

Ward Installation & Operating Handbook for Kilns Early Models

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Regards

Ross Gleghorn

Ward

INSTALLATION &
OPERATING HANDBOOK
FOR KILNS

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KILN HANDBOOK

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Unpacking your Kiln

Your kiln has been carefully packed at the factory and, if transported with normal care it should arrive in the same condition as it left the factory.

1. Inspect the outside of the packing and, if any dents, tears or damage are evident check that the area of the kiln when it is unpacked. If any damage is evident contact your agent immediately.
2. In the case of kilns in a carton the top of the carton indicated by the printing on the outside of the carton. Turn the carton upside down exercising care not to drop the kiln as you turn it over. Cut the adhesive sealing tapes on the bottom of the carton. Fold the flaps of the carton back up the right way. The carton can then be lifted straight up off the kiln.

NOTE do not destroy the carton until you have inspected the kiln thoroughly. Should the kiln be damaged it should be repacked and returned in the same carton.

3. The kiln is packed inside and outside with styrene foam for protection during transport. The door is held in transit by either a steel band or nylon tape. Remove this tape and open the door. Carefully remove the styrene foam inside the kiln.

Inspect the interior of the kiln paying attention to the brickwork.

Small chips of brick will not cause serious problems. However, larger pieces, i. e. above say $\frac{1}{2}$ " will be serious, particularly if they are part of the element supports. The kiln should not be used until these have been replaced. They can be cemented back with cement that can be provided. This sort of damage is rare. However, it may occur, later in the life of the kiln and the cement is mainly used for this.

If you do have any damage please contact your carrier immediately before contacting your agent.

2. Setting the kiln up.

1. Location

The kiln should be placed on a firm, stable base of convenient height. In the case of top loading kilns these are normally placed straight on the floor, smaller front loading kilns are normally placed on a table bench or stand. The location should be free of draughts if possible.

Allow 6" clear space on all sides of the kiln. Do not allow drapes or curtains to get behind the kiln. For kilns fitted with sitters make sure that there is at least 6" clear in front of the kiln sitter.

Keep the kiln as close as possible to the power supply and ensure that it is sufficient for the particular kiln.

3. Start Up

1. Preliminary checks

Connect the kiln to the power supply. Make certain that the switch on the power outlet

is switched off. The simmerstat should also be set at the off position and the door of the kiln closed. Switch the power outlet on. Turn the simmerstat to $1\frac{1}{2}$. The pilot light should become illuminated. After a short interval of time the simmerstat should switch off by itself if it is operated correctly. A buzzing sound may be heard. This is caused by current flow through the elements, and is quite normal. Should this sound be very loud it may be from the relay and this can normally be stopped by turning the simmerstat backwards and forwards to the off position several times.

2. Element check

Make certain that the kiln is not connected to the power. Check that all element spirals are lying in the grooves. Kanthal wire has low strength when hot and if the spirals are not in the grooves they will sag when they get hot.

3. Fault finding

- a) Pilot light does not come on.
This is probably due to the door not being closed properly. All kilns are fitted with door switches to comply with the Supply Authorities Rules. This switch is operated by an arm attached to the door. This arm is fitted with an adjustable screw. To adjust, loosen the locknut and screw the adjusting screw out. Retighten the locknut, close the door and try the kiln again.
- b) The kiln does not heat up.
This may be caused by a faulty simmerstat

All kilns are tested before they are packed. However, occasionally the kilns do get bumped or vibrated during transport and this may cause the simmerstat to stick. To remedy this situation turn the knob of the simmerstat through several revolutions. This should free any sticking.

Should the kiln still not function contact your agent and ask them to inspect the kiln.

4. Test Firing

1. Preliminary

If you have a pyrometer position the thermocouple in the hole provided. Locate the actual indication dial away from the kiln. DO NOT sit it on top of the kiln. If you do not have a pyrometer place a pyrometric cone in such a position that it can be seen through the spy hole provided. A cone 08 is recommended for the test firing. For kilns fitted with kiln sitters two test cones are supplied. Read the kiln sitter book carefully and use one of the cones for the test firing. A slow firing is advisable for the first firing to ensure that the kiln is thoroughly dry before work is placed in it.

2. Test Firing

Set the simmerstat at $1\frac{1}{2}$ and leave it on that setting for approximately 1 hour. Progressively turn the simmerstat up 1 unit per hour i.e. $1\frac{1}{2}$ to $2\frac{1}{2}$, until either a temperature of 1000°C is reached or the test cone bends.

3. Faults

Should the kiln heat for a period of time and then stop heating. This is probably due to the door switch breaking the circuit. This is caused by expansion that takes place as the

kiln heats. Expansion may cause the door to be pushed out or up. Adjustments of the screw in the door arm will remedy this situation.

5. Firing work

1. Stacking the kiln

Care should be taken to see that all shelves used have approximately $\frac{1}{4}$ " to 1" clearance with the walls on all sides. Shelves should be at least 1" away from the kiln sitter actuating rod if one is fitted. Do not allow glazed work to rest against the sides or the bottom of the kiln, it should be stilted or dry footed. The door of a front loading kiln, or the middle of the bottom of a top loading kiln, will normally be the coolest spots in the kiln. For work requiring a slightly lower firing, than the rest of the kiln load, use these areas. Bisque firing can be stacked straight into the kiln. Care should be taken that large flat objects are placed flat on the bottom of the kiln or on a shelf. Small work can be placed inside larger work. However allow for shrinkage in the clay as it fires.

2. Bisque Firing

The critical time during this firing is from cold to about 700°C. The temperature rise through this range should be fairly slow. Each kiln has its own firing characteristic and the graph supplied with the kiln should be studied carefully. Adequate venting should be allowed up to about 700°C. The rate of rise should not, as a general rule, exceed about 100°C per hour. For the final temperature cones

are recommended. Cones indicate heat work carried out, whereas a pyrometer will only indicate the actual temperature at the time. After 700 °C the rate of temperature can usually be increased. In most cases the simmerstat can safely be turned up to Full.

CAUTION The simmerstat will not switch the kiln off when the desired temperature is reached. Only YOU can do that, if the kiln is not fitted with some form of temperature cut-off.

3. Glaze Firing

Generally glaze firing can be done more rapidly than bisque firing. However, the type of work to be fired does have a considerable effect upon the heating rate. Heavy, thick walled work should be heated more slowly than thin work. The kiln should still be vented during the early stages of firing. Final temperatures are best indicated by cones.

4. General

All kilns differ, the only way to get consistent results is to KNOW YOUR KILN. If you do not own a pyrometer it is advisable to try and borrow one for the first few firings, that you do. After a couple of satisfactory firings you can reproduce the results by using the same settings for the same times.

6. Maintenance

1. General Maintenance

After each firing it is advisable to make sure that the kiln is clean inside. Occasionally vacuum the element grooves using

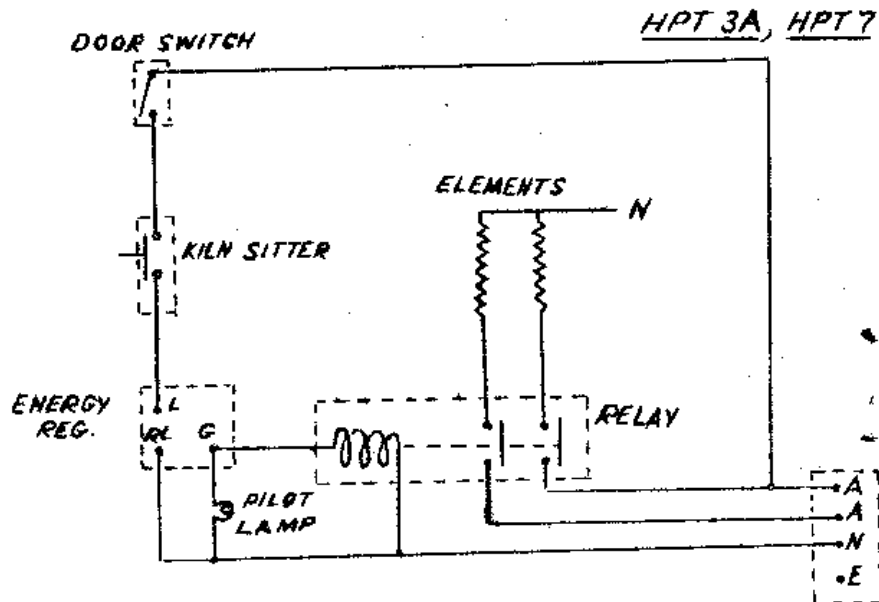
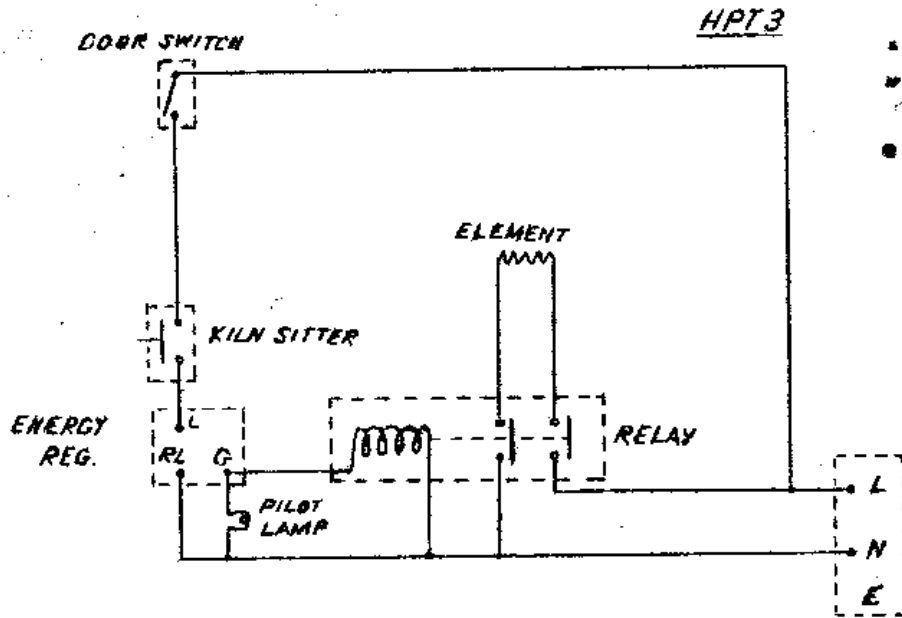
a crevice nozzle. -DO NOT try to move the elements out of the grooves. After firing these elements become brittle and are likely to break if handled. Check the power outlet and plug occasionally to see if any overheating has occurred. If it has, have the plug checked by an electrician as there could be a loose connection. Should this be ignored severe overheating could occur possibly resulting in a fire.

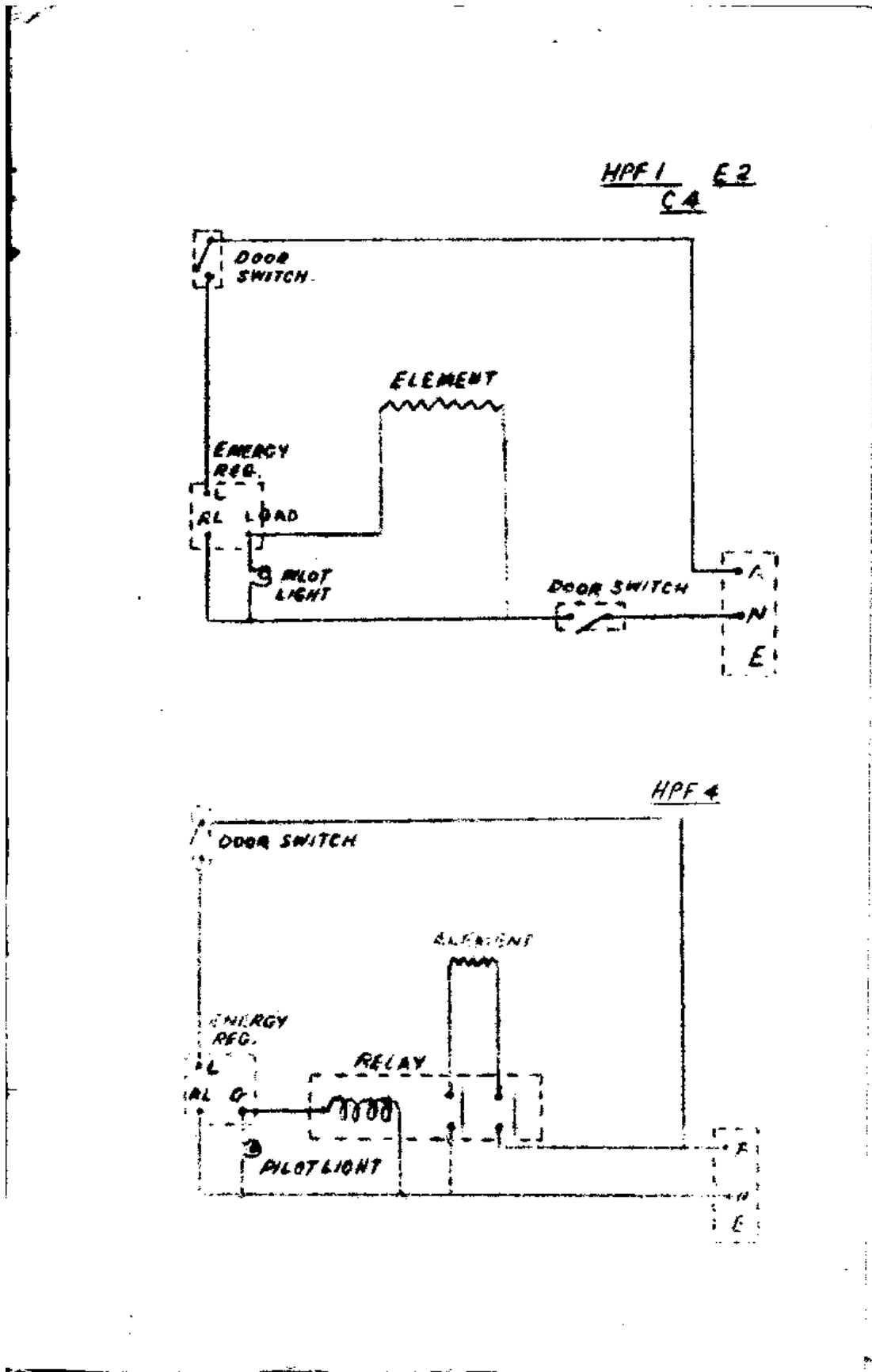
2. Kiln Wash

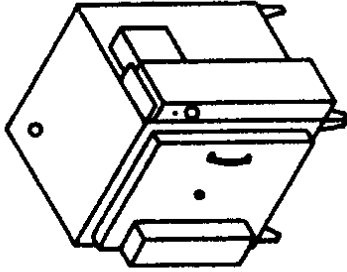
Because of the type of bricks used in your kiln there is no necessity to coat the inside of the kiln with any wash. However, it is still advisable to coat shelves with a good kiln wash to help protect them from glaze.

3. Spare Parts

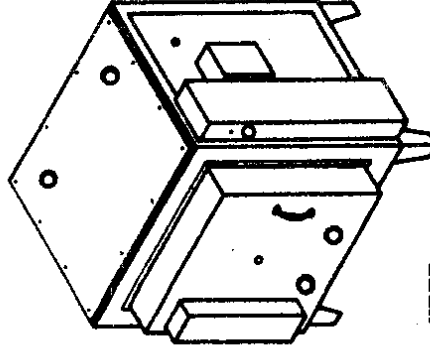
When ordering spare parts for any kiln make certain that you specify the serial number and catalogue number of the kiln.



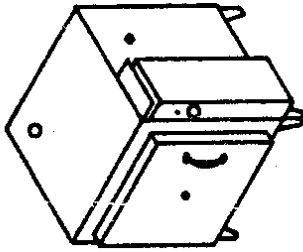




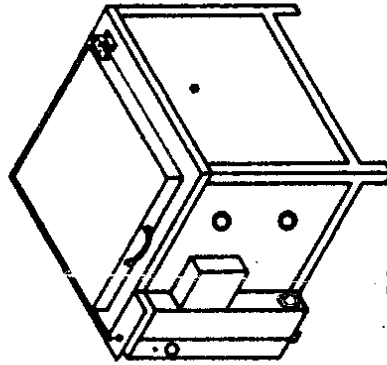
HPF4
INT. DIMENSION
13"W x 13"D x 18"H
30cm x 30cm x 46cm
KW 4.8 AMPS 20
MAX TEMP. 1280°C



HPF7
INT. DIMENSION
17½"W x 17½"D x 17½"H
45cm x 45cm x 45cm
KW 4.8 AMPS 20
MAX TEMP. 1250°C



HPF4
INT. DIMENSION
13"W x 13"D x 13"H
30cm x 30cm x 30cm
KW 3.6 AMPS 15
MAX TEMP. 1280°C



HPT3A
INT. DIMENSION
15"W x 15"D x 18"H
38cm x 38cm x 46cm
KW 4.8 AMPS 20
MAX TEMP. 1280°C

Ward

A.A. KILNS

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Date:..... Ref:.....

Standard Features on Ward Kilns

Brickwork: Top quality K-23 insulating brick. All joints tongue and grooved for strength and elimination of cracks.

Elements: Kanthal A1 heavy gauge wire designed for long life.

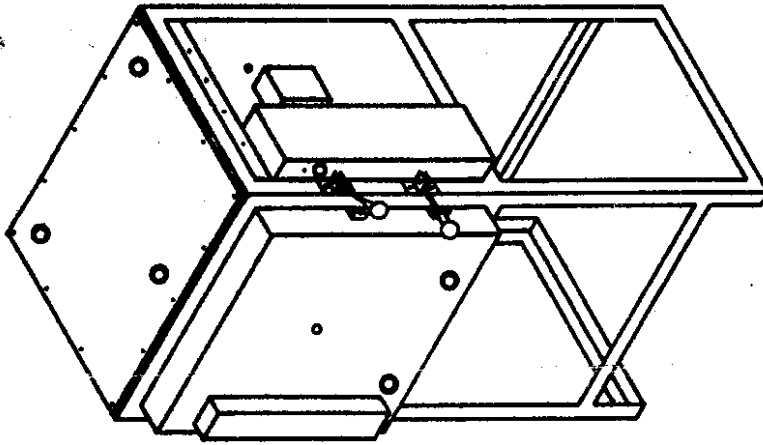
Door Switch: Fitted to all kilns.

Energy Regulator: Fitted to all kilns.

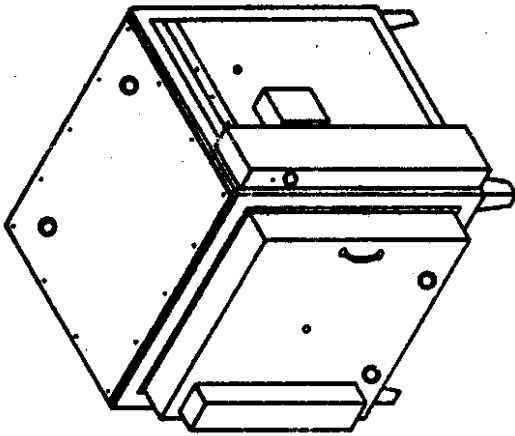
Vents: Adequate vent holes built into all kilns.

Additional Control

Provision is made for direct connection to all larger kilns by way of prewired multi pin plug.



HPP11
INT. DIMENSION
 29"W x 26"D x 29"H
 74cm x 66cm x 74cm
KW 14.4 **AMPS 3 x 20**
MAX TEMP. 1250°C



HPP9
INT. DIMENSION
 24"W x 24"D x 24"H
 61cm x 61cm x 61cm
KW 10.8 **AMPS 3 x 15**
MAX TEMP. 1280°C

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