

KILN MAINTENANCE

Kiln Maintenance Basics

Before Each Firing...

- 1 Check inside your kiln, look for anything out of the ordinary.
- 2 Vacuuming your kiln before each firing will help insure that dust will not fall on the ware or cause premature element ware. (Kiln Sitter and switches must be off)
- 3 Remove any glaze or glass spots from the shelves, posts, kiln bottom or side-walls. If not, glaze and glass will re-melt and spread getting in the element grooves to cause shorter element life.
- 4 Make sure there are no loose fragments on the lid that may drop on your ware.
- 5 Check your shelves for cracks before firing. This may save a possible overfire, disappointment and a lot of hard work. Sand any rough spots on the bottom or shelves and recoat with kiln wash.
- 6 Check the tightness of the lid band and tighten if necessary.
- 7 Vacuuming your kiln before each firing will help insure that dust will not fall on the ware or cause premature element ware. (Kiln Sitter and switches must be off)
- 8 Inspect your tube assembly or thermocouple for any signs of damage and replace immediately if so.

LID MAINTENANCE

During firing your lid will expand and contract so it's necessary to tighten the lid band clamps occasionally, using care not to over-tighten and strip threads.

- 1 Should chips or cracks appear they should be repaired to prevent "sifting" or becoming larger. Small chips may be cemented back into place using suitable repair cement. Sometimes a portion of the brick needs to be gouged out and a new brick, cut to the proper shape, cemented in place. Sanding smooth to create a flat surface once again.
- 2 The lid is manufactured with a protective coating on its "hot side". This coating serves to prevent "sifting" of brick dust onto the ware. Because of this coating it is not necessary to kiln wash the "hot side" of the lid. Having said that, it's also not necessary to kiln wash the outer surface of the lid.

SIDEWALL MAINTENANCE

- 1 Remove any foreign objects (glaze, slip, clay, glass, silica sand) from the sidewalls before any firing. Failing to do so may cause this material to further damage the sidewalls and possibly the heating elements. Remove the material with a small screwdriver or knife. Be careful, the brick is fragile
- 2 It's possible that small pieces of brick will break free from the sidewall. While this is normal and does not effect the operation of the kiln, these pieces may be cemented back into place using Evenheat Repair Cement. Use care not to get cement on the heating elements as this will destroy the element.
- 3 Also please note that while it seems logical that the sidewalls "should" have a layer of kiln wash applied to them we firmly suggest you refrain from doing so. The concern is that the kiln wash will find its way onto your heating elements during the application. If this happens the element will likely fail.

ELEMENT MAINTENANCE

There really isn't much maintenance that can be performed on an element other than a visual check.

- 1 Take a look at your elements every now and then and check to see that there is no foreign material in the element groove. Remove anything you find.
- 2 A note to those of you using silica sand. If you allow silica sand to enter the element grooves it will cover the element and cause it to overheat. This will cause element failure. So please, check your element grooves for silica sand.
- 3 Please refer to your operators manual for the discussion and photo's of "Element Replacement".

POWER RECEPTACLE MAINTENANCE

Check your plug / receptacle periodically.

- 1 Periodically inspect the power cable receptacle and plug for any signs of discoloration or heat. If either is noticed replace both the plug and receptacle. What generally happens is the contacts in the receptacle become weak as a result of constant unplugging or strain and cause heat (loose connections cause heat). This heat discolors the power cable and even travels down the copper wire (copper is a great conductor of heat) toward the fuses/breakers and kiln control panel. This heat causes the fuses /breakers to "blow" or trip and at lower amperage levels making you think the trouble is in the fuses and breakers.
- 2 The power cable should easily plug into the receptacle without any strain. If your power cable "just makes it" to the receptacle or is positioned in an "odd" way (upside down for instance) then your asking for trouble. Reposition the receptacle or move the kiln or get a longer power cable to make sure there is no straining. As noted above, straining of the receptacle causes a loose connection, which causes heat, which causes failure.

AREA SURROUNDING THE KILN

The area around the kiln should always be free of combustible or flammable materials, ALWAYS!

A kiln is a powerful piece of equipment that gets hot while doing its job. Anything that can burn or explode, with heat, should be kept well away from the kiln. This includes, but is not limited to, paper, cardboard, fuels, toilet paper, packing materials, plastics, clothing, etc.

Kiln Safety

Good kiln maintenance is a must!

- 1 Make sure all connections in the receptacle and plug are tight.
- 2 Make sure correct wire size was used when installing the kiln. Preferring copper wire to aluminum wire.
- 3 Avoid installing kilns in a damp area. This could cause corrosion on the plug.
- 4 Install manufacturers required receptacle. For example: 30 amp, 50 amp
- 5 Do not use extension cords.
- 6 Use only the cord set and plug that was installed by the manufacturer. Any changes will void the warranty.
- 7 Check plug regularly for corrosion or dark spots. If corrosion or discoloration occurs, replace the plug and receptacle.
- 8 Touch the plug and receptacle regularly to make sure it is not hot. If it does feel hot, check for loose connections and corrosion. Do not continue firing until the problem is fixed. Replacing the cord set or the receptacle may be necessary.

- 9 Continual plugging and unplugging of the cord set may eventually take tension out of the receptacle prongs. Make sure when pushing the plug into the receptacle that the prongs feel tight.
- 10 The area around the kiln should always be free of combustible or flammable materials, **ALWAYS!**

Kiln Troubleshooting Basics

KILN NOT HEATING

- 1 Check for "blown" fuse or tripped circuit breaker. Double check that these devices are properly sized.
- 2 Check for voltage at the kiln plug / receptacle.
- 3 Kiln not plugged in. (Don't laugh, it's happened!).
- 4 On automatic, computerized models check the control fuse located on the kiln control panel.
- 5 Make sure Kiln Sitter plunger is pushed in or the kilns' power switch is ON.
- 6 Limit timer on kiln Sitter model may be set to "0".
- 7 Make sure kiln is plugged into the correctly specified receptacle.
- 8 Possible element failure.
- 9 Kiln panel component failure.
- 10 Check for worn or broken wires.

KILN FIRES TOO SLOWLY

- 1 Elements are wearing out. Elements age when fired and increase in resistance. Firings gradually take longer, and longer until the kiln will not reach temperature. Replace all elements. High firings wear the elements out faster than lower firings.
- 2 Make sure all elements are firing. You can check this by carefully lifting the lid while the kiln is on to make sure all elements are glowing. In some kilns, especially automatics, the top and bottom coils appear to become hot quickly while the center elements appear to be slow in becoming hot and are less bright. DO NOT touch the elements when doing this.
- 3 Voltage too low. As voltage falls so does power. Check voltage while under load for a more valid reading.
- 4 Improper operating voltage. Check rated voltage (printed on nameplate) against the measured voltage. A kiln designed for 240V will be slower when connected to 208V.
- 5 Voltage may vary in certain areas due to heavy electrical use. This is especially true in the summer with a heavy demand for air conditioning and refrigeration.
- 6 Long runs of wire from the main service can cause lower voltage, which lowers power.
- 7 High amperage draw of the kiln could cause a voltage drop at the kiln. While rare, this would indicate that the electrical service supply transformer is not capable of supplying the desired power.
- 8 Loose connections between fuse box and kiln.
- 9 Aluminum wire has been known to cause some problems. We do not recommend aluminum wiring.

KILN FIRES TOO QUICKLY

- 1 Improper operating voltage. Check rated voltage (printed on nameplate) against the measured voltage. A kiln designed for 208V will fire faster when connected to 240V. This situation is dangerous and may cause amperages to exceed design limits. **DO NOT allow this condition to exist and CEASE USING THE KILN IMMEDIATELY.**
- 2 Check element ohms to make sure they meet the factory specifications.
- 3 Improperly programmed automatic controls. Double-check your program.

HOT or PARTIALLY MELTED PLUG or WALL RECEPTACLE

Kiln should be shut down immediately and Power disconnected.

- 1 This can be caused by a worn receptacle or plug. Loose connections within the receptacle or cord set cap can also be the problem.
- 2 Plugging and unplugging the cord set can cause connections to wear and loosen.
- 3 Corrosion on the cord prongs and / or receptacle is another cause.
- 4 Damp conditions, such as damp basements, can be the cause of corrosion. Corrosion interferes with making a good connection between the cord and wall receptacle.
- 5 If any of these problems exist, replace power cord and receptacle immediately with Genuine Factory replacement parts.

BRICK CRACKING and HAIRLINE CRACKS

Hairline cracks are common in all kilns and should not be a concern. These are normal. Bricks expand and contract when heated and then cooled. The cracks will close as the kiln gets hotter.

- 1 This is most prevalent in the kiln top or bottom. Kilns fired at the higher temperatures will experience more spalling and cracking of the brick
- 2 Kilns cooled down too rapidly will affect the amount of cracking.
- 3 If you are repairing a broken brick, repair cement should be used to adhere the broken piece back into place.
- 4 If a brick breaks under an element and is impossible to repair, an element pin can be used under the coil to prevent drooping.

FUSE "BLOWS" or BREAKER TRIPS IMMEDIATELY WHEN KILN IS TURNED ON

- 1 Generally speaking, if a fuse "blows" or circuit breaker trips immediately upon applying power to the kiln, or pressing the start keys, it indicates a short circuit within the kiln itself. It's also possible that the fuses or breakers protecting the circuit are not sized properly.
- 2 Check the wiring for any signs of arcing (visual and smell). If there is any evidence of arcing, call a qualified electrician to fix the problem. This must be fixed before you continue firing.
- 3 Electrical service to the kiln is wired incorrectly. Have a qualified electrician check the electrical service from the main service to the kiln. There have been incidences where the connections from the electrical pole outside to the main service at the house have been loose.
- 4 Circuit is overloaded. Disconnect all other appliances while operating your kiln.

FUSE "BLOWS" or BREAKER TRIPS DURING FIRING

- 1 Generally speaking, if a fuse "blows" or circuit breaker trips sometime after the beginning of the firing it indicates a problem with the electrical service itself.

- 2 The causes are varied. Heat at the fuses or breakers will cause them to "blow" or trip at lower amperage levels. This heat can be caused by a weak or loose connection at the fuse or breaker or elsewhere in the service (heat travels well in copper). A fuse or breaker is not normally warm or hot. It should be very close to room temperature during normal operation.
- 3 It's possible also that the fuses or breakers are bad, weak, junk etc.. Replace only with the proper size. Do not install larger fuses or breakers to solve this problem. Something out of the ordinary made the originals fail. The problem must be corrected not bullied into submission. It doesn't work that way.
- 4 In this type of situation it is suggested that a qualified electrician be asked to check for circuit problems.