



MERLIN2



OPERATING INSTRUCTIONS

King Arthur's Tools
3645 Hartsfield Road
Tallahassee FL 32303 USA



[P] 850-877-7650
[F] 850-877-6120
KATools.com

110-115 Volt 60Hz MODELS

Variable Speed MERLIN2® # 10005
Fixed Speed MERLIN2® # 10030

220-230Volt 50Hz MODELS

Variable Speed MERLIN2® # 10041
Fixed Speed MERLIN2® # 10040



LIMITED WARRANTY of Merlin2® Long Neck Angle Grinder For Home Use

King Arthur's Tools® ("Seller") warrants to the original purchaser only, that the Merlin2® long neck mini angle grinder, which is the power unit for the Merlin2® miniature woodcarving set, will be free from defects in material or workmanship for a period of one year from the date of purchase. Seller's sole obligation and your exclusive remedy under this limited warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the repair or replacement of parts, without charge, which are defective in material or workmanship and which have not been misused, carelessly handled, or misrepaired by persons other than Seller and Authorized Service Station.

In the unlikely event of a failure of a product to conform to this written warranty, please take the following action:

1. DO NOT return your product to the place of purchase.
2. Securely package the product by itself and return the product only, freight prepaid, along with:
3. A copy of your dated proof of purchase (please keep a copy for yourself).
4. A written statement about the nature of the problem.
5. Your name, address and phone number to:
King Arthur's Tools, 3645 Hartsfield Road, Tallahassee, FL 32303

We recommend that the package be insured against loss or in transit damage for which we cannot be responsible. Damage to the product resulting from tampering, accident, abuse, negligence, unauthorized repairs or alterations, unapproved attachments or other causes unrelated to problems with material or workmanship are not covered by this warranty. Any implied warranties shall be limited in duration to one year from date of purchase. No employee, agent, dealer or other person is authorized to give any warranties on behalf of Merlin products from King Arthur's Tools.

King Arthur's Tools makes no other warranty of any kind whatever, express or implied, and all implied warranties of merchantability and fitness for a particular purpose which exceed the above mentioned obligation are hereby disclaimed by King Arthur's Tools and excluded from this limited warranty. Some states in the U.S. and some Canadian provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

In no event shall Seller be liable for any incidental or consequential damages (including but not limited to liability for loss of profits) arising from the incidental or consequential damages. This limited warranty applies only to the Merlin2® long neck angle grinder and the accessories included in the Merlin2® Carving Set sold within the United States of America, Canada and the commonwealth of Puerto Rico. For warranty coverage within other countries contact your local KATools distributor. Repairs made necessary by normal wear or abuse, or repair for product outside the warranty period, if they can be made, will be charged at regular service prices.

WARNING! Disconnect the plug from the mains before performing any maintenance or cleaning work.


MAINTENANCE: After use, clean the unit thoroughly, removing all wood shavings, grinding dust, etc. with a brush or a soft cloth. Ensure all ventilation slots are free from obstruction for optimal air flow and motor cooling. **Regularly clean the tool's air vents by compressed air.** Excessive accumulation of wood, sawdust, powdered metal, or other foreign particles inside the motor housing may cause overheating or electrical failures.

– IMPORTANT –

Symbols

Some of the following symbols may be used on your tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

| Symbol | Name | Designation |
|---------|------------------------|---|
| V | Volts | Voltage |
| A | Amperes | Current |
| Hz | Hertz | Frequency |
| W | Watt | Power |
| Kg | Kilograms | Weight |
| min | Minutes | Time |
| s | Seconds | Time |
| ∅ | Diameter | Size |
| n0 | No Load Speed | Rotational speed, at no load |
| .../min | Revolutions per minute | Revolutions, strokes, surface speed, orbits etc. per minute |

| | |
|---|--|
| Selector Settings | Speed, torque, or position settings. Turning toward arrow head increases speed |
| Infinitely Variable Selector | Speed is increasing from narrow end |
| → Arrow | Action in the direction of arrow |
| ~ Alternating Current | Type or a characteristic of current |
|  Class II Construction | Designates Double Insulated Construction tools |

MERLIN2® OPERATING INSTRUCTIONS

Congratulations and thank you for purchasing Merlin2®, a real "Wizard Of A Tool."

Merlin2® is the newest addition to our realm of innovative tools and features "The World's Smallest Chain Saw". This Universal Carving Set pairs King Arthur Tools® long neck angle grinder with six (6) accessories. The power unit is available in both fixed speed and variable speed models for 110 Volt-115 Volt and 220 Volt-230 Volt. All models come in a custom made bag with pockets for up to eight accessories and an Allen key for mounting and disassembly. Additional accessories available from King Arthur's Tools fit all models and allow Merlin2® to be used for a wide variety of applications by simply changing the accessories.

The Merlin2® miniature angle grinder is ideal for woodcarving, taxidermy, model making, tool making, mold making and minor vehicle repairs. It can be used for carving, roughening, shaping, deburring, fine grinding, chamfering, paint removal, rust removal, cutting small components and sharpening tools. Merlin2® accessories can be used on wood, hooves, fiberglass, foam, bone, antlers, steel, non-ferrous metals, glass and ceramics.

Each angle grinder comes fitted with "The World's Smallest Chain Saw" (an 8 tooth miniature chainsaw circlet) and is ready for use. The position of the safety guard has also been rotated to the correct position. **DO NOT REMOVE THE SAFETY GUARD WHEN USING THE CHAINSAW BLADE OR CARBIDE DISC AND ALWAYS OPERATE THEM WITH THE GUARD IN THE 23° POSITION.** The risk of kickback or binding, however small, is greatly increased with no safety guard. **If you remove the safety guard, don't use these accessories.**

We caution you not to force the accessories into the work piece. Let the tool do the work. Excessive force could cause bearing failure in the head of the grinder. Both the chain blade and carbide disc can be used on their face, laterally and vertically to remove, shape, shave and etch wood. A light motion works best.

– WARNING –

OVERHEATING: Do not overwork the grinder. **If the unit overheats, switch it off and allow it to cool. Failure to do so could burn out the motor and circuit board. Also, on a regular basis, blow out the vents to prevent clogging which can contribute to overheating.**
OVERTIGHTENING: Do not over tighten accessories or you could strip the internal gear in the lock down switch of the aluminum gear head. Use a gentle touch to secure the accessory – not brute force! In the event of failure, contact King Arthur's Tools. Look after your tool and your tool will look after you!

Before putting the machine into operation, please read all the enclosed safety rules and operating instructions.

SAVE THESE INSTRUCTIONS

– GENERAL SAFETY RULES –

Warning! Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

WORK AREA: 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: 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.**

Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is grounded.

Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.

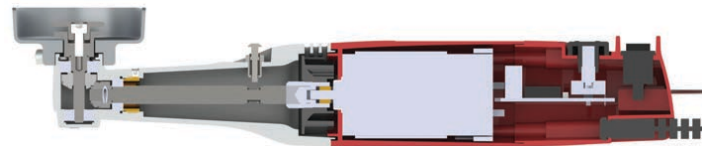
Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.

When operating a power tool outside, use an outdoor extension cord marked “W-A” or “W”. These cords are rated for outdoor use and reduce the risk of electric shock.

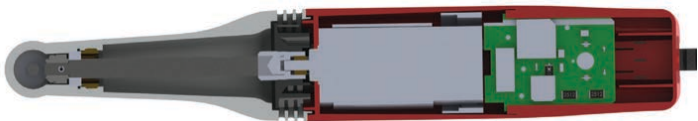
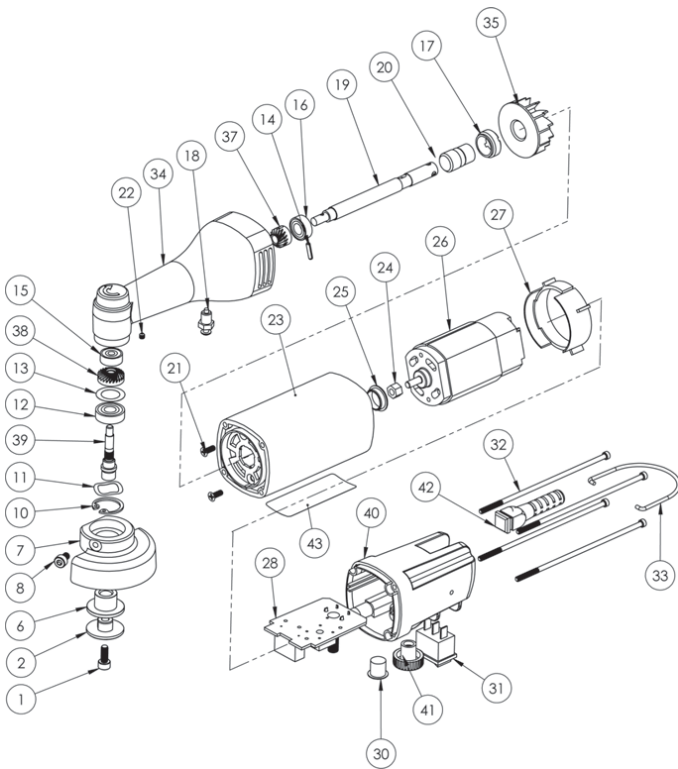
PERSONAL SAFETY: Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.

DRESS PROPERLY: Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.

| ITEM NO. | QTY | PART NUMBER | DESCRIPTION |
|----------|-----|-------------|---------------------|
| 1 | 1 | PART 1 | ATTACHMENT SCREW |
| 2 | 1 | PART 2 | ATTACHMENT WASHER |
| 6 | 1 | PART 6 | FITTING PIECE |
| 7 | 1 | PART 7 | SAFETY GAURD |
| 8 | 1 | PART 8 | SET SCREW |
| 9 | 1 | PART 9 | LANYARD |
| 10 | 1 | PART 10 | INTERNAL SNAP RING |
| 11 | 1 | PART 11 | WAVE DISC |
| 12 | 1 | PART 12 | BALL BEARING (17MM) |
| 13 | 1 | PART 13 | FLAT WASHER |
| 14 | 1 | PART 14 | SHEAR PIN |
| 15 | 1 | PART 15 | BALL BEARING (13MM) |
| 16 | 1 | PART 16 | BALL BEARING (14MM) |
| 17 | 1 | PART 17 | CASTLE NUT |
| 18 | 1 | PART 18 | LOCKING BUTTON |
| 19 | 1 | PART 19 | SHAFT (LONG) |
| 20 | 1 | PART 20 | SHAFT CAP |
| 21 | 2 | PART 21 | MOTOR SCREW |
| 22 | 1 | PART 22 | SET SCREW |
| 23 | 1 | PART 23 | MOTOR HOUSING COVER |
| 24 | 1 | PART 24 | HEX DRIVE |
| 25 | 1 | PART 25 | CENTERING RING |
| 26 | 1 | PART 26 | MOTOR |
| 27 | 1 | PART 27 | MOTOR SUPPORT RING |
| 28 | 1 | PART 28 | CONTROL UNIT |
| 29 | 1 | PART 29 | HEX (ALLEN) KEY |
| 30 | 1 | PART 30 | HOLE PLUG |
| 31 | 1 | PART 31 | ROCKER SWITCH |
| 32 | 4 | PART 32 | SCREW |
| 33 | 1 | PART 33 | BOW |
| 34 | 1 | PART 34 | GEAR HOUSING |
| 35 | 1 | PART 35 | FAN |
| 37 | 1 | PART 38P | GEAR PAIR (PINION) |
| 38 | 1 | PART 38G | GEAR PAIR (GEAR) |
| 39 | 1 | PART 39 | SHAFT-SHORT |
| 40 | 1 | PART 40 | REAR HOUSING |
| 41 | 1 | PART 41 | CONTROL KNOB |
| 42 | 1 | PART 42 | POWER CORD |
| 43 | 1 | PART 43 | LABEL |



MERLIN2® ASSEMBLY AND PARTS



Avoid accidental starting. Be sure switch is off before plugging in. Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.

Remove adjusting keys or wrenches before turning the tool on. A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.

Do not overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.

Use safety equipment by always wearing safety goggles or full-face visor and dust mask. Additionally, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions. Using personal safety devices and working in safe environment reduces risk of injury. Use the tool only in ventilated areas.

TOOL USE AND CARE: Use clamps, vise or other practical ways to secure and support the work piece to a stable platform. Holding the object by hand or against your body is unstable and unsafe and may lead to loss of control.

Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.

Store idle tools out of reach of children and other untrained persons. Tools are dangerous in the hands of untrained users.

Maintain tools with care. Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges, are less likely to bind and are easier to control.

Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.

Use only accessories that are recommended by the manufacturer for your model. Accessories that may be suitable for one tool may become hazardous when used on another tool.

Only qualified repair personnel from King Arthur's Tools must perform tool service. Please contact KAT for service instructions should repairs be required. Service or maintenance performed by unqualified personnel could result in a risk of injury and could void the warranty.

Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of electric shock or injury. Certain cleaning agents such as gasoline, carbon tetrachloride, ammonia, etc. may damage plastic parts.

SPECIFIC SAFETY RULES: Be aware of the switch location, when placing the tool down or when picking the tool up. The protective wall guard around the on/off switch greatly reduces this happening but be aware of your surroundings to prevent unintentional switch activation.

After changing any accessory or making any adjustments, make sure the Allen key or any screws are securely tightened but not over tightened.

Hold the grinder by insulated gripping surfaces when performing an operation where the cutting tool 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. If cutting into existing walls or other blind areas where electrical wiring may exist is unavoidable, disconnect all fuses or circuit breakers feeding this work site.

Always disconnect the power cord from the power source before making any adjustments or attaching any accessories. You may unexpectedly cause the grinder to start, leading to serious personal injury.

Accessories must be rated for at least the speed recommended on the tool warning label. Wheels and other accessories running over rated speed can fly apart and cause injury.

Do not reach in the area of the rotating wheel. The proximity of the rotating wheel to your hand may not always be obvious.

Carefully handle both the tool and individual grinding wheels to avoid chipping or cracking. Install a new grinding wheel if tool is dropped while grinding. Do not use a wheel that may be damaged. Fragments from a wheel that bursts during operation will fly away at great velocity possibly striking you or bystanders. If a chain tooth becomes jagged, simply sharpen it with a few strokes of the chain saw file or diamond file to bring the edge back. Other accessories may need replacing if damaged.

Use clamps to support work piece whenever practical. Never hold a small work piece in one hand and the tool in the other hand while in use. Allow for sufficient space between your hand and the spinning grinder. Round material such as dowel rods, pipes or tubing have a tendency to roll while being cut, and may cause the grinder to "bite" or jump toward you. Clamping a small work piece allows you to use both hands to control the tool.

Inspect your work piece before cutting. When cutting irregularly shaped objects, plan your work so it will not slip, pinch the grinder and be torn from your hand. For example, if carving wood, make sure there are no nails or foreign objects in the work piece. These alien materials may cause the grinder to jump.

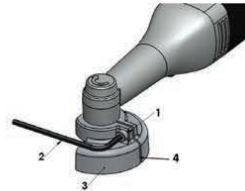
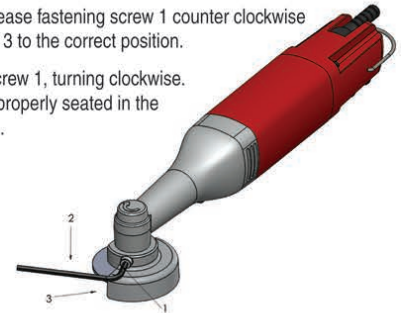
Never start the tool when the grinder is engaged in the work piece. The accessory's cutting edge may grab causing loss of control of the cutter and possible injury to you.

ADJUSTING PROTECTIVE SAFETY GUARD

WARNING!

Disconnect the plug from the mains before the following:

- Using the Allen Key 2, release fastening screw 1 counter clockwise and turn protective guard 3 to the correct position.
- Retighten the fastening screw 1, turning clockwise. Ensure the accessory is properly seated in the centering disc shoulder 3.



Adjusting the Safety Guard:

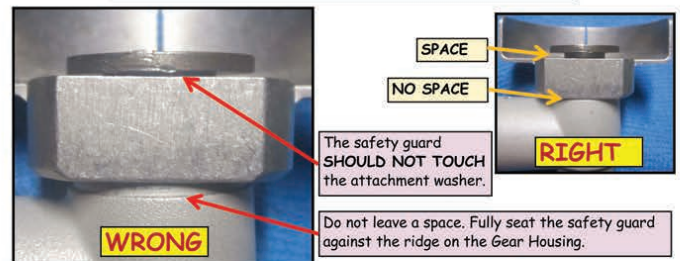
- Release the set screw (1) using the hex key (2).
- Turn the safety guard (3) to the desired position, making sure it will protect your fingers during operation.
- Retighten the set screw (1) and check that the safety guard (3) is properly and securely seated on the EHK. (SEE FLIP SIDE OF INSERT)

DO NOT OVERTIGHTEN.

- The slit or opening in the safety guard (4) **does not** have to be completely closed or the two sides pulled together for the guard to be tight and secure. Tighten just enough to keep the safety guard from moving.



FULLY SEAT THE SAFETY GUARD AFTER MAKING ADJUSTMENTS—DO NOT OVERTIGHTEN



REPLACING ACCESSORIES

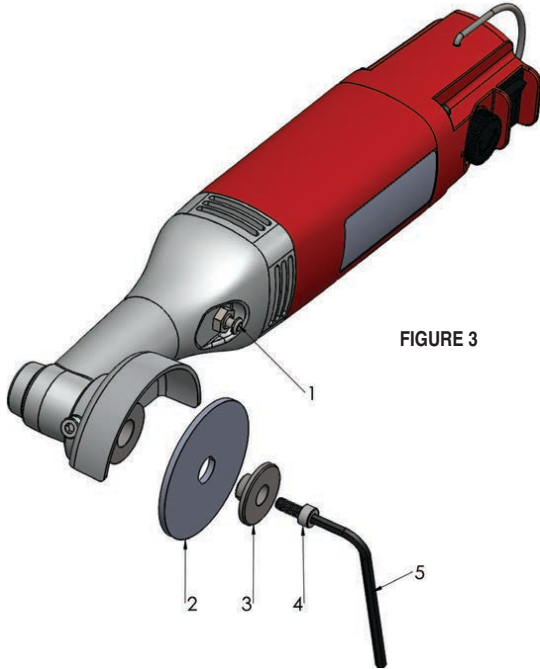


FIGURE 3

WARNING!

Disconnect the plug from the mains before replacing any accessories.
Never press the locking button if the accessory is still rotating.

- Press the locking button 1 (FIG 3)
- Turn the fastening screw 4 counter clockwise using an Allen Key 5 until the locking button engages.
- Undo the fastening screw 4, remove the centering disc 3 and the accessory.
- Fit the new accessory and ensure it is properly seated in the centering disc shoulder 3.
- Press locking button 1 and secure, but do not over-tighten the fastening screw 4 using the Allen Key 5 in a clockwise direction.

Avoid bouncing and snagging the accessories, especially when working corners, sharp edges, etc. This can cause loss of control and kickback.

If the grinder becomes jammed or bogged down in the work piece, turn the tool off by the switch. Wait for the spinning accessory to stop and unplug the tool, then work to free the jammed material. If the switch is left on, the grinder could restart unexpectedly causing serious injury.

Do not leave a running tool unattended; turn power off. Only when the accessory on the grinder comes to a complete stop is it safe to put down.

Do not grind or sand near flammable materials. Sparks from the wheel could ignite these materials.

WARNING! Do not use the unit on materials which contain asbestos.

Do not alter or misuse 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 or in medical applications. Serious personal injury may result.

Merlin2® miniature long neck angle grinders are available in both fixed speed and variable speed models for 110V- 115V and 220V-230V.

The following chart easily identifies your Merlin2® power unit model.

SPECIFICATIONS

| VARIABLE SPEED 110-115 VOLT | VARIABLE SPEED 220-230 VOLT |
|---|---|
| Merlin2® Model 10005: Universal Carving Set - Voltage 110V-115V 60Hz Power 1.0 amp/100 Watt Rotational Speed: 0 to 13,000 rpm Disc Diameter: 2"/ 50mm Length: 11-13/32"/280mm Weight: 1.54 lb/700 grams | Merlin2® Model 10040: Universal Carving Set - Voltage 220V-230V 50hz Power 1.0 amp/100 Watt Rotational Speed: 0 to 13,000 rpm Disc Diameter: 2"/ 50mm Length: 11-13/32"/280mm Weight: 1.54 lb/700 grams |
| FIXED SPEED 110-115 VOLT | FIXED SPEED 220-230 VOLT |
| Merlin2® Model 10030: Universal Carving Set 110V-115 V 60Hz 1.0 amp/100 Watt Rotational Speed: 13,000 rpm Disc Diameter: 2"/ 50mm Length: 11-13/32"/280mm Weight: 1.54 lb/700 grams | Merlin2® Model 10041: Universal Carving Set - Voltage 220V-230V 50hz Power 1.0 amp/100 Watt Rotational Speed: 13,000 rpm Disc Diameter: 2"/ 50mm Length: 11-13/32"/280mm Weight: 1.54 lb/700 grams |



ASSEMBLY OF CHAIN AND DISCS

The two discs secure the saw chain circllet between them. For both the 8 tooth (shown) and the 4 tooth circllet.

← **NOTE DIRECTION OF RAKER POINT**

IMPORTANT: If assembled in reverse to motor direction, Merlin2® will not cut, leaving burn marks on the work piece.

The two discs secure the saw chain circllet between them.

Assembling and Changing Accessories: Outlined below is the procedure for accessories to be correctly fitted to the mini grinder.

- 1) Use the Allen key 5 to unscrew accessories, simultaneously holding down button 1. Turn the fastening screw counterclockwise using the Allen key until the locking button engages.
- 2) The small fastening screw 4 with the Allen key head 5 fits through the silver centering disc 3, which has a 10mm raised shoulder. Remove the centering disc and the accessory to be replaced. Get the required new accessory, (all of which have a 10mm center hole), and fit it over this shoulder.
- 3) When mounting the saw chain assembly, make sure the chain is secured between the discs and the chain is facing the right direction with the raker on the left. Another check is to make sure that the number 25 stamped on tang of the chain is face down.
- 4) The bottom saw chain disc sits on (not over) the silver spacer (which is part of the grinder).
- 5) Simply tighten the screw 4 clockwise with the Allen key 5 using the lock down switch 1 to hold the chain/discs or any accessory during tightening, making sure they are centered for proper balance. **Do not overtighten!** A quick on/off test will allow you to check this visually. Readjust chain and discs as necessary. It's ready to use.

Grinding Wheel Use: Good grinding performance can only be achieved using the correct and constant rotational speed. To achieve the best results when grinding metal (e.g. sharpening mower blades), apply the grinding disc to the grinding surface at an angle of between 30° and 40° and move evenly back and forth over the metal. Do not try to bend the grinding disc into the cutting surface during cutting work.

Cutting Wheel Use: The fiberglass cutoff disc is designed to cut through metal rods and metal. Taxidermists will love it. Do not use it for roughout work as there is a high risk of fracture! Use the tungsten carbide or chain saw accessories for all roughout applications.

USING THE UNIT

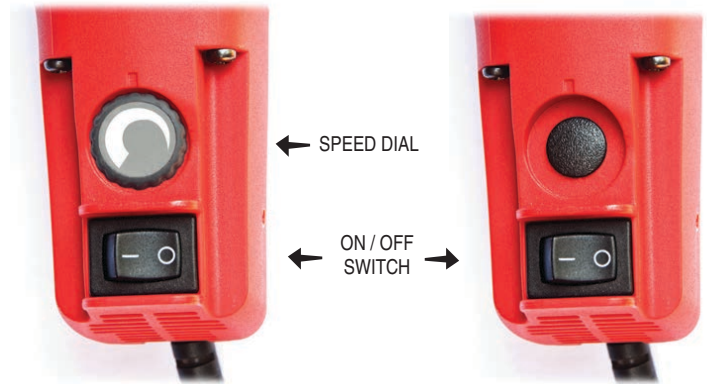


FIGURE 1 - Variable Speed

Variable speed model, use speed dial to set the speed control to a speed appropriate for the work. (Refer Speed Chart)

FIGURE 2 - Fixed Speed

Fixed speed model, Switch the unit on.

SPEED CHART

Available Accessories / Recommended Speeds

| Accessory Speed | Part # | Recommended |
|--|--------|---------------------|
| Coarse Red Carbide Abrasive Disc | 10009 | 7,000 – 13,000 rpm |
| Medium Yellow Carbide Abrasive Disc | 10010 | 7,000 – 13,000 rpm |
| Fine Stone Garnet Carbide Abrasive Disc | 10011 | 7,000 – 13,000 rpm |
| Face & Edge Coated Green Carbide Disc | 10012 | 7,000 – 13,000 rpm |
| 60 Grit Flap Disc Sander | 10042 | 12,000 – 13,000 rpm |
| 120 Grit Flap Disc Sander | 10043 | 12,000 – 13,000 rpm |
| 240 Grit Flap Disc Sander | 10044 | 12,000 – 13,000 rpm |
| 320 Grit Flap Disc Sander | 10045 | 12,000 – 13,000 rpm |
| 600 Grit Flap Disc Sander | 10046 | 12,000 – 13,000 rpm |
| Fiberglass Cutting Disc | 10047 | 10,000 rpm |
| Aluminum Oxide Grinding Disc | 10048 | 10,000 rpm |
| 8 Tooth Standard Chain Assembly (with discs) | 21008 | 7,000 – 13,000 rpm |
| 8 Tooth Standard Replacement Chain | 20008 | 7,000 – 13,000 rpm |
| 4 Tooth Carbide Chain Assembly (+ discs; for wood) | 2104MW | 9,000 – 13,000 rpm |
| 4 Tooth Carbide Replacement Chain (for wood) | 2004MW | 9,000 – 13,000 rpm |