



*The Signature of Quality®*

## INSTALLATION & OPERATIONS INSTRUCTIONS

*VHSS: Heated Models*



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## (1) INTRODUCTION

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Thank you for purchasing a Federal Industries display case. This manual contains important instructions for installing and servicing your new display case. A repair parts list and wiring diagram are also included in the manual. Read all of these documents carefully before installing or servicing your case.

|                                                                                    |                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>NOTICE</b><br><b>Read this manual before installing your case. Keep this manual and refer to it before doing any service on the equipment. Failure to do so could result in personal injury or damage to the case.</b>                                                                       |
|   | <b>NOTICE</b><br><b>Installation and service of the electrical components in the case must be performed by a licensed electrician.</b><br><b>The portions of this manual covering components contain technical instructions intended only for persons qualified to perform electrical work.</b> |
|  | <b>DANGER</b><br><b>Improper or faulty hookup of electrical components in the case can result in severe injury or death.</b><br><b>All electrical wiring hookups must be done in accordance with all applicable local, regional, or national standards.</b>                                     |

### 1.1 SERIAL NUMBER

Record the model and serial numbers of the case for easy reference. Always refer to both model and serial numbers in your correspondence with Federal regarding the case.

Case Model \_\_\_\_\_ Serial Number \_\_\_\_\_

This manual cannot cover every installation, use, or service situation. If you need additional information, call or write us:

#### **WARRANTY/TECHNICAL SERVICE DEPARTMENT**

**Parts Town**

**1200 Greenbriar Dr.**

**Addison, IL 60101**

**Toll Free: (833) 238-8168**

**Email: [techservice@partstown.com](mailto:techservice@partstown.com)**



## (2) WARNING LABELS & SAFETY INSTRUCTIONS



This is the safety-alert symbol. When you see this symbol on your case or in the manual, be alert to the potential for personal injury or damage to your equipment.

Be sure you understand all safety messages and always follow recommended precautions and safe operating procedures.



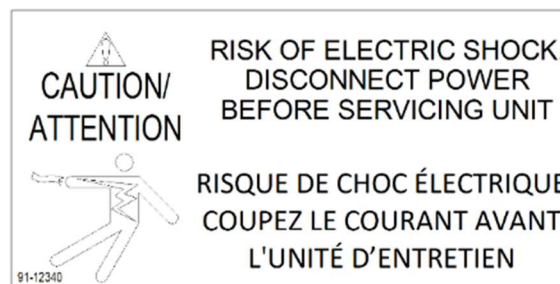
### NOTICE TO EMPLOYERS:

You must make sure that everyone who installs, uses, or services your case is thoroughly familiar with all safety information and procedures.

Important safety information is presented in this section and throughout the manual. The following signal words are used in the warning and safety messages:

|          |                                                                                                                         |
|----------|-------------------------------------------------------------------------------------------------------------------------|
| DANGER:  | Severe injury or death <b><u>will</u></b> occur if you ignore the message.                                              |
| WARNING: | Severe injury or death <b><u>can</u></b> occur if you ignore the message.                                               |
| CAUTION: | Minor injury or damage to your case <b><u>can</u></b> occur if you ignore the message.                                  |
| NOTICE:  | This is important installation, operation, or service information. If you ignore the message, you may damage your case. |

The warning and safety labels shown throughout this manual are placed on your Federal Industries case at the factory. Follow all warning label instructions. If any warning or safety labels become lost or damaged, call our customer service department at (800) 356-4206 for replacements.



**CAUTION: HOT**

Located at front of unit and on shelves

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### **(3) PRIOR TO UNPACKING EQUIPMENT!**

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#### ***Inspect for shipping damage.***

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage is noted to shipping crates, cartons, or if a shortage is found, note this on the bill of lading (all copies) prior to signing.

If damage is discovered when the case is uncrated, immediately call the delivering truck line and follow-up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damaged item. Crating material must be retained to show the inspector from the truck line.

## (4) GENERAL ELECTRICAL & GROUNDING



### WARNING:

Improper or faulty hookup of electrical components in the display case can result in severe injury or death.

### 4.1 CORD CONNECTED

All standard models are supplied with a power cord that is properly sized to the amperage requirements of the case. See the rating plate for specific unit requirements. This can be located as shown in the "FEATURE IDENTIFICATION" section of this manual.

The cord is factory installed protruding from the bottom rear corner of the case.

A separate circuit for each display case is required to prevent other appliances on the same circuit from overloading the circuit and causing malfunction.

| MODEL     | DIMENSIONS |     |      | SHELVING      |       |       | INTERIOR<br>VOLUME<br>CU FT | STANDARD CONNECTION<br>CORD & PLUG |               |                | SHIP<br>WEIGHT |
|-----------|------------|-----|------|---------------|-------|-------|-----------------------------|------------------------------------|---------------|----------------|----------------|
|           |            |     |      | # OF<br>TIERS | L1    | D1    |                             | 2 WIRE + GROUND                    |               | NEMA           |                |
|           | in         | in  | in   |               | in    | in    |                             | 208-240/60/1                       |               | CORD &<br>PLUG | LBS            |
|           | mm         | mm  | mm   |               | mm    | mm    |                             | AMPS                               | MAX FUSE SIZE |                | KILO           |
| VHSS2460S | 24         | 33  | 60   | 3             | 32.25 | 16.61 | 9.07                        | 6.0 @208                           | 15            | NEMA           | 310            |
|           | 610        | 838 | 1524 |               | 819   | 422   |                             | 6.9 @ 240                          |               | 6-15P          | 141            |
| VHSS3660S | 36         | 33  | 60   | 3             | 43.25 | 16.61 | 13.98                       | 9.7 @ 208                          | 15            | NEMA           | 355            |
|           | 914        | 838 | 1524 |               | 1099  | 422   |                             | 11.1 @ 240                         |               | 6-15P          | 161            |
| VHSS4860S | 47.25      | 33  | 60   | 3             | 55.25 | 16.61 | 18.48                       | 13.4 @ 208                         | 20            | NEMA           | 490            |
|           | 1200       | 838 | 1524 |               | 1403  | 422   |                             | 15.4 @ 240                         |               | 6-20P          | 222            |

| MODEL     | DIMENSIONS |     |              | SHELVING      |       |       | INTERIOR<br>VOLUME<br>CU FT | STANDARD CONNECTION<br>CORD & PLUG |    |                        | SHIP<br>WEIGHT |
|-----------|------------|-----|--------------|---------------|-------|-------|-----------------------------|------------------------------------|----|------------------------|----------------|
|           |            |     |              | # OF<br>TIERS | L1    | D1    |                             | 2 WIRE + GROUND                    |    | NEMA<br>CORD<br>& PLUG |                |
|           | in         | in  | 208-240/60/1 |               |       |       |                             |                                    |    |                        |                |
|           | mm         | mm  | mm           |               | mm    | AMPS  |                             | MAX FUSE SIZE                      |    |                        |                |
|           |            |     |              |               |       |       |                             |                                    |    |                        |                |
| VHSS2478S | 24         | 33  | 78           | 4             | 32.25 | 16.61 | 12.64                       | 7.3 @ 208                          | 15 | NEMA<br>6-15P          | 510            |
|           | 610        | 838 | 1981         |               | 819   | 422   |                             | 8.6 @ 240                          |    |                        | 231            |
| VHSS3678S | 36         | 33  | 78           | 4             | 43.25 | 16.61 | 19.47                       | 12.0 @ 208                         | 20 | NEMA<br>6-20P          | 555            |
|           | 914        | 838 | 1981         |               | 1099  | 422   |                             | 13.5 @ 240                         |    |                        | 252            |
| VHSS4878S | 47.25      | 33  | 78           | 4             | 55.25 | 16.61 | 25.74                       | 16.2 @ 208                         | 30 | NEMA<br>L6-30P         | 580            |
|           | 1200       | 838 | 1981         |               | 1403  | 422   |                             | 18.8 @ 240                         |    |                        | 263            |



### CAUTION

Risk of Electric Shock. If the cord or plug becomes damaged, replace only with a cord and plug of the same type.

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## (5) INSTALLATION INSTRUCTIONS

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### 5.1 LOCATING THE DISPLAY CASE

The case(s) should be located where it is not subjected to the direct rays of the sun, heating ducts, grills, radiator, or ceiling fans, nor should it be located near open doors or main door entrances. Also, avoid locations where there is excessive air movement or air disturbances and avoid high humidity locations such as near cases with water misting or fogging devices. Failure to locate this case as stated will reduce the performance of your display and will affect temperature of interior of case and product.

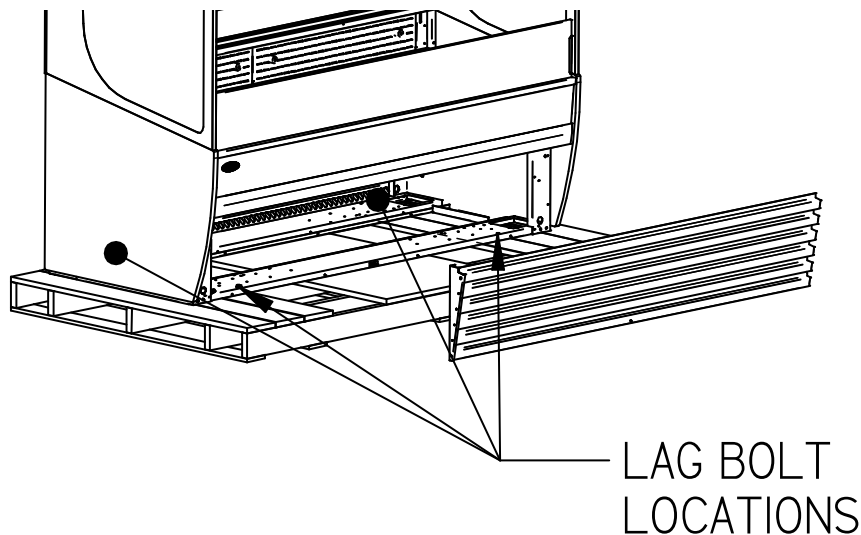
### 5.2 REMOVING CASE FROM SHIPPING SKID

**Be sure to leave shelf packaging material intact for this step.**

**First remove the base front and rear panels**

Two or more people should be involved in moving the unit from the pallet onto the ground.

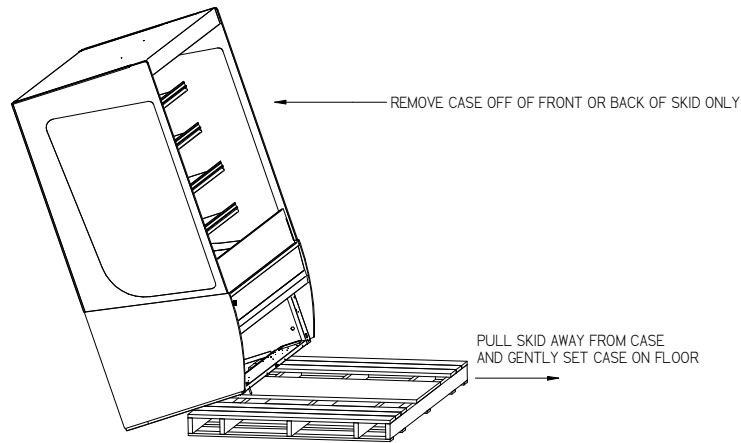
Remove the (4) 1/4" screws that secure the case to the skid. These screws are located in the front and rear corners of the base rails. Base front and rear panels must be removed to access these bolts.



Once all the bolts are removed, slide the unit off the back of the shipping pallet, and tilt it so the rear corner touches the ground. Then have someone move pallet out from under the case and gently tilt the case forward until it touches the floor.

NOTE: see page 18 for removal of slide-in cases from pallet.





### 5.2.1 Removing Packaging Material

Remove bubble wrap and packing material for all shelves and panel, brackets, etc. If it is necessary to remove tape residue from plastic materials, use cleaning compounds recommended in the cleaning section of this manual.

### 5.2.2 Lifting and Moving the Case

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>Caution:</b></p> <p><b>Do not push or pull against the glass air deflector on front of case. Doing so can cause the glass to break. Do not push or pull on side glass or pull on base panel. Doing so will break glass or pull out panel mounting screws. Care must be taken not to damage the case when removing it from the skid or moving the case.</b></p> |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 5.3 SINGLE CASE INSTALLATION (STAND ALONE UNITS)

### Leveling the Case

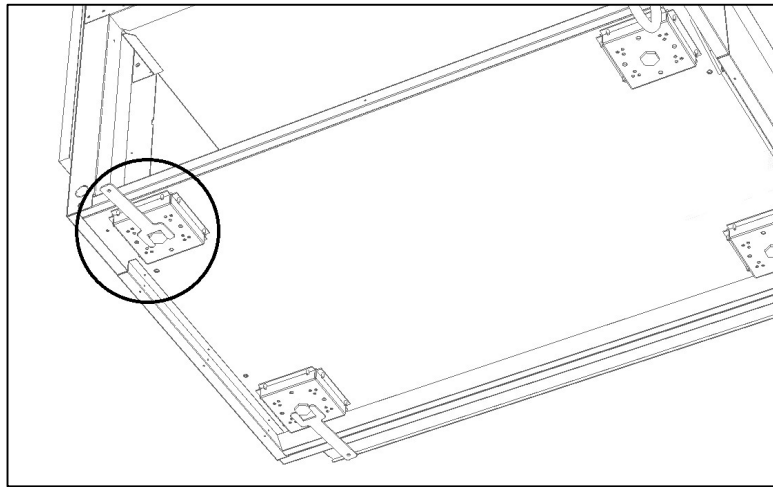
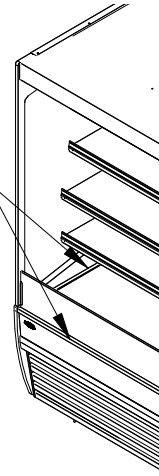
A wrench is included to aid in adjusting leg levelers.

Check the left-to-right level of the case along front of plastic air deflector retainer.

Check the front-to-rear level of the case along the interior ends of the case.



LEVEL CASE USING THESE SURFACES



Adjust the (4) outside leg levelers as needed to level the case in each direction.

NOTE: If necessary, use a wood or plastic shim under each leg leveler to avoid scratching the tile floor.

#### Sealing Unit to The Floor

After the unit is positioned and the leg levelers are turned out, the unit needs to be sealed to the floor for NSF approved installation.

#### 5.4 **PRIOR TO INITIAL USE**

Unit must be cleaned as indicated in the “WEEKLY CLEANING” section of this manual before initial use.

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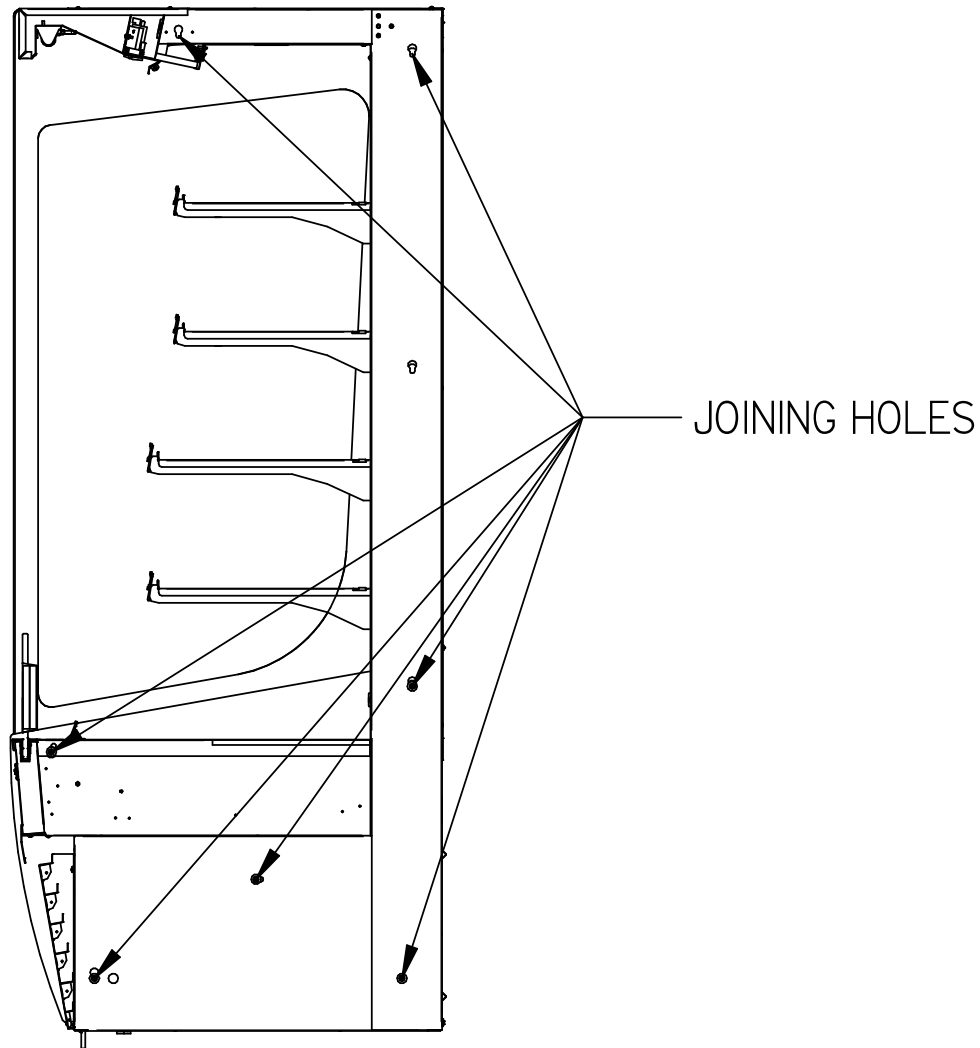
## (6) JOINING KIT INSTALLATION (VHSS TO VHSS)

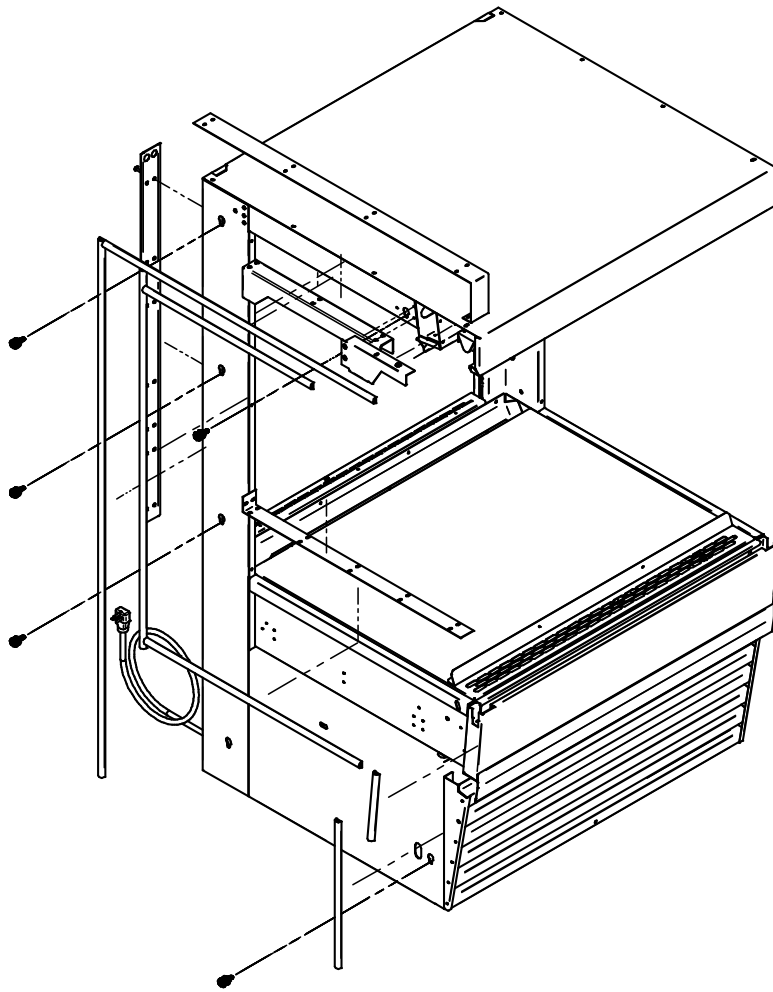
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### 6.1 INSTALLATION FOR JOINED CASES (LINEUPS)

#### 6.1.1 Join heated to heated (VHSS to VHSS)

1. Remove all Shelves, display deck, interior back panel(s), exterior back(s), front and rear base panel, and ceiling.
2. Position the right or left most unit in the desired position for the lineup to start, and level this case.
3. Push the 2<sup>nd</sup> case next to the 1<sup>st</sup> and line them up as closely as possible.
4. Adjust the leveling legs of the 2<sup>nd</sup> case until the units and joining holes align with each other.
5. Using (7) holes noted below, bolt units together with the supplied hardware, and attach joining trim to remove the gap between the decks in the joined units. Re-use the screws in the uprights, as well as the self-drilling screws provided with the kit.



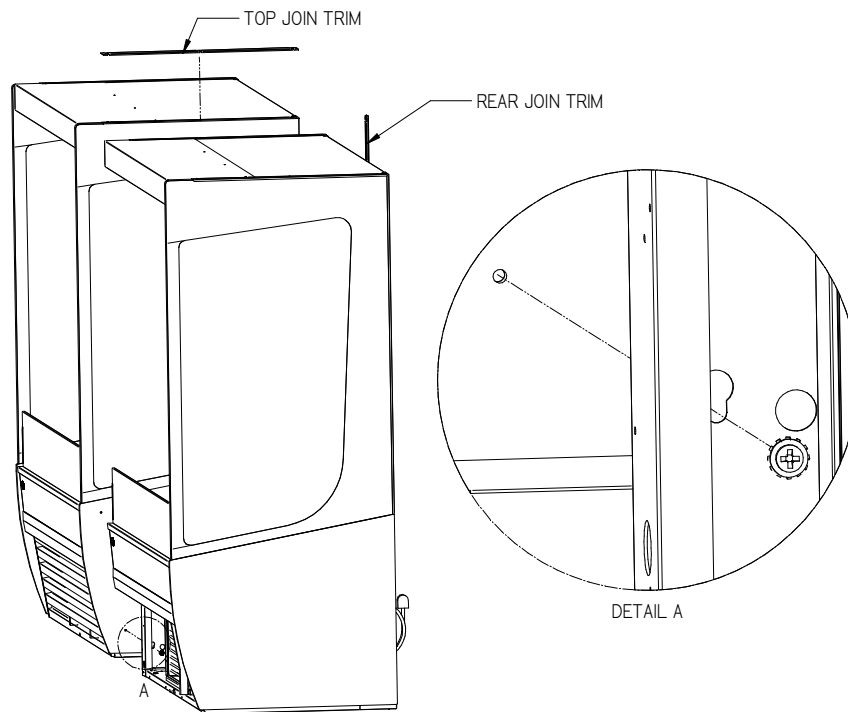


6. Replace all panels that were previously removed.

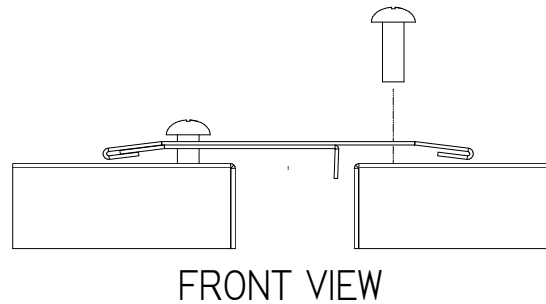
#### 6.1.2 Join units with glass divider, or join heated to non-refrigerated

For this joining configuration, one unit will come with a lower end panel preinstalled with glass. Five bolt holes will be exposed on the outside of this panel and are the locations that will be used to join the units together. This kit also comes with top and rear exterior trim, but no interior trim.

1. Remove all Shelves, display deck, interior back panel(s), exterior back(s), front and rear base panel, and loosen honeycomb (see cleaning section for honeycomb removal) material on the unfinished end to expose the holes used to bolt units together.
2. Position the right or left most unit in the desired position for the lineup to start, and level this case.
3. Push the 2<sup>nd</sup> case next to the 1<sup>st</sup> and line them up as closely as possible.
4. Adjust the leveling legs of the 2<sup>nd</sup> case until the bolt holes align with the mating holes in the joining case.
5. Push the units together so that the through bolts go through the case to be joined.
6. Using the hardware provided (1/4-20 screw, washer, lock washer), screw the 2<sup>nd</sup> case with the unfinished end into the first case.

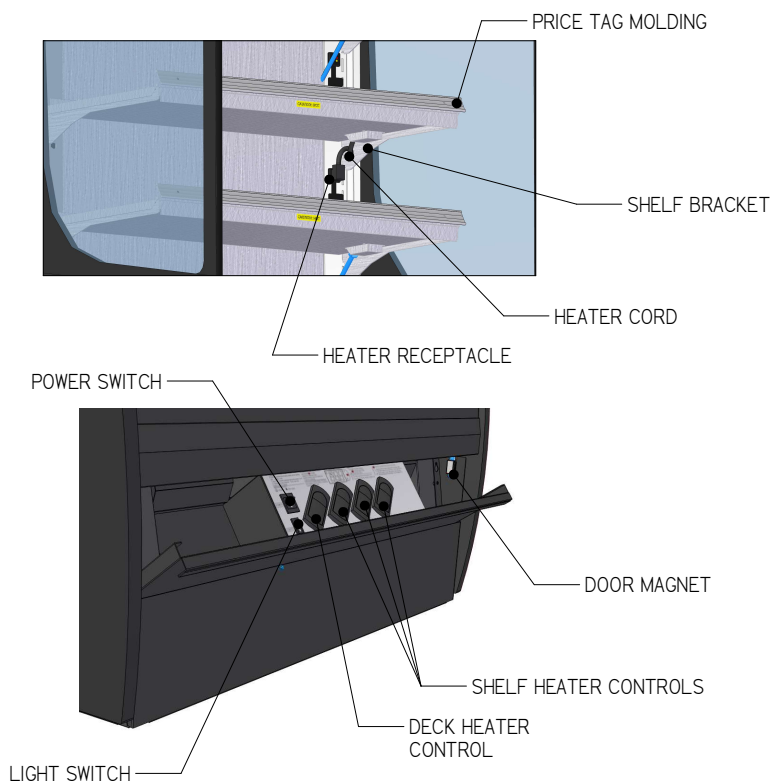
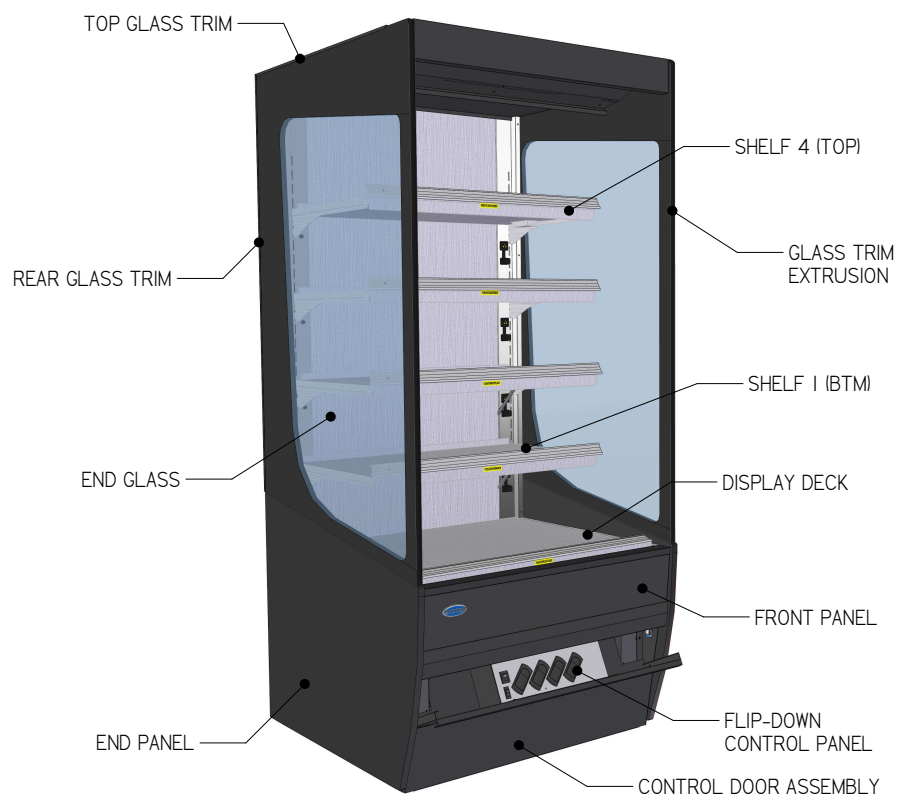


7. Finish the joining process loosening the glass trim on the case to slide the joining trim over the existing trim and secure with the existing fasteners. Do this for both the top trim and the rear trim.



8. Replace any panels previously removed. Units are now joined.

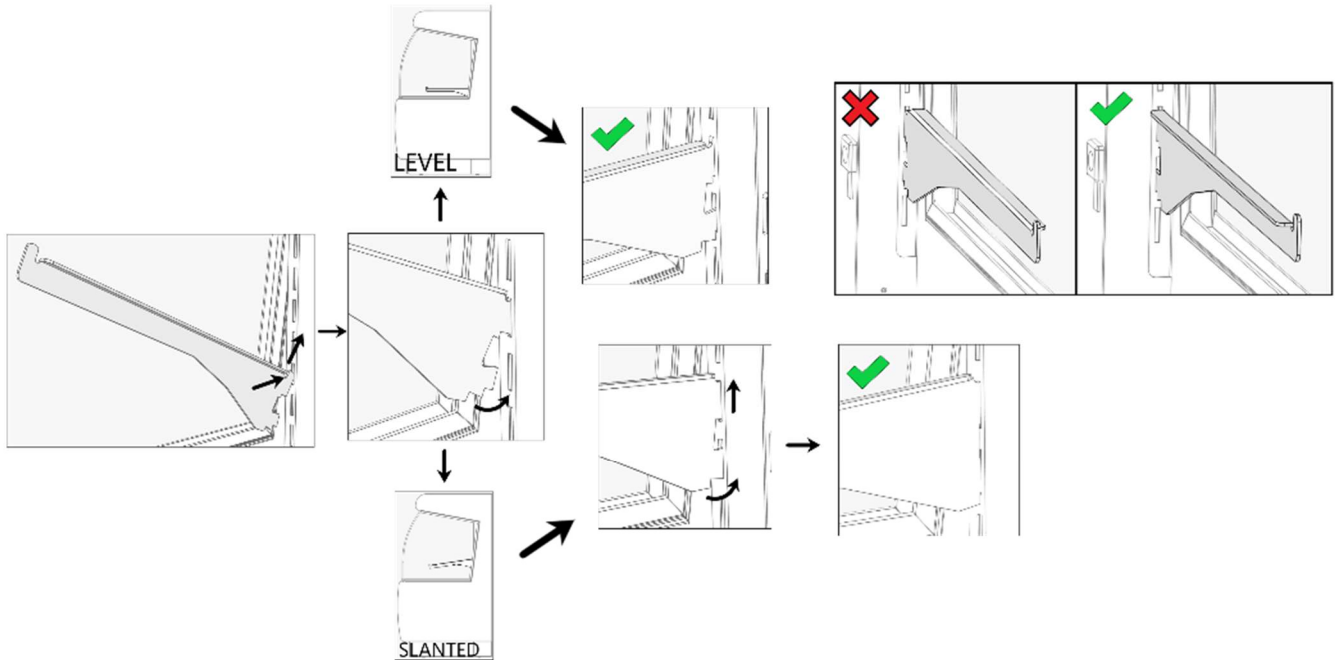
## (7) FEATURE OVERVIEW



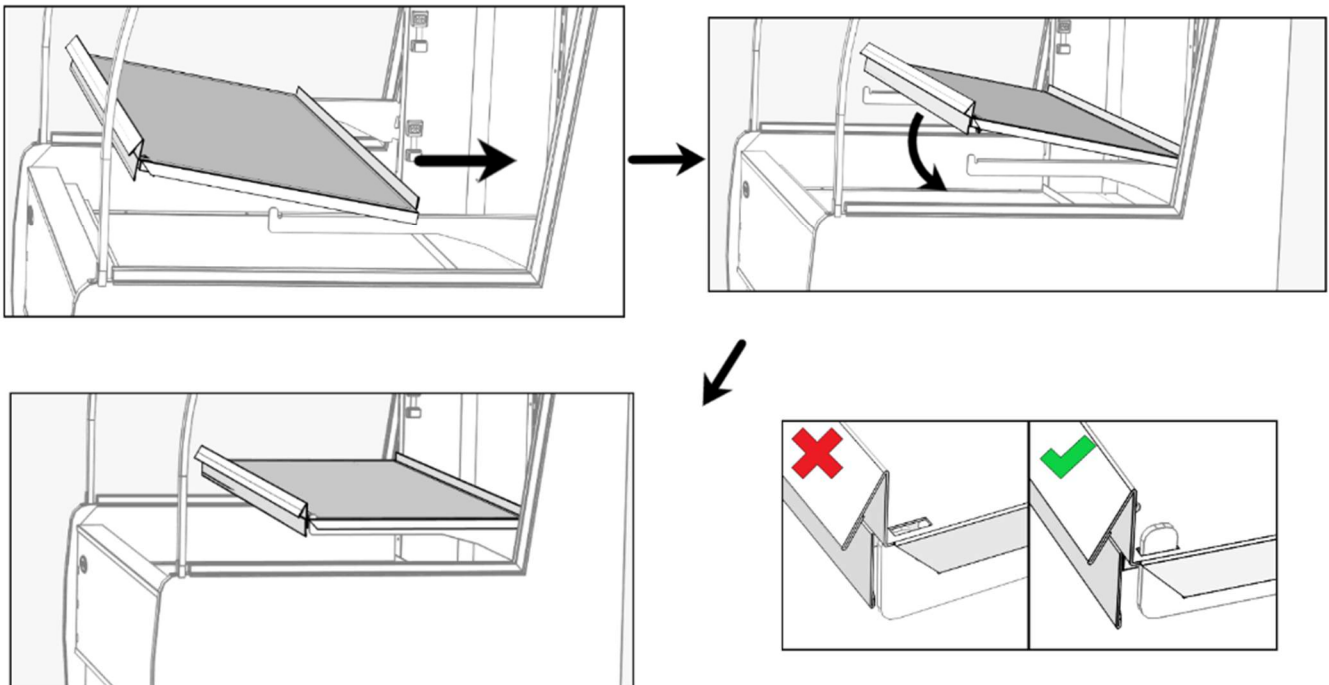
## (8) SHELVING INSTALLATION AND REMOVAL

### 8.1 SHELF BRACKETS AND SUPPORTS

Follow the instructions shown in the diagram below to install shelf brackets. Follow the “LEVEL” path if you want shelves to have no tilt or follow the “SLANTED” path if you want shelves with tilt. Ensure brackets are well seated and face the proper direction.



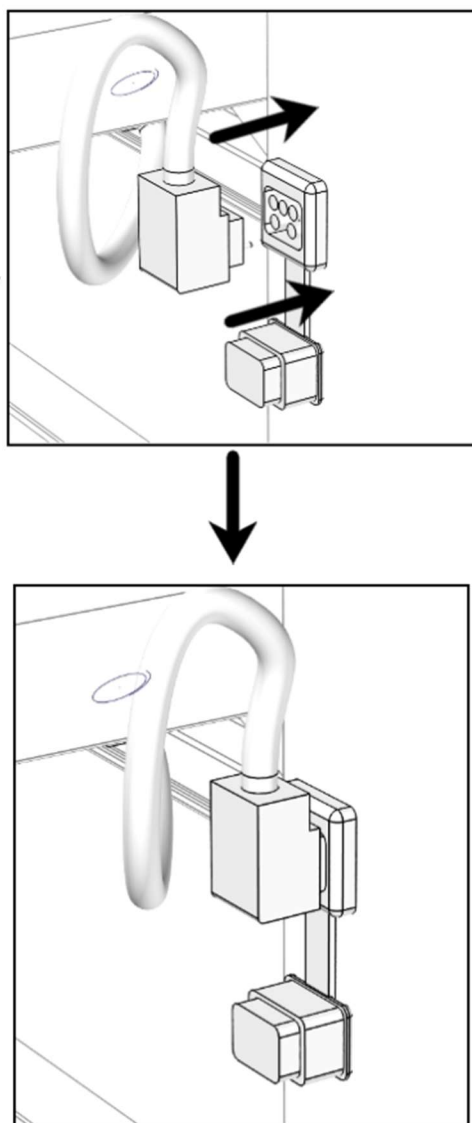
Lay back of shelf across both brackets. Slide it to the rear and then lay the front of the shelf down. Check that the retaining tab of the shelf brackets protrudes through the slot in the shelf.



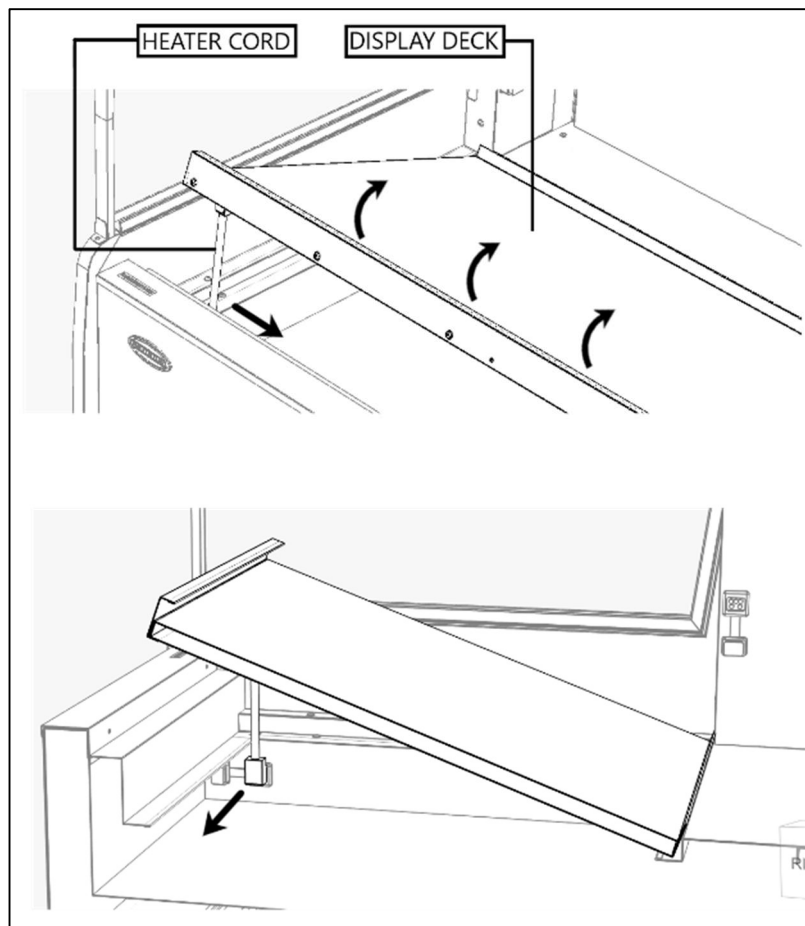
Make the heater connections from the back of the shelf into the receptacle of the vertical frame of the unit. Remove the receptacle cap and push the heater cord (the heater cord comes out of the left side of the shelf) into the nearest heater receptacle. The cord will only insert in one direction as shown below.

Once power is applied to the display case you will be able to check if the cord connection has been adequately made.

Tip: If the rear of the unit is accessible, it may be easier to remove the rear panel and make this connection from the back of the case.

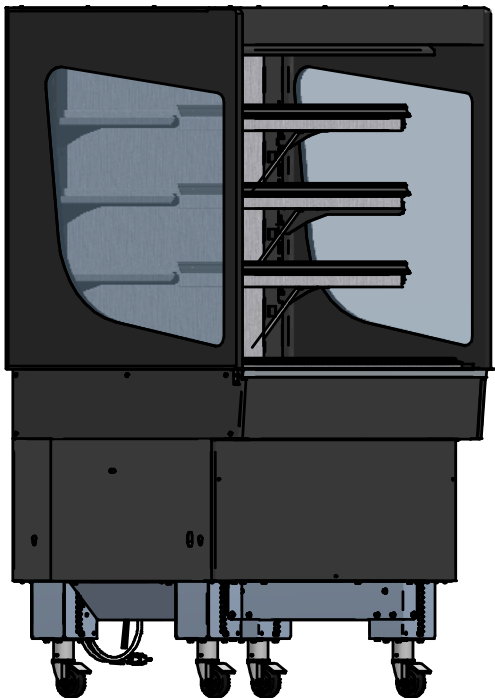
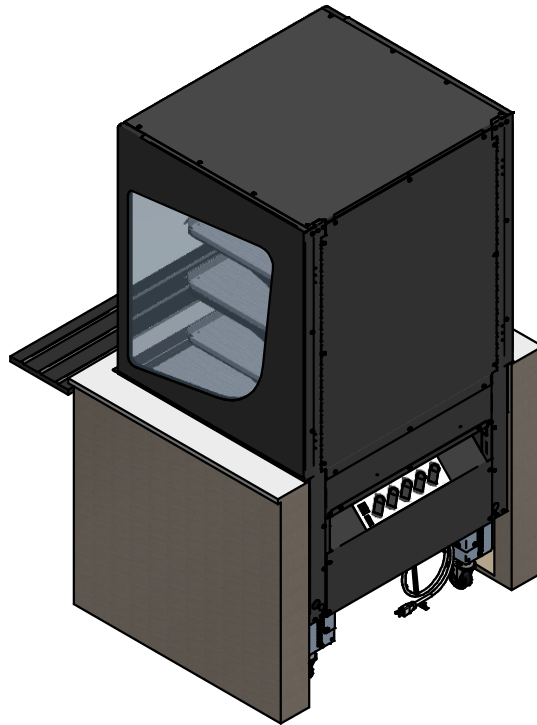
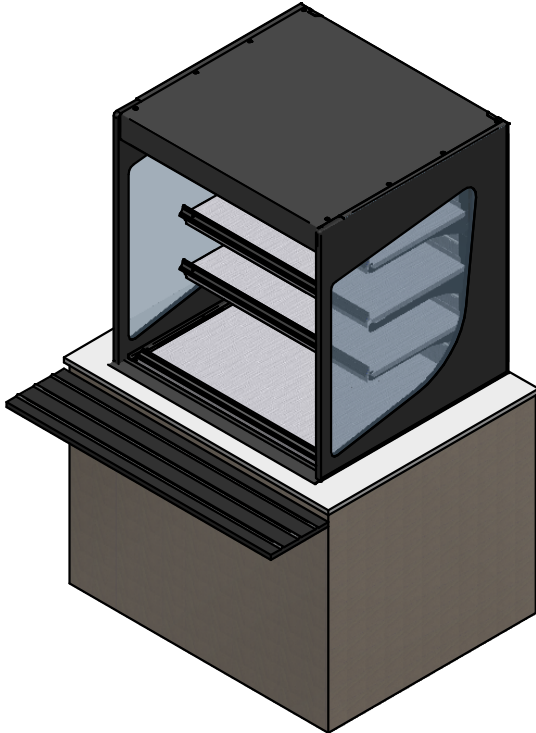






To remove the deck simply lift on the front handle and rotate the front of the deck upward. Hold the assembly in place and use your other hand to disengage the heater cord from the tub. Then simply lift the deck from the unit. Installation is the reverse of removal.

## (9) SLIDE-IN LEG & CASTER ADJUSTMENTS



### Slide In Models

Designed to slide/roll into a counter with an open back.

Hot cases are available with rear mounted controls only.

Case counter height is set at 34" from the factory.

Leg assemblies are adjustable in 1/4" increments.

Adjustable casters have 1" of upward adjustment to fine tune height to match counter surfaces.

Casters are double locking in swivel and roll directions.

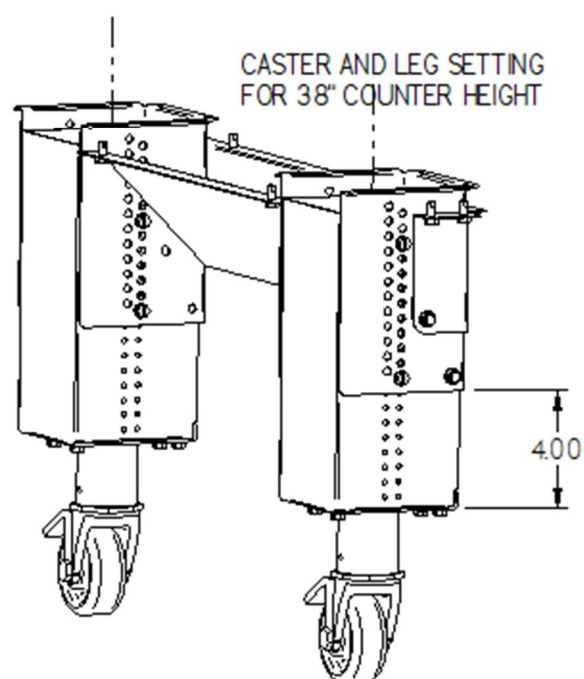
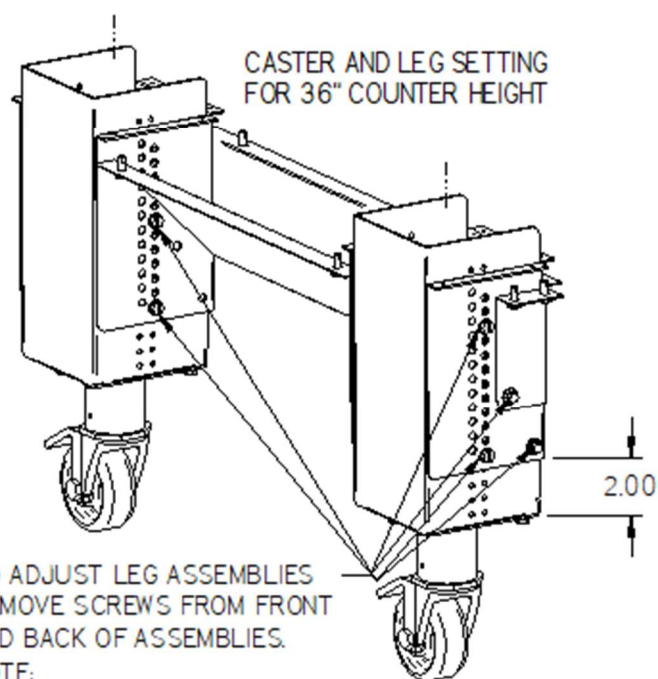
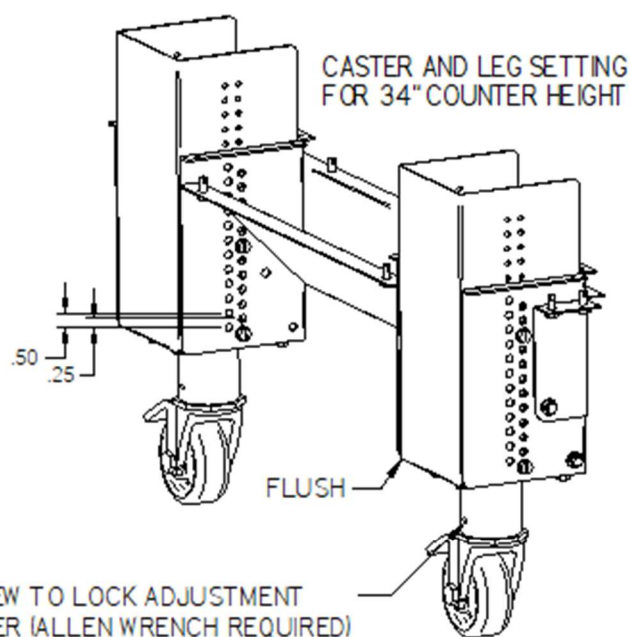
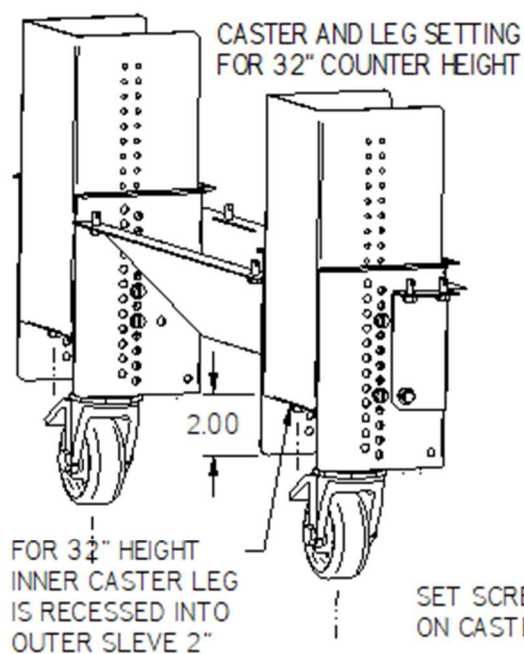
The next page shows common counter height adjustments.

**\*\*\*IMPORTANT\*\*\***

**CASE MUST BE LIFTED AND SECURED TO ADJUST CASTER/LEG ASSEMBLIES.**

**\*\*\*WARNING\*\*\***

**FAILURE TO DO SO CAN CAUSE SEVERE INJURY OR DEATH.**



NOTE:  
LEG ASSEMBLIES ARE ADJUSTABLE IN 1/4" INCREMENTS  
CASTERS HAVE 1" OF UPWARD ADJUSTMENT.

\*\*\*IMPORTANT\*\*\*

CASE MUST BE LIFTED AND SUPPORTED WHEN ADJUSTING CASTER LEG ASSEMBLIES.

\*\*\*WARNING\*\*\*

FAILURE TO DO SO CAN CAUSE INJURY OR DEATH

NOTE: some leg adjustments can be done before the case is removed from the pallet

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## (10) CONTROL OPERATION

---

### ▲NOTICE▲

Load items at 170°F or warmer. At time of loading, items stocked in unit **MUST** be pre-heated at 170°F or warmer.

The controls are found behind the front panel pictured below. Pull forward on the short handle of the flip down panel and gently rotate the panel down and let it rest on the toe kick. This exposes the control panel. You now have access to the main power switch, light switch, and the heating controls.

| <u>CONTROL</u> | <u>PURPOSE</u>                                                           |
|----------------|--------------------------------------------------------------------------|
| POWER ON/OFF   | POWER ENTIRE UNIT OFF OR ON; TURNS OFF ALL LIGHTS, HEATERS, AND CONTROLS |
| LIGHTS ON/OFF  | TURN ALL LIGHTS ON OR OFF                                                |
| TOP SHELF      | CHANGE SHELF TEMPERATURE SETPOINT AND TURN SHELF ON OR OFF               |
| MIDDLE SHELF 2 |                                                                          |
| MIDDLE SHELF 1 |                                                                          |
| BOTTOM SHELF   |                                                                          |
| DECK           |                                                                          |

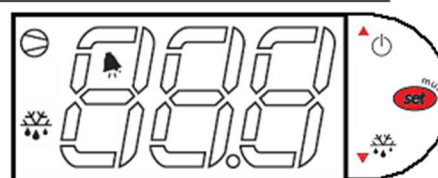
Use the following procedure to adjust the control setpoints.

#### ADJUSTMENT

|             |                                                                                     |                                                                                                                            |
|-------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|             | ▲  | Power & set point up adjust                                                                                                |
|             | ●  | Set point adjust mode                                                                                                      |
|             | ▼  | Set point down adjust                                                                                                      |
| Power       | ▲  | Hold 3 seconds to start system if off                                                                                      |
|             | ▼  | Hold 3 seconds to shut down system if on                                                                                   |
| Temp Adjust | ●  | Hold for 3 seconds to enter set point adjust mode                                                                          |
|             | ▲  | Adjusts system to warmer setting while in set point mode<br>use higher settings for warmer temps - e.g. "6" instead of "5" |
|             | ▼  | Adjusts system to colder setting while in set point mode<br>use lower settings for lower temps - e.g. "4" instead of "5"   |
|             | ●  |                                                                                                                            |

#### DISPLAY

-  Heater on
-  Alarm active



#### Display Reads

In normal operation the Display reads control setting  
 "OFF" - System is off  
 "1" thru "9" - Currently selected set point (system is on)  
 "E" followed by any character - Error code see Federal owner's manual  
 Some controls display green characters, some display red,  
 the control is operating normally in either case.

If control emits beeping noise press and release  to mute  
 Read error code and check Federal owner's manual to determine  
 if service is required

Error code E0=Temperature probe disconnected or failed.

The temperature controllers each reference one temperature probe that is mounted in the deck or shelf depending on the control. Do not locate the probe to a different position.

Shelf temperature settings are digitally controlled via factory settings 1-9. Setting "1" provides the coolest surface temperatures while setting "9" will provide the warmest.

| Control Setting |   | Food Recommendations               |
|-----------------|---|------------------------------------|
| Coolest         | 1 | Cookies, Pastries, Non-perishables |
|                 | 2 |                                    |
|                 | 3 |                                    |
|                 | 4 |                                    |
|                 | 5 | Sandwiches                         |
|                 | 6 |                                    |
|                 | 7 |                                    |
| Warmest         | 8 | Rotisserie Chicken, Pizza, Fries   |
|                 | 9 |                                    |

## (11) FOOD PACKAGING RECOMMENDATIONS

This merchandiser is designed to be used with pre-packaged product only. All food items placed in the merchandiser must be packaged. No foods should be placed in the merchandiser without packaging.

### ▲NOTICE▲

**Load items at 170°F or warmer. At time of loading, items stocked in unit MUST be pre-heated at 170°F or warmer.**

Not all packaging is compatible with this merchandiser. Any packaging material with a rating of less than 250°F should not be used.

Typically, polypropylene (recycle code 5) works well, but check with the manufacturer first to get an accurate assessment of the application.

|  <b><u>DO NOT USE</u></b> the following packaging materials: |                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Recycle Code                                                                                                                                  | Material Name              |
|                                                             | Polyethylene terephthalate |
|                                                            | High-density polyethylene  |
|                                                            | Polyvinyl chloride         |
|                                                            | Low-density polyethylene   |

Materials listed in the table above will not survive the high temperature conditions of this merchandiser.

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## (12) CLEANING INSTRUCTIONS

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### 12.1 DAILY CLEANING

The case should be cleaned thoroughly, as described in the weekly cleaning section before it is used for the first time.

|                                                                                   |                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>NOTICE:</b><br>Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case.                                         |
|  | <b>NOTICE:</b><br>Shut off power switch and remove all product from case. Allow enough time for the unit to reach room temperature before proceeding with cleaning. |
|  | <b>NOTICE:</b><br>Remove all product from case before proceeding with cleaning procedure.                                                                           |
|  | <b>NOTICE:</b><br>This case is not designed to be cleaned by flushing.                                                                                              |

**Note: For major spills or foreign material buildup perform the weekly cleaning instructions.**

**Note: Detergents are not recommended and do not use abrasive cleaners or pads to prevent scratching of surfaces.**

1. Clean all foreign materials from the door opening.
1. Wipe complete interior of both the upper & lower areas of case using a damp cloth.
2. The remaining exterior surface should be wiped down using any ammoniated cleaners or soapy warm water.

### 12.2 WEEKLY CLEANING

This procedure is recommended on a weekly basis. It may need to be performed more often if necessary, to maintain a clean, sanitary case. The case should be cleaned to this procedure before using the first time.

|                                                                                     |                                                                                                                             |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|  | <b>NOTICE:</b><br>Avoid splashing or soaking any electrical components with water to prevent electrical damage to the case. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>NOTICE:</b></p> <p><b>Shut off power switches and remove all product from case. Allow enough time for the unit to reach room temperature before proceeding with cleaning.</b></p> |
|  | <p><b>NOTICE:</b></p> <p><b>Remove all product from case before proceeding with cleaning procedure.</b></p>                                                                             |
|  | <p><b>NOTICE:</b></p> <p><b>This case is not designed to be cleaned by flushing.</b></p>                                                                                                |

1. Side, and rear door glass can be cleaned with common window cleaners.
2. Remove interior shelving and display deck from unit as described in the “Shelving Installation and Removal” section of this manual.
3. Clean all shelves, shelf supports, shelf light deflectors, shelf brackets, shelf standards using warm soapy water and a brush. Rinse thoroughly and allow to dry.
4. Remove the display deck and clean using warm soapy water and a brush. Rinse thoroughly and allow to dry.
5. Clean the entire interior of the case using warm soapy water. Wipe off all soapy water with a damp cloth and allow to dry. (DO NOT use solvents such as Acetone, Benzene, Carbon Tetrachloride, and Lacquer Thinners)
6. Reassemble all components in reverse order.
7. The exterior surfaces should be wiped down using any ammoniated cleansers or warm soapy water.



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## (13) SERVICE

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### Service Information

#### **WARNING**

RISK OF ELECTRIC  
SHOCK

DISCONNECT POWER  
BEFORE SERVICING UNIT

**Before any service work is  
performed on the case, make  
sure all power is disconnected to  
the case.**

**To find a service company in your area, please visit our website at  
<https://federalind.com/support-service/service-rep-locator>. There you can also find self-  
service tools to help you get the answers you need faster!**

**For warranty service requests and all technical support, including compressors and other  
service parts please contact:**

- Phone: (833) 238-8168
- Email: [techservice@partstown.com](mailto:techservice@partstown.com)



**Federal Industries has partnered with Parts Town for ALL Non-Warranty Part Identification,  
Pricing, Lead Times, Orders & Freight Quotes. Please contact Parts Town directly if you  
need parts:**

- Website: [Partstown.com](https://Partstown.com)
- Email: [CustomerService@Partstown.com](mailto:CustomerService@Partstown.com)
- Phone: 833-809-8188

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## **(14) SALE & DISPOSAL**

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### **14.1 OWNER RESPONSIBILITY**

If you sell or give away your Federal Industries case you must make sure that all safety labels and the Installation-Service Manual are included with it. If you need replacement labels or manuals, Federal Industries will provide them free of charge. Contact the customer service department at Federal Industries at (800) 356-4206.

The customer service department at Federal Industries should be contacted at the time of sale or disposal of your case so records may be kept of its new location.

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## **(15) TROUBLESHOOTING**

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### **Pre-Service Checklist**

You may avoid the cost and inconvenience of an unnecessary service call by first reviewing this checklist of frequently encountered situations that can cause unsatisfactory case performance.

#### ***Case Does Not Operate***

Check for disconnected power supply.

Check for tripped breaker on blown fuse.

Check that the thermostat display is on and is not displaying an error.

#### ***Lights Do Not Operate***

Check that light switch is on.

Check for tripped breaker or blown fuse.

Check that light cords are plugged in correctly to sockets. Check connector on LED light, and connector on

#### ***Temperature is too low***

Increase control setpoint

Check supply voltage to case is above 208V

Look for HVAC discharge vents, fans, and other possible air disruptions.

If using rack, check rack orientation. Flip rack over if needed so product is closer to the shelf surface.

#### ***Temperature is too high***

Turn down control setpoint

Check the control for errors and contact service

Use supplied food rack to reduce heat intensity on food

#### ***Control Error***

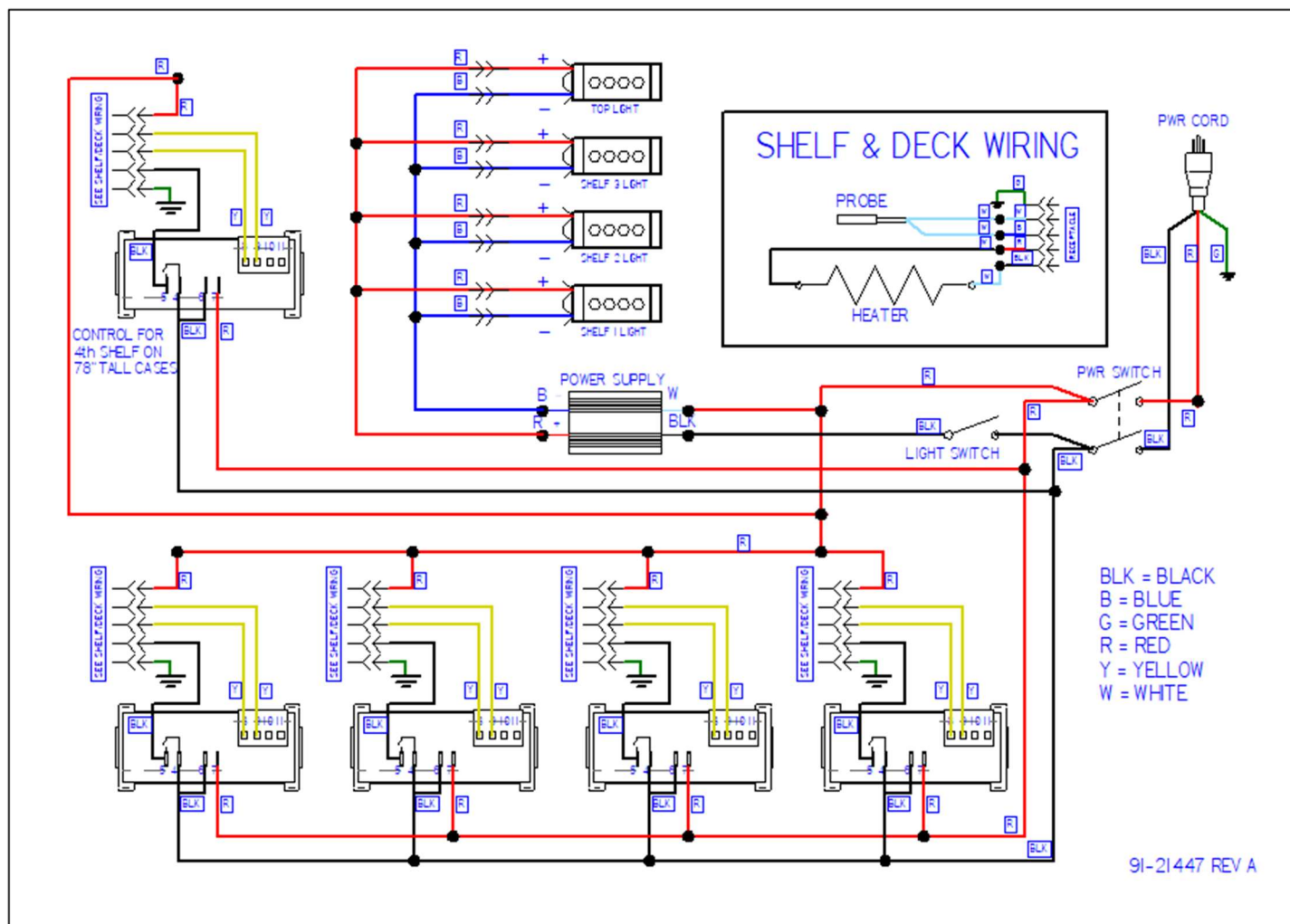
Turn the main power switch to off to power down the unit

Wait 10s, and power the unit back on

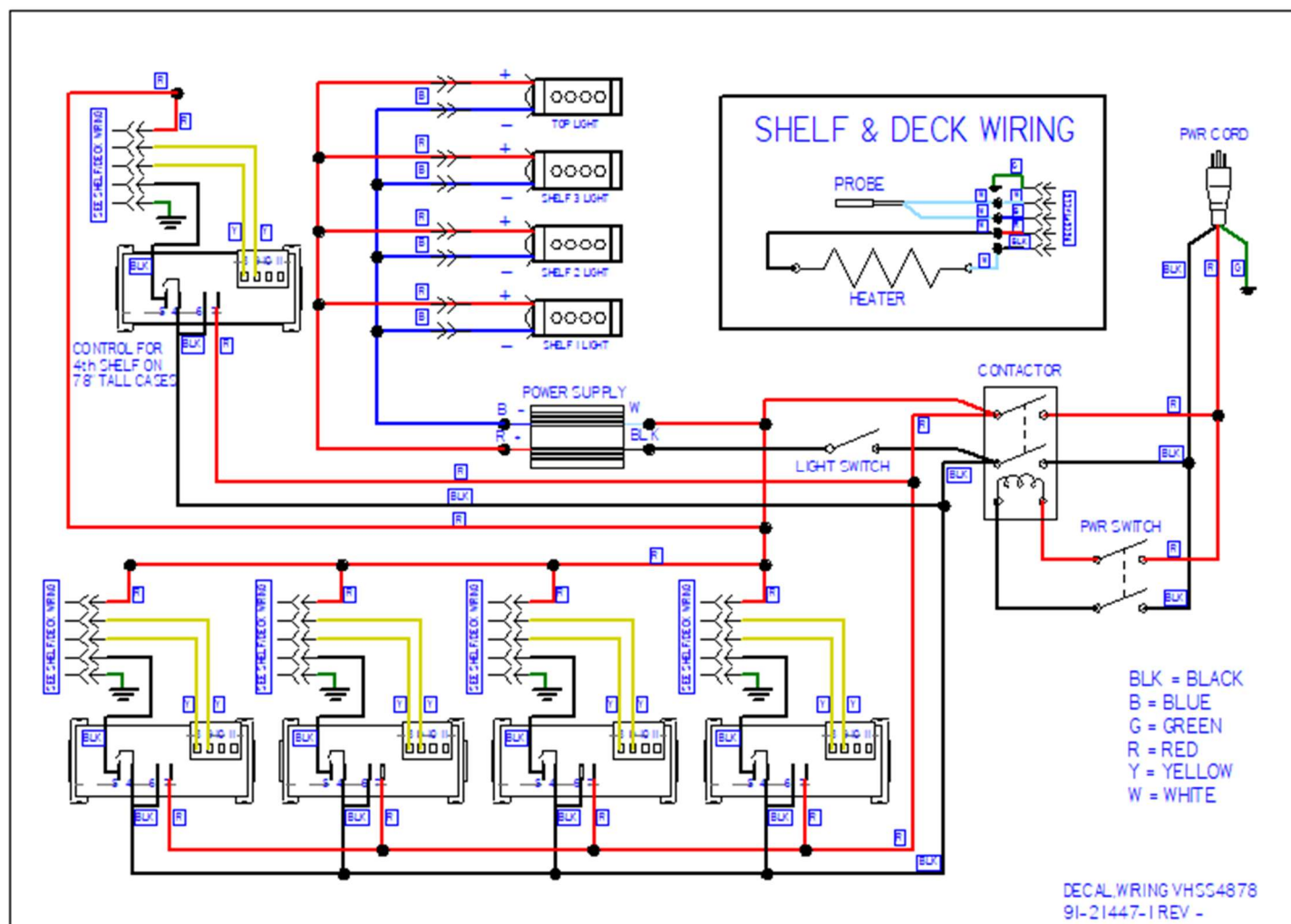
If error is still present, ensure all heater cords are seated fully into their receptacles.

## (16) WIRING DIAGRAMS

### 16.1 VHSS2460, VHSS3660, VHSS4860, VHSS2478, VHSS3678



## 16.2 VHSS4878



## (17) VHSS SERVICE PARTS

| Heated Shelves and Deck |             |            |                       |                        |                        |
|-------------------------|-------------|------------|-----------------------|------------------------|------------------------|
| Model                   | Shelf Part# | Deck Part# | LEFT SHELF<br>BRACKET | RIGHT SHELF<br>BRACKET | CAUTION<br>HOT STICKER |
| VHSS2460                | SA6035-S    | SA6041-S   | 67-21204-L            | 67-21204-R             | 91-10207               |
| VHSS3660                | SA6035-1S   | SA6041-1S  | 67-21204-L            | 67-21204-R             | 91-10207               |
| VHSS4860                | SA6035-2S   | SA6041-2S  | 67-21204-L            | 67-21204-R             | 91-10207               |
| VHSS2478                | SA6035-S    | SA6041-S   | 67-21204-L            | 67-21204-R             | 91-10207               |
| VHSS3678                | SA6035-1S   | SA6041-1S  | 67-21204-L            | 67-21204-R             | 91-10207               |
| VHSS4878                | SA6035-2S   | SA6041-2S  | 67-21204-L            | 67-21204-R             | 91-10207               |

| ELECTRICAL |                         |                 |                 |                        |               |                             |                            |                    |                       |                                  |
|------------|-------------------------|-----------------|-----------------|------------------------|---------------|-----------------------------|----------------------------|--------------------|-----------------------|----------------------------------|
| Model      | TEMPERATURE<br>CONTROLS | POWER<br>SWITCH | LIGHT<br>SWITCH | LED<br>POWER<br>SUPPLY | POWER<br>CORD | WIRE<br>HARNESS,<br>CONTROL | WIRE<br>HARNESS,<br>HEATER | HARNESS,<br>LIGHTS | RECEPTACLE,<br>HEATER | RELAY, DPST-<br>NO 30AMP<br>240V |
| VHSS2460   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-17839      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | -                                |
| VHSS3660   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-17839      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | -                                |
| VHSS4860   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-19090      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | -                                |
| VHSS2478   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-17839      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | -                                |
| VHSS3678   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-19090      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | -                                |
| VHSS4878   | 32-19865-16             | 41-18186        | 41-11066        | 39-20986               | 43-20234      | 43-21534                    | 43-21098                   | 43-21009           | 43-21100              | 41-21577                         |

| CONTROL PANEL ASSEMBLY (SEE ELECTRICAL FOR CONTROLS) |                      |                |                |                  |                  |
|------------------------------------------------------|----------------------|----------------|----------------|------------------|------------------|
| Model                                                | INSTRUCTION<br>DECAL | DOOR<br>MAGNET | HINGE<br>RIVET | HINGE<br>BUSHING | PLASTIC<br>RIVET |
| VHSS                                                 | 91-21417             | 56-17636       | 77-12280       | 81-21489         | 77-21488         |
| /HSS-SLD                                             | 91-21417             | ---            | ---            | ---              | ---              |

| LED LIGHTS |                |                |                           |                               |                      |                          |
|------------|----------------|----------------|---------------------------|-------------------------------|----------------------|--------------------------|
| Model      | TOP LIGHT      | SHELF LIGHT    | LED LIGHT CORDS,<br>SHELF | LED LIGHT CORDS,<br>TOP LIGHT | LED MOUNTING<br>CLIP | SHELF LIGHT<br>CORD CLIP |
| VHSS2460   | 42-20871-20C35 | 42-20871-18C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |
| VHSS3660   | 42-20871-30C35 | 42-20871-25C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |
| VHSS4860   | 42-20871-42C35 | 42-20871-38C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |
| VHSS2478   | 42-20871-20C35 | 42-20871-18C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |
| VHSS3678   | 42-20871-30C35 | 42-20871-25C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |
| VHSS4878   | 42-20871-42C35 | 42-20871-38C35 | 43-21333                  | 43-20862-1B                   | 67-20869-30          | 67-20952                 |

| <b><u>GLASS END PANELS VISION</u></b>              |               |               |
|----------------------------------------------------|---------------|---------------|
|                                                    | LEFT          | RIGHT         |
| <b>END GLASS PANELS SQUARE CLEAR 60" TALL</b>      |               |               |
| BLACK                                              | 50-21330-2B   | 50-21330-2B   |
| <b>END GLASS PANELS SQUARE REFLECTIVE 60" TALL</b> |               |               |
| BLACK                                              | 50-21330-12LB | 50-21330-12RB |
| <b>END GLASS PANELS SQUARE CLEAR 78" TALL</b>      |               |               |
| BLACK                                              | 50-21330-1B   | 50-21330-1B   |
| <b>END GLASS PANELS SQUARE REFLECTIVE 78" TALL</b> |               |               |
| BLACK                                              | 50-21330-11LB | 50-21330-11RB |
| <b>END GLASS PANELS CURVED CLEAR 60" TALL</b>      |               |               |
| BLACK                                              | 50-21299-2B   | 50-21299-2B   |
| <b>END GLASS PANELS CURVED REFLECTIVE 60" TALL</b> |               |               |
| BLACK                                              | 50-21299-12LB | 50-21299-12RB |
| <b>END GLASS PANELS CURVED CLEAR 78" TALL</b>      |               |               |
| BLACK                                              | 50-21299-1B   | 50-21299-1B   |
| <b>END GLASS PANELS CURVED REFLECTIVE 78" TALL</b> |               |               |
| BLACK                                              | 50-21619-11LB | 50-21619-11RB |

| <b><u>END PANELS SLIDE-IN</u></b>                                       |               |               |
|-------------------------------------------------------------------------|---------------|---------------|
|                                                                         | LEFT          | RIGHT         |
| <b>END GLASS PANELS SQUARE CLEAR</b>                                    |               |               |
| BLACK                                                                   | 50-21605-2B   | 50-21605-2B   |
| <b>END GLASS PANELS SQUARE REFLECTIVE</b>                               |               |               |
|                                                                         | 50-21605-12LB | 50-21605-12RB |
| <b>END GLASS PANELS CURVED CLEAR</b>                                    |               |               |
| BLACK                                                                   | 50-21619-2B   | 50-21619-2B   |
| <b>END GLASS PANELS CURVED REFLECTIVE</b>                               |               |               |
|                                                                         | 50-21619-12LB | 50-21619-12RB |
| <b>END PANELS FOR SOLID END STRAIGHT PROFILE LAMINATED, 60IN HEIGHT</b> |               |               |
| BLACK                                                                   | 68-21623-23L  | 68-21623-23R  |
| WHITE                                                                   | 68-21623-26L  | 68-21623-26R  |
| <b>END PANELS FOR SOLID END CURVED PROFILE LAMINATED, 60IN HEIGHT</b>   |               |               |
| BLACK                                                                   | 68-21622-23L  | 68-21622-23R  |
| WHITE                                                                   | 68-21622-26L  | 68-21622-26R  |

| LEGS AND CASTERS                              |                  |          |
|-----------------------------------------------|------------------|----------|
| Description                                   | PART#            | QTY/CASE |
| <b>LEG LEVELER ASSEMBLY</b>                   | <b>SA4368-1</b>  | <b>4</b> |
| LEG LEVELER                                   | 65-21273         | 4        |
| HOUSING                                       | SA4295           | 4        |
| <b>6" LEG ASSEMBLY</b>                        | <b>SA4368-2</b>  | <b>4</b> |
| 6" LEG                                        | 65-12886         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 16       |
| HOUSING                                       | SA4295           | 4        |
| <b>4" CASTER ASSEMBLY</b>                     | <b>SA4368-3</b>  | <b>4</b> |
| 4" CASTER                                     | 65-10675         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 16       |
| HOUSING                                       | SA4295           | 4        |
| <b>2.5" CASTER ASSEMBLY</b>                   | <b>SA4368-20</b> | <b>4</b> |
| 2.5" CASTER                                   | 65-15185         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 16       |
| HOUSING                                       | SA4295           | 4        |
| <b>RECESSED CASTER ASSEMBLY</b>               | <b>SA4368-4</b>  | <b>4</b> |
| 2.5" CASTER                                   | 65-17352         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 16       |
| HOUSING                                       | M15895-2         | 4        |
| <b>6" SEISMIC LEG ASSEMBLY</b>                | <b>SA4368-13</b> | <b>4</b> |
| 6" SEISMIC LEG                                | 65-19069         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 16       |
| HOUSING                                       | SA4295           | 4        |
| <b>SLIDE -IN ADJUSTABLE CASTER ASSEMBLIES</b> |                  | <b>4</b> |
| ADJUSTABLE CASTERS SLIDE-IN                   | 65-21657         | 4        |
| SCREW, 1/4-20                                 | 75-10948         | 64       |
| INNER SLIDE HOUSING                           | M21799           | 4        |
| OUTER SLIDE HOUSING                           | M21798           | 4        |
| BRACE SLIDE HOUSING                           | M21814           | 2        |



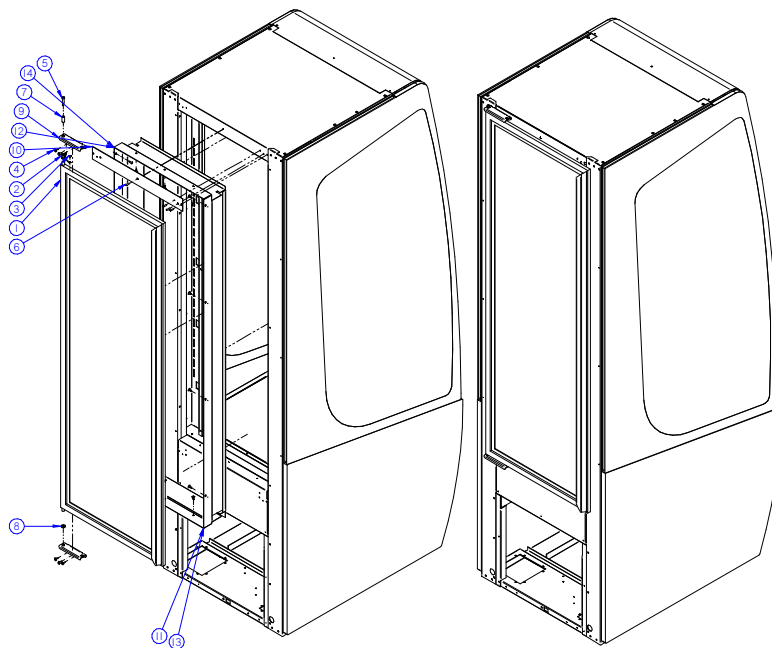
## (18) OPTIONS

### 18.1 REAR SWINGING DOOR

| 828/829-9640-INTB BLACK INTERIOR PARTS REAR SWING DOOR VHSS/VNSS2460/2478 |                      |     |                      |     |              |       |                           |
|---------------------------------------------------------------------------|----------------------|-----|----------------------|-----|--------------|-------|---------------------------|
| ITEM                                                                      | PART #               | QTY | PART #               | QTY | BILL. DESIG. | COLOR | DESCRIPTION               |
|                                                                           | 828-9640<br>VHSS2460 |     | 829-9640<br>VHSS2478 |     |              |       |                           |
| 4                                                                         | 75-11483             | I2  | 75-11483             | I2  | INT          | B     | SCREW8-18X5PH TRTEK2410SS |
| 11                                                                        | M21576-1ILB          | I   | M21576-1LB           | I   | INT          | B     | LINERDOOR SIDE            |
| 12                                                                        | M21576-1IRB          | I   | M21576-1RB           | I   | INT          | B     | LINERDOOR SIDE            |
| 13                                                                        | M21577-SB            | I   | M21577-SB            | I   | INT          | B     | LINERDOOR TOP             |
| 14                                                                        | M21577-B             | I   | M21577-B             | I   | INT          | B     | LINERDOOR BOTTOM          |

| 828/829-9640-INTW WHITE INTERIOR PARTS REAR SWING DOOR VHSS/VNSS2460/2478 |                      |     |                      |     |              |       |                           |
|---------------------------------------------------------------------------|----------------------|-----|----------------------|-----|--------------|-------|---------------------------|
| ITEM                                                                      | PART #               | QTY | PART #               | QTY | BILL. DESIG. | COLOR | DESCRIPTION               |
|                                                                           | 828-9640<br>VHSS2460 |     | 829-9640<br>VHSS2478 |     |              |       |                           |
| 4                                                                         | 75-11483             | I2  | 75-11483             | I2  | INT          | W     | SCREW8-18X5PH TRTEK2410SS |
| 11                                                                        | M21576-1ILW          | I   | M21576-1LW           | I   | INT          | W     | LINERDOOR SIDE            |
| 12                                                                        | M21576-1IRW          | I   | M21576-1RW           | I   | INT          | W     | LINERDOOR SIDE            |
| 13                                                                        | M21577-SW            | I   | M21577-SW            | I   | INT          | W     | LINERDOOR TOP             |
| 14                                                                        | M21577-W             | I   | M21577-W             | I   | INT          | W     | LINERDOOR BOTTOM          |

| 828/829-9640-INTS S/S INTERIOR PARTS REAR SWING DOOR VHSS/VNSS2460/2478 |                      |     |                      |     |              |       |                           |
|-------------------------------------------------------------------------|----------------------|-----|----------------------|-----|--------------|-------|---------------------------|
| ITEM                                                                    | PART #               | QTY | PART #               | QTY | BILL. DESIG. | COLOR | DESCRIPTION               |
|                                                                         | 828-9640<br>VHSS2460 |     | 829-9640<br>VHSS2478 |     |              |       |                           |
| 4                                                                       | 75-11483             | I2  | 75-11483             | I2  | INT          | S     | SCREW8-18X5PH TRTEK2410SS |
| 11                                                                      | M21576-1ILS          | I   | M21576-1LS           | I   | INT          | S     | LINERDOOR SIDE            |
| 12                                                                      | M21576-1IRS          | I   | M21576-1RS           | I   | INT          | S     | LINERDOOR SIDE            |
| 13                                                                      | M21577-SS            | I   | M21577-SS            | I   | INT          | S     | LINERDOOR TOP             |
| 14                                                                      | M21577-S             | I   | M21577-S             | I   | INT          | S     | LINERDOOR BOTTOM          |



## 18.2 REAR SLIDING DOORS

| INTERIOR PARTS VHSS/VNSS SLIDING REAR DOORS BLACK |                           |     |                           |     |                           |     |                           |     |                      |     |                      |     |                                |
|---------------------------------------------------|---------------------------|-----|---------------------------|-----|---------------------------|-----|---------------------------|-----|----------------------|-----|----------------------|-----|--------------------------------|
| ITEM                                              | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #               | QTY | PART #               | QTY | DESCRIPTION                    |
|                                                   | 830-9630<br>VHSS/VNSS3660 |     | 831-9630<br>VHSS/VNSS3678 |     | 832-9630<br>VHSS/VNSS4860 |     | 823-9630<br>VHSS/VNSS4878 |     | 824-9630<br>VNSS6060 |     | 825-9630<br>VNSS6078 |     |                                |
| 5                                                 | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483             | 11  | 75-11483             | 11  | SCREW 8-18X5 PH TR TEK2.410 SS |
| 6                                                 | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732             | 3   | 75-12732             | 3   | SCREW 10-16X1/2 TK2 PH PN BK   |
| 7                                                 | M21576-1ILB               | 1   | M21576-1LB                | 1   | M21576-1ILB               | 1   | M21576-1LB                | 1   | M21576-1ILB          | 1   | M21576-1LB           | 1   | LINER DOOR SIDE                |
| 8                                                 | M21576-1IRB               | 1   | M21576-1RB                | 1   | M21576-1IRB               | 1   | M21576-1RB                | 1   | M21576-1IRB          | 1   | M21576-1RB           | 1   | LINER DOOR SIDE                |
| 9                                                 | M21577-1B                 | 1   | M21577-1B                 | 1   | M21577-2B                 | 1   | M21577-2B                 | 1   | M21577-3B            | 1   | M21577-3B            | 1   | LINER DOOR BOTTOM              |
| 10                                                | M21577-8B                 | 1   | M21577-8B                 | 1   | M21577-7B                 | 1   | M21577-7B                 | 1   | M21577-8B            | 1   | M21577-8B            | 1   | LINER DOOR TOP                 |

| INTERIOR PARTS VHSS/VNSS SLIDING REAR DOORS WHITE |                           |     |                           |     |                           |     |                           |     |                      |     |                      |     |                                |
|---------------------------------------------------|---------------------------|-----|---------------------------|-----|---------------------------|-----|---------------------------|-----|----------------------|-----|----------------------|-----|--------------------------------|
| ITEM                                              | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #               | QTY | PART #               | QTY | DESCRIPTION                    |
|                                                   | 830-9630<br>VHSS/VNSS3660 |     | 831-9630<br>VHSS/VNSS3678 |     | 832-9630<br>VHSS/VNSS4860 |     | 823-9630<br>VHSS/VNSS4878 |     | 824-9630<br>VNSS6060 |     | 825-9630<br>VNSS6078 |     |                                |
| 5                                                 | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483             | 11  | 75-11483             | 11  | SCREW 8-18X5 PH TR TEK2.410 SS |
| 6                                                 | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732             | 3   | 75-12732             | 3   | SCREW 10-16X1/2 TK2 PH PN BK   |
| 7                                                 | M21576-1ILW               | 1   | M21576-1LW                | 1   | M21576-1ILW               | 1   | M21576-1LW                | 1   | M21576-1ILW          | 1   | M21576-1LW           | 1   | LINER DOOR SIDE                |
| 8                                                 | M21576-1IRW               | 1   | M21576-1RW                | 1   | M21576-1IRW               | 1   | M21576-1RW                | 1   | M21576-1IRW          | 1   | M21576-1RW           | 1   | LINER DOOR SIDE                |
| 9                                                 | M21577-1W                 | 1   | M21577-1W                 | 1   | M21577-2W                 | 1   | M21577-2W                 | 1   | M21577-3W            | 1   | M21577-3W            | 1   | LINER DOOR BOTTOM              |
| 10                                                | M21577-8W                 | 1   | M21577-8W                 | 1   | M21577-7W                 | 1   | M21577-7W                 | 1   | M21577-8W            | 1   | M21577-8W            | 1   | LINER DOOR TOP                 |

| INTERIOR PARTS VHSS/VNSS SLIDING REAR DOORS S/S |                           |     |                           |     |                           |     |                           |     |                      |     |                      |     |                                |
|-------------------------------------------------|---------------------------|-----|---------------------------|-----|---------------------------|-----|---------------------------|-----|----------------------|-----|----------------------|-----|--------------------------------|
| ITEM                                            | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #                    | QTY | PART #               | QTY | PART #               | QTY | DESCRIPTION                    |
|                                                 | 830-9630<br>VHSS/VNSS3660 |     | 831-9630<br>VHSS/VNSS3678 |     | 832-9630<br>VHSS/VNSS4860 |     | 823-9630<br>VHSS/VNSS4878 |     | 824-9630<br>VNSS6060 |     | 825-9630<br>VNSS6078 |     |                                |
| 5                                               | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483                  | 11  | 75-11483             | 11  | 75-11483             | 11  | SCREW 8-18X5 PH TR TEK2.410 SS |
| 6                                               | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732                  | 3   | 75-12732             | 3   | 75-12732             | 3   | SCREW 10-16X1/2 TK2 PH PN BK   |
| 7                                               | M21576-1ILS               | 1   | M21576-1LS                | 1   | M21576-1ILS               | 1   | M21576-1LS                | 1   | M21576-1ILS          | 1   | M21576-1LS           | 1   | LINER DOOR SIDE                |
| 8                                               | M21576-1IRS               | 1   | M21576-1RS                | 1   | M21576-1IRS               | 1   | M21576-1RS                | 1   | M21576-1IRS          | 1   | M21576-1RS           | 1   | LINER DOOR SIDE                |
| 9                                               | M21577-1S                 | 1   | M21577-1S                 | 1   | M21577-2S                 | 1   | M21577-2S                 | 1   | M21577-3S            | 1   | M21577-3S            | 1   | LINER DOOR BOTTOM              |
| 10                                              | M21577-8S                 | 1   | M21577-8S                 | 1   | M21577-7S                 | 1   | M21577-7S                 | 1   | M21577-8S            | 1   | M21577-8S            | 1   | LINER DOOR TOP                 |

