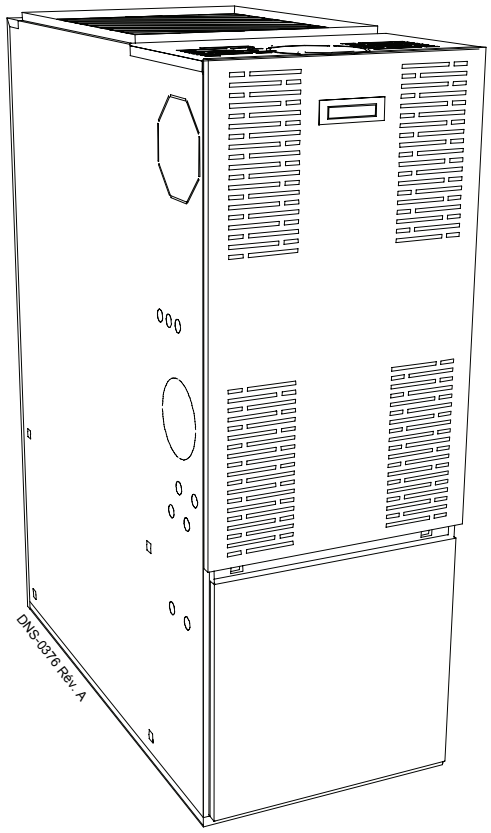
Installation Instructions and Homeowner's Manual

WARM AIR FURNACE MULTIPOSITION

Models:

AMP105-IE2
AMP120-IE2



Manufactured by:

Dettson Industries Inc

3400, Industrial Boulevard
Sherbrooke, Qc, Canada, J1L 1V8

www.dettson.ca

Attention
Do not tamper with the unit or its controls. Call a qualified service technician.

INSTALLER / SERVICE TECHNICIAN :

Use the information in this manual for the installation / servicing of the boiler and keep the document near the unit for future reference.

HOMEOWNER :

Please keep this manual near the boiler for future reference.

Printed in Canada on 100% recycled paper

2013-09-12

X40195 Rev. A

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FIGURES

TABLES

1.0 SAFETY REGULATIONS

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPOURS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

DO NOT ATTEMPT TO START THE BURNER WHEN EXCESS OIL HAS ACCUMULATED, WHEN THE FURNACE IS FULL OF VAPOUR OR WHEN THE COMBUSTION CHAMBER IS VERY HOT.

1.1 DANGER, WARNING AND CAUTION

The words DANGER, WARNING and CAUTION are used to identify the levels of seriousness of certain hazards. It is important that you understand their meaning. You will notice these words in the manual as follows:

⚠ DANGER

Immediate hazards which WILL result in death or serious bodily and/or material damage.

⚠ WARNING

Hazards or unsafe practices which CAN result in death or serious bodily and /or material damage.

⚠ CAUTION

Hazards or unsafe practices which CAN result in minor bodily and /or material damage.

1.2 SAFETY INSTALLATION REQUIREMENTS

⚠ WARNING

For use with grade 2 fuel oil maximum. Do NOT use gasoline, crankcase oil or any oil containing gasoline.

⚠ WARNING

Never burn garbage or paper in the heating system and never leave rags or paper around the unit.

⚠ CAUTION

These instructions are intended for the sole use of qualified personnel trained in installing this type of furnace. Installation of this furnace by an unqualified person can lead to hazardous conditions, resulting in bodily harm and/or equipment damage.

IMPORTANT: All local and national code requirements governing the installation of oil burning equipment, wiring and flue connections must be followed. Some of the codes that may be applicable are:

CSA B139	Installation Code for Oil Burning Equipment
ANSI/NFPA 31	Installation of Oil Burning Equipment
ANSI/NFPA 90B	Warm Air Heating and Air Conditioning Systems
ANSI/NFPA 211	Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances
ANSI/NFPA 70	National Electrical Code
CSA C22.2 No.3	Canadian Electrical Code

Only the latest issues of the above codes should be used, and are available from either:

The National Fire Protection Agency
1 Batterymarch Park
Quincy, MA 02269

or

The Canadian Standards Association
178 Rexdale Blvd.
Rexdale, Ontario M9W 1R3

⚠ CAUTION

ENVIRONMENTAL HAZARD

Failure to follow this caution may result in environmental pollution.

Remove and recycle all components or materials (i.e. oil, electrical and electronic components, insulation, etc.) before unit final disposal.

2.0 INSTALLATION

2.1 GENERAL

This central heating unit is a true multi-position unit, in that it can operate in four different configurations, i.e., upflow, counter flow (downflow), and horizontal (both left-to-right and right-to-left airflow).

Very few modifications are required during installation, to change the furnace from one configuration to another. The furnace is shipped in the upflow configuration; however, instructions on how to change to the other configurations are included in this manual.

The furnace is shipped complete with burner and controls. It requires an 115VAC line voltage connection to the control panel, thermostat hook-up as shown on the wiring diagram, one or more oil line connections, suitable ductwork and connection to a properly sized vent.

The air handling capacity of this furnace is designed for cooling as well. Please refer to Table 6 for the expected airflow at various external static pressures.

2.2 SAFE INSTALLATION REQUIREMENTS

⚠ WARNING

Installation or repairs performed by unqualified persons can result in hazards to them and others. Installation MUST conform to local codes or, in the absence of same, to codes of the country having jurisdiction.

The information contained in this manual is intended for use by a qualified service technician familiar with safety procedures and quipped with the proper tools and test instruments.

Failure to carefully read and follow all instructions in this manual can result in death, furnace malfunction and/or property damage.

⚠ WARNING

FIRE HAZARD

The furnace must be installed in a level position, never where it will slope toward the front. If the furnace is not installed level, oil will drain into the furnace vestibule and create a fire hazard.

NOTE: It is the personal responsibility and obligation of the customer to contact a qualified installer to ensure that the installation conforms to governing local and/or national codes and ordinances

a. This furnace is NOT approved for installation in mobile homes, trailers or recreational vehicles;
b. Do NOT use this furnace as a construction heater or to heat a building under construction;
c. There must be a sufficient supply of fresh air for combustion as well as ventilation in the area where the furnace is located;
d. Use only the type of fuel oil approved for this furnace (see section 1.2 of this manual). Overfiring will result in heat exchanger failure and cause dangerous operating conditions;
e. Visually check all oil line joints for signs of leakage;
f. Connect furnace to the chimney;
g. The points in Part 3 “Operation” are vital to the proper and safe operation of the heating system. Take the time to ensure that all steps were followed;
h. Follow the regulations of the NFPA No.31 (in the USA) and CSA B-139 (in Canada) or local codes for placing and installing the oil storage tank;
i. Follow a regular service and maintenance schedule for efficient and safe operation;
j. Before servicing, allow furnace to cool down. Always shut off electricity and fuel to furnace when servicing. This will prevent electrical shock or burns;
k. Seal supply and return air ducts;
l. The vent system MUST be checked to determine that it is the correct type and size;
m. Install correct filter type and size;
n. Unit MUST be installed so that electrical components are protected from direct contact with water.

2.3 SAFETY RULES

Your unit is built to provide many years of safe and dependable service, provided it is properly installed and maintained. However, abuse and/or improper use can shorten the life of the unit and create hazards for you, the owner.

2.3.1 Detector

a. The U.S. Consumer Product Safety Commission recommends that users of oil-burning appliances install carbon monoxide detectors. There can be various sources of carbon monoxide in a building or dwelling. The sources could be gas-fired clothes dryers, gas cooking stoves, water heaters, furnaces, gas-fired fireplaces, wood fireplaces, and several other items. Carbon monoxide can cause serious bodily injury and/or death. Therefore, to help alert people to potentially dangerous carbon monoxide levels, you should have carbon monoxide detectors listed by a nationally recognised agency (ex. Underwriters Laboratories or International Approval Services) installed and maintained in the building or dwelling (see Note below).
b. There can be numerous sources of fire or smoke in a building or dwelling. Fire or smoke can cause serious bodily injury, death, and/or property damage. Therefore, in order to alert people to potentially dangerous fire or smoke, you should have fire and smoke detectors listed by Underwriters Laboratories installed and maintained in the building or dwelling (see Note below).

NOTE: The manufacturer of your furnace does not test any detectors and makes no representations regarding any brand or type of detector.

⚠ CAUTION

Ensure that the area around the combustion air intake is free of snow, ice and debris.

2.3.2 Freezing temperatures and your building

⚠ WARNING

FREEZING TEMPERATURE WARNING

Turn off water supply.

If your heater remains shut off during cold weather, the water pipes could freeze and burst, resulting in serious water damage.

If the structure is unattended during cold weather you should take the following precautions:

a. Turn off main water supply into the structure and drain the water lines if possible. Open faucets in appropriate areas;
b. Have someone check the structure frequently during cold weather to make sure it is warm enough to prevent pipes from freezing. Contact a qualified service agency, if required.

2.4 LOCATION

CAUTION

This furnace is not watertight and is not designed for outdoor installation. This furnace shall be installed in such a manner as to protect the electrical components from water. Outdoor installation will lead to hazardous electrical conditions and to premature furnace failure.

CAUTION

If this furnace is installed in an attic, it is important to keep insulation at least 0.3 m (12") away from any furnace openings. Some types of insulating material may be combustible.

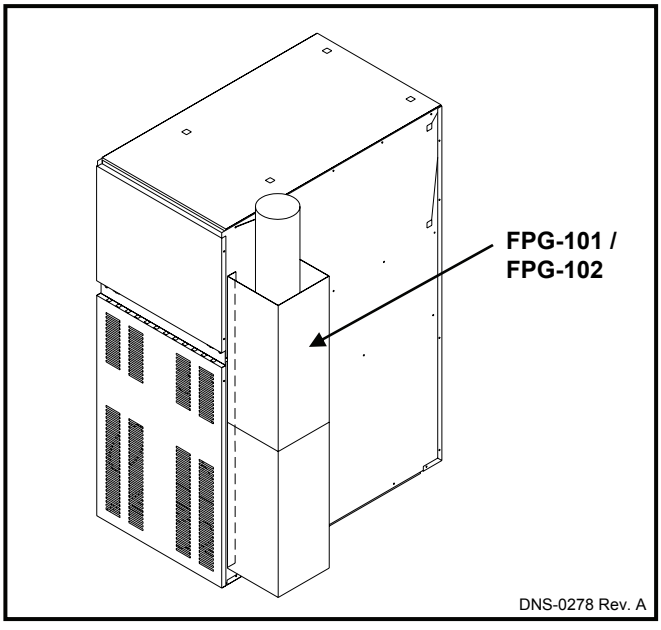
The unit must be installed in a location where the ambient and return air temperature is over 15°C (60°F).

This furnace is approved for reduced clearances to combustible construction. Therefore, it may be installed in a closet or similar enclosure. As this unit may be installed as an upflow, counter flow, or horizontal furnace, it may be located in a basement, on the same level as the area to be heated, suspended, or in a crawlspace. In any case, the unit should always be installed level.

In a basement, or when installed on the floor (as in a crawlspace), it is recommended that the unit be installed on a concrete pad that is 2.5 cm to 5.0 cm (1" to 2") thick.

When installed in the counter flow position, this furnace must not be installed on combustible flooring, unless the approved sub-base is used (Model # DFB-101). Since the flue pipe is in counter flow position, be sure that the clearances from the flue pipe to combustible construction are maintained. Also, it is recommended to use the flue pipe protection kit FPG-101 or FPF-102. Please refer to the Figure 1 and the installation instructions included with the kit.

Figure 1 : Counterflow position, flue pipe protection



When installed in a horizontal position, the furnace may be suspended by using an angle iron frame, as long as the total weight of both the furnace and the frame are included in the calculations. Other methods of suspension are acceptable. When installed in the horizontal position, this furnace must not be installed on combustible flooring, unless the approved sub-base is used (# DFB-101).

The required minimum clearances for this furnace in all positions are specified in Tables 7 and 8.

The furnace should be located as closely as possible to the chimney or vent in order to keep vent connections short and direct. The furnace should also be located near the centre of the air distribution system.

2.4.1 Air for combustion and ventilation

This furnace should be installed in a location in which the facilities for ventilation permit satisfactory combustion of oil, proper venting and the maintenance of ambient temperatures at safe limits under normal conditions of use. The location should not interfere with the proper circulation of air within the confined space.

Refer to the CAN/CSA-B139 installation code for complete regulations, and for guidance on retrofit applications.

When this furnace is installed in a closet or similar enclosure, 2 ventilation openings are required for combustion air. The openings should be located about 15.2 cm (6") from the top and the bottom of the enclosure at the front of the furnace. Table 1 indicates the minimum dimensions required for each of these two ventilation openings.

Table 1 : Minimum dimensions required in ventilation openings

Input (BTU/h)	Width	Height
75,000 – 105,000	45.72 cm (18")	20.32 cm (8")
120,000 – 155,000	50.80 cm (20")	25.40 cm (10")

WARNING

Do not block the combustion air openings in the furnace. Any blockage will result in improper combustion and may result in a fire hazard and/or cause bodily harm.

The barometric draft regulator included with the furnace, shall be installed in the same room or enclosure as the furnace, in such a manner as to prevent any difference in pressure between the regulator and the combustion air supply.

Air requirements for the operation of exhaust fans, kitchen ventilation systems, clothes dryers, and fireplaces shall be considered in determining the adequacy of the space to provide combustion air requirements.

In unconfined spaces, in buildings of conventional frame, brick or stone construction, infiltration may be adequate to provide air for combustion, ventilation and dilution of flue gases. This determination must be made on an individual installation basis and must take into consideration the overall volume of the unconfined space, the number of windows and

ventilation openings, the number of doors to the outside, internal doors which can close off the unconfined space and the overall air tightness of the building construction.

Many new buildings and homes (and older ones that have been weatherized must be considered as being tight construction and, therefore, infiltration will not be sufficient to supply the necessary air for combustion and ventilation.

A building can be considered as being of tight construction when:

a. Walls and ceilings exposed to the outside have a continuous water vapour retarder with a rating of one perm or less, openings have gaskets or are sealed and/or;
b. Weather-stripping has been added on operable windows and doors, and/or;
c. Caulking or sealant has been applied to areas such as joints around window and doorframes, between sole plates and floors, between wall-ceiling joints, between wall panels, at penetrations for plumbing, electrical and fuel lines and at other openings.

2.4.2 Duct recommendations

⚠ WARNING

When ducting supplies air to a space other than where the furnace is located, the return air must be sealed and also be directed to the space other than where the furnace is located. Incorrect ductwork termination and sealing will create a hazardous condition that can lead to bodily harm.

⚠ CAUTION

Return air grilles and warm air registers must not be obstructed.

IMPORTANT: The dampers should be adequate to prevent cooled air from entering the furnace, and if manually operated, must be equipped with the means to prevent operation of either the cooling unit or the furnace, unless the damper is in the full cool or heat position.

NOTE: The back should **not** be cut out for return air ducting.

The proper sizing of warm air ducts is necessary to ensure satisfactory furnace operation. Ductwork should be in accordance with the latest editions of NFPA-90A (Installation of Air Conditioning and Ventilating Systems) and NFPA-90B (Warm Air Heating and Air Conditioning Systems) or Canadian equivalent.

The supply ductwork should be attached to the flanged opening provided at the discharge end of the furnace. See Figures 9 and 10, for the dimensions of this opening.

Knockouts are provided on both sides of the furnace to cut the required size of opening for the installation of the return air ductwork. This can be done on either the right or the left side of the furnace. See Table 2 for location and dimensions.

Also, there is provision on this furnace for a bottom return air duct. Knockouts are provided in the floor of the furnace to facilitate the cut-out requirement for the air filter rack and return ductwork. (We recommend the use of this opening for horizontal and counterflow installations).

The following recommendations should be followed when installing ductwork:

a. Install locking type dampers in all branches of the individual ducts to facilitate balancing the system. Dampers should be adjusted such a way as to ensure the proper static pressure at the outlet of the furnace;
b. A flexible duct connector of non-combustible material should be installed at the unit on both the supply and return air side. In applications where an extremely quiet operation is necessary, the first 3 m (10') of supply and return ducts should be internally lined with acoustical material (if possible);
c. In cases where the return air grille is located close to the fan inlet, there should be at least one 90^{o} turn between fan inlet and grille. Further reduction in sound level can be accomplished by installing acoustical turning vanes or lining the duct as described in item b. above;
d. When a single air grille is used, the duct between grille and furnace must be the same size as the return air opening in the furnace.

When installing the furnace with cooling equipment for year round operation, the following recommendations must be followed for tandem or parallel air flow:

⚠ WARNING

POISONOUS CARBON MONOXIDE GAS HAZARD

Install the evaporator coil on the supply side of the furnace ducting ONLY.

An evaporator coil installed on the return air side of the ducting can cause condensation to form inside the heat exchanger, resulting in heat exchanger failure. This in turn can result in death, bodily injury.

a. On tandem airflow applications, the coil is mounted after the furnace in an enclosure in the supply air stream. The furnace blower is used for both heating and cooling airflow;
b. On parallel airflow installation, dampers must be provided to direct air over the furnace heat exchanger when heat is desired and over the cooling coil when cooling is desired.

2.4.3 Venting instructions (chimney installation)

The furnace must be vented to the outside, in accordance with local codes and other authorities having jurisdiction.

⚠ CAUTION

Oil fired appliances must be connected to flues having sufficient draft at all times to ensure safe and proper combustion.

For additional venting information please refer to ANSI/NFPA 211 Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances and/or the CSA B139 Installation Code.

This furnace is certified for uses with a Type “L” vent (maximum flue gas temperature 302°C (575°F)). The flue pipe clearance knockout in the front top or side panel should be removed. Install the flue elbow so that it exits the furnace cabinet through that opening.

Pre-installation vent system inspection

Before this furnace is installed, it is strongly recommended that any existing vent system be completely inspected.

On any chimney or vent, this should include the following:

a. Inspection for any deterioration in the chimney or vent. If deterioration is discovered, the chimney must be repaired or the vent replaced;

b. Inspection to ascertain that the vent system is clear and free of obstructions. Any blockages must be removed before installing this furnace;

c. Cleaning the chimney or vent if previously used for venting a solid fuel burning appliance or fireplace;

d. Confirming that all unused chimney or vent connections are properly sealed;

e. Verification that the chimney is properly lined and sized per the applicable codes. (Please refer to list of codes in Part 1.2)

Masonry Chimneys

This furnace may be vented into an existing masonry chimney. However, it must not be vented into a chimney servicing a solid fuel-burning appliance. Before venting this furnace into a chimney, the chimney must be checked for deterioration and repaired if necessary. The chimney must be properly lined and sized per local and/or national codes.

The chimney must be of sufficient area to accommodate the total flue products of all appliances vented into the chimney.

The following requirements are provided for a safe venting system:

a. Ensure that the chimney flue is clear of any dirt or debris;

b. Ensure that the chimney is not servicing an open fireplace;

c. Never reduce the pipe size below the outlet size of the furnace;

d. All pipes should be supported, using the proper clamps and/or straps. These supports should be installed at least every 4 feet;

e. All horizontal runs of pipe should have at least 20 mm of upward slope per 1 m (1/4” per 1');

f. All runs of pipe should be as short as possible with as few turns as possible;

g. Seams should be tightly joined and checked for leaks;

h. The flue pipe must not extend into the chimney but be flush with the inside wall;

i. The chimney must extend 0.9 m (3') above the highest point where it passes through a roof of a building and at least 0.6 m (2') higher than any portion of a building within a horizontal distance of 3 m (10'). It shall also be extended at least 1.5 m (5') above the highest connected equipment flue collar;

j. Check local codes for any variances.

Factory Built Chimneys

Approved factory built chimneys may be used. Refer to chimney manufacturer’s instructions for proper installation.

2.4.4 Draft Regulator

The draft regulator supplied with the furnace must be used for proper functioning. Installation instructions are included with the control.

Figure 2 : Blocked vent shut-off device wiring, upflow installation with vertical exhaut

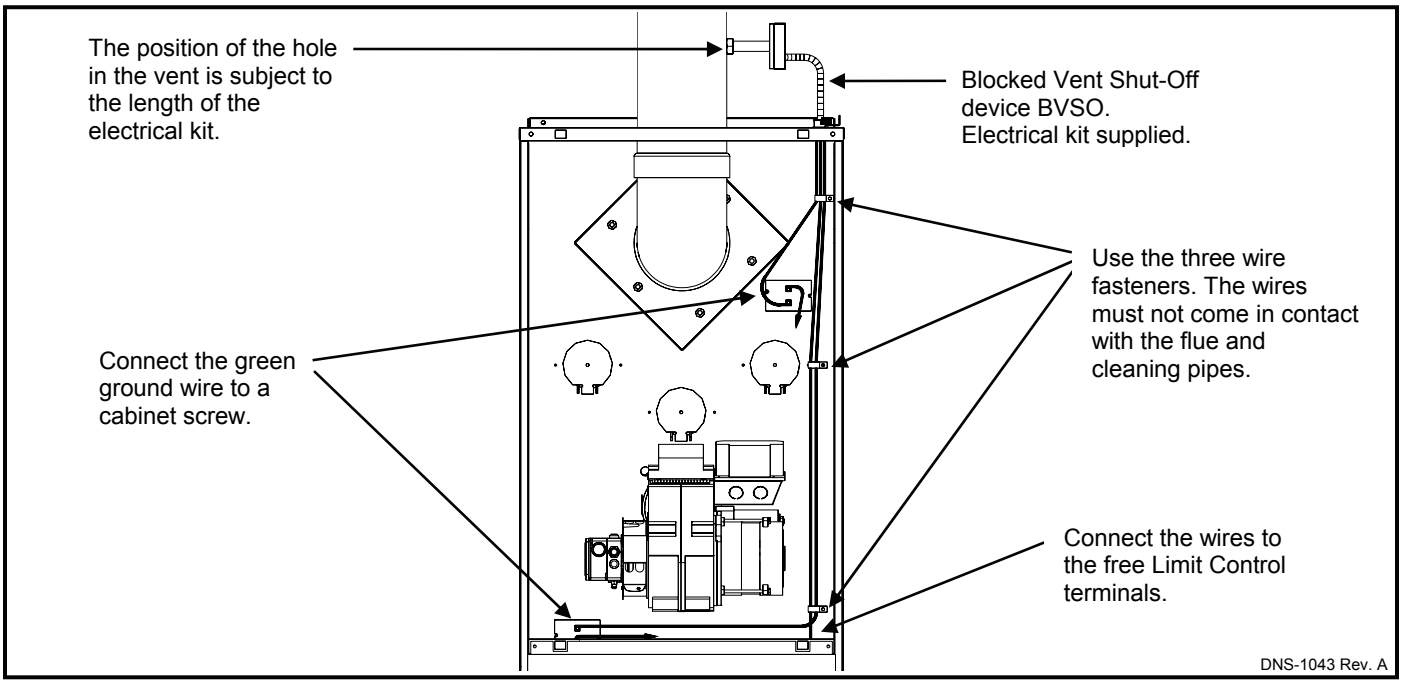


Figure 3 : Blocked vent shut-off device wiring, upflow installation with vertical exhaust

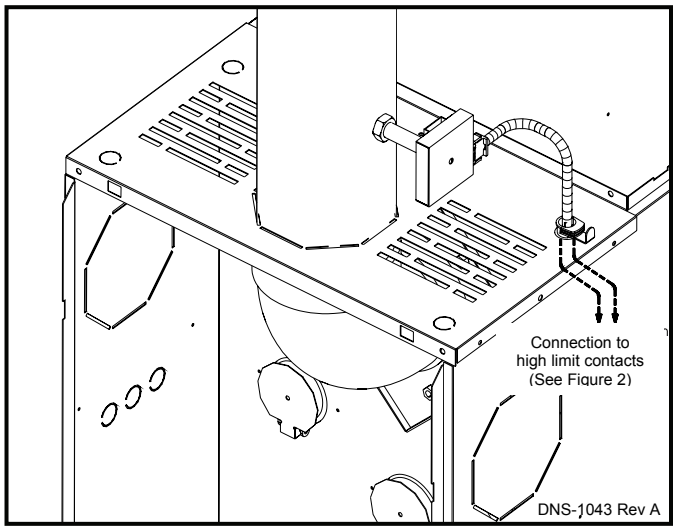


Figure 4 : Blocked vent shut-off device wiring, upflow installation with horizontal exhaust

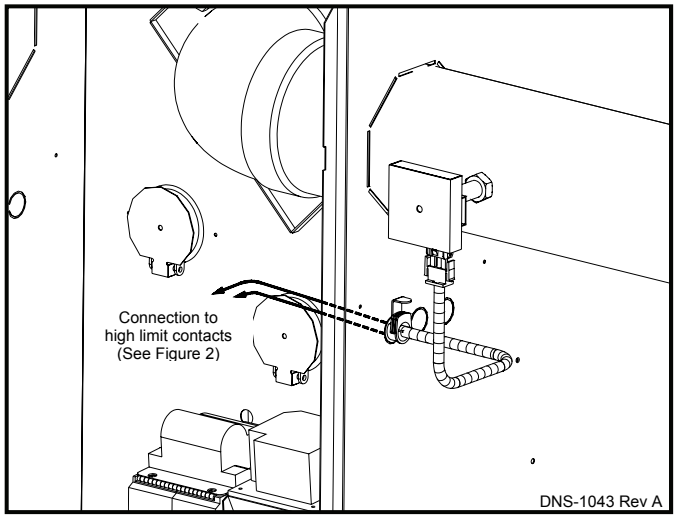


Figure 5: Blocked vent shut-off device wiring, horizontal installation with horizontal exhaust

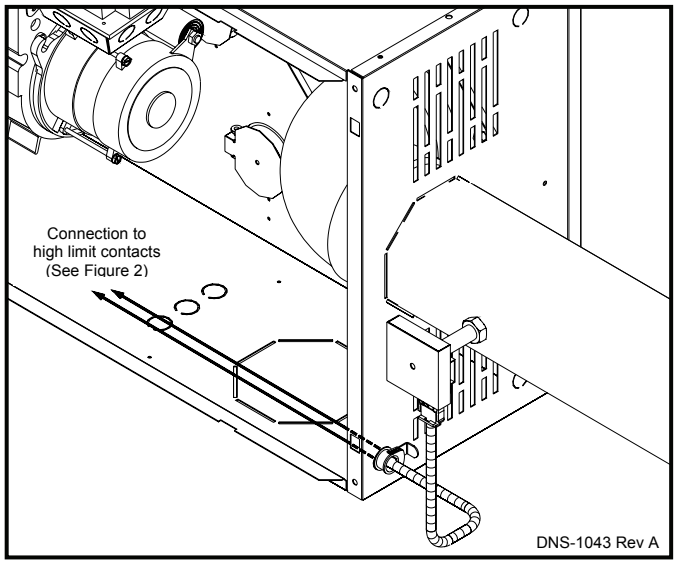


Figure 6: Blocked vent shut-off device wiring, horizontal installation with vertical exhaust

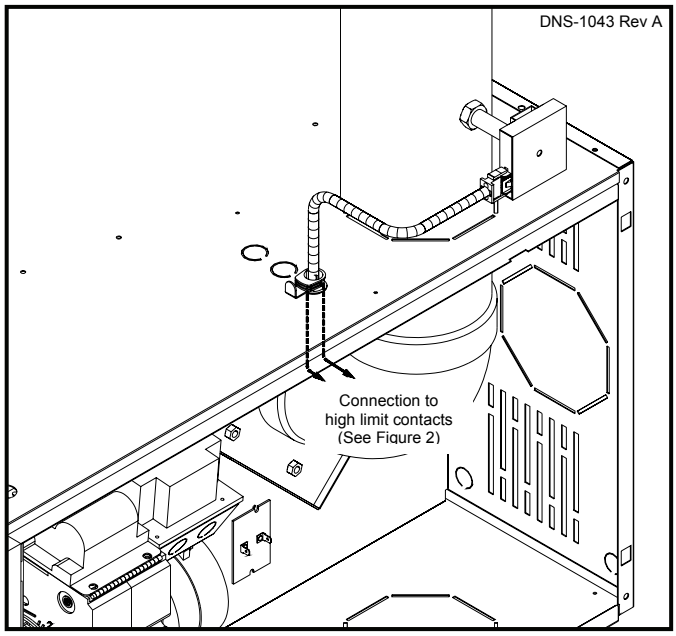
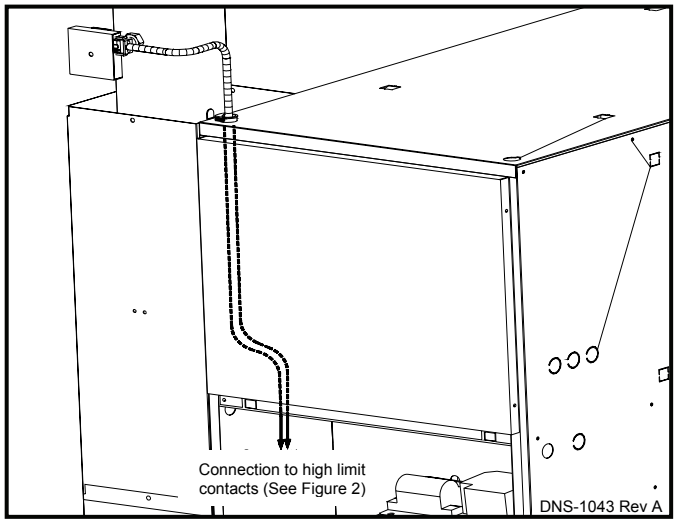


Figure 7: Blocked vent shut-off device wiring, downflow installation



2.4.5 Blocked vent shut-off (BVSO) For chimney venting

WARNING

It is imperative that this device be installed by a qualified agency.

This device is designed to detect the insufficient evacuation of combustion gases in the event of a vent blockage. In such a case the thermal switch will shut down the oil burner. The device will then need to be re-armed MANUALLY.

Please refer to Figures 2 to 7, the wiring diagrams, Figures 11 to 13, and the detailed instructions supplied with the BVSO for the installation and wiring procedures. The length of wires supplied with the unit is such that the safety device must be installed between the flue outlet of the appliance and the draft regulator, as indicated in the instructions.

For more details, refer to the instructions supplied with the device itself, as well as section 3 of this manual.

It is also essential that the BVSO be maintained annually. For more details please refer to the instructions supplied with the device itself, as well as Section 4 of this Manual.

⚠ CAUTION

A positive pressure venting system (Sealed Combustion System or Direct Vent) MUST NOT use the BVSO. Follow the instructions supplied with the venting system.

2.4.6 Oil burner

This furnace is supplied with a high pressure atomizing retention head type burner for use with not heavier than grade 2 Fuel Oil. If the burner model is a Beckett AFG, the mounting flange is fixed to the burner air tube and no adjustment is required for length. If a Riello burner is used, refer to the Technical Specifications, Table 5 for the insertion length.

⚠ CAUTION

NEVER use the "interrupted ignition" function if a Beckett AFG burner is installed on the furnace.

Oil Connections

Complete instructions for installation of the fuel oil piping will be found in the oil burner installation instructions included with the furnace.
Oil line entry holes are located in the side panels. Two holes are provided on each side, so that a two-pipe system can be used if desired.

A 10-micron (or finer) oil filter should be used with all oil burners, installed as closely as possible to the burner.

2.4.7 Electrical system

⚠ WARNING

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. A green ground screw is provided in the control box for this connection.

The appliance must be installed in accordance with the current ANSI/NFPA 70 National Electrical Code, CSA C22.1 Canadian Electrical Code Part 1 and/or local codes.

The control system depends on the correct polarity of the power supply. Connect "HOT" wire (H) and "NEUTRAL" wire (N) as shown in Figures 12 and 13.

A separate line voltage supply should be used with fused disconnect switch or circuit breaker between the main power panel and the unit.

Use only copper wire for 115V supply service to the unit.

Metallic conduit (where required/used) may terminate at the side panel of the unit. It is not necessary to extend the conduit inside the unit from the side panel to the control box.

When replacing any original furnace wiring, use only 105°C, 16 AWG copper wire.

Instructions for wiring the thermostat are provided with the thermostat (field supplied). Wire the connections to the 24-volt terminal board on the primary relay as shown in Figures 12 and 13.

When installing optional accessories to this appliance, follow the manufacturer's installation instructions included with the accessory. Other than wiring for the thermostat, wire with a minimum of type "T" insulation (17°C rise (63°F)) must be used for accessories.

2.4.8 Air filter

An external filter rack is provided as standard equipment with this furnace. The filter rack can be installed on the right or left side panel, or on the bottom of the furnace to accommodate the return air ductwork. A sufficient clearance should be provided for air filter access. Please refer to Table 2 for filter rack flange dimensions for return air duct.

⚠ DANGER

Do not use this furnace as a construction heater. Use of this furnace as a construction heater exposes it to abnormal conditions, contaminated combustion air and the lack of air filters. Failure to follow this warning can lead to premature furnace failure and/or vent failure that could result in a fire hazard and/or bodily harm.

Table 2 : Filter rack flange dimensions for return air duct

Model	Air Filter Size	Flange Opening
AMP 105 **NOMF 105 / 106**	16" x 24" 40.64 x 60.96 cm	15" x 23" 38.10 X 58.42 cm
AMP 120 **NOMF 155 / 156**	20" x 30" 45.72 X 76.20 cm	17" x 29" 43.18 X 73.66 cm

2.4.9 Air Conditioner (or Heat Pump)

An air conditioning coil may be installed on the supply air side ONLY.

⚠ WARNING

POISONOUS CARBON MONOXIDE GAS HAZARD

Install the evaporator coil on the supply side of the furnace ducting ONLY.

An evaporator coil installed on the return air side of the ducting can cause condensation to form inside the heat exchanger, resulting in heat exchanger failure. This in turn can result in death, bodily injury.

No minimum clearance is required between the bottom of the coil drain pan and the top of the heat exchanger. If a heat pump is installed, a "dual-energy" thermostat, or other control is required, in order to prevent the simultaneous operation of the furnace and the heat pump. It also prevents a direct transition from heating by way of the heat pump to heating with oil. Refer to the thermostat instructions or those of another control used for the proper wiring.

If a coil blower compartment is used, install air tight, motorized and automatic air dampers. Cold air coming from the coil and passing across the furnace can cause condensation and shorten the life of the heat exchanger.

2.4.10 Horizontal or downflow installation

1. On horizontal installations, determine which "side" will become the "top", when the unit is laid down. Remove the flue pipe clearance knockout from the top front of that side panel. Install the flue elbow so that it exits the cabinet of the furnace through that opening;
2. On counterflow Installations, the flue pipe must exit the cabinet through one of the side panel openings (as above), then extended up the side of the furnace. Ensure that adequate clearances to combustibles are observed. It may be necessary to install a sheet-metal shield on an adjacent wall to prevent any possibility of a fire hazard;
3. Remove the burner. If it's a Beckett burner models, loose the mounting nuts and turn the oil burner slightly counter clockwise to unlock the burner flange. For the Riello burner models, unscrew the mounting nuts. Avoid putting undue strain on burner wiring. It may be necessary to disconnect the burner wiring in some cases;
4. To reinstall the Beckett burner, insert the burner in the burner flange bolts and turn the burner clockwise to lock it; then tighten the nuts.

IMPORTANT: The burner must always be installed in the upright position with the ignition control on top.

3.0 OPERATION

3.1 SUPPLY AIR ADJUSTMENTS

This unit is equipped with 4-speed blower motors. The supply air must be adjusted based on heating/air conditioning output and the static pressure of the duct system. For the desired air flow please refer to Table 3 and 4 as well as the air flow Table 6 based on static pressure in the Technical Specifications, Table 5, of this manual.

Table 3 : Blower speed adjustments, 4 speed motor, heating mode

FURNACE MODEL	HEATING INPUT	RECOMMENDED BLOWER SPEED
AMP 105 NOMF 105 / 106	0.50 USGPH	MED-LOW
	0.65 USGPH	MED-HIGH
	0.75 USGPH	HIGH
AMP 120 NOMF 155 / 156	0.85 USGPH	MED-LOW
	1.00 USGPH	MED-HIGH
	1.10 USGPH	HIGH

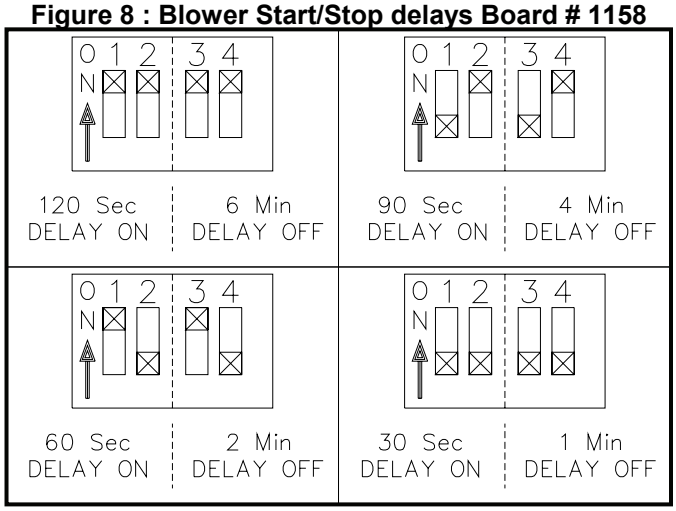
To effect the adjustment, the RED and BLUE wires can be changed on the motor. Also, please refer to the position of the wires on the electronic board of the unit and consult the wiring diagrams. If the heating and the air conditioning speeds are the same, the RED wire must be moved to "UNUSED LEADS" on the electronic board and the jumper provided with the BLUE wire must be used between the "HEAT" and "COOL" terminals.

Table 4 : Blower speed adjustments, 4 speed motor, cooling mode

FURNACE MODEL	COOLING CAPACITY	RECOMMENDED BLOWER SPEED
AMP 105 NOMF 105 / 106	2.0 TONS	MED-LOW
	2.5 TONS	MED-HIGH
	3.0 TONS	HIGH
AMP 120 NOMF 155 / 156	3.5 TONS	MED-LOW
	4.0 TONS	MED-HIGH
	5.0 TONS	HIGH

The blower start/stop delays can be adjusted by positioning the DIP switches on the electronic board as shown on the Figure 8.

Figure 8 : Blower Start/Stop delays Board # 1158



3.2 OPERATIONAL CHECKLIST

Before starting up the unit, be sure to check that the following items are in compliance:

1. The electrical installation, the oil supply system, the venting system, combustion air supply and ventilation;
2. The blower access door is in place and the blower rail locking screws are well tightened;
3. The Blocked Vent Shut-Off (BVSO) is installed according to instructions (for chimney venting);
4. The oil supply valve is open;
5. The flame observation door and the two clean-out access doors (located at the front of the unit) or well closed;
6. The burner ''Reset'' button is well pushed in or re-armed;
7. The preliminary air adjustments on the burner comply with the technical specifications in this manual;
8. The blower speed adjustments for heating and air conditioning are appropriate and according to the specifications in this manual;
9. The blower start/stop delays are satisfactory;
10. The thermostat of the room is in the heating mode and is set higher than the ambient temperature.

To start the unit, turn the main electrical switch on.

⚠ CAUTION

Do not tamper with the unit or its controls. Call a qualified service technician.

3.3 PURGING THE OIL LINE

1. A 10-micron (or less) oil filter should be installed as closely to the burner as possible with all oil burners, but it is essential for burners with a low firing rate. We recommend the use of a low pressure drop oil filter with a capacity greater than that of the fuel pump;
2. On a new installation, the air trapped in the oil line leading from the tank to the nozzle must be thoroughly purged in order to prevent excessive after drip. The oil pump is equipped with a special fitting that facilitates the purging of any air between it and the tank. The proper procedure for performing this operation is as follows:
   a. Place a piece of 1/4" diameter clear plastic tubing over the purge fitting on the oil pump;
   b. Start the oil burner, then open the purge fitting and allow the burner to run until the purge tube is completely free of air bubbles;
   c. At this point tighten the purge fitting, which will allow the oil to run to the nozzle and fire the burner. If the purging takes longer than 15 seconds and no flame has been established the burner will stop. Push the reset button on top of the Primary Control to restart the burner.

   For detailed information on the operation of the Primary Control please refer to the instructions included with the furnace or the burner.

3.4 COMBUSTION CHECK

IMPORTANT: The heat exchanger metal surfaces may have oil and the baffle insulation also contains binders. These products will burn or evaporate when the unit operates for the first time. Because of this, the smoke reading may be inexact during the first minutes of operation. Therefore, the unit must operate during at least 60 minutes before taking any readings to adjust the combustion quality. Let the unit cool down before making any adjustments.

IMPORTANT: The combustion check verification MUST be performed after the nozzle replacement or the burner cleaning. After these manipulations, the combustion parameters are necessarily modified. Refer also to the burner instruction manual.

In order to obtain optimum performance from the oil burner, the following set-up procedures must be followed by referring to the Technical Specifications, Table 5 in this manual:

1. A test kit to measure the smoke, flue draft and over-fire pressure should be used in order to obtain the proper air band setting. Although all of the above measurements are required for optimum set up and efficiency, the most important reading that must be taken is the smoke number in the flue pipe, downstream from the regulator;
2. The proper smoke number, as established by way of engineering tests, is between 0 and 1. This degree of smoke emission is commonly referred to as a "trace". It is recommended that a Bacharach True Spot Smoke Test kit or equivalent be used;
3. Follow the next steps to do the combustion check verification:
   a. Drill a minimum proper diameter (about 9/32") test hole in the flue pipe, approximately 18 inches from the furnace breech;
   b. From a cold start, let the unit operate for about 5 minutes;
   c. Set the burner air setting until you have between 0 and 1 on the Bacharach Scale (or a "trace");
   d. Take a CO_2 sample at the same test location where the smoke reading was taken and make note of it;
   e. Adjust the burner air setting to obtain a CO_2 reading 1.5% lower (or a O_2 reading 2.0% higher) than the reading associated with the "trace" of smoke;
   f. This method of adjusting the burner will result in clean combustion (Bacharach smoke scale between 0 and a trace) and ensure the proper functioning of the system.
4. A barometric draft regulator, supplied with the furnace, must be installed, in order to ensure proper draft through the furnace. The barometric damper must be mounted with the hinge pins in a horizontal position and the face of the damper vertical for proper functioning, (see instructions included with damper). After the furnace has been firing for at least five minutes, the draft regulator should be set to between -0.025" W.C. and -0.035" W.C.;
5. The over fire pressure that is taken through the observation door located in the centre of the front panel above the burner is a measurement that is necessary to determine if there is a blockage in the heat exchanger or the flue pipe. Please refer to the Technical Specifications in this manual for over fire pressure values. A high pressure condition may be caused by excessive combustion air due to the air band being too wide open or a lack of flue draft (chimney effect) or some other blockage, such as soot in the secondary section of the heat exchanger or the use of an oversize nozzle input or high pressure pump;
6. After all the set up procedures mentioned above have been completed, the burner should be fired and an inspection mirror should be used to observe the flame pattern at the tip of the nozzle. Any irregularities such as burning to one side or pulsating flame patterns should be corrected by changing the nozzle.

3.5 LIMIT CONTROL CHECK

After the furnace has been in operation for at least 15 minutes, restrict the return air supply by blocking the filters or closing the return registers and allow the furnace to shut down on High Limit. The burner will shut OFF but the main blower should continue to run.

Remove the restriction and the burner should come back on in a few minutes.

3.6 YEAR ROUND AIR CONDITIONING

The furnace is designed for use in conjunction with cooling equipment, to provide year round air conditioning. The blower has been sized for both heating and cooling;

however, the fan motor speed may need to be changed to obtain the necessary cooling airflow.

3.7 HEATING

The blower speed is factory set to deliver the required airflow at normal duct static pressure.

3.8 COOLING

The blower speed may be adjusted in the field to deliver the required airflow for cooling applications, as outlined in Table 4.

3.9 CONSTANT BLOWER SWITCH

This furnace is equipped with a constant low speed blower option. Whenever the room thermostat is not calling for heating or cooling, the blower will run on low speed in order to provide air circulation. If this constant blower option is not desired, the rocker switch on the side of the control box can be used to turn it off.

4.0 MAINTENANCE

⚠ WARNING

Before performing any service functions, make sure that all utilities are turned ''OFF'' upstream from the appliance, unless operations specifically require the power to be on. Failure to comply with this warning will cause a fire hazard and/or bodily harm.

This furnace should never be operated without an air filter. Disposable filters should be replaced at least once a year. If equipped to provide cooling, filters should be replaced at a minimum of twice a year.

To avoid personal injury, make sure the power is “OFF” before servicing.

ALWAYS KEEP THE OIL VALVE CLOSED IF THE BURNER IS SHUT DOWN FOR AN EXTENDED PERIOD OF TIME.

For optimum performance, the oil burner nozzle should be replaced at least once a year.

The procedure for the installation and/or replacement of a nozzle is outlined in the oil burner instruction manual which is supplied with the furnace.

After replacing the nozzle, the burner should be adjusted in accordance with the “COMBUSTION CHECK” section of this manual.

4.1 HEAT EXCHANGER CLEANING

Normally, it is not necessary to clean the heat exchanger or flue pipe every year, but it is advisable to have a qualified service technician check the unit before each heating season to determine whether cleaning or replacement of parts is required.

If cleaning is necessary, the following steps should be taken:

1. **Turn “OFF” all utilities upstream from the furnace**;
2. Disconnect the flue pipe (only with chimney venting and rigid flue pipe);
3. Remove the breech plate;
4. Remove the radiator baffle;
5. Disconnect the oil line and remove the oil burner from the furnace;
6. Open the two cleanout doors located in the upper part of the front panel of the furnace;
7. Clean the secondary tubes and the primary cylinder with a stiff brush and a vacuum cleaner;
8. Before reassembly, the heat exchanger and combustion chamber should be inspected to determine if replacement is required;
9. After cleaning, replace the radiator baffle, flue collar plate, oil burner and close the two clean out access doors. Reconnect the flue pipe and oil line;
10. Readjust burner for proper operation.

4.2 BLOWER REMOVAL

To remove the blower from the furnace:

1. **Turn “OFF” all utilities upstream from the furnace**;
2. Remove the burner access door and blower door;
3. Remove the blower retaining screw (on the blower partition panel);
4. Remove the control box cover and disconnect the thermostat and power wires from the board;
5. Slide the blower on the rails toward the front of the unit;
6. Reverse the above steps to reinstall the blower. Please refer to the wiring diagrams, Figures 11 to 13 in this manual, or the diagram located on the inside of the blower door to properly rewire the unit.

⚠ CAUTION

Be sure that the blower is adequately supported when sliding it off the mounting rails, especially in the horizontal or counter flow positions, in order to prevent dropping it and injuring yourself or damaging the blower.

4.3 BLOCKED VENT SHUT OFF (BVSO) CLEANING

For continued safe operation, the Blocked Vent Shut-Off System (BVSO) needs to be inspected and maintained annually by a qualified service technician.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

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

Disconnect electrical power supply to the furnace before servicing the blocked vent shut-off.

1. Remove the two screws holding down the BVSO assembly cover;
2. Remove the cover;
3. Remove the two screws holding the control box to the heat transfer tube assembly. Sliding the control box in the appropriate direction will unlock it form the heat transfer tube assembly;
4. Carefully remove any build-up from the thermal switch surface;

⚠ CAUTION

Do not dent or scratch the surface of the thermal switch. If the thermal switch is damaged, it must be replaced.

5. Clear and remove any build-up or obstruction inside the heat transfer tube;
6. Re-mount, lock and fasten the control box with the 2 screws removed in step 3;
7. Re-attach the assembly cover with the screws removed in step 1;
8. Re-establish power to the appliance.

5.0 FURNACE INFORMATION

Model: _____ Serial number: _____

Furnace installation date: _____

Service telephone #-Day: _____ Night: _____

Dealer name and address: _____

_____

_____

START-UP RESULTS

Nozzle: _____ Pressure: _____ lb/po^2

Burner adjustments: Primary air _____

Fine air _____

Drawer Assembly _____

CO_2 : _____ % scale: Smoke _____ (Bacharach)

Gross stack temperature: _____ °F

Ambient temperature: _____ °F

Chimney draft : _____ " W.C.

Overfire draft : _____ " W.C.

Test performed by: _____

Table 5 : Technical Specifications

Model: AMP & NOMF	105 / 106			120 / 155 / 156		
RATING AND PERFORMANCE						
Firing rate (USGPH)*	0.5	0.65	0.75	0.85	1.00	1.10
Input (BTU/h)*	70 000	91 000	105 000	119 000	140 000	154 000
Heating capacity (BTU/h)*	56 000	73 000	84 000	98 000	114 000	126 000
Heating temperature rise*	13 - 29°C (55 - 85°F)			13 - 29°C (55 - 85°F)		
Flue draft with chimney (inch of w.c.)	-0.06" to -0.025"			-0.06" to -0.025"		
Overfire pressure with chimney (inch of w.c.)	max +0.025"			max +0.025"		
Flue pressure with direct vent (inch of w.c.)				+0.10" to +0.25"		
Overfire pressure with direct vent (inch of w.c.)				+0.12" to +0.27"		
BECKETT BURNER; MODEL AFG (3450 rpm)	**AFG53, F3 head**			**AFG53, F3 head**		**AFG53, F6 head**
Burner tube insertion length	2 7/8 ''			2 7/8 ''		2 7/8 ''
Low firing rate baffle	YES			YES		YES
Static disc, model	3 3/8" # 31646			2 3/4" # 3383		2 3/4" # 3383
Nozzle (Delavan)**	0.50 - 70W	0.55 - 70B	0.65 - 70B	0.75 - 70B	0.85 - 70B	0.85 - 70B
Pump pressure (PSIG)*	100	140	130	130	140	170
Combustion air adjustment (band/shutter)	0 / 5	0 / 7	0 / 8	1 / 8	4 / 4	2 / 8
AFUE % (From CSA B212 standard and Canadian regulation)***	81.4	81.3	81.0	84.2	83.2	83.4
AFUE % max. (From ASHRAE 103 stadard and US regulation)***	80.6 †	80,4 †	80,8 †	82,4 †	81,3 †	81.6 †
RIELLO BURNER; 40-F (chimney vent)	**F3 head with VSBT**			**F5 head with VSBT**		
Burner tube insertion length	3 9/16 ''			3 9/16 ''		
Nozzle (Delavan)**	0.40 - 70A	0.50 - 70W	0.65 - 70W	0.75 - 70B	0.85 - 70W	1.00 - 70W
Pump pressure (PSIG)*	155	170	135	130	140	125
Combustion air adjustment (turbulator/damper)	0 / 3	0 / 3.5	0 / 4	0 / 3	0 / 3.5	0 / 4
AFUE % (From CSA B212 standard and Canadian regulation)***	83.8	83.4	82.9	86.6	86.3	85.4
AFUE % max. (From ASHRAE 103 stadard and US regulation)***	82.6 †	82.1 †	81.5 †	83.8	84.7	84.0
ELECTRICAL SYSTEM						
Volts - Hertz - Phase	115 - 60 - 1			115 - 60 - 1		
Rated current (Amps)	12.2			15.7		
Minimum ampacity for wire sizing	13.7			18.1		
Max. wire lenght (ft.)	26			26		
Max. fuse size (Amps)	15			20		
Control transformer	40 VA			40 VA		
External control power available Heating	40 VA			40 VA		
Cooling	30 VA			30 VA		
BLOWER DATA						
Blower speed at 0.50" W.C. static pressure	MED-LOW	MED-HIGH	HIGH	MED-LOW	MED-HIGH	HIGH
Motor (HP) / number of speeds	1/3 HP / 4 speeds			3/4 HP / 4 speeds		
Blower wheel size (in.)	10" x 10"			12" x 10"		
GENERAL INFORMATION						
Overall dimensions (width x depth x height)	20" x 35" x 48¾"			20" x 39½" x 53"		
Supply air opening (width x depth)	18.750" x 19,875"			18,750" x 23,875"		
Return air opening (depth x height, with factory filter rack)	15" x 23"			17" x 29"		
Filter size	16" x 24"			20" x 30"		
Shipping weight	100 kg / 221 lbs			122 kg / 270 lbs		
Air conditioning, maximum output (tons) at 0.5 SP	3 tons			5 tons		

†Not available in US.
* INPUT & OUTPUT ADJUSTMENT (see information below)
Pump pressure can be increased up to 180 PSIG (200 PSIG with Beckett burner at 1.10 USGPH)
Adjust flue gas temperature between 400° and 575°F.
Adjust fan speed for air temperature rise of 55° to 85°F.
** Default Installed Nozzle in bold characters.
*** AFUE values established after minimum 20 hours of operation.

Table 6 : Air delivery in CFM with air filter

	AMP, LBM & NOMF (075, 090 and 105) - EXTERNAL STATIC PRESSURE WITH AIR FILTER			
SPEED	0.2" (W.C.)	0.3" (W.C.)	0.4" (W.C.)	0.5" (W.C.)
HIGH	1 425	1 350	1 305	1 250
MED-HIGH	1 130	1 045	1 000	950
MED-LOW	840	810	770	740
	AMP, LBM & NOMF (120, 140 et 155) - EXTERNAL STATIC PRESSURE WITH AIR FILTER			
SPEED	0.2" (W.C.)	0.3" (W.C.)	0.4" (W.C.)	0.5" (W.C.)
HIGH	2 080	2 041	1 965	1 864
MED-HIGH	1 892	1 859	1 770	1 675
MED-LOW	1 556	1 475	1 394	1 318

Figure 9 : Model AMP 105 and NOMF 105 / 106

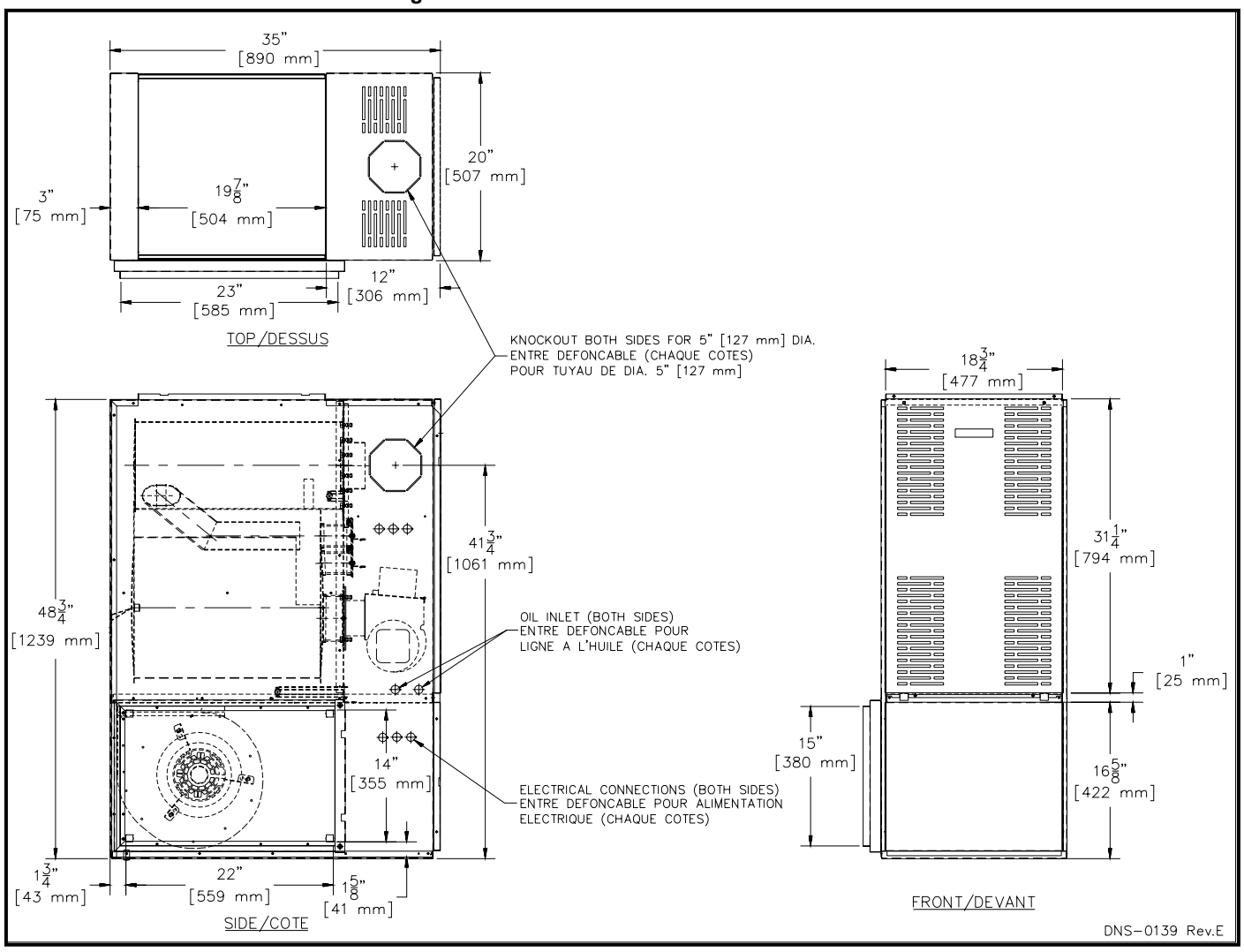


Table 7 : Minimum clearances to combustible materials

LOCATION	APPLICATION	UPFLOW	DOWNFLOW	HORIZONTAL
SIDES	FURNACE	Ø	5.08 cm (2")	5.08 cm (2")
	SUPPLY PLENUM WITHIN 6 ft. OF FURNACE	2.54 cm (1")	5.08 cm (2")	2.54 cm (1")
BACK	FURNACE	Ø	2.54 cm (1")	Ø
TOP	FURNACE OR PLENUM	5.08 cm (2")	5.08 cm (2")	5.08 cm (2")
	HORIZONTAL WARM AIR DUCT WITHIN 6 ft. OF FURNACE	5.08 cm (2")	5.08 cm (2")	7.62 cm (3")
BOTTOM	FURNACE (COMBUSTIBLE FLOOR WITH SUB-BASE †)	Ø	* Ø	** Ø
FLUE PIPE	HORIZONTALLY OR BELOW FLUE PIPE	10.16 cm (4")	10.16 cm (4")	10.16 cm (4")
	VERTICALLY ABOVE FLUE PIPE	22.86 cm (9")	22.86 cm (9")	22.86 cm (9")
FRONT	FURNACE	20.32 cm (8")	20.32 cm (8")	60.96 cm (24")

† When used with floor base model: *DFB-101 or **HFB-101

Figure 10 : Model AMP 120 and NOMF 155 / 156

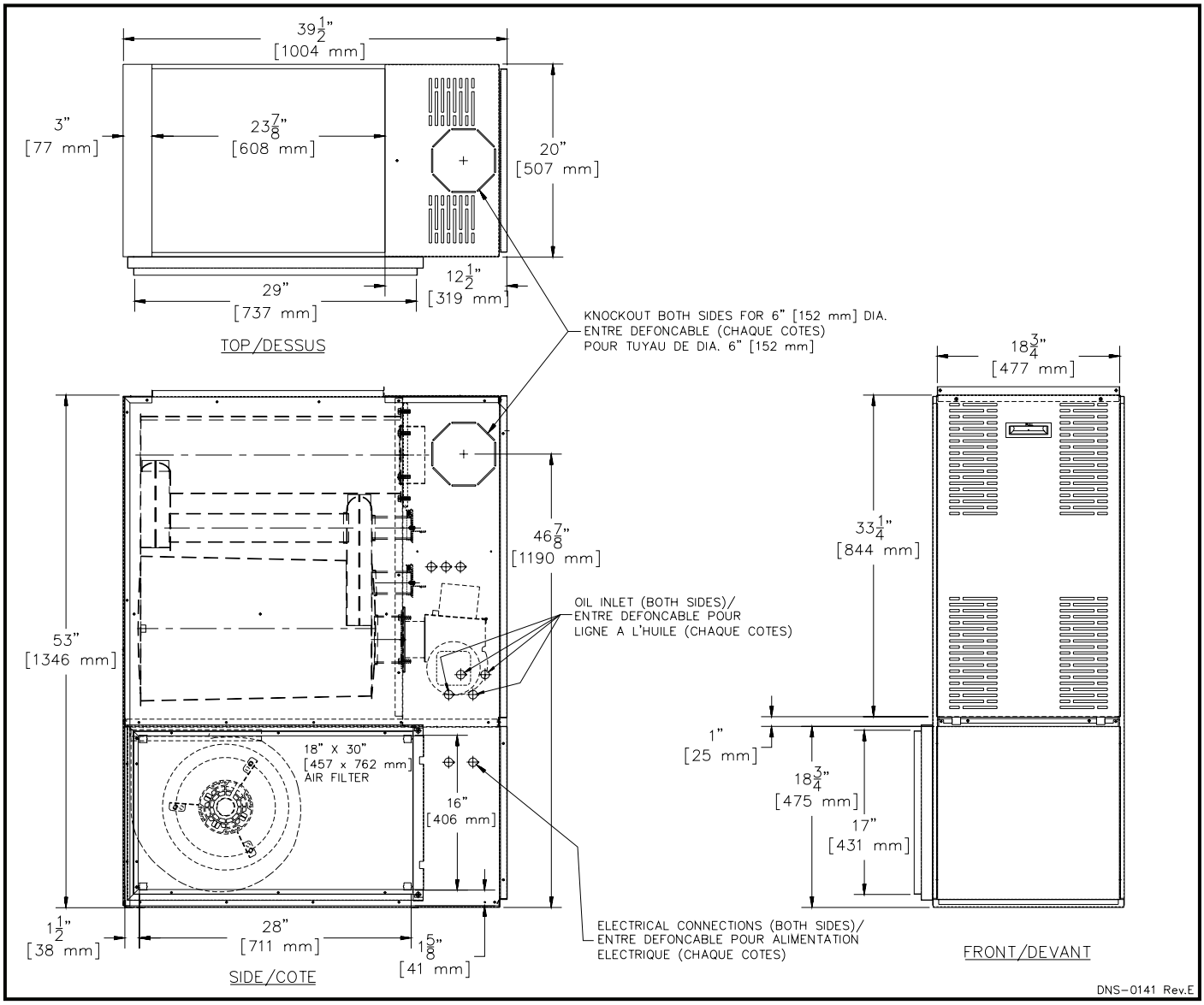


Table 8 : Minimum clearances to combustible materials

LOCATION	APPLICATION	UPFLOW	DOWNFLOW	HORIZONTAL
SIDES	FURNACE	Ø	5.08 cm (2")	5.08 cm (2")
	SUPPLY PLENUM WITHIN 6 ft. OF FURNACE	2.54 cm (1")	5.08 cm (2")	2.54 cm (1")
BACK	FURNACE	Ø	2.54 cm (1")	Ø
TOP	FURNACE OR PLENUM	5.08 cm (2")	5.08 cm (2")	5.08 cm (2")
	HORIZONTAL WARM AIR DUCT WITHIN 6 ft. OF FURNACE	5.08 cm (2")	5.08 cm (2")	7.62 cm (3")
BOTTOM	FURNACE (COMBUSTIBLE FLOOR WITH THE SUB-BASE †)	Ø	* Ø	** Ø
FLUE PIPE	HORIZONTALLY OR BELOW FLUE PIPE	10.16 cm (4")	10.16 cm (4")	10.16 cm (4")
	VERTICALLY ABOVE FLUE PIPE	22.86 cm (9")	22.86 cm (9")	22.86 cm (9")
FRONT	FURNACE	20.32 cm (8")	20.32 cm (8")	60.96 cm (24")

† When used with floor base model: base *DFB-101 or **HFB-101

Figure 11 : Wiring diagram, Beckett burner

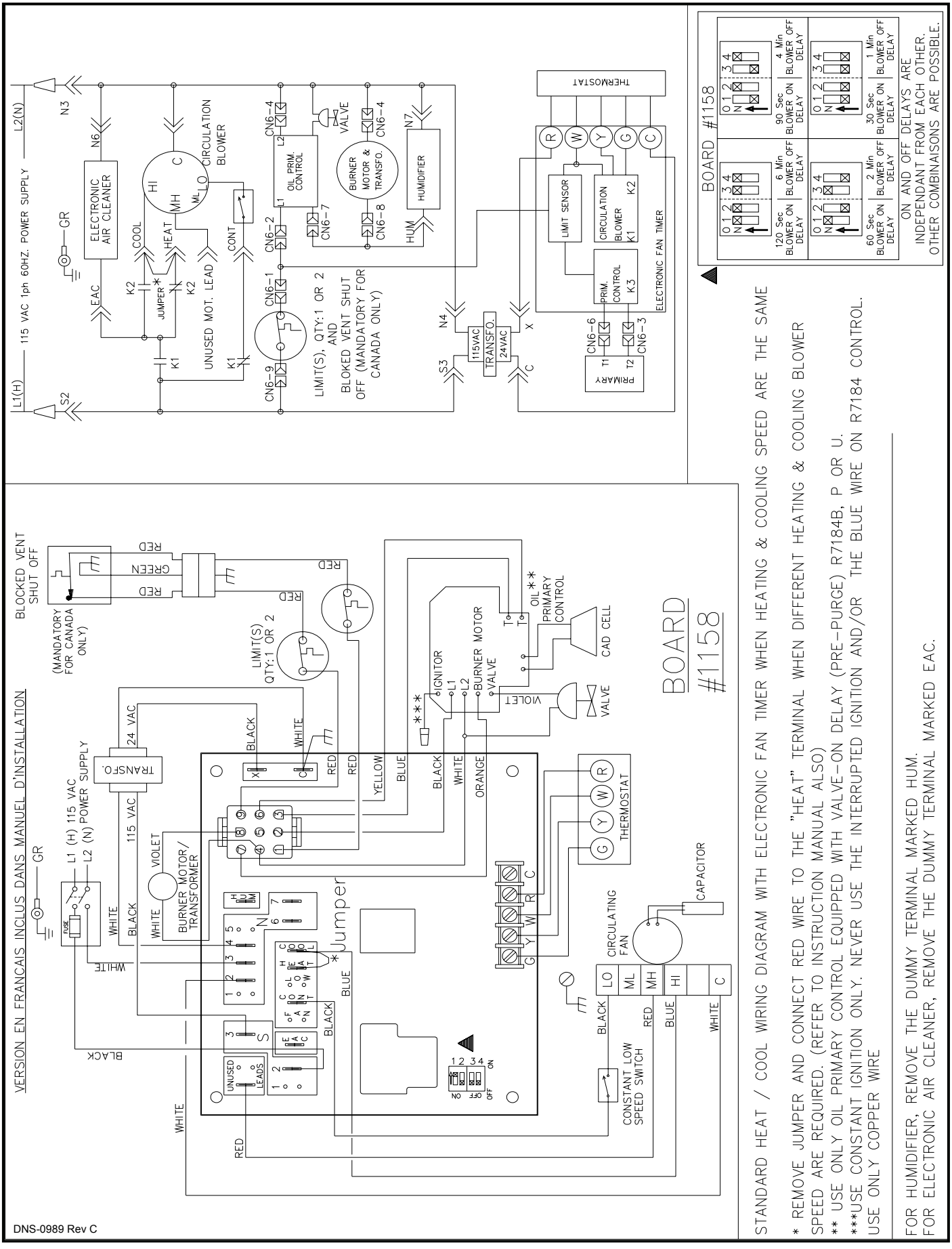


Figure 12 : Wiring diagram, Riello 40-F or BFR burner (without 24 VAC control)

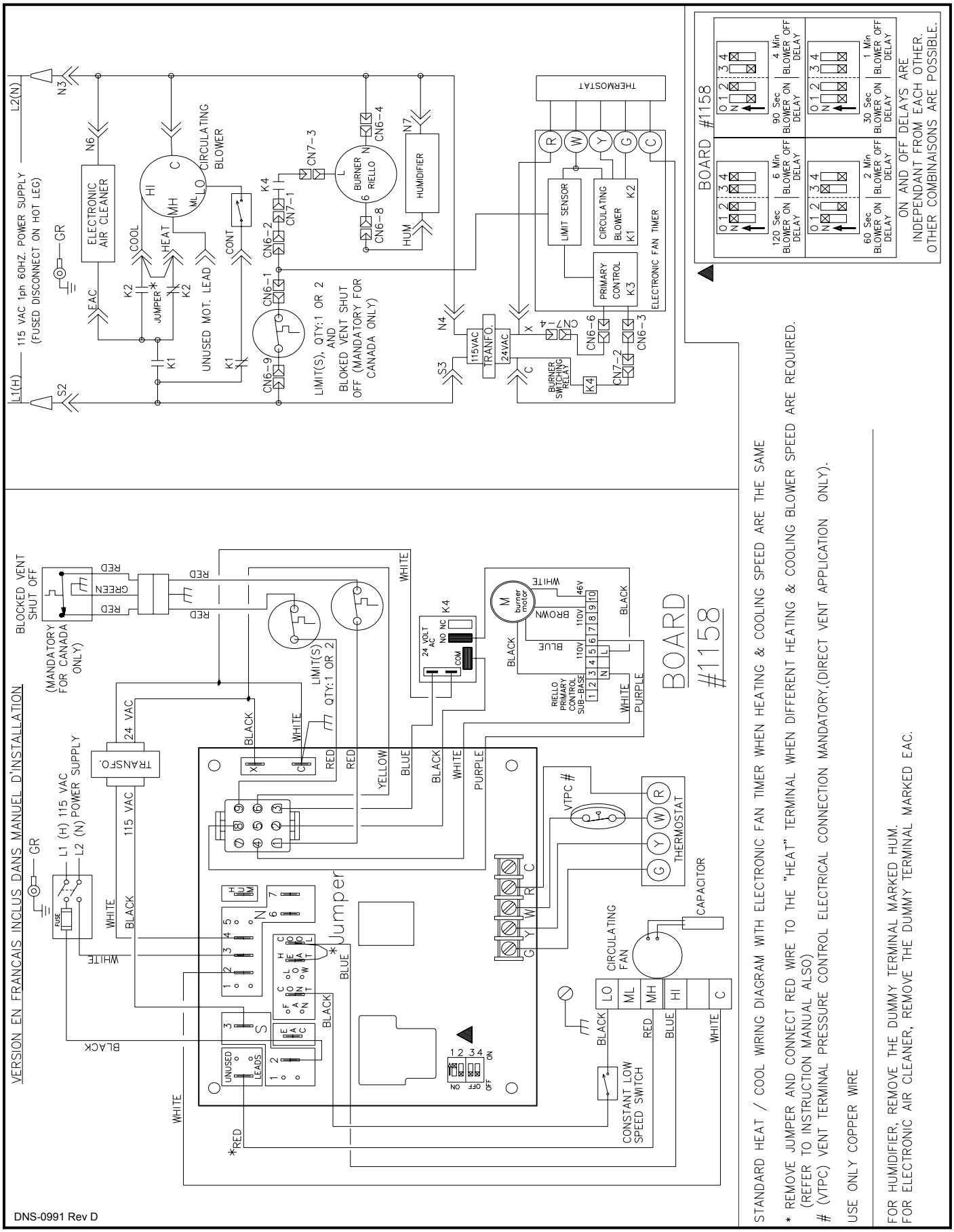


Figure 13 : Wiring diagram, Riello 40-F or BF burner (with 24 VAC control)

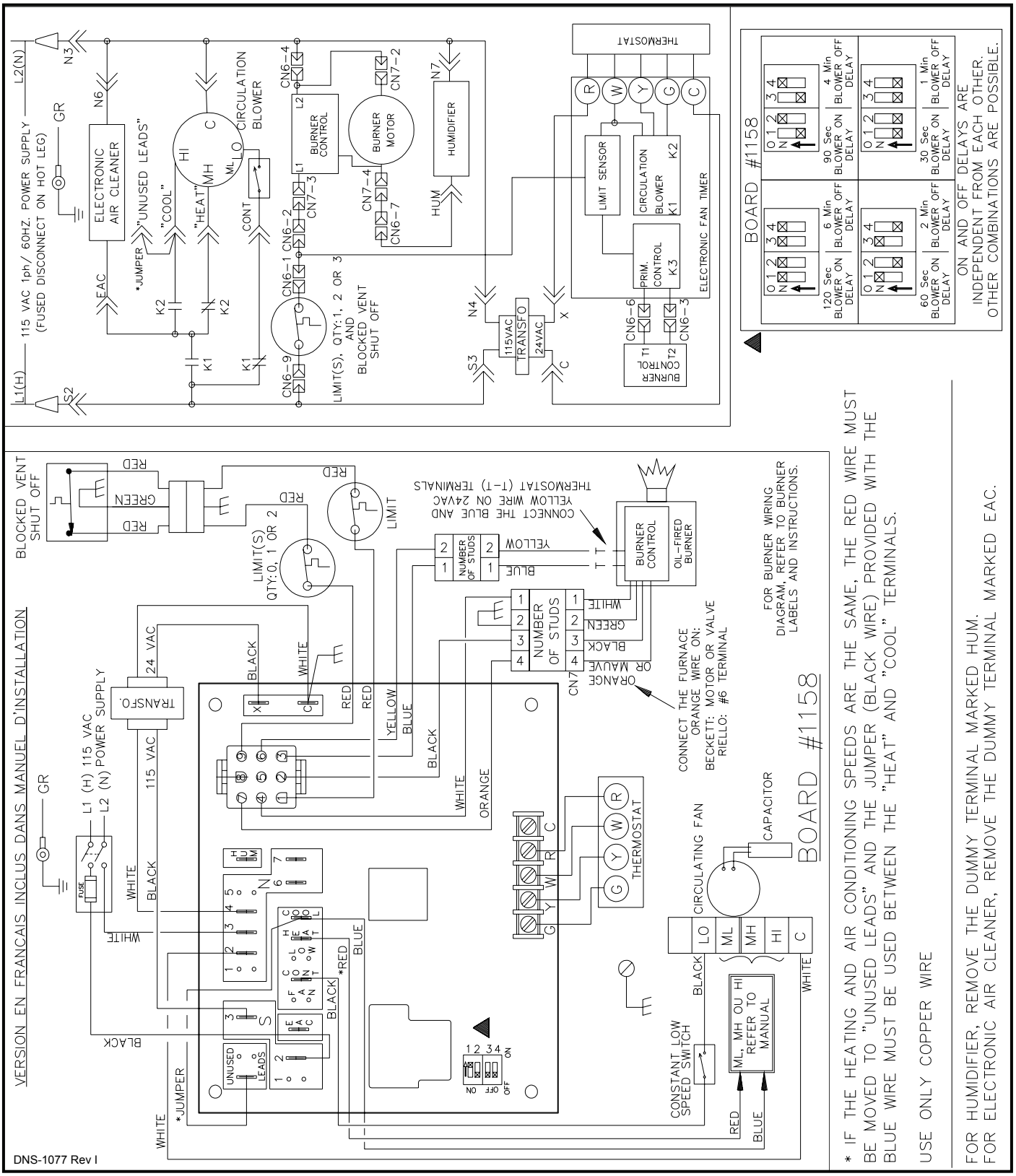


Figure 14 : Parts list AMP & NOMF 105/106, Beckett AFG and 40-F Riello burner (without 24 VAC control)

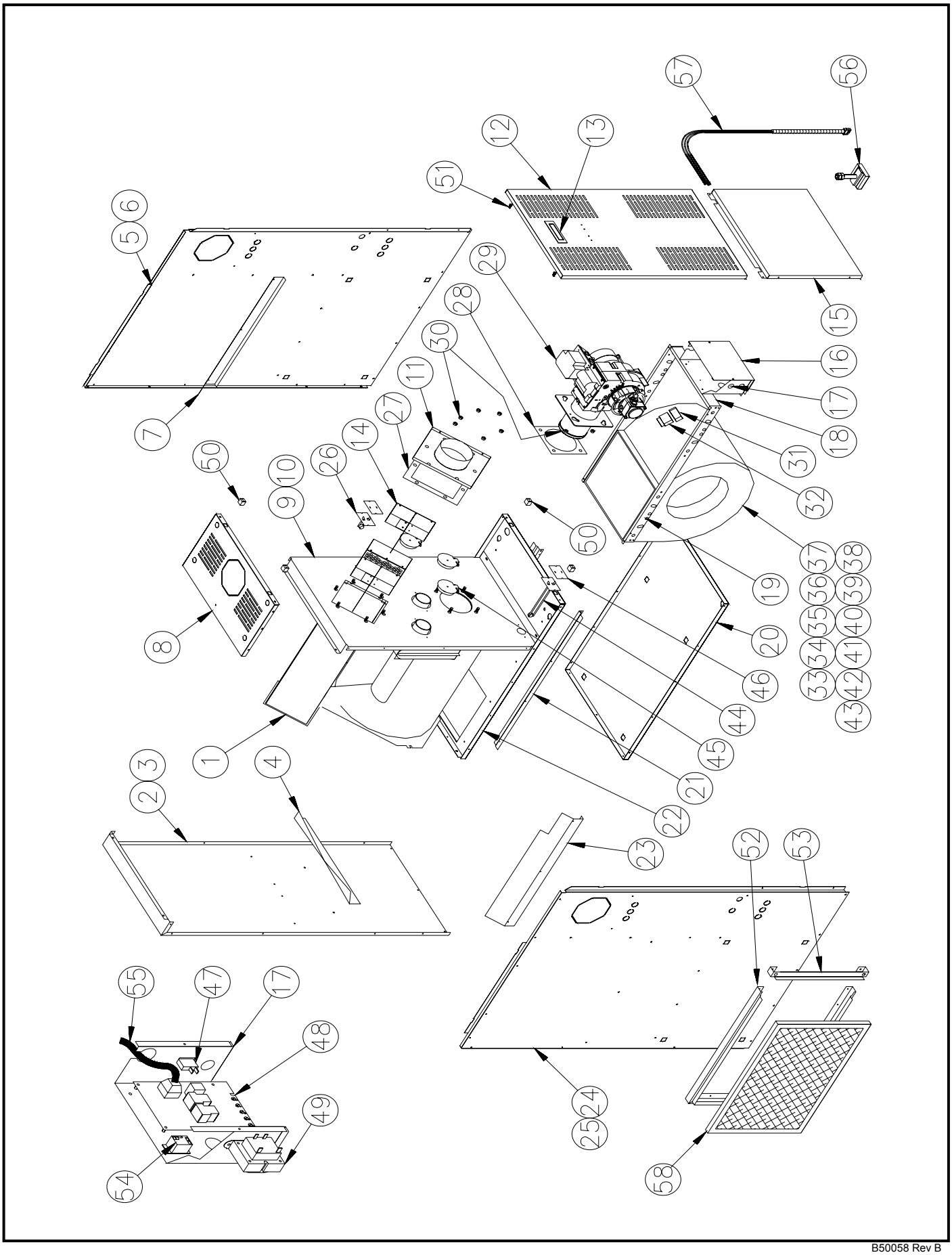


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Table 9 : Parts list AMP & NOMF 105/106, Beckett AFG and 40-F Riello burner (without 24 VAC control)

ITEM	PART #	DESCRIPTION	COMMENTS
1	B01667	HEAT EXCHANGER	
2	B01728	REAR PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
3	B01986	INSULATION, REAR PANEL	
4	B01898	REAR BAFFLE	
5	B01885-01	PANEL ASSEMBLY, RIGHT SIDE	INCLUDES PANEL. INSULATION AND BAFFLE
6	B01645-01	INSULATION, SIDE PANEL	
7	B01679-01	RIGHT LATERAL BAFFLE	
8	B01861	FRONT TOP PANEL ASSEMBLY	INCLUDES PANEL AND LATCH
9	B01727	FRONT DIVIDER PANEL ASSEMBLY	INCLUDES PANEL, INSULATION AND LABEL
10	B01646	INSULATION, FRONT PANEL	
11A	B01697	SMOKE BOX	
11B	B02200	SMOKE BOX COVER ASSEMBLY	
12	B01882-08	FRONT DOOR ASSEMBLY	INCLUDES PANEL, LABEL, LATCH AND HANDLE
13	Z99F050	RECESSED HANDLE, BLACK	
14	B01676	BAFFLE ASSEMBLY	INLUDES BAFFLE AND INSULATION
15	B01883-05	BLOWER DOOR	INCLUDES DOOR AND LABEL
16	B01684	ELECTRICAL BOX COVER	
17	B01683	ELECTRICAL BOX	
18	B01682	ELECTRICAL BOX SUPPORT	
19	B01681	BLOWER RAIL	2 REQUIRED
20	B01687	FLOOR	
21	B01680	BLOWER RAIL	
22	B01846	BLOWER DIVIDER	PANEL ONLY
23	B01679-02	LEFT LATERAL BAFFLE	
24	B01885-02	LEFT SIDE PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
25	B01645-02	INSULATION, LEFT SIDE PANEL	
26	R02R003	HIGH LIMIT 195-30F	
27	B01214	GASKET, SMOKE BOX COVER	
28	N04Z026	GASKET, FIXED BREECH, BECKETT	
29A	B03091-01	BURNER ASSEMBLY	
29B	N01F011	BURNER, RIELLO 40 F3	
30	F07F011	HEXAGONAL NUT, 3/8-16NC ZINC	
31	B01024	CAPACITOR HOLDER	
32	L01I001	CAPACITOR 5 MF	
33	B01890-01	MOTOR SUPPORT ASSEMBLY, 1/3 HP	INCLUDES MOTOR AND LEGS
34	B01405-01	REPLACEMENT BLOWER ASSEMBLY	INCLUDES BLOWER, MOTOR AND CAPACITOR
35	B03720-04	BLOWER, 100-10T	INCLUDES WHEEL AND HOUSING
36	Z01F012	MOTOR SUPPORT, TRIANGLE BAND	
37	Z01F013	MOTOR SUPPORT, TRIANGLE LEG	
38	F03F023	SCREW, #F HEX WASHER, 1/4-20 x 1 1/4	
39	F06F010	WASHER, 1/4" BOLT ZINC BB	
40	F07J001	HEX LOCKNUT "K-LOCK" 1/4-20NC	
41	F05F015	HEX BOLT 1/4-20 x 1 1/2 ZINC FULL THREAD	
42	B01888	BELLY BAND ASSEMBLY	BAND, LEGS, NUT & BOLTS INCLUDED
43	B00202	ELECTRICAL WIRE HARNESS (BLOWER)	
44	R02R002	HIGH LIMIT 140F, 7" STEM	
45	B02111	OBSERVATION DOOR	
46	A00284	ELECTRICAL INSULATING BARRIER	
47	L07F003	ROCKER SWITCH, SPST	
48	R99G004	ELECTRONIC BOARD	
49	L01F009	TRANSFORMER 120V-24Volts, 40VA	
50	Z99F003	LATCH ASSEMBLY, FEMALE	
51	Z99F038	LATCH ASSEMBLY, MALE	
52	B01695	FILTER RACK FRAME	
53	B01696	FILTER RACK ACCESS	
54	L01H009	RELAY, SPDT 24 VAC	
55	B00203	ELECTRICAL KIT	
56	Z06G001	BLOCKED VENT SHUT-OFF BVSO-225	
57	B03341-01	BVSO ELECTRICAL KIT	
58	Z04F007	PAPER FILTER 16" x 24" x 1"	

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Figure 15 : Parts list, AMP & NOMF 120/155/156, Beckett AFG and Riello 40-F burner (without 24 VAC control)

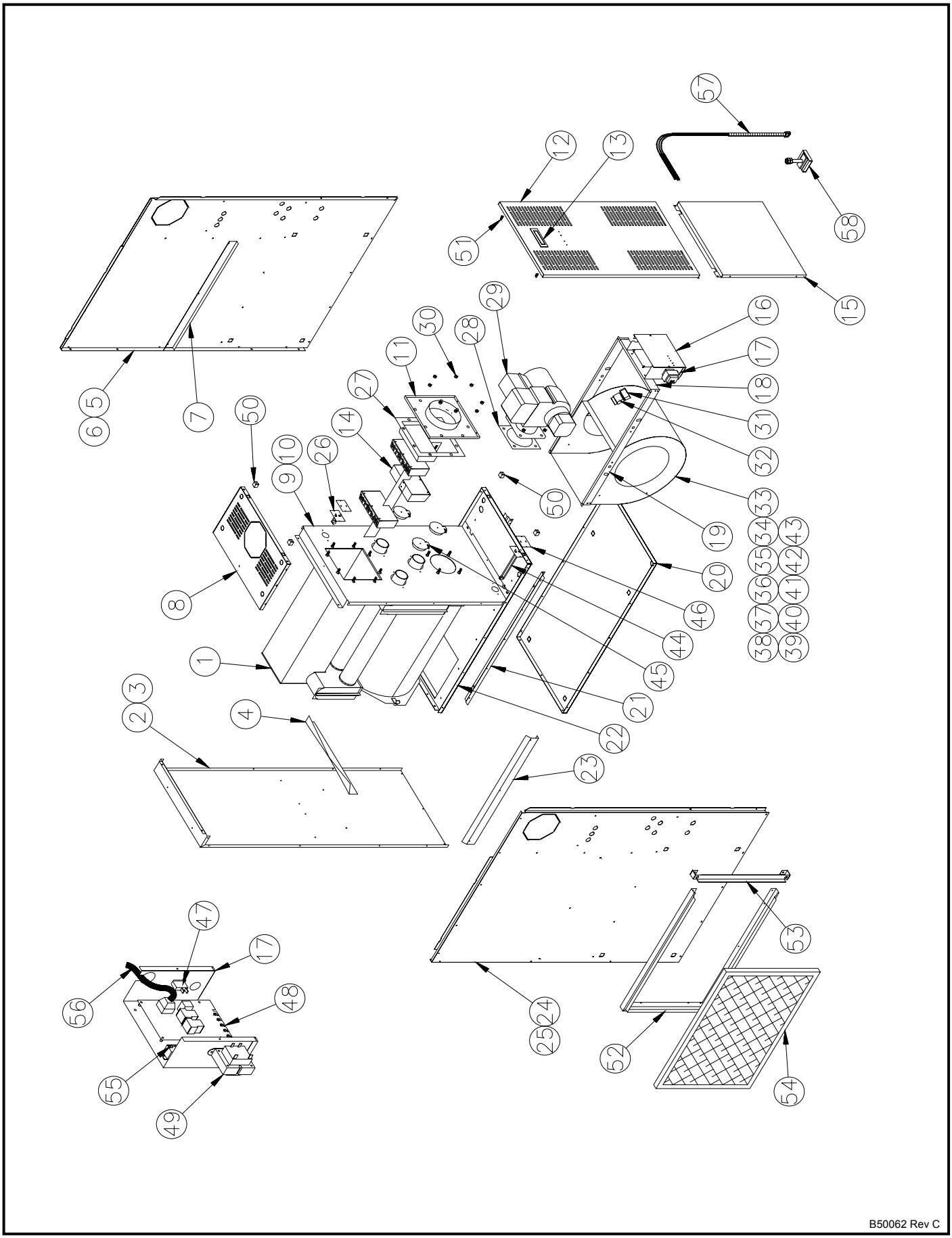

Table 10 : Parts list AMP & NOMF 120/155/156, Beckett AFG and Riello 40-F burner (without 24-VAC control)

ITEM	PART #	DESCRIPTION	COMMENTS
1	B01787	HEAT EXCHANGER	
2	B01877	REAR PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
3	B01526-25	INSULATION	
4	B01988	REAR BAFFLE	
5	B01875-01	PANEL ASSEMBLY, RIGHT SIDE	INCLUDES PANEL. INSULATION AND BAFFLE
6	B01800-01	INSULATION, SIDE PANEL	
7	B01805-01	TOP LATERAL BAFLLE	
8	B01874	FRONT TOP PANEL ASSEMBLY	INCLUDES PANEL AND LATCH
9	B01878	FRONT DIVIDER PANEL ASSMEBLY	INCLUDES PANEL, INSULATION AND LABEL
10	B01853	INSULATION, FRONT DIVIDER	
11A	B01747	SMOKE BOX	
11B	B02225	SMOKE BOX COVER ASSEMBLY	
12	B01852	FRONT DOOR	INCLUDES PANEL, LABEL, LATCH AND HANDLE
13	Z99F050	RECESSED HANDLE, BLACK	
14	B01751	BAFFLE ASSEMBLY	INCLUDES BAFFLE AND INSULATION
15	B01873-05	BLOWER DOOR ASSEMBLY	INCLUDES DOOR AND LABEL
16	B01684	ELECTRICAL BOX COVER	
17	B01683	ELECTRICAL BOX	
18	B01682	ELECTRICAL BOX SUPPORT	
19	B01681	BLOWER RAIL	2 REQUIRED
20	B01804	FLOOR	
21	B01794	BLOWER RAIL	2 REQUIRED
22	B01795	BLOWER DIVIDER	PANEL ONLY
23	B01805-02	BOTTOM LATERAL DEFLECTOR	
24	B01875-02	LEFT SIDE PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
25	B01800-02	INSULATION, LEFT SIDE PANEL	
26	R02R005	HIGH LIMIT 175-20F	
27	B00205	GASKET, SMOKE BOX COVER	
28	N04Z026	GASKET, FIXED BREECH, BECKETT	
29A	B03092-01	BURNER ASSEMBLY	
29B	N01F012	BURNER, RIELLO 40 F5	
30	F07F011	HEXAGONAL NUT, 3/8-16NC ZINC	
31	B01024	CAPACITOR HOLDER	
32	L01I005	CAPACITOR 15 MF	
33	L06I004	MOTOR 3/4 DD 4V	
34	B01406-01	REPLACEMENT BLOWER ASSEMBLY	INCLUDES BLOWER, MOTOR AND CAPACITOR
35	B03720-05	BLOWER 120-10T	
36	Z01F012	MOTOR SUPPORT, TRIANGLE BAND	
37	Z01I009	MOTOR SUPPORT, TRIANGLE LEG	
38	F03F023	SCREW, #F HEX WASHER, 1/4-20 x 1 1/4	
39	F06F010	WASHER, 1/4" BOLT ZINC BB	
40	F07J001	HEX LOCKNUT "K-LOCK" 1/4-20NC	
41	F05F015	HEX BOLT 1/4-20 x 1 1/2 ZINC FULL THREAD	
42	B01889	BELLY BAND ASSEMBLY	BAND, LEGS, NUT & BOLTS INCLUDED
43	B00202	ELECTRICAL WIRE HARNESS (BLOWER)	
44	R02R004	HIGH LIMIT 140F, 7" STEM	
45	B02111	OBSERVATION DOOR	
46	A00284	ELECTRICAL INSULATING BARRIER	
47	L07F003	ROCKER SWITCH, SPST	
48	R99G004	ELECTRONIC BOARD	
49	L01F009	TRANSFORMER 120V-24Volts, 40VA	
50	Z99F003	LATCH ASSEMBLY, FEMALE	
51	Z99F038	LATCH ASSEMBLY, MALE	
52	B01809	FILTER RACK FRAME	
53	B01808	FILTER RACK ACCESS	
54	Z04F013	PAPER FILTER 20" x 30" x 1"	
55	L01H009	RELAY, SPDT 24 VAC	
56A	B00203	ELECTRICAL KIT	
56B	B02329	ELECTRICAL KIT, RIELLO	
57	B03341-01	BVSO ELECTRICAL KIT	
58	Z06G001	BLOCKED VENT SHUT-OFF BVSO-225	

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Figure 16 : Parts List AMP & NOMF 120/156, Riello 40-F burner (with 24 VAC control)

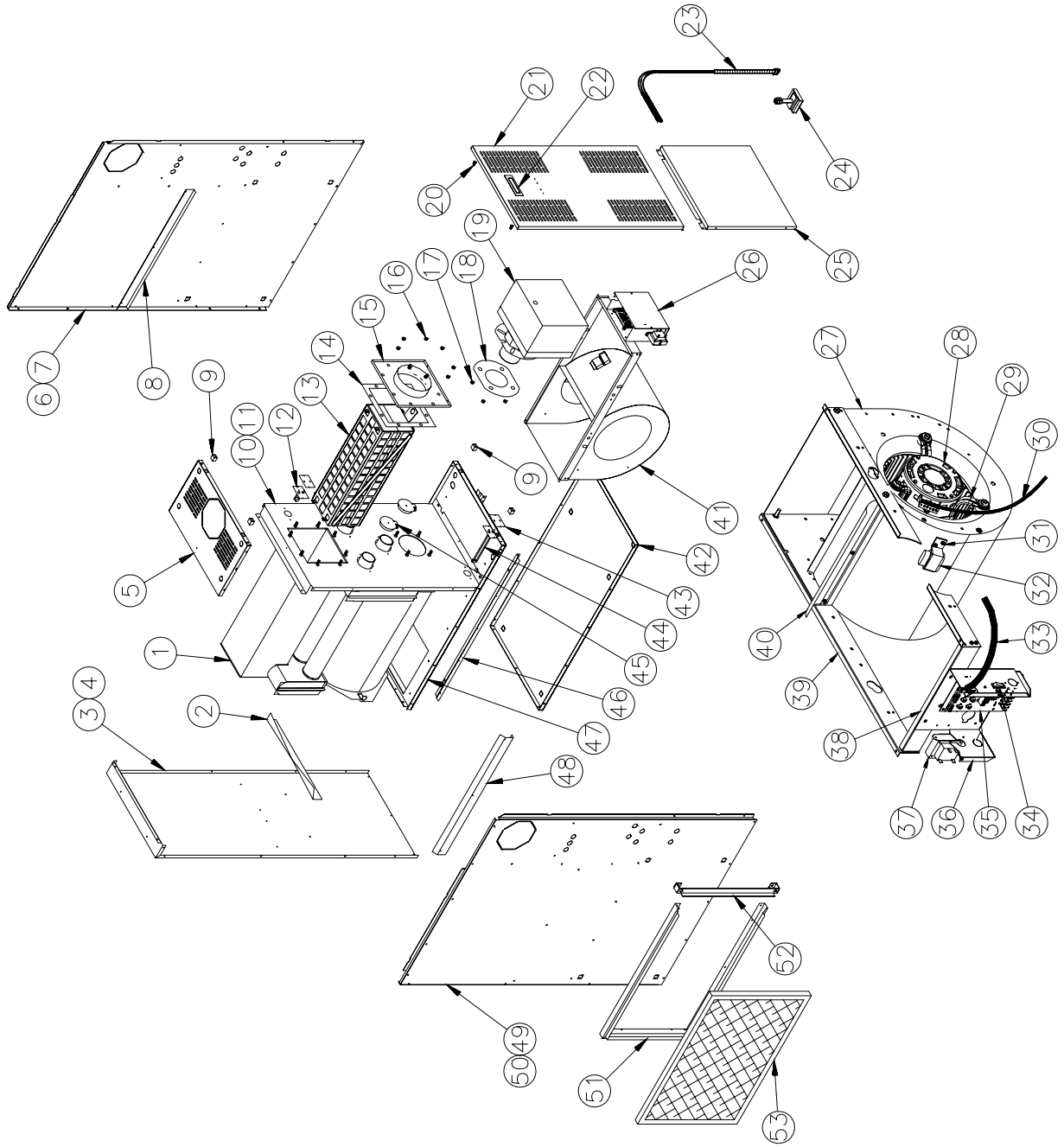

Table 11 : Parts list AMP & NOMF 120/156, Riello 40-F burner (with 24 VAC control)

ITEM	PART #	DESCRIPTION	COMMENTS
1	B01787	HEAT EXCHANGER ASSEMBLY	BAFFLE AND GASKETS NOT INCLUDED
2	B01988	REAR BAFFLE	
3	B01877	REAR PANEL ASSEMBLY	INCLUDES PANEL, INSULATION ANS BAFFLE
4	B01987	REAR PANEL INSULATION	
5	B01874	FRONT TOP PANEL ASSEMBLY	INCLUDES PANEL AND LATCH
6	B01800-01	SIDE PANEL INSULATION	
7	B01875-01	RIGHT SIDE PANEL ASSEMBLY	INCLUDES PANEL, INSULATION ANS BAFFLE
8	B01805-01	RIGHT SIDE BAFFLER	
9	Z99F003	LATCHE ASSEMBLY, FEMALE	
10	B01878	FRONT DIVIDER PANEL ASSEMBLY	INCLUDES PANEL, INSULATION AND BABELS
11	B01853	FRONT SEPARATOR INSULATION	
12	R02R005	HIGH LIMIT 175-20F 1 3/4"	
13	B03598	SOUND TRAP ASSEMBLY	INCLUDES BAFFLE AND INSULATION
14	B00205	GASKET, FLUE OUTLET FLANGE	
15	B01747	FLUE OUTLET FLANGE 6" DIA.	
16	F07O001	HEX FLANGE NUT 3/8-16NC LAITON	
17	F07F011	HEX NUT 3/8-16NC ZINC	
18	N04Z064	GASKET BURNER FLANGE	
19	N01F045	BURNER RIELLO 40-F5	
20	Z99F038	LATCHE, MALE	
21	B01852	FRONT DOOR	DOOR ONLY
22	Z99F050	RECESSED HANDLE, BLACK	
23	B03341-01	BVSO ELECTRICAL KIT	
24	Z06G001	BLOCKED VENT SHUT-OFF BVSO-225	
25	B01873-05	BLOWER DOOR ASSEMBLY	INCLUDES DOOR AND LABEL
26	B01684	ELECTRICAL BOX COVER	
27	B03720-05	BLOWER 120-10T DD	INCLUDES WHEEL AND HOUSING
28	B01891-04	MOTOR 3/4 DD 4S	
29	B01889	MOTOR SUPPORT ASSEMBLY	INCLUDES LEGS, BAND AND FASTENERS
30	B00202	ELECTRICAL WIRE HARNESS (BLOWER)	
31	B01024	CAPACITOR HOLDER	
32	L01I005	CAPACITOR 15 MF	
33	B03319	ELECTRICAL KIT, RIELLO	
34	L07F003	ROCKER SWITCH SPST	
35	R99G004	ELECTRONIC BOARD 1158-110	
36	B01683	ELECTRICAL BOX	
37	L01F009	TRANSFORMER 120-24Volts, 40VA	
38	B01682	ELECTRICAL BOX BRAQUET	
39	B01681	BLOWER SLIDE RAIL	2 REQUIRED
40	B01291-01	SEAL STRIP 1 1/2" X 13 1/8"	
41	B01406-01	REPLACEMENT BLOWER ASSEMBLY	INCLUDES BLOWER, MOTOR AND CAPACITOR
42	B01804	FLOOR	
43	A00284	HIGH LIMIT PROTECTIVE SHIELD	
44	R02R002	LIMIT CONTROL 140F, 7"	
45	B02111	OBSERVATION DOOR ASSEMBLY	
46	B01794	BLOWER SLIDE SUPPORT	2 REQUIRED
47	B01795	BLOWER DIVIDER	PANEL ONLY
48	B01805-02	LEFT SIDE BAFFLE	
49	B01875-02	LEFT SIDE PANEL ASSEMBLY	INCLUDES PANEL, INSULATION AND BAFFLE
50	B01800-02	SIDE PANEL INSULATION	
51	B01809	FILTER RACK FRAME	
52	B01808	FILTER RACK ACCESS	
53	Z04F013	PAPER FILTER 20 X 30 X 1	

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Figure 17 : Parts list AMP120, Riello 40-BF burner

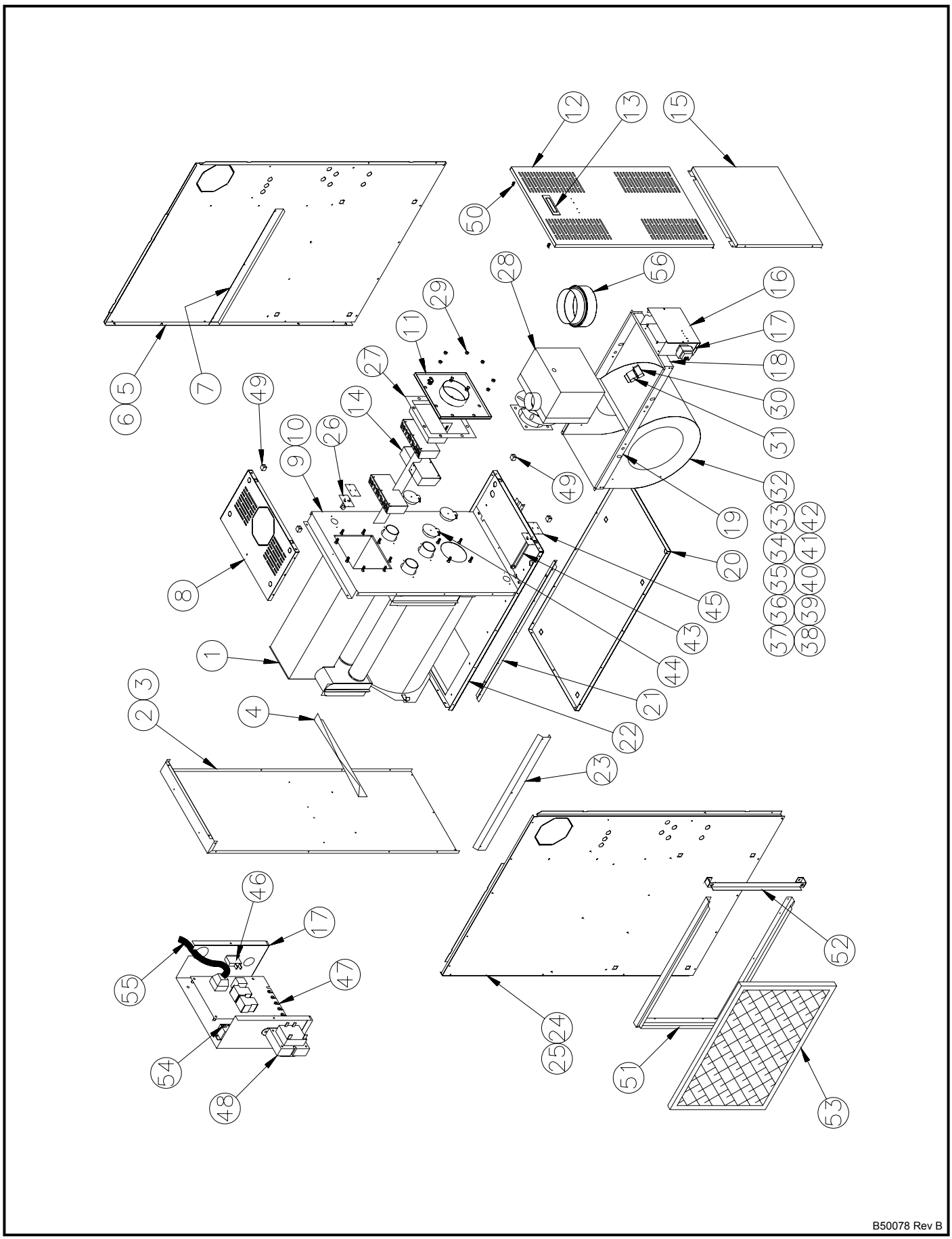

Table 12 : Parts list AMP120, Riello 40-BF burner

ITEM	PART #	DESCRIPTION	COMMENTS
1	B01787	HEAT EXCHANGER	
2	B01877	REAR PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
3	B01526-25	INSULATION	
4	B01988	REAR BAFFLE	
5	B01875-01	PANEL ASSEMBLY, RIGHT SIDE	INCLUDES PANEL. INSULATION AND BAFFLE
6	B01800-01	INSULATION, SIDE PANEL	
7	B01805-01	RIGHT LATERAL BAFFLE	
8	B01874	FRONT TOP PANEL ASSEMBLY	INCLUDES PANEL AND LATCH
9	B01878	FRONT DIVIDER PANEL ASSEMBLY	INCLUDES PANEL, INSULATION AND LABEL
10	B01853	INSULATION, FRONT DIVIDER	
11	B03509	SMOKE OUTLET ASSEMBLY	
12	B01852	FRONT DOOR	INCLUDES PANEL, LABEL, LATCH AND HANDLE
13	Z99F050	RECESSED HANDLE, BLACK	
14	B01751	BAFFLE ASSEMBLY	INLUDES BAFFLE AND INSULATION
15	B01873-05	BLOWER DOOR ASSEMBLY	INCLUDES DOOR AND LABEL
16	B01684	ELECTRICAL BOX COVER	
17	B01683	ELECTRICAL BOX	
18	B01682	ELECTRICAL BOX SUPPORT	
19	B01681	BLOWER RAIL	2 REQUIRED
20	B01804	FLOOR	
21	B01794	BLOWER RAIL	2 REQUIRED
22	B01795	BLOWER DIVIDER	PANEL ONLY
23	B01805-02	LEFT LATERAL DEFLECTOR	
24	B01875-02	LEFT SIDE PANEL ASSEMBLY	INCLUDES PANEL. INSULATION AND BAFFLE
25	B01800-02	INSULATION, LEFT SIDE PANEL	
26	R02R005	HIGH LIMIT 175-20F	
27	B00205	GASKET, SMOKE BOX COVER	
28	N01F010	BURNER RIELLO 40-BF5	
29	F07F011	HEXAGONAL NUT 3/8-16NC ZINC	
30	B01024	CAPACITOR HOLDER	
31	L01I005	CAPACITOR 15 MF	
32	L06I004	MOTOR 3/4 DD 4V	
33	B01406-01	REPLACEMENT BLOWER ASSEMBLY	INCLUDES BLOWER, MOTOR AND CAPACITOR
34	B03720-05	BLOWER 120-10T	
35	Z01F012	MOTOR SUPPORT, TRIANGLE BAND	
36	Z01I009	MOTOR SUPPORT, TRIANGLE LEG	
37	F03F023	SCREW, #F HEX WASHER 1/4-20X1 1/4	
38	F06F010	WASHER, 1/4" BOLT ZINC BB	
39	F07J001	HEX LOCKNUT "K-LOCK" 1/4-20NC	
40	F05F015	HEX BOLT 1/4-20 X 1 1/2 ZINC FULL THREAD	
41	B01889	BELLY BAND ASSEMBLY	BAND, LEGS, NUT & BOLTS INCLUDED
42	B00202	ELECTRICAL WIRE HARNESS (BLOWER)	
43	R02R002	HIGH LIMIT 140F, 7" STEM	
44	B02111	OBSERVATION DOOR ASSEMBLY	
45	A00284	ELECTRICAL INSULATING BARRIER	
46	L07F003	ROCKER SWITCH, SPST	
47	R99G002	ELECTRONIC BOARD	
48	L01F009	TRANSFORMER 120-24Volts, 40VA	
49	Z99F003	LATCH ASSEMBLY, FEMALE	
50	Z99F038	LATCH ASSEMBLY, MALE	
51	B01809	FILTER RACK FRAME	
52	B01808	FILTER RACK ACCESS	
53	Z04F013	PAPER FILTER 20" x 30" x 1"	
54	L01H009	RELAY, SPDT 24 VAC	
55	B02329	ELECTRICAL KIT, RIELLO	
56	Z07F011	REDUCER PIPE 7@6 GALV 28 GA	

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