

Boiler Service Procedure



Xclusive 24 (G.C. 47-291-13)

Xclusive 30 (G.C. 47-291-14)

Xclusive 36 (G.C. 47-291-15)

Xtreme 24 (G.C. 47-291-10)

Xtreme 30 (G.C. 47-291-11)

Xtreme 36 (G.C. 47-291-12)

The complete boiler guide

High Efficiency Wall-Mounted Gas Boilers

Read this service procedure thoroughly to ensure continued safety and efficient operation of the boiler.

Should you require further information please contact our Service & Technical department by calling 01527 888000

INTRODUCTION

During a survey of existing Intergas boilers installed we have noted that many are not being serviced correctly. To ensure the appliance continues to operate safely and efficiently it is essential that the annual servicing is completed correctly. Any work undertaken must be performed by a competent, suitably qualified Gas safe registered engineer.

Please ensure the workspace is suitably protected and that PPE is worn at all times during this procedure.

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Annual service checklist

No.	Activity	Inspection and service procedure A (Every year)	Inspection and service procedure B (Every 2 years)
1	Isolate the boiler from the fused spur and make safe (ref TB118) check the correct 3amp fuse has been fitted.	✓	✓
2	Carry out inspection of boiler for dust and dirt and clean where necessary.	✓	✓
3	Visually inspect the front plate and heat exchanger for signs of damage. (If damaged contact Intergas service department or replace).	✓	✓
4	Check the gas inlet working pressure and Input rating on HIGH rate "H" (DHW mode). **	✓	✓
5	Check combustion by measuring CO & CO ²	✓	✓
6	Close the boiler gas isolation valve.	✓	✓
7	Isolate flow and return valves and drain boiler via the flushing valve [◊] on the Intergas system filter (remove the magnet on the filter prior to draining, as this will flush out and clean the filter as required).	✓	✓
8	Remove the front plate and clean the inside of the heat exchanger.		✓
9	Replace the front plate seal every <u>2 years</u> or if <u>damaged, degraded</u> or if the <u>front plate has been removed</u> using the Intergas OEM black Viton seal (Red silicon type seals must be replaced regardless of age).		✓
10	Check the burner has not delaminated also check the burner seal.		✓
11	Check the ignition electrode for clearance, debris & seal integrity.		✓
12	Check the condensate trap & seal, clean and refill.	✓	✓
13	Check the expansion vessel air pressure via the Schrader valve (with no system pressure) it should be 0.75 to 1.0bar	✓	✓
14	Open the isolation valves on flow and return & recharge the pressure between 1.2 & 1.5 bar via the filling loop, (replace system filter magnet).	✓	✓
15	Open the gas isolation valve, reconnect the power to the boiler via fused spur.	✓	✓
16	Check visually the ignition and burner performance (If possible).	✓	✓
17	Check the boiler for leaks of any kind (gas, flue gas, water, condensate) rectify if necessary.	✓	✓
18	Recheck the CO,CO ² and adjust CO ² if necessary (at LOW fire only).	✓	✓
19	Replace room sealed cover and complete flue integrity test.	✓	✓
20	Complete the Benchmark Service Record on the back pages of the Installation manual.	✓	✓

IMPORTANT

See Inspection of seals & unions pages 11, 18 or 22 for model specific seal replacement schedules.

** When in "H" high rate the gas inlet working pressure must be checked via P1 of the gas valve and the gas meter when required.

The minimum permissible pressure at P1 is 17mbar (with all connected appliances operating at full rate) based on the following calculation..

Gas meter (GM) 21mb +/- 2mb (GM min 19mb pipework -1mbar, boiler -1mbar = 17mbar at P1)

System or Open vent boilers should be checked at high rate "h" (CH mode) for Input rating.

◊ The flushing valve should connected to a suitable drain hose or terminated into a bucket taking care as the system water can contain chemicals or iron oxides (magnetite) which can stain or damage surfaces / carpets etc, PPE should be worn to protect your eyes and skin.

The system Inhibitor must be checked and if necessary topped up to the required concentration (as per the Building Regulations & BS 7593:2019). Intergas recommend Fernox Inhibitor Test strips combined with the free to download Fernox water test App.



COMMENT

- There are 2 types of service procedures

A = Interim service to be completed annually.

B = Internal service to be completed bi-annually in conjunction with Interim service A.

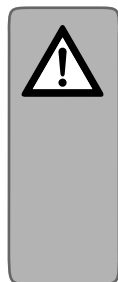
NOTE every 4th year extra seals need to be replaced.

A = Interim service to be completed annually.

- The boiler must be serviced annually by completing service procedure A which is a non intrusive safety check.
Service procedure A is to visually inspect for any signs of distress, leaking, basic cleaning and to complete all gas safety checks (See page 6, 7, 16 or 20 for boiler specific variations).

B = Internal service to be completed bi-annually

- Service procedure B is to complete service procedure A and then continue with the internal maintenance which includes cleaning the heat exchanger (See page 8, 9 & 10 for all boiler variants).
- To help understand the service intervals....
 - Year 1 (12 months after the installation date) complete service procedure A
 - Year 2 (24 months after the installation date) complete service procedure A + B (replace front plate seal)
 - Year 3 complete service procedure A
 - Year 4 complete service procedure **A + B** and replace seals noted within boiler specific pages 11, 18, or 22 including the front plate seal.
 - Year 1, 3, 5, 7 etc follow procedure A
 - Year 2, 6 etc follow procedure A + B
 - Year 4, 8 etc follow procedure A + B and replace seals noted within boiler specific pages 11, 18 or 22 including the plate seal.



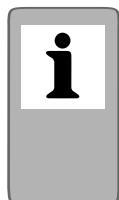
IMPORTANT

- When carrying out the flue gas analysis checks in service procedure (A), should the CO be $\geq 160\text{ppm}$ the immediately proceed to service procedure (B).
- If no proof of service history is available then complete service procedure (A) + (B), if the boiler is 4 years or older then also replace the relevant seals as stated on pages 11, 18 or 22 including the front plate seal.

Removing/Replacing the Room Sealed Cover (X-Range)

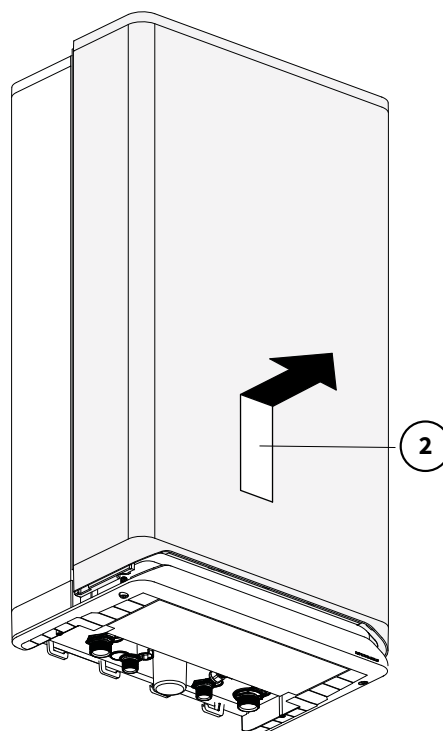
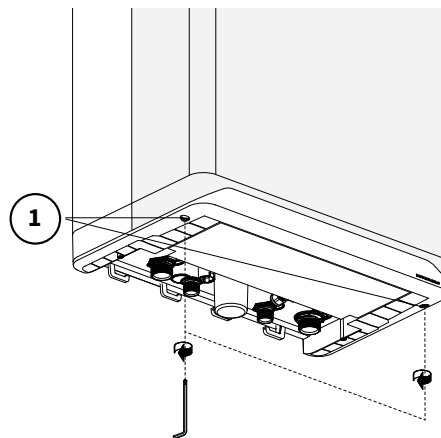
Removing the room sealed front cover.

- ▶ The front cover of the boiler must be removed to perform various maintenance activities however you must be a competent Gas Safe registered engineer before carrying out the following procedure!
- ▶ Loosen both screws (1) under the boiler by using a 5 mm allen key. (They are captive and therefore will not drop out of the lower housing).
- ▶ Slide the front cover (2) upward and then remove it by pulling it towards you.



COMMENT

- ▶ **The front cover has a rubber seal around the inner edge sometimes making it very stiff to slide off so please ensure the boiler is secured to the wall correctly before attempting this procedure!**



Replacing the room sealed front cover.

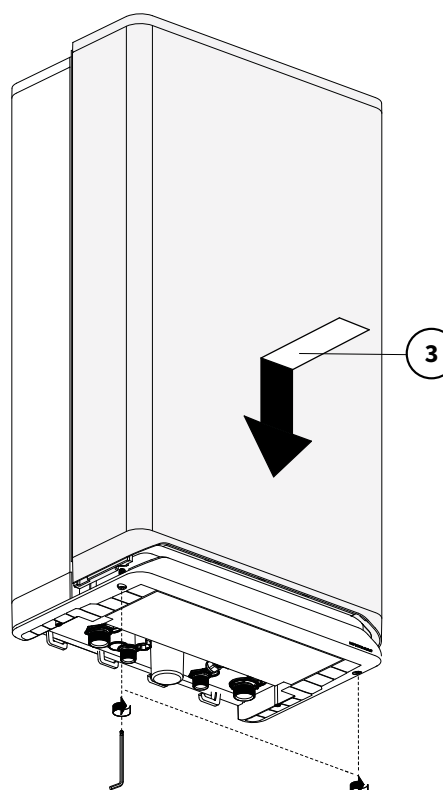
To replace the front panel, proceed as follows:

- ▶ Position the front panel (3) against the boiler and slide it downwards until it is correctly connected to the lower fascia panel.
- ▶ Hand tighten screws under the boiler using a 5 mm allen key (do not over tighten).



CAREFUL

- ▶ **This is a room sealed cover and therefore extremely important that it is fitted correctly, failure to do so could lead to products of combustion entering the room / environment where it is situated.**



ANNUAL SERVICE (A)

The boiler and the system must be inspected annually by an qualified competent gas safe registered engineer.
The boilers heat exchanger should be cleaned and inspected as stated below at the correct service interval.

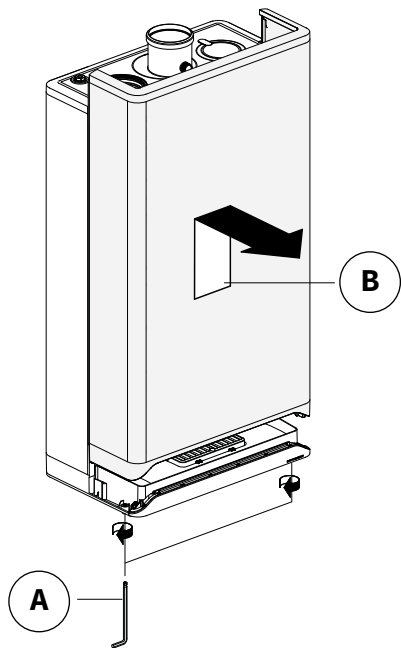


CAREFUL

- ▶ **After completion of the Annual service procedure all 26 (9) safety checks must be performed and the results recorded within the service & interim boiler work pages, at the back of the installation manual. (see example page 23)**
- ▶ **Some components can be very hot during and just after operating the appliance.**
- ▶ **For Health & Safety reasons the use of PPE is recommended during the below procedure.**

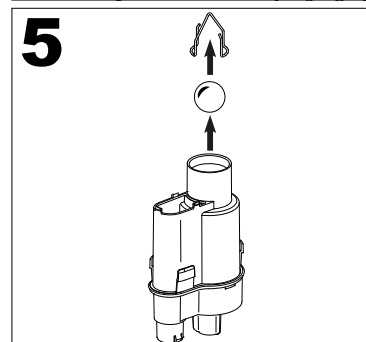
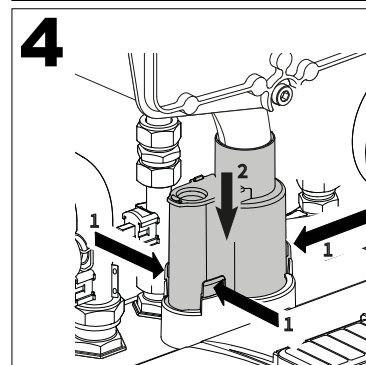
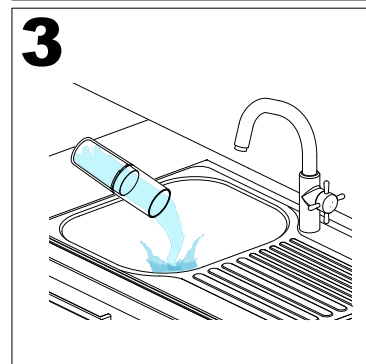
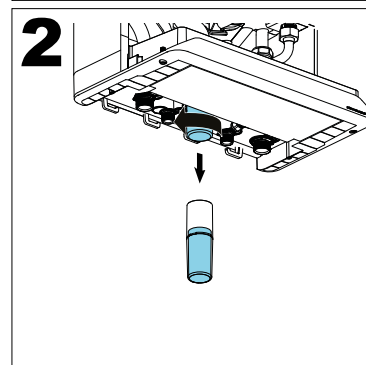
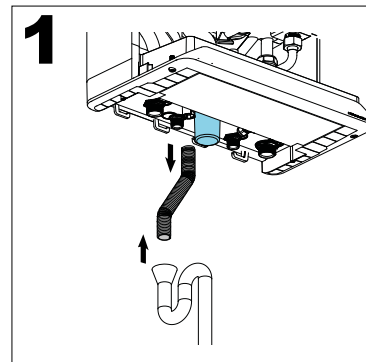
Annual service procedure (A)

- ▶ Switch off the appliance and isolate the power supply at the fuse spur, make safe the appliance before continuing (Ref TB118).
- ▶ Close the boiler gas isolation valve (test for let-by).
- ▶ Remove the room sealed cover of the boiler by loosening the two Allen screws (A) and then lifting the panel up and forward (B)
- ▶ Wait until the boiler has cooled down. This can be done by opening a domestic hot water tap (with the power switched off).



Annual service (A) continued (syphon maintenance).

- ▶ Detach the syphon cup (1) by rotating it a quarter turn to the left and then pulling it out downwards.
- ▶ Remove the flexible hose (2) from the syphon base and the waste connection.
- ▶ Empty the syphon cup (3).
- ▶ Detach the syphon base (3) by pressing the three securing clips in, while simultaneously pushing the syphon base downwards (4).
- ▶ Remove the circlip and the plastic ball from the syphon base (5).
- ▶ Clean the following components with water:
 - the inside of syphon base
 - plastic ball
 - circlip
 - syphon cup
 - opening of the exhaust manifold



- ▶ Return the plastic ball to the syphon base and attach the circlip.
- ▶ Check that the ball and circlip have been installed correctly (6). Make sure that the top of the circlip is about 6 cm below the edge of the syphon base.
- ▶ Replace the O-ring (art. no. 086154) at the bottom of the exhaust manifold, every 4 years or if damaged (see page 11).
- ▶ Attach the syphon base to the bottom by pushing it high enough so that the securing clips click over the lip (7).



IMPORTANT

- ▶ **Make sure that the syphon base is returned to its original position, firmly locked into the bottom with no gaps. Incorrectly attaching the syphon base (or not attaching it at all) will result in products of combustion leaking into the room creating a dangerous situation.**

- ▶ Make sure that the syphon cup is filled with $\frac{3}{4}$ water (8) before placing it back, slide it into the syphon base and rotate it a quarter turn to the right (clockwise) so that it is correctly secured (9).
- ▶ Slide the ribbed hose onto the syphon base and back into the waste connection.

NOTE

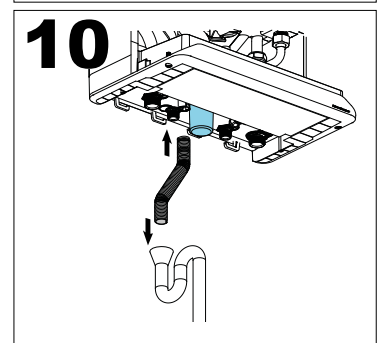
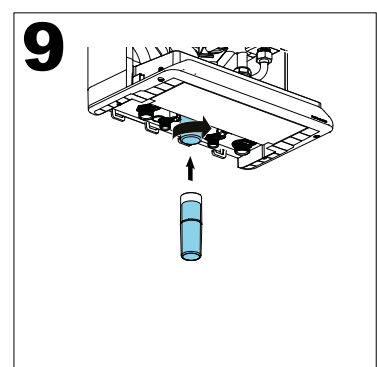
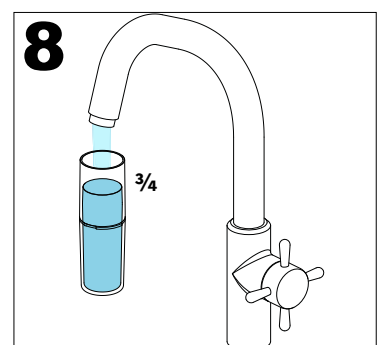
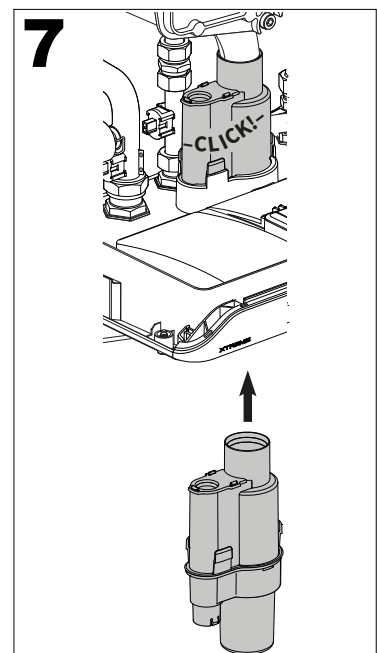
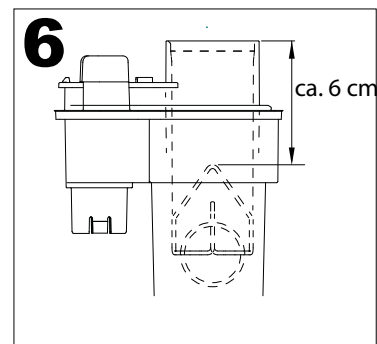
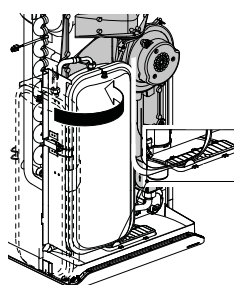
- ▶ To assist the replacement of the syphon base and syphon cup silicone lubricant is recommended on the following seals,
 - Exhaust manifold O-ring seal
 - Syphon base outer seal
 - Syphon cup O-ring seal

Annual service (A) continued

- ▶ Lift and rotate the expansion vessel to the left side.
- ▶ Open the gas isolation valve and check both of the gas unions for tightness.
- ▶ Check and repair any water leaks within the boiler.
- ▶ Turn the expansion vessel back to its original position. Make sure the vessel is secured by the lip on the cable cover.
- ▶ Check a 3amp fuse is fitted before re-establishing the power.
- ▶ Switch on the boiler.
- ▶ Check the front plate, the fan seal, fan connection to the front plate, also check the flue components for leakage, repair or replace as required.
- ▶ Check the gas/air control and also test the gas outlet union on the gas valve for tightness.
- ▶ Check the domestic hot water facility for correct operation.
- ▶ Turn to page 12" measuring the flue gas at maximum output" then continue through the procedure.

COMMENT

- ▶ **The expansion vessel must be inspected and tested at each annual service and if required repressurised between 0.75 & 1.0 bar (cold and with no system pressure). Ensure the flexible hose is not kinked, leaking or damaged (Replace if required).**



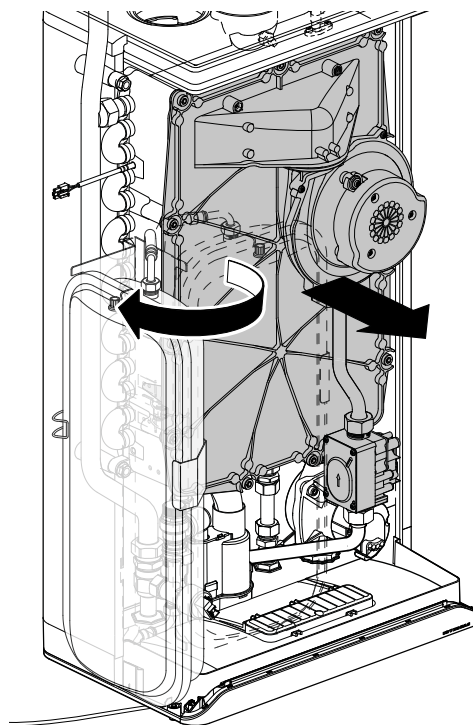
Annual service (B) (Internal maintenance)

- ▶ Lift and rotate the expansion vessel to the left side.
- ▶ Disconnect the electrical connector to the fan assembly.
- ▶ Loosen both unions and the electrical connector then remove the gas valve.
- ▶ Unscrew the 6mm Allen key shoulder bolts of the front plate and remove it along with the fan (Being careful not to damage any components). Lay the removed front plate face down onto its foot supports, this is best achieved on a flat heat-proof surface.
- ▶ The burner and the integrated insulation panel do not require cleaning only inspecting. Therefore, never use a brush or compressed air to clean these components (dust hazard).



COMMENT

- ▶ **The expansion vessel must be inspected and tested at each annual service and if required repressurised between 0.75 & 1.0 bar (cold and with no system pressure). Ensure the flexible hose is not kinked, leaking or damaged (Replace if required).**



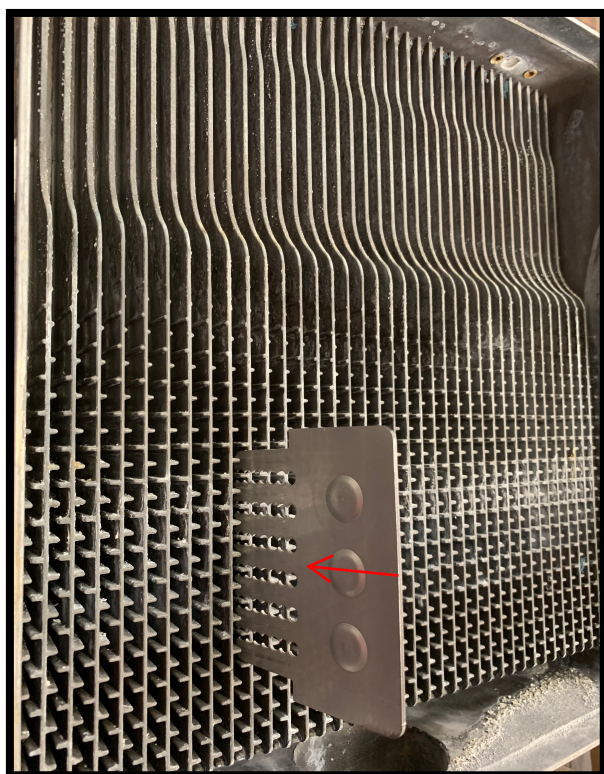
Annual service (B) (cleaning)

- ▶ Clean the slats of the heat exchanger from top to bottom with a brush or Intergas comb (use a vacuum cleaner to remove debris).
- ▶ Clean the underside of the heat exchanger.
- ▶ Only clean the lower metal heat shield of the front panel.

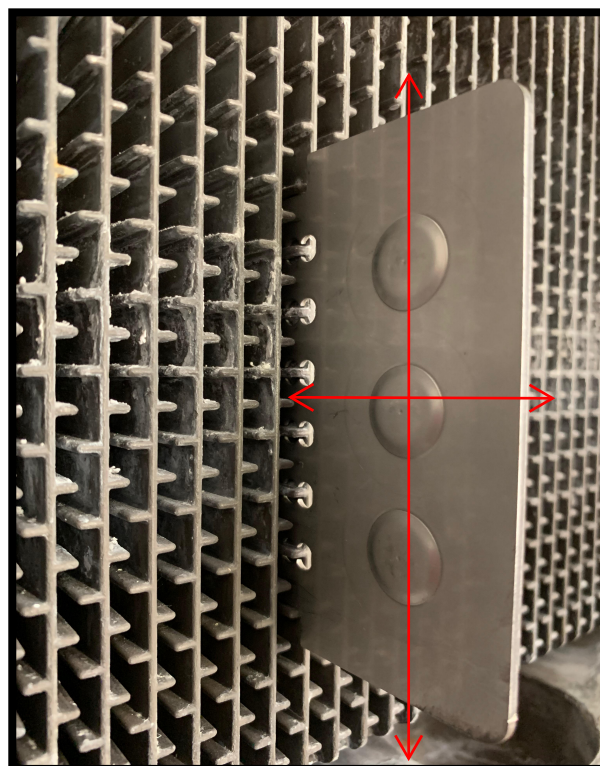


CAREFUL

- ▶ **The integrated insulation panel and burner seal contain ceramic fibres use the appropriate P.P.E dust mask & gloves.**



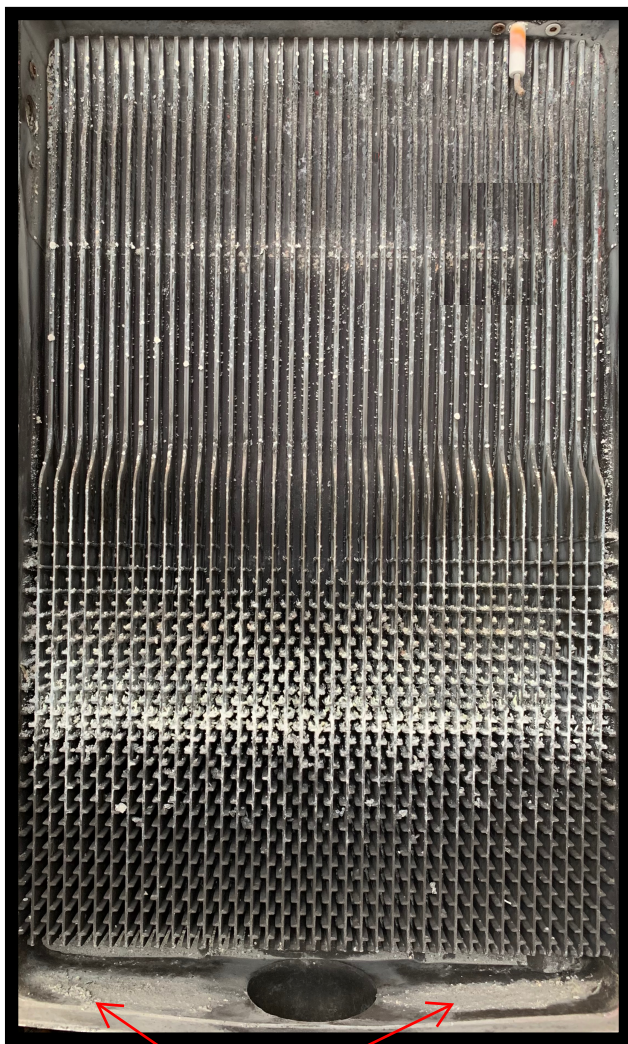
Slide the Intergas comb between the fins



Move the Intergas comb in-out and up-down repeat for all contaminated parts of the exchanger

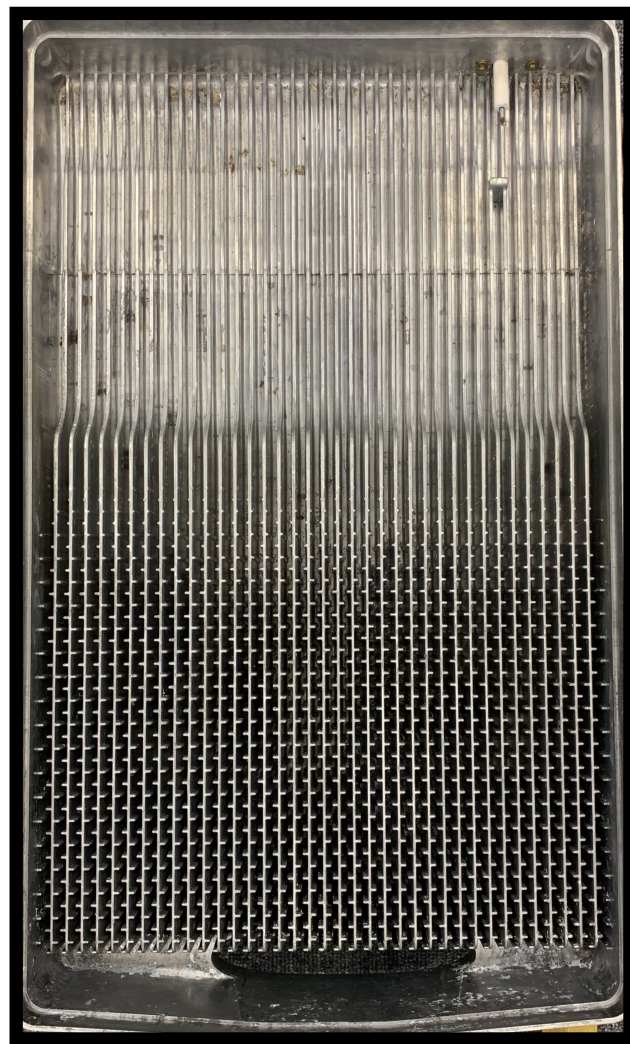
Annual service (B) continued (cleaning)

A typical heat exchanger that requires cleaning

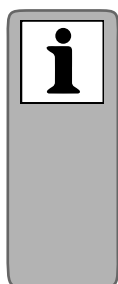


Ensure the oxide residue has also been removed after cleaning the fins

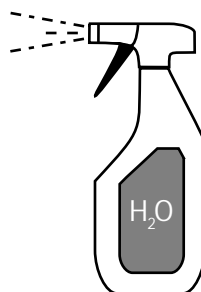
Heat exchanger after cleaning



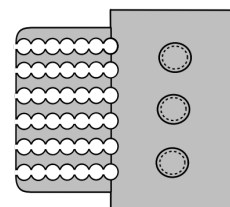
Water can be used to assist cleaning the fins using a fine mist atomiser spray (Warning you must protect the PCB and any electrical connections from potential water damage).



- ▶ When cleaning the heat exchanger surface to prevent damage only use the suggested tools.
- ▶ A Brass or Nylon bristled brush can be used to clean the surface followed by a mist spray to wash it down.
- ▶ The Intergas comb has been designed to assist in the removal of any hardened areas of Aluminium oxide.



Water Atomiser trigger spray



Intergas Heat exchanger comb
Part number 460067



Brass or Nylon bristled
brush only (not steel)



Vacuum cleaner

Annual service (B) (re-assemble)



IMPORTANT

- ▶ **Replace the Viton front plate O-ring at least every 2 years or if damaged/ discoloured and or if the front plate has been removed. All red Silicon front plate seals must be replaced, regardless of age with the below**
Art.no: 086504 (Black Viton) — Xtreme 24/30
086474 (Black Viton) — Xtreme 36
- ▶ **Check and replace any other worn gaskets (see page 11, 18 & 22) check they are correctly located.**

- ▶ Check whether there is a thin layer of ceramic grease both sides of the front plate where the shoulder bolts protrude especially between the flange of the shoulder bolts and the front plate, itself
- ▶ If there is insufficient grease present, extra must be applied using the foam application tool (A) within the kit (ceramic grease kit available to order, part number 090587).
- ▶ Ensure the Viton O-ring seal is pushed fully into the O-ring chamber around the whole front plate. Place the front panel back on the heat exchanger and attach it with the 6mm Allen key shoulder bolts. Tighten the shoulder bolts (1 to 11)* by hand, working diagonally. The order of tightening is shown in the diagram.
- ▶ Fully tighten the Allen shoulder bolts with a torque wrench set at 10-12 Nm when available to ensure uniformity.
- ▶ Check and tighten the burner bolts diagonally by hand.
- ▶ Replace the gas valve and when necessary replace the seals
- ▶ Reinstall the electrical connector to the gas valve and fan.
- ▶ Open the gas isolation valve and check both of the gas unions for tightness.
- ▶ Check and repair any water leaks within the boiler.
- ▶ Turn the expansion vessel back to its original position. Make sure the vessel is secured by the lip on the cable cover.
- ▶ Check a 3amp fuse is fitted before re-establishing the power.
- ▶ Switch on the boiler.
- ▶ Check the front panel, the fan seal, fan connection to the front panel, also check the flue components for leakage, repair or replace as required.
- ▶ Check the gas/air control and also test the gas outlet union on the gas valve for tightness.
- ▶ Check the domestic hot water facility for correct operation.

* Do not overtighten

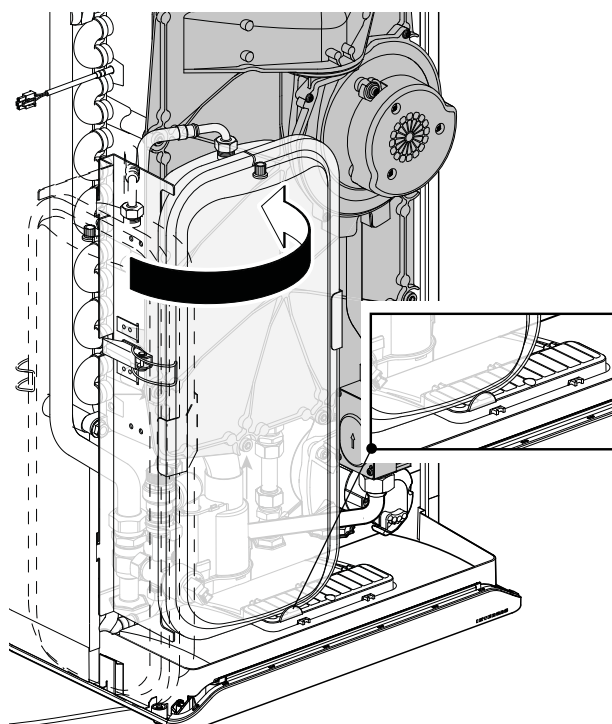
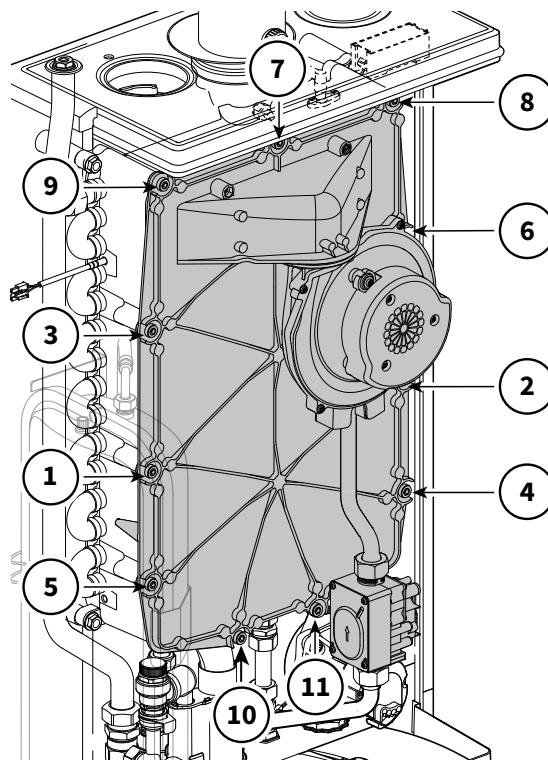
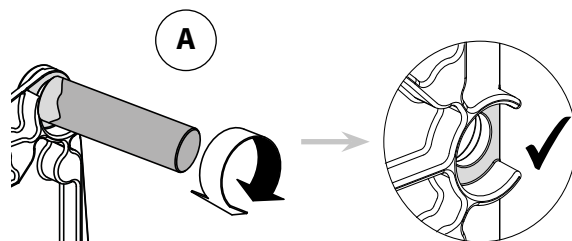
Clicking noise (expansion) during operation is normally due to overtightening of the front panel bolts or lack of ceramic grease.

Please check sufficient ceramic grease has been applied and the correct torque settings adhered to before calling the Intergas service team.

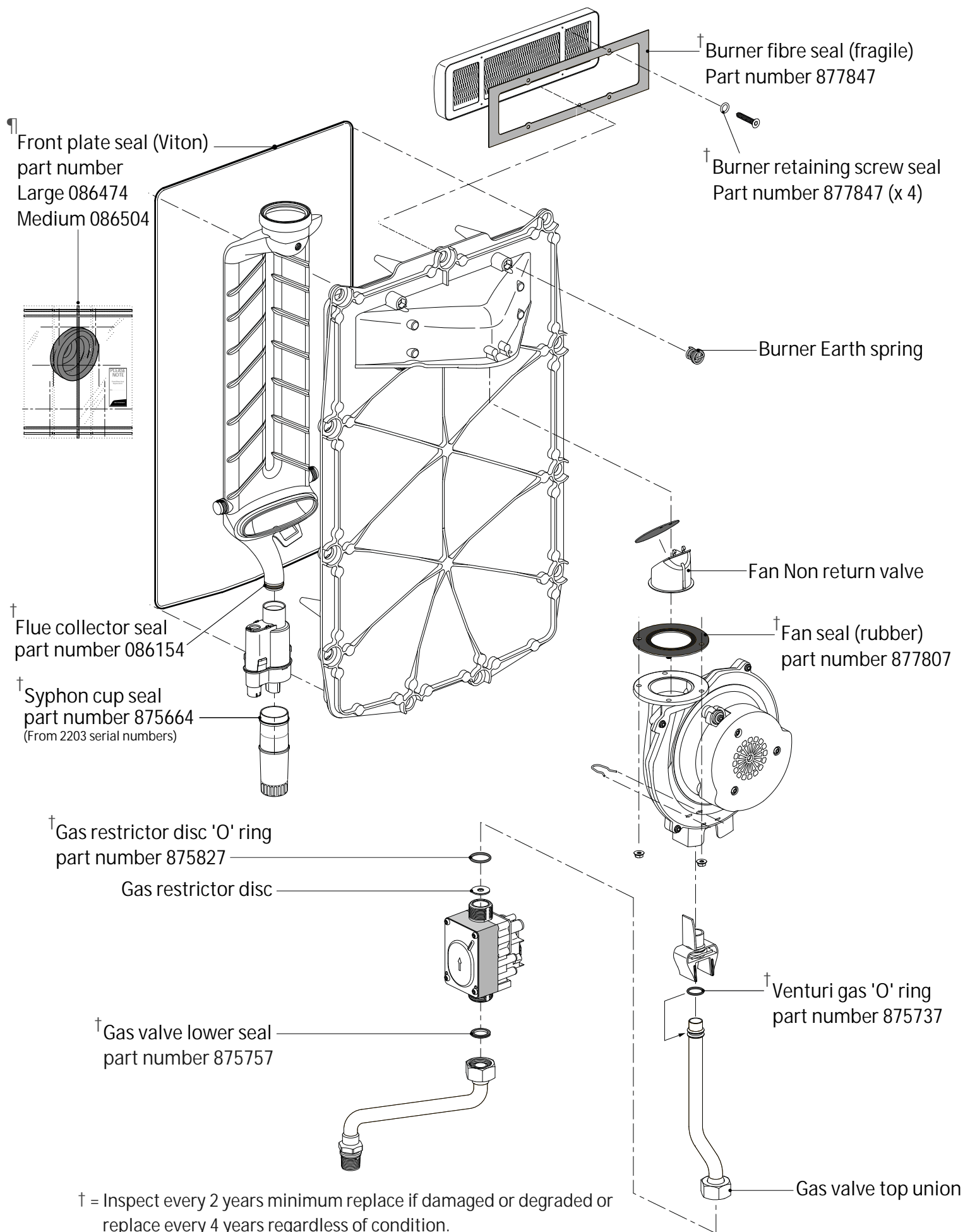


IMPORTANT

- ▶ **Once the boiler has been serviced or the front plate seal has been replaced a seal integrity test must be completed by operating the boiler in high fire 'H' then using your calibrated E.F.G.A to sweep around the entire outer edge of the front plate.**
- ▶ **Analyser readings should not be above that of the ambient room or compartment the boiler is sited within.**



INSPECTION OF SEALS & UNIONS (X-range boilers)



MEASURING THE FLUE GAS AT MAXIMUM OUTPUT

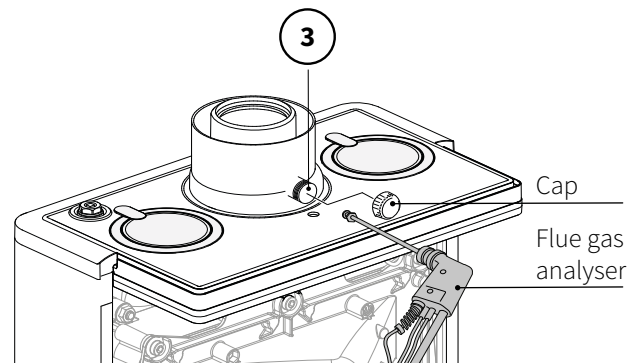
Having cleaned the heat exchanger and boiler components and whilst the boiler is still safely isolated.....

- Remove the cap of the flue gas sampling test point (3) on the appliance connector or bend on top of the boiler.
- Place the sampling probe of the calibrated electronic flue gas analyser into the flue gas sampling point (3).
- Re-establish the power by switching on the fused spur.



IMPORTANT

- ▶ **Make sure that the flue gas analyser is calibrated. The start-up procedure of the flue gas analyser must be completed before the analyser probe is placed in the flue gas measurement point.**
- ▶ **The analyser probe must completely seal off the flue gas measurement point to provide a reliable measurement.**
- ▶ **The end of the analyser probe must be located entirely in the flue gases (middle of the flue gas pipe).**

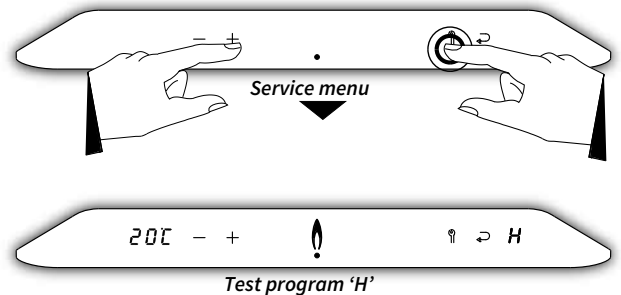


- Switch on the boiler by touching above the power light for 2 seconds.
- Switch the boiler to maximum output. To do this, hold the Service symbol and at the same time tap the Plus symbol twice until the capital letter **H** appears on the right display.
- Wait until the readout of the flue gas analyser is stable (at least 10 minutes).



IMPORTANT

- ▶ **Make sure that the capital letter **H** appears on the right display. This provides assurance that the boiler is operating at maximum load.**



- Note the measured $\text{CO}_2(\text{H})$ value.
 $\text{CO}_2(\text{H}) = \text{measured maximum output } \text{CO}_2 \text{ value}$
- Check according to Table 2 whether the measured maximum output $\text{CO}_2(\text{H})$ % is between the indicated upper and lower limits.

Table 2: Allowed $\text{CO}_2(\text{H})$ limits at maximum output (open casing)

Value limits	Gas category	
	Natural gas G20	LPG G31
	CO_2 [%]	CO_2 [%]
Upper limit	9.6	10.8
Lower limit	8.6	9.8



IMPORTANT



- ▶ **Any readings that are out of tolerance during maximum output cannot be corrected by adjusting the gas valve. The boiler must be meticulously inspected for gas quality / type, correct components used (especially the gas restriction ring and the fan including venturi).**

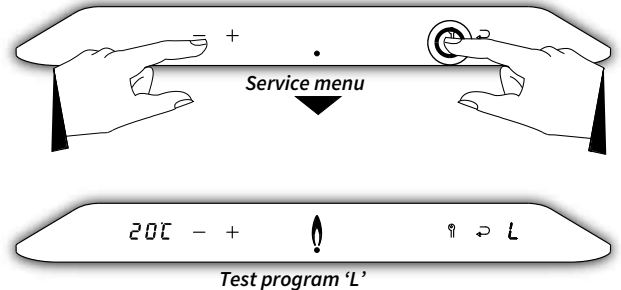
- The flue gas performance measurement must also be checked at minimum output

MEASURING THE FLUE GAS AT MINIMUM OUTPUT

Before measuring the flue gases at minimum output, the measurement at maximum output must be completed, as previously detailed.

The measured CO₂ (H) % at maximum output is important to determine equilibrium, this must be completed before checking the minimum output %.

- Switch on the boiler at minimum output. To do this, tap simultaneously the Service symbol  and the Minus symbol  until the capital letter **L** appears on the right display.
- Wait until the readout of the flue gas analyser is stable (at least 10 minutes).
- Note the measured CO₂(L) value.
CO₂(L) = measured minimum output CO₂ value
- Check according to Table 3 whether the measured minimum output CO₂(L) value is between the indicated upper and lower limits.
- If the minimum output measurement falls outside the limits given in Table 4a or 4b, refer to the Gas valve adjustment page detailing how to adjust the gas valve.
If the setting is correct, continue to Step F.



- **The CO₂ upper limit is the CO₂(H) value that was noted during the maximum output measurement.**



Table 3 : Allowed CO₂(L) limits at minimum output (open casing).

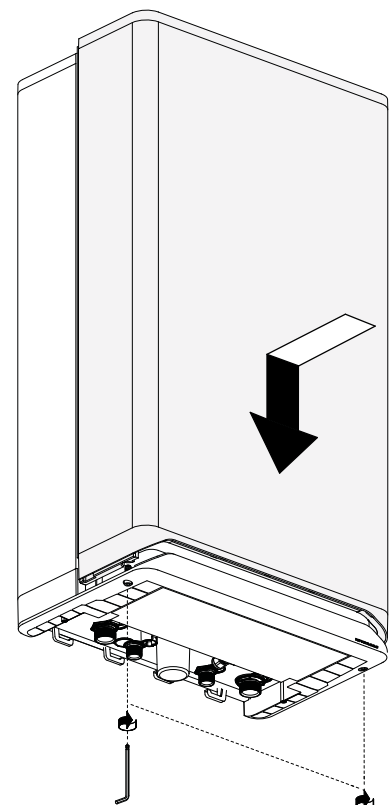
Value limits	Gas category	
	Natural gas G20	LPG G31
	CO ₂ [%]	CO ₂ [%]
Upper limit	CO ₂ (H)	CO ₂ (H) - 0.3
Lower limit	8.4	9.4



IMPORTANT



- **The gas air control is correctly set if the measured value at minimum output falls within the indicated upper and lower limits. Adjustment of the gas air control is not necessary in this case. The setting at minimum output can be adjusted using the method described but only if the measured value is outside the indicated limits.**

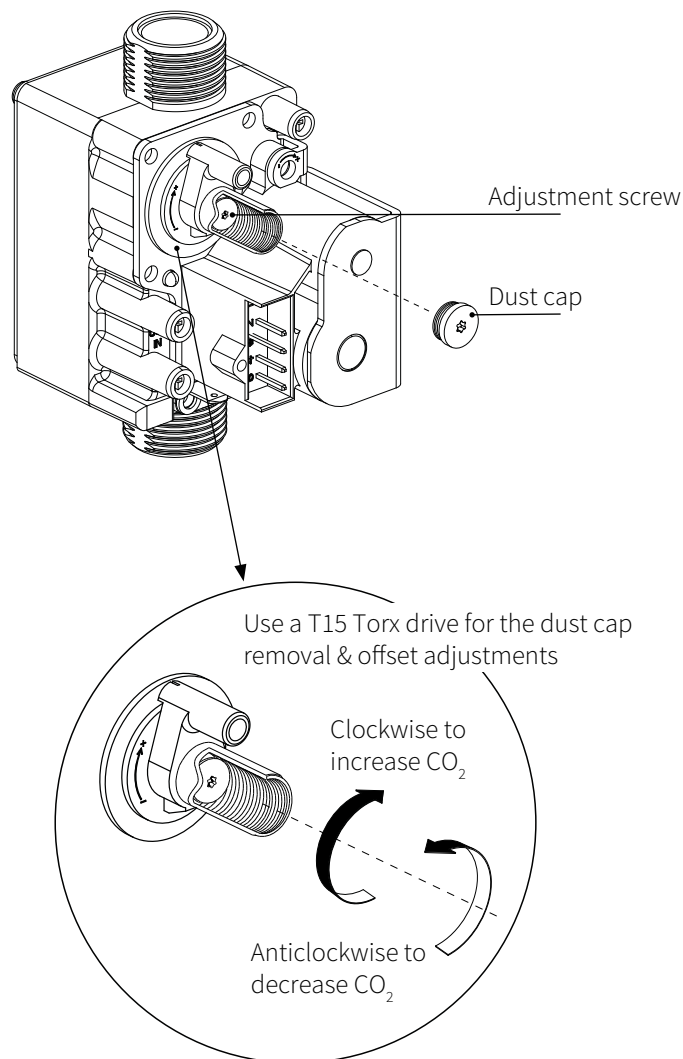
- Reattach the room sealed cover and tighten the 2 x 5mm Allen screws by hand (do not over tighten).
- Switch the boiler to maximum output. To do this, hold the Service symbol  and at the same time tap the Plus symbol  twice until the capital letter **H** appears on the right display. Check the CO value at maximum output. The maximum allowed CO measurement value is 160 ppm.
- Switch off the boiler.
- Remove the probe of the flue gas analyser from the flue gas sampling point and carefully replace the cap on the adapter above the boiler.
- Switch on the boiler again.
- Check the gas integrity of the flue gas sampling point.
- Carry out a flue integrity test via the air sampling point on the boiler adaptor or bend (The boiler must be set to maximum output **H**). O₂ readings must be between 20.6 & 20.9%



GAS VALVE ADJUSTMENT (at minimum output)

Before the minimum output correction is performed, the maximum output and minimum output measurements must be completed. The measured $\text{CO}_2(\text{H})$ value at maximum output is important for determining the correct value for the setting at minimum output.

- Remove the dust cap of the gas valve so that the adjustment screw is accessible.
- Switch on the boiler at minimum output. To do this, tap simultaneously the Service button  and the Minus button  until the capital letter **L** appears on the right display.
- Wait until the readout of the flue gas analyser is stable (at least 3 minutes).
- Measure the $\text{CO}_2(\text{L})$ value.
- Using the adjustment screw B, set the correct $\text{CO}_2(\text{L})$ value. For the correct $\text{CO}_2(\text{L})$ setting value, see Tables 4a or 4b.
- Reattach the cover screw of the gas valve so that the adjustment screw is sealed.
- Check the measurements at both maximum output and minimum output to ensure the correct flue gas emission levels are obtained.



- ▶ **Select the correct table depending on the applicable gas category:**
4a: natural gas (G20)
4b: LPG (G31)
- ▶ **The maximum output measurement value is important for a correct adjustment. This measurement value was noted during the maximum output measurement $\text{CO}_2(\text{H})$**
- ▶ **Turning the adjustment screw to the right increases CO_2 . Turning to the left decreases CO_2 .**
- ▶ **Turn the adjustment screw with small steps and wait after each turn until the measurement stabilises.**

Table 4a: Checking $\text{CO}_2(\text{L})$ levels for Natural gas (open casing)

Natural Gas	G20 (20 mbar)
Measured value at maximum output (see §9.10.1, Step H)	Setting value minimum output (= $0.5 \times \text{CO}_2(\text{H}) + 4.2$)
$\text{CO}_2(\text{H})$ [%]	$\text{CO}_2(\text{L})$ [%]
9.6	→ 9.0 ± 0.1
9.4	→ 8.9 ± 0.1
9.2	→ 8.8 ± 0.1
** 9.0	→ 8.7 ± 0.1
8.8	→ 8.6 ± 0.1
8.6	→ 8.5 ± 0.1

Table 4b: Checking $\text{CO}_2(\text{L})$ levels for LPG (open casing)

LPG	G31 (37 mbar)
Measured value at maximum output (see §9.10.1, Step H)	Setting value minimum output (= $\text{CO}_2(\text{H}) - 0.3$)
$\text{CO}_2(\text{H})$ [%]	$\text{CO}_2(\text{L})$ [%]
10.8	→ 10.5 ± 0.1
10.6	→ 10.3 ± 0.1
10.4	→ 10.1 ± 0.1
10.2	→ 9.9 ± 0.1
10.0	→ 9.7 ± 0.1
9.8	→ 9.5 ± 0.1



- **Example (when using natural gas G20)
 During maximum output, a $\text{CO}_2(\text{H})$ level of 9.0% is measured. In this instance a minimum output CO_2 value must be $8.7 \pm 0.1\%$.

HRE & Eco RF Service Procedure



HRE 24/18 (G.C. 47-291-01)
HRE 28/24 (G.C. 47-291-02)
HRE 36/30 (G.C. 47-291-03)
HRE 36/40 (G.C. 47-291-04)
HRE SB18 (G.C. 41-291-01)
HRE SB24 (G.C. 41-291-02)
HRE SB30 (G.C. 41-291-03)
HRE SB40 (G.C. 41-291-07)
HRE OV18 (G.C. 41-291-04)
HRE OV24 (G.C. 41-291-05)
HRE OV30 (G.C. 41-291-06)



Eco RF 24 (G.C. 47-291-05)
Eco RF 30 (G.C. 47-291-06)
Eco RF 36 (G.C. 47-291-07)



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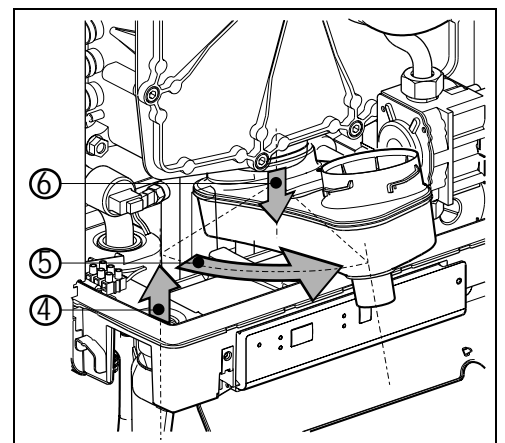
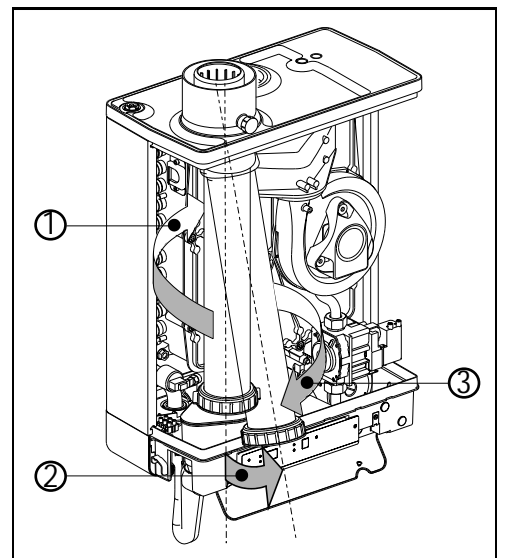
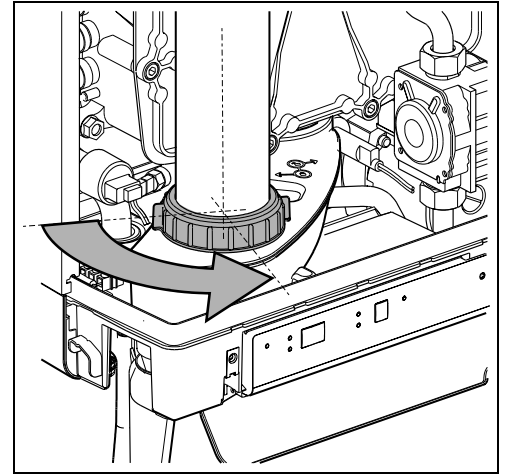
Service variations (HRE & ECO RF)

All Intergas boilers use the same Bithermic heat exchanger technology with only slight variations throughout the model range.

The HRE & Eco boiler variations are shown in this section however the relevant service type (Service (A) page 6, or service (B) page 8) must be followed with the CO₂ settings as per those set out in the previous tables 4a & 4b page 14.

Disassemble

- ▶ Switch the boiler off and isolate the boiler from the mains power.
- ▶ Close the gas isolation valve (check for tightness and let-by).
- ▶ Open the display cover and loosen the two screws on both sides of the display and then pull forward and slide down to remove the casing.
- ▶ Wait until the appliance has cooled down.
- ▶ Unscrew the coupling nut at the base of the black flue pipe (anti-clockwise). Slide the flue pipe upwards (1) turning it anti-clockwise until the bottom of the pipe is above the condensate drain pan connection. Pull the bottom of the pipe forwards (2) and remove the pipe downwards (3) turning it anti-clockwise.
- ▶ Lift the condensate drain pan on the left-hand side from the connection to the condensate trap (4) and turn it to the right with the condensate trap connection over the edge of the base tray (5). Push the back of the condensate drain pan downward from the connection to the heat exchanger (6) and remove it from the appliance.
- ▶ Remove the electrical connections from the fan assembly and the ignition module mounted on the gas valve.
- ▶ Unscrew the union below the gas valve, remove the valve & cover pipe open end.
- ▶ Unscrew the shoulder bolts from the front plate and remove this complete with gas valve and fan assembly attached.
- ▶ The front plate should be placed burner side down so that it sits on its resting pegs to ensure that the burner and insulation panel do not get damaged. Care should also be taken not to damaged the gas valve manifold pipework and fan assembly.
- ▶ It is recommended to check the fan non-return valve (A) and fan seal (B) during the annual service, replace if damaged in any way.



Note

The combi and system appliances maybe connected to our specifically designed rear jig which incorporates a built-in expansion vessel.

These boiler models can also be installed with a remote expansion vessel of the correct capacity and specification.

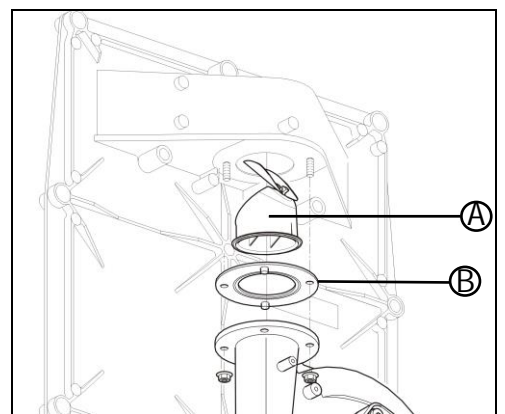
The expansion vessel (whichever design) must be inspected at each service interval to ensure there are no leaks and that the pre-charge pressure is correct.

The system must be cold and depressurised when checking the vessel pressure which should be 0.75 to 1.0bar (Recharge with a suitable foot pump or compressor via the Schrader valve, then check the valve with LDF for leaks and replace if required).

Cleaning

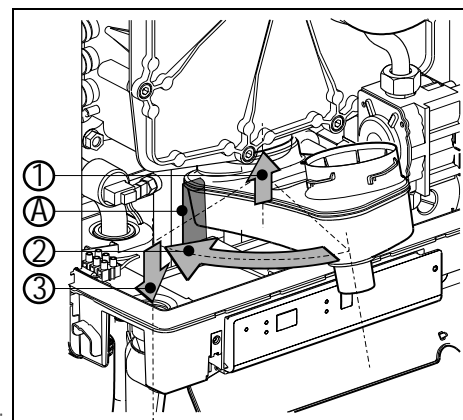
Remove and clean out the condense trap ensuring the outlet pipework is clear.

Clean the heat exchanger from top to bottom as per the previous sections page 9 using the recommended tools, then turn to page 17 to continue.



Reassemble

- ▶ Replace the front plate seal as detailed in the previous section ensure it is the correct size and located correctly within the front plate channel.
IMPORTANT All red silicon front plate seals must be replaced, regardless of age, with the new black Viton type.
HRE 24/18, SB 18, OV 18 & Eco RF 24 = Viton seal 086514
HRE 28/24, SB 24, OV 24 & Eco RF 30 = Viton seal 086504
HRE 36/30, 36/40, SB 30, 40, OV 30 & Eco RF 36 = Viton seal 086474
- ▶ Refit the front plate following the re-assembly procedure on page 8
- ▶ Refit the condensate drain by sliding it on to the exchanger outlet sump ① with the condensate trap connection still in front of the black base tray. Then turn it to the left ② and push it downwards into the condensate trap connection ③ ensure when doing this that the back of the condensate drain pan comes to rest on the lug at the back of the black base tray ④ lubricate seals with silicone grease to ease connection.
- ▶ Fill the condensate trap with water and fit it to the connection below the condensate drain pan.
- ▶ Slide the flue pipe, turning it anti-clockwise, with the top around the flue adapter, into the top cover. Insert the bottom into the condensate drain pan and tighten the coupling nut clockwise.
- ▶ Open the gas tap and check the gas connections below the gas valve and on the mounting bracket for leakage using LDF or a calibrated electronic leak detector.
- ▶ Check the CH and the water pipes for leakage.
- ▶ Switch on the mains power.
- ▶ Switch the appliance on with the ① key.
- ▶ Check the front plate, the fan connection on the front plate and the flue pipe components for leakage.
- ▶ Check the gas/air adjustment at Maximum & minimum outputs, settings as described in pages 12, 13, and 14 using calibrated equipment and complete all 26(9) safety checks.
- ▶ Fit the casing, tighten the two screws left and right of the display and close the display cover.
- ▶ Check the heating and the hot water operation.



TEST PROGRAMS

Program description	Button combinations	Display reading
Burner operating at minimum power	and	
Burner operating at maximum CH power setting (See parameter 3)	and (1x)	
Burner operating at maximum DHW power setting (See parameter 4)	and (2x)	
Switch off / cancel test program	and	Boiler status

Operational codes
3 = Fan operating
4 = Ignition generated
5 = Central heating demand
6 = Domestic hot water demand
7 = Pre-Heat operating

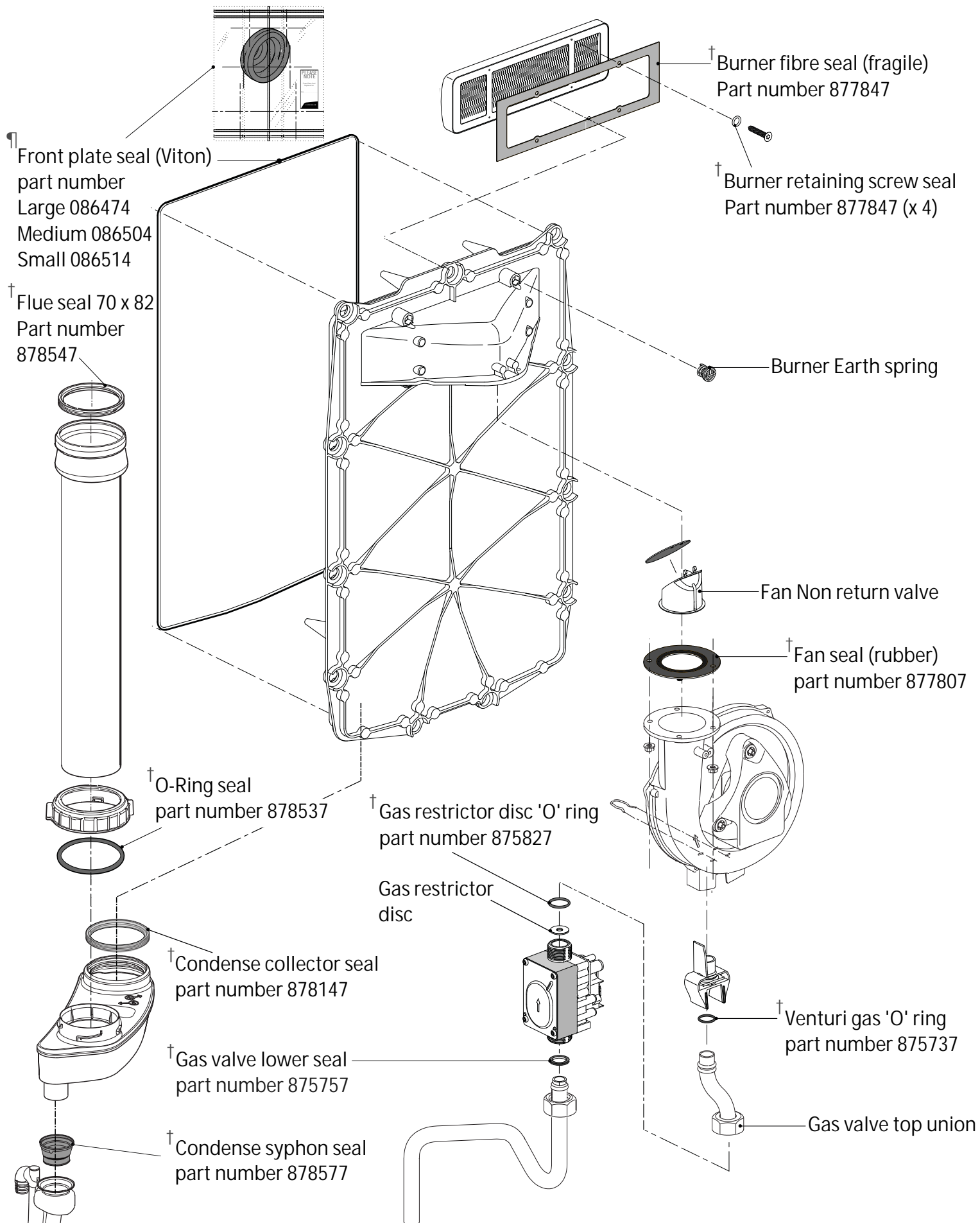
- ▶ Upon completion please fill out the relevant section of the Benchmark service record.

IMPORTANT



- ▶ **Replace the front plate O-ring seal at least every 2 years or if damaged/ discoloured and or if the front plate has been removed.**
- ▶ **All red Silicon front plate seals must be replaced, regardless of age with the black Viton.**
- ▶ **Check or replace the seals and gaskets detailed in the following page at the requested intervals .**
- ▶ **The outer casing is a room sealed cover and therefore extremely important that it is fitted correctly, failure to do so could lead to products of combustion entering the room / environment where it is situated.**

INSPECTION OF SEALS & UNIONS (HRE & ECO RF boilers)



† = Inspect every 2 years minimum replace if damaged or degraded or replace every 4 years regardless of condition.

¶ = Front plate seal must be replaced every 2 years or if the front plate has been removed for inspection.

Rapid Service Procedure



Rapid 25	(G.C. 47-291-08)
Rapid 32	(G.C. 47-291-09)

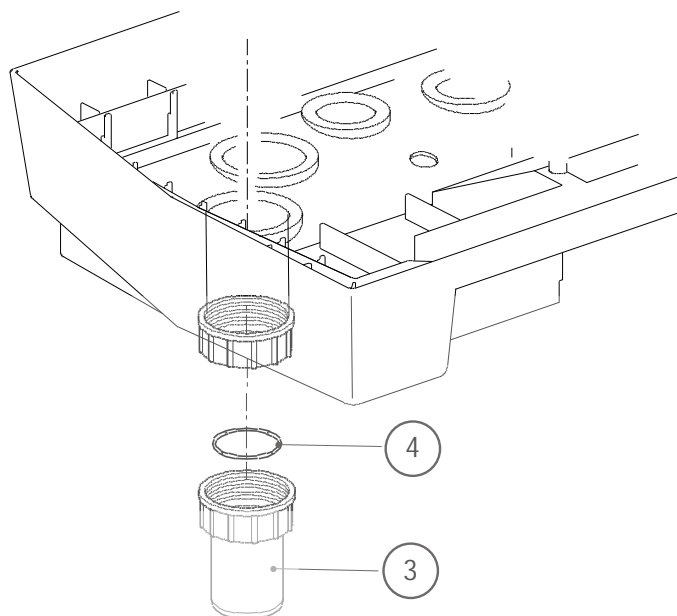
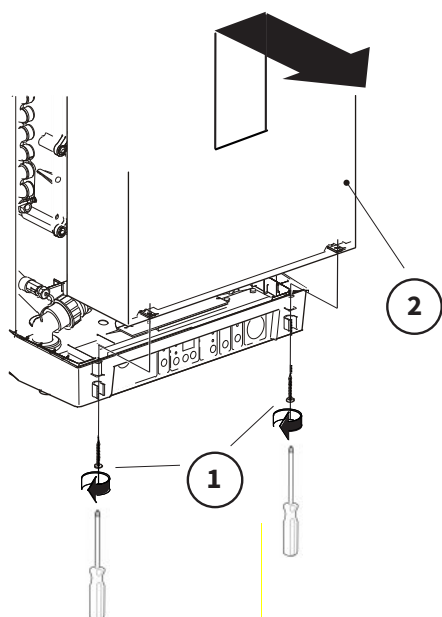


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Service variations (Rapid).

- ▶ The Rapid boiler variations are shown in this section however the relevant service type (Service (A) page 6, or service (B) page 8) must be followed with the CO₂ settings as per those set out in the previous tables 4a & 4b page 14.
- ▶ Switch off the appliance and isolate the power supply at the fuse spur, make safe the appliance before continuing (Ref TB118).
- ▶ Close the boiler gas isolation valve (test for let-by).
- ▶ Remove the room sealed cover of the boiler by loosening the two screws (1) and then sliding the panel up and forward (2).
- ▶ Wait until the boiler has cooled down. This can be done by opening a domestic hot water tap (with the power switched off).



Syphon maintenance

- ▶ Detach the syphon cup (3) by rotating it to the left (anticlockwise) and then pulling it out downwards.
- ▶ Inspect and if damaged replaced the rubber seal (4)
- ▶ Empty the syphon cup (3).
- ▶ Clean the following components with water:
 - The inside of syphon
 - The syphon cup
 - The syphon seal
 - Flush the condense pipework
- ▶ Replace the syphon cup and ensure that is filled $\frac{3}{4}$ full of water.

CAREFUL



- ▶ Always fill the condensate trap with water then attach it to the boiler before powering it up.
- ▶ To fill the condensate trap the hose between the trap and PRV should be removed (from the trap side). The hose must be re-attached after filling the trap !
- ▶ Not replacing or filling up the condensate trap can result in products of combustion entering the room leading to a potentially dangerous situation.

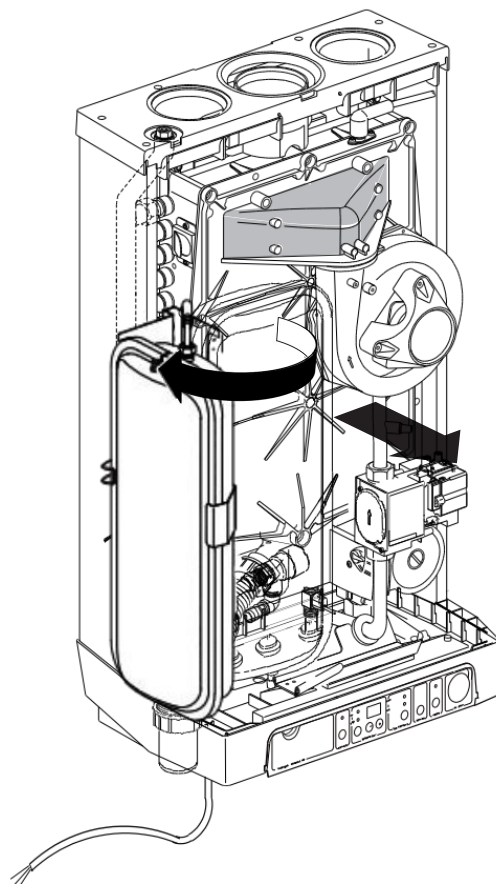
Annual service continued (internal maintenance)

- ▶ Lift and rotate the expansion vessel to the left side.
- ▶ Disconnect the electrical connector to the fan assembly.
- ▶ Close the gas isolation valve and check for tightness & let-by.
- ▶ Loosen both unions and the electrical connector, then remove the gas valve.
- ▶ Unscrew the 6mm Allen key shoulder bolts of the front plate and remove it forward along with the fan (Being careful not to damage any components). Lay the removed front plate face down onto its foot supports, this is best achieved on a flat heat-proof surface.
- ▶ The burner and the integrated insulation panel do not require cleaning only inspecting. Therefore, never use a brush or compressed air to clean these components (dust hazard).



COMMENT

- ▶ **The expansion vessel must be inspected and tested at each annual service and if required re-pressurise to between 0.75 & 1.0 bar (cold and with no system pressure)**
Ensure the flexible hose is not kinked, leaking or damaged (Replace if required).



Annual service continued (cleaning).

- ▶ Clean the heat exchanger from top to bottom as per the previous sections page 9 using the recommended tools.
- ▶ Once the heat exchanger has been cleaned and all the seals checked or replaced, the please follow the reassembly procedure for the front plate as detailed on page 10



CAREFUL

- ▶ **The integrated insulation panel and burner seal contain ceramic fibres, use the appropriate P.P.E dust mask, eye protection & gloves.**

Annual service procedure (re-assemble)

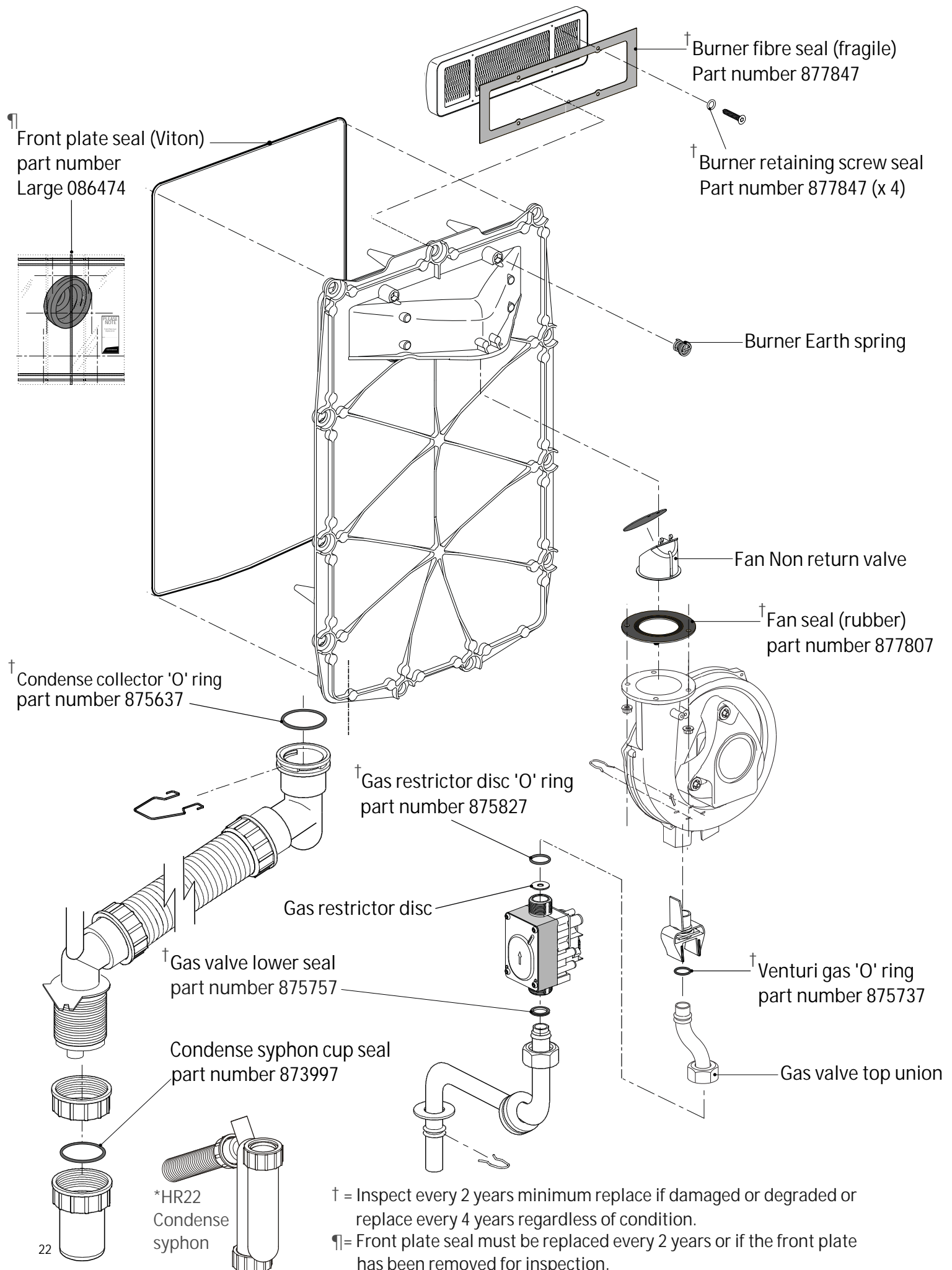


IMPORTANT

- ▶ **Replace the front plate O-ring seal at least every 2 years or if damaged/ discoloured and /or if the front plate has been removed.**
Art.no: 086474 — Rapid 25 & 32
- ▶ **All red Silicon front plate seals must be replaced, regardless of age with the black Viton.**
- ▶ **Check or replace the seals and gaskets detailed in the following page at the requested intervals .**
- ▶ **The outer casing is a room sealed cover and therefore extremely important that it is fitted correctly, failure to do so could lead to products of combustion entering the room / environment where it is situated.**

- ▶ Upon completion please fill out the relevant section of the Benchmark service record.

INSPECTION OF SEALS & UNIONS (Rapid & *HR22 boilers)



SERVICE & INTERIM BOILER WORK RECORD

It is recommended that your boiler and heating system are regularly serviced and maintained, in line with manufacturers' instructions, and that the appropriate service / interim work record is completed.

Service provider

When completing a service record (as below), please ensure you have carried out the service as described in the manufacturers' instructions. Always use the manufacturers specified spare parts.

SERVICE/INTERIM WORK ON BOILER delete as appropriate					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct? yes						
Gas rate:		m ³ /h	OR		ft ³ /h	
Were parts fitted? delete as appropriate		Yes		No		
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *		yes		n/a		
Comments:						
Signature:						
*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.						

SERVICE/INTERIM WORK ON BOILER delete as appropriate					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct? yes						
Gas rate:		m ³ /h	OR		ft ³ /h	
Were parts fitted? delete as appropriate		Yes		No		
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *		yes		n/a		
Comments:						
Signature:						
*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.						

SERVICE/INTERIM WORK ON BOILER delete as appropriate					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct? yes						
Gas rate:		m ³ /h	OR		ft ³ /h	
Were parts fitted? delete as appropriate		Yes		No		
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *		yes		n/a		
Comments:						
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SERVICE/INTERIM WORK ON BOILER delete as appropriate					Date:	
Engineer name:		Company name:				
Telephone N°:		Gas Safe registration N°:				
Max rate	CO	ppm	CO ₂	%	CO/CO ₂	
Min rate	CO	ppm	CO ₂	%	CO/CO ₂	
Where possible, has a flue integrity check been undertaken in accordance with manufacturers' instructions, and readings are correct? yes						
Gas rate:		m ³ /h	OR		ft ³ /h	
Were parts fitted? delete as appropriate		Yes		No		
Parts fitted:						
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and boiler manufacturers' instructions. *		yes		n/a		
Comments:						
Signature:						
*A System inhibitor efficacy test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.						

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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