

HYDRONIC AIR HANDLER

VHB504A

HYDRO MAXX



SERVICE MANUAL

HYDROMAXX

HYDRONIC AIR HANDLER



SERVICE TECHNICIAN/ HOMEOWNER:

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



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

TABLE OF CONTENTS

1.0	SAFETY CONSIDERATIONS.....	3
1.1	Safety Information; Danger,Warning and Caution.....	3
1.2	Important Information	3
1.3	Danger of Freezing	3
2.0	CODES AND STANDARDS.....	3
3.0	AIR HANDLER COMPONENTS	4
4.0	INSTALLATION.....	5
4.1	Location	5
4.2	Ductwork and Filter.....	5
4.3	Heating Coil	6
4.4	Electrical System	7
4.5	Installation of the Thermostat	7
4.5.1	Dehumidify Capability with Standard Humidistat Connection	8
5.0	SOFTWARE SETTINGS	8
5.1	Configuration Menu	8
5.1.1	Troubleshoot Menu.....	8
5.1.2	HydroMax-Alize Menus	8
5.1.3	AB Status Menu.....	8
5.1.4	Status Menu	8
5.2	Installer Menu	8
5.2.1	Fan Menu	8
5.2.2	Pump Menu	9
5.2.3	Cooling / HP Menu	9
5.2.4	Delays Menu.....	9
5.2.5	System Menu.....	9
6.0	UNIT INFORMATION	9
7.0	OPERATION	11
7.1	Start-up	11
7.2	Heating Start-Up.....	11
7.3	Operating Sequence.....	11
7.3.1	Heating Mode – 2 Stages Tstat	11
7.3.2	Heating Mode – Communicating Tstat....	11
7.3.3	Continuous Fan.....	11
7.3.4	Cooling Mode – Single Stage	11
7.3.5	Cooling Mode – Two Stage.....	11
7.3.6	Cooling Mode – Communicating Ttsat....	11
7.4	Water Potability.....	11
8.0	MAINTENANCE	12
8.1	Blower and Motor.....	12
8.2	Heating and Cooling Coils	12
8.3	Filter	12
9.0	TROUBLESHOOTING	12
10.0	TECHNICAL DATA	13
11.0	REPLACEMENT PARTS	17

FIGURES

Figure 1: Components.....	4
Figure 2: Electrical Panel	4
Figure 3: Vertical Upflow	5
Figure 4: Vertical Downflow	5
Figure 5: Horizontal.....	5
Figure 6: Piping Diagram	6
Figure 7: 1 Stg Tstat, Hot Water Heating Only	7
Figure 8: 2 Stg Tstat, Hot Water Heating Only	7
Figure 9: 2 Stg Tstat, with Alizé (COND series) or ACD (ELD, OCD, LPD or UHD series).....	7
Figure 10: Communicating Thermostat R02P032 with HydroMax-Alizé Heat Pump	8
Figure 11: Navigation in the Control Menus.....	10
Figure 12 : Unit Dimensions.....	14
Figure 13 : Typical Installation	14
Figure 14 : Typical Installation (continued).....	15
Figure 15 : Electrical Diagram.....	16
Figure 16 : Parts List.....	17

TABLES

Table 1 : Technical Specifications	13
Table 2 : Heating Performance (BTU/h)	13


1.0 SAFETY CONSIDERATIONS

1.1 SAFETY INFORMATION; DANGER, WARNING AND CAUTION


Understand these signal words: **DANGER**, **WARNING** and **CAUTION**. These words are used with the safety-alert symbol. You will find them in this manual in the following formats:

 DANGER
DANGER identifies the most serious hazards which <u>will</u> result in severe personal injury or death.


 WARNING
WARNING signifies hazards which <u>could</u> result in personal injury or death.


 CAUTION
CAUTION is used to identify unsafe practices which <u>may</u> result in minor personal injury or product and property damage.


1.2 IMPORTANT INFORMATIONS

 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.


- a. It is the homeowner's responsibility to engage a qualified technician for the installation and subsequent servicing of this unit.
- b. Do not use this unit 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.
- c. Do not store gasoline or any other flammable substances, such as paper, carton, etc. near the unit.
- d. Never block or otherwise obstruct the filter and/or return air openings.
- e. Ask the technician installing your unit to show and explain to you the following items:
 - I. The main disconnect switch.
 - II. The water shut-off valves.
 - III. The air filter and how to change it (check monthly and clean or replace if necessary).
- f. Before calling for service, be sure to have the information page 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 unit.

 WARNING
Installations 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.

 WARNING
Electrical shock hazard.
Failure to disconnect main switch may result in personal injury or death.
Turn off all power before servicing.

 WARNING
Hot water can scald.
The hot water used by this unit can scald. Wait for the unit to cool down before servicing.

1.3 DANGER OF FREEZING

 CAUTION
If your unit 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 unit is left unattended during the cold weather season, take the following precautions:

- a. Close the main water valve in the house and purge the pipes if possible. Open all the faucets in the house.
- b. 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 CODES AND STANDARDS

It is the responsibility of the installer to follow all national codes, standards, and local ordinances, in addition to the instructions in this manual. The installation must comply with regulations of the local building, electrical, heating, plumbing, and other codes. Where local codes are not applicable, the installation must comply with national codes and all authorities having jurisdiction.

The following is a suggested list of codes and standards for the United States and Canada.

General Installation

- US: Installation of Air Conditioning and Ventilation Systems NFPA 91
- Canada: CSA B214-01 Installation Code for Hydronic Heating Systems

- Air Conditioning Contractors Association (ACCA) Manual D

Electrical

- US: National Electrical Code (NEC) ANSI/NFPA 70
- Canada: Canadian Electrical Code CSA C22.1

Duct Systems

- Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
- American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)

Plumbing

- US: ICC International Plumbing Code (IPC)
- Canada: National Plumbing Code of Canada (NPC)
- Local codes

3.0 AIR HANDLER COMPONENTS

Figure 1: Components

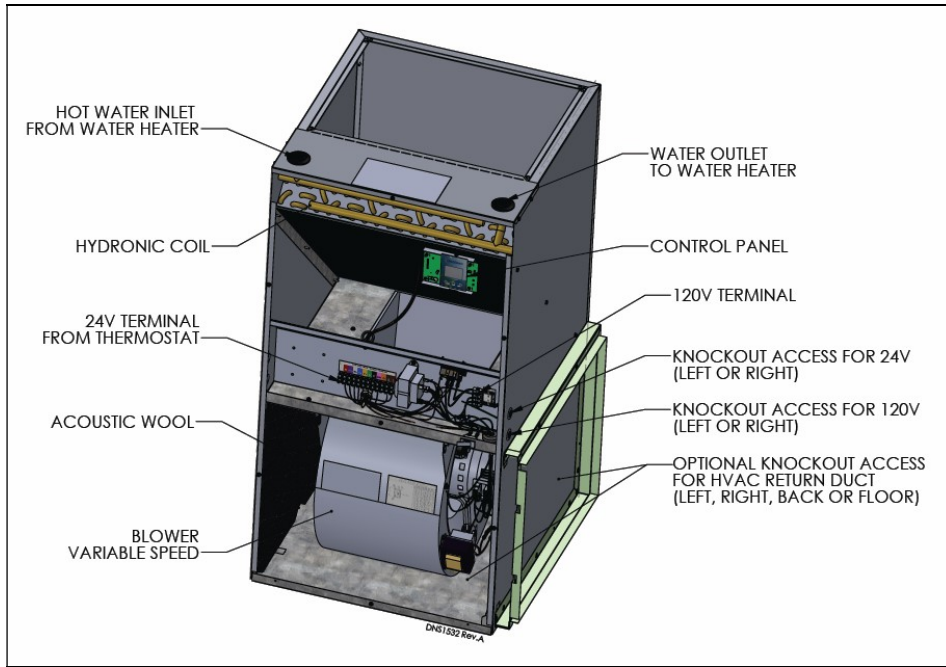
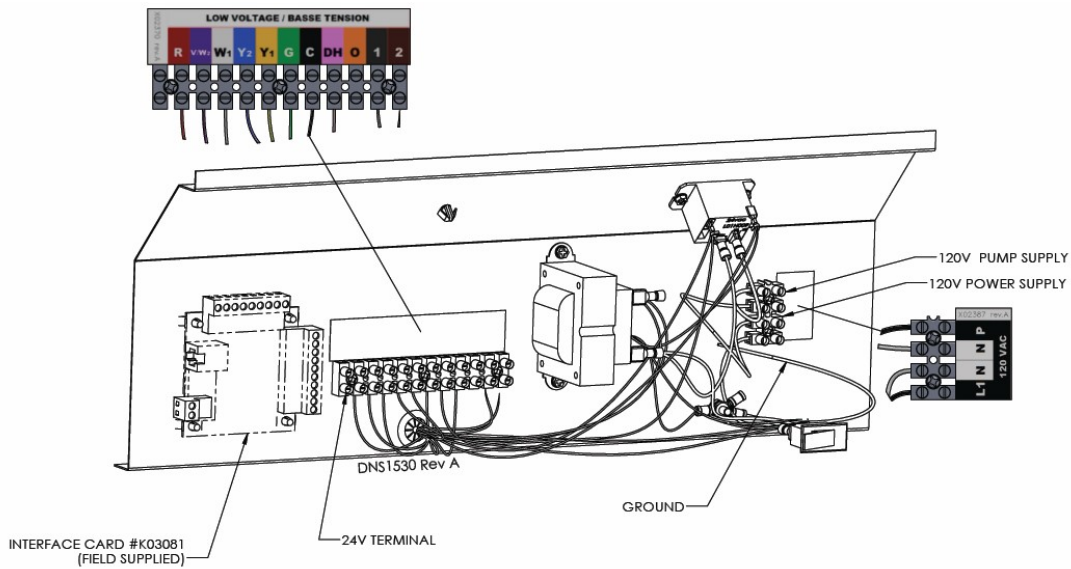


Figure 2: Electrical Panel



4.0 INSTALLATION

This unit uses hot water from a water heater or a boiler to heat the ambient air of a house. It may also have a cooling coil connected to an outdoor cooling unit; all field supplied. Refer to each installation manual.

This air handler is also to be connected to a ducted air distribution system. This duct system shall be made in the field according to the applicable codes, caution should be made to sealing all the components for better efficiency.

The control algorithm and the capacity of this air handler to operate at static pressures up to 1.2" w.c. and allows for optional Zoning is required.

This unit is designed to be installed in a vertical, up flow or downflow position, horizontal right or horizontal left with the return air on the back, left side or right side. See Figures 3 to 5.

Figure 3: Vertical Upflow

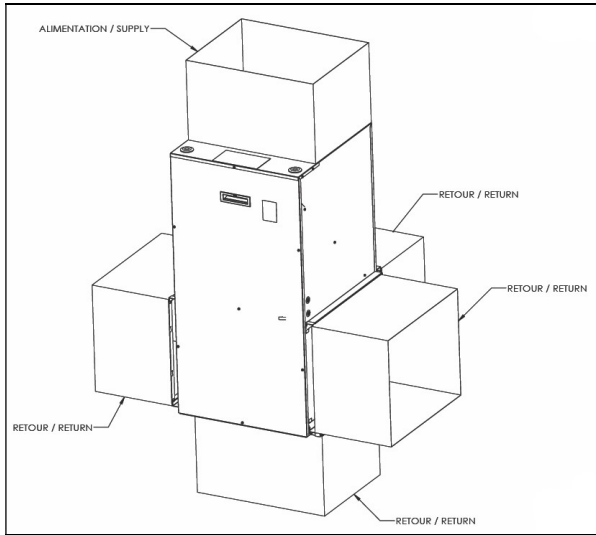


Figure 4: Vertical downflow

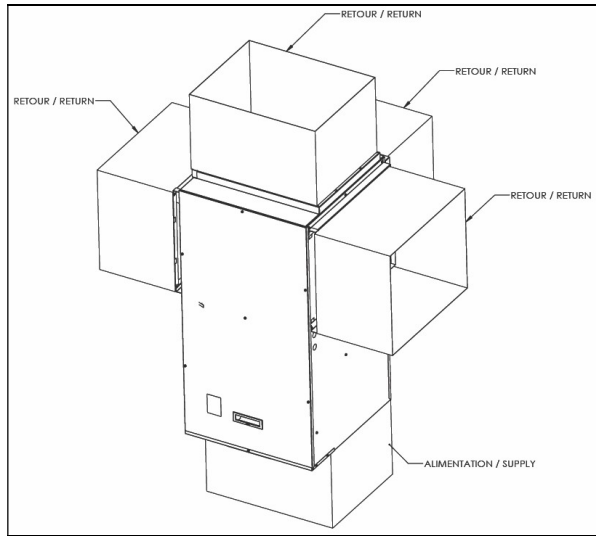
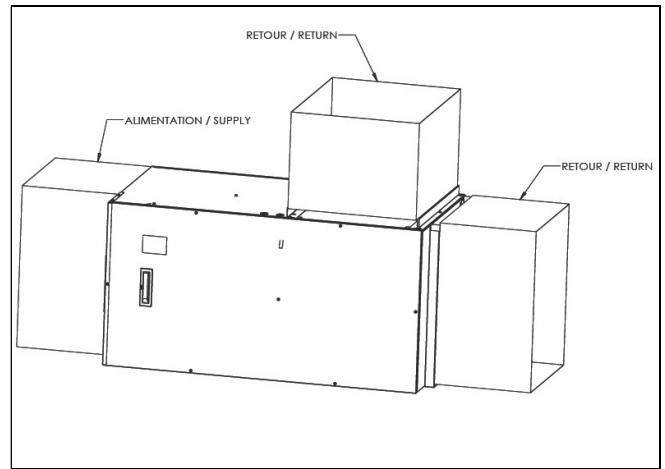


Figure 5: Horizontal



If the unit is installed in a humid location, condensation may occur and cause damage. For these installations, the unit should be completely insulated with 1" thick fibreglass with the vapour barrier on the outside.

While designed to operate quietly when properly installed, several steps should be taken to insure this. Use of isolation pads when mounting unit, flexible duct collars for discharge and use of acoustical duct liners are all good installation practices that promote quiet operation.



CAUTION

Unit must not be operated during building construction due to excessive airborne dust and debris.

The unit must not be operated under any circumstances without an air filter in place. Dirt will clog the coils and the efficiency of the unit will be drastically affected.

4.1 LOCATION



CAUTION

The unit must be installed in a level position.

Non-observance of these instructions will potentially result in unit and/or property damage.



CAUTION

This unit 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.

This unit has a 0" minimum clearance to combustible materials rating from all cabinet surfaces. The discharge plenum and duct also carry 0" safety clearance.

The unit should be installed with a clearance of 24" from the front of the unit for service. Space should be allowed for filter, pump, and electrical compartment access.

4.2 DUCTWORK AND FILTER

The ducts must be sized to accommodate the specified airflow and the available static pressure. The discharge plenum shall be fixed to the exterior of the outlet flange. For noise reduction purposes, use two elbows between each outlet and the supply and return air plenum. A flexible duct collar is recommended for a better noise control.

The return duct can be fixed on the back, the right-hand or the left-hand side or the floor of the unit. Cut-off the pre-punched face and the insulation of the desired side.

The air handler is equipped with a filter frame for the return air at the blower compartment. Once the location of the installation as 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 unit. Carefully follow the instructions provided with these appliances to ensure proper installation and hook-up to the air handler. Refrigerant and drainage pipes must in no way hinder access to the air handler door.

4.3 HEATING COIL

The heating coil is already installed in the unit. The recirculating pump with its one-way valve is to be installed in the field.

Remove the front door.
Remove the front top panel to access inlet and outlet pipes.
Remove the two rubber grommets and slide them in each inlet and outlet pipes going to the hot water heater, far enough to not damage them when brazing.
Brazing water inlet and outlet as shown on figure 6.
Install shut-off valves on hot water supply and water return for servicing the unit. Install drainage valves as shown on figure 2.
Open the valves and purge all air of the system. Verify that all welds are leak free.
Replace the top front pale and push back the grommets into the top panel and adjust to get a good fit.

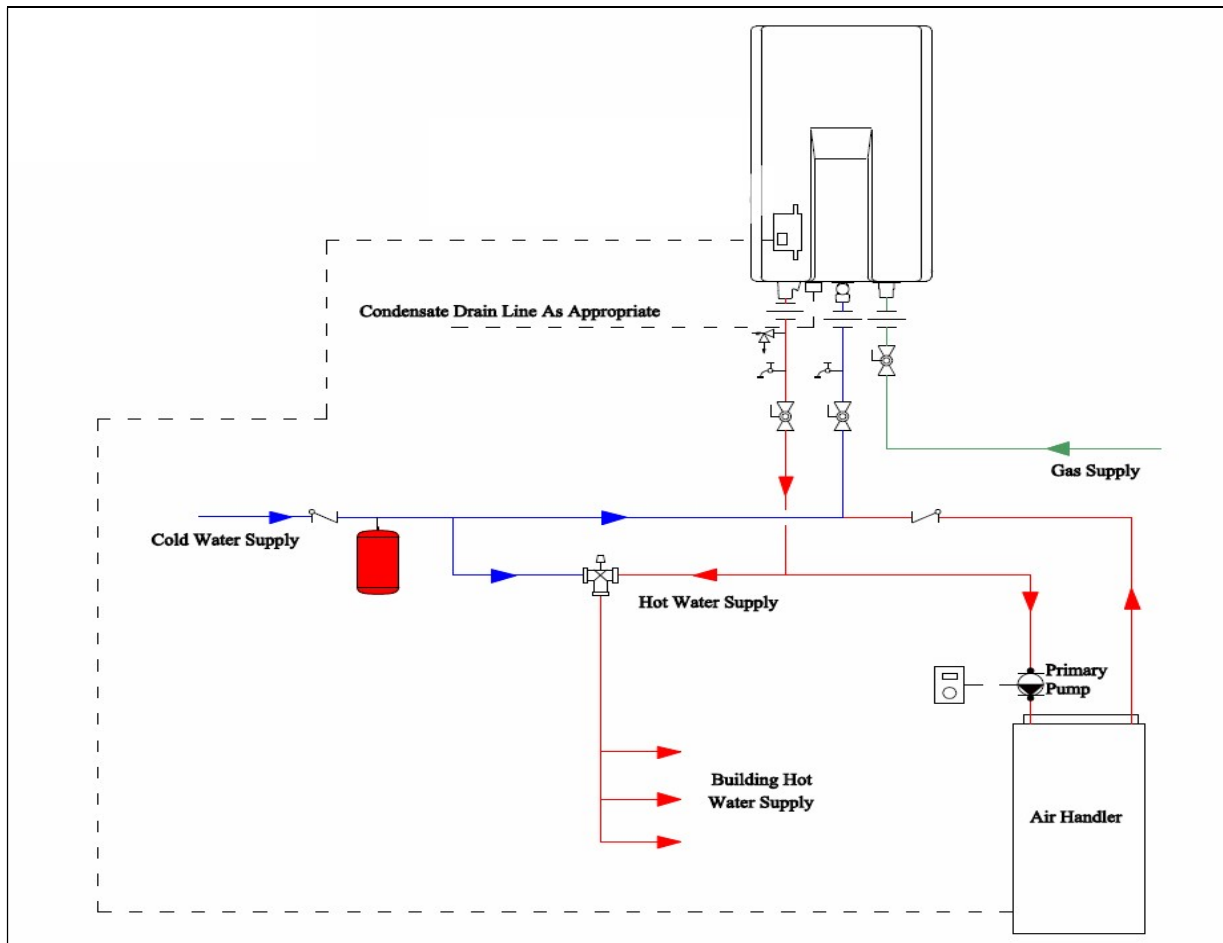
CAUTION

When brazing, it is recommended to have a fire extinguisher nearby.

In order to prevent any damage, use a heat screen or wet rag when brazing nearby the cabinet or other heat sensitive components.

Do not bend or force the water inlet/outlet of the heating coil. This may cause leakage when water pressure is applied.

Figure 6: Piping diagram



4.4 ELECTRICAL SYSTEM

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.

CAUTION

The exterior of the unit must have an uninterrupted ground to minimize the risk of bodily harm, if ever an electrical problem develops. A green ground screw is supplied with the control box for that purpose.

Only copper wire may be used for the 115V circuit on this unit. If wires need to be changed, the replacements must have the same temperature resistance as the originals. The cabinet and the electrical panel must have an uninterrupted ground. A ground wire is supplied in the electrical panel for that purpose. See Figure 2.

Refer to the nameplate for information on voltage and amperage of this unit.

A 120V power supply connection for the external pump is supplied inside the electrical panel, on terminals marked N and P, beside the 120V supply to the unit.

All 24V control connections are secured at the terminal block inside the electrical panel and, if required to the optional interface card.

Use the proper knock outs as shown in Figure 1.

Refer to the wiring diagram and the following figures shown in this manual.

4.5 INSTALLATION OF THE THERMOSTAT

A single stage, two stages (R02P033) or communicating thermostat (R02P032) must be installed. Follow the instructions supplied with the thermostat.

Thermostat Field Connections

- Dh Dh is used if additional latent capacity control is required.
- R R signal is 24V hot to thermostat.
- W1 W1 signal controls first stage heat from the thermostat. If a single stage thermostat is used, connect W to W2.
- W2 W2 signal from a two-stage thermostat.
- Y1 Connection for the low speed compressor operation.
- Y/Y2 Connection for the Y signal or high speed (Y2) signal from the thermostat.
- G Connection for the G (fan) signal is energized from the thermostat.
- O Connection for the 'O' signal from the thermostat.
- C Connection for the C terminal to the thermostat (24V common).
- 1&2 120V communication control from HydroMax-Alizé outdoor unit.

Figure 7: 1 Stg Tstat, Hot Water Heating Only

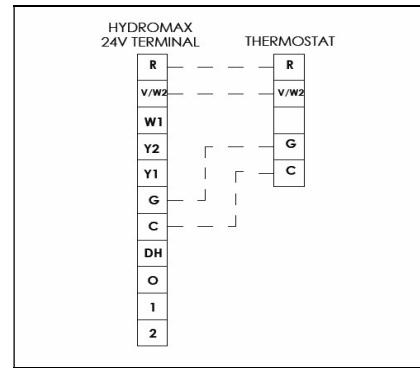


Figure 8: 2 Stg Tstat, Hot Water Heating Only

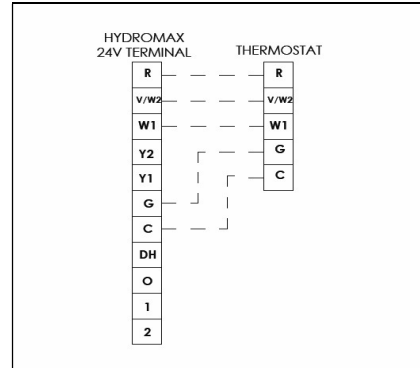
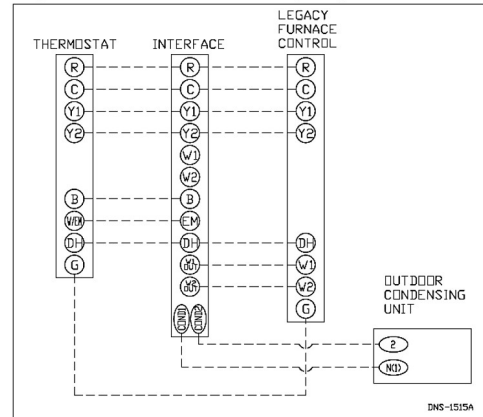


Figure 9: 2 Stg Tstat, with Alizé (COND series) or ACD (ELD, OCD, LPD or UHD Series)

Wiring with thermostat for heat pump control R99P033



Wiring with conventional thermostat

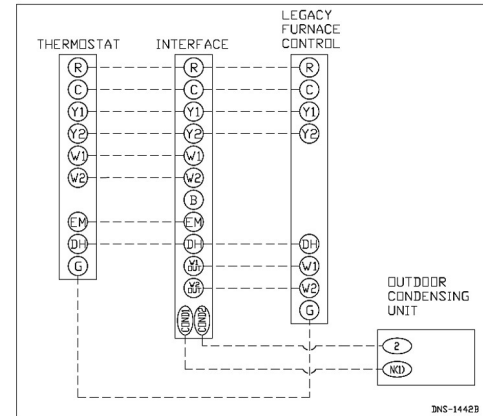
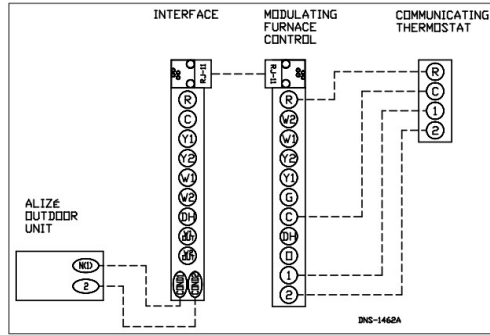


Figure 10: Communicating Thermostat R02P032 with HydroMax-Alizé Heat Pump



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.

4.5.1 DEHUMIDIFY CAPABILITY WITH STANDARD HUMIDISTAT CONNECTION

Latent capacities for systems using this unit are better than average systems. If increased latent capacity is an application requirement, the field wiring terminal block provides a connection terminal (DH) for use of a standard humidistat. The furnace control will detect the humidistat contact opening on increasing humidity and reduce its airflow to approximately 80% of nominal cooling mode airflow. This reduction will increase the system latent capacity until the humidity falls to a level which causes the humidistat contact to close. When the contact closes again, the airflow comes back to 100% of the cooling airflow selected.

5.0 SOFTWARE SETTINGS

Configuration and installer menus allow to modify both display and operational parameters of the unit. Navigation within the menus can be achieved using the up, down and select buttons. The up and down buttons allow to change menu, line or to modify a value. The center button allows to select or validate a parameter.

5.1 CONFIGURATION MENU

The configuration menu allows only the modification of the display language and access to the "Troubleshoot" menu. Once the cursor is aligned with the "Language" line, press the center button to toggle from French to English.

5.1.1 TROUBLESHOOT MENU

This menu allows to see the various operating parameters of the appliance and is protected by a password. To enter the Troubleshoot menu, the following password must be entered: Left, Center, Right and Center.



5.1.2 HYDROMAX-ALIZE MENUS

These two menus are available when the communicating HydroMax-Alizé outdoor unit is connected. These two menus allow to access the following parameters:

- **T°EXT**: Displays the outdoor temperature in °F
- **SIZE**: The capacity of the HydroMax-Alizé unit in TONS
- **CFM HEAT**: The number of CFM per TON in heating mode
- **CFM COOL**: The number of CFM per TON in cooling mode
- **CFM DRY**: The number of CFM per TON in dehumidification mode
- **MODE**: The current mode of the HydroMax-Alizé unit (Heat, Cool, Dry, Nothing)
- **CFM HP**: The number of CFM required by the HydroMax-Alizé outdoor unit
- **% COMP**: Percentage of the max frequency of the Compressor
- **MODE O**: Operation mode (HRV, Heat Pump or Air Cond)

5.1.3 AB STATUS MENU

This menu contains no information for this model.

5.1.4 STATUS MENU

This menu displays the operating parameters associated with the air handler:

- **CMD**: Command requested by the thermostat
- **CMDMOT**: The airflow requested in CFM
- **RELAYS**: State of the pump relay

5.2 INSTALLER MENU

The installer menu allows to modify the various operating parameters of the air handler. This menu is password-protected because only a qualified installer should change the following settings. The password to access the installer menu is left, center, right and center.



5.2.1 FAN MENU

The fan menu allows to modify the options related to the comfort fan of the appliance:

- **CONT FAN RATIO**: This parameter allows to modify the airflow in continuous fan mode.
- **HEAT FAN RATIO**: This parameter allows to modify the airflow in heating mode.
- **FAN W1 RATIO**: This parameter allows to modify the airflow on the first stage of heating.
- **HEAT OFF RATIO**: This parameter allows to modify the airflow during the heat off delay.

5.2.2 PUMP MENU

The pump menu allows to modify the options related to the external pump of the system:

- **RECIRCULATION:** This parameter allows to set the time before the unit will recirculate the water for one minute.
- **W1 RATIO:** This parameter allows to modify the pump ratio (speed) on the first stage of heating. *This setting is only available for HYDROMAXV_S models.*
- **PURGE CYCLE:** This parameter allows to modify the pump cycles during the purge time (Heat Off Delay). The pump will operate a fraction of this period to allow the recovery of residual heat in the system. *This setting is only available for HYDROMAXV_S models.*

5.2.3 COOLING / HP MENU

The Cooling / HP menu allows to modify the options regarding the behavior with an outdoor unit other than a HydroMax-Alizé (Y1 and Y2 connections).

- **AC/HP TONS:** This parameter allows to specify the tonnage of the outdoor unit.
- **CFM/TON:** This parameter allows to set a precise CFM per TON ratio.
- **DEHUM ON STATE:** This parameter defines if the dehumidification will be active-high or active-low.
- **DEHUM RATIO:** This parameter allows to modify the percentage of the cooling CFM that will be delivered when dehumidification is active.

- **AC Y1 RATIO:** This parameter allows to modify the percentage of the cooling CFM that will be delivered when only a first stage call for cooling (Y1) is active.

5.2.4 DELAYS MENU

This menu allows to adjust timing parameters of the unit.

- **AC/HP ON:** This parameter allows to set the wait time before the fan starts when a call is made on Y1 or Y2.
- **AC/HP OFF:** This parameter allows to set the time the fan will keep running after the end of a call on Y1 or Y2.
- **HEAT ON:** This parameter allows to set the wait time before the fan starts when a heating call is made on W1 or W2.
- **HEAT OFF:** This parameter allows to set the time the fan will keep running after the end of a call on W1 or W2.

5.2.5 SYSTEM MENU

The system menu allows to modify the following parameters:

- **FURNACE MODEL:** This parameter allows to manually select the model of the unit. This parameter must be used when the control board is replaced.
- **RESET SYSTEM:** Reinitialize all the user modifiable parameters to their factory default.

6.0 UNIT INFORMATION

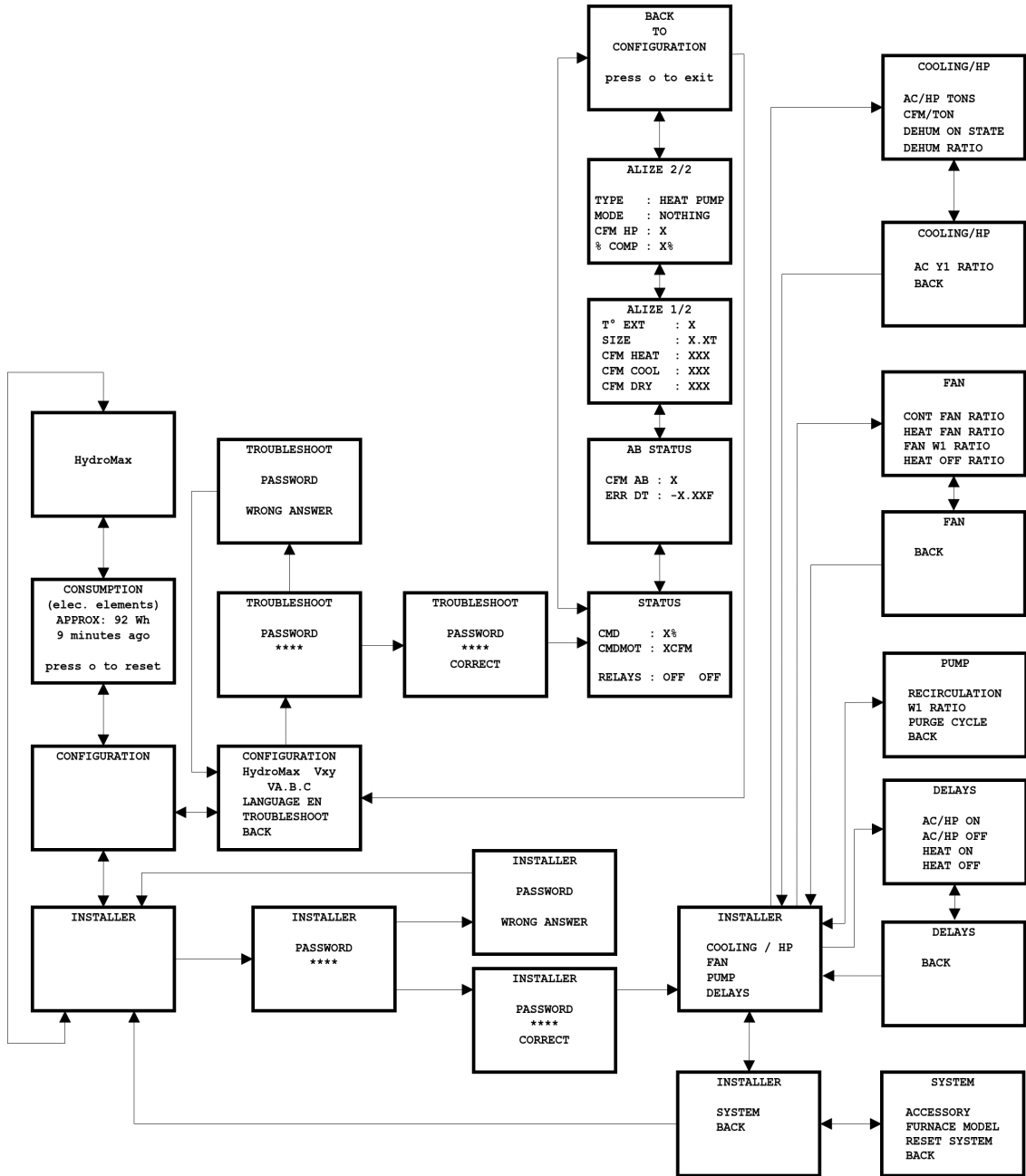
Model: _____ Serial number: _____

Installation date: _____

Tel. Number (day): _____ (evening): _____

Name and address of technician: _____

Figure 11: Navigation in the Control Menu



X30212B

7.0 OPERATION

7.1 START-UP

Before starting up the unit, be sure to check that the following items comply:

1. The main electrical power is conformed to the information on the nameplate.
2. The unit is properly grounded.
3. With main power disconnected, verify that the blower wheel is well fixed on the motor shaft and the wheel turns freely.
4. Verify all coils, valves and piping are leak free and insulated if required.
5. Ensure all air in the hot water loop is vented to prevent premature pump failure and optimal efficiency.
6. **Make sure all panels are installed. A safety switch prevents the start-up of the blower if the blower door is not installed.**
7. **The air filter is installed on the return duct and in proper direction.**
8. **All dirt and debris are removed.**

7.2 HEATING START-UP

1. Open the valve to fill the water heater.
2. Purge all air from the circuit.
3. Start the water heater and set the temperature to 140F.
4. Set the room thermostat in heating mode and adjust the set point temperature above ambient temperature. If the pump is in function but there is no circulation, complete purging the air out of the system.

7.3 OPERATING SEQUENCE

The blower motor is a true variable speed motor designed to deliver constant CFM. Constant CFM is valid for systems with total external static pressure between 0.1- and 1.2- inches water column.

7.3.1 HEATING MODE – 2 STAGES TSTAT

- Thermostat closes circuit R to W1 or W2.
- Unit delivers the selected heat airflow.
- Unit delivers W1 or W2 heating airflow and pump is exercised.

7.3.2 HEATING MODE – COMMUNICATING TSTAT

The thermostat sends a heating demand from 5 to 100% using a communicating protocol. The air handler will modulate the fan speed according to this demand.

7.3.3 CONTINUOUS FAN

- Thermostat closes circuit R to G.
- Blower runs at continuous fan airflow.

7.3.4 COOLING MODE – SINGLE STAGE

- If indoor temperature is above temperature set point and humidity is below humidity set point, thermostat closes circuits R to G, R to Y/Y2 and R to O.
- Unit delivers single stage cooling airflow.

NOTE: For single stage systems, do not use the Y1 terminal.

7.3.5 COOLING MODE – TWO STAGE

- First stage (low) cooling: Thermostat closes circuits R to G, R to O, and R to Y1.
- Unit delivers low stage cooling airflow.
- Second stage (high) cooling: Thermostat closes circuits R to G, R to O, R to Y1 and R to Y/Y2.
- Unit delivers high stage cooling airflow.

7.3.6 COOLING MODE – COMMUNICATING TSTAT

The thermostat sends a cooling demand from 5 to 100% using a communicating protocol. The air handler will modulate the fan speed to match outdoor unit compressor speed.

7.4 WATER POTABILITY

This unit can be installed in hot water domestic loop.

The hot water coil is certified NSF/ ANSI/CAN 61.

At install, make sure all components are certified and that all materials and solders are free of lead and contaminants.

To satisfy many jurisdictions regulations, the control allows to set a time of pump inactivity to initiate a pumping cycle and avoid stagnating water. Make sure to set this parameter according your local and codes.



WARNING

Biocontamination hazard.

When the unit is off for a long period of time, precautions to flush, clean and disinfect the hot water loop shall be made.

Failure to do so can result in sickness and death.

8.0 MAINTENANCE



WARNING

Electrical shock hazard.

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

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

Frequent inspection will prevent premature failure and inconveniences. The homeowner and a qualified technician shall regularly inspect the system.

To maintain reliability and optimal performance of this unit, perform an annual complete verification of the system. Do not attempt to repair the unit or its controls. Call a qualified technician.

To order a replacement part, specify the model and serial number of your appliance.

8.1 BLOWER AND MOTOR

The blower and motor should be cleaned annually. Verify that the wheel turns freely. Verify electrical connection on the motor.

8.2 HEATING AND COOLING COILS

Inspect and clean the coils annually or more frequently as necessary.

8.3 FILTER

The air filter must be cleaned or replaced every month or more frequently in severe conditions. Always replace with same type of filter.

9.0 TROUBLESHOOTING

Insufficient or no heat:

Check filter, replace if dirty
Verify clogged hydronic coil
Verify there no air trap in the heating loop. Purge the loop.
Check water heater / water temperature
Verify if there is a restriction in the heating loop.
Remove restriction. Verify stuck check valve. Verify all valves

The pump does not run:

Verify 120V to the pump
Clean or replace
Hard water may stick the pump. Recirculation mode will prevent pump seizing.

The pump is noisy at start-up:

Purge the hot water loop

Heating during the fan on mode:

Verify the check valve. Thermal syphoning is possible

10.0 TECHNICAL DATA

Table 1 : Technical Specifications

Series	HydroMaxV504
Nominal Heating Capacity	50,000 BTU/h @ 3GPM @ 140F
Cooling Capacities	1 to 4 tons up to 0.7" wc (Traditional duct work) 1 to 3 tons up to 1.2" wc (Smart Duct)
Airflow	1600 CFM up to 0.7" wc 1200 CFM up to 1.2" wc (Smart Duct)
Dimensions	20 1/2" W x 21 3/8" D x 39 1/4" H Supply: 14 3/8" x 18 1/2" Return: 16" x 20" Filter: 16" x 20"
Water connection	1/2" Sweat
Weight	100 lb. Net 120 lb. Shipping Weight
Electrical	120V-60Hz-1Ph Motor 3/4 HP ECM Eon; 9.6 A FLA; Pump 3A max. 15A MCA 20A MOP
Blower Motor	3/4 HP – ECM fully variable
Control	Modulating, 1 and 2 stage
Accessories	Alizé heat pump and any type of A/C-HP Smart Duct w/ Smart Zoning System Any 1-2 stage thermostat and HydroMax communicating thermostat for Smart Duct System
Construction	Multiposition, for indoor purposes Cabinet: 22 Ga powder coated steel Inner panels 22 Ga galvanized steel Insulation 1/2" inside blower compartment and door
Hydronic Coil	NSF/ANSI/CSA-372 certified Aluminum fins, Copper tubes
Certification	CSA (US & Canada) CSA-C22.2 No.236-05, 3 rd Edition, Feb.2005 - Heating and Cooling Equipment UL 1995, 3 rd Edition, Feb.2005 - Heating and Cooling Equipment NSF 372: Drinking Water Systems Components – Lead Content
Energy efficiency	P9-11: Test method for determining the performance of combined space and water heating systems (combos) Model : HydroMaxV_B : TPF = 0.80 Model : HydroMaxV_S : TPF = 0.88

Table 2 : Heating Performance (BTU/h)

Entering Water Temperature	Flow rate (GPM)	Heat Fan Ratio - (Air Flow)					Coil Pressure Loss (PSI)	
		50% (800 CFM)	Temp Differential (F)	75% (1200 CFM)	Temp Differential (F)	100% (1600 CFM)		Temp Differential (F)
120 F	2	23 069	27	27 475	21	35 424	21	1.42
	3	26 006	30	33 566	26	40 262	23	2.36
	4	27 994	32	37 454	29	43 891	25	4.38
140 F	2	33 696	39	41 990	32	47 520	28	1.41
	3	37 325	43	48 341	37	56 506	33	2.34
	4	38 362	44	54 043	42	62 726	36	4.38
160 F	2	43 114	50	54 821	42	62 554	36	1.41
	3	47 952	56	62 078	48	73 094	42	2.34
	4	51 235	59	66 226	51	80 006	46	4.38
180 F	2	52 963	61	66 485	51	75 859	44	1.41
	3	60 048	70	78 019	60	91 757	53	2.34
	4	63 158	73	84 888	66	100 915	58	4.38

Entering air at 70F

Figure 12 : Unit Dimensions

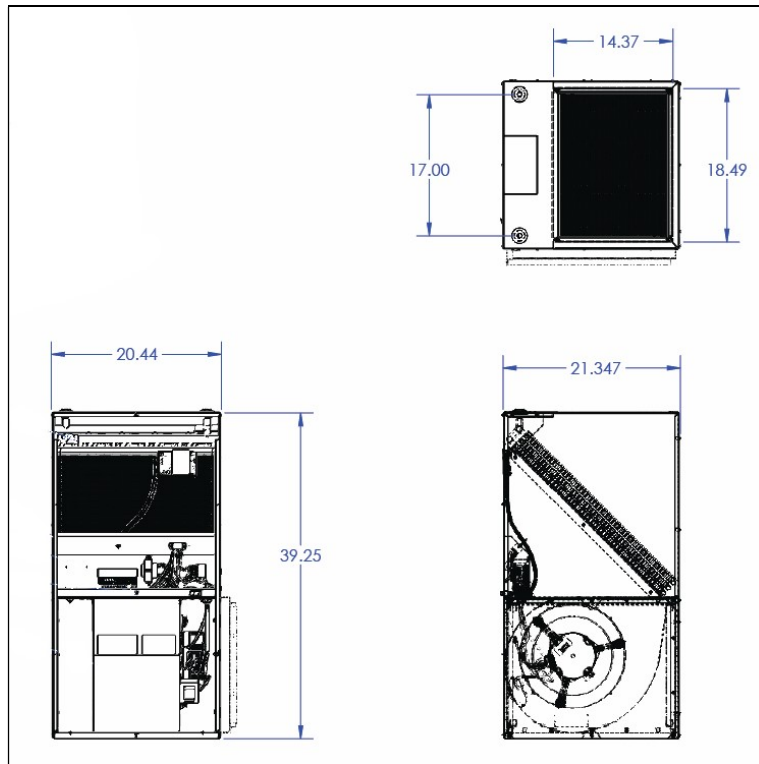


Figure 13 : Typical Installation

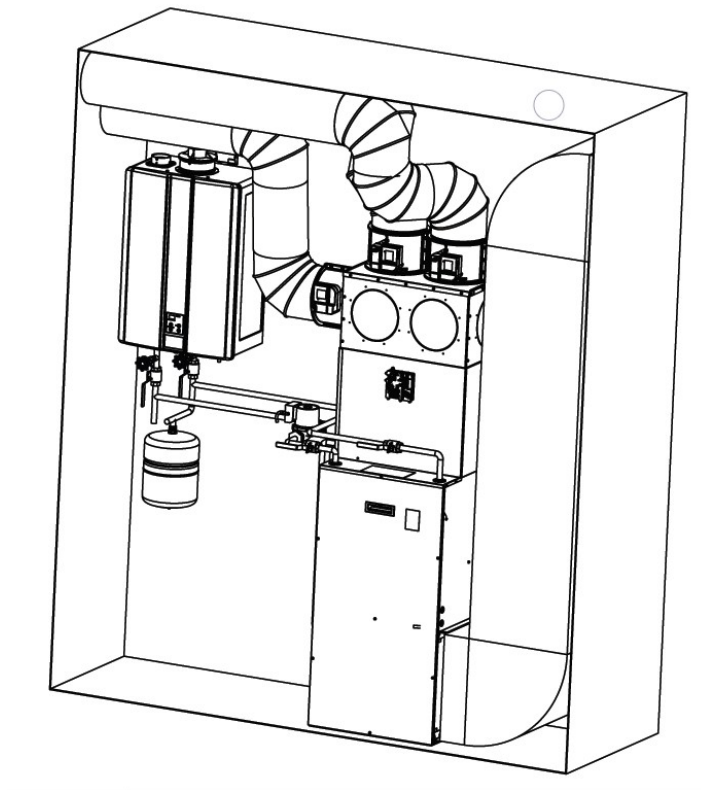


Figure 14 : Typical Installation (continued)

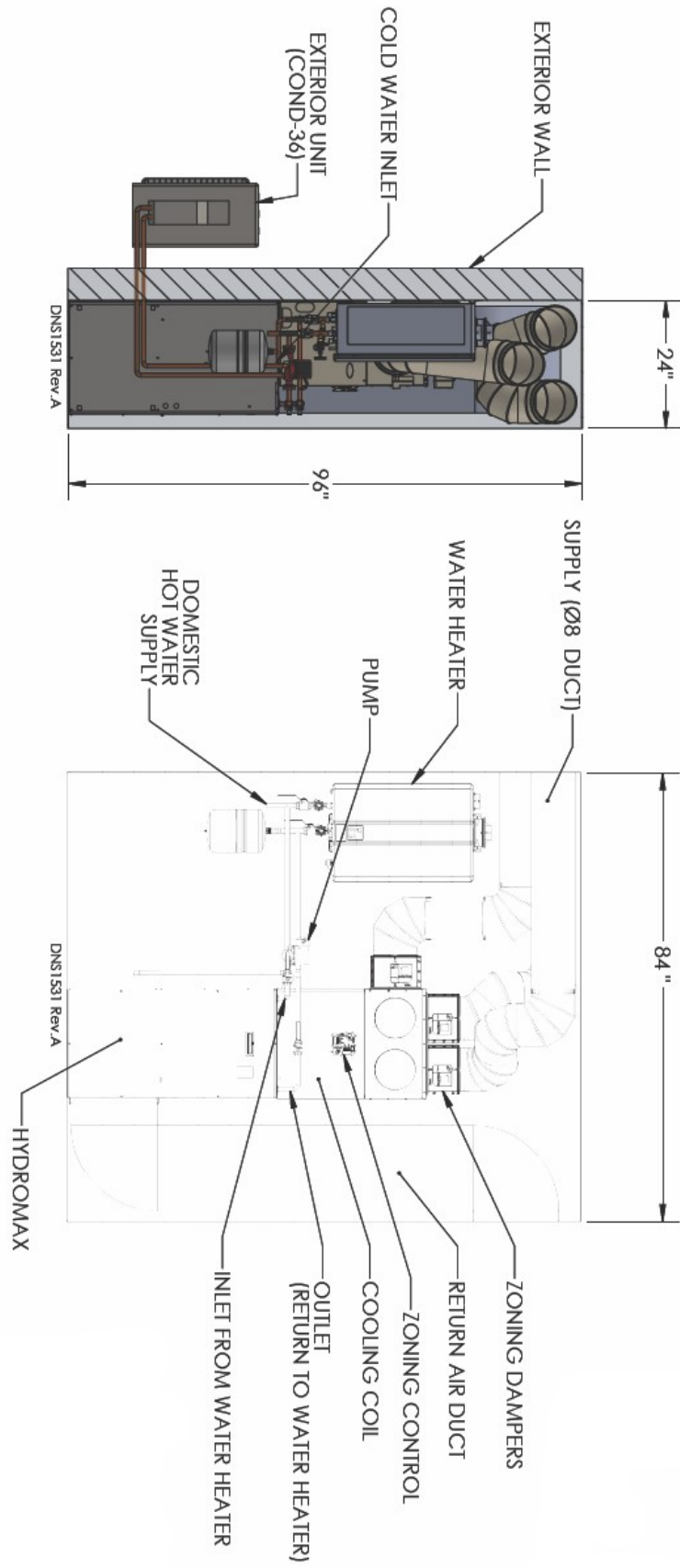
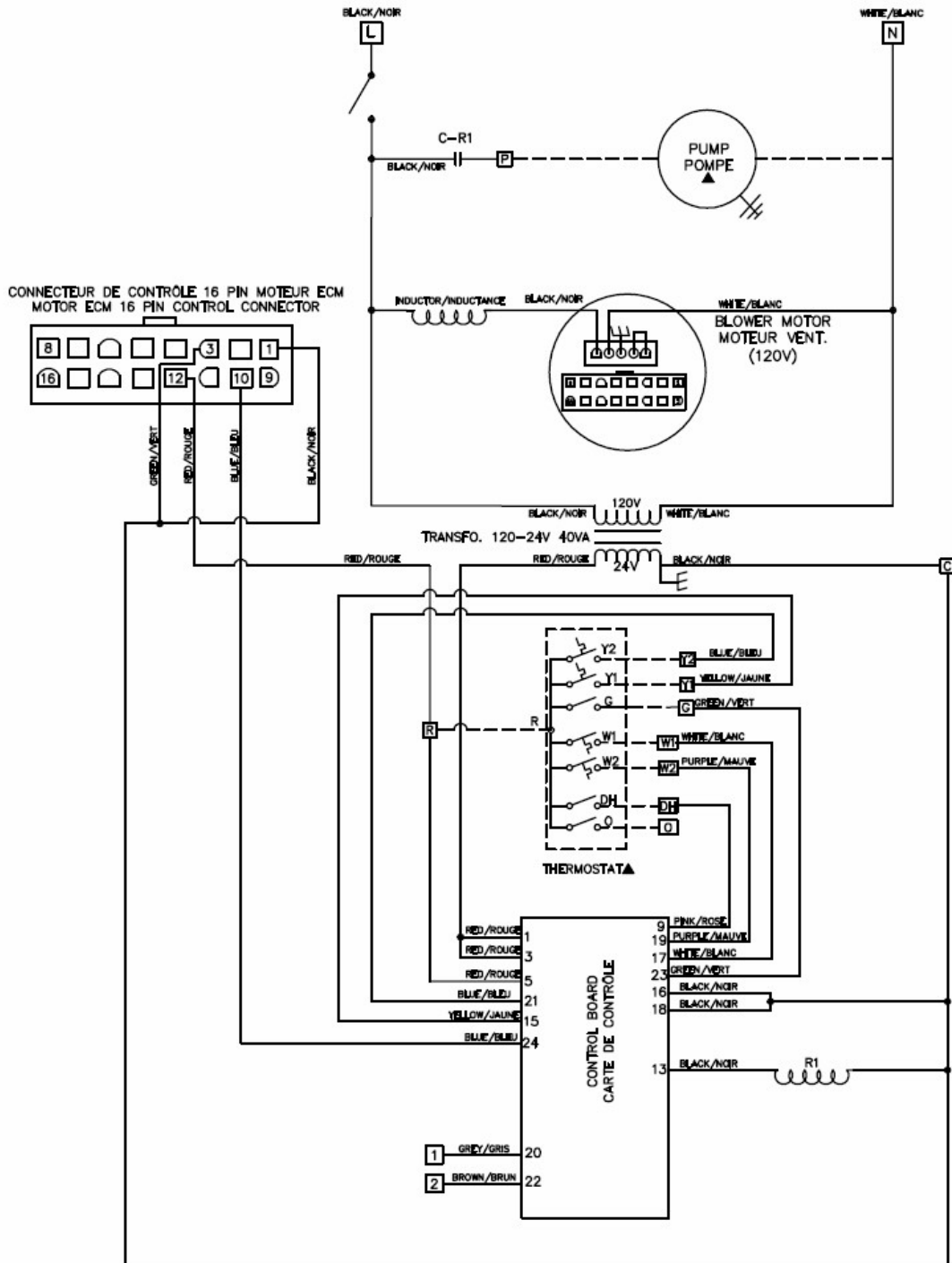


Figure 15 : Electrical Diagram

HYDROMAXV

ELECTRICAL DIAGRAM / DIAGRAMME ÉLECTRIQUE



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

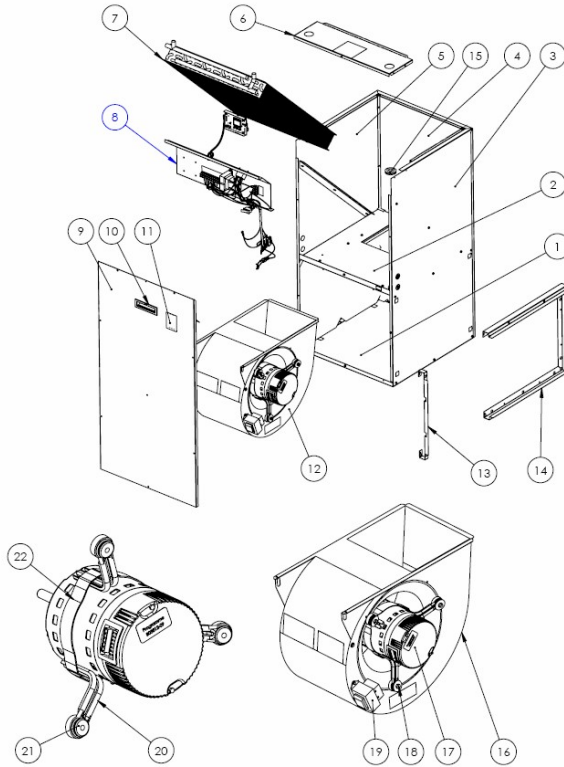
Installer Password :
 Mot-de-passe :

C-R : RELAY OR SSR CONTACT / CONTACT DU RELAIS À BOBINE OU À SEMI-CONDUCTEUR
 R : RELAY OR SSR CONTROL / CONTRÔLE DU RELAIS À BOBINE OU À SEMI-CONDUCTEUR

X04165 Rev.B

11.0 REPLACEMENT PARTS

Figure 16 : Parts List



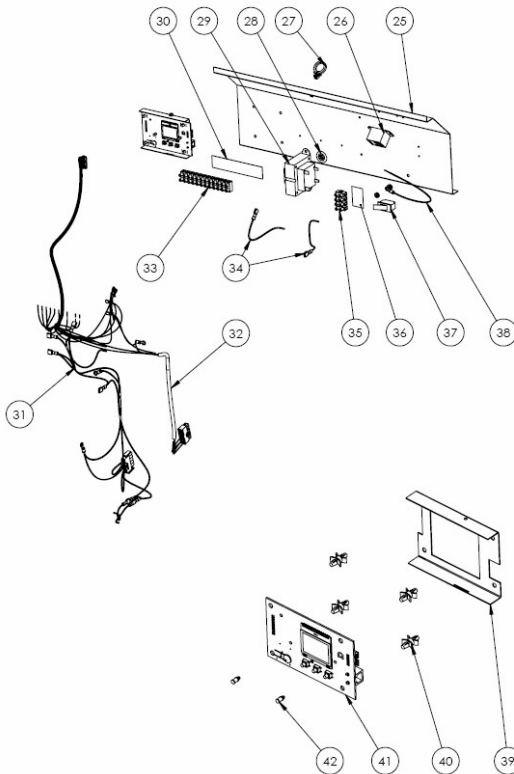
NO ITEM	NO PIÈCE	DESCRIPTION
1	B43264	PANNEAU PLANCHER
2	B43263	ASS. SÉPARATEUR VENTILATEUR
3	B43259	ASS. PANNEAU DROIT
4	B43261	ASS. PANNEAU ARRIÈRE
5	B43260	ASS. PANNEAU GAUCHE
6	B43265	PANNEAU DESSUS
7	B40609	SERPENTIN DE CHAUFFAGE
8	B43256	CONTRÔLE ÉLECTRIQUE
9	B43255	ASS. PANNEAU DE PORTE
10	Z99F050	POIGNÉE ENCASTÉE NOIRE
11	X50088	ÉTIQUETTE CONTRÔLE
12	B04357-04	ASS. VENTILATEUR
13	B43279	EMBOÛT DE SUP. DE FILTRE
14	B43278	CONTOUR DE SUP. DE FILTRE
15	G14F019	PASSE TUYAU

NO ITEM	NO. PIÈCE	DESCRIPTION
16	Z011035	VENTILATEUR
17	B03811-28	MOTEUR
18	F03F033	VIS TEKS WSH #6-18 X 1/2
19	B03141-02	INDUCTANCE

NO ITEM	NO. PIÈCE	DESCRIPTION
20	Z011017	pañte moteur confort fan
21	F06F010	Rondelle 1/4 Bolt zinc BB (S-N 2333)
22	Z01F012	COURROIE MOTEUR

NO ITEM	NO. PIÈCE	DESCRIPTION
23	G12F011	CIRCULATEUR
24	G12F012	KIT 3/4" RACCORD

B50197



NO ITEM	NO. PIÈCE	DESCRIPTION
25	B43273	PANNEAU COTRÔLE ÉLECTRIQUE
26	L01H009	RELAIS 24V
27	L04J007	PASSE FIL
28	L04G001	PASSE PAROIS
29	L01F009	TRANSFORMATEUR
30	X02370	ÉTIQUETTE BORNIER CONTRÔLE
31	B43276	KIT ÉLECTRIQUE PUISSANCE
32	B43275	KIT ÉLECTRIQUE CONTRÔLE
33	L05F013	BORNIER DE CONTRÔLE
34	A00205-04	FIL ÉLECTRIQUE
35	B04000-04	BORNIER 4 POS.
36	X02387	ÉTIQUETTE BORNIER PUISSANCE
37	L07H001	COMMUTATEUR DE PORTE
38	A00318-02	FIL ÉLECTRIQUE

NO ITEM	NO. PIÈCE	DESCRIPTION
39	B43274	SUPPORT DE CARTE
40	F14G010	ESPACEUR PCB 3/16"
41	R99G024	CARTE DE CONTRÔLE
42	F14G009	Espaceur .250 PST-4-01

B50199

HYDRO MAXX