



# WE'VE MADE OUR 90% FURNACES 100% EASIER

(Our 90% furnaces now **make you more efficient, too.**)

**bryant**  
Heating & Cooling Systems



# INNOVATION WITH CONTINUOUS IMPROVEMENT

**Driving excellence in everything we do to make you more efficient**

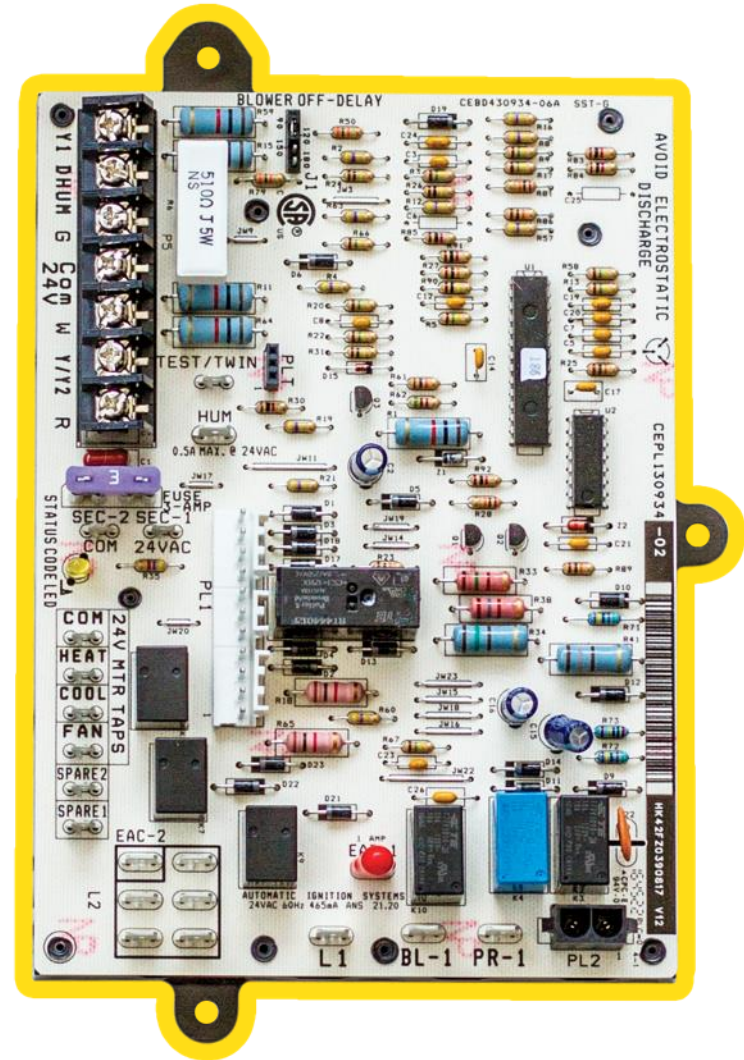
## GAS FURNACE ENHANCEMENTS & DETAILS

Control Board	Bottom Closure
Wiring Harness	Venting Versatility
Gas Valves	Top Panel Insulation/Entry
Hose Clamps	Power Choke for PWM 5T
Condensate Trap	Heat Exchanger Milestone
DIP Switch Reference	Door Knobs
Rotating Elbow	Accessory Literature
Door Switch	Inducer Gasket



# CONTROL BOARDS

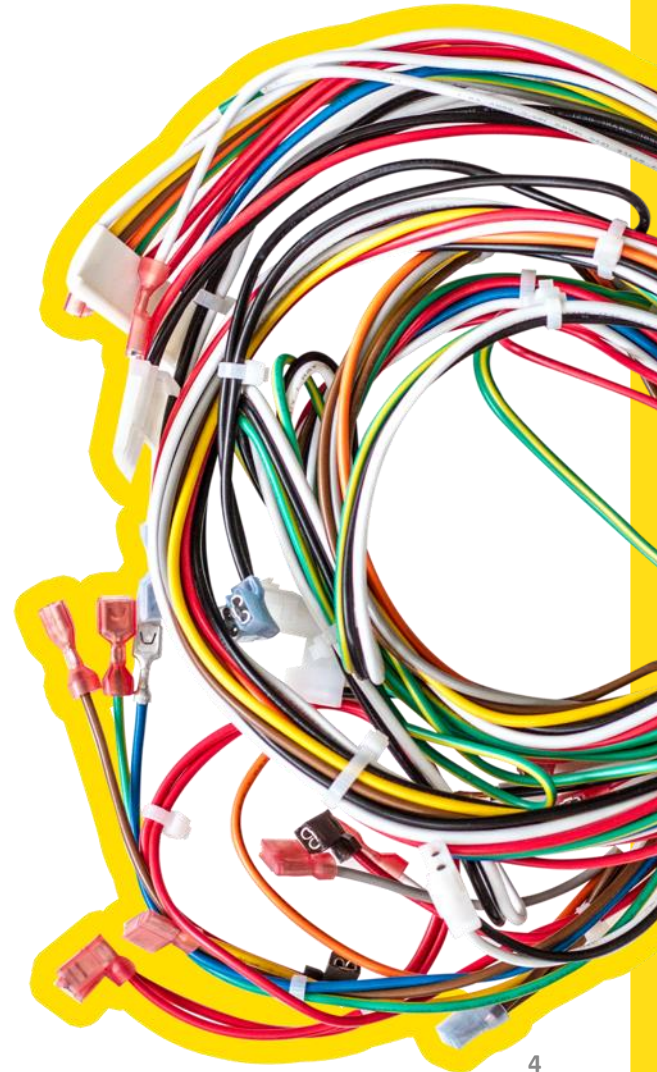
- Co-designed by our furnace and controls engineers
- Not an off-the-shelf solution
- Quality control from design through production
- Robust fault detection is part of furnace and control development integration





# WIRING HARNESS

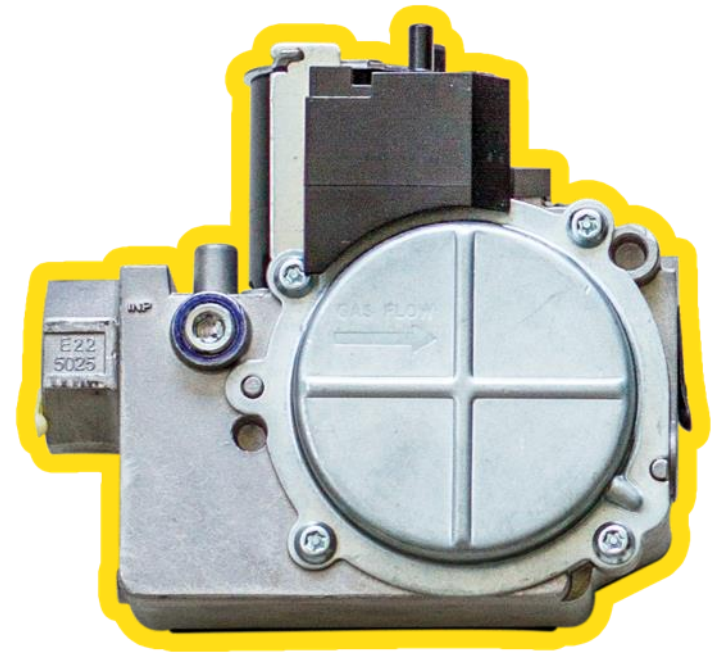
- Extra-long wiring harness length
- No need to disconnect the control board from the furnace in order to remove the blower assembly
- Easier troubleshooting the system with all connections intact
- Pairs well with our full-length blower assembly rails and front-facing screws





# GAS VALVES

- Raised pressure ports makes calibration easier
- Easier to check inlet and manifold pressure
- Modulating gas valve is another example of our proven leadership in technology
  - Modulates up and down during the same heating cycle like no other



*Available February 2018*



# HOSE CLAMPS

- Elongated arms on the hose clamps reduces effort, saves time
- A good squeeze play on old technology



NEW



OLD



# CONDENSATE TRAP

- Translucent front allows for faster installation of the furnace
  - Can see if the furnace is properly primed
- Easier to maintain the furnace over its life
  - View any debris that needs to be cleaned out without removing the trap
- Minimizes nuisance calls from homeowners concerned about normal trap fouling





# DIP SWITCH REFERENCE

- Faster access to information for setting proper airflows using the DIP switches
- Faster, more accurate installations

**SWITCH CONFIGURATION**

SW1		
Switch	Description	Factory
1	<b>Status Code Recovery</b> - Turn ON to retrieve status codes. See manual for use.	OFF
2	<b>Min Heat Only</b> - SW1-2 and SW4-2 OFF for Modulating operation using single-stage TSTAT. SW1-2 ON and SW4-2 OFF for two-stage only operation with two-stage TSTAT using min heat for low stage.	OFF
3	<b>Min/Int Heat Rise Adjust</b> - Turn ON to increase Minimum or Intermediate Heat blower and inducer speed by 15%.	OFF
4	<b>Comfort/Efficiency Adjust</b> - Turn ON to decrease heat airflow by 9% (Min), 7% (Int), and 15% (Max) for maximum comfort.	ON
5	<b>CFM per Ton Adjust</b> - See Airflow Tables for desired settings.	OFF
6	<b>Component Self Test</b> - Turn ON to initiate Component Self Test for troubleshooting assistance when R TSTAT lead is disconnected. Turn OFF when Self Test is completed.	OFF
7 & 8	<b>Blower Off Delay</b> - See manual or unit wiring diagram for settings. Adjustable 90-180 seconds.	7-OFF 8-ON

SW2		
Switch	Description	Factory
1-3	<b>A/C Setup Switches</b> - The Air Conditioning setup switch selects desired cooling or high stage cooling (two-stage units) airflow. See Cooling Air Delivery Tables for specific switch settings.	ALL ON

SW3		
Switch	Description	Factory
1-3	<b>CF Setup Switches</b> - The Continuous Fan setup switch selects desired CF and low stage cooling (two-stage units) airflow. See Cooling Air Delivery Tables for specific switch settings.	ALL ON

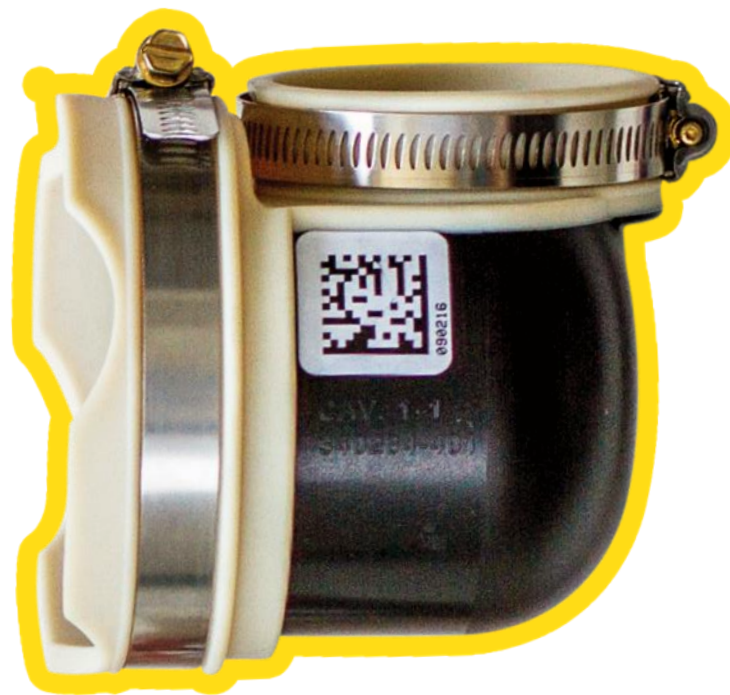
SW4		
Switch	Description	Factory
2	<b>Intermediate Heat Only</b> - SW1-2 and SW4-2 OFF for Modulating operation using single-stage TSTAT. SW1-2 OFF and SW4-2 ON for two-stage only operation with two-stage TSTAT using intermediate heat for low stage.	OFF
3	<b>CFM per Ton Adjust</b> - See Airflow Tables for desired settings.	OFF





# ROTATING ELBOW

- Twelve ways to vent in twelve minutes or less
- Four-way furnace elbow allows for venting out either side or through the top in each orientation
- Faster installations





# DOOR SWITCH

- Upgraded to be even more robust
- Rounded switch keeps doors on straight and allows for a 100% true and tight fit





# BOTTOM CLOSURE

- Easily removable with two screws for bottom return air use
- Reduces cabinet air leakage
- Improves casing rigidity

*Available January 2018*





# VENTING VERSATILITY

- Enhanced vent lengths to match previous furnace generation
- Faster installations when replacing previous generation gas furnaces





# TOP PANEL INSULATION

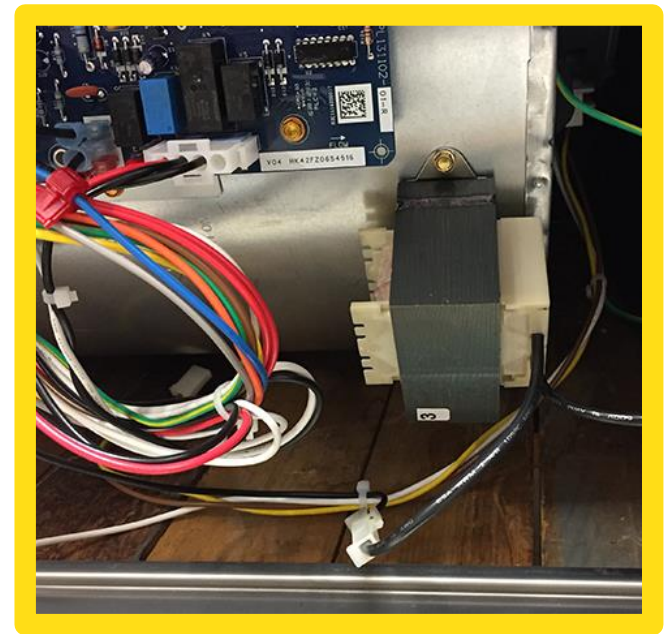
- Modified to create a more flush fit for the evaporator coil
- Allows for easier top entry of gas and electrical
- Enhances perceived quality of installation





# POWER CHOKE FOR PWM 5 TON MODELS

- Allows for the 926T gas furnace that delivers 5 or more tons of airflow to operate on a 15 amp circuit breaker and 14 AWG wire sizes
- Does not require heavier wire, or upgrading a circuit breaker in the electrical panel
- Faster installation

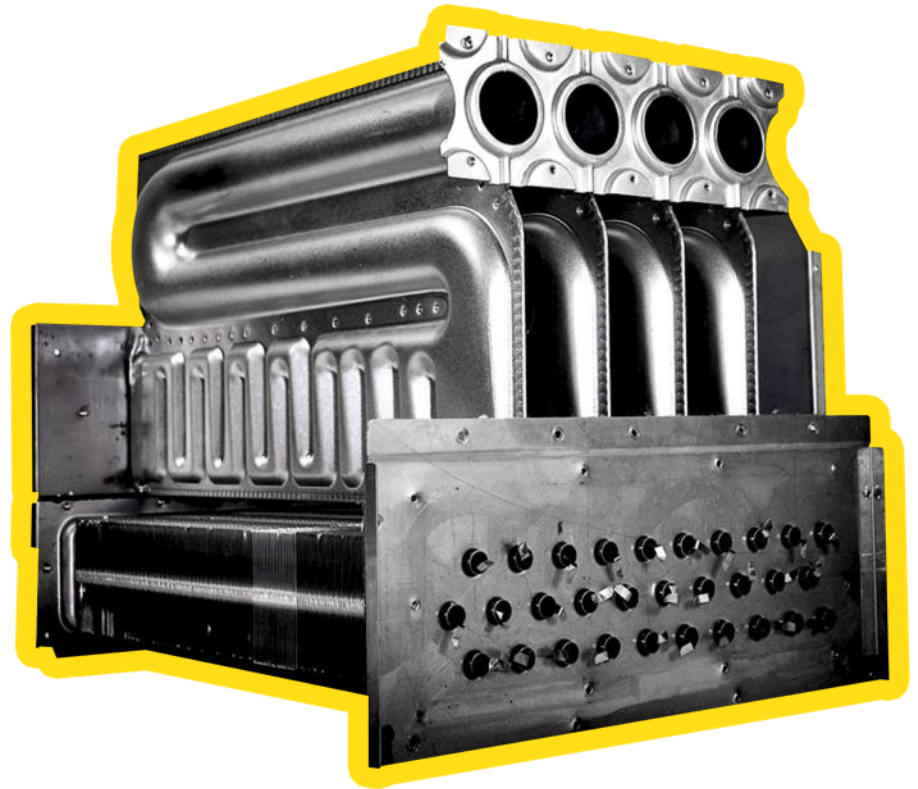


KGAPC0101ECM



# HEAT EXCHANGER MILESTONE

- Introduced six years ago
- Has achieved over 500,000 cycles on our life test
  - Equivalent to over 50 years of use
  - And still going strong





# DOOR KNOBS

- Improved movement for better sealing of the doors
- Saves time by not requiring a tool to access furnace







# SIMPLIFIED ACCESSORY KIT LITERATURE

- Kits applied to older furnaces have been updated with easy-to-follow instructions

KGAVT0101BRA  
KGAVT0201BRA

VENT TERMINAL KIT

## Installation Instructions

**NOTE:** Read the entire instruction manual before starting the installation. **Keep these instructions with the furnace.**

### SAFETY CONSIDERATIONS

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained and qualified personnel should install, repair, or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit, and other safety precautions that may apply.

Follow all safety codes. In the United States, follow all safety codes including the National Fuel Gas Code (NFPA) NFPA 54/ANSI Z223.1-2006.

Wear safety glasses and work gloves. Have a fire extinguisher available during start-up, adjustment procedures, and service calls.

Recognize safety information. This is the safety-alert symbol. When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. The words DANGER, WARNING, and CAUTION are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies hazards which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury, or product and property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

### WARNING

#### ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before beginning any installation, be sure the main electrical disconnect switch is in the OFF position and a lockout tag is installed.

### INTRODUCTION

This instruction covers installation of the Vent Terminal Kit, Part No. KGAVT0101BRA and KGAVT0201BRA, on all upflow and downflow gas-fired condensing furnaces.

**NOTE:** If these instructions differ from those packaged with the furnace, follow these instructions.

The kit contains the following items:

DESCRIPTION	QUANTITY
Vent Termination Bracket	1
Installation Instructions	1

### DESCRIPTION AND USAGE

Two terminal kits are available. The 2-in. kit 1-1/2-in. and 2-in. diameter pipe systems. The 3-in. kit is for 2-1/2-in., 3-in. and 4-in. diameter pipe systems. (See Fig. 3, 4, and 5 for the different applications). The combustion-air and vent pipes must terminate outside the structure. This termination kit must be installed as in one of the installations shown in Fig. 3, 4, or 5. The roof termination is preferred.

Field-supplied pipe and fittings are required to complete the installation. Elbows used with the terminal bracket must conform to the dimensions shown in Fig. 2.

The combustion-air and vent pipe fittings must conform to American National Standards Institute (ANSI) and American Society for Testing and Materials (ASTM) standards D1785 (schedule-40 PVC), D2665 (PVC-DWV), D2441 (SDR-21 and SDR-26 PVC), D2661 (ABS-DWV), or F628 (schedule-40 ABS). Pipe cement and primer must conform to ASTM standards D2564 (PVC) or D2235 (ABS).

In Canada, construct all combustion-air and vent pipes for this unit of CSA or ULC certified schedule-40 PVC, PVC-DWV, or ABS-DWV pipe and pipe cement. SDR pipe is not approved in Canada.

For sidewall terminations, a Vent Terminal Cover Kit (Part No. KGAVT0301COV and KGAVT0401COV) is available to improve the termination appearance. Refer to the Vent Terminal Cover Kit instructions for additional information.





# INDUCER GASKET CHANGE

- New more robust material
- Improved resistance to sulfuric acid





# A MORE EFFICIENT YOU

So many enhancements make  
for faster and better installations

**bryant**  
Heating & Cooling Systems

**COMPETITIVE**

**SURVEY**





# SELLING AGAINST GOODMAN/AMANA

## Condensing Gas Furnace Comparison

### Bryant

- Full wood pallet
- Narrowest width 14.2"
- Tool-less door removal
- Venting 12 ways
- Translucent condensate trap
- No obstruction for removal of blower assembly
- Front-facing screws to remove blower assembly

### Goodman

- Cardboard based pallet
- Narrowest width 17.5"
- Door removal with tool
- Venting 4 ways
- Opaque condensate trap
- Must remove condensate trap to remove blower
- Vertical access screws to remove blower assembly



# SELLING ADVANTAGES AGAINST LENNOX

## Condensing Gas Furnace Comparison

### Bryant

- Factory installed internal trap
- Narrowest width 14.2"
- Top, side and bottom venting
- Two outer doors held to chassis with ¼-turn knobs, no tools needed to remove
- Translucent condensate trap
- Full-length blower rails and forward facing screws
- Heat exchanger assembly mounted on rails
- Gas valve modulates both up and down in same heating cycle

### Lennox

- Field installed external trap
- Narrowest width 17.5"
- Top-only venting
- Appliance outer door, requires tool to remove inner door
- Opaque condensate trap
- Partial blower rails and side facing screws
- HX assembly not on rails
- Gas valve modulates in one direction, time based



# SELLING ADVANTAGES AGAINST RHEEM

## Condensing Gas Furnace Comparison

### Bryant

- All models are fully multipoise
- Translucent condensate trap
- Forward facing screws for blower assembly
- Base pan shipped in place
- 12 ways to vent every furnace
- Free access to blower without removing control board
- Free access to ignitor and burners

### Rheem

- Multipoise and dedicated orientation models
- Opaque condensate trap
- Vertical access screw for blower assembly
- Base panel installed on top, needs to be moved to bottom & "taped" (per instructions) for side return
- Cannot vent out right side of furnace and left-side venting requires conversion kit
- Have to remove blower to remove HX
- Have to remove burner box to remove ignitor and burners



# SELLING ADVANTAGES AGAINST TRANE

## Condensing Gas Furnace Comparison

### Bryant

- 12 ways to vent
- Narrowest width 14.2"
- No dedicated models, only fully multipoise
- Forward access igniter
- Translucent condensate trap

### Trane

- Top and side only venting
- Narrowest width 17.5"
- Dedicated horizontal/downflow models
- Vertical access igniter
- Opaque condensate trap





# SELLING ADVANTAGES AGAINST YORK

## Condensing Gas Furnace Comparison

### Bryant

- Forward access for igniter
- No burner box enclosure
- 12 ways to vent every furnace
- Full-length supply opening flanges ensure positioning of evaporator coil
- No removing inducer assembly for changing orientations

### York

- Vertical access for igniter
- Burners enclosed in box that must be removed for maintenance
- Top/side venting may be limiting
- No supply opening flanges; bracket positioning increases installation time
- Must remove entire inducer assembly to reorient the furnace to horizontal

APPENDIX

IMPROVEMENTS TO OUR  
**CONDENSING**  
FURNACE LINEUP





# INDUCER ASSEMBLY

- Original 44 frame VSP inducer motor replaced (2012)
- Pressure switch port enlarged (2014)
- Implemented tighter tolerance acceptable negative pressures produced (2016)
- Gasket material change pending (4<sup>th</sup> Qtr. 2017)



# COLLECTOR BOX

- Update washers to rubber backed (2013)
- Screw torque reduction (2013)
- Enhanced design for durability (2013)



# CIRCUIT BOARD

- Software update 2 stage humidifier output (2012)
- Software update pressure switch (2014)
  - Register cleared after successful light off
- Software update pressure switch (2016)
  - Delay error code 3 seconds for unstable readings i.e. bounce



# GAS VALVE

- Added additional pressure testing (2016)
- Modified assembly sequence/increased quality control checks (2016)
- Improved assembly alignment fixture (2016)
- Tightened tolerances of components (2016)
- Shorten switch height (late 3<sup>rd</sup> Qtr. 2017)
- Internal casting improvements (4<sup>th</sup> Qtr. 2017)