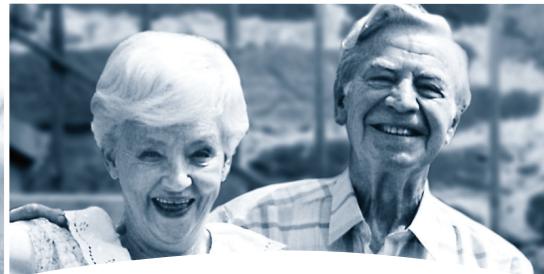




**ALPINE**  
Harmar. **ALPINE STAIR LIFTS**  
*Installation and Service Manual*



# Table of Contents

This stair lift Installation and Service Manual has been written to provide clear and precise instructions for proper installation procedures for Alpine Stair Lifts. Please refer to the Owner's Manual for Limited Warranty information and operating instructions. The Owner's Manual must be given to the owner of the lift before it is put into service.

Any alterations to the equipment without written authorization by the manufacturer may void the warranty. Harmar lifts are designed to install with as little assembly by the installer as possible. If you have questions, concerns or comments, please contact Harmar's Technical Service Department at 1-866-378-6648 or [tech@Harmar.com](mailto:tech@Harmar.com).

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*Important! It is imperative that this manual be read and understood prior to attempting installation of the stair lift. Please observe all cautions and warnings in this manual, as well as on the equipment.*

## I. PRELIMINARY CHECKS

### A. INSTALLATION SITE REQUIREMENTS

- Dedicated\* 115 VAC, 60 Hz, 3-wire grounded outlet within 13' of the top or bottom of the staircase.
- Stair angle between 25° and 45°.
- Must be installed INDOORS

\* NEC requirement

### B. TOOLS REQUIRED

The following is a list of basic tools to have on hand during installation.

<input type="checkbox"/> Set of Phillips head screwdrivers	<input type="checkbox"/> Tape measure
<input type="checkbox"/> 3/8" reversible drill with 3/8" hex socket and a 6" extension	<input type="checkbox"/> 3/16", 5/16" and 1/4" Allen wrenches
<input type="checkbox"/> Torque wrench rated to at least 18 ft. lbs. of torque	<input type="checkbox"/> Torpedo level
<input type="checkbox"/> Safety items: steel toe shoes, safety glasses, gloves, etc.	<input type="checkbox"/> Socket set
<input type="checkbox"/> Flathead screwdriver	<input type="checkbox"/> 7/16 1/2" combination wrench
<input type="checkbox"/> 9/64" Allen wrench	<input type="checkbox"/> Mallet
<input type="checkbox"/> 1/8" Allen wrench	
<input type="checkbox"/> Something heavy to hold track in place during install	

### C. INCLUDED PARTS

Before beginning installation, please verify that all components are included.

#### Seat Box:

- Seat assembly

#### Chassis Box:

- Chassis assembly
- (1) Power supply
- (2) Remote controls
- (2) 9 volt batteries for remote controls
- Unit small parts

#### Track Box:

- Track pieces (quantity will vary) with gear rack and splice bars
- Track brackets (quantity will vary)
- (1) Charging wire
- (2) Track end caps
- Small parts kit:
  - (1) Tube of lubricant
  - (1) 4" long piece of gear rack for splice timing
  - Fasteners for track brackets and track end caps
  - Track bracket covers (quantity will vary)
  - Splice bars (to be placed in track, quantity will vary)

# Typical Components and Installation Procedures

## II. TYPICAL COMPONENTS



*The Alpine is pictured above. The unit you are installing may not look exactly like this, but the installation procedures are alike.*

## III. INSTALLATION PROCEDURES

Your Alpine shipment includes three boxes:

- Track Box
- Chassis Box
- Seat Box



**IMPORTANT:** *Most people find it easier to assemble the unit directly on the staircase. If you choose to do this, ensure you have something heavy in place to keep the track from sliding down the stairs, and be advised of the inherent danger of falling while working on a staircase due to an uneven stance and smaller working space.*

**Step 1:** Begin by laying the track out on the stairs or floor and removing any plastic wrap that may be around the track. A stock unit may include as few as 1 or as many as 4 custom cut sections of extruded aluminum track. The track may be cut at the factory. Make sure the track is positioned so the bottom is facing up. Gear rack should be installed on the SIDE of the track.

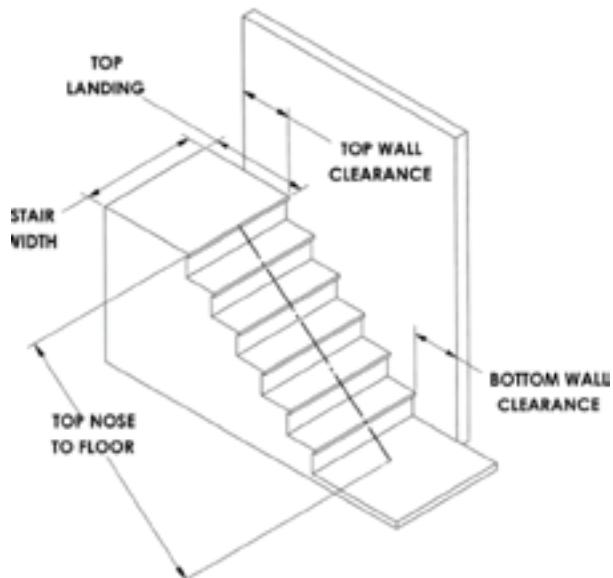
## A. DETERMINE OVERALL RAIL LENGTH (Only if track did not come pre-cut to length)

**Step 1:** Determine any obstructions that will effect the position and length of the rail. These may include walls, doors, hallway orientation, etc.

**Step 2:** First, measure the overall length of the stairs from the nose at the top landing of the stairs to the floor at the bottom (nose to floor measurement, e.g., 128", see image below).

**Step 3:** For a normal stairway where there is adequate space for a landing, add 5" to the nose to floor measurement. This will provide enough rail length to allow the stair lift to be adjusted so that the floor-to-seat height will be the same at both the top and bottom (e.g., 141")

**Step 4:** To cut the rail, use a standard 12" chop saw or equivalent, with a blade designed to cut aluminum. **Do not cut rail inside the house (aluminum chips are very hard to remove from carpets).**



## Installation Procedures

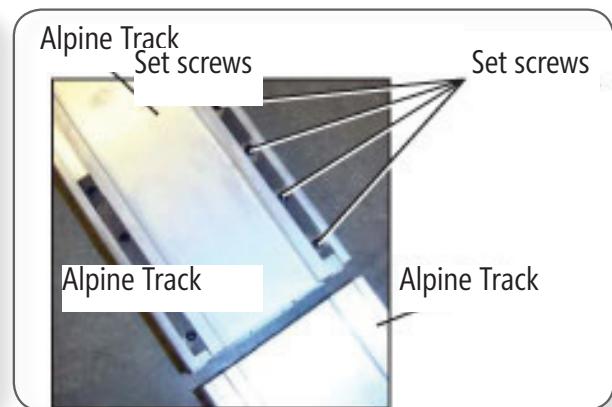
**Step 5:** Splice all the pieces of track together. With the track laying so the bottom is facing up, line up the sections of track you need to splice together.

**Step 6:** Loosen the set screws in the splice bars with the 9/64" Allen wrench.



**Position set screws so they are flush with the bottom of the splice bar.**

**Step 7:** Make sure the pin shown here is installed in the tracks that are being spliced together.

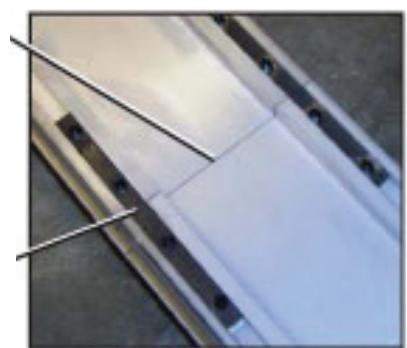


**If the splice bars do not slide in easily, use the flat head screwdriver and the mallet to gently tap the splice bars into place.**

**Step 8:** Slide the two pieces of track together so that a tight joint remains between them. Center the splice bars on the joint as shown below. Carefully align all surfaces of both tracks before tightening splice bars.

Note the tight joint between the two pieces of the track.

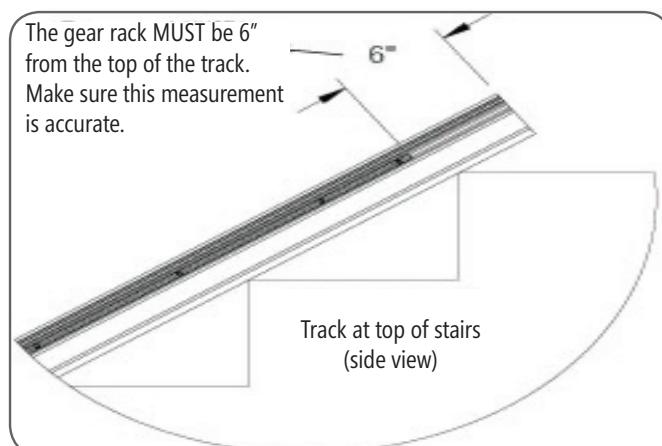
The splice bars are centered on the joint between the two pieces



## B. TIME THE GEAR RACK

**Step 1:** Loosen the gear rack mounting screws in the bottom sections of the track and slide the rack down the track until it is about 5" from the bottom, then tighten the lower screws.

**NOTE:** If you are cutting the track, also cut the upper gear rack so it ends 6" from the upper end of the track.



The gear rack needs to extend into this range for correct installation.

5 5/8" or less

Track at bottom of stairs (side view)

**NOTE:** Multiple sections of gear rack need to be slid into the track. This may cause the gear rack to not be flush with the bottom end of the track. This is fine, as long as the gear rack lower end less than 5 5/8" from the bottom of the track. Any closer is acceptable.

**Step 2:** Between each piece of gear rack, you will need to "time" the teeth. To do this, use the short piece of gear rack that comes in the small parts box. Push the two pieces of gear rack close to each other and then loosen the upper gear rack and time, and **tighten again and time**, continuing until all joints are timed.

There may be a gap between two pieces of gear rack when spacing the splice. This is acceptable as long as the distance between the teeth is consistent. Be sure the rack is centered vertically in the opening of the track slot before tightening.



**Step 3:** When the gear rack is timed, use the 9/64" Allen wrench to tighten the gear into place.

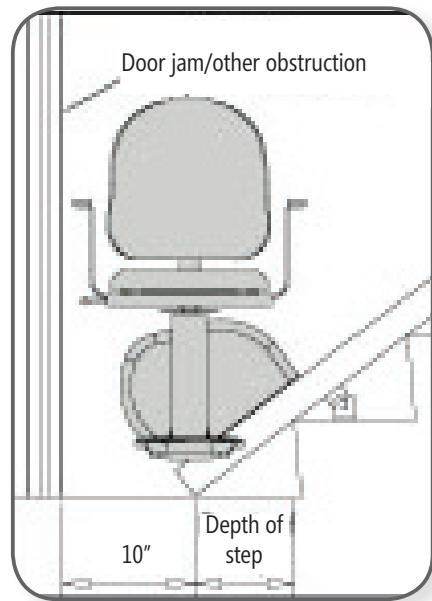
# Installation Procedures

## C. DETERMINE WHERE THE TRACK WILL BE INSTALLED

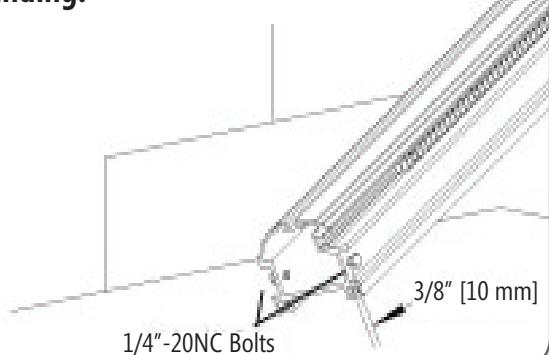
**Step 1:** Double check the orientation of your stair lift.

Stand at the bottom of the staircase on which you will be installing the lift. A right-hand unit will be traveling up the right side of the staircase and a left-hand unit will be traveling up the left side of the staircase. If the handedness of the unit is consistent with the lift you ordered, continue the installation. The track will always mount closest to the wall. (See page 8 for a left-hand installation.)

**Step 2:** Minimum clearance required beyond the bottom step is 10" plus the depth of one step (see below).



**If track stops at bottom step rather than landing.**



**Side View**



**IMPORTANT!** If you have less than 10" of clearance you will be mounting the track so that it stops at the bottom step instead of the lowest landing, you **MUST** drill a hole 3/16" through the side of the track and insert at least a #14 Tec Screw (supplied) on each side of end of the track to act as a mechanical stop in case of complete mechanical or electrical failure.

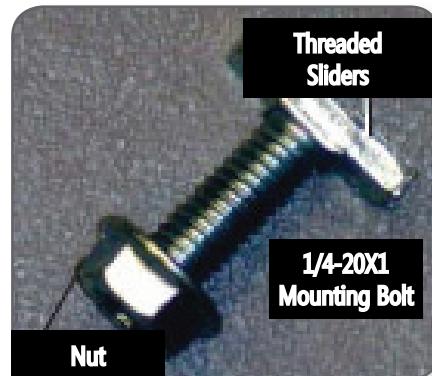
## D. AN INTRODUCTION TO TRACK MOUNTING ASSEMBLIES

Throughout the installation of the track, you'll be using Track Mounting Assemblies to attach track brackets STVD. This convenient reference guide is designed to walk you through what should be going on underneath the track.

**This is the Alpine track on its side:**

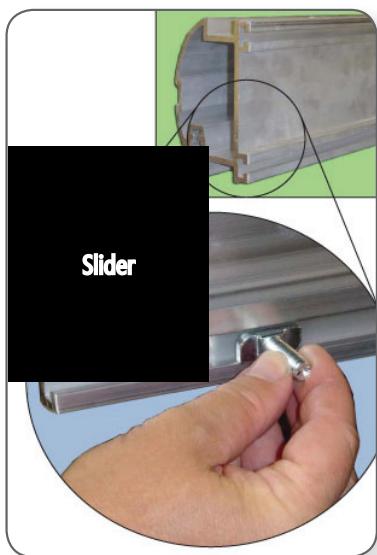


**Track Mounting Assemblies look like this:**



The Track Mounting Assembly will come preassembled with the bolt lock tightened in the threaded slider.

The threaded slider simply slides into the channel on the track. You will need two track mounting assemblies in each section of the track, plus one extra at the end you intend to mount the charging harness ground terminal.



**HINT!** Mounting a piece of tape across the slot will temporarily hold the mounting, bolt in position. Remove tape after track is mounted.

## Installation Procedures

### E. INSTALL LOWER END CAP

**Step 1:** Feed the charging wire through the top of the track to the bottom of the track.

**Note:** *There is no up or down to the wiring harness. Before putting the charging wire in the track, decide where you will be plugging the stair lift unit into the wall. Run the wire so that the end of the charging wire with the extra plug and ring terminal will be on the floor with the plug (see diagram on page 11).*

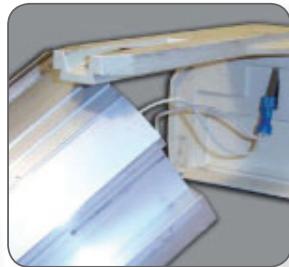
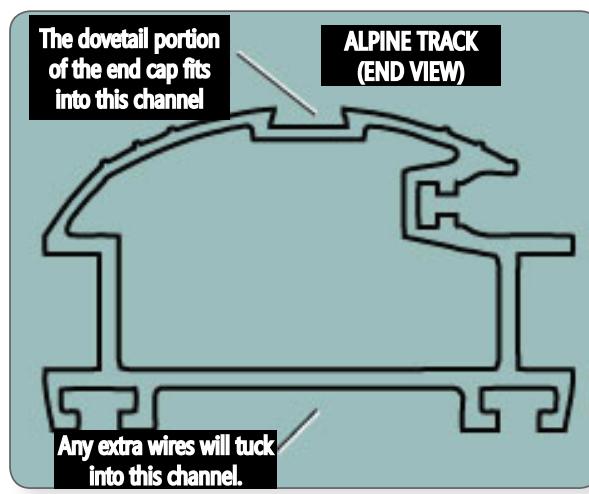
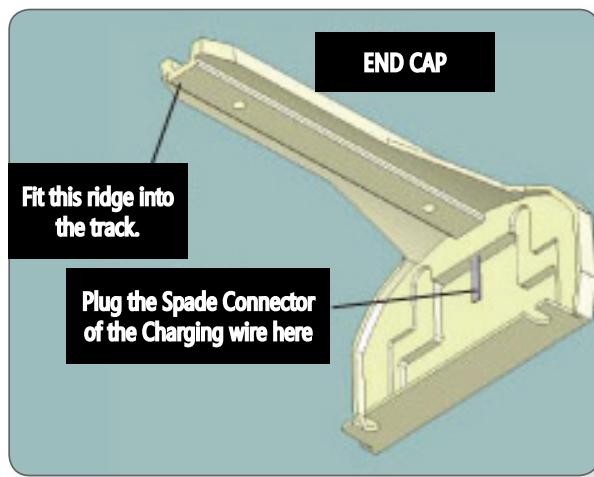
*For instance, if you will be plugging the unit into an outlet on the bottom floor, make sure the end of the charging wire with the extra plug and ring terminal are exiting the track on the bottom landing.*



**One of the easiest ways to feed the charging wire through the track is to tape the end of the wire to a tape measure and feed the tape measure through the track.**

**Step 2:** Plug the spade connector into the metal plug on the inside of the end cap as shown here:

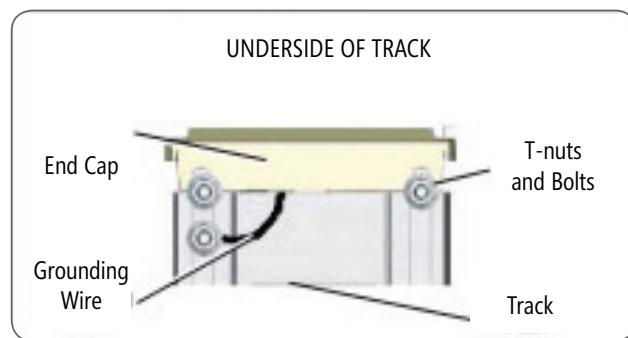
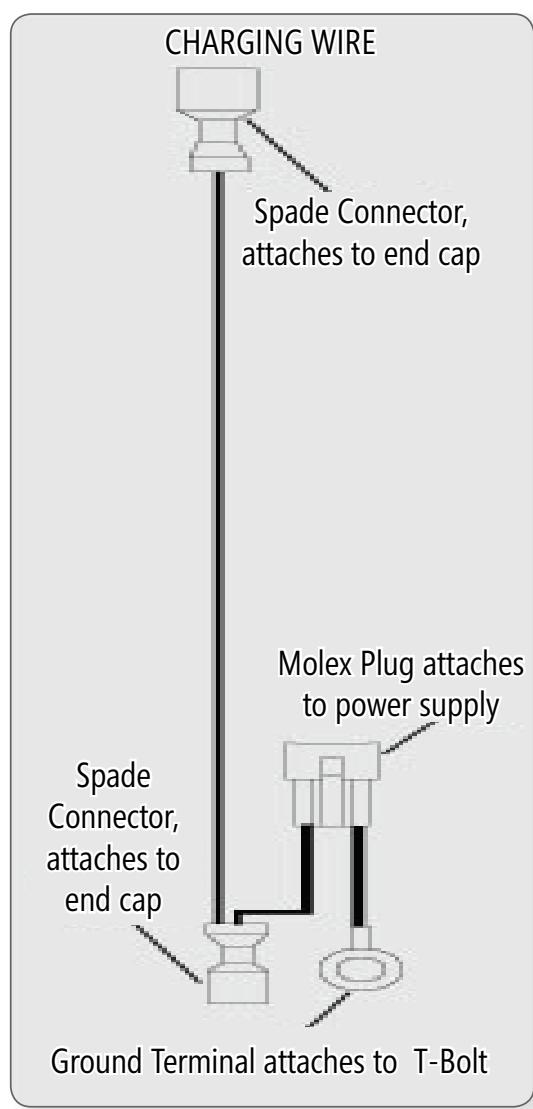
**Step 3:** Slide the end cap on to the bottom of the track.



**Step 4:** If your stair lift will be plugged into the wall at the bottom of the staircase, you will have two extra wires protruding from the lower end cap, one with a ring terminal and one with a Molex® plug (see diagram on page 10). Those other wires will need to be routed to exit between the track and the end cap and then tuck into the channel on the bottom of the track (see illustration above). Take care to ensure that the wires are not pinched.

**Note:** If the power supply will be on the top landing you may skip this step and the next one, but you will need to follow them when you install the upper end cap, because you will have the extra wiring at that end of the track. The harness is included with enough wire to cover all installations. Most likely, you'll have more wire than you need. **DO NOT CUT THE WIRE.** Simply place excess wire inside the track.

**Step 5:** With the wires now routed out of the track you will need to attach the grounding ring. Insert a T-Bolt in the track, near the end cap. Slide the Grounding Ring Terminal (see illustration at below) over the T-nut you just put in. Screw a nut over the T-bolt to tighten down the grounding ring.

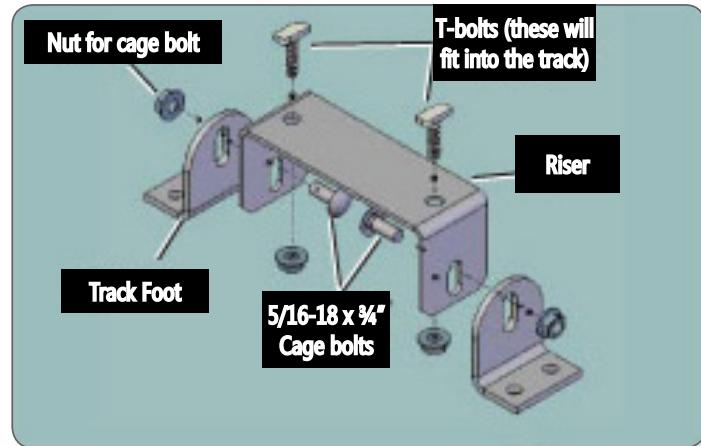


**Step 6:** If your track will not be resting on the lower landing, but will be ending on the lowest step, insert a second T-Bolt and bolt the end cap on from the bottom (see above).

# Installation Procedures

## F. ASSEMBLE MOUNTING HARDWARE

**Step 1:** The track brackets come in 5 pieces: 1 riser, 2 feet and 2 covers for the feet. Assemble as illustrated below. When installing the T-bolts into the track bracket, make sure to thread the bolts on, but do not tighten yet.



## G. MOUNT TRACK TO THE STAIRCASE



**It's a good idea to put down a drop cloth during your install so when you slide the track around on the staircase you don't mark up carpet or scratch hardwood stairs.**

**Step 1:** Lay track along staircase. Make sure that:

- The gear rack is facing the nearest wall
- The lower end cap is installed
- The charging wire is oriented correctly



**Once the track is laid on the stairs it will want to slide down the staircase, so you will need to put something to stop it, a toolbox or some other heavy weight will work well.**

**Step 2:** Position the track in the middle of the staircase with the underside of the track resting across the stair nosings, and the lower track end cap resting on the lower landing. With the track placed in the middle of the staircase you'll have adequate room to reach under and adjust the track brackets.

**Step 3:** The track brackets attach to the track with the supplied T-bolts. You will need to place 2 brackets per 8' section of track. If you have spliced 2 pieces of track together, you will need to place a track bracket on the step directly above and the step directly below the splice. A typical placement will have one bracket at each of the following positions:

- > First tread from the bottom of the stair
- > Tread below the top landing
- > Tread above a track splice
- > Tread below a track splice

**Note:** These instructions are for mounting to the right hand side of a standard wood staircase. For installation on hard surface stairs, anchors may be needed and different screws may be required. Consult floor manufacturer for details.

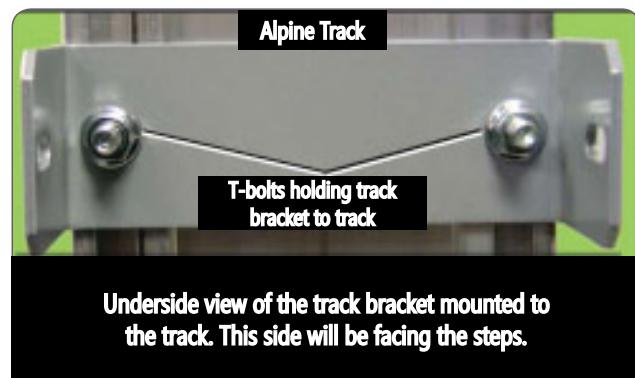
**Step 4:** Raise the lower end of the track 3/4" off the lower landing with a temporary shim and place the brackets on the steps where you will be installing them.

**Step 5:** Slide each bracket under the track, or flip the track bottom side up and center them on the tread.

**Step 6:** Use the T-nuts to attach the track to the brackets.



**Step 7:** For more specific help with T-nuts refer to page 9.



**Step 8:** Use a wrench to tighten everything up and slide the track over 3½" from the nearest wall.

**Step 9:** Verify that both the bottom edge of the track and the top edge are 3½" from the right-hand wall or any obstruction. If they are not, the stair lift will not be parallel to the wall.

**Note:** A minimum of one inch is needed for clearance of the seat back to the wall in the riding and swivelled position.

**Step 10:** If the tracked was flipped turn it bottom-side down. Attach the track mounting brackets to the staircase. The brackets attach to the stair treads with wood screws or appropriate fasteners. The bottom of the track should be touching the nose of stairs once the brackets are bolted down.



**Step 11:** Snap on track mounting bracket covers.



Track Bracket installed

**Step 12:** Lightly lubricate the entire length of the gear rack. Lubricant is provided in the small parts kit.

Track Bracket Cover installed

# Installation Procedures

## H. INSTALLING THE CHASSIS ASSEMBLY INTO THE TRACK



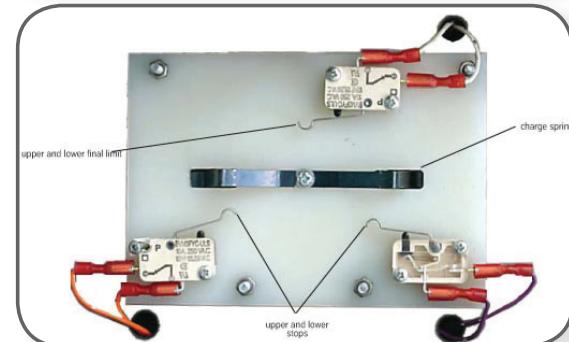
**CAUTION!** *There is a plate on the bottom of the chassis with three microswitches mounted to it. When loading the chassis onto the track, assure that the switches do not get damaged. To do this, load the chassis at the same angle or higher in the back as the track is running down the steps.*

*The switches will be protected by a plastic guard. Remove this guard after the chassis is installed.*



**Step 1:** Place the four track wheels onto the fixed axles at the front and rear of the chassis. The white surface on the rollers should face the axle on the chassis.

**Step 2:** Load chassis onto the top of the track. It will stop when the gear hits the end of the rack. Using a 5/16" nut driver on the end of the motor, manually lower the chassis onto the rack until the gear is fully engaged. Gently pull out the plastic sheet once mounted.



## I. MODIFYING STAIR LIFT FOR A LEFT-HAND INSTALLATION

**Step 1:** Orient your track so the rack is closest to the left wall and install track on the stairs per normal instructions.



**Step 2:** When loading the chassis orient the drive gear so it meshes with the rack (toward the left wall).

**Step 3:** Remove bottom plastic cover from foot rest.

**Step 4:** Switch the wiring on both footrest microswitches (red and blue wires). Remove rocker switch from armrest, then rotate the switch 180 degrees and reinstall.

**Step 5:** Using a 1/4" Allen wrench, move the Allen screw stop in the seat mounting bracket so that the seat can only swivel at the top landing.

**Step 6:** Verify the stair lift goes down when the downhill side of the rockswitch is pressed. Verify the footrest safety plate switches work in the proper directions.

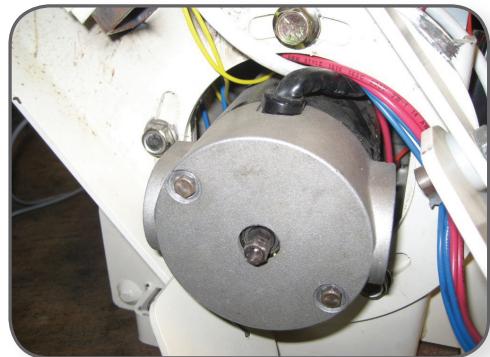
### J. LEVEL THE SEAT HUB (Connect the seat cable to the connector exiting the seat mounting bracket.)

**Step 1:** Using a 9/16" socket wrench, loosen the three (3) bolts on the chassis behind the footrest.

**Step 2:** Place a torpedo level on either the seat hub or the footrest.

**Step 3:** Rotate mounting bracket on the bolts until the seat mounting shaft is vertical and plumb.

**Step 4:** Tighten the bolts.



**IMPORTANT!** *It is imperative to torque the nuts to a minimum of 18 ft. lbs. (24.4 Km) to lock the seat hub into place.*



### K. INSTALL THE SEAT

**Step 1:** Place the seat assembly onto the seat shaft.

**Step 2:** Raise the swivel seat handle and slide the seat fully onto the shaft. Release the handle and make sure the seat locks into position.

**Step 3:** Rotate the swivel seat handle and check that the seat locks in the loading, riding and unloading positions.

**Note:** *The lift will not operate unless the seat is locked in the riding position.*



# Installation Procedures

## L. ADJUST SEAT HEIGHT IF DESIRED

**Step 1:** Remove the two Allen screw that mount the seat post to the chassis.



**Step 2:** Position the seat up or down as desired and replace and tighten the screws.

**Step 3:** Install the front seat mounting cover into position. Press and hold the switch on the arm rest until the chair stops itself at the bottom of the track. Run it back up the track until it stops itself at the top landing. Raise the seat release handle and swivel the seat toward the landing. The seat should lock at 90 degrees when the handle is released. Verify that the footrest safety switches stop the lift in the proper direction.

## M. REMOTE CONTROL LABEL

**Step 1:** Apply the appropriate directional label to the face of the remote control, depending upon whether it is a right-hand or left-hand installations. Confirm direction of remote buttons first.

**Note:** Refer to Step C of the Service Information (on page 19) for instructions on changing the frequency of the remote control.

## N. CHARGING THE BATTERIES

**Step 1:** Ensure power supply is connected to the charging harness.

**Note:** The batteries come from the factory with a small amount of charge already in them.

**Step 2:** Plug the power supply into an electrical outlet.

**Step 3:** Charge batteries for at least 12 hours.

## IV. COMPLETION PROCEDURES

### A. COMPLETION CHECKLIST

The following features must be verified as operational before the stair lift can be released for use:

- Upper and lower limits:** Verify the lift stops automatically at the top and bottom of the track.
- Running Clearance:** Verify the lift clears all obstructions.
- Track Mounting Brackets:** Verify all track mounting brackets are securely attached to the stair treads, the track and at the pivot points.
- Track Splice:** Verify track joints are smooth and free of burrs and gaps.
- Gear Rack:** Verify the gear rack is sufficiently lubricated.
- Track End Covers:** Verify the track end covers are securely fastened to the track.
- Track:** Verify the inside of the track is free of foreign objects.



#### Footrest:

- Verify the footrest clears all stair nosings.
- Verify the lift stops in both directions when the footrest runs into an obstruction.
- Verify the footrest folds up and stays in the up position.
- Verify the unit does not beep when it stops at the upper and lower limits.
- The unit will beep if stopped and not on the charging strip.

# Completion Procedures & ASME Requirements

## Seat:

- Verify the seat is level.
- Verify the seat swivels 70° towards the top landing and locks into position.
- Verify the lift will not operate when the seat is not locked in the riding position.
- For optional folding seat: Verify the seat will fold up and stay in the up position.
- Verify the seat belt works properly.

**Cleanup:** Verify the lift is free of all grease, dirt, etc.

## V. ASME REQUIREMENTS

The stairway lift must meet the latest ASME A18.1 safety standard for platform lifts and stairway chair lifts specifications for the listing to be valid.

The following rules must be complied with at the installation site:

### Rule 7.1.2

The structure on which the equipment is installed shall be capable of safely supporting the loads imposed.

### Rule 7.1.3

The installation of all electrical equipment and wiring shall conform to the requirements ANSI/NFPA 70.

### Rule 7.6.4

At no point in its travel shall the edge of the footrest facing the upper landing be more than 24 in. above the step or landing as measured vertically.

### Rule 7.7.2

No lift shall be installed to operate on a greater incline than 45 degrees as measured on the mean.

## VI. SERVICE INFORMATION

### A. GENERAL SPECIFICATIONS

**Rated Load:** Chassis:300 pounds (136kg) EXCEPT Alpine Plus, which is rated for 350 (159 kg) pounds. Seat 300 pounds (136kg) EXCEPT Alpine Plus, which is rated for 350 (159 kg) pounds.

**Speed:** 18-25 fpm (dependant on angle of install and load)

**Travel:** 32' max. (track length)

**Power Supply:** Dedicated\* 115VAC, 60 Hz, 3-wire grounded outlet

**Incline Limits:** 25° to 45° (average)

ETL Listed when properly installed

**Motor Controller:** SoftStart/SoftStop

**Brake:** Self locking worm gear

**Seat:**

- Standard - 18" wide fixed seat with two fixed arms

**Controls:** Low voltage up-down hand-held control on unit and two wireless remote controls

**Safety Devices:** Footrest obstruction sensor, Swivel seat cut-off switch, Final limits

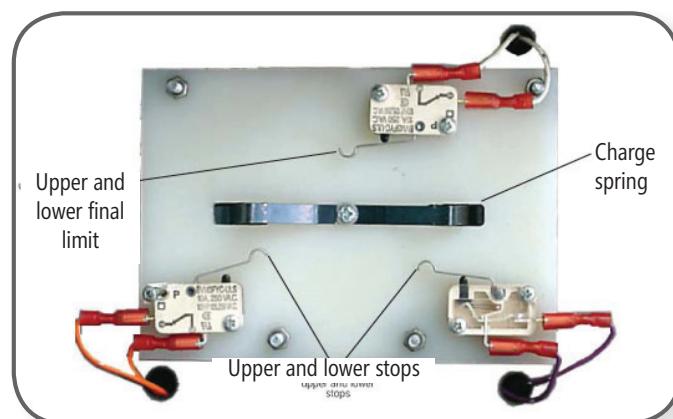
### B. STANDARD EQUIPMENT

**Drive System:** Rack and pinion

**Motor:** .5 hp, 24 VDC

#### Notes:

- The Alpine BOS models are battery powered. Two 12V batteries are wired in series to provide 24V to the control system. The batteries are charged by a 33VDC power supply plugged into the 115 VAC outlet. The batteries are charged only when the lift is parked at the upper or lower landing.
- The call/send controls (transmitters) use infrared signals. There are two infrared sensors located on the chassis access cover. There is a combination of 4 different frequencies the transmitters can be set to (both transmitters must be set to the same frequency).
- There is a half-second delay after a control button is pressed before the lift starts to move. After the lift stops, the up/down controls are disabled for 3 seconds.



# Service Information

## C. CONTROL BOARD DIAGNOSTICS

The control board contains LED's that indicate various functions or faults. A slow flash is 1 second on and 1 second off, a quick flash is .25 seconds on and .25 seconds off.

### Steady Green on PWR LED - Run Mode

Battery voltage is above 21 VDC and the lift is running.

### Slow Flash Green on GRN LED - Stop Mode

Battery voltage is above 21 VDC and the lift is stopped.

### Slow Flash Red - Emergency Stop

Either the final limit switch has been tripped, the swivel seat switch is not in the operating position, or there is an obstruction in the footrest path. If the final limit switch has been reached the stair lift must be manually moved using an 5/16" socket (see step G).

### Steady Red - Current Limit

Motor is loaded more than 120% of its rating. The motor will continue to run in current limit for a preset time, however, the speed will be reduced. The unit will sound 2 rapid beeps. *Note: Higher currents will allow for less run time.*

### Quick Flash Red - I2T

The motor has been overloaded for too long and the lift has timed out. If the motor reaches 160% of full load for 6.0 seconds the unit will time-out. To recover from this mode, the lift must be put into stop mode. The unit will sound 2 rapid beeps.

## D. CONTROL BOARD OPERATION NOTES

**Caution!** The control board is sensitive to static charge. To avoid damage, touch a metal surface on the lift to discharge yourself of static charge. Never touch the chips on the control board. **Always disconnect the 115 VAC power and turn off the power switch when working on the lift.**

### First Power Up

To turn the controller board on after turning on the power switch, press the unit controls Up or Down rocker switch. The seat must be in the locked position and no obstructions can be in the way of the footrest.

Once the controller board has been turned on, it will stay on as long as the battery charger remains connected.

### Remote Control (Transmitter) Frequencies

The standard wireless remote controls (transmitters) use infrared signals. One button on the transmitter is UP and other button is DOWN. There are two infrared sensors (receivers) located on the chassis access cover.

A combination of 4 different transmitter frequencies allow for more than one lift in a single home. The two transmitters must be set to the same frequency (for each lift). For example 1 to 1, 2 to 2, etc.

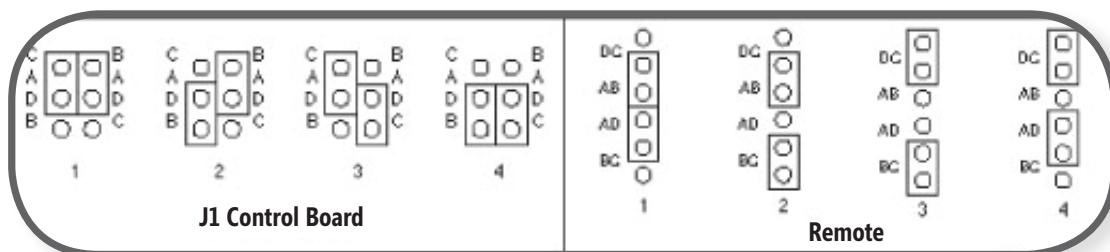
### To change a frequency:

Ensure the infrared receivers (in chassis cover) are connected to the control board. Use the seat control to move the lift away from the end of the track. Take the back off of the transmitters and set the red jumpers (in each transmitter) to the same code.

Change the corresponding code in the control board J1 (see chart). Press and hold the yellow "learn" button on the control board, then press and hold one of the up/down buttons on one of the transmitters. The controller board should beep and the lift start to move after you release the transmitter button when the frequency has been successfully changed.

Note that if the lift is on an upper or lower limit switch, the frequency may not be able to be changed.

To access the controller board the footrest support and shroud must be removed. The footrest plug can be temporarily jumpered out while changing frequencies.



## E. BEEP ALERTS

The controller board will sound a single 0.35 second departure beep upon receiving a signal to run.

The controller board will sound a 2.5 second beep upon receiving a signal to run if the battery voltage is low (11.0 VDC to 21.0 VDC) and will not run.

The control will sound two rapid beeps if current overload occurs.

The controller board will beep on and off for 20 seconds once every five minutes when the charger is not connected.

## F. WHAT TO DO IF THE LIFT IS STUCK ON A FINAL LIMIT SWITCH (MANUALLY LOWERING OR RAISING THE LIFT)

**Step 1:** Fold footrest up.

**Step 2:** Turn power off. **Note:** *Never perform manual lowering with the stair "on."*

**Step 3:** Insert an 5/16" socket over the hex shaft located at the end of the motor. Rotate the shaft to move the stair lift off of the final limit switch (turn counter clockwise for "up" on right-hand unit).

**Step 4:** Turn power on and unfold footrest.

## G. CHARGING CIRCUIT

The charging circuit produces a DC voltage of 33 volts plus or minus one volt. This must be read between the charge strip on the charge (+DC) cam to the gear rack on the track (-DC).

If you are not receiving 32 to 34 volts DC check the following:

1. Verify that the power supply/charger is plugged into the wall outlet. Check for 115 VAC at outlet.
2. Verify that the charger is producing the 33 volts. This is done by checking voltage from B+ (pointed end of plug) to B- (flat side of plug).
3. If this is all correct, verify the ring terminal B- is mounted to a T-bolt on the track and tighten down the nut to secure the ring terminal. This will ensure that the proper ground is made through the T-bolt or screw. Reconnect power supply.
4. If you still do not get the 33 volts DC, verify that your charging station is hooked up to one of the white wires leading from the B+ wire. Check voltage.
5. If you still do not get the 33 volts DC verify that the gear rack screw on top and bottom of each piece of gear rack is tight. This will ensure proper grounding of the gear rack.

When the unit has been parked at the charge station for three (3) minutes, it should be receiving charge. If the unit starts to beep while on the charge station, the unit is still not receiving charge. Check the following:

1. Check that the charge springs are contacting the tabs on the track.
2. Verify that all wires in the unit are connected properly and that polarity is correct.

Remove the shroud to check DC voltage at charge spring between 'charge +' and 'charge -' on board.

The unit should now be receiving the 33 volts DC needed for proper charging of the batteries.

