MODEL T33304
3-in-1 20V COMPACT ROUTER
OWNER'S MANUAL
(For models manufactured since 05/22)

Model T33304 shown w/optional battery.

#JM22320 PRINTED IN CHINA V1.09.22

******Keep for Future Reference******

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

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

The owner of this machine/tool 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, cutting/sanding/grinding tool 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.

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.

⚠DANGER — **Indicates an imminent hazardous situation which, if not avoided, WILL result in death or serious injury.**

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

⚠CAUTION — **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.**

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

⚠WARNING

Safety Instructions for Power Tools

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this power tool. When tool is not being used, disconnect power, and store in out-of-reach location to prevent unauthorized use—especially around children. Make workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use tools in areas that are wet, cluttered, or have poor lighting. Operating tools in these areas greatly increases risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of power tools. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

DISCONNECT POWER FIRST. Always disconnect tool from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are not approved safety glasses.

⚠WARNING

ELECTRICAL SAFETY. Tool plug must match outlet. Double-insulated tools have a polarized plug (one blade is wider than the other), which must be plugged into a polarized outlet. Never modify plug. Do not use adapter for grounded tools. Use a ground fault circuit interrupter if operation is unavoidable in damp locations. Avoid touching grounded surfaces when operating tool.

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips, which could cause loss of workpiece control. Wear hard hat as needed.

HAZARDOUS DUST. Dust created while using tools may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, always wear a NIOSH-approved respirator, and connect tool to an appropriate dust collection device to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Never leave adjustment tools, chuck keys, wrenches, etc. in or on tool—especially near moving parts. Verify removal before starting!

INTENDED USAGE. Only use tool for its intended purpose. Never modify or alter tool for a purpose not intended by the manufacturer or serious injury or death may result!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating tool. Do not overreach! Avoid awkward hand positions that make tool control difficult or increase the risk of accidental injury.

SAFE HANDLING. Firmly grip tool. To avoid accidental firing, do not keep finger on switch or trigger while carrying.

FORCING TOOLS.. Use right tool for job, and do not force it. It will do job safer and better at rate for which it was designed.

SECURING WORKPIECE. When required, use clamps or vises to secure workpiece. This protects hands and frees both of them to operate tool.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Ensure they are properly installed, undamaged, and working correctly.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using tool if they become a distraction.

USE RECOMMENDED ACCESSORIES. Consult this manual or manufacturer for recommended accessories. Using improper accessories will increase risk of serious injury.

MAINTAIN WITH CARE. Keep cutting tool edges sharp and clean. Follow all maintenance instructions and lubrication schedules to keep tool in good working condition. A tool that is improperly maintained could malfunction, leading to serious personal injury or death. Only have tool serviced by qualified service-personnel using matching replacement parts.

CHECK DAMAGED PARTS. Regularly inspect tool for any condition that may affect safe operation. Immediately repair or replace damaged or mis-adjusted parts before operating tool.

MAINTAIN POWER CORDS. When disconnecting cord-connected tools from power, grab and pull the plug—NOT the cord. Carrying or pulling the cord may damage wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, sharp edges, moving parts, and wet/damp locations. Damaged cords increase risk of electrocution.

UNATTENDED OPERATION. Never leave tool running while unattended. Turn tool ***OFF*** and ensure all moving parts completely stop before walking away.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

Additional Safety for Routers

⚠WARNING

Amputation, serious cuts, entanglement, or death can occur from contact with rotating cutterhead or other moving parts! Flying chips can cause eye injuries or blindness. Knives/inserts thrown by cutterhead can strike nearby operator or bystanders with deadly force. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

POWER SOURCE. Remove battery from the router before inserting or removing bit, making adjustments, or performing maintenance or service. DO NOT make adjustments while the router is connected to battery.

ROUTER BITS. Inspect router bits before use. DO NOT use router bits that have been dropped, cracked, or damaged. The router bit may shatter, causing serious injury.

COLLET WRENCHES. Make sure the collet wrenches are removed from the router before inserting battery and turning router ON.

AVOIDING BIT CONTACT. Keep unused portion of bit above base or guide. Always keep some type of guard or other protective device between your hands and bit at all times!

ROUTING. Always route with the base flat upon the workpiece. DO NOT start the router with the bit in contact with the workpiece.

REMOVING BIT. The bit is sharp and will be hot after use. Use gloves when removing.

PROTECT HANDS/FINGERS. While feeding workpiece, avoid awkward hand positions. Never pass hands directly under, or in front of, bit. Keep hands away from bit. Hold the router with both hands to control torque twist and kickback.

FEEDING DIRECTION. Always feed the router against the cutter rotation. DO NOT start routing at a corner. Starting at a corner may cause the router to grab, damaging the workpiece, and possibly causing personal injury.

CUTTING DEPTH. Never attempt to remove too much material in one pass. Doing this increases risk of workpiece kickback. Instead, make several light passes—this is a safer way to cut and it leaves a cleaner finish.

WORKPIECE CONDITION. Routing a workpiece with knots, holes, or foreign objects increases risk of kickback and bit damage/breakage. Thoroughly inspect and prepare workpiece before routing. Rough, warped, or wet workpieces increase risk of kickback.

SAFE BIT CLEARANCES. Operator or bystanders may be hit by flying debris if cutter contacts fence, guard, or table insert upon startup. Always ensure any new cutter setup has proper cutter rotational clearance before startup.

SAFE BIT INSTALLATION. Improperly secured bits or other inserts may become dangerous projectiles if they come loose. Always ensure collet and collet nut are tight.

AVOIDING CLIMB CUTS. Feeding workpiece in same direction of bit rotation is a "climb cut." Climb cutting can aggressively pull workpiece—and hands—into bits. Always first verify direction of bit rotation before starting, and always feed workpiece AGAINST bit rotation.

SAFETY GUARDS. To reduce risk of unintentional contact with bit, always ensure included bit guard is correctly positioned before operation.

SAFETY EQUIPMENT. Wear safety glasses, respirator, and hearing protection when operating a router.

Additional Safety for Batteries & Chargers

⚠WARNING

Battery and charger components may cause irritation, burns, electric shock or fire if disassembled, damaged, stored incorrectly, or disposed of incorrectly. Connecting charger to circuit it is not rated for could result in fire or explosion. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

READ ENTIRE MANUAL. Read and understand all of the instructions and warnings before charging battery.

CHARGING EQUIPMENT. Only charge battery using charger and battery supplied with tool. DO NOT use batteries or chargers from other cordless tools.

CHARGING ENVIRONMENT. Charge battery on dry, hard surface in shaded location with good ventilation. DO NOT place charger on or near flammable materials. DO NOT cover charger when charging. DO NOT expose charger to moisture. Only charge battery when temperature is between 50°F (10°C)–104°F (40°C). Charging in temperatures beyond these extremes will damage battery.

DO NOT DISASSEMBLE BATTERY OR CHARGER. Tampering with battery or charger may result in risk of electric shock or fire.

CHARGER DAMAGE. Replace charger if it has been dropped, damaged, exposed to liquid, or has received hard impact.

DISCONNECT CHARGER. Unplug charger when cleaning, or when not in use.

SHORTING BATTERY. Avoid touching terminals with skin or metal, to prevent injury from an electrical shock and to prevent fire from spark. Do not store battery with metal objects that could create connection between terminals or in place where it could get wet.

CHARGER VOLTAGE. DO NOT plug into circuit that charger is not rated for. Connecting charger to circuit with incorrect voltage will damage charger, possibly causing fire or explosion. DO NOT charge from DC power supply or generator or with extension cord.

DAMAGED BATTERY. Regularly inspect battery for any damage, corrosion, or any condition that may affect safe operation. Immediately replace damaged battery before operating tool.

BATTERY DISPOSAL. Battery must be recycled or disposed of properly. DO NOT dispose of battery in landfill or incinerate. Combustion of some of battery's components can cause toxic fumes and possible explosion.

BATTERY LIQUID. Liquid contained in batteries can cause irritation or burns. If liquid contacts eyes or skin, flush with water and seek medical assistance.

⚠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. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment or poor work results.

SECTION 2: INTRODUCTION

Foreword

We are proud to offer this manual with your new router! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the router we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, your router may not exactly match the manual. If you find this to be the case, and the difference between the manual and router leaves you in doubt, check our website for the latest manual update or call technical support for help.

For your convenience, we post all available manuals and manual updates for free on our website at www.grizzly.com. Any updates to your model of tool will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
E-Mail: techsupport@grizzly.com

We want your feedback on this manual. If you can take the time, please email or write to us at the address below and tell us how we did:

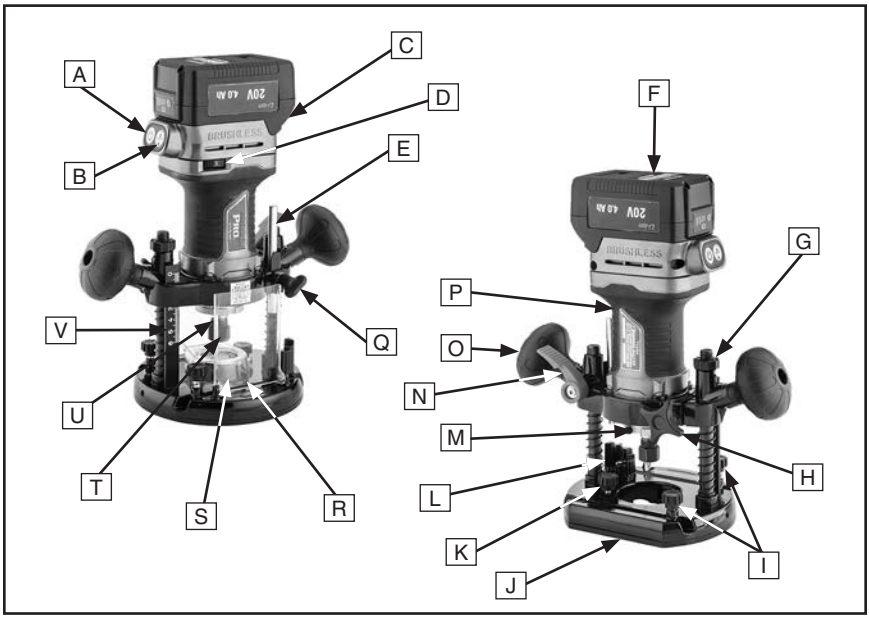
Grizzly Industrial, Inc.
C/O Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Specifications

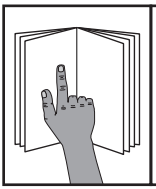
Charging Source	120V
Battery Type	20V Lithium-Ion
Collet Size	1/4 in.
Maximum Plunge Depth	2 in.
Length x Width x Height	6 x 5-1/4 x 10-1/2 in.
Dust Port Size	1-1/2 in.
Speed Range	8000 - 26000 RPM
Weight	6.8 lbs.

Identification

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

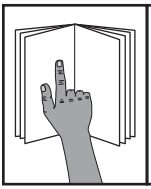


A. Start/Stop Button
B. Power Lock Button
C. Battery Lock
D. Speed Dial
E. Depth Stop Rod
F. Battery (not included)
G. Depth Adjustment Nut
H. Router Base Lock Knob
I. Guide Lock Knobs
J. Router Plunge Base
K. Dust Port Lock Knob
L. 8-Position Depth Stop Block
M. Spindle Lock Button
N. Plunge Lock Lever
O. Plunge Base Handles (1 of 2)
P. Router Motor
Q. Depth Stop Lock Knob
R. Chip Guard
S. Dust Port
T. Collet Nut
U. Collet
V. Depth Scale



⚠WARNING
To reduce your risk of serious injury, read this entire manual BEFORE using Tool.

Controls & Components



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using tool.

Refer to **Figures 1–4** and the following descriptions to become familiar with the basic controls of this tool.

Figure 1. Power controls.

A. Start/Stop Button: With tool in standby mode, press once to start motor.

B. Power Lock Button: Press once to unlock tool and enter standby mode. Press again to lock tool and exit standby mode. Tool can only be started in standby mode.

Note: *Pressing either Start/Stop Button or Power Lock Button will turn the tool* ***OFF****.*

Note: *If left in standby mode for more than 10 seconds, tool will automatically turn itself* ***OFF****.*

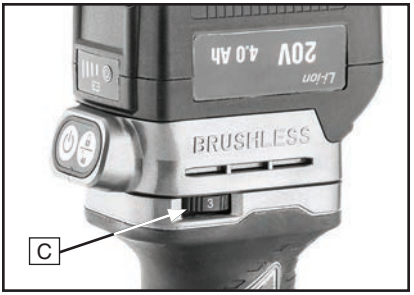


Figure 2. Speed dial.

C. Speed Dial: Choose from 6 speed settings on dial. Move dial left for higher speeds and right for slower speeds.

Speed Setting	RPM
1	8,000
2	11,600
3	15,200
4	18,800
5	22,400
6	25,400

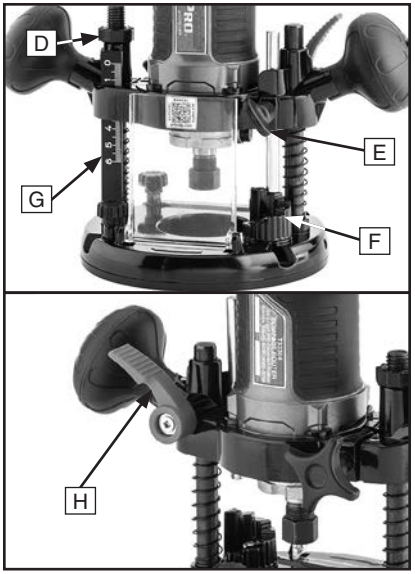


Figure 3. Depth controls.

D. Depth Adjustment Nut: Provides fine control of bit height.

E. Depth Stop Lock Knob: Secures desired cut height when locked.

F. 8-Position Depth Stop Block: Rotates to different heights for setting depth of cut. Used in conjunction with depth stop rod.

G. Depth Scale: Measures depth of router plunge travel.

H. Plunge Lock Lever: Controls movement of plunge mechanism. Move down to lock plunge mechanism, move up to release.

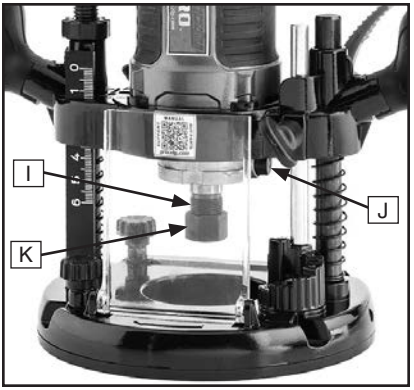


Figure 4. Spindle and collet controls

I. Collet: Holds bit.

J. Spindle Lock Button: Locks spindle in place for bit installation and removal.

K. Collet Nut: Secures collet and bit tool on spindle.

SECTION 3: SETUP

Unpacking

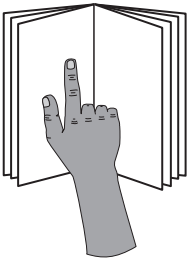
This tool was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

IMPORTANT: Save all packaging materials until you are completely satisfied with the tool and have resolved any issues between Grizzly or the shipping agent. *You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return the tool later.*

⚠CAUTION

Like all tools there is potential danger when operating this tool. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this tool with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

⚠WARNING



This tool presents serious injury hazards to untrained users. Read through entire manual to become familiar with controls and operations before starting tool!

Needed for Setup

The following are needed to complete the setup process:

Description	Qty
• Safety Glasses (per person)	1
• Hearing Protection (per person)	1
• Dust Collection System	1
• Dust Hose 1½"	1
• Hose Clamps 1½"	2

Inventory

The following is a list of items shipped with your tool. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

NOTICE

If you cannot find an item on this list, carefully check around/inside the tool and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

Box (Figure 5)	Qty
A. Router Body	1
B. Plunge Base	1
C. Trimmer Guide	1
D. Dust Port	1
E. Template Guide	1
F. Circle Jig	1
G. Curved Trim Guide	1
H. Hex Wrench 3mm	1
I. Open-Ends Wrench 8 X 18mm	1
J. Straight Guide	1

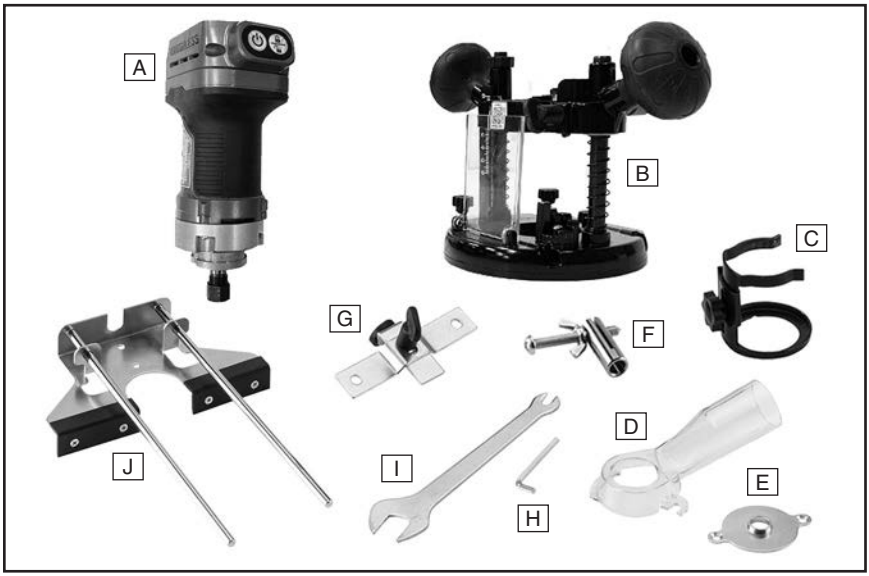


Figure 5. Model T33304 inventory.

Charging/Installing Battery

The Model T33304 is compatible with Grizzly PRO 20V Lithium-Ion batteries and chargers (see **Accessories** on **Page 24**).

Removing/Charging Battery

1. Press battery lock (see **Figure 6**) and remove battery from router.

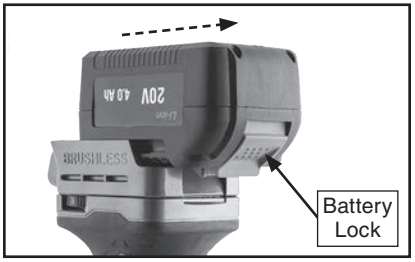


Figure 6. Location of battery lock.

2. Plug charger into 120V outlet.

3. Slide battery into charger until battery clicks in place (see **Figure 6**). Red light will illuminate while battery is charging. When green light illuminates, battery is fully charged.

   Note: *Fully charge battery before first use.*

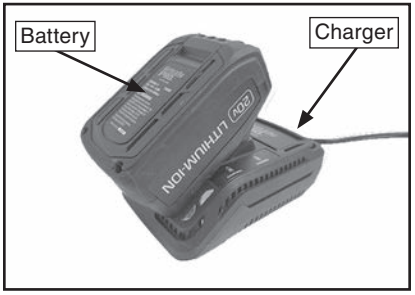


Figure 7. Battery charging in Model T30302 Fast Charger (not included).

Installing Battery in Router

1. Press battery lock (see **Figure 8**) and remove battery from charger.

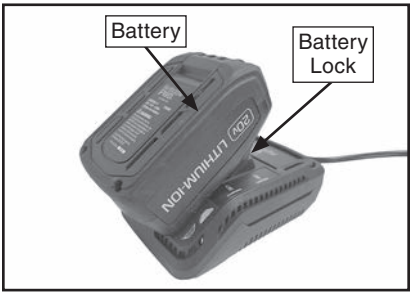


Figure 8. Removal of battery lock.

2. Insert battery by aligning router base with groove in battery and pushing in direction of arrow until battery pack is secured in tool (see **Figure 9**).

Figure 9. Battery installed in router.

Assembly

Assembling the Model T33304 consists of mounting the motor on the plunge base.

To assemble tool:

1. Loosen router base lock knob on router plunge base (see **Figure 10**).

2. Install router motor on plunge base by aligning router motor guides with router base channels and pressing motor into base (see **Figure 10**).

3. Tighten router base lock knob to secure router motor in place.

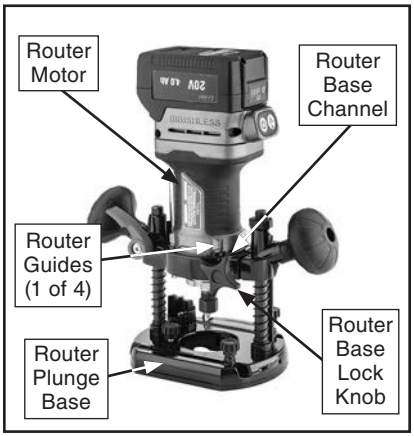


Figure 10. Plunge base assembled on router.

Dust Collection

⚠CAUTION

This tool creates a lot of wood chips/dust during operation. Breathing airborne dust on a regular basis can result in permanent respiratory illness. Reduce your risk by wearing a respirator and capturing the dust with a dust-collection system.

The Model T33304 is supplied with a 1½" dust port that can attach to a dust collection system or shop vacuum.

To connect to dust collection system:

1. Loosen dust port lock knob and slide dust port clip and dust port into position, then tighten knob (see **Figure 11**).

2. Fit 1½" hose over dust port and secure in place with hose clamp (see **Figure 11**).

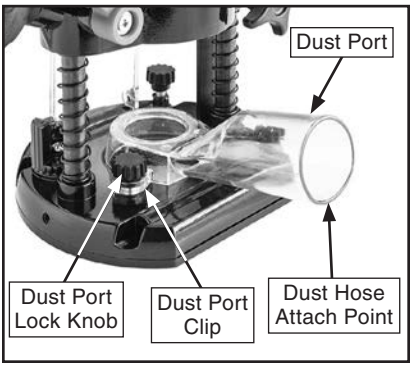


Figure 11. Dust port installed.

3. Tug hose to make sure it does not come off.

Note: *A tight fit is necessary for proper performance.*

Test Run

Once assembly is complete, test run the tool to ensure it is properly connected to power and safety components are working properly.

If you find an unusual problem during the test run, immediately stop the tool, disconnect it from power, and fix the problem BEFORE operating the tool again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

The test run consists of verifying the following: 1) The motor powers up and runs correctly and 2) the safety features function correctly.

⚠WARNING

DO NOT start tool until all preceding setup instructions have been performed. Operating an improperly set up tool may result in malfunction or unexpected results that can lead to serious injury, death, or tool/property damage.

⚠WARNING

Serious injury or death can result from using tool BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, tool until information is understood.

To test run tool:

1. Clear all setup tools away from tool.
2. Remove collet nut and collet.
3. Install battery in router (see **Charging/Installing Battery** on **Page 11**).
4. Press Power Lock button to enter standby mode, then press Start/Stop button within 10 seconds to start motor. Tool should run smoothly without unusual problems or noises.
5. Press either Start/Stop button or Power Lock Button to turn tool ***OFF***.
6. Try to start motor by pressing Start/Stop button.

   — If motor *does not* start, safety feature is working correctly.

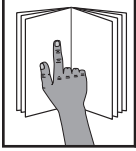
   — If motor *does* start, immediately press either the **Start/Stop Button** or **Power Lock Button** to stop tool and disconnect battery. Contact Technical Support before using tool.

SECTION 4: OPERATIONS

Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the tool is used during operation, so the tool controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is not intended to be an instructional guide. To learn more about specific operations, read this entire manual, seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using tool.

⚠WARNING

Eye injuries, respiratory problems, or hearing loss can occur while operating this tool. Wear personal protective equipment to reduce your risk from these hazards.

To complete a typical operation, the operator does the following:

1. Examines workpiece to make sure it is suitable for routing.
2. Secures workpiece.
3. Installs router bit and adjusts depth for operation.
4. Puts on safety glasses, hearing protection, and respirator.
5. Places tool on workpiece without bit contacting workpiece.
6. Turns tool ***ON***, starts motor, waits for bit to reach full speed, then begins cut with even, steady motion.

   Note: *Always do a test run on a scrap piece of wood or laminate to check that depth of cut is accurately set.*
7. Stops motor, allows bit to come to complete stop, then lifts tool.
8. Repeats **Steps 6**–**7** until desired result is achieved.

NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Workpiece Inspection

Some workpieces are not safe to cut or may require modification before they are safe to cut. **Before cutting, inspect all workpieces for the following:**

- ***Material Type:*** This machine is intended for cutting natural and man-made wood products, laminate covered wood products, and some plastics. Cutting drywall or cementitious backer board creates extremely fine dust and may reduce the life of the bearings. This machine is NOT designed to cut metal, glass, stone, tile, etc.; cutting these materials with a router may lead to injury.

- ***Foreign Objects:*** Nails, staples, dirt, rocks and other foreign objects are often embedded in wood. While cutting, these objects can become dislodged and hit the operator, cause kickback, or break the blade, which might then fly apart. Always visually inspect your workpiece for these items. If they can't be removed, DO NOT cut the workpiece.

- ***Large/Loose Knots:*** Loose knots can become dislodged during the cutting operation. Large knots can cause kickback and machine damage. Choose workpieces that do not have large/loose knots or plan ahead to avoid cutting through them.

- ***Wet or "Green" Stock:*** Cutting wood with a moisture content over 20% causes unnecessary wear on the blades, increases the risk of kickback, and yields poor results.

- ***Excessive Warping:*** Workpieces with excessive cupping, bowing, or twisting are dangerous to cut because they are unstable and often unpredictable when being cut. DO NOT use workpieces with these characteristics!

- ***Minor Warping:*** Workpieces with slight cupping can be safely supported if the cupped side is facing the table or the fence. On the contrary, a workpiece supported on the bowed side will rock during a cut and could cause kickback or severe injury.

- **Routing with the grain produces a better finish and is safer for the operator.** Refer to **Feed Direction** on **Page 18** for additional information.

Installing Router Bit

The Model T33304 router is supplied with a ¼" collet for use with ¼" shank router bits. Carefully inspect router bits for cracks, chips, or other damage before installing. DO NOT use router bits that have been dropped, cracked, or damaged. The router bit may shatter, causing serious injury.

To install router bit:

1. DISCONNECT BATTERY FROM TOOL!

2. Remove router motor from plunge base or trimmer guide.

3. Align spindle lock button pin with locking hole in spindle shaft and press spindle lock button (see **Figure 12**).

4. While pressing lock button, use collet wrench to loosen collet nut (see **Figure 12**).

⚠CAUTION

Router bit is sharp and will be hot after use. Wear gloves to prevent injury when removing bit.

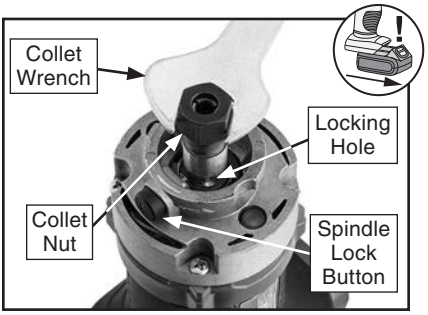


Figure 12. Spindle collar components.

5. Insert router bit to within ⅛" of bottom of collet, then securely tighten collet with wrench.

   Note: *Collet can be damaged if it is tightened without a bit.*

Adjusting Cutting Depth

Although the correct depth of cut varies according to wood hardness and the size of the bit, we recommend the maximum depth of cut (per pass) be no more than 1/8". A series of light cuts will give better results and put less stress on the router than trying to take off too much material in a single pass.

⚠WARNING

Disconnect battery from router before inserting or removing bit, making adjustments, or performing maintenance or service. DO NOT make adjustments while router is connected to battery. Serious injury may occur if this is ignored.

Items Needed	Qty
Ruler	1
Scrap Wood	As Needed

Adjusting Cutting Depth with Plunge Base

1. DISCONNECT BATTERY FROM TOOL!

2. Loosen depth stop lock knob (see **Figure 13**).

3. Place router on a flat surface and loosen plunge lock lever (see **Figure 13**).

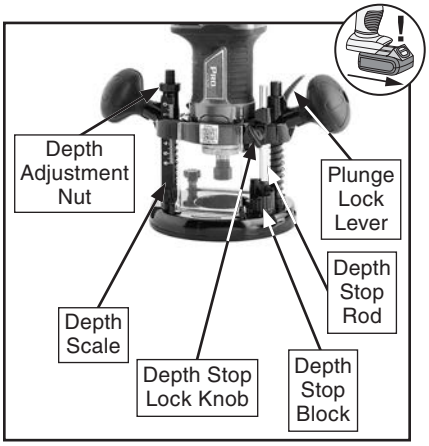


Figure 13. Plunge base height adjustment components.

4. Lower router in plunge base so bit just touches flat surface, then tighten plunge lock lever.

5. Raise depth stop rod, rotate depth stop block to desired level, and lower depth stop rod onto stop block.

   Tip: *If you intend to perform a series of cuts, begin with a higher step on the depth stop block. After each pass, rotate the stop block one step counter-clockwise to move to the next lowest step.*

6. Note scale reading.

7. Add desired depth of cut to current scale reading and lower plunge base to the new level.

8. Tighten depth stop lock knob to secure position of stop rod.

9. Depth of cut is now set.

   Note: *Always do a test run on a scrap piece of wood to check that depth of cut is accurately set.*

Adjusting Cutting Depth with Plunge Base in Fixed Position

1. DISCONNECT BATTERY FROM TOOL!

2. Loosen depth stop lock knob (see **Figure 14**).

3. Raise depth stop rod (see **Figure 14**) to highest position and secure with lock knob, or remove rod from plunge base completely.

4. Push plunge base to its lowest position and engage plunge lock lever to secure (see **Figure 14**).

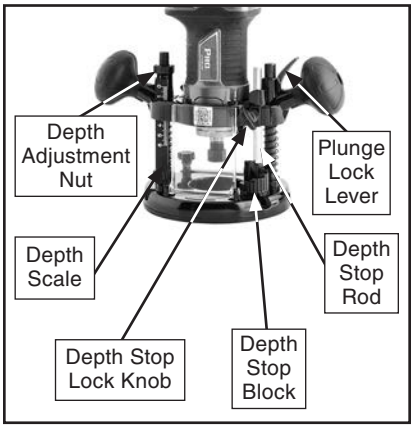


Figure 14. Plunge base in fixed position components.

5. Install router bit.

6. Release plunge lock lever, raise plunge base to bring router bit to desired depth of cut, then tighten plunge lock lever.

   Tip: *Use depth adjustment nut for fine adjustments to depth of cut.*

   Note: *Always do a test run on a scrap piece of wood to check that depth of cut is accurately set.*

Feed Direction

Once the router bit has been selected and installed properly, and the depth of cut has been set, determine the proper feed direction of the router across the workpiece.

To determine feed direction:

1. Examine top face of workpiece and determine direction of grain. Feed router so bit is cutting *with* grain (cutting along growth rings as shown in **Figure 15)**. Cutting against grain chips wood rather than cutting it, making a rougher surface with more "chip out."

2. Pass router across workpiece with bit rotating opposite feed direction, as shown in **Figure 15**. If bit is moving in same direction you are feeding router, you are performing a "climb cut." This is a very dangerous operation because router could lunge forward out of your hands, causing serious personal injury.

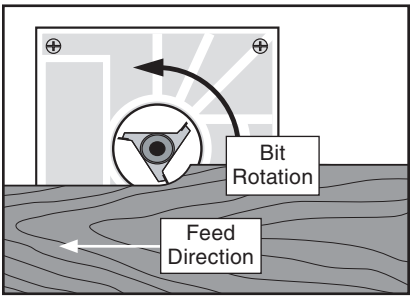


Figure 15. Correct feed direction and grain orientation (bottom view).

Routing Operations

Once the router bit is installed, the depth is set, and the feed direction is determined, it is time to start routing.

To perform routing operations:

1. Secure workpiece to a stable surface.

2. Place router flat on surface of workpiece, making sure bit is not touching workpiece.

3. Firmly grasp router (fixed base) or handles (plunge base), turn tool ***ON***, and start router motor.

   — If using plunge base, slowly push down on router handles to initiate cut.

⚠CAUTION

Router will "kick" when started. If it comes in contact with workpiece it could jump out of your hands and cause injury.

⚠CAUTION

DO NOT start routing at a corner. Starting at a corner may cause router to grab, damaging workpiece corner, and possibly causing injury.

4. Smoothly move router in correct feed direction along workpiece (see **Figure 15** on **Page 18**).

   Note: *Feed router along workpiece at a consistent rate of speed. Be aware of sound of router motor and sound of bit cutting. If motor begins to bog down, or sound pitch of router bit lowers, reduce feed rate.*

5. When finished routing, stop router motor, and allow it to come to a complete stop before setting tool down.

Straight Guide

The straight guide can be used for trimming, cutting dadoes, straight dovetails, and circles. Only use router bits with no guide bearings when using the straight guide.

Items Needed	Qty
Compass or Circle Guide	1
Drill	1
Drill Bit 3/16"	1
Phillips Head Screwdriver #2	1
Hex Wrench 3mm	1

Installing Straight Guide

1. DISCONNECT BATTERY FROM TOOL!

2. Loosen guide lock knobs and slide straight guide rods into plunge base (see **Figure 16**).

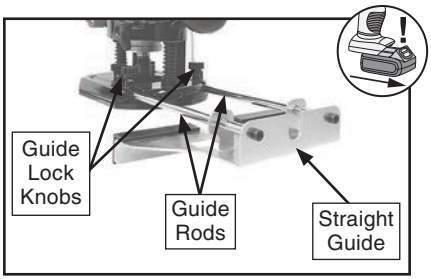


Figure 16. Straight guide components.

Using Straight Guide for Trimming

1. DISCONNECT BATTERY FROM TOOL!

2. Install straight guide (see I**nstalling Straight Guide** on **Page 19**).

3. Loosen guide lock knobs, position straight guide at desired depth on workpiece, and tighten lock knobs.

4. Follow instructions in **Routing Operations** on **Page 19**). Make a test cut by sliding straight guide along edge of scrap piece of wood.

5. Repeat **Steps 3–4** until cut is correct.

Using Straight Guide for Interior Cuts

1. DISCONNECT BATTERY FROM TOOL!

2. Install straight guide (see **Installing Straight Guide** on **Page 19**).

3. Adjust router bit to desired depth (see **Adjusting Cutting Depth** on **Page 17**).

4. Loosen guide lock knobs, position straight guide at desired depth on workpiece (see **Figure 17**), and tighten lock knobs.

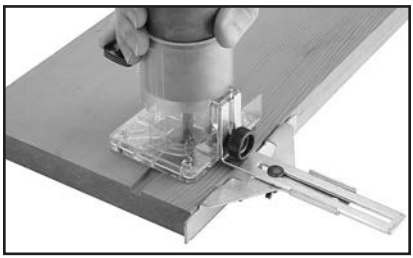


Figure 17. Example of router configured for interior cut.

5. Make sure there is enough excess material at end of cut to support straight guide. If guide slips off end of workpiece, it will wander off of desired line. You may wish to add a longer piece of wood to workpiece for straight guide to follow.

   Note: *When cutting interior slots, router will tend to follow wood grain. Keep constant pressure, pulling straight guide into workpiece.*

6. Follow instructions in **Routing Operations** on **Page 19**. Make a test cut on a scrap piece of wood.

7. Repeat **Step 6** until cut is correct.

Using Straight Guide for Cutting Circles

1. DISCONNECT BATTERY FROM TOOL!

2. Install straight guide (see **Installing Straight Guide** on **Page 19**).

3. Install circle jig on end of guide rod and secure with wing nut (see **Figure 18**).

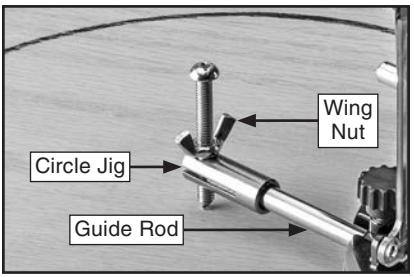


Figure 18. Circle jig installed on guide rod.

4. Use a compass to mark desired circle on workpiece.

5. Drill a 3/16" pilot hole in workpiece at center of circle (see **Figure 19**).

6. Thread circle jig set screw into 3/16" hole, then loosen guide lock knobs and adjust guide until router bit aligns with marked circle. Tighten lock knobs.

7. Adjust router bit to desired depth (see **Adjusting Cutting Depth** on **Page 17**).

8. Turn tool ***ON***, start router motor, and then carefully plunge it into workpiece.

9. Rotate router in a clockwise direction using circle jig as a pivot point (see **Figure 19**).

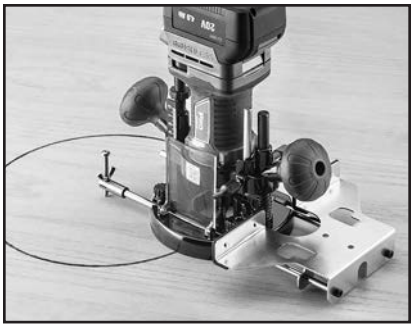


Figure 19. Example of straight guide set up for cutting circles.

Curved Trim Guide

The curved trim guide is used for trimming curved edges, such as adding a decorative edge to a round table or trimming curved corners on a laminate counter top.

This guide is only used with the plunge base, and with router bits that do not have guide bearings.

Item Needed	**Qty**
Hex Wrench 3mm	1

To use curved trim guide:

1. DISCONNECT BATTERY FROM TOOL!

2. Remove (2) cap screws and guide rods from straight guide and use to assemble curved trim guide, as shown in **Figure 20**.

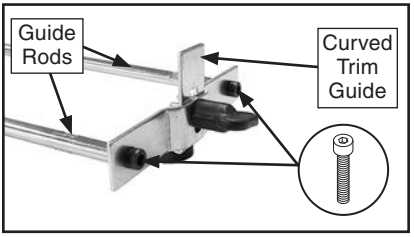


Figure 20. Curved trim guide assembly.

3. Loosen guide lock knobs and slide trim guide into plunge base, as shown in **Figure 21.**

4. Place router flat on workpiece, loosen height adjustment lock knob (see **Figure 21**), set guide height, and tighten knob to secure position.

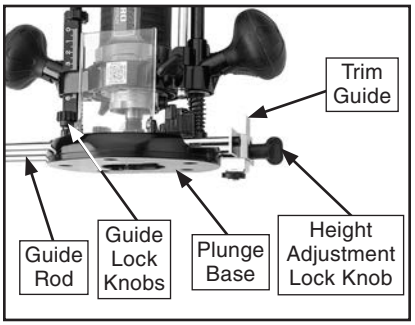


Figure 21. Curved trim guide components.

5. Adjust guide rods to desired width of cut and tighten guide lock knobs.

6. Follow instructions in **Routing Operations** on **Page 19**). Make a test cut by sliding curved guide along edge of scrap piece of wood.

7. Repeat **Steps 3–6** until cut is correct height and width.

Template Guide

The template guide is designed to fit in the base of the router, where it protrudes slightly, allowing it to follow templates that are a minimum of 5mm thick. Using templates can allow you to accurately route curves and other complex shapes.

Items Needed	**Qty**
Routing Template	As Needed
Phillips Head Screwdriver #2	1

To use template guide:

1. DISCONNECT BATTERY FROM TOOL!

2. Remove (2) Phillips head screws on plunge base, then install template guide, and secure as shown in **Figure 22**.

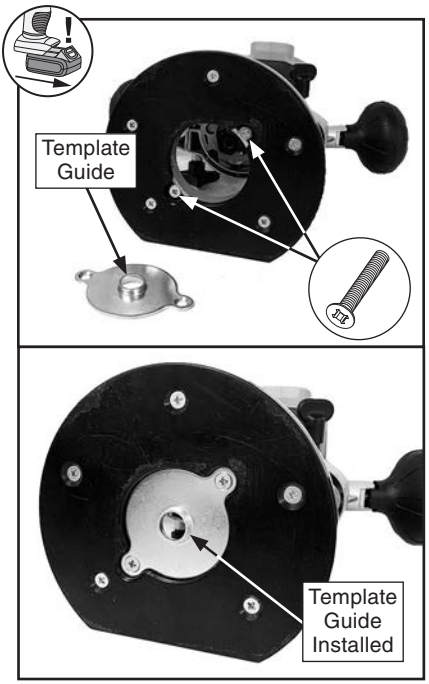


Figure 22. Template guide installation.

3. Follow instructions for **Adjusting Cutting Depth** on **Page 17** to set router bit to desired depth.

4. Secure routing template to workpiece.

Note: *Template must be a minimum of 5mm thick to allow for template guide depth.*

5. Actual cut size on workpiece will be slightly different from template. To determine cut size, use equation: Distance (X) = outside diameter of template guide - bit diameter (R) (see **Figure 23**).

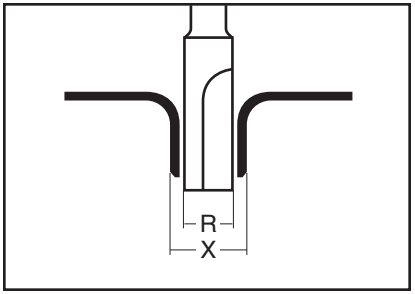


Figure 23. Determining template guide cut size.

6. Follow instructions for **Adjusting Cutting Depth** on **Page 17** to set router bit to desired depth.

   Note: *Apply firm pressure to router at all times during use with template guide to ensure accurate cut.*.

Trimmer Guide

The trimmer guide can be fitted to the router to trim laminates or wood.

Items Needed	**Qty**
Ruler	1
Scrap Wood or Laminate	As Needed

To use trimmer guide:

1. DISCONNECT BATTERY FROM TOOL!

2. Follow instructions in **Installing Router Bit** on **Page 16**.

3. Loosen router base lock knob and remove router motor from plunge base.

4. Attach trimmer C-clip to mounting points on router motor **Figure 24**).

5. Place router on flat surface and loosen trimmer height adjustment knob (see **Figure 24**).

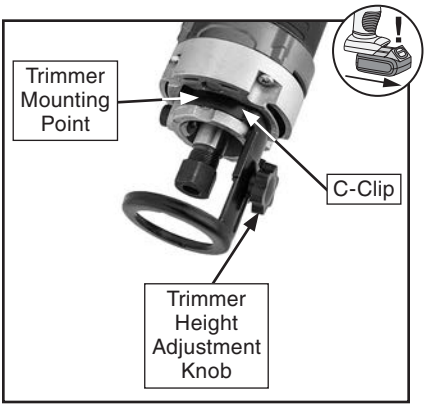


Figure 24. Trimmer guide installed.

6. Adjust trimmer for desired depth of cut.

7. When desired height is achieved tighten trimmer height adjustment knob.

8. Apply firm pressure to router at all times during use with trimmer guide to ensure accurate cut.

   Note: *Always do a test run on a scrap piece of wood or laminate to check that depth of cut is accurately set.*

SECTION 5: ACCESSORIES

⚠WARNING

Installing unapproved accessories may cause tool to malfunction, resulting in serious personal injury or tool damage. To reduce this risk, only install accessories recommended for this tool by Grizzly.

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

T30304—2.0Ah Lithium-Ion Battery
T30305—4.0Ah Lithium-Ion Battery
These 20V rechargeable batteries can be used with any 20V Grizzly PRO cordless power tool. Built by Samsung®, these batteries are low profile and lightweight.

Figure 25. Grizzly PRO 20V Lithium-Ion batteries.

T30302—2.4A Fast Charger
T30303—2.4A Dual Port Charger
These chargers are compatible with the Model T30304 and T30305 batteries used with 20V Grizzly PRO cordless power tools.

Figure 26. Battery chargers.

Basic Eye Protection

T32323—Woodturners Face Shield
T32401—EDGE Brazeau Safety Glasses
T32402—EDGE Khor G2 Safety Glasses
T32404—EDGE Mazeno Safety Glasses

Figure 27. Assortment of basic eye protection.

H4978—Deluxe Earmuffs - 27dB
H4979—Twin Cup Hearing Protector - 29dB

Protect yourself comfortably with a pair of cushioned earmuffs. Especially important if you or employees operate for hours at a time.

Figure 28. Hearing protection.

H5599—20 Pc. Carbide ¼" Router Bit Set
H3168—30 Pc. Carbide ¼" Router Bit Set

Grizzly Industrial carries an extensive selection of ¼" shank router bits.

Figure 29. H5599 20-Pc. ¼" Shank Router Bit Set.

T26897—Woodworking with the Router

The undisputed champion of router how-to books more than 10 years after its original publication. Clear, comprehensive, and readable, it's packed with the techniques and tricks you'll need to unleash your router's incredible potential. All that and more is covered in this expanded, thoroughly revised, and updated edition. Hundreds of large, clear photos and drawings -now in full color - show you everything you need to know about using a router productively and safely. The information is specific, tested, and accurate, making this manual almost as indispensable as the router.

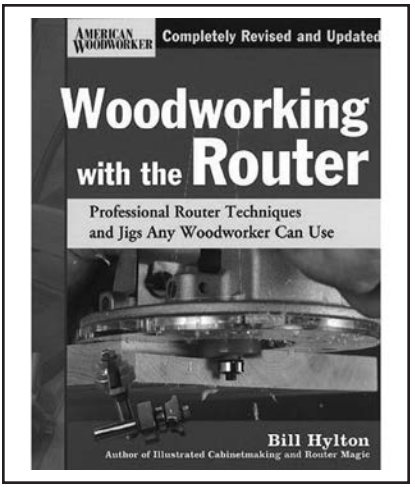


Figure 30. T26897 Woodworking with the Router Book.

T10456—Heavy-Duty Anti-Fatigue Mat 3' x 5'
This Heavy-Duty Anti-Fatigue Mat features beveled edges and no-slip for safety and comfort. Open-hole design allows liquid to drain through, so it's perfect for wet or oily conditions. Measures 3' wide x 5' long x ⅜" thick.

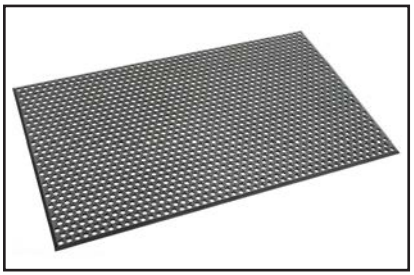


Figure 31. T10456 Anti-Fatigue Mat.

W1320—Router Pad - Tan
This natural rubber pad eliminates holding or clamping work while routing or sanding. They effectively grip the workpiece for safe non-slip machining. Thin pad can be easily rolled up and stored when not in use. Pads measure ⅛" x 24" x 36".

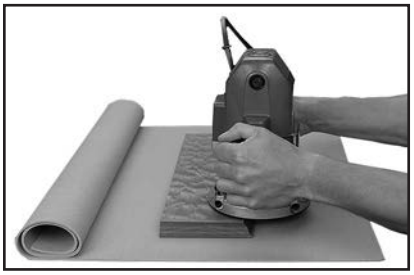


Figure 32. W1320 Router Pad - Tan.

G1163P—1 HP Light-Duty Dust Collector
Effective dust collection not only keeps your ship cleaner and more pleasant to work in, but it can also protect your health by reducing your overall exposure to dust. Its small size and low profile make this a perfect point-of-use, dedicated dust collector.

Figure 33. G1163P 1 HP Light-Duty Dust Collector.

D3264—12" Aluminum Ruler
Keep this sturdy Aluminum Ruler handy for all shop measurements up to 12" and 30 cm. Easy-to-read black graduations on a brushed aluminum finish.

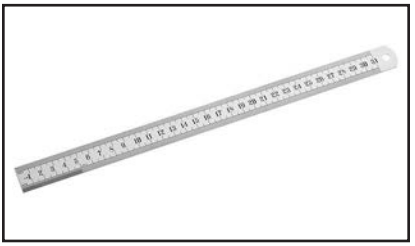


Figure 34. D3264 12" Aluminum Ruler.

SECTION 6: MAINTENANCE

⚠WARNING

Always DISCONNECT BATTERY from tool before servicing, adjusting, or doing maintenance to reduce the risk of injury due to tool starting accidentally.

Schedule

For optimum performance from this tool, this maintenance schedule must be strictly followed.

Ongoing

To minimize your risk of injury and maintain proper tool operation, shut down the tool immediately if you ever observe any of the items below, and fix the problem before continuing operations:

- Loose bolts.
- Damaged/dull bit.
- Worn or damaged wires.
- Regularly wipe down machine with a soft cloth.
- Any other unsafe condition.

Cleaning & Protecting

Cleaning the Model T33304 is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it.

Inspect the router for loose parts, damaged cord or switch, and inspect the bits for chips or cracks. Replace the bit if it is worn or damaged. Continuous use of a worn or damaged bit will not only decrease working efficiency, but also overload the motor, so the bit must be frequently checked.

SECTION 7: SERVICE

Review the troubleshooting and procedures in this section if a problem develops with your tool. If you need replacement parts or additional help with a procedure, call our Technical Support.

Troubleshooting

Motor & Electrical

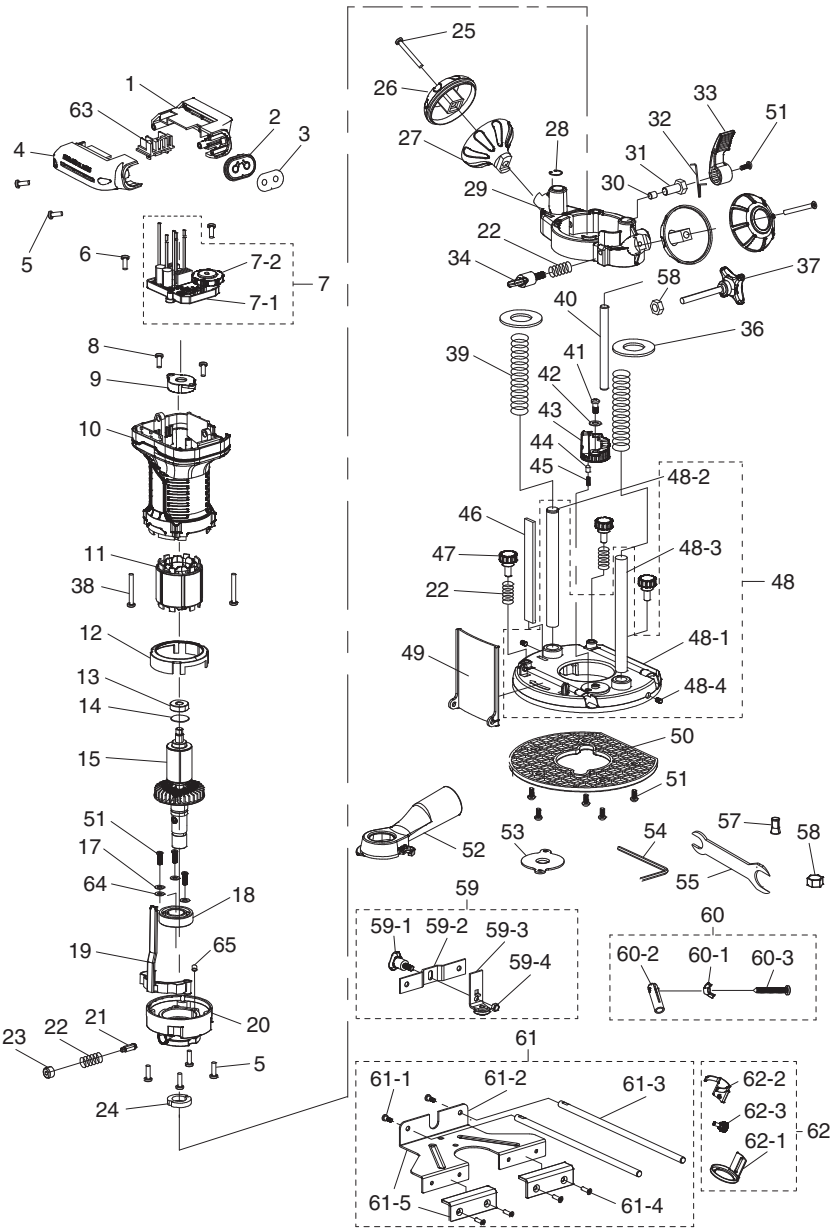
Symptom	Possible Cause	Solution
Tool does not start.	1. Battery charge low.	1. Recharge battery, verify charger is working using a volt meter if battery does not recharge (**Page 11**).
	2. Tool not in standby mode.	2. Put tool in standby mode (**Page 7**).
	3. Wiring broken, disconnected, or corroded.	3. Fix broken wires or disconnected/corroded connections.
	4. Start/Stop button at fault.	4. Replace Start/Stop button.
	5. Motor or motor bearings at fault.	5. Replace motor.
Tool stalls or is underpowered.	1. Battery charge low.	1. Recharge battery (**Page 11**).
	2. Workpiece material not suitable for tool.	2. Only cut wood; ensure moisture is below 20% (**Page 15**).
	3. Workpiece crooked; guide misadjusted.	3. Straighten or replace workpiece; adjust guide (**Page 19**).
	4. Tool undersized for task; wrong bit.	4. Tool undersized for task; utilize smaller bit or different tool.
	5. Motor overheated.	5. Clean motor, Let cool, and reduce workload. Do not clean motor with compressed air.
	6. Motor or motor bearings at fault.	6. Replace motor.
Tool has vibration or noisy operation.	1. Motor or components loose.	1. Inspect/tighten all bolts/knobs. Verify the collet cone/nut are properly tightened.
	2. Bit at fault.	2. Replace broken or dull bit.
	3. Motor improperly mounted.	3. Re-install router motor into base.
	4. Motor bearings at fault.	4. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

Router Operations

Symptom	Possible Cause	Solution
Workpiece is burned when cut.	1. Dull bit. 2. Too slow of feed rate. 3. Pitch build-up on bit. 4. Router fed in wrong direction. 5. Taking too deep of cut.	1. Replace bit (**Page 16**). 2. Increase feed speed. 3. Clean bit with blade and bit cleaning solution. 4. Reverse router feed direction (**Page 18**). 5. Make several passes of light cuts.
Fuzzy grain.	1. Wood may have high moisture content or surface wetness. 2. Dull bit.	1. Check moisture content and allow to dry if moisture is more than 20% (**Page 15**). 2. Replace bit (**Page 16**).
Chipping.	1. Cutting against grain of wood. 2. Nicked or chipped bit. 3. Feeding router too fast. 4. Taking too deep of cut. 5. Knots in wood.	1. Cut with grain of wood (**Page 15**). 2. Replace bit (**Page 16**). 3. Decrease feed rate. 4. Take a smaller depth of cut. (Always reduce cutting depth when working with hard woods.) 5. Inspect workpiece. Use a different workpiece if necessary (**Page 15**).
Divots in edge of cut.	1. Inconsistent feed speed. 2. Inconsistent pressure against guide. 3. Guide not adjusted correctly.	1. Move router smoothly. 2. Apply constant pressure. 3. Adjust guide.
Router lunges forward/pulls out of operator's hands.	1. Feeding router in same direction as bit rotation (climb cut).	1. Feed router in opposite direction of bit rotation (**Page 18**).

SECTION 8: PARTS

Main



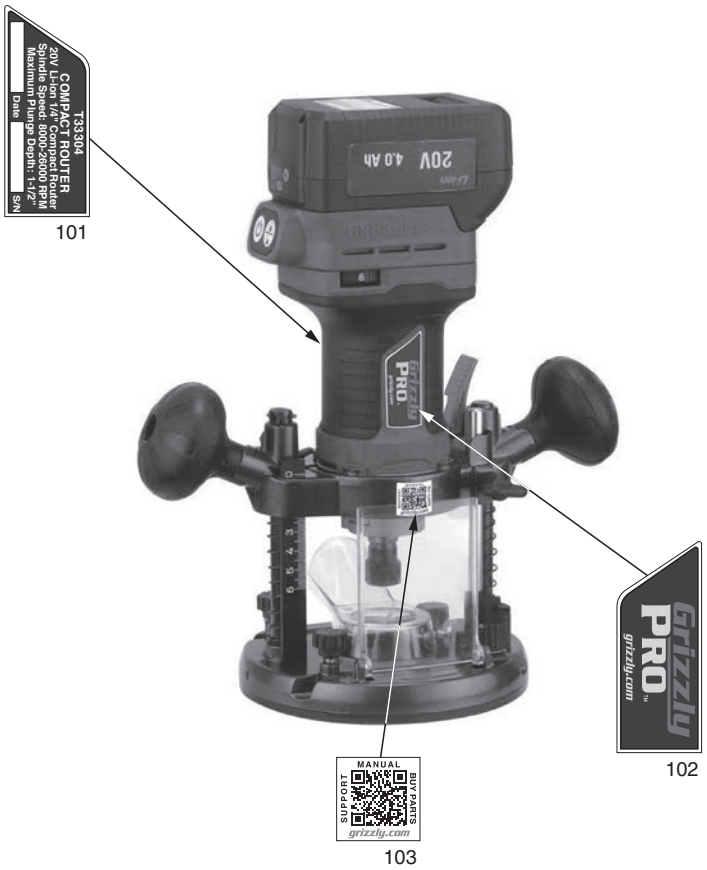
Main Parts List

REF	PART #	DESCRIPTION
1	PT33304001	BATTERY HOUSING (RIGHT)
2	PT33304002	CONTROL PANEL
3	PT33304003	CONTROL PANEL COVER
4	PT33304004	BATTERY HOUSING (LEFT)
5	PT33304005	PHLP HD SCR M3-.5 X 8
6	PT33304006	PHLP HD SCR M2-.4 X 16
7	PT33304007	VARIABLE SPEED CONTROL ASSEMBLY
7-1	PT33304007-1	VARIABLE SPEED CONTROL
7-2	PT33304007-2	SPEED ADJUSTING DIAL
8	PT33304008	PHLP HD SCR M3-2 X 12MM
9	PT33304009	BEARING CAP
10	PT33304010	MOTOR HOUSING
11	PT33304011	STATOR
12	PT33304012	FAN BAFFLE
13	PT33304013	BALL BEARING 607RS
14	PT33304014	INT RETAINING RING 19MM
15	PT33304015	ARMATURE
17	PT33304017	FLAT WASHER 4MM
18	PT33304018	BALL BEARING 6003-2RZ
19	PT33304019	LED LIGHT 3V 0.5W
20	PT33304020	HOUSING BASE
21	PT33304021	LOCK PIN 2 X 15
22	PT33304022	COMPRESSION SPRING 1 X 2 X 10
23	PT33304023	LOCK BUTTON
24	PT33304024	COLLET SHAFT NUT
25	PT33304025	PHLP HD SCR M5-.8 X 45
26	PT33304026	HANDLE COVER
27	PT33304027	HANDLE
28	PT33304028	INT RETAINING RING 20MM
29	PT33304029	ROUTER PLUNGE BRACKET
30	PT33304030	COPPER TIP 6 X 8MM
31	PT33304031	HEX BOLT M8-1.25 X 20 CUP-PT
32	PT33304032	TORSION SPRING 1 X 5 X 34
33	PT33304033	LOCK LEVER
34	PT33304034	KNOB BOLT M5-.8 X 16, D25, WING
36	PT33304036	FLAT WASHER 13 X 20 X 1
37	PT33304037	KNOB BOLT M5-.8 X 52, 4-LOBE, D44
38	PT33304038	PHLP HD SCR M2-.4 X 6
39	PT33304039	COMPRESSION SPRING 2 X 12 X 68
40	PT33304040	PLUNGE ROD 7 X 94
41	PT33304041	PHLP HD SCR M3-.5 X 12
42	PT33304042	FLAT WASHER 3MM

REF	PART #	DESCRIPTION
43	PT33304043	DEPTH STOP BLOCK
44	PT33304044	STEEL BALL 3MM
45	PT33304045	COMPRESSION SPRING .5 X 3 X 7
46	PT33304046	DEPTH SCALE
47	PT33304047	KNOB BOLT M5-.8 X 12, 12-LOBE, D16
48	PT33304048	PLUNGER BASE ASSEMBLY
48-1	PT33304048-1	PLUNGER BASE
48-2	PT33304048-2	PLUNGE ROD HOUSING (LEFT)
48-3	PT33304048-3	PLUNGE ROD HOUSING (RIGHT)
48-4	PT33304048-4	SET SCREW M4-.7 X 10
49	PT33304049	CHIP GUARD
50	PT33304050	BASE PLATE
51	PT33304051	FLAT HD SCR M4-.7 X 10
52	PT33304052	DUST PORT 1-1/2"
53	PT33304053	TEMPLATE GUIDE
54	PT33304054	HEX WRENCH 5MM
55	PT33304055	WRENCH 8 X 18 OPEN-ENDS
57	PT33304057	COLLET 1/4"
58	PT33304058	COLLET NUT M14-2
59	PT33304059	CURVED TRIM GUIDE ASSEMBLY
59-1	PT33304059-1	KNOB BOLT M5-.8 X 15, D25, WING
59-2	PT33304059-2	ROLLER PLATE
59-3	PT33304059-3	GUIDE PLATE
59-4	PT33304059-4	HEX NUT M5-.8
60	PT33304060	CIRCLE JIG ASSEMBLY
60-1	PT33304060-1	WING NUT M5-.8, 8 X 298
60-2	PT33304060-2	LOCK SLEEVE M5-.8
60-3	PT33304060-3	PHLP HD SCR M5-.8 X 50 CONE-PT
61	PT33304061	STRAIGHT GUIDE ASSEMBLY
61-1	PT33304061-1	CAP SCREW M5-.8 X 8
61-2	PT33304061-2	STRAIGHT GUIDE
61-3	PT33304061-3	GUIDE ROD M5-.8, 8 X 298
61-4	PT33304061-4	FLAT HD SCR M5-.8 X 6
61-5	PT33304061-5	GUIDE PLATE
62	PT33304062	TRIMMER GUIDE ASSEMBLY
62-1	PT33304062-1	TRIMMER GUIDE
62-2	PT33304062-2	MOUNTING BRACKET
62-3	PT33304062-3	KNOB BOLT M3-.5 X 8, 6-LOBE, D23
63	PT33304063	BATTERY TERMINAL BLOCK
64	PT33304064	FLAT WASHER 4MM
65	PT33304065	RUBBER PLUG

Parts breakdown provided for reference only. Not all parts shown are available for purchase.

Labels & Cosmetics



REF	PART #	DESCRIPTION
101	PT33304101	MACHINE ID LABEL
102	PT33304102	GRIZZLY PRO LABEL

REF	PART #	DESCRIPTION
103	PT33304103	QR CODE LABEL

⚠WARNING

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine MUST replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or www.grizzly.com.

WARRANTY & 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.

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.

In the event you need to use 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.

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.

To take advantage of this warranty, you must register it at **https://www.grizzly.com/forms/warranty**, or you can scan the QR code below to be automatically directed to our warranty registration page. Enter all applicable information for the product.

WARRANTY

grizzly.com