



TechSheets

Information for our Industry



MAG-TechSheets - Quick Start Instructions for the MAG-1000, MAG-8000, and MAG-9000

(please note: does not replace operating instructions)

MAG-1000 Blade Balancer

1. With an abrasive belt or the like, produce a clean metal surface around the center hole of the blade (at least 3" in diameter). This assures maximum magnetic pull to hold the blade on the blade balancer. Push the moveable magnet towards the mounting plate. With both hands hold the blade horizontally locate the blade hole on the cone. Be sure the blade hole has complete contact with the cone. Then with both fore fingers slide the magnetic chuck towards the blade until contact is made with the blade (see fig 1).
2. Rotate the blade to be horizontally (see fig 2). Remove your hands slowly making sure that the magnet holds the blade, and that the blade is free to rotate. The heavy end of the blade will rotate downward (see fig 2). The light end of the blade will point upwards. The speed at which the blade end falls is also an indication of the out-of-balance condition (i.e. fast falling = very out of balance slow falling = less out of balance).
3. A blade remaining in a horizontal attitude is in balance horizontally. A blade remaining in a vertical attitude is in balance vertically. A fully balanced blade will remain stationary in any position around its rotation. To remove the blade from the balancer, firmly grip both ends of the blade and twist the blade with enough force to disengage the magnetic pull of the balancer.
4. While the blade is on the balancer, position the gage rod end within close proximity to one end of the blade. Measure the proximity. Slowly rotate the blade 180 degrees to bring the opposite end of the blade to the gage rod end. Measure the proximity. Identical proximity measurements indicate a straight blade. Consult the blade manufacturer's specification for blade service and replacement.

Figure 1

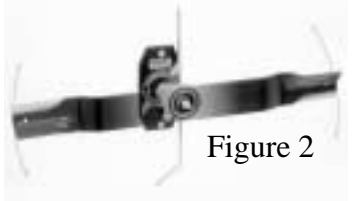


Figure 2

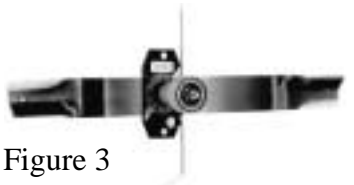
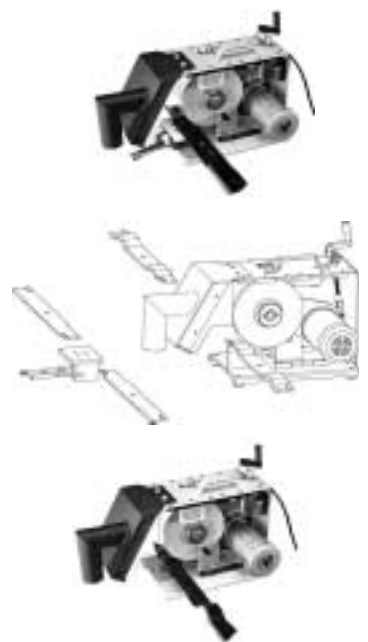


Figure 3

MAG-8000 Universal Lawn Mower Blade Sharpener

1. Clean the blade to its base material. Check the edge for large nicks and burrs on the underside of the edge. If burrs are present grind them off with a hand or pedestal grinder. Grind off the burr only do not grind the underside surface of the blade.
2. When sharpening straight or curved blades always maintain a constant level of contact with the worktable.
3. When sharpening curved (mulching) blades assure that you have installed a 1/2" wide grinding wheel and that the narrow rounded worktable is exposed (remove the flat worktable if it is clamped over the narrow rounded worktable).
4. Sharpen the curved blade: Adjust the grinding wheel to near the narrow-rounded worktable. Your grinding angle is now set at 30 degrees. Place the blade on to the worktable in such a manner that you will grind the new edge from the inside of the blade to the tip. Note: the force used to push the blade in to the wheel should be very slight (light touch), allow the blade to smoothly follow its curves against the rounded worktable. You will need to compensate for these varying curves by allowing the blade to slightly come away from the grinding wheel and then back to it. A lighter force with a little experience will produce an unparalleled professional uniform appearance along the blade edge.
5. When sharpening straight edged blades, it is recommended that you install the 1" wide grinding wheel. We recommend this to save on grinding wheel life of the 1/2" wheel. Next clamp the flat worktable over the rounded worktable and clamp it tightly. Then refer to (#4) of the MAG-9000 sharpening instructions.





MAG-TechSheets - Quick Start Instructions for the MAG-1000, MAG-8000, and MAG-9000

(please note: does not replace operating instructions)

MAG-9000 Lawn Mower Blade Sharpener

1. Clean the blade to its base material. Check the edge for large nicks and burrs on the underside of the of the edge. If burrs are present grind them off with a hand or pedestal grinder. Grind off the burr only do not grind the underside surface of the blade.
2. When sharpening straight or curved blades always maintain a constant level of contact with the worktable.
3. When sharpening straight edged blades adjust the grinding wheel until it slightly hits the plastic worktable. A clockwise rotation of the crank raises the wheel - counterclockwise rotation lowers the wheel into the worktable. One side of the worktable has a angular (not square) edge (see fig 4). That edge is your guide to move the blade parallel to during grinding. At first you will grind at the corner of the grinding wheel, but as you continue, the grinding wheel will become dressed to an angle just by using it. As the wheel wears you will need to continually lower it into the plastic worktable. When the grinding wheel is lowered into the worktable you will achieve an blade edge of approximately 35 degrees.
4. To sharpen the blade, place it on the worktable of the grinder. With your left hand provide the blade with a firm downward force to keep flat constant contact with the worktable. Also use your left hand to push the blade into the grinding wheel. Then use your right hand to provide the back and forth motion to slide the blade against the grinding wheel (if you are left handed just do the opposite). The back and forth movement should be the length of the desired blade edge being sharpened. The force pushing into the grinding wheel should be substantial resulting in a continuous stream of sparks from the grinding wheel. The grinding process should be continuous without interruption, until finished.

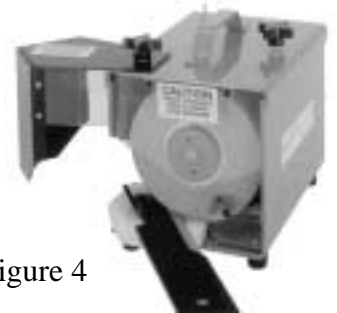
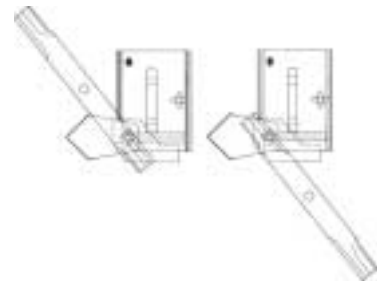


Figure 4



MAG-8000 Lawn Mower Blade Sharpening Results

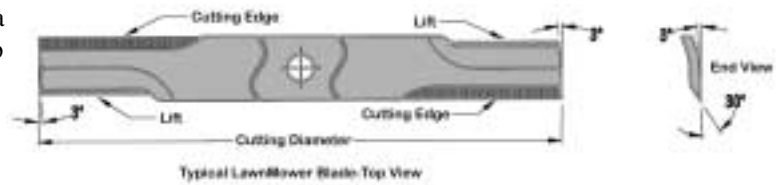


When you want to sharpen the typical lawn mower blade in less than 60 seconds perfectly every time.

Get a MAG-9000 Lawn Mower Blade Sharpener!

HISTORY

Around 1940 the rotary lawn mower blade was introduced as a low cost, quick, and easy way to cut large grass areas. A sharp edged rotary mower blade collides with the grass at high speed. The typical lawn mower blade has **two sharp tips** with extended **knife edges** that wear and require **frequent re-sharpening**.



The most common sharpening machine is the pedestal grinder.

1. The pedestal grinder sharpens drills, chisels, cutting bits, etc. These tools are made from very hard steels (65 Rockwell). The operator holds the tool to be with his/her hands and carefully guides the tool movement against the grinding wheel. In this sharpening process very only very small amounts of steel are removed.
2. The rotary mower blade is made from a soft tempered steel (45 Rockwell). It needs a lot of steel removed to be effectively re-sharpened.
3. Conclusion: The pedestal grinder is **not very effective** in sharpening the rotary mower blade. Generally available pedestal grinder wheels are too hard for mower blades. They tend to easily burn the temper out of the blade, making no long fit to use (blueing marks).



Basic Performance of pedestal grinder

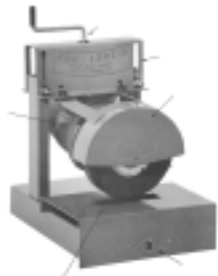
- Time to sharpen a lawn mower blade: about **6 to 12 minutes**
- Quality of sharpening process: **poor to questionable**

About 1960 the pedestal grinder began its transformation to become a specific lawn mower blade sharpener. The basic pedestal grinder was modified to extend the output shaft. The work rest was modified to permit edge angle and wheel wear adjustments.

Basic Performance of pedestal grinder type sharpener

- Time to sharpen lawn mower blade: About **4 to 8 minutes**
- Quality of sharpening process: **Medium to poor**

It is astonishing that the majority of existing blade sharpeners and the majority of blade sharpeners being manufactured today are the same old modified pedestal grinder.



Other Developments

- Mechanical blade clamping arrangements with an x and y slide to guide the movement and the feed of the blade edge against the grinding wheel. Generally, in the time that it takes to properly clamp down and properly set for the x and y slide, the “free-hand” method of grinding can be finished with the re-sharpening of a lawn mower blade.
- Clamping arrangements again with a x and y slide, but this time utilizing a “milling machine-like” drill press using solid carbide endmills. Again the time that is taken in the set up of this type of process far exceeds the time available to make the re-sharpening of a lawn mower blade economical. Milling is a very slow and costly metal removal process, which is usually reserved for high-cost, high-precision applications.

In 1988 Magna-Matic Corporation introduced the industry’s first **high-tech MAG-9000 Lawn Mower Blade Sharpener**.

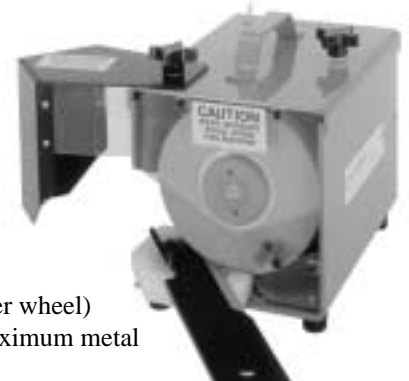
Basic Performance

- Time to sharpen a lawn mower blade: **60 seconds or less**
- Quality of sharpening process: **repetitive high quality**

Features of the MAG-9000 Blade Sharpener

A NORTON Mfg. grinding wheel which -

- Removes a lot of heat
- Is of least cost (about \$0.12 per blade) (approx. grinding wheel cost \$24.00 / 200 blades per wheel)
- Is selected to grind the lawn mower blade (a specific material at a specific hardness) at maximum metal removal rate.
- A grinding wheel surface speed 6300 ft./min. @ 7” diameter utilizing all the cutting crystals of the wheel.



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Design Comparison between motor configurations of the MAG-9000 and all other lawn mower blade sharpeners available

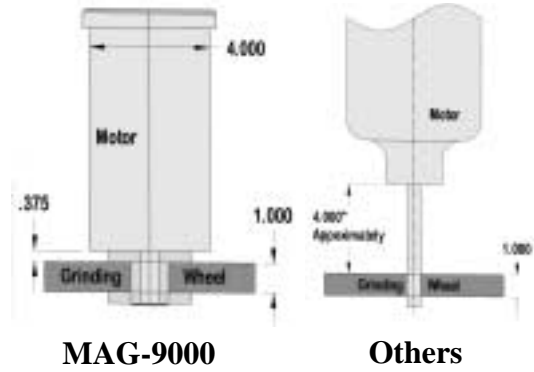
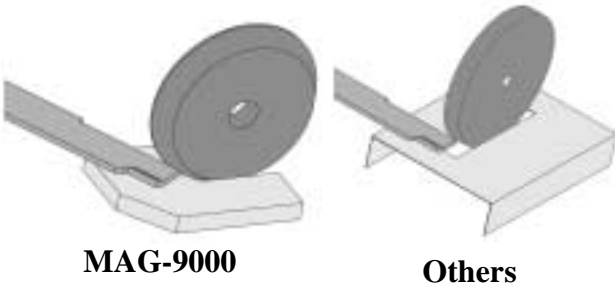


Table 1: Feet per Minute Comparison of Lawn Mower Blade Sharpeners

Sharpener	Wheel Diameter	RPM	MAX ft./min.	MIN ft./min.	AVERAGE ft./min.
MAG-9000	7 inch	3450	6300	4000	5200
Others	7 inch	1725	3200	2000	2600
Others	8 inch	1725	3600	2000	2800
Others	9 inch	1725	4000	2000	3000
Others	10 inch	1725	4500	2000	3250
Others	12 inch	1725	5400	2000	3700

Design Comparison between worktable configurations of the MAG-9000 and all other lawn mower blade sharpeners available



Clearly the modified pedestal grinders lack the speed and purpose to sharpen lawn mower blades effectively.

The feed rate into the grinding wheel must be “free-cutting.” Crowding of over-pushing the grinding process will result in over-heating the material and motor. Our industry still carries over the notion that more horsepower, bigger, and heavier is better. A uniform stream of sparks should come away from the grinding wheel continuously until the blade is sharp. **(No grinding interruptions)** A uniform force applied on to the blade vertically and horizontally into the grinding wheel makes for a smooth grinding process **(no blade vibrations)**. Magna-Matic blade sharpeners are not equipped with a dresser, because they **never need dressing**.

- A grinding machine that has minimum overhung load equals - NO VIBERATION
- MAG-design - Direct support under blade and minimum overhung load OTHERS-designs - unsupported blade and maximum overhung load. Direct support under the blade equals rigidity - NO VIBERATION

Safety

Only Magna-Matic blade sharpeners comply with ANSI B7.1 (American National Standard Institute)

- Magna-Matic provides grinding wheels that are speed tested and balanced at **5500 RPM** for extra safety. (Actual motor speed of the MAG-9000 = 3450)
- Magna-Matic complies with ANSI, which dictates the use of grinding wheel flanges to hold the grinding wheel.
- Magna-Matic complies with ANSI, which dictates that the arbor nut thread must be so that the nut will tighten as the spindle rotates. (left handed nut)
- Magna-Matic complies with ANSI, which dictates a maximum 90 degree opening of the grinding wheel guard (1/4 of the periphery)
- Magna-Matic complies with ANSI, which dictates work rest that does not permit jamming between the abrasive wheel and guard.
- The MAG-9000 is a fully enclosed grinding machine that offers maximum protection to the operator.
- Magna-Matic provides a single clockwise direction grinding wheel rotation for you to control the work piece. In the event that you loose control the work piece is pushed away from the grinding wheel; not jammed into the grinding wheel.
- The MAG-9000 is mobile to go-anywhere. Just lift it at the handle (50 lbs.). Rubber feet keep the grinder where you place it.
- The MAG-9000 is impressively quiet in operation.
- Built-in valve stem grinding guide
- Built-in chain saw bar squaring guide.
- A grit guard to deflect the grit to the floor, or an optional vacuum grit guard that connects to any standard shop vac having a 2” diameter hose.
- Magna-Matic Corporation is the only lawn mower blade sharpener manufacturer that provides 100% satisfaction guaranteed (if you are not satisfied with any of our products you may return them within the first 30 days for a refund).

With the best performance in the industry, a satisfaction guarantee, and an ongoing commitment to serve you the MAG-9000 is your best choice.

The MAG-9000 Lawn Mower Blade Sharpener is the only blade sharpener that produces a professional re-sharpening job repetitively in less than 60 seconds, at the highest quality and at the least cost to you.