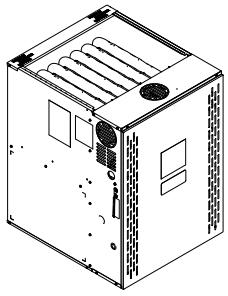
Installer's Guide

Upflow/Downflow/Horizontal Left/Right Gas-Fired, Single Stage Induced Draft Furnaces with High Efficiency Motor

Upflow, Downflow, Horizontal Right/Left

Single Stage
A801X026AM2SAA
A801X040AM3SAA
A801X040BM2SAA
A801X060BM3SAA
A801X060BM4SAA
A801X080BM4SAA
A801X080CM5SAA
A801X100CM5SAA
A801X120DM5SAA



Note: *This installer's Guide is used for multiple furnace families. Models may have a "T" in the 12th digit designating they meet California less than 40 ng/J (NOx) emissions requirements.*

Note: *Graphics in this document are for representation only. Actual model may differ in appearance.*

88-A801X001-1A-EN

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

June 2019 **88-A801X001-1A-EN** Ingersoll Rand

SAFETY SECTION NON-CONDENSING FURNACES

Ingersoll Rand has a policy of continuous product and product data improvement and it reserves the right to change design and specifications without notice.

Important: *— This document pack contains a wiring diagram and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.*

⚠ WARNING

FIRE OR EXPLOSION HAZARD!

Failure to follow safety warnings exactly could result in a fire or explosion 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

EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, personal injury or death.
Install a gas detecting warning device in case of a gas leak. *NOTE: The manufacturer of your furnace does not test any detectors and makes no representations regarding any brand or type of detector.*

⚠ WARNING

FIRE OR EXPLOSION HAZARD!

Failure to follow the safety warnings exactly could result in serious injury, death, or property damage.
Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections. A fire or explosion may result causing property damage, personal injury, or loss of life.

⚠ WARNING

ELECTRICAL SHOCK, FIRE, OR EXPLOSION HAZARD!

Failure to follow this Warning could result in dangerous operation, property damage, severe personal injury, or death.
Improper servicing could result in dangerous operation, property damage, severe personal injury, or death.

- **Before servicing, disconnect all electrical power to furnace.**
- **When servicing controls, label all wires prior to disconnection. Reconnect wires correctly.**
- **Verify proper operation after servicing.**

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.
To ensure furnace is vented properly, do not replace factory supplied venting components with field fabricated parts. Fabricating parts can result in damaged vents and components allowing carbon monoxide to escape the venting system.

⚠ WARNING

CARBON MONOXIDE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.
When replacing a furnace, ensure the venting system is adequate for the new furnace.

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⚠ WARNING

FIRE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do not install the furnace directly on carpeting, tile or other combustible material other than wood flooring. For vertical downflow applications, subbase (BAYBASE205) must be used between the furnace and combustible flooring. When the downflow furnace is installed vertically with a cased coil, a subbase is not required.

⚠ WARNING

WARNING!

This product can expose you to chemicals including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

⚠ WARNING

EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Propane gas is heavier than air and may collect in any low areas or confined spaces. In addition, odorant fade may make the gas undetectable except with a warning device. If the gas furnace is installed in a basement, an excavated areas or a confined space, it is strongly recommended to contact a gas supplier to install a gas detecting warning device in case of leak. The manufacturer of your furnace does not test any detectors and makes no representations regarding any brand or type of detector.

⚠ WARNING

ELECTRICAL SHOCK HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do not bypass the door switch or panel loop by any permanent means.

⚠ WARNING

ELECTRICAL SHOCK HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do not touch any components other than the Menu and Option buttons on the IFC when setting up the system or during fault code recovery.

⚠ WARNING

FIRE OR EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do NOT attempt to manually light the furnace.

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Follow the service and/or periodic maintenance instructions for the Furnace and venting system.

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD!

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

Make sure that the blower door is in place and not ajar. Dangerous fumes could escape an improperly secured door.

⚠ WARNING

ELECTRICAL SHOCK HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Disconnect power to the unit before removing the blower door. Allow a minimum of 10 seconds for IFC power supply to discharge to 0 volts.

⚠ WARNING

SAFETY HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

These furnaces are not approved or intended for installation in manufactured (mobile) housing, trailers, or recreational vehicles.

⚠ WARNING

EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

In the event that electrical, fuel, or mechanical failures occur, shut gas supply off at the manual gas valve located on the supply gas piping coming into the furnace before turning off the electrical power to the furnace. Contact the service agency designated by your dealer.

⚠ WARNING

EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, serious personal injury, or death.

Do not store combustible materials, gasoline, or other flammable vapors or liquids near the unit.

⚠ WARNING

SAFETY HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do not use semi-rigid metallic gas connectors (flexible gas lines) within the furnace cabinet.

⚠ WARNING

INSTALLATION WARNING — HIGH VOLTAGE MOVING PARTS!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Bodily injury can result from high voltage electrical components, fast moving fans, and combustible gas. For protection from these inherent hazards during installation and servicing, the main gas valve must be turned off and the electrical supply must be disconnected. If operating checks must be performed with the unit operating, it is the technician's responsibility to recognize these hazards and proceed safely.

⚠ WARNING

SAFETY HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Do not install the filter in the return duct directly above the furnace in horizontal applications. Install the filter remotely.

⚠ WARNING

SAFETY HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Turn the power to the furnace off before servicing filters to avoid contact with moving parts.

⚠ WARNING

CARBON MONOXIDE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

Furnace venting into an unlined masonry chimney or concrete chimney is prohibited.

⚠ WARNING

CARBON MONOXIDE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

The chimney liner must be thoroughly inspected to insure no cracks or other potential areas for flue gas leaks are present in the liner. Liner leaks will result in early deterioration of the chimney.

⚠ WARNING

SHOCK HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

If a disconnect switch is present, it must always be locked in the open position before servicing the unit.

⚠ WARNING

OVERHEATING AND EXPLOSION HAZARD!

Failure to follow this Warning could result in property damage, personal injury or death.

Should overheating occur, or the gas supply fail to shut off, shut off the gas valve to the unit before shutting off the electrical supply.

⚠ CAUTION

IMPROPER VOLTAGE CONNECTION!

Failure to follow this Caution could result in property damage.

Do NOT connect the furnace line voltage to a GFCI protected circuit.

⚠ CAUTION

CORROSION WARNING!

Failure to follow this Caution could result in property damage or personal injury.
Do not install the furnace in a corrosive or contaminated atmosphere.

⚠ CAUTION

SHARP EDGE HAZARD!

Failure to follow this Caution could result in property damage or personal injury.
Be careful of sharp edges on equipment or any cuts made on sheet metal while installing or servicing.

⚠ CAUTION

BACKUP WRENCH REQUIRED!

Failure to follow this Caution could result in property damage or personal injury.
Use a backup wrench on the gas valve when installing gas piping to prevent damage to the gas valve and manifold assembly.

⚠ CAUTION

FREEZE CAUTION!

Failure to follow this Caution could result in property damage or personal injury.
If complete furnace shutdown is done during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles.

⚠ CAUTION

FREEZE CAUTION!

Failure to follow this Caution could result in property damage or personal injury.
Whenever your house is to be vacant, arrange to have someone inspect your house for proper temperature. This is very important during freezing weather. If for any reason your furnace should fail to operate damage could result, such as frozen water pipes.

⚠ CAUTION

IGNITION FUNCTION!

Failure to follow this Caution may result in poor ignition characteristics.
Maintain manifold pressure in high altitude installations.

⚠ CAUTION

WATER DAMAGE!

Failure to follow this Caution could result in property damage or personal injury.
It is recommended that an external overflow drain pan be installed in all applications over a finished ceiling to prevent property damage or personal injury from leaking condensate.

⚠ CAUTION

HOT SURFACE!

Failure to follow this Caution could result in personal injury.
Do NOT touch igniter. It is extremely hot.

⚠ CAUTION

FURNACE SERVICE CAUTION!

Failure to follow this Caution could result in property damage or personal injury.
Label all wires prior to disconnection when servicing controls. Verify proper operation after servicing. Wiring errors can cause improper and dangerous operation.

⚠ CAUTION

DO NOT USE AS CONSTRUCTION HEATER!

Failure to follow this Caution could result in property damage or personal injury.
In order to prevent shortening its service life, the Furnace should NOT be used as a "Construction Heater" during the finishing phases of construction until the requirements listed in the furnace installation guidelines of the Installer's Guide have been met. Condensate in the presence of chlorides and fluorides from paint, varnish, stains, adhesives, cleaning compounds, and cement create a corrosive condition which may cause rapid deterioration of the heat exchanger.

⚠ CAUTION

WIRING INFORMATION!

Failure to follow this Caution could result in property damage or personal injury.
The integrated furnace control is polarity sensitive. The hot leg of the 120 VAC power must be connected to the BLACK field lead.

⚠ CAUTION

EQUIPMENT DAMAGE!

UV light exposure can cause the plastic blower material to deteriorate which could lead to Blower Housing Damage.

For units containing a plastic Blower Housing, Do NOT install third party Ultra-Violet Air Cleaners where the Blower Housing can be exposed to UV light.

For more information, visit www.IRCO.com or contact your installing dealer.
Ingersoll Rand
800 Beaty St.
Davidson, NC 28036

⚠ WARNING

CARBON MONOXIDE POISONING HAZARD!

Failure to follow the steps outlined below for each appliance connected to the venting system being placed into operation could result in carbon monoxide poisoning or death.

The following steps shall be followed for each appliance connected to the venting system being placed into operation, while all other appliances connected to the venting system are not in operation:

- **Inspect the venting system for proper size and horizontal pitch as required in the National Fuel Gas Code, ANSI Z223.1/NFPA 54 and these instructions. Determine there is no blockage or restriction, leakage, corrosion or other deficiencies which could cause an unsafe condition.**
- **Close all doors and windows between the space in which the appliance(s) connected to the venting system are located. Also close fireplace dampers.**
- **Turn on clothes dryers and any appliance not connected to the venting system. Turn on any exhaust fans such as range hoods so they are operating at maximum speed. Do not operate a summer exhaust fan.**
- **Follow the lighting instructions. Place the appliance being inspected into operation. Adjust the thermostat so appliance is operating continuously.**
- **Test for spillage from draft hood equipped appliances at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle.**
- **If improper venting is observed during any of the above tests, the venting system must be corrected in accordance with the National Fuel Gas Code, ANSI Z221.1/NFPA 54.**
- **After it has been determined that each appliance connected to the venting system properly vents when tested, return all doors, windows, exhaust fans, etc. to their previous condition of use.**

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Accessories

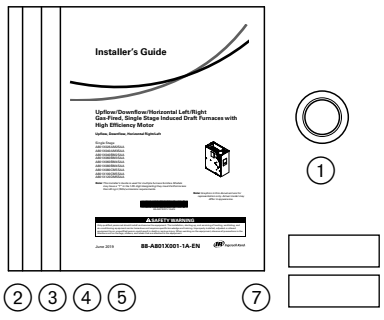
Table 1. Accessories

Model Number	Description	Use with
BAYHANG	Horizontal Hanging Kit	All Furnaces
BAYLIFTB	Dual Return Kit (B size extension)	B Cabinet Furnaces
BAYLIFTC	Dual Return Kit (C size extension)	C Cabinet Furnaces
BAYLIFTD	Dual Return Kit (D size extension)	D Cabinet Furnaces
BAYBASE205	Downflow Subbase	All Furnaces in Downflow orientation
BAYFLTR206	Filter Access Door Kit (Downflow only)	All Furnaces in Downflow orientation
BAYSF1165AA [a]	1" SlimFit Box with MERV 4 Filter	All Furnaces
BAYSF1255BA	2" SlimFit Filter Box with MERV 4 Filter	All furnaces when used in side return application B-Cabinet Furnaces only when in bottom return application
BAYFLTR203	Horizontal Filter Kit	B Cabinet Furnaces in Downflow/Horizontal
BAYFLTR204	Horizontal Filter Kit	C Cabinet Furnaces in Downflow/Horizontal
BAYFLTR205	Horizontal Filter Kit	D Cabinet Furnaces in Downflow/Horizontal
BAYVENT600A	Internal venting kit	B, C, and D Furnaces in Downflow orientation
BAYVENT800B	Masonry Chimney Vent Kit	All furnaces
BAYSWT20AHALTA	High Altitude Pressure Switch Kit	A801X026AM2SAA
BAYSWT21AHALTA	High Altitude Pressure Switch Kit	A801X040AM3SAA, A801X040BM2SAA
BAYSWT15AHALTA	High Altitude Pressure Switch Kit	A801X060BM3SAA, A801X060BM4SAA, A801X080BM4SAA
BAYSWT14AHALTA	High Altitude Pressure Switch Kit	A801X080CM5SAA, A801X100CM5SAA
BAYLPSS400B	Propane Conversion Kit with Stainless Steel Burners	All Furnaces except A801X026
BAYLPSS410A	Propane Conversion Kit with Stainless Steel Burners	A801X026 Furnace only
PIP02095	U fitting for gas piping	All Furnaces for right hand gas entry

[a] Airflow greater than 1600 CFM requires dual returns

Document Pack Contents

Item	Qty.	Description
1	1	Plug — Gas
2	1	Installer's Guide
3	1	Service Facts
4	1	Owner Guide
5	1	Limited Warranty
6	2	Tinnerman Clips (not pictured) ***Note:*** *Tinnerman Clips should be kept with unit and are used if the door panel flange hole (s) becomes stripped.*
7	2	Brand Labels



Furnace Installation Guidelines

The following sections give general guidelines for the installation of the gas furnaces.

Safety Practices and Precautions

The following safety practices and precautions must be followed during the installation, servicing, and operation of this Furnace.

1. Use only with the type gas approved for this Furnace. Refer to the Furnace rating plate.
2. Install the Furnace only in a location and position as specified in “Locations and Clearances” of these instructions.
3. Provide adequate combustion and ventilation air to the Furnace space as specified in “Air for Combustion and Ventilation” of these instructions.
4. Combustion products must be discharged outdoors. Connect this Furnace to an approved vent system only, as specified in the “Venting” section of these instructions.
5. Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in the “Gas Piping” section of these instructions.
6. Always install the Furnace to operate within the Furnace’s intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified on the unit rating plate. Airflow within temperature rise for cfm versus static is shown in the Service Facts accompanying this Furnace.
7. When a Furnace is installed so that the supply ducts carry air circulated by the Furnace to areas outside the space containing the Furnace, the return air shall also be handled by a duct(s) sealed to the Furnace casing and terminating outside the space containing the Furnace.
8. A gas-fired Furnace for installation in a residential garage must be installed as specified in "Location and Clearances" section of these instructions.
9. The furnace may be used for temporary heating of buildings or structures under construction only when the following conditions have been met:
    a. The Furnace venting system must be complete and installed per manufacturer’s instructions.
    b. The Furnace is controlled only by a room Comfort Control (no field jumpers).
    c. The Furnace return air duct must be complete and sealed to the Furnace.
    d. The Furnace input rate and temperature rise must be verified to be within the nameplate marking.
    e. A minimum 4” MERV 11 air filter must be in place.
    f. 100% of the Furnace combustion air requirement must come from outside the structure.
    g. The Furnace return air temperature range is between 55 and 80 Fahrenheit.
    h. Clean the Furnace, duct work, and components upon substantial completion of the construction process, and verify Furnace operating conditions including ignition, input rate, temperature rise, and venting, according to the manufacturer’s instructions.
10. **In the Commonwealth of Massachusetts, this product must be gas piped by a Licensed Plumber or Gas Fitter.**

This Furnace is certified to leak 1% or less of nominal air conditioning CFM delivered when pressurized to .5” water column with all inlets, outlets, and drains sealed.

General Guidelines

The manufacturer assumes no responsibility for equipment installed in violation of any code or regulation.

It is recommended that Manual J of the Air Conditioning Contractors Association (ACCA) or A.R.I. 230 be followed in estimating heating requirements. When estimating heating requirements for installation at Altitudes above 2000 ft., remember the gas input must be reduced. See Combustion and Input Check.

Material in this shipment has been inspected at the factory and released to the transportation agency without known damage. Inspect exterior of carton for evidence of rough handling in shipment. Unpack carefully after moving equipment to approximate location. If damage to contents is found, report the damage immediately to the delivering agency.

Codes and local utility requirements governing the installation of gas fired equipment, wiring, plumbing, and flue connections must be adhered to. In the absence of local codes, the installation must conform with latest edition of the National Fuel Gas Code ANSI Z223.1 / NFPA 54. The latest code may be obtained from the American Gas Association Laboratories, 400 N. Capitol St. NW, Washington D.C. 20001. 1-800-699-9277 or www.aga.org.

These furnaces have been classified as Fan Assisted Combustion system CATEGORY I furnaces as required by ANSI Z21.47 "latest edition". Therefore they do not require any special provisions for venting other than what is indicated in these instructions.

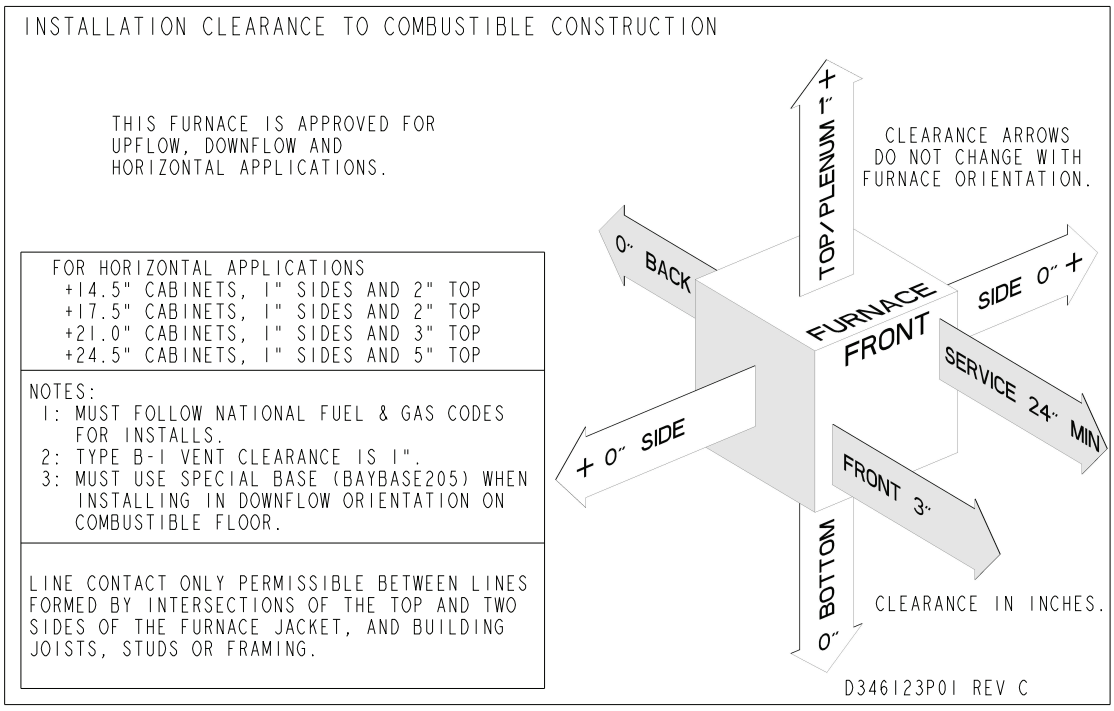
Warning: These furnaces are not approved or intended for installation in manufactured (mobile) housing, trailers, or recreational vehicles.

Locations and Clearances

The location of the Furnace is normally selected by the architect, the builder, or the installer. However, before the Furnace is moved into place, be sure to consider the following requirements:

1. Is the location selected as near the chimney or vent and as centralized for heat distribution as practical?
2. Do all clearances between the Furnace and enclosure equal or exceed the minimums stated in Clearance Table below?

Minimum clearance to combustible materials



3. Is there sufficient space for servicing the Furnace and other equipment? A minimum of 24 inches front accessibility to the Furnace must be provided. Any access door or panel must permit removal of the largest component.
4. Are there at least 3 inches of clearance between the Furnace combustion air openings in the front panel and any closed panel or door provided?
5. Are the ventilation and combustion air openings large enough and will they remain unobstructed? If outside air is used, are the openings set 12" above the highest snow accumulation level?
6. Allow sufficient height in supply plenum above the Furnace to provide for cooling coil installation, if the cooling coil is not installed at the time of this Furnace installation.

7. The Furnace shall be installed so electrical components are protected from water.
8. If the Furnace is installed in a garage, it must be installed so that the burners, and the ignition source are located not less than 18 inches above the floor and the Furnace must be located or protected to avoid physical damage from vehicles.
9. The gas furnace must not be located where excessive exposure to contaminated combustion air will result in safety and performance related problems. Avoid the following known contaminants:
    a. Permanent wave solutions
    b. Chlorinated waxes and cleaners
    c. Chlorine based swimming pool chemicals
    d. Water softening chemicals
    e. De-icing salts or chemicals
    f. Carbon tetrachloride
    g. Halogen type refrigerants
    h. Cleaning solvents (such as perchloroethylene)
    i. Printing inks, paint removers, varnishes, etc.
    j. Hydrochloric acid
    k. Cements and glues
    l. Antistatic fabric softeners for clothes dryers
    m. Masonry acid washing materials

Outline Drawings

Table 2. 14.5″ Width Cabinet

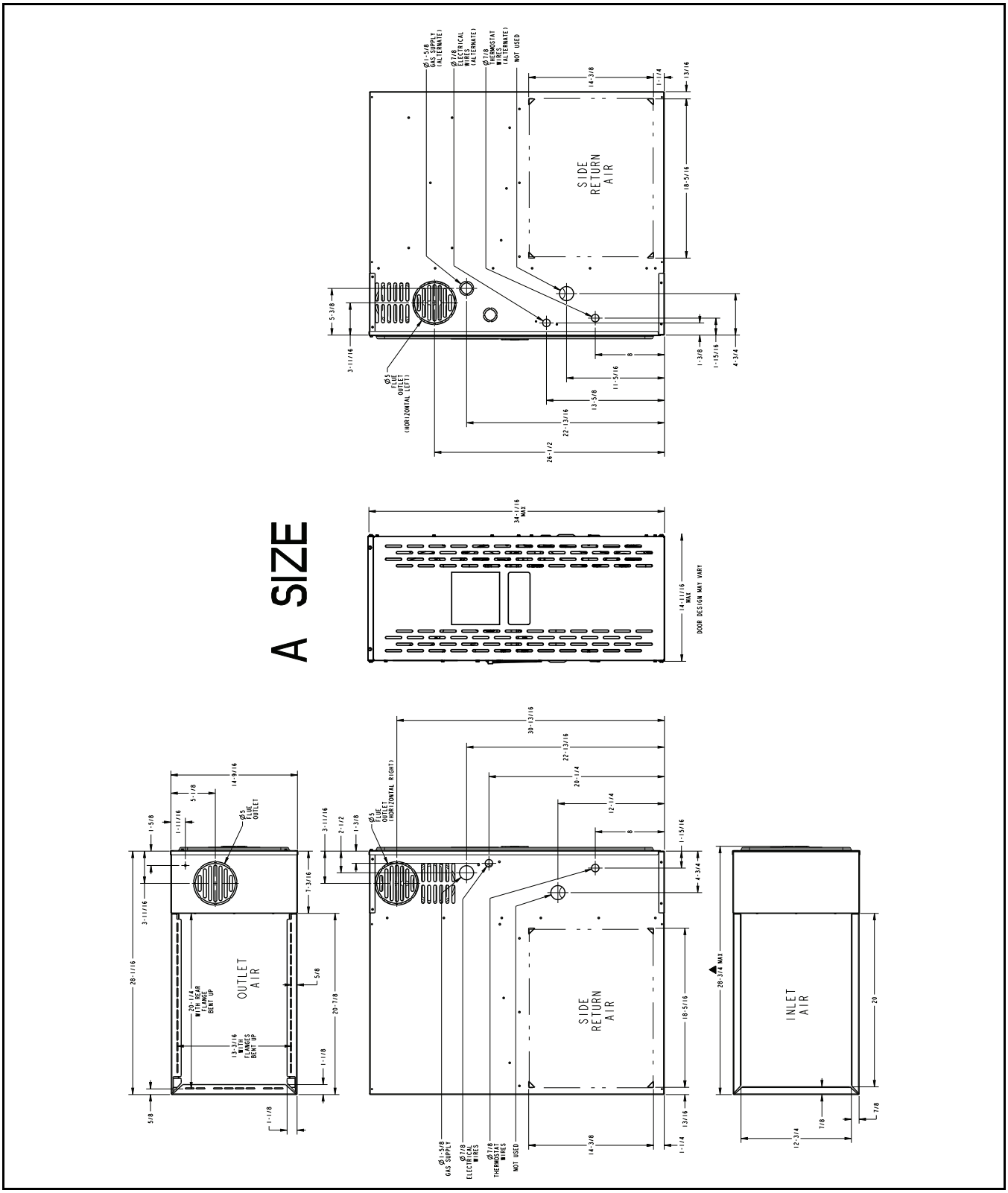


Table 3. 17.5″ Width Cabinet

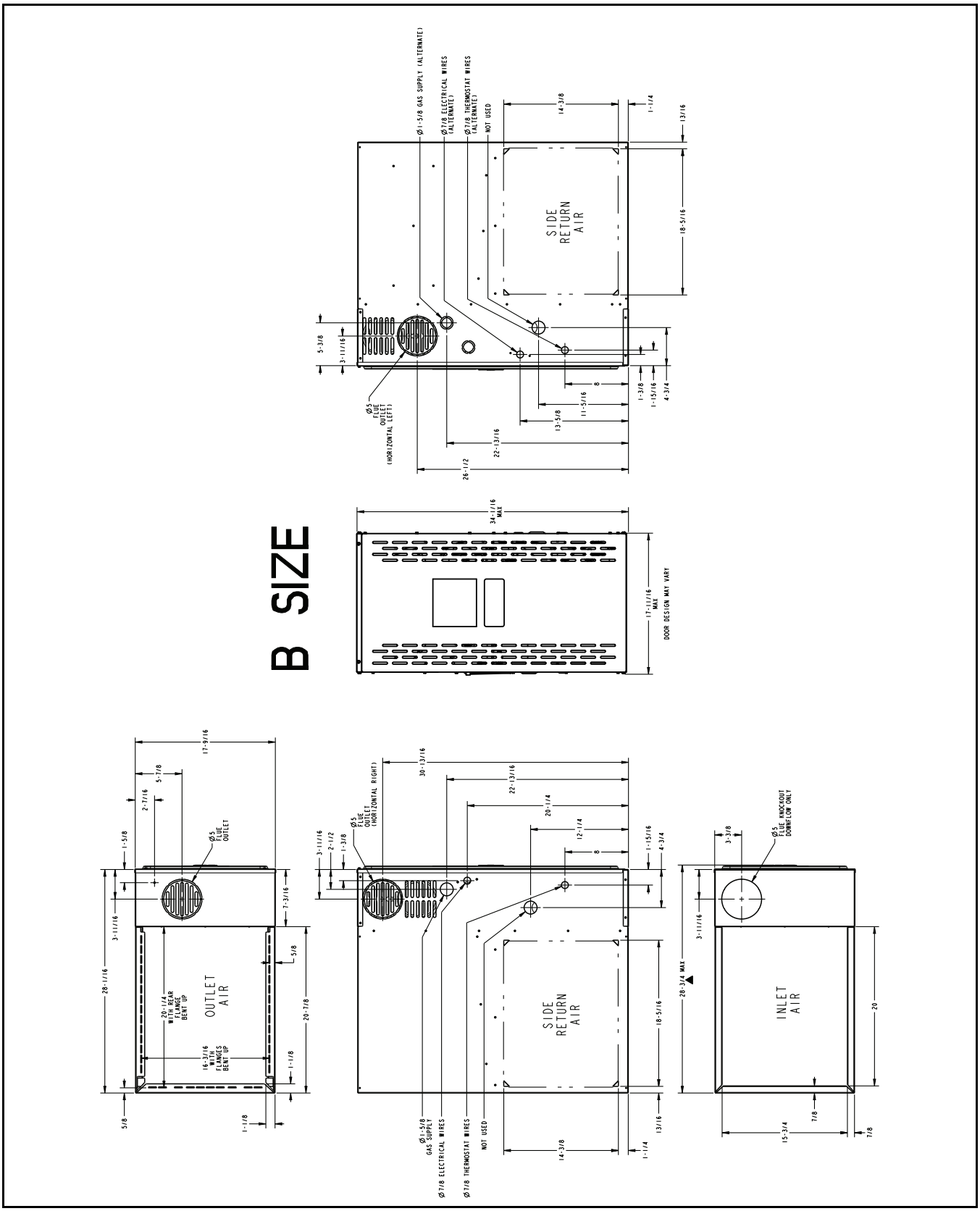


Table 4. 21″ Width Cabinet

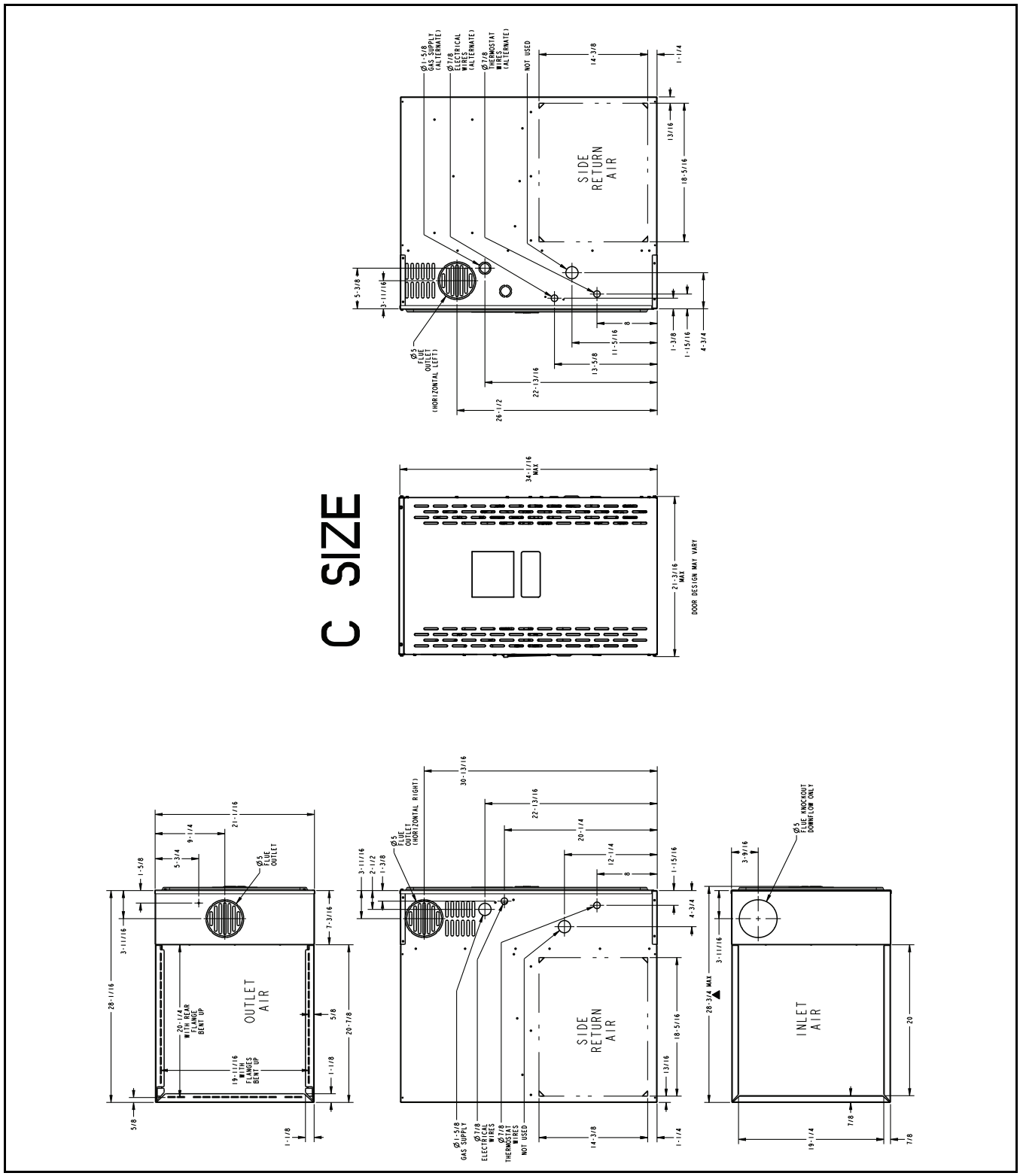
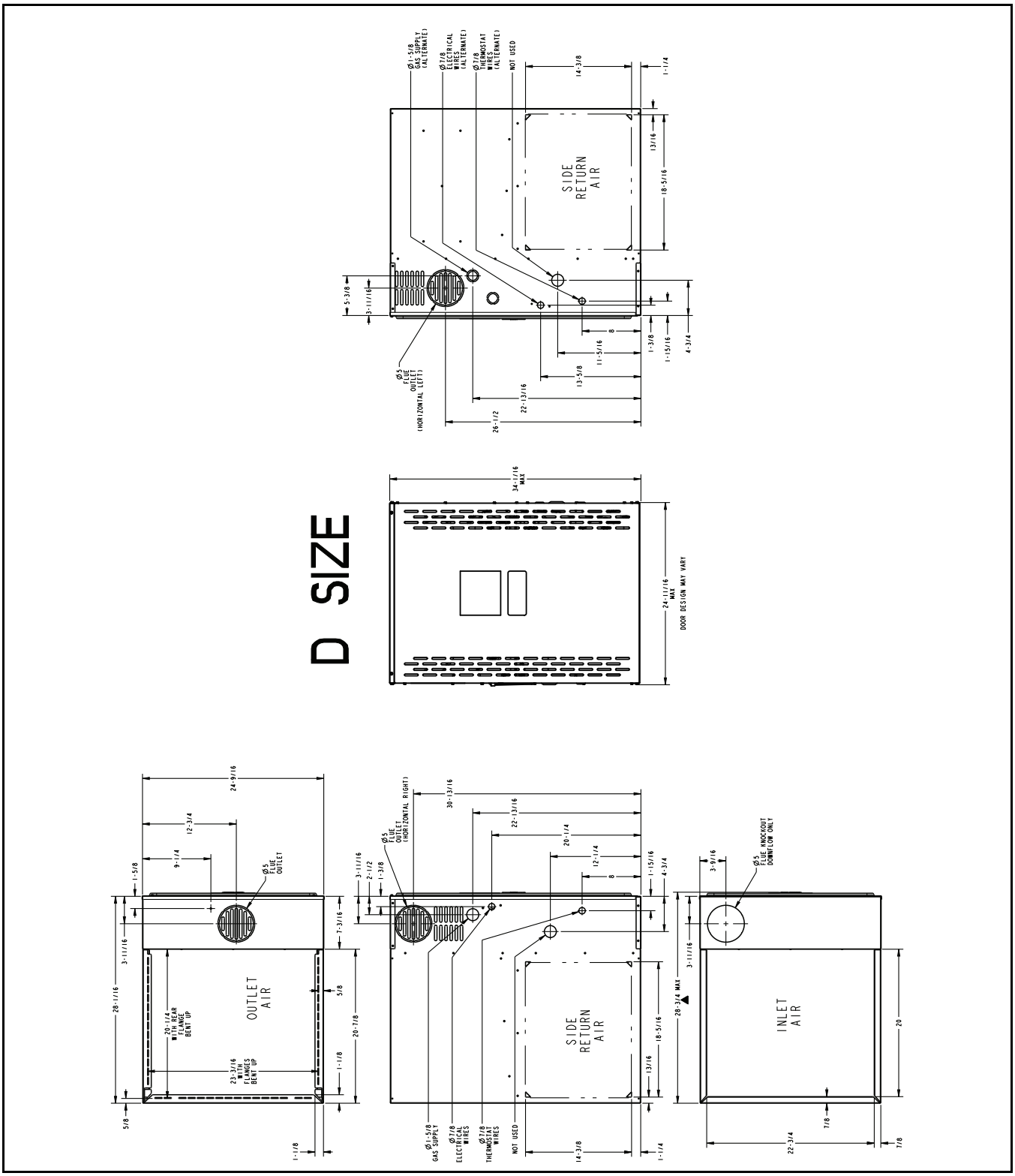


Table 5. 24.5″ Width Cabinet



Furnace General Installation

The following sections give general instructions for the installation of the gas furnaces.

Furnace Panel Removal

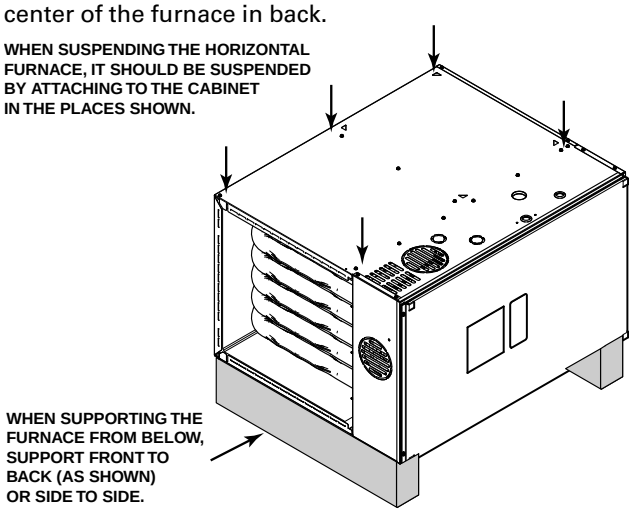
Note: *For the A801X furnace, a 1/4" nut driver is required to remove the two screws at the top of the front panel. The front panel can then be removed by lifting upwards.*	

Horizontal Installation in an Attic or Crawlspace

The non-condensing furnace may be installed in an attic or crawl space in the horizontal position by placing the furnace on its left or right side (as viewed from the front in the vertical position). The horizontal furnace installation in an attic should be on a service platform large enough to allow for proper clearances on all sides and service access to the front of the furnace. See "the Locations and Clearance section," p. 10. Line contact is only permissible between lines formed by intersections of the top and two sides of the furnace casing and building joists, studs, or framing.

The furnace may be placed horizontally in a crawl space on a pad or other noncombustible material. Place blocks underneath to support the furnace and raise the unit for sufficient protection from moisture.

The furnace may be installed hanging in a hanging position using straps. The furnace should be supported at both ends and have an additional support in the center of the furnace in back.

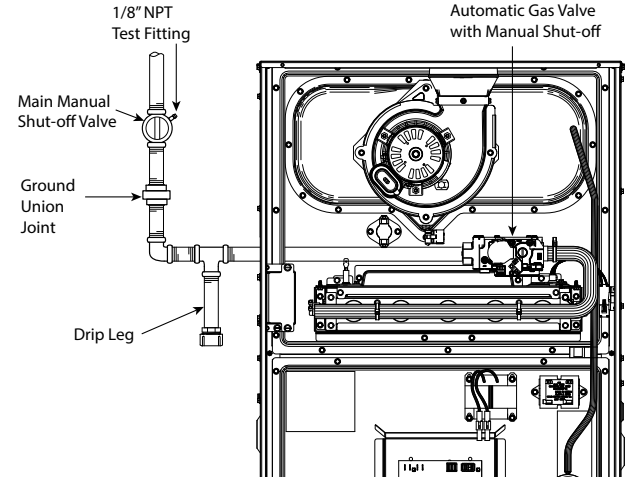


Gas Piping

Important: *The furnace default is left side gas piping.*

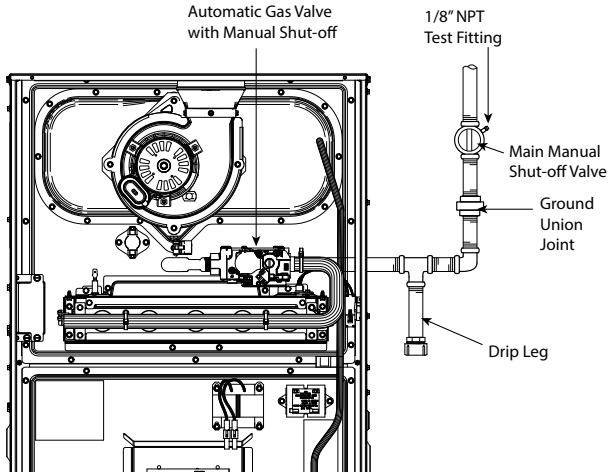
Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the right side of the furnace.*

Furnace in upflow orientation with gas piping on left



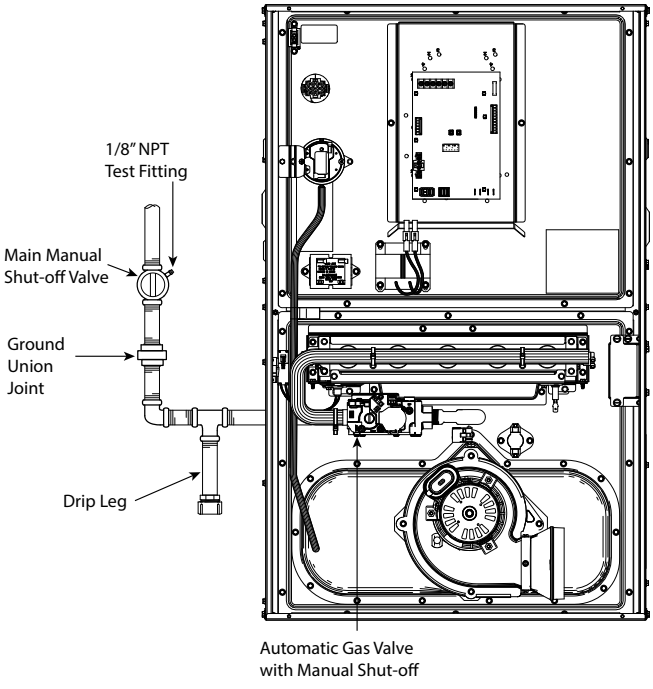
Furnace in upflow orientation with gas piping on right

Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the right side of the furnace in the upflow orientation.*

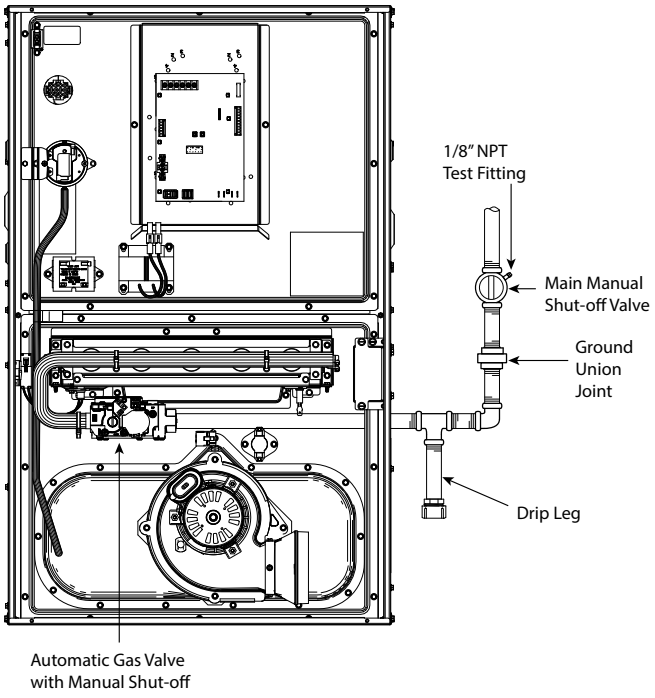


Furnace in downflow orientation with gas piping on left

Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the left side of the furnace in the downflow orientation.*



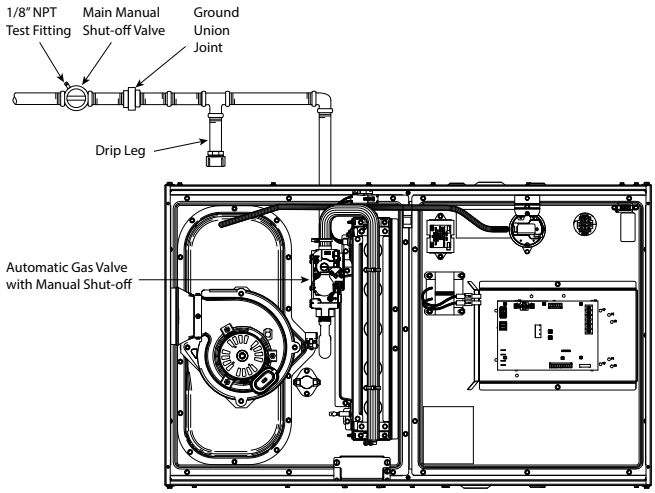
Furnace in downflow orientation with gas piping on right



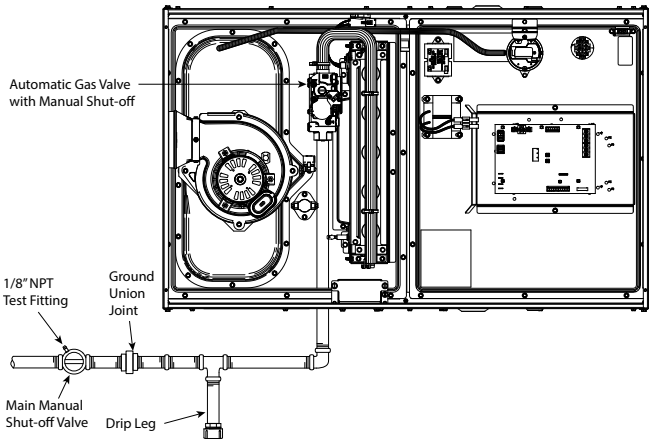
Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the right side of the furnace.*

Furnace in horizontal left orientation with gas piping out top

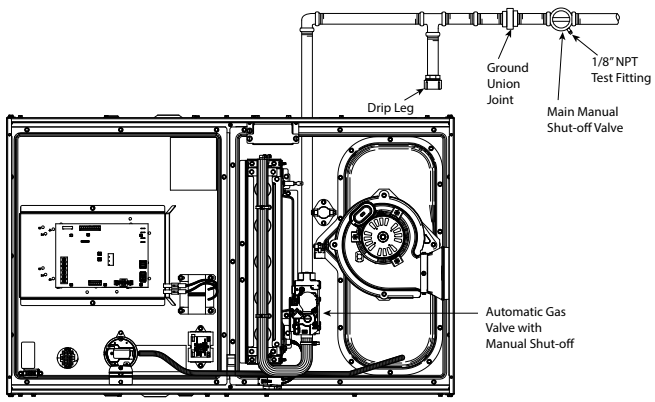
Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the top of the furnace in the horizontal left position.*



Furnace in horizontal left orientation with gas piping out bottom

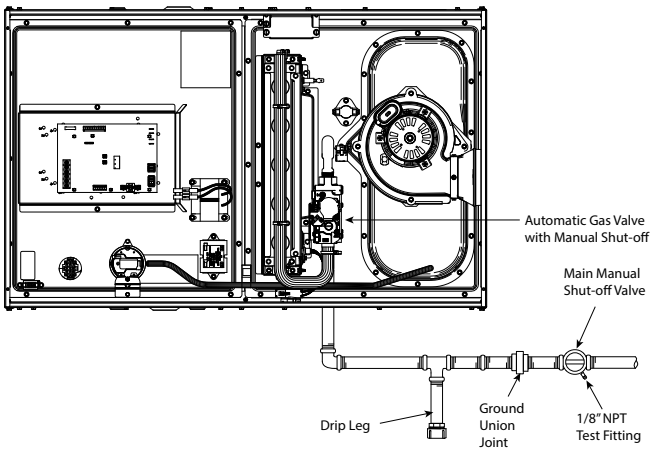


Furnace in horizontal right orientation with gas piping out top



Furnace in horizontal right orientation with gas piping out bottom

Note: *For ease of installation, optional accessory part PIP02095 is recommended for gas piping entering the bottom of the furnace in the horizontal right position.*



The furnace is shipped standard for left side installation of gas piping. A cutout with plug is provided on the right side for an alternate gas piping arrangement.

The installation of piping shall be in accordance with piping codes and the regulations of the local gas company. Pipe joint compound must be resistant to the chemical reaction with liquefied petroleum gases.

Important: *If local codes allow the use of flexible gas appliance connector, always use a new listed connector. Do not use a connector which has previously serviced another gas appliance.*

Refer to the piping table for delivery sizes. Connect gas supply to the unit, using a ground joint union and a manual shut-off valve. National codes require a condensation drip leg to be installed ahead of the gas valve.

The furnace and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).

The furnace must be isolated from the gas supply piping by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

Note: *Maximum pressure to the gas valve for natural gas is 13.8" W. C. Minimum pressure is 5.0" W.C. Maximum pressure to the gas valve for propane is 13.8" W.C. Minimum pressure is 11.0" W.C.*

NATURAL GAS ONLY

TABLE OF CUBIC FEET PER HOUR OF GAS FOR VARIOUS PIPE SIZES AND LENGTHS

PIPE SIZE	LENGTH OF PIPE						
	10	20	30	40	50	60	70
1/2	131	90	72	62	55	50	46
3/4	273	188	151	129	114	104	95
1	514	353	284	243	215	195	179
1–1/4	1060	726	583	499	442	400	368

This table is based on Pressure Drop of 0.3 inch W.C. and 0.6 SP. GR. Gas

All gas fittings must be checked for leaks using a soapy solution before lighting the furnace. ***DO NOT CHECK WITH AN OPEN FLAME!***

For propane conversions, the A801X026A will require LP kit BAYLPSS410A conversion kit with stainless steel burners. For propane conversions on all other S-Series Furnaces, use BAYLPSS400B conversion kit with stainless steel burners.

ORIFICE SIZES

INPUT RATING BTUH	NUMBER OF BURNERS	MAIN BURNER ORIFICE DRILL SIZE	
		NAT. GAS	PROPANE GAS
26,000	2	51	59
40,000	2	45	56
60,000	3	45	56
80,000	4	45	56
100,000	5	45	56
120,000	6	45	56

Combustion and Input Check

1. Make sure all gas appliances are off except the furnace.
2. Clock the gas meter with the furnace operating (determine the dial rating of the meter) for one revolution.
3. Match the "Sec" column in the gas flow table with the time clocked.
4. Read the "Flow" column opposite the number of seconds clocked.
5. Use the following factors if necessary:
   a. For 1 Cu. Ft. Dial Gas Flow CFH = Chart Flow Reading ÷ 2
   b. For 1/2 Cu Ft. Dial Gas Flow CFH = Chart Flow Reading ÷ 4
   c. For 5 Cu. Ft. Dial Gas Flow CFH = 10X Chart Flow Reading ÷ 4
6. Multiply the final figure by the heating value of the gas obtained from the utility company and compare to the nameplate rating. This must not exceed the nameplate rating.

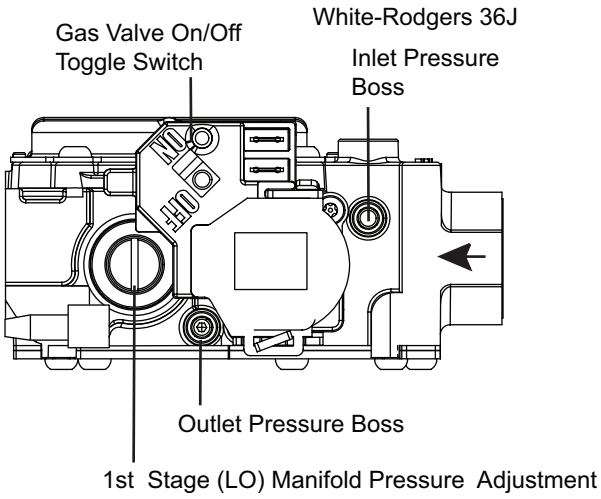
Gas Flow in Cubic Feet Per Hour							
2 Cubic Foot Dial							
Sec.	Flow	Sec.	Flow	Sec.	Flow	Sec.	Flow
10	732	31	236	52	141	86	85
11	666	32	229	53	138	88	83
12	610	33	222	54	136	90	81
13	563	34	215	55	133	94	78
14	523	35	209	56	131	98	75
15	488	36	203	57	128	100	73
16	458	37	198	58	126	104	70
17	431	38	193	59	124	108	68
18	407	39	188	60	122	112	65
19	385	40	183	62	118	116	63
20	366	41	179	64	114	120	61
21	349	42	174	66	111	130	56
22	333	43	170	68	108	140	52
23	318	44	166	70	105	150	49
24	305	45	163	72	102	160	46
25	293	46	159	74	99	170	43
26	282	47	156	76	96	180	41
27	271	48	153	78	94	190	39
28	262	49	149	80	92	200	37
29	253	50	146	82	89		
30	244	51	144	84	87		

Gas Valve Adjustment

Changes can be made by adjusting the manifold pressure, or changing orifices (orifice change may not always be required). To adjust the manifold pressure:

1. Turn off all electrical power to the system.
2. Attach a manifold pressure gauge with flexible tubing to the outlet pressure boss marked "OUT P" on White- Rodgers gas valve model 36J.
3. Loosen (Do Not remove) the pressure tap test set screw one turn with 3/32" hex wrench.
   a. The pressure tap adjustment kit (KIT07611) contains a 3/32" hex wrench, a 5/16" hose and a connector and can be ordered through Global Parts.
4. Turn on system power and make a call for heating.
5. Adjust gas heat by removing the low (LO) adjustment regulator cover screw.
   a. To increase outlet pressure, turn the regulator adjust screw clockwise.
   b. To decrease outlet pressure, turn the regulator adjust screw counterclockwise.
   c. Adjust regulator until pressure shown on manometer matches the pressure specified in the table.

      The input of no more than nameplate rating and no less than 93% of the nameplate rating, unless the unit is derated for high altitude.
   d. Replace and tighten the regulator cover screw securely.
6. Cycle the valve several times to verify regulator setting.
   a. Repeat steps 5-6 if needed.
7. Turn off all electrical power to the system.
8. Remove the manometer and flexible tubing and tighten the pressure tap screw.
9. Using a leak detection solution or soap suds, check for leaks at the pressure outlet boss and pressure tap test screw.
10. Turn on system power and check operation of the unit.



Maximum and Minimum INLET Pressure (inches w.c.)		
	Natural Gas	Propane
Maximum	13.8	13.8
Minimum	5	11
Fuel Manifold Pressure Settings (inches w.c.)		
All models	3.5	10
Orifice sizes for Natural Gas and Propane		
All models except A801X026A	45	56
A801X026A	51	59

High Altitude Derate

Input ratings (BTUH) of these Furnaces are based on sea level operation and should not be changed at elevations up to 2,000 ft. (610 m).

If the installation is 2,000 ft. (610 m) or above, the Furnace input rate (BTUH) shall be reduced 4% for each 1,000 ft. above sea level.

Installations of this furnace at altitudes above 2,000 ft. (610 m) shall be made utilizing the Part Numbers for Replacement Orifices table in these installation instructions.
The Furnace input rate shall be checked by clocking the gas flow rate (CFH) and multiplying by the heating value obtained from the local utility supplier for the gas being delivered at the installed altitude. Input rate changes can be made by adjusting the Manifold Pressure (min 3.0 - max 3.7 in. W.C. - Natural Gas) or changing orifices (orifice change may not always be required).

If the desired input rate can not be achieved with a change in Manifold Pressure, then the orifices must be changed. Propane installations will require an orifice change.

See the table for help in selecting orifices if orifice change is required. Furnace input rate and temperature rise should be checked again after changing orifices to confirm the proper rate for the altitude.

PART NUMBERS FOR REPLACEMENT ORIFICES

DRILL SIZE	PART NUMBER	DRILL SIZE	PART NUMBER
44	ORF00501	54	ORF00555
45	ORF00644	55	ORF00693
46	ORF00909	56	ORF00907
47	ORF00910	57	ORF00908
48	ORF01099	58	ORF01338
49	ORF00503	59	ORF01339
50	ORF00493		

Turn the main Gas Valve toggle switch within the unit to the "**OFF**" position. Turn the external gas valve to "ON". Purge the air from the gas lines. After purging, check all gas connections for leaks with a soapy solution – **DO NOT CHECK WITH AN OPEN FLAME.** Allow 5 minutes for any gas that might have escaped to dissipate.

Propane Gas being heavier than air may require forced ventilation. Turn the toggle switch on the Gas Valve in the unit to the "ON" position.

Note: *For furnaces requiring modifications other than only gas orifice and/or manifold pressure adjustment for installation at high altitude, installation of this furnace at altitudes above 2000 ft (610 m) shall be made in accordance with the listed High Altitude Conversion Kit available with this furnace.*

The table lists the main burner orifices used with the furnace. If a change of orifices is required to correct the furnace input rating refer to the part number for replacement orifices table.

Installation of this furnace at altitudes above 2000 ft (610m) shall be in accordance with local codes, or in the absence of local codes, the *National Fuel Gas Code, ANSI Z223.1/NFPA 54.*

Orifice Twist Drill Size If Installed at Sea Level	Altitude Above Sea Level and Orifice Required at Other Elevations								
	2000	3000	4000	5000	6000	7000	8000	9000	10000
42	42	43	43	43	44	44	45	46	47
43	44	44	44	45	45	46	47	47	48
44	45	45	45	46	47	47	48	48	50
45	46	47	47	47	48	48	49	49	50
46	47	47	47	48	48	49	49	50	51
47	48	48	49	49	49	50	50	51	52
54	54	55	55	55	55	55	56	56	56
55	55	55	55	56	56	56	56	56	57
56	56	56	57	57	57	58	59	59	60
57	58	59	59	60	60	61	62	63	63
58	59	60	60	61	62	62	63	63	64
From National Fuel Gas Code — Table E.1.1(d)									

General Venting

VENT PIPING

These furnaces have been classified as Fan-Assisted Combustion System, Category I furnaces under the "latest edition" provisions of ANSI Z21.47 standards. Category I furnaces operate with a non-positive vent static pressure and with a flue loss of not less than 17 percent.

Multistory and common venting are permitted for these furnaces. Venting systems shall be in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, local codes, and this installation manual.

If desired, a side wall termination can be accomplished through the use of a listed "add-on" draft inducer. The inducer must be installed according to the inducer manufacturer's instructions. Set the barometric pressure relief to achieve –0.02 inch water column.

The furnace shall be connected to a factory built chimney or vent complying with a recognized standard, or a masonry or concrete chimney lined with a lining material acceptable to the authority having jurisdiction.

VENTING INTO A MASONRY CHIMNEY
If the chimney is oversized, the liner is inadequate, or flue-gas condensation is a problem in your area, consider using the chimney as a pathway or chase for type "B" vent or flexible vent liner. If flexible liner material is used, size the vent using the "B" vent tables, then reduce the maximum capacity by 20% (multiply 0.80 times the maximum capacity). Masonry Chimney Kit BAYVENT800B may be used with these furnaces **(Upflow model furnaces only)** to allow venting into a masonry chimney. Refer to the BAYVENT800B Installer's Guide for application requirements.

INTERNAL MASONRY CHIMNEYS
Venting of fan assisted appliances into a lined, internal masonry chimney is allowed only if it is common vented with at least one natural draft appliance; **OR**, if the chimney is lined with type "B", double wall vent or suitable flexible liner material

⚠ WARNING

Safety Hazard!

Failure to follow this warning could result in carbon monoxide poisoning or death.

The chimney liner must be thoroughly inspected to insure no cracks or other potential areas for flue gas leaks are present in the liner. Liner leaks will result in early deterioration of the chimney.

The following section does not apply if BAYVENT800B (Masonry Chimney Vent Kit) is used. All instructions with the kit must be followed.

Masonry Chimney Venting				
Type Furnace	Tile Lined Chimney		Chimney Lining	
	Internal	External	"B" Vent	Flexible Metal Liner
Single Fan Assist	No	No	Yes	Yes [a]
Fan Assist + Fan Assist	No	No	Yes	Yes [a]
Fan Assist + Natural	Yes	No	Yes	Yes [a]

[a] Flexible chimney liner size is determined by using the type "B" vent size for the available BTUH input, then reducing the maximum capacity by 20% (multiply maximum capacity times 0.80). The minimum capacity is the same as shown in the "B" vent tables.

EXTERNAL MASONRY CHIMNEY

Venting of fan assisted appliances into external chimneys (one or more walls exposed to outdoor temperatures), requires the chimney be lined with type "B", double wall vent or suitable flexible chimney liner material. This applies in all combinations of common venting as well as for fan assisted appliances vented alone.

The following installation practices are recommended to minimize corrosion caused by condensation of flue products in the furnace and flue gas system.

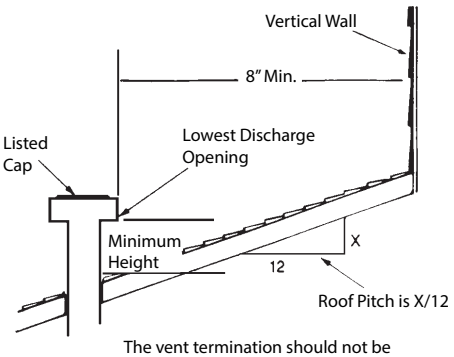
1. Avoid an excessive number of bends.
2. Horizontal runs should pitch upward at least 1/4" per foot.
3. Horizontal runs should be as short as possible.
4. All vent pipe or connectors should be securely supported and must be inserted into, but not beyond the inside wall at the chimney vent.
5. When vent connections must pass through walls or partitions of combustible material, a thimble must be used and installed according to local codes.
6. Vent pipe through the roof should be extended to a height determined by National Fuel Gas Code or local codes. It should be capped properly to prevent rain water from entering the vent. Roof exit should be waterproofed.
7. Use type "B" double wall vent when vent pipe is routed through cool spaces (below 60° F.).
8. Where long periods of airflow are desired for comfort, use long fan cycles instead of continuous airflow.
9. Apply other good venting practices as stated in the venting section of the National Fuel Gas Code ANSI Z223.1 "latest edition".
10. **Vent connectors serving appliance vented by natural draft or non-positive pressure shall not be connected into any portion of a mechanized draft system operating under positive pressure.**
11. Horizontal pipe runs must be supported by hangers, straps or other suitable material in intervals at a minimum of every 3 feet of pipe.
12. A furnace shall not be connected to a chimney or flue serving a separate appliance designed to burn solid fuel.
13. The flow area of the largest section of vertical vent or chimney shall not exceed 7 times the smallest listed appliance categorized vent area, flue collar area, or draft hood outlet area unless designed in accordance with approved engineering methods.

Maximum Vent or Tile Lined Chimney Flow Area = $[\pi(D^*)^2]/4 \text{ X } 7$

* Drafthood outlet diameter, flue collar diameter, or listed appliance categorized vent diameter.

Gas Vent Termination	
Roof Pitch	Minimum Height
Flat to 6/12	1.0 Feet [a]
Over 6/12 to 7/12	1.25 Feet
Over 7/12 to 8/12	1.5 Feet
Over 8/12 to 9/12	2.0 Feet
Over 9/12 to 10/12	2.5 Feet
Over 10/12 to 11/12	3.25 Feet
Over 11/12 to 12/12	4.0 Feet
Over 12/12 to 14/12	5.0 Feet
Over 14/12 to 16/12	6.0 Feet
Over 16/12 to 18/12	7.0 Feet
Over 18/12 to 20/12	7.5 Feet
Over 20/12 to 22/12	8.0 Feet

[a] This requirement covers most installations



The vent termination should not be less than 8 ft. from a vertical wall.

[a] This requirement covers most installations

Air for Combustion and Ventilation

Adequate flow of combustion and ventilating air must not be obstructed from reaching the Furnace. Air openings provided in the Furnace casing must be kept free of obstructions which restrict the flow of air. Airflow restrictions affect the efficiency and safe operation of the Furnace. Keep this in mind should you choose to remodel or change the area which contains your Furnace. Furnaces must have a free flow of air for proper performance.

Provisions for combustion and ventilation air shall be made in accordance with "latest edition" of Section 9.3, Air for Combustion and Ventilation, of the National Fuel Gas Code, ANSI Z223.1 / NFPA 54. Installation Codes, and applicable provisions of the local building codes. Special conditions created by mechanical exhausting of air and fireplaces must be considered to avoid unsatisfactory Furnace operation.

Furnace location may be in an **unconfined** space or a **confined** space.

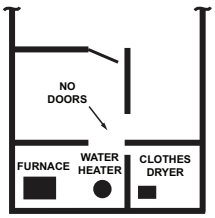
Unconfined space are installations with 50 cu. ft. or more per 1000 BTU/hr input from all equipment installed. Unconfined spaces are defined in the table and illustration for various furnace sizes. These spaces may have adequate air by infiltration to provide air for combustion, ventilation, and dilution of flue gases. Buildings with tight construction (for example, weather stripping, heavily insulated, caulked, vapor barrier, etc.), may need additional air provided as described for confined space.

Minimum Area in Square Feet for Unconfined Space Installations

Furnace Maximum BTUH Input Rating	With 8 Ft. Ceiling, Minimum Area in Square Feet of Unconfined Space
26,000	165
40,000	250
60,000	375
80,000	500
100,000	625
120,000	750

UNCONFINED

50 CU. FT. OR MORE PER 1000 BTU/HR INPUT ALL EQUIP. INSTALLED



Confined spaces are installations with less than 50 cu. ft. of space per 1000 BTU/ hr input from all equipment installed. Confined spaces are defined in the table and illustration for various furnace sizes. Air for combustion and ventilation requirements can be supplied from inside the building.

1. The following types of installations will **require** use of OUTDOOR AIR for combustion, due to chemical exposures:

* Commercial buildings
* Buildings with indoor pools
* Furnaces installed in commercial laundry rooms
* Furnaces installed in hobby or craft rooms
* Furnaces installed near chemical storage areas

Exposure to the following substances in the combustion air supply will also require OUTDOOR AIR for combustion:

* Permanent wave solutions
* Chlorinated waxes and cleaners
* Chlorine based swimming pool chemicals
* Water softening chemicals
* Deicing salts or chemicals
* Carbon Tetrachloride
* Halogen type refrigerants
* Cleaning solvents (such as perchloroethylene)
* Printing inks, paint removers, varnish, etc.
* Hydrochloric acid
* Cements and glues
* Antistatic fabric softeners for clothes dryers
* Masonry acid washing material

Note: *Extended warranties are not available in some instances. Extended warranty does not cover repairs to equipment installed in establishments with corrosive atmospheres, including but not limited to, dry cleaners, beauty shops, and printing facilities.*

Minimum Free Area in Square Inches Each Opening (Furnace Only) in a Confined Space

Furnace Max BTUH.Input Rtg.	Air From Inside	Air From Outside	
		Vertical Duct (a)	Horizontal Duct (b)
26,000	100	7	14
40,000	100	10	20
60,000	100	15	30
80,000	100	20	40
100,000	100	25	50
120,000	120	30	60

(a) 1 Square inch per 4000 BTU/hr Vertical Duct.
(b) 1 Square inch per 2000 BTU/hr Horizontal Duct.

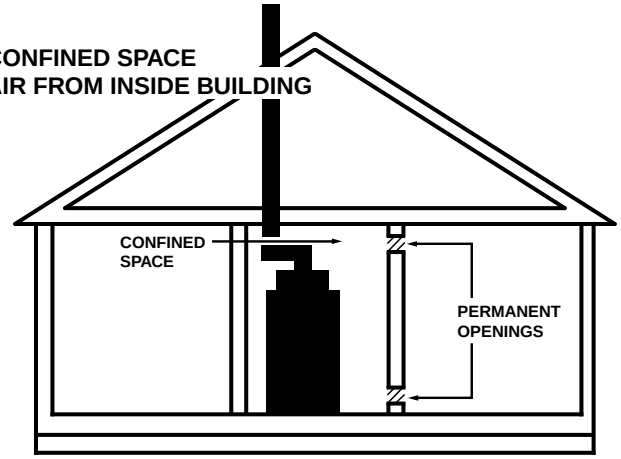
CONFINED

LESS THAN 50 CU. FT. PER 1000 BTU/HR INPUT ALL EQUIP. INSTALLED

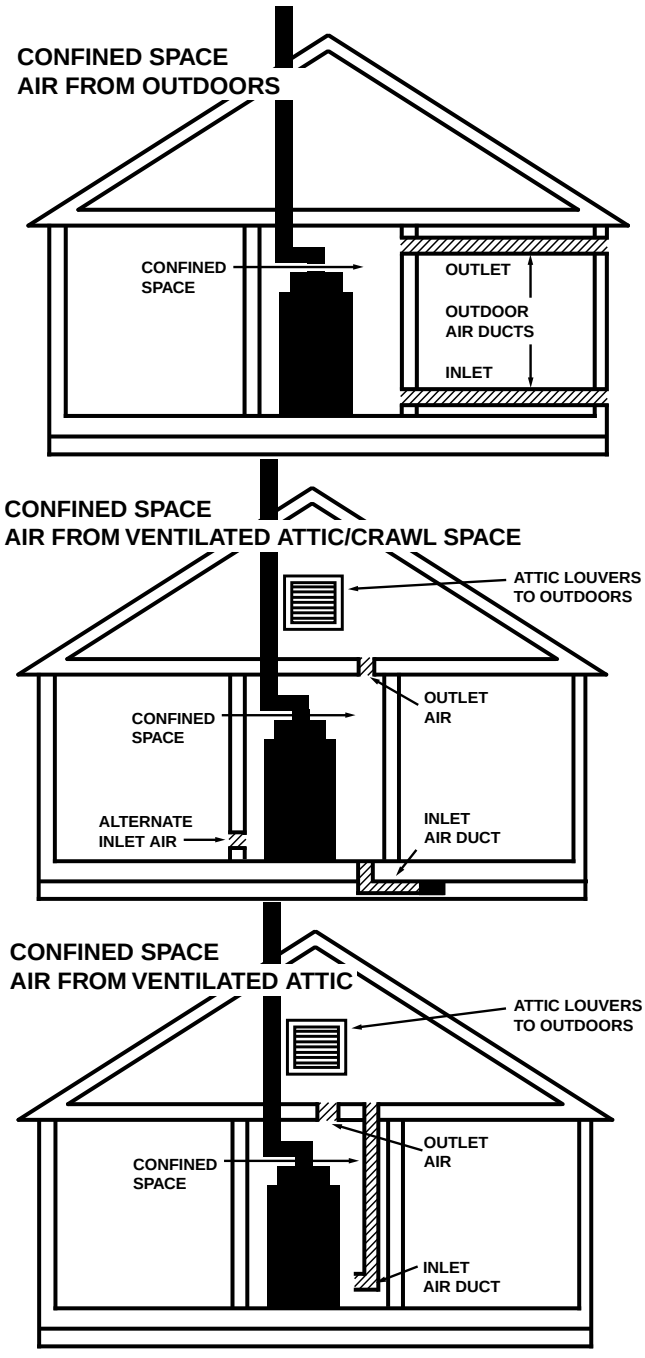


<u>All air from inside the building</u> The confined space shall be provided with two permanent openings communicating directly with an additional room(s) of sufficient volume so that the combined volume of all spaces meets the criteria for an unconfined space. The total input of all gas utilization equipment installed in the combined space shall be considered in making this determination. Refer to the Minimum Free Area in square inches for confined spaces table, for minimum open areas required.

CONFINED SPACE AIR FROM INSIDE BUILDING



All air from outdoors The confined space shall be provided with two permanent openings, one commencing within 12 inches of the top and one commencing within 12 inches of the bottom of the enclosure. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors. Refer to the Minimum Free Area in square inches for confined spaces table, for minimum open areas required.



Duct Connections

Air duct systems should be installed in accordance with standards for air conditioning systems, National Fire Protection Association Pamphlet No. 90. They should be sized in accordance with ACCA Manual D or whichever is applicable. Check on controls to make certain they are correct for the electrical supply. Central furnaces, when used in connection with cooling units, shall be installed in parallel or on the upstream side of the cooling units to avoid condensation in the heating element, unless the furnace has been specifically approved for downstream installation. With a parallel flow arrangement, the dampers or other means used to control flow of air shall be adequate to prevent chilled air from entering the furnace, and if manually operated, must be equipped with means to prevent operation of either unit unless the damper is in full heat or cool position. Flexible connections of nonflammable material may be used for return air and discharge connections to reduce the transmission of vibration. Though these units have been specifically designed for quiet, vibration free operation, air ducts can act as sounding boards and could, if poorly installed, amplify the slightest vibration to the annoyance level.	When the furnace is located in a utility room adjacent to the living area, the system should be carefully designed with returns which minimize noise transmission through the return air grille. Although these winter air conditioners are designed with large blowers operating at moderate speeds, any blower moving a high volume of air will produce audible noise which could be objectionable when the unit is located very close to a living area. It is often advisable to route the return air ducts under the floor or through the attic. Such design permits the installation of air return remote from the living area (i.e. central hall). When the furnace is installed so that the supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by a duct(s) sealed to the furnace and terminating outside the space containing the furnace. For furnaces not equipped with a cooling coil, it is recommended that the outlet duct be provided with a removable access panel. The opening shall be accessible when the furnace is installed and shall be of such a size that the heat exchanger can be viewed for possible openings using light assistance or a probe can be inserted for sampling the air stream. The removable cover must be sealed to prevent air leaks.
Where there is no complete return duct system, the return connection must be run full size from the Furnace to a location outside the utility room, basement, attic, or crawl space. **Do Not** install return air through the back of the Furnace cabinet. **Do Not** install return air through the side of the furnace cabinet on horizontal applications without following the guidelines in the Return Air Filters section in the figure for Horizontal furnace with side return., p.	
Carbon monoxide, fire or smoke can cause serious bodily injury, death, and/or property damage. A variety of potential sources of carbon monoxide can be found in a building or dwelling such as gas-fired clothes dryers, gas cooking stoves, water heaters, furnaces and fireplaces. The U.S. Consumer Product Safety Commission recommends that users of gas-burning appliances install carbon monoxide detectors as well as fire and smoke detectors per the manufactures installation instructions to help alert dwelling occupants of the presence of fire, smoke or unsafe levels of carbon monoxide. These devices should be listed by Underwriters Laboratories, Inc. *Standards for Single and Multiple Station Carbon Monoxide Alarms, UL 2034.*	***Note:*** *The manufacturer of your Furnace DOES NOT test any detectors and makes no representations regarding any brand or type of detector.*
Note: *Seal per local codes*	

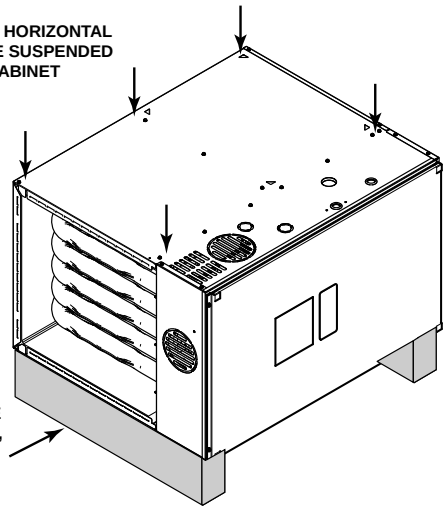
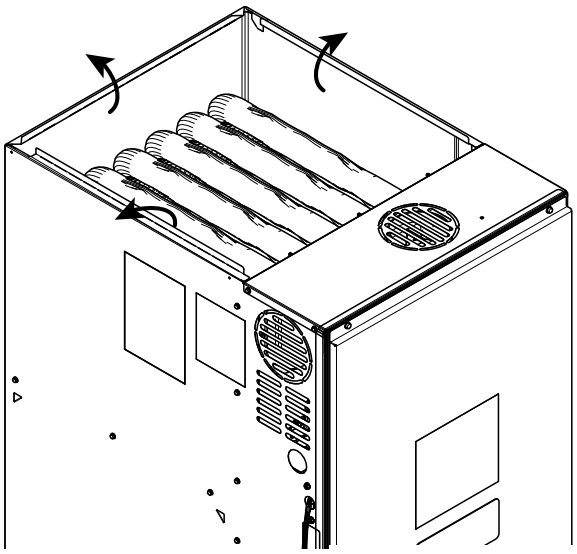
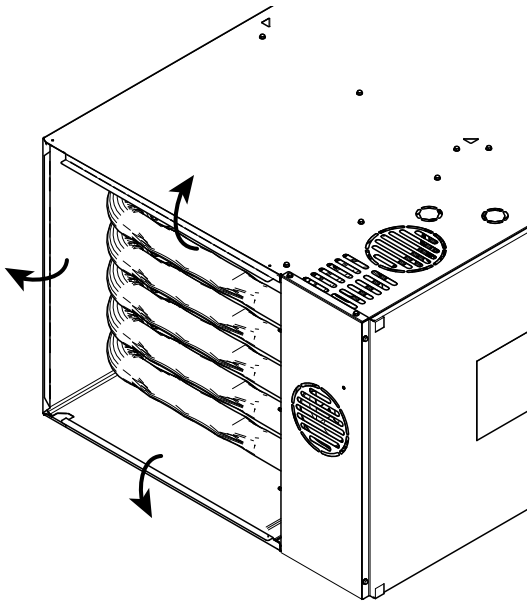
In horizontal applications, the furnace must be supported with one of the following methods. 1. Support below with non-combustible material as shown in the illustration. 2. Use BAYHANG kit. See kit instructions. 3. Use unistrut with cabling to provide support from under the unit. 4. Use strapping material in locations shown in illustration.	**WHEN SUSPENDING THE HORIZONTAL FURNACE, IT SHOULD BE SUSPENDED BY ATTACHING TO THE CABINET IN THE PLACES SHOWN.**  **WHEN SUPPORTING THE FURNACE FROM BELOW, SUPPORT FRONT TO BACK (AS SHOWN) OR SIDE TO SIDE.**

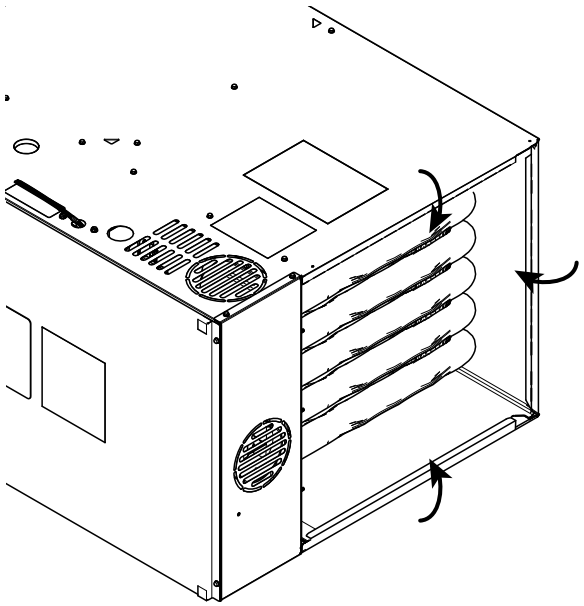
Table 6. Supply Duct Connections

Upflow Furnace with Coil 1. Bend furnace flanges up. 2. Set the coil on top of the furnace. 3. Screw through the coil cabinet into the furnace flange. Guide holes are located on the coil. ***Note:*** *There are no longer guide holes located on the furnace flange.* 4. Seal per local codes and requirements.	
Furnace in Horizontal Left with Coil 1. Bend furnace flanges up. 2. Support the furnace and coil independently. 3. Screw through the coil cabinet into the furnace flange. Guide holes are located on the coil. ***Note:*** *There are no longer guide holes located on the furnace flange.* 4. Seal per local codes and requirements.	

Furnace in Horizontal Right with "A" Coil

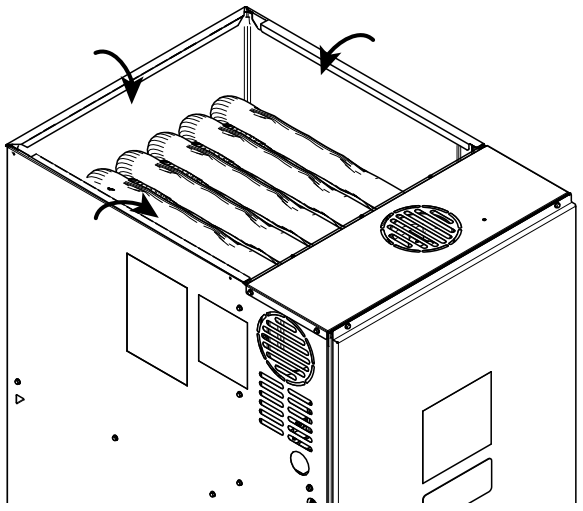
1. Bend furnace flanges down.
2. Support the furnace and coil independently.
3. Match the coil up flush to the back of the furnace.
4. Seal per local codes and requirements.

Note: *Flat or dedicated horizontal coils may require flanges to be bent upward.*



Downflow Furnace with Coil

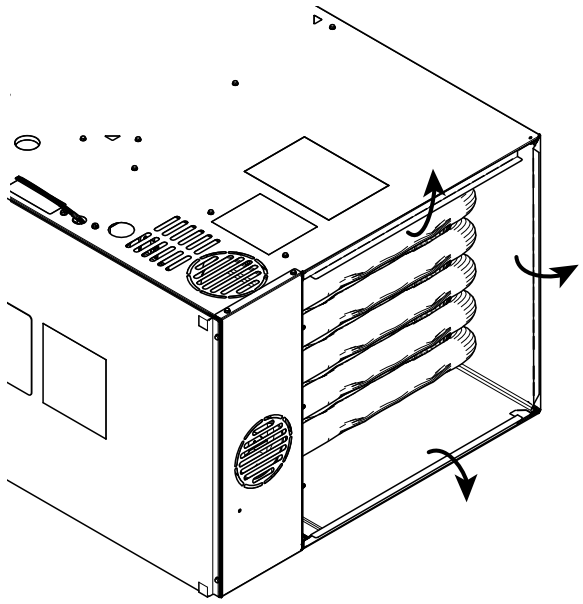
1. Bend furnace flanges down.
2. Set the furnace on top of the coil so that it is flush with the back of the furnace.
3. Seal per local codes and requirements.



Horizontal Right and Downflow Furnace — no Coil

Important: *A BAYBASE is required when installing the furnace on a combustible floor.*

1. Bend furnace flanges up.
2. Attach ducting.
3. Seal per local codes and requirements.



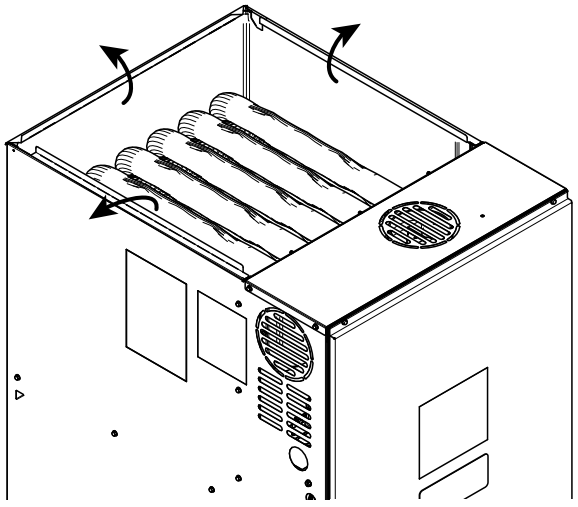


Table 7. Return Duct Connections

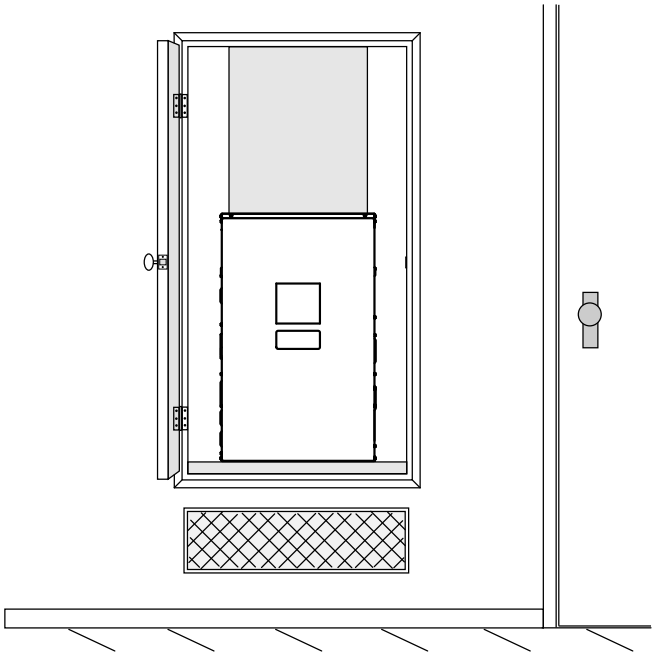
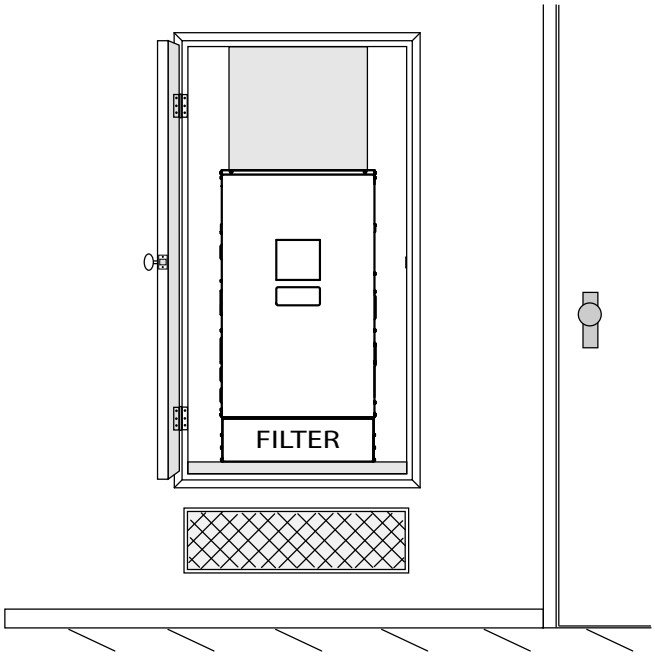
Return Ducting General Guidelines • Back returns are not allowed on any S-Series Furnaces • Side returns are not allowed on downflow or horizontal S-Series Furnaces • Mounting flanges must be located on ducting • Shoot screws through the mount flanges into the furnace cabinet • Always seal per local codes and requirements • Furnace, coil, and ducting must be supported separately • An external overflow drain pan must be installed in all applications over a finished ceiling to prevent property damage	
Upflow Furnace with Bottom Return in Closet with Remote Filter 1. Remove the bottom plate. 2. Set the furnace on the base inside closet. 3. Install remote filter. 4. Seal per local codes and requirements.	
Upflow Furnace with Bottom Return in Closet with Filter Box 1. Remove the bottom plate. 2. Set the furnace on the filter box inside closet. 3. Must have grille present for air. 4. Seal per local codes and requirements.	

Table 7. Return Duct Connections (continued)

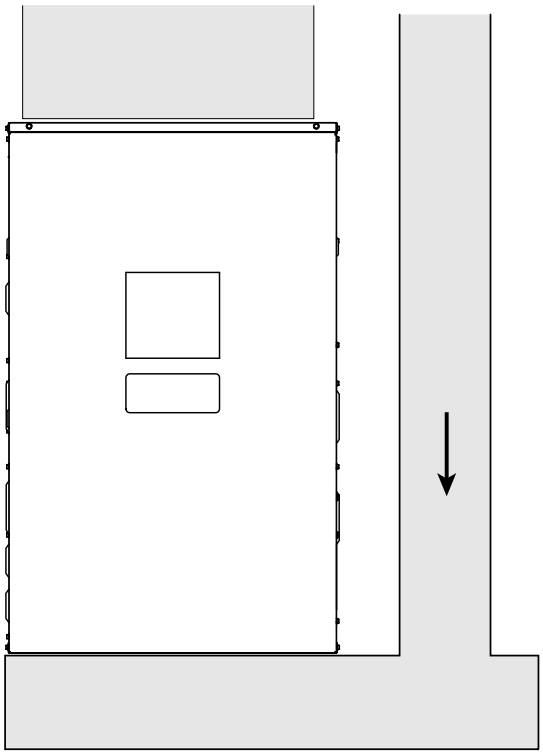
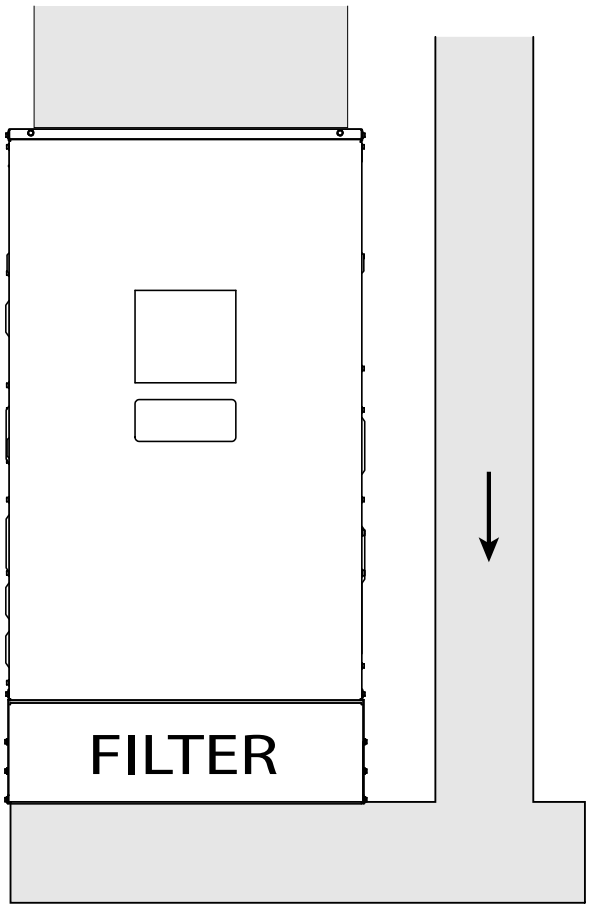
Upflow Furnace with Bottom Return Mounted on a Ducted Pedestal 1. Remove the bottom plate. 2. Set the furnace on the ducted pedestal. The ducted pedestal will use ducted air from a remote location. 3. Install filter at a remote location. 4. Seal per local codes and requirements.	
Upflow Furnace with Bottom Return Mounted on a Ducted Pedestal with Filter Box 1. Remove the bottom plate. 2. Set the furnace on the filter box. The ducted pedestal will use ducted air from a remote location. 3. Seal per local codes and requirements.	

Table 7. Return Duct Connections (continued)

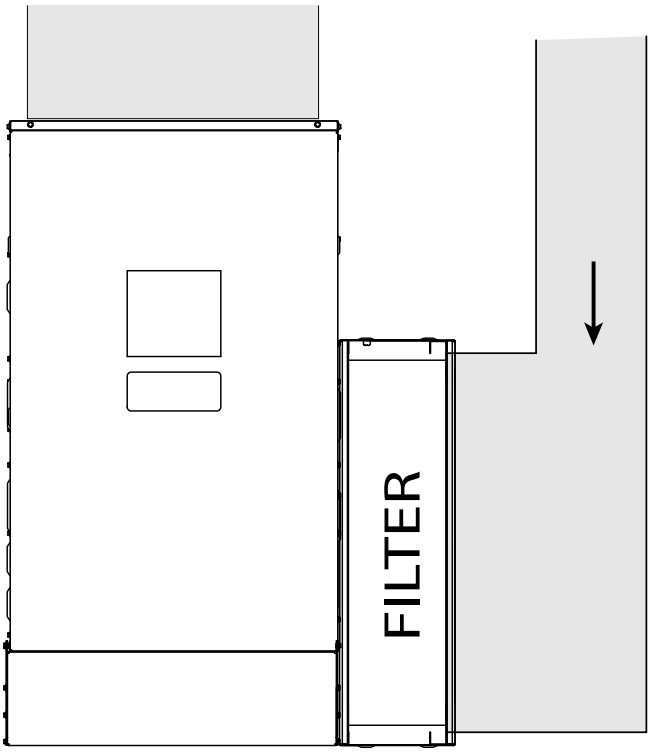
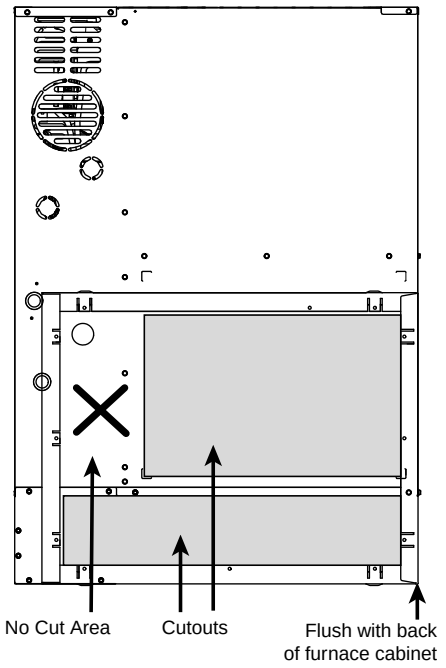
Upflow Furnace with Bottom and Side Returns Mounted on a Ducted Pedestal with Side Return and Filter Box ***Important:*** *Make sure the thermostat wiring hole is sealed on the cabinet side with the side return.* ***Important:*** *Make sure not to cut the cabinet in the "No Cut" area.* 1. Remove the bottom plate. 2. Create ducting and set the furnace in place. ***Note:*** *Use Optional BAYLIFT kit to lift furnace. Follow kit instructions.* ***Note:*** *The furnace bottom pedestal must be a minimum of 6" in height.* 3. Match the filter cabinet flush to the back and bottom sides of the furnace cabinet and secure in place with screws. 4. Mark the two areas to be cut out for the return air. 5. Cut out the two sections of the cabinet and BAYLIFT kit to be removed. 6. Attach ducting to the filter box. 7. The ducted pedestal will use ducted air from a remote location. 8. Seal per local codes and requirements.	
Cabinet cutout when used with BAYLIFT	21" Filter Cabinet with BAYLIFT Kit shown 

Table 7. Return Duct Connections (continued)

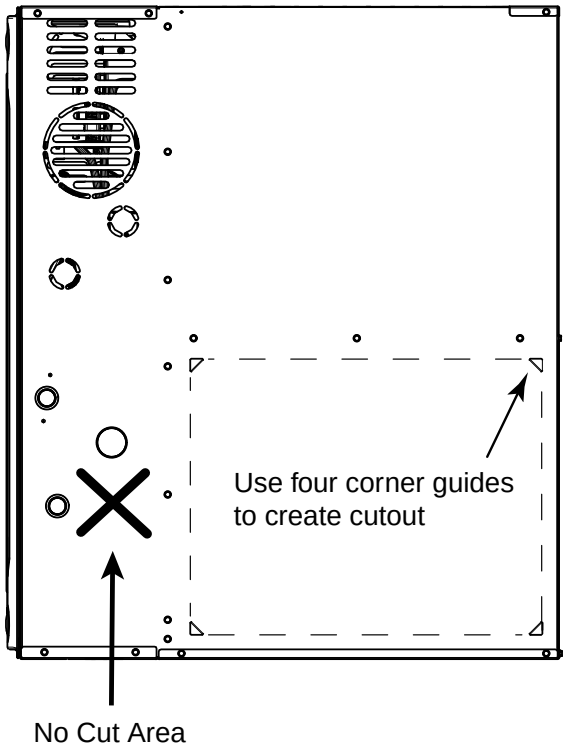
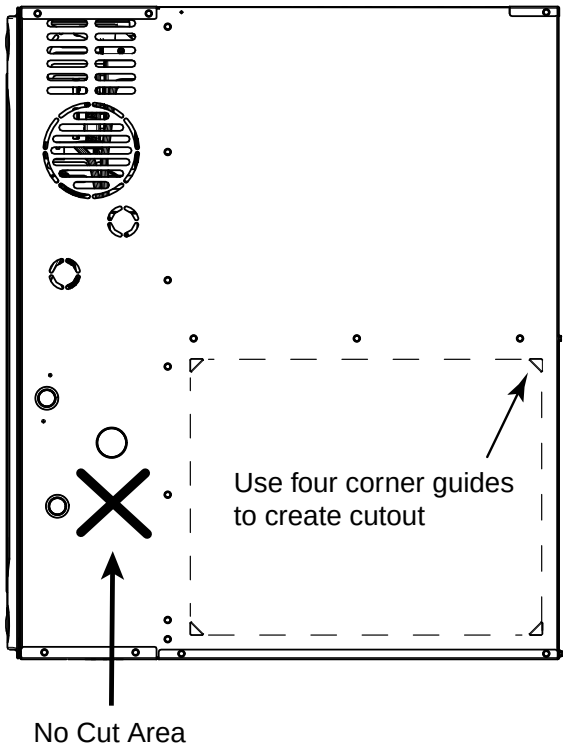
Upflow Furnace with Side Return ***Important:*** *Make sure the thermostat wiring hole is sealed on the cabinet side with the side return.* ***Important:*** *Make sure not to cut the cabinet in the "No Cut" area.* 1. Using guides, remove the cutout for the side return. 2. Create ducting and set the furnace in place. Use screws to attach ducting to the furnace cabinet. ***Note:*** *If using a filter box, use a transition, if possible, to attach the filter box to the furnace cabinet.* 3. Seal bottom panel per local codes and requirements. 4. Seal all other panels per local codes and requirements.	
Upflow Furnace with Two Side Returns ***Important:*** *One of the sides must have a transition to allow the thermostat wiring to exit the cabinet.* ***Important:*** *If a transition is not a viable option, a hole will need to be drilled in the side of the cabinet for the thermostat wiring to exit.* ***Important:*** *Make sure not to cut the cabinet in the "No Cut" area.* ***Note:*** *If using one transition, the thermostat wiring will exit on the transition side.* 1. Using guides, remove the two cutouts for the side returns. 2. Create ducting and set the furnace in place. Use screws to attach ducting to the furnace cabinet. ***Note:*** *If using a filter boxes, use transitions, if possible, to attach the filter boxes to the furnace cabinet.* 3. Seal bottom panel per local codes and requirements. 4. Seal all other panels per local codes and requirements.	

Table 7. Return Duct Connections (continued)

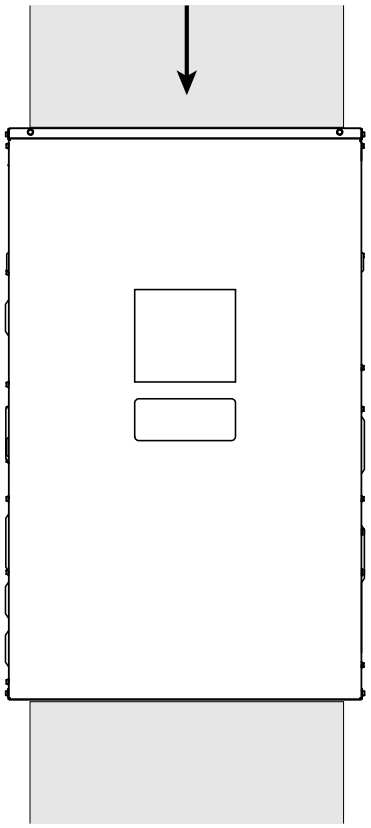
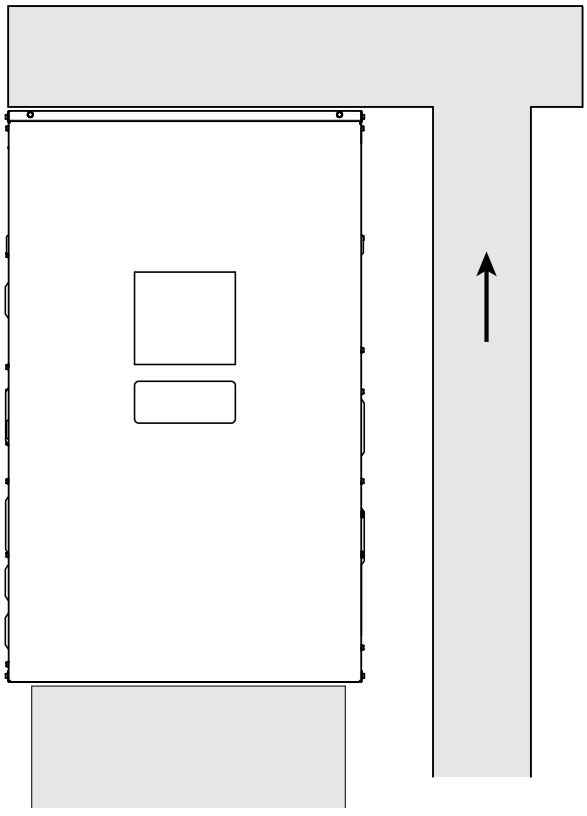
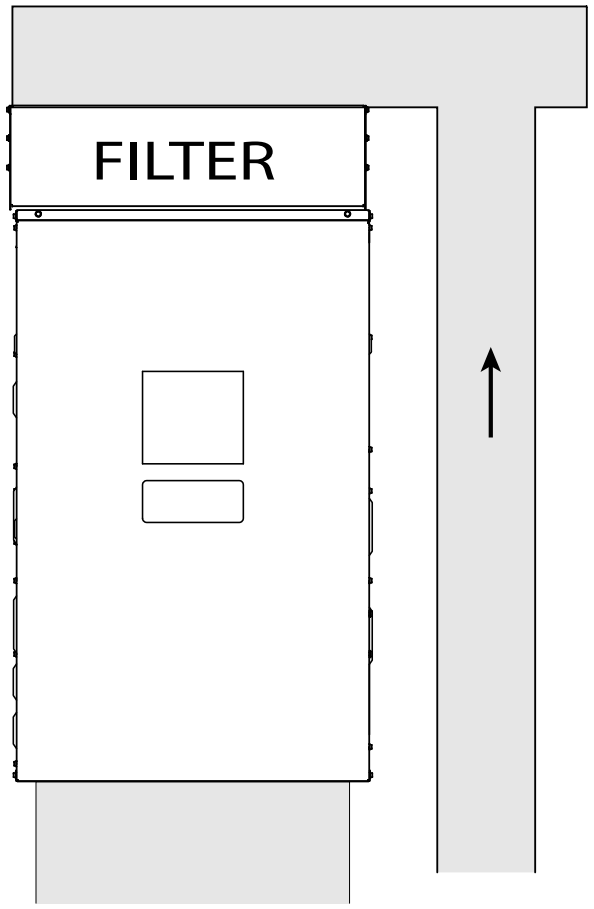
Downflow Furnace with Top Return 1. Remove the top plate. 2. Attach the ducting to the top of the furnace. 3. Install remote filter. 4. Seal per local codes and requirements.	
Downflow Furnace with Top Return and Plenum 1. Remove the top plate. 2. Attach the plenum ducting to the top of the furnace. 3. Install remote filter. 4. Seal per local codes and requirements.	

Table 7. Return Duct Connections (continued)

Downflow Furnace with Top Return and Plenum with Filter Box 1. Remove the top plate. 2. Attach the filter box to the top of the furnace. 3. Attach ducting. 4. Seal per local codes and requirements.	

Return Air Filters

TYPICAL AIR FILTER INSTALLATIONS
Filters are not factory supplied for furnaces. Filter size needed will be dependent on type of filter and CFM requirement. Filters must be installed externally to the unit.

Important: *It is recommended to transition return ducting to the same size as the opening. It is acceptable for return duct or filter frame to extend forward of the opening but plastic plugs MUST be installed in any opening that the duct or filter frame may cover.*

Return Air Filters

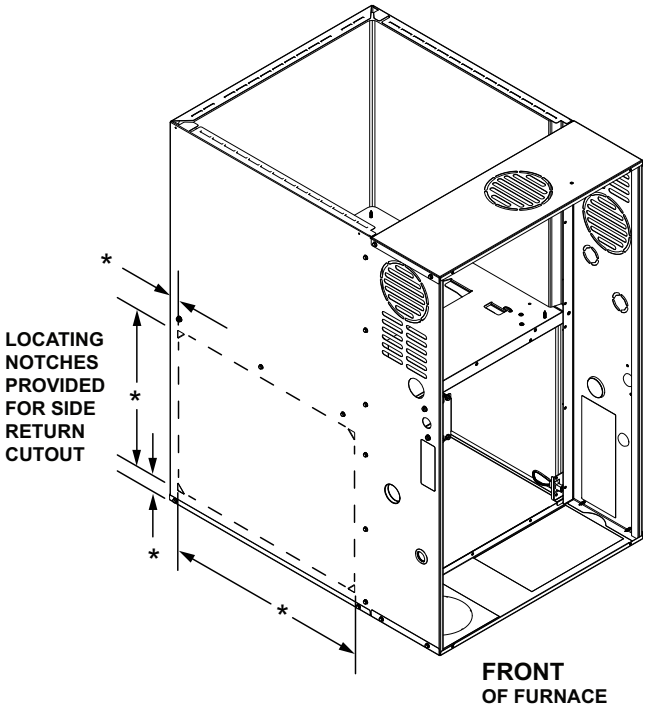
Furnace Width	Filter Qty and Size
14–1/2″	1 — 14″ x 25″ x 1″
17–1/2″	1 — 16″ x 25″ x 1″
21″	1 — 20″ x 25″ x 1″
24–1/2″	1 — 24″ x 25″ x 1″

Note: *For upflow airflow furnaces where the airflow requirement exceeds 1600 CFM - Furnaces will require return air openings and filters on: (1) both sides, or (2) one side and the bottom, or (3) just on the bottom.*

Preparation for Upflow Bottom and Side Return Air Filter Installations
All return air duct systems should provide for installation of return air filters.

1. Determine the appropriate position to set the furnace in order to connect to existing supply and return ductwork.
2. For upflow side return installations, remove the insulation around the opening in the blower compartment
3. The side panels of the upflow furnace include locating notches that are used as guides for cutting an opening for return air, refer to the figure and the upflow furnace outline drawing for duct connection dimensions for various furnaces.
4. If a 3/4" flange is to be used for attaching the air inlet duct, add to cut where indicated by dotted lines. Cut corners diagonally and bend outward to form flange.
5. If flanges are not required, and a filter frame is installed, cut between locating notches as in illustration.
6. The bottom panel of the upflow furnace must be removed for bottom return air.

UPFLOW FURNACES ONLY



*** SEE OUTLINE DRAWING**

1. When the furnace is installed in the horizontal right or left application and a return duct is attached to the top side, do not install a filter in the return duct directly above the furnace. Install the filter in a remote location.

   When the furnace is installed in the horizontal right or left application and a close coupled (less than 36") return duct is attached to the bottom side of the furnace as shown above, securely attach a 1/2" mesh metal hardware cloth protective screen to the inside bottom of the filter grille **to prevent personal injury from contacting moving parts when reaching into the return opening to replace the filter.**

   Close coupled (less than 36") return (filter directly beneath bottom side return) is not recommended due to noise considerations.

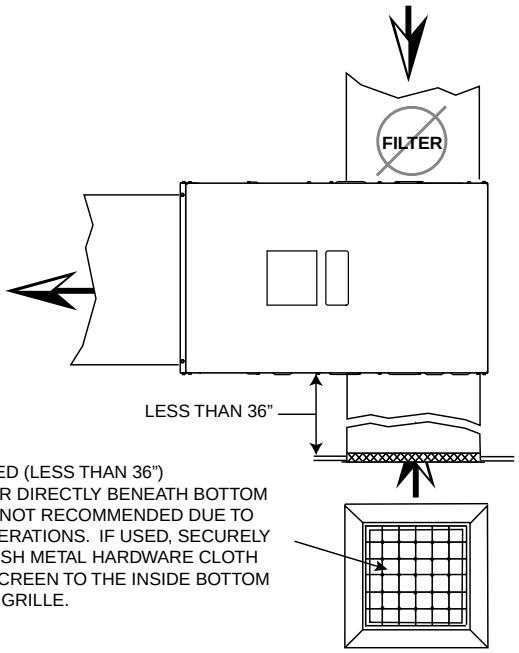
2. Connect the duct work to the furnace. See Outline Drawing for supply and return duct size and location.

   Flexible duct connectors are recommended to connect both supply and return air ducts to the furnace.

   If only the front of the furnace is accessible, it is recommended that both supply and return air plenums are removable.

3. When replacing a furnace, old duct work should be cleaned out. Thin cloths should be placed over the registers and the furnace fan should be run for 10 minutes. Don't forget to remove the cloths before you start the furnace.

4. ***The horizontal installation of the upflow furnace requires an external filter section. Filter kits are available for horizontal applications.***



CLOSE COUPLED (LESS THAN 36") RETURN (FILTER DIRECTLY BENEATH BOTTOM SIDE RETURN) NOT RECOMMENDED DUE TO NOISE CONSIDERATIONS. IF USED, SECURELY ATTACH 1/2" MESH METAL HARDWARE CLOTH PROTECTIVE SCREEN TO THE INSIDE BOTTOM OF THE FILTER GRILLE.

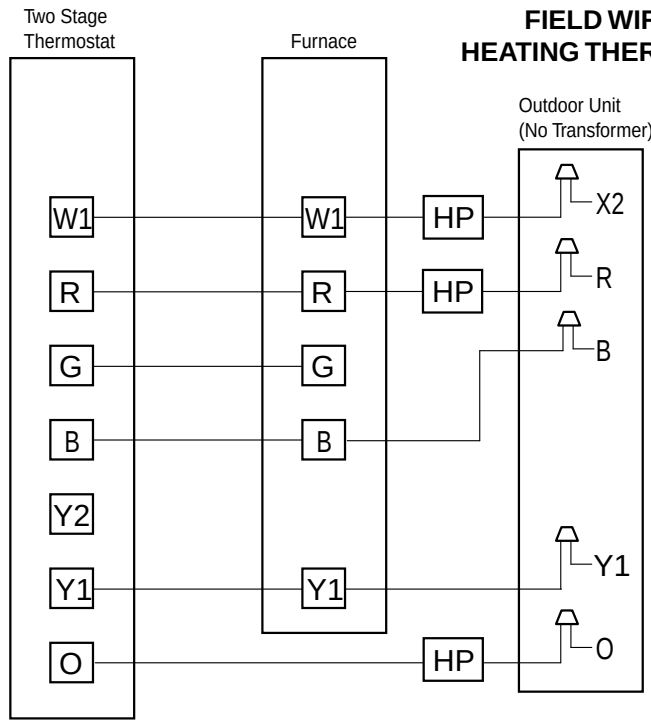
RETURN AIR FILTERS FOR FURNACE IN HORIZONTAL CONFIGURATION

When the Furnace is installed in the horizontal configuration, the return air filters must be installed exterior to the furnace cabinet. Remote filter grilles may be used for homeowner convenience or the filters may be installed in the duct work upstream of the furnace.

Electrical Connections

Make wiring connections to the unit as indicated on enclosed wiring diagram. As with all gas appliances using electrical power, this furnace shall be connected into a permanently live electric circuit. It is recommended that furnace be provided with a separate "circuit protection device" electric circuit. The furnace must be electrically grounded in accordance with local codes or in the absence of local codes with the National Electrical Code, ANSI/NFPA 70 , if an external electrical source is utilized. ***The integrated furnace control is polarity sensitive.*** The hot leg of the 120V power supply must be connected to the black power lead as indicated on the wiring diagram.
Refer to the SERVICE FACTS literature and unit wiring diagram attached to furnace.

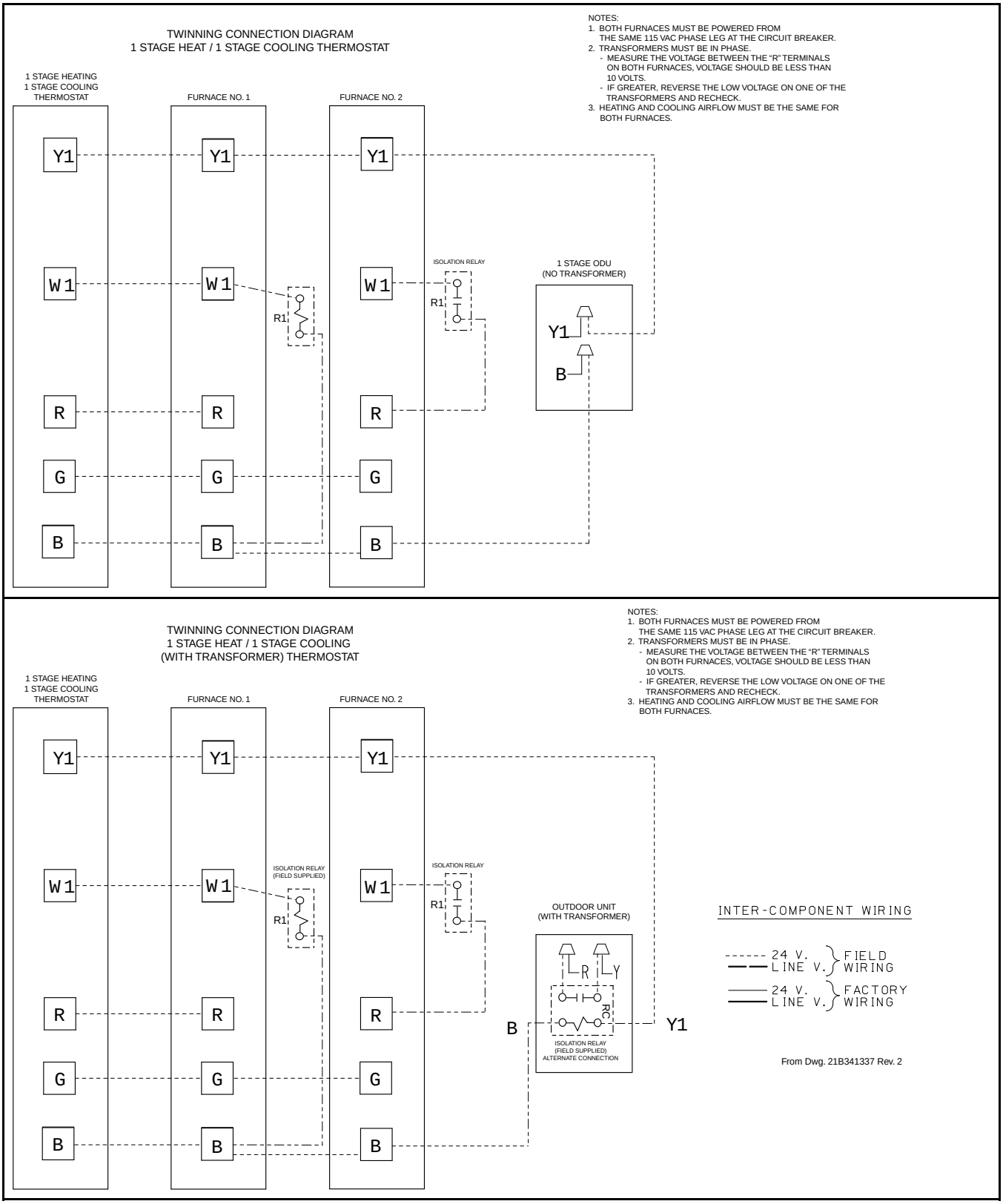
Field Wiring



FIELD WIRING DIAGRAM FOR A801X SINGLE STAGE HEATING THERMOSTAT, ONE / TWO STAGE AC OR HEAT PUMP

NOTES:
1) HP = Wiring used for Heat Pump systems.
2) Y1 must connect from the thermostat to the IFC for proper airflow.
3) A/TCONT824 thermostats do not require the use of X2.

Twinning


TWINNING CONNECTION DIAGRAM
1 STAGE HEAT / 1 STAGE COOLING THERMOSTAT
NOTES:
1. BOTH FURNACES MUST BE POWERED FROM THE SAME 115 VAC PHASE LEG AT THE CIRCUIT BREAKER.
2. TRANSFORMERS MUST BE IN PHASE.
- MEASURE THE VOLTAGE BETWEEN THE "R" TERMINALS ON BOTH FURNACES, VOLTAGE SHOULD BE LESS THAN 10 VOLTS.
- IF GREATER, REVERSE THE LOW VOLTAGE ON ONE OF THE TRANSFORMERS AND RECHECK.
3. HEATING AND COOLING AIRFLOW MUST BE THE SAME FOR BOTH FURNACES.
1 STAGE HEATING
1 STAGE COOLING
THERMOSTAT
FURNACE NO. 1
FURNACE NO. 2
ISOLATION RELAY
1 STAGE ODU
(NO TRANSFORMER)
Y1
W1
R
G
B
R1
TWINNING CONNECTION DIAGRAM
1 STAGE HEAT / 1 STAGE COOLING
(WITH TRANSFORMER) THERMOSTAT
NOTES:
1. BOTH FURNACES MUST BE POWERED FROM THE SAME 115 VAC PHASE LEG AT THE CIRCUIT BREAKER.
2. TRANSFORMERS MUST BE IN PHASE.
- MEASURE THE VOLTAGE BETWEEN THE "R" TERMINALS ON BOTH FURNACES, VOLTAGE SHOULD BE LESS THAN 10 VOLTS.
- IF GREATER, REVERSE THE LOW VOLTAGE ON ONE OF THE TRANSFORMERS AND RECHECK.
3. HEATING AND COOLING AIRFLOW MUST BE THE SAME FOR BOTH FURNACES.
1 STAGE HEATING
1 STAGE COOLING
THERMOSTAT
FURNACE NO. 1
FURNACE NO. 2
ISOLATION RELAY (FIELD SUPPLIED)
ISOLATION RELAY
OUTDOOR UNIT
(WITH TRANSFORMER)
R
Y
RC
ISOLATION RELAY
(FIELD SUPPLIED)
ALTERNATE CONNECTION
INTER-COMPONENT WIRING
24 V. LINE V. FIELD WIRING
24 V. LINE V. FACTORY WIRING
From Dwg. 21B341337 Rev. 2

General Start-up and Adjustment

The following sections give instructions for the general start-up and adjustment of the gas furnaces.

Preliminary Inspections

With gas and electrical power "OFF", ensure: 1. Duct connections are properly sealed. 2. Filters are in place. 3. Venting is properly assembled. 4. Blower vestibule panel is in place and all screws in place.	Turn knob on main gas valve within the unit to the "**OFF**" position. Turn the external gas valve to "ON". Purge the air from the gas lines. After purging, check all gas connections for leaks with a soapy solution. — **DO NOT CHECK WITH AN OPEN FLAME.** Allow 5 minutes for any gas that might have escaped to dissipate. Turn the gas valve in the unit to the "ON" position. Propane Gas being heavier than air may require forced ventilation. Turn the toggle switch on the Gas Valve in the unit to the "ON" position.

Lighting Instructions

Lighting instructions appear on each unit. Each installation must be checked out at the time of initial start up to ensure proper operation of all components. Check out should include putting the unit through one complete cycle as outlined below. Turn on the main electrical supply and set the comfort control above the indicated temperature. The ignitor will automatically heat, then the gas valve is energized to permit the flow of gas to the burners. After ignition and flame is established, the flame control module monitors the flame and supplies power to the gas valve until the comfort control is satisfied.	**⚠ WARNING** **FIRE OR EXPLOSION HAZARD!** **Failure to follow this Warning could result in property damage, severe personal injury, or death.** **Do NOT attempt to manually light the furnace.**

To shut off For complete shutdown: Turn the toggle or control switch located on the main gas valve inside the unit to the "OFF" position and the external main gas shutoff valve to the "OFF" position. Disconnect the electrical supply to the unit.	
Whenever your house is to be vacant, arrange to have someone inspect your house for proper temperature. This is very important during freezing weather. If for any reason your furnace should fail to operate damage could result, such as frozen water pipes.	**⚠ CAUTION** **FREEZE CAUTION!** **Failure to follow this Caution could result in property damage or personal injury.** **If complete furnace shutdown is done during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles.**

Control and Safety Switch Adjustment

LIMIT SWITCH CHECK OUT The limit switch is a safety device designed to close the gas valve should the furnace become overheated. Since proper operation of this switch is important to the safety of the unit, it **must be checked out on initial start up by the installer**.	To check for proper operation of the limit switches, set the thermostat to a temperature higher than the indicated temperature to bring on the gas valve. Restrict the airflow by blocking the return air to the blower. When the furnace reaches the maximum outlet temperature as shown on the rating plate, the burners must shut off. If they do not shut off after a reasonable time and overheating is evident, a faulty limit switch is probable and the limit switch must be replaced. After checking the operation of the limit control, be sure to remove the paper or cardboard from the return air inlet, or reconnect the blower.

Furnace Combustion Air Exhaust Options

Note: *Default is left side for electric and gas connections.*	

The following sections give instructions for the different furnace orientations and the options for venting the exhaust combustion air.

Important: *When looking at the different orientations, the direction of the combustion air exhaust in the illustration's description is after the furnace has been rotated, if needed.*

Table 8. Venting Options for Upflow Applications

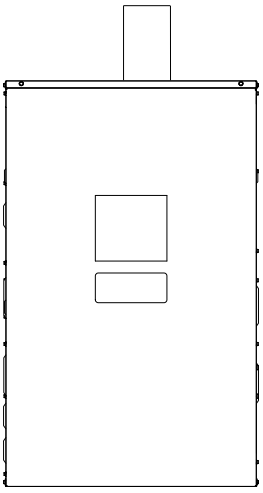
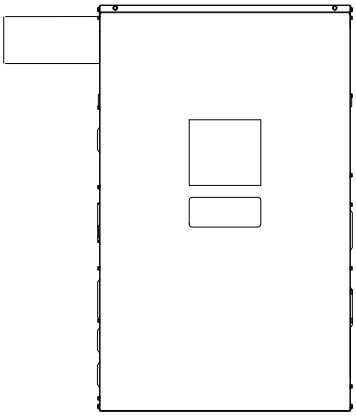
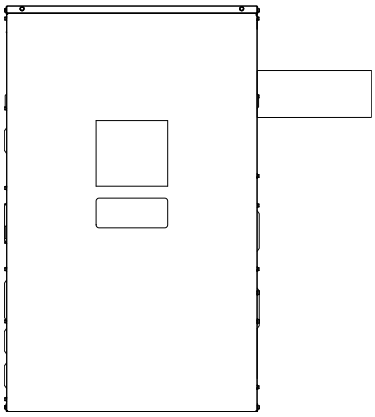
Refer to the illustrations below to find the approved venting options for upflow furnace. ***Important:*** *The exhaust must be vented to the outdoors.*	
Upflow Orientation or Installation	
Vented out top. 	Vented through left side. 
Vented through right side. 	

Table 9. Venting Options for Horizontal Left Applications

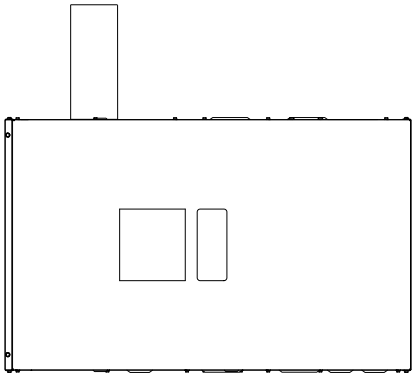
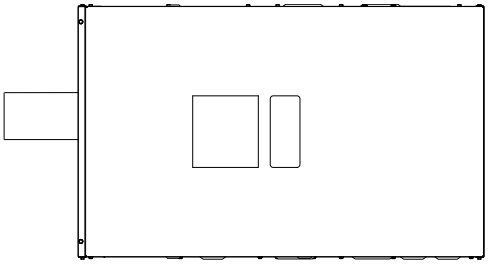
Refer to the illustrations below to find the approved venting options for horizontal left furnace. ***Important:*** *The exhaust must be vented to the outdoors.*	
Horizontal Left Orientation or Installation	
Vented out top. 	Vented through left side. 

Table 10. Venting Options for Horizontal Right Applications

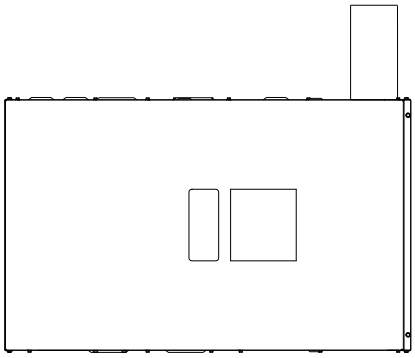
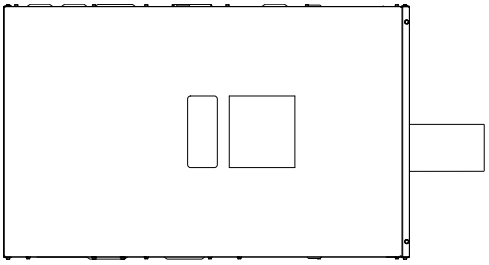
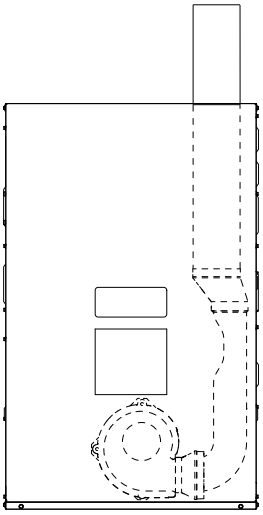
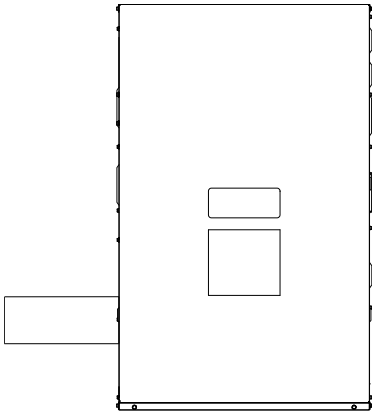
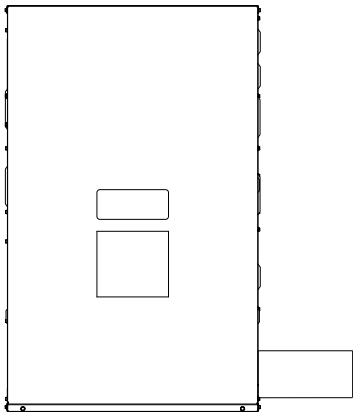
Refer to the illustrations below to find the approved venting options for horizontal right furnace. ***Important:*** *The exhaust must be vented to the outdoors.*	
Horizontal Right Orientation or Installation	
Vented out top. 	Vented through right side. 

Table 11. Venting Options for Downflow Applications

Refer to the illustrations below to find the approved venting options for downflow furnace models. ***Important:*** *The combustion air exhaust must be vented to the outdoors.*	
Downflow Orientation or Installation	
Vented out top. ***Note:*** *Requires kit BAYVENT600. Kit used with B, C, and D cabinets only.* ***Note:*** *"A" cabinet furnaces must be vented through the left of right side openings.* ***Note:*** *4" Type B double wall vent pipe must be used inside of the furnace cabinet.* 	Vented through left side. 
Vented through right side. 	

Combustion Air Conversions

Important: *After deciding the orientation of the flue outlet, cut the metal tabs around the appropriate 5″ metal cutout on the furnace cabinet and remove the cutout, if necessary.*

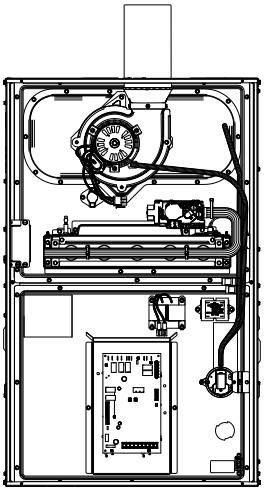
Note: *When rotating the inducer it may be necessary to cut the wire tie. A new wire tie must be installed once the inducer is rotated.*

Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*

Pressure Switch locations
A801X: PS is connected to the hot header. Disregard pressure switch tubing connected to the inducer. Not applicable on single stage furnaces.

Upflow orientation with top venting
No changes need to be made to the inducer when installing the furnace in upflow position when vented through the top.

Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*

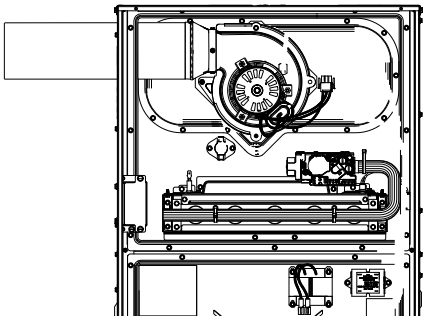


Upflow orientation with left side venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

Note: *When rotating the inducer it may be necessary to cut the wire tie. A new wire tie must be installed once the inducer is rotated.*

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5″ cutout.
3. Secure the inducer in place using the screws removed in step 1.
4. Attach the vent to the inducer outlet.

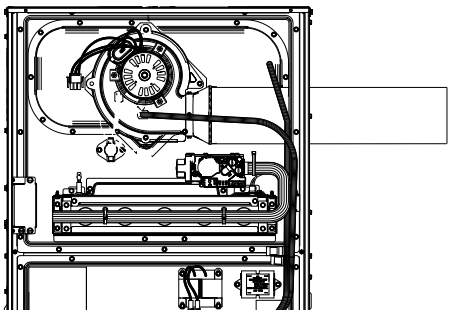
Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*

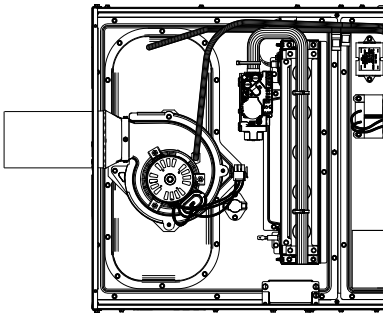
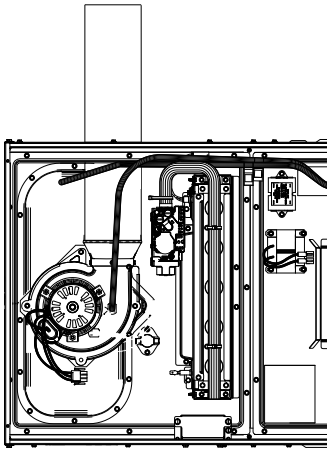
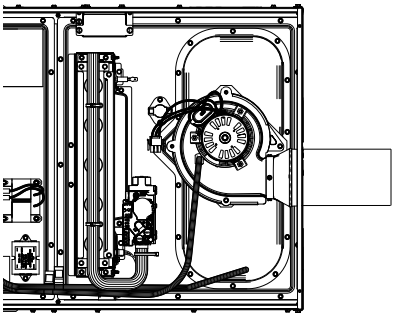


Upflow orientation with right side venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5″ cutout.
3. Secure the inducer in place using the screws removed in step 1.
4. Attach the vent to the inducer outlet.

Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*

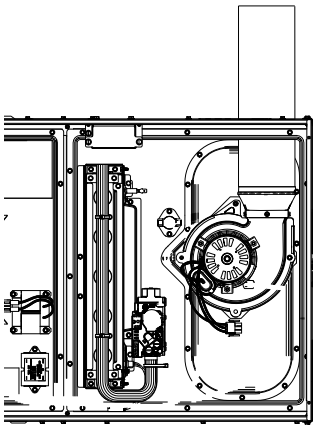


Horizontal left orientation with left side venting No changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented through the top. ***Note:*** *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*	
Horizontal left orientation with top venting Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side. 1. Remove the four screws holding the inducer in place. 2. Rotate the inducer so the inducer outlet is pointing towards the 5" cutout. 3. Secure the inducer in place using the screws removed in step 1. 4. Attach the vent to the inducer outlet. ***Note:*** *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*	
Horizontal right orientation with right side venting No changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented through the top. ***Note:*** *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*	

Horizontal right orientation with top venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5″ cutout.
3. Secure the inducer in place using the screws removed in step 1.
4. Attach the vent outlet gasket to the vent outlet.

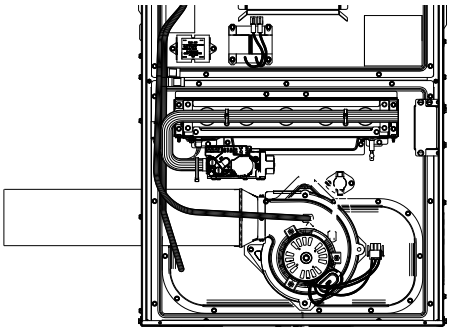
Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*



Downflow orientation with left side venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5″ cutout.
3. Secure the inducer in place using the screws removed in step 1.
4. Attach the vent to the inducer outlet.

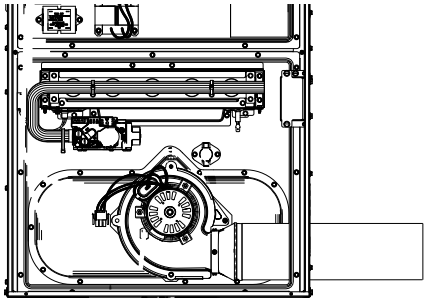
Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*



Downflow orientation with right side venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5” cutout.
3. Secure the inducer in place using the screws removed in step 1.
4. Attach the vent to the inducer outlet.

Note: *Self-tapping screws are recommended for attaching the vent pipe to the inducer outlet.*



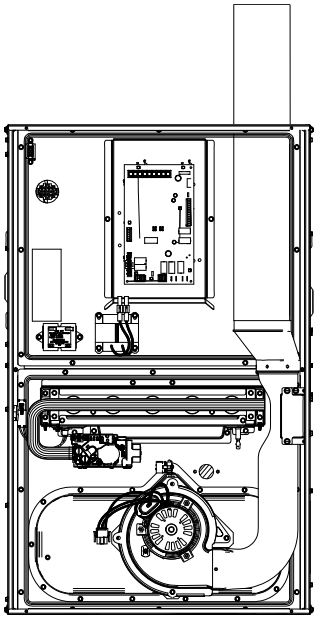
Downflow orientation with top venting
Before proceeding, lay unit on its back to make the conversion easier. The following changes need to be made to the inducer when installing the furnace in upflow position with the combustion air vented out the left side.

Note: *Requires kit BAYVENT600. Kit used with B, C, and D cabinets only. Follow kit instructions for installation.*

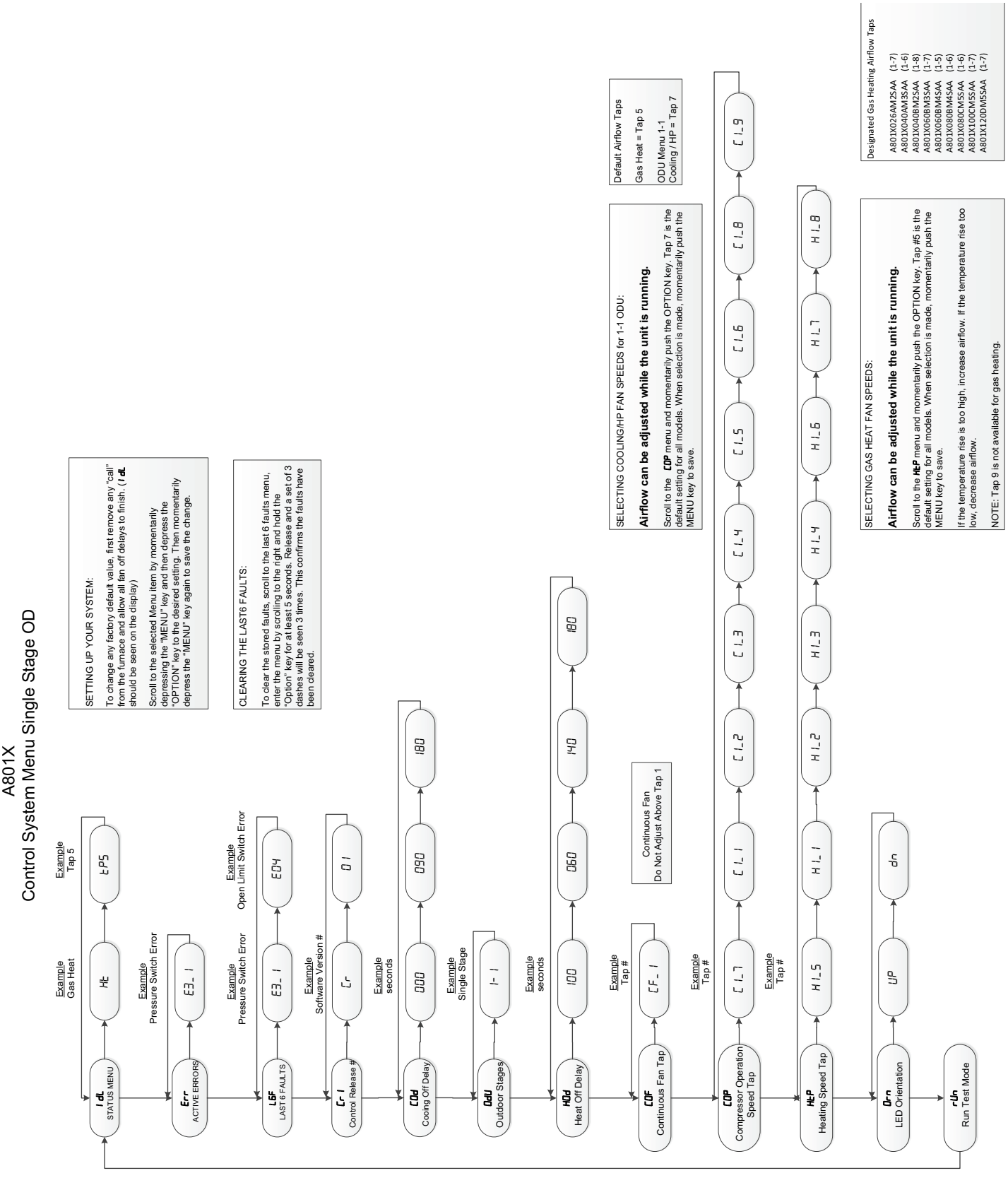
Note: *4” Type B double wall vent pipe must be used inside of the furnace cabinet.*

1. Remove the four screws holding the inducer in place.
2. Rotate the inducer so the inducer outlet is pointing towards the 5” cutout.
3. Install BAYVENT600 kit per the kit instructions.
4. Attach the vent to the inducer outlet.

Note: *Self-tapping screws are recommended for attaching the B Vent to the inducer outlet.*



Integrated Furnace Control Menu



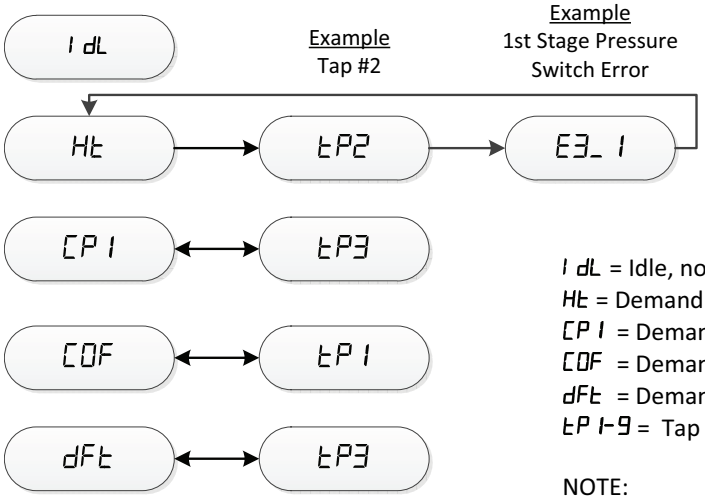
A801X
Run Test Mode

Run Test Mode:
To enter Run Test Mode, scroll to rUn using the Menu key, then push the option key. The LED will flash rUn three times, then begin the test.
To exit the test mode, momentarily push the Menu key, cycle power to the furnace, or make a valid thermostat call for capacity or fan.

Sequence of Run Test Mode
rU1 -Turns the inducer on in 1st stage for 30 seconds
rU2 – Not applicable
rU3 – Turns the ignitor on for 10 seconds
rU4 – Turns the circulating blower on 1st stage compressor speed for 10 seconds
rU5 – Not applicable
rU6 – Turns the circulating blower on 1st stage gas heat speed for 10 seconds
rU7 – Not applicable
The above sequence will repeat two more times unless the Run Test Mode is exited, see above

Important: The Run Test Mode does not test fire the furnace or bring the outdoor unit on. It is designed to allow the technician to observe each mode to ensure the IFC, inducer, and circulating blower are performing as intended.

A801X
System Status Menu



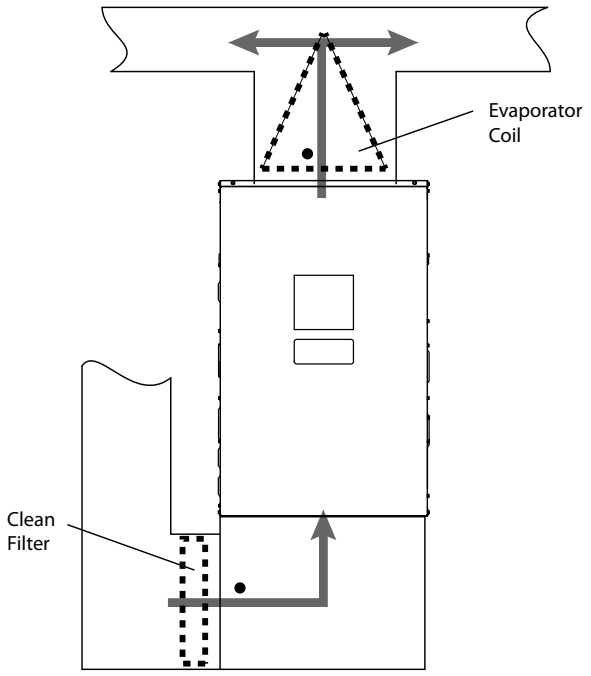
I dL = Idle, no demand for cooling, heating, or fan
HE = Demand for stage gas heat
CP1 = Demand for cooling/heatpump
COF = Demand for continuous fan
dFE = Demand for outdoor unit defrost, furnace running in gas heat mode
tP1-9 = Tap selected for airflow

NOTE:
(1) The menu status displayed is solely dependent on the input of 24VAC that is applied to the low voltage terminal strip.
(2) The status will alternate between the system mode and the airflow request every 2 seconds.
(3) If an error occurs, an E*.* will alternately flash with the system mode and airflow request. See first example

Setting Airflow

With all ductwork connected and a clean filter in place, measure the External Static Pressure (ESP) of the unit in locations below. Use the appropriate airflow table for the furnace and outdoor unit installed.

Measurements must be made prior to the evaporator coil, if equipped, and after the filter.



Furnace Airflow (CFM) Vs. External Static Pressure (in. W.C.)						
Model	**Tap**	**0.1**	**0.3**	**0.5**	**0.7**	**0.9**
A801X080BM4SAA	1	633	297	—	—	—
	2	957	800	719	428	213
	3	1220	1080	940	800	660
	4	1403	1298	1192	1087	981
	5	1524	1428	1336	1248	1164
	6	1684	1574	1544	1401	1337
	7	1700	1625	1551	1476	1401
	8	1858	1790	1723	1656	1589
	9	1967	1898	1829	1760	1691

Example 1: A801X (Default Tap 7)

Cooling / HP

- 4 Ton Single Stage Outdoor
- Total ESP = 0.7″ W.C.
- Required Airflow = 1400 cfm (4T x 350 cfm/ton)
- New Tap Number = Tap 6

Integrated Furnace Control Display Codes

Menu Options	
IdL	Idle
Err	Active Alarm Menu
L6F	Last 6 Faults (To clear — Hold Option button down for 5 seconds after entering the L6F menu)
Cr	Code Release Number
COd	Cooling Off Delay (Seconds)
OdU	Outdoor Unit Type
HOd	Heat Off Delay (Seconds)
COF	Continuous Fan
COP	Compressor Airflow
HtP	Gas Heating Airflow
Orn	LED Orientation
rUn	Test Mode

Error Codes	
Alarm Error Code	Alarm Explanation
E01	Loss of the IRQ or other internal failures (Internal IFC error)
E2_1	Retry Exceeded (Flame never sensed, one hour lockout after 3 times)
E2_2	Recycles Exceeded (Flame sensed then lost, one hour lockout after 10 times)
E2_3	1st Stage Gas Valve Not Energized When It Should Be exceeded after 10 times
E3_1	Shorted Pressure Switch
E3_2	Open Pressure Switch
E04	Open Limit (Main Thermal, Rollout Switch, or Reverse Airflow Switch)
E05	Flame detected, should not be present
E6_1	Voltage reversed polarity
E6_2	Bad grounding
E6_3	(1) Igniter relay fails
	(2) Igniter open
E7_1	Gas valve (MVL) is energized when it should be off
E08	Flame current is low, but still strong enough to allow operation
E11	Gas valve not energized when it should be
	Gas valve relay stuck closed
E12	Open fuse

Fault Code Recovery

Fault Code Recovery

1. To view the last 6 faults, press the "Menu" key until the "Last 6 Faults" (LbF) menu appears.
2. Enter the menu by pressing the "Option" key.
3. The last 6 faults can be viewed.

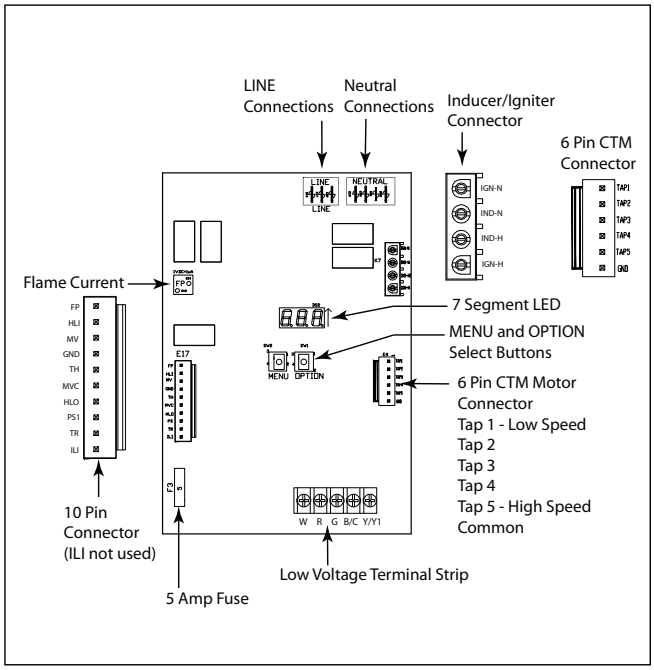
Clearing the Last 6 Faults

1. To clear the last 6 faults, press the "Menu" key until the "Last 6 Faults" (LbF) menu appears.
2. Enter the menu by pressing the "Option" key.
3. Hold the "Option" key for at least 5 seconds.
4. Release and a set of 3 dashes with be seen 3 times. This confirms the faults have been cleared.

Resetting Factory Defaults

1. Display must be in Idle Mode.
2. Push the "Menu" and "Option" buttons at the same time for 15 seconds then release.
3. The 7 segment will flash "Fd" 3 times. This confirms the unit has been reset to the factory defaults.

A801X IFC Component Layout



Sequence of Operation

Note: *The seven-segment LED readout is based on thermostat input.*

Gas Heating

1. R – W1 contacts close on the thermostat sending 24VAC to the W1 low voltage terminal of the IFC. Technician should read 24VAC from W1 to B/C. The seven segment LED will read: .

- HE

2. The IFC performs a self-check routine and then confirms:
   a. Flame roll-out switches (FRS) 1 & 2, main thermal limit (TCO), and any reverse air flow (RAF) switches are closed by sending 24VAC out the HLO terminal and monitoring the HLI input.
   b. The pressure switch is opened by sending 24VAC out the HLO terminal, through the limit switch, and monitoring the PS input.

   Note: *If a thermal limit is open, 24VAC will not be present at the pressure switch.*
3. After steps a & b are confirmed, the inducer relay is closed, energizing the inducer motor.
4. As the inducer ramps up, PS will close.
5. When PS closes, the ignitor relay on the IFC will close. The ignitor is energized. The ignitor warm up is approximately 17 seconds.
6. After the ignitor warm up, the gas valve relay is closed, which energizes the gas valve solenoid to allow ignition.
7. The first burner will ignite, and flame will crossover to the remaining burners establishing current to the flame sensor. Flame sensing must be established within 4 seconds.

Note: *There are two flame sense pads located on the IFC marked as "FP". To measure the flame current, use a VOM set to DC volts. 1VDC = 1 micro-amp. Flame current will vary depending on the type of meter used. Typical flame current ranges from 0.75 – 3.0 micro-amps (0.75 – 3 VDC).*

8. Once the flame sense has been established, a timer on the IFC starts and the indoor blower will energize after the blower "Heat On Delay" has completed. The seven-segment LED for example will alternately read:

- HE = Gas heating
- tP5= Tap 5

9. When the temperature raises enough to satisfy the thermostat setting, contacts R-W1 will open.
10. The gas valve relay will open, closing the gas valve. The inducer will continue to run for approximately 5 seconds to remove any combustion byproducts from inside the furnace.
11. The indoor blower continues to run to remove heat from the heat exchangers. The "blower off" time is field adjustable through the IFC menu setup option. The seven-segment LED will read "Idl" = Idle, no thermostat demand.

Cooling / Heat Pump

1. R-Y1-G contacts on the thermostat close sending 24VAC to the Y1 and G low voltage terminals on the IFC. Technician should read 24VAC between Y1-B/C and between G-B/C.
2. 24VAC is sent to the OD unit via thermostat wiring.
3. The indoor blower ramps to the cooling airflow. The seven-segment LED for example will alternately read:

- CPH = Cooling / Heat Pump
- tP7 = Tap 7

4. When the temperature is lowered / raised (HP mode) enough to satisfy the thermostat setting, contacts R-Y-G will open.
5. The OD unit shuts off and the indoor blower shuts off, unless a blower "Cool Off Delay" has been enabled in the IFC setup menu options. The seven-segment LED will read "Idl" = Idle, no thermostat demand.

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