There is a tendency in all of us to wait until something doesn't work before we learn how it operates.

For example: someone pushes your door bell; it rings; you answer the door. It's automatic - right? Little thought is given to how the door bell actually functions until the day it fails to work.

The same applies to attitudes toward the Kiln-Sitter® - as long as the Sitter® reliably turns off the kiln, we scarcely give the process a second thought. However, when the kiln overfires causing the loss of ware and furniture, this small device suddenly takes on new importance. We want to know everything there is to know about it and we want to understand why it failed to perform properly.

Following is a brief explanation of the Kiln-Sitter® and how it is used. For more details, refer to the Kiln-Sitter® manual.

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**THE KILN-SITTER®**

The Kiln-Sitter® is a mechanical device manufactured by the W.P. Dawson Co. It is designed to shut off power to the kiln when the proper heatwork has been obtained.

The Kiln-Sitter® makes use of a Small Cone or a Pyrometric Bar which is positioned in the device. As the kiln gets hot, the cone begins to melt. As the weight of the sensing rod presses down on the melting cone, the cone begins to bend. When the rod moves down far enough, the claw or outside portion of the rod is pivoted up (like the end of a teeter-totter), releasing the trigger and weight to shut off power to the kiln.

The Kiln-Sitter® comes either with or without a timer. The timer serves as a back-up and is generally set for one hour longer than the expected shut-off time. If for some reason the Kiln-Sitter® fails to shut-off, the timer will end the firing.
The Kiln-Sitter® is a sturdy, remarkably reliable piece of equipment. Proper use, adjustment and maintenance will help ensure a long life and efficient operation.

**USING THE KILN-SITTER®**

A Kiln-Sitter® is easy to operate. By following proper instructions and after a little practice, operation almost becomes second nature.

Let’s review the proper use of the Kiln-Sitter®.

- Turn off all kiln switches (this safety procedure also increases the switch life)
- Check the sensing rod for free travel up and down and make sure it does not touch the sides of the tube
- Clean off the old kiln wash and then apply a thin coating of new kiln wash to the top of the cone supports and bottom of the sensing rod
- After raising the weight against the guide plate, carefully insert the cone or bar flat onto the cone supports in the Sitter® and press the claw down to engage the trigger. It is a good practice to put the cone number down, since this is a strong cone face.
- Stack ware in kiln leaving at least 1 inch of space between the Sitter® and the shelves and ware. Do not position a kiln shelf on the same level with the Kiln-Sitter®. Be sure to choose the proper size stilts. Keep the Sitter® tube, cone supports and cone visible from above at all times
- Close the kiln
- Firmly press in plunger until it locks
- Make sure the area around the kiln is free of any obstructions
- Fire the kiln

As we discussed, the heat developed in the kiln will cause the small cone or bar to soften. The weight of the sensing rod will cause it to bend. Failure of the Kiln-Sitter® may result when it is unable to take advantage of the cone’s softening due to a mechanical, adjustment, operation or service problem.

When this happens, the kiln may continue to fire until the timer activates or the firing is ended by manually shutting off the kiln.

**CALIBRATION**

Since the Kiln-Sitter® is a mechanical device, some adjustments are periodically necessary to maintain proper calibration. Failure to do this may produce erratic firings leading to under or over firings.

Normal firing conditions of heat corrosion and mechanical wear make these adjustments necessary. It is recommended that a calibration check be made at least every 20 firings.

**Procedures**

- Turn off power to the kiln - set all switches to the off position
- Install the firing gauge (see illustration below)

The metal gauge should be installed on the cone support with the sensing rod through the center hole as shown. This is the location the rod should be in when the device is triggered.

- Check the clearance between the release claw and the weight trigger.

With the firing gauge in position, raise the weight up against the guide plate. Pull the claw forward (against the slight play in the swivel assembly) and check for a 1/16 inch clearance between the inside of the claw and the trigger (see figure 1, next page). The set-screw on top of the claw may be loosened if adjustment of the claw position is necessary. Retighten the set-screw firmly.

- Adjust the trigger

When the weight swings forward, the trigger should just clear the tip of the claw (see figure 2, next page). The setscrew in the front of the weight may be loosened to raise or lower the trigger. The set-screw must be firmly retightened or the force of repeated falling of the weight may cause the trigger to creep out of adjustment.

- Level the kiln.
If the kiln is not level, the weight may not fall when released. This condition may exist if the kiln is sitting on an uneven or sloping floor. Use a level to check this. If leveling is necessary, refer to your kiln manual for proper instructions. Normally, shims are suggested and are placed under the legs of the kiln stand.

**THE PARTS**

Let's look at each part of the operation and examine potential problem areas. Refer to the diagram on the back page.

**The Sensing Rod**

The sensing rod is attached to a swivel assembly which accounts for the rod's teeter-totter like motion. It is important that the rod move freely up and down on this pivot to insures proper operation of the Sitter®. A counter-weight is used to adjust the load on the cone to approximately 4 grams. Too heavy a load can break cones or result in an underfiring. Too light a load can result in an overfiring.

**Sensing Rod - Bent**

Accidentally bumping the rod with a shelf or ware during loading can bend the rod. Also, natural deterioration caused by the cumulative effects of high heat and corrosive gas generated during firing can result in a bent sensing rod. Either way, a bent rod can prevent the necessary movement up and down or can cause the rod to rub the side of the ceramic tube and hang up.

**Sensing Rod - Interference**

The free motion of the sensing rod can be prevented in a number of other ways. If the shelves or ware inside the kiln are placed too close to the rod, or if they shift during firing and touch the rod, this will limit the rod’s movement.

The same can be said if an object outside the kiln such as a cart or a broom is placed against the Kiln-Sitter® preventing the weight from falling when it is released.

Also, if ware explodes during firing, a piece of it lodged in the ceramic tube would prevent movement of the rod until that piece melts sufficiently to release the rod.

**Resolving Sensing Rod Problems**

If a rod gets bent or deteriorates and becomes thin on the end, it must be replaced. Don’t let kiln wash build up - a thin coat is all that is needed. Remove old wash before applying a new coat.

Careful placement of ware in the kiln, close checking of the ceramic tube prior to use, periodic viewing of the kiln during firing, and a quick check of the area around the kiln can help prevent potential sensing rod problems.

Also, the swivel rod assembly should be tested periodically for natural deterioration and checked each use for free travel.
Guide Plate, Release Claw, Trigger

Other primary parts of the Kiln-Sitter® include the Guide Plate, Release Claw and Trigger assemblies.

The guide plate limits the rod's side to side movement so the sensing rod does not rub on the ceramic tube. The guide plate is adjustable so the rod can easily be centered in the tube. Failure to properly center can cause limited motion of the rod and force the rod against the ceramic tube.

The release claw must also be properly adjusted to prevent binding of the trigger. These adjustments are easy to make with the washer-like gauge supplied with the Kiln-Sitter®. When adjustments are made, tighten the screws firmly.

The trigger must be periodically checked. The movement of the weight can cause the trigger to creep out and bind the release claw, or make it impossible to insert a cone between the supports and the sensing rod. Regular checking and adjustment of these parts can be made with the Kiln-Sitter® manual.

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A REVIEW

The free centered motion of the sensing rod is essential to proper Kiln-Sitter® operation. Check these areas:

- move the rod up and down to check for free travel
- visually make sure the rod is centered
- make sure the rod is not bent
- make sure the rod is not corroded or deteriorated to the point that it is becoming thinner in the area where it rests on the cone
- make sure nothing is caught in the ceramic tube
- check the cone supports for a build-up of kiln wash
- make sure the area around the kiln is not obstructed
- be sure shelves and ware are solidly placed and supported so they cannot shift or fall in contact with the sensing rod
- make sure the ware was positioned at least 1 1/2" from the Kiln-Sitter®, do not put a kiln shelf on the same level with the Kiln-Sitter®, keep shelves 1" below or above the Sitter®
- make sure the Sitter® tube, cone supports and cone are visible at all times from above
- if anything falls when closing the lid - stop firing, unload the kiln and reload; if you are using stilts, be sure to use the right size
- regularly check and adjust the sensing rod, guide plate, release claw and trigger with the gauge according to the instructions provided in the Dawson Kiln-Sitter® Manual

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