

# ACCESSORY KIT INSTALLATION MANUAL

## MODULATING FURNACE CONTROL BOARD GAS VALVE UPGRADE KITS

S1-37327916001 (PSC Models) and S1-37327916002 (ECM Models)

FOR USE WITH MODELS: 80 & 95%+ MODULATING FURNACE MODELS (33" & 40" MODELS)

### ▲ WARNING

*This conversion kit is to be installed by a qualified service agency in accordance with these instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in these instructions supplied with the kit.*

### GENERAL INFORMATION

This kit is intended for use with modulating furnace models having out-of-production control boards or gas valves. The kit will convert the furnace to use the latest controls.

### ▲ WARNING

*Improper installation, adjustment, service or maintenance can cause injury or property damage; therefore, only a qualified installer or qualified service personnel should perform this conversion.*

### IMPORTANT

*These instructions are for the use of qualified individuals specially trained, experienced and certified in the installation of this type of equipment and related systems components. Installation and service personnel are required by some states to be licensed. Persons not qualified shall not install this equipment nor interpret these instructions.*

### CONTENTS OF KIT

- Instruction sheet
- Control board
- Gas valve
- Pressure sensor
- ID Plugs (12)
- Limit adapter wire harness
- Gas valve adapter harness
- Pressure sensor harness
- Preformed hose
- LP conversion for gas valve

### NOTICE

*Not all parts in this kit will be needed for all model furnaces.*

### FURNACE CONVERSION - 40" MODELS

To convert these models it will be necessary to change the gas valve and the control board to the new parts included with this kit. The wiring connections on the new board are different than those on the old board, so two of the adapter harnesses included with this kit will be needed. Since the new control board does not have a pressure sensor included as part of the board, it will also be necessary to add a separate pressure sensor and wire harness, which are also included in this kit.

Before performing any work on the furnace, turn off all electrical power to the unit. Turn off gas supply to furnace.

#### Gas Valve

1. Disconnect gas piping from gas valve.
2. Disconnect wires from gas valve (two yellow and two gray).
3. Remove and discard the gas valve vent hose that goes from the side of the burner box to the gas valve.
4. Remove burner box cover and remove valve/manifold assembly.
5. Remove old gas valve from manifold.
6. Mount new gas valve on manifold. Make sure that the gas flow arrow points in the right direction, toward the manifold. Tighten the valve so that when mounted on the burner box, the top of the valve faces toward you and the valve is level or slightly angled upwards.
7. Re-attach the gas valve/ manifold to the burner box and replace the burner box cover.
8. For LP applications, install gas valve conversion supplied with this kit.
9. Remove the small white plastic cap from the gas valve vent connection post and connect the new vent hose (supplied) between the gas valve and the burner box pressure tap. Make sure that the hose is not kinked.

#### Pressure Sensor

1. Locate the two pressure sensor hoses that pass through the blower deck. Pull them up out of the holes in the blower deck, leaving them connected to the pressure switch, burner box and inducer.
2. Using a wire tie, mount the pressure sensor loosely to the gas manifold with the ports pointing downwards.
3. Connect the hose ends to the new pressure sensor supplied with the kit. The hose that comes from the draft inducer blower connects to the top port on the pressure sensor (the side of the sensor with the label). The hose from the burner box connects to the bottom port on the pressure sensor. If necessary, cut off any excess hose length.

### Control Board

1. Disconnect all wires, hoses and plugs from old board.
2. Remove old board from control panel. The easiest way will be to disconnect the board from the support pegs rather than trying to reach behind the control panel to disconnect them at the back.
3. Snap the new board in place, making sure that the new board is oriented the same as the old one was.

### Wiring

1. Connect 6-pin plug on short adapter harness from kit into 6-pin socket on board.
2. Connect 3-pin plug from existing furnace wiring harness into 3-pin socket on new adapter harness.
3. Connect 4-pin plug from existing furnace wiring harness into 4-pin socket on new adapter harness.
4. Connect 8-pin plug on long gas valve harness from kit into 8-pin socket on board.
5. Connect 6-pin plug from existing furnace wiring harness into 6-pin socket in new harness.
6. Connect long 3-wire harness from kit into 3-pin socket on board labeled EXT PRESSURE SENSOR.
7. Run the wires in the new harnesses through the large hole in the back of the control panel.
8. Remove rubber grommet where wire bundle passes through blower deck (upflow models only).
9. Clip off the two yellow and two gray wires that went to the old gas valve. Cut them off below the blower deck to make room in the grommet for the new wires. Pull the clipped off yellow and gray wires out of the upper part of the harness and discard them. It is okay to leave the cut ends of the four wires loose since they are no longer electrically connected to anything in the new plugs.
10. Bundle all of the wires together and wire tie them together below the blower deck.
11. Run the new wires through the opening in the blower deck to the top part of the furnace and then replace the rubber grommet.
12. Connect the 5-wire plug into the side of the gas valve.
13. Connect the 3-wire plug into the pressure sensor.
14. Reconnect remaining wires and plugs to the new board the same as they were with the old board. Consult the unit wiring diagram to verify that everything is connected properly.
15. Wire tie the wires together above and below the blower deck to prevent loose wires from coming in contact with hot surfaces or the blower wheel.
16. Locate proper ID plug from the kit for the model being converted. See Table below. Plug it into the 10-pin socket on the board labeled ID PLUG.
17. **VERIFY that you have installed the correct ID plug for the furnace model you have. Installing the wrong ID plug may cause improper furnace operation.**

40" Model	ID Plug	Wire Colors
Upflow 60B12	S1-02544098000	Brown and Green
Upflow 80B12	S1-02544099000	Red and Green
Upflow 80C16	S1-02544100000	Blue and Green
Upflow 100C16	S1-02544101000	Black and Yellow
Upflow 100C20	S1-02544104000	All Green
Upflow 120D20	S1-02544105000	Purple and Green
Downflow 60B12	S1-02544106000	Brown and Orange
Downflow 80B12	S1-02544107000	Red and Orange
Downflow 80C16	S1-02544108000	Blue and Orange
Downflow 100C16	S1-02544109000	Black and Orange
Downflow 100C20	S1-02544110000	Green and Orange
Downflow 120D20	S1-02544111000	Purple and Orange

### Check Operation

1. Reconnect low voltage thermostat wiring to furnace.
2. Reconnect gas piping to gas valve and check for gas leaks.
3. Turn on power to furnace and cycle the furnace through all normal operating modes (heat, cool, continuous fan) to ensure that it is working properly.

### FURNACE CONVERSION - 33" Models

To convert these models it will be necessary to change the gas valve and the control board to the new parts included with this kit. The wiring connections on the new board are different than those on the old board, so two of the adapter harnesses included with this kit will be needed.

Before performing any work on the furnace, turn off all electrical power to the unit. Turn off gas supply to furnace.

### Gas Valve

1. Disconnect gas piping from gas valve.
2. Disconnect wires from gas valve (two yellow and two gray).
3. Remove valve/manifold assembly.
4. Remove old gas valve and pipe union from manifold.
5. Mount new gas valve directly on manifold. Make sure that the gas flow arrow points in the right direction, toward the manifold. Tighten the valve so that when mounted on the manifold, the top of the valve faces toward you and the valve is level or slightly angled upwards.
6. Re-attach the gas valve/ manifold to the burner assembly.
7. For LP applications, install gas valve conversion supplied with this kit.

### Control Board

1. Disconnect all wires and plugs from old board.
2. Remove old board from control panel. The easiest way will be to disconnect the board from the support pegs rather than trying to reach behind the control panel to disconnect them at the back.
3. Snap the new board in place, making sure that the new board is oriented the same as the old one was.

**Wiring**

1. Connect 6-pin plug on short adapter harness from kit into 6-pin socket on board.
2. Connect 3-pin plug from existing furnace wiring harness into 3-pin socket on new adapter harness.
3. Connect 4-pin plug from existing furnace wiring harness into 4-pin socket on new adapter harness.
4. Connect 8-pin plug on long gas valve harness from kit into 8-pin socket on board.
5. Connect 6-pin plug from existing furnace wiring harness into 6-pin socket in new harness.
6. Clip off the two yellow and two gray wires that went to the old gas valve. Cut them off below the blower deck to make room in the wire bundle for the new wires. Pull the clipped off yellow and gray wires out of the upper part of the harness and discard them. It is okay to leave the cut ends of the four wires loose since they are no longer electrically connected to anything in the new plugs.
7. Bundle all of the wires together and wrap electrical tape around them at the point that they go through the blower deck.
8. Fit the new wire bundle into the cavity in the front of the blower deck.
9. Connect the 5-wire plug into the side of the gas valve.
10. Reconnect remaining wires and plugs to the new board the same as they were with the old board. Consult the unit wiring diagram to verify that everything is connected properly.
11. Wire tie the wires together above and below the blower deck to prevent loose wires from coming in contact with hot surfaces or the blower wheel.
12. Remove the ID plug from the old control board and plug it into the 10-pin socket on the new board labeled ID PLUG. DO NOT use the ID plugs supplied with this kit. Those are intended for use only with 40" furnace models and will not work correctly in 33" models.

**Check Operation**

1. Reconnect low voltage thermostat wiring to furnace.
2. Reconnect gas piping to gas valve and check for gas leaks.
3. Turn on power to furnace and cycle the furnace through all normal operating modes (heat, cool, continuous fan) to ensure that it is working properly.

# NOTES