E604 STAIRLIFT

Installation & Service MANUAL

Merits Health Products Co., Ltd.

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1. Introduction

The Merits Stairlift basically consists of four parts: the carriage, the footrest, the seat, and the rail. The stairlift is powered by the rechargeable batteries inside the carriage. There are safety sensors on upper and lower covers and bottom of footrest. These sensors will stop the unit if any obstruction is detected on the rail or stairway. The footrest, the armrests and the seat can be folded up when not in use to allow more space on the stairway. Pull the swivel handle up to unlock the seat when you reach the top of the stairs. This will allow you to get into or out of the seat at a convenient position. The rail has two charging points at the top and bottom. The batteries can be recharged automatically when the unit stops at these positions.

1.1. Intended Use

The Merits Stair Lift System is a powered patient transport, also commonly known as a Stairway Chairlift, or Stairlift. It is a motorized device intended for medical purposes to assist transfers of patients, or mobility-impaired persons, up and down flights of stairs. This stairlift can only be used on the staircases inclined between 0°~52°. It is designed to carry one person at a time and the maximum weight capacity is 120kg (265lbs). Any other uses which this stairlift does not intend for may cause serious injury or damage to personal property.

1.2. How to Use Installation and Service Manual

This manual provides instruction for installation and servicing of the E604 stairlift. This manual includes whole sections in the following:

- Introduction
- Installation
- Testing
- Dismantling Components
- Maintenance
- Troubleshooting

All section titles, subject subtitles and illustration are listed in the Table of Contents.

Note

This manual specifically instruction for service engineers and distributors only. This is not a manual for user use.

1.3. Safety Rules

As you read the manual, please pay attention to all of following:

- Fire Hazard- Do not use an improper voltage source. Verify the rated voltage matches the voltage of the charger before applying power.
- Electrical Shock Hazard - Do not remove or open the cover during operation.
- Disconnect the power cord from the electrical outlet before cleaning or servicing.

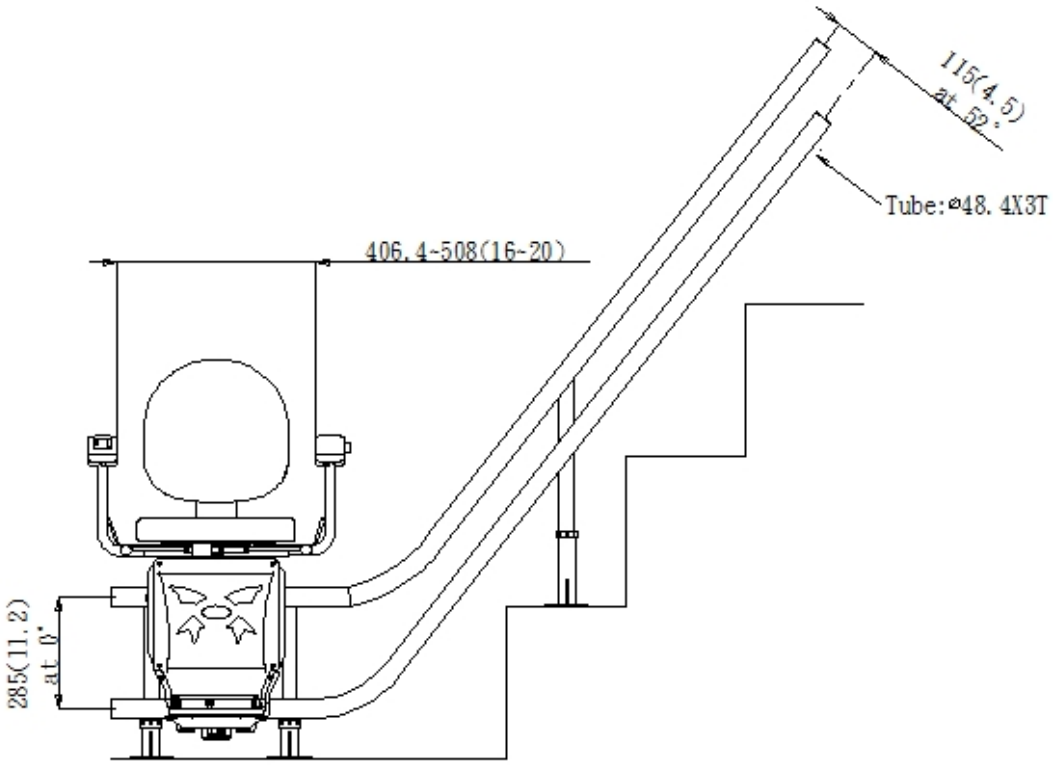
1.4. Warranty

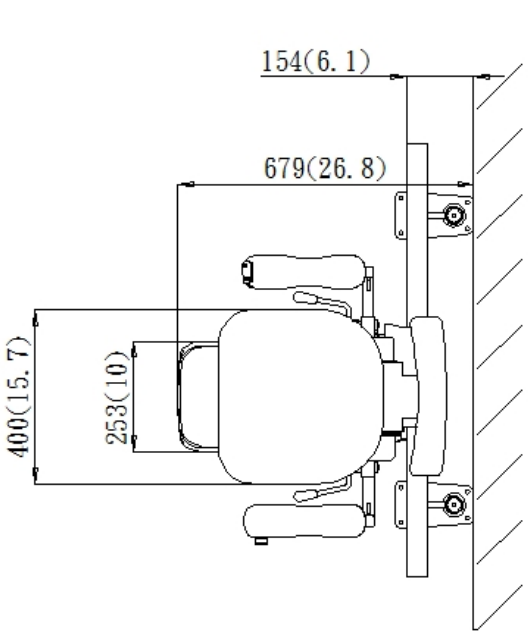
Merits Health Products Co., Ltd. warrants the **Merits Stairlift** to be free from defective workmanship and materials for a period of 1 year from the date of purchase. The rechargeable battery is warranted for 180 days from date of purchase. Check with your dealer for more details. This warranty is limited to the original purchaser of the Stairlift. Any defective part or assembly will be repaired or replaced, at the sole discretion and determination of Merits Health Products Co., Ltd., if the unit has been properly operated during the warranty period. Normal maintenance items and disposable components are not covered by this warranty. Shipping charges, if any, shall be paid by the purchaser.

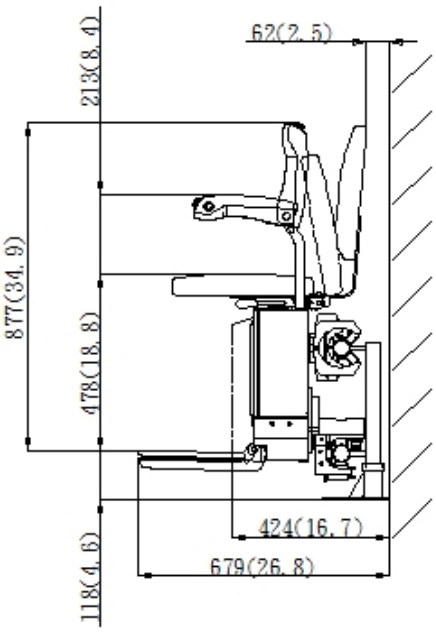
Note: There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose, are limited to the duration of the express limited warranty and to the extent permitted by law and all implied warranties are excluded. This warranty does not cover providing a loaner Stairlift, compensating for costs incurred for Stairlift rental, or labor costs incurred in repairing or replacing defective part(s).

SPECIFICATIONS:

Dimensions:







Technical Specs:	
Load Capacity	120kg (265 lbs)@52°
Range of Stair Angle	0°~52° Note: According to ASME A18.1, no lift should be installed to operate on an incline greater than 45 deg. as measured on the mean.
Travel Speed	6 m/min. (20 ft/min)
Drive System	Rack and Pinion
Operator Control	Constant-pressure type (rocker switch and remote controller)
Operating Voltages	24VDC rechargeable batteries
Motor	950W, 24VDC
Brake (Optional)	Electromagnetic brake
Charging	At the preset Charging Stations on rail. Input: 115/230VAC, 50/60Hz. Output: 24V ⎓ 2A
Operating Ambient Temperature (Humidity)	5℃ ~ 40℃ (41°F ~ 104°F) (up to 95% non-condensing)
Storage/ Transport Temperature (Humidity)	-10℃ ~ 60℃ (14°F ~ 140°F) (up to 95% non-condensing)

2. Installation

2.1. Unpack and verify the shipment

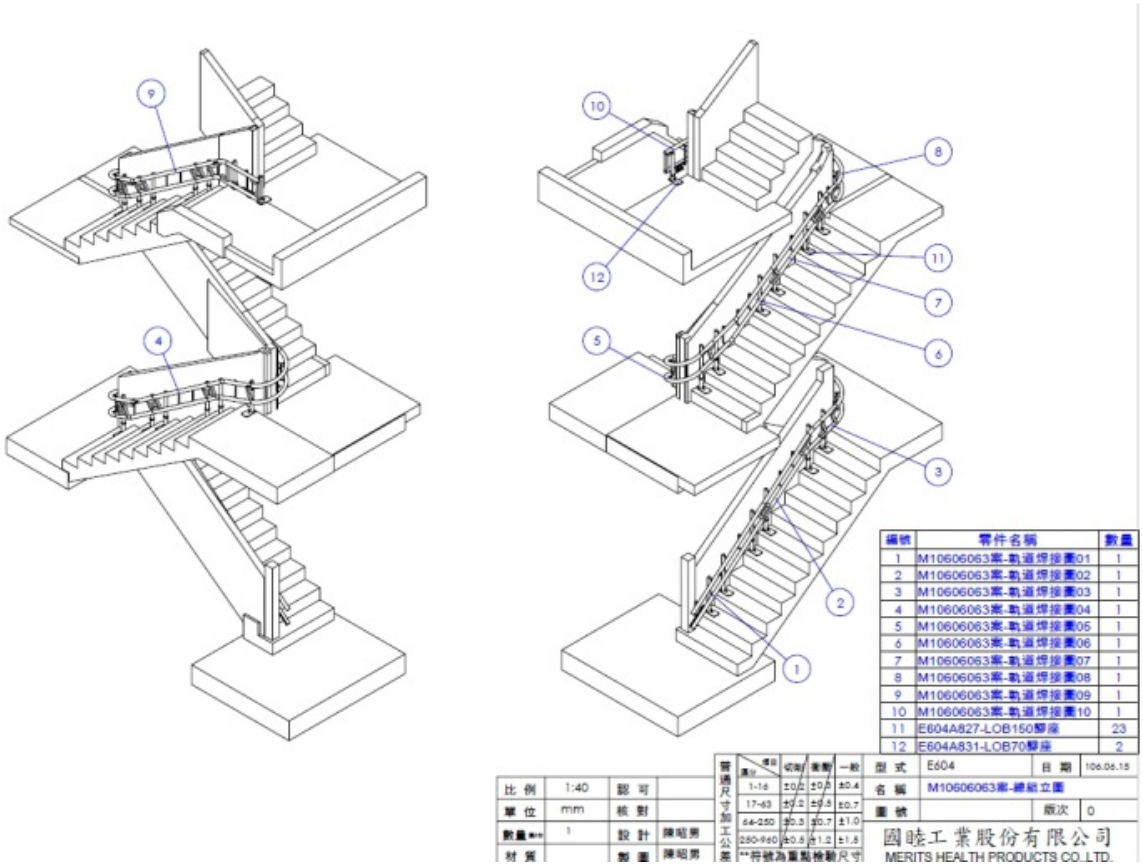
Tool	Parts
Knife	Rail Sections / Rail Foot Stands

Check for any obvious damage to the carton or its contents. If possible, take a picture of any damaged part.

Unpack the Rail sections and check the packing list to find if there are any missing parts.

2.1.1. Compare and verify the installation location and the drawing

Compare the installation location with the drawing. Discuss with end user for the detail installation information. Check the positions of the Receptacle for Charger, Parking position and the installation of the Charging Station.



編號	零件名稱	數量
1	M10606063案-軌道焊接圖01	1
2	M10606063案-軌道焊接圖02	1
3	M10606063案-軌道焊接圖03	1
4	M10606063案-軌道焊接圖04	1
5	M10606063案-軌道焊接圖05	1
6	M10606063案-軌道焊接圖06	1
7	M10606063案-軌道焊接圖07	1
8	M10606063案-軌道焊接圖08	1
9	M10606063案-軌道焊接圖09	1
10	M10606063案-軌道焊接圖10	1
11	E604A827-LOB150腳座	23
12	E604A831-LOB70腳座	2

比例	1:40	認可	
單位	mm	核對	
數量	1	設計	陳昭男
材質		製圖	陳昭男

普通尺寸加工公差	切割	衝壓	一般
1-16	±0.2	±0.3	±0.4
17-63	±0.2	±0.3	±0.7
64-250	±0.3	±0.7	±1.0
250-960	±0.5	±1.2	±1.5

**符號為重點檢驗尺寸

型式	E604	日期	106.06.15
名稱	M10606063案-總組立圖		
圖號		版次	0

國睦工業股份有限公司
MERITS HEALTH PRODUCTS CO.,LTD.

2.1.2. Remove the protecting foam of the Rails

Remove the protecting foam of the Rails and unpack the Rail Foot Stands by using a knife. Be careful, DO NOT make any scratch on the Rails.

2.1.3. Preassemble the Rail Foot Stands to the Rails

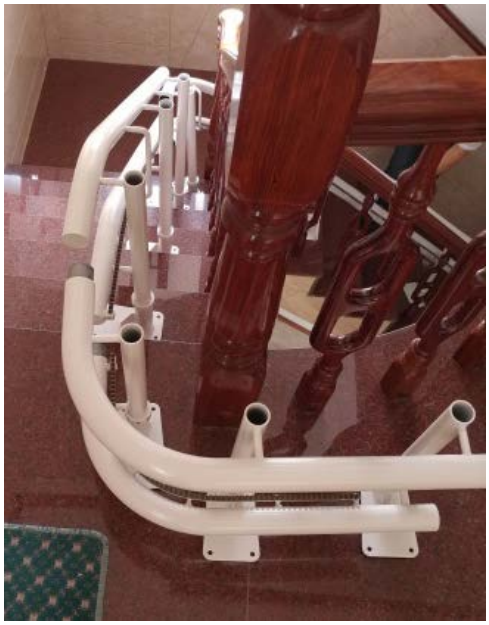
According to the Installation Drawing preassemble each Rail Foot Stand to each relative Rail section. Slightly tighten only one set screw on each Rail Foot Stand to prevent it falling off while installing.

2.2. Install the Rail Sections

Tool		Parts
Portable Hammer Drill	Lubricant & Brush	Cable
Allen Key Set	Insulation Tape	M6x35mm Screws
Hammer	Heavy-Duty Quick F-Clamp	Ø6 Spring Pin
Wire Threader	Vacuum Cleaner	Nylon Wall Plug (may not be necessary for Wooden Stairs)
Leveling Instrument		
Roll Pin Punches		1/4”- 2” Hex Head Screws

2.2.1. Place each Rail Section to the stair steps

According to the Installation Drawing, put each Rail Section to the correct stair steps.



2.2.2. Install the Wire Harness in Rails

a.) Tight one end of the Wire Harness to the Wire Threader by using the Insulation Tape.

b.) Insert the Wire Threader with the Wire Harness from the topmost Rail Section through the Lower Rail of each Rail Section. Please Insert the Wire Harness through each Rail Section and Pull it to the adequate length. Repeat these actions until the Wire Harness is pulled out from the lowest Rail Section.

【Note】Make sure to adjust the length of the Wire Harness after putting it through each Rail Section instead of several Rail Sections. It will be too heavy to pull after it passing through 2 or more Rail Sections.

2.2.3. Assemble the Rail Sections

a.) Use Brush to apply some Lubricant on the Tube Joints for both the Upper & Lower Rail Sections.

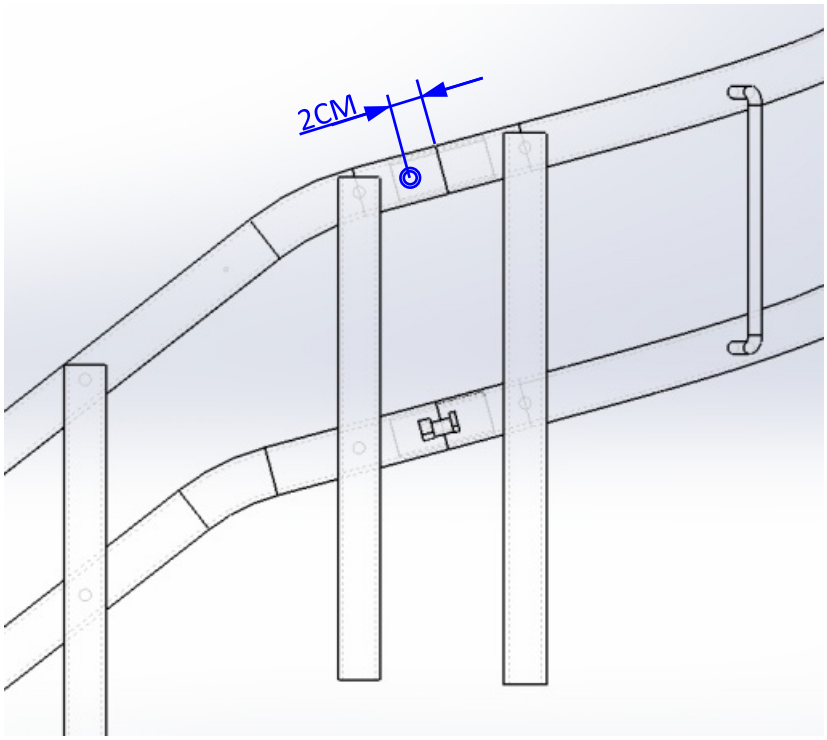
b.) Assemble the Rail Sections together one by one from the Top to the Bottom. Use the Quick F-Clamp to tighten the Upper and Lower Rails of each Rail Sections.

c.) Tighten the 1st and 2nd Rail Section by using an M6x35mm Screw. Make sure this screw is tightened from the upper end to the lower end of the Rail Joint.

d.) Repeat step a.)~c.) until all the Rail Sections have been fixed together.

2.2.4. Fix 2 Rail Sections with Spring Pins

a.) Align the Spring Pin holes on two Rail sections: The Spring Pins holes are located on the Upper Rail sections at about 2 CM down from the joint edge of 2 Rail Sections. (Please ref. to the figure below). Insert the Roll Pin Punch from the back to the front of the Rail Section to align the Spring Pin holes. Use the Roll Pin Punch as a guide while installing the Spring Pins.



b.) Install the Spring Pins: Put the Ø6 Spring Pin on the end of the Roll Pin Punch and use it as a guide for installation. Knock the pin all the way through the tube from the outside of the Rail until the edge of the Spring Pin is almost the same height as the Rail surface. Be careful not to deform or bend the pins while knocking them into the Rail Sections. Make sure you install all the Spring Pins on the Rail Sections before you start adjusting the height of each Rail Foot Stand.

2.2.5. Adjust the height of each Rail Section

a.) First, adjust the height of the Rail Foot Stand at Bottom, Middle & Topmost stair to the same height listed in the Installation Drawing. Use Allen Key to tighten one Set Screw of each Rail Foot Stand to prevent it from moving while making the adjustment.

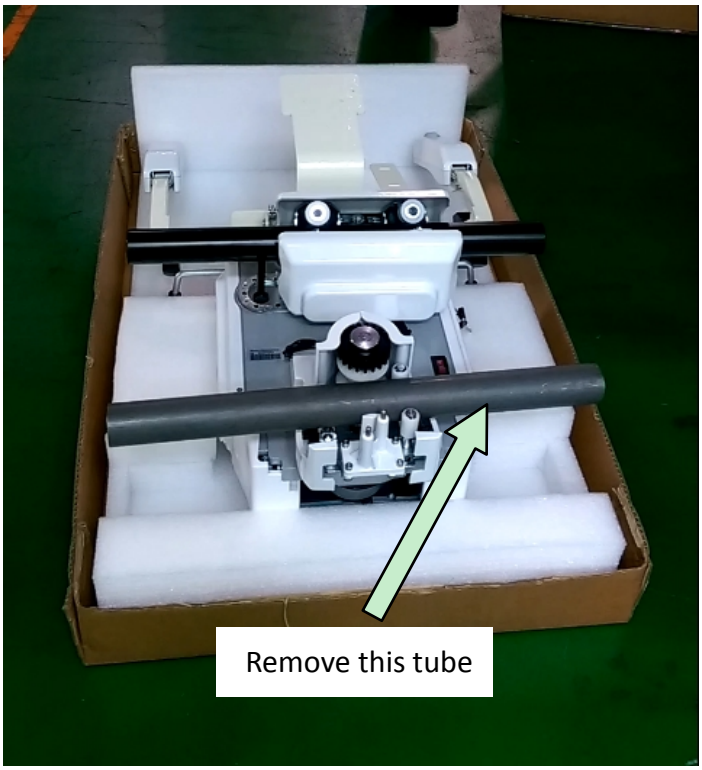
b.) Use Leveling Instrument as a guide to adjust the height of the rest Rail Foot Stands and try to make the Rail as smooth as possible. Use Allen Key to tighten one Set Screw of each Rail Foot Stand to prevent it from moving while installing the Carriage.

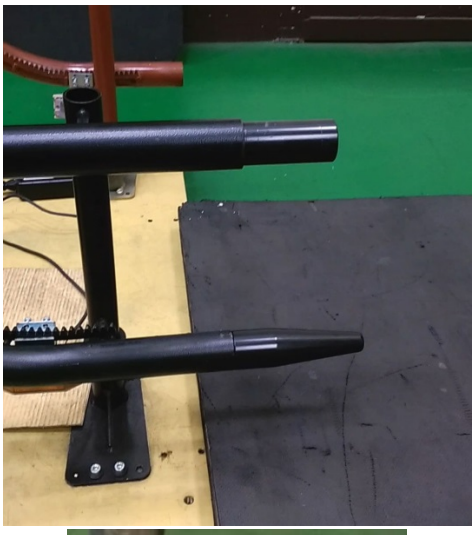
2.3. Install the Carriage

Tool	Parts
Shuttle Guide for Swing Head Connecting Tube Pin Stopper Leveling Instrument	Carriage

2.3.1. Unpack the Carriage

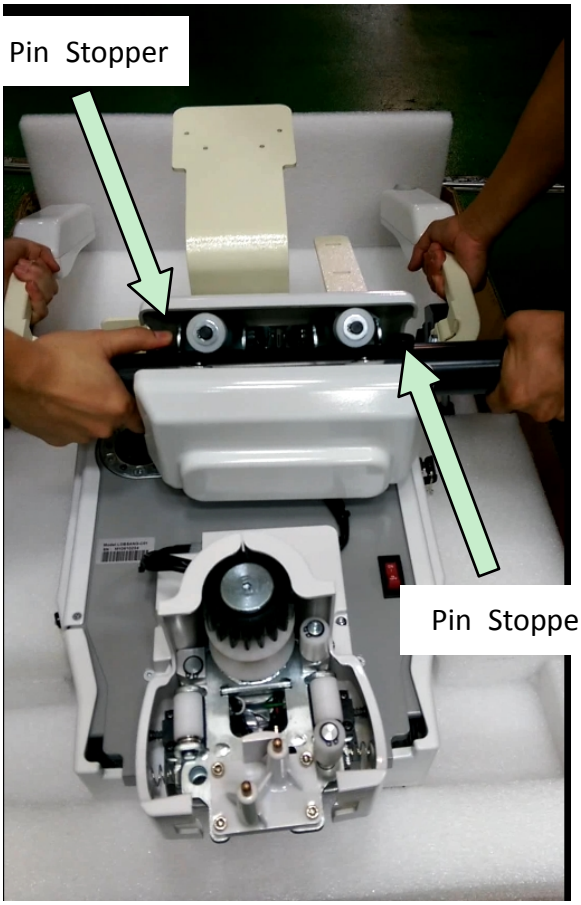
Unpack the carriage from the carton, and remove the steel tube on the Swing Head. Insert the Connecting Tube to the Upper Rail and the Shuttle Guide for Swing Head to the Lower Rail.

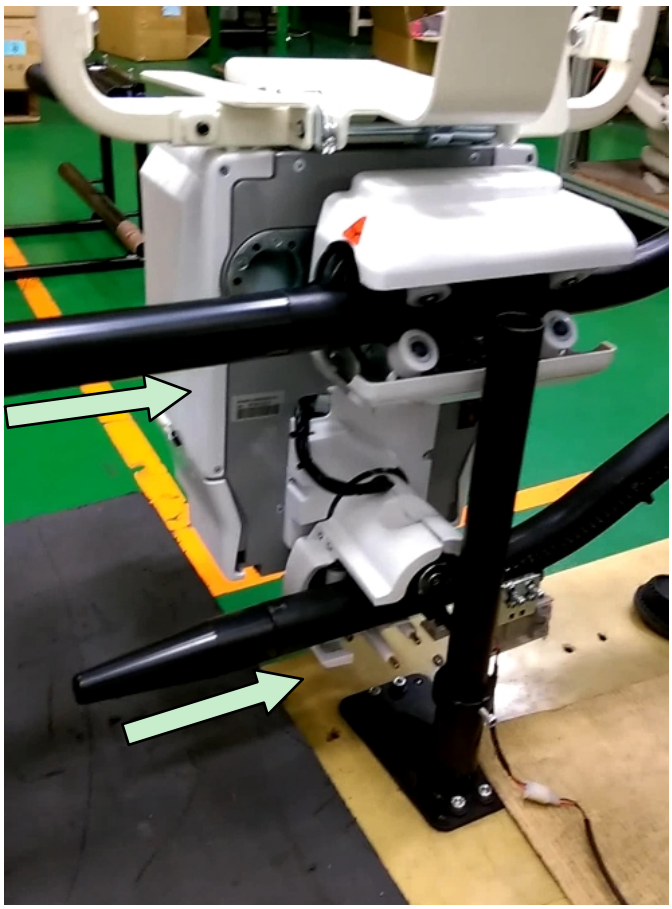




2.3.2. Install the Carriage to the Rail

a.) Insert 2 Pin Stoppers to the Tube, this is to fix the carriage to avoid it from moving/ slipping while installing. While moving the carriage, use one hand to hold the steel tube and the other hand to hold the armrest.





b.) Insert the steel tube onto the Connecting Tube in the Upper Rail. And align the Swing Head to the Shuttle Guide in the Lower Rail. Remove the pin from the rail, move the carriage onto the rail until its gear touch the rack. Turn on the carriage power and move it onto the Rail on the Staircase.

c.) Adjust the Leveling of Carriage: Place the Leveling Instrument on the Carriage Seat and move the Carriage to each Rail Section. Fine tuning the height of the Rail Foot Stands to keep the Carriage leveling well while moving on each Rail Section. Make sure the Carriage DO NOT lean greater than 2 degrees in either direction. Tighten all the Set Screws on the Rail Foot Stands after finishing this calibration.

2.4. Fix the Rail Foot Stands onto the Stair Tread

Tool	Parts
Portable Hammer Drill Ø8mmx350mm L Drill (may not be necessary for Wooden Stairs) Vacuum Cleaner	Rubber Cushion Nylon Wall Plugs (may not be necessary for Wooden Stairs) 1/4”- 2” Hex Head Screws

2.4.1. Install the Rubber Cushion to each Rail Foot Stand

Move the Carriage from the start to the end and then back to the start again. Make sure the Carriage will not interfere with anything near the Staircase while moving along the Rail. Place the Black Rubber Cushion under each Rail Foot Stand.

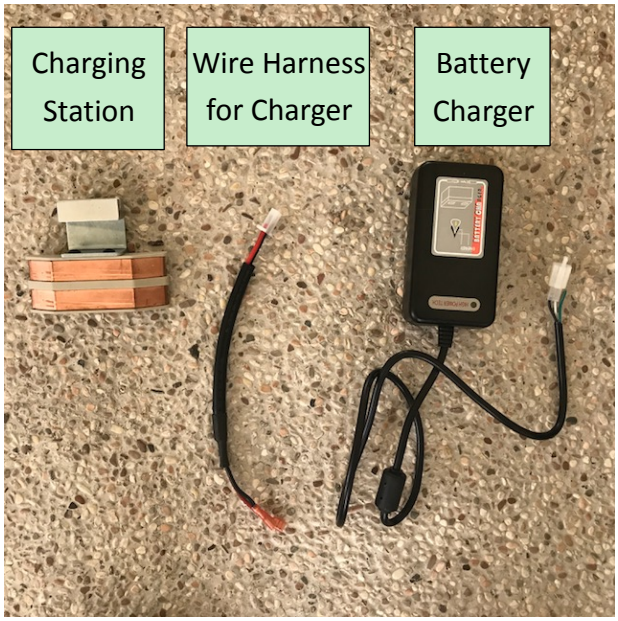
2.4.2. Fix the Rail Foot Stands to the Stair Treads

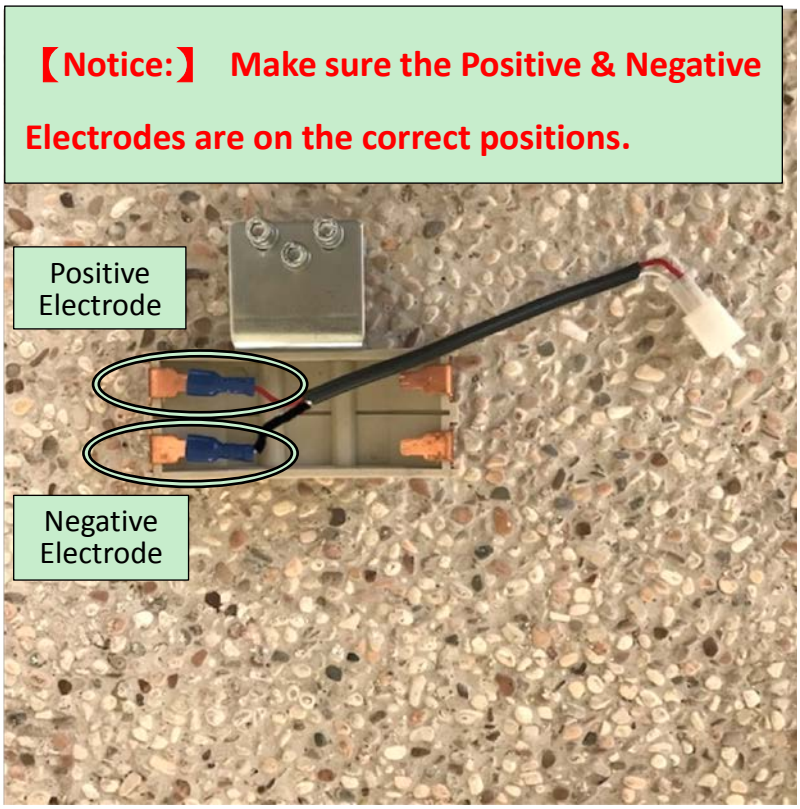
a.) (For Concrete & Marble Staircase) Install the Ø8mm*350mmL Drill to the Portable Hammer Drill. Switch to hammer function. Align the holes on the Rail Foot Stands, and start drilling holes on the Stair Treads. Use Vacuum Cleaner to remove the dust while drilling holes. Insert the Nylon Wall Plugs into these holes. And then use the 1/4”- 2” Hex Head Screws to fix each Rail Foot Stand on the Stair Treads.

b.) (For Wooden Staircase) Align the holes on the Rail Foot Stands, and use the 1/4”- 2” Hex Head Screws to fix each Rail Foot Stand on the Stair Treads. Use Vacuum Cleaner to remove the wood chips while installing.

2.5. Install the Charging Station and the End Stopper

Tool	Parts
Portable Drill	Charging Station
Ø4.2mm Drill	Battery Charger
M5 Tap	Wire Harness of Charger
Allen Key No. 3	Charger Holder
Screw Driver	End Stopper
Vacuum Cleaner	M5x 12mm Screws
	M4x25 Self-Tap Screws



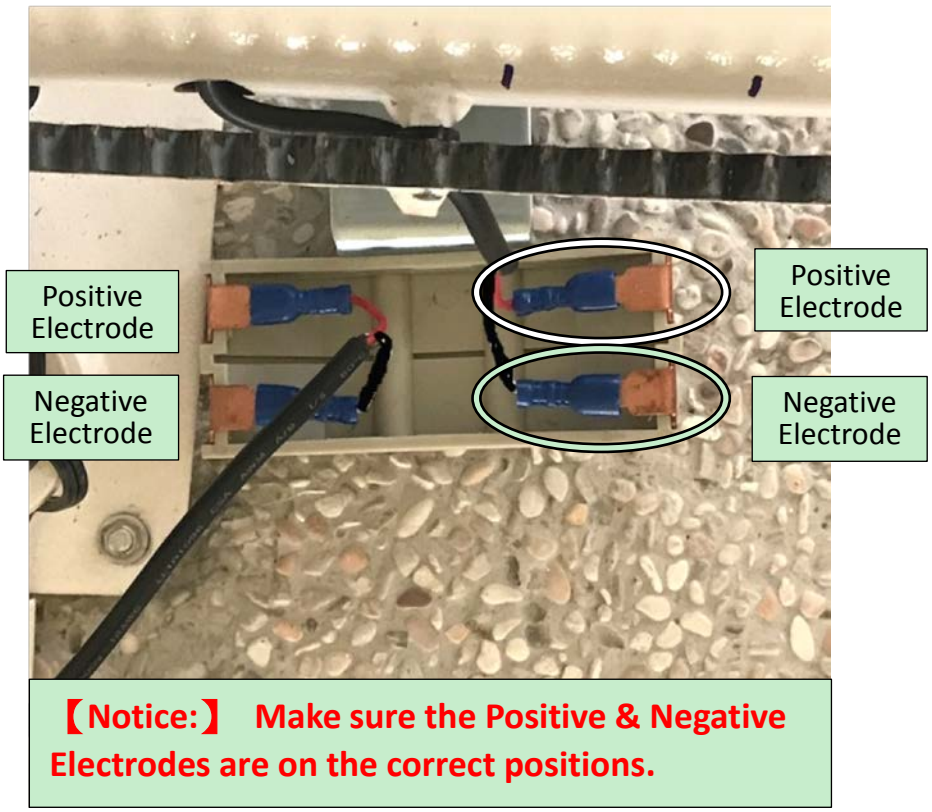


2.5.1. Connect the Wire Harness of Charger to the Charging Station

Connect the Wire Harness for Charger to the copper electrodes of the Charging Station. Make sure the Positive & Negative Electrodes are on the correct positions.

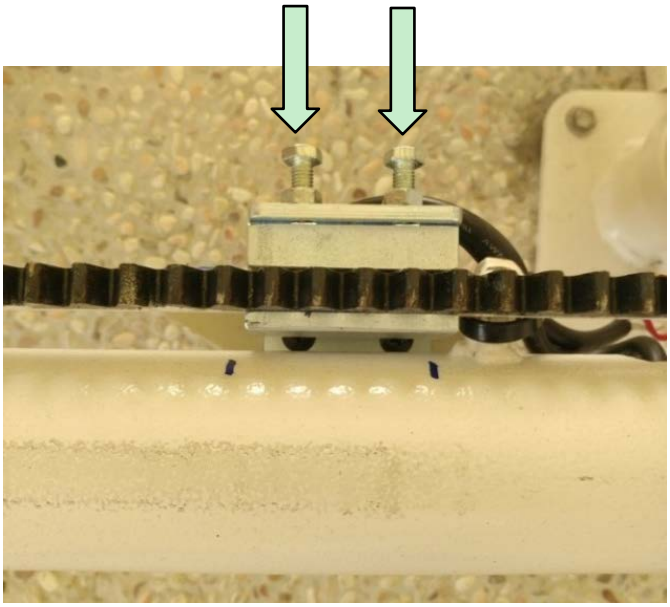
2.5.2. Connect the Charging Station to the Rail Cable

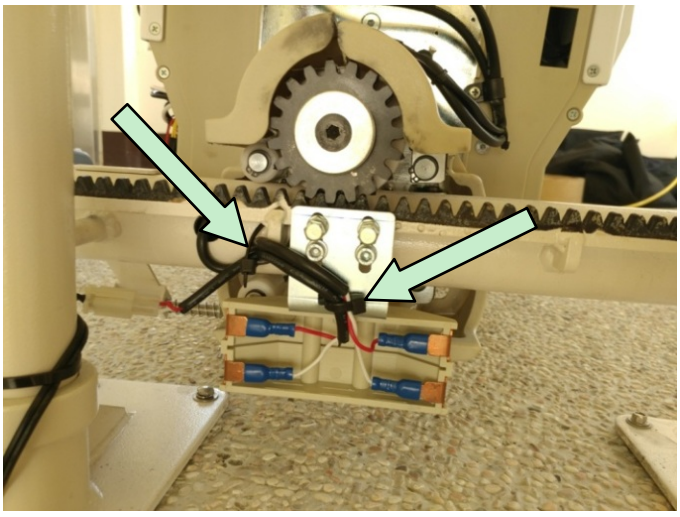
Connect the connectors on the Rail Cable to the copper electrodes on the other end of the Charging Station. Make sure the Positive & Negative Electrodes are on the correct positions.



2.5.3. Attach the Charging Station to the Rack

Attach the Charging Station to the Rack at the pre-set position. Adjust its height to align the copper plates with the Electordes on the Carriage. Drive the Carriage in and out of the Charging Station for several time to confirm the position of the Charging Station is adequate. Tighten the screws with No.8 Wrench. Fix the wire harness with Nylon Cable Ties.





2.5.4. Install the Battery Charger

Choose an adequate position which is near the Wall Receptacle. Fix the Battery Charger to the wall or other rigid surface with the Charger Holder by using 2 screws.

2.5.5. Install the End Stopper

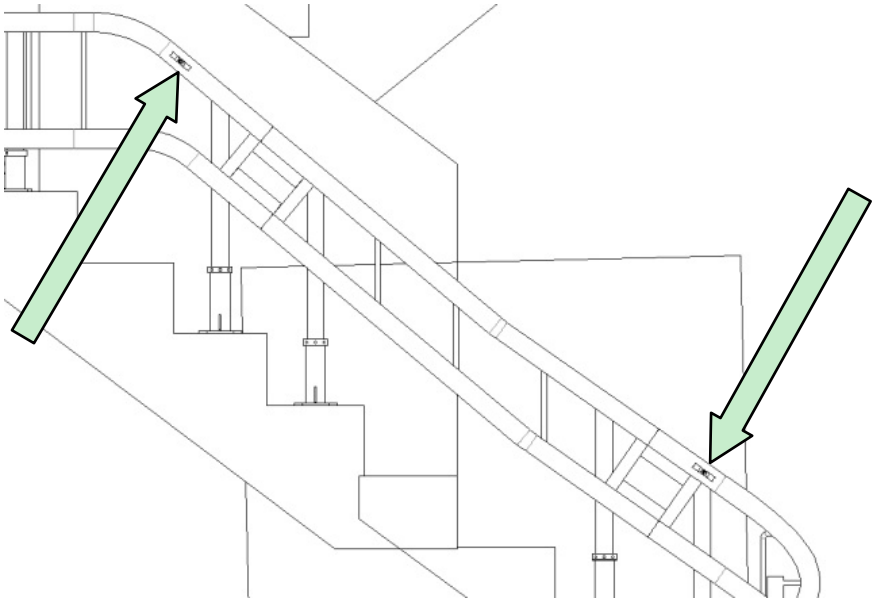
a.) Adjust the Position of the End Stopper: Move the Carriage to the pre-set Parking Position. Attach End Stopper to the Rail and carefully move the End Stopper along the Rail until its Spring Pin end slightly touch the cover of the Swing Head. Mark the positions for installing the screws.

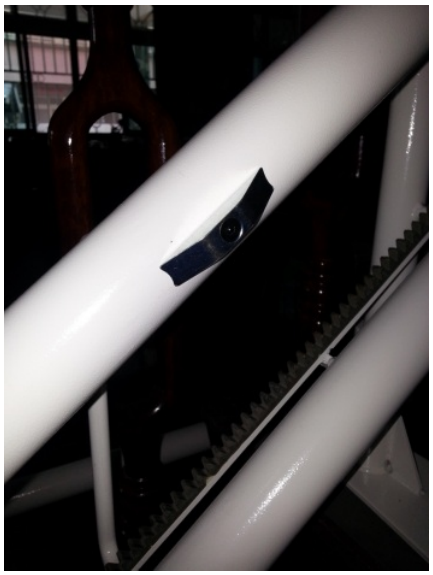
b.) Drill screw holes and fix the End Stopper: Install the Ø4.2 Drill to the Portable Drill. Drill 2 holes on the Lower Rail and then tap them to M5 thread. Tighten the End Stopper to the Lower Rail with 2-M5 Screws.

2.6. Install the Speed Control Blocks to the Upper Rail

Tool	Parts
Allen Key No. 3	Speed Control Blocks M5x 15mm Hex Drive Flat Head Screws

Follow the Assembly Drawing to install the Speed Control Blocks to their correct positions on Upper Rail.





2.7. Test Run of Carriage

2.7.1. Carriage Moving Test

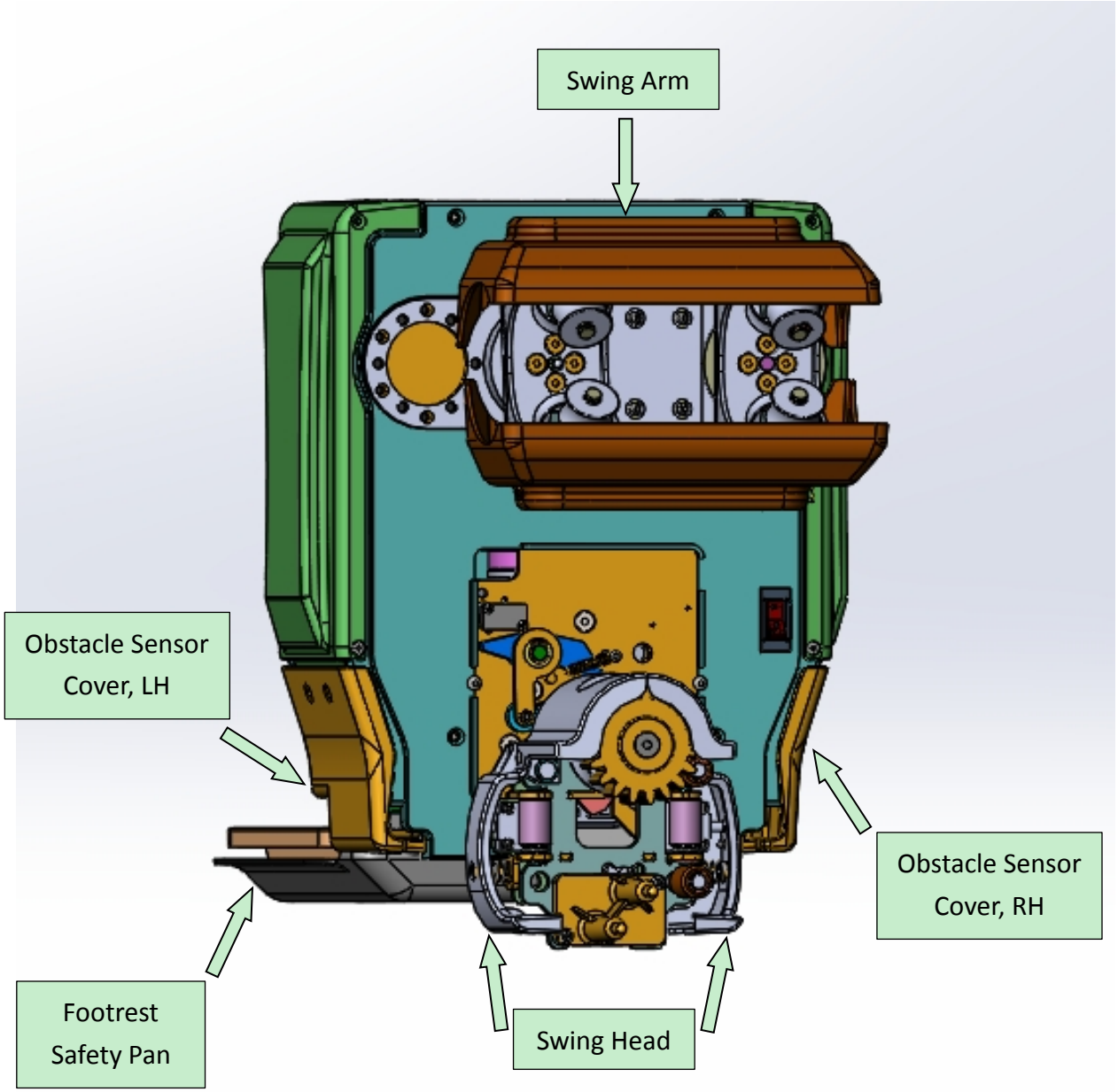
a.) Drive the Carriage to move along the Rail to see if it moves smoothly on each Rail Sections. Check if the Hi-Lo Speed control is function normally while the Carriage passing through the Speed Control Blocks.

b.) Check the function of Rocker Switch, Remote Control and Attendant Controller (Optional). Make sure each controller can drive the Carriage to the correct directions.

c.) Drive the Carriage to the Charging Station. The Carriage should stop automatically with it 2 Charging Electrodes rested on the copper plates on the Charging Station. Release the Rocker Switch and press it again, the Carriage should be able to start moving again. (If the Swing Head Cover touches the End Stopper, the Carriage can only be moved to the other direction.) Check the status LED on the Battery Charger to see if the Batteries are charging correctly while the Carriage stops at the Charging Station.

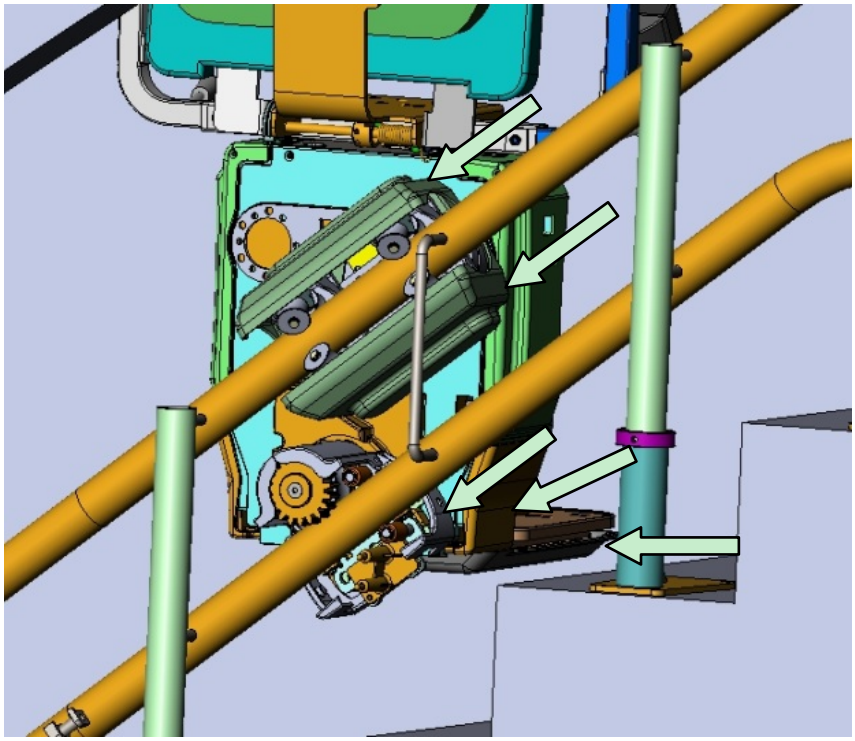
2.7.2. Carriage Safety Switch Test

a.) Positions of the Safety Switches: There are several Safety Switches on the Carriage. Check and make sure every Safety Switch function normally while the Carriage is moving. The positions of these Safety Switches can be found in the following figure.

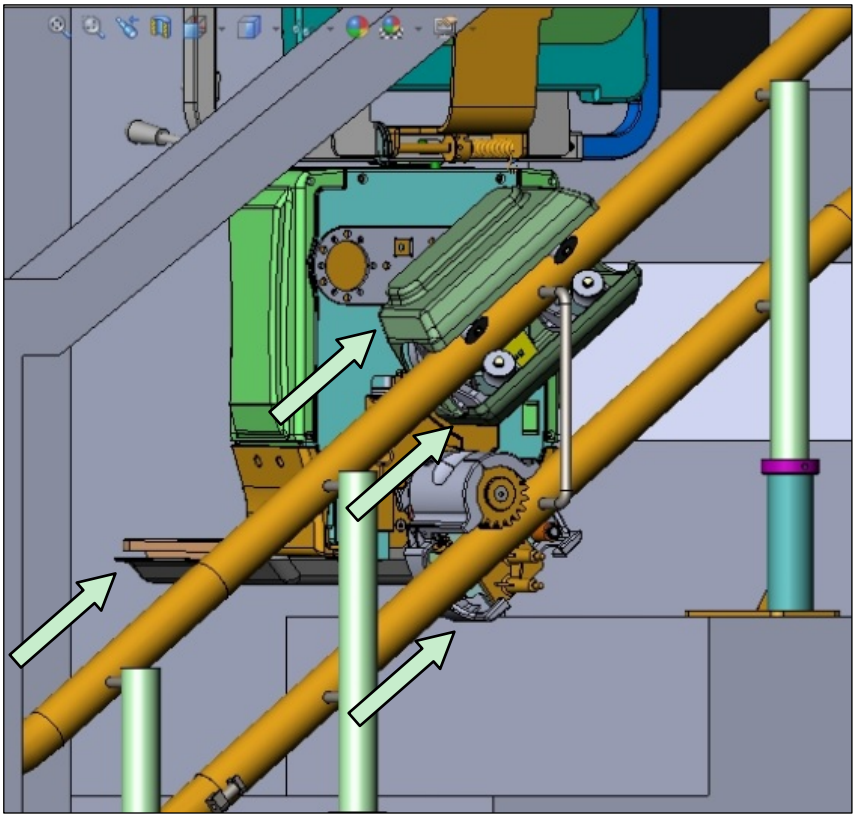


The Carriage will stop moving while these Safety Switches are actuated. And the Carriage can only move in the opposite direction to reset these Safety Switches.

b.) Upstairs Test: Drive the Carriage to move upstairs, press the Safety Switches on the upstream side one by one. (As the arrows shown in the following figure.) The Carriage should stop moving and can only be moved in the downwards direction.



c.) Downstairs Test: Drive the Carriage to move downstairs, press the Safety Switches on the downstream side one by one. (As the arrows shown in the following figure.) The Carriage should stop moving and can only be moved in the downwards direction.



2.8. Install the Tube Plugs to the Rail & Foot Stands

Tool	Parts
Rubber Hammer	Ø41mm Tube Plugs Ø48.1mm Tube Plugs

a.) Install the Ø41mm Tube Plug on the top of each Rail Foot Stand by using the Rubber Hammer.

b.) Install the Ø48.1mm Tube Plug to the both ends of the Upper & Lower Rail Tubes by using the Rubber Hammer.

2.9. Clean the Staircase

Tool	Parts
Vacuum Cleaner	None

Use the Vacuum Cleaner to clean the whole Staircase.

2.10. Install the Protect Covers of the Rail Foot Stand

Tool	Parts
None	Protect Covers of the Rail Foot Stand

Put the Protect Cover to each Rail Foot Stand.

2.11. Stairlift Finishing

Tool	Parts
Paint Brush	Touch-up Paint

a.) Apply Touch-up Paint to the scratches on Rail which are caused during installation. Such as, the surrounding of the Spring Pins.

b.) If the pre-set height of the Rail Foot Stand is different from its final position, the Set Screw marks might be visible. Apply Touch-up Paint to those Set Screw marks that can be seen on the Rail Footrest Stand.

2.12. Stairlift Demonstration and Handover

Tool	Parts
None	Remote Controllers User Manual Stairlift Handover Sheet

a.) Demonstrate the Folding/ Unfolding operation of the Seat/Footrest and the Armrests.

b.) Introduce the operations and positions of the ON/OFF Switch, Key Switch and Emergency Button. (If fitted.) Explain the ON/OFF Switch should be always switched on for charging Batteries.

c.) Explain the operation and position of the Rocker Switch on the Armrest for directional controls.

d.) Explain that if constant pressure is released from the Rocker Switch the Stairlift will stop, and there is approximately a ONE second delay before the stairlift to restart.

e.) Explain the swivel function of Seat and the Stairlift will not start moving if the Seat is not in the correct position.

f.) Explain the LED indicator and the Error Code shown in the User Manual.

g.) Ask the user to sit comfortably on the seat and explain the use of the Safety Belt (the Safety Belt should always be used while remain seated).

h.) Ask the user to operate the stairlift to the top of the stairs. Walk by user’s downstairs side to prevent user’s falling down from the seat. Check if the user can operate normally. Make sure the seat swivel function is operated correctly and the user can leave the seat safely.

i.) Ask the user to operate the stairlift to return to the bottom of the stairs. Walk by user’s upstairs side and reconfirm that the user can operate normally.

j.) Explain all the Safety Switches on the Carriage once the user is clear for all the operation of the Stairlift.

k.) Ensure that all of your instructions have been clearly understood.

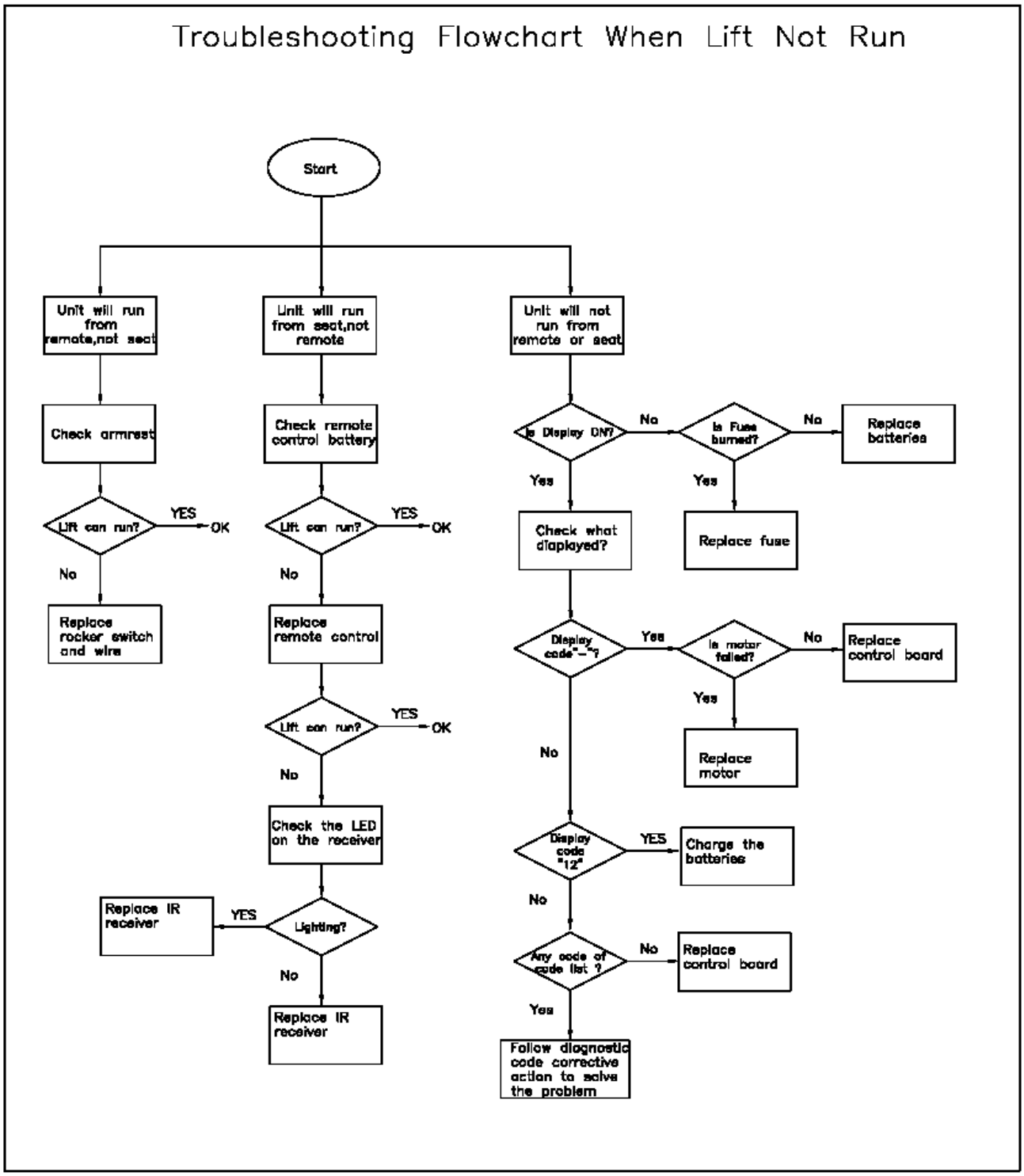
l.) Invite the user to sit down comfortably while you explain the User Manual. Ensure that all the Service details have been covered.

m.) Ask the user to read and sign the Handover Sheet and any other related documents. Explain that the Handover Sheet is also a receipt for any payment collected.

3. Maintenance and Service

3.1 Maintenance and Service for Electric Components

3.1.1 Flowchart for Trouble Shooting



PCB

Layout & Specification

a.) Specifications:

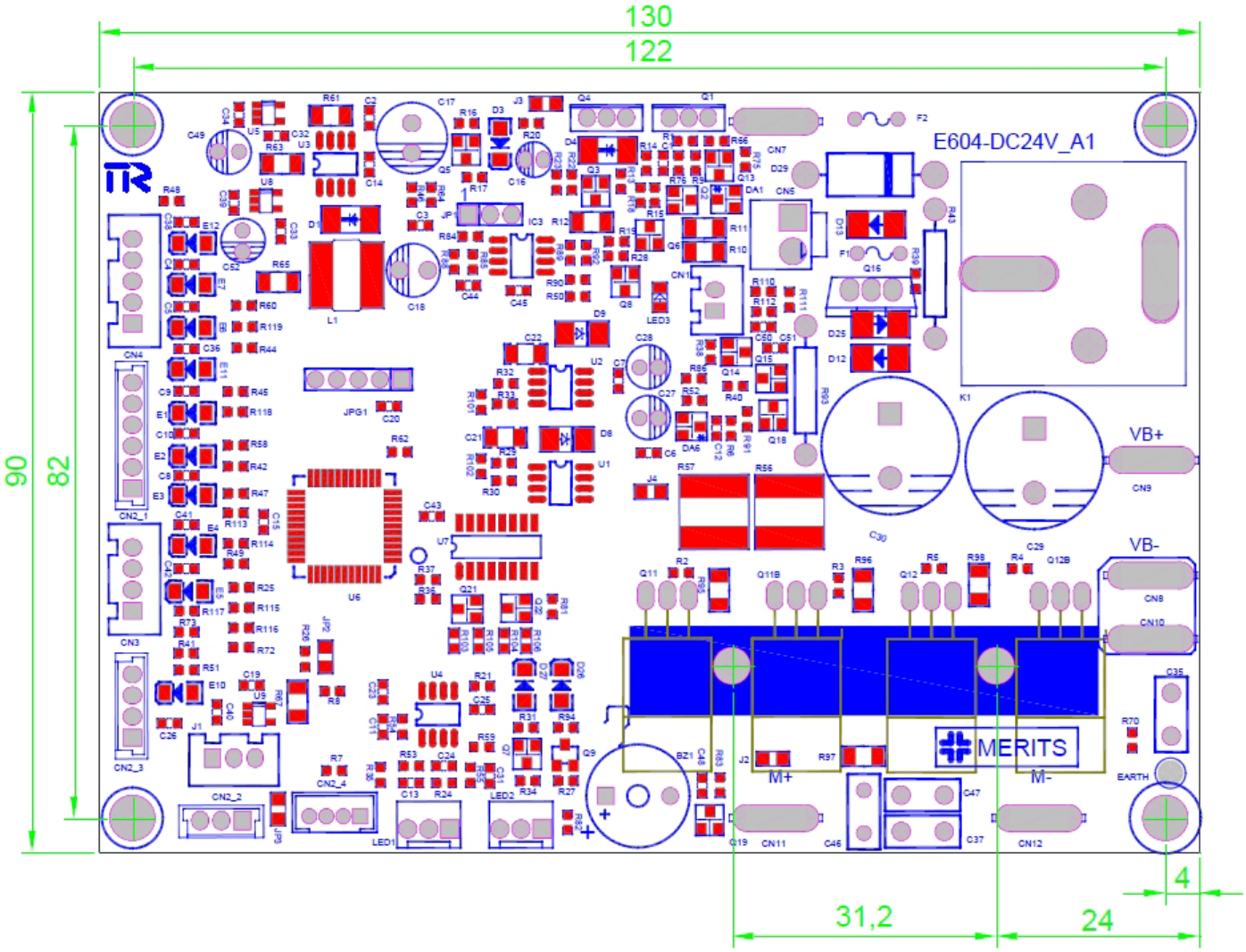
i) Input Voltage: 16V~32V

ii) Working Voltage: 24V

iii) Max. Output: 40 Amp.

iv) Output Voltage: 16~20 VDC

b.) PCB Layout



c.) Connector Definitions:

i.) CN1: Key Switch:

P1: 0V

P2: Key Switch Signal

ii.) CN5: Motor Brake

P1: +24V

P2: 0V

iii.) CN7: Charging(+) Input

iv.) J1: Error Indicator

P1: +5V

P2: Error Signal

P3: 0V

v.) LED1/LED2: Photoelectric switch power supply 5V

P1: N/A

P2: 0V

P3: +5V

vi.) M+:Motor (+) Output

vii.) M-: Motor (-)Output

viii.) VB-:Battery (0V)Input

ix.) VB+:Battery (24V)Input

x.) JP1:

P1-2 Short Circuit: W/O Motor Brake

P2-3 Short Circuit: With Motor Brake

xi.) CN10: Charging (-) Input

xii.) CN3: Footrest Signals

P1: Right Footrest Signal (Output)

P2: Right Footrest Signal (Input)

P3: Left Footrest Signal (Output)

P4: Left Footrest Signal (Input)

xiii.) CN4: Switch Signals

P1: 0V

P2: Seat Swivel Switch Signal

P3: Rocker Switch Move Right Signal

P4: Rocker Switch Move Left Signal

P5: Swing Head Photoelectric Switch Input (Enter Charging Station)

xiv.) CN2-1: Limit Switch Control, 2570PS-06, Connector

P1: Ground

P2: N/A

P3: N/A

P4: RH Swing Arm/Swing Head Signal

P5: LH Swing Arm/Swing Head Signal

P6: Swing Arm Photoelectric Switch Input (Hi/Lo Speed Switch)

xv.) CN2-2: Obstacle Sensor Signal

P1: 0V

P2: RH Lower Obstacle Sensor

P3: LH Lower Obstacle Sensor

xvi.) CN2-3: Over Speed Governor Signal

P1: 0V

P2: Over Speed Governor (Output)

P3: Over Speed Governor (Input)

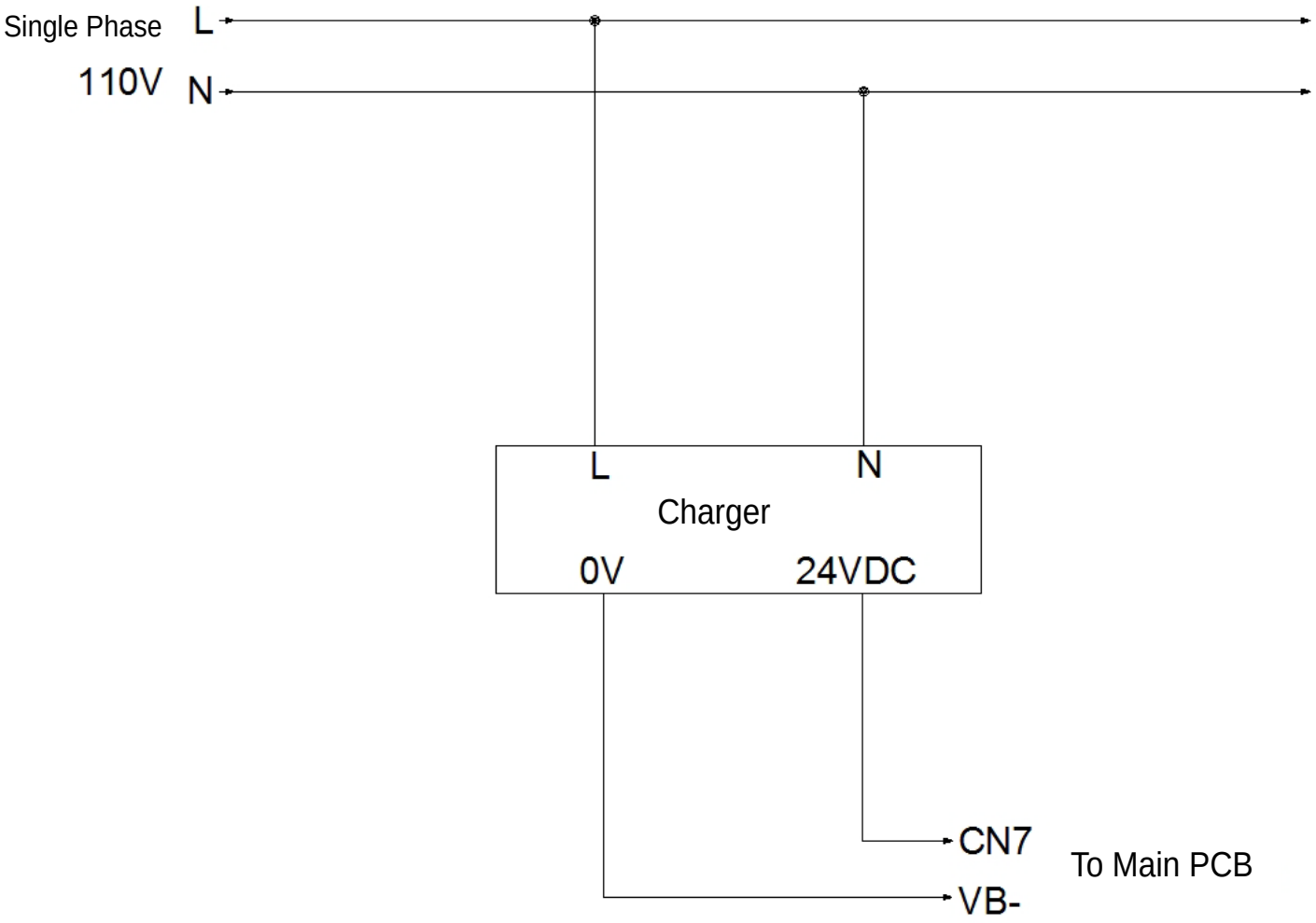
P4: Remote Control Switch (One Touch)

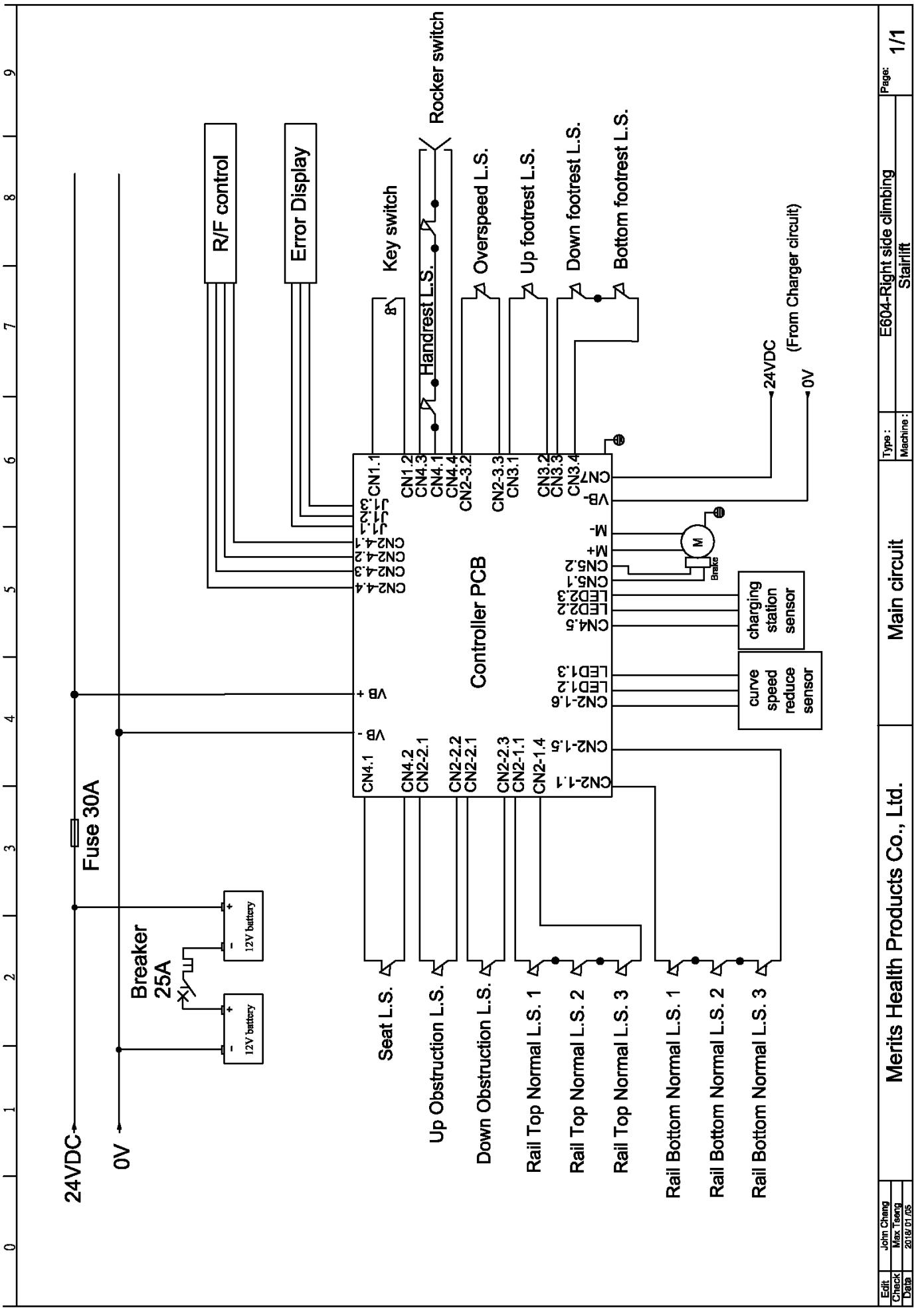
xvii.) CN2-4: Remote Control Signal

P1: 0V
P2: 5V
P3: Up
P4: Down

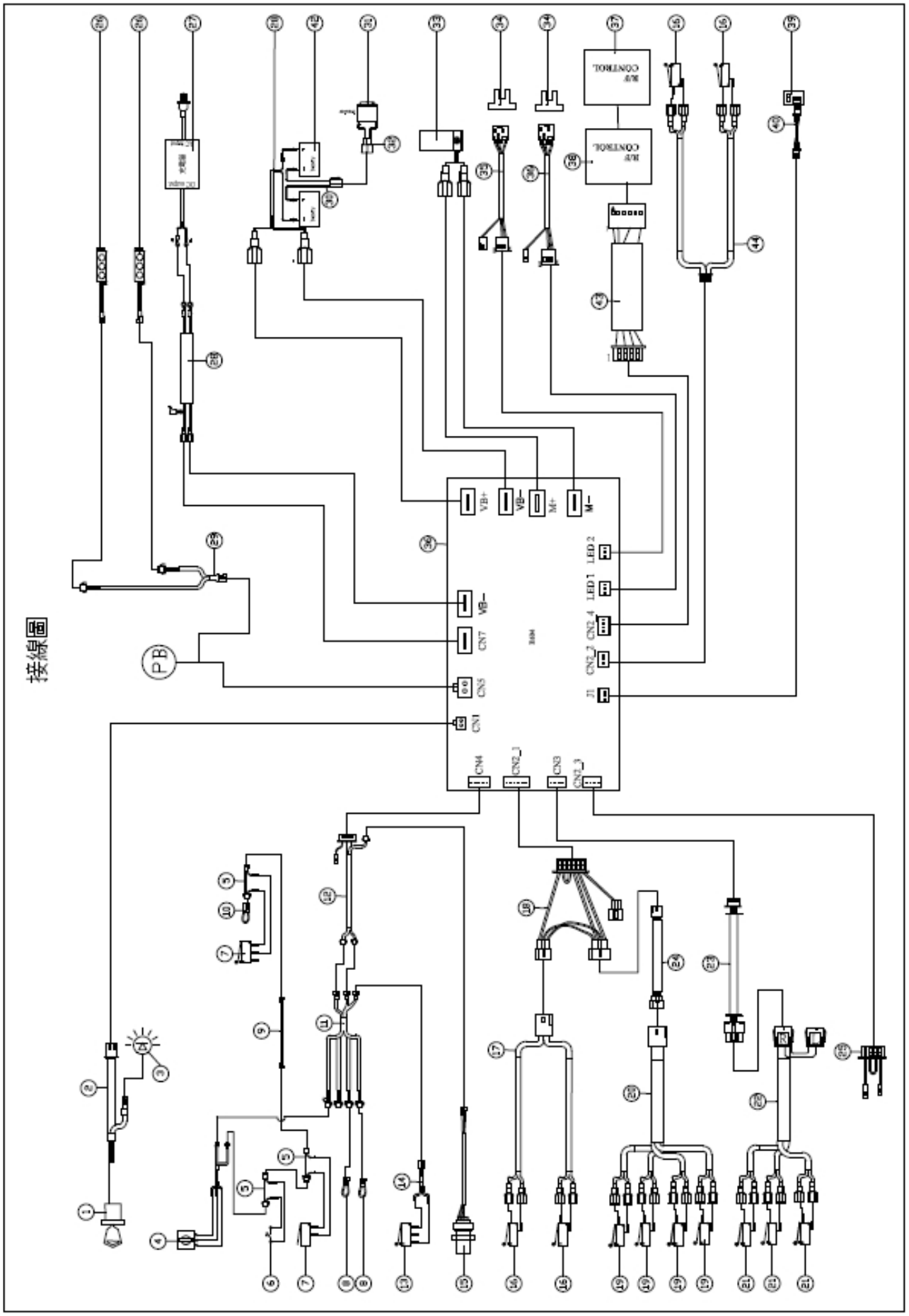
xviii.) Remote Control Stop Signal
P1: Stop Signal 5V hi Input
(Harness Length 9cm~11cm 2.5mm Bullet End Female Connector)

3.1.2 Control System Block Diagram




24VDC
0V
Fuse 30A
Breaker 25A
12V battery
12V battery
R/F control
Error Display
Key switch
Handrest L.S.
Rocker switch
Overspeed L.S.
Up footrest L.S.
Down footrest L.S.
Bottom footrest L.S.
24VDC
(From Charger circuit)
0V
Controller PCB
CN1.1
CN1.2
CN4.3
CN4.1
CN4.4
CN2-3.2
CN2-3.3
CN3.1
CN3.2
CN3.3
CN3.4
CN7
VB-
M-
M+
Brake
CN5.2
CN5.1
LED2.2
LED2.3
CN4.5
LED1.2
LED1.3
CN2-1.6
CN2-1.5
CN2-1.1
CN2-1.4
CN2-2.3
CN2-1.1
CN2-2.2
CN2-2.1
CN4.2
CN2-2.1
CN4.1
VB +
VB -
CN2-4.1
CN2-4.2
CN2-4.3
CN2-4.4
CN1.3
CN1.1
charging station sensor
curve speed reduce sensor
Seat L.S.
Up Obstruction L.S.
Down Obstruction L.S.
Rail Top Normal L.S. 1
Rail Top Normal L.S. 2
Rail Top Normal L.S. 3
Rail Bottom Normal L.S. 1
Rail Bottom Normal L.S. 2
Rail Bottom Normal L.S. 3
Merits Health Products Co., Ltd.
Main circuit
Type :
Machine :
E604-Right side climbing Stairlift
Page: 1/1
Edit: John Chang
Check: Max Tseng
Data: 2018/01/05

3.1.3 Wiring Diagram



Part List of Wiring Diagram

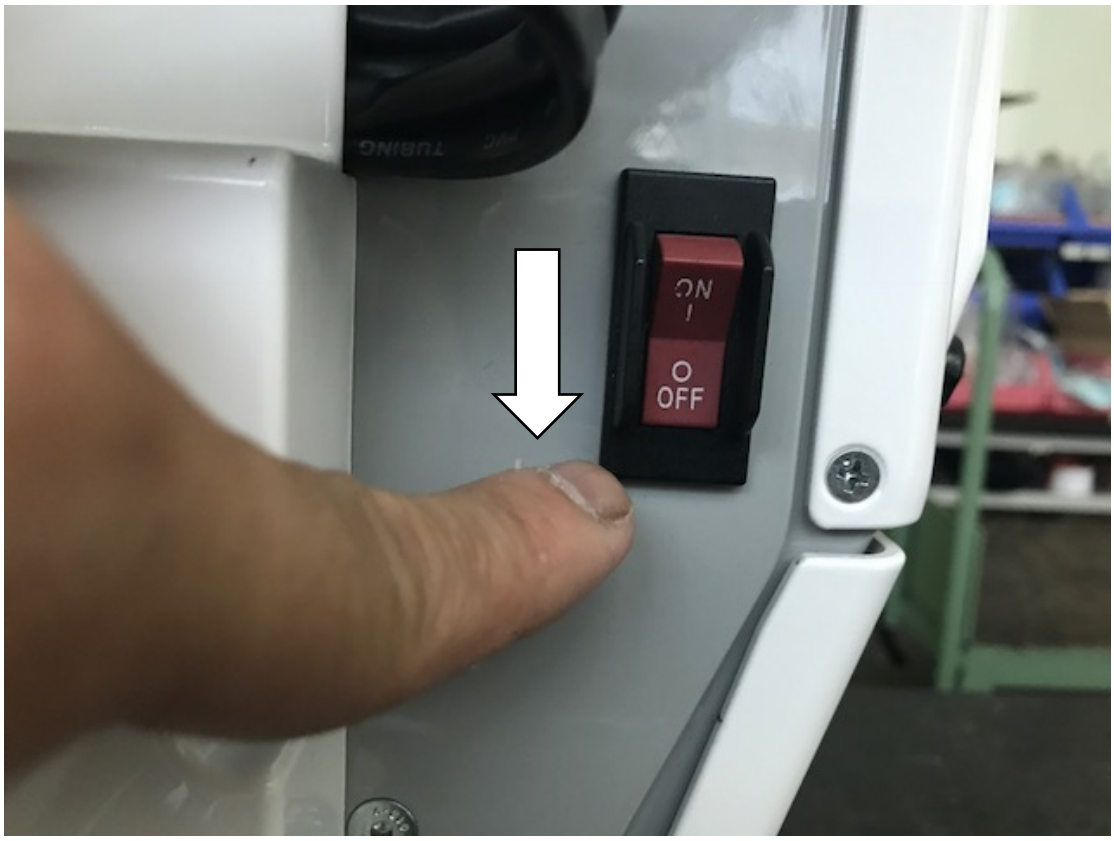
Item	Part No.	Name	Item	Part No.	Name
1	61090143	Key Switch	24	63770844	Cable, Swing Arm Switch
2	63770849	Cable, Key Switch	25	63180096	Jumper, OSG
3	61200070	Power Indicator	26	61200224	Running Light
4	61230161	Rocker Switch	27	65140011	Battery Charger, HP1202B
5	63770852	Cable, Armrest Switch	28	63270447	Cable, PCB to Battery
6	61098048	Switch, Armrest Control	29	63980088	Cable, Running Light
7	61098014	Limit Switch, SM-02	30	63270446	Battery Cable
8	63980085	Cable, Short Circuit	31	61230150	Circuit Breaker, 30A
9	63770850	Serial Connection, Rocker Switch	32	63270441	Cable, Circuit Breaker
10	63180006	Jumper, E-Stop	33	62109082	Motor Set
11	63980070	Cable, Main Control, Upper	34	61098047	Photoelectric Switch, EE-SX670
12	63980080	Cable, Main Control, Lower	35	63770839	Cable, Swing Arm Photo. Switch
13	61047001	Limit Switch, SS0505A	36	63770847	Cable, Swing Head Photo. Switch
14	63770840	Cable, Seat Switch	37	61230159	RF Receiver
15	63980081	Cable, Attendant Control	38	61108265	PCB, RF Interface
16	61098046	Limit Switch, D2D-1002	39	61108257	Indicator, Error Code
17	63770848	Cable, Swing Head LS	40	63980069	Cable, Error Code
18	63770842	Cable, Swing Head Switch	41	61108256	PCB, Main Controller
19	61047001	Limit Switch, SS0505A	42	66100002	Battery, 9AH
20	63770843	Cable, Swing Arm LS	43	63980082	Cable, RF Receiver
21	61098013	Limit Switch, CLP-42C-0H	44	63770845	Cable, Obstacle Sensor
22	63980033	Cable, Footrest, Lower	45	63770851	Cable, Rocker Switch
23	63980079	Cable, Footrest, Upper			

3.1.4 Error Codes:

Code	Status/Error Message	Recommended Corrective Action
	No Display	Check that the key switch and ON/OFF switch are turned on.
	The stairlift is ready to use.	No action required.
	The swivel seat switch is activated.	1. Rotate and lock the seat in the right position. 2. Contact your authorized dealer.
	Batteries are not charging.	Check that the charger is plugged in, the Circuit Breaker is switched ON and the Carriage is parking at the Charging Station
	RH Rail Obstacle Sensor is activated.	1. Check and Remove any obstacles on the RH Rail that may have activated the sensor. 2. Check and see if there is any loose connection or errors on the RH Rail Obstacle Sensor. Use Rocker Switch to check if this problem has been corrected.
	RH Carriage or Footrest Obstacle sensor is activated	1. Check and Remove any obstacles on the RH side of Carriage or Footrest that may have activated the sensor. 2. Check and see if there is any loose connection or errors on the RH Obstacle Sensor on Carriage or Footrest. Use Rocker Switch to check if this problem has been corrected.
	LH Rail Obstacle Sensor is activated.	1. Check and Remove any obstacles on the LH Rail that may have activated the sensor. 2. Check and see if there is any loose connection or errors on the LH Rail Obstacle Sensor. Use Rocker Switch to check if this problem has been corrected.
	LH Carriage or Footrest Obstacle sensor is activated	1. Check and Remove any obstacles on the LH side of Carriage or Footrest that may have activated the sensor. 2. Check and see if there is any loose connection or errors on the LH Obstacle Sensor on Carriage or Footrest. Use Rocker Switch to check if this problem has been corrected.
	Motor current limit is exceeded	Contact your authorized dealer.
	Main control board error.	Switch off the key switch for 30 seconds and then switch on again.
	Motor Brake (optional) malfunction.	Contact your authorized dealer.
	Rocker switch or remote controller is activated when	Release the switch or button. Operate again.
	The batteries voltage is too high.	Switch off the key switch for 30 seconds and then switch on again.
	The batteries voltage is too low.	Switch off the key switch for 30 seconds and then switch on again. Contact your authorized dealer if the battery cannot be recharged.

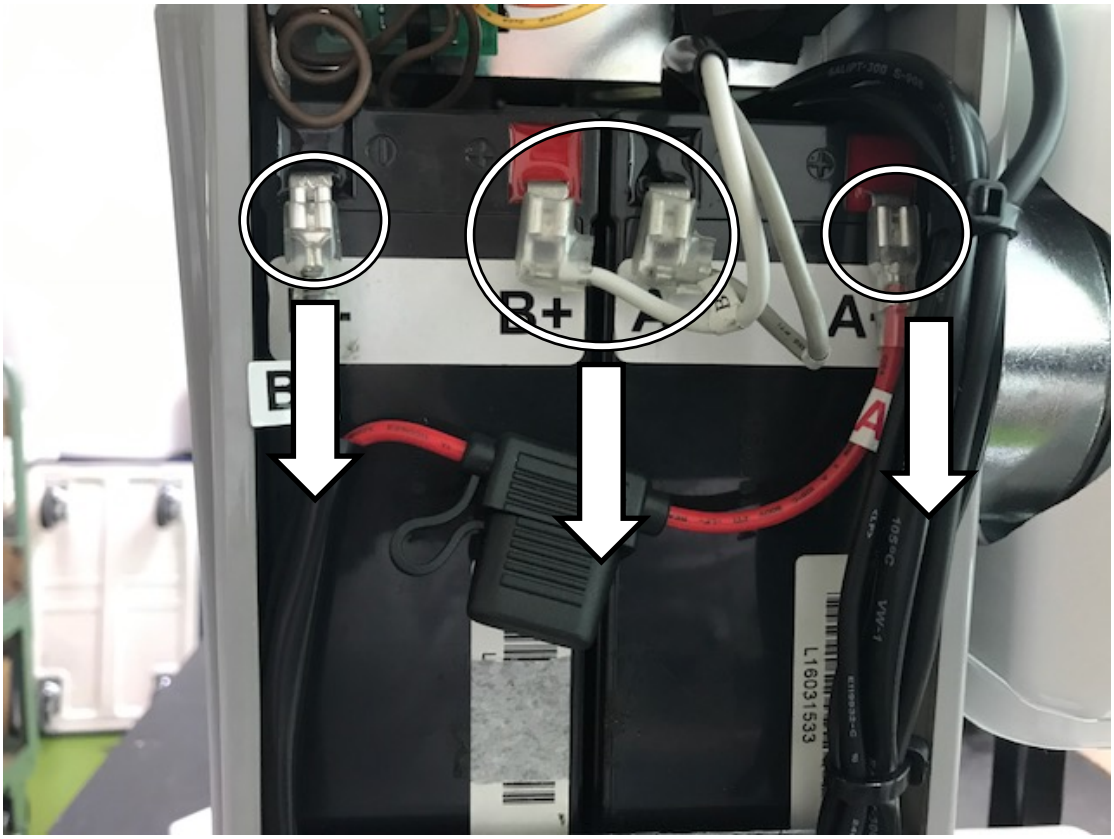
3.1.5 Replace the Batteries

a.) Switch off the ON/OFF-Switch

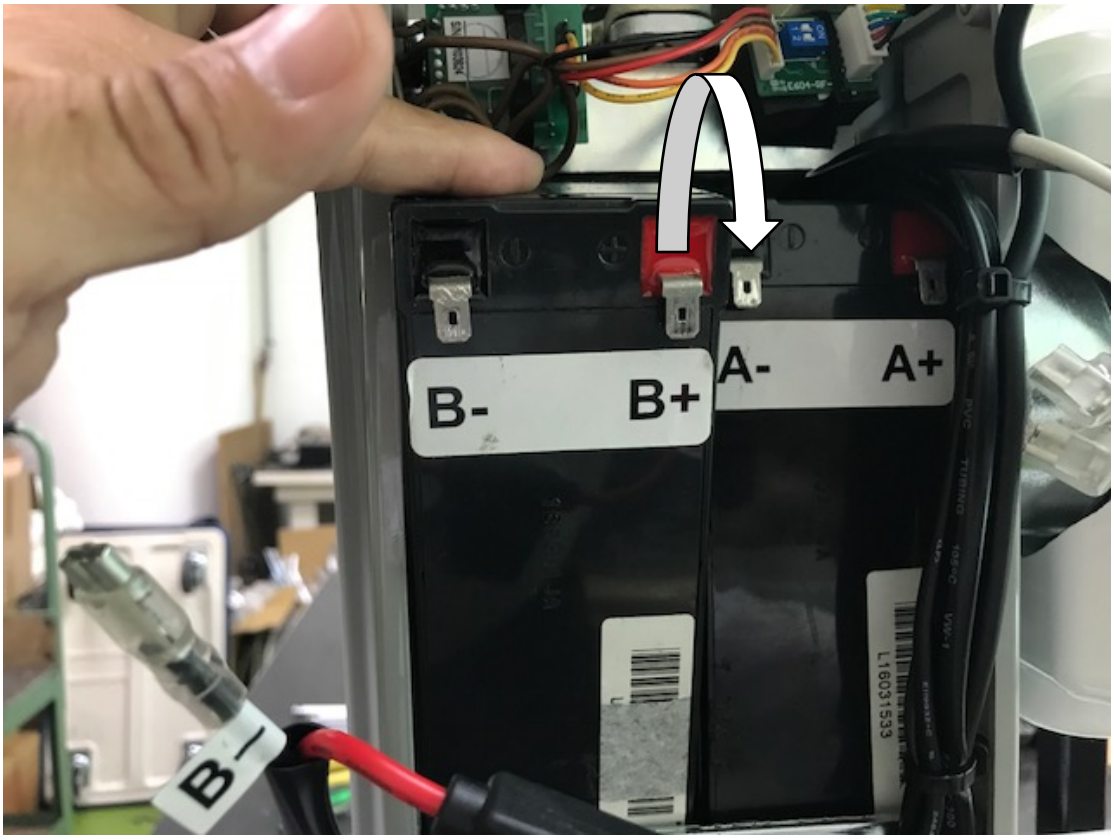


b.) Remove LH Carriage Cover: Remove the screws on the Carriage Cover. Be careful to remove the connector of the Running Light Harness before you remove the LH Carriage Cover.

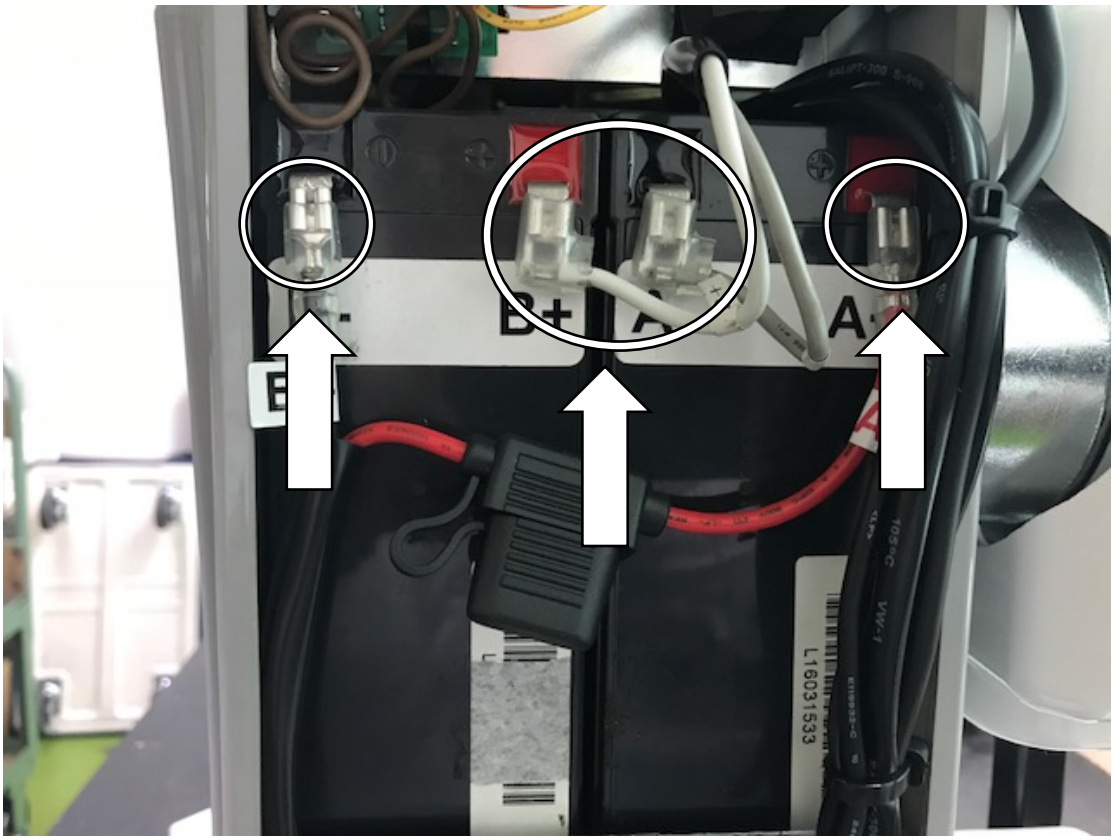
c.) Remove the Wire Harness connected on the Batteries.



d.) Remove the Batteries from the Carriage.



e.) Install 2 new Batteries and reconnect the wire harness to the Battery Terminals.



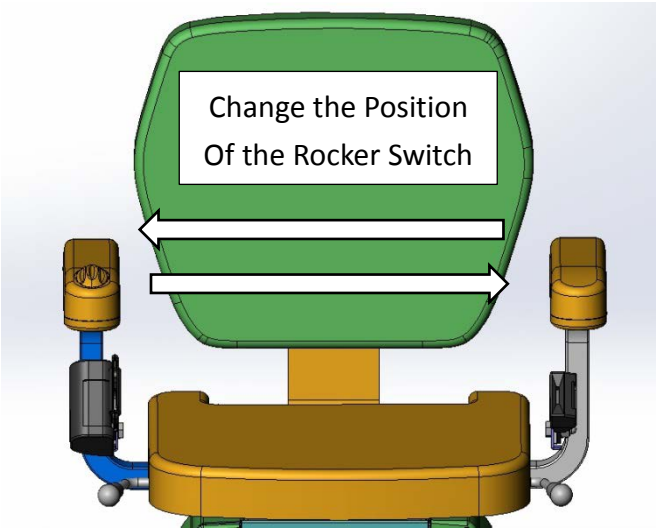
f.) Switch on the ON-OFF Switch and test the Carriage.

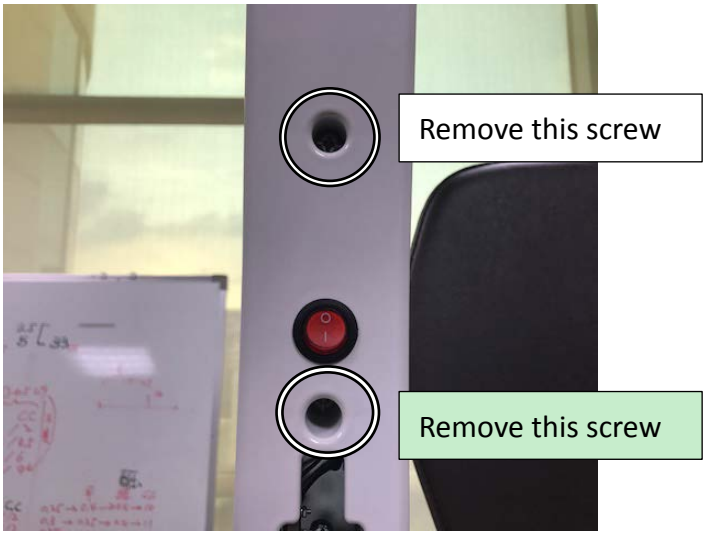
g.) Assemble the LH Carriage Cover back to the Carriage and tighten the screws.

3.1.6 Change the Position of the Rocker Switch

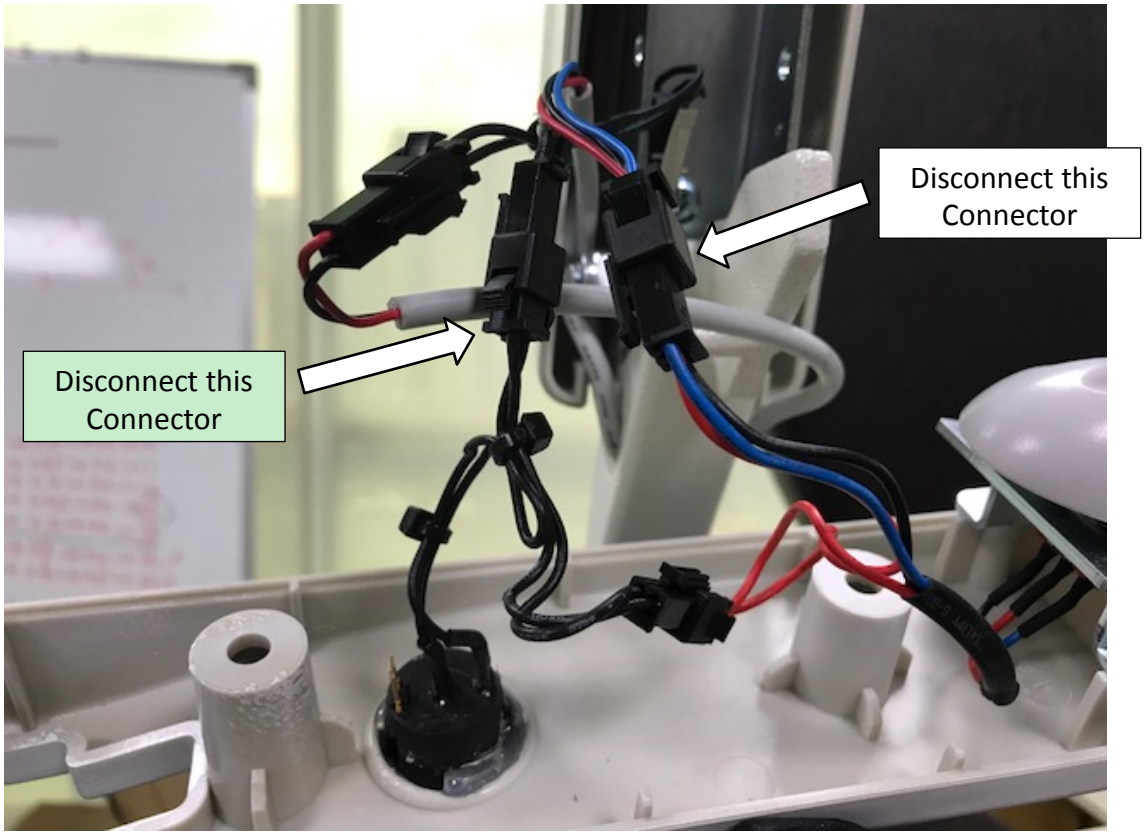
a.) Switch off the ON/OFF-Switch

b.) Remove the Lower Armrest Cover (with Rocker Switch). (As shown in the right figure below.)

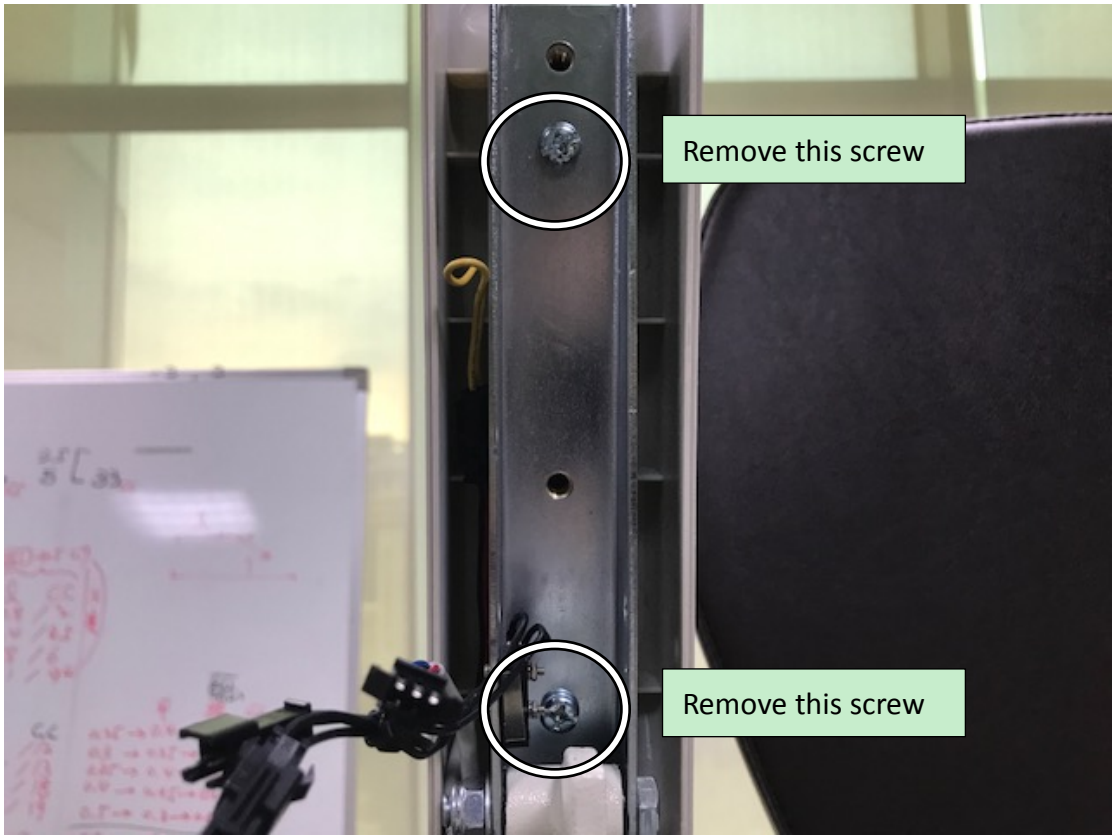




c.) Disconnect the wire harness of the Rocker Switch and other switches.



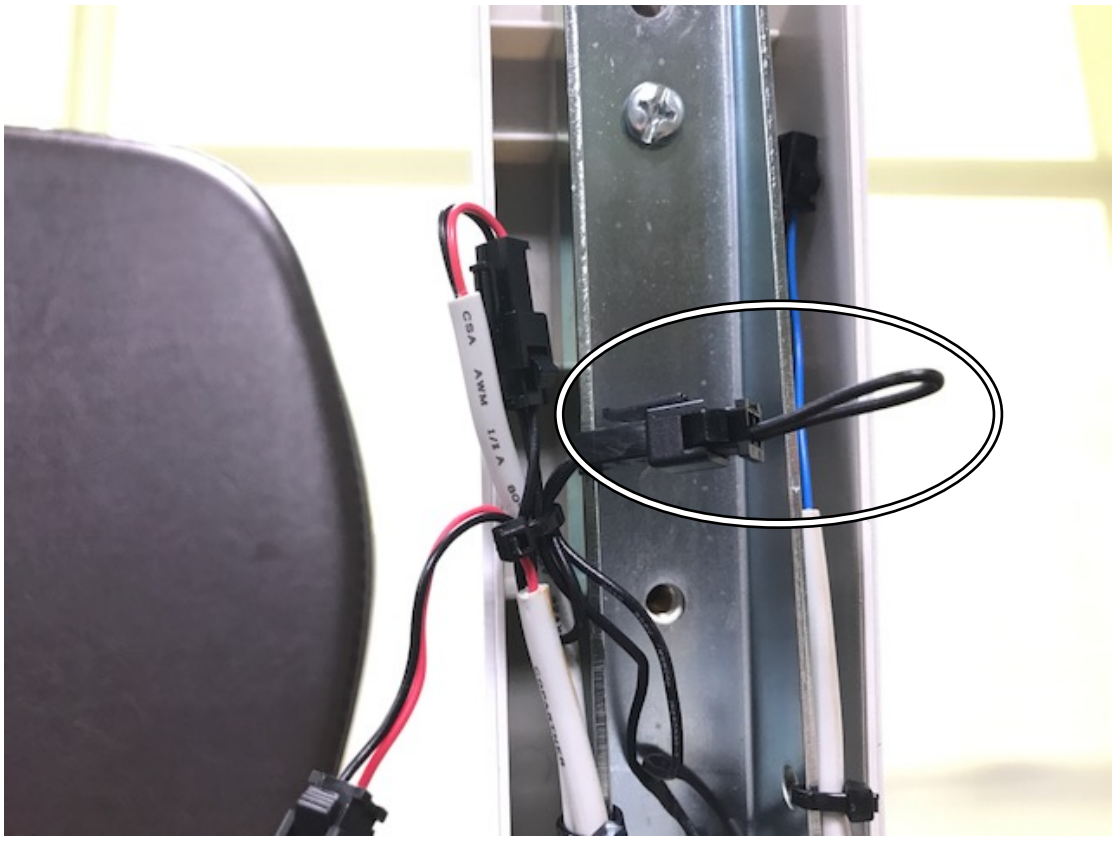
d.) Remove the Upper Armrest Cover (with Rocker Switch).



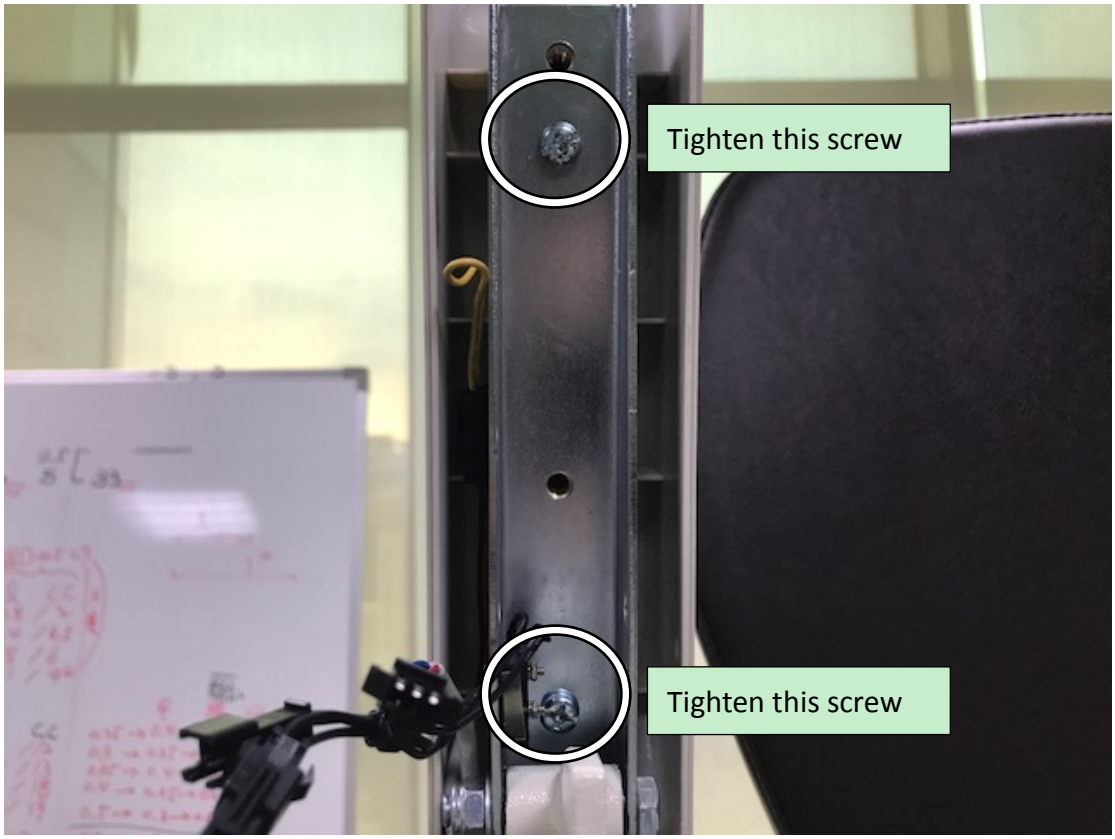
e.) Remove the Lower Armrest Cover (w/o Rocker Switch). (Please ref. to the fig. shown in Step b.)

f.) Remove the Upper Armrest Cover (w/o Rocker Switch). (Please ref. to the fig. shown in Step d.)

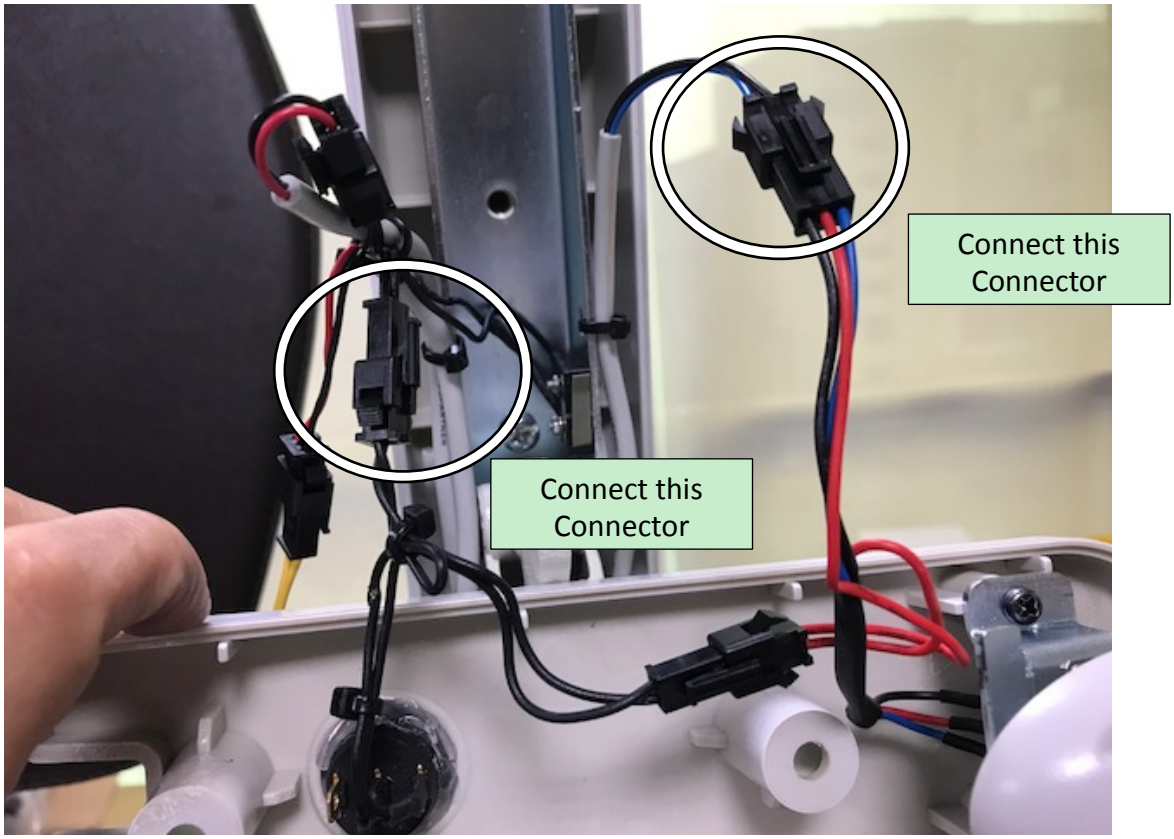
g.) Disconnect the Short-Circuit Connector in the Armrest (w/o Rocker Switch).



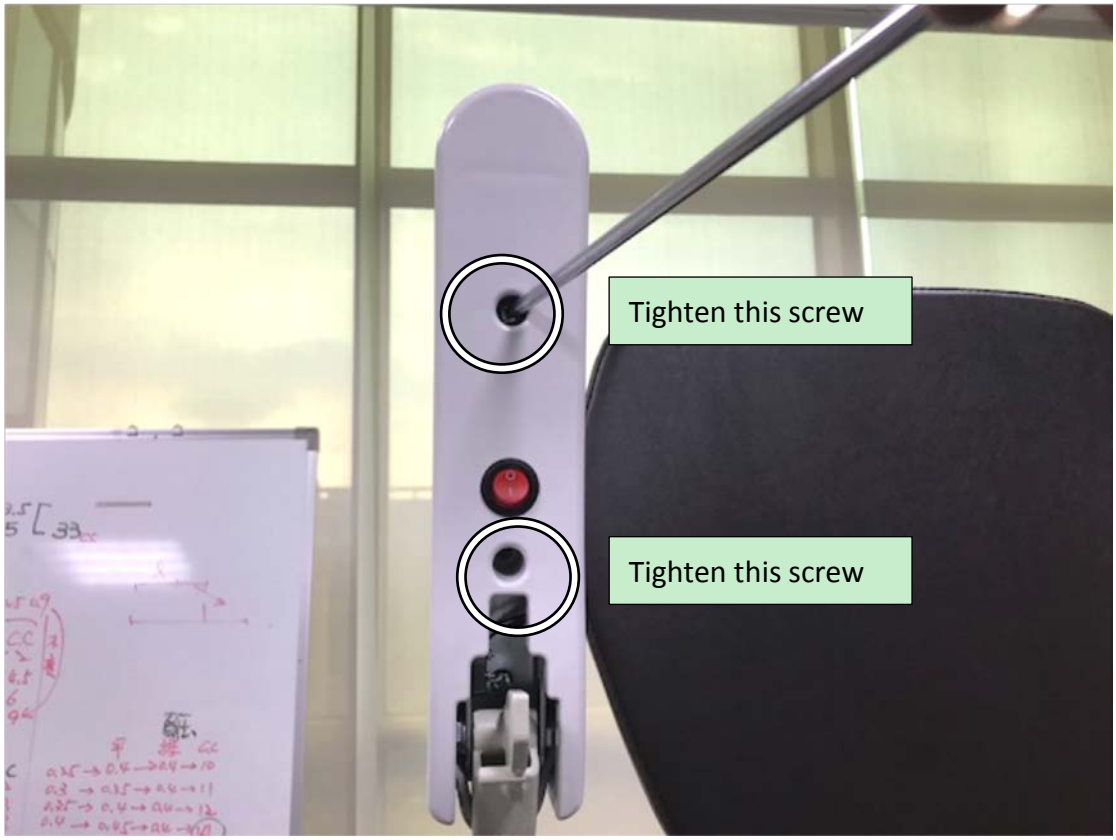
h.) Install the Upper Armrest Cover (with Rocker Switch) to the Armrest on the other side. Fix the Upper Armrest Cover with 2 screws.



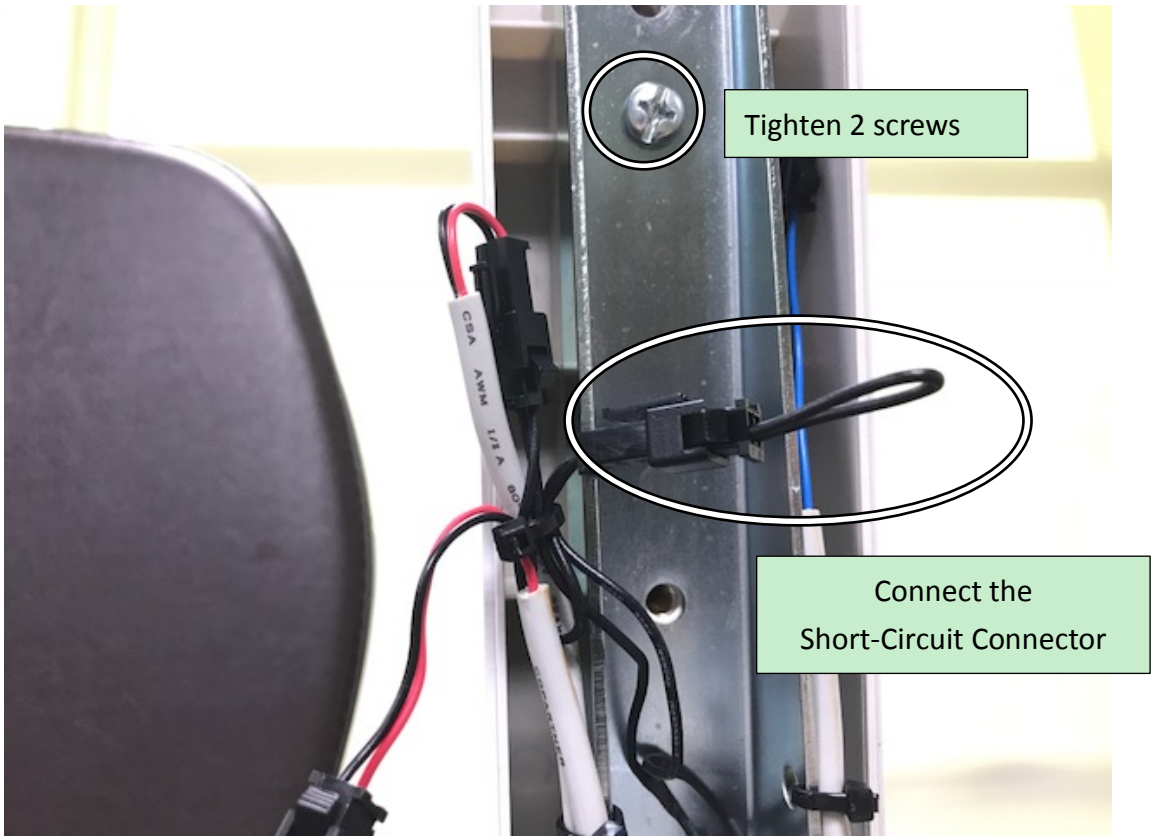
i.) Connect the wire harness of the Rocker Switch and other switches.



j.) Assemble the Lower Armrest Cover on the Rocker Switch side.



k.) Assemble Upper Armrest Cover (w/o Rocker Switch) to the other Armrest. Connect the Short-Circuit Connector to the harness on this side.



l.) Assemble the Lower Armrest Cover to finish this modification. (Please ref. to the fig. shown in Step j.)

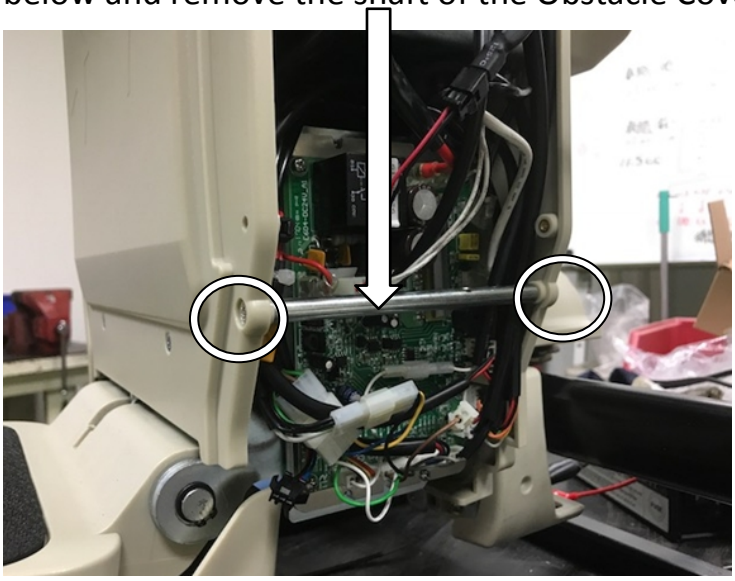
3.1.7 Replace the Main Control PCB

a.) Move the Carriage away from the Charging Station. Make sure the Carriage is not charging.

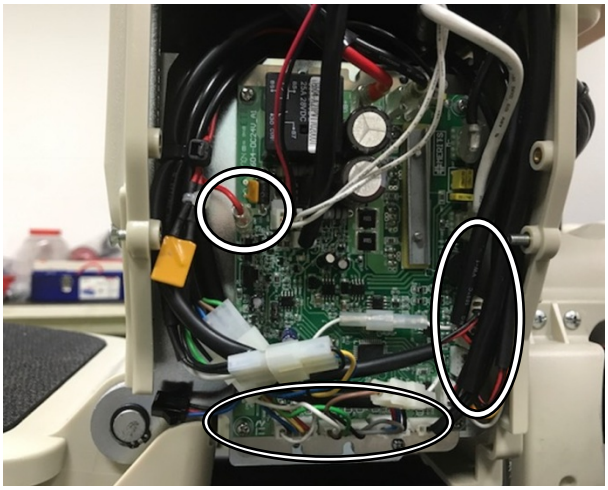
b.) Follow the procedures in 3.1.5 a.) ~ b.) to switch off the Carriage power and loosen the screws on the LH Carriage Cover.

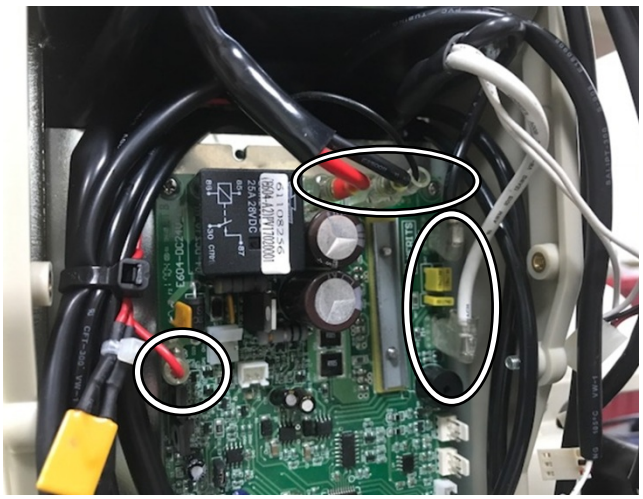
c.) Remove the LH Obstacle Cover: Remove the circled screws shown above to remove the LH Obstacle Cover.

d.) Remove the shaft of the Obstacle Cover: Remove the circled screws shown below and remove the shaft of the Obstacle Cover.

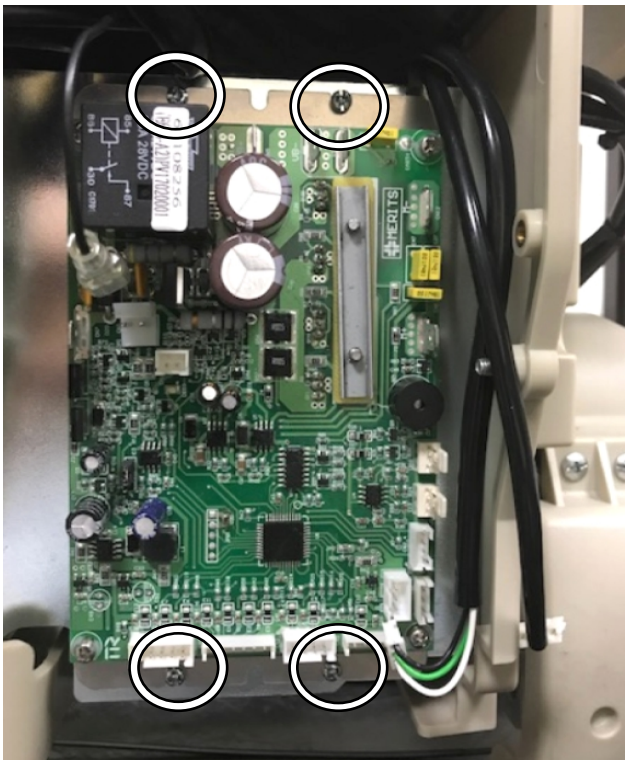


e.) Disconnect all the connectors on the Main Control PCB. (The circled connectors shown in the figure below.)





f.) Remove the circled screws shown below to remove the Old PCB. Replace a new PCB and tighten the screws. Connect all the connectors of the wire harness back to the New PCB.



Notice: Make sure each connector is connected firmly to the right position on the Main Control PCB.

3.2 Maintenance and Service for Mechanical Components

3.2.1 Replace the Seat Cable

a.) Rotate the Seat to an adequate position. Remove the Cable Tie on the Seat Cable.

b.) Rotate the Seat back to its normal position. Flip up the Footrest by hand.

c.) Pull the Seat Cable in the arrow direction shown below to loosen it.

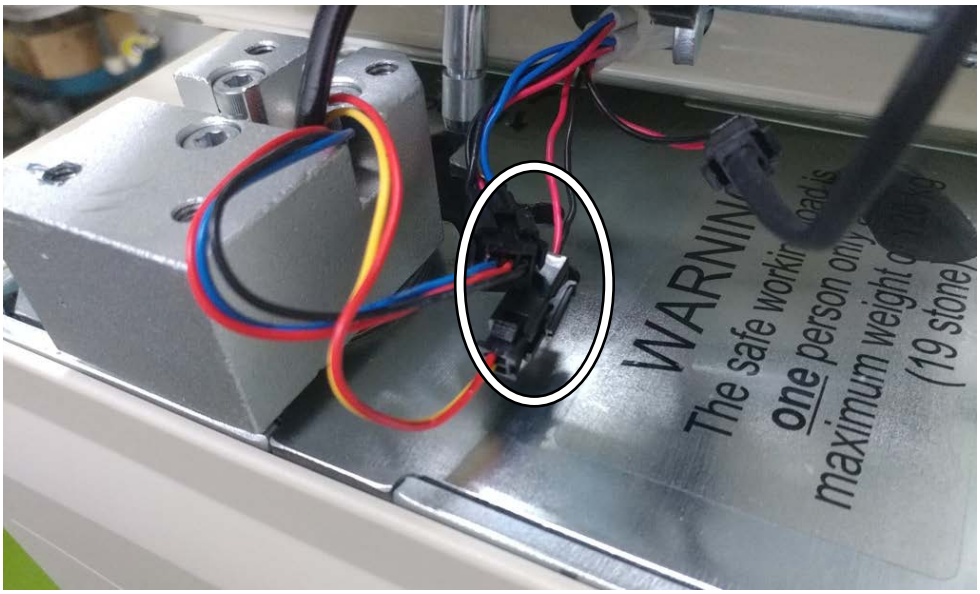
d.) Flip up the Seat half away and pull the Seat Cable in the arrow direction shown below to remove it from the groove on the Cable Anchor.

e.) Pull the Seat Cable up to remove it from the groove on the Cable Anchor.

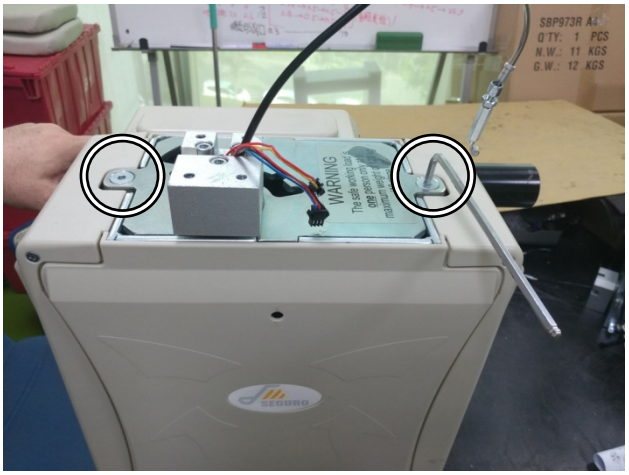
f.) Use Hammer and Round Pin to knock the Cable Lead-Head off the Cable Anchor.

g.) Flip up the Seat Cushion and remove the screws by using No. 4 Allen key.

h.) Flip up the Seat Assembly and remove the 2 circled connectors shown below.

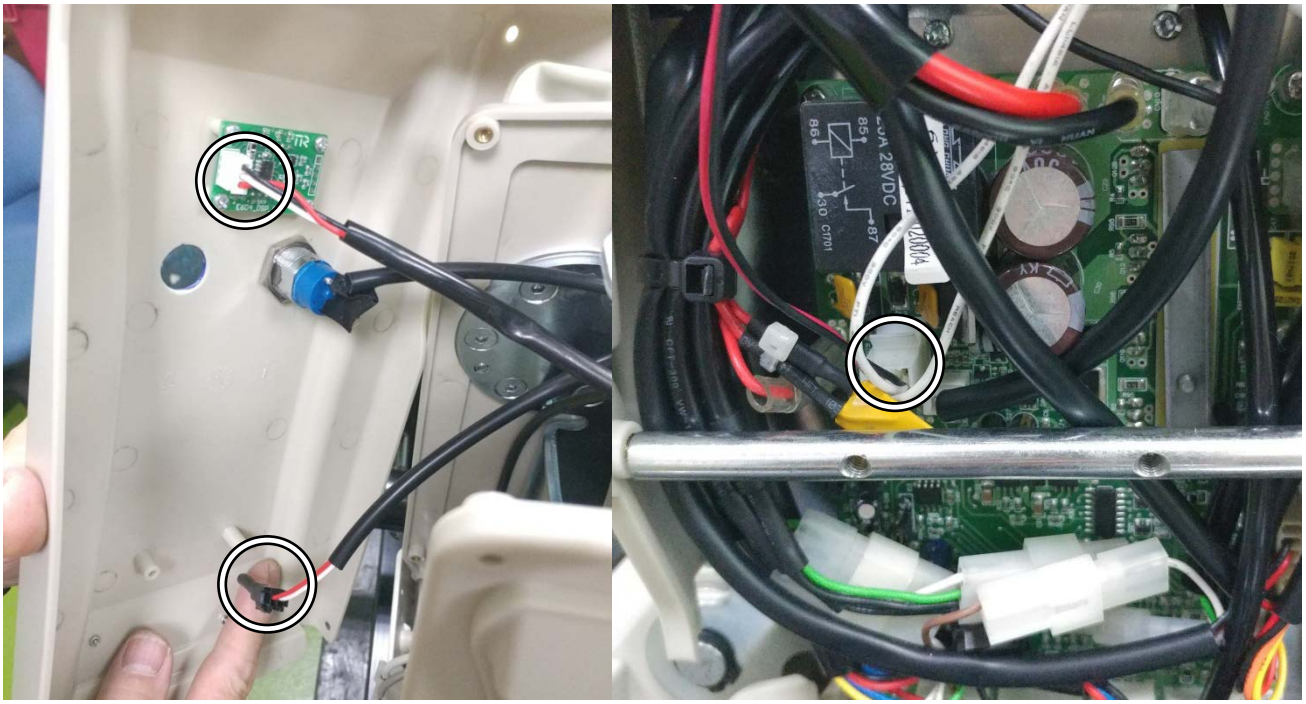


i) Remove the Seat Assembly. Remove the screws on the Carriage Top Plate by using no. 5 Allen key.



j.) Remove the Seat Cable from the Seat Post first. And then remove all the wire harness.

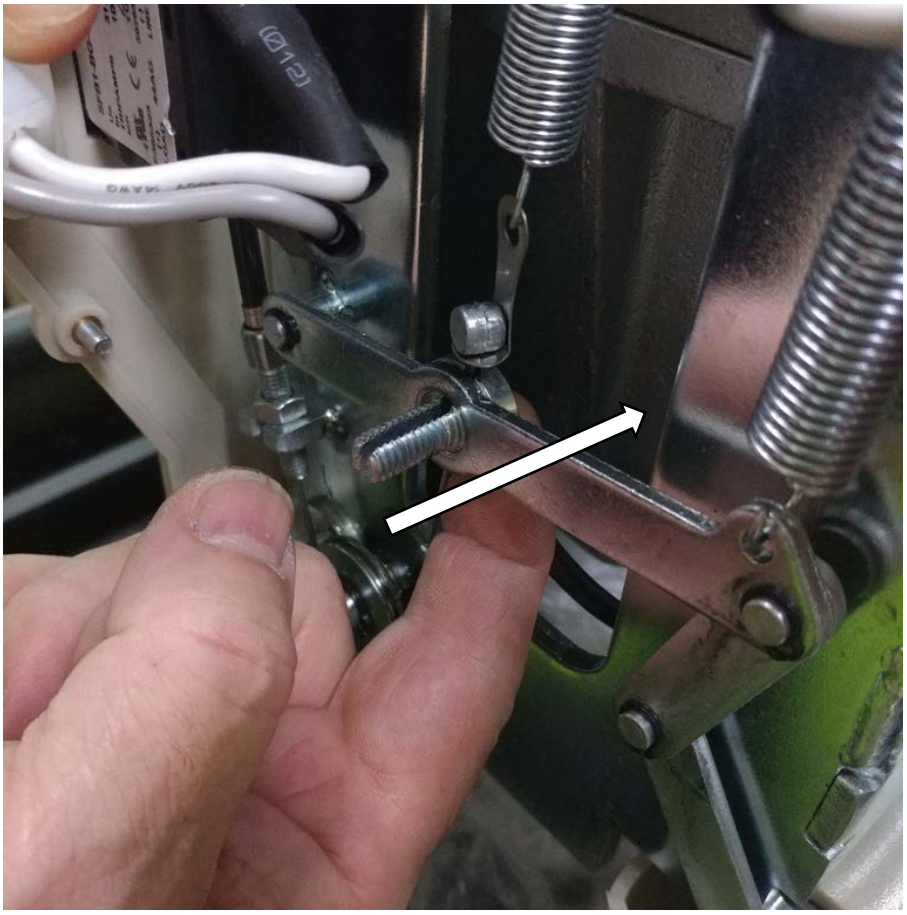
k.) Remove the LH/RH Carriage Covers. Make sure to remove all the wire harness connected on them before removal.



l.) Remove the LH/RH Obstacle Sensor and then the Front Cover like the figure shown below.

m.) Remove the Nuts on the Footrest Lever by using 2 no. 12 Open-End Wrenches.

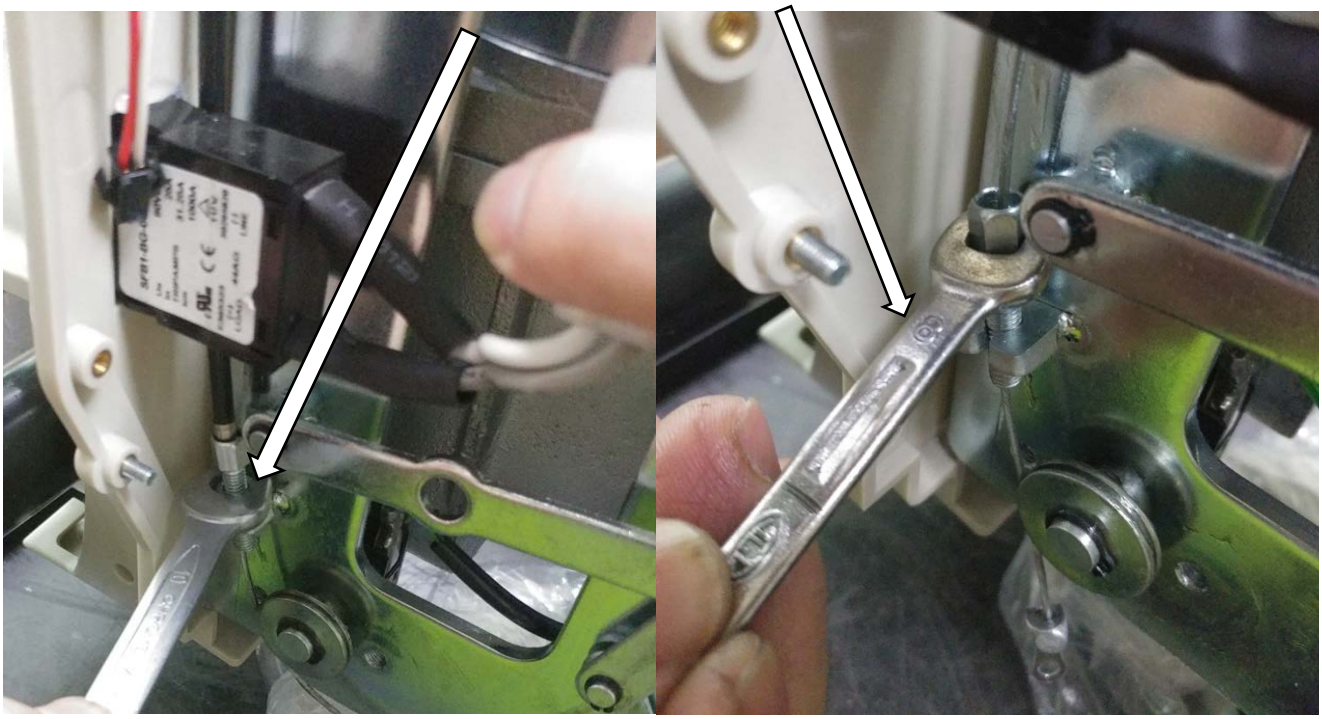
n.) Remove the Seat Cable Screw from the Lever in the arrow direction shown below.



o.) Remove the wire harness of the ON-OFF Switch to enlarge the space for removing the Seat Cable. Separate the Seat Cable and Spring by using a Long-Nose Plier.

p.) Remove the circled screws shown below by using no. 4 Allen Key.

q.) Remove the nut which locks the Seat Cable by using a no. 10 Open-End Wrench. Then, Remove the Seat Cable by using a no. 8 Open-End Wrench.



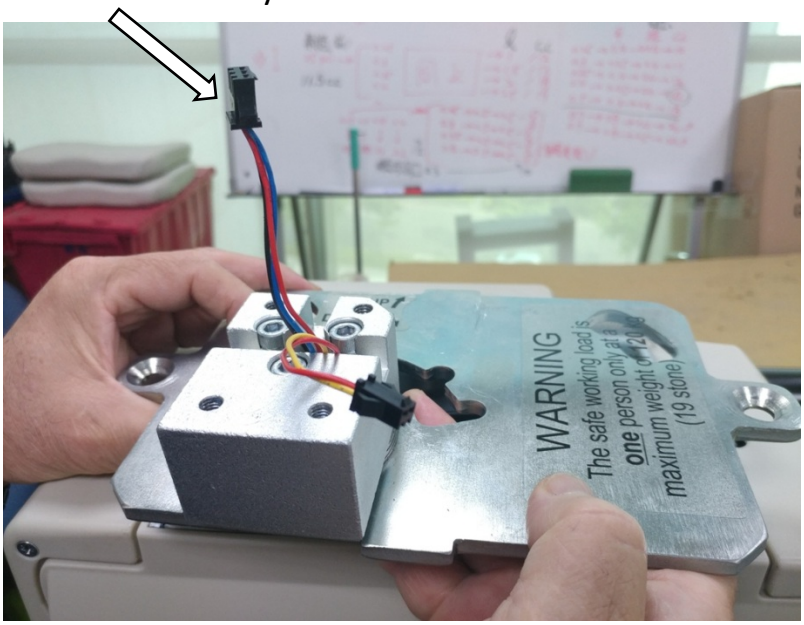
Follow the following procedures carefully to install a new Seat Cable.

r.) Let about half of the Cable Screw remain on the outside of the Thread Plate while installing a new Seat Cable.

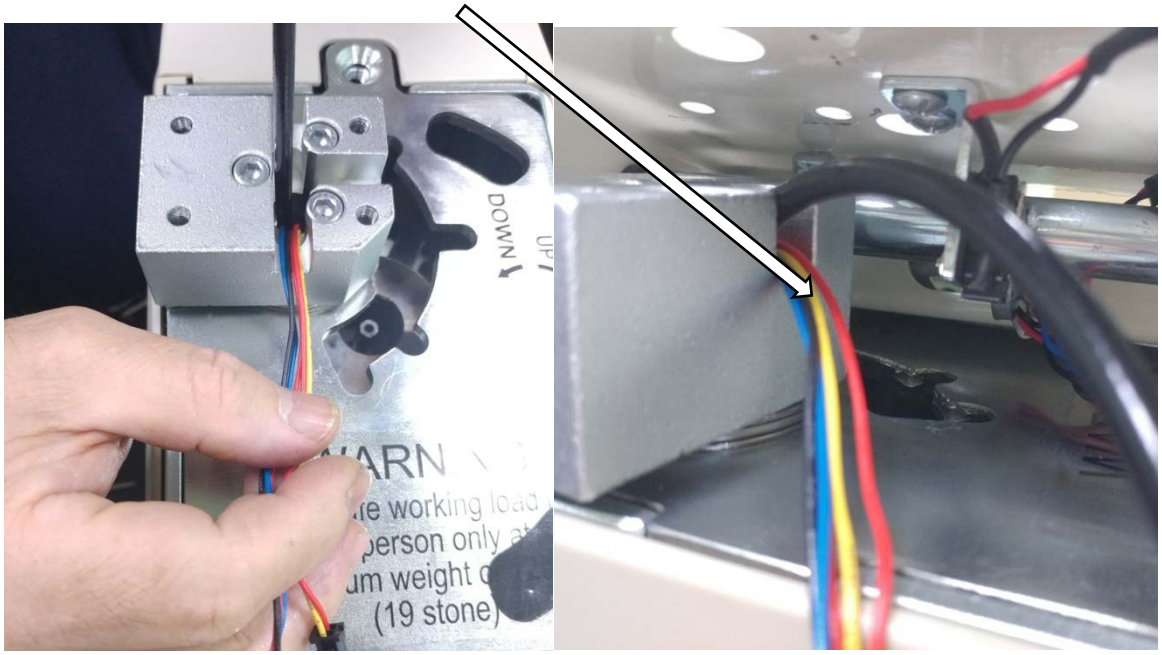
s.) Insert the Seat Cable back to the Seat Cable Screw and lock it with nut. Connect the Seat Cable to the Spring by using a Long-Nose Plier.

t.) Adjust the Seat Cable to let it wrap around the Cable Pulley. Install the screws beside the Cable Pulley to fix the position of the Seat Cable. Make sure the Seat Cable always remains in the groove on the Cable Pulley.

u.) Install the Front Cover, LH/RH Obstacle Sensor Covers, and then LH/RH Covers back to the Carriage. Insert the 2 wire harness and Seat Cable back through the hole of Seat Post. Insert the 2 wire harness first before you insert the Seat Cable.

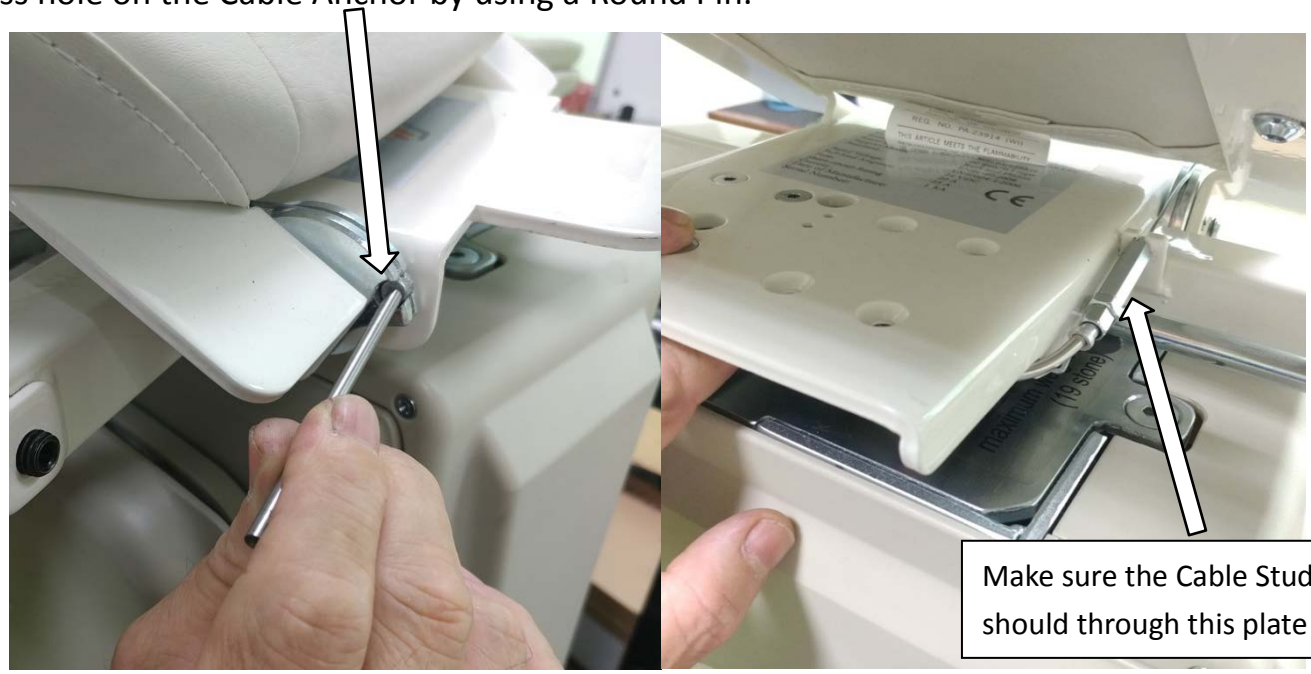


v.) Adjust the position of the wire harness and the Seat Cable. Make sure the wire harness should be put under the Seat Cable.



w.) Assemble the Seat Assembly. The Seat Swivel Pin should be put in the slot.

x.) Put the Cable Lead-Head back to the Cable Anchor with the Cable wrapping smoothly around the groove on the Cable Anchor. Knock the Cable Lead-Head slightly back to the recess hole on the Cable Anchor by using a Round Pin.

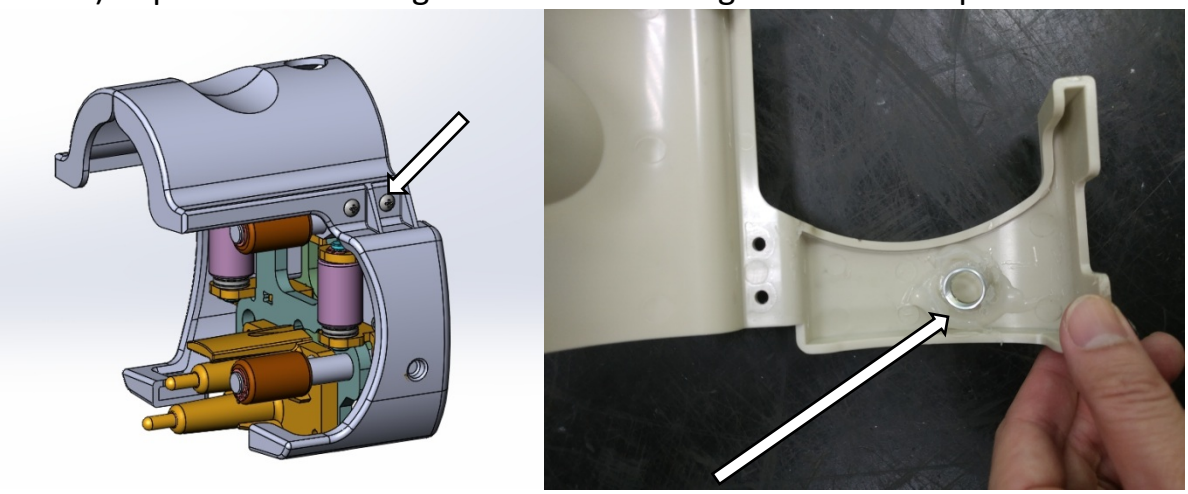


y.) Test the folding operation of the Seat Cushion and the Footrest. Make sure the Seat Cushion and the Footrest can fold easily and smoothly. If the Footrest cannot be flipped up to 90 degree, adjust the circled area shown below.

3.2.2 Replace the LH/RH Swing Head Cover

a.) Remove the screws on the cover. And remove the old Swing Head Cover.

b.) Replace a new Swing Head Cover. And tighten it back in position.



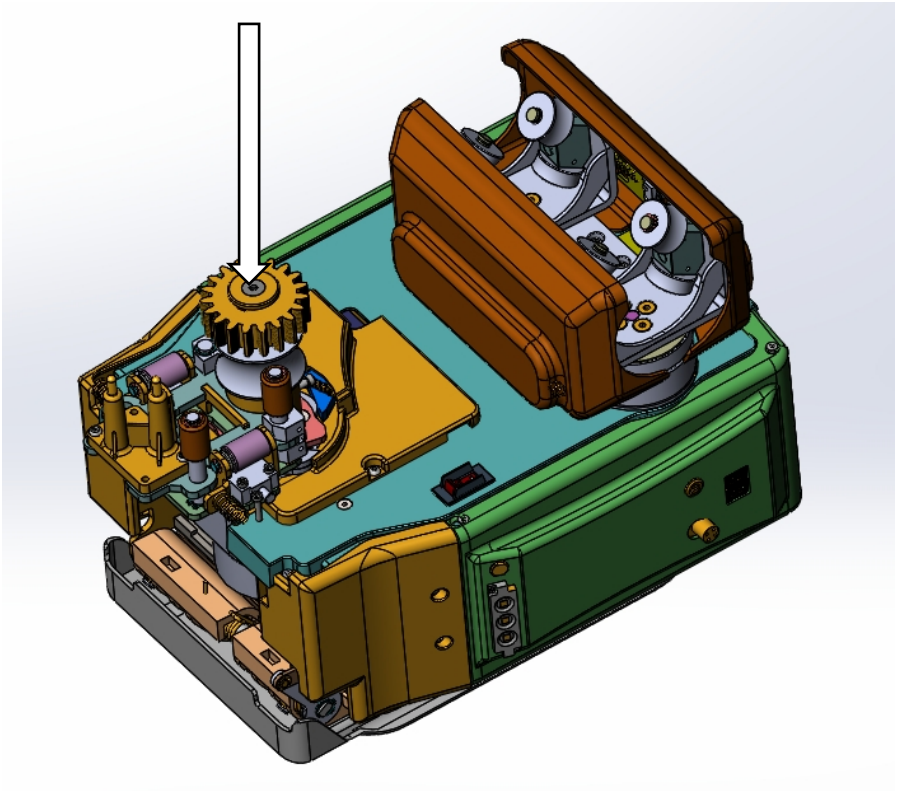
Note: Make sure to glue the Spring on the inside of the new Swing Head Cover with Hot Glue Gun before replacement.

3.2.3 Replace the Gear and the Main Roller

a.) Switch off the Carriage and then remove it from the Rail.

b.) Put the Carriage on a Soft Mat. Then remove the LH/RH Swing Head Covers.

c.) Remove the Gear Retainer by using no. 5 Allen Key. Remove the Retaining Ring on Shaft with a Plier. Replace the Gear with a new one.



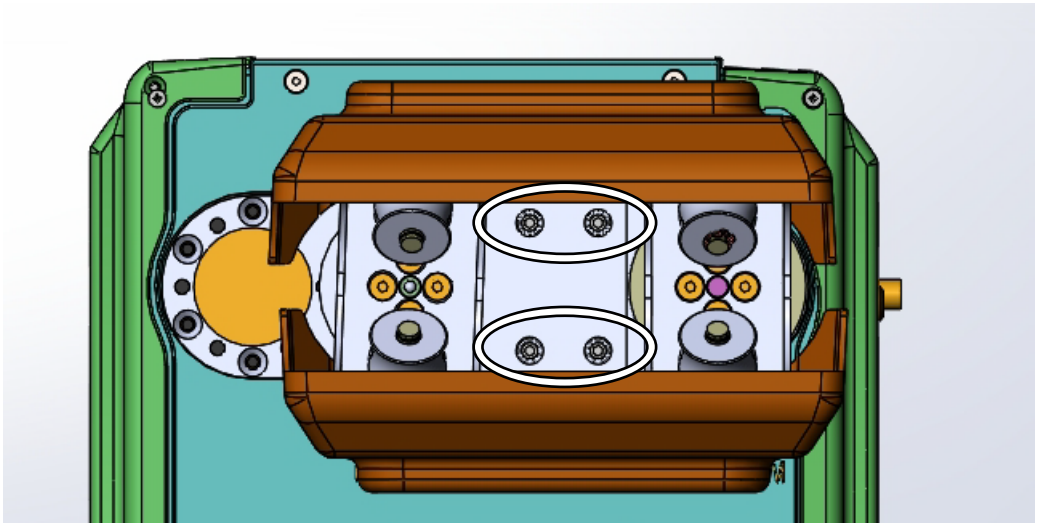
d.) After removing the Gear, you may replace the Main Roller by removing the key on the shaft.

3.2.4 Replace the Swing Arm Covers

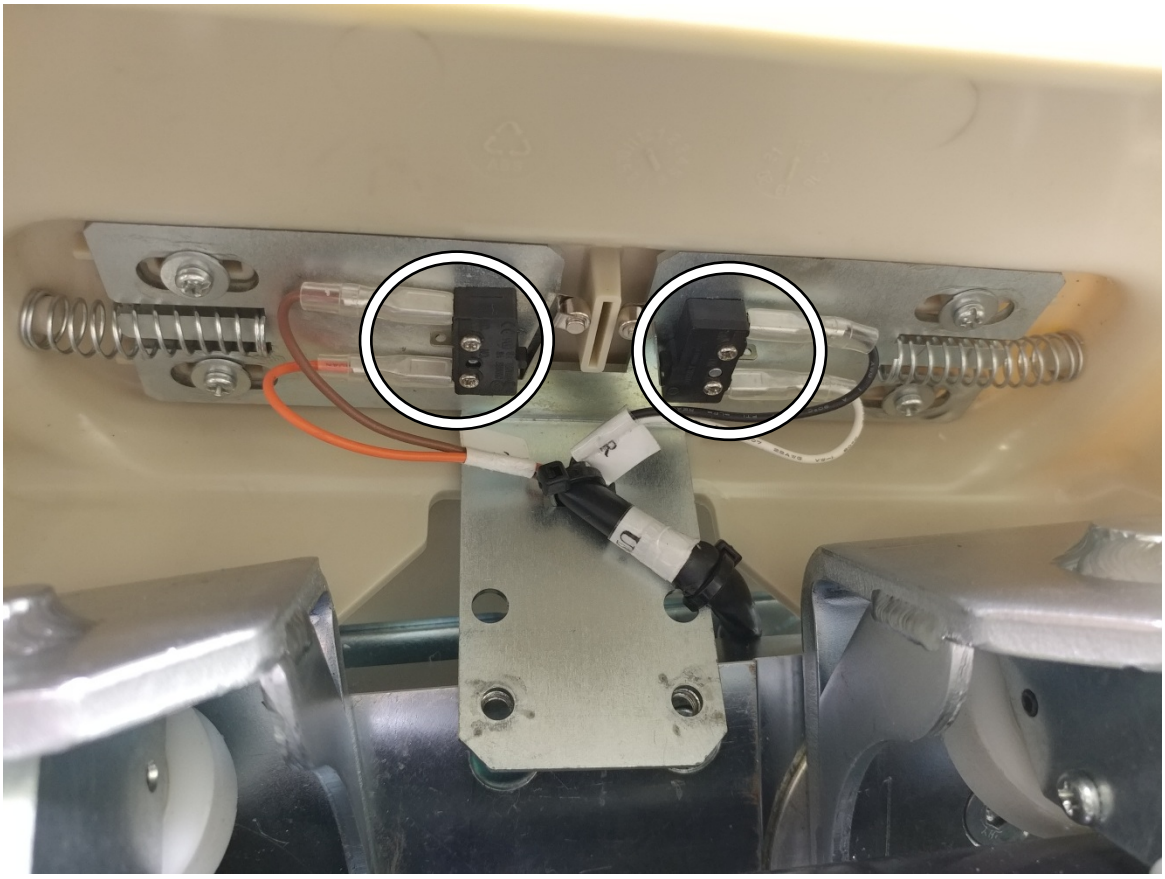
a.) Switch off the Carriage and then remove it from the Rail.

b.) Put the Carriage on a Soft Mat.

c.) Remove the circled screws shown below by using no. 3 Allen Key.



d.) Cut off the Cable Tie on the wire harness and then remove the connectors on the Limit Switches. There are 4 connectors in the circled areas shown below. Remove the Swing Arm Assembly from the Carriage.



e.) Remove the screws that fixed with the Swing Arm Cover. Replace the old cover with a new one. Install back the screws, Springs and then insert the connectors back to the Limit Switches. Adjust the wire harness and tighten it with Cable Ties.

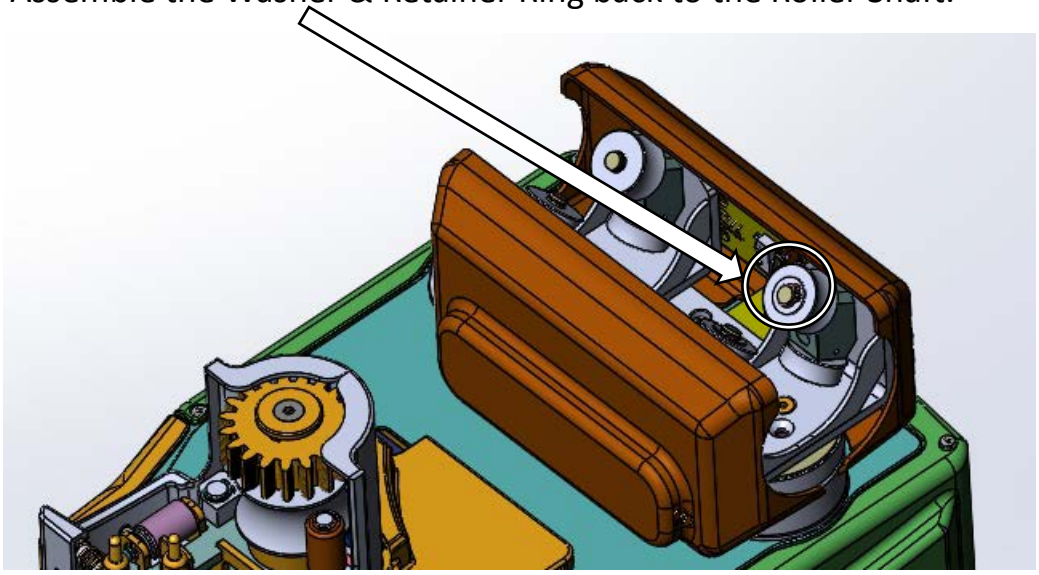
3.2.5 Replace the Outer/Inner Rollers on the Swing Arm

Replacement of Outer Rollers:

a.) Remove the Retainer Ring & Washer on the Outer Roller.

b.) Replace the old roller with a new one.

c.) Assemble the Washer & Retainer Ring back to the Roller Shaft.

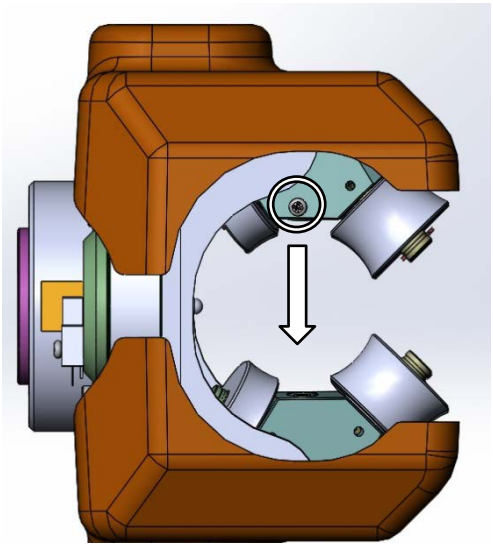


Replacement of Inner Rollers:

a.) Remove the Y Roller Set: Remove the circled screw shown below by using a screw driver. Pull down the Y Roller Set to remove it from the Swing Arm.

b.) Remove the Retainer Ring & Washer on the Inner Roller. Replace the old roller with a new one. Re-install the Retainer Ring & Washer back to the Roller Shaft.

c.) Re-install the Y Roller Set back to the Swing Arm. Tighten the circled screw shown below to fix the Y Roller Set.



3.2.6 Replace the Horizontal/Vertical Rollers on the Swing Head

Replacement of Horizontal Rollers:

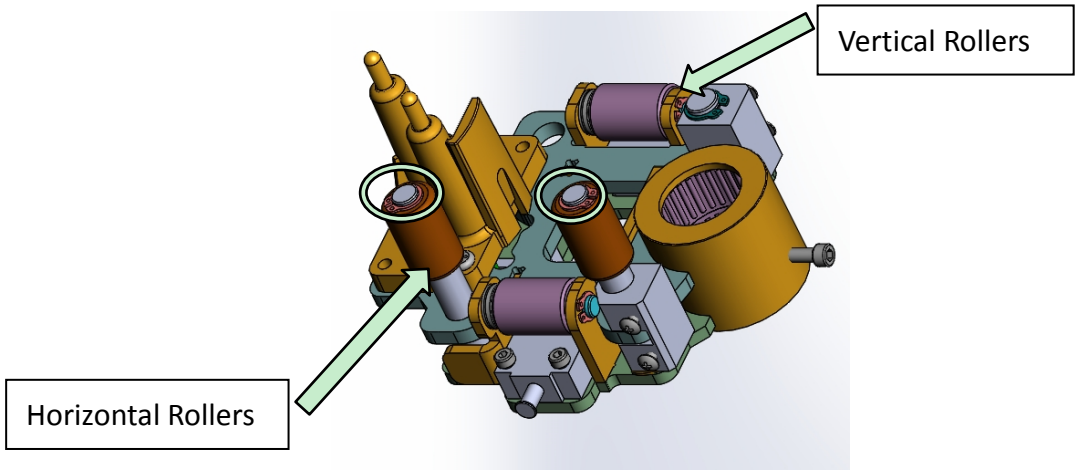
a.) Switch off the Carriage and then remove it from the Rail.

b.) Put the Carriage on a Soft Mat. Then remove the LH/RH Swing Head Covers.

c.) Remove the Retainer Ring on the Horizontal Roller.

d.) Replace the old roller with a new one.

e.) Assemble the Retainer Ring back to the Roller Shaft.



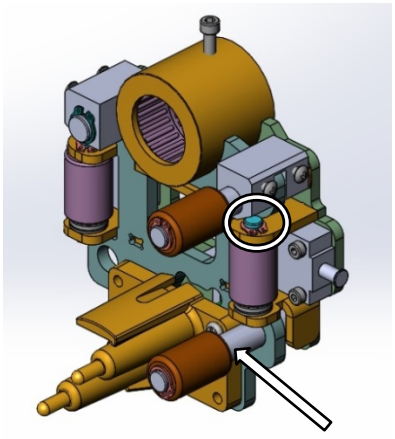
Replacement of Vertical Rollers:

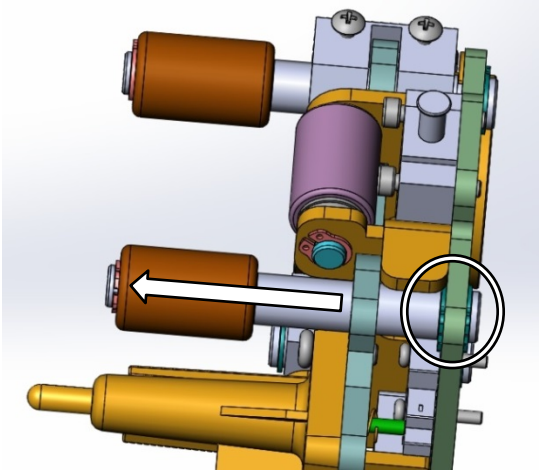
a.) Follow the procedures listed in 3.2.3 to remove the Gear and the Main Roller.

b.) Pull the Swing Head Assembly up to remove it from the Carriage.

c.) There are 2 Vertical Rollers on the LH & RH side of the Swing Head. To replace the RH Vertical Roller, you need to remove the Horizontal Roller Shaft to access the Lower Retainer Ring. (Please ref. to left figure below.)

d.) Remove 2 Retainer Rings on the rear end of the Horizontal Roller Shaft and Pull it out of the Swing Head.





e.) Remove the Retainer Rings on the both ends of the Vertical Roller and then remove the Vertical Roller Shaft. Remove the Vertical Roller carefully from its seat. There is a miniature bearing under each Vertical Roller. Make sure not to lose them while replacing the Vertical Rollers.

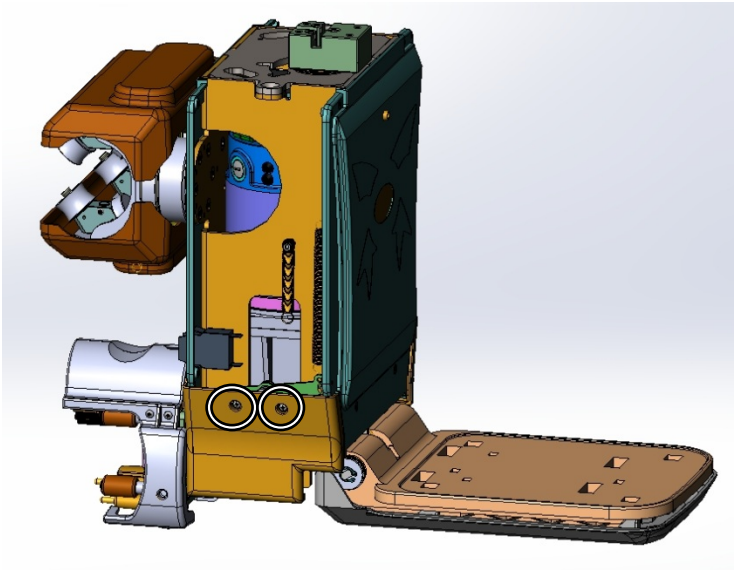
f.) Repeat step e.) to replace the Vertical Roller on the LH side.

3.2.7 Replace the Transaxle

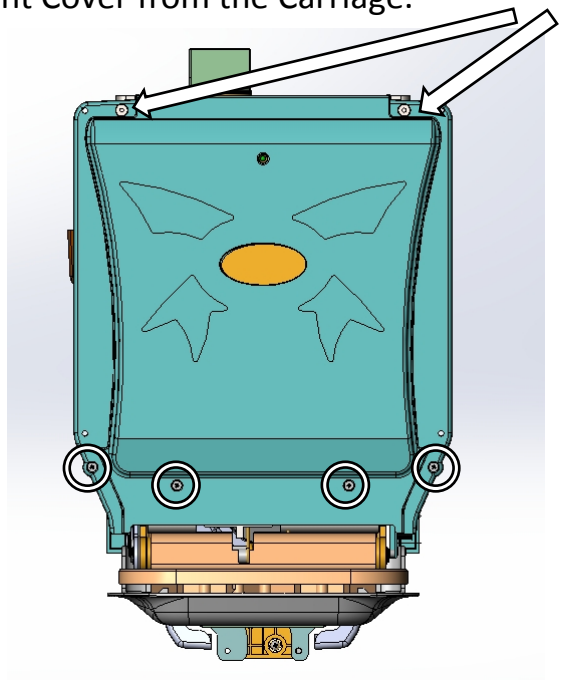
a.) Switch off the Carriage and then remove it from the Rail.

b.) Follow the steps listed in 3.2.1 from a.)~ i) to remove the Seat Assembly.

c.) Follow the steps listed in 3.1.5 from a.)~ b) to remove the LH/RH Carriage Covers. Then remove the LH/RH Obstacle Sensor Cover by removing the circled screws shown below with a "+" Screw Driver.



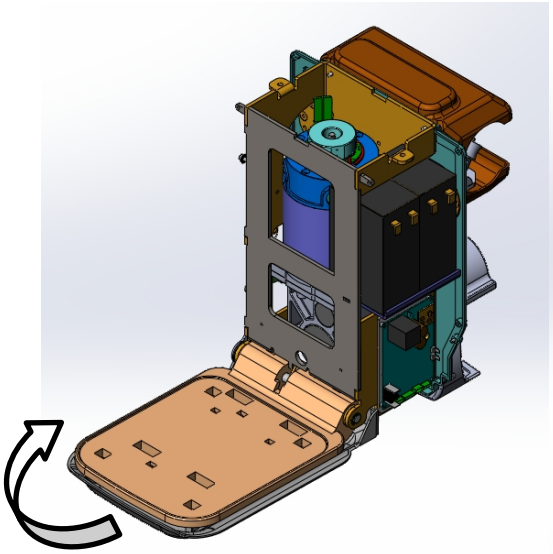
d.) Remove the Front Cover: Remove the circled screws shown below by using a "+" Screw Driver. Remove the arrowed screws by using no. 3 Allen Key. Then remove the Front Cover from the Carriage.

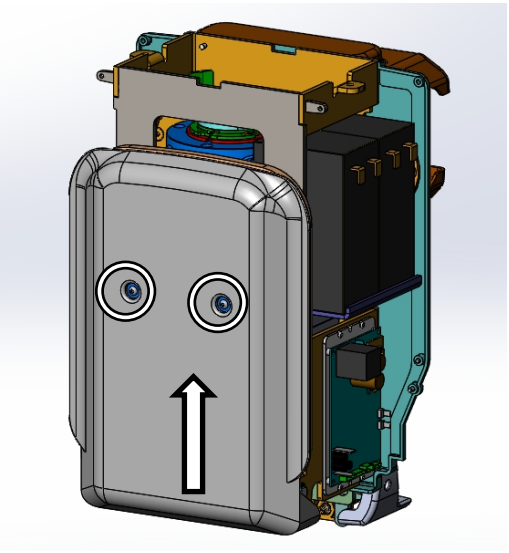


e.) Remove the Footrest:

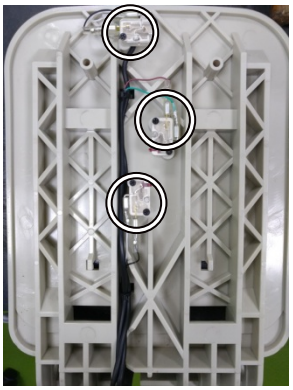
i.) Cut off the arrowed Cable Tie by using a Wire Cutter.

ii.) Remove the Lower Footrest Cover: Fold up the footrest as shown in the following figures. Remove the circled screws shown below with a no. 3 Allen Key. Push the Footrest Cover upwards then pull it out to remove it from the Footrest Assembly.

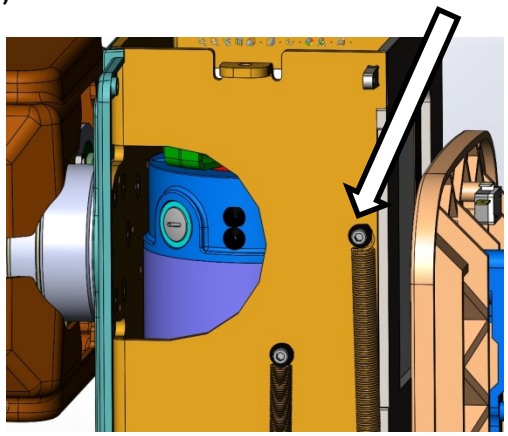


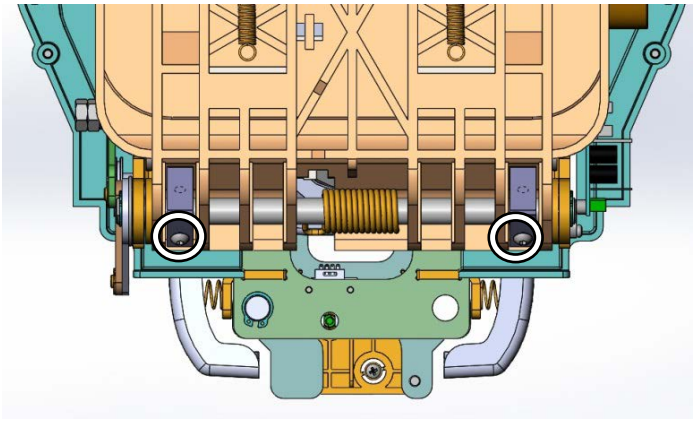


iii.) Remove the wire harness of the Limit Switches: Remove the wire harness connectors in circled areas shown below. Each Limit Switch has 2 wires. So there are totally 6 wires.



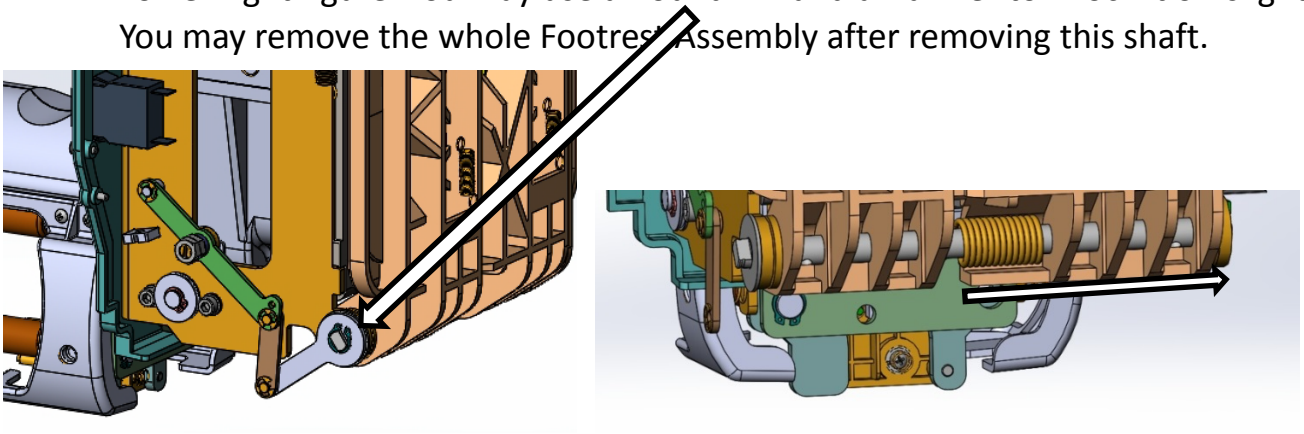
iv.) Remove the screw that fixes the Footrest Spring by using a no.4 Allen Key.





v.) Remove the Footrest Stopper: Flip up the Footrest. Remove the circled screws shown above by using a no.3 Allen Key. Then remove the Footrest Stopper.

vi.) Remove the Footrest Shaft: Remove the Retainer Rings on the both ends of shaft with a Plier. Remove the Footrest Shaft from the arrow direction shown in Lower right figure. You may use a Round Pin and a Harmer to knock it off slightly. You may remove the whole Footrest Assembly after removing this shaft.



f.) Remove the Swing Head:

i.) Follow the procedures listed in 3.2.3 to remove the Gear and the Main Roller.

ii.) Pull the Swing Head Assembly up to remove it from the Carriage.

g.) Remove the Maintenance Cover and the Rear Cover:

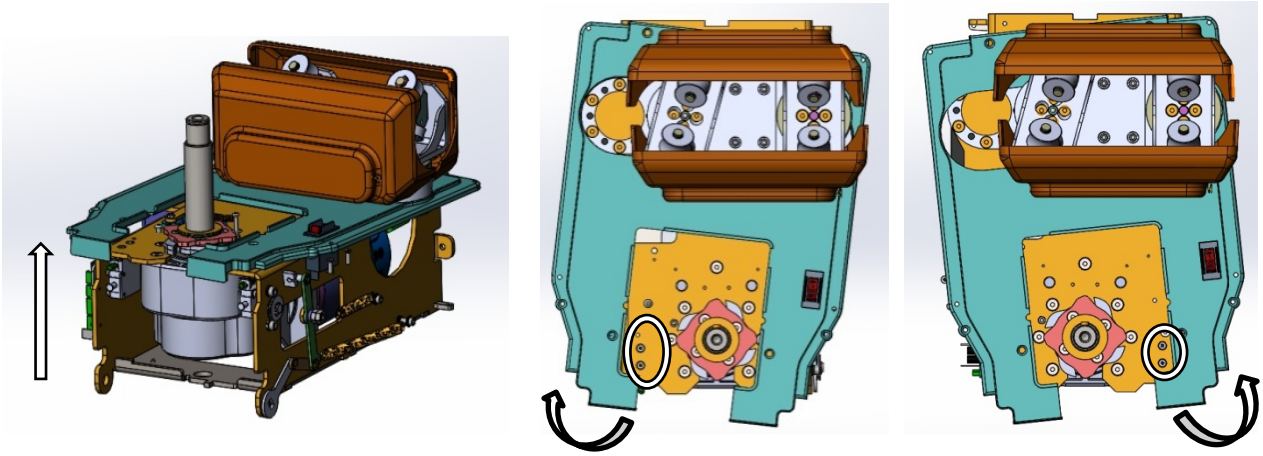
i.) Remove the Maintenance Cover by unscrewing 2 circled screws on it with a no. 3 Allen Key.

ii.) Loosen the Rear Cover by unscrewing the other 4 circled screws on it with a no. 3 Allen Key.

h.) Remove the LH/RH Limit Switch Supports:

i.) Lift the Rear Cover slight up and rotate it to the left until you can reach the 2 circled screws on the LH Limit Switch Support. Remove this Limit Switch Support by unscrewing 2 circled screws shown below with a "+" Screw Driver.

ii.) Lift the Rear Cover slight up and rotate it to the right until you can reach the 2 circled screws on the RH Limit Switch Support. Remove this Limit Switch Support by unscrewing 2 circled screws shown below with a "+" Screw Driver.

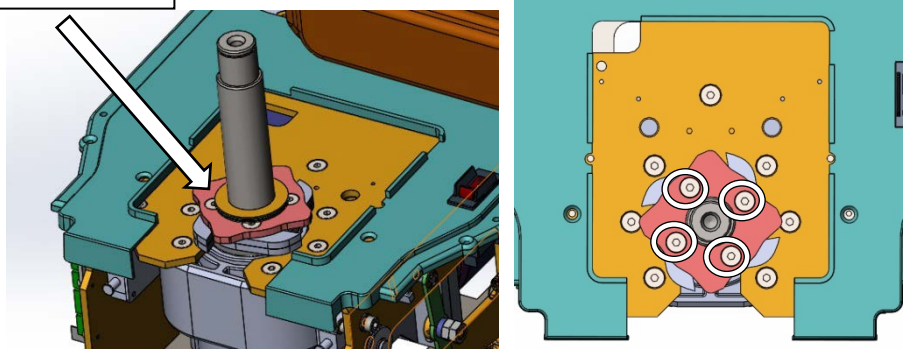


i.) Remove the Bearing, Cam & Ratchet Set:

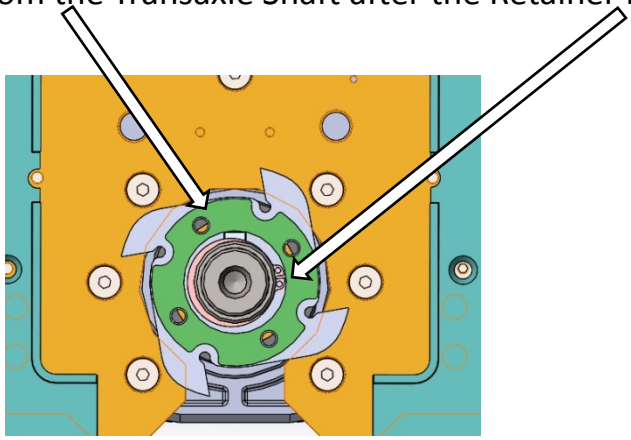
i.) First, remove the Bearing away from the Shaft of Transaxle.

ii.) Remove the Cam by unscrewing the 4 circled screws shown below with a no.3 Allen Key.

Remove this Bearing



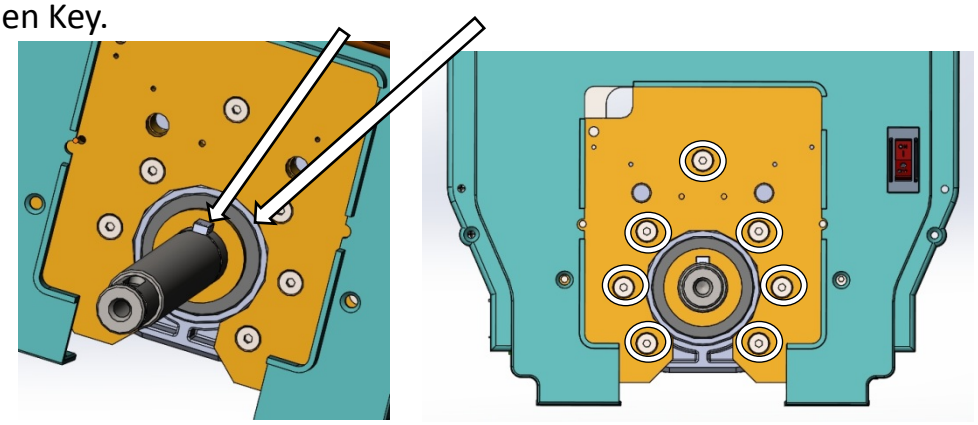
iii.) Remove the Washer. Then remove the Retainer Ring with a Plier. You can remove the Ratchet Set from the Transaxle Shaft after the Retainer Ring has been removed.



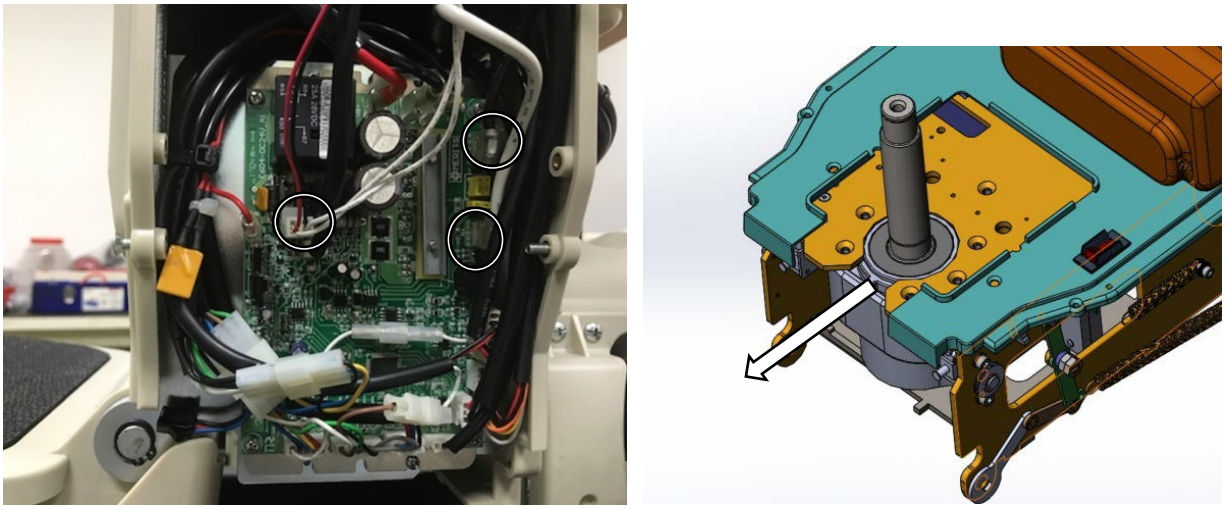
j.) Remove the Transaxle from the Carriage:

i.) First, remove the Key and the Washer from the Shaft of Transaxle.

ii.) Loosen the Transaxle by unscrewing the 7 circled screws shown below with a no.3 Allen Key.

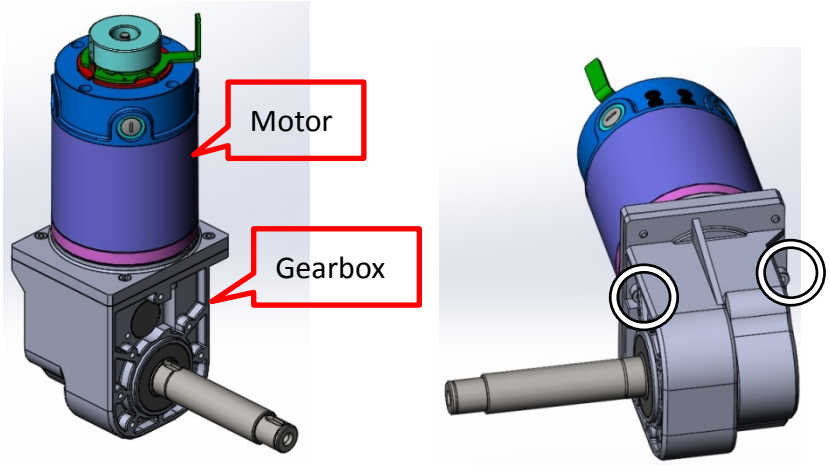


iii.) Remove the 3 circled wire harness shown below that connect with the Transaxle and the Main Control PCB. Pull the wire harness gently to not break them. Remove the Transaxle away from the Carriage in the arrowed direction shown below.



k.) Separate the Motor and the Gearbox:

The Transaxle is comprised of a Motor and a Gear Box. You may replace either one of them individually. Remove the 2 circled screws shown below with a no. 6 Allen Key to separate the Motor and the Gearbox.



Radio Receiver Remote Pairing Instructions

** Before starting, please refer to the photographic references at the bottom of the page. Also ensure your remote control has battery power and has been turned on for this procedure, to turn your remote control on, slide the designated switch on the side of the remote to the active position.**

The left-hand picture is of the Outdoor Aviator unit, the right-hand is the E604 curved Navigator unit.

1. Locate the stand-alone radio-receiver circuit on your stairlift; located right inside of the curved-top casing for the outdoor, and inside the housing on the right-hand side of the carriage which also houses your key switch.
2. Press the little black button located on the receiver circuit-board until the red LED lights illuminate.
3. Then press one of the elevating buttons on your remote control.
4. Once done, your carriage should begin to instantly respond to inputted commands via remote control. *If it does not, please repeat the above procedure and refer to the prefactory statement as well.*