## **INSTALLATION GUIDE** Dealer Edition

# Elite Plus Hydraulic Residential Elevator 2024

All information found in AmeriGlide's Elevator Planning Guide reflects information at the time of printing. AmeriGlide reserves the right to change information without notice.



## **Installation Guide** Elite Plus Hydraulic Residential Elevator

This planning guide is designed to assist in the installation of a home elevator that meets the requirements of ASME A17.1 Part V Section 5.3.

We strongly recommend that you contact the codes authority having jurisdiction in the area(s) where the elevator will be installed. Become familiar with all requirements governing the installation and use of elevators in private residences. It is extremely important for you to know and adhere to all regulations concerning installation and use of elevators.

Elevator configurations and dimensions are in accordance with our interpretation of the standards set forth by ASME A17.1 Part V Section 5.3. Please consult AmeriGlide or an authorized dealer in your area for more specific information pertaining to your project, including any deviation between referenced standards and those of any local codes or laws. Always contact local code authorities for any variation to standards.

#### **IMPORTANT NOTICE:**

Documents contained in this guide are intended for use by trained any certified elevator technicians only.

Only trained elevator technicians shall service this elevator.

Elevator systems contain multiple complex electrical and mechanical systems.

The elevator controller contains multiple high and low voltage circuits. Disconnect all power sources including lowering batteries (when equipped) prior to servicing.

Serious injury or death may result from untrained installation or service of this elevator system.

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# **Technical Specifications**

#### **General Specifications**

	Standard	Optional
Drive Type	2:1 Roped hydraulic	Direct drive hydraulic
Rated Capacity	1,000lbs	1,400lbs
Travel Speed	40 fpm	
Maximum Travel	40'	Beyond 40' consult factory
Maximum Landings	4	Beyond 4 consult factory
Power Requirement	240V   single phase   30 amp 110V   single phase   15 amp	

#### **Design Specifications**

	Standard	Optional
Cabin Height	84"	96″
Cabin Doors	Manual Good Gate	Automatic Good Gate 2-speed or 3-speed Victory floor
Landing Doors	Landing doors by others	2-speed or 3-speed* Victory floor
*3 speed victory landing doors only available for 84″ cab height		

#### **Fixture Specifications**

	Standard	Optional
Car Operating Panel (COP)	Illuminated push buttons with digital position indicator (DPI)	Digital touch screen
Phone	No phone	Cabinet with standard phone
Call Stations	Illuminated pushbuttons	Illuminated pushbuttons with DPI

# **Before You Begin**

- 1. Prior to commencing installation, carefully examine the original shipment to confirm the presence of all necessary components required to complete the installation. In the event of any missing parts, please immediately contact our technical support team for assistance.
- 2. Upon confirming the availability of all components, cross-reference the shop drawings with the site conditions. This entails verifying dimensions such as width, depth, and travel to ensure alignment with the elevator's construction specifications. Should any discrepancies arise, do not hesitate to contact our technical support team for prompt resolution.
- 3. Consult Figure A and Figure B for crucial measurements verification before initiating the installation process.



Legend		
ОН	Overhead	
π	Total Travel	
T1	Travel Height 1	
T2	Travel Height 2	
PD	Pit Depth	
DH1	Door Height 1	
DH2	Door Height 2	
DH3	Door Height 3, etc	



Figure B

# **Rail Sections and Sling**

Start with assembling the rail wall. Use the drawings to establish your centerline of the rail wall and locate with your laser to ensure your first section of rail is centered accordingly.

It is very important to ensure that the rails are plumb and level.

Depending on the construction of the rail wall, you may need to shim the rail sections when attaching to the rail wall using the supplied shims as required.

#### Simple calculation for obtaining the centerline:

New Centerline = total platform/shaft size - opposite side of rails (sides of the rails) + 1 1/4" (Adding the Gap between the landing door and the platform)

New Centerline /2, this answer should be the edge of your rail section from the landing door



### **Sling Installation**

The shipment includes a pre-assembled sling, and there are two methods for its installation:

#### First Method (install as received)

Using the chain hoist, lift the sling and carefully lower it into the rail assembly. Ensure that the rollers ride on the inside surface of the rails, gently lowering the car frame to the bottom of the rail section.



#### Second Method (recommended)

1. Remove the 4- wheels assembled on each corner of the sling (see Figure 1a).



Figure 1a

2. Remove the L-bracket for the brake located on the left lower side of the sling (see Figure 1b).



Remove

Figure 1b

3. Lift the sling safely and align it with the lower rail section (see Figure 1c).



Figure 1c

- 4. Reassemble the upper two wheels back on the sling.
- 5. Reassemble the L-Bracket for the brake back on the sling.
- 6. Using a ratchet strap or a similar lifting tool, safely lift the sling approximately 10 inches and then install the lower two wheels back on the sling (see Figure 1d).



Figure 1d

With the sling lifted to about platform height, this is an ideal moment to install the platform:

1. Align the platform at the bottom of the sling and slowly slide the sling into the platform until it aligns with the pre-drilled holes for platform-sling assembly.

Figure 1e

2. Once the holes are aligned, secure the platform using the provided hardware (eight bolts). Refer to Figure 1e for guidance.



## **Installation of Upper Rail Wall**

For units with more than two rail sections, it is advisable to utilize the full sets of rail lengths for the middle section, given their tongue and groove alignment mechanism.

- Align and position the upper rail assembly on top of the lower rail assembly (refer to Figure 2).
- Ensure that the bottom of the upper rails sits flush on top of the lower rail assembly.
- Secure the upper rail to the lower rail using the provided hardware.
- Attach the upper rail assembly to the supporting wall using anchors. Be certain to anchor through the pre-drilled holes exclusively.





Figure 2

## **Cylinder and Sheave Installation**

- 1. Utilize the winch to elevate the cylinder for installation onto the cylinder post, ensuring the bottom hole of the cylinder rests flush atop the post. Consult Figure 3 for reference.
- 2. With the cylinder's bottom in position and

the winch securing it, fasten the U-clamp to ensure the cylinder remains straight. Refer to Figure 4.

*Caution: Misalignment can reduce seal lifespan and potentially impact ride quality.* 



Figure 4

- 3. Remove the bolt from the top of the cylinder to affix the sheave.
- 4. Position the sheave mechanism on top and secure it using the bolt. Tighten using a 1 1/8-inch wrench. See Figure 5.





Figure 5

### **Pump Installation and Hydraulic Hose Connection** (Cylinder to Pump):

- 1. Position the pump within the machine room at your chosen spot (Ideally right below the controller), ensuring to place the provided rubber gasket beneath it (to minimize noise and vibration).
- 2. Fill the pump with the provided Hydraulic oil.
- 3. Depending on job site requirements, determine the desired angle for the hose pipe end. Start at the appropriate angle to attach the hose to the cylinder. For instance, in Figure 6a, the attachment end should face upwards for ease of feeding and looping to the machine room.

Trial and error is necessary for achieving the correct angle. Refer to Figures 6a and 6b for visual aid.



Figure 6b

Figure 6a

4. Attach the opposite end of the hose to the Blain valve (EV 100), as depicted in Figure 6c.

*Caution:* Ensure tight fittings with no leaks. Apply Teflon tape if necessary before attaching.



Figure 6c

### Guider - Unistrut Assembly

- 1. Affix the L Guiding bracket onto the rail bracket itself. See Figure 7.
- 2. Install the Guider (slippers) atop the sheave assembly using the provided bolts. Refer to Figure 8.



Figure 7



Figure 8



*Guide Strut and Limit Strut Overview* 

3. Guide the slippers through the Unistrut. Consult Figures 8a, 8b, and 8c for proper installation.



Figure 8a

Figure 8b

Figure 8c

4. Rail bracket have pre-tapped holes for mounting the Unistrut. Consult Figure 9.



### **Shackle Installation**

#### **Cylinder Post Shackle Installation**

- 1. Affix the provided shaft collar or one nut on top of each shackle to prevent shackle rotation.
- 2. Securely attach the two shackles to the cylinder post.
- 3. Attach two nuts to the bottom of each shackles.
- 4. Thread the nuts and install the cotter pins at the end of each shackles.
- 5. Consult the Figure 10 and Figure 10a.



Figure 10a



#### **Sling/Platform Shackle Installation**

- 1. Affix the provided shaft collar or one nut on top of each shackle to prevent shackle rotation.
- 2. Securely attach the two shackles to the platform.
- 3. Attach the springs to the bottom of each shackle. Attach a washer followed by two supplied nuts to the bottom of the springs on each shackle.
- 4. Thread the nuts just above the cotter pin at the end of the shackles.
- 5. Consult the Figure 11 and Figure 11a



Figure 11a

## **Rope Installation**

• Before installing the rope, ensure that the platform is in the correct roping position. The elevator will not reach the top and bottom landings correctly unless the roping position is set correctly.



position: 2" runby

## **Controller Installation and Wiring**

- 1. Install the Controller according to the specifications outlined in the engineering drawings.
- 2. Direct the primary 220V power line to the Main disconnect, referring to Figures 12 and 12a. Ensure that this line is routed through a BX cable to the Main disconnect.



Figure 12





- 3. Extend the 220V connection from the Valve to the OL (Overload) of the Contactor, referencing Figures 13 and 13a.
- 4. Connect the Valve control wires according to the provided specifications.
- 5. If you want to do the adjustment on the EV100 valve, please scan the QR code:









Figure 13a

### Temporary Run Mode Instructions (Install mode)

- 1. Once all mentioned power wiring is complete, establish connections by attaching two temporary Jumpers from DL1 (CN19-3) to DL4 (CN19-22), and from DC1 (CN19-1) to DC4 (CN19-20).
- 2. Ensure the connection of all Cab Security (CS) connections.
- 3. Verify that PLC Inputs I0, I1, I2, and I26 are receiving a 24V DC signal.
- 4. Temporary connection for the HMI to Power up:
  - +12V from HMI to Controller (CN16-5)
  - (-) GND from HMI to Controller (CN16-20)
  - Connect the Ethernet cable from PLC to the HMI Screen, and ensure that PLC connection is successful and HMI screen should say "Ready"
- 5. Use two wires for platform movement:
  - Apply 24V to N1 (CN18-1) to lower the platform
  - Apply 24V to N4 (CN18-6) to raise the platform



If platform movement is not achieved at this stage, please contact us for assistance, and one of our technical support agents will be available to assist you.

6. After the first trip of the cylinder make sure to bleed (take the air out) the cyliner, you would be able to find the bleeder on very top side of the cylinder, Refer to Figure 14.

Figure 14

### **Test the Drive System and Inspect Platform Clearance**

• Move the lift up and down on the shaft to confirm the operation.

Before proceeding with the additional installation steps, it is advisable to examine the clearance between the cab floor and each landing. Follow the steps below:

- 1. Place the cab floor on the sling, align it according to the shop drawings, and loosely attach it to the platform. As per the instructions provided, elevate the sling through the hoistway (pit) while ensuring the following:
  - Confirm that there are no obstructions, and the cab platform is not colliding with any walls
  - Record the clearance at each level, comparing it to the drawings, and document any variances
  - Validate the overtravel alignment as specified in the drawings
  - Ensure that the travel clearance between the cab floor and landing falls within the range of 1/2 to 1/4 inches
- 2. Depending on the cab style and any deviations from the plan in shaft, you may need to employ shims for leveling. Find the optimal position for the floor, considering the style of the cab and the extent of shaft deviations. In cases of extreme deviations, modifications to either the shaft or the cab may be necessary.



Figure 15

### **Install Toe Guard**

With the cab base now assembled, it is an opportune moment to proceed with the installation of the toe guard.

- 1. Install the Toe Guard beneath the platform.
- 2. Align the Toe Guard with the top of the finished floor and secure it using the provided hardware. Please refer to Figure 15 for guidance.

### **AT-LOCK Interlock Installation**

Prior to commencing the installation of the interlock, it is crucial to verify the Door Lock (DL), Door Close (DC), and Solenoid contacts on your interlocks. Please refer to the installation video for a comprehensive guide on verifying your interlock contacts before proceeding with the following steps:

- 1. Unscrew the front cover plate by removing the four screws to gain access inside the interlock.
- 2. Document the verified DL, DC, and solenoid wire connections, including wire colors, for future reference and to preemptively address any potential issues.
- 3. Disconnect the quick connector inside the interlock to ease the mounting of the lock itself.
- 4. Mount the base box of the interlock on the landing door frame, as detailed in Figure 16 for further guidance.



Figure 16



Figure 17

- 5. Mount the latch from the interlock to the door itself.
  - 5.1: Align the latch of the interlock with the interlock base box to ensure a smooth open / close operation of the door. Refer to Figure 17 for additional guidance.
- 6. Ensure to create a through hole on the door itself for inserting the manual key in case of emergencies.
- 7. Reconnect the quick connect harness inside the interlock base box.
- 8. Route the interlock wires to the controller and consult the wire sheet package for proper termination of the interlock wires.
- 9. Perform above steps for all remaining floors Interlock Installation.



### **Installation of Hall Call Stations**

Hall call stations can be permanently installed once the door installation is complete. Alternatively, for temporary purposes, you can install them inside the hoistway.

Route the wires from the hall call stations back to the controller, and for the proper termination of the hall call stations, consult the wire sheet package.

### **Mechanical Stop Installation**

Mount the mechanical stops 2 inches measuring down from top of the rail, as illustrated in Figure 18.



Figure 18

### **PIT E-STOP and Safety Pins Installation**

- Optimal placement for both of these components is where service personnel can access them before entering the hoistway.
- Additionally, ensure that safety pins are installed at a height visible and accessible to the average person. Refer to Figure 19 for guidance.
- Refer the wire package for guidance on the wire termination of the Pit E-Stop. Please note that there is no separate wire included in the package for wiring the Pit E-Stop. You can use any 2-conductor wire for this purpose.



Figure 19

# **Cab Assembly**

The cab platform has been previously assembled, ensuring proper clearance with landings and all the walls.

• Align the railside cab wall with the rails and secure it in place using the top 4 bolts.

The installation of the remaining cab walls is straight forward. We recommend starting with the railside wall and proceeding in a clockwise direction walls.

• Finally, install the top section of the cabin.

### **Cable Switch Assembly**

Refer to Figure 20 and Figure 20a for Cable switch assembly.

- Make sure that the jumper for the cab door in the correct placement on the controller as below:
  - 1. Without cab doors Set Jumper to left side
  - 2. With cab doors Set Jumper to right side
- To locate the jumper, refer to Figure 20b





Figure 20

Figure 20a



Figure 20b

# **Cartop Installation**

The placement of Cartop on the ceiling may vary depending on the specific job site, allowing flexibility to select the optimal position according to site conditions and facilitate installation.

• Our Cartop arrives pre-wired from the factory, equipped with quick connectors for seamless integration with hoistway devices.

For details on wiring termination, please consult the wire sheet and refer to Figure 21.



Figure 21

## **Looping the Travel Cable**



Figure 22



Figure 22a

The preferred technique for looping the travel cable may differ based on specific considerations. It is advised to loop the travel cable at the midpoint of the shaft, guaranteeing ample slack for seamless travel in both upward and downward directions.

- Guide the travel cable through the wall and connect it to the controller.
- Fine-tune the wall-to-cab section of the cable, ensuring it nearly touches the pit floor when the cab is in the pit.
- Utilize the provided travel cable clamps for secure mounting. Refer to Figure 22, 22a, and Figure 22b

#### Figure 22b



# Wiring Within the Hoistway

Please note that multiple approaches can be employed to route wiring from different landing devices to the main controller. Local codes and site conditions may influence your decisions, and the most common methods include:

- 1. Running a cable directly from each landing device back to the controller. (HOME RUN METHOD)
- 2. Running a cable to a call station and utilizing it as a junction box to extend wiring to the lock and other devices.
- 3. A combination of the above methods.

It is important to highlight that our units come with pre-wired components, making the "Home run" method the most efficient approach in this context.

# **Doorzone (Z-NIV) Switch / Cam Installation**

- The doorzone switch will be mounted directly onto the sling, requiring pre-drilled holes for installation.
- For each floor, install the doorzone cam onto the unistrut. It's not recommended to fully secure the doorzone cam yet, as adjustments may be needed to achieve the correct doorzone position.

Key Note: This unit creates the doorzone using the following formula:

Actual Doorzone (Z-NIV) = Tape Reader Signals + Activation of Doorzone Switch

To establish the Actual Doorzone, you'll need to adjust the doorzone cam and magnet positions, which may involve trial and error. Refer to Figure 23 and Figure 23a for guidance on installing the Doorzone Switch and doorzone cam.





Figure 23a

Figure 23

# **Tape Reader Installation Process**



Figure 24

### **Tape Head Installation**

- The tape and reader can be mounted on either side (right or left) of the rail walls. Depending on site conditions, you may need to drill holes to install the L-bracket for the tape head.
- Mount the supplied bracket for the tape head at the top surface of the sling, and secure the bracket with provided hardware.
- Once the bracket for the tape head is installed, mount the tape head in the two slotted holes of the bracket using the provided hardware. At this time it is not advised that to fully secure the tape head, shown in Figure 24.

### **Top Bracket for the Tape Mount**

- Using the hardware included in the tape reader box:
  - 2:1 Install one nut on the bottom portion of the rod
  - 2:2 Insert the threaded rod portion into the top bracket
  - 2:3 Slide on the flat washer, followed by the lock washer, then another nut
  - 2:4 Loosely attach the clamping plate using two outer bolts initially. (See Figure 25 for the configuration of the upper tape bracket.)



Figure 25

### **Bottom Bracket for the Tape Mount**

- Using the hardware included in the tape reader box:
  - 3:1 Insert the threaded rod portion into the bottom bracket.
  - 3:2 Slide the flat washer from the bottom.
  - 3:3 Insert the spring.
  - 3:4 Install another flat washer.
  - 3:5 Install the two nuts.
  - 3:6 Loosely attach the clamping plate using two outer bolts initially. (See Figure 26 for the configuration of the bottom tape bracket.)



Figure 26

## **Tape Installation**

- Insert the tape at the top tape bracket between the clamping plate, leaving a small amount of extra tape on top side.
- Ensure the tape is centered and tighten it in place.
- After ensuring the tape is perfectly centered, tighten the bolts for the clamping plate on the top bracket, and proceed to drill through the tape to insert the middle bolt of the clamping plate.
- Pass the tape through the back of the tape reader head and down to the lower tape mount.
- Insert the tape at the lower bracket, After ensuring that tape is passing through the tape head and perfectly centered, tighten the two side bolts for the clamping plate.
- Tighten the two outside nuts for the bottom tape mount sufficiently to prevent tape rattling, vibrating, or flopping around and after ensuring that tape is passing through the tape head and perfectly centered, and no slack on the tape, tighten the two side bolts for the clamping plate, and proceed to drill through the tape to insert the middle bolt of the clamping plate.

### **Magnet Configuration**

For the magnet placement refer to the following magnet configuration image:



## Install the Cab Gate and Automatic Operator Installation

Refer the **Good Gate Installation** manual section 4 for installing the cab gate.



Scan to Read

Installation video of Good gate upper Track:



https://www.youtube.com/watch?v=E\_QHCLG\_qi4

Installation video of Good Gate Lower Track:



https://www.youtube.com/ watch?v=mNq110BHPaU Installation video of good gate panels:



https://www.youtube.com/watch?v=i9jbPu37IIM

Installation video of Gate Panel Stop Setting:



https://www.youtube.com/ watch?v=oMVZDe5we2g Installation of Upper track tilt adjustment video:



https://www.youtube.com/ watch?v=wV8Yghat9F8

Saber Gate operator:



Refer the Saber Gate operator installation and set up manual, section 5 for installing the saber gate operator.

If it's not attached please download it from here: https://goodgate.ca/documentation/

# **HMI Screen Overview**

Program the job specific parameters on HMI screen.



#### HMI Screen:

https://niagarabelco-my.sharepoint.com/personal/dpatidar\_niagarabelco\_ com/\_layouts/15/streamaspx?id=%2Fpersonal%2Fdpatidar%5Fniagarabelco% 5Fcom%2FDocuments%2FDesktop%2FDhaval%2FHMI%2Specific%2Fhmi%5F Full%20HD%21080p%5FHIGH%5FFR30%2Emp4&ga=1&referrer=StreamWeb App%2EWeb&referrerScenario=AddressBarCopied%2Eview%2E958 b9f23% 2D16d2%2D43ee%2Dbc68%2D73c3493a8681

### **Preparing for Automatic Mode**

Prior to advancing to the subsequent steps, ensure that all components within the hoistway, including the travel cable, are appropriately wired. If not, refer to the wire package, and upon completing all wiring, revisit this step and proceed with the following instructions:

- Remove any temporary jumpers that may have been installed during the installation process.
- Reset all E-stops to their standard position (out).
- Close all landing doors and the cab gate.
- Activate the main power supply and verify the following:
  - 1. Confirm that the "Green Light" indicator on the PLC is illuminated.
  - 2. Ensure that the "READY" status is displayed on the HMI screen.
  - 3. Verify that the mode setting on the configuration screen of the HMI is set to "constant" rather than "Automatic.
  - 4. Check that the light on the controller panel (located at the top left corner) is green.
  - 5. Confirm that 24V DC power is supplied to the following inputs for the PLC:

- "10" - 24V DC - "12" - 24V DC - "11" - 24V DC - "126" - 24V DC

If any of these criteria are not met at this stage, ensure that all hoistway device wiring and CS (Cab security) wiring are correct. If you are still unable to resolve the issue, please contact us for assistance, and one of our technical support agents will be available to help you.

# **Finishing Up**

## Testing

- 1. Test each floor level, and record any variances for proper adjustment of tape reader magnets and/or doorzone cams to achieve the correct level and to avoid the "DZF Doorzone Fault".
- 2. Test Hall Calls, DPIs, and Interlocks for each landing.
- 3. Conduct safety tests for the entire unit.
- 4. Test cab lights
- 5. Test HMI screen Calls, and Buzzer.
- 6. Ensure the car does not take a call and stops if in motion under the following conditions:
  - 6.1: Car E-Stop activated
  - 6.2: Pit E-Stop activated
  - 6.3: Cab Top E-Stop activated
  - 6.4: Cab Gate Opened
  - 6.5: Landing Gate Opened
  - 6.6: Low Pressure Switch (LPS) Activated
  - 6.7: Slack Rope Switch Engaged
- 7. Verify that the system turns OFF when the Main Disconnect is OFF.
- 8. Confirm the telephone operates correctly.

### **Signage Installation**

- 1. Capacity
- 2. no step
- 3. Emergency Operation
- 4. Manual lowering
- 5. Cab Light power
- 6. Main Disconnect
- 7. Serial number for Atlas Job

### **Clean Up**

- Remove protective films
- Clean main controller
- Clean elevator cab
- Place Manual and Electrical drawings at the controller

## **Training the End User**

We recommend you have the following ready before training the end user:

- Owner's Manual
- Service Contract
- Door Unlock Key
- Your Business Card

#### Demonstrate and explain the following:

- Calling the elevator
- What if a gate is open?
- What if a door is open?
- What if there is a power failure?
- Riding the elevator
- What if it stops while I'm in it?
- What if there is a power failure while im riding it?
- How to get out in an emergency
- How to let someone out in an emergency
- Call station Fault flash codes
- When to call for service
- Importance of regular maintenance
- Registering your warranty
- Scope of the warranty
- Location of customer manual and electrical drawings
- Location of emergency key

