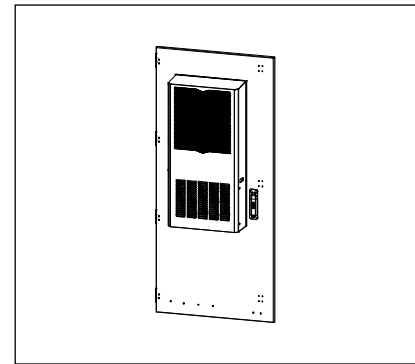


# Charles Universal Broadband Enclosure

## Replacement Door Kit with 5000BTU HVAC

### General Description and Installation

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**Figure 1 Replacement Door**

## 1. GENERAL INTRODUCTION

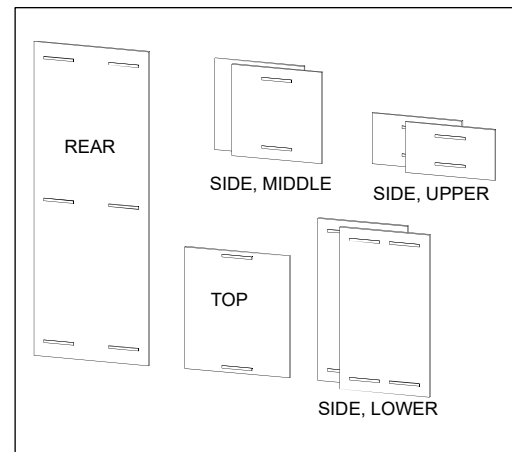
### 1.1. Document Purpose

This document provides general information for the 97-002474-A replacement door kit for an existing cabinet in the field. Figure 1 shows the replacement door kit.

*-NOTE-*  
Hereafter, the 97-002474-A replacement door kit will be referred to as the “kit.”

### 1.2. Product Purpose

The kit includes a replacement door for a cabinet. The door is equipped with a 5000BTU DC powered HVAC system. The kit also includes a set of insulation panels to mount on the inside of the cabinet (Figure 2).



**Figure 2 Insulation Panels**

## 2. INSTALLATION

### 2.1. Inspecting the Product

The kit is shipped upright on a skid. Remove the bolts, unpack the unit, remove and dispose of the packaging material.

If the kit is left lying in a horizontal position, the oil may flow out of the compressor. Leave the door upright for 24 hours before installing or operating the HVAC to allow the oil to flow back to the reservoir.

*-INSPECTION NOTE-*

*Visually inspect the unit for damages prior to installation. If the equipment was damaged in transit, immediately report the extent of the damage to the transportation company.*

### 2.2. Following and Using Safety Precautions

Read the following site and safety tips, cautions, and warnings, then proceed with the paragraphs that follow.

- For installation, follow all National Electrical Codes (NEC) ANSI/NFPA 70, local, environmental, workplace, and company codes, safety procedures, and practices.
- Minimum spacing between the accessories and components and the housing for ITE equipment shall be maintained for safe operation of the equipment when installed in accordance with NEC ANSI/NFPA 70.
- Read all instructions, warnings and cautions on the equipment and in the documentation shipped with the product.
- Do not place this product on weak or unstable surfaces which may allow the product to fall, resulting in potentially serious damage(s) to persons or product.
- Only authorized trained personnel shall install the kit.

### 2.3. Obtaining Tools and Equipment

Obtain the following recommended or needed items for installing the kit.

- Safety glasses
- Work gloves
- Slotted, hex, and Phillips screwdrivers
- Permanent marker
- Torque wrench
- Can wrench (216 tool)
- 7/16 and 11/32 socket and wrench
- Wrench for 1/4"-20 nuts
- Hammer or mallet
- Lifting equipment (e.g. hand truck, dolly)
- Clean, dry cloth
- Isopropyl alcohol
- Tarp or moving blanket
- Zip ties
- Tape

## 2.4. Disassembling the Packaging

**CAUTION: Keep the door kit upright at all times.** If the HVAC system is left lying down, then the compressor oil can flow out of its reservoir, which will impair the HVAC operation when it is turned on. Store the door in an upright position for 24 hours prior to installation and keep it upright during the installation process.

Instructions:

1. Remove the shrink wrap from the shipping pallet.
2. Locate the cross braces on the back of the frame. Remove these by removing the screws that hold them in place.
3. Remove the insulation panels and set aside.
4. Support the replacement door so that it remains upright while removing the screws that hold the front set of cross braces in place.
5. When all cross braces have been removed, use proper lifting equipment to move the replacement door off the pallet. Make sure the door remains in a vertical position when transporting.

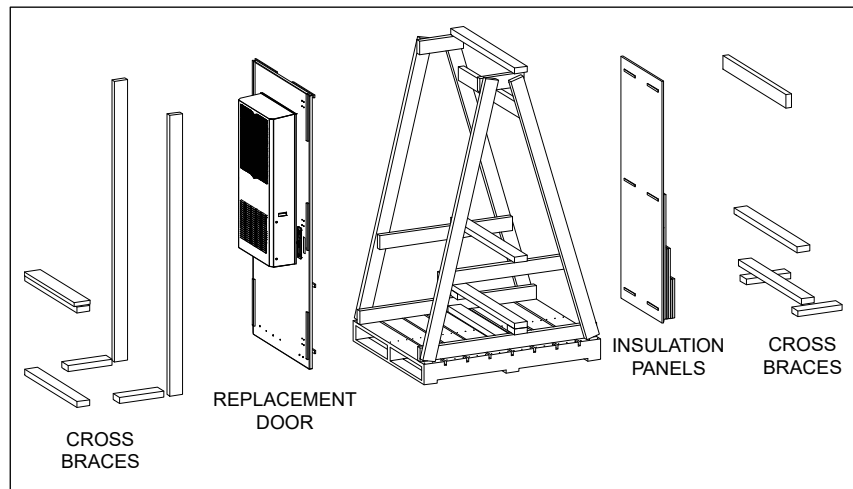



Figure 3 Unpack the Kit

## 2.5. Installing the Door

	<b>WARNING</b>	<p><b>Improper hoisting equipment and unsafe lifting procedures can result in serious injury or death.</b></p> <p><b>Charles recommends up to three people to lift, move, and install the kit. Follow local safety practices.</b></p> <p><b>Turn off all power connections to the cabinet before beginning this procedure.</b></p>
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### 2.5.1. Torque Requirements

Torque all hardware as shown below (unless otherwise noted). These values apply to SAE Grade 1 & 2 Low Carbon Steel, ASTM A307 Low Carbon Steel, and Stainless Steel Grade 18-8.

Thread Size	In-lbs	Ft-lbs
4-40	4±10%	
6-32	8±10%	
8-32	16±10%	
10-32	26±10%	
12-24	50±10%	
1/4-20/M6	60±5%	5±5%
5/16-18	125±5%	10.4±5%
3/8-16	180±5%	15.0±5%
1/2-13	500±2%	41.7±2%
5/8-11	1000±1%	83.3±1%

**2.5.2. Removing the Existing Door**

1. Remove all power and alarm wiring from the thermal device on the existing cabinet door. These cables can be removed from the cabinet, as new wiring is provided with the kit.
2. Remove the ground strap connection from the existing door. Save the nut.
3. Remove the wind latch hardware from the inside flange on the bottom door frame of the cabinet. Save the hardware.
4. Remove the hinge pins from the existing door.
5. Remove the door from the cabinet.
6. Remove the hinge bases from the cabinet door frame.
7. If there is any identifying information on the existing door (e.g. part number, serial number, etc.), use a permanent marker to copy this information onto the replacement door surface.
8. Discard or store the removed door, cables, and hinges according to local practice.

**2.5.3. Mounting the Kit onto the Cabinet**

The replacement door includes new hinges. One side of the hinge is already installed on the inside of the door. The other side ships loose with the kit. See Figure 4.

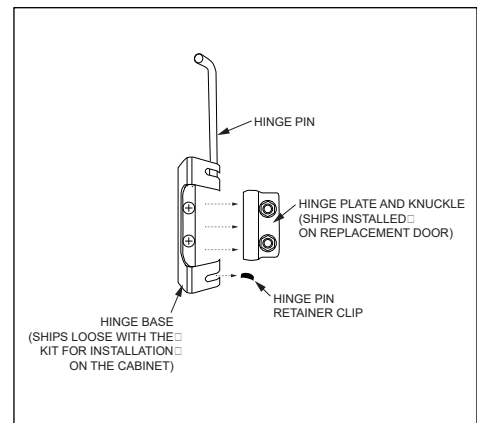
1. Install the hinge bases onto the cabinet door frame. Use the same mounting holes that were used for the old hinges. No drilling is needed. Screws for mounting the hinge bases are provided with the kit.
2. Lift the replacement door into position, aligning the hinge plates on the door with the hinge bases on the cabinet (Figure 5).

Note: When placing the door against the cabinet, ensure that the door is as close as possible to the cabinet door frame. The mounting studs used to secure the hinge plates must be all the way to the left in the mounting slot (Figure 6).

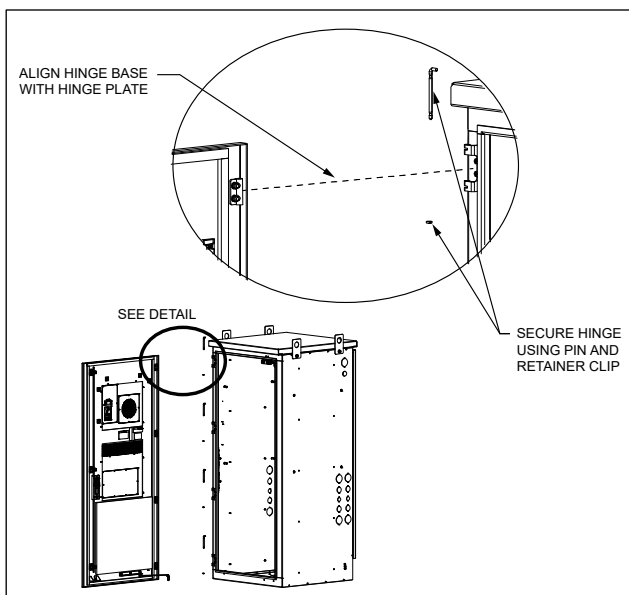
3. Lower the hinge pins through the hinges. Secure the pins in place using the hinge retainer clips.

Note: it is recommended to secure the top and bottom hinge pins first, then the middle two.

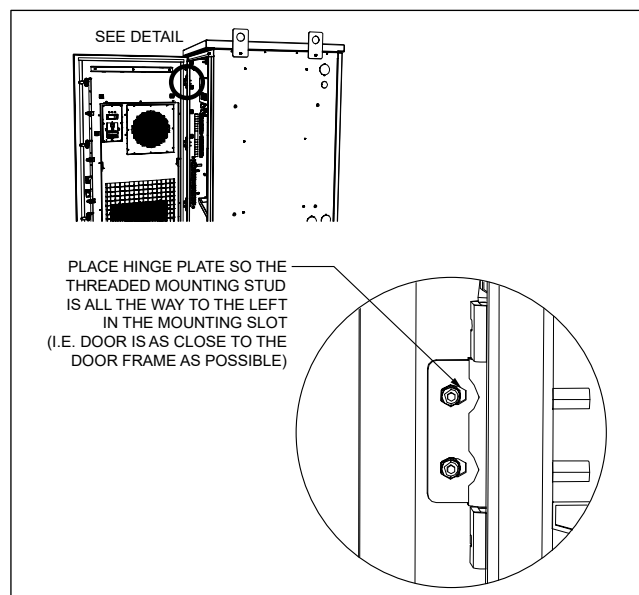
4. Reconnect the wind latch and the grounding strap to the replacement door using the hardware removed previously.



**Figure 4 Hinge Components**



**Figure 5 Door Removal and Mounting**



**Figure 6 Hinge Plate Placement**

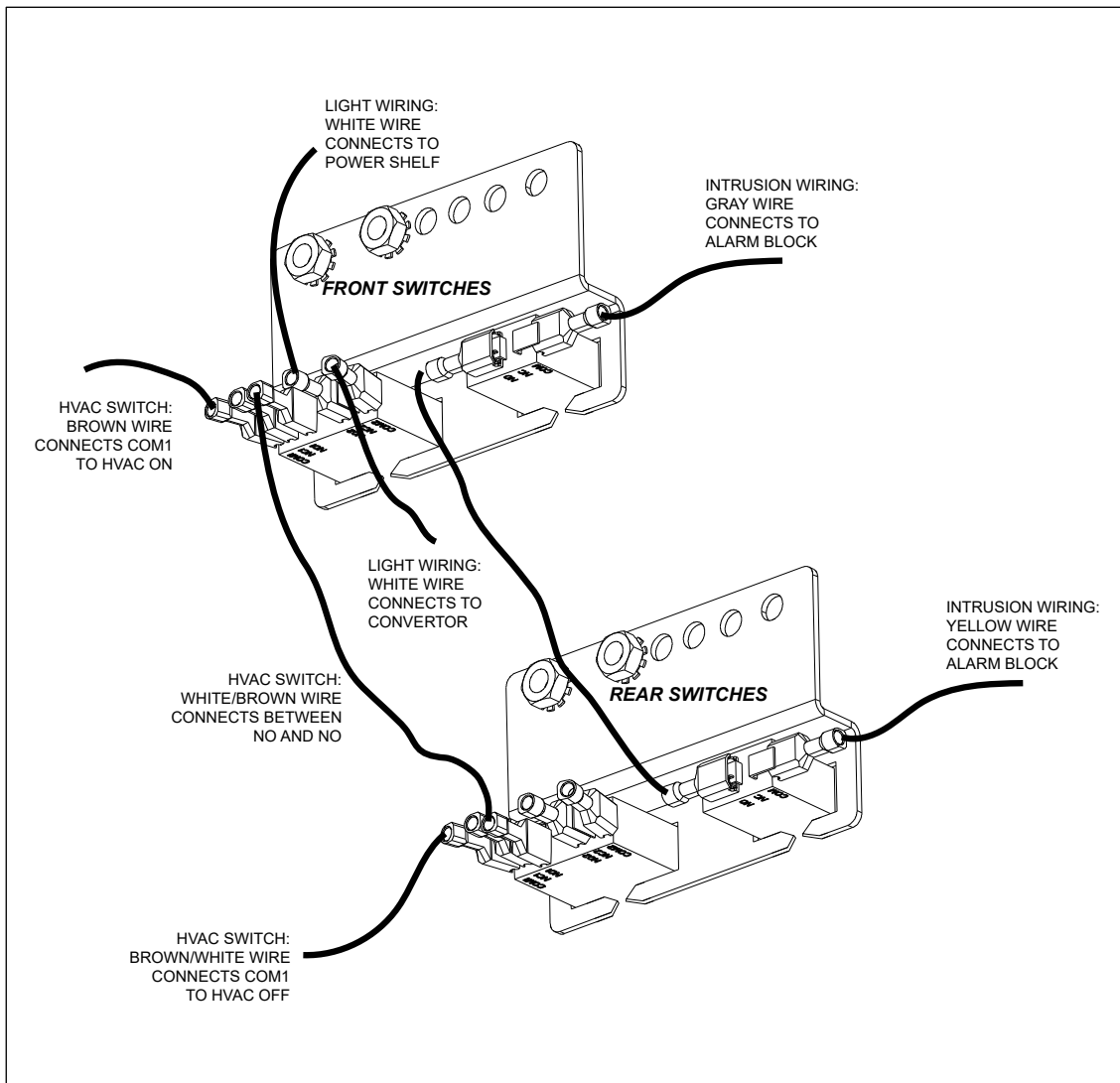
## 2.6. Wiring the HVAC and Switches

Once the replacement door is mounted on the cabinet, connect the new HVAC system, as well as the door intrusion alarm and HVAC cutoff switch wiring. Wires for the new HVAC system are included with the kit.

The door intrusion alarm switch is connected to the alarm terminal block. Reconnect the gray and yellow wires (light) to the same positions on the front intrusion switch that they were removed from previously. These wires are re-used from the existing cabinet.

The HVAC cutoff switch is connected to the HVAC ON and OFF alarm terminals. Brown and Brown/white wires are provided with the kit. Route all wiring to prevent strain and to avoid pinching in the door. Adhesive-backed cable tie mounts are provided on the inside of the door to assist with wire routing above the connection block. Extra mounts ship loose with the kit. Use as needed to ensure proper wire grooming. If using these mounts, clean the area first with isopropyl alcohol and a clean, dry cloth. Apply pressure on the mount for 10 seconds to ensure proper adhesion.

Switch wiring is shown in Figures 7 and 8. The completed full wiring schematic is shown in Figure 9. Routing is shown in Figure 10.



**Figure 7 Door Intrusion and HVAC Switch Wiring**

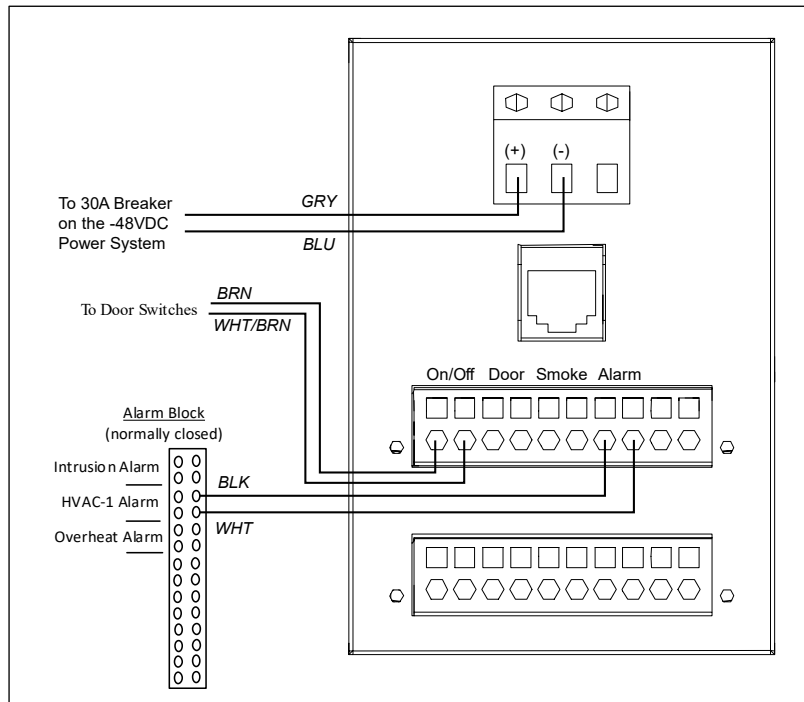


Figure 8 HVAC Wiring Terminals

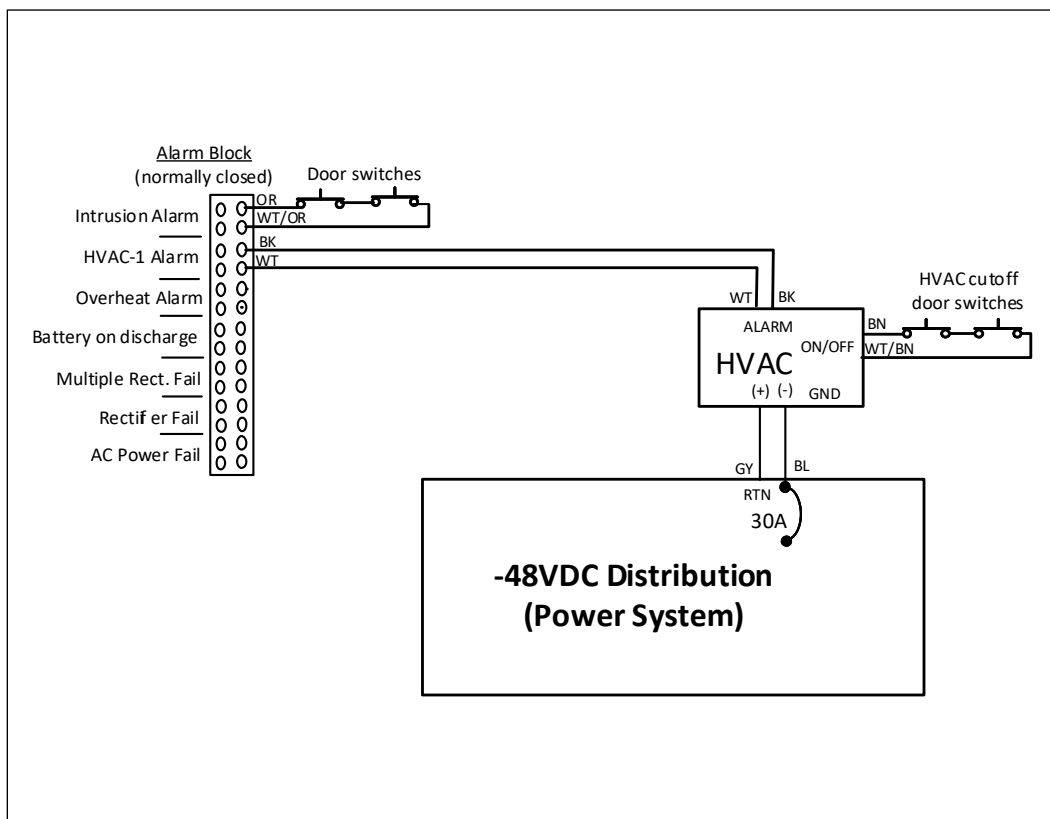
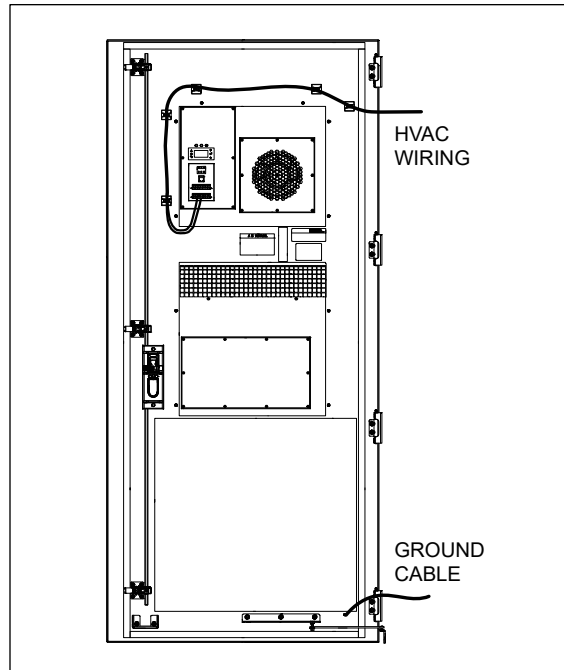


Figure 9 Electrical Diagram of Complete Installation



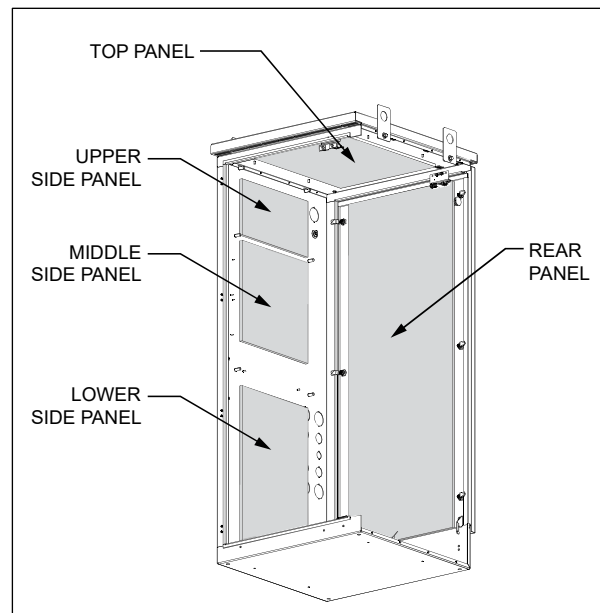
**Figure 10 Wire Routing**

## 2.7. Installing the Insulation Panels

If customer equipment is installed in the cabinet, it might need to be removed for better access to the cabinet side, rear, and top panels. Figure 11 shows an empty cabinet so that the panels are more visible. The door and one side have been hidden for clarity. Panels are shaded in gray.

Use isopropyl alcohol and a clean, dry cloth to clean all surfaces where insulation will be installed. The insulation panels are equipped with VHB tape installed on the back of the panel. Remove the adhesive backing from the tape and affix the insulation panel to the inside of the cabinet where pictured.

Note: two sets of side panels are included with the kit. Install one set on each side (only one side pictured).



**Figure 11 Insulation Panel Locations**

## 2.8. HVAC Operation

The 5000BTU DC powered HVAC compressor and fans are PID (proportional integral derivative) controlled. The compressor turns on at 33°C at low speed and will increase speed as needed to maintain that temperature. The compressor turns off at 28°C. The internal fan is always on at low speed to continually circulate heat within the cabinet. The heating cycle turns on at 8°C and off at 13°C. The CABINET is equipped with a cutoff switch that shuts off the HVAC compressor when a door is opened to minimize condensation buildup on the coils. For further information, refer to the HVAC documentation that ships with the cabinet.

*-NOTE-*

*Changing the cooling or heating cycles' default factory set points can lead to system performance issues, such as equipment failures, increased power use, unnecessary alarms, noise, condensation build up, compressor or fan failure caused by excessive runtimes and vibration.*

*Avoid placing items in front of the HVAC's return and supply vents. Maintain a minimum of 2" clearance to enable proper air flow.*

## 2.9. Storing the Unused Door

The packing materials can be repurposed to store the door that was removed from the cabinet (Figure 3). Place the door on the pallet in a vertical position, resting the door on top of the pallet. Assemble the cross braces to support the door, ensuring that one cross brace is underneath the thermal unit for additional support. Maintain contact between the door and the pallet and between the thermal unit and the cross brace. If needed, use zip ties to secure the cables to the door and use heavy-duty tape to secure the wind latch. Place any unused hardware and other loose items removed from the cabinet into a manilla envelope and staple or tape this envelope to the pallet for storage. When the packing assembly is re-built, wrap and store according to local practice.

## 3. PERIODIC MAINTENANCE

In the event that the enclosure needs to be opened in freezing conditions, a narrow, pointed metallic object such as a screwdriver or chisel, along with a non-metallic device such as a rubber mallet, may be used to remove excessive ice buildup around the door and locking mechanism. Use a commercial aerosol de-icer spray to free up locks and latches if needed.

Refer to the HVAC manual supplied with the unit for periodic maintenance requirements.

## 4. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support.

847-806-8500

[techserv@charlesindustries.com](mailto:techserv@charlesindustries.com) (email)

<http://www.charlesindustries.com/techserv.htm>

## 5. WARRANTY & CUSTOMER SERVICE

Charles Industries LLC offers a one-year warranty on the kit product. The Charles warranty is limited to the operation of the kit hardware as described in this documentation and does not cover equipment which may be integrated by a third party. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative.

847-806-6300

[mktserv@charlesindustries.com](mailto:mktserv@charlesindustries.com) (email)

[http://www.charlesindustries.com/main/telecom\\_sales\\_support.htm](http://www.charlesindustries.com/main/telecom_sales_support.htm)

## 6. SPECIFICATIONS

Physical	
Weight	Approx. 106 lbs. as shipped
Materials	0.125" aluminum
Color	Off-white
Thermal	
HVAC System	48VDC, Vikinor VAK-1500-DC
Cooling Capacity	5000BTU
Kits and Replacement Parts	
Touch-up Paint	02-000290-0
Door Handle	39-000335-0

**Table 1      Kit Specifications**