18.0 Routine Inspection and Servicing.(A QAA73 Room Unit/service tool might be required to reset the modules service interval timer dependent upon boiler age.)

As with all Gas Appliances, we would highly recommended that a competent heating engineer services the ProCon, at least every 12 months. This is assuming a normal daily usage of 8 – 10 hours.
If however the boiler is to be operated 24 hours a day, 7 days, we would recommend services every 6 months.

ProCon boilers will display an E105 Error Code when 12 months has lapsed, indicating that the appliance requires a Routine Service Inspection. This code will also be displayed on the RVA47 cascade manager and room unit if present. (E:105 Indication Reset via H630 bit 6 0-1)

If the Installer/Commissioning Engineer is unable to undertake the Routine Service Inspection, as detailed Section 16.1, please contact the MHG Technical Department, who will be able to arrange the Routine Service Inspection to be undertaken.

18.1 Routine Service Inspection

Before commencing any service/maintenance work, the following tasks must be undertaken.

a) Ask the end user about any problems with the operation of the boiler unit and note their comments.
b) Check the water pressure of the installation.
c) Remove the boiler casing and visually inspect all pipe and water joints for signs of leakage.
d) Inspect the top of the casing and the top of the heat exchangers for signs of water leakage or ingress.
e) Run the unit in Commissioning Mode HIGH FIRE; with the use of a flue gas analyzer record the CO_2 level. See section 15.2
f) Run the unit in Commissioning Mode LOW FIRE; with the use of a flue gas analyzer record the CO_2 level. See section 15.2
g) Listen to the sound of the combustion fan. Utilizing the appliances fascia review the units Operating Error Codes, and note the recorded codes onto the Service Report. (H700 – H722)
h) Undertake a System Water Analysis to check the concentration level of the Water Treatment, and note the level onto the Service Report.
i) Check the flue route including the terminal position for conformity with prevailing regulations, and trim back any foliage that may be around the terminal.
j) Check the plant room/compartment ventilation system for conformity with prevailing regulations.
k) Check the Pressure (Safety) Relief Valve size, rating and orientation, for conformity with prevailing regulations.

The results of the Inspections undertaken above must be acted upon, and all discrepancies should be recorded on the Service Report and brought to the Client / End User's attention.
Undertake any maintenance, and if necessary any preventative maintenance, that's required.

18.2 Routine Cleaning & Maintenance (E:105 Indication Reset via H630 bit 6 0-1)

As part of the Routine Service Inspection, certain areas of the boiler need to the checked and cleaned as necessary.

a) Turn the boiler OFF at the ON/OFF switch and electrically isolate the boiler by removing the plug or fuse from the boiler supply.
b) Turn off the gas at the boiler isolation tap, fitted by the installer, adjacent to the appliance.
c) Remove the electrical connections (Two in the case of 45, 75 & 77) from the units fan assemble.
d) Disconnect the earth lead, HT cap and Lead from the ignition electrodes.
e) Remove the 'Circlip' securing the gas injector into the fan inlet bracket and extract the gas valve and injector assembly. (Inspect and clean both the injector and gas valve assembly.)
f) Disassemble the burner by removing the six M6 nuts around the burner door, using a 10mm Spanner. Pull the burner forward and remove from the heat exchanger. Gently put to one side.
g) Once access has been gained to the combustion chamber and front section of the heat exchanger, visually inspect the heat exchanger coils.
It is usually only necessary to clean the front section of the heat exchanger. If server deposits are found, the rear section of the heat exchanger should also be checked and cleaned, which will necessitate the removal of the heat exchanger from the boiler.
If any coils appear to be significantly dis-coloured, then a blockage of either scale, magnetite, or general system debris has occurred which will have allowed excessive overheating to have occurred within the coil.

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If dis-colouration has occurred, then specialist de-scaling of the heat exchanger will be required, however, stress cracking may have occurred, and the heat exchanger may become porous following the de-scale works.

h) If the heat exchanger has not suffered from dis-colouration, as 'Item g' above, then a Standard Service can be undertaken. Using a natural bristled brush ONLY, remove the worst of the mineral/debris build up. With the use of the dissolved *ProCon Combustion Chamber Cleaning Granules*, spray the solution onto the heat exchanger surface and leave for approximately 5 minutes. This will help to remove any stubborn mineral deposits and clear the condensate drain connections. Finally brush the heat exchanger whilst rinsing thoroughly with copious amounts of fresh water. *ProCon Combustion Chamber Cleaning Granules* are available from MHG Heating Ltd Spares Department. **A STEEL OR PVC BRUSH MUST NOT BE USED TO CLEAN THE HEAT EXCHANGER.**

i) Following the cleaning of the Heat Exchangers, the condensate syphon must be flushed to ensure that all mineral deposits/debris that has been washed from the heat exchanger surface is correctly removed. Open the syphon cleaning point cap at the base of the boiler, with a suitable receptacle directly below to collect the syphon contents. Safely dispose of the contents of the syphon. Replace the receptacle below the cleaning point and poor 2 litres of clean tap water into the heat exchanger, which will drain through the cleaning point. Refit the cleaning point cap and poor half a litre of clean tap water into the heat exchanger to ensure the syphon is re-flooded. Check the cleaning point cap for leaks.

j) Visually check the burner surface for signs of damage and debris build-up. Remove any debris build up with compressed air. If excessive debris build-up is identified, the burner lance should be removed and the inner metal surface should be washed and cleaned. **A BRUSH, OF ANY KIND, MUST NOT BE USED TO CLEAN THE BURNER SURFACE.** If damage has occurred to the burner surface, the burner MUST be replaced.

k) To ensure that the rectification circuit operates correctly the resistance between the burner and burner door must be check with a multi-meter to ensure that it is less than 1 Ohm (<1 Ohm.)

l) Clean with abrasive material and inspect the ignition electrode. Replace if necessary. Adjust the spark gap to 4mm.

m) Check the combustion fan blades for debris build-up. Remove any debris with a soft bristle brush or preferably compressed air. **DO NOT TOUCH, OR SPIN, THE FAN BLADES WITH YOUR FINGERS AS THIS COULD AFFECT THE BALANCING OF THE FAN BLADES.**

n) Re-fit the Burners, in the reverse order of dismantling, ensure that all electrical connections are correctly and securely connected.

o) Inspect all water joints. Any joints found to be leaking MUST be replaced. It is also advisable when replacing water joints to also change any adjacent joints at the same time.

p) Inspect all gas joints with a suitable leak detection method. Any joints found to be leaking MUST be replaced. It is also advisable when replacing gas joints to also change any adjacent joints at the same time.

q) Via the tappings on the boiler connector elbow or straight a flue gas recirculation check must be undertaken when the boiler is operating on high and low fire modes.

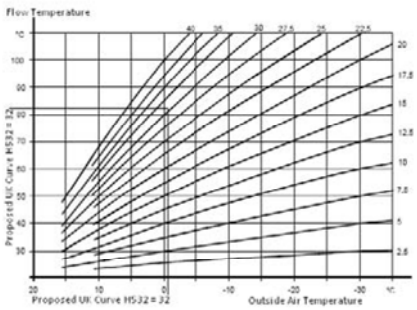
r) Inspect and clean the condensate neutralising tank, replenishing the neutralising granules as required. Granules available from MHG Heating Ltd Spares Department.

s) With the use of a suitable Flue Gas Analyser, check and adjust the combustion settings, as detailed in Section 15.2.

t) Inspect the general condition of the flue system, including the termination, repair as necessary or advise on any remedial action as required.

u) Following the satisfactory completion of the above service procedure, the internal Routine Service Control Timer needs to be reset. Utilising the appliances fascia gain access to the Second Level Parameters, as detailed in Section 14.2, and select Parameter Line H630 – Bit 6. using the + button, adjust the value from 0 to 1 and press the INFO button to reset the Service Interval counter.

19.0 Weather Compensation Slope



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