

Propane Conversion Kit

Supersedes: 145.25-IOM2 (708)


Form 145.25-IOM2 (908)

PROPANE CONVERSION KIT INSTALLATION MANUAL


"LPKIT_ _" - PROPANE CONVERSION KIT

Kits are available for field conversion from natural to propane gas. These conversion kits must be installed by a qualified service agency.

"WARNING"


WARNING

"This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions are 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 and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit."


WARNING



Model SGAC201212 is NOT approved for use with propane gas and must NOT be converted. The gas valve will not regulate down to 20,000 Btu/hr on propane gas. The valve would continuously open and close resulting in unsatisfactory operation.

All models listed below may be field converted to use propane gas:

**SGAD401212
SGAD603012
SGAD803012**

**R or SGAD40(18 or 24)12
R or SGAD60(18 or 24)12
R or SGAD802412**

IMPORTANT!

READ BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation, maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, oils, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in

which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that this individual possesses independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood this document and any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

SAFETY SYMBOLS

The following symbols are used in this document to alert the reader to areas of potential hazard:



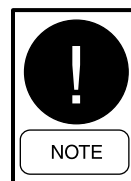
DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



CAUTION identifies a hazard which could lead to damage to the machine, damage to other equipment and/or environmental pollution. Usually an instruction will be given, together with a brief explanation.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



NOTE is used to highlight additional information which may be helpful to you.



All wiring must be in accordance with published specifications and must be performed **ONLY** by qualified service personnel. Johnson Controls will not be responsible for damages/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this will void the manufacturer's warranty and cause serious damage to property or injury to persons.

CHANGEABILITY OF THIS DOCUMENT

In complying with Johnson Controls policy for continuous product improvement, the information contained in this document is subject to change without notice. While Johnson Controls makes no commitment to update or provide current information automatically to the manual owner, that information, if applicable, can be obtained by contacting the nearest Johnson Controls service office.

It is the responsibility of operating/service personnel as to the applicability of these documents to the equipment in question. If there is any question in the mind of operating/service personnel as to the applicability of these documents, then, prior to working on the equipment, they should verify with the owner whether the equipment has been modified and if current literature is available.



Work on this equipment should only be done by properly trained personnel who are qualified to work on this type of equipment. Failure to comply with this requirement could expose the worker, the equipment and the building and its inhabitants to the risk of injury or property damage.

The instructions are written assuming the individual who will perform this work is a fully trained HVAC & R journeyman or equivalent, certified in refrigerant handling and recovery techniques, and knowledgeable with regard to electrical lock out/tag out procedures. The individual performing this work should be aware of and comply with all national, state and local safety and environmental regulations while carrying out this work. Before attempting to work on any equipment, the individual should be thoroughly familiar with the equipment by reading and understanding the associated service literature applicable to the equipment. If you do not have this literature, you may obtain it by contacting a Johnson Controls Service Office.

Should there be any question concerning any aspect of the tasks outlined in this instruction, please consult a Johnson Controls Service Office prior to attempting the work. Please be aware that this information may be time sensitive and that Johnson Controls reserves the right to revise this information at any time. Be certain you are working with the latest information.

The propane conversion kit consists of the following parts and instructions:

Main Burner Orifices – Johnson Controls/AJAX Part #: OBN – 130

Size = 1.30 mm

The number of orifices required is 1 for each 20,000 Btu/hr of input capacity.

Gas Valve Spring (Propane) – Johnson Controls/AJAX Part #: SPR-393691

Honeywell # 393691 (Includes Honeywell instruction form # 69-0244-4)

Pilot Burner Orifice (Propane) – Johnson Controls/AJAX Part # PBO-010P

Honeywell # 390686-1

Label – “Converted to Propane”

Propane Conversion Kit Installation Instructions – These instructions included in the kit.

Installation and Operation Instructions for Units –

These instructions are packaged with the unit in the blower compartment.

PROCEDURE FOR INSTALLING THE PROPANE CONVERSION KIT



The gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion.

Changing the Main Burner Orifices

Begin the conversion by removing the natural gas orifices from the main burners and replace them with the propane orifices size 1.30 mm supplied in the kit. Refer to section 27C in the unit Installation and Operation Instructions manual for detailed instructions on replacing main burner orifices. For high altitudes between 2000 and 4500 feet above sea level the main burner orifices must be 1.20 mm to derate the furnace by 10%. The manifold pressure must be 9.5 inches W.C. Inlet pressure must be between 11 and 13 inches W.C. To convert the gas valve to propane, replace the natural gas spring in the pressure regulator with the propane spring included in the kit. Refer to the drawing of the gas valve and follow the step by step instructions.

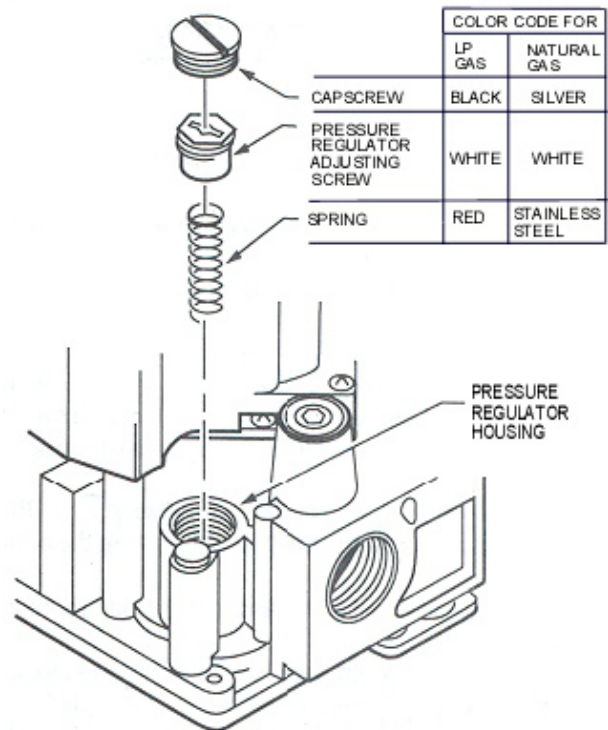
Remove regulator cap screw and pressure regulator adjusting screw. Remove the existing regulator spring. Insert the replacement spring from the propane conversion kit. Install the new plastic pressure regulator adjustment screw. Make sure the screw top is flush with the regulator top. Turn the pressure regulator adjustment screw clockwise six complete turns. This gives a preliminary pressure setting of approximately 9.5 inches W.C. Check the regulator setting with a manometer and adjust the regulator screw to set the manifold pressure at 9.5 inches WC. Refer to section 25B in the unit Installation and Operation Instructions manual for the step by step procedure.



Many installers set propane (LP) manifold pressure at 11.0 inches W.C. **DO NOT DO THIS! It could cause heat exchanger failure or nuisance callbacks. After the regulator adjustment has been verified as correct, install the black cap screw provided in the kit.**

Replacing the Pilot Burner Orifice

Disconnect the ¼ inch gas line connection at the pilot burner assembly. Tap gently on the pilot burner if necessary to get the pilot orifice to fall out. Install the propane pilot orifice BBR10 supplied in the conversion kit. Reconnect the ¼ inch gas line to the pilot burner assembly. Apply the yellow label supplied in the kit to the gas valve to the valve has been converted to propane.



Start Up and Testing

The conversion to propane is not complete until the following tests and adjustments have been completed:

1. It is important to purge all air from the gas piping right up to the unit before turning on the furnace and checking operation. This can be done by removing the 1/8 gas test plug on the inlet side of the gas valve. Turn on the gas without the electric power being turned on. Continue purging until there is a smell of gas at the gas valve. Then turn off the gas and connect a manometer or pressure gauge at the valve inlet test port, ready to test the inlet pressure.
2. Set the room thermostat at least 5°F above the room temperature and select the heat cycle. Turn on electric power and gas supply to the unit. The furnace should then start and go through the normal operating sequence of the ignition system as detailed in Section 20 of the unit Installation and Operation Instructions manual.

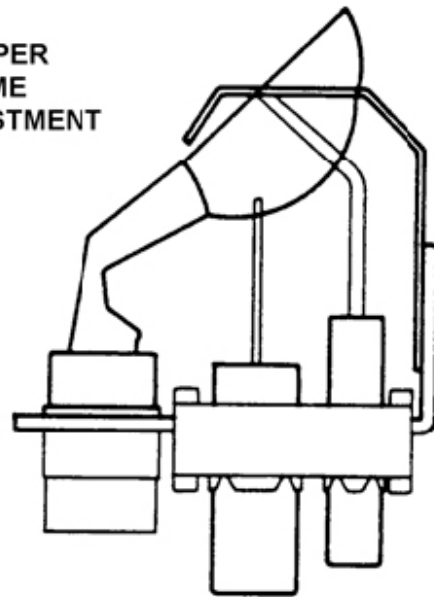
3. With the furnace operating, check for leaks where the main burner orifices are threaded into the manifold and where the ¼ inch gas line connects to the pilot burner. Use a soapy water solution to test for leaks. Never use an open flame to test for leaks. A fire or explosion could occur.
4. Measure the inlet gas pressure with the furnace on and all other gas burning equipment on the same supply also in operation. The inlet gas pressure must be between 11 and 13 inches W.C. If it is not within these limits, contact the propane gas supplier to have the pressure corrected.
5. Turn off the electric and gas supply to the furnace. Transfer the manometer or pressure gauge connection to the outlet or manifold side of the gas valve. Re-install the plug in the test port on the inlet side of the gas valve. Turn on the electric and gas supply to the furnace and measure the manifold pressure. The normal manifold pressure is 9.5 inches W.C. The allowable range is 9.2 to 9.8 inches W.C. If necessary, adjust the regulator adjustment spring to obtain 9.5 inches W.C. manifold pressure.
8. The required input rating of the converted furnace is the same as the input rating stated on the data plate. Changing to propane gas with main burner orifices of 1.30 mm and a manifold pressure of 9.5 inches W.C. will give the same input rating as stated on the data plate for natural gas. If the furnace is also being converted for high altitude (2000 to 4500) feet as well as converting to propane, main burner orifices 1.20 must be used at 9.5 inches W.C. manifold pressure. This will result in a 10% reduction of the input rating shown on the data plate. A separate label should be placed next to the data plate indicating the unit has been converted to propane, or for propane and high altitude. These labels are included in the conversion kits.



Many installers set propane manifold pressure at 11.0 inches W.C. DO NOT DO THIS! It could cause heat exchanger failure or nuisance callbacks. Refer to Section 27 in the unit Installation and Operation Instructions manual for more detailed instructions on adjusting manifold pressure.

6. The pilot flame should cover ½ inch of the tip of the flame sensor, as shown in the illustration. If necessary, adjust the size of the pilot flame by means of the pilot adjusting screw in the gas valve. Refer to Section 23B of the unit Installation and Operation Instructions manual for more detailed instructions on adjusting the pilot flame.
7. The main burner flames should be clear blue in appearance, with no yellow occurring.

**PROPER
FLAME
ADJUSTMENT**



LIMITED WARRANTY

Johnson Controls warrants this product to be free from defects in workmanship or material for a period of one year from date of original installation or 18 months from date of shipment, whichever comes first.

Johnson Controls obligation under this Warranty is LIMITED to repairing or replacing at our sole option, at our factory, any part thereof which shall be returned to our factory, transportation charges prepaid and which on examination proves to have been thus defective under normal domestic use not exceeding the fuel rating. The defective part should be returned through a qualified servicing dealer. Upon warranty determination, the replacement part will be shipped freight collect and assumes the unexpired portion of this Limited Warranty.

When a defective part can be repaired or replaced, Johnson Controls shall not be obligated to repair the entire unit or any part thereof other than the defective part.

This warranty applies only to the original homeowner, and is subject to the terms and conditions hereof.

COMPRESSOR – FIVE YEAR LIMITED WARRANTY

In addition to the One Year Limited Warranty, Johnson Controls warrants the compressor to be free from defects in workmanship or material for a period of five (5) years from the date of original installation. If a compressor fails during this five year period, a new compressor will be supplied. The customer will be responsible for freight costs from our factory for delivery of the replacement compressor and also for the return of the defective compressor which may be required under the terms of the Warranty. Labor and any other expense involved in replacing the compressor is not covered by this Warranty.

HEAT EXCHANGER – TEN YEAR LIMITED WARRANTY

In addition to the One Year Limited Warranty, Johnson Controls warrants the heat exchanger to be free from defects in workmanship for a period of ten (10) years from the date of original installation. During this time, a new replacement heat exchanger will be furnished, or at our sole option, a credit for the replacement heat exchanger may be allowed. Labor and other expenses involved in replacing the heat exchanger are not covered by this warranty. This Warranty applies only to the heat exchanger and not to other parts of the furnace, and only to the original homeowner, and is subject to the terms and conditions hereof.

LABOR AND COST NOT COVERED

This Warranty provides only replacement parts or credits, and does not provide for or cover any labor, shipping, handling or other costs for service travel, servicing, removing, or installing any parts.

EXCLUSIONS

This Warranty shall be void if:

1. The unit is not installed by a licensed or otherwise qualified contractor and in compliance with the Installation Manual, applicable installation and good trade practices.
2. The defect or damage is caused by accident, abuse, negligence of any person or company, misuse, riot, flood, fire or Acts of God.
3. The unit is not operated and regularly serviced and maintained as called for in the Users' Manual.
4. Damages are caused by operating the unit in a commercial or corrosive atmosphere containing any damaging or dangerous chemicals.
5. The unit is modified or services in a manner not in accordance with the Installation Manual and Users' Manual.
6. Components, replacement parts, or other accessories not compatible with the unit or not approved by Johnson Controls have been used with or attached to the unit.
7. The defect or damage is not caused by Johnson Controls, or it arises from circumstances beyond the control of Johnson Controls.
8. The unit is installed outside the United States or Canada, or has been removed from the place where it was originally installed.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS OR LIABILITIES, EXPRESSED OR IMPLIED BY EMPLOYEES OR REPRESENTATIVES OF JOHNSON CONTROLS. ALL STATUTORY, EXPRESSED OR IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY NEGATED AND EXCLUDED. ANY CLAIMS FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES, OR ANY OTHER DAMAGES OR EXPENSES BEYOND THE TERMS OF THIS LIMITED WARRANTY ARE HEREBY EXPRESSLY NEGATED AND EXCLUDED.

