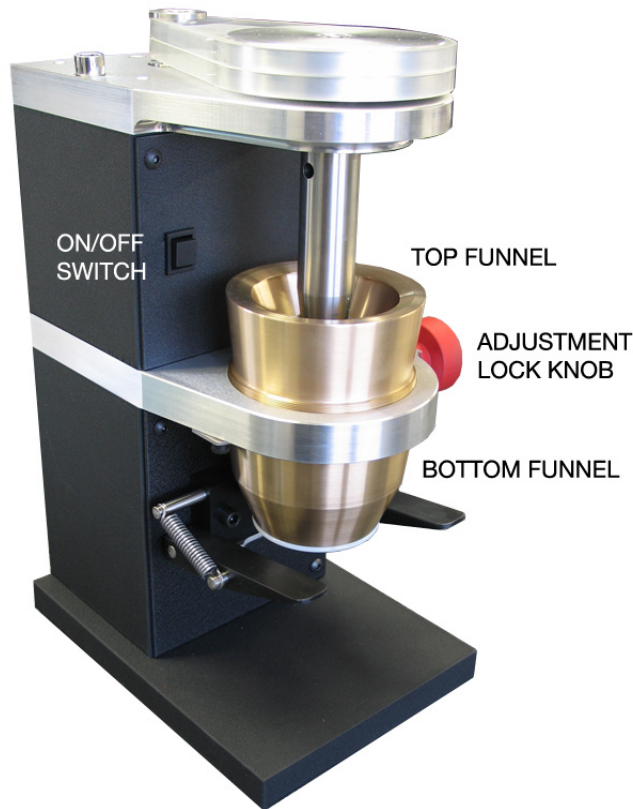


## ***M4 Grinder User's Manual***



### ***Unpacking & Installation***

Included with the grinder is a power cord and a bag of tools, including a pin to hold the shaft when changing burrs. Also fruit wax for perhaps waxing the inside of the bottom funnel. If requested a top funnel lid will be included.

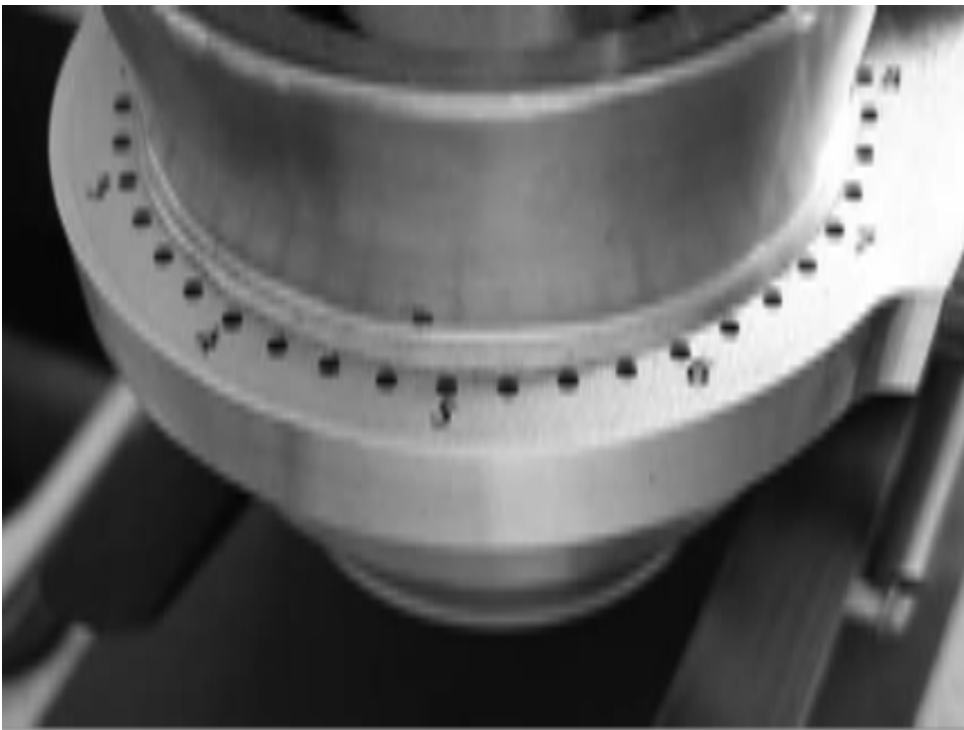
To begin, after locating the grinder on your counter, plug in the power cord.

***Initial adjustment.*** Loosen the adjustment lock knob by rotating it counterclockwise 1/4 turn or so. Next, rotate the Top Funnel clockwise until the burrs touch. This will not harm the burrs. Now back the Top Funnel counterclockwise (out) a little less than a 1/4 turn and **tighten the lock knob**. This should be a reasonable starting point. **The lock knob does need to be snugged down or it can loosen during grinding and cause the funnel to rotate and lock the burrs together**. That will not hurt the burrs, but it is troublesome to unlock them. See “accessing the burrs” later in this manual.

The portafilter holder may need some adjustment in positioning. Place your portafilter into the holder, and check that your portafilter is level side-to-side and front-to-back and up against the white rubber ring on the bottom of the bottom funnel. If necessary, adjust the position of the holder assembly – slightly loosen the two screws, adjust the portafilter holder, then re-tighten the screws.

To use the portafilter holder, simply push down on either of the side fingers of the holder and place a portafilter under the funnel. When finished grinding, hold the portafilter with one hand and push down again. Move the portafilter straight down to avoid affecting the mound of coffee grounds in the filter basket.

### ***Installation of the Versalab Grinder scale***



The scale provides indication of reference points for grind fineness, allowing use at different grinds and then returning to previously known grind settings. The mechanism of the grinder is very precise and repeatable.

There are four index markers - no number dot, 1, 2 and 3. These can be used to provide additional references.

The scale is in a horseshoe shape and numbered 1 through 8. To position the scale symmetrically, the marker centered between 4 and 5 should be at the very front. Only visual accuracy is necessary. The scale fits very close to the funnel threads.

DO NOT try to apply the scale without using the following method.

Wipe the surface of (what we call) the middle plate around the entrance of the top funnel where the scale will go. Be careful since the surface texturing of the plate is a bit sensitive to rough treatment. This is just to eliminate any particles in the area. It is not necessary to clean with acetone or even alcohol.

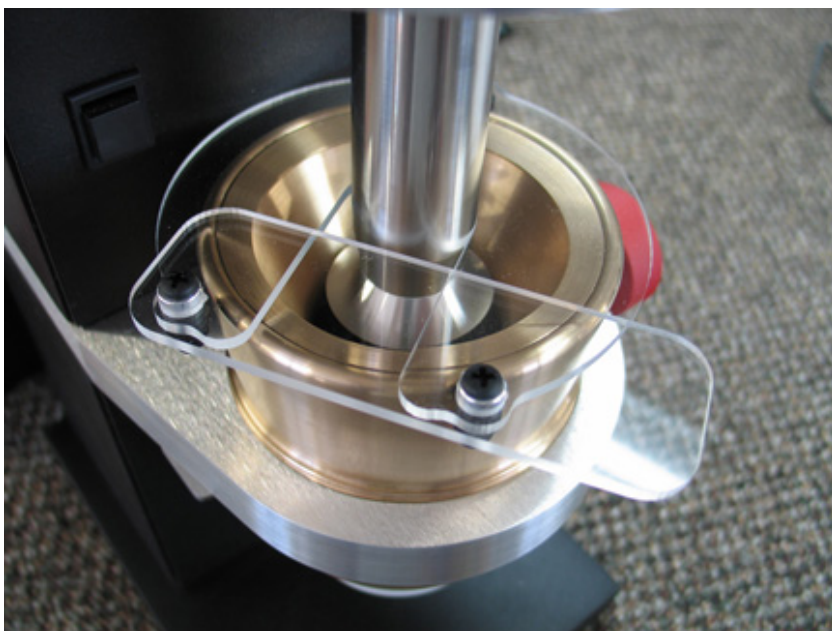
Next apply either Windex (or similar) or detergent water (pretty thick with detergent) to the same area. This solution should be able to stay in place with no gaps in the entire area of the scale, and not evaporate in the couple minutes of getting the scale in place. Don't worry about using too much. Carefully remove the scale from the backing and place around the funnel.

The liquid will allow you to slide the scale around to the proper position. Once in place, take a paper towel or tissue and wipe the excess liquid from the top of the scale and surrounding area. Make certain that the scale is laying flat on the metal surface without wrinkles or bubbles. Kind of rub it lightly onto the surface. Allow to dry for a few hours.

We suggest turning the funnel to where the burrs touch and placing an index marker above the 1 on the scale. This allows considerable range of grind fineness.

Be careful of wiping off the markings of the scale when cleaning the grinder. Detergent and water, or alcohol, are probably the strongest cleaning agents that could be used.

### ***Lid.***



There are two ways to use the top funnel lid. Either with or without using what we call the closer. Under many circumstances you can lift the lid - with the closer in place - pour in your dose, lower the lid and start the grinder.

## ***Using the Grinder.***

Position your portafilter [or other receptacle] under the bottom funnel. Recent experience with the M4 suggests that it is optional whether to start the grinder before or after pouring the dose into the top funnel. Under some circumstances with very hard beans pouring first may not work. The sound will change when the beans are completely ground. Turn off the grinder. If you find that a small amount of grounds are retained, a simple on/off cycle of the grinder usually purges this. Lower the portafilter until it and the heaped grounds clear the bottom funnel. Tapping the portafilter on the counter a couple times will settle and distribute the grounds suitable for tamping.

## ***Other things to know.***

**Fuse.** There is a fuse installed as shipped, and a spare included. Both are accessible in a small plastic drawer in the connector where the power cord is inserted. Further spares should be 5x20mm 5 amp fuses. These are widely available at local stores including Radio Shack. The only reason that a fuse may blow is if the burrs are firmly touching, or a stone has got between the burrs. Stones are not unusual in coffee beans.



## ***Circuit breaker***

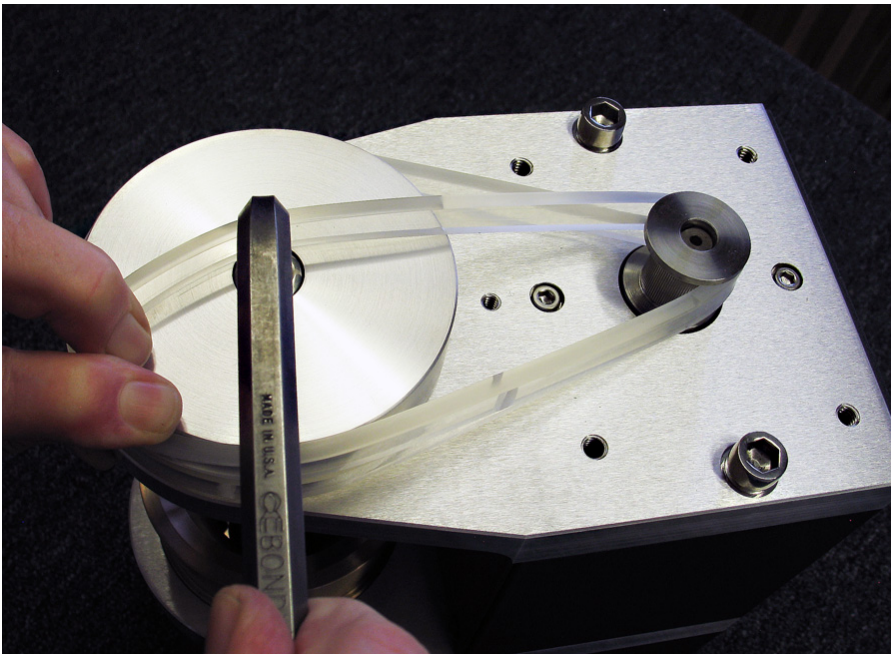
On the back cover of the M4 is the actuator of a circuit breaker, appearing as a white button above the IEC style power inlet socket. This circuit breaker is thermal protection for the motor only, not the drive electronics which is still protected by the fuse in the connector for power on the rear cover.

This circuit breaker will trip if the motor stalls for more than a few seconds. If it trips, the white button will pop out. Let it stay for a couple minutes until the internal elements of the breaker cool down, then push the button back in.

**Drive belts.** The Grinder ships with the belts installed. If you should need to reinstall, or replace them, first clean the big and small pulleys.

Install the belts, one at a time. Be sure to rotate the 1st belt to the bottom on the pulley, to allow room for the 2nd belt. This will be harder to install than the first belt. You may need a helper to hold the grinder in place as you install it.

Place the drive belt into the groove of the small pulley on top of the grinder and stretch it around the large pulley. This will take some effort as the belt has plenty of tension. It will simplify the process of getting the belt around the large pulley if you begin by getting the belt around one side of the large pulley and then start to rotate the large pulley so as to drag the belt around the front. A 3/8 allen wrench, short end inserted into the bolt head, gives some leverage.



Do not turn the wrench counterclockwise as it might loosen the bolt. Don't let the wrench slip! It might put permanent marks on the grinder. You may also find it useful to remove the "pulley guard" between the two pulleys.

**General Maintenance and Cleaning.** Use a soft cloth or paper towel with alcohol or mild detergent and water to clean the outside of the machine. The best coffee oil solvent we have found is D-limonene. The internal parts can stand stronger solvents. Do not rub crossways on the bare grained aluminum parts! Do not use abrasives anywhere! The bronze top and bottom funnels will darken over time. They can be brightened or polished and waxed. Neverdull is a product we use for such processes. D-limonene is also good at stains on the bronze.

**Bottom funnel.** The inside surface of the bottom funnel is critical to the grinder dropping grounds. It is important that coffee oils do not build up on this surface. After a while the wax - if you used it - that was on the surface will need cleaning off and the surface re-waxed with the food grade wax shipped with your grinder.

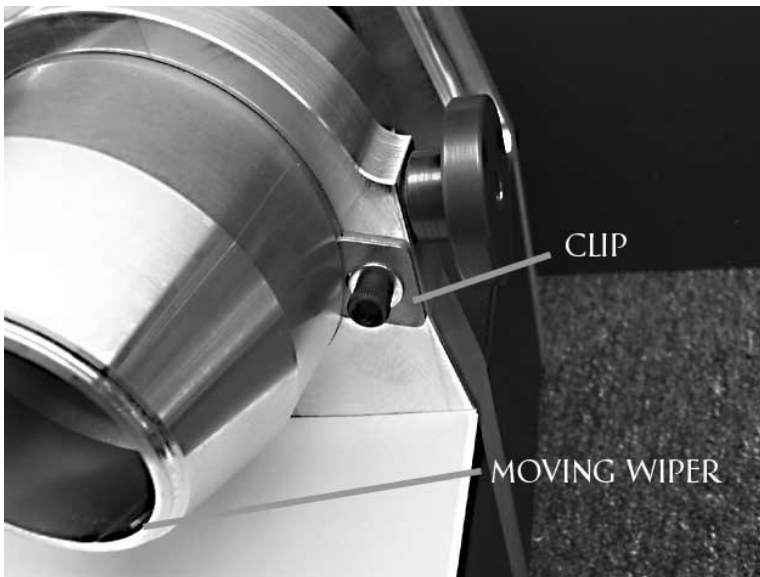


Please use isopropyl alcohol (not rubbing alcohol which contains oils) to clean the inner surface of your bottom funnel if/when the grinder begins to retain grounds after the motor is switched off.

Then wipe the supplied wax onto the entire inner surface of the bottom funnel. Only a small amount is necessary. It will show up as a darkening of the surface. Put a polyethylene bag - like a sandwich bag - over your hand while it might contact the wax in a wet form. Leave the wax to dry for a couple of minutes, until it is no longer slightly sticky. Use a piece of paper towel (tee shirt cloth preferred) to buff the wax. This wax is entirely food grade. The emulsifiers, which are the solvents that evaporate, are also FDA approved, but may irritate the skin in liquid form.

***In case of locking the burrs.*** If you left the adjustment lock knob loose and the grinder has locked the burrs, the circuit breaker may trip. Then to loosen the burrs follow the procedure below.

***Accessing the burrs.*** The following is best done with the power cord removed and the grinder lying on its back. This is only necessary to do if you want to change the burrs or back them off from being locked. We had been recommending changing burrs at 400 lbs. of beans but the SSP burrs that are installed are much more durable so we are not sure of their life expectancy.

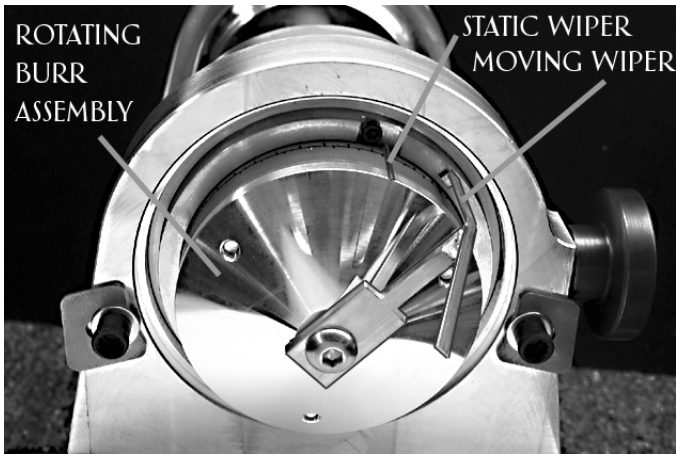


Two hollow internal hex nuts and special slotted clips retain the bottom funnel. These are on either side where the funnel fits into the middle aluminum plate. Slightly loosen each nut with a 3/16" hex key (supplied with the grinder) and slide the clip outwards away from the funnel. Retighten the nut to hold the clip clear of the funnel.

**Be very careful!** When you lower the bottom funnel, lower it almost all the way to the baseplate, before bringing it forward. If you do not, it is possible to bend the "moving wiper" which sticks

down as far as the bottom opening in the bottom funnel. Because this rotates with the bottom burrs and may stop at any position, it is not always visibly obvious. This wiper is critical to the proper action of the grinder.

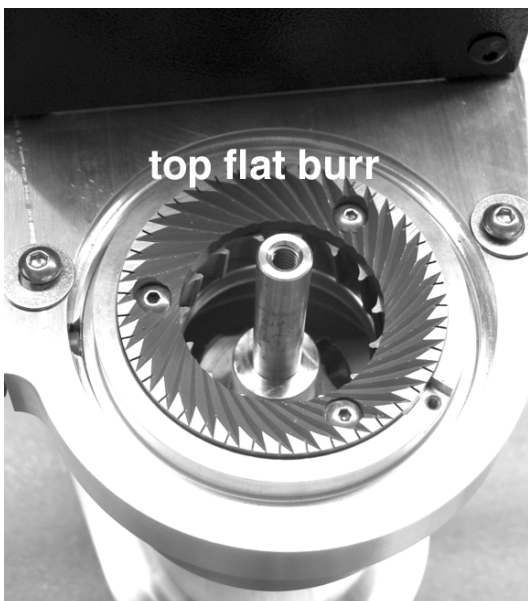
It is unlikely that you can straighten the wiper back to its original accuracy. If bent it should be replaced as the grinder will retain grounds.



***Remove the static wiper.*** Included with the tools is a small tool similar to a hex (or Allen) wrench that fits into the retaining screw for the "static wiper". This wrench is of the "Torx" type, and has splines that fit into the screw head. The static wiper is fastened to the bottom of the top funnel right adjacent to the outside of the flat burrs, and wipes grounds off the burrs as they rotate. The whole area around the retaining screw will be covered in dense grounds that require brushing out of the way.

***Remove the moving wiper.*** In the center of the rotating burr assembly is a stainless steel socket hex screw. This retains the moving wiper to the rotating burr assembly and also holds the rotating burr assembly to the shaft. There is a hole in the shaft near the top plate of the grinder. The pin that came with the grinder tools fits this hole and is used to hold the shaft while removing the screw. Remove the screw. If the grinder is sitting vertical rather than on its back, be certain that the rotating burr assembly does not fall.

***Remove the burr assembly from its shaft.*** You now have access to the two flat burrs and the conical burrs.



***Reassembly*** is simply going through this procedure in reverse, with some cautions.

To work properly, the burrs need to be carefully aligned so certain surfaces must be VERY clean.

For the top burrs, the surfaces are obvious: the mounting face in the top funnel, and all mating surfaces of the top conical and top flat burrs. For the bottom burrs, there are four surfaces to clean. The controlling surface on the shaft is the round face (visible in the photograph at left) that abuts the top of the inner conical burr.

Then the top and bottom of the conical burr, and the flat area in the middle of the aluminum holder for the bottom flat burr ('burr driver'), which abuts the bottom face of the bottom conical burr.



In all cases of precision reassembly, rotate mating parts against each other and by doing so make certain by sound and feel that contaminants haven't fallen into mating surfaces.

Install the screw (with moving wiper) in the center of the rotating burr assembly. Tighten the screw while holding the shaft by use of the pin.

Install the static wiper. It should be just clear of the rotating burr assembly. The foot of the wiper that goes under the screw head should lie alongside the static flat burr. Use a business card or similar to set the leg of the wiper to just clear the moving flat burr. Make certain that the moving wiper does not hit it. The screw must be **firmly** tightened or the wiper can rotate out and interfere with the moving wiper.



When you reinstall the bottom funnel, you should likewise rotate it against the mating surface at the top of the funnel to make sure it mates cleanly with the mounting surface. Then loosen the hollow nuts that retain the clips, slide the clips into the slot in the bottom funnel and retighten them.

The moving wiper should run just clear of the inside of the bottom funnel. The clearance should be about the thickness of two business cards or less. This is a precision part and was checked on assembly. If the wiper has too much clearance or rubs against the bottom funnel, it has been bent out of shape.