

# GAS UNITS KITS AND ACCESSORIES

© 2020

508102-01  
10/2020

## INSTRUCTIONS FOR MANIFOLD, COMBUSTION AND SIGNAL PRESSURE CHECK FOR ULTRA LOW NOX 90% EFFICIENCY UNITS

### **! IMPORTANT**

Disconnect power before servicing unit.  
Shut off main gas supplies to appliance until installation is complete.

### **! WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional installer (or equivalent), service agency or the gas supplier.

### Manifold and Signal Pressure Check

- 1 - Turn off the electrical power and gas supply to the furnace.
- 2 - Remove the threaded plug from the outlet side of the gas valve and install a field-provided barbed fitting. Connect measuring device positive "+" to barbed fitting to measure manifold pressure. See figure 1 for manifold location.
- 3 - Install hoses and meter as shown in figure 4 for signal pressure measurement.
- 4 - After allowing unit to stabilize for **8 minutes**, record manifold pressure and compare to value in table 1. If manifold pressure is within range, rate check is complete move to step 6. If manifold pressure is not within range continue.  
**Valve is not adjustable. Do not adjust manifold pressure.**
- 5 - Record signal pressure and compare to value in table 1. If signal pressure is within range continue. If the signal is not within range go to "Troubleshooting".
- 6 - Shut off unit and remove manometer and signal meter after accurate readings has been obtained.
- 7 - Restart unit and check for gas leaks. Seal any leaks found.

**If the unit has difficulty igniting or ignites with loud resonance the air orifice must be checked and replaced if necessary.**

**TABLE 1**  
Manifold and Signal Pressure (inches w.c.)

Model	Manifold		Signal	
	High Fire	Low Fire	High Fire	Low Fire
Two Stage				
040	3.2 - 3.8	1.4 - 2.0	0.80 - 0.93	0.32 - 0.42
060			0.69 - 0.93	0.28 - 0.45
080			0.73 - 0.93	0.30 - 0.40
Single Stage				
040	3.2 - 3.8	N/A	0.80 - 0.93	N/A
060			0.69 - 0.93	
080			0.73 - 0.93	
100			0.75 - 0.93	

### Air Orifice Replacement

Do not replace the air orifice until the problem has been determined. If the unit has difficulty igniting the orifice is oversized and brings in too much air. If the unit ignites but with loud resonance the orifice is too small and needs more air. The air orifice is located inside the gray coupling between the clamps. Figure 3 show corresponding steps with the steps below.

- 1 - Turn off the electrical power and gas supply to the furnace.
- 2 - Remove the black air pressure tube on the air intake coupling.
- 3 - Use a 5/16" nut driver to loosen the clamps on the gray coupling.
- 4 - Remove the two screws attaching the air intake coupling to the furnace cabinet.
- 5 - Remove the air intake coupling. If the air intake coupling is still too difficult to remove, then remove the two screws from the right side of the top cap and one from the far right side of the blower deck that attaches to the cabinet. See figure 2. Carefully pull cabinet side away from air intake coupling, then remove the air intake coupling. **Note: Be careful not to bend the cabinet side.**

- 6 - Remove the air orifice. Check the "Part" number stamped on the air orifice. See table 3. If the part number is incorrect, then replace it with the proper air orifice. Repeat manifold check. If air orifice is correct diameter, then it must be replaced to resolve ignition or resonance issue. See table 3 for replacement.
- 7 - Reinstall the air orifice on the left side of the coupling and push firmly into place.
- 8 - Reinstall air intake coupling making sure it is fully seated in the gray coupling. Re-install the two screws attaching the air intake coupling to the furnace cabinet. Tighten clamps to secure the coupling. Re-install the two screws on the right side of the top cap and the one screw that attaches the blower deck to the cabinet.
- 9 - Reconnect the black air pressure tube.
- 10 - Repeat manifold and signal pressure check. If unit ignites and manifold and signal pressure are correct, move on to combustion check. If unit still does not ignite or ignites with loud resonance go to Troubleshooting.

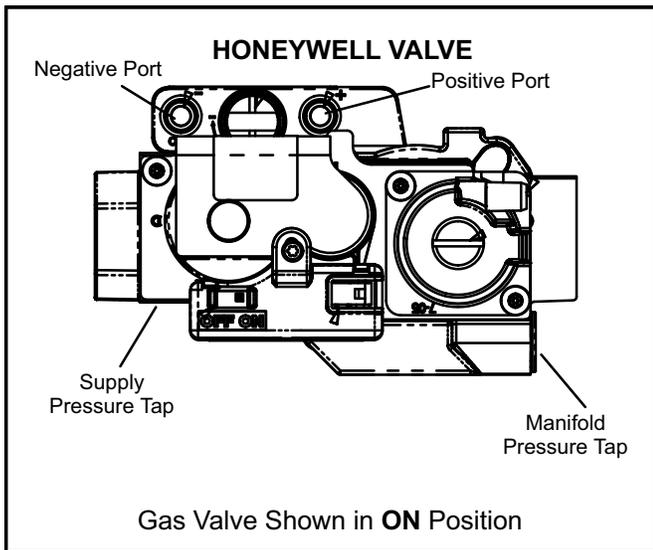


FIGURE 1

### Proper Combustion

Furnace should operate minimum 15 minutes with correct manifold and signal pressure before checking combustion. Table 2 shows acceptable combustion for all EL195UHNE and SL297UHNV models. **The maximum carbon monoxide reading should not exceed 100ppm.**

TABLE 2

Two-Stage	High Fire CO <sub>2</sub>	Low Fire CO <sub>2</sub>
040	6.3 - 7.8	6.3 - 7.8
060	6.5 - 8.2	6.5 - 8.2
080	7.2 - 8.4	7.2 - 8.4
Single-Stage		N/A
040	6.3 - 7.8	
060	6.5 - 8.2	
080	7.2 - 8.4	
100	7.3 - 8.5	

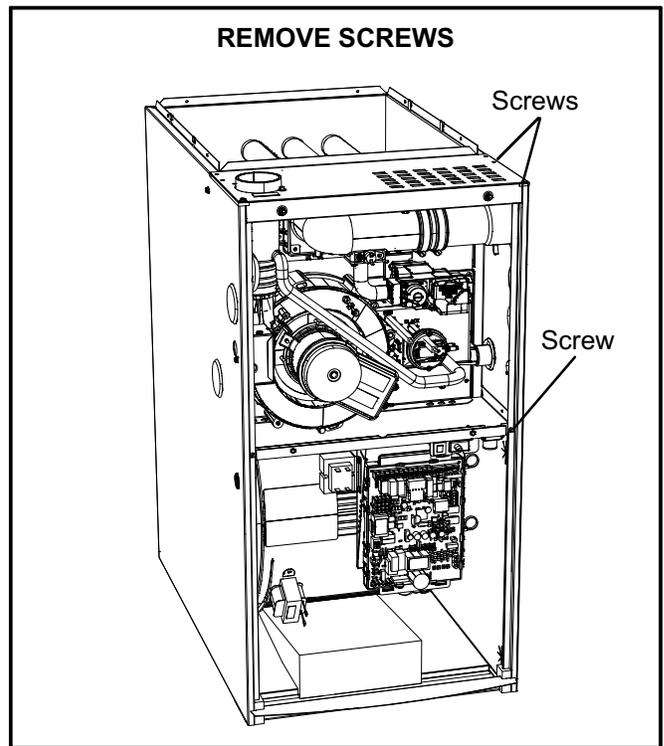


FIGURE 2

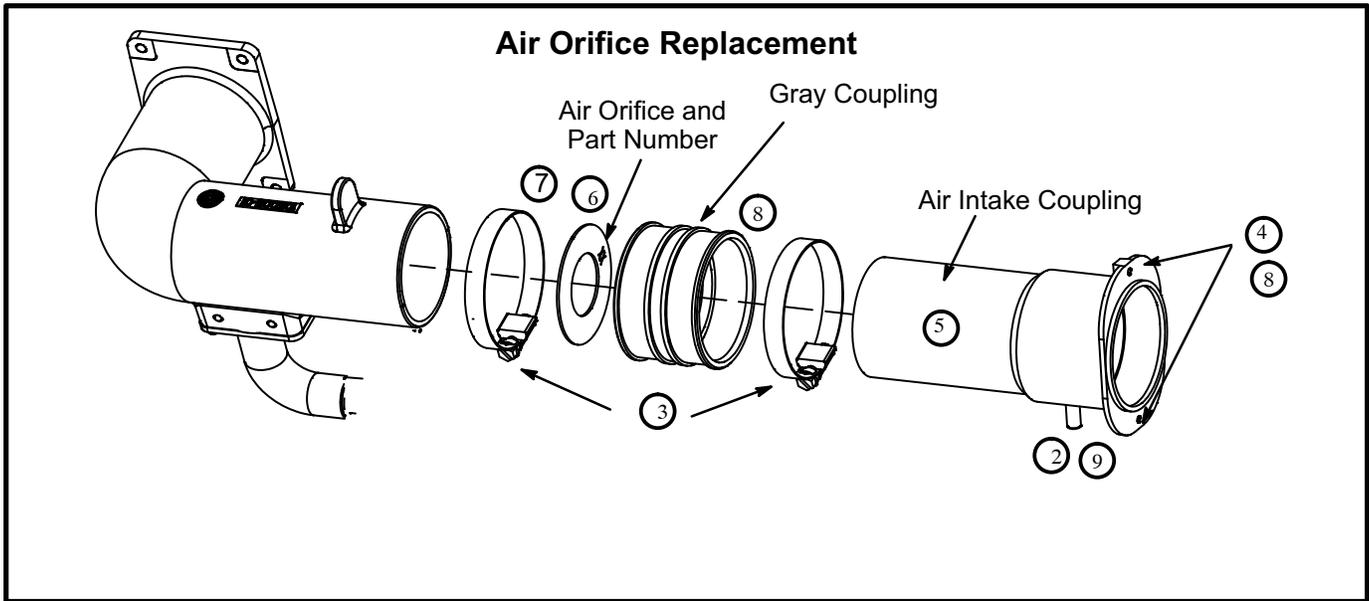


FIGURE 3

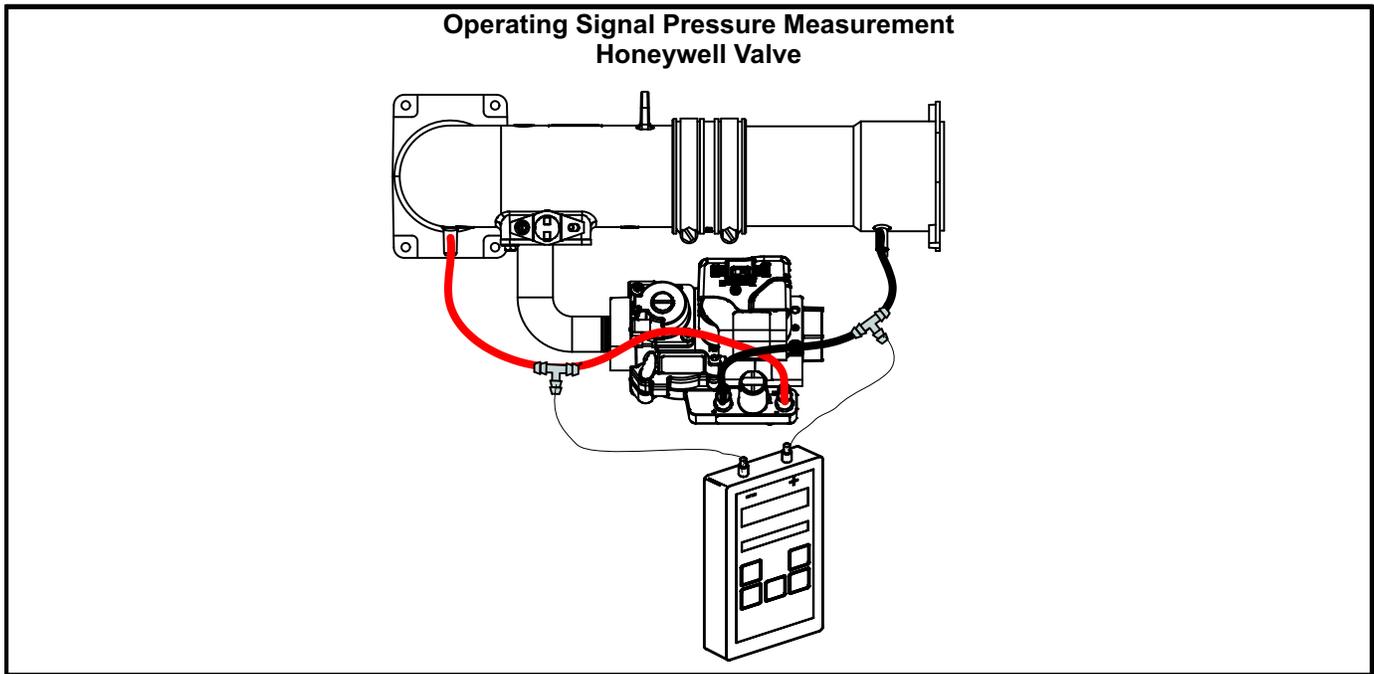


FIGURE 4

TABLE 3

Single-Stage	Production	Resonance (more air)		Difficulty Igniting (less air)	
	Orifice Size (Part No)	Orifice Size	Cat No	Orifice Size	Cat No
040	0.800 (16)	0.812 (01)	21U23	0.787 (20)	21U01
060	0.995 (14)	1.010 (21)	21U02	0.980 (13)	21U25
080	1.105 (12)	1.125 (03)	19X31	1.085 (22)	21U03
100	1.250 (06)	1.281 (19)	19X39	1.219 (04)	19X32
Two-Stage	Orifice Size	Orifice Size	Cat No	Orifice Size	Cat No
040	0.800 (16)	0.812 (01)	21U23	0.787 (20)	21U01
060	0.995 (14)	1.010 (21)	21U02	0.980 (13)	21U25
080	1.105 (12)	1.125 (03)	19X31	1.085 (22)	21U03

## Troubleshooting Poor Ignition or Combustion Resonance Issues

