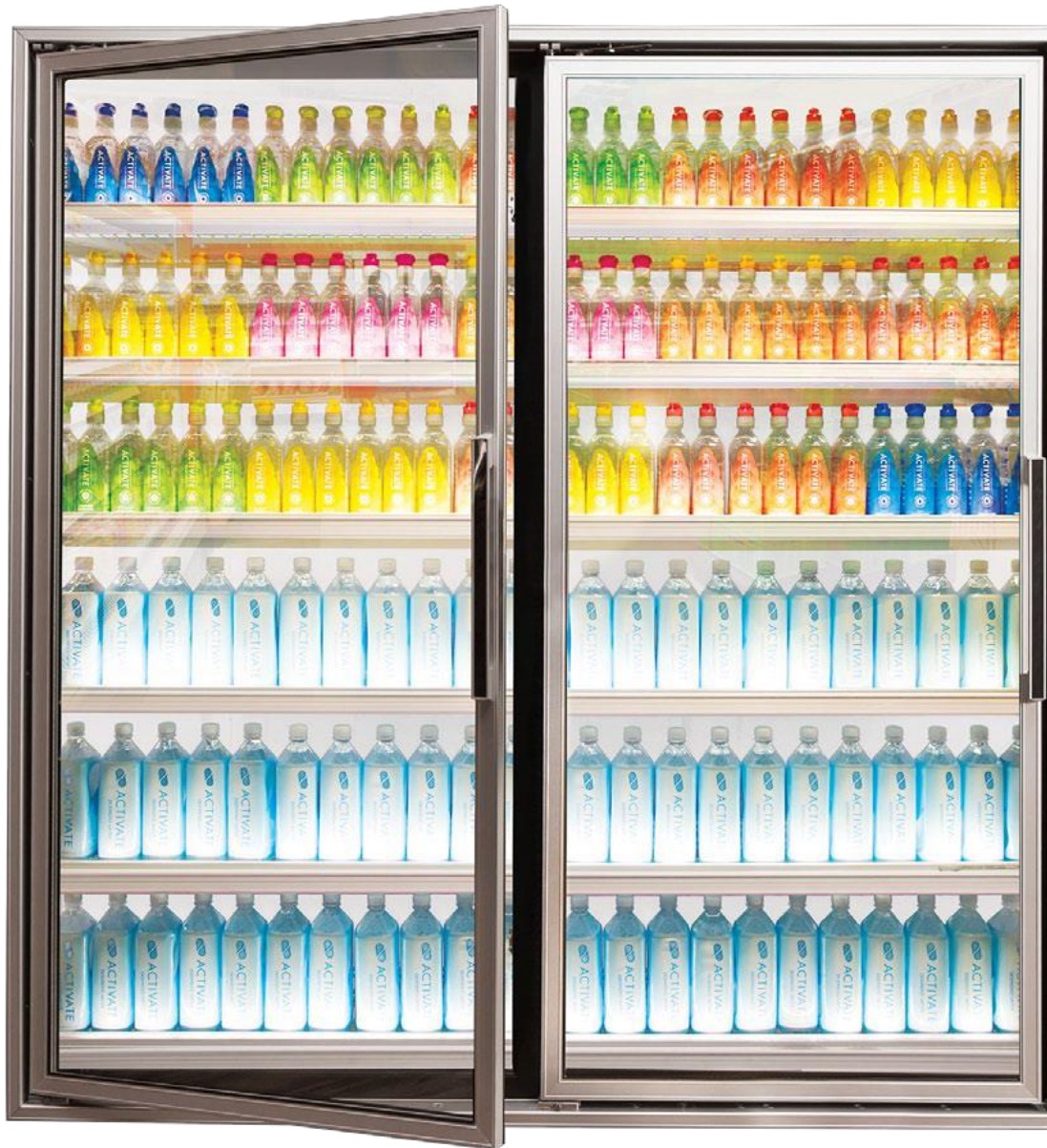


Service & Installation Instructions



Model 401 & 403 Pass-Thru Door and Frame

99-21972-S001
Rev. C, 2022

Anthony Locations

North America Locations

Sylmar, CA

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Sylmar, CA 91342

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Canada : (800) 336-8825

Fax : (818) 365-2441

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Madison, GA 30650

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Phone: +86 216 284 8855

Fax: +86 216 284 9513

Safety and Warnings

FOR YOUR SAFETY

Read and observe all **CAUTIONS** and **WARNINGS** shown throughout these instructions.

While performing installations described; gloves, safety glasses or goggles should be worn.



Prepare Electrical Wiring

Electrical requirements:

This appliance must be supplied with 120V, 60 Hz, and connected to an individual and properly grounded branch circuit, protected by a 15 or 20 ampere circuit breaker or time delay fuse.



Grounding Instructions - Cable Direct

This lighting system must be connected to a grounded metal, permanent wiring system, or an equipment grounding connector must be run with the system conductors and be connected to the equipment grounding terminal or lead on the lighting fixture.



BEFORE YOU BEGIN

Read instructions completely and carefully.



WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRICAL SHOCK OR INJURY, OBSERVE THE FOLLOWING:

1. Use this unit in the manner intended by the manufacturer.
2. Before servicing or altering, switch power off.



For use inside a commercial refrigeration case with packaged foods only.

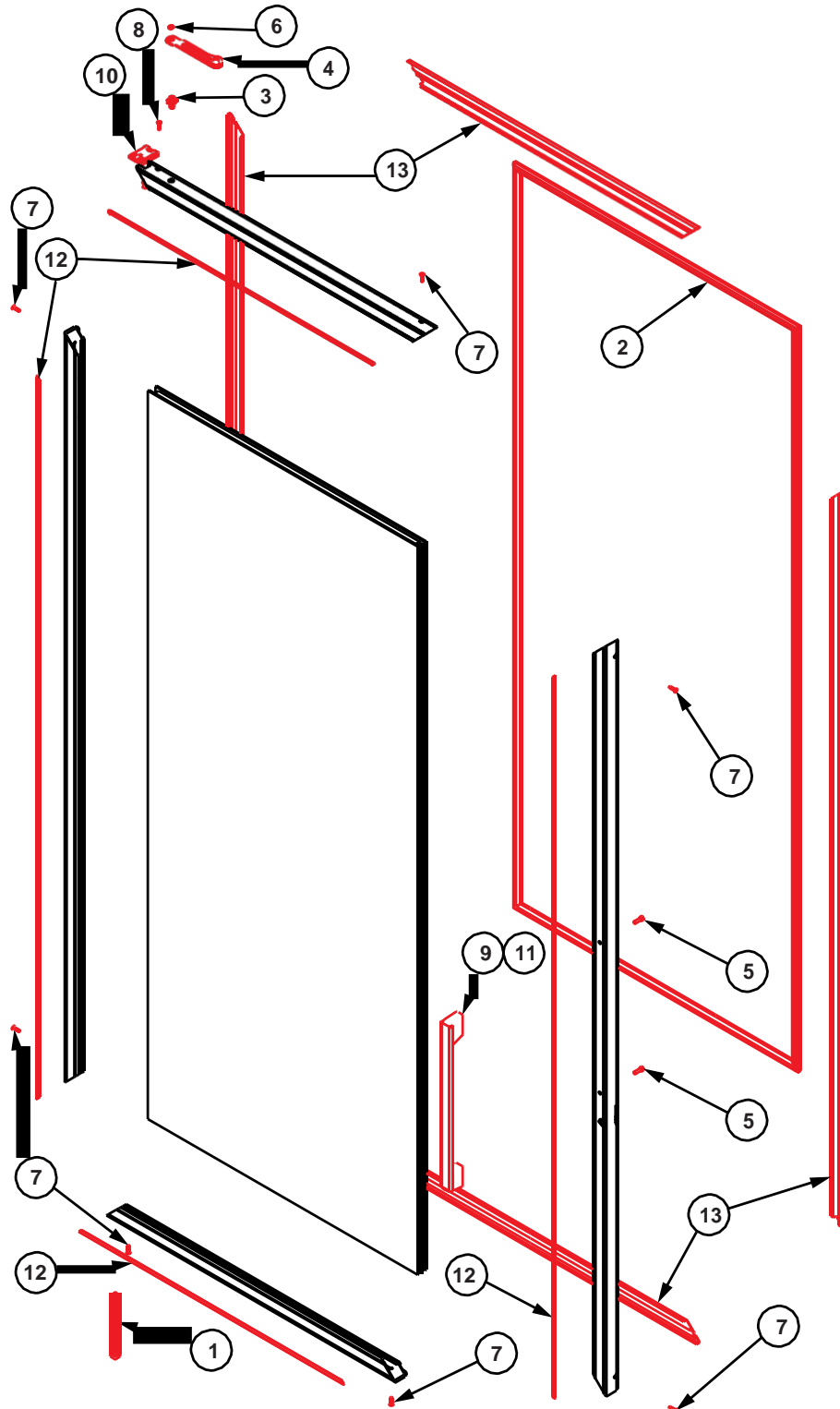
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Model 401/403 Service & Installation

Model 401 Door Replacement Parts Placement

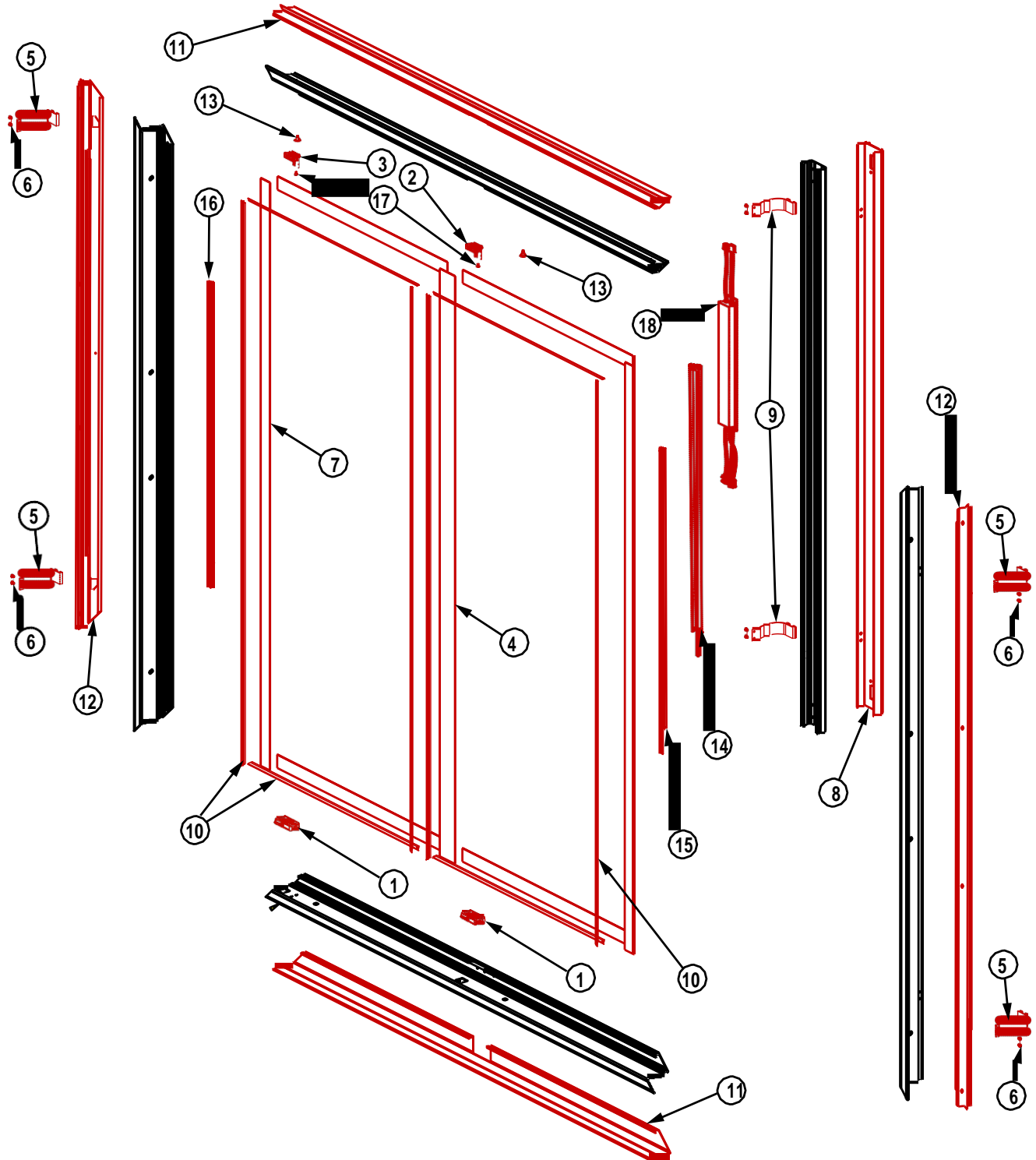


Model 401 Door Exploded Diagram

Model 401 Door Replacement Parts Table

Item #	Part #	Description
1	02-10308-0007	Torque Rod Assembly
2	02-14799-00XX	401 Door Gasket & Magnet Assembly
3	40-21826-0000	401 Pivot Hold Open Stud
4	15-21930-0000	401 Hold Open Arm
5	40-10946-7008	Handle Screw
6	40-10590-2002	Retainer Ring, Gold
7	40-12288-1008	Corner Piece Screw
8	40-12665-9002	Zinc TT PPH Screw, 6-32 x 3/16, Green
9	45-13595-0000	Trimline Handle Assembly
10	60-12723-0003	Hinge Pin w/Coupler Plug Assembly
11	45-11876-000X	Slimline Handle
12	20-15203-0000	Vinyl Glazing
13	20-15277-0000	Door Cover

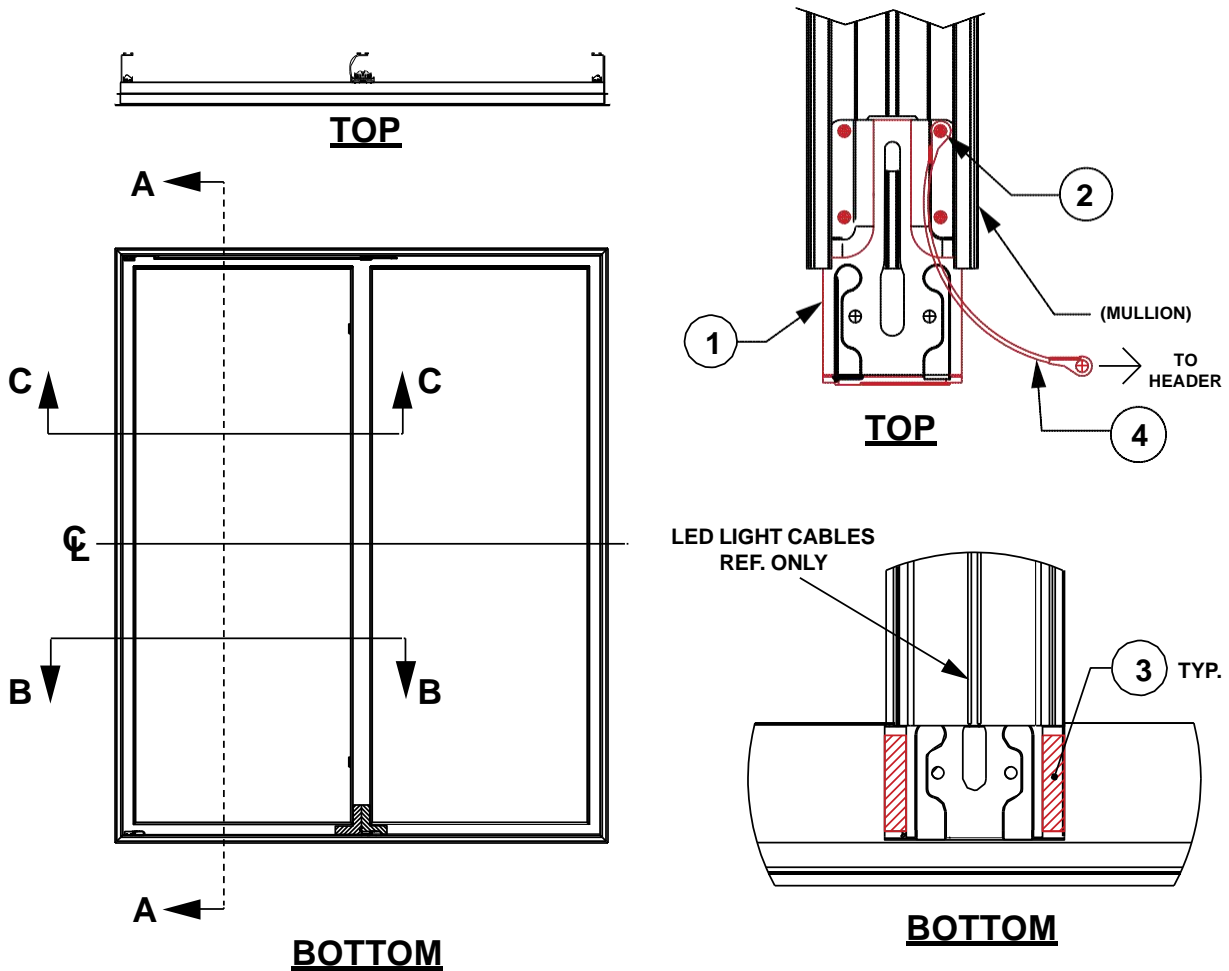
Model 401 Frame Replaceable Parts Placement



Model 401 Frame Exploded Diagram

Model 401 Frame Replaceable Parts Table

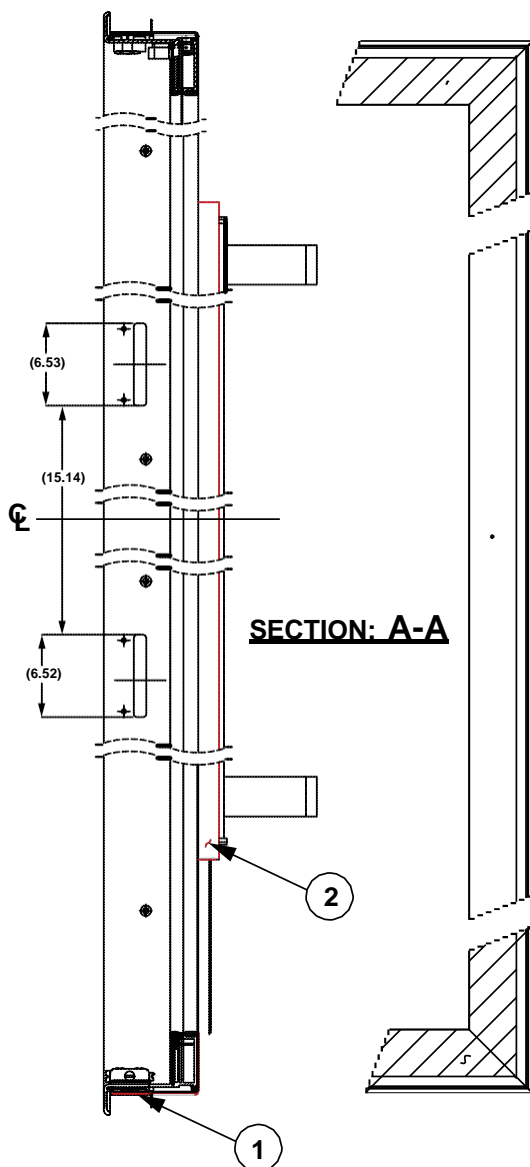
Item #	Part #	Description
1	02-10568-0001	Torque Master Assembly
2	60-12376-0001	Single Station Socket Connection (Left)
3	60-12376-0002	Single Station Socket Connection (Right)
4	15-21989-0000	Center Mullion Contact Plate
5	11-12868-0001	End Mullion Post Bracket
6	40-13723-1006	Zinc TAP 1/4ACF Screw, 10-24 x 7/16
7	15-12520-2025	F /L Plate, Black
8	20-12640-0000	Center Mullion Cover
9	11-10602-0001	Center Mullion Post Bracket, 1-1/4"
10	20-20109-10XX	Frame & Mullion Retainer
11	20-12512-0000	Frame Perimeter Sill/Header Cover
12	20-12512-0090	End Mullion Cover
13	40-22032-0000	Hold Open Bolt, 1/4-28
14	60-21817-0002	Center LED Assembly, 4000K, 60"
15	60-21818-0002	Left End LED Assembly, 4000K, 60"
16	60-21818-1002	Right End LED Assembly, 4000K, 60"
17	40-12822-1003	Zinc TAP II PPH Screw, 8-32 x 1/4
18	60-19910-0002	Driver, 24V/100W



Model 401 Frame w/Top & Bottom Replacement Parts

Model 401 Frame w/Top & Bottom Replacement Parts Table

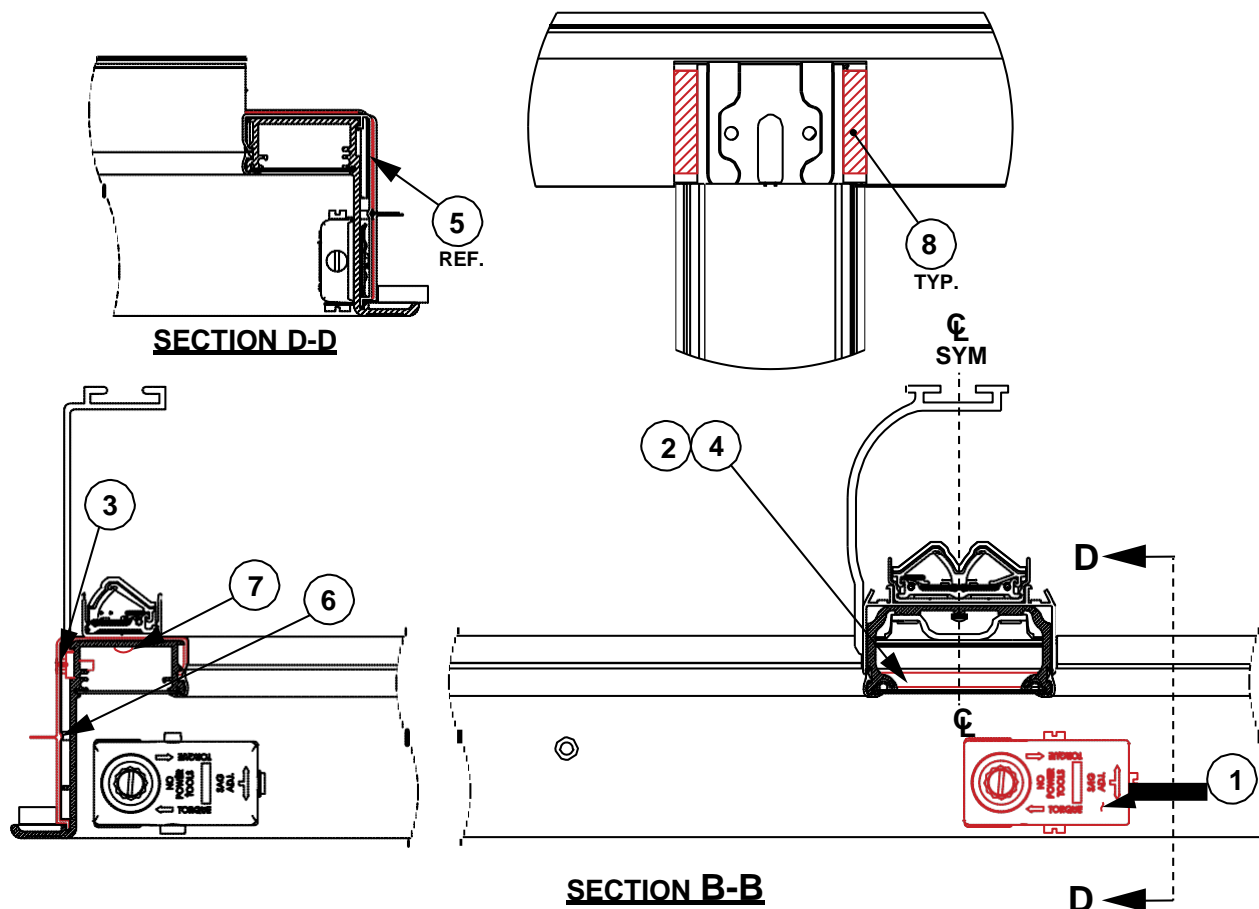
Item #	Part #	Description
1	15-16435-0001	FLR Mullion Bracket
2	40-12665-9002	Zinc TT PPH Screw, 6-32 x 3/16, Green
3	02-13989-5001	Offset Strike Plate Assembly
4	60-12237-0007	12" Ground Jumper Assembly w/#10 LK STR



Model 401 Frame Section A Replacement Parts

Model 401 Frame Section A Replacement Parts Table

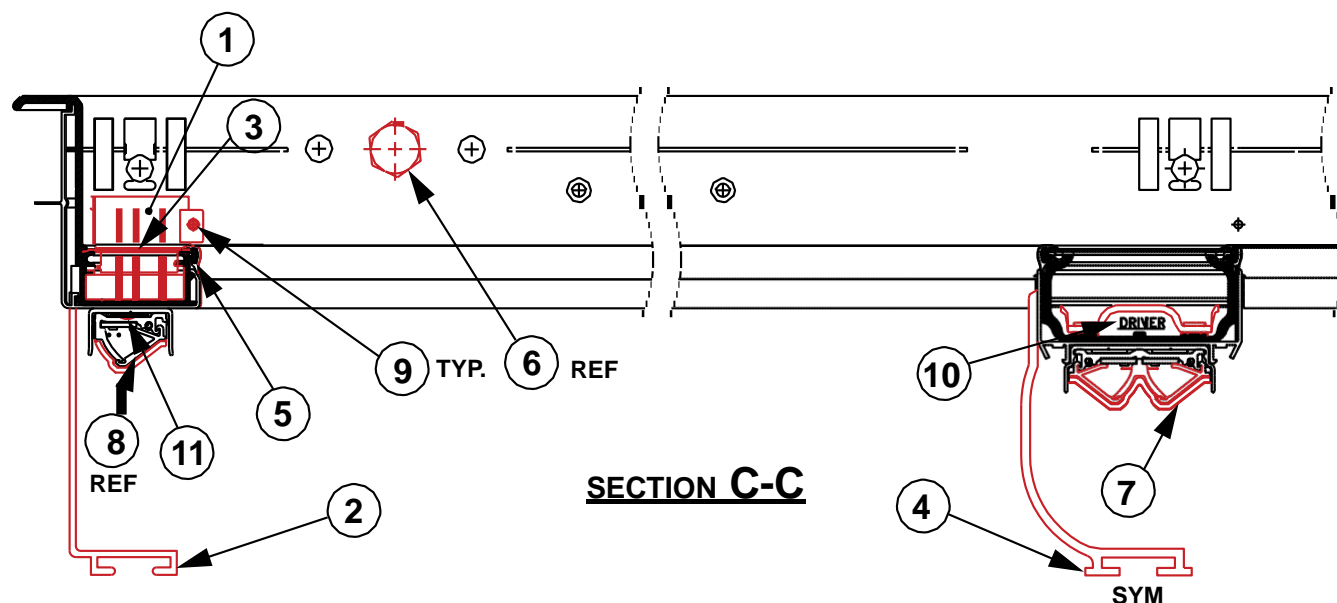
Item #	Part #	Description
1	20-12512-0000	Frame Perimeter Sill/Header Cover
2	60-21818-0002	Left End LED Assembly, 4000K, 60"



Model 401 Frame Section B Replaceable Parts

Model 401 Frame Section B Replaceable Parts Table

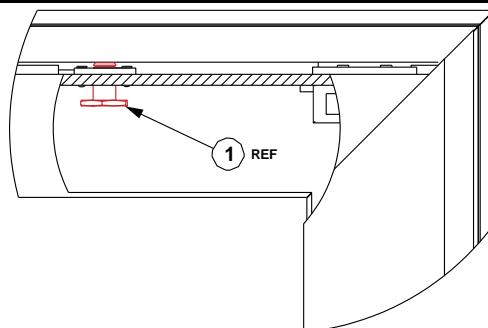
Item #	Part #	Description
1	02-10568-0001	Torque Master Assembly
2	15-21989-0000	401 Center Mullion Contact Plate Fab
3	40-13723-1006	Zinc TAP1/4ACF Screw, 10-24 x 7/16
4	15-12520-2016	Center Plate, 2.515 x 73.75, Black
5	20-12512-0000	101X Frame Perimeter Sill/Header Cover Fab
6	20-12512-0090	End Mullion Cover Fab
7	40-12665-9002	Zinc TT PPH Screw, 6-32 x 3/16, Green
8	02-13989-5001	Offset Strike Plate Assembly



Model 401 Frame Section C Replaceable Parts

Model 401 Frame Section C Replaceable Parts Table

Item #	Part #	Description
1	60-12376-0001	Single Station Socket Connection (Left)
2	11-12868-0001	End Mullion Post Bracket
3	15-12520-2025	F /L Plate, Black
4	11-10602-0001	Center Mullion Post Bracket
5	20-20109-10XX	Frame & Mullion Retainer Extrusion
6	40-22032-0000	Hold Open Bolt
7	60-21817-0002	Center LED Assembly, 4000K, 60"
8	60-21818-0002	Left End LED Assembly, 4000K, 60"
9	40-12822-1003	Zinc TAP II PPH Screw, 8-32 x 1/4
10	60-19910-0002	Driver, 24V/100W
11	40-12665-3003	Zinc TPPI PPH Screw, 6-32 x 1/4, Black

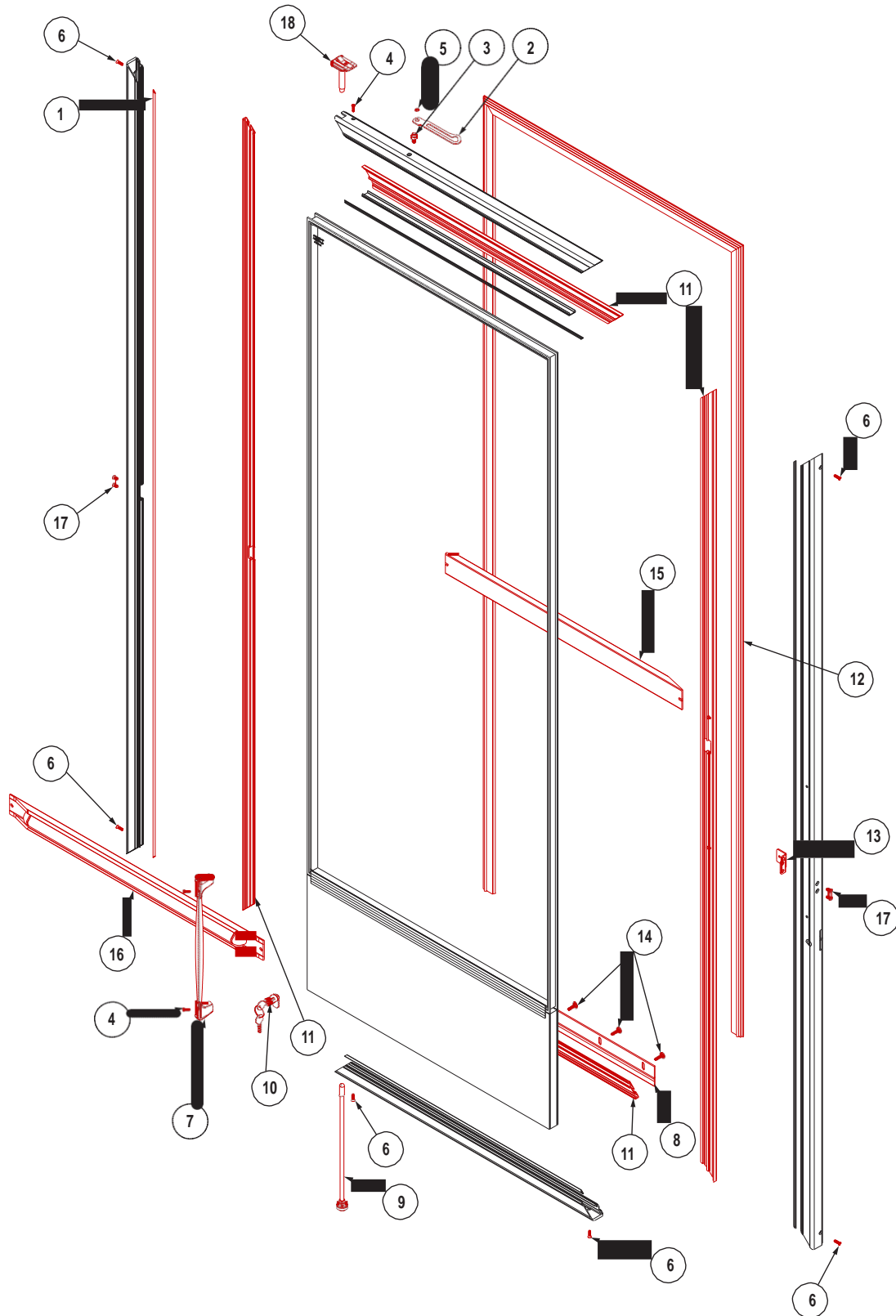


Model 401 Frame Section Other Replacement Parts

Model 401 Frame Section Other Replacement Parts Table

Item #	Part #	Description
1	40-22032-0000	Hold Open Bolt

Model 403 Pass-Thru Door Parts Placement

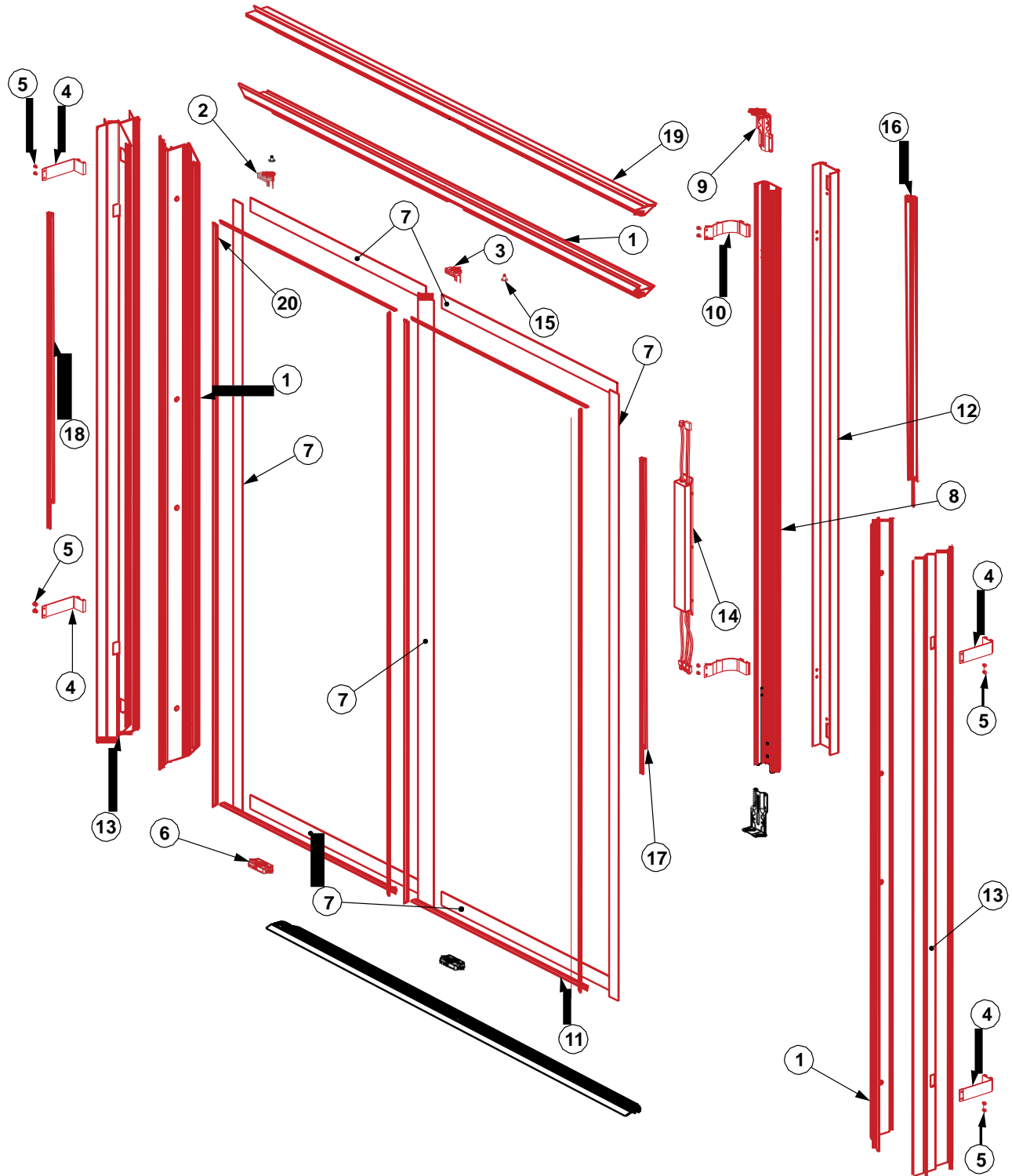


Model 403 Pass-Thru Door Exploded Diagram

Model 403 Pass-Thru Door Parts Table

Item #	Part #	Description
1	20-15203-0000	101B/401B/1KDB Vinyl Glazing Extrusion
2	15-21930-0001	401 Left Hold Open Arm
3	40-21826-0000	401 Pivot Hold Open Stud
4	40-12665-9002	Zinc TT PPH Screw, 6-32 x 3/16, Green
5	40-10590-2002	Retainer Ring, Gold
6	40-12288-1008	Zinc PFH-SPCL Screw, 8-32 x 5/8
7	45-13595-0000	Trimline Handle Assembly
8	20-11435-F000	Wipe FL Pass-Thru Door Seal Fab
9	02-10308-0007	Torque Rod Assembly
10	40-12013-0001	Cylinder Lock Assembly
11	20-15277-F000	401B Door Cover Fab
12	02-18747-000X	403B Pass-Thru Gasket & Magnet Assembly
13	15-15286-0001	101B/103B Bumper Bracket
14	40-11117-1011	Zinc Sems Autobody Oval Screw, 8 x 1
15	04-16882-XXXX	101B/401B Inside Bumper Bar Option
16	04-16883-XXXX	101B/401B Outside Bumper Bar Option
17	40-10998-1005	Zinc PFH Screw, 10-32 x 3/8
18	60-12723-0003	Hinge Pin w/Coupler Plug Assembly

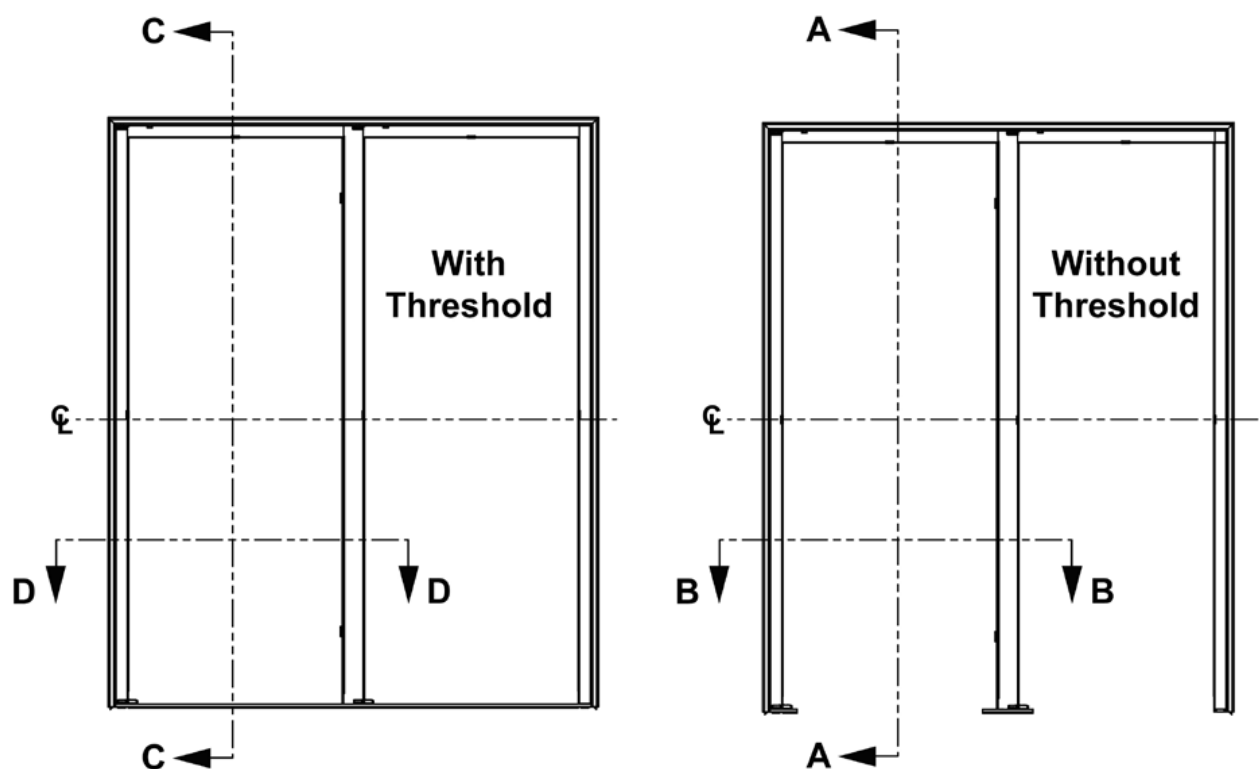
Model 403 Pass-Thru Frame Replacement Parts Placement



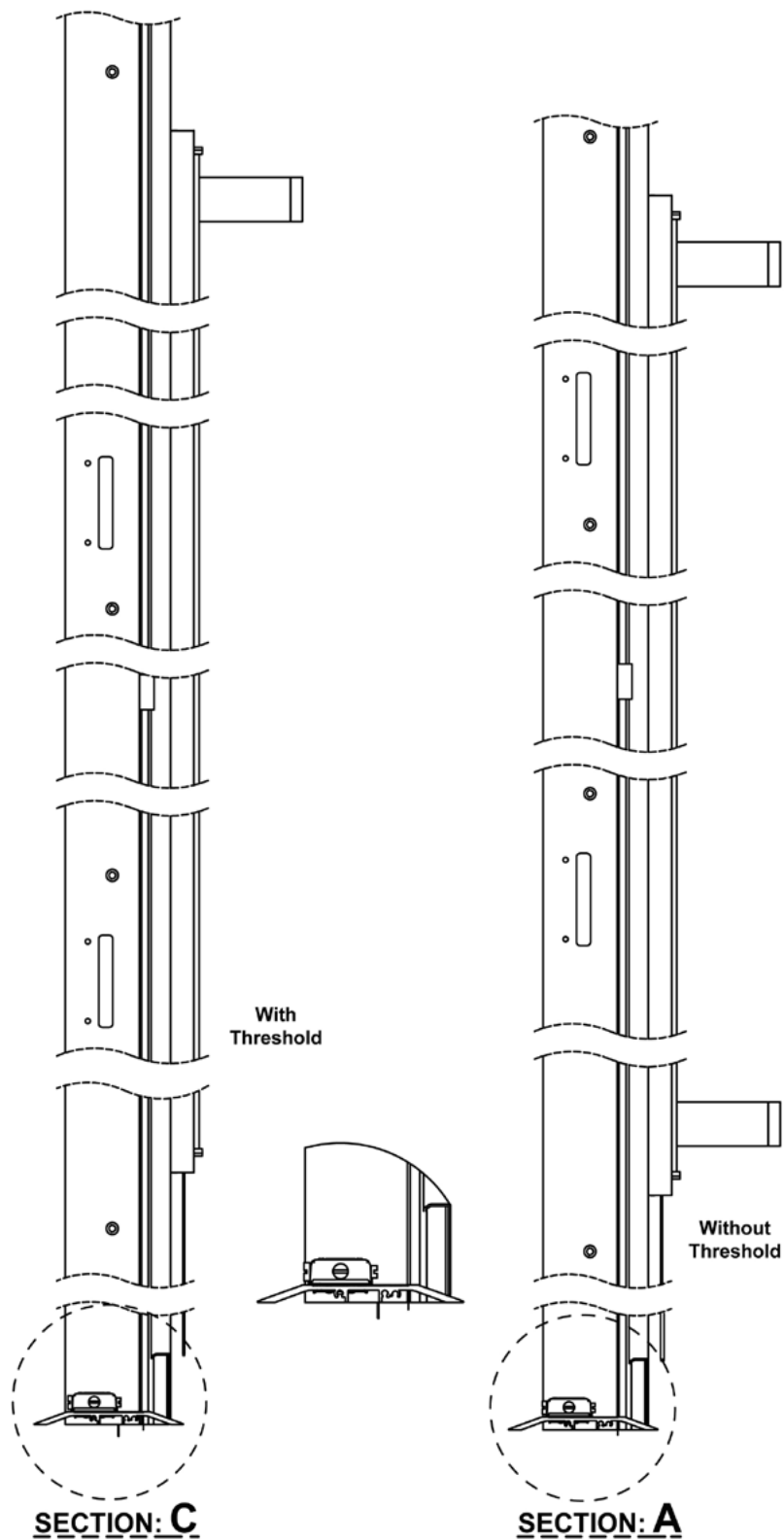
Model 403 Pass-Thru Frame Exploded Diagram

Model 403 Pass-Thru Frame Replacement Parts Table

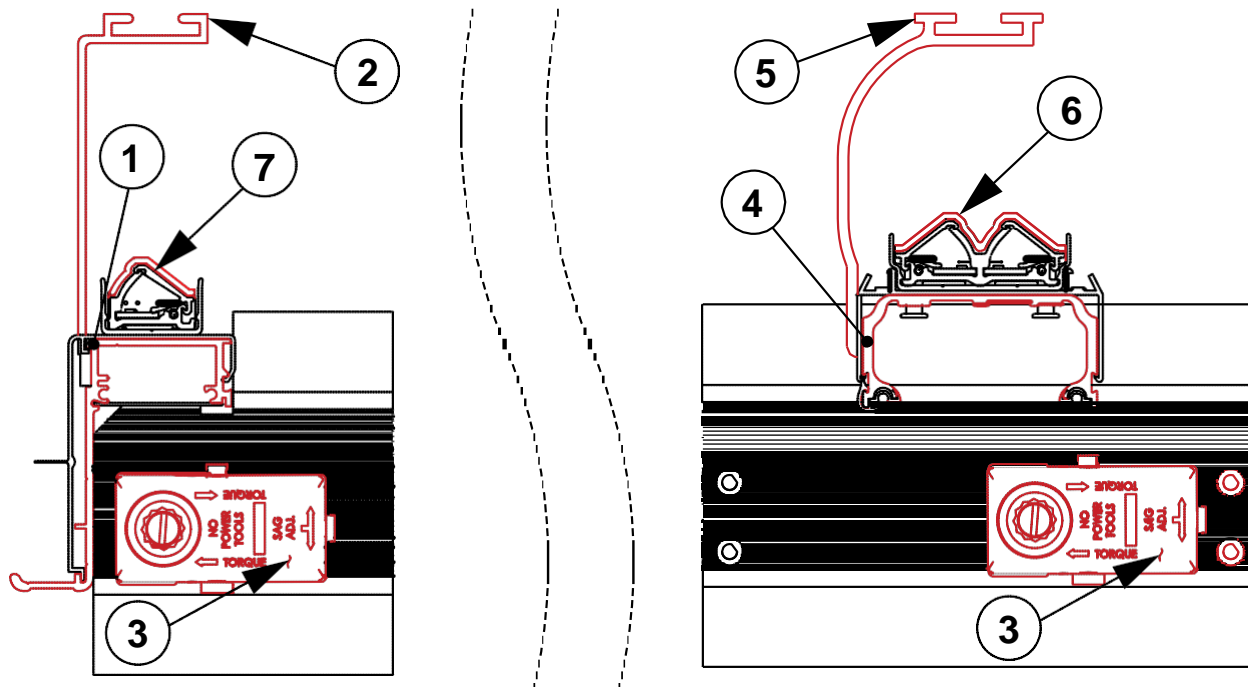
Item #	Part #	Description
1	11-21440-F000	401 End Frame Jamb Fab
2	60-12376-0001	101 Single Station Socket Connection, Left, Black
3	60-12376-0002	101 Single Station Socket Connection, Right, Black
4	11-12868-0000	101 Mullion End Post Bracket Fab, x2
5	40-13723-1004	TAP 1/4ACF HWH Screw, 10-24 x 5/16
6	02-10568-0000	Torque Master Assembly
7	15-12520-X0XX	End Plate, Black, 1.357
8	11-21441-F000	401 Anthony Lighting Center Mullion Fab
9	15-16435-0000	FLR Mullion Bracket
10	11-10602-0001	Center Mullion Post Bracket, 1-1/4"
11	20-20109-10XX	101X Low Profile Frame & Mullion Retainer Extrusion
12	20-12640-F130	Center Mullion Cover Fab
13	20-12512-F090	End Mullion Cover Fab
14	60-19910-0002	Driver, 350MA, 55W, UL
15	40-22032-0000	401 Hold Open Bolt, 1/4-28
16	60-21817-0002	401 Center LED Assembly, 4000K, 60"
17	60-21818-0002	401 Left End LED Assembly, 4000K, 60"
18	60-21818-1002	401 Right End LED Assembly, 4000K, 60"
19	20-12512-F000	101X Frame Perimeter Sill/Header Cover Fab



Model 403 Pass-Thru Frame



Model 403 Pass-Thru Frame Section A & C

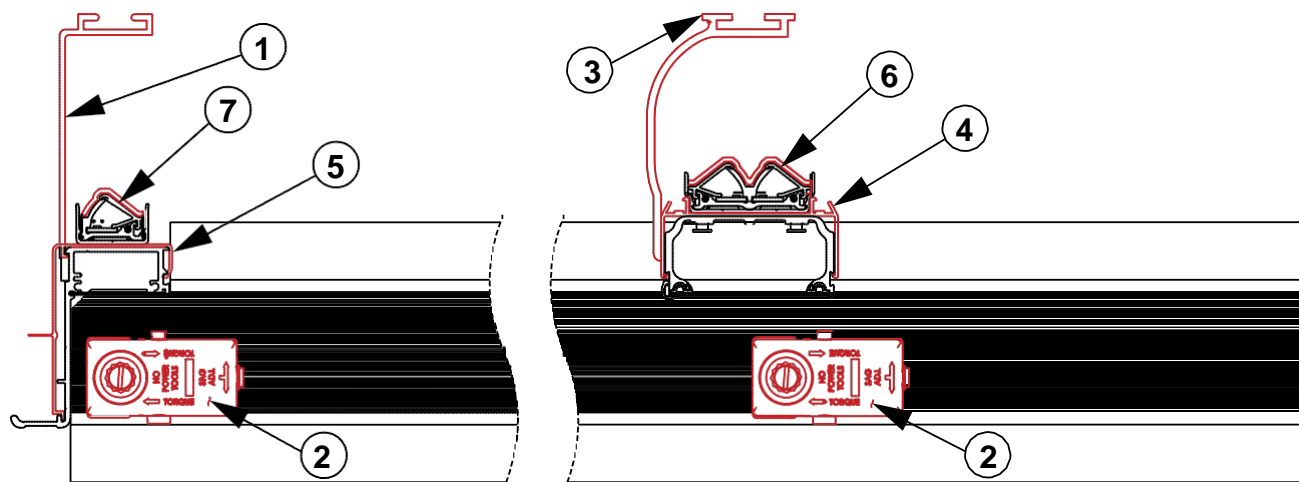


SECTION: B **Pass-Thru w/o Threshold**

Model 403 Pass-Thru Frame Section B Replacement Parts

Model 403 Frame Section B Replacement Parts Table

Item #	Part #	Description
1	11-21440-F000	401 End Frame Jamb Fab
2	11-12868-0000	101 Mullion End Post Bracket Fab, x2
3	02-10568-0000	Torque Master Assembly
4	11-21441-F000	401 Anthony Lighting Center Mullion Fab
5	11-10602-0001	Center Mullion Post Bracket, 1-1/4"
6	60-21817-0002	401 Center LED Assembly, 4000K, 60"
7	60-21818-0002	401 Left End LED Assembly, 4000K, 60"



SECTION: D Pass-Thru with Threshold

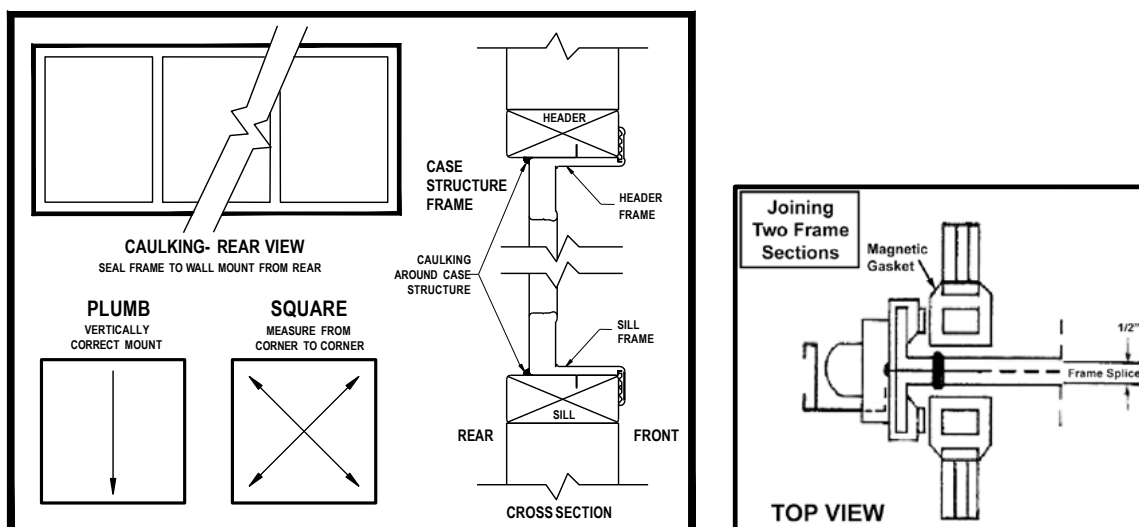
Model 403 Pass-Thru Frame Section D Replaceable Parts

Model 403 Frame Section D Replaceable Parts Table

Item #	Part #	Description
1	11-12868-0000	Mullion End Post Bracket
2	02-10568-0000	Torque Master Assembly
3	11-10602-0001	Center Mullion Post Bracket
4	20-12640-0090	Center Mullion Cover
5	20-12512-0090	End Mullion Cover
6	60-21817-0002	Center LED Assembly, 4000K, 60"
7	60-21818-0002	Left End LED Assembly, 4000K, 60"

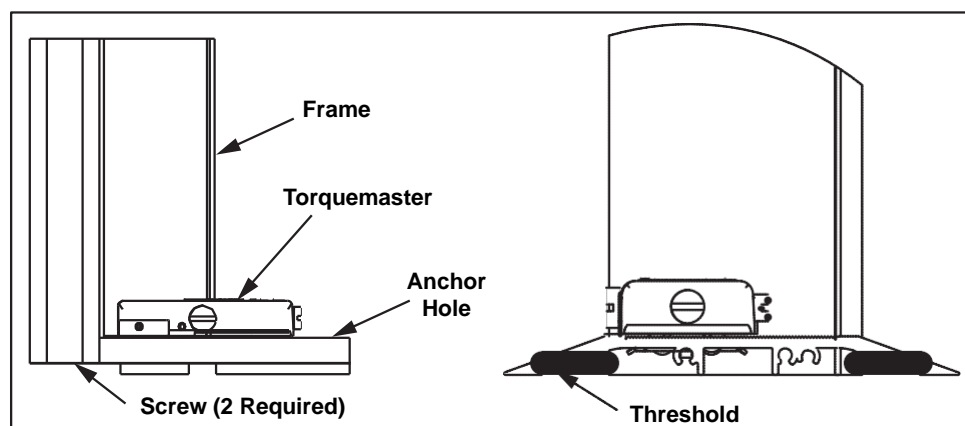
Model 401 Frame Installation

1. Read instructions completely before installing frames.
2. Openings must conform to net openings listed in Price Book or other.
3. Check size of finished frame to net opening.
4. Do not force frame into tight opening.
5. Check net opening for plumb and square as shown below. Sill must be level left to right and front to back.
 - a. Jambs, header and sill should be wood for a secure installation.
 - b. Anthony door frame needs a sill of at least 1-1/2" for proper installation.



Frame Installation

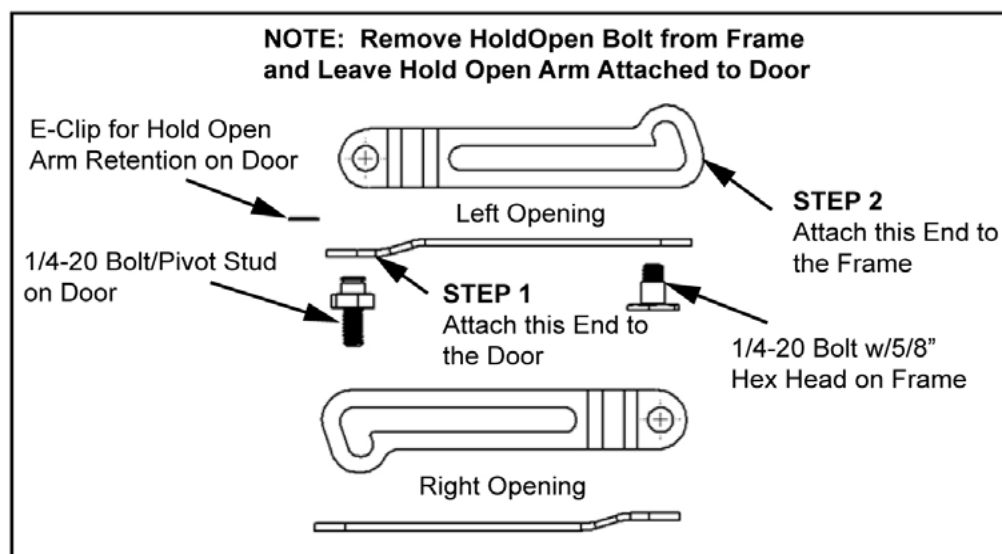
6. Set frame in opening. For safety, partially install wood screws into top of frame. Do not tighten. Torquemaster (silver rectangular box) goes at bottom of frame. Hinge pin to top of frame.



Pass-Thru Cross-Section (with/without Threshold)

7. Check frame for square as shown. Shim as necessary. Ensure that shims are placed as close to installation holes as possible. When shimming is necessary, shim top to bottom and/or left end of frame and right end of frame to maintain square of frame in opening.
8. From the inside of case, caulk all four sides of frame between frame and case opening, as shown above.
9. Starting with frame sill, install mounting screws and tighten. First do sides, then top. (Do not over-tighten top screws as this will bow frame.)
10. From inside the case, re-check caulking and re-caulk as necessary.
11. For joining frame sections without flanges on center section, or one end of left end and one of right end of frame, align top and bottom with end sections and join together with sex bolts provided.

Model 401 Door & Hold Open Installation



1. Hold-Open arm attachment is at the top of the door.
2. Align the door with the torque rod and insert it into the Torquemaster socket at the base of the door.
3. Torque during installation is not to exceed 80 in-lbs.



3. Engage the door with the hinge pin plug inserted into hinge pin plug receptacle at top of frame.



4. Push the door into the top of the frame with your thumb until the hinge pin plug snaps into place.
5. With the hold-open already attached to the door via a pivot stud, attach the other end to the frame through the hold-open bolt provided.

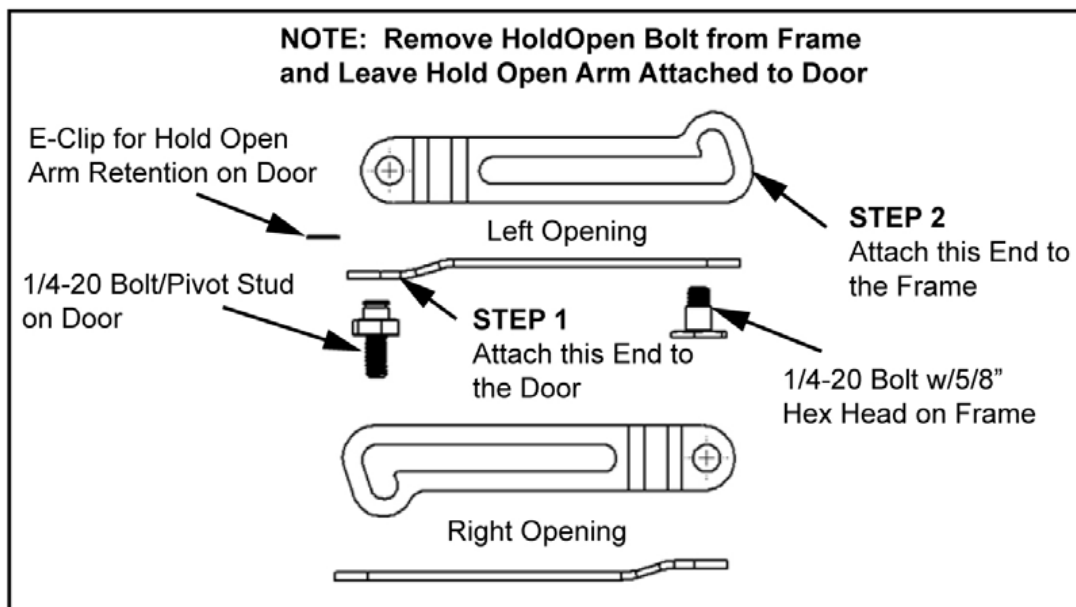


6. Adjust the closing force by turning the screw on the front of the Torquemaster with a flat-head screwdriver. Turn counter-clockwise to tighten, clockwise to loosen. **Over-adjustment will cause door to slam.**
7. If necessary to square door in the frame opening, turn screw on the torquemaster (marked SAG ADJ) with a flat-head screwdriver.

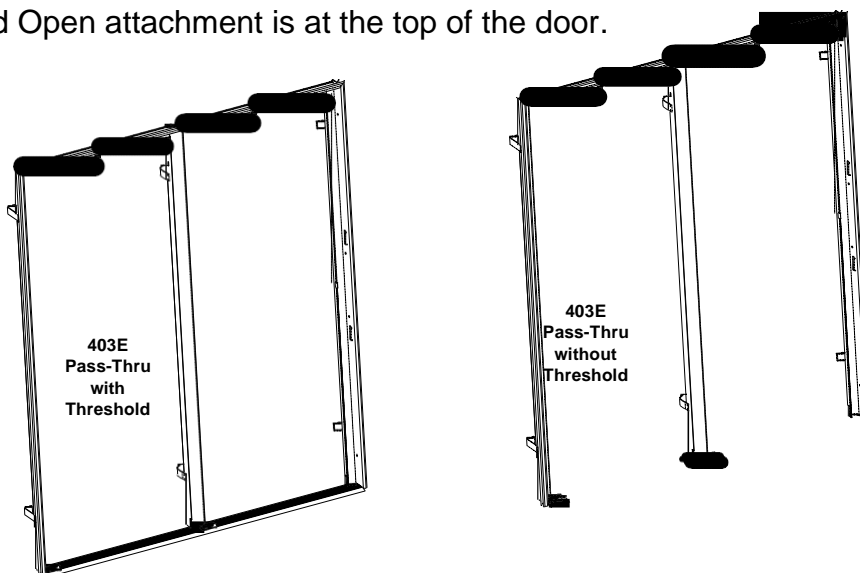


8. Do not use power tools for installation or removal.

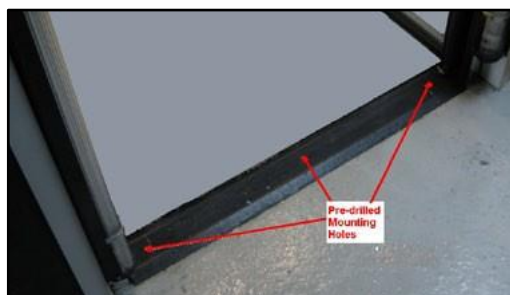
Model 403 Pass-Thru Door & Hold Open Installation



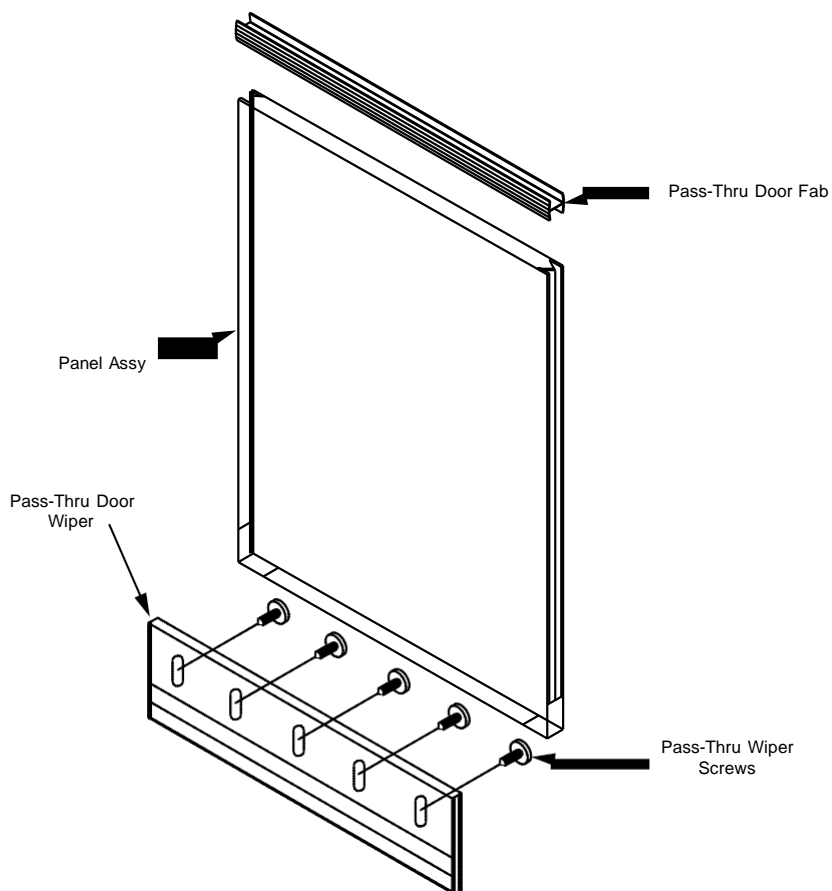
1. Torque during installation is not to exceed 80 in-lbs.
2. Hold Open attachment is at the top of the door.



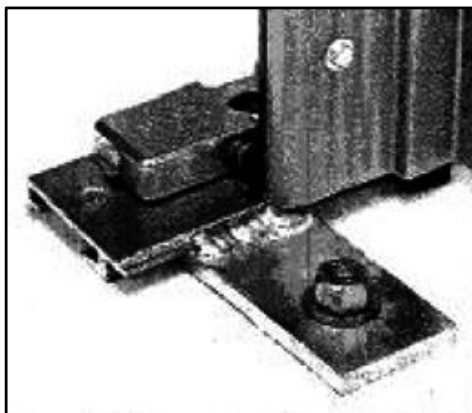
3. When no threshold is desired, drill and lag on pre-drilled mounting holes only.



4. Install door. Refer to previous pages on 401 Door Installation.
5. With door in closed position (with and w/o threshold) adjust vinyl floor wiper seal to fit flush with floor or slab.



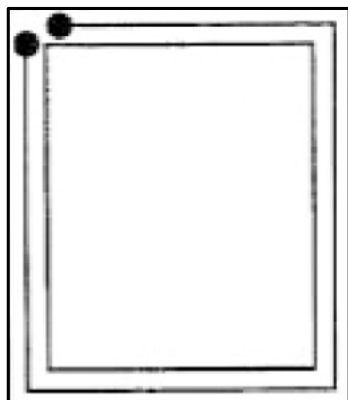
6. For no threshold, pass-thru frames are equipped with a base plate and a floor anchor bolt.



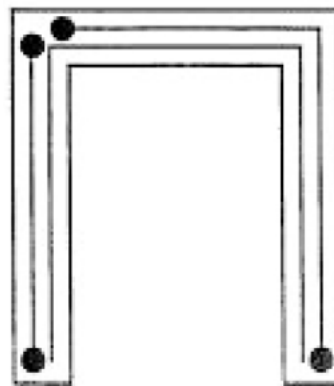
Model 403 Pass-Thru Door Identification

1. Model 403: Top 1/3 glass, bottom 2/3 solid panel or all glass or all solid panel.

Model 403 Pass-Thru Wiring Schematics



With Threshold



Without Threshold

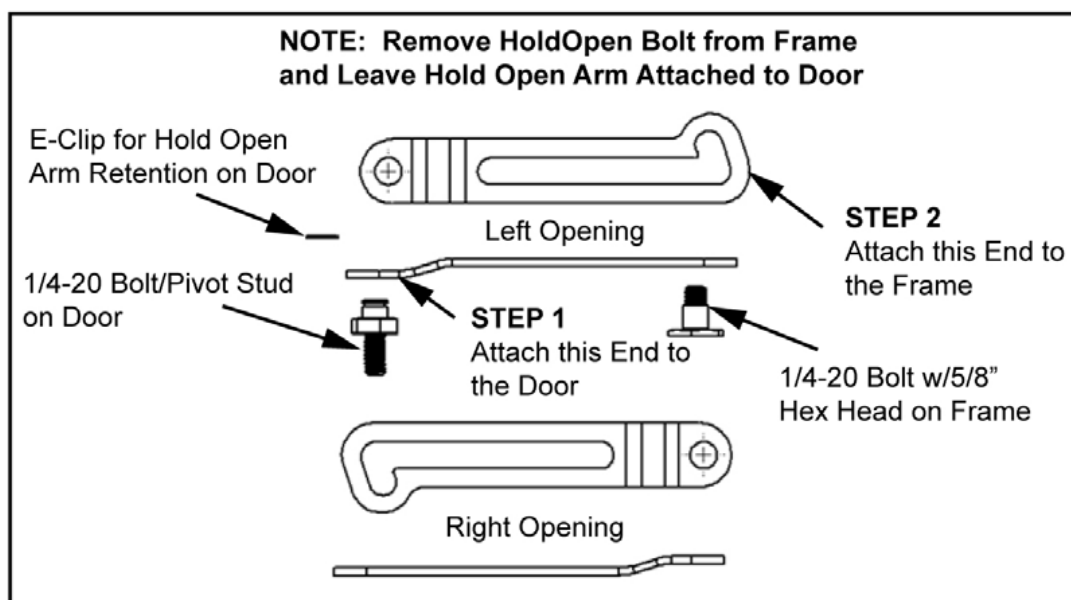
Door Removal Instruction

1. Release tension on Torquemaster by turning front screw clockwise.



2. On **Models 401 & 403**: Open door and lock into hold-open position. Using a flat-head screwdriver, go to the top and remove the hold-open bolt from the frame by turning the bolt hex head counter-clockwise.





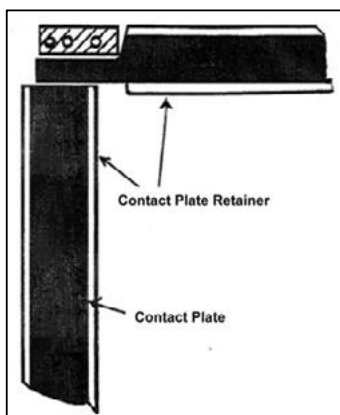
3. Remove hinge pin plug from frame by inserting needle-nose pliers into hinge pin plug 1/8" hole. Compress and pull hinge pin plug away from frame.



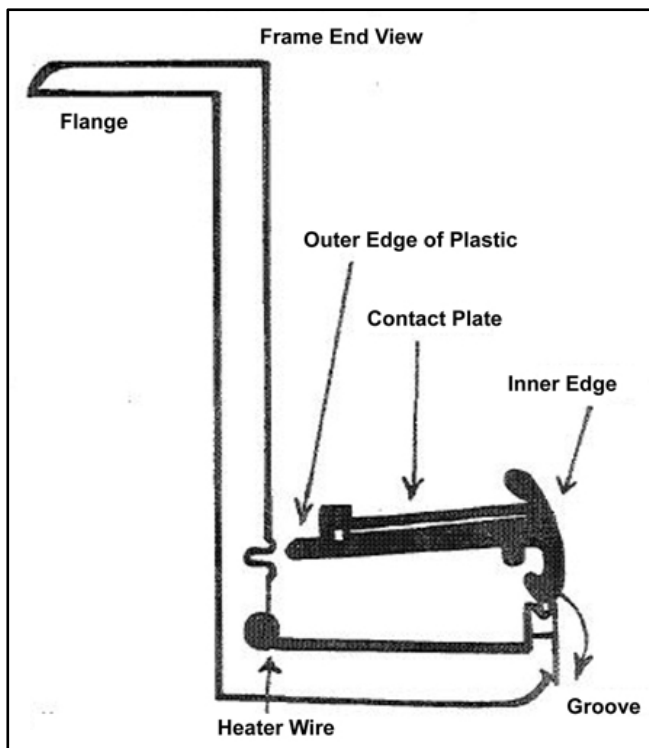
4. Lift door out of Torquemaster. Lean door on its side against a stable surface.
5. **Do not use power tools for installation or removal.**
6. Torque during installation is not to exceed 80 in-lbs.

Contact Plate Retainer Installation

1. Insert contact plate into contact plate retainer plastic. Make sure parts line up correctly to heater receptacle on frame.



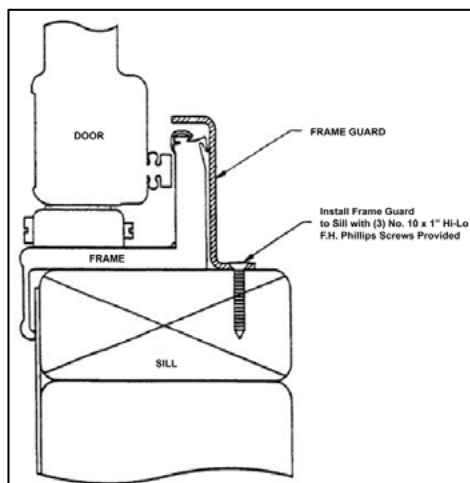
2. Insert new plastic retainer with correct plates on horizontal sections first, then vertical sections. Insert outer edge of plastic into groove in frame. Snap inner edge into grooves of inner edge of frame.



3. Work on 6" sections at a time. If you try to work on a larger area, plastic will not stay in place. Trim contact plates if necessary
4. Reverse instructions to replace.

Frame Sill Plastic Protector Installation

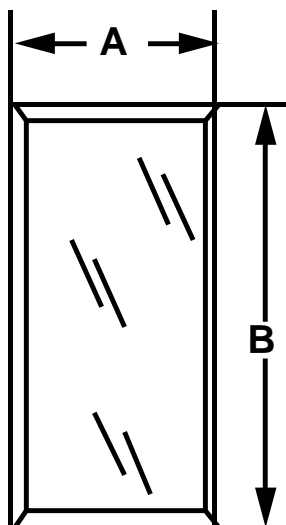
1. Set metal protector on sill inside of case, between clear opening of frame, with curved edge over bottom sill plastic.



2. Install protector to sill with three (3) No. 10 x 1" Hi-Lo Phillips screws provided into pre-drilled holes.

Ordering Replacement Doors

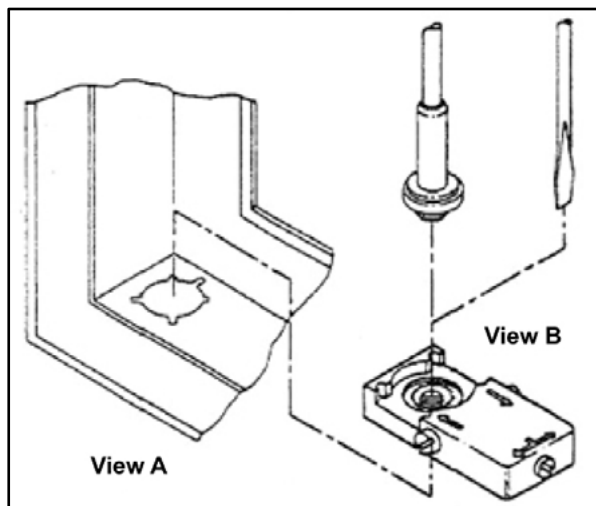
1. Specify outside dimensions of door measuring to the nearest 1/16".



2. With or without heaters?
3. Hinge swing?
4. Specify Model (pass-thru/standard)
5. Specify finish.
6. Specify any custom items in the original order.
7. Date of original order and/or Anthony confirmation/invoice number.
8. With or without locks?
9. Specify voltage.
10. **Pass-Thru Model 403:** With or without threshold? Specify 1/3 glass – 2/3 solid panel, or all glass, or all solid panel.

Torquemaster Replacement

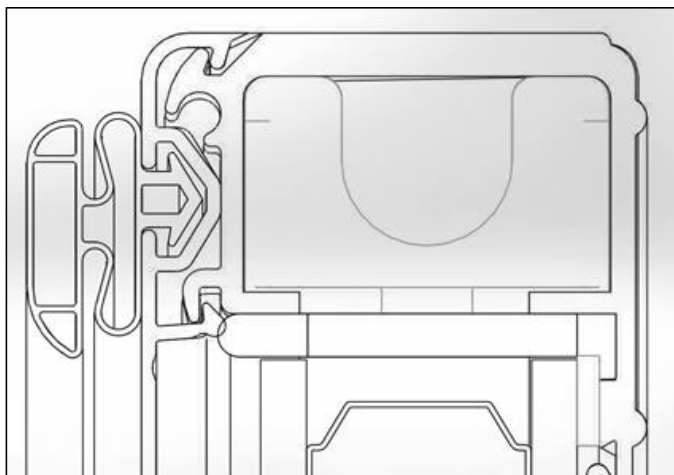
1. A Torquemaster is used on all standard production doors.
2. To remove, insert flat-head screwdriver into top center cutout in Torquemaster and turn screw 1/8 turn. If necessary, insert small flat-head screwdriver between edge of Torquemaster and frame, and gently pry up.



3. Reverse instructions to replace.

Door Gasket Replacement

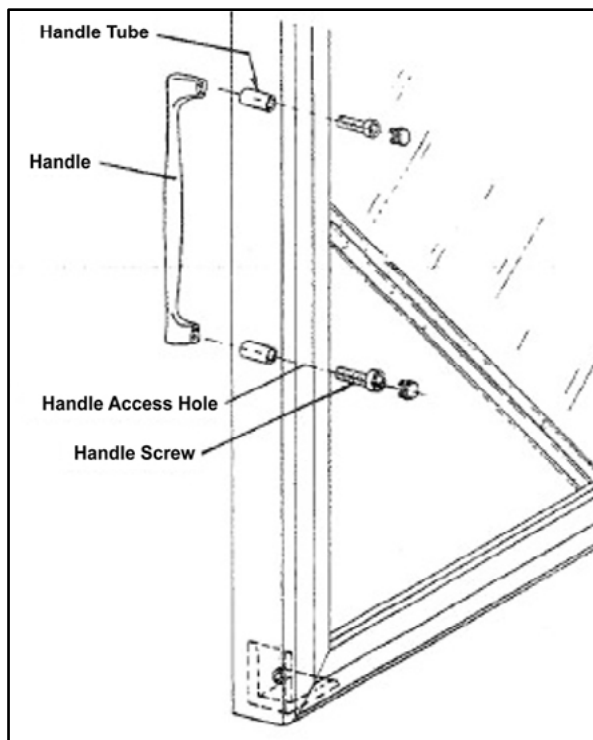
1. To remove, pull gasket straight out of groove between door rail and plastic cover.



2. To replace, start at bottom of door. Insert gasket into groove in both sides of door and slide gasket up to top of door. Tuck in all four corners with flat-head screwdriver.

Door Handle Replacement

1. Pull handle side rubber gasket away from plastic groove.



2. Insert 5/32" Allen wrench into access holes and remove screws.
3. Reverse instructions to replace.
4. Handle screws are contained in door frames with plastic tubes.

Access Plate Replacement

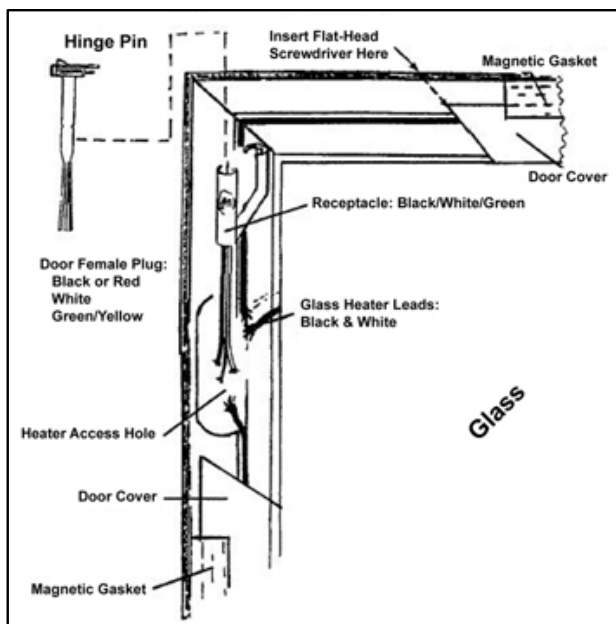
1. Access Plate is located on top hinge side of door.



2. Insert flat-head screwdriver under edge of cover and gently lift up.
3. To replace, snap plate into door extrusion.

Door Female Plug Replacement

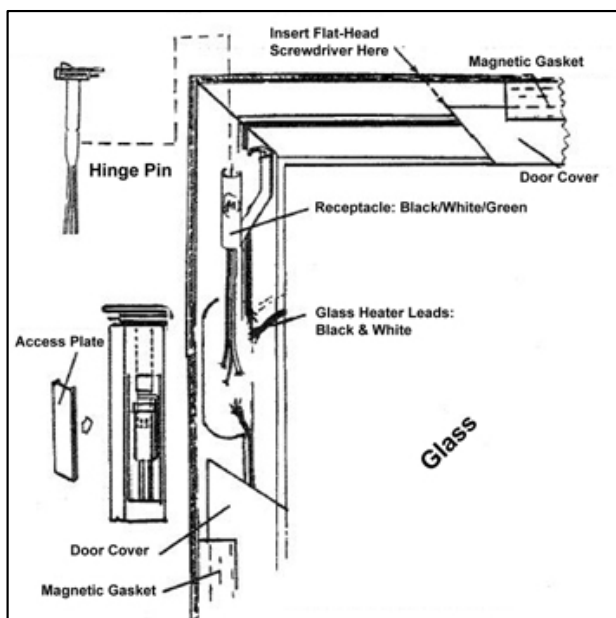
1. Remove door gasket and plastic.



2. Unsnap female receptacle from hinge pin and remove hinge pin out through top of door. Then pull receptacle out of access hole and cut lead wires to replace.
3. Rewire new female plug following color coded wires: Black or Red to Black or Red, White to White and Green/Yellow to ground.

Door Heater Replacement

1. Remove door gasket and plastic.



2. Unplug molded hinge pin plug at heater access hole and remove hinge pin out through top of door. Remove heater wire from perimeter of door.
3. Heater access hole is 7" down on hinge side. Cut solid lead wires to heater and pull heater out of aluminum groove in door rail. Unplug lead wires to heater.
4. To replace heater, lay heater in track around door and reconnect heater wires to lead wires.
5. Heater leads are Black or Red and White.
6. Receptacle wires are Black or Red; White and Green for ground.
7. If heated glass is used, cut Black and White lead wires from glass.
8. To replace glass heater leads, wire Black to Black and White to White.
9. To replace receptacle leads, wire Black or Red to Black, White to White and Green to ground.

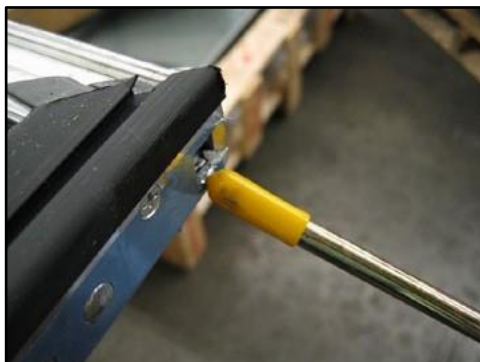
Hinge Pin Replacement

NOTE: See Door Female Plug Replacement for illustration.

1. If two-piece hinge pin and receptacle is used, remove gasket and plastic, unsnap hinge pin from receptacle and remove hinge pin. Pull receptacle out from heater access hole and cut or unplug lead wires. Lead wires will be Black or Red, White and Green/Yellow for ground.
2. Reverse instructions to replace.

Torque Rod Replacement

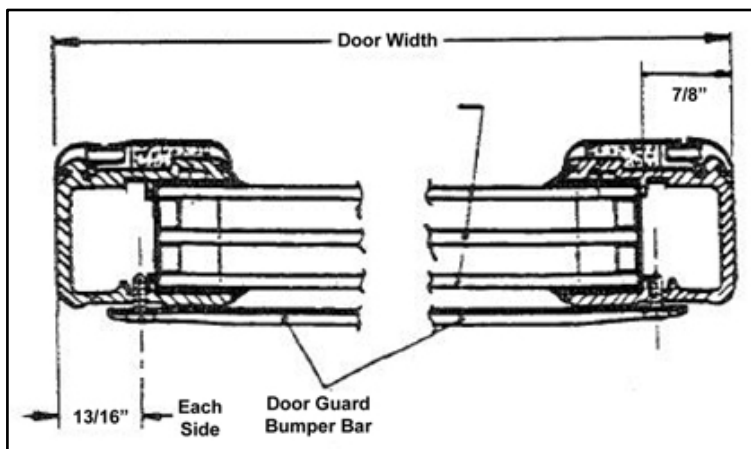
1. A tipless torque rod is used. Simply insert rod through bottom access hole in door rail and push up until rod engages into bottom torque shaft.



2. To remove, lay a flat-head screwdriver parallel to hinge rail, catch edge of bottom of torque rod shaft and tap out.

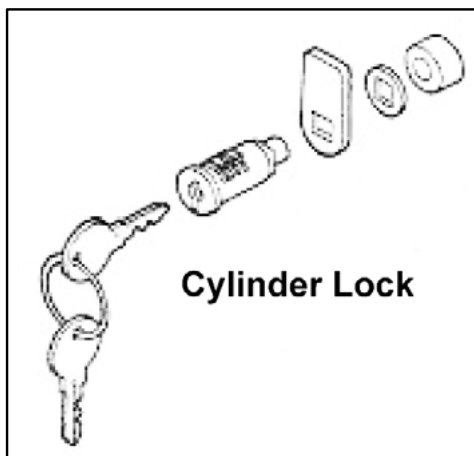
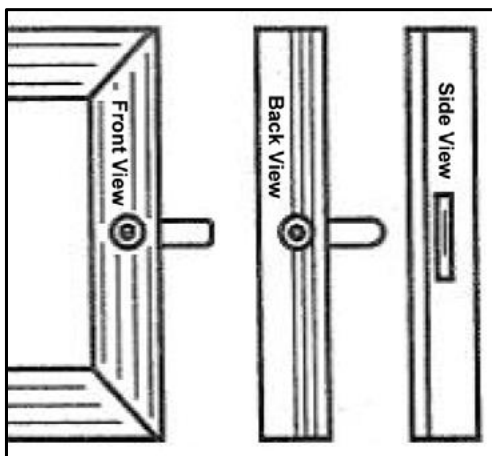
Front Bumper Bar Installation (Model 403)

1. Order door guards 1" smaller than actual door width..
2. Specify finish (Gold/Silver).

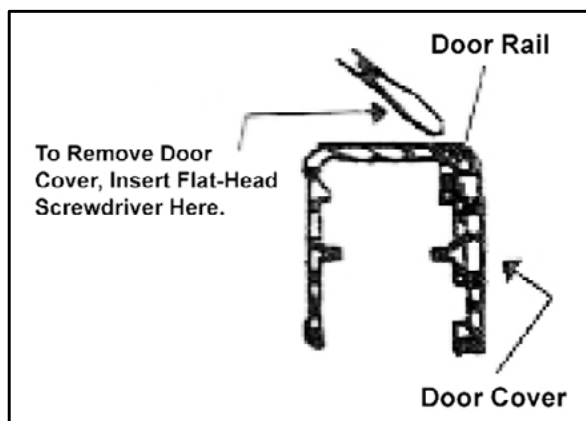


3. Anthony provides pre-drilled screw holes in bar. Customer must drill a #30 or 1/8" hole in door rail 13/16" in from each side of door rail.
4. Screws for mounting bar are self-tapping. Screws are not to exceed 3/8" length.
5. Mount bar at desired height to protect door glass.
6. Bumper bar instructions are for the front of door only. Rear bumper bars are available only for replacement of existing bars in field. (Rear bars are installed by factory only.)

Door Cylinder Lock Repair/Replacement



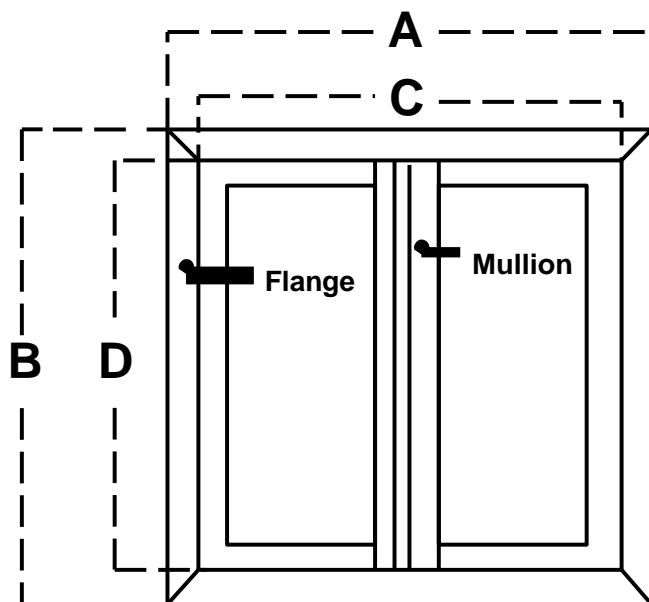
1. If lock arm is bent or damaged, remove door plastic from back of door.



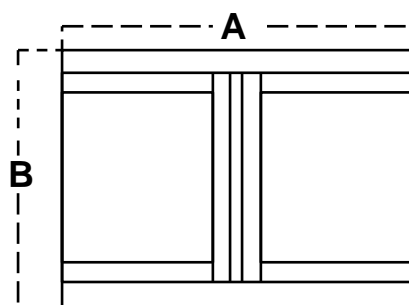
2. Insert Allen wrench in lock access hole and remove screw.
3. Pull washers out, lock arm and replace.
4. Reverse instructions to replace.
5. If cylinder lock is defective, follow instruction #2 above. Insert key into lock and pull lock out front of door.
6. Reverse instructions to replace.

Ordering Replacement Frames

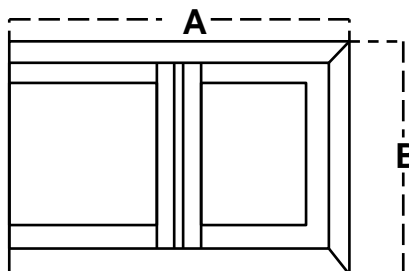
1. Specify outside tip-to-tip dimensions of frame. Measure to nearest 1/16"



A - Tip-to-Tip Width
B - Tip-to-Tip Height
C - Net Opening Width
D - Net opening Height



A - End-to-End Width
B - Tip-to-Tip Height



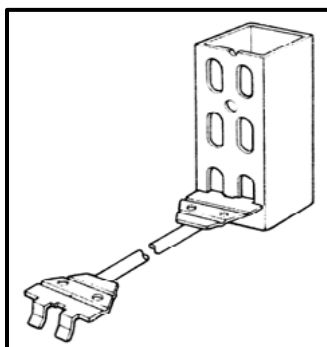
Right End Section Shown

A - Tip-to-End Width
B - Tip-to-Tip Height

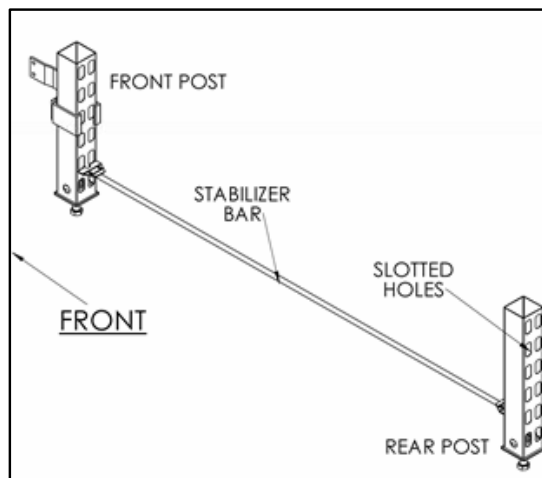
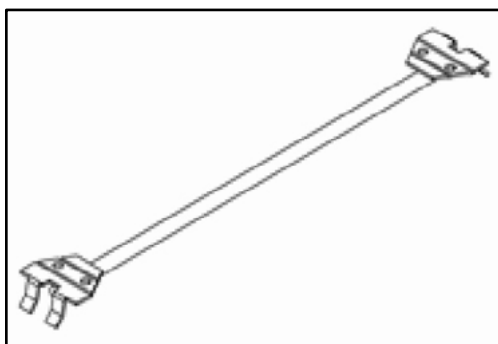
2. Specify date of original manufacture and/or Anthony confirmation/invoice number. (Original manufacture date is stamped on metal spacer bar between panes of glass on doors as shown above.)
3. Specify Model (pass-thru/standard)
4. Specify finish.
5. Specify left or right hinge swing.
6. With or without heaters?
7. With or without lights?
8. With or without locks?
9. Specify any custom items in the original order.
10. Specify voltage.
11. **Pass-Thru Frames:** With or without Threshold?

Four-Post Stabilizer Bar Installation

1. The four-post stabilizer bar is designed to help support the posts during installation and stabilize the system while in use.



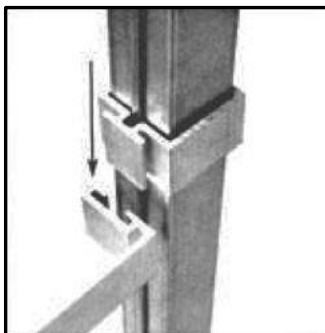
2. Insert the forked end of stabilizer bar into the elongated holes in post.



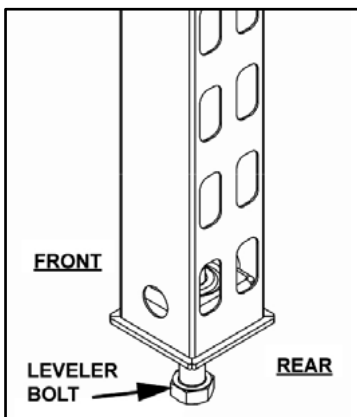
3. Install the post stabilizers on top and bottom of all posts, front to rear, before installing shelves.

Four-Post Shelf System Installation

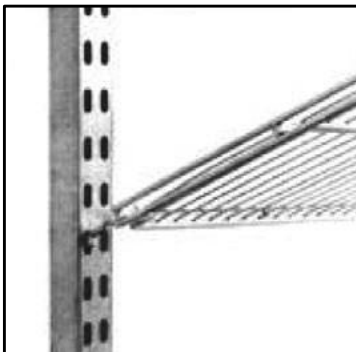
1. Attach post to door frame by inserting post key into frame retaining bracket.



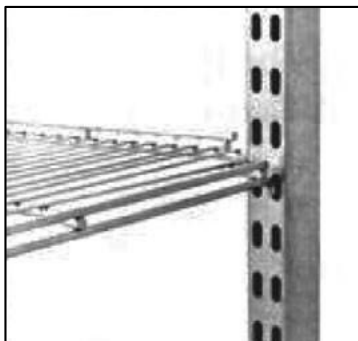
2. Before installing shelves, adjust all four posts to equal heights with leg leveling bolts at bottom of posts.



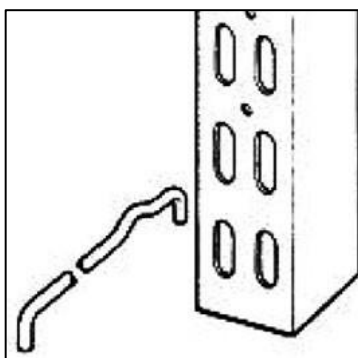
3. Insert front of shelf into front post at angle, then position rear shelf posts.



4. Drop rear of shelf down and pull back in slot on rear posts. Continue to add shelves behind each door, spacing for desired product merchandising.

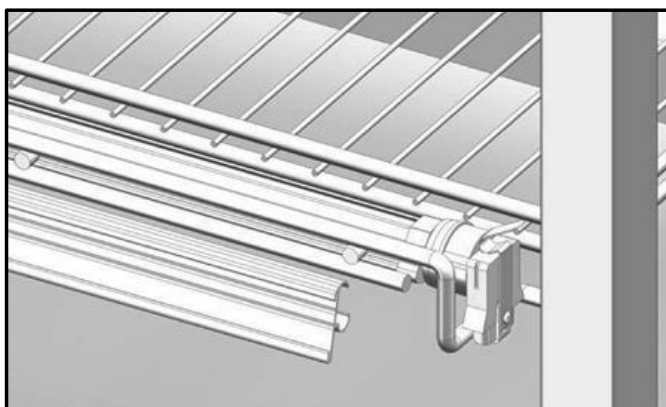


5. After installing shelves, adjust rear post leveling bolts to level. The Four-Post Shelving System is now ready for merchandising.
6. Install side product stops as desired.



Plastic Price Tag Molding Installation

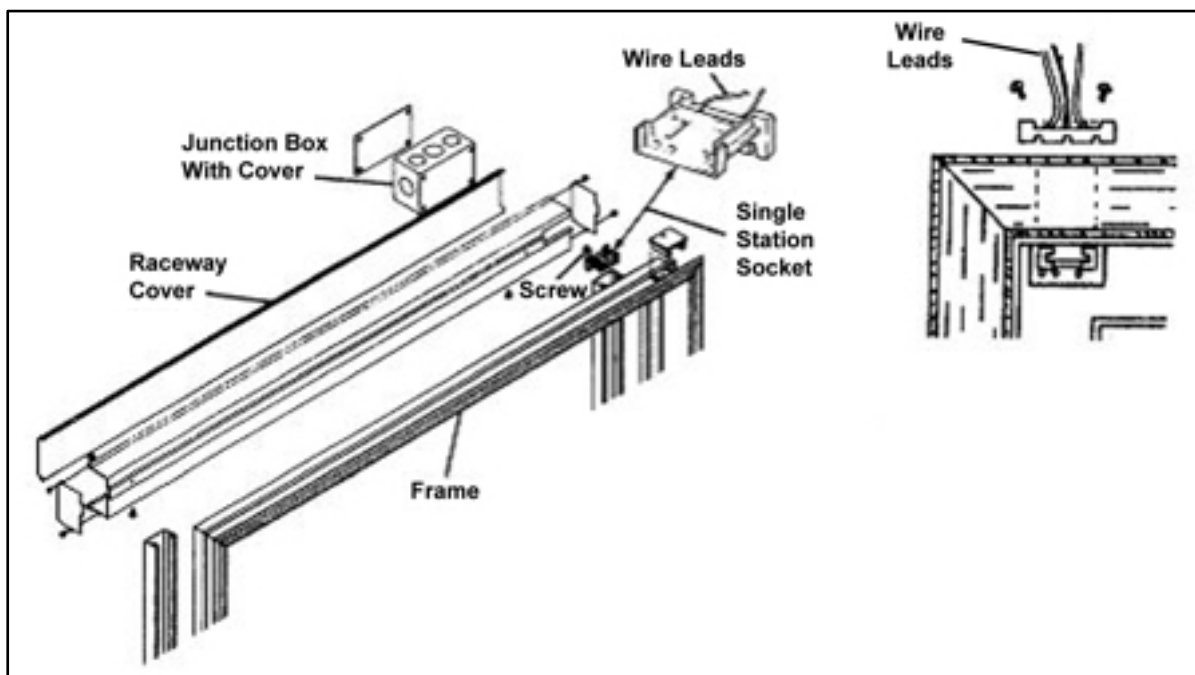
1. Price tag molding is the exact length of the shelf's top front bar. Center tag molding on front of shelf. Hook bottom of tag molding under shelf across entire width of shelf. Spread thumbs across tag molding and push up.



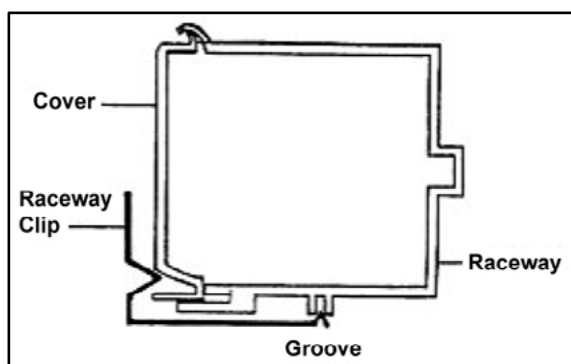
2. Snap top corner of tag molding strip onto shelf front. Apply even pressure across top of tag molding as it is fed onto top horizontal bar on shelf front.

3. For replacement tag molding, specify width of shelf when ordering, or specify door width.

Frame Single Station Socket Replacement



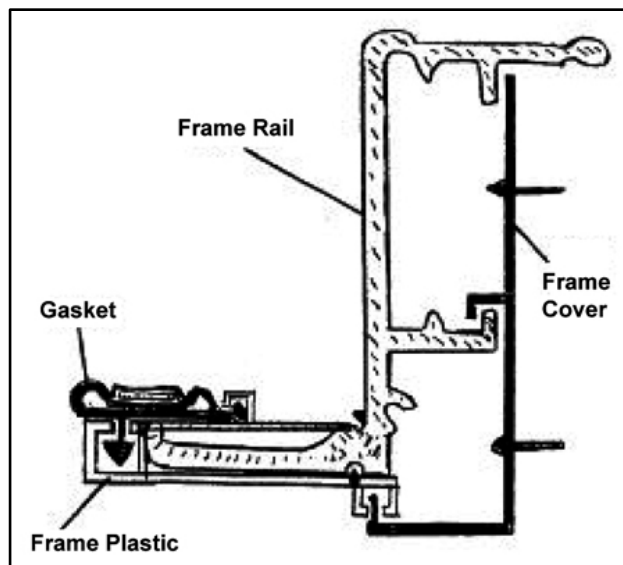
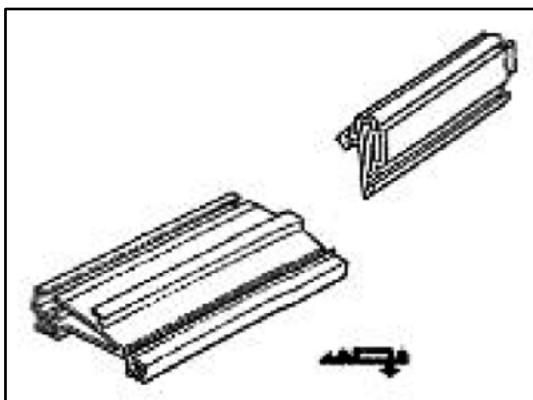
1. Start at top back of frame.
2. Remove raceway cover. Insert flat-head screwdriver under back edge of retainer to remove.
3. To remove raceway clip, insert flat-head screwdriver under top edge of clip.
4. To re-install clip, insert curved end of clip into groove in bottom of raceway, then snap clip over raceway cover.



5. Once raceway cover is removed, single station socket is exposed.
6. Insert flat-head screwdriver into screws and remove.
7. Pull frame female socket out through back of frame.

8. Cut lead wires to remove.
9. To replace, re-wire new plug according to color coded wires.
10. Reverse instructions to replace.

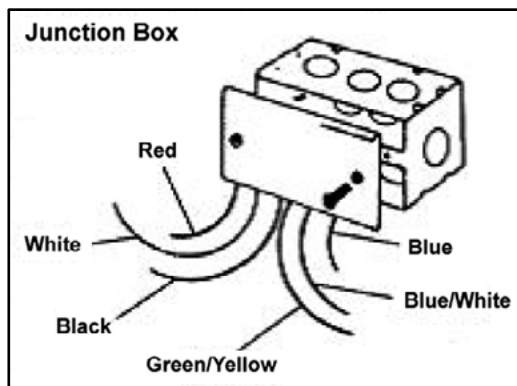
Frame Gasket Replacement



1. To order replacement gaskets, specify door height & width and manufacture date. (Date is located between the panes of glass on the aluminum spacer bar as shown above.)
2. To remove, pull gasket straight out at top, then slide up and out to remove center "L" groove in frame plastic.
3. Start in corner.
4. Insert bottom half arrow on bottom of frame gasket into "L" groove in middle of frame gasket. Then push full arrow on back top of gasket into top groove in frame plastic.
5. If necessary, tuck all corners with a flat-head screwdriver.

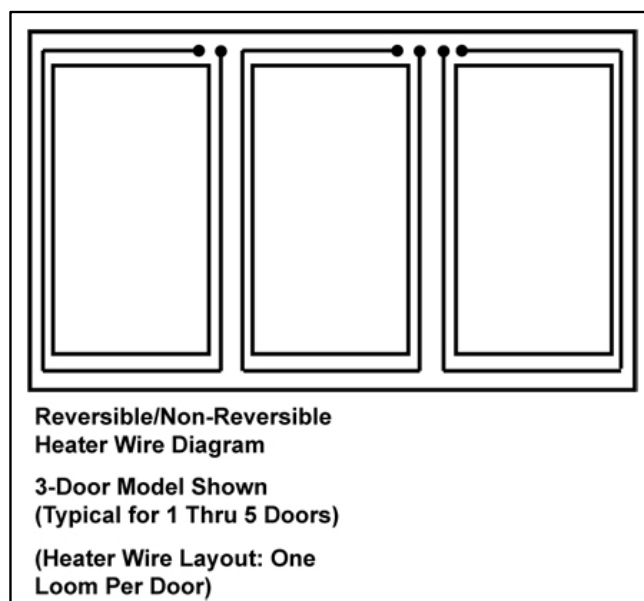
Frame Junction Box Wiring (Standard Production)

1. Remove frame junction box cover.



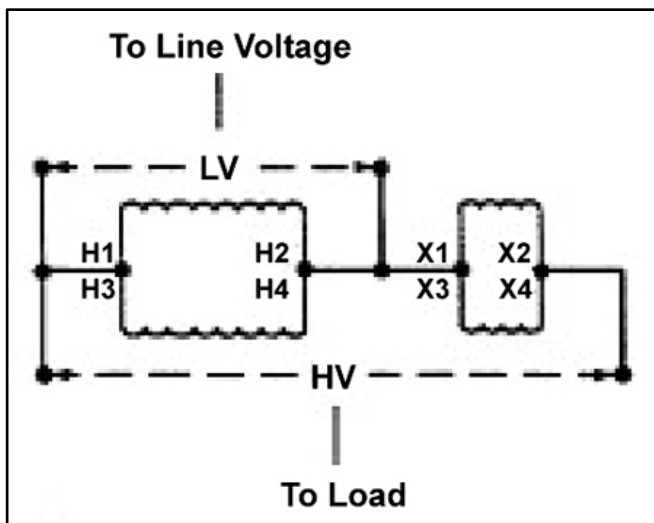
2. Wires are marked as to application
 - a. Black for frame heater.
 - b. Red for door heater (if present).
 - c. White, common for Black and Red.
 - d. Blue for lights.
 - e. Blue/White stripe, common for lights.
 - f. Green/Yellow stripe for ground.

Heater Wire Diagram



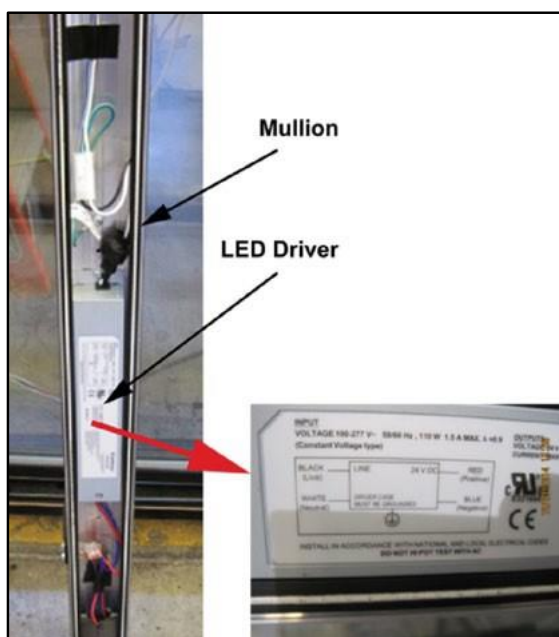
1. Heater wire location.
2. See amperage charts in back of manual.

“Boost & Buck” Transformer Wiring Diagram



1. Recommended wiring for 110/120 volt.
2. Transformer, wired as follows, will increase the 115 volt line voltage by 10% and the applied heat by 20%.
3. Hot to H1-H3.
4. Neutral to H2-X1-X3.
5. Load for heaters X2-X4.
6. Transformer is rated for an 18-Amp load.

Frame Junction Box Wiring (Standard Production)



1. Remove Mullion cover on top back side of frame.
 - a. To remove, insert flat-head screwdriver under back edge of zipper strip and peel back the plastic. Caution: If the zipper strip becomes damaged during this operation, replacement of the strip will be required.
 - b. Driver is now exposed.
2. To remove driver detach the connector at the top of the driver and, cut the lead wires (red and blue) at the bottom.



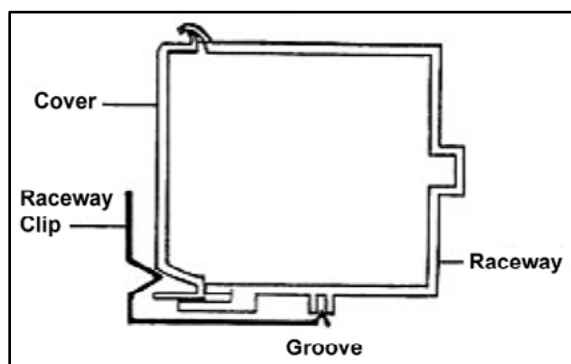
Disconnect wire connector at top of driver (black & white)



Cut wires at the bottom of the driver (red & blue)

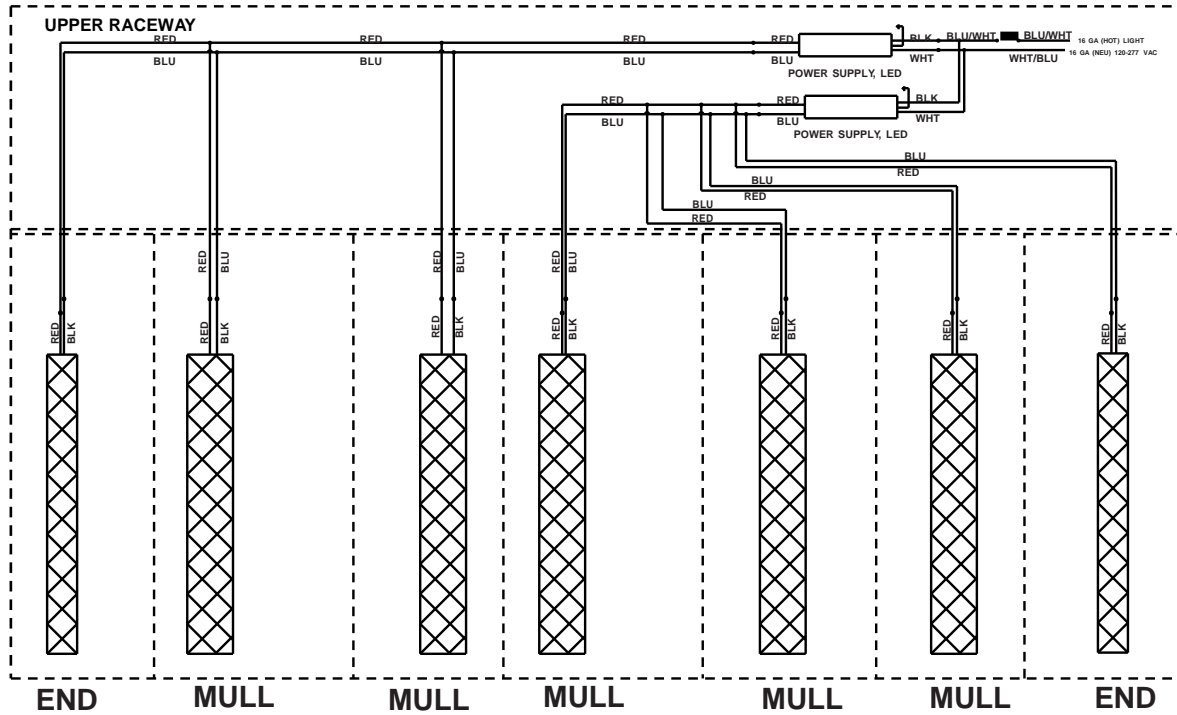
3. Reverse instructions to replace. Follow color-coded wires: Blues to Blues, Reds to Reds, Blacks to Blacks and Whites to Whites. (Note: The red and blue wires will require electrical tape to splice them together in the field).

Raceway Clip Installation or Replacement

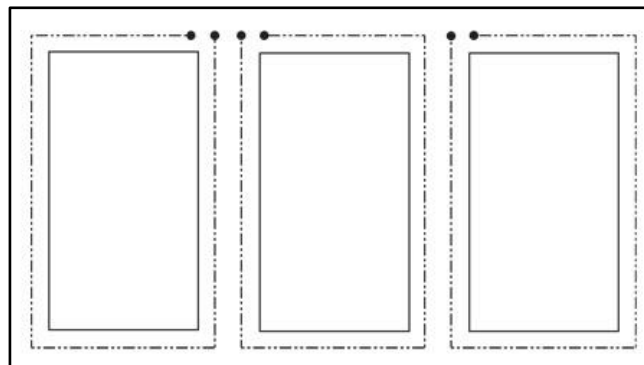


1. Insert flat-head screwdriver under top edge of clip and lift to remove.
2. To re-install clip, insert curved end of clip into groove in bottom of raceway, then snap clip over raceway cover.
3. To replace raceway cover, lay cover on back of raceway, then snap retainer plastic on. Insert retainer on front edge of raceway cover, then snap over bottom edge of raceway.

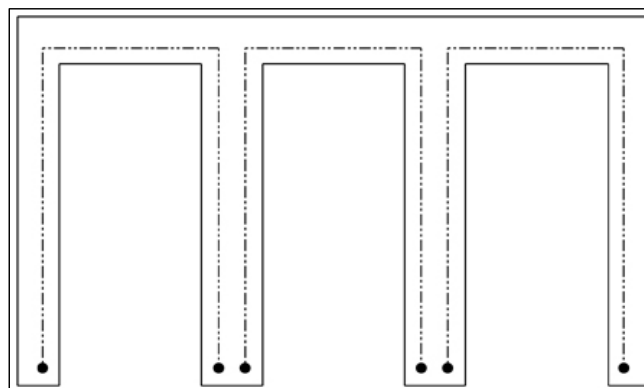
Driver, Lamp & Heater Wiring Diagram



LED Strip - Six Door Layout



401 Frame Heater Wire Layout



403 Frame Heater Wire Layout

401 LED Lighting Installation Instructions

Tools Required

#2 Phillips Head Screwdriver	Rubber or plastic mallet
Cordless drill w/attachments	Flat-head screwdriver
Needle-nose pliers	Wire stripper and cutter
1/8" drill bit	3/8" drill bit

Tips

- Complete replacement of wire assemblies is recommended whenever required. Splice wires only if necessary, using proper materials such as electrical tape, wire nuts, flux core solder and heat shrink.
- Apply liquid soap to rail plastic covers and gaskets upon installation, to facilitate insertion into mounting grooves.
- Keep doors and frames clean for product efficiency. This can also help reduce energy consumption and potential health hazards.
- Whenever binding gasket or plastic parts, use food grade silicone.
- Always use the correct tool for the job to be performed. This ensures proper installation and minimizes safety risks.

401 LED Approved Drivers



401 LED Driver (60-19910-0003)

Specifications:

- Max. Continuous Output Power: 60W
- Input Voltage: 100V – 277VAC +/-10%, 50/60Hz
- Output Current: 0 - 2.5A
- Output Voltage: 24VDC
- Min. Power Factor: >0.9
- IP rating: IP64
- Operating Temperature: -40°C to 60°C max
- Approval/Class: cURus Class 2, Damp Location, FCC Part 15 Class A

401 LED Lighting



Center Fixture (60-21817-xxxx)



End Fixture (60-21818-xxxx)

Description	Center Fixture (4000K)
60" Fixture	60-21817-0002

Description	Left End Fixture (4000K)
60" Fixture	60-21818-0002

Description	Right End Fixture (4000K)
60" Fixture	60-21818-1002

New Driver Installation

1. When installing the new driver, keep in mind to make sure black and white wires (power) are pointed toward the top of the frame.
2. Remove the Mullion cover using a flat screwdriver.
3. Remove the raceway cover by inserting a flat screwdriver into the seam between the metal raceway and the plastic cover and prying it open.
4. Using two #8 tapping screws, install the driver just below all cables, no farther than half way down inside the mullion.

NOTE: Installer may have to drill two holes in raceway to accommodate LED power supply if the door is not an Anthony model.

NOTE: The LED power supply case is grounded. Attach the LED power supply to a ground point directly with a screw.

5. Reinstall raceway cover(s).
6. Seal any open holes on Mullion using neutral cure silicone sealant (not provided).

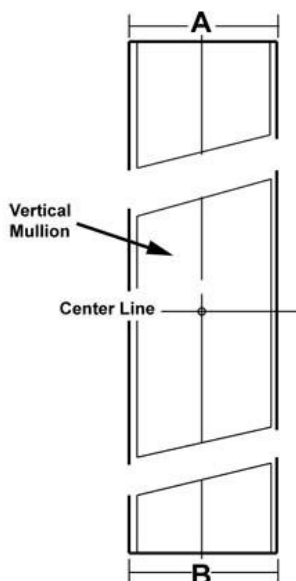
Locate, Drill and Mount the LED Fixture to the Mullion



WARNING: Prior to drilling, ensure there are no components inside the mullion in areas marked off for the designated holes.

NOTE: The LED power supply case is grounded. Use a screw to attach the LED power supply to a ground point.

1. Measure the total width of the mullion at (A) and (B), and mark a vertical line half the total width near the top and bottom of the mullion, as shown in the following illustration. Mount the LED power supply using two #8 tapping screws.



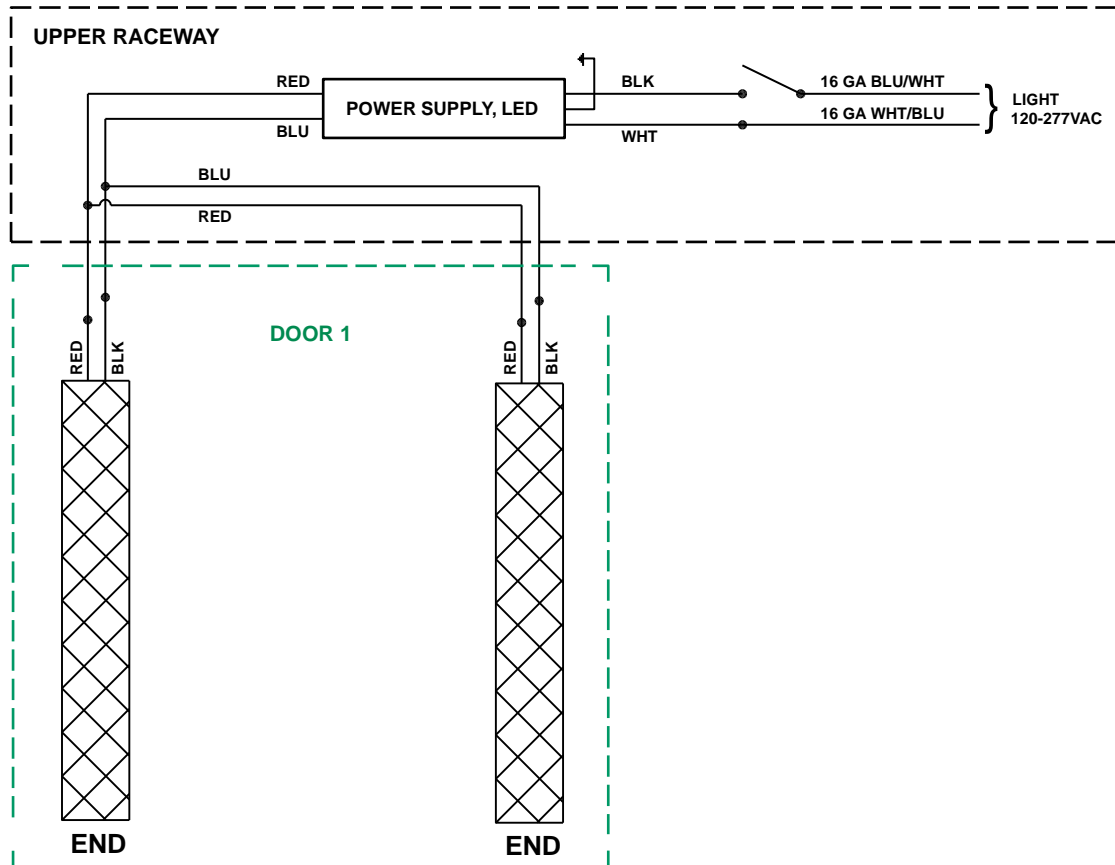
2. Mark a vertical line from the top of the Mullion to the bottom of the Mullion through the lines measured in step 1.
3. Divide the vertical line distance in half and mark as a Center Line.
4. Position the center punch directly over at the intersection of the horizontal line and the vertical line (top, center and bottom) and establish a dimple.
5. Use a power drill and (1/8") 0.125" dia. drill bit. Drill one (1) hole at the intersection of the vertical center line and the horizontal lines.

6. Refer to the “Wiring Diagrams and Orientation” section.
 - a. Place the extrusion notch toward the bottom of the Mullion.
 - b. Using a Phillips screw driver, thread a #8 tapping screw through the plastic extrusion.
7. Position the center punch directly over the vertical line and within the plastic extrusion notched cutout, establish a dimple.
8. Use a power drill and (3/8”) 0.375” dia. drill bit, drill (1) hole.
9. Snap the LED fixture into the plastic extrusion. Refer to “Wiring Diagrams and Orientation” and “Parts List”.
10. Thread the LED wires through the 3/8” hole.
11. Align the LED fixture with the vertical lines made in step 2 and using a center punch, establish two dimples, one at the top and one at the bottom of the end clips.
12. Use a power drill and (1/8”) 0.125” dia. drill bit. Drill two (2) holes through the LED top and bottom mounting brackets through the plastic extrusion.
13. Using a Phillips screw driver, thread a #8 tapping screw through the plastic extrusion
14. Connect the LED Light fixture wire connectors to the LED power supply.

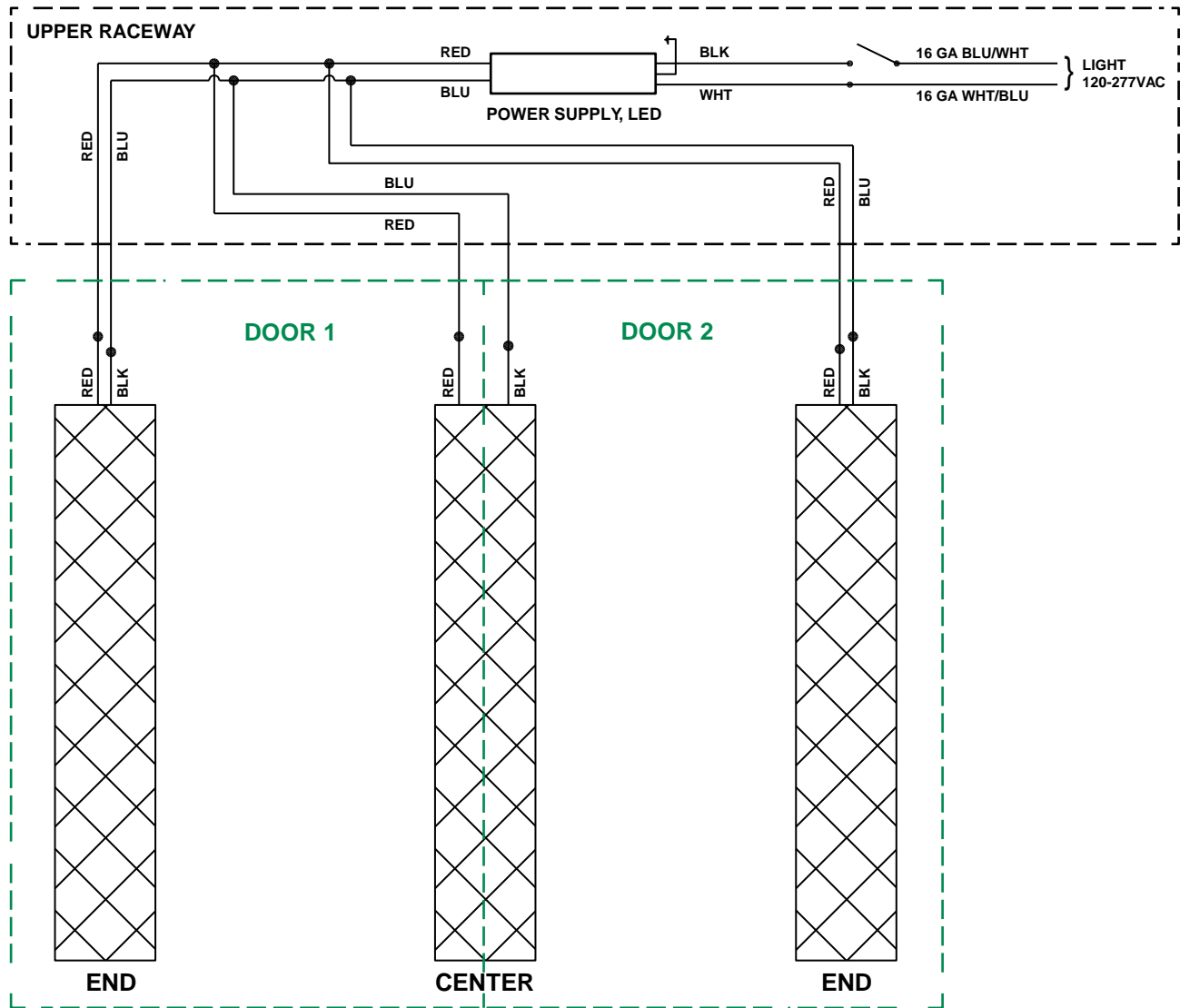
NOTE: The fixtures are polarity sensitive. Pay close attention when wiring the red (+) wires of the fixture to red wires of the driver, and the blue (-) wires of the driver to the black (-) wires of the fixture.
15. Turn the power on and verify the LED fixture(s) are working.

Wiring Diagrams and Orientation

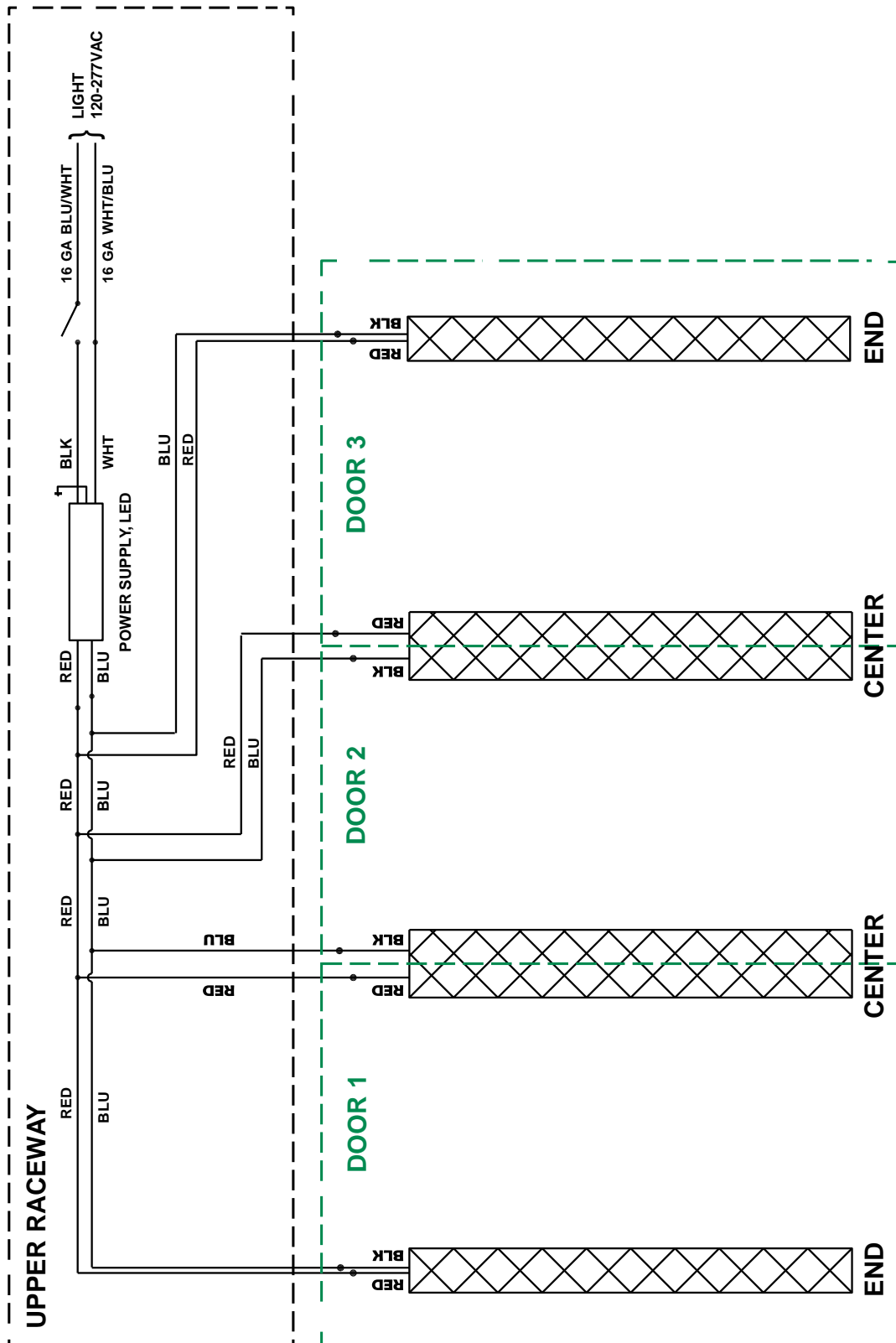
Anthony Door Model 401 Wiring Diagrams



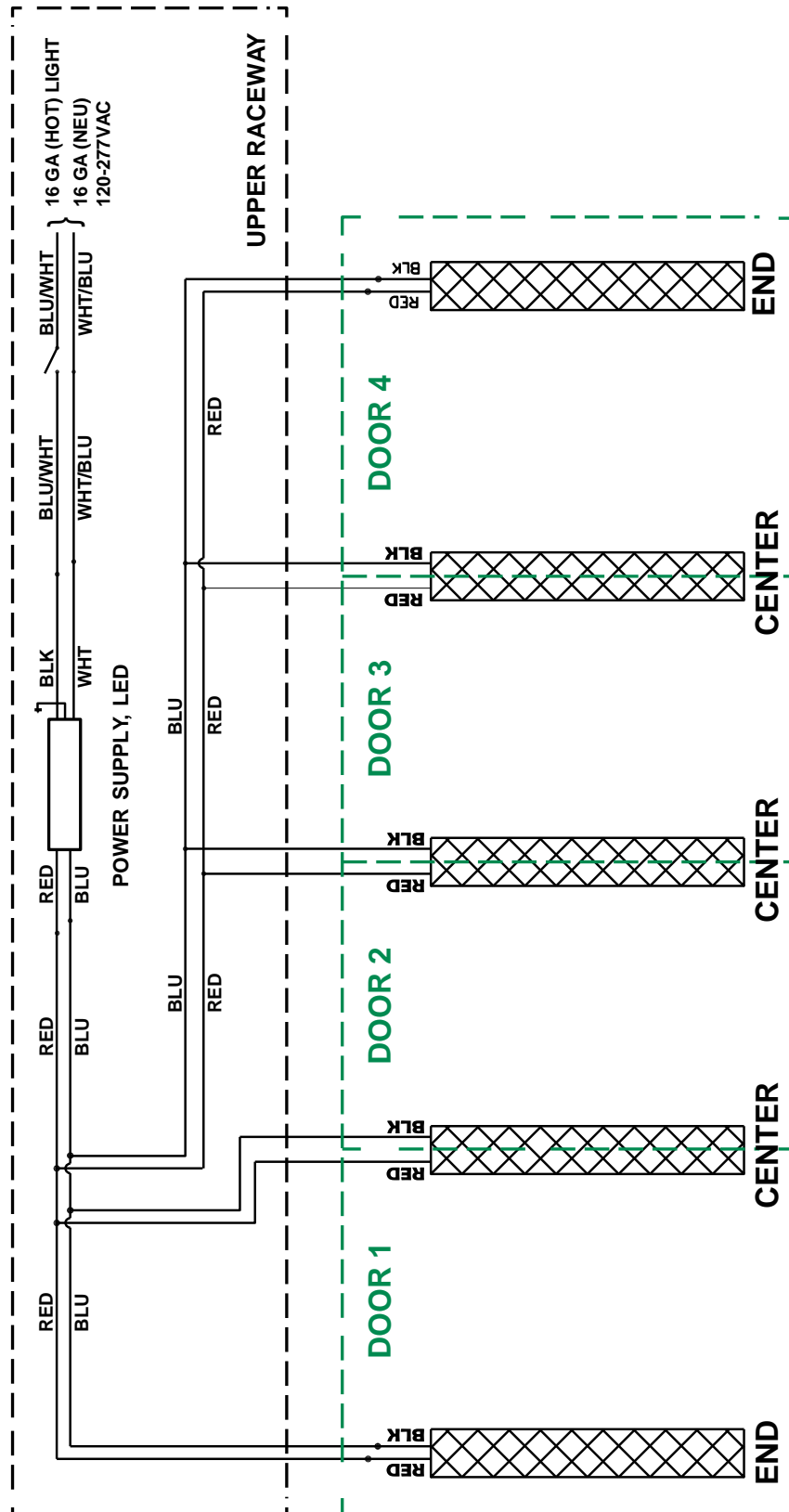
Model 401 Wiring Diagram (07-21941-0001), 1-Door



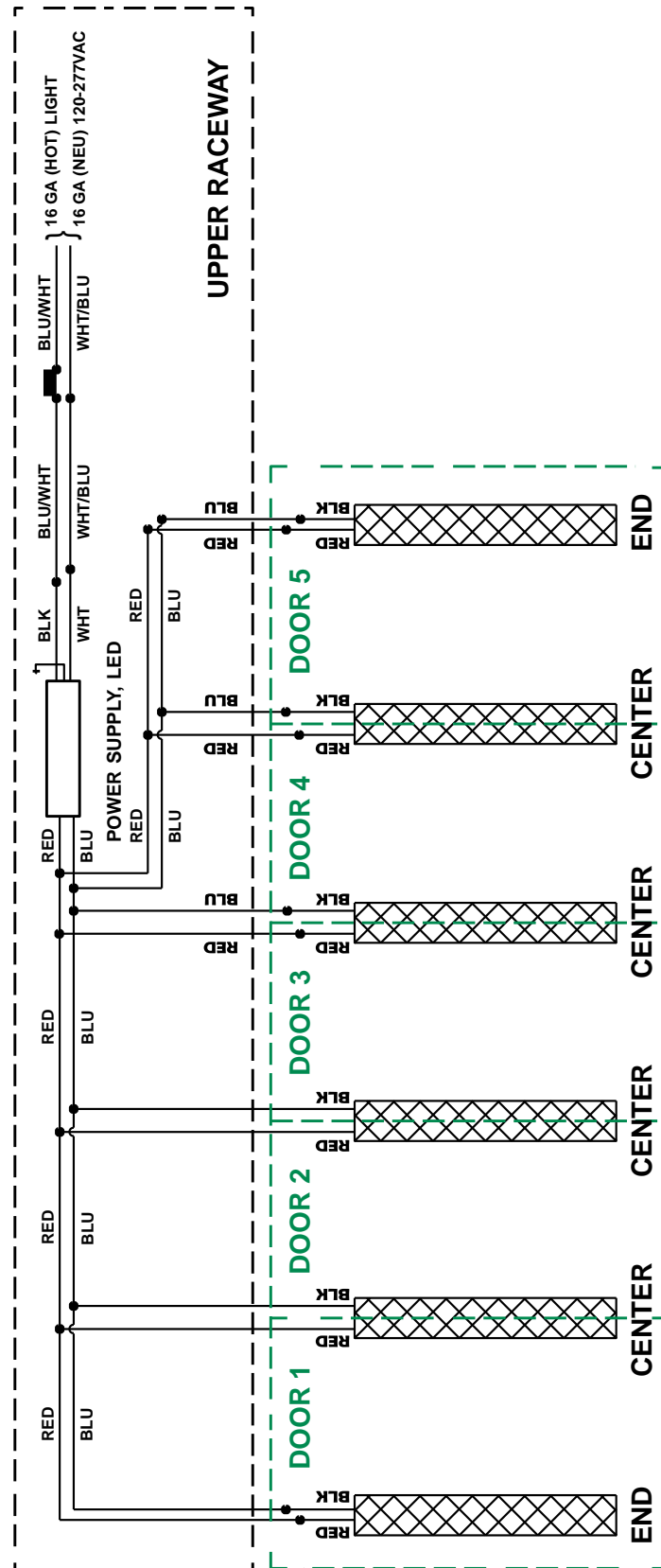
Model 401 Wiring Diagram (07-21941-0002), 2-Door



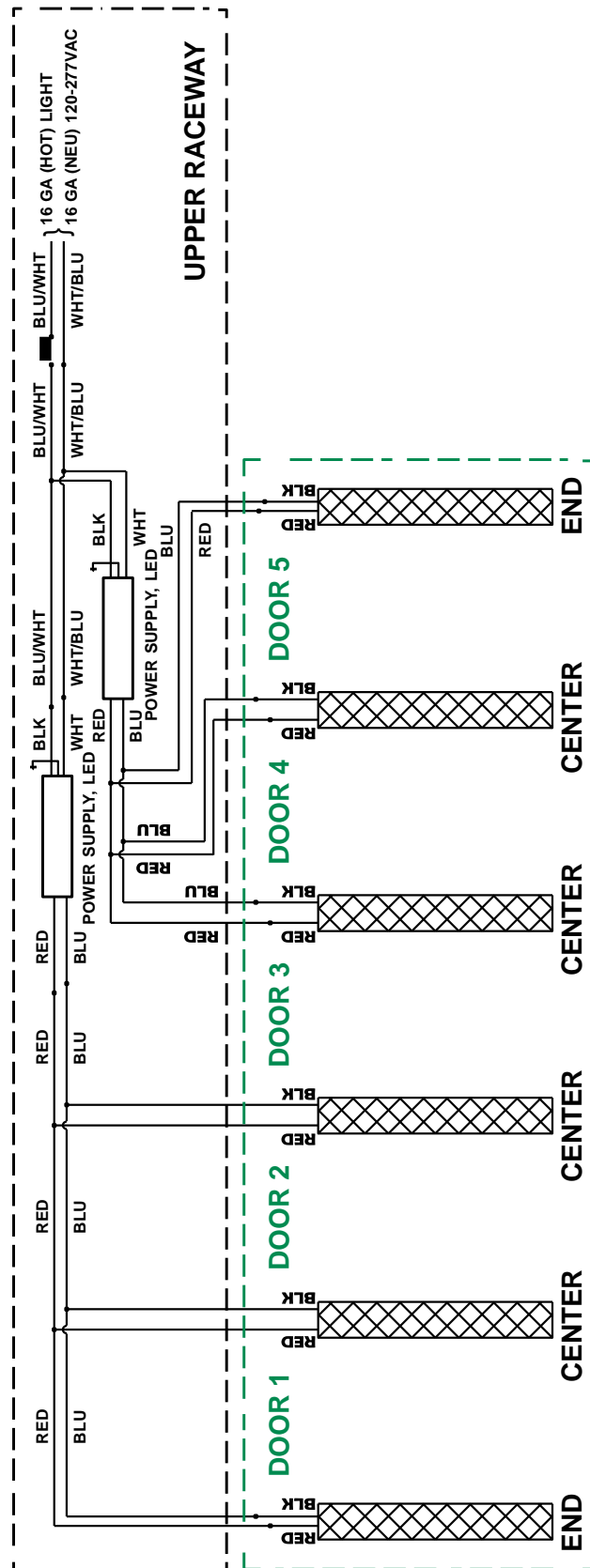
Model 401 Wiring Diagram (07-21941-0003), 3-Door



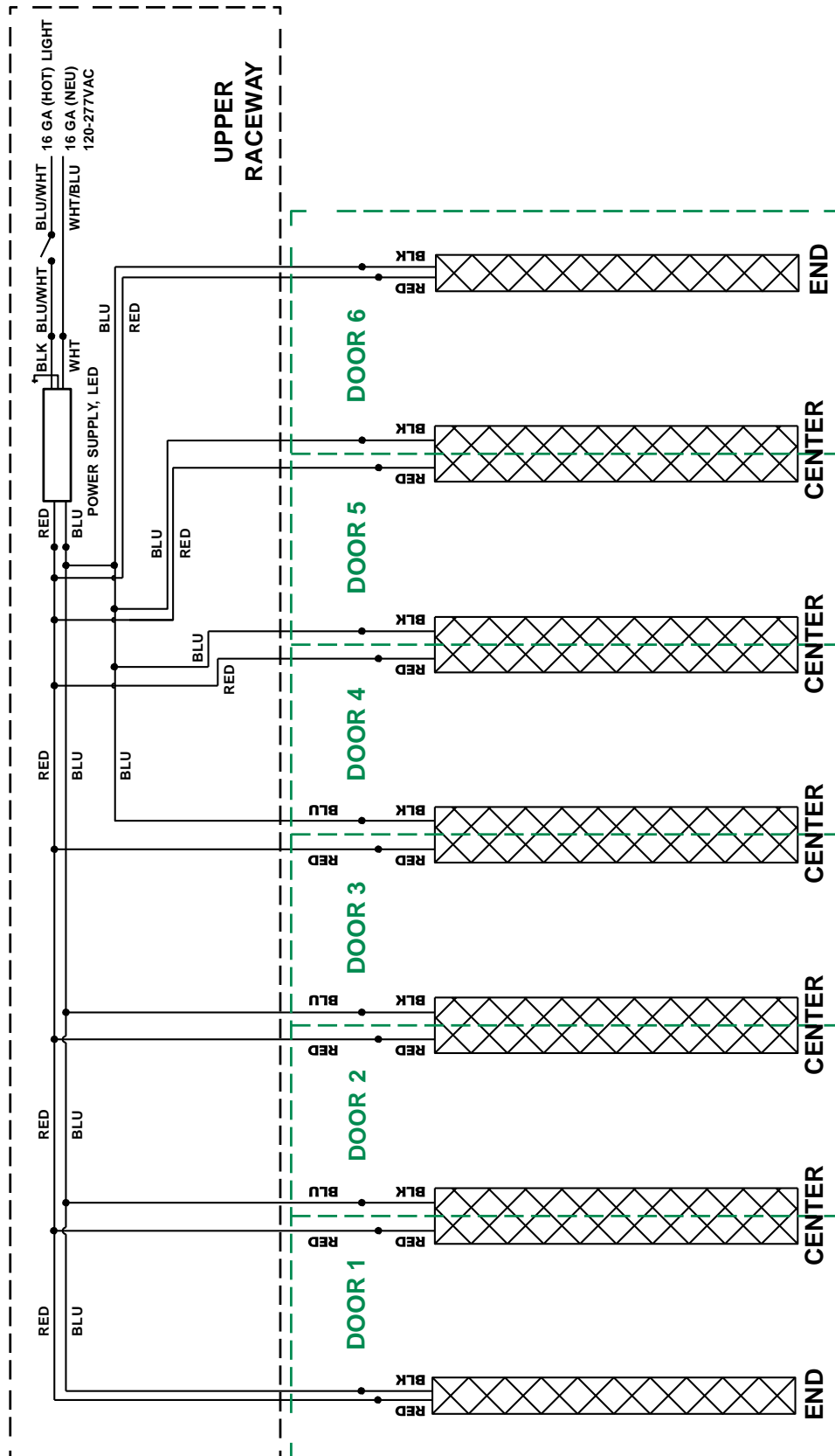
Model 401 Wiring Diagram (07-21941-0004), 4-Door



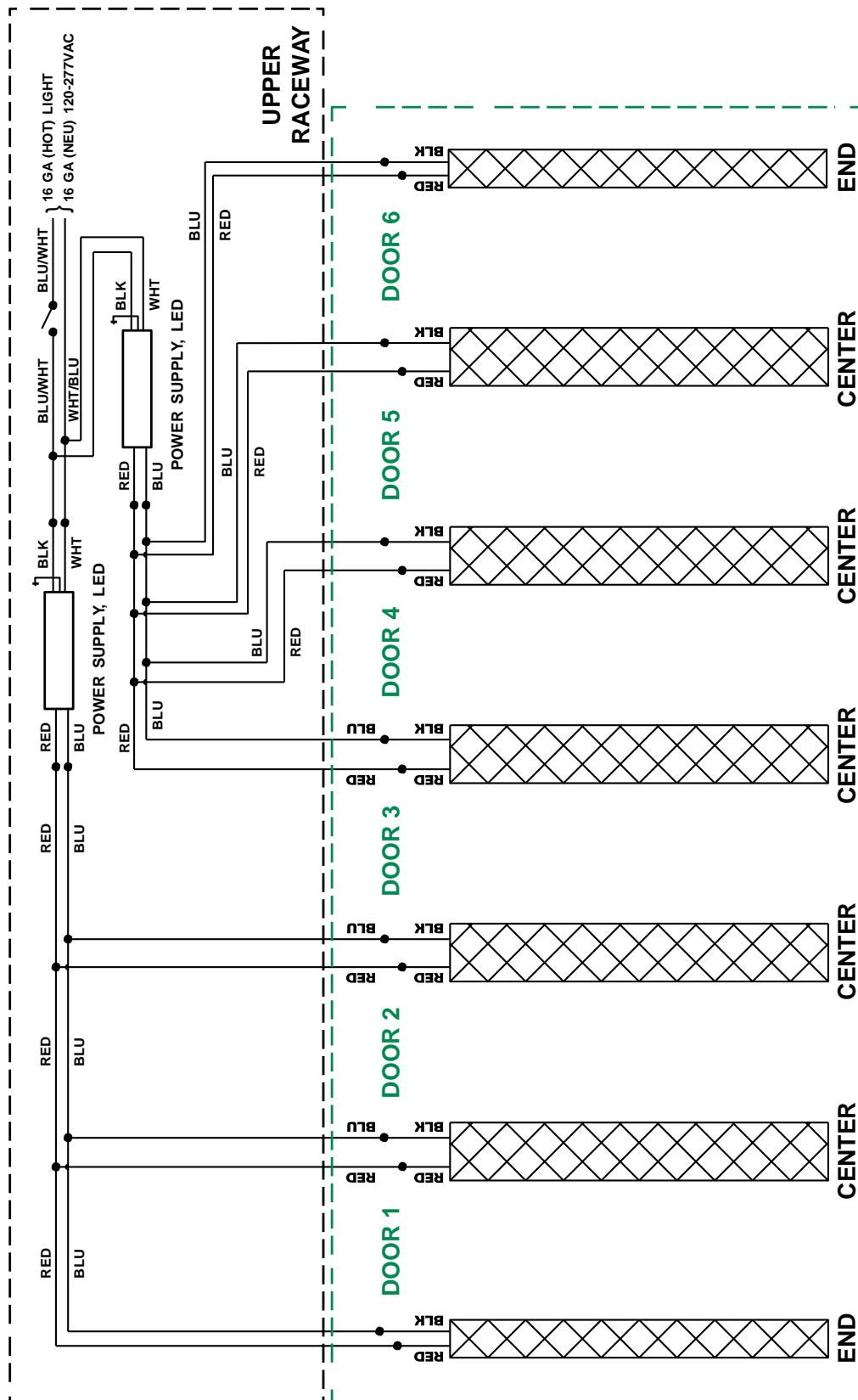
Model 401 Wiring Diagram (07-21941-0005), (24", 36", 48"), 5-Door



Model 401 Wiring Diagram (07-21941-0006), (60"), 5-Door

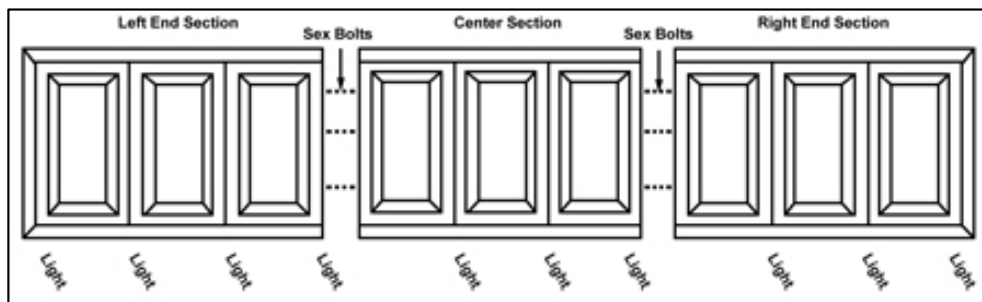


Model 401 Wiring Diagram (07-21941-7), (24", 36"), 6-Door



Model 401 Wiring Diagram (07-21941-8), (48", 60"), 6-Door

LED Strip Locations



Light Location for Left-Hand Hinge

1. Standard frames have an extra lamp. (Ten door line-up has eleven lights.)
2. Extra light location is determined by hinge swing. Hinge left extra light is on the left end section. Hinge right extra light is on the right end section.
3. Left end section, right end section and center section are pre-punched to provide for sex bolts to attach frame sections together.

LED Strip Configurations

Light Arrangement (23" Door Width)

No. Doors	No. Frame Sections	No. Prewired Lights
1	1	2 ••
2	1	3 •••
3	1	4 ••••
4	1	5 •••••
5	1	6 ••••••
6	2	7 •••••• X •••••
7	2	8 •••••• X ••••••
8	2	9 •••••• X •••••••
9	2	10 •••••• X ••••••••
10	2	11 •••••• X •••••••••
11	3	12 •••••• X ••••••• X •••••
12	3	13 •••••• X ••••••• X ••••••
13	3	14 •••••• X ••••••• X •••••••
14	3	15 •••••• X ••••••• X ••••••••
15	3	16 •••••• X ••••••• X •••••••••
16	4	17 •••••• X ••••••• X ••••••• X ••••••
17	4	18 •••••• X ••••~•• X ••••••• X ••••••••
18	4	19 ••••~•• X ••••~•• X ••••~•• X ••••~•••
19	4	20 ••••~•• X ••••~•• X ••••~•• X ••••~••••
20	4	21 ••••~•• X ••••~•• X ••••~•• X ••••~•••••

X = No Light
• = Light

All lights take a minimum of 1-lamp Drivers. All frames are viewed from the front (customer side). (X = no light • = Light).

Light Arrangement (26-3/8" and Wider Door Sizes)

No. Doors	No. Frame Sections	No. Prewired Lights
1	1	2 ••
2	1	3 •••
3	1	4 ••••
4	1	5 •••••
5	2	6 ••••X••••
6	2	7 ••••X•••••
7	2	8 •••••X•••••
8	2	9 •••••X••••••
9	3	10 ••••X•••••X•••••
10	3	11 •••••X•••••X•••••
11	3	12 •••••X•••••X••••••
12	3	13 •••••X•••••X•••••••
13	4	14 •••••X•••••X•••••X•••••
14	4	15 •••••X•••••X•••••X••••••
15	4	16 •••••X•••••X•••••X•••••••
16	4	17 •••••X•••••X•••••X•••••••
17	5	18 •••••X•••••X•••••X•••••X•••••
18	5	19 •••••X•••••X•••••X•••••X••••••
19	5	20 •••••X•••••X•••••X•••••X•••••••
20	5	21 •••••X•••••X•••••X•••••X•••••••

All lights take a minimum of 1-lamp Drivers. All frames are viewed from the front (customer side). (X = no light • = Light).

Optimax Pro 24 LED Lighting Installation Instructions

Tools Required

#2 Phillips Head Screwdriver	Rubber or plastic mallet
Cordless drill w/attachments	Flat-head screwdriver
Needle-nose pliers	Wire stripper and cutter
1/8" drill bit	3/8" drill bit

Tips

- Complete replacement of wire assemblies is recommended whenever required. Splice wires only if necessary, using proper materials such as electrical tape, wire nuts, flux core solder and heat shrink.
- Apply liquid soap to rail plastic covers and gaskets upon installation, to facilitate insertion into mounting grooves.
- Keep doors and frames clean for product efficiency. This can also help reduce energy consumption and potential health hazards.
- Whenever binding gasket or plastic parts, use food grade silicone.
- Always use the correct tool for the job to be performed. This ensures proper installation and minimizes safety risks.

Optimax Pro 24 LED Approved Drivers



Model 401 Driver (60-19910-0002)

Specifications:

- Max. Continuous Output Power: 100W
- Input Voltage: 100V – 277VAC
- Output Current: 4.10A
- Output Voltage: 24VDC
- Min. Power Factor: 0.9
- IP rating: IP64
- Operating Temperature: -40°C to 60°C max
- Isolation: Class 2

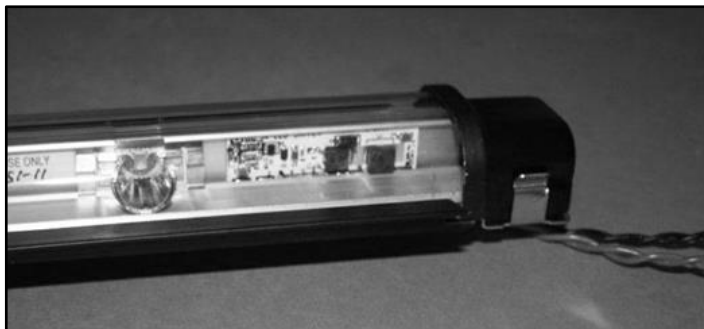


Model 401 Driver (60-20062-0001)

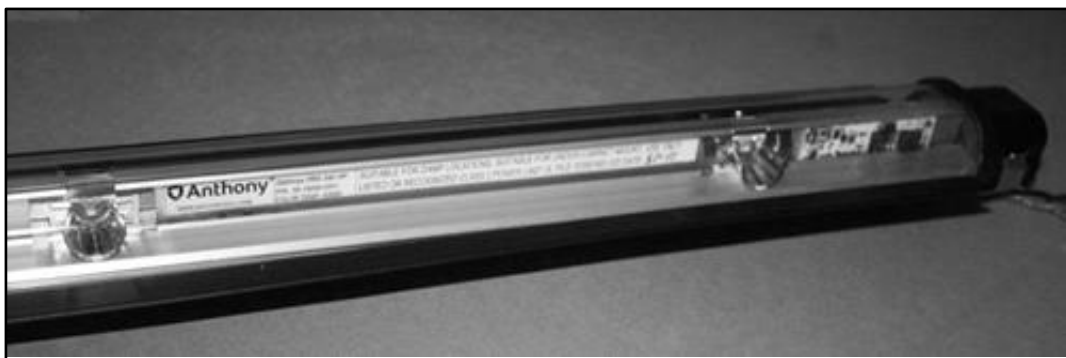
Specifications:

- Max. Continuous Output Power: 90W
- Input Voltage: 100V – 277VAC
- Output Current: 3.75A
- Output Voltage: 24VDC
- Min. Power Factor: 0.9
- IP rating: IP67
- Operating Temperature: -20°C to 60°C max
- Isolation: Class 2

Optimax Pro 24 LED Lighting



Center Fixture (60-21817-xxxx)



End Fixture (60-21818-xxxx)

LOW POWER FIXTURE		FIXTURE LENGTH				FIXTURE LENGTH				
		48"	54"			60"	72"			
		ACTUAL LENGTH - INCHES (MM)				ACTUAL LENGTH - INCHES (MM)				
		45-3/16" (1148)	53-3/16" (1351)			61-3/16" (1554)	68-3/16" (1732)			
CCT (K)	LOCATION	P/N	P/N	POWER 48"/54"	LUMEN/W 48"/54"	P/N	P/N	POWER	LUMEN/W 60"/72"	LUX*
4000	Center	60-19295-0003	60-19295-0008	14/16W	51/54	60-19295-0001	60-19295-0002	18W	56/57	825
3500	Center	60-19295-3003	60-19295-3008	14/16W	51/54	60-19295-3001	60-19295-3002	18W	56/57	825
4000	End (L)	60-19296-0003	60-19296-0008	7/8W	57/56	60-19296-0001	60-19296-0002	9W	56	825
4000	End (R)	60-19296-1003	60-19296-1008	7/8W	57/56	60-19296-1001	60-19296-1002	9W	56	825
3500	End (L)	60-19296-3003	60-19296-3008	7/8W	57/56	60-19296-3001	60-19296-3002	9W	56	825
3500	End (R)	60-19296-4003	60-19296-4008	7/8W	57/56	60-19296-4001	60-19296-4002	9W	56	825

*Lux measurement at 30" door centerline

HIGH POWER FIXTURE		FIXTURE LENGTH		POWER LUMEN/W		FIXTURE LENGTH		POWER LUMEN/W		LUX*
		48"	54"			60"	72"			
		ACTUAL LENGTH - INCHES (MM)				ACTUAL LENGTH - INCHES (MM)				
		45-3/16" (1148)	53-3/16" (1351)			61-3/16" (1554)	68-3/16" (1732)			
CCT (K)	LOCATION	P/N	P/N	48"/54"	48"/54"	P/N	P/N	60"/72"	60"/72"	
4000	Center	60-18898-0003	60-18898-0008	18/20W	50/55	60-18898-0001	60-18898-0002	22/24W	59/57	1100
3500	Center	60-18898-3003	60-18898-3008	18/20W	50/55	60-18898-3001	60-18898-3002	22/24W	59/57	1100
4000	End (L)	60-18899-0003	60-18899-0008	9/10W	54/58	60-18899-0001	60-18899-0002	11/12W	60/58	1100
4000	End (R)	60-18899-1003	60-18899-1008	9/10W	54/58	60-18899-1001	60-18899-1002	11/12W	60/58	1100
3500	End (L)	60-18899-3003	60-18899-3008	9/10W	54/58	60-18899-3001	60-18899-3002	11/12W	60/58	1100
3500	End (R)	60-18899-4003	60-18899-4008	9/10W	54/58	60-18899-4001	60-18899-4002	11/12W	60/58	1100

*Lux measurement at 30" door centerline

Remove Existing Lighting System

1. Remove the following items:
 - a. Lens
 - b. Fluorescent lamps
 - c. Lamp holder
 - d. Mounting clips
 - e. Ballasts from existing lighting system

NOTE: Refer to case manufacturer's instructions for any questions on removing the fluorescent system and ballast.

2. Seal any open holes on Mullion using neutral cure silicone sealant (not provided).
3. Make sure you save the two #8 tapping screws used to hold the ballast in place.

Mounting the LED Power Supplies

1. Install the LED power supply in the same location where the ballast was fitted or in the general location for ease of wire connection.
2. Mount the LED power supply using two #8 tapping screws saved when the ballast was removed

NOTE: Installer may have to drill two holes in raceway to accommodate LED power supply if the door is not an Anthony model.

NOTE: The LED power supply case is grounded. Attach the LED power supply to a ground point in the refrigerated directly with a screw.

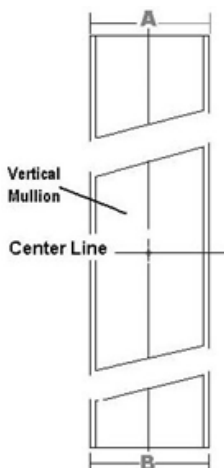
3. Reinstall raceway cover(s).

Locate, Drill and Mount the LED Fixture to the Mullion

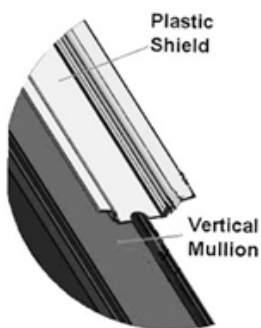
Prior to drilling, make sure there are no existing components inside the mullion in the areas marked off for the designated holes.

NOTE: Drilling is not required for an Anthony model frame. Pre-existing holes are used.

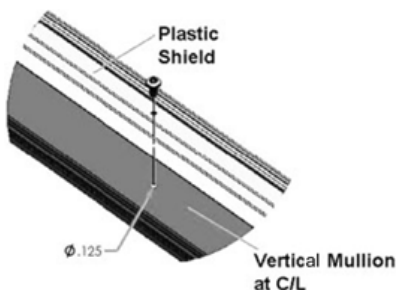
1. Using a ruler, measure the total width of the mullion at (A) and (B), and mark a vertical line half the total width near the top and bottom of the mullion, as shown in the following illustration.



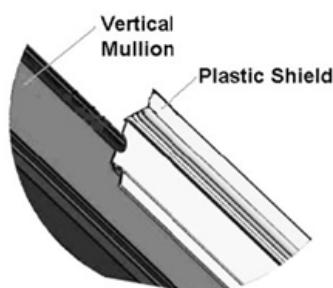
2. Mark a vertical line from the top of the Mullion to the bottom of the Mullion through the lines measured in step 1.
3. Divide the vertical line distance in half and mark as a Center Line.
4. Position the center punch directly over at the intersection of the horizontal line and the vertical line (top, center and bottom) and establish a dimple.
5. Use a power drill and (1/8") 0.125" dia. drill bit. Drill (1) hole at the intersection of the vertical center line and the horizontal lines.
6. Refer to the "Wiring Diagrams and Orientation" section.
 - a. If the electrical wires are at the top of LED Fixture, go to step 6e. If the electrical wires are at the bottom of the LED fixture go to step 6b.
 - b. Place the extrusion notch toward the bottom of the Mullion.



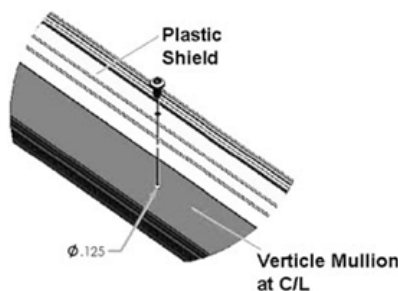
- c. Using a Phillips screw driver, thread a #8 tapping screw through the plastic extrusion.



- d. Continue to step 7.
- e. Place the plastic extrusion notch toward the top of the Mullion.



- f. Using a Phillips screw driver, thread a #8 tapping screw through the plastic extrusion.

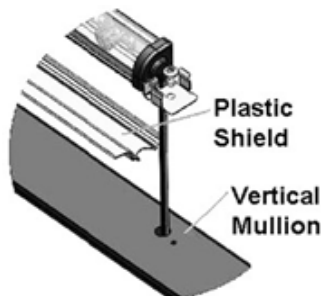


- g. Continue to step 7.
- 7. Position the center punch directly over the vertical line and within the plastic extrusion notched cutout, establish a dimple.

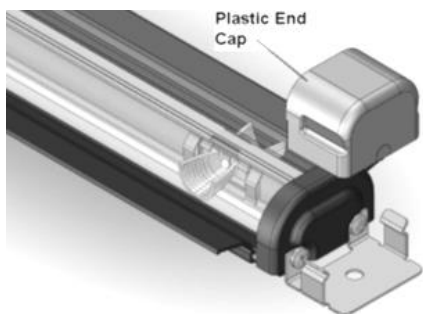


- 8. Use a power drill and (3/8") 0.375" dia. drill bit, drill (1) hole.
- 9. Snap the LED fixture into the plastic extrusion. Refer to "Wiring Diagrams and Orientation" and "Parts List".
- 10. Thread the LED wires through the 3/8" hole.
- 11. Align the LED fixture with the vertical lines made in step 2 and using a center punch, establish two dimples, one at the top and one at the bottom of the end clips.
- 12. Use a power drill and (1/8") 0.125" dia. drill bit. Drill (2) holes through the LED top and bottom mounting brackets through the plastic extrusion.

13. Using a Phillips screw driver, thread a #8 tapping screw through the plastic extrusion.



14. Snap J-Box cover on the wire-end of the end clip.



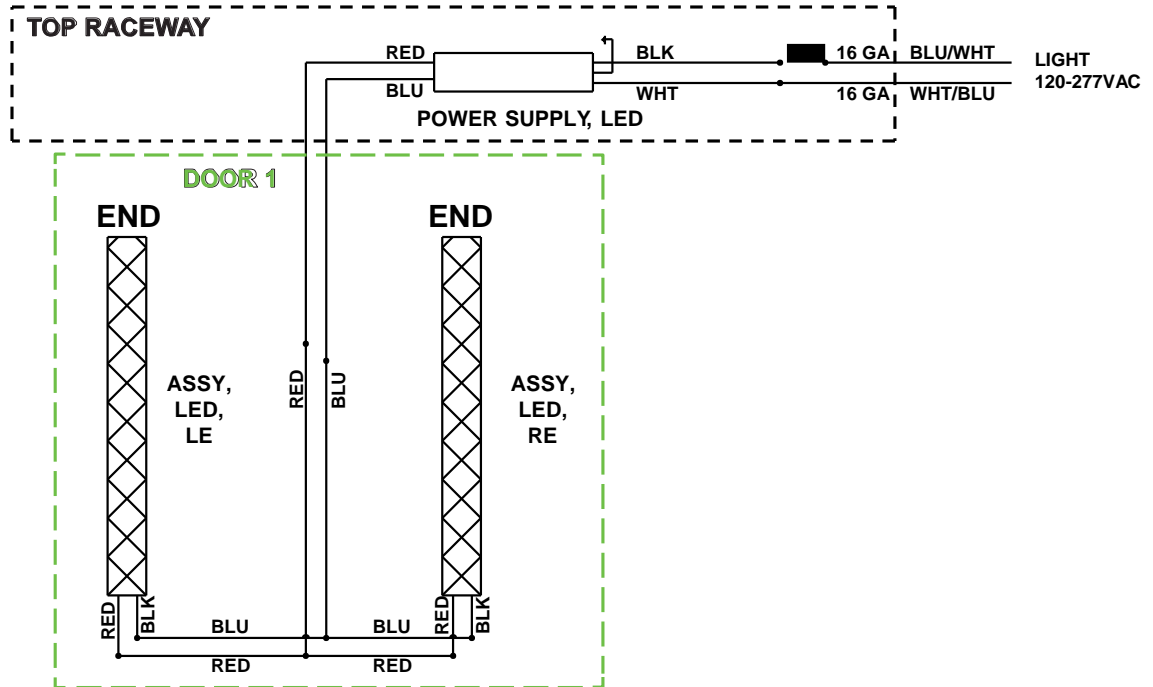
15. Connect the LED Light fixture wire connectors to the LED power supply

NOTE: The OptiMax Pro 24V fixtures are polarity sensitive. Pay close attention when wiring the red (+) wires of the fixture to red wires of the driver, and the blue (-) wires of the driver to the black (-) wires of the fixture.

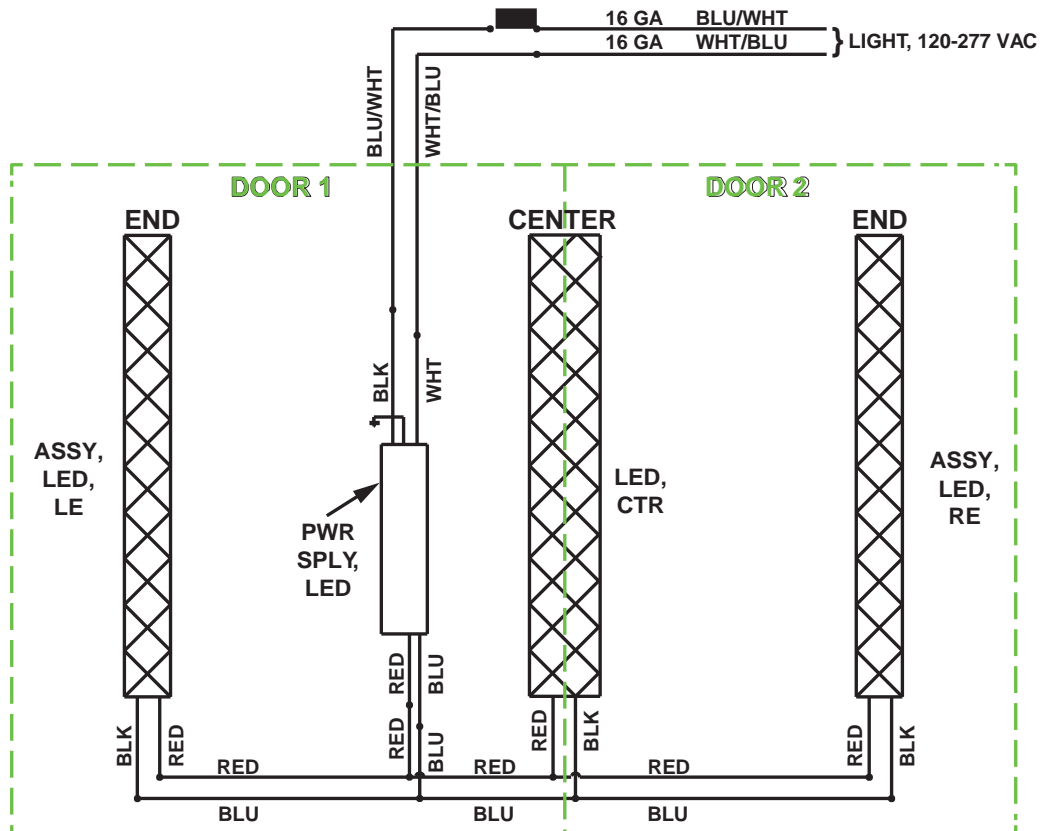
16. Turn the power on and verify LED fixture(s) are working.

Model 401 Door Wiring Diagrams and Orientation

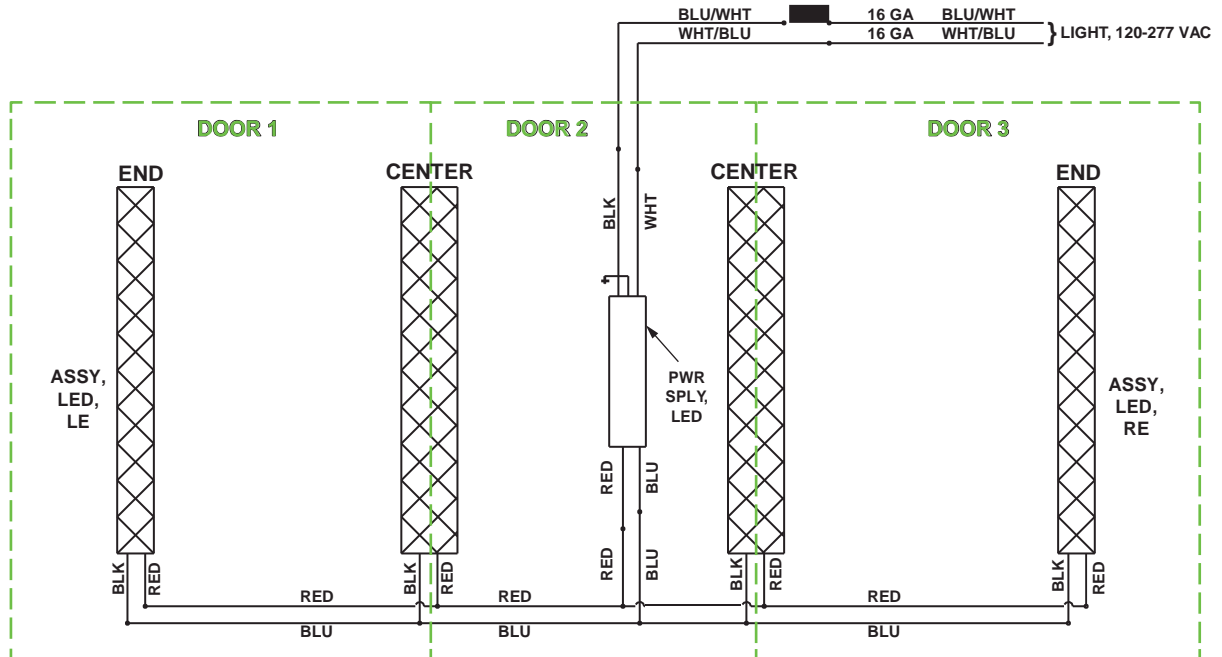
1. Model 401 Optimax Pro 24V Wiring Diagram (1-Door)



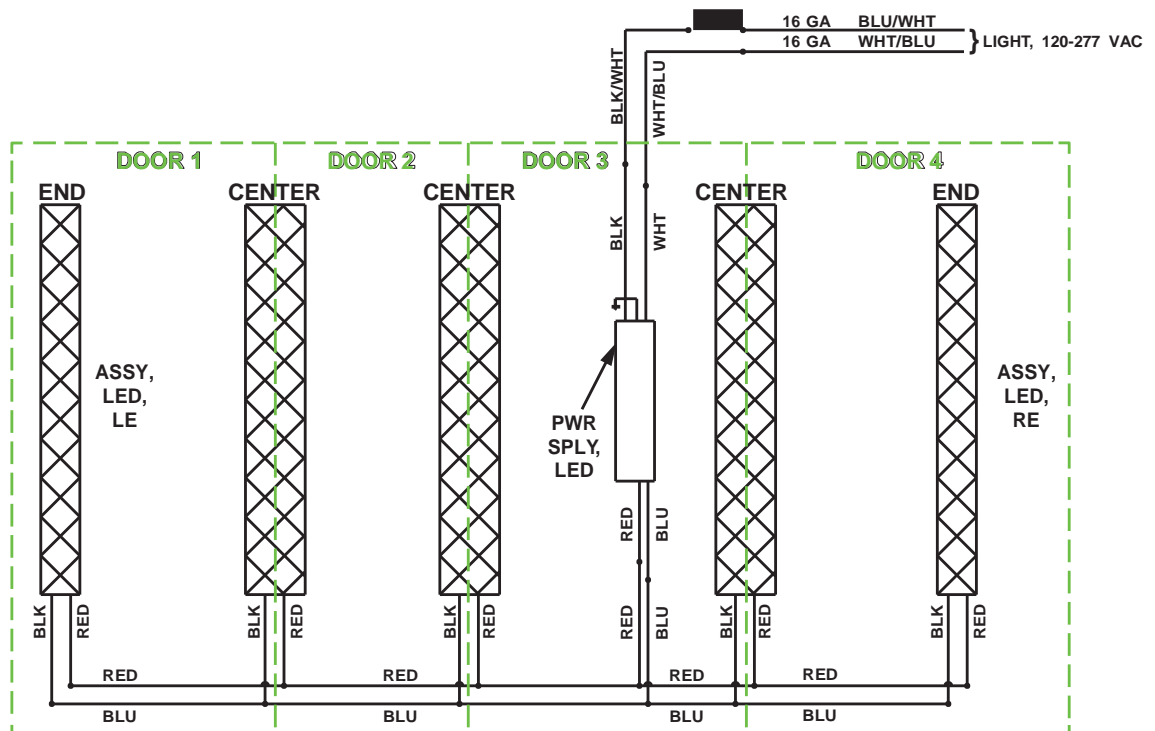
2. Model 401 Optimax Pro 24V Wiring Diagram (2-Door)



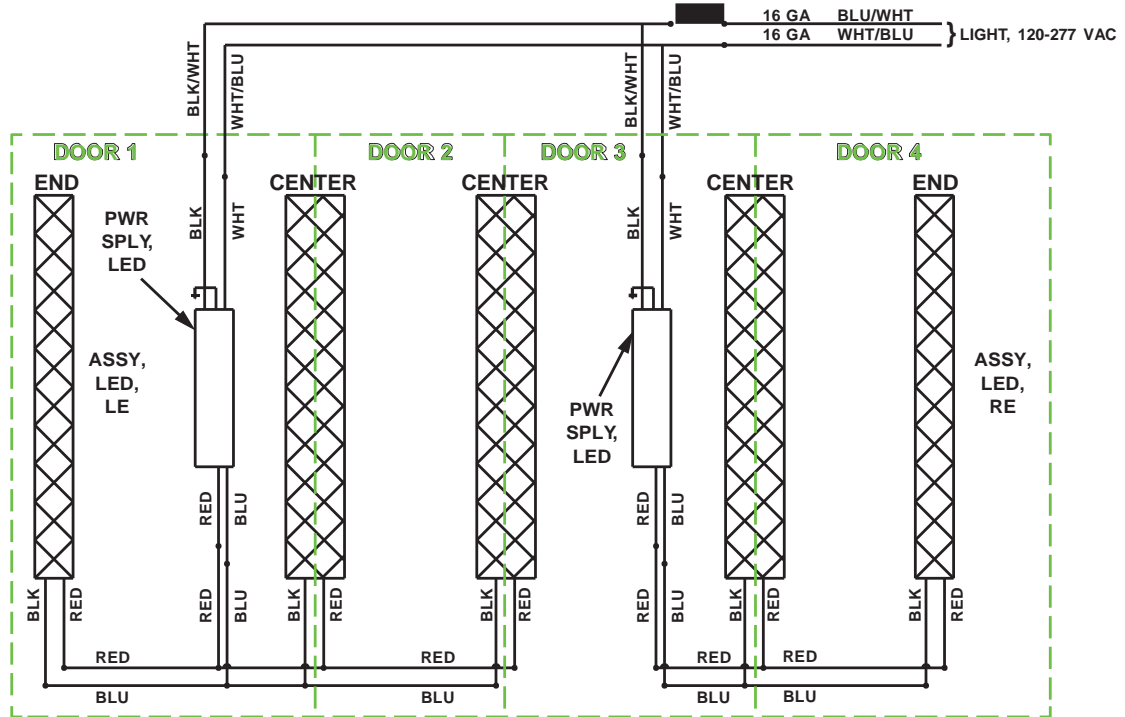
3. Model 401 Optimax Pro 24V Wiring Diagram (3-Door)



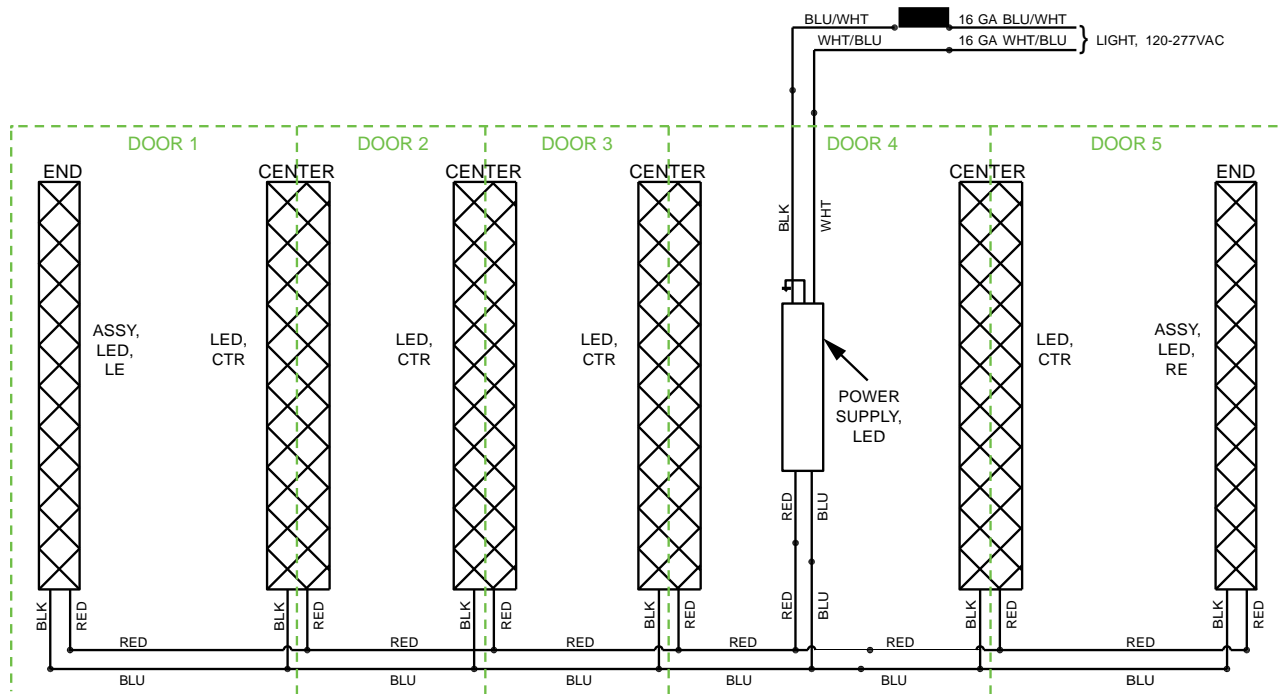
4. Model 401 Optimax Pro 24V Wiring Diagram (4-Door)



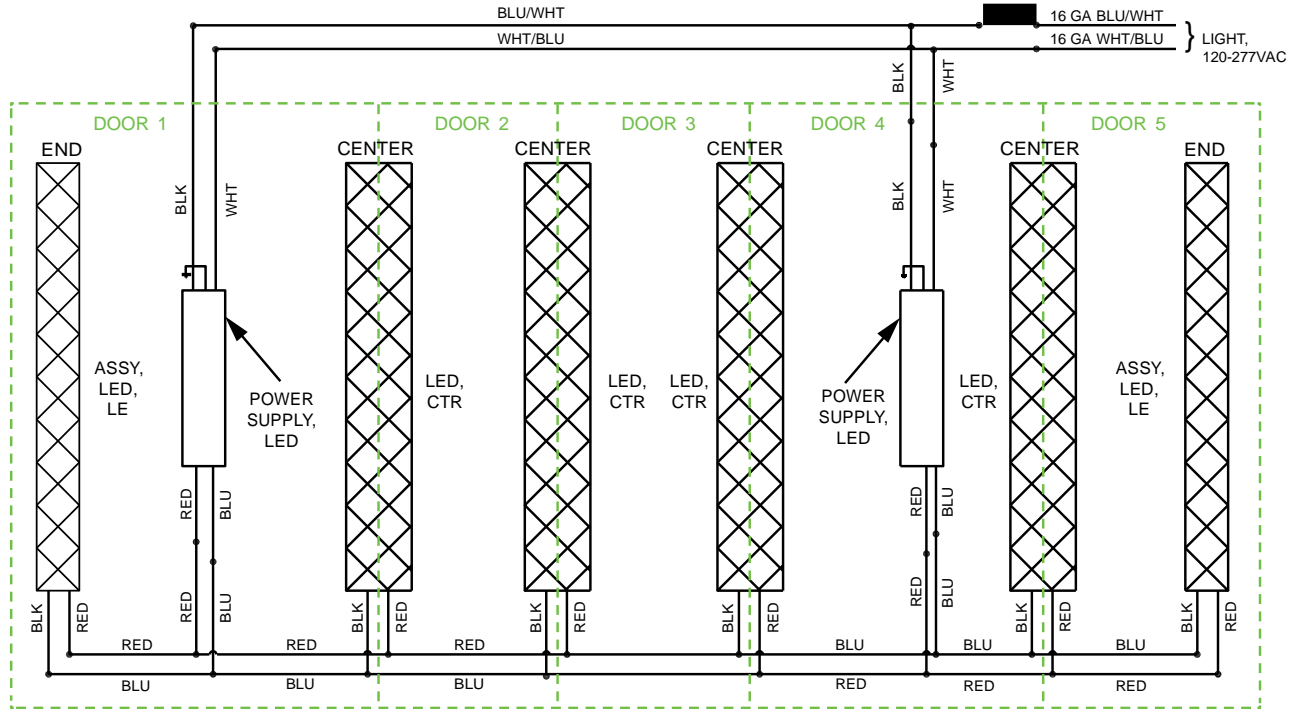
5. Model 401 Optimax Pro 24V Wiring Diagram (4-Door: 72" High Power)



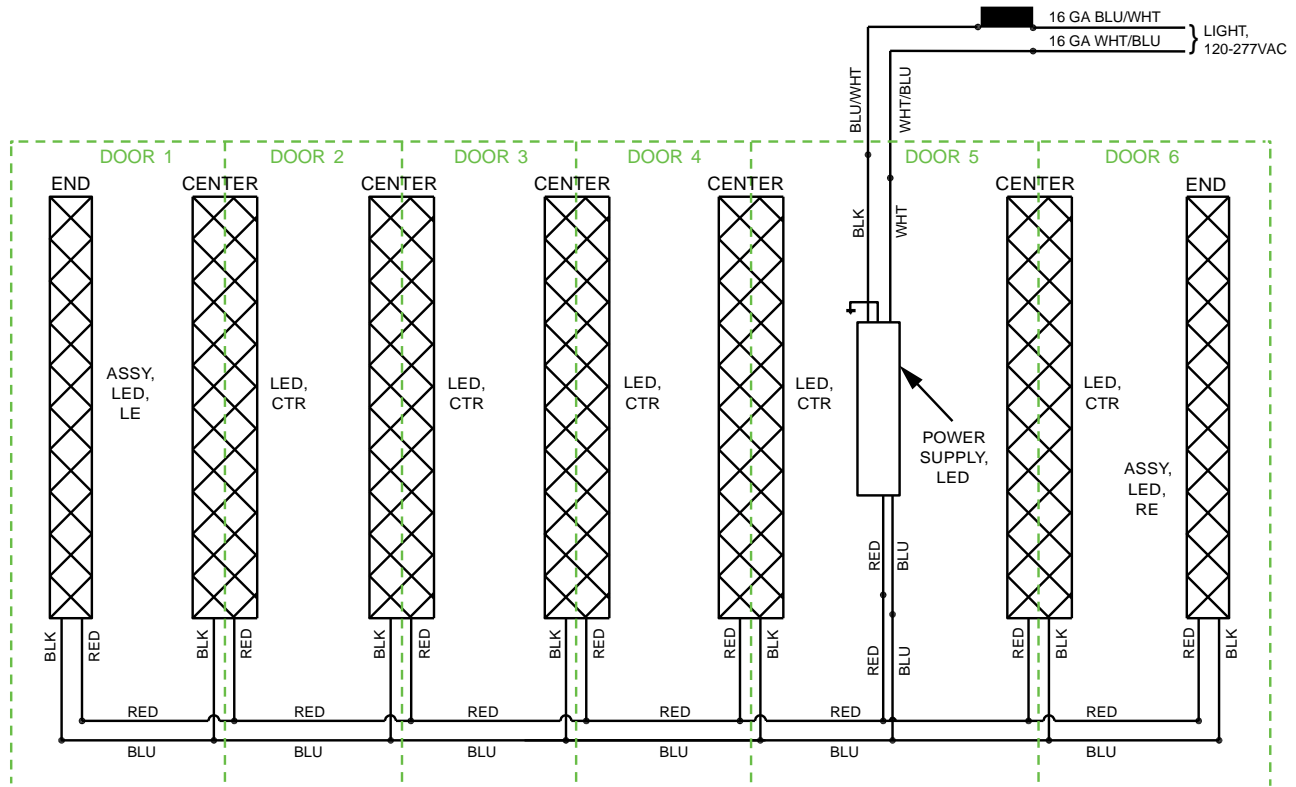
6. Model 401 Optimax Pro 24V Wiring Diagram (5-Door: 48" High Power & All Low Power)



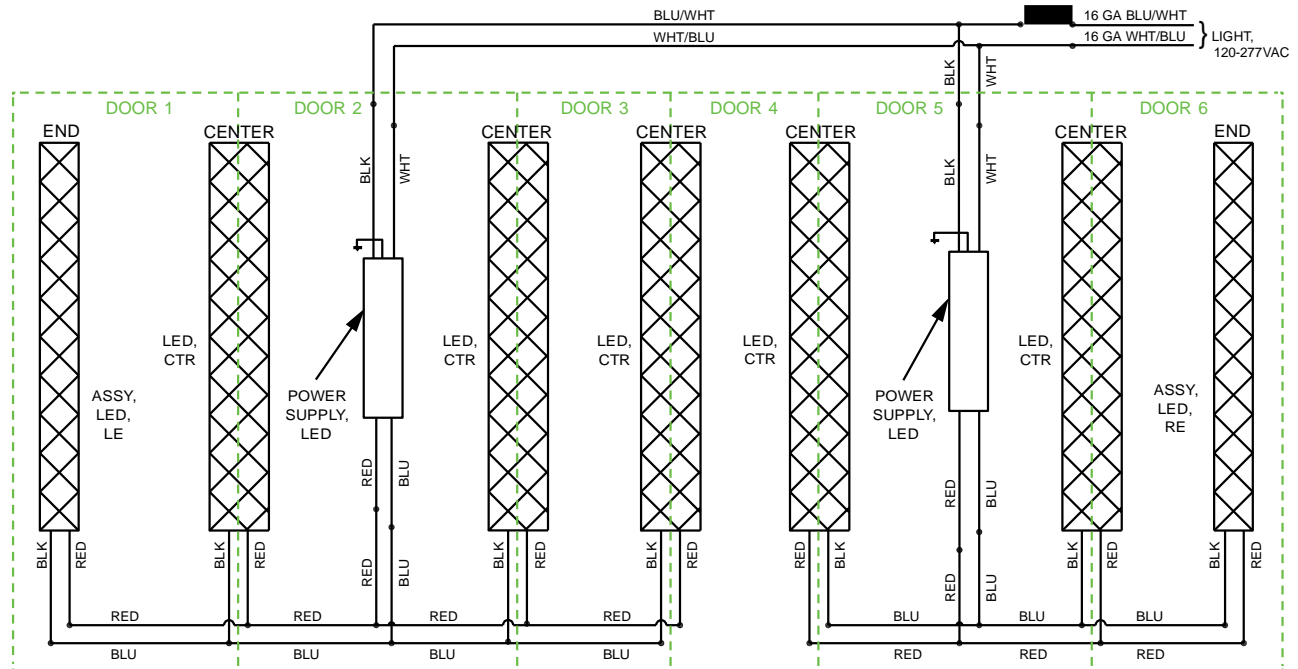
7. Model 401 Optimax Pro 24V Wiring Diagram (5-Door: 54", 60" & 72" High Power)



8. Model 401 Optimax Pro 24V Wiring Diagram (6-Door: 48" & 54" Low Power)



9. Model 401 Optimax Pro 24V Wiring Diagram (6-Door: All High Power; 60" & 72" Low Power)



Electrical Information for Normal Temp Doors, Frames & Light Fixtures (Heater Amperages @ 120 Volts)

NUMBER OF DOORS	1	2	3	4	5	6	7	8	9	10
STYLE: Normal temp doors with heaters. 3-Pane, Non-Heated Glass										
APPLICATION: Case Temperature: 33°F. Relative Humidity: 68%, In-Store @ 75°F ambient										
23 x 67	0.72	1.45	2.17	2.89	3.62	4.34	5.06	5.78	6.51	7.24
23 x 75	0.81	1.63	2.44	3.26	4.07	4.88	5.70	6.52	7.33	8.14
26 x 67	0.76	1.51	2.27	3.02	3.78	4.54	5.29	6.04	6.81	7.56
26 x 75	0.82	1.64	2.45	3.27	4.09	4.90	5.72	6.54	7.35	8.17
28 x 75	0.88	1.76	2.64	3.52	4.40	5.28	6.16	7.04	7.92	8.80
28 x 79	0.94	1.88	2.82	3.76	4.70	5.64	6.58	7.52	8.46	9.40
30 x 67	0.82	1.64	2.46	3.28	4.10	4.92	5.74	6.56	7.38	8.20
30 x 75	0.87	1.73	2.60	3.47	4.33	5.20	6.07	6.94	7.80	8.67
30 x 79	0.96	1.92	2.88	3.84	4.80	5.76	6.72	7.68	8.64	9.60

	11	12	13	14	15	16	17	18	19	20	AMPS/LIGHT
23 x 67	7.95	8.67	9.40	10.12	10.86	11.56	12.31	13.02	13.73	14.48	0.55
23 x 75	8.96	9.78	10.58	11.40	12.21	13.04	13.84	14.66	15.47	16.28	0.55
26 x 67	8.31	9.06	9.82	10.57	11.34	12.08	12.85	13.62	14.35	15.12	0.55
26 x 75	8.99	9.81	10.62	11.44	12.26	13.08	13.89	14.71	15.53	16.35	0.55
28 x 75	9.68	10.56	11.44	12.32	13.20	14.08	14.96	15.84	16.72	17.60	0.55
28 x 79	10.34	11.28	12.22	13.16	14.10	15.04	15.98	16.92	17.86	18.80	0.55
30 x 67	9.02	9.84	10.66	11.48	12.30	13.12	13.94	14.76	15.58	16.40	0.55
30 x 75	9.54	10.41	11.27	12.14	13.01	13.88	14.74	15.61	16.48	17.35	0.55
30 x 79	10.56	11.52	12.48	13.44	14.40	15.36	16.32	17.28	18.24	19.20	0.55

NOTES:

1. All amperages are design amperages subject to the following tolerances: units with rail heaters only +/- 5%, units with rail heaters and heated glass +/- 8%.
2. Amperages are calculated at 120 volts, but all doors are designed to operate without sweating when used within the application parameters with a voltage range of +/- 10%.
3. When calculating lamp amperage, add 1 lamp to the number of doors in the line-up and multiply that number by the appropriate amps per light value
4. Design parameters do not make allowances for air leaks or unusual air flow patterns within cases. Some sweating may occur at upper limits of temperature or humidity.

Heat Load in BTU/Hr for Glass, Door Rail, Frame Heaters & Lights (Per Door, with Doors Closed @75°F Store Ambient)

MODEL 401/403 NORMAL TEMPERATURE					
(3-PANE NON-HEATED GLASS - CASE TEMP 33°F)					
CATALOG DOOR SIZE	1 DOOR	2 DOOR	3 DOOR	4 DOOR	5 DOOR
23 x 67	770	1274	1782	2285	2789
23 x 75	836	1380	1929	2478	3027
26 x 67	786	1306	1823	2343	2863
26 x 75	844	1405	1962	2519	3080
28 x 75	852	1417	1982	2552	3117
28 x 79	864	1446	2023	2605	3182
30 x 67	795	1323	1851	2384	2912
30 x 75	848	1413	1974	2539	3100
30 x 79	864	1438	2015	2593	3166
NOTE: Add 10-20% to above values depending upon door opening frequency.					

Troubleshooting

1. **Electrical:** Low voltage supply (less than 108V on 120V systems) results in significantly lower wattage. Lower wattage will decrease the efficiency of heaters and lamps.
 - A. Glass Condensation:
 1. No Power? Check:
 - a. Power supply
 - b. Relative humidity in room area
 - c. Hinge pin wiring
 - d. Case temperature
 - e. Hinge pin plugged into door female plug
 - f. Incorrect wiring
 - g. Faulty Energy Management System (Sensor)
 2. Low Voltage? Check voltage at main power source.
 - a. Voltage at main – low voltage
 - b. Energy Management System (Sensor)

B. Door and Frame Rail Condensation:

1. No Power? Check:
 - a. Power supply
 - b. Relative humidity in room area
 - c. Hinge pin wiring
 - d. Case temperature
 - e. Hinge pin installed in female plug in door
 - f. High velocity fans on back of frame
 - g. Energy Management System (Sensor)
2. Low Voltage? Check voltage at main power source.
 - a. Supply Voltage – Low Voltage
 - b. Energy Management System (Sensor)

2. Mechanical:

A. Door Not Sealing? Check:

1. Magnetic gasket (Replace if necessary)
2. Torquemaster adjustment
3. Hold-Open
4. Defective frame plastic
5. Frame or door out of square

B. Door Will Not Close?

1. See instructions 2a, 1 through 5

C. Door Saw Toothed?

1. Door or frame out of square? (Square to the nearest 1/16" of net opening)
2. Torquemaster adjustment
3. Worn hinge pin hole
4. Case not level
5. Frame not shimmed properly

3. LED Strip

A. LEDs will not start?

1. Driver failure
2. Incorrect driver
3. Incorrect wiring
4. Poor contact between LEDs and connector

- B. LEDs Flickering?
 - 1. Incorrect driver
 - 2. Defective LED(s)
 - 3. Incorrect voltage
- C. Blinking LED
 - 1. Voltage too high
 - 2. Wrong LED or driver
 - 3. Incorrect connector wiring

Safety Precautions

- 1. Always turn off power to case, doors and frames before starting work.
- 2. Always use a qualified electrician for electrical work.
- 3. Always wear safety glasses when working on equipment.

Tips

- 1. Never splice door or frame heater wires. Complete replacement recommended.
- 2. When installing gasket and plastics, use a liquid soap.
- 3. Keep doors and frames clean.
- 4. For binding gasket or plastic parts, use a food grade silicone.
- 5. Preventive maintenance is the key to door and frame longevity.

Dew Point Chart

NORMAL TEMPERATURE APPLICATIONS						
GLASS TYPE	ROOM TEMP (F)	CASE TEMPERATURE (F)				
		40	35	30	25	20
THREE PANE NHG*	70	74	71	68	65	62
	75	72	68	66	63	60
	80	68	66	63	60	58
	85	66	64	61	58	56
	90	65	62	59	57	54
*NHG = Non Heated Glass		% REL. HUMIDITY @ WHICH CONDENSATION FORMS ON GLASS				

Calculations make no allowance for air leaks or unusual air flow patterns within cases and are intended to be used as guidelines only.

Appendix A - Preventative Maintenance Guidelines

Introduction

This guideline provides information required to perform recommended and required preventative maintenance to the Anthony doors and frame.

Routine Preventative Maintenance

The following provides information needed to safely perform regular periodical preventive maintenance. Regular preventative inspections will maximize the longevity of your Anthony products. These simple tasks will go a long way in ensuring optimal performance. Depending on maintenance being performed you may need to shut down the door or kill all power to the doors. Refer to your specific door model Installation Manual on how to disengage power. The use frequency of doors will vary from location to location, and the frequency in routine for preventative maintenance will vary for everyone depending on the amount of traffic.

For Anthony products used in harsh or extreme ambient conditions, it is recommended that these inspection intervals be performed on a more regular basis. When issues are found please refer to your specific model's installation and service manual for detailed information on how to replace and re-order needed parts or contact your Anthony representative.

Periodical Inspection Recommendations

Action	Store Conditions	Description
Preventative Inspection	Normal Conditions	Once each quarter (every 3 months)
	<u>Harsh Conditions</u>	Once a month (every 30 days)
Cleaning	All Conditions	Once a month (every 30 days)
<p><i>Note: These are recommendations based on historical data of other Anthony door products and can vary depending on location, store conditions, store traffic, and other unknown variables.</i></p>		

Recommendations

Here is an outline of standard recommend Preventative Inspection criteria:

- **Freezer/Cooler Temp & Defrost Settings** –
 - Regularly inspect and ensure that ambient conditions are correct*
 - Ensure HVAC vents do not blow directly on doors
 - Avoid direct evaporator air impingement on the cooler/freezer door. This can be achieved by ensuring shelves are always fully stocked.
 - The cooler/Freezer must be regularly inspected for air leaks this can affect the temperature
 - Visually inspect box penetrations and adjoining surfaces: the use of a flashlight is helpful
- *Refer to the values that pertain to your specific Door Model for Operating Condition values that are required for optimal door performance.*
- **Frame & Door** – Regularly ensure to check for wear/tear on frame and door this can include:
 - Ensuring that warning labels and product identification labels are all intact
 - Ensure all Bezels are intact and not damaged
 - Ensure that Vents are clean and allow maximum Airflow
 - Ensure all plastic backs are secured and undamaged
 - Handles are secured to the door
 - Ensure the door is opening to the angle of 87°
 - Rails are intact, not broken, and securely in place
- **Door/Frame Hinging Pin & Receptacle Area** – Regularly ensure to check for wear/tear all hinging parts include:
 - Inspect that the Hinge Pin is properly connected with the frame receptacle, **DO NOT** remove the factory installed dielectric grease from the Hinge Pin assembly to ensure the proper function
 - Inspect that the Hinge Pin and receptacle are rust/corrosion free, and there is an adequate amount of Dielectric Grease present
 - If when replacing or servicing Door and it is removed from the Hinge Pin receptacle, ensure to re-apply dielectric grease before installation of the door
 - Anthony recommends applying a minimum of three (3) grams per door Hinge Pin receptacle of its High-performance Dielectric Grease (Refer to the specific door model's installation manual for more detailed instructions on how to apply)
 - Anthony P/N: **98-25497-0001** (approximately 100 grams, sufficient for up to 30 door receptacles).
 - Anthony P/N: **98-25497-0002** (approximately 3 gram packet, sufficient for up to 1 door receptacle).
 - Replace any broken or damaged Hinge Pin and ensure to apply an adequate amount of Dielectric Grease
 - Visually and mechanically Inspect Hold-Open Arm, Screw, and Spacer for wear/tear/damage and that Screw is secure
- **TorqueMaster™** – To check the TorqueMaster™ is functioning correctly open each door and ensure that the tension makes the door close smoothly and gently on its own. If the door closes either too slowly or rapidly the issue can be fixed by adjusting that Torque Master™ refer to the “Torque Master™ and Sag Adjustment” section for details. If after adjusting the issue is still present the next step is to replace the Torque Master™, refer to the specific door model's installation manual for detailed instructions on replacing.
- **Gaskets** – When inspecting gaskets ensure that they are sealing properly along the entire perimeter of the door. Also, ensure that the gasket is properly inserted into the door plastic grove. Inspect and ensure gaskets are free of cracks, tears, deformities, and hardening.

Cleaning Routine

List of Items that should be cleaned during monthly cleaning routine:

- **General Cleaning** – Regularly clean by wiping down the frame, door rails, bezels, and gaskets by checking for food debris, dust, and other foreign objects that may prevent the door from closing correctly. Use non-abrasive cleaning apparatus (i.e., microfiber cloth) when wiping down frame and door rails.
- **Cleaning Inside Door Glass***: To clean door glass on the inside of the door. We recommend the following cleaners:
 - Windex[®] Original
 - Windex[®] Vinegar
 - Fantastik[®]
 - Formula 409[®]
 - MicroClean Professional APC[®]

NOTICE



Note – Any cleaner used or listed here MUST be Ammonia Free. Only use cleaners on glass portion of the door. Using harsh chemicals on PVC or ABS plastic portions of door may damage material.

Troubleshooting

PROBLEM / ISSUE	PROBABLE CAUSES / FIXES	FINAL REMEDY
Condensation on Door Glass, Door Rail, or Frame	Fan to Door Proximity too small	Install air deflector
	Evaporator fans blowing cold air directly onto glass/frames	
	Shelves not fully stocked	Stock merchandise
	Door/gasket seal malfunction	See "Insulation or Air Leaks"
	Store conditions (temperature and relative humidity) outside required parameters	Adjust HVAC / Dehumidifier settings to meet required
	Cooler/freezer temperature set too low	Adjust cooler/freezer temperature to design specified setting
Condensation in between Glass Panes	Seal compromised cause loss of gas or vacuum (check by cleaning the glass on merchandise and customer sides)	Replace door
Rust/Corrosion on Hinge Pin	Excessive moisture from ambient/store conditions	Add Dielectric Grease to Hinge Pin Receptacle Replace Hinge Pin/ add adequate amount of Dielectric Grease
Ice buildup inside Freezer	Air infiltration Box/frame not sealed according to Anthony instructions	See "Insulation or Air Leaks"
Door not closing or sealing	Check gasket to ensure proper installation	Replace gasket
	Check the gasket for damage	
	Check Hold-Open	Replace Hold-Open
	Check TorqueMaster torque (plumb)	Replace TorqueMaster2
	Check TorqueMaster sag	
	Check Frame/Door is square	
	Check Plastic covers on rails	Replace Plastic Covers
	Check Plastic covers on frame mullions	
No Power to Frame	Check Power Supply	Adjust energy controller to Full-On
	Check energy/humidity controller	Replace Power Supply
	Check hinge pin connections	Replace Energy/Humidity Controller
	Check glass wire connections	Replace Hinge Pin
	Check hinge pin wiring	Replace wiring
Low Voltage	Check main voltage	Adjust energy controller to Full-On Replace Frame heater wires
	Check humidity controller	
	Check the Amp draws to the heater wires in the frame	
Door/Gasket Seal - Malfunction	Check gasket	Replace gasket
	Check door mount	Replace hinge pin
	Check Door is square and level	Replace TorqueMaster
Frame not Square or Plumb	Frame not properly shimmed	Use correct Shim to level frame Use rubber mallet to adjust frame plumb within 1/16"
	The frame should be square to within 1/16"	
	The frame should be plumb within 1/16"	
Insulation or Air Leaks	Frame must be properly shimmed, level, and plumb	Seal gaps with approved NSF-approved Food Grade Silicone Sealant per Quick Installation Requirements Guide.
	Ensure encapsulated blue board insulation is present (Thermal Frame with Low Temp and NT High Humidity applications only)	
	Use RTV-108 NSF Approved Silicone Caulk to fill the perimeter of the frame on the refrigeration side (inside the case) and at all frame joints as required so there are no air gaps.	
	Use RTV-108 NSF Approved Silicone Caulk to fill the perimeter of the frame on the refrigeration side (outside the case) and at all frame joints as required so there are no air gaps.	
	Ensure Gap between frame and refrigeration does not exceed 1/8", gaps larger than 1/8" will require additional shimming to reduce gap size before sealing	
	Ensure all electrical conduits are properly sealed to prevent moisture and air from migrating into the box, use RTV-108 NSF Approved Silicone Caulking if necessary	

PROBLEM / ISSUE	PROBABLE CAUSES / FIXES	FINAL REMEDY
Glass condensation	No Power	Check power supply Check humidity controller Check Hinge Pin connections Check glass wire connections Check Hinge Pin wiring
	Low voltage	Check main voltage Check humidity controller
Door/Frame Rail Condensation	No Power	Check power supply Check humidity controller Check hinge pin connections Check door wire connections Check frame wire connections
	Low voltage	Check main voltage Check humidity controller hinge pin
	Door seal malfunction	Check gasket Check door mount wiring
Door saw-toothed	Door or frame not square	Square door to 1/16" Adjust TorqueMaster sag Replace worn hinge pin socket Facility or case not level Frame not properly shimmed Hold-open binding/damaged
Lamp inoperative	Power switch OFF	Turn power switch ON
	Lamp burned-out	Replace lamp
	Lamp failure	Check socket mounting Check socket/lamp connection Check ground wire connection
	Incorrect lamp	Replace with correct lamp
	Ballast failure	Check wire connections Replace ballast
	Incorrect ballast	Replace ballast
	Incorrect wiring	Check ground wire connection Reconfigure wiring Replace wiring
Lamp intermittent or dimming	Incorrect voltage	Match lamp voltage to circuit Match ballast to circuit voltage
	Lamp cover failure	Check cover installation Check mullion lens installation Replace lamp cover
	Defective wiring	Check & replace wiring
	Defective LED Fixture	Replace LED Fixture

COMPANY POLICIES, TERMS OF SALE, AND WARRANTY

The following terms and conditions shall apply to all transactions and agreements between Anthony, Inc. ("Anthony") and the other party to such transaction or agreement ("Buyer") with respect to the purchase of any goods from Anthony and/or the extension of credit by Anthony to Buyer for such purchase.

1. PRICE. Prices shown on the face of the sales invoice are F.O.B. the place of shipment as designated by Anthony, packaged for shipment and subject to change without notice.

2. TERMS OF CREDIT. All credit terms are net 30 days from date of invoice. Any deductions from the net invoice amount must be approved by a representative of Anthony authorized to make such changes. If credit is extended to Buyer, Anthony reserves the right to revoke such credit if Buyer fails to make timely payment for any goods delivered. Anthony reserves the right to require payment or other assurances which it deems necessary prior to the shipment of any goods, if, in Anthony's opinion, exercised in Anthony's subjective, good faith judgment, the Buyer's financial condition has deteriorated or the risk of non-payment has otherwise increased. Credit is subject to approval upon receipt of completed credit application. Any goods shipped prior to credit approval shall be shipped C.O.D., "Cashiers Check", or pre-payment. A \$25.00 charge will be applied for each returned check. Goods may not be returned for credit unless prior authorization and an authorization number have been granted by Anthony. A 1 ½ % per month charge will be assessed on past due amounts.

3. SHIPMENT OF GOODS / RETURN OF GOODS. Every effort will be made to ship the goods on the scheduled shipment date and to maintain production schedules consistent therewith provided however, Anthony shall not be liable for any claims or consequential damages arising from the failure to meet any scheduled shipping dates. If Buyer refuses shipment of any standard catalog products under an acknowledged order and those products are consistent with that order and are not delivered damaged or defective, then Buyer will be responsible for (i) return shipment of the products to Anthony in original shipping containers; (ii) return freight to Anthony prepaid by Buyer; and (iii) a restocking charge to be determined by Anthony of not less than twenty-five percent (25%) of the sales price. Buyer assumes the risk of any return shipment damage or loss, the cost of which will be assessed by Anthony and added to the restocking charge. No custom products or custom sizes of catalog items may be returned to Anthony for credit unless those products are not consistent with an acknowledged order or they are defective. If they are defective, Anthony reserves the right to cure the defect at the ship-to location. Costs for special packaging and/or handling requested by Buyer will be billed to Buyer. Shipping terms are specified on the face of Anthony's quotation and/or price list, as applicable. Unless otherwise specified by Buyer in writing, Anthony shall select the method of shipment and direct shipment of materials to the specified delivery address of Buyer. In the event of any general freight increase or any governmental ruling or regulation that results in increased freight costs, Anthony may, without any advance notice, invoice Buyer for such additional costs. Acceptance and rejections of glass sheets, assembled sealed glass units, and finished doors shall be in accordance with the defect criteria set forth in Industry Specification ASTM C1036-06 Standards, level Q3.

4. RISK OF LOSS. Subject to security interests retained by Anthony until payment for the goods is received in full, the title to such goods and risk of loss or damages thereto pass to Buyer upon completion of loading of goods on carrier at Anthony's factory. Buyer will unload shipments promptly and Buyer will be liable for any additional charges such as demurrage, storage, and labor incurred by its failure to do so. Any claims by Buyer for damages to the goods incurred during shipping shall be made to the carrier.

5. WARRANTIES. The products which Anthony manufacture and offer for sale are warranted to: (i) be free from defects in materials and workmanship; and (ii) perform in accordance with applicable refrigeration standards as of the date of manufacture for a period of 12 months from the date and place of shipment, provided that the installation and maintenance of such products have been performed strictly in accordance with Anthony's designated specifications (the "Warranty"). Anthony shall provide all necessary parts and labor at its cost to fulfill said Warranty. All parts will be shipped standard ground freight. The extent of Anthony's liability under the Warranty is limited to the repair or replacement, at Anthony's option, of any non-conforming products without charge, at Anthony's Sylmar manufacturing plant. Additionally, for a period of 10 years from the shipment date, Anthony will replace sealed glass units that are part of an original Anthony-manufactured door if the seal breaks and internal condensation results. Anthony-manufactured LED lighting have a five (5) year component warranty and twelve (12) month labor warranty. The anti-fog coating is only warranted for a period of twelve (12) months from date of shipment. Anthony reserves the right to change its warranty provisions at its sole discretion at any time with or without prior notification of such change.

No Warranty for Non-Standard Products.

A "Non-Standard Product" is any product that is different in any manner from any Anthony product that has been previously designed and manufactured by Anthony in accordance with its standard specifications. A Non-Standard Product also includes any standard Anthony product that has been specially designed or modified to meet a particular Buyer specification, or that contains any additional or substituted product, part, accessory, equipment, fixture, component or material, or that has been assembled, manufactured, produced, or installed by any method or process, which is different from Anthony's standard specifications for such product. Anthony expressly disclaims and make no warranties, express or implied, as to the condition, design, utility, quality, adequacy, or capacity with respect to any standard or Non-Standard Product, including, without limitation, any warranty of merchantability or fitness of such product for a particular purpose or intended use, whether or not such product has been designated by Anthony as a Non-Standard Product.

All Non-Standard Products, whether sold separately, or incorporated and/or attached to standard Anthony products, and all services relating to such products, are sold to and accepted by Buyer "as is" and "with all faults". Without limiting any other provision of this purchase order, Anthony shall have no liability to Buyer for any claim, loss, damage, consequential damages or expense associated with any Non-Standard Product and/or its use or operation, or any other equipment or property of Buyer caused by or alleged to be caused by any such product or its use or operation, whether directly, indirectly, incidentally or consequentially, or by any inadequacy thereof or deficiency or defect therein.

The foregoing exclusion of warranty cannot be modified or waived except as expressly set forth in a writing signed by an officer of Anthony authorized to make such modification or waiver.

THE ABOVE WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANTHONY SHALL NOT BE RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.

6. ACCEPTANCE OF PRODUCTS BY BUYER/CLAIMS: Upon delivery, shipments must be inspected for damage, loss or shortage prior to acceptance from the carrier. If damage or shortage exists with respect to any shipment and it is not concealed, Buyer shall secure a notation of such damage or shortage from the delivering agent on the freight bill or delivery receipt. If damage is concealed, Buyer must notify Anthony within five (5) days of its delivery and hold the merchandise for its inspection. Any claims for visible loss or damage should be filed by Buyer with Anthony in writing immediately upon receipt of the materials. All claims of Buyer that materials delivered do not conform to the accepted order shall be handled as claims for breach of warranty and Buyer shall be limited to those remedies available for breach of warranty.

7. CLAIMS BY BUYER. Anthony shall thereupon be afforded a reasonable opportunity to inspect the goods. All claims not made in the time period and manner specified above shall be deemed waived. All actions, claims or defenses by Buyer shall be deemed waived unless commenced or asserted within six (6) months of receipt of the goods. No claims for visible, external damage or shortage will be allowed unless they are accompanied by an inspection report or signed delivery receipt noting such loss or damage signed by a representative of the carrier and forwarded to the Anthony Vice President, Marketing & Sales within 30 days of the invoice date.

8. CANCELLATION. Orders may not be canceled after receipt by Anthony unless Anthony consents in writing to such cancellation. Cancellation will be granted only on terms indemnifying Anthony against any loss resulting from such action. At minimum, Buyer will be liable for all cost incurred on the order through the cancellation date.

9. CHANGES BY ANTHONY. Anthony reserves the right to change design, colors and specifications of any goods without notice to Buyer.

10. DEFAULT. If Buyer defaults or fails to pay on the purchase of any goods or if a petition in bankruptcy is filed by or against Buyer, Anthony, in addition to other remedies, may repossess any goods which were previously delivered and for which payment has not been received, and may refuse to make further shipment of goods. Buyer agrees to pay Anthony's attorneys' fees, costs and expenses incurred as a result of Buyers default or failure to pay, including but not limited to any collection or repossession expenses.

11. ENTIRE AGREEMENT AND AMENDMENT. The terms specified herein constitute the entire agreement between Anthony and Buyer with respect to the sale and purchase of the goods and any extension of credit. If Anthony and Buyer agree to amend or modify any terms and conditions specified herein, such amendment or modification must be expressly stated on the face of the sales invoice or by a written agreement duly executed by an officer of Anthony and the Buyer. The terms specified herein shall control in the event of any variance between these terms and any terms contained in Buyer's purchase orders.

12. GOVERNING LAW. This purchase order, any agreements between Anthony and Buyer and all other claims that arise between the parties, whether sounding in contract or tort, shall be governed by, construed and enforced in accordance with the laws of the State of California. By entering into this purchase order and any other agreement with Anthony, Buyer consents to the jurisdiction of the courts of the State of California to determine all claims between the parties, regardless of whether said claims are contract claims, tort claims, patent claims, trademark claims or copyright claims. Venue of any lawsuit (State or Federal) against Anthony must be filed in Los Angeles County, California. Service of process on Buyer may be made by registered mail addressed to the Buyer.

13. SEVERABILITY. If any provision of the terms and conditions specified herein shall be deemed invalid or unenforceable, the remaining terms and conditions shall be construed as though such provision does not appear herein and shall be otherwise fully enforceable.

14. HEADINGS. The section headings contained herein have been inserted for convenient reference and shall not be considered in any questions of interpretation or construction of any agreements between Anthony and Buyer.

Revision History

Rev.	Originator	Description Of Change	Date
A	Robert Fritz	Production Release	03/17/15
B	D. Bore / S. Putti / K. Holst	See ECN 15114	08/25/16
C	E.Chavez / K. Holst	Added Appendix A. See ECN 18491	06/30/22