

Genesis

Variable Speed Rotary Tool

Outil de rotatif de vitesse variable

Herramienta rotatoria de velocidad variable

Operator's Manual

Manuel d'utilisation

Manual del Operario



GRT2103-40

VARIABLE SPEED ROTARY TOOL

Operator's Manual

SPECIFICATIONS

- Model: GRT2103-40
- Rated Voltage: 120V AC, 60HZ
- Rated Input Power: 1.0 Amp
- No Load Speed: 8,000 – 30,000 RPM
- Collet Size: 1/8"

Includes: 40 Piece Accessory Set

⚠ WARNING: To reduce the risk of injury, user must read and understand this operator's manual before operating this tool. Save this Manual for future reference.

Toll-Free Help Line: 1-888-552-8665



⚠ WARNING: The Operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning tool operation, always wear safety goggles or safety glasses with side shields and a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always wear eye protection which is marked to comply with ANSI Z87.1.



Look for this symbol to point out important safety precautions. It means attention!!! Your safety is involved.

GENERAL SAFETY RULES

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

- Lead from lead-based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- 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.

⚠ WARNING: Read and understand all warnings, cautions and operating instructions before using this equipment. Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

WORK AREA SAFETY:

- **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- **Do not operate power tools in explosive atmospheres,** such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

ELECTRICAL SAFETY

- **Power tool plugs must match the outlet.** Never modify the plug in any way. Do not use any adapter plugs in any earthed (grounded) power tools. Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way. Double insulation eliminates the need for the three wire grounded power cord and grounded power supply system.
- **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Do not abuse the cord.** Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged cords increase the risk of electric shock.
- **When operating a power tool outside, use an extension cord suitable for outdoor use.** These cords are rated for outdoor use and reduce the risk of electric shock.
- **Do not use AC only rated tools with a DC power supply.** While the tool may appear to work. The electrical components of the AC rated tool are likely to fail and rate a hazard to the operator.

PERSONAL SAFETY

- **Stay alert,** watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
- **Use safety equipment.** Always wear eye protection. Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection for appropriate conditions will reduce personal injuries.
- **Dress properly.** Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts. Air vents may cover moving parts and should be avoided.

- **Avoid accidental starting.** Ensure the switch is in the off position before plugging in. Carrying power tool with your finger on the switch or plugging in power tools that have the switch on invites accidents.
- **Remove any adjusting keys or wrenches before turning the power tool on.** A wrench or key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not over reach.** Maintain proper footing and balance at all times. Loss of balance can cause an injury in an unexpected situation.
- **If devices are provided for connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of these devices can reduce dust related hazards.
- **Do not use a ladder or unstable support.** Stable footing on a solid surface enables better control of the tool in unexpected situations.
- **Keep tool handles dry, clean and free from oil and grease.** Slippery handles cannot safely control the tool.

TOOL USE AND CARE

- **Secure the work piece.** Use clamp or other practical way to hold the work piece to a stable platform. Holding the work piece by hand or against your body is unstable and may lead to loss of control.
- **Do not force the power tool.** The tool will perform the job better and safer at the feed rate for which it is designed. Forcing the tool could possibly damage the tool and may result in personal injury.
- **Use the correct power tool for the job.** Don't force the tool or attachment to do a job for which it is not designed.
- **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired or replaced by an authorized service center.
- **Turn power tool off, and disconnect the plug** from the power source and/or battery pack from the power tool before making any adjustments, changing the accessories, or storing the tools. Such preventive safety measures reduce the risk of an accidental start up which may cause personal injury.
- **Store idle tool out of reach of children and other inexperienced persons.** It is dangerous in the hand of untrained users.
- **Maintain power tools with care.** Check for proper alignment and binding of moving parts, component breaks, and any other conditions that may affect the tool's operation. A guard or any other part that is damaged must be properly repaired or replaced by an authorized service center to avoid risk of personal injury.
- **Use recommended accessories.** Using accessories and attachments not recommended by the manufacturer or intended for use on this type tool may cause damage to the tool or result in personal injury to the user. Consult the operator's manual for recommended accessories.
- **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.

- **Feed the work piece in the correct direction and speed.** Feed the work piece into a blade, cutter, or abrasive surface against the direction of the cutting tool's direction of rotation only. Incorrectly feeding the work piece in the same direction may cause the work piece to be thrown out at high speed.
- **Never leave the tool running unattended, turn the power off.** Do not leave the tool until it comes to a complete stop.
- **Never start the power tool when any rotating component is in contact with the work piece.**

⚠ WARNING: USE OF THIS TOOL CAN GENERATE AND DISBURSE DUST OR OTHER AIRBORNE PARTICLES, INCLUDING WOOD DUST, CRYSTALLINE SILICA DUST AND ASBESTOS. Direct particles away from face and body. Always operate tool in a well-ventilated area and provide for proper dust removal. Use dust collection system wherever possible. Exposure to the dust may cause serious and permanent respiratory or other injury, including silicosis (a serious lung disease), cancer, and death. Avoid breathing the dust, and avoid prolonged contact with the dust. Allowing dust to get into your mouth or eyes, or lay on your skin may promote absorption of harmful material. Always use properly fitting NIOSH/OSHA approved respiratory protection appropriate for dust exposure, and wash exposed areas with soap and water.

SERVICE

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.
- **Service your power tool periodically.** When cleaning a tool, be careful not to disassemble any portion of the tool since internal wires may be misplaced or pinched.

⚠ WARNING: Read and understand all warnings, cautions and operating instructions before using this equipment. Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

EXTENSION CORDS

Grounded tools require a three wire extension cord. Double insulated tools can use either a two or three wire extension cord. As the distance from the power supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. Refer to the table shown below to determine the required minimum wire size.

The smaller the gauge number of the wire, the greater the capacity of the cord. For example: a 14-gauge cord can carry a higher current than a 16-gauge cord. When using more than one extension cord to make up the total length, be sure each cord contains at least the minimum wire size required. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum wire size.

Guidelines for Using Extension Cords

- If you are using an extension cord outdoors, be sure it is marked with the suffix “W-A” (“W” in Canada) to indicate that it is acceptable for outdoor use.
- Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
- Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

Recommended Minimum Wire Gauge for Extension Cords (120 Volt)						
Nameplate Amperes (At Full Load)	Extension Cord Length					
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet	200 Feet
0–2.0	18	18	18	18	16	16
2.1–3.4	18	18	18	16	14	14
3.5–5.0	18	18	16	14	12	12
5.1–7.0	18	16	14	12	12	10
7.1–12.0	18	14	12	10	8	8
12.1–16.0	14	12	10	10	8	6
16.1–20.0	12	10	8	8	6	6

SPECIFIC SAFETY RULES FOR ROTARY TOOLS

⚠ WARNING: DO NOT LET COMFORT OR FAMILIARITY WITH PRODUCT (GAINED FROM REPEATED USE) REPLACE STRICT ADHERENCE TO PRODUCT SAFETY RULES. If you use this tool unsafe or incorrectly, you can suffer serious personal injury!

⚠ WARNING: Hold tool by insulated gripping surfaces when performing an operation where cutting tools may contact hidden wiring or its own cord. Contact with a “live” wire will make exposed metal parts of the tool “live” and shock the operator!

- **Use only accessories rated for the speed recommended** on the tool warning label or higher. Wheels and other accessories running at speeds greater than rated can flay apart and cause personal injury.
- **Always hold the tool firmly in your hands** before switching the tool “ON”. The reaction to the torque of the motor as it accelerates to full speed may cause the tool to twist.
- **Be aware of the switch location** when placing the tool down or when picking the tool up. You may accidentally activate the switch.
- **After changing the bits or making any adjustments, make sure the collet nut and any other adjustments are securely tightened.** Loose or unsecured adjustment devices can unexpectedly shift, causing loss of control, and loose rotating components will be violently thrown.
- **Do not reach in the area of the spinning bit.** The nearness of the spinning bit to your hand may not always be apparent or obvious.
- **Brushes should be run at operating speed for at least one minute before using.** No one is to be in front or in line with the brush during this time. This run-in time allows loose wires and bristles to be discharged prior to work application.

- **Wire and bristle brushes must never be operated at speeds greater than 15,000 rpm** and the discharge of the spinning wire brush must be directed away from the user. Small particles and tiny wire fragments may be discharged at high velocity during cleaning use with these bristles and become imbedded in your skin. Bristles or wires will be thrown from the brush at high speeds.
- **Wear protective gloves and face shield when using wire or bristle brushes.** Lightly apply wire or bristle brushes to the work; only the tips of the wires and bristles do the work. Heavy pressure on bristles overstresses the wire or bristles and will cause them to be discharged.
- **When using grinding wheels or similar attachments,** handle the tool and wheels carefully to avoid chipping and cracking. If the tool is dropped during use, install a new grinding wheel. Do not use damaged wheels or wheels that may possibly be damaged. Damaged wheels may burst during operation causing fragments to fly away high speed possibly striking you or bystanders causing personal injury.
- **Handle sharp bits with care and never use dull or damaged bits.** Damaged bits may snap during use. Dull bits require applying more force to move the tool, possibly causing the bit to break.
- **Always use clamps or similar devices to secure the work-piece at all times.** Never hold the work-piece in one hand and the tool in the other to perform work. Allow sufficient space between your hand and the spinning bit to prevent injury due to “kickback”. Round work pieces such as dowel rod, pipe, and tubing tend to roll while being cut often causing the bit to bite into or jump toward you possibly causing personal injury.
- **Always inspect the work-piece before cutting.** Cutting irregularly shaped work pieces may pinch the bit, causing the user to lose their grasp on the tool.
- **Never start the tool when the bit is engaged in the work-piece.** The bit cutting edge may grab the material causing loss of control of the cutter.
- **Always use the proper direction of feed when carving, routing or cutting.** Feeding the tool in the wrong direction may cause the bit to climb out of the work-piece and/or unexpectedly pull the tool in the direction of the feed causing possible loss of tool control.
- **If the bit becomes jammed or bogs down in the work-piece, turn the tool “OFF” with the switch.** Wait for all moving parts to stop, free the jammed material. If the switch is left in the “ON” position, the tool could restart unexpectedly causing serious personal injury.
- **Do not leave the tool running unattended!** Only when the tool comes to a complete stop is it safe to put down.
- **Do not grind or sand near flammable materials.** Sparks from the wheel could cause these materials to ignite.
- **Do not touch the bit or collet after use,** they are too hot to be touched and will cause burns to bare flesh.
- **Do not alter or misuse the tool.** Any alteration or modification is a misuse and may result in serious personal injury.
- **This product is NOT intended for use as a dental drill in human or veterinary medical applications.** Serious personal injury may result.

YOUR ROTARY TOOL



1. Collet Nut
2. Spindle Lock Button
3. Variable Speed Dial
4. ON/OFF Switch
5. Brush Cap
6. Housing Cap

FIG 1

UNPACKING AND CONTENT

IMPORTANT: Due to modern mass production techniques, it is unlikely the tool is faulty or that a part is missing. If you find anything wrong, do not operate the tool until the parts have been replaced or the fault has been rectified. Failure to do so could result in serious personal injury.

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Accessories include: (10) Silicon carbide grinding stones; (7) Cut-off wheels; (8) Sanding discs (1) Aluminum oxide grinding wheel; (1) 1/2" Sanding drum; (3) Sanding bands; (2) Felt polishing wheels; (3) Engraving cutters; (2) Mandrels; (1) 1/8" (3mm) drill bit; (1) Dressing stone; (1) Spanner wrench; (1) Accessory storage case

ASSEMBLY AND ADJUSTMENT

⚠ WARNING: Always be sure that the tool is switched off before adjusting, adding accessories, or checking a function on the tool.

COLLETS

Your rotary tool comes from the factory set-up to use 1/8" shank accessories like those included with your kit. The accessory shank is held in place via a special split collet in the motor shaft and the external collet nut.

Your rotary tool can use different sizes of collets 3/32" 1/16" or 1/32" (not included) to accommodate different shank sizes. **Always use the collet which matches the accessory shaft size. Never force a larger diameter shaft into a collet.**

To install a different collet, remove the collet nut and pull the old collet out. Insert the new collet in. Replace the collet nut on the shaft. (SEE FIG 2)

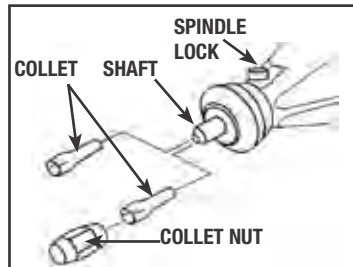


FIG 2

INSTALLING AND REMOVING ACCESSORIES

1. Switch off the tool (See Switch Action Instructions).
2. Depress the shaft lock button (2-FIG 1) firmly and rotate the shaft by hand until the lock engages, preventing further rotation of the shaft.
3. With the shaft lock engaged, loosen the collet nut by rotating it in a counterclockwise direction.
4. Do not remove the collet nut from the threaded motor shaft, only loosen the collet nut enough to remove or add an accessory.
5. Insert the accessory shank through the collect nut as far as it will go, this will help to minimize accessory bit running out of balance.
6. With the shaft lock engaged, hand tighten the collet nut by rotating it in a clockwise direction until the shank is held securely in the collet. **Do not over tighten or use any tools to tighten.**

⚠ WARNING: DO NOT engage the shaft lock while the tool is running

⚠ WARNING: Avoid excessive tightening of the collet nut. Do not over-tighten the collet nut when no bit is inserted.

BALANCING

For best results, be sure to balance each accessory in the collet. The high RPM of the tool makes an imbalanced accessory very detectable as a wobble will occur while the tool is running.

To balance an accessory:

1. Stop the tool.
2. Loosen the collet nut.
3. Rotate the accessory 1/4 turn.
4. Tighten the collet.
5. Run the tool.

Continue adjusting as needed. You will hear and feel when the accessory is properly balanced.

OPERATION

SWITCH ACTION

⚠ WARNING: Before plugging in the tool, always check to see that the tool is switched off. Always check that the tool's speed adjustment dial is set to its lowest speed.

⚠ WARNING: The switch can be locked in "ON" position for ease of operator comfort during extended use. Apply caution when locking tool in "ON" position and maintain a firm grasp on the tool.

Your rotary tool uses a toggle style switch mark with the international symbols for the ON/OFF positions, "I" (ON) and "O" (OFF). When the switch is depressed in either position it remains or is locked ON/OFF until the switch is depressed in the opposite direction.

-To start the rotary tool, press the "I" (ON) side of the switch downwards.

-To stop the rotary tool, press the "O" (OFF) side of the switch downwards.

OPERATING SPEEDS

Your rotary tool has an operating speed range of 8,000- 30,000 rpm. The numbers appearing on the speed dial provide the tool operator a rough idea of how fast the bit is rotating. The tool's speed is infinitely adjustable throughout the entire travel of the speed dial. The following chart will provide a good guideline for the rotating tool speed for various dial settings:

Speed Range Guidelines

Switch Setting	Speed Range RPM
0-2	8,000 – 10,000
2-3	10,000 – 15,000
3-4	15,000 – 20,000
4-5	20,000 – 25,000
5-6	25,000 – 30,000

Unlike tools designed for a specific purpose, the rotary tool may perform a wide variety of operations in various types of materials. Practice and experience using the rotary tool on different projects with different bits is the best teacher of which speed is more ideal for use on a specific material than other speed settings. Here are some very basic guidelines:

Use slower speeds on plastics, precious metals, or anything else that may easily damage due to heat generated by the tool's bit. Consider slower speeds when performing finely detailed work on sensitive or thin material like eggshell or fine wood carving.

Wire and bristle brushes should not be used at speeds in excess of 15,000 RPM. Higher speeds will not increase their efficiency, but cause the wires to dislodge from the wheel possibly causing personal injury.

Higher speeds can best be used for cutting, routing, carving, and cutting other shapes in wood. Drilling should be done at high speed as should most work on hardwoods, glass, and many metals. Start at slower, more comfortable speeds and work your way up to the ideal speed for the bit, the material, and the style of work being performed.

GUIDE FOR ROTARY TOOL BITS

NOTE: This Rotary Tool may not include all of the accessories described.

SANDING BANDS:



Sanding Bands of Different Grits and Sizes are used to sand curves in wood or plastic. Use a larger Sanding Band for curves with a larger arc. Finer grits give a smoother finish; coarser grits offer more aggressive sanding. Choose a Sanding Mandrel that matches the Band you want to use. Loosen the screw in the top of the Sanding Mandrel. Slide the Band over the mandrel, and tighten the screw to expand the rubber drum and secure the band.

WIRE BRUSHES:



Wire Brushes and Cup Wheels are for smoothing, de-burring, and cleaning metal surfaces. Use to remove paint, rust, corrosion, and weld slag.

Brushes should be run at operating speed for at least one minute before using. This allows loose wires and bristles to be discharged prior to work application. Wire and bristle brushes must never be operated at speeds greater than 15,000 rpm. Bristles or wires can be thrown from the brush at higher speeds. 15,000 RPM is approximately halfway on the speed dial of your variable speed rotary tool. Do not use on the mini-Rotary Tool. Wear protective gloves and face shield when using wire brushes.

The Silver/Grey brushes are carbon steel general-purpose brushes. The Gold/Yellow Brushes are Brass Brushes, which will work better on softer metals like Copper, brass, or precious metals.

BRISTLE BRUSHES:



Bristle Brushes are for cleaning and de-burring softer, delicate, or antique metals (such as Gold and Silver) and various non-metallic surfaces such as graphite and rubber. Use with polishing compound for faster results.

ALUMINUM OXIDE SAND PAPER, GRINDING STONES, WHEELS AND POINTS (RED/BROWN):



Aluminum Oxide Bits are for grinding and shaping metals of all kinds. Sharpen scissors, screwdriver Tips, Tools, Blades, Milled, uneven surfaces. De-burr metal pieces after cutting. Clean up welds. Remove Rust. Re-sharpen with provided dressing stone.

SILICON CARBIDE GRINDING STONES, WHEELS & POINTS (BLUE):



Silicon Carbide Bits are for grinding and shaping very hard materials, such as glass, ceramics, and stone. Re-sharpen with provided dressing stone.

DIAMOND GRINDING POINTS:



Diamond Grinding Points in many shapes and sizes can be used to shape, cut, carve, and engrave in very hard materials such as brick, masonry, concrete, glass, ceramics, porcelain, and stone.

ENGRAVING CUTTERS:



Engraving Cutters of Different Shapes and Sizes are used for intricate engraving, routing, and carving in wood, plastic, and soft metals.

HIGH SPEED DRILL BITS:

For fast drilling of holes in plastic, wood, and Softer metals.

FIBERGLASS CUT-OFF WHEELS AND EMERY CUT-OFF DISCS:

Cut-Off Discs and wheels of Various thicknesses are used for cutting and slotting all types of metals, plastics, and very thin wood pieces.

The cut-off wheels must be mounted on the provided mandrel to be used. Loosen and remove the screw in the top of the mandrel. Position the wheel between the two pink grommets. Replace and tighten the screw to secure the wheel.

FELT POLISHING WHEELS, BONNETS, AND POINTS:

Use these (with polishing compound, if you like) to polish metals and plastics of various shapes and sizes. Use with Screw Mandrel.

FLAP WHEEL SANDER:

This Long-Lasting Attachment can do light grinding of metals, and handle all shapes and contours of woods and plastics for Light to Heavy Sanding Operations.

MAINTENANCE

CLEANING

Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, oil, grease, etc.

⚠ WARNING: Do not at any time let brake fluids, gasoline, petroleum-based products, penetrating oils, etc., come in contact with plastic parts. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.

Electric tools used on fiberglass material, wallboard, spackling compounds, or plaster are subject to accelerated wear and possible premature failure because the fiberglass chips and grindings are highly abrasive to bearings, brushes, commutators, etc. Consequently, we do not recommended using this tool for extended work on these types of materials. However, if you do work with any of these materials, it is extremely important to clean the tool using compressed air.

LUBRICATION

This tool is permanently lubricated at the factory and requires no additional lubrication.

TWO-YEAR WARRANTY

This product is warranted free from defects in material and workmanship for 2 years after date of purchase. This limited warranty does not cover normal wear and tear or damage from neglect or accident. The original purchaser is covered by this warranty and it is not transferable. Prior to returning your tool to store location of purchase, please call Toll-Free Help Line for possible solutions. ***THIS PRODUCT IS NOT WARRANTED IF USED FOR INDUSTRIAL OR COMMERCIAL PURPOSES. ACCESSORIES INCLUDED IN THIS KIT ARE NOT COVERED BY THE 2 YEARS WARRANTY.***

TOLL-FREE HELP LINE

For questions about this or any other GENESIS Product, please call Toll-Free: **888-552-8665**.

Or visit our web site: **www.genesispowertools.com**

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