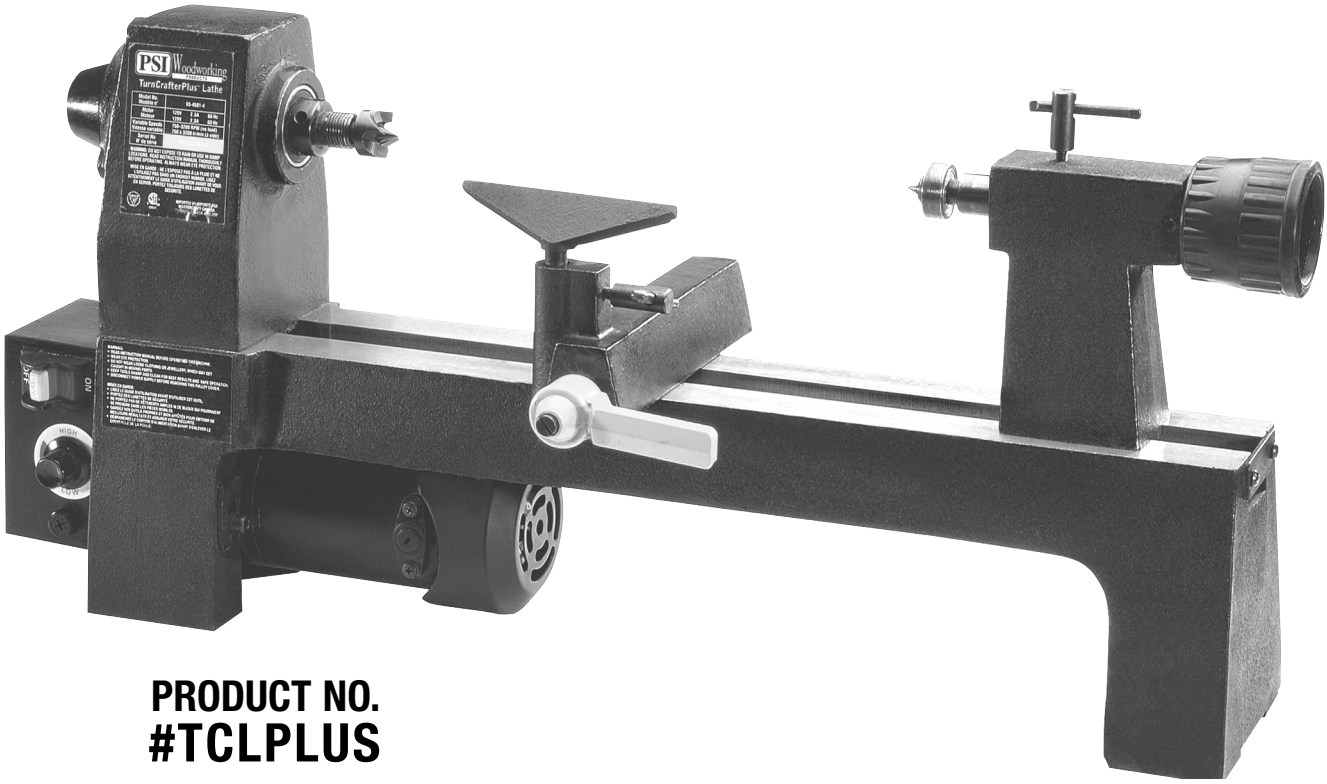
TurncrafterPlus™
Variable Speed Mini Wood Lathe



PRODUCT NO.
#TCLPLUS

User's Manual

PSI Woodworking
PRODUCTS

SPECIFICATIONS OF TURNCRAFTER PLUS MINI LATHE

Model number: . . . . . .#TCLPLUS
Motor: . . . . . .120V AC, 60HZ, 2.3A, 1/4 HP
Distance between centers: . . . . . .12-1/2"
Swing over bed: . . . . . .7-1/2"
Head stock spindle thread: . . . . . .3/4" x 16tpi
Hollow head stock with no. 1 morse taper
Hollow tail stock with no. 1 morse taper
Nominal spindle speed: . . . . . .VARIABLE 750 TO 3200 RPM
Overall Size: . . . . . .25-1/2"L x 5"W x 12"H
Net weight: . . . . . .43 LBS.

WARRANTY

THE TURNCRAFTER PLUS LATHE IS WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF PURCHASE. THIS WARRANTY APPLIES TO THE PURCHASER OF THIS PRODUCT, AND IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT OR ITS PARTS AT PSI WOODWORKING PRODUCTS' DISCRETION. EXCLUDED ARE PARTS WHICH HAVE BEEN MISUSED, ABUSED, ALTERED OR CONSUMED BY NORMAL OPERATION OF THE MACHINE. ALSO EXCLUDED ARE DIRECT OR CONSEQUENTIAL DAMAGES TO PERSONS, PROPERTY, AND/OR MATERIALS. YOUR INVOICE SERVES AS PROOF OF PURCHASE AND MUST BE REFERENCED PRIOR TO RETURN AUTHORIZATION.

_____ _____

DATE PURCHASED INVOICE NO.

SAFETY INSTRUCTIONS

1. The Turncrafter Plus is equipped with an overload circuit breaker included on the control box. If an overload condition causes this to activate, wait 30 seconds then press the breaker button to reactivate the circuit.

2. **NEVER** connect plug to power source until full assembly steps have been completed.

3. Read and understand instruction manual.

4. Check that your supply voltage and grounding are correct.

5. Do not use the lathe in a damp or wet location.

6. Keep lathe clean and lightly oiled.

7. Make sure the belt and pulley are adequately guarded at all times.

8. Always remove any tools, chuck keys, toggle bars, etc. when you are finished with them.

9. Keep the work area well lit and provide adequate ventilation and workspace.

10. Keep young children and bystanders at a safe distance from the lathe.

11. Do not force the lathe to do more than what it is designed to do.

12. Do not wear loose clothing, jewelry, or neckties which could get caught in revolving parts. It is recommended that long hair be restrained.

13. Safety eyewear should be worn at all times. Also, it is recommended to a use of face or dust mask during lathe operation.

14. Attach all workpieces securely to the lathe, whether between centers, on face plates, or in chucks, etc.

15. For best results be sure to keep tools sharp, clean, and free from rust.

16. Check the speed **BEFORE** mounting any material onto the lathe. **ALWAYS** start the lathe at a slow speed.

17. Keep the door to the pulleys and belts securely screwed closed during lathe operation.

ASSEMBLY

Unpacking (Fig. 1)

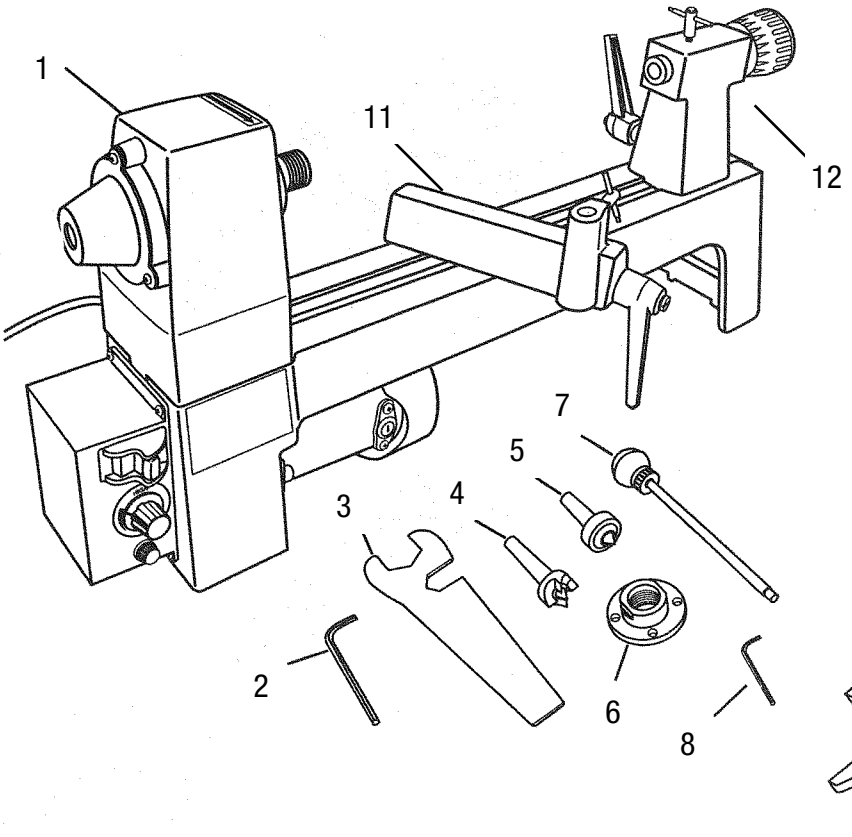
1. Carefully remove the mini lathe and loose parts from the box.

CAUTION: THE MINI LATHE IS HEAVY AND MAY REQUIRE THE HELP OF ANOTHER PERSON TO LIFT.

2. Lay out the parts and check them against the accessories listed below. Examine all parts carefully.

WARNING: IF ANY PART IS MISSING OR DAMAGED, DO NOT PLUG IN THE LATHE UNTIL THE MISSING OR DAMAGED PART IS REPLACED.

For your safety, complete the assembly of the lathe before plugging it into the power supply.



PACKING LIST

1. HEADSTOCK
2. HEX WRENCH (5 MM)
3. FLAT WRENCH
4. HEADSTOCK SPUR CENTER
5. TAILSTOCK LIVE CENTER
6. 2" FACEPLATE
7. KNOCK OUT ROD
8. HEX WRENCH (3 MM)
9. WIDE TOOL REST
10. NARROW TOOL REST
11. TOOL REST ASSEMBLY
12. TAIL STOCK ASSEMBLY

Fig. 1

Mounting the lathe on the benchtop (Fig. 2)

NOTE: It is recommended for best stability that the lathe be mounted to a benchtop.

1. In a clear space on the benchtop, measure and mark three hole centers as shown in Fig. 2.
2. Drill clearance holes through the benchtop. Position the lathe on the benchtop.
3. Install 5/16" 18 tpi bolts (min. 1" long) with washers (not included) from underneath the benchtop into the tapped holes in the bottom of the lathe frame.

NOTE: To hold the lathe securely, the bolts must engage a minimum of 1/2" into the frame.

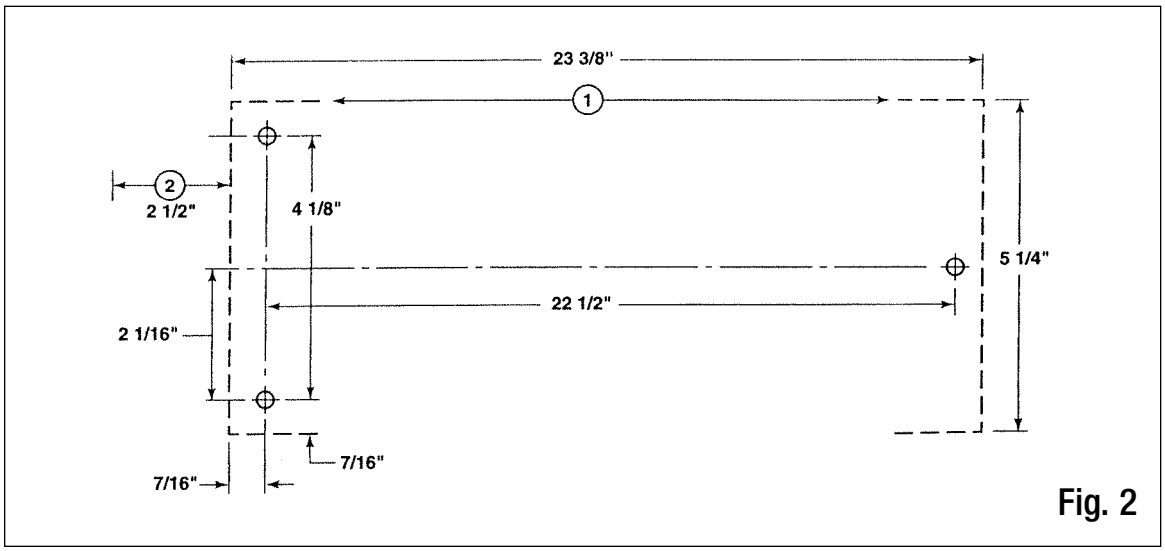


Fig. 2

Spring-loaded lock levers (Fig. 3)

The spring-loaded lock levers for the tailstock spindle and the tool rest are of four-piece construction. The shoulder screw (1) passes through the spring (2) and the handle lever (3). If either lock lever has come loose from the lathe or has come apart in shipping, reassemble it and thread into place.

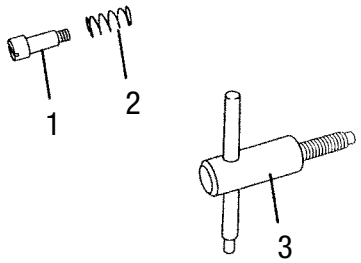


Fig. 3

NOTE: The spring-loaded handles on the lathe are designed to minimize interference with other lathe parts or the workpiece. To operate, push the handle lever in and turn clockwise to tighten. Pulling the handle lever outward will disengage the threaded shaft, allowing you to reposition the lever handle so it is out of the way.

Using the faceplate

Your mini lathe is provided with a 2" diameter faceplate Mount the workpiece onto the faceplate with brass wood screws. Make sure the screws are not so long that they will enter the area of the workpiece where material is to be removed.

NOTE: The faceplate has an open center, so that when drilling through a workpiece from the tailstock the drill bit can go completely through the workpiece.

Installing or removing faceplate (Fig. 4)

1. When installing the faceplate (1), thread it onto the end of the headstock spindle hand tight.

2. Place the wrench (2) over the flats on the . faceplate.

NOTE: Since the headstock spindle is belt driven, it will turn freely if not held stationary while the faceplate is tightened or loosened.

3. Insert the tip of the push out rod (3) into one of the slots in the side of the headstock spindle.

4. While gripping the push out rod firmly, turn the wrench to either tighten or loosen the faceplate.

5. Remove the push out rod and wrench. If the faceplate is being removed, continue turning it until it comes off the spindle threads.

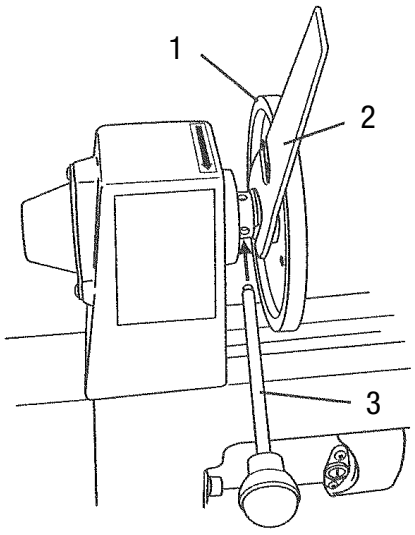


Fig. 4

Installing spur and live center

1. Insert the shaft of the spur (1) into the hollow center to the headstock spindle. (Fig. 5)

2. Insert the shaft of the tailstock center into the hollow center to the tailstock spindle. (Fig. 6)

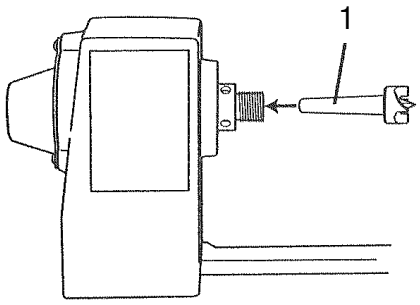


Fig. 5

WARNING: DO NOT OPERATE YOUR LATHE UNTIL IT IS COMPLETELY ASSEMBLED AND ADJUSTED ACCORDING TO THE INSTRUCTIONS.

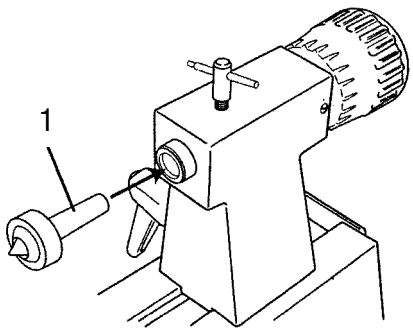


Fig. 6

Removing spur or center (Fig. 7)

1. Insert the knock out rod (1) into the far end of the headstock spindle or the tailstock spindle until it comes into contact with the shaft of the spur or center.

2. Tap the end of the knock out rod (1) until the spur or center comes loose.

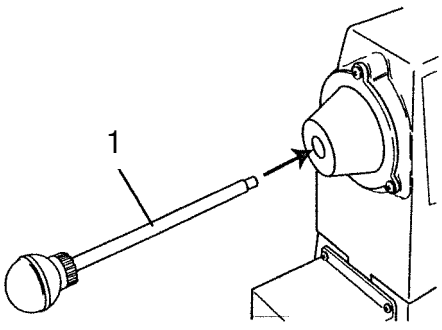


Fig. 7

OPERATION

Tailstock (Fig. 9)

1. Move the tailstock (5) by loosening the lock lever (1) and pushing the tailstock to the desired position on the bed. Lock by tightening the lock lever (1).

2. The quill can extend up to 2 1/2" from the tailstock housing. You can move the tailstock quill (4) by loosening the spindle lock lever (2) and then turning the hand wheel (3). Turning the hand wheel clockwise extends the quill; turning it counterclockwise retracts the quill. Lock levers (1) and (2) before operating the lathe.

3. The tailstock quill is hollow and can be accessed from the handwheel end. Use the knock-out rod to remove the center cup or, to drill holes through the center of a workpiece on a faceplate.

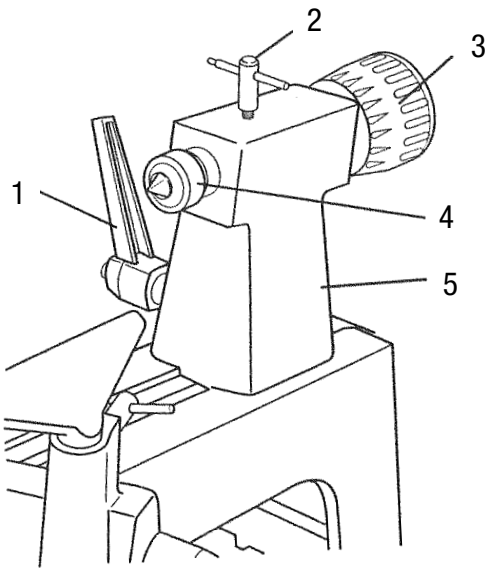


Fig. 9

Tool rest (Fig. 10)

1. To move the tool rest base (1), loosen the lock lever (4), and move the base to the right or left, back or front. Tighten the lever (4) when the tool rest base is in the desired position.

2. To adjust the angle or height of the tool rest (2), loosen the lock lever (3), move the tool rest to the desired position, and tighten the lock lever.

3. To change to the other tool rest, loosen the lock lever (3) and pull the tool rest (2) out of the tool rest base, insert the other tool rest, adjust to desired position, and tighten the lock lever(3).

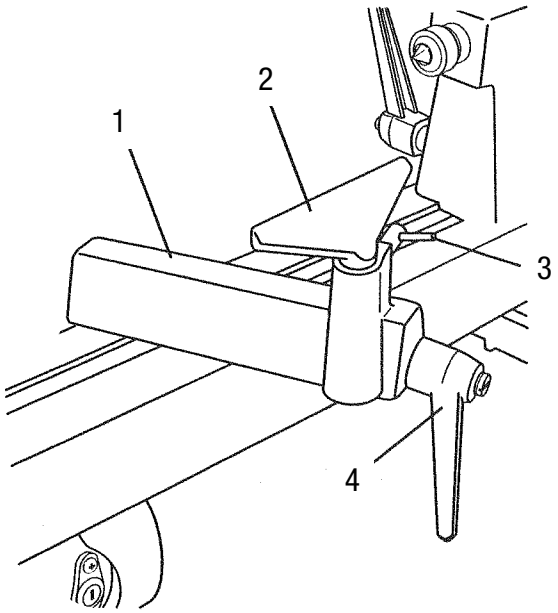


Fig. 10

IMPORTANT: MAKE SURE THE TOOL REST IS ADJUSTED TO BE AS CLOSE TO THE WORKPIECE AS POSSIBLE. ROTATE THE WORKPIECE BY HAND TO CHECK CLEARANCE BEFORE TURNING THE LATHE ON.

ADJUSTMENTS

Variable speed control box (Fig. 8)

The variable speed control box contains the electrical connections to the motor, and has three external controls.

WARNING: ALWAYS SET THE SPEED CONTROL KNOB TO ITS LOWEST (COUNTERCLOCKWISE) SETTING BEFORE STARTING THE LATHE. NEVER START A WORKPIECE AT MAXIMUM SPEED. THERE IS A 1-3 SECOND DELAY IN THE MOTOR ACTIVATION WHEN STARTING.

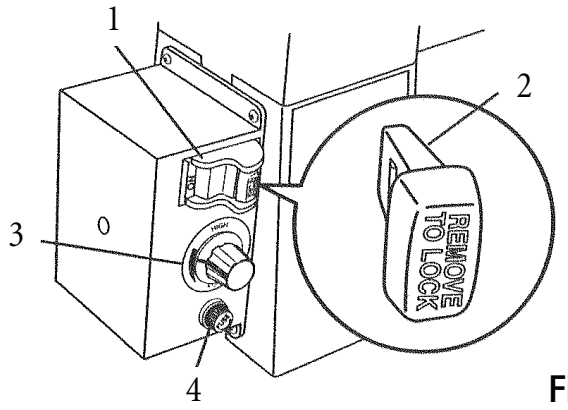


Fig. 8

1. The power switch (1) controls application of electrical power to the lathe's motor.
A. Move the switch to the ON position to start the motor. Electric current is immediately applied to the motor. WAIT FOR THE 1 -3 SECOND DELAY IN ACTIVATION. THEN it will begin turning and driving the headstock spindle. How long it takes the motor to reach the speed set by the speed control knob depends on the size and weight of the workpiece.
B. Move the switch to the OFF position to stop the lathe. The electric current is immediately disconnected, but the spindle and workpiece will continue to spin until their motion has stopped.
2. The switch key (2) can be pulled out of the power switch when it is in the OFF position. With the key removed, the switch is locked in that position and the lathe cannot be started. Store the key in a safe place when the lathe is left idle.

CAUTION: NEVER LEAVE THE LATHE UNATTENDED UNTIL IT HAS COME TO A COMPLETE STOP.

3. The speed control knob (3) can be used to set the speed of the lathe to suit the weight of the workpiece or the type of tool being used. After the lathe is started, turning the knob clockwise will increase spindle speed (up to maximum RPM). Turning the knob counterclockwise will decrease spindle speed (down to minimum RPM). Adjust the knob until the desired workpiece rotation speed is reached.
4. The fuse holder (4) contains the overload protection fuse. If the lathe stops suddenly during operation or does not start when the power switch is set to ON position, an overload condition may have caused the fuse to blow. Place the power switch to OFF, unplug the power cord, and remove the cap of the fuse holder to check the fuse.

WARNING: REPLACE A BLOWN FUSE ONLY WITH NEW (7-1/2 AMP 250 V) FUSE. USE OF THE INCORRECT FUSE MAY INCREASE THE RISK OF ELECTRICAL SHORT AND FIRE, OR CAUSE THE FUSE TO BLOW FREQUENTLY.

RECOMMENDED TURNING SPEEDS

Work Diameter in Inches	Speeds
0-2"	2700-3200 RPM
2"-3"	2200-2700 RPM
3"-4"	1400-2200 RPM
4"-5"	750-1400 RPM

Note: These speeds can vary with different wood species and the skill of the operator. Unbalanced pieces generally should be turned on speeds lower than those recommended above.

Sanding

Use the fastest speed possible without burning the wood.

Polishing & Finishing

Generally finishing can be done at faster speeds than turning.

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BOWL TURNING (FACEPLATE TURNING METHOD)

When bowl turning the grain of the wood generally is at right angles to the spindle axis of the lathe. Therefore part of the turned surface will be "end grain" and some will be "side grain". Two areas will have to be cut against the grain in each revolution of the work. Only some species of wood are suitable for bowl turning. More care and experience is requires for this type of turning because of the grain direction and the nature of the wood itself.

1. Blanks for turning bowls, etc. can be mounted on the headstock in many different ways e.g. with a faceplate, collect chucks, screw chucks, 3 and 4 jaw chucks etc.

2. Plan your procedure so that the piece can be finished without any unsightly screw holes, etc. being visible.

3. Blanks should be as near to circular as possible and of an even thickness. Position the blank as close to the center as possible on the faceplate (or other mounting mechanism.) This minimizes vibration and makes "roughing down" your work much easier and safer.

4. Secure the blank solidly to the faceplate. Use enough screws of a suitable length and gauge. Drill all pilot holes in the wood to prevent splitting; this also makes driving the screws easier.

5. Start the lathe at its slowest speed. This is particularly important when turning work with larger than five (5) inch diameters.

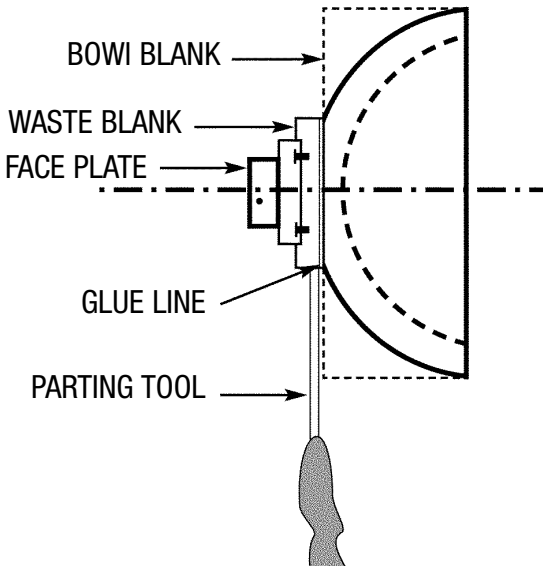
6. Faceplates and chucks can become over tightened on the headstock spindle thread if care is not taken. Keep the thread and machined faces clean and free of rust. Screw the faceplate onto the spindle carefully and tighten firmly by hand. Never leave the faceplate partly screwed on when turning on the lathe.

7. When faceplate turning is done, the tailstock can be removed completely from the lathe bed to give you more freedom of movement.

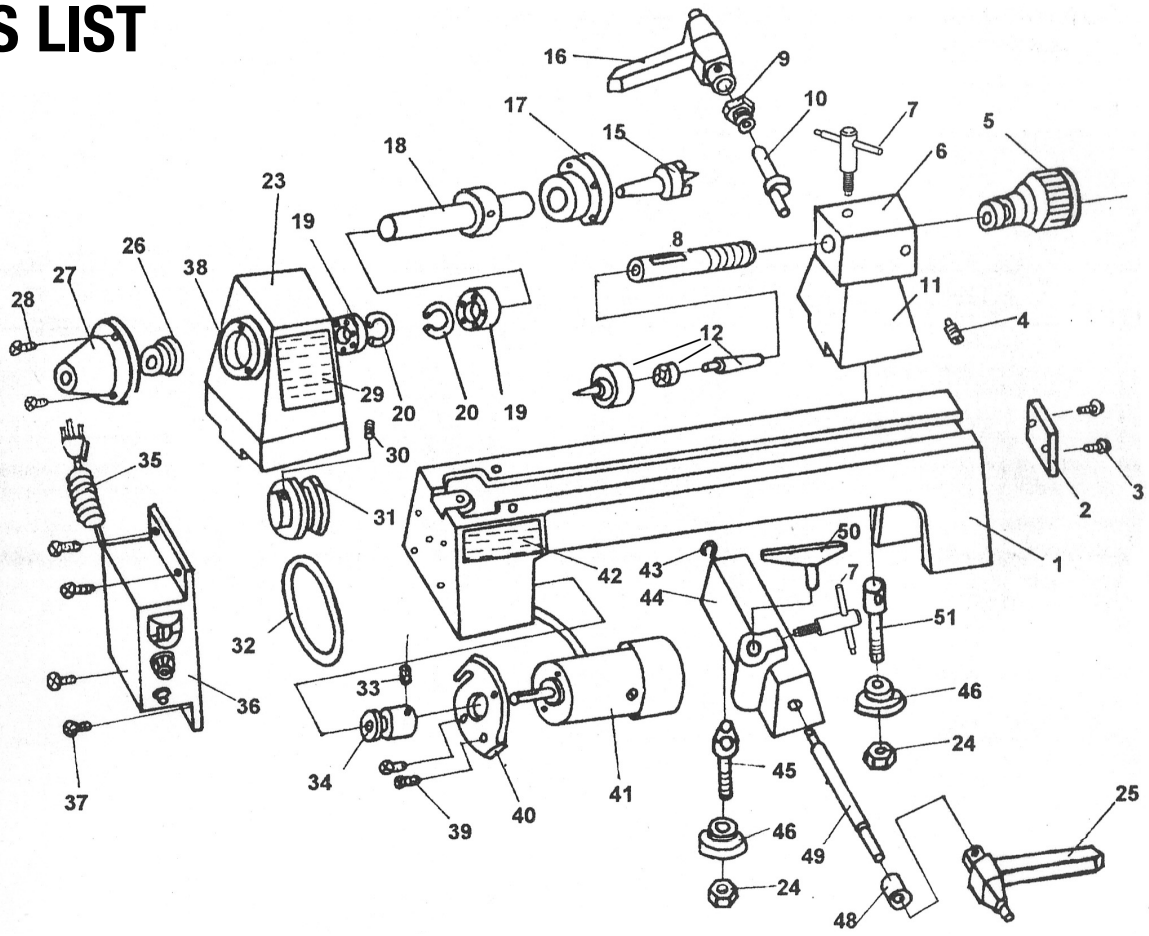
8. Direction of cuts for faceplate turning method…

ONE CHUCKING OPERATION

Waste block glued to base
of bowl blank.



PARTS LIST



No.	Part#	Description	Qty	No.	Part#	Description	Qty
1	ZTCL2-01	BED	1	27	ZTCL2-27	PLATE COVER	1
2	ZTCL2-02	RETAINING PLATE	1	28	ZTCL2-28	BOLT M4X8	3
3	ZTCL2-03	BOLT M5X8	2	29	ZTCL2-29	NAME PLATE (LABEL)	1
4	ZTCL2-04	BOLT M6X8	1	30	ZTCL2-30	BOLT M6X10	1
5	ZTCL2-05	HAND WHEEL	1	31	ZTCL2-31	DRIVE PULLEY	1
6	ZTCL2-06	TAILSTOCK	1	32	ZTCL2-32	BELT	1
7	ZTCL2-07	QUILL LOCK LEVER	2	33	ZTCL2-33	BOLT M6X10	1
8	ZTCL2-08	QUILL	1	34	ZTCL2-34	MOTOR PULLEY	1
9	ZTCL2-09	SLEEVE	1	35	ZTCL2-35	POWER CORD	1
10	ZTCL2-10	ECCENTRIC AXIS	1	36	ZTCL2-36	ADJUSTING BOX VARI. SPEED	1
11	ZTCL2-11	TAILSTOCK BASE	1	37	ZTCL2-37	BOLT M4X8	4
12	ZTCL2-LS	LIVE CENTER ASSEMBLY	1	38	ZTCL2-38	PLATE	1
13				39	ZTCL2-39	BOLT M5X6	3
14				40	ZTCL2-40	MOTOR PLATE	1
15	ZCML-48	HEADSTOCK SPUR CENTER	1	41	ZTCL2-41	MOTOR	1
16	ZTCL2-16	TAILSTOCK LOCK LEVER	1	42	ZTCL2-42	WARNING LABEL	1
17	CF2	FACE PLATE	1	43	ZTCL2-43	RETAINING RING C8	1
18	ZTCL2-18	HEADSTOCK SPINDLE	1	44	ZTCL2-44	TOOL REST BASE	1
19	ZTCL2-19	BALL BEARING 80104	2	45	ZTCL2-45	BOLT	1
20	ZTCL2-20	RETAINING RING C-40	2	46	ZTCL2-46	PLATE	2
21				47	ZTCL2-47	SPRING WASHER	3
22				48	ZTCL2-48	SLEEVE	3
23	ZTCL2-23	HEADSTOCK BASE	1	49	ZTCL2-49	ECCENTRIC ROD	1
24	ZTCL2-24	HEX NUT M8	2	50	ZTCL2-50	TOOL REST	1
25	ZTCL2-25	BASE LOCK LEVER	1	51	ZTCL2-51	BOLT	1
26	ZTCL2-26	HEADSTOCK QUILL NUT	1	52	ZTCL2-52	BOLT M8X20	1

OPTIONAL ACCESSORIES FOR Turncrafter Plus™

DUPLICATING SYSTEM

Duplicator attachment .....#CML-DUPT2
Optional 2 ended carbide cutter .....#CML-DUPX
Steel duplicator templates for a variety of projects.

HEADSTOCK ACCESSORIES (3/4"x16tpi)

3" Faceplate .....#CF3
2" Faceplate .....#CF2
1 -3/8" Mini expanding collet chuck .....#CXC & #CXCMT1
4 Jaw self-centering chuck .....#C4J
3 Jaw self-centering chuck .....#C3J
4 Jaw independent jaw chuck .....#C4X
3/8" Drill chuck- #1 MT mount .....#TM21
1/2" Drill chuck- #1 MT mount .....#TM31
Mini screw chuck .....#PK-TOP-M
1-3/16" cup chuck .....#CLC
5/16" Mini cup chuck – #1 MT mount .....#CSC
Chisel Mate .....#LCM5

OTHER ACCESSORIES

Dust collection hood .....#DLHOODC
Pen making mandrel- 3/4" x16 tpi .....#PKM-AL
Pen making mandrel- #1 MT .....#PKM-EL

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