period

90 Days – Parts; Consumable items
1 Year – Motors, Machine Accessories
2 Year – Woodworking Machinery used for industrial or commercial purposes
5 Year – Woodworking Machinery

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

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