



# AGA RANGEmaster

## Aga R7 Electric Field Service Manual USA & CANADA



The information detailed in this guide applies to the Aga Dual Control electric cooker, at all times the service technician **MUST** apply their competencies and ensure the appliance is left safe for continued use, should the appliance fail any test then engineering judgement must be applied as to whether the appliance can be left operational.



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## Product overview

The AGA R7 allows the user to operate the cooker as a traditional heat storage AGA, with the ovens on all the time whilst the hotplates can be turned on or off:

- The Boiling plate 340°C (644°F) and the Simmer plate 240° (464°F) are controlled by mechanical thermostats to reach their target temperatures
- The Roast Oven has a temperature of approximately 230°C (446°F)
- The Baking Oven has a temperature of approximately 175°C (347°F)
- The Slow Cook Oven has a temperature of approximately 115°C (239°F)
- The AGA R7 also comes with a low energy setting
- The Boiling and simmer plate are controlled by mechanical liquid filled thermostats with overheat protection on the neutral side.
- The ovens are controlled by a PCB and a thermocouple with overheat protection on the neutral side.

**Full information regarding the operation of the Aga R7 is located in the user guide.**

## General information

Regular servicing is not required for this cooker

**DO NOT ALTER or MODIFY the appliance.**

The appliance warranty does not cover commercial use.

Please refer to the Aga R7 cooker installation instructions for specific information regarding appliance dimensions, clearances, electrical requirements and oven venting etc.

Installation instructions and are available to view at [www.agaliving.com/](http://www.agaliving.com/)

### **\*Important Note\***

**Before carrying out work on the appliance, the power supply MUST be isolated and tested for safe electrical isolation.**

The main cooker assembly is electrically tested before leaving the factory.

Always inspect the cooker before any work is carried out and notify the customer of any existing damage.

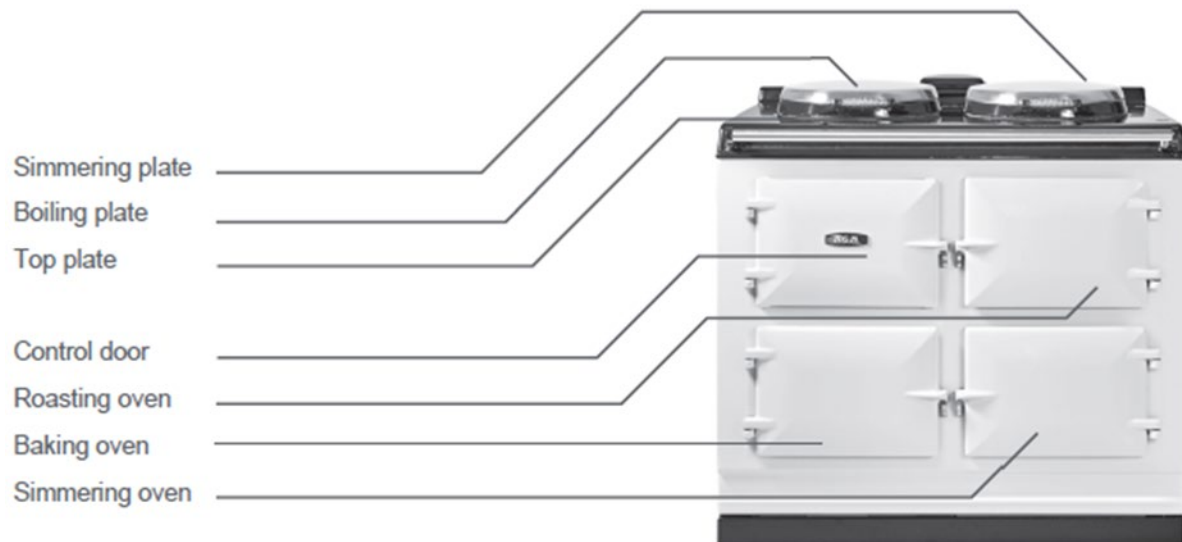
The cooker has 5 cooking zones: boiling plate, simmer plate, roast oven, baking oven and simmer oven.

The boiling and simmer plate use the same 2.5kw circular element and the ovens utilise a 1.75kw element which is accessible by removing a plate in the roof of the baking oven.

## Cooking zones

Below is a picture showing the different cooking zones on the Aga R7. The hotplates are independently controllable using the control knobs located behind the top left hand control door.

In the USA / Canada the simmering oven is called the slow cook oven.



### Aga R7 150



The Aga R7 150 has a hotcupboard attached to the parent Aga, the hotcupboard is supplied either with a warming plate or a single zone induction hob on the top. In the USA/ Canada the slow cook oven is called the simmering oven.

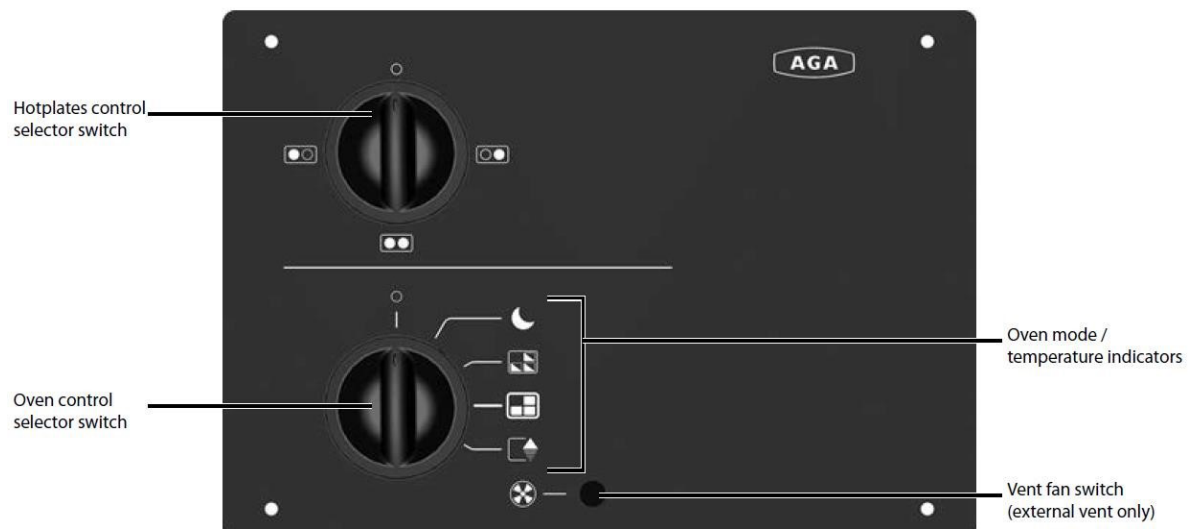
## The User Control Panel

The Aga R7 has been designed so that it is simple to use. There is one control dial to operate the hot plates, and one control dial to operate the Roasting, Baking and Simmering Ovens and on the 5 oven R7 150 model there is one button to operate the hot cupboard.

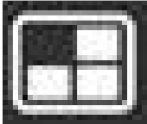
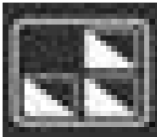


Like the classic Aga cooker design the Aga R7 has a Boiling plate and a Simmer plate. Each hotplate is individually temperature controlled.

Each of the three ovens have their own pre-set temperature settings.

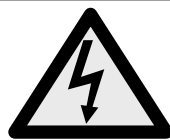
The customers control panel is located behind the top left hand door, we recommend engineers familiarise themselves with the users instructions on the operational modes of the cooker so they understand how the cooker works.



## The User control panel symbols for the ovens.

	<b>Normal</b> – for everyday use, maintains the ovens at a temperature suitable for roasting, baking and simmering in the respective ovens. 446 degrees F ( 230 degrees C )
	<b>Low</b> – for reduced temperature cooking (50°F lower than normal). To achieve the lower cooking temperature from normal, allow 2½ hours before intended use. To return to normal cooking temperature from this mode allow approximately 2 hours before intended use.
	<b>High</b> – for higher temperature cooking (50°F higher than normal). To achieve the higher cooking temperature from normal, allow 2 hours before intended use. To return to normal cooking temperature from this mode allow approximately 2½ hours before intended use.
	<b>Slumber</b> – Slumber mode on the R7 allows the cooker to retain warmth in the appliance at reduced energy giving best economy. To achieve normal cooking temperature from this mode allow approximately 3½ hours before intended use.
	<b>Oven temperature indication</b> For each mode the respective icon will flash while warming up, once the desired temperature is reached the respective icon will be illuminated 'solid' red. The icon remains 'solid' and does not flash when cooling down between modes.

## Power supply connections.



### Electric Shock Hazard

The rating plate is located behind the removable plinth.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person to avoid a hazard.



Electrical Grounding is required on this appliance.

**DO NOT** connect to the electrical supply until the appliance is permanently grounded.

This appliance must be connected to a grounded, metallic, permanent supply. Or a grounding connector should be connected to the grounding terminal or wire lead on the appliance.

Failure to follow these instructions could result in death or serious injury.

The Aga R7 range must be supplied with a 240v, 60Hz power supply and connected to an individual properly grounded branch circuit protected by a circuit breaker, at 240volts it has a maximum load of 30amps. Electric hook up must be done by a licensed electrician. The unit must be installed according to regional codes, or in the absence of codes, the National Electrical Code.

Product installation requires a separate (not shared) 240V/40 amp circuit protected by an appropriate branch circuit supply.

The service cord on your range is fitted with a standard four (4) prong type 14-50P plug (matching receptacle 14-50R).

The method of connection to the mains electricity supply must facilitate complete electrical isolation of the appliance.

## Essential tools

Always protect the cooker and work area before carrying out any work on the appliance, and always inspect the cooker for any existing damage before starting work.

When undertaking maintenance work on this appliance, the engineer should ensure the following tools are available

- Multi meter
- Clamp meter
- Insulation resistance tester
- Tool kit
- Torque driver with screwdriver bits
- Torque setting chart
- Hob support bars - (AE4M280399)

The electrical connections on the Aga R7 must be tightened by the use of a torque screwdriver, please see the table on the next page for the relevant settings.



## Torque screwdriver settings

Torque Setting ft lb	Product	AREA
1.475	R7	Oven element sub assembly
0.59ftlb Initial connection. 0.44 Retighten.	R7	14 way terminal block connection on both PCB and element sides
1.475 ft.lb	R7	Mains supply cable to trident ( NUT)
1.475 ft.lb	R7	Trident onto mains terminal block
0.44 ft.lb	R7	Vent fan terminal block
0.47 ft.lb	R7	Cable clamps
0.73 ft.lb	R7	Hotplate
0.59 ft.lb	R7150	Terminal Connections

## How the hotplates and ovens work

Behind the top left hand door sits a small control knob which simultaneously operates either the Boiling plate, Simmering plate or both. In each of the hotplates there is powerful heating elements.

The Hotspot and Simmer spot elements are similar to the units used on the AGA eR7, but now consist of three internal single circuit elements rated at 2100W , 200W , 200W giving a factory selectable wattage of 2500W or 2300W.

**The boiling spot uses all 3 elements - 2100w + 200w + 200w.**

**The simmer spot uses only 2 elements - 2100w + 200w.**

The Boiling plate reaches its target temperature in approximately 11 minutes from cold, while the simmering plate will achieve its target temperature in around 8 minutes.

With the Simmer spot selected, power is applied permanently to the 200W element, the Simmer spot thermostat and also the 2100W element in the Simmer spot.

As the spot temperature rises to the set temperature, the 2100W element switches off and the continuously operating 200W element maintains the simmer spot temperature.

When the plate lid is opened and a cooking pan placed on the spot, the plate cools, the simmer spot thermostat will call for heat and switch in the 2100W element. The thermostat will then cycle to maintain the simmer temperatures with the lid open.

Manually resettable thermal cut-outs are fitted to prevent any overheat conditions. (Sited behind the glass control panel)

The hotspot functions in the same way as the Simmer spot but the maintenance wattage is 400W and the hotspot temperature is higher.

## How the Ovens work

The ovens are standard radiant heat ovens the heat source is a 1.75kw element, they work like a standard heat store Aga, and they can also be set to a low energy setting, which will reduce all of the oven temperatures of the AGA R7 cooker.

Full temperature can be reached in just a few hours from the low energy setting, while providing a comforting 'warm to the touch' feel. From this low energy setting, time must be allowed for the ovens to reach their target full heat setting again. The low energy setting is not recommended for cooking.

### **Typical element resistances.**

**Oven element 1.75kw (1500watts) 30 Ohms,**

**Boiling plate 2.5kw (2100w +200w+200w =2500watts) 21 Ohms,**

If testing the 2 x 400watt circuits for the above this will be approx 132 Ohms.

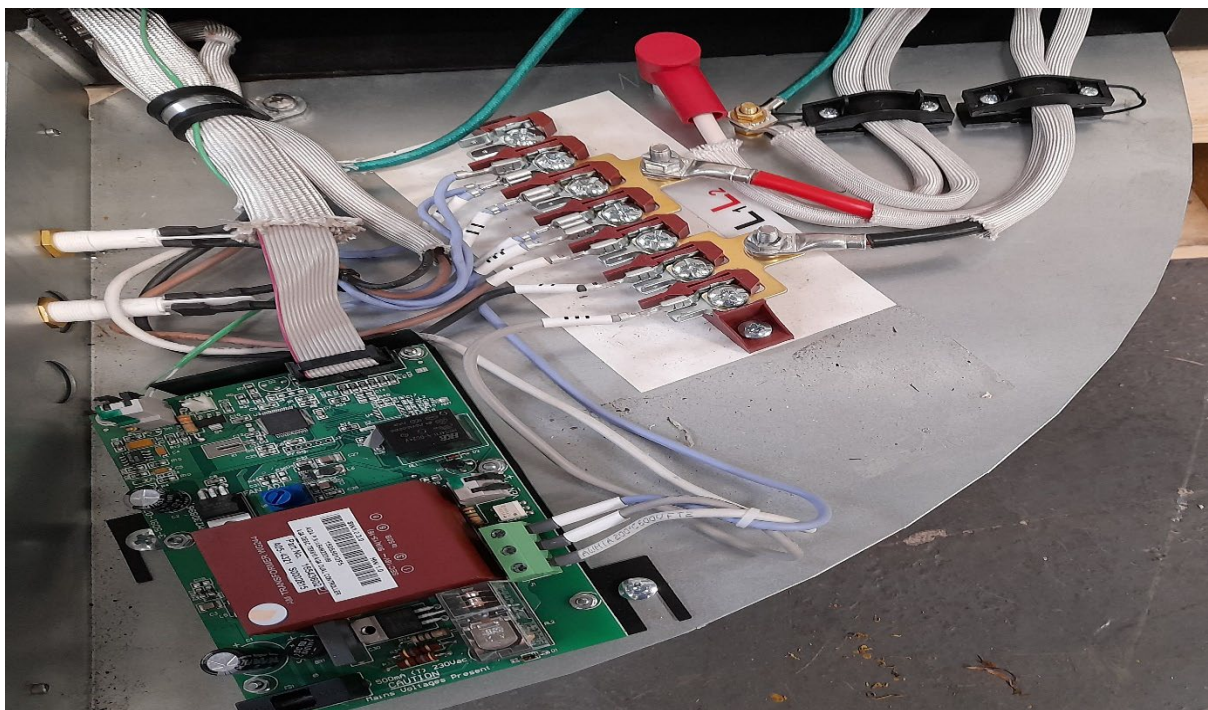
**Simmer plate 2.3kw (2100w + 200w = 2300watts) 23 Ohms**

If testing the 200 watt element for the above this will be approx 264 Ohms

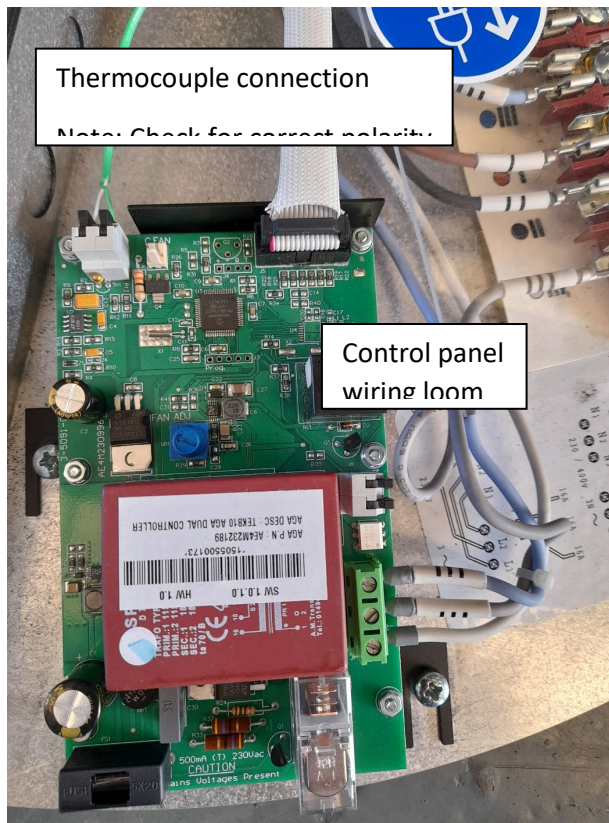
## To gain access to the main terminal block and Oven PCB.

Remove the bottom plinth at the base of the cooker, remove the screw on the right hand side of the tray and slide out the terminal block plate.

This will then give you access to the main terminal block, from here we can check that the appliance is safely isolated from the electrical supply and start to carry out electrical fault diagnosis.



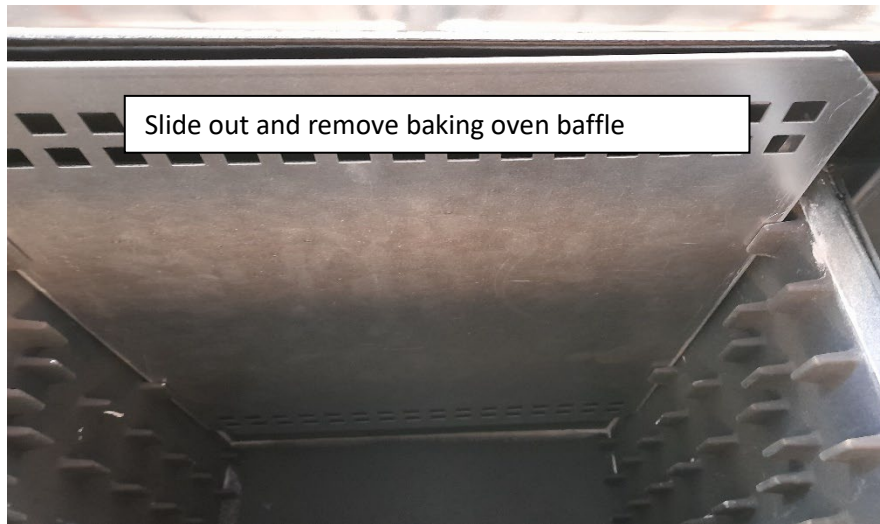
## Oven Temperature PCB



## Removal and replacement of major components

### Oven heating element:

To gain access and to remove the oven element, open the baking oven door and remove the two baffles in the roof of the oven, the element support plate will now be visible.





## Removal and replacement of major components

### Oven heating element:

To gain access to the oven heating element remove control knobs and glass fascia by removing the 4 chrome caps and screws.

Disconnect the wires from element terminal block, remove the blanking plug and the loose insulation from the conduit. To assist in replacing the element tails attach a draw string/cable as illustrated by the **PURPLE** cable in Fig 1:

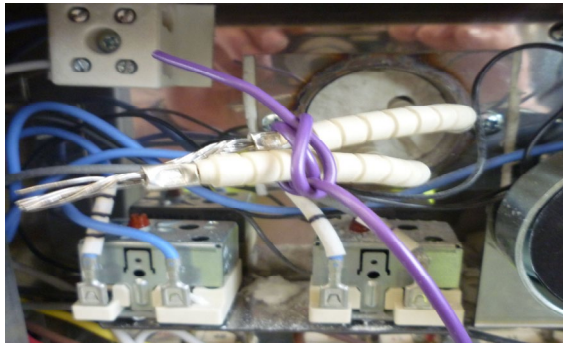


Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

Working from inside the baking oven, slide out the baffle plates, then using a 4mm allen key, slacken but do not remove the rear screw from the element support plate, which forms part of the oven roof. Remove the other two screws and lower the plate and element as shown in Fig 2. It can be helpful to use a wooden block or something similar to temporarily support the assembly ( Figs 5 & 6) The element is secured to the support plate with tie bars and clamp, when replacing, do not overtighten the clamp, please see below Fig 3.

To replace the assembly using the draw string, pull the element tails up through the barrel and out of the conduit into the control panel.

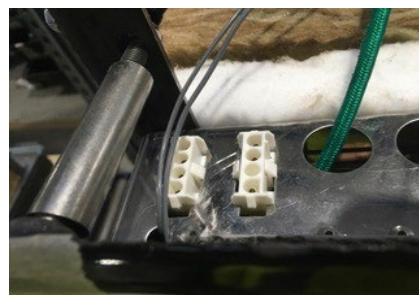
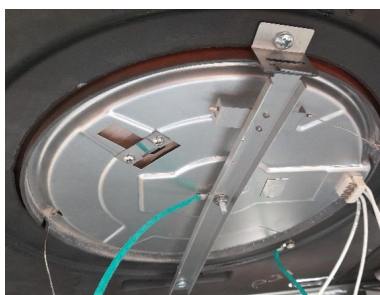
The support plate can then be fastened back into the baking oven. Use a new sealing gasket for the plate. Repack the conduit tightly with loose insulation and fit a new sealing plug. The element terminations should be tightened to 1.47 ft.lb please see table

### Boiling plate and Simmer plate:

To gain access and to remove the boiling and simmer plate, remove the 4 chrome buttons and stay nuts from the top plate of the cooker, lift the top plate and prop the front of the top plate with hob support bars.



With the top plate propped the elements can be viewed from underneath, they are held in place by a fixing bar, when the bar is removed the element can be lifted out from the top plate, reassemble in reverse order.



Note that the boiling plate has an additional feed wire to the second 200W element. The element electric connections are of the plug in type, make sure they are connected in the correct orientation, the boiling plate has four connections whereas the simmer plate has 3 connections.

### Front Plate:

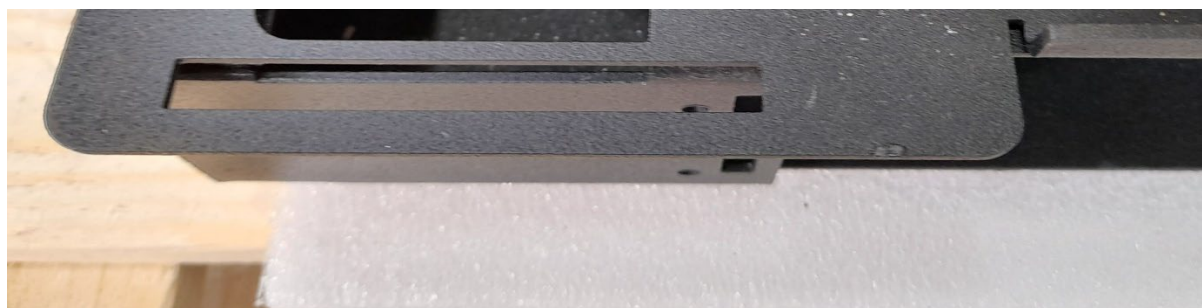
To remove the front plate, remove the cooker doors and store safely, then undo the 3 securing nuts sited along the top length of the front plate, pull the front plate forwards and lift away from the base of the cooker, replace in reverse order.

Silicone seals are attached to the front-plate which would require replacing if the front-plate is changed / removed.

Although self-adhesive, silicone sealant should also be used to secure the seals particularly at the corner joints.



When replacing the front plate insert the lugs in the bottom of the front plate into the cut-outs in the cooker baseplate, then push back into position and tighten the 3 nuts at the top of the front plate.

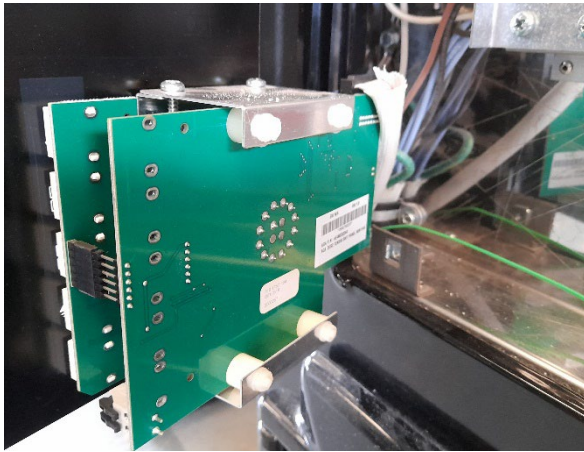




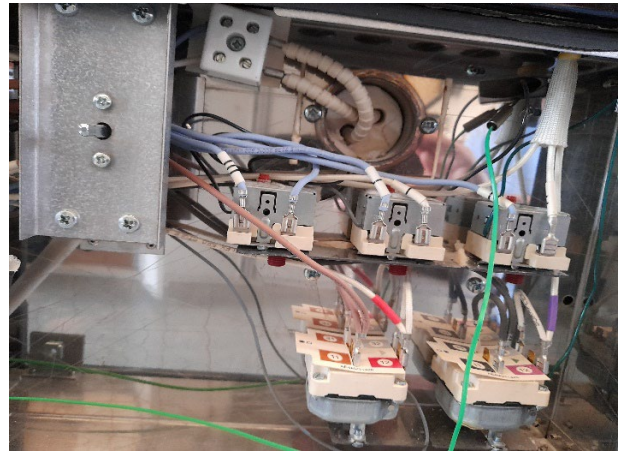
### To gain access to the thermostats and overheat thermostats

The control panel glass is attached to the main chassis by 4 screws. Remove the chrome caps and the screws to gain access to the rear of the panel.

Remove the ribbon connector attached to the oven selector PCB and store the glass panel in a safe place.



The rotary control switch for the plates and the control and overheat thermostats are located on brackets behind the glass panel.

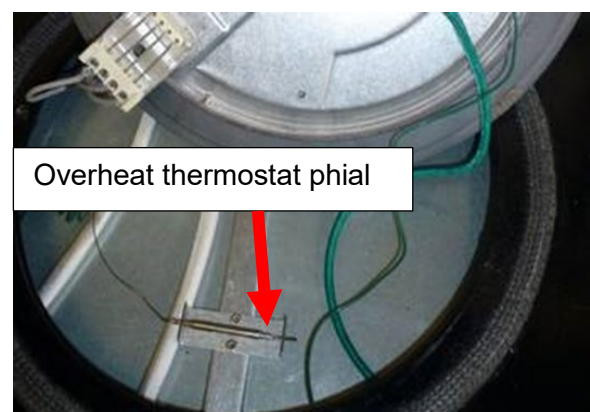
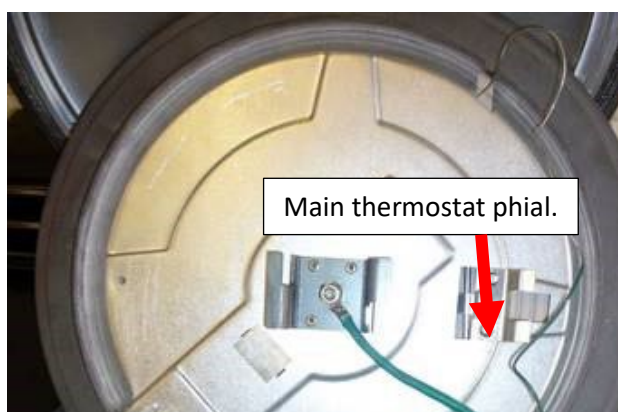


The five thermostats are housed behind the control fascia glass panel are all hard wired, the overheat thermostats are at the top, the control thermostats are at the bottom, all have I.D cards and colour coding for easy identification.

### Boiling and simmer plate thermostat phial location.

Both hotplate element plates have manually resettable overheat thermostats that switch their neutral connections, the control thermostat phial is held in position by a bracket located on the underside of the element.

To gain access to the thermostat phials prop the cooker top plate with hob supports to gain access to the underside of the top plate and elements.



### Oven thermocouple, oven overheat thermostat location.

The oven thermocouple and overheat thermostat phials are mounted in the roof of the roast oven, they pass through a short guide tube and fix into clips on a bracket.

When removing / replacing a thermocouple / overheat thermostat remove the phial location bracket (3 nuts), unclip the phial and carefully pull through from the where the controls are located, replace in reverse order.



### Oven doors:

Remember when refitting the oven doors to fit in the right configuration.

The baking and simmer oven doors have a gap in the door rope seal whereas the roasting oven has no gap, the diagram below shows the configuration of the doors



## AGA Hotcupboard R7 150

This is fundamentally an Aga R7 with the addition of a hot-cupboard unit, being a single cavity divided as normal into two zones by a cast-iron shelf. These are designated as a simmering oven and a warming oven.

It is supplied fully assembled and electrically tested.

Unlike the situation with a heat store Aga, the hot-cupboard does not need to be warm at all times. The owner chooses when they want the unit heated, simply by operating a push-button switch.

An adjacent neon light indicates when power is switched on. From cold, it takes approximately 40 minutes to achieve a stabilised temperature. Some heat is delivered into the warming plate by convection.

Customers can also opt to have a single zone induction unit top.

The hot-cupboard does not take its heat or energy from the parent Aga. Instead, it has its own integral electric heating elements located at the rear. One element rated at 400W is a boost to help raise the temperature from cold, after which the pre-set thermostat operates, leaving the second element (rated 200W) in circuit to maintain temperature. Both are also controlled by a pre-set limit/overheat thermostat.

The element is sited in the back of the unit and can be accessed by removing the cast iron dividing shelf and removing the rear grid by lifting upwards, the element is held in position by 2 screws, remove the screws and pull the element to the right, this will expose the electrical connections.

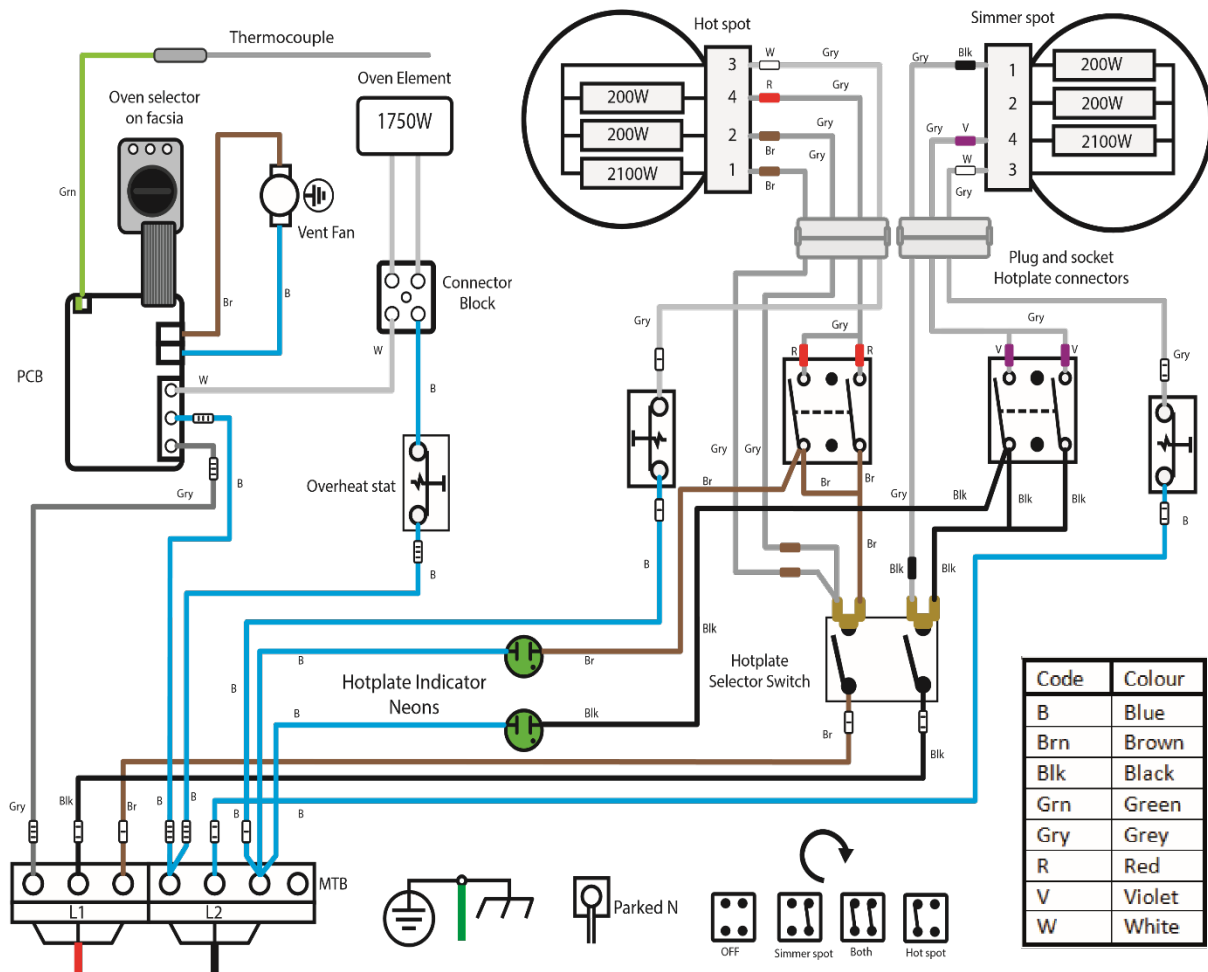
The thermostat, overheat thermostat and switch assembly can be accessed by removing the four chrome buttons and stay nuts and propping the top plate, always taking care to avoid enamel damage.



## Essential Parts List.

• Oven element replacement kit	AE9M231466
• Oven thermocouple	AE4M232194
• Oven overheat cut / out	AE4M231334
• Boiling plate thermostat	AE4M231328
• Boiling plate overheat cut / out	AE4M231332
• Simmer plate thermostat	AE4M231329
• Simmer plate overheat cut /out	AE4M231333
• Boiling / Simmer plate element	AE4M232320
• Main PCB	AE4M232189

## Aga R7 100 USA / CANADA Wiring diagram.





## Aga Cookers --- oven door adjustment

For the past 15 years or more, the Aga cooker has incorporated eccentric door hinge pins.

As part of the manufacturing process doors are set and adjusted to their individual front plates at works.

However, checking the fit of the oven doors is still an essential part of the final cooker site installation as there may have been some adverse movement during transit.

It is also important that the door fit integrity is checked as part of a routine service, adjustment being required as the rope seals bed in and due to natural wear.

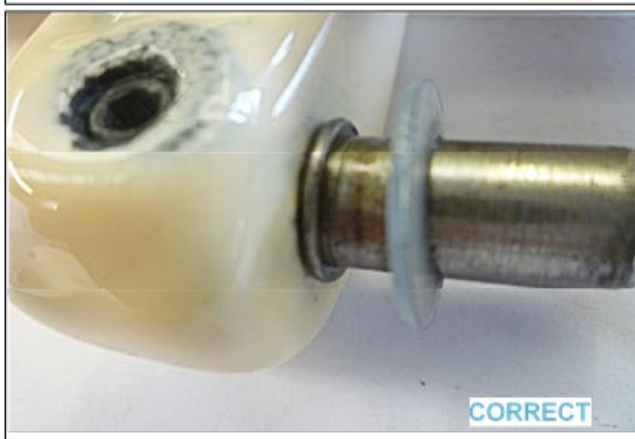
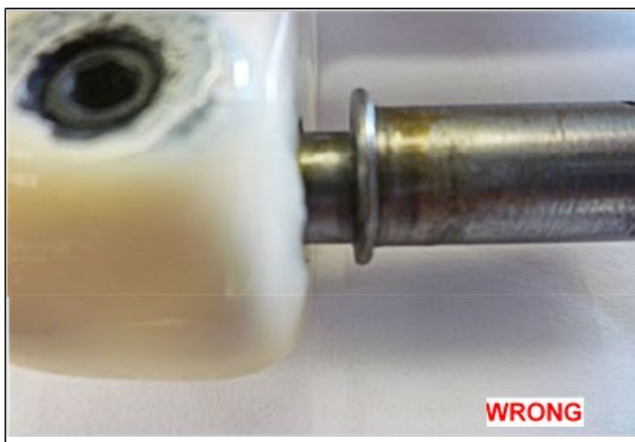
In both cases adjustments are made as follows

Ensure that each door is in its correct location, i.e. Roasting & Simmering ovens.

Ensure that the nylon washers are in place on each lug.

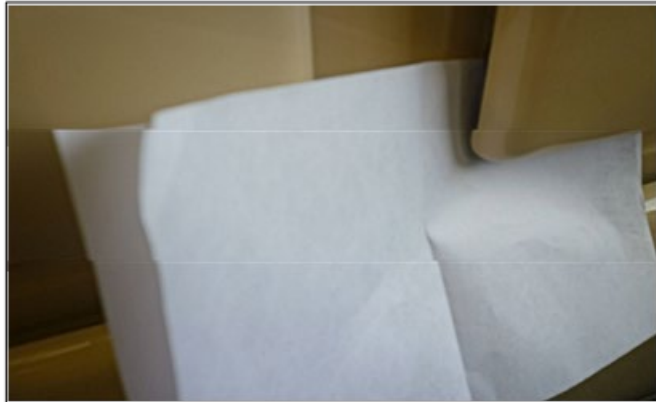
Ensure that the hinge pin is fully inserted into the door lug casting. (If it is not, then the grub screw may not locate into its recess) Check that the grub screw has been fully tightened, using a 3mm hex key

A quick test of the door fit can be made by gently tapping each corner and sensing for any undue movement.



## Aga Cookers --- oven door adjustment

To confirm that the seal is effective, check the grip of the door seal at several points using a folded piece of paper, which should just be 'held' by the seal, but still able to be pulled out



If necessary adjustments are made as follows. Having first loosened the grub screws, close the door onto its catch. Slightly turn the eccentric hinge pins with a flat blade screwdriver.. This will have the effect of moving the hinge side of the door closer or further away from the front. Generally it will be necessary to adjust both top and bottom pins by equal amounts unless trying to correct a specific corner or edge. Repeat the paper test and remember to retighten the grub screws.



With the door closed, make sure that it latches down sufficiently onto its catch. If too tight it might be necessary to adjust the eccentric pins one more to prevent the door becoming 'hinge bound' when the cooker is up to temperature





# Technical Bulletin

AGA RANGEmaster

Document: EC 03/07/19 v1.5



AGA MARVEL



LA CORNUÉ

MERCURY  
DESIGNED FOR COOKING



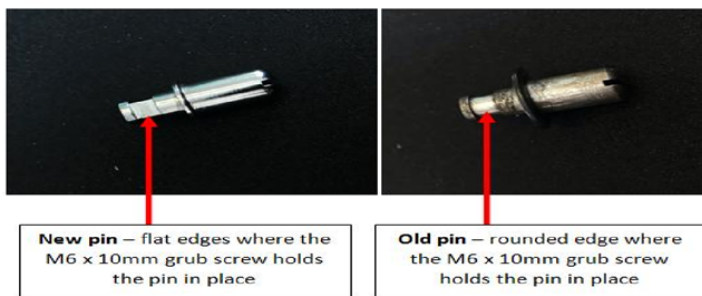
Product Group	Models	Originator
AGA	All AGA Models	Technical Team

**Published to:** Distributors / AGA Service Engineers

**Subject:** AGA Door Pins

As part of our commitment to continuous improvement, we are working closely with our supply partners to improve all components.

The reason for implementing a newly designed pin is to provide a larger surface area for the grub screw to fix onto, thus keeping the pin fixed in place with less chance of loosening.



When installing a new appliance, can we request that you proactively change the doors pins for the improved version should they be required. In addition, any customers who experience door adjustment issues should also have the improved pins fitted.

If the engineer decides a new pin is required then both pins must be replaced on the door.

When adjusting the new style pin, there are now only four positions of adjustment. You must ensure the pin is positioned so the grub screw is tightening onto a flat edge of the pin.

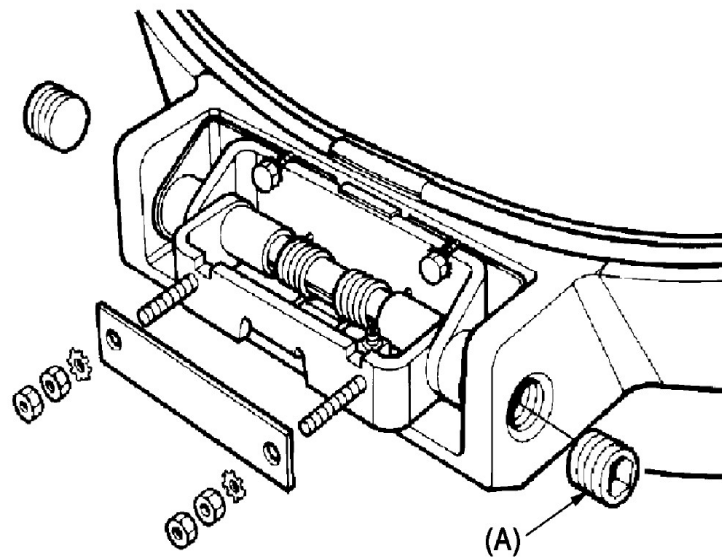
When leaving the factory a loc-tite patch is inserted into the grub screw thread which can be used multiple times for adjustment.

If you need to order the new style pins the part number to use is **AE4M212654** and can be ordered on your warranty account. The old part number AO4M211885 is no longer available.

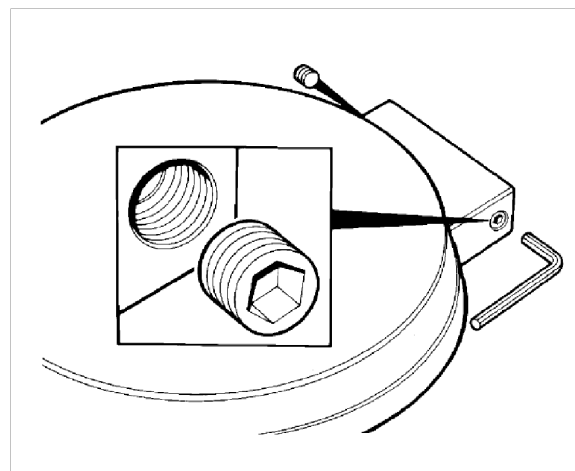
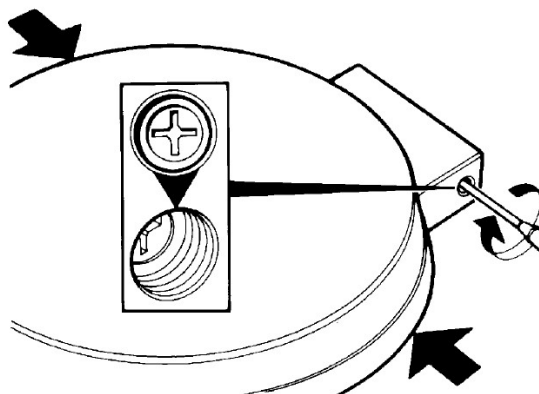
**Important** – Do not mix and match pin styles on a single door

If required, further guidance can be sought from the AGA Rangemaster Technical Department on 01952 643 142 (opt 2) or by email [technicalsupport@agarangemaster.co.uk](mailto:technicalsupport@agarangemaster.co.uk)

## AGA INSULATING LID HINGE ASSEMBLY (Introduced 2005)



The insulation lids are supplied complete with the hinge fitted. The hinge end bearing locking grub screws (A) 2 off are supplied loose.



Ensure the lid is sitting evenly in the closed position. Adjust the level of the lid if required, by turning the adjustable bearing (located inside the ends of the hinge) with a pozi drive screwdriver, through the tapped holes in the cast iron lid.

When the desired level of the lids is achieved, lock the bearing with the flat face locking grub screw using an allen key.

Open and close the lids a few times to check the adjustable bearings are positively locked in and the lids are sitting evenly

With AGA Rangemaster's policy of continuous product improvement, the Company reserves the right to change specifications and make modifications to the appliances described and illustrated at any time.