

VIESMANN

climate of innovation

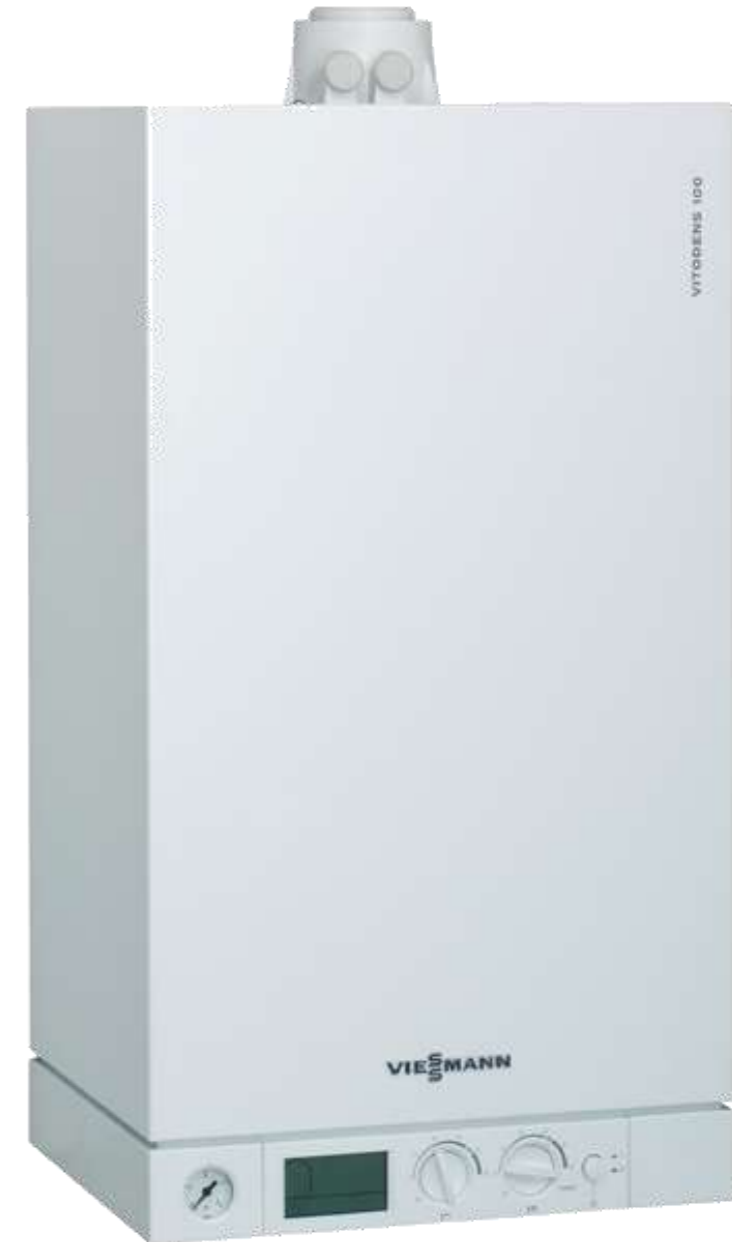
**Vitodens 100W WB1B - Service and
Maintenance**

Vitodens 100W WB1B

W 10-26: 37-91 MBH input.

W 10-35: 37-118 MBH input.

- Natural Gas or LPG (conversion kit supplied with boiler).
- Altitudes up to 10,000 ft. (coding change required).
- Temperature range 86°F - 178°F.
- Venting up to 200' equivalent length.
- Outdoor reset, & OpenTherm control compatible.

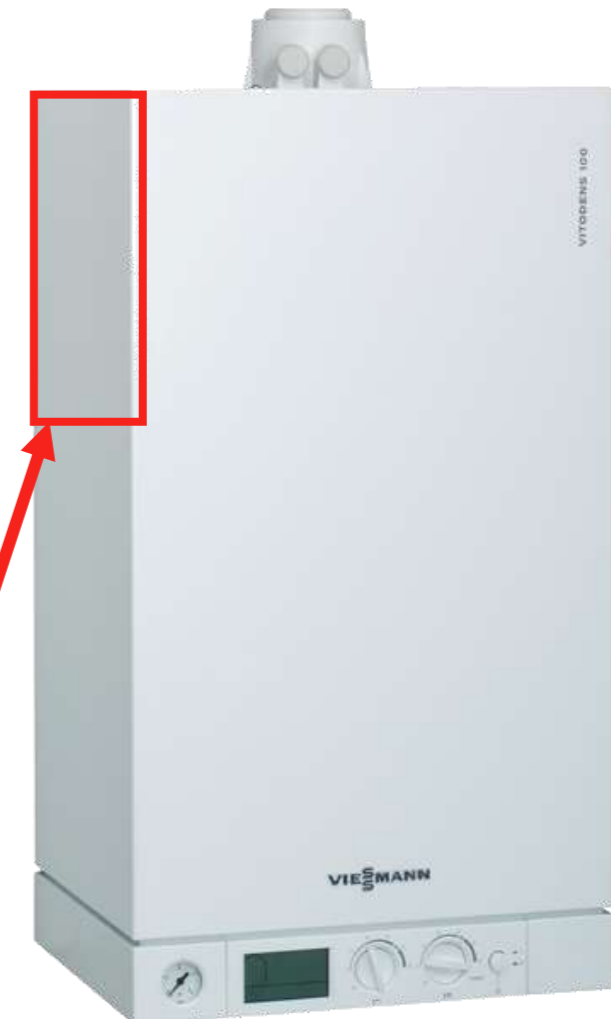
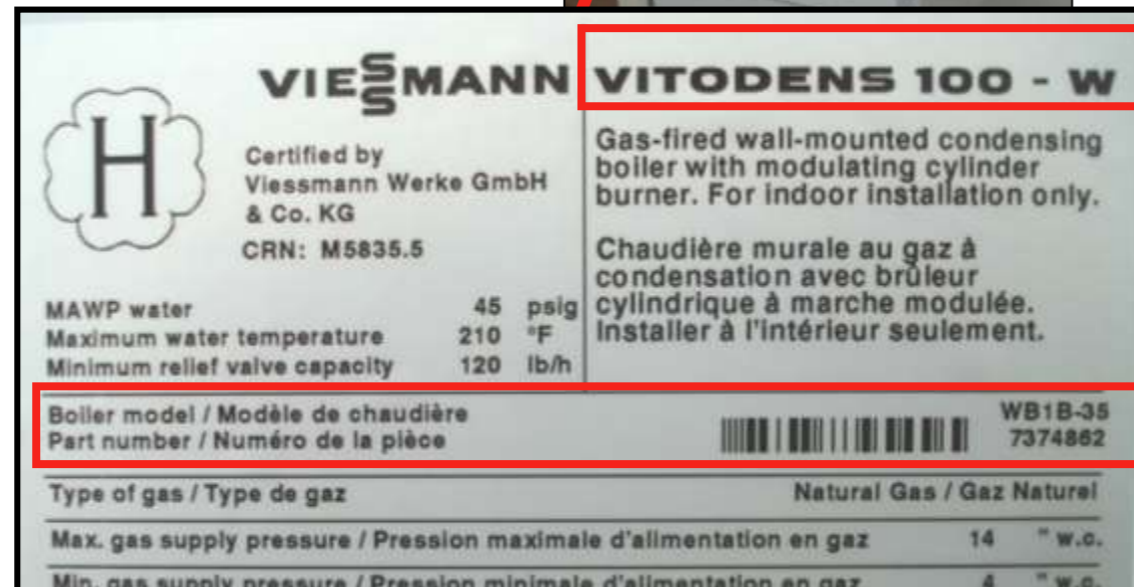


Vitodens 100W WB1B

Locating the boiler model number

- Located on the rating plate mounted on the left side of the outer cover.

Ordering Replacement Parts:
Please provide Model and Serial Number from rating plate (A) when ordering replacement parts. Order replacement components from your Viessmann distributor.



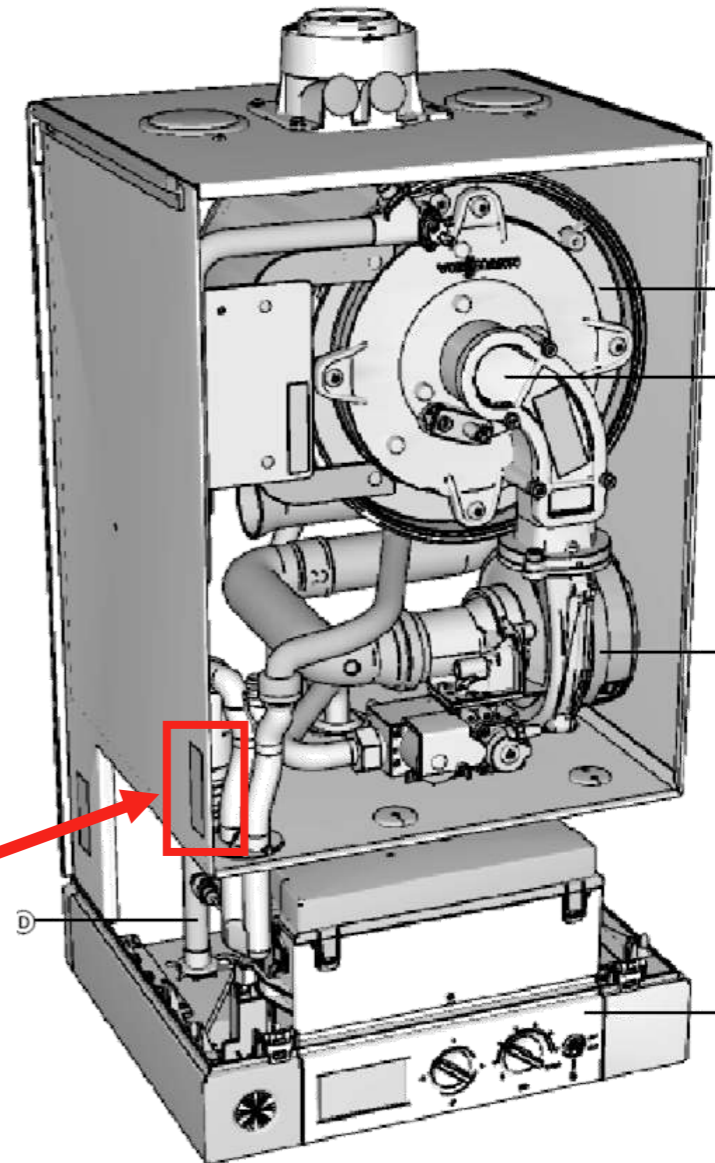
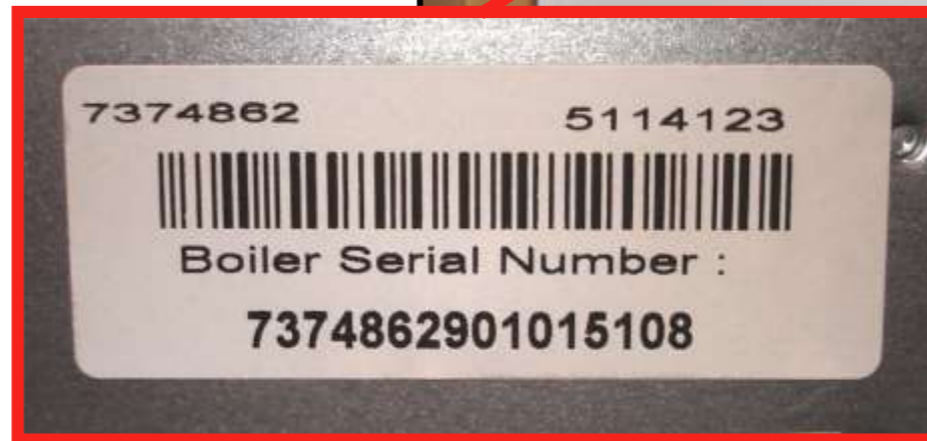
Vitodens 100W WB1B

Locating the boiler serial number

- Located inside the outer cabinet on the left side of the burner compartment

Ordering Replacement Parts:

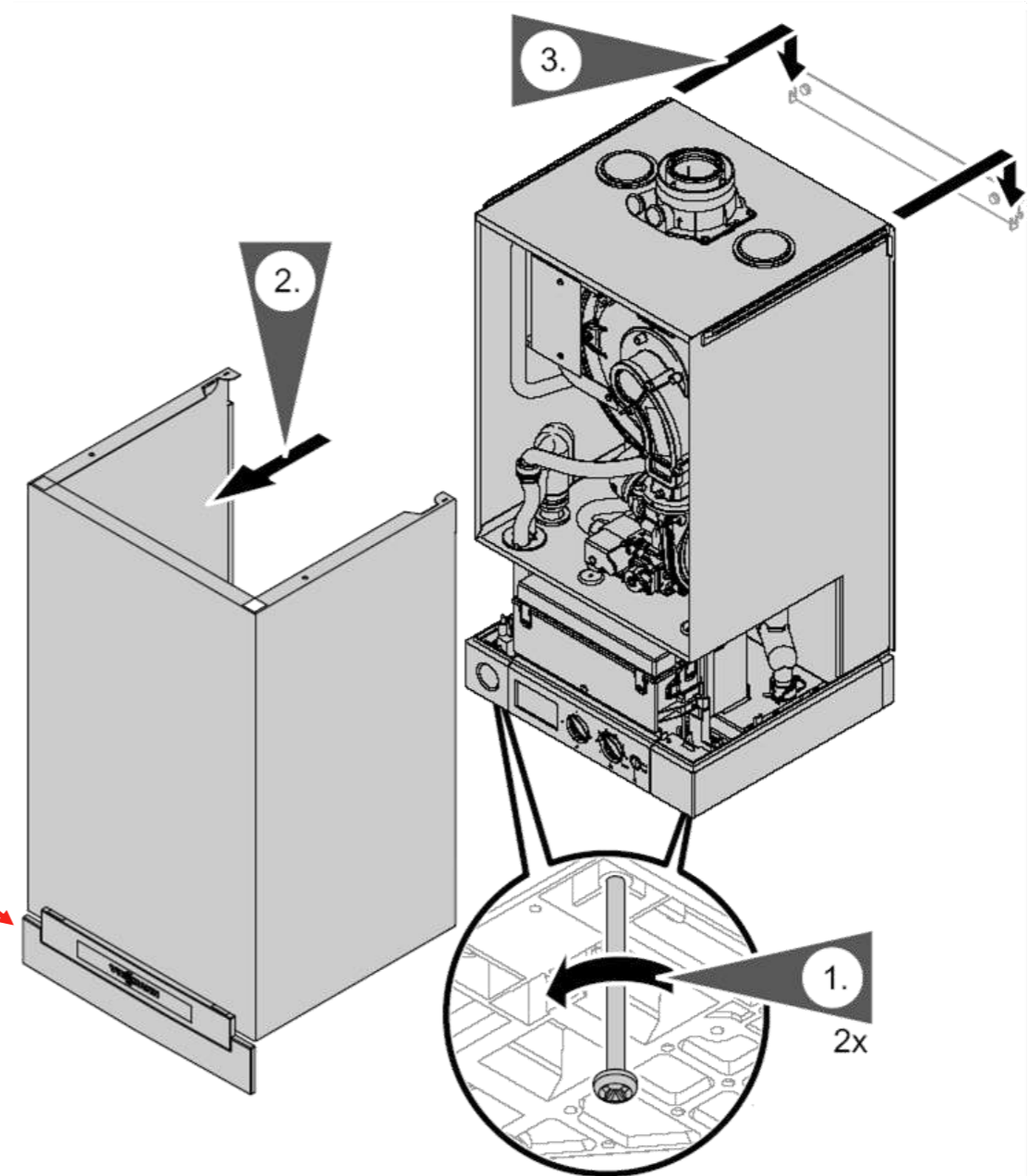
Please provide Model and Serial Number from rating plate (A) when ordering replacement parts. Order replacement components from your Viessmann distributor.



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Removing The Boiler Cover

- There are two screws ① holding the cover in place.
- Loosen the screws before removing the cover (screws are captive and will remain in the boiler).
- Flip up the control cover panel and lift the cover off.



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Checking The Flue Collar And Flue Gas Sensor Gaskets

- Inspect the flue gas collar gasket and the flue gas temperature sensor to make sure the seal is still good, and they are still positioned correctly.
- If either of these are damaged or misaligned, flue gas can enter the burner cabinet and cause damage.



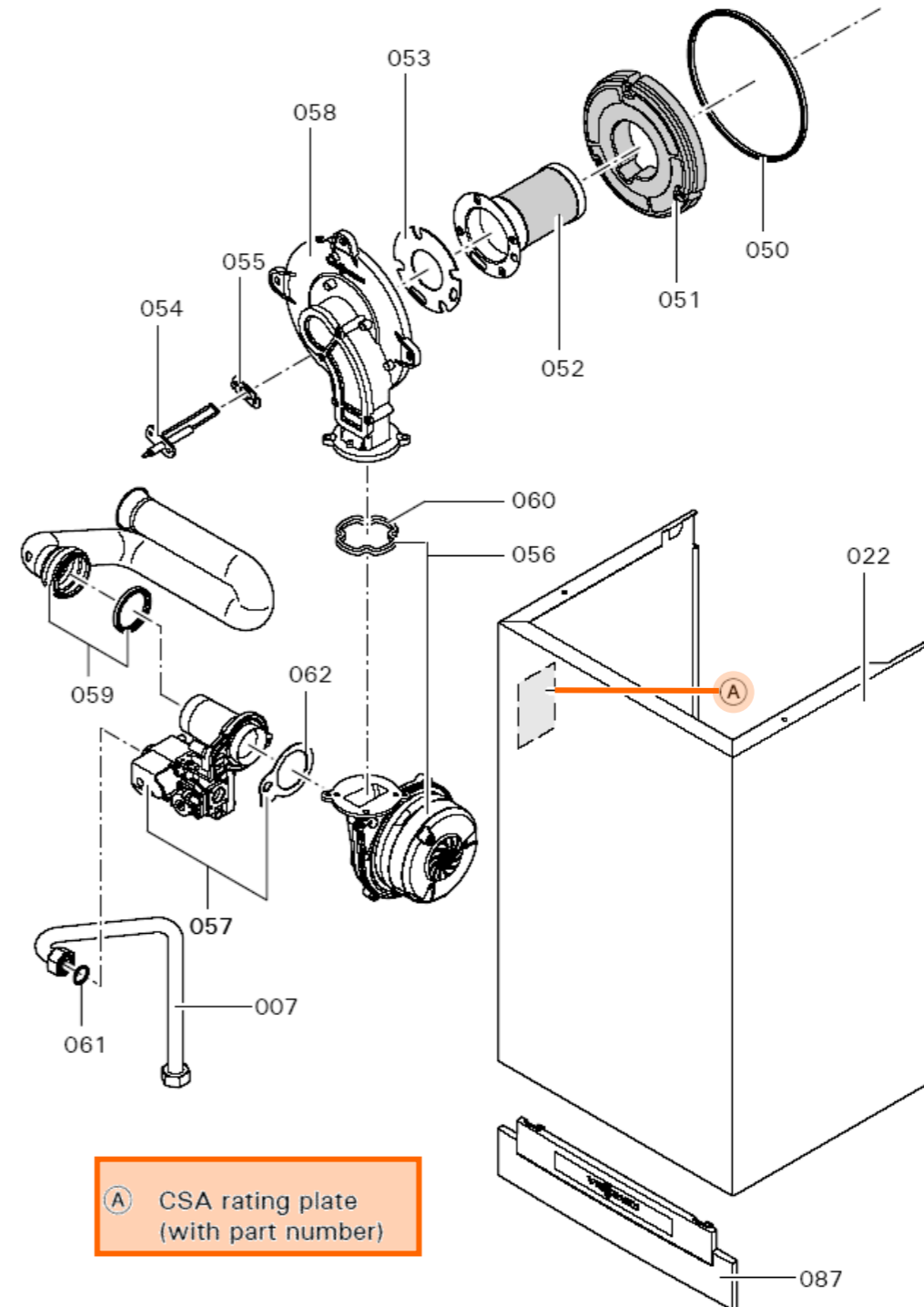
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Parts List

- The service manual contains drawings that help to identify the boiler's components.
- The parts catalogue available as a PDF download on the Viessmann Canada website will also provide the current part number for these components.

Ordering Replacement Parts:

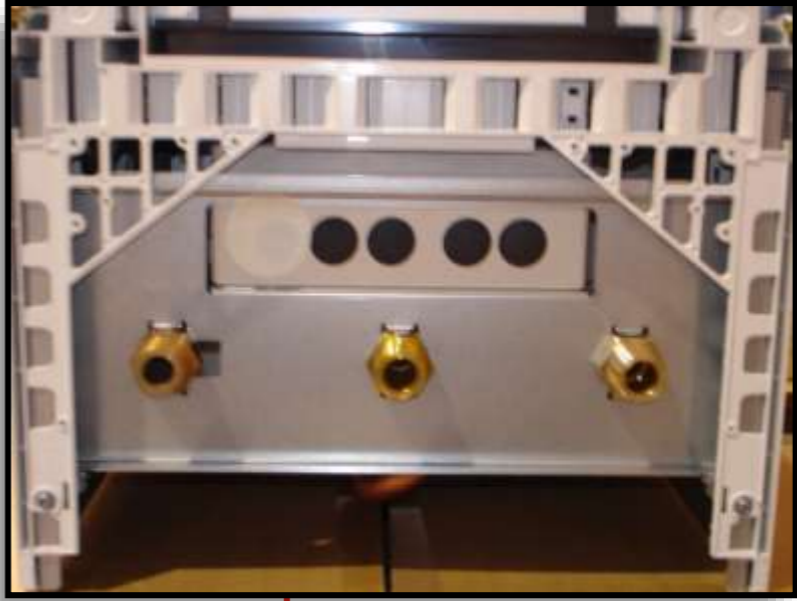
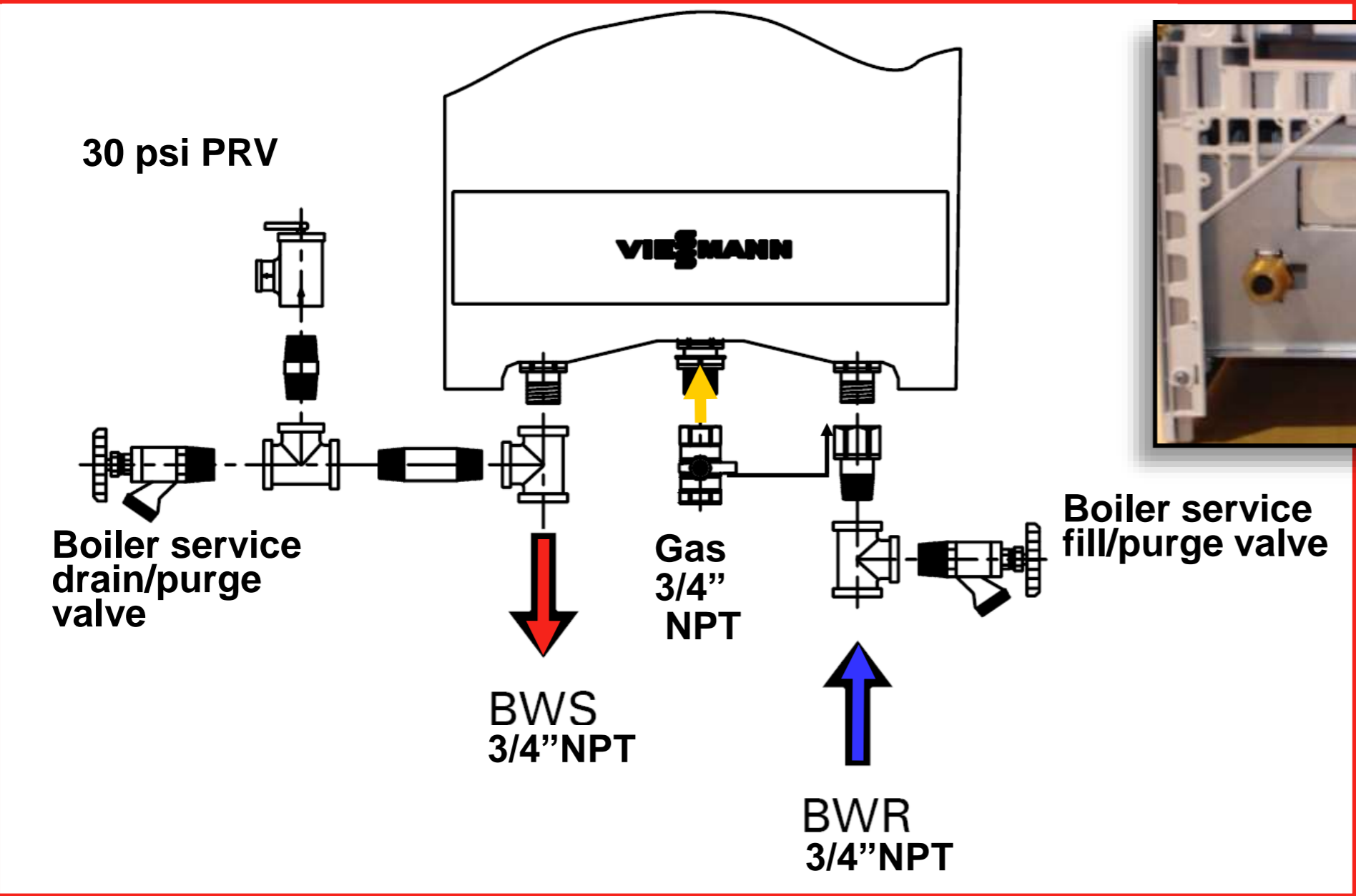
Please provide Model and Serial Number from rating plate (A) when ordering replacement parts. Order replacement components from your Viessmann distributor.



(A) CSA rating plate
(with part number)

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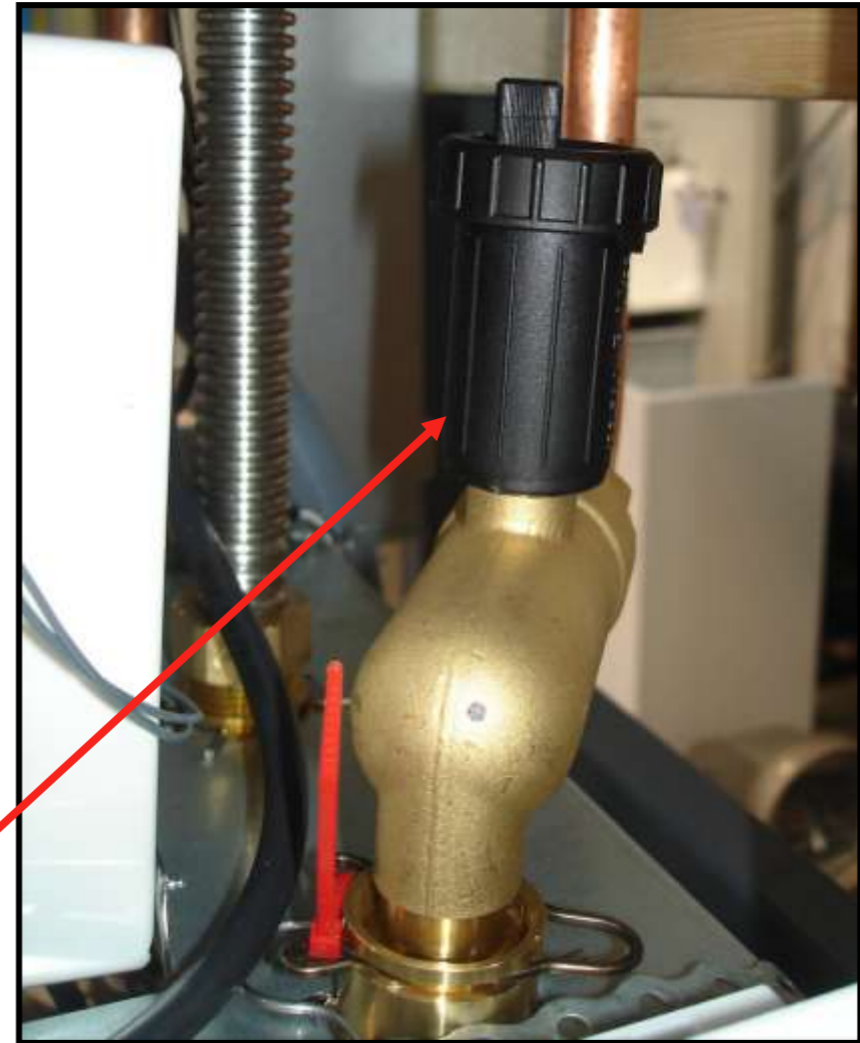
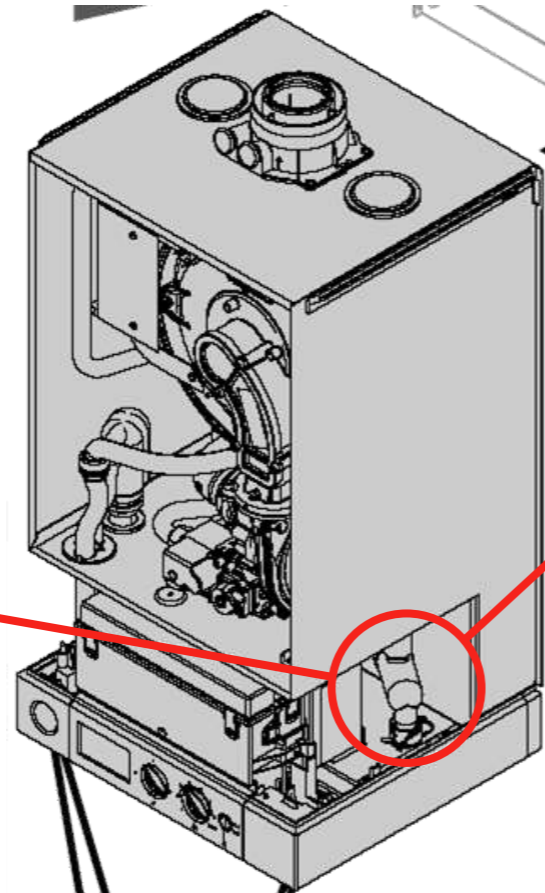
Piping Connections



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Automatic Air Vent And Air Scoop

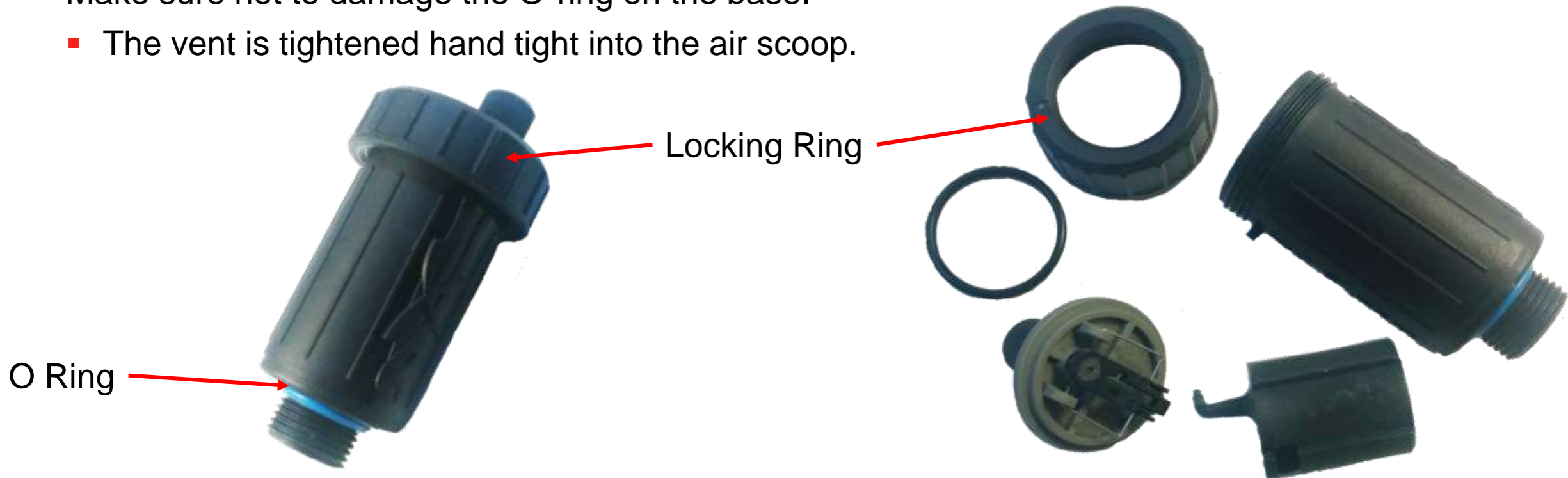
- Serviceable automatic air vent.
 - Isolate the boiler's supply and return connection.
 - Drain the water from the heat exchanger (~1US Gal).
 - Remove the hand tight air vent.



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Servicing The Automatic Air Vent

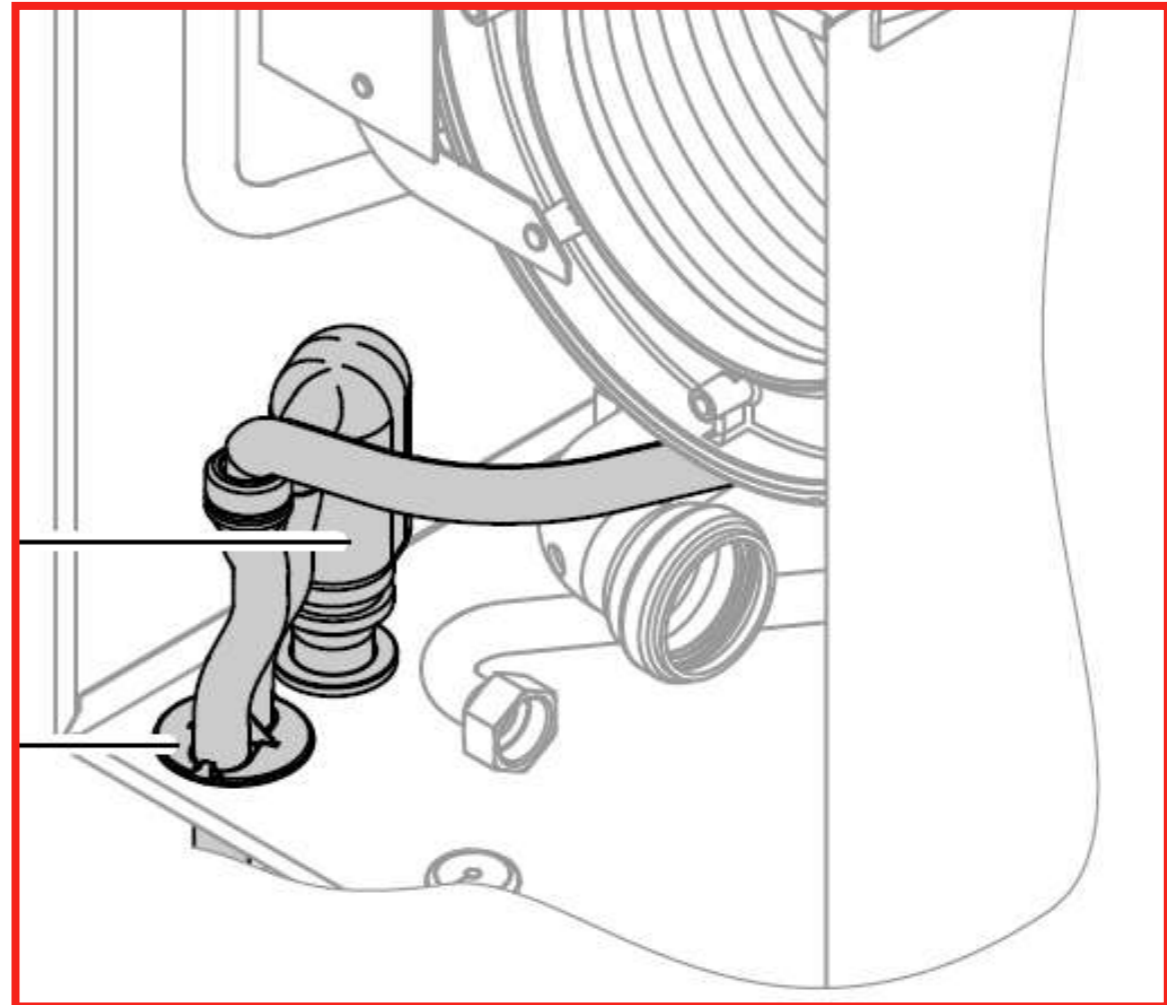
- The air vent can be disassembled by pushing down on the top locking ring and turning the locking ring off.
- Lift the top off the vent and disassemble the insides for cleaning.
- Usually a good rinse in a sink will be sufficient to remove deposits that can prevent the float from being buoyant.
- Reassemble in the reverse order.
- Make sure not to damage the O-ring on the base.
 - The vent is tightened hand tight into the air scoop.



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Servicing The Condensate Trap

- The condensate trap should be inspected and if debris has built up inside, it should be removed and flushed clean.
- A dirty trap can lead to backed up condensate that can prevent the burner from operating.



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Cleaning the condensate trap

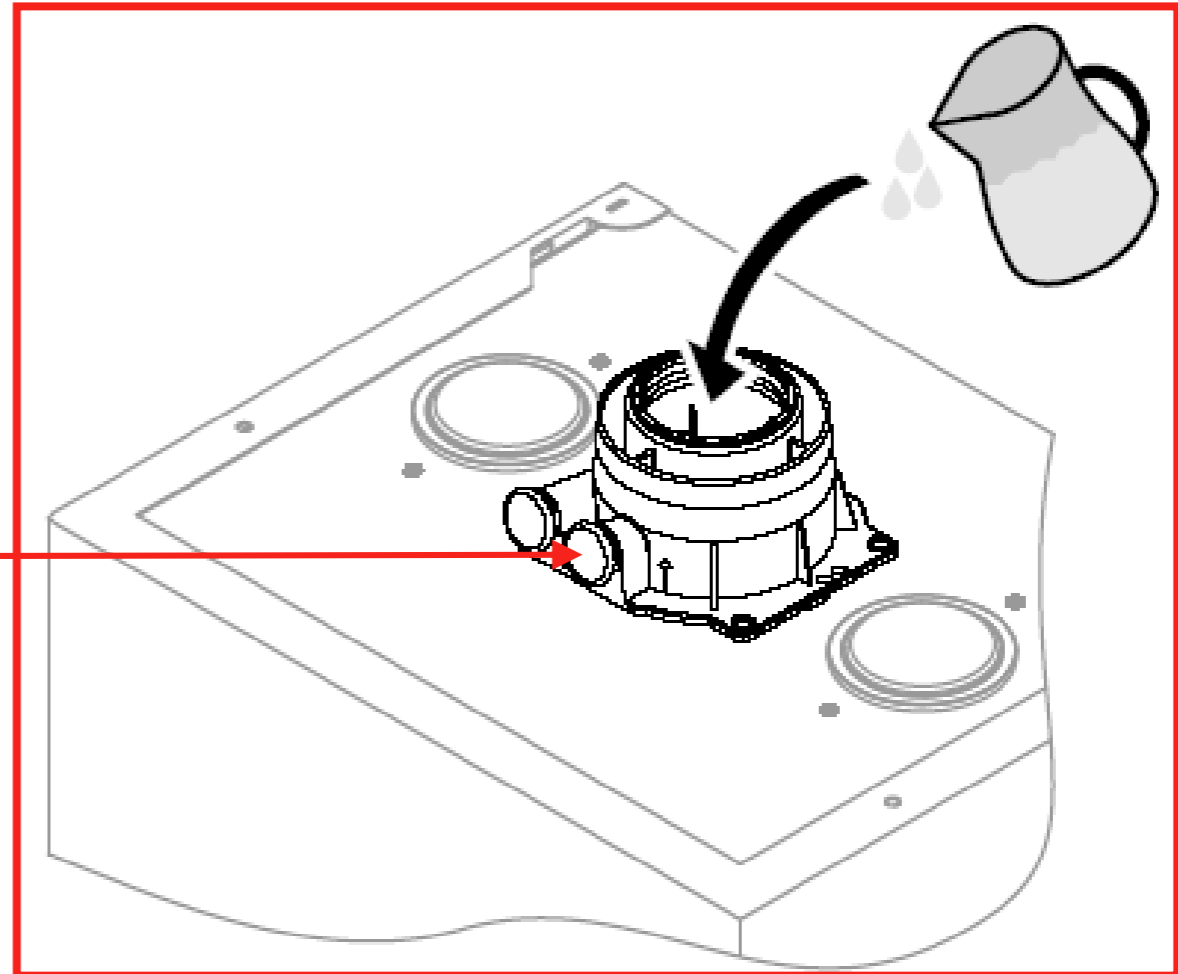
- Disconnect the hoses attached to the trap and remove for cleaning.
- If you expect to flush the fireside of the heat exchanger with water remember to clean the trap afterwards.



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Cleaning the condensate trap

- The trap needs to be re-primed after the service is complete before the boiler is put into service.
- Minimum of 10 Fl. oz. (0.3 Ltr) of water is required to prime the trap.
- Sports bottle can be used to put water into combustion air test port

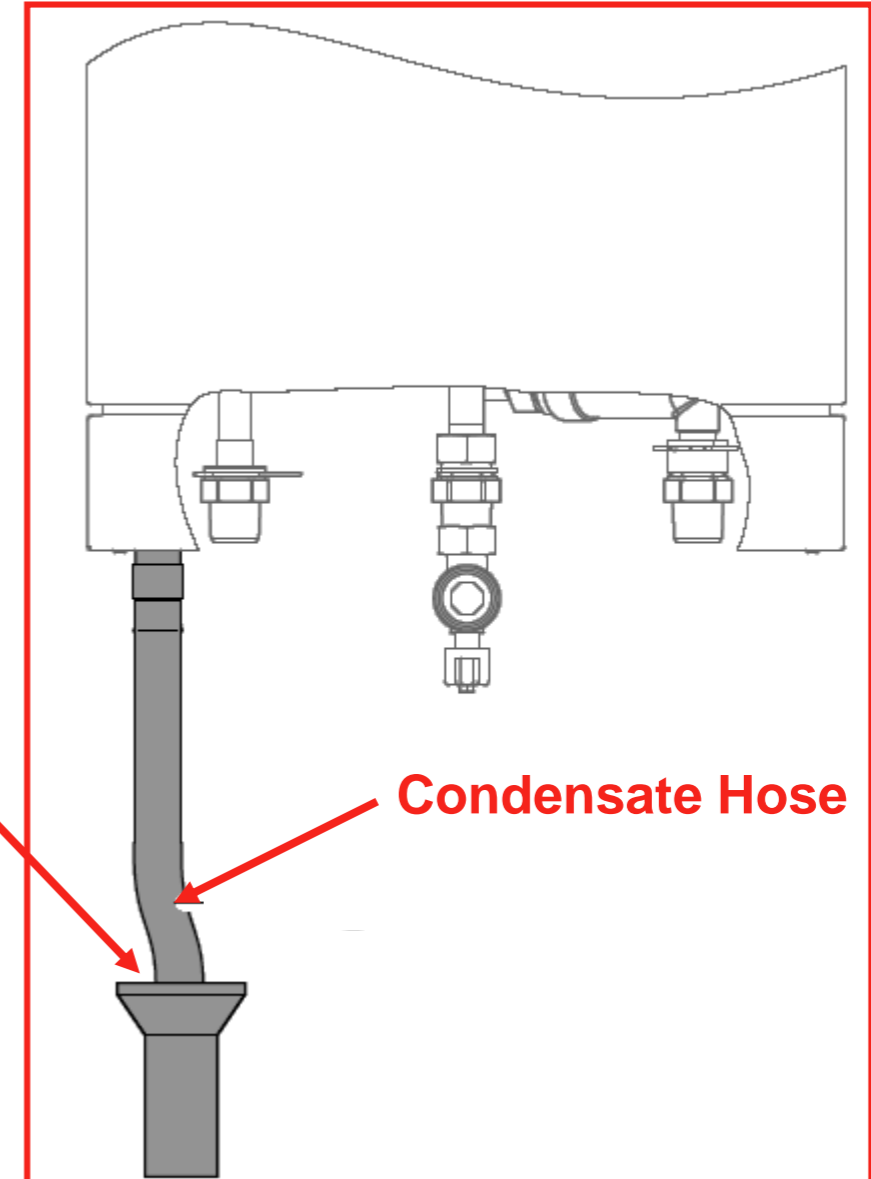


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Condensate Drain Line

- Make sure the flexible condensate drain line is terminated into a larger pipe so it can breath.
- Piping the trap rigid into a waste drain without an air gap may cause the trap to not siphon correctly.

**Air Gap required,
Do Not pipe rigid
to drain**



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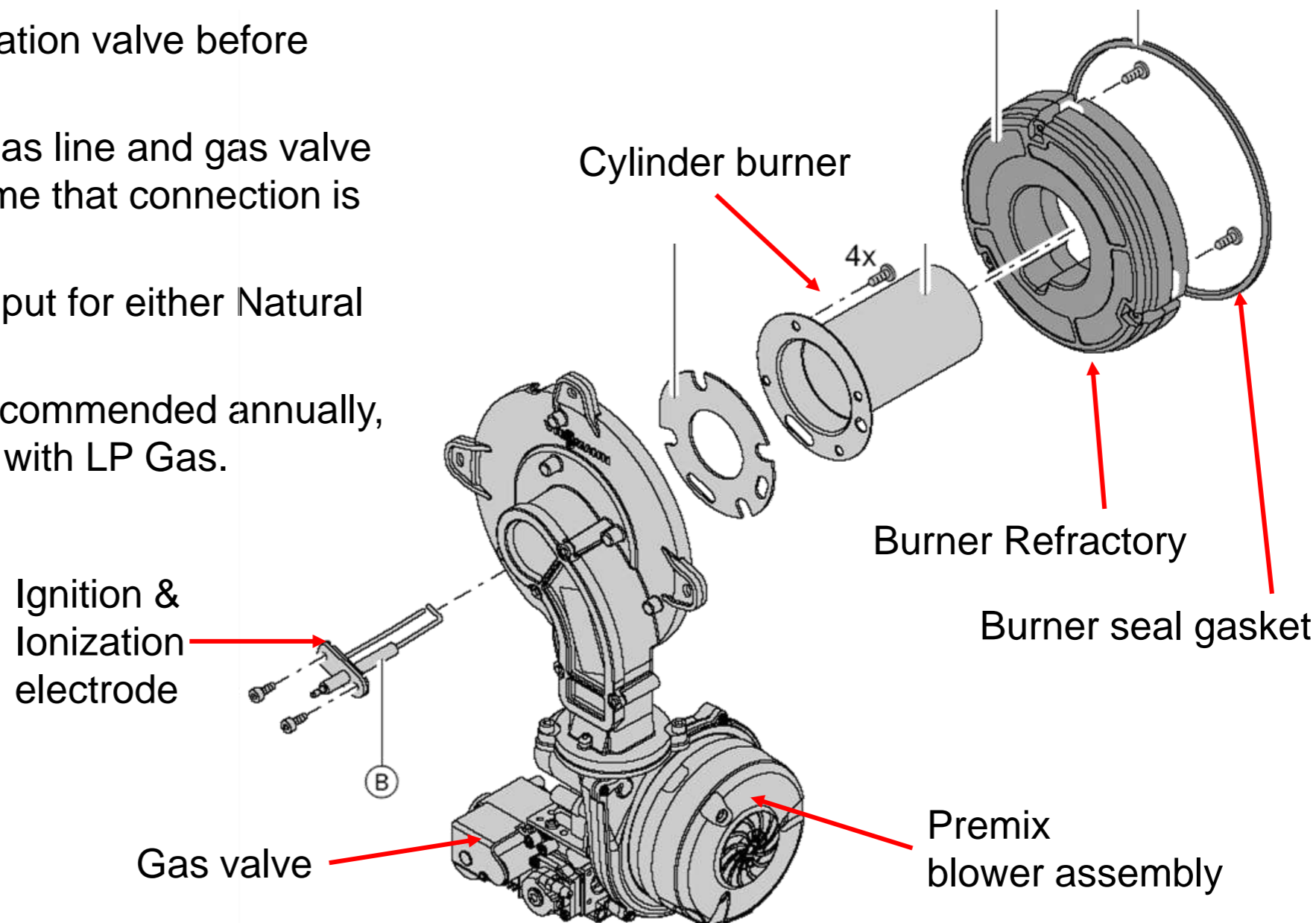
Servicing Burner And Heat Exchanger



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Burner Service

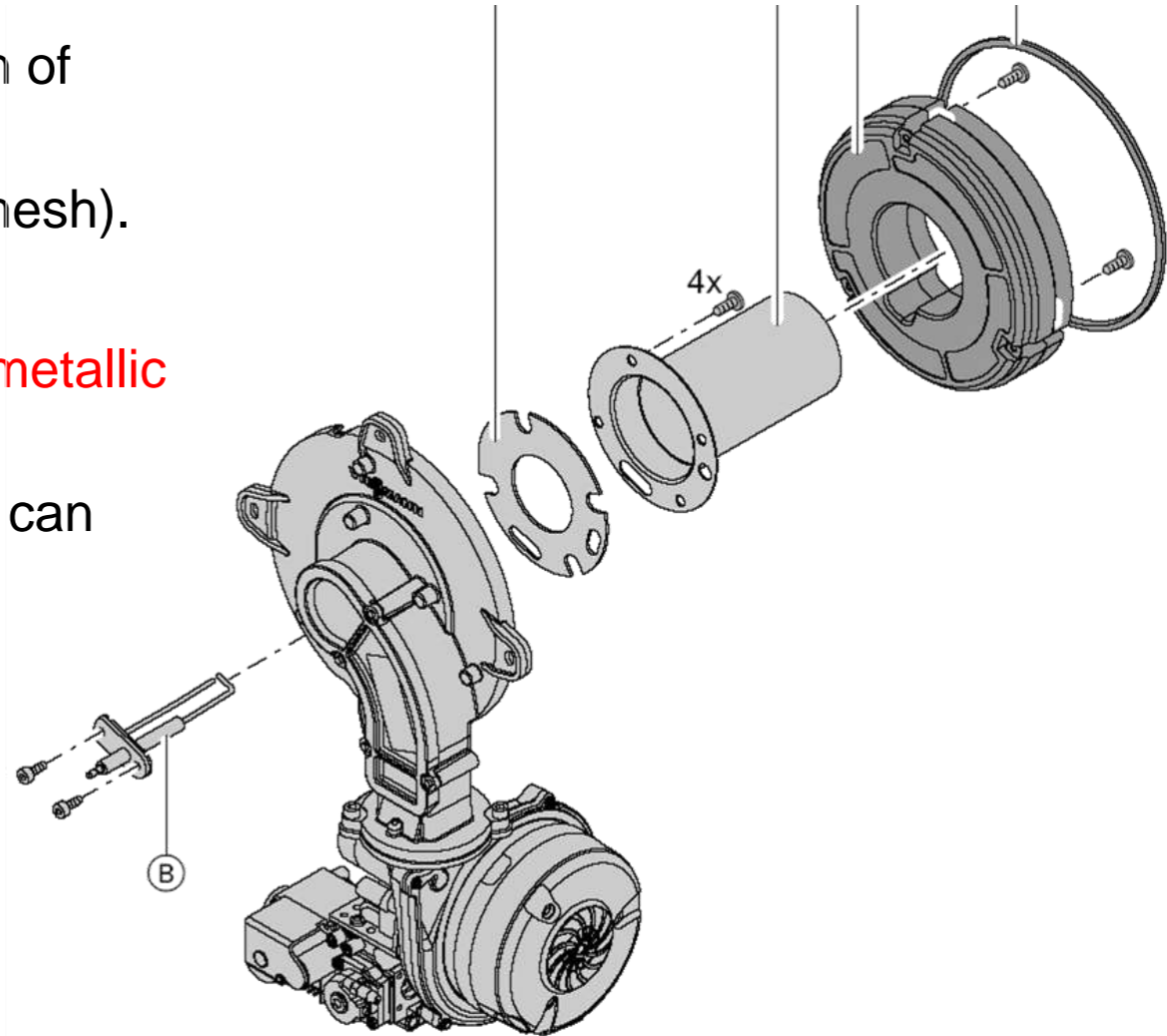
- Close the gas service isolation valve before removing the burner.
- The gasket between the gas line and gas valve should be replaced any time that connection is opened.
- Fully modulating burner input for either Natural Gas or Propane.
- Service to the burner is recommended annually, especially when operated with LP Gas.



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Burner Service

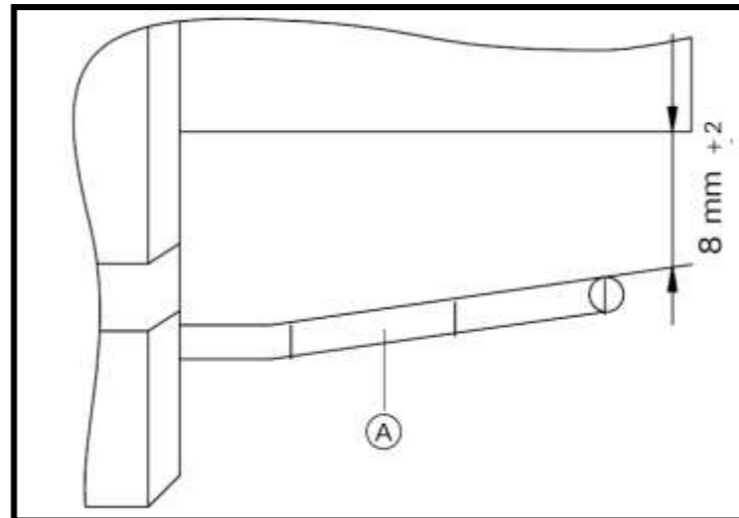
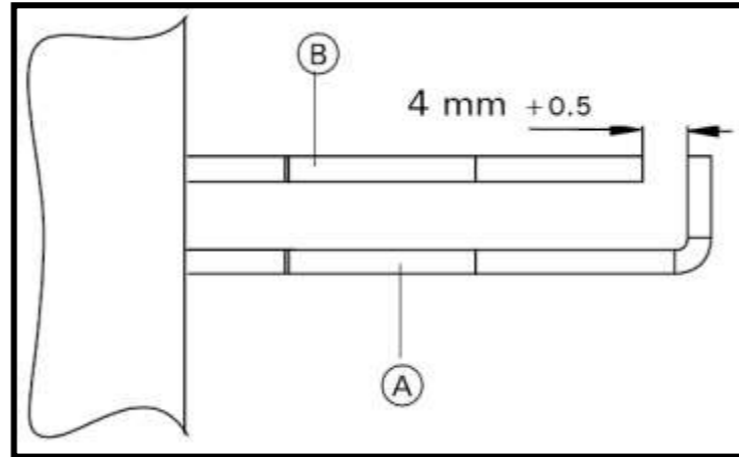
- Place the burner on a clean dry surface.
- Inspect components:
 - Refractory (flaking is normal, cracks are a sign of damage).
 - Cylinder (look for hotspots or damage to the mesh).
 - Electrode
 - **Clean the burner and electrode with a non-metallic brush.**
 - Use a vacuum as required (compressed air can push surface dirt into the burner).
 - Gasket (if cracked or brittle, replace)



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Cleaning And Inspecting The Electrode

- The electrode gap and spacing should be checked when the electrode is inspected and cleaned.
- Checking the porcelain for cracks can be done at the same time.
- **Do not use a metallic object to clean the electrode** as this will reduce the life of the electrode.
- It may be necessary to remove the electrode for cleaning.
 - Do not damage the gasket.
- Replace the electrode if it cannot be cleaned with a non metallic brush



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The Heat Exchanger

- High grade **316Ti stainless steel**.
- 1.5 mm wall thickness.
- Compact radial design.
- Intensive heat transfer with single pass.
- Flue gas gaps via material embossed pins on coil.
- 45 PSIG MAWP *
 - * Shipped with 30 PSIG PRV standard.

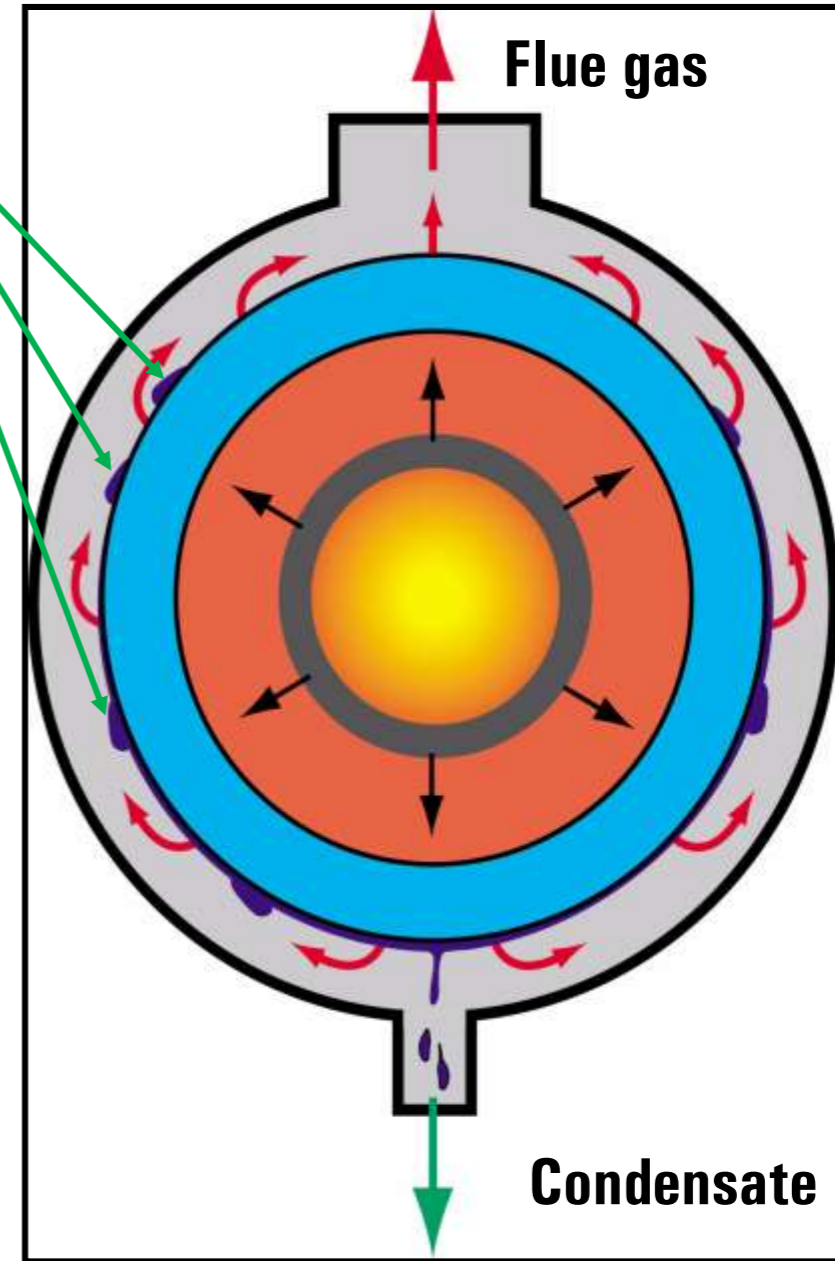
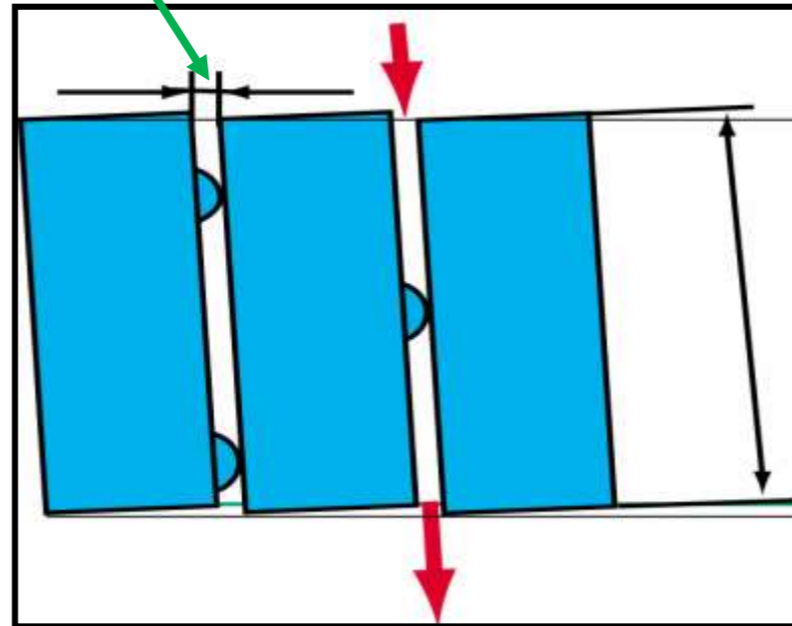


**Designed and manufactured by
Viessmann in Germany**

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The Heat Exchanger

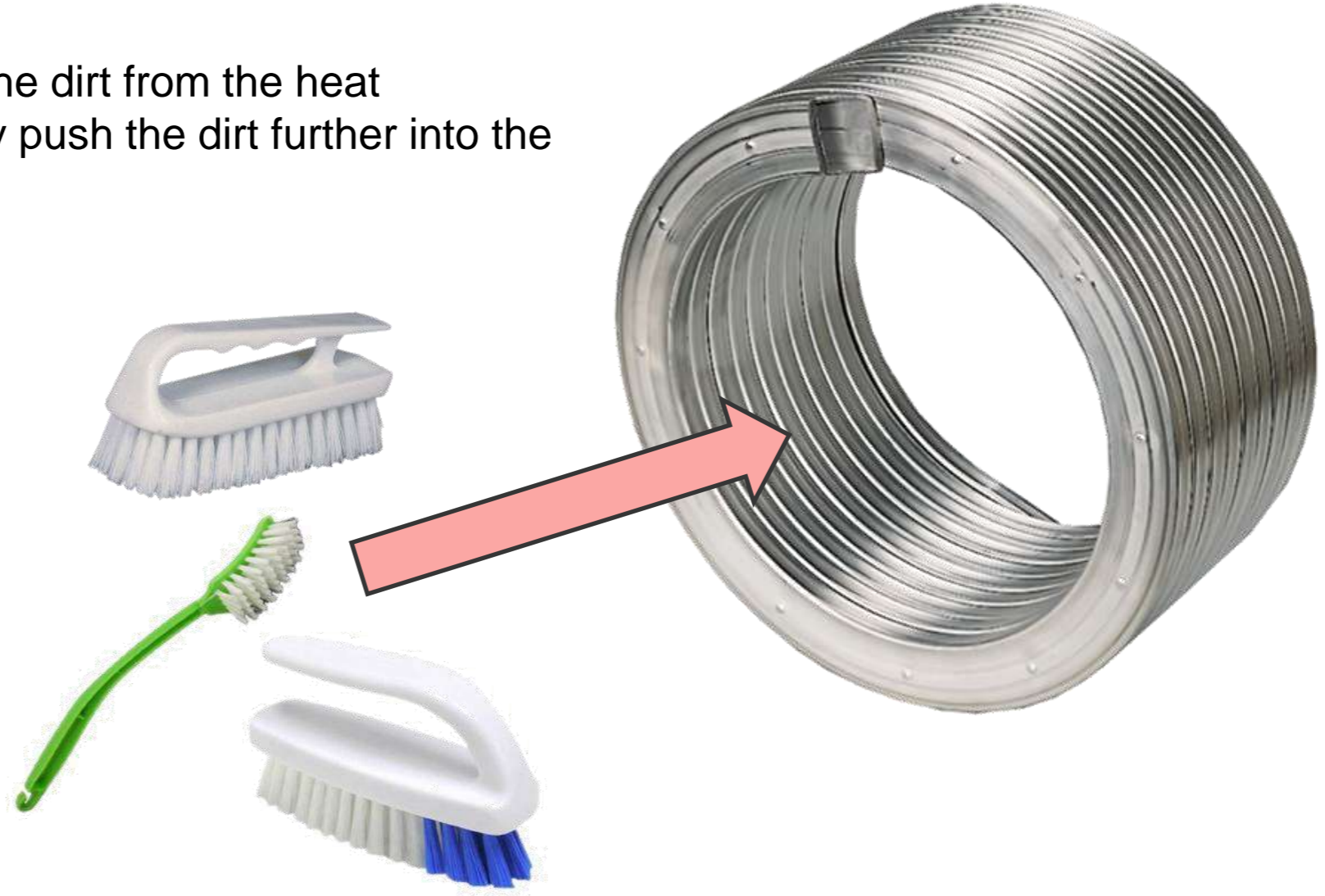
- Condensation occurs on the outside of coil.
- Self-cleaning on condensing surface of heat exchanger.
- Narrow gap width $0.8 \text{ mm} + \text{ or } - 0.01 \text{ mm}$.



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Cleaning The Heat Exchanger

- Using a **NON-Metallic brush** clean the loose deposits from the heat exchanger.
- A vacuum can aid in removing the dirt from the heat exchanger (compressed air may push the dirt further into the coil).



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Viessmann Coil Cleaning Tool

- It may be necessary if the heat exchanger is **severely plugged** to use the Viessmann coil cleaning tool.
- Use a vacuum to assist removing the debris from the heat exchanger.

Part #
7840 112



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Cleaning The Heat Exchanger

- Severe deposits or staining that cannot be removed with a brush and vacuum can be removed with a chemical cleaning.
 - Follow Material Safety Data Sheet (MSDS) of the cleaning agent manufacturer.
 - **Cleaning agents must not contain hydrocarbon-based solvents or potassium.**
 - If required remove coatings and (yellowish brown) surface discoloration with **phosphoric acid** based Antox 75 E Plus, or **citric acid** based CitriSurf 3050 by Stellar Solutions Inc.
 - Rinse thoroughly with water.



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Before You Reassemble And Fire The Boiler

- Be sure to clean the condensate trap after flushing the dirt from the heat exchanger.
- If the refractory has gotten very wet, dry it with a hair dryer or heat gun before firing the burner.



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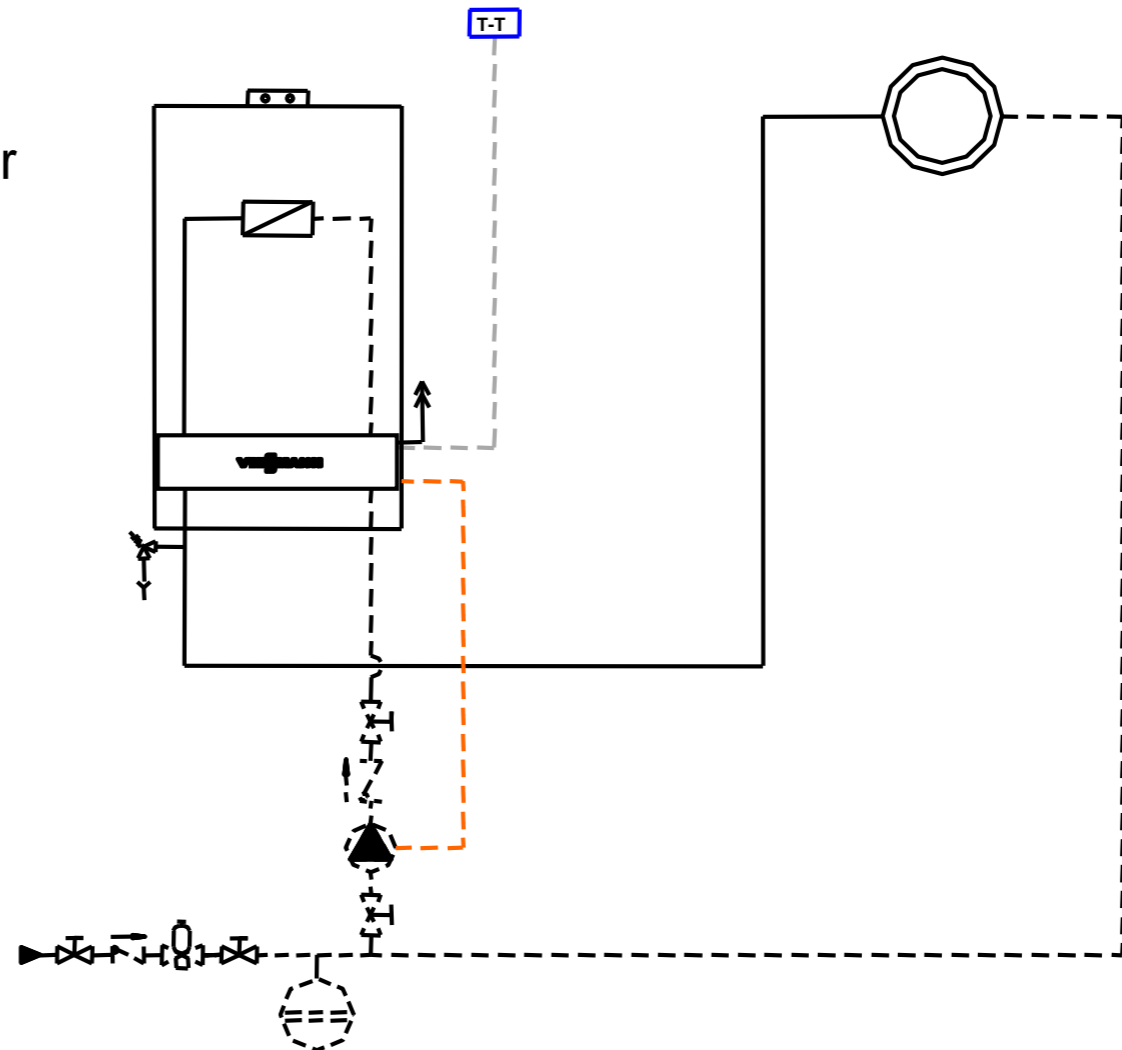
Minimum & Maximum Flow Requirements

- There are minimum and maximum flow rates specified for the boiler.
- Flow rates below the minimum may not allow the flow proving switch to close.
- Flow rates above the maximum will effect the boiler efficiency by reducing the delta T.

Please note!

The use of a low-loss header is recommended if the water flow rate is less than 1.7 GPM / 400 ltr/h or more than 6.2 GPM / 1400 ltr/h.

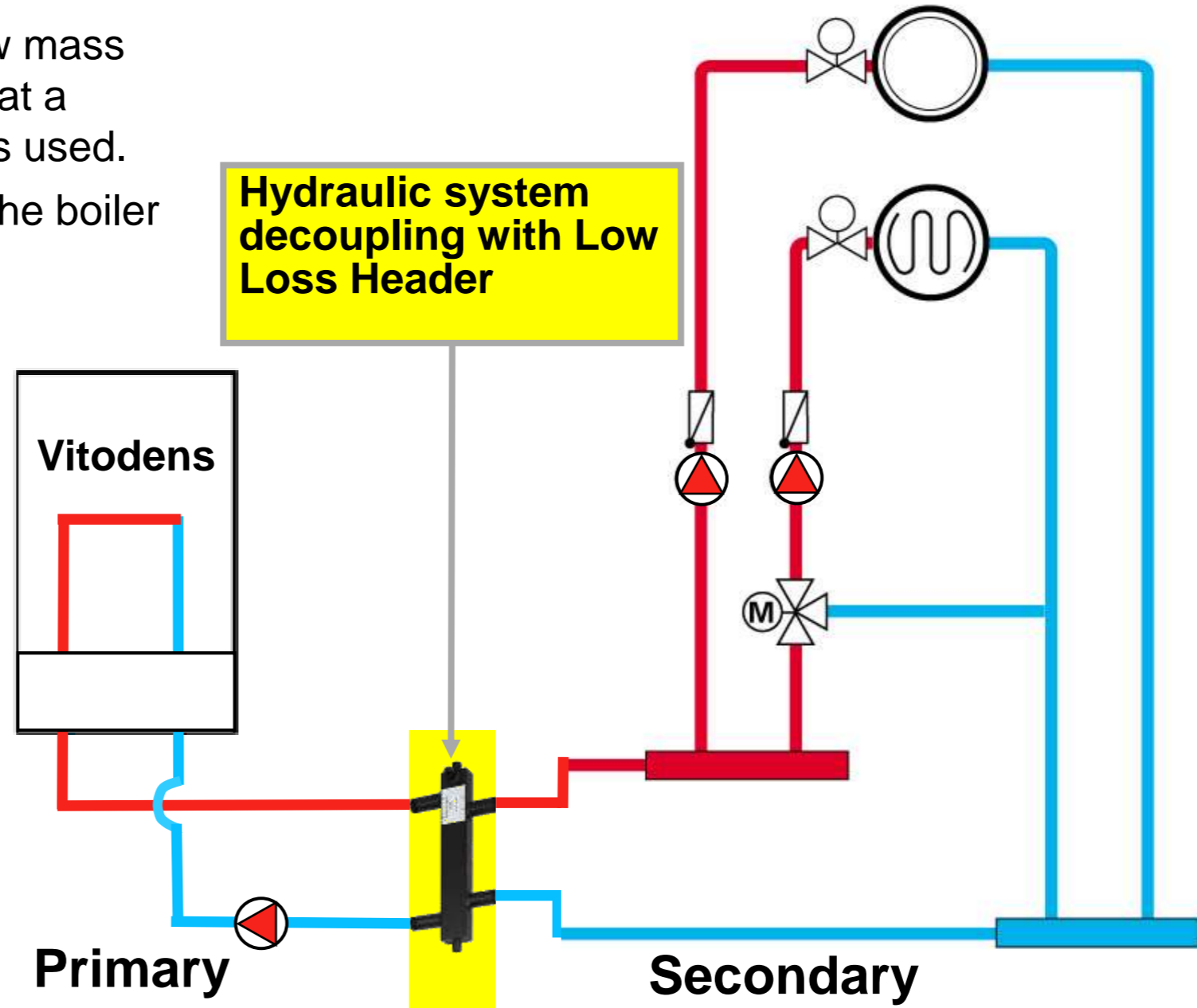
The low-loss header is available as an accessory part.



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Primary / Secondary Piping For Low Mass Boilers

- It is always recommended, with low mass boiler such as the Vitodens 100, that a primary / secondary piping layout is used.
- This ensures correct flow through the boiler at all times.

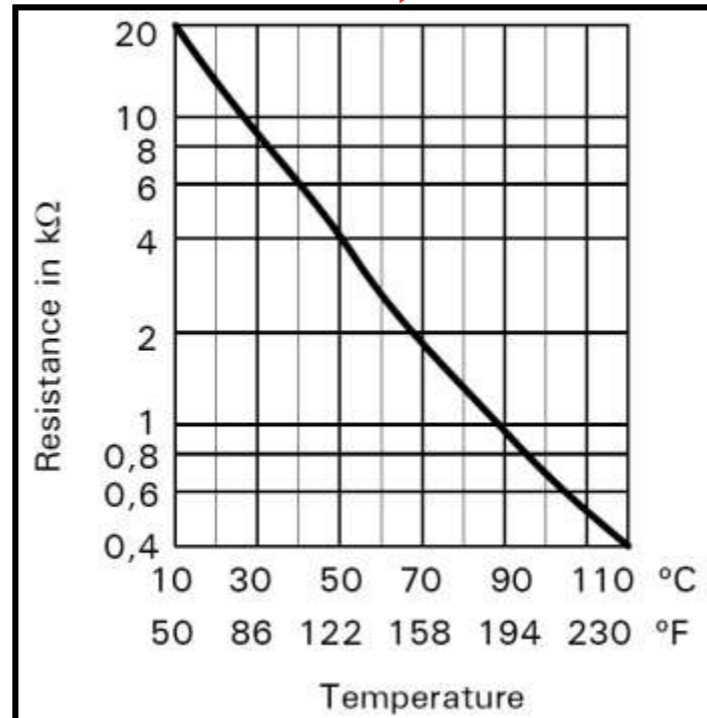


Vitodens 100W WB1B

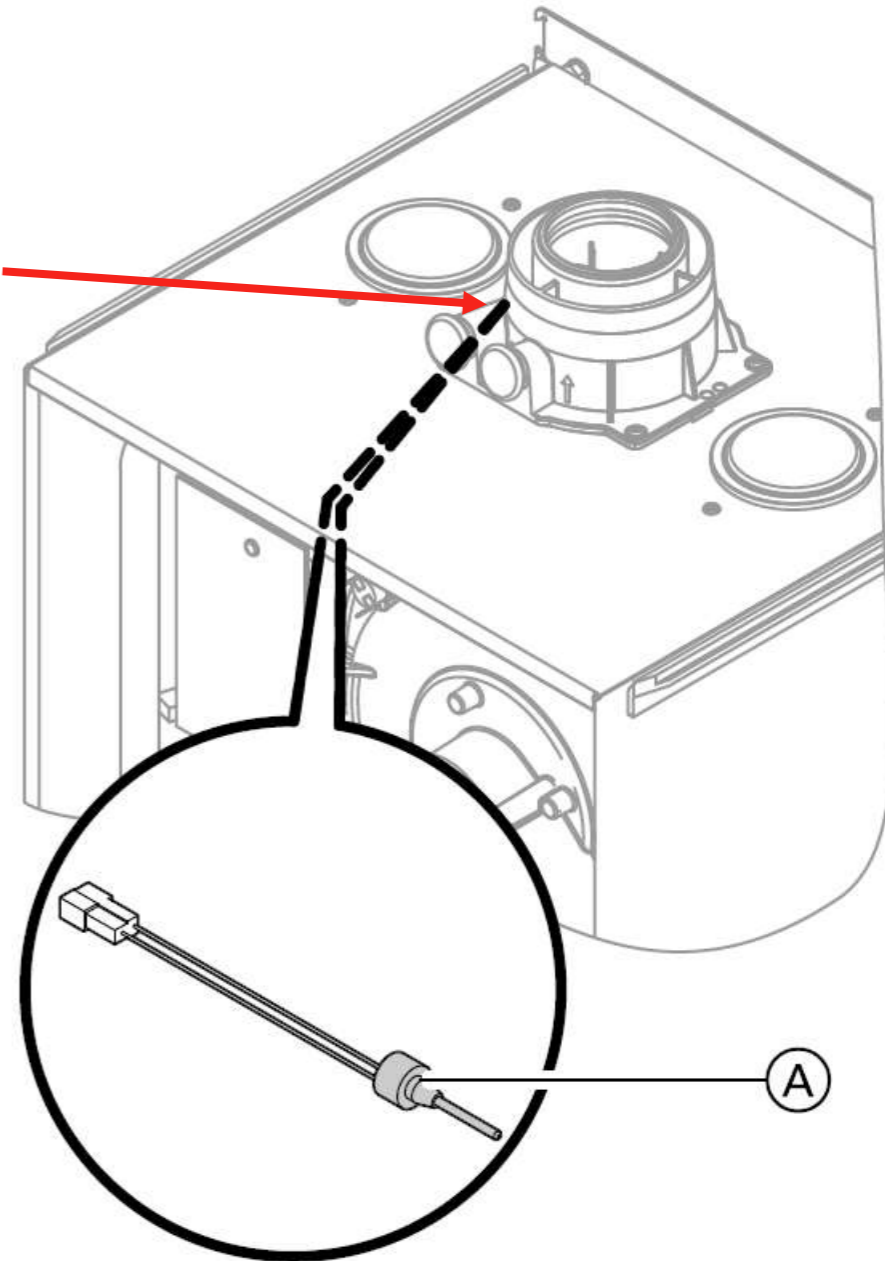
Checking The Flue Gas Temperature Sensor

- If it is suspected the flue gas sensor is not operating correctly it can be checked with a temperature meter and an ohm meter.
- Take the temperature at the probe tip and compare it to the corresponding ohm reading on the chart.

**Safety Setting
230°F / 110°C**



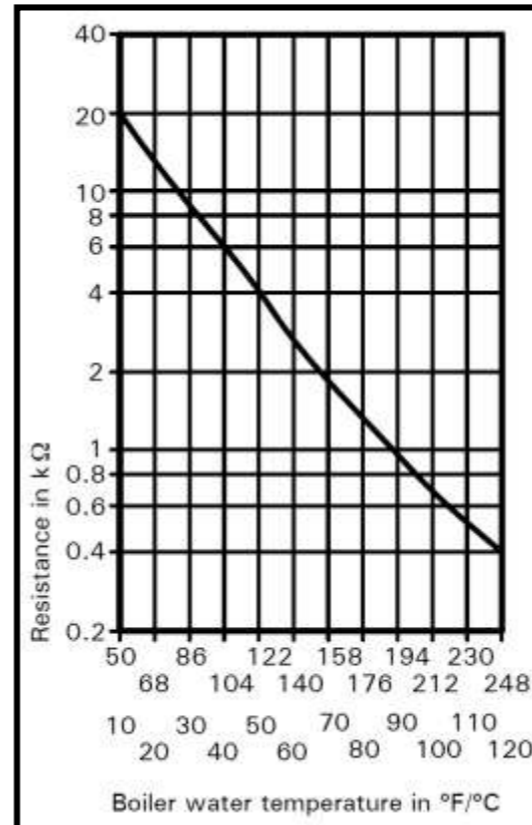
**Flue Vent Limit
sensor**



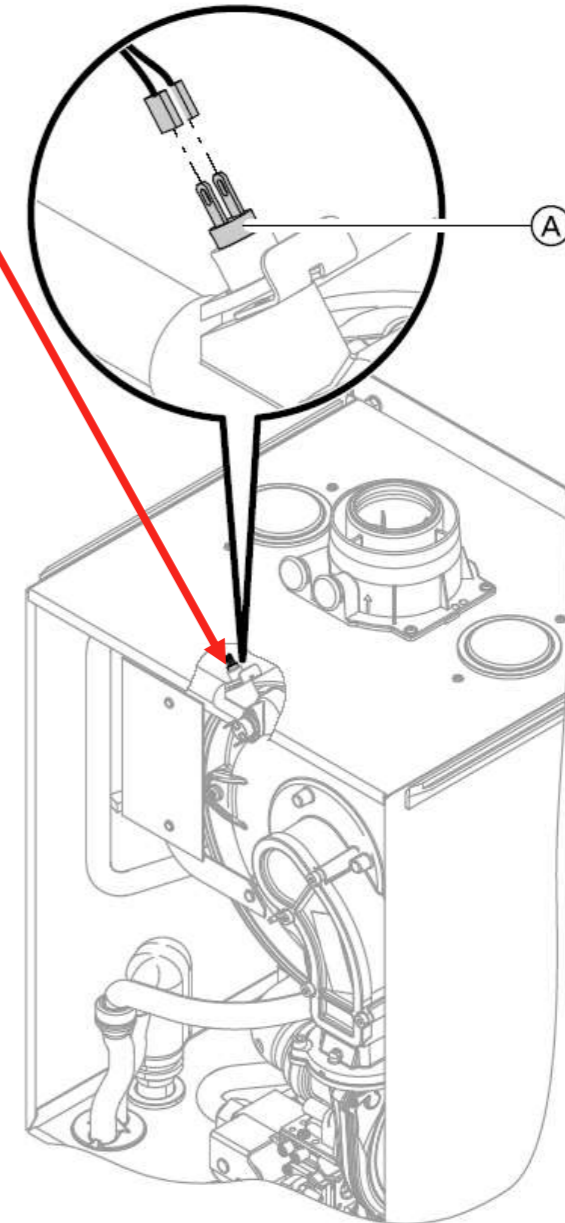
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Checking The Boiler Water Temperature Sensor (AHL)

- The boiler water temperature sensor can be checked in the same manner as the flue gas temperature sensor.
- Make sure you use the correct chart for each sensor, as some sensors in the boiler have different ranges.



**AHL
sensor**

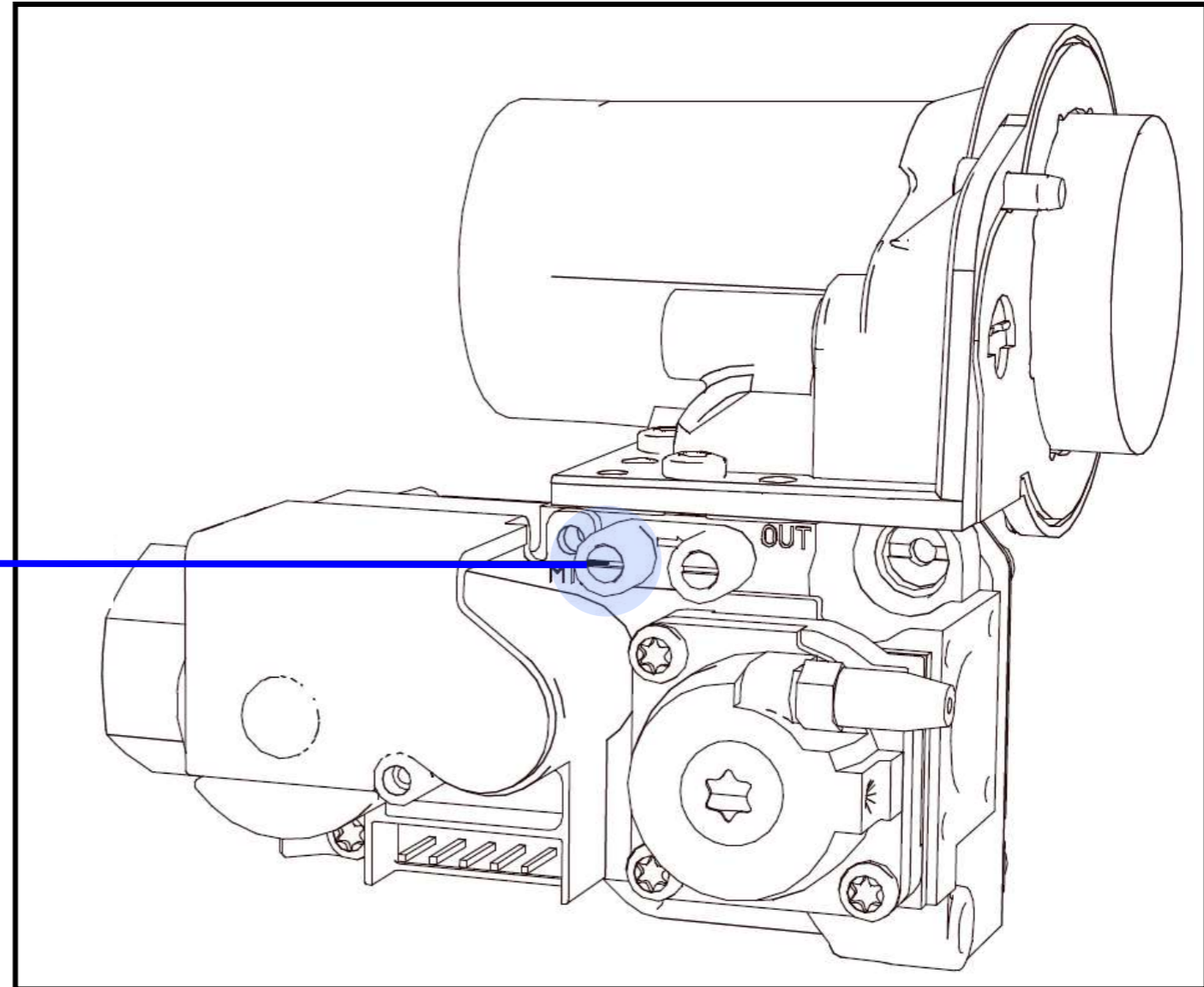


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Checking The Gas Pressure

- Check the inlet gas pressure at high fire before doing the combustion analysis.
- Running pressures should be between:
 - 4" wc and 14"wc for Natural Gas.
 - 10" wc and 14" wc for LPGas.

Fig. 46 Measuring running gas supply pressure, using test nipple A



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Testing The Products Of Combustion

- A combustion test should be performed any time the burner has been serviced and when the boiler is commissioned.
- Insert the test probe of the combustion analyzer into the test port in the boiler's flue gas collar.
- Perform a Relay Test

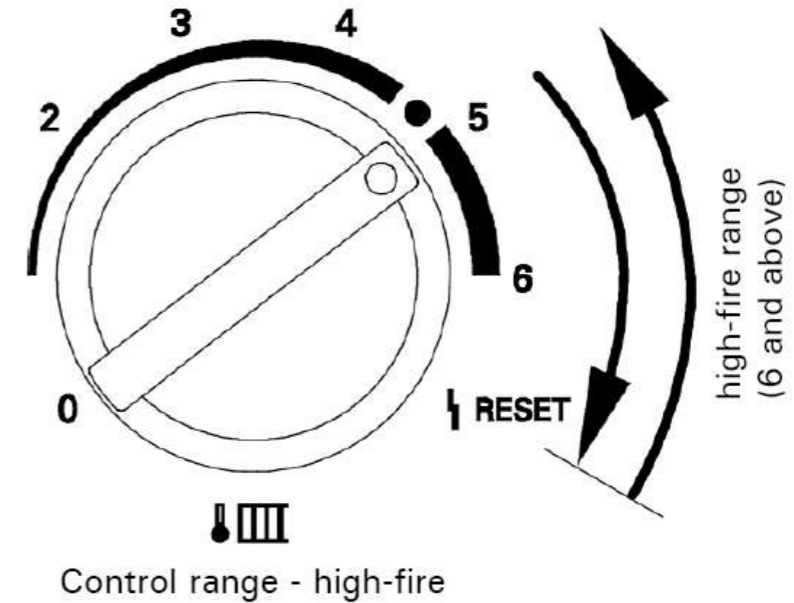


**Products of
Combustion Port**

Vitodens 100W WB1B

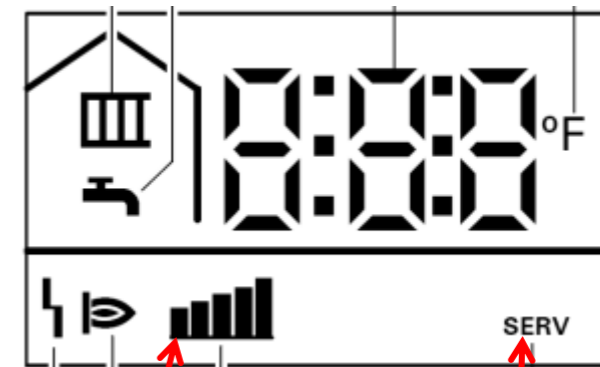
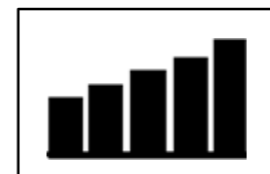
Performing A Combustion Test

- Turn the heating dial to the right all the way to the reset position, wait for "SERV" to be displayed on the screen then turn the dial back into the control range.
- Wherever the dial position is set will be the boilers current firing rate during the test.
- Check combustion in High and Low fire positions.



Note: During the relay test (if required) the selector dial "🌡️|||🌡️" position can limit the boiler input according to the following table;

Dial setting	Input setting	Display flashing
1 & below	low fire	
between 1 & 6	between low & high fire	
6 & above	high fire	



blinking

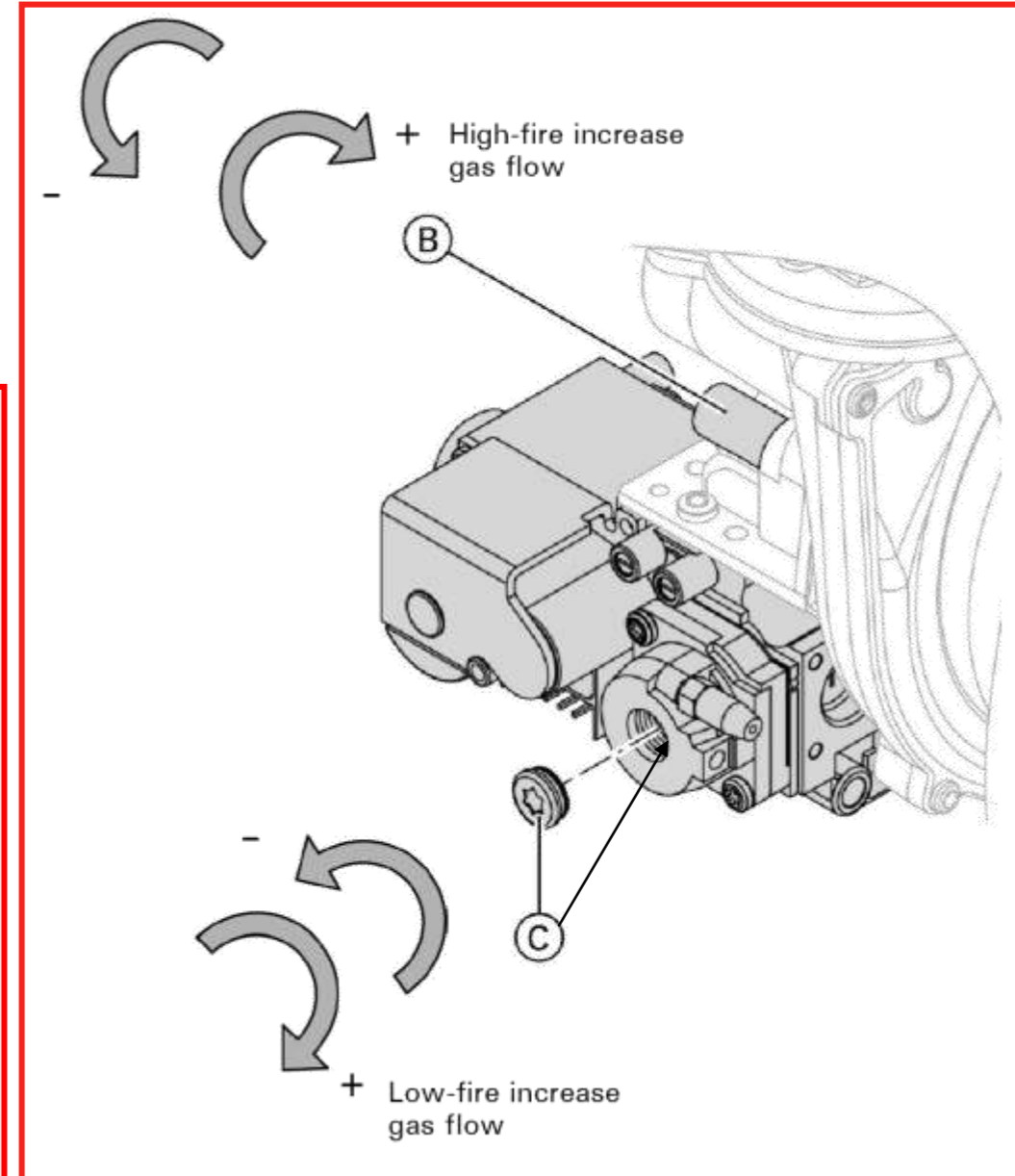
visible

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Burner Adjustments

- Adjustment to the fuel air mixture can be done at the adjustment points on the burner.
- If the CO₂ is within the ranges published in the manual no adjustment is required.

	CO ₂	
	high-fire	low-fire
NG range	7.5-10.5%	7.5-10.5%
Target value	9.0%	8.7%
LP range	10.00-12.0%	10.00-12.0%
Target value	10.8%	10.5%



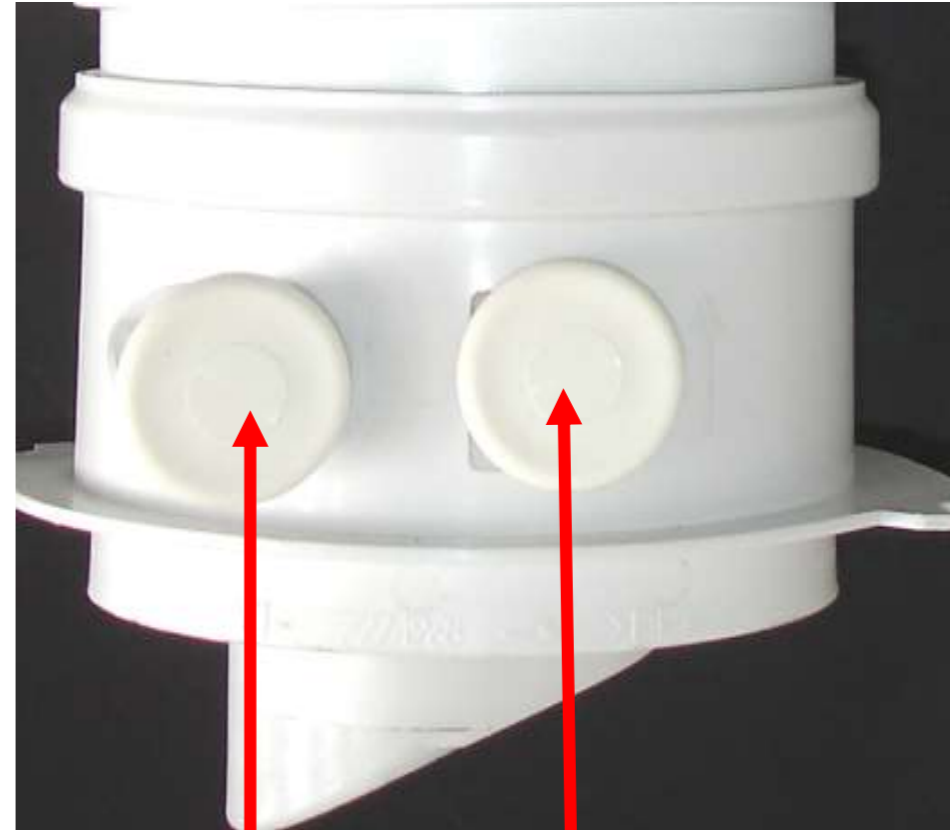
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Testing The Products Of Combustion

- When the boiler is vented with a coaxial venting system the integrity of the flue gas pipe cannot be visually inspected.
- Using a combustion analyzer into the combustion air test port will test for products of combustion in the fresh air that might be present if the vent pipe gaskets are compromised.

Testing for products of combustion in the combustion air stream:

- Insert combustion analyzer into Combustion Air Port.
- **With the burner operating, readings should be less than 0.2% CO₂, and greater than 20.6% O₂**
- If readings are outside these limits check the venting system for leaks.

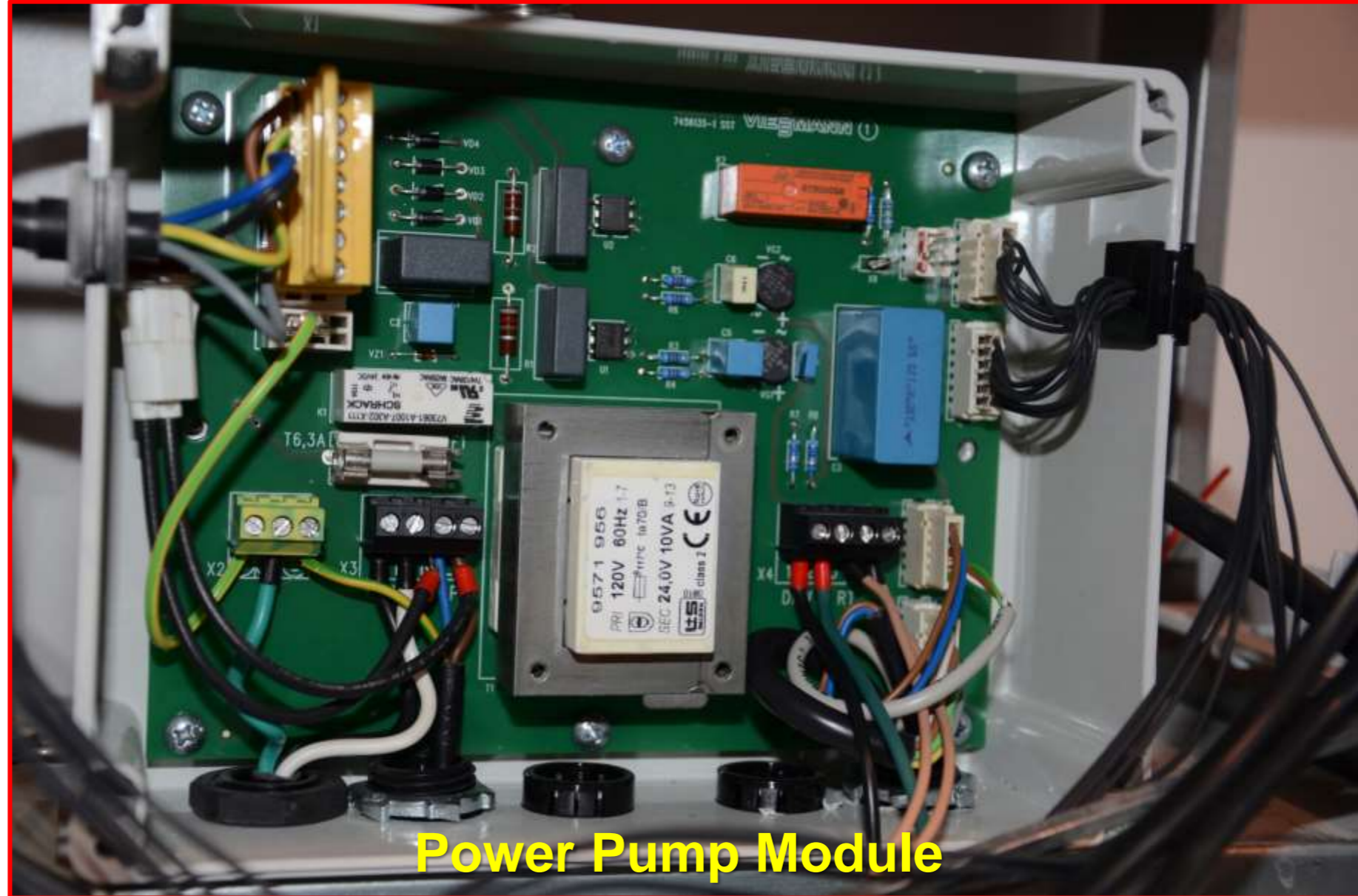


Combustion Air Port

Products of Combustion Port

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Power Pump Module

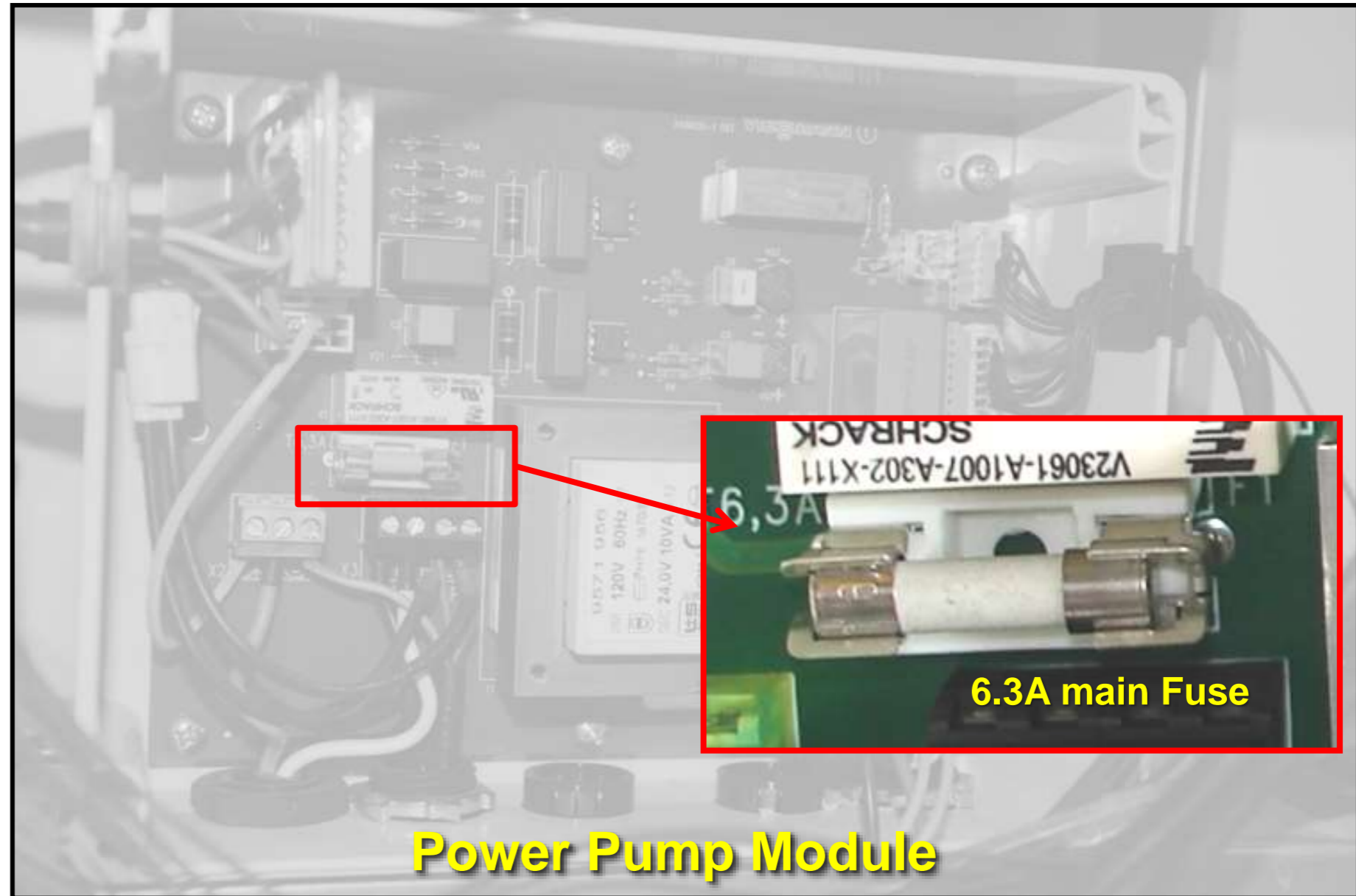


Power Pump Module

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Main Control Fuse

- Located inside the Power Pump Module

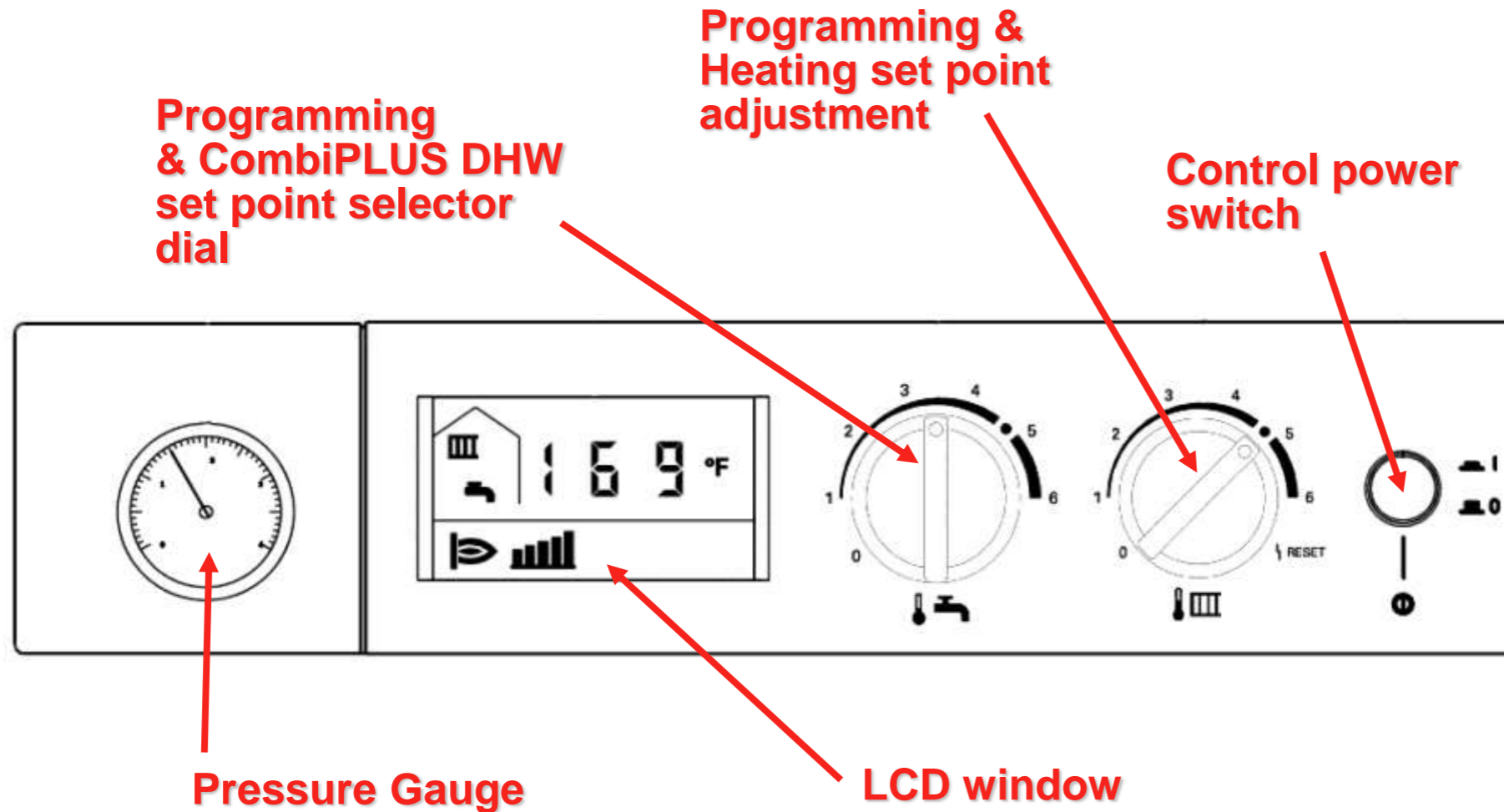


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Main control Interface

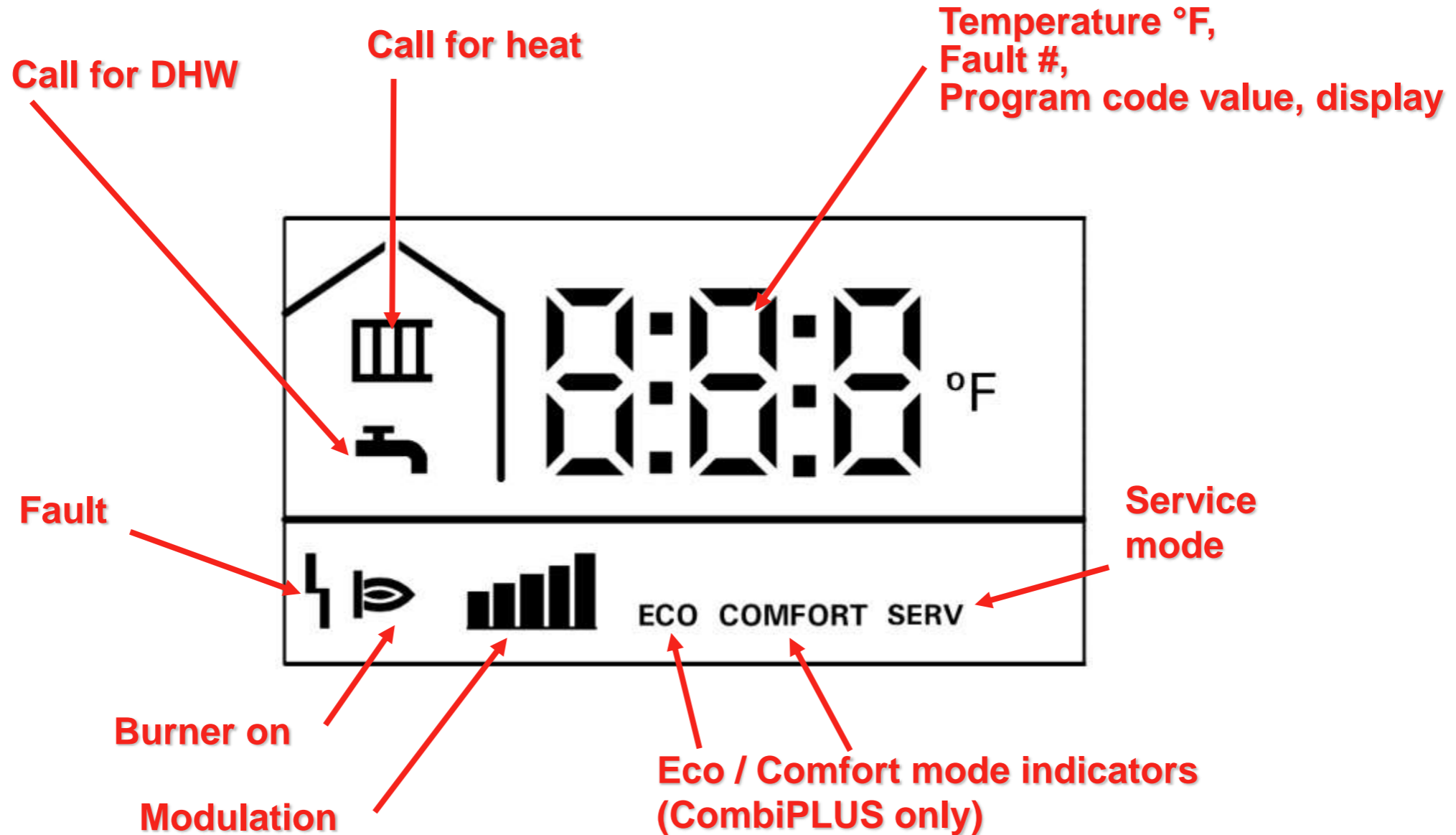
Note:

- Power switch turns the power off to the Control Module not the Power Pump Module.



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LCD Display

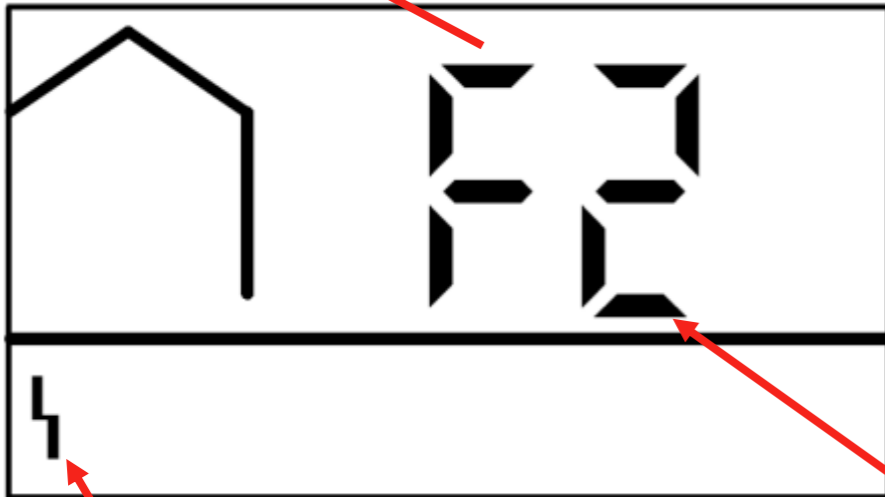


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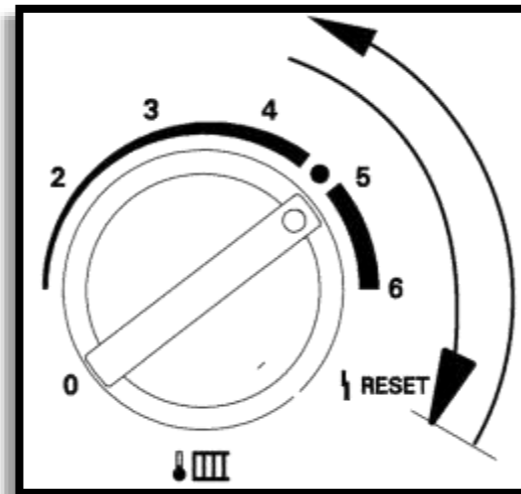
Faults And Fault Reset

- Faults are displayed on the main LCD window
- The fault code chart in the Service manual will provide clarification of the faults

Fault message in display window	System behavior ^{*1}	Cause	Corrective measures
F2	Burner in fault mode	Fixed high limit tripped	Check the heating system water level. Check the circulation pump operation. Vent the heating system of air. Check the fixed high limit and wiring. Reset control.



Fault Indicator



Fault Code

How to reset faults

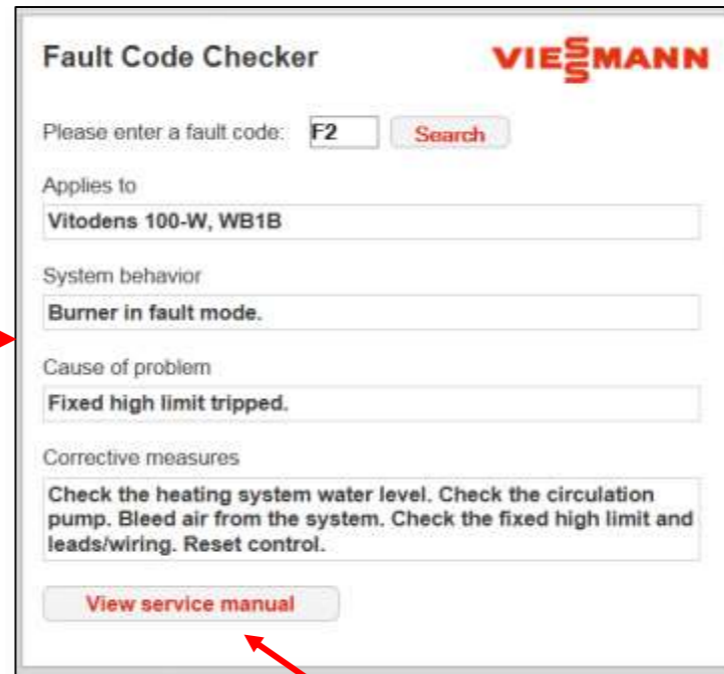
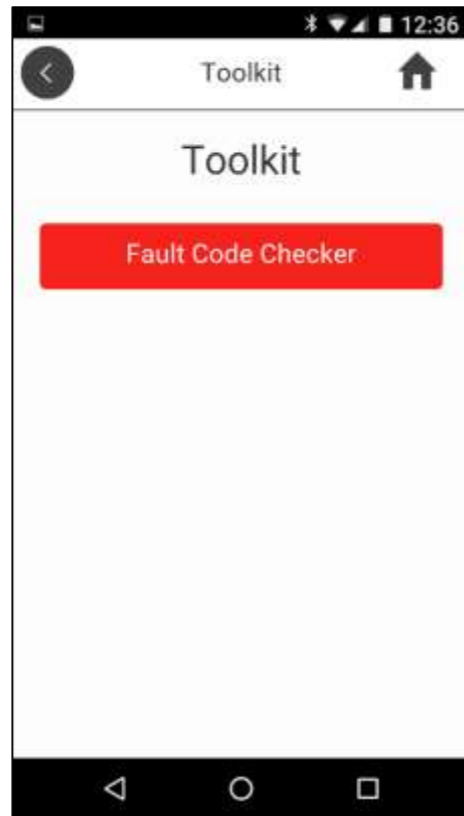
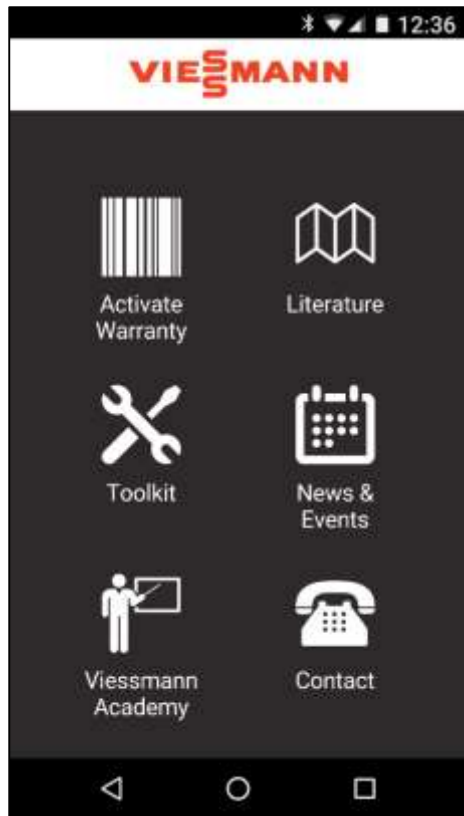
Turn rotary selector "⚡ III" less than 2 seconds to "⚡ Reset", then back to the control range.

This operation will put the boiler in relay test mode if no fault is present (turn boiler off then back on to start again).

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Fault Code Checker

- There is now a fault code checker on the Viessmann Canada website under the Pro Login tab.
 - <http://www.viessmann.ca>
 - This is also included in the **VitoApp** available through the Android Play Store or the Apple Store.
 - The App is free on either system.

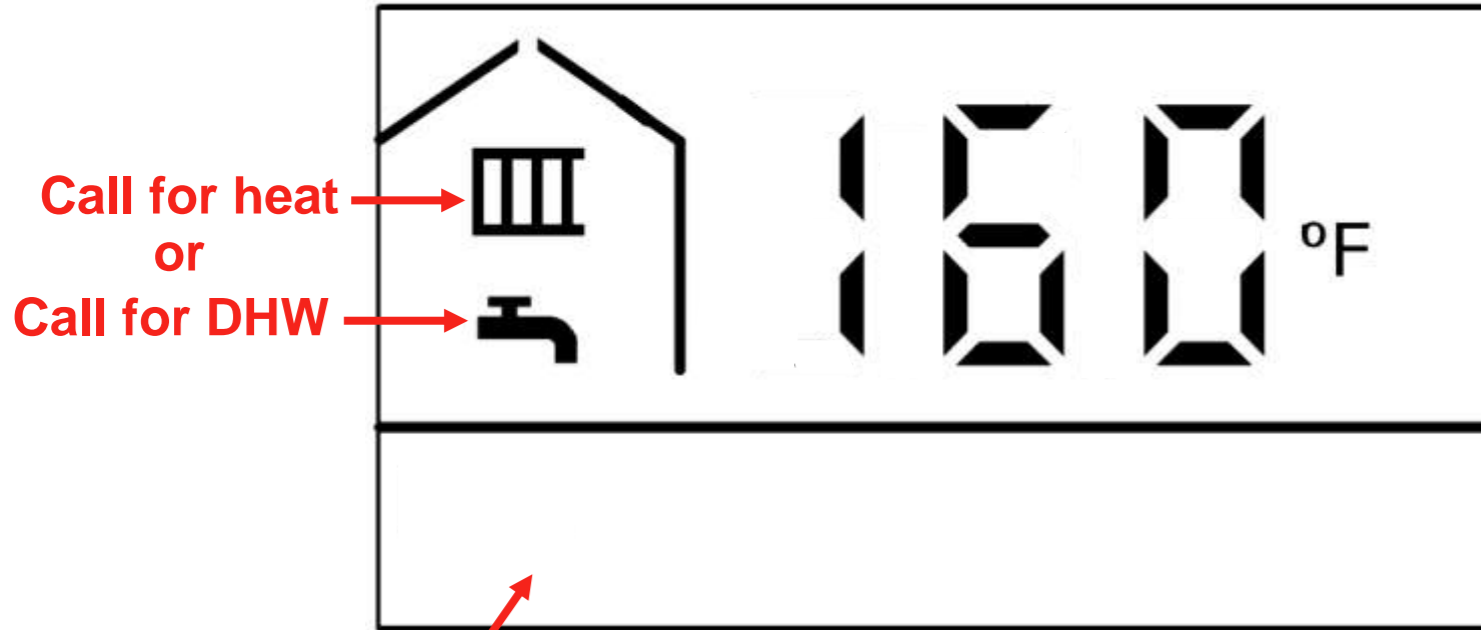


Link to the Service Manual

Vitodens 100W WB1B

Call For Heat But Burner Won't Fire And No Fault Code Is Displayed

- The DHW or Heating Icon is displayed but the burner is not operating.
 - This is typically a sign of no, or low water flow.
 - There is no alarm for this condition.
 - Check the pump, flow switch, closed valves, switch orientation etc.
 - When flow is adequate the boiler will operate.



Call for heat
or

Call for DHW

Burner not on

Flow Switch



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Boiler Coding Quick Reference Chart

Service / Function	Addition / Condition	Activation Sequence						Display		
		1.		2.		3.				
		Selector Dial	Position / Selection	Selector Dial	Position / Selection	Selector Dial	Position / Selection			
Filling	-		Selector Dial Left		Control Range	-	-	SERV	+	-
								Static	Static	-
Relay Test	-		Selector Dial Right		Control Range		Position 1 And Below → Minimum Load	SERV		
								Static	Static	Flashing
							Between 1 And 6 → Selected Inputs	SERV		
								Static	Static	Flashing
							Position 6 And Above → Full Input	SERV		
								Static	Static	Flashing
Red. Max. Heat Capacity	Activated Relay Test		Selector Dial Right		Control Range	-	-	SERV +		-.-.-
								Static	Flashing	Flash
Eco	-		Selector Dial Left		Control Range	-	-	ECO	-	-
								Static	-	-
Comfort	-		Selector Dial Right		Control Range	-	-	COMFORT	-	-
								Static	-	-

Vitodens 100W WB1B

Boiler Coding Quick Reference Chart

Service / Function	Addition / Condition	Activation Sequence						Display		
		1.		2.		3.				
		Selector Dial	Position / Selection	Selector Dial	Position / Selection	Selector Dial	Position / Selection			
Boiler with or without Combi Plus	-	☐☐☐ + 🔌	Mid-Position	🔌	Right Control Range	☐☐☐	Left Control Range Without Combi Plus	SERV	🔌	0
								Static	Static	Flashing
							Right Control Range With Combi Plus	SERV	🔌	1
								Static	Static	Flashing
Gas	-	☐☐☐ + 🔌	Mid-Position	☐☐☐	Left Control Range	🔌	Left Control Range Natural Gas	SERV	👁️	0
								Static	Static	Flashing
							Right Control Range Propane Gas	SERV	👁️	1
								Static	Static	Flashing
High Altitude Adjustment	-	☐☐☐ + 🔌	Mid-Position	☐☐☐	Right Control Range	🔌	Left Control Range 0 - 5000 ft.	SERV	☐☐☐	1
								Static	Static	Flashing
							Right Control Range 5000 - 10000 ft.	SERV	☐☐☐	2
								Static	Static	Flashing

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