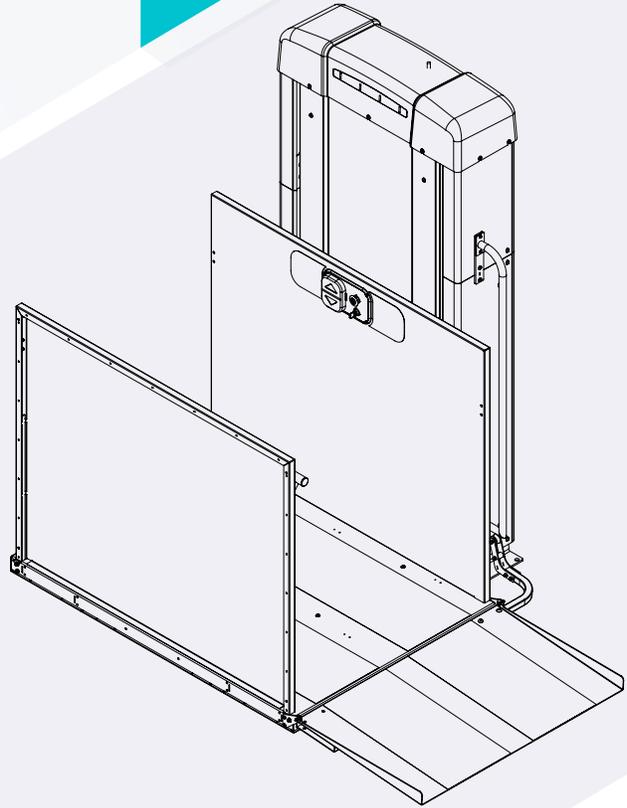


Freedom Easy Ride II VERTICAL PLATFORM LIFT



INSTALLATION & SERVICE MANUAL

MODELS

APFVPLR400ADJLAL Freedom Easy Ride II RES WCL - 53" ADJ LAL
APFVPLR400ADJLAR Freedom Easy Ride II RES WCL - 53" ADJ LAR
APFVPLR400STRLAL Freedom Easy Ride II RES WCL - 53" STR LAL
APFVPLR400STRLAR Freedom Easy Ride II RES WCL - 53" STR LAR
APFVPLR600ADJLAL Freedom Easy Ride II RES WCL - 77" ADJ LAL
APFVPLR600ADJLAR Freedom Easy Ride II RES WCL - 77" ADJ LAR
APFVPLR600STRLAL Freedom Easy Ride II RES WCL - 77" STR LAL
APFVPLR600STRLAR Freedom Easy Ride II RES WCL - 77" STR LAR
APFVPLC400ADJLAL Freedom Easy Ride II Commercial WCL - 53" ADJ LAL
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APFVPLC600STRLAL Freedom Easy Ride II Commercial WCL - 77" STR LAL
APFVPLC600STRLAR Freedom Easy Ride II Commercial WCL - 77" STR LAR

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SECTION 1
SAFETY

SAFETY DEFINITIONS



This safety alert symbol appears with safety statements. It means attention, become alert, your safety and the safety of others are involved! Please read and abide by the message that follows the safety alert symbol.

 **WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates a situation which can cause damage to the lift and/or the environment, or cause the lift to operate improperly.

NOTE: Indicates a condition that should be followed in order for the lift to function in the manner intended.

ENVIRONMENTAL CONDITIONS

The technician shall assess the surrounding conditions and verify that the location is acceptable before performing installation and/or servicing tasks. Installation shall not proceed in inclement weather conditions that jeopardize the technician's safety or ability to complete the installation in a safe manner. Tents, canopies or other outdoor provisions that help protect the work area from weather or other safety concerns are recommended when conditions warrant.

If you do not understand any portion of the installation or operation procedures, please consult Technical Service Department at 800-833-0478. Do not attempt to install or use this lift if you have any hesitation or question. Serious injury or damage can result if proper procedures are not followed.

SECTION 2
INTRODUCTION

DEVICE NAME: Freedom Easy Ride II

VERTICAL PLATFORM LIFT

Indications of Use: Vertical Platform Lift is to assist the transfer of patients or mobility impaired persons and their mobility device, up and down levels of a commercial facility or residence.

READ AND UNDERSTAND

This manual provides the proper installation and service for the Vertical Platform Lift which is critical to the lift's safety, performance and durability. Please refer to the Owner's Manual for operating instructions. Any alterations to the equipment without written authorization by the manufacturer is prohibited and will void the warranty.

TECHNICAL SPECIFICATIONS

Visit FreedomLiftSystems.com for specifications on the specific lift model and configuration.

PATENTS PENDING

CODE STATEMENT

The Harmar Highlander II lift has been designed to meet ASME A18.1 "Safety Standard for Platform Lifts and Stairway Chairlifts" under section 2 or section 5 and has been certified to CAN/CSA-B44.1/ ASME A17.5 "Elevator and Escalator Electrical Equipment".

Code requirements for Vertical Platform lifts may vary depending on location. It is the installers responsibility to contact their state, city or local code enforcement office and determine all the regulations the lift and installation are subject to. You must do this before installing the Vertical Platform Lift.

APPLICATION OF THE VERTICAL PLATFORM LIFT

Application of either a commercial or residential installation requires compliance to the ASME A18.1 safety code and other codes that may be adopted by state, city and local code authority having jurisdiction.

To meet the full intent of ASME A18.1 regulation the installer is required to contact their state, city or local code authority having jurisdiction for permits, adopted rules and inspections of the vertical platform lift.

INTRODUCTION

REQUIREMENTS UNDER ASME A18.1

ASME A18.1 Safety Standards for Platform Lifts and Stairway Chairlifts under Section 2 or Section 5.

The Vertical Platform Lift is to be installed in accordance with all applicable codes in accordance with ASME A18.1, ASME A17.5 and CAN/CSA-B44.1.

ASME A18.1 SECTION 2: VERTICAL PLATFORM LIFTS

Section 2 applies to vertical platform lifts installed in locations other than in or at a private residence for use by the mobility impaired.

RUNWAYS

Runways shall be installed in accordance with 2.1.1, 2.1.2, or 2.1.3. Runway construction for lifts that penetrate a floor must comply with 2.1.1 and with the building code.

NOTE: There are 3 different sections of rules for a commercial application.

- *2.1.1 Runway Enclosure Provided*
- *2.1.2 Partial Runway Enclosure Provided*
- *2.1.3 Runway Enclosure Not Provided (code has a height restriction under rule 2.7)*

ASME A18.1 SECTION 5: PRIVATE RESIDENCE VERTICAL PLATFORM LIFTS

Section 5 applies to vertical platform lifts installed in or at a private residence for use by the mobility impaired.

RUNWAYS

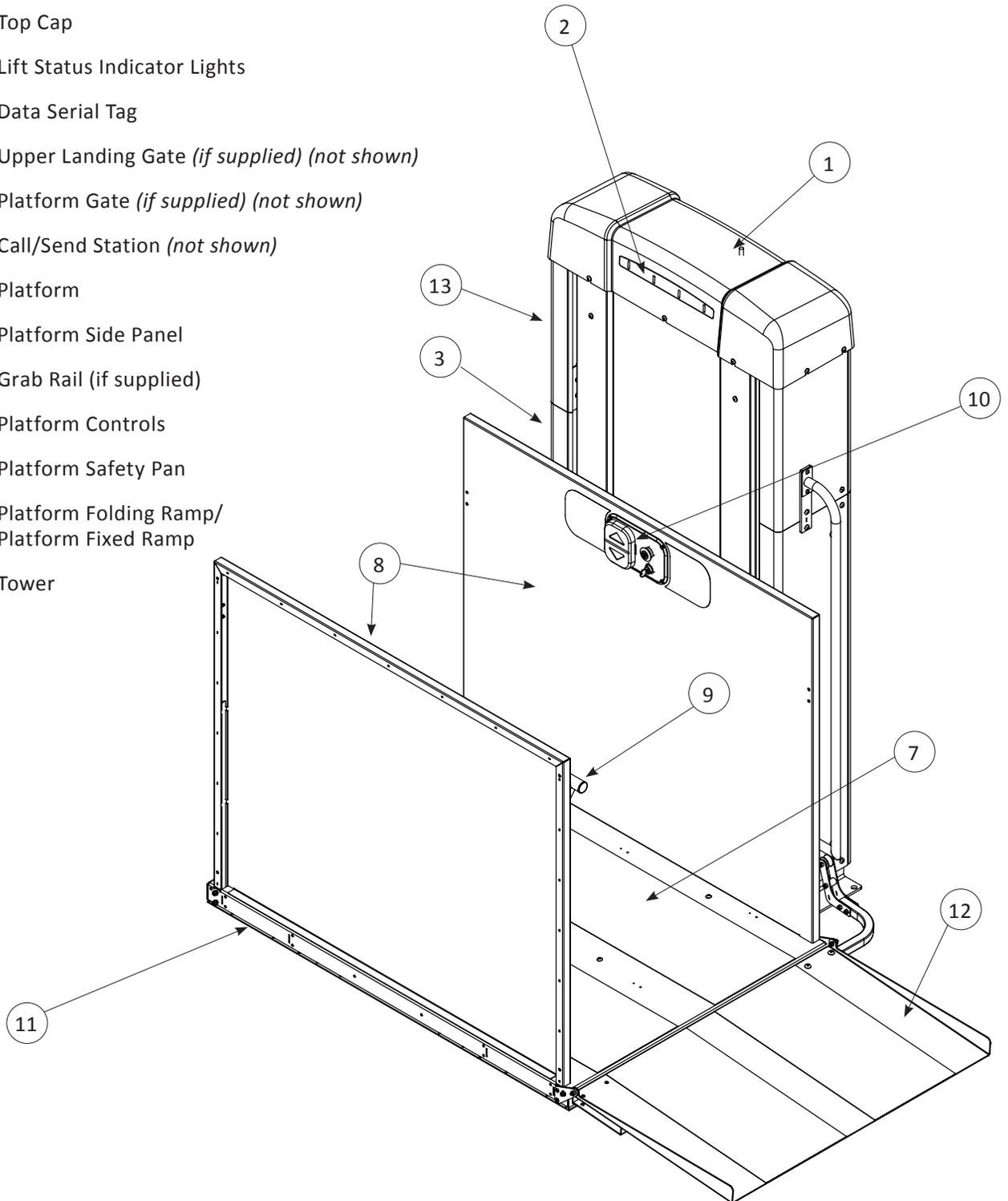
Runways shall be installed in accordance with 2.1.1, 2.1.2, 2.1.3, or 5.1.1. Runway construction for lifts that penetrate a floor must comply with 2.1.1 and with the building code. Only lifts installed in conformance with 2.1.1 shall serve more than two landings.

STATEMENT OF USE

Freedom Easy Ride II II units with lift heights above 101" are intended for a maximum operation of 24-cycles per hour. Units with lift heights above 101" are intended for a maximum operation of 12-cycles per hour.

KEY VERTICAL PLATFORM LIFT ELEMENTS

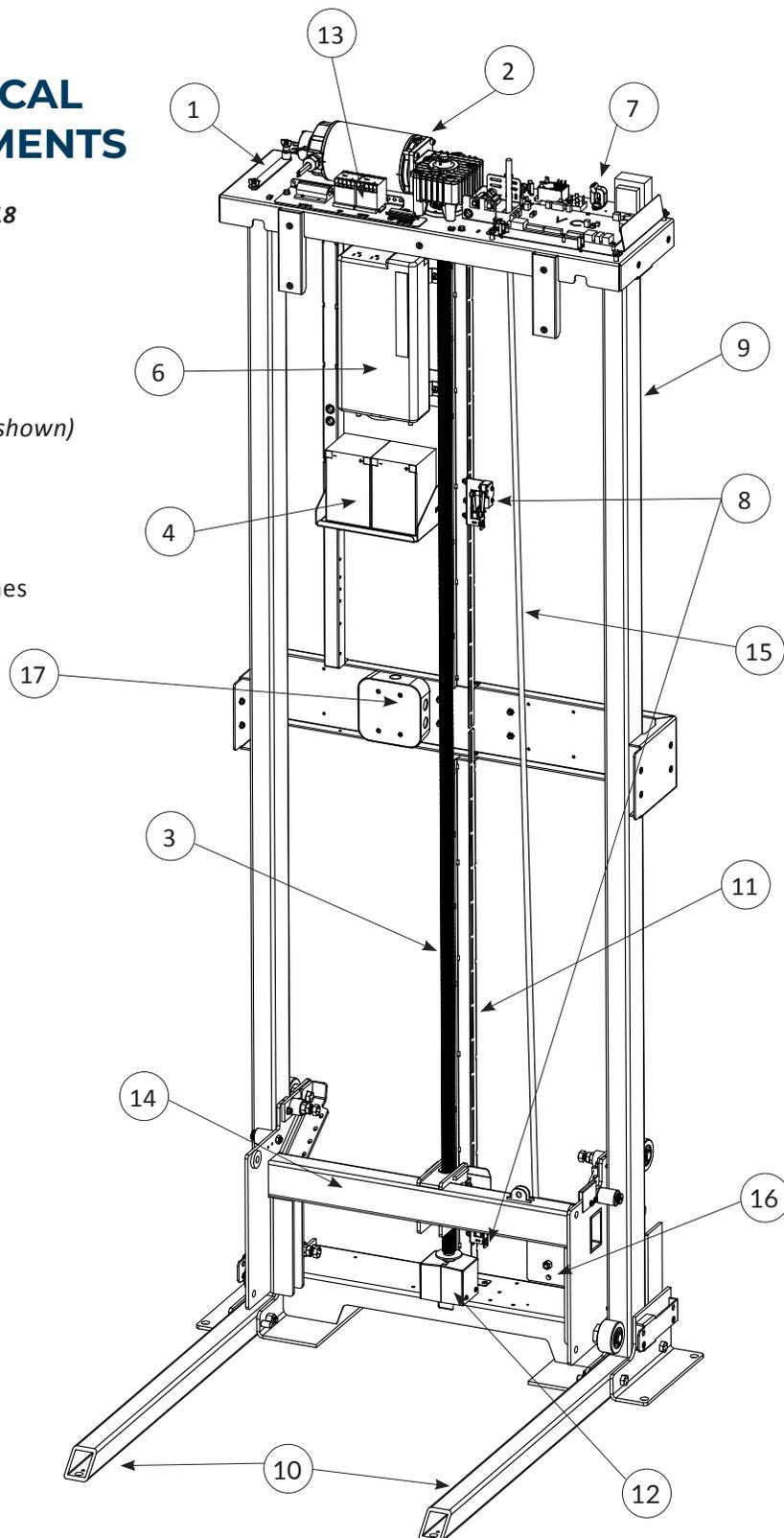
1. Top Cap
2. Lift Status Indicator Lights
3. Data Serial Tag
4. Upper Landing Gate *(if supplied) (not shown)*
5. Platform Gate *(if supplied) (not shown)*
6. Call/Send Station *(not shown)*
7. Platform
8. Platform Side Panel
9. Grab Rail *(if supplied)*
10. Platform Controls
11. Platform Safety Pan
12. Platform Folding Ramp/
Platform Fixed Ramp
13. Tower



INTRODUCTION

KEY INTERNAL VERTICAL PLATFORM LIFT ELEMENTS

1. Manual Lowering Tool - *See page 18*
2. Motor / Gearbox
3. ACME Screw
4. Batteries (if supplied)
5. Battery Charger (if supplied) (not shown)
6. Inverter (if supplied)
7. Control Electronics Assembly
8. Upper / Lower / Final Limit Switches
9. Tower Frame
10. Tower Legs
11. Wire Channel
12. Over-Speed Safety Assembly
13. Motor Contactors
14. Carriage
15. Trailing Cable
16. Cable Tensioning Pulley
17. Main Power Supply Hook-up



SECTION 3 **PREPARATION**

Installations may vary to some degree, but below are the basic tools to have on hand for a Vertical Platform Lift installation.

If you have any questions, concerns or comments, please contact 1-877-947-7769

REQUIRED TOOLS

- Tape Measure
- Square
- Level
- Multimeter
- Wire Cutters, Wire Puller
- Stripper, Crimping Tool
- Hammer Drill
 - $\frac{3}{8}$ "
- Wrench Set:
 - $\frac{7}{16}$ "
 - $\frac{1}{2}$ "
 - $\frac{9}{16}$ "
 - $\frac{3}{4}$ "
- Allen Wrench:
 - $\frac{1}{8}$ "
 - $\frac{3}{16}$ "
 - $\frac{5}{16}$ "
- No. 2 Flat Head Screwdriver
- No. 2 Phillips Head Screwdriver
- Marking Implement

- $\frac{3}{8}$ " Nut Driver Bit (with 1.5" min reach) or $\frac{3}{8}$ " socket, extension and ratchet
- Concrete Drill Bits
- Temporary Power Means

RECOMMENDED TOOLS

- Work Lights (Wired or Wireless)
- Fish Tape
- Ladder
- Labeler (for Wiring)
- Steel Toe Shoes
- Safety Glasses
- First Aid Kit
- Box Cutter
- Hard Hat
- Shop Vacuum
- Shop Towels and General Purpose Cleaner

BOX CONTENT

Inspect all of the boxes for damage or missing parts. If you see any damage contact the freight carrier to file a damage claim and contact Harmor.

Verify the products match that described on the packing list attached to the exterior packaging. If items are missing or are incorrect, contact Freedom Lift Systems.

PREPARATION

REQUIRED COMPONENTS NOT SUPPLIED

NOTE: Lifts are required to be completed by a licensed electrician, per the NFPA 70.

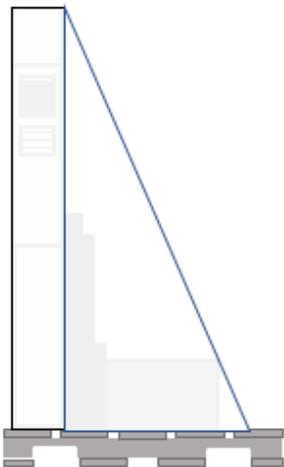
- 2-Pole Fused and Lockable Disconnect
- Wire, Conduit and Disconnect to meet NFPA 70 code
- Double Throw Single Pull Switch
- Dedicated Electrical Lead (per local code)

UNLOADING

- The 4' VPL is shipped standing up shrink wrapped to a pallet. The pallet dimensions are 48" x 48" x 83". Units are screwed into pallet, installers will require a $\frac{3}{4}$ " wrench socket to remove screws.

A lift gate is unable to be used on models 6' or taller which are shipped laying back.

Note: Must have a loading dock, pick up the VPL at the shipping terminal, or ship it directly to the installation site. This information must be documented on the evaluation form.



VPL's weighs between 800 - 1500 lb, depending on the height. The following may be necessary to assist in positioning:

- Additional Manpower
- Fork Lift
- Crane
- Pallet Jack
- Lever Bar Dolly

UNPACKING

1. Unwrap the VPL and set the following items aside:
 - Small Parts Box
 - Ramp (if provided)
 - Platform Panels
 - Platform
 - Gates
2. Remove the tower from the pallet.
3. Pre-delivery inspection

CONCRETE

- Concrete pad recommendations are at least 4" thick, 3500 PSI reinforced, and must be level. The size of the concrete pad may vary depending on the size of the VPL footprint. Concrete at the bottom approach to the VPL must be large enough to turn a mobility device around. Pay close attention to the slope of existing concrete where the VPL is going to be installed. Existing concrete on the

exterior of a house or building are normally sloped to shed water. The normal slope is about 1/8"-1/4" per foot to provide adequate drainage. Steel shims should be used to level the tower when the existing concrete has a normal slope (wood shims must never be used). If the existing concrete has greater slope than 1/4" per foot, it should be reworked and leveled before installing the VPL.

NOTE: Do not shim more than 1".

- Harmar recommends securing the lift using our Anchor Kit

MATERIAL HANDLING

- The 4' VPL is shipped standing up on a pallet, a 6' or larger VPL is shipped laying down on a long pallet. The 4' model can be received with a lift gate on the courier truck and pallet jack. The 6' and taller models must be received via loading dock and pallet jack or fork lift. A fork lift can also be used at ground level to remove the VPL from the truck.
- It may be necessary to move the VPL around once it's on the job site. Extra material handling equipment such as manual carts, a pallet jack, fork lift, and/or crane may be needed. There may be times when VPL will have to be moved by man power. All of the tower panels can be removed to lighten up the tower. Care should be taken not to scratch or damage panels when removing, carrying, and reinstalling them.
- Special care must be taken to protect any landscaping or flooring surfaces that might be damaged by the uses of material handling equipment.

HOIST WAY (SHAFT)

- If a shaft is needed and is being built by someone other than the installer, it's important to provide detail drawings and specifications for the shaft way to the builder. The drawings must include any rough in electrical requirements for

gate/door, interlock, or call send wiring.

NOTE: Hoistway must comply with the IBC or IRC building codes.

EQUIPMENT PREPARATION

- Final Site Inspection
- Power requirements (NFPA 70)
- Connecting to electrical (Disconnect)
- Controller harness
- Read the installation manual before attempting to install the lift. If you have any questions contact Harmar before starting the installation.
- In preparation for receiving the lift for installation a final site inspection must be completed to ensure the mounting surface for the lift complies or exceeded Harmar's recommendation for the concrete slab. The size of the concrete slab must be large enough for the lift and the approach for the mobility device.
- If there was a blueprint created for the project check that all work matches the blueprint. Running clearance measurements should be double checked for the platform and fascia, guard panels and wall/barrier, and the platform top landing and overhead clearance. Ensure there are no pinch points.
- If doors are supplied by others check that they meet ASME A18.1, flush mount doors are required. If other non Harmar supplied equipment (power door openers, interlocks, and/or door strikes) are going to be used, check compatibility with Harmar equipment.
- The front tower panel and the top cover must be removed before any power, gate/door, call send connection can be made.
- Ensure the VPL is out of service mode before it is placed into use. Service mode is used to temporarily bypass interlocks & safety pan to assist with installation.

SECTION 4
INSTALLATION

**INSTALLING THE TOP
LANDING GATE**

⚠ WARNING

The top of the gate must be attached to a supporting structure. The gate is not designed to be freestanding.

1. Determine the direction and routing of the wires going from the landing gate.

NOTE: If the call send switch is installed in the gate, the wires are routed between the gate and to the top of the tower. If the call send is located outside the gate, the wires are routed from the gate to the call send box and then from the box to the top of the tower.

2. Create the necessary space below the gate sill so the wire can be routed into the gate post through the wire routing slot. *See Figure 4-1.*

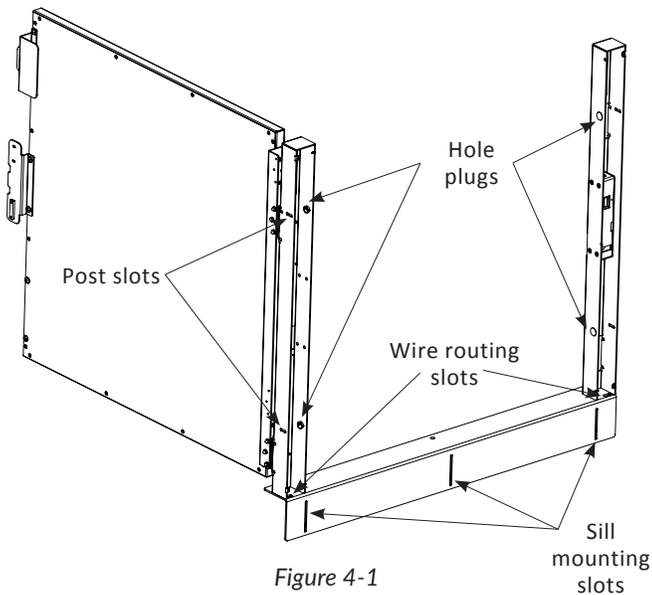


Figure 4-1

3. Remove Post Cover on the latch side of the landing gate.
4. Open landing gate door and remove 4X hole plugs.
5. Place the gate at the upper landing and center the gate opening with the platform.
6. Use the holes in the gate threshold to screw the gate down to the landing.
7. Run the wire through the wire routing slot and up the interlock.
8. Remove the 4X interlock cover screws.
9. Strip the wire jacket and conductors.
10. Connect to the screw terminal inside the interlock. For details, please refer to the supplemental guide "Highlander II Wiring Schematics".
11. If equipped, connect the wires to the gate call send switch. For details, please refer to the supplemental guide "Highlander II Wiring Schematics".
12. Reinstall interlock, gate post covers and hole plugs.

NO HOISTWAY/NO FLOOR PENETRATION

1. Remove 5X front screws.
2. Remove the top cap by loosening the 4 side screws and lifting the top cap partially, then disconnect the cable for status indicator lights from the control board. *See Figure 4-2.*

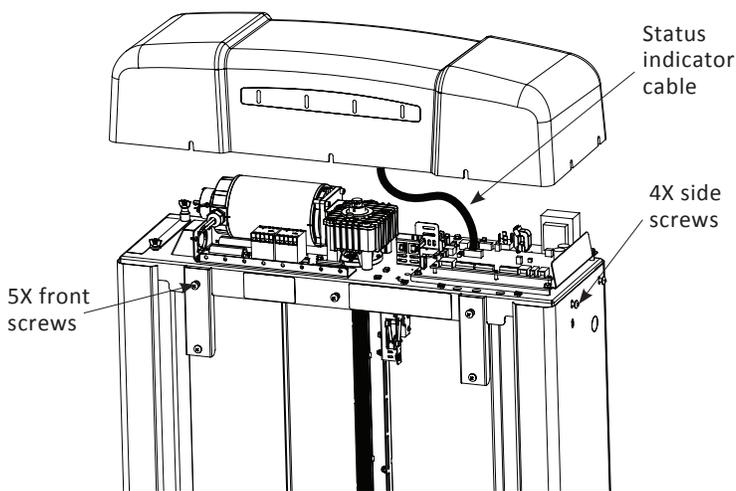


Figure 4-2

3. Remove the front panel by rotating it out slightly and lifting it out of the lower slots.
4. Position the VPL tower close to the upper landing and stand it up using appropriate material handling processes.

NOTE: Tower frame should only be lifted by the rectangular tubes below the top plate.

PLATFORM CONNECTION

1. Remove and discard the temporary bolt and nut that secures the tensioning pulley to the carriage for shipping. This bolt is indicated with a red tag. Suspend the pulley assembly behind the carriage. *See Figure 4-3.*

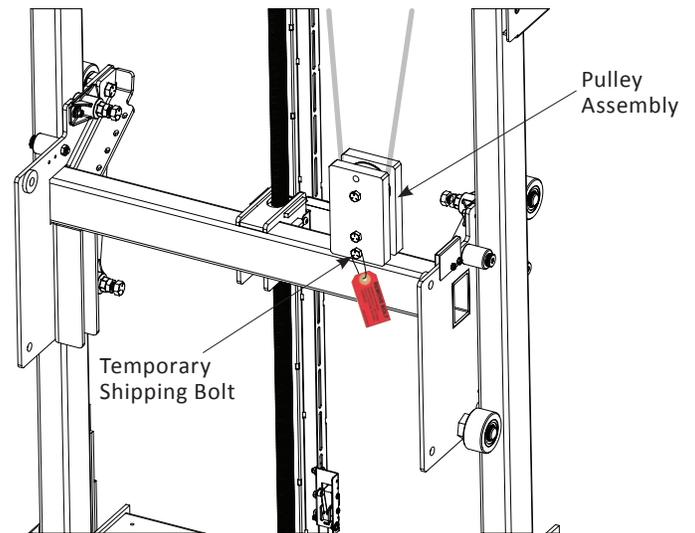


Figure 4-3

2. Connect the 8-pin platform control box connector.
3. Remove 4X screws on junction box cover inside the tower. Apply temporary power to the lift through the junction box inside the tower. Connect temporary 120VAC to the black and white wires. Route temporary wires out of a knock-out in the side of the junction box, down through back of center wire channel to the bottom of the lift and to temporary power source.

See Figure 4-4.

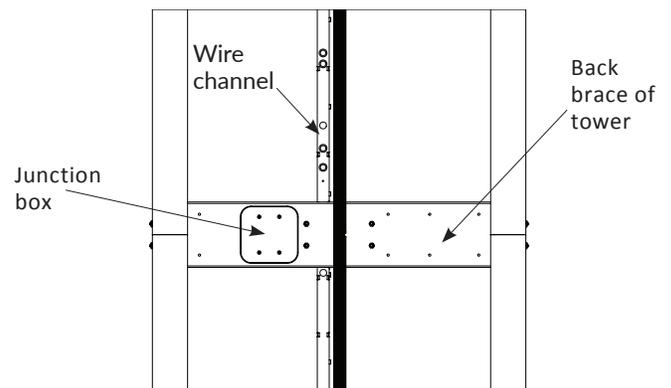


Figure 4-4

INSTALLATION

- Once power is established and the VPL comes online, the indicator LED's on the control board will flash an alarm code to indicate that the installation is incomplete.
- Place the platform on a support object strong enough to handle the weight of the platform. Position the platform on the support located near the bottom of the VPL.
- Press the service button on the control electronics board. All 4 status indicator LED's will flash green, to show that "Service Mode" is active. The unit will remain in "Service Mode" for 10 minutes. Press the service button again if needed.
- Use the platform control box to move the carriage up or down to align the platform and carriage mounting holes. *See Figure 4-5.*

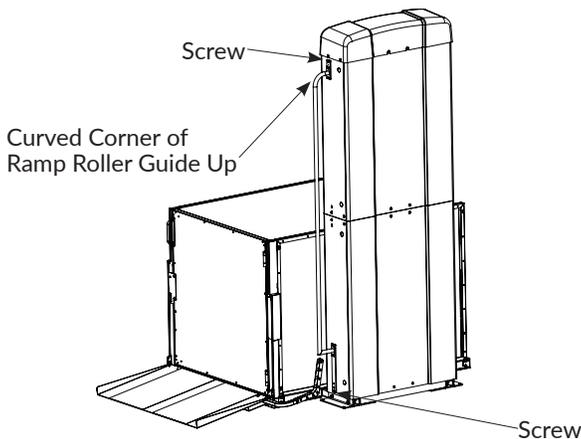


Figure 4-5

- Install the $\frac{1}{2}$ " bolts using the low profile nyloc nuts on the lower bolts and a standard nyloc nut on the upper bolts.
- Secure the safety pan harness and platform control harness under the clip at the top of the carriage flange.

INSTALLING THE PLATFORM CONTROL GUARD PANEL

- Remove the (2) $\frac{1}{4}$ " - 20 x 2" bolts from each corner of the platform.
- Insert the control side guard panel posts into the pockets on the platform with the smooth side facing the inside of the platform. Fasten in place with (4) $\frac{1}{4}$ " - 20 x 2" bolts. Torque bolts down sufficiently to hold guard panels rigidly in-place. The platform material in front of the pockets may deform slightly while tightening bolts.
- Remove (4) screws and nuts loosely attached to the control box.
- Fasten the control box to the control guard panel securely with the (4) screws and nuts.

INSTALLING A PLATFORM GATE (IF EQUIPPED)

- Align platform gate assembly on platform end with floor and platform panels.
- Install (4) $\frac{1}{4}$ " -20 x $\frac{5}{8}$ " screws through tabs in gate frame into threaded holes on platform panels. *See Figure 4-6.*

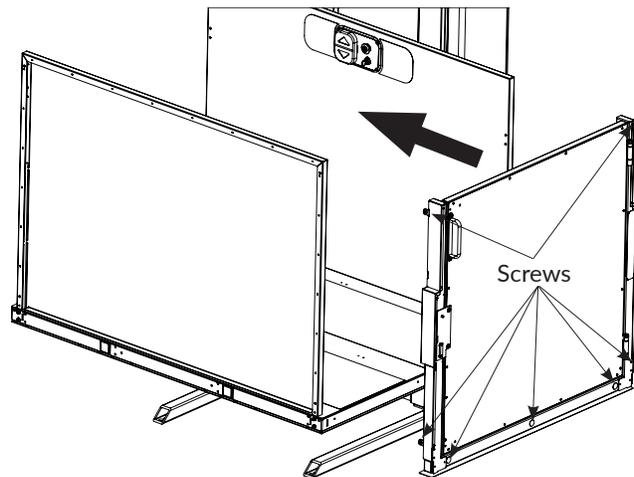


Figure 4-6

3. Install (3) ¼" - 20 x 1" thread forming screws through bottom tube of gate frame. Screws are accessed through 7/8" diameter holes in front of tube. Use a 3/8" nut driver or socket and extension to tighten screws. **DO NOT USE AN IMPACT TOOL TO TIGHTEN SCREWS.**
4. Route platform gate wire harness from gate over to safety pan 6-pin connector.
5. Insert female crimp fitting on red wire into connector position #3. Insert female crimp fitting on green wire into connector position #4. Insert female crimp fitting on black wire into connector position #6.

INSTALLING THE PLATFORM FRONT GUARD PANEL

Insert the front guard panel posts into the pockets on the platform with the smooth side facing the inside of the platform. Fasten in place with (4) ¼"-20 x 2" bolts.

If an auto fold ramp option is being installed the ramp brackets must be installed with this hardware.

INSTALLING THE AUTO-FOLDING RAMP

1. Attach the two ramp pivot tabs to the lower landing sides of the platform using (3) ¼"-20 x 2" bolts that go through the guard panel post, and thread into the platform.

NOTE: If a platform gate is equipped, the pivot tabs mount to the face of the gate with different hardware and nuts.

2. Assemble ramp roller arm into the rectangular pocket of the ramp with the provided hardware. *See Figure 4-7.*

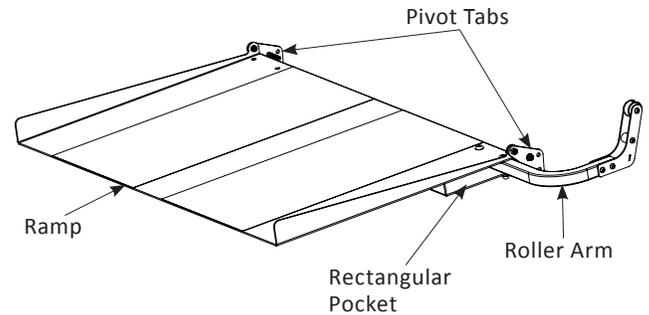


Figure 4-7

3. Use shoulder bolts to attach the ramp to the pivot tabs.
4. To install the ramp roller guide, remove the inside top and bottom side panel screws. *See Figure 4-8.*

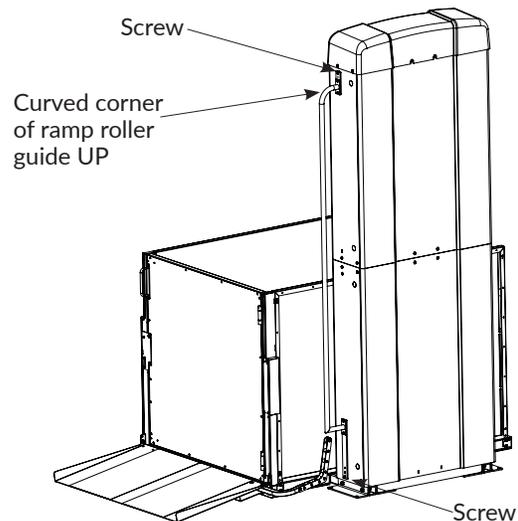


Figure 4-8

5. Install the ramp roller guide on the side of the tower with the screw that were previously removed.

NOTE: The curved corner of the ramp roller guide is oriented up. For taller towers the ramp roller guide has 3 mounting points.

SECTION 4

INSTALLATION

EMI INTERLOCKS AND STRIKES

Interlocks and Strikes to be installed into doors by others are shipped with VPL in the OEM packaging.

Install devices per instructions in packaging.

Connect wiring per device instructions and wiring schematic. For details, please refer to the supplemental guide "Highlander II Wiring Schematics".

CALL STATIONS

Check your state and local codes for mounting locations for the call stations.

Call stations are able to be mounted on a surface or flush mounted on a 2-gang outlet box.

1. Remove (4) label plate screws and label plate. *See Figure 4-9.*

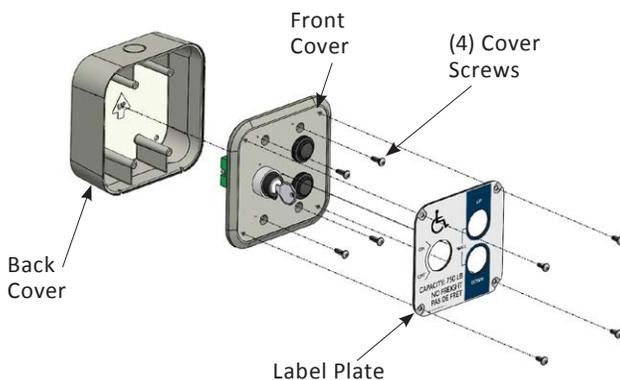


Figure 4-9

2. Remove (4) cover screws and front cover from back cover.
3. Determine mounting and wiring method.
4. If using the back cover for a wall mount setup, cut out the desired knock-out for wire routing. There are (4) knockouts on the back cover. (2)

on the back surface, (1) on the top and (1) on the bottom.

5. If using a flush mounted setup the back cover can be discarded.
6. Mount back cover to wall using appropriate fasteners through (4) holes in the back surface of back cover.
7. Route 8 conductor wire from call stations to top of tower and 6 conductor cable from call station to interlock or strike in door or gate.

NOTE: All cables must be stripped at points of termination so cables can be routed in the most convenient manner.

8. Use crimp connectors to make cable connections in call station per schematic. For details, please refer to the supplemental guide "VPL II Wiring Schematics".
9. Install the front cover to back cover or in-wall outlet box with (4) cover screws.
10. Install label plate on front cover with (4) label plate screws.

FINAL POSITIONING AND ANCHORING

79" of clearance is required above the platform floor when the lift is at the upper landing.

Position the lift in its final location.

Verify that the tower front and sides are plumb and all running clearances are the proper dimensions. Shim if necessary. Wood shims must never be used.

Install 2 anchors at the back of the tower and 2 anchors into the tower legs. *See figure 4-10.*

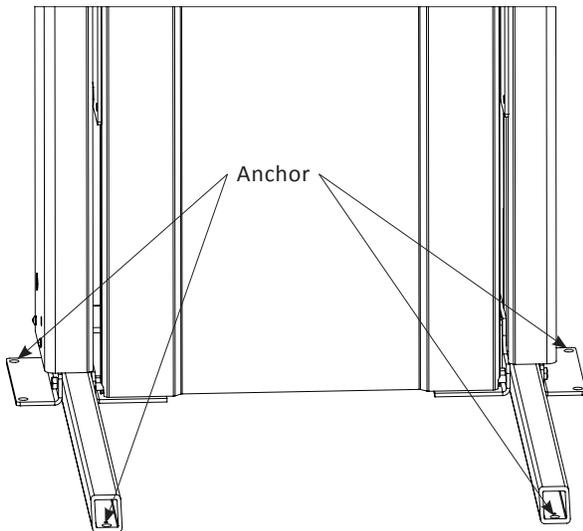


Figure 4-10

8' models must have the lift tower anchored into a solid surface at or above the top cross-brace of the tower frame. 10' or taller models must have the lift tower anchored at (2) levels into a solid surface at or above the top two (2) tower cross braces. This is to ensure running clearances remain constant. There are two options for anchoring the top of the tower. **See Figure 4-11.**

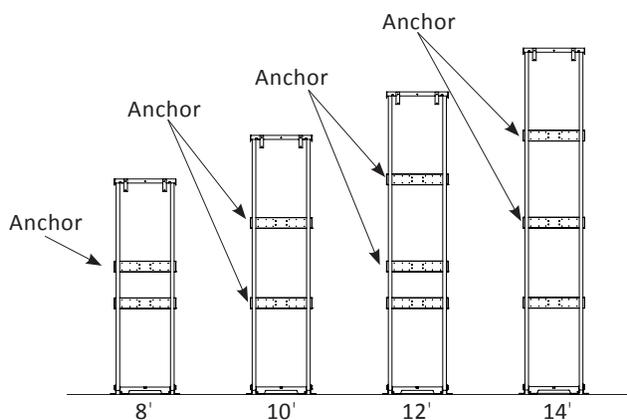


Figure 4-11

The 1st option is to use the optional tower brace that attaches to the sides for the tower.

There are brackets that attach to a structure.

Then the brackets are fastened together.

NOTICE

Locate the tower brace as high as possible on the tower.

The 2nd option for anchoring the lift is drilling through the slots in the back of the tower cross-braces at the desired locations and anchor to the structure behind the lift. The wall needs a brace or a solid structure behind it. Anchors should be built out at least 1" from the center 15" of the tower back so that top can be removed for service.

OPERATIONAL CHECK

Upon installation and at scheduled intervals the operation of the VPL must be verified.

NOTE: ASME A18.1-2017 requires operation checks of this lift to be conducted not less than weekly by authorized personnel.

1. Apply power and verify all (4) LED indicator lights are solid green.
2. Paddle/buttons on cab controls control UP and DOWN travel.
3. E-Stop PRESSED IN stops and prevents travel of platform. Button illuminates and alarm sounds (if equipped). Indicator lights 1, 2, 3 and 4 are solid RED.
4. Key switch (if equipped) OFF stops and prevents travel.
5. Landing switches stop the platform at each landing within 1/2", does not coast, and opens the gate locks.
6. Automatic Door Openers (if equipped) open the doors/gates at landing.
7. Open doors/gates prevents any travel of the platform. Indicator lights 3 and 4 are solid RED.

INSTALLATION

8. Call Station buttons control UP and DOWN travel.
9. Key switch (if equipped) OFF on Call Stations stops and prevents travel from Call Station.
10. Safety pan switches depressed prevent DOWN travel and allow UP travel (check several locations). Indicator lights 1 and 2 are flashing AMBER.
11. Pit switch (if equipped) prevents UP and DOWN travel. Indicator lights 1, 2 and 3 are solid RED
7. Verify that the platform anti-rock pads are tight to tubing and that the lock nuts are tight against the anti-rock housing.
8. Verify that the shipping bolt was removed from the cable tensioning pulley and that the pulley is hanging in the tower without hitting any obstacles during platform travel.
9. Verify that the manual lowering wrench and socket are in place and secured on the top plate with wing nuts.

INSTALLATION TOWER CHECK

Before reinstalling the top cap and front panels, an operational check should be completed on the internal tower safety features.

1. Apply temporary power and verify all (4) LED indicator lights on the control board are solid green.
2. Manually depress the final limit switch (the highest positioned switch) and verify any travel of platform is prevented and indicator lights 1, 2 and 3 are flashing RED.
3. Manually depress the safety nut switch (the switch near ACME nut) and verify any travel of platform is prevented and indicator lights 1, 2, 3 and 4 are flashing RED.
4. Manually depress the Over-Speed Governor (OSG) switch (the switch at the bottom of ACME screw) and verify any travel of platform is prevented and indicator lights 1, 2 and 3 are solid RED.
5. If equipped, lift the float of the float switch (the switch at the bottom of tower) and verify that DOWN travel is prevented and indicator light 2 is flashing AMBER.
6. Verify that the ACME drive screw is lubricated.

Install the front panel between the platform and tower. Slots in the bottom of front panel should rest on the pins in the tower. Install (5) ¼"-20 screws and plastic washers at top front panel leaving top (3) screws loose and ¼" offset from panel.

Disconnect the power to the lift. Connect the cable in the top cap for status indicator lights into the control board. Slide the top cap over top of the tower aligning the top cap slots with the (4) side screws and (3) front screws. There are tabs in the back of the top cap that drop into slots in the tower top plate. These tabs must drop into the slots for the top cap to sit down on all (7) screws. Tighten (7) ¼"-20 screws securely against the top cap. Reconnect the power to the lift.

MANUAL LOWERING DEVICE

In the event that the lift becomes disabled with passengers on the platform that is not at a landing the platform can be manually lowered by people outside the lift. The lowering mechanism is located beneath the top cap of the lift.

1. Loosen (7) screws around the perimeter of the top cap.
2. Lift the top cap partially and disconnect the cable between the top cap at the control board. Set the top cap aside.
3. Remove the two wingnuts holding down the manual lowering tools (¼" wrench and ¼" x ⅜" drive socket).

4. If you have a $\frac{3}{8}$ " drive ratchet or a cordless drill with a $\frac{3}{8}$ " socket adapter bit you can use the $\frac{1}{4}$ " socket for lowering. Otherwise use the $\frac{1}{4}$ " wrench.
5. Place the wrench or socket and tool on the end of the motor shaft.

NOTE: The drive motor is equipped with a low holding force brake to prevent the platform from drifting with heavy loads.

6. If the lift has power press and hold the button on the control board labeled BRAKE. This will release the brake and make lowering a little easier.
7. Rotate the motor shaft CLOCKWISE to lower platform.

NOTE: Do not attempt to raise the platform. The required torque to do so is substantially higher.

8. Stop rotation when the platform is level with the lower landing.
9. Release the BRAKE button if pressed.
10. If the lower gate/door does not open the crescent key can be used to release it.
11. Use disconnect to remove all power from lift until it can be serviced.

EMERGENCY EVACUATION PROCEDURE

CAUTION

Platform lifts should not be used for evacuation during emergencies.

Do not use the lift alone if you are not sure that you can maintain pressure on the control buttons for the duration of travel.

If using the lift alone, it is best practice to have a cell phone with you in case of a malfunction that prevents the platform movement.

If the lift malfunctions while occupied:

- Occupant should follow the directions located next to the platform controls and never try to evacuate the lift on their own.
- Contact dealer and/or 911 (dealers phone number is written on the label next to the cab controls).
- Push in the Red Emergency Stop button on the cab control. If equipped, an alarm will sound.

Once help arrives, they should follow the Emergency Lowering Procedure to evacuate the occupant.

EMERGENCY LOWERING PROCEDURE

WARNING

Never exit an elevated platform unless it is fully parked at a landing. Do not attempt to manually lower the device while in the platform.

In the event that the lift becomes disabled with passengers on the platform that is not at a landing, it may be necessary/desirable to manually lower them prior to a technician arriving.

In that case, a manual lowering mechanism is located beneath the top cap of the lift. A person other than the lift passenger(s) will be required to make their way to the top of the tower to perform this procedure.

1. Loosen (7) screws around the perimeter of the top cap with a Phillips head screwdriver.
2. Lift the top cap partially and disconnect the cable between the top cap at the control board. Set the top cap aside. **See Figure 4-12.**

SECTION 4

INSTALLATION

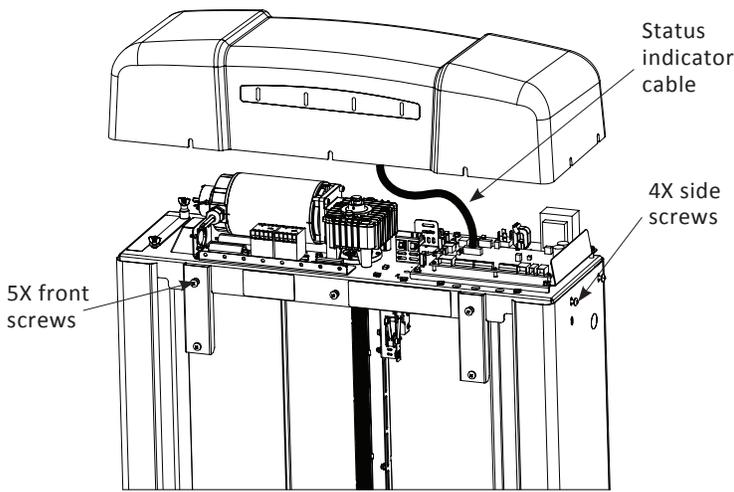


Figure 4-12

3. Remove the two wingnuts holding down the manual lowering tools ($\frac{1}{4}$ " wrench and $\frac{1}{4}$ " x $\frac{3}{8}$ " drive socket). **See Figure 4-13.**

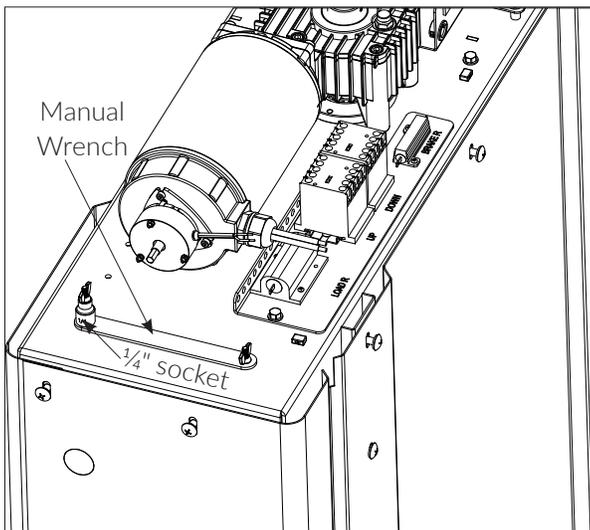


Figure 4-13

4. The wrench fits over the $\frac{1}{4}$ " hex shaft at the end of the drive motor. It is designed to be rotated by hand — clockwise, which will turn the screw and lower the platform. **See Figure 4-14.**

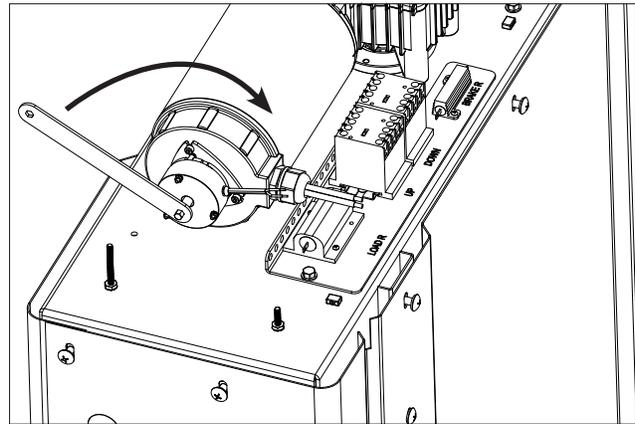


Figure 4-14

5. If you have a $\frac{3}{8}$ " drive ratchet or a cordless drill with a $\frac{3}{8}$ " socket adapter bit you can use the $\frac{1}{4}$ " socket for lowering. Power the drill in the forward direction - rotating clockwise to lower the platform. **See Figure 4-15.**

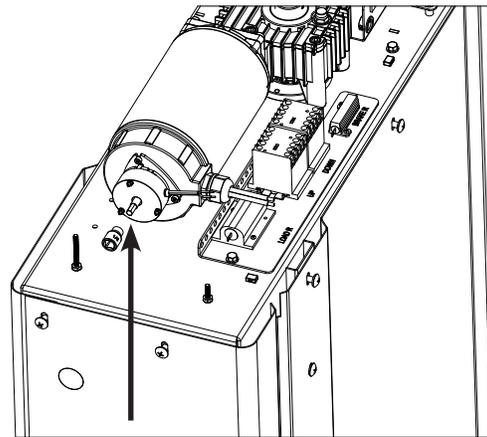


Figure 4-15

NOTE: The drive motor is equipped with a low holding force brake to prevent the platform from drifting with heavy loads. Lowering the platform with this brake on will require a bit of strength, typically the equivalent of being able to lift 20 lb with one arm.

6. If the lift has power, press and hold the button on the control board labeled BRAKE. This will release the brake and make lowering the platform a little easier.

7. Rotate the motor shaft clockwise to lower the platform.

NOTE: Do not attempt to raise the platform. The required torque to do so is substantially higher.

8. Stop rotation when the platform is level with the lower landing.
9. Release the BRAKE button if pressed.
10. If the lower gate/door does not open, the crescent key can be used to release it.
11. Use disconnect to remove all power from lift.

PERMANENT POWER

WARNING

Wait for a Harmar dealer to service and inspect the lift prior to using it again.

INSTALLATION

Permanent power can be installed at various points in the overall installation process; however it must be installed by a qualified electrical contractor in compliance with local codes and regulations. Power must be a dedicated circuit connected through a 2-pole fused and lockable disconnect. Fuse should be a minimum of 15A.

Route wiring from disconnect to tower as directly as possible and enter tower through most convenient knock-out in tower side panels. Inside the tower enclosure route wires from knockout to internal junction box along the back panel of the enclosure. Use the back side of the wire channel if the junction box is at a different level than knockout. Be sure all wiring is routed clear of the moving carriage and roller wheels inside the tower. *See Figure 4-16.*

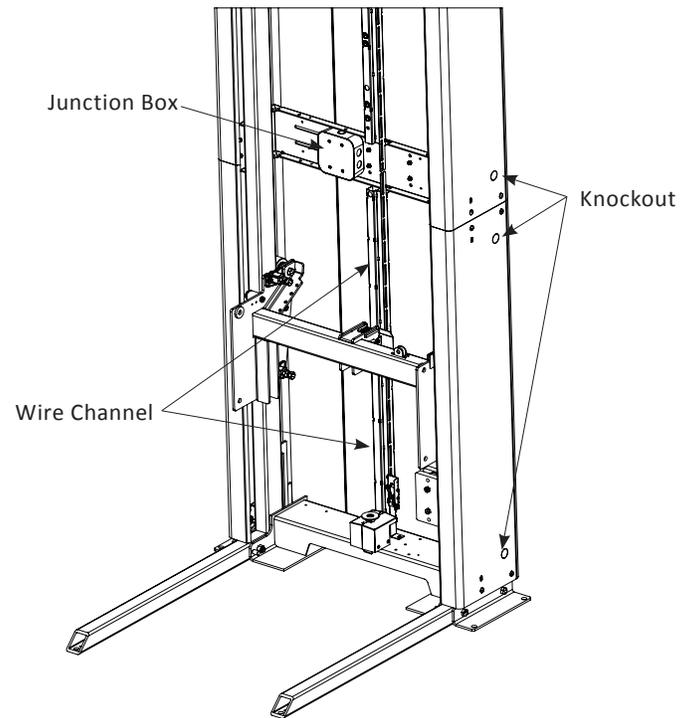


Figure 4-16

FASCIA PANEL INSTALLATION

The fascia panel sections are available in 53" and 24" heights and 41" and 49" widths. Custom fascia panel heights can be special ordered. Fascia panels must provide a smooth surface for the platform edge to run against to prevent any shear or obstruction hazards. They must be fastened beneath the opening and adjacent to each other with no overlapping or gaps between them.

The upper landing of a deck with an opening underneath requires a fascia wall.

NOTE: It may be necessary to stud up the wall to give the fascia panel something to fasten to.

Once the structure is in place, fasten the fascia panel to it.

INSTALLATION

Use temporary power and the platform control box to run the lift up and down to check for a horizontal gap between the upper landing and the platform. The gap must be no less than $\frac{3}{8}$ " and no greater than $\frac{3}{4}$ ".

SETTING THE UPPER LIMIT SWITCH

Typically only the upper limit switch will need to be adjusted.

Raise the platform so it is level with the upper landing.

Loosen the bolts on the upper limit switch assembly. Slide the assembly down until the switch makes contact with the carriage and makes a clicking sound. Re-tighten the bolts.

OPERATOR FAMILIARIZATION

Upon completion of the installation, it is imperative to review all contents of the Owner's Manual with the customer and provide a thorough demonstration and familiarization of the lift.

In residential applications, this should be conducted with the end-user and any or all of the following: homeowner, family members, caregiver etc. You should not leave until the end-user or primary lift operator has demonstrated they can use the lift properly.

In commercial applications this would take place with any or all of the following: the property owner, facilities manager, or any personnel who may oversee the unit's use or control its access.

PROVIDE OVERVIEW

- Cover all warnings
- Describe how the lift works and familiarize with key components
- Pre-use inspection

DESCRIBE AND DEMONSTRATE PROPER USE AND EACH KEY WW

- Call/Send
- Entrance and positioning
- Door/Gate interlocks and safety pan
Status lights and color key
- Ascend/Descend
- Use of handrail
- Emergency lowering

REVIEW CARE AND MAINTENANCE

- Keys
- Maintenance items
- Inspection items
- Rust prevention

Be sure to leave them with the Owner's Manual and that your contact information has been written into it as well as on the labels in the cab and on the tower. **Have them complete the Warranty Registration while you are there.**

SECTION 5

INSTALLATION QUICK START

SITE PREP

- Code Compliance
- Upper Landing
- Foundation Level
- Hoistway Square
- Electrical

Code: ASME 18.1 relative to residential or commercial, NAEC and Local Building.

INSTALL LANDING GATE*

- Screw to Landing
- Pre-run Wiring

INSTALL FASCIA PANEL*

- Attach to Open Areas Under Gate
- Ensure Smooth, Flush
- No Gaps, Protrusions etc.

TIP: Use flat screw heads to avoid protrusions.

POSITION LIFT BENEATH LANDING

- Remove Top Cap
- Remove Front Panel
- Verify Overhead Clearance at 79" +

TIP: Use material handling equipment with lifting straps to avoid injury/damage.

ASSEMBLE PLATFORM

- Attach Platform to Carriage
- Bolt on Side Walls
- Platform Gate*
- Attach and Wire Control Panel
- Auto Ramp*

Tip: Use 2'x4' beneath platform base when connecting to carriage.

FINAL POSITIONING & ANCHORING

- Level and Perpendicular
- Anchor Tower Legs
- Anchor Tower to Structure
- Fixed Ramp Securement*

Verify Clearances:

Platform opening to landing: $\frac{3}{8}$ " - $\frac{3}{4}$ "
Guard panel to hoistway wall: 2" - 3"

WIRING & ELECTRICAL

- Gates*/Doors/Interlocks/Openers
- Call/Sends*
- Install and Connect Battery Backup*
- Dedicated Line to Primary Power Source

TIP: Use knockouts provided along tower to minimize wire distance.

FINAL

- Perform Final Function Tests
- Reattach Top Cap and Front Cover
- Operator Familiarization
- Complete Warranty Form
- Write Date/Info on Lift

** if required/included*

SECTION 6

TROUBLESHOOTING

STATUS CODES

This lift has several advanced safety systems that monitor various sensors, switches and the performance of the lift. To indicate the status of the VPL there are 4-LEDs located on the Top Cap of the tower. The table below explains the status indicated by the 4-LEDs. LEDs are numbered from left to right, while facing the tower from the platform side. Color listed in brackets indicates LED is flashing.

See Figure 6-1.

NOTE: [COLOR] means flashing light.

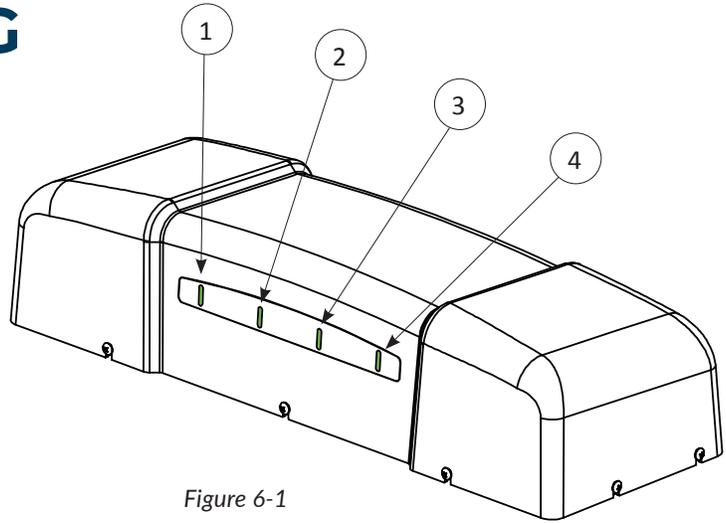


Figure 6-1

STATUS LED				STATUS
#1	#2	#3	#4	
All OFF				Lift will not function. Major Fault, No Power (and no battery) or Low Power Mode. Service is Required.
Any Green or [Green]				Lift functional. No faults
Green	Green	Green	Green	All systems normal. Lift is OK to Operate.
[Green]	[Green]	[Green]	[Green]	Lift is in "Service Mode". Only Authorized Technicians should Operate.
[Green]	[Green]	[Green]		Lift is running on backup power. Lift is OK to Operate.
Any Amber				Lift is OK to Operate. Service is Required.
Amber	Amber	Amber		Lift is running on backup power and battery is Low. Lift is OK to Operate for at least one full lift cycle.
	Amber	Amber	Amber	Lift is on AC power and battery is Low. If lift transfers to backup power it will only operate for at least one full lift cycle. Service is Required.

STATUS LED				STATUS
#1	#2	#3	#4	
Amber				Service is required. Flood Switch was activated.
	Amber			Service is required. Lift travel time exceeded average.
Amber	Amber			Service is required. Periodic maintenance limit reached.
		Amber		Service is required. Service hour limit reached.
Any [Amber]				Minor fault. Platform function is reduced. Service may be Required*.
[Amber]	[Amber]	[Amber]		Lift is running on backup power and battery is very low. Platform will only go down.
	[Amber]	[Amber]	[Amber]	Lift is on AC power and battery is very low. If lift transfers to backup power platform will only go down. Service is Required.
		[Amber]		Motor temperature is hot. Platform will only go down.
[Amber]			[Amber]	Motor is drawing too much current. Platform will only go down. Service is required.
[Amber]	[Amber]			Safety pan has been triggered. Platform will only go up.
	[Amber]			Float switch has been triggered. Platform will only go up. Service will be required to ensure safe operation. Alarm will turn into a Major Fault after multiple uses.
	[Amber]	[Amber]		Motor temperature monitoring lost. Service is required.
Any Red				Safety switch triggered. Lift will not function.
		Red	Red	A landing door/gate is open. Lift will not function until closed.
Red	Red			A landing door/gate lock has failed. Lift will not function until lock is enabled. Service may be required.
Red	Red	Red	Red	E-Stop button is pressed. Lift will not function until button released.

**If battery is not replaced promptly after this warning, the battery will further degrade to the point that unit will shut off completely when AC power is lost.*

STATUS LED				STATUS
#1	#2	#3	#4	
Red	Red	Red		Pit switch or OSG triggered. If pit switch, lift will not function until switch changes state. Service is required if it is the OSG switch.
Any [Red]				Lift will not function. Major Fault. Service is required*.
	[Red]			Lift out of service. Service is required after a flood event.
	[Red]	[Red]	[Red]	Lift out of service. Service is required for periodic maintenance.
[Red]				Lift out of service. Lift travel time exceeded average by 2X. Service is required.
[Red]	[Red]	[Red]	[Red]	Lift out of service. Safety nut switch is triggered. Service is required.
[Red]	[Red]	[Red]		Lift out of service. Final limit switch is triggered. Service is required.
		[Red]		Lift out of service. Top landing switch did not change state when platform should have moved off landing. Service is required.
	[Red]	[Red]		Lift out of service. Mid landing switch did not change state when platform should have moved off landing. Service is required.
[Red]		[Red]		Lift out of service. Bottom landing switch did not change state when platform should have moved off landing. Service is required.
		[Red]	[Red]	Lift out of service. Motor current is 0 Amps while going up. Service is required.
			[Red]	Lift temporarily out of service. Motor temperature is Very Hot. Lift will not function until the motor has cooled.

*If battery is not replaced promptly after this warning, the battery will further degrade to the point that unit will shut off completely when AC power is lost.

CONTROL BOARD

The Control Board contains the processor, receives all of the sensor input, sends out all of the commands and provides important feedback for troubleshooting. It identifies each of the inputs and outputs on the Control Board. *See Figure 6-3.*

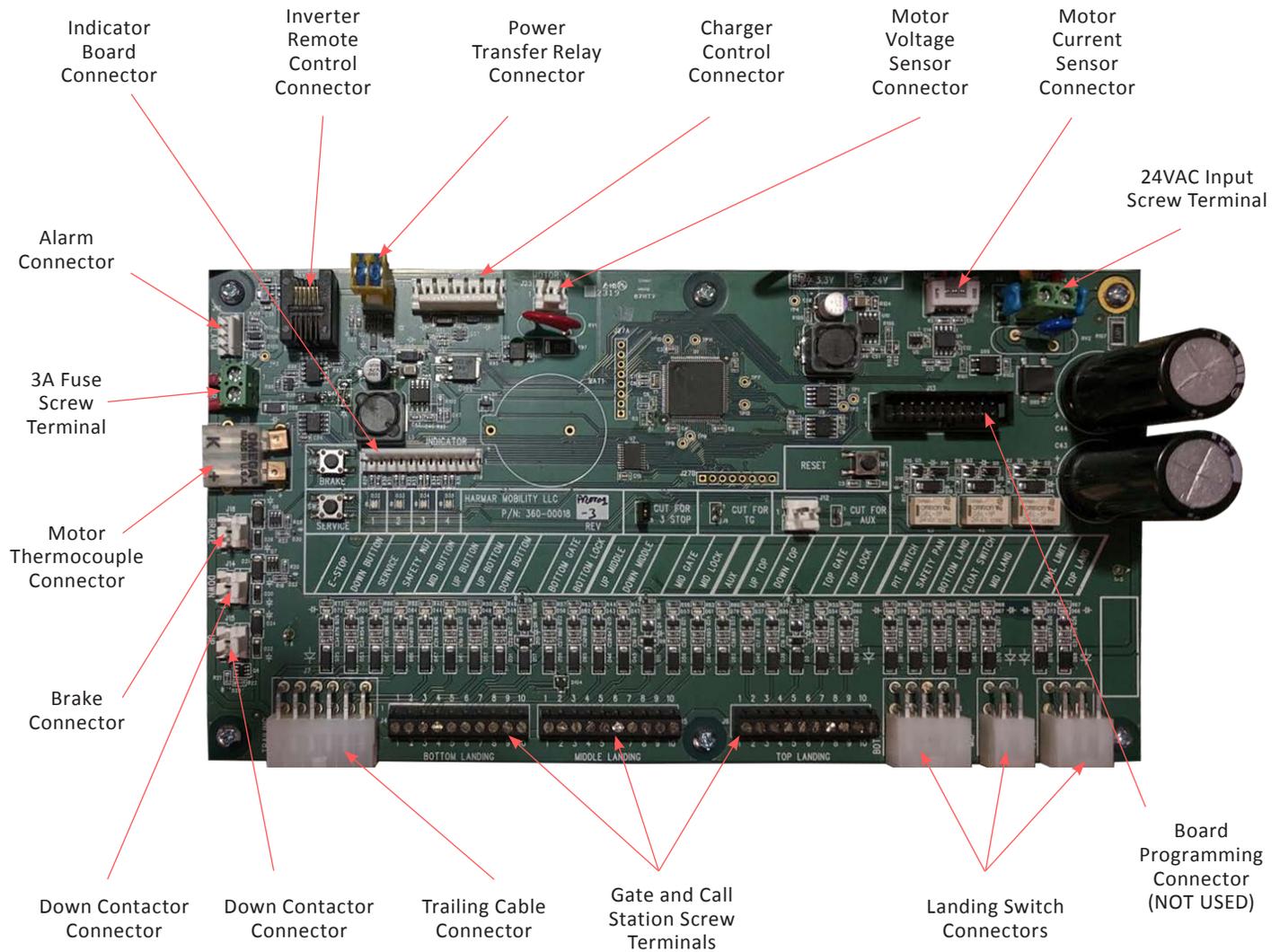


Figure 6-3

The control board has 32 LEDs to provide the status of power to the board and each circuit that is monitored. It shows the location and description of each LED. *See Figure 6-4.*

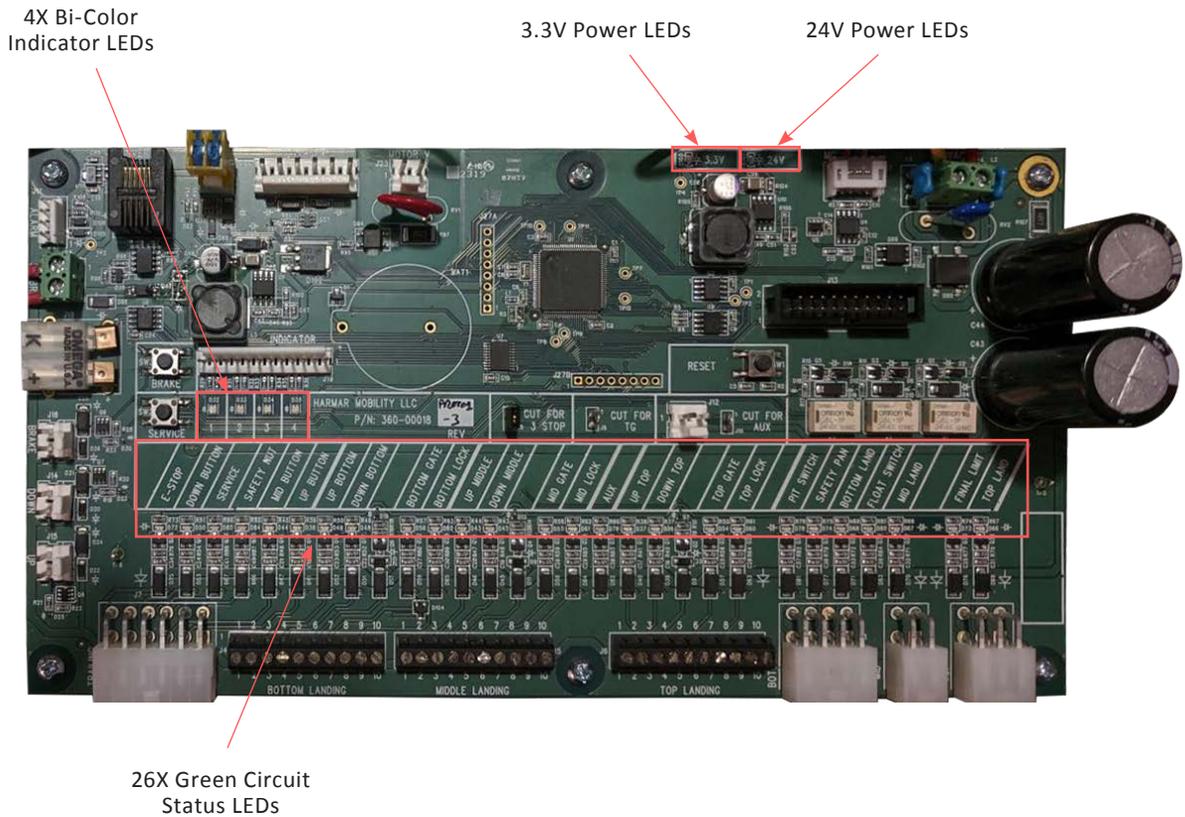


Figure 6-4

DESCRIPTION	COLORS	STATUS, TROUBLESHOOTING
4X Indicators	Green, Amber, Red	These LEDs exactly duplicate the Indicator LEDs on Top Cap. If they do not match there could be an issue with cable or Indicator Board. Refer to Troubleshooting codes above.
3.3V Power	Green	LED ON indicates processor is getting power.
24V Power	Green	LED ON indicates all 24V circuits are getting power.
E-Stop	Green	LED ON indicates the E-stop is not depressed (lift can run)

Down Button	Green	LED ON indicates the Down button in the cab control is being depressed.
Service	Green	LED ON indicates the Service button is being depressed. Service mode is only entered after button is released.
Safety Nut	Green	LED OFF indicates the safety nut switch circuit is open. Major Fault. Possible causes: ACME nut failure, switch failure, connector open or wire break.
Mid Button	Green	If a 3-Stop unit, LED ON indicates the Mid button in the cab control is being depressed. This should never be ON with a 2-stop lift.
Up Button	Green	LED ON indicates the Up button in the cab control is being depressed.
Up Bottom	Green	LED ON indicates the Up button in the Bottom Call Station is being depressed.
Down Bottom	Green	LED ON indicates the Down button in the Bottom Call Station is being depressed.
Bottom Gate	Green	LED ON indicates the Bottom Gate/Door interlock is closed.
Bottom Lock	Green	LED ON indicates the Bottom Gate/Door lock is active.
Up Mid	Green	LED ON indicates the Up button in the Mid Call Station is being depressed.
Down Mid	Green	LED ON indicates the Down button in the Mid Call Station is being depressed.
Aux	Green	Aux circuit is unused
Mid Gate	Green	LED ON indicates the Mid Gate/Door interlock is closed.
Mid Lock	Green	LED ON indicates the Mid Gate/Door lock is active.
Up Top	Green	LED ON indicates the Up button in the Top Call Station is being depressed.
Down Bottom	Green	LED ON indicates the Down button in the Top Call Station is being depressed.
Bottom Gate	Green	LED ON indicates the Bottom or Platform Gate/Door interlock is closed.

Bottom Lock	Green	LED ON indicates the Bottom or Platform Gate/Door lock is active.
Pit Switch	Green	LED OFF indicates the Pit Switch (if equipped) or Over Speed Governor circuit is open. Major Fault. Pit switch and OSG share a circuit that normally closed. Possible causes: Failure causing drive screw overspeed, switch failure, connector open or wire break.
Safety Pan	Green	LED OFF indicates the safety pan circuit is open. Minor Fault. Platform is only able to move up. If circuit stays open after obstruction cleared there could be a switch failure, connector open or wire break. There are 11 safety pan switches in platform.
Bottom Land	Green	LED ON indicates the Bottom Landing switch is closed. The switch should be closed only when platform is at that landing.
Float Switch	Green	LED ON indicates the float switch (if equipped) is closed. Minor Fault. The platform is only able to move up. The switch should be closed only when water is present and lifting the float.
Mid Land	Green	If a 3-Stop lift, LED ON indicates the Mid Landing switch is closed. The switch should be closed only when platform is at that landing.
Final Limit	Green	LED ON indicates the Top Final Limit switch is closed. Major Fault. The Top Landing switch did not close when platform was at that landing. Possible causes: Top Landing switch failure, connector open or wire break.
Top Land	Green	LED ON indicates the Top Landing switch is closed. The switch should be closed only when platform is at that landing.

SECTION 6

TROUBLESHOOTING

The control board has 32 LEDs to provide the status of power to the board and each circuit that is monitored. It shows the location and description of each LED. *See Figure 6-5.*

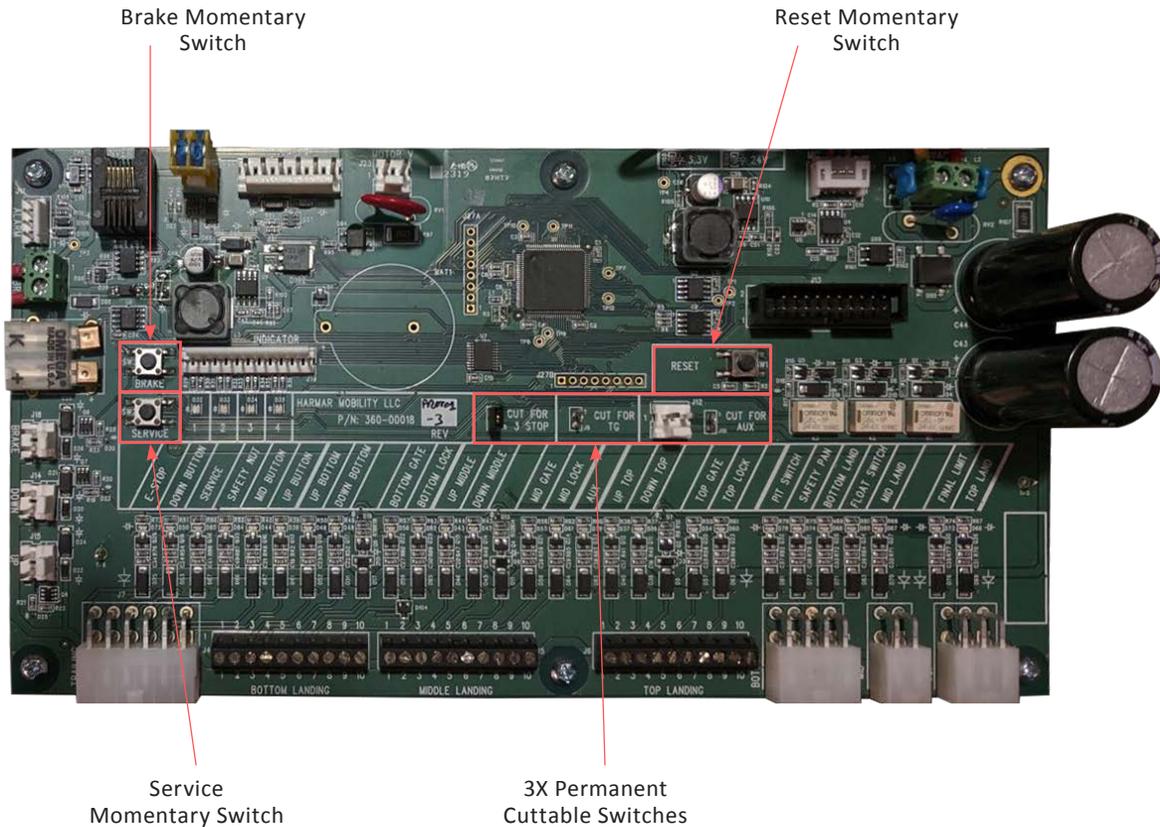


Figure 6-5

BRAKE MOMENTARY SWITCH

The brake on the back of the gear motor is 24V DC “fail safe,” electromagnetic holding brake. The brake is released when 24V DC is applied. Pressing the BRAKE momentary switch will apply 24V DC and release the brake with an audible “Click.”

⚠ WARNING

Pressing and holding this switch could result in the platform slowly drifting down.

This switch can be used to check brake operation and is recommended to be used in the emergency lowering procedure.

RESET MOMENTARY SWITCH

Pressing the RESET momentary switch will reset the processor and exit “Service Mode” if board were in that mode. “Out of Service Mode” flag is not cleared by pressing the RESET switch.

SERVICE MOMENTARY SWITCH

The SERVICE switch should only be used during installation and for service by authorized technicians.

 **WARNING**

Pressing this switch results in the disabling of safety circuits.

Pressing the SERVICE switch puts the lift into a “Service Mode” which temporarily ignores most safety circuits and major faults allowing the technician to move the platform and troubleshoot issues more easily. All 4 Indicator LEDs will flash green when the unit is in “Service Mode” and the lift will automatically go back to normal operation after 10 minutes. You can hit the RESET switch to exit “Service Mode” before 10 minutes. All status LEDs on the control board will work normally in “Service Mode.”

Pressing the SERVICE will allow the platform to move if the unit is in “Out of Service Mode”, however the lift will return to “Out of Service Mode” when the “Service Mode” expires.

To reset the “Out of Service Mode” flag after required service has completed:

1. Enter “Service Mode” by pressing and releasing the SERVICE switch.
2. Press and hold the SERVICE switch for at least 3 seconds then release.
3. Press and release the RESET switch within 10 minutes.

 **WARNING**

Do not reset the "Out of Service Mode" flag until required service has been performed. Unsafe operation could result.

PERMANENT CUTTABLE JUMPERS

Three permanent cuttable jumpers are included on the Control Board that allow the software characteristics to change based on configuration. If needed these jumpers are cut in the factory and should never need to change.

3-STOP JUMPER

This jumper is cut in the factory on 3-stop lifts. The control board will ignore any mid landing circuits when this jumper is intact.

TG JUMPER (UNUSED)

In the future this jumper will be used on Toe-Guard lifts.

AUX JUMPER (UNUSED)

This jumper could be used for future expansion/features.

GEARMOTOR

The VPL uses a $\frac{2}{3}$ Hp gearmotor mounted to the top of the tower frame. The brake on the back of the gear motor is a “fail safe,” electromagnetic holding brake. The Motor Gearbox on the front of the motor is a vented 26:1 worm drive gear reduction with synthetic gear and bearing oil.

See Figure 6-6 on page 34.

Motor is designed to for a duty cycle of 25% with a maximum continuous operation of 45 minutes. In other words, 45 minutes of continuous operation must be followed by 2 hours and 15 minutes of rest to prevent possible motor damage. Motor temperature is monitored by a thermocouple inside the motor housing. If the motor gets too hot it could restrict travel of platform to DOWN only. If the motor gets so hot that it could cause damage to the motor it will restrict platform movement entirely. Platform movement will be restored after temperatures fall below hot temperature thresholds. See STATUS CODES section for the codes displayed.

CONTACTOR TRAY

The Contactor Tray contains other control electronics wired to motor and control tray.

See Figure 6-6.

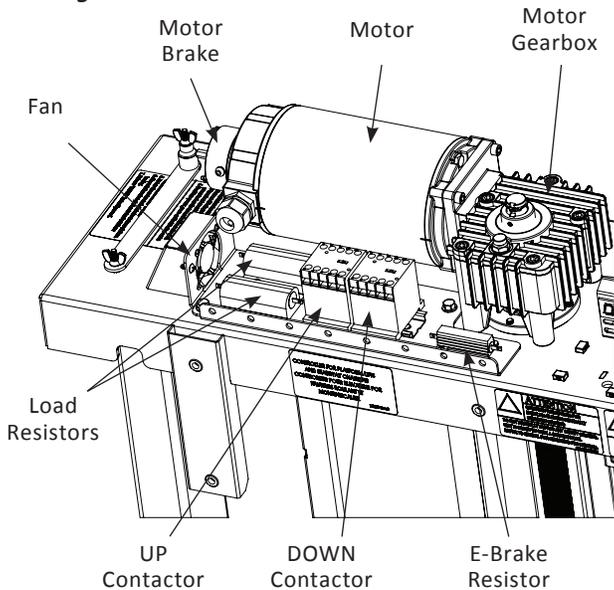


Figure 6-6 (wires not shown)

UP AND DOWN CONTACTORS

Both contactors have 3-poles with an auxiliary circuit that are switched by 24VAC coils. On top of the contactors is a switch position indicator that can be observed to verify switching is occurring properly. Contactors operate independently and are controlled by the control board.

⚠ WARNING

Do not manually switch the position indicator as all safeties would be bypassed.

E-BRAKE RESISTOR

The E-Brake resistor electronically slows the motor quickly via eddy current braking. When both contactors are OFF the resistor essentially shorts the motor leads which resists motor shaft rotation. Braking is proportional to motor speed, so this brake slows the motor very quickly, but does not hold the motor from drifting after it stops. The electromagnetic holding brake on the motor is engaged after the motor comes to a stop. If the platform is taking too long to come to a stop there could be an issue with this resistor or the wiring on it.

LOAD RESISTORS

The load resistors function is to slow the platforms speed in the DOWN direction. The resistors are in-circuit only when the DOWN contactor is ON and will generate significant heat as they dissipate some of the downward energy. The fan located next to the load resistors is there to cool the resistors.

⚠ WARNING

Load resistors could be very hot. Do not touch.

COOLING FAN

The cooling fan is primarily to cool the load resistors, but also cools the top compartment as it pulls air from the tower below. The fan is controlled by a thermostatic switch located on a load resistor. If the fan is not cutting off when the temperature drops there could be an issue with the switch.

BATTERY BACKUP

If the VPL is equipped with a Battery Backup System, it will be located inside the tower below the top plate. See Figure 6-7.

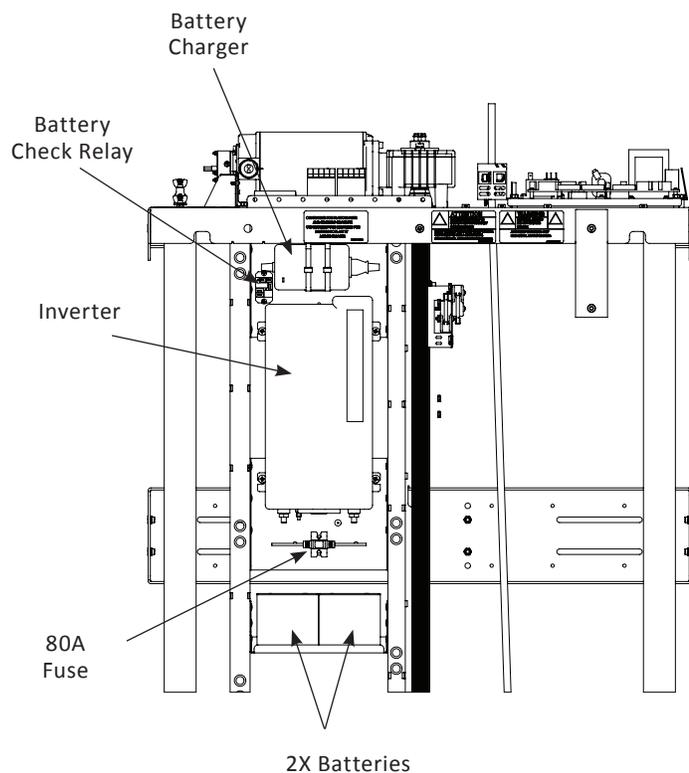


Figure 6-7 (wires not shown)

BATTERIES

Each battery in a VPL is a 12V Sealed Lead Acid battery. VPL400 and VPL600 get (2) batteries wired in series to provide 24V to the Inverter. VPL800 to VPL1400 get (4) batteries where (2) pairs of the batteries are wired in series and the pairs are wired together in parallel to get the 24V to the inverter. Properly maintained batteries are sized to be able to provide user with at least 5 round trips at full load while on battery power.

80A FUSE

Between the positive leads of the batteries and the inverter is an 80A fuse. This fuse protects the batteries and is very unlikely to independently blow unless there is a short during install or service.

BATTERY CHARGER

The battery charger is 24V, 2A with 4 stage charge profiles to maximize battery life. After a power outage it may take 12 to 18 hours to return to a full charge.

BATTERY CHECK RELAY

Since we cannot check battery voltage while the battery is charging, we have a Battery Check Relay that switches between charging and voltage monitoring. The battery voltage is monitored continuously any time while on battery power and checked every 4-hours while on AC power. A failed Battery Check Relay would result in a Very Low Battery warning.

INVERTER

The inverter is 1500W and converts the 24V from the batteries into a 120 Volt modified sine wave to power the lift. The inverter is controlled by the control board via the Inverter Remote Control Cable. There are safeties built into the inverter, however the control board monitors the input and output of the inverter and will go into a fault state to prevent the inverter from tripping. A failed inverter will appear to switch over to battery power but not provide power to drive the motor. The periodic operational checks should include a check of the battery backup system. To do this the AC line in must be interrupted at the 2 pole fused disconnect, the tower junction box or the control tray screw terminal.

SECTION 7
**MAINTENANCE
& INSPECTION**

Annual inspections are highly recommended to help prevent unsafe conditions and operation.

**RESIDENTIAL
APPLICATIONS**
OWNER / MAINTENANCE PERSONAL

BEFORE USE

Do not use lift until these conditions are rectified.

- All doors and gates are locked and secure.
- Check for standing water around the unit.
- Make sure the AC connections are in good condition and that there are no cracks or gaps in conduit.
- Make sure there are no obstructions intruding in the path of the lift.
 - People, tree branches, loose items, etc.
- Check that there is no loose hardware or emerging cracks/deformations in the platform and tower. Make sure that there are no unusual noise or vibrations that develop.

PERIODICALLY

- Check and ensure that the safety pan under the platform moves freely up and down and is not damaged. This is the built-in safety device designed to detect obstructions under the platform and stop platform downward motion. If there is an easy-to-remove obstruction, please remove it. If for any reason the safety pan does not move as intended, please contact your dealer.

- Check and ensure that all labels are intact and legible. If any safety or warning labels need to be replaced, please contact your dealer.
- Make sure you have a copy of the Owner's Manual. A digital copy of the Owner's Manual is available at harmar.com.
- Check your keylocks and emergency stop button for functionality.
- Check for any rust that may be developing. Rust is expected in outdoor applications (especially in coastal areas), but with proactive maintenance or quick repair, this can be minimized.

**COMMERCIAL
APPLICATIONS**
**END-USER/MAINTENANCE
PERSONAL**

IMPORTANT

Understanding State/Local Inspection Requirements and Timing - Always Required.

BEFORE USE

Do not use lift until these conditions are rectified.

- All doors and gates are locked and secure.
- Check for standing water around the unit.
- Make sure AC connections are in good condition and that there are no cracks or gaps in conduit.

- Make sure there are no obstructions intruding in the path of the lift.
 - People, tree branches, loose items, etc.
- Check that there is no loose hardware or emerging cracks/deformations in the platform and tower.

OWNER/OWNER'S AGENT

- Check and ensure that the safety pan under the platform moves freely up and down and is not damaged. This is the built-in safety device designed to detect obstructions under the platform and stop platform downward motion. If there is an easy-to-remove obstruction, please remove it. If for any reason the safety pan does not move as intended, please contact your dealer.
- Check and ensure that all labels are intact and legible. If any safety or warning labels need to be replaced, please contact your dealer.
- Make sure you have a copy of the Owner's Manual. A digital copy of the Owner's Manual is available at harmar.com.
- Check your keylocks and emergency stop button for functionality.
- Check for any rust that may be developing. Rust is expected in outdoor applications (especially in coastal areas), but with proactive maintenance or quick repair, this can be minimized.

DEALER MAINTENANCE SCHEDULE

RECOMMENDED EVERY 6-MONTHS

- Check for motor gearbox leaks
- Check wear pads for gaps
- Lubricate ACME screw with Nook PAG-1 ACME Screw Grease

- Check all structural connections/hardware
- Inspect the safety brake
- Check the Battery Backup function (if installed)
- Ensure the Power Cut-Off system works as intended
- Check all interlocks, strikes and obstruction sensors

RECOMMENDED ANNUALLY

- Replace batteries (if equipped)

