

HUSSMANN®

austral
REFRIGERATION



GH Series – Wide Island Freezer Installation Manual

reference: IM-1005

66 Glendenning Road, Glendenning NSW 2761
PO Box 42 Doonside NSW 2767
t: +61 2 8805 0400 f: +61 2 9675 2897

Contents

Pre installation	<hr/>	2
Case services dimensions		2
Operating environment		4
Handling and transporting cases		4
Shipping damages and shortages		4
Installation	<hr/>	5
Positioning and levelling		6
Preparing cases for joining		7
Joining the cases		9
Attaching joiner plates		10
Attaching bumper kickplates		12
Installing glass sliding lids		13
Connecting refrigerant lines		14
Installing the waste drain		16
Installing sensor probes		18
Mounting fixtures		19
Commissioning	<hr/>	20
Cleaning case		20
Starting up		20
Start up checks		20
Decommissioning	<hr/>	21
Disposal	<hr/>	21
Cleaning and Maintenance	<hr/>	21
Daily Checks		21
Cleaning		21
Important Notes		22
Cleaning Procedure		22
Six Monthly Maintenance		23
Operation Servicing		23
Troubleshooting	<hr/>	24
Appendixes	<hr/>	25
Appendix 1	Wiring diagrams	25
Appendix 2	Risk analysis	26
Appendix 3	Installing glass sliding lids	27
Appendix 4	Warranty	35

Pre installation

Case Services Dimensions

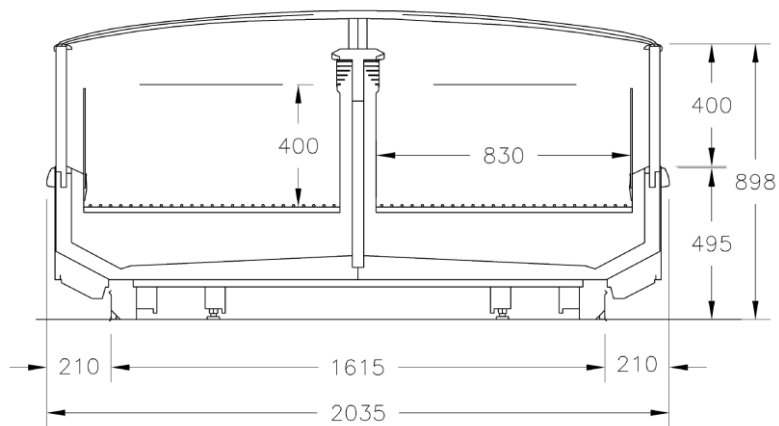
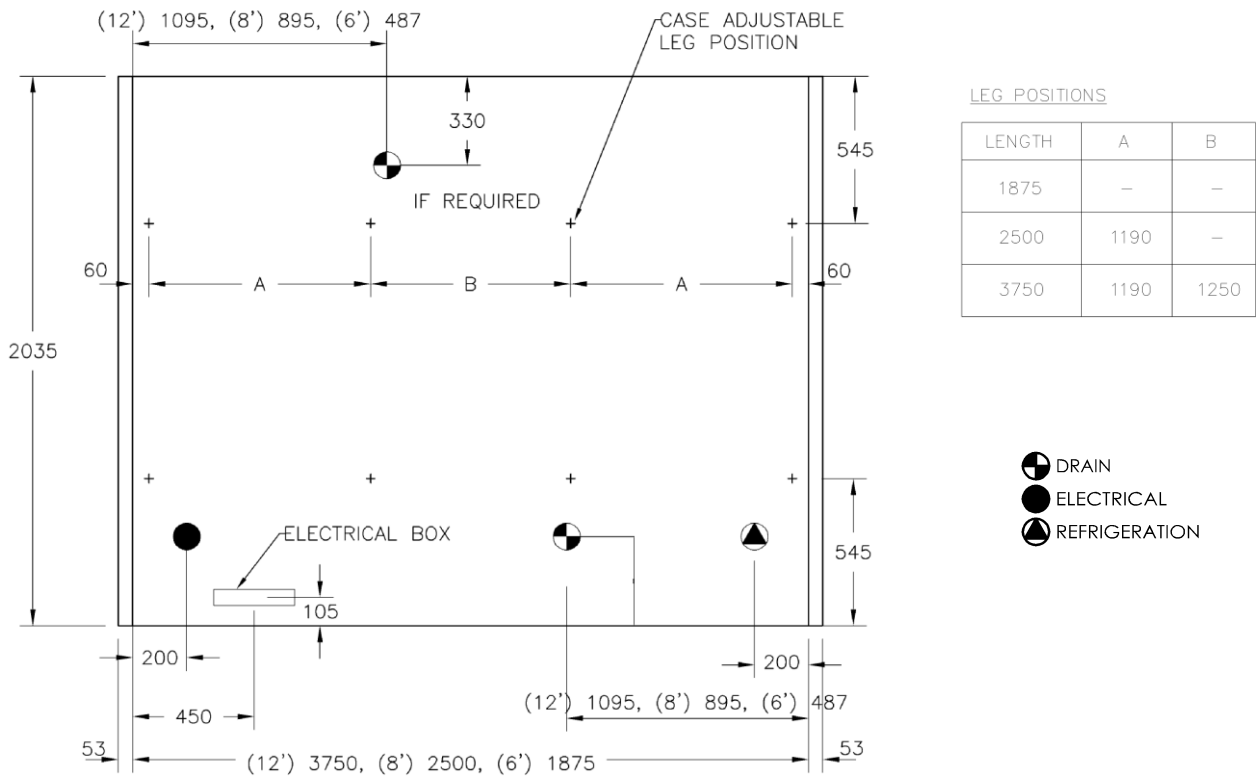


Figure 1 Service layout and X-section

NOTE: This information is a reference only. Always refer to the latest data sheet

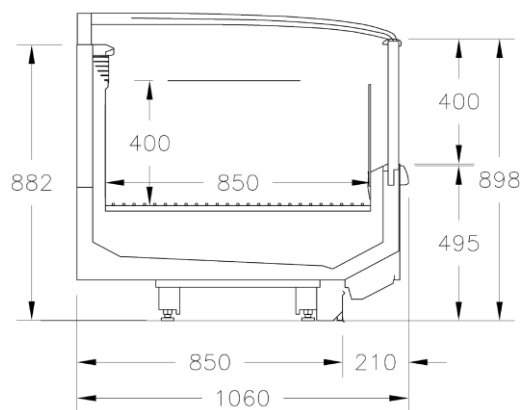
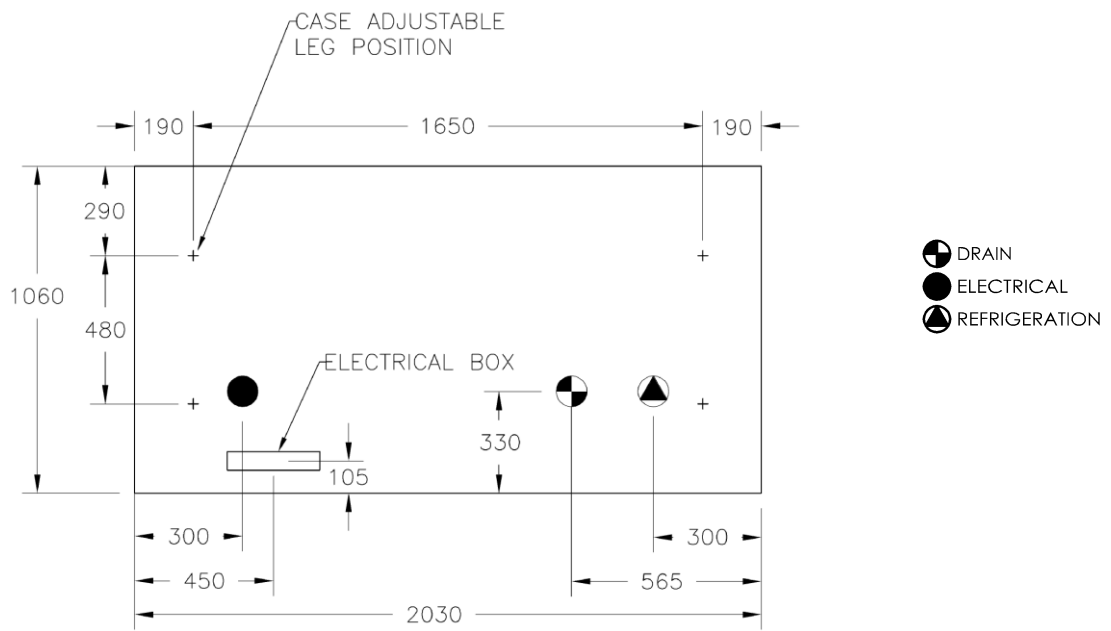


Figure 2 Service layout and X-section – crown end

Operating Environment

Cases have been factory tested to AS1731, 25°C at 60% RH. For best performance, store temperature should be maintained at or below 24°C at 50% RH, if not an “air ventilation kit” may be required.

To avoid condensation build-up, cases should be positioned to allow air to freely circulate around the underside and rear of the case. Ideally, the floor will be level.

Cases must not be positioned in areas that may be subject to heat or air currents such as ventilation ducts, open doors or windows, direct sunlight, electric fans or ovens, etc.



NOTE

Refer to product MSDS for all hazardous substances used during installation in relation to their application, PPE, first aid, disposal and emergency management.
Refer page 26 (Risk Analysis)

For MSDS sheet contact your Hussmann Representative

Handling and Transporting cases

Case dimensions can be found in the product engineering data sheets.

(This manual is a guide only. Always refer to the latest case information available from Hussmann Customer Service)

Always ensure that the moving device is of a suitable type, and has sufficient lifting capacity for the case weight and dimension. Always lift cases from the underside.

Refer to and follow the manual handling policies of your Company when moving cases.



CAUTION

Care must be taken to avoid damage to drainage outlets and electrical equipment mounted under or at the rear of cases.

Shipping Damage and Shortages

If possible, it is recommended that packaging be removed from the cases before they are moved into the store.

After removing packaging, inspect the case for any shipping damage and ensure that all case inclusions, such as trims etc are accounted for. Immediately report any shipping damage to the carrier and inform Hussmann Customer Service of any short supplies.

Installation



NOTE

Information in this manual is to be followed in conjunction with specifications, work practices and regulations of the customer, installing company and relevant industry.

Installation involves 2 stages.

1. Installation of the case in a Lineup and or the Installation of the Crown End to the Lineup or to the single case.
2. Installation of the Frame work to the support the glass lids and fitting of the Lids onto the cases

The Frame work and Glass Lids are packed separately, unassembled. The frame work needs to be assembled onto the case, ready to accept the glass lids.

After unwrapping the case, lift up the case, in a safe manner and remove the wooden shipping base.



Figure 3 Removal of shipping bases

Positioning and Levelling



CAUTION

Ensure the lifting capacity of the trolley, etc is sufficient for the case. Refer to the product engineering data tables at the front of this manual for case weights and Risk Analysis (page 26).

To position the cases:

1. If the plinth surface is level, position the case designated for this position in the required place.
2. If the plinth surface is not level, determine where the highest point of the plinth is, and position the case allocated to this position first.
3. Snap a chalk line on the floor to use as a guide for positioning the front of the cases in the line-up. Determine the position of the case and choose a part of the case that will relate to the chalk line.
4. Adjust the case height using the adjustable feet (if fitted) or metal shims (do **NOT** use **timber**) to ensure the case is level to **within +/- 1.5mm** from front to back and side to side, (refer figure 4)



NOTE

It is important that all cases are level for correct case and operation.

DO NOT SET CASE LEVELS OFF A PATCH END fitted to a case

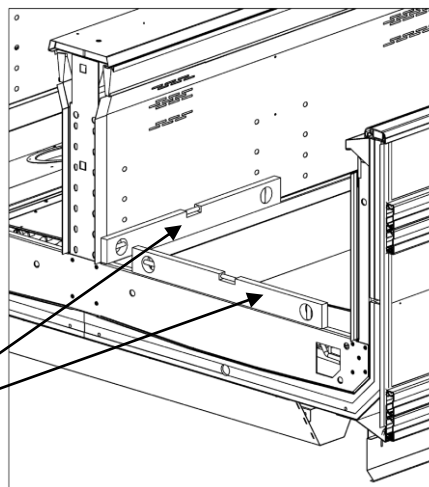


Figure 4 Case levelling

Preparing Cases for Joining.

1.
 - A. Remove bumpers and packing materials from cases to be joined
 - B. Remove display racks, product trays and glass product stops from end bays in cases to be joined
 - C. Ensure Foam tape and sheet on the ends of each case is intact. Remedy if necessary.



Check Foam Tape is not damaged



Figure 5 Preparing cases for joining

Add silicone to the surface of the foam tape to ensure an Air tight seal, when cases are joined.

Remove Bumper from bumper support, if fitted.

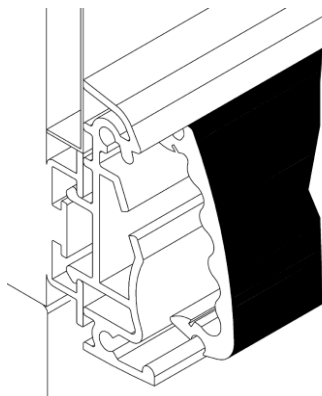


Figure 6 Remove bumper.



CAUTION

Do not walk or sit on cases.

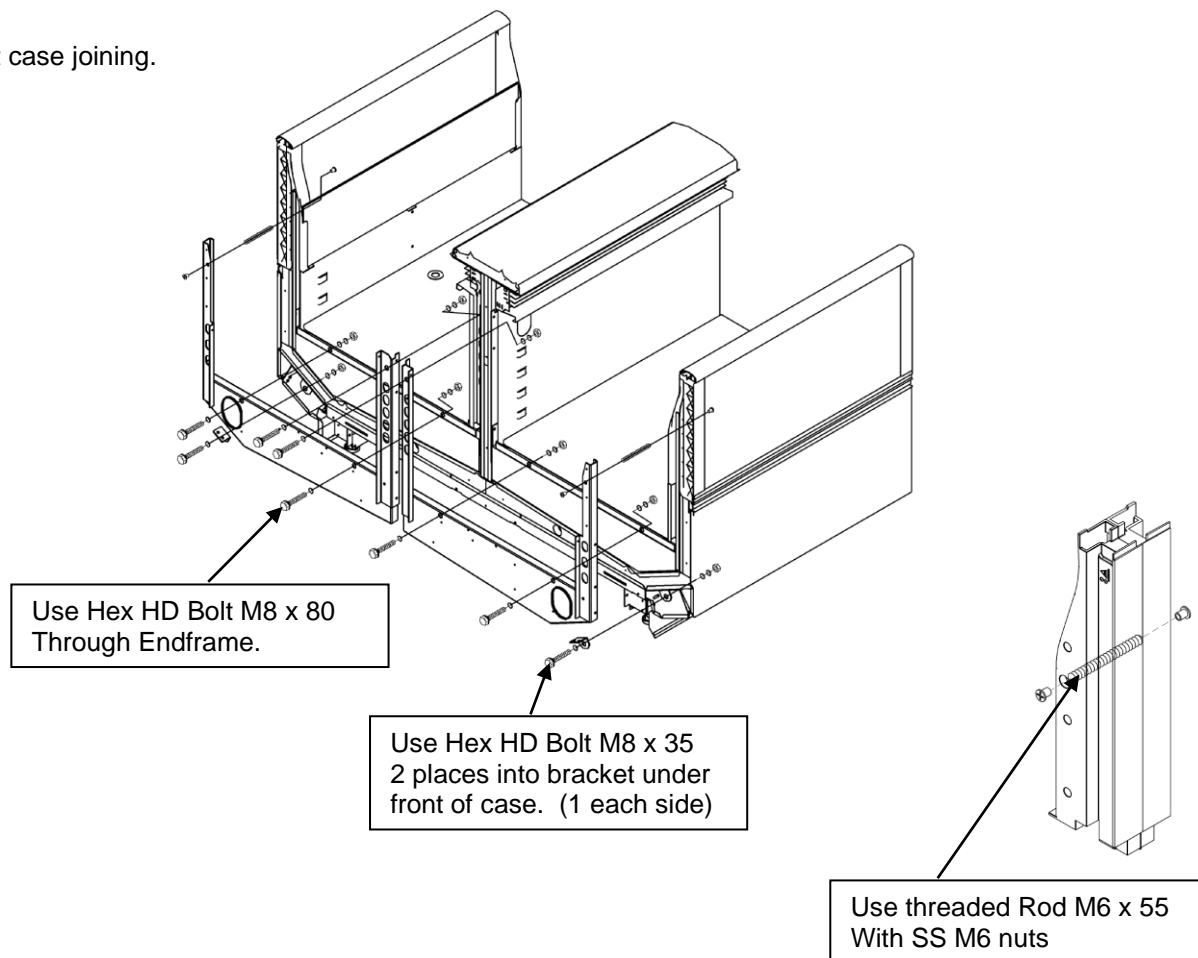
Do NOT use shipping bolts to join cases

Joining the Cases

Move the second case against the first case.

- Use care when pushing cases together.

Straight case joining.



Crown End case joining.

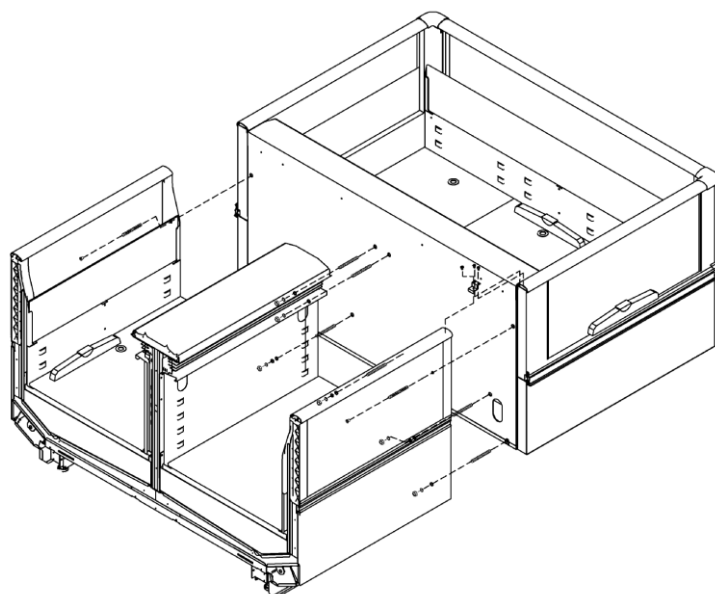
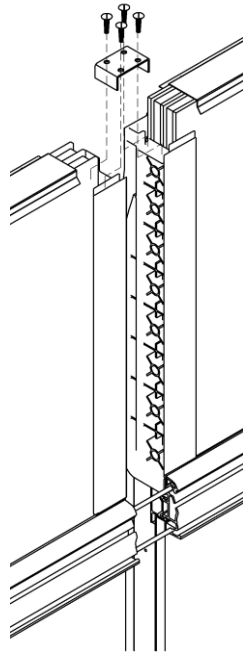


Figure 7 Join the cases.

Fitting the Joiner Plates

Straight Cases



Crown End to straight case

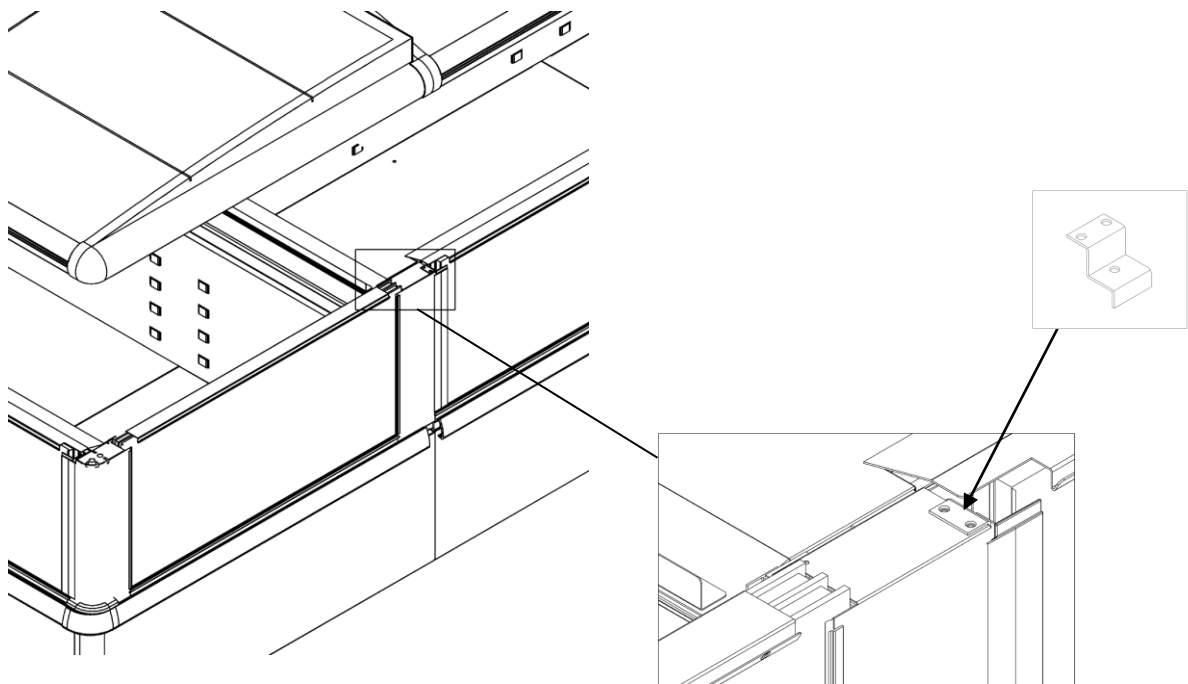


Figure 8 Installing joiner plates – between cases.

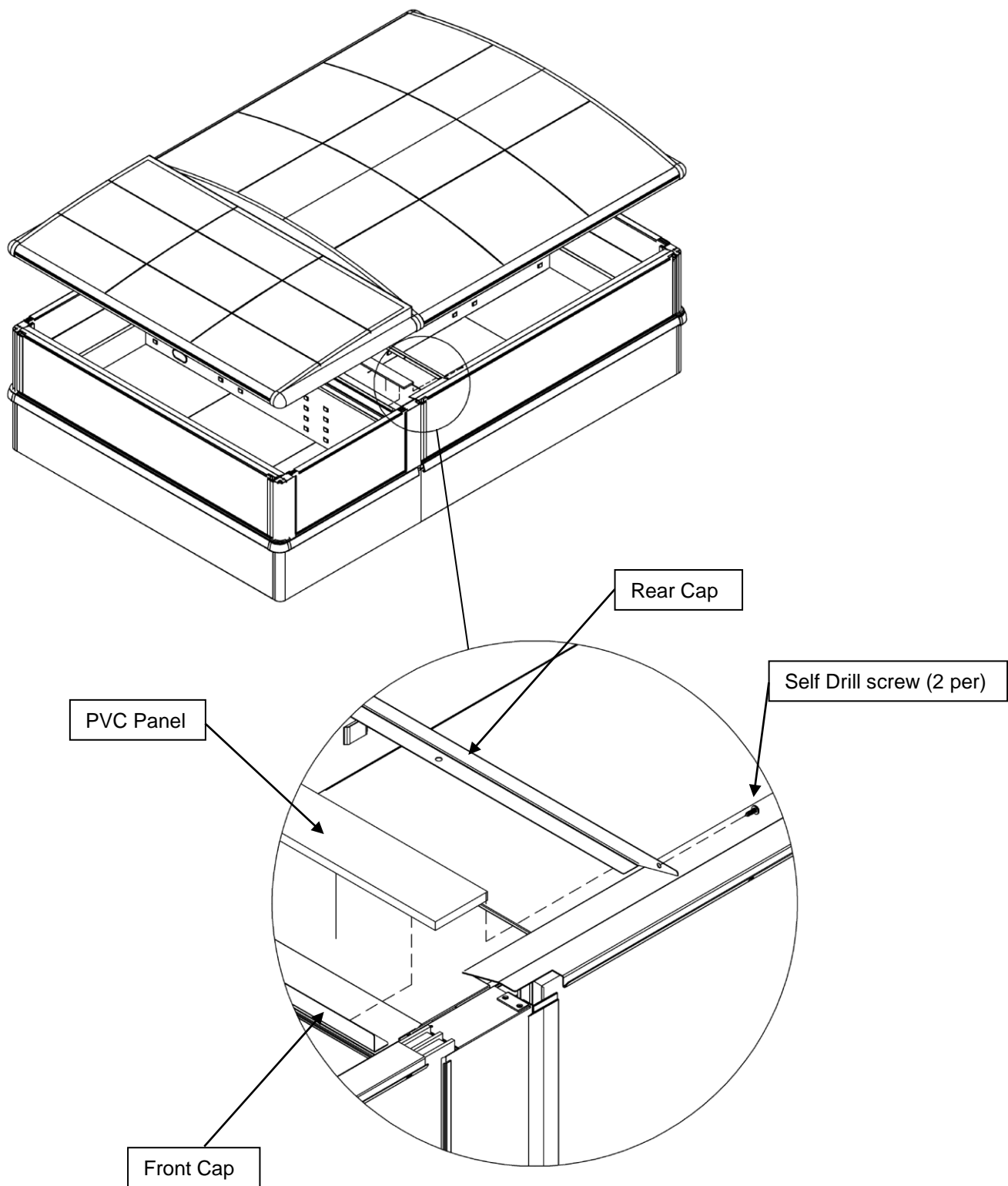


Figure 9 Installing joiner panels – between crown end and straight case.
For arrangement with Lids only

Installing Bumpers and Kickplates:

When all the piping, electrical and refrigeration work has been completed, then install the bumper and kickplates

Install Bumper

If not already fitted, insert multiplexing rods into bumper support.

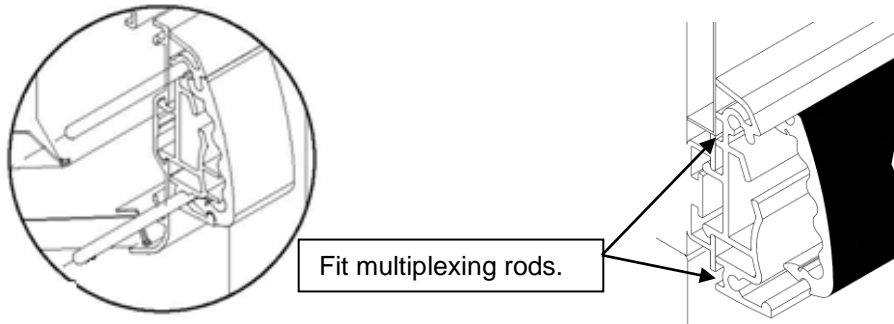


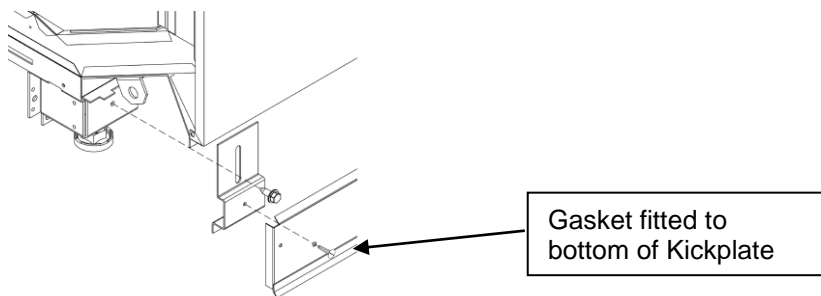
Figure 10 Bumper installation.

Use a mallet to tap the bumper into the bumper support slots.

Install Kickplate

Fit Kickplate support to the base.

NOTE ! DO NOT fit too tightly. The bracket should be able to slide up and down in the elongated hole. This will allow the kickplate to sit correctly in relation to the floor.



Fit the gasket to the kickplate, then fit kickplate assembly to the support.

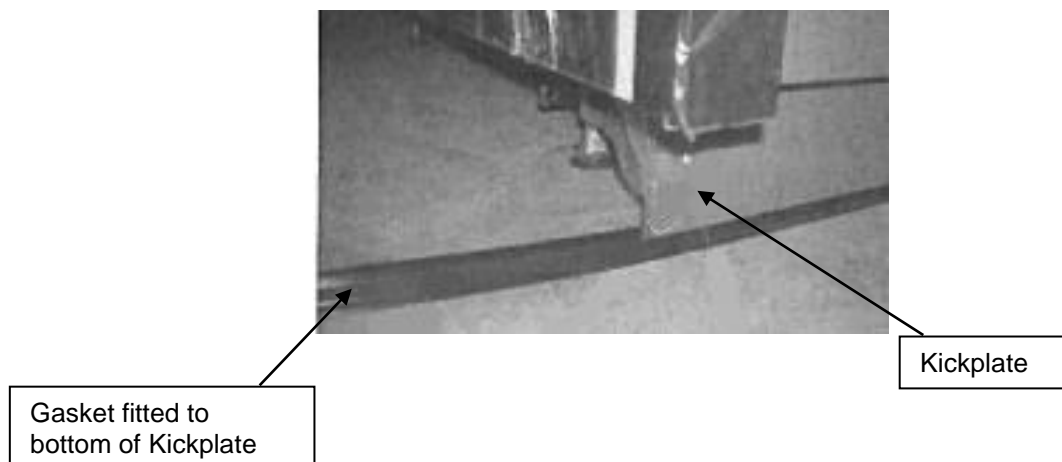


Figure 11 Kickplate installation.

On Crown End where the side kickplate and the end kickplate meet, cut gasket at 45°.

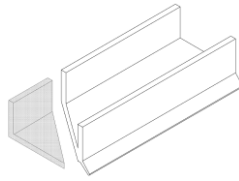


Figure 12 Kickplate corner installation.

Fitting Glass Sliding Lids

For details refer to appendix 3

This should be done after all the lineup of the case, piping and kickplates have been fitted.

Connecting Refrigerant Lines

Connection of refrigeration lines is to be undertaken by **qualified persons only**.

The correct type of refrigerant will be stamped on each cases' serial plate.

Refrigeration pipes are located under the pan decks and can be run from case to case through designated access holes in the end frames. See figure 1: service layout for location of the refrigerant up-stand, and figure 13 for the location of access holes.

Up to four cases can share one refrigeration up-stand, however, to ensure best performance, it is recommended that no more than three cases share an up-stand.

The evaporator coils have been charged with dry nitrogen in the factory.



Figure 13 refrigeration access hole - base



CAUTION

Do not run refrigeration lines from another compressor through a case.

Since pressure in the first system responds to the coldest location, refrigeration lines from the first system running through a second system may be chilled to the point that its pressure control will respond to the pressure from the second system. This is called cross controlling and should be avoided.

To connect refrigeration lines:

1. Ensure the evaporator coils are fully charged by checking the dry nitrogen holding charge against the pressure written on the tag attached to the coil – it should read between 450kpa and 500kpa.
2. Drill holes through bungs and foam and run pipes as per store requirements.
3. Braze the pipes to the coil using dry nitrogen to prevent any foreign matter being left in the lines. Keep pressure below 1700kPa (250 Psig).



CAUTION

Remove or protect the expansion (TX) valve feeler bulbs (or power lead if electronic valve) from heat.

Ensure the power lead is clear of heat and flame.

4. Insulate all external pipe work to Standard practice and Customer specifications.
5. Seal off all external access holes with polyurethane foam and then bituminous paint to prevent leakage and condensation.
6. Connect to condensing unit or compressor.
7. Pressure test all welded and fastened connections to ensure they are free of leaks.
8. Dehydrate the refrigeration system using the triple evacuation method. Use a vacuum pump to 1000 microns for the first two evacuations and 500 microns on the third, or to the customer's specific requirements. Break evacuations 1 and 2 with dry nitrogen, allowing the pressure to rise above atmospheric pressure each time.
9. Charge with refrigerant after final (3rd) evacuation.

Installing a Waste Drain



NOTES

Drains must be connected to local council requirements.

It is the installing contactors' responsibility to consult local Councils for code requirements

All joins must be solvent welded.

Each case must be connected to its own waste drain See figure 1: service layout for position of the drain up stand.



CAUTION

Incorrectly installed drain seals will result in adverse air leaking into the case.

Poorly or improper installed drain pipes can seriously interfere with case operation and result in costly maintenance and product losses. Please follow the recommendation list below when installing drain pipes to ensure proper installation.

- Never use drain piping smaller than the nominal diameter of the pipe or water seal supplied with the case.
- When connecting drain piping, the water seal must be used as part of the drain piping to prevent air leakage or insect entrance.
- Never use two (2) water seals in series in any drain pipe arrangement. Double water seals in series will cause an air lock and prevent draining
- Pitch the drain piping in the direction of flow. There should be a minimum pitch of 20mm per 1 metre
- Avoid long runs of drain piping. Long runs make it impossible to provide the pitch necessary for good drainage.
- Provide a suitable air break between flood rim of the floor drain and outlet of the drain pipe. To meet code on low base cases, it may be necessary to install a field-supplied drain pipe reducer. An alternative is to cut the last section of drain pipe at an angle, as shown Figure 14



figure 14 Drain air break alternative

- Prevent drain pipes from freezing or sweating:
 - Do not install drain pipes in contact with uninsulated suction lines. Suction lines should be insulated with non-absorbent insulation material.
 - Where drain pipes are located in dead air spaces, such as between cases or between a case and a store wall, provide means to prevent drain pipe from sweating. External ventilation fans may be required to prevent sweating.

To install a waste drain:

1. Install remaining PVC drain parts using recommended PVC cleaner, primer and cement per manufacturer's recommendation.
2. Apply PVC specific threaded pipe sealer on the male threads of the plug.
3. Thread plug into adapter until snug, but not to exceed four (4) full rotations.
4. Installed drain piping may require additional support depending on the number and location of the hub floor drains. The installer should always provide adequate support to all drain piping arrangements to prevent excess stress on all drain piping components. The installer must provide additional support when "evec" type waste water systems are applied.

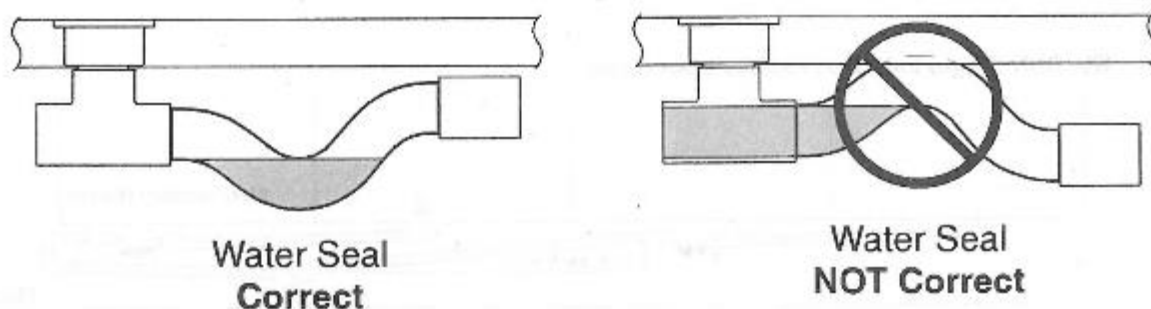


Figure 15 Drain trap orientation

5. Test for leakage by pouring water down the drain and ensure trap is primed before starting refrigeration.
6. NOTE: All joints to be glued with suitable adhesive.

Installing Sensor Probes

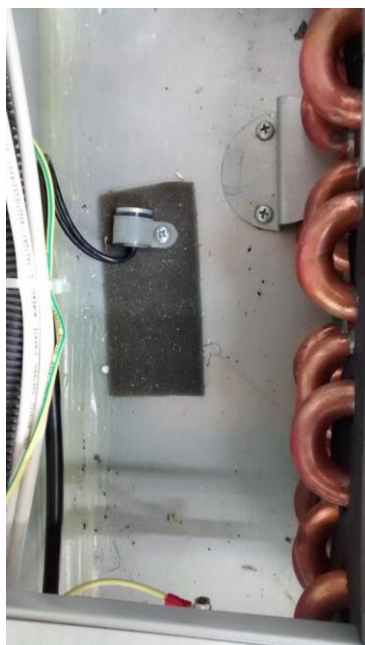
One sensor probe has been installed behind the centre air delivery panel of each case. On installation the end of the wire needs to be connected.



Green Probe wiring to be connected.

Figure 16 Location of probe

NOTE !! Defrost termination klixon is control only, not load bearing.



Mounting fixtures

Replace display racks product trays and glass product stops in end bays of cases.

Commissioning

Cleaning case

- Remove the PVC protective coating on stainless steel, where applicable
- Remove any residue, silicon or tape marks with a cloth moistened with rubbing alcohol
- Remove all debris from in and around the case
- Wipe case with a clean, damp cloth, if necessary

Starting up

- Check supply power is ready and correct voltage. (by Licensed Person)
- Confirm correct operation of RCD (if fitted) (by Licensed Person)

Turn case power on

Start up checks – by qualified persons only

- Ensure that the drain trap is installed the right way up (refer to figure 15: drain trap orientation in the section installing the waste drain)
- Check that all fans and lights (and light RCDs, if installed) are working correctly.
- Check the anti sweat circuit, ensuring the thermostat is set correctly.
- All electrical connections are secure and electrical tests completed



NOTE: Verify all electrical termination during commissioning.

It is a requirement to check all electrical connections for tightness, where appropriate all electrical connections must be re-tensioned prior to powering up the cabinet.

- Set expansion valves and EPRs as per Product Engineering Data – Available from Hussmann.
- Any loose material created during installation has been cleaned from the cabinet. Pay particular attention to filings that may be caught under the evaporator and fan panel seal. These could cause rust spots and pitting that could permanently damage the stainless steel.
- All electrical, refrigeration and sensor penetrations have been sealed inside and outside the cabinet. Including any penetrations through baffles or other panels.
- Fan panels seal correctly.
- Approximately 24 hours after start-up, check that the case is at correct operating temperature (refer the Product Engineering Data).

Decommissioning

Plan and risk assess the decommissioning process to include the following:

- Isolate the case from both the refrigeration and electrical systems. Disconnection is to be undertaken by qualified persons only.
- Removal of the case is to be in the reverse order of installation listed previously.

Disposal

Case disposal is to be carried out by the following:

- Metal component removed and recycled
- Remaining by commercial waste management

Cleaning and Maintenance

Daily Checks

- If an alarm system is not part of the refrigeration installation, the temperature of each case should be checked on a daily basis via the thermometer that may be located in the left hand side of the ceiling panel, or via another reliable method.
The case temperature should be in the range of 0°C - 2°C for both case types.
Up to three separate readings may have to be taken to ensure the case temperature isn't being taken during a defrost cycle (which would give a higher than desired reading).
If it is consistently outside this range, contact Hussmann or your service contractor.
- Visually check the case for damage or spills and take appropriate remedial action.



CAUTION

If any damaged electrical components are identified during inspection isolate case power and contact service contractor.

- Visually inspect drain strainer and drain for any debris which could result in the drains becoming blocked with the possibility of spilling on the floor creating a slip hazard

Cleaning

A thorough cleaning and service of the case should be carried out by qualified refrigeration and electrical engineers on a six monthly basis. Please contact Austral Refrigeration Pty Ltd or your service contractor.

Cases should also be cleaned by store staff on at least a weekly basis; some cases may, however, require more frequent cleaning.

Cleaning Procedure

1. Isolate power and remove stock.



CAUTION

Always isolate the cabinet from the mains power supply before deep cleaning.



CAUTION

If case fan power is not isolated then staff should wear hair nets and no jewellery or loose clothing. The fan is protected by wire grill but the possibility exists for items to be caught.

2. Remove all price tickets and any foreign materials from the case.
3. Removal of all food products.
4. Clean glass or mirrored surfaces with a clean soft cloth and mild glass cleaner.
5. Wipe LED lights with a dry cloth.
6. Wipe down the exterior and interior of the case, paying particular attention to the perforations in the rear panels and the air return grille with a clean soft cloth and mild soapy water.
7. Wipe over with clean dry cloth.
8. Remove the base trays, wash with mild soapy water and rinse.
9. Remove any foreign material from the base of the case.
10. Remove all food scrap.
11. Carefully flush the waste drain with a bucket of water and allow the base to drain.
12. Replace base trays, turn on lights and cleaning switch.
13. Allow the case to attain correct working temperature (approximately 30 minutes) and restock the shelves.

Six Monthly Maintenance

A thorough cleaning and maintenance check should be carried out on a six monthly basis by qualified and approved refrigeration and electrical engineers. The following procedures should be undertaken as a minimum.



CAUTION

Cases should be electrically isolated before carrying out any work that may affect or expose electrical components.

1. Remove and clean the pan decks.
2. Remove any foreign material and food scrap from the base of the case.
3. Check drainage connections and clean the drain trap.
4. Check that all case panels, glass and trims are secure and undamaged.
5. Check for rust or paint damage.
6. Clean the air grilles on the cases.
7. Ensure all cable connections, including screw terminals, earth leads and straps, are secure.
8. Ensure insulation to all electrical components, including solenoid valves, fans, controls, earth terminals and lights, are sound.



NOTE: Validate all electrical termination has been tightened once more.

Check all electrical connections for tightness and re-tensioned where needed prior to powering up the cabinet.

9. Carry out electrical safety tests, including earth continuity and insulation resistance.
10. Ensure that the correct fuse rating and type is fitted for all circuits.
11. Clean the evaporator coil and check it for damage.
12. Ensure that there are no refrigerant leaks.

With case power turned on:

13. Check that all fans, valves, lights and controls are working correctly.
14. Ensure light RCDs (if fitted) are working.

Operation Servicing

No servicing of Hussmann cases, is to be undertaken by store staff. Please contact your service contractor for all maintenance queries.

Trouble shooting

issue	possible reason	remedial action
Product temperature is higher than requirement	Store condition is warmer or more humid than climate class 3 (25°C/60%RH)	Check store air conditioner operation
	Refrigeration plant is not running or operating at inappropriate settings or conditions	Check for compressor rack if it is running. If rack is running and other possible reasons are eliminated then call refrigeration mechanic to check plant operation.
	Evaporator pressure is not set correctly	Check suction pressure settings at the case and if required adjust as per case specification
	Insufficient or no air flow appears at the case air curtain	Check if case fans are turned on or operating correctly. If any doubt of fan operation contact technician.
		Check if coil is frozen up. If frozen then check defrost settings as per the manufacturers guideline or set to suite the store operating condition. A colder store may require longer defrost duration. A humid store may need more frequent defrost.
	Case shelf arrangement has been deviated significantly from original specified setup	Re-do the shelf arrangement as per the original specification
	Air Return is blocked by merchandise	Remove merchandise to behind the load limit.
None of above	Contact Hussmann	
Products are freezing up	Store condition is too cold compared to design climate class 3	Check store air conditioner operation. If store condition can not be lifted, then adjust cabinet evaporator pressure and defrost strategy to suite
	Case evaporator pressure is lower than specification.	Adjust cabinet evaporator pressure to suite
Cabinet exterior is sweating	Store humidity is high	Check store air conditioner operation
	Insufficient ventilation	Check case ventilation under and at rear of the case. A fan kit may be needed. KITS: (Option Extra – ref Page 20) B to B Island 2 & 3 door: 96A15-040 4 and 5 door: 96A15-041 Case to Wall: 2 & 3 door: 96A15-037 4 door: 96A15-038 5 door: 96A15-036
	Icon Controller settings (if fitted)	Check settings
	Case SST	SST set too low
Lights are not working	No power supply	Check supply is “on” and light switch is working.
	Lamp fittings (Tombstone, starter and ballast) are faulty	Call technician to check and replace in necessary
	Lamp failed	Replace lamp

table 1 troubleshooting

Appendixes

Appendix 1 **Wiring diagrams** – Supplied with each case.

Appendix 2 Risk analysis

Hazard	Control Measures
Electrical - Replacement of electrical components	Request a service call. Electrically isolate cases before works
Ergonomic - Moving/ positioning/ adjusting cases	Staff must be trained in the correct procedures for setting up cases and ergonomic practices. PPE must be worn
Entanglement - Contact with fans when cleaning	Electrically isolate cases before work is carried out. Staff training,
Cuts and stabbing - Potential for cuts from broken fluorescent tube or during tube replacement	Electrically isolate cases. Staff not to replace tubes. Call service provider. PPE must be worn.
Electrical - Potential for electric shock when cleaning electrical fittings and components	Electrically isolate cases before work is carried out. Staff training, RCD. Keep electrical connections dry at all times.
Falling - Climbing on shelves or cases	Staff must be trained in OH&S procedures. MUST not climb on shelves or cases.
Crushing - Hands or fingers may become pinched or crushed during the positioning of base trays, shelves & stock	Staff must be trained in the correct procedures for setting up cases and ergonomic practices
Slipping - Drain may leak or become blocked causing water spillage	Visual Inspection and regular maintenance. Request service call when necessary.
Cuts and stabbing - Potential for cuts caused by damaged or missing parts	Visual Inspection and regular maintenance. Request service call when necessary. PPE must be worn when handling broken or damaged parts.
Ergonomic - Stretching during the cleaning of the case and positioning of stock and shelves leading to strains and sprains	Staff must be trained in the correct procedures for cleaning cases & ergonomic practices. Cleaning tools which reduce the need for stretching should be used.
Slipping - Surfaces may become slippery due to spillage from the case during operation or cleaning	Visual Inspection. Appropriate remedial action.
Cuts and stabbing - Potential for cuts caused by sharp edges & evaporator coil during cleaning	PPE must be worn by staff
Cuts and stabbing - Cleaning cold glass surfaces with hot water	Staff must be trained in the correct procedures for cleaning cases and ergonomic practices
Crushing - fingers, hands or body between doors	Operators to always open and close doors using handles provided, ensuring the area is clear of other persons.
Electrical - Electrical connections in cases	Electrically isolate cases before work begins. Must be carried out by a service provider. Staff training.
Electrical - Potential of wire short circuit when installing screws during drilling works.	Electrically isolate case before work begins. While performing drilling works take extra caution not to short circuit any active wire with screws.

Table 2 Risk analysis

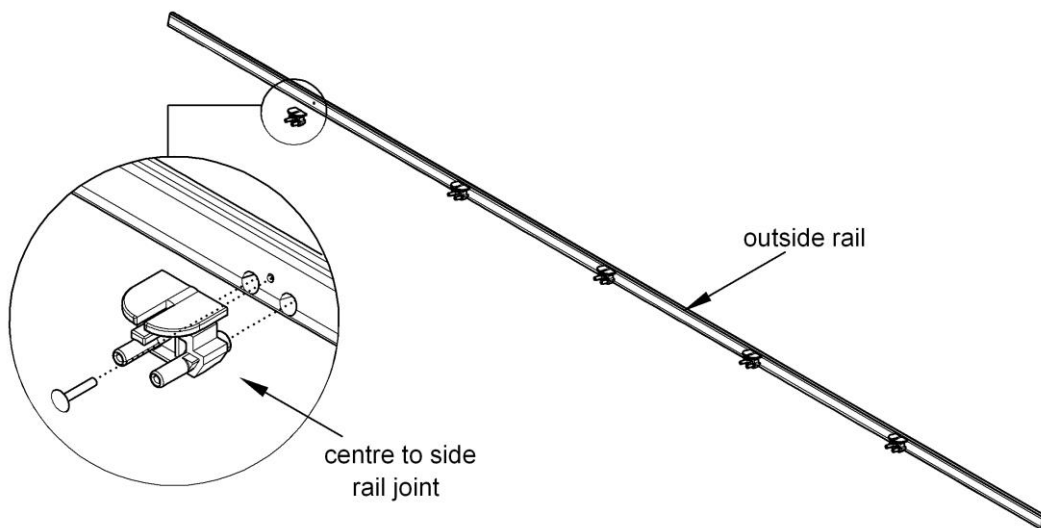
Appendix 3 Fitting glass sliding lids

This is a 2 person installation job.
Appropriate PPE must be worn

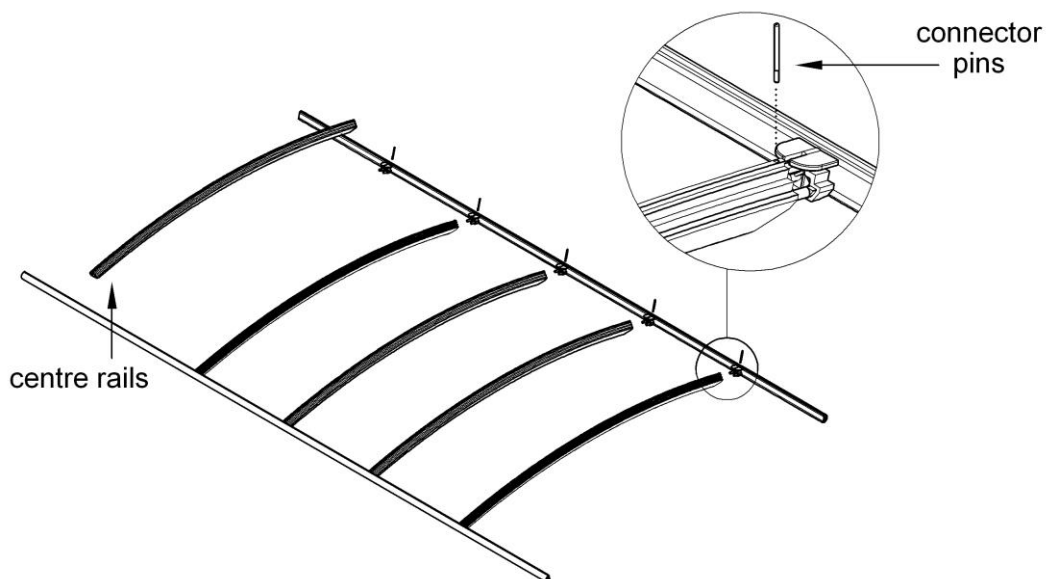
For Straight case.

Steps:

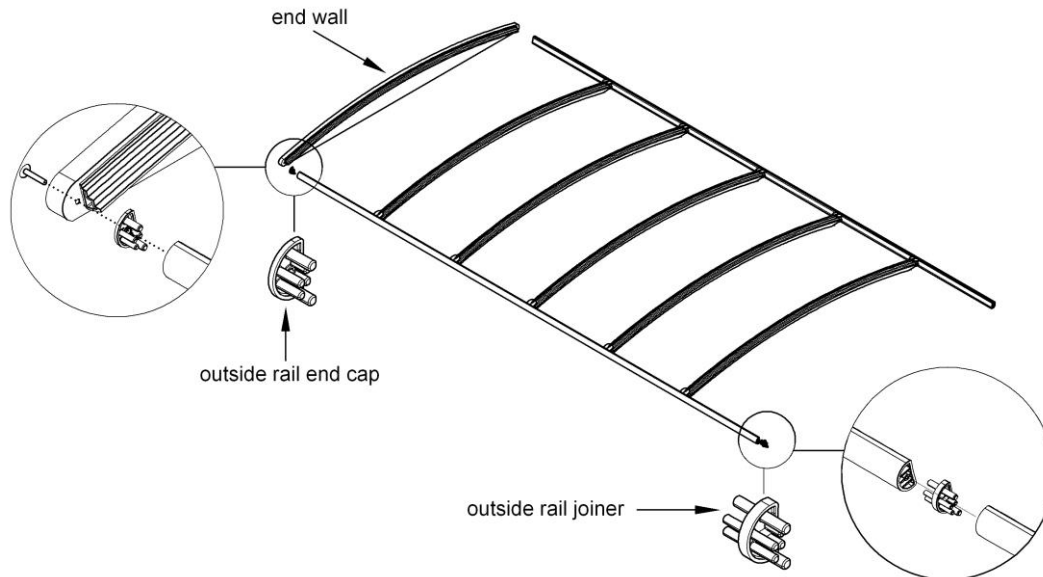
- Fit the centre rail joint pieces to the outside rails and fasten into place.



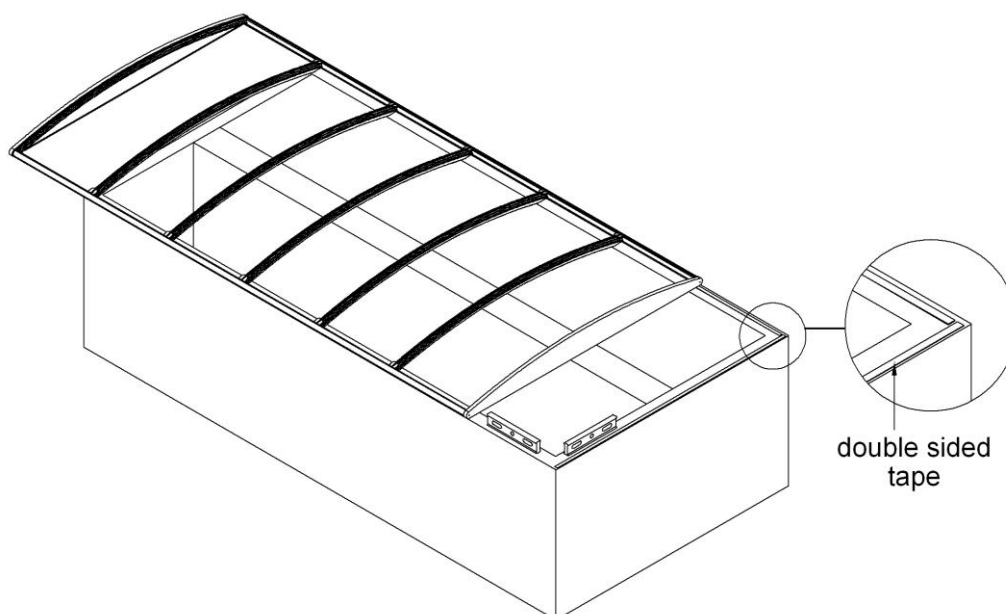
- Position centre rails of frame.
- Insert connector pins into each centre to side rail joint piece to hold centre rails in place.



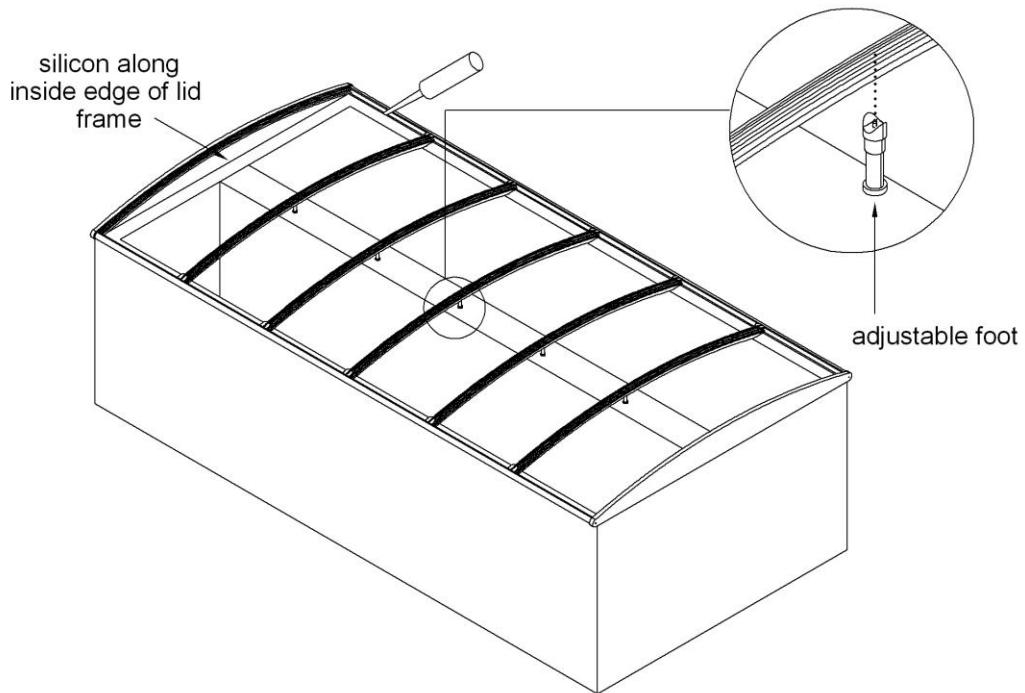
- Where there is a single straight case to be installed.
 - Fit an outside rail end cap at each end
- Where there are multiple straight cases to be installed in a lineup.
 - To join multiple outside rails use an outside rail joiner.
 - Fit an outside rail end cap only where an end wall is to be fitted.
- Fasten end walls to outside rails



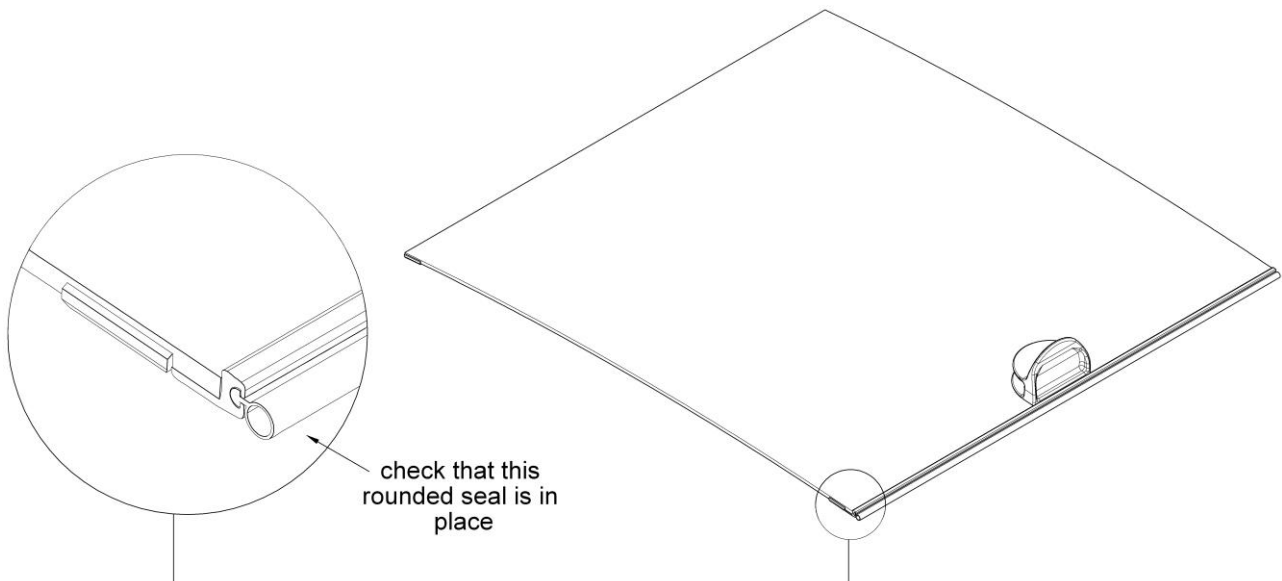
- Clean the surface of the panel where the sliding lid is to sit on the case with methylated spirits
- Put double sided tape along the top surface of the case.
- Position the lid on top of the case, making sure it is level front to back and side to side (3mm to 6mm double sided tape may need to be used to provide a level surface for positioning the frame)



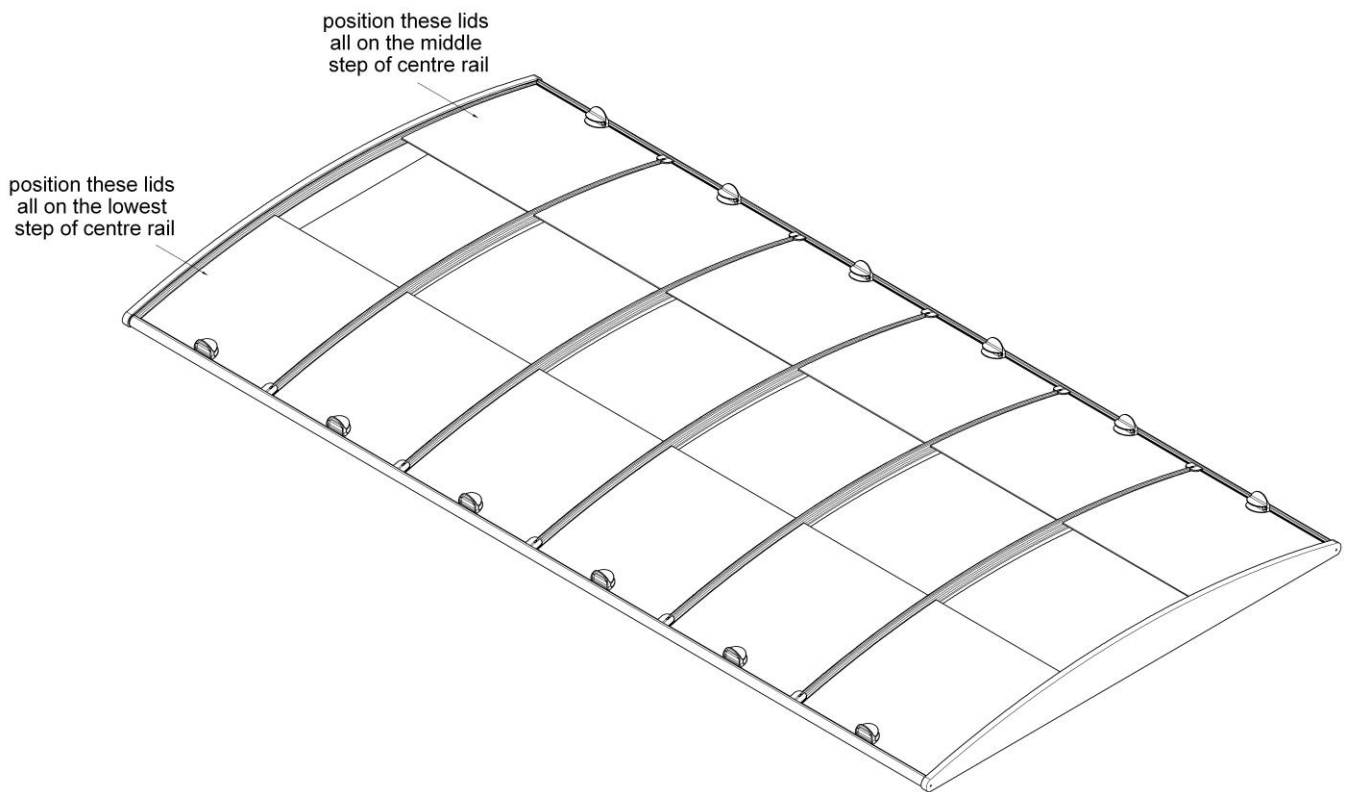
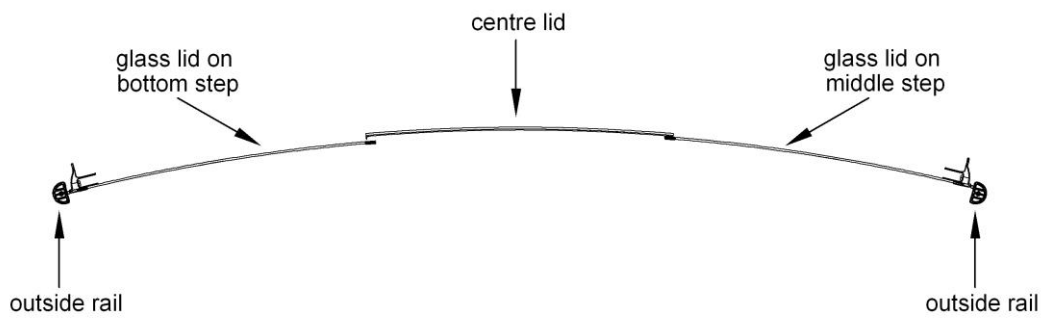
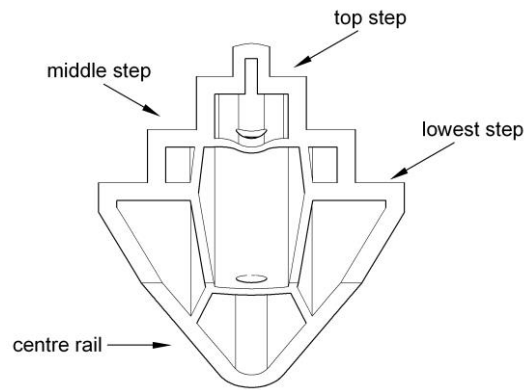
- Position and adjust centre levelling foot (1 per centre rail)
- Silicone seal around the inside of the lid (where it sits on the case)



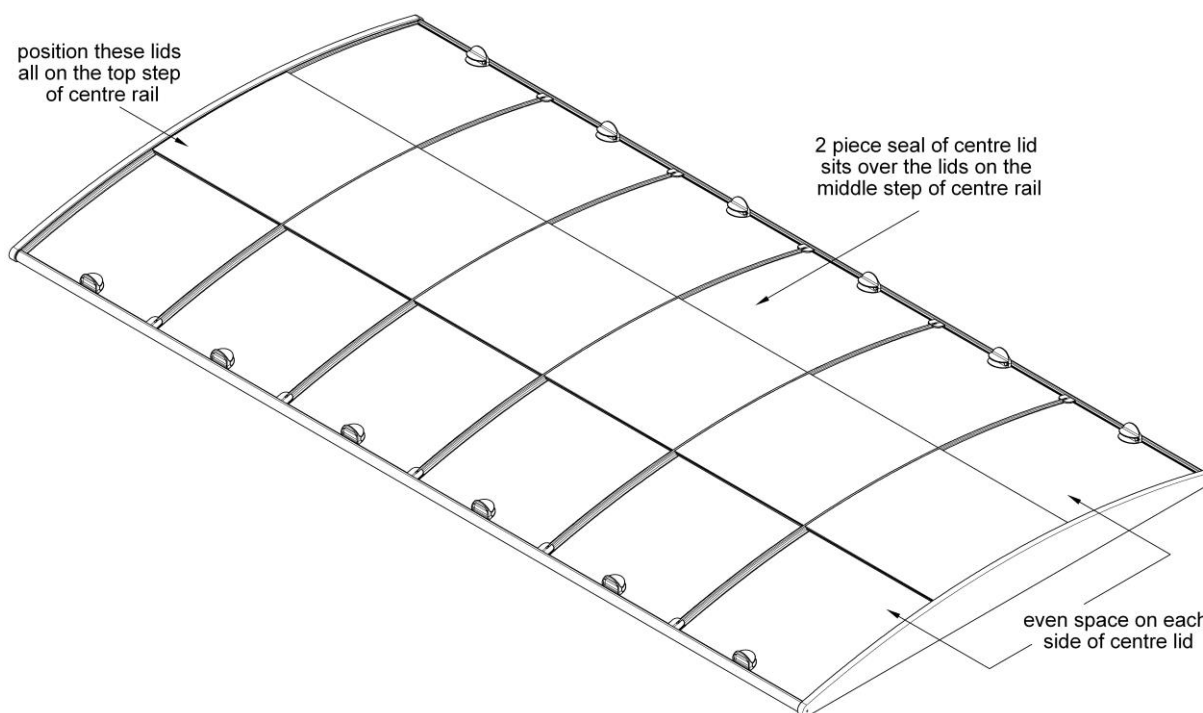
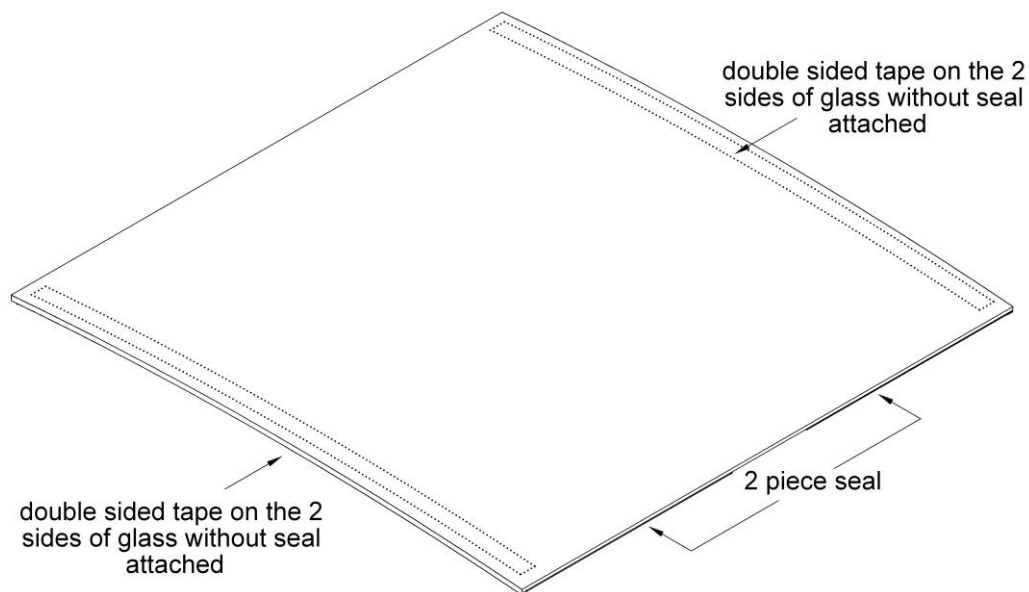
- Position the glass lids (when fitting each lid, make sure the round seal at the handle end of the lid is in place)



- Place all the lids on one side along the lowest step of the centre rail
- Place all the lids on the opposite side along the middle step of the centre rail

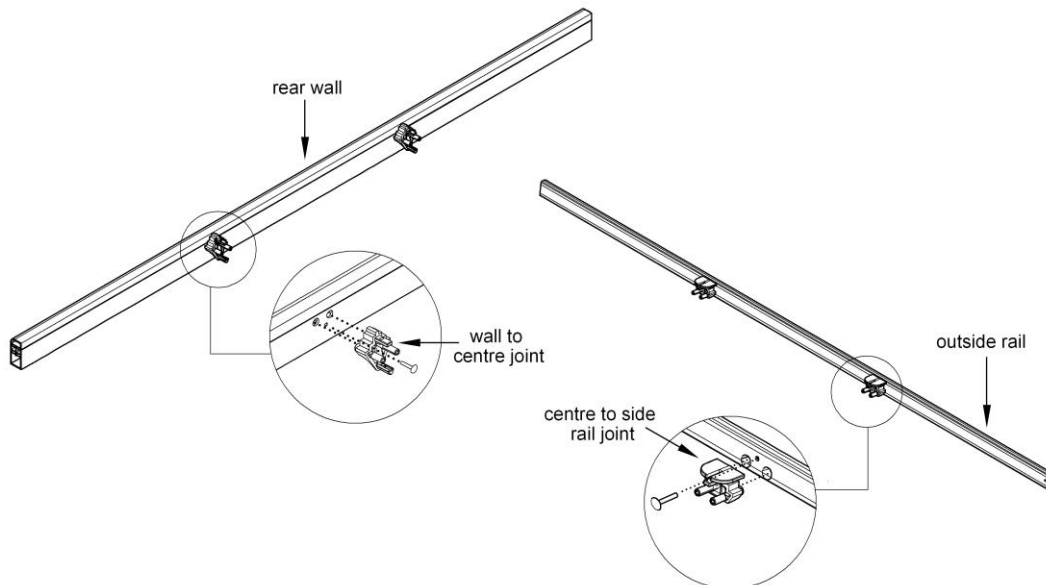


- Put double sided tape on the two (2) sides of the centre lid, which will rest on the centre rail (under side only)
- Place the centre lid on the top step of the centre rail.
 - The end of the centre lid with a 2 piece seal must sit above the lid on the middle step of the centre rail
 - The centre lid must be positioned with an even space on each end (central to the lid frame)

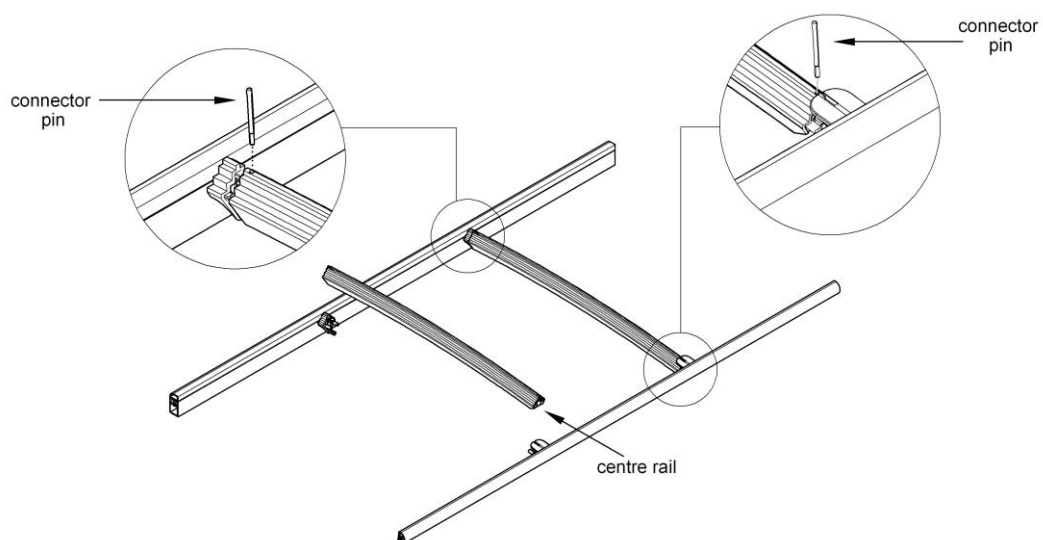


For Crown End case.**Steps:**

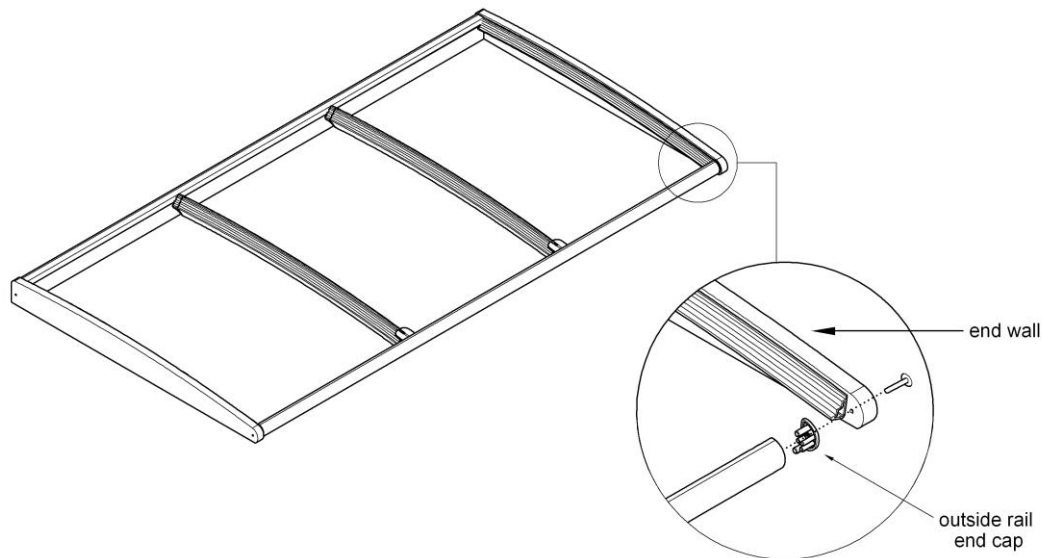
- Fit wall to centre joint pieces to rear wall and fasten in place.
- Fit centre to side rail joint pieces to outside rail and fasten in place.



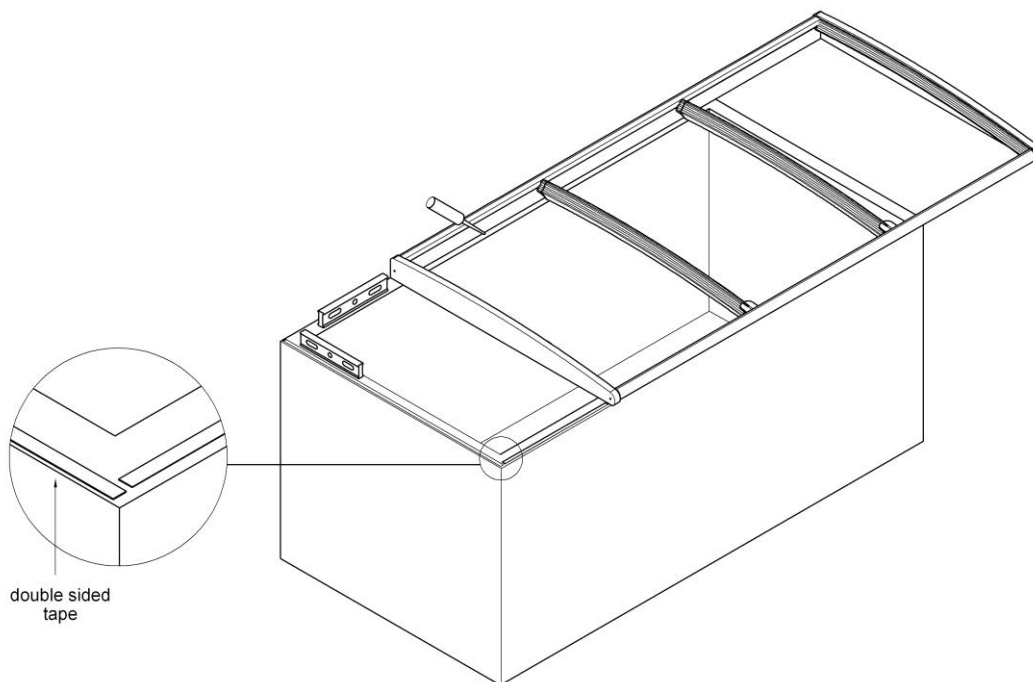
- Position centre rails of frame
- Insert connector pins into each wall to centre and centre to side rail joint piece to hold centre rails in place.



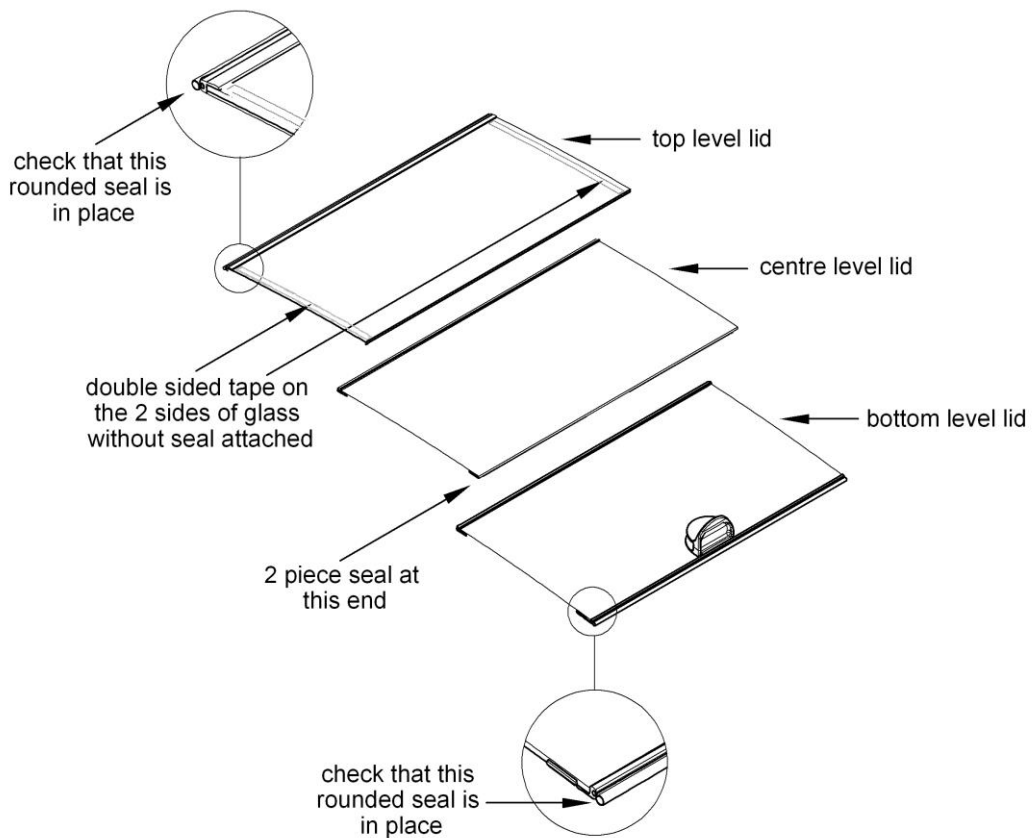
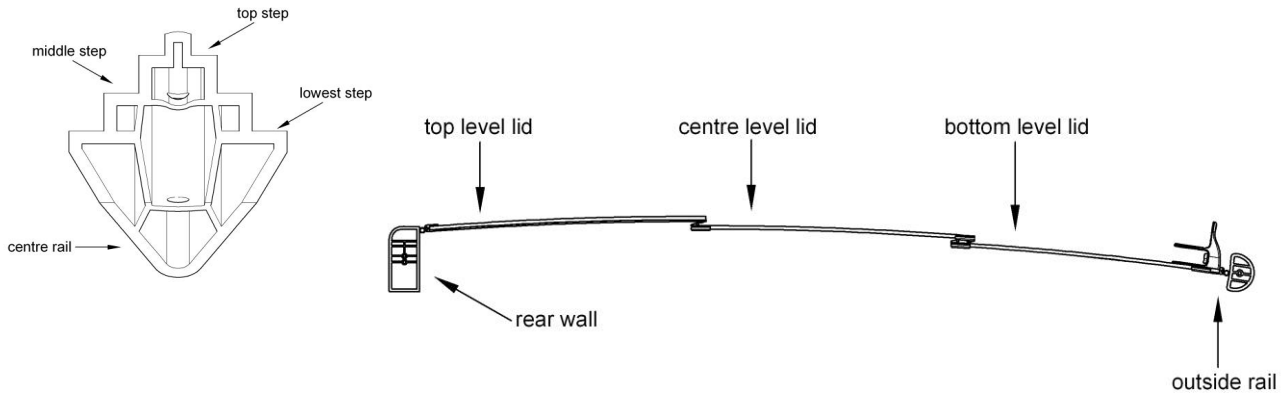
- Fit outside rail end cap at each end.
- Fasten end walls to rear wall and outside rail.



- Clean the surface of the panel where the sliding lid is to sit on the case with methylated spirits
- Put double sided tape along the top surface of the case.
- Position the lid on top of the case, making sure it is level front to back and side to side (3mm to 6mm double sided tape may need to be used to provide a level surface for positioning the frame)
- Silicone seal all around the inside of the lid (Where it sits on the case)



- Position the glass lids
 - (when fitting each lid, make sure the round seal at the handle end of the lid is in place)
 - Place all the bottom level lids (those with handles) on the lowest step of the centre rail.
 - Place all the centre lids (those which have a 2 piece seal on one side) on the middle step of the centre rail.
 - The end of the middle lid, with a 2 piece seal, must sit above the bottom lid – the one already in place
 - Put double sided tape on the two (2) sides of the top lid which will rest on the centre rail. (under side only)
 - Place the top lid on the top step of the centre rail.
 - The end of the top lid, with a round seal, must sit against the rear wall.



Appendix 4 Warranty

The information in this manual is for “Qualified Persons Only”. It is **NOT** an Installation Guide for “**NON Qualified Persons**”.

To obtain warranty information or other support, contact your nearest Hussmann representative.

Please include the following:

- Customer site location.
- Cabinet model & serial number of product.
- Reason for warranty.