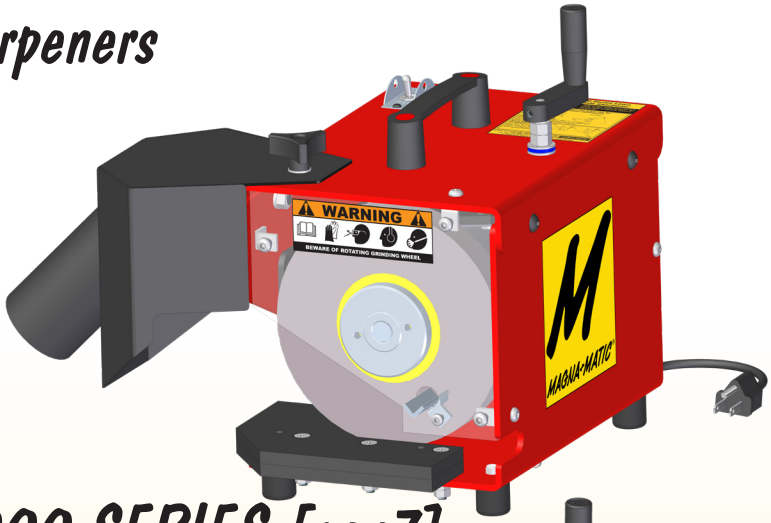
Original Instructions

for Magna-Matic Lawn Mower Blade Sharpeners



MAG-9000 SERIES [gen7]

MAG-8000 SERIES [gen6]

MAGNA-MATIC®

MADE IN THE USA

THANK YOU,

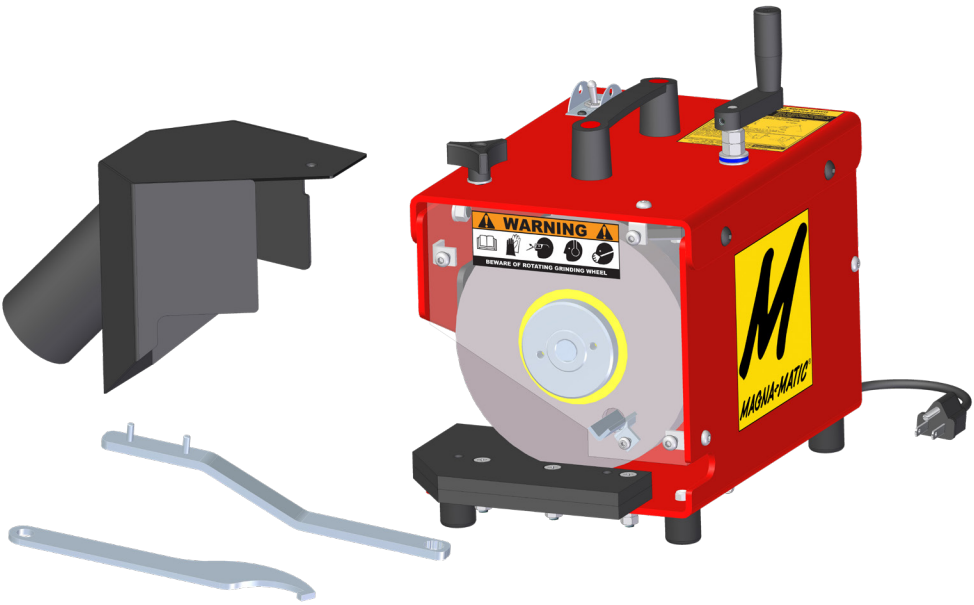
We sincerely appreciate your decision to make Magna-Matic your lawn mower blade sharpener. We understand there are other choices in the marketplace, and we are extremely confident that after the first few blades you sharpen, it will be evident you've chosen the best machine for the job. Rest assured that if you have a question or problem you will have complete customer support for all of our products.

800-328-1110 (USA & CANADA) or 920-564-2366
http://www.magna-matic.com

BOX INVENTORY

- **MAG-9000 sharpener main body**
- **Vacuum grit guard (9000-50)**
- **Grinding wheel (9000-23) mounted**
- **Spanner wrench (9000-21)**
- **Arbor wrench (9000-53)**

Please be sure all the items are in the box and inspect for shipping damage, or for missing parts. Contact Magna-Matic right away to remedy any problems due to shipping. 800-328-1110



BOX INVENTORY

- **MAG-8000 sharpener main body (with grit guard)**
- **Grinding wheel (9000-35)**
- **Grinding wheel (8000-30)**
- **Crank handle**
- **Flat worktable insert**
- **Rounded worktable insert (mounted on machine)**
- **Spanner wrench (9000-21)**
- **Arbor wrench (9000-53)**

Please be sure all the items are in the box and inspect for shipping damage, or for missing parts. Contact Magna-Matic right away to remedy any problems due to shipping. 800-328-1110

IMPORTANT - There is a transport bolt that must be removed before use! The bolt goes through the two uprights and the pivot plate. If this bolt is not removed it will be impossible to adjust the grinding wheel. See page 6.

THE *SAFE WAY* IS THE *ONLY WAY* TO GRIND!

WARNING

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY.

CAUTION

LAWN MOWER BLADES HAVE SHARP EDGES - ALWAYS WEAR PROTECTIVE GLOVES AND SAFETY GLASSES!

Before handling any equipment read and understand the instructions.

Grounding Instructions - This tool must be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three conductor cord and three prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) wire is the grounding wire.

Extension Cords - Use only three wire extension cords which have three prong grounding type plugs and three pole receptacles which accepts the tool's plug. Replace or repair damaged cords.

Keep Work Area Clean - Clean benches and floors to prevent slip, trip, or falls.

Consider Working Environment - Don't use power tools in damp or wet locations. Keep work area well lit. Don't expose power tools to rain. Do not use tool in presence of flammable liquids or gases.

Keep Children Away - All visitors should be kept a safe distance from the work area. Do not let visitors have contact with the tool or the extension cord.

Store Idle Tools - When not in use, tools should be stored in dry, high or locked-up places out of reach of children.

Do Not Force Tool - It will do the job better and safer at the rate for which it was designed.

Do Not Over-Reach - Keep proper footing and balance at all times

Use Safety Glasses - Also face or dust mask-wrap around goggles, or other eye protection.

Wear Proper Apparel - Do not wear loose clothing or jewelry that can get caught in moving parts. Gloves and non-skid footwear are required when working. Wear protective hair covering to contain long hair.

Do Not Abuse Cord - Never carry tool by cord or pull it to disconnect from receptacle.

Keep cord from heat, oil, and sharp edges.

Disconnect Tool - When not in use; before servicing; when changing grinding wheels.

Avoid Accidental Starting - Don't carry plugged in tool. Be sure switch is off when plugging in.

Grinding Wheels - Use only grinding wheels having a maximum operating speed of 5500 RPM. KEEP GUARDS IN PLACE.

Guard Against Electrical Shock - Prevent body contact with grounded surface. For example: pipes, radiators, etc.

Stay Alert - Watch what you are doing. Use common sense. Do not operate tool when you are tired, or under the influence of any drugs or alcohol.

Check Damaged Parts - Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, breakage of parts, mounting and any other condition that effect its operation. All parts should be properly repaired or replaced. Do not use this tool if the switch does not turn it on or off.

Never Leave Tool Unattended - Turn the power off. Don't leave the tool until it comes to a complete stop.

Read "A Primer on Grinding Wheel Safety" http://www.magna-matic.com

SAFETY LABELS

SAFETY COLOR	DEFINITION
DANGER	Interaction with the hazard will cause severe injury or death.
WARNING	Interaction with the hazard could cause severe injury or death.

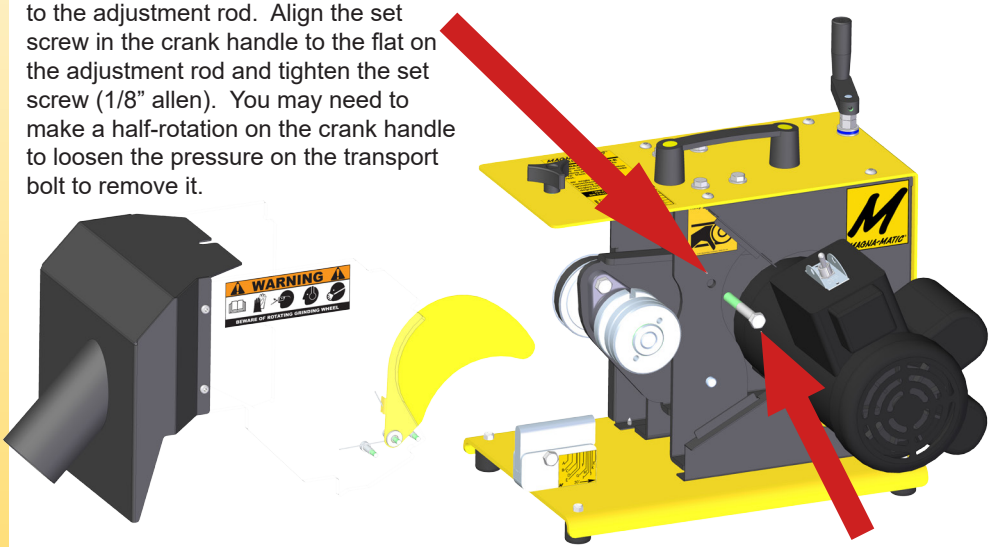
SAFETY ICON	DEFINITION
	
	Read all included manuals and bulletins included with this equipment.
	Always wear protective gloves when operating this equipment. Gloves are required.
	Always wear protective eye wear when operating this equipment. Eye protection required.
	Always wear protective hearing protection when operating this equipment. Hearing protection required.
	Always wear respiratory protection when operating this equipment. Respiratory protection required.

SAFETY ICON	DEFINITION
	Keep clear of the grinding wheel. Contact will cause severe cuts or abrasions. Always keep safety guards in place.
	Disconnect power before servicing machine Always keep safety panels in place.
	Keep clear of pulleys and belts. Contact will cause severe injury. Always keep safety guards in place.

ASSEMBLY

IMPORTANT - There is a transport bolt that must be removed before use! The bolt goes through the two uprights and the pivot plate. **If this bolt is not removed it will be impossible to adjust the grinding wheel.** First remove the grit guard, loosen the 5/16" bolt, and replace it with the plastic knob. Then pull the grit guard outward and set it aside.

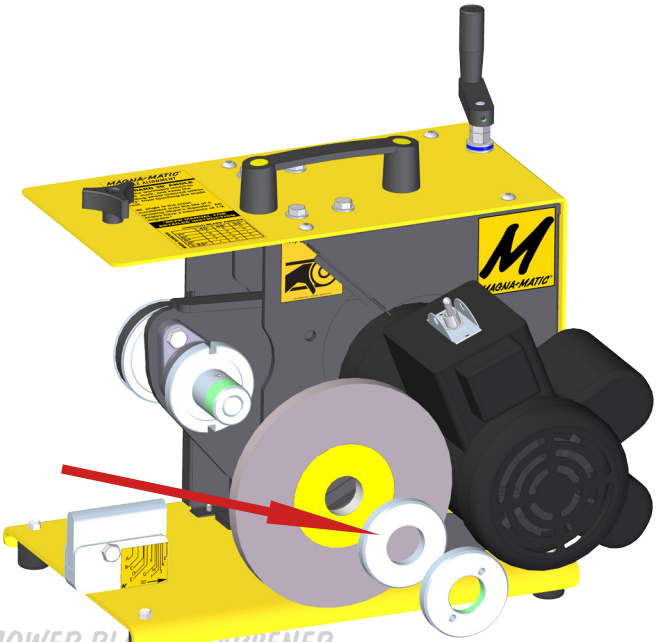
Use (2) 1/2" wrenches to remove the transport bolt. Connect the crank handle to the adjustment rod. Align the set screw in the crank handle to the flat on the adjustment rod and tighten the set screw (1/8" allen). You may need to make a half-rotation on the crank handle to loosen the pressure on the transport bolt to remove it.



MOUNTING THE 1/2" WIDE WHEEL, for sharpening mulching blades.

The 1/2" wide grinding wheel requires the **arbor spacer.**

The 1/2" wide wheel will be **in-line** with the rounded mulching blade worktable insert. Be sure the arbor spacer (8000-27) is used as shown in the image.



ASSEMBLY

MOUNTING THE 1" WIDE WHEEL, for sharpening straight-edged blades.

DO NOT USE the arbor spacer when using the 1" wide grinding wheel. Only use the arbor nut.

Steps to connect the grit guard to the MAG-8000.

1. The yellow ACTIVE GUARD must be on the inside of the black steel guard by the motor.
2. The top lip of the grit guard must be on top of the yellow body plate of the MAG-8000.
3. Slide the grit guard assembly into the MAG-8000 and the interlocking tabs and lips will engage keeping the guards solid.
4. Screw the plastic knob into the threaded hole to hold the grit guard assembly in place.
5. See top image on page 6, for a view on attaching the grit guard.

WARNING

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TESTING THE MAG-8000

Before turning the unit on, test the unit by checking if the grinding wheel moves freely. Ensure the MAG-8000 ON/OFF switch is in the OFF POSITION, plug the MAG-8000 into a 20 amp, 110 volt outlet. Switch the ON/OFF switch to the ON POSITION to test the motor. The motor should achieve FULL speed in 1-2 seconds. If it does not, (see page 19) or contact MAGNA-MATIC (800-328-1110).

ANGLE ADJUSTMENT

WARNING

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY.

IMPORTANT - ALWAYS turn the MAG-8000 OFF when changing or adjusting worktable inserts.

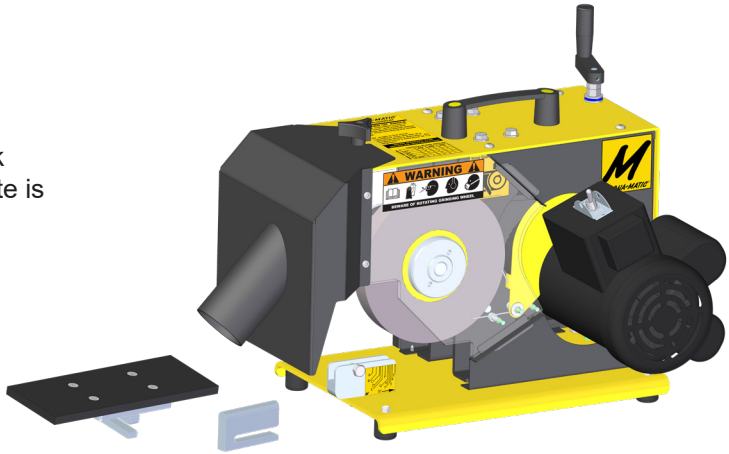
New [gen6] worktables (blade rest)

The new change to the MAG-8000 [gen6] is the implementation of worktable inserts. This new design allows for future inserts for specific blades, and different size worktables. Additionally the worktable insert provides the ability to dial in angles from 25º to 45º.

The worktable inserts slide into a fixed vice that is clamped by tightening a 5/16” bolt with the hex end of the supplied spanner wrench or a 1/2” wrench.

The black flat worktable insert is for straight flat. **(conventional blades)**
The steel rounded worktable insert is for curved cutting edge. **(mulching blades)**

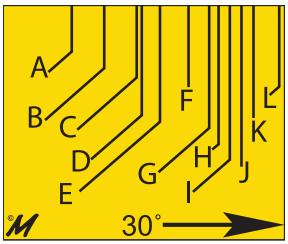
Note: the black plastic wear plate is reversible.



Angle Indicators

These two decals are located on the MAG-8000 they indicate worktable positions required to achieve the listed cutting edge angles.

30 degrees is the ONLY angle where the worktable remains in one position over the life of a grinding wheel. All other angles require that the worktable be moved to a position corresponding with the chart on the MAG-8000. Use the chart on the MAG-8000 (shown to the right) to move the worktable insert when the grinding wheel is at a diameter listed.



ABOVE: Worktable position decal

RIGHT: Angle information decal

MAGNA-MATIC®
ANGLE ALIGNMENT

STANDARD 30˚ ANGLE
Align the worktable insert to the 30˚ mark, and keep the grinding wheel lowered within 1/32” from touching the blade rest.

30˚ angle is the most consistent over the life of a grinding wheel’s diameter. All angles have a tolerance of 1-2 degrees.*

***READ MANUAL FOR DETAILED INSTRUCTION**

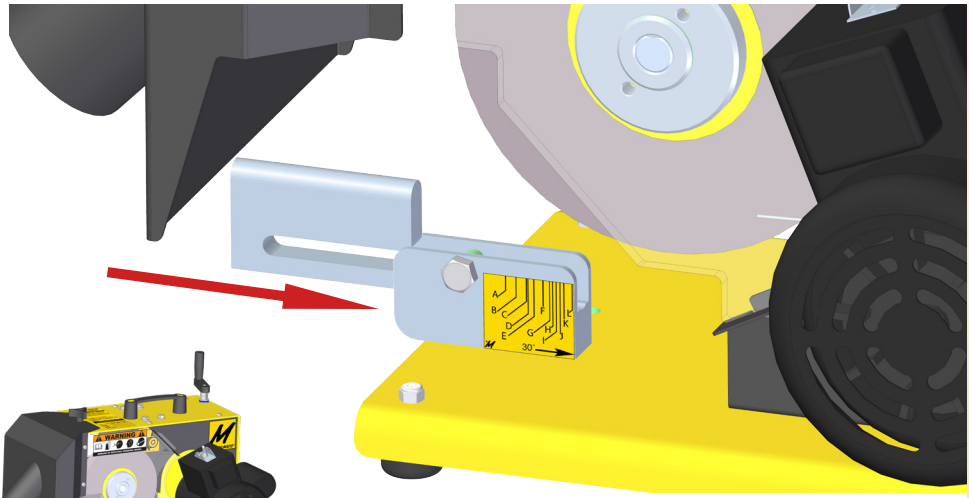
(optional) BLADE ANGLES

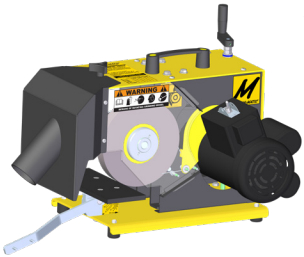
WHEEL DIAMETER	45˚	40˚	35˚
7”	A	C	G
6”	B	E	H
5”	D	F	I
4”	F	H	K
3-25”	J	K	L

Worktable Set-up

The base of the worktable inserts are slotted.
Slide the worktable insert into the vice (shown below)
Once in place at the desired angle position, tighten the bolt in the worktable vice.
DO NOT OVER-TIGHTEN (only a 1/4 to 1/2 turn is required to clamp the insert.)

The spanner wrench has a 12 point hex wrench used for the bolt to tighten the insert in place.
A 1/2" wrench or socket can also be used.

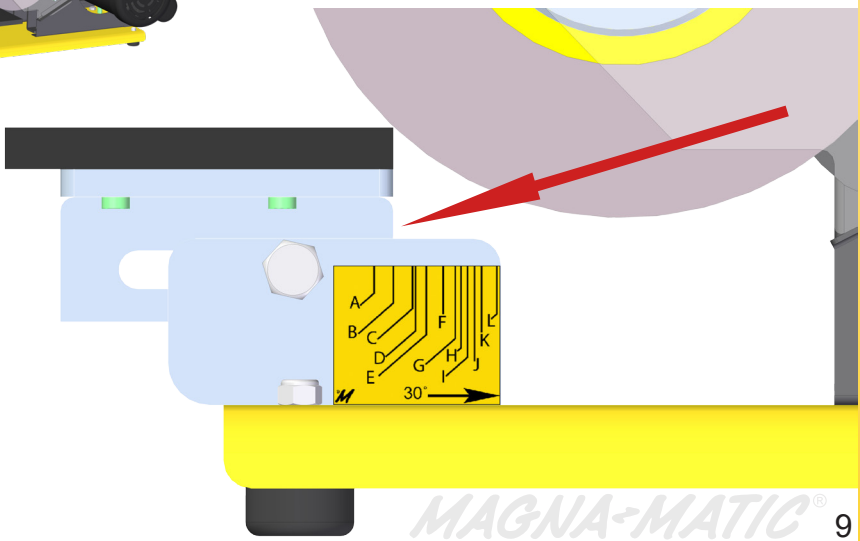




Left: View of the spanner wrench used to tighten the vice to hold worktable inserts.

Worktable Alignment

(Shown below) Align the front of the insert to the line of the letter of the angle position you desire. In the image the insert is aligned to the letter B, which is a 45º @ 6" diameter grinding wheel. The red arrow shows the front of the insert, which is the part to align.



30 DEGREE ANGLE

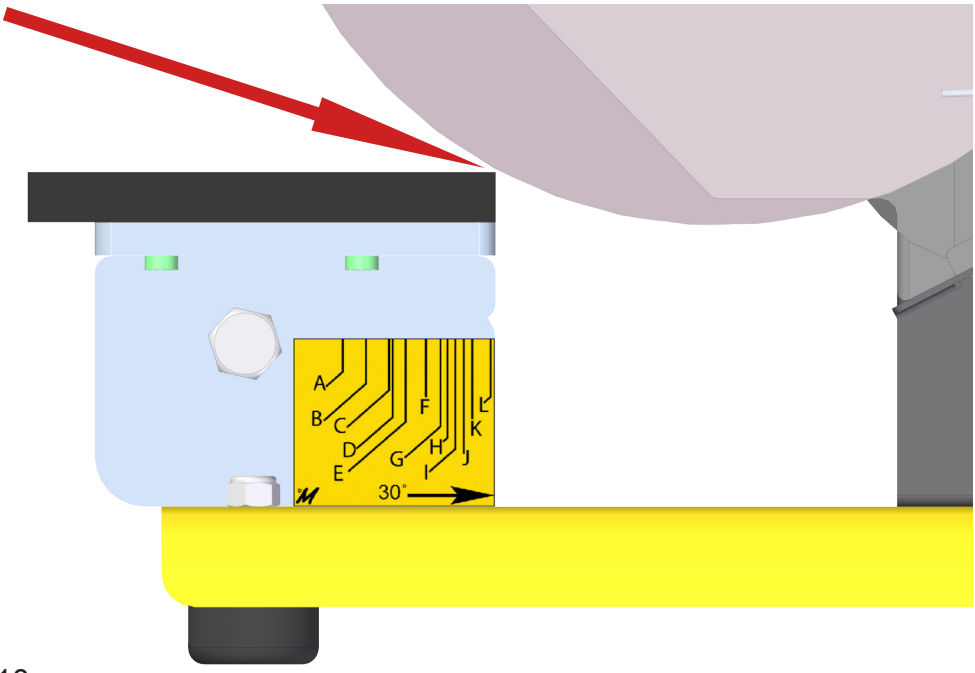
MOST BASIC ANGLE - READ FOLLOWING INFO!

30 degrees is the most consistent and easiest angle to maintain in the MAG-8000. It is also the industry average angle on most blades. If you are looking for the most simple way to consistently sharpen your lawn mower blades, use 30 degrees according to following instructions.

Align the worktable insert (flat or rounded) to the 30º arrowed mark on the worktable vice (see yellow decal in image below). This will make the insert square to the vice (flush on back and front). Tighten it in place with the hex end of the spanner wrench.

Lower the grinding wheel with the black crank handle on the top of the MAG-8000, lower it as close as possible to the worktable without touching the worktable (approx 1/32”), so you can just see a small space.

The worktable insert DOES NOT need to be moved to compensate for grinding wheel diameter as other angles do. Simply keep lowering the grinding wheel within a 1/32” from the worktable. See the red arrow, showing the approx. 1/32” distance from the worktable to the wheel. Maintain this closeness to the worktable to maintain the desired angle.



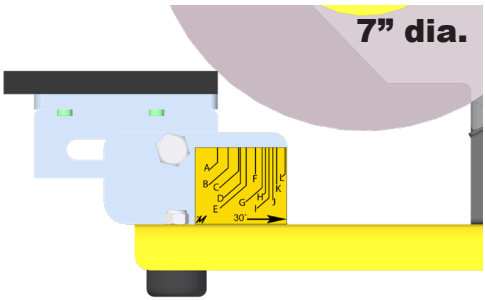
Visual example of setting a 45º over the life of a grinding wheel

Due to the changing geometry of a grinding wheel's diameter it is necessary to move the worktable insert to different positions over the life of the wheel. Each image below shows one inch diameter grinding wheel increments. Starting at the left is a new 7" diameter wheel and the far right shows a used wheel at 3.25" diameter. As the grinding wheel wears (becomes smaller in diameter) the worktable MUST be moved to maintain a consistent angle according to the charts provided on the MAG-8000.

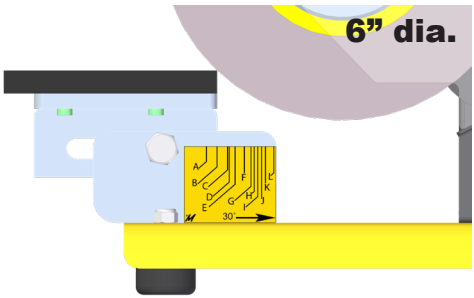
For example if a wheel is at 6.5" diameter move the worktable insert to half-way between A and B. Remember to also adjust the wheel down to the worktable as shown in all the images.

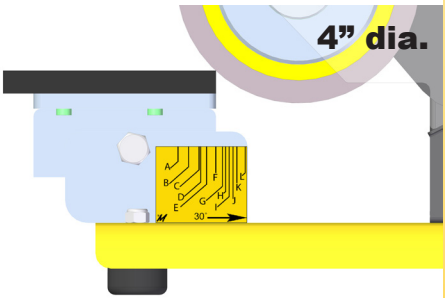
CUTTING EDGE ANGLE TOLERANCE:
Due to the changing variables of the grinding wheel diameter, and different blade thickness the charted angles will have an approximate tolerance of 1-2 degrees.

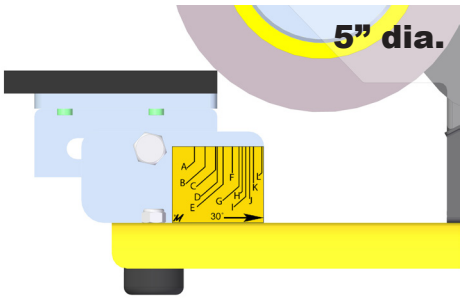
If you have worn out - or accidently ground the plastic worktable - please note you may rotate the worktable and use the other side.

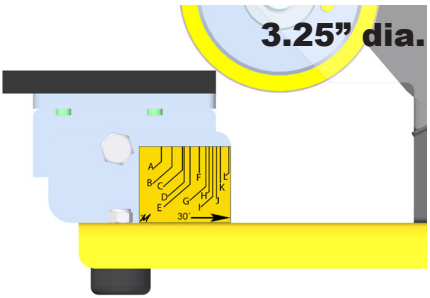


25º Cutting Edge Angle
Loosen the vice bolt and push the worktable insert as it will go toward the motor until you hit a stop. Tighten the vice bolt then lower the wheel down to the worktable. Both 25 and 30 degrees do not require movement to different "letter positions" based on the diameter of the wheel.









MULCHING BLADES

WARNING

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CAUTION

LAWN MOWER BLADES HAVE SHARP EDGES - ALWAYS WEAR PROTECTIVE GLOVES AND SAFETY GLASSES!

Be sure to wear protective clothing before handling and sharpening lawn mower blades. Wear safety glasses and protective gloves. Always de-burr the underside of the blade, prior to sharpening the blade.

BLADE & SHARPENER PREPARATION

1. Clean the blade to its base material, using the MAG-12008 blade cleaner, or alternate cleaning process. Inspect the blade for fractures.
2. Check the straightness with the gauge rod of the MAG-1000 blade balancer (**never straighten bent blades**)
3. Obtain a balance reading from the MAG-1000 to indicate the light end of the lawn mower blade. Once the light end is sharpened, that end is complete. The heavy end is used to remove material for balance. See MAG-1000 instructions for more details on blade balancing.
4. The MAG-8000 will require the 1/2” wide grinding wheel to sharpen a mulching blade. Mount the 1/2” wide wheel on the MAG-8000. (see page 6)
5. Place the rounded worktable insert into the worktable vice. Position it at the desired angle according to page 10-11. Tighten the vice bolt with the spanner wrench.
6. Review pages 10 and 11 to adjust the MAG-8000 to the desired angle.

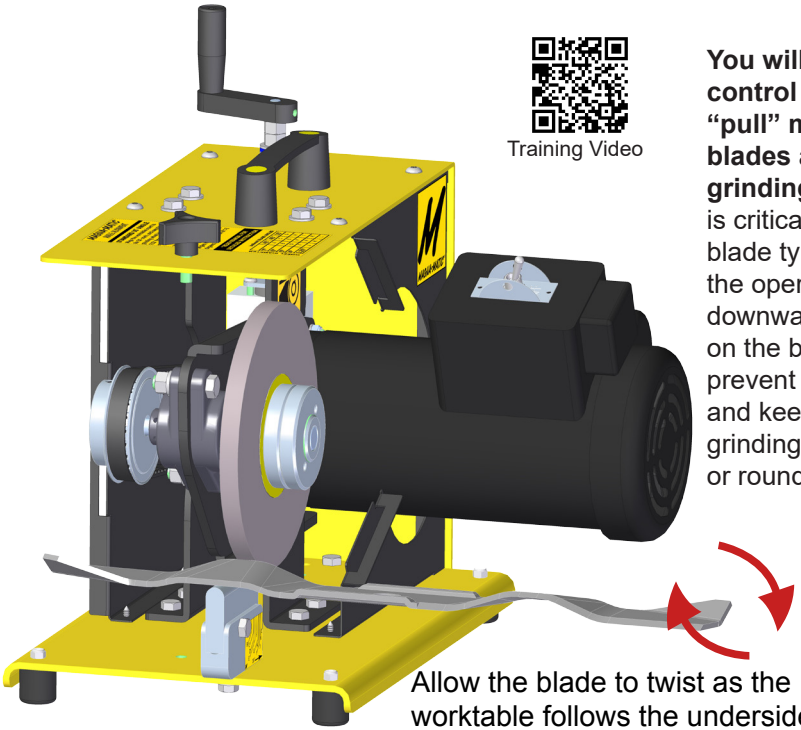
MULCHING BLADE SHARPENING

1. Switch the ON/OFF switch to ON position
2. When sharpening a mulching blade, you will start with the inside of the cutting edge and pull the blade out towards you, taking one pass at a time.
3. Pull the blade over the worktable, it is very important that you put more downward pressure on the blade, the underside of the blade **MUST** ride the curved worktable, this will follow its curves. Lessen the inward pressure so that the blade may move to and from the grinding wheel as the blade rides up and down the curved worktable. Do not use extreme pressure into the grinding wheel, let it ride over the curves.
4. Use even pressure to achieve an even stream of sparks.
5. When using the MAG-8000 for mulching blades keep the blade level, and perpendicular to the rotation of the grinding wheel. Pay close attention to the TIP of the blade, to create a pointed TIP see pages 34-35. You may use the flat worktable for doing the TIPS of mulching blades, if you prefer.

MULCHING BLADES

In these images the safety guards have been removed to provide a better view of blade position in the MAG-8000.

NEVER OPERATE WITHOUT GUARDS IN PLACE



Training Video

You will have more control if you only "pull" mulching blades across the grinding wheel. It is critical with both blade types that the operator keeps downward pressure on the blade, this will prevent chattering and keep the grinding wheel "true" or round.

Allow the blade to twist as the worktable follows the underside.

Always maintain contact with the worktable and underside of the blade.

CONVENTIONAL BLADES

WARNING

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CAUTION

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Be sure to wear protective clothing while handling and sharpening lawn mower blades. Wear safety glasses and protective gloves. Always de-burr the underside of the blade, prior to sharpening the blade.

BLADE & SHARPENER PREPARATION

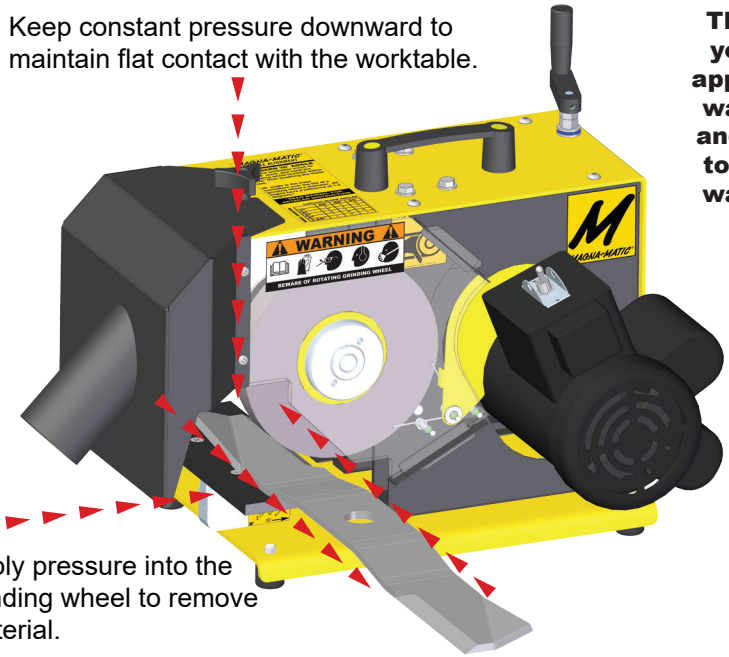
1. Clean the blade to its base material, using the MAG-12008 blade cleaner, or alternate cleaning process. Inspect the blade for fractures.
2. Check the straightness with the gauge rod of the MAG-1000 blade balancer (**never straighten bent blades**)
3. Obtain a balance reading from the MAG-1000 to indicate the light end of the lawn mower blade. Once the light end is sharpened, that end is complete. The heavy end is used to remove material for balance. See MAG-1000 instructions for more details on blade balancing.
4. It is best to use the 1” inch wide grinding wheel to sharpen a conventional blade. Mount the 1” wide grinding wheel on the MAG-8000. (see page 7) (note the 1/2” wide wheel can be used on conventional blades, but the 1” is more cost effective)
5. Place the flat worktable insert into the worktable vice. Position it at the desired angle according to page 10-11. Tighten the vice bolt with the spanner wrench.
6. Review pages 10 and 11 to adjust the MAG-8000 to the desired angle.

CONVENTIONAL BLADE SHARPENING

1. Switch the ON/OFF switch to ON position
2. Place the conventional blade on the worktable, you should push and pull the blade across the grinding wheel.
3. Keep firm downward pressure on the top of the blade so that **contact is maintained** with the worktable. This is important because the blade edge-angle is referenced off the worktable.
4. The force into the grinding wheel should be substantial resulting in a continuous stream of sparks and a deep smooth grinding sound.
5. The grinding process should be continuous without interruption until finished. (See pages 34-35 for blade geometry info)

Keep constant pressure downward to maintain flat contact with the worktable.

TIP: Use 3-4 of your fingers to apply the downward pressure, and your thumb to apply the inward pressure.

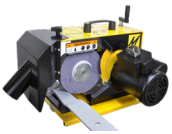


Apply pressure into the grinding wheel to remove material.

Slide the blade back and forth across the grinding wheel.

Training Video

The above diagram shows the application of movement and force to the blade during sharpening of a conventional blade.



Right-handed Blade

Left-handed Blade

Overhead view of blade approach - applies to both conventional and curved edge mulching blades.

GRINDING WHEEL REPLACEMENT

CAUTION

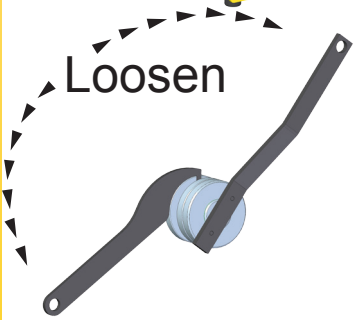
TURN OFF AND UNPLUG BEFORE SERVICING!

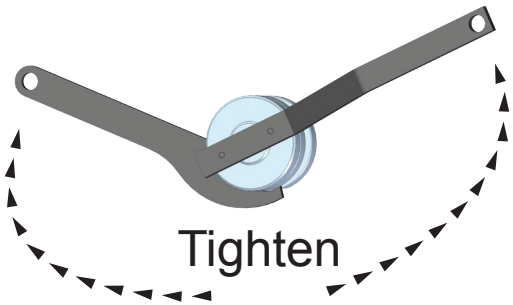
Be sure the MAG-8000 power cord is unplugged. Remove the grit guard see (page 6.) Locate your spanner wrench and arbor wrench (both supplied by Magna-Matic.) The arbor wrench fits into a square notch in the arbor, behind the grinding wheel, and the spanner wrench fits into the two holes in the arbor nut. See diagrams below.

Always inspect grinding wheels for possible damage - never mount a cracked grinding wheel. **DO NOT OVER-TIGHTEN ARBOR NUT - ONLY LIGHT PRESSURE TO TIGHTEN.** The motor will tighten the arbor nut every time the sharpener is turned on.

For optimum performance use only grinding wheels specified by Magna-Matic. All NORTON® brand grinding wheels sold by Magna-Matic are speed tested for 5500 RPM

NOTE: Arbor has LEFT-HANDED THREADS.
MAG-8000 OEM WHEELS = 9000-35 & 8000-30





MAG-8000 SERVICE & CARE

CAUTION

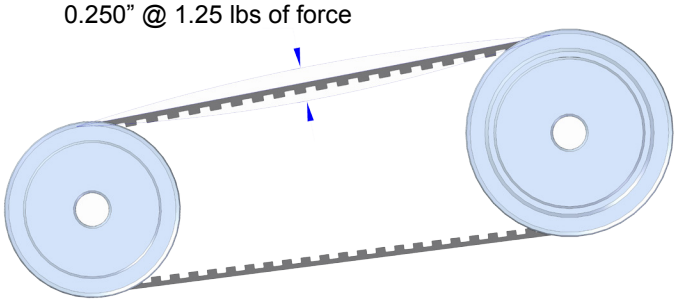
TURN OFF AND UNPLUG BEFORE SERVICING!

GENERAL CARE:
Keep the MAG-8000 clean, use compressed air to blow the machine off periodically. Use mild soapy water to clean powder coated surfaces and Lexan® guards. Remove large build-ups of grit in the grit guard, and inside the MAG-8000 body.

OIL THREAD CLEANERS:
Once per season, apply general purpose oil to the felt washers above and below the adjustment block. These oiled felt washers act as a thread cleaner to prevent grit from damaging the adjustment.

GREASING OF BEARING BLOCKS:
Care should be taken when greasing bearings to avoid overfilling. Overfilling can lead to excessive heat and or unseating of the seals. Grease should be introduced in small increments and under light pressure. The use of pneumatic greasing is not recommended unless low pressure is assured. Whenever possible, the shaft should be rotated during re-lubrication to insure proper grease distribution throughout the raceways.
3-6 Months OR 500-1000 Machine Hours - Fill with 2 grams (approx. 1/4 pump)

TIMING BELT REPLACEMENT & ADJUSTMENT
The motor is connected to the pivot plate with three hex head bolts, and one phillips flat-head machine screw. There is space or “play” within the holes of the pivot plate to allow for belt tensioning. First loosen the three hex bolts. DO NOT remove the phillips screw! Allow the motor to pivot on the phillips screw. To relieve tension lift the motor, to add tension push down on the motor. Once you have achieved the proper tension (shown below) tighten the three hex bolts again. The belt should be tight enough, such that it does not vibrate, but not so tight that it creates a high-pitched sound.



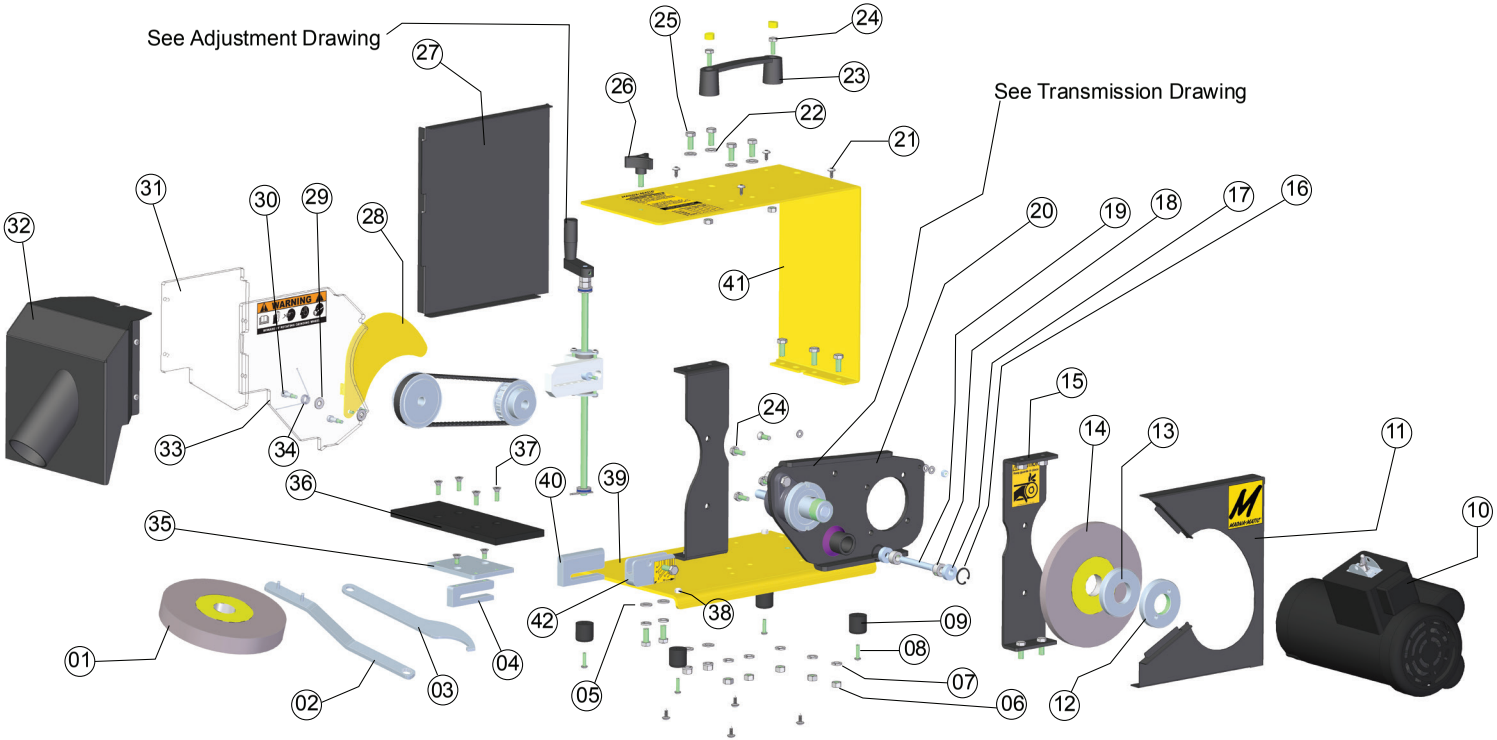
Timing Belt Tension

MAG-8000 SPECIFICATIONS

	MAG-8000 (North America)	MAG-8000 (Euro) CE
LxWxH	24” x 12” x 17”	60.9 x 30.5 x 43.1 cm
Weight	80 lbs	36 kg
Ship Weight 1 box	85 lbs	38 kg
Motor Specs	BALDOR®/LEESON®	BALDOR®/LEESON®
Horse Power	1	1
Motor RPM	3450	2850
Duty Cycle	Continuous	Continuous
Hertz	60	50
Volts	115	220
Phase	Single	Single
Amps (start)	30	15
Amps (run)	10	6.5
Capacitors	Dual	Dual
Solid State Switch	Yes	Yes
Motor Type	Industrial - Totally Enclosed	Industrial - Totally Enclosed
Insulation	Class F	Class F
Direction	Single Direction	Single Direction
Fan Cooled	Yes	Yes
Transmission	Timing belt/pulley	Timing belt/pulley
Grinding Wheels	NORTON® Abrasives	NORTON® Abrasives
Wheel Dimensions	7” dia x 1” thick x 1-1/4” dia arbor 7” dia x 1/2” thick x 1-1/4” dia arbor	17.7 cm dia x 2.5 cm thick x 3.18 cm dia arbor 17.7 cm dia x 1.27 cm thick x 3.18 cm dia arbor

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Motor fails to start	Fan guard bent/damaged and contacting fan.	Replace fan guard, if possible, straighten it.
Motor has been running, then fails to start	Fuse or circuit breaker tripped.	Replace fuse or reset the breaker.
Motor has been running, then fails to start	Motor overloaded or load jammed.	Inspect to see that the load is free. Verify amp draw of motor versus nameplate rating.
Motor has been running, then fails to start	Capacitor may have failed.	First discharge capacitor. To check capacitor, set volt-ohm meter to RX100 scale and touch its probes to capacitor terminals. If capacitor is OK, needle will jump to zero ohms, and drift back to high. Steady zero ohms indicates a short circuit; steady high ohms indicates an open circuit.
Motor has been running, then fails to start	Starting switch has failed.	See wiring diagram and connect the black wire from the motor and the black wire from the cord to bypass the switch.
Motor runs but dies down	Voltage drop	If voltage is less than 10% of the motor's rating contact power company or check if some other equipment is taking power away from the motor. If motor is run using an extension cord, verify that this extension cord is properly sized for motor's current draw.
Motor takes too long to accelerate	Defective capacitor	Test capacitor per previous instructions.
Motor takes too long to accelerate	Bad bearings	Noisy or rough feeling bearings should be replaced.
Motor takes too long to accelerate	Voltage too low.	Make sure that the voltage is within 10% of the motor's nameplate rating. If not, contact power company or check if some other equipment is taking power away from the motor.
Motor overload protector continually trips	Ambient temperature too high.	Verify that the motor is getting enough air for proper cooling. Most motors are designed to run in an ambient temperature of less than 40°C. (Note: A properly operating motor may be hot to the touch.)
Start capacitors continuously fail.	Voltage to motor is too low.	Verify that voltage to the motor is within 10% of the nameplate value. If the motor is rated 110-125 V, the deviation must be calculated from 125 V.
MAG-8000 is vibrating	Grinding wheel is out-of-round	Dress the wheel and old lawn mower blade. Use a perfectly flat area, like around the mounting hole. Place it in the sharpener like you would normally, and slowly apply pressure into the wheel. Do not go back and forth, just apply even pressure, and let the wheel true itself.
MAG-8000 is vibrating	Bad motor bearings	Remove the grinding wheel, and run the MAG-8000. Inspect the motor shaft and bearings.
MAG-8000 is vibrating	Loose pulleys or bearing collars	Tighten set screws, locking agent should be used.
MAG-8000 is vibrating	Poor belt tension	Check and tension belt see page 13
MAG-8000 is vibrating	Bad drive shaft bearings	Check and replace the two flange bearings
MAG-8000 crank will not adjust the wheel up or down	Adjustment block jammed	Inspect the cam-follower bearing and adjustment block for foreign material, clean.
Unable to remove grinding wheel	Turning wrong direction	The arbor nut has left-handed threads. Turn clockwise to loosen. Use both the arbor and spanner wrench.
Difficult to remove grinding wheel	Extremely tight, wheel has not been changed in a long time.	Using both the spanner and arbor wrenches, Allow the arbor wrench to stop against the yellow body, Use a plastic hammer and tap the end of the spanner wrench, imparting vibration will shock the nut loose. In extreme situations you can apply heat, only to the arbor nut. Last resort, you can break the wheel off the arbor.


See Adjustment Drawing
See Transmission Drawing
WARNING
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MAG-8000 PARTS KEY

Key #	Part #	Description
1	9000-35	Grinding wheel 1” wide
2	9000-21	Spanner wrench
3	9000-53	Arbor wrench
4	8000-77	Flat worktable insert (lower)
5	H-31WFZ	5/16 flat washer (8)
6	H-31CNFZ	5/16-18 nut (11)
7	H-31WLZ	5/16 lock washer (13)
8	H-18C75BSSss	#10-24x3/4 screw (8)
9	9000-11	Rubber foot (4)
10	8000-25	1 hp motor
11	8000-56	Steel guard (motor-side)
12	9000-19	Arbor nut
13	8000-27	Arbor spacer (required for use with 1/2” wide grinding wheel)
14	8000-30	Grinding wheel 1/2” wide
15	8000-45	Pivot angle full-height (2)
16	1000-22	Retaining ring (2)
17	1000-23	Bearing (2)
18	1000-20	Bearing collar (2)
19	8000-36	Pivot shaft
20	8000-23	Pivot plate
21	H-18N50SPT-Z/A	#10 sheet metal screw (8)
22	H-31WFZ	5/16 flat washer (15)
23	9000-58	Carry handle
24	H-25C75HSZ	1/4-20x3/4 bolt (5)
25	H-31C75HSZ	5/16-18x3/4 bolt (13)
26	8000-60	Knob
27	8000-54	Steel guard (pulley-side)
28	8000-58	Active guard
29	H-25WFZ	1/4” flat washer (2)

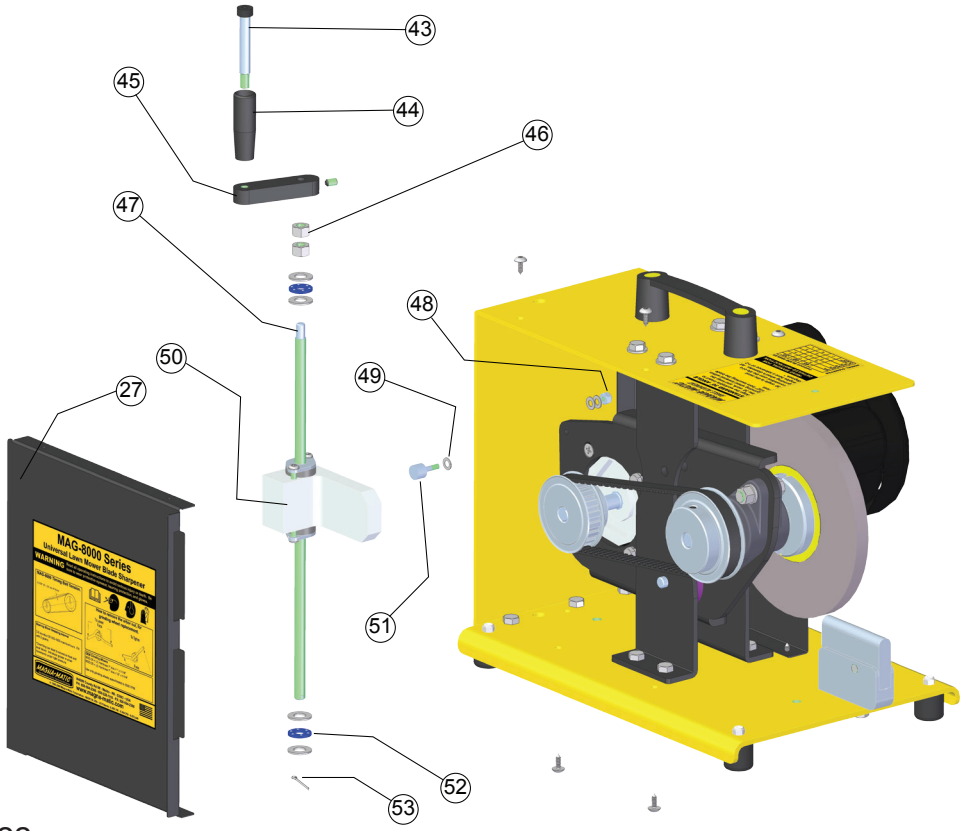
Key #	Part #	Description
30	H-25N050KSS	1/4-20 x 0.50 long shoulder bolt (3)
31	8000-67	Lexan guard (pulley-side)
32	8000-74	Grit guard
33	8000-68	Lexan guard (motor-side)
34	8000-59	Torsion spring
35	8000-78	Steel flat worktable support
36	8000-80	Flat worktable (long)
37	H-25C75PFZ	1/4-20x3/4 screw (5)
38	H-18CNINFZ	#10-24 nylon nut (8)
39	8000-24	Bottom plate
40	8000-76	Rounded worktable insert
41	8000-20	Top plate
42	8000-75	Worktable insert vice

See info and pricing here:
www.magna-matic-direct.com

MAG-8000 PARTS KEY

MAG-8000 Adjustment Parts Key

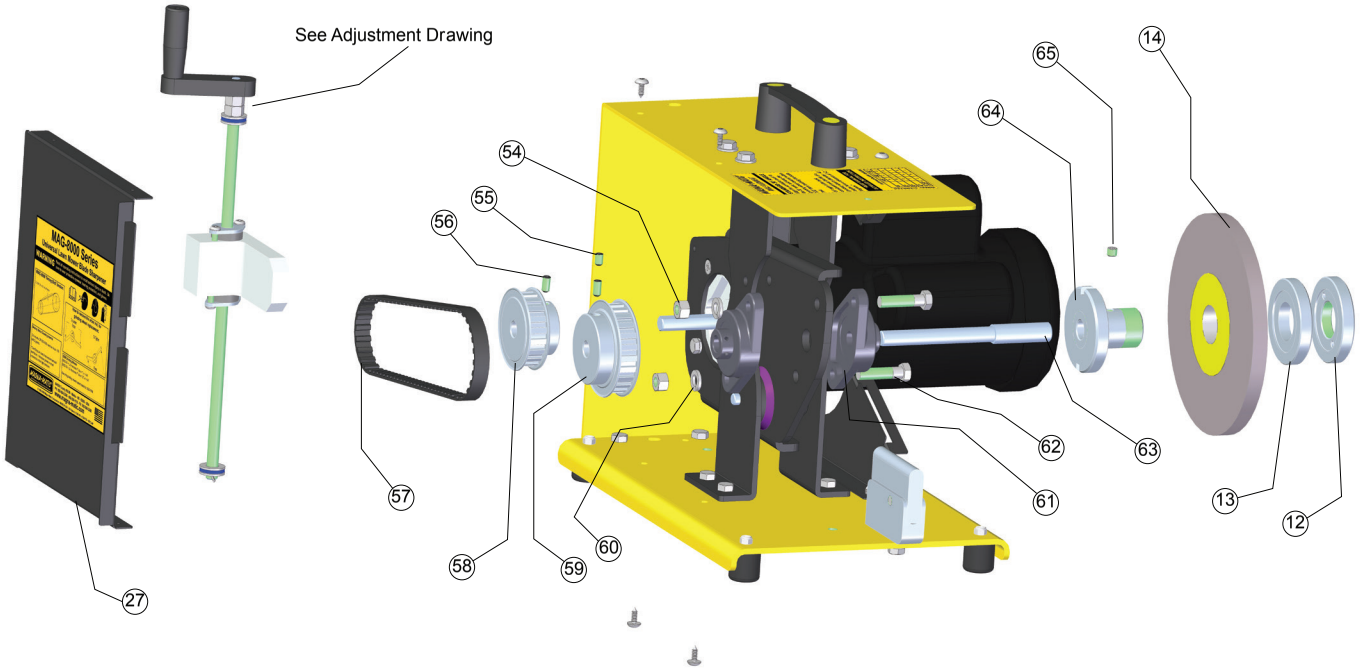
Key #	Part #	Description
43	H-37N200KSS	Shoulder bolt for crank handle
44	9000-14	Crank handle
45	9000-13	Crank base
46	H-37CNFZ	3/8-16 zinc nut (2)
47	8000-49	Threaded adjusting rod
48	H-18FNINFZ	#10-32 nylon nut
49	H-18WFZSS	#10 flat washer (3)
50	8000-46	Adjustment block
51	8000-47	Cam-follower
52	9000-37	Thrust bearing (2)
53	H-Cotter Pin	Cotter pin



MAG-8000 PARTS KEY

Key #	Part #	Description
54	H-37CNFZ	3/8-16 nut (2)
55	H-25C37SSS	1/4-20x3/8 set screw
56	H-25C50SSS	1/4-20x1/2 set screw (2)
57	8000-14	Timing belt
58	8000-13	20 tooth pulley
59	8000-15	24 tooth pulley
60	H-37WLZ	3/8 lock washer (2)

61	8000-09	Flange bearing (2)
62	H-37C150HSZ	3/8-16x1.5 bolt (2)
63	8000-07	Drive shaft
64	9000-20	Arbor
65	H-31F25SSS	5/16-24x1/4 set screw



ASSEMBLY

Assemble the grit guard to the sharpener with the plastic knob. The MAG-9000 comes mounted with the 1” wide grinding wheel.

WARNING

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY.

TESTING THE MAG-9000

Before turning the unit on, test the unit by checking if the grinding wheel moves freely. Ensure the MAG-9000 ON/OFF switch is in the OFF POSITION, plug the MAG-9000 into a 20 amp, 110 volt outlet. Switch the ON/OFF switch to the ON POSITION to test the motor. The motor should achieve FULL speed in 3-4 seconds. If it does not (see page 31 or contact MAGNA-MATIC - 800-328-1110).

ANGLE ADJUSTMENT

ADJUSTING THE EDGE ANGLE
MAG-9000

30 Degree Reference Point - When the grinding wheel is lowered to the worktable (almost cutting the work table corner) you will produce a 30 degree angle on the lawn mower blade. As the grinding wheel wears and reduces in diameter, continue to lower the grinding wheel to almost touch the worktable (1/32" space) to maintain a consistent 30 degree edge angle on a blade. As the wheel wears into an angled shape it will lower deeper into the worktable. Regardless if the grinding wheel is new or almost used up - you will always want to be as close as the wheel can get to the plastic worktable (without grinding the plastic) to maintain 30 degrees. If you grind into the plastic worktable you have now changed this angle reference point.

If you have worn out - or accidently ground the plastic worktable - please note there are two pieces to the worktable. There is an onboard replacement under the top surface. Simply take the four bolts out and swap the two surfaces. Two worktables must always be installed to keep the 30 degree angle reference point.

The edge angle can be varied plus or minus the 30 degree reference point via the adjusting crank.

Raising the grinding wheel will result in a lesser than 30 degree angle (a more shallow angle.)

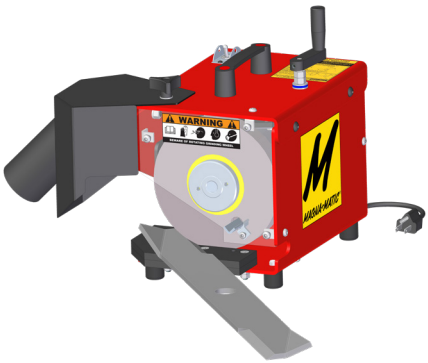
Lowering the grinding wheel into the work table (grinding into the work table) will result in a greater than 30 degree angle (a steeper angle.) **Note:** you will be creating a new angle reference point. To make this steeper angle reference point you will grind into the plastic worktable.

ANGLE DETERMINATION
(when sharpener is set to 30 degrees)

If the grinding wheel only grinds the TRAILING EDGE the angle is greater than 30 degrees.

If the grinding wheel only grinds the LEADING EDGE the angle is less than 30 degrees.

TIP: The cutting edge-angle is 30 degrees - when the cutting edge face width is twice the thickness of the blade. See page 35 for a diagram of the trailing and leading edges of a lawn mower blade.



CONVENTIONAL BLADES

WARNING

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY.

CAUTION

LAWN MOWER BLADES HAVE SHARP EDGES - ALWAYS WEAR PROTECTIVE GLOVES AND SAFETY GLASSES!

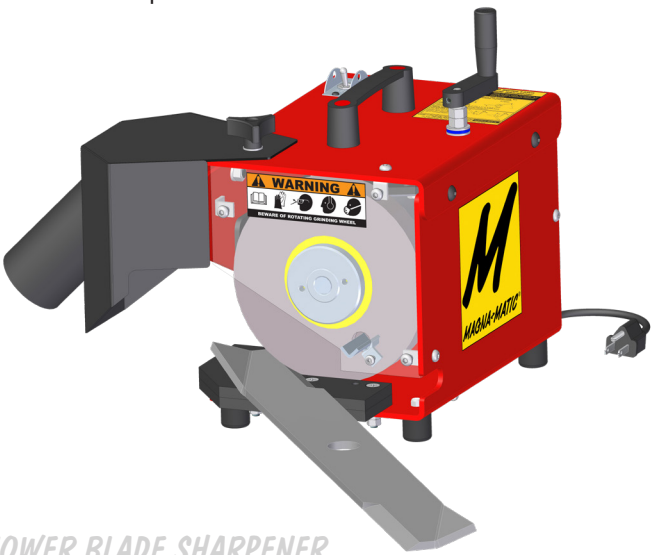
Be sure to wear protective clothing while handling and sharpening lawn mower blades. Wear safety glasses and protective gloves. Always de-burr the underside of the blade, prior to sharpening the blade.

BLADE & SHARPENER PREPARATION

1. Clean the blade to its base material, using the MAG-12008 blade cleaner, or alternate cleaning process. Inspect the blade for fractures.
2. Check the straightness with the gauge rod of the MAG-1000 blade balancer (**never straighten bent blades**)
3. Obtain a balance reading from the MAG-1000 to indicate the light end of the lawn mower blade. Once the light end is sharpened, that end is complete. The heavy end is used to remove material for balance. See MAG-1000 instructions for more details on blade balancing.
4. See page 25 on adjusting the cutting edge angle to 30 degrees.

CONVENTIONAL BLADE SHARPENING

1. Switch the ON/OFF switch to ON position
2. Place the conventional blade on the worktable, you should push and pull the blade across the grinding wheel. Notice approach the grinding wheel as shown below. Stay parallel to the “angled cut” in the worktable. ***This will produce an angle on the grinding wheel - this is normal and intended. The wheel is self-dressing!***
3. Keep firm downward pressure on the top of the blade so that contact is maintained with the worktable. This is important because the angle is referenced off the worktable and underside of the blade.
4. The force into the grinding wheel should be substantial resulting in a continuous stream of sparks and a deep smooth grinding sound.
5. The grinding process should be continuous without interruption until finished. (See page 34 for blade geometry info)

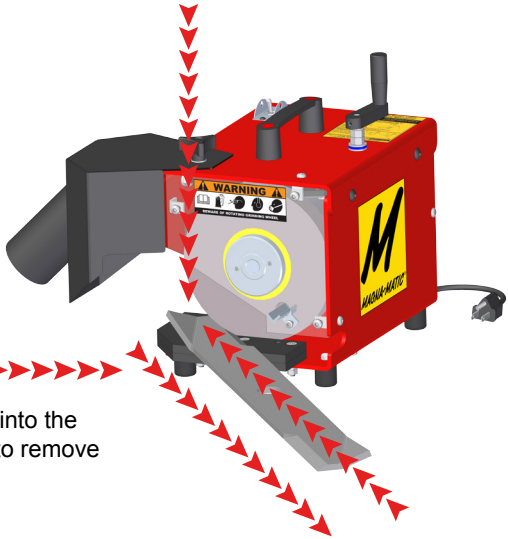


CONVENTIONAL BLADES

Keep constant pressure downward to maintain flat contact with the worktable.

TIP: Use 3-4 of your fingers to apply the downward pressure, and your thumb to apply the inward pressure.

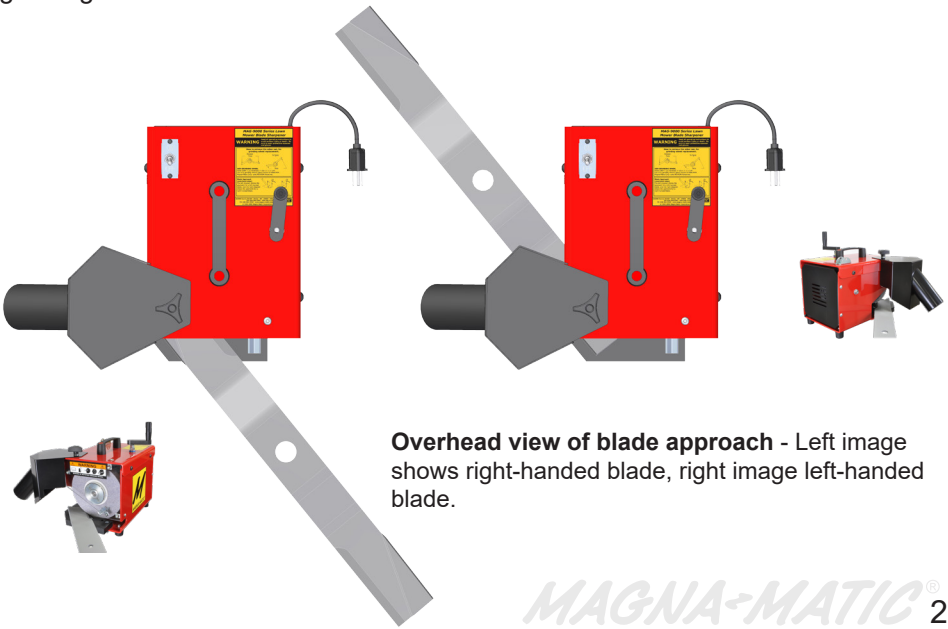
Training Video



Apply pressure into the grinding wheel to remove material.

Slide the blade back and forth across the grinding wheel.

The above diagram shows the application of movement and force to the blade during sharpening of a conventional blade. It is critical that the operator keeps downward pressure on the blade, this will prevent chattering and keeps the grinding wheel “true” or round.



Overhead view of blade approach - Left image shows right-handed blade, right image left-handed blade.

GRINDING WHEEL REPLACEMENT

CAUTION

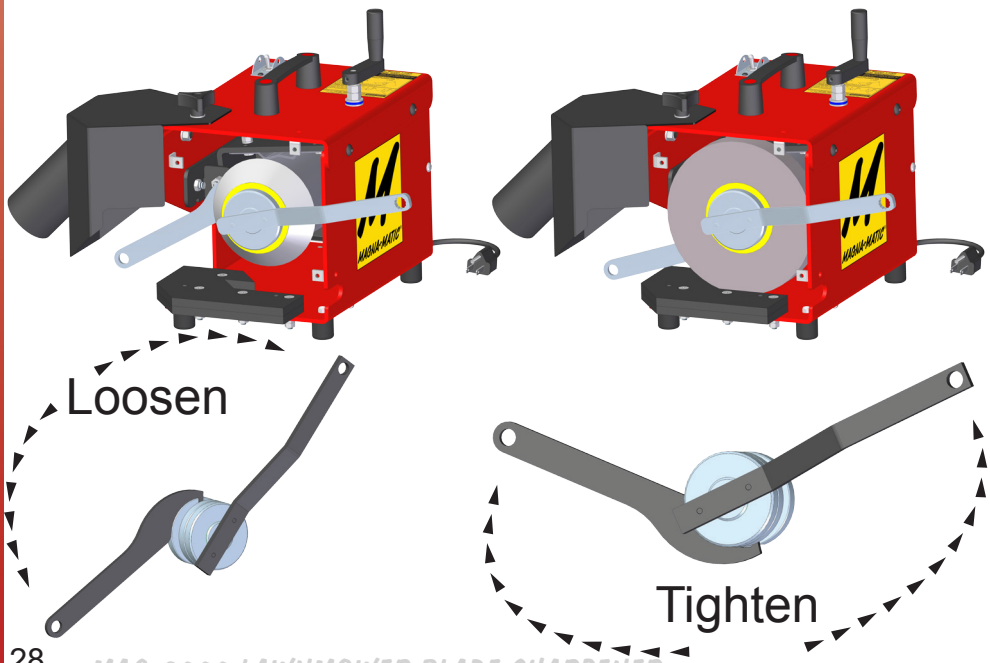
TURN OFF AND UNPLUG BEFORE SERVICING!

Be sure the MAG-9000 power cord is unplugged. Using a 5/32" Allen wrench remove the (3) screws of the front Lexan® guard. Locate your spanner wrench and arbor wrench (both supplied by Magna-Matic.) The arbor wrench fits into a square notch in the arbor behind the grinding wheel, and the spanner wrench fits into the two holes in the arbor nut. See diagrams below.

Always inspect grinding wheels for possible damage - never mount a cracked grinding wheel. **DO NOT OVER-TIGHTEN ARBOR NUT - ONLY LIGHT PRESSURE TO TIGHTEN.** The motor will tighten the arbor nut every time the sharpener is turned on.

For optimum performance use only grinding wheels specified by Magna-Matic. All NORTON® brand grinding wheels sold by Magna-Matic are speed tested for 5500 RPM

NOTE: ARBOR HAS LEFT-HANDED THREADS.
MAG-9000 OEM WHEEL = 9000-23

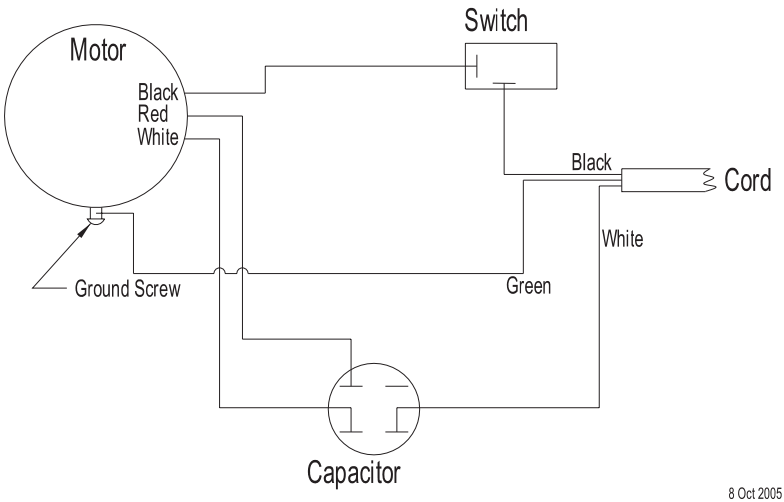


MAG-9000 WIRING DIAGRAMS

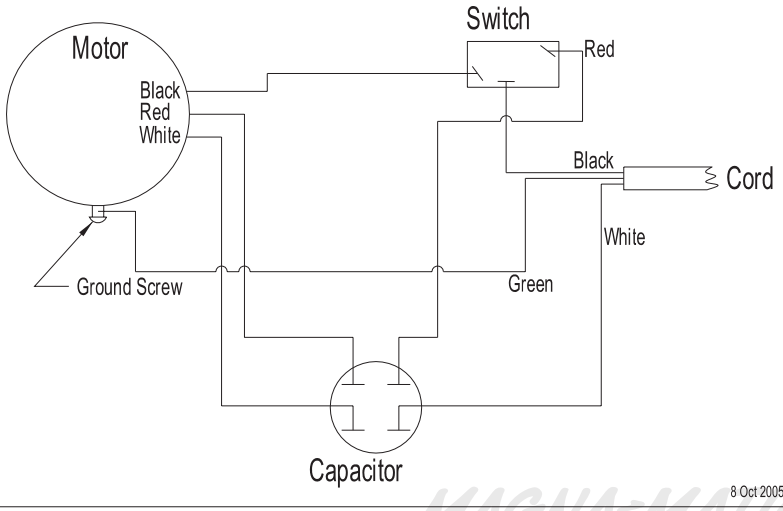
CAUTION

TURN OFF AND UNPLUG BEFORE SERVICING!

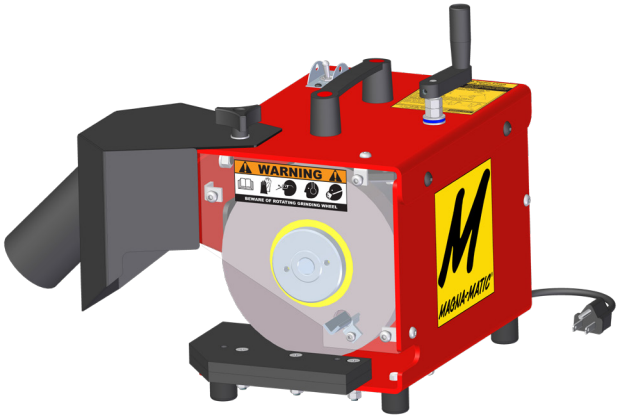
Mag-9000 Wiring Diagram For Metal Toggle Switch



Mag-9000 Wiring Diagram For Lit Rocker Switch



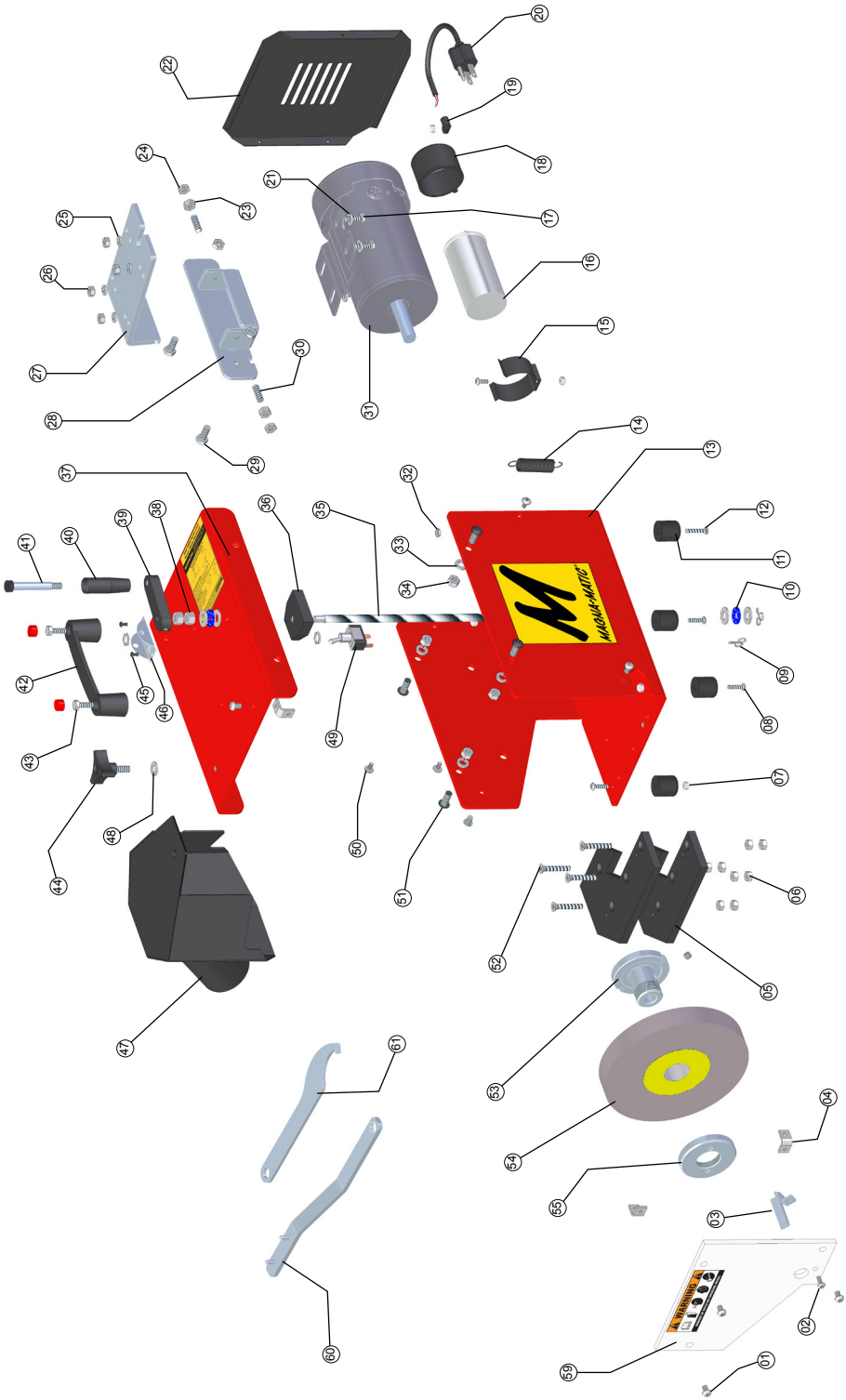
MAG-9000 SPECIFICATIONS



	MAG-9000 (North America)	MAG-9000 (Euro) CE
LxWxH	12”x 8”x 8”	30.5 x 20.3 x 20.3cm
Weight	48 LBS	20 kg
Ship Weight 1 box	52 LBS	23.5 kg
Motor Specs	BALDOR®/LEESON®	BALDOR®/LEESON®
Horse Power	.50	.50
Motor RPM	3450	2800
Duty Cycle	Std / Intermittent	Std / Intermittent
Hertz	60	50
Volts	115	220
Phase	Single	Single
Amps (start)	15	7.5
Amps (run)	7.7	3.25
Capacitors	Single	Single
Solid State Switch	No	No
Thermal Protection	Yes	Yes
Motor Type	Industrial - Totally Enclosed	Industrial - Totally Enclosed
Insulation	Class F	Class F
Direction	Single Direction	Single Direction
Fan Cooled	Yes	Yes
Transmission	Direct Drive	Direct Drive
Grinding Wheels	NORTON® Abrasives	NORTON® Abrasives
Wheel Dimensions	7” dia x 1” thick x 1-1/4” dia arbor	17.7 cm dia x 2.5 cm thick x 3.18 cm

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Motor fails to start	Fan guard bent/damaged and contacting fan.	Replace fan guard, if possible, straighten it.
Motor has been running, then fails to start	Fuse or circuit breaker tripped.	Replace fuse or reset the breaker.
Motor has been running, then fails to start	Motor overloaded or load jammed.	Inspect to see that the load is free. Verify amp draw of motor versus nameplate rating.
Motor has been running, then stops running or fails to start.	Thermal protection switch tripped, due to operator overloading the motor.	Turn unit off, and wait 15 to 20 minutes for motor to cool down. The thermal switch is internal, and will reconnect after it is cool. Thermal cut out is at 140 C / 284 F.
Motor has been running, then fails to start	Capacitor may have failed.	First discharge capacitor. To check capacitor, set volt-ohm meter to RX100 scale and touch its probes to capacitor terminals. If capacitor is OK, needle will jump to zero ohms, and drift back to high. Steady zero ohms indicates a short circuit; steady high ohms indicates an open circuit.
Motor has been running, then fails to start	Starting switch has failed.	See wiring diagram and connect the black wire from the motor and the black wire from the cord to bypass the switch.
Motor runs but dies down	Voltage drop	If voltage is less than 10% of the motor's rating contact power company or check if some other equipment is taking power away from the motor. If motor is run using an extension cord, verify that this extension cord is properly sized for motor's current draw.
Motor takes too long to accelerate	Defective capacitor	Test capacitor per previous instructions.
Motor takes too long to accelerate	Bad bearings	Noisy or rough feeling bearings should be replaced.
Motor takes too long to accelerate	Voltage too low.	Make sure that the voltage is within 10% of the motor's nameplate rating. If not, contact power company or check if some other equipment is taking power away from the motor.
Motor thermal overload protector continually trips	Ambient temperature too high.	Verify that the motor is getting enough air for proper cooling. Most motors are designed to run in an ambient temperature of less than 40°C. (Note: A properly operating motor may be hot to the touch.)
Start capacitors continuously fail.	Voltage to motor is too low.	Verify that voltage to the motor is within 10% of the nameplate value. If the motor is rated 110-125 V, the deviation must be calculated from 125 V.
MAG-9000 is vibrating	Grinding wheel is out-of-round	Dress the wheel and old lawn mower blade. Use a perfectly flat area, like around the mounting hole. Place it in the sharpener like you would normally, and slowly apply pressure into the wheel. Do not go back and forth, just apply even pressure, and let the wheel true itself.
MAG-9000 is vibrating	Bad motor bearings	Remove the grinding wheel, and run the MAG-9000. Inspect the motor shaft and bearings.
MAG-9000 crank will not adjust the wheel up or down	Adjusting nut threads worn out	The 9000-18 adjusting nut over time will become worn out due to grit loading in the threads. It is a wear part.
Unable to remove grinding wheel	Turning wrong direction	The arbor nut has left-handed threads. Turn clock-wise to loosen. Use both the arbor and spanner wrench.
Difficult to remove grinding wheel	Extremely tight, wheel has not been changed in a long time.	Using both the spanner and arbor wrenches, Allow the arbor wrench to stop against the red body, Use a plastic hammer and tap the end of the spanner wrench, imparting vibration will shock the nut loose. In extreme situations you can apply heat, only to the arbor nut. Last resort, you can break the wheel off the arbor.


MAGNA-MATIC

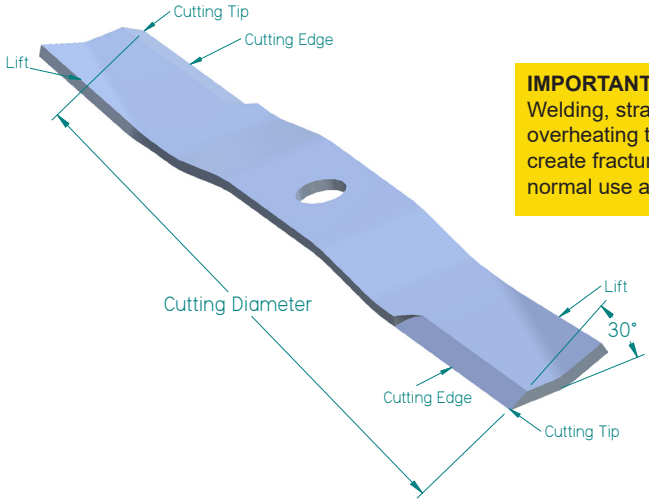
MAG-9000 PARTS KEY

Key #	Part #	Description
01	H-25C37BSSZ	1/4-20x3/8 screw (6)
02	H-18C50BSSZ	10-24x1/2 screw (2)
03	9000-29	Valve stem grinding guide
04	9000-26	Angle nut (3)
05	9000-22	Worktable (2)
06	H-25CNFZ	1/4-20 nut (10)
07	H-18CNINFZ	10-24 nylon nut (5)
08	H-18C75BSSss	10-24x3/4 screw (3)
09	H-Cotter Pin	Cotter pin (2)
10	9000-37	Thrust bearing (2)
11	9000-11	Rubber foot (4)
12	H-18C100BSSZ	10-24x1 screw
13	9000-17	Body Bottom
14	9000-25	Spring
15	9000-33	Capacitor clamp
16	9000-31	Capacitor
17	H-25F50HSZ	1/4-28x3/4 bolt (4)
18	9000-32	Capacitor rubber boot
19	9000-36	Cord clamp
20	9000-12	Cord set
21	H-25WFZ	1/4 washer (4)
22	9000-03	Rear motor cover
23	H-31FNFZ	5/16-24 nut (2)
24	H-31FNJZ	5/16-24 jam nut (4)
25	H-25WLZ	1/4 lock washer (4)
26	H-25FNFZ	1/4-28 nut (4)
27	9000-02	Motor pivot bracket
28	9000-01	Body pivot bracket
29	H-31F75HSZ	5/16-24x3/4 bolt (2)
30	H-31F100PSSS	5/16-24x1 pointed set screw (2)

Key #	Part #	Description
31	9000-24	Motor
32	H-18CNFZ	10-24 nut
33	H-31WLZ	5/16 lock washer (4)
34	H-31CNFZ	5/16-18 nut (4)
35	9000-16	Threaded adjusting rod
36	9000-18	Adjusting nut
37	9000-15	Body Top
38	H-37CNFZ	3/8-16 nut (2)
39	9000-13	Crank base
40	9000-14	Crank handle
41	H-37N200KSS	Shoulder bolt
42	9000-58	Carry handle
43	H-25C75HSZ	1/4-20x3/4 bolt (2)
44	8000-60	Knob
45	H-SR03065B	Push rivet
46	9000-55	Switch plate
47	9000-50	Vac grit guard
48	H-31WFZ	5/16 flat washer
49	9000-54	On/off switch
50	H-18N50SPT-Z/A	10x1/2 sheet metal screw (3)
51	H-31C75BSSB	5/16-18x3/4 screw (4)
52	H-25C150PFZ	1/4-20x1.5 screw (4)
53	9000-20	Arbor
54	9000-23	Grinding wheel
55	9000-19	Arbor nut
59	9000-08	Front lexan guard
60	9000-21	Spanner wrench
61	9000-53	Arbor wrench

See info and pricing here:
www.magna-matic-direct.com

Understanding the Rotary Lawn Mower Blade



IMPORTANT NOTES:
Welding, straightening, sharp corners, and overheating the lawn mower blade may create fractures that break the blade under normal use and may cause injury.

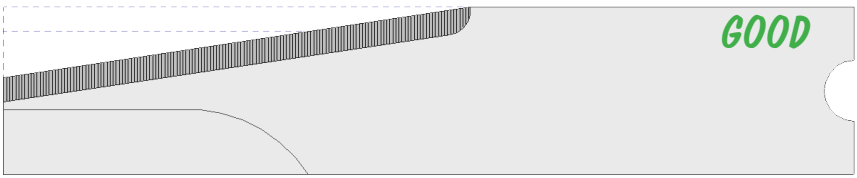
Training Video

SAFETY

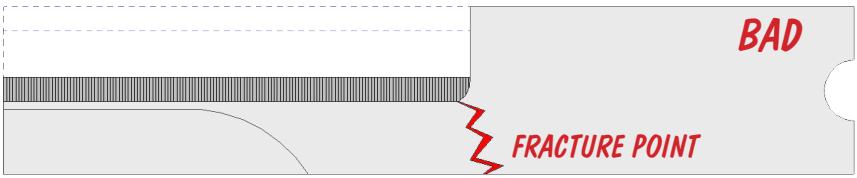
The first 1-2 inches of any lawn mower blade do the majority of the cutting work and take the most wear. This is where the most grinding is required to reproduce a cutting tip again.

Often people think that the full cutting edge must be ground back parallel to the rest of the blade. This is not necessary and can create a dangerous fracture point if done (see image #2). Image #1 shows the over-head view of the blade that, over the life of the blade will become “tapered looking” from wear and re-sharpening. This follows the natural wear pattern of a rotary lawn mower blade’s use. We recommend this method because less steel is removed. Leaving more steel there will help prevent a fracture that could discharge a part of the blade from the deck.

1.



2.

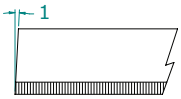
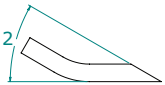
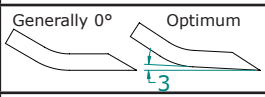
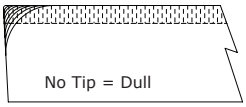


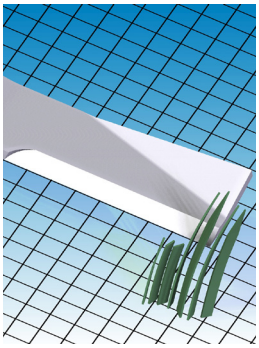
Blade Tip Geometry. What part of a rotary lawn mower blade cuts the grass?

It is a common misconception that lawn mower blades cut like a knife. It actually has more in common with the way circular saw teeth cut. The confusion comes from the two shapes; a lawn mower blade looks like a rectangle, and the circular saw is a circle. Keep in mind that when the lawn mower blade is in motion it is also a circle. The primary difference is that a circular saw is for wood or metal. Because these materials are much more dense, more cutting teeth are required. Turf is considerably less dense than wood or steel so only two teeth are required.

The tips of the blade do the majority of the cutting work; they are the cutting teeth of the blade. Repeated observation of worn cutting edges show that the first 1-2 inches do the majority of the cutting. To produce a cutting tip, three relief angles are necessary.

Training Video

Description	Diagram
Relief Angle One: Top view - built into the blade (generally 2-5 degrees)	
Relief Angle Two: End view - To be re-sharpened (industry average is 30º)	
Relief Angle Three: End view - built into the blade	
Top View of Blade Land-side: Worn Blade Edge Worn away bottom surface at tip. As shown, is a sign of poor blade maintenance. The blade will tear the grass, resulting in a poor looking lawn.	



New from Magna-Matic: Industrial Dust Collectors

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WARRANTY

MAGNA-MATIC CORPORATION (the “Manufacturer”) warrants Manufacturer’s products (the “Products”) will be free from defects in manufacture by Manufacturer (the “Warranty”). The Warranty will be effective and valid for a period of one (1) or two (2) years, as indicated on the Warranty certificate or Manufacturer’s website (http://www.magna-matic.com/warrantyguarantee.html), beginning on the date in which Manufacturer ships the Product (the “Warranty Period”) from manufacturer’s facility directly to Manufacturer’s distributor or customer/end user (the “Customer”). The Warranty shall obligate Manufacturer to repair or replace (in Manufacturer’s discretion) defective Products as provided below. Manufacturer shall maintain records, including Manufacturing Process Instructions, for all Products for a period equal to the Warranty Period. Upon the expiration of the Warranty Period, Manufacturer will have no further obligation to Customer with respect to a Product that is non-conforming and/or defective for any other reason.

To take advantage of the Warranty, Customer must take the following three steps: (1) Customer must promptly notify Manufacturer after Customer becomes aware that it has a defective Product, which in all events must be within thirty (30) days of Customer’s discovery of the defect and within the Warranty Period; and (2) Customer must provide detailed digital pictures and/or must return the defective Product to Manufacturer immediately thereafter and/or make the Product available to Manufacturer for inspection (at Manufacturer’s request/discretion), and in no event more than thirty (30) days after any notification provided in (1) above; and (3) Customer must insure the defective Product until Manufacturer receives and accepts it. After Customer has taken the above steps, Manufacturer will evaluate the Product to determine if Customer’s warranty claim is valid and to determine what, if any, remedy is available to Customer. Customer must return or make available all defective Products with complete documentation associated with the defective Product.

The Warranty shall be invalidated if: (1) damage to the Product is the result of misuse or abuse by Customer or any end user of the Product; or (2) if the Product has been modified by Customer or any end user of the Product; or (3) if any defects in the Products are caused as a result of Manufacturer following Customer’s specifications in manufacture that contain any problems, faults, errors, miscalculations, or discrepancies in the specifications. If Manufacturer decides to repair or replace the defective Product, Manufacturer will ship the repaired or replaced Product (both, a “Repaired Product”) F.O.B. the shipping point and all of the provisions in this Warranty pertaining to the Products will apply to the Repaired Product, including but not limited to, the risk of loss provisions set forth above. Notwithstanding the prior sentence, the Warranty Period for a Repaired Product will not be restarted, but instead will expire at the same time as though the Repaired Product was never a defective Product but rather the Product at all times.

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CE DECLARATION OF CONFORMITY

Manufacturer Declaration
According to EC Machinery Directive 2006/42/EC, Annex II A

We, MAGNA-MATIC W4599 County Road IW Waldo, WI 53093,
herewith declare, that the following machine complies with the appropriate basic safety and health requirements of the EC Directive based on its design and type, as brought into circulation by us. In case of alteration of the machine, not agreed upon by us, this
declaration will lose its validity.

Machine: MAG 12008, MAG 8000, MAG 9000

Applicable EC Directives: EC Machinery Directive 2006/42/EC
EC Low - Voltage Directive 2006/95/EC

Applicable Harmonized Standards: BSENISO 12100:2010
BSEN 61029-1:2009+A11:2010
BSEN 61029-2-4:2011

Printed Name: Gerd F. Bauer II Authorized Signature:
Title: Vice President
Date: 1 January 2015

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