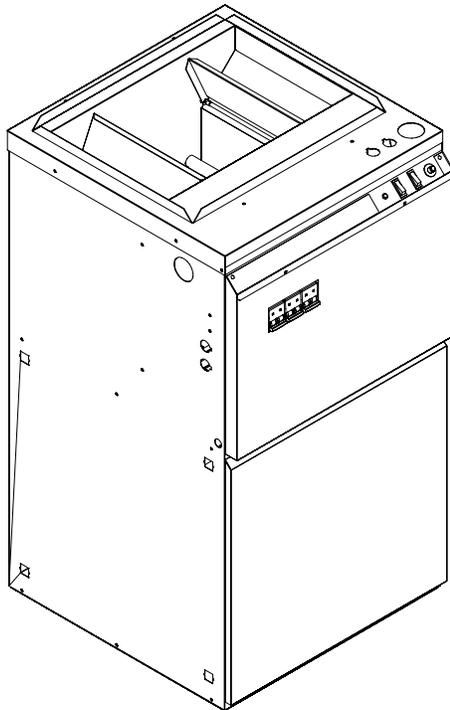


# *Installation Instructions and Homeowner's Manual*

## **SUPREME**

Fournaise électrique Electric Furnace  
(3 WIRES 120/240 – 60 – 1)

### **MULTI POSITION**



**INSTALLER / SERVICE TECHNICIAN:**

USE THE INFORMATION IN THIS MANUAL FOR THE INSTALLATION AND SERVICING OF THE FURNACE AND KEEP THE DOCUMENT NEAR THE UNIT FOR FUTURE REFERENCE.

**HOMEOWNER:**

PLEASE KEEP THIS MANUAL NEAR THE FURNACE FOR FUTURE REFERENCE.

**Models:**

SUP10-M2401A  
SUP15-M2401A  
SUP18-M2401A  
SUP20-M2401A  
SUP23-M2401A  
SUP20-M2401B  
SUP23-M2401B  
SUP27-M2401B



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

Manufactured by:

Industries Dettson inc.  
3400 Industrial Boulevard  
Sherbrooke, Quebec - Canada  
J1L 1V8

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## 1.0 SAFETY

### 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 IMPORTANT INFORMATION



#### **WARNING**

Non-observance of the safety regulations outlined in this manual will potentially lead to consequences resulting in death, serious bodily injury and/or property damage.



#### **WARNING**

Installation and repairs performed by unqualified persons can result in hazards to them and to others. Installations 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 technician, familiar with safety procedures and who is equipped with the proper tools and test instruments.

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

- It is the homeowner's responsibility to engage a qualified technician for the installation and subsequent servicing of this furnace;
- Do not use this furnace if any part of it was under water. Call a qualified service technician immediately to assess the damage and to replace all critical parts that were in contact with water;
- Do not store gasoline or any other flammable substances, such as paper, carton, etc. near the furnace;
- Never block or otherwise obstruct the filter and/or return air openings;

- Ask the technician installing your furnace to show and explain to you the following items:
  - The main disconnect switch or circuit breaker;
  - The air filter and how to change it (check monthly and clean or replace if necessary);
- Before calling for service, be sure to have the information of section 5 of your manual close by in order to be able to provide the contractor with the required information, such as the model and serial numbers of the furnace.

**IMPORTANT:** All local and national code requirements governing the installation of central electric heating equipment, wiring and the flue connection **MUST** be followed. Some of the codes that may apply are:

**ANSI/NFPA 70:** National Electrical Code

**CSA C22.1 or CSA C22.10:** Canadian Electrical Code

Only the latest issues of these codes may 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

### 1.3 DANGER OF FREEZING



#### **CAUTION**

If your furnace is shut down during the cold weather season, water pipes may freeze, burst and cause serious water damage. Turn off the water supply and bleed the pipes.

If the heater is left unattended during the cold weather season, take the following precautions:

- Close the main water valve in the house and purge the pipes if possible. Open all the faucets in the house;
- Ask someone to frequently check the house during the cold weather season to make sure that there is sufficient heat to prevent the pipes from freezing. Tell this person to call an emergency number if required.

## 2.0 INSTALLATION

This furnace is a true multi-position unit, in that it will function in an upflow, downflow or horizontal configuration to the left or the right. Only a few modifications are required during installation to change from one position to another. The unit is shipped in the upflow configuration and instructions as to how to change to the other positions are included in this manual.

The unit requires a 120/240 VAC power supply to the control panel, thermostat hook-up as shown on the wiring diagram.

The louvers at air supply can be adjusted depending static pressure or desired airflow or temperature differential.

If the static pressure is high in the supply duct because of a large duct system or the addition of a cooling coil, it is suggested to close down the louvers until the noise or the vibration is decreased to a normal level. To limit the airflow or to increase the temperature differential, it is possible to close down the louvers. Open up the louvers to have the reverse effect. To adjust the louvers, push green levers and engage tack to another hole. It is suggested to place both louvers at the same position to insure uniform air distribution through the elements.

## 2.1 POSITIONING THE FURNACE

### WARNING

**Fire and explosion hazard.**

**The furnace must be installed in a level position, never where it will slope toward the front.**

**Do not store or use gasoline or any other flammable substances near the furnace.**

**Non-observance of these instructions will potentially result in death, bodily injury and/or property damage.**

### CAUTION

**This furnace is not watertight and is not designed for outdoor installation. It must be installed in such a manner as to protect its electrical components from water. Outdoor installation will lead to a hazardous electrical condition and to premature failure of the equipment.**

If the furnace is installed in a basement or on a dirt floor, in a crawl space for example, it is recommended to install the unit on a cement base 2.5 cm to 5.0 cm (1" to 2") thick.

The unit must be installed in an area where the ambient and return air temperatures are above 15°C (60°F). In addition, the heater should also be located close to the center of the air distribution system.

## 2.2 CLEARANCES TO COMBUSTIBLE MATERIAL

### 2.2.1. Heating unit

The furnace is approved for zero clearance to combustible material regardless of the heating capacity.

### 2.2.2. Supply air ducts

Ducts for furnaces with a heating capacity up to and including 20 kW, can be installed with a zero clearance to combustible material.

Ducts for furnaces of 23 kW or more must have a clearance of 25 mm (1") to combustible material for the first 0.9 m (36") of duct. Thereafter the clearance can be zero.

Units of 23 kW and up, installed in the downflow position must use a DFB-FEM downflow base, which is especially designed for this purpose. It ensures that the required clearances are being adhered to.

## 2.3 CONFIGURATIONS

This furnace requires suitable ductwork.

In upflow installation, the return duct may be installed to the back, on the left, or on the right of the unit.

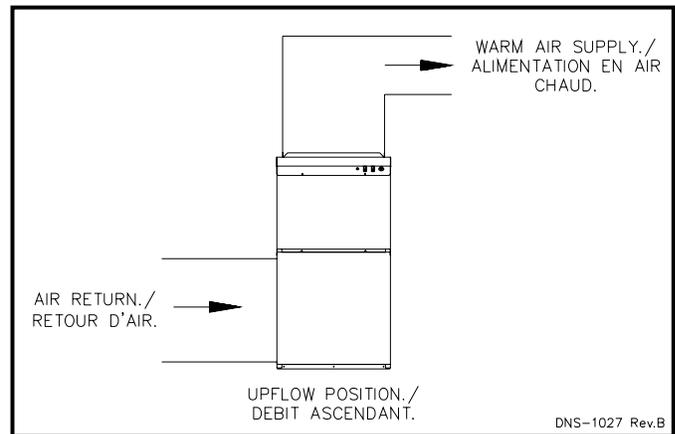
In downflow or horizontal installation, the return duct may be installed to the back, on the left side, on the right side or under the unit.

In all configuration, the supply duct shall be installed on the top of the unit.

### 2.3.1. Upflow installation

The return duct may be installed to the back, on the left side or on the right side of the unit. Care should be taken not to damage the wires inside, while cutting the opening. Install the filter rack supplied with the unit according to the instructions provided with it. It is also recommended to install the blower door before handling or moving the unit. Refer to Figure 1 for additional details.

**Figure 1: Upflow installation**

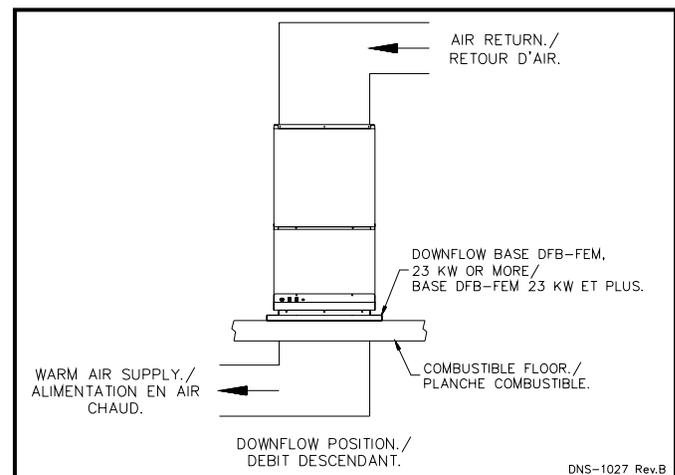


### 2.3.2. Downflow installation

The return duct may be installed to the back, on the left side, on the right side or under the unit.

When the furnace is installed in the downflow position on a combustible floor, the clearances from combustibles materials must be adhered to. The downflow base DFB-FEM can be used to ensure these clearances. Refer to Figure 2 and the installation instructions provided with the base.

**Figure 2: Downflow installation**

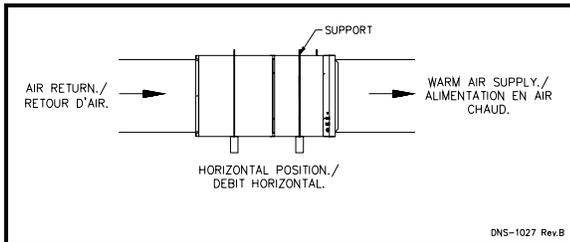


### 2.3.3. Horizontal installation

The return duct may be installed to the back, on the left side, on the right side or under the unit.

When the furnace is installed in the horizontal position, either suspended or on a combustible floor with a choice of right or left discharge, the clearances from combustible material must be adhered to. Refer to Figure 3 for additional details.

Figure 3: Horizontal installation



## 2.4 ELECTRICAL SYSTEM

The **SUPREME** furnace is completely pre-wired and all field wiring must be connected to the terminal blocks on the unit. It requires a 120/240 volt, 3-wire power supply.

### WARNING

**Risk of fire.**

**The conductor sizing must conform to the last edition of the local or national codes.**

**Failure to follow this rule can result in death, bodily injury and/or property damage.**

Power supply to the unit can be done using copper or aluminum wires. The wire size must be decided in accordance to unit power consumption, the over current protection type and capacity, the wire type and length, and the environment where the unit is installed. If an aluminum wire is used, other precautions must be taken to insure the conformity of the installation. In all cases, all the factors affecting the wire gauge must be considered and the installation codes followed.

The exterior of the unit must have an uninterrupted ground to minimize the risk of bodily harm. A ground terminal is supplied with the control box for that purpose. A connector is supplied on the ground terminal to ground an added accessory.

In the event that wires inside the unit require replacement, these must be copper wires only with same temperature rating as originals.

## 2.5 INSTALLATION OF THE THERMOSTAT

A thermostat must be installed to control the temperature of the area to be heated. Follow the instructions supplied with the thermostat. Some thermostat need to connect the C terminal on the furnace and thermostat. Install the thermostat on an interior wall in a location where it will not be subject to direct sun light, lamps, air diffusers, fireplaces, etc. Seal openings in walls to avoid air currents that may influence the operation of the thermostat. Also refer to the

wiring diagrams provided with the heating/air conditioning unit. The connections must be made as indicated on Figures 4 to 8 diagrams and on electrical diagrams (Figures 10 to 14).

### 2.5.1. Anticipator adjustment (if required) on thermostat equipped with heat anticipator adjustment

Certain thermostats are equipped with a heat anticipator that must be adjusted according to the instructions supplied. This is to ensure that the heating mode is comfortable and economical.

Generally speaking, on a single stage thermostat, a reading of the current must be taken with an ammeter as follows:

1. Move the anticipator to its highest setting, rendering it ineffective.
2. Remove the wire from the "W1" terminal and connect an ammeter between the terminal and the wire.
3. Call for heat by raising the set point on the thermostat and allow the furnace to run for 3 to 4 minutes to reach its peak output.
4. Once the current has stabilized, a reading should be taken and the anticipator adjusted to that value. If longer heating cycles are desired, the anticipator can be set to a higher value

Figure 4: 1-stage thermostat, electric heating only

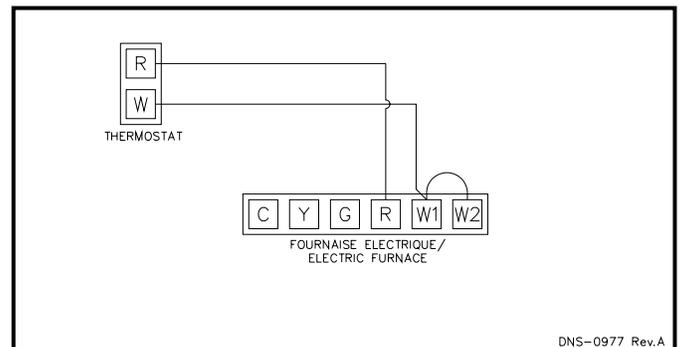
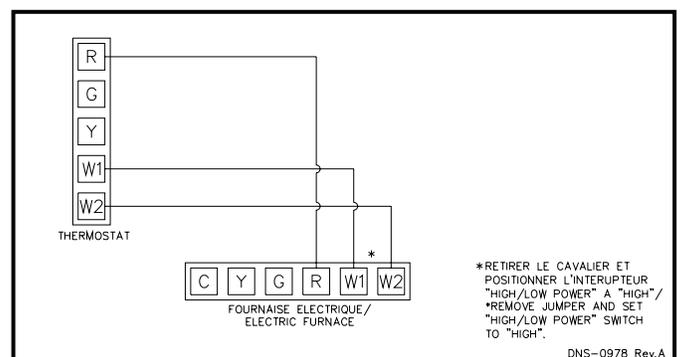
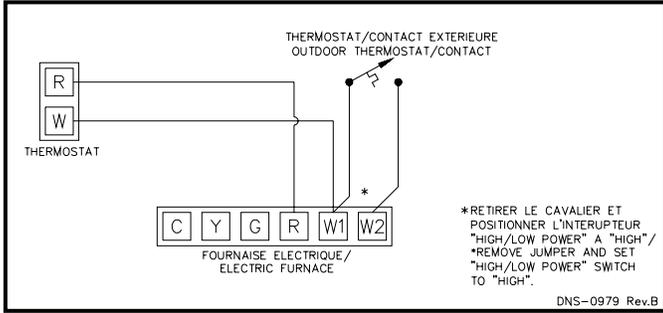


Figure 5: 2-stage thermostat, electric heating only

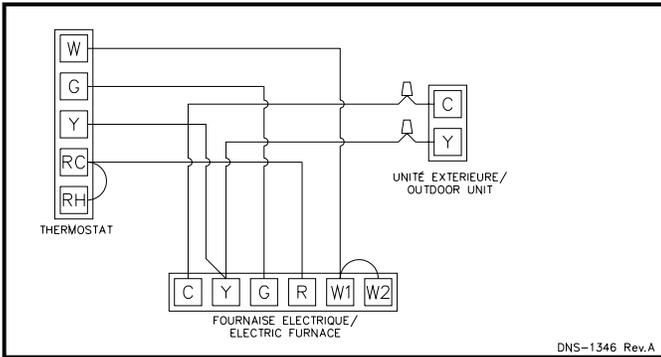


\*RETRIER LE CAVALIER ET POSITIONNER L'INTERUPTEUR "HIGH/LOW POWER" A "HIGH" / \*REMOVE JUMPER AND SET "HIGH/LOW POWER" SWITCH TO "HIGH".

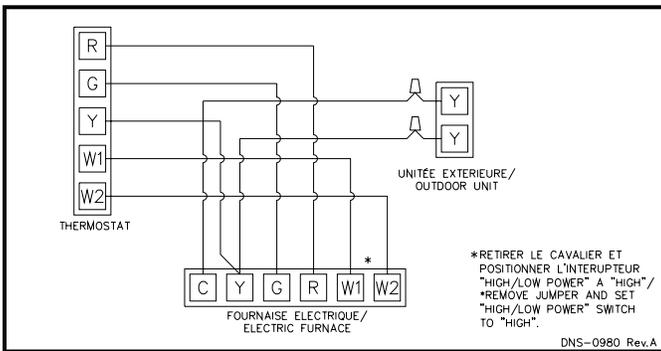
**Figure 6: 1-stage thermostat with outdoor control for 2-stage function, electric heating only**



**Figure 7: 1-stage thermostat, electric heat and cooling application**



**Figure 8: 2-stage thermostat, electric heating and air conditioning**



**2.5.2. Ducts and filters**

The ducts must be sized such a way as to accommodate the specified airflow and the available static pressure. Refer to the applicable local and/or national installation codes.

Insulate the ducts that lead through non-heated areas. Use flexible supply and return air connectors to avoid the transmission of vibration. To make the unit run even quieter, the installer should:

1. Use two elbows between each outlet and the supply and return air plenum;
2. Cover the vertical sections of the supply and return air duct with soundproofing material;
3. Use baffles in short radius elbows;
4. Use flexible hangers to suspend the ducts.

The **SUPREME** furnace is equipped with a filter frame for the blower compartment. It must be installed on the outside of one of the three sides or the bottom of the furnace. Once the location of the installation has been determined, use the four square knockouts for ease of cutting the opening.

A heat pump or an air conditioner can be added to this furnace, in either the supply or return air duct. Carefully follow the instructions provided with these appliances to ensure proper installation and hook-up to the electric furnace. Refrigerant and drainage pipes must in no way hinder access to the furnace panels.

**2.6 SUPPLY AIR ADJUSTMENTS**

On units 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 airflow, refer to the Table 1 and 2, as well as the Tables 4 and 5 for the airflow based on static pressure.

For the adjustment of the airflow on heating mode, to obtain the temperature rise described in the technical specification table (Table 3), the red wire must be positioned on the terminal corresponding to the LOW, MED-LOW, MED-HIGH or HIGH blower speed. Blower speeds are adjusted in factory for 0.5 inch static pressure.

For the adjustment of the airflow on air-cooling mode, to obtain a sufficient airflow (350 to 450 CFM per Ton), the blue wire must be positioned on the terminal corresponding to the LOW, MED-LOW, MED-HIGH or HIGH blower speed. Blower speeds are adjusted in factory for 0.5 inch static pressure.

**Table 1: Supply air adjustment on heating mode**

FURNACE	INPUT POWER KW	HP MOTOR	STATIC PRESSURE (in. w.c)	RECOMMENDED BLOWER SPEED
SUP10	10	1/3	0.2	LOW
			0.5	LOW
SUP15	15	1/3	0.2	MED-LOW
			0.5	MED-LOW
SUP18	18	1/3	0.2	MED-LOW
			0.5	MED-LOW
SUP20	20	1/3	0.2	MED-LOW
			0.5	MED-HIGH
SUP23	23	1/3	0.2	MED-HIGH
			0.5	MED-HIGH
SUP20	20	1.0	0.2	MED-LOW
			0.5	MED-LOW
SUP23	23	1.0	0.2	MED-LOW
			0.5	MED-LOW
SUP27	27	1.0	0.2	MED-LOW
			0.5	MED-LOW

**Table 2: Supply air adjustment on air cooling mode**

FURNACE	HP MOTOR	COOLING CAPACITY (0.5" w.c.)	RECOMMENDED BLOWER SPEED
SUP10, 15, 18, 20 and 23	1/3	1.5	LOW
		2.0	MED-LOW
		2.5	MED-HIGH
		3.0	HIGH
SUP20, 23 and 27	1.0	2.5	LOW
		3.0	MED-LOW
		3.5	MED-HIGH
		4.0	HIGH
		5.0	HIGH

If the heating and air-cooling speed are the same, the red wire and the blue wire can be connected on the same terminal on the motor.

## 2.7 INSTALLATION OF ACCESSORIES



### WARNING

**Electrical shock hazard.**

**Turn OFF electrical power at the fuse box or service panel before making any electrical connections and ensure a proper ground connection is made before connecting line voltage.**

**Failure to do so can result in death or bodily injury.**

### 2.7.1. Humidifier and electronic air cleaner

This unit is equipped with a 120 VAC terminal for the connection of accessories up to a maximum of 2 amps. A humidifier and an electronic air cleaner can be wired to terminals "1" and "2" of the unit. Refer to the wiring diagrams in this manual. A field supplied 120/24 VAC transformer can be installed for accessories using 24 VAC. A separate power source must be used if the accessories draw more than 2 amps.

Certain accessories require control relays. A location has been set aside in the unit for the installation of relays: a 24 VAC (part number L01H009). In addition, a 24 VAC relay can be wired between terminals "W1" and "C" to be activated during a call for heat. Refer to the wiring diagrams for the location of the relay (RAcc) on the control panel.

### 2.7.2. Use of a heat pump

When using a heat pump, a thermostat with dial fuel option or a fossil fuel kit is required that prevents the operation of the electric elements and the heat pump at the same time. Refer to the instructions provided with the thermostat or the "Fossil Fuel" kit for the proper wiring of the furnace and the heat pump.

The simultaneous operation of the electric elements and the heat pump will cause overheating of either unit. The safety controls of the appliances will shut down the elements or heat pump, since they are not designed to function in this fashion.

## 3.0 OPERATION

### 3.1 START-UP

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

1. The electrical installation and ventilation;
2. The blower access door is in place and the blower rail locking screws are well tightened;
3. The blower speed adjustments for heating and air conditioning are appropriate and according to the specifications in this manual;

4. The thermostat of the room is in the heating mode and is set higher than the ambient temperature.
  5. The breakers on front panel are closed (green indicator)
- To start the unit, turn the main electrical switch on.

### 3.2 USE OF MANUAL FURNACE CONTROLS

When there is a demand for heat, the pilot light ("L-1") comes on. Refer to the wiring diagram.

When the "HI/LO" switch is put into the "LO" position, it will shut down approximately half the elements.

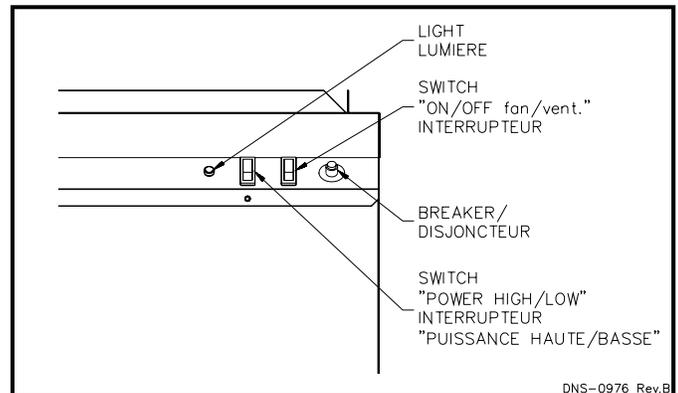
**However, it is important to put the switch back to the "HI" position during the winter months to ensure adequate heating.**

Also, this switch must remain in the "HI" position when a 2-stage or outdoor thermostat is used to control the electric elements of the second stage. Refer to the diagram in Section 2.5) above (Typical 24 VAC Wiring, Thermostat).

The "ON/OFF VENT/FAN" switch engages the blower in the continuous speed mode. This will filter the air and provide for better air distribution in the building.

The circuit breaker is there to protect the motor and control circuit conductors. If the unit does not function, press the circuit breaker button to see if it may have disengaged due to a power surge. If the breaker has to be pressed again, the unit must be checked by a qualified service technician.

**Figure 8 : Manual Furnace Controls**



### 3.3 OPERATING SEQUENCE

#### 3.3.1. Heating mode

1. The thermostat closes the R-W1 circuit (24 VAC), thereby activating the first 22 VDC relay passing by a rectifier control. Without delay, the 1<sup>st</sup> heating element is activated and the blower starts at low speed. On 15 kW unit power and more, a 2<sup>nd</sup> relay is activated after 8 seconds delay to start a 2<sup>nd</sup> element. On 23 kW unit power and more, a 3<sup>rd</sup> relay is activated after 8 second delay to start a 3<sup>rd</sup> element.
2. The thermostat closes the R-W1 & W2 circuit (24 VAC), thereby activating others 22 VDC relays passing by a rectifier/timer with 8 seconds delay between each one. The heating elements of the second stage are activated in sequence after the 8 seconds delay between each.

The 24 VAC relay of the heating speed is also activated and heating blower speed start.

### 3.3.2. Cooling mode

1. The thermostat closes the R-G circuit, thereby activating the 24 VAC R-1 relay. The blower starts up to cooling speed.
2. The thermostat closes the R-Y contact, thereby activating the compressor relay of the air conditioner.

### 3.3.3. Continuous Fan speed

The blower will also start up to cooling speed by way of the "Fan" switch on the thermostat.

## 3.4 AIRFLOW VERIFICATION

Verify the airflow by taking readings of the following points, while the elements are in the heating mode:

- a. Total amperage of all the heating elements;
- b. Voltage at the furnace;
- c. Supply air temperature. The point of the reading must not be affected by radiant heat from the elements;
- d. Return air temperature.

From these readings, one can arrive at an approximate calculation of the average airflow. To do that, the following formula should be used:

$$\text{Liter/s} = \frac{0.82 \times \text{amps.} \times \text{volts}}{\text{Diff. temperature } ^\circ\text{C}}$$

$$\text{CFM} = \frac{3.1 \times \text{amps.} \times \text{volts}}{\text{Diff. temperature } ^\circ\text{F}}$$

### 3.4.1. Supply Air Temperature Rise Test

1. Operate the unit at maximum power for at least 10 minutes;
2. Measure the air temperature in the return air plenum;
3. Measuring the air temperature in the largest trunk coming off the supply air plenum, just outside the range of radiant heat from the heat exchanger. 0.3 m (12") from the plenum of the main take-off is usually sufficient;
4. The temperature rise is calculated by subtracting the return air temperature from the supply air temperature.

If the temperature rise exceeds the temperature specified in Table 3, change to the next higher blower speed tap, until the temperature rise falls to the target or below. If the excessive temperature rise cannot be reduced by increasing fan speed, investigate for ductwork obstructions or dirty and improper air filter.



## CAUTION

It is important to check the airflow and to ascertain that the unit does not operate above the temperatures specified in the Technical Specifications (Table 2). This is particularly important if a cooling coil or a heat pump has been installed in the ducts.

Hi-Limit thermal protectors should never need to engage during the normal functioning of the appliance. They are strictly designed to engage during the improper functioning of the blower or when the filter was improperly maintained.

### 3.4.2. High limit verification

After operating the furnace for at least 15 minutes, restrict the return air supply by blocking the filters or the return air register and allow the furnace to shut off on High Limit. The electric heaters must deactivate themselves one by one before the warm air temperature exceeds 200°F. Remove the obstruction and the elements should restart after a few minutes.

## 4.0 MAINTENANCE



## WARNING

Electrical shock hazard.

Turn OFF power to the furnace before any disassembly or servicing.

Failure to do so can result in death, bodily injury and/or property damage.

Preventive maintenance is the best way to avoid unnecessary expense and inconvenience. Have your heating system inspected by a qualified service technician at regular intervals. Do not attempt to repair the furnace or its controls. Call a qualified service technician.

Before calling for repair service, check the following points:

1. Check fuses or the circuit breaker;
2. Check if the 15 A circuit breaker on the furnace is disengaged;
3. Set the thermostat higher than room temperature. If the unit does not start up, cut the power and call a qualified service technician.

When calling for service or ordering a replacement part, specify the model and serial number of your appliance.

### 4.1 AIR FILTER

The filter supplied with the unit is the disposable type and should be replaced twice a year. The presence of animal hair, dust, etc. may necessitate more frequent changes. Dirty filters have an adverse effect on the performance of the central heating system.

### 4.2 MOTOR LUBRICATION

Do not lubricate the blower motor, since it is permanently lubricated.

## 5.0 FURNACE INFORMATION

Model: \_\_\_\_\_ Serial number: \_\_\_\_\_

Furnace installation date: \_\_\_\_\_

Service telephone # - Day: \_\_\_\_\_ Night: \_\_\_\_\_

Dealer name and address: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### START-UP RESULTS

Voltage: \_\_\_\_\_

Total current consumed by the elements: \_\_\_\_\_

Supply air temperature: \_\_\_\_\_

Return air temperature: \_\_\_\_\_

Supply air duct static pressure: \_\_\_\_\_

Return air duct static pressure: \_\_\_\_\_

Total pressure: \_\_\_\_\_

Calculated air flow: \_\_\_\_\_

Current consumed by the blower motor: \_\_\_\_\_

Current consumed by the accessories: \_\_\_\_\_

**Table 3 : Technical specifications**

RATINGS AND PERFORMANCE	SUPxx-M2401A					SUPxx-M2401B			
	Power, total (Kw)	10	15	18	20	23	20	23	25
Power, first stage (Kw)	5	10	9	10	13	10	13	13	15
Net capacity (BTU/h)	34 120	51 180	61 420	68 240	78 480	68 240	78 480	78 480	92 130
Heating temperature rise range (F) <sup>1</sup>	40-50	45-60	50-75	55-75	60-80	55-75	60-80	60-80	60-80
<b>ELECTRICAL SYSTEM</b>									
Volts - Hertz - Phase	3 wires 120 / 240 - 60 - 1								
Electrical element #1 (Kw)	5	5	4	5	4	5	4	25	5
Electrical element #2 (Kw)	5	5	5	5	5	5	5	5	5
Electrical element #3 (Kw)		5	4	5	4	5	4	4	5
Electrical element #4 (Kw)			5	5	5	5	5	5	4
Electrical element #5 (Kw)					5		5	5	4
Electrical element #6 (Kw)									4
Blower motor Consumption (Amp. Max.)	6	6	6	6	6	13	13	13	13
Heating Elements Consumption (Amp)	41	61	74	82	94	82	94	104.2	111
Total Consumption (Amp)	47	67	80	88	100	95	107	117.2	124
<b>BLOWER DATA (factory adjusted to a static pressure of 0.5" W.C.)</b>									
Blower speed at 0.50" W.C. static pressure	LOW	MED-LOW	MED-LOW	MED-HIGH	MED-HIGH	MED-LOW	MED-LOW	MED-LOW	MED-LOW
Blower speed at 0.20" W.C. static pressure	LOW	MED-LOW	MED-LOW	MED-LOW	MED-HIGH	MED-LOW	MED-LOW	MED-LOW	MED-LOW
Motor (HP) / number of speeds	1/3 HP / 4 speeds					1 HP / 4 speeds			
Nominal blower size (diam. X width)	10 x 8					12 x 10			
<b>GENERAL INFORMATION</b>									
Overall dimensions (width x depth x height)	20" x 20" x 36.5"								
Supply	15" x 18"								
Return	19" x 19"								
Filter quantity and size	(1) 20" x 20"								
Shipping weight	48 Kg / 105 lbs								
Maximum cooling capacity	3 tons					5 tons			

- 1) Select a blower speed that will generate the specified temperature rise  
 2) Calculated on the basis of Norm C22.2 Nr. 236

**Table 4 : Airflow (CFM) - SUPREME with 1/3HP motor**

Blower speed	External static pressure (inche of W.C.)						
	0,1	0,2	0,3	0,4	0,5	0,6	0,7
LOW	715	700	690	675	660	650	635
MED-LOW	935	900	870	835	800	770	735
MED-HIGH	1 090	1 050	1 010	970	930	890	850
HIGH	1 285	1 250	1 220	1 185	1 150	1 120	1 085

Airflow values in cubic feet per minute (CFM) rounded to nearest 5 CFM  
 Data taken with Air filter in place.

**Table 5 : Airflow (CFM) - SUPREME with 1HP motor**

Blower speed	External static pressure (inche of W.C.)						
	0,1	0,2	0,3	0,4	0,5	0,6	0,7
LOW	1 035	1 030	1 030	1 025	1 020	1 020	1 015
MED-LOW	1 315	1 300	1 285	1 270	1 255	1 240	1 225
MED-HIGH	1 715	1 650	1 590	1 525	1 460	1 400	1 335
HIGH	1 935	1 900	1 870	1 835	1 800	1 770	1 735

Airflow values in cubic feet per minute (CFM) rounded to nearest 5 CFM  
 Data taken with Air filter in place.

**Figure 9 : Furnace dimensions**

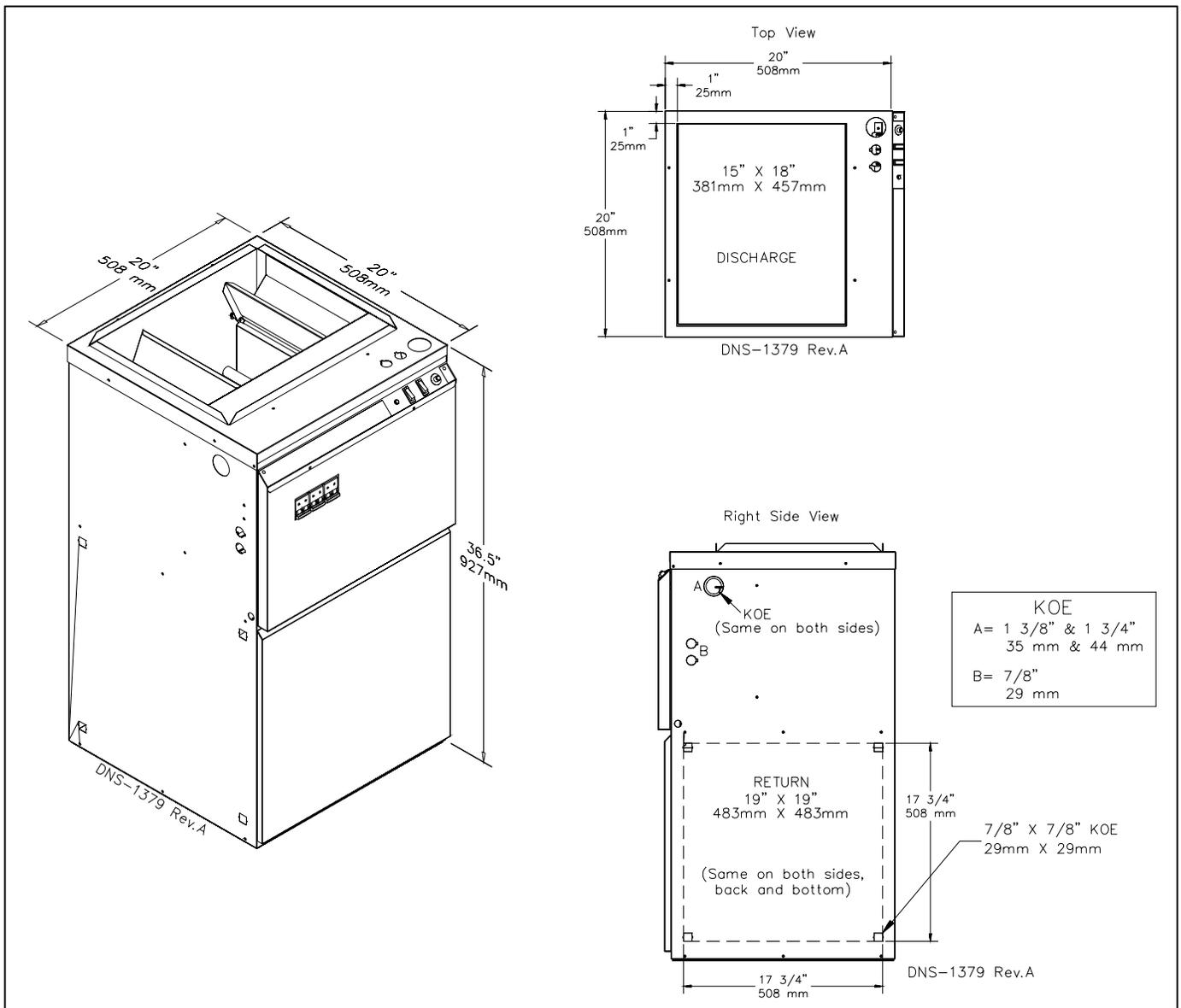
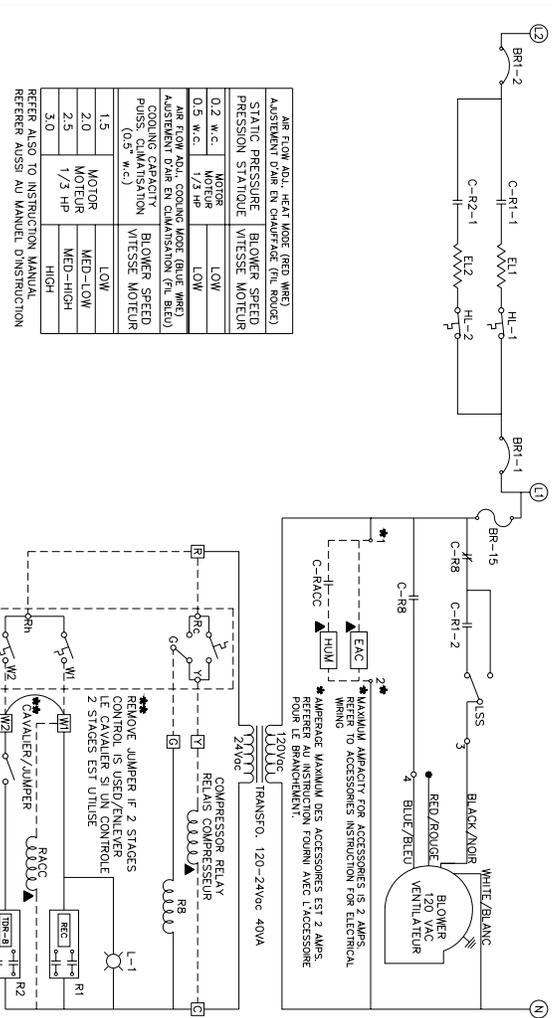


Figure 10 : Wiring diagram, 3 wires (10 kW)

**ELECTRICAL DIAGRAM (3 WIRES) / DIAGRAMME ELECTRIQUE (3 FILS)**

**10kw**

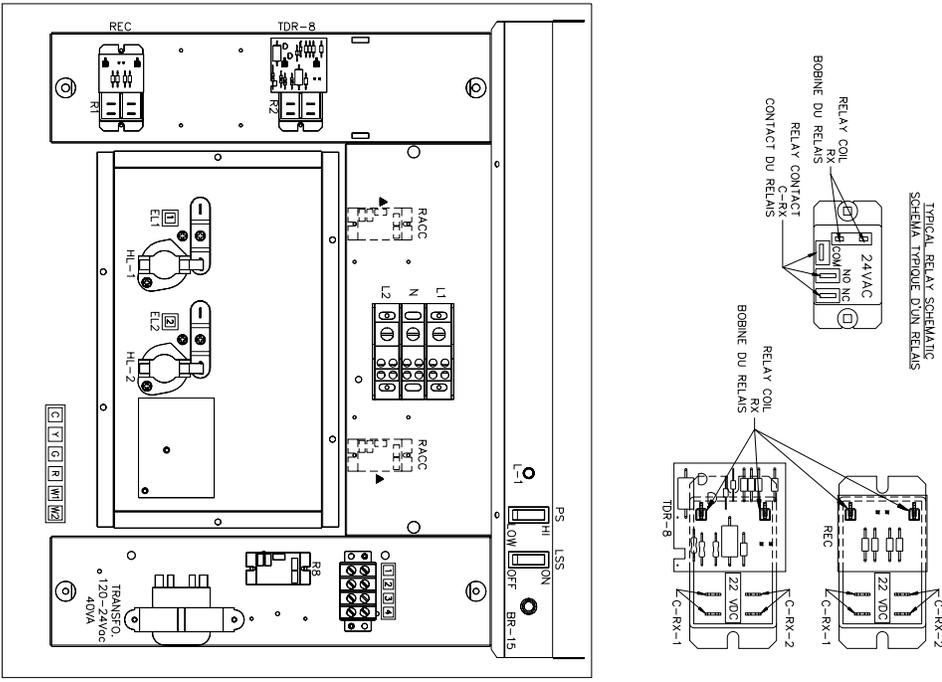


AIR FLOW AXL HEAT MOSE (RED WIRE)	ADJUSTMENT D'AIR EN CHAUFFAGE (FIL ROUGE)
STATIC PRESSURE	BLOWER SPEED
PRESSION STATIQUE	VITESSE MOTEUR
0.2 W.C.	MOTOR
0.5 W.C.	1/3 HP
AIR FLOW AXL COOLING MOSE (BLUE WIRE)	ADJUSTEMENT D'AIR EN CLIMATISATION (FIL BLEU)
COOLING CAPACITY	BLOWER SPEED
PUISS. CLIMATISATION	VITESSE MOTEUR
1.5	LOW
2.0	MED-LOW
2.5	MED-HIGH
3.0	HIGH

REFER ALSO TO INSTRUCTION MANUAL.  
 REFERER AUSE AU MANUEL D'INSTRUCTION

- HL: HIGH LIGHT/LAMPE BLANCHE
- EL: ELECTRIC ELEMENT/ELEMENT ELECTRIQUE
- R: RELAY COIL/BOBINE DU RELAS
- C-R: RELAY CONTACT/CONTACT DU RELAS
- RACC: ACCESSORIES RELAY COIL / BOBINE DE RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)
- C-RACC: ACCESSORIES RELAY CONTACT / CONTACT DU RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)
- REC: RECTIFIER 22 VDC/22 VDC REDRESSEUR
- TDR-8: TIME DELAY RECIPER 8 SEC / REDRESSEUR TEMPERATURE 8 SEC
- LSS: LOW SPEED BLOWER SWITCH / INTERUPTEUR BASSE VITESSE DU VENTILATEUR
- EAC: ELECTRONIC AIR CLEANER WITH FLOW SWITCH / FILTRE A AIR ELECTRONIQUE AVEC INTERUPTEUR DE DEBIT
- HUI: HUMIDIFIER/HUMIDIFICATEUR
- PS: HIGH/LOW POWER SWITCH / INTERUPTEUR HAUTE/BASSE PUISSANCE
- L-1: HEAT DEMAND LIGHT / LAMPE DEMANDE DE CHAUFFAGE
- BR-15: 15 AMPS BREAKER / DISJONCTEUR 15 AMPS

--- FACTORY WIRING/CABLAGE EN USINE  
 --- FIELD SUPPLY WIRING/CABLAGE SUR PLACE  
 ▲ FIELD SUPPLY COMPONENTS / COMPOSANTES FOURNIES SUR PLACE



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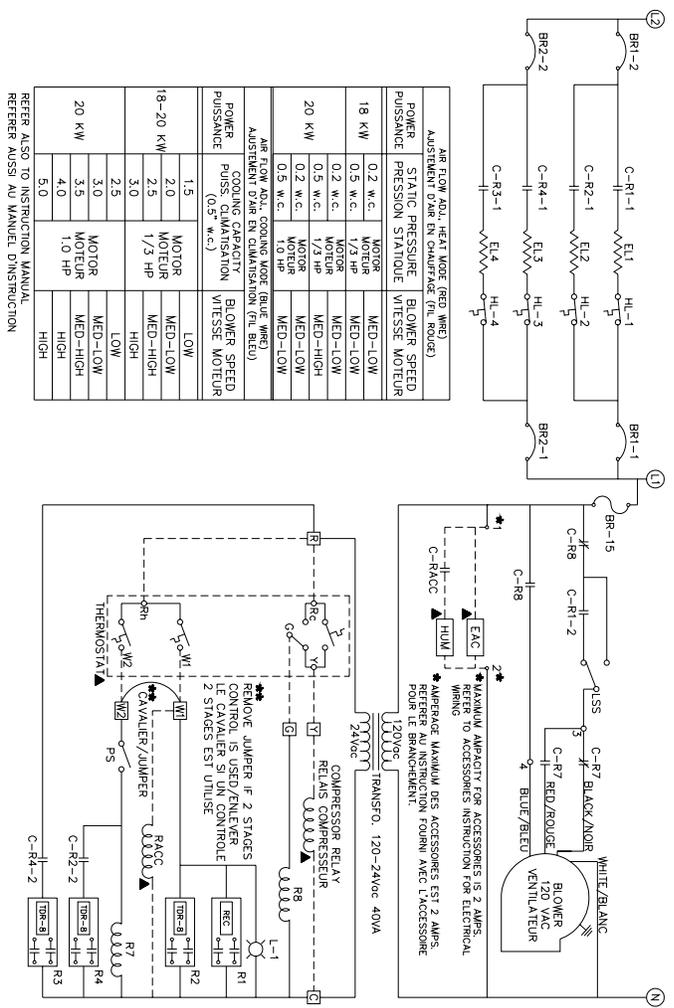
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Figure 12 : Wiring diagram, 3 wires (18 & 20 kW)

**ELECTRICAL DIAGRAM (3 WIRES) / DIAGRAMME ELECTRIQUE (3 FILS)**

**18-20kW**



POWER PUISSANCE	STATIC PRESSURE STATIONNE	BLOWER SPEED VITESSE MOTEUR
18 kW	0.2 w.c. MOTOR 1/2 HP	MED-LOW
20 kW	0.2 w.c. MOTOR 1/3 HP	MED-HIGH
20 kW	0.5 w.c. MOTOR 1/3 HP	MED-HIGH
20 kW	0.2 w.c. MOTOR 1/3 HP	MED-LOW
20 kW	0.5 w.c. MOTOR 1/3 HP	MED-LOW

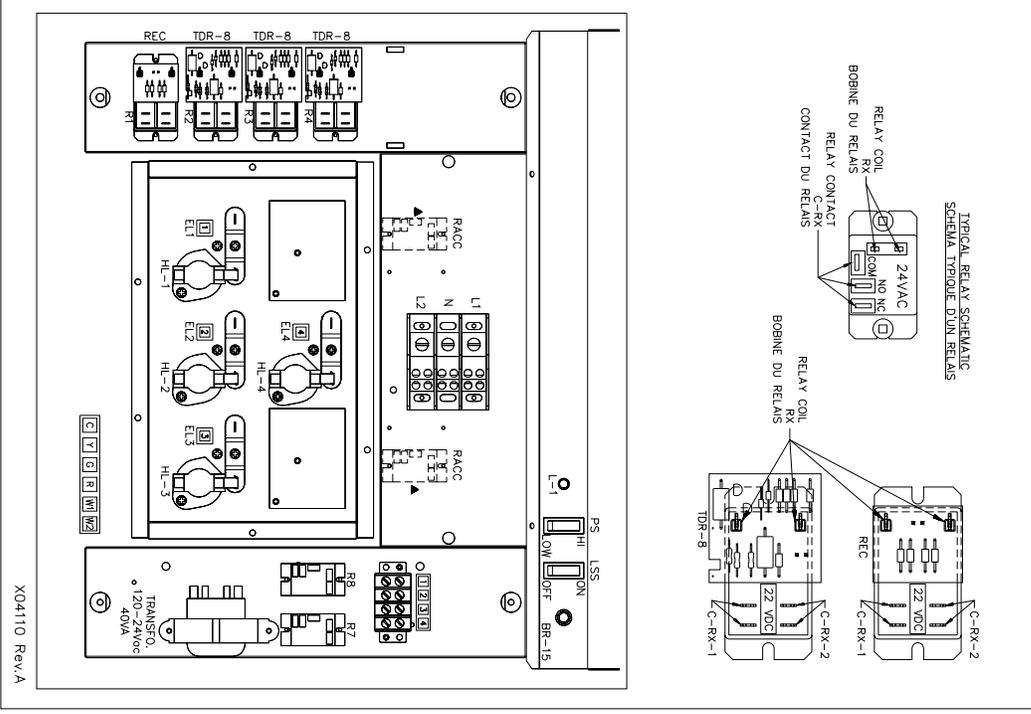
  

AIR FLOW ADJ. HEAT MODE (RED WIRE) AJUSTEMENT D'AIR EN CHAUFFAGE (FIL ROUGE)	COOLING MODE (BLUE WIRE) MODE REFRIGERATION (FIL BLEU)
1.5	LOW
2.0	MED-LOW
2.5	MED-HIGH
3.0	HIGH
3.5	LOW
4.0	MED-LOW
5.0	MED-HIGH
	HIGH

REFER ALSO TO INSTRUCTION MANUAL.  
REFERER AUSSI AU MANUEL D'INSTRUCTION

- HL: HIGH LIGHT/Haute Lumière
- EL: ELECTRIC ELEMENT/ELEMENT ELECTRIQUE
- R: RELAY COIL/BOBINE DU RELAS
- C-R: RELAY CONTACT/CONTACT DU RELAS
- RACC: ACCESSORIES RELAY COIL / BOBINE DE RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)
- C-RACC: ACCESSORIES RELAY CONTACT / CONTACT DU RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)
- REC: RECIPER 22 VDC/22 VDC REPRESSURE
- TDR-8: TIME DELAY RECIPER 8 SEC / REPRESSEUR TEMPORISATEUR 8 SEC
- LSS: LOW SPEED BLOWER SWITCH / INTERRUPTEUR BASSE VITESSE DU VENTILATEUR
- EAC: ELECTRONIC AIR CLEANER WITH FLOW SWITCH / FILTRE A AIR ELECTRONIQUE AVEC INTERRUPTEUR DE DEBIT
- HLK: HUMIDIFIER/HUMIDIFICATEUR
- PS: HIGH/LOW POWER SWITCH / INTERRUPTEUR HAUTE/BASSE PUISSANCE
- L-1: HEAT DEMAND LIGHT / LUMIERE DEMANDE DE CHAUFFAGE
- BR-15: 15 AMPS BREAKER / DISJONCTEUR 15 AMPS

--- FACTORY WIRING/CABLAGE EN USINE  
- - - FIELD SUPPLY WIRING/CABLAGE SUR PLACE  
▲ FIELD SUPPLY COMPONENTS / COMPOSANTES FOURNIES SUR PLACE

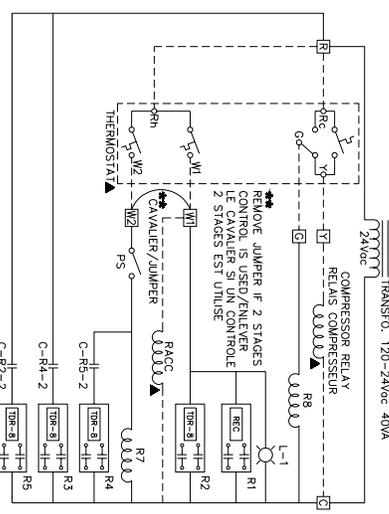
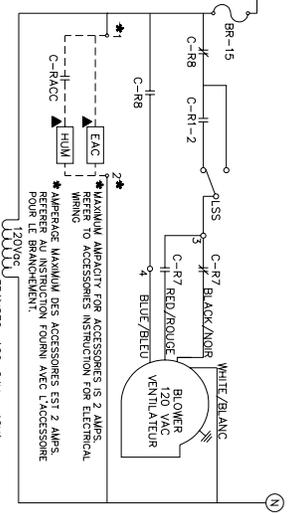
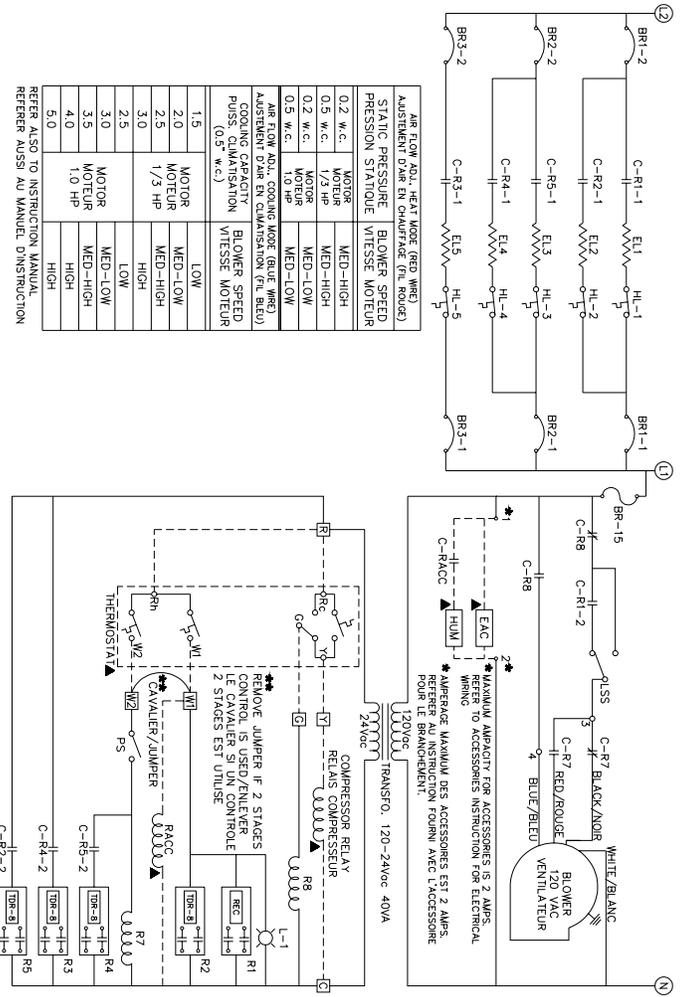


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Figure 13 : Wiring diagram, 3 wires (23 kW)

**ELECTRICAL DIAGRAM (3 WIRES) / DIAGRAMME ELECTRIQUE (3 FILS)**

**23kW**



HL: HIGH LIMIT/LUMIÈRE LIMITE  
EL: ELECTRIC ELEMENT/ELEMENT ELECTRIQUE  
R: RELAY COIL/BOBINE DU RELAS  
C-R: RELAY CONTACT/CONTACT DU RELAS  
C-RACC: ACCESSORIES RELAY COIL / BOBINE DE RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)  
C-BACC: ACCESSOIRES RELAY CONTACT / CONTACT DU RELAS D'ACCESSOIRES (FIELD SUPPLIED/FOURNI SUR PLACE)  
REC: RECTIFIER 22 VDC/22 VDC REDRESSEUR  
TDR-8: TIME DELAY RELAY 8 SEC / REDRESSEUR TEMPORISATION 8 SEC  
LSS: LOW SPEED BLOWER SWITCH / INTERUPTEUR BASEE VITESSE DU VENTILATEUR  
EAC: ELECTRONIC AIR CLEANER WITH FLOW SWITCH / FILTRE A AIR ELECTRONIQUE AVEC INTERUPTEUR DE DEBIT  
HLK: HUMIDIFIER/HUMIDIFICATEUR  
PS: HIGH/LOW POWER SWITCH / INTERUPTEUR HAUTE/BASSE PUISSANCE  
L-1: HEAT DEMAND LIGHT / LUMIERE DEMANDE DE CHAUFFAGE  
BR-15: 15 AMPS BREAKER / DISJONCTEUR 15 AMPS

--- FACTORY WIRING/CABLAGE EN USINE  
--- FIELD SUPPLY WIRING/CABLAGE SUR PLACE  
▲ FIELD SUPPLY COMPONENTS / COMPOSANTES FOURNIES SUR PLACE

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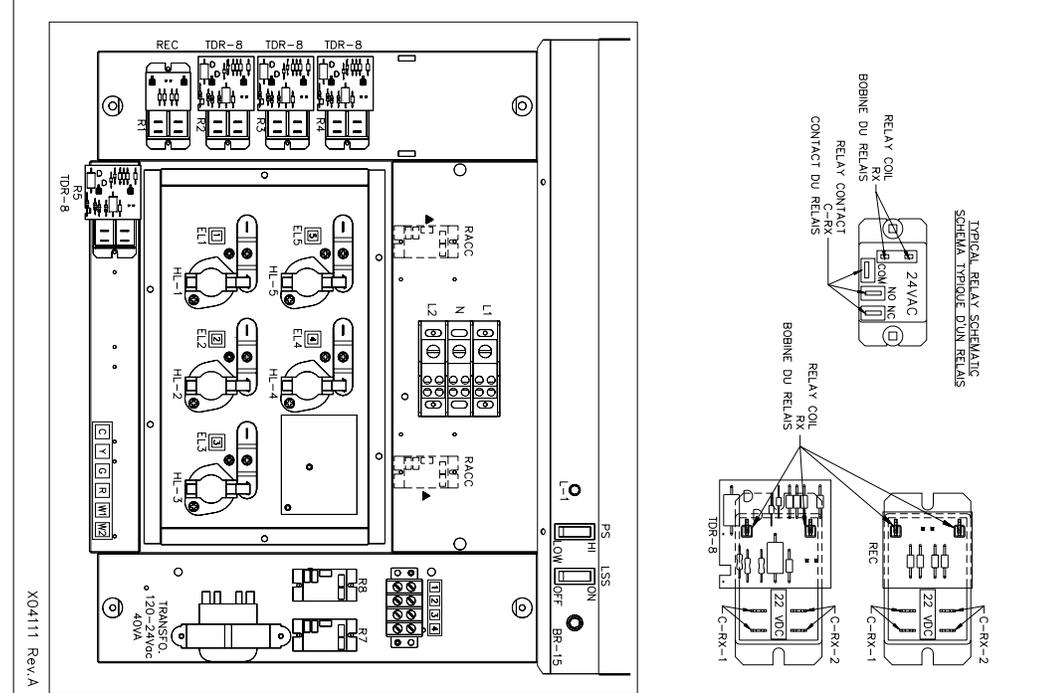
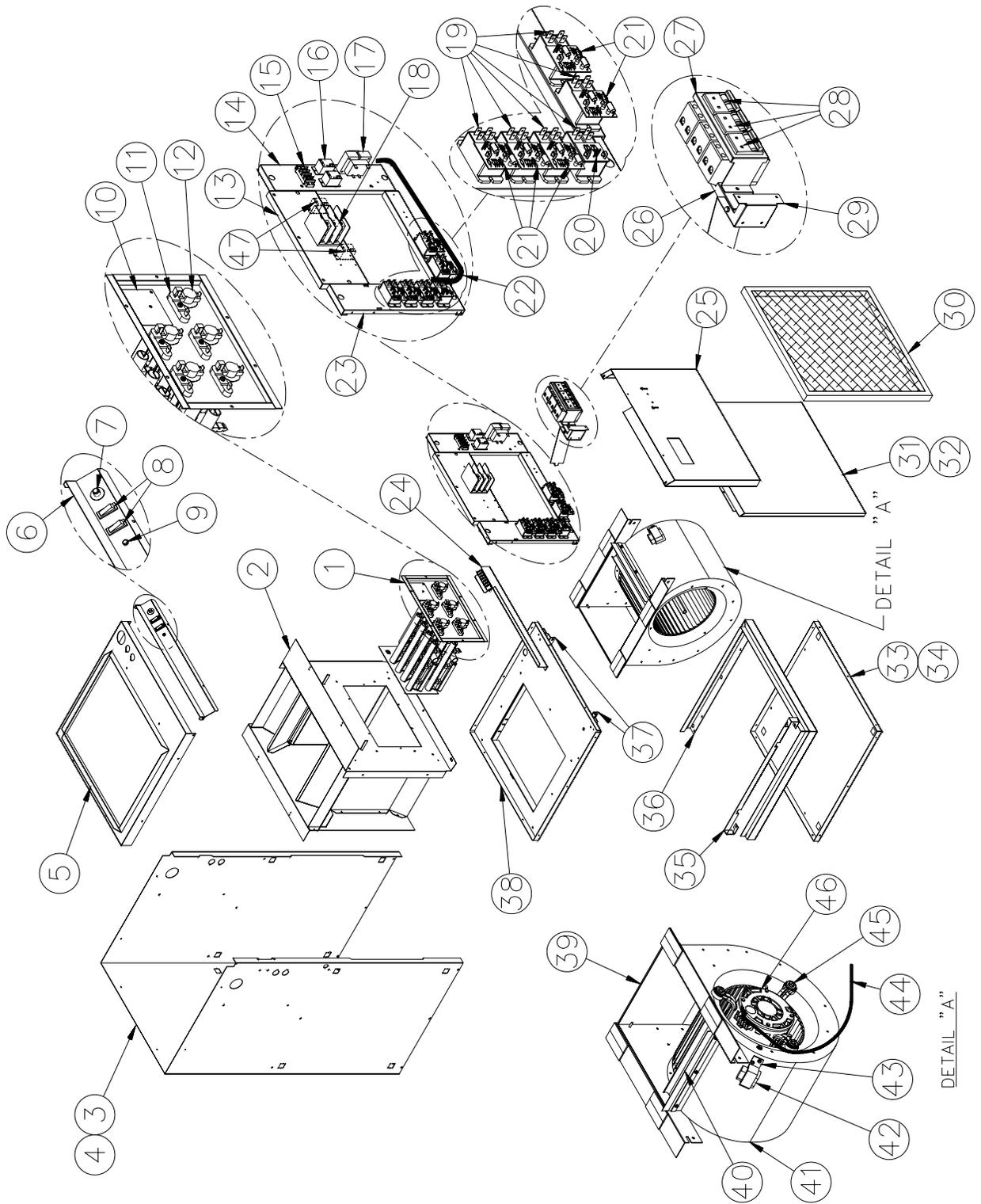




Figure 15 : PARTS LIST, Supreme with 1/3 HP and 1 HP motor: SUPxx-M2401A or SUPxx-M2401B



**Table 6: PARTS LIST, Supreme with 1/3 HP and 1 HP motor: SUPxx-M2401A or SUPxx-M2401B**

ITEM	PART #	DESCRIPTION	COMMENTS
1A	B04114-01	HEATING ELEMENT PLATE ASSEMBLY SUP10kw (1/3 HP)	Item 12 included
1B	B04115-01	HEATING ELEMENT PLATE ASSEMBLY SUP15kw (1/3 HP)	Item 12 included
1C	B04116-01	HEATING ELEMENT PLATE ASSEMBLY SUP18kw (1/3 HP)	Item 12 included
1D	B04116-02	HEATING ELEMENT PLATE ASSEMBLY SUP20kw (1/3 HP / 1 HP)	Item 12 included
1E	B04117-01	HEATING ELEMENT PLATE ASSEMBLY SUP23kw (1/3 HP)	Item 12 included
1F	B04118-01	HEATING ELEMENT PLATE ASSEMBLY SUP23kw (1 HP)	Item 12 included
	B04227	HEATING ELEMENT PLATE ASSEMBLY SUP25kw (1 HP)	Item 12 included
1G	B04119-01	HEATING ELEMENT PLATE ASSEMBLY SUP27kw (1 HP)	Item 12 included
2	B04075	FRONT DIVIDER ASSEMBLY	
3	B03260-01	CASING ASSEMBLY	Item 4 included
4	B03302	CASING INSULATION	
5	B04067	TOP PANEL	
6	B04068-01	SWITCH PLATE ASSEMBLY	Item 7, 8 & 9 included
7	L01J001	CIRCUIT BREAKER 15 AMP	
8	L07F015	ROCKER SWITCH SPDT	
9	L01L006	PILOT LIGHT	
10	B03286	HEATING ELEMENT COVER	
11A	L99H008	HEATING ELEMENT 5kw	
11B	L99H009	HEATING ELEMENT 4kw	
12A	R02N015	THERMODISK L150-55F	10 to 23kw - 1/3 HP
12B	R02N019	THERMODISK L140-55F	23 to 27kw - 1.0 HP
13	B03288	MOUNTING PLATE FOR ELECTRICAL, TOP	
14	B04090	MOUNTING PLATE FOR ELECTRICAL, RIGHT SIDE	
15	L05F004	TERMINAL STRIP, 4-POSITION	
16	L01H009	RELAY SPDT 24 VAC	
17	L01F009	TRANSFORMER 120-24 Volts	
18A	L99F006	TERMINAL BLOCK	10kw
18B	L99F007	TERMINAL BLOCK	15 to 23kw
18C	L99F001	TERMINAL BLOCK	25 - 27kw
19	L01H030	RELAY DPST 22 VDC	
20	R99G006	RECTIFIER CONTROL	
21	R99G007	RECTIFIER/TIMER CONTROL	
22A	B04125	ELECTRICAL KIT	10kw
22B	B04124	ELECTRICAL KIT	15kw
22C	B04123	ELECTRICAL KIT	18, 20kw
22D	B04122	ELECTRICAL KIT	23 25kw
22E	B04121	ELECTRICAL KIT	27kw
23	B04091	MOUNTING PLATE FOR ELECTRICAL, LEFT SIDE	
24	B03265-01	TERMINAL BLOCK SUPPORT ASSEMBLY	
25A	B04072-13	DOOR, ELECTRICAL COMPARTMENT	10kw
25B	B04072-14	DOOR, ELECTRICAL COMPARTMENT	15kw
25C	B04072-15	DOOR, ELECTRICAL COMPARTMENT	18, 20kw
25D	B04072-16	DOOR, ELECTRICAL COMPARTMENT	23 - 25kw
25E	B04072-17	DOOR, ELECTRICAL COMPARTMENT	27kw
26	B04093	BREAKER SUPPORT	
27A	B04095	BREAKER PLATE	10kw
27B	B04096	BREAKER PLATE	15,18, 20kw
27C	B04097	BREAKER PLATE	23, 27kw
28A	L01J004	BREAKER 25 AMP	
28B	L01J005	BREAKER 50AMP	
29	B04094	PIVOT BREAKER	
30	Z04F004	PAPER FILTER 20 x 20 x 1	
31	B04071-01	DOOR, BLOWER COMPARTMENT	Item 32 included
32	B02293-22	BLOWER DOOR INSULATION	
33	B03258	FLOOR ASSEMBLY	Item 34 included
34	B02293-21	FLOOR INSULATION	
35	B03299	FILTER RACK ACCESS	
36	B03298	FILTER RACK U-FRAME	
37	B30513	BLOWER RAIL	
38	B03264-02	BLOWER DIVIDER ASSEMBLY	Item 37 included
39A	B03301-01	REPLACEMENT BLOWER ASSEMBLY (1/3 HP)	Items 40, 41, 45 & 46 included
39B	B03318-01	REPLACEMENT BLOWER ASSEMBLY (1 HP)	Items 40, 41, 45 & 46 included
40A	B01291-04	SEAL STRIP (1/3 HP)	
40B	B01291-01	SEAL STRIP 1 1/2" x 13 1/8" (1 HP)	
41A	B03720-02	BLOWER 100-8R (1/3 HP)	
41B	B03720-05	BLOWER 120-10T (1 HP)	
42A	L01I001	CAPACITOR 5 MF (1/3 HP)	
42B	L01I003	CAPACITOR 10 MF (1 HP)	
43	B01024	CAPACITOR SUPPORT	
44	B03303	BLOWER ELECTRICAL HARNESS	
45A	B01888	MOTOR SUPPORT BAND AND LEGS (1/3 HP)	
45B	B01889	MOTOR SUPPORT BAND AND LEGS (1 HP)	
46A	L06G007	MOTOR 1/3 HP 120 V	
46B	L06K004	MOTOR 1.0 HP 120 V	
47	L01H009	ACCESSORY RELAY 24 VAC	Optional
<b>ACCESSORIES</b>			
	AK	ADAPTOR KIT 17"x17"	(Ref: B03883)
	SO	DOWNFLOW BASE FOR 23 KW UNITS OR MORE	(Ref: B03310-02)