



# Instinct Solo/Combi

## Natural Gas to Propane Conversion Instructions

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### Kit Part Number

- INSRKIT08 (Solo 110)
- INSRKIT10 (Solo/Combi 155)
- INSRKIT12 (Solo/Combi 199)

### Kit Includes

- Rating Label
- Conversion Label
- (1) Propane Gas Venturi
- Acoustic Foam (required for 110 and 155 models ONLY)

### Recommended Tools

- Adjustable Wrench / 10 mm Socket & Ratchet
- Phillips Head Screwdriver
- Flat Head Screwdriver
- Calibrated Combustion Analyzer

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### **WARNING**

**Indicates a potentially hazardous situation which, if ignored, can result in serious injury or substantial property damage.**

### **NOTICE**

*Indicates special instructions on installation, operation or maintenance, which are important to equipment but not related to personal injury hazards.*

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### **NOTICE**

*When converting the appliance from Natural Gas to Propane ensure that the conversion is completed before fully installing the air inlet piping.*

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### **WARNING**

**For your safety, turn off electrical power supply at service panel and allow unit to cool before proceeding to avoid possible electrical shock and scald hazard. Failure to do so can cause severe personal injury or death.**

### **WARNING**

**Failure to follow instructions below can result in severe personal injury or damage if ignored.**

- **Instructions are for a qualified installer/service technician only.**
- **Read all instructions before proceeding.**
- **Follow instructions in proper order.**

### **NOTICE**

*Upon completion of the conversion from Natural Gas to Propane, affix the new rating label included in the kit to the unit adjacent to the existing rating label. DO NOT affix the new label over the existing rating label. Add propane conversion labelling to the gas valve.*

### **NOTICE**

*These instructions cover NG to LP conversion for Instinct boilers only. Each kit is supplied with one venturi suitable for use with that particular boiler model.*

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# INSTINCT NATURAL GAS TO PROPANE CONVERSION INSTRUCTIONS

## 1. Preliminary Instructions:

1. Verify that the venturi replacement kit is correct for the model of boiler. See page 1.
2. Turn off electrical power supply to the boiler.
3. Close the manual gas shut off valve to the unit.
4. Remove the front panel of the Instinct (Refer to Installation and Maintenance manual).
5. Using a voltmeter ensure there is no electrical power to the boiler by checking for power on the boiler's high voltage terminals L and N.



### ELECTRICAL SHOCK HAZARD

Ensure power to the boiler has been disconnected prior to servicing the unit.

## 2. Install the Acoustic Foam

### NOTICE

The acoustic foam is only applicable to the 110 and 155 models. The Instinct 199 models do NOT use the additional acoustic foam.

1. Cut a 7" length of 3" diameter air inlet piping.
2. Insert the 7" pipe into the air inlet adaptor.

The acoustic foam should be flush to the inside of the air inlet adaptor.

### NOTICE

The INSTINCT boiler has a length of acoustic foam already installed in the air inlet adaptor. DO NOT remove this

3. Insert the length of acoustic foam (supplied), into the 7" pipe length.
4. Use either a straight coupling or elbow to continue the air inlet installation. Refer to the Vent Supplement for full details on the installation of air and vent pipes.

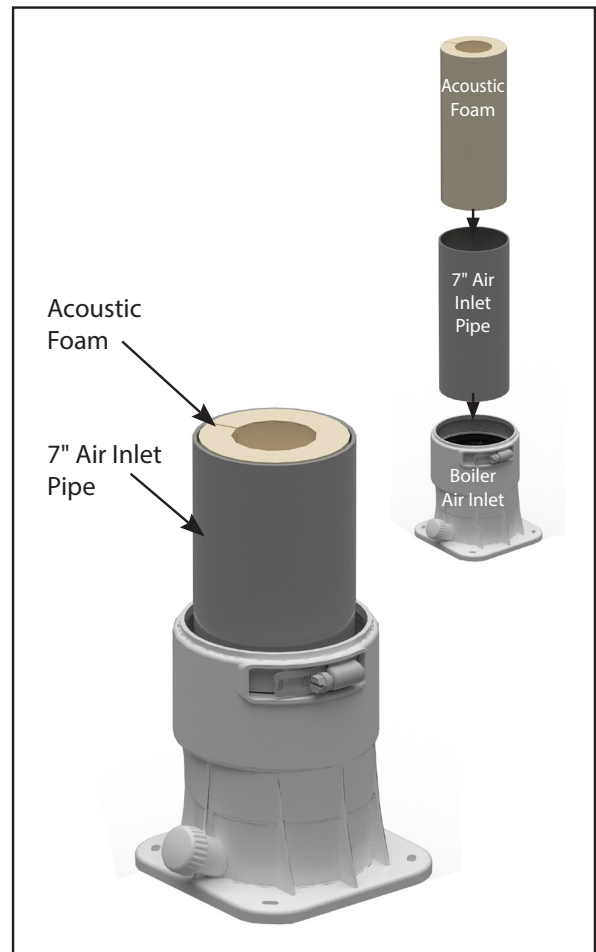
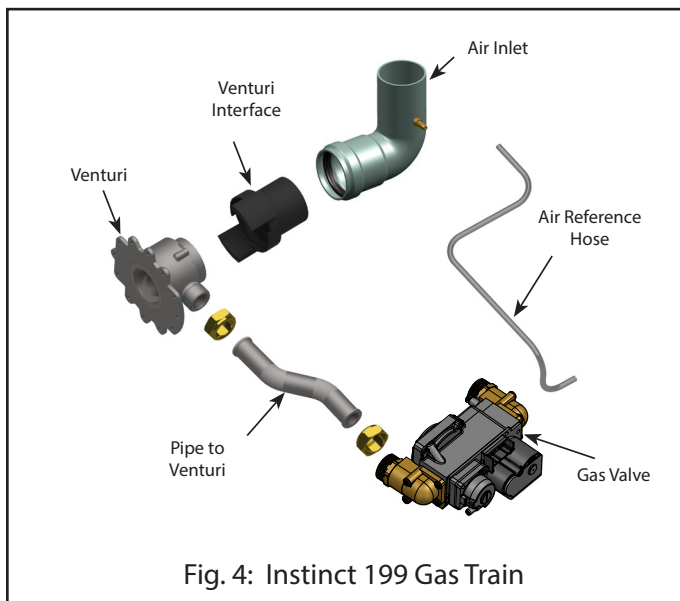
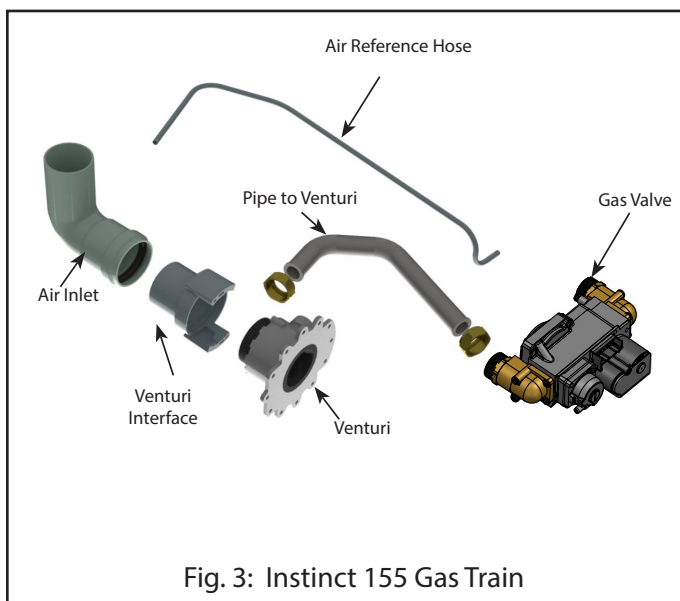
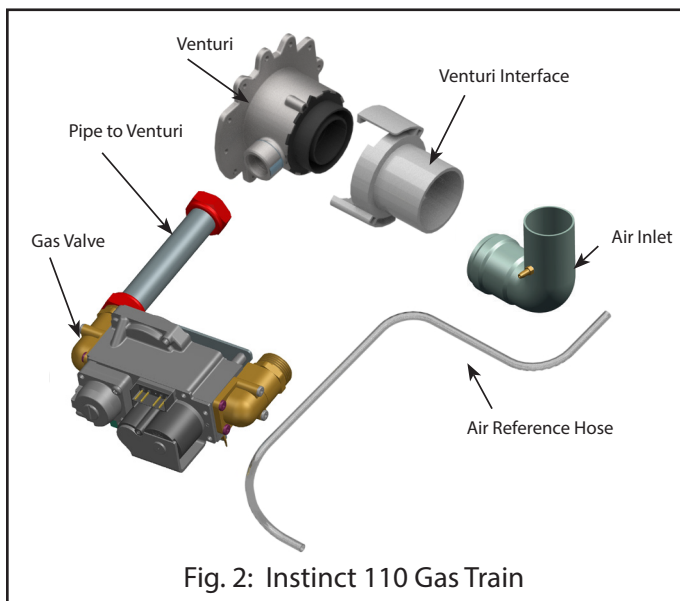


Fig. 1: Installing the Acoustic Foam (applicable to 110 and 155 models ONLY)

# INSTINCT NATURAL GAS TO PROPANE CONVERSION INSTRUCTIONS



## 3. Removal of Natural Gas Venturi

1. Remove the silicone tube from the air inlet elbow, then remove the air inlet elbow.
2. Rotate the venturi interface approximately 60° clockwise to release the clamping mechanism and remove the venturi interface.
3. Remove the gas valve to venturi pipe by loosening the nuts at both ends of the pipe with an adjustable wrench.

### NOTICE

*There are gaskets at both ends of the gas valve to venturi pipe. These gaskets must be reinstalled along with the pipe. Use care not to damage the gaskets.*

4. Using a 10 mm socket and ratchet, remove the three (3) bolts securing the venturi to the fan assembly and remove the natural gas venturi from the unit, making sure not to damage the blower O-ring gasket.

## 4. Install the propane venturi

1. Verify the following when aligning the propane venturi:
  1. The UP arrow on the plastic housing is pointing upward.
  2. The threaded connection for the gas piping is in the correct orientation for re-fitting the gas pipe.

## INSTINCT NATURAL GAS TO PROPANE CONVERSION INSTRUCTIONS



Failure to retain the O-ring gasket between the venturi and the blower will cause an improper seal resulting in a potential risk of a gas leak. A gas leak can result in substantial property damage, serious injury, or death.



Ensure the correct venturi for the model is installed. Natural gas venturis have a white identification label and LP venturis have a black label. Failure to comply will affect input rate and combustion of the boiler which can result in substantial property damage, serious injury, or death.



Do not use adhesive on any gaskets or O-rings during the reassembly process.

- Using a 10 mm socket and ratchet, reinstall the three (3) bolts securing the venturi to the fan assembly
- Reassemble the gas valve to venturi pipe to the gas valve and venturi taking care to ensure that the gaskets are seated properly before tightening the nut.
- Install the venturi interface on the venturi and rotate counterclockwise until locked into place.
- Install the air inlet elbow then attach the silicone tube.



Failure to properly install the air inlet elbow and attach the silicone tube can affect combustion of the boiler which can result in substantial property damage, serious injury, or death.

- Open the manual gas shut off valve to the unit. Before placing the boiler back into operation, test all gas connections for leaks and repair if leaks are found.



Do not check for gas leaks with an open flame. Use a bubble test. Failure to test for gas leaks can result in substantial property damage, serious injury, or death.

- Attach the propane conversion label to the gas valve and the propane conversion rating label next to the existing rating label
- Enter the propane (LP) appliance code from the propane rating label supplied in the conversion kit:
  - Press and hold the UP and DOWN buttons together see Fig. 5.

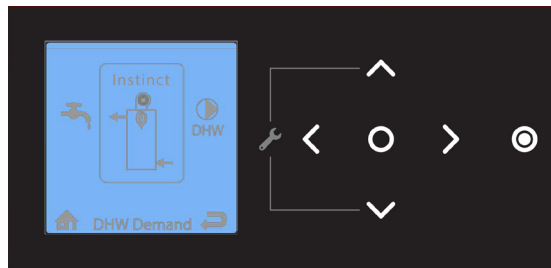


Fig. 5: CTRLMax Navigation Control

- Enter the installer access code "054" by using the LEFT and RIGHT buttons to select a digit and the UP and DOWN buttons to change the digit. Press the center button to enter the access code.
- With the CH/DHW Settings icon highlighted, press the center button.
- Press the DOWN button to highlight the Boiler Settings icon then press the center button.
- Scroll down to highlight Appliance Setting then press the center button.
- Enter the propane (LP) appliance code from the rating label by using the LEFT and RIGHT buttons to select a character and the UP and DOWN buttons to change the character. Press the center button to enter the appliance code.

# INSTINCT NATURAL GAS TO PROPANE CONVERSION INSTRUCTIONS

## 5. Combustion Test and Adjustments

### NOTICE

The installer **MUST** perform a complete combustion check to ensure the following combustion levels are met at high and low input firing rates and the burner is operating at optimum conditions.



**The combustion testing and adjustments must be performed by a qualified installer, service agency or the gas supplier. All combustion measurements must be performed with calibrated equipment to ensure proper readings and accuracy. Refer to Table 1 to check the combustion is within the acceptable range.**



**Failure to perform a complete combustion test at both high and low input rates may result in incomplete combustion and the production of carbon monoxide, which can cause severe personal injury, death or substantial property damage.**

1. Touch simultaneously on the up and down soft keys for 3 seconds to access the functions for the installer. See Fig. 5.
2. Enter the installer access code "054" by using the LEFT and RIGHT buttons to select a digit and the UP and DOWN buttons to change the digit. Press the CENTER button to enter the access code.
3. Press the RIGHT button to highlight the Manual Operation icon then press the CENTER button.

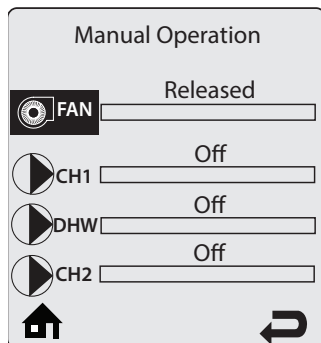


Fig. 6: CTRLMax Manual Operation

4. Press the CENTER button while the FAN icon is highlighted to manually fire the burner and power the CH circulator. See Fig. 6.

### NOTICE

An adequate CH load must be present to dissipate the heat generated during the combustion test. If an adequate CH load is not available, an indirect water heater can be used to dissipate the heat by creating a DHW call which will enable the DHW circulator.

5. Press the RIGHT button to adjust the firing rate to 100% (high fire). Hold down the RIGHT button to rapidly increase the firing rate.
6. If the combustion levels during high fire are outside the recommended combustion settings (see Table 1), adjust the THROTTLE SCREW (see Fig. 7) using a flat-blade screwdriver as follows:

#### Counter-clockwise adjustment of the THROTTLE SCREW at High Fire (100% firing rate):

O<sub>2</sub> decreases and CO<sub>2</sub> increases

#### Clockwise adjustment of the THROTTLE SCREW at High Fire (100% firing rate):

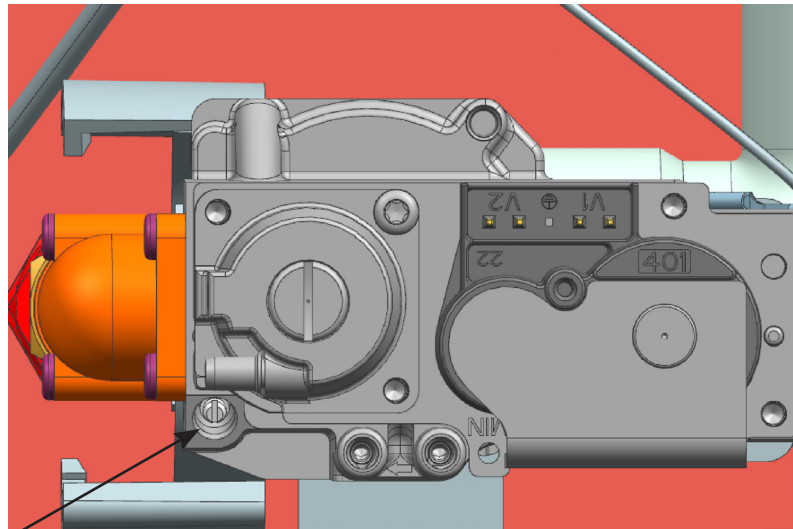
O<sub>2</sub> increases and CO<sub>2</sub> decreases

7. Once the combustion level is set at high fire, manually place the boiler into low fire mode by pressing the LEFT button to adjust firing rate down to 1% (low fire).
8. If the combustion level (O<sub>2</sub> or CO<sub>2</sub>) during low fire is outside the recommended combustion settings in Table 1 contact Triangle Tube Technical Support.
9. Press the CENTER button while the fan icon is highlighted to shutdown the burner.
10. Press the LEFT or RIGHT button to highlight the home screen icon to exit the service mode.
11. Replace the front panel and put the boiler back into operation.

# INSTINCT NATURAL GAS TO PROPANE CONVERSION INSTRUCTIONS

Table 1: Combustion Settings

		Propane 110, 155	Propane 199
<b>High Fire</b>	CO <sub>2</sub> Range	10.0 - 11.0%	
	CO <sub>2</sub> Target	10.8%	
	O <sub>2</sub> Range	5.7 - 4.2%	
	O <sub>2</sub> Target	4.5%	
	CO Max	<200 ppm @ 10.8% CO <sub>2</sub>	
<b>Low Fire</b>	CO <sub>2</sub> Range	10.0 - 11.0%	
	CO <sub>2</sub> Target	10.8%	10.4%
		Target values are equivalent to High Fire values, ensure CO <sub>2</sub> values measured are less than or equal to High Fire CO <sub>2</sub> measurements	
	O <sub>2</sub> Range	5.7 - 4.2%	
	O <sub>2</sub> Target	4.5%	5.1%
		Target values are equivalent to High Fire values, ensure O <sub>2</sub> values measured are higher than or equal to High Fire O <sub>2</sub> measurements	
	CO Max	10 ppm	



Throttle Screw

Fig. 7: Throttle Screw Location