

DOE 2017
Energy
Efficiency
Compliant

Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2017 energy efficiency standards.

WARNINGS:

If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.

Installation and service must be performed by a qualified installer or service agency.

READ THE ENTIRE MANUAL BEFORE INSTALLING OR USING THIS EQUIPMENT.

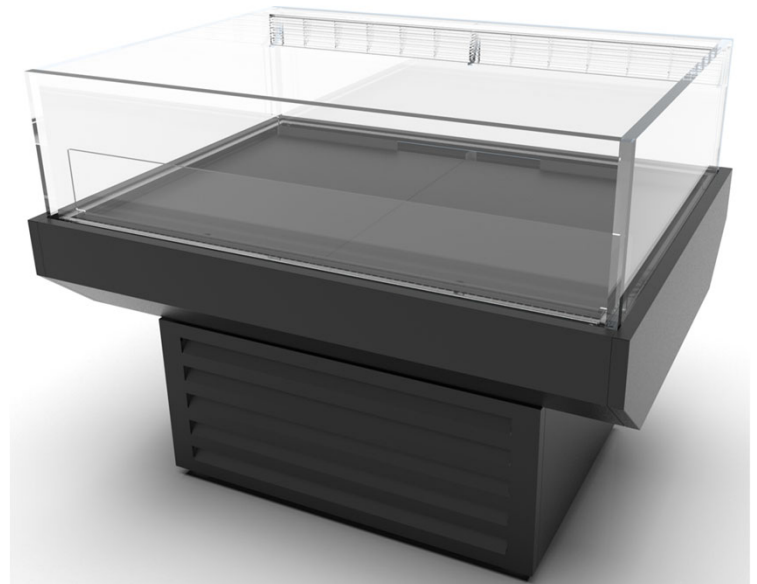
The unit uses R-290 gas as the refrigerant. R-290 is flammable and heavier than air. It collects first in low areas but can be circulated by the fans. If propane gas is present or even suspected, do not allow untrained personnel to attempt to find the cause. The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas. If a leak is detected, immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred. Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store. No open flames, cigarettes or other possible sources of ignition should be used inside or in the vicinity of the units.

FAILURE TO ABIDE BY THIS WARNING COULD RESULT IN AN EXPLOSION, DEATH, INJURY AND PROPERTY DAMAGE.

IMPORTANT
Keep in store for future reference!

SIM-AA ISLAND MERCHANDISER

with R-290 Refrigerant



Installation & Operation Manual

P/N 3179796

February 2024



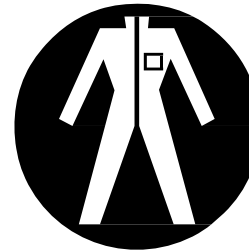
BEFORE YOU BEGIN

Read these instructions completely and carefully.



PERSONAL PROTECTION EQUIPMENT (PPE)

Personal Protection Equipment (PPE) is required whenever installing or servicing this equipment. Always wear safety glasses, gloves, protective boots or shoes, long pants, and a long-sleeve shirt as required when installing or servicing this equipment.



1. If the information in these instructions are not followed exactly, a fire or explosion may result, causing property damage, personal injury or death.
2. Installation and service must be performed by a qualified installer or service agency.
3. This unit is designed only for use with R-290 gas as the designated refrigerant.

THE REFRIGERANT LOOP IS SEALED. ONLY A QUALIFIED TECHNICIAN SHOULD ATTEMPT TO SERVICE!

- Propane is flammable and heavier than air.
- It collects first in the low areas but can be circulated by the fans.
- If R-290 is present or even suspected, do not allow untrained personnel to attempt to find the cause.
- The propane gas used in the unit has no odor.
- The lack of smell does not indicate a lack of escaped gas.
- If a leak is detected, immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.
- A hand-held propane leak detector (“sniffer”) shall be used before any repair and/or maintenance.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.
- Component parts are designed for propane and non-incendive and non-sparking. Component parts shall only be replaced with identical repair parts.

FAILURE TO ABIDE BY THIS WARNING COULD RESULT IN AN EXPLOSION, DEATH, INJURY AND PROPERTY DAMAGE.

This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State government, Proposition 65 can be considered more of a 'right to know' law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law. It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State government website.

- **NOTICE** – *Not related to personal injury* – Indicates[s] situations, which if not avoided, could result in damage to equipment.

ATTENTION

Merchandiser must operate for 2 hours before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products in freezer before loading into merchandiser.

These merchandisers are designed for only pre-frozen products.



FOR CALIFORNIA INSTALLATIONS ONLY:






WARNING:

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

August 31, 20183069575

ANSI Z535.5 DEFINITIONS


-  • **DANGER** – Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.
-  • **WARNING** – Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.
-  • **CAUTION** – Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.



WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.



WARNING

All installation and operating instructions concerning the handling, moving, and use of these merchandisers must be carefully followed to avoid either damaging the refrigerant tubing, or increasing the risk of a leak.



WARNING

Do not use mechanical devices or other means to accelerate the defrosting process.

Do not use electrical appliances inside the food storage compartments of the case.



WARNING

Case ventilation openings must be clear of any obstructions. Do not damage the refrigerant circuit.

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IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

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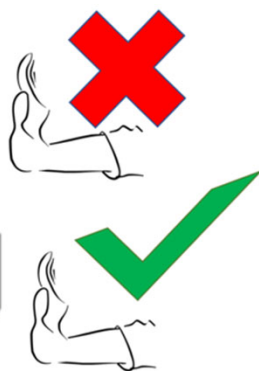
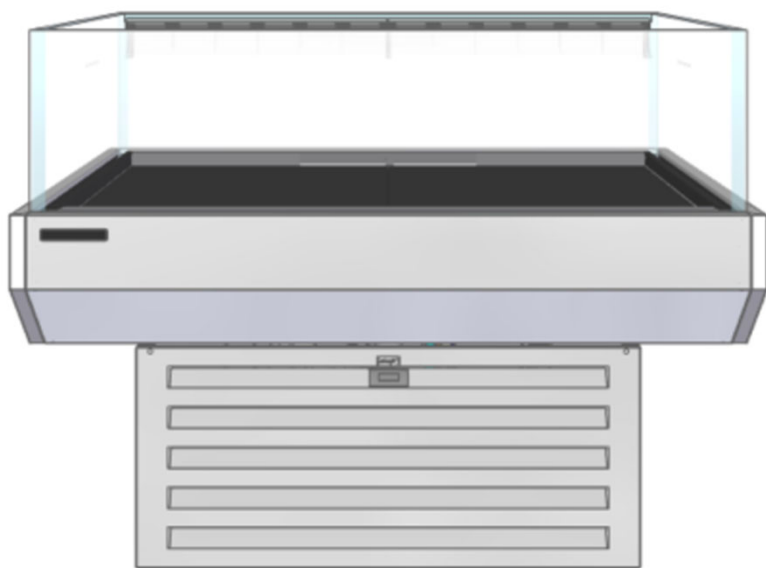
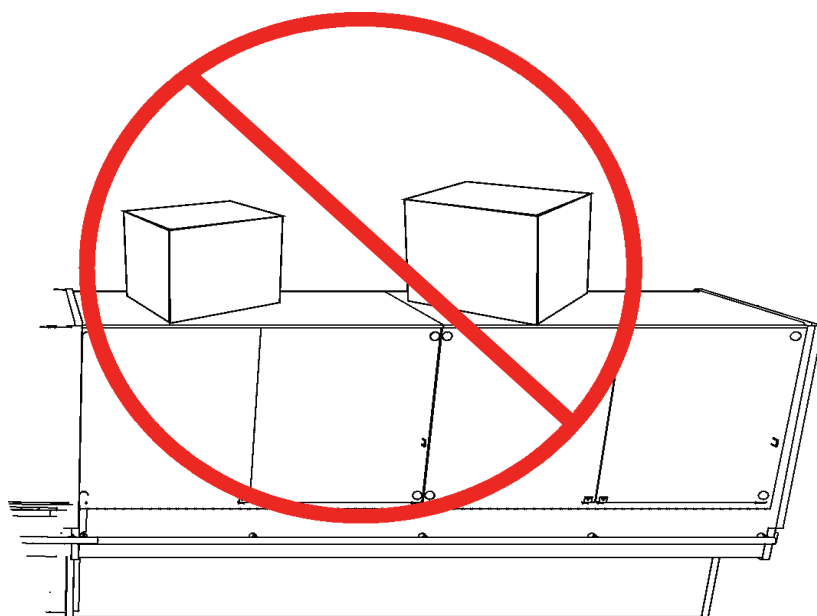
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Notice



-DO NOT Load or stand over the top of the case.
Glass breakage may occur if precautions are disregarded

*Broken glass can cause lacerations, cuts, and puncture wounds which may result severed arteries or tendons, amputations, eye injuries, or exposure to disease.



IMPORTANT

-DO NOT ATTEMPT TO MOVE THE MERCHANDISER BY APPLYING FORCE TO THE UPPER PLEX AREA (EVEN IF WOODEN BRACES ARE PRESENT)

-APPLY PUSHING FORCES NEAR THE LINER / TUB AREA IN ORDER TO BRING MERCHANDISERS TO THE FINAL POSITION

General Information

Case Description:

Description: Island Merchandiser

Shipping Damage: All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier immediately.

Apparent Loss or Damage: If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim. The carrier will supply necessary claim forms.

Concealed Loss or Damage: When loss or damage is not apparent until after all equipment is uncrated, a claim for concealed damage is made. Make request in writing to carrier for inspection within 15 days and retain all packaging. The carrier will supply inspection report and required claim forms.

Shortages: Check your shipment for any possible shortages of material. If a shortage should exist and is found to be the responsibility of Hussmann, notify Hussmann. If such a shortage involves the carrier, notify the carrier immediately, and request an inspection. Hussmann will acknowledge shortages within ten days from receipt of equipment.

Hussmann Product Control: The serial number and shipping date of all equipment have been recorded in Hussmann's files for warranty and replacement part purposes. All correspondence pertaining to warranty or parts ordering must include the serial number of each piece of equipment involved, in order to provide the customer with the correct parts.

Location/Store Conditions: The SIM-AA island merchandiser has been designed for use only in air-conditioned stores where temperature and humidity are maintained at or below 75°F Dry bulb and 55% relative humidity. The case is also rated to operate in Type 2 conditions (80F / 55%RH). See specification sheets for setting changes. DO NOT allow air conditioning, electric fans, ovens, open doors or windows (etc.) to create air currents around the merchandiser, as this will impair its correct operation.

Keep this booklet with the case at all times for future reference.

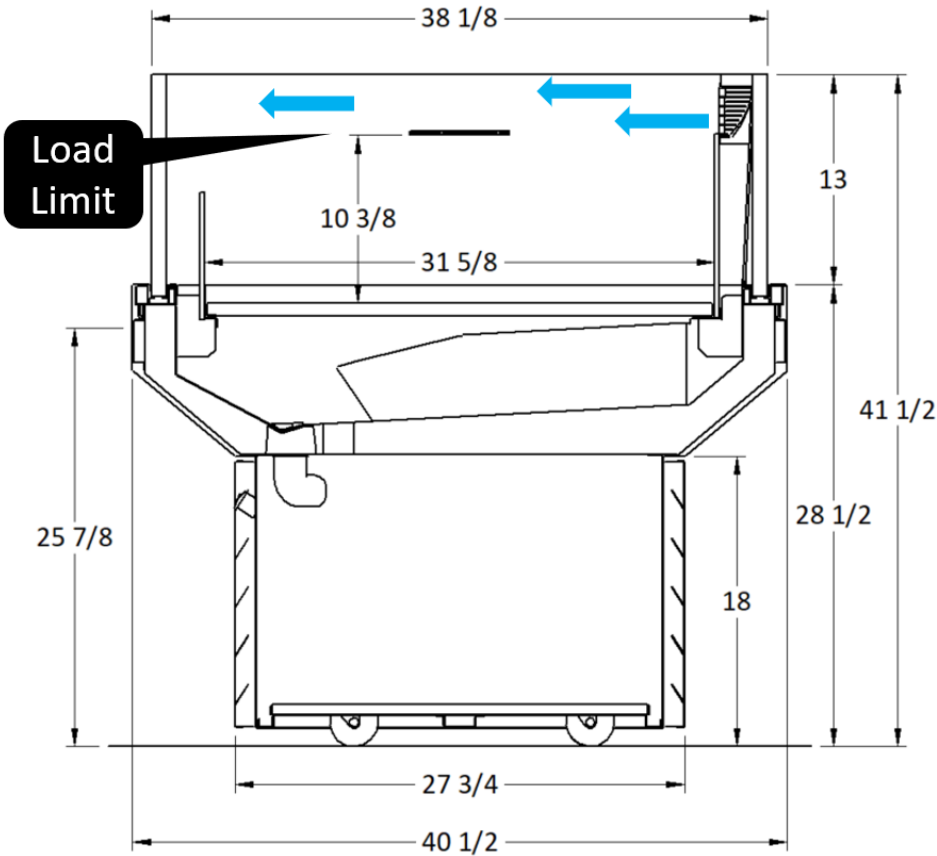
HUSSMANN®



This equipment is to be installed to comply with the applicable NEC, Federal, State, and Local Plumbing and Construction Code having jurisdiction.

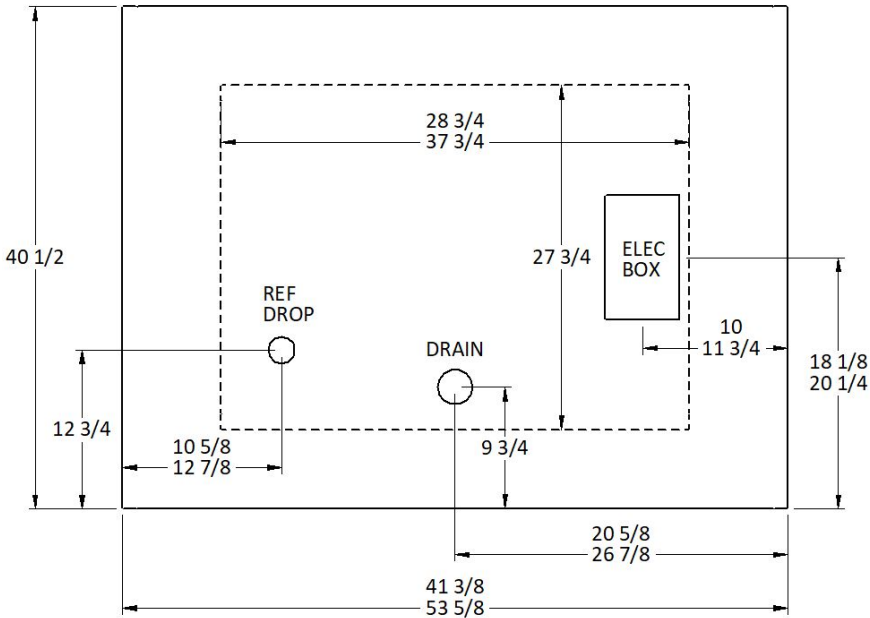
Case Sections

SIM-AA
ISLAND



Case Plan Views

SIM3AA
SIM4AA



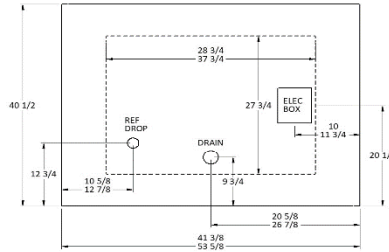
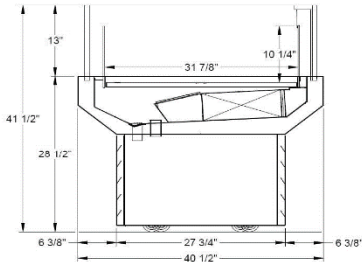


DELI SELF-SERVICE
HUSSMANN - SIMAA (CHINO)

REVISION DATE 1/05/2024

DOE 2017 Energy Efficiency Compliant
 Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2017 energy efficiency standards.

SIM3AA
SIM4AA



REFRIGERATION DATA:

CASE LENGTHS	CASE USAGE	CONVENTIONAL CAPACITY ** (BTU/HR/FT)	DISCHARGE AIR * (°F)	VELOCITY (FT/MIN)
3'	DELI/MEAT	750	21~28	110 - 165
4'	DELI/MEAT	700	21~28	150 - 200

SHIPPING WEIGHT

CASE LENGTH	NET WEIGHT (LBS)	WITH CRATINGV (LBS)
3'	350	460
4'	440	560

*FRONT DISCHARGE AIR MEASURED INSIDE AIR CURTAIN HONEYCOMB

**REFRIGERATION NOTES:

- 1) CAPACITY FOR REFERENCE ONLY
- 2) RATING CONDITION IS NSF TYPE I, 75°F/55% RH

REFRIGERATION DATA CONTINUED:

USAGE	ELEC. THERMOSTAT / AIR SENSOR SETTINGS		DEFROST TYPE	TIME (MIN)	DEFROST FREQUENCY (#/DAY)	TERM. TEMP (°F) COIL ONLY	DRIP TIME	DEFROST WATER (LBS/DAY/FT)
	SET POINT (°F)	DIFFERENTIAL (°F)						
3' DELI - Type 1	18	12	OFF TIME	35	6	48	N/A	N/A
3' MEAT - Type 1	16	12						
3' DELI - Type 2	16	12						
3' MEAT - Type 2	13	15						
4' DELI - Type 1	20	6	OFF TIME	25	6	48	N/A	N/A
4' MEAT - Type 1	18	12						
4' DELI - Type 2	16	12						
4' MEAT - Type 2	13	15						

ELECTRICAL DATA:

STANDARD FANS, HEATERS, LED LIGHTS (115 VOLT)

CASE LENGTH	EVAPORATOR FANS				OPTIONAL PERIMETER LED LIGHTS		ANTI-SWEAT HEATERS		
	# OF EVAP FANS	BLADE DIA. (IN.)	BLADE PITCH (°) / RPM	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
3'	1	7	28 / 1450	0.2	15	0.20	24	NA	NA
4'	2	7	28 / 1100	0.4	30	0.24	29	NA	NA

CONDENSING UNIT AND EVAPORATIVE PANS

CASE LENGTH	CONDENSING UNIT				EVAPORATIVE PAN			REFG CHR9 R290 (grams)	NEMA PLUG	
	NOM. HP	REFRIG.	Hz/Ph	Volts	RLA	VOLTS	AMPS			WATTS
3'	1/3	R-290	60/1	115	5.1	N/A	N/A	N/A	150	5-15P, (optional) L5-15P
4'	1/2	R-290	60/1	115	6.7	N/A	N/A	N/A	150	5-15P, (optional) L5-15P

SIM3AA: R-290 Charge size of 150 grams

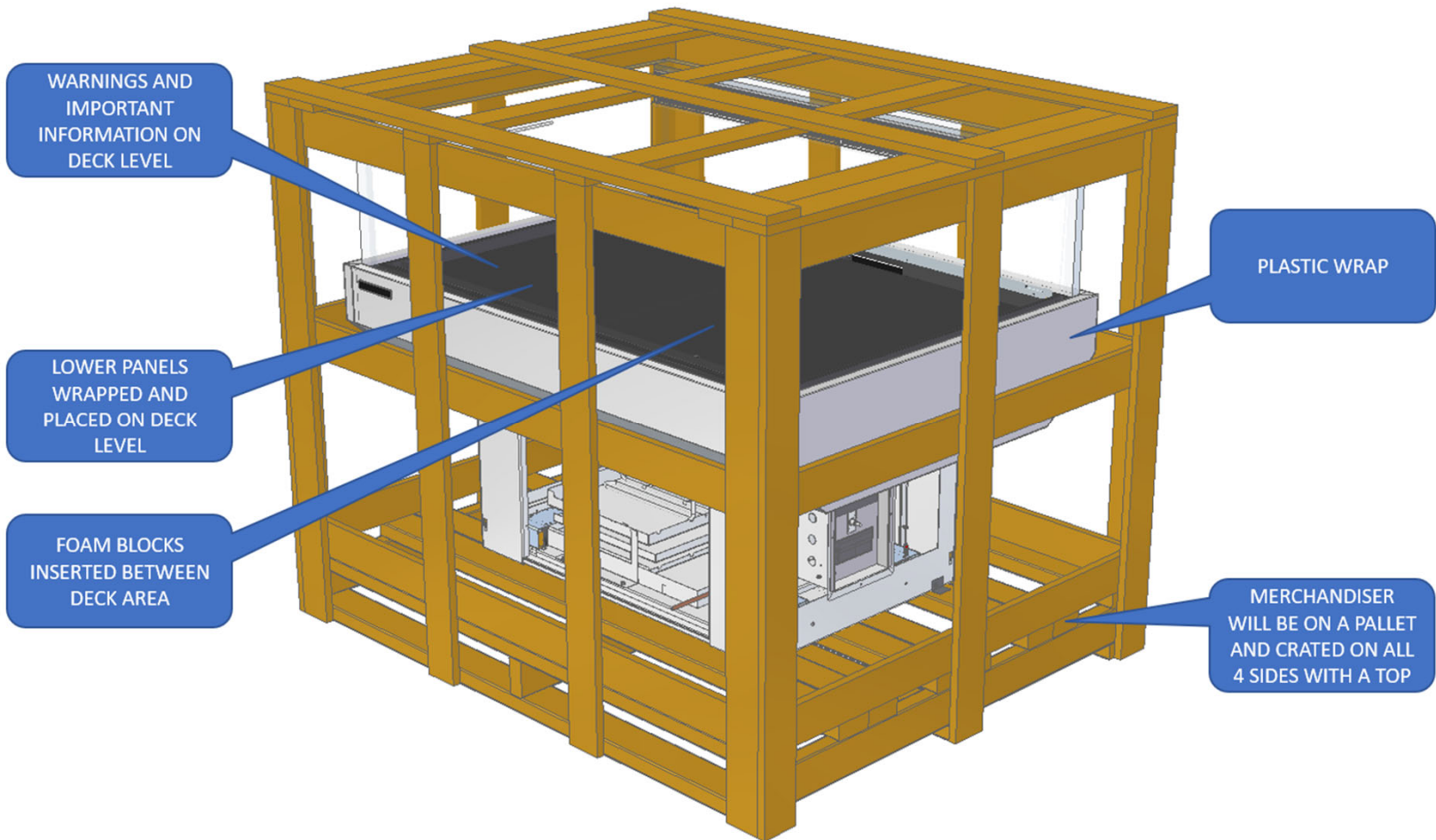
SIM4AA: R-290 Charge size of 150 grams

Installation – Preparation

Receiving Case and Preparing for Installation

IMPORTANT

-PLASTIC WRAP MAY BE REMOVED TO ACCESS PARTS, WARNINGS, AND INSTRUCTIONS

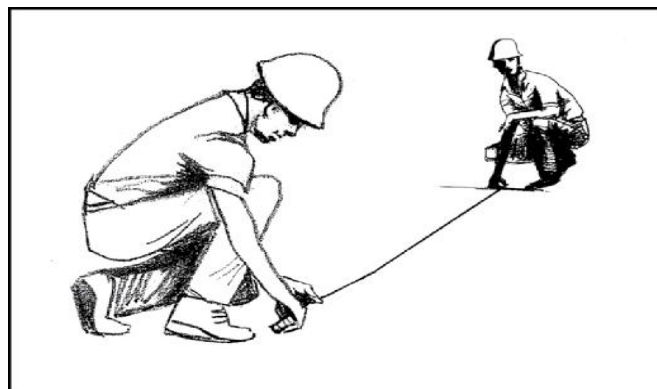


Prepare By:

1. Inspect equipment for damage. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection/claim form. If there is obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise carrier may refuse claim.
2. Read instructions and warnings on handling and transportation. Ensure the proper transportation equipment is being used.
3. Survey and mark out the installation area and plan footprint. Snapping chalk lines is recommended.

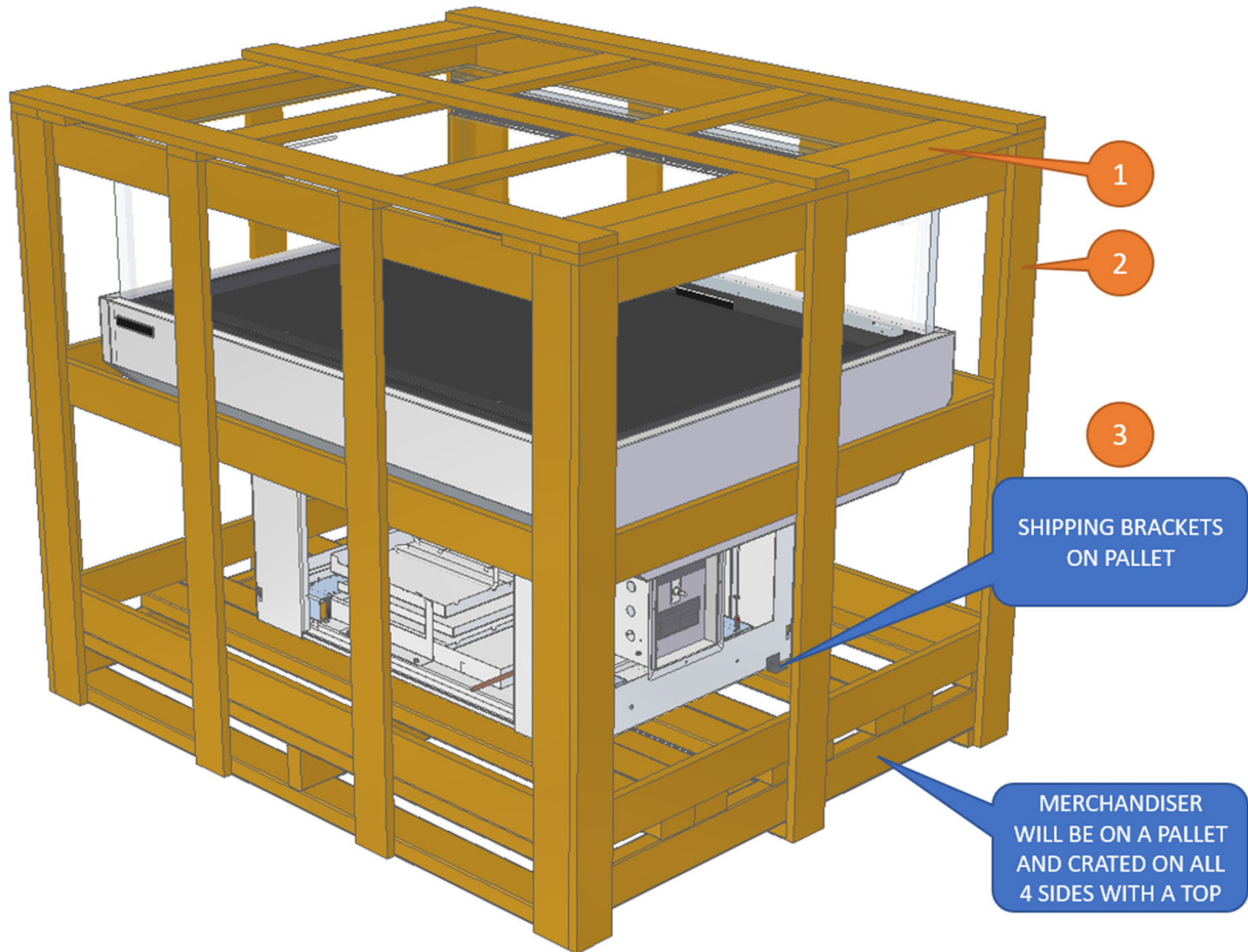
Snapping Chalk Lines

Mark floors with Chalk snap lines where cases are to be located. Chalk lines are to run along the base or legs of cases.



Installation – Preparation

Receiving Case and Preparing for Installation



Unpacking:

(Cordless drill or Screwdriver required)

1. Remove top section of crate.
2. Remove all 4 crate sides.
3. Remove all 4 shipping brackets from case & pallet.
4. Lift & slide case off pallet and place on floor or dollies.
J-bar maybe used to lift case (see next page for placement).

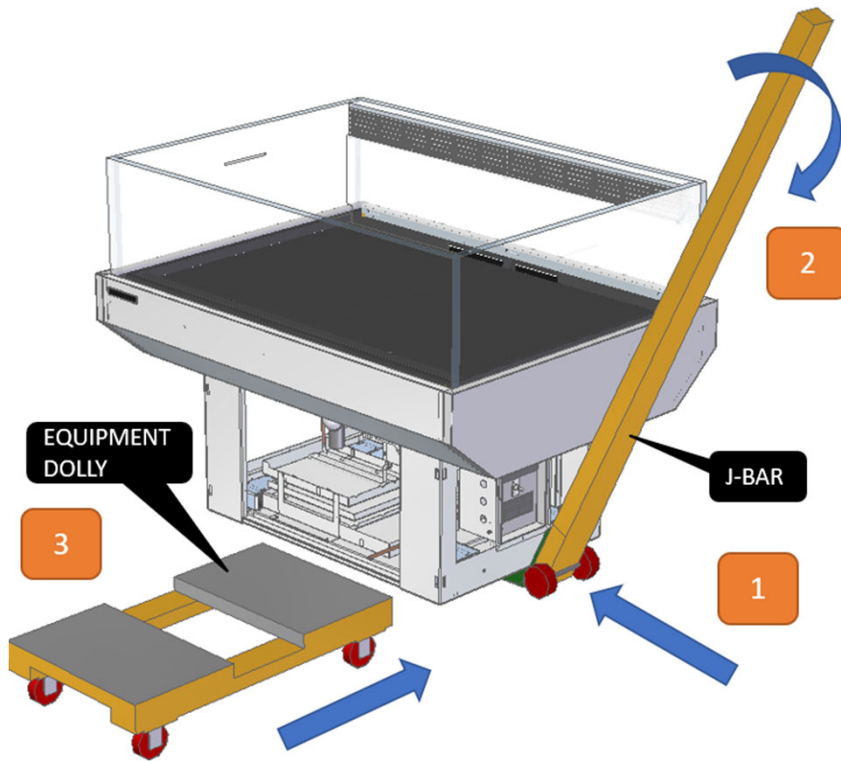
Installation – Lifting and Transportation – Using J-Bars and Dollies

SIM-AA Transportation Using Dollies

Using J-Bars to get the merchandizer onto Dollies for transportation is the preferred and recommend technique for getting the case to its final location.

1. The SIM-AA can be lifted with a J-Bar high enough to place furniture dollies under each base leg.
2. Engage the SIM-AA from the points illustrated in the Graphic Below.
3. Remove lower body panels before lifting with a J-Bar to prevent damage.
4. Ensure the case is balanced before attempting to place on dollies. Reposition J-Bar if necessary.
5. Lift the case only as high as necessary to place a dolly.
6. Repeat the procedure at the other end and in the center as necessary.
7. SIMAA (base legs) cases require 2 dollies.
8. Evenly support the entire base structure on rollers or dollies before attempting to move.

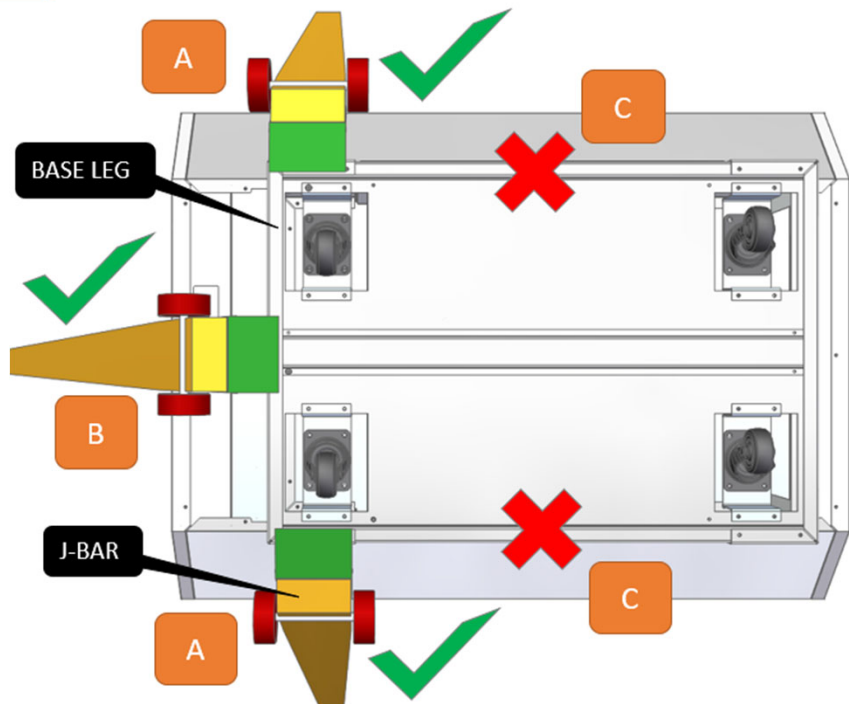
Each Base Leg must have its own dolly to properly support the case.



WARNING

Improper placement of dollies can damage the base runners and other components. Always use a spotter to place the dollies and ensure eve support. Ensure hands are clear before setting the load down on the dollies.

- A. Safe J-Bar Lift Point at the front/back of the case.
- B. Safe J-Bar Lift Point at the side of the case (same left or right).
- C. Each base leg should be support by a dolly. Do not place dollies between base leg spans.



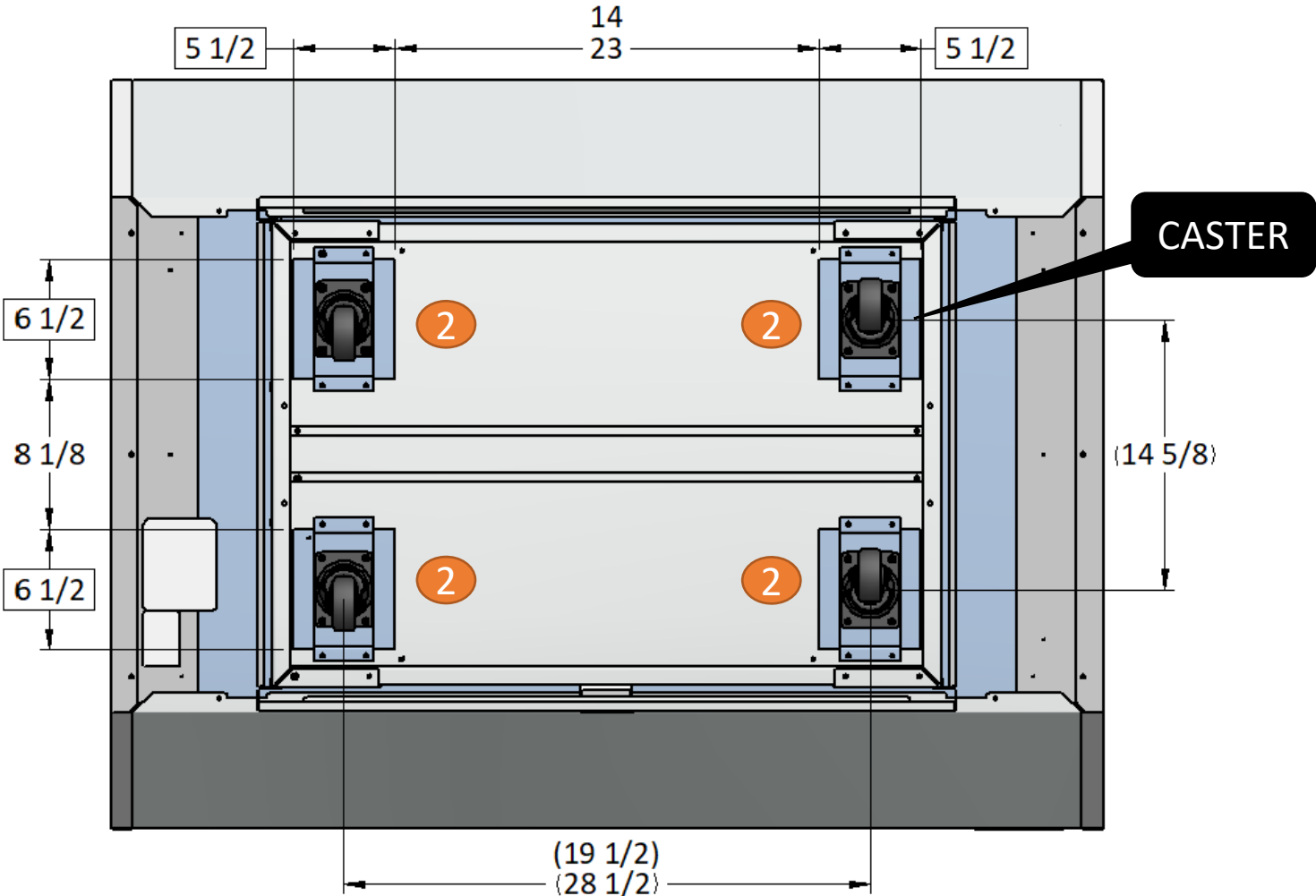
Installation – Lifting and Transportation – Fork-Lift Guidance

SIM-AA Transportation using Fork-Lifts

Using J-Bars and Dollies are the preferred technique, but a Fork-Lift can be used if the special requirements stated below are met

- 1. Remove lower body panels before lifting with a forklift to prevent damage
- 2. Before lifting the case, be sure forklift blades clear all casters. See Graphic Below.
- 3. The case can be raised at one end under the base leg to allow for placement of dollies.

WARNING
Improper placement of dollies can damage the base runners and other components. Always use a spotter to place the dollies and ensure even support. Ensure hands are clear before setting the load down on the dollies.

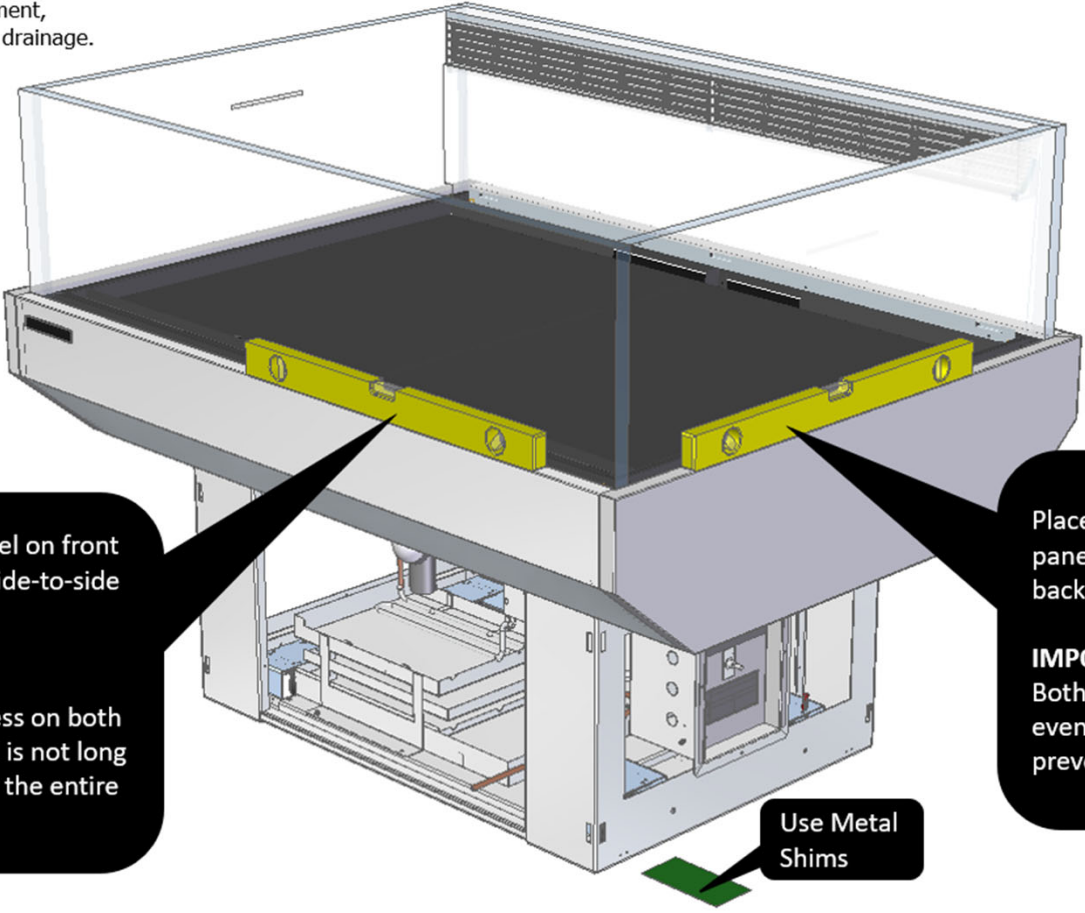


Installation – Method for Leveling SIM-AA Merchandizers

Important: See the suggestions for setting cases on uneven floors before setting lineups and leveling cases. Using this suggestion will result in the fewest required adjustments to case levels.

NOTICE

Longer length cases may require shims along the center portion of the case to maintain proper case alignment, performance, and drainage.



1

Place bubble level on front panel to check side-to-side levelness

IMPORTANT!
Measure levelness on both ends if level tool is not long enough to cover the entire span

2

Place bubble level on side panel to check for front-to-back levelness

IMPORTANT!
Both panels should have even levels in order to prevent twisting

Use Metal Shims

Level the Case sequentially, Using Metal Shims

1. Check levelness left-to-right first (This usually requires the most correction on a single side)
2. Adjust front-to-back levelness after ensuring left-to-right levelness (Shims normally inserted in pairs during this check).

Important: Always level the first case in the lineup. All other cases should be driven from its levels. See “Uneven Floor Guidance” for details.

Note: The use of metal shims is recommended in order to prevent shim deterioration over time

Installation – Installing Body Panels

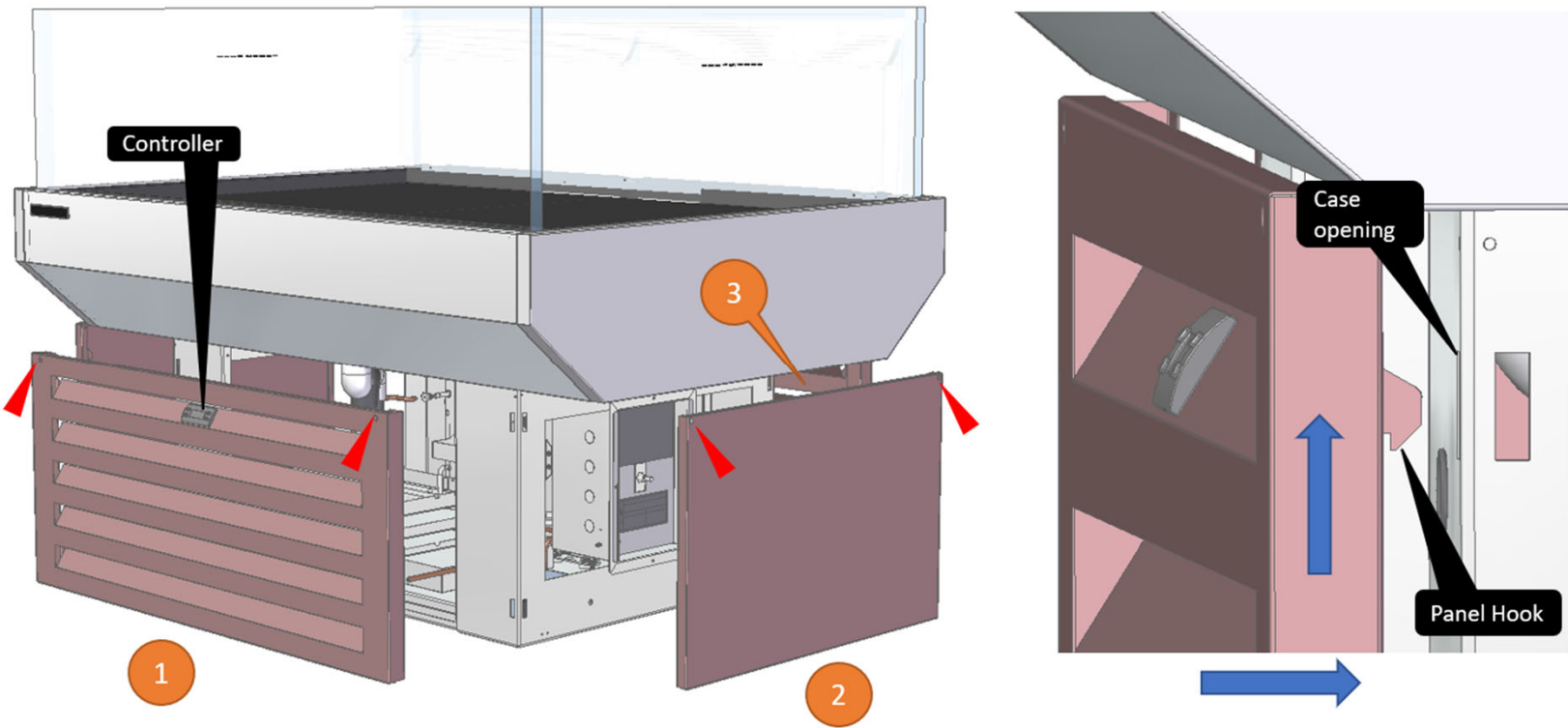
Installing Front and Side Body Panel

A Philips Screwdriver / Drill bit will be required in order to install or remove Front and Side Body Panels. Lift panel up and place hook into opening on case and slide down. See Graphic Below. Fasten at indicated locations (red arrows).

Installing Rear Body Panel

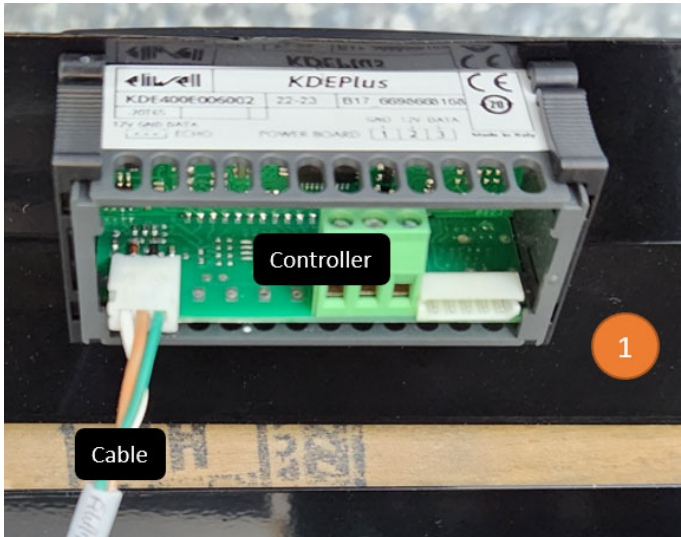
No tools will be required in order to install Rear Body Panel. Lift panel up and place hook into opening on case and slide down. See Graphic Below.

To remove panels, reverse order from above.



- 1. Front Body Panel (Be sure to plug / unplug cable from Controller when installing or removing panel)
- 2. Side Body Panel
- 3. Rear Body Panel

Fasten with self-tapping screws



User Information

Start Up

See the merchandisers Data Sheet Set for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the Data Sheet.

See page 8 & 22 for specs & electrical component locations

⚠ WARNING

--LOCK OUT/ TAG OUT--

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

Condensate Evaporator Pan Setup

Setup:

The merchandiser comes factory equipped with an Evaporator Pan, to which the drain pipes from the case feed condensate water into. There are multiple levels to collect excess water that may overspill in case of store conditions being above design specification causing more condensate water to be formed than expected.

Clearances

Minimum Clearances for Self-Contained case are to be followed as instructed for proper placement inside store locations.

- Intake and exhaust clearances are to be a minimum of 8 ft when placed next to a solid wall.
- Height clearance measured from floor follows as a minimum of 10 ft vertically.
- Minimum of 36 in. clearance if near an open aisle is required for proper cycle ventilation.
- Case set location to be at least 15 ft away from any entrance/exit door.

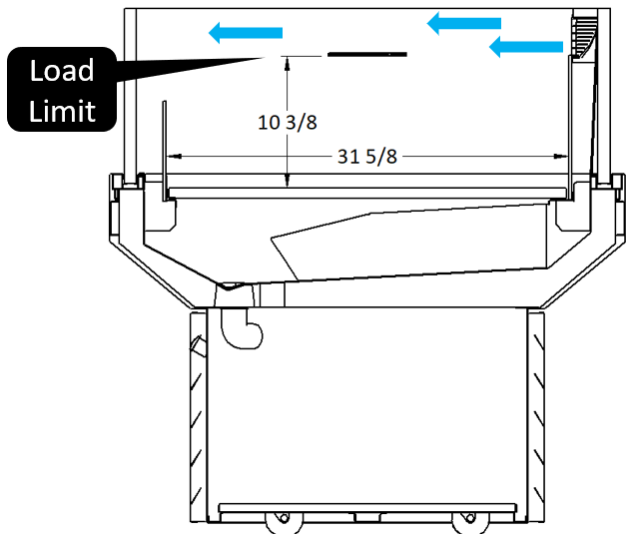
⚠ CAUTION

Obstructing air vents will affect case performance which could potentially lead to case failure.

Product Loading

Please keep product within the appropriate load limit. The load limit is indicated with a line on the case as shown on the right.

It is important that the case is not overloaded with product, this would block the airflow pattern. Proper loading of product ensures the case refrigerates as specified.



User Information

Pre-Power Checklist

- Examine the entire case for any shipping damage (pg 9-10).
- Verify case is level and all casters (if applicable) are in locked position (pg 12-13).
- Inspect all refrigeration lines for holes, dents or kinks (pg 23).
- Inspect all plex air deflectors and air louvers are installed correctly (pg 19).
- Verify the power receptacle has matching voltage and amp ratings (pg 8).
- Ensure case switch is in the OFF position prior to plugging cord into receptacle (pg 22).
- Review all safety warnings on case and in this manual.

Powered Up Checklist

- Verify case temperatures and adjust controller as needed (pg 8 & 24).
- Install all exterior lower panels (pg 14).
- Allow the case to operate at least two (2) hours before placing product inside to ensure the case is at proper operating temperature.
- Load case per loading requirements (pg 15).

Maintenance

Case Cleaning

Long life and satisfactory performance of any equipment are dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, the merchandiser should be thoroughly cleaned, all debris removed, and interiors washed down weekly.



WARNING

TO PREVENT INJURY ALWAYS SHUT OFF
POWER DURING CLEANING PROCESS.

Exterior Surfaces

The exterior surfaces must be cleaned with a mild detergent without chloride and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Cleaning Bumpers

Clean bumpers with household spray cleaners.

Cleaning Under Merchandiser

Remove lower body panels. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser.

Cleaning Stainless Steel Surfaces

Use non-abrasive cleaning materials, and always polish with the grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe dry after wetting.

Use non-chlorine containing cleaners such as window cleaners and mild detergents. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless-steel finish. Do not use bleach.

Clean frequently to avoid build-up of hard, stubborn stains. A stainless-steel cleaning solution may be used periodically to minimize scratching and remove stains.

Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muriatic acid) on stainless steel.

Interior Surfaces

The interior surfaces may be cleaned with most domestic detergents, ammonia-based cleaners and sanitizing solutions that do not contain chloride with no harm to the surface.

Cleaning Coils

NEVER USE SHARP OBJECTS AROUND COILS.

Use a soft brush or vacuum brush to clean debris from coils. Do not puncture Coils! Do not bend fins. Contact an authorized service technician if a coil is punctured, cracked, or otherwise damaged.

ICE in or on the coil indicates the refrigeration and defrost cycle is not operating properly. Contact an authorized Service Technician to determine the cause of icing and to make proper adjustments as necessary. To maintain product integrity, move all product to a cooler until the merchandiser has returned to normal operating temperatures.

Cleaning Air Louvers and Plex

NEVER USE SHARP OBJECTS AROUND PLEX.

The plex surfaces and Louvers must be cleaned with a mild detergent without chloride and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Do Not Use:

- Abrasive cleaners and scouring pads, as these will damage the finish.
- Solvent, oil or acidic based cleaners on any interior surfaces.

Maintenance Cont'd

Cleaning Condenser Coils

Coils should be cleaned at least once per month. Additional cleaning may be required depending on environment. A dirty condenser blocks normal airflow through the coils.

Airflow blockage increases energy consumption & reduces the merchandiser's ability to maintain operating temperatures.

To clean the coils, use a vacuum cleaner with a wand attachment & a soft (non-metallic) brush to remove dirt & debris. Do not bend fins. Always wear gloves & protective eye wear when cleaning near sharp coil fins & dust particles.

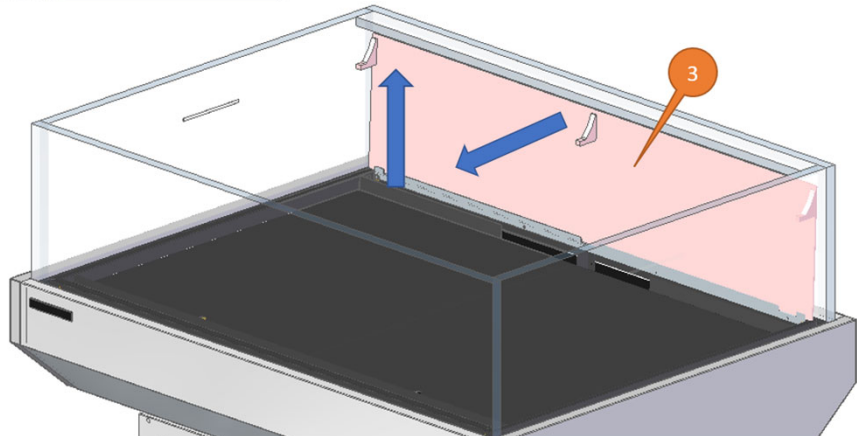
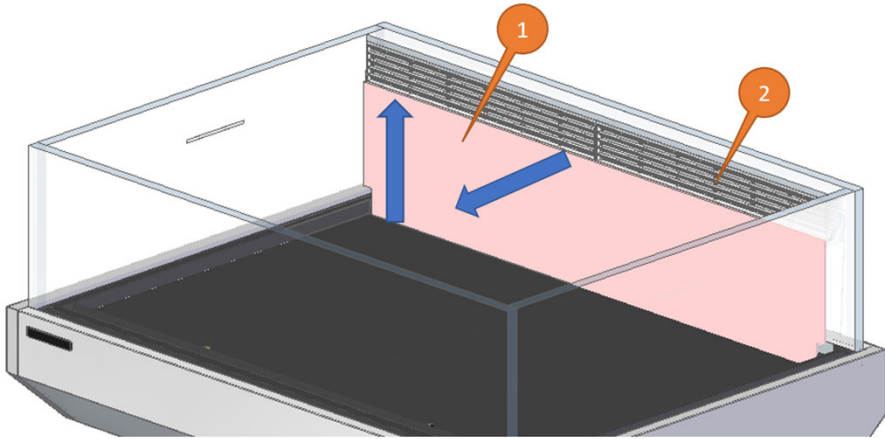
Cleaning Air Louvers / Plex

Dirty air louvers block normal air flow. Air louvers and/plex should be inspected at least once per month. Clean as necessary after inspection. More frequent inspection/cleaning may be required depending on the environment.

Removing Air Louvers / Plex

No tools will be required in order to remove Air Louvers and Plex. Pull Plex (1) forward and lift up. Air Louvers (2) are now free to remove. Pull Plex Deflector (3) forward and lift up. See Graphic Below.

To install, reverse order from above. See next page for details.

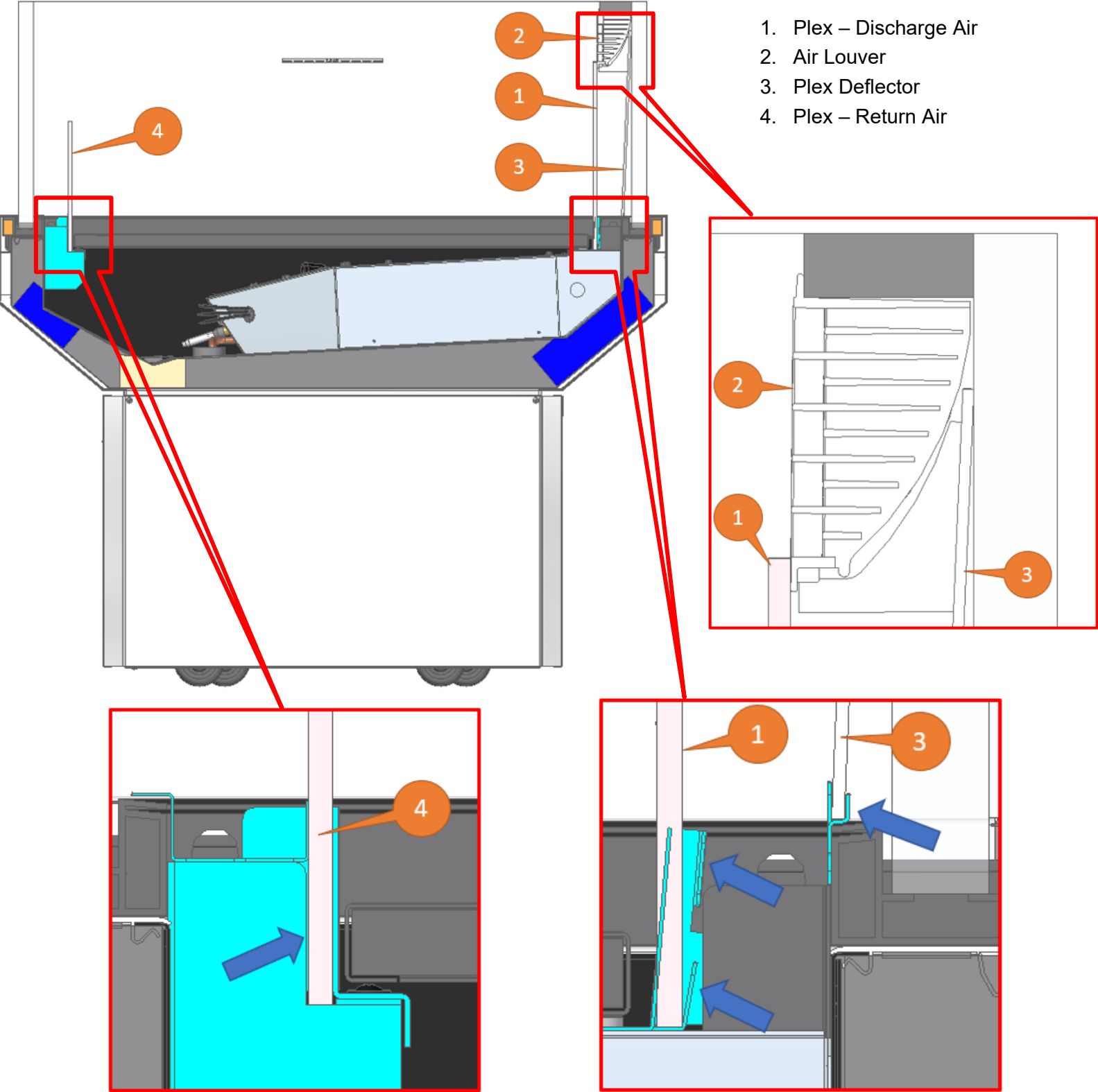


- 1. Plex – Discharge Air
- 2. Air Louver
- 3. Plex Deflector

Maintenance Cont'd

Installing Air Louvers / Plex Details

Be sure to reinstall all Plex parts into there locating channels as shown in these details.



Maintenance Cont'd

Condensate Evaporator Pan Maintenance

Maintenance:

Care must be taken to ensure that the condensate pans operate properly at the store. These units are designed to operate at either 75°F ambient and 55% relative humidity (RH) or 80°F ambient and 55% relative humidity (RH). If stores are operating above this condition, case performance will be severely affected. If such a condition is noted, Evaporator Pan must be checked periodically to see if excess water is being collected. If water has accumulated, water must be siphoned out of pan. Care must be taken while performing this setup. Unit power should be shut off for electrical safety. Once water has been removed and pan is dried out, unit power can be turned back on. Correct the store conditions and ensure temperature and relative humidity are within stated parameters. Call a HVAC technician if the A/C is not working properly.

See pg 23. Item 4

Do:

- Remove the product and all loose debris to avoid clogging the waste outlet.
- Store product in a refrigerated area such as a cooler during the cleaning process.
- Remove only as much product as can be taken to the cooler in a timely manner.
- **First, turn off refrigeration, then disconnect electrical power to merchandiser.**
- Thoroughly clean all surfaces with soap and hot water.
- Do not use steam or high-pressure water hoses to wash the interior.
- These techniques will damage sealing causing leaks and poor performance.
- Avoid direct contact between fan motors and cleaning or rinse water.
- Rinse with hot water, but DO NOT flood.
- Never introduce water faster than the waste outlet can drain.
- Allow merchandiser to completely dry before resuming operation.
- After cleaning has been completed, remember to restore refrigeration and power back to merchandiser.



WARNING

Product will degrade and may spoil if allowed to sit in non-refrigerated area.

Electrical

Merchandiser Electrical Data

Technical data sheets are shipped with this manual. The data sheets provide merchandiser electrical data. Refer to the technical data sheets and merchandiser serial plate for electrical information.

Electrical Connections

All wiring must comply with NEC and local codes. All electrical connections including both supply circuits are to be made in the electrical J-Box.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES

Field Wiring

Field wiring must be sized for component amperes stamped on the serial plate (refer to page 27 for location). Actual ampere draw may be less than specified.

Identification of Wiring

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the color code sticker (shown below) located inside the merchandiser's wireway cover.

WARNING

--LOCK OUT/ TAG OUT--

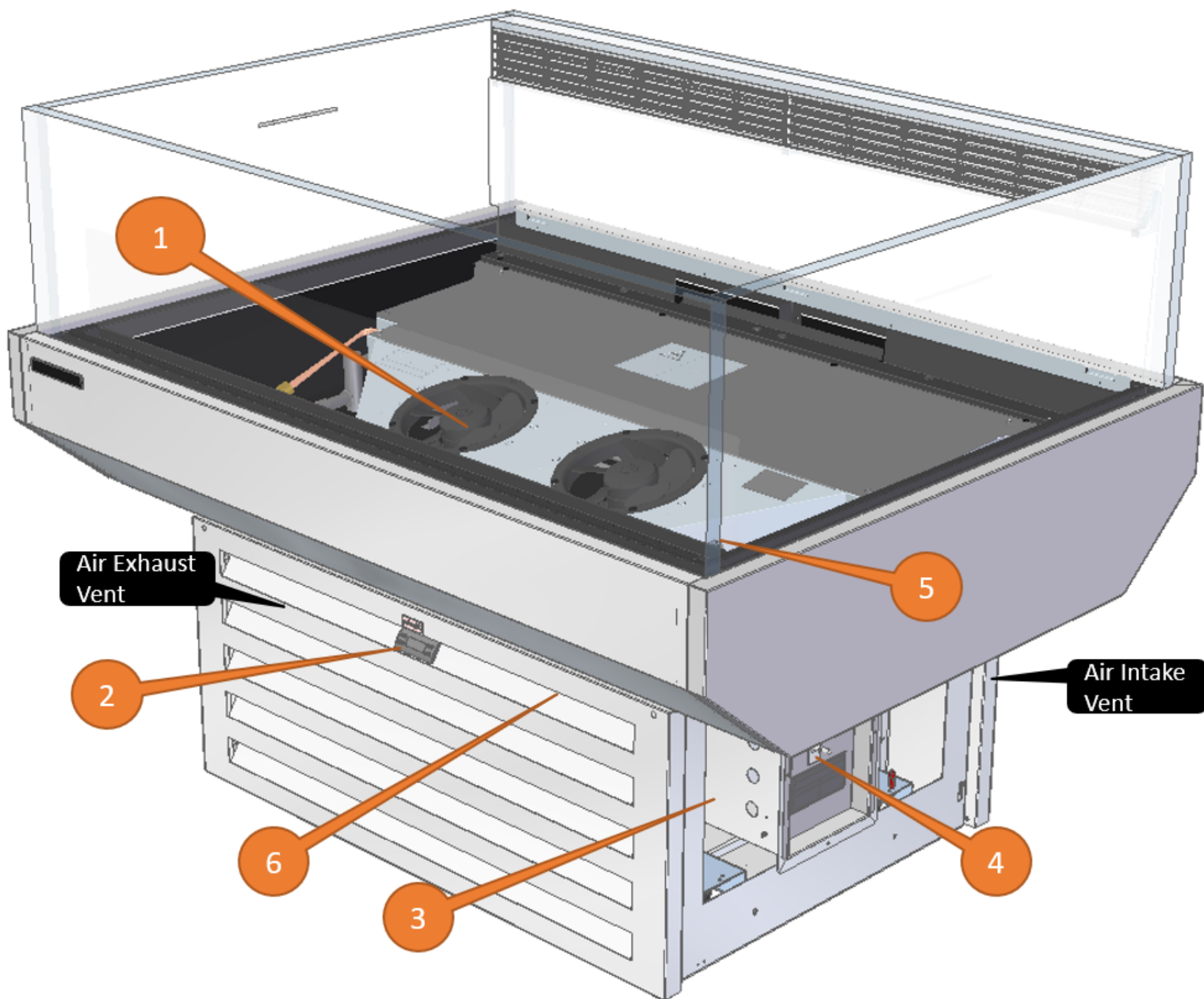
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

STANDARD CASE WIRE COLOR CODE CODIGO DE COLORES DE LOS ALAMBRES PARA LAS VITRINAS ESTANDAR CODE COULEUR POUR FILS DE BOITIER NORMALISE		
COLOR DESCRIPTION	DESCRIPCION	DESCRIPTION
■ GROUND	TIERRA MASA	MASSE
■ ANTI-SWEAT	ANTICONDENSACION	ANTI-SUINTEMENT
■ LIGHTS	LUCES	ECLAIRAGE
■ RECEPTACLES	ENCHUFES	PRISE DE COURANT
■ T-STAT/SOLENOID 230VAC	TERMOSTATO/SOLENOIDE (230VAC)	SOUPAPE A SOLENOID (230 VAC)
■ T-STAT/SOLENOID 115VAC	TERMOSTATO/SOLENOIDE (115VAC)	SOUPAPE A SOLENOID (115 VAC)
■ T-STAT/SOLENOID 24VAC	TERMOSTATO/SOLENOIDE (24VAC)	SOUPAPE A SOLENOID (24 VAC)
■ FAN MOTORS	VENTILADORES	VENTILATEUR
BLUE CONDENSING UNIT	UNIDAD DE CONDENSACION	UNITE DE CONDENSATION

USE COPPER CONDUCTORS ONLY
UTILISEZ LES CONDUCTEURS DE CUIVRE SEULEMENT
UTILICE LOS CONDUCTORES DE COBRE SOLAMENTE

430-01-0338 R101003

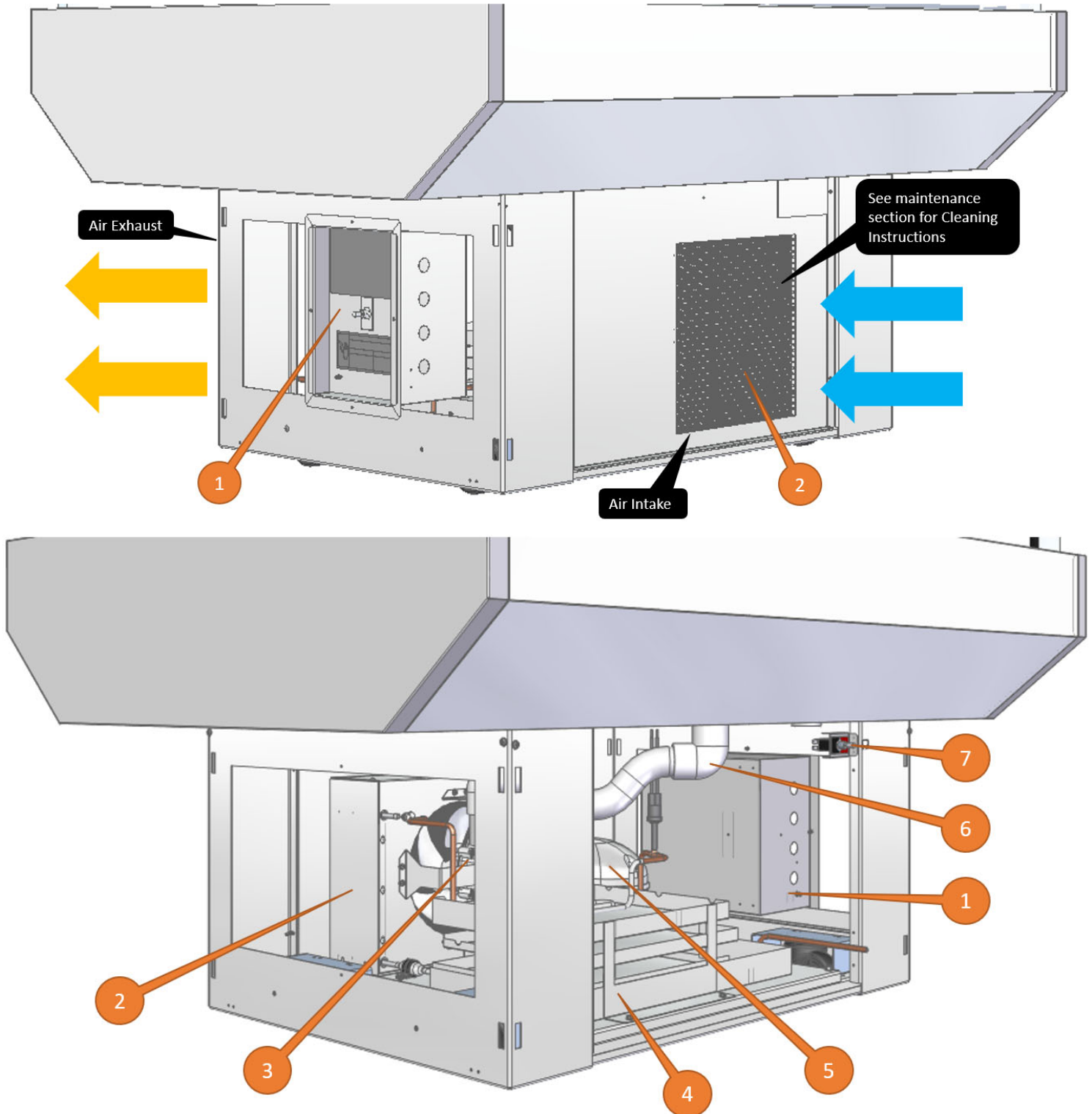
Electrical Component Locations



- 1. Evaporator Fan Motor
- 2. Controller & Display
- 3. Junction Box / Field Tie-in
- 4. Main Compressor Switch
- 5. Evaporator Fan Harness Disconnect
- 6. Light Switch (inside cutout) (LED Option)

See page 14 for panel removal

Self-Contained Component Locations



1. Junction Box / Field Tie-in
 2. Condenser Unit
 3. Condenser Fan Motor
 4. Condensation Pan Assy
 5. Compressor
 6. Drain & P-Trap
 7. Light Switch (LED Option)
- See page 14 for panel removal

Controller Information

RTN400 KDEPlus keyboard



Each key has a different function depending on whether it is:

- Pressed and released
- Pressed for at least 5 seconds
- Pressed and held at start-up
- Pressed in combination with another key.

KEYS

The following table summarizes the function of each key:

No	Key	Action		
		Pressed and released	Press for at least 5 secs	Start-up
1		<ul style="list-style-type: none"> • Scrolls through menu items • Decreases values 	Activates the Manual Defrost function (from outside menus).	---
2		<ul style="list-style-type: none"> • Scrolls through menu items • Decreases values 	Function can be configured by the user (from outside menus). (see parameter H32)	---
3		<ul style="list-style-type: none"> • Returns to the previous menu level • Confirms parameter value 	Activates the Stand-by function (from outside menus).	---
4		<ul style="list-style-type: none"> • Displays any alarms (if active) • Opens Machine Status menu • Confirms commands 	Opens the Programming Menu (User and Installer parameters)	When pressed during start-up it enables the user to select the application to be loaded.



Meaning of LEDs:

No	Icon	LED	Operation	Meaning
1		Compressor	Permanently on	compressor on
			Blinking	Delay, protection or start-up blocked
			OFF	otherwise
2		Defrost	Permanently on	Defrost active
			Blinking	Activated manually or from Digital Input
			OFF	otherwise
3		Fans	Permanently on	Fans active
			OFF	otherwise
4		Reduced SET / Economy	Permanently on	Energy Saving active
			Blinking	Reduced setpoint active
			OFF	otherwise
5		Alarm	Permanently on	alarm active
			Blinking	Alarm acknowledged
			OFF	otherwise
6		°F readout	Permanently on	°F setting (dro = 1)
			OFF	otherwise
7		AUX	Permanently on	Aux output active and/or light on
			Blinking	Deep cooling on
			OFF	otherwise
8		°C readout	Permanently on	°C setting (dro = 0)
			OFF	otherwise

N.B.: When the instrument is powered on it performs a lamp test, during which time the display and LEDs will flash for several seconds to check that they all function correctly.

Refrigeration

Refrigerant

The correct type of refrigerant will be stamped on each merchandiser's serial plate. See the following graphic for serial plate location.

The case refrigeration piping is pressurized with a nitrogen holding charge, leak tested, and factory sealed.

If system pressure was not maintained, contact your Hussmann Service Technician for further assistance.

Refrigeration Piping

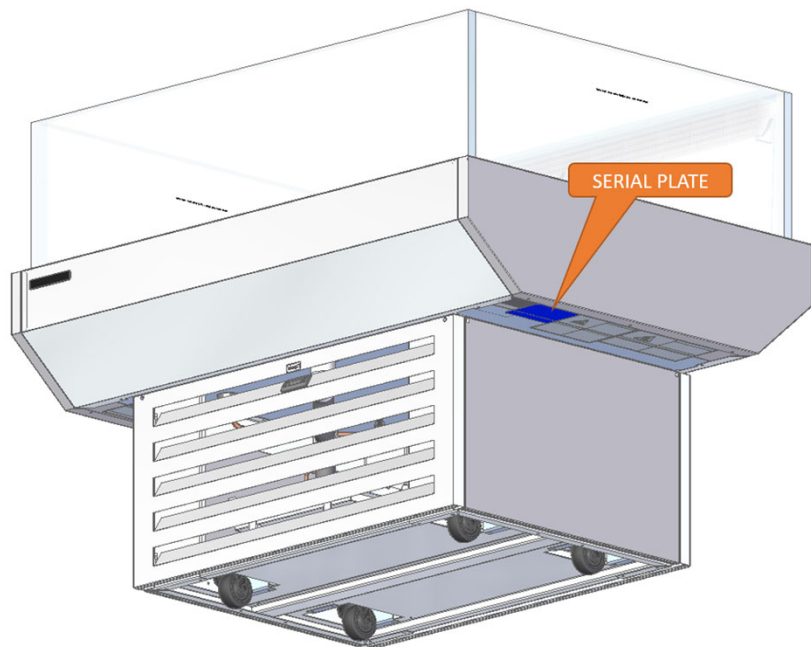
The refrigerant line connections are at the right side of the case (as viewed from the front) under the deck-pans. The merchandiser will have a through-hole in the tub liner that allows lines to exit the merchandiser for liquid and suction line connections. After connections have been made, make certain to seal this outlet thoroughly (if not sealed at factory already). Seal both the inside and outside. We recommend using an expanding polyurethane foam insulation to fill large gaps, then finishing the seal with a Silicone type sealant to prevent any water leaks.

Line Sizing

Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store or according to the ASHRAE guidelines.

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.





**ATTENTION
INSTALLER**

It is the contractor's responsibility to install case(s) according to local construction and health codes.



CAUTION

Refrigeration lines are under pressure. Refrigerant must be recovered before attempting to make any connections.

Refrigeration

Before Beginning Any Service or Repair:

Use a hand-held propane leak detector (“sniffer”) to ensure no propane is present in the immediate area, the inside of the display case and the inside of the refrigeration system. R-290 is an odorless refrigerant. Keep the area clear of all customers and non-essential or unauthorized personnel.

Verify that all repair parts are identical models to the ones they are replacing. Do not substitute parts such as motors, switches, relays, heaters, compressors, power supplies or solenoids. Failure to do so can result in an explosion, death, injury and property damage. Parts used on hydrocarbon cases must meet specific UL certification for non-incendive or non-sparking components. Use only Hussmann approved parts approved through the Hussmann Performance Parts Website. <https://parts.hussmann.com/>

Brazing must not begin before all propane has been cleared from the immediate area — the inside of the displays case and the inside of the refrigeration system.

! WARNING
Only Hussmann or factory trained technicians should service or repair this R-290 (propane) equipment.
Failure to follow instructions can result in an explosion, death, injury and property damage.

If a leak is detected, follow store safety procedures. It is the store’s responsibility to have a written safety procedure in place. The safety procedure must comply with all applicable codes such as local fire department’s codes.

At minimum, the following actions are required:

- Immediately evacuate all persons from the store, and contact the local fire department to advise them that a propane leak has occurred.
- Call Hussmann and/or a qualified service agent and inform them that a propane sensor has detected the presence of propane.
- Do not let any persons back into the store until the qualified service technician has arrived and that technician advises that it is safe to return to the store.

- The propane gas used in the unit has no odor. The lack of smell does not indicate a lack of escaped gas.
- A hand-held propane leak detector (“sniffer”) should be used before any repair and/or maintenance is attempted. All repair parts must be identical models to the ones they are replacing.
- No open flames, cigarettes or other possible sources of ignition should be used inside the building where the units are located until the qualified service technician and/or local fire department determines that all propane has been cleared from the area and from the refrigeration systems.

Refrigeration

DANGER

Only Hussmann service technicians or technicians qualified to handle R-290 (propane) refrigerant should service or repair this R-290 (propane) equipment. Failure to follow instructions can result in an explosion, death, injury and property damage.

STEPS TO RECOVER REFRIGERANT

1. Make sure you are in a well ventilated area before making any service or repair to the refrigeration system.
2. Disconnect all power sources from the system. Some systems may have more than one plug or power supply.
3. Tap system with line tap valves, attaching gauges to the high and low sides of the system.



**refrigeration
line tapping
valve**

4. Connect hose to an evacuated recovery tank. Open refrigeration gauges and recovery tank.
5. With the suction valve in vacuum, the refrigerant will be recovered into the recovery tank.
6. Once recovered, close the tank valve and remove the gauge from the tank and connect nitrogen tank to the system to purge it with nitrogen.

7. Pull vacuum to a minimum of 200 microns or lower.



CHARGING

A calibrated scale with +/-2 gram accuracy must be used to charge the system. The charge amount is shown on the serial plate. Only R-290 grade refrigerant can be used. Standard propane does not meet the purity/moisture content of R-290, and therefore cannot be used to charge cases.

No gas charge adjustments are allowed. When connecting hoses between the refrigeration system, manifold gauges, and refrigerant cylinder, ensure that the connections are secure and there are no potential sources of ignition nearby. Ensure that contamination of different refrigerants does not occur when using charging equipment.

WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

Refrigeration

Use dedicated hoses to service R-290 (propane) refrigeration systems. Hoses or lines should be as short as possible to minimize the amount of refrigerant contained in them.

Ensure that the refrigeration system is properly grounded prior to charging the system with refrigerant, to avoid the potential for static build-up.

WARNING

Component parts shall be replaced with like components, and servicing shall be done by factory authorized service personnel only, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

Extreme care must be taken not to overfill the refrigeration system. After charging, carefully disconnect the hoses, attempting to minimize the quantity of refrigerant released. Further leak check the service ports, hoses, refrigerant tanks. The service ports shall be checked for leaks using a hydrocarbon leak detector with a sensitivity of 3 grams/year (0.106 Oz/year) leak rate.

Thoroughly leak check the service ports. If no leak is present, use a pinch-off tool to close the ends of the service tubes before brazing them shut. Remove all service ports. If a Schrader valve is used on the compressor service tube, it must be removed and the previous steps followed in order to braze the service tube shut.

WATER OUTLET AND WATER SEAL

The condensate water outlet is located in the center of the merchandiser. The outlet has a factory installed, external water seal.

For self contained models, this water seal drains into the condensate evaporator pan located beneath the merchandiser. **Ensure the drain hose is properly trapped, and the drain area is not clogged.**

NOTE: All lower base panels must be in place when the refrigerator is operating. If not, air-flow from the condenser will be directed over the evaporator pan and defrost water in the pan may overflow.

WARNING

Refrigeration lines are under pressure. Refrigerant must be recovered before attempting any connection or repair.



Troubleshooting

Problem	Possible Cause	Possible Solution
Case temperature is too warm.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75-80°F.
	Discharge air temp is out of spec.	Check evaporator fan operation. Check electrical connections and input voltage.
		Fans are installed backwards. Check airflow direction.
		Fan blades are installed incorrectly. Make sure fan blades have correct pitch and are per specification.
		Check to see that fan plenum is installed correctly. It should not have any gaps.
		Check suction pressure and ensure that it meets factory specifications.
	Case is in defrost.	Check defrost settings. See Technical Specifications section.
Product is outside of the load limit area, blocking airflow.	Redistribute product so it does not exceed load limit. There is a sticker on the inside of the case indicating what the maximum load line is. See page 15 for details.	
Coil is freezing over.	Return air is blocked, make sure debris is not blocking the intake section.	Coil close-offs are not installed. Inspect coil to make sure these parts are on the case.
		Clean coil.
	Condensing coil or evaporator coil is clogged or dirty.	
Case temperature is too cold.	The t-stat temp is set too low.	Check settings. See Technical Specifications section.
	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75-80°F.
Condensation on plex / glass.	Ambient conditions may be affecting the case operation.	Check case position in store. Is the case located near an open door, window, electric fan or air conditioning vent that may cause air currents? Case must be located minimum 15 Ft away from doors or windows. Cases are designed to operate at 55% Relative humidity and a temperature of 75-80°F.

Troubleshooting Cont'd

Problem	Possible Cause	Possible Solution
Water has pooled under case.	Case drain is clogged.	Clear drain.
	PVC drains under case may have a leak.	Repair as needed.
	Case tub has unsealed opening.	Seal as needed.
	If the case is in a line-up, case to case joint is missing or unsealed.	Install case to case joint and seal as needed.
	Evaporator pan is overflowing (if applicable).	Check electrical connection to evaporator pan. Check float assembly, it should move freely up and down the support stem. Clear any debris.
Case is not draining properly.	Case is not level.	Level the case.
	Drain screen is plugged.	Clean drain screen and remove any debris.
	Drain or P-trap is clogged.	Clear any debris.
Frost or ice on evaporator coil.	Evaporator fans are not functioning.	Check electrical connections.
	Defrost clock is not functioning.	Case should be serviced by a qualified service technician.
	Coil is freezing over.	Return air is blocked, make sure debris is not blocking the intake section.
Coil close-offs are not installed. Inspect coil to make sure these parts are on the case.		

Service

Perimeter Plex can become scratched with daily use. With a few supplies, you can remove most of the scratches.

Step 1

Clean the surface around the scratched area to remove any grime, grease or dirt. Make a soapy mixture of warm water and mild liquid detergent and use a clean, soft rag to wash down the area. Rinse the Perimeter Plex with warm water and wipe it dry with a clean, soft rag.

Step 2

Run your fingertips across the surface to determine how severe the scratches are. If your fingernails catch as they move across the surface, the scratches are heavy -- skip to Step 6. If you can barely feel the scratches, they are light surface scratches and can usually be rubbed and buffed out.

Step 3

Apply a small amount of mild abrasive polishing compound to the scratched area with a clean, soft rag. With constant pressure, move your hand in a circular motion until the scratches become hard to see. This may take several minutes and you may need to apply more compound. Continue the rubbing process until the scratches are no longer visible.

Step 4

Wipe off the compound with a clean, soft rag. If you can still see the scratches, submerge a sheet of 800-grit sandpaper in a bucket of water, remove it and then fold into a workable size.

Rub the surface using a circular motion. Keep enough moisture on the paper to avoid overheating the Perimeter Plex. Once the scratches become hard to see, repeat the process with finer, 1200-grit sandpaper.

Step 5

Buff the Perimeter Plex with metal polish to bring back the shine. Apply the polish with a clean, soft rag and move your hand in a circular motion to buff the area to complete your repair of lightly scratched Perimeter Plex. Several applications of polish may be needed to fully restore the shine.

Step 6 (for heavy scratches only)

Submerge a sheet of 600-grit sandpaper in a bucket of water to begin the process of handling heavy scratches. Remove the sandpaper and fold it into a workable size. With constant pressure, rub the surface using a circular motion. Keep enough moisture on the paper to avoid overheating the Perimeter Plex. Continue wet-sanding for two to three minutes.

Step 7 (for heavy scratches only)

Repeat the process with 800-grit sandpaper followed by 1200-grit sandpaper. Wipe the surface dry with a clean, soft rag. Follow the instructions in Step 5 to buff the Perimeter Plex and restore the shine.

Step 8

Wipe off the compound with a clean, soft rag.

Perimeter Plex Replacement

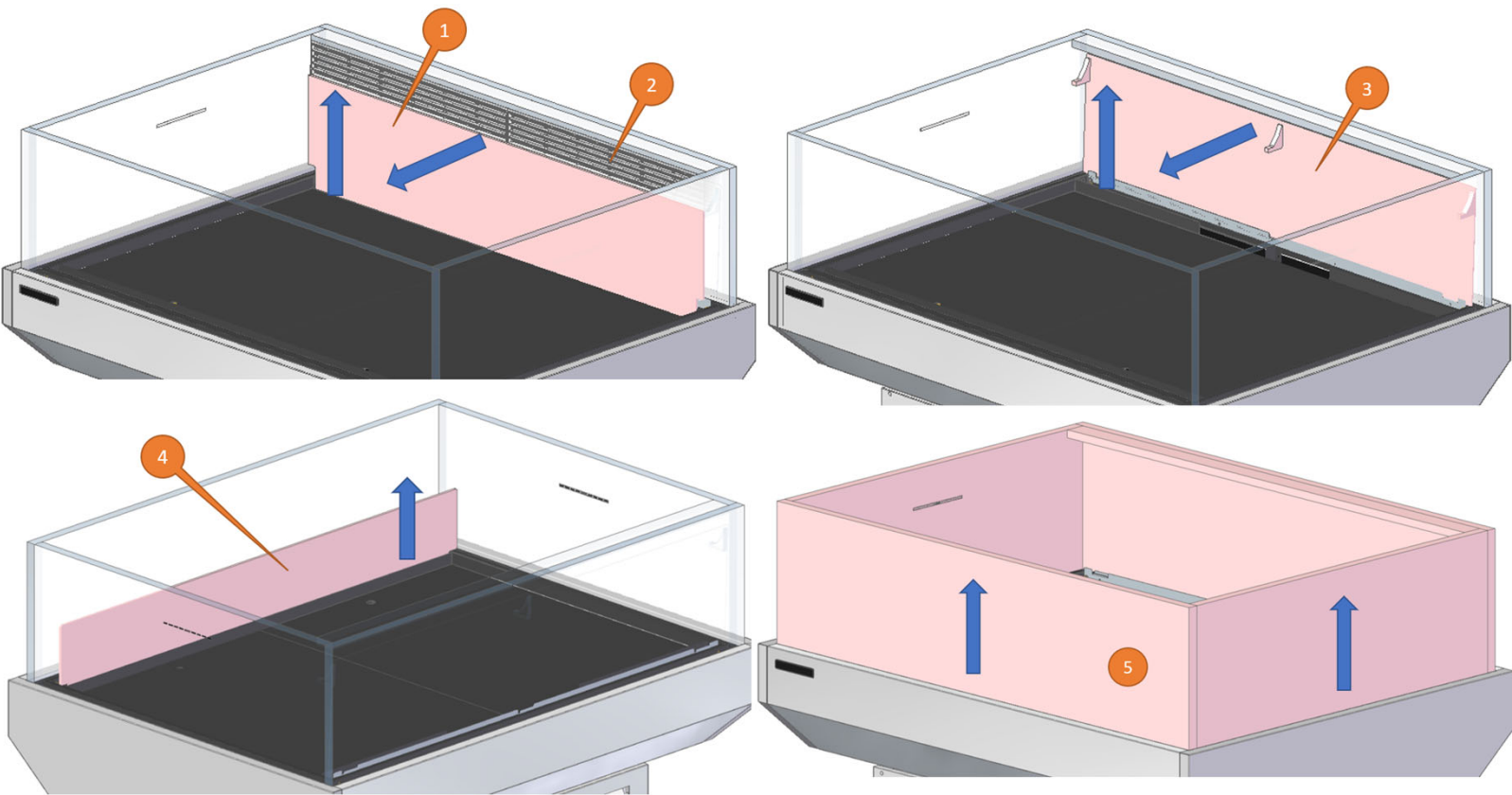
Pull Plex (1) forward and lift up. Air Louvers (2) are now free to remove. Pull Plex Deflector (3) forward and lift up. Lift up Plex (4) to remove. Perimeter Plex (5) will require a minimum of two people to remove. The use of suction-cup lifters is recommended due to the size and weight. To remove lift up and out of the retainer channels.

See Graphic on page 34.

To install, reverse order from above. Be sure to reinstall all Plex parts into there locating channels as shown in the details on page 23.

1. Plex – Discharge Air
2. Air Louver
3. Plex Deflector
4. Plex – Return Air
5. Perimeter Plex

Service cont'd



Evaporator Fan Replacement

Disconnect electrical power before starting motor replacement. Lift and remove Deck Pans (1) to access Fan Plenum (3). Disconnect Fan Harness (2). The Fan Plenum may be removed from the case for easier access if needed. Turn Fan Plenum over to access Fan Motor Assy (5). Remove Screws (4) from top of Fan Motor Assy. Disconnect motor connection and remove Fan Motor Assy. See Graphic Below

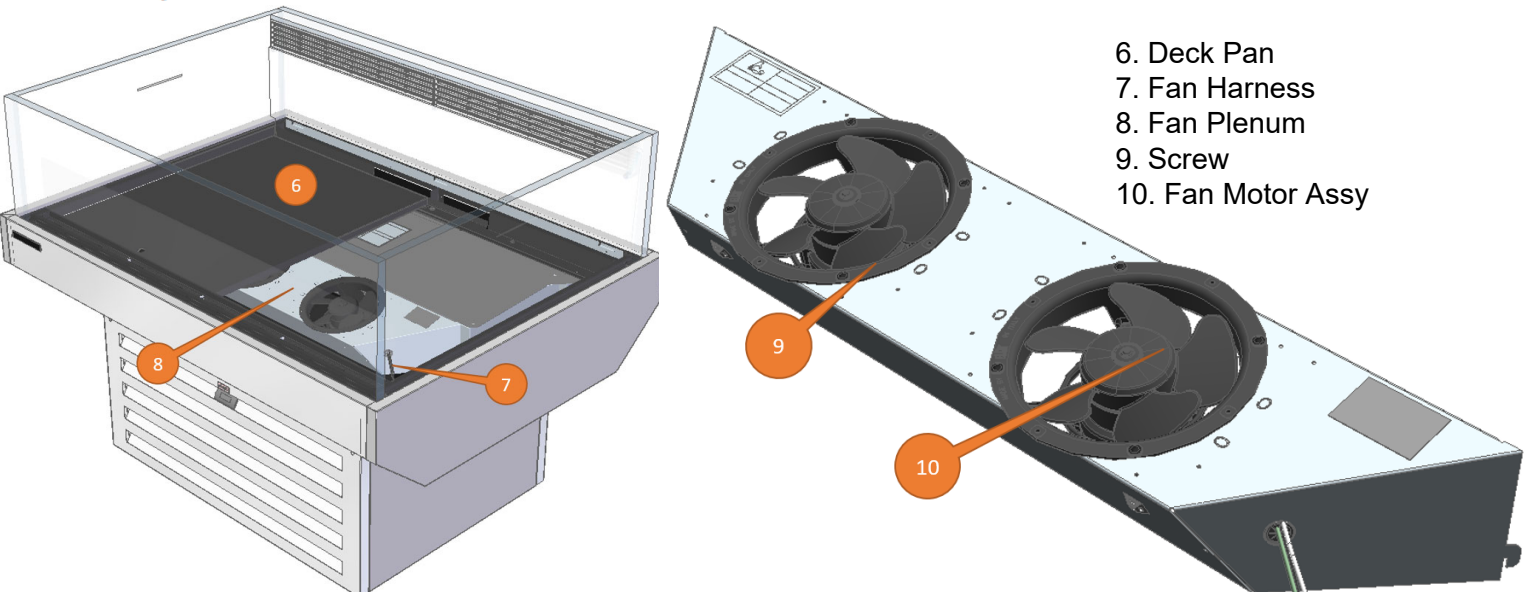
To install, reverse order from above.



WARNING

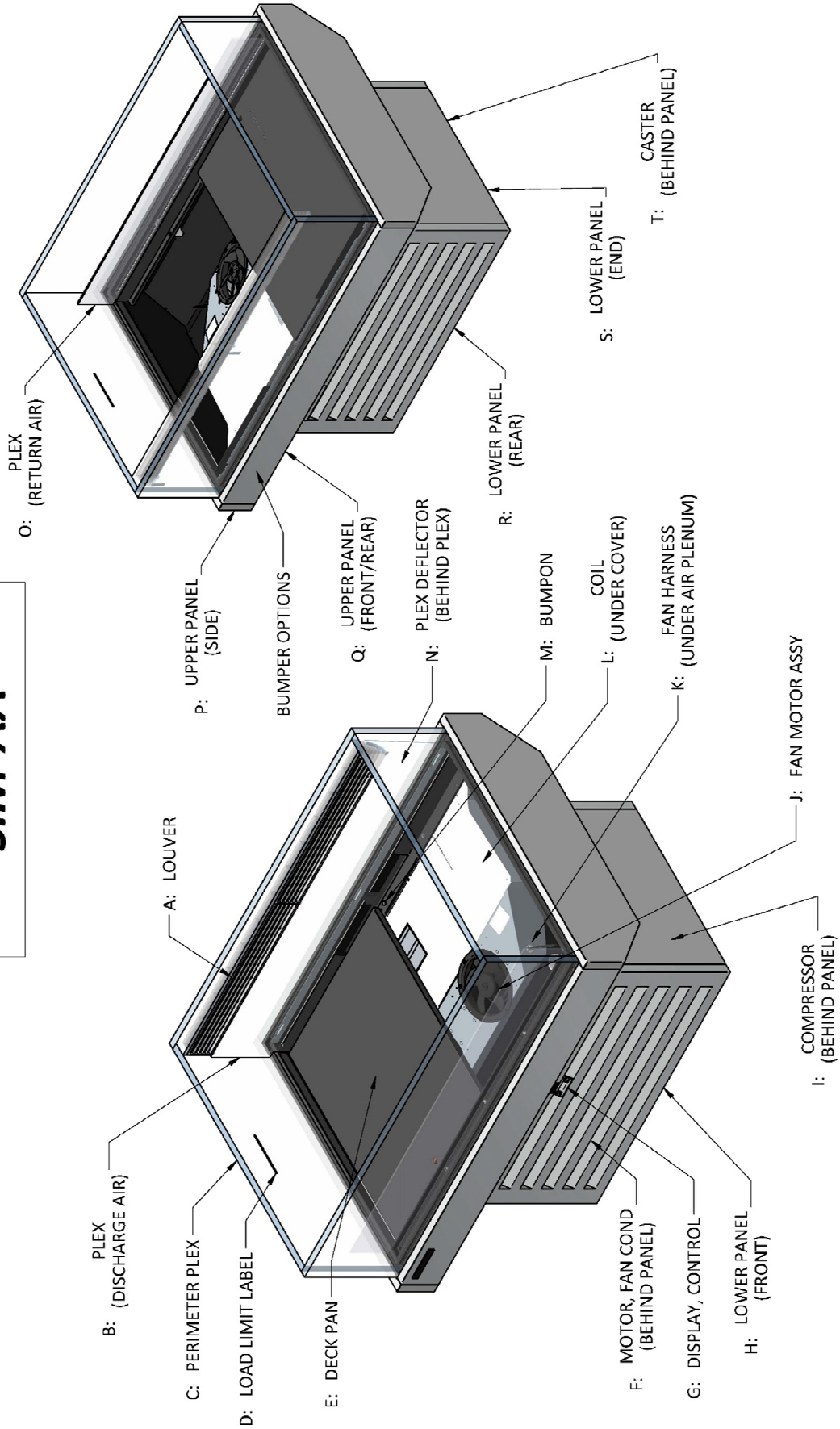
--LOCK OUT/ TAG OUT--

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.



Parts Diagram

SIM-AA



Parts List

Dwg Ref	Part	SIM3AA		SIM4AA	
		Part #	Qty	Part #	Qty
A	Louver - Dischage Air	3184547	2	3159074800	2
B	Plex - Dischage Air	3182980	1	3159056300	1
C	Perimeter Plex	3182975	1	3159069555	1
D	Label - Load Limit	3170776800	2	3170776800	2
F	Motor - Condensor	3082147	1	3082147	1
G	Display - Controller	3023552	1	3023552	1
I	Compressor	3093954	1	3089914	1
J	Fan Motor Assy - Evaporator	3174974	1	3174935	2
K	Fan Harness for Evaporator Motor	0376609	1	0443521A	1
L	Evaporator Coil	0500205	1	0500343	1
M	Bumpon for Deck Support	2H13602800	4	2H13602800	4
N	Plex Deflector	3182978	1	3172656300	1
O	Plex - Return Air	3182981	1	3159073300	1
T	Caster	35S088	4	35S088	4
	Control - Eliwell RTN400	3023537	1	3023537	1
	Controller Cable	3023553	1	3023553	1
	Green NTC Sensor	3023554	1	3023554	1
	Orange NTC Sensor	3031571	1	3031571	1
	Relay - 10AMP	3025471	1	3025471	1
	Switch - On / Off	3038707	1	3038707	1
	Power Cord - 5-15P (Non-locking)	0521094	1	0521094	1
	Power Cord - L5-15P (Locking)	3090915550	1	3090915550	1
	Light Switch - On / Off	3038707	1	3038707	1
	Fuse - 15 AMP	125-01-8604	1	125-01-8604	1
	LED Driver	3117868	1	3117868	1
	LED 24IN 35K	3181556	2	3181556	2
	LED 36IN 35K	3181557	1	NA	1
	LED 48IN 35K	NA	1	3181558	1

THE REPLACEMENT PARTS BELOW REQUIRE A PAINT CODE. IF YOU NEED THE CASE PAINT CODE, PLEASE CONTACT YOUR HUSSMANN REPRESENTATIVE WITH THE **CASE MODEL AND SERIAL NUMBER.**

E	Deck Pan	3184559	2	3159063	2
H	Lower Panel - Front	3191728	1	3161713	1
P	Upper Panel - Side	3159062	2	3159062	2
Q	Upper Panel - Front/Rear	3184552	2	3159061	2
R	Lower Panel - Rear	3191726	1	3159043	1
S	Lower Panel - End	3159042	2	3159042	2



WARNING

Component parts are specifically chosen for propane exposure and therefore non-incendive and non-sparking. Component parts shall be replaced with identical components, and servicing shall be done by factory authorized service personnel only, so as to minimize the risk of possible ignition due to incorrect parts or improper service.



HUSSMANN[®]

**To obtain warranty information
or other support, contact your
Hussmann representative.
Please include the model and
serial number of the product.**

**Hussmann Warranty / Technical Assistance
(800) 592-2060**

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri 63044 2014