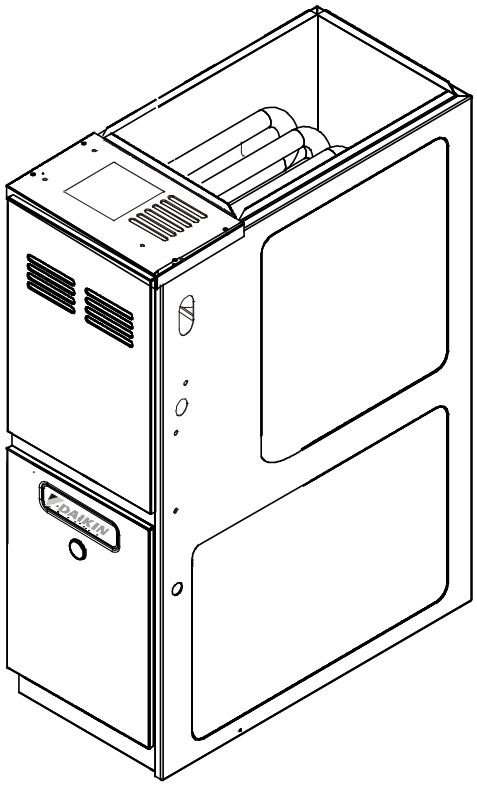
DAIKIN Service Instructions

Daikin 80% Single Stage Gas Furnaces
DM80SN, DC80SN
& Accessories



WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE OR REPAIR(HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER INSTALLATION, ADJUSTMENT, SERVICING OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

This manual is to be used by qualified, professionally trained HVAC technicians only.

Daikin does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.

The material in this manual does not supersede manufacturers installation and operation instructions.

RSD6621010
July 2021

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IMPORTANT INFORMATION

Pride and workmanship go into every product to provide our customers with quality products. It is possible, however, that during its lifetime a product may require service. Products should be serviced only by a qualified service technician who is familiar with the safety procedures required in the repair and who is equipped with the proper tools, parts, testing instruments and the appropriate service manual. REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL BEFORE BEGINNING REPAIRS.

IMPORTANT NOTICES

RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS

WARNING

THIS UNIT SHOULD NOT BE CONNECTED TO, OR USED IN CONJUNCTION WITH, ANY DEVICES THAT ARE NOT DESIGN CERTIFIED FOR USE WITH THIS UNIT OR HAVE NOT BEEN TESTED AND APPROVED BY THE MANUFACTURER. SERIOUS PROPERTY DAMAGE OR PERSONAL INJURY, REDUCED UNIT PERFORMANCE AND/OR HAZARDOUS CONDITIONS MAY RESULT FROM THE USE OF DEVICES THAT HAVE NOT BEEN APPROVED OR CERTIFIED BY THE MANUFACTURER.

WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

TO PREVENT THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT STORE COMBUSTIBLE MATERIALS OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS OR VAPORS IN THE VICINITY OF THIS APPLIANCE.

IMPORTANT INFORMATION

WARNING

IF THE INFORMATION IN THESE INSTRUCTIONS IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

- DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.
- WHAT TO DO IF YOU SMELL GAS:
  - DO NOT TRY TO LIGHT ANY APPLIANCE.
  - DO NOT TOUCH ANY ELECTRICAL SWITCH; DO NOT USE ANY PHONE IN YOUR BUILDING.
  - IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBOR'S PHONE. FOLLOW THE GAS SUPPLIER'S INSTRUCTIONS. IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.
- INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

WARNING

SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS SHUTOFF VALVE EXTERNAL TO THE FURNACE BEFORE TURNING OFF THE ELECTRICAL SUPPLY.

To locate an authorized servicer, please consult your telephone book or the dealer from whom you purchased this product. For further assistance, please contact:

CONSUMER INFORMATION LINE- DAIKIN PRODUCTS
TOLL FREE
1-877-254-4729 (U.S. only)
email us at: **customerservice@daikincomfort.com**
fax us at: (713) 856-1821
(Not a technical assistance line for dealers.)

Outside the U.S., call 1-713-861-2500
(Not a technical assistance line for dealers.)
Your telephone company will bill you for the call.

IMPORTANT INFORMATION

DANGER

CARBON MONOXIDE POISONING HAZARD

Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas

Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.

This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.

CO can cause serious illness including permanent brain damage or death.

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DANGER
PELIGRO

RIESGO DE INTOXICACIÓN POR MONÓXIDO DE CARBONO

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Los equipos ó aparatos que producen monóxido de carbono (tal como automóvil, calentador de gas, calentador de agua por medio de gas, etc) no deben ser operados en áreas cerradas debido al riesgo de envenenamiento por monóxido de carbono (CO) que resulta de las emisiones de gases de combustión. Si el equipo ó aparato se opera en dichas áreas, debe existir una adecuada ventilación directa al exterior.

Esta ventilación es necesaria para evitar el peligro de envenenamiento por CO, que puede ocurrir si un dispositivo que produce monóxido de carbono sigue operando en el lugar cerrado.

Las emisiones de monóxido de carbono pueden circular a través del aparato cuando se opera en cualquier modo.

El monóxido de carbono puede causar enfermedades severas como daño cerebral permanente ó muerte.

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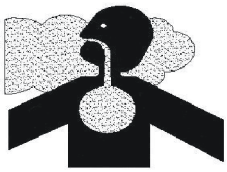
DANGER



RISQUE D'EMPOISONNEMENT AU MONOXYDE DE CARBONE

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Avertissement special au sujet de l'installation d'appareils de hauffage ou de traitement d'air dans des endroits clos, tets les garages, les locaux d'entretien et les stationnements. Evitez de mettre en marche les appareils produisant du monoxyde de carbone (tels que les automobile, les appareils de chauffage autonome,etc.) dans des endroits non ventilés tels que les d'empoisonnement au monoxyde de carbone. Si vous devez faire fonctionner ces appareils dans un endroit clos, assures-vous qu'il y ait une ventilation directe provenant de l'exterier.

Cette ventilation est nécessaire pour éviter le danger d'intoxication au CO pouvant survenir si un appareil produisant du monoxyde de carbone continue de fonctionner au sein de la zone confinée.

Les émissions de monoxyde de carbone peuvent etre recircules dans les endroits clos, si l'appareil de chauffage ou de traitement d'air sont en marche.

Le monoxyde de carbone peut causer des maladies graves telles que des dommages permanents au cerveau et meme la mort.

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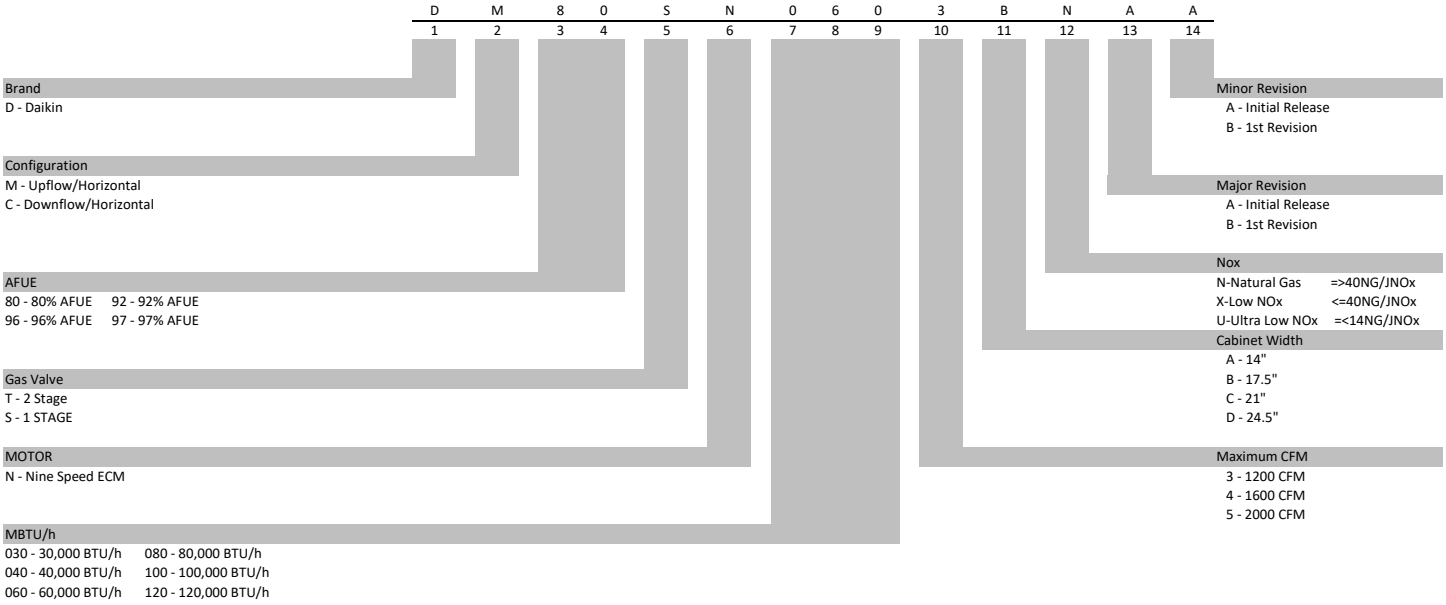
PRODUCT IDENTIFICATION

The model and manufacturing number are used for positive identification of component parts used in manufacturing. Please use these numbers when requesting service or parts information.



OPERATING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

ADVERTENCIA: En caso de no seguir estas instrucciones cuidadosamente, se podría producir un incendio o explosión que ocasionaría daños a la propiedad, lesiones personales e incluso la muerte.

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burners. Do not try to light the burners by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS
-Do not try to light any appliance.
-Do not touch any electric switch;
do not use any telephone in your building.
-Immediately call your gas supplier from a neighbor's phone. Follow the gas suppliers instructions.

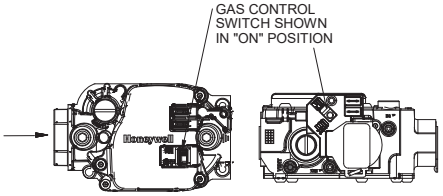
If you cannot reach your gas supplier, call the fire department.

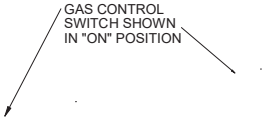
C. Use only your hand to move the gas control switch or knob. Never use tools. If the gas control switch or knob will not operate, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

OPERATING INSTRUCTIONS

1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an automatic ignition system which automatically lights the burners. Do not try to light the burners by hand.
5. Remove control access panel.
6. Move the gas control switch or knob to "OFF".
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above on this label. If you don't smell gas, go to the next step.
8. Move the gas control switch or knob to "ON".
9. Replace control access panel.
10. Turn on all electric power to the appliance.
11. Set the thermostat to the desired setting.
12. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.





TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to its lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove control access panel.
4. Move the gas control switch or knob to "OFF". Do not force.
5. Replace control access panel.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to the user's information manual provided with this furnace. For assistance or additional information consult a qualified installer, service agency or the gas supplier.

ADVERTENCIA: La instalación, el ajuste, la alteración, el servicio o el mantenimiento inadecuados pueden causar lesiones o daños a la propiedad. consulte el manual de información del usuario que acompaña a este horno. Para obtener ayuda o información adicional, consulte con un instalador calificado, una agencia de servicio o el proveedor de gas.

This furnace must be installed in accordance with the manufacturers instructions and local codes. In the absence of local codes, follow the National Fuel Gas Code, ANSI Z223.1.

WARNING: If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances during fuel combustion which can cause death or serious illness and which are known to the state of California to cause cancer, birth defects or other reproductive harm. This product contains fiberglass insulation. Fiberglass insulation contains a chemical known by the state of California to cause cancer.

ADVERTENCIA: Si no se instala, se activa y se mantiene conforme a las instrucciones del fabricante, este producto podría exponerlo a sustancias durante la combustión del carburante, lo que puede causar la muerte o enfermedades severas. El estado de California sabe que estas sustancias causan cáncer, defectos de nacimiento u otros riesgos reproductivos. Este producto contiene aislante de fibra de vidrio. El aislante de fibra de vidrio contiene un producto químico que el estado de California sabe que causa cáncer.

FOR YOUR SAFETY:

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

PARA SU SEGURIDAD:

No almacene ni use gasolina u otros vapores y líquidos inflamables cerca de este o cualquier otro aparato.

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Safety

Please adhere to the following warnings and cautions when installing, adjusting, altering, servicing, or operating the furnace.

WARNING

To prevent personal injury or death due to improper installation, adjustment, alteration, service, or maintenance, refer to this manual. For additional assistance or information, consult a qualified installer, servicer, agency or the gas supplier.

WARNING

To prevent possible property damage, personal injury or death due to electrical shock, the furnace must be located to protect the electrical components from water.

Charge (ESD) Precautions

NOTE: Discharge your body's static electricity before touching unit. An electrostatic discharge can adversely affect electrical components.

Use the following precautions during furnace installation and servicing to protect the integrated control module from damage. By putting the furnace, the control, and the person at the same electrostatic potential, these steps will help avoid exposing the integrated control module to electrostatic discharge. This procedure is applicable to both installed and uninstalled (ungrounded) furnaces.

1. Disconnect all power to the furnace. Do not touch the integrated control module or any wire connected to the control prior to discharging your body's electrostatic charge to ground.
2. Firmly touch a clean, unpainted, metal surface of the furnace near the control. Any tools held in a person's hand during grounding will be discharged.
3. Service integrated control module or connecting wiring following the discharge process in Step 2. Use caution not to recharge your body with static electricity; (i.e., do not move or shuffle your feet, do not touch ungrounded objects, etc.). If you come in contact with an ungrounded object, repeat Step 2 before touching control or wires.
4. Discharge any static electricity from your body to ground before removing a new control from its container. Follow Steps 1 through 3 if installing the control on a furnace. Return any old or new controls to their containers before touching any ungrounded object.

Product Application

This product is designed for use as a residential home gas furnace. It is **not** designed or certified for use in mobile home, trailer, or recreational vehicle applications.

This furnace can be used in the following non-industrial commercial applications: **Schools, Office buildings, Churches, Retail stores, Nursing homes, Hotels/motels, Common or office areas.** In such applications, the furnace must be installed with the installation instructions.

Daikin 80% furnaces are ETL certified appliances and are appropriate for use with natural or propane gas. (NOTE: If using propane gas, a propane conversion kit is required).

IMPORTANT NOTE: The 80% furnace cannot be installed as a direct vent (i.e., sealed combustion) furnace. The burner box is present only to help reduce sound transmission from the burners to the occupied space.

To ensure proper installation, operation and servicing, thoroughly read the installation manual for specifics pertaining to the installation of this product.

WARNING

Possible property damage, personal injury or death due to fire, explosion, smoke, soot, condensation, electrical shock or carbon monoxide may result from improper installation, repair operation, or maintenance of this product.

WARNING

To prevent property damage, personal injury or death due to fire, do not install the furnace in a mobile home, trailer, or recreational vehicle.

To ensure proper furnace operation, install, operate, maintain and service the furnace in accordance with the installation, operation and service instructions, all local building codes and ordinances. In their absence, follow the latest edition of the National Fuel Gas Code (NFPA 54/ANSI Z223.1), and/or CAN/CGA B149 Installation Codes, local plumbing or waste water codes, and other applicable codes.

A copy of the National Fuel Gas Code (NFPA 54/ANSI Z223.1) can be obtained from any of the following:

American National Standards Institute
1430 Broadway
New York, NY 10018

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269

CSA International
8501 East Pleasant Valley
Cleveland, OH 44131

A copy of the CAN/CGA B149 Installation Codes can be obtained from:

CSA International
178 Rexdale Boulevard
Etobicoke, Ontario, Canada M9W, 1R3

Propane Gas and/or High Altitude Installations

WARNING

Possible property damage, personal injury or death may occur if the correct conversion kits are not installed. The appropriate kits must be applied tot ensure safe and proper furnace operation. All conversions must be performed by a qualified installer or service agency.

This furnace is shipped from the factory configured for natural gas at standard altitude. Propane gas installations require an orifice change to compensate for the energy content difference between natural and propane gas.

High altitude installations may require both a pressure switch and an orifice change. These changes are necessary to compensate for the natural reduction in the density of both the gas fuel and the combustion air at higher altitude.

Refer to the *Accessories Charts* in this manual or product Specification Sheet for a tabular listing of appropriate manufacturer's kits for propane gas and/or high altitude installations. The indicated kits must be used to insure safe and proper furnace operation. All conversions must be performed by a qualified installer, or service agency.

Inlet gas supply pressures must be maintained within the ranges specified below. The supply pressure must be constant and available with all other household gas fired appliances operating. The minimum gas supply pressure must be maintained to prevent unreliable ignition. The maximum must not be exceeded to prevent unit overfiring.

WARNING

Failure to follow instructions can result in bodily injury or death. Carefully read and follow all instructions given in this section.

WARNING

Upon completion of the furnace installation, carefully inspect the entire flue system both inside and outside the furnace to assure it is properly sealed. Leaks in the flue system can result in serious personal injury or death due to exposure to flue products, including carbon monoxide.

CAUTION

To prevent unreliable operation or equipment damage, the inlet gas supply pressure must be as specified on the unit rating plate with all other household gas fired appliances operating.

Inlet gas supply pressures must be maintained within the ranges specified below. The supply pressure must be constant and available with all other household gas fired appliances operating. The minimum gas supply pressure must be maintained to prevent unreliable ignition. The maximum must not be exceeded to prevent unit overfiring.

INLET GAS SUPPLY PRESSURE		
Natural Gas	Minimum: 4.5" w.c.	Maximum: 10.0" w.c.
Propane Gas	Minimum: 11.0" w.c.	Maximum: 13.0" w.c.

Gas Valve

This unit is equipped with a 24 volt gas valve controlled during furnace operation by the integrated control module. As shipped, the valve is configured for natural gas. The valve is field convertible for use with propane gas by using the appropriate propane gas conversion kit. Taps for measuring the gas supply pressure and manifold pressure are provided on the valve.

NOTE: The gas supply pressure on White-Rodger "J" model gas valve, used on single stage furnaces, can be checked with a gas pressure test kit (Part #0151K00000S) available through our authorized distributors.

The gas valve has a manual ON/OFF control located on the valve itself. This control may be set only to the "ON" or "OFF" position. Refer to the Lighting Instructions Label located on the furnace door.

Gas Piping Checks

Before placing unit in operation and after servicing, leak test the unit and gas connections.

WARNING

To avoid possibility of explosion or fire, never use a match or open flame to test for leaks.

Check for leaks using an approved chloride-free soap and water solution, an electronic combustible gas detector, or other approved testing methods.

NOTE: Never exceed specified pressures for testing. Higher pressure may damage the gas valve and cause subsequent overfiring, resulting in heat exchanger failure. Disconnect this unit and shutoff valve from the gas supply piping system before pressure testing the supply piping system with pressures in excess of 1/2 psig (3.48 kPa). Isolate this unit from the gas supply piping system by closing its external manual gas shutoff valve before pressure testing supply piping system with test pressures equal to or less than 1/2 psig (3.48 kPa).

Electrical

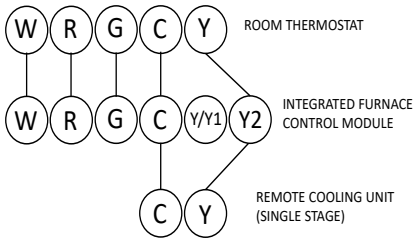
24 Volt Thermostat Wiring

Important Note: Wiring routing must not interfere with circulator blower operation, filter removal or routine maintenance.

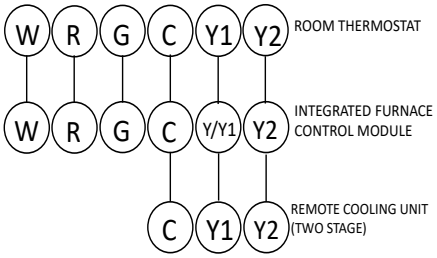
Low voltage connections can be made through either the right or left side panel. Thermostat wiring entrance holes are located in the blower compartment. The following figure shows connections for a “heat/cool system”.

This furnace is equipped with a 40 VA transformer to facilitate use with most cooling equipment. Consult the wiring diagram, located on the blower compartment door, for further details of 115 Volt and 24 Volt wiring.

Thermostat Wiring Diagrams



Thermostat - Single-Stage Heating with Single-Stage Cooling



Thermostat - Single-Stage Heating with Two-Stage Cooling

Fossil Fuel Applications

This furnace can be used in conjunction with a heat pump in a fossil fuel application. A fossil fuel application refers to a combined gas furnace and heat pump installation which uses an outdoor temperature sensor to determine the most cost efficient means of heating (heat pump or gas furnace).

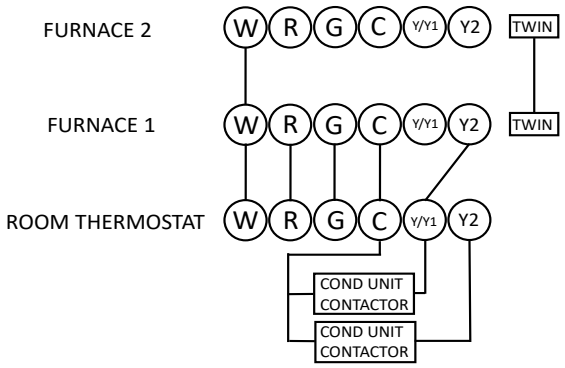
A heat pump thermostat is required to properly use a single-stage furnace in conjunction with a heat pump. Refer to the fossil fuel kit installation instructions for additional thermostat requirements.

Strictly follow the wiring guidelines in the fossil fuel kit installation instructions. All furnace connections must be made to the furnace two-stage integrated control module and the “FURNACE” terminal strip on the fossil fuel control board.

Twinning

Two furnaces of the same model may be twinned. The integrated control board has a 3/16” terminal labeled “TWIN” located beside the low voltage thermostat connection strip. Twinning allows simultaneous operation of two furnaces and forces the indoor blower motors of each furnace to operate synchronously into a common duct system. Using the twinning function will require only field installed wiring with no external kits or parts. The staging and speed tap options must be set the same on both furnaces.

NOTE: Each furnace must be connected to it’s own 115 VAC power supply. The L1 connection to each furnace must be in phase (connected to circuit breakers on the same 115 VAC service panel phase leg). To verify that the furnaces are in phase, check from L1 to L1 on each furnace with a voltmeter. If the furnaces are in phase, the voltage between both furnaces will be ZERO.



115 Volt Line Connection of Accessories (Humidifier and Electronic Air Cleaner)

The furnace integrated control module is equipped with line voltage accessory terminals for controlling power to an optional field-supplied humidifier and/or electronic air cleaner.

The accessory load specifications are noted in the chart:

Humidifier	1.0 Amp maximum at 120 VAC
Electronic Air Cleaner	1.0 Amp maximum at 120 VAC

Turn OFF power to the furnace before installing any accessories. Follow the humidifier or air cleaner manufacturers’ instructions for locating, mounting, grounding, and controlling these accessories. Accessory wiring connections are to be made through the 1/4” quick connect terminals provided on the furnace integrated control module. The humidifier and electronic air cleaner hot terminals are identified as HUM H and EAC H. The humidifier and electronic air cleaner neutral terminals are identified as NEUTRAL. All field wiring must conform to applicable codes. Connections should be made as shown.

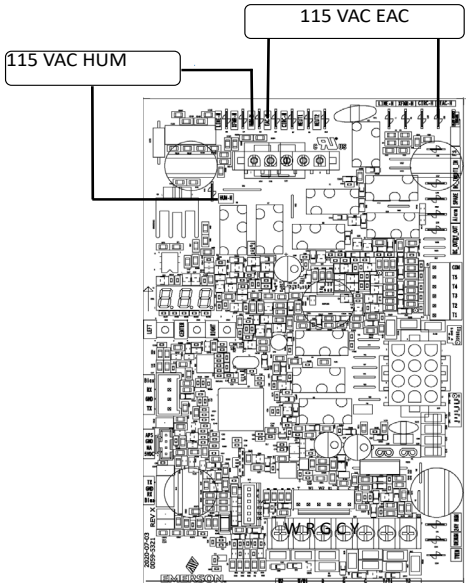
If it is necessary for the installer to supply additional line voltage wiring to the inside of the furnace, the wiring must conform to all local codes, and have a minimum temperature rating of 105°C. All line voltage wire splices must be made inside the furnace junction box.

The integrated control module humidifier terminal (HUM H) is energized with 115 volts whenever the induced draft blower is energized. The integrated control module electronic air cleaner terminal (EAC H) is energized with 115 volts whenever the circulator blower is energized. This terminal can also be used to provide 115 volt power to a humidifier transformer. The remaining primary transformer wire would be connected to the Line N on the control board.

WARNING

HIGH VOLTAGE!

To avoid personal injury or death due to electrical shock, disconnect electrical power before servicing or changing any electrical wiring.

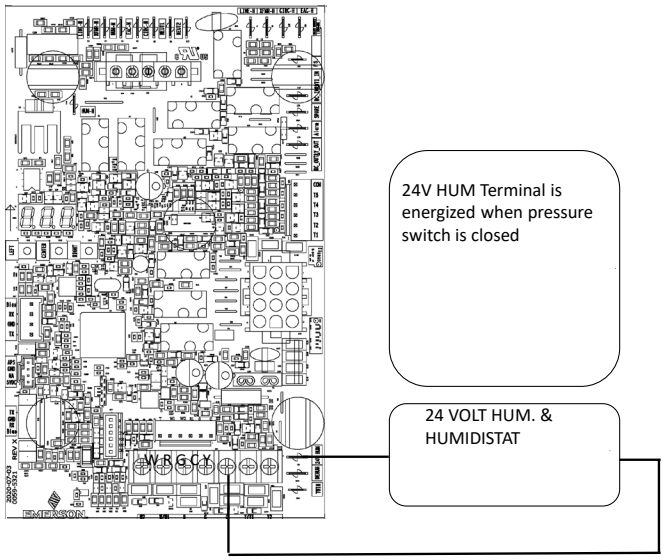


Accessories - Accessories Wiring

Low Voltage Humidifier

The furnace integrated control module is equipped with a low voltage terminal for providing power to an optional field-supplied 24 volt humidifier. The 24V HUM terminal is energized any time the draft inducer is powered. See connection diagram below.

NOTE: This is a 24 volt circuit only, the common connection must be on C terminal of the low voltage terminal strip (where thermostat wires are connected). Wiring for this circuit must NOT be connected to the line N location where line voltage neutral wires are connected.



24 Volt Humidifier Connection

Furnace Startup

1. Close the manual gas shutoff valve external to the furnace.
2. Turn off the electrical power to the furnace.
3. Set the room thermostat to the lowest possible setting.
4. Remove the burner compartment door.

NOTE: This furnace is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

5. Move the furnace gas valve manual control to the OFF position.
6. Wait five minutes then smell for gas. Be sure check near the floor as some types of gas are heavier than air.
7. If you smell gas after five minutes, immediately follow the safety instructions in the Safety Considerations on page 2 of this manual. If you do not smell gas after five minutes, move the furnace gas valve manual control to the ON position.
8. Replace the burner compartment door.
9. Open the manual gas shutoff valve external to the furnace.
10. Turn on the electrical power to the furnace.
11. Adjust the thermostat to a setting above room temperature.
12. After the burners are lit, set the thermostat to desired temperature.

Gas Heat Sequence of Operation

Call for Heat

- On a call for heat, the thermostat contacts close & the control board receives 24 VAC on the W terminal.
- The control board microcomputer runs its self-check routine.
- The control verifies the limit switch is closed (24 VAC on Pin 8 of the 12 Pin connector).
- The control verifies that pressure switch circuit is open (0 VAC on Pin 5).
- The control module performs a gas valve circuitry check to verify gas valve relay state and presence of voltage at the valve.
- The system will energize the Induced draft blower.
- The pre-purge period begins once the pressure switch is detected closed (24 VAC on Pin 5).
- After the completion of pre-purge, the control will energize the igniter.
- After completion of the ignitor warm-up period:
- The gas valve is energized.
- The ignitor is de-energized as soon as flame is sensed.
- After 30 seconds the indoor blower is energized on heating speed.
- When the thermostat is satisfied:
- The gas valve is de-energized.
- The inducer remains energized for the post purge period (15 seconds).
- The indoor blower runs for the selected off delay period (90 seconds by default, adjustable from 30 – 180 seconds).

Heating Mode Speed Selection

To change the main blower speed in HEATING mode, follow the following steps:

1. Press left or right button till LED displays “gA1 “(for single stage HEATING). Press center button and LED will display the selected speed number as Fxx (xx: Blower speed number).
2. The control shall rotate available speed number every time Left/Right switches are pressed. Table below shows the available speeds for Low & High heat mode.
3. When the center switch is pressed, the current displayed speed shall be selected, and control shall apply the newly selected speed in next heating call.

NOTE: Always refer to the Heating Chart to choose from available heating speeds

THERMOSTAT CALL	AVAILABLE SPEEDS
W/W1	F01
	F02 (DEFAULT)
	F03
	F04

Heating Speed Table for 1 Stage IFC

Continuous Fan Mode Speed Selection

To change the main blower speed in circulation mode, follow the following steps:

1. Press the left or right switch until LED displays “FSd”. Press the center switch and LED will display the selected speed number as Fxx (xx: Blower speed number from 1 to 9). F01 is the default speed for circulation.
2. The control will rotate available speed number every time left/right switches are pressed. All 9 speeds are available for circulation.
3. When the center switch is pressed, the current displayed speed will be selected, and control will immediately apply that speed setting.

THERMOSTAT CALL	AVAILABLE SPEEDS
G	F01 (DEFAULT)
	F02
	F03
	F04
	F05
	F06
	F07
	F08
	F09

Circulation Speed Table

Cooling Mode Sequence of Operation

Low Stage Cooling Mode Sequence:

On a call for low stage cooling, the Y/Y1 or Y/Y1 and G thermostat contacts close signaling the furnace control board with 24 VAC on Y/Y1 or Y/Y1 and G terminals.

- The 7-Segment will display the cool mode: `I A C`
- The compressor and condenser fan are energized.
- The circulator fan is energized at low cool speed after a cool on delay. The electronic air cleaner will also be energized.
- After the thermostat is satisfied, the compressor is de-energized and the Cool Mode Fan Off Delay period begins.
- Following the Cool Mode Fan Off Delay period, the cool circulator and air cleaner relay are de-energized.

2nd Stage Cooling Mode Sequence:

On a call for 2nd stage cooling, the Y2 or Y2 and G thermostat contacts close signaling the furnace control board with 24 VAC on Y2 or Y2 and G terminals.

- The 7-Segment will display the cool mode: 2 A C
- The compressor and condenser fan are energized.
- The circulator fan is energized at cool speed after a cool on delay. The electronic air cleaner will also be energized.
- After the thermostat is satisfied, the compressor is de-energized and the Cool Mode Fan Off Delay period begins.
- Following the Cool Mode Fan Off Delay period, the cool circulator and air cleaner relay are de-energized

Cooling Mode Speed Selection

To change the main blower speed in COOLING mode, follow the following steps:

1. Press the left or right switch until LED displays “AC1 “(for single stage COOLING) or “AC2 “(for two-stage COOLING). Press the center switch and LED will display the selected speed number as Fxx (xx: Blower speed number from 1 to 9).
2. The control will rotate available speed number every time left/right switches are pressed. All 9 speeds are available for both Single and Two Stage cooling.
3. When the center switch is pressed, the current displayed speed will be selected, and control will apply the newly selected speed in next cooling call.

THERMOSTAT CALL	AVAILABLE SPEEDS
Y/Y1	F01
	F02
	F03
	F04 (DEFAULT)
	F05
	F06
	F07
	F08
	F09

Single-Stage Cooling Speed Table for 2 Stage IFC

THERMOSTAT CALL	AVAILABLE SPEEDS
Y2	F01
	F02
	F03
	F04
	F05 (DEFAULT)
	F06
	F07
	F08
	F09

Two-Stage Cooling Speed Table for 2 Stage IFC

Furnace Shutdown

1. Set the thermostat to the lowest setting. The integrated control will close the gas valve and extinguish flame. Following a 15 second delay, the induced draft blower will be de-energized. After the blower off delay time expires, the blower de-energizes.
2. Remove the burner compartment door and move the furnace gas valve manual control to the OFF position.
3. Close the manual gas shutoff valve external to the furnace.
4. Replace the burner compartment door.

Filters

Filters must be used and well maintained. There are no provisions to install filters inside the furnace cabinet. Refer to the chart below for minimum filter sizes. A deep pleated filter or electronic air filter may also be used.

DM80SN Models

DM80SN furnaces require installer provision of a return air filter located on the side or bottom of the furnace or a centrally located filter.

DC80SN Models

DC80SN furnaces require installer provision of a filter rack located in the return air plenum or a centrally located filter

Upflow / Horizontal Models	Minimum Recommended Filter Size^
0403A	1 - 16 X 25 Side or 1 - 14 X 24 Bottom Return
0603A	1 - 16 X 25 Side or 1 - 14 X 24 Bottom Return
0604B	1 - 16 X 25 Side or Bottom Return
0803B	1 - 16 X 25 Side or Bottom Return
0804B	1 - 16 X 25 Side or Bottom Return
0805C	1 - 16 X 25 Side or Bottom Return[1]
0805D	2 - 16 X 25 Side or 1 - 20 X 25 Bottom Return
1005C	2 - 16 X 25 Side or 1 - 20 X 25 Bottom Return
1205D	2 - 16 X 25 Side or 1 - 24 X 24 Bottom Return
1405D	2 - 16 X 25 Side or 1 - 24 X 24 Bottom Return

Downflow Models	Minimum Recommended Filter Size^
0403A	2 - 10 X 20 or 1 - 14 X 25 Top Return
0603A	2 - 10 X 20 or 1 - 14 X 25 Top Return
0804B	2 - 14 X 20 or 1 - 16 X 25 Top Return
1005C	2 - 14 X 20 or 1 - 20 X 25 Top Return

^ Filters may also be centrally located

[1] = use 2 - 16 X 25 filters and two side returns or 20 X 25 filter on bottom return if furnace is connected to a cooling unit over 4 tons nominal capacity

Additional Filtering Accessories

External Filter Rack Kit (EFR01)

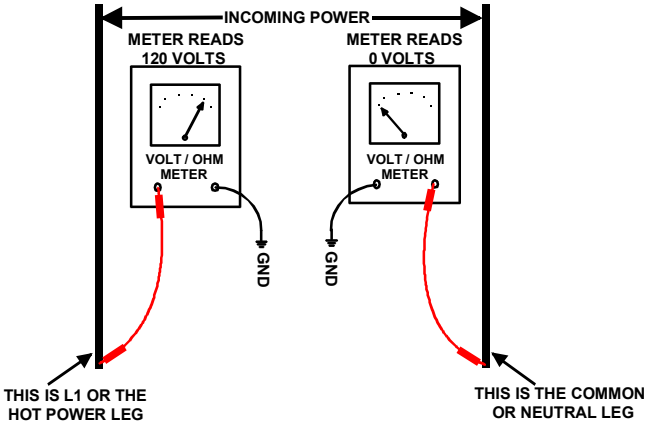
The external filter rack kit is intended to provide a location external to the furnace casing, for installation of a permanent filter on upflow model furnaces. The rack is designed to mount over the indoor blower compartment area of either side panel, and provide filter retention as well as a location for attaching return air ductwork.

POLARIZATION AND PHASING

As more and more electronics are introduced to the Heating Trade, Polarization of incoming power and phasing of primary to secondary voltage on transformers becomes more important.

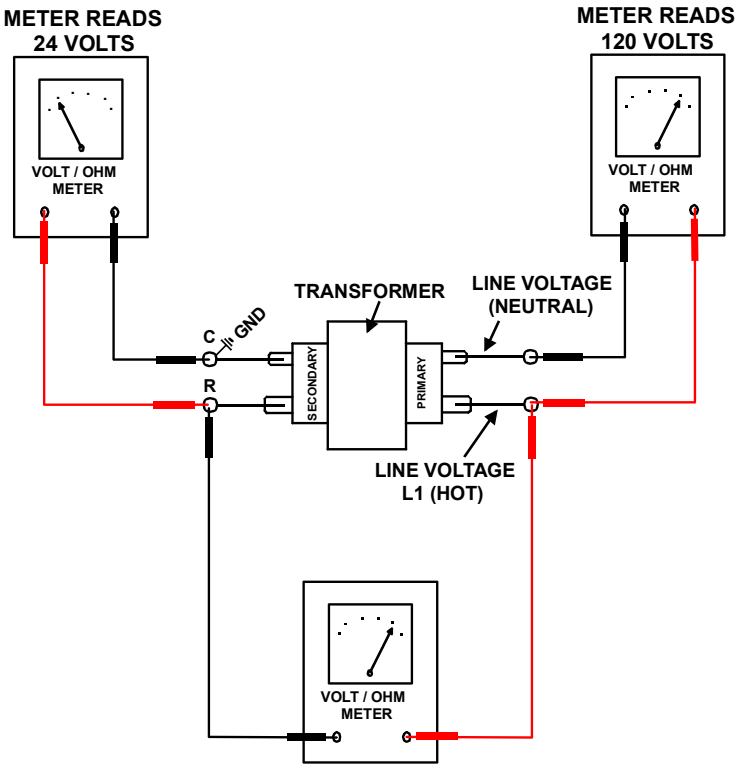
Polarization has been apparent in the Appliance industry since the introduction of the three prong plug, however, the Heating Industry does not use a plug for incoming power, but is hard wired.

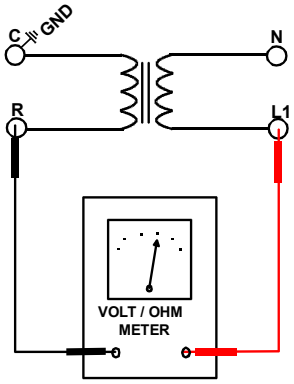
Some of the electronic boards being used today, with flame rectification, will not function properly and/or at all without polarization of incoming power. Some also require phasing between the primary and secondary sides of step-down transformers.



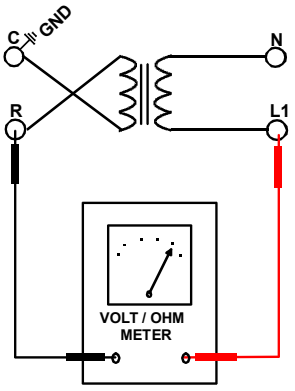
These then should be wired to the furnace accordingly.

CHECKING FOR PHASING - PRIMARY TO SECONDARY OF UNMARKED TRANSFORMERS*





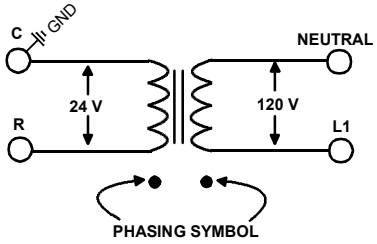
READS 96 VOLTS - IN PHASE



READS 144 VOLTS - OUT OF PHASE

If meter reads approximately 96 volts - the primary to secondary are in phase - if reads approximately 144 volts out of phase - reverse low voltage wires.

***NOTE:** For flame rectification the common side of the secondary voltage (24 V) is cabinet grounded. If you were to bench test a transformer the primary neutral and secondary common must be connected together for testing purposes.



WARNING

HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

MAINTENANCE

CAUTION

If you must handle the ignitor, handle with care. Touching the ignitor body with bare fingers, rough handling, or vibration could result in early ignitor failure. Only a qualified servicer should ever handle the ignitor.

Annual Inspection

The furnace should be inspected by a qualified installer, or service agency at least once per year. This check should be performed at the beginning of the heating season. This will ensure that all furnace components are in proper working order and that the heating system functions appropriately. Pay particular attention to the following items. Repair or service as necessary.

- Flue pipe system. Check for blockage and/or leakage. Check the outside termination and the connections at and internal to the furnace.
- Combustion air intake pipe system (where applicable). Check for blockage and/or leakage. Check the outside termination and the connection at the furnace.
- Heat exchanger. Check for corrosion and/or buildup within the heat exchanger passageways.
- Burners. Check for proper ignition, burner flame, and flame sense.
- Wiring. Check that electrical connections are tight and free from corrosion. Check wires for damage.
- Filters.

Air Filter

WARNING

Never operate the furnace without a filter installed as dust and lint will build up on internal parts resulting in loss of efficiency, equipment damage, and possible fire.

Filters must be used with this furnace. Filters do not ship with these furnaces but must be provided by the installer for proper furnace operation.

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

Maintenance

Improper filter maintenance is the most common cause of inadequate heating or cooling performance. Filters should be cleaned (permanent) or replaced (disposable) every two months or as required. It is the owner's responsibility to keep air filters clean. When replacing a filter, it must be replaced with a filter of the same type and size.

Induced Draft and Circulation Blowers

The bearings in the induced draft blower and circulator blower motors are permanently lubricated by the manufacturer. No further lubrication is required. Check motor windings for accumulation of dust which may cause overheating. Clean as necessary.

Flame Sensor (Qualified Servicer Only)

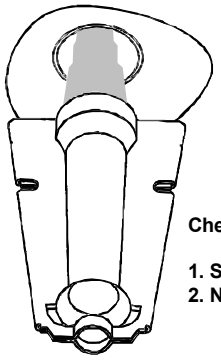
Under some conditions, the fuel or air supply can create a nearly invisible coating on the flame sensor. This coating acts as an insulator, causing a drop in the flame sensing signal. If this occurs, a qualified servicer must carefully clean the flame sensor with steel wool. After cleaning, the flame sensor output should be as listed on the specification sheet.

Burners

WARNING

HIGH VOLTAGE
Electrical components are contained in both compartments. To avoid electrical shock, injury or death, do not remove any internal compartment covers or attempt any adjustment. Contact a qualified service agent at once if an abnormal flame appearance should develop.

Periodically during the heating season make a visual check of the burner flames. Turn the furnace on at the thermostat. Wait a few minutes since any dislodged dust will alter the normal flame appearance. Flames should be stable, quiet, soft and blue with slightly orange tips. They should not be yellow. They should extend directly outward from the burner ports without curling downward, floating or lifting off the ports.



Check the burner flames for:

1. Stable, soft and blue
2. Not curling, floating, or lifting off.

Burner Flame

Test Equipment

Test equipment list for furnace servicing should include:

1. Multi-Meter for checking voltage & resistance
2. Clamp-on amp meter
3. Digital thermometer
4. Gas pressure test equipment
5. Combustible gas / Carbon Monoxide detector
6. Combustion Analyzer
7. Micro-amp meter

MAINTENANCE

Heating Performance Test

Before attempting to diagnose an operating fault, run a heating performance test and apply the results to the *Service Problem Analysis Guide.*

To conduct a heating performance test, the BTU input to the furnace must be calculated.

After the heating cycle has been in operation for at least fifteen minutes and with all other gas appliances turned off, the gas meter should be clocked.

To find the BTU input, multiply the number of cubic feet of gas consumed per hour by the heating value of the gas being used. (The calorific value of the gas being used is found by contacting your local utility.)

EXAMPLE: It is found by the gas meter, that it takes forty (40) seconds for the hand on the cubic foot dial to make one complete revolution, with all appliances off, except the furnace. Take this information and locate it on the gas rate chart. Observe the forty (40) seconds, locate and read across to the one (1) cubic foot dial column. There we find the number 90, which shows that ninety (90) cubic feet of gas will be consumed in one (1) hour.

Let's assume the local gas utility has stated that the calorific value of the gas is 1,025 BTU per cubic foot.

Multiplying the ninety (90) cubic feet by 1,025 BTU per cubic foot gives us an input of 92,250 BTUH.

Checking the BTU input on the rating plate of the furnace being tested.

EXAMPLE:
INPUT: 92,000 BTU/HR
OUTPUT CAP: 84,000

Should the figure you calculated not fall within five (5) percent of the nameplate rating of the unit, adjust the gas valve pressure regulator or resize orifices.

CAUTION

Always connect a manometer to the outlet tap at the gas valve before adjusting the pressure regulator. In no case should the final manifold pressure vary more than plus or minus .3 inches water column from 3.5 inches water column for natural gas or 10 inches water column for propane gas.

To adjust the pressure regulator on the gas valve, turn down (clockwise) to increase pressure and input, and out (counterclockwise) to decrease pressure and input.

Since normally propane gas is not installed with a gas meter, clocking will be virtually impossible. The gas orifices used with propane are calculated for 2500 BTU per cubic foot gas and with proper inlet pressures and correct piping size, full capacity will be obtained.

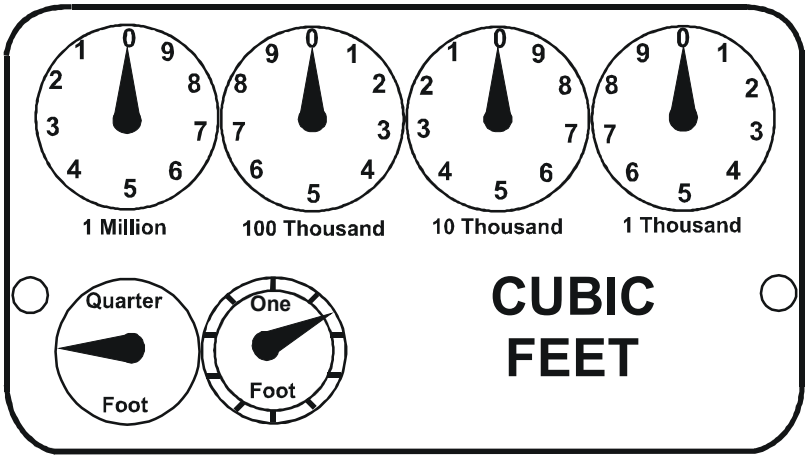
With propane gas, no unit gas valve regulator is used; however, the second stage supply line pressure regulator should be adjusted to give 11" water column with all other gas consuming appliances running.

The dissipation of the heat transferred to the heat exchanger is now controlled by the amount of air circulated over its surface.

The amount (CFM) of air circulated is governed by the external static pressure in inches of water column of duct work, cooling coil, registers, etc., applied externally to the unit versus the motor speed tap (direct drive) or pulley adjustments of the motor and blower (belt drive).

A properly operating unit must have the BTU per hour input and CFM of air, within the limits shown to prevent short cycling of the equipment. As the external static pressure goes up, the temperature rise will also increase. Consult the proper tables for temperature rise limitation.

SERVICING



GAS RATE -- CUBIC FEET PER HOUR											
Seconds for One Revolution	Size of Test Dial					Seconds for One Revolution	Size of Test Dial				
	1/4 cu/ft	1/2 cu/ft	1 cu/ft	2 cu/ft	5 cu/ft		1/4 cu/ft	1/2 cu/ft	1 cu/ft	2 cu/ft	5 cu/ft
10	90	180	360	720	1800	36	25	50	100	200	500
11	82	164	327	655	1636	37	--	--	97	195	486
12	75	150	300	600	1500	38	23	47	95	189	474
13	69	138	277	555	1385	39	--	--	92	185	462
14	64	129	257	514	1286	40	22	45	90	180	450
15	60	120	240	480	1200	41	--	--	--	176	439
16	56	113	225	450	1125	42	21	43	86	172	429
17	53	106	212	424	1059	43	--	--	--	167	419
18	50	100	200	400	1000	44	--	41	82	164	409
19	47	95	189	379	947	45	20	40	80	160	400
20	45	90	180	360	900	46	--	--	78	157	391
21	43	86	171	343	857	47	19	38	76	153	383
22	41	82	164	327	818	48	--	--	75	150	375
23	39	78	157	313	783	49	--	--	--	147	367
24	37	75	150	300	750	50	18	36	72	144	360
25	36	72	144	288	720	51	--	--	--	141	355
26	34	69	138	277	692	52	--	--	69	138	346
27	33	67	133	265	667	53	17	34	--	136	340
28	32	64	129	257	643	54	--	--	67	133	333
29	31	62	124	248	621	55	--	--	--	131	327
30	30	60	120	240	600	56	16	32	64	129	321
31	--	--	116	232	581	57	--	--	--	126	316
32	28	56	113	225	563	58	--	31	62	124	310
33	--	--	109	218	545	59	--	--	--	122	305
34	26	53	106	212	529	60	15	30	60	120	300
35	--	--	103	206	514						

SERVICING

SERVICE NUMBERS

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SERVICING

S-1 CHECKING VOLTAGE

WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

1. Remove the burner door to gain entry to the Junction Box.
2. Remove cover from the Junction Box and gain access to incoming power lines.

With Power ON:

WARNING

LINE VOLTAGE NOW PRESENT.

3. Using a voltmeter, measure the voltage across the hot and neutral connections.

NOTE: TO ENERGIZE THE FURNACE, THE DOOR INTERLOCK SWITCH MUST BE ENGAGED AT THIS POINT.

4. No reading - indicates open wiring, open fuse, no power, or faulty Door Interlock Switch from unit to fused disconnect service. Repair as needed.
5. With ample voltage at line voltage connectors, energize the furnace blower motor by jumpering terminals R to G on the integrated ignition control.
6. With the blower motor in operation, the voltage should be 115 volts ± 10 percent.
7. If the reading falls below the minimum voltage, check the line wire size. Long runs of undersized wire can cause low voltage. If wire size is adequate, notify the local power company of the condition.
8. After completing check and/or repair, replace Junction Box cover and reinstall the service panel doors.
9. Turn on electrical power and verify proper unit operation.

S-2 CHECKING WIRING

WARNING

DISCONNECT ALL POWER BEFORE SERVICING.

1. Check wiring visually for signs of overheating, damaged insulation and loose connections.
2. Use an ohmmeter to check continuity of any suspected open wires.
3. If any wires must be replaced, replace with AWM, 105°C. 2/64 thick insulation of the same gauge or its equivalent.

CHECKING THERMOSTAT, WIRING AND ANTICIPATOR

S-3A THERMOSTAT AND WIRING

WARNING

DISCONNECT ALL POWER BEFORE SERVICING.

1. Remove the blower compartment door to gain access to the thermostat low voltage wires located at the furnace integrated control module terminals.
2. Remove the thermostat low voltage wires at the furnace control panel terminal board.
3. Jumper terminals R to W on the integrated ignition control.

With Power On (and Door Interlock Switch closed):

WARNING

LINE VOLTAGE NOW PRESENT.

4. Induced Draft Motor must run and pull in pressure switch.
5. If the hot surface ignitor heats and at the end of the ignitor warm-up period the gas valve opens and the burners ignite, the trouble is in the thermostat or wiring.
6. With power off, check the continuity of the thermostat and wiring. Repair or replace as necessary.

If checking the furnace in the air conditioning mode, proceed as follows.

7. With power off, Jumper terminals R to Y to G.
8. Turn on the power.
9. If the furnace blower motor starts and the condensing unit runs, then the trouble is in the thermostat or wiring. Repair or replace as necessary.
10. After completing check and/or repair of wiring and check and/or replacement of thermostat, reinstall blower compartment door.
11. Turn on electrical power and verify proper unit operation.

S-3B HEATING ANTICIPATOR

On older thermostats the heating anticipator is a wire wound adjustable heater which is energized during the “ON” cycle to help prevent overheating of the conditioned space.

The anticipator is a part of the thermostat and if it should fail for any reason, the thermostat must be replaced. Some thermostats have a cycle rate adjustment switch to set cycles per hour.

SERVICING

The heating anticipator setting for furnaces covered in this manual is 0.70 Amps.

Cooling Anticipator

The cooling anticipator is a small heater (resistor) in the thermostat. During the "OFF" cycle it heats the bimetal element helping the thermostat call for the next cooling cycle. This prevents the room temperature from rising too high before the system is restarted. A properly sized anticipator should maintain room temperature within 1 1/2 to 2 degrees.

The anticipator is fixed in the subbase and is not to be replaced. If the anticipator should fail for any reason, the subbase must be changed.

S-4 CHECKING TRANSFORMER AND CONTROL CIRCUIT

A step-down transformer 120 volt primary to 24 volt secondary, 40 VA (Heating and Cooling Models) supplies ample capacity of power for either operation.

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Remove blower compartment door to gain access to the thermostat low voltage wires located at the furnace integrated control module.
2. Remove the thermostat low voltage wires at the furnace integrated control module terminals.

With Power On (and Door Interlock Switch closed):

WARNING

Line Voltage now present.

3. Use a voltmeter, check voltage across terminals R and C. Must read 24 VAC.
4. No voltage indicates faulty transformer, open fuse, bad wiring, bad splice, or open door interlock switch.
5. Check transformer primary voltage at incoming line voltage connections, fuse, splices, and blower door interlock switch.
6. If line voltage is available to the primary side of transformer and not at secondary side, the transformer is inoperative. Replace.
7. After completing check and/or replacement of transformer and check and/or repair of control circuit, reinstall blower compartment door.
8. Turn on electrical power and verify proper unit operation.

S-16 CHECKING AIR CIRCULATOR BLOWER MOTOR (MULTI-SPEED ECM)

WARNING

Disconnect ALL power before servicing.

1. Remove blower compartment door to gain access to the circulator blower motor and integrated ignition control.
2. Check for any obstruction that would keep the fan wheel / fan motor from turning.
3. Check wiring, the motor has two wiring harnesses, a main harness and a control harness. The main pin harness has:
   - White neutral wire connected to the Neutral terminal on the control board.
   - Black wire connected to the CIRC H terminal on the control board.
   - Red wire connected to the COM terminal, which is a female spade connection next to the T1 – T5 wires on the control board.
   - Green ground wire connected to cabinet ground

   The control harness has:
   - Blue wire connected to T1 on the control board.
   - Red wire connected to T2 on the control board.
   - Orange wire connected to T3 on the control board.
   - Black wire connected to T4 on the control board.
   - Yellow wire connected to T5 on the control board.

   The multi-speed ECM motor requires a line voltage power supply (black connected to CIRC H and white connected to neutral on the control board) as well as a signal on one of the speed taps (T1-T5).
   The speed tap voltage is A.C. and can vary which tap is energized depending on DIP switch selection. The voltage reading from any one of the speed taps is referenced between the female COM terminal next to the speed taps on the control board.
   From COM to T1 or T2, T3, T5, you should read 24 VAC on the low voltage speed taps depending on Dip switch settings.

Motor Tap Identification

CONNECTOR ID	DESCRIPTION	CONNECTOR VOLTAGE
L	LINE, L1	LINE, L1
G	GROUND	CHASSIS GROUND
N	LINE, L2	LINE, L2
C	SIGNAL COMMON	24VAC COMMON
1	TAP 1	24VAC
2	TAP 2	24VAC
3	TAP 3	24VAC
4	TAP 4	24VAC
5	TAP 5	24VAC

SERVICING

WARNING

Disconnect ALL power before servicing.

S-200 CHECKING DUCT STATIC

The maximum and minimum allowable external static pressures are found in the specification section. These tables also show the amount of air being delivered at a given static by a given motor speed or pulley adjustment.

The furnace motor cannot deliver proper air quantities (CFM) against statics other than those listed.

Too great of an external static pressure will result in insufficient air that can cause excessive temperature rise, resulting in limit tripping, etc. Whereas not enough static may result in motor overloading.

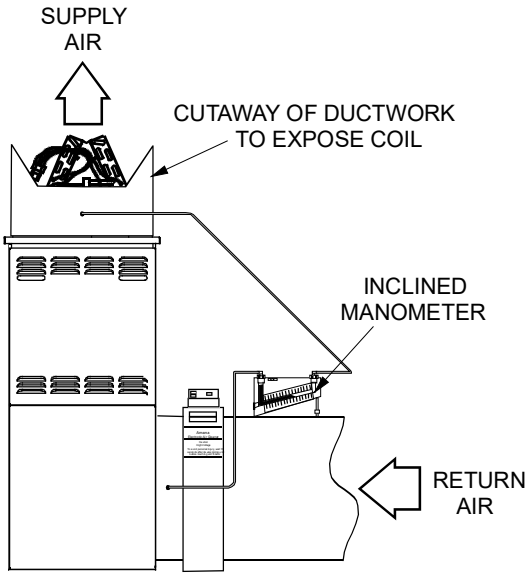
To determine proper air movement, proceed as follows:

1. With clean filters in the furnace, use a draft gauge (inclined manometer) to measure the static pressure of the return duct at the inlet of the furnace. (Negative Pressure)
2. Measure the static pressure of the supply duct. (Positive Pressure)
3. Add the two (2) readings together for total external static pressure.

NOTE: Both readings may be taken simultaneously and read directly on the manometer if so desired. If an air conditioner coil or Electronic Air Cleaner is used in conjunction with the furnace, the readings must also include theses components, as shown in the following drawing.

4. Consult proper tables for the quantity of air.

If the total external static pressure exceeds the minimum or maximum allowable statics, check for closed dampers, registers, undersized and/or oversized poorly laid out duct work.



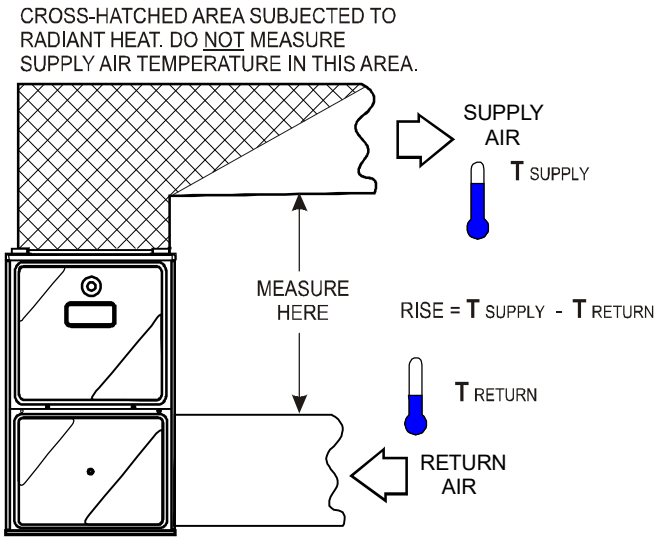
Checking Static Pressure
(80% Furnace Shown, 90% Similar)

S-201 CHECKING TEMPERATURE RISE

The more air (CFM) being delivered through a given furnace, the less the rise will be; so the less air (CFM) being delivered, the greater the rise. The temperature rise should be adjusted in accordance to a given furnace specifications and its external static pressure. An incorrect temperature rise may result in condensing in or overheating of the heat exchanger. An airflow and temperature rise table is provided in the blower performance specification section. Determine and adjust temperature rise as follows:

1. Operate furnace with burners firing for approximately ten minutes. Check BTU input to furnace - do not exceed input rating stamped on rating plate. Ensure all registers are open and all duct dampers are in their final (fully or partially open) position.
2. Place thermometers in the return and supply ducts as close to the furnace as possible. Thermometers must not be influenced by radiant heat by being able to “see” the heat exchanger.

SERVICING

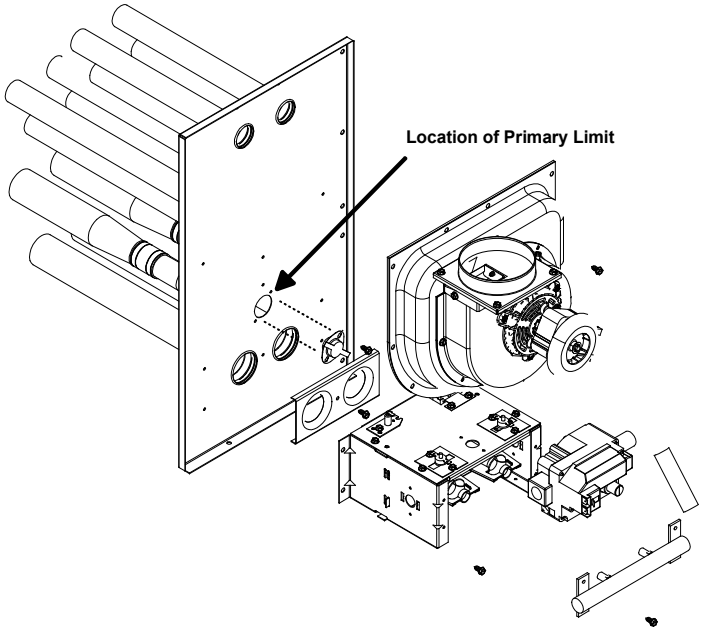


Checking Temperature Rise

3. Subtract the return air temperature from the supply air temperature to determine the air temperature rise. Allow adequate time for thermometer readings to stabilize.
4. Adjust temperature rise by adjusting the circulator blower speed. Increase blower speed to reduce temperature rise. Decrease blower speed to increase temperature rise. Refer to Circulator Blower Speed section in the Product Design section of this manual for speed changing details. Temperature rise is related to the BTUH output of the furnace and the amount of air (CFM) circulated over the heat exchanger. Measure motor current draw to determine that the motor is not overloaded during adjustments.

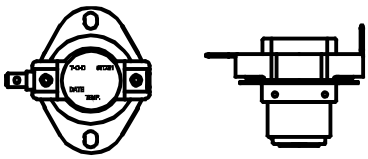
S-300 CHECKING PRIMARY LIMIT CONTROL

All use a nonadjustable, automatic reset, bi-metal type limit control. Refer to the following drawing for the location of the primary limit.



Primary Limit Control Location
(80% Upflow Furnace Shown, Counterflow Similar)

Style 1 drawing illustrates the Primary Limit used on the 80% furnaces.



Style 1

WARNING

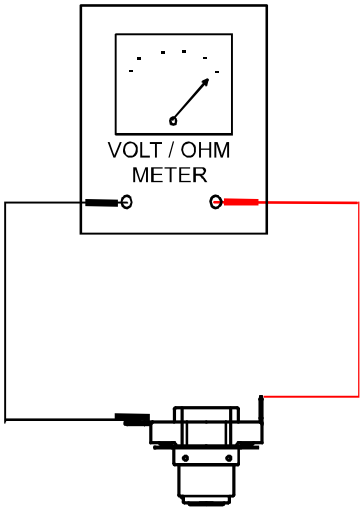
Do not bypass any safety circuit.

WARNING

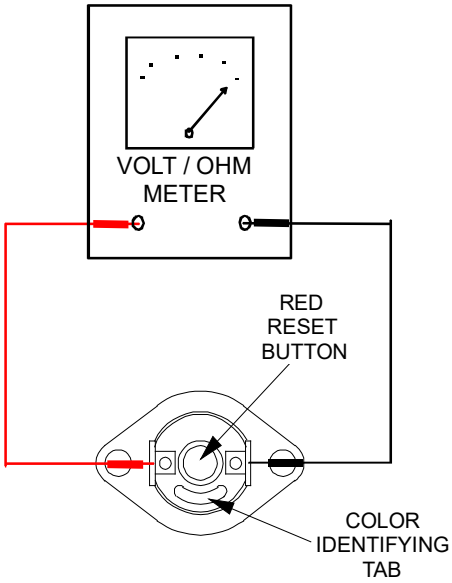
HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Remove burner compartment door to gain access to the primary limit.
2. Remove low voltage wires at limit control terminals.
3. With an ohmmeter, test between these two terminals as shown in the following drawing. The ohmmeter should read continuous unless heat exchanger temperature is above limit control setting. If not as above, replace the control.

SERVICING

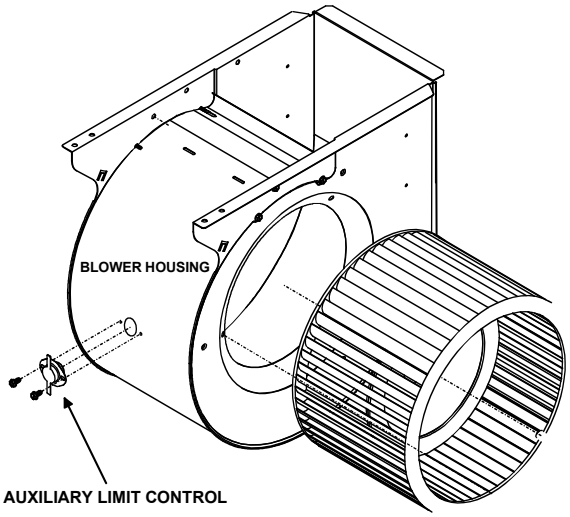


TESTING PRIMARY LIMIT CONTROL



TESTING AUXILIARY LIMIT CONTROL

S-301 CHECKING AUXILIARY LIMIT CONTROL



AUXILIARY LIMIT CONTROL LOCATION

WARNING

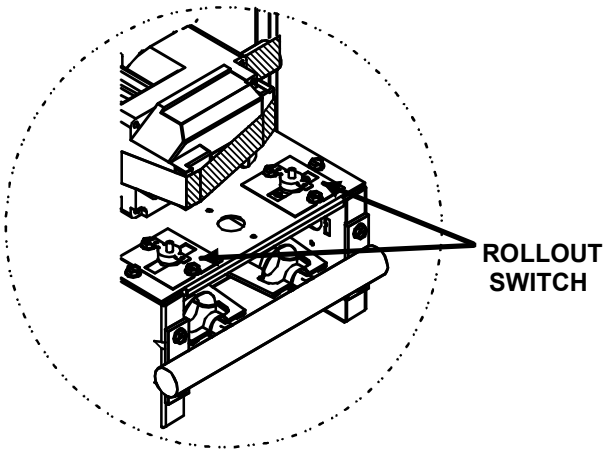
HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

TO AVOID POSSIBLE FIRE, ONLY RESET THE AUXILIARY LIMIT CONTROL ONCE. IF IT SHOULD OPEN A SECOND TIME, A QUALIFIED SERVICER MUST DETERMINE WHY THE AUXILIARY LIMIT OPENED BEFORE RESETTING AGAIN.

S-302 CHECKING FLAME ROLLOUT CONTROL

A temperature activated manual reset control is mounted to the manifold assembly on 80% furnaces.



FLAME ROLLOUT SWITCH LOCATION
(80% UPFLOW FURNACE SHOWN, DOWNFLOW SIMILAR)

SERVICING

The control is designed to open should a flame roll out occur. An over firing condition or flame impingement on the heat shield may also cause the control to open. If the rollout control opens, the air circulation blower will run continuously.

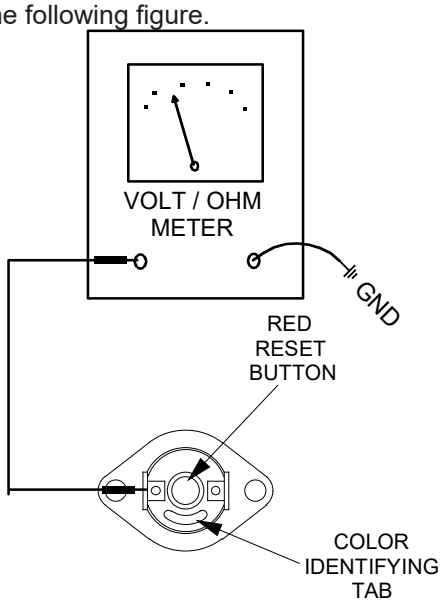
WARNING

Line Voltage now present.

1. Remove the burner compartment door to gain access to the rollout switch(es) mounted to burner bracket.

The servicer should reset the ignition control by opening and closing the thermostat circuit. Then look for the ignitor glowing which indicates there is power to the ignition control. Measure the voltage between each side of the rollout control and ground while the ignition control tries to power the gas valve.

2. Measure the voltage between each side of the rollout control and ground during the ignition attempt. Refer to the following figure.



Checking Flame Rollout Switch

   a. If no voltage is measured on either side of control it indicates ignition control or wiring to control problem.
   b. If voltage is measured on one side of the control and not the other it indicates the control is open.
   c. If voltage is measured on both sides of the control the wiring to gas valve or valve is at fault.

3. After check and/or replacement of rollout switch, reinstall burner compartment door and verify proper unit operation.

S-303 INDUCED DRAFT BLOWER MOTOR

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Remove burner compartment door to gain access to the induced draft blower motor.
2. Disconnect the motor wire leads from its connection point at the induced draft motor.
3. Using a ohmmeter, test for continuity between each of the motor leads.
4. Touch one probe of the ohmmeter to the motor frame (ground) and the other probe in turn to each lead. If the windings do not test continuous or a reading is obtained to ground, replace the motor.
5. If the windings have a continuity reading, reconnect wires. Turn power on to the furnace and turn the thermostat on in the heating mode. Check voltage for 115V at the induced draft motor terminals during the trial for ignition. If you have 115V and the motor does not run, replace the induced draft motor.
6. After completing check and/or replacement of induced draft motor, reinstall burner compartment door.
7. Turn on electrical power and verify proper unit operation.

S-304 CHECKING GAS VALVE (REDUNDANT)

A combination redundant operator type gas valve which provides all manual and automatic control functions required for gas fired heating equipment is used.

The valve provides control of main burner gas flow, pressure regulation, and 100 percent safety shut-off.

WARNING

Disconnect ALL power before servicing.

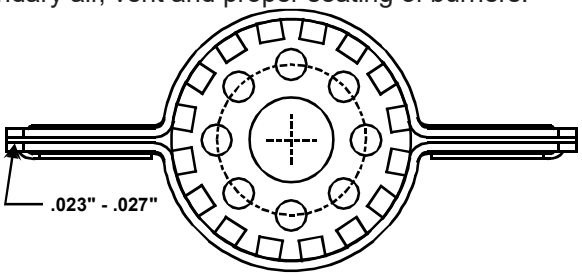
Single stage gas valves should be tested on the furnace with 24 VAC connected to the gas valve and manometers reading supply line and manifold pressures.

SERVICING

S-305 CHECKING MAIN BURNERS

The main burners are used to provide complete combustion of various fuels in a limited space, and transfer this heat of the burning process to the heat exchanger.

Proper ignition, combustion, and extinction are primarily due to burner design, orifice sizing, gas pressure, primary and secondary air, vent and proper seating of burners.



BECKETT BURNER

WARNING

DISCONNECT ALL GAS AND ELECTRIC POWER SUPPLY.

In checking main burners, look for signs of rust, oversized and undersized carry over ports restricted with foreign material, etc, refer to previous drawing. Burner cross-over slots must not be altered in size.

S-306 CHECKING ORIFICES

A predetermined fixed gas orifice is used in all of these furnaces. That is an orifice which has a fixed bore and position as shown in the following drawing.

No resizing should be attempted until all factors are taken into consideration such as inlet and manifold gas pressure, alignment, and positioning, specific gravity and BTU content of the gas being consumed.

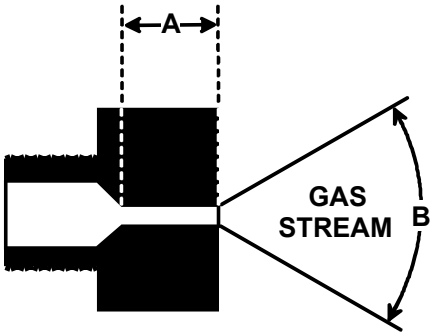
The only time resizing is required is when a reduction in firing rate is required for an increase in altitude.

Orifices should be treated with care in order to prevent damage. They should be removed and installed with a box-end wrench in order to prevent distortion. In no instance should an orifice be peened over and redrilled. This will change the angle or deflection of the vacuum effect or entraining of primary air, which will make it difficult to adjust the flame properly. This same problem can occur if an orifice spud of a different length is substituted.

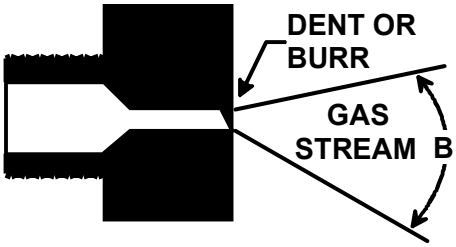
WARNING

DISCONNECT ALL GAS AND ELECTRIC POWER SUPPLY.

1. Check orifice visually for distortion and/or burrs.
2. Check orifice size with orifice sizing drills.
3. If resizing is required, a new orifice of the same physical size and angle with proper drill size opening should be installed.



The length of Dimension “A” determines the angle of Gas Stream “B”.



A dent or burr will cause a severe deflection of the gas stream.

S-307 CHECKING GAS PRESSURE

GAS SUPPLY PRESSURE MEASUREMENT

CAUTION

TO PREVENT UNRELIABLE OPERATION OR EQUIPMENT DAMAGE, THE INLET GAS SUPPLY PRESSURE MUST BE AS SPECIFIED ON THE UNIT RATING PLATE WITH ALL OTHER HOUSEHOLD GAS FIRED APPLIANCES OPERATING.

Gas inlet and manifold pressures should be checked and adjusted in accordance to the type of fuel being consumed.

The line pressure supplied to the gas valve must be within the range specified below. The supply pressure can be measured at the gas valve inlet pressure tap or at a hose fitting installed in the gas piping drip leg. The supply pressure must be measured with the burners operating. To measure the gas supply pressure, use the following procedure.

SERVICING

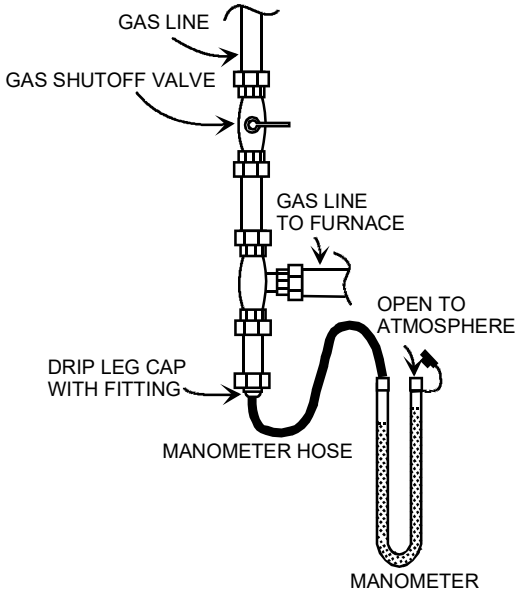
WARNING

Disconnect ALL Gas and Electric Power Supply.

1. After turning off gas to furnace at the manual gas shutoff valve external to the furnace, remove burner compartment door to gain access to the gas valve.
2. Connect a calibrated water manometer (or appropriate gas pressure gauge) at either the gas valve inlet pressure tap or the gas piping drip leg as shown in the following figures. Refer to *Measuring Gas Pressure: Single Stage Valves* figure for single stage valve inlet pressure tap connections.

NOTE: At either location, a hose fitting must be installed prior to making the hose connection.

NOTE: Use adapter kit #0151K00000S to measure gas pressure on White-Rodgers 36J22.



Measuring Inlet Gas Pressure (Alternate Method)

3. Turn ON the gas and electrical power supply and operate the furnace and all other gas consuming appliances on the same gas supply line.
4. Measure furnace gas supply pressure with burners firing. Supply pressure must be within the range specified in the following table.

INLET GAS SUPPLY PRESSURE		
Natural Gas	Minimum: 4.5" w.c.	Maximum: 10.0" w.c.
Propane Gas	Minimum: 11.0" w.c.	Maximum: 13.0" w.c.

If supply pressure differs from above, make necessary adjustments to pressure regulator, gas piping size, etc., and/or consult with local gas utility.

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

5. Disconnect manometer after turning off gas at manual shutoff valve. Reinstall plug before turning on gas to furnace.
6. Turn OFF any unnecessary gas appliances started in step 3.
7. Turn on gas to furnace and check for leaks. If leaks are found, repair and then reinstall burner compartment door.
8. Turn on electrical power and verify proper unit operation.

Gas Manifold Pressure Measurement and Adjustment

CAUTION

To prevent unreliable operation or equipment damage, the gas manifold pressure must be as a specified on the unit rating plate. Only minor adjustments should be made by adjusting the gas valve pressure regulator.

NOTE: Use adapter kit #0151K00000S to measure gas pressure on White-Rodgers 36J22 gas valves.

Only small variations in gas pressure should be made by adjusting the gas valve pressure regulator. The manifold pressure must be measured with the burners operating. To measure and adjust the manifold pressure, use the following procedure.

WARNING

HIGH VOLTAGE
Disconnect ALL electrical power and shut off gas supply before servicing or installing.

1. After turning off gas to furnace at the manual gas shutoff valve external to the furnace, remove burner compartment door to gain access to the gas valve.
2. Connect a calibrated water manometer (or appropriate gas pressure gauge) at the gas valve outlet pressure tap. Refer to Measuring Gas Pressure: Single Stage Valves figure for single stage valve outlet pressure tap connections.

WARNING

Line Voltage now present.

SERVICING

3. Turn ON the gas and electrical power supply and operate the furnace.
4. Measure gas manifold pressure with burners firing. Adjust manifold pressure using the table below.

Manifold Gas Pressure	
Natural Gas	3.5" w.c.
Propane Gas	10.0" w.c.

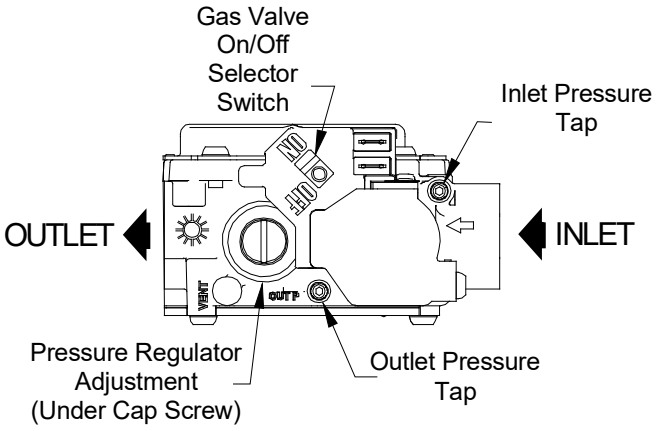
The final manifold pressure must not vary more than ± 0.3" w.c. from the above specified pressures. Any necessary major changes in gas flow rate should be made by changing the size of the burner orifice.

5. White-Rodgers 36J22 Valves:
   a. Back outlet pressure test screw (inlet/outlet pressure boss) out one turn (counterclockwise, not more than one turn).
   b. Attach a hose and manometer to the outlet pressure outlet pressure boss.
   c. Turn ON the gas supply.
   d. Turn on power and close thermostat "R" and "W" contacts to provide a call for low stage heat.
   e. Measure the gas manifold pressure with burners firing. Adjust manifold pressure using the *Manifold Gas Pressure* table shown below.
   f. Remove regulator cover screw from the outlet pressure regulator adjust tower and turn screw clockwise to increase pressure or counterclockwise to decrease pressure. Replace regulator cover screw.
   g. Turn off all electrical power and gas supply to the system.
   h. Remove the manometer hose from the hose barb fitting or outlet pressure boss.
   i. Turn outlet pressure test screw in to seal pressure port (clockwise, 7 in-lb minimum).
6. Honeywell VR8215 Valve:
   a. Remove the outlet pressure boss plug. Install an 1/8" NPT hose barb fitting into the outlet pressure tap.
   b. Attach a hose and manometer to the outlet pressure barb fitting.
   c. Turn ON the gas supply.
   d. Turn on power and close thermostat "R" and "W" contacts to provide a call for low stage heat.
   e. Measure the gas manifold pressure with burners firing. Adjust manifold pressure using the Manifold Gas Pressure table shown below.
   f. Remove regulator cover screw from the outlet pressure regulator adjust tower and turn screw clockwise to increase pressure or counterclockwise to decrease pressure. Replace regulator cover screw.
   g. Turn off all electrical power and gas supply to the system.
   h. Remove the manometer hose from the hose barb fitting or outlet pressure boss.
   i. Remove the 1/8" NPT hose barb fitting from the outlet pressure tap. Replace the outlet pressure boss plug and seal with a high quality thread sealer.

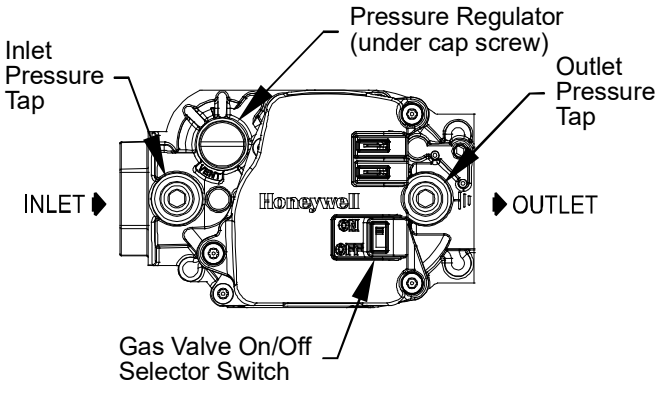
WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

7. Turn on gas to furnace and check for leaks. If leaks are found, repair and then reinstall burner compartment door.
8. Turn on electrical power and verify proper unit operation.



WHITE-RODGERS MODEL 36J22 (SINGLE-STAGE)



HONEYWELL MODEL VR8215

SERVICING

WARNING

HIGH VOLTAGE
DISCONNECT ALL ELECTRICAL POWER AND SHUT OFF GAS SUPPLY BEFORE SERVICING OR INSTALLING.

Manifold Gas Pressure			
Gas	**Rate**	**Range**	**Nominal**
Propane Gas	High Stage	9.7 to 10.3" w.c.	10.0" w.c.
	Low Stage	5.7 to 6.3" w.c.	6.0" w.c.

S-308 CHECKING HOT SURFACE IGNITOR

120V Mini Igniter Single Stage - furnaces use a 120V carbide mini igniter for ignition. The normal operating temperature is approximately 2550°F - 2876°F. At room temperature a good igniter will have an ohm reading range of 50 - 300.

WARNING

DISCONNECT ALL GAS AND ELECTRIC POWER SUPPLY.

1. Remove burner compartment door to gain access to the ignitor.
2. Ignitor cool - approximately 70 - 77°F.
3. Disconnect the ignitor from the Ignition Control.
4. Using an ohmmeter measure the resistance of the ignitor:
   Mini Igniter: Carbide Mini Igniter should read between 30 to 300 ohms.
5. Reconnect ignitor.

WARNING

LINE VOLTAGE NOW PRESENT.

6. Place unit in heating cycle, measure current draw of ignitor during preheat cycle.
   Models using 120V Mini Igniter:
   Should read approximately 1 amp maximum. The steady state current at 120V is a nominal of .7 plus or minus .3 amps.
7. After checking and/or replacing of hot surface ignitor, reinstall burner compartment door and verify proper unit operation. **120V Silicone Nitride Igniter** - (pt # 0130F00008) furnaces with a 120V silicone nitride igniter; The normal operating temperature is approximately 2156° F - 2678° F. At room temperature the igniter ohm reading should be from 37-68 ohms.

S-309 CHECKING FOR FLASHBACK

Flashback will also cause burning in the burner venturi, but is caused by the burning speed being greater than the gas-air flow velocity coming from a burner port.

Flashback may occur at the moment of ignition, after a burner heats up or when the burner turns off. The latter is known as extinction pop.

Since the end results of flashback and delayed ignition can be the same (burning in the burner venturi) a definite attempt should be made to determine which has occurred.

If flashback should occur, check for the following:

1. Improper gas pressure - adjust to proper pressure *(See S-307 CHECKING GAS PRESSURE).*
2. Check burner for proper alignment and/or replace burner.
3. Improper orifice size - check orifice for obstruction.

S-310 CHECKING PRESSURE SWITCH

The pressure switch a safety device to prevent the combustion cycle from occurring with inadequate venting caused by a restricted or blocked vent pipe on the 80% and 90% furnaces.

WARNING

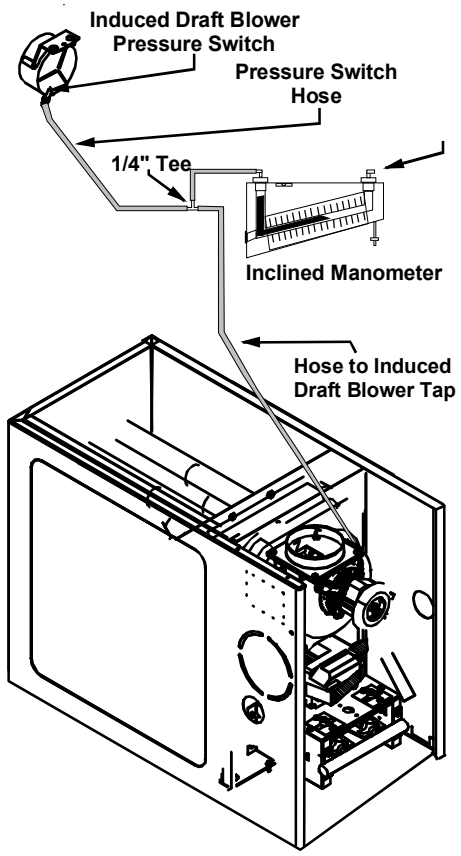
HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

1. Remove burner compartment door to gain access to pressure switch(es).
2. Remove wires from the pressure switch(es) electrical terminals.
3. Using a VOM check from common terminal to NC (Normally Closed) - should read open.

If switch reads as above proceed to Step 4, otherwise replace control.

4. Remove the pressure control hose from the control and interconnect with an inclined manometer as shown in the following figures.

SERVICING



ID Blower Pressure Switch Negative Pressure Measurement (80% Upflow Single-Stage Furnace Shown, Counterflow Similar)

S-311 HIGH ALTITUDE APPLICATION (USA)

The furnace as shipped requires no change to run between 0 - 5500 feet. Do not attempt to increase the firing rate by changing orifices or increasing the manifold pressure below 5500 feet. This can cause poor combustion and equipment failure. High altitude installations above 5500 feet may require both a pressure switch and an orifice change. These changes are necessary to compensate for the natural reduction in the density of both the gas fuel and the combustion air at higher altitude.

For installations above 5500 feet, please refer to your distributor for required kit(s). Contact the distributor for a tabular listing of appropriate manufacturer's kits for propane gas and/or high altitude installations. The indicated kits must be used to insure safe and proper furnace operation. All conversions must be performed by a qualified installer, or service agency.

In some areas the gas supplier may artificially derate the gas in an effort to compensate for the effects of altitude. If the gas is artificially derated the appropriate orifice size must be determined based on the BTU/ft3 content of the derated gas and the altitude. Refer to the National Fuel Gas Code, NFPA 54/ANSI Z223.1, and information provided by the gas supplier to determine the proper orifice size.

S-312 CHECKING FOR DELAYED IGNITION

Delayed ignition is a delay in lighting a combustible mixture of gas and air which has accumulated in the combustion chamber.

Furnace design makes this extremely unlikely unless safety controls have been by-passed or tampered with. Never by-pass or alter furnace controls.

If delayed ignition should occur, the following should be checked:

1. Improper gas pressure - adjust to proper pressure (See *S-307 CHECKING GAS PRESSURE*).
2. Improper burner positioning - burners should be in locating slots, level front to rear and left to right.
3. Carry over (lighter tube or cross lighter) obstructed - clean.
4. Main burner orifice(s) deformed, or out of alignment to burner - replace.

S-313 CHECKING INTEGRATED IGNITION CONTROL BOARDS

NOTE: Failure to earth ground the furnace, reversing the neutral and hot wire connection to the line (polarity), or a high resistance connection in the neutral line may cause the control to lockout due to failure to sense flame.

⚠ WARNING

To avoid the risk of electrical shock, wiring to the unit must be properly polarized and grounded. Disconnect power before performing service listed below.

The ground wire must run from the furnace all the way back to the electrical panel. Proper grounding can be confirmed by disconnecting the electrical power and measuring resistance between the neutral (white) connection and the burner closest to the flame sensor. Resistance should be less than 10 ohms.

The ignition control is a combination electronic and electromechanical device and is not field repairable. Complete unit must be replaced.

SERVICING

WARNING

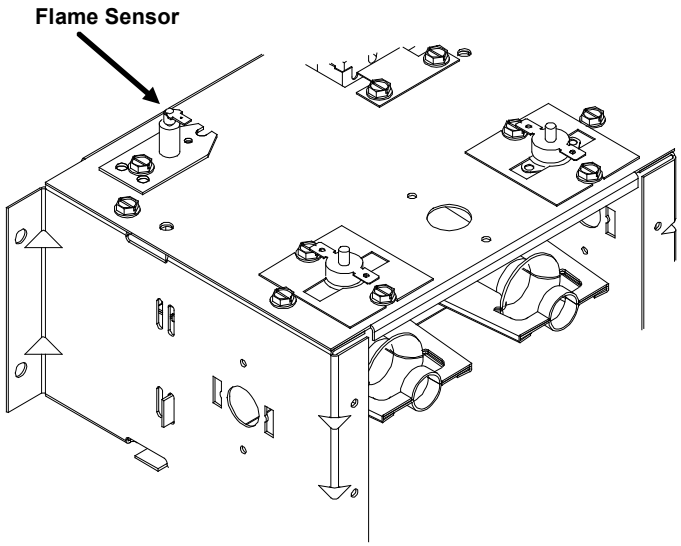
Line Voltage now present.

1. Check for 120 volts from Line 1 (Hot) to Line 2 (Neutral) at the ignition control. No voltage, check the door switch connections and wire harness for continuity.
2. Check for 24 volts from W to C terminal on the ignition control. No voltage. Check transformer, room thermostat, and wiring.
   If you have 24 volts coming off the transformer but receive approximately 13 volts on the terminal board between (C) and (R), check for blown fuse.
3. Check for 120 volts to the induced draft blower by measuring voltage between Pin 1 (on the 2-pin connector) and Line (Neutral) on the control board. No voltage, replace ignition control.
4. If voltage is present in Steps 1 through 3 and the induced draft blower is operating, check for 120 volts to the ignitor during the preheat cycle. Measure voltage between Pin 2 (on the 2-pin connector) and Line (Neutral) on the control board. No voltage, check pressure switch.
5. After the ignitor warmup time, begin checking for 24 volts to the gas valve. Voltage will be present for seven seconds only if proof of flame has been established.

S-314 CHECKING FLAME SENSOR

A flame sensing device is used in conjunction with the ignition control module to prove combustion. If proof of flame is not present the control will de-energize the gas valve and “retry” for ignition or lockout.

The following drawings illustrate from a bottom view, the approximate distances for the ignitor and flame sensor to the gas in shot burner. You will note they are in the main burner stream, not in the carry over ports as shown in the following figure.



Models with Integrated Ignition Control & Flame Sensor Probe (80% Upflow Model Shown, Counterflow Similar)

WARNING

HIGH VOLTAGE
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

1. Disconnect the blue flame sensor wire from the sensor.
2. Connect a micro-amp meter in series with this wire and the sensor terminal.
3. Place the unit into a heating cycle.

WARNING

Line Voltage now present.

4. As soon as flame is established a micro-amp reading should be evident once proof of flame (micro-amp reading) is established, the hot surface ignitor will be de-energized.
5. The Integrated Ignition controls will have 1 to 4 micro-amps. If the micro-amp reading is less than the minimum specified, check for high resistance wiring connections, sensor to burner gap, dirty flame sensor, or poor grounding.
6. If absolutely no reading, check for continuity on all components and if good - replace ignition control module.

NOTE: Contaminated fuel or combustion air can create a nearly invisible coating on the flame sensor. This coating works as an insulator causing a loss in the flame sense signal. If this situation occurs the flame sensor must be cleaned with steel wool.

SERVICING

DM80SN/ DC80SN Pressure Switch Trip Points And Usage Chart			
MODEL	ID BLOWER		
	Set Point on Pressure Fall (PF) W.C.	Max Make Pressure On Rise W.C.	Pressure Switch Part#
DM80SN0403A*	-0.70 ±0.06	-0.85	0130F00505
DM80SN0603A*	-0.75 ±0.07	-0.90	0130F00506
DM80SN0604B*	-0.75 ±0.07	-0.90	0130F00506
DM80SN0803B*	-0.70 ±0.06	-0.85	0130F00505
DM80SN0804B*	-0.70 ±0.06	-0.85	0130F00505
DM80SN0805C*	-0.75 ±0.07	-0.90	0130F00506
DM80SN1005C*	-0.70 ±0.06	-0.85	0130F00505
DM80SN1205D*	-0.80 ±0.05	-0.95	0130F00507
DC80SN0403A*	-0.60 ±0.06	-0.75	0130F00504
DC80SN0603A*	-0.60 ±0.06	-0.75	0130F00504
DC80SN0804B*	-0.60 ±0.06	-0.75	0130F00504
DC80SN1005C*	-0.80 ±0.05	-0.95	0130F00507

AIRFLOW TABLES

DM80SN

MODEL	THERMOSTAT CALL	TAP #	LOW STAGE COOLING AIRFLOW							
			EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DM80SN0403A*	Y/Y1	F01	658	585	545	495	444	390	332	151
		F02	749	697	652	607	554	509	459	406
		F03	925	881	840	800	760	721	681	645
		F04^	882	841	800	760	719	678	641	602
		F05	1330	1295	1273	1251	1223	1195	1168	1142
		F06	1130	1090	1059	1022	991	957	926	895
		F07	1158	1113	1090	1057	1024	996	964	935
		F08	1270	1235	1208	1179	1147	1119	1088	1060
		F09	1417	1380	1359	1336	1314	1288	1261	1238
DM80SN0603A*	Y/Y1	F01	659	599	542	490	437	383	320	N/A
		F02	1268	1221	1188	1154	1122	1091	1060	1029
		F03	1087	1044	1008	973	938	905	871	841
		F04^	1118	1070	1033	997	963	929	896	865
		F05	1308	1262	1224	1197	1167	1141	1117	1089
		F06	868	823	780	741	699	662	624	584
		F07	922	877	835	795	757	718	679	642
		F08	1382	1341	1311	1291	1263	1234	1206	1177
		F09	1492	1448	1409	1381	1354	1332	1310	1288
DM80SN0604B*	Y/Y1	F01	764	695	630	559	485	415	358	N/A
		F02	1287	1235	1191	1147	1104	1062	1020	979
		F03	1339	1301	1258	1217	1174	1131	1090	1048
		F04^	1396	1346	1298	1257	1217	1175	1135	1098
		F05	1185	1135	1088	1040	992	947	901	855
		F06	1500	1460	1420	1360	1340	1294	1256	1219
		F07	1591	1539	1493	1454	1416	1379	1347	1311
		F08	1675	1622	1583	1545	1510	1474	1440	1402
		F09	1790	1741	1701	1668	1631	1599	1567	1532
DM80SN0803B*	Y/Y1	F01	710	646	580	515	432	367	314	274
		F02	1298	1255	1216	1178	1140	1102	1067	1028
		F03	1209	1166	1124	1083	1045	1005	964	923
		F04^	1138	1091	1045	1001	959	920	876	832
		F05	1391	1352	1314	1278	1241	1209	1175	1140
		F06	977	931	880	836	785	734	683	626
		F07	1036	985	940	895	848	799	751	705
		F08	1456	1414	1376	1341	1302	1270	1238	1200
		F09	1533	1488	1452	1415	1383	1350	1317	1286
DM80SN0804B*	Y/Y1	F01	841	657	595	522	439	367	315	N/A
		F02	1141	1089	1045	1001	958	914	869	823
		F03	1311	1267	1226	1189	1150	1114	1072	1034
		F04^	1395	1347	1309	1270	1233	1199	1164	1125
		F05	1490	1447	1407	1373	1336	1303	1269	1237
		F06	1553	1510	1469	1435	1401	1368	1335	1300
		F07	1593	1548	1508	1474	1440	1409	1376	1343
		F08	1776	1735	1695	1661	1628	1601	1570	1542
		F09	1853	1812	1773	1739	1708	1679	1650	1623
DM80SN0805C*	Y/Y1	F01	837	752	671	576	501	426	361	315
		F02	1316	1270	1218	1166	1114	1061	1000	962
		F03	1353	1323	1286	1235	1183	1131	1085	1040
		F04^	1587	1544	1506	1459	1416	1372	1323	1281
		F05	1731	1673	1632	1587	1546	1506	1463	1421
		F06	1794	1744	1709	1671	1632	1591	1555	1513
		F07	1861	1805	1761	1720	1681	1642	1603	1565
		F08	1910	1873	1839	1798	1761	1723	1686	1648
		F09	2110	2055	2035	2003	1973	1946	1907	1890
DM80SN1005C*	Y/Y1	F01	802	724	637	551	468	389	342	294
		F02	1405	1356	1308	1262	1210	1182	1155	1102
		F03	1574	1531	1484	1440	1392	1357	1306	1256
		F04^	1619	1575	1526	1489	1446	1404	1355	1313
		F05	1688	1641	1600	1557	1513	1477	1428	1381
		F06	1811	1769	1730	1686	1649	1610	1572	1525
		F07	1857	1812	1774	1733	1697	1662	1622	1586
		F08	1892	1850	1805	1774	1735	1692	1658	1621
		F09	2116	2073	2039	2005	1981	1945	1909	1879
DM80SN1205D*	Y/Y1	F01	851	774	692	615	535	470	411	359
		F02	1677	1629	1583	1540	1498	1449	1399	1349
		F03	1537	1489	1444	1404	1365	1322	1272	1211
		F04^	1416	1365	1315	1267	1220	1163	1106	1048
		F05	1154	1098	1043	983	932	874	819	755
		F06	1806	1764	1729	1688	1654	1615	1578	1535
		F07	1869	1816	1773	1731	1693	1661	1629	1589
		F08	1947	1903	1865	1833	1802	1769	1743	1708
		F09	2107	2066	2030	1996	1963	1932	1899	1867

NOTE:
^ Default Speed

AIRFLOW TABLES

DM80SN

HIGH STAGE COOLING AIRFLOW

MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DM80SN0403A*	Y2	F01	658	585	545	495	444	390	332	151
		F02	749	697	652	607	554	509	459	406
		F03	925	881	840	800	760	721	681	645
		F04	882	841	800	760	719	678	641	602
		F05^	1330	1295	1273	1251	1223	1195	1168	1142
		F06	1130	1090	1059	1022	991	957	926	895
		F07	1158	1113	1090	1057	1024	996	964	935
		F08	1270	1235	1208	1179	1147	1119	1088	1060
		F09	1417	1380	1359	1336	1314	1288	1261	1238
DM80SN0603A*	Y2	F01	659	599	542	490	437	383	320	N/A
		F02	1268	1221	1188	1154	1122	1091	1060	1029
		F03	1087	1044	1008	973	938	905	871	841
		F04	1118	1070	1033	997	963	929	896	865
		F05^	1308	1262	1224	1197	1167	1141	1117	1089
		F06	868	823	780	741	699	662	624	584
		F07	922	877	835	795	757	718	679	642
		F08	1382	1341	1311	1291	1263	1234	1206	1177
		F09	1492	1448	1409	1381	1354	1332	1310	1288
DM80SN0604B*	Y2	F01	764	695	630	559	485	415	358	N/A
		F02	1287	1235	1191	1147	1104	1062	1020	979
		F03	1339	1301	1258	1217	1174	1131	1090	1048
		F04	1396	1346	1298	1257	1217	1175	1135	1098
		F05^	1185	1135	1088	1040	992	947	901	855
		F06	1500	1460	1420	1360	1340	1294	1256	1219
		F07	1591	1539	1493	1454	1416	1379	1347	1311
		F08	1675	1622	1583	1545	1510	1474	1440	1402
		F09	1790	1741	1701	1668	1631	1599	1567	1532
DM80SN0803B*	Y2	F01	710	646	580	515	432	367	314	274
		F02	1298	1255	1216	1178	1140	1102	1067	1028
		F03	1209	1166	1124	1083	1045	1005	964	923
		F04	1138	1091	1045	1001	959	920	876	832
		F05^	1391	1352	1314	1278	1241	1209	1175	1140
		F06	977	931	880	836	785	734	683	626
		F07	1036	985	940	895	848	799	751	705
		F08	1456	1414	1376	1341	1302	1270	1238	1200
		F09	1533	1488	1452	1415	1383	1350	1317	1286
DM80SN0804B*	Y2	F01	841	657	595	522	439	367	315	N/A
		F02	1141	1089	1045	1001	958	914	869	823
		F03	1311	1267	1226	1189	1150	1114	1072	1034
		F04	1395	1347	1309	1270	1233	1199	1164	1125
		F05^	1490	1447	1407	1373	1336	1303	1269	1237
		F06	1553	1510	1469	1435	1401	1368	1335	1300
		F07	1593	1548	1508	1474	1440	1409	1376	1343
		F08	1776	1735	1695	1661	1628	1601	1570	1542
		F09	1853	1812	1773	1739	1708	1679	1650	1623
DM80SN0805C*	Y2	F01	837	752	671	576	501	426	361	315
		F02	1316	1270	1218	1166	1114	1061	1000	962
		F03	1353	1323	1286	1235	1183	1131	1085	1040
		F04	1587	1544	1506	1459	1416	1372	1323	1281
		F05^	1731	1673	1632	1587	1546	1506	1463	1421
		F06	1794	1744	1709	1671	1632	1591	1555	1513
		F07	1861	1805	1761	1720	1681	1642	1603	1565
		F08	1910	1873	1839	1798	1761	1723	1686	1648
		F09	2110	2055	2035	2003	1973	1946	1907	1890
DM80SN1005C*	Y2	F01	802	724	637	551	468	389	342	294
		F02	1405	1356	1308	1262	1210	1182	1155	1102
		F03	1574	1531	1484	1440	1392	1357	1306	1256
		F04	1619	1575	1526	1489	1446	1404	1355	1313
		F05^	1688	1641	1600	1557	1513	1477	1428	1381
		F06	1811	1769	1730	1686	1649	1610	1572	1525
		F07	1857	1812	1774	1733	1697	1662	1622	1586
		F08	1892	1850	1805	1774	1735	1692	1658	1621
		F09	2116	2073	2039	2005	1981	1945	1909	1879
DM80SN1205D*	Y2	F01	851	774	692	615	535	470	411	359
		F02	1677	1629	1583	1540	1498	1449	1399	1349
		F03	1537	1489	1444	1404	1365	1322	1272	1211
		F04	1416	1365	1315	1267	1220	1163	1106	1048
		F05^	1154	1098	1043	983	932	874	819	755
		F06	1806	1764	1729	1688	1654	1615	1578	1535
		F07	1869	1816	1773	1731	1693	1661	1629	1589
		F08	1947	1903	1865	1833	1802	1769	1743	1708
		F09	2107	2066	2030	1996	1963	1932	1899	1867

NOTE:

^ Default Speed

AIRFLOW TABLES

DM80SN

MODEL	THERMOSTAT CALL	TAP #	CIRCULATION AIRFLOW							
			EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DM80SN0403A*	G	F01	658	585	545	495	444	390	332	151
		F02	749	697	652	607	554	509	459	406
		F03	925	881	840	800	760	721	681	645
		F04	882	841	800	760	719	678	641	602
		F05	1330	1295	1273	1251	1223	1195	1168	1142
		F06	1130	1090	1059	1022	991	957	926	895
		F07	1158	1113	1090	1057	1024	996	964	935
		F08	1270	1235	1208	1179	1147	1119	1088	1060
		F09	1417	1380	1359	1336	1314	1288	1261	1238
DM80SN0603A*	G	F01	659	599	542	490	437	383	320	N/A
		F02	1268	1221	1188	1154	1122	1091	1060	1029
		F03	1087	1044	1008	973	938	905	871	841
		F04	1118	1070	1033	997	963	929	896	865
		F05	1308	1262	1224	1197	1167	1141	1117	1089
		F06	868	823	780	741	699	662	624	584
		F07	922	877	835	795	757	718	679	642
		F08	1382	1341	1311	1291	1263	1234	1206	1177
		F09	1492	1448	1409	1381	1354	1332	1310	1288
DM80SN0604B*	G	F01	764	695	630	559	485	415	358	N/A
		F02	1287	1235	1191	1147	1104	1062	1020	979
		F03	1339	1301	1258	1217	1174	1131	1090	1048
		F04	1396	1346	1298	1257	1217	1175	1135	1098
		F05	1185	1135	1088	1040	992	947	901	855
		F06	1500	1460	1420	1360	1340	1294	1256	1219
		F07	1591	1539	1493	1454	1416	1379	1347	1311
		F08	1675	1622	1583	1545	1510	1474	1440	1402
		F09	1790	1741	1701	1668	1631	1599	1567	1532
DM80SN0803B*	G	F01	710	646	580	515	432	367	314	274
		F02	1298	1255	1216	1178	1140	1102	1067	1028
		F03	1209	1166	1124	1083	1045	1005	964	923
		F04	1138	1091	1045	1001	959	920	876	832
		F05	1391	1352	1314	1278	1241	1209	1175	1140
		F06	977	931	880	836	785	734	683	626
		F07	1036	985	940	895	848	799	751	705
		F08	1456	1414	1376	1341	1302	1270	1238	1200
		F09	1533	1488	1452	1415	1383	1350	1317	1286
DM80SN0804B*	G	F01	841	657	595	522	439	367	315	N/A
		F02	1141	1089	1045	1001	958	914	869	823
		F03	1311	1267	1226	1189	1150	1114	1072	1034
		F04	1395	1347	1309	1270	1233	1199	1164	1125
		F05	1490	1447	1407	1373	1336	1303	1269	1237
		F06	1553	1510	1469	1435	1401	1368	1335	1300
		F07	1593	1548	1508	1474	1440	1409	1376	1343
		F08	1776	1735	1695	1661	1628	1601	1570	1542
		F09	1853	1812	1773	1739	1708	1679	1650	1623
DM80SN0805C*	G	F01	837	752	671	576	501	426	361	315
		F02	1316	1270	1218	1166	1114	1061	1000	962
		F03	1353	1323	1286	1235	1183	1131	1085	1040
		F04	1587	1544	1506	1459	1416	1372	1323	1281
		F05	1731	1673	1632	1587	1546	1506	1463	1421
		F06	1794	1744	1709	1671	1632	1591	1555	1513
		F07	1861	1805	1761	1720	1681	1642	1603	1565
		F08	1910	1873	1839	1798	1761	1723	1686	1648
		F09	2110	2055	2035	2003	1973	1946	1907	1890
DM80SN1005C*	G	F01	802	724	637	551	468	389	342	294
		F02	1405	1356	1308	1262	1210	1182	1155	1102
		F03	1574	1531	1484	1440	1392	1357	1306	1256
		F04	1619	1575	1526	1489	1446	1404	1355	1313
		F05	1688	1641	1600	1557	1513	1477	1428	1381
		F06	1811	1769	1730	1686	1649	1610	1572	1525
		F07	1857	1812	1774	1733	1697	1662	1622	1586
		F08	1892	1850	1805	1774	1735	1692	1658	1621
		F09	2116	2073	2039	2005	1981	1945	1909	1879
DM80SN1205D*	G	F01	851	774	692	615	535	470	411	359
		F02	1677	1629	1583	1540	1498	1449	1399	1349
		F03	1537	1489	1444	1404	1365	1322	1272	1211
		F04	1416	1365	1315	1267	1220	1163	1106	1048
		F05	1154	1098	1043	983	932	874	819	755
		F06	1806	1764	1729	1688	1654	1615	1578	1535
		F07	1869	1816	1773	1731	1693	1661	1629	1589
		F08	1947	1903	1865	1833	1802	1769	1743	1708
		F09	2107	2066	2030	1996	1963	1932	1899	1867

AIRFLOW TABLES

DM80SN

HEATING AIRFLOW

MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)													TEMP RANGE
			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8	
			CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM	
DM80SN0403A*	W/W1	F01^^	658	N/A	585	N/A	545	N/A	495	N/A	444	N/A	390	332	151	25-55
		F02^	749	40	697	42	652	45	607	49	554	53	509	459	406	
		F03	925	32	881	34	840	35	800	37	760	39	721	681	645	
		F04	882	34	841	35	800	37	760	39	719	41	678	641	602	
DM80SN0603A*	W/W1	F01^^	659	N/A	599	N/A	542	N/A	490	N/A	437	N/A	383	320	N/A	20-50
		F02^	1268	35	1221	36	1188	37	1154	38	1122	40	1091	1060	1029	
		F03	1087	41	1044	43	1008	44	973	46	938	47	905	871	841	
		F04	1118	40	1070	42	1033	43	997	45	963	46	929	896	865	
DM80SN0604B*	W/W1	F01^^	764	N/A	695	N/A	630	N/A	559	N/A	485	N/A	415	358	N/A	20-50
		F02^	1287	35	1235	36	1191	37	1147	39	1104	40	1062	1020	979	
		F03	1339	33	1301	34	1258	35	1217	37	1174	38	1131	1090	1048	
		F04	1396	32	1346	33	1298	34	1257	35	1217	37	1175	1135	1098	
DM80SN0803B*	W/W1	F01^^	710	N/A	646	N/A	580	N/A	515	N/A	432	N/A	367	314	274	35-65
		F02^	1298	46	1255	47	1216	49	1178	50	1140	52	1102	1067	1028	
		F03	1209	49	1166	51	1124	53	1083	55	1045	57	1005	964	923	
		F04	1138	52	1091	54	1045	57	1001	59	959	62	920	876	832	
DM80SN0804B*	W/W1	F01^^	841	N/A	657	N/A	595	N/A	522	N/A	439	N/A	367	315	N/A	35-65
		F02^	1141	52	1089	54	1045	57	1001	59	958	62	914	869	823	
		F03	1311	45	1267	47	1226	48	1189	50	1150	52	1114	1072	1034	
		F04	1395	42	1347	44	1309	45	1270	47	1233	48	1199	1164	1125	
DM80SN0805C*	W/W1	F01^^	837	N/A	752	N/A	671	N/A	576	N/A	501	N/A	426	361	315	35-65
		F02^	1316	45	1270	47	1218	49	1166	51	1114	53	1061	1000	962	
		F03	1353	44	1323	45	1286	46	1235	48	1183	50	1131	1085	1040	
		F04	1587	37	1544	38	1506	39	1459	41	1416	42	1372	1323	1281	
DM80SN1005C*	W/W1	F01^^	802	N/A	724	N/A	637	N/A	551	N/A	468	N/A	389	342	294	35-65
		F02^	1405	53	1356	55	1308	57	1262	59	1210	61	1155	1102	1057	
		F03	1574	47	1531	48	1484	50	1440	51	1392	53	1357	1306	1256	
		F04	1619	46	1575	47	1526	49	1489	50	1446	51	1404	1355	1313	
DM80SN1205D*	W/W1	F01^^	851	N/A	774	N/A	692	N/A	615	N/A	535	N/A	470	411	359	40-70
		F02^	1677	53	1629	55	1583	56	1540	58	1498	59	1449	1399	1349	
		F03	1537	58	1489	60	1444	62	1404	63	1365	65	1322	1272	1211	
		F04^^	1416	N/A	1365	N/A	1315	N/A	1267	N/A	1220	N/A	1163	1106	1048	

NOTE:
^DEFAULT & RECOMMENDED
^^NOT RECOMMENDED FOR HEATING

AIRFLOW TABLES

DC80SN

			LOW STAGE COOLING AIRFLOW							
MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DC80SN0403AX	Y/Y1	F01	712	663	610	559	514	462	395	337
		F02	1120	1081	1053	1022	990	955	918	887
		F03	929	891	858	815	772	737	699	664
		F04^	1073	1031	1003	969	922	891	854	822
		F05	1212	1198	1161	1138	1103	1076	1037	1007
		F06	871	830	789	743	702	665	628	583
		F07	825	784	741	694	650	609	563	520
		F08	1274	1252	1220	1195	1169	1145	1110	1084
		F09	1362	1342	1307	1273	1252	1237	1211	1185
DC80SN0603AX	Y/Y1	F01	706	655	604	555	505	455	395	328
		F02	1035	991	951	913	876	844	807	770
		F03	932	887	844	806	767	728	689	651
		F04^	897	851	808	764	725	686	646	603
		F05	1123	1077	1041	1006	973	941	907	875
		F06	1155	1113	1074	1039	1006	974	945	913
		F07	1255	1214	1181	1147	1116	1087	1056	1028
		F08	1388	1331	1298	1266	1235	1207	1179	1151
		F09	1421	1380	1348	1318	1289	1262	1233	1207
DC80SN0804BX	Y/Y1	F01	760	697	636	569	481	402	349	300
		F02	1286	1238	1196	1157	1117	1077	1036	998
		F03	1393	1348	1308	1270	1230	1196	1158	1123
		F04^	1459	1414	1371	1336	1297	1264	1229	1193
		F05	1753	1713	1677	1642	1611	1576	1549	1518
		F06	1309	1261	1218	1182	1142	1103	1064	1025
		F07	1580	1534	1495	1459	1429	1390	1356	1324
		F08	1523	1483	1438	1403	1370	1336	1299	1266
		F09	1643	1599	1562	1525	1491	1462	1431	1394
DC80SN1005CX	Y/Y1	F01	956	777	675	587	468	377	324	296
		F02	1460	1404	1350	1299	1251	1203	1150	1098
		F03	1561	1499	1441	1385	1336	1289	1243	1197
		F04^	1628	1571	1521	1472	1425	1380	1337	1291
		F05	1714	1659	1611	1564	1519	1473	1432	1387
		F06	1833	1784	1735	1688	1645	1605	1562	1520
		F07	1899	1853	1804	1761	1720	1681	1640	1602
		F08	1926	1894	1849	1807	1764	1720	1683	1642
		F09	2222	2174	2132	2090	2053	2013	1976	1944

NOTE:

^ Default Speed

AIRFLOW TABLES DC80SN

MODEL	THERMOSTAT CALL	TAP #	HIGH STAGE COOLING AIRFLOW							
			EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DC80SN0403AX	Y2	F01	712	663	610	559	514	462	395	337
		F02	1120	1081	1053	1022	990	955	918	887
		F03	929	891	858	815	772	737	699	664
		F04	1073	1031	1003	969	922	891	854	822
		F05^	1212	1198	1161	1138	1103	1076	1037	1007
		F06	871	830	789	743	702	665	628	583
		F07	825	784	741	694	650	609	563	520
		F08	1274	1252	1220	1195	1169	1145	1110	1084
		F09	1362	1342	1307	1273	1252	1237	1211	1185
DC80SN0603AX	Y2	F01	706	655	604	555	505	455	395	328
		F02	1035	991	951	913	876	844	807	770
		F03	932	887	844	806	767	728	689	651
		F04	897	851	808	764	725	686	646	603
		F05^	1123	1077	1041	1006	973	941	907	875
		F06	1155	1113	1074	1039	1006	974	945	913
		F07	1255	1214	1181	1147	1116	1087	1056	1028
		F08	1388	1331	1298	1266	1235	1207	1179	1151
		F09	1421	1380	1348	1318	1289	1262	1233	1207
DC80SN0804BX	Y2	F01	760	697	636	569	481	402	349	300
		F02	1286	1238	1196	1157	1117	1077	1036	998
		F03	1393	1348	1308	1270	1230	1196	1158	1123
		F04	1459	1414	1371	1336	1297	1264	1229	1193
		F05^	1753	1713	1677	1642	1611	1576	1549	1518
		F06	1309	1261	1218	1182	1142	1103	1064	1025
		F07	1580	1534	1495	1459	1429	1390	1356	1324
		F08	1523	1483	1438	1403	1370	1336	1299	1266
		F09	1643	1599	1562	1525	1491	1462	1431	1394
DC80SN1005CX	Y2	F01	956	777	675	587	468	377	324	296
		F02	1460	1404	1350	1299	1251	1203	1150	1098
		F03	1561	1499	1441	1385	1336	1289	1243	1197
		F04	1628	1571	1521	1472	1425	1380	1337	1291
		F05^	1714	1659	1611	1564	1519	1473	1432	1387
		F06	1833	1784	1735	1688	1645	1605	1562	1520
		F07	1899	1853	1804	1761	1720	1681	1640	1602
		F08	1926	1894	1849	1807	1764	1720	1683	1642
		F09	2222	2174	2132	2090	2053	2013	1976	1944

NOTE:
^ Default Speed

AIRFLOW TABLES

DC80SN

MODEL	THERMOSTAT CALL	TAP #	CIRCULATION AIRFLOW							
			EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
			CFM	CFM	CFM	CFM	CFM	CFM	CFM	CFM
DC80SN0403AX	G	F01	712	663	610	559	514	462	395	337
		F02	1120	1081	1053	1022	990	955	918	887
		F03	929	891	858	815	772	737	699	664
		F04	1073	1031	1003	969	922	891	854	822
		F05	1212	1198	1161	1138	1103	1076	1037	1007
		F06	871	830	789	743	702	665	628	583
		F07	825	784	741	694	650	609	563	520
		F08	1274	1252	1220	1195	1169	1145	1110	1084
		F09	1362	1342	1307	1273	1252	1237	1211	1185
DC80SN0603AX	G	F01	706	655	604	555	505	455	395	328
		F02	1035	991	951	913	876	844	807	770
		F03	932	887	844	806	767	728	689	651
		F04	897	851	808	764	725	686	646	603
		F05	1123	1077	1041	1006	973	941	907	875
		F06	1155	1113	1074	1039	1006	974	945	913
		F07	1255	1214	1181	1147	1116	1087	1056	1028
		F08	1388	1331	1298	1266	1235	1207	1179	1151
		F09	1421	1380	1348	1318	1289	1262	1233	1207
DC80SN0804BX	G	F01	760	697	636	569	481	402	349	300
		F02	1286	1238	1196	1157	1117	1077	1036	998
		F03	1393	1348	1308	1270	1230	1196	1158	1123
		F04	1459	1414	1371	1336	1297	1264	1229	1193
		F05	1753	1713	1677	1642	1611	1576	1549	1518
		F06	1309	1261	1218	1182	1142	1103	1064	1025
		F07	1580	1534	1495	1459	1429	1390	1356	1324
		F08	1523	1483	1438	1403	1370	1336	1299	1266
		F09	1643	1599	1562	1525	1491	1462	1431	1394
DC80SN1005CX	G	F01	956	777	675	587	468	377	324	296
		F02	1460	1404	1350	1299	1251	1203	1150	1098
		F03	1561	1499	1441	1385	1336	1289	1243	1197
		F04	1628	1571	1521	1472	1425	1380	1337	1291
		F05	1714	1659	1611	1564	1519	1473	1432	1387
		F06	1833	1784	1735	1688	1645	1605	1562	1520
		F07	1899	1853	1804	1761	1720	1681	1640	1602
		F08	1926	1894	1849	1807	1764	1720	1683	1642
		F09	2222	2174	2132	2090	2053	2013	1976	1944

AIRFLOW TABLES

DC80SN

HEATING AIRFLOW

MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)													TEMP RANGE
			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8	
			CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM	
DC80SN0403AX	W/W1	F01^^	712	N/A	663	N/A	610	N/A	559	N/A	514	N/A	462	395	337	25-55
		F02^	1120	26	1081	27	1053	28	1022	29	990	30	955	918	887	
		F03	929	32	891	33	858	35	815	36	772	38	737	699	664	
		F04	1073	28	1031	29	1003	30	969	31	922	32	891	854	822	
DC80SN0603AX	W/W1	F01^^	706	N/A	655	N/A	604	N/A	555	N/A	505	N/A	455	395	328	30-60
		F02^	1035	43	991	45	951	47	913	49	876	51	844	807	770	
		F03	932	48	887	50	844	53	806	55	767	58	728	689	651	
		F04^^	897	N/A	851	N/A	808	N/A	764	N/A	725	N/A	686	646	603	
DC80SN0804BX	W/W1	F01^^	760	N/A	697	N/A	636	N/A	569	N/A	481	N/A	402	349	300	35-65
		F02^	1286	46	1238	48	1196	50	1157	51	1117	53	1077	1036	998	
		F03	1393	43	1348	44	1308	45	1270	47	1230	48	1196	1158	1123	
		F04	1459	41	1414	42	1371	43	1336	44	1297	46	1264	1229	1193	
DC80SN1005CX	W/W1	F01^^	956	N/A	777	N/A	675	N/A	587	N/A	468	N/A	377	324	296	40-70
		F02^	1460	51	1404	53	1350	55	1299	57	1251	59	1203	1150	1098	
		F03	1561	47	1499	49	1441	51	1385	53	1336	55	1289	1243	1197	
		F04	1628	46	1571	47	1521	49	1472	50	1425	52	1380	1337	1291	

NOTE:
^DEFAULT & RECOMMENDED
^^NOT RECOMMENDED FOR HEATING

1 STAGE STATUS CODES

Menu Description	LED Display		Notes
	Main Menu	Option Menu	
Active Alarm menu	Err	Exx	(xx: code numbers)
Last 6 Faults	LbF	Exx	(xx: code numbers)
Code Release Number	Cr	CR Number	
Reset to Factory Default	rFd	yes, no	
Blower Speed for Continous Fan Mode	FSd	Fxx	(xx: Blower Speed Number F01, F02..)
Blower Speed for 1st Stage Compressor Mode	AC1	Fxx	(xx: Blower Speed Number F01, F02..)
Blower Speed for 2nd Stage Compressor Mode	AC2	Fxx	(xx: Blower Speed Number F01, F02..)
Cool On Delay	Cnd	Delay, Seconds	Default set at 7 Secs, Adjustments can be made in 7 Secs increments from 0 to 35 Secs
Cool Off Delay	CFd	Delay, Seconds	Default set at 65 Secs, Adjustments can be made in 5 Secs increments from 0 to 120 Secs
Blower Speed for Gas Heat Mode	gAF	Fxx	(xx: Blower Speed Number F01, F02..)
Gas Heat On Delay	gnd	Delay, Seconds	Default set at 30 Secs, Adjustments can be made in 5 Secs increments from 5 to 30 Secs
Gas heat Off Delay	gFd	Delay, Seconds	Default set at 90 Secs, Adjustments can be made in 30 Secs increments from 30 to 180 Secs
Automatic Heat Staging - For Two Stage Control	AHS	no, 10, 20, 30, 60, AUt	Refer to Section " CHANGING HEATING MODE SETTING"

1 STAGE STATUS CODES

STATUS MENU

Mode	Main Menu
Idle	idL
Continous Fan	FAn
Compressor Cooling, Low Stage	1AC
Compressor Cooling, High Stage	2AC
Gas heat - Single Stage Control	9H
OEM test Mode	EOL

1 STAGE TROUBLESHOOTING CODES

TROUBLESHOOTING CHART			
Symptom	**LED Status**	**Fault Description**	**Corrective Actions**
Normal operation	1 dL	Normal operation	None
Furnace fails to operate	EE0	Furnace lockout due to an excessive number of ignition “retries” (3 total) Failure to establish flame Loss of flame after establishment	Locate and correct gas interruption Replace or realign igniter Check flame sense signal, clean sensor if coated or oxidized Check flue piping for blockage, proper length, elbows, and termination Verify proper induced draft blower performance
Furnace fails to operate	EE1	Pressure switch circuit is closed at start of heating cycle Pressure switch contacts sticking Short in pressure switch circuit wiring	Replace low stage pressure switch Repair short in wiring
Induced draft blower runs continuously with no furnace operation	EE2	Pressure switch circuit is not closed Pressure switch hose blocked pinched, or connected improperly Blocked flue and/or inlet air pipe, blocked drain system or weak induced draft blower Incorrect pressure switch set point or malfunctioning switch contacts Loose or improperly connected wiring	Inspect pressure switch hose, repair/replace if necessary Inspect flue piping for blockage, proper length, elbows, and termination Check induced draft blower performance, correct as necessary Check pressure switch operation, replace as needed Tighten or correct wiring connection
Circulator blower runs continuously No furnace operation	EE3	Primary limit circuit is open Insufficient conditioned air over the heat exchanger Blocked filters, restrictive ductwork, improper circulator blower speed, or failed circulator blower motor Loose or improperly connected wiring in high limit circuit	Check filters and ductwork for blockage Clean filters or remove obstruction Check circulator blower speed and performance Correct speed or replace blower motor if necessary Tighten or correct wiring connection
Induced draft blower and circulator blower runs continuously No furnace operation	EE4	Flame sensed with no call for heat Short to ground in flame sense circuit Lingering burner flame Slow closing gas valve	Correct short at flame sensor or in flame sensor wiring Check for lingering or lazy flame Verify proper operation of gas valve
No furnace operation	EE5	Open fuse Short in low voltage wiring	Replace fuse Locate and correct short in low voltage wiring

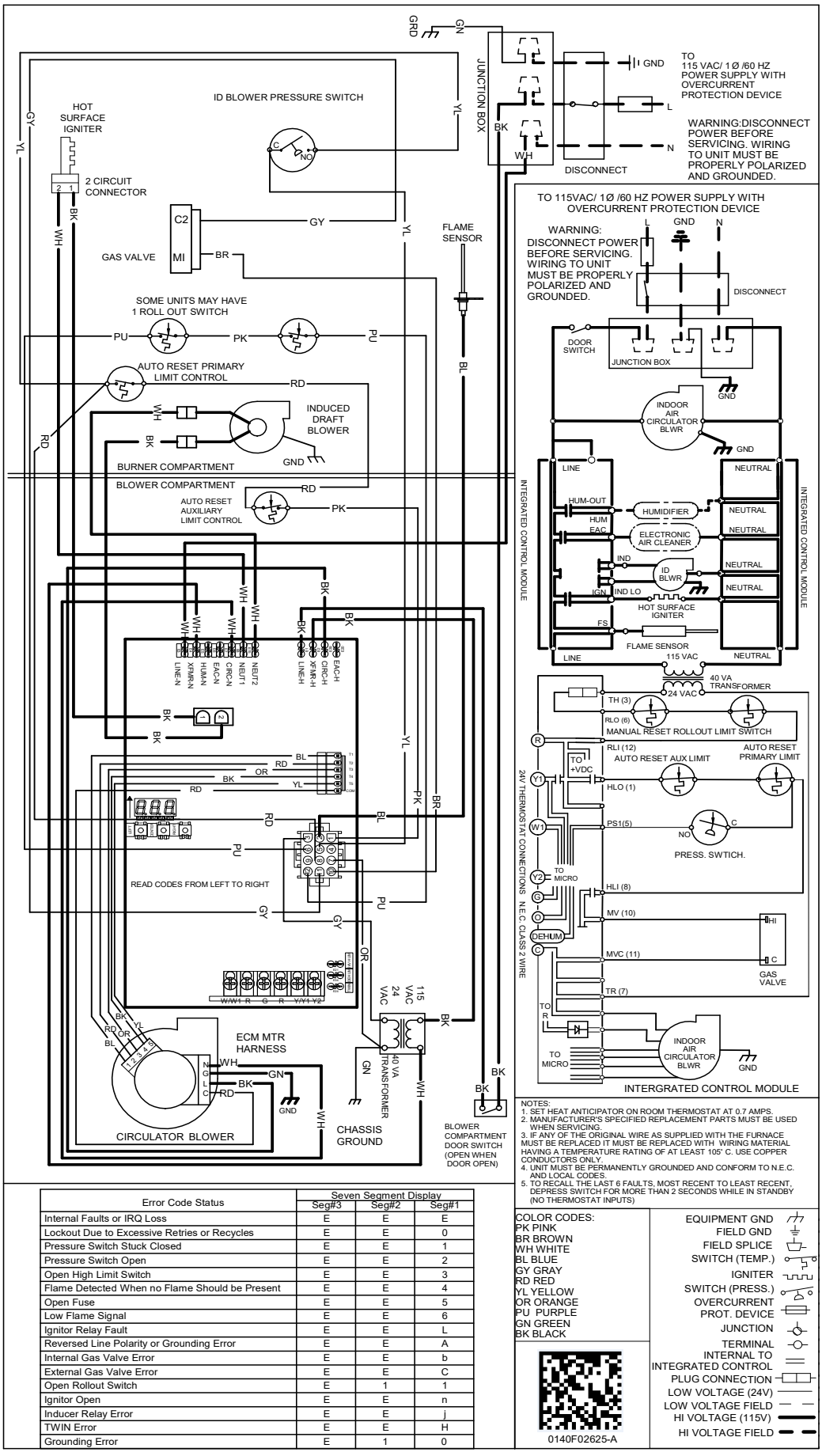
To View & Clear Fault Codes

- Press either the Left or Right switch until L b F is displayed.
- Press the center switch to view stored faults.
- Press and hold the center switch for 5 to 30 seconds.
- All stored faults will be erased, and the display will flash - - - three times and return to L b F.

1 STAGE TROUBLESHOOTING CODES

TROUBLESHOOTING CHART			
Symptom	**LED Status**	**Fault Description**	**Corrective Actions**
Normal furnace operation	EE6	Flame sense micro amp signal is minimal Flame sensor is coated/oxidized Flame sensor incorrectly positioned in burner fame Lazy burner flame due to improper gas pressure or combustion air	Clean flame sensor if coated or oxidized Inspect for proper flame sensor alignment Compare current gas pressure to rating plate and adjust as needed
Furnace fails to operate	EEL	Problem with igniter circuit Improperly connected or shorted igniter Poor unit ground Igniter relay fault on integrated control module	Check and correct wiring from integrated control module to igniter Diagnose and replace shorted igniter as needed Verify and correct unit ground wiring if needed Check igniter output from control, replace if necessary
Furnace fails to operate	EEA	Polarity of 115 volt AC is reversed Poor unit ground	Correct polarity, check and correct wiring if necessary Verify proper ground, correct if necessary
Furnace fails to operate	EEb	Gas valve is not energized when it should be External Gas Valve Error	Check wiring in gas valve circuit Replace integrated control board
Furnace fails to operate	EEC	Gas valve is energized when it should not be Internal gas valve error	Check wiring in gas valve circuit Replace integrated control board
Furnace fails to operate. Integrated control module LED display provides no signal	None	No 115 power to furnace or no 24 volt power to integrated control module. Blown fuse or tripped circuit breaker Integrated control module is non- functional	Restore high voltage power to furnace and integrated control module. Correct condition which caused fuse to open, replace fuse Replace non-functional integrated control module.
Furnace fails to operate	E10	Grounding fault Poor neutral connection	Verify neutral wire connection to furnace & continuity to ground source
Furnace fails to operate	E11	Open roll out switch	Check for correct gas pressure Check for correct burner alignment Check for and correct burner restriction
Furnace fails to operate	EEn	Ignitor Open	Check for Ignitor wiring. Replace Damaged Ignitor
Furnace fails to operate	EEJ	Inducer relay Error	Replace integrated control board
Twinning feature not working	EEH	TWIN Error	Check for wiring connections. Replace integrated control board
Furnace fails to operate	EEE	Internal Faults or IRQ Loss in Control Board	Replace integrated control board

WIRING DIAGRAM



WARNING

HIGH VOLTAGE!
Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

Error Code Status	Seven Segment Display		
	Seg#3	Seg#2	Seg#1
Internal Faults or IRQ Loss	E	E	E
Lockout Due to Excessive Retries or Recycles	E	E	0
Pressure Switch Stuck Closed	E	E	1
Pressure Switch Open	E	E	2
Open High Limit Switch	E	E	3
Flame Detected When no Flame Should be Present	E	E	4
Open Fuse	E	E	5
Low Flame Signal	E	E	6
Ignitor Relay Fault	E	E	L
Reversed Line Polarity or Grounding Error	E	E	A
Internal Gas Valve Error	E	E	b
External Gas Valve Error	E	E	C
Open Rollout Switch	E	1	1
Ignitor Open	E	E	n
Inducer Relay Error	E	E	j
TWIN Error	E	E	H
Grounding Error	E	1	0

NOTES:
1. SET HEAT ANTICIPATOR ON ROOM THERMOSTAT AT 0.7 AMPS.
2. MANUFACTURER'S SPECIFIED REPLACEMENT PARTS MUST BE USED WHEN SERVICING.
3. IF ANY OF THE ORIGINAL WIRE AS SUPPLIED WITH THE FURNACE MUST BE REPLACED IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105° C. USE COPPER CONDUCTORS ONLY.
4. UNIT MUST BE PERMANENTLY GROUNDED AND CONFORM TO N.E.C. AND LOCAL CODES.
5. TO RECALL THE LAST 6 FAULTS, MOST RECENT TO LEAST RECENT, DEPRESS SWITCH FOR MORE THAN 2 SECONDS WHILE IN STANDBY (NO THERMOSTAT INPUTS)

COLOR CODES:
PK PINK
BR BROWN
WH WHITE
BL BLUE
GY GRAY
RD RED
YL YELLOW
OR ORANGE
PU PURPLE
GN GREEN
BK BLACK

EQUIPMENT GND
FIELD GND
FIELD SPLICE
SWITCH (TEMP.)
IGNITER
SWITCH (PRESS.)
OVERCURRENT PROT. DEVICE
JUNCTION
TERMINAL
INTERNAL TO INTEGRATED CONTROL
PLUG CONNECTION
LOW VOLTAGE (24V)
LOW VOLTAGE FIELD
HI VOLTAGE (115V)
HI VOLTAGE FIELD

0140F02625-A

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

CUSTOMER FEEDBACK
Daikin is very interested in all product comments.
Please fill out the feedback form on the following link:
https://daikincomfort.com/contact-us
You can also scan the QR code on the right to be directed to the feedback page.