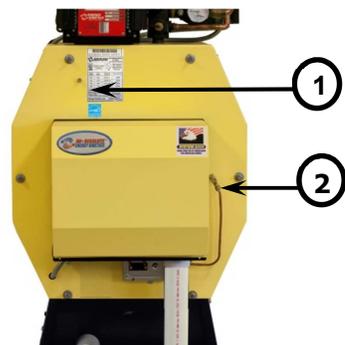


Annual Tune Up and Inspection 90+ Resolute™ Gas Boiler

Please refer to installation manual and burner manual for complete details and for burners other than EZ-Gas.



Step 1 Initial Test (Draft Loss & CO₂)

Air box cover must be in place before testing

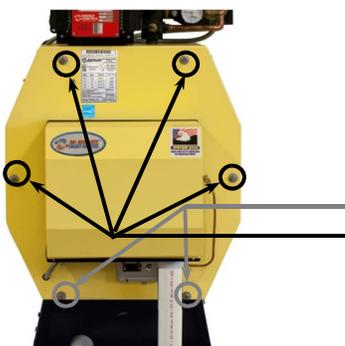
1. Remove 1/8" brass plug from the "over fire" test port (2) next to the burner and the flue box (1) next to the puff switch. Check draft through the "over fire" test port (2) and at the flue box (1). Use a 12" long piece of 1/4" O.D. steel or copper tubing and insert it approximately 8" into the boiler. Connect this tube to your test probe using a piece of hose.

Clean boiler flue passage if the draft difference between the flue box (1) and "over fire" test port (2) is greater than 0.04" w.c.

2. Check CO₂ through the over fire test port (2). Insert the 12" long steel or copper tube approximately 8" in through the test port.
3. Natural: CO₂ : 8.6%-9.2%, O₂ : 5.5%-4.5%
LPG: CO₂ : 9.7%-10.7%, O₂ : 6.0%-4.5%



Electronic Analyzer



Step 2 Open Front Cover

Turn off power to system and close main manual gas valve when servicing.

1. Loosen, but **DO NOT REMOVE** (2) lower nylock nuts on hinge bolts.
2. Remove (4) upper nuts and support cover while opening.



DO NOT remove or touch combustion chamber for inspection or when cleaning boiler!

Step 3 Inspect Flue Passage

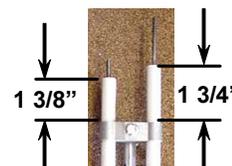
If passage is clean, no scale, then proceed to step 5. **Clean ONLY if dirty.**



Step 4 Clean Boiler

Do Not Touch, Vacuum or Remove Chamber! *Note: If there is evidence of condensing in last pass:*

1. Check for cold returns.
2. Open by-pass valve fully.
3. Verify Digital Manager Option Switch 1 to "ON".
4. If condensing persists, increase firing rate.



Drawer Assembly

Step 5 Remove Drawer Assembly

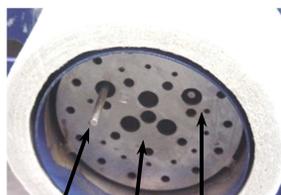
(Refer to burner manual for detailed instructions on removal and for burners other than EZ-Gas)

1. Close the front cover and finger tighten a nut on the top center stud to hold the cover closed while working on the burner. Do not tighten the rest of the nuts at this time because you will need to open the cover up again to check the drawer assembly to the diffuser plate
2. Check porcelain condition.
3. Check and clean flame sense rod.

Step 6 Check Burner

(Refer to burner manual for complete details and for burners other than EZ-Gas)

1. Check Fan/Air Inlet for dirt or lint.
2. Install drawer assembly carefully lining up the ignitor electrode and flame sense rod. Open the front cover and check, neither should be any closer to the diffuser plate than 1/16". Adjust if necessary.
3. Check amulet for cracking or other physical damage. Replace if necessary. (See amulet replacement section in installation manual).
4. Check burner diffuser plate. Some warping of plate is normal.



Flame Sense Rod Tip should extend in front of diffuser by 1-1/4".

Ignitor Electrode Tip should be set back 1/16" from the inside surface of diffuser.

Diffuser Plate

Note: All burners require "Amulet" retention head protector.

Annual Tune Up & Inspection

Step 7 Close Front Cover, Tighten Rear Cover



1. Install (4) upper nuts and washers.
2. Tighten nuts (6) uniformly.
3. Check and tighten (6) rear cover nuts.
4. **Check Flue Pipe.**

Step 8 Check Zone Valves

Open/Close zone valves several times to see that they move freely.

Step 9 Backflush Plate Heat Exchanger

1. **Close the valve underneath the domestic hot water circulator.**
2. Open drain valve above the circulator to back flush the heat exchanger.
3. If domestic water supply is "hard" (lime), consider installing Scale Stopper (Item no. 10-0650).
4. Set temperature feeding hot water tank (above heat exchanger) by adjusting the ball valve below the bronze circulator. Adjust the ball valve with the burner running and a continuous flow of hot water from a fixture. You should just be able to hold your hand on the pipe.



Step 10 Start Burner & Check Safety Functions.

Check & Record: Air box cover must be in place before testing.
Refer to burner manual for recommended settings.

1. Check manifold pressure by installing a hose barb fitting in the combination gas valve outlet pressure tap and then starting the burner. Adjust valve regulator if necessary so the reading is 3.5" w.c. for either LPG or natural gas.
2. Draft Loss: A difference of 0.04" w.c. or less between flue box (1) and "over fire" test port (2).
Sidewall Vent: Draft over fire of -0.10" to -0.12" w.c. after 15 minutes of continuous burner operation.
3. Check CO₂/O₂ at over fire test port (2)
Natural: CO₂: 8.6%-9.2%, O₂ 5.5%-4.5%
LPG: CO₂: 9.7%-10.7%, O₂ 6.0%-4.5%
4. Stack Temp: 190°-290° F (at stack or flue box port).
5. Check CO: 400 ppm Max *Air-free*
(Refer to installation manual for *Air-free* method of measuring CO).
6. Set Safety High Limit to 215 °F with Differential set at 10 °F.
7. Test Safety High Limit Aquastat:

- a. Remove all heat and hot water calls (No input lights on left side of manager).
 - b. Turn System switch off, then remove red sensor lead from the left side quick connect.
 - c. Restore power. The 100° light will flash on the manager's temperature display. The burner should start momentarily.
 - d. At approximately 205°F to 215°F, the high limit aquastat should shut off burner.
8. Verify flame failure lockout of Carlin 60200FR burner control.
 - a. Connect hose from manometer to hose barb fitting in the combination gas valve outlet pressure tap.
 - b. Close the main manual gas valve and turn ON the combination gas valve.
 - c. Turn on power to System 2000 boiler and adjust a thermostat to call for heat.
 - d. Burner motor will start. The burner control will run for 30 seconds (pre-purge) and then start the ignitor. Approximately one second later, the combination gas valve will open. The manometer should show almost no pressure because the main manual gas valve is closed.
 - e. After 4 seconds, the burner control will lockout and turn on the red LED. The ignitor will shut off and the gas valve will close. Turn off power and adjust the thermostat to stop the call for heat.
If lockout does not occur, replace the burner control.

9. Sidewall Vent:

- a. **Remove power from the inducer by turning off option switch 2 on Digital Manager.**
- b. **Start burner. Safety lock-out should occur in approximately 1 minute.**
- c. **Restore power to the inducer.**



Digital Manometer