



HEAVY-DUTY WOOD LATHE

CTW1060

Instruction Manual & Parts List

This manual has been prepared for the owner and operators of Model **CTW1060**. Its purpose, aside from machine operation, is to promote safety through the use of accepted correct operating and maintenance procedures. Completely read the safety and maintenance instructions before operating or servicing the machine. To obtain maximum life and efficiency from your wood lathe, and to aid in using the machine safely, read this manual thoroughly and follow instructions carefully.

WARNING

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

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15. Keep visitors a safe distance from the work area.
16. Use recommended accessories; improper accessories may be hazardous. 16. Read and understand warnings posted on the machine and in this manual.
17. Failure to comply with all of these warnings may cause serious injury.
18. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are: Lead from lead based paint, crystalline silica from bricks and cement and other masonry products, and arsenic and chromium from chemically-treated lumber.
19. Your risk from those exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specifically designed to filter out microscopic particles.
20. Do not operate tool while under the influence of drugs, alcohol or any medication.
21. Keep tools sharp and clean for safe and best performance. Dull tools can grab in the work and be jerked from the operator's hands causing serious injury.
22. Check the condition of the stock to be turned. Make sure it is free of knots, warpage, checked ends, improperly made or cured glue joints and other conditions which can cause it to be thrown out of the lathe.
23. Securely fasten spur/live centers to the material being used.
24. Check centers and center sockets in the headstock and tailstock to be sure they are free of dirt or rust and oil lightly before inserting centers.
25. Test each set-up by revolving the work by hand to insure it clears the tool rest and bed. Check setup at the lowest speed before increasing it to the operating speed.
26. Use the correct cutting tool for the operation to be performed and keep all tools in a sharpened condition.
27. Use low speeds for roughing and for long or large diameter work. If vibration occurs, stop the machine and correct the cause. See speed recommendations.

DIAMETER OF WORK	ROUGHING RPM	GENERAL CUTTING RPM	FINISHING RPM
Under 2"	1520	3200	3200
2 to 4"	760	1600	2480
4 to 6"	510	1080	1650
6 to 8"	380	810	1240
8 to 10"	300	650	1000
10 to 12"	255	540	830
12 to 14"	220	460	710
14 to 16"	190	400	620

28. When sanding, remove the tool rest from the machine, apply light pressure, and use a slow speed to avoid heat build up.

29. When turning large diameter pieces, such as bowls, always operate the lathe at low speeds. See speed recommendations.

30. Do not attempt to engage the spindle lock pin until the spindle has stopped. If leaving the machine area, turn it off and wait until the spindle stops before departing.

31. Make no adjustments except speed change with the spindle rotating and always disconnect machine from power source when performing maintenance to avoid accidental starting or electrical shock.

32. Provide for adequate surrounding work space and overhead non-glare lighting.

33. When stopping the lathe, never grab the part or face plate to slow it down. Let the work coast to a stop.

34. Use only FOX factory authorized replacement parts and accessories, otherwise the warranty and guarantee are null and void.

Grounding Instructions

Caution: This tool must be grounded while in use to protect the operator From electric shock.

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

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

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor, with insulation having an outer surface that is

green with or without yellow stripes, is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Use only three wire extension cords that have three-prong grounding plugs and three-pole receptacles that accept the tool's plug.

Repair or replace a damaged or worn cord immediately.

Introduction

The CTW1060 lathe you have purchased is a high quality tool that will give you years of superior service. You will get maximum performance and enjoyment from your new lathe if you would take a few moments now to review the entire manual before beginning assembly and operation.

Table of Contents

- Warnings- - - - - 1
- Grounding Instructions- - - - - 2
- Introduction- - - - - 3
- Table of Contents- - - - - 4
- Specifications - - - - - 5
- Contents of the Shipping- - - - - 6
- Container - - - - - 7
- Unpacking and Cleanup - - - - - 8
- Assembly - - - - - 9
- Controls and Features - - - - - 10
- Speed Change - - - - - 11
- Lathe Tools - - - - - 12
- Mounting Workpiece Between Centers- - - - - 13
- Stock Selection - - - - - 14
- Roughing Out - - - - - 15
- Coves, "V" Cuts, Parting and Beads- - - - - 16
- Sanding & Finishing - - - - - 17
- Face Plate or Bowl Turning - - - - - 18
- Mounting Stock - - - - - 19
- Face Plate or Chuck - - - - - 20
- Wood Selection - - - - - 21
- Checks and Cracks - - - - - 22
- Distortion - - - - - 23
- Tools for Bowl Turning - - - - - 24
- To Shape Outside of Bowl - - - - - 25
- To Shape Interior of Bowl - - - - - 26
- Sanding and Finishing - - - - - 27
- Changing the Belt and Bearings- - - - - 28
- Troubleshooting- - - - - 29
- Part Breakdowns and Part's List - - - - - 30

Specifications for Hm1642

Stock Number	CTW1060
Over Bed	400mm(16")
Swing Over Tool Rest Base	305mm(12")
Distance Between Centers	1092(42")
Speeds (RPM)	0~1200 & 0~3200
Spindle Nose	M33x3.5
Drive Spindle Through Hole	15mm(5/8")
Tailstock Spindle Through Hole	10mm(3/8")
Tailstock Spindle Travel	100mm(4")
Tool Rest	355(14")
Face Plate	152(6")
Headstock Rotation	360°
Headstock Taper	MT2
Tailstock Taper	MT2
Spindle Center to Floor (approx.)	1130mm(44-1/2")
Motor	1100W
Net Weight (approx.)	175KG
Shipping Weight (approx.)	200KG



The specifications in this manual are given as general information and are not binding. Fox Group reserves the right to effect, at any time and without prior notice, changes or alterations to parts, fittings, and accessory equipment deemed necessary for any reason whatsoever.

WARNING

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

Contents of the Shipping Containers

- 1. Lathe
- 1. Tailstock
- 1. Headstock
- 1. Tool Rest Body
- 1. Tool Basket
- 1. Guard Assembly
- 1. Accessory Package
- 1. Owner's Manual & Warranty Card

Accessory Package Box

- 1. Live Center
- 1. Rod for Live Center
- 1. Spur Center
- 1. Index Pin
- 1. Face Plate
- 1. Knockout Rod Headstock
- 1. Tool Rest
- 1. Tool Rest Extension
- 4. Adjustable Feet

Unpacking and Clean-Up

1. Remove the shipping container. Do not discard any shipping material until the lathe is set up and running properly.
2. Remove hex cap bolts from skid bottom and move the lathe off the skid and into position.
3. Clean all rust protected surfaces with a cleaner degreaser. Clean thoroughly under the headstock, tailstock and tool rest body.

Assembly

1. Secure tool rest (A, Fig. 1) to tool rest body (B, Fig. 1) by tightening handle (C, Fig. 1).
2. Slide the tailstock and tool rest to the headstock end of the lathe bed. See "Controls and Features" section of this manual on how to move the tailstock and tool rest.

3. Lift the tailstock end of the lathe up far enough to slide a few pieces of scrap wood under the leg, see Figure 2.

4. Thread adjustable feet (A, Fig. 2) into stand leg (B, Fig. 2). There is a flat spot on the shaft near the foot that will accommodate a wrench. Thread a hex nut (C, Fig. 2) onto shaft and leave loose for now.

5. Remove the scrap pieces of wood and slide the tailstock, tool rest and headstock down to the tailstock end of the lathe bed.

6. Mount the two adjustable feet in the same manner as above and move the headstock, tool rest and tailstock into their normal positions.

7. Adjust the feet so that the lathe rests evenly on the floor, and tighten the nuts.

Controls & Features

1. **Headstock Lock Handle:** (C, Fig. 3) Locks head in position. Unlock handle to position the head along lathe bed. Tighten handle when properly positioned.

2. **Headstock Indexing Pin:** (D, Fig. 3) Turn the knurled knob counter-clockwise to unlock the plunger. Pull the knob out to release the headstock. Unlock the headstock locking handle and rotate the headstock. Turn knurled knob clockwise until it stops to lock plunger.

3. **Headstock Spindle Lock:** (E, Fig. 3) Push pin in to keep the spindle from turning.

CAUTION! Never press the headstock spindle lock while the spindle is turning!

4. Headstock On/Off Button: (F, Fig.3) Pull the button out to turn "ON" the lathe. Push the button in to turn the lathe "OFF".

5. Headstock RPM Knob: (G, Fig. 3) Turn knob to desired RPM. There are two speed ranges offering "speed" (0-3200) and "torque" (0-1200).

6. Headstock For/Rev Switch: (H, Fig. 3) Use the toggle switch to change the direction the spindle turns.

Only change direction when the spindle has stopped.

General Diameter Rough Finishing Cutting of Work RPM RPM RPM Under
2" 1520 3200 3200 2 to 4" 760 1600 2480 4 to 6" 510 1080 1650 8 to 8" 380 810 1240 8
to 10" 300 650 1000 10 to 12" 255 540 830 12 to 14" 220 460 710 14 to
16" 190 400 620 FIG. 3 FIG. 4

7. Headstock RPM Readout: (I, Fig. 3) Displays the spindles RPM, see Figure 4.

8. Headstock Spur Center: (J, Fig. 3) Used for turning between centers. Spindle taper is MT-2. Remove spur center by inserting drift rod through the opposite end of the spindle and knocking spur center out.

9. Headstock Faceplate: (K, Fig. 3) Used for turning bowls and plates. There are a number of screw holes for mounting the work piece. Thread the faceplate onto the spindle in a clockwise direction, and tighten two set screws. Remove the faceplate by loosening two set screws. Push in headstock spindle lock and use the provided rod in faceplate holes to unthread the faceplate.

10. Headstock Indexing Hole: (L, Fig. 5) Thread indexing pin into the indexing hole making sure that it locates in the spindle hole. There are 12 holes in the spindle 30° apart. There are three holes in the headstock casting that accept the indexing pin. These holes are 20° apart. The combination of holes will allow you to mark your workpiece for evenly spaced features. CAUTION! Never start the lathe with the index pin engaged in the spindle!

11. Tool Rest Body Lock Handle: (M, Fig. 6) Locks the tool rest body in position. Unlock handle to position the tool rest in any location along lathe bed. Tighten handle when properly positioned.

12. Tool Rest Lock Handle: (N, Fig. 6) Locks the tool rest in position. Unlock the handle to position tool rest at a specific angle, or height. Tighten handle when properly positioned. NM FIG. 5 FIG. 6

13. Tailstock Lock Handle: (O, Fig. 7) Locks the tailstock in position. Unlock

handle to position the tool rest in any location along lathe bed. Tighten handle when properly positioned.

14. Tailstock Quill Lock Handle: (P, Fig. 7) Locks the tailstock quill in position. Unlock handle to position the quill. Tighten handle when properly positioned.

15. Tailstock Quill Handwheel: (Q, Fig. 7) Turn the handwheel to position the quill. The tailstock quill lock handle must be loose to position quill.

16. Tailstock Live Center: (R, Fig. 7) Used for turning between centers. Quill taper is MT-2. Remove live center by retracting the quill until live center loosens. Remove, or add different tips to the live center by inserting the provided rod through the holes in the center's shaft. Unscrew the tip and change as needed.

FIG .7 FIG.8

Speed Change

1. Disconnect the machine from the power source!

2. Loosen the locking Screw (A, Fig. 8).3. Lift up on the tensioning handle (B, Fig. 8) to remove tension from the poly v-belt. You can now position the belt in the desired speed range. It is pictured in the low speed pulley range.

Note: The "High" speed range (0-3200) provides maximum speed, where as the "Low" speed range (0-1200) will provide maximum torque.

4. Lower the tensioning handle so that the weight of the motor provides the needed tension and tighten the locking handle.

AC Inverter does not require any programming. It is pre-programmed from the factory. The buttons and knob on the face of inverter should not be changed. Use only controls on the front of headstock. Refer to Inverter manual.

Lathe Tools

If possible, select only high quality, high speed steel turning tools with long handles. As one becomes proficient in turning, a variety of specialty tools for specific applications can be acquired. The following tools provide the basics for most woodturning projects.

Roughing Gouge - used for rapidly cut raw wood into round stock, see Figure 9.

Deep Fluted Bowl Gouge - used for turning bowls and plates, see Figure 9.

Spindle Gouge - used for turning beads, coves and other details, see Figure 9.

Spear - fine scraping and delicate operations, such as the forming of beads, parallel grooves and shallow vees, etc, see Figure 9.

Skew - used to make vees, beads, etc., see Figure 9.

Square Scraper - used for diameter scraping and featureless scraping, etc, see

Figure 9.

Large Domed Scraper - used to reduce ridges on the interior of bowls, round edges of bowls, etc, see Figure 9.

Parting Tool - used to cut directly into the material, or to make a cut off. Also used for scraping and to set diameters, see Figure 9.

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.

Mounting Work piece Between Centers

Spindle turning takes place between the centers of the lathe. It requires a spur center in the headstock and a live center in the tailstock.

1. With a ruler locate and mark the center on each end by going corner to corner, see Figure 10. Accuracy is not critical on full rounds but extremely important on stock where square sections are to remain. Put a dimple in each end of the stock with an awl, or nail.
2. Extremely hard woods may require kerfs cut into the spur drive end of stock, see Figure 10. You may need to drive the spur center into the stock with a wood mallet. Note: Never drive stock onto spur while it is mounted in the lathe spindle.
3. Install workpiece by inserting the attached spur center into the spindle taper on the headstock.
4. Bring tailstock into position, lock it to the bed, and advance quill with the handwheel in order to seat the live center into the workpiece. Lock the quill in place. Make sure the live center point is centered on your mark.
5. Move tool rest into position. It should be parallel to workpiece, approximately at the centerline, and approximately 1/8" from the closest part of the workpiece. Lock tool rest body and tool rest in place.
6. Rotate workpiece by hand to check for proper clearance from tool rest. Note: You may want to trim off the corners of a square workpiece to make turning a little easier, see Figure 11.
7. Start lathe at lowest speed and bring it up to the appropriate RPM for the size of stock, see Figure 4 page 8.

The position of the tool rest can be varied to suit the work and operator. After you become experienced with setting the tool rest changing the position will become second nature for the workpiece and comfort of the user.

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 to remove ends if required. Larger stock should have the corners removed to produce an octagon making the piece easier to rough down to a cylinder, see Figure 14.

FIG.11FIG.12

Roughing Out

1. Use a large roughing gouge and begin cutting about 2" from the tailstock end of the workpiece. Place the tool on tool rest with heel of the tool on surface to be cut.
2. Slowly and gently raise tool handle until cutting edge comes into contact with the workpiece. Work to the right towards the end of the workpiece. You never want to start at the end of a workpiece.
3. Now continue to work the rest of the workpiece. Roll the flute (hollowed-out portion) of the tool in the direction of the cut, see Figure 12. Make long sweeping cuts in a continuous motion to rough the piece down to a cylinder. Keep as much of the bevel of tool as possible in contact with 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 workpiece, never start cutting at the end.
4. Once the workpiece is roughed down to a cylinder, smooth it with a large skew. Place the cutting point near the center of the chisel and high on the workpiece, see Figure 13. Touching one of the points of the skew to the spinning workpiece may cause a catch and ruin the workpiece.

FIG.13 FIG.14

5. Add details to the workpiece with skew, spindle gouge, etc.

Coves

1. Use a spindle gouge. With the flute of the tool at 90 degrees to workpiece, touch the center of the cutting edge to the workpiece and roll in towards the bottom of the cove. Stop at the bottom; attempting to go up the opposite side may cause the tool to catch.
2. Move tool over the desired width of cove.
3. With the flute facing the opposite direction, repeat step 1 for other side of cove. Stop at bottom of cut, see Figure 15.

FIG.15FIG.16

"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 skew to the right half of the desired width of your cut, see Figure 16.
4. With the bevel parallel to the right side of the cut, raise the handle and push the tool in to the desired depth.
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

1. Place parting tool on tool rest and raise the handle until it starts to cut and continue to cut to the desired depth.
2. If the cut is deep a clearance cut should be made along side the first cut to prevent the tool tip from burning.

Beads

1. Place parting tool on tool rest and move tool forward to make the full bevel of tool come in contact with workpiece. Gently raise handle to make cut to 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.

Sanding & Finishing

Leaving clean cuts will reduce the amount of sanding required. Adjust lathe to a finishing 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. Fold the sandpaper into a pad; do not wrap sandpaper around your fingers or the workpiece.

To apply a finish, the workpiece can be left on the lathe. Turn off lathe and use a brush, or cloth to apply the finish. Remove excess finish before restarting lathe. Allow to dry and sand again with 320, or 400 grit sandpaper. Apply additional coats of finish and buff.

Face Plate & Bowl Turning

Face plate turning is normally done on the inboard side of the headstock over the bed, see Figure 17. You must move headstock to the end of the lathe bed for larger workpieces.

FIG.17 FIG.18

Mounting Stock

Use of a face plate is the most common method for holding a block of wood for turning bowls, and plates, see Figure 18.

1. Select stock at least 1/8" to 1/4" larger than the dimension on the desired finished workpiece.
2. True one surface of workpiece for mounting against the face plate. It is best to leave extra stock against the face plate that can be cut off when the workpiece is finished.
3. Using the face plate as a template, mark the location of the mounting holes, and drill pilot holes of the appropriate size. If the mounting screws on the face plate interfere with the workpiece, a waste block can be mounted to the face plate and then the waste block mounted to the workpiece by gluing or screwing, see Figure 18.
4. Both waste block and workpiece should have good flat surfaces.
5. Push in the spindle lock and thread face plate and workpiece onto spindle. Tighten set screws in face plate when secure.

Face Plate or Chuck

While faceplates are the simplest, most reliable method of holding a block of wood for turning, chucks can also be used. 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.

Wood Selection

Firewood is the cheapest, most widely available stock to use while learning to turn bowls. Develop skill centering the workpiece when the faceplate is attached.

Note: If you plan to use a chuck, turn a tenon of appropriate length and diameter to fit your chuck.

10. Stop the lathe, remove workpiece and attach face plate, or chuck.
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.

WORKPIECE APPROX. 1 TENON WITH THE SAME DIAMETER AS FACE PLATE

FIG.19 FIG.20

To Shape Interior of Bowl

1. Stop lathe and move tailstock away. Remove center from tailstock to prevent bumping it with elbow.

Troubleshooting

Problem	Possible Cause	Solution
Excessive Vibration.	<ol style="list-style-type: none"> 1. Workpiece warped, out of round, has major flaw, or was improperly prepared for turning 2. Worn spindle bearings 3. Worn belt 4. Motor mount bolt or handle lose 5. Lathe on uneven surface 	<ol style="list-style-type: none"> 1. Correct problem by planing, bandsawing, or scrap workpiece all together 2. Replace bearings 3. Replace belt 4. Tighten bolt or handle 5. Shim lathe bed, or adjust feet on stand
Motor or Spindle Stalls or Will not Start	<ol style="list-style-type: none"> 1. Excessive cut 2. Worn motor 3. Broken belt 4. Worn spindle bearings 5. Improper cooling on motor 	<ol style="list-style-type: none"> 1. Reduce cut depth 2. Replace motor 3. Replace belt 4. Replace bearings 5. Clean sawdust from motor fan
Motor fails to develop full power	<ol style="list-style-type: none"> 1. Power line overloaded 2. Undersize wires in supply system 3. Low voltage 4. Worn motor 	<ol style="list-style-type: none"> 1. Correct overload condition 2. Increase supply wire size 3. Request voltage check from power company and correct low voltage condition
Tools tend to grab or dig in.	<ol style="list-style-type: none"> 1. Dull tools 2. Tool support set too low 3. Tool support set too far from workpiece 4. Improper tool being used 	<ol style="list-style-type: none"> 1. Sharpen tools 2. Reposition tool support height 3. Reposition tool support closer to workpiece 4. Use correct tool for operation
Tailstock Moves When Applying Pressure	<ol style="list-style-type: none"> 1. Excessive pressure being applied by tailstock. Note: The screw action of the tailstock is capable of applying excessive pressure to workpiece and headstock. Apply only sufficient force by tailstock to hold workpiece securely in place. Excessive pressure can cause damage to machine. 2. Lathe bed and tailstock mating surfaces are greasy or oily. 	<ol style="list-style-type: none"> 1. Slide tailstock down to the right side of the lathe against the stop. Move headstock into position and apply pressure to workpiece with tailstock. 2. Remove and clean surfaces with a cleaner degreaser
Digital readout does not work	<ol style="list-style-type: none"> 1. Digital readout sensor out of position 	<ol style="list-style-type: none"> 1. Open the belt access and position the sensor so that it reads the bolts

