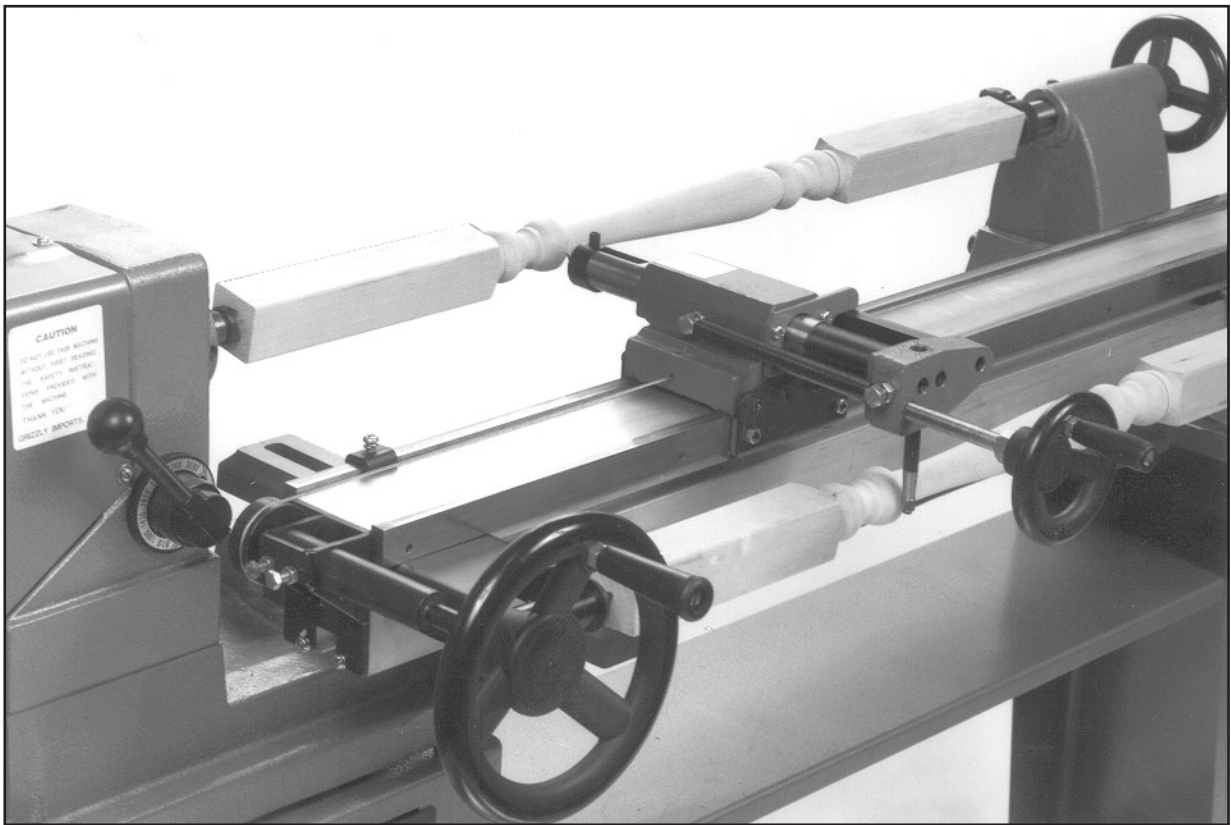


Grizzly *Industrial, Inc.*®

WOOD LATHE COPY ATTACHMENT MODEL G2891 INSTRUCTION MANUAL



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OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
PRINTED IN TAIWAN

 **WARNING!**

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

Failure to read, understand and follow the instructions given in this manual may result in serious personal injury, including amputation, electrocution or death.

The owner of this machine/equipment is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, blade/cutter integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

 **WARNING!**

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these 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 specially designed to filter out microscopic particles.

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SECTION 1: SAFETY

WARNING

For Your Own Safety Read Instruction Manual Before Operating This Equipment

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.



Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.



This symbol is used to alert the user to useful information about proper operation of the equipment.

WARNING

Safety Instructions For Power Tools

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning on.
3. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
4. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or where any flammable or noxious fumes may exist. Keep work area well lighted.
5. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
6. **MAKE WORK SHOP CHILD PROOF** with padlocks, master switches, or by removing starter keys.
7. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

WARNING

Safety Instructions For Power Tools

- 9. USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Conductor size should be in accordance with the chart below. The amperage rating should be listed on the motor or tool nameplate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.

Minimum Gauge for Extension Cords

AMP RATING	LENGTH		
	25ft	50ft	100ft
0-6	18	16	16
7-10	18	16	14
11-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No

- 10. WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- 11. ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
- 12. SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
- 13. DON'T OVERREACH.** Keep proper footing and balance at all times.
- 14. MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 15. DISCONNECT TOOLS** before servicing and changing accessories, such as blades, bits, cutters, and the like.
- 16. REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.
- 17. USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury.
- 18. CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- 19. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.

WARNING

Additional Safety Instructions For The G2891

1. Before turning your lathe on, ensure that the cutting tool is well away from the turning square. Ensure that the turning square will rotate freely.
2. Make sure the workpiece and the template or master spindle are securely mounted.
3. Always start the lathe at its slowest speed.
4. Maintain minimal play in the guide cable and carriage.
5. To prevent excessive vibration, don't force the cutting tool or take too big a cut in one pass. Recommended maximum cut is $\frac{1}{16}$ "
6. Make sure cable path is unobstructed at all times.
7. Before any copying operation, ensure that the headstock and tailstock of your lathe are centered on the same axis.
8. While working, position yourself so you are within easy reach of all lathe and Copy Attachment controls.
9. Keep base lubricated to ensure smooth carriage movement during copying. **DO NOT** lubricate the cable, it is friction operated.
10. Do not make any adjustments to the lathe or copy attachment while the lathe is operating. If adjustments are necessary, turn the lathe off, unplug the power cord and wait for the moving parts to stop.
11. Habits - good and bad - are hard to break. Develop good habits and safety will become second-nature.

WARNING

Like all power tools, there is danger associated with the Model G2891 Lathe Copy Attachment. Accidents are frequently caused by lack of familiarity or failure to pay attention to the tool or your work. Use this tool with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored serious personal injury may occur.

WARNING

This equipment has the potential to propel debris into the air which can cause eye injury. Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses only have impact resistant lenses, they are not safety glasses. Be sure your safety glasses meet American National Standards Institute (ANSI) standards.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Failure to do so could result in serious personal injury, damage to equipment or poor work results.

SECTION 2: INTRODUCTION

Commentary

Grizzly Industrial, Inc. is proud to offer the Model G2891 Wood Lathe Copy Attachment. The G2891 is part of Grizzly's growing family of fine woodworking and metalworking machinery. When used according to the guidelines stated in this manual, you can expect years of trouble-free, enjoyable operation.

The Model G2891 is a wood lathe duplicator capable of mass-producing many shapes of the same design. The G2891 comes complete with mounting hardware and cutting tool.

We are also pleased to provide this manual with the Model G2891. It was written to guide you through assembly, review safety considerations, and cover general operating procedures. It represents our effort to produce the best documentation possible. If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
c/o Technical Documentation
P.O. Box 2069
Bellingham, WA 98227-2069

Most importantly, we stand behind our machines. If you have any service questions or parts requests, please call or write us at the location listed below.

Grizzly Industrial, Inc.
2406 Reach Road
Williamsport, PA 17701
Phone: (570) 326-3806
Fax: (800) 438-5901

E-Mail: techsupport@grizzlyindustrial.com
Web Site: <http://www.grizzlyindustrial.com>

The specifications, drawings, and photographs illustrated in this manual represent the Model G2891 as supplied when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, we urge you to insert the new information with the old and keep it for reference.

CAUTION

To operate this, or any power tool, safely and efficiently, it is essential to become as familiar with its characteristics as possible. The time you invest before you begin to use your Model G2891 will be time well spent. DO NOT operate this machine until you are completely familiar with the contents of this manual. Make sure you read and understand all of the safety procedures. If you do not understand something, DO NOT operate the machine.



Unpacking

This *Wood Lathe Copy Attachment* is shipped from the manufacturer in a carefully packed carton. If you discover the machine is damaged after you've signed for delivery, and the truck and driver are gone, you will need to file a freight claim with the carrier. Save the containers and all packing materials for possible inspection by the carrier or its agent. Without the packing materials, filing a freight claim can be difficult. *If you need assistance determining whether you need to file a freight claim, or with the procedure to file one, please contact our Customer Service.*

When you are completely satisfied with the condition of your shipment, you should inventory its parts.



Parts Inventory

After all the parts have been removed from the carton, you should have:

- Main Attachment Body
- Large Handwheel
- Hardware Box
 - $\frac{5}{8}$ "-11 x 2 $\frac{1}{2}$ " Socket Head Cap Screw 2
 - Threaded, Square Mounting Plate 2
 - Bed Brackets 2
 - Handwheel Handle 1
 - Cutting Tool 1
 - Unthreaded, Rectangular Mounting Plate 2
 - Allen® Wrench 4mm 1
 - Allen® Wrench 5mm 1
 - Allen® Wrench 14mm 1
 - M8-1.25 x 60mm Hex Bolt & Clamp Plate 2
 - M8-1.25 Hex Nut 2
 - $\frac{3}{8}$ " Flat Washer 2
 - $\frac{3}{8}$ " Lock Washer 2

In the event that any non-proprietary parts are missing (e.g. a nut or a washer), we would be glad to replace them, or, for the sake of expediency, replacements can be obtained at your local hardware store.

NOTICE

A full parts list and breakdown can be found toward the end of this manual. For easier assembly, or to identify missing parts, please refer to the detailed illustrations at the end of the manual.



Site Considerations

Notes

FLOOR LOAD

Your G2891, when mounted to your wood lathe, represents a large weight load in a small footprint. Be sure that the floor in your work area is adequately reinforced to support the weight of the lathe and copy attachment.

WORKING CLEARANCES

Working clearances can be thought of as the distances between machines and obstacles that allow safe operation of every machine without limitation. Ensure that your working area offers plenty of room for free movement and a substantial amount of distance between you and others that may be working in your shop space.

LIGHTING AND OUTLETS

Lighting should be bright enough to eliminate shadows and prevent eye strain. Electrical circuits should be dedicated or large enough to handle combined motor amp loads of the lathe and other machinery connected to that circuit. Outlets should be located near each machine so power or extension cords are not obstructing high-traffic areas. Be sure to observe local electrical codes for proper installation of new lighting, outlets, or circuits.

CAUTION

Make your shop “child safe”. Ensure that your workplace is inaccessible to youngsters by closing and locking all entrances when you are away. Never allow visitors in your shop when assembling, adjusting or operating equipment.



SECTION 3: ASSEMBLY

Overview

NOTICE

All assembly and adjustment instructions assume that your lathe is axially aligned, i.e., the headstock and tailstock are centered on the same axis. Consult your lathe owner's manual for proper procedure.

Most of your Copy Attachment has been assembled at the factory. However, you will need to attach the handle to the carriage handwheel, mount the longitudinal-feed handwheel and cutting tool and mount the main assembly to your lathe.

The illustration below indicates the features and controls included with the Model G2891. Assembly, adjustments, operation and maintenance procedures will all be more successful after you develop an understanding of the copy attachment's construction and functions.

CAUTION

Some metal parts may have sharp edges (called "flashing") on them after they are formed. Please examine the edges of all parts before handling them. Failure to do so could result in skin laceration.

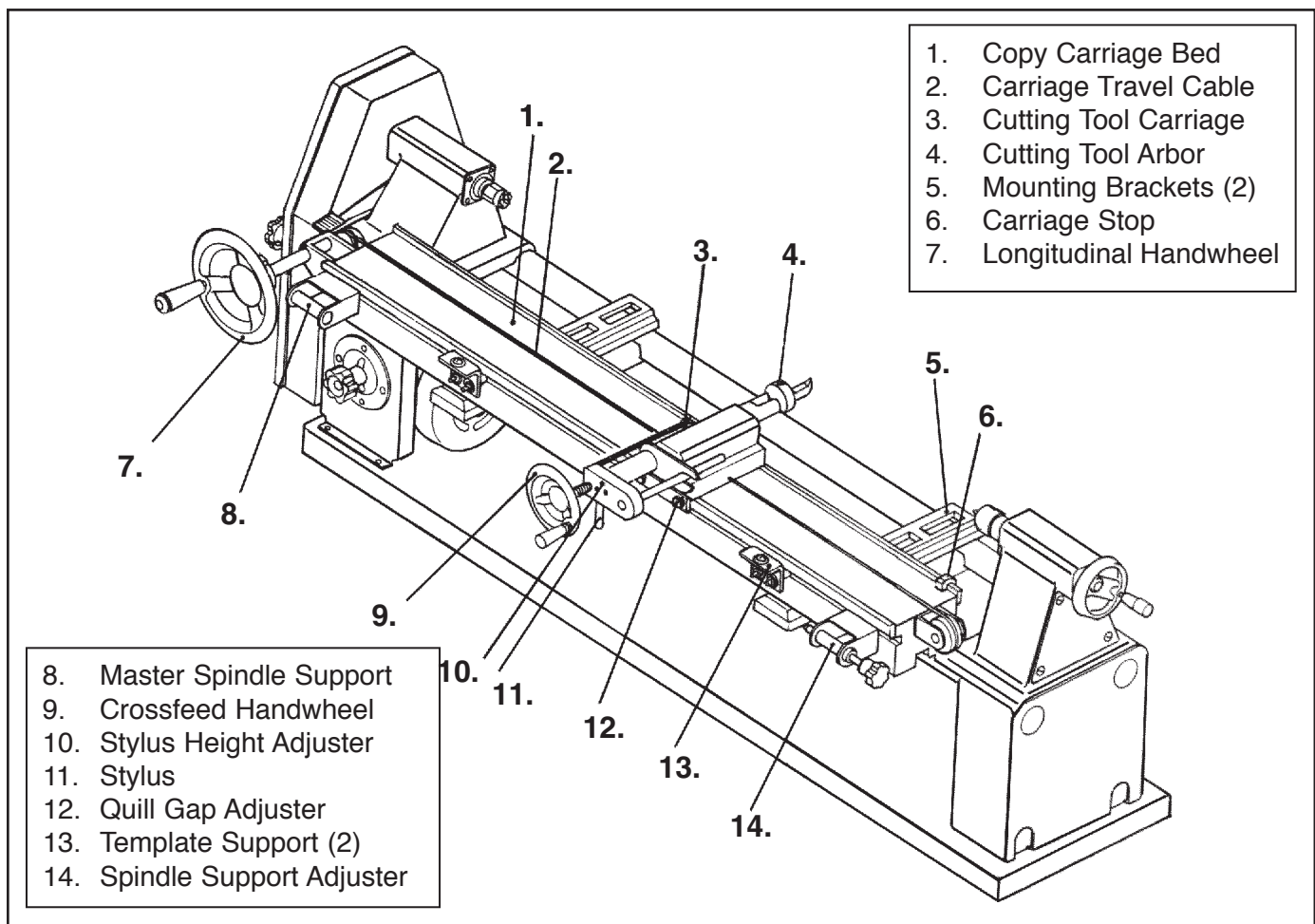


Figure 1. Wood Lathe Copy Attachment features and controls.

Mounting

The Model G2891 mounts easily on Grizzly Lathe Models G1067Z and G1495. It will also mount on most other lathes having a bed size of at least 40". Two mounting brackets attach the bed of the Model G2891 securely to the bed of the lathe. The mounting process is as follows:

1. Mount the two bed brackets perpendicular to the lathe bed with the large cap screws and the square threaded mounting plates provided. The heads of the cap screws should be on top of the brackets and the mounting plates should be below the bed.

To provide a solid base for the Copy Attachment base, the mounting brackets should be centered on points measuring 20% of the distance across the bed from the headstock and tailstock. **See Figure 2.** On a lathe with a 40" bed, brackets will be centered approximately 8" from the headstock and tailstock. Some minor degree of variation may be necessary to eliminate any interference between the Copy Attachment and the normal operation of the lathe.

The front of the brackets should cantilever over the front of the lathe bed by about 6". Just finger-tighten the cap screws for now.

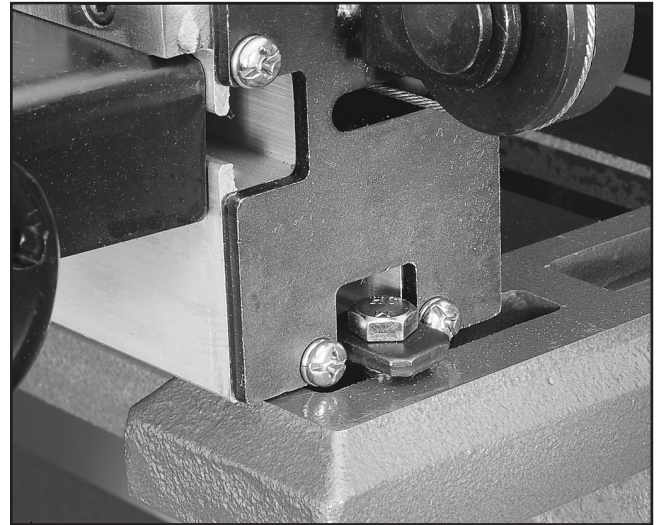


Figure 3. Sliding attachment onto bolts.

2. Slide the two hex head bolts with clamping plates attached into the channel located along the bottom of the Copy Attachment main body. **See Figure 3.** Place the Copy Attachment onto the bed brackets installed in Step 1, dropping the hex bolts through the bed bracket slots at the front of the lathe. Center the attachment body with the lathe bed and slip the packing block, flat washers, spring washers and nuts provided over the hex bolts and just finger-tighten.

Make certain the Copy Attachment does not block access to any of the lathe controls. Some lateral adjustment can be done to assure clearance if necessary.

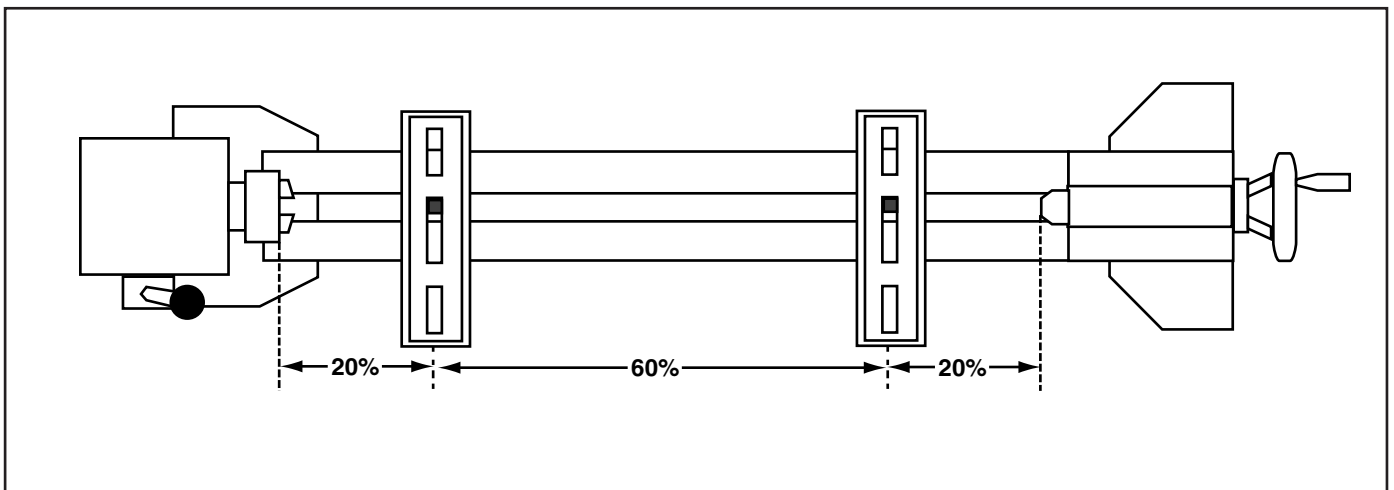


Figure 2. Attachment locations for left and right bed attachment brackets.



Rough Alignment

Once the Copy Attachment Bed is attached to the mounting brackets, the following procedures will allow you to begin the very important process of aligning the parallelism between the centers of the lathe and those of the centers which will hold your template or original profile.

1. To roughly align the Copy Attachment with the lathe headstock/tailstock axis two gauge boards will be needed. The gauge boards should be approximately 1- 1/8" thick, 12" long and 3" wide. Clamp these gauge boards onto the lathe bed, one under the headstock, the other under the tailstock.
2. Place a machinist's square on top of the wood and measure 6" toward the Copy Attachment bed. **See Figure 4.** Place a precise mark across the width of the wood. Repeat the process with another piece of wood at the headstock.

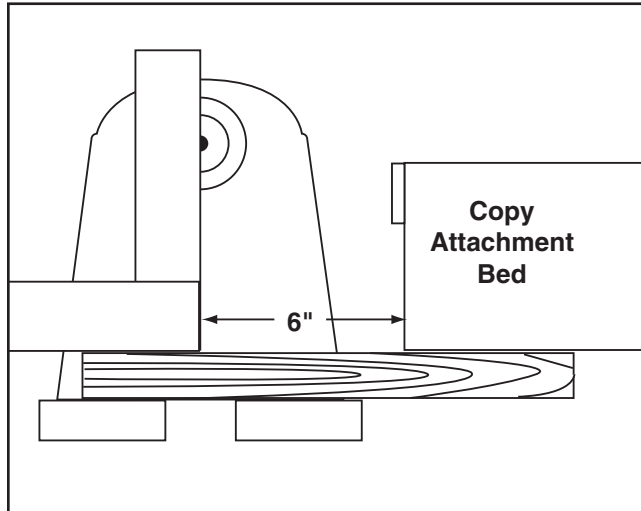


Figure 4. Use of gauge boards for alignment.

3. Once both gauges are marked, slide the Copy Attachment bed over the board until the leading edge is even with the marks on both the left and right sides.

4. Tighten the large cap screws securing the mounting brackets to the lathe bed with the large Allen® wrench provided. Then tighten the hex nuts securing the Copy Attachment Bed to the mounting brackets.
5. Once the brackets and bed are securely attached, remove the gauge boards.
6. Install the longitudinal-feed handwheel. This is the larger of the two handwheels. It mounts on the shaft at the left hand end of the Copy Attachment Bed. Secure the wheel with the setscrew included.
7. Attach the crossfeed handwheel handle to the smaller wheel on the the sliding carriage.
8. Install the cutting tool into the arbor and tighten the collar set screw. **See Figure 5.**



Figure 5. Securing cutting tool.

! CAUTION

Use caution when handling the Copy Attachment's cutting tool. Its sharp edges could cause skin lacerations if handled improperly.



Final Alignment

Final alignment of the lathe axis and the copier axis must be precise to ensure that they are both parallel. Before executing the following steps, mount a turning square between the centers of your lathe.

The turning square should be as long as the maximum center-to-center distance of your lathe to ensure the greatest degree of accuracy. It is critical that the turning blank is perfectly centered and as near-perfectly straight as possible.

1. Move the carriage to one end of the Copy Attachment and crank the cross-feed hand-wheel until the cutting tool nearly touches the side of the blank. **See Figure 6.**

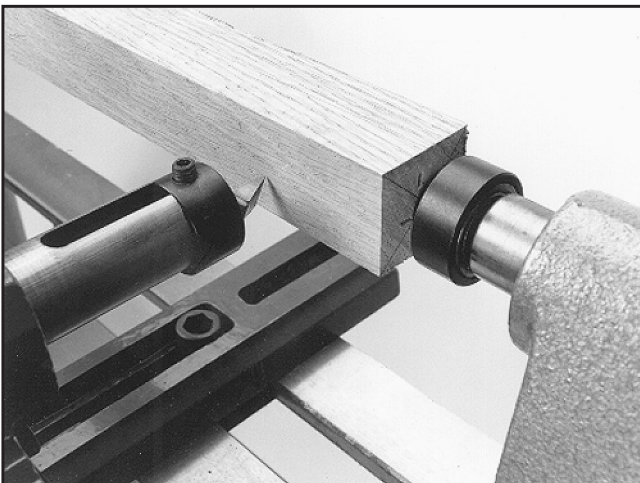


Figure 6. Aligning lathe to copy attachment.

2. Without changing the position of the turning blank, slowly turn the longitudinal feed handwheel to move the carriage toward the opposite end of the lathe. Use a feeler gauge or another precision spacer when starting out to ensure consistent distance between the cutter and the turning square. **See Figure 7.**
3. If the cutter does not maintain a consistent distance from the turning square at both ends of the cutter's longitudinal movement, or along its length, you may have to loosen the bed from its mounting brackets and

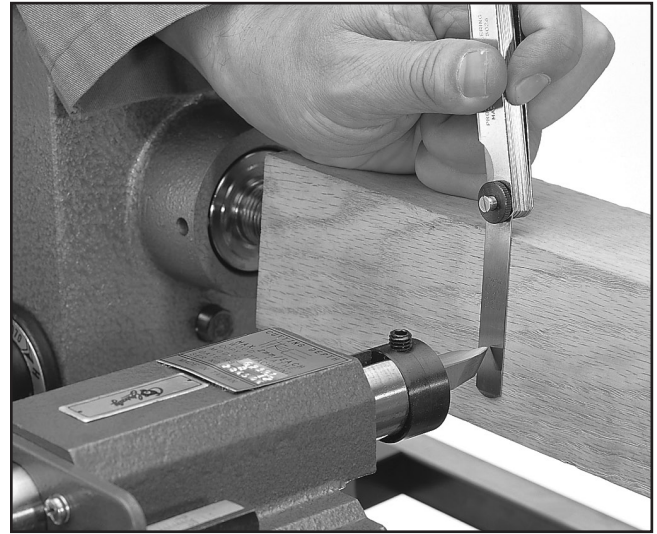


Figure 7. Using precision spacer.

very carefully adjust the bed until the cutter is equal distant from the turning square at both ends of its longitudinal movement.

4. Continue to test the cutter against the turning square until it is evenly spaced in relation to the turning square along its entire length.
5. Once adjustments are complete, ensure that all mounting bolts are securely tightened.

⚠ WARNING

Avoid wearing loose-fitting clothing, jewelry, or other personal items that could be caught in moving parts of the machinery while adjusting or operating this machine. Serious personal injury could result if this warning is ignored.

NOTICE

If the carriage is difficult or impossible to move along the bed, see Gib Adjustment in next section.



SECTION 4: ADJUSTMENTS

Cable Tension

The movement of the carriage assembly along the body of the Copy Attachment is controlled by the movement of the Longitudinal-Feed Handwheel. This Handwheel is connected to the carriage via a cable. This cable should be taut to ensure responsive movement of the carriage.

The cable can be tightened by loosening the bolt at the control rod. **See Figure 8.** The cable should then be pulled snugly, but not so tight that stress is placed on the cable. Once snug, re-tighten the bolt to secure the cable.



Figure 8. Adjusting carriage cable tension.



Gib Adjustment

The carriage slides along the Copy Attachment bed on brass strips called gibs. These gibs are the means by which you adjust the amount of friction or play between the carriage and the bed.

The goal of gib adjustment is to provide as little play as possible between the carriage and the bed while still allowing free movement of the carriage.

There are eight adjustment locations: 2 on the front of the carriage, 2 on the back and 4 underneath.

To adjust the gibs:

1. Loosen the lock nut(s) and and loosen or tighten the setscrews with the 3mm Allen® wrench.
2. Slide the carriage back and forth to test for binding and re-adjust until the carriage travels smoothly, without binding or excess wobble.
3. When adjustments are complete, tighten the lock nuts while maintaining the set-screw position with the Allen® wrench. **See Figure 9.** Re-test after tightening.

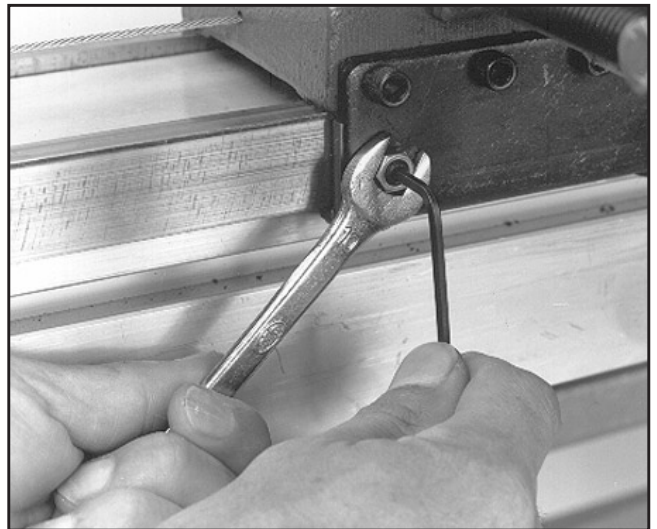


Figure 9. Adjusting the gib tightness.



Cutting Tool

The cutting tool can be positioned closer or farther away from the workpiece by loosening the setscrew at the top of the cutting tool collar. Use an 8mm Allen® wrench to make collar adjustments. To install or replace the cutting tool:

1. Loosen the setscrew on the cutting tool collar.
2. Insert the cutting tool with the triangular cutting edge up. **See Figure 10.**
3. Tighten the setscrew.

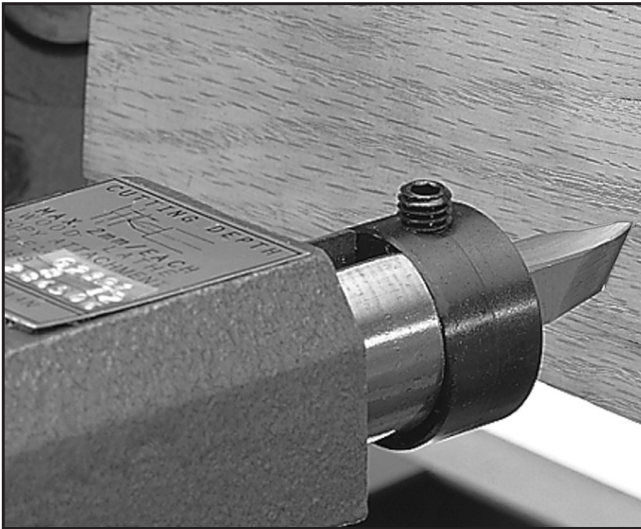


Figure 10. Cutting tool and setscrew.



Copy Stylus

To ensure the greatest level of precision while copying from a template or a master profile, it is essential that the Copy Stylus is properly positioned at the underside of the travelling carriage. When adjusting the stylus, keep in mind that its follower edge should be centered on the template or master profile, so the narrowest point fits securely within the profile. To adjust the stylus:

1. Center your master profile on the copy centers, or attach your profile template to the attachment brackets included on the front of the Copy Attachment body. Insert the stylus so the rounded edge of the follower contacts the master. **See Figure 11.**
2. Be sure that your template or master profile is perfectly parallel to the Copy Attachment bed by repeating the procedures used to check alignment between the lathe centers and the Copy Attachment. This time, move the stylus from one end of the template or master profile to the other by turning the longitudinal handwheel. The cross-slide handwheel will allow you to adjust the location of the stylus, so you can find points on either end of the profile which will allow you to ensure proper alignment. Adjust the stylus height until the follower edge is centered on the template or profile. Tighten the setscrew to secure the stylus.



Figure 11. Stylus follower edge.

SECTION 5: Operations

Overview

This Copy Attachment will produce any number of duplicate spindles from one master profile or template. The advantages provided by this accessory for your wood lathe are readily apparent, in terms of consistency and labor savings.

While the Copy Attachment provides a substantial aid in recreating spindle profiles, keep in mind that it is designed primarily for rough spindle shaping. Its capacity for detail is limited by the cutter and stylus. Final detailed turning will be best accommodated with the use of hand-guided, precision turning chisels.

To minimize the need for extensive hand work, we recommend you create profiles with graceful tapers and beads whenever possible.



Important Points

Because small-diameter master spindles have the potential to bend or bow slightly when the stylus makes contact, we recommend using a template made from $\frac{1}{4}$ " to $\frac{3}{8}$ " plywood or some other stable material. The master spindle profile can be transferred to the template and carefully cut out. The template can then be attached to the mounting brackets located on the front side of the Copy Attachment body. See "Stylus Adjustment" in the Adjustment Section for details on proper template alignment.

The following are some other important points to consider when using your Copy Attachment:

- To reduce whip and vibration of relatively narrow copy spindles, we recommend operating the longitudinal handwheel with your left hand and backing up the spinning workpiece with your right. DO NOT attempt to grip the workpiece too tightly while it is turning.
- If the cut you are producing is too rough, try increasing the rotation speed of your lathe (not to exceed the maximum recommended speed for the size of material you are turning) and take a lighter cut. See your lathe's instruction manual for recommended speeds.
- As with any other surfacing operation, we recommend taking multiple passes, rather than trying to remove too much wood all at once. This is much safer and will also result in improved cutting results.
- When making copies, always move the stylus so it follows the template or master profile "downhill". Trying to move the stylus "uphill" along the template will cause the stylus and cutter to dig into the template and workpiece. **See Figure 12** for recommended direction of cuts.
- To avoid unnecessary waste of expensive premium materials, we strongly recommend you turn a test piece before attempting duplication on your finish material. Make adjustments as required.
- You can save time during duplication by removing the corners from all of the spindles you plan on creating before activating the Copy Attachment. You will need to make the cuts with a lathe chisel on your tool rest, prior to installing the Copy Attachment.



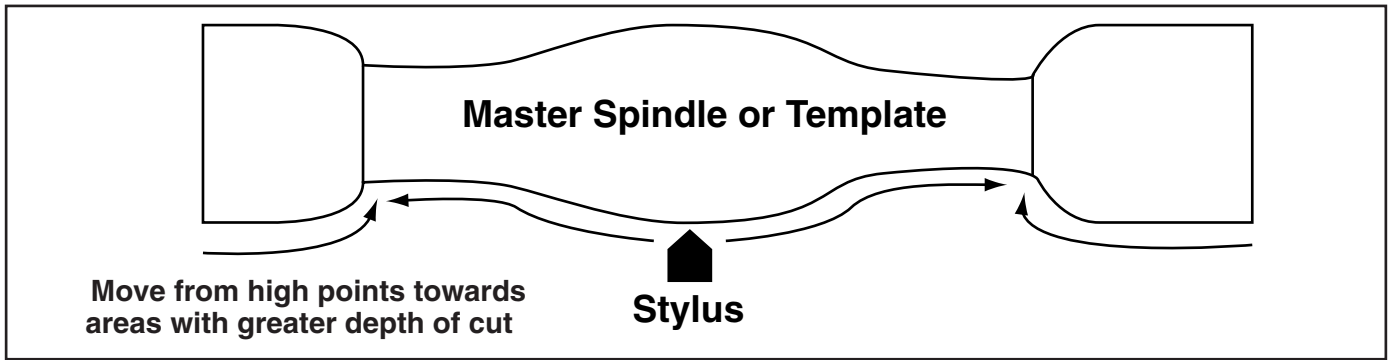


Figure 12. Recommended direction of stylus travel.

Basic Operation

To make a copy of an existing spindle or template:

1. To make identical copies from a master spindle it is necessary to first make certain the cutting tool and the follower stylus are aligned with their respective centerlines. **See Figure 13.** This can be done most easily by mounting turning squares with identical dimensions on the lathe centers and on the Copy Attachment centers. Move the follower stylus so it just touches the square. Adjust the cutting tool in or out of the holder so it also just touches the square. Remove the turning squares.
2. Mount the workpiece between the lathe centers.
3. Move the carriage with the longitudinal handwheel until the tip of the cutter is precisely located at the point on the workpiece where you want the turning action to begin. **See Figure 12.**

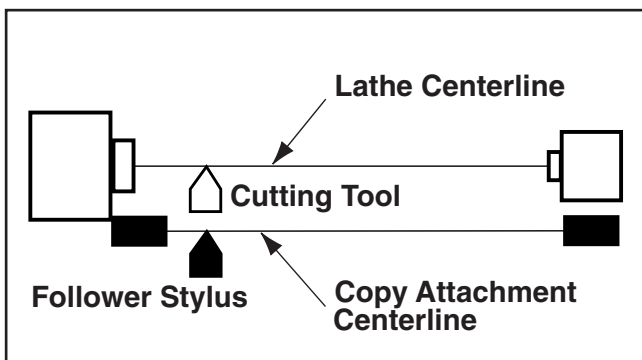


Figure 13. Stylus/Cutting Tool alignment.

4. If you are using a template, spread the template-mounting brackets apart to accommodate the template. Note that you will have to drill holes in your template to mount it to the template mounting brackets. Locate the position of the template on the Copy Attachment main body so the profile will line up with the desired location of the profile on the workpiece. If you followed Step 2, the stylus should line up at the starting point of the template.
5. Adjust the crosswheel until the stylus comes in contact with the template in its desired position.
6. If duplicating an existing spindle, mount the spindle between the master spindle carriers. First position and lock the head center so the existing spindle profile will line up with the intended profile area on the copy. Use a 13mm wrench to loosen and tightening the mounting fasteners. Slide the tail center so it is just outside of the master spindle, and lock in place. Hold the master spindle in position and tighten the hand knob located on the tail center.

! DANGER

Make sure that the workpiece is firmly seated between centers. If it becomes unseated from the lathe at operating speed, the workpiece will be propelled from the machine. Serious personal injury will occur to anyone in the path of the workpiece.

7. Move the carriage stylus to the left hand limit of the profiled area and adjust the left hand stop until it is in contact with the carriage. **See Figure 14.** Tighten the stop with a Phillips® head screwdriver.
8. Repeat the procedure for the right hand stop.

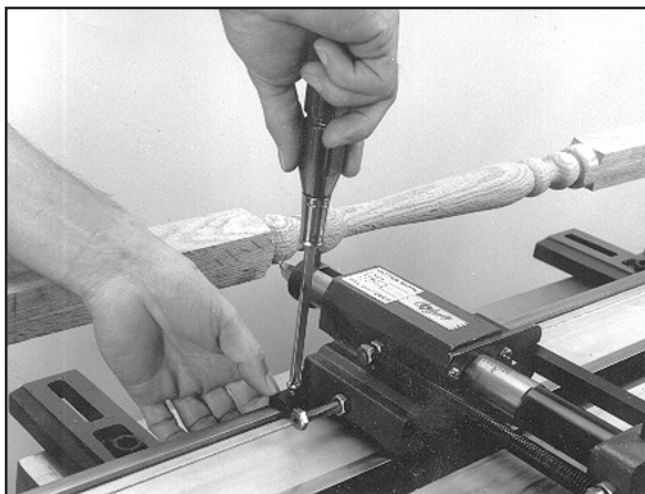


Figure 14. Adjusting positive stops.

9. Once the template and the workpiece are both securely in place, loosen the cutter in its collar and adjust it until both the cutter and the stylus are just touching the workpiece evenly and the template evenly. It is essential for accurate copying that the cutter tip and the tip of the stylus always remain at the same positions in relation to the workpiece and the master profile. Slide the carriage away from the workpiece, so both the stylus and cutter are well away from your work.
10. Ensure that everything is secure and turn on the lathe at its slowest speed. Slowly advance the cutting tool toward the left edge of the workpiece. Once contact is made, advance the cutting tool into the copy spindle approximately $\frac{1}{16}$ ". Turn the longitudinal handwheel so the carriage travels from stop to stop.
11. After each pass, extend the cutter another $\frac{1}{16}$ " (maximum) and repeat with another pass. Repeat this process until the stylus comes in contact with the template.
12. Watch the tool carefully as you make each

pass. If it tends to bite or gouge the workpiece, back the cutter slightly and try again. Be conservative when removing stock.

13. After you've made several passes with the cutting tool, turn the lathe off and inspect the results. It should not be tapered. If it is, the Copy Attachment is not properly aligned to the axis of the wood lathe. Re-align the attachment, according to the instructions in the Assembly and Adjustment Sections and re-try with a new test cut.
14. If you are satisfied, continue to remove material from the workpiece, using the "downhill" cutting method shown earlier. Remember, trying to cut "uphill" will likely result in chipping and gouging. Don't do it.
15. Continue removing stock until the workpiece is complete. **See Figure 15.**

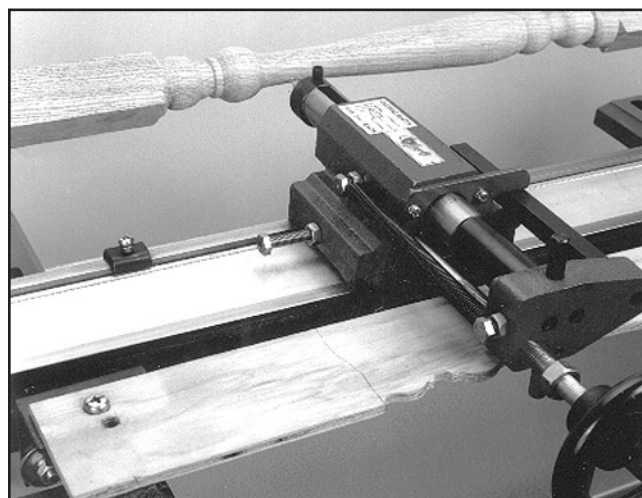


Figure 15. Shaping the copy spindle.

16. After completing the initial copy, continue following these procedures until all the spindles are completed.
17. When all spindles are complete, remove the Copy Attachment and replace it with the lathe's tool post.
18. Use appropriate lathe chisels to sharpen details and smooth the turned surfaces of each copy. Sand smooth.



SECTION 6: MAINTENANCE

Lubrication

After each copying session, wipe the lathe and Copy Attachment with a clean cloth to remove accumulated chips and sawdust.

1. Apply a light spray lubricant to the longitudinal and crossfeed gears.
2. To prevent rust and corrosion, apply an occasional coating of carnauba paste wax to the bed and other non-painted surfaces.
3. Above all else, keep the entire Copy Attachment, as well as the wood lathe, clean and free of accumulated dirt and grime that could impede free movement of the carriage, cutter, stylus or other working parts.

CAUTION

Never allow visitors into your shop while assembling, operating, or maintaining tools and machinery. Keep your shop child-safe by locking up securely when not in use, and by providing proper supervision when children are present.



Cutting Tool

After extended use, particularly with hardwoods or woods with large amounts of oil or resins, the cutter may become dull.

When you notice that the cutter seems to be working abnormally hard while cutting, or if overheating or frequent gouging and chipping occur, you will need to either sharpen or replace the cutting tool. Loosen the collar setscrew and remove the tool, and sharpen or replace as needed.

CAUTION

Cutting tools will become very hot when in use. Use care when removing a cutting tool which has just been used. It can still be extremely hot and cause painful burns. Wear gloves, or wait for the tool to cool down before removing or adjusting.



SECTION 7: CLOSURE

The following pages contain general machine data, parts diagrams/lists, troubleshooting guide and Warranty/Return information for your Model G2891 Lathe Copy Attachment.

If you need parts or help in assembling your machine, or if you need operational information, we encourage you to call our Service Department. Our trained service technicians will be glad to help you.

If you have comments dealing specifically with this manual, please write to our Bellingham, Washington location using the address in Section 2 Introduction. The specifications, drawings, and photographs illustrated in this manual represent the Model G2891 as supplied when the manual was prepared. However, due to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, add the new information to this manual and keep it for reference.

We have included some important safety measures that are essential to this machine's operation. While most safety measures are generally universal, Grizzly reminds you that each workshop is different and safety rules should be considered as they apply to your specific situation.

WARNING

Operating this equipment has the potential to propel debris into the air which can cause eye injury. Always wear safety glasses or goggles when operating equipment. Everyday glasses or reading glasses only have impact resistant lenses, they are not safety glasses. Be certain the safety glasses you wear meet the appropriate standards of the American National Standards Institute (ANSI).

We recommend you keep a copy of our current catalog for complete information regarding Grizzly's warranty and return policy. If you need additional technical information relating to this machine, or if you need general assistance or replacement parts, please contact the Service Department listed in Section 2: Introduction.

Additional information sources are necessary to realize the full potential of this machine. Trade journals, woodworking magazines, and your local library are good places to start.

WARNING

The Model G2891 was specifically designed for use with 40" Wood Lathes. **DO NOT MODIFY AND/OR USE THIS MACHINE FOR ANY OTHER PURPOSE. Modifications or improper use of this tool will void the warranty.** If you are confused about any aspect of this machine, **DO NOT** use it until you have answered all your questions. **Serious personal injury may occur.**

WARNING

Like all power tools, there is danger associated with the Model G2891 Copy Attachment. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this tool with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.





MACHINE DATA SHEET

Customer Service #: (570) 326-3806 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

GRIZZLY MODEL G2891 WOOD LATHE COPY ATTACHMENT

Design Type:

Drive Manual, Cable-Operated
Wood Lathe Compatibility 14" Swing Over Bed with Cast or Channel Bedways
Copy Pattern Existing Spindle or Plywood Pattern

Overall Dimensions:

Length 52³/₈"
Width 16¹/₈"
Depth 7⁵/₈"
Shipping Weight 68 lbs.
Net Weight 60 lbs.
Box Size 55" L x 18" W x 10" H

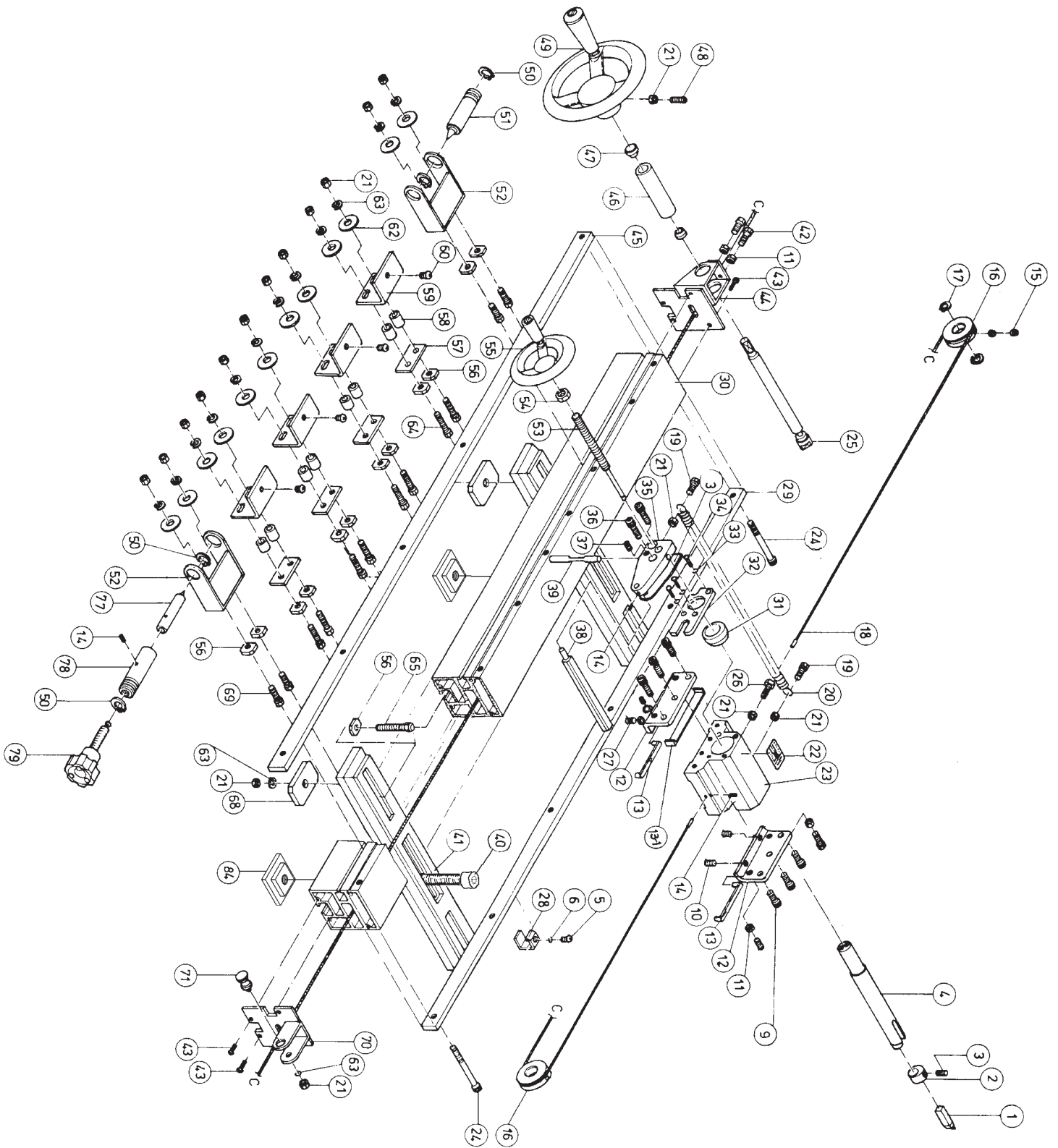
Capacities:

Maximum Copy Length 36"
Maximum Total Depth of Cut 2"
Maximum Original Spindle Diameter 3"
Maximum Recommended Cutting Depth per Pass 1/16"
Height of Cutting Tool Above Bedway 6³/₄"

Construction:

Body Extruded Aluminum and Steel
Duplicating Head and Mounting Brackets Cast Iron
Cutter High Speed Steel

Specifications, while deemed accurate, are not guaranteed.



G2891 PARTS LIST

Ref. #	Part #	Description	Ref. #	Part #	Description
1	P2891001	Cutting Tool	38	P2891038	Spindle Rod
2	P2891002	Cutting Tool Collar	39	P2891039	Stylus
3	PSS21M	Setscrew M8-1.25 x 25	40	PSB27	Cap Screw 5/8"-11x 2 1/2"
4	P2891004	Arbor	41	P2891041	Support Bracket
5	PS14M	Phillips® M6-1.0 x 12	42	PB08M	Hex Bolt M6-1.0 x 20
6	PLW04M	Lock Washer 8mm	43	PS02	Phillips® 1/4"-20 x 3/4"
9	PSB26M	Cap Screw M6-1.0 x 12	44	P2891044	Left Sleeve
10	PSS04M	Setscrew M6-1.0 x 12	45	P2891045	Rear Spindle Rail
11	PN01M	Hex Nut M6-1.0	46	P2891046	Steel Tube
12	P2891012	Front Mounting Plate	47	P2891047	Control Shaft Sleeve
13	P2891013	Brass Packing Sheet	48	PSS21M	Setscrew M8-1.25 x 25
13-1	P2891013-1	Brass Packing Sheet	49	P2891049	Longit. Feed Handwheel
14	PSS03M	Setscrew M6-1.0 x 8	50	PR11M	Retaining Ring 25mm
15	PSS20M	Setscrew M6-1.25 x 8	51	P2891051	Head Center
16	P2891016	Pulley	52	P2891052	Center Post
17	PR07M	Retaining Ring 18mm	53	P2891053	Control Screw
18	P2891018	Cable	54	PN09M	Hex Nut M12-1.75
19	PB03M	Hex Bolt M8-1.25 x 16	55	P2891055	Cross-slide Handwheel
20	P2891020	Spring	56	P2891056	Clamping Plate
21	PN03M	Hex Nut M8-1.25	57	P2891057	Packing Sheet
22	P2891022	Feed Panel Label	58	P2891058	Sleeve
23	P2891023	Carriage Block	59	P2891059	Template Support Bracket
24	PSB42M	Cap Screw M6-1.0 x 85	60	PS16M	Phillips® M8-1.25 x 16
25	P2891025	Control Rod	62	PW02	Flat Washer - 3/8"
26	P2891026	Special Head Bolt	63	PLW04	Lock Washer - 3/8"
27	PSS04M	Setscrew M6-1.0 x 12	64	PB28M	Hex Bolt M8-1.25 x 60
28	P2891028	Carriage Stop Clip	65	PB28M	Hex Bolt M8-1.25 x 60
29	P2891029	Front Spindle Rail	68	P2891068	Packing Block
30	P2891030	Main Body	69	PB07M	Hex Bolt M8-1.25 x 25
31	P2891031	Shaft Sleeve	70	P2891070	Right Sleeve
32	P2891032	Spindle Plate	71	P2891071	Adjustment Shaft
33	PLW04M	Lockwasher 8mm	77	P2891077	Tail Center
34	PS15M	Phillips® M5-0.8 x 15	78	P2891078	Center Sleeve
35	P2891035	Copying Block	79	P2891079	Knob
36	PSB43M	Cap Screw M6-1.0 x 38	83	P2891083	Copy Block Plate
37	PSS03M	Setscrew M6-1.0 x 8	84	P2891084	Mounting Plate 5/8" - 11

WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We 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.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.



WARRANTY CARD

Name _____
 Street _____
 City _____ State _____ Zip _____
 Phone # _____ Email _____ Invoice # _____
 Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. **Of course, all information is strictly confidential.**

1. How did you learn about us?

Advertisement Friend Catalog
 Card Deck Website Other:

2. Which of the following magazines do you subscribe to?

<input type="checkbox"/> Cabinetmaker & FDM	<input type="checkbox"/> Popular Science	<input type="checkbox"/> Wooden Boat
<input type="checkbox"/> Family Handyman	<input type="checkbox"/> Popular Woodworking	<input type="checkbox"/> Woodshop News
<input type="checkbox"/> Hand Loader	<input type="checkbox"/> Precision Shooter	<input type="checkbox"/> Woodsmith
<input type="checkbox"/> Handy	<input type="checkbox"/> Projects in Metal	<input type="checkbox"/> Woodwork
<input type="checkbox"/> Home Shop Machinist	<input type="checkbox"/> RC Modeler	<input type="checkbox"/> Woodworker West
<input type="checkbox"/> Journal of Light Cont.	<input type="checkbox"/> Rifle	<input type="checkbox"/> Woodworker's Journal
<input type="checkbox"/> Live Steam	<input type="checkbox"/> Shop Notes	<input type="checkbox"/> Other:
<input type="checkbox"/> Model Airplane News	<input type="checkbox"/> Shotgun News	
<input type="checkbox"/> Old House Journal	<input type="checkbox"/> Today's Homeowner	
<input type="checkbox"/> Popular Mechanics	<input type="checkbox"/> Wood	

3. What is your annual household income?

\$20,000-\$29,000 \$30,000-\$39,000 \$40,000-\$49,000
 \$50,000-\$59,000 \$60,000-\$69,000 \$70,000+

4. What is your age group?

20-29 30-39 40-49
 50-59 60-69 70+

5. How long have you been a woodworker/metalworker?

0-2 Years 2-8 Years 8-20 Years 20+ Years

6. How many of your machines or tools are Grizzly?

0-2 3-5 6-9 10+

7. Do you think your machine represents a good value? Yes No

8. Would you recommend Grizzly Industrial to a friend? Yes No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

Note: We never use names more than 3 times. Yes No

10. Comments: _____

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