Vuelift

Residential Elevator

Installation Guide

savaria®

Standard notations

The following notations may be used throughout this guide to emphasize important safety information, mechanical concerns, and other important information. Please review and follow all of these messages.

DANGER	Danger messages indicate an imminently hazardous situation, which, if not avoided, results in death or serious injury. All danger messages feature a standard ISO safety alert symbol followed by the signal word DANGER in capitalized black lettering on a red background.
WARNING	Warning messages indicate a potentially hazardous situation, which, if not avoided, could result in death or serious injury. All warning messages feature a standard ISO safety alert symbol followed by the signal word WARNING in capitalized black lettering on a dark yellow background.
CAUTION	Caution messages indicate a potentially problematic situation with the product, which, if not avoided, could result in damage to the product. All caution messages feature a standard ISO safety alert symbol followed by the signal word CAUTION in capitalized black lettering on a yellow background
NOTE	Note messages provide information, such as reminders, general information about a previous statement, or additional guidelines that do not fit into the flow of the preceding text. All note messages include the signal word NOTE in capitalized white lettering on a blue background.

Hazards and warnings

ELECTRICAL SHOCK HAZARD

Do not connect or disconnect wiring while the power is on. Before servicing, disconnect all power to the equipment.

WARNING

SUDDEN MOVEMENT HAZARD

System may start unexpectedly upon application of power. Unpredictable equipment operation may result in death or serious injury.

ELECTRICAL SHOCK HAZARD

Savaria is not responsible for any modifications of the product made by the user. Do not allow unqualified personnel to use equipment. Failure to comply could result in death or serious injury. Maintenance, inspection, and replacement of parts must be performed only by authorized personnel familiar with installation, adjustment, and maintenance. Do not remove covers or touch circuit boards while the power is on.

WARNING

FIRE HAZARD

Do not use an improper voltage source.
Verify that the rated voltage matches the voltage of the incoming power supply before applying power.

Disclaimer

Savaria Concord Lifts, Inc. disclaims liability for any personal injury or property damage resulting from the operation of a product that has been modified from the original Savaria design. No person or company is authorized to change the design of this product without written authorization by Savaria.

Revision history of this guide

- January 25, 2018 – Initial release
- February 22, 2018 – Added new section to install proximity switches on page 87; revised drawings on pages 93 and 102; moved Cab Finishing section to after Roping section; added new section to install guide shoes on page 108; revised drawings on pages 113 and 114; Appendix A is now Maintenance and Troubleshooting and Appendix B is now Electrical Information and Schematics; added master schematic pages at end of manual
- April 6, 2018 – Various revisions throughout
- April 10, 2018 – Revised Tools and Materials on page 3
- May 10, 2018 – Added controller photos on page 83; Added proximity switch wiring on page 92; Added clarification of gate switch installation on page 127; Added procedure to install motor cover on page 128; Added procedure to install ramp on page 130; Various other updates throughout including identification of some hardware kits
- May 30, 2018 – Added graphic on page 152 showing Master Schematic page split and revised Master Schematic drawings on pages following that
- June 14, 2018 – Revised front cover; revised naming convention of limit switches to terminal/machine stop switches (pages 89 and 151 and Master Schematic sheets 2 and 3)
- July 10, 2018 – Added new step 22 on page 77 to add blue Loctite to threads of encoder shaft set screw
- July 26, 2018 – Moved page 77 to after page 80 and revised encoder mounting procedure
- August 7, 2018 – Added important note re: phone on page 133
- September 25, 2018 – Added important note re: anchors on pages 7, 9, 29, 41, and 54; Added new Appendix B: Double Brake Procedures on page 140; Added safety circuit schematic on page 155
- October 31, 2018 – Added reference to rubber boot for oil drippings on page 100
- November 13, 2018 – Added scratch removal procedure on page 139; Revised schematics in Appendix C
- November 19, 2018 – Added cable drawings on pages 157 to 167 in Appendix C
- December 18, 2018 – Revised page 73
- December 20, 2018 – Revised brake adjustment procedure on page 141
- January 9, 2019 – Removed Appendix B; Added new steps to install stabilizer bars for tall floor to floor height on pages 30, 43 and 57
- January 14, 2019 – Revised step to install stabilizer bars for tall floor to floor height on pages 29, 42 and 56
- March 19, 2019 – Added P/N for rubber boot on page 103
- April 25, 2019 – Re-ordered STEPs 5 to 7 and removed STEP 8; Added step on page 93 to drill/tap and then use 1 1/2" screws to install switches; Added step on page 95 to tap to clean the hole before installing proximity switch; Added step on page 129 to tap pre-drilled holes on ceiling before installing upper door track; Updated Safety Circuit drawing on page 156

TOOLS AND MATERIALS REQUIRED

Mandatory Tool List

- 2 and #3 Phillips head screwdrivers
- 3/8" - 1/2" flat head screwdrivers
- Electronics screw driver (terminal screw driver) - 2 mm tip required
- Cordless hand drill with a 1/2" drill chuck
  - 5/16" magnetic nut driver for attachment to variable speed drill
  - Carbide drill bit set (varying sizes from 1/16" - 1/2")
- Variable speed hammer drill
  - 3/16" and 1/4" bits mandatory
  - 3/8" and 1/2" bits optional, but recommended
- 10" (250mm) medium cut metal file (recommended getting both a coarse and fine metalfile)
- 100' extension cord (minimum 14ga)
- Allen wrenches/keys (1/8" - 3/8" Imperial)
- Electric Winch – Warn – PullzAll 1000 lbs Winch. This specific winch is highly recommended.
- Lifting slings (steel cable or nylon strap, minimum 2" width, rated for a minimum of 2000 lbs). Number of straps is dependent on individual site specifications. Typically 3-4 straps will be required, but more may be required if the unit is taller than 3 stories.
- Large rubber mallet (with a non-marking head)
- Laser plumb bob (e.g. Bosch GPL 2 R)
- 4 foot - magnetic level accurate to 1/8" / 50 ft (having two is best to ease in plumbing the rails)
- Torpedo level
- 2 rolls of wide blue painters tape (3 rolls required for jobs 4 stop or more)
- Electrical tape
- 12" long 1/4" extension for bits (without a wide release head)
- Set of mechanical sockets and wrenches (1/4"- 1" Imperial)
- Tape measure
- Electrical multi-meter
- Wire strippers
- Mechanical riveting tool with 1/8" rivet head
  - 1/8" and 1/4" long by 1/8" wide rivets
- Low RPM chop saw and blade (i.e. Evolution 14" Steel Cutting Chop Saw part# EVOSAW380). The RPM of the saw should be roughly around 1400 to 2000 RPM.
- Wire tie wraps (zip-ties)
- Pry bar
- Vise-grip pliers
- Taps, drill bits for taps and tap handle for the following tap:
  - 8-32 NC
  - 10-24 NC
  - 1/4-20 NC
  - 3/8-16 NC
- Gasket shear
- C-clamps
- Quick clamps x2 (i.e. Irwin Quick-Grip)
- Ratchet straps x2 (15-foot length)
- Drop sheets to cover the work area

Optional Tool List (may be required depending on site conditions)

- 3/8" variable speed right angle drill (depending on site conditions)
- Scaffolding or ladders and planks for erection of rails and brackets (height is dependent on individual site specifications)
- 4 1/2" angle grinder with cut-off wheels, grinding discs and flap (sanding) discs
- Cat5 crimper and spare RJ-45 ends
- Network testing tool (Cat5 test tool for servicing)
- Miter saw with non-ferrous metal cutting blade
- Fluted countersink
- Router (i.e. Makita model # RT0701C) - if acrylic is to be cut on site ONLY
  - 1/2" x 1" carbide tipped 3-flute flush trim bit (to cut Plexiglas)
- 2 glass suction cups (for glass units)
- Plexiglas repair kit
  - 320, 400 and 600 grit sandpaper
  - Polishing wheel
  - Novus #3 and Novus #2 Plexiglas polish
- Vuelift specialty installation tools (must be ordered from Savaria)
  - Header installation tool (this assists in the installation by providing an overhead point to hoist the support rings)
  - Drive train installation blocks (these assist in holding the motor up when hoisting the car up to mount the motor)

Materials Required

- 1/2" electrical box connectors (for flexible and standard conduit – depending on local codes)
- Assorted junction boxes and flexible conduit (length and size is dependent on individual site)
- Wiring to bring power from the disconnect to the controller
- Rags and cleaning solvent (i.e. Windex for hoistway rails and powder-coated parts; Novus® #1, Plexus, or other plastic cleaner approved for use with Plexiglas, for acrylic walls)
- 2 spare pieces of 2x4 wood
- Steel shims (if floors are very unlevel)

IMPORTANT

APPLICABLE CODES

You must ensure that your installation conforms to all local codes and standards including the applicable electrical, building, and elevator/lift codes.

Each region will use a specific year of the code and it is the responsibility of the installing company to confirm which year of the code is applicable.

For the Vuelift, the following elevator/lift codes apply:

- ASME A17.1/CSA B44 2000, Section 5.3
- ASME A17.1/CSA B44 2004, Section 5.3
- ASME A17.1 2004, Addendum 2005, Section 5.3
- ASME A17.1/CSA B44 2007, Section 5.3
- ASME A17.1/CSA B44, Addendum 2008, Section 5.3
- ASME A17.1/CSA B44 2010, Section 5.3
- ASME A17.1/CSA B44 2013, Section 5.3
- ASME A17.1/CSA B44 2016, Section 5.3
- ASME A17.1 1996, Part 5

INSTALLATION SAFETY TIPS

Follow these safety tips during installation. Please read and understand this entire manual before installing the elevator.

1 Proper, safety-approved protection for your head, eyes, hands, and feet should be worn during all phases of the installation.

2 Use extreme caution while raising the elevator components into position to avoid personal injury or damage to the equipment.

3 Use extreme care when operating units without panels in place to avoid personal injury from moving parts.

4 Power should be removed from the drive unit and operating systems, including the controller, when any electrical work or adjustments are being done.

5 To avoid possible electrical shock, you should not work on a wet floor or enter an elevator or elevator pit when it contains water.

6 Use only specified anchor fasteners.

7 Never work alone and always be aware of fellow workers and their safety.

8 Never wear loose-fitting clothing during installation. Shirt cuffs should be buttoned to avoid being caught in moving machinery.

9 Ensure that all electrical and mechanical equipment is properly enclosed.

10 Never place yourself in a position where you may be harmed (i.e., between shear points, under heavy objects, in the path of moving parts, etc.).

11 Never stand directly under the cab or inside the hoistway during testing or when power is being supplied to the cab itself.

12 Floor openings should be secured and closed off whenever leaving the job site unattended.

DOUBLE-CHECK SITE SPECIFICS

1 Prior to delivery, ensure that you have clear access into the building and a clear route to the installation site.

2 For job site verification, use the following information sources:

- Plan drawings (also referred to as installation drawings or shop drawings)
- Written and verbal direction from the customer, electrical contractors, hoistway contractors, inspector, and architect.

3 Carefully check all site measurements and requirements per the drawings. If they do not match, contact Savaria's *Technical Support* at 1 (800) 791-7999 for immediate assistance. Specifically, check the following items against the drawings:

- Top Floor Height Overhead. Ensure the minimum clearance from the finished floor to ceiling is 95.5" nominal for the short cab configuration and 105.5" for the standard cab configuration.
- Bottom Floor Height. Ensure the bottom of pit (or top of finished floor when using ramp configuration) to the finished floor of the next floor is less than 12'. If the height is greater than 12', confirm the unit has been ordered with special rails for the lowest floor.
- Middle Floor Heights (if applicable). Ensure the floor to floor heights for standard middle floors are 12' - 0" maximum. If the height is greater than 12' - 0", confirm the unit has been ordered with special rails for the middle floors.
- Measure the size of the hoistway hole cutout in the finished floor. The hole MUST be round for Round units and octagonal for Octagonal units.
- Measure the location of the hoistway holes cut in the finished floors to ensure they are located directly above each other (+/- 1/8").
- Check the electrical power disconnect switches (proper size, type and amperage). Disconnects must be within view of the controller.
- Verify the correct voltage on the "load" side of the disconnects.
- Review the "Provisions by Others" with the site supervisor. This includes any post-installation tasks required by others for the elevator to pass inspection.
- Check the walls and handrails surrounding the elevator thru-floor and balcony cutouts to ensure the walls are plumb, and there is an adequate clearance around the hoistway location for installation of the elevator. (8" minimum clearance is required around the hoistway cutout for proper installation; 18" is preferred).
- Review the location of electrical wiring and/or conduit to the unit.

4 Ensure there are no fire and safety issues. Contact Savaria's *Technical Support* if there are any fire and safety issues.

5 Verify there is adequate lighting around the lift platform and at the landings.

UNPACK AND VERIFY SHIPMENT

1 Prior to installation, unpack the shipment and verify the contents.

2 Check the contents of the shipment against the job order. Contact Savaria's *Technical Support* department at 1 (800) 791-7999 if any parts are missing or incorrect.

3 Check the condition of the shipment for any damage; installing damaged parts can lead to safety violations and void the limited warranty. Contact Savaria's *Technical Support* department if any parts are damaged.

NOTE

If possible, take a photograph of the damaged part(s).

INSTALLATION PROCEDURES

⚠ WARNING

Follow the steps provided to ensure your safety during installation. Failure to follow instructions renders the Limited Warranty null and void. In addition, any party installing the product who deviates from the installation instructions agrees to indemnify, save, and hold harmless the manufacturer from any and all loss, liability, or damage that may occur as a result of the deviation.

HOISTWAY INSTALLATION (FIRST FLOOR)

Step 1
Install base ring

IMPORTANT

Use this procedure to install a BASE RING. If you have a PIT RING, go to STEP 2.

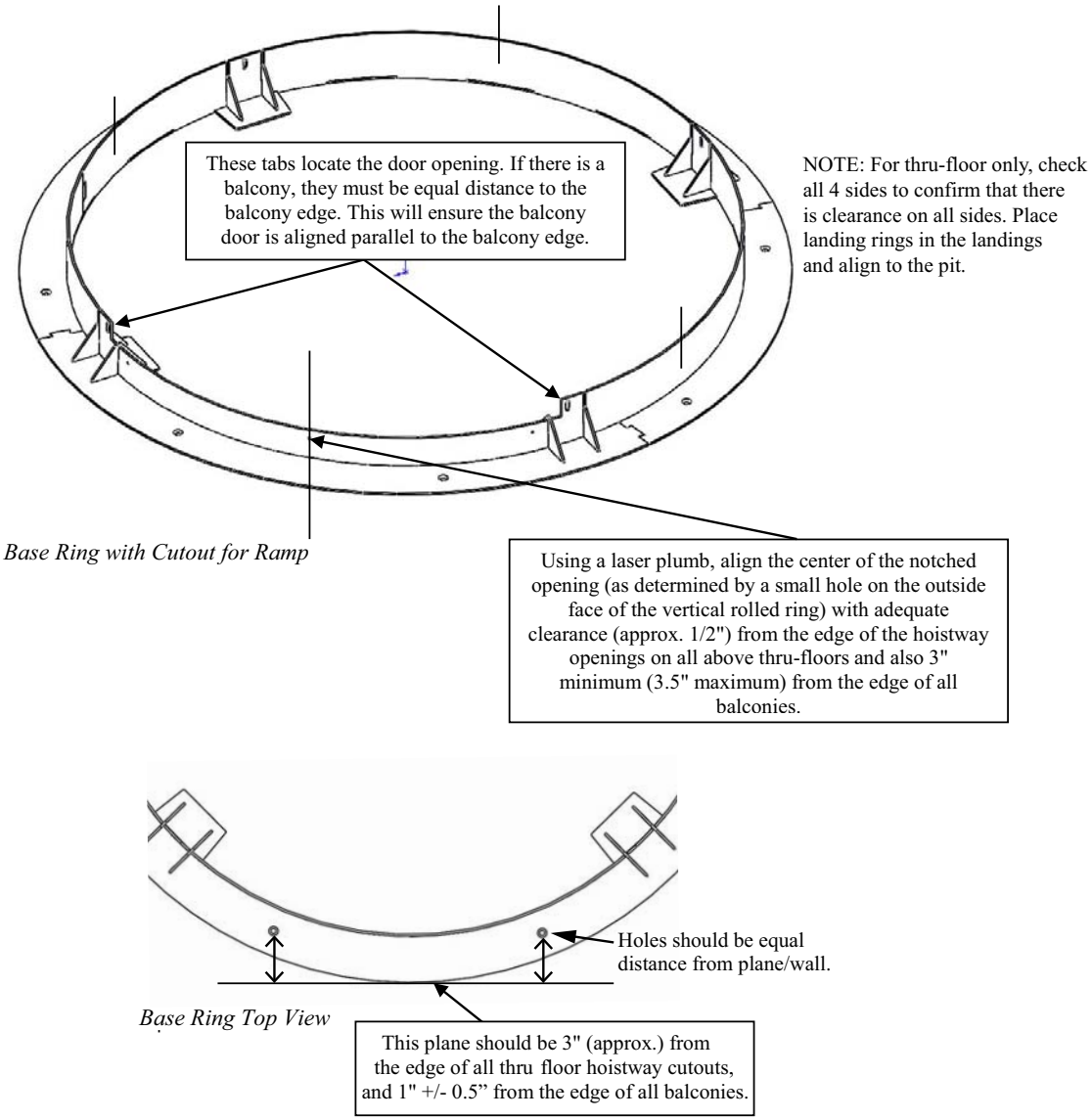
IMPORTANT: *Proper location of the BASE RING is crucial to the rest of the installation.*
Alignment of this ring determines the location of the hoistway doors, and if applicable, the orientation of the unit with regards to any balcony attachments.

⚠ CAUTION

The cutout on the upper portion of the base ring MUST be aligned **parallel** to any balcony edge on the floors above.

1 Position and align the base ring as shown in the illustration on the next page.

Figure 1
Position and align base ring



2 After aligning the base ring, use a level to level the ring in both directions (front to back and side to side).
- If the floor is not level, shim the base ring using thin steel shims. Tolerances for level are +/- 1/8" in both directions.

Figure 2
Level base ring

3 Secure the base ring to the floor using the fasteners supplied.
- Pre-drill pilot holes for both types of fasteners.
- A minimum of 4 fasteners must be installed through the base ring to the floor. It is strongly recommended, however, to install a fastener at every pre-drilled clearance hole.

Fasteners (from kit PK-0001):
- Qty: 8 5/16" x 2.25" Tapcon (to secure base ring to concrete floors)
- Qty: 8 M10 x 2.5" flat head wood screws (to secure base ring to wood floors)
- Qty: 8 Fastener covers and washers

IMPORTANT

Note that the anchors provided by Savaria are standard/typical anchors and are not suitable for all site conditions. Always make sure the anchors used are proper for the type of surface on site.

Figure 3
Secure base ring using fasteners

NOTE

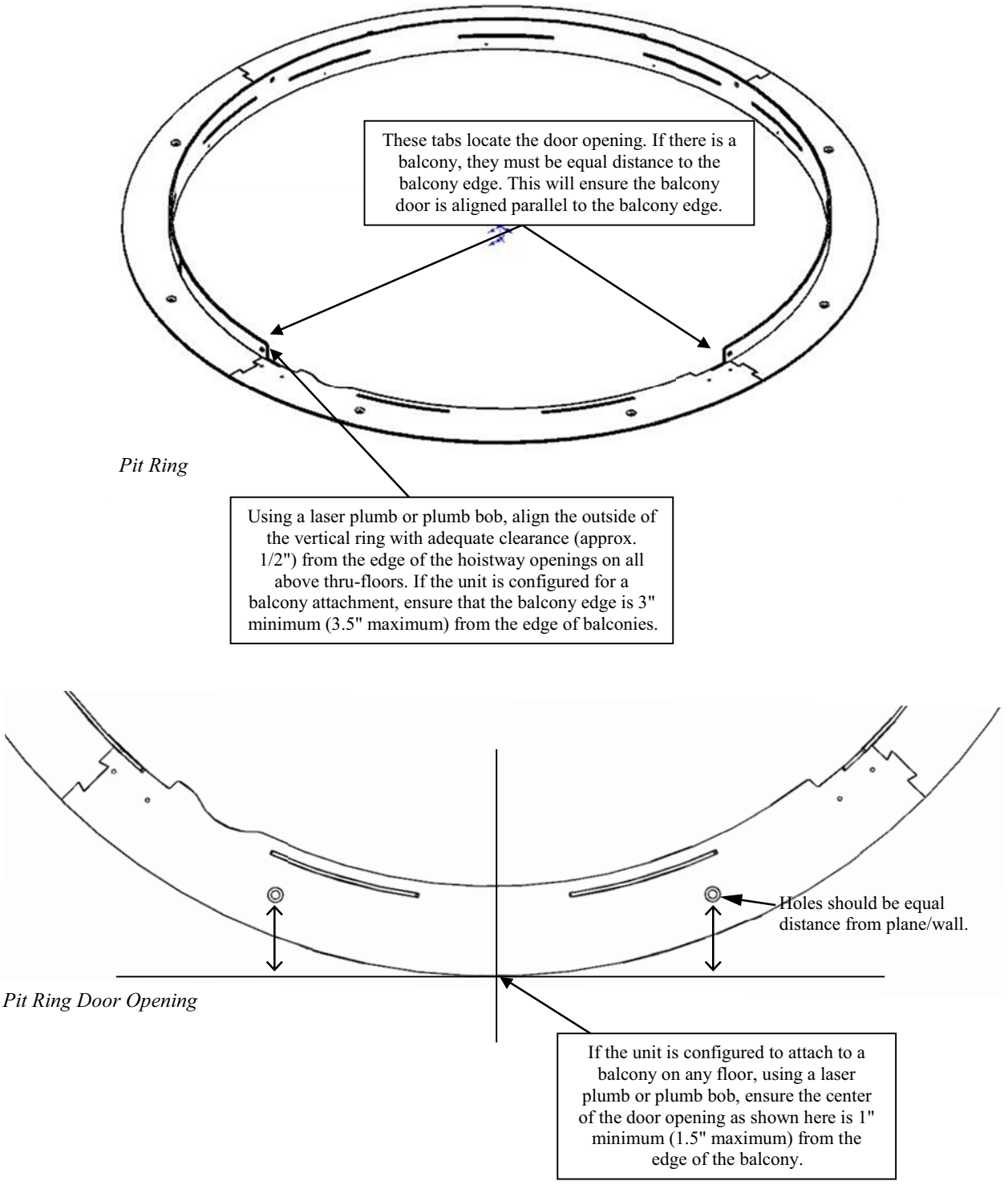
We recommend installing the ramp (for base ring only) at the end of the installation process so it doesn't get dirty or damaged during the installation.

Step 2
Install pit ring

IMPORTANT: *Proper location of the PIT RING is crucial to the rest of the installation*.
Alignment of this ring determines the location of the hoistway doors, and if applicable, the orientation of the unit with regards to any balcony attachments.

1 Position and align the pit ring as shown in the illustration below.

Figure 4
Position and align pit ring



2 After aligning the pit ring, use a level to level the ring in both directions (front to back and side to side).
   - If the floor is not level, shim the pit ring using thin steel shims. Tolerances for level are +/- 1/8" in both directions.

3 Secure the pit ring to the floor using the fasteners supplied.
   - Pre-drill pilot holes for the fasteners with a 1/4" concrete bit.
   - A minimum of 4 fasteners must be installed through the pit ring to the floor. It is strongly recommended, however, to install a fastener at every pre-drilled hole.
   - T40 bit provided
   - If shims are used, always place them beside the holes that the fasteners go in.

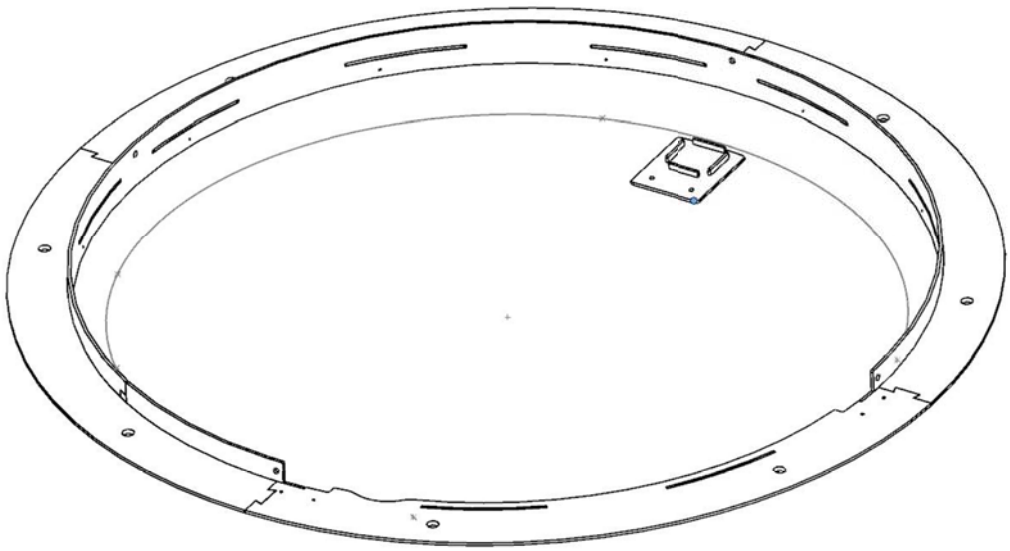
Fasteners (from kit PK-0002):
- Qty: 8 5/16" x 2.25" Tapcon (to secure pit ring to concrete floors)
- Qty: 8 Fastener covers and washers

IMPORTANT
Note that the anchors provided by Savaria are standard/typical anchors and are not suitable for all site conditions. Always make sure the anchors used are proper for the type of surface on site.

Figure 5
Secure pit ring using fasteners

4 Place the pit base plates on the floor of the pit, centered under the holes in the vertical portion of the pit ring as shown below.

Figure 6
Pit ring with base plate



Pit Ring with Pit Base Plate

Step 3
Hoistway installation information

Installation of the rails for each floor follows the same process. Depending on the floor type (thru-floor, or balcony), the components added will change, however the methodology is the same.

These are the basic steps in the process which are described in further detail on the following pages.

1 Measure the gusset to floor height or floor to floor height (depending on the application).
2 Cut the rails to length.
3 Stack the rings for lifting.
4 Secure the rails at the ring.
5 Lift and secure the rings.

IMPORTANT

The Vuelift is offered in multiple configurations depending on how the unit attaches to the level above. The floor sections are either THRU-FLOOR or BALCONY. Be sure to **note which floor type applies** and follow the instructions for that particular section on the following pages.

Step 4
Identify rail types

Each floor consists of two different types of rails as shown below - **3 standard rails** and **1 EMI (interlock) rail**.

The rails are packed such that the rails for the lowest landing will be on top. Confirm this by checking for the holes in the bottom of the rail (for pit switch and pit light).

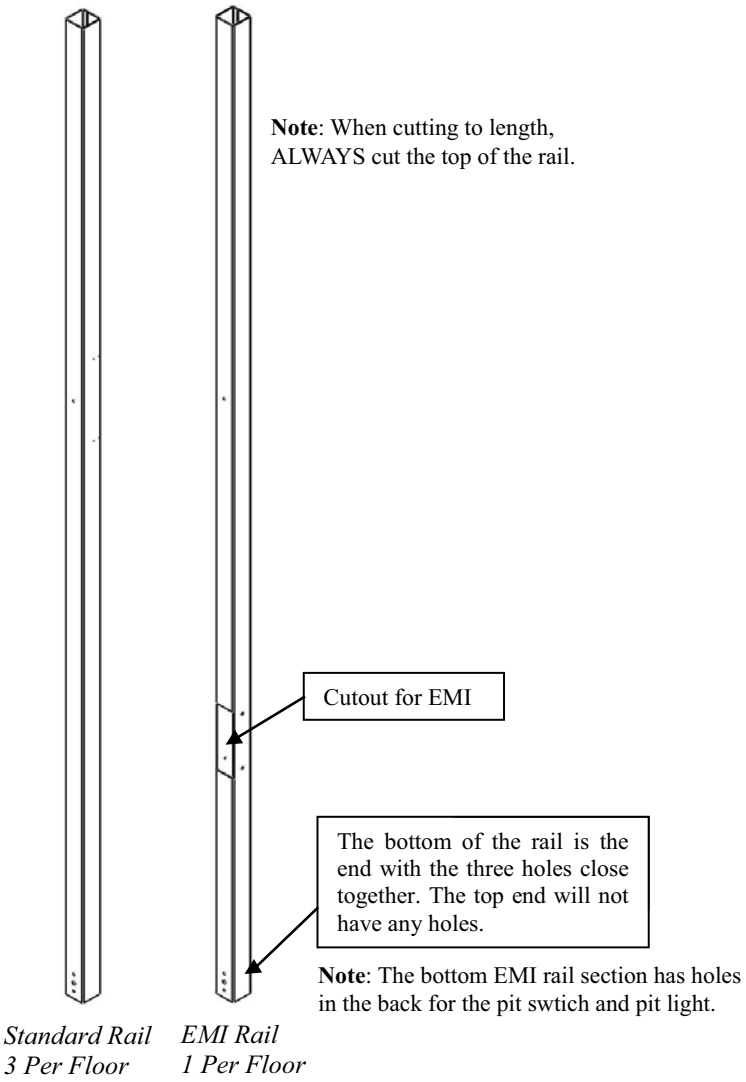
NOTE

Note that the lowest landing rails differ from the rails for all other landings in that there are holes for a pit light, pit switch, etc. in the lowest landing rails.

NOTE

Note that the EMI (interlock) rail has a rectangular cutout on one of the faces. This is where the interlock will be installed later in the installation process. For the first floor, the EMI (interlock) rail is provided with additional large holes on the face opposite the rectangular cutout for the EMI (interlock). These holes are for the pit light and pit switch. Ensure that the appropriate EMI (interlock) rail is used for the first floor.

Figure 7
Rail types



Step 5
Measure and cut rails (if BASE RING)

IMPORTANT

Use this procedure for a BASE RING. If you have a PIT RING, go to STEP 7.

IMPORTANT: *Precise measurement and cutting is imperative for proper construction of the hoistway and will help to ensure proper travel of the cab.*

*Refer to the **CUTTING NOTES** below for important marking and cutting details.*

For the **FIRST FLOOR**:

1 Ensure the base ring is positioned properly per the plan drawings and is leveled in all directions.
   - **NOTE**: Do not anchor the base ring as this will be done at a later stage.
2 Temporarily attach all four bottom rails to the base ring. Attach rails to the base ring using a 3/8"-16 x 1" hex bolt (provided in PK-0002 Pit Hardware Package). Make sure the rails are plumb in all directions.
   - **NOTE**: Be sure to use the bottom rails which are longer in length than the upper rails.
3 Use a 3-point laser level at the 2nd floor to mark all four rails for cutting.
4 Cut each rail 2 5/8" below the mark.
   - **NOTE**: Ensure all rails are cut to a maximum tolerance of 1/32" of each other.
5 After cutting the rails to the proper length, set them aside and go to the next step to stack the rings.

NOTE: The final rail cut length will be finished floor to finished floor height minus 2 13/16" for the 1st to 2nd floor, and finished floor to finished floor height for all floors above that. See the drawing on the next page.

CUTTING NOTES

When cutting rails:

1 Mark the location of the cut on the rail (using a permanent marker or pencil) by **measuring from the bottom of the rail towards the top**.
   - You MUST measure from bottom to top so you DO NOT cut off the three holes at the bottom end of the rail.
2 Generate a line through the mark with a square.
3 Cut along the line with an angle grinder using a metal cutoff wheel. or using a low RPM metal saw with a carbide blade.
   - **NOTE:** A low RPM metal saw is by far the best tool for achieving a good cut.
   - **NOTE:** Using other methods of cutting may impact the squareness of the cut. **It is imperative that the cuts be square so the rail contact surface area is sufficient**.

NOTE

Note that it may be necessary to measure and mark the cut line on each face of the rail to ensure the cuts remain square.

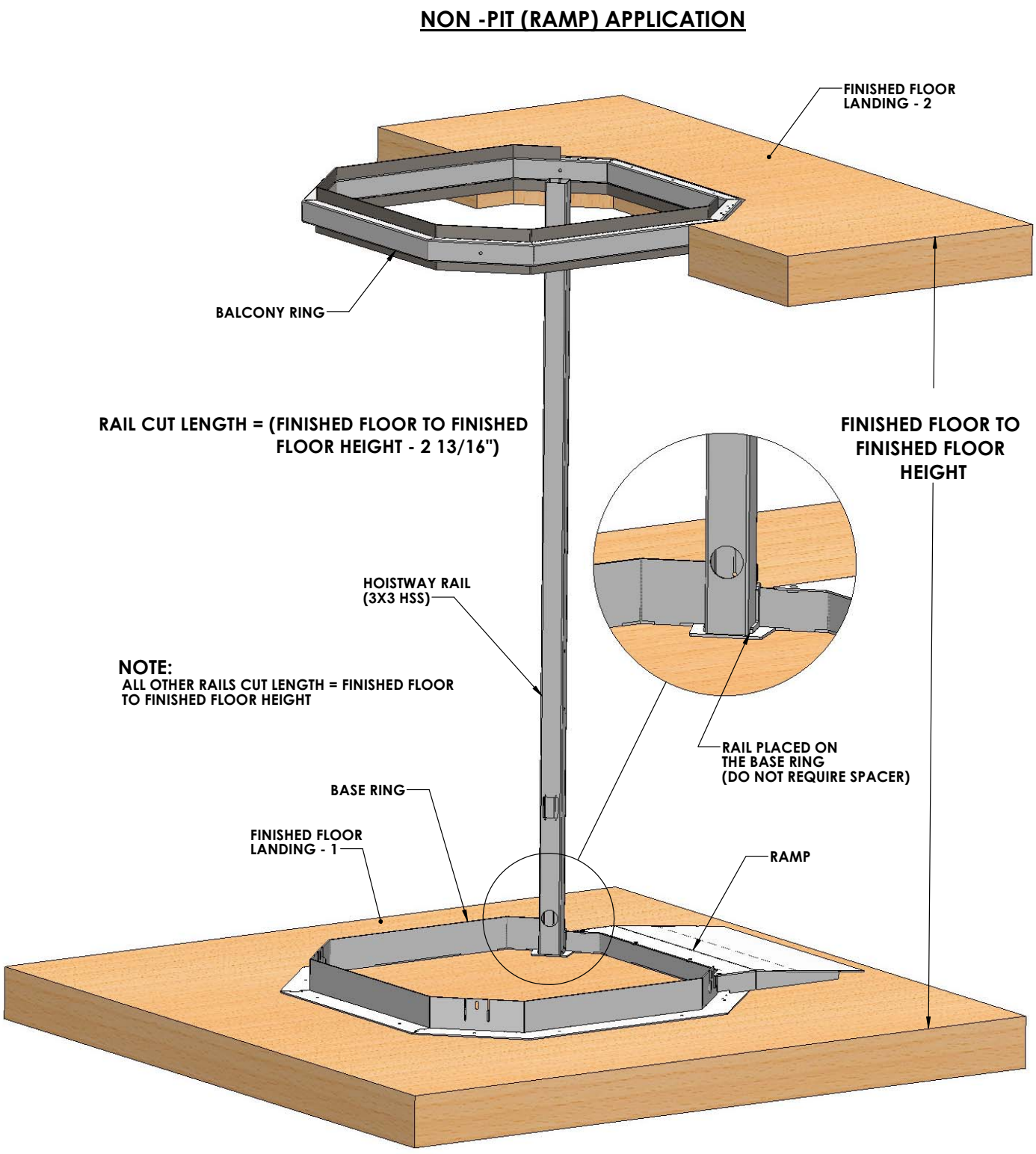
NOTE

Each rail must be cut to **exactly** the same length (± 1/32").

⚠ CAUTION

If you cut the rails too short, **stop the job** and contact Savaria for assistance.
DO NOT attempt to change hole locations as this will create further installation problems.

Figure 8
Base ring rail attachment details



Step 6
Measure and cut rails (if PIT RING)

IMPORTANT: *Precise measurement and cutting is imperative for proper construction of the hoistway and will help to ensure proper travel of the cab.*

*Refer to the **CUTTING NOTES** below for important marking and cutting details.*

For the **FIRST FLOOR**:

1 You need to cut a short **pit rail section** to shim the hoistway rails to their proper mounting location on the pit ring.
2 Ensure the pit ring is positioned properly per the plan drawings and is leveled in all directions.
   • **NOTE**: Do not anchor the pit ring as this will be done at a later stage.
3 Take one hoistway rail from the hoistway rail crate. Attach it to the pit ring with a 3/8"-16 x 1" hex bolt (provided in PK-0002 Pit Hardware Package) through the upper-most hole in the bottom of the rail.
   • **NOTE**: Be sure to use the bottom rails which are longer in length than the upper rails.
4 Measure the finished floor to finished floor height and cut the rails to this dimension, ensuring that the rail is measured from the bottom 3 holes. Or, use a 3-point laser level at the 2nd floor to mark all four rails for cutting and then cut each rail 2 5/8" below the mark.
5 Temporarily attach all the rails back to the pit ring. Make sure all rails are plumb in all directions.
6 Use two levels to ensure the rail is plumb and measure from the bottom of the rail to the pit base plate. Using the off-cuts from the first landing rails, cut the **pit rail section** to this dimension.
   • **NOTE**: Ensure all rails are cut to a maximum tolerance of 1/32" of each other.
7 Repeat the step above for the remaining three rails.
8 After cutting the rails to the proper length, set them aside and go to the next step to stack the rings.

NOTE: The final rail cut length will be finished floor to finished floor height for all floors. See the drawing on the next page.

CUTTING NOTES

When cutting rails:

1 Mark the location of the cut on the rail (using a permanent marker or pencil) by **measuring from the bottom of the rail towards the top**.
   • You MUST measure from bottom to top so you DO NOT cut off the three holes at the bottom end of the rail.
2 Generate a line through the mark with a square.
3 Cut along the line with an angle grinder using a metal cutoff wheel. or using a low RPM metal saw with a carbide blade.
   • **NOTE:** A low RPM metal saw is by far the best tool for achieving a good cut.
   • **NOTE:** Using other methods of cutting may impact the squareness of the cut. **It is imperative that the cuts be square so the rail contact surface area is sufficient**.

NOTE

Note that it may be necessary to measure and mark the cut line on each face of the rail to ensure the cuts remain square.

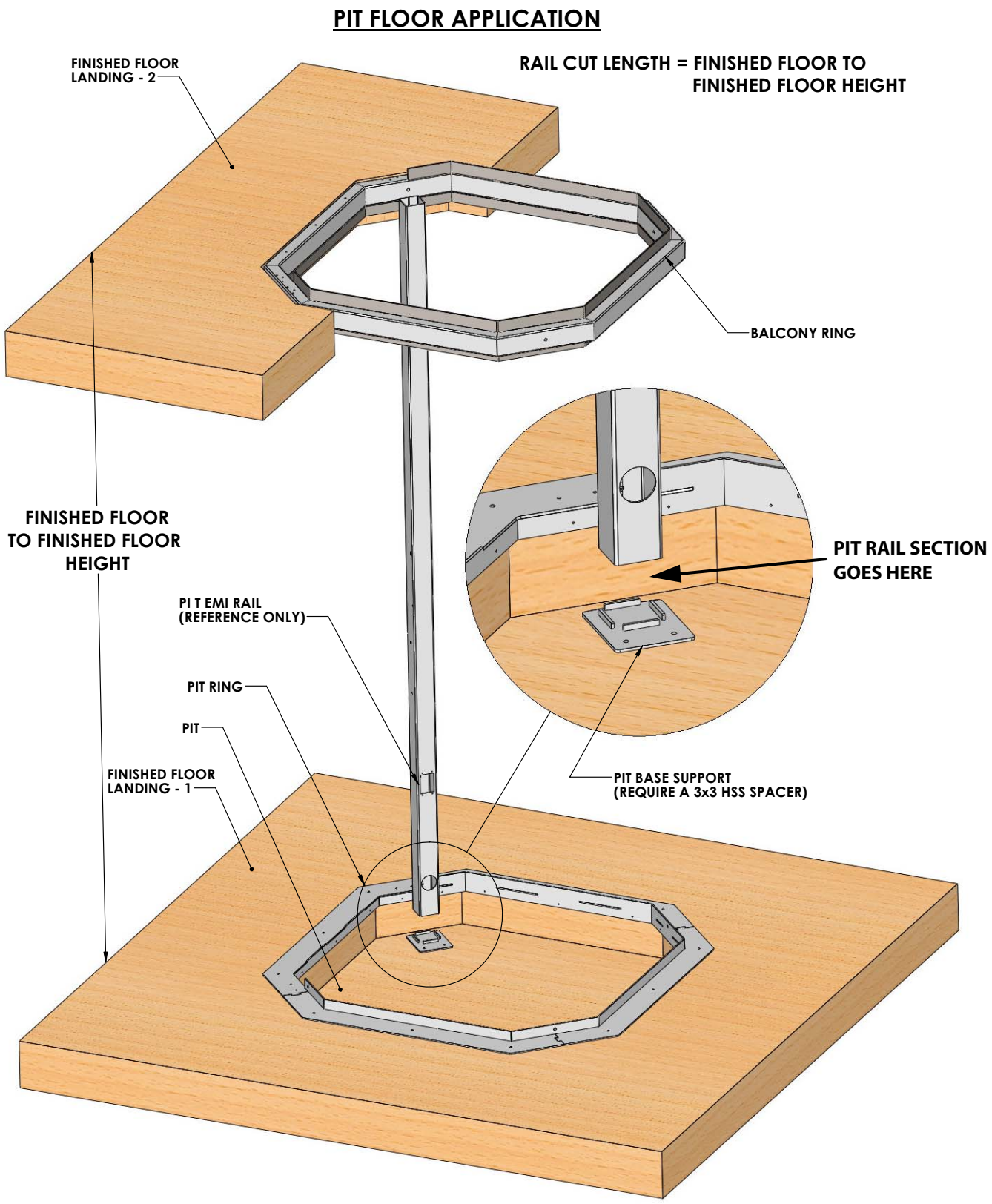
NOTE

Each rail must be cut to **exactly** the same length (± 1/32").

⚠ CAUTION

If you cut the rails too short, **stop the job** and contact Savaria for assistance.
DO NOT attempt to change hole locations as this will create further installation problems.

Figure 9
Pit ring rail attachment details



Step 7
Place cab floor platform in base/pit ring

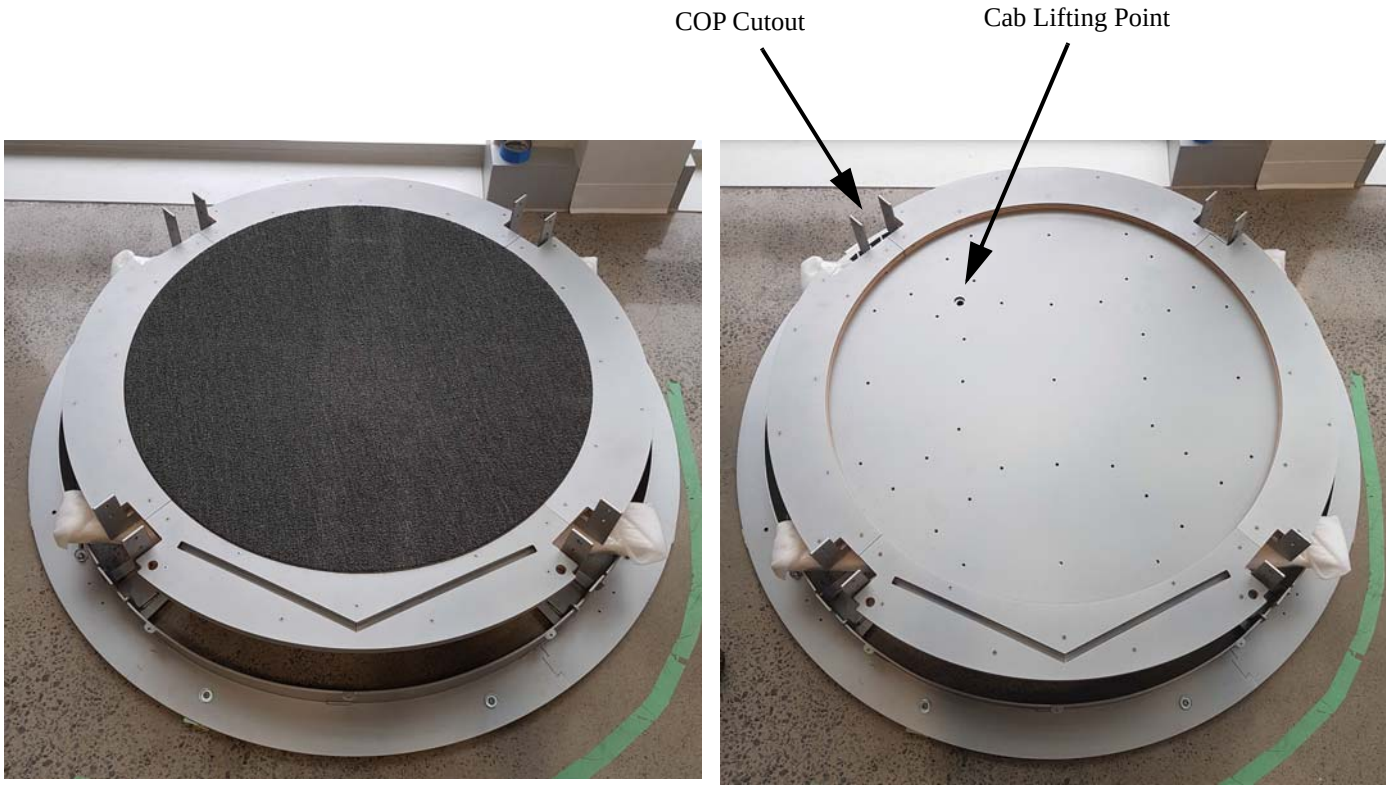
1 Place the cab floor platform inside the base/pit ring **BEFORE proceeding**. Rest the platform on 2X4's that are longer than the pit ring (as shown in the photo below).
2 The carpet flooring is held in place by gravity. Use a screwdriver to lift up and remove the carpet flooring to expose the lifting hole.
3 We recommend that you keep the plastic wrap on the cab floor platform so it doesn't get marked up during installation.

IMPORTANT

You **MUST** place the platform inside the base/pit ring **BEFORE** building the hoistway; otherwise, the only way to install the platform afterwards is to disassemble the hoistway.

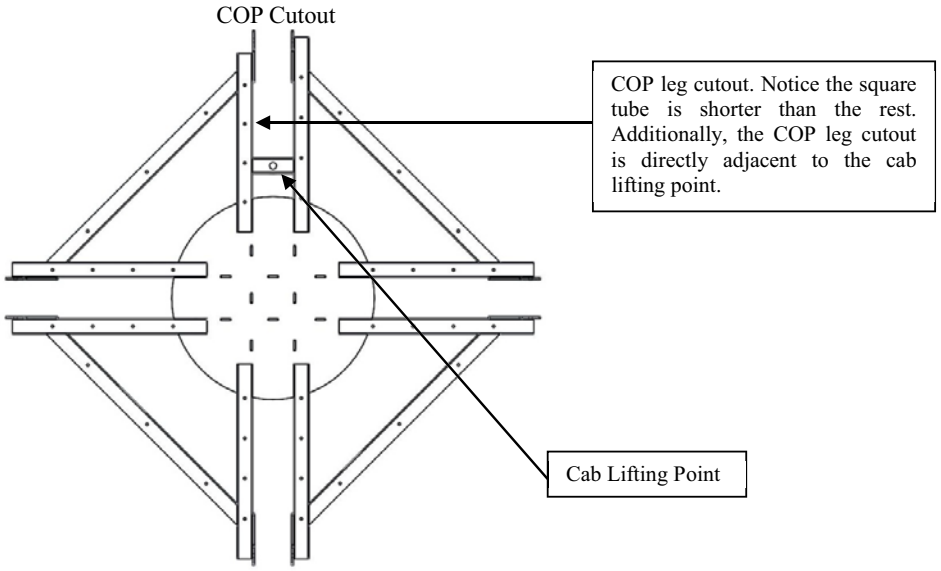
Figure 10
Place platform inside base ring

NOTE: The COP cutout is larger than the other cutouts. Also, the COP cutout is adjacent to the cab lifting point.

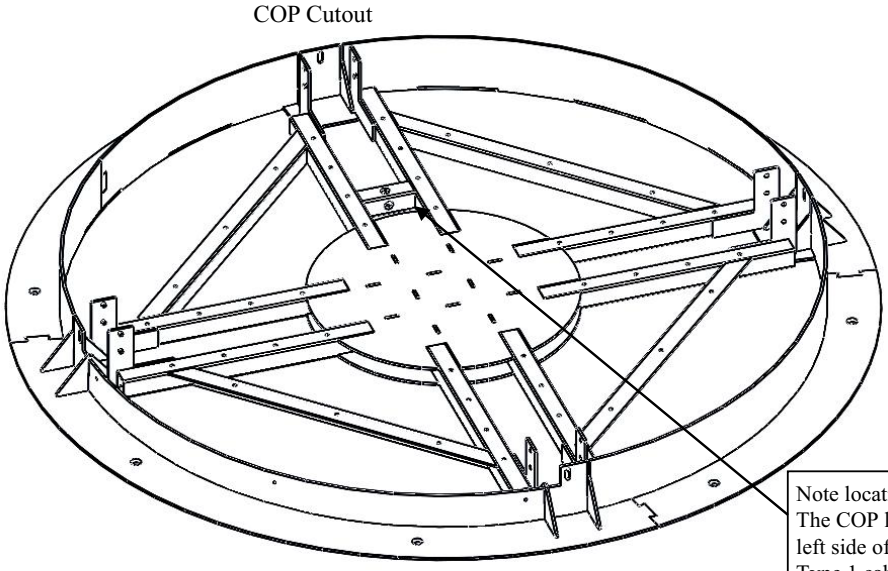


4 Orient the cab floor as shown below. **Orientation is important for successful construction of the unit.** Note that only the cab floor weldment is shown in the illustration below for clarity of orientation. The cab floor actually comes pre-attached to the weldment as shown in the photos on the previous page.

Figure 11
Cab floor weldment in ring

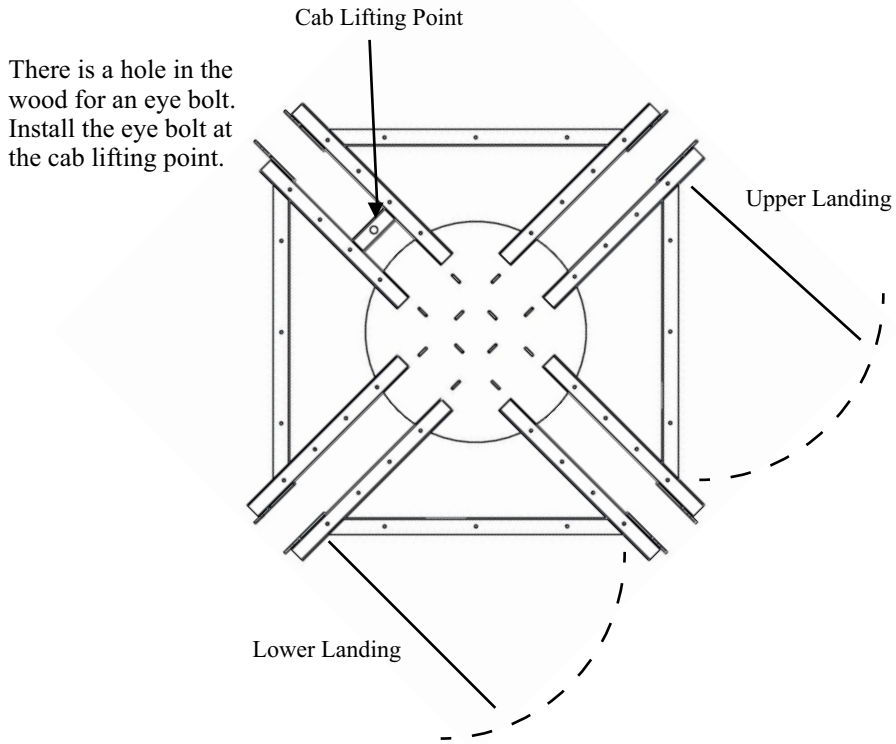


Cab Floor Weldment - Top View

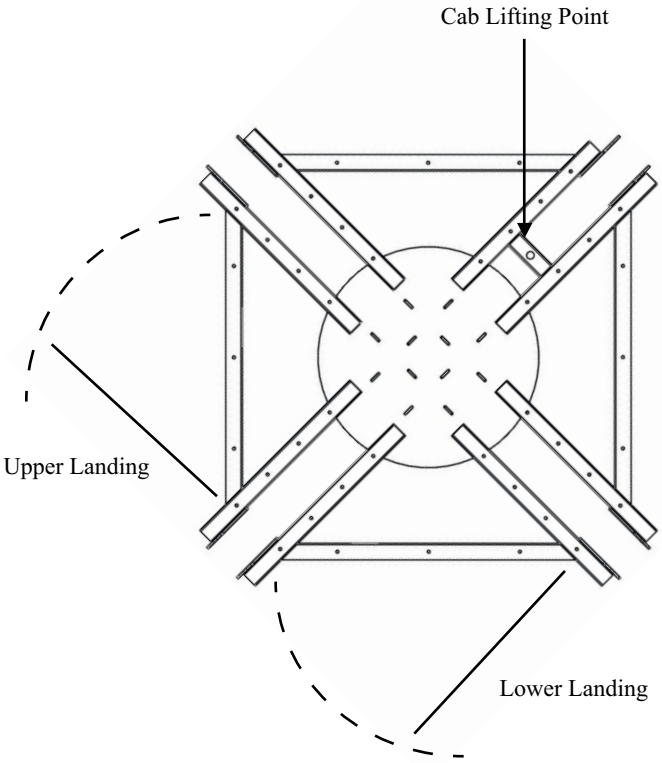


Base Ring with Cab Floor Weldment

Figure 12
Orientation of lifting bracket and COP leg for Type 3 cabs



TYPE 3 SOUTH ENTRANCE/EAST EXIT



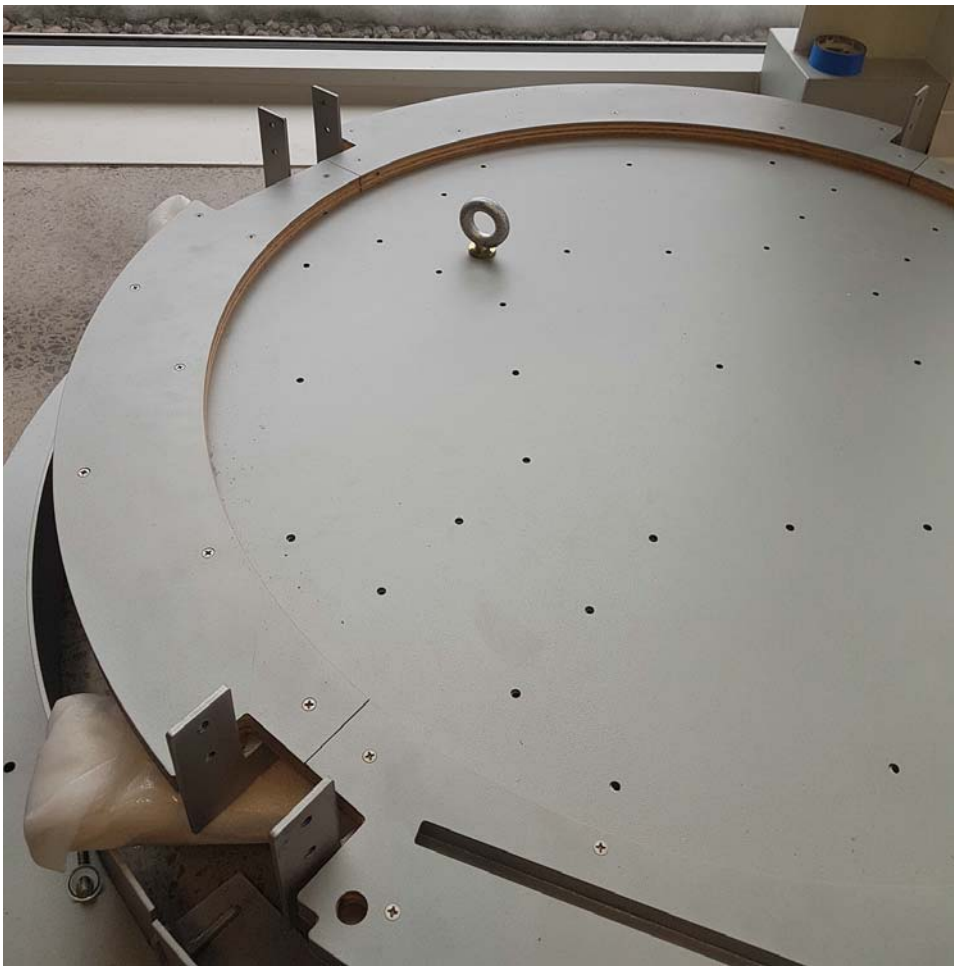
TYPE 3 SOUTH ENTRANCE/WEST EXIT

NOTES:
1. Door ***handing*** does not impact lifting point location; ONLY door ***location*** impacts lifting point location.
2. Motor access for manual lowering is at the rail that is opposite the cab lifting point. This ensures access will be maintained when complete.

5 Note that the eye bolt comes attached to the underside of the cab floor for shipping.

6 Remove it from the underside of the floor and attach it to the top of the cab floor at the lifting point as shown below.

Figure 13
Attach eye bolt to cab floor lifting point



Step 8
Stack rings for lifting

Stack the rings in order of use on top of the base/pit ring (or finished floor for all other levels).

The general order of use is as follows:

For a THRU-FLOOR:
- Mid-floor ring - on bottom
- Header ring - in middle (note that an extra header ring may be needed for floor-to-floor height > 14 ft)
- Ceiling ring - on top

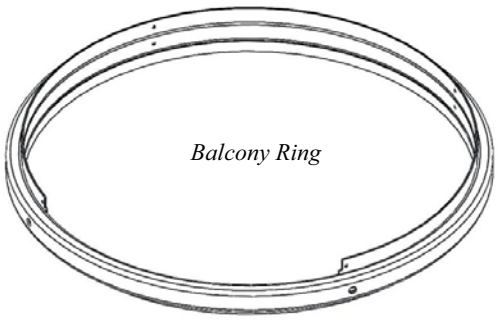
For a BALCONY:
- Header ring - on bottom
- Balcony ring - in middle
- Header ring - on top (note that an extra header ring may be needed for floor-to-floor height > 14 ft)

The ring types are shown in the illustration below. Note that the base/pit ring is NOT shown as it has already been installed.

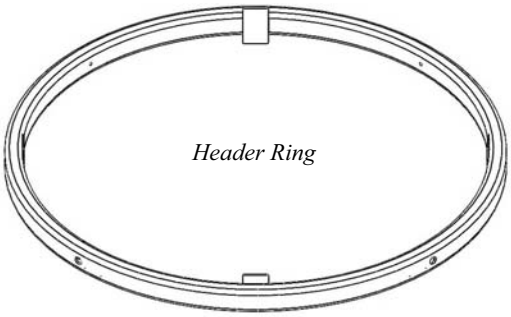
⚠ CAUTION

IMPORTANT!
NOTE THE FOLLOWING RING ORIENTATIONS:
Balcony Ring: Cutout on ring must be oriented UP
Header Ring: Holes for door hinge must be pointed DOWN and be on both sides of the door opening
Ceiling Ring: Vertical flange on ring must be oriented DOWN
Mid-floor Ring: Cutout on ring must be oriented UP

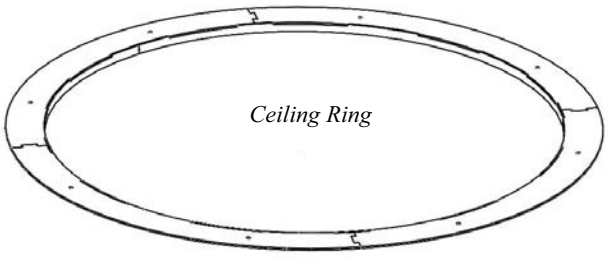
Figure 14
Ring types



CAUTION
Cutout on Balcony Ring must be oriented UP



CAUTION
Holes for door hinge on Header Ring must be pointed DOWN and be on both sides of door opening

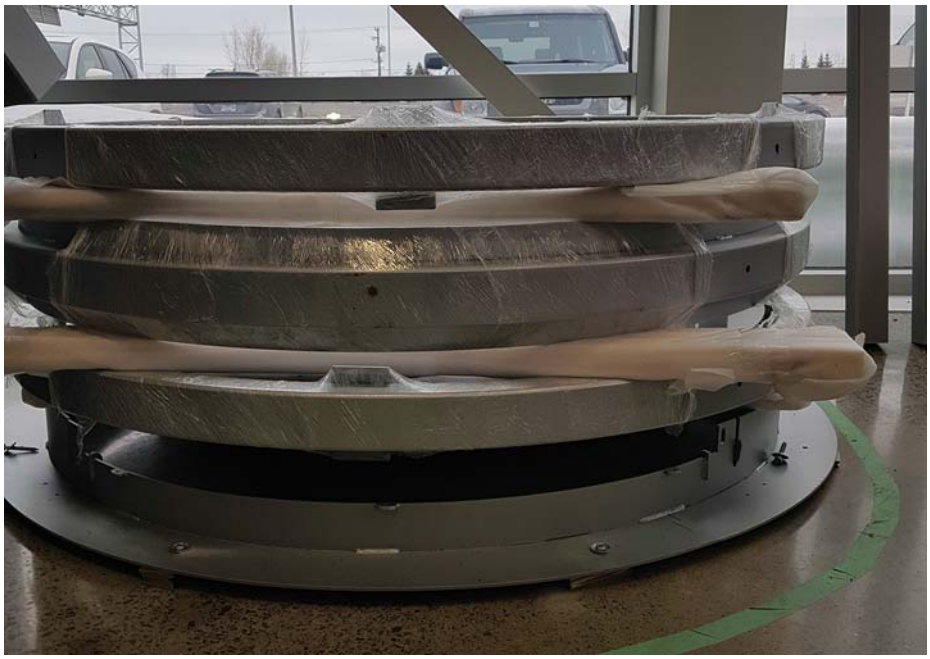


CAUTION
Vertical flange on Ceiling Ring must be oriented DOWN

CAUTION
Cutout on Mid-flloor Ring must be oriented UP

When stacking the rings, add 2x4 pieces of wood as spacers between the rings in a few places as shown below. This will help stabilize the rings and assist in securing the rails to the rings.

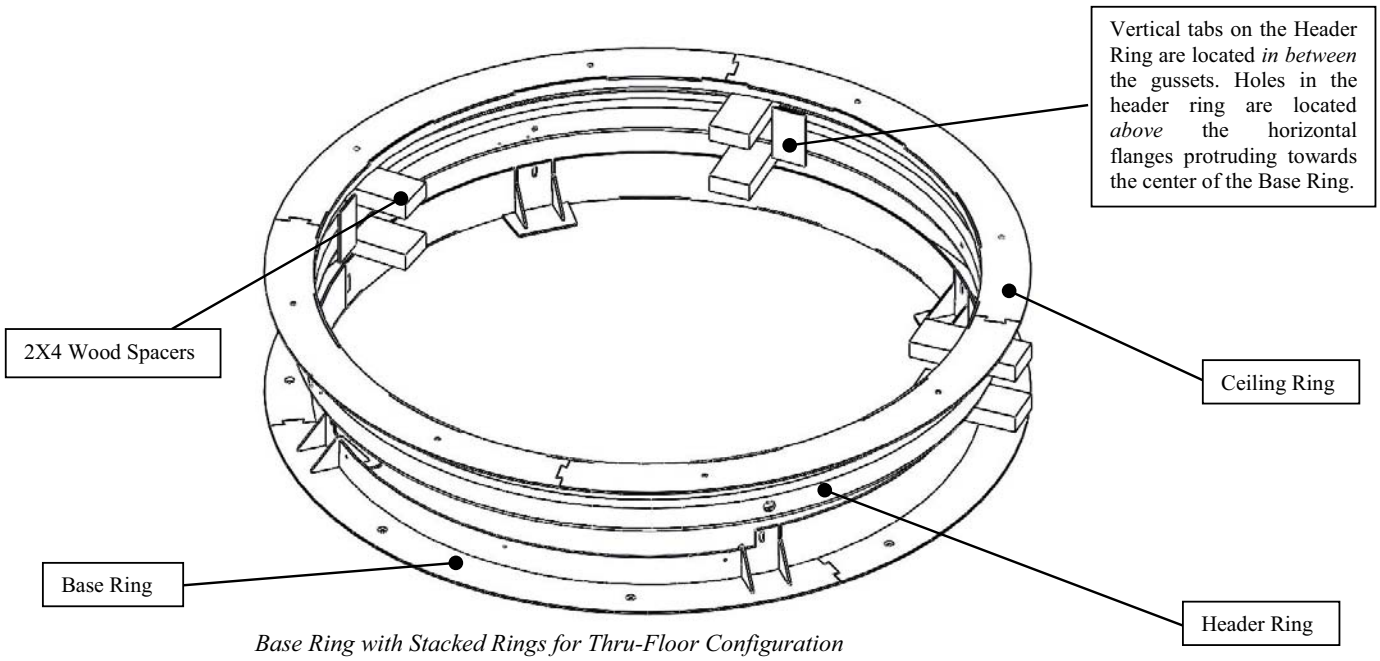
Figure 15
Stacking rings



The top half of the following illustration shows the proper alignment and orientation of the rings on the base ring for THRU-FLOOR configurations.

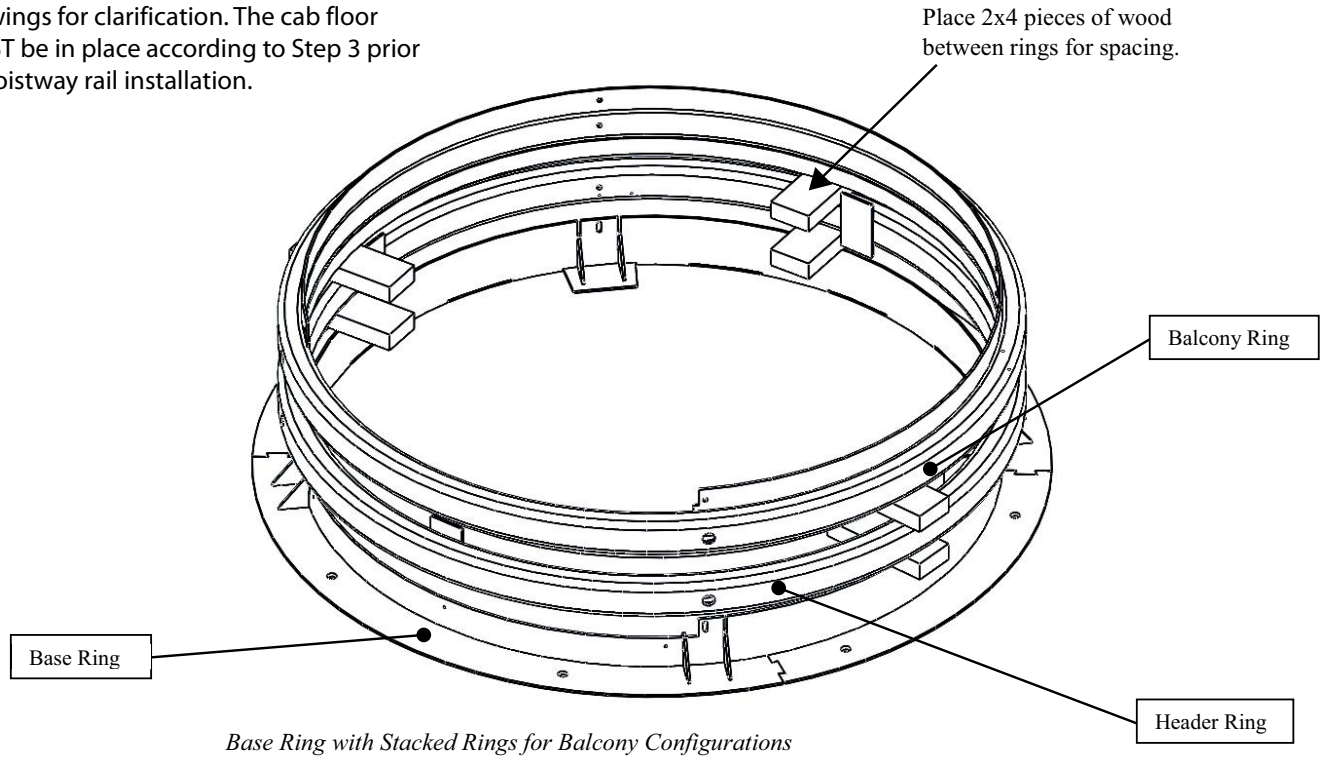
The bottom half of the following illustration shows the proper alignment and orientation of the rings on the base ring for BALCONY configurations.

Figure 16
Stacked ring configurations



Base Ring with Stacked Rings for Thru-Floor Configuration

NOTE: The cab floor is not shown in these drawings for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.



Base Ring with Stacked Rings for Balcony Configurations

Step 9
Secure rails at base ring

To attach the rails to the base ring, the following tools and fasteners are required:

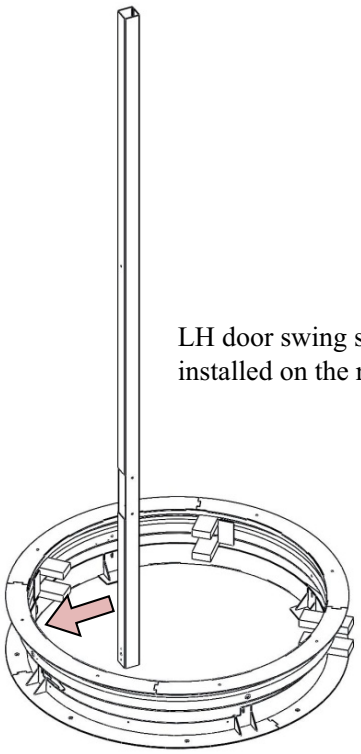
- Qty: 4 3/8″ flat washers (in kit PK-0001 for base ring)
- Qty: 4 3/8″-16 x 1″ hex bolt (in kit PK-0001 for base ring)
- 9/16″ socket
- Socket wrench
- 6″ socket extension

NOTE
We recommend installing the EMI (interlock) rail first.

1 Orient the rail with the holes facing **away** from the center of the ring.
2 Set the rail on the base ring and place it in between one set of gussets.
3 You may need to use a rubber mallet to align the face of the rail against the vertical face of the base ring.
4 In determining the rail location, you must orient the **EMI (interlock) rail** in the proper position. With the EMI rail positioned to the **LEFT** of the notch as facing the base ring, this orientation assumes a **Left Hand Swing** door (hinges on the right as you face the hoistway) for the base floor. For a **Right Hand Swing** door, orient the EMI rail to the gusset to the **RIGHT** of the notch in the base ring.

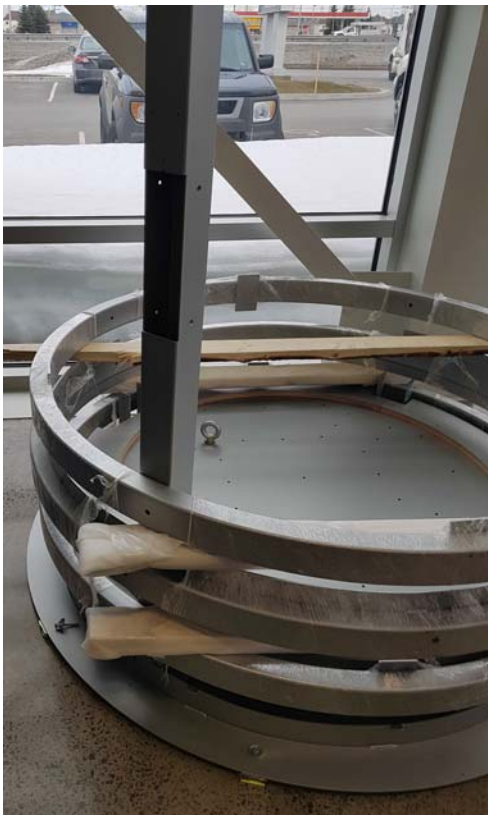
The proper orientation of the rail is shown below.

Figure 17
Stacked rings with one rail



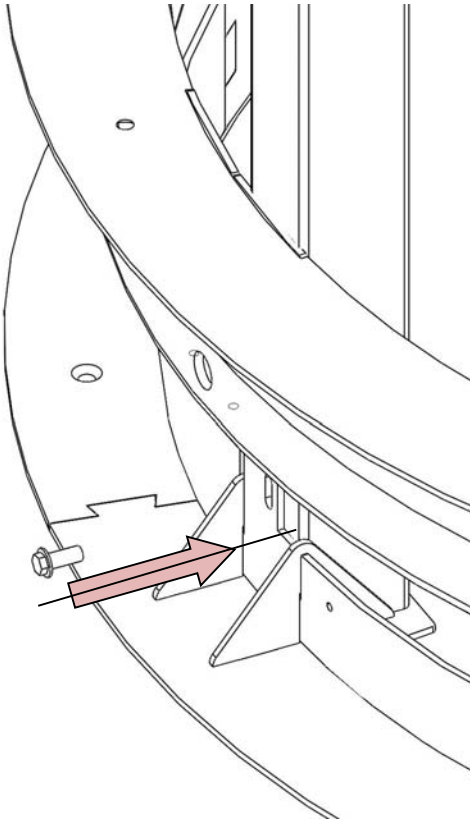
Stacked Rings with One Rail

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.



5 After the rail is in the proper location, insert (1) 3/8″-16 x 1" hex bolt with flat washer (from kit PK-0001) through the slot in the base ring and into the threads on the rail as shown below. **TIGHTEN SNUGLY**. Final tightening will be performed after the rings have been oriented to their proper location.

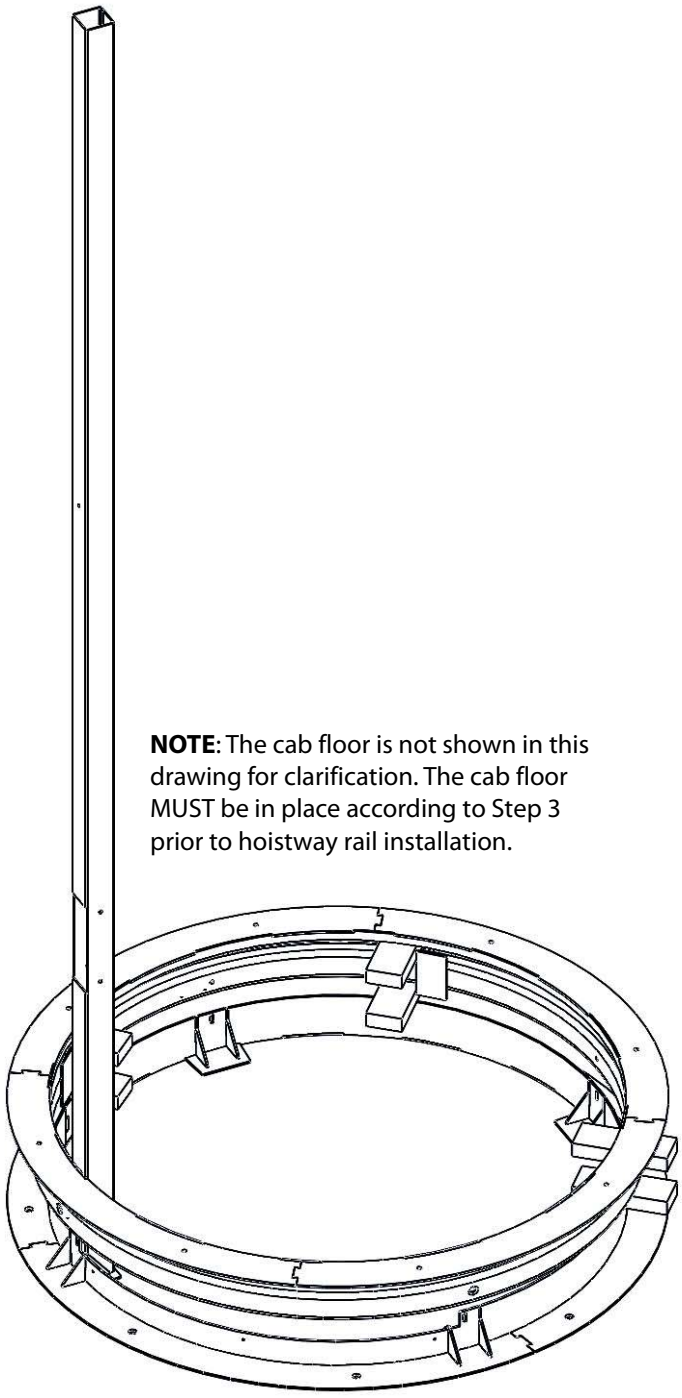
Figure 18
Attaching rail to base ring



Attaching Rail to Base Ring

6 The following illustration shows the EMI (interlock) rail attached.

Figure 19
EMI rail attached

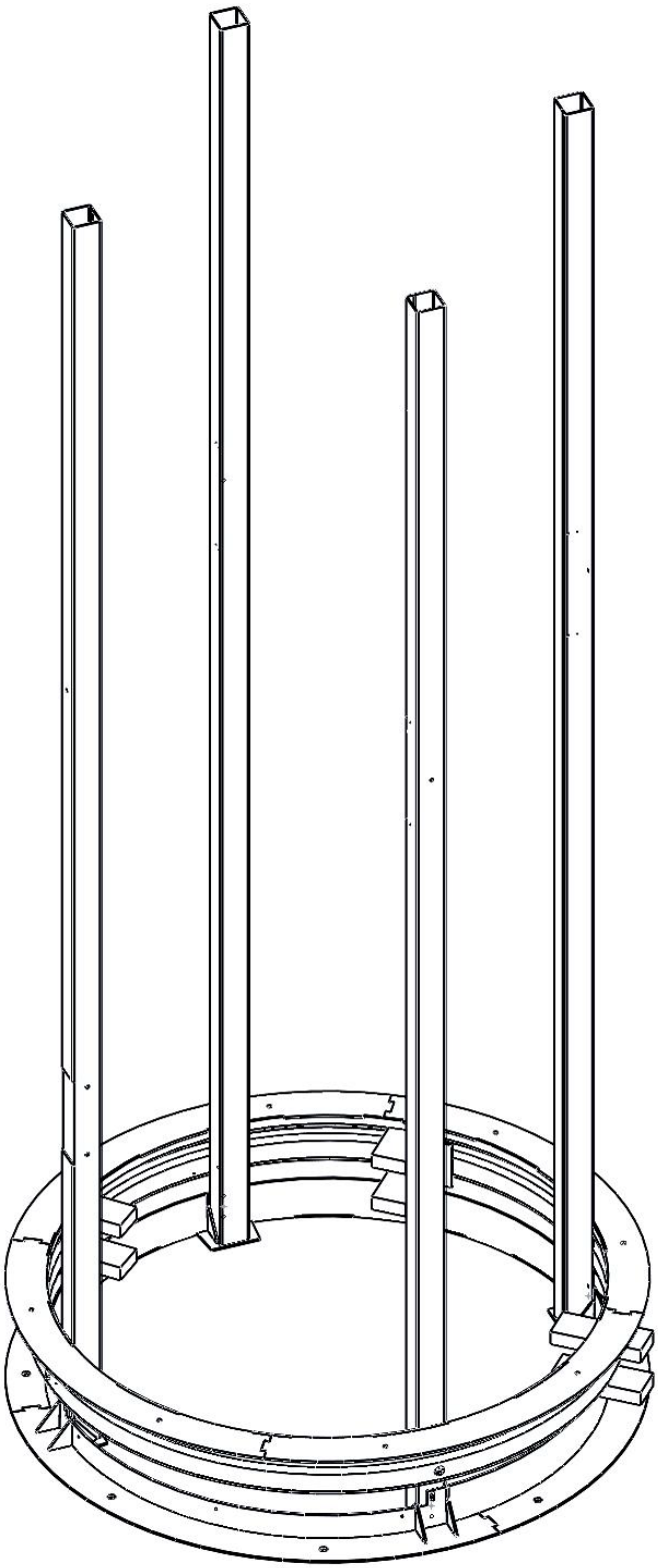


NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

EMI Rail Attached

7 Repeat the above process until all four rails are loosely secured in place. The illustration below shows all four rails secured to the base ring.

Figure 20
Base ring with four rails attached



Base Ring with Four Rails Attached

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

Step 10
Lift and secure rings to rail

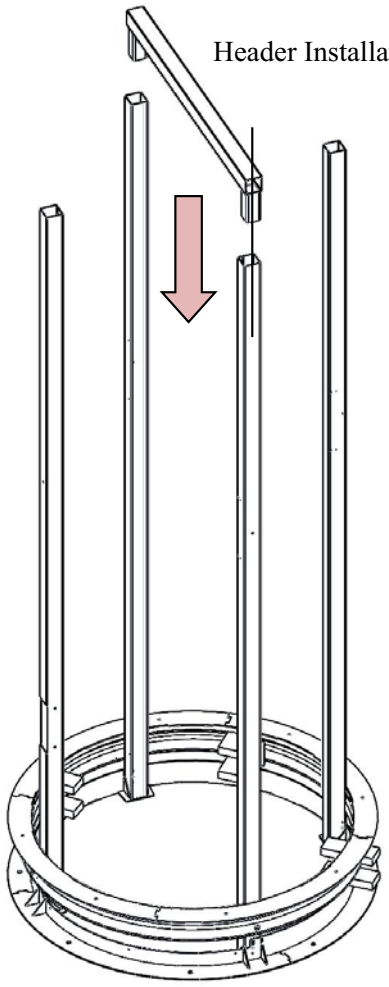
After the rails are loosely secured to the base ring, lift the header ring and ceiling ring into position and secure them to the rails and ceiling.

To accomplish this you will need the following tools and fasteners:

- Qty: 4 3/8″-16 x 2 1/2″ button head socket cap screw (in Hoistway Fastener Bag of kit PK-0016)
- Allen keys
- Header installation tool – **must be purchased separately from Savaria**
- Winch
- Rigging straps and clevises
- Qty: 8 M10 x 2.5″ black flat head wood screws (for ceiling ring if applicable)
- Variable speed drill with pilot drill bit for M10 wood screws and hex bit for M10 screws
- Magnetic level

1 Place the header installation tool into the top of two opposing rails as shown below.

Figure 21
Insertion of header installation tool



Note: If you don't have the Header Installation Tool, use 2x4 pieces of wood for the legs attached to a 4x4 with long wood screws. Ensure that it is strong enough to lift at least 250 lbs.

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

Insertion of Header Installation Tool

2 After inserting the header installation tool, secure the winch to the header installation tool with a sling and clevis. Insert a rigging strap underneath the bottom of the header ring on opposite sides of the ring and wrap the strap around the header and ceiling ring (or balcony ring if applicable). Then, pull one end of the strap through the loop on the other end of the strap. Make sure the loop is centered in the ring to ensure an even lift of the rings.

3 Attach the ends of the straps together in the center of the ring with a clevis, and then secure the winch to the clevis as shown below.

Figure 22
Secure winch to strap

4 Lift both rings slowly with the winch until the holes in the side of the header ring align with the holes in the outside faces of the rails as shown below.

NOTE

It may be necessary to balance the rings while lifting with the winch. This will help prevent the rings from binding on the rails.

Figure 23
Lifting ring with winch

5 Insert (1) 3/8"-16 x 2 1/2" button head screw (from the Hoistway Fastener Bag in kit PK-0016) through the hole in the header ring. **DO NOT TIGHTEN COMPLETELY.** Tighten until approximately 1/8" - 1/4" of threads are remaining.

6 Repeat this process for all four holes in the header ring.

7 Remove both straps from the winch and from both rings.

8 If the current floor has a ceiling ring, complete the following:

   a. Remove the header installation tool from the top of the rails.

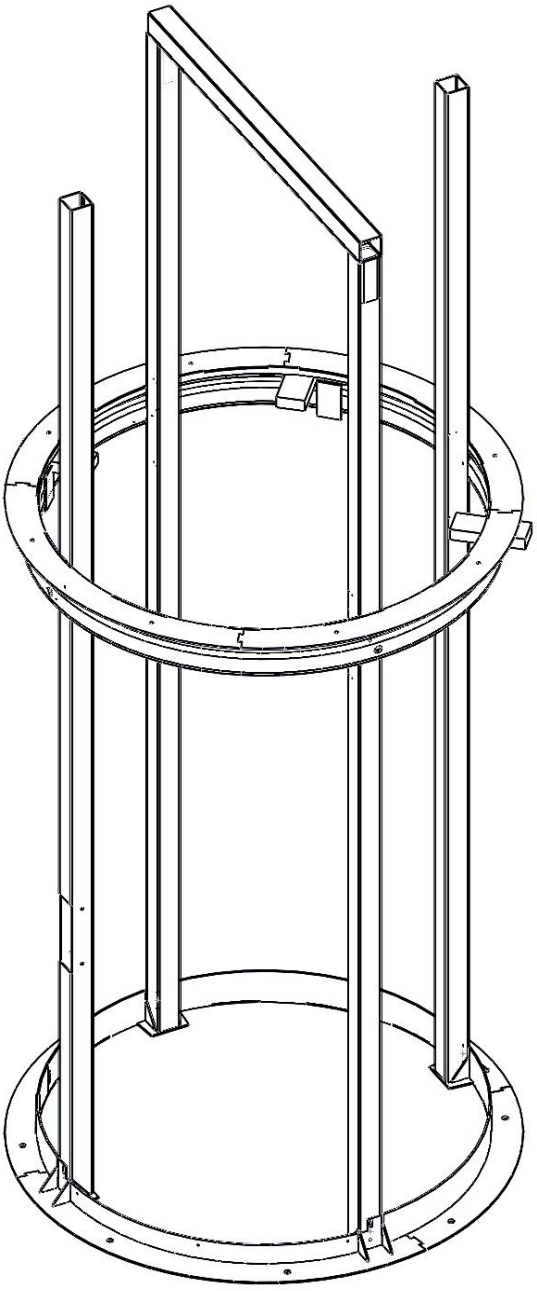
   b. Lift the ceiling ring into place, snugly against the ceiling of the current floor. Using C-clamps or quick-grip clamps, clamp the ceiling ring to the ceiling. This will allow you to plumb the rails with the ceiling ring in place.

9 If the next level is a thru-floor, go to the section, **Hoistway Installation (Thru-Floor Section)**.

10 If the next level is a balcony, go to the section, **Hoistway Installation (Balcony Section)**.

11 The illustration below shows the header ring in proper position and the ceiling ring sitting on the header ring.

Figure 24
Header ring installed



Header Ring Installed

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

Step 11
Extra header ring/stabilizer bars (if FTF >14 ft)

If the floor-to-floor height (FTF) is greater than 14 ft (4.27 m), you will have an extra header ring and 2 stabilizer bars from that ring to the hoistway wall at either side.

1 Install the extra header ring in the same manner as the other rings.
2 Secure the bracket-end of the stabilizer bar assembly to the header ring using the hardware provided in kit PK-0022.
3 Measure and cut the stabilizer bar to size as needed.
   - **TECH TIP:** Thread a nut onto the bar before cutting the end and then unthread the nut. This will help clean out the threads and make it easier to thread the ends on it later. Replace the nut before continuing.
   - **NOTE:** The stabilizer bar gets threaded into the knuckles at each end of the bar.
4 Thread the end of the stabilizer bar into the knuckle at the end that will connect to the header ring bracket.
5 Secure the wall plate to the hoistway wall using the hardware provided in kit PK-0022.
6 Place the knuckle end of the stabilizer bar in the wall plate and then attach the knuckle to the wall plate. Do not fully tighten until both sides are in place.
7 Pull the tower structure so that it is plumb and square, and then lengthen or shorten the stabilizer bar to match.
8 Install the knuckle on the header ring assembly side.
9 Ensure the nuts at both ends of the bar are tightened down to the knuckles. This will prevent twisting of the hoistway rails.
10 Repeat the steps above for the stabilizer bar at the other side of the hoistway.

Figure 25
Stabilizer bars (for floor-to-floor >14 ft)

Bar secured to wall plate

Bar secured to header ring bracket

One stabilizer bar installed

Both stabilizer bars installed

Step 12
Align and plumb rails

The rails on every floor plumb independently of the rails on the previous floor. This allows the hoistway to be adjustable given the conditions on each floor, ensuring a plumb hoistway from top to bottom.

1 To align and plumb the rails, tighten the bolts that secure the rails to the base ring. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

IMPORTANT

If the CURRENT FLOOR has a CEILING RING, continue to follow the steps in this section.
If the NEXT FLOOR has a BALCONY RING, do not continue with this section; go to the section, **Hoistway Installation (Balcony Section)**.

2 Snug the bolts securing the header ring on the **current floor** to the rails.

3 Place the magnetic level on one rail and move the rail as necessary until plumb. Acceptable tolerances for all rails are ±0.1° or ±1/8" every 7 feet. Repeat this process for all four rails.

⚠ CAUTION

Maintaining these tolerances requires patience and a high quality level or plumb. Setting rails inaccurately **will** cause the cab to bind inside the hoistway. The Vuelift utilizes 24 shoes for the smoothest possible ride and this requires the rails to be plumb.

4 Tighten the bolts securing the header ring to the rails. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

5 Check the rails with the magnetic level to ensure they are still plumb.

6 Secure the ceiling ring to the ceiling using the M10 x 2.5" wood screws.
- Pre-drill the holes for the wood screws prior to installing the screws.
- It may be necessary to add drywall anchors or wood 2X4 supports to secure the ceiling ring to the ceiling.

IMPORTANT

Note that the anchors provided by Savaria are standard/typical anchors and are not suitable for all site conditions. Always make sure the anchors used are proper for the type of surface on site.

HOISTWAY INSTALLATION (THRU-FLOOR SECTION)

Constructing a **THRU-FLOOR HOISTWAY SECTION** is very similar to constructing a first floor hoistway section.

The thru-floor hoistway construction process follows these basic steps which are described in detail on the following pages.

1 Measure the floor to floor height.
2 Cut the rails to length.
3 Stack the rings for lifting.
4 Insert the rail splines.
5 Secure the rails at the mid-floor ring.
6 Lift and secure the rings.

Step 13
Measure floor to floor height (thru-floor)

IMPORTANT: *Precise measurement of the floor to floor height is imperative for proper construction of the hoistway and will help to ensure proper travel of the cab.*

To measure the floor to floor height for a **THRU-FLOOR HOISTWAY SECTION**:

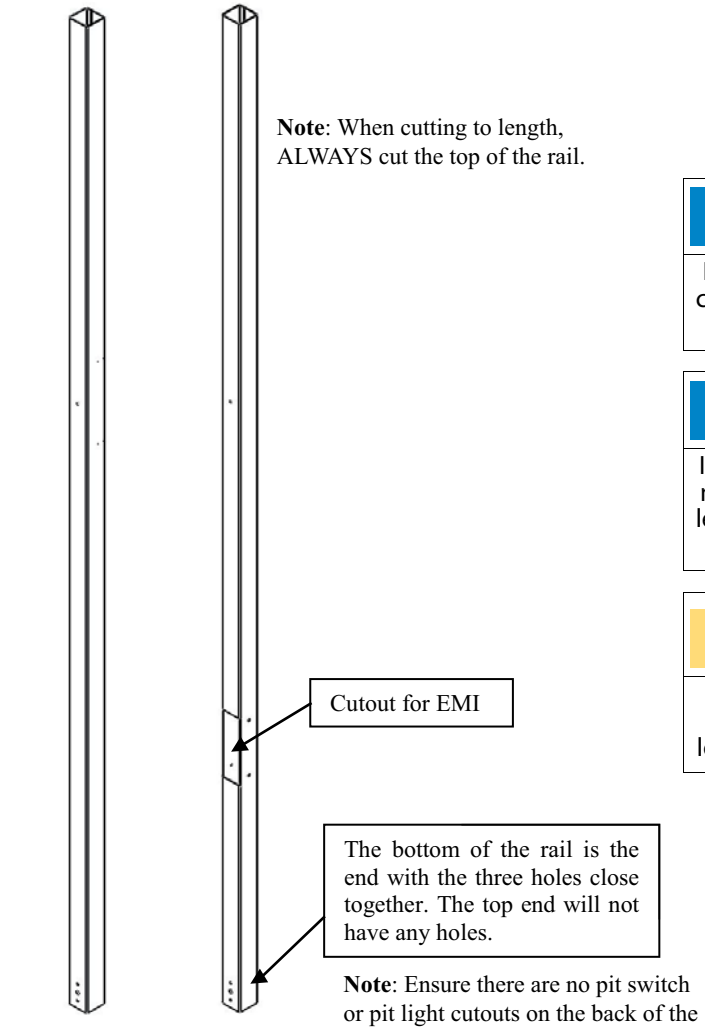
1 Measure from the top of the finished floor at which you are installing to the top of the finished floor above (i.e. from the top of the finished floor on the 2nd floor to the top of the finished floor on the 3rd floor).
2 If the floor you are measuring is the **TOP FLOOR**, use the chart below to determine the rail lengths.

Minimum floor to ceiling height	Hoistway rail length	Cab speed	Cab type
95.5″	87 3/8″	30 ft/min	Short
105.5″	96 7/8″	30 ft/min	Standard
112″	103 3/8″	40 ft/min	Standard
>112″	Floor to ceiling height - 8″	40 ft/min	Standard

Step 14
Cut rails to length (thru-floor)

Cut the **3 standard rails** and **1 EMI (interlock) rail** using the measurements from the previous section. To determine which end of the rail is the bottom, refer to the illustration below.

Figure 26
Determining bottom of rail



To cut the rails:

1 Mark the location of the cut on the rail (using a permanent marker or pencil) by **measuring from the bottom of the rail towards the top**.
   - You MUST measure from bottom to top so you DO NOT cut off the three holes at the bottom end of the rail.
2 Generate a line through the mark with a square.
3 Cut along the line with an angle grinder using a metal cutoff wheel. or using a low RPM metal saw with a carbide blade.
   - **NOTE:** A low RPM metal saw is by far the best tool for achieving a good cut.
   - **NOTE:** Using other methods of cutting may impact the squareness of the cut. **It is imperative that the cuts be square so the rail contact surface area is sufficient**.

NOTE

Note that it may be necessary to measure and mark the cut line on each face of the rail to ensure the cuts remain square.

NOTE

If you are NOT using a low RPM metal saw, it is easiest to make four cuts per rail using the angle grinder. Both the length and squareness of the cut are important. Each rail must be cut to **exactly** the same length (± 1/32").

⚠ CAUTION

If you cut the rails too short, **stop the job** and contact Savaria for assistance. **DO NOT** attempt to change hole locations as this will create further installation problems.

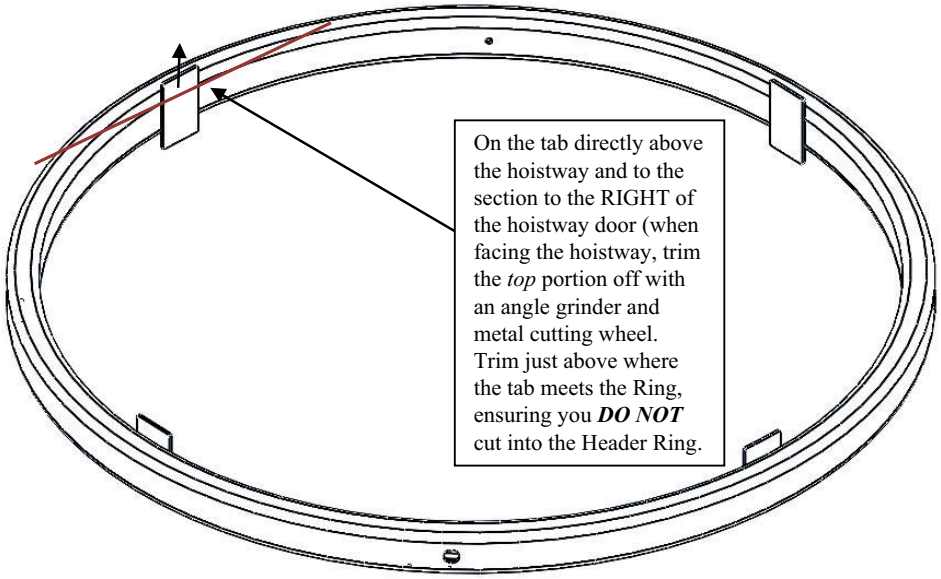
Step 15
Trim header ring tabs (thru-floor)

If this floor is the TOP FLOOR **AND** it is a LOW-CLEARANCE ceiling (less than 105.5" overhead clearance), the header ring must be trimmed so it will not interfere with the **Head Assembly** weldment which will be installed in a later section.

If this floor is ANY OTHER configuration, go to the next step; otherwise, continue with this section.

The location of the trimming required is shown below. The bottom illustration shows a detailed view of the trimming.

Figure 27
Location of trimming required for header ring

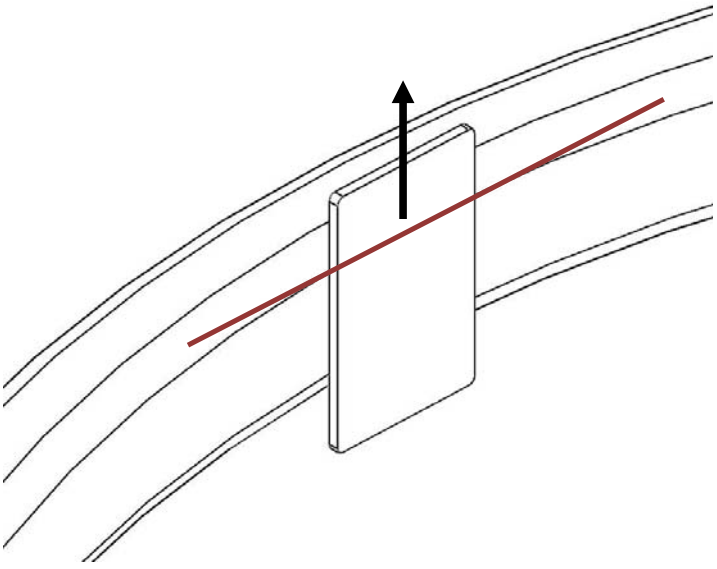


Location of Trimming Required for Header Ring

1 Trim the tab on the header ring with an angle grinder using a metal cut-off wheel. Be careful not to cut into the header ring, removing ONLY the portion of the tab above the line.

2 Using a sanding disc (or "flap" disc) attached to an angle grinder or a file, de-burr the top of the tab which was just removed to ensure there is no cutting hazard on the header ring. Use the provided touch up paint to carefully coat the exposed metal. This will reduce the risk of rust occurring.

Figure 28
Location of trimming required for header ring



*Tab Trimming Detail - Trim the **TAB ONLY** from the DOTTED LINE UP*

Step 16
Stack rings for lifting (thru-floor)

Stacking the rings ensures the easiest installation. For a **THRU-FLOOR** configuration, the rings stack in the following order:

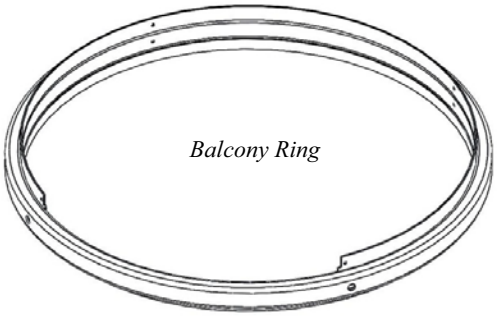
- Mid-floor ring - on bottom
- Header ring - in middle (note that an extra header ring may be needed for floor-to-floor height > 14 ft)
- Ceiling ring - on top

The illustration below shows the different types of rings.

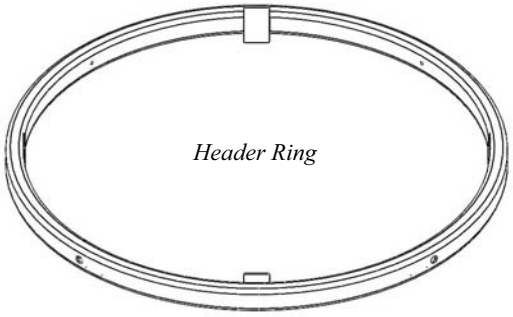
⚠ CAUTION

IMPORTANT!
NOTE THE FOLLOWING RING ORIENTATIONS:
Balcony Ring: Cutout on ring must be oriented UP
Header Ring: Holes for door hinge must be pointed DOWN and be on both sides of the door opening
Ceiling Ring: Vertical flange on ring must be oriented DOWN
Mid-floor Ring: Cutout on ring must be oriented UP

Figure 29
Ring types



CAUTION
Cutout on Balcony Ring must be oriented UP



CAUTION
Holes for door hinge on Header Ring must be pointed DOWN and be on both sides of door opening

CAUTION
Vertical flange on Ceiling Ring must be oriented DOWN

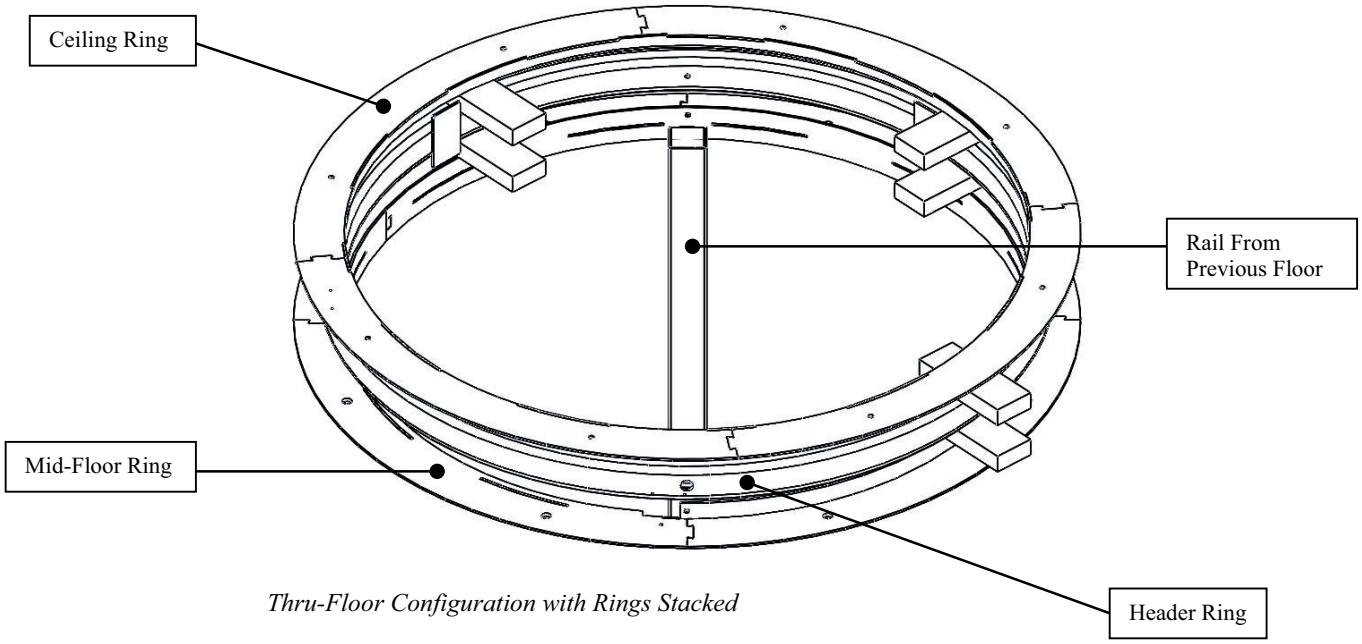
CAUTION
Cutout on Mid-flloor Ring must be oriented UP

The illustration below shows the proper alignment of the rings when the next floor is a thru-floor.

Note the orientation of the rings as shown below.

- The notch in the mid-floor ring should be oriented for where the hoistway door will open.
- The mid-floor ring should sit flush on the finished floor with the vertical face on the **OUTSIDE** of the rails.
- If applicable, the header ring *with the tabs removed* should be oriented so the trimmed portion is **UP** and the trimmed tabs are located where the hoistway door will open and to the RIGHT of the hoistway door opening (facing the hoistway from the outside).

Figure 30
Thru-floor configuration with rings stacked



Thru-Floor Configuration with Rings Stacked

Step 17
Insert rail splines (thru-floor)

Before stacking the next set of rails, rail splines must be inserted into the **BOTTOM** of each rail. These splines are cut to length at the factory and only require insertion and fastening with a set screw. For this step you will need the following tools, fasteners and parts:

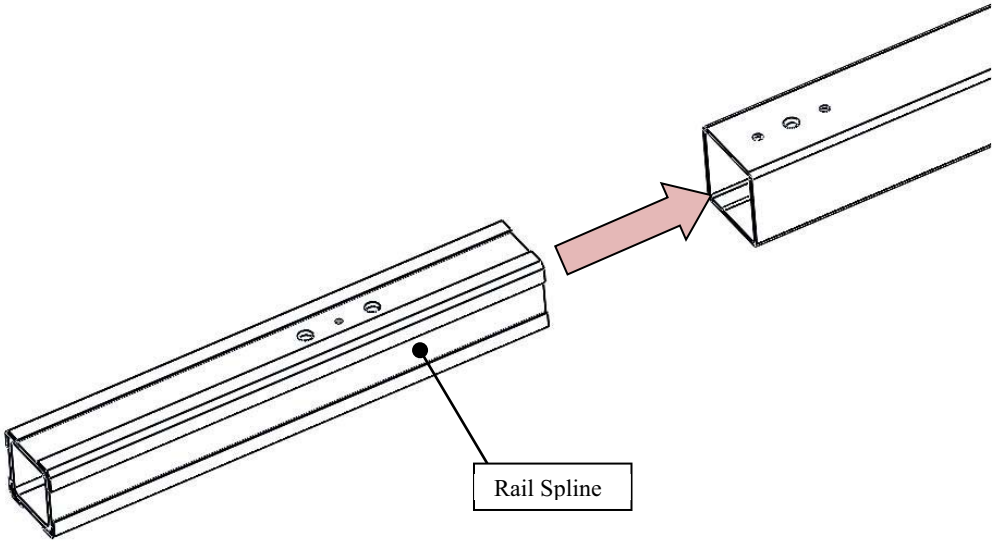
- Qty: 1 EMI rail (cut to proper length)
- Qty: 3 Standard rail (cut to proper length)
- Qty: 4 Rail splines (in kit PK-0003)
- Qty: 4 Countersunk screws (in Hoistway Fastener Bag of kit PK-0016)

1 Begin with a rail (standard or EMI, as this will be repeated for all four rails).

2 Insert one rail spline as shown in below.

IMPORTANT
Note the orientation of the spline. The holes are more towards the **TOP** of the spline.

Figure 31
Insert spline in rail



Spline Insertion in Rail

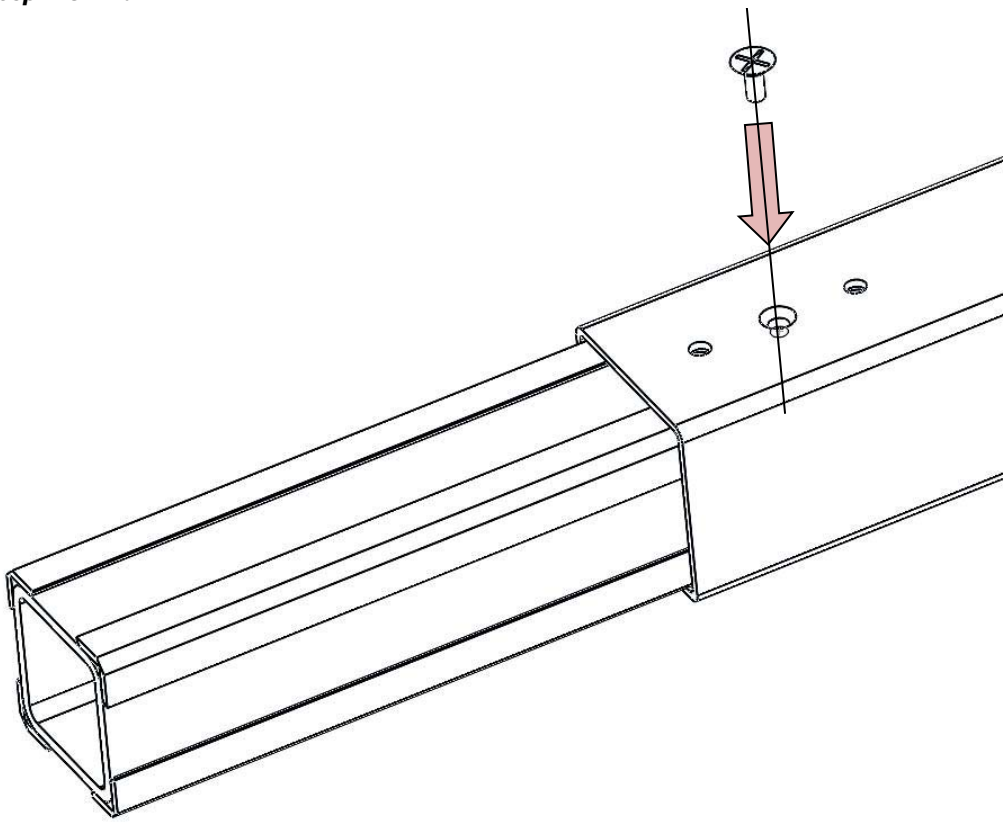
3 Insert the spline into the rail until the center hole in the spline aligns with the countersunk hole in the rail.

4 Insert the screw into the countersunk hole in the rail as shown below. The rail splines are held in place with a well nut which is a rubber piece with a steel nut inside. As the well nut tightens, it "mushrooms" against the metal on the inside of the spline. This means the nut will NEVER get completely tight. Tighten until the rail spline is held firmly in place and does not wiggle.

5 The head of the screw should sit flush with the face of the rail.

6 Repeat this section for the 3 remaining rails and splines.

Figure 32
Insert spline in rail



Screw Securing Spline to Rail

Step 18
Secure rails at mid-floor ring (thru-floor)

To attach the rails to the mid-floor ring, the following tools and fasteners are required:

- Qty: 4 3/8″ flat washers (in kit PK-0005)
- Qty: 4 3/8″-16 x 1″ hex bolt (in kit PK-0005)
- 9/16″ socket
- Socket wrench
- 6″ socket extension

NOTE

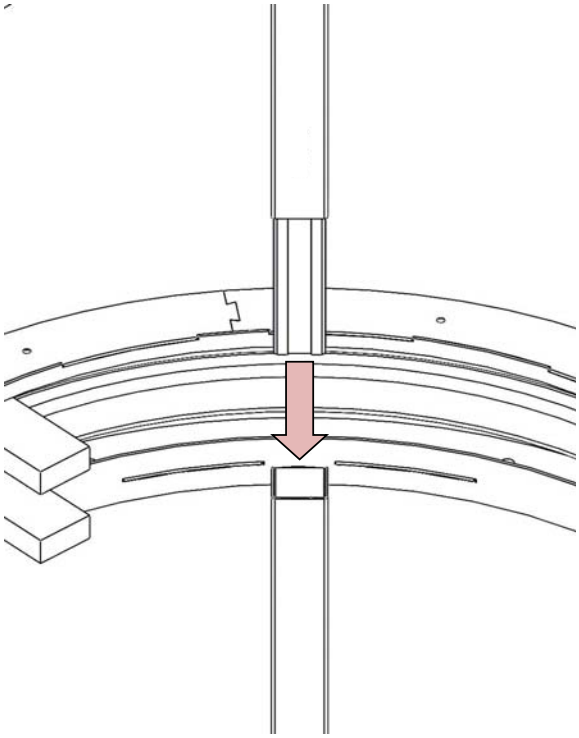
We recommend installing the EMI (interlock) rail first.

1 Orient the rail with the holes facing *away* from the center of the ring.
2 Insert the rail and spline assembly into the **TOP** of the rail from the previous floor as shown below.
3 After the rail is in the proper location, push down until the two rails are flush against each other.
4 Insert (1) 3/8″-16 x 1″ hex bolt with flat washer (from kit PK-0005) through the hole in the mid-floor ring and into the threads on the rail. **DO NOT TIGHTEN COMPLETELY.** Tighten until approximately 1/4″ - 1/8″ of threads remain exposed. Final tightening will be performed after the rings have been plumbed and oriented to their proper location.
5 Repeat this process until all four rails with splines are in place.

⚠ CAUTION

In determining the rail location, you must orient the **EMI (interlock) rail** in the proper position. With the EMI rail positioned to the **LEFT** of the notch as facing the mid-floor ring, this orientation assumes a **Left Hand Swing** door (hinges on the right as you face the hoistway) for the middle floor. For a **Right Hand Swing** door, orient the EMI rail to the **RIGHT** of the notch in the mid-floor ring as you face the hoistway.

Figure 33
Stacking rail and spline assembly to previous rail



Stacking Rail and Spline Assembly to Previous Rail

Step 19
Lift and secure rings to rail (thru-floor)

After the rails are loosely secured to the mid-floor ring, lift the header ring and ceiling ring into position and secure them to the rails and ceiling.

To accomplish this you will need the following tools and fasteners:

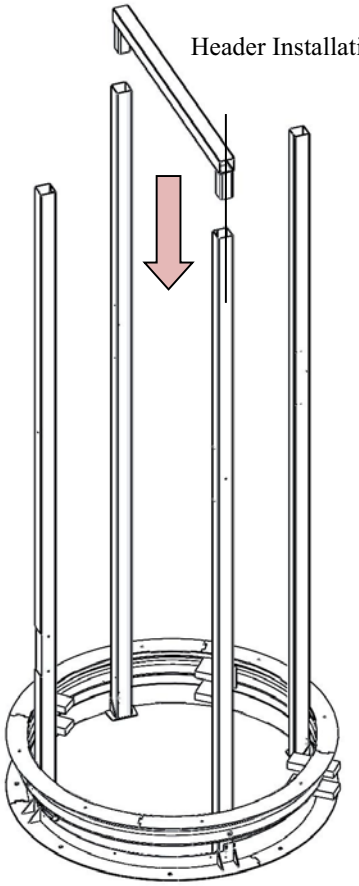
- Qty: 4 3/8″-16 x 2 1/2″ socket cap screw (in Hoistway Fastener Bag of kit PK-0016)
- Allen keys
- Header installation tool – **must be purchased separately from Savaria**
- Winch
- Rigging straps and clevises
- Qty: 8 M10 x 2.5″ black flat head wood screws (for ceiling ring)
- Variable speed drill with pilot drill bit for M10 wood screws and hex bit for M10 screws
- Magnetic digital level

IMPORTANT

If this is the TOP FLOOR, and this floor has a LOW-CLEARANCE ceiling (floor to ceiling height of less than 105.5″) do not continue with this section; go to the section, **Head Assembly Installation**.
If this is the TOP FLOOR and the floor has a floor to ceiling height of more than 105.5″, continue with this section.

1 Place the header installation tool into the top of two opposing rails as shown below.

Figure 34
Insertion of header installation tool



Insertion of Header Installation Tool

Note: If you don't have the Header Installation Tool, use 2x4 pieces of wood for the legs attached to a 4x4 with long wood screws. Ensure that it is strong enough to lift at least 250 lbs.

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

2 After inserting the header installation tool, secure the winch to the header installation tool with a sling and clevis. Insert a rigging strap underneath the bottom of the header ring on opposite sides of the ring and wrap the strap around the header and ceiling ring (or balcony ring if applicable). Then, pull one end of the strap through the loop on the other end of the strap. Make sure the loop is centered in the ring to ensure an even lift of the rings.

3 Attach the ends of the straps together in the center of the ring with a clevis, and then secure the winch to the clevis as shown below.

Figure 35
Secure winch to strap

4 Lift both rings slowly with the winch until the holes in the side of the header ring align with the holes in the outside faces of the rails as shown below.

NOTE

It may be necessary to balance the rings while lifting with the winch. This will help prevent the rings from binding on the rails.

Figure 36
Lifting ring with winch

5 Insert (1) 3/8″-16 x 2 1/2″ button head screw (from Hoistway Fastener Bag of kit PK-0016) through the hole in the header ring. **DO NOT TIGHTEN COMPLETELY.** Tighten until approximately 1/8″ - 1/4″ of threads are remaining.

6 Repeat this process for all four holes in the header ring.

7 Remove both straps from the winch and from both rings.

8 If the current floor has a ceiling ring, complete the following:

   a. Remove the header installation tool from the top of the rails.

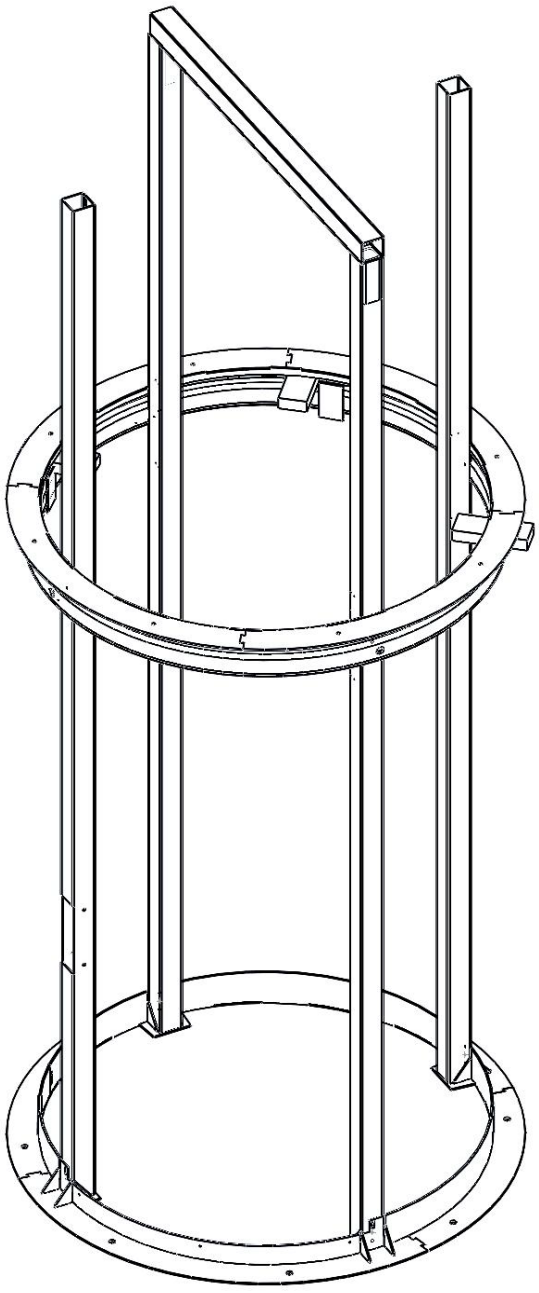
   b. Lift the ceiling ring into place, snugly against the ceiling of the current floor. Using C-clamps or quick-grip clamps, clamp the ceiling ring to the ceiling. This will allow you to plumb the rails with the ceiling ring in place.

9 If the next level is a thru-floor, follow the steps in this section, **Hoistway Installation (Thru-Floor Section)**.

10 If the next level is a balcony, go to the section, **Hoistway Installation (Balcony Section)**.

11 The illustration below shows the header ring in proper position and the ceiling ring sitting on the header ring.

Figure 37
Header ring installed



Header Ring Installed

NOTE: The cab floor is not shown in this drawing for clarification. The cab floor MUST be in place according to Step 3 prior to hoistway rail installation.

Step 20
Extra header ring/stabilizer bars (if FTF >14 ft)

If the floor-to-floor height (FTF) is greater than 14 ft (4.27 m), you will have an extra header ring and 2 stabilizer bars from that ring to the hoistway wall at either side.

1 Install the extra header ring in the same manner as the other rings.
2 Secure the bracket-end of the stabilizer bar assembly to the header ring using the hardware provided in kit PK-0022.
3 Measure and cut the stabilizer bar to size as needed.
   - **TECH TIP:** Thread a nut onto the bar before cutting the end and then unthread the nut. This will help clean out the threads and make it easier to thread the ends on it later. Replace the nut before continuing.
   - **NOTE:** The stabilizer bar gets threaded into the knuckles at each end of the bar.
4 Thread the end of the stabilizer bar into the knuckle at the end that will connect to the header ring bracket.
5 Secure the wall plate to the hoistway wall using the hardware provided in kit PK-0022.
6 Place the knuckle end of the stabilizer bar in the wall plate and then attach the knuckle to the wall plate. Do not fully tighten until both sides are in place.
7 Pull the tower structure so that it is plumb and square, and then lengthen or shorten the stabilizer bar to match.
8 Install the knuckle on the header ring assembly side.
9 Ensure the nuts at both ends of the bar are tightened down to the knuckles. This will prevent twisting of the hoistway rails.
10 Repeat the steps above for the stabilizer bar at the other side of the hoistway.

Figure 38
Stabilizer bars (for floor-to-floor >14 ft)

Bar secured to wall plate

Bar secured to header ring bracket

One stabilizer bar installed

Both stabilizer bars installed

Step 21
Align and plumb rails (thru-floor)

The rails on every floor plumb independently of the rails on the previous floor. This allows the hoistway to be adjustable given the conditions on each floor, ensuring a plumb hoistway from top to bottom.

1 To align and plumb the rails, tighten the bolts that secure the rails to the mid-floor ring. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

IMPORTANT

If the CURRENT FLOOR has a CEILING RING, continue to follow the steps in this section.
If the NEXT FLOOR has a BALCONY RING, do not continue with this section; go to the section, **Hoistway Installation (Balcony Section)**.

2 Snug the bolts securing the header ring to the rails.

3 Place the magnetic level on one rail and move the rail as necessary until plumb. Acceptable tolerances for all rails are ±0.1° or ±1/8" every 7 feet. Repeat this process for all four rails.

⚠ CAUTION

Maintaining these tolerances requires patience and a high quality level or plumb. Setting rails inaccurately **will** cause the cab to bind inside the hoistway. The Vuelift utilizes 24 shoes for the smoothest possible ride and this requires the rails to be plumb.

4 Tighten the bolts securing the header ring to the rails. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

5 Check the rails with the magnetic level to ensure they are still plumb.

6 Secure the ceiling ring to the ceiling using the M10 x 2.5" wood screws.
- Pre-drill the holes for the wood screws prior to installing the screws.
- It may be necessary to add drywall anchors or wood 2X4 supports to secure the ceiling ring to the ceiling.

IMPORTANT

If there are NO ADDITIONAL FLOORS, go to the section, **Head Assembly Installation**.
If there are ADDITIONAL FLOORS, follow the appropriate section, **Hoistway Installation (Thru-Floor Section)** or **Hoistway Installation (Balcony Section)**.

IMPORTANT

Note that the anchors provided by Savaria are standard/typical anchors and are not suitable for all site conditions. Always make sure the anchors used are proper for the type of surface on site.

HOISTWAY INSTALLATION (BALCONY SECTION)

Constructing a **BALCONY HOISTWAY SECTION** is very similar to constructing a first floor hoistway section.

The balcony hoistway construction process follows these basic steps which are described in detail on the following pages.

1 Measure the floor to floor height.
2 Cut the rails to length.
3 Stack the rings for lifting.
4 Insert the rail splines.
5 Insert the rail sections.
6 Lift and secure the rings.

Step 22
Measure floor to floor height (balcony)

IMPORTANT: *Precise measurement of the floor to floor height is imperative for proper construction of the hoistway and will help to ensure proper travel of the cab.*

To measure the floor to floor height for a **BALCONY HOISTWAY SECTION**:

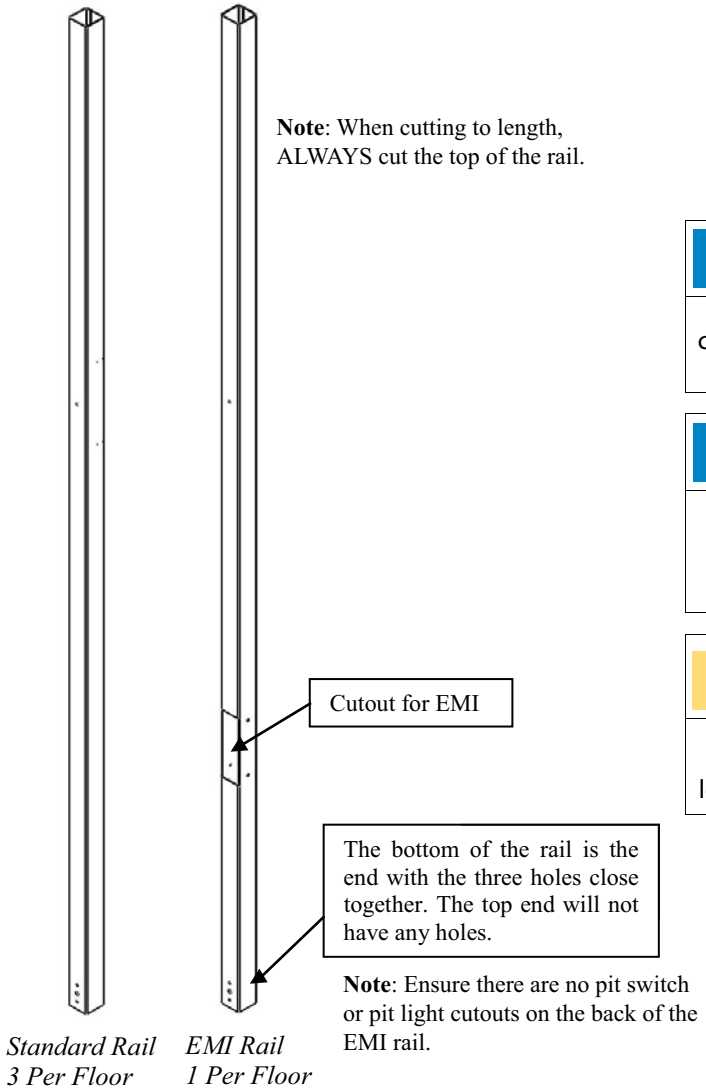
1 Measure from the top of the finished floor at which you are installing to the top of the finished floor above (i.e. from the top of the finished floor on the 2nd floor to the top of the finished floor on the 3rd floor).
2 Measure twice from the two hoistway rails directly adjacent to the balcony and take the **maximum** measurement.
3 If the floor you are measuring is the **TOP FLOOR**, use the chart below to determine the rail lengths.

Minimum floor to ceiling height	Hoistway rail length	Cab speed	Cab type
95.5″	87 3/8″	30 ft/min	Short
105.5″	96 7/8″	30 ft/min	Standard
112″	103 3/8″	40 ft/min	Standard
>112″	Floor to ceiling height - 8″	40 ft/min	Standard

Step 23
Cut rails to length (balcony)

Cut the **3 standard rails** and **1 EMI (interlock) rail** using the measurements from the previous section. To determine which end of the rail is the bottom, refer to the illustration below.

Figure 39
Determining bottom of rail



To cut the rails:

1 Mark the location of the cut on the rail (using a permanent marker or pencil) by **measuring from the bottom of the rail towards the top**.
   - You MUST measure from bottom to top so you DO NOT cut off the three holes at the bottom end of the rail.
2 Generate a line through the mark with a square.
3 Cut along the line with an angle grinder using a metal cutoff wheel. or using a low RPM metal saw with a carbide blade.
   - **NOTE:** A low RPM metal saw is by far the best tool for achieving a good cut.
   - **NOTE:** Using other methods of cutting may impact the squareness of the cut. **It is imperative that the cuts be square so the rail contact surface area is sufficient**.

NOTE

Note that it may be necessary to measure and mark the cut line on each face of the rail to ensure the cuts remain square.

NOTE

It is easiest to make four cuts per rail using the angle grinder. Both the length and squareness of the cut are important. Each rail must be cut to ***exactly*** the same length (± 1/32").

⚠ CAUTION

If you cut the rails too short, **stop the job** and contact Savaria for assistance. **DO NOT** attempt to change hole locations as this will create further installation problems.

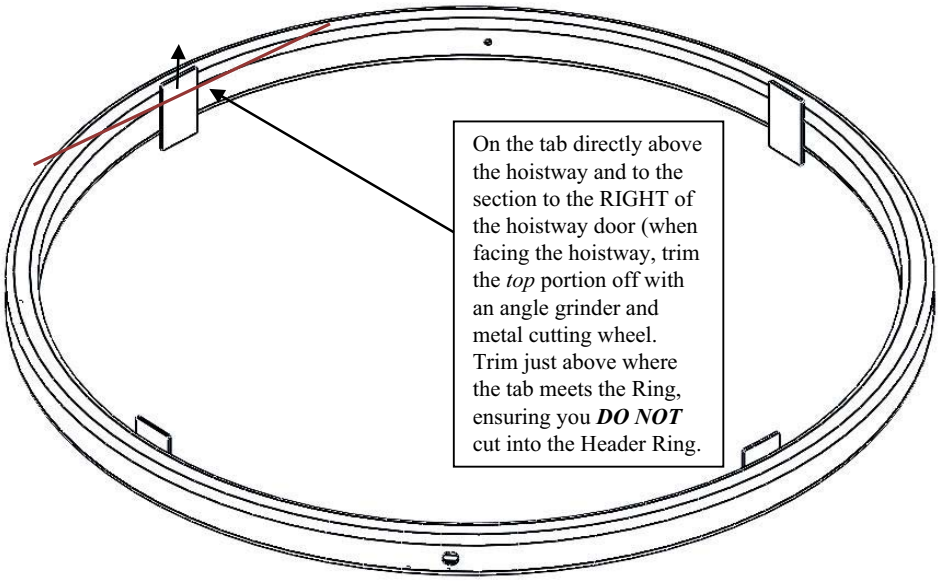
Step 24
Trim header ring tabs (balcony)

If this floor is the TOP FLOOR **AND** it is a LOW-CLEARANCE ceiling (less than 105.5" overhead clearance), the header ring must be trimmed so it will not interfere with the **Head Assembly** weldment which will be installed in a later section.

If this floor is ANY OTHER configuration, go to the next step; otherwise, continue with this section.

The location of the trimming required is shown below. The bottom illustration shows a detailed view of the trimming.

Figure 40
Location of trimming required for header ring

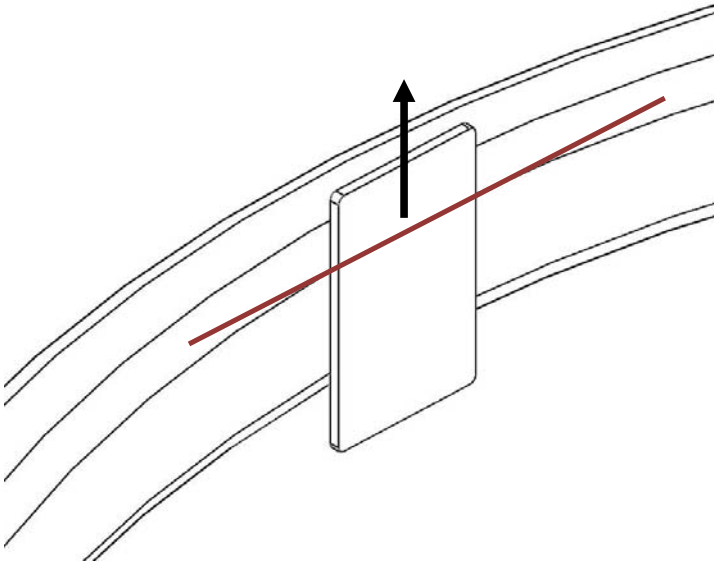


Location of Trimming Required for Header Ring

1 Trim the tab on the header ring with an angle grinder using a metal cut-off wheel. Be careful not to cut into the header ring, removing ONLY the portion of the tab above the line.

2 Using a sanding disc (or "flap" disc) attached to an angle grinder or a file, de-burr the top of the tab which was just removed to ensure there is no cutting hazard on the header ring. Use the provided touch up paint to carefully coat the exposed metal. This will reduce the risk of rust occurring.

Figure 41
Location of trimming required for header ring



*Tab Trimming Detail - Trim the **TAB ONLY** from the DOTTED LINE UP*

Step 25
Stack rings for lifting (balcony)

Stacking the rings ensures the easiest installation. For a **BALCONY** configuration, the rings stack in the following order:

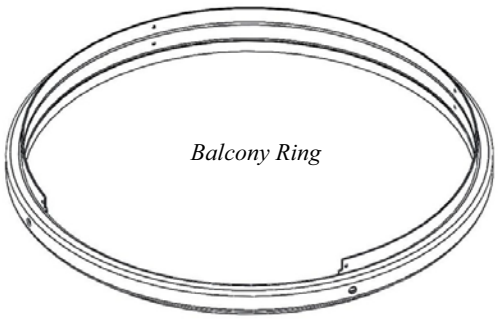
- Balcony ring - currently sitting on the header ring of the floor below
- Header ring (note that an extra header ring may be needed for floor-to-floor height > 14 ft)
- Ceiling ring (if next floor is a thru-floor)
- Balcony ring (if next floor is a balcony floor)

The illustration below shows the different types of rings.

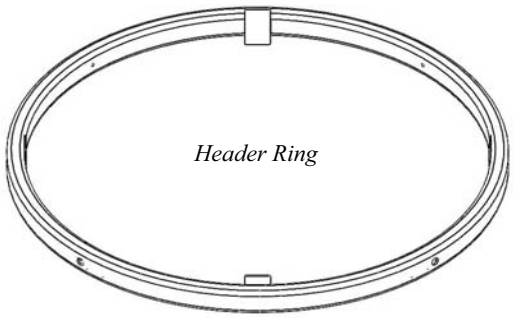
⚠ CAUTION

IMPORTANT!
NOTE THE FOLLOWING RING ORIENTATIONS:
Balcony Ring: Cutout on ring must be oriented UP
Header Ring: Holes for door hinge must be pointed DOWN and be on both sides of the door opening
Ceiling Ring: Vertical flange on ring must be oriented DOWN
Mid-floor Ring: Cutout on ring must be oriented UP

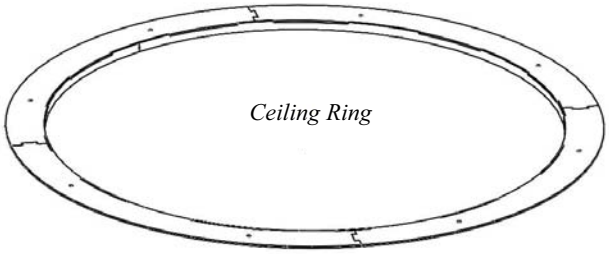
Figure 42
Ring types



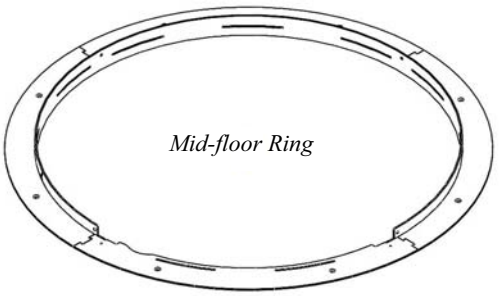
CAUTION
Cutout on Balcony Ring must be oriented UP



CAUTION
Holes for door hinge on Header Ring must be pointed DOWN and be on both sides of door opening



CAUTION
Vertical flange on Ceiling Ring must be oriented DOWN



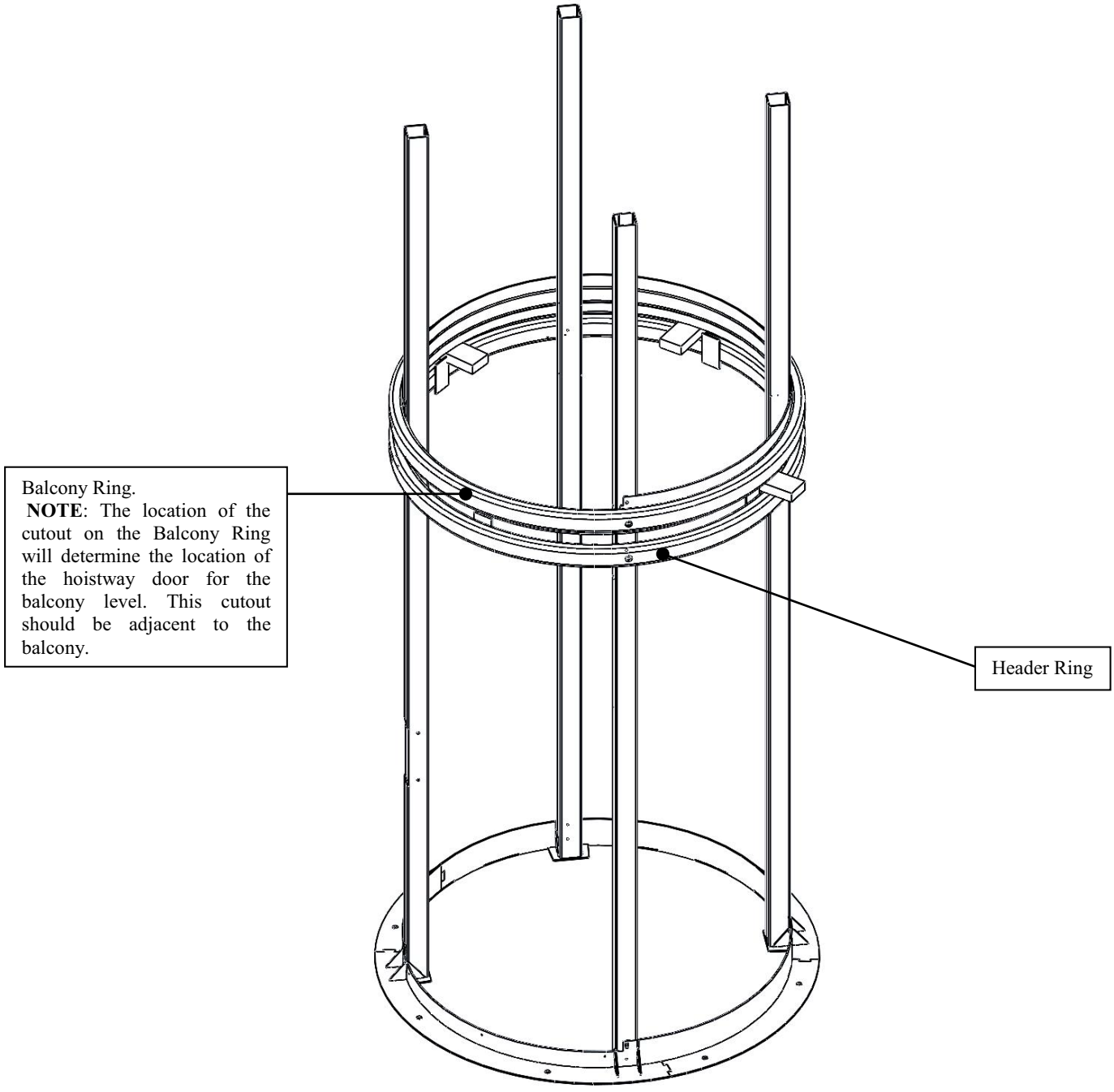
CAUTION
Cutout on Mid-flloor Ring must be oriented UP

The illustration below shows the location of the balcony ring for the current floor.

Note the orientation of the rings as shown below.

- The notch in the balcony ring should be oriented to the location where the hoistway door will open (facing the balcony).
- If applicable, the header ring *with the tabs removed* should be oriented so the trimmed portion is **UP** and the trimmed tabs are located where the hoistway door will open and to the RIGHT of the hoistway door opening (facing the hoistway from the outside).

Figure 43
Balcony configuration from previous floor



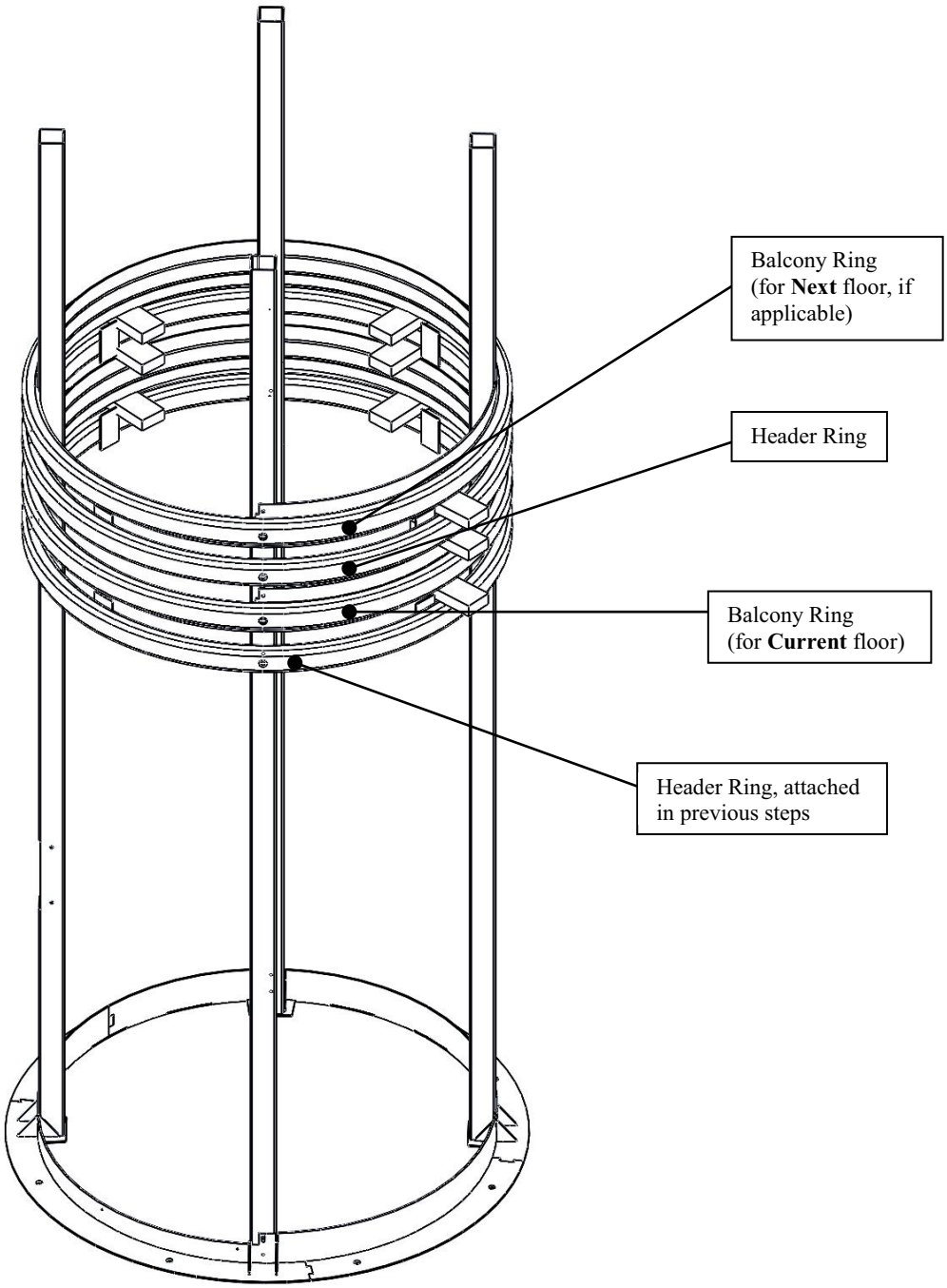
Balcony Configuration from Previous Floor

The illustration below shows the rings stacked for current and subsequent balcony levels.

⚠ CAUTION

DO NOT stack more than 3 unsecured rings at any time. The illustration below shows the maximum number of unsecured stacked rings given any configuration.

Figure 44
Balcony configuration from previous floor with stacked rings



Balcony Configuration from Previous Floor with Stacked Rings

Step 26
Insert rail splines (balcony)

Before stacking the next set of rails, rail splines must be inserted into the **BOTTOM** of each rail. These splines are cut to length at the factory and only require insertion and fastening with a set screw. For this step you will need the following tools, fasteners and parts:

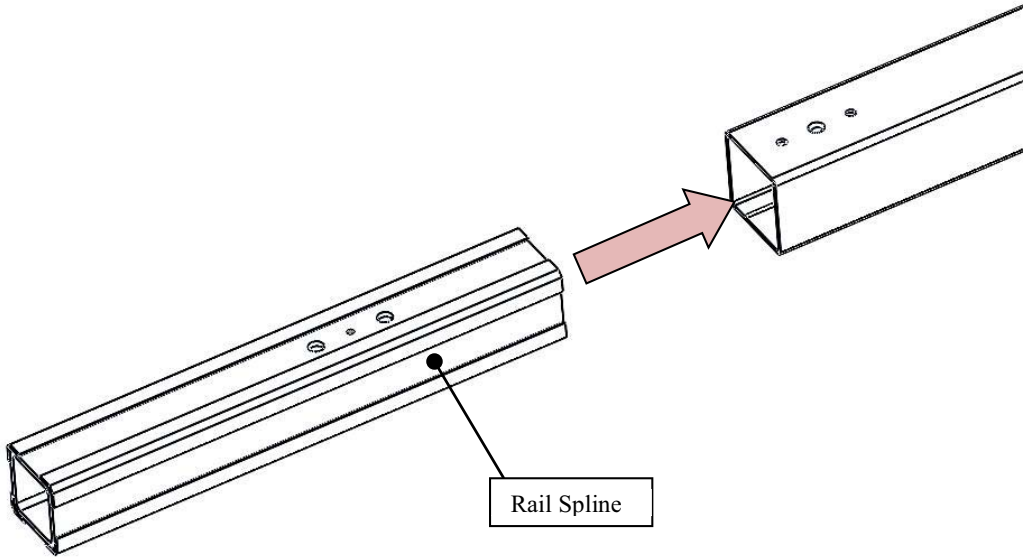
- Qty: 1 EMI rail (as cut to proper length)
- Qty: 3 Standard rail (as cut to proper length)
- Qty: 4 Rail splines (in kit PK-0003)
- Qty: 4 Countersunk screws (in Hoistway Fastener Bag of kit PK-0016)

1 Begin with a rail (standard or EMI, as this will be repeated for all four rails).

2 Insert one rail spline as shown in below.

IMPORTANT
Note the orientation of the spline. The holes are more towards the **TOP** of the spline.

Figure 45
Insert spline in rail



Spline Insertion in Rail

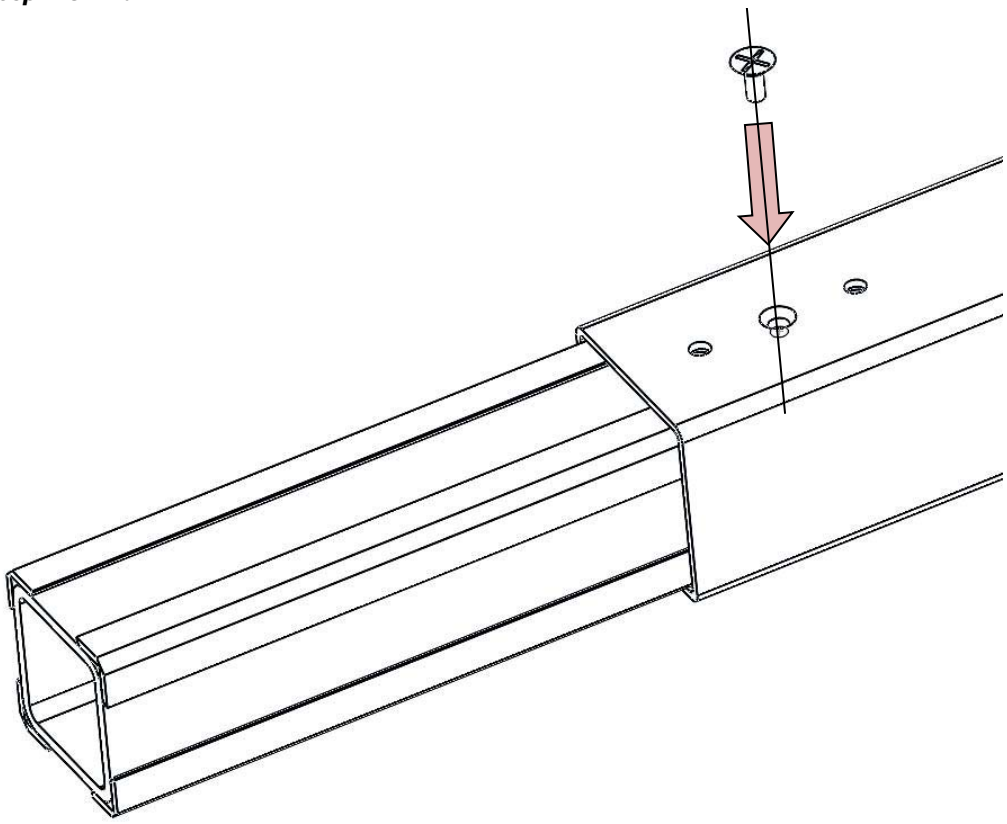
3 Insert the spline into the rail until the center hole in the spline aligns with the countersunk hole in the rail.

4 Insert the screw into the countersunk hole in the rail as shown below. The rail splines are held in place with a well nut which is a rubber piece with a steel nut inside. As the well nut tightens, it "mushrooms" against the metal on the inside of the spline. This means the nut will NEVER get completely tight. Tighten until the rail spline is held firmly in place and does not wiggle.

5 The head of the screw should sit flush with the face of the rail.

6 Repeat this section for the three remaining rails and splines.

Figure 46
Insert spline in rail



Screw Securing Spline to Rail

Step 27
Insert rail sections (balcony)

1 Insert the rails for the current floor. The following parts are required:
- Qty: 1 EMI rail with spline (from the previous step)
- Qty: 4 Standard rails with splines (from the previous step)

NOTE

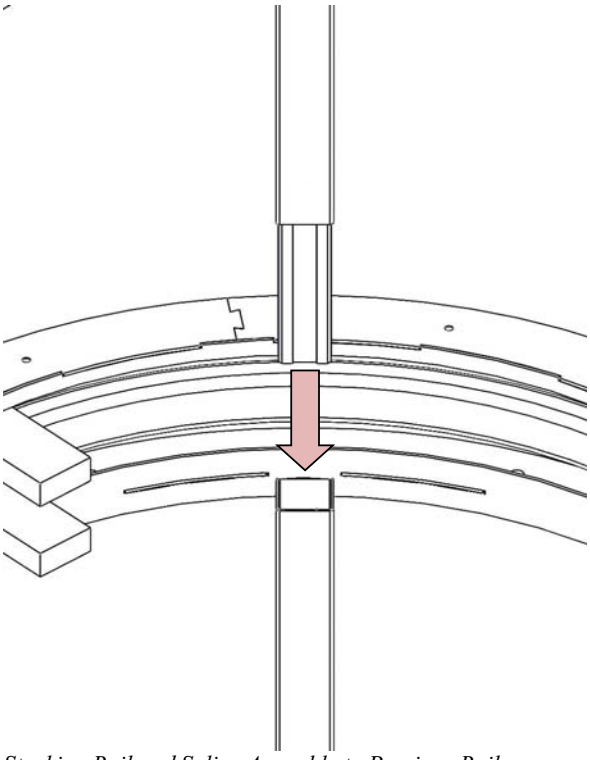
We recommend installing the EMI (interlock) rail first.

1 Orient the rail with the holes facing **away** from the center of the ring.
2 Insert the rail and spline assembly into the **TOP** of the rail from the previous floor as shown below.
3 After the rail is in the proper location, push down until the two rails are flush against each other.
4 Repeat this process until all four rails with splines are in place.

⚠ CAUTION

In determining the rail location, you must orient the **EMI (interlock) rail** in the proper position. With the EMI rail positioned to the **LEFT** of the notch as facing the mid-floor ring, this orientation assumes a **Left Hand Swing** door (hinges on the right as you face the hoistway) for the middle floor. For a **Right Hand Swing** door, orient the EMI rail to the **RIGHT** of the notch in the mid-floor ring as you face the hoistway.

Figure 47
Stacking rail and spline assembly to previous rail



Stacking Rail and Spline Assembly to Previous Rail

Step 28
Lift and secure rings to rail (balcony)

After the rails are inserted, lift the balcony ring (for the current floor), header ring, and ceiling ring (or balcony ring if applicable) into position and secure them to the rails.

To accomplish this you will need the following tools and fasteners:

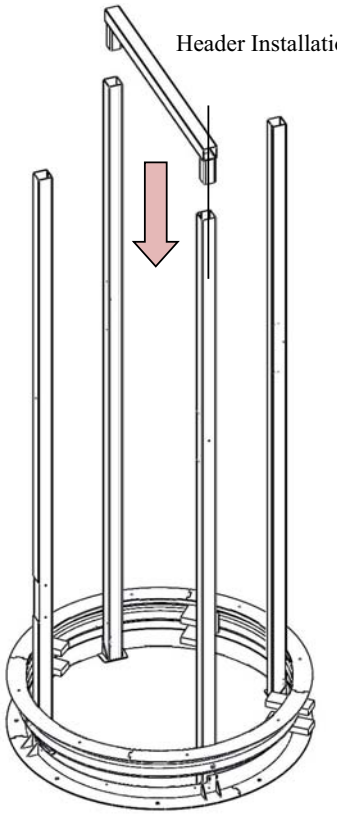
- Qty: 4 3/8"-16 x 2 1/2" button head socket cap screw (in Hoistway Fastener Bag of kit PK-0016)
- Allen keys
- Header installation tool – **must be purchased separately from Savaria**
- Winch
- Rigging straps and clevises
- Qty: 8 M10 x 2.5" black flat head wood screws (for ceiling ring if applicable)
- Variable speed drill with pilot drill bit for M10 wood screws and hex bit for M10 screws
- Magnetic level

IMPORTANT

If this is the TOP FLOOR, and this floor has a LOW-CLEARANCE ceiling (floor to ceiling height of less than 105.5") do not continue with this section; go to the section, **Head Assembly Installation**.
If this is the TOP FLOOR and the floor has a floor to ceiling height of more than 105.5", continue with this section.

1 Place the header installation tool into the top of two opposing rails as shown below.

Figure 48
Insertion of header installation tool



Note: If you don't have the Header Installation Tool, use 2x4 pieces of wood for the legs attached to a 4x4 with long wood screws. Ensure that it is strong enough to lift at least 250 lbs.

Insertion of Header Installation Tool

2 After inserting the header installation tool, secure the winch to the header installation tool with a sling and clevis. Insert a rigging strap underneath the bottom of the header ring on opposite sides of the ring and wrap the strap around the header and ceiling ring (or balcony ring if applicable). Then, pull one end of the strap through the loop on the other end of the strap. Make sure the loop is centered in the ring to ensure an even lift of the rings.

3 Attach the ends of the straps together in the center of the ring with a clevis, and then secure the winch to the clevis as shown below.

Figure 49
Secure winch to strap

4 Lift both rings slowly with the winch until the holes in the side of the header ring align with the holes in the outside faces of the rails as shown below.

NOTE

It may be necessary to balance the rings while lifting with the winch. This will help prevent the rings from binding on the rails.

Figure 50
Lifting ring with winch

5 Insert (1) 3/8"-16 x 2 1/2" button head screw (from Hoistway Fastener Bag in kit PK-0016) through the hole in the header ring. **DO NOT TIGHTEN COMPLETELY.** Tighten until approximately 1/8" - 1/4" of threads are remaining.

6 Repeat this process for all four holes in the header ring.

7 Remove both straps from the winch and from both rings.

8 If the current floor has a ceiling ring, complete the following:

   a. Remove the header installation tool from the top of the rails.

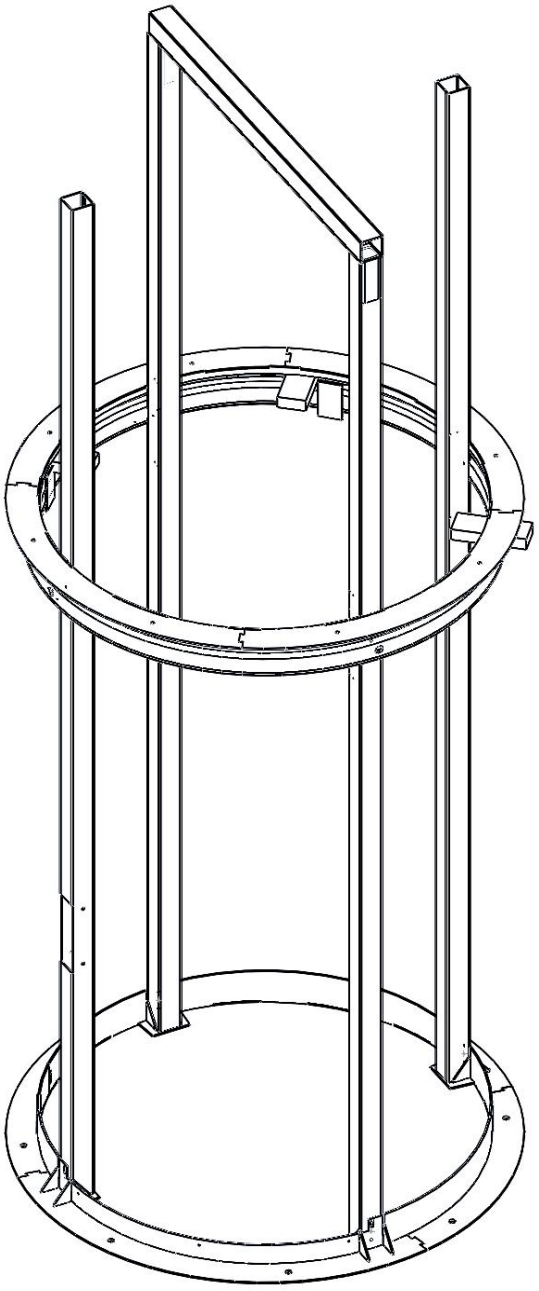
   b. Lift the ceiling ring into place, snugly against the ceiling of the current floor. Using C-clamps or quick-grip clamps, clamp the ceiling ring to the ceiling. This will allow you to plumb the rails with the ceiling ring in place.

9 If the next level is a thru-floor, follow the steps in this section, **Hoistway Installation (Thru-Floor Section)**.

10 If the next level is a balcony, go to the section, **Hoistway Installation (Balcony Section)**.

11 The illustration below shows the header ring in proper position and the ceiling ring sitting on the header ring.

Figure 51
Header ring installed



Header Ring Installed

Step 29
Extra header ring/stabilizer bars (if FTF >14 ft)

If the floor-to-floor height (FTF) is greater than 14 ft (4.27 m), you will have an extra header ring and 2 stabilizer bars from that ring to the hoistway wall at either side.

1 Install the extra header ring in the same manner as the other rings.
2 Secure the bracket-end of the stabilizer bar assembly to the header ring using the hardware provided in kit PK-0022.
3 Measure and cut the stabilizer bar to size as needed.
   - **TECH TIP:** Thread a nut onto the bar before cutting the end and then unthread the nut. This will help clean out the threads and make it easier to thread the ends on it later. Replace the nut before continuing.
   - **NOTE:** The stabilizer bar gets threaded into the knuckles at each end of the bar.
4 Thread the end of the stabilizer bar into the knuckle at the end that will connect to the header ring bracket.
5 Secure the wall plate to the hoistway wall using the hardware provided in kit PK-0022.
6 Place the knuckle end of the stabilizer bar in the wall plate and then attach the knuckle to the wall plate. Do not fully tighten until both sides are in place.
7 Pull the tower structure so that it is plumb and square, and then lengthen or shorten the stabilizer bar to match.
8 Install the knuckle on the header ring assembly side.
9 Ensure the nuts at both ends of the bar are tightened down to the knuckles. This will prevent twisting of the hoistway rails.
10 Repeat the steps above for the stabilizer bar at the other side of the hoistway.

Figure 52
Stabilizer bars (for floor-to-floor >14 ft)

Bar secured to wall plate

Bar secured to header ring bracket

One stabilizer bar installed

Both stabilizer bars installed

Step 30
Align and plumb rails (balcony)

The rails on every floor plumb independently of the rails on the previous floor. This allows the hoistway to be adjustable given the conditions on each floor, ensuring a plumb hoistway from top to bottom.

1 To align and plumb the rails, snug the bolts that secure the rails to the header ring on the **lower floor**.

2 Place the magnetic level on one rail of the **lower floor** and move the rail as necessary until plumb. Acceptable tolerances for all rails are ±0.1° or ±1/8" every 7 feet. Repeat this process for all four rails.

⚠ CAUTION

Maintaining these tolerances requires patience and a high quality level or plumb. Setting rails inaccurately **will** cause the cab to bind inside the hoistway. The Vuelift utilizes 24 shoes for the smoothest possible ride and this requires the rails to be plumb.

3 Tighten the bolts securing the header ring on the **lower floor** to the rails. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

4 Repeat the above process with the balcony ring on the **current floor**.

IMPORTANT

If the CURRENT FLOOR has a CEILING RING, continue to follow the steps in this section.
If the NEXT FLOOR has a BALCONY RING, do not continue with this section; go to the section, **Hoistway Installation (Balcony Section)**.
If there are NO ADDITIONAL FLOORS, go to the section **Head Assembly Installation**.

5 Repeat the above process with the header ring on the **current floor**.

6 Check the rails with the magnetic level to ensure they are still plumb.

7 Secure the ceiling ring to the ceiling using the M10 x 2.5" wood screws.
- Pre-drill the holes for the wood screws prior to installing the screws.
- It may be necessary to add drywall anchors or wood 2X4 supports to secure the ceiling ring to the ceiling.

IMPORTANT

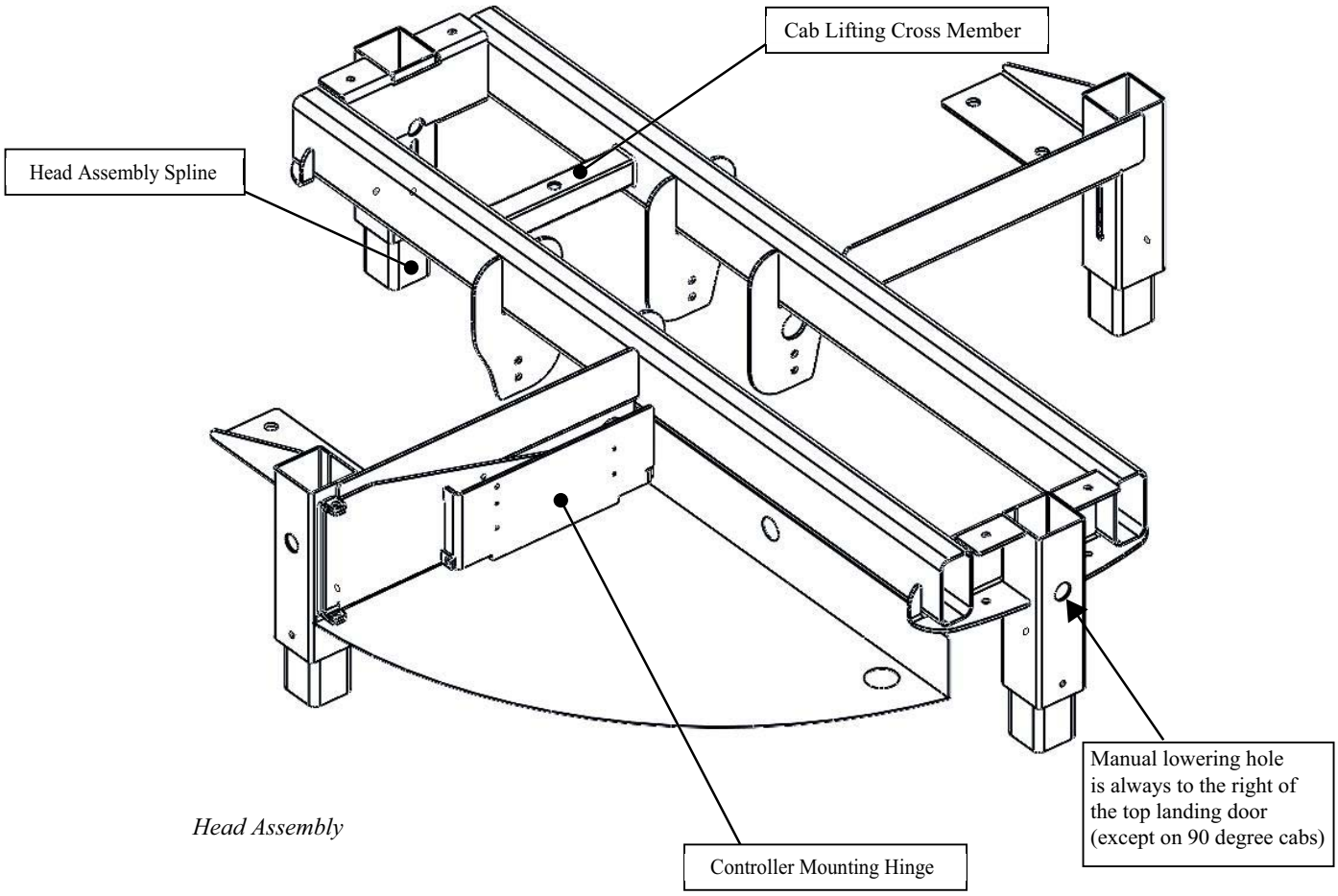
Note that the anchors provided by Savaria are standard/typical anchors and are not suitable for all site conditions. Always make sure the anchors used are proper for the type of surface on site.

HEAD ASSEMBLY INSTALLATION

The head assembly of the Vuelift is designed to be used in situations where the top floor has limited clearance. Installation of the unit where the top floor has a clearance of only 95.5" requires the Short Cab configuration which will be outlined in subsequent sections. The same head assembly is used in both low-clearance situations and situations where top floor clearance is not an issue.

The head assembly is shown below.

Figure 53
Head assembly



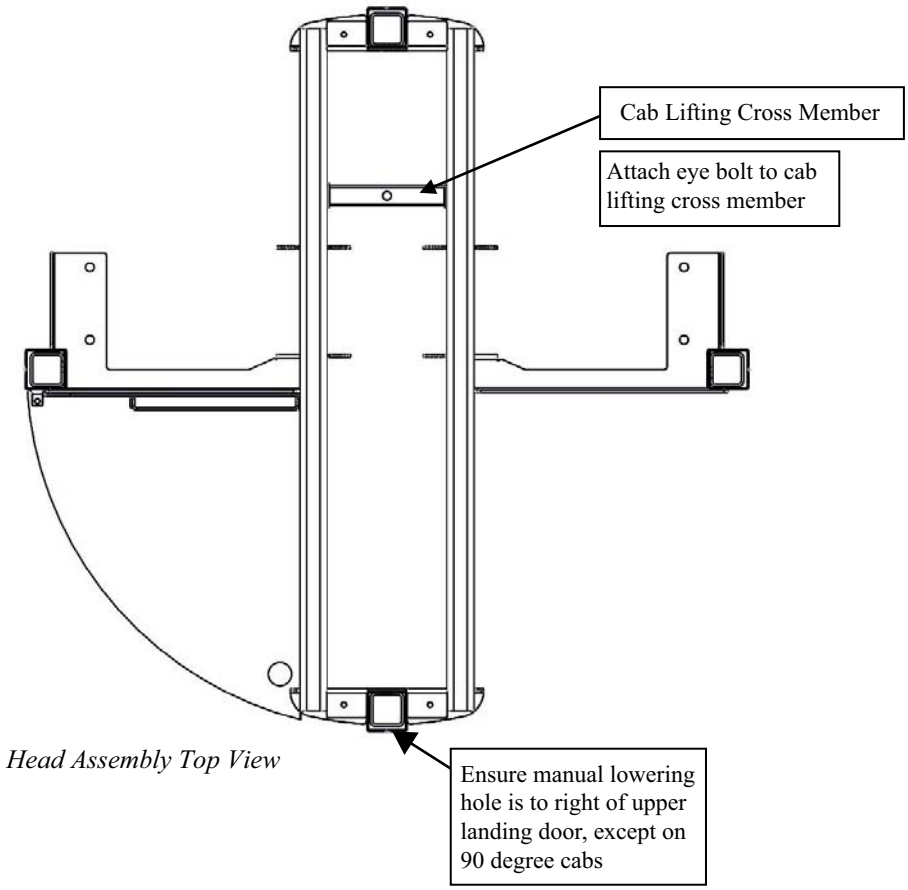
Step 31
Secure head assembly to hoistway rails

When securing the head assembly to the hoistway rails, orientation of the head assembly relative to the cab floor is **extremely important**. A top view of the head assembly is shown below.

Be sure to align the cab lifting cross member in the head assembly **directly above** the cab lifting point on the cab floor (see the drawings in STEP 7 earlier in this manual to identify the cab lifting point on the cab floor weldment).

Attach the eye bolt to the cab lifting cross member.

Figure 54
Head assembly top view



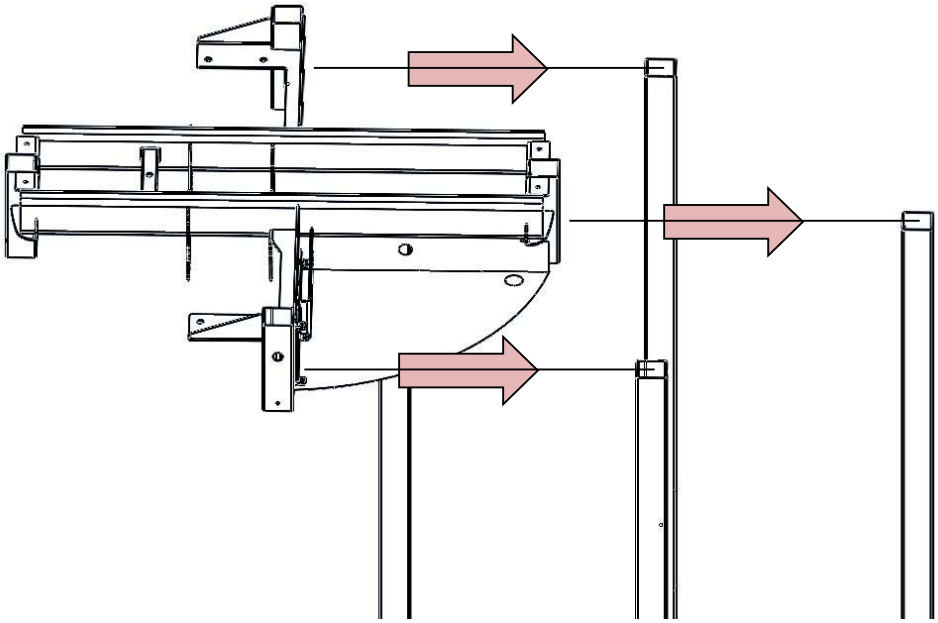
Head Assembly Top View

The head assembly is shipped with the head rail splines attached and secured in place within the head assembly.

To install and secure the head assembly:

1 Slide the head assembly on top of the **top floor** hoistway rails as shown below.

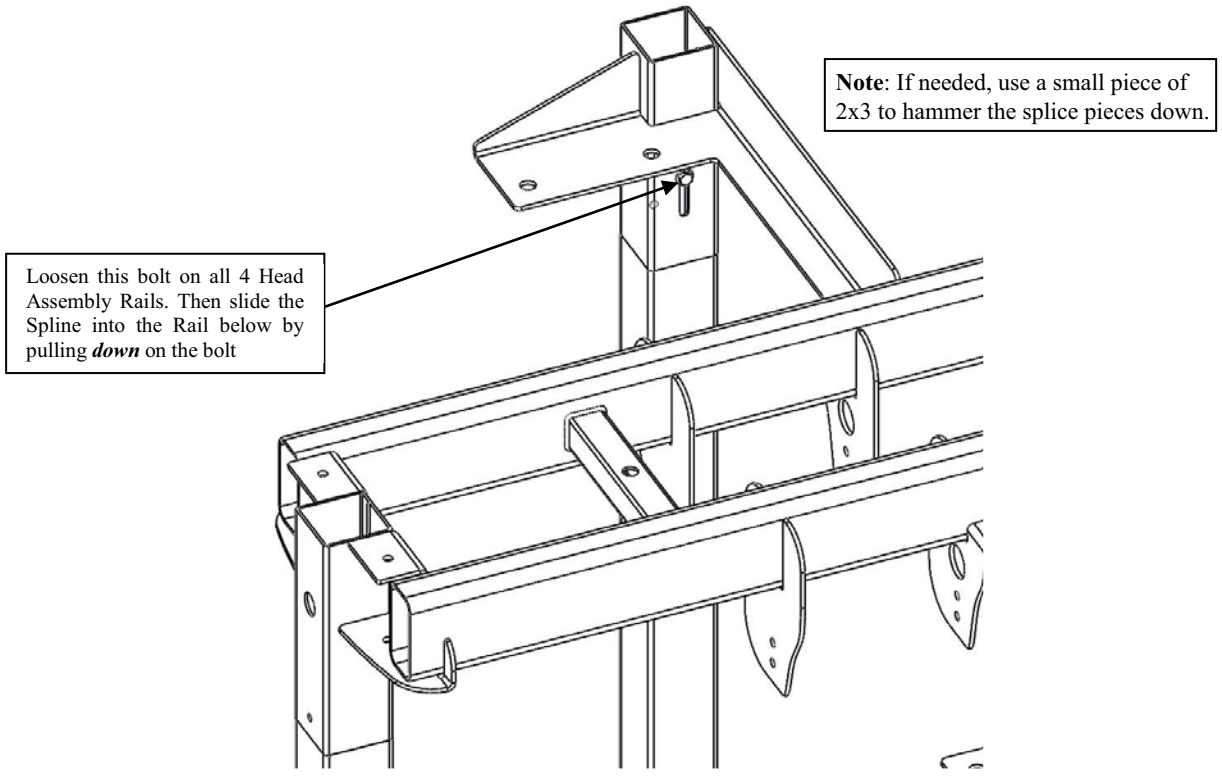
Figure 55
Install head assembly



Head Assembly Installation

2 Loosen the (4) 3/8" hex bolts securing the head rail splines to the head assembly as shown below (use a 9/16" wrench or socket). These bolts **MUST NOT BE REMOVED COMPLETELY**; only loosen until approximately 1/16" to 1/4" of threads are exposed.

Figure 56
Head assembly spline bolt locations

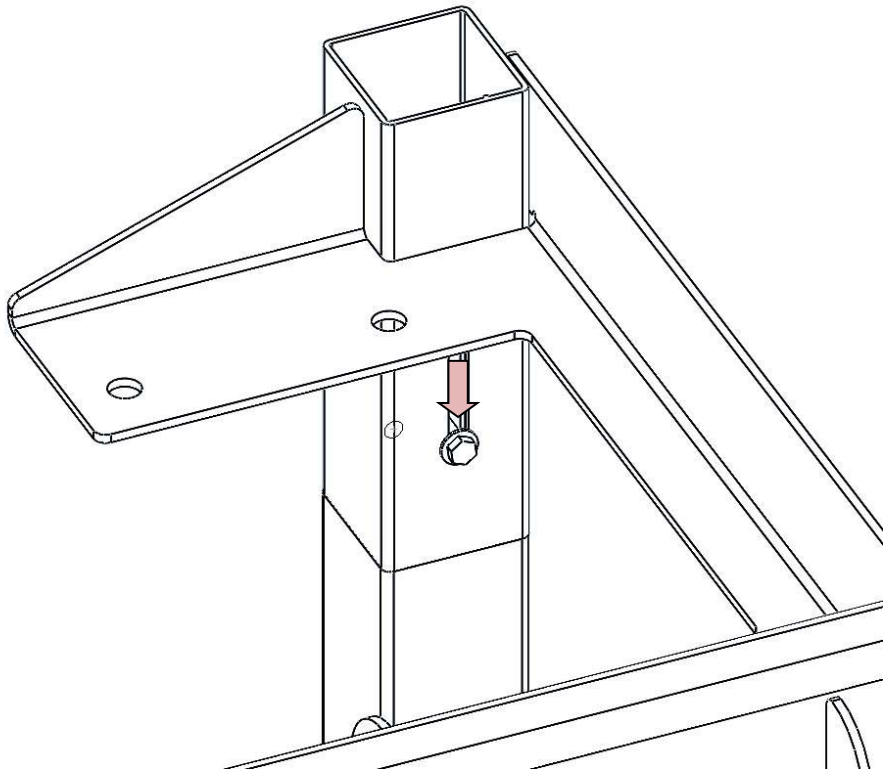


Head Assembly Spline Bolt Location

3 Slide the head rail splines down into the hoistway rails by pulling down on the hex bolts as shown below.

4 Once the head rail splines are in place (when the hex bolt is all the way at the bottom of the slot), tighten all 4 bolts to secure the head rail splines. **TIGHTEN 1/4 TURN PAST FINGER TIGHT.**

Figure 57
Head rail spline in position and secured



Head Rail Spline Moved to Position and Secured

NOTE

If the head assembly is installed in a LOW-CLEARANCE situation, go to the next step, **Lift and secure the header rings**. If not, skip the next step.

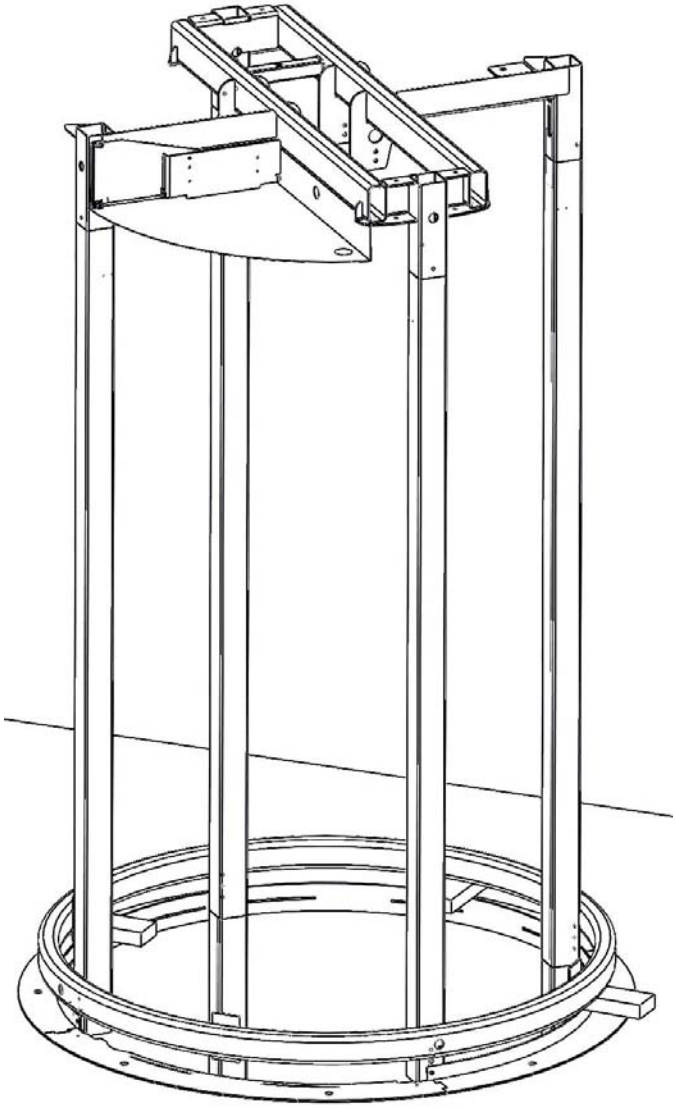
Step 32
Lift and secure rings (low-clearance situations ONLY)

Installation of the header ring is slightly different if the TOP FLOOR has a LOW-CLEARANCE (less than 105.5" from floor to ceiling).

If the TOP FLOOR does **NOT** have a LOW-CLEARANCE ceiling, go to the next step, **Align and plumb the rails**; otherwise, continue with this section.

The illustration below shows a thru-floor, low-clearance ceiling configuration. The top floor should look similar to the one shown below.

Figure 58
Thru-floor, low-clearance situation

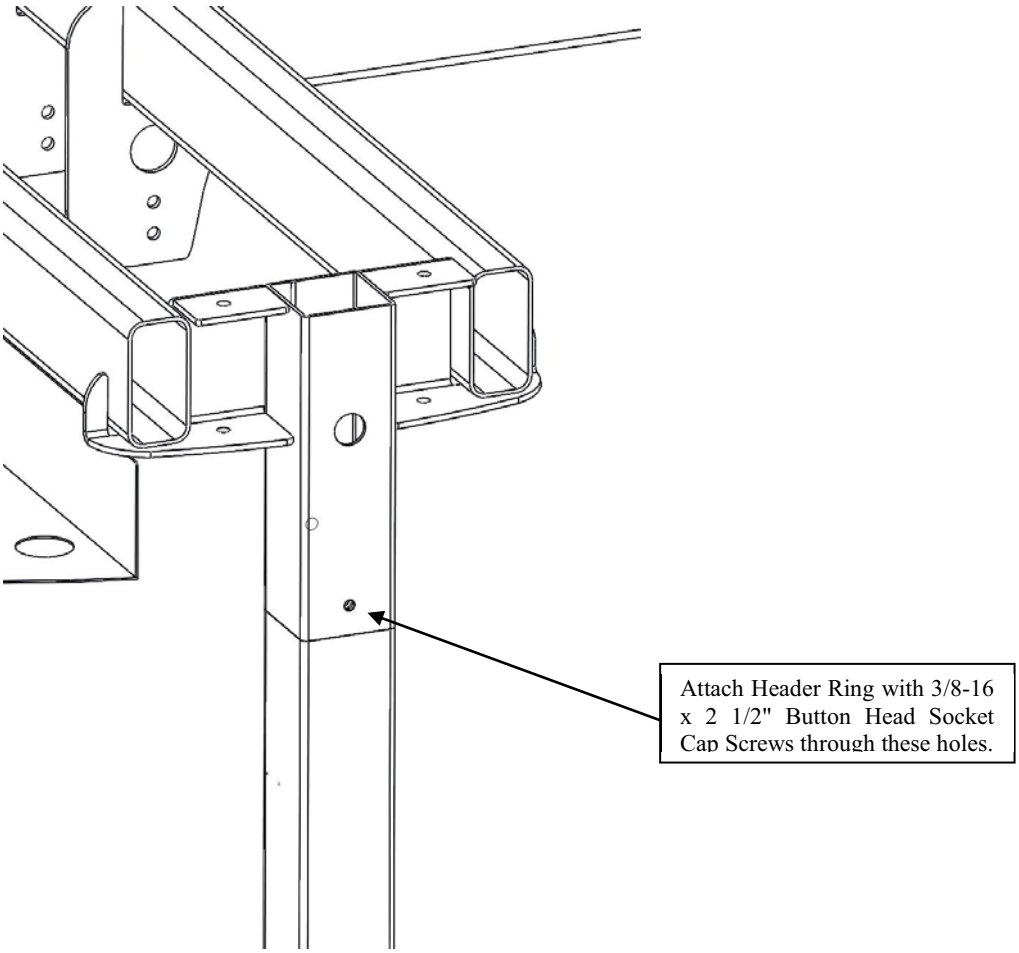


Thru-Floor Low-Clearance Configuration

In low-clearance configurations, the hoistway rails are cut below the holes to which the header ring usually attaches. The head assembly weldment has holes provided to secure the top floor header ring.

1 To secure the header ring in a low-clearance ceiling configuration, manually lift the header ring into the proper location instead of using the winch and header installation tool. The illustration below shows the holes in the head assembly where the header ring should attach.

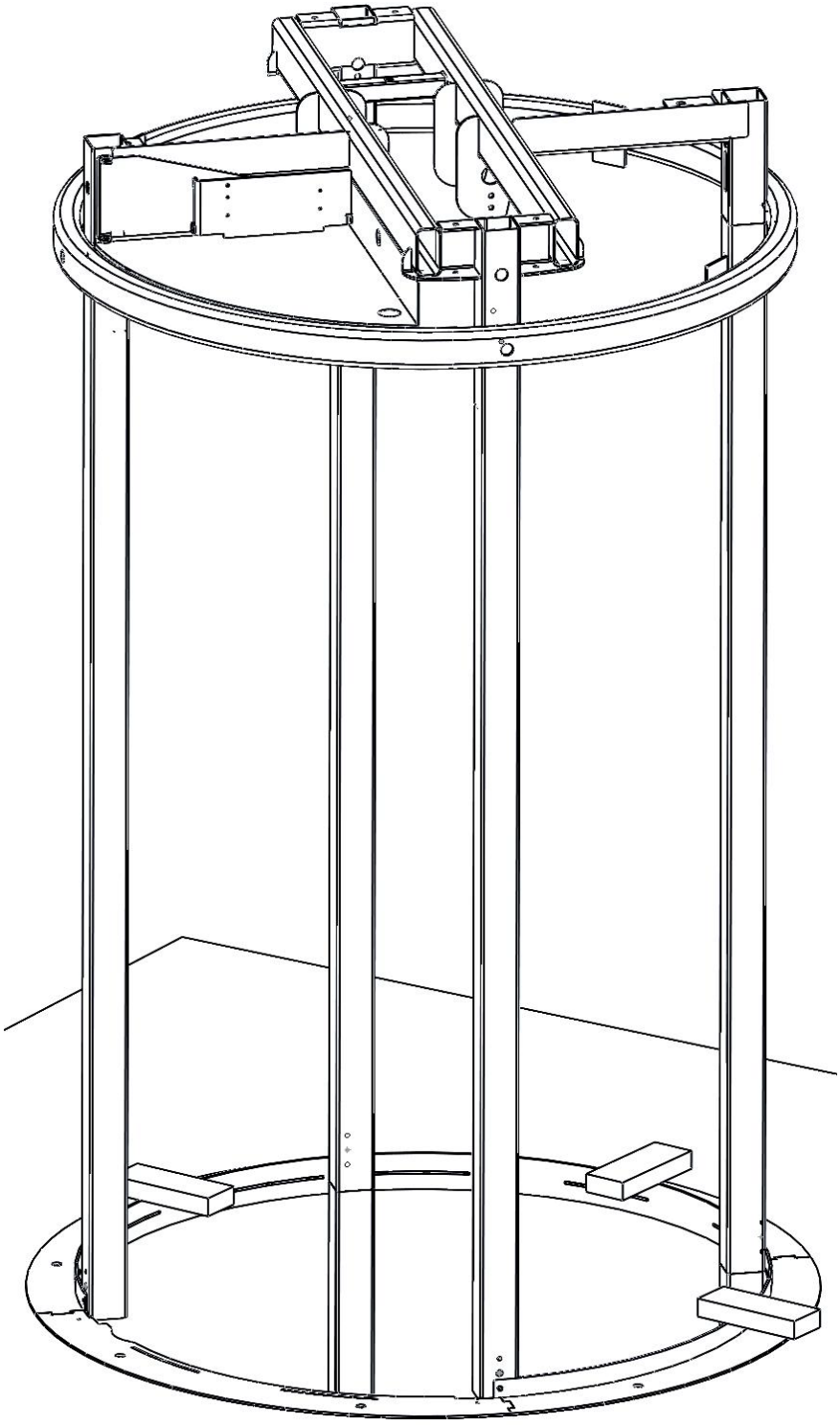
Figure 59
Header ring attach point, low-clearance ceiling



Header Ring Attach Point Low-Clearance Ceiling

2 Lift the header ring into position as shown below.

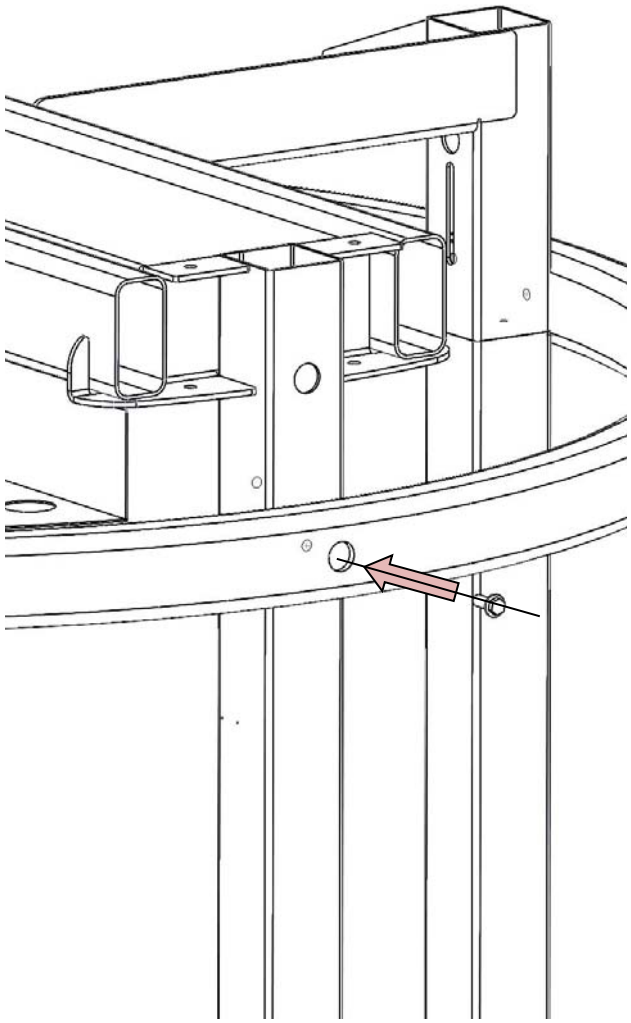
Figure 60
Header ring in position



Header Ring in Position

3 Secure it in place **loosely** with the 3/8″-16 x 2 1/2″ button head socket cap screws (from the Hoistway Fastener Bag in kit PK-0016) as shown below.

Figure 61
Attach header ring to head assembly



Header Ring Attachment to Head Assembly

Step 33
Align and plumb rails (head assembly)

The rails on every floor plumb independently of the rails on the previous floor. This allows the hoistway to be adjustable given the conditions on each floor, ensuring a plumb hoistway from top to bottom.

All hoistway rails have now been installed, and the balcony ring (if applicable) and header ring has been loosely secured. It's now time to align and secure the top floor rails, as follows:

1 To align and plumb the rails, snug the bolts that secure the rails (or head assembly) to the header ring on the **current floor**.

2 Place the magnetic level on one rail of the **current floor** and move the rail as necessary until plumb. Acceptable tolerances for all rails are ±0.1° or ±1/8" every 7 feet. Repeat this process for all four rails.

⚠ CAUTION

Maintaining these tolerances requires patience and a high quality level or plumb. Setting rails inaccurately **will** cause the cab to bind inside the hoistway. The Vuelift utilizes 24 shoes for the smoothest possible ride, this requires the rails to be plumb.

3 Tighten the bolts securing the header ring on the **current floor** to the rails. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

4 Tighten the bolts securing the mid-floor ring or balcony ring (if applicable) on the **current floor** to the rails. **TIGHTEN COMPLETELY, BUT DO NOT STRIP THE THREADS.**

CAB INSTALLATION

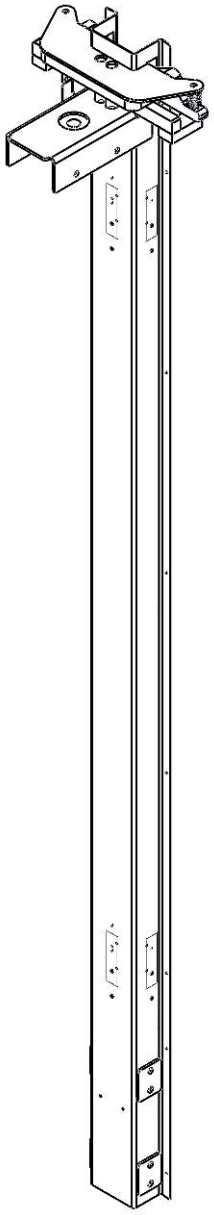
Step 34
Cab installation information

The Vuelift comes standard with a field adjustable cab with two possible configurations.

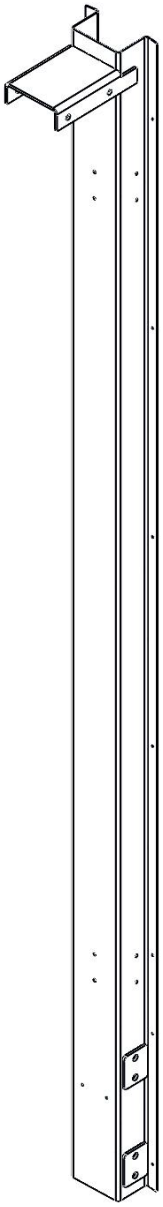
- The first configuration does not require modification and is for an interior cab height of 7′-0″ (Standard Cab).
- The second configuration requires modification (outlined in the subsequent sections) and is for low-clearance top floor configurations which changes the interior cab height to 6′-4″ (Short Cab).

Cab rail installation for both types of cabs is simple, however there are a few items which must be observed. The Vuelift comes with two different types of cab rails as shown below. One is for safety legs and the other is for non-safety legs. For standard cabs, the cab rails are shipped from the factory ready to install.

Figure 62
Cab rail types



Cab Rail for Safety Legs



Cab Rail for Non-Safety Legs

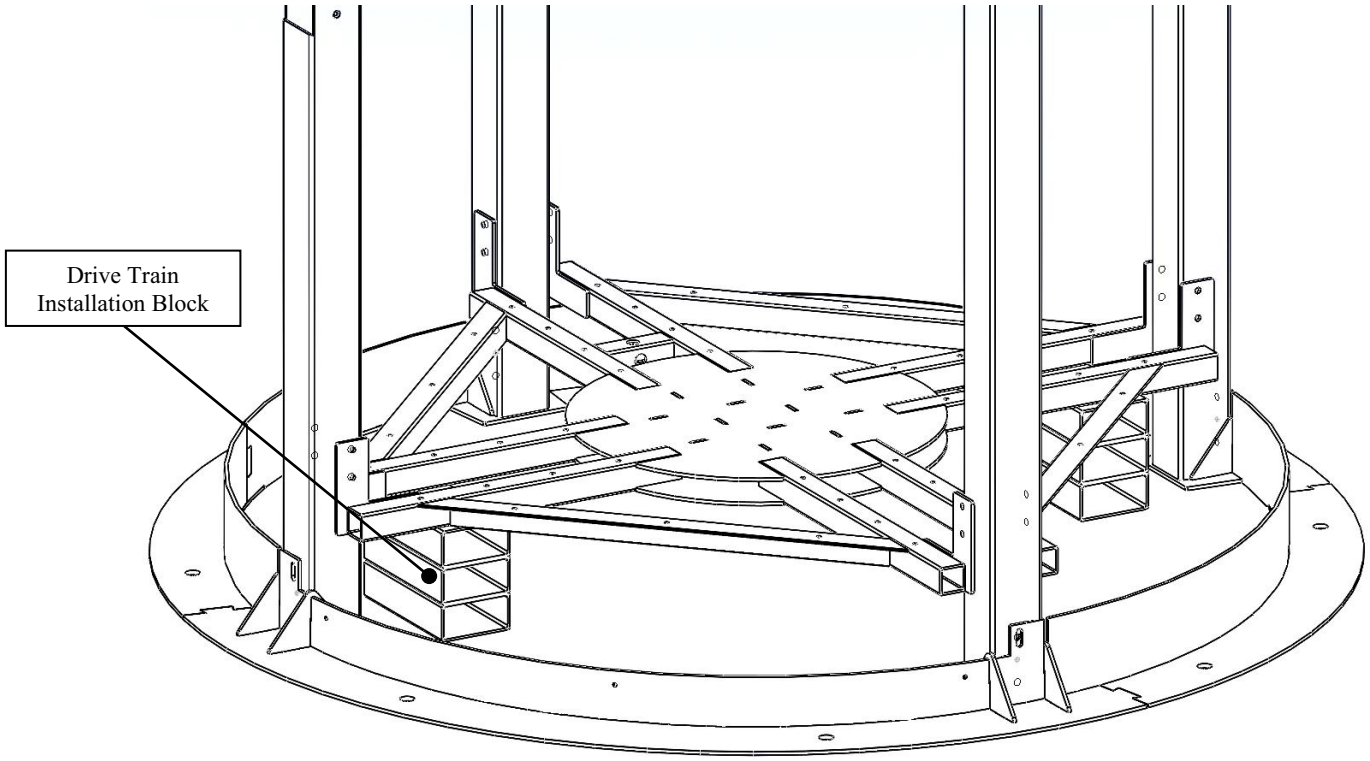
Step 35
Install cab rails

For this step you will need the following tools, fasteners and components:

- Qty: 2 Cab rails for non-safety legs
- Qty: 2 Cab rails for safety legs
- Qty: 1 COP leg
- Qty: 2 Drive train installation blocks
- Qty: 16 3/8"-16 x 1/2" button head socket cap screws (in Car Frame Fastener Bag of kit PK-0016)
- Allen keys
- Rubber mallet
- Qty: 4 1/4-20 x 1" flat head undercut machine screws

1 Place the drive train installation blocks underneath the cab floor weldment. The illustration below shows the floor with the hoistway rails installed, as well as the cab floor weldment in position on to of the drive train installation blocks.

Figure 63
Cab floor weldment on drive train installation blocks



Cab Floor Weldment on Drive Train Installation Blocks

2 Attach the cab rails to the cab floor. To do this, take one cab rail (non-safety or safety) and insert it around the L-brackets sticking up from the cab floor weldment as shown below.

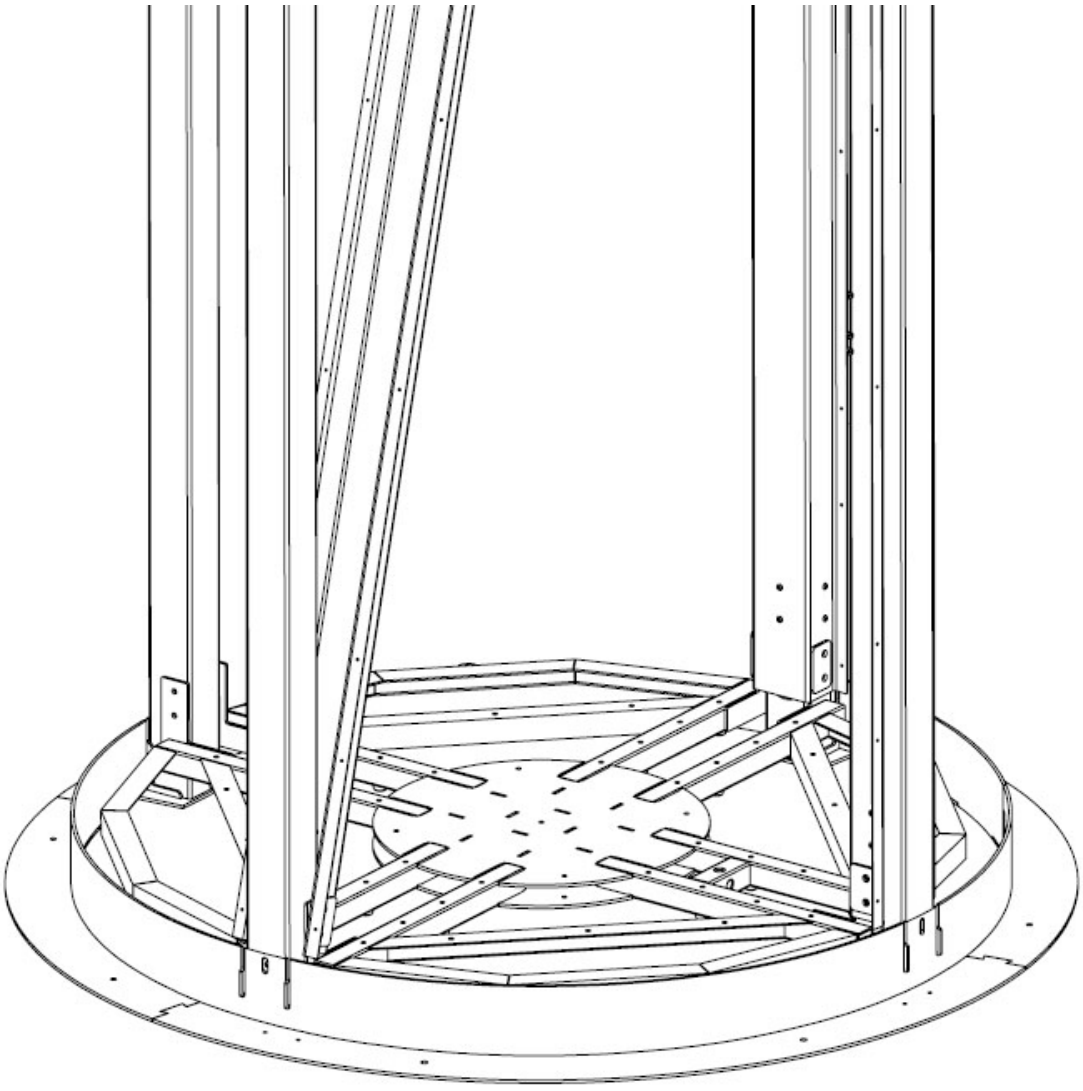
3 Note that the cab rails have Velcro along the sides, with the following exceptions:

- There is no Velcro on the COP side of the rail.
- There is no Velcro on the door opening side of the rails.
- It is important to install the rails in the correct orientation so the Velcro is located appropriately for the cab panels which will be attached in a later step.

⚠ CAUTION

Cab rails of matching types must be placed **across** from each other on the cab floor weldment. This means that the non-safety rail and the non-safety rail attached to the COP leg must be opposite each other. The two safety rails must be opposite each other as well. Note that the COP leg (which will be installed in a later step) must be around the rail closest to the cab lifting point as shown in the drawings in STEP 7 earlier in this manual.

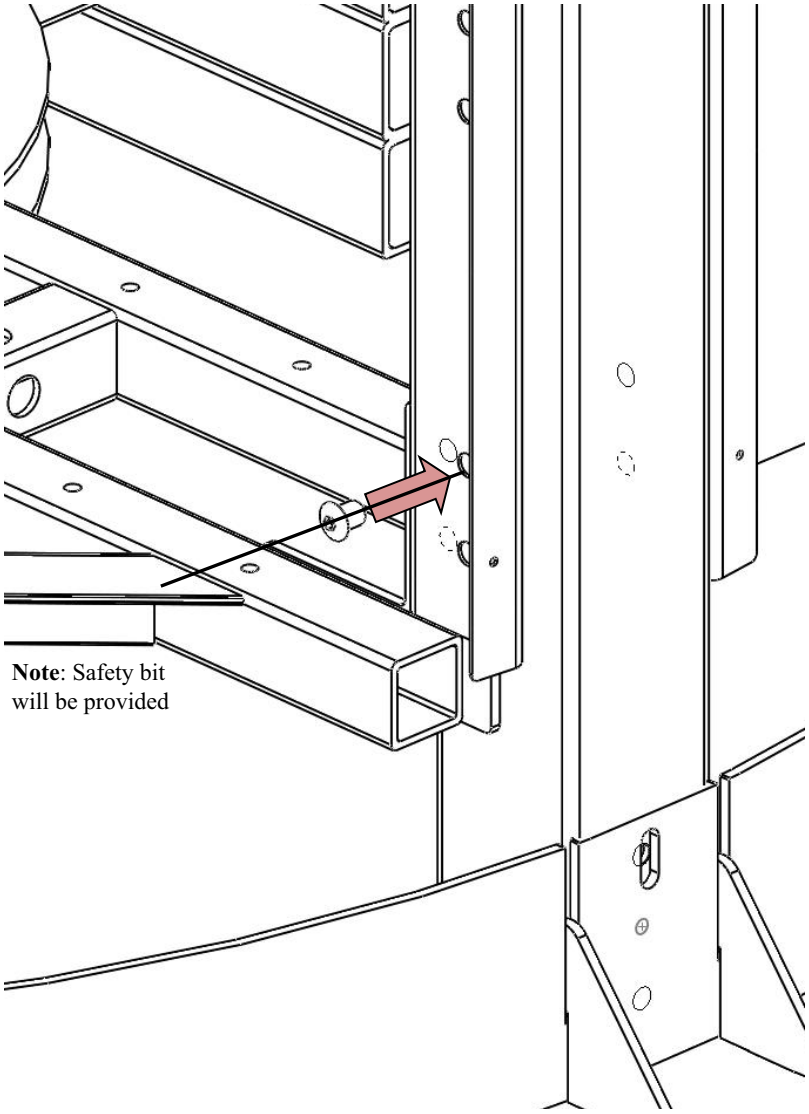
Figure 64
Cab rail around L brackets on cab floor weldment



4 Pivot the cab rail until it is flush against the hoistway rail, then insert (4) 3/8 "-16 x 1/2" button head screws (from Car Frame Fastener Bag in kit PK-0016) into the base of the cab rail as shown below and tighten completely. Note that a safety bit will be provided (in Car Frame Fastener Bag in kit PK-0016).

5 Repeat this process for the remaining three cab rails.

Figure 65
Cab rail to cab floor weldment



Attaching Cab Rail to Cab Floor Weldment

Step 36
Install cab ceiling weldment

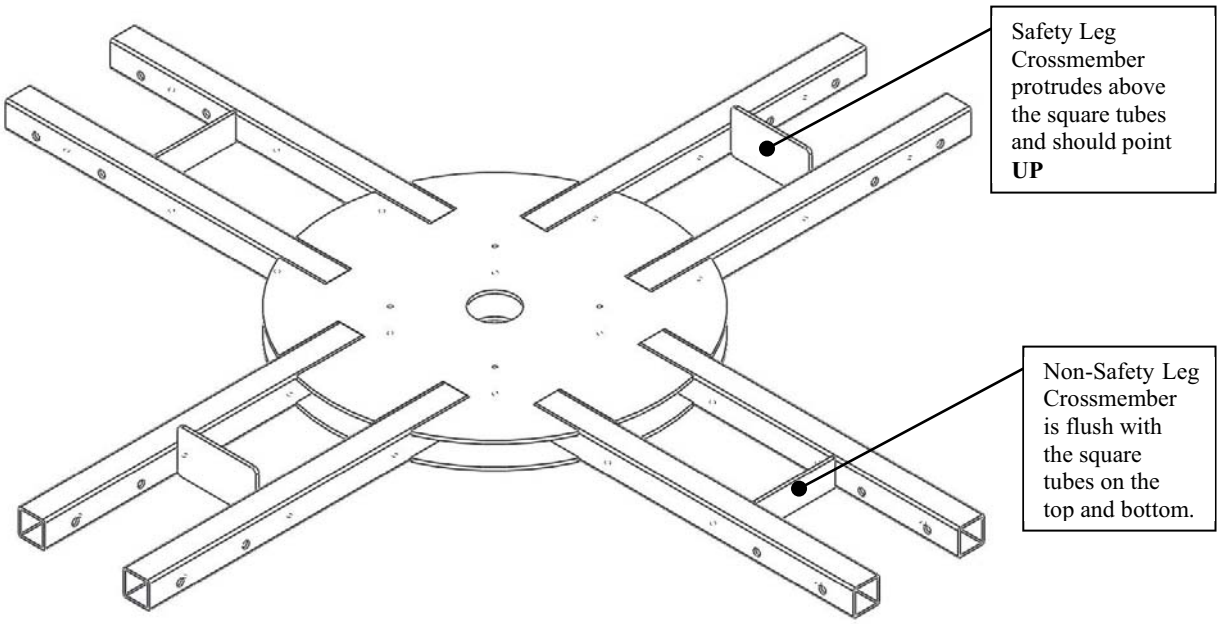
For this step you will need the following tools, fasteners and components:

- Cab ceiling weldment
- 9/16″ socket wrench
- 9/16″ open ended wrench or crescent wrench
- Qty: 8 3/8″-16 x 8″ hex bolts (in Car Frame Fastener bag of kit PK-0016)
- Qty: 8 3/8″-16 hex nuts (in Car Frame Fastener bag of kit PK-0016)
- Qty: 16 3/8″ flat washers (in Car Frame Fastener bag of kit PK-0016)
- Qty: 2 Non-marring C-clamps or non-marring quick-grip clamps

1 Installing the cab ceiling weldment will complete the cab frame. The cab ceiling weldment is comprised of square tubular channels supported by cross-members which provide rigidity to the assembly. The cab ceiling weldment must be oriented properly before securing it to the cab rails. The illustration below shows the important features of the cab ceiling weldment.

2 To install the cab ceiling weldment, ensure the safety rail support tabs are facing **UP** (as shown below), and the safety rail support tabs are aligned with the safety rails.

Figure 66
Cab ceiling weldment



Cab Ceiling Weldment

3 Lift the cab ceiling weldment into place and secure temporarily on opposing legs with C-clamps or quick-grip clamps.

4 After temporarily securing the cab ceiling weldment, insert the 3/8"-16 x 8" hex bolts through the 8 holes in the cab ceiling weldment and **TIGHTEN COMPLETELY**. See below.

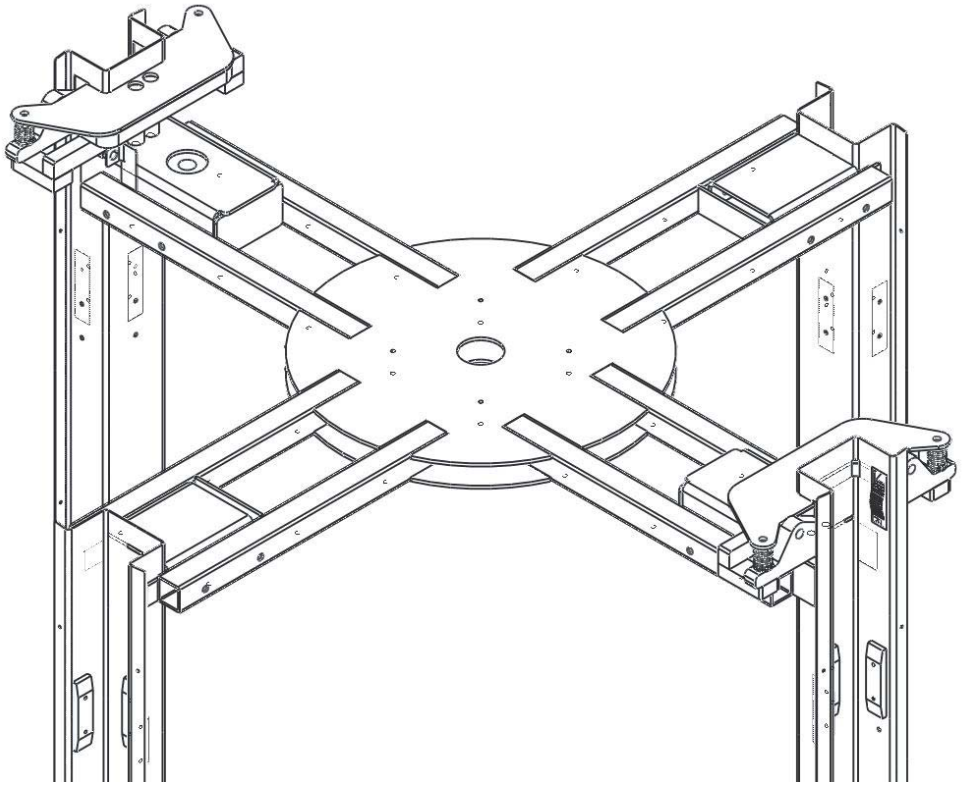
⚠ CAUTION
Be sure not to scratch the cab rails when installing the ceiling weldment!

Figure 67
Installing cab ceiling weldment

5 When complete, the cab ceiling will be similar to the illustration shown below.

6 Insert the eye-bolt supplied into the cab lifting point on the cab floor weldment (as shown in the drawings in STEP 7 earlier in this manual). Orient the eye bolt so the eye of the bolt is **UP**.

Figure 68
Cab ceiling weldment installed



Cab Ceiling Installed

DRIVE TRAIN INSTALLATION

Step 37
Install drive train

For this step you will need the following tools, fasteners and components:

- Integrated motor-gearbox
- Qty: 2 Pillow block bearings
- Axle shaft
- CW-wound drum
- CCW-wound drum
- Rotary encoder mount hardware and encoder
- Drive train installation blocks
- Motor support block
- Crescent wrench
- 3/4" and 18mm sockets and socket wrench
- 3/4" and 18mm open ended wrench
- 1/4" wide x 8" long flat head screwdriver
- Winch
- Assorted slings and clevises (if cab travel is greater than 10 ft)
- Head assembly fasteners (in Head Assembly Fastener Bag of kit PK-0016):
  - Qty: 4 Motor spacers
  - Qty: 1 Motor spacer holding tool
  - Qty: 4 Motor mount bolts
  - Qty: 6 Machine keys
  - Qty: 4 3/8"-16 cupped point set screws
  - Qty: 4 1/2"-20 x 3" hex bolts
  - Qty: 8 1/2" flat washers
  - Qty: 4 1/2" split lock washers
  - Qty: 4 1/2"-20 hex nuts
- Emery cloth or 400 – 600 grit sandpaper

The Vuelift is designed so you can build the drive train at a comfortable position, and then lift it into place and secure it. To accomplish this, position the cab ceiling at a comfortable working height on the second floor (or third floor, if applicable).

1 Secure the winch to the cab floor lifting point eye bolt, and also to the cab lifting point located in the head assembly.

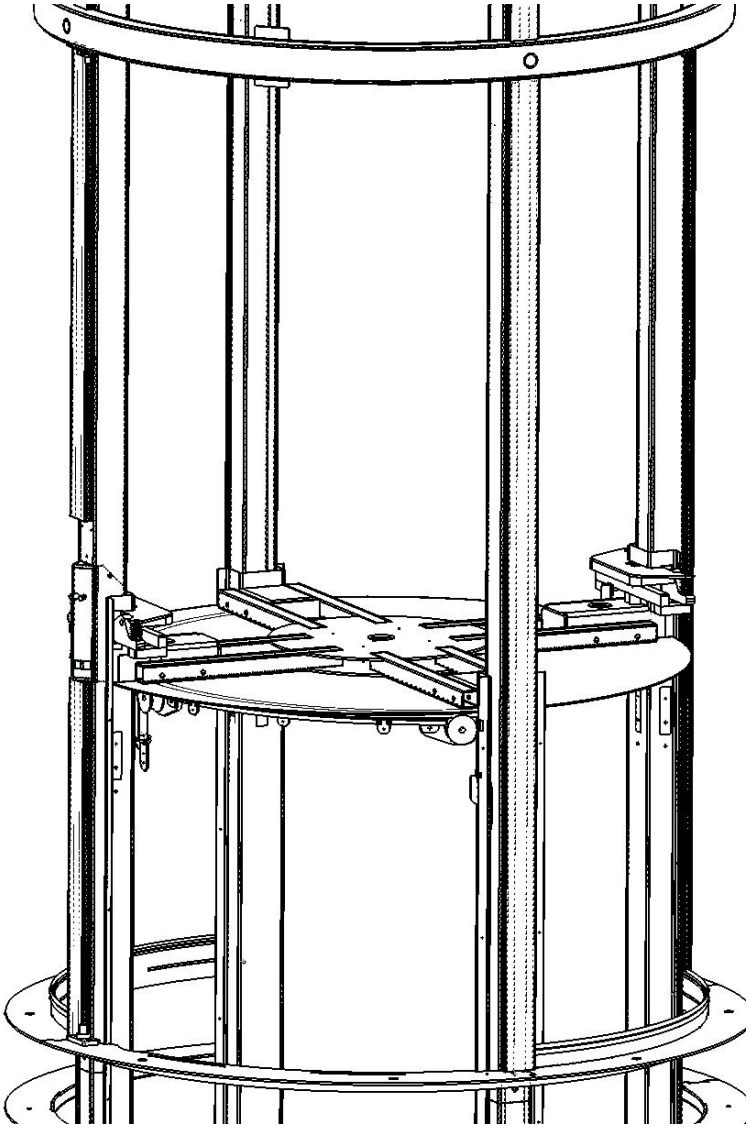
2 Raise the cab assembly to a position where the cab ceiling weldment is located approximately 30-32 inches above a floor surface (this would be the second or third landing). If possible, select a landing with a thru-floor configuration as it provides the easiest access to components during assembly.

⚠ CAUTION

After the cab is located at a comfortable height, set a couple of 2x4's across the ring below the cab to protect against winch failure.

3 The following illustration shows the cab assembly positioned at an appropriate height on a thru-floor landing.

Figure 69
Cab at working height



Cab at Working Height

4 When installing the gear motor, be sure to remove the hole plug at the top of the gear motor and insert the black plastic vent plug. This vent provides the gear motor with required cooling and allows for oil expansion during normal operation.

5 Set the motor/gearbox assembly on the center of the cab ceiling weldment as shown below.

⚠ CAUTION

Be sure to hold the motor/gearbox assembly until the axle shaft is inserted in the next step so it does not fall from the cab ceiling weldment.

Figure 70
Gearbox on top of cab

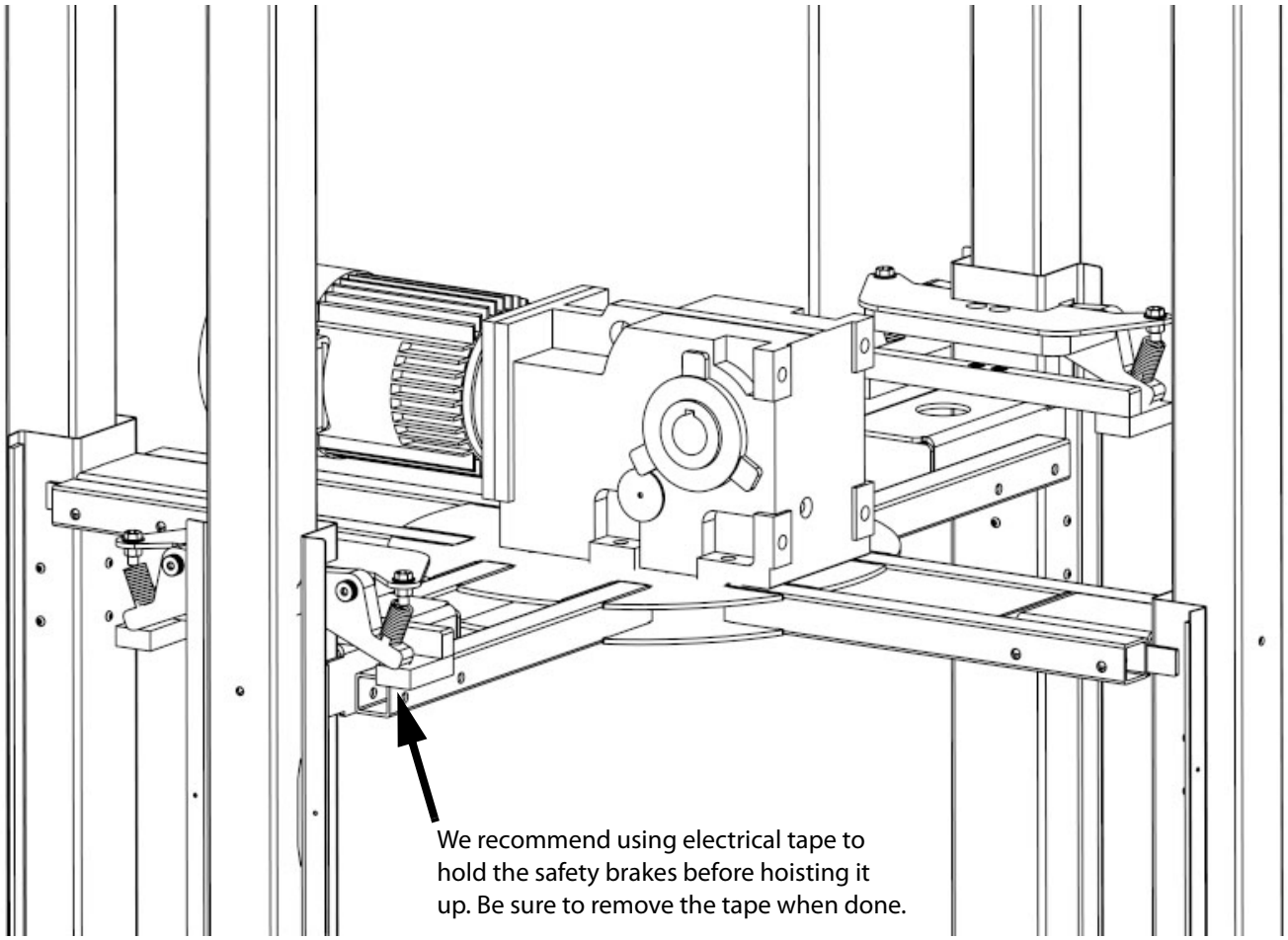
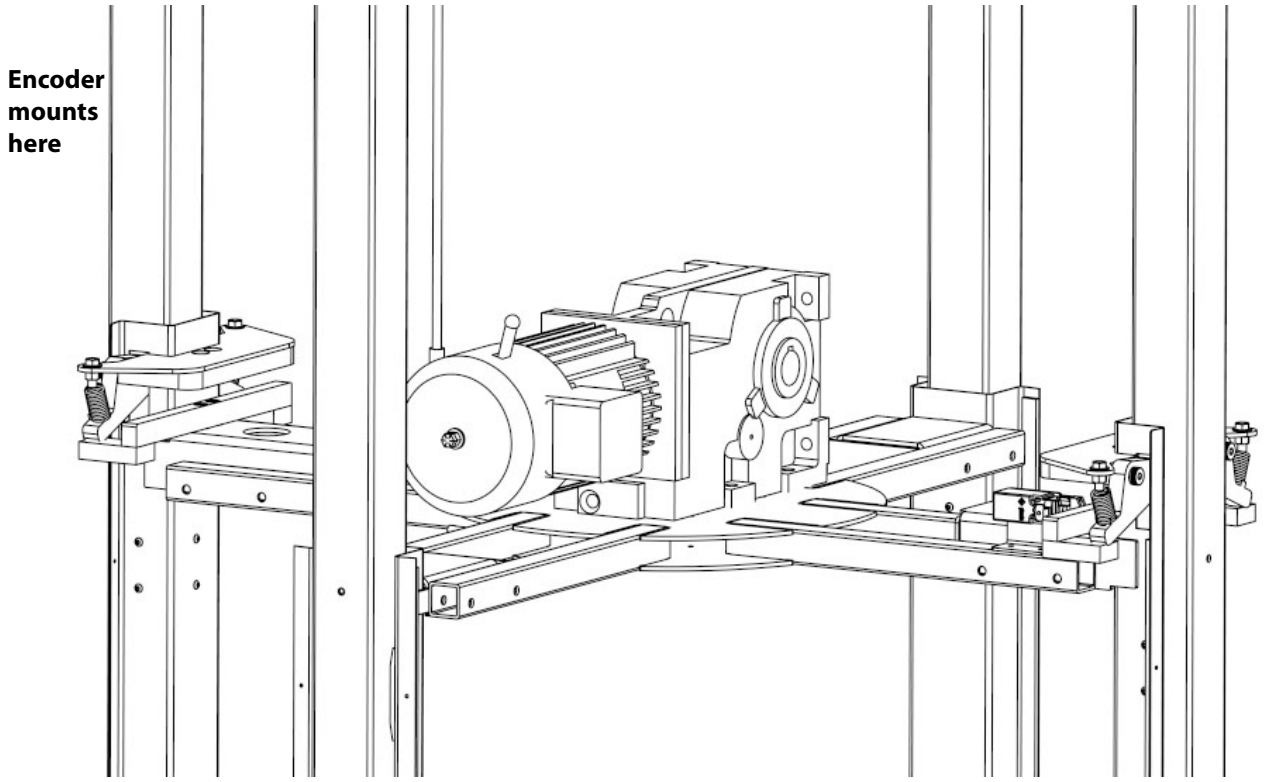


Figure 71
Motor and gearbox on cab



6 The axle shaft has two holes drilled in one end of it. One hole is threaded and is located in the keyway and the other hole is located in the end of the axle shaft. Position the end of the axle shaft with the holes nearest the rail with the controller hinge in the head assembly. With a Type 1 cab, this will be the rail to the **left** of the door opening.

⚠ CAUTION

IMPORTANT!
If the axle shaft is not oriented properly, the rotary encoder which measures the car position will not be able to connect to the controller.

7 Insert the axle shaft through the gearbox until it is centered in the gearbox.
- If it is difficult to slide the axle shaft through the gearbox, **DO NOT** hit the axle shaft with a hammer. Rub the shaft with Emery cloth or 600 grit (or finer) sandpaper until the shaft slides through easily. This sanding may be required due to small amounts of surface rust which may accumulate on the axle shaft during shipping and storage.

8 Slide the axle shaft collars from the pillow block bearing package onto the axle shaft with the **smooth end oriented towards the gearbox**. Do not secure the collars at this time; this will be done in a later step.

⚠ CAUTION

The encoder MUST ALWAYS mount to the LEFT post if you are looking directly at the manual lowering hole.

9 Install the electrical circuit overspeed sprocket so that the attached lock ring is TOWARDS the motor. It will ALWAYS be on the encoder side. This goes on AFTER the shaft collars.

10 The Vuelift comes with two winding drums used to lift and lower the cab. These drums are wound opposite to each other and must be installed in the proper location to ensure safe operation of the unit. Place the drums on the axle shaft so that when they are completely wound, the rope ends are on the **outside** of the drum (on the edge away from the gearbox). When installed, the rope should be hanging between the head assembly weldment and the drum. The illustration below shows the proper orientation of the drums.

⚠ CAUTION

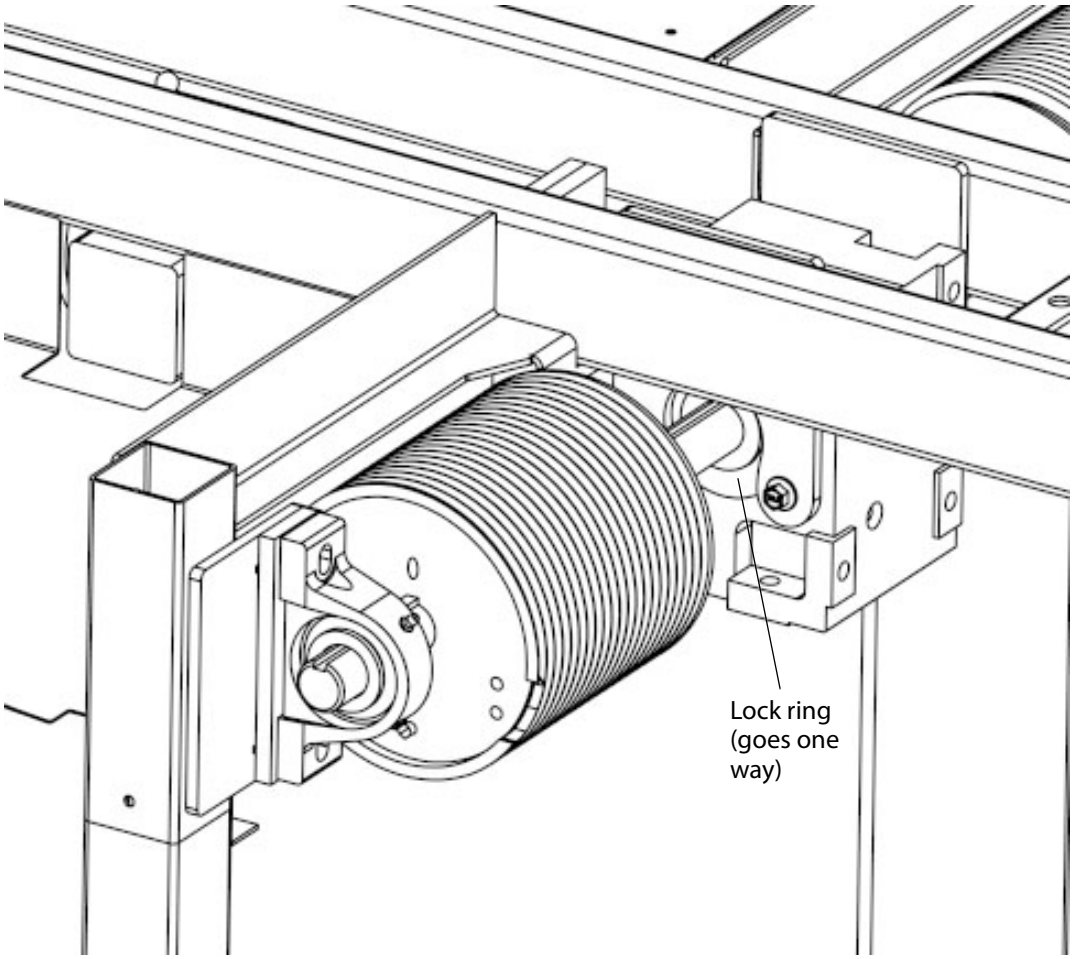
DO NOT remove the shrink wrap from around the drum. This keeps the cables from unwinding and eases installation. The shrink wrap will be removed after the motor wiring is completed and the controller can operate in **Manual Mode**.

11 To install the drums, place one drum over the end of the axle shaft and slide it towards the gearbox. There should be approximately 8" between the inside edge of the drum and the motor/gearbox assembly.

12 Repeat this process for the other drum.

13 Do not secure the drums to the axle shaft at this time; this will be done in a later step.

Figure 72
Drum orientation

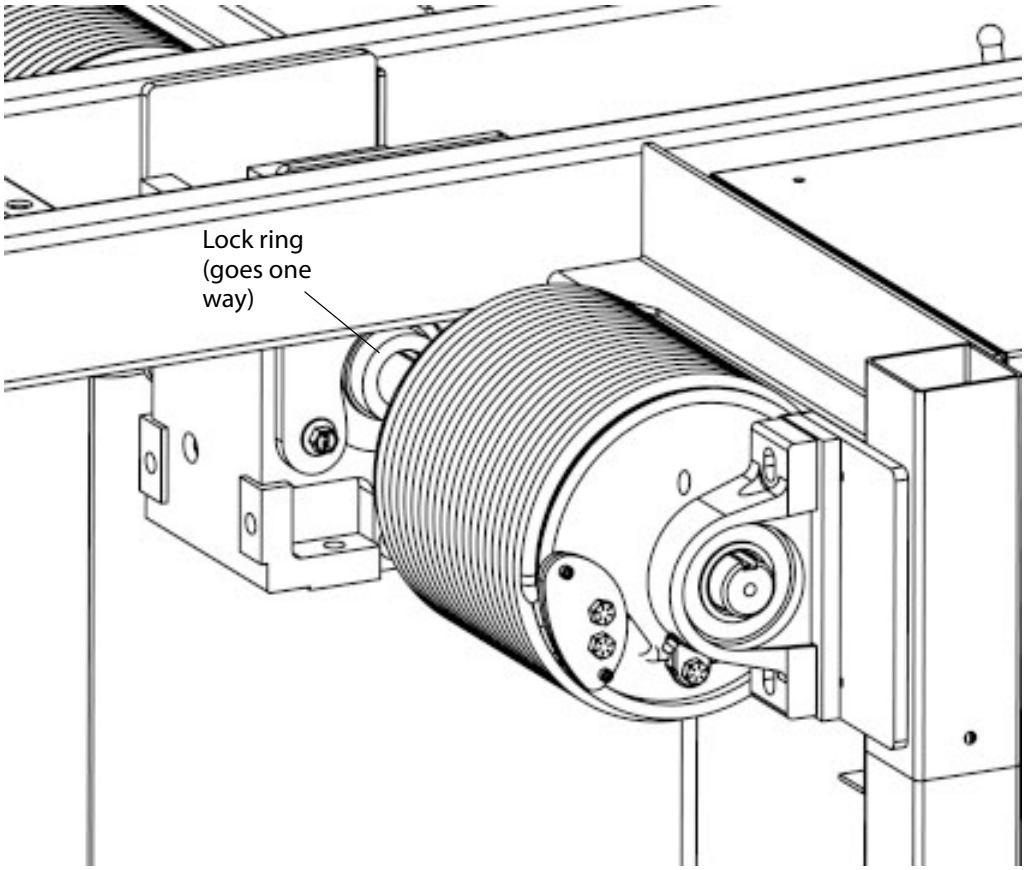


14 Slide one pillow block bearing onto each end of the axle shaft. From the inside wall of the bearing to the end of the shaft on the encoder side is 3/8". The pillow block is a specially hardened bearing which ensures smooth operation of the gearbox, as well as supporting the drums and cab. The pillow block bearing has a bumpy side and a smooth side. The smooth side does not project away from the bearing housing. The smooth side should face AWAY from the gearbox when installed. Note the drum and pillow block orientation.

- Because it is a bearing, the pillow block will rotate around the axle shaft. The **flat face of the pillow block must be facing towards the rail**, however final adjustment and orientation will be completed in a later step.

15 It is important to note that the axle shaft must clear the header rings and all thru-floor or balcony rings in order to be secured in the head assembly. The axle shaft should be centered on the cab and be approximately 1/4" from both hoistway rails prior to lifting and securing the drive train.

Figure 73
Drum and pillow block orientation



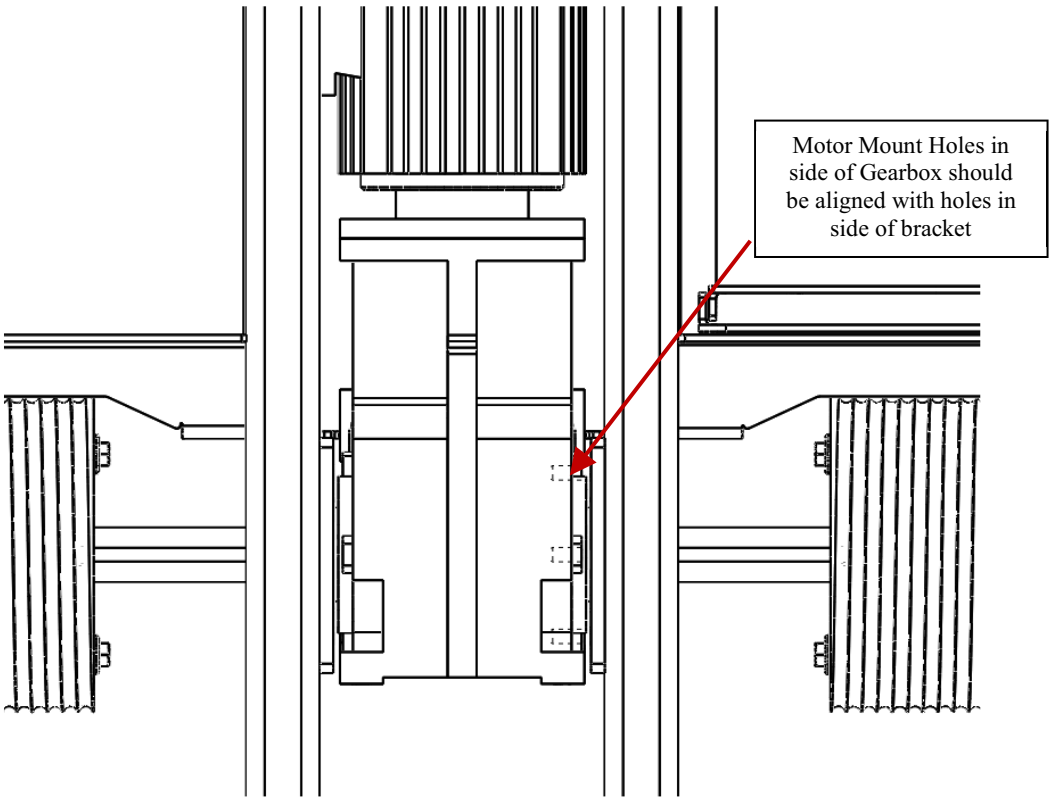
16 Once the drive train is assembled on the cab ceiling weldment, it must be lifted into place. Using the winch, raise the cab up until it is approximately 6" from the head assembly frame.

17 The gearbox should be aligned with the vertical mount tabs on the head assembly as shown below. Also, make sure the **flat faces of the pillow block bearings are facing towards the rail**.

18 Slowly raise the cab and drive train until the holes in the gearbox are aligned with the holes in the vertical mount tabs on the head assembly.

19 Insert (4) M12 bolts through the vertical mount tabs on the head assembly. Insert the provided chrome spacers between the vertical mount tabs and the gearbox, and **TIGHTEN COMPLETELY**.

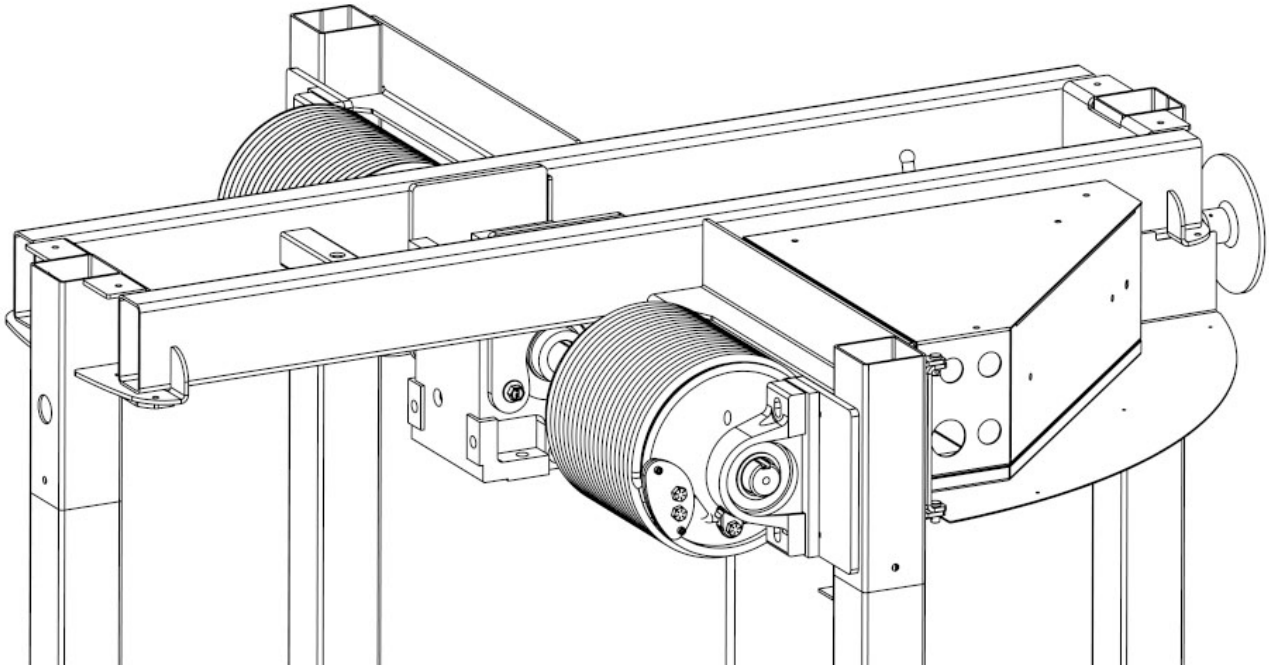
Figure 74
Gearbox alignment to head assembly weldment (top view)



Gearbox Alignment to Head Frame Weldment

20 The illustration below shows the drive train secured in place.

Figure 75
Drive train secured

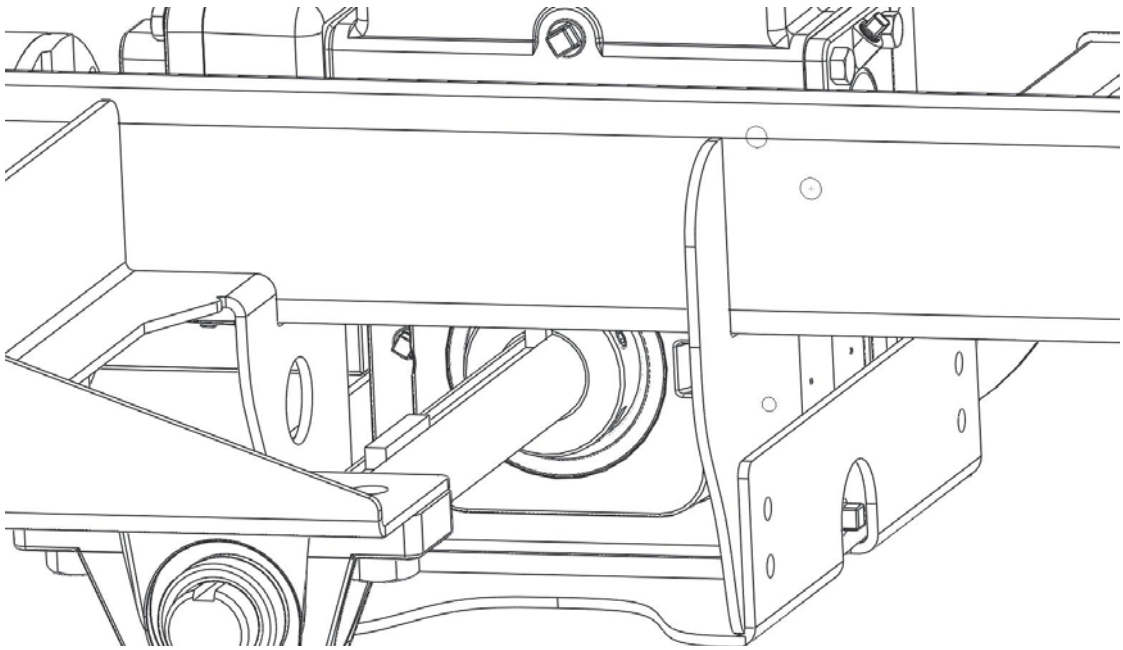


21 Securing the drums and axle shaft to the drive train assembly is a simple process, however it **requires absolute precision**, especially in short cab and zero-clearance ceiling situations.

22 To align and secure the axle shaft to the gearbox, position the end of the axle shaft 3 inches from the inside edge of the pillow block bearing support with the rotary encoder J-bracket. Use a tape measure and adjust as necessary.

23 Rotate the axle shaft until the machine key slot in the axle shaft aligns with the machine key slot in the gearbox as shown below.

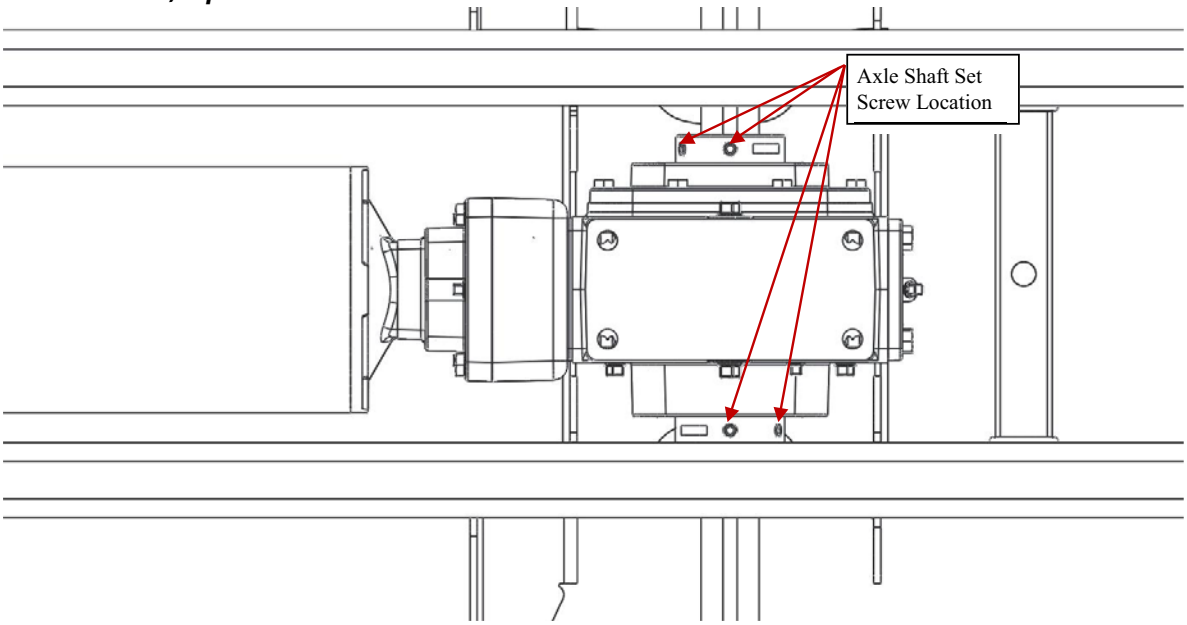
Figure 76
Axle shaft and gearbox alignment



Axle Shaft and Gearbox Alignment (Without Drum for Illustration ONLY)

24 Insert a machine key into each side of the gearbox until it is **flush** with the outside edge of the gearbox. Secure the machine key by tightening the set screws on the shaft collars flush to the outside of the gearbox housing. The shaft collars require an Allen wrench to tighten. **TIGHTEN COMPLETELY**. The illustration below shows the location of the set screws on the shaft collars.

Figure 77
Axle shaft set screw locations, top view

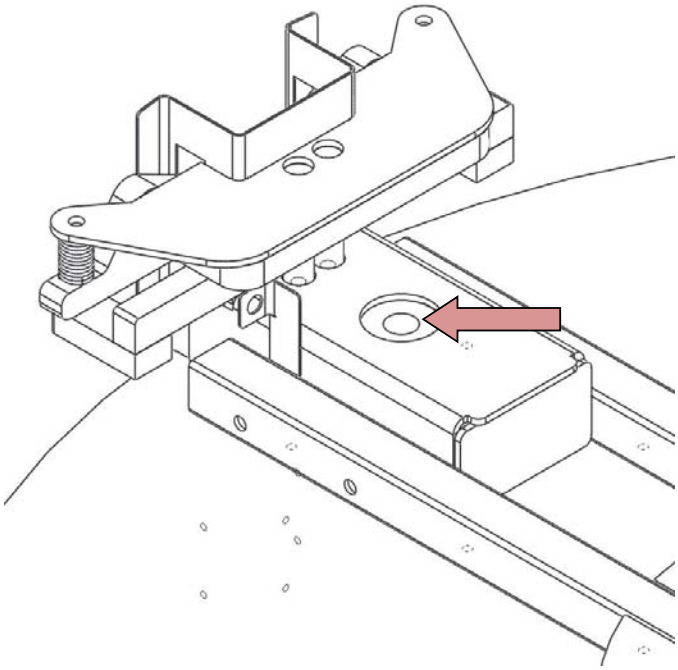


Axle Shaft Set Screw Locations – Top View

25 To align the drums on the axle shaft, position the edge of the drum 5/8" away from the pillow block support on the head assembly weldment.

26 When the car is at the top landing, the rope should be vertical from the drum to the car lifting point (identified by the red arrow in the illustration below).

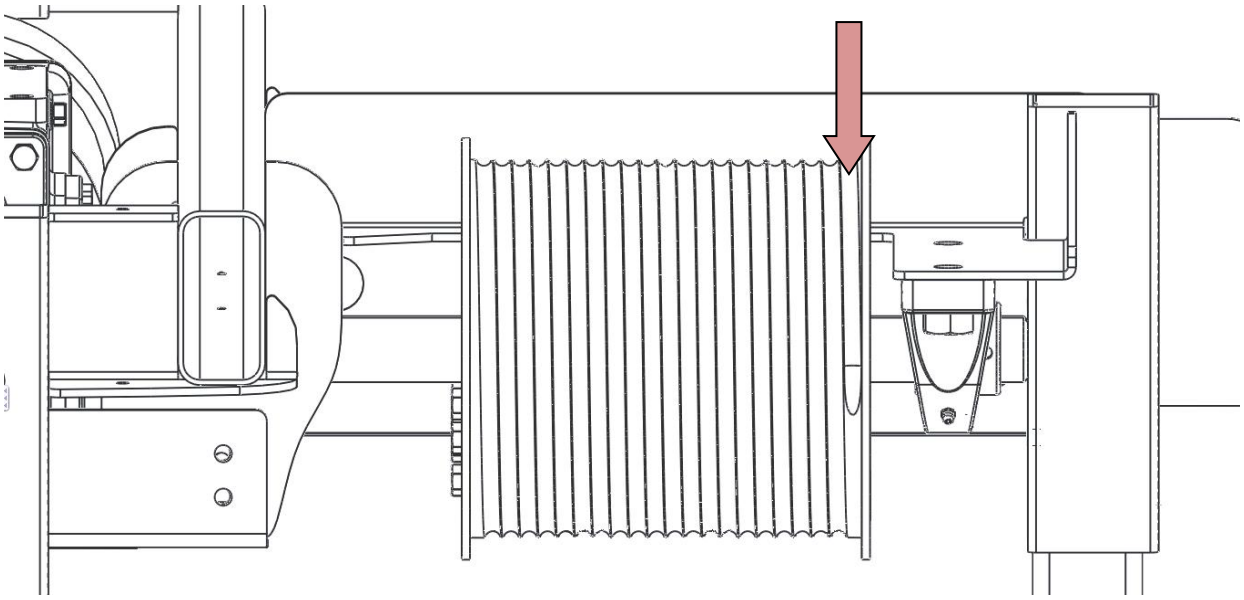
Figure 78
Brake side alignment



Brake Side Alignment

27 The groove location is shown for one drum below.

Figure 79
Drum side alignment



Drum Side Alignment

28 When aligned, mark the location of the drum on the axle shaft with a permanent marker, ensuring that you are marking **both sides of both drums**. The drums should be approximately 1.75 to 2 inches from the edge of the drum to the inside edge of the pillow block support bracket.

29 Slide the drum away from the pillow block bearing and insert the machine key into the keyway. Slide the drum over the machine key by gently rotating the drum back and forth until the machine key is flush with the end of the drum and the drum is properly aligned with the mark.

30 Insert the machine key for the gearbox side of the drum by sliding it into the keyway.

31 Secure the machine keys with a 3/8"-16 x 1/2" cupped flat head set screw. **TIGHTEN COMPLETELY**.

32 Repeat this process for the second drum.

⚠ **CAUTION**
DO NOT insert the machine keys too far into the drums. the drum is hollow. To remove the machine key, you must disassemble the drive train.

ENCODER INSTALLATION

33 Prior to securing the pillow block bearings, the rotary encoder with J-bracket must be mounted.

34 Ensure the end of the axle shaft where the encoder will be installed is protruding out 1/2".

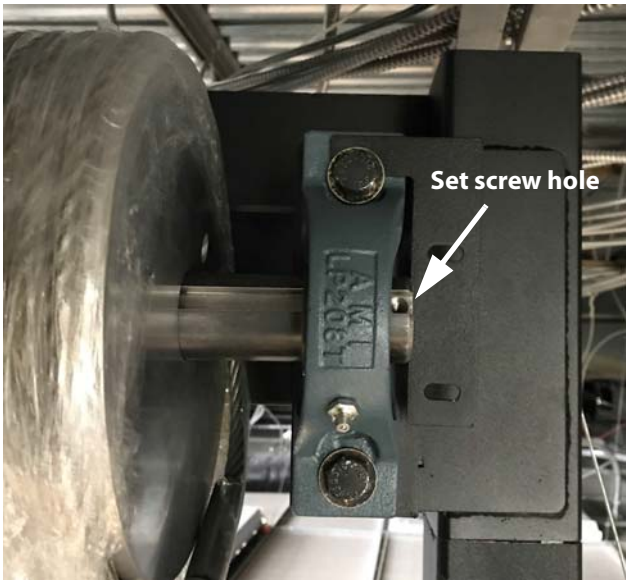
35 Evenly snug the 1/4-20 bolts holding the encoder bracket to the J-bracket (see below).

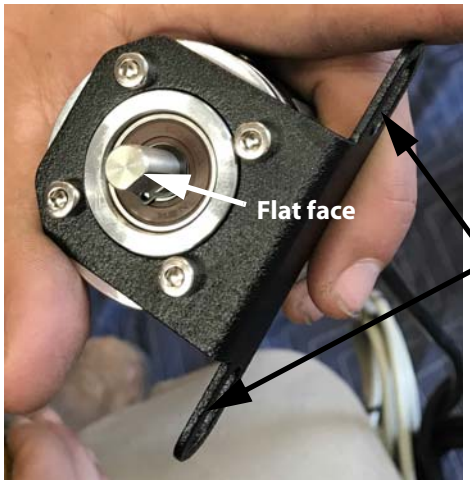
- **DO NOT OVER-TIGHTEN** as over-tightening could deform the metal bracket.

36 Place the rotary encoder J-bracket on top of the pillow block bearing nearest the axle shaft end with the holes. Proper orientation of the rotary encoder J-bracket is shown below.

37 Ensure the flat face of the encoder shaft (see below) is lined up with the hole in the axle shaft where the set screw (Allen screw) will be installed. Add a few drops of blue Loctite to the set screw threads, and then install and tighten the set screw.

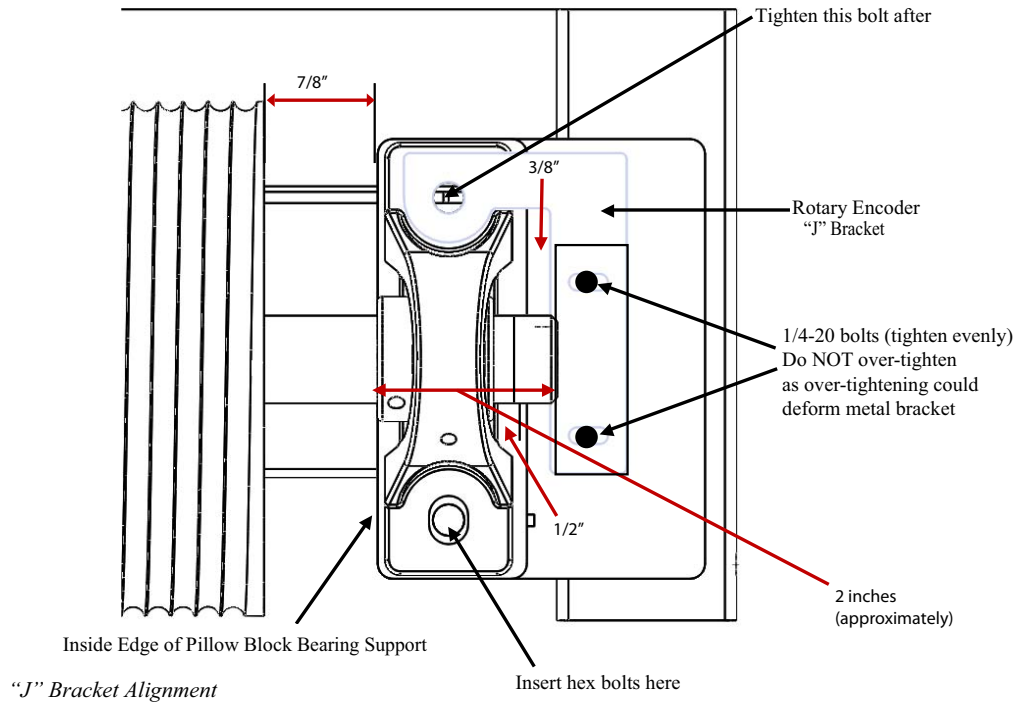
Figure 80
Encoder J-bracket





38 Secure the pillow block bearings to the head assembly using the 1/2"-20 x 2.5" hex bolts, 1/2" washers, 1/2" lock washers and 1/2"-20 hex nuts (from the Head Assembly Fastener Bag in kit PK-0016) as shown below.

Figure 81
Encoder J-bracket alignment (side view)



"J" Bracket Alignment

ELECTRICAL WIRING

⚠ WARNING

This section outlines the electrical components of the Vuelift. Follow these directions closely. Failure to comply with the steps in this manual may cause bodily harm, unintended operation, and other serious safety hazards.

The Vuelift comes with a controller which is configured for up to six stops. Depending on the number of stops your unit has, the length of time to wire and configure the unit will vary. Appendix B provides a layout of the controller (upper and lower layers).

Wiring the **Motor**, **Car Lighting Circuits** and **Safety Circuit Components** are the same throughout all configurations, however the number of **Hall Call Buttons**, **Car Call Buttons**, and **EMIs (interlocks)** will change given the number of stops each site has.

This section covers installation of the controller, wiring of the motor, lighting, safety circuit, hall and car call buttons, EMIs (interlocks) and preliminary testing.

Additional wiring, such as the **Gate Switch** will be performed after glazing the hoistway and car.

Wiring schematics for the components contained within the Vuelift, as well as schematics for the complete unit, can be found in Appendix B.

⚠ WARNING

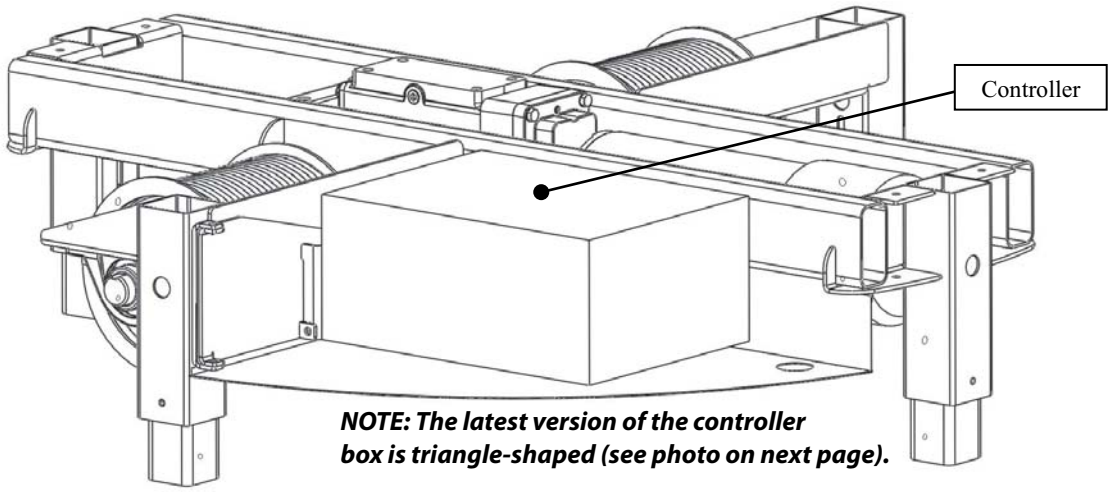
The Vuelift controller has 230VAC and 115VAC high voltage, and 12VDC and 24VDC low voltage wiring. All electrical work must be performed by qualified personnel trained in accordance with all local, state and federal regulations governing electrical products and systems. Failure to observe these requirements can result in serious injury, bodily harm or death to installers, field personnel and/or end users.

Step 38
Install controller - head assembly

The Vuelift controller is designed to be installed in the head assembly of the unit. This provides easy access for installation, servicing and storage.

This section outlines installing the Controller onto the controller hinge in the head assembly, as well as explaining the range of motion of the controller. The following illustration shows the Controller in the **UP** position.

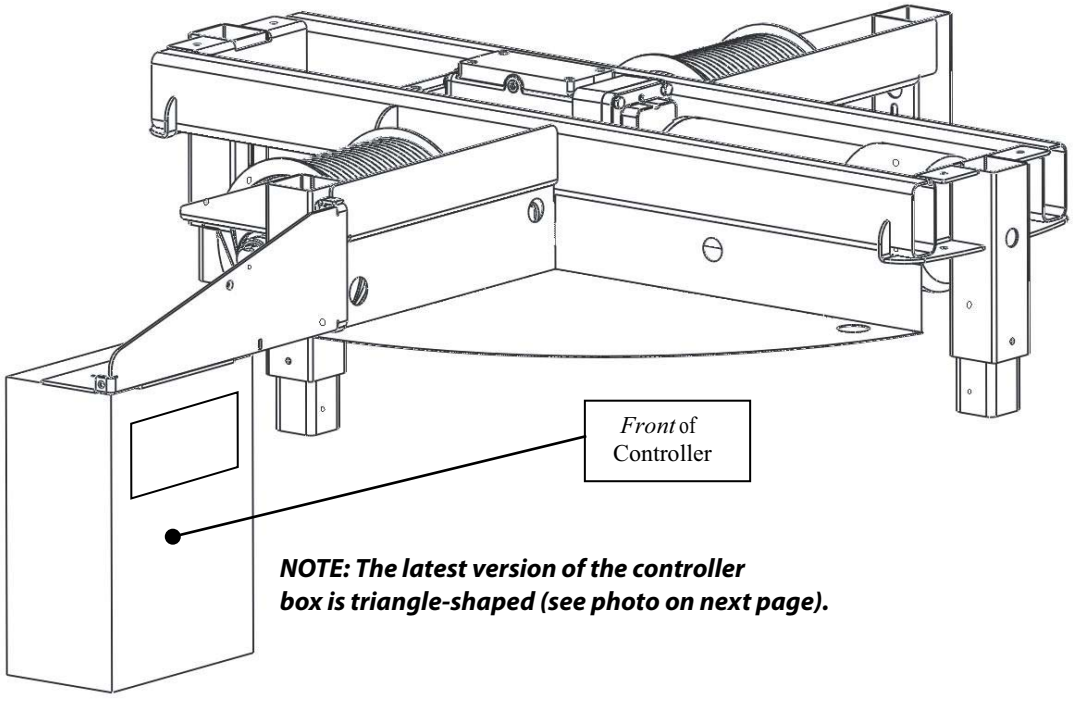
Figure 82
Controller location in head assembly



Controller Location in Head Assembly

The controller attaches to the hinge with 4 machine screws which have been attached to the controller at the factory. The illustration below shows the orientation of the hinge mechanism when the controller is in the **DOWN** position.

Figure 83
Controller attached to hinge in down position



Controller Attached to Hinge in Down *position*

39 The controller is mounted through the hinge plate as shown below. The mounting hardware is provided on the controller from the factory. The controller should be installed while the hinge mechanism is **ATTACHED** to the head assembly. Removal of the hinge mechanism will greatly increase installation time.

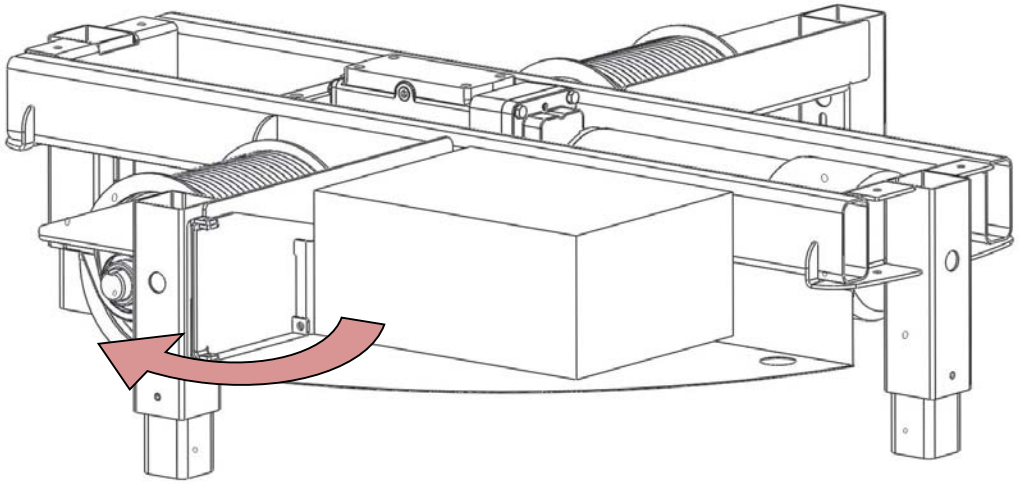
Figure 84
Hinge bracket

Figure 85
Controller attached to hinge bracket

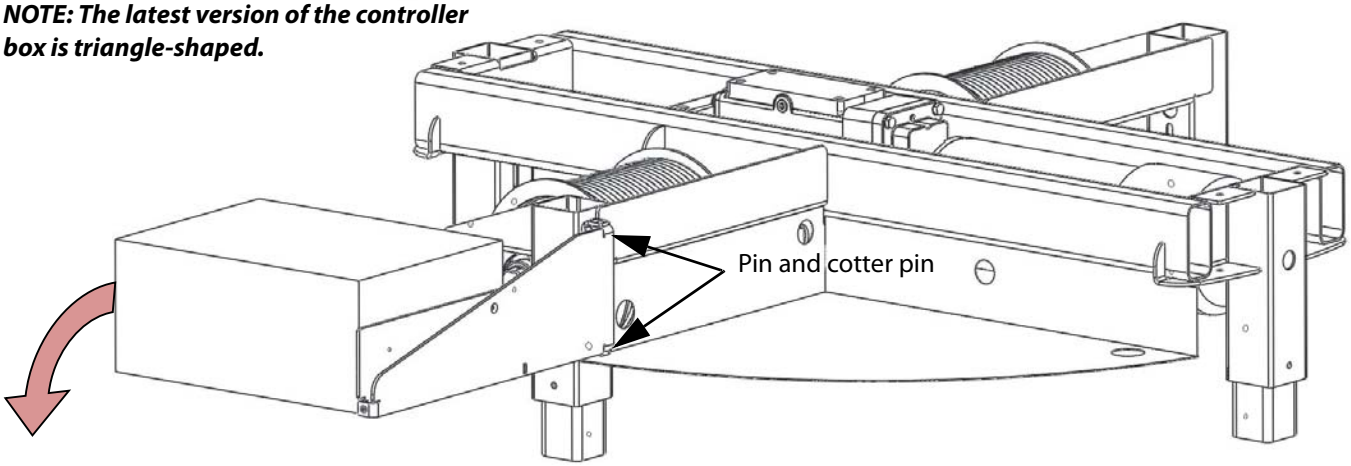
40 The following illustration shows the range of motion of the controller. To work on the controller, and perform maintenance on the Vuelift, the controller should be in the **DOWN** position.

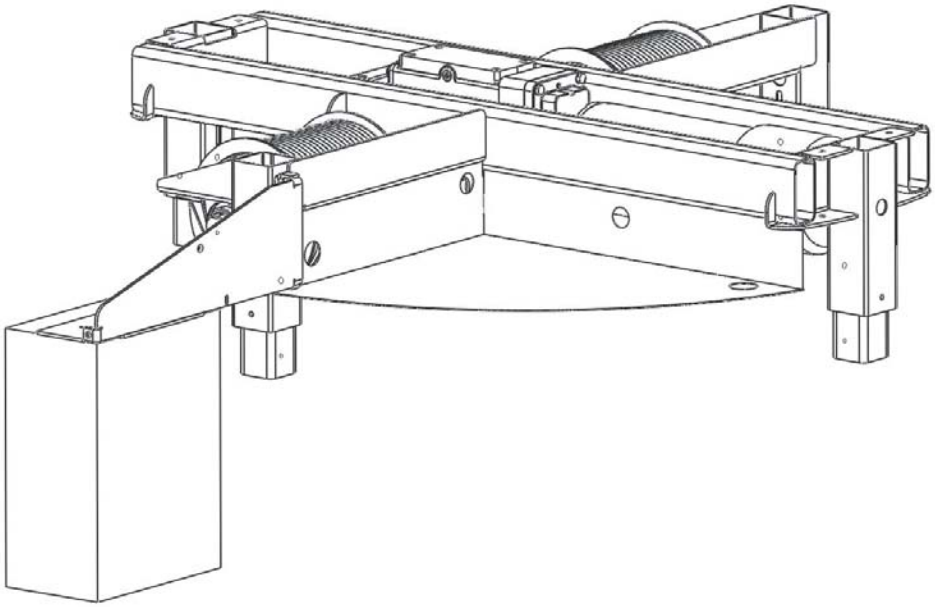
41 First, swing the controller out then **gently** lower it down. Securing the controller is the reverse of removal.

Figure 86
Controller operation



NOTE: The latest version of the controller box is triangle-shaped.





Controller Operation

Step 39
Minimum required wiring for manual operation

In order to rope the car in subsequent steps, it is not necessary for the controller to be wired in its entirety.

To accelerate the installation process, it may be advantageous to have the car running in **Manual Mode** prior to completely wiring the hall call stations, EMIs (interlocks), COP and safeties.

Instructions on entering **Manual Mode** can be found in STEP 46.

The following is a minimum list of wiring required to operate the car in **Manual Mode**:

- Controller must be wired to LOAD side of disconnects
- 230V is required, 110V is optional
- Motor and motor brake must be wired
- Terminal/machine stop switches must be mounted and operational
- Additional safety chain circuits in controller may require jumpers to operate in **Manual Mode**

⚠ CAUTION

Operating the car with the minimum wiring required should only be performed with close supervision of the car platform and surrounding objects! Ensure the car does NOT travel in Automatic Mode, as upper and lower landing overtravel may occur. Failure to follow these directions may result in catastrophic equipment failure and damage. NEVER assume the controller has remained in Manual Mode. Always be prepared to stop movement of the car by activating a safety or turning off the disconnect switch!

Step 40
Controller power wiring

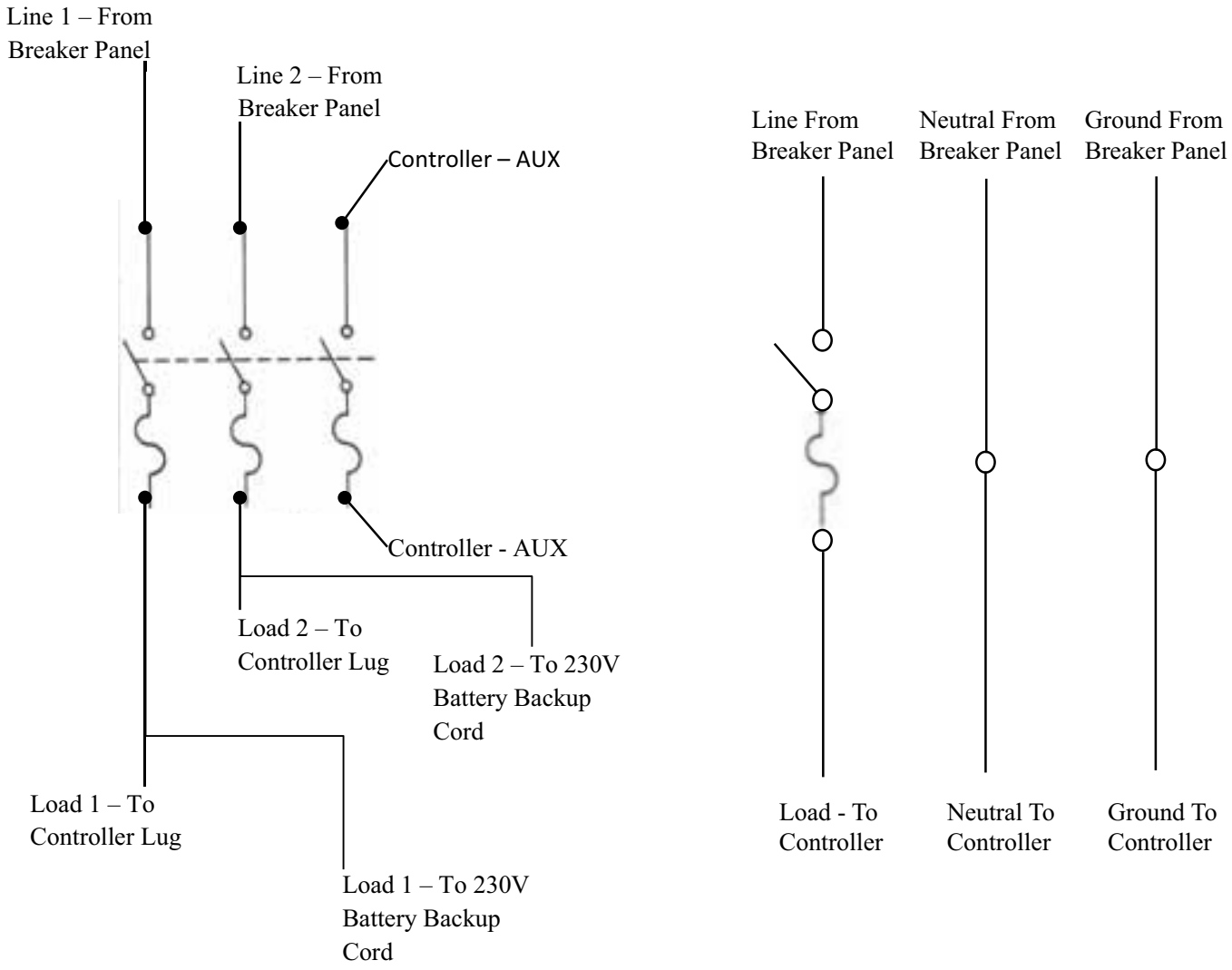
The controller power MUST BE wired **FIRST**. Access to the controller power location inside the controller is greatly limited after installation of the traveling cable and other low voltage wires.

1 Using a section of the enclosed black flexible conduit, route the wires to the controller location shown in **Appendix B, Controller Exterior Wiring Locations**.

2 Terminate the wires in their proper location inside the controller.

3 The diagram below shows the wiring schematic for the 230V disconnect wiring (left) and the 110V disconnect wiring (right).

Figure 87
Disconnect wiring schematics



230V Disconnect Schematic

110V Disconnect Schematic

Step 41
Preliminary call station wiring

The Vuelift has been designed to provide a two-position controller allowing easy access during installation and subsequent servicing of the unit. Keep in mind that the range of motion of this controller requires more cable than anticipated. Therefore, DO NOT cut the ends of any cable or wire until they have been test fit inside the controller.

The Vuelift requires one wire per floor for hoistway wiring for the EMI (interlock) and hall call buttons. The wire is a standard 24AWG Cat5e cable. It will be located in the box labeled HOISTWAY WIRING PACKAGE. There will be different lengths depending on the floor it is assigned to and depending on the total number of floors. The wires will be labeled with the intended floor.

1 To run the wire for the EMI (interlock) and hall call buttons, affix a bolt or other heavy object to the end of the wire using electrical tape.

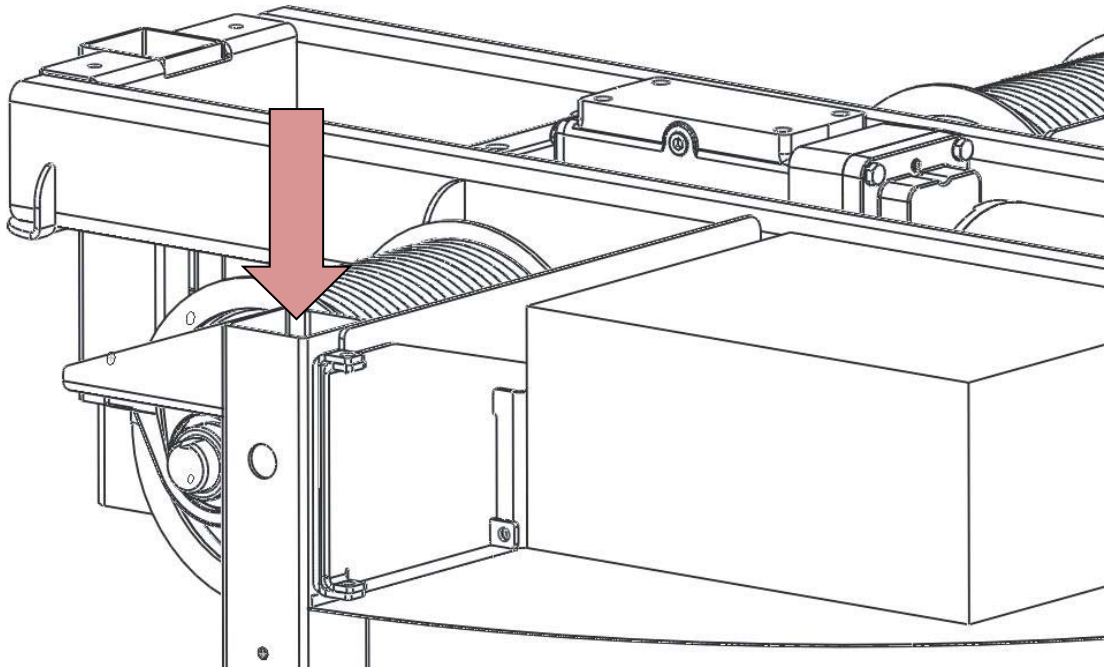
2 While tightly holding the other end of the wire, slowly feed the wire **down the EMI (interlock) rail from the top of the hoistway** as shown below until it reaches the cutout in the EMI (interlock) rail for the correct floor.

3 Secure the end of the wire at the top of the hoistway so it does not fall down the rail then remove the bolt from the other end of the wire.

NOTE
If the wire seems to get caught in the rail, simply wiggle the wire inside the rail until it is free.

4 Repeat this process for each EMI (interlock) rail at each floor.

Figure 88
Insert wires in top of EMI rails



Insert Wires in the top of the EMI Rails

Step 42
Preliminary motor wiring

The motor and brake wiring from the controller to the motor junction box location will be completed using six 12AWG wires (Black, Red, Blue, Yellow, Orange and Green).

Run the wires through the flexible black conduit and fittings provided.

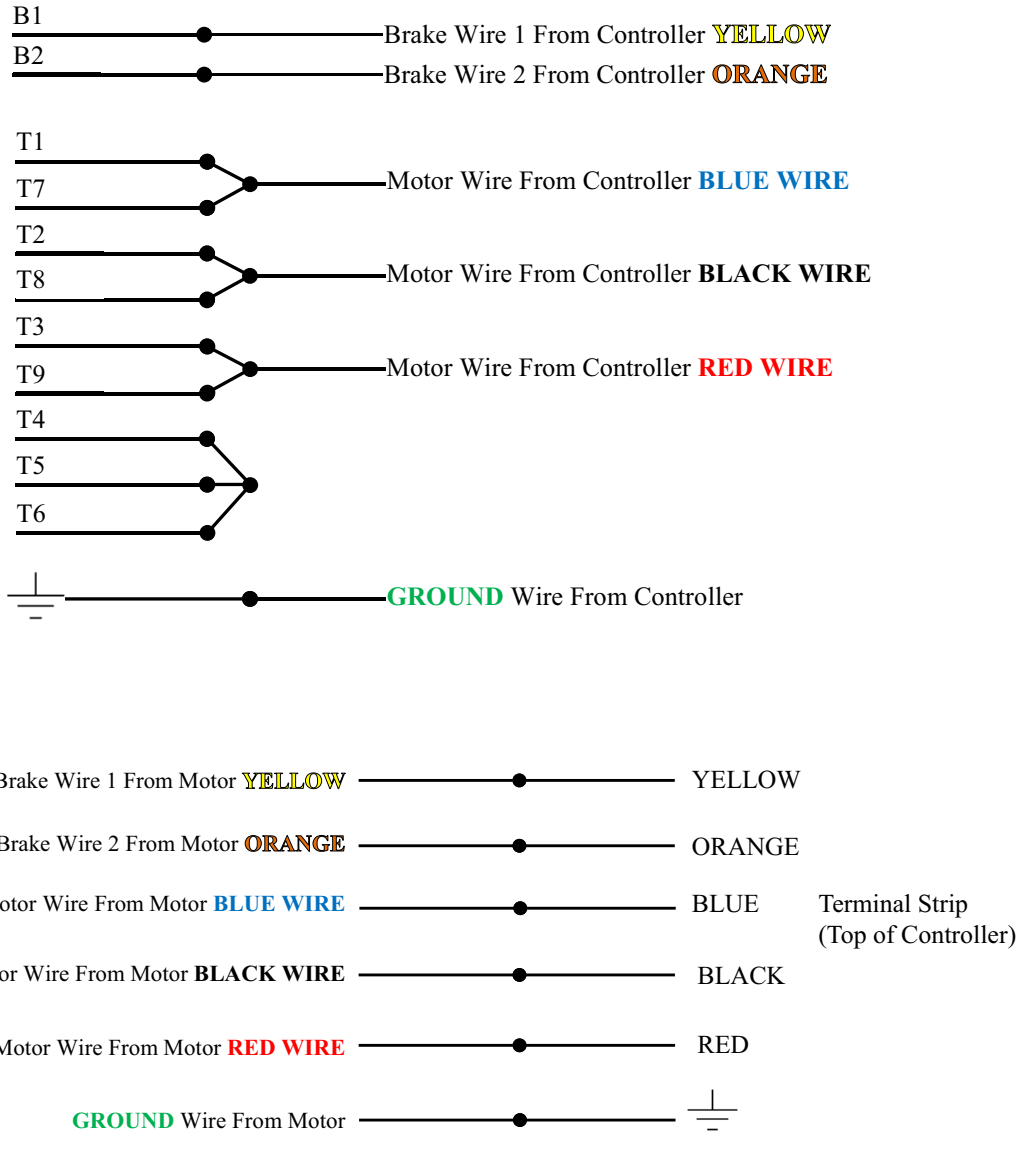
NOTE

It is important that the end with the spade connectors is at the *MOTOR* side. This will assist in wiring of the motor and the Fast Response Kit.

Controller wire routing diagrams can be found in **Appendix B, Controller Exterior Wiring Locations**.

The following diagrams show the connections of controller and motor wires.

Figure 89
Controller and motor connection



Controller and Motor Connection

Step 43
Terminal/machine stop switches

The following procedure describes how to install the 3 upper terminal/machine stop switches. These switches prevent overtravel at the top landing.

- Upper Terminal Stop - when this switch is hit, the lift can still run down (for the lower stop, when the switch is hit, the lift can still run up)
- Upper Final Terminal Stop - this stops travel in both directions
- Upper Final Machine Stop - this stops travel in both directions. Note that the Upper Final Machine Stop switch is mounted on the opposite side of the rail to the other 2 switches.

1 Mount the upper switches on the hoistway rail in the approximate locations shown below.

2 To install the switches, drill and tap 8/32" holes and use 1 1/2" long screws.

3 The minimum distance above the top landing to the **bottom** of the switch depends on the cab configuration. The minimum switch heights are as follows:
- Short Cab: 83 inches above landing
- Standard Cab: 89 inches above landing

4 If necessary, adjust the arm of each switch according to the NOTE below.

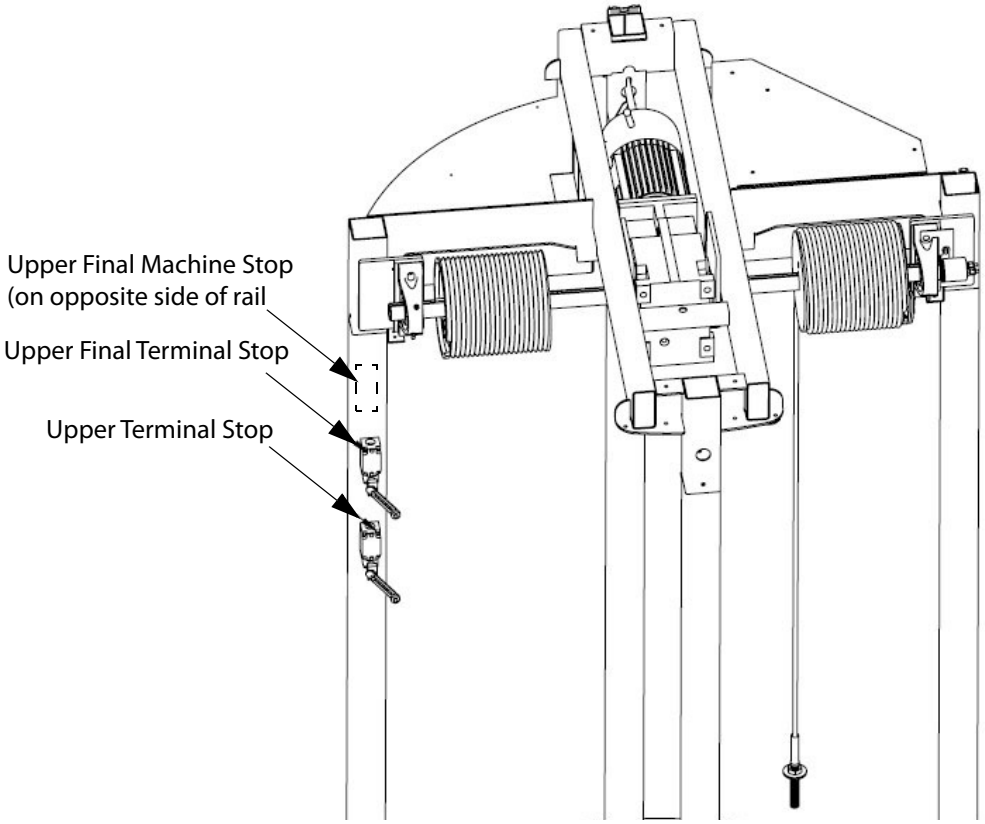
NOTE

The switch arm should be adjusted so that the switch actuates prior to the cab hitting any obstruction above (including the switch) and after the cab passes the upper landing by a minimum of 0.5".

Appendix B, Controller Exterior Wiring Locations shows where the wiring for the switches enters into the controller box (through the hole specified for low voltage wiring).

Using zip-ties and sticky back connectors, route the low voltage wire to the controller. It is important to route and secure the wire properly to ensure proper functionality of the elevator.

Figure 90
Upper terminal/machine stop switch locations



Step 44
Hall call station and EMI mounting/wiring

Be sure to follow the proper steps when mounting the hall call station and EMI (interlock) devices to ensure that the hoistway door, when mounted, will interact with the safeties and switches properly.

To mount the EMI (interlock):

1 Insert the top end of the EMI rail stiffener into the EMI rail.

2 Slide the stiffener into the cutout on the EMI rail at the landing. For the stiffener to be inserted completely, you must slide it up inside the rail. You may have to tap the stiffener with a rubber mallet.

3 Using a flat head screwdriver, pry the stiffener down using the provided notches until the holes in the side of the stiffener are visible through the countersunk holes in the side of the EMI rail.

NOTE

It is important when inserting the EMI rail stiffener that any wires for other floors passing through the EMI rail do not get pinched or cut. Ensure that the EMI stiffener does **NOT** fall down the hoistway rail.

4 The illustration below shows the proper technique for installing the EMI rail stiffener.

Figure 91
EMI rail stiffener installation

5 Secure the stiffener in place with the #10 x 1/2" flat head undercut wood screws provided in the EMI package.

6 Proper alignment is achieved when the 4 holes in the side of the EMI (interlock) stiffener are visible through the 4 holes on the side of the EMI (interlock) rail.

7 ***IMPORTANT****: Make sure the screw head does not have any edges protruding out of the countersunk hole as the car guide shoes travel directly over the EMI stiffener mount screws. Protruding edges will negatively impact the performance of the guide shoes.*

8 Install the proximity switches.

a. Before installing the switch, use a 5/16-24 tap to clean the switch hole in the EMI (interlock) rail.

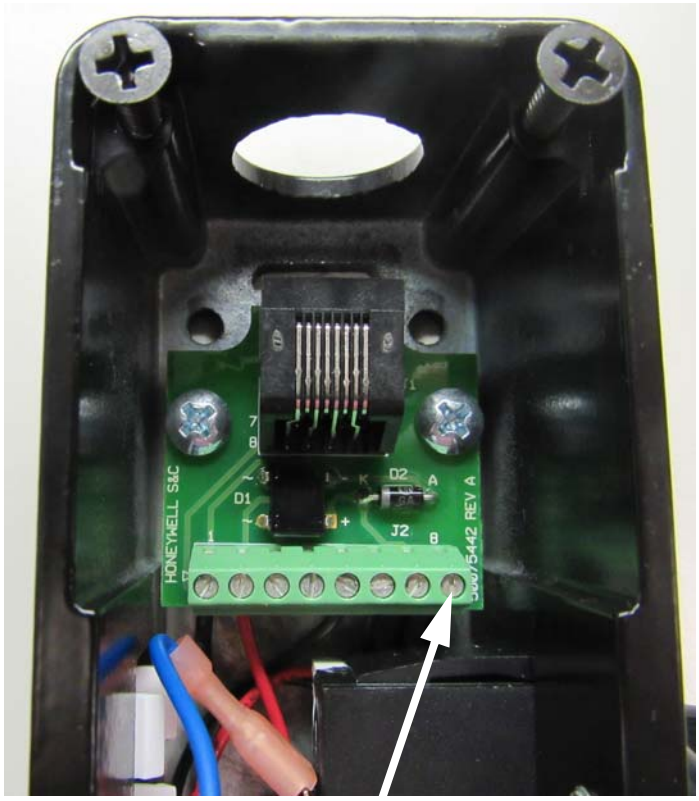
b. Thread the switch into the hole in the EMI (interlock) rail until it is flush with the outside of the rail (see below).

c. Apply one small drop of silicone caulking or super glue to the threads of the switch after installation to ensure it does not vibrate out of position.

d. You need to wire the proximity switch in series with terminal 8 inside the lock as identified below.

- To wire the proximity switch in series, remove the wire currently installed at terminal 8 and replace it with one of the wires from the proximity switch. Take the wire just removed from terminal 8 and connect it to the other wire from the proximity switch.

Figure 92
Location of proximity switch and wiring



Wire the proximity switch in series with terminal 8 in the lock

9 Remove the cover from the EMI (interlock) and mount the interlock to the stiffener using the #10 x 1" self drilling/tapping hex head screws.

10 To complete wiring of the hall call station, insert the plug end of the Cat5e hall call wire through the top of the interlock and into the provided RJ45 connection.

11 The hall call button contactor will come pre-wired to the EMI (interlock) for simple installation.

12 Attach the hall call button contactor to the hall call button housing.

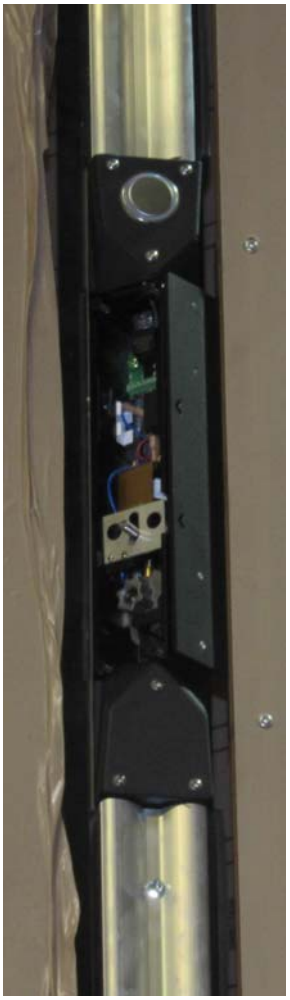
NOTE

The text on the hall call button contactor should be **upside-down** relative to the mounting position of the hall call button housing. For further reference, the call button has a large and small round detent in the back of the button. The contactor has similar tabs. If attached incorrectly, the plastic cover on the back of the contactor will become dislodged from the back of the contactor.

13 Mount the hall call button housing to the EMI (interlock) rail.

14 The illustration below shows the proper alignment and attachment of the hall call button. This photo also shows the interlock installed (without the cover plate and with the cover plate).

Figure 93
Proper alignment and attachment of hall call button housing



Step 45
COP and wiring

The COP is integrated into the COP leg and has been designed with plug and play operation. The location of the COP is shown below (front and rear view).

Attach the COP leg to the cab post as shown below. Note that there is no Velcro on this side of the post.

To attach the panel, you need to drill and tap (10-32 size).

Connect the plug and play cables at the back of the COP.

Figure 94
COP location

The traveling cable hardware package contains three flat bars, used to clamp the traveling cable, and assorted fasteners. The bars with the tapped holes are designed to attach to the COP leg, and the bar with the clearance holes secures the traveling cable to the head assembly.

NOTE

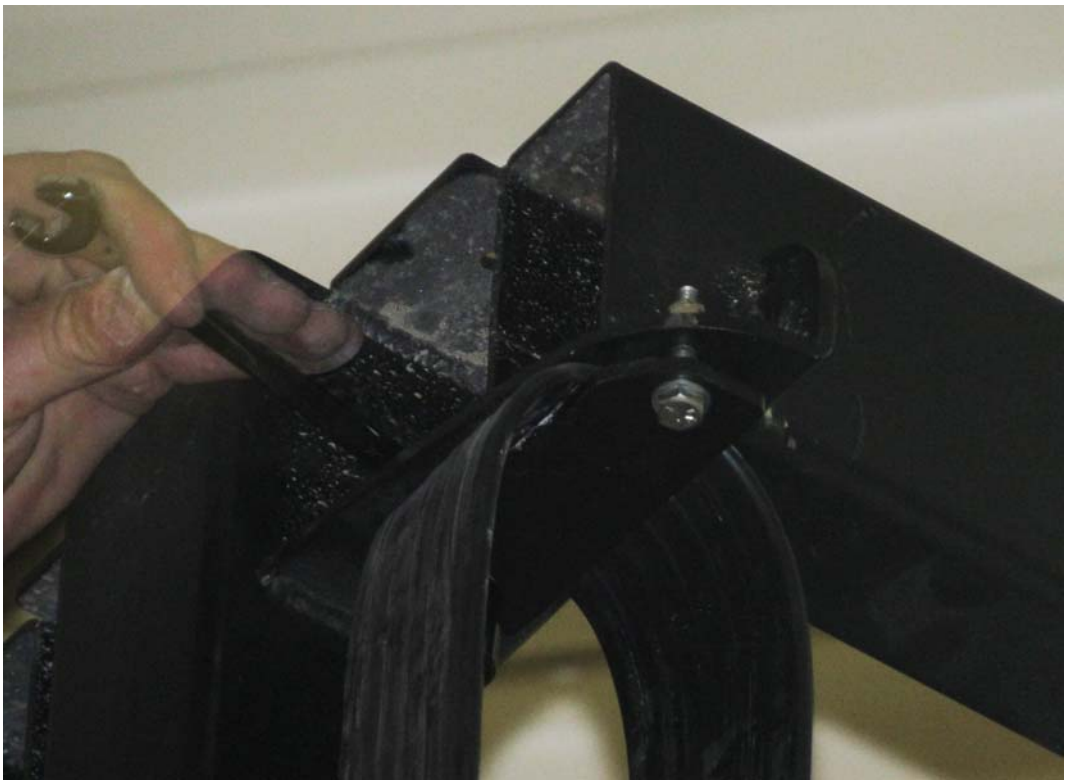
The traveling cable must be routed *inside* the rings at all levels, and will loop at the bottom of the pit or base ring. Ensure the traveling cable does not have any twists in it, or it will bind as the car travels through the hoistway.

1 Secure the traveling cable loosely to the head assembly as shown below using the bar with the clearance holes and the /4"-20 bolts, washers, and nylon lock nuts, so the traveling cable can be adjusted to the appropriate length.

NOTE

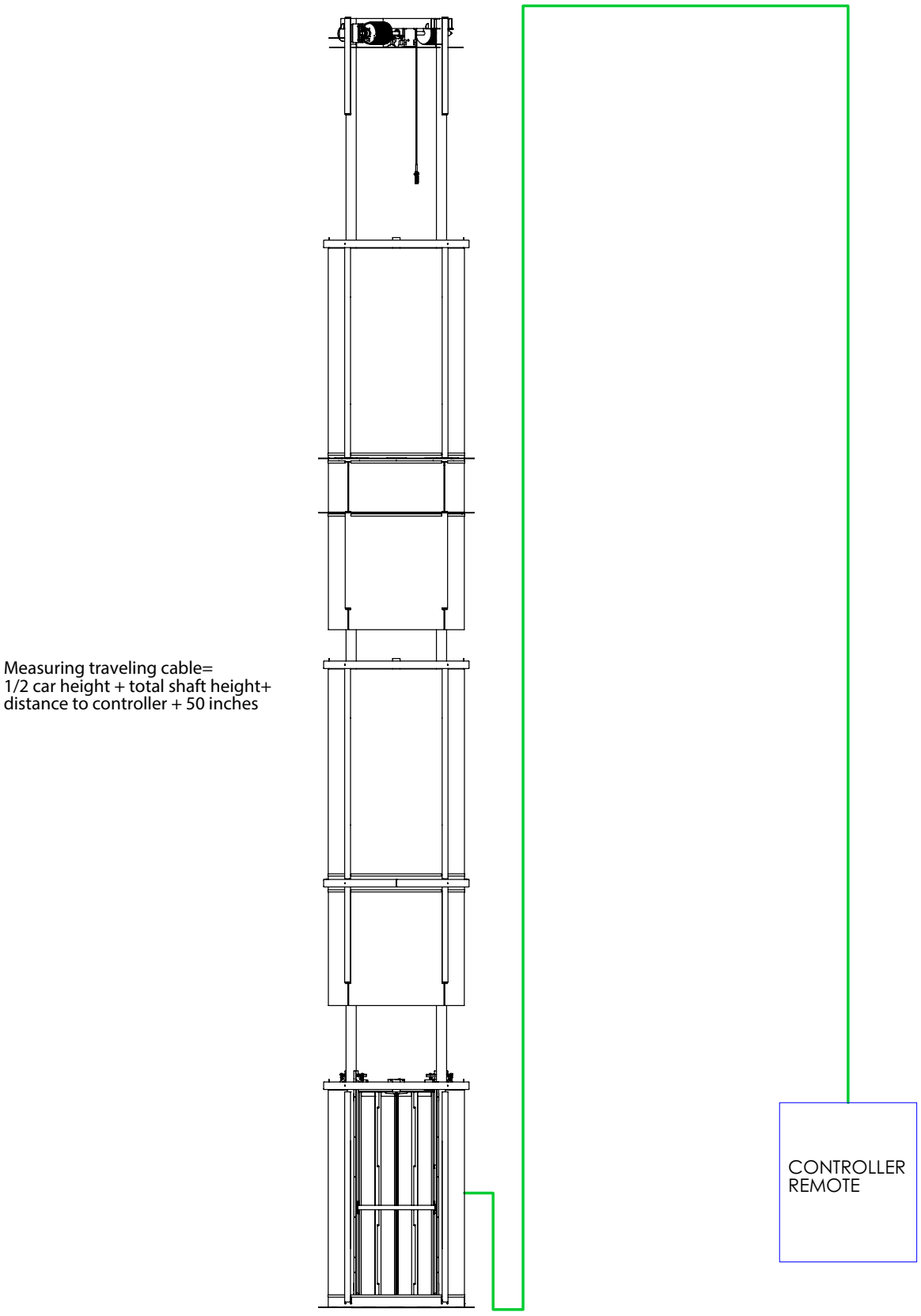
DO NOT cut the traveling cable!
Retain all existing cable in the head assembly and secure against movement with zip-ties.

Figure 95
Traveling cable secured to head assembly



2 The length for the traveling cable should be measured as shown below. **DO NOT cut the traveling cable**. Secure any excess in the head assembly.

Figure 96
Measuring locations and distances



3 Loop the traveling cable up through the traveling cable brackets on the COP leg. Ensure that the loop made by the traveling cable in the pit or base ring touches the floor, but that there is not excess accumulated in the pit or base ring.

4 When the appropriate length has been determined, and the traveling cable has been adjusted properly, secure the traveling cable to the COP leg using the hardware provided (see below).

NOTE

The traveling cable should be *parallel* to the edge of the COP leg. Angular variation will cause the traveling cable to "walk" as the car travels.

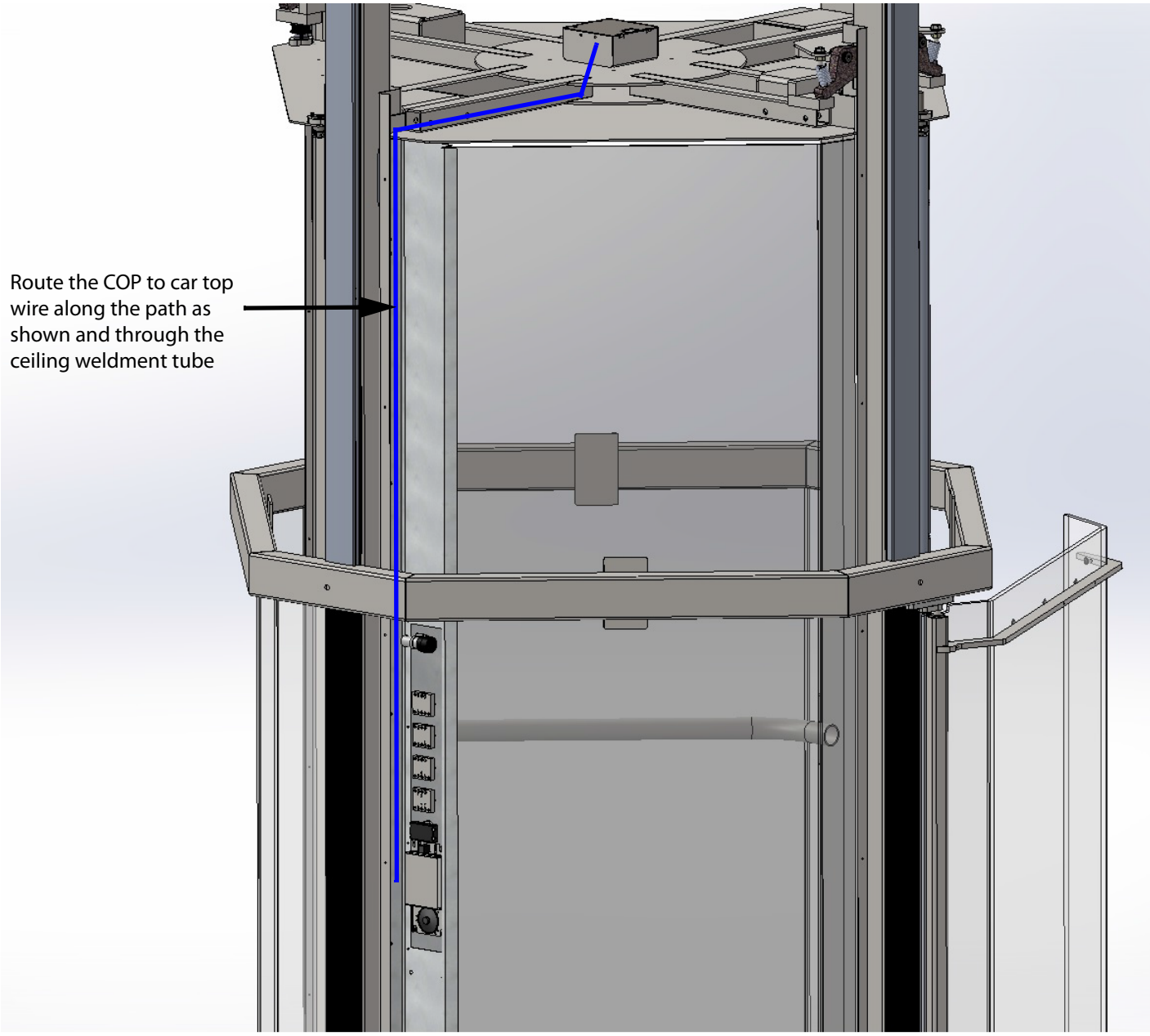
Figure 97
Traveling cable secured to COP

5 Next, run the car top control wire from the COP to the car top stop box. Appropriate routing of the car top control wire is shown below. The wire passes through the back of the COP, up the car leg and through the cab ceiling weldment to the access hole in the center of the cab ceiling weldment.

6 The car top stop box will be mounted and wired in a subsequent step.

7 The diagrams in Appendix B show the proper wiring of the COP, traveling cable, and car top control wire inside the COP enclosure.

Figure 98
Car top control wire routing



Step 46
Controller wiring

Wiring the Vuelift controller has been designed to be quick and efficient. All low voltage connections are plug and play.

Line voltage (cab light circuit, motor circuit and battery backup) will require termination into the provided terminal strip and fuse holder.

***IMPORTANT**: Ensure connections are made properly to eliminate or reduce the amount of time required to troubleshoot wiring problems. If wiring is rushed, many hours can be required to repair and troubleshoot electrical problems.*

The previous sections covered preliminary wiring. **Appendix B, Controller Exterior Wiring Locations** outlines the proper wire routing and locations for the controller.

When wiring the controller, the hall call station wires and the traveling cable wires should be plugged into the appropriate color coded socket inside the controller.

The rotary encoder wires should be pulled through with the hall call and final stop low voltage wires. Rotary encoder wires are to be plugged into their color coded sockets. The illustration below shows the proper wiring for the rotary encoder wires. Note that these connections have been made at the factory, so this table is for reference only.

NOTE

The rotary encoder requires 24V power to operate. Both the Grey and Black wire from the encoder have been pre-wired to a Green plug. This provides the encoder power. It may be necessary to provide additional wire length for situations with remote controller locations. This can be accomplished by attaching an additional Cat5 cable to the end of each connection. These extensions are provided for the Remote Controller.

⚠ CAUTION

Ensure that the controller is OFF prior to plugging in the rotary encoder connections. Failure to ensure the controller is OFF when connecting or disconnecting the encoder will damage the encoder equipment. This damage is NOT covered under the factory warranty.

ROPING AND SLACK ROPE SWITCHES

Step 47
Roping car and manual mode operation - preliminary

Roping the car requires six different procedures, designed to simplify adjustment and speed up installation.

1 Check electrical connections in the motor, controller and disconnects.
2 Unwind the ropes to the car location.
3 Attach the ropes to the car and pre-tension them.
4 Adjust the ropes if necessary to provide equal rope tension.
5 Install cotter pins in the rope ends.

⚠ CAUTION

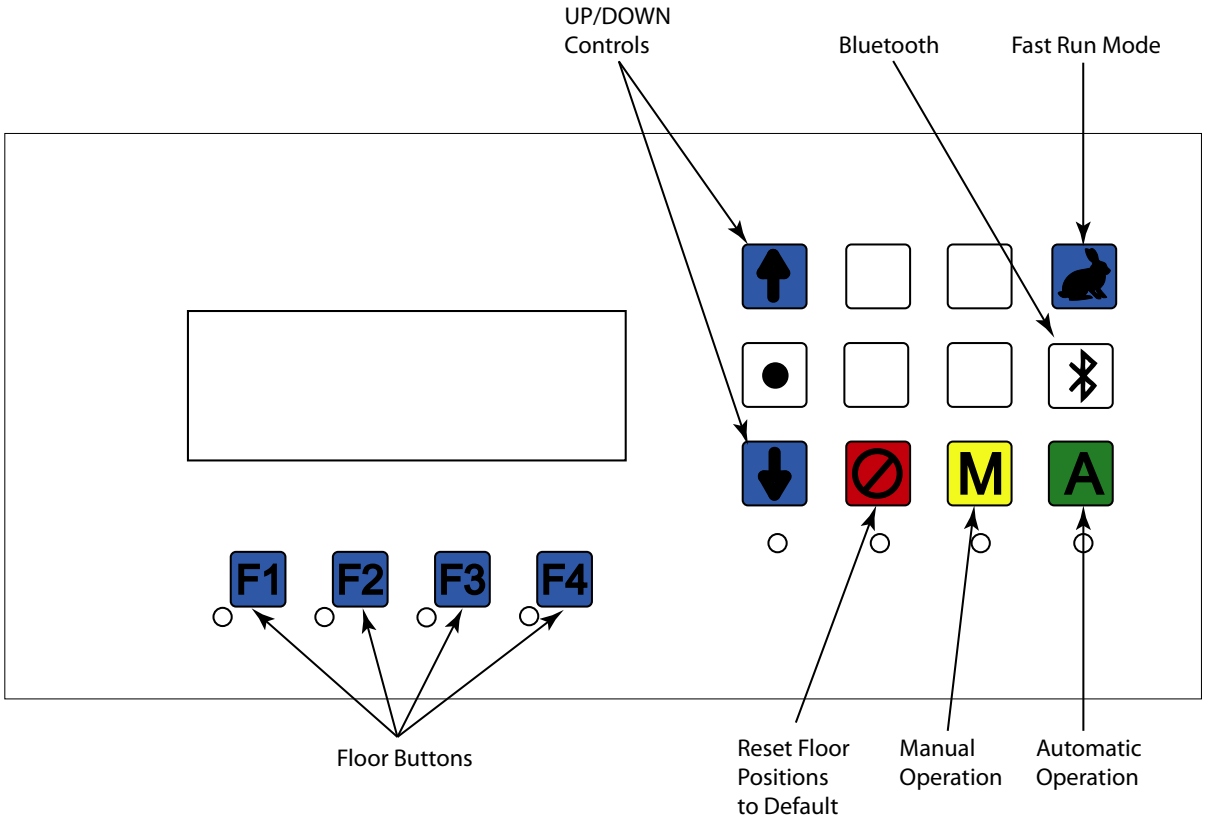
Check all motor to controller connections prior to energizing the controller and equipment.

6 Prior to turning on the controller, check the electrical connections to ensure they have been made correctly.
   - Ensure the motor and brake have been wired properly.
   - Ensure the Line and Load side high-voltage wiring in the controller has been performed properly.
   - Ensure the disconnect has been wired properly according to the manufacturer's recommendations and the wiring diagrams outlined in this guide.
7 The following sections describe roping the car, operating the controller in **Manual Mode**, and setting the landing levels.

Manual mode operation and roping the car

1 Once wiring has been verified, turn power **ON** to the controller.
2 To rope the car, you must place the controller in **Manual Mode**. This will be accomplished through the following operations. The illustration below provides an overlay of the control panel.

Figure 99
Control panel overlay



3 Ensure the controller has power.

4 The controller should display the following:

```
Vuelift 10.24.2017
AutoOperation 00000
000003   9999
```

- The number next to "AutoOperation" is the current car position as identified by the rotary encoder (listed as 00000) in the graphic above.
- The number listed as 000003 in the graphic above is the total number of lifetime runs.
- The number listed as 9999 in the graphic above is the current shutdown counter value (9999 is infinite and the unit will not shutdown).

5 Press and hold the **M** button (Manual Mode) on the controller keypad until the display changes to the following:

```
X: #####    3: 00000
1: 00000    4: 00000
2: 00000    5: 00000
```

6 Pressing the UP or DOWN arrow will rotate the drums in the appropriate direction.

⚠ CAUTION

If the drums move in the direction **OPPOSITE** the arrow, the motor is rotating in the wrong direction! Power OFF the controller and switch the BLUE and BLACK leads in the controller. Then, power ON the controller and start again at the beginning of this section.

7 Pressing and holding the Rabbit button while pressing the UP or DOWN arrow will allow the motor to operate at maximum speed. To resume leveling speed, release the Rabbit button.

⚠ CAUTION

Only run the controller for a few seconds to verify rotation.

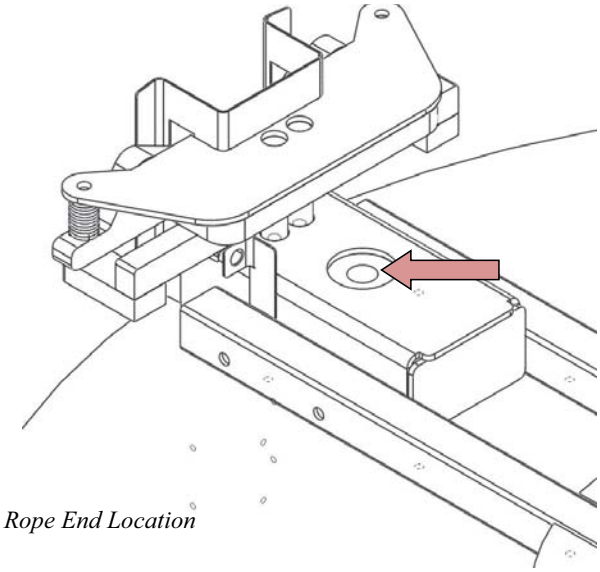
8 Remove the stretch film from the drums, ensuring you do not damage the ropes.

9 Ensure the rubber boot (P/N FF-0183) used to collect oil drippings is installed at the end of each rope. This rubber boot sits inside the car top safety rail hole as shown below. The boot should be installed about 1" above the top rope nut. If necessary, tighten the clamp at the bottom of the boot to prevent oil leaking.

Figure 100
Rubber boot on elevator rope

10 Maintain tension on the rope ends and lower the rope ends through the car safety rail as shown below.

Figure 101
Rope end location



Rope End Location

11 Attach the nuts to the bottom of the rope ends leaving approximately 1/4" of threads below the nuts.

12 Press the UP arrow on the control panel until the car is removed from its safeties.

13 Check the tension of the ropes and adjust the nuts as necessary to maintain even tension between the ropes.

14 Once the ropes are tensioned appropriately, check to make sure the rope ends are not protruding below the cab ceiling weldment.

15 ***If the rope ends protrude past the weldment***, they will require trimming. To trim, mark the distance where the rope end will be contained within the weldment, and the current location of the nut on the rope end with a permanent marker.

   a. Set the car on the LOWEST LANDING (pit or ramp) and ensure a slack rope condition.

   b. Remove the nut from the rope end and the rope end from the weldment.

   c. Place the rope end on a good working surface where there will be no damage, and cut the rope end at the mark where the rope end will be contained within the weldment.

   d. Drill a hole in each of the rope ends 3/16" in diameter for installation of the cotter pin.

   e. Replace the rope ends through the rope end location shown in the illustration on the previous page, using the procedure described above. Secure with the nuts and cotter pins, use the controller to pick up the car, and re-tension the ropes as necessary by adjusting the nuts.

16 ***If the rope ends DO NOT protrude past the weldment***, they will not require trimming.

   a. Secure with the nuts and cotter pins, use the controller to pick up the car, and re-tension the ropes as necessary by adjusting the nuts.

17 Tighten the nut above the safety rail against the lifting plate. This nut provides a "double nut" lock and ensures that the ropes will not rotate.

   • To ensure that the nut is tightened sufficiently, either use a pair of vice-grip pliers and tighten the nut with a crescent wrench or use two crescent wrenches to tighten the nuts against each other.

   • It is important to ensure that the lower nut does not move so that the appropriate rope tension is maintained.

Set the landing level

1 Place the controller in **Manual Mode** as previously described.

2 The controller should display the following (where ##### is an integer representing the current car position):

```
X: #####    3: 00000
1: 00000    4: 00000
2: 00000    5: 00000
```

3 Note that this only needs to be performed **once**. To adjust the landing position, follow the instructions below.

a. Press and hold the **Red button** with a **No** symbol. This will reset all of the numbers (except for the Car Position) to 22222.

b. The controller should display the following:

```
X: #####    3: 22222
1: 22222    4: 22222
2: 22222    5: 22222
```

c. Using the UP/DOWN arrows on the controller, run the car until the car platform is flush with the landing Level.

d. Press and hold the **F-Key** for the landing you wish to program (i.e. **F1** for Floor 1, **F2** for Floor 2, etc.) until the number next to the floor you are setting equals the number next to **X** (i.e. 1: 00215 and X: 00215).

e. To set the landing level for Floor 5 (if applicable), press and hold the button **in-between** the UP and DOWN arrows and the **F4** key.

f. Continue programming the floor positions until all levels have been programmed.

NOTE

In **Manual Mode**, the COP buttons **1** and **2** perform the same function as the UP/DOWN arrows. This allows the landing levels to be adjusted with precision from the car. If the elevator has more than two stops, the COP 3 button will allow the car to run in full speed; this function is the same as holding the Rabbit button on the controller (i.e. press and hold both 1 and 3 at the same time to run down in full speed. Releasing the 3 button will slow the car to leveling speed).

⚠ CAUTION

If safety checks have not been performed, **DO NOT** place the controller in Automatic Mode. This will be performed in a later step. Operating the elevator in Automatic Mode without performing proper safety checks may result in serious bodily injury, and/or equipment damage!

4 If the elevator has been tested to ensure that all of the safeties are operational, press the **A** button to return to Automatic Mode.

5 The controller should display **select a level** at the bottom.

6 The Vuelift controller is equipped with a shutdown counter. If the controller displays "OUT OF SERVICE", the shutdown counter has been tripped.

a. To reset the shutdown counter, press and hold the "M" button until the Manual Mode screen is displayed.

b. Press and hold the button between the Rabbit and the "A" button for 30 seconds until the display changes.

c. The keypad will change the number of runs until shutdown.

d. Pressing the top left button will permit 5 runs (as shown in the middle of the screen), moving from top left to bottom right (terminating at the pointy "B" button) which is 9999 (infinite runs).

e. Press the "A" button once to return to automatic operation.

Step 48
Car top and slack rope wiring

***IMPORTANT**: Wiring the car top properly is imperative to maintaining proper operating conditions for the unit. Failure to wire the switches correctly may result in catastrophic failure and damage to the equipment.*

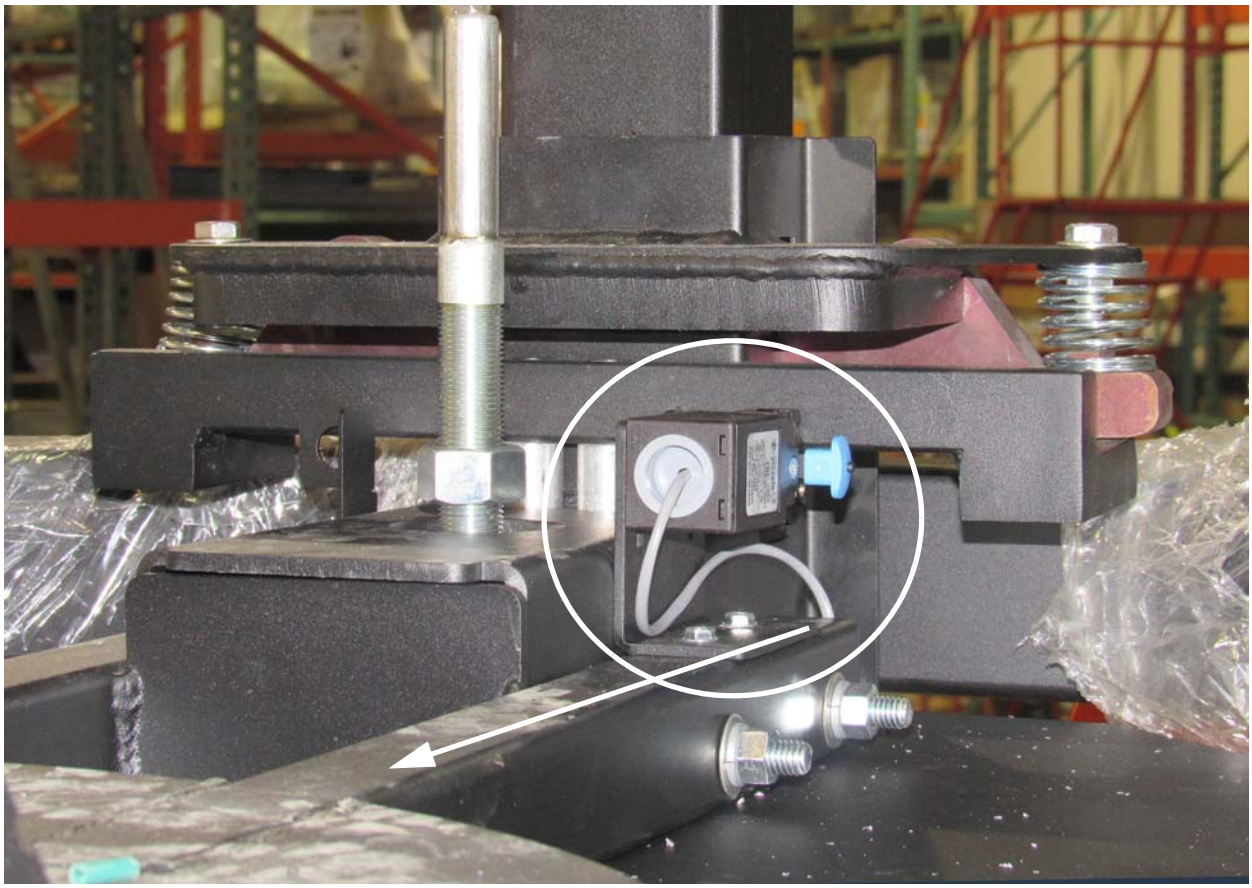
The car top stop switch is wired in series to the slack rope switches.

1 Run the wiring for one slack rope (safety) switch assembly through the cab ceiling weldment tube to the hole in the center of the cab ceiling weldment (wire routing is identified by the arrow below).

2 Repeat this process for the switch on the opposite cab rail.

3 In the illustration below, the slack rope (safety) switch and bracket are circled, and the wire routing is identified with an arrow.

Figure 102
Slack rope switch/bracket and wire routing



4 To position the slack rope switch, adjust the slack rope switch until the lever arm of the switch is approximately 1/16" away from the car safety lifter arm (see below).

Figure 103
Slack rope switch on bracket

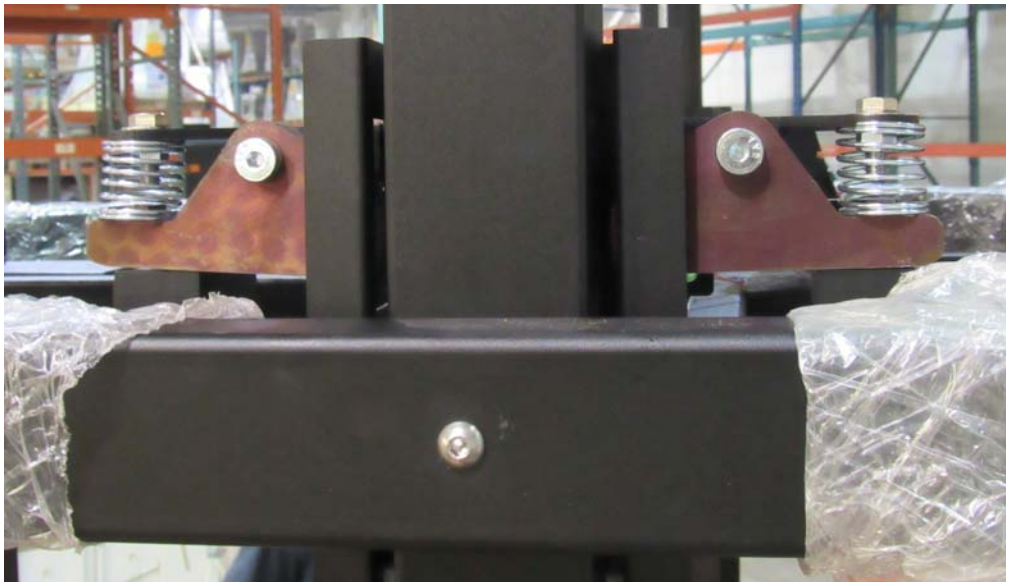
5 The switch is provided with a blue actuator on the side of the switch. Normal operation of the switch will have this blue actuator pulled out (away from the switch body). The slack safety circuit is normally closed, and as the car safety lifter arm actuates downward, engaging the safeties, the slack rope switch will actuate to the OFF position, disengaging the motor.

6 Plug the slack rope switch into the slack rope splitter. Using a black zip-tie, secure the wire to the slack rope switch bracket. Push any excess wire into the car top stop box.

7 Repeat for the remaining slack rope switch.

8 Remove the tape from the safeties and install the four springs (two springs per safety) as shown below.

Figure 104
Safety springs



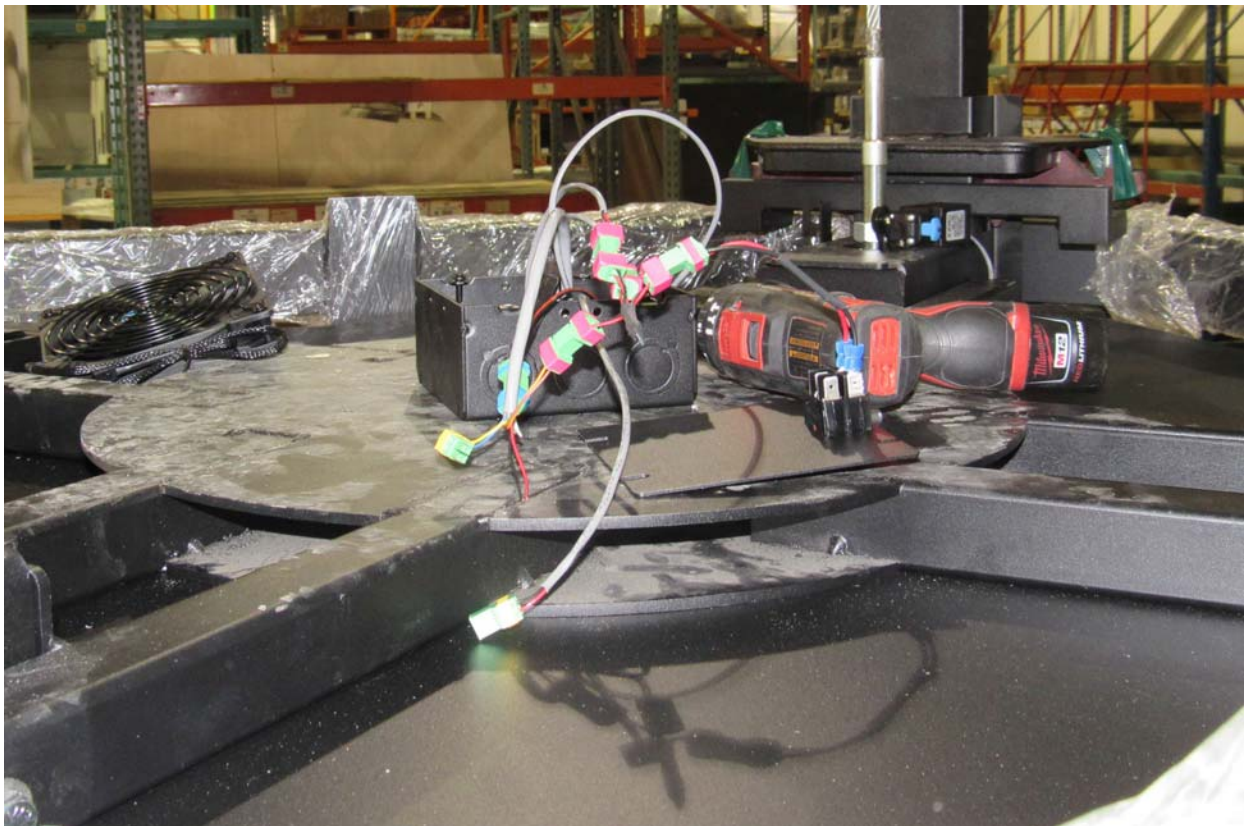
The photo below shows a completely installed slack rope switch.

Figure 105
Slack rope switch installed

9 Next, mount the car top stop box to the cab ceiling weldment using two #10 self-drilling/self tapping screws. The illustration below shows the proper orientation of the car top stop box.

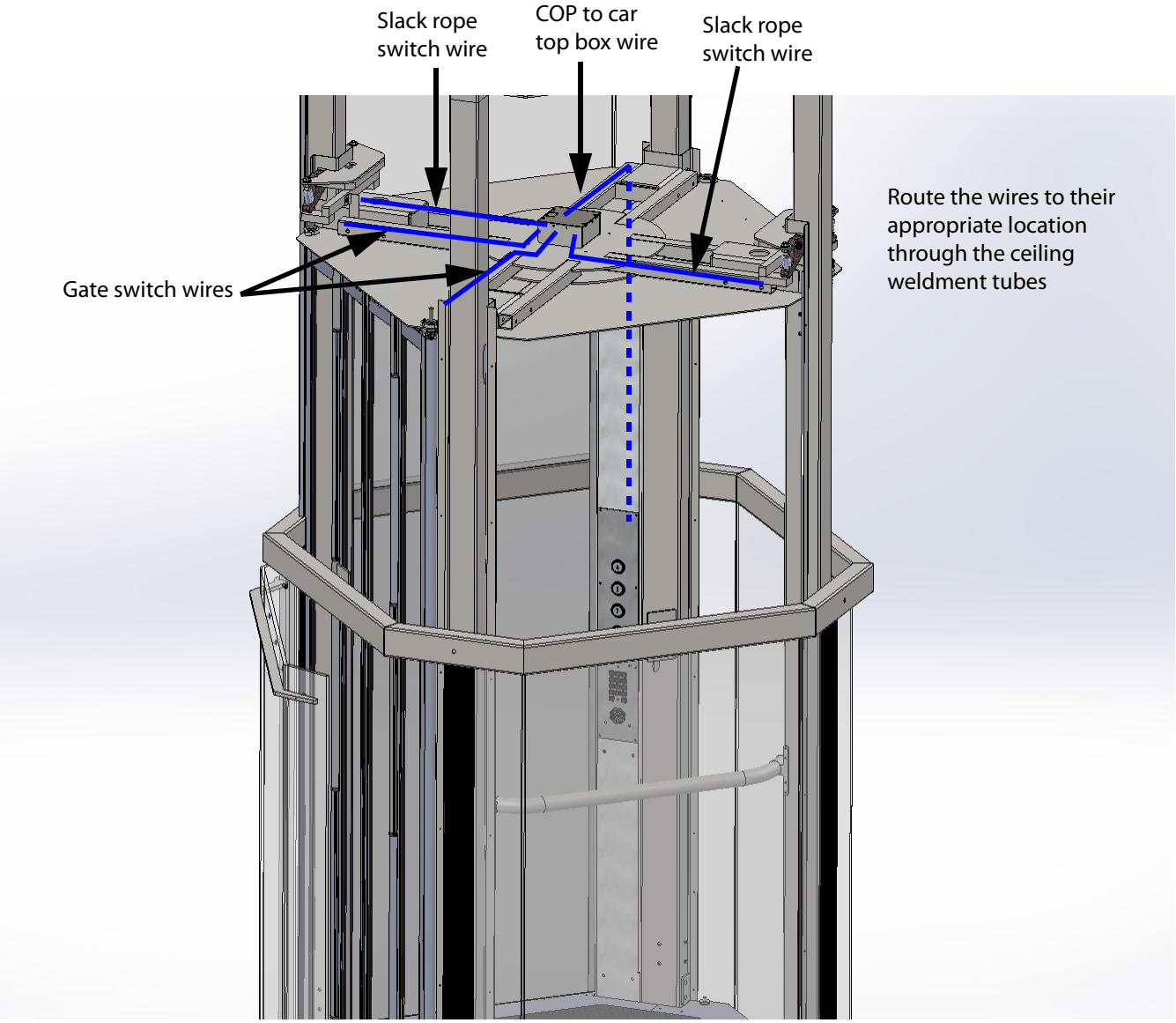
10 After mounting, finish wiring the car top stop switch by plugging in the remaining connections.

Figure 106
Orientation of car top stop box



11 Run the gate switch wires through the cab ceiling weldment tubes on the car rail, 90 degrees counter-clockwise from the COP leg in the door opening. The following illustration shows the routing of the slack rope switch wires and the gate switch wires through the car ceiling weldment.

Figure 107
Routing of wires through cab ceiling weldment



12 Connect the gate switch wires to the appropriate harness in the car top stop box.

13 Secure the lid to the car top stop box.

⚠ CAUTION
Prior to running in Automatic Mode, all safeties must be checked for proper operation.

14 Toggle the slack rope switches and car top stop switch individually and confirm that the controller recognizes the break in the safety chain. If the slack rope and car top stop switches are functioning properly, the controller will display "Slack Rope Error".

CAB FINISHING

Step 49
Install cab ceiling plates

The cab ceiling comes in two pieces (cab ceiling plates) that are secured with 1/4"-20 x 3/4" button head Allen screws.

The illustration below shows the proper installation method for the cab ceiling plates.

1 To install the cab ceiling, take one of the metal cab ceiling plates and press it against the cab ceiling weldment.

2 ***IMPORTANT**: Note the orientation of the cab ceiling plates. One ceiling plate (for Type 1 cabs) will have two holes on one edge and one 1.5" hole. The 1.5" hole **MUST** be oriented below the rope ends on both cab ceiling plates. The two smaller holes should be located on either side of the cab door opening.*

⚠ CAUTION

It is important that the cab rails are not scratched during ceiling plate installation. The installation of these plates is simplified if the sides of the cab ceiling plate with half cutouts for the cab rails are placed against the cab ceiling weldment first, then the cab ceiling plate is pivoted into place around the cab safety rail.

3 Install the screws through the ceiling until finger tight. If the screws do not go in easily, it may be necessary to clean the threads in the cab ceiling weldment with a 1/4-20 tap.

4 Repeat for the second cab ceiling plate.

5 After both plates are installed loosely, align the plates until there is a uniform seam between them and then tighten the bolts. See below.

6 Install the cab light in the hole in the center of the cab ceiling. The cab light is a press fit and should be connected to the appropriate harness in the car top stop box.

7 Install the cab fan in the large hole in the cab ceiling with the grill facing **downward** into the cab.

Figure 108
Installation of cab ceiling plates

Step 50
Install COP leg

1 Align the COP leg to the side of the non-safety rail directly adjacent to the cab lifting point. Using a paint pen or permanent marker and mark the clearance holes in the COP leg on the side of the non-safety leg.
   - NOTE: It is important that the COP rail be aligned flush with the front face of the non-safety rail and that the clearance holes for the rail guide shoes are aligned with the fasteners holding the rail guide shoes to the side of the non-safety rail.
2 Remove the COP leg and drill and tap the marked locations for a 10-24 screw. A 10-24 tap uses a 5/32" drill bit (or #20).
3 Fasten the COP leg to the non-safety rail. Note that there is no Velcro on the COP side of the non-safety rail that you are attaching the COP leg to.
   - **The COP must be attached to the non-safety rail directly adjacent to the cab lifting point**, due to the orientation of the drive train ropes, and traveling cable.
4 When the holes in the non-safety leg and the COP leg are aligned, insert the #10-24 x 3/8" button head screws and tighten completely to secure the rail and leg together.
5 The photos below show the orientation of the COP leg on the non-safety rail and the COP leg and non-safety rail secured together.

Figure 109
COP leg attached to non-safety rail

Step 51
Attach cab handrails

Attach the cab handrails to the cab rails as shown below using the hardware provided in the Handrail Fastener Bag of kit PK-0016. Note that there is a handrail for each of the three cab walls.

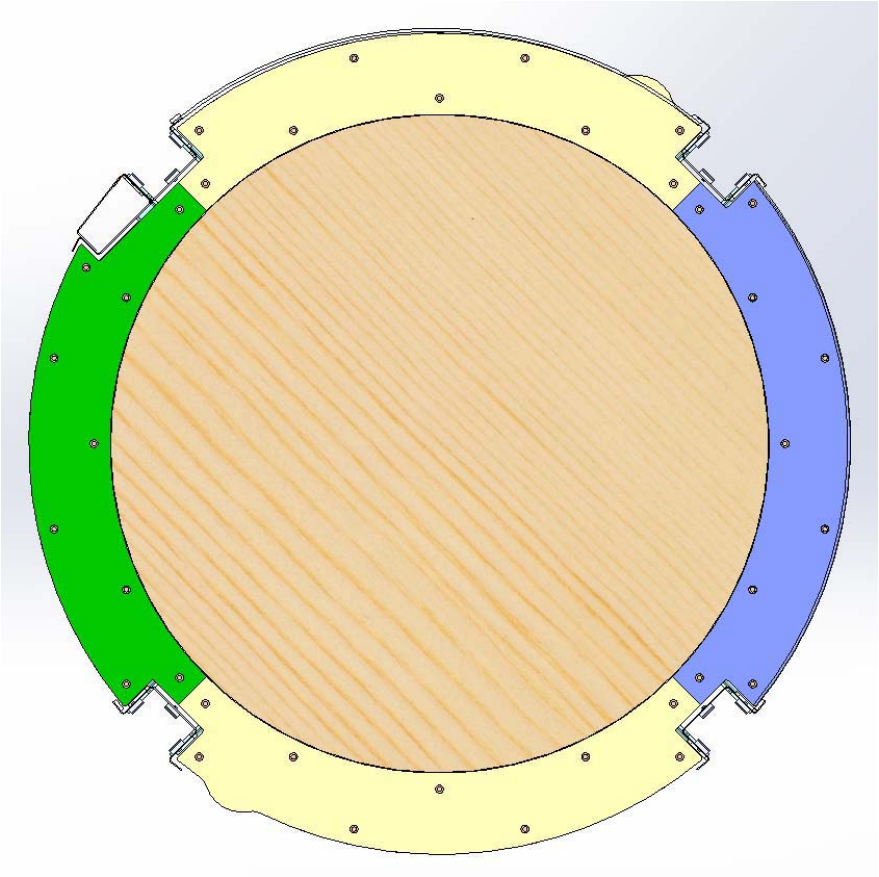
Figure 110
Cab handrails

Step 52
Install guide shoes

1 Remove the four thin guide shoes from the inside faces of the two cab rails opposite the lowest level hoistway door (as shown below).

2 Install the four new thicker guide shoes in their place using the existing hardware.

Figure 111
Guide shoe installation



GLAZING

Step 53
Glazing introduction

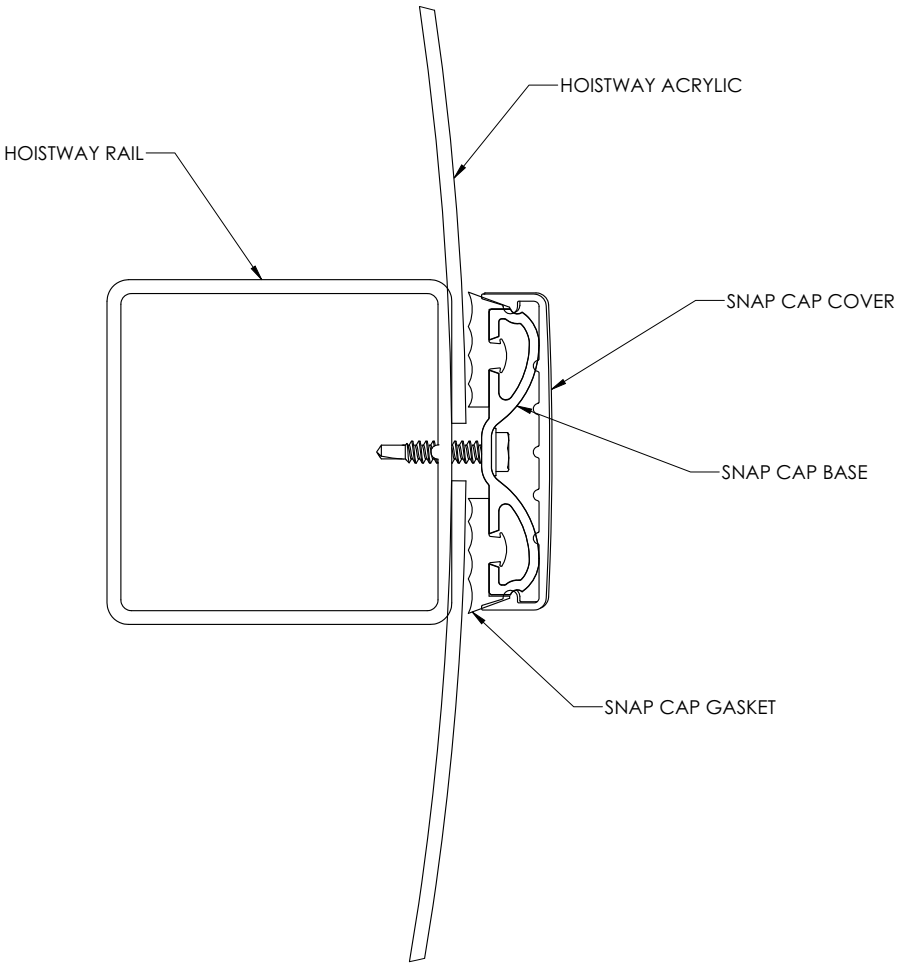
Glazing the Vuelift is a process which when performed correctly can be executed quickly and efficiently.
The glazing system is comprised of three separate components:

- Panels and doors
- Snap cap base, gasket and cover
- Fasteners and brackets

A cross-sectional view of the snap cap system is shown below. This will help clarify terminology throughout this section.
The snap cap comes in two different lengths from the factory:

- 7-ft sections are to be used between the floor ring and the header ring on every level
- 4-ft sections which will be cut to fit above the header ring and below the next ring (i.e. balcony ring or ceiling ring)

Figure 112
Snap cap system, cross-sectional view



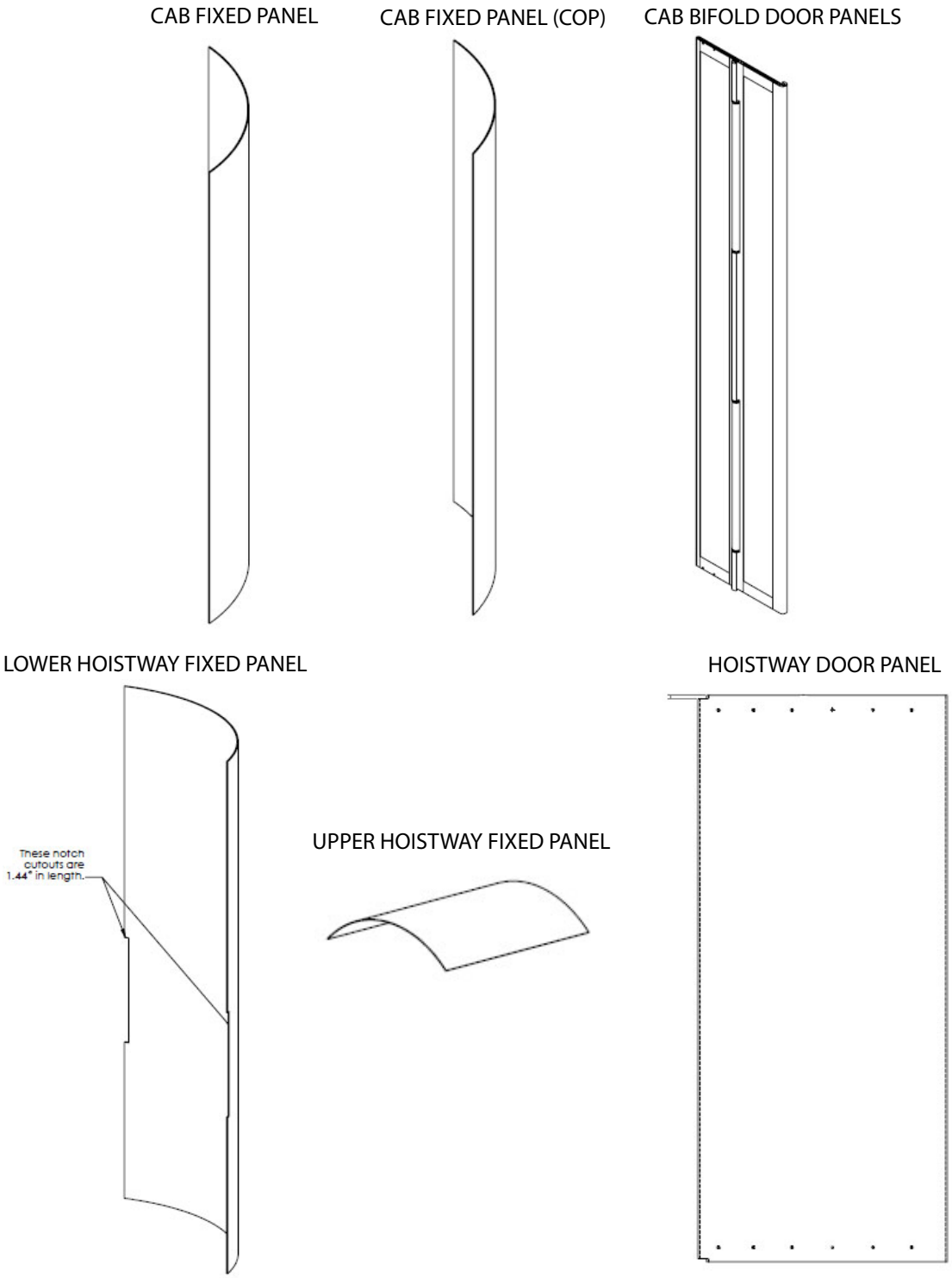
Types of panels

There are six different types of panels used in the Vuelift glazing system (shown below):

- Cab fixed panel
- Cab fixed panel for COP
- Lower hoistway fixed panel
- Upper hoistway fixed panel (black and clear)
- Hoistway door
- Cab doors

Note the notch orientation of the lower hoistway fixed panel. The notch should be offset to the **BOTTOM** of the panel.

Figure 113
Panel types



Order of panel installation

We recommend a "top down" approach to glazing.

- This approach involves installing the glazing from the upper-most floor first and cleaning the elevator as you work your way down.
- This will expedite the process of cleaning prior to leaving the job and turning the elevator over to the customer.

The next few sections outline methods for cutting the acrylic panels to fit, installation of the acrylic panels and doors, and installation of trim pieces and covers.

The general glazing installation procedure is as follows:

1 For **ALL** landings:
   - Assemble snap cap (cut base to length, attach gasket, and stage near corresponding landing).

2 Starting at the **TOP** landing and working towards the bottom landing:
   - Install upper hoistway fixed panels (measure, cut, install)
   - Install hoistway doors (including hardware)
   - Install lower hoistway fixed panels (measure, cut, install)

3 On the **BOTTOM** landing:
   - Install upper hoistway fixed panels (measure, cut, install)
   - Install hoistway doors (including hardware)
   - Install cab fixed panels (measure, cut, install)
   - Install lower hoistway fixed panels (measure, cut, install)
   - Install cab doors (including hardware)

4 For **ALL** landings:
   - Install snap cap cover (measure, cut, install)

The following sections cover these methods in detail.

Step 54

Assemble snap cap

Prior to installing the hoistway acrylic panels, the snap cap base must be cut to length and prepared for installation. This includes adding the snap cap gasket to the snap cap base and drilling any necessary clearance holes in the 4-ft snap cap base sections.

The length of the snap cap base for the upper hoistway fixed panels is determined by measuring the distance between the header ring and the ceiling ring, or balcony ring (depending on the configuration).

The illustration on the next page shows the distance to measure for the snap cap base.

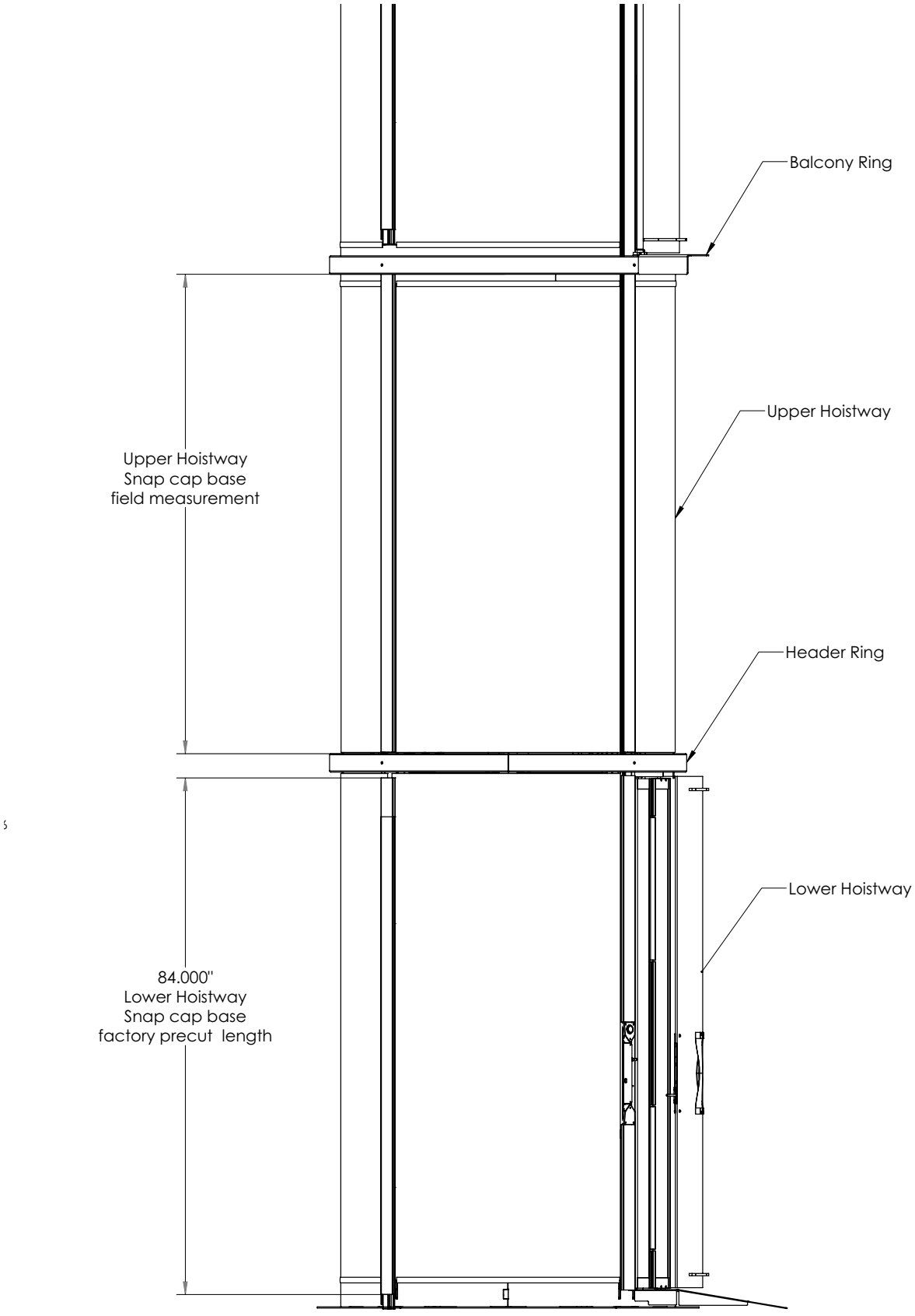
For the top floor, the snap cap base should be cut to a length of 1/4" less than the distance from the header ring to the ceiling ring, or balcony ring (as appropriate).

The lower hoistway fixed panel snap cap base (7-ft long) is pre-cut to length at the factory.

NOTE

It is important that the proper snap cap base sections are attached at the appropriate floor. Write the floor level on the snap cap base after cutting; this will ensure proper fit.

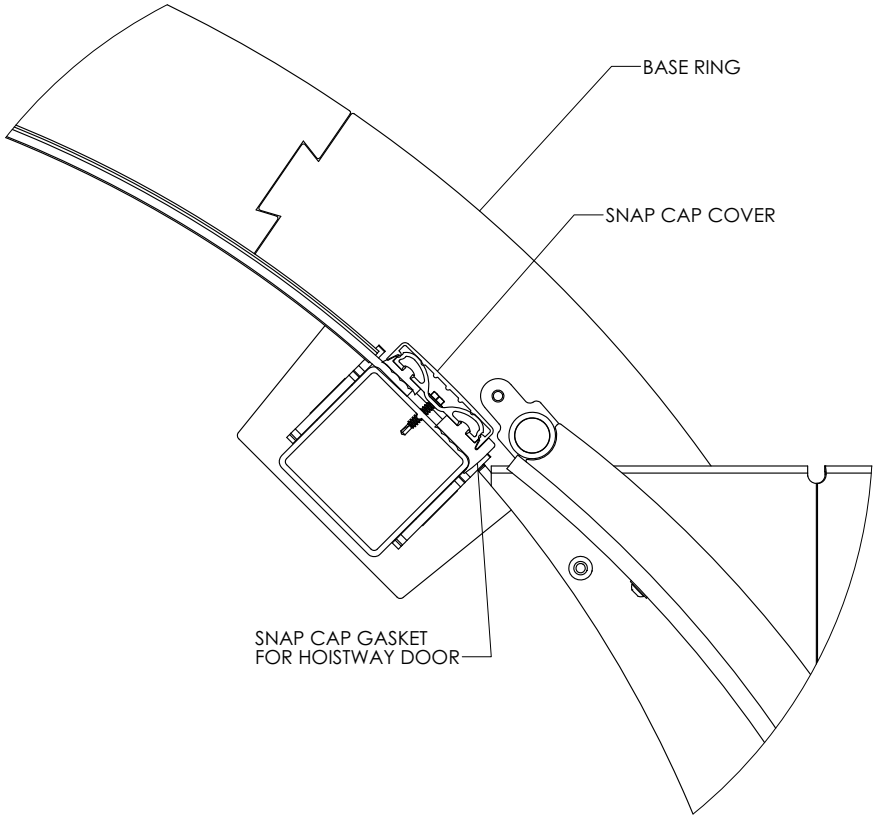
Figure 114
Snap cap base measurements



1 Using a miter saw with a non-ferrous metal cutting blade, cut the snap cap base to length for all levels.

2 All door openings are provided with hoistway door snap cap gasket. This variant of snap cap gasket is substantially thicker than the standard snap cap gasket. The snap cap base on both sides of every hoistway door should be installed with one piece of hoistway door snap cap gasket. Proper installation of the hoistway door snap cap gasket is shown below.

Figure 115
Hoistway door snap cap gasket



3 Attach the snap cap gasket to the snap cap base. The illustration below shows the proper orientation of the snap cap gasket. Note that the **thicker** side is oriented to the outside of the snap cap base. Press the snap cap gasket into the snap cap base until fully seated.

Figure 116
Snap cap gasket in snap cap base

NOTE: Use the thicker gasket on the hinge side and strike side of the door.

4 Trim any excess gasket and repeat for all sections of snap cap base, including the long sections.

5 Drill clearance holes for the self-drilling/self-tapping screws used to attach the snap cap base to the hoistway rails. For the shorter sections, two holes are required. For the long (7-ft) sections, four holes are required.

Step 55
Install upper hoistway fixed panels

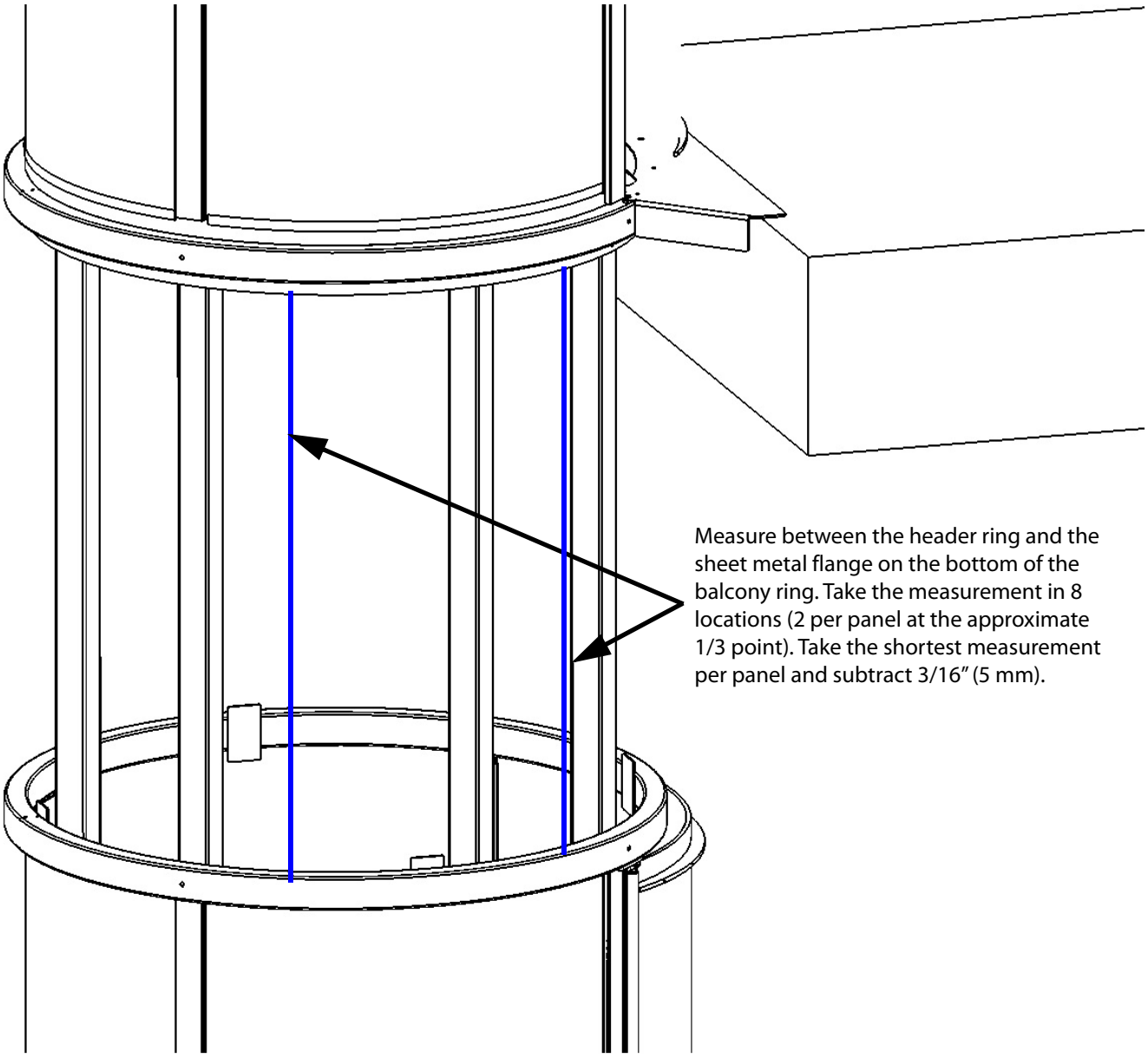
The upper hoistway fixed panels for the Vuelift glazing system are designed to be field trimmed to the appropriate length. Panels come standard at 47 1/2" in height.

***IMPORTANT**: When trimming the panels, care must be taken not to damage or crack the panels. While the impact resistance of the Vuelift glazing system is durable, the material prior to installation is brittle.*

1 To trim the panels, use a flush trim router (Roto-Zip® type tool). The preferred method is with a flush-trim router with flush trim bit as it provides the easiest and cleanest finished edge.

2 For **EACH** floor (landing), you need to measure the distance between the header ring and the ceiling ring, or balcony ring (depending on the configuration). The distance to measure for a balcony configuration is shown below.

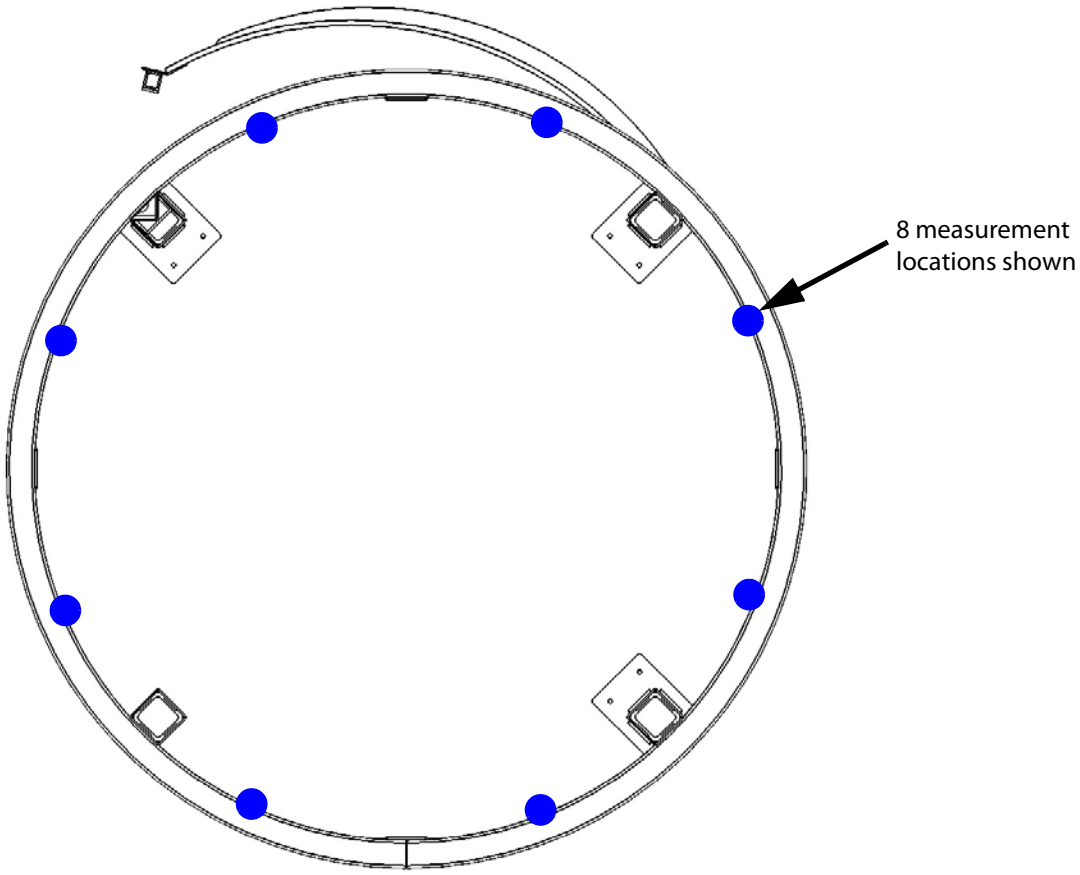
Figure 117
Measuring for balcony configuration



3 Take the measurement in eight different locations as shown below. This will ensure the panels fit correctly and will account for any variations in ceiling height around the elevator.
   - For each panel location, take the **shortest** measurement and subtract 1/8". THIS IS THE LENGTH YOU WILL CUT THE PANEL TO.

4 Cut all upper hoistway fixed panels for **ALL** floors (landings) prior to installing the first panel. This will minimize the amount of mess and damage which could occur from changing operations frequently.
   - The **BLACK** upper hoistway fixed panels are intended to be installed around the head assembly and drive train, and to cover the joist space on all thru-floor applications.
   - The **CLEAR** upper hoistway fixed panels are intended to be installed above the header ring on all remaining levels.

Figure 118
Measurement locations for upper hoistway fixed panels



5 After cutting the upper hoistway fixed panels to length, attach the provided H-channel sections to the sheet metal flange on the ceiling ring or balcony ring, as appropriate.

6 Insert the cut end of the upper hoistway fixed panel into the H-channel, then insert a door shim between the header ring and the bottom of the upper hoistway fixed panel to ensure it does not become dislodged.

7 Repeat this process for the remaining upper hoistway fixed panels on this level.

8 Ensure the panels are centered in their openings. The panel should overhang the hoistway rail by approximately 1" on each side. This will leave 1" of exposed rail between the panels.

9 Attach the snap cap base to the rail using the enclosed self-drilling/self-tapping screws.

NOTE

The snap cap base does not need to be tightened to excess. The base should be tight enough to ensure that the panels do not vibrate loose or rattle.

10 Verify that the snap cap base has the gasket facing the hoistway rail, that the base and gasket are centered on the rail, and that no screw will penetrate the upper hoistway fixed panel.

11 Repeat this process for the remaining three pieces of snap cap base on this level.

Step 56
Install lower hoistway fixed panels

Lower hoistway fixed panel installation is designed to be completed quickly and efficiently. All lower hoistway fixed panels are identical in size and shape.

1 Install a section of H-channel on the sheet metal portion of the balcony or thru-floor ring (depending on the configuration).

2 Place the lower hoistway fixed panel into the H-channel, ensuring that the notches in the panel are oriented to the **bottom half of center** as shown below, and that the panel is centered on the hoistway rails.
   - For the EMI rail, the panel should be approximately1/8" away from the edge of the EMI to allow for access to the EMI (interlock).

3 Repeat this process for the remaining lower hoistway fixed panels on this level.

4 Install the snap cap base to the rail using the enclosed self-drilling/self-tapping screws.

5 Verify that the snap cap base has the gasket facing the hoistway rail, that the base and gasket are centered on the rail, and that no screw will penetrate the lower hoistway fixed panel.

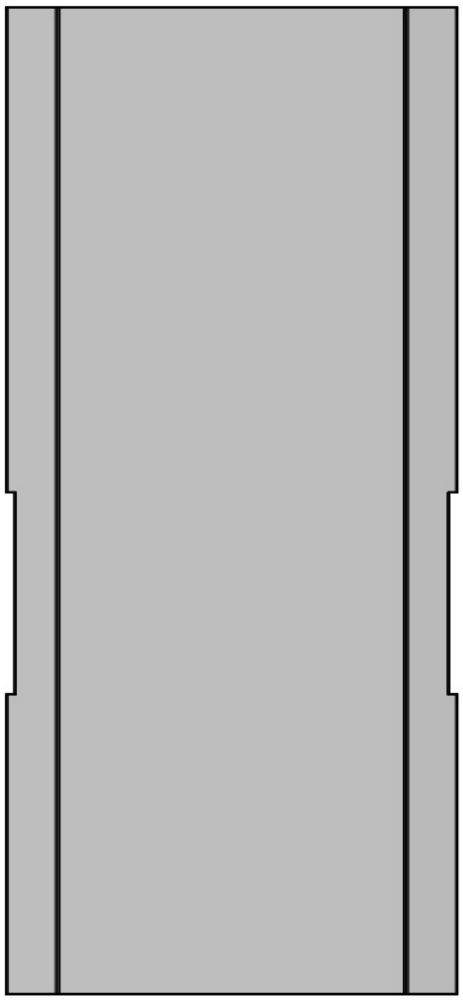
6 Repeat this process for the remaining three pieces of snap cap base on this level.

7 Ensure that the hoistway door snap cap gasket is facing the **jamb** for both sections of snap cap base.

IMPORTANT

Do **NOT** install the lower hoistway fixed panels on the first floor until the cab fixed panels are installed. This will allow for easier cleaning of the cab panel exterior.

Figure 119
Lower hoistway fixed panel notch orientation

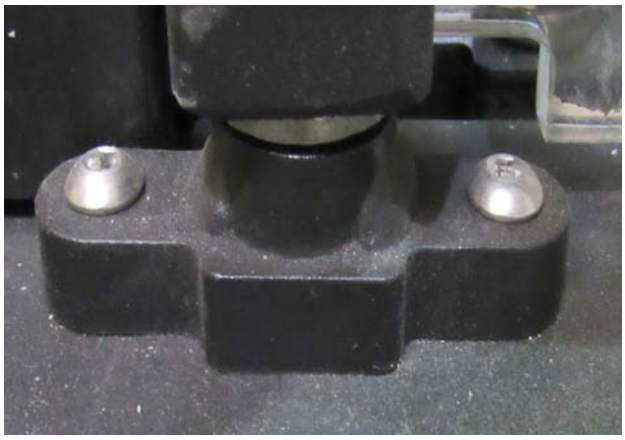


Step 57
Install hoistway doors

Vuelift products include hoistway doors which are symmetrical about the horizontal axis. This allows for field adjustable handing selection.

1 To install the hoistway door, attach the lower hinge assembly to the floor ring at the current level using the 1/4"-20 x 3/4" button head screws provided (see below).

Figure 120
Lower hinge assembly



NOTE: If a base ring is used, there is an extension as shown at the left.

2 Insert the upper hinge assembly into the top of the hoistway door hinge bar (see below).

3 Set the hoistway door on the lower hinge assembly and attach the upper hinge assembly to the header ring using (2) 1/4"-20 x 3/4" button head screws as shown below.

⚠ CAUTION

The upper hinge assembly is asymmetrical and may require adjustment to ensure that it is properly installed. The illustration below shows the proper orientation of the upper hinge assembly relative to the hoistway door jamb. Failure to properly orient the upper hinge assembly may result in damaged components.

Figure 121
Orientation of upper hinge assembly

4 Ensure the hoistway door is properly aligned.
   - The strike side of the hoistway door should interact with the inside edge of the hoistway door snap cap gasket as shown below.
   - Proper alignment of the hoistway door will prevent alignment problems when attaching the hoistway door strike plate and EMI (interlock) beak.

Figure 122
Alignment of hoistway door

5 Attach the EMI (interlock) beak to the hoistway door strike plate using the enclosed 8-32 x 1/4" flat head screws.

Figure 123
Attach beak to strike plate

6 Attach the hoistway door strike plate to the hoistway door by aligning the beak with the EMI (interlock).

7 Mark the location of the strike plate mount holes on the hoistway door.

8 Drill a 3/16" clearance hole through the hoistway door.

NOTE

When drilling through acrylic, it is advised to place a scrap of wood on the side of the panel opposite the drill bit so that when the drill bit goes through the panel it does not chip or crack the acrylic.

9 Mount the hoistway door strike plate to the hoistway door using the (2) 10-24 x 1/2" button head screws.

Figure 124
Attach hoistway door strike plate

10 Install the hoistway door handles by measuring a point 6" from the strike side of the hoistway door panel and 42" above the current floor.

11 Drill a 3/16" clearance hole through the hoistway door.

NOTE

When drilling through acrylic, it is advised to place a scrap of wood on the side of the panel opposite the drill bit so that when the drill bit goes through the panel it does not chip or crack the acrylic.

12 Using the hoistway door handle, identify the proper location of the lower hole on the hoistway door handle.

13 Mark the hole and drill a 3/16" clearance hole through the hoistway door.

14 Attach the hoistway door handles together (one on the inside and one on the outside) using the enclosed 8-32 x 2-1/4" stainless steel button head screws. Note that the inside handle has the screws holes.

Figure 125
Hoistway door handles

Step 58
Install cab fixed panels

The Vuelift cab fixed panels are designed to be installed in less than 20 minutes. The current design uses a specifically designed Velcro to ensure maximum strength and bonding capabilities between the cab rails and the acrylic panels.

The Velcro used in Vuelift elevators has a known thickness when affixed. This ensures the installer can identify properly seated panels.

1 Attach the Velcro strips to the **sides** of the cab panels. An example is shown below.
   - The Velcro should be flush with the edge of the panel along the long edge.
   - If the Velcro overhangs the panel at the end, trim the Velcro with a utility knife while ensuring that you do not scratch or cut the panel itself.

Figure 126
Attach Velcro strips to cab panel

2 To install the cab panel, place a spacer (generally a small piece of cardboard) in two places on the cab floor, as shown below, to act as a spacer for the cab fixed panel.

3 Place the cab fixed panel on the cardboard or other spacer and proceed to affix one side of the panel. Ensure that the panel is parallel to the hoistway rail. There should be 1/4" gap between the edge of the cab fixed panel and the edge of the cab rail.

4 Carefully flex the panel in the center to allow the edge of the panel to clear the opposing cab rail and affix the panel to the cab rail.

NOTE

The force required to attach the Velcro is quite high. When properly seated, the Velcro will make a snapping sound as the pieces attach to one another.

NOTE

The Velcro should have a uniform thickness when viewed from outside the cab. Note that it requires a large amount of force to attach the Velcro. Ensure you have seated the entire length of Velcro on each side of the cab fixed panel.

5 Repeat the above process for the two remaining cab fixed panels.

Figure 127
Spacers for cab panel installation

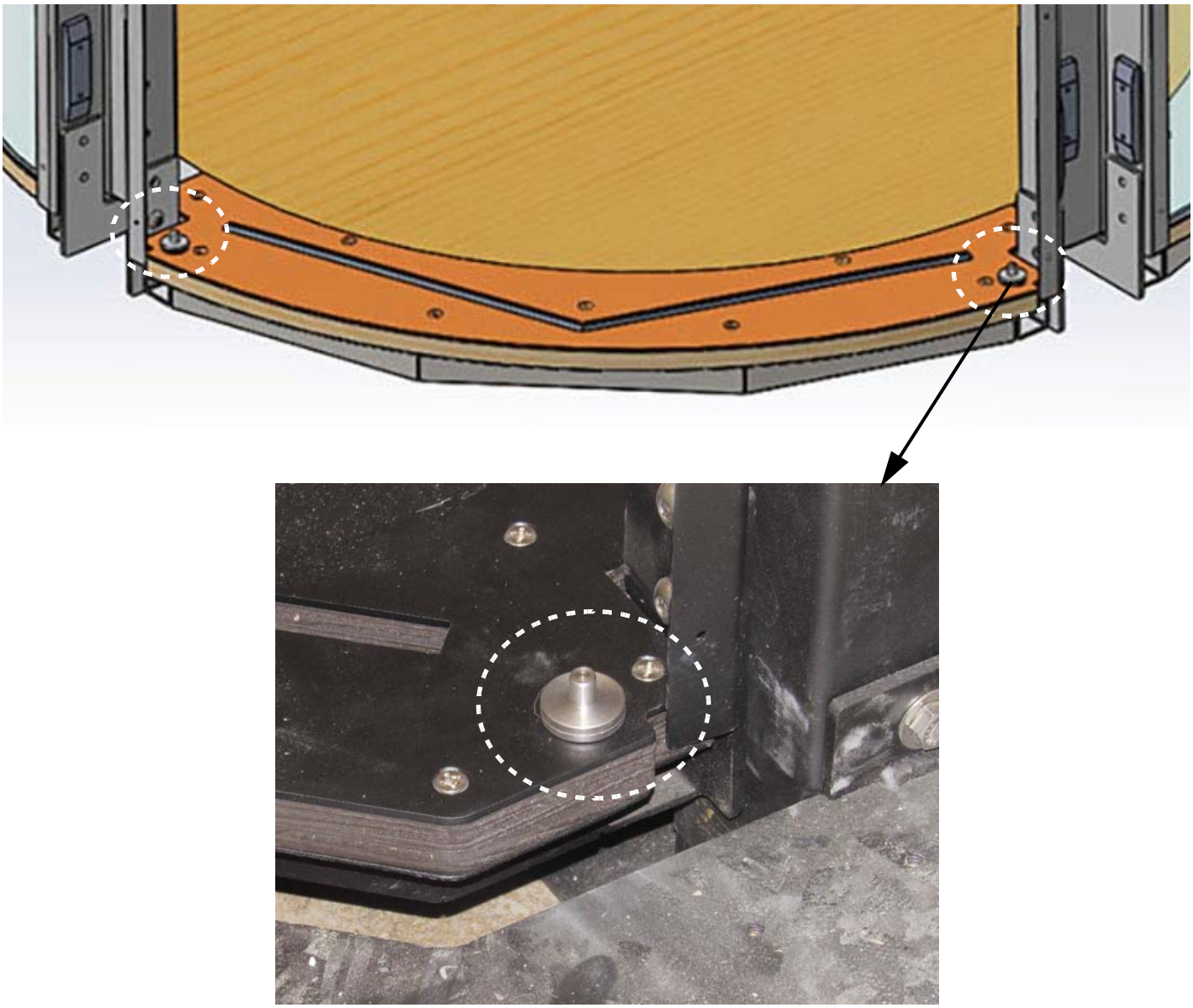
Step 59
Install bi-fold cab doors and gate switches

The bi-fold cab doors are installed into an upper and lower door track.

NOTE: Alignment of the door tracks is important to ensure successful operation of the cab door. The upper door track should be mounted directly above the lower door track through the provided holes to ensure proper operation.

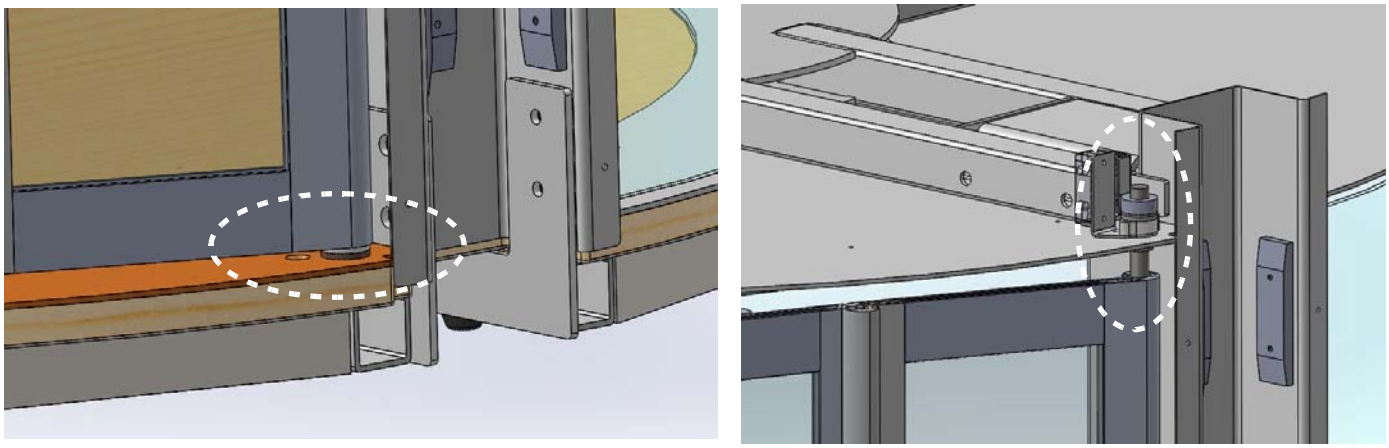
1 Install the cab door bottom hinges, one at each side (right bottom hinge is shown below). Note that you may need to make the hole in the floor bigger so the hinge will fit.

Figure 128
Cab door hinges - bottom



2 Place the door on the bottom hinge pin and then insert the top door pin through the hole in the ceiling as shown. This is where you will attach the gate switch. Repeat for the other door.

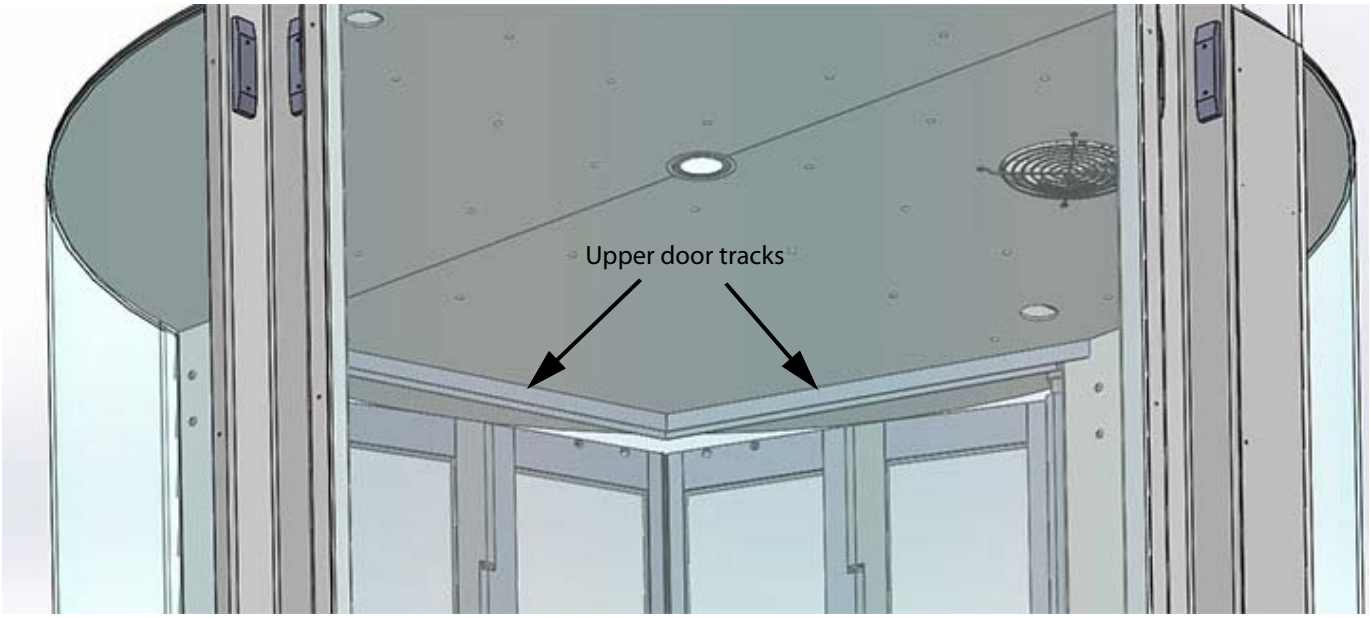
Figure 129
Cab door hinges - door in place



3 Before installing the upper door track(s), tap the pre-drilled holes on the ceiling using an 8/32" tap.

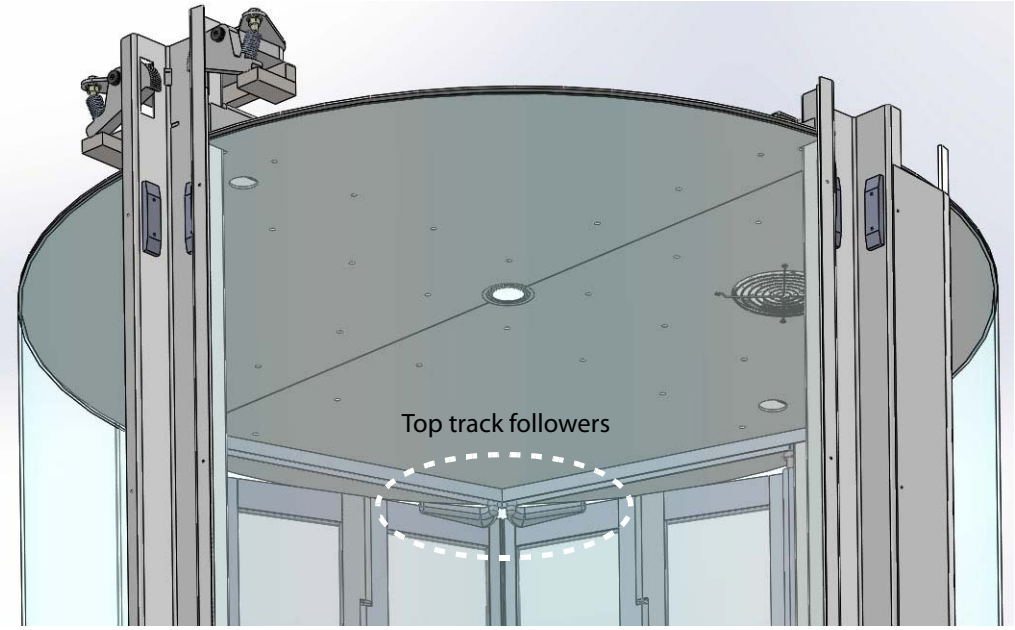
4 Attach the upper door track (s) using the screws provided; there is one long door track for an octagonal elevator and two short door tracks for a round elevator (round shown below).

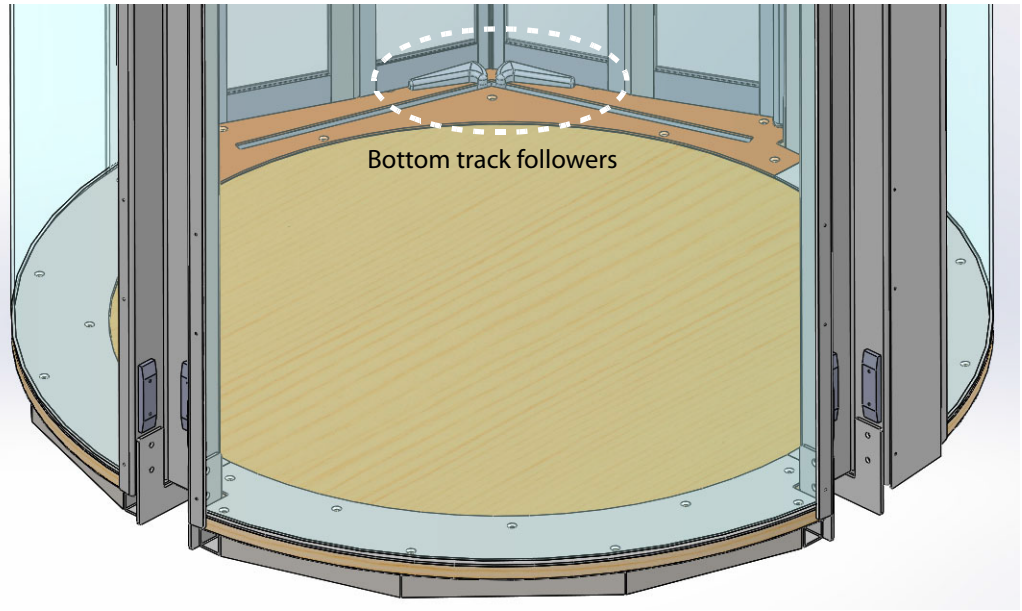
Figure 130
Upper door tracks - round elevator



5 Attach the upper and lower track followers to the bi-fold doors as shown below using (2) screws per follower.

Figure 131
Bi-fold door track followers





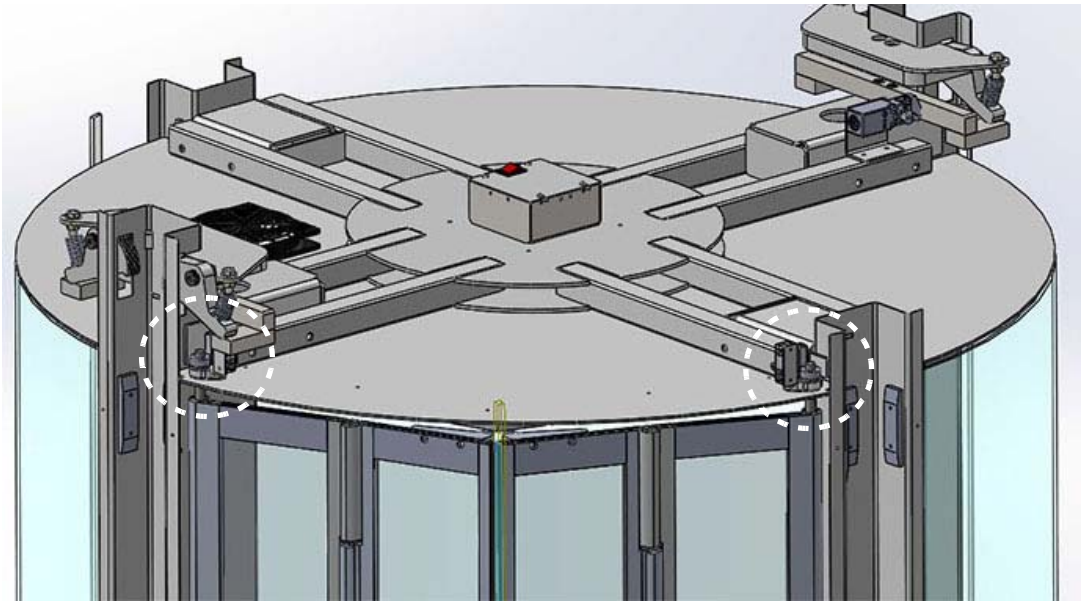
6 Install the gate switches for each door as shown below.

a. Attach the gate switch to the gate switch bracket using (2) screws. Note that the brackets are handed, left and right.

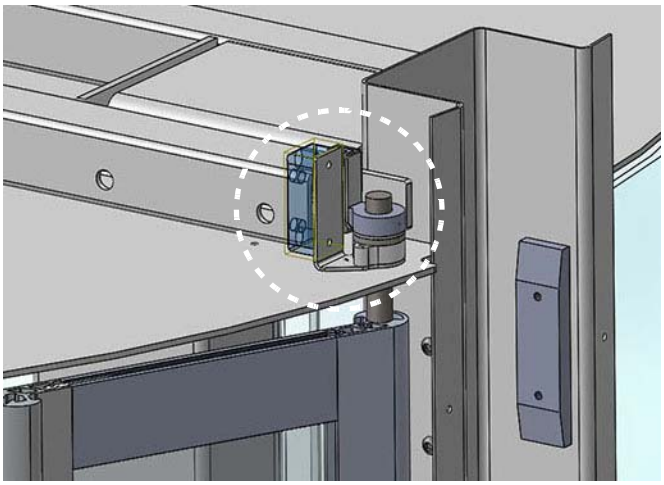
b. Run the wiring for the gate switch through the cab ceiling weldment tube to the car top stop box in the center. Connect per the Electrical Schematics shipped with the elevator.

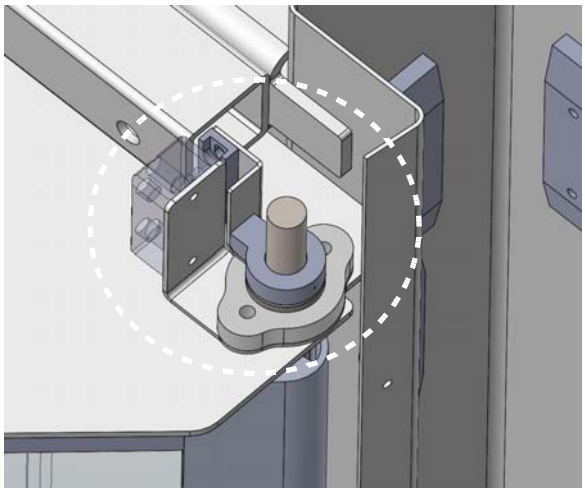
c. Repeat for the other gate switch.

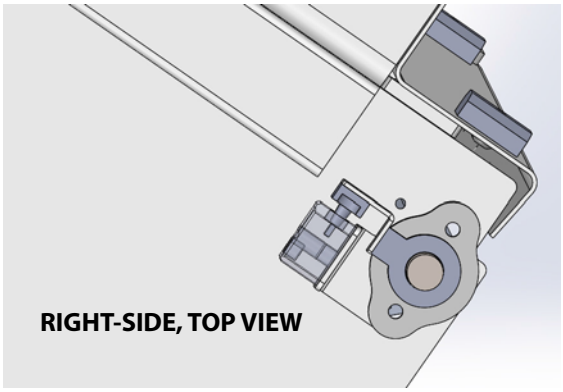
Figure 132
Gate switches



RIGHT-SIDE VIEW, LOOKING INTO THE CAR





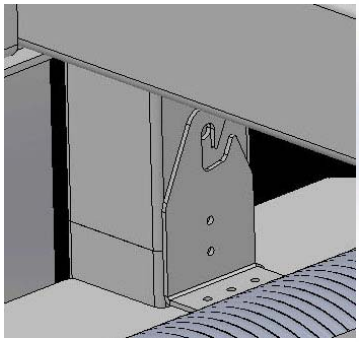


RIGHT-SIDE, TOP VIEW

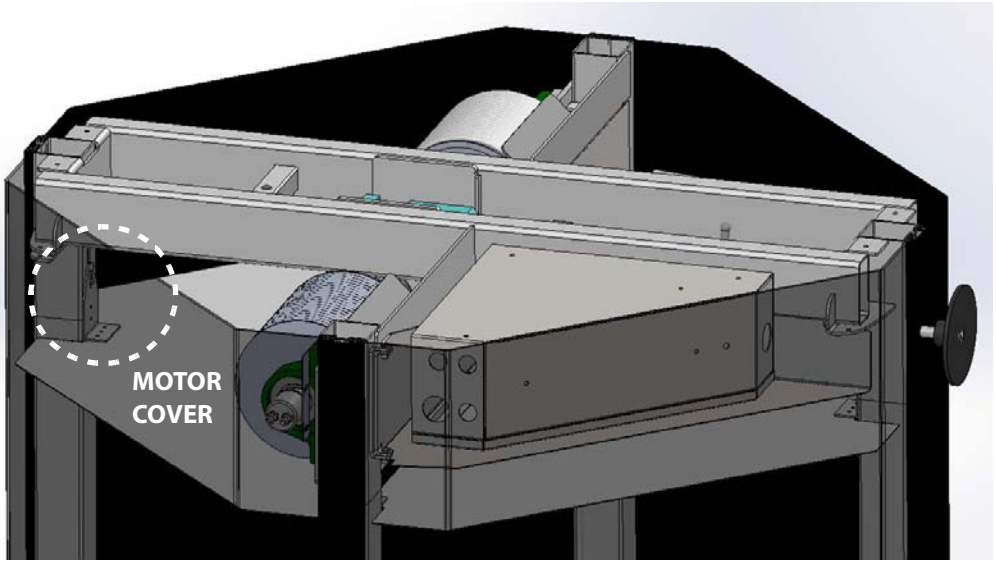
Step 60
Install motor cover

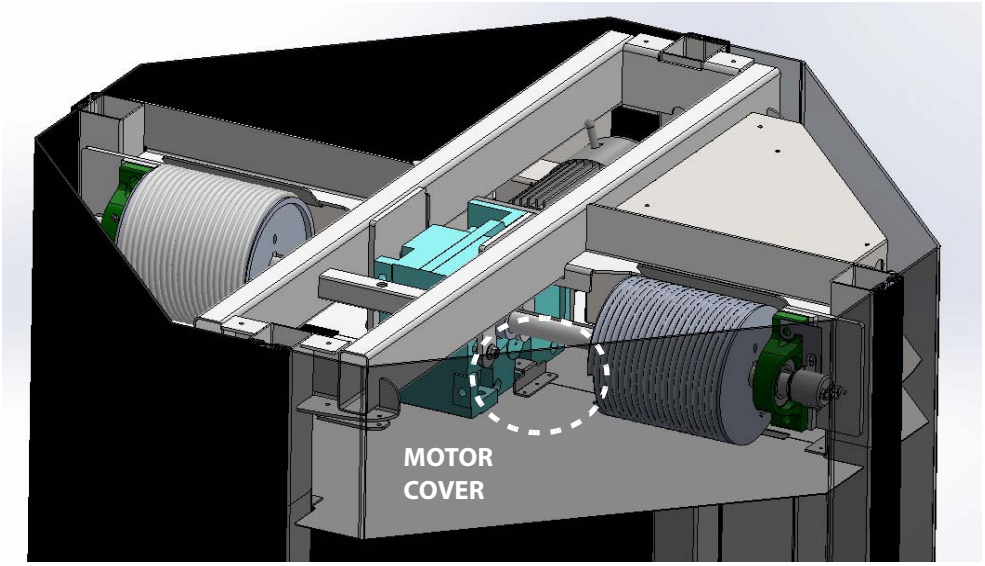
1 Secure the motor cover in place using the 4 rail mount brackets and associated hardware (1 bracket at each rail).
2 Secure the center of the motor cover to the gearbox using the 2 center support brackets and associated hardware.

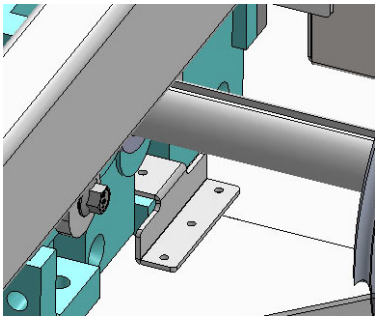
Figure 133
Motor cover and mounting brackets



RAIL MOUNT BRACKETS (X4)







CENTER SUPPORT BRACKETS (X2)

Step 61
Install snap cap cover

Measure, cut and install snap cap cover pieces over all snap cap base pieces.

1 The measurement of the snap cap cover should be the distance between the rings less 1/8".

2 The lower snap cap cover is pre-cut to the appropriate length from the factory with the exception of the cover above and below the EMI (interlock) which must be cut using the above method.

NOTE

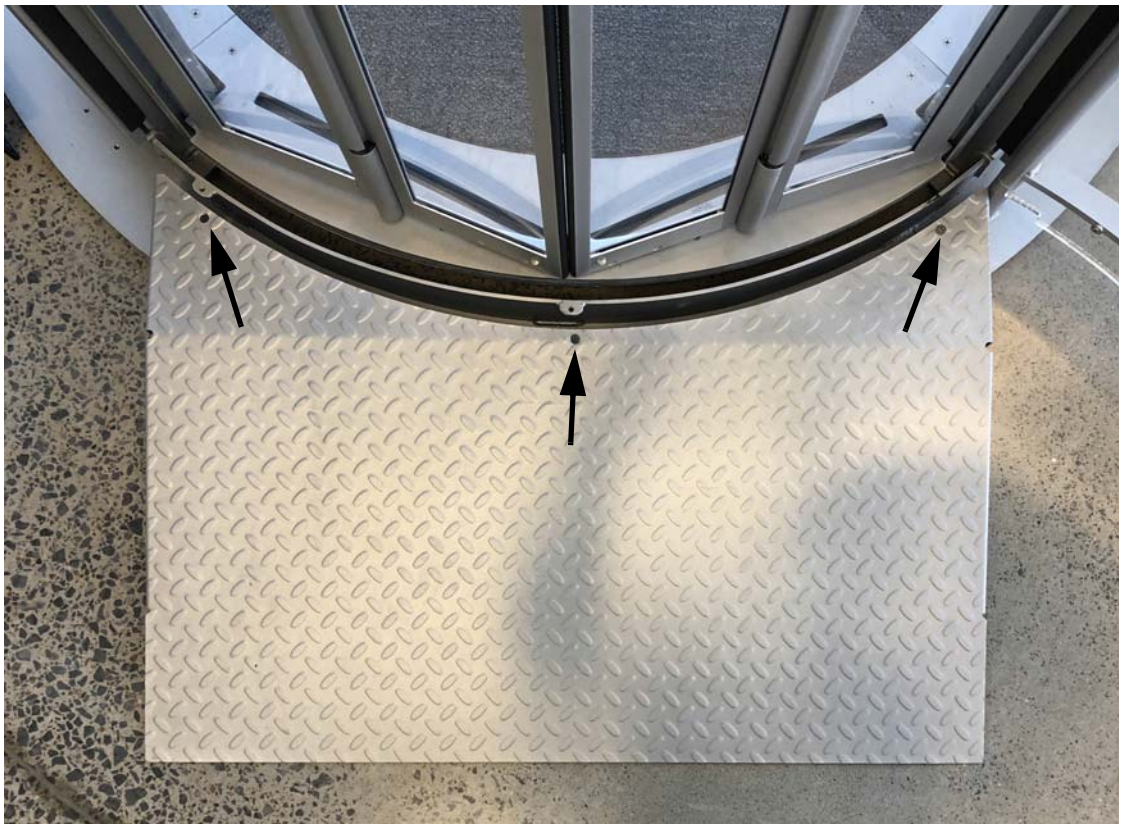
It is imperative that the EMI snap cap cover pieces are cut from a single 7-ft piece of snap cap, not from two 4-ft pieces. This will ensure that there is sufficient snap cap cover for all of the snap cap base.

Figure 134
Snap cap cover installation

Step 62
Install ramp (if base ring)

Attach the ramp to the base ring tabs at the door opening as shown below, using the countersunk screws from hardware kit PK-0001 (3 screws for round elevator; 4 for octagonal).

Figure 135
Ramp installation



INSTALLATION VERIFICATION

Verify the installation items listed below.

CAB FRAME	**VERIFIED**
Cab rail to cab floor weldment bolts are tightened completely – **8 bolts**	
Cab rail to cab ceiling weldment bolts are tightened completely - **8 bolts**	
Cotter pins are installed through rope ends and rope ends do not protrude through cab ceiling Hole plugs are installed in cab ceiling – **2 places**	
Ropes are tensioned equally	
Springs are installed in all safeties on car top – **4 places**	
Cab floor and ceilings are secured properly and all fasteners have been installed – **no open holes**	
CAB CONTROLS AND PANELS	
Emergency Stop and other COP buttons operate properly, illuminate and do not stick	
Cab light operates properly	
Slack rope switches operate properly	
Gate switch operates properly	
Car top stop switch operates properly	
Cab stops level at all landings, accelerates and decelerates appropriately	
Cab door operates smoothly	
Telephone functions and can make outbound call	
HALL CALL STATION	
Hall call buttons operate properly, illuminate and do not stick	
Interlock functions as designed, does not chatter and provides for smooth operation of the hoistway door	
Covers are over manual release levers on all interlocks Manual release lever functions properly with tool	
Hoistway doors operate smoothly and are aligned properly to maintain code clearances – **less than 3 inches between hoist way door and landing sill and less than 5 inches between cab gate and hoistway door**	
Pit plates are secured to floor at lower level (if applicable) – **2 bolts per leg**	
HOISTWAY STRUCTURE	
Header ring bolts to vertical rails have been tightened completely – **4 bolts at each floor (ring above door)**	
Balcony, thru-floor, pit and/or base ring bolts to vertical rails have been tightened completely – **4 bolts at each floor (ring below door)**	

Rings and balcony plates have been secured completely to appropriate floors and landings – **all holes are filled**	
Ramp (if applicable) is installed and secured to base ring	
Acrylic has been installed properly and is aligned appropriately in the H-channel	
Snap cap is installed and snap cap cover is secured	
HEAD ASSEMBLY	
Head assembly splines are installed completely in the rail sections below – **bolts at bottom of slot - 4 places**	
Head assembly spline bolts are tightened to finger tight + 1/4 turn	
Machine keys are *installed in both ends of the drums and the gearbox* and are secured with set screws – **6 keys**	
Rotary encoder is mounted and secured properly	
Gearbox bolts are installed properly and all **4 spacers** are between the gearbox and the head assembly weldment	
Drums are aligned properly to ensure appropriate cab operation – **when cab is at top floor ropes are vertical**	
Pillow block bearings are mounted and secured properly – **4 bolts**	
All wires are routed properly and secured so they will not interfere with moving components	
Traveling cable is properly aligned and secured	
ELECTRONICS	
Terminal/machine stop switches are installed and adjusted for appropriate overtravel	
Battery backups are installed properly and function when power is switched off at the breaker and disconnect	
Disconnects are mounted properly and appropriately sized fuses are installed	
Low voltage loop for 230V battery is wired correctly (if applicable)	

APPENDIX A: Maintenance & Troubleshooting

6-month inspection of certain components is required to maintain the Vuelift Factory Warranty. The first required service of the drive train components (motor/gearbox, drums, etc.) is after 5,000 operational hours (approximately 120,000 trips).

The 6-month inspections are listed in the table below. The inspections and maintenance procedures must be performed by a Qualified Technician. Note that rail lubrication is NOT allowed for the Vuelift hoistway or car rails.

IMPORTANT: Do NOT turn over the elevator prior to having an active phone line and having properly tested the phone or automatic dialer phone (as applicable).

Maintenance Schedule

Item	Frequency
INSIDE CAR Car interior Car controls and panel Leveling, stop, acceleration and deceleration Car door operation Ride floor to floor Car lights and ventilation Restricted opening device mechanism	6 months
OUTSIDE HOISTWAY Hall call station and lights Hoistway doors Unlocking device Firefighters' service tests (if applicable)	6 months
MACHINE ROOM Housekeeping Trash, used parts, etc. Controller and starter	6 months
TOP OF CAR Stop switch Cleanliness Top car guides Guide rails Traveling cable Doors, hangers and locks Hoistway cleaning Other Examine the ropes Leaving car top	6 months
PIT (IF APPLICABLE) Stop switch and light Cleaning Bottom car guides Traveling cable Leaving the pit	6 months
ELECTRICAL CIRCUIT OVERSPEED Plastic flywheel gear Plastic shaft bushings	6 months
BRAKES Safety brakes and motor brake	6 months
BRAKES (WITH FULL LOAD) Safety brakes and motor brake	12 months

Maintenance Procedures

INSIDE CAR

Car Interior
- Examine the car interior for damage including the ceiling, handrails, door panels, lighting and floor. Tighten all fasteners in the car panel and replace as needed.

Car Controls and Panel
- Examine the condition of the car control panels and check the operation of all lights. Replace all burnt out lights.

Leveling, Stopping, Acceleration and Deceleration
- Run the car to each floor in both directions to observe the leveling accuracy, stopping, acceleration and deceleration. Adjust as needed.

Car Door Operation
- Observe the door for proper operation including smooth movement, starts and stops, and alignment.

Ride Floor to Floor
- Run the car from floor to floor and observe for smooth travel and unusual noises. Adjust or repair as needed.

Car Lights and Ventilation
- Verify proper operation of the car emergency light and ensure adequate ventilation.

Restricted Opening Device Mechanism
- Examine the restricted opening device mechanism (if applicable) for proper operation and adjust as needed.

OUTSIDE HOISTWAY

Hall Call Stations and Lights
- Examine the hall stations for condition and replace all burnt out lights. Observe operation of the audible signal when the Emergency Stop is activated.

Hoistway Doors
- Examine the door panel and clearance between the panel and entrance frames. Examine proper interlock functionality and operation. Adjust as needed.

Unlocking Device
- Examine the hoistway door unlocking device for damage. Repair or adjust as needed.

Firefighters' Service Tests
- Check for proper operation of the firefighters' service and record in test log (where applicable).

MACHINE ROOM

Housekeeping (Required with Remote Controller Option)
- Clean the machine room floor to prevent slipping and trip hazards, fire hazards and contamination of the equipment. Ensure the machine room is not being used for storage; inform the customer of any violation.

Trash, Used Parts and Oil
- Ensure that all trash is discarded after maintenance is complete.

Controller and Motor Starter
- Examine the controller and motor starter for:
  - Cleanliness
  - Condition of contacts and remaining contact material
  - Fuses for correct size and fit in holders and corrosion in fuse holder
  - Relays for worn shunts and signs of overheating
  - Evidence of overheating

TOP OF CAR

Stop Switch
- Verify the car will not run with the stop switch in the STOP position.

Cleanliness
- Clean all debris from the car top.

Top Car Guide
- Examine car rail to hoistway rail conditions at the car top. Note any abnormal wear patterns or changes in alignment.

Guide Rails
- Examine the car rails for loose fastenings and fit at all joints.

Traveling Cables
- Examine the traveling cables for wear, chafing, kinking and alignment. Examine the attachment points for secure fastening and looseness.

Door Hangers, Locks, etc.
- Verify the interlock is functioning properly.
- With the door open, attempt to move the car using the hall call and COP buttons.
- Observe the door closing for any roughness in bearings, inconsistent operation, or misalignment.

Hoistway Cleaning
- Clean dirt and trash from all horizontal surfaces including the car and entrance sills.

Other
- Observe any problems with or within the hoistway that should be addressed such as:
  - Unauthorized equipment installed in the hoistway
  - Damage to the hoistway enclosure which would affect its fire resistance rating
  - Evidence of intentional acts
  - Any evidence of unauthorized people entering the hoistway

Examine the Ropes
- Examine the car ropes for equal tension, and visually inspect for any frays or deformation of the ropes which would negatively impact their strength.

Leaving the Car Top
- Clean up and dispose of debris properly. Return the car to normal operation and the stop switch to the RUN position.

PIT (IF APPLICABLE)

Stop Switch
- Examine the operation and condition of the stop switch. Repair as needed.

Cleaning
- Clean the pit. Examine the bottom level landing sill and clean as needed.

Bottom Car Glides
- Examine car rail to hoistway rail conditions at the car bottom. Note any abnormal wear patterns or changes in alignment.

Traveling Cables
- Examine the traveling cables for wear, chafing, kinking and alignment. Examine the attachment points for secure fastening and looseness.

Leaving the Pit
- Remove all tools and verify operation of the elevator.

BRAKES

Verify proper operation of the safety brakes and the motor brake. Check with full load every 12 months.

Standard Cleaning Procedures

NOTE

The customer can perform the Standard Cleaning Procedures provided below.

DANGER

Under no circumstances should a customer attempt to remove panels for cleaning!

Clean the acrylic panels with a mild soap and water solution or with acrylic cleaner. A few precautions must be taken to ensure a long operating life and to maintain the acrylic panel clarity on your unit.

NOTE

DO NOT use any cleaning product that contains ammonia or petroleum. *This includes Windex ® and most traditional glass cleaners.*

WASHING

Wash the acrylic panels with a solution of mild soap or detergent and lukewarm water. Use a clean soft cloth, applying only light pressure. Rinse with clean water and dry by blotting with a damp cloth or chamois.

NOTE

DO NOT USE: *Window cleaning sprays, kitchen scouring compounds or solvents such as acetone, gasoline, benzene, alcohol, carbon tetrachloride, or lacquer thinner. These can scratch the sheet's surface and/or weaken the sheet causing small surface cracks called "crazing.".*

DUSTING

Dust with a soft, damp cloth or chamois. Dry or gritty cloths may cause surface scratches and create a static electric charge on the surface (refer to the section on Neutralizing Static Electricity).

POLISHING

Protect the acrylic panels and maintain their surface gloss by occasional polishing with a good plastic cleaner and polish (refer to the section on Cleaners for a list of acceptable cleaners and polishes).

Apply a thin, even coat with a soft clean cloth and polish slightly with cotton flannel or a microfiber towel. Then wipe with a damp cloth to help eliminate electrostatic charges that can attract dust particles.

NEUTRALIZING STATIC ELECTRICITY

A static electrical charge can develop on the acrylic panels during handling and processing. This is not unique to the acrylic panels, but is common to many materials, particularly plastics.

When the paper or film masking is stripped off the acrylic sheet, a static charge is created on the sheet surface. Static electricity attracts dust, chips, etc. floating in the air or on nearby work surfaces and holds these contaminants tightly to the surface. A compressed air gun will remove some of this surface dirt, but much of it continues to cling to the sheet.

Several anti-static cleaners for plastics are also available which will reduce static electricity and dust attraction. Wiping with a soft damp cloth or chamois is all that is necessary to keep the acrylic panels dust-free between applications of these cleaners.

NOTE

A de-ionizing tool can be used during installation to eliminate a majority of the static electricity (causes the dust to fall away).

CLEANERS

Cleaners which ***MAY BE USED:***

- Plexus® (Anti-Static Cleaner)
- Novus® #1 Acrylic Cleaner and Polish
- ATM Mirage Glass and Acrylic Cleaner
- Zep® Commercial Glass Cleaner (must state for use on Plexiglas®)
- Plexi-Clean (Anti-Static Cleaner)
- Prist Aerospace Anti-Static Acrylic, Plastic & Glass Cleaner
- Cleaners which explicitly state "Safe for use with plastics and acrylic"

Cleaners which ***MAY NOT BE USED:***

- Windex® Glass Cleaner
- Sprayway Ammonia-Free Glass Cleaner
- Goo-Gone®

These above lists are for reference only and are not comprehensive. If you have any questions about the acceptability of a specific cleaner, please contact your authorized dealer.

Note that damage caused by inappropriate cleaners and techniques is not covered under warranty.

Cleaning Between Panels (Typical Environments)

NOTE

This procedure must be performed by a Qualified Technician only.

Fingerprints, oils or other contaminants in between the car and hoistway panels is very rare. In a typical home, there is only dust that needs to be removed.

Therefore, cleaning in between the panels can be accomplished from the car top using a Swiffer-type duster (a small square dust mop with a rectangular head and a swivel end on a long handle).

This will allow you to reach in between the panels to clean the OUTSIDE of the car panels and the INSIDE of the hoistway panels.

Cleaning Between Panels (Extreme Environments)

NOTE

This procedure must be performed by a Qualified Technician only.

DANGER

Be very careful when removing panels for cleaning!

To clean the OUTSIDE of the car panels and the INSIDE of the hoistway panels, you need to remove the hoistway panels.

The following tools and materials are required:

- 19mm open-end wrench
- Piece of cloth/towel
- 5/16" nut driver
- Approved cleaner and clean soft cloth per the Standard Cleaning Procedures on the previous page

1 Start at the bottom of the panel to remove the snap cap cover.

a. Place a piece of cloth/towel on the panel and around the snap cover to avoid damaging the panel.

b. Insert the open end of the wrench in between the aluminum snap cap cover and the rubber snap cap extrusion.

c. Pry on the wrench while pushing the wrench into the rubber and this will slowly pop off the snap cap cover.

2 Remove the snap cap cover.

3 Once the snap cap cover is removed, use a 5/16" nut driver to remove the snap cap base.

4 Repeat steps 1 to 3 for the snap cap cover and base at the other side of the panel.

5 Tilt the hoistway panel out of the H-channel at the bottom and remove it for cleaning.

6 Clean the hoistway panel and the car panel per the instructions in the Standard Cleaning Procedures. **Be sure to use only approved cleaners**.

7 When both the car panel and the hoistway panel are clean, reinstall the hoistway panel ensuring the bottom is inserted into the H-channel.

8 Attach the snap cap base at both sides of the panel to secure the panel in place.

9 Attach the snap cover at both sides of the panel. Engage one edge with the base and use a rubber mallet as needed to snap the cover into place.

10 Repeat this entire procedure for all panels.

Removing Scratches From Panels

NOTE

This procedure must be performed by a Qualified Technician only.

DANGER

Be very careful when removing panels!

To remove scratches from an acrylic panel, remove the panel as needed. Refer to the previous procedure for instructions on removing panels.

You will need to purchase some attachments for your drill in order to use it as a polisher (drill adapter with shank, sponge pads, and woolen buffer pad - see the photo below). You can purchase these attachments as a polishing kit.

Drill adapter and sponge pad

Woolen buffer pad

Scratch removal and cleaning compounds

Here is a sample online link where you can purchase a polishing kit:

https://www.amazon.com/Fontic-Compound-Buffing-Sanding-Polishing/dp/B01M2WS3BM/ref=sr_1_5?ie=UTF8&qid=1541018824&sr=8-5&keywords=polishing+kit+drill

Here is a sample online link where you can purchase th e cleaning and scratch removal compounds:

https://www.amazon.com/Novus-7100-Plastic-Polish-Kit/dp/B002UCYRZU/ref=sr_1_1?ie=UTF8&qid=1541018878&sr=8-1&keywords=novus+plastic+polish

Once the panel is removed, follow the steps below to remove any scratches.

PREPARATION

1 Be sure to cover the surrounding area (using plastic and tape) where you will be working with the panel. The cleaning and polishing process can be messy.

2 Use water to wet the area around the scratch (about 24" from the scratch). You should spray water on any area of the panel where you don't want the compound to stick. This is important because once the compound dries it is very difficult to remove.

CLEANING

3 Once the panel is ready, use Novus product #1 to clean the scratch and the surrounding area.

4 Make sure the entire area where you will use the products on the panel stays clean.

5 Make sure the pads are clean so they won't scratch the panel.

POLISHING

6 Once everything is clean, put some Novus product #3 on the buffer pad.

7 First, apply the product to the surface of the panel without motion.

8 Then, slowly start to work the product onto the surface of the panel. Be patient and make sure the drill speed is not too fast.

9 Be sure to move the buffer pad all around the panel and not stay in one place too long.

10 When the product starts to dry, apply more.

11 Eventually the product will disappear and the scratches will be gone.

GLOSSING

12 Once you are satisfied with the job, repeat the above process with Novus product #2 to gloss the surface.

FINAL CLEANING

13 Finish up with a final cleaning of the panel using Novus product #1 again.

14 Remove all tape and plastic that was used to cover the surrounding area.

15 Clean off any compound with hot water.

16 Perform a final cleaning and treatment on the panel using Plexus® (Anti-Static Cleaner).

17 Reinstall the panel into the unit.

Troubleshooting

A basic set of diagnostic tools is provided through the call buttons. During normal operation, the call buttons flash either slowly or quickly, depending on the operation. These same flashes can assist in diagnosing potential operational issues.

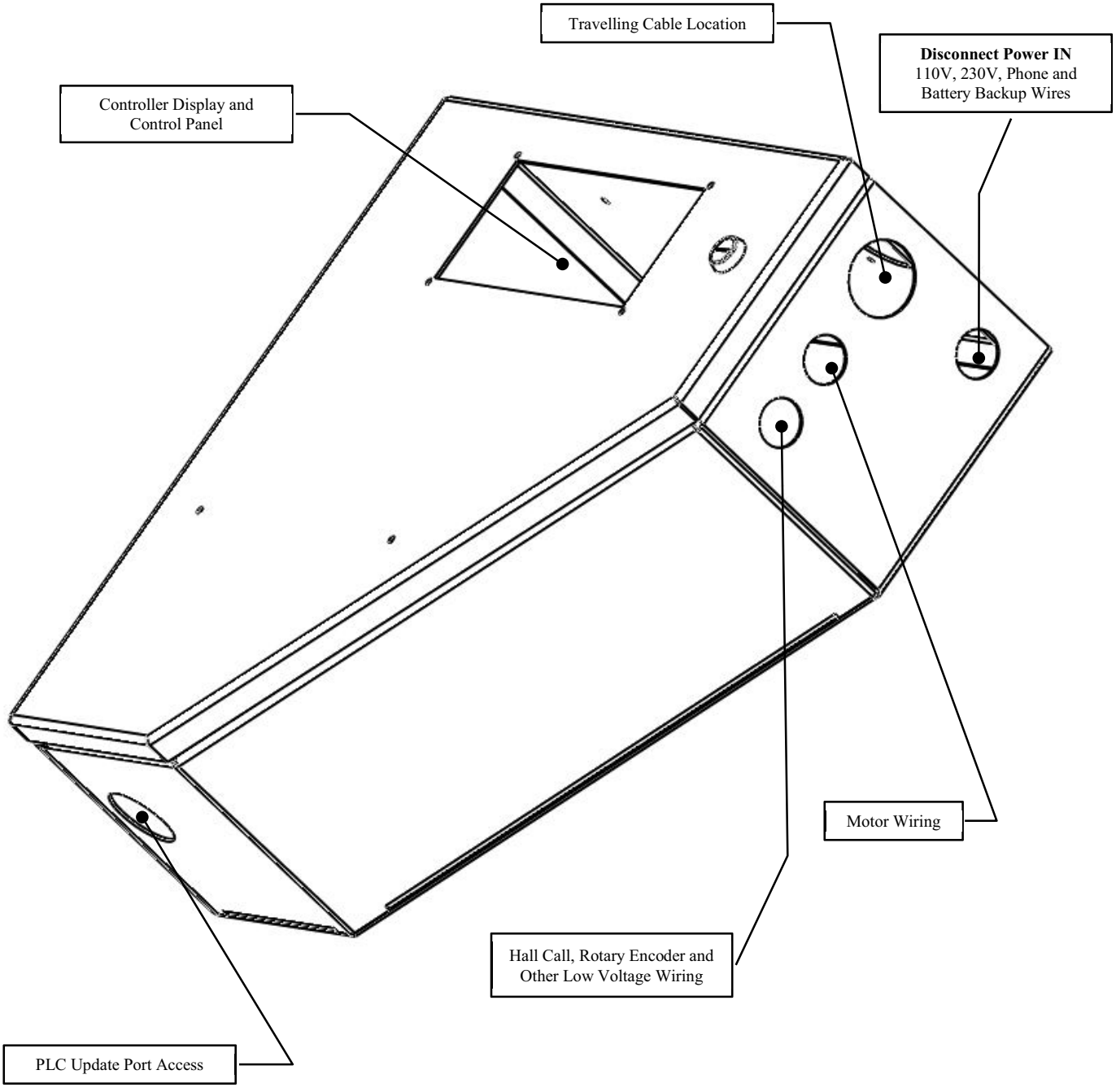
- **Quick Blinking Call Button** - This signals that the hoistway door is ready to open at a landing.
- **Slow Blinking Call Button** - This signals that there is a break in the safety chain, (for example, the hoistway door is open, the car door is open, or a safety has been tripped).

The following table lists potential problems and their possible solutions.

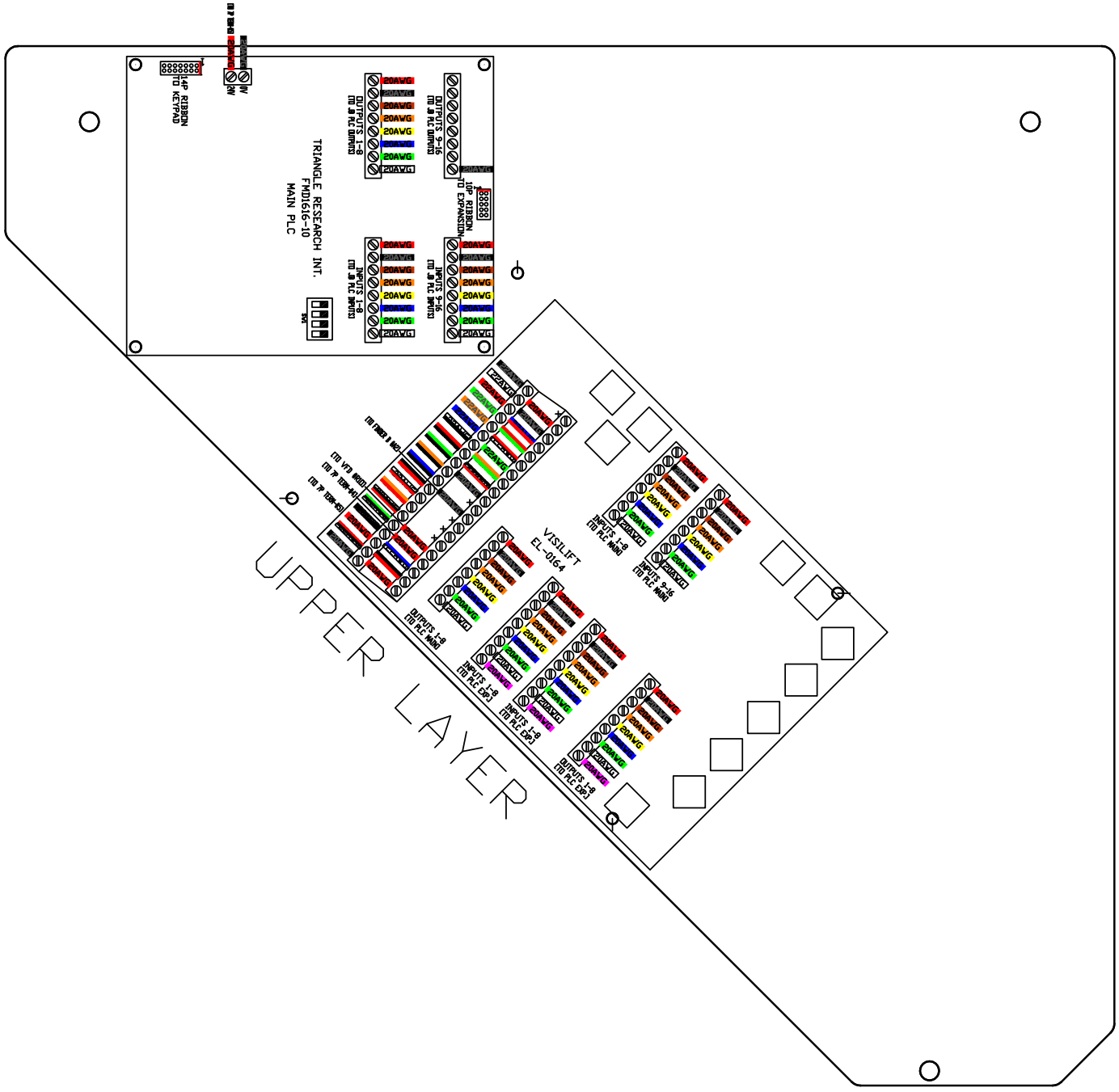
Potential Problem	Possible Solution
The elevator will not move when the button is pressed.	Check to make sure the car door is closed completely and free of any obstructions. If the car door is not completely closed, the buttons inside the car will blink slowly (or one may be blink quickly while the others blink slowly).
The elevator stopped moving while riding in it.	CAR DOOR OPTION - Check to make sure the car door is closed completely and free from any obstructions. If the door has been inadvertently opened during operation, the unit will stop. Close the door completely and press the button again for the desired floor. LIGHT CURTAIN OPTION - Something is protruding past the light curtain. Remove the obstruction and the car will return to normal operation. It is also possible there was a power spike or drop in the area which may have caused the elevator computer to reset. Press the button again for the desired floor. If this does not solve the problem, toggle the Emergency Stop switch from “Run” to “Stop” and then return to “Run”. Press the button again for the desired floor.
The button outside the elevator is blinking slowly and the car is not at the required landing. When the button is pressed, the elevator will not come up.	The hoistway door on a level below where you are is not closed. Close the open hoistway door and try pressing the button again. The car door is not closed. Close the car door and try pressing the button again. There is a problem with one of the safeties. Contact your authorized dealer to schedule a service call.
The elevator has gone past the top/ bottom landing and now it won’t move.	The elevator is actuating the final terminal stop switch or the slack cable switch. Contact your authorized dealer to schedule a service call.
The elevator was installed not too long ago, but now when it stops at the floor, the car is below the floor level.	During the first six months to a year, the elevator cables may stretch slightly. This is normal. It may be necessary to contact your authorized dealer to come and adjust the floor heights.
There were a few people riding in the elevator at the same time, and when the button was pressed to go up/down, the elevator moved and then stopped.	It is possible that the capacity of the elevator was exceeded. Turn the power to the elevator off at the disconnect switch, wait 30 seconds, then turn the power back on. If this does not solve the problem, contact your authorized dealer to schedule a service call.
The light stays on for a long time in the elevator car.	Code requires that the light in the elevator car stay on for a minimum of 5 minutes from the last time the safety chain was broken (i.e. the car or hoistway door was open or closed, or a button was pressed). If the car light stays on for longer than 10 minutes, it is possible that there may be a power failure on the car light circuit. The car light will also be illuminated if there is a break in the safety chain (i.e. a door is open). Once the safety circuit is corrected, the light should turn off within 10 minutes. If the light remains illuminated, contact your authorized dealer to schedule a service call.
The elevator came equipped with a light curtain. When the button is pressed, the elevator did not move but the button is illuminated completely.	There is an obstruction between the light curtain send and receive units. Remove the obstruction and the unit will begin to move. The light curtain may be dirty. Clean the light curtain using plastic cleaner and a soft cloth.

APPENDIX B: Electrical Information & Schematics

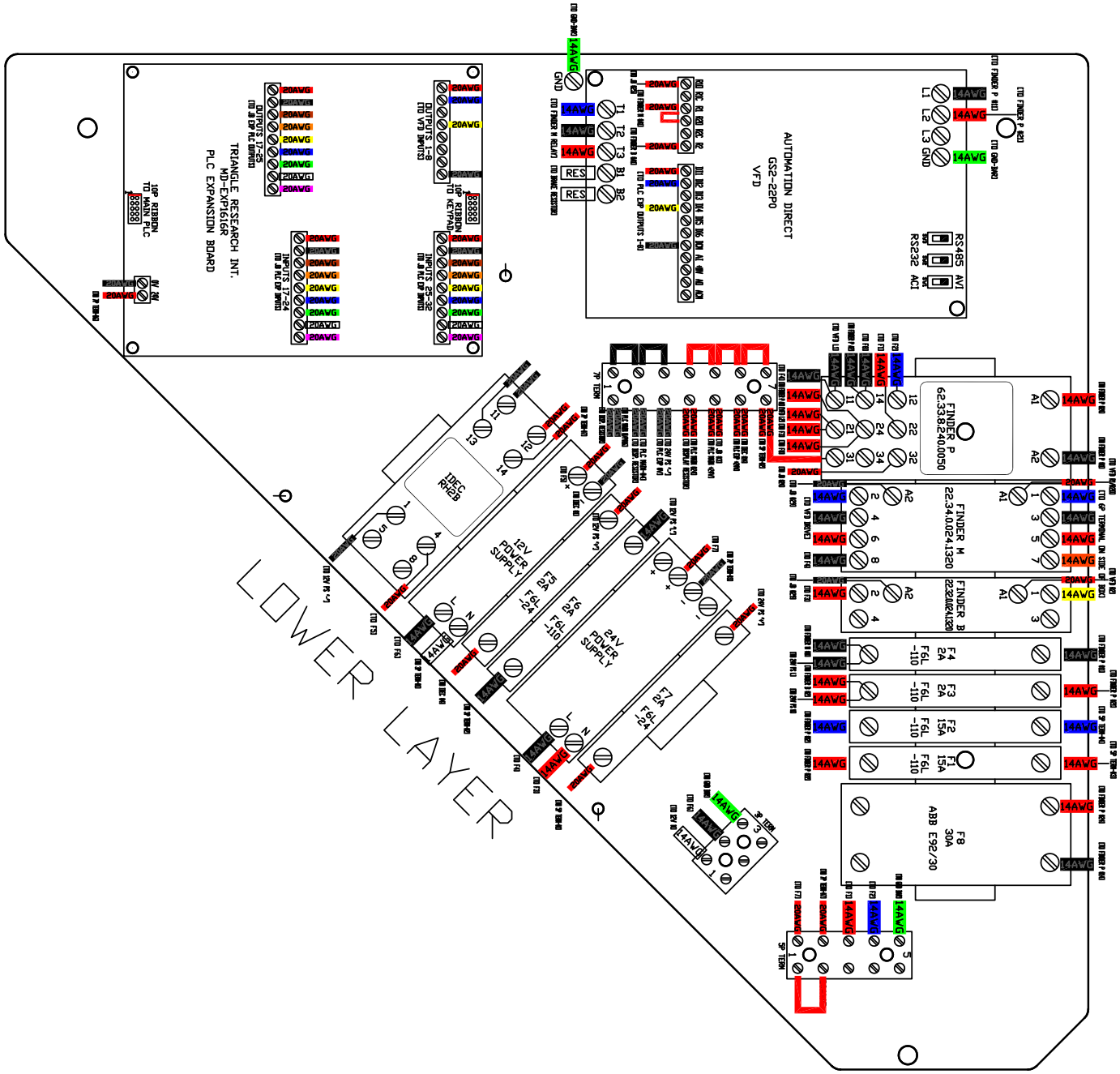
Controller Exterior Wiring Locations



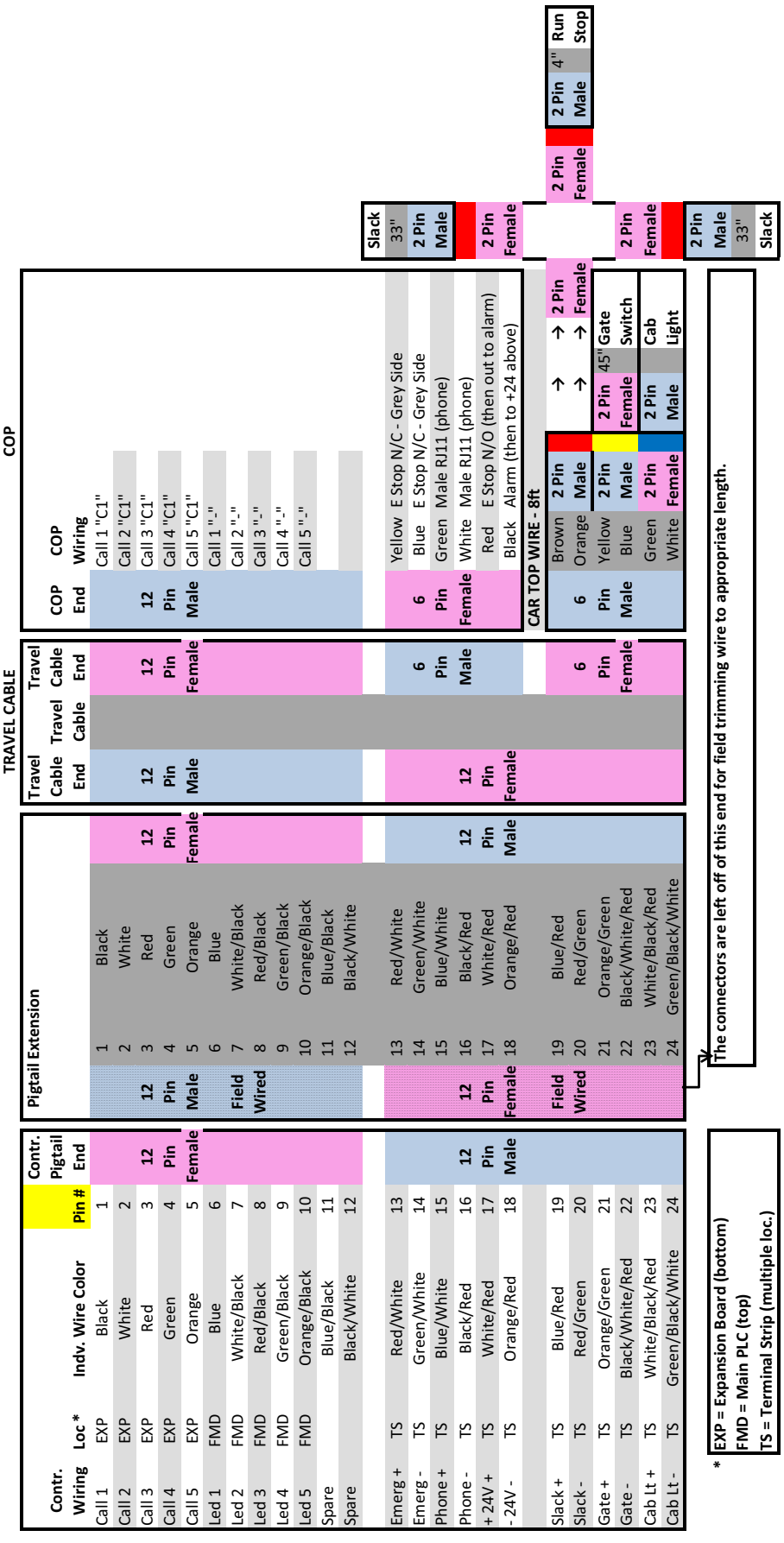
Controller Interior Layout (Upper Layer)



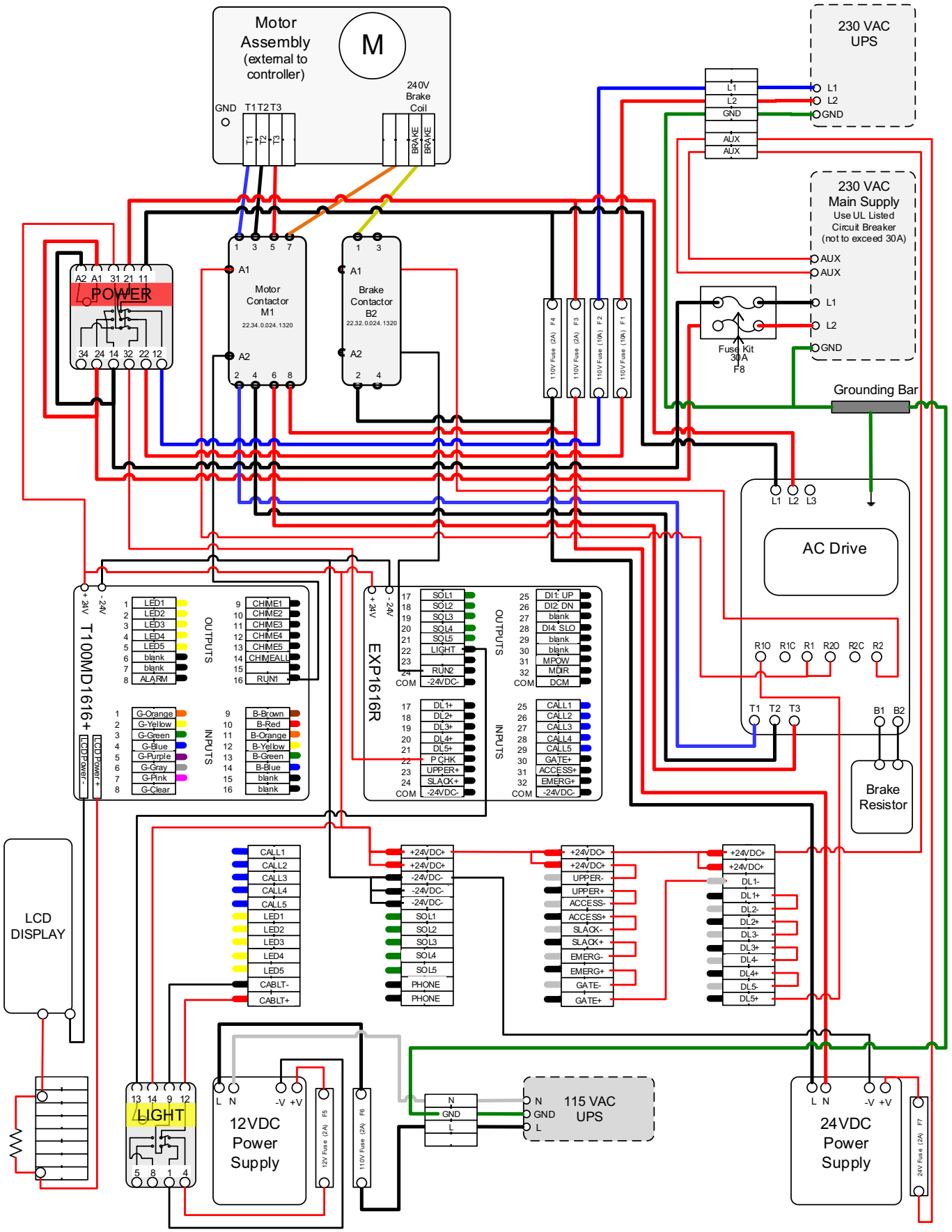
Controller Interior Layout (Lower Layer)



Remote Controller Wiring



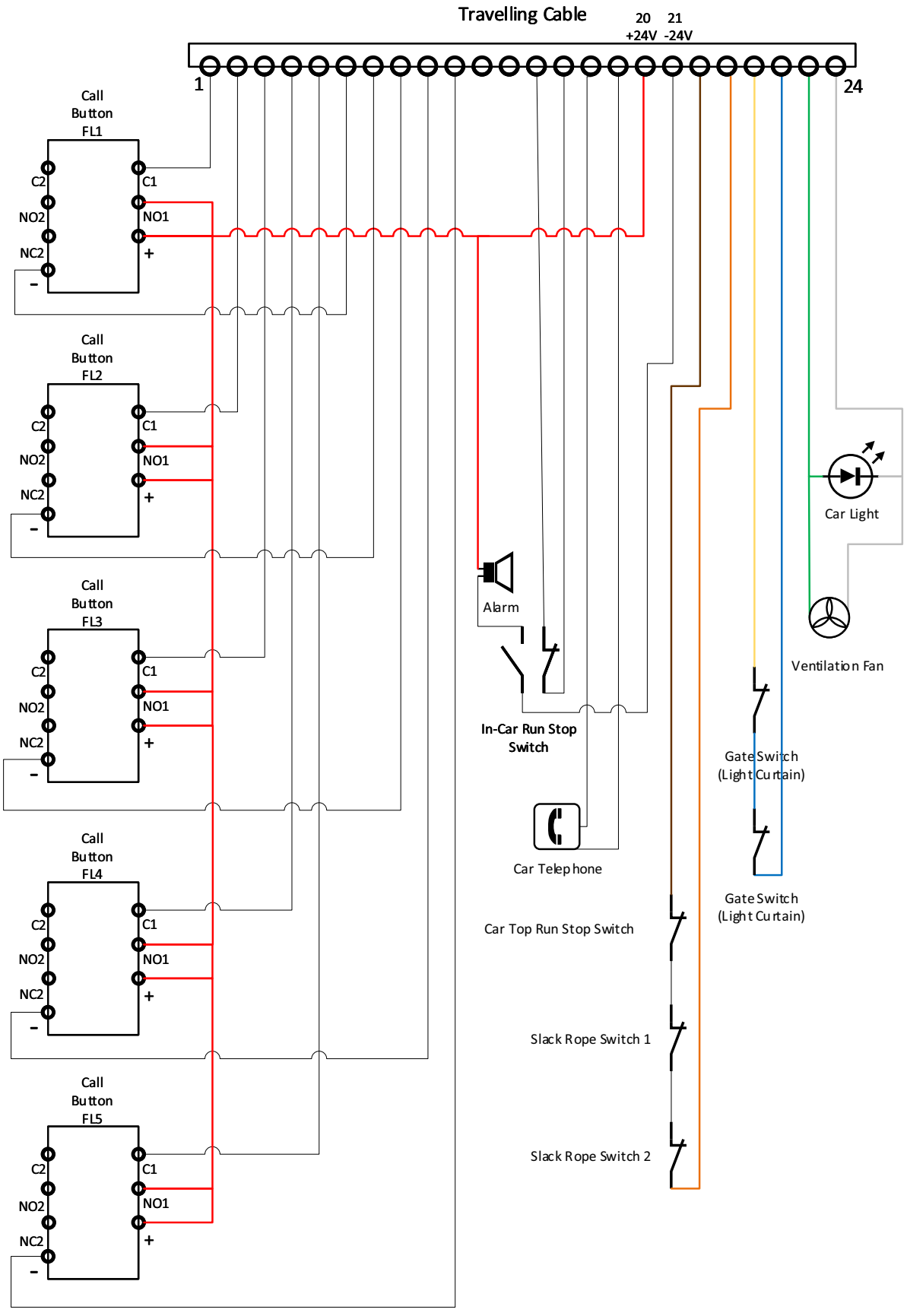
Controller Wiring (with Rotary Encoder)



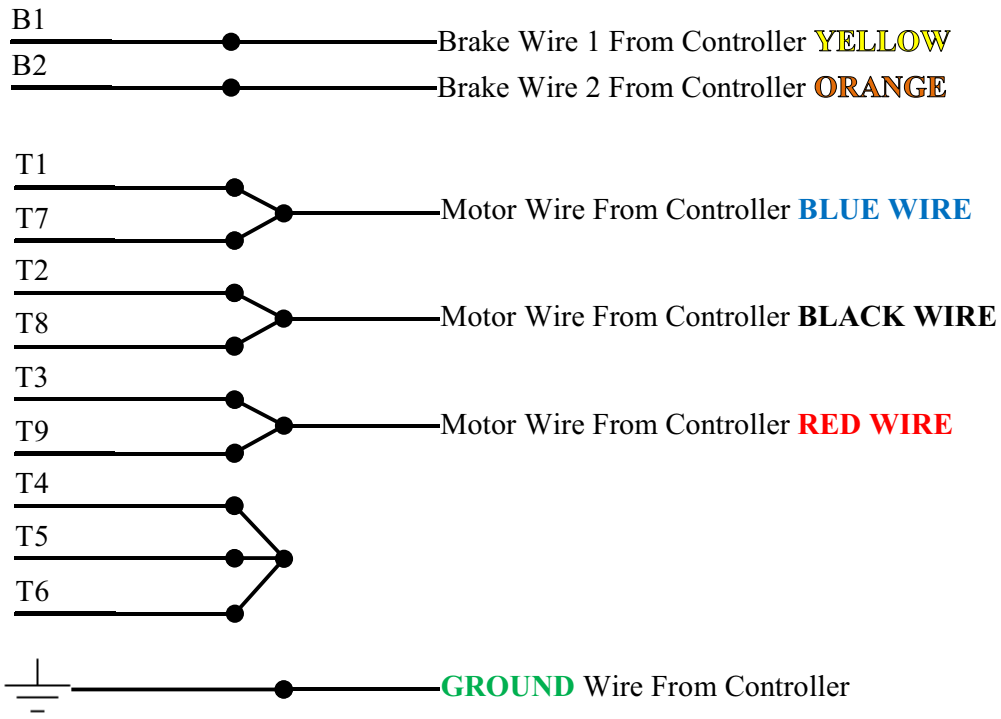
Traveling Cable Conductor Numbering

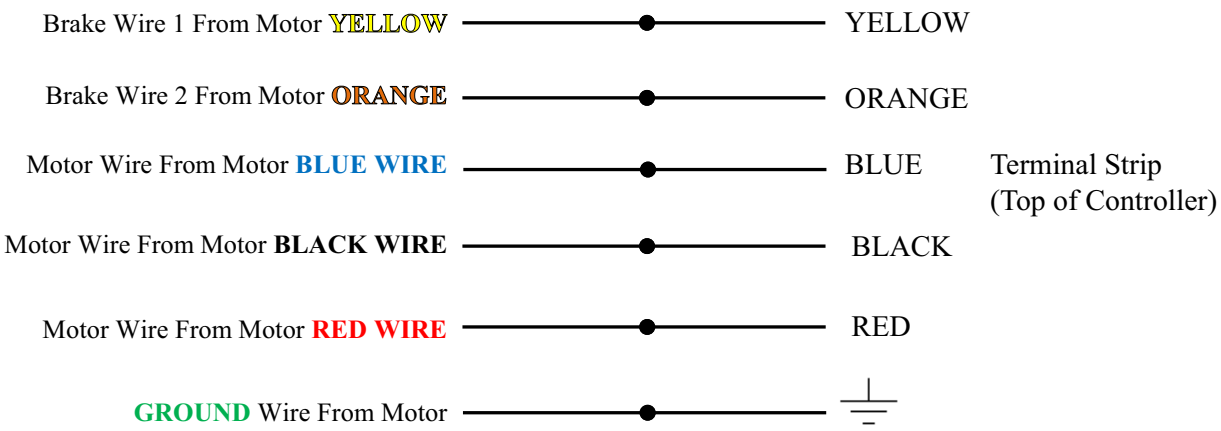
Travel Cable Conductor Number	Controller Location
1	CALL 1
2	CALL 2
3	CALL 3
4	CALL 4
5	CALL 5
6	LED 1
7	LED 2
8	LED 3
9	LED 4
10	LED 5
11	GATE +
12	GATE -
13	EMERG +
14	EMERG -
15	SLACK +
16	SLACK -
17	PHONE +
18	PHONE -
19	CABLT +
20	CABLT -
21	**NOT USED**
22	
23	+ 24VDC +
24	- 24VDC -

Traveling Cable to COP Wiring



Motor and Brake Wiring





Car Top Control Wiring and Color Scheme

COLOR	USE	
BROWN	SLACK +	Traveler # 15
ORANGE	SLACK -	Traveler # 16
YELLOW	GATE +	Traveler # 11
BLUE	GATE -	Traveler # 12
RED	<NOT USED>	
BLACK	<NOT USED>	
GREEN	CAB LIGHT +	Traveler # 19
WHITE	CAB LIGHT -	Traveler # 20

NOTES:

BROWN and ORANGE wires are wired in ***SERIES*** with both Slack Rope Switches and the Car Top Stop Switch. See **Traveling Cable to COP Wiring** for a detailed wiring schematic.

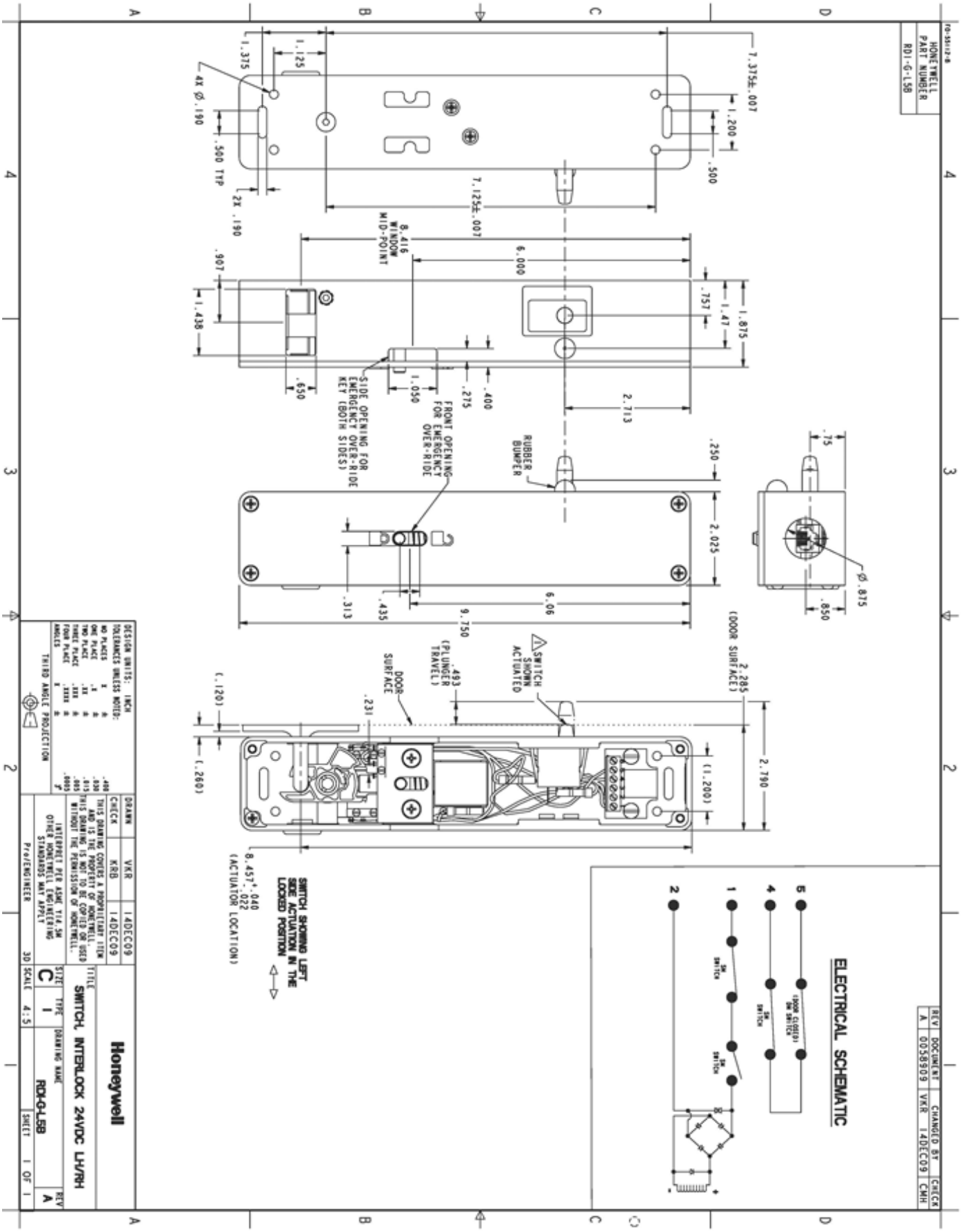
Cab Light is ***POLARITY SENSITIVE***. The GREEN wire needs to be wired to the RED wire on the Cab Light and the WHITE wire needs to be wired to the BLACK wire on the Cab Light. If the Cab Light does not illuminate when power is applied, check to ensure the light has been wired properly.

Rotary Encoder to PLC Wiring

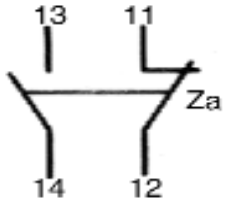
ROTARY ENCODER WIRING to PLC EXPANDER BOARD			
TERMINAL STRIP NUMBER	***GREY*** WIRE COLOR	TERMINAL STRIP NUMBER	***BLACK*** WIRE COLOR
1	Orange	9	Brown
2	Yellow	10	Red
3	Green	11	Orange
4	Blue	12	Yellow
5	Purple	13	Green
6	Gray	14	Blue
7	Pink	15	<NOT USED>
8	Clear	16	<NOT USED>

Thin **BLACK** conductors from both wires go to -24V.
Note: Thick BLACK wires are shielding wires and not required to be wired.
WHITE conductors from both wires go to +24V.

Honeywell Interlock

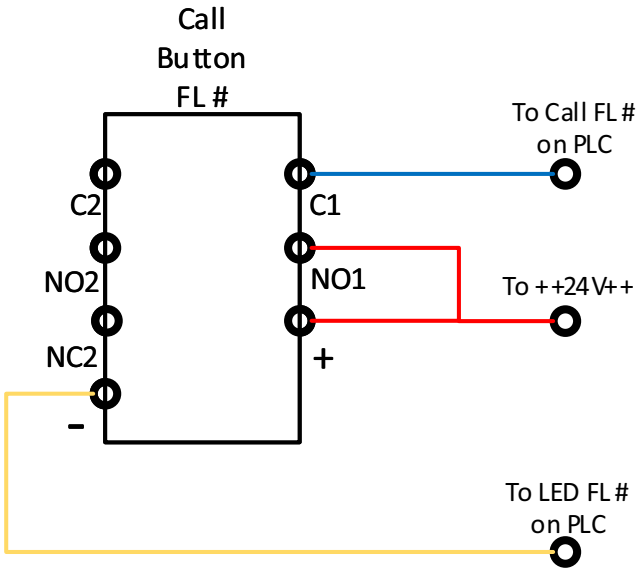


Terminal/Machine Stop Switches

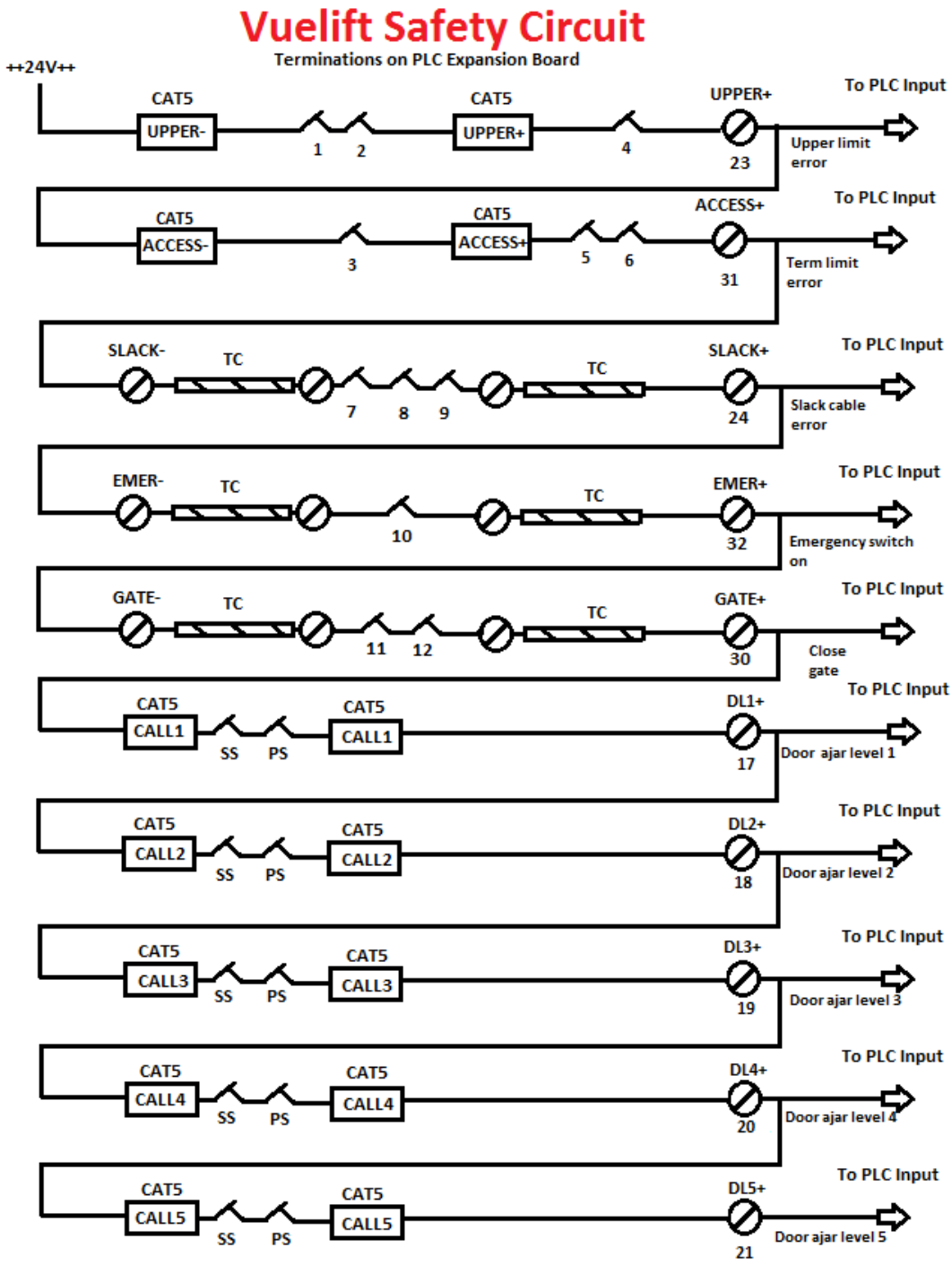


Contacts 11 and 12 are N.C., Contacts 13 and 14 are N.O.
Code requires all safety circuits to be wired Normally Closed.
The Controller is programmed to run with this configuration.
At this time, the N.O. contacts are not used.

Call Button Wiring

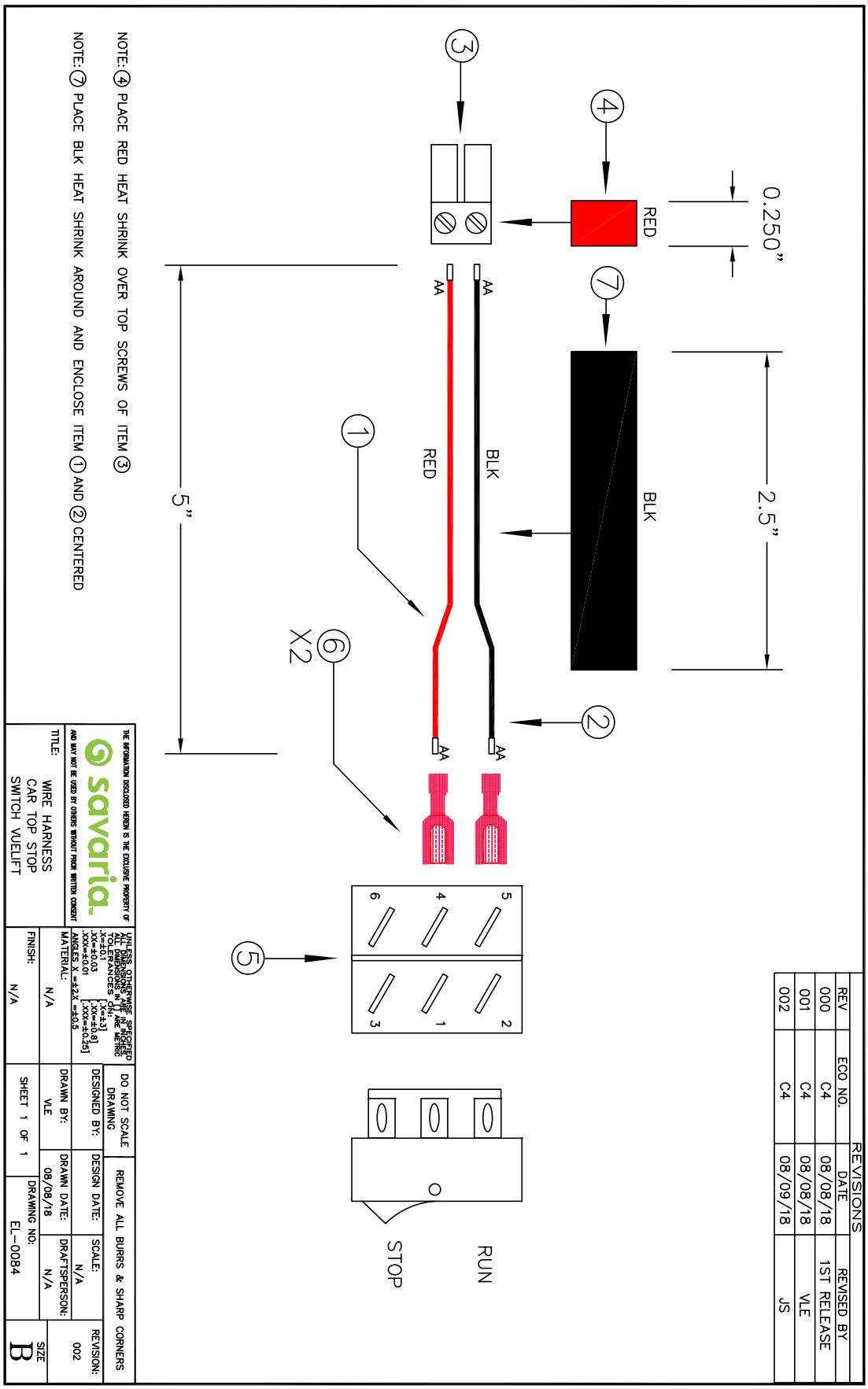


Safety Circuit

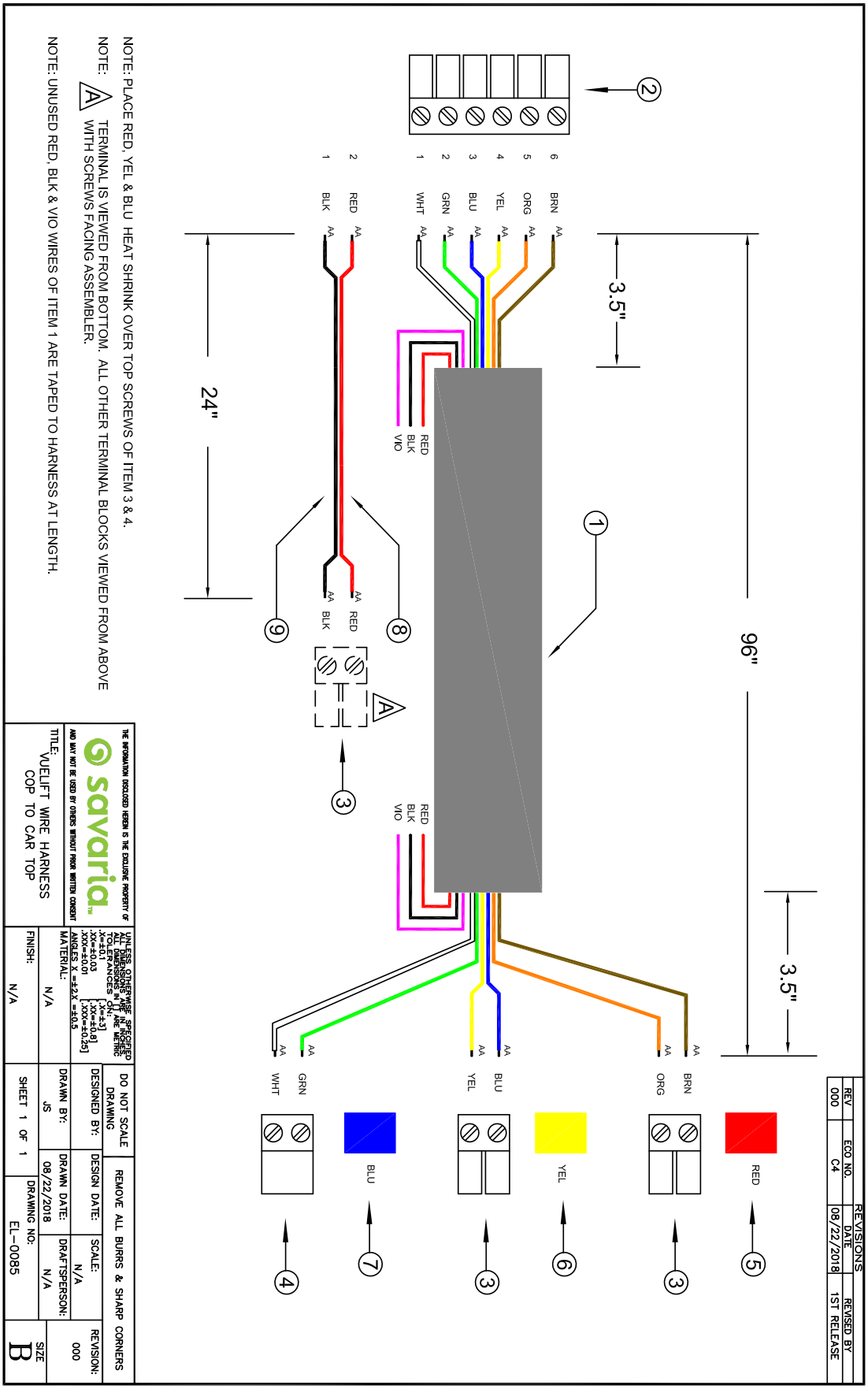


1- Upper normal limit
2- Upper final limit
3- Upper terminal switch
4- Hand Crank switch
5- OSG switch
6- Pit/Down Final
7-Car Top RUN/STOP
8-Slack Rope 1
9-Slack Rope 2
10- E stop
11-Gate Switch
12- Light Screen (Optional)
SS-Lock Solenoid Switch
PS-Lock Plunger Switch

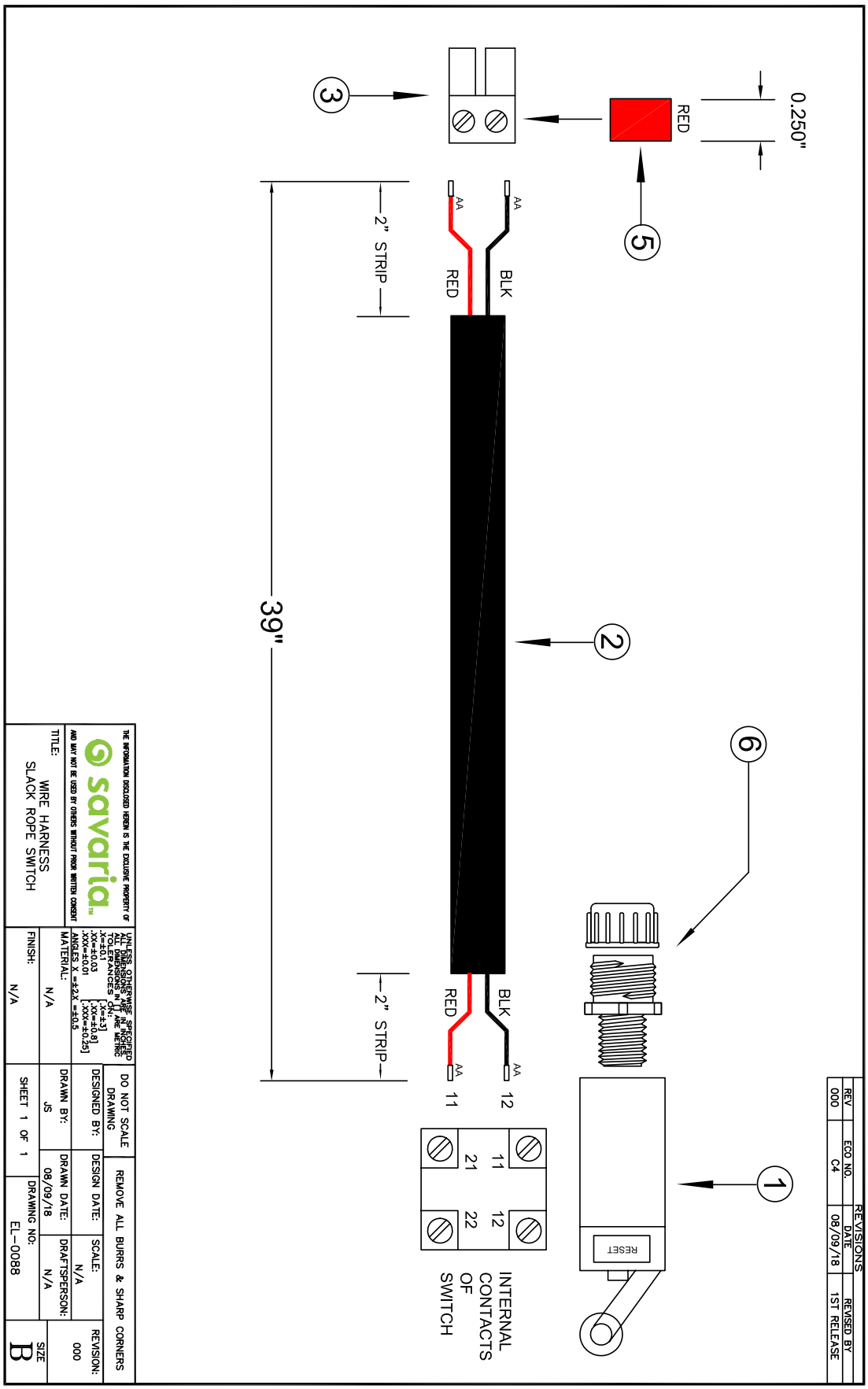
Harness, Car Top Stop Switch



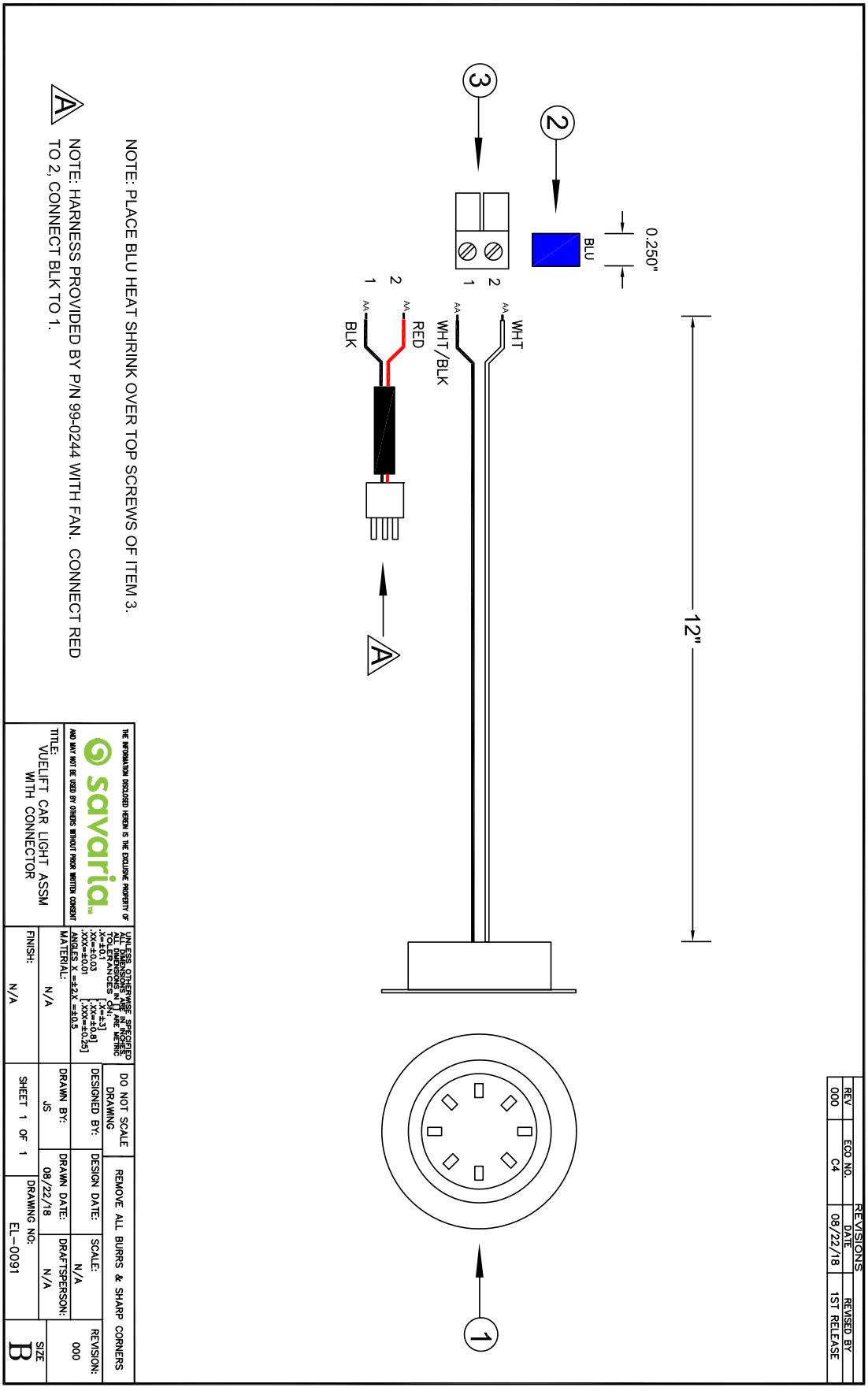
Harness, COP to Car Top



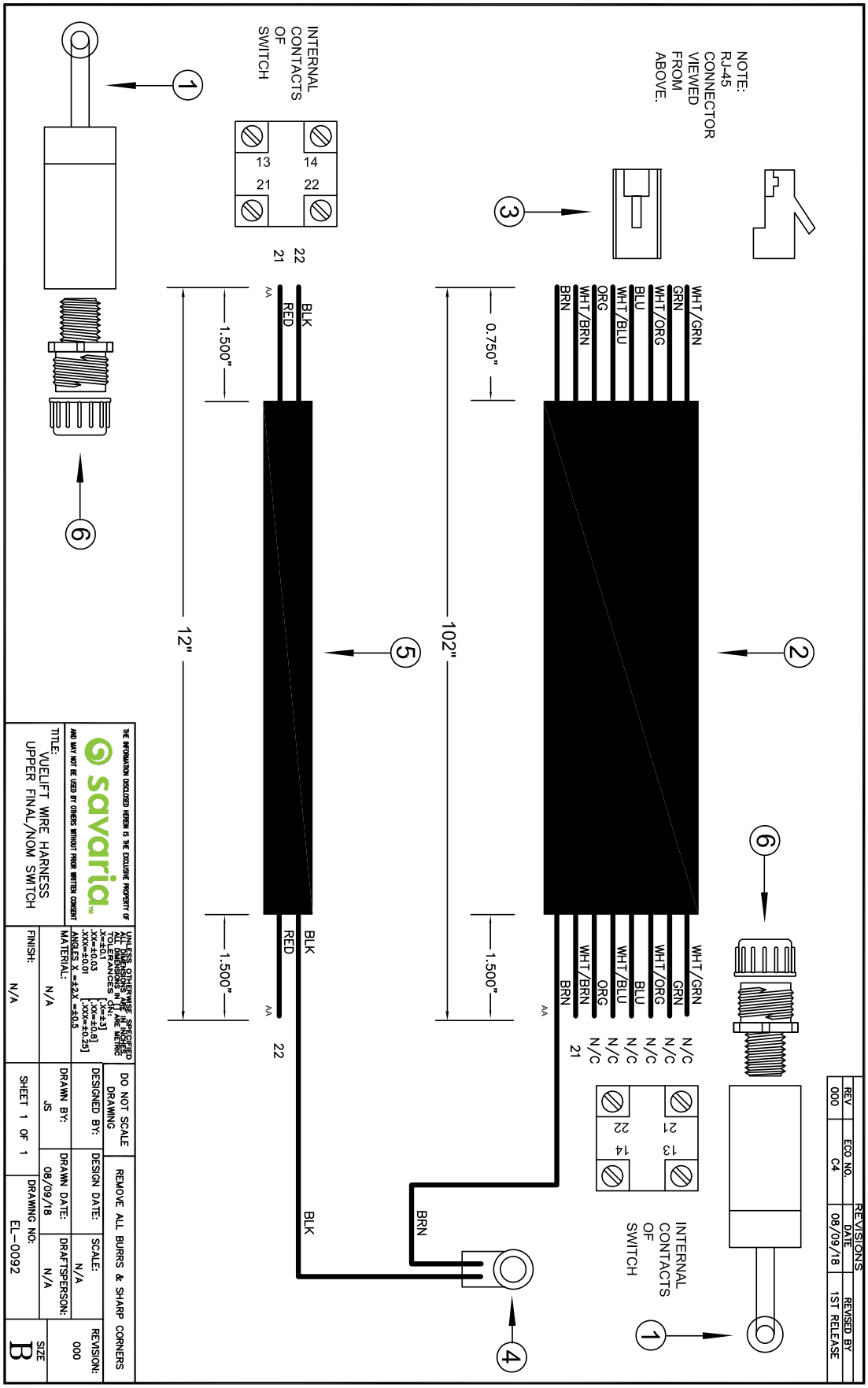
Harness, Slack Rope Switch



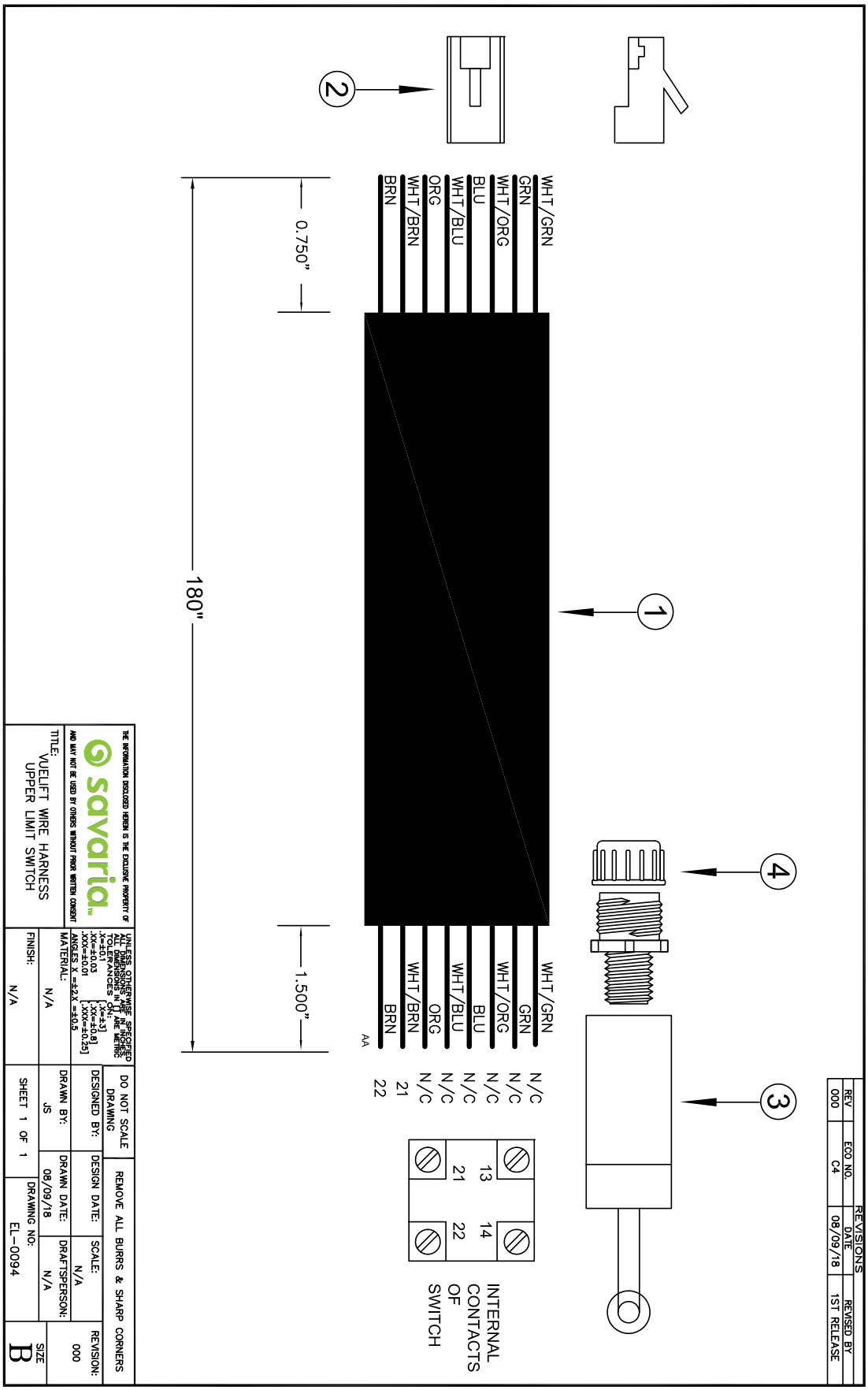
Car Light Assembly with Connector



Harness, Upper Final/NOM Switch

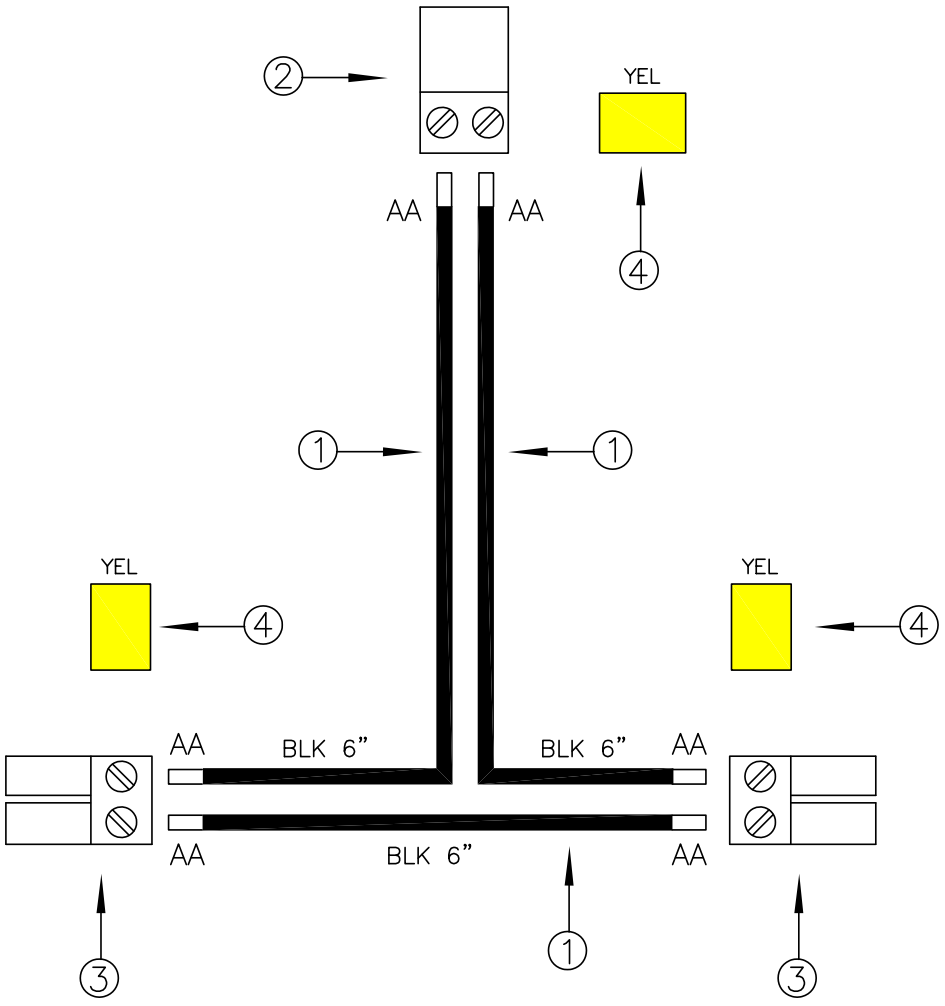


Harness, Upper Limit Switch



Wiring, Splitter Gate Switch

REVISIONS			
REV	ECO NO.	DATE	REVISED BY
000	C4	08/22/18	1ST RELEASE



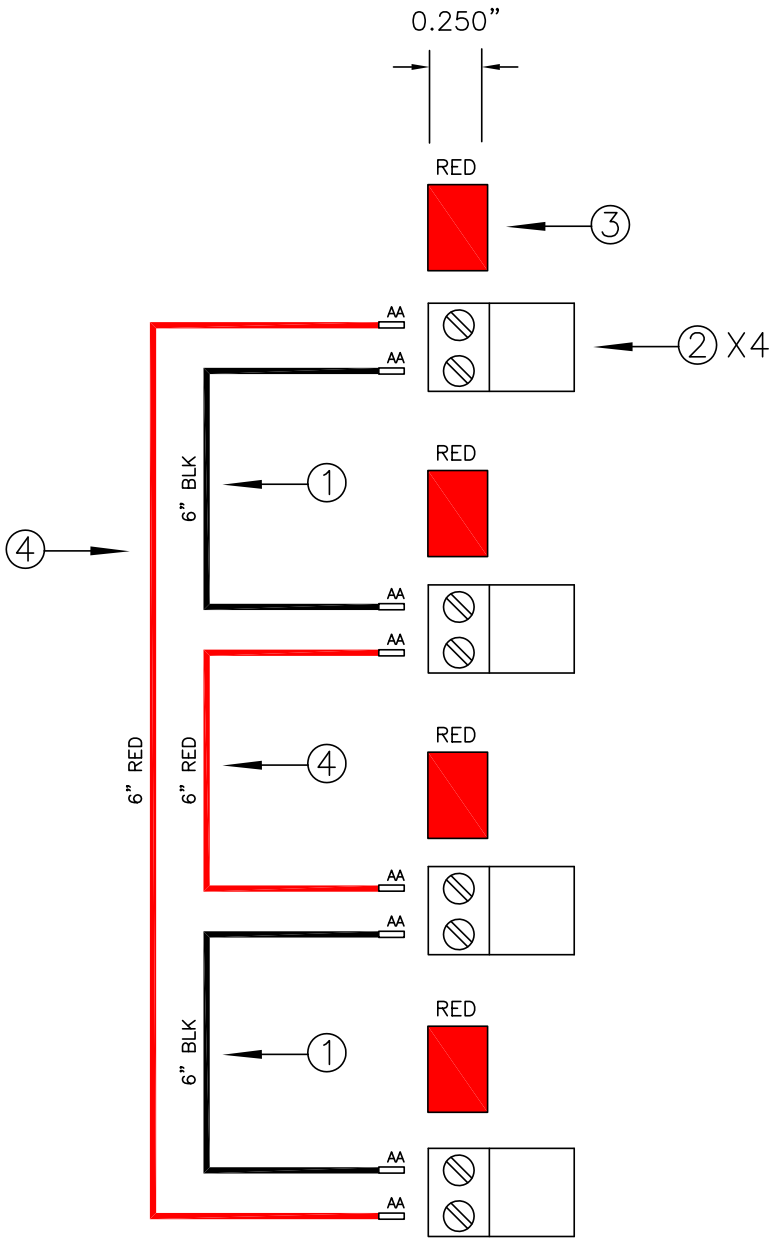
NOTE: PLACE YEL HEAT SHRINK OVER TOP SCREWS OF ITEM 2 & 3.

NOTE: ITEM NUMBER 5 NOT SHOWN. PLACE BLK HEAT SHRINK OVER TOP HARNESS WIRES, EXPOSING SCREW TERMINALS ONLY.

THE INFORMATION DISCLOSED HEREIN IS THE EXCLUSIVE PROPERTY OF savaria AND MAY NOT BE USED BY OTHERS WITHOUT PRIOR WRITTEN CONSENT	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES. ALL DIMENSIONS IN [ ] ARE METRIC TOLERANCES ON: .X=±0.1 [.X=±3] .XX=±0.03 [.XX=±0.8] .XXX=±0.01 [.XXX=±0.25] ANGLES X =±2 X =±0.5	DO NOT SCALE DRAWING	REMOVE ALL BURRS & SHARP CORNERS	
		DESIGNED BY:	DESIGN DATE:	SCALE: N/A / REVISION: 000
TITLE: WIRING SPLITTER_GATE SWITCH –	MATERIAL: N/A	DRAWN BY: JS	DRAWN DATE: 08/22/18	DRAFTSPERSON: N/A / SIZE B
	FINISH: N/A	SHEET 1 OF 1	DRAWING NO: EL–0165	

Slack Rope Wiring Splitter

REVISIONS			
REV	ECO NO.	DATE	REVISED BY
000	C4	06/25/18	1ST RELEASE
001	C4	06/25/18	VLE
002	C4	08/09/18	JS



NOTE: ③ PLACE RED HEAT SHRINK OVER TOP SCREWS OF ITEM ②

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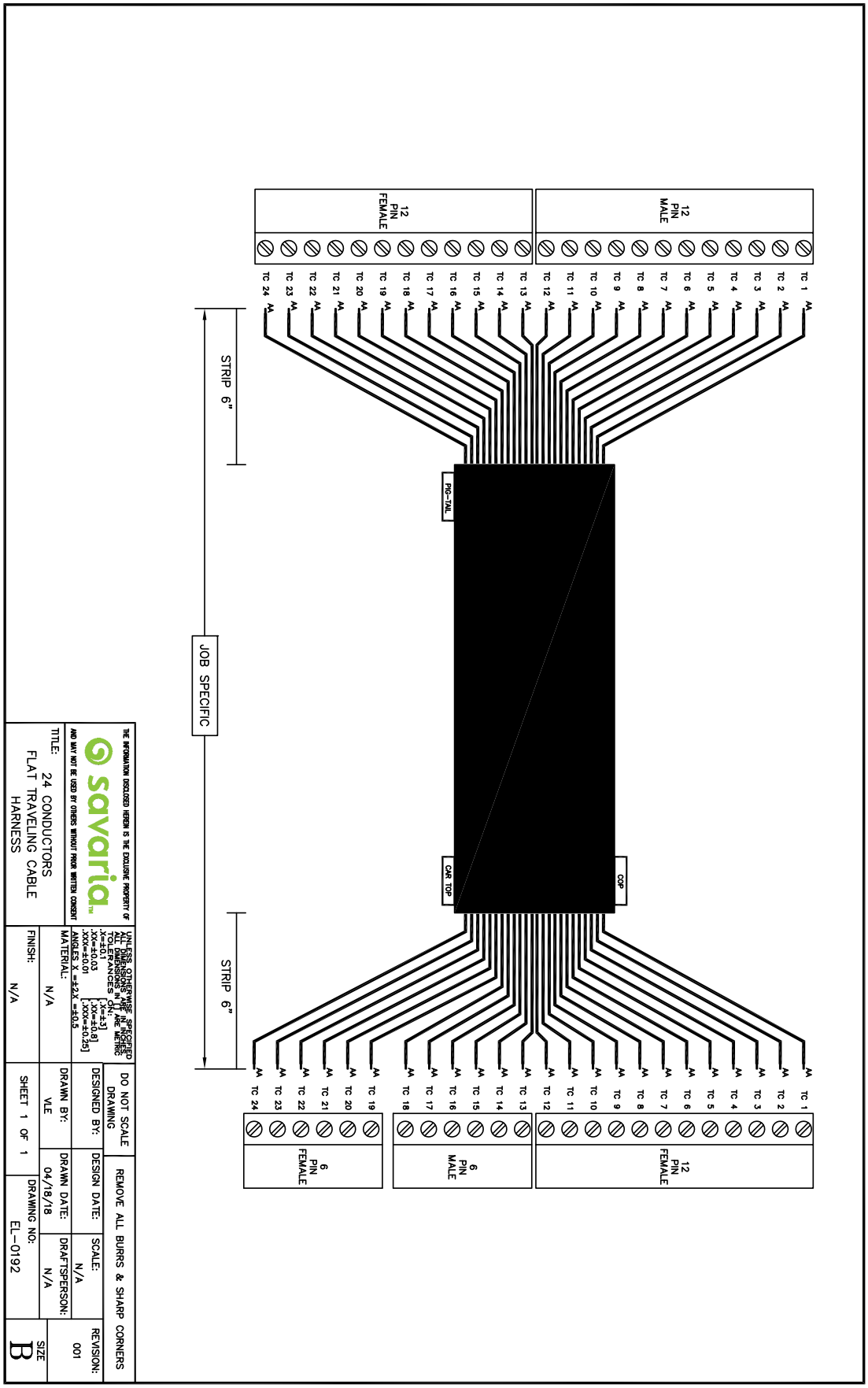
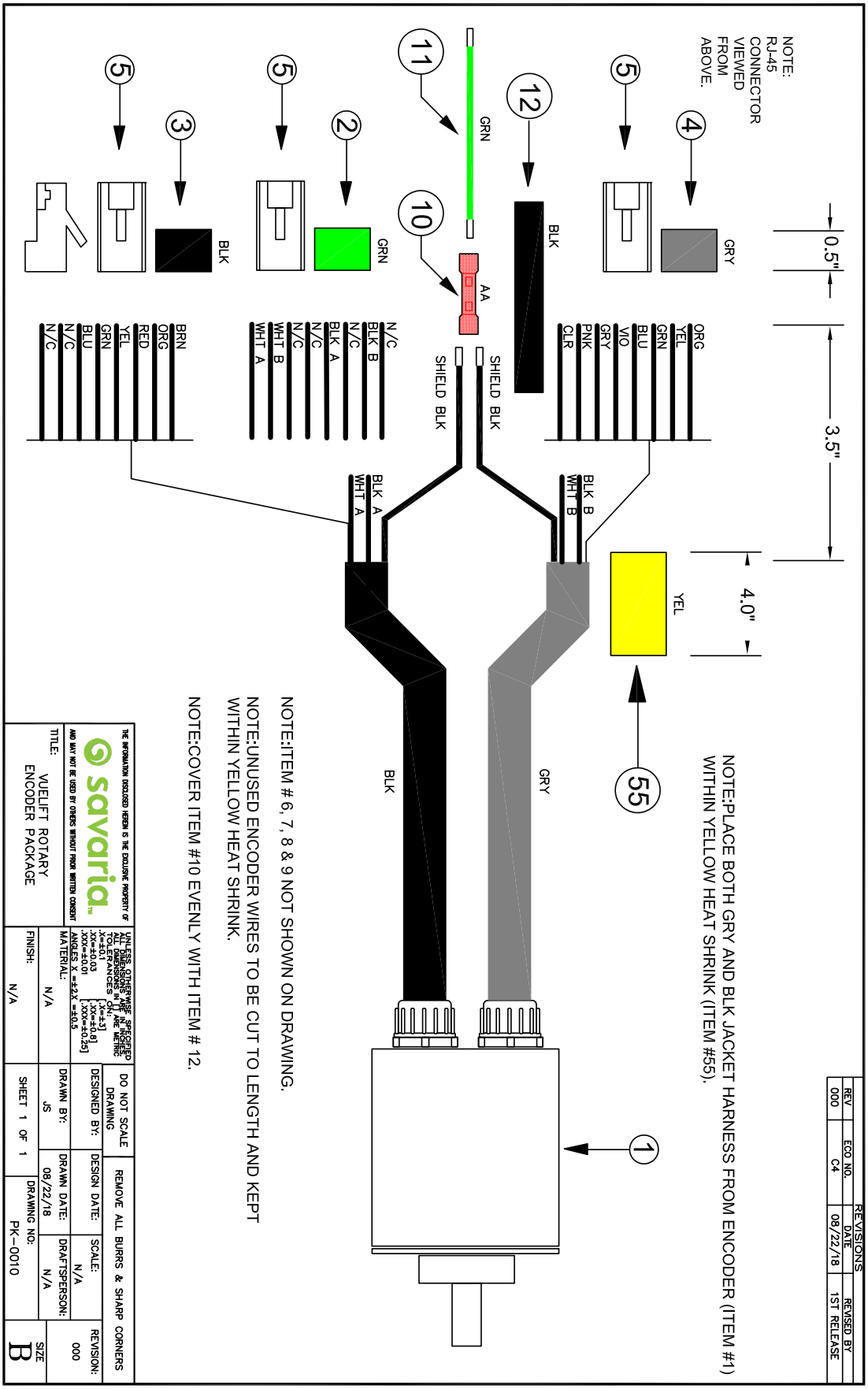
		DESIGNED BY:	DESIGN DATE:	SCALE: N/A / REVISION: 002
TITLE: SLACK ROPE WIRING SPLITTER –	MATERIAL: N/A	DRAWN BY: VLE	DRAWN DATE: 06/25/18	DRAFTSPERSON: N/A
	FINISH: N/A	SHEET 1 OF 1	DRAWING NO: EL–0167	SIZE B

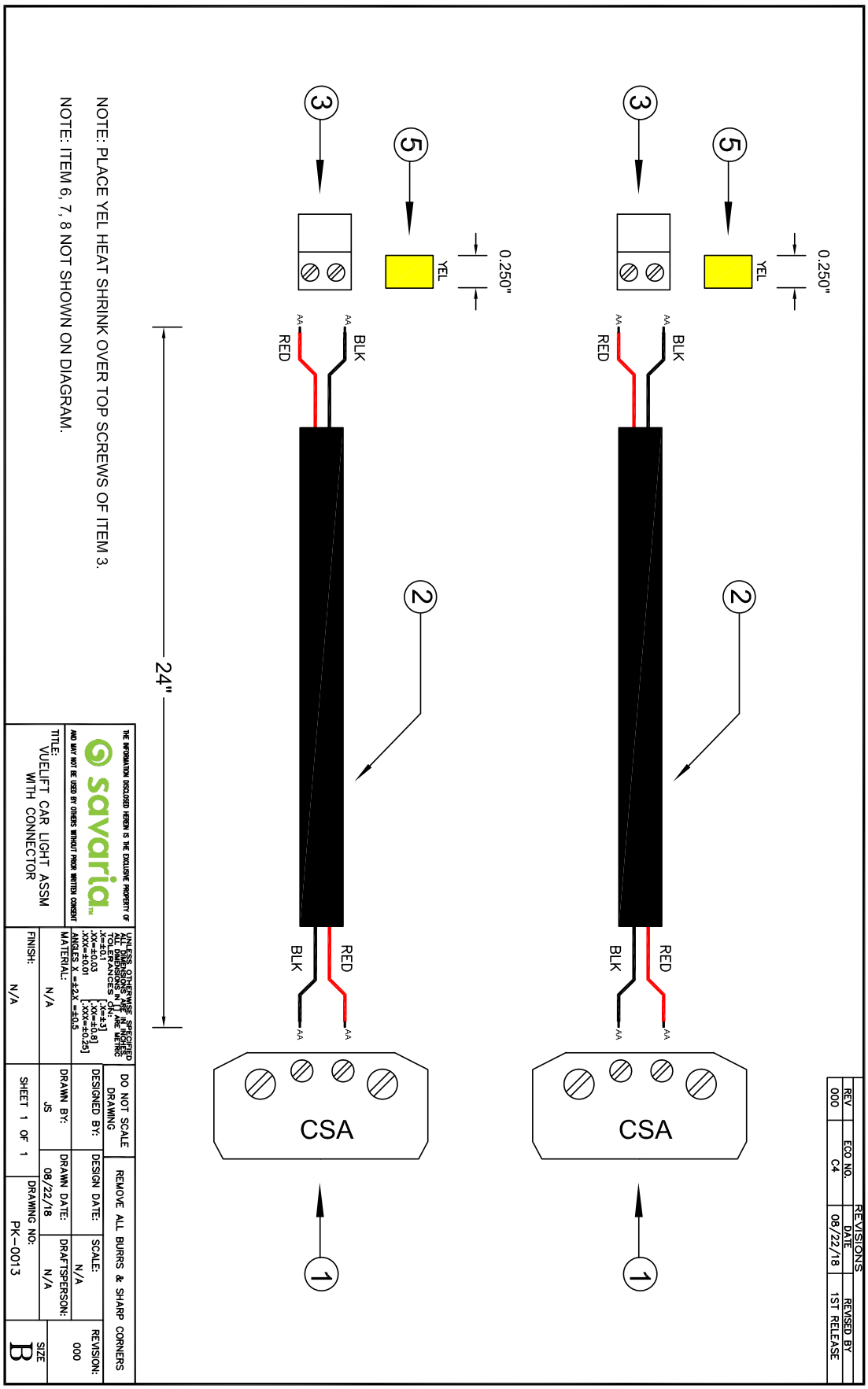
Harness, 24 Conductor Flat Traveling Cable



Rotary Encoder Package

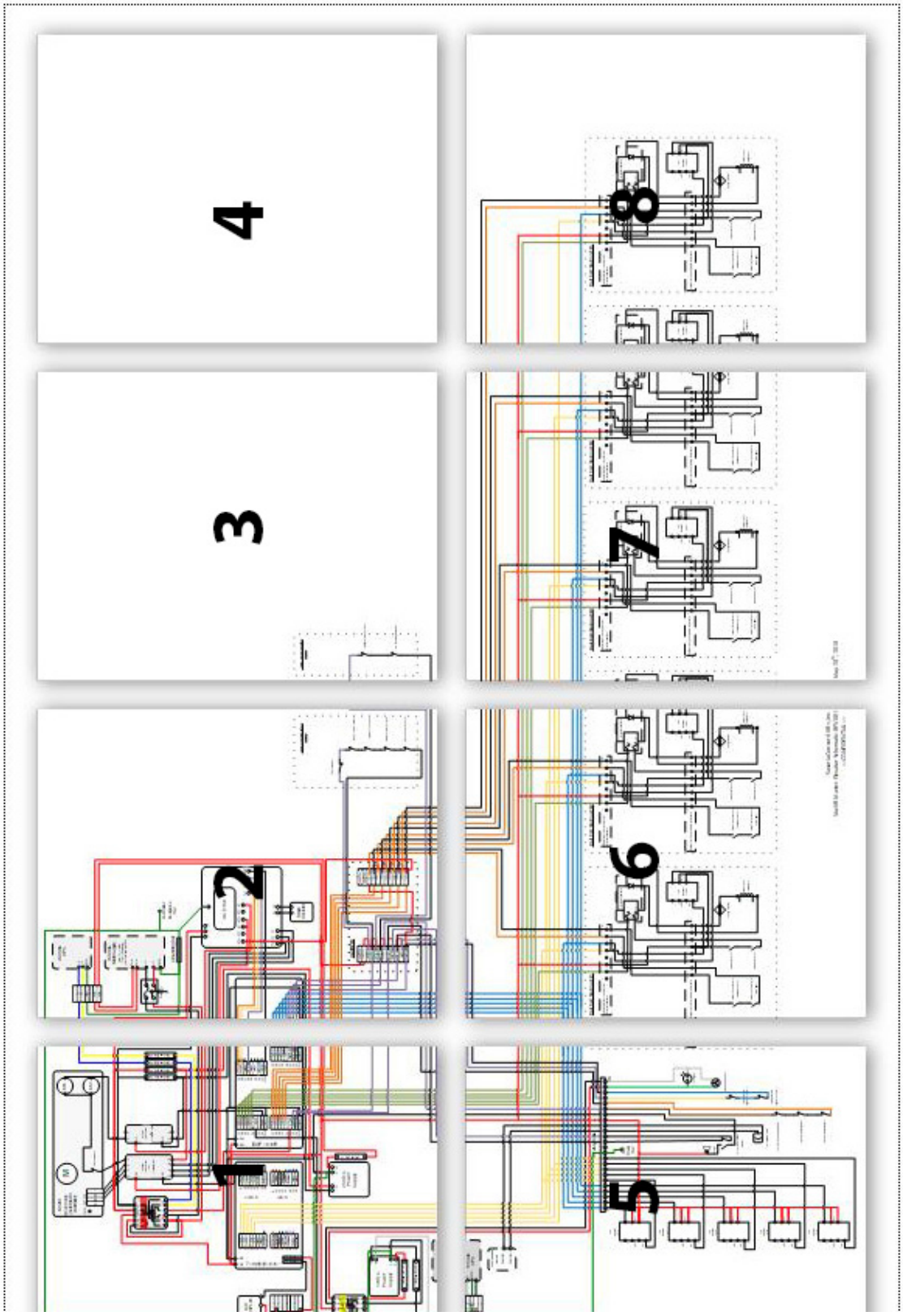


Car Light Assembly with Connector

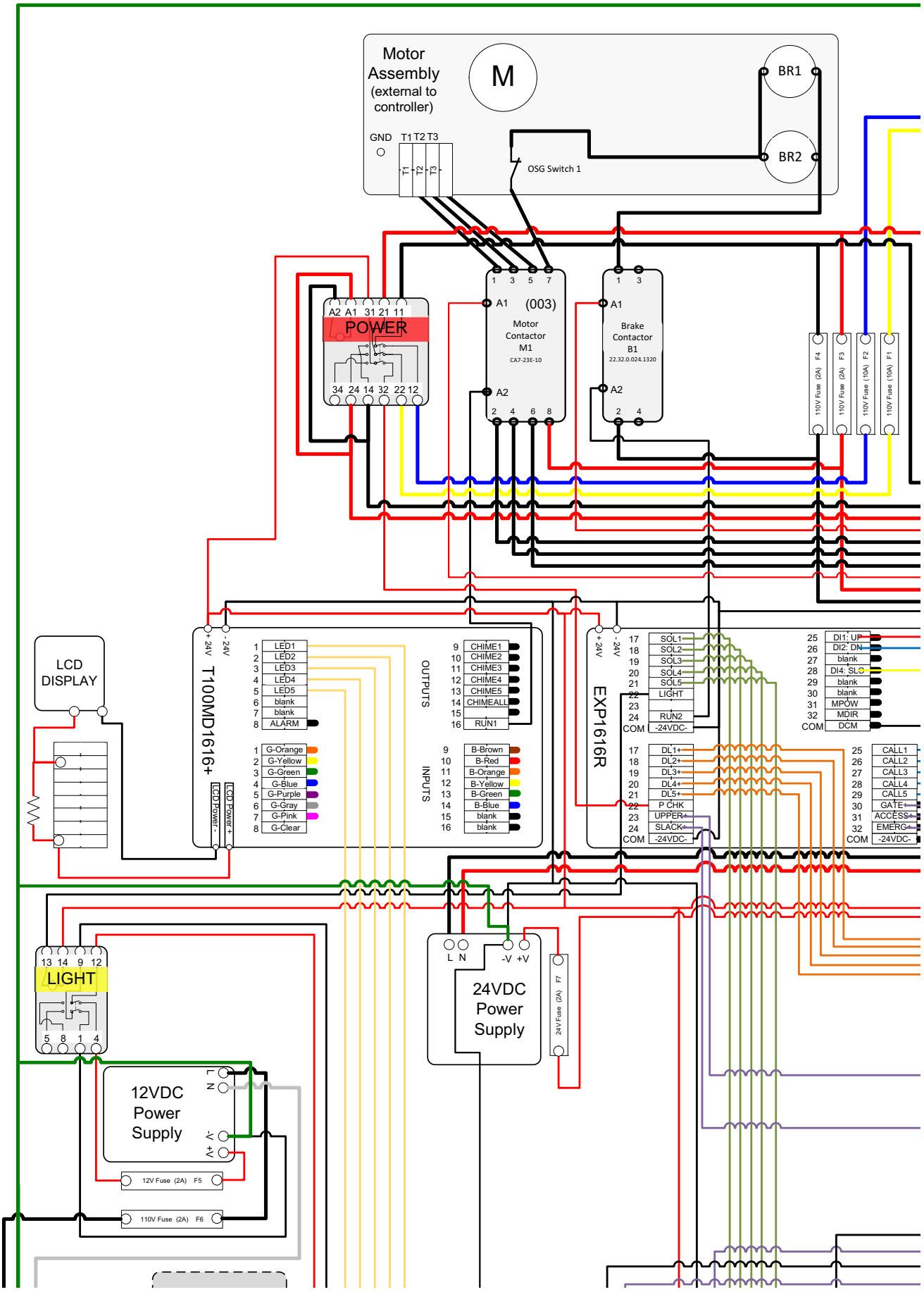


Master Schematic

The complete Master Schematic is shown below illustrating how the pages are split up on the following pages (1 through 8; note that page 4 is blank). You can paste the 8 pages together to create a complete Master Schematic.



Master Schematic (Sheet 1)



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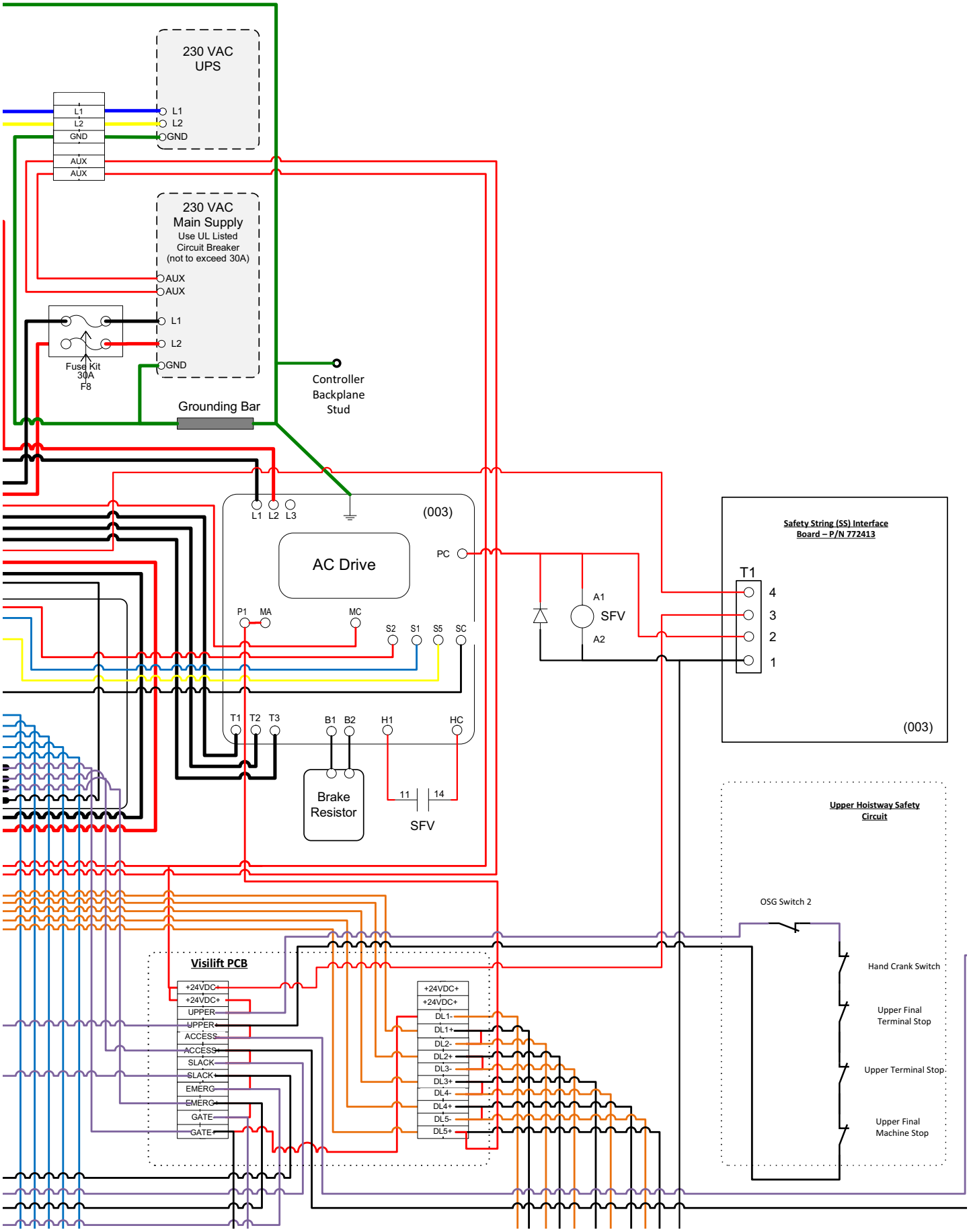

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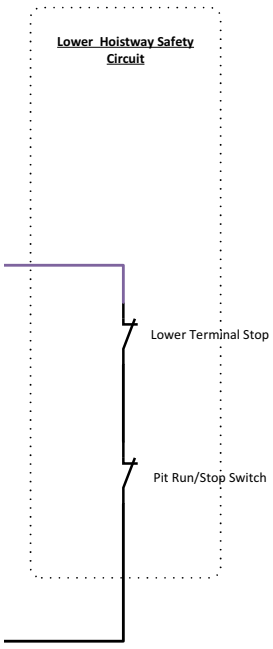

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Master Schematic (Sheet 4)

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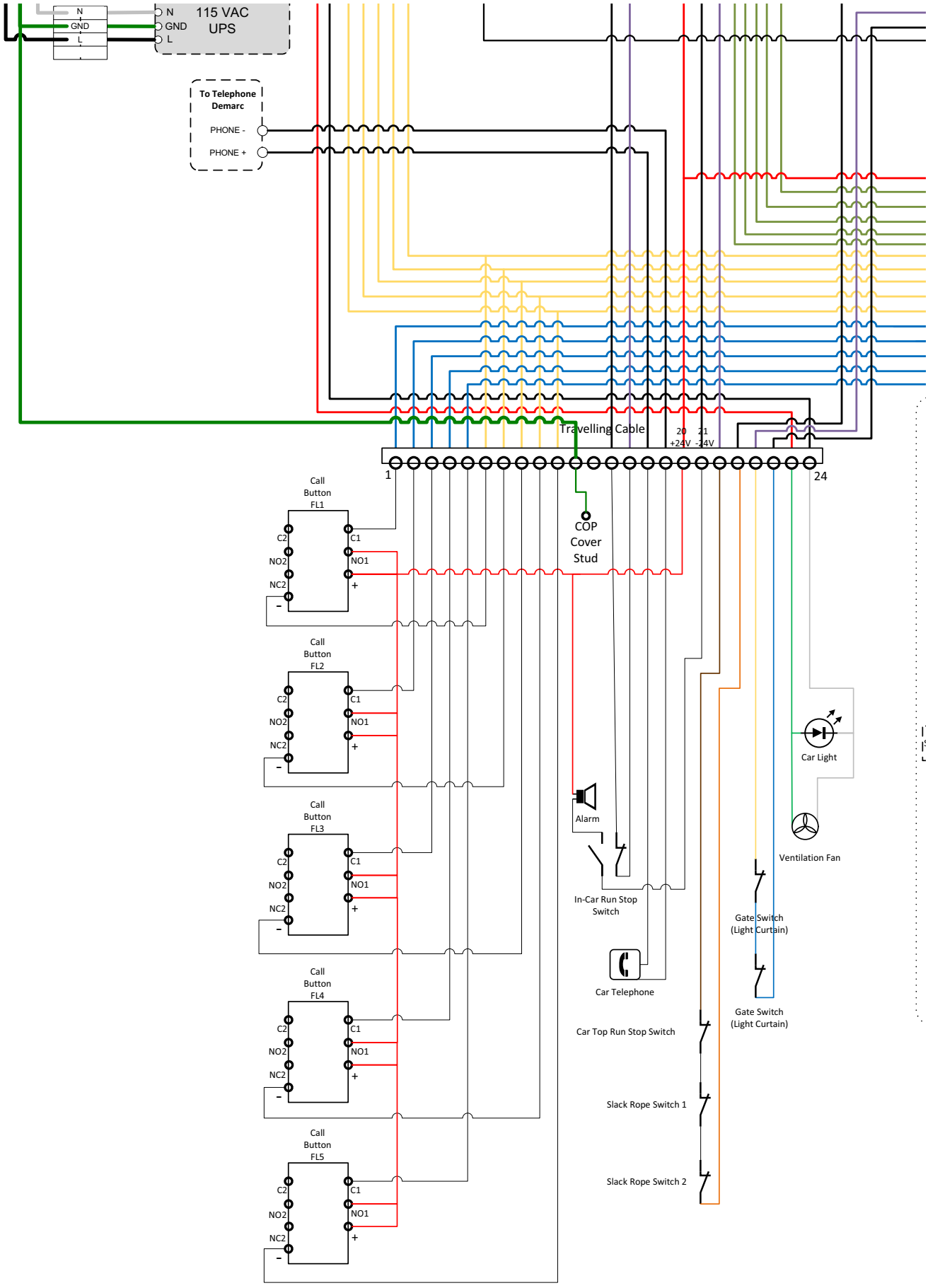
Master Schematic (Sheet 5)



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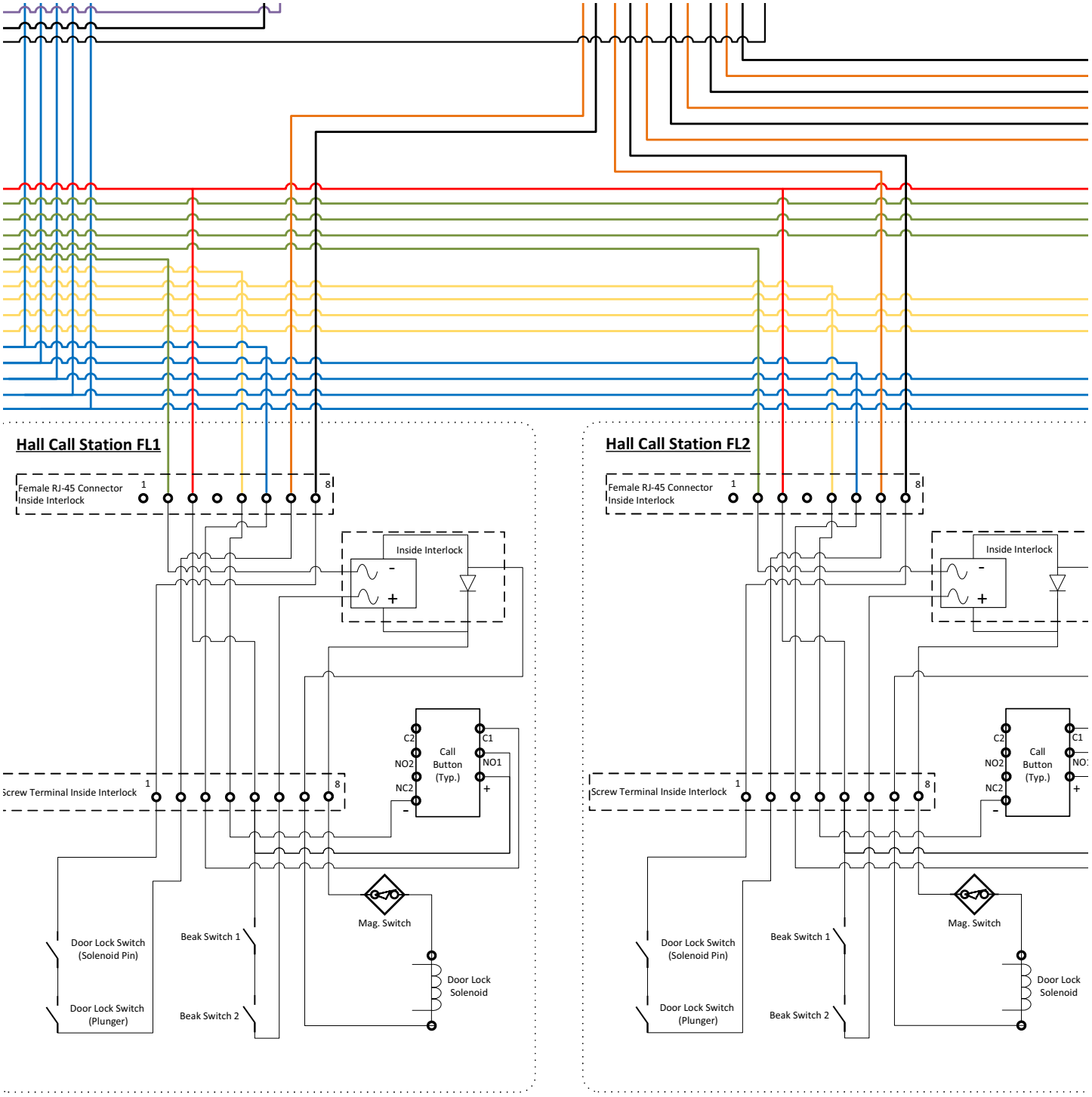

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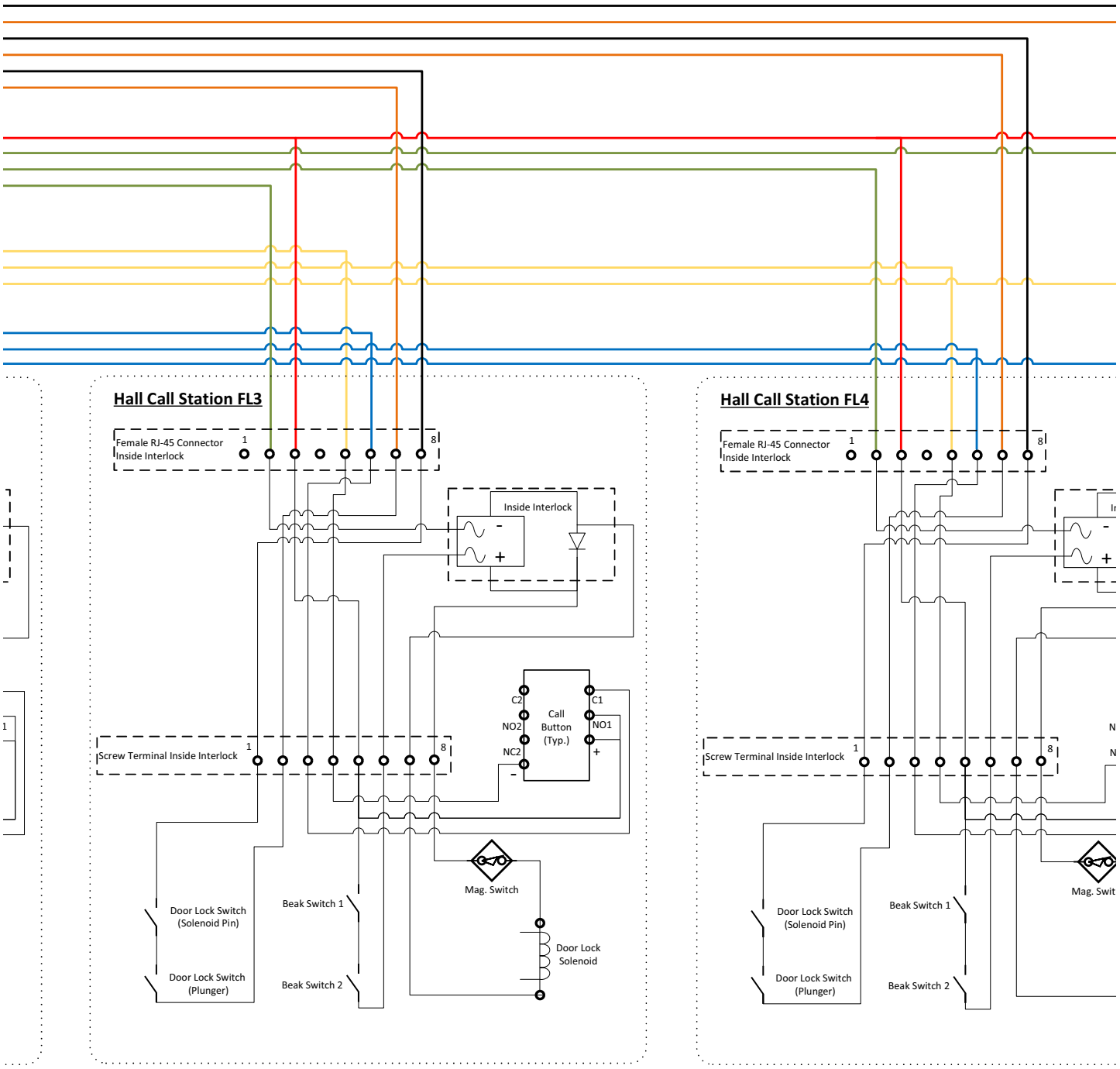

lovember 8th, 2018

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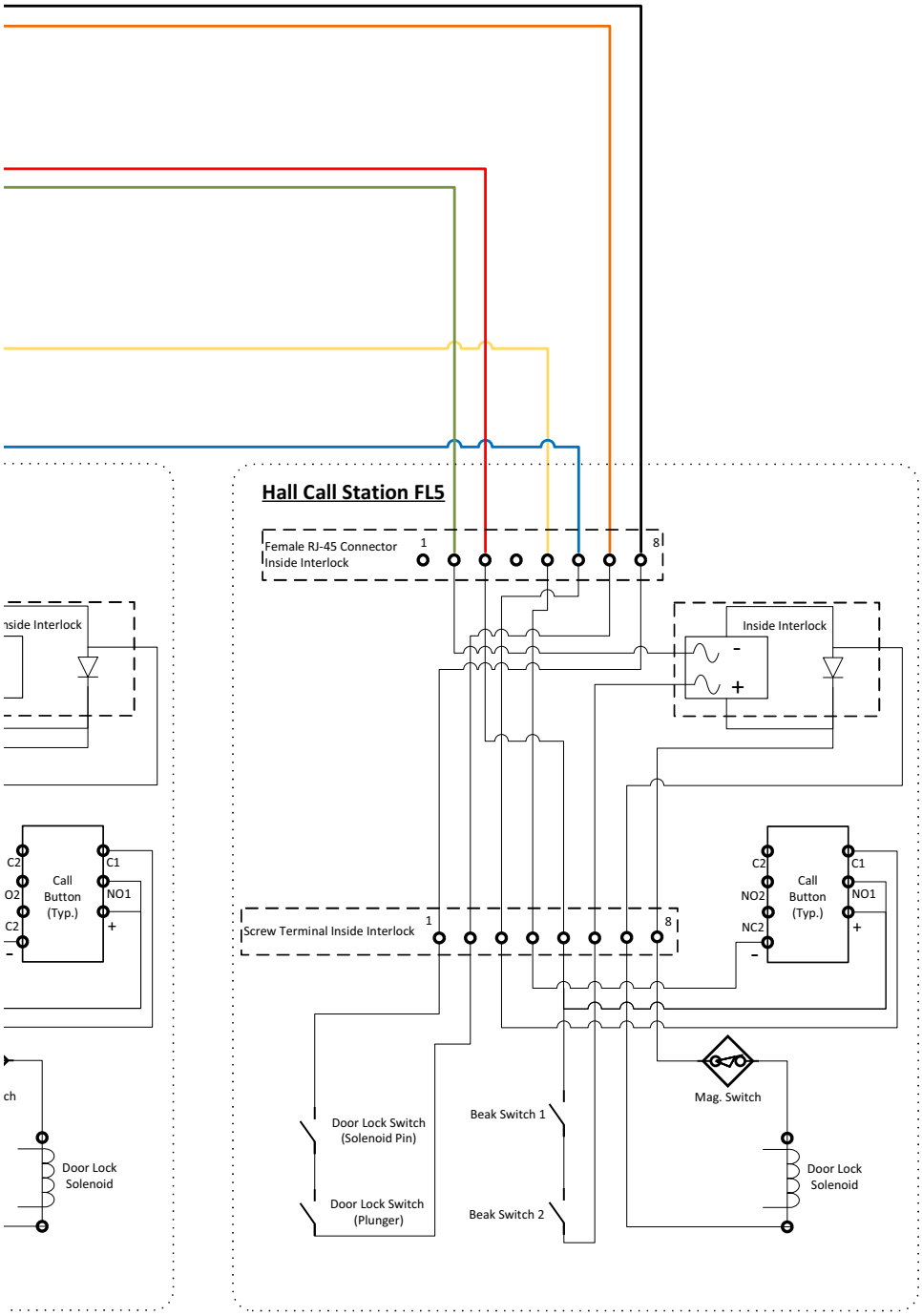
Master Schematic (Sheet 8)



Vuelift
Residential Elevator
INSTALLATION GUIDE

Part No. 001124
Rev. 25-m04-2019

Savaria Concord Lifts, Inc.
www.savaria.com

Support
2 Walker Drive
Brampton, Ontario, L6T 5E1, Canada
Toll free: (800) 791-7999
Fax: (905) 791-2222

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