

OPERATION, SERVICE AND MAINTENANCE MANUAL



HM SERIES DUCT HEATER MODULE

Gas-Fired Duct Furnace ANSI Z83.8 / CSA 2.6

Gas-Fired Central Furnace ANSI Z21.47 / CSA 2.3

WARNING !

Improper installation, adjustment, alteration, service or maintenance can cause injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

IMPORTANT

The use of this manual is specifically intended for a qualified installation and service agency. A qualified installation and service agency must perform all installation and service of these appliances.

This manual must be kept with the appliance for future reference.

FOR YOUR SAFETY

WHAT TO DO IF YOU SMELL GAS:

1. DON'T TOUCH ELECTRICAL SWITCHES OR USE ANY PHONE IN THE BUILDING
2. EXTINGUISH ANY OPEN FLAME
3. LEAVE THE BUILDING IMMEDIATELY
4. IMMEDIATELY CALL GAS SUPPLIER



The duct furnace module covered by this manual is a component of a “Listed” product, subject to the guidelines of application as designated by the Certifying Agency and outlined in the appliance Manufacturer’s Installation and Operating Instructions

The information provided in this manual applies to the furnace module, installed in the air handling unit and to its operation, maintenance, and service. Refer to the air handler manufacturer’s instructions for information related to all other components.

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Inspection on Arrival

1. Inspect unit upon arrival in accordance with unit manufacturer's instructions, and follow their recommendations if any damage has occurred.
2. Prior to installation locate manufacturer's rating plate and verify that furnace is equipped for the available fuel supply and power supply at point of installation.

Unit Location / Clearances

1. Be sure unit is located with respect to building construction and other equipment to provide ready access and clearance to access panels or doors that must be opened to permit adjustment and servicing of the heating section.
2. The heating unit provided is listed for installation on the positive side of the circulating air blower only.
3. The furnace module in this unit **MUST BE INSTALLED IN A NON-COMBUSTIBLE** duct or cabinet and is not designed to have any portion of the heat exchanger exposed outside the duct or cabinet in which it is housed.
4. Do not install unit where it may be exposed to potentially explosive or flammable vapors.
5. Do not locate unit in areas where corrosive vapors (such as chlorinated, halogenated, or acidic) are present in the atmosphere or can be mixed with combustion air entering heater.

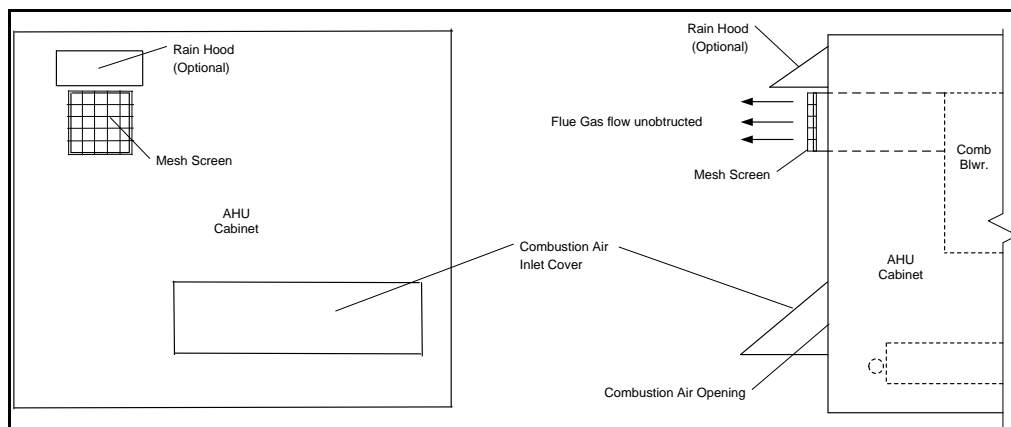
Venting and Combustion Air Supply

Outdoor Installation

The heating module needs an ample supply of air for proper and safe combustion of the fuel gas. Do not block or obstruct air openings to the area where the heating unit is installed. Combustion air openings in the cabinet should be sized to provide 1 sq. in. of **free area** per 4000 Btuh of input. Combustion air inlet and flue gas outlet must be located in the same pressure zone to minimize effects of wind on burner and heater performance. Provide at least 6 feet clearance to side of the unit, where the combustion air inlet or vent (flue) gas discharge is located, from walls, parapets or adjacent buildings or equipment. Do not locate unit near building ventilators or exhausts, or areas where corrosive chemical vapors can be drawn into combustion air supply.

The venting system is designed for direct discharge of flue gases to the outdoors. The vent discharge opening should be located to provide an unobstructed discharge to the outside and should be located as far from the combustion air inlet as possible but must always be located in the same pressure zone as the combustion air inlet. Vent duct should pitch down toward outlet, to insure that any condensate that occurs in vent duct drains away from combustion blower fan housing. The duct opening should be protected by a ½ in. x ½ in. (12mm x 12mm) mesh screen. An optional rain hood may be used over the discharge opening to prevent wind driven rain from entering the vent duct, but should not intersect the flue gas discharge path. See Figure 1 below.

Figure 1 – Outdoor Horizontal Venting

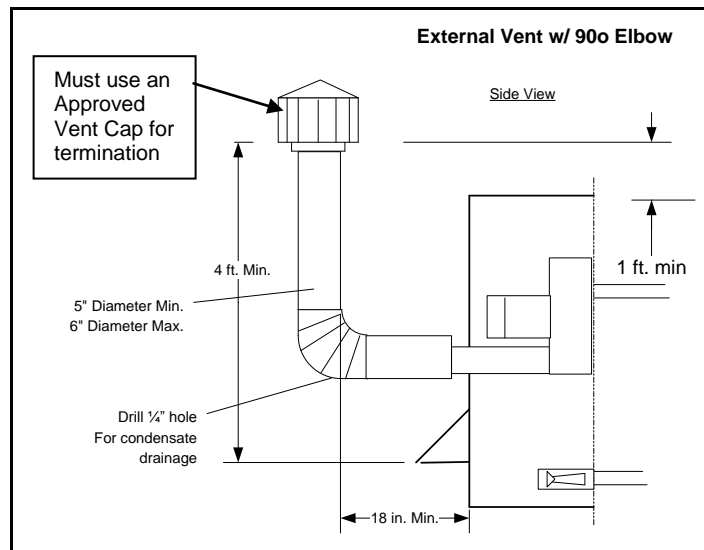
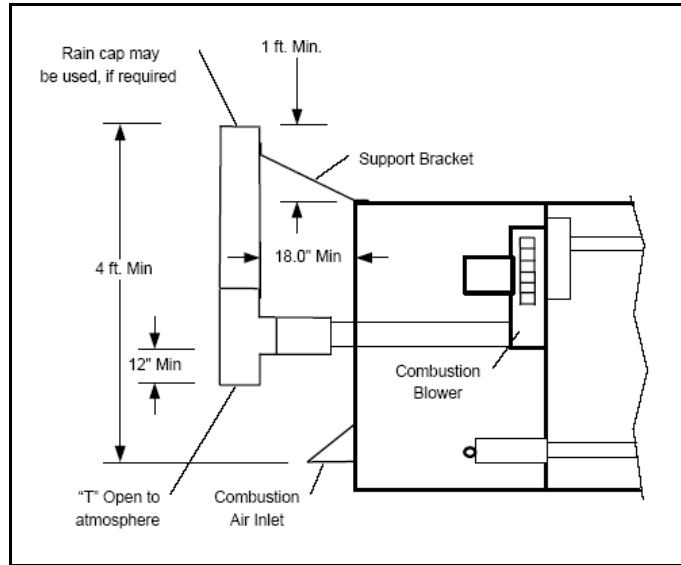


Outdoor units must be individually vented, unless provided with a special vent system by the manufacturer.

Where sufficient clearance for proper horizontal venting cannot be provided, or in jurisdictions requiring a 4 foot separation between flue gas discharge and combustion air inlet, flue gases need to be vented vertically. Refer to Figure 2 for suitable venting methods.

Vent pipe must terminate at least 1 ft. above the cabinet. The vent must be located on the same side of the appliance as the combustion air inlet opening. Condensation in the vent pipe is likely during heater start-up cycle and provision for drainage must be provided when a 90o elbow is employed in the vent piping. The open venting system shown will permit condensate to drain from the "T" fitting.

Figure 2 – Outdoor Vertical Venting



Do not locate unit near building ventilators or exhausts, or areas where corrosive chemical vapors can be drawn into combustion air supply.

Do not install units in locations where flue products can be drawn in the adjacent building openings such as windows, fresh air intakes, etc.

Indoor Installation

Locate heating unit to insure an adequate supply of fresh air to replace air used in the combustion and ventilation process. The heating unit must be installed in a location with adequate clearances to provide for adequate combustion air space, service and inspection, and proper clearances from combustible construction. The heating unit shall be located in such a manner that it does not interfere with the circulation of air in the heated space.

All fuel burning equipment requires an air supply that enters into the combustion process and is then vented outdoors. Air must also enter the appliance location to replace the air exhausted through the vent system. Do not install appliance in a confined space without providing wall openings to the space. If building construction is such that the normal infiltration does not provide sufficient air for combustion and venting, outside air **must** be introduced. Install air openings that provide a total **free area** in accordance with the National Fuel Gas Code Z223.1 (NFPA 54) in the US. In Canada refer to Can/CGA-B149 Installation Code.

All duct furnace modules must be connected to a venting system to convey flue gases outside of the heated space.

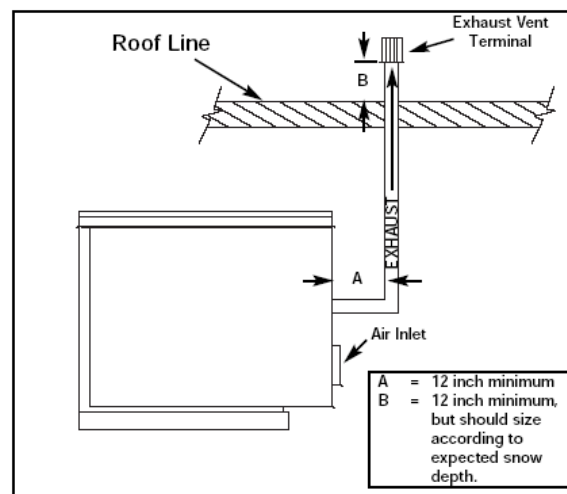
Vertically Vented Duct Furnaces – Category I (See Figure 3)

Vent systems must be sized and installed in accordance with ANSI Z223.1 (NFPA 54), Chapters 7 and 10. Proper venting of the heating units is the responsibility of the installer. When custom designed systems provided by vent system manufacturers are field installed, proper heating unit operation must be verified, including flue gas analysis of each connected heater.

1. Use single wall or double wall (Type B) vent pipe of diameters listed in Table 1.
2. Maximize the height of the vertical run of vent pipe. A minimum of **five (5) feet** (1.5m) of vertical pipe is required. The top of the vent pipe must extend at least **two (2) feet** (0.61m) above the highest point on the roof. (Use Listed Type B vent for external runs).
3. An approved weatherproof vent cap must be installed to the vent termination.
4. **Horizontal runs must not exceed 75% of the vertical height** of the vent pipe, up to a maximum of **ten (10) feet** (3m). Horizontal runs should be pitched upward **¼" per foot** (21mm/m) and should be supported at **3 foot** (1m) maximum intervals.
5. Design vent pipe runs to minimize the use of elbows. Each 90o elbow is equivalent to **5 feet** (1.5m) of straight vent pipe run.
6. Vent pipe should not be run through unheated spaces. If such runs cannot be avoided, insulate vent pipe to prevent condensation inside vent pipe. Insulation should be a minimum of **½"** (12.7mm) thick, foil faced material suitable for temperatures up to 500 oF.
7. Dampers must not be used in vent piping runs. Spillage of flue gases into the occupied space could result.
8. Vent connectors serving Category 1 heaters must not be connected into any portion of a mechanical draft system operating under positive pressure.

<u>Table 1</u>	<u>Input Rating (Btuh)</u>	<u>Input Rating (W)</u>	<u>Vent Pipe Dia.</u>
	75,000 – 149,999	21,980 – 43,958	5 in. (126 mm)
	150,000 – 400,000	43,960 – 117,228	6 in. (152 mm)

Figure 3 – Indoor Vertical Venting



Horizontally Vented Duct Furnaces -Category III (See Figure 4)

Pressures in Category III venting systems are positive and therefore care must be taken to avoid flue products from entering the heated space. **Use only vent materials and components that are UL listed and approved for Category III venting systems.**

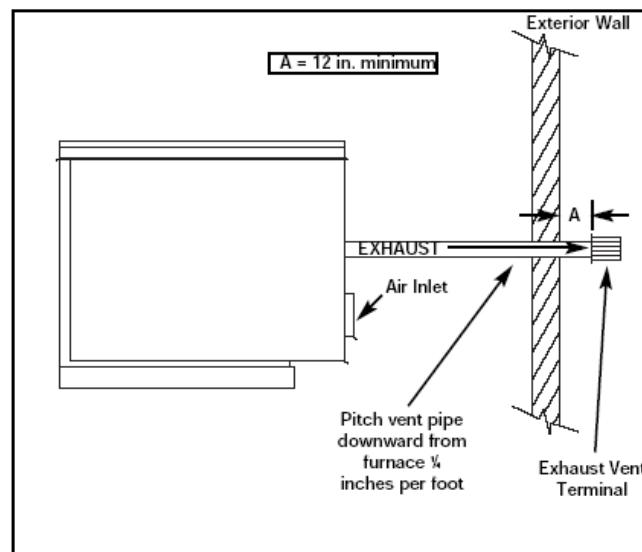
All vent pipe joints must be sealed to prevent leakage into the heated space. Follow instruction provided with approved venting materials used. The proper vent pipe diameter must be used, to insure proper venting of combustion products. See Table 1.

The total equivalent length of vent pipe must not exceed **50 ft.** (15.25m). Equivalent length is the total length of straight sections, **plus 5 ft.** (1.52m) for **each 90o** elbow and **2.5 ft** (0.76m) for **each 45o** elbow.

The vent system must also be installed to prevent collection of condensate. Pitch horizontal pipe runs downward **¼ in. per foot** (21mm per meter) toward the outlet to permit condensate drainage. Insulate vent pipe exposed to cold air or routed through unheated areas. Insulate vent pipe runs longer than **10 ft.** (3m). Insulation should be a minimum of **½ in.** (12mm) thick foil faced material suitable for temperatures up to 500 oF. Maintain **6in.** (152mm) clearance between vent pipe and combustible materials.

A Vent Cap approved for horizontal venting must be provided. Vent cap inlet diameter must be same as the required vent pipe diameter. The vent terminal must be at least **12 in.** (305mm) from the exterior wall that it passes through to prevent degradation of building material by flue gases. The vent terminal must be located at least **1 ft.** (305mm) above grade, or in snow areas, at least **3 ft.** (1m) above snow line to prevent blockage. Additionally, the vent terminal must be installed with a minimum horizontal clearance of **4 ft.** (1.2m) from electric meters, gas meters, regulators or relief equipment.

Figure 4 – Indoor Horizontal Venting



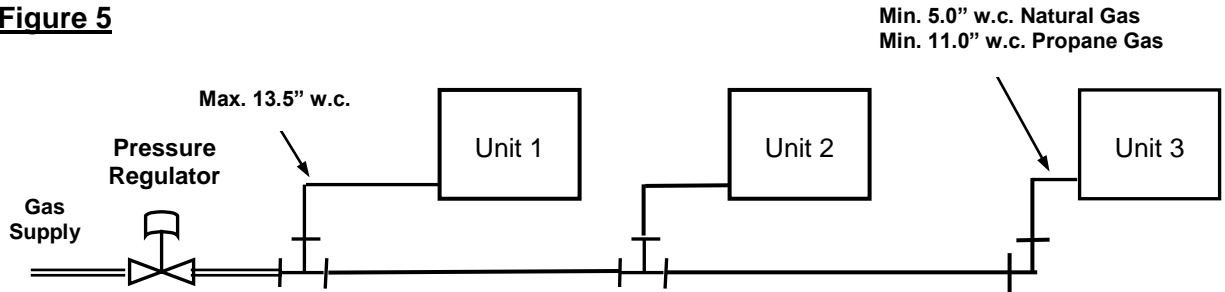
EACH APPLIANCE MUST HAVE its OWN INDIVIDUAL VENT PIPE AND TERMINAL. Do not connect vent system from horizontally vented units to other vent systems or a chimney.

Through the wall vents shall not terminate over public walkways, or over an area where condensate or vapor could create a nuisance or hazard.

Gas Supply, Piping and Connections

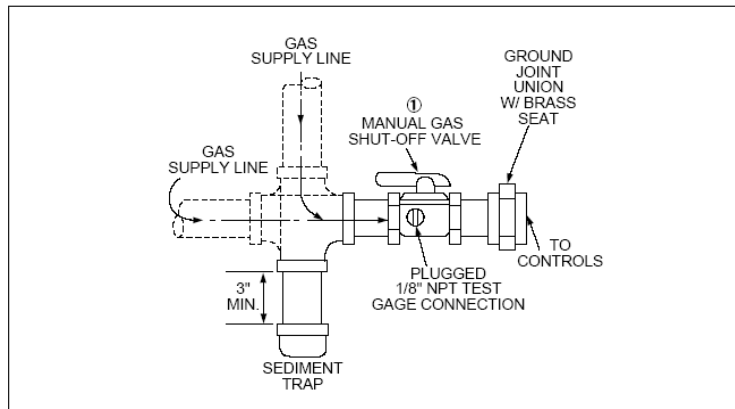
1. Installation of piping must conform with local building codes and ordinances, or in the absence of local codes with ANSI Z223.1 the National Fuel Gas Code. In Canada, installation must be in accordance with CAN/CGA –B149.1 for Natural gas and B149.2 for propane units.
2. Gas piping must be sized for the total Btu input of all units (heaters) serviced by a single supply. Refer to unit manufacturer's instructions for proper sizing.
3. Be sure that gas regulators servicing more than one heater have the proper pipe and internal orifice size for the total input of all heaters serviced by the regulator.
4. **Minimum** inlet gas pressure required for **Natural gas** operation is **5.0 "w.c.** and for **Propane (LP) gas** is **11.0" w.c.** Maximum inlet pressure for either gas is **13.5" w.c.**, with the furnace operating.
5. A 1/8" NPT tap is provided on the inlet side of the gas valve to the heater (See Pg. 11). A fitting suitable for connection to a pressure gauge capable of measuring gas pressure should be connected to each heater serviced by a single regulator so that gas pressure at each heater can be measured with all heaters in operation. (See Figure 5)

Figure 5



6. A drip leg (sediment trap) and a manual shut off valve must be provided immediately upstream of the gas control on the heating unit. To facilitate servicing of unit, installation of a union is recommended. (See Figure 6)

Figure 6



WARNING !

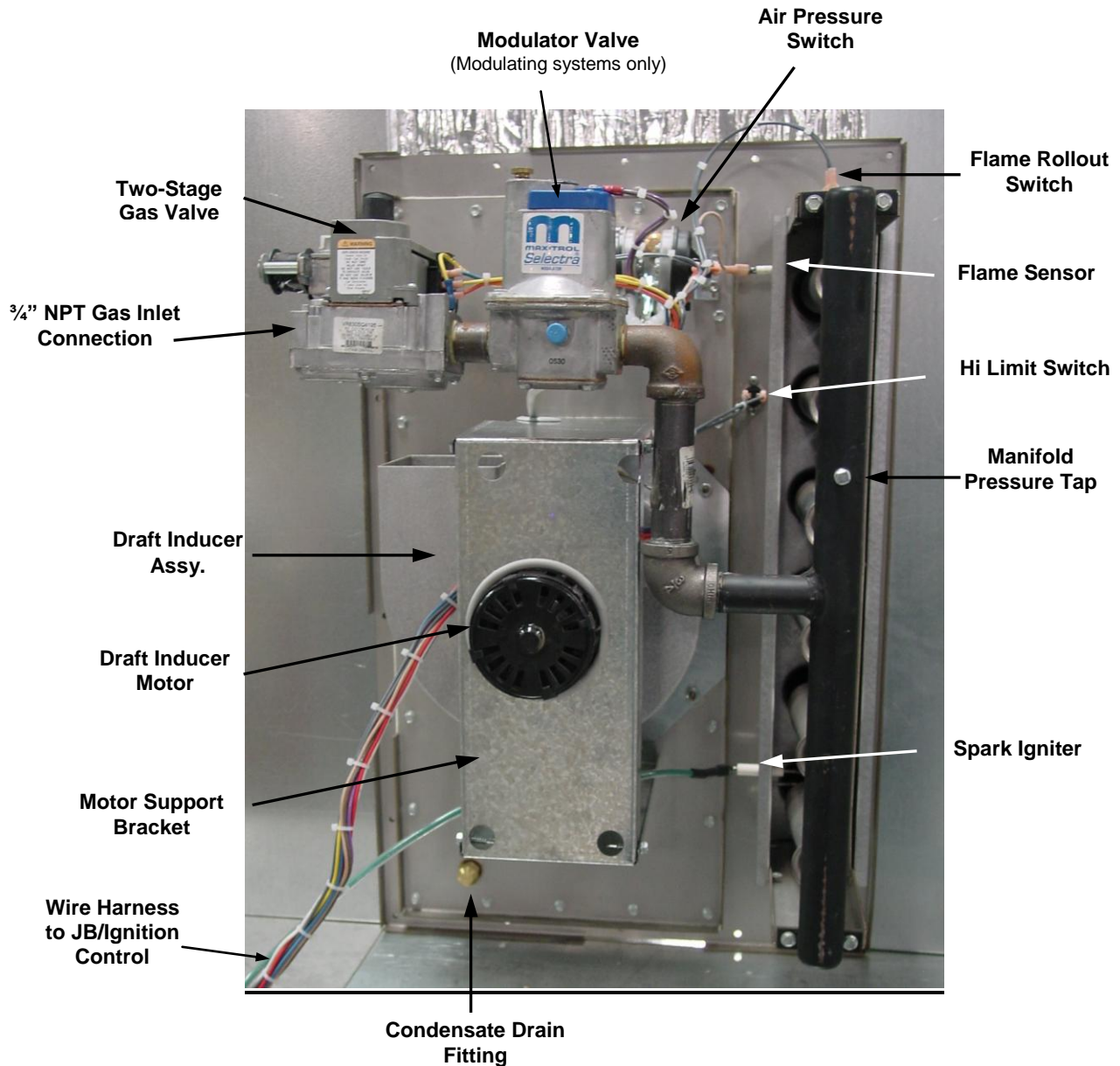
1. All field gas piping must be pressure / leak tested prior to operation. NEVER use and open flame to check for leaks. Use a soap solution or other leak detecting solution for testing.
2. Gas pressure to appliance controls must never exceed 13.5" w.c. (1/2 PSI)

WARNING !

1. When pressure testing at 1/2 PSI or less, close the manual shut-off valve on the appliance before testing.
2. When pressure testing gas supply line at 1/2 PSI or higher, close manual gas valve and disconnect heater from supply line to be tested. Cap or plug the supply line.

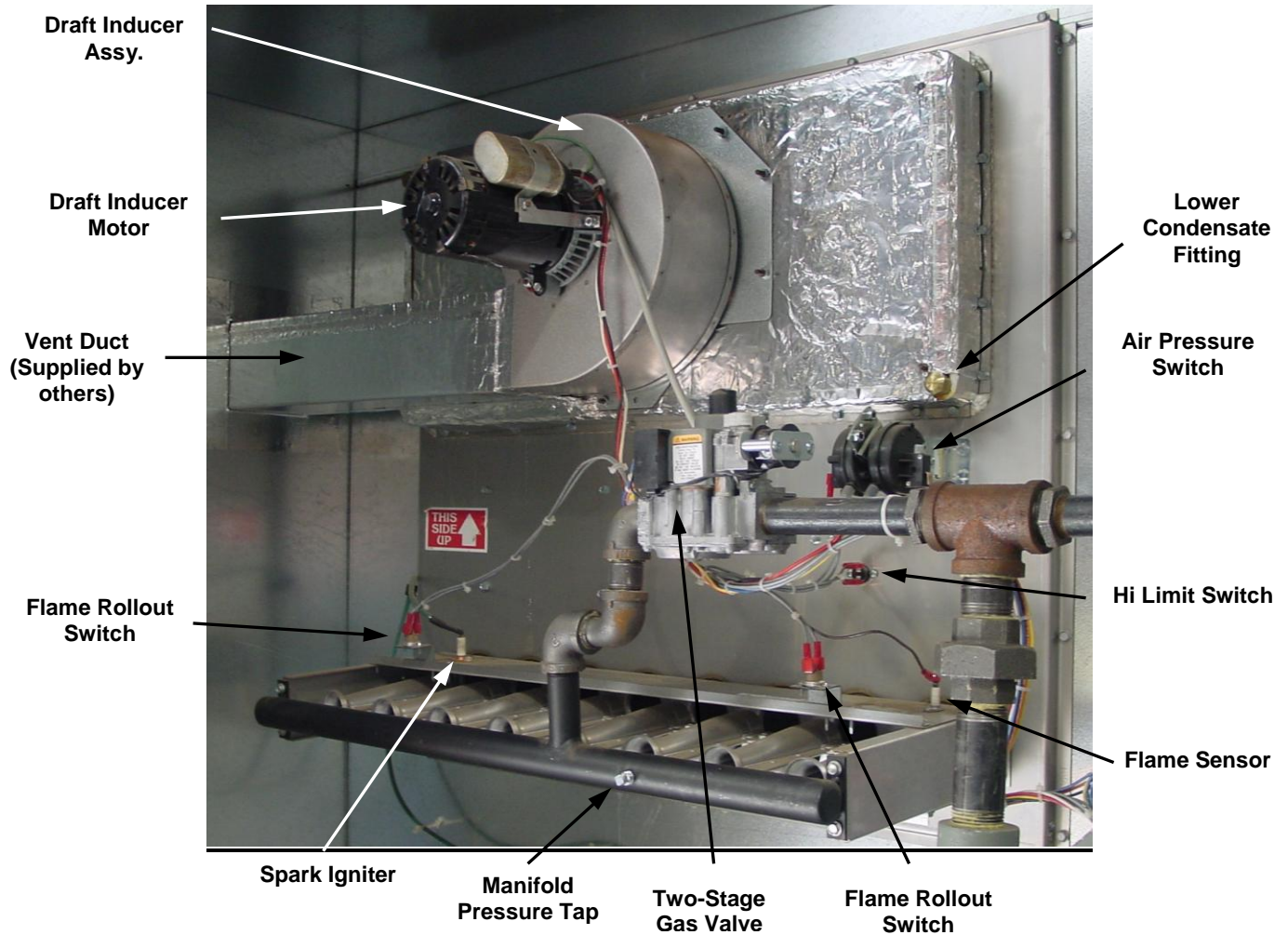
Heat Module Component Identification

Figure 7 - Horizontal Air Flow Configuration



1. Airflow may be from either right or left for heater as shown, without any difference in system performance.
2. Typically no condensate drain attachment is necessary in "Heat" only applications. Condensation should not occur during heating cycle. However, in applications operating with modulating controls, at low temperature rise, or with outside make-up air, condensation may occur early in the heating cycle. In these applications connection of a condensate drain line is recommended, to avoid condensate buildup and possible heat exchanger damage,
3. If heating section is located downstream of a refrigeration system or cooling coil, condensation can occur during operation of the air conditioning, resulting in condensation from warm, moist air in the heat exchanger tubes and flue collector. This condensate is not harmful to the heat exchanger provided it is drained continuously. For these applications a 1/4 NPT connection is provided for attachment of condensate drain line to remove condensate from heat exchanger.

Figure 8- Vertical Airflow Configuration



1. Airflow may be either upflow or downflow for heater as shown, without any difference in system performance.
2. In this configuration, condensate due to operation of air conditioning system would drain through the open heat exchanger tubes near base of heater. An condensate drain pan should be provided for these applications, if none is incorporated integral to the unit.
3. Some condensation may occur in the flue collector box, and it is recommended that a drain tube be connected to the lower condensate drain fitting as well.

Gas Input Rate

The correct heat capacity of the furnace is controlled by the burner orifices and the gas manifold pressure. The manifold pressure is factory set, but should be checked at the time of start-up as described below.

FOR YOUR SAFETY

The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.

Operating & Safety Instructions

1. This duct furnace module does not have a pilot. It is equipped with a direct spark ignition device that automatically lights the gas burner. DO NOT try to light burners by hand.
2. **BEFORE OPERATING**, leak test all gas piping up to heater gas valve. Smell around the unit area for gas. **DO NOT** attempt to place heater in operation until source of gas leak is identified and corrected.
3. Use only hand force to push and turn the gas control knob to the "ON" position. **NEVER** use tools. If knob does not operate by hand, replace gas valve prior to starting the unit. Forcing or attempting to repair the gas valve may result in fire or explosion.
4. Do not attempt to operate unit, if there is indication that any part or control has been under water. Any control or component that has been under water must be replaced prior to trying to start the unit.

Start-up

1. Turn thermostat or temperature controller to its lowest setting
2. Turn off gas supply at the manual shut-off valve
3. Turn off power to the unit at the disconnect switch.
4. Remove access panel or open door to unit vestibule housing the gas heater.
5. Move gas control knob to "Off" position.
6. Install a tapped fitting for attachment to a manometer, or other gauge suitable for 14.0" w.c., in the inlet pressure tap, and for 10.0" w.c., in the manifold pressure tap.
7. Wait 5 minutes for any gas to clear out. If you smell gas, see Step 2 above and correct leak. If you don't smell gas or have corrected any leaks, go to the next step.
8. Turn gas control knob to "On" position
9. Open all manual gas valves
10. Turn power on at disconnect switch
11. Set thermostat or controller to its highest position to initiate call for heat and maintain operation of unit.*
12. Draft inducer will run for a 15 to 30 second pre-purge period (See Sequence of Operation provided)
13. At the end of the pre-purge the direct spark will be energized and gas valve will open
14. Burners ignite.

***Note:** If modulating controls are provided on furnace module, a separate set-up sheet is included with this manual. Refer to that set-up sheet for complete start-up instructions

Failure to Ignite

1. On the initial start-up, or after unit has been off long periods of time, the first ignition trial may be unsuccessful due to need to purge air from manifold at start-up.
2. If ignition does not occur on the first trial, the gas and spark are shut-off by the ignition control and the control enters an inter-purge period of 15 seconds, during which the draft inducer continues to run.
3. At the end of the inter-purge period, another trial for ignition will be initiated.
4. Control will initiate up to three ignition trials on a call for heat before lockout of control occurs.
5. Control can be brought out of lockout by turning thermostat or controller to its lowest position and waiting 5 seconds and then turning back up to call for heat. Controls provided will automatically reset after one hour and initiate a call for heat.

Manifold Pressure Adjustment

A pressure tap is provided in each heater manifold for measuring the gas manifold pressure. Manifold pressure must be checked at start-up and during any service or maintenance.

ON-OFF (SN)

Hi fire (1st & 2nd Stage - jumpered)

Natural

3.5" w.c

Propane

10.0" w.c.

2 Stage (TS, TN, HF)

1 stage (Lo)

1.2" w.c.

2.7" w.c.

2 stage (Hi)

3.5" w.c.

10.0" w.c.

Modulating (MD, MH)

Warm Up – 12.5 to 13.0 VDC to Mod Valve
 0 VDC supplied input volt. = manifold gas
 10 VDC supplied input volt. = manifold gas

1.2" w.c.

2.7" w.c.

0.4" w.c.

1.1" w.c.

3.5" w.c.

10.0" w.c.

Inlet Gas Pressure

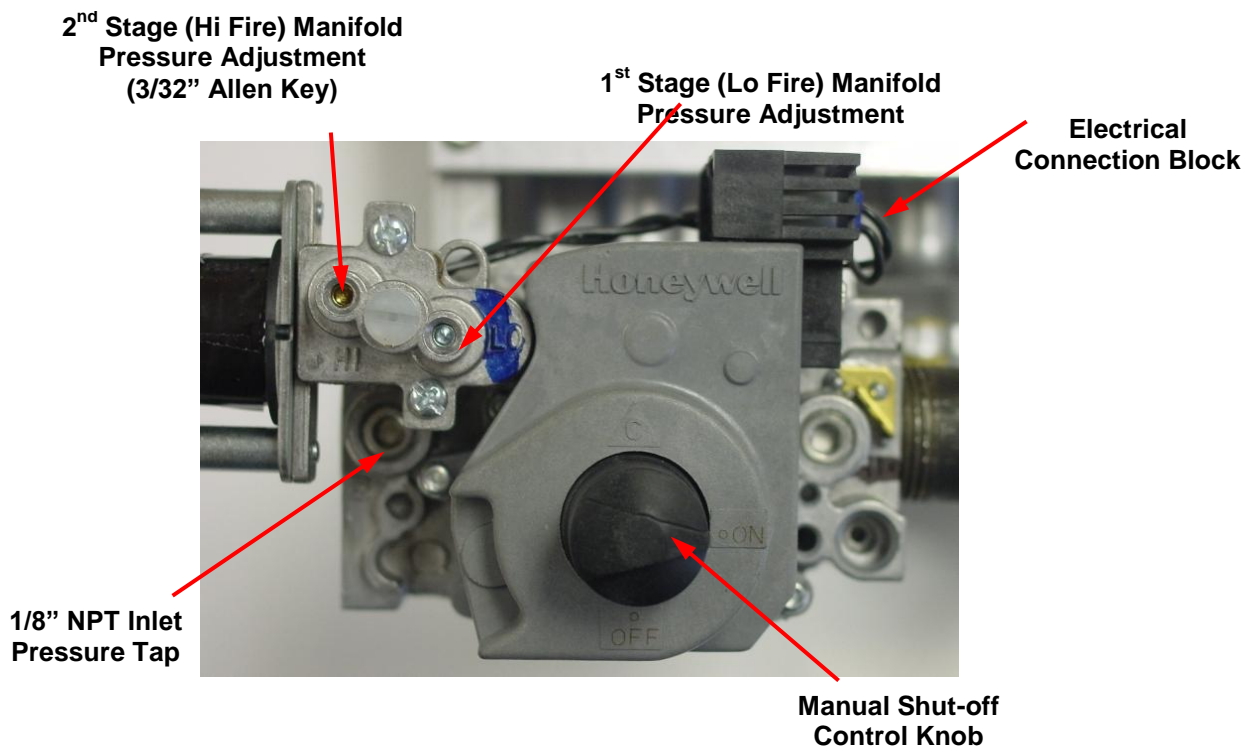
Verify inlet (line) gas pressure to the combination gas valve provided. A 1/8 NPT tapping is provided on the gas valve for measuring inlet pressure as shown.

Minimum
 Maximum

5.0" w.c.
 13.5" w.c.

11.0" w.c.
 13.5" w.c.

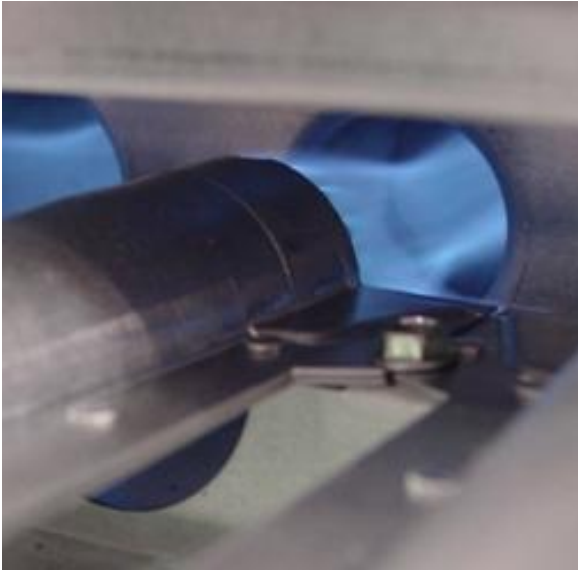
Figure 9



Burner Flames

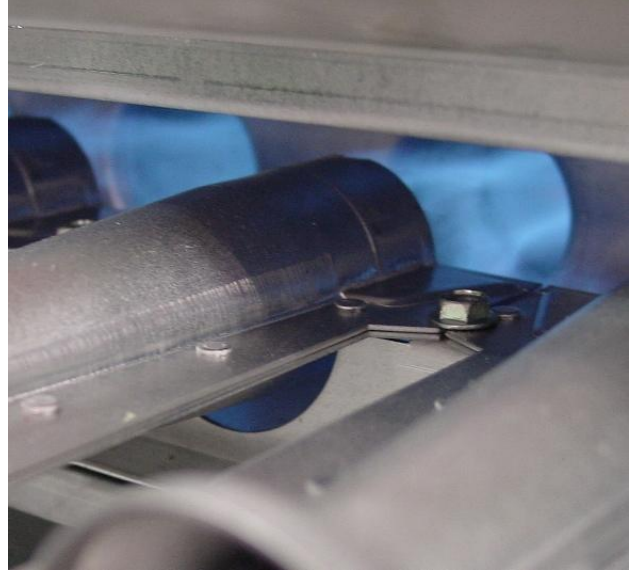
Prior to completing the start-up, check the appearance of the main burner flame. See Figures below for flame characteristics of properly adjusted Natural gas systems.

Figure 10A



Burner Flame @ Start-up 1.2" w.c. Manifold
Pressure Draft Inducer – High Speed

Figure 10B



Burner Flame @ High Fire 3.5" w.c. Manifold
Pressure Draft Inducer – High Speed

1. The burner flame should be predominately blue in color and well defined and centered at the tube entry as shown in Figures above. Distorted flame or yellow tipping of natural gas flame, or a long yellow flame on propane, may be caused by lint and dirt accumulation inside burner or at burner ports, at air inlet between burner and manifold pipe, or debris in the main burner orifice. Soft brush or vacuum clean affected areas.
2. Poorly defined, substantially yellow flames, or flames that appear lazy, indicate poor air supply to burners or excessive burner input. Verify gas supply type and manifold pressure with rating plate.
3. Poor air supply can be caused by obstructions or blockage in heat exchanger tubes or vent discharge pipe. Inspect and clean as necessary to eliminate blockage. Vacuum any dirt or loose debris. Clean heat exchanger tubes with stiff brush. Poor flame characteristics can also be caused by undersized combustion air openings or flue gas recirculation into combustion air supply. Increase air opening size or re-direct flue products to prevent recirculation.
4. Reduced air delivery can also be the result of fan blade slippage, dirt accumulation in the fan blade or low voltage to draft inducer motor. Inspect draft fan assembly and be sure fan blade is secure to motor shaft. Check line voltage to heater.

Shutdown

1. Set thermostat or controller to lowest setting.
2. Turn off electrical supply to unit at disconnect switch.
3. Turn off manual gas supply.
4. Disconnect manifold and inlet pressure taps and re-install pipe plugs
5. Replace vestibule access panel or close door.

Normal Operation

1. Turn on electrical supply to unit at disconnect switch
2. Turn on manual gas supply
3. Set Thermostat or Temperature controller to desired temperature.
4. Information outlining the normal Sequence of Operation and Wiring Diagram for the control system supplied with the furnace model is enclosed with this instruction.



Ignition Control Diagnostics & Service Guide- Fenwal 35-61 Series

LED Code	System	Description	Actions
None	No power to T1	On call for heat nothing happens	<ol style="list-style-type: none"> 1.) Check for open fuse or circuit breaker 2.) Check for poor wiring connection 3.) Check for Failed 24 V transformer
Steady On	No operation	24 VAC across Terminal 24 VAC / V2-Gnd when Thermostat calling for heat	Control fault – Replace ignition control
None	Open limit switch	Thermostat call for heat. No power across terminals V1 / V2 on control	<ol style="list-style-type: none"> 1.) Check for proper operation of circulating air supply system and for air filter blockage. 2.) Check manifold pressure when limit cools and closes. Natural gas 3.5" w.c / LP gas 10.0" w.c. 3.) Low combustion blower air output. Flue gas temp exceeds 550 oF. Inspect for debris accumulation, proper wheel attachment, proper voltage to blower
1 Flash	Air Flow Fault	Pressure switch contacts in closed position for 30 seconds with no output to Combustion blower. Remains in this mode with combustion blower off.	<ol style="list-style-type: none"> 1.) Check for short in wiring to pressure switch 2.) Check pressure switch for closed contacts (with leads disconnected). 3.) Replace pressure switch
1 Flash	Air Flow Fault	Open pressure switch or flame rollout switch when inducer (IND terminal) is energized. If switch remains open for more than 30 seconds after combustion blower is energized, control will remain in this mode with IND terminal (blower) energized.	<ol style="list-style-type: none"> 1.) Failed Combustion blower. 2.) Check connections and air tube from draft inducer to air switch for leaks. 3.) Check rollout switch manual reset - depress reset 4.) Check supply tube from draft inducer housing to pressure switches for condensate - drain line and re-connect 5.) Check pressure switch for condensate accumulation 6.) Replace pressure switch
2 Flash	Flame Fault	Flame sense failure / flame present with no call for heat.	<ol style="list-style-type: none"> 1.) Check for voltage to gas valve with thermostat in off position. Valve should not be powered. 2.) If valve is not energized, check for gas flow (manifold pressure reading greater than 0). If gas flow, turn off main shut-off valve and replace gas valve.
3 Flashes	Lockout	Failure to light and or carryover, Loss of flame or flame signal during ignition or operating cycle. Control will initiate up to 3 ignition re-trials before lockout.	<ol style="list-style-type: none"> 1. Verify gas supply available and operation of gas valve - manifold pressure at start of ignition cycle. Check for power to valve terminals LO & COM while spark is energized 2. Is spark present? - If not check igniter for debris between electrodes, cracked ceramic and check ignition wire for short to ground. 3. Check flame sensor wiring connections to electrode and control and for any abrasions. 4. Check for cracked ceramic on flame sensor or grounded sensor rod. 5. Verify that ample air supply and proper venting of flue gases occurs during operating cycle. 6. Check for circulating air leaks into burner compartment during operation 7. Check for re-circulation of flue gases into combustion air supply. 8. If all conditions satisfactory - replace ignition control

Fenwal Series 35-61 Ignition control

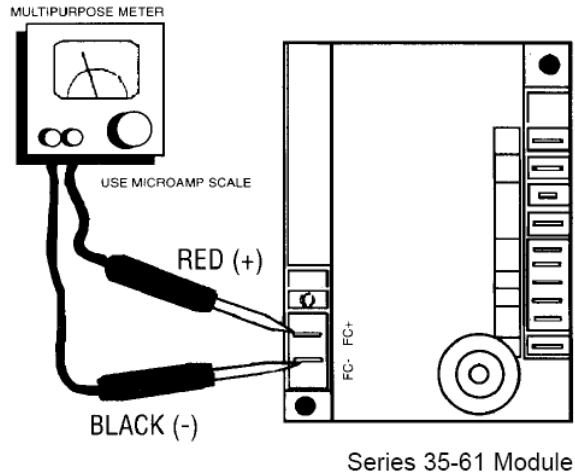
Fault Conditions and LED Key

LED Steady On
1 Flash
2 Flash
3 Flash

Internal Control Fault
Combustion Air Flow Fault
Flame with No Call for Heat
Ignition Lockout

LED flashes on for ¼ second, and off for ¼ second during fault condition. Pause between fault codes is 3 seconds

FLAME SENSOR CURRENT CHECK



SERVICE CHECKS

Flame current is the current which passes through the flame from the sensor to ground. The minimum flame current necessary to keep the system from lockout is .7 microamps. To measure flame current, connect analog DC microammeter to the FC-FC+ terminals per figure. Meter should read .7 uA or higher. If the meter reads below "0" on scale, meter leads are reversed. Disconnect power and reconnect meter leads for proper polarity.

Air Pressure Switch

An air pressure switch is provided as part of the control system to verify airflow through draft inducer by monitoring the difference in pressure between the draft inducer and the atmosphere. If sufficient negative pressure is not present, indicating lack of proper air movement through heat exchanger, the switch opens shutting off gas supply through the ignition control module. On units with two speed draft inducer operation, a dual air pressure switch is used, monitoring high and low speed pressures. The air pressure switches have fixed settings and are not adjustable.

Rollout Switch (Manual Reset)

The duct furnace module is equipped with manual reset rollout switch(es) in the event of burner flame rollout. The switch will open on temperature rise and shut-off gas supply through the ignition control module. Flame rollout can be caused by insufficient airflow for the burner firing rate (high gas pressure), blockage of the vent system or in the heat exchanger. The furnace module should not be placed back in operation until the cause of rollout condition is identified. The rollout switch can be reset by pressing the button on top of the switch.

High Limit Switch

The duct furnace module is equipped with a fixed temperature high limit switch mounted on the vestibule panel that shuts off gas to the heater through the ignition control module in the event of reduced circulating airflow over the heat exchanger. Reduced airflow can be caused by motor failure of the circulating air blower, dirty or blocked filters or restriction of the air inlet or outlet to the unit. The high limit switch will automatically reset when the temperature drops to 30°F below the set point. Determine the cause of the reduced air flow and correct.

Maintenance

Duct Furnace Module Inspection

Turn off all electrical power to the unit before inspection and servicing.

1. The furnace module should be inspected annually by a qualified service agency. The condition of the burners, heat exchanger, draft inducer, vent system, operating controls and wiring should be determined. Check for obvious signs of deterioration, accumulation of dirt and debris and any heat or water related damage. Any damaged or deteriorated parts should be replaced before the unit is put back into service.

CAUTION !

If any of the original wiring needs to be replaced it must be replaced with wiring materials suitable for 105°C.

Label all wires prior to disconnection when servicing unit. Wiring errors can cause improper or dangerous operation. Verify proper operation after servicing.

2. Clean burners, heat exchanger, draft inducer and vent ducts as outlined on Page 12.
3. Check Heat Exchanger for cracks. If any are present, replace heat exchanger before putting unit back into service.
4. Check the attachment point of the furnace module to the cabinet or ducts to verify that they are air tight.
5. Check the automatic gas valve to insure that the gas valve seat is not leaking.

Duct Furnace Module Operation Check

1. Turn on power to the unit and set thermostat or heat controller to call for heat, allowing furnace module to operate.
2. Check for proper start-up and ignition as outlined in "Start-Up" on Page 10.
3. Check the appearance of the burner flame (See Figure 10A and 10B on Page 12).
4. Return thermostat or heat controller to normal setting.
5. Refer to the appliance manufacturer's instructions for annual maintenance procedures on the complete unit.

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Cartersville, Ga. 30120