



---

# Vesta

INSTALL GUIDE

---



## TOOLS AND MATERIALS REQUIRED

- Portable circular saw with edge guide to cut the rail squarely
- Allen keys (Imperial for splice bars)
- Screwdrivers (specifically Robertson #2 and #3, as well as 1/8" small flat-head for terminal screws)
- Ratchet and socket
- Needle-nose pliers
- Vise-grip pliers
- 90 degree snap-ring pliers (for carriage roller maintenance)
- 1/2" standard socket for anchors
- 1/4" and 9/64" drill bits (for charging station and screws)
- Box cutter/knife
- Tape measure
- Carpenter's level and square
- Reversible hand drill
- Flashlight
- Wire crimper
- Wire strippers
- Tie-wraps
- Volt-ohm (multi) meter
- Safety items as required: safety glasses, safety shoes
- Hand dolly
- Shop vac
- Rags and cleaning solvent
- White lithium grease
- Torque wrench

## INSTALLATION PROCEDURE

### Step 1

#### Double-check site specifics

- 1 Prior to delivery, check that you have clear access to the installation site.
- 2 For job site verification, use the following:
  - Any drawings shipped with the unit
  - Written and verbal direction from the customer and any contractors involved in the installation.
- 3 Ensure the width of the stairway will accommodate the unfolded width of the stairlift.
- 4 Ensure the stair steps will support the maximum load of the stairlift (300 lb./136 kg).
- 5 Ensure there is a standard household 110V AC power outlet located at the top or bottom of the stairs to plug in the charger.
- 6 Ensure all electrical equipment and wiring comply with the applicable codes.
- 7 Ensure there are no fire and safety issues.
- 8 Ensure there is adequate lighting along the stairway and at the landings.

### Step 2

#### Unpack and verify shipment

- 1 Unpack the shipment and check the contents against the job order and bill of materials. Three boxes contain the following:
  - a. Seat assembly
  - b. Top and middle rail sections
  - c. Carriage assembly/bottom rail section
    - Lift the assembly out of the box using the two rope handles.

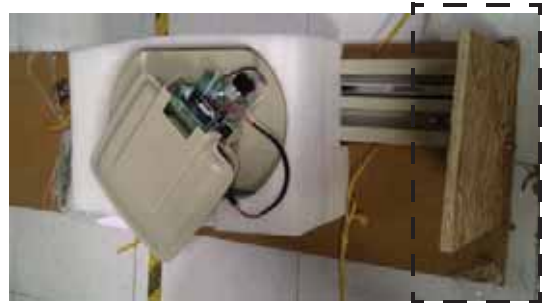
Figure 1



- Remove the bolts from the cardboard packaging.
- Remove all packing foam and bubble wrap.
- Remove the bolts securing the rail to the packaging.

#### NOTE

**Do not remove the wood that is attached to the end of the rail with two L-brackets. This is an installation jig.**

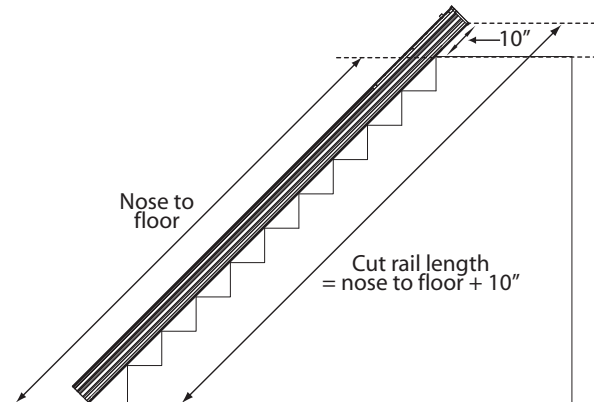


- 2 Check for any damage; installing damaged parts can lead to safety violations and void the limited warranty. If possible, photograph any damaged parts.

### Step 3 Cut rail to length

- 1 Measure the travel of the stairs from the nose at the top landing to the floor at the bottom landing (*nose to floor* in the drawing below).
- 2 Add 10" to the nose to floor measurement to get the total cut rail length. For example, if you have a nose to floor measurement of 140", you will need a total rail length of 150".
- 3 Cut the rail to the cut rail length measurement (see below).

Figure 2



#### NOTE

When adding a second or third rail section, never cut the section so short (nose to nose x 2) that you cannot install at least two leg brackets. Always cut the upper (non-mating) part of the rail; never cut in the junction.

#### NOTE

If the 10" overhang at the upper landing is not possible, an optional rail extension bracket can be attached to the existing rail bracket to raise the rail. This will ensure the footrest is level with the floor at the upper landing. Depending on the angle of the stairs, you may need extension brackets for some other rail brackets as well.

### Step 4 Install rail assembly

#### NOTE

If you need to install an optional flip-up rail section (which needs a special mounting bracket), refer to STEP 16.

- 1 When installing the rail assembly and mounting brackets, observe the following criteria:
  - a. Ensure a minimum clearance of 2 3/4" (70 mm) between the bottom of the rail and the nose of each step.
  - b. Always install a rail leg at each side of a joint and at the top and bottom of a rail section.
  - c. Ensure a minimum clearance of 6" (152 mm) from the wall (or any obstacle on the wall) to the front of the rail.
- 2 Place the bottom rail/carriage assembly on the steps.
- 3 Install the aluminum spacer jig at the top of this rail section.

Figure 3



- 4 Slide the rail to the middle of the steps to allow for easy installation of the legs from the back of the rail.

Figure 4



- 5 Adjust the rail as required to ensure a clearance of 2 3/4" (70 mm) between the bottom of the rail and the nose of each step. The aluminum spacer jig will set this at the top of the rail.

Figure 5



Spacer  
jig

2 3/4"  
clearance

Jig

- 6 Place the two rail legs on the steps.

Figure 6



- 7 Slide a bolt into the lower slot at the back of the rail. Loosely fasten this bolt to the leg with a lock nut.

Figure 7



- 8 Slide a bolt into the upper slot at the back of the rail. Fasten this bolt to the leg with a lock nut.

Figure 8



- 9 Install the second leg in the same manner.

- 10 Tighten all leg bolts.

Figure 9



- 11 Install the splice bars in the slots at the top of the bottom rail (two screws per splice bar).

- 12 Remove the aluminum spacer; it will be used at the top of the next rail section.

Figure 10



**NOTE**

Do not slide the rail to the back of the steps until the entire rail is assembled with all rail legs attached.



- 13 Install the aluminum spacer jig at the top of the middle rail section.
- 14 Attach the middle rail section to the bottom rail and tighten the splice bars ensuring there are no gaps.

Figure 11



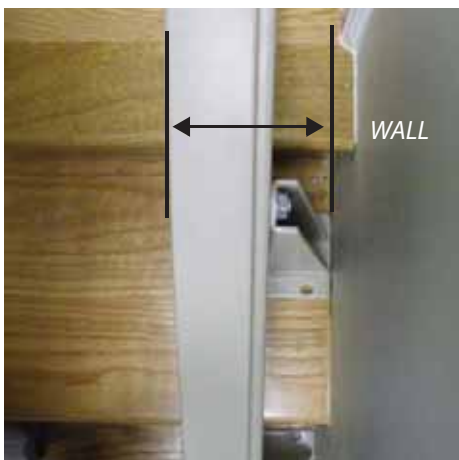
- 15 Install the rail legs on the middle rail section in the same manner as the bottom rail.

**NOTE**

Always install a rail leg at each side of a joint and at the top and bottom of a rail section.

- 16 Attach and install the next section of rail in the same manner as described above.
- 17 Once all rail sections are assembled and all legs are installed, carefully move the entire rail assembly to the wall for anchoring.
- 18 Ensure the front of the rail is 6" (152 mm) out from the wall (or any obstacle on the wall).

Figure 12



6" clearance from wall to front of rail

## Step 5 Anchor rail legs to steps

- 1 Verify the rail assembly is positioned correctly before anchoring the rail legs to the steps:
  - 2 3/4" (70 mm) clearance from the bottom of the rail to the nose of each step;
  - 6" (152 mm) clearance from the wall (or any obstacle on the wall) to the front of the rail
- 2 Anchor each rail mounting bracket to the steps using three appropriate anchor bolts (1/2" socket required).

Figure 13



## Step 6 Install bus lines

You need **two bus lines** in the cavity of the rail: one at the **top** (positive) next to the gear rack and one in the **side** (negative). Note that the photo below shows the bus lines completed.

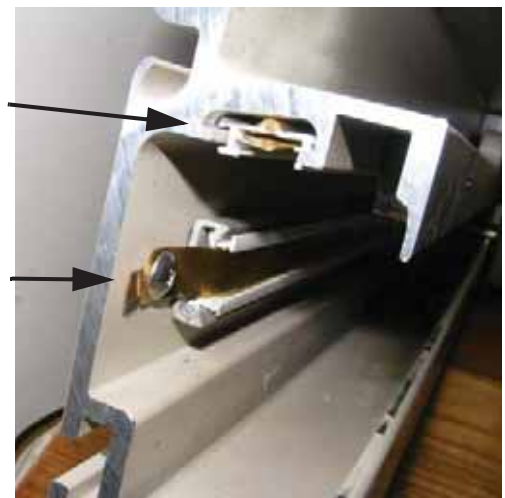
Each bus line consists of a white plastic casing and a copper charging strip along the full length of the rail assembly.

Lubricating the copper strip will aid greatly in the installation. Make sure the copper strip stays in the bottom groove of the plastic insulator strip. **Do not allow** the copper strip to kink as it is installed. Push only a small amount of strip at a time.

Figure 14

Top bus line (positive)

Side bus line (negative)



The white plastic casing for both bus lines is pre-installed at the factory. You will need to install the copper charging strip into each bus line.

NOTE: At the bottom of the rail, there is a **tin bus line guide** pre-installed in the **top slot of each bus line** to hold the charging pins in place during shipment.

Figure 15



Tin guides in top bus line slots

- 1 Slide the **copper charging strip** into the **bottom slot of each bus line** along the full length of the rail. The photo below details the copper charging strips and the tin bus line guides.

**NOTE**

Make sure the cutout for the charger wire is at the end of the rail where the charger will be installed.

Figure 16



Charging strips in bottom bus line slots



- 2 Once the copper charging strip is completely installed, pull on the tab of each tin bus line guide and remove the bus line guides. The charging pins will fall into place on the copper charging strip.

**Step 7**

**Adjust carriage post to right angle**

- 1 Level the carriage post vertically using the three nuts on the carriage plate.
  - a. Loosen the three nuts and rotate the carriage plate as required until the post is at a right angle.
  - b. Tighten the three nuts. **DO NOT OVERTIGHTEN.**

Figure 17



**Step 8**

**Install seat assembly**

- 1 Install the seat post by lining it up with the two 3/8" bolts on the front of the carriage post. Make sure the curved section of the seat post plate is facing the wall.
- 2 Secure the seat post in place with two nuts on the 3/8" bolts. Tighten the nuts to a torque of 31 lb. ft. (42 Nm). **DO NOT OVERTIGHTEN.**

Figure 18



- 3 Place the seat assembly on the seat post. Make sure the protrusion on the bottom of the seat assembly goes through the curved slot in the seat post plate.

- 4 Install the cotter pin through the hole as indicated by the arrow in the photo below.

Figure 19

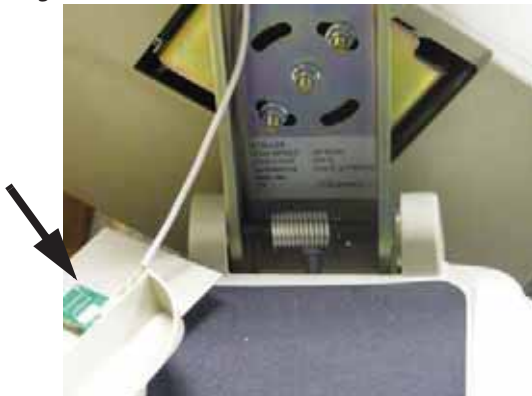


- 5 Unplug the temporary rocker switch and plug the seat cable into its corresponding connector.

**Note: Keep the temporary rocker for future possible service work.**

- 6 Plug in the diagnostic LED cable connector to the carriage post front cover.

Figure 20



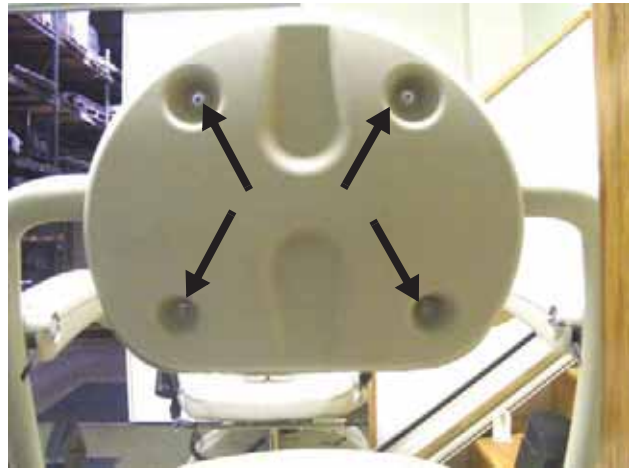
- 7 Install the carriage post front cover (two screws).



## Step 9 Adjust width of seating area (as required)

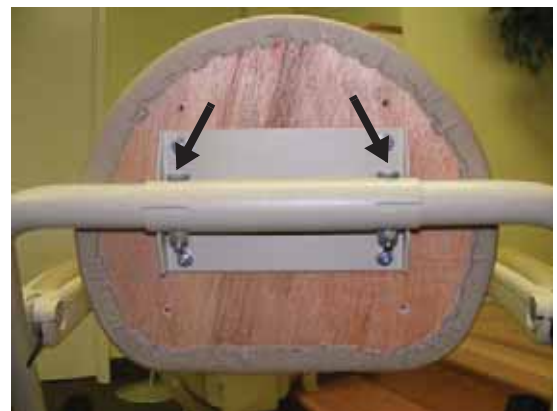
- 1 Remove the plastic cover from the backrest (four screws and washers). Set the screws and washers aside.

Figure 22



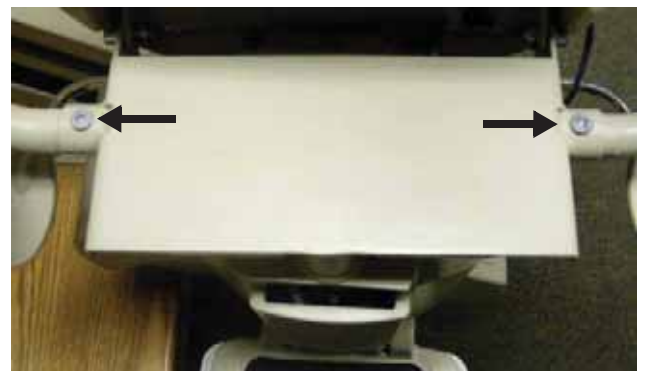
- 2 With the cover off, remove the two hex bolts and nuts from the backrest. Set them aside.

Figure 23



- 3 Flip up the seat and remove the hex bolts and nuts on each side of the seat support. Set them aside.

Figure 24



- 4 Adjust the arms in or out as required to the next holes.  
5 Reinstall the hex bolts and nuts on the seat support and the seat backrest.  
6 Reinstall the plastic cover on the seat backrest.



## Step 10 Install limit switch cams

**NOTE: Pre-tighten the limit switch cam screw. Loosen before installing.**

- 1 At the bottom of the rail, install the lower limit switch cam into the SIDE bus line track on the rail. Ensure the screw-end of the cam is pointing towards the outside end of the rail.
- 2 Position the cam 7-1/4" from the end of the rail to the screw of the cam and secure it in place. Do not overtighten the screw.
- 3 Run the lift and verify that when the lift stops at the bottom landing, the footrest is level with the first step. Adjust the position of the cam as required.
- 4 At the top of the rail, install the upper limit switch cam in the TOP bus line track. Ensure the screw-end of the cam is pointing towards the outside end of the rail.
- 5 Position the cam 1-3/4" from the end of the rail to the screw of the cam and secure it in place. Do not overtighten the screw.
- 6 Verify that when the lift stops at the top landing, the footrest is level with the landing. Adjust the position of the cam as required.



Figure 25

## Step 11 Connect battery

- 1 Remove the carriage top cover.
- 2 Connect the negative battery wire to B- on the battery.
- 3 Install the carriage top cover ensuring the wires are tucked neatly out of the way.



Figure 26

## Step 12 Install and connect charger

- 1 Mount the charger on the wall at the top or bottom of the stairway as appropriate for your installation.
- 2 Using the bracket and two screws provide, secure the charger to the wall (drill holes as required).

Figure 27



- 3 Connect the charger wires.
  - a. Connect the POSITIVE (WHITE) charger wire to the copper charging strip of the TOP bus line only after verifying that the copper charging strip is completely isolated from the rail (ground).
  - b. Connect the NEGATIVE (BLACK) charger wire to the copper charging strip of the SIDE bus line.
    - Pull the copper charging strip far enough out of the white plastic housing so you can drill through the existing hole in the copper charging strip and through the rail.
    - Secure the charger BLACK wire ring terminal and copper charging strip directly to the rail using the hardware provided (10-24 x 1/2" pan head bolt, flat washer, lock washer and nut).

Figure 28



- 4 Wrap up and tie the excess charger wire behind the rail at the top or bottom of the stairway.
- 5 Plug the charger into the wall outlet.

### Step 13 Install rail end caps

Install the end caps at the top and bottom of the rail.

- a. Fit the rail cap onto the end of the rail.
- b. Drill ab **9/64" diameter hole** through the rail cap and into the rail.
- c. Secure the rail cap in place with a #8 screw.
- d. Repeat for the other end cap.

Figure 29



### Step 14 Check remotes and set frequency (as required)

 CAUTION

**FOLLOW PROPER ESD PRECAUTIONS.**  
Before touching the circuit board, touch a grounding point to discharge any static electricity from your body.

- 1 Remove the carriage top cover.
- 2 Verify that the two infrared receivers are plugged into the CN6 and CN7 connectors on the circuit board (shown below).

Figure 30



- 3 Install the battery into each remote.
- 4 Point each remote at the lift and verify that it functions properly.
- 5 If the remotes are not working, check that the batteries are inserted properly. Replace the batteries if necessary.
- 6 If the remotes are still not working, try programming the board as follows:
  - a. Press and hold down the small red button on the circuit board (PB1) shown below. The amber LED on the circuit board comes on.
  - b. Point the remote control at the infrared receiver and push any button on the remote control. The amber LED on the circuit board goes out.
  - c. Release the button on the remote control and then release the button (PB1) on the circuit board.
  - d. To set the remote frequency for two different chairs that are in close proximity, unscrew the back cover of the remotes and change the DIP switch settings (DIP switch location shown below)
  - e. Repeat the above steps to set the frequency.
- a. Install the carriage top cover.

Figure 31



## Step 15 Test operation

- 1 Check all controls.
  - a. Check that the UP/DOWN rocker switch on the arm is functioning properly. The switch is constant-pressure; press and hold the switch to operate.
  - b. Check that the remote controls are functioning properly. The buttons are constant-pressure type; press and hold the buttons to operate.
- 2 Check that the seat, armrests and footrest fold up properly.
- 3 Check that the seat swivel handle is functioning properly and locks in the riding position.
- 4 Ensure you can fasten and unfasten the seat belt easily.
- 5 Check that the footrest and carriage bumper sensors are functioning properly. The stairlift should stop when it contacts an obstacle.
- 6 Check the operation of the upper and lower limit switches. The limit switches should stop the lift when it reaches the top or bottom of the stairway. The mechanical stop should stop the lift in an over-travel situation.
- 7 Check the operation of the swivel seat safety switch. The switch should prevent the stairlift from running if the seat is not locked in the riding position.
- 8 Visually inspect the gear rack and ensure the carriage moves smoothly along the rail.
- 9 Check that the green LED on the front cover is functioning properly.
  - a. If the green LED is illuminated, this indicates the lift is ready to operate.
  - b. If the green LED is flashing, this indicates:
    - the charging plunger is not making contact with the charging strip, or
    - the red wire from the charging plunger is not plugged into the circuit board at CONN18, or
    - the wall charger is not plugged in/connected to the rail or is defective.A beeping sound that starts after using the lift and lasts for 20 seconds indicates the same condition.
  - c. If the green LED still flashes, this indicates a defective wall charger or charging circuit. Check the wall charger for 33 VDC and consult the troubleshooting flowchart.

## Step 16 Install optional flip-up rail (if required)

Refer to STEP 5 earlier in this guide for the standard rail installation procedure. This section provides information on the optional flip-up rail section only.

The flip-up rail section is pre-assembled to the bottom rail section with the charger wire (in black plastic tubing) and the bus line copper charging strips pre-installed and routed through the rail to the other end.

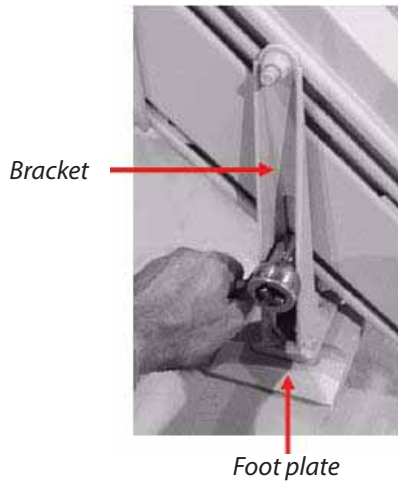
Figure 32



Follow the standard rail installation procedure to install the rail, except when installing the mounting bracket for the flip-up rail section. Refer to the steps below.

- 1 Attach the special mounting bracket to the flip-up rail section.

Figure 33



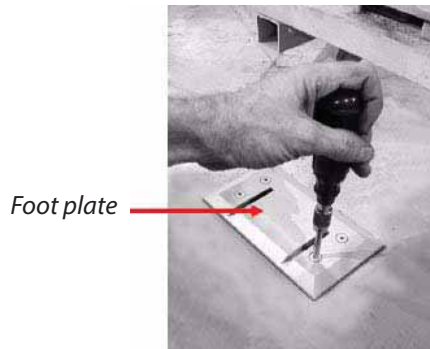
- 2 Trace the foot plate location on the floor.

Figure 34



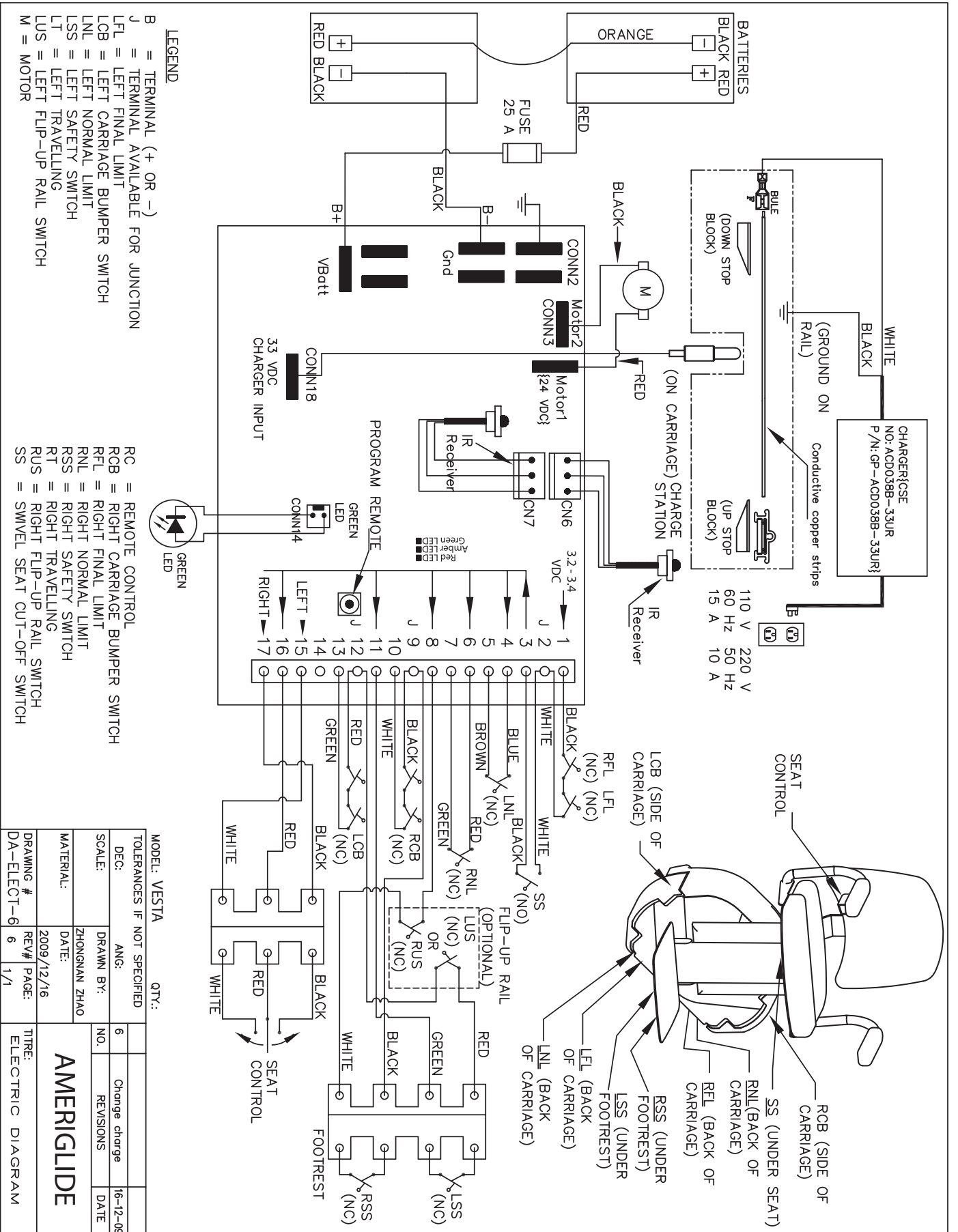
- 3 Screw in the foot plate according to the tracing on the floor.

Figure 35



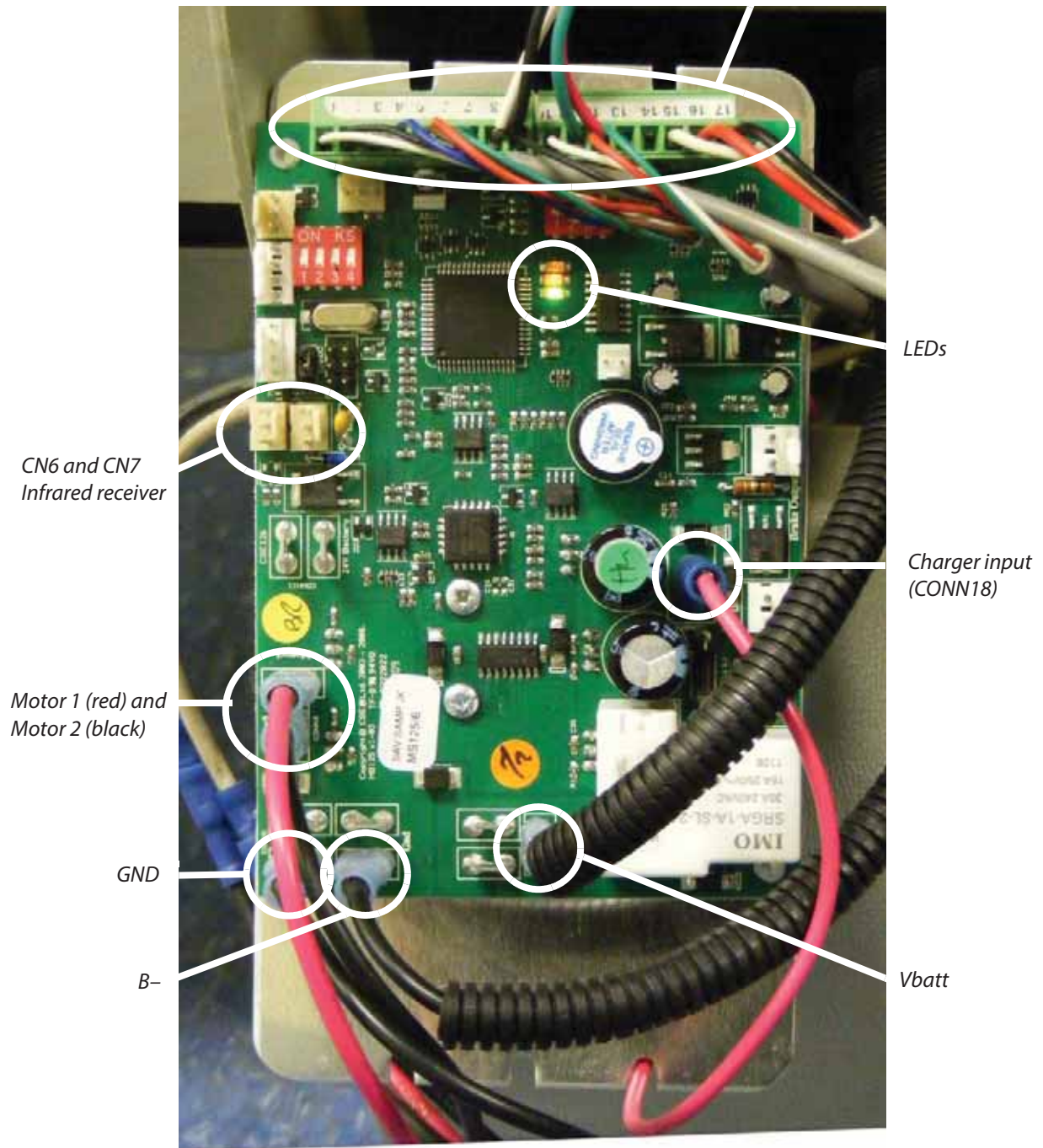


# ELECTRICAL DIAGRAM FOR MS 125 PCB



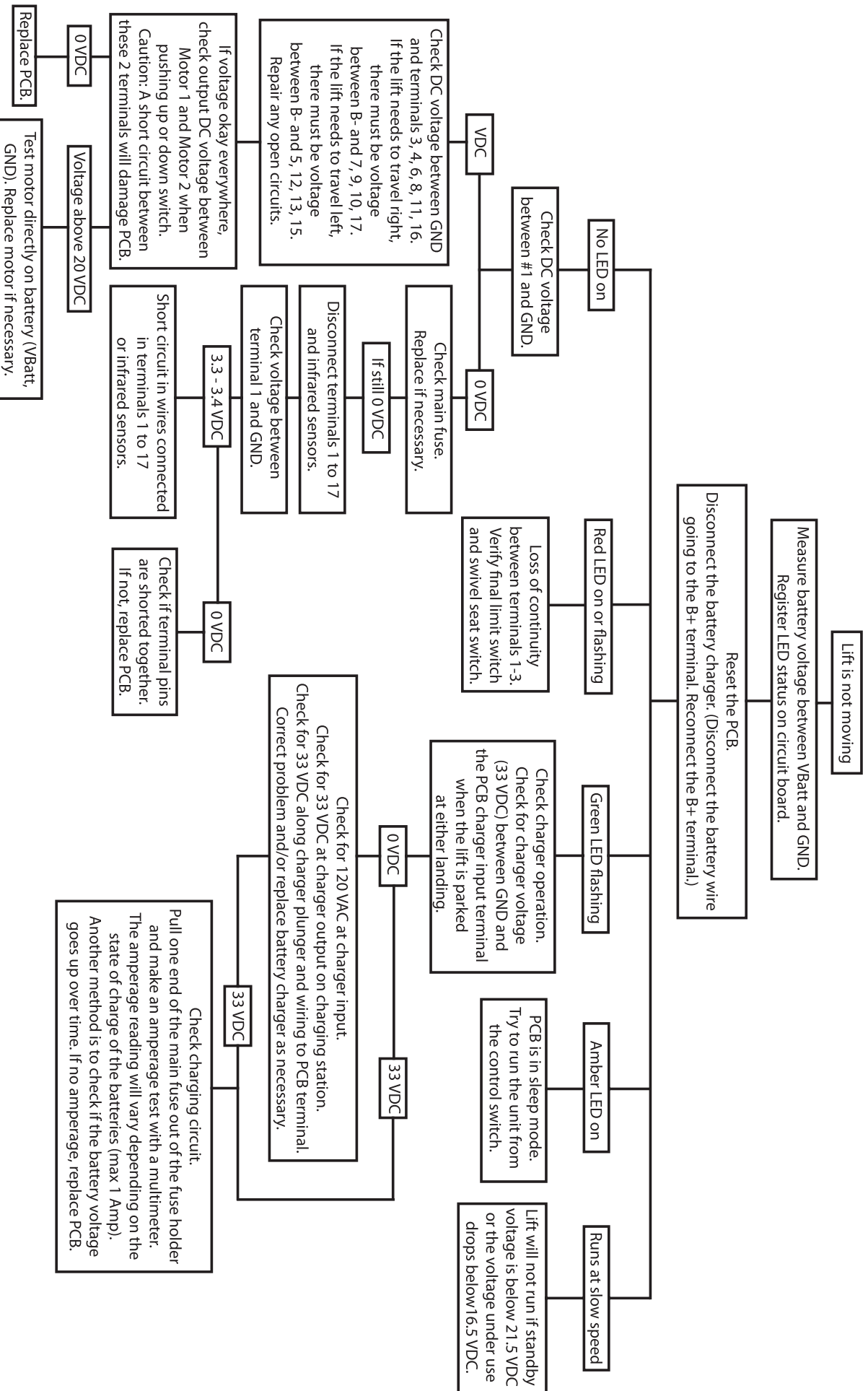
## CONNECTIONS TO MS 125 PCB

Terminal block (pins 1 to 17)  
Refer to diagram on previous  
page for signal details



# Troubleshooting Procedure

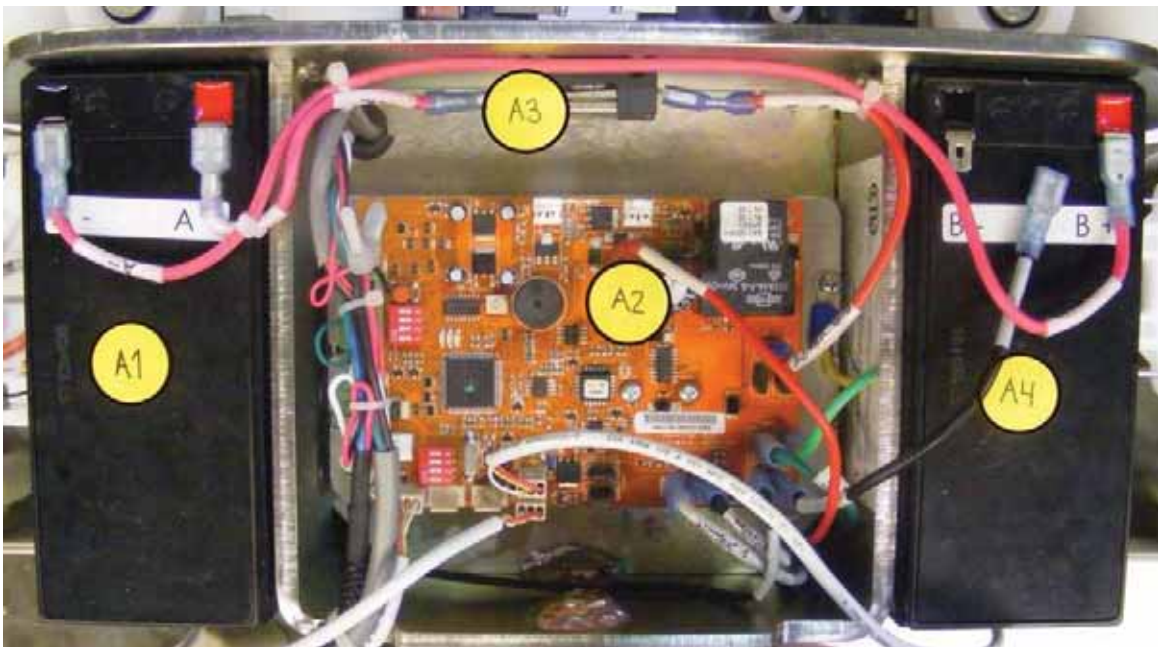
## Vesta (MS 125 Board)



## COMPONENT IDENTIFICATION

COMPONENT	DESCRIPTION
<b>ELECTRICAL COMPONENTS</b>	
A1	Battery "A" – 12V 7 Ahr
A2	Main controller board
A3	Fuse – 25A
A4	Battery "B" – 12V 7 Ahr

### ELECTRICAL COMPONENTS



### BUMPER SWITCHES

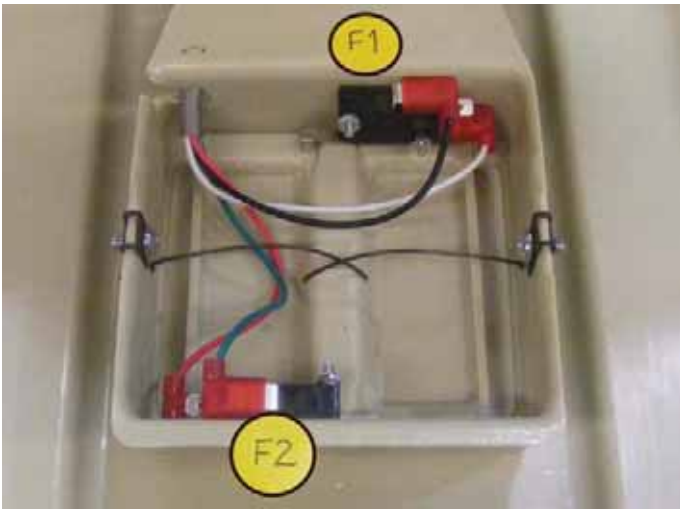


COMPONENT	DESCRIPTION
B1	LCB – left carriage bumper switch
B2	Obstruction cam
B3	RCB – right carriage bumper switch



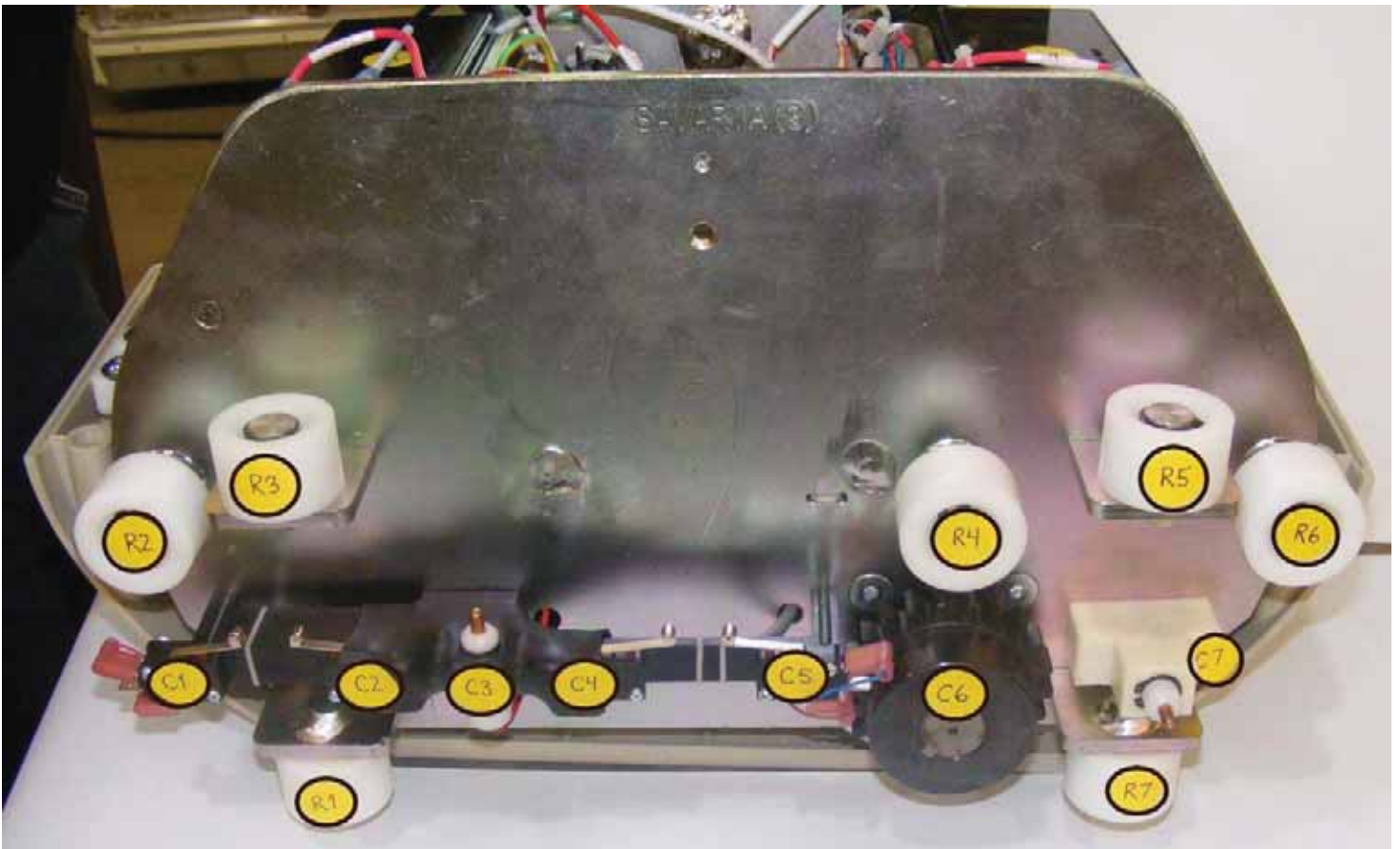
## COMPONENT IDENTIFICATION (continued)

### FOOTREST SWITCHES



COMPONENT	DESCRIPTION
<b>CARRIAGE SWITCHES</b>	
C1	RNL – right normal limit
C2	RFL – right final limit
C3	Charge pin “+”
C4	LFL – left final limit
C5	LNL – left normal limit
C6	Drive gear
C7	Charge pin “-”
<b>CARRIAGE ROLLERS</b>	
R1 - R7	Guide rollers
<b>FOOTREST SWITCHES</b>	
F1	RSS – right safety switch
F2	LSS – left safety switch

### CARRIAGE SWITCHES AND ROLLERS



## Diagnostic Codes

For codes displayed on the diagnostic display, refer to the following table to help diagnose and correct any faults.

### NOTE

*If the recommended corrective action provided in the table does not solve the problem, contact your authorized dealer for assistance.*

Code	Status/Fault	Recommended Corrective Action
	No display.	Press the UP/DOWN rocker switch and see if the display comes on. Check that the key switch and ON/OFF switch are turned on.
-	On when the stairlift is okay; ready to use. Flashing when the stairlift is running.	No action required.
0	Final limit switch is activated or swivel seat switch is activated.	Check that the key switch is ON and the seat is fully swivelled to the riding position.
1	Batteries require charging.	Check that the charger is plugged in and charging.
2	Batteries not charging.	Check that the charger is plugged in and charging.
3	Upper limit safety switch is activated.	You have reached the upper limit. Run the unit in the down direction.
4	Safety edge switch (bumper) in up direction is activated.	Remove any obstacle that may have activated the switch.
5	Underpan switch is activated.	Remove any obstacle from underneath the footrest.
6	Safety edge switch (bumper) in down direction is activated. Lower limit safety switch is activated	Remove any obstacle that may have activated the switch. You have reached the lower limit. Run the unit in the up direction.

7	Batteries approaching critical level and need charging.	Check that the charger is plugged in and charging.
9	Rocker switch is activated in UP/DOWN direction.	No action required.
A	Hinge is open.	Contact your authorized dealer.
B	A switch is active at power on (toggle up, toggle down, IR up, IR down, or learn).	Contact your authorized dealer.
C	IR address (DIP switch) does not match.	Contact your authorized dealer.
D	Main power relay is welded.	Contact your authorized dealer.
E	Main power relay did not close.	Contact your authorized dealer.
G	Brake not connected.	Contact your authorized dealer.
H	Main power relay has closed early.	Contact your authorized dealer.
L	Current limit exceeded.	Contact your authorized dealer.
N	Stairlift is running at half speed.	Contact your authorized dealer.
O	Main control board has a memory problem.	Contact your authorized dealer.
P	Powered swivel did not respond.	Contact your authorized dealer.
R	No charging current.	Check that the charger is plugged in and charging.