REACH-IN BEVERAGE

CASES

MODEL: ORB, ORBH,
ONRB & ONRBH

ORIGIN^2™

INSTALLATION & OPERATION

HANDBOOK

Hill PHOENIX®
EXCELLENCE

A DOVER™ COMPANY

NSF® COMPONENT

c UL® us

P057333G
Rev. 12 6/06

Welcome to the ORIGIN^2 display case family. We're very pleased you joined us.

This installation and operation handbook has been especially prepared for everyone involved with ORIGIN^2 display cases – owners, managers, installers and maintenance personnel.

You'll find this book different than traditional manuals. The most dramatic difference is the use of many more illustrated instructions to make it easier to read and to help you get the most from this innovative new design. When you follow the instructions you should expect remarkable performance, attractive fits and finish, and long case life.

We are interested in your suggestions for improvement both in case design and in this handbook. Please call/write to:

Hill PHOENIX
Marketing Services Department
1925 Ruffin Mill Rd.
Colonial Heights, VA 23834
Tel: 804-526-4455
Fax: 804-526-7450
or visit our web site at
www.hillphoenix.com

We wish you the very best in outstanding food merchandising and a long trouble-free operation.

TABLE OF CONTENTS

GENERAL INFORMATION

DESCRIPTION OF CASES: The refrigerated display cases described in this handbook are part of the ***Hill PHOENIX***, Origin^2 design series. Specifically covered in this manual are models ORB reach-in beverage, ORBH high reach-in beverage, ONRB narrow reach-in beverage, & ONRBH high narrow reach-in beverage.

STORE CONDITIONS: ***Hill PHOENIX*** cases are designed to operate in an air conditioned store with a system that can maintain 75°F (24°C) store temperature and 55 percent (maximum) relative humidity (CRMA conditions). Case operation will be adversely affected by exposure to excessively high ambient temperatures and/or humidity.

REFRIGERATION SYSTEM OPERATION: Air cooled condensing units require ventilation for efficient performance of condensers. Machine room temperatures must be a minimum of 65°F in winter and a maximum of 95°F in summer. Minimum condensing temperatures should be no less than 70°F.

RECEIVING CASES: Examine fixtures carefully for shipping damage and shortages. For information on shortages contact the Service Parts Department at 1-800-283-1109.

APPARENT DAMAGE: A claim for obvious damage must be noted on the freight bill or express receipt and signed by the carriers agent, otherwise the carrier may refuse the claim.

CONCEALED DAMAGE: If damage is not apparent until after the equipment is unpacked, retain all packing materials and submit a written request to the carrier for inspection within 15 days of receipt of equipment.

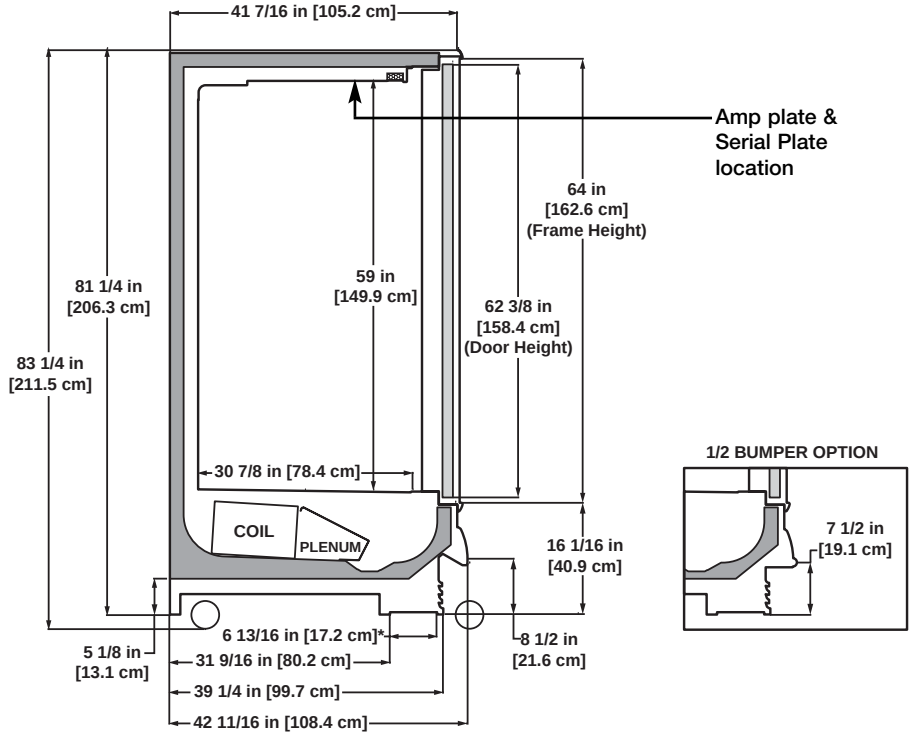
LOST ITEMS: This equipment has been carefully inspected to insure the highest level of quality. Any claim for lost items must be made to ***Hill PHOENIX*** within 48 hours of receipt of equipment.

TECHNICAL SUPPORT: If any technical questions arise regarding a refrigerated display case contact our Customer Service Department in Richmond at 1-804-526-4455. For any questions regarding our refrigeration systems or electrical distribution centers contact our Customer Service Department in Conyers at 1-770-285-3200.

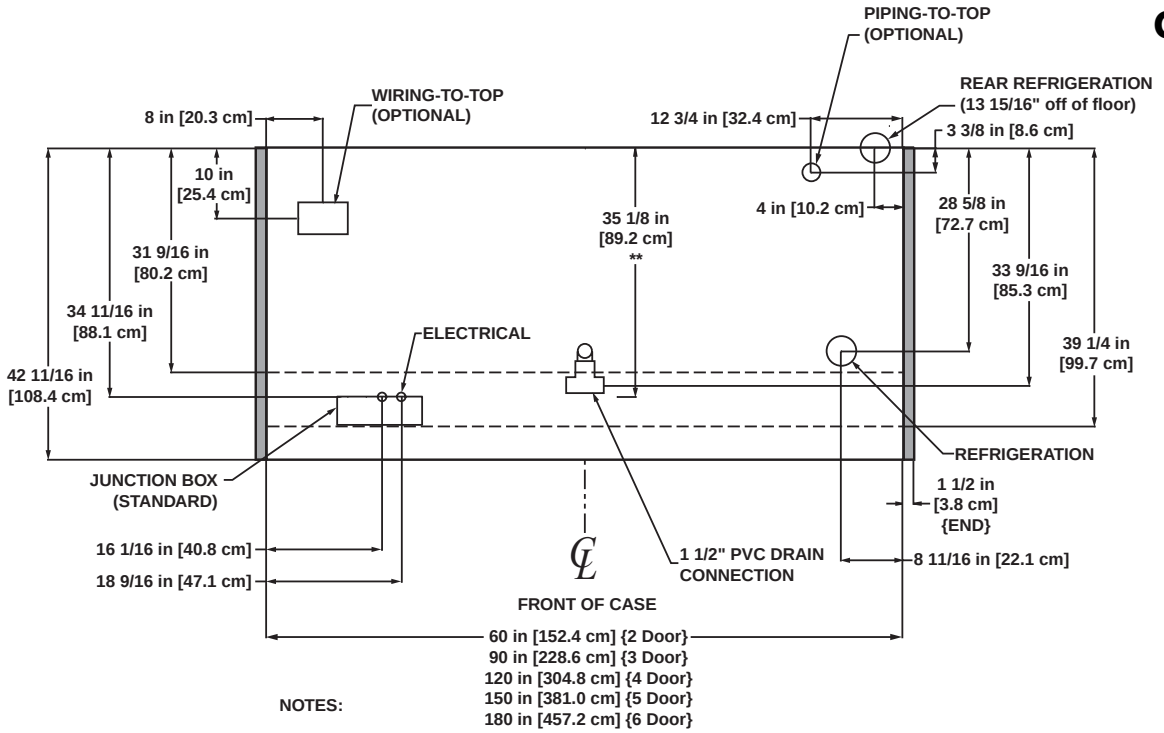
CONTACTING FACTORY: Should you need to contact ***Hill PHOENIX*** regarding a specific fixture, be sure to know the case model number and serial number. This information is on the serial plate located on the top flue panel of the case (see next page for details). Ask for a Service Parts Representative at 1-804-526-4455.

ORIGIN^2™

GENERAL INFORMATION



MODEL ORB



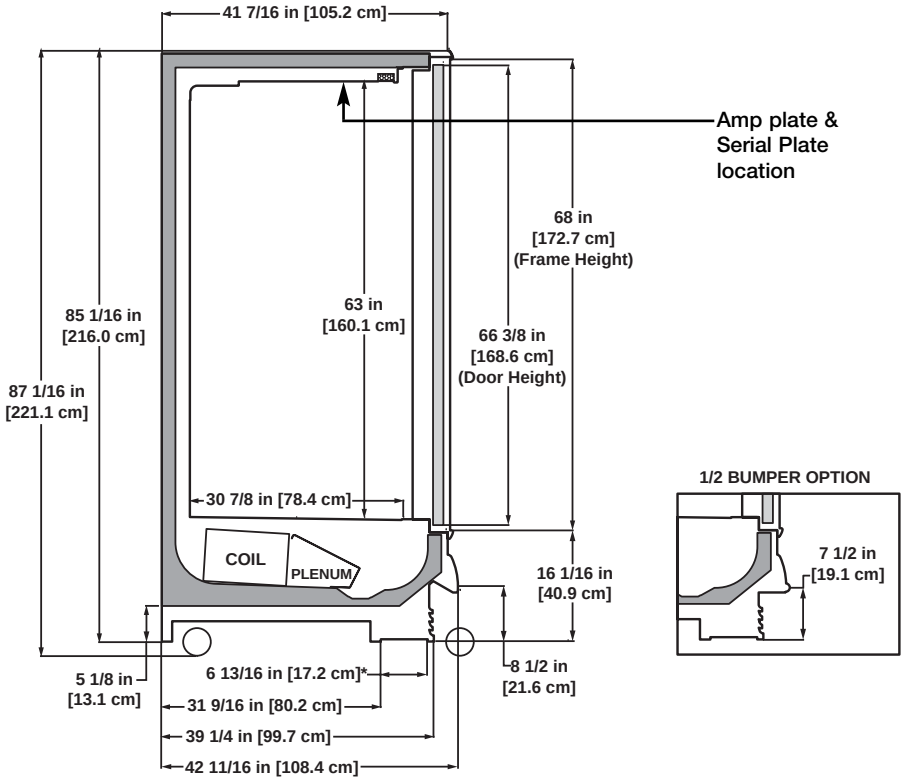
NOTES:

* STUB-UP AREA

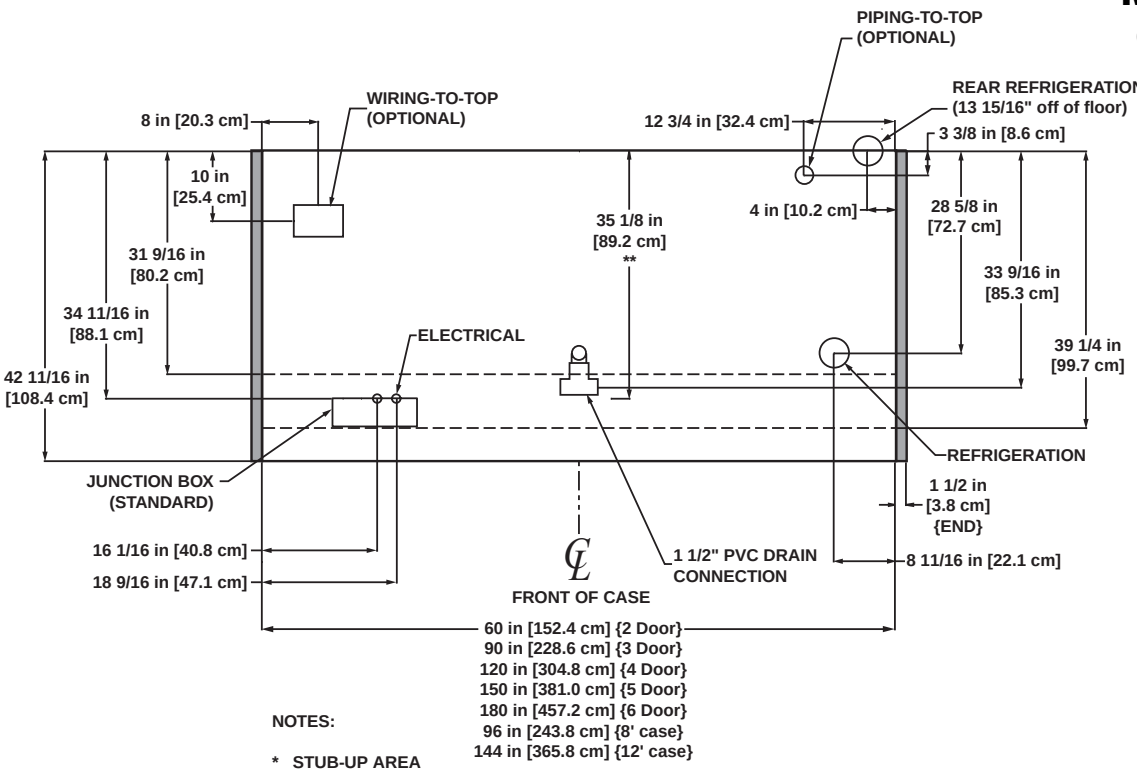
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- ENDS ADD APPROXIMATELY 1 INCH TO CASE HEIGHT
- WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT
- A 2" MINIMUM AIR GAP IS REQUIRED BETWEEN THE REAR OF THE CASE AND A WALL
- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"
- AVAILABLE SHELF SIZES: WIRE SHELVES 16", 18", 20", 22" & 23 1/2"
  SOLID SHELVES 18", 20", 22", 24" & 27"

(TOP SHELF MUST BE 24" OR SHORTER WHEN USING 27" SHELVES. RECOMMENDED CONFIGURATION IS 1 - 24" SHELF AND 4 - 27" SHELVES BELOW TOP SHELF)



MODEL ORBH



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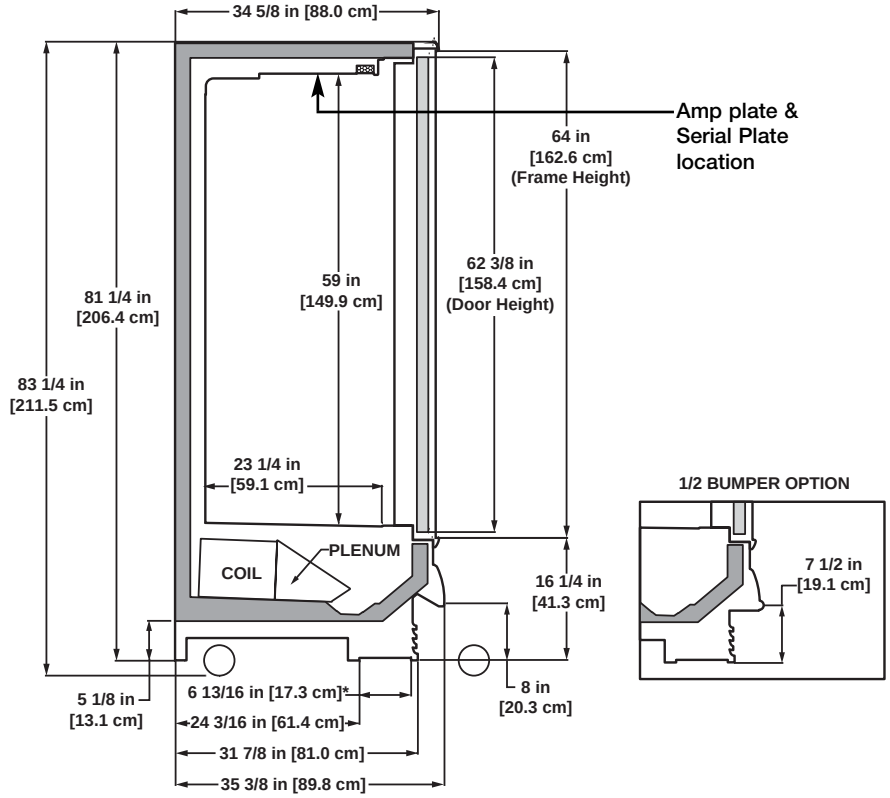
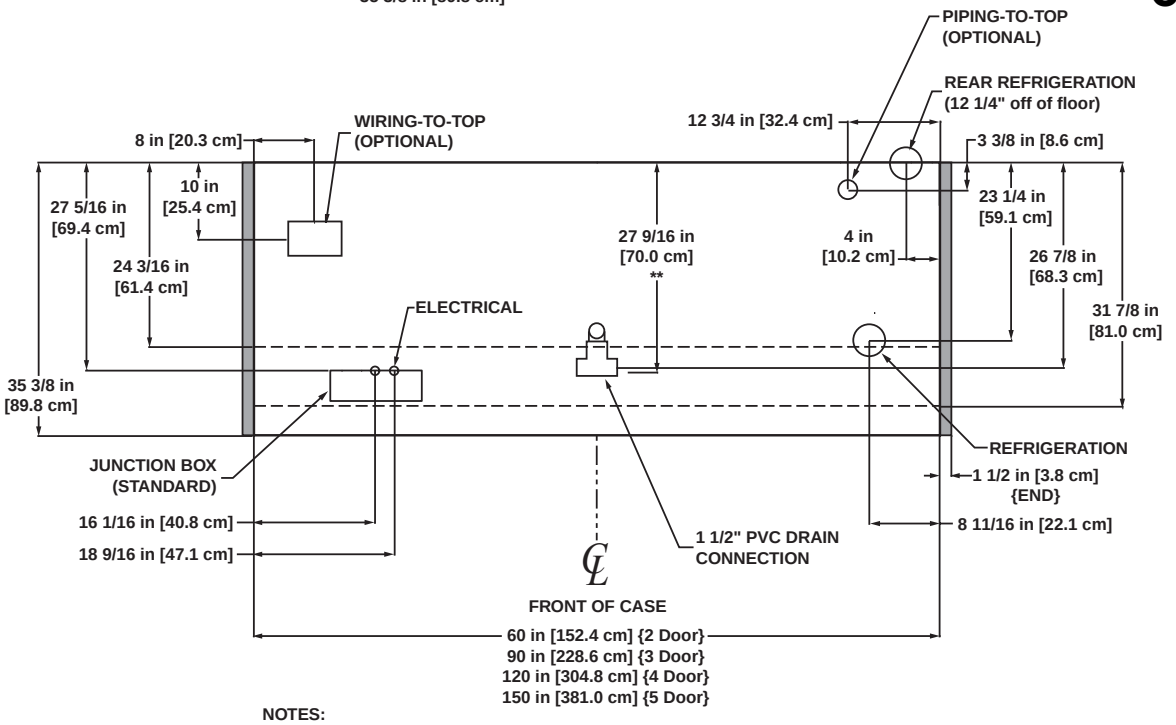


MODEL ONRB



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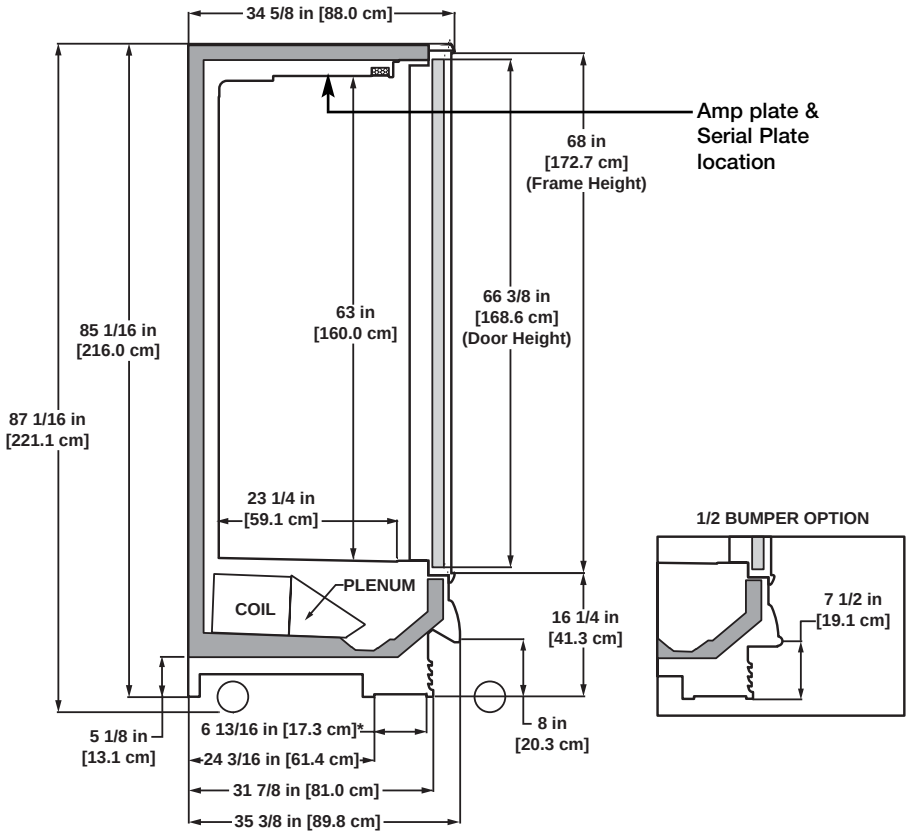
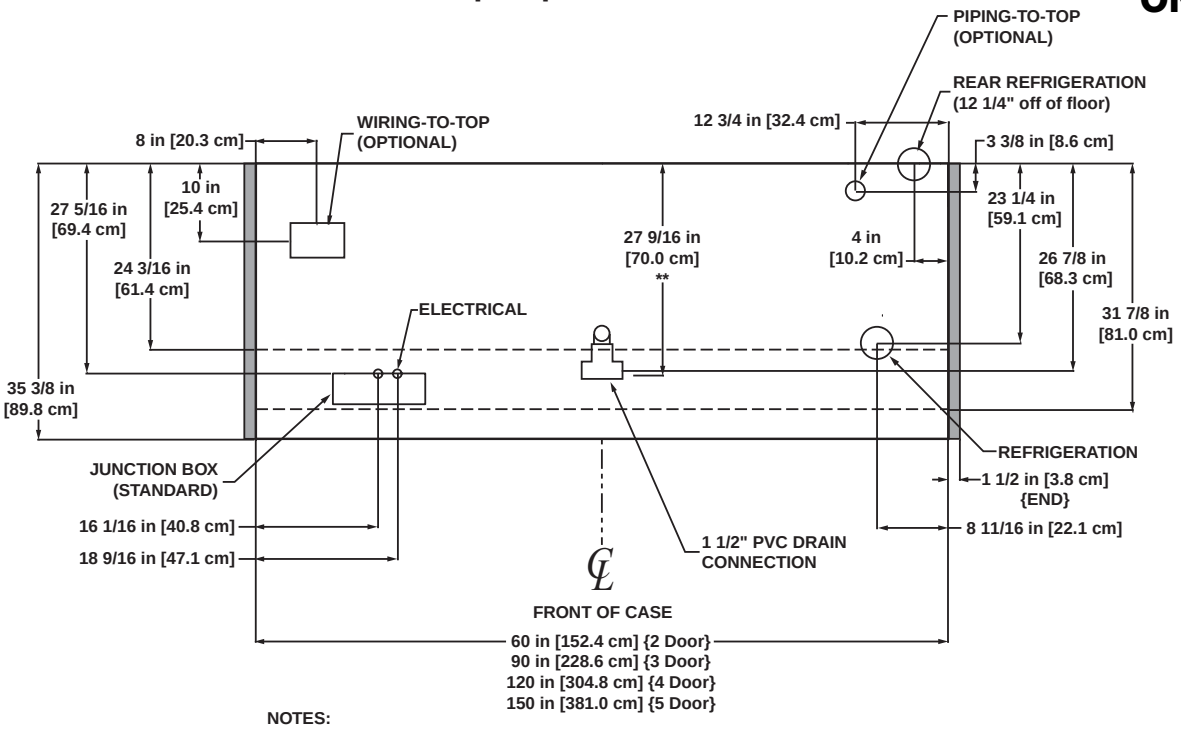


MODEL ONRBH



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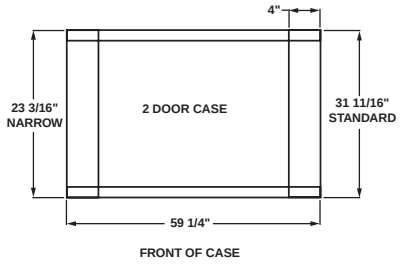
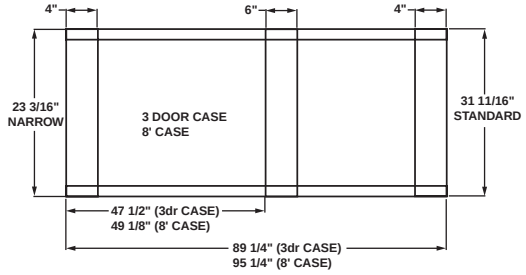
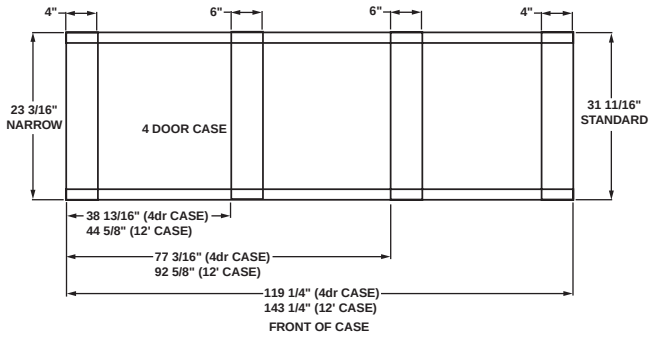
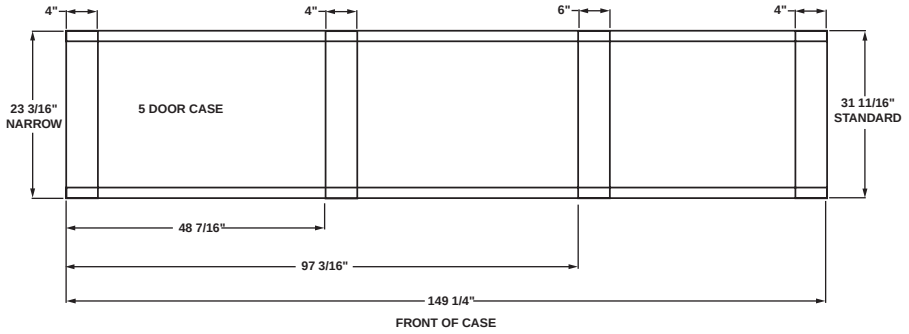
GENERAL INFORMATION

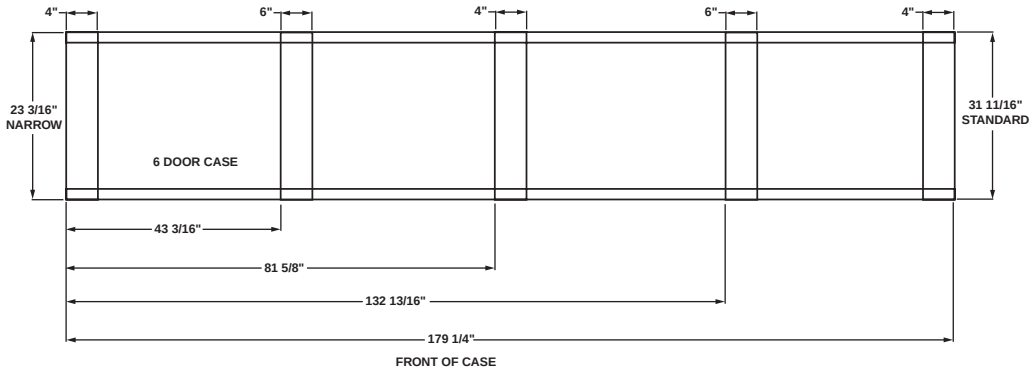




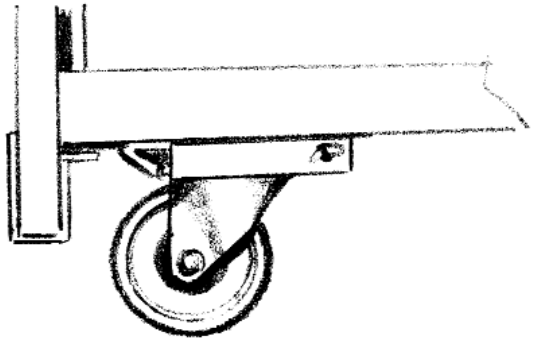


BASEHORSE LOCATION FOR MODEL ONRB, ONRBH, ORB & ORBH



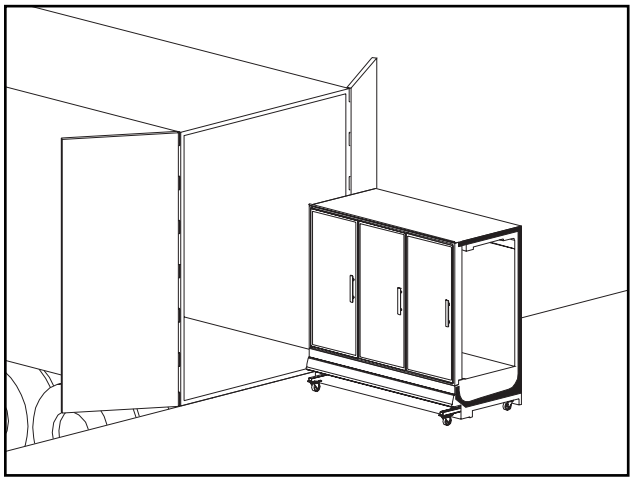


CASES MOVE ON
CASTERS
FOR EASIER INSTALLATION



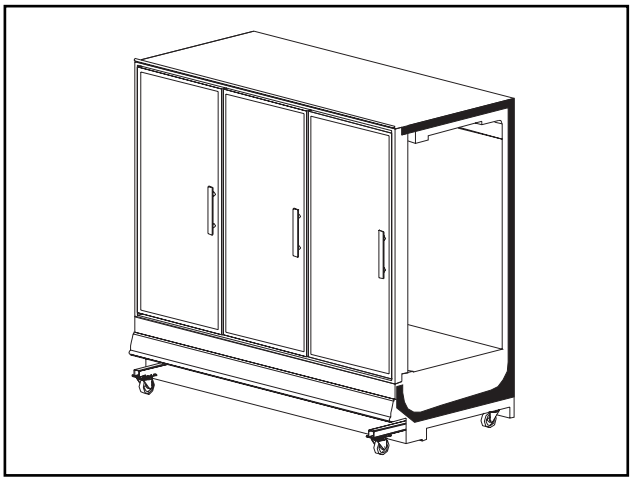
ORIGIN^2 cases are manufactured and shipped to stores with casters installed on the base frame to make the job of moving cases easier for everyone involved with the manufacturing, shipping and installation process.

Casters not only speed up the process, but they also reduce the chance of damage from raising and lowering cases with "J" bar to place them on dollies, skates or rollers. In most situations, one or two persons can move the case with ease.



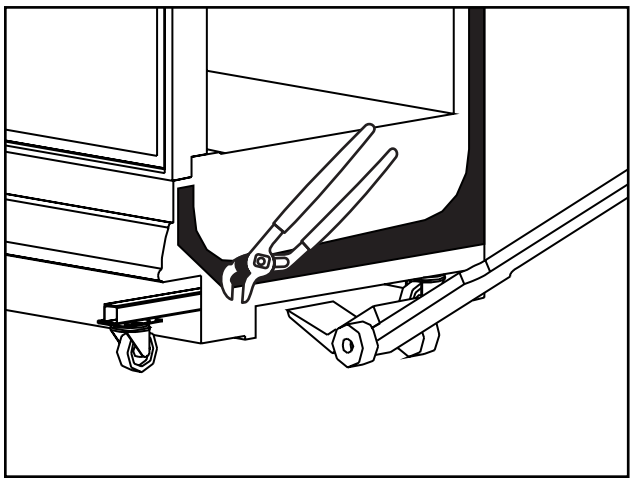
ROLL OUT OF TRUCK. When there is a truck - level delivery dock, cases may be rolled directly from the truck to the store floor. [CAUTION] If skid boards are required to unload cases, casters should be removed prior to sliding them down the skid; after which they can be reinstalled on case.

1



ROLL TO LINEUP POSITION. Casters may remain in place to move the cases to staging areas around the store, prior to final installation. When ready for final line-up, roll the case to set position, then remove casters.

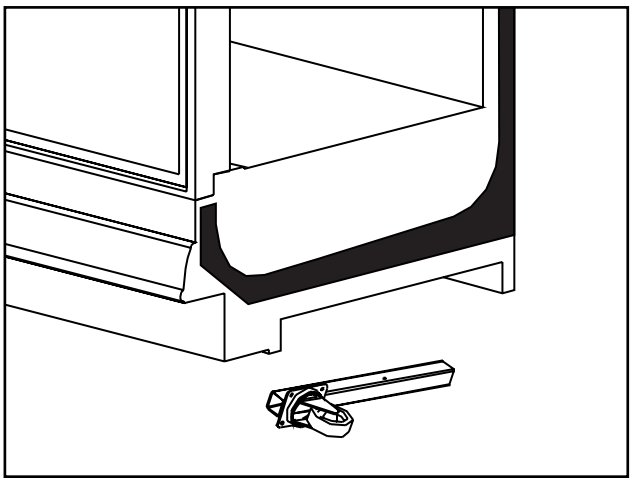
2



REMOVE COTTER PIN. Removing the casters is easy. Simply flatten and hammer out cotter pins then lift the case with "J" bar, and the casters will fall off.

3

[CAUTION] Make certain hands are out of the way.



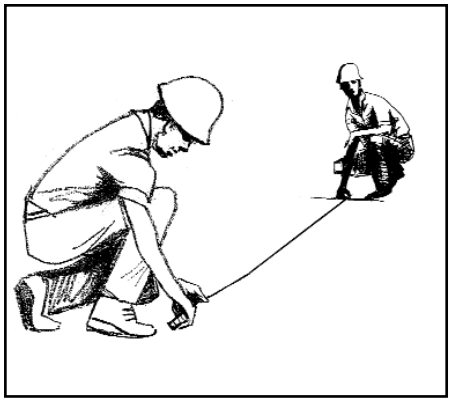
CASTERS MAY BE DISCARDED.

4

LINE UP

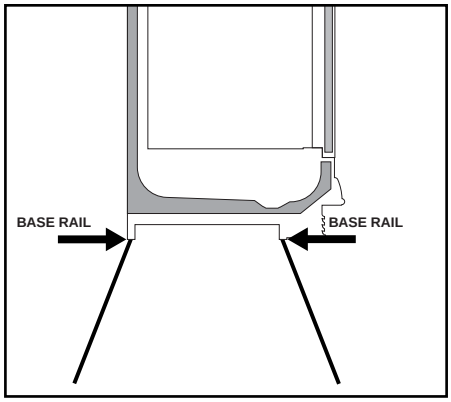
Consult With General Contractor

Ask the general contractor if there have been changes in the building dimensions since the print you are using was issued. Also, ask the points of reference from which you should take dimensions to locate the cases.



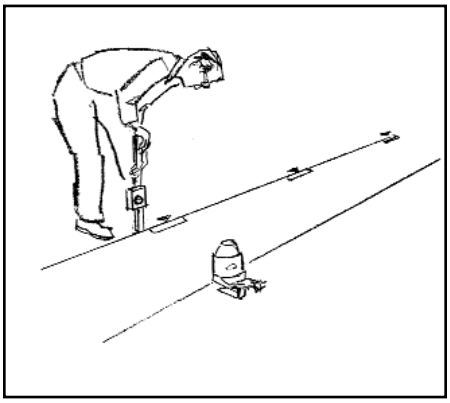
Snap Chalk Lines

Mark floor where cases are to be located for the entire lineup.



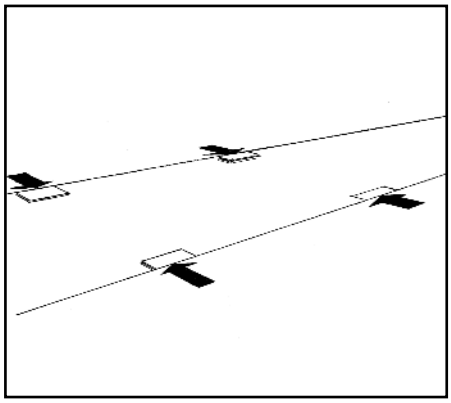
Snap Lines On Base Rail Locations

Snap lines where base rails are positioned, not the front or back edges of the cases. See case cross section drawings, pages 4-8, for rail location dimensions.



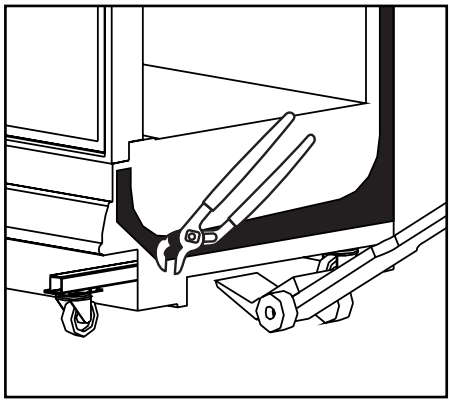
Level Floor. Use Laser Transit

Leveling is necessary to assure proper case alignment. Locate highest point on chalk line as reference for determining height of shim-pack levelers. A laser transit is recommended for precision and requires just one person.



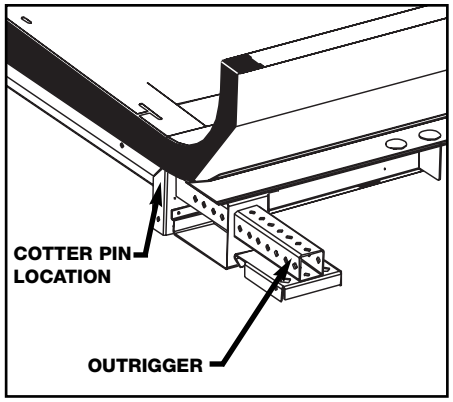
Set Shims On Basehorse Locations

Locate basehorse positions along chalk lines. Spot shim packs at each basehorse location.



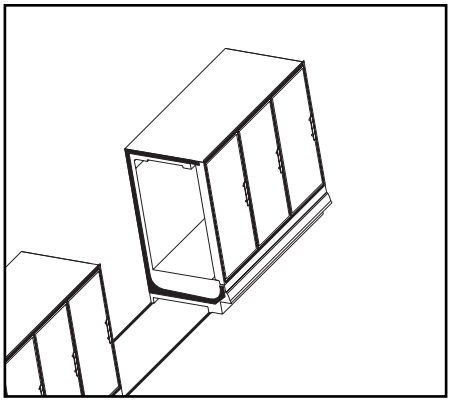
Position First Case In Lineup, Remove Casters, Level

Roll first case into position. Raise case from end under cross support using "J" bar. Remove cotter pins and casters. [CAUTION! Keep hands from under case] Level case on shims.



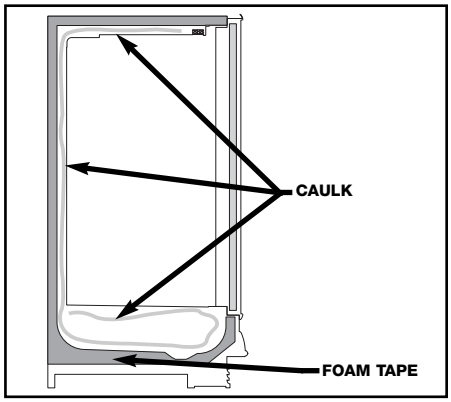
Remove Outriggers

Remove cotter pin from outrigger by cutting tie strap. Either pull the outrigger out from the front or insert a crowbar into the tube from the back and push the outrigger out.



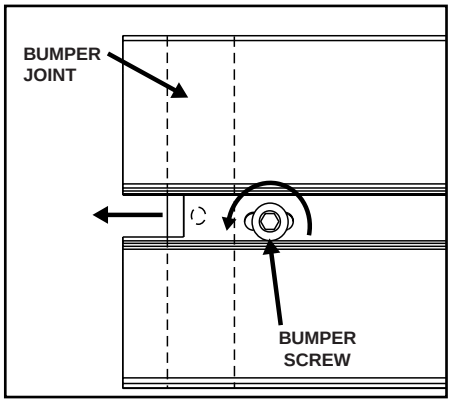
Position Next Case In Line Up

Roll case approximately 6' from adjoining case. Remove casters on the end nearest to the next case. Allow casters to remain on opposite end to assist in pushing cases together - then remove them.



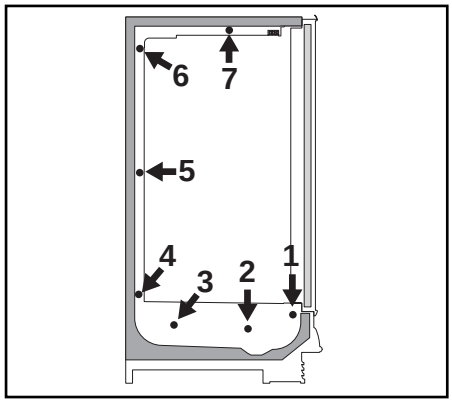
Remove Shipping Accessories From Case. Add Sealant.

Remove anything from the case that may interfere with case joining. Apply the foam tape that is shipped loose in the case to the end breakers on each side of the case. Run a bead of sealant around the entire end before pushing cases tightly together.



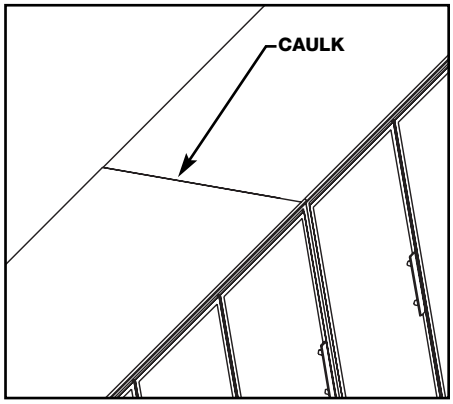
Loosen Master Bumper

Loosen screws on master bumper. Move bumper joint to a position for sliding between adjoining case bumper.



Bolt Cases Together Using Bolt Holes Provided

Push cases tightly together. Bolt cases together through the holes provided. Tighten until all margins are equal; do not over tighten. If bolt **5** interferes with shelf positioning, it may be removed once cases are set.



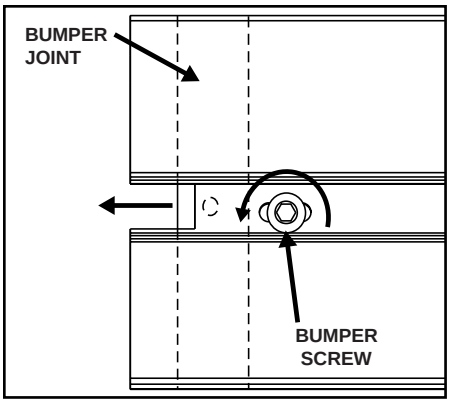
Add Sealant to Top Case Joint.

Once cases are pushed tightly together and bolted run a bead of sealant along the top joint.

Ask about our case installation video available by request through your local ***Hill PHOENIX*** Sales or Field Service Representative.

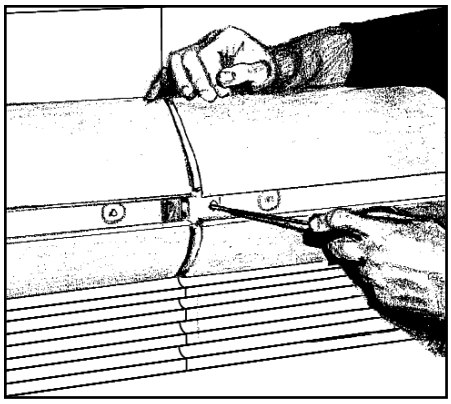
TRIM OUT

Now that cases have been positioned and leveled, you may proceed to trim-out case line-up. Trim parts have been designed to be applied easily with only a small number of fasteners required. Most external parts are adjustable to achieve almost invisible, snug-fitting joints and a high level of excellence in fit and finish.



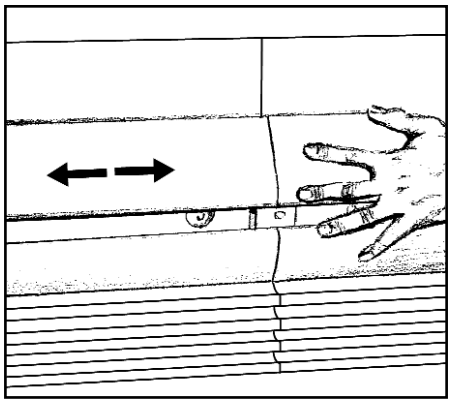
1

Adjust polymer master bumper joints, if required. First loosen bumper screws.



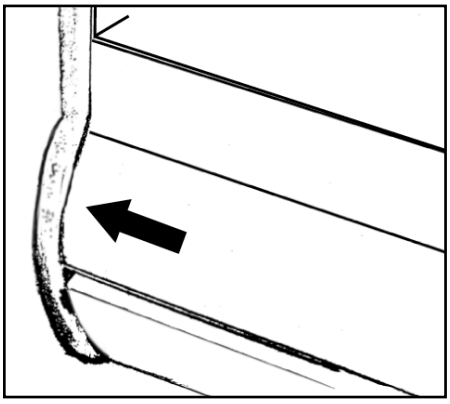
2

Slide bumper joint to the center of the joint between the two cases. Use screw driver in hole provided.



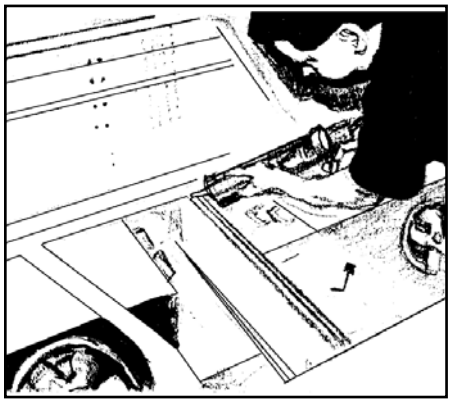
3

Slide master bumper left or right to close seam as required. Bumper joint neatly finishes any gap that may remain.



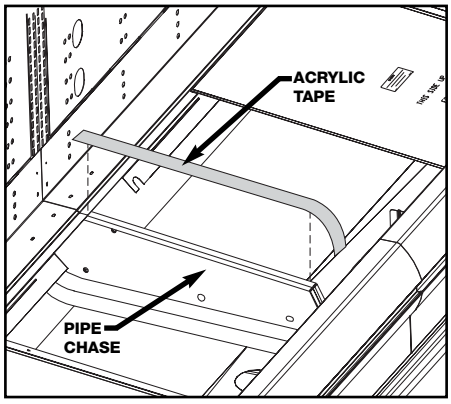
4

Close seam where bumper joins case end. Bumper joint closes seam that may develop if master bumper is moved away from end to close case-to-case joint seam.



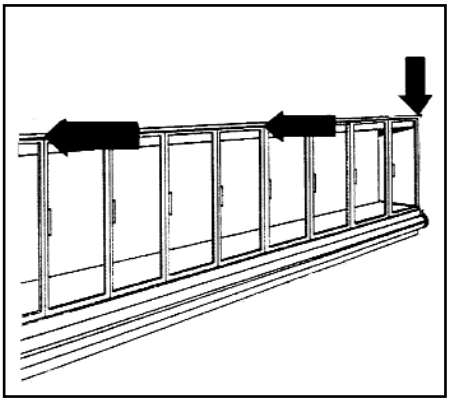
5

Seal joints along pipe chase seam with the caulk provided.

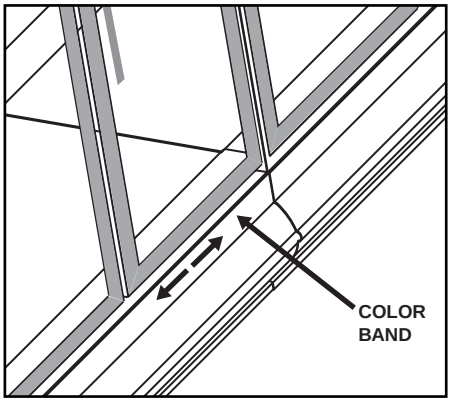


6

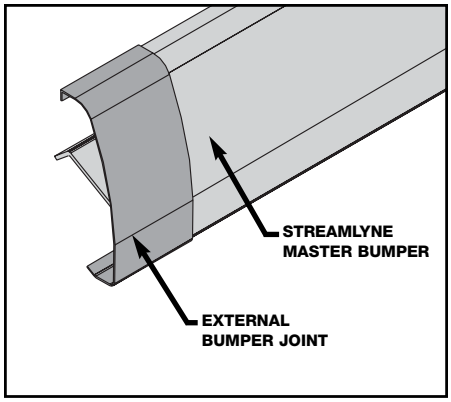
Apply acrylic tape over pipe chase seam. Tape is found with the ship loose items and acts as a watershed preventing water from settling in case joint.



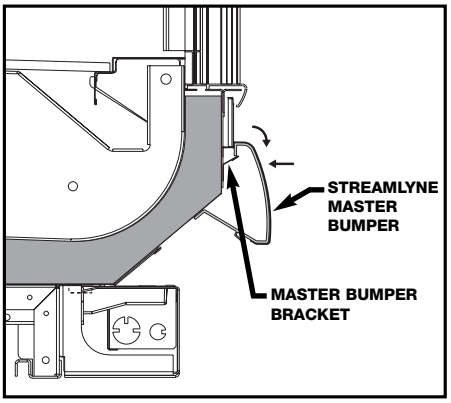
Insert exterior cornice joint at every case joint. The exterior cornice joints are shipped loose with each case



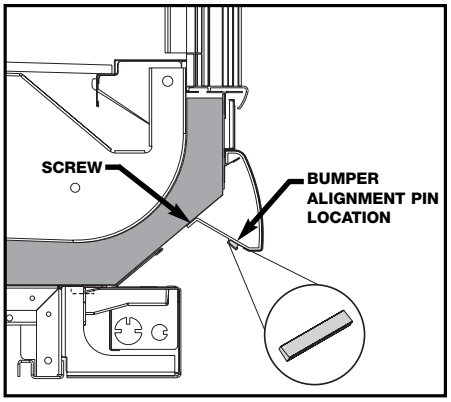
Close joints on color band by sliding the panels together. The color band can be moved left or right as required to allow adjustment.



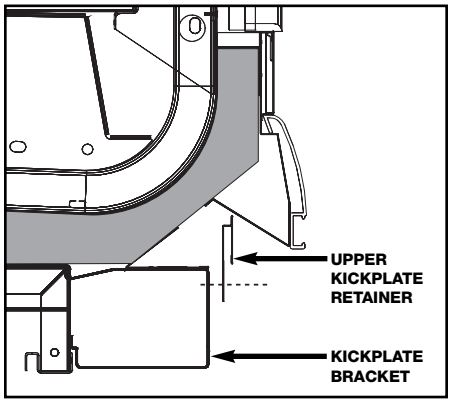
If the case has a Streamlyne front style the bumper may be shipped loose in the case. Before installing bumper on the case install the external bumper joint on the Streamlyne bumper. Simply slide the joint over the bumper for either case-to-case or case-to-end joints.



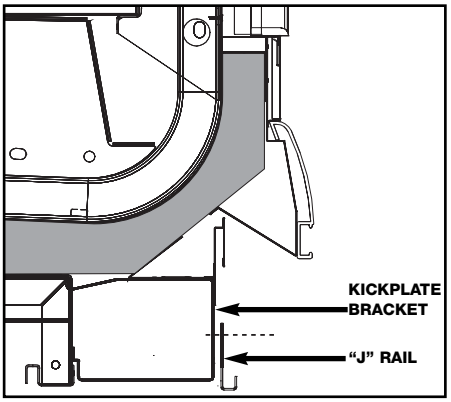
Place the hook of the Streamlyne bumper on the lip of the master bumper bracket and rotate the bumper down while pushing it in. Once the top edge of the bumper has slipped under the color band make sure it is pushed in as far as it will go.



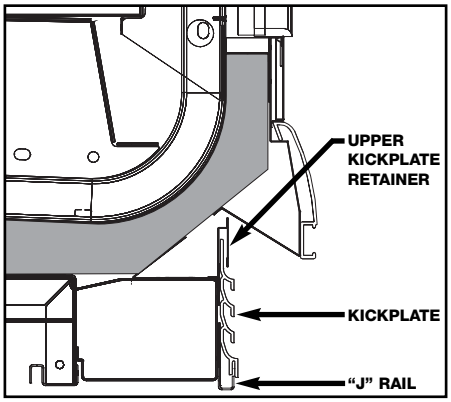
Once the Streamlyne bumper has been properly seated, attach the bumper to the tank with the screws provided. Insert the bumper alignment pin into the underside of the bumper to help align it to the bumper on the next case.



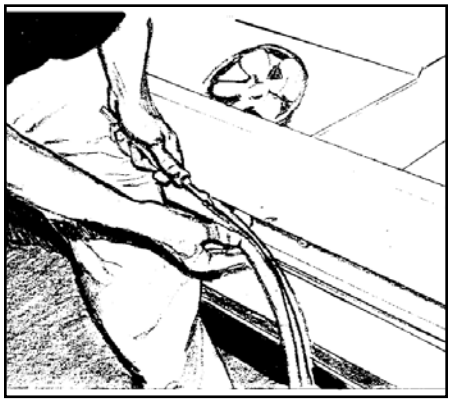
Attach the upper kickplate retainer, which is shipped loose with the case. Line up the retainer with the kickplate bracket and secure with the screws provided. The kickplate brackets are shipped loose with the ORZ and ORZH models but come installed on the ONRZ and ONRZH models.



Attach the "J" rail, which is shipped loose with the case. Line up the rail with the kickplate bracket and secure with the screws provided.



Insert top of kickplate into the upper kickplate retainer. Slide the kickplate up into retainer then down on the "J" rail.



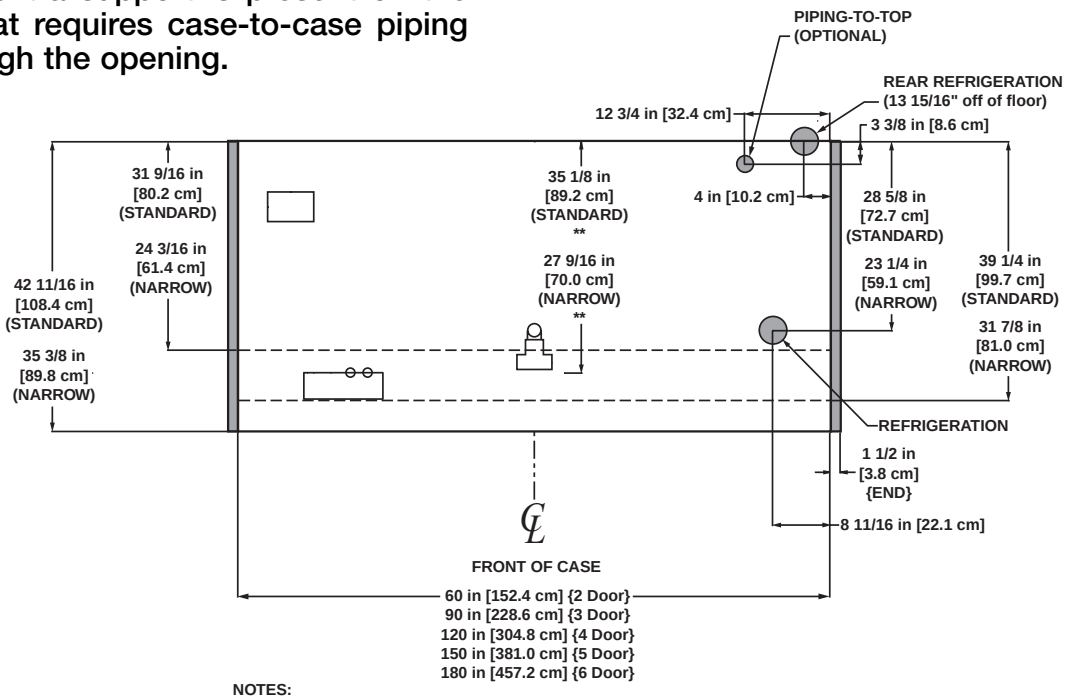
Insert nose bumper into master bumper channel. Roll nose bumper into channel along entire lineup (up to 96'). We recommend that the nose bumper be left in the store 24 hours before installing. DO NOT STRETCH the bumper during installation as it will shrink to its original length and leave a gap.

REFRIGERATION PIPING

Refrigeration components and the coil outlet hole are located to provide the best access for installation and maintenance. As the diagrams below indicates, the coil outlet hole is positioned forward on the right hand side of the case, fully visible in front of the fan plenum. An optional piping-to-top configuration can be ordered that runs the refrigeration lines through the top of the case at the location shown below. Note that on the narrow six door case an extra support is present on the end frames that requires case-to-case piping to be fed through the opening.

The expansion valve and other controls are located on the left-hand side of the case, are accessible without lifting the fan plenum, and may be reached by lifting *only* the left hand deck pan.

If it becomes necessary to penetrate the case bottom make certain it is sealed afterward with canned-foam sealant and white RTV.



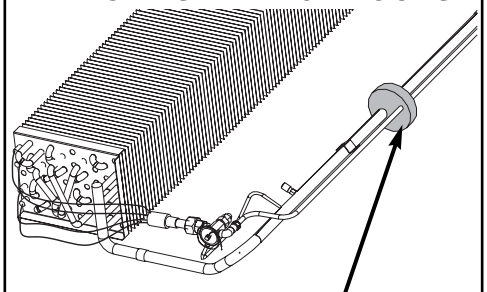
NOTES:

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

- SUCTION LINE (ALL LENGTHS) 1/2"
- LIQUID LINE (ALL LENGTHS) - 3/8", LIQUID LINE w/ HOT GAS DEFROST (ALL LENGTHS) - 1/2"

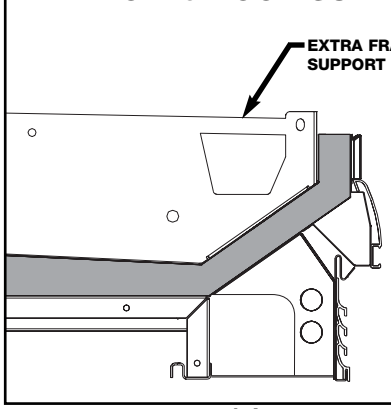
MODEL
ORB, ORBH, ONRB & ONRBH

REMOVE SHIPPING BLOCKS

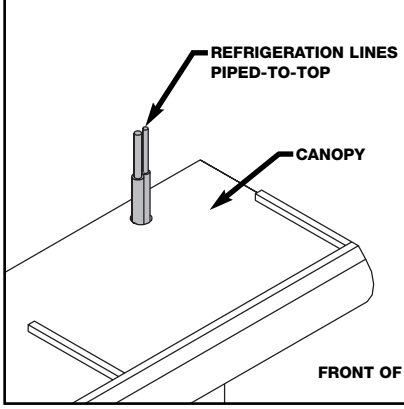


REMOVE THE SHIPPING BLOCKS THAT PROTECT THE REFRIGERATION LINES DURING SHIPMENT BEFORE OPERATING THE CASE.

NARROW 6 DOOR SUPPORT



PIPING-TO-TOP



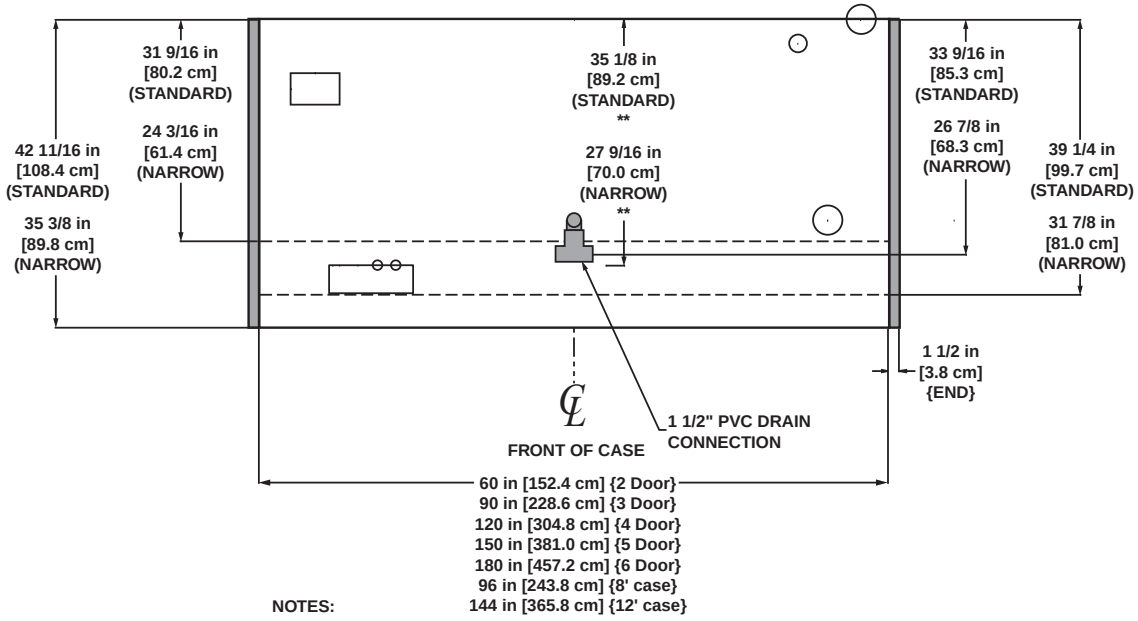
PLUMBING

The drain outlet is located front and center of the cases for convenient access and is especially molded out of ABS material. The "P" trap, furnished with the case, is constructed of schedule 40 PVC pipe. Care should be given to assure that all connections are water tight and sealed with the appropriate PVC or ABS cement.

The lines can be run left or right of the tee with the proper pitch to satisfy local drainage requirements.

The kickplate is shipped loose with the case for field installation, therefore you should have open access to the drain line area.

If the kickplate has been installed, you will find it very easy to remove. See instructions below, or the trim out section of this manual on page 13.

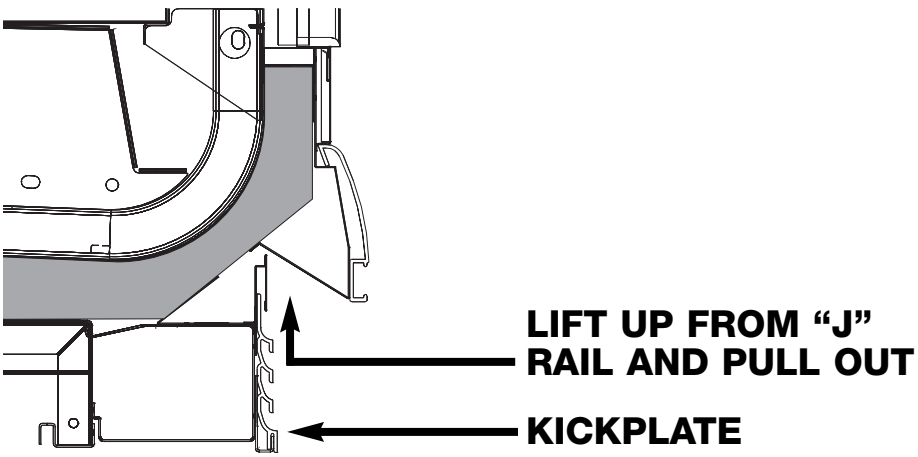


NOTES:

** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

MODEL
ORB, ORBH, ONRB & ONRBH

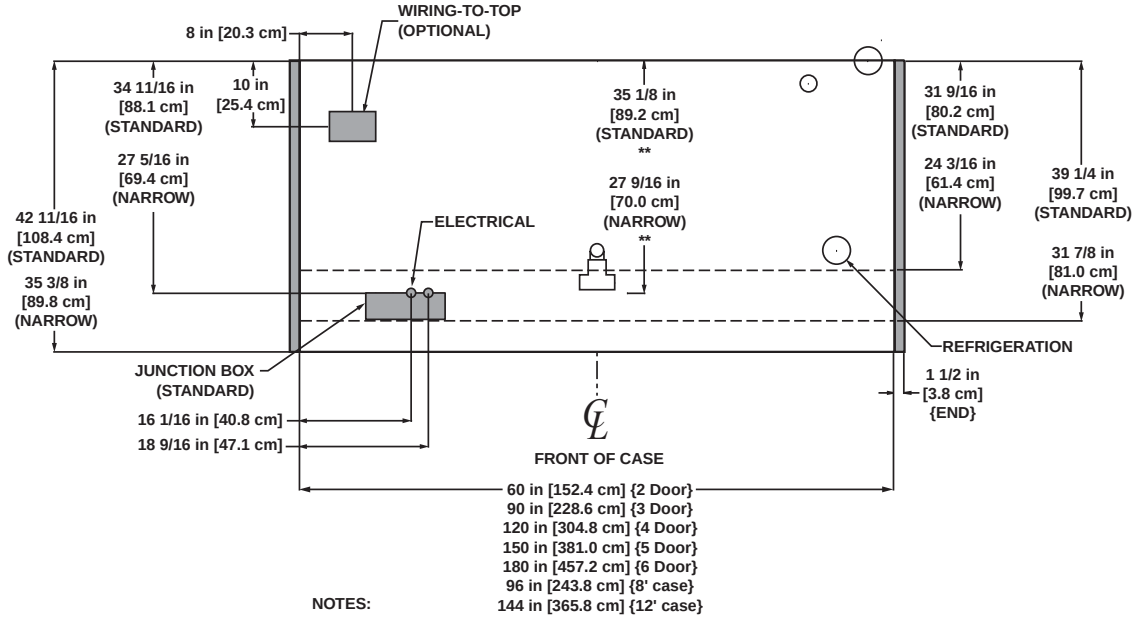
HOW TO REMOVE KICKPLATE



ELECTRICAL HOOKUP

Electrical hookups are made to a junction box located at the bottom left hand front of the case. At the owners option the case made be wired to a junction box located on the top left rear of the case.

For case-to-case wiring, run “greenfield”, or other conduit, between junction boxes. When connecting to the junction box on the bottom left side of the case, field wiring should exit the junction box from the right hand side, furthest away from case wiring, increasing room inside for wire connecting.



NOTES:

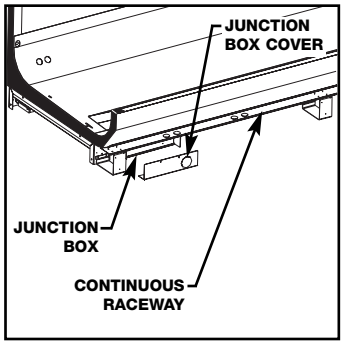
** RECOMMENDED STUB-UP CENTERLINE FOR ELECTRICAL AND HUB DRAINS

• WIRING-TO-THE-TOP- ADDS APPROXIMATELY 1 INCH TO CASE HEIGHT

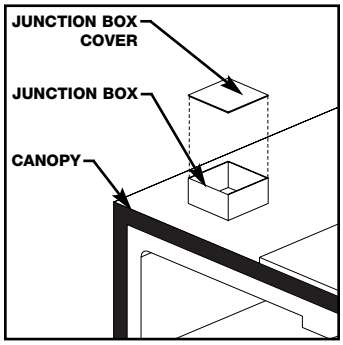
MODEL
ORB, ORBH, ONRB & ONRBH

WIRING NUMBERS AND COLORS

COMPONENT	WIRE NUMBER	COLOR CODING
EVAPORATOR FANS, 120 VOLT	3	WHITE
	4	BLACK
DOOR & FRAME ANTI-COND. HEATERS, 120 VOLT	15	WHITE
	16	BLACK
LIGHTS, 120 VOLT	11	WHITE
	12	BLACK
ANTI-CONDENSATE HEATERS, 120 VOLT	13	WHITE
	14	BLACK
TEMPERATURE CONTROL, 120 VOLT	19	YELLOW
	20	YELLOW
DEFROST TERMINATION CONTROL, 120 VOLT	21	PURPLE
	23	ORANGE
DEFROST HEATERS, 208/240 VOLTS	L1	RED
	L2	BLUE
EQUIPMENT GROUNDING CONDUCTOR	-	GREEN



WIRING-TO-JUNCTION BOX

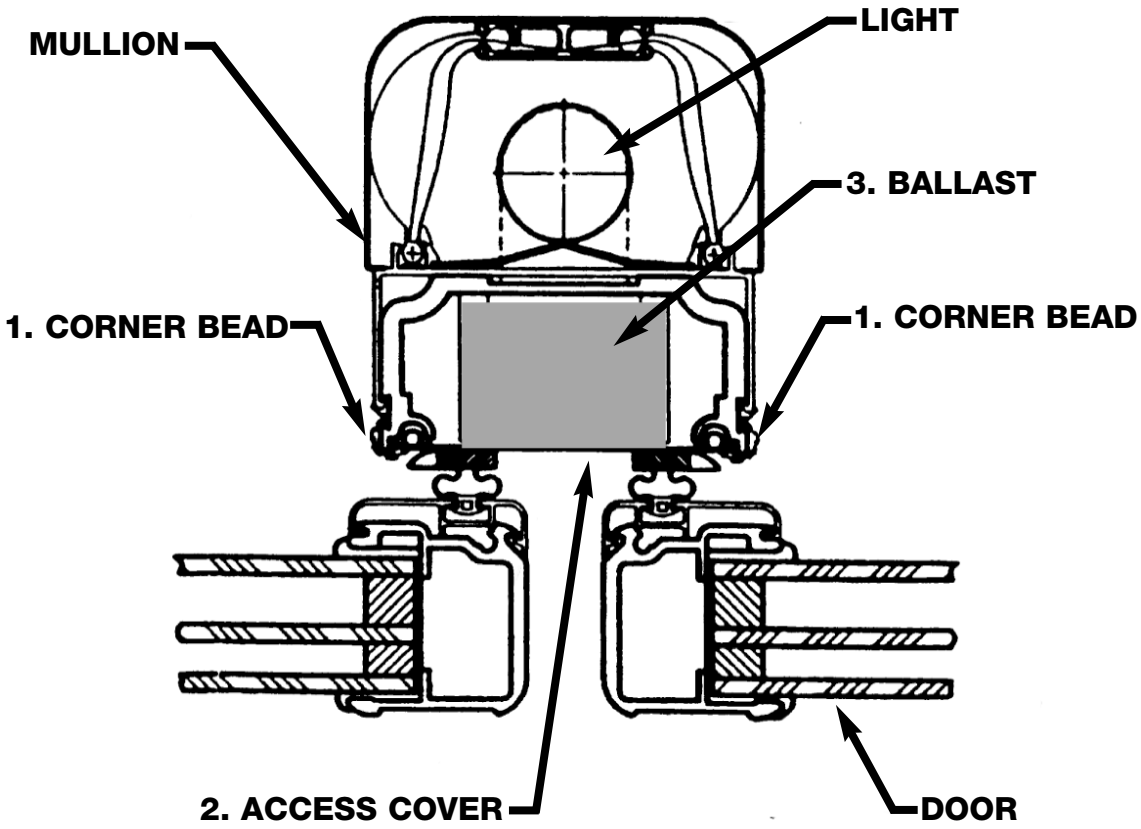


WIRING-TO-TOP

BALLASTS ACCESS

The electronic ballasts that operate the vertical prism door lights are located in the door frame for Anthony® door frames.

ANTHONY® FRAMES

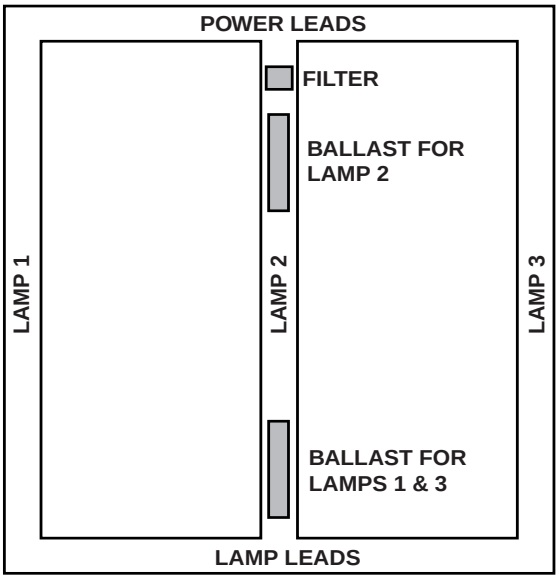


STEPS TO REPLACE THE BALLAST

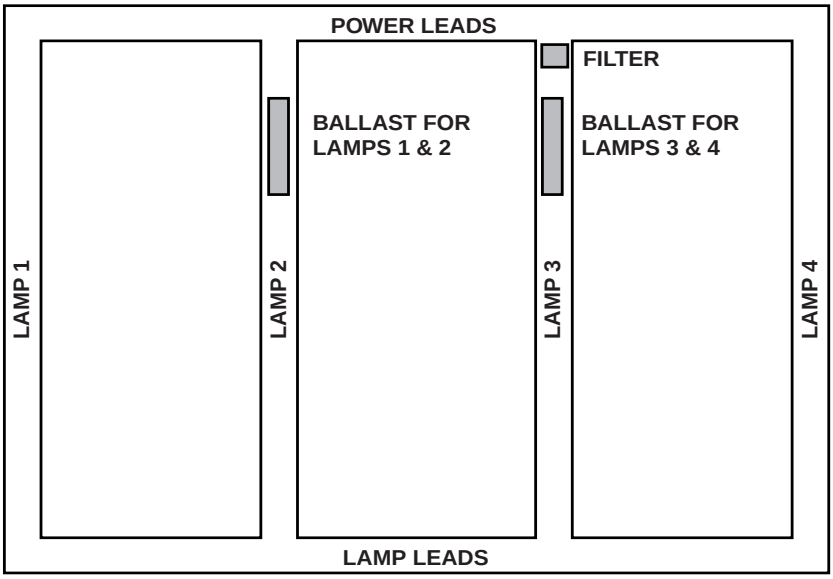
ANTHONY® FRAMES

1. REMOVE CORNER BEADS (2)
2. REMOVE ACCESS COVER
3. REPLACE BALLAST

BALLAST LOCATIONS

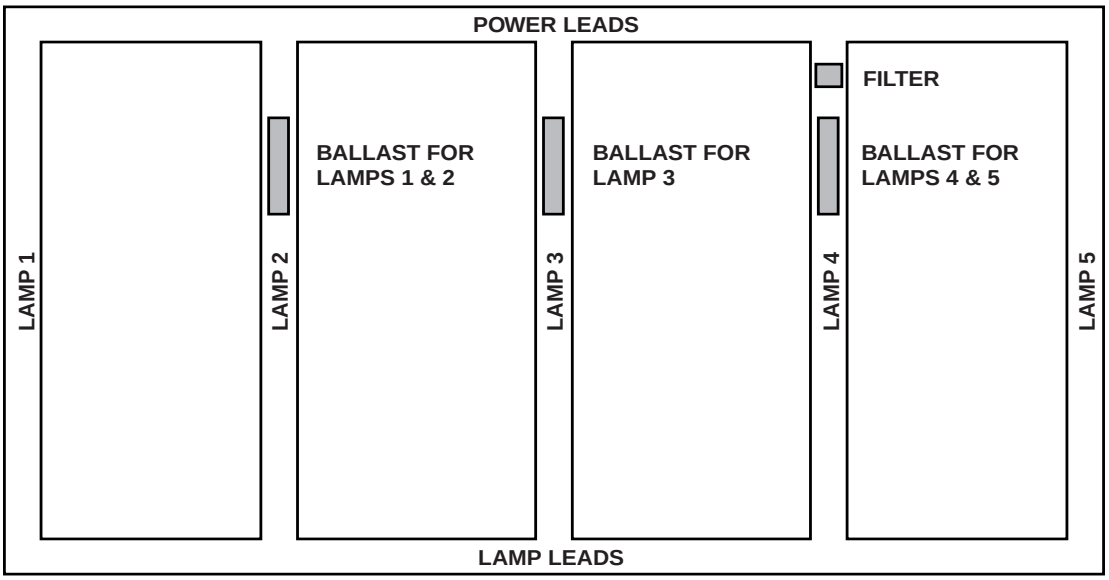


2 DOOR MODELS

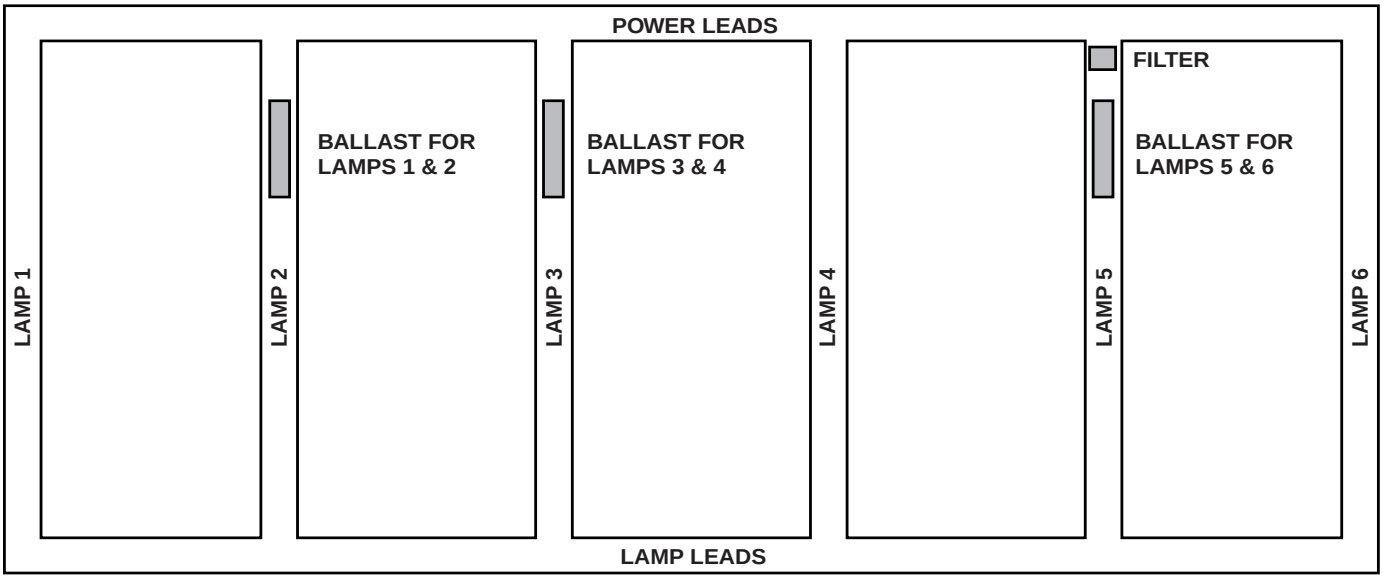


3 DOOR MODELS

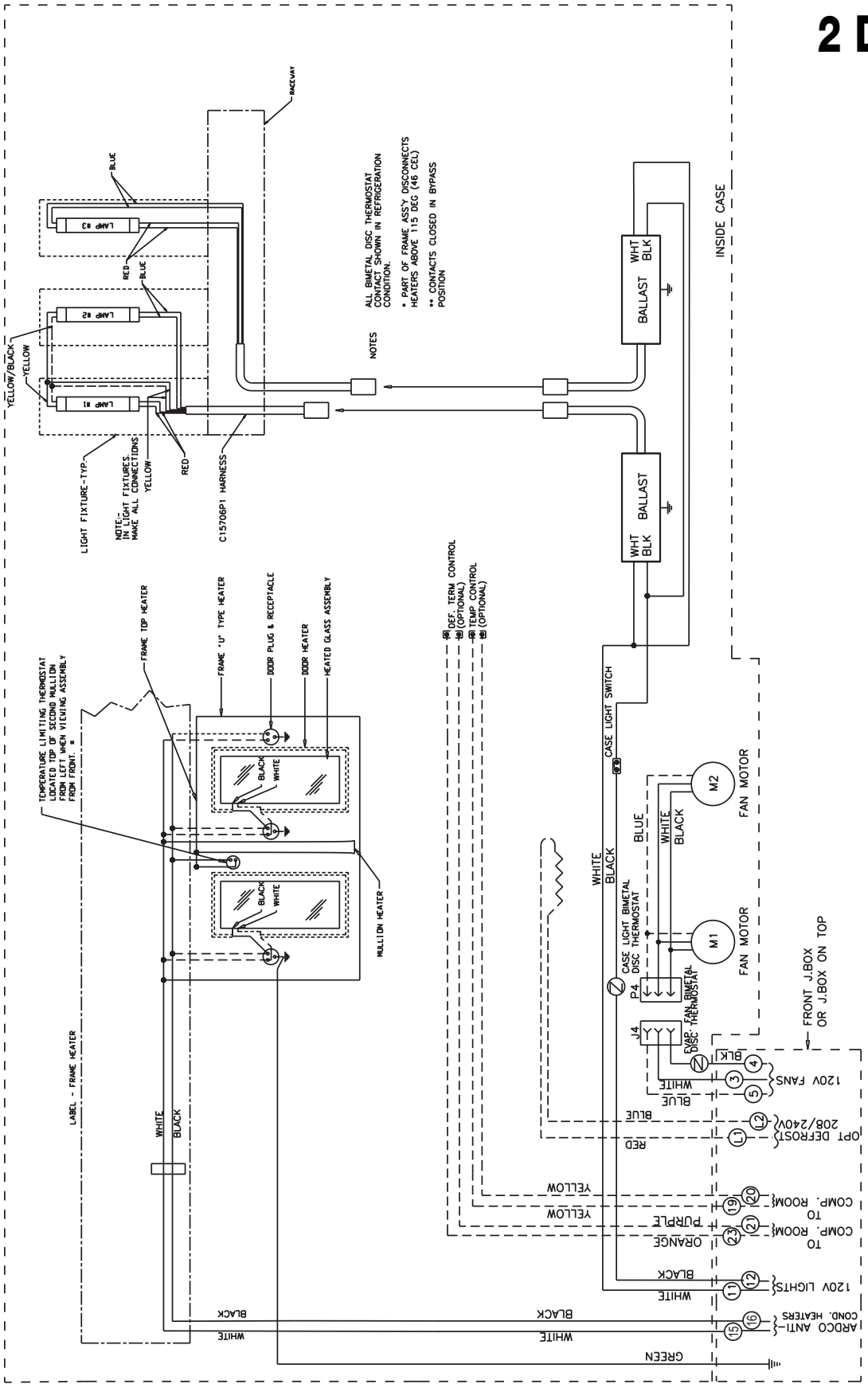
4 DOOR MODELS



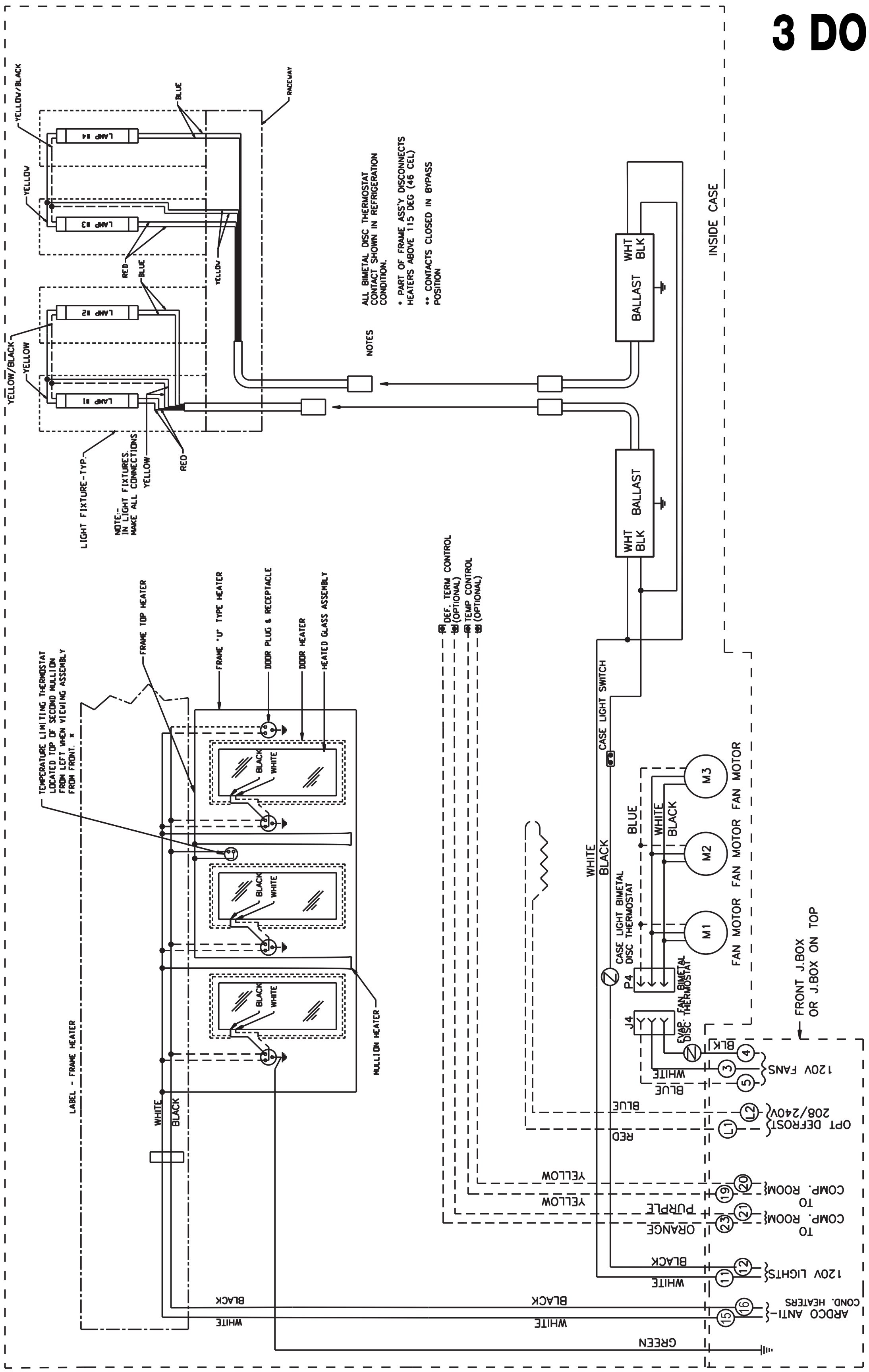
5 DOOR MODELS



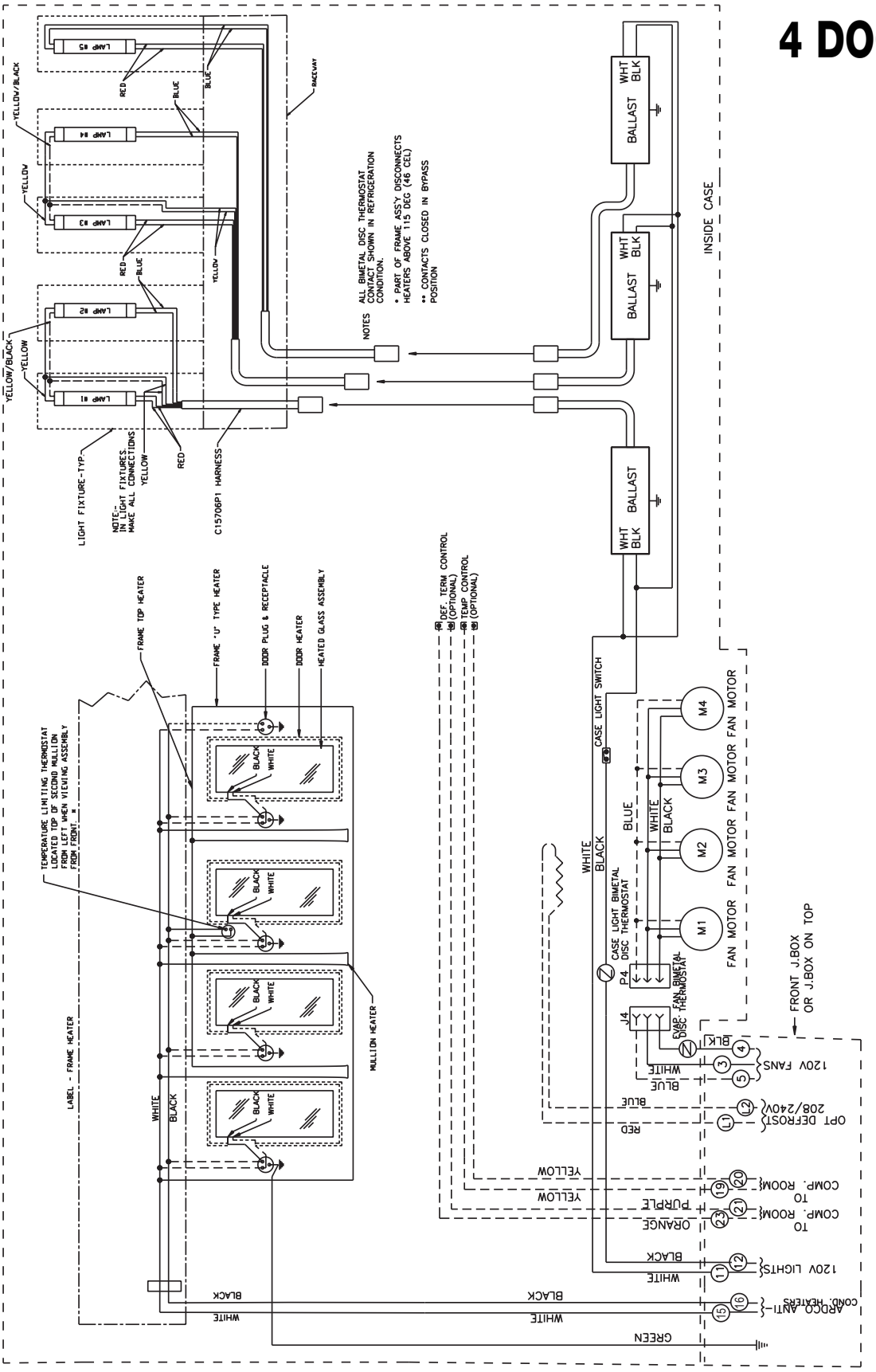
WIRING DIAGRAMS- ORB, ORBH, ONRB & ONRBH 2 DOOR



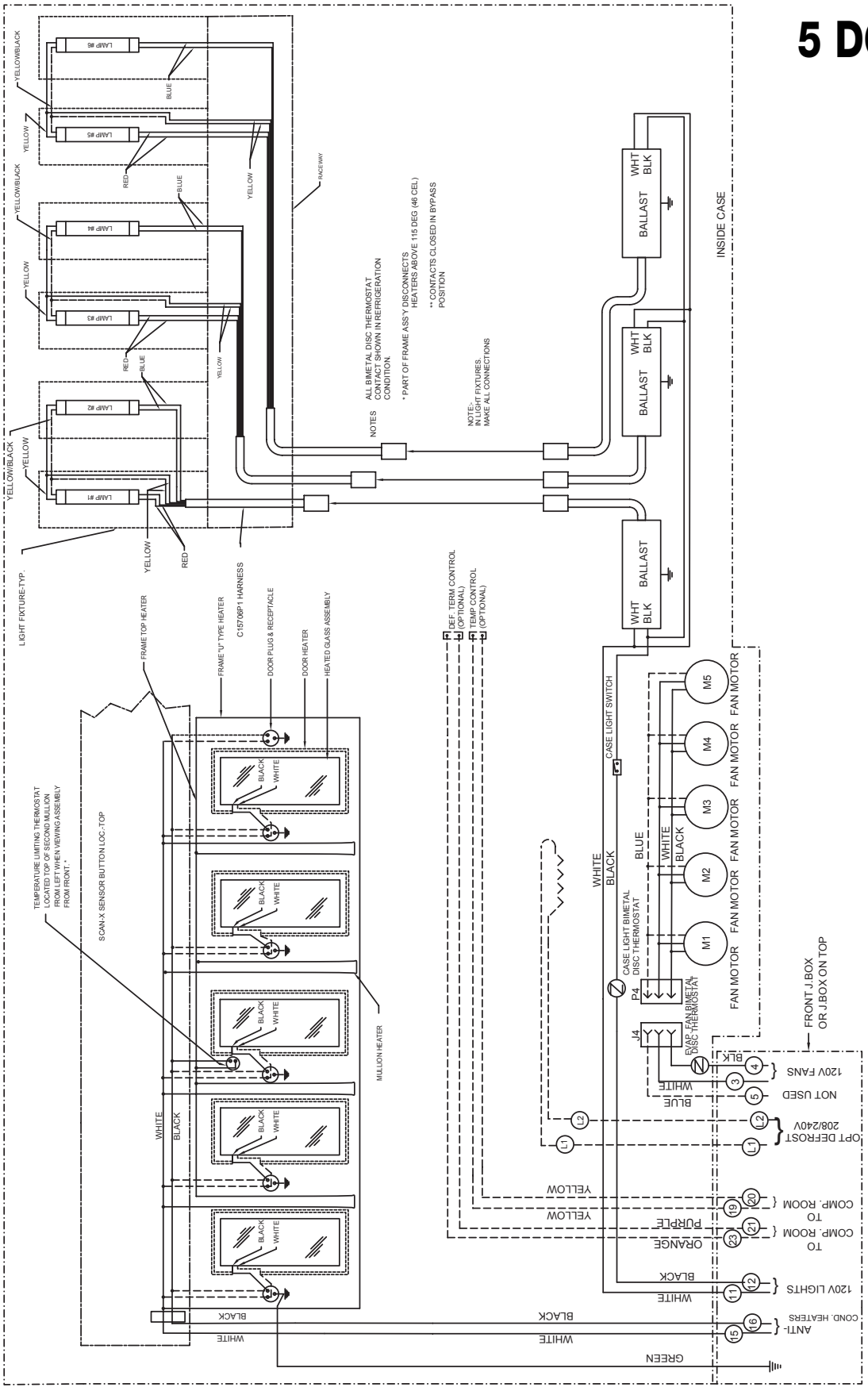
WIRING DIAGRAMS- ORB, ORBH, ONRB & ONRBH 3 DOOR - 8'



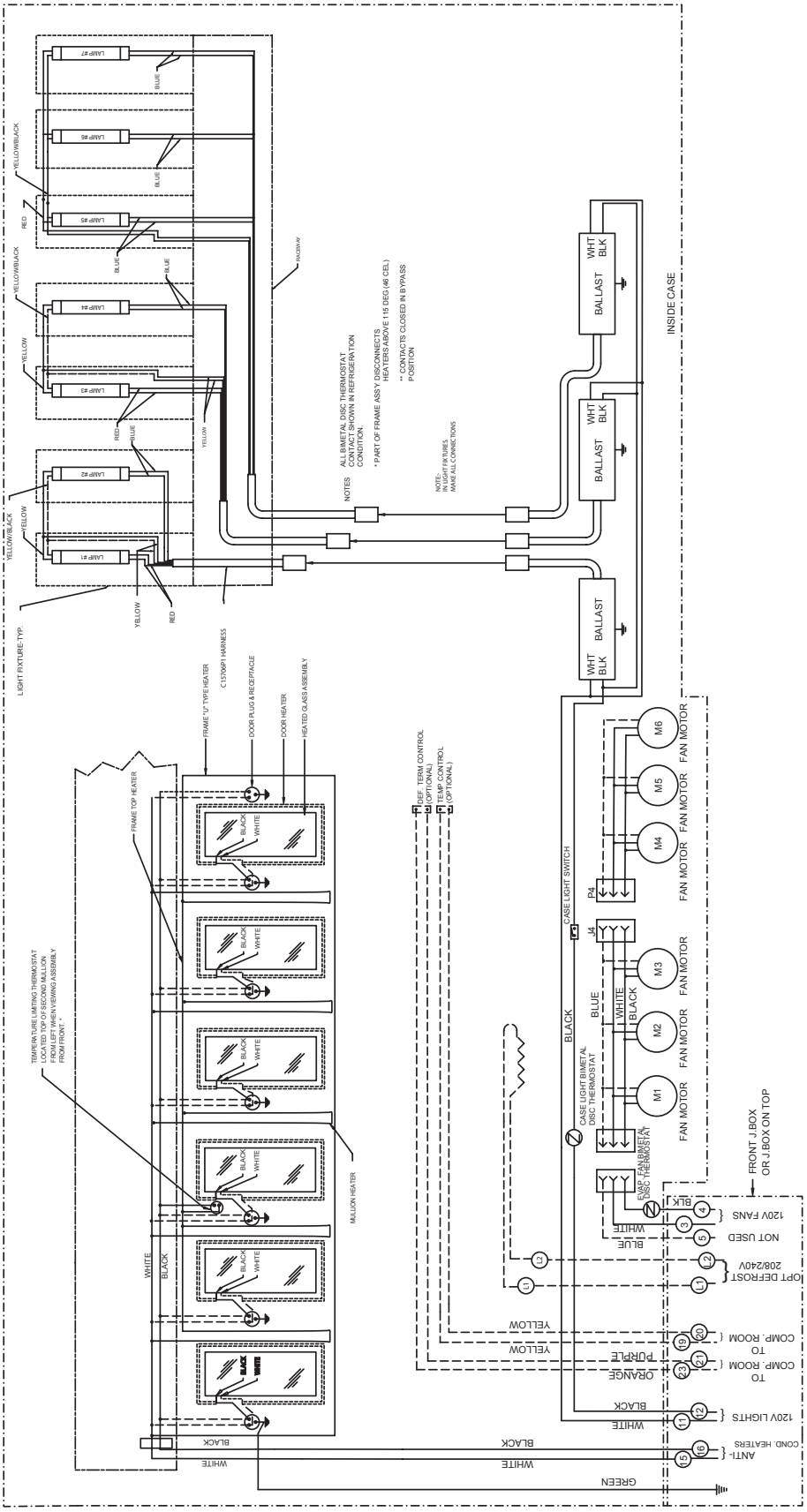
WIRING DIAGRAMS- ORB, ORBH, ONRB & ONRBH 4 DOOR - 12'



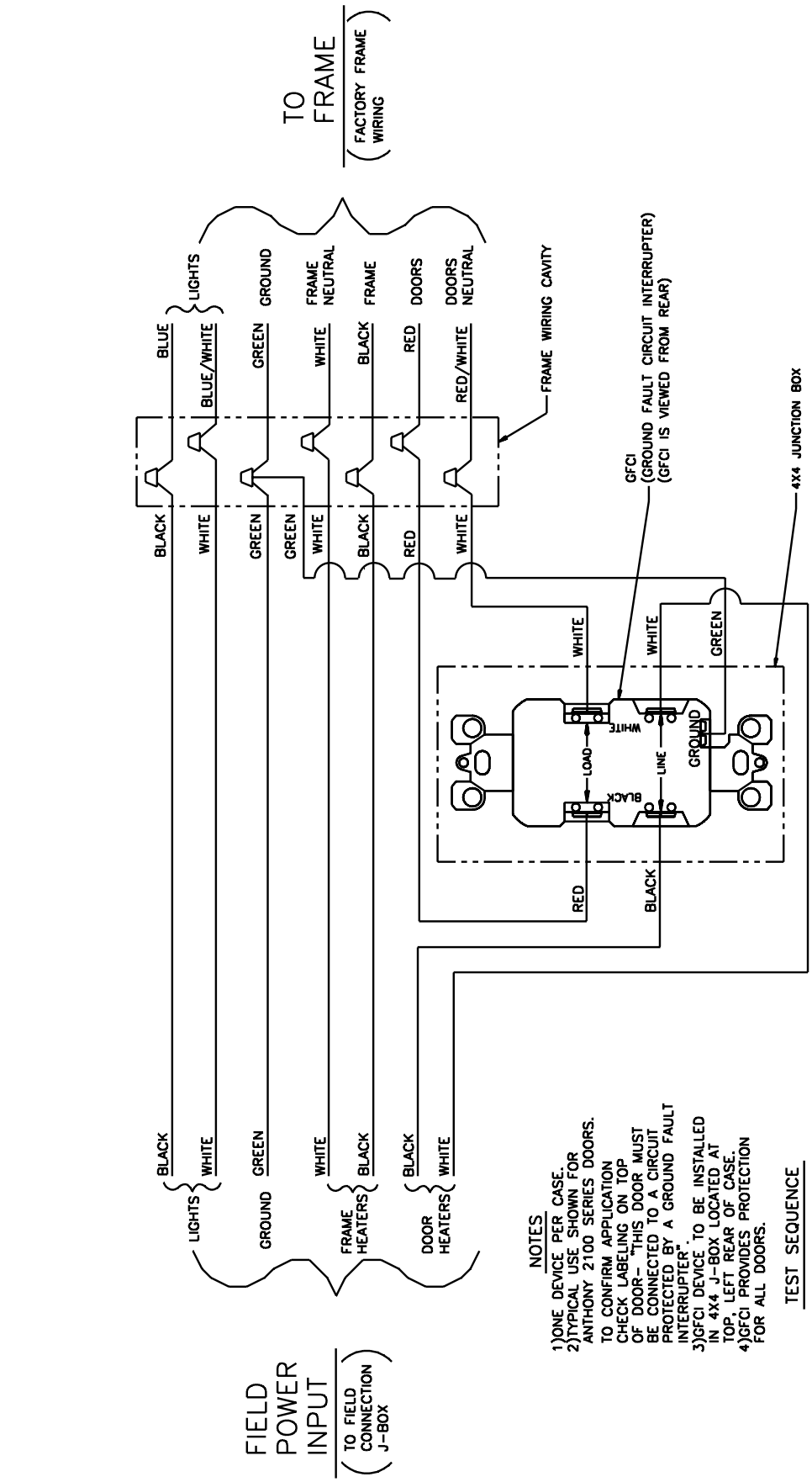
WIRING DIAGRAMS- ORB, ORBH, ONRB & ONRBH 5 DOOR



WIRING DIAGRAMS- ORB & ORBH 6 DOOR



WIRING DIAGRAMS- GFI



NOTES

1)ONE DEVICE PER CASE.
2)TYPICAL USE SHOWN FOR ANTHONY 2100 SERIES DOORS. TO CONFIRM APPLICATION CHECK LABELING ON TOP OF DOOR- "THIS DOOR MUST BE CONNECTED TO A CIRCUIT PROTECTED BY A GROUND FAULT INTERRUPTER".
3)GFCI DEVICE TO BE INSTALLED IN 4X4 J-BOX LOCATED AT TOP, LEFT REAR OF CASE.
4)GFCI PROVIDES PROTECTION FOR ALL DOORS.

TEST SEQUENCE

1)APPLY POWER TO DOOR HEATERS
2)CONFIRM CURRENT OF DOOR ON TESTER.
3)DEPRESS BLACK "TEST" BUTTON ON GFCI.
4)CONFIRM THAT DOOR HEATERS DE-ENERGIZED BY AMPMETER ON TESTER GOING TO ZERO.
5)RESET GFCI BY DEPRESSING RED "RESET" BUTTON ON GFCI.
6)CONFIRM CURRENT ON TESTER.

CASE OPERATION

Glass Door Reach-in Beverage Merchandiser

ORB - 2, 3, 4, 5 & 6-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ORB	2-door	2	1.00	60	0.31	18.4	1.01	121	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	1.49	179	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	1.96	235	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	2.40	288	7.96	1655	9.17	2201
	6-door	6	3.00	180	0.92	55.2	2.92	350	9.40	1955	10.79	2589

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORB	2-door	NA[1]	NA	1.50	180
	3-door	NA	NA	1.90	228
	4-door	NA	NA	2.40	288
	5-door	NA	NA	2.90	348
	6-door	NA	NA	3.40	408

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[2]	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[4] (FPM)
ORB - Deli/Dairy	830[3]	Enh.	32	6-8	36	38	380
ORB - Beverage	800[3]	Enh.	34	6-8	38	40	380

[2] BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[3] High efficiency fans reduce refrigeration load by 96 BTUHs/fan.

[4] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORB	4[5]	6 - 8	30	47	30	40	24	47	- - -[6]	- - -

[5] If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

[6] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT c UL us

High Glass Door Reach-in Beverage Merchandiser

ORBH - 2, 3, 4, 5, 6-door, 8' & 12'

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts		High Efficiency Fans 120 Volts		Anti-Condensate Heaters 120 Volts		Defrost Heaters 208 Volts		Defrost Heaters 240 Volts	
			Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts	Amps	Watts
ORBH	2-door	2	1.00	60	0.31	18.4	1.06	127	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	1.55	186	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	2.07	248	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	2.54	305	7.96	1655	9.17	2201
	6-door	6	3.00	180	0.92	55.2	3.07	368	9.40	1955	10.79	2589
	8'	3	1.50	90	0.70	42	1.61	193	3.85	800	4.44	1065
	12'	4	2.00	120	0.93	56	2.23	268	5.78	1200	6.67	1600

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ORBH	2-door	NA[1]	NA	1.50	180
	3-door	NA	NA	1.90	228
	4-door	NA	NA	2.40	288
	5-door	NA	NA	2.90	348
	6-door	NA	NA	3.40	408
	8'	NA	NA	1.90	228
	12'	NA	NA	2.40	288

[1] Not applicable.

Guidelines & Control Settings

Model[2]	BTUH/door[3]	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ORBH-2, 3, 4, 5 & 6dr - Deli/Dairy	830[4]	Enh.	32	6-8	36	38	280
ORBH-2, 3, 4, 5 & 6dr - Beverage	800[4]	Enh.	34	6-8	38	40	280
ORBH-8' & 12' Deli/Dairy	930[4]	Enh.	32	6-8	36	38	280
ORBH-8' & 12'- Beverage	900[4]	Enh.	34	6-8	38	40	280

[2] ORBH-8' has 3 doors, ORBH-12' has 4 doors.

[3] BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] High efficiency fans reduce refrigeration load by 96 BTUHs/fan.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ORBH	4[6]	6 - 8	30	47	30	40	24	47	- - -[7]	- - -

[6] If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrosts per day.

[7] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT c UL us

CASE OPERATION

Narrow Glass Door Reach-in Beverage Merchandiser

ONRB - 2, 3, 4 & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRB	2-door	2	1.00	60	0.31	18.4	1.01	121	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	1.49	179	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	1.96	235	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	2.40	288	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONRB	2-door	NA[1]	NA	1.50	180
	3-door	NA	NA	1.90	228
	4-door	NA	NA	2.40	288
	5-door	NA	NA	2.90	348

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[3]	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONRB[2] - Deli/Dairy	830[4]	Enh.	32	6-8	36	38	460
ONRB[2] - Beverage	800[4]	Enh.	34	6-8	38	40	460

[2] All data listed is for an ONRB configured with 20" shelves.

[3] BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] High efficiency fans reduce refrigeration load by 96 BTUHs/fan.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRB	4[6]	6 - 8	30	47	30	40	24	47	- - -[7]	- - -

[6] If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

[7] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

NSF COMPONENT c UL us

High Narrow Glass Door Reach-in Beverage Merchandiser

ONRBH - 2, 3, 4 & 5-door

Electrical Data

Model		Fans per Case	Standard Fans 120 Volts Amps	Standard Fans 120 Volts Watts	High Efficiency Fans 120 Volts Amps	High Efficiency Fans 120 Volts Watts	Anti-Condensate Heaters 120 Volts Amps	Anti-Condensate Heaters 120 Volts Watts	Defrost Heaters 208 Volts Amps	Defrost Heaters 208 Volts Watts	Defrost Heaters 240 Volts Amps	Defrost Heaters 240 Volts Watts
ONRBH	2-door	2	1.00	60	0.31	18.4	1.06	127	4.39	914	5.06	1215
	3-door	3	1.50	90	0.46	27.6	1.55	186	4.96	1032	5.71	1370
	4-door	4	2.00	120	0.61	36.8	2.07	248	6.51	1355	7.55	1813
	5-door	5	2.50	150	0.77	46.0	2.54	305	7.96	1655	9.17	2201

Lighting Data

Model		Typical per Light Row 120 Volts Amps	Typical per Light Row 120 Volts Watts	Maximum Lighting 120 Volts Amps	Maximum Lighting 120 Volts Watts
ONRBH	2-door	NA[1]	NA	1.50	180
	3-door	NA	NA	1.90	228
	4-door	NA	NA	2.40	288
	5-door	NA	NA	2.90	348

[1] Not applicable.

Guidelines & Control Settings

Model	BTUH/door[3]	Coil Type	Evaporator (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Return Air (°F)	Discharge Air Velocity[5] (FPM)
ONRBH[2] - Deli/Dairy	830[4]	Enh.	32	6-8	36	38	405
ONRBH[2] - Beverage	800[4]	Enh.	34	6-8	38	40	405

[2] All data listed is for an ONRBH configured with 20" shelves.

[3] BTUHs/door listed are for parallel operation. Conventional ratings may be approximated by multiplying listed rating by 1.04.

[4] High efficiency fans reduce refrigeration load by 96 BTUHs/fan.

[5] Average discharge air velocity at peak of defrost.

Defrost Controls

Model	Defrosts Per Day	Run-Off Time (min)	Electric Defrost Fail-safe (min)	Electric Defrost Termination Temp. (°F)	Timed Off Defrost Fail-safe (min)	Timed Off Defrost Termination Temp. (°F)	Hot Gas Defrost Fail-safe (min)	Hot Gas Defrost Termination Temp. (°F)	Reverse Air Defrost Fail-safe (min)	Reverse Air Defrost Termination Temp. (°F)
ONRBH	4[6]	6 - 8	30	47	30	40	24	47	- - -[7]	- - -

[6] If timed off defrost is utilized. If electric or hot gas defrost is utilized case only requires 1 defrost per day.

[7] NOTE: - - - not an option on this case model.

Medium Temperature Defrost Schedule

No. Per Day	Hours
1	12 midnight
2	12 am - 12 pm
3	6 am - 2 pm - 10 pm
4	12 - 6 am - 12 - 6 pm

All measurements are taken per ARI 1200 - 2002 specifications.

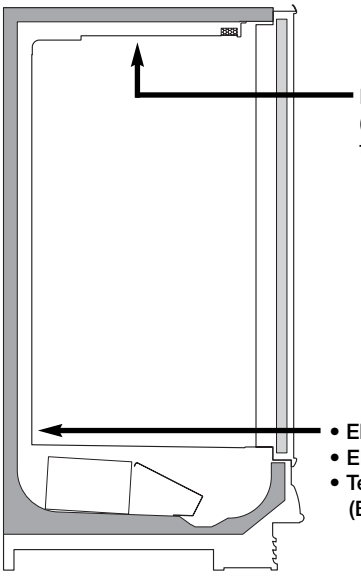
NSF COMPONENT c UL us

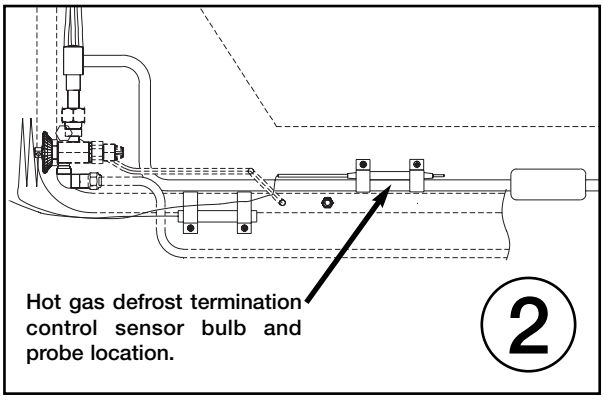
DEFROST AND TEMP CONTROL

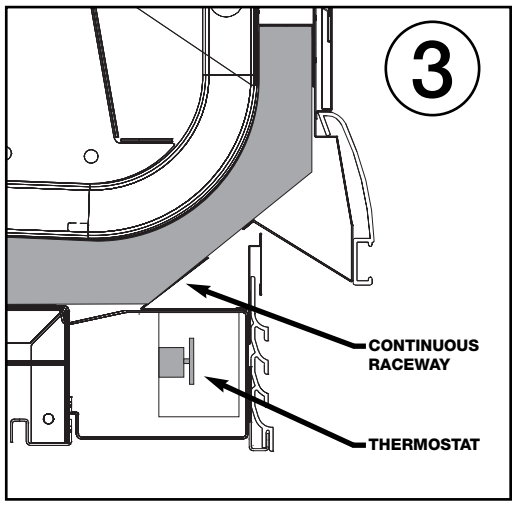
This case is equipped with either Electric, Hot Gas, or Timed-Off defrost at the owners option. The sensor bulb and probe for electric defrost termination control, the sensor bulb for timed-off defrost termination control, and the sensor bulb for temperature control are all located behind the rear baffle at the location shown in illustration **1** below. The discharge air probe is located behind a 3 1/2" plug button on the top flue panel also shown in diagram **1**. The hot gas defrost termination sensor bulb and probe are attached to the dump line, as shown in diagram **2** below, which is in the front, left hand side of the case.

The defrost termination control thermostat and the temperature control thermostat are located inside the junction box on the lower, left front of the case as shown in diagram **3**.

It is important to consult the control setting guidelines shown on pages 26-29 before setting defrost times. Further adjustment may be required depending on store conditions







AIR FLOW AND PRODUCT LOADING

Cases have been designed to provide maximum product capacity within the refrigerated air envelope. It is important that you do not overload the food product display so that it impinges on the air flow pattern.

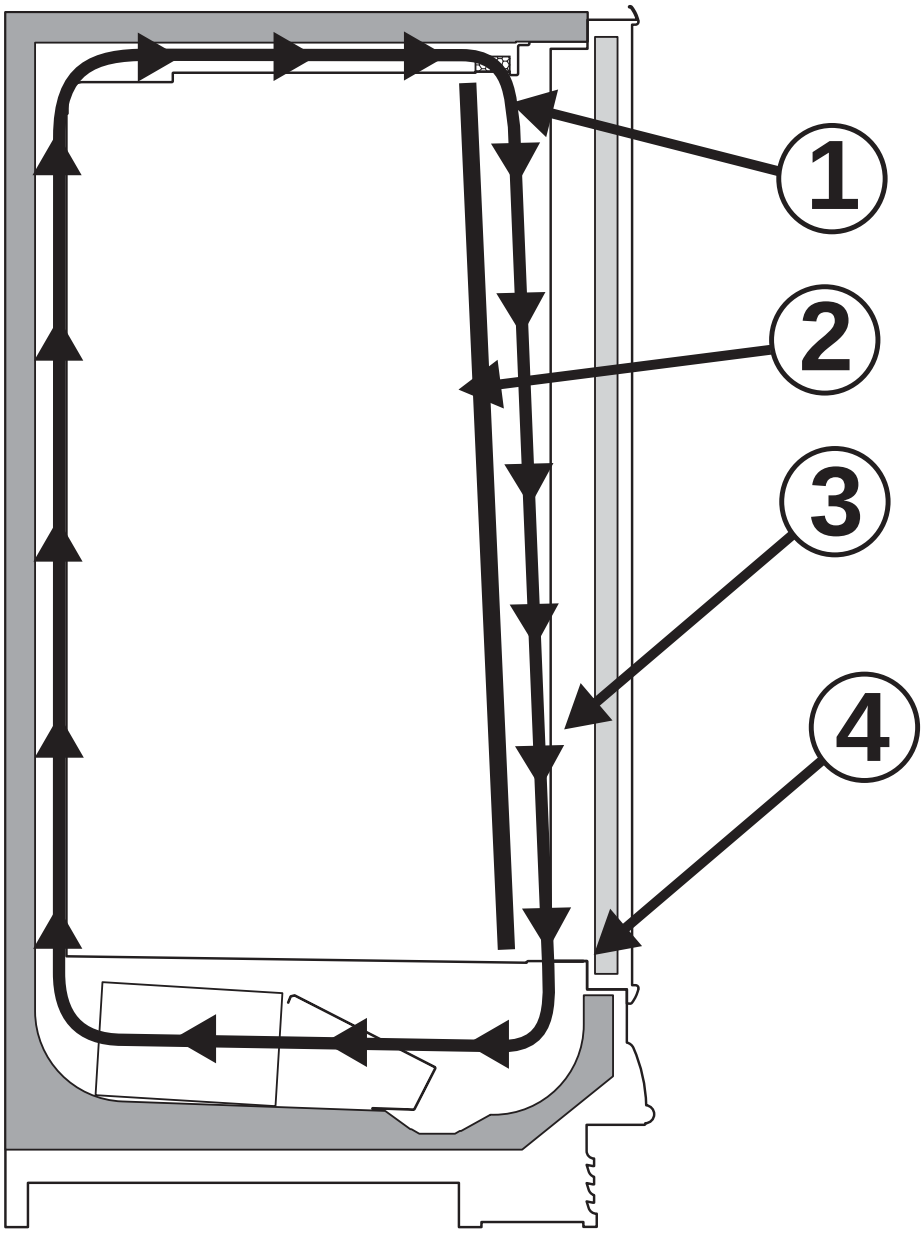
Overloading will cause malfunction and the loss of proper temperature levels, particularly when discharge and return air sections are covered. Please keep products within the load limit lines shown on these diagrams.

DISCHARGE.....1

LOAD LIMIT.....2

AIR FLOW.....3

RETURN AIR GRILL...4



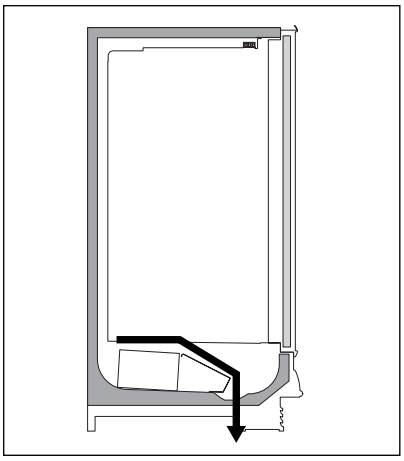
MODEL
ORB, ORBH,
ONRB & ONRBH

USE AND MAINTENANCE

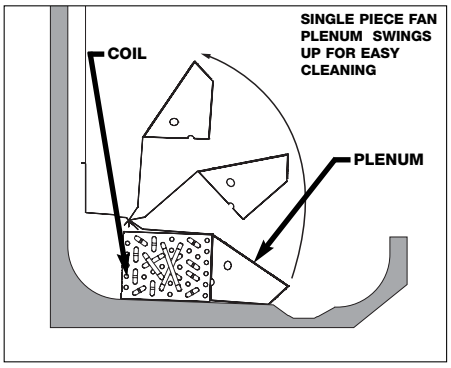
CASE CLEANING

Case is designed to facilitate cleaning. There is a wide radius formed on the front and back of the inside bottom of the tank (ORB & ORBH) that helps accelerate liquid flow and eliminates difficult-to-clean sharp corners. All surfaces pitch to a deep-drawn drain trough that angles toward the front and center of case where the waste outlet is located for easy access.

The coil is covered to keep food fluids from entering, but the cover lifts up easily when coil cleaning is desired. The single piece fan plenum lifts up for cleaning, exposing a major portion of the inside bottom of the tank. Make certain fan plenum is properly closed after cleaning to avoid air leaks.



POSITIVE DRAIN OFF



SINGLE PIECE FAN PLENUM LIFT UP

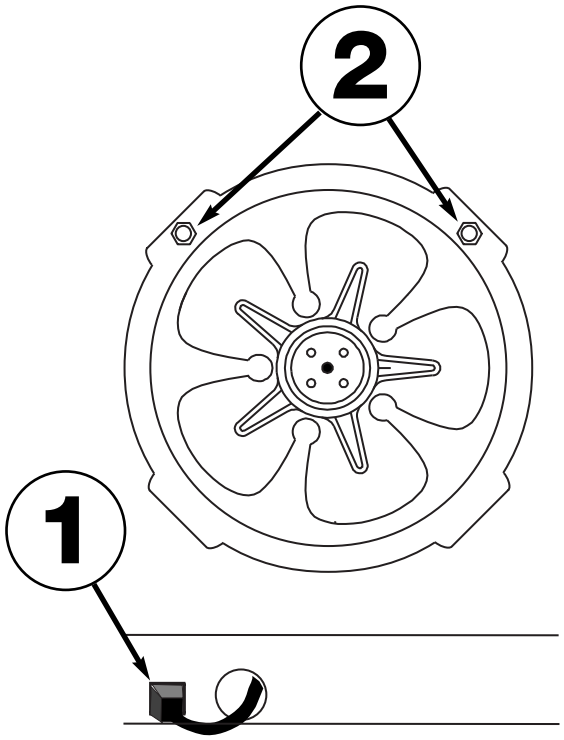
CLEANING PROCEDURES

- A periodic cleaning schedule should be established to maintain proper sanitation, insure maximum operating efficiency, and avoid the corrosive action of food fluids on metal parts that are left on for long periods of time. We recommend cleaning once a week.
- To avoid shock hazard, be sure all electrical power is turned off before cleaning. In some installations, more than one disconnect switch may have to be turned off to completely de-energize the case.
- Check waste outlet to insure it is not clogged before starting the cleaning process and avoid introducing water faster than the case drain can carry it away.
- Avoid spraying cleaning solutions directly on fans or electrical connections.
- Provide a temporary separator between those cases which are being cleaned and those which are not.
- Allow cases to be turned off long enough to clean any frost or ice from coil and flue areas.
- Remove and clean discharge honeycomb. You may need to use spray detergent and a soft, long bristle brush.
- Use mild detergent and warm water. When necessary, water and baking soda solution will help remove case odors. Avoid abrasive scouring powders or pads.
- Remove front panels and clean underneath the case with a broom and a long handled mop. Instructions for removing the front panels can be found on page 13 of this manual.
- Use warm water and a disinfecting cleaning solution when cleaning underneath the cases.
- When cleaning antifog doors please refer to Appendix A, on page 37, for more details.

USE AND MAINTENANCE

FANS

The evaporator fans are equipped with either 9 watt fan motors, 1550 RPM's, or 12 watt fan motors, 1650 RPM's. Both motors have a counter clockwise rotation when viewed from the shaft end. The fan blades are 8" in diameter and the blades are pitched as shown on the chart below. **It is important that the blade pitch be maintained as specified. Do not attempt a field modification by altering the blades.**

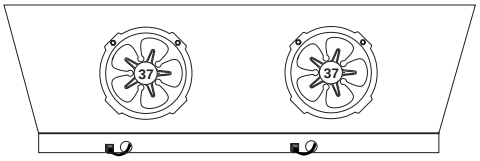


Fan motors may be changed with an easy two-step process without lifting up the plenum, thereby avoiding the necessity to unload the entire product display to make a change:

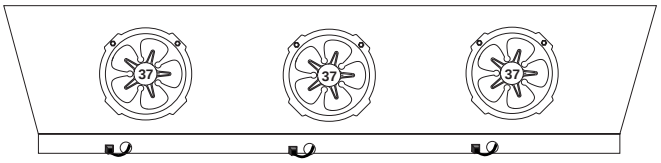
1. **Unplug the fan motor, easily accessible out side the plenum**
2. **Remove two fasteners, then lift out the entire fan basket**

Model	ORB, ORBH, ONRB, & ONRBH				
	2 Door	3 Door	4 Door	5 Door	6 Door
No. Fans	2	3	4	5	6
Blade Pitch	37°	37°	37°	37°	37°

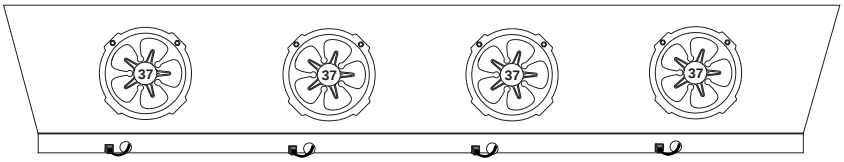
Model	ORBH	
	8'	12'
No. Fans	2	3
Blade Pitch	37°	37°



2 DOOR

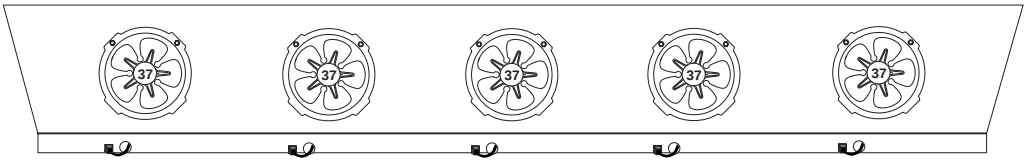


3 DOOR - 8'
6 DOOR (2)

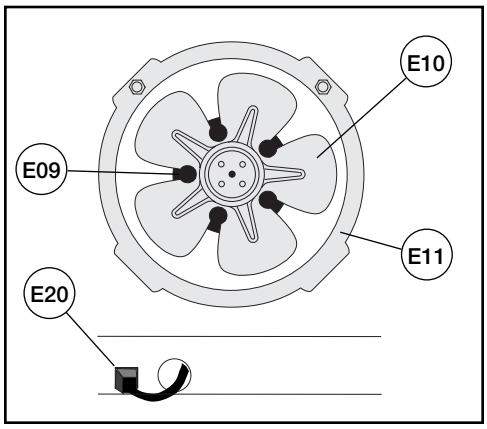


4 DOOR - 12'

5 DOOR



PARTS ORDERING



Model ORB, ORBH, ONRB & ONRBH

Location Number	Part Descriptions
1	**Kickplate**, Storm Grey
2	**Master Bumper**, 3/4, 1/2, Featherstone, Smoke, White, French Vanilla, Black
3	**Lower Front Panel**, Painted Custom Color (Not Shown)
4	**Color Band**, Painted Custom Color or Stainless
9	**Deck Pan**, Painted, Unpainted
10	**Wire Shelving**, White, With or Without Covers
11	**Front Baffle**, Aluminum
12	**Honeycomb**, 1"x 4"x 48"
13	**Honeycomb Retainer**, Painted
15	**Upper Rear Baffle**, Center or End
17	**Nose Bumper,** Polymer Custom Color
20	**Lower Rear Baffle**, Painted
23	**Electrical Junction Box**, (mounted on bottom left front or on top left rear)
24	**"J" Rail**, for Kickplate
25	**Top Flue Panel**, Painted
36	**Plug Button**, (Not Shown)
55	**Door,** Specify Mask Color, Ardco or Anthony, Door Handle Type, Low or Medium Temperature Application, Left or Right Hand Swing
56	**Door Frame**, Ardco or Anthony, Low or Medium Temperature Application
69	**Coil**
78	**Bumper Retainer**
81	**Bottom Wire Racks**
82	**Tag Moulding**, PVC or Aluminum
83	**Thermometer**, Includes Bracket
87	**End Assembly**, Solid, Custom Color, Identify Left or Right hand, Color of Panel, and Color of End Trim Color
88	**End Kickplate**, Painted, Stainless Steel
E01	**Defrost Heaters**
E02	**Anti-Condensate Heaters**, Discharge
E08	**Ballast**, Electronic, (Identify by brand name and model number)
E09	**Fan Motor - STATE HIGH EFFICIENCY OR STANDARD**
E10	**Fan Blade**
E11	**Fan Basket**, 8"
E20	**Fan Cord-Set**, High Efficiency or Standard

PARTS ORDERING

Procedure

1. Contact the Service Parts Department

Hill PHOENIX
1925 Ruffin Mill Road
Colonial Heights, Virginia 23834
Tel: 800-283-1109
Fax: 804-526-3897

2. Provide the following information about the part you are ordering:

- Model number and serial number of the case on which the part is used.
- Length of part, if applicable, I.E. 60”, 90”, 120”, 150”, or 180”
- Color of part if painted, or color of polymer part.
- Whether part is for left hand or right hand application.
- Whether shelves are with or without lights.
- Quantity

*Serial plate is located on top flue panel on the left hand side of the case (See illustrations on pages 4-7).

3. If parts are to be returned for credit, ask the Parts Department to furnish you with a Return Materials Authorization Number.

APPENDIX - A

CLEANING INSTRUCTIONS FOR ANTIFOG COATING

Antifog Coating Cleaning Instructions (ANTIFOG B):

Materials

CAUTION:

1. Only use deionized or distilled water with 2% cleaning solution (P/N 05-14700-0001) to clean the antifog coating. Do not apply cleaning solution full strength! Do not use commercial glass cleaners containing ammonia or alcohol.

2. Only use soft lint-free wipers, such as Kimwipes or Soft-Tech paper wipers. Do not use cloth rags or standard paper towels--these are abrasive and may damage the coating.

3. Do not use abrasive compounds to clean the coating. Do not use razor blades or sharp instruments to remove residue from the coating.

Initial Cleaning (New Doors)

- Remove protective plastic film on the inside surface of the door.
- Apply diluted cleaning solution to the coating surface.
- Using gentle pressure, wipe glass over the entire surface with soft wipers once in the horizontal direction, followed by once in the vertical direction.
- Gently dry the surface of the coating with new wipers.
- Repeat the above cleaning and drying cycle two more times.

Periodic Maintenance Cleaning

- Apply diluted cleaning solution to the coating surface.
- Using gentle pressure, wipe the entire surface of the glass with soft wipers.
- If the solution freezes on the surface of the glass, do not attempt to scrape off the ice from the coating surface with force; either allow the inside surface of the door to warm up, or apply more deionized water on the coating surface until the ice has melted enough to be removed by gentle force.
- Gently dry the surface of the coating with new wipers.
- Please note that a newly cleaned freezer door glass will initially form a frost layer that will take several hours to completely dissipate.

NOTES

Hill PHOENIX
EXCELLENCE®

WARRANTY

HEREINAFTER REFERRED TO AS MANUFACTURER

FOURTEEN MONTH WARRANTY. MANUFACTURER'S PRODUCT IS WARRANTED TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND MAINTENANCE FOR A PERIOD OF FOURTEEN MONTHS FROM THE DATE OF ORIGINAL SHIPMENT. A NEW OR REBUILT PART TO REPLACE ANY DEFECTIVE PART WILL BE PROVIDED WITHOUT CHARGE, PROVIDED THE DEFECTIVE PART IS RETURNED TO MANUFACTURER. THE REPLACEMENT PART ASSUMES THE UNUSED PORTION OF THE WARRANTY.

This warranty does not include labor or other costs incurred for repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts.

The fourteen month warranty shall not apply:

1. To any unit or any part thereof which has been subject to accident, alteration, negligence, misuse or abuse, operation on improper voltage, or which has not been operated in accordance with the manufacturer's recommendation, or if the serial number of the unit has been altered, defaced, or removed.

2. When the unit, or any part thereof, is damaged by fire, flood, or other act of God.

3. Outside the continental United States.

4. To labor cost for replacement of parts, or for freight, shipping expenses, sales tax or upgrading.

5. When the operation is impaired due to improper installation.

6. When installation and startup forms are not properly complete or returned within two weeks after startup.

THIS PLAN DOES NOT COVER CONSEQUENTIAL DAMAGES. Manufacturer shall not be liable under any circumstances for any consequential damages, including loss of profit, additional labor cost, loss of refrigerant or food products, or injury to personnel or property caused by defective material or parts or for any delay in its performance hereunder due to causes beyond its control. The foregoing shall constitute the sole and exclusive remedy of any purchases and the sole and exclusive liability of Manufacturer in connection with this product.

The Warranties are Expressly in Lieu of All Other Warranties, Express of Implied and All Other Obligations or Liabilities on Our Part. The Obligation to Repair or Replace Parts or Components Judged to be Defective in Material or Workmanship States Our Entire Liability Whether Based on Tort, Contract or Warranty. We Neither Assume Nor Authorize Any Other Person to Assume for Us Any Other Liability in Connection with Our Product.

MAIL CLAIM TO:

Hill PHOENIX
Display Merchandisers
1925 Ruffin Mill Road
Colonial Heights, VA 23834
804-526-4455

Hill PHOENIX
Refrigeration Systems &
Electrical Distribution Products
709 Sigman Road
Conyers, GA 30013
770-285-3200

A DOVER™ COMPANY

Warning
Maintenance & Case Care

When cleaning cases the following must be performed PRIOR to cleaning:

To avoid electrical shock, be sure all electric power is turned off before cleaning. In some installations, more than one switch may have to be turned off to completely de-energize the case.

Do not spray cleaning solution or water directly on fan motors or any electrical connections.

All lighting receptacles must be dried off prior to insertion and re-energizing the lighting circuit.

Please refer to the Use and Maintenance section of this installation manual.

804-526-4455

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