



K2 / K2WT Residential Condensing Gas Boilers

Annual Servicing Guidelines & Information*

(August 2017)



* For complete information including all cautions and warnings for the installation, operations, maintenance and servicing of K2 & K2WT boilers, refer to their respective I&O manuals.

Annual Inspection and Servicing Guidelines for K2 & K2-WT Boilers

NOTE: In addition to the continuous and monthly inspections instructions provided with K2 boiler and K2WT boiler "Installation, Operating and Service Instructions" (I&O) manuals, the following steps should be performed by a service technician once every year. These are annual servicing guidelines. For complete information including all cautions and warnings for the installation, operations, maintenance and servicing of K2 boilers and K2WT boilers, refer to their I&O manuals.

Required Tool List

- T-20 Torx Star Bits and Driver
- 10mm Metric Socket and Drive (or wrench)
- Pipe Wrenches (2) and/or Pump Pliers
- Phillips and Blade Type Screwdriver
- Small thermostat style screwdriver

- Water Spray Bottle
- Nylon Stiff Bristle non-metallic brush
- 1" Plastic Putty Knife
- Combustion Analyzer
- Manometer

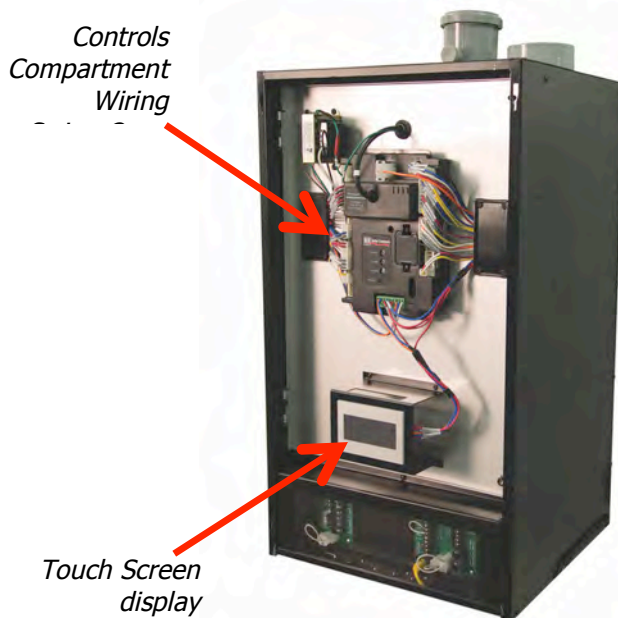
A. Low Water Cutoff (LWCO)

- A.1 - If a low water cutoff (LWCO) is installed, test the device by pressing the "Test" button located on the end of the LWCO. The yellow light should come on and "Other Limits" will flash on the "Limit String Status Menu" on the K2-WT boiler Display Screen.
- A.2 - If the Yellow Light does not come on, determine why the LWCO is not working properly. Repair or replace the LWCO as required.



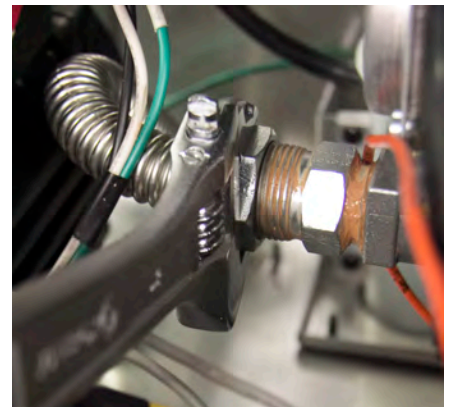
B. Boiler Wiring

- B.1 - **WARNING:** Be sure to shut off all electricity coming to the boiler before proceeding.
- B.2 - Inspect all boiler and controls wiring to verify wires are in good condition and check to make sure all wire nuts and wire terminals are tight.



C. Gas Line

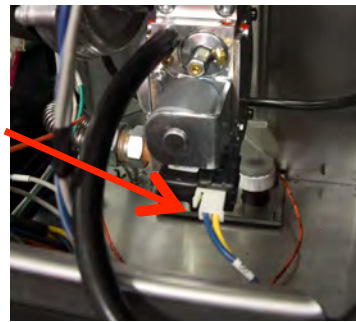
- C.1 - **Warning** Be sure to shut off the gas supply to the boiler before proceeding.
- C.2 - Remove the flexible gas line from the gas valve. Be sure to use a wrench to back up the gas valve while removing the gas line.



D. Wiring Connectors

- D.1 - For boiler sizes 80MBH, 100MBH and 120MBH- Unplug the wiring harness on the gas valve.

For boiler sizes 150MBH and 180MBH- Unplug the gas valve harness from the boiler harness.
- D.2 - Unplug the two Molex wiring connectors from the fan assembly.
- D.3 Unplug ignition, ground and flame rod wires from igniter and flame rod.



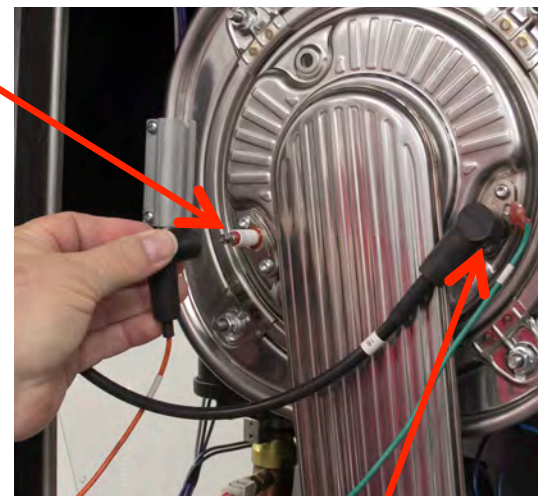
Remove 2 Molex Connectors
(K2 5:1 model shown)

Disconnect air proving switch tube from the gas valve

E. Flame Sensor

- E.1 - Remove the wire boot from the flame sensor.
- E.2 - Using a Torx #20 bit, remove the flame sensor from the boiler.
- E.3 - Clean the flame sensor with steel wool or Scotchbrite pad. Do not use sand paper or sand cloth.
- E.4 - Clean and check the porcelain for cracks and carbon buildup.

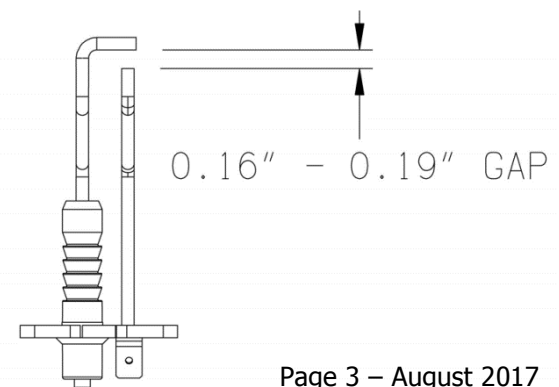
Flame Sensor



F. Igniter

- F.1 - Remove wire boot and green ground wire from the igniter.
- F.2 - Using a T-20 Torx remove igniter and gasket
- F.3 - Clean igniter with steel wool or Scotchbrite pad. Do not use sandpaper or sand cloth.
- F.4 - Check the porcelain for cracks and carbon build-up.
- F.5 - Adjust the igniter electrode gap to 0.16" – 0.19". If adjustment is required, adjust carefully as to not compromise the porcelain.

Igniter with ground wire



G. Burner Assembly

- G.1 - (K2-150 and K2-180 5:1 boiler models only) Remove the Phillips head screws from the attenuator assembly and slide the attenuator assembly off the blower inlet tube Fig 1.
- G.2 - Remove the four 10mm nuts from the burner plate Fig 2.
- G.3 - Carefully lift and slide the burner door off the heat exchanger studs and pull it toward the boiler front. Do not damage refractory insulation Fig 3.



Fig 2

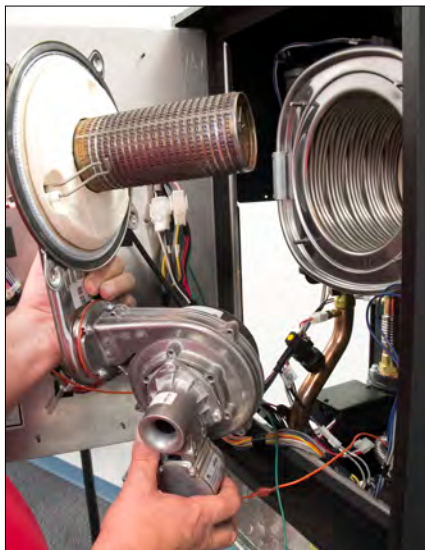


Fig 3

(K2 5:1 120MBH model pictured)

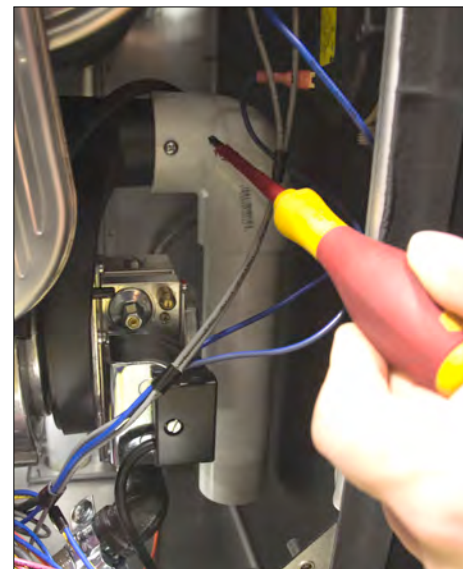
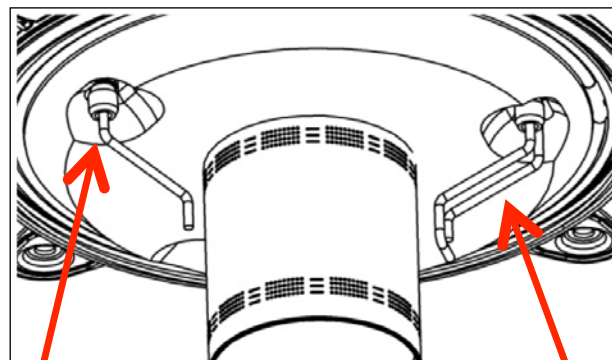


Fig 1

(K2-150 and K2-180 5:1 models only)

H. Replacing Igniter and/or Flame Sensor

- H.1 - Be careful to avoid damage to the burner door insulation disk.
- H.2 - Always use a new gasket.
- H.3 - Use the T-20 Torx tool to re-attach the replacement igniter/flame sensor over its gasket.
- H.4 - Verify/adjust gaps:
 - Ignition rod to Burner should be: 0.28" to 0.35".
 - Flame rod to burner should be: 0.28" to 0.35".



Flame
Sensor

Igniter

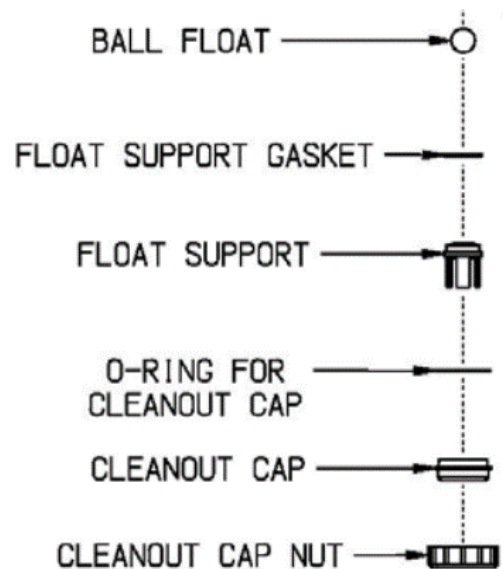
I. Cleaning Heat Exchanger

- I.1 - If there is a lot of debris vacuum out the loose debris.
- I.2 - Brush heat exchanger with non-metal, non-abrasive brush being careful not to damage the target wall.
- I.3 - Using the plastic putty knife clean between the heat exchanger tubes all the way around the heat exchanger
- I.4 – Protect the target wall with plastic or cardboard, and then rinse the heat exchanger with water.
- I.5 – Inspect Target wall, burner door insulation and burner door gasket and replace if needed.
- I.6 – Re-Install the cold burner door complete with igniter, flame sensor, attenuator assembly.
- I.7 - Reconnect gas line and electrical connections.



J. Cleaning Condensate Trap

- J.1 - Place a bucket under the condensate cleanout cap on the bottom of the boiler
- J.2 - Unscrew the cap, being careful not to lose the ball or ball support.
- J.3 - Flush any debris found in the trap with water – do not use cleaning agents.
- J.4 - Reassemble the trap per diagram. Do not operate the boiler if any parts are missing.
- J.5 - If a condensate pump is used, be sure to clean the pump basin and check the float assembly for proper operation.
- J.6 - If a condensate neutralizer is used, flush or replace the limestone chips and clean out the neutralizer.



K. Venting

- K.1 - Verify venting is per I&O manual
- K.2 - Inspect all pipe hangers are in place and not more than 4' apart and pipe's have no sags in the horizontal runs.
- K.3 - Inspect Vent and air intake for obstructions
- K.4 - Inspect the rodent screens for debris.

L. Checking for Proper Operation (Refer to I&O manual for complete start-up procedures)

- L.1 - Turn on the gas and check for leaks.
- L.2 - Verify gas pressures are within specification on boiler label
- L.3 - Turn on the electricity to the boiler.
- L.4 - Establish a demand for the boiler to heat. (e.g. raise DHW aquastat or thermostats)
- L.5 - Unplug L1 connector at the circulator, verify display shows an error on the flow switch.
- L.6 - Access the control using password 86. Choose "Manual Control" then "High"
- L.7 - Use a combustion analyzer and adjust the boiler to specifications per the manufacturer's instructions in the K2 or K2-WT boiler I&O Manual.
- L.8 - Verify using the Sage2.x control display panel that all the safety devices and sensors are functioning properly and that the boiler is operating normally.
- L.9 - Verify the piping is per the I&O manual
- L.10 - Inspect piping for leaks and repair if needed

M. Notes / Observations



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———— **APPENDIX** ————

NOTE: For complete information including all cautions and warnings for installation, operations, maintenance and servicing of K2 or K2WT boilers, refer to the I&O manuals provided with each boiler.



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