



Alta Residential Condensing Gas Boilers

Annual Servicing Guidelines & Information*

January, 2024



*For complete information, including all cautions & warnings for the installation, operations, maintenance, and servicing of Alta boilers and combis, refer to their respective Installation, Operation & Servicing manuals.

WARNING

Asphyxiation hazard. Fire hazard. Explosion hazard.

This boiler must be installed, serviced, or repaired by a qualified installer, service agency, or gas supplier. Improper installation, adjustment, alteration, service or maintenance can cause severe personal injury, death, or substantial property damage. Read and understand these instructions and entire boiler manual before attempting to service boiler. Up-to-date boiler manual is posted on manufacturer's website.

Annual Inspection and Servicing Guidelines for Alta Boilers

NOTE: In addition to the continuous and monthly inspections instructions provided with Alta boiler “Installation, Operating and Service Instructions” (IO&S) manuals, the following steps should be performed by a service technician annually. For complete information, including all cautions and warnings for the installation, operation, maintenance, and servicing of Alta boilers, refer to the IO&S manual that was included with the boiler.

Tool List

- Torx star bits and driver (T-20 & T-25)
- 10mm metric socket and drive
- Pipe wrenches (2) and/or pump pliers
- Phillips and blade-type screwdriver
- Small blade screwdriver
- Combustion analyzer
- Manometer
- Shop vacuum
- (2) spray bottles (1 water, 1 cleaning vinegar)
- Nylon soft bristle brush
- Heat exchanger cleaning kit (111705-01) - includes cleaning blade hand tool (111786-01) – follow cleaning instructions (111704-01)

Inspection and Servicing Steps

Follow all steps, in order, as listed below

A. Low Water Cutoff

A.1 If a low water cutoff (LWCO) is installed, test the device per manufacturer instructions. This example shows a Hydrolevel Safgard 1100 which is tested by pressing the test button located on the end of the LWCO.

- The yellow light should come on, a warning will display on the control screen.
- 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 Turn power off to boiler - follow instructions in Alta IO&S manual.
- B.2 Inspect all wiring to verify wires are in good condition and check to make sure all wire nuts and wire terminals are tight.
- B.3 See wiring diagram (Alta IO&S manual) for a guide.

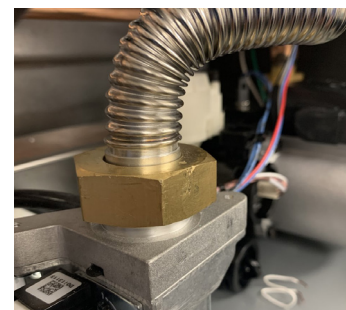
DANGER

Explosion hazard. Electrical shock hazard. Burn hazard.

This boiler uses flammable gas, high voltage electricity, moving parts, and very hot water under high pressure. Assure that all gas and electrical power supplies are off and that the water temperature is cool and system is depressurized before attempting any disassembly or service. Do not rely solely on temperature/pressure gauge to make this determination.

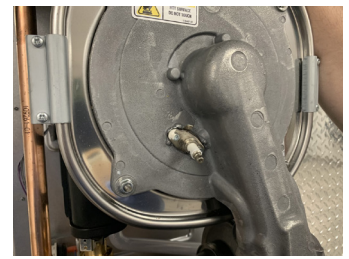
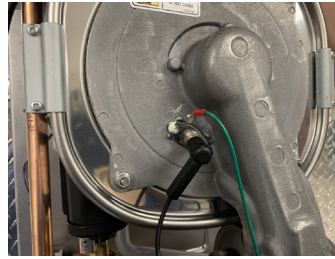
C. Gas Line

- C.1 Verify that gas supply to the boiler has been shut off before proceeding.
- C.2 Loosen nut on gas valve. Be sure to use a back-up wrench to hold gas valve steady while removing nut.
- C.3 Disconnect gas line. Be careful not to lose gasket.



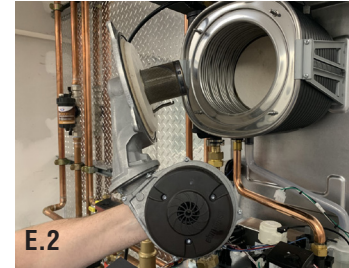
D. Wiring Connectors

- D.1 Unplug the two molex connectors from the blower assembly.
- D.2 Remove the boot and the green ground wire.



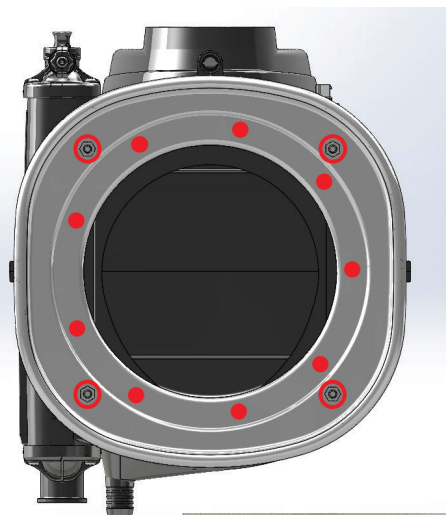
E. Burner Assembly

- E.1 Remove the four (4) 10mm nuts from the burner plate.
- E.2 Disconnect igniter and blower wires.
- E.3 Remove the burner plate, blower and venturi all as one piece.
- E.4 Clean the igniter/flame sensor combination with steel wool. Do not use sand paper or sand cloth. Check the porcelain for cracks or carbon buildup. Replace if needed. Igniter/flame sensor can be removed using Torx #20 bit for easier cleaning.
- E.5 Verify that the igniter electrode gap is between .16" (4mm) and .19" (5mm). Inspect and measure ignitor/flame sensor electrode. If out of specification, replace electrode.
- E.6 Measure the gap from the burner to the igniter flame sensor. Gap should range from .32" (8mm) to .52" (13mm). If gap is out of spec, replace the igniter flame sensor.
- E.7 Inspect the venturi for cracks, pitting or any damage.
- E.8 Inspect the burner plate gasket for any damage. Replace gasket if brittle or damaged in any way.
- E.9 Inspect burner plate for any warping.
- E.10 If needed, use compressed air to clean dust or debris from burner.



F. Heat Exchanger

- F.1 Remove cap from trap located on bottom right side of boiler and place a container under the trap. See image G.1 (page 4)
- F.2 Inspect all insulation
- F.3 Carefully place cardboard cutout against rear insulation disc.
- F.4 Vacuum any loose debris from combustion chamber.
- F.5 Use hand-held nylon brush to gently clean the surface of the coils and vacuum again.
- F.6 Use spray bottle with water or cleaning vinegar to spray coils, liberally. Be careful to not wet insulation disc.
- F.7 Using drill-mounted nylon brush (with extender, if needed), clean heat exchanger coils.
- F.8 Repeat step F.5
- F.9 Use HX cleaning tool to clean in between coils, front to back. NOTE: threaded rods and dimples (shown in diagram) hold coils together and will not provide clearance for the tool. Work around these areas.
- F.10 Use spray bottle with water to rinse coils. Be careful not to wet insulation disc.



Heat exchanger
cleaning kit
111705-01

G. Condensate Trap

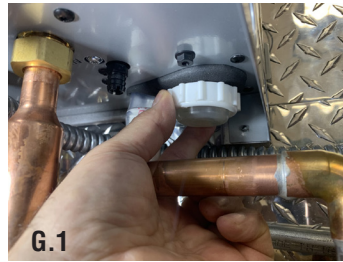
- G.1 Flush and clean the trap assembly.
- G.2 Flush or blow out condensate line to allow the free flow of condensate.
- G.3 If a condensate pump is used, be sure to clean the float basin and check the float assembly for proper operation.
- G.4 Check PH value of neutralizer discharge. Replace this media as required.



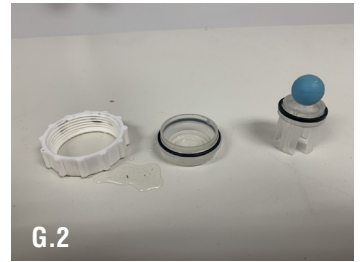
WARNING

Asphyxiation hazard.

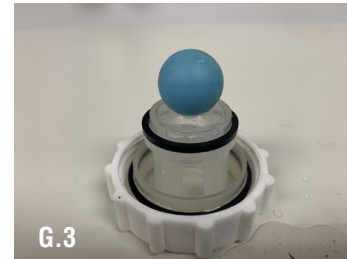
Do not operate boiler without condensate trap ball and ball support in place. Doing so could cause products of combustion and/or carbon monoxide to enter building, resulting in severe personal injury, death, or substantial property damage.



G.1



G.2



G.3

H. Final Re-Assembly & Inspection

- H.1 Attach power and communication cables to fan prior to final installation.
- H.2 Inspect the inner and outer gaskets and insulation on the burner plate, replace if needed.
- H.3 Re-install the gas valve/fan/burner plate assembly using the four 10mm nuts. Tighten burner door nuts in X pattern at 44 in.-lbs. torque.
- H.4 Re-install the igniter/flame sensor assembly, using new gaskets if needed.
- H.5 Re-install the igniter/flame sensor boot along with the green ground wire.
- H.6 Confirm that gas line gasket is in good repair. Replace as needed. Confirm gasket is in place, then re-attach the gas line to the gas valve. Torque gas valve nut to 20 ft.-lbs.
- H.7 Verify that the vent and air intake pipes are clear of obstructions, are within specifications, and have the proper pitch per the manufacturer's instructions.
- H.8 Use the boiler vent hose located at the top of the heat exchanger to prime the trap. Remove the combustion test port cap and insert open end of vent hose. Open the vent port valve and allow water to run into vent until trap is full. (NOTE: Do not do this with systems using glycol; use a funnel and water bottle or similar method for these applications)



I. Checking for Proper Operation

- I.1 Turn on the gas and check for leaks.
- I.2 Turn on the electricity to the boiler.
- I.3 Establish a demand by turning up the heat or running the hot water.
- I.4 Check to assure that the inlet gas pressure is within spec and adjust if needed.
 - Natural Gas, minimum of 2.5" W.C. maximum of 14.0" W.C.
 - LP Gas, minimum of 8.0" W.C. Maximum of 14.0" W.C.

If you have changed the igniter and flame sensor combination or the gas valve, please follow the steps below

J. Perform five (5) manual calibrations to synchronize control system

- J.1 Remove any call for heat.
- J.2 Press and hold the **"menu"** for 3 seconds.
- J.3 Press **"↑"** key until PAS is visible and press **"enter"**.
- J.4 Press **"enter"** while PA1 is visible.
- J.5 Press **"+"** or **"–"** keys until "86" is reached and press **"enter"**. Press and hold for 5 seconds to adjust by increments of 10.
- J.6 Press "menu" key until PAS is visible.
- J.7 Press **"↑"** or **"↓"** key until A is visible and press **"enter"**.
- J.8 When A01 is visible, press "enter".
- J.9 Press **"+"** or **"–"** keys to change ON to OFF and press **"enter"**. Boiler will shut off.
- J.10 Press **"menu"**. Using the **"↓"**key, go to A08. Press **"enter"**.
- J.11 Use **"+"** button to change parameter from "OFF" to "ON". Press **"enter"**.
- J.12 Press **"menu"**. Press **"↑"** key until A01 is visible. Press **"enter"**. Press the **"+"** button to change value from "OFF" to "ON". Press **"enter"**. Boiler will initialize and fire in calibration mode.
- J.13 Press **"menu"** 3 times to navigate to home screen. Use the **"↑"** arrow to navigate to "STA". Status 5 will be present. Upon successful calibration, the "STA" parameter will change to 8. Once 8 is present, press and hold the menu until "A" is present on screen (see diagram J.11). Repeat steps 7-13 (5) times.
- J.14 If using the USB-Connect tool, calibration can be accomplished easily using the "fuel selection" tile in the "adjustment" menu. For additional instructions, see the USB-Connect user manual or contact U.S. Boiler Technical Support at (717) 397-4701.

J.11



Status screen during calibration



Status screen after successful calibration

K. Perform Combustion Test

WARNING:

Use a combustion analyzer to verify proper operation by checking carbon monoxide (CO) levels. Failure to use a combustion analyzer could cause operation of boiler with elevated CO levels resulting in severe personal injury, death or substantial property damage.

- K.1 Start analyzer, set for correct fuel type, and allow to initialize in ambient air. Do not insert probe into test port until analyzer initialization is complete.
- K.2 Remove test port cap and insert analyzer probe with adaptor to prevent air infiltration/flue gas leakage.
- K.3 Perform combustion test with all panels in place. Measure carbon monoxide (CO) and oxygen (O₂) level after 5 minutes of operation above 50% firing rate.
- K.4 Boiler is equipped with a screw cap on vent adapter for combustion testing. Be sure to replace this cap when combustion testing is complete.
- K.5 For altitudes 0 to 2,000 ft. (0 to 610 m) CO should not exceed 200 ppm air free. For altitudes above 2,000 ft. (610 m), CO should not exceed 300 ppm air free. Never leave boiler in operation if CO exceeds these levels. Ideal combustion values are 6% O₂, and under 100 ppm CO.
- K.6 In event of high CO, see Section 18 of Alta Installation and Operations Manual (Troubleshooting).
- K.7 Replace cap on vent adapter.

M. Final Verification

- M.1 Perform (3) light-offs to verify smooth ignition and operation.
- M.2 Verify vent test port cap is in place and secure.
- M.3 Verify the gas pressure test port screw is securely closed.
- M.4 Check for any fuel or water leaks. Repair as required.