MAINTENANCE AND REPAIR MANUAL

Maxi Sky 2 & Maxi Sky 2 Plus

001-15697 Rev 12 • 02/2022

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with people in mind

NOTICE

The following manual is an internal document intended for ARJO trained technicians only.

SAFETY INSTRUCTIONS

A. ARJO strongly advises that only ARJO designated parts, which are designed for this specific product, should be used on equipment and other ARJO supplied appliance to avoid injuries attributable to the use of inadequate parts. ARJO's conditions of sale make specific provisions confirming no liability in such circumstances. Our policy is one of continuous development, and we, therefore reserve the right to change specifications without notice.

B. Unauthorized modifications on any ARJO equipment may affect its safety and are in breach of any warranty on it. ARJO will not be held responsible for any accidents, incidents or lacks of performance that occur as a result of unauthorized modifications to its products.

C. If the terms listed below are used in the text, their meaning is as follows:

DANGER

ELECTRICAL HAZARD WARNING: FAILURE TO UNDERSTAND AND FOLLOW THESE INSTRUCTIONS MAY RESULT IN AN ELECTRICAL SHOCK.

WARNING

FAILURE TO UNDERSTAND AND FOLLOW THESE INSTRUCTIONS MAY RESULT IN INJURY TO YOU OR TO OTHERS.

CAUTION

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE DAMAGE TO ALL OR PARTS OF THE SYSTEMS OR EQUIPMENT.

NOTE

THIS IS IMPORTANT FOR THE CORRECT USE OF THIS SYSTEM OR EQUIPMENT.

D. Dangerous substances: If using hazardous substances be sure on how to handle them and refer to applicable information. When in doubt, refer to the local authorities for health and safety requirements.

E. It is strongly recommended that every technician follows the procedures as indicated in this manual. Every procedure has been studied in perspective on minimizing the risks either for the technician or the ceiling lift. Even if some of the procedures are not the shortest ones, they are the most effective in the long run.

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MANUAL VERSIONS 2

Revision	Date	Description	Pages modified
0	June 2012	Initial release	N/A
1	October 2013	General revision	General
2	March 2014	Manufacturer's address change	Last page
3	December 2014	Added some maintenance procedures	N/A
4	May 2015	ECS clarifications	4-3, 4-7, 6-23, 8-4, 8-10, 8-20
5	September 2015	Add Maxi Sky® 2 Plus updates throughout, weight load test with track deflection called in PM F is optional	In every concerned section for MS2 Plus, 8-12 for the load test
6	October 2016	Added Transmission (700-15726) Installation Procedures	Added Chapter 9
7	June 2017	Maxi Sky 2 Transportable information added	Chapters 5, 6 & 8
8	January 2019	Ferrite added to charger images.	Chapters 6, 7 & 9
9	March 2019	Emergency cord replacement added, coated strap & limit kit for Infection Control project. Real time clock battery replacement added.	Chapters 2, 4, 5, 6 & 7
10	June 2020	Wall Charging System added. Specific General Troubleshooting added.	Chapters 4, 6, 7 & 8
11	March 2021	Motor Brake (MB) option added	Chapters 6, 7 & 9
12	February 2022	ECS Gate models added	Chapters 4, 6, 7, 8 & 9.

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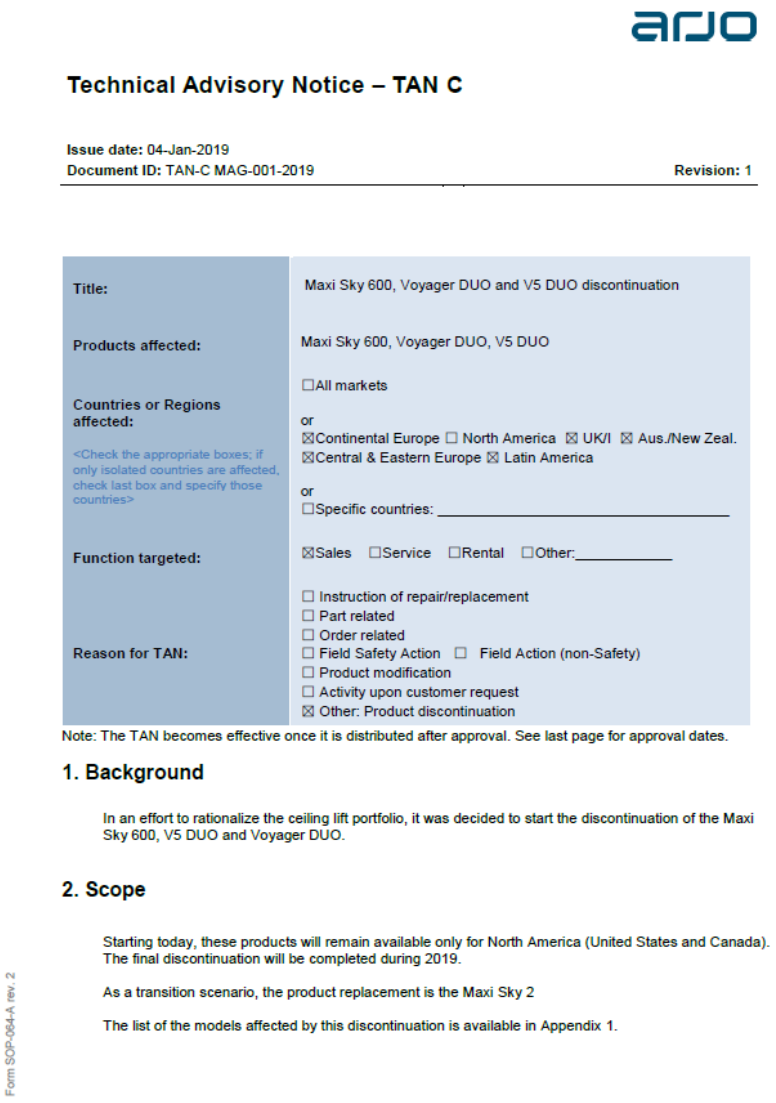
UPDATING INSTRUCTIONS 3

VERIFY THAT THE LATEST UPDATES HAVE BEEN IMPLEMENTED

Verify on Careprosis if there were any field correction bulletins, safety notices or technical bulletins that have been published since the last service.

This verification must be done to keep the product up to date according to safety and product improvements. Bulletins and notices can be generated as a result of an engineering change note, a safety incident report or a change to form/fit etc.

Example of a Technical Bulletin



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Technical Advisory Notice – TAN C

Issue date: 04-Jan-2019
Document ID: TAN-C MAG-001-2019 **Revision:** 1

Title:	Maxi Sky 600, Voyager DUO and V5 DUO discontinuation
Products affected:	Maxi Sky 600, Voyager DUO, V5 DUO
Countries or Regions affected: <Check the appropriate boxes; if only isolated countries are affected, check last box and specify those countries>	☐All markets or ☒Continental Europe ☐ North America ☒ UK/I ☒ Aus./New Zeal. ☒Central & Eastern Europe ☒ Latin America or ☐Specific countries: _____
Function targeted:	☒Sales ☐Service ☐Rental ☐Other:_____
Reason for TAN:	☐ Instruction of repair/replacement ☐ Part related ☐ Order related ☐ Field Safety Action ☐ Field Action (non-Safety) ☐ Product modification ☐ Activity upon customer request ☒ Other: Product discontinuation

Note: The TAN becomes effective once it is distributed after approval. See last page for approval dates.

1. Background

In an effort to rationalize the ceiling lift portfolio, it was decided to start the discontinuation of the Maxi Sky 600, V5 DUO and Voyager DUO.

2. Scope

Starting today, these products will remain available only for North America (United States and Canada). The final discontinuation will be completed during 2019.

As a transition scenario, the product replacement is the Maxi Sky 2

The list of the models affected by this discontinuation is available in Appendix 1.

Form SOP-064-A rev. 2

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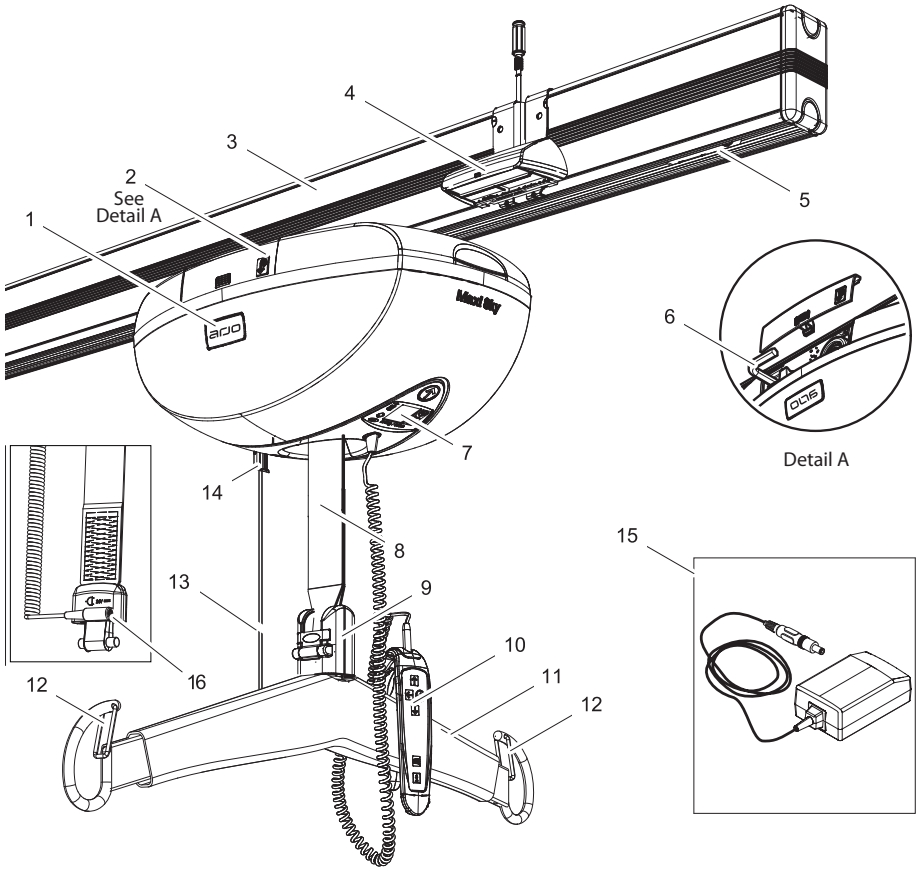
GENERAL INFORMATION 4

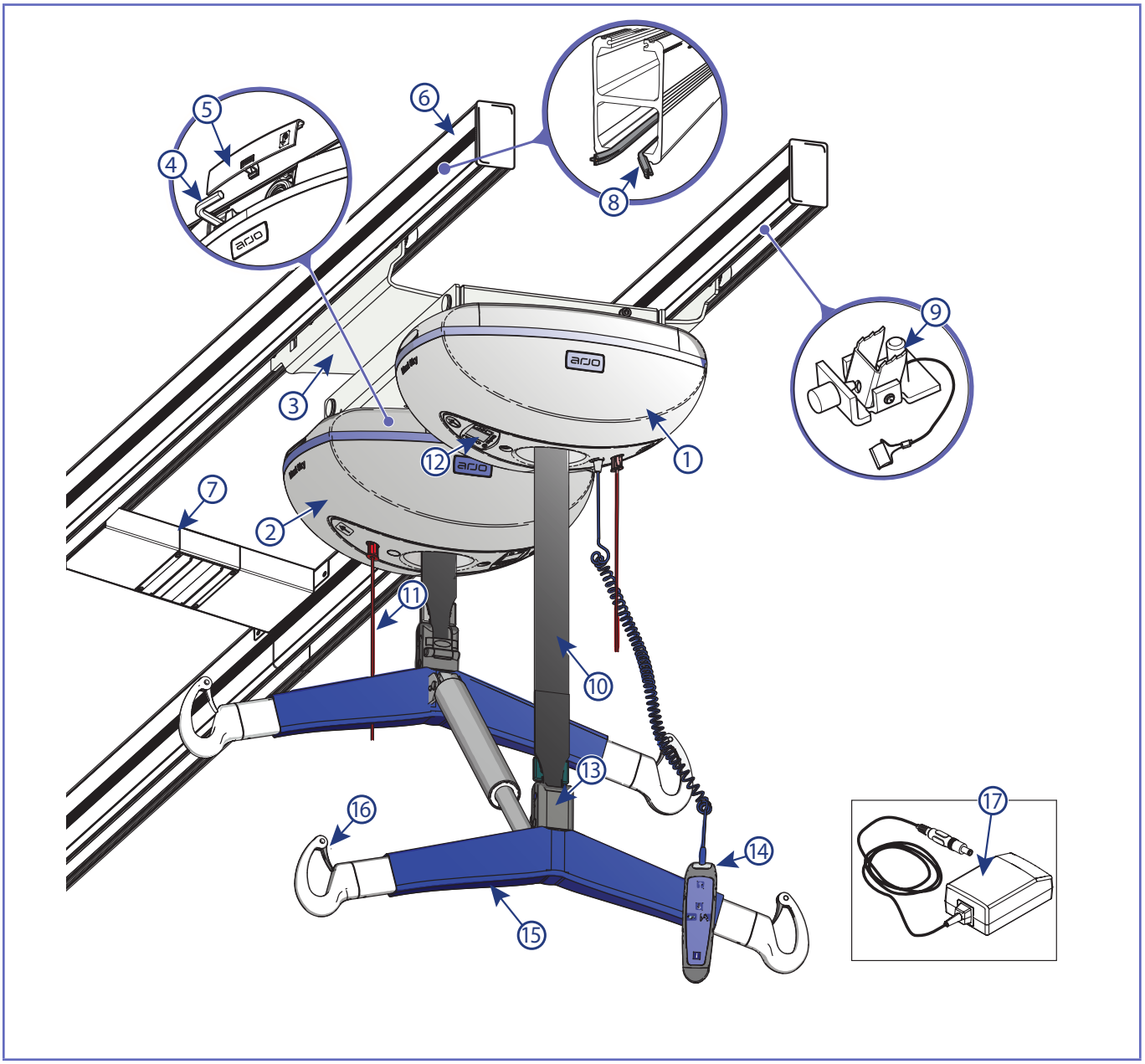
MAXI SKY 2



1. Lift
2. Access door for manual emergency lowering mechanism
3. KWIKtrak™ rail
4. Charging station*
5. Rail end stopper
6. Hex key
7. Control panel
8. Strap
9. Spreader Bar attachment
10. Hand control
11. Spreader bar
12. Latches
13. Red emergency stop cord
14. Power on switch - PUSH
    Emergency off switch - PULL
15. Universal charger
16. WCS connector**

* Does not apply to lifts equipped with ECS or WCS.

** Applicable to lifts equipped with WCS system only.

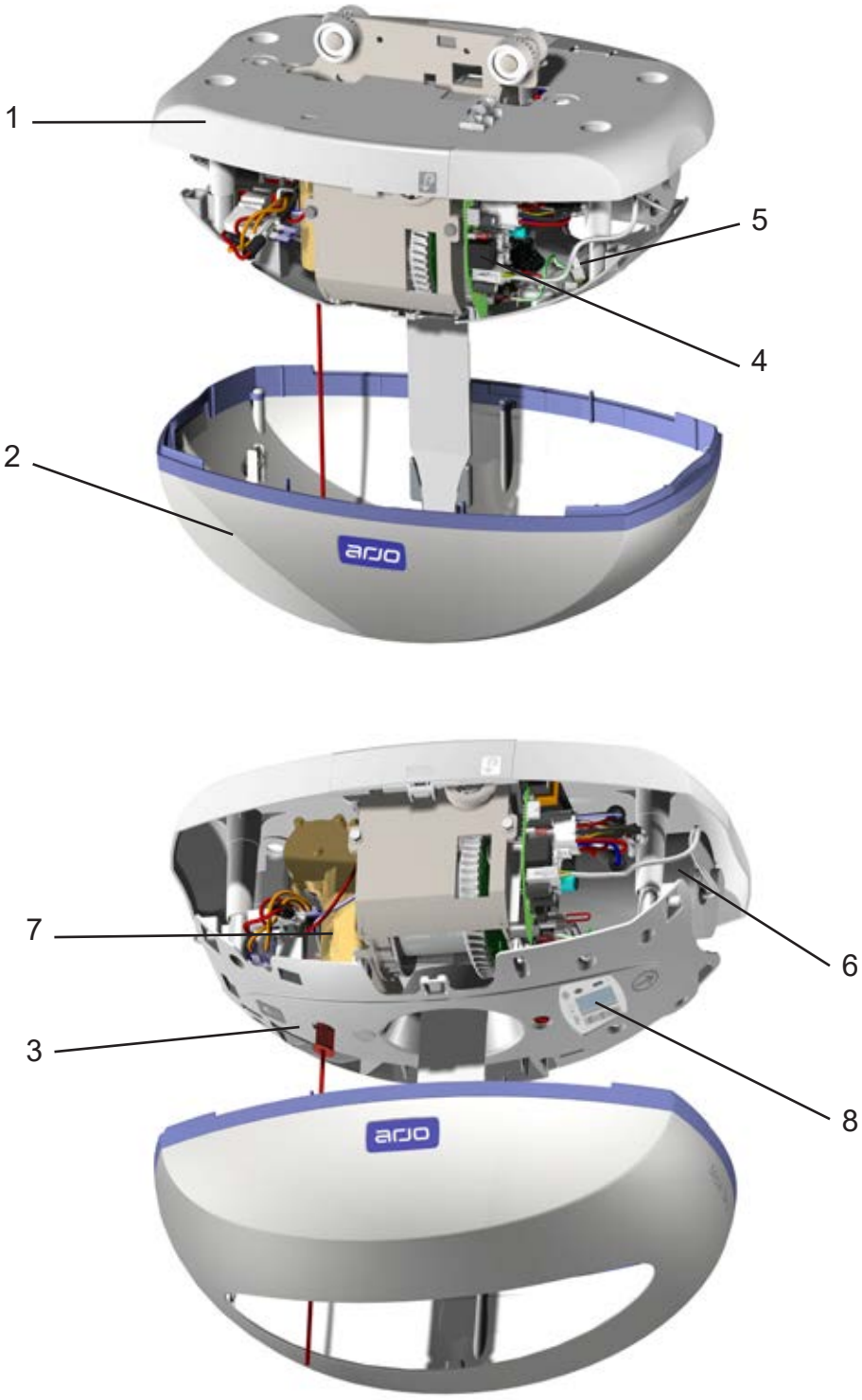


Legend

① Leading ceiling lift (with hand control)	⑥ KWIKtrak rail	⑪ Red emergency stop cord	⑯ Latch
② Driven ceiling lift	⑦ Charging station*	⑫ Control panel	⑰ Universal charger
③ Trolley	⑧ Enhanced Charging System (ECS) strips*	⑬ Quick connect	
④ Emergency lowering hex key	⑨ KWIKtrak end stopper	⑭ Hand control	
⑤ Access door for emergency lowering mechanism	⑩ Strap	⑮ Spreader bar	

* This system is equipped with either a charging station or the ECS charging system.

LIFT'S MAIN PARTS



1. Top cabin
2. Bottom cabin
3. Strap inlet
4. Main board
5. User interface board
6. Up/down motor
7. Left/right motor
8. LCD screen (part of the user interface board)

INTRODUCTION

This document covers the maintenance and repair of the *Maxi Sky* 2 and *Maxi Sky* 2 Plus.

Maxi Sky 2 has a maximum capacity of:
- 272 kg (600 lb).

The *Maxi Sky* 2 Plus has a maximum capacity of:
- 454 kg (1000 lb) when set in dual mode.
- 272 kg (600 lb) when set in single mode.

NOTE

THE SAFE WORKING LOAD (SWL) WILL DEPEND ON THE LIFT'S CONFIGURATION. MAXIMUM SWL REFERS TO THAT OF THE LOWEST RATED ATTACHMENTS, AS WELL AS RAIL INSTALLATION

FEATURES

The emergency features of the *Maxi Sky* 2 ceiling lift include:

- Stop. - Overload current limit protection in the PCB. - Upper limit switch. - Lower limit switch/no tension limit.	- Control panel on the unit / LED display - Manual emergency lowering mechanism. - Audible variable low-battery warning. - Malfunction & maintenance code.

FULL FEATURE TEST

These tests will be performed after replacement of a part or a repair is performed to ensure the quality of the repair. The test will be called out throughout section 6.

# Item	Function	Activation/ Validation	Actions	Criteria for approval
1	Charging	Manual or button	For C-STAT option: Push R/L button or direct lift manually on a charging station For ECS option: Position lift in rail section equipped with powered ECS strips.	Activation of the charging station. For C-STAT option: the display will cycle through charge level icons For ECS option: the system will charge when battery level is under 80%, in all sections of rail equipped with powered ECS strips.
2	Horizontal displacement	Buttons	Push right and left function on the hand control	No abnormal noise. Lift is moving along the rail in the expected direction.
3	Vertical displacement	Buttons	Push up and down function on the hand control	No abnormal noise. Spreader bar is moving up and down.
4	Inclined PDPS	Buttons	Push inclined or sitting position	No abnormal noise. Powered DPS is moving according to the wanted action.
5	High / Low limit switch	Buttons	Push up and down function on the hand control	High limit switch must activate at top of stroke. No abnormal noise. Low limit switch must activate at end of stroke. No tension limit must stop lowering action if there is no tension on strap (e.g. without accessories)
6	Hand control	Buttons	Press each button	All functions are working: no display issues.
7	Up / Down	Buttons	Press alternate buttons on lift	Strap is moving up and down

To perform a Full Feature Test on the MS2 Plus, refer to *Maxi Sky* 2 Plus document "Initial Start Up" 001-31229-EN section 13 "Testing the *Maxi Sky* 2 Plus System".

HAND CONTROL CONFIGURATION

Regular hand control			Infra-red hand control
	Without powered DPS	With powered DPS	
2 functions		 Only available configuration for MS 2 Plus	
4 functions			

Icon	Button description	2 functions	4 functions	Infra-red
	Up button	x	x	x
	Down button	x	x	x
	Right button		x	x
	Left button		x	x
	Reclined button	x(*)	x(*)	
	Sit button	x(*)	x(*)	
	RTC / RTH button		x	x
	Programming / information button	x	x	x *(No label)*

(*) *With Powered DPS option*

DISPLAY SYMBOLS

The following is a description of all the symbols that may be presented on the display.

Battery Charge Level

- Several symbols showing a battery at a different charge levels. These symbols indicate the status of the batteries for units equipped of a Charging Station System or Wall Charging System (WCS).

ECS Indicator

- On units equipped with ECS option, this symbol is shown when the ceiling lift is in charging mode.

RTC (Return to Charge)

- This symbol indicates that the RTC function was activated by the hand control.

RTH (Return to Home)

- This symbol indicates that the RTH function was activated by the hand control.

PPP (Pre-Programmed Position)

- This symbol indicates that the PPP function was activated by the hand control

Over Duty Cycle

- This symbol flashes when the lift is used for a long period without allowing it to cool down. This security feature disables the function (Up, Sit/Reclined or Left/Right) that is being used beyond recommended duty cycle to prevent damage.
- When the overheat protection is engaged, the function, which exceeded the duty cycle, is disabled while all other functions remain active.
- The red light will stay on during a cooling period. In addition, a single beep will be heard.

General Malfunction (Warning symbol accompanied with a numeric character)

- This symbol flashes when the lift encounters a malfunction.
- The lift needs to be inspected / repaired by a qualified service technician.
- The red light will stay on and a single beep will be heard.

Maintenance Required (Wrench symbol accompanied with a letter character)

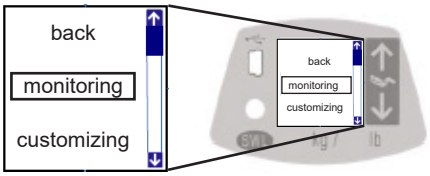
- This symbol is shown for 7 seconds (accompanied with 2 beeps) when the lift is waking up from sleep mode and flashes every 5 seconds to draw the user's attention.

Overweight

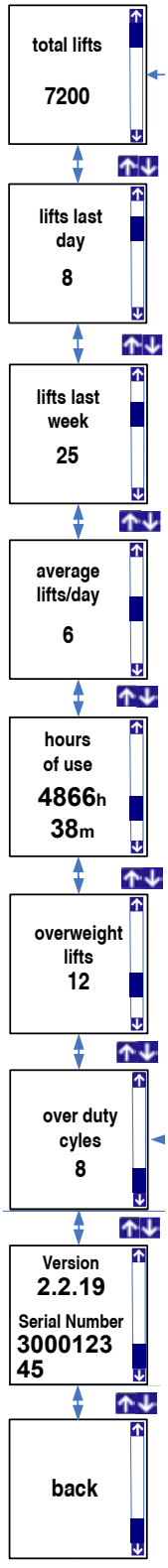
- This symbol flashes when a transfer is attempted with a load exceeding the lift's capacity.
- The red light will stay on (accompanied with four rapid beeps) until the patient is lowered.
- The ↑ function is disabled while all other functions remain active.

MONITORING

-Press on the info button for 3 seconds to access the complete list of information.



-Select monitoring menu and press to confirm



Total lifts made since the initial start up.
Note : A lift is determined as one raising, waiting time for the transfer and one lowering.

Number of lifts made during the last day.
Note: A day begins at midnight (12 am).

Number of lifts made during the last week.
Note: A week begins on Sunday.

Average of lifts per day based on the last 7 days.

Hours of use since the initial start-up.

Number of times the safe working load was exceeded.

Number of times the duty cycle was exceeded.

Software version and Serial number of the device
Note: Available from software version 2.2.X

Return to previous menu.

For details about MS2 Plus “Monitoring Displayed Information” refer to MS2 Plus documents - IFU 001-31228-EN and 001-31249-EN.

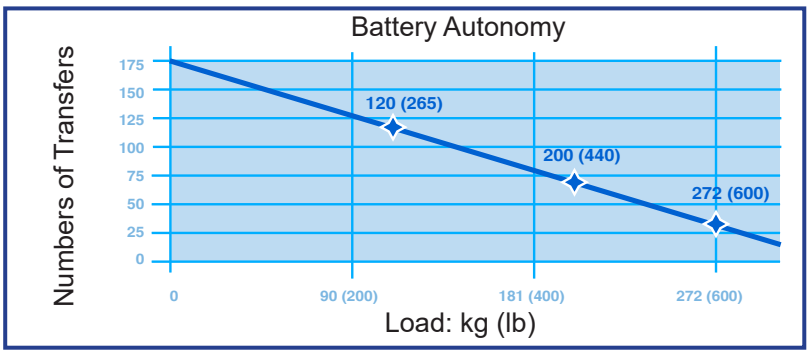
BATTERY INFORMATION

Display	Battery Charge	Remarks
	100%	Normal operating range
	75%	
	50%	
	25%	Low Accompanied with a short beep when one of the following button is pressed
	< 5%	Critical Icons alternate accompanied with a two short beep every 10 seconds

The batteries for this device are rechargeable lead acid batteries. For safe handling and to extend the battery lifetime, please follow and remember these instructions. Not following these instructions can cause short battery life and may, in extreme cases, put user at risk.

Battery life depends on many factors. These are: frequency of use, frequency of charging, temperature of operation, storage and storage time.

Using lead-acid batteries below 5% charge can damage the battery resulting in shorter battery life. The 5% charge is indicated by the critical battery level symbol flashing on the display. At this time, the lift will allow only the down function. Make sure to recharge the batteries as soon as possible.



This graph illustrates the relationship between the number of lifts that can be performed before reaching battery critical level, versus the load being lifted.

For information about MS2 Plus battery autonomy, refer to MS2 Plus IFU 001-31228-EN “Battery Information” section.

CHARGING THE BATTERIES

WARNING

DO NOT OPERATE THE CHARGING STATION WITH A DAMAGED CORD OR IF THE STATION HAS BEEN DROPPED OR DAMAGED. DO NOT BEND THE POWER CORD BY FORCE, OR PLACE A HEAVY OBJECT ON IT, SINCE IT COULD DAMAGE THE CORD AND MAY CAUSE FIRE OR ELECTRICAL SHOCK.

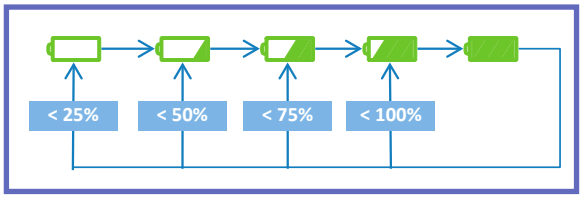
NOTE

THE LIFT CAN BE OPERATED AT ANY TIME DURING THE BATTERIES’ CHARGING, WHICH WILL STOP AUTOMATICALLY.

Charging Station System

2-function model: Move the lift under the charging station.

4-function model: Press the ← and → buttons or the button to bring the lift to the charging station.

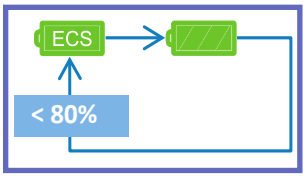


Check the LED to confirm that the batteries are charging properly.

- The LED will flash green until batteries are fully charged.
- The display will cycle through charge level icons according to actual battery charge level to show the charging progress.

If the batteries have been completely drained it could take up to 8 hours to completely recharge them.

ECS Charging System



Systems equipped with ECS will display the ECS icon when the ceiling lift is in charging mode.

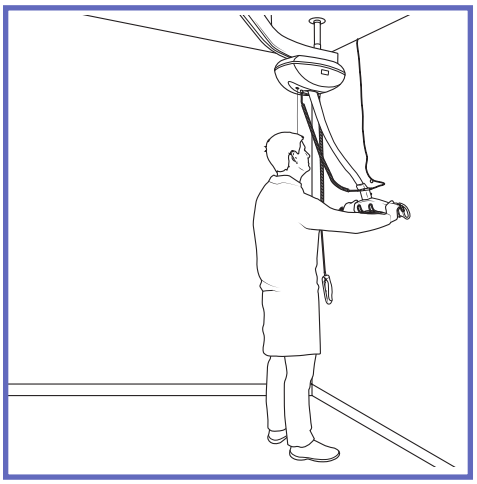
- The LED will flash green for a fixed period of 8 hours. After that period, the device will launch another 8 hour charging period if the batteries are still below 80%. Otherwise, the LED will become solid.

If a function is activated during the charging process, the ECS icon will disappear and the green LED will become solid. After the function button is released, the device will attempt to reconnect to the ECS system after approximately 20 seconds only if the battery charge level is still below 80%.

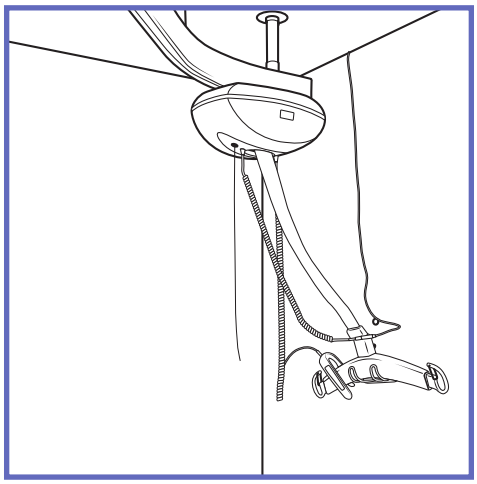
If the ECS system is not supplying voltage due to a system fault or power failure, the display will show actual battery level as for a non ECS system. The device will attempt to reconnect to the ECS system every 15 minutes after the fault being detected. The device will attempt to reconnect to the ECS system only if the battery charge level is below 80%.

Starting from Software 3.5.8, the device will continue to display the ECS icon if there is a power loss or if the device is moved manually into a rail section that has no power, for a charging period of up to 8 hours, depending on the battery level at the event. After that maximum of 8 hours has passed, the device will behave as mentionned in paragraphs above.

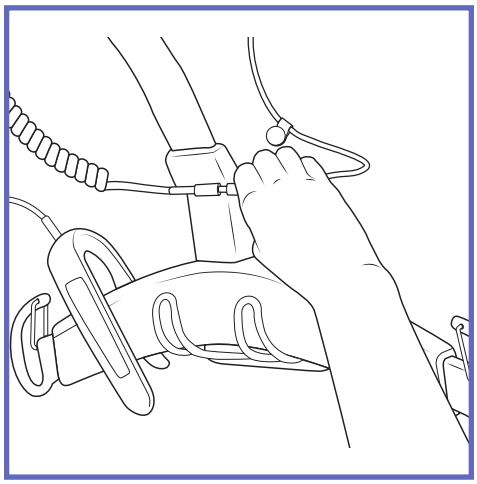
WALL CHARGING SYSTEM (WCS)



Manually place spreader bar on the wall hook attached to the wall.



Attach the remote control to spreader bar so that there is no tension in its cord, which could cause a sudden ejection. Wind up the excess strap.



Connect the charger cord to the Wall Charging System (WCS).

MS2 Plus battery charging operates in the very same manner as MS2, both in Charging Station or ECS mode.

RISK ASSESSMENT CHECKLIST FOR TECHNICIANS

WARNING

IF IN DOUBT, CONTACT YOUR LOCAL ARJO REPRESENTATIVE. DO NOT TAKE UNNECESSARY RISKS

The following assessments MUST be done before carrying out service, repair works or installations:

- Make sure the work area is adequately sized, suitably lit and at a reasonable temperature.
- Use safe work and handling practices to keep risks of injury to a minimum.
- Tools and equipment must be kept in good condition.
- Wear protective clothing, shoes and eye protection when necessary.
- When you are handling an electronic component of the *Maxi Sky* 2 you must be ESD protected.
- You should be adequately trained to perform a task.
- Do not manually lift items that could cause personal injuries and that are too heavy, hot or sharp.
- You must comply with all local site safety rules, report any incidents or accidents to the site safety supervisor or equivalent. Use the Arjo reporting procedure.
- Load tests must only be done as instructed in the relevant procedures.
- If it is necessary to work from a platform (i.e. scaffold, ladders, etc.) to perform a service or installation task make sure the platform is secure and suitable for the task.

DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD

- Do not perform maintenance tasks on equipment with “live” electrical connections unless it is absolutely necessary.
- Isolate the power supply before removing plugs, sockets or disconnected cables.
- Be alert at all times to the dangers of working on electrical equipment that operates on mains supply voltage.
- Where possible, visually inspect electrical cables, plugs, etc. for damage or deterioration before working on equipment.
- Dispose of all waste in appropriate containers, in compliance with local legislation.

SUGGESTED TOOLS

- Standard tool kit
- Torx T20 screwdriver
- Extractor Pin (P/N: 005.00374)
- Extractor Pin Amp (P/N: 001.00001)
- Extractor Pin Amp Mini (P/N: 001.00002)
- ECS Voltmeter (P/N: 005-07677)

RECOMMENDED SPARES

For *Maxi Sky* 2 - refer to the *PARTS LIST* 001-15699-EN

For *Maxi Sky* 2 Plus - refer to the *PARTS LIST* 001-31230-EN

INITIAL STARTUP 5

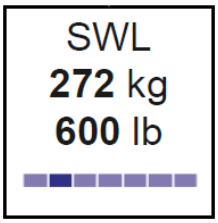
INITIAL START-UP PROCEDURE

Maxi Sky 2 variations:

- For MS2 Plus Initial Start Up, refer to MS2 Plus 001-31229-EN.
- If the Maxi Sky 2 is used in its transportable version, please refer to MS2 Transportable Installation Manual 001-31430-XX for the initial start-up
- In order to convert a Maxi Sky 2 into a MS2 Transportable, refer to conversion guide 001-31431-EN for ECS configuration or 001-31432-EN for C-Stat configuration

-Cut the tie wrap around the red button.
-Install Hand control (Refer to “REMOVING THE UP/DOWN MOTOR” on page 52).

-Turn the lift ON by pushing on the red button.



-Make sure to have the right SWL. Compare the data displayed on the LCD screen with the SWL sticker on the lift.

ADJUSTING DATE AND TIME

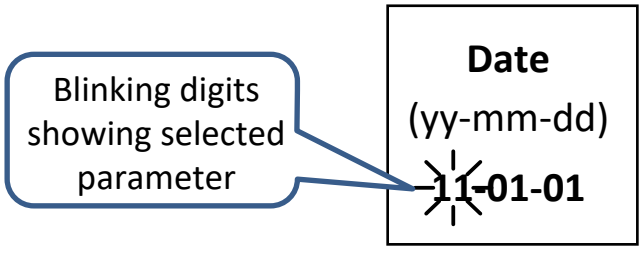
When the lift is started for the first time, follow the next steps.

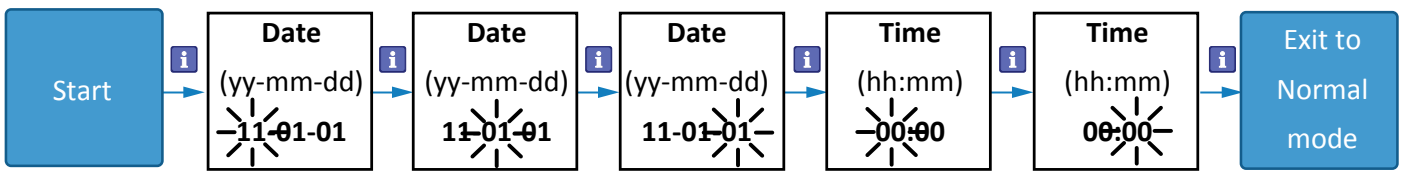
Increase value

Enter value /
Go to next parameter

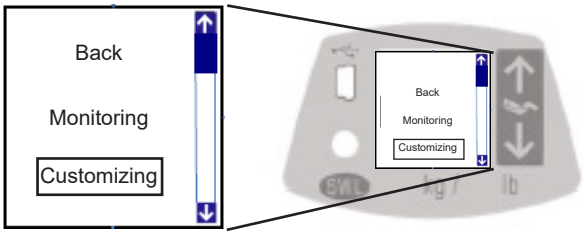
Decrease value

Adjust date and time by using the Up and Down button, press i to confirm value





CUSTOMIZING



-To access the Customizing section, press and hold the i button for 3 seconds.
-Select “customizing” then press i to confirm.

-Press Up/Down button to scroll through the Customizing menu.

-Press i button to enter and accept value.

Parameters available in the customizing menu

Parameter	Description	Settings (default in bold character)
Motor speed	Displacement speed along the rail	10 cm/s (4 in/s) 15 cm/s (6 in/s) **20 cm/s (8 in/s)**
RTC/RTH function	RTC/RTH options	**Disable**, auto, ←, → If RTC/RTH function is set at auto, you need to bring the unit to the charging station, so the lift will recognize its location. For software version 2.0 and 2.1, each time the lift is turned off, it forgets the charging station location. When you turn the lift back on, you need to bring it back to the charging station. For software versions 2.2 and up, even if the lift is turned off, it will remember the charging station’s location.
PPP function	Enabling / Disabling PPP	**Disable**, enable
Strap length	RTC/RTH mode strap unwinding duration	1 to 30 sec. (**1 sec.**) for software version 2.0.X and 2.1.X 13 to 152 cm (5 to 60 in) from software version 2.2.X Has no effect when RTC/RTH is disabled
Detection time	Maximum time allowed finding Charger or PPP station	0,5 to 5 min. (**1.5 min.**) Has no effect when both RTC/RTH and PPP functions are disabled
Ready state	Lift standby duration before entering sleep mode	1 to 20 min. (**10.5 min.**)
Hoist led	Enabling / Disabling green LED	Disable, **enable**
Date/time	Actual date/time	Depends on value Set at initial start-up (**11-01-01 00:00**)
Dual / Single mode (only for MS2 Plus)	Switching Between Modes	**Dual** / Single
Back	Exit Customizing Mode	

For MS2 Plus the customizing is done on the leading ceiling lift and by doing so the parameters will be set in both the leading and driven ceiling lifts. For example, if the *Ready state* setting is changed from 10.5 to 15 minutes, both ceiling lifts will adopt the changes simultaneously.

Also, parameters *Motor Speed*, *RTC/RTH, PPP* functions and *Detection Time* are found in the menu, customizing them will have no impact since these functionalities have been disabled within the *Maxi Sky* 2 Plus.

MODIFICATION OF THE SAFE WORKING LOAD (SWL)

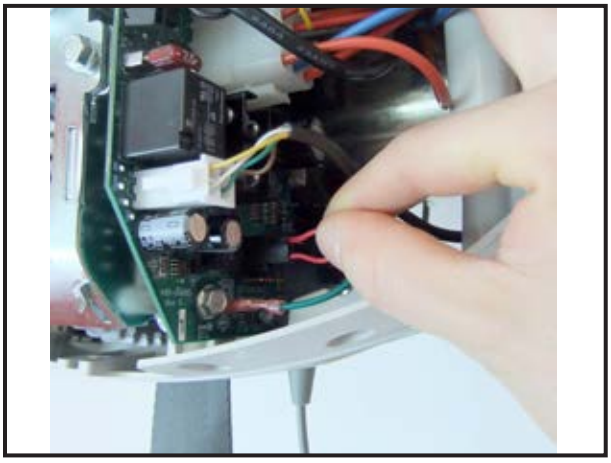
DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD

NOTE

MS2 PLUS ONLY OPERATES WITH CEILING LIFTS SET TO 600 lb (272 kg) OF SWL. ATTEMPTING TO DOWNGRADE THEM FOR MS2 PLUS WILL LEAD TO A MALFUNCTION

-Unclip the bottom cover.



-Install proper jumper to have the appropriate SWL.

NOTE

-NO JUMPER EQUALS TO 265 lb (120 kg)
-ORANGE JUMPER EQUALS TO 440 lb (200 kg)
-RED JUMPER EQUALS TO 600 lb (272 kg) **BY DEFAULT**

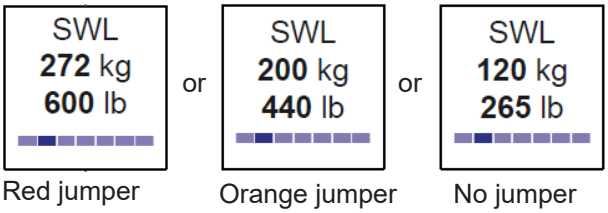
WARNING

BEFORE INCREASING THE SAFE WORKING LOAD, MAKE SURE THAT THE RAIL INSTALLATION IS RATED TO SUPPORT THE SAFE WORKING LOAD OF THIS LIFT.
FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN INJURY TO YOU OR TO OTHERS

-Install proper sticker for the related SWL.

-Mount and clip bottom cover.

-Turn the lift ON by pushing on the red button .



Red jumper | Orange jumper | No jumper

-Verify if the display is showing the right SWL (Safe Working Load).

ADJUSTING CURRENT LIMITER ON MS2

NOTE

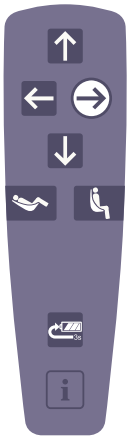
IT IS POSSIBLE TO ADJUST THE VALUE OF THE OVERWEIGHT DETECTION CURRENT LIMITER.
THIS INCREASES THE LIFTING CAPACITY BEFORE THE OVERWEIGHT SIGNAL IS TRIGGERED

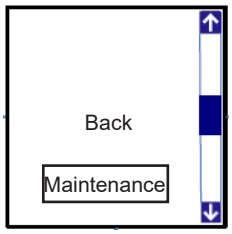
WARNING

THIS VALUE SHOULD ONLY BE MODIFIED IN ACCORDANCE WITH THE WEIGHT LOAD TEST OF THE LIFT.

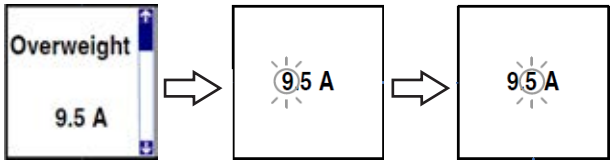
-Shut OFF the Power by pulling on the red emergency stop cord.

-Turn the lift ON by pushing on the red button.
-When the loading display appears on the screen, press ↑ + ↑ + i on the hand control.





-Select Maintenance and press the i button



-Select Overweight and press the i button.
-Adjust the value with the Up/Down button and confirm with the i button.

NOTE

EACH LIFT IS PRESET IN MANUFACTURING SITE AND THESE VALUE MAY DIFFER FROM THE TYPICAL VALUE

Typical value for the Up/Down motor current limiter:

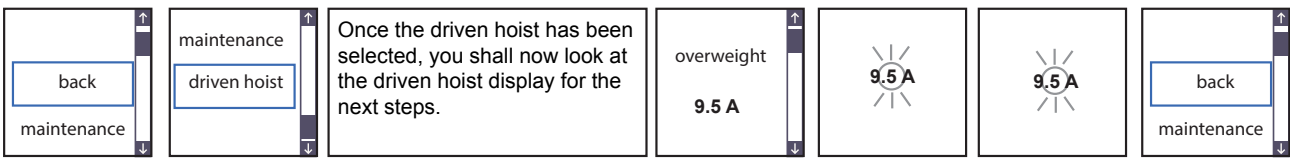
SWL	Typical Current
272 kg (600 lb)	13.4 A
200 kg (440 lb)	10.0 A
120 kg (265 lb)	6.5 A

ADJUSTING CURRENT LIMITER ON MS2 PLUS

Adjusting the current limiter of the ceiling lift on MS2 Plus is done in a similar manner as for MS2. First access the maintenance menu as explained in previous page.

For Leading Ceiling Lift

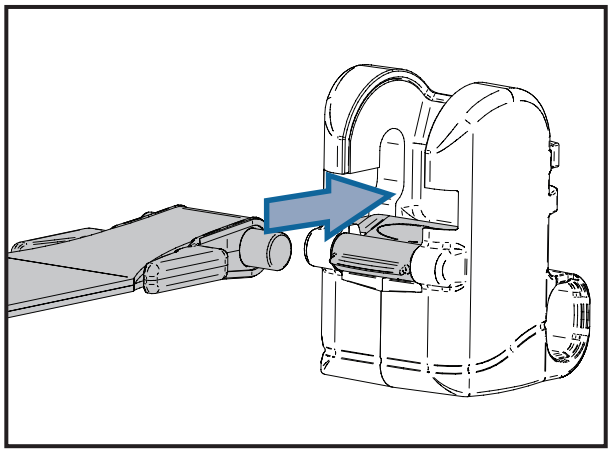
For Driven Ceiling Lift



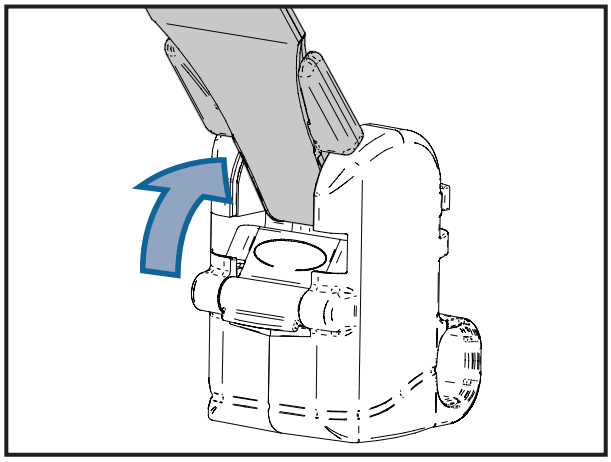
INSTALLATION AND REPLACEMENT PROCEDURE 6

Note: any parts replacement or repair on the MS2 Plus ceiling lift shall be followed up by a full product testing according to 001-31229-EN – “Testing the *Maxi Sky 2* Plus System” section.

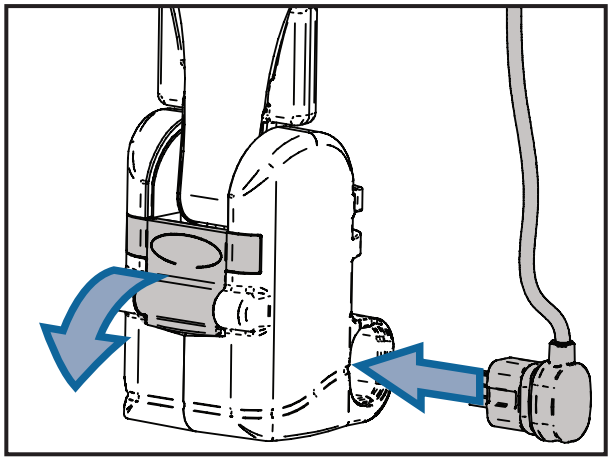
ACCESSORIES INSTALLATION



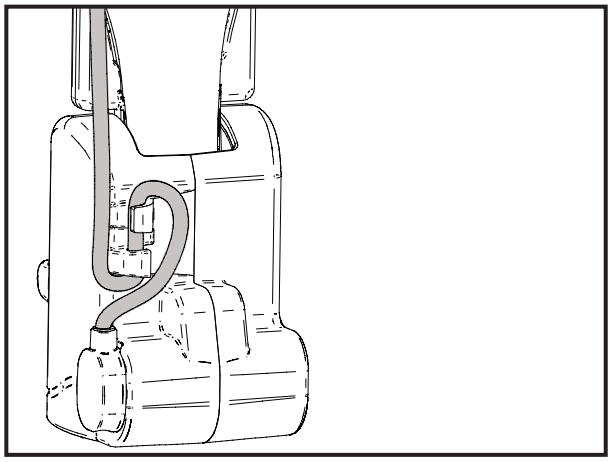
-Insert the strap with the pivot into the quick connect by pushing it inward.



-Rotate the strap upward.



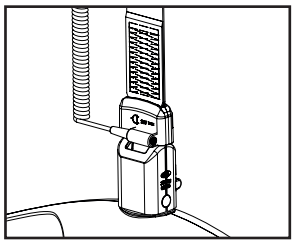
-Ensure that the latch is closed.
If using a PDPS, connect the cable.



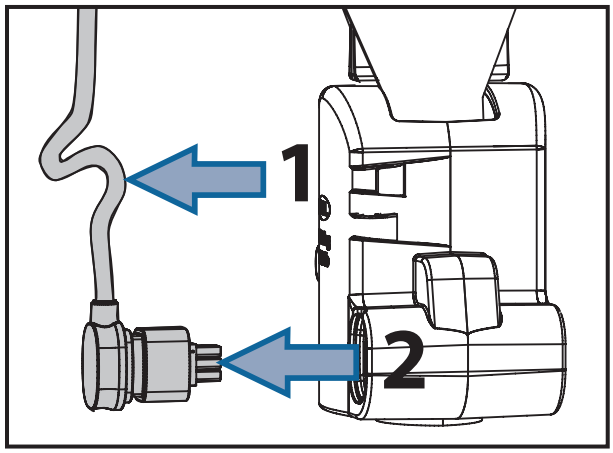
-If using a PDPS, secure the cables on the back of the quick connect as shown.

NOTE

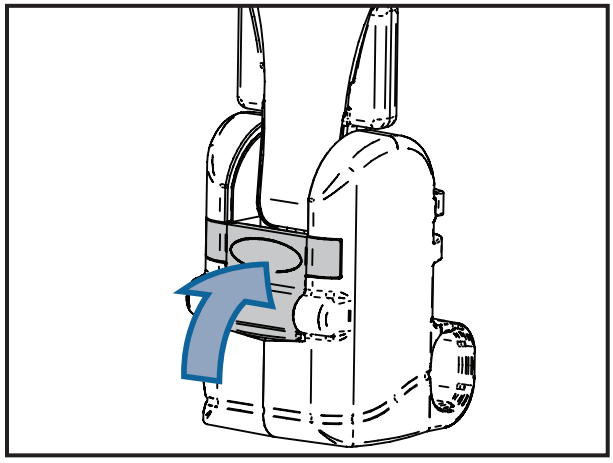
OBSERVE QUICK-CONNECT ORIENTATION TO FACILITATE ATTACHMENT/DETACHMENT ON WCS EQUIPPED CEILING LIFT.



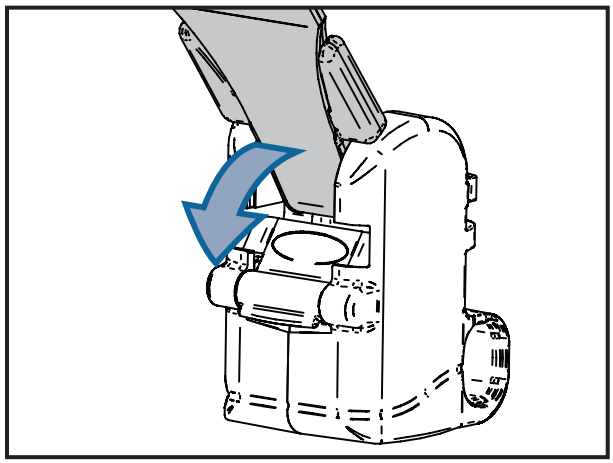
ACCESSORIES REMOVAL



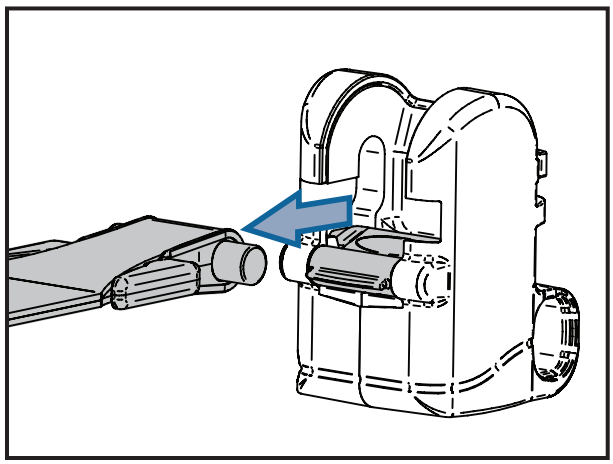
-If using a PDPS, detach the cable from the back of the housing and then disconnect the connector.



-Open the latch that locks the strap in place by pushing it inward.

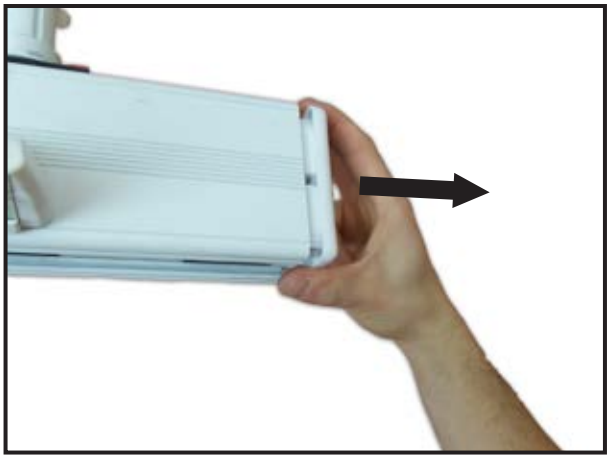


-Rotate the strap towards the latch.



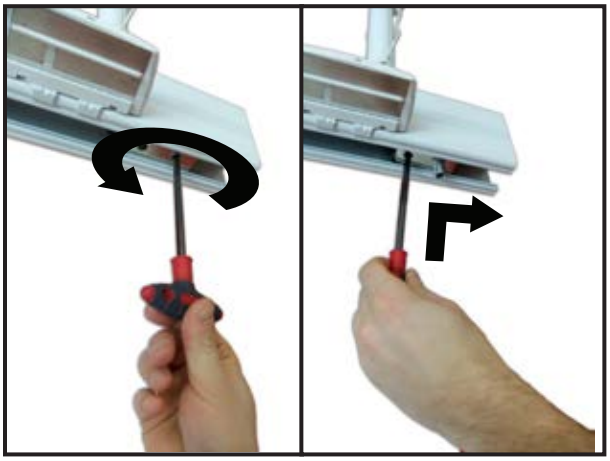
-Pull the strap out of the attachment.

REMOVING THE LIFT FROM THE RAIL



-Remove plastic cap at the end of the rail.

-ECS equipped rail: Unscrew the plastic cap using a 6mm Allen key before pulling it out.

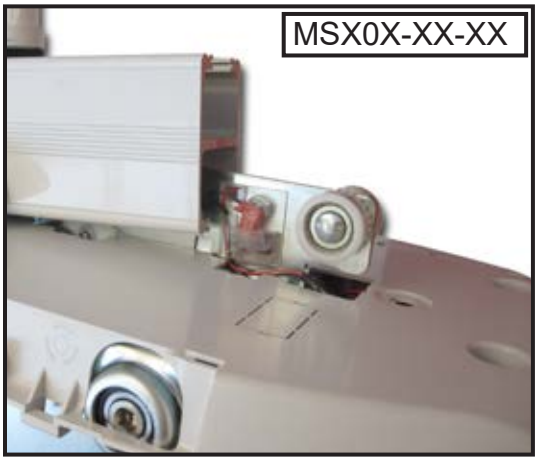


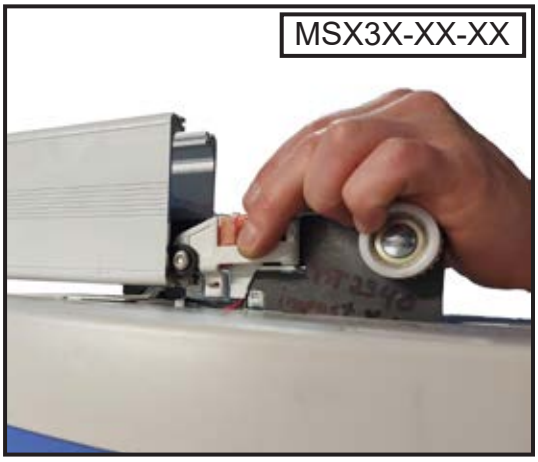
-Unscrew end stopper on the rail using a 6mm allen key.
-Press inside the hole to remove the end stopper.

-Remove lift from the rail.

INSTALLING THE LIFT ON THE RAIL

-Insert the lift into the rail.





-Install lift on the rail and make sure to align the ECS contact kit in the ECS strips, using extra precaution with the ECS brushes (if applicable).

-Place the end stopper into the rail
-Screw the stopper on the rail using a 6mm allen key and torque to 20Nm (15 lb ft)

-Place a plastic cap at the end of the rail.

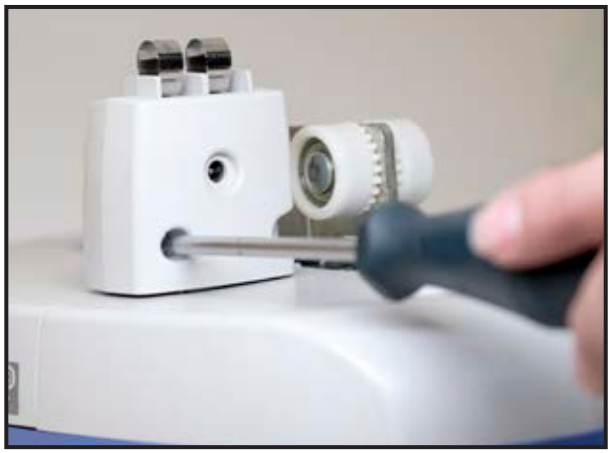
WARNING

MAKE SURE THE END STOPPERS ARE CORRECTLY INSTALLED AND TIGHTENED AT ALL RAIL ENDS.

NOTE

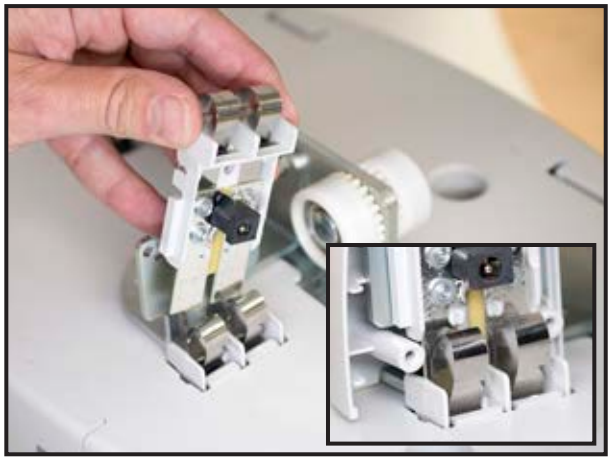
FOR ECS-EQUIPPED RAILS, REFER TO ECS INSTALLATION GUIDE (001-07650.EN) FOR SPECIFIC PROCEDURES.

REPLACEMENT OF CONTACT BLADE WITHIN MS2 TRANSPORTABLE

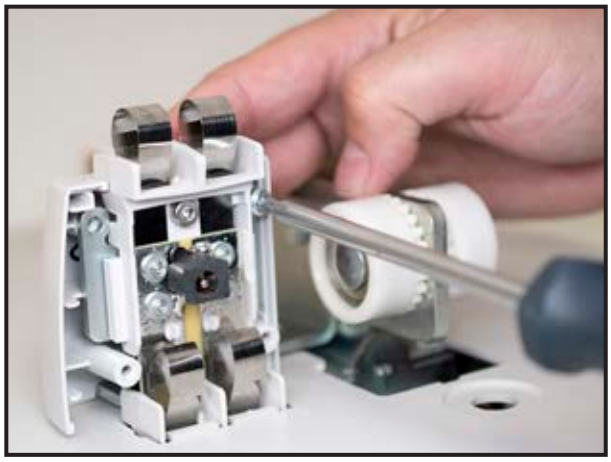


-Remove the Maxi 2 Transportable from the Receiving Module and put it on the cart or on a working table in order to have good access to the c-stat interface
-Turn power off by pulling on the emergency stop
-Using a T20 screw driver, unscrew 2 screws to remove the c-stat interface front cover.
-Unscrew 2 screws to remove C-Stat interface rear cover

-Using a 3mm allen key and a 8 mm socket, remove the contact blade kit...



...and install a new one. Make sure that the new contact blade kit is positioned correctly to ensure electrical contact between added contact blade kit and original MS2 contact blade (refer to picture)



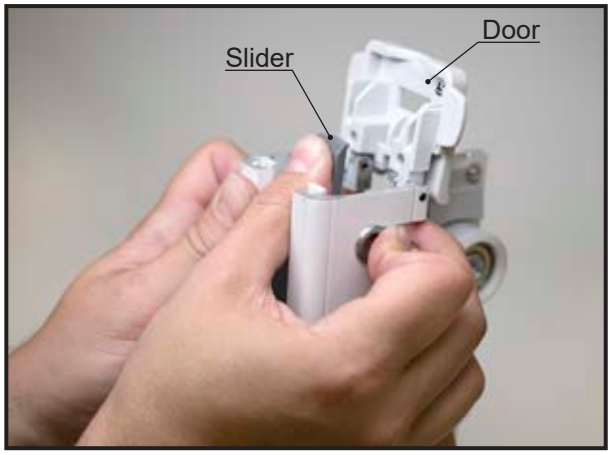
-Install rear cover with 2 screws

CAUTION

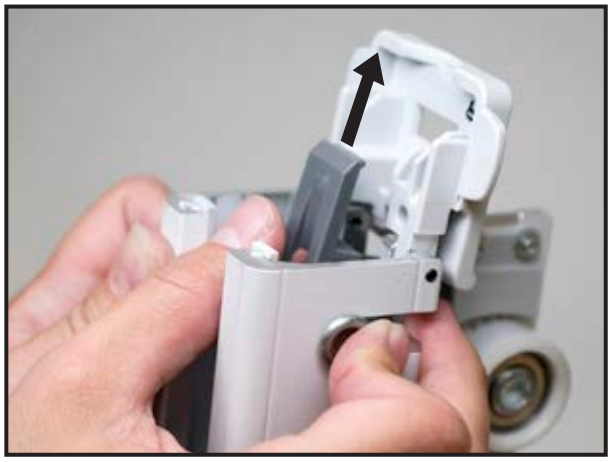
DO NOT OVER-TORQUE THE SCREWS,
THE PLASTIC HOLES COULD STRIP

-Install front cover with 2 screws
-The lift is ready

REPLACEMENT OF THE SLIDER IN MS2 TRANSPORTABLE RECEIVING MODULE



-Hold receiving module upside down and open the door (refer to picture)
-While holding the rivet in closed position with finger, use your thumb to push hard against the slider tip toward the door to dis-assemble it from the rivet (refer to picture).

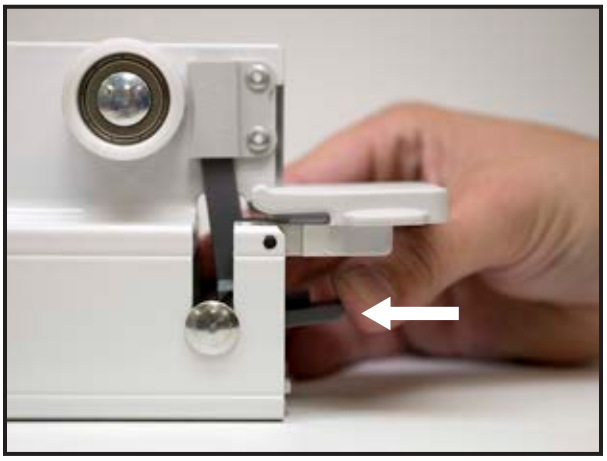


-Once detached from rivet, remove the slider from receiving module.

NOTE

SLIDER CAN ALSO BE REMOVED USING A LONG NOSE PLIER TOOL (NO PICTURE).
TO DO SO, HOLD THE RECEIVING MODULE WITH ONE HAND, AND SQUEEZE THE TIP OF THE SLIDER WITH LONG NOSE PLIER AND PULL OUT SLIDER.

-Align new forks properly within guides during assembly (refer to picture).

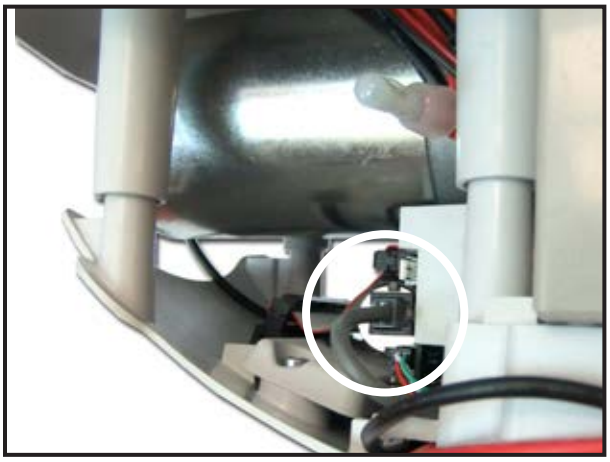


-Using hand/finger only, slowly push firmly slider in place on the rivet (no tool is required to install a new slider).

WIRED HAND CONTROL REMOVAL

DANGER

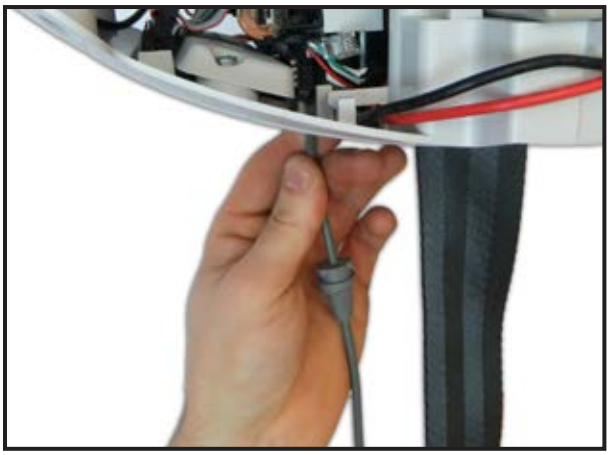
SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.



-Disconnect the telephone jack of the hand control on the main PCB.

-Turn the grommet a ¼ turn counterclockwise to disengage the cable grommet.

-Pull the cable out of the bottom cover.



-Make sure that the telephone jack at the end of the cable passes freely through the plastic part.

NOTE

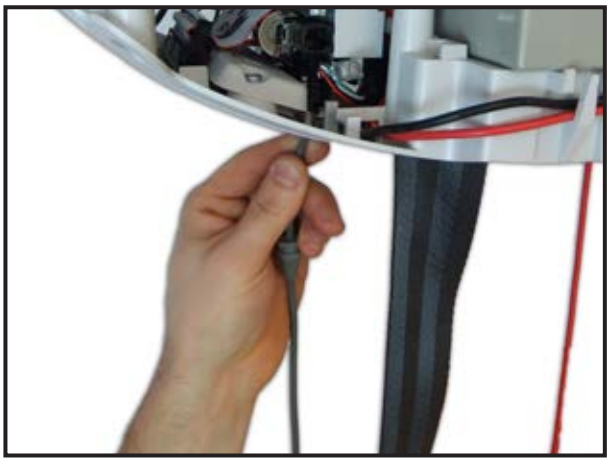
DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

WIRED HAND CONTROL INSTALLATION

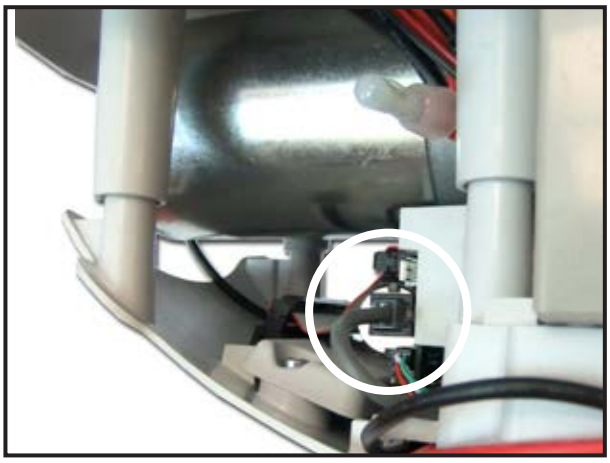
DANGER

SHUT OFF THE POWER BEFORE SERVICING
BY PULLING ON THE RED EMERGENCY STOP CORD.

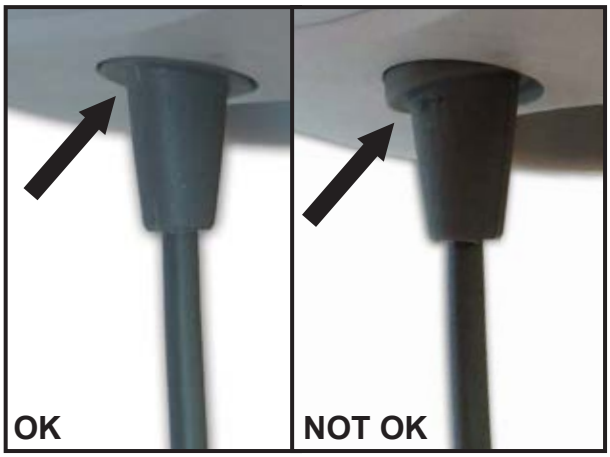
-Unclip the bottom cover.



-Take the hand control.
-Insert the telephone jack first.



-Connect telephone jack into the main PCB



NOTE

MAKE SURE TO INSERT CABLE GROMMET ON THE RIGHT SIDE (ONLY ONE POSITION IS POSSIBLE IN THIS ASSEMBLY).

-Turn the grommet a 1/4 turn clockwise to secure the hand control.

-Mount and clip the bottom cover.

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 item 6 for procedure).

INFRA-RED (IR) HAND CONTROL INSTALLATION

NOTE

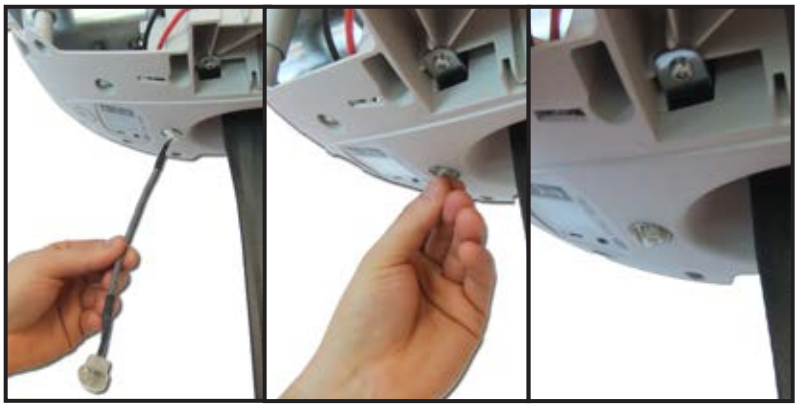
EACH IR HAND CONTROL MUST BE SET AT THE SAME CHANNEL AS THE LIFT. IF YOU HAVE MORE THAN ONE LIFT WITH IR CONTROL, ENSURE THAT THEY ARE SET TO DIFFERENT CHANNELS. HAND CONTROLS ARE SET TO CHANNEL 1 BY DEFAULT.

Note: INFRA-RED hand control is not compatible with MS2 Plus. Any attempt to use it will lead to a non functional device.

DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.

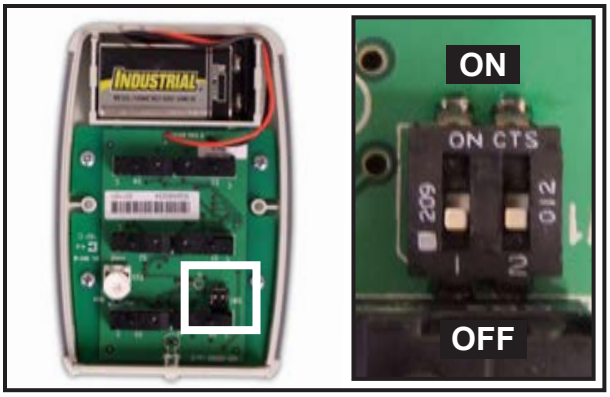
-Unclip the bottom cover.
-If necessary, remove the previous hand control.



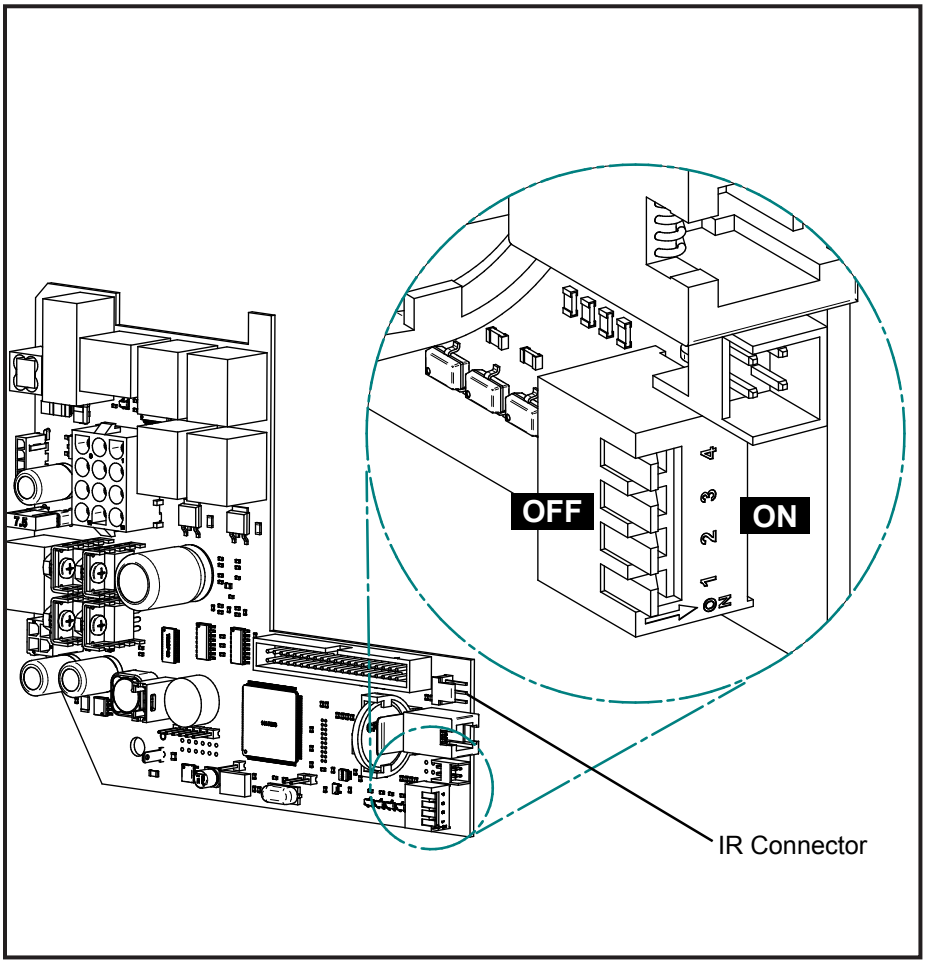
-Take an IR hand control cable assembly.
-Insert connector first through the strap inlet beside LCD screen.
-Press and clip the sensor to the strap inlet.

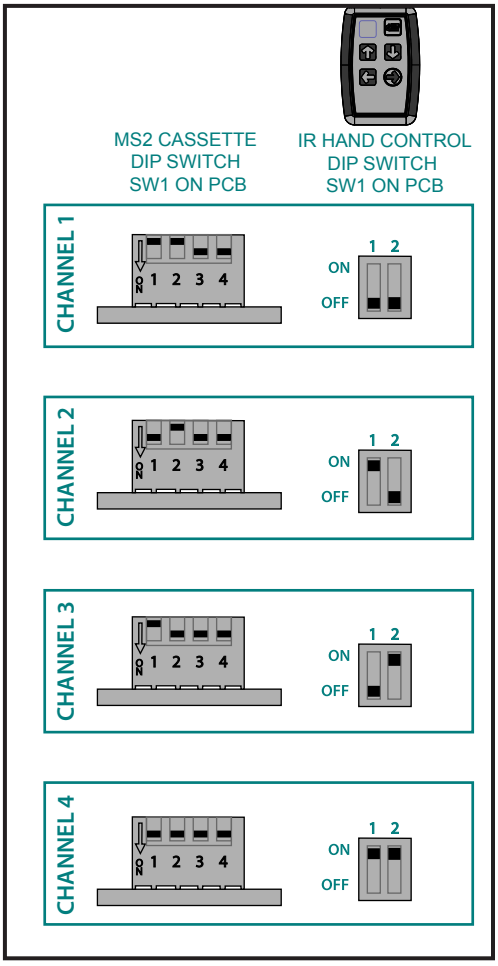
-Connect the white connector (3-pin connector) to the main board, (refer to “WIRED HAND CONTROL REMOVAL”, page 6-9, figure of the PCB for the connector location).
-Set the IR address of the lift to the desired channel, according to the table on the next page.

-To set hand control channel, remove bottom cover of the IR Hand control.



-Set the IR hand control address to the same channel selected for the lift, according to the table below.
-Close the rear cover of the IR hand control





-Mount and clip the bottom cover

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4, item 6 for procedure).

OPTIONAL STEPS IF YOU WANT TO ADJUST THE MAXIMUM RANGE OF THE IR HAND CONTROL

Adjusting the Maximum range

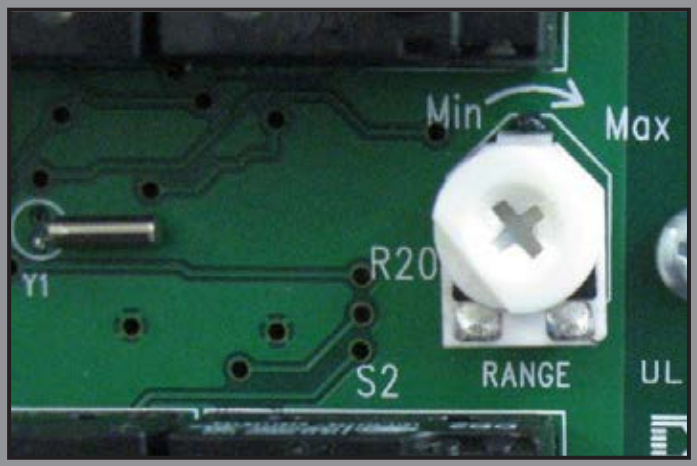
The range allows an adjustable detection distance from minimum to maximum.

NOTE

THE BATTERY LIFE IS REDUCED SIGNIFICANTLY WHEN RANGE IS ADJUSTED TO “MAX”. MAXIMUM RANGE WILL BE REDUCED AS THE LEVEL OF THE BATTERY’S CHARGE (VOLTAGE) DECREASES.

NOTE

THE MAXIMUM RANGE OF THE HANDSET IS AFFECTED BY THE ANGLE OF USE. RANGE MAY DECREASE WHEN USED AT ANGLE OF OVER 45°.



-Remove the bottom cover of the IR hand control.
-Turn the potentiometer (R20) clockwise to increase the maximum range or counter clockwise to decrease the maximum range.
-Close the rear cover of the IR hand control.

CAUTION

MAKE SURE NOT TO PINCH OR DAMAGE THE BATTERY’S WIRES WHEN REASSEMBLING THE HAND CONTROL.

STRAP CHANGE

TO REMOVE ACCESSORIES, REFER TO “ACCESSORIES REMOVAL”, page 6-3

-The strap exchanger is a tool (part number 362-15709) needed to perform the strap change.

NOTE

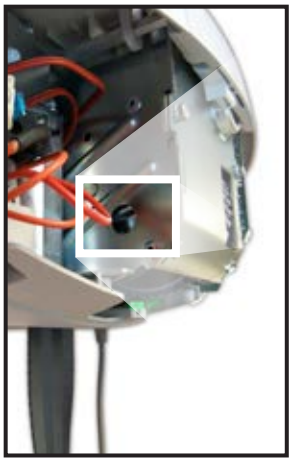
THIS PROCEDURE IS APPLICABLE FOR WOVEN & COATED STRAPS.

- If MS2 WCS, unclip the WCS adaptor before removing the strap.

-Unclip the bottom cover
-Completely unwind the strap using the down button on the hand control.
-The lift must stop when low limit is reached.

NOTE

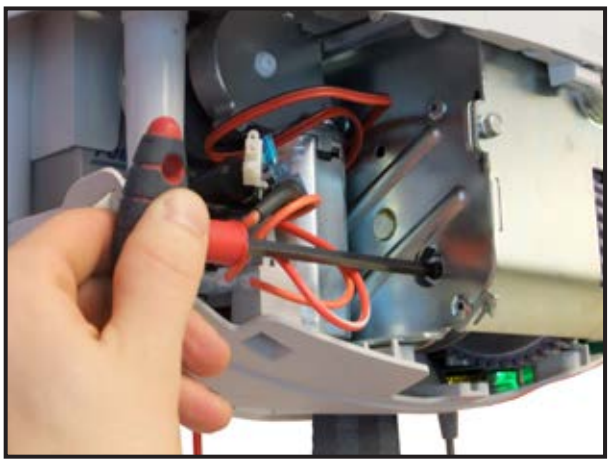
TO LOWER THE STRAP, THE MECHANISM NEEDS TENSION. KEEP TENSION ON THE STRAP TO ALLOW IT TO UNWIND.



-With the up button, adjust the position of the drum to see the M8 screw.

DANGER

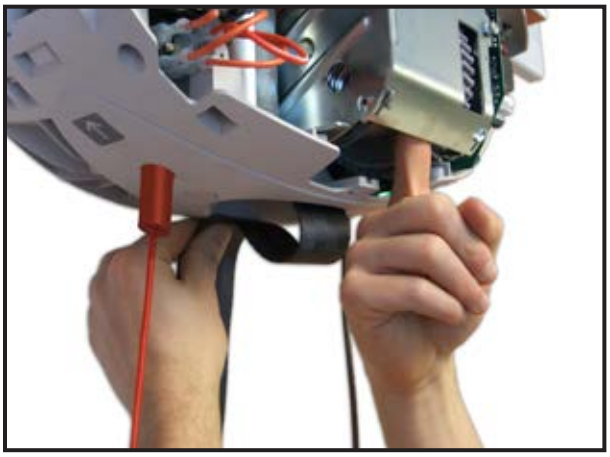
SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD



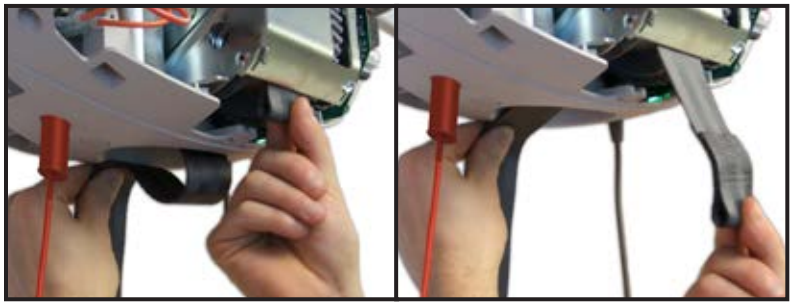
-Unscrew the M8 screw with a 6mm Allen key, but do not remove it completely.

NOTE

MAKE SURE TO KEEP THE STRAP WITHIN THE ASSEMBLY. NOT DOING THIS WILL INCREASE THE COMPLEXITY OF THE PROCEDURE BECAUSE THE LIMIT KIT NEEDS TO BE RE-MOVED TO IN ORDER TO REPLACE THE STRAP CORRECTLY.



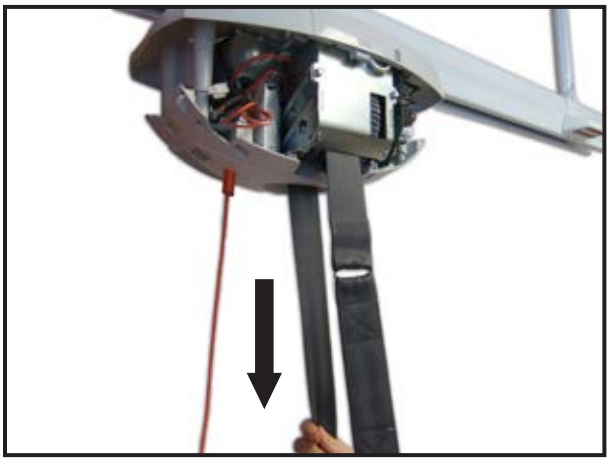
-Remove weight of the strap by holding the strap.
-Remove the M8 screw.
-With one finger or with a tool, pull down on the strap.
-Pull out the strap about 30 cm (12 in).



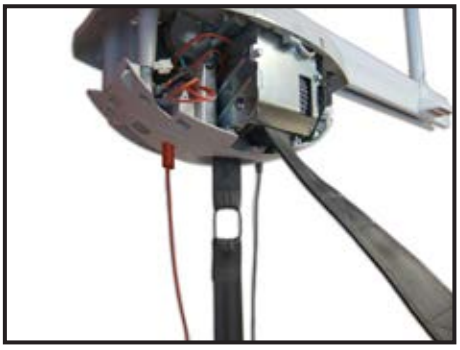
-Attach the strap exchanger to the old strap with a cable tie.

NOTE

THE CABLE TIE'S CLIP MUST BE INSIDE THE STRAP LOOP. THIS HELPS TO PASS THE STRAP INSIDE THE LIMIT KIT ASSEMBLY.



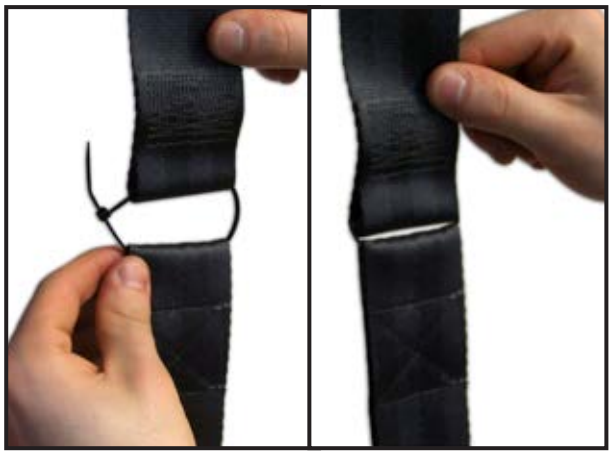
-Pull on the old strap until the strap exchanger passes through the lift.



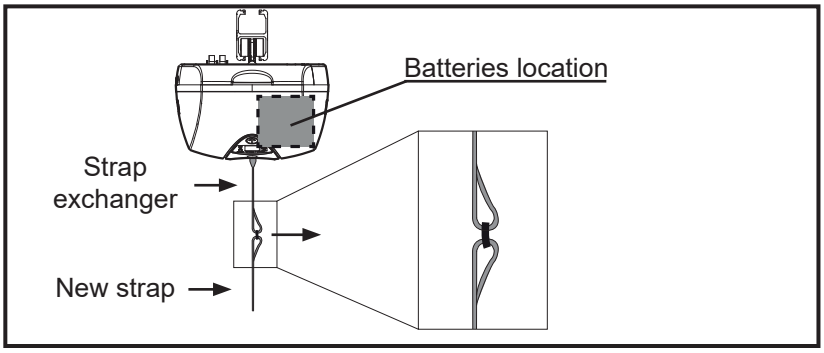
-Using cutters, remove the cable tie and the old strap.
-Dispose of the old strap adequately.

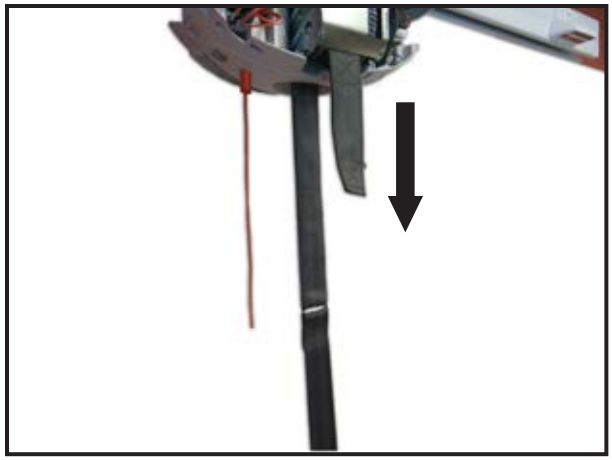
NOTE

IF YOU ARE ABOUT TO REPLACE A WOVEN STRAP WITH A COATED STRAP, THE LIMIT KIT & SOFTWARE (USER INTERFACE BOARD) MUST BE UPDATED.

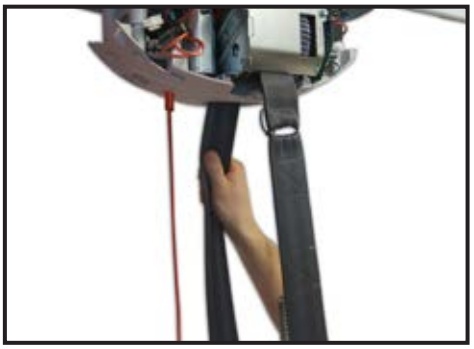


-Attach the new strap to the strap exchanger with a cable tie.





-Pull on the strap exchanger until the new strap has passed through the lift.



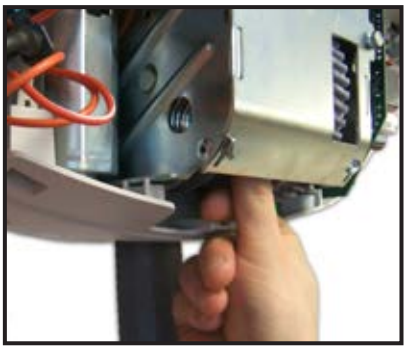
NOTE

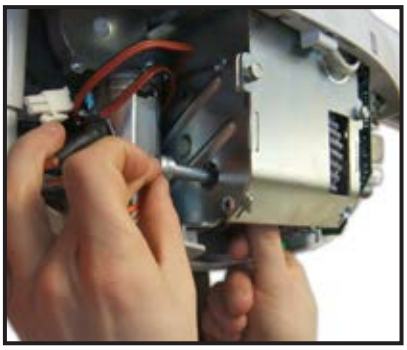
IT MAY BE DIFFICULT TO PASS THE NEW STRAP. BACK AND FORTH MOTION MAY HELP.

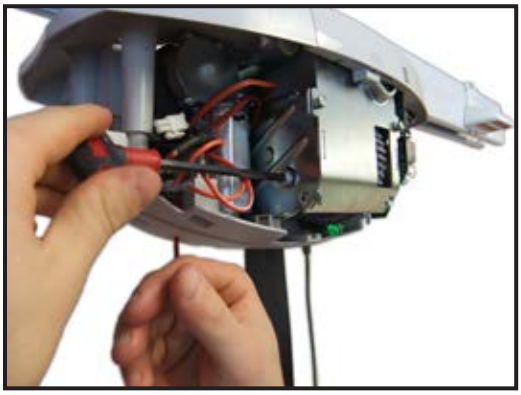
-Using cutters, remove the cable tie and the strap exchanger.

-Push at the end of the new strap to increase flexibility. This step helps to insert strap bolt into the strap opening.

-Maintain strap on the other side to avoid losing the strap.
-Align the strap opening with the frame hole.
-Insert M8 screw through the strap into the frame and the drum.







-Tighten the M8 screw.

-Mount and clip the bottom cover.
-If MS2 WCS, re-clip the WCS adaptor over the Strap Interface.

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 5 for procedure).

REFER TO “ACCESSORIES INSTALLATION”, PAGE 6-2

WARNING

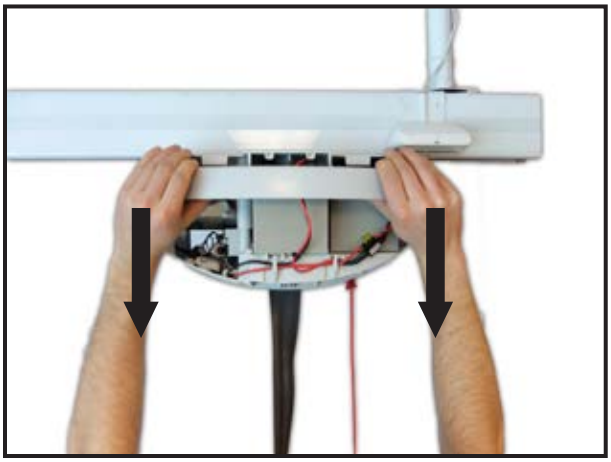
FOR THE MS2 PLUS CEILING LIFTS, ENSURE THE DEVICE IS IN DUAL MODE AND BRING BOTH STRAPS TO THE HIGH LIMIT. THIS WILL RESET THE STRAP LENGTH MONITORS TO ZERO. THE STRAP LENGTH MONITOR MAKES THE ACCURATE TRAVEL LIMITATIONS OF (+/- 350 MM) POSSIBLE FOR THE FOOT-END SPREADER BAR ABOVE AND BELOW THE HEAD-END SPREADER BAR.

REMOVING THE BATTERIES

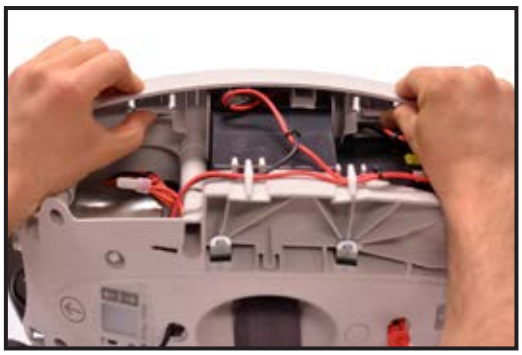
DANGER

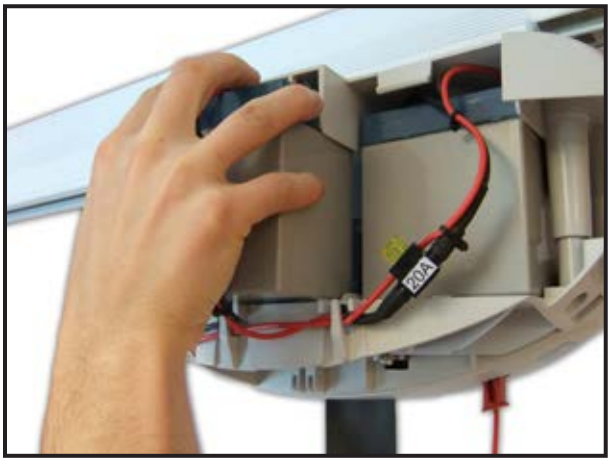
SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD

-Unclip the bottom cover.



-Remove Battery door to access batteries.
-Slide downward by pulling on plastic tab inside the battery door.





-Remove the two batteries.

-Disconnect the cables from the battery.
-Dispose of the batteries.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

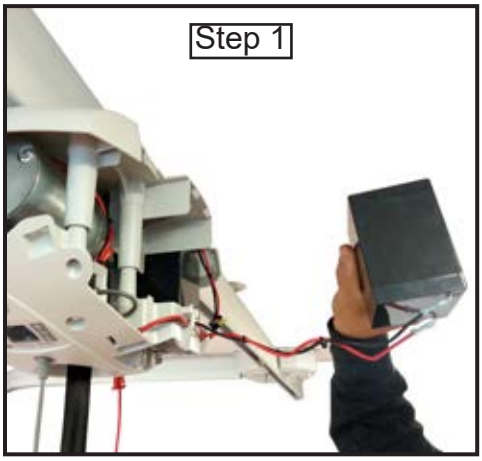
INSTALLING THE BATTERIES

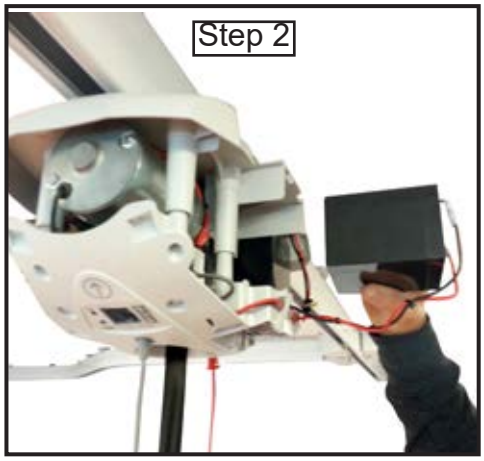
-Connect wire harness to the battery poles.
-Repeat this operation for the second battery.

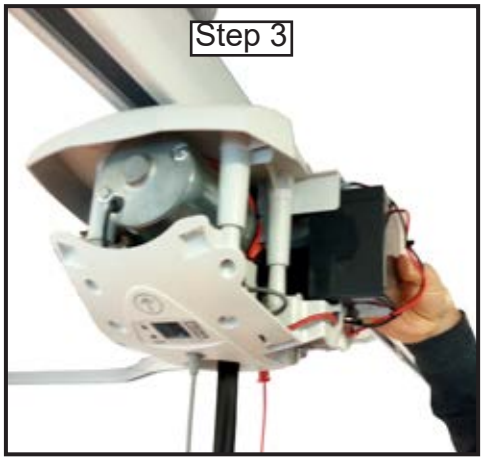
NOTE

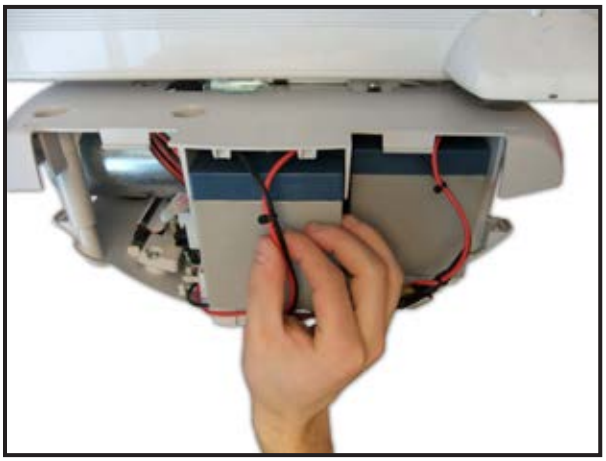
-POSITIVE POLE (+) IS RED
-NEGATIVE POLE (-) IS BLACK

-Insert batteries into the lift. The following three steps may help to insert the batteries without twisting the wires.





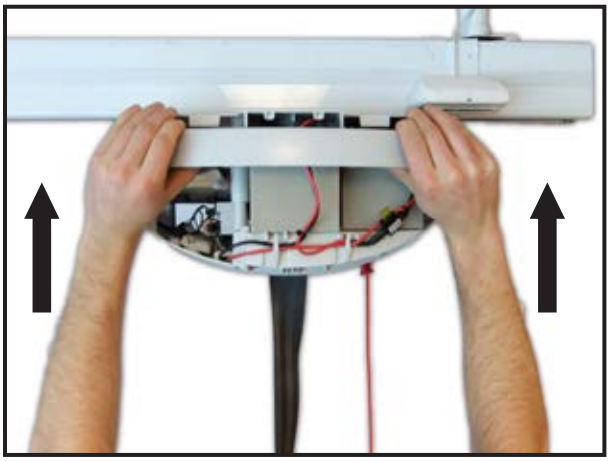




-Make sure to place wire harness in the middle of the battery door.

NOTE

IT CAN TAKE UP TO 8 HOURS TO RECHARGE NEW BATTERIES.



-Mount and clip battery door.
-Mount and clip bottom cover.

-Turn on the lift and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 1 for procedure)

REMOVING THE POWERED DPS

DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.

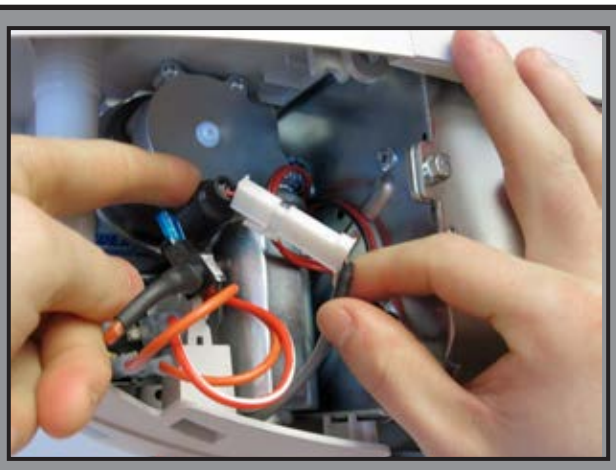
REFER TO “ACCESSORIES REMOVAL”, PAGE 6-3

-Unclip the Bottom cover.

NOTE

REMOVING THE BATTERIES MAY HELP TO ACCESS THE PDPS CONNECTOR. IF NEEDED, REFER TO “REMOVING THE BATTERIES”, PAGE 6-20.

OPTIONAL STEPS IF YOU REPLACE AN EXISTING PDPS



-Disconnect the Powered DPS cable from the 2 pin connector.

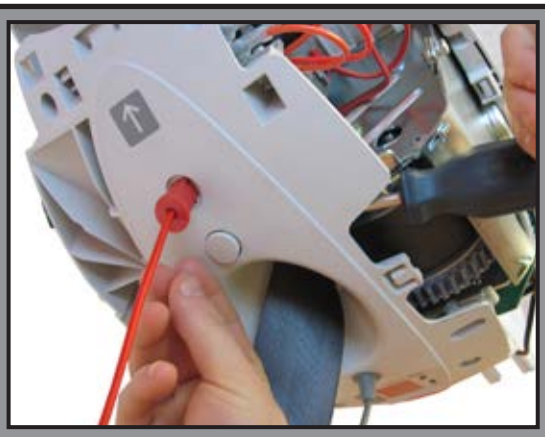
-Turn the grommet a 1/4 turn counterclockwise to disengage the cable grommet.

-Remove the PDPS cable.

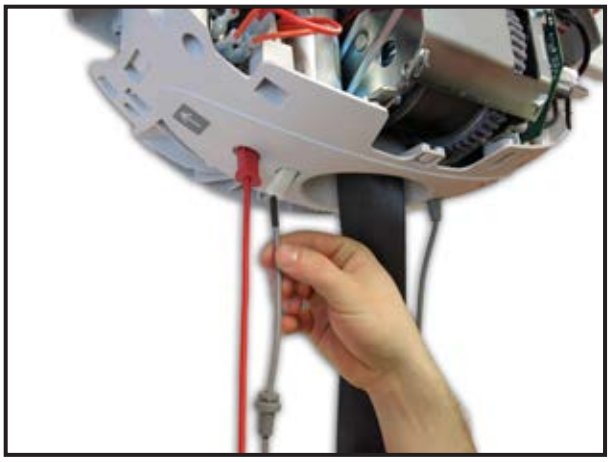
INSTALLING THE POWERED DPS

For MS2 Plus, Power DPS cable shall be installed on the leading ceiling lift.

OPTIONAL STEP IF YOU INSTALL A NEW POWERED DPS

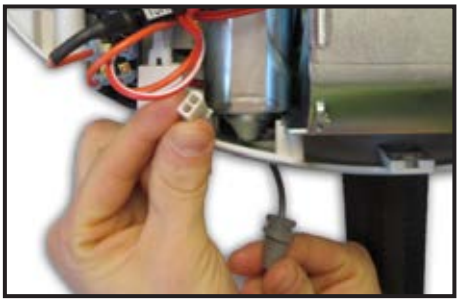


-Remove the plastic cap using a screwdriver by pushing it from the inside of the lift.

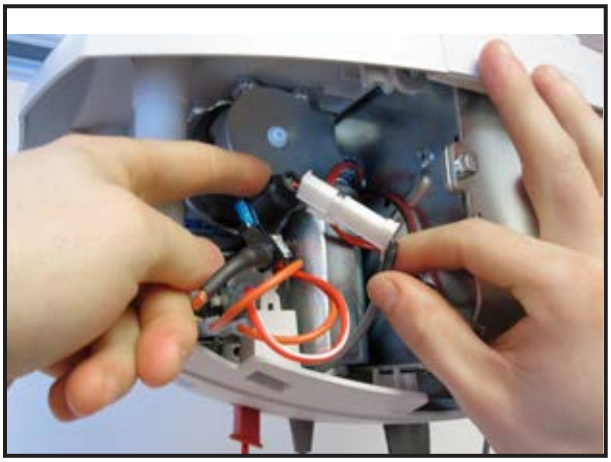


NOTE

DON'T FORGET TO PASS THE POWERED DPS CABLE THROUGH THE BOTTOM COVER FIRST.



-Remove the plastic bag on the coil cable.
-Insert the Powered DPS cable into the hole in the strap inlet.



-Connect the Powered DPS cable to the 2 pin connector located on the opposite side of the main board.

NOTE

MAKE SURE TO INSERT CABLE GROMMET ON THE RIGHT SIDE (ONLY ONE POSITION IS POSSIBLE IN THIS ASSEMBLY).

-Turn the grommet 1/4 turn clockwise into the strap inlet.
-Make sure that the grommet is flush when it is completely inserted.

-Mount and clip the bottom cover.

REFER TO “ACCESSORIES INSTALLATION”, PAGE 6-2

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 4 for procedure).

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

REMOVING THE WCS CABLE

DANGER

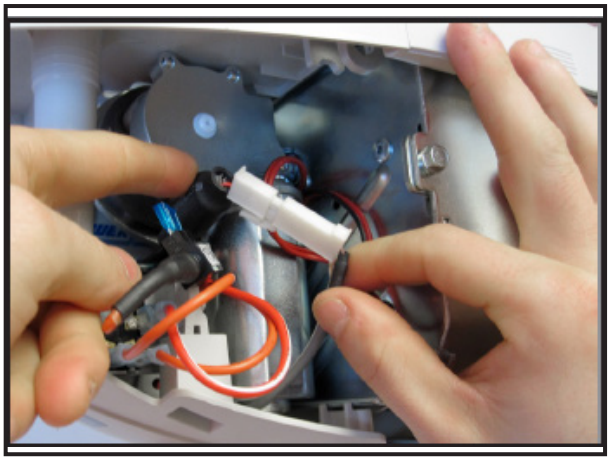
SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.

-Refer to “ACCESSORIES REMOVAL”, page 6-3

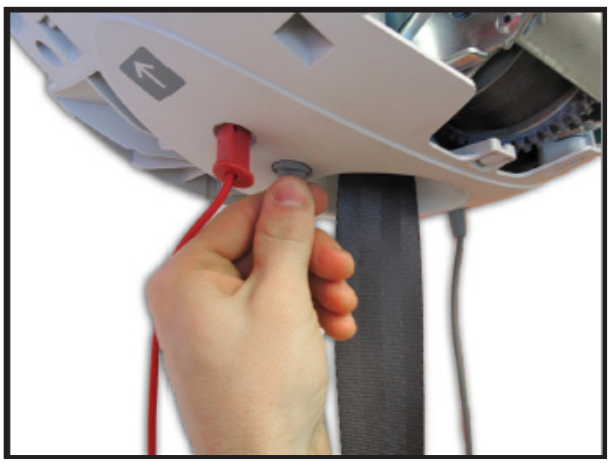
-Unclip the Bottom cover.

NOTE

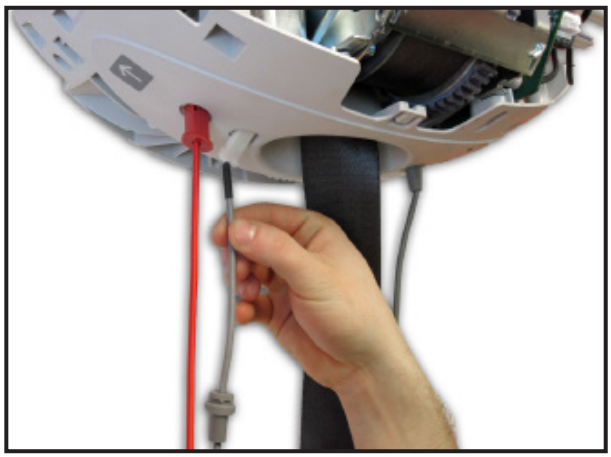
REMOVING THE BATTERIES MAY HELP TO ACCESS THE WCS CABLE CONNECTOR. IF NEEDED, REFER TO ‘‘REMOVING THE BATTERIES’’, PAGE 6-20.



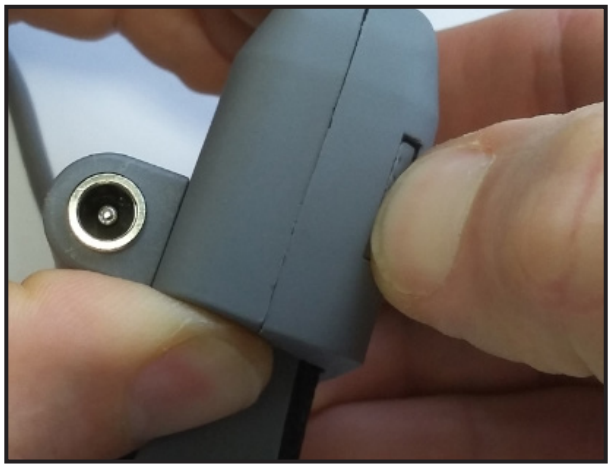
-Disconnect the WCS CABLE from the 2 pin connector.



-Turn the grommet a 1/4 turn counterclockwise to disengage the cable grommet.



-Remove the WCS CABLE

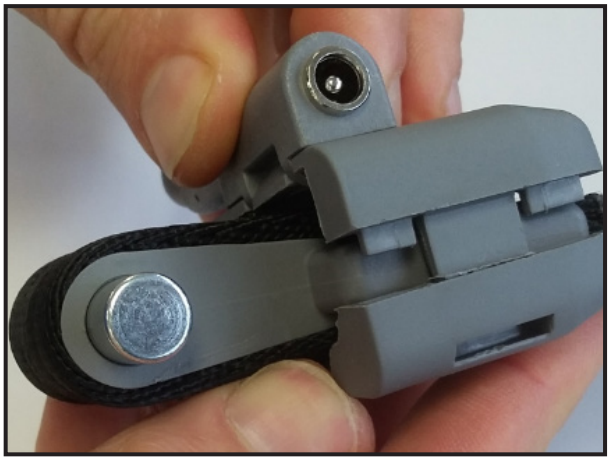


-Push in the tab of the WCS COVER and pull off the front cover to disengage the 2 halves.

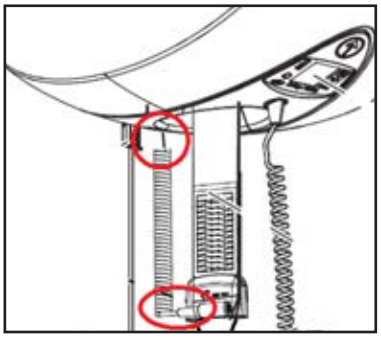
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE WCS CABLE

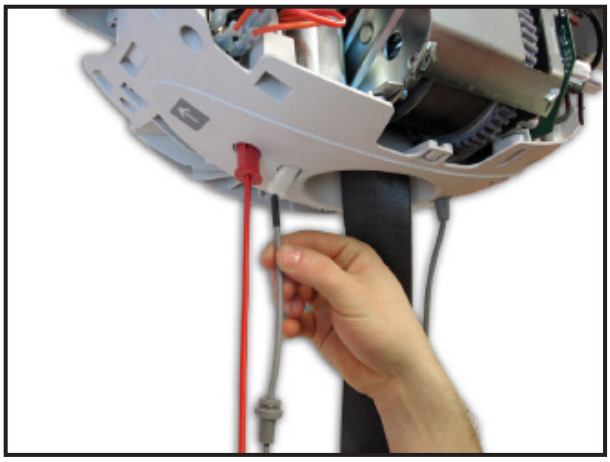


- Clip together WCS Cover halves over the strap interface.
- Engage 1 clip completely then clip the other side.

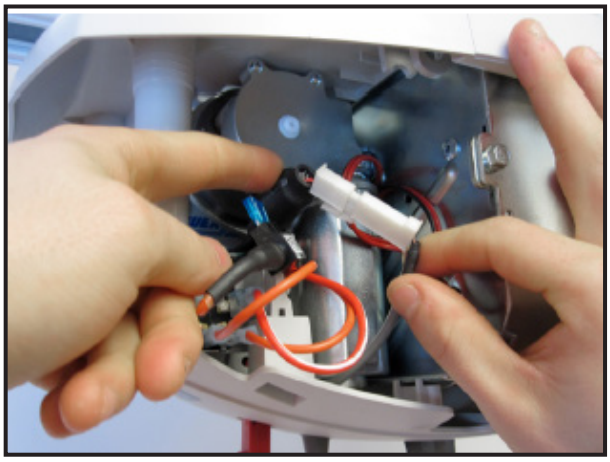


NOTE

MAKE SURE THAT THE ORIENTATION OF COILED CABLE IS ON THE SAME SIDE THAN THE HOLE IN THE STRAP INLET.



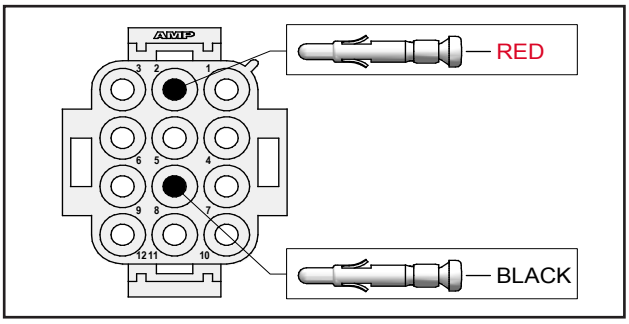
-Insert the WCS CABLE into the hole in the strap inlet.

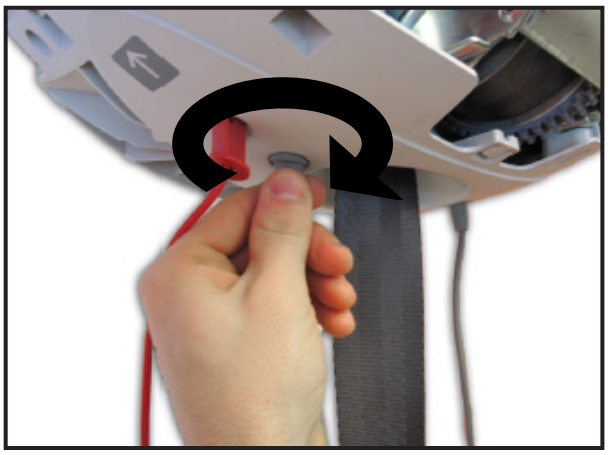


-Connect WCS CABLE to the 2 pin connector located on the opposite side of the main board.

NOTE

MAKE SURE THAT THE SMALLEST RED & BLACK WIRES ARE CORRECTLY POSITIONED IN THE MAIN CONNECTOR.

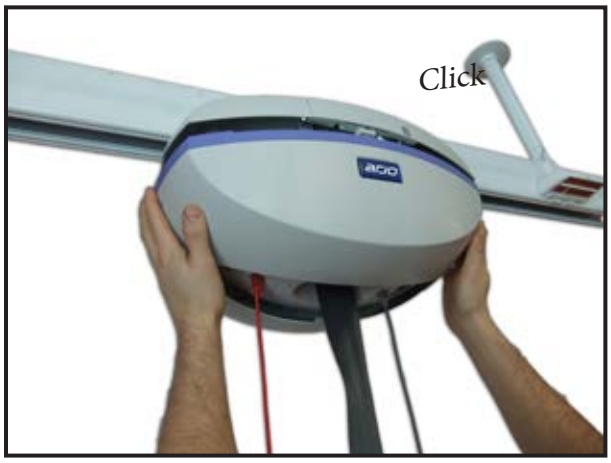




-Turn the grommet 1/4 turn clockwise into the strap inlet.
- Make sure that the grommet is flush when it is completely inserted.

NOTE

MAKE SURE TO INSERT CABLE GROMMET ON THE RIGHT SIDE
(ONLY ONE POSITION IS POSSIBLE IN THIS ASSEMBLY).



-Mount and clip the bottom cover.

Refer to “ACCESSORIES INSTALLATION”, PAGE 6-2

-Turn the lift ON by pushing on the red button and plug the chargers’ cable into the WCS connector.
-Verify that the batteries are charging properly.

Refer to “CHARGING THE BATTERIES”, page 4-8

- Press the UP button to wind the strap until the high limit is reached to make sure the the WCS adaptor is properly clipped over the strap.

REMOVING THE ECS (MSX0X-XX-XX MODELS)

DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.

-Refer to “ACCESSORIES REMOVAL”, page 6-3, to remove accessories.
-Refer to “REMOVING THE LIFT FROM THE RAIL”, page 6-4

-Remove bottom cover and put the lift on a table.

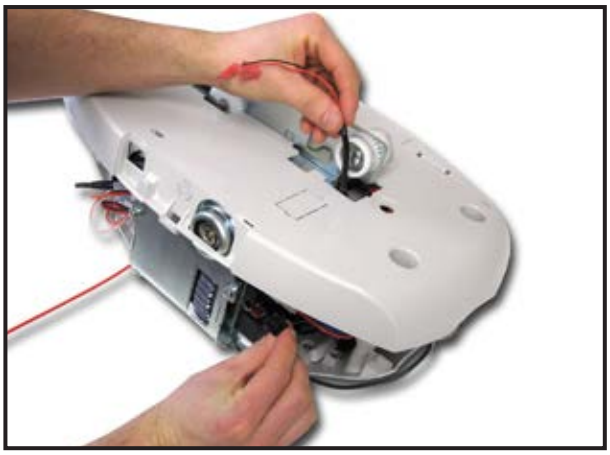
-Disconnect the ECS connector from the main board.

-Disconnect black and red cable from the ECS contact box.
-Remove the ECS contact box from the lift trolley.
-Undo the M5 screw using a 8mm socket.
-Remove the plastic support.
-Remove the ECS cable.

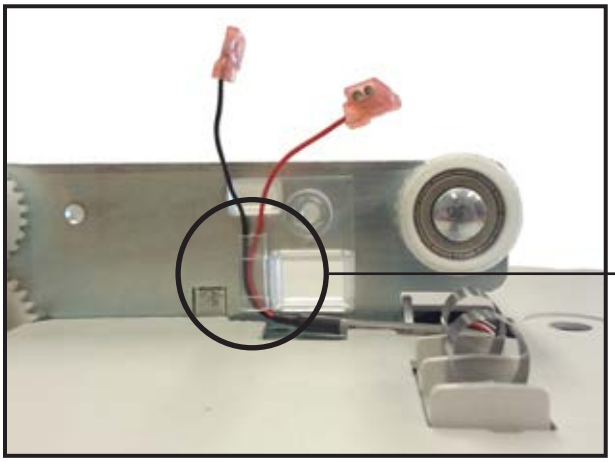
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE ECS (MSX0X-XX-XX MODELS)



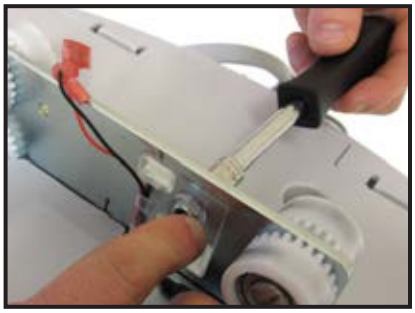
-Insert the ECS cable through the top cabin.

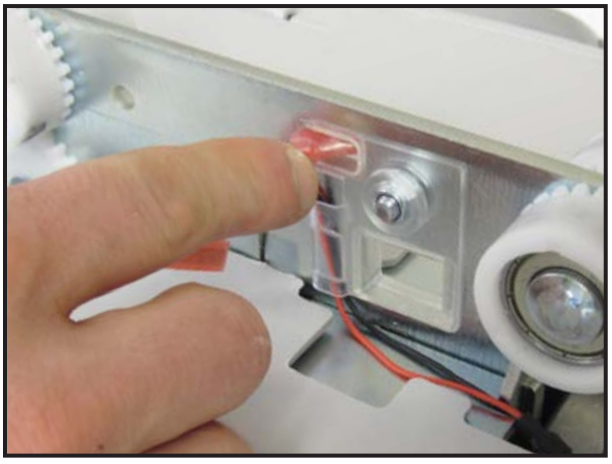


-Pass the ECS cable through the appropriate passage in plastic support and then mount the assembly to the trolley.
-Mount and tighten the M5 screw, using a 8mm socket.

NOTE

MAKE SURE THE WIRES ARE INSTALLED BETWEEN THE METAL TROLLEY AND THE PLASTIC SUPPORT.

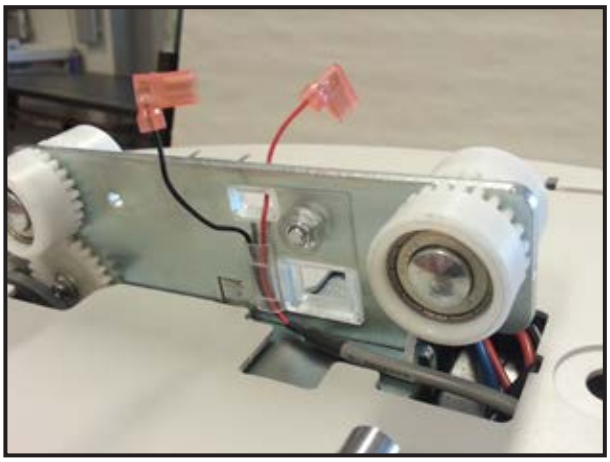


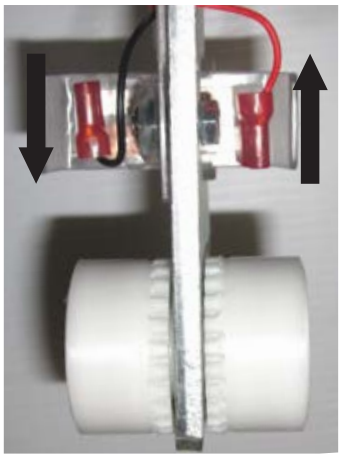


-Pass one of the wire through the small hole in the plastic support.

NOTE

THE RED AND BLACK WIRES CAN BE CONNECTED TO EITHER SIDE OF THE ECS CONTACT BOX.





-Pass the ECS contact box through the big hole.
-Connect the red and black wire on the ECS contact box.

NOTE

PAY ATTENTION TO THE CONNECTORS' ORIENTATION

NOTE

THE ECS CONTACT BOX MUST MOVE WITHOUT RESTRICTION WHEN INSTALLED IN THE SUPPORT

-Connect the ECS connector on the main board.

-Mount and clip the bottom cover.

Refer to “INSTALLING THE LIFT ON THE RAIL”, page 6-5

Refer to “ACCESSORIES INSTALLATION”, page 6-2

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 1 for procedure).

REMOVING THE ECS GATE CONTACT KIT (MSX3X-XX-XX MODELS)

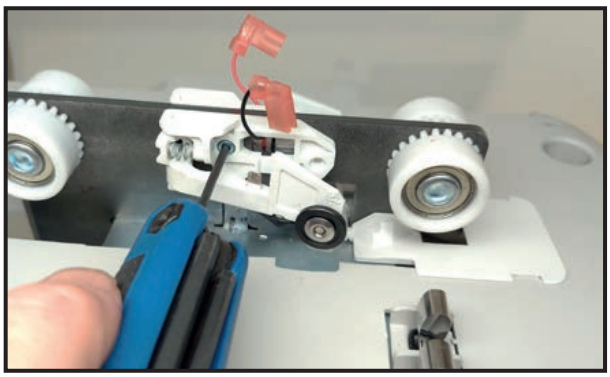
DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD.

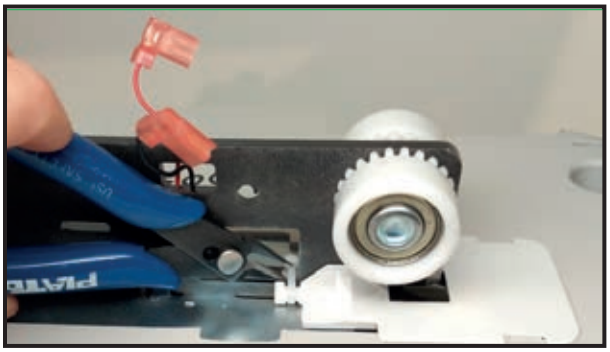
-Refer to “ACCESSORIES REMOVAL”, page 6-3, to remove accessories.
-Refer to “REMOVING THE LIFT FROM THE RAIL”, page 6-4

-Remove bottom cover and put the lift on a table.

-Disconnect the ECS connector from the main board.



-Disconnect black and red cable from the contact kit.
-Undo the M3 screw using a 2.5mm Allen key.
-Remove the contact kit from the trolley.

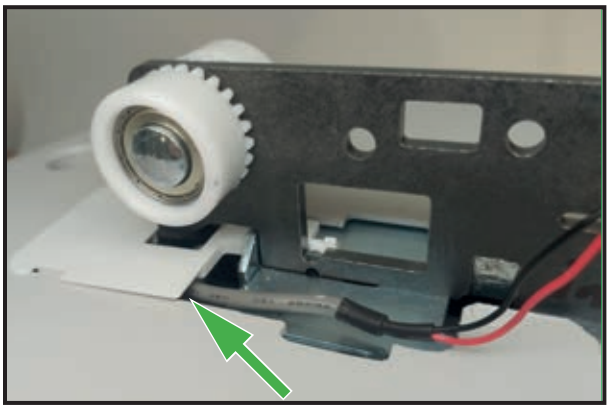


-Cut the cable ties securing the ECS cable.
-Remove the ECS cable.

NOTE

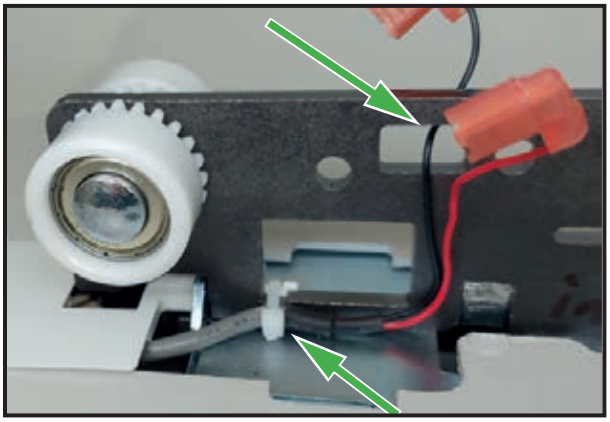
DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE ECS GATE CONTACT KIT (MSX3X-XX-XX MODELS)

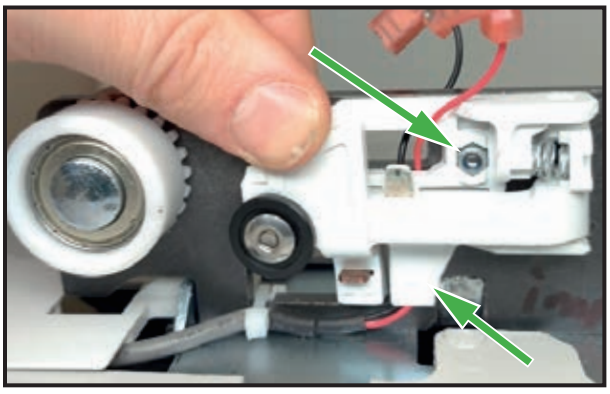


-Insert the new ECS cable through the top cabin.

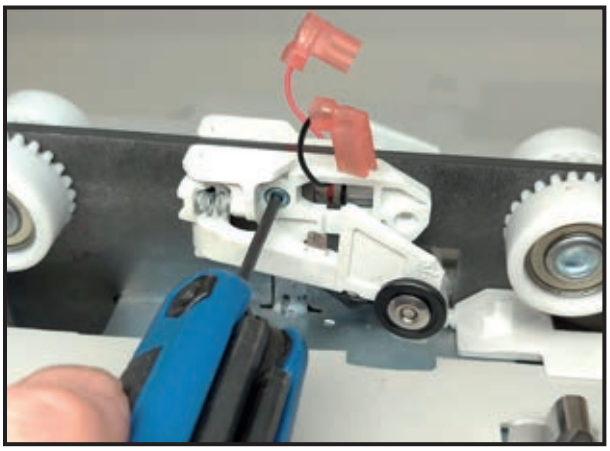
-Connect the ECS connector on the main board.



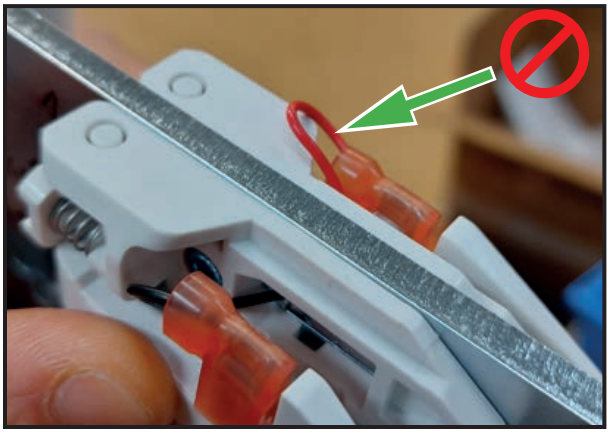
-Position the ECS cable as shown and secure it with the cable tie. Keep the head of the cable tie on the side shown on the picture. It will also secure the small cover.
-Cut the excess length of the cable tie.
-Pass the black wire through the opening in the trolley.



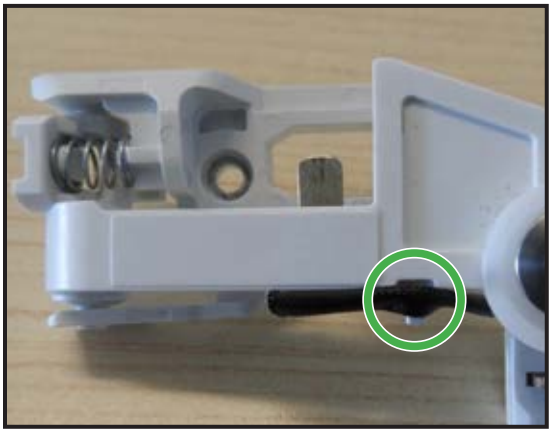
-Position the ECS wires in the channel of the plastic part (bottom arrow) and mount the contact kit on the trolley.
-Make sure that the M3 locknut stays in place in the assembly (top arrow).



-Mount and tighten the M3 screw using a 2.5mm Allen key.



-Connect the red and black wires on the ECS GATE contact kit.
-Make sure that the wires do not stick out of the plastic sheath.



-Make sure that the black wire wraps around the small peg at the bottom of the contact kit as illustrated.

-Make sure to bend the red wire as illustrated.

-Mount and clip the bottom cover.

Refer to “INSTALLING THE LIFT ON THE RAIL”, page 6-5

Refer to “ACCESSORIES INSTALLATION”, page 6-2

-Turn the lift ON by pushing on the red button and perform a functional test (refer to FULL FEATURE TEST, page 4-4 - Item 1 for procedure).

REMOVING THE TOP CABIN

NOTE

BEFORE DISASSEMBLING LOWER STRAP AROUND 60CM (24 IN)

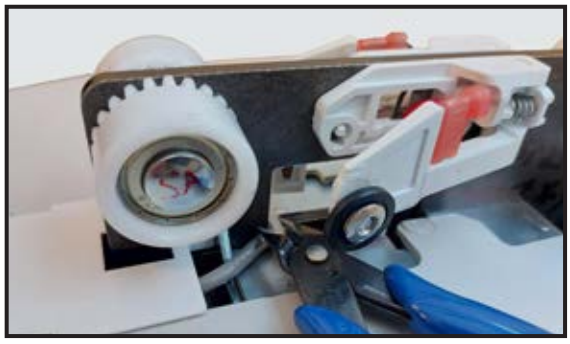
DANGER

SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD

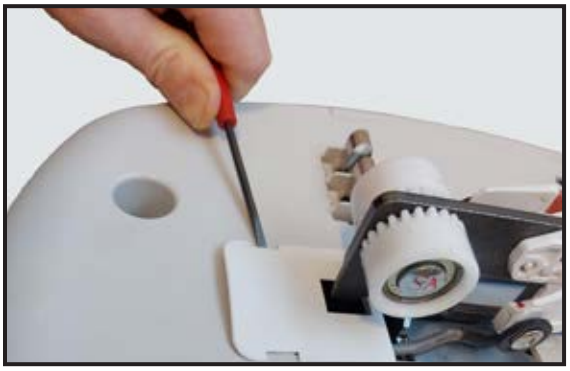
Refer to “ACCESSORIES REMOVAL”, page 6-3.
Refer to “REMOVING THE LIFT FROM THE RAIL”, page 6-4.

-Remove bottom cover and put the lift on a table on the trolley side.

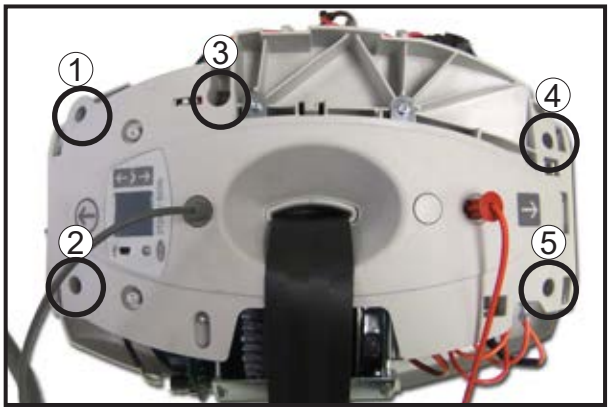
Refer to “REMOVING THE BATTERIES”, page 6-20.



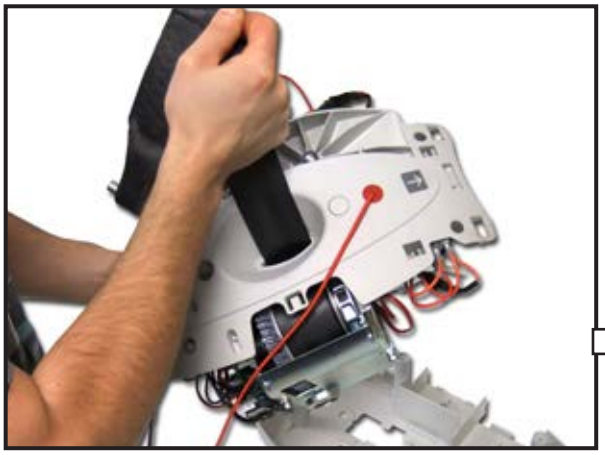
Only for MSX3X-XX-XX Models:
-Cut the cable tie securing the cover.pop it out using a flat screwdriver.



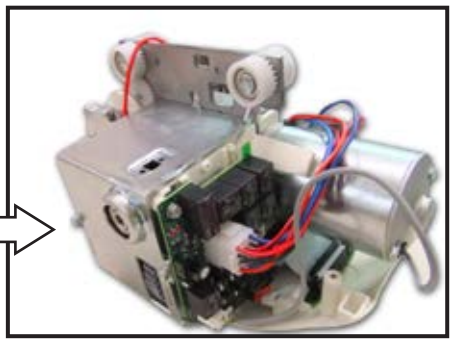
-Pop out the cover using a flat screwdriver.

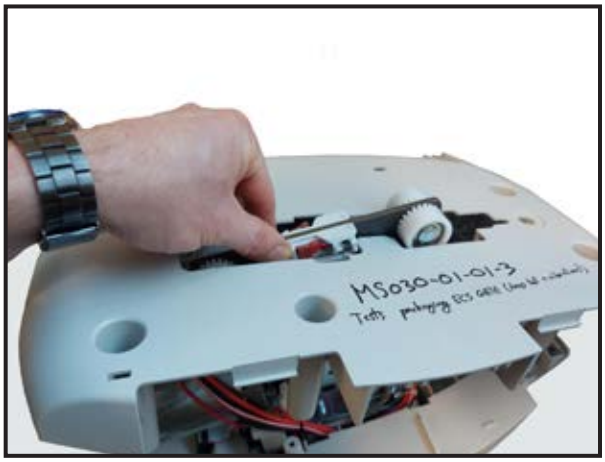


-Unscrew the five Torx T20 screws.



-Using the strap, pull the lift and remove the top cabin.
-Turn over the lift.



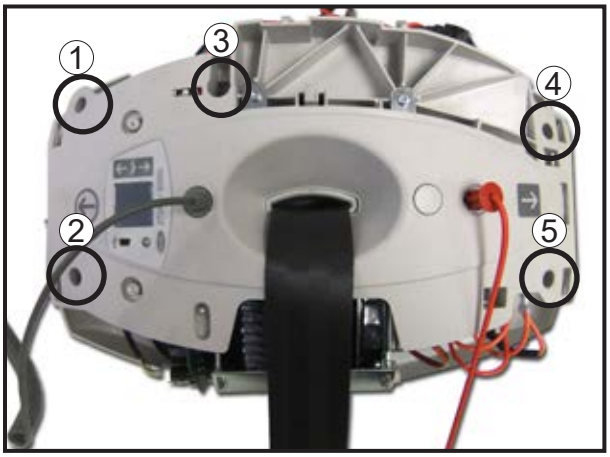


Only for MSX3X-XX-XX Models:
-Compress the ECS contact kit, then lift the top cabin up and sideways.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE TOP CABIN



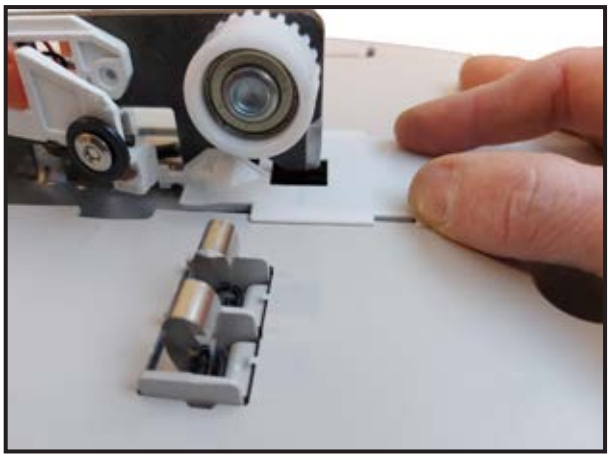
WARNING

MAKE SURE NOT TO PINCH ANY WIRE WHILE REASSEMBLING THE TOP CABIN.

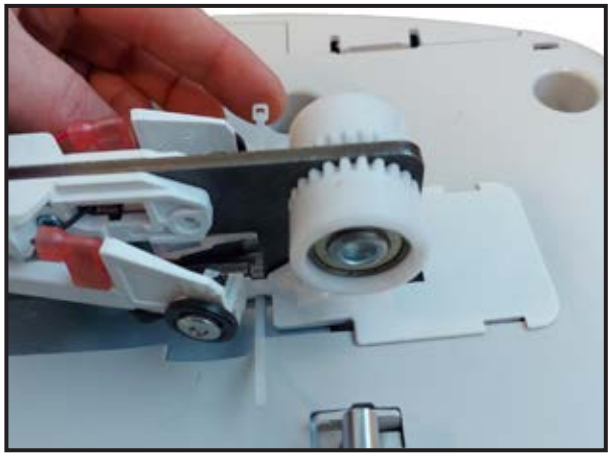
NOTE

DO NOT OVER TORQUE THE SCREWS, THE PLASTIC HOLES COULD STRIP.

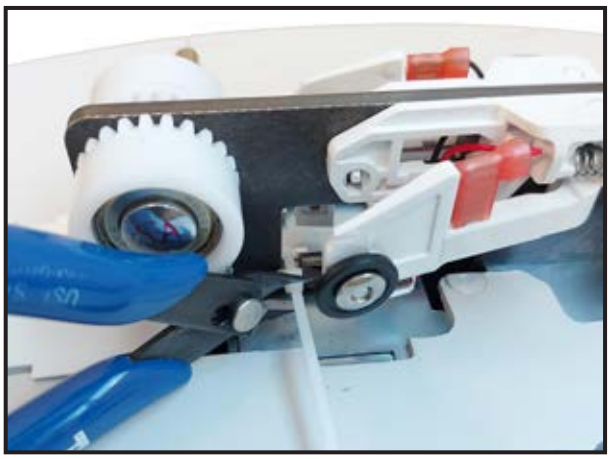
-Install the top cabin and put the lift on the trolley's side.
-Install the five Torx T20 screws.



Only for MSX3X-XX-XX Models:
-Install the small cover.



-Insert the cable tie as illustrated.



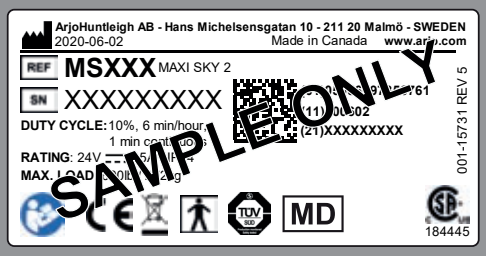
-Tighten the cable tie and cut the excess length.

Refer to “INSTALLING THE BATTERIES”, page 6-21.

-Mount and clip bottom cover.

Refer to “INSTALLING THE LIFT ON THE RAIL”, page 6-5.
Refer to “ACCESSORIES INSTALLATION”, page 6-2.

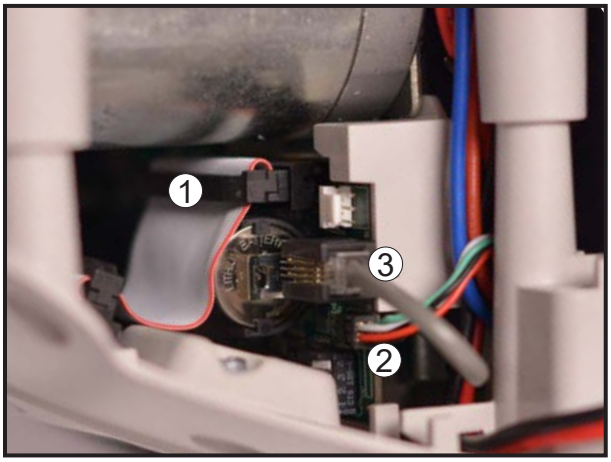
IN CASE OF REPLACEMENT BY A NEW TOP CABIN



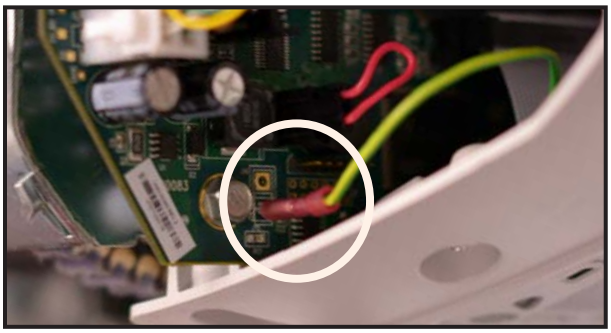
-Since the product name plate contains important information, make sure to peel it off from your original top cabin and place it on the new one.

REMOVING THE STRAP INLET

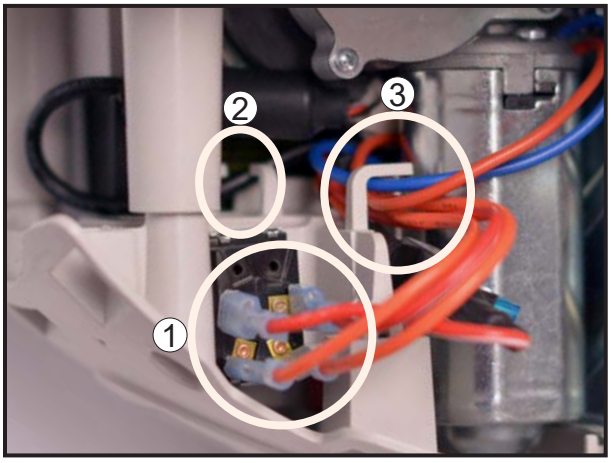
Refer to section “REMOVING THE TOP CABIN”, page 6-36.



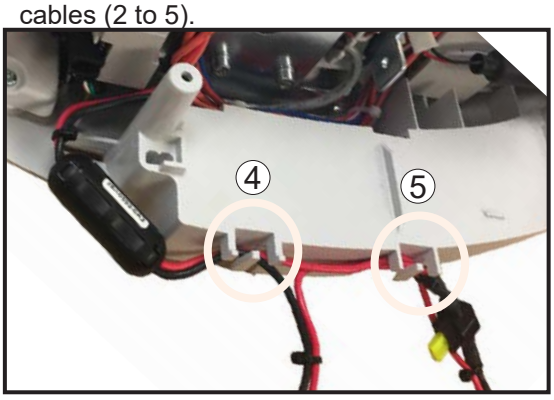
-Disconnect flat cable (1)
-Disconnect Limit kit connector (2)
-Disconnect the hand control connector (3)

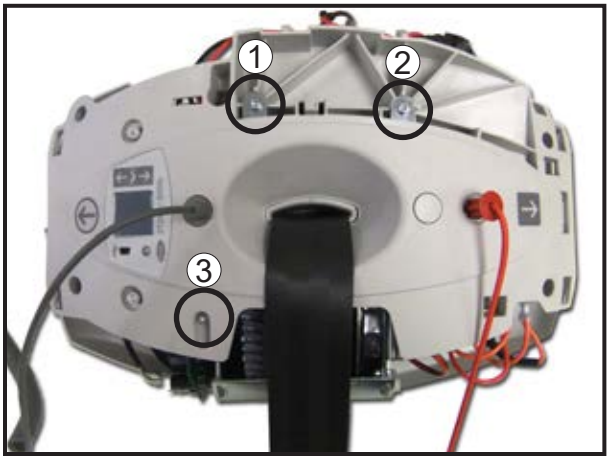


-Disconnect the electrostatic discharge (ESD) wire.
-Disconnect PDPS cable if necessary.

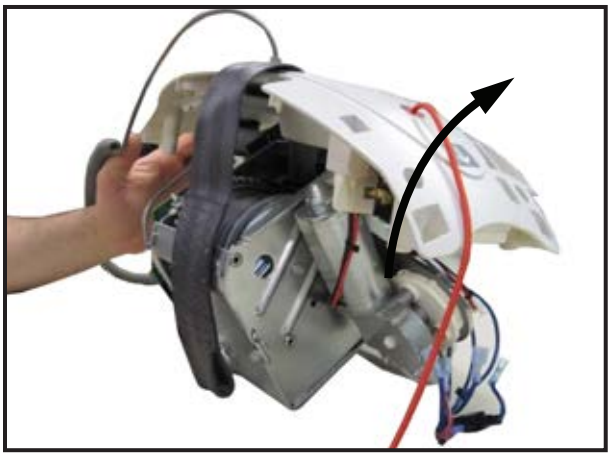


-Disconnect emergency stop cable from the toggle switch (1).
-Remove cable from the plastic clip including battery and PDPS cables (2 to 5).



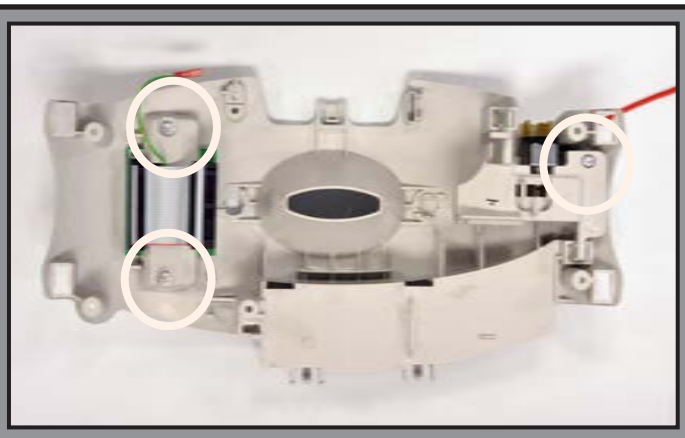


-Turn the lift on the trolley side.
-Unscrew the three Torx T20 screws.



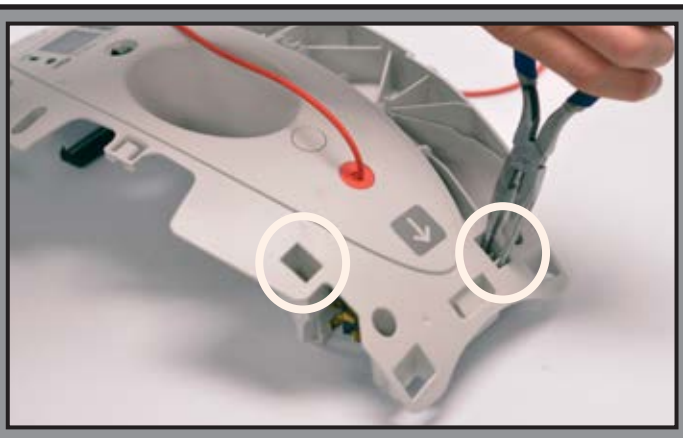
-Remove Strap Inlet.

IN CASE OF REPLACEMENT BY A NEW STRAP INLET



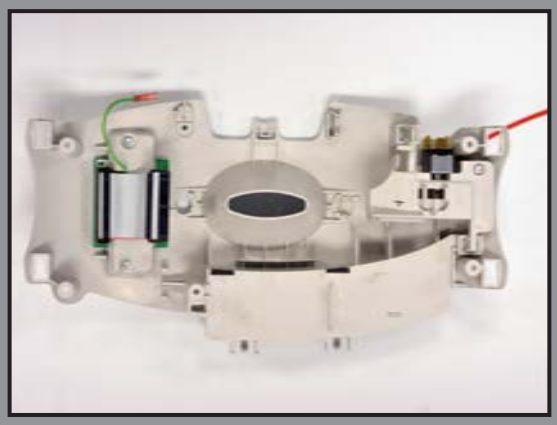
-Undo the two pan Torx screw of the user interface board assembly.

-Undo the pan Torx screw of the emergency stop system.



-Using long nose pliers, undo the two plastic clips and remove the emergency stop assembly.

PREPARATION OF THE NEW STRAP INLET



-Mount and clip the emergency stop assembly.
-Install the Torx T20 screw of the emergency stop assembly.

NOTE

DO NOT OVER TORQUE THE SCREW, THE PLASTIC HOLE COULD STRIP

-Make sure the emergency stop assembly is working properly.
-Install the two Torx T20 screws of the user interface board assembly.
-If previous safe working load (SWL) setting was lower than 600lb (272kg), install the proper SWL sticker.

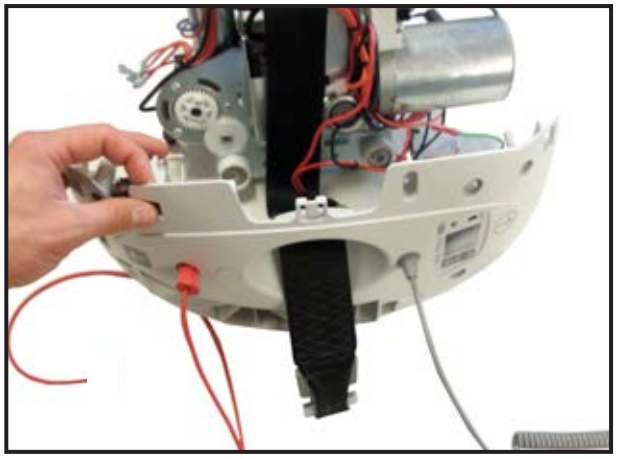
WARNING

THE SAFE WORKING LOAD (SWL) DISPLAYED ON THE LCD SCREEN AT STARTUP MUST BE THE SAME AS THE SWL STICKER ON THE LIFT

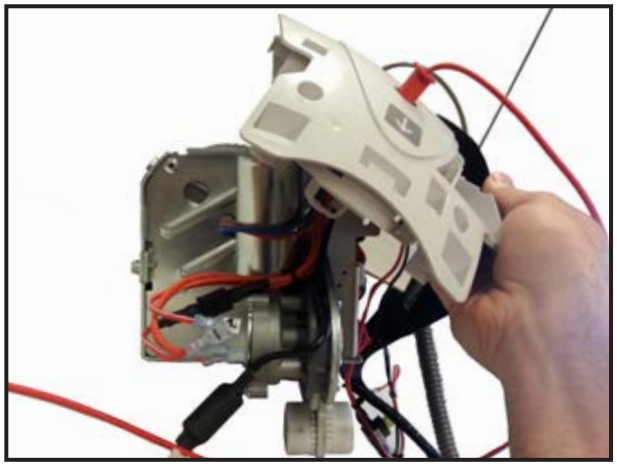
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

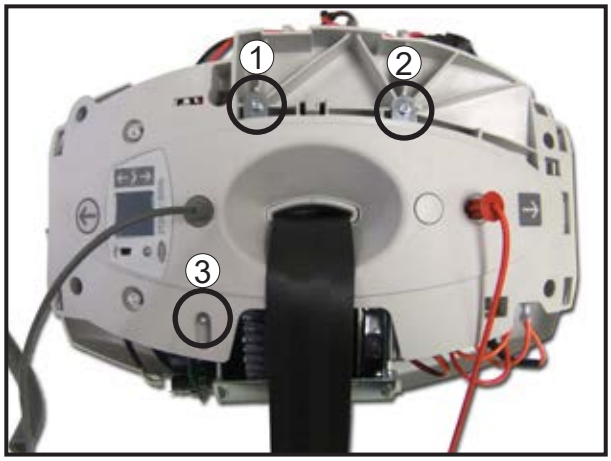
INSTALLING THE STRAP INLET



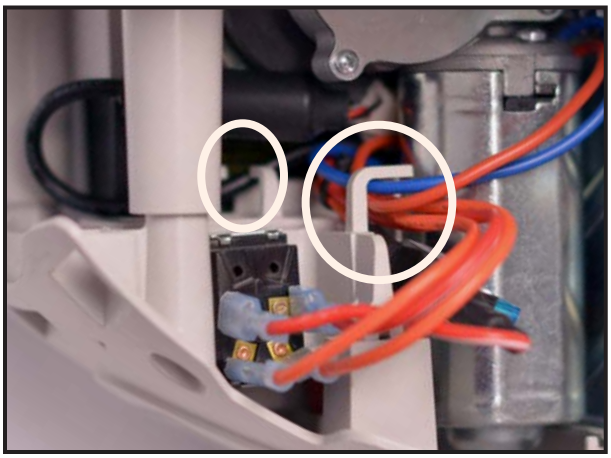
-Pass the strap through the strap inlet.



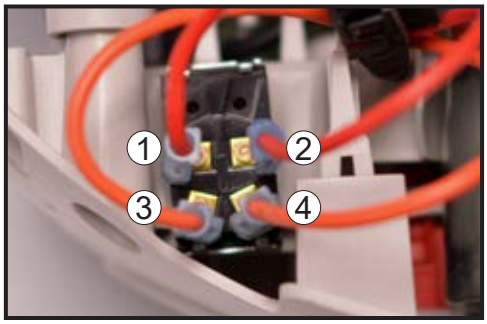
-Install the strap inlet and make sure the metal bracket passes through the strap inlet.



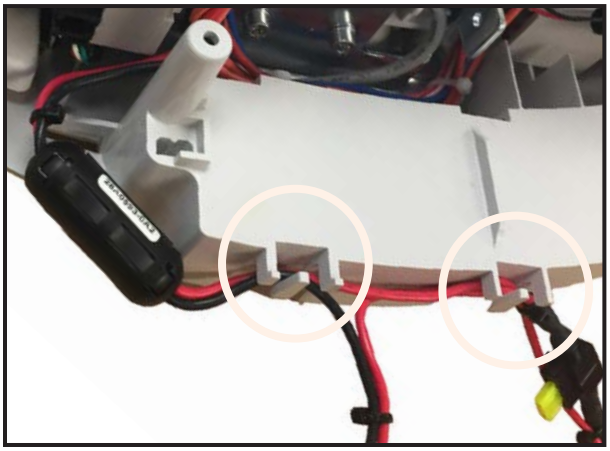
-Install the three Torx T20 screws.



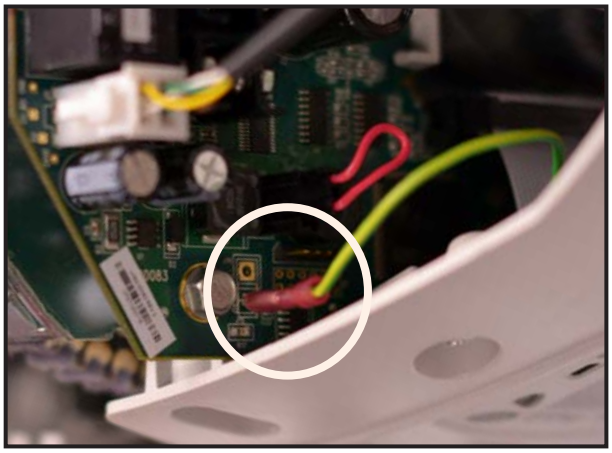
-Connect emergency stop cable to the toggle switch and pass the cables in the plastic clip.



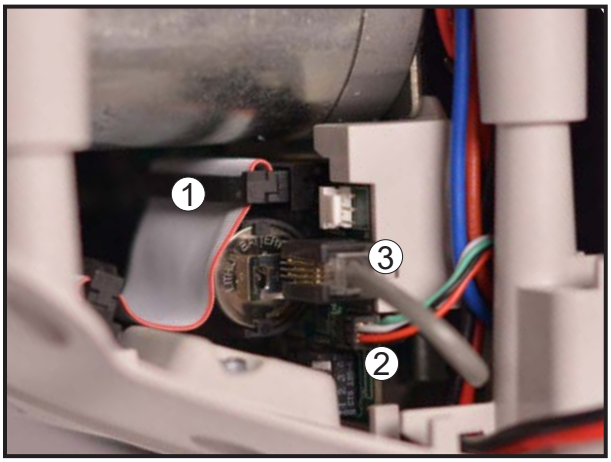
① RED/WHITE
② RED/WHITE
③ ORANGE
④ ORANGE



-Pass battery cables in the two plastic clips.



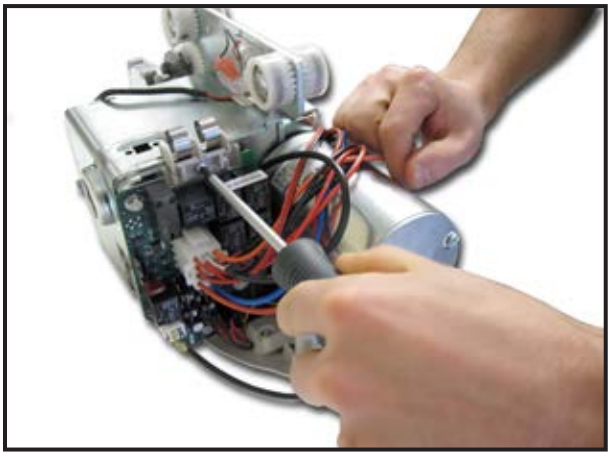
-Connect the ESD wire.



-Connect flat cable (1).
-Connect Limit kit connector (2).
-Connect the hand control connector (3).

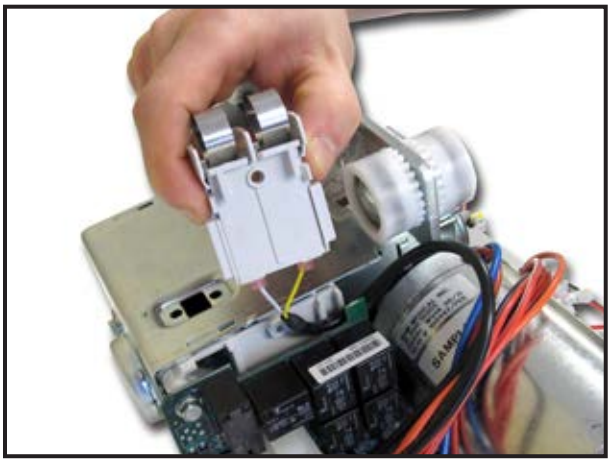
Refer to section “INSTALLING THE TOP CABIN”, page 6-38

REMOVING THE CONTACT BLADE KIT

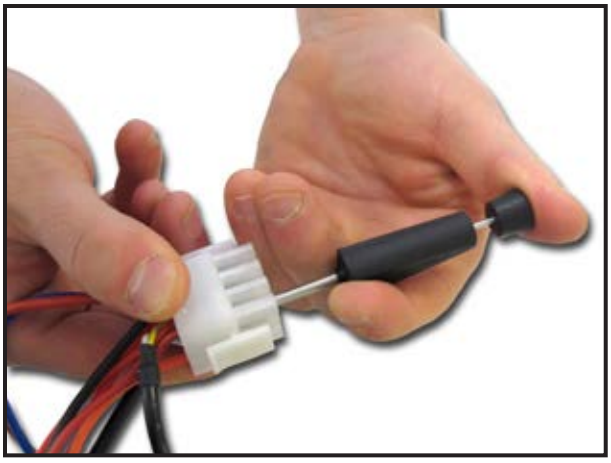


Refer to “REMOVING THE TOP CABIN”, page 6-36

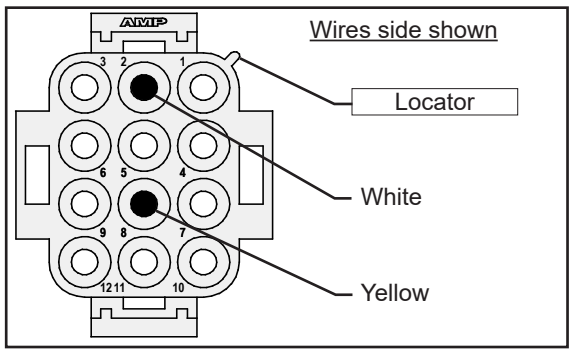
-Unscrew the Torx T20 screw of the Contact Blade assembly.



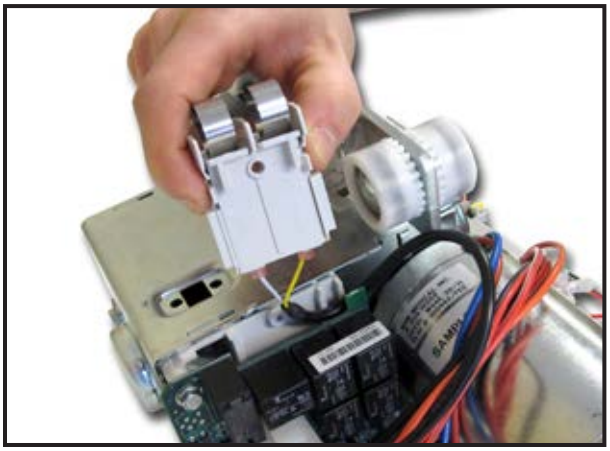
-Pull on the contact blade assembly to remove it.



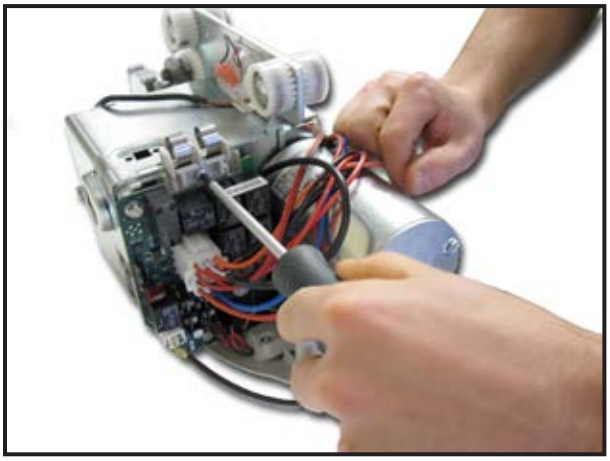
-Using a pin extractor, remove the pin at position 2 and 8.



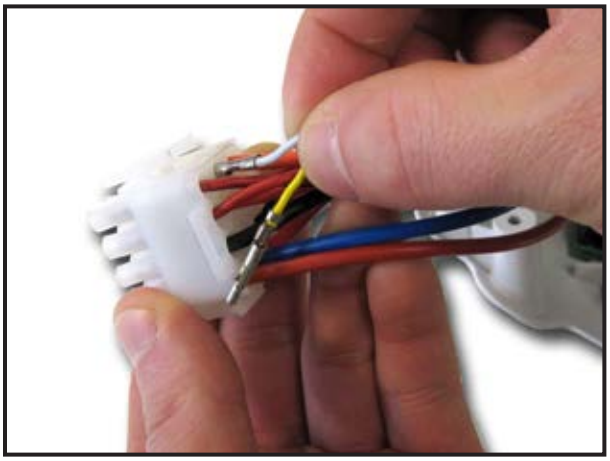
INSTALLING THE CONTACT BLADE KIT



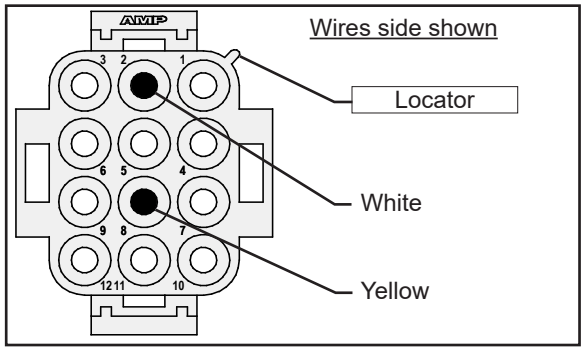
-Insert the contact blade assembly behind the main board.

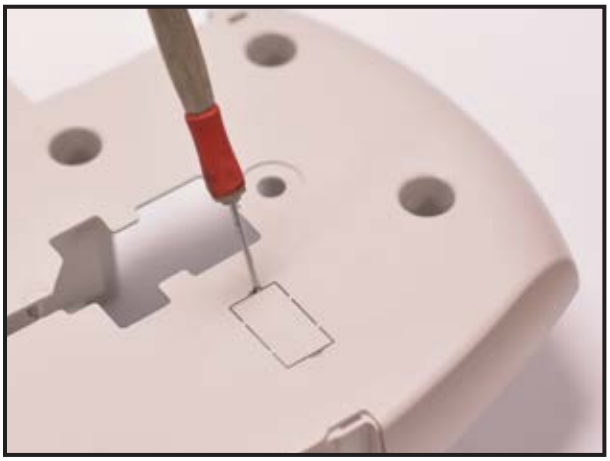


-Install the new Contact Blade assembly with a Torx T20 screw.



-Insert and clip the white wire into the position 2 and the yellow wire at position 8.





-If it is a new contact blade installation, remove plastic tab on the top cabin, by using a screwdriver or similar.

Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

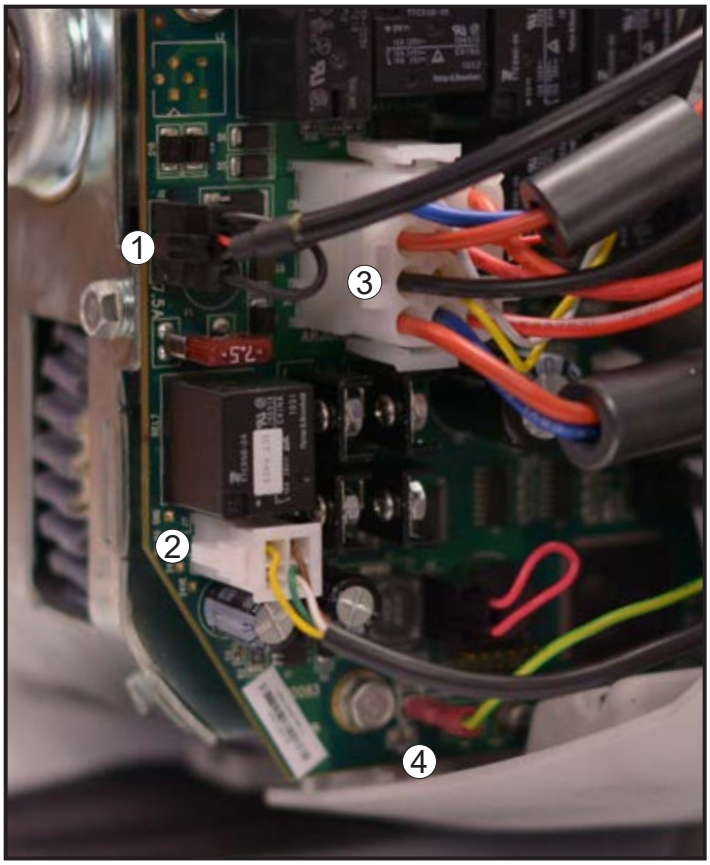
-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4, item 1 for procedure).

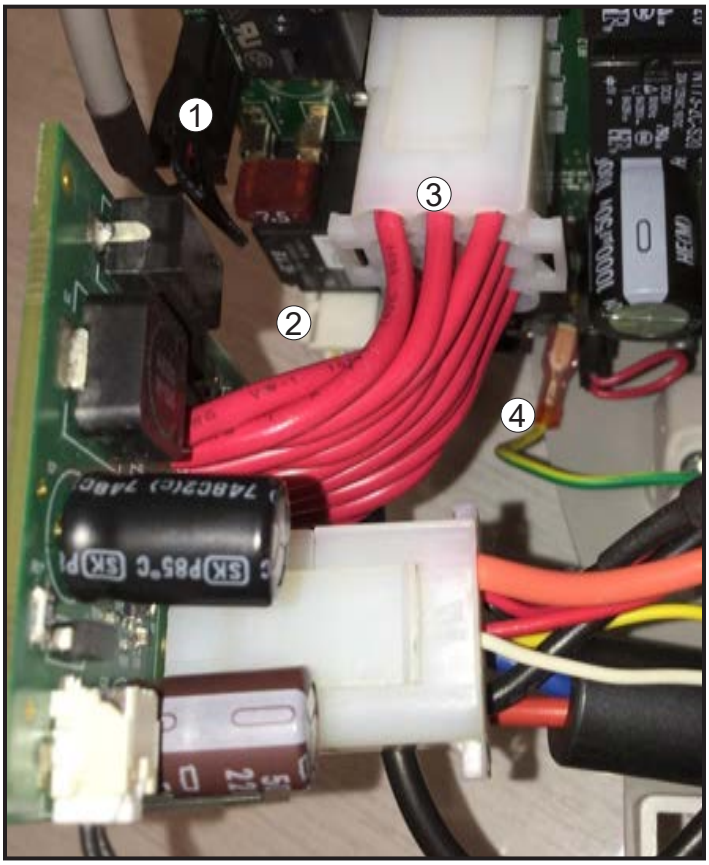
REMOVING THE MAIN BOARD

NOTE

NEVER CHANGE THE MAIN BOARD AND THE USER INTERFACE BOARD SIMULTANEOUSLY. THE LIFT MAY NOT BE USABLE (E.G. DISPLAY STAYS BLACK, RED LED LIGHTENS AND LIFT REMAINS IN STARTING MODE).

Refer to “REMOVING THE TOP CABIN”, page 6-36



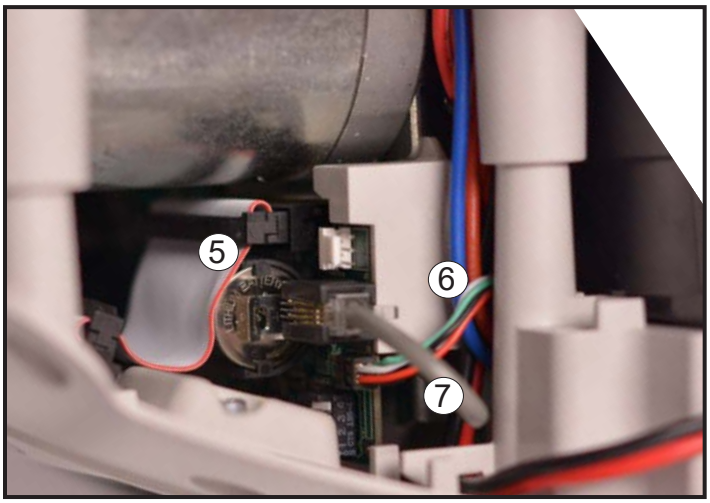


WITHOUT MOTOR BRAKE (MB) OPTION

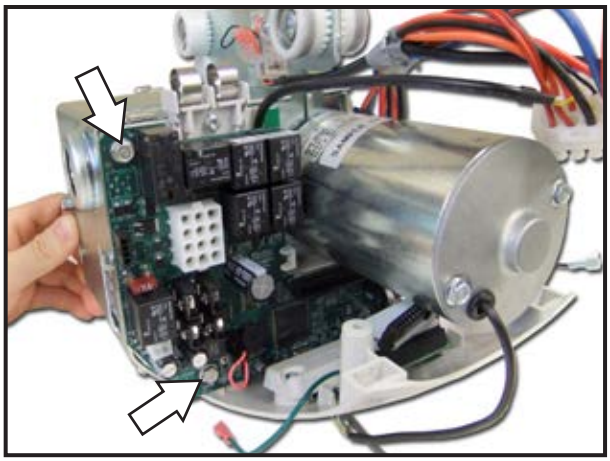
-Disconnect the ECS connector (if applicable) (1).
-Disconnect the motor encoder 4 pin connector (2).
-Disconnect the 12-pin connector (3).
-Disconnect the electrostatic discharge (ESD) wire (4).

WITH MOTOR BRAKE (MB) OPTION

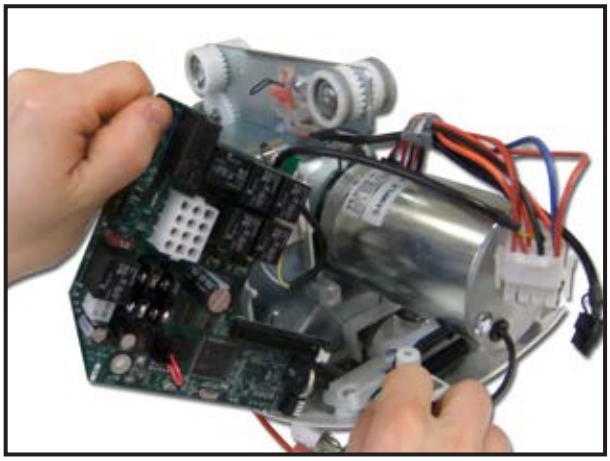
-Disconnect the ECS connector (if applicable) (1).
-Disconnect the motor encoder 4 pin connector (2).
-Disconnect the brake board 12-pin connector (3).
-Disconnect the electrostatic discharge (ESD) wire (4).



-Disconnect flat cable (5).
-Disconnect Limit Kit connector (6).
-Disconnect the hand control connector (7).



-Using an 8 mm socket, unscrew the two M5 screws on the main board.



-Slide out the main board.

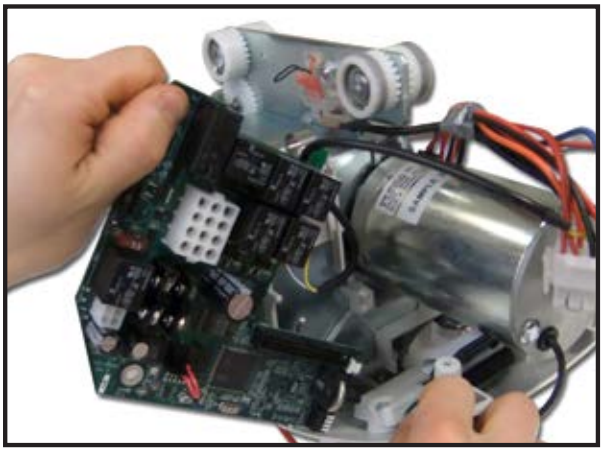
CAUTION

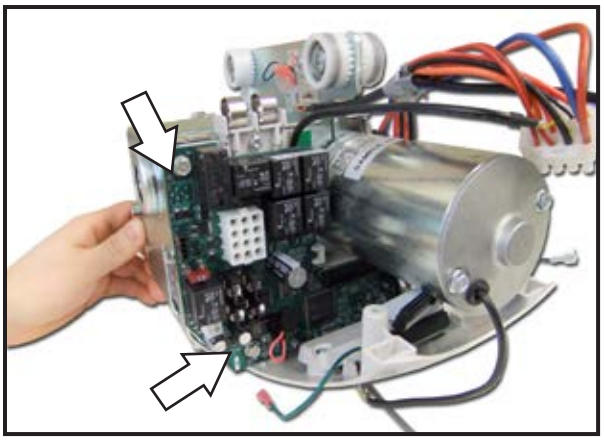
WHEN HANDLING THE ELECTRONICS OF THE LIFT, YOU MUST BE ESD PROTECTED. NON-COMPLIANCE WITH THESE INSTRUCTIONS CAN LEAD TO AN ELECTROSTATIC DISCHARGE CAUSING FAILURE.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE MAIN BOARD





WARNING

FOR MS2 PLUS, ONLY REPLACE BOARDS WITH GENUINE PARTS. NEVER SWAP BOARDS BETWEEN LIFTS.

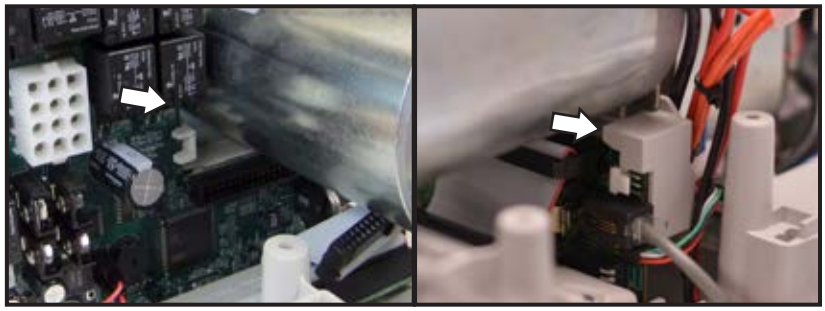
-Slide the main board inside the plastic support.

WARNING

ALWAYS ORDER MAIN BOARD FROM THE MANUFACTURER TO AVOID LOSING INFORMATION (E.G. CALIBRATION DATA, SERIAL NUMBER, HISTORICAL DATA, PREVENTIVE MAINTENANCE SCHEDULE).

NOTE

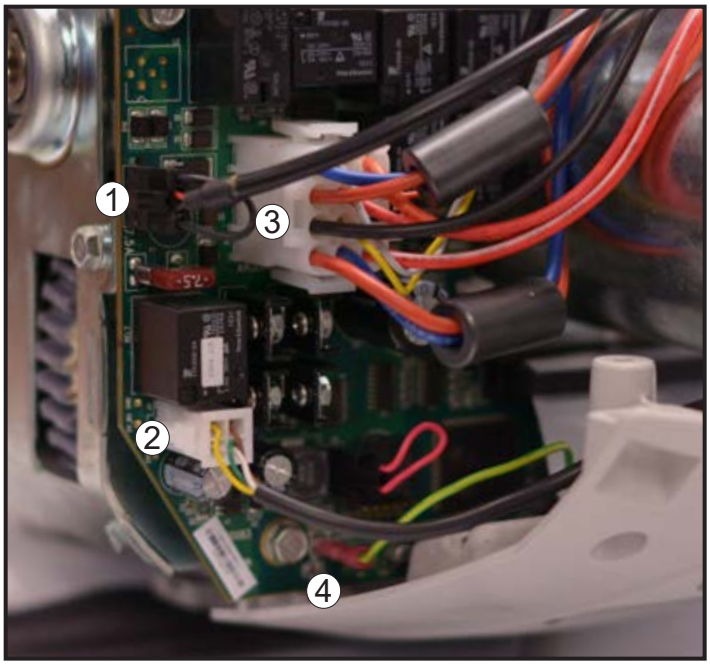
MAKE SURE THE BOARD IS CORRECTLY INSTALLED ON ITS SUPPORT.



-Fix the board in place with the two M5 screws.

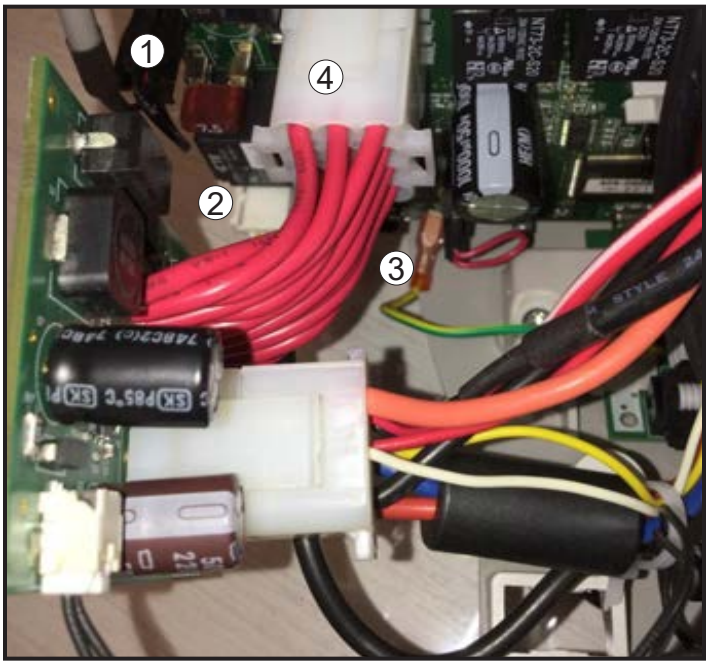
NOTE

DO NOT OVERTIGHTEN THE SCREWS TO AVOID ANY DAMAGE TO THE MAIN BOARD.



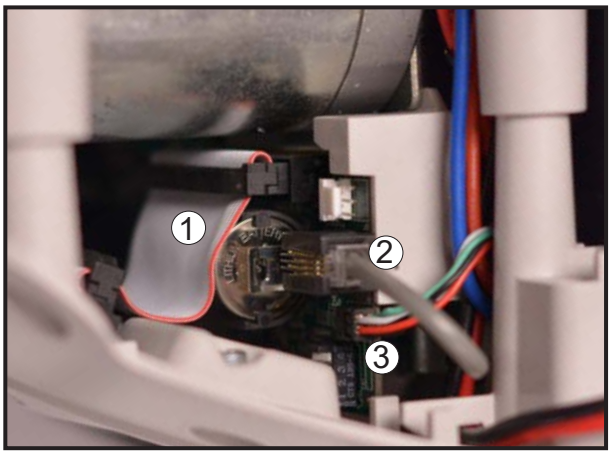
WITHOUT MOTOR BRAKE (MB) OPTION

-Connect the ECS connector (if applicable) (1).
-Connect the motor encoder 4 pin connector (2).
-Connect the motor 12-pin connector (3).
-Connect the electrostatic discharge (ESD) wire (4).

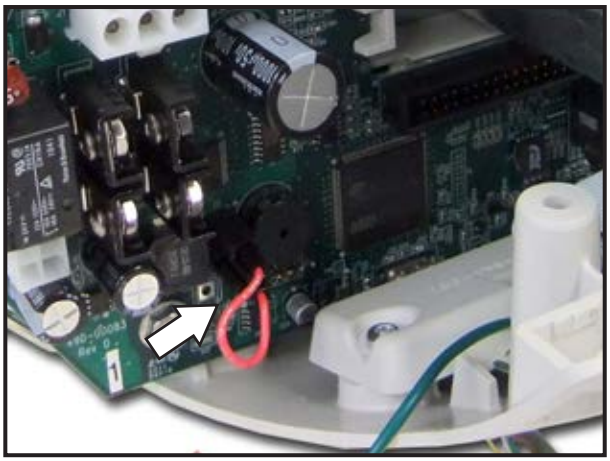


WITH MOTOR BRAKE (MB) OPTION

-Connect the ECS connector (if applicable) (1).
-Connect the motor encoder 4 pin connector (2).
-Connect the electrostatic discharge (ESD) wire (3).
-Connect the brake board 12-pin connector (4).



-Connect flat cable (1).
-Connect the hand control connector (2).
-Connect Limit Kit connector (3).



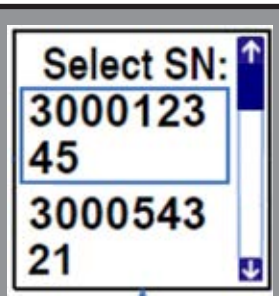
-Install the proper jumper to have the appropriate SWL.
-Make sure to have the same SWL on the screen at start-up, on the display sticker and on the rail system. If not, install the connector for the lowest safe working load.

NOTE

-NO JUMPER EQUALS TO 265 lb (120 kg)
-ORANGE JUMPER EQUALS TO 440 lb (200 kg)
-RED JUMPER EQUALS TO 600 lb (272 kg)

Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 1, 5 and 6 for procedure).



NOTE

FROM SOFTWARE 2.2.X AND HIGHER, IF THE REPLACEMENT BOARD ALREADY HAS DATA INSIDE ITS MEMORY, AT THE STARTUP, THE SYSTEM WILL ASK YOU TO CONFIRM THE SERIAL NUMBER OF THE LIFT.

-The serial number of the lift is located on the product name plate on the top cabin.

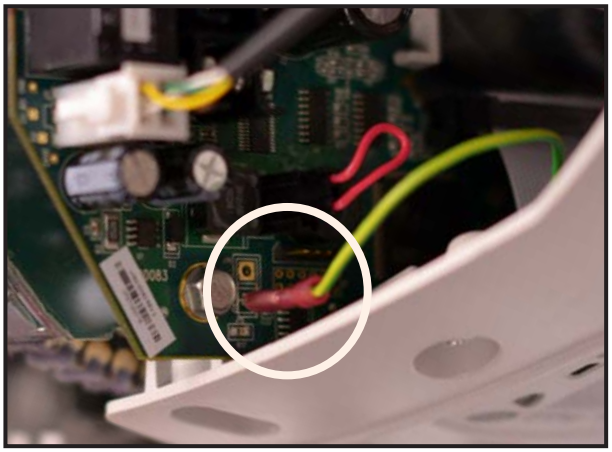
-Select the serial number of the lift and press the i button.

-Confirm your choice by selecting “yes” and pressing on the i button. *Note that “back” can be used to return to the serial number selection window.*

REMOVING THE USER INTERFACE BOARD

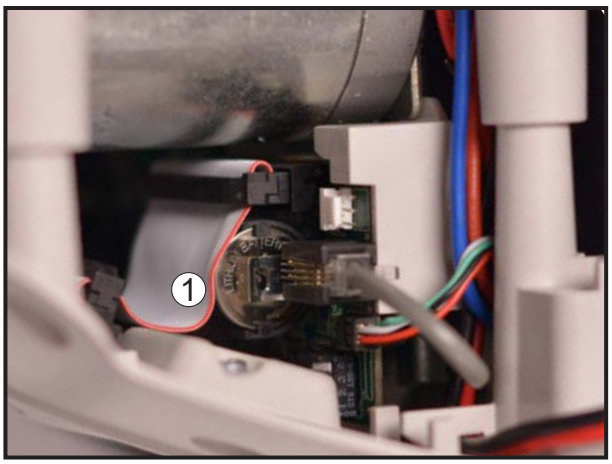
NOTE

NEVER CHANGE THE MAIN BOARD AND THE USER INTERFACE BOARD SIMULTANEOUSLY. THE LIFT MAY NOT BE USABLE (E.G. DISPLAY STAYS BLACK, RED LED LIGHTENS AND LIFT REMAINS IN STARTING MODE).

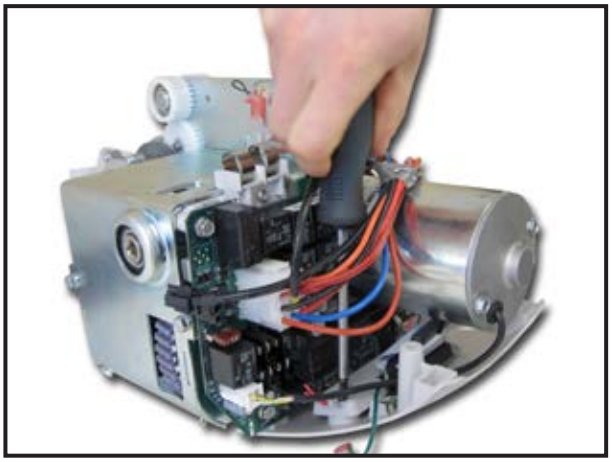


Refer to section “REMOVING THE TOP CABIN”, page 6-36.

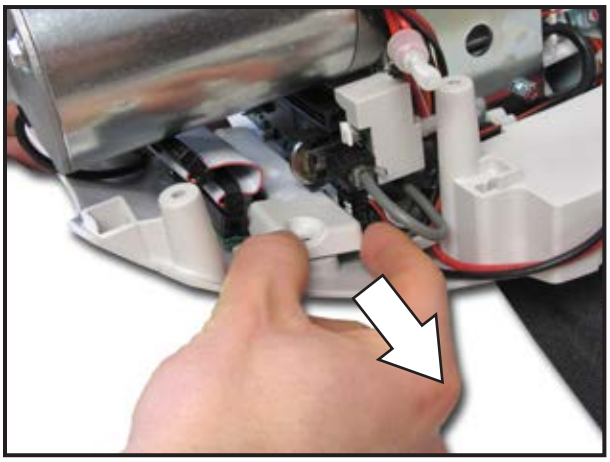
-Disconnect the electrostatic discharge (ESD) wire.



-Disconnect the flat cable from the main board (1).



-Unscrew the two Torx T20 screws of the plastic support of the user interface board assembly.

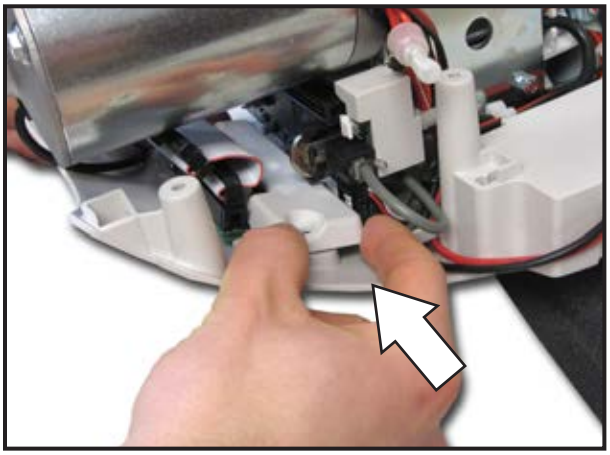


-Remove user interface board assembly.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE USER INTERFACE BOARD



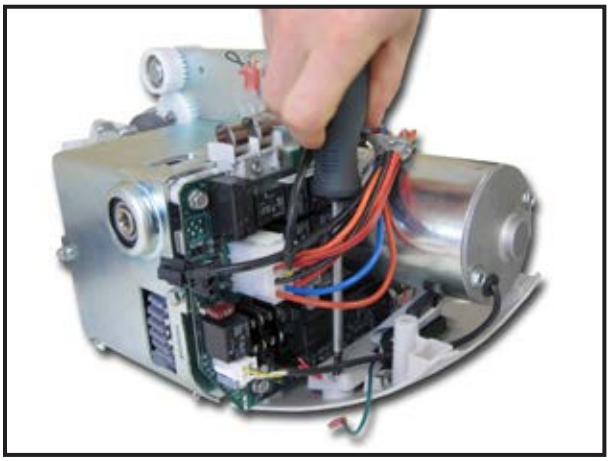
WARNING

ONLY REPLACE BOARDS WITH GENUINE MS2 PARTS.
NEVER SWAP BOARDS BETWEEN LIFTS.

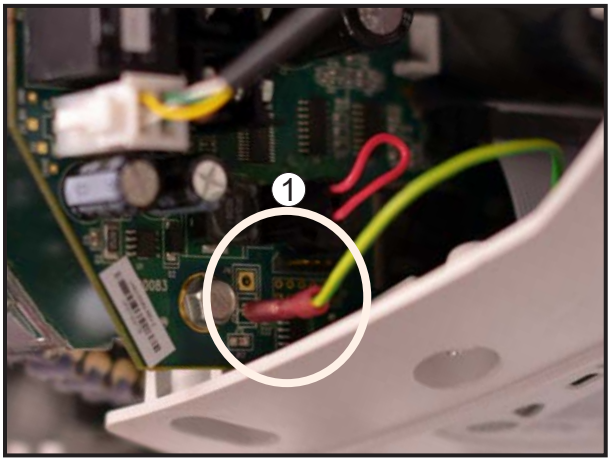
WARNING

ALWAYS ORDER USER INTERFACE BOARD FROM THE MANUFACTURER TO AVOID LOSING INFORMATIONS (E.G. CALIBRATION DATA, SERIAL NUMBER, HISTORICAL DATA, PREVENTIVE MAINTENANCE SCHEDULE).

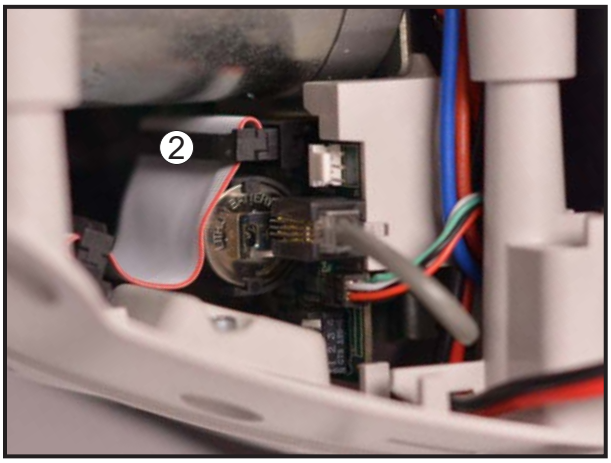
-Peel off the plastic film from the LCD screen.
-Install the user interface board assembly.



-Install the two Torx T20 screws.



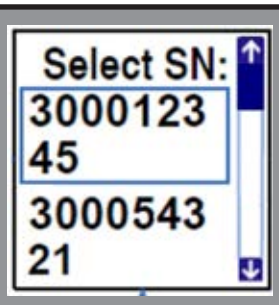
-Connect the electrostatic discharge (ESD) wire to the main board (1).



-Connect the flat cable to the main board (2).

Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

-Turn the lift ON by pushing on the red button and verify if the LCD screen is working properly.
-Test the “up and down” alternate button.



NOTE

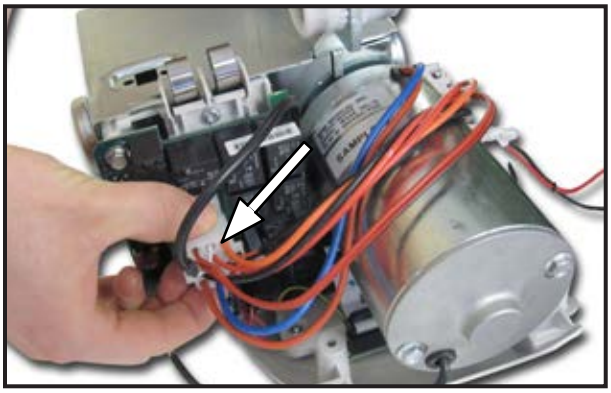
FROM SOFTWARE 2.2.X AND HIGHER, IF THE REPLACEMENT BOARD ALREADY HAS DATA INSIDE ITS MEMORY, AT THE STARTUP, THE SYSTEM WILL ASK YOU TO CONFIRM THE SERIAL NUMBER OF THE LIFT.

-The serial number of the lift is located on the product name plate on the top cabin.

-Select the serial number of the lift and press the i button.

-Confirm your choice by selecting “yes” and pressing on the i button. *Note that “back” can be used to return to the serial number selection window.*

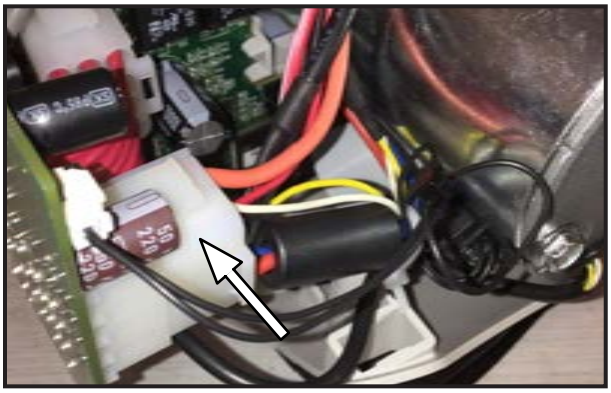
REMOVING THE LEFT/RIGHT MOTOR



Refer to section “REMOVING THE TOP CABIN”, page 6-36.

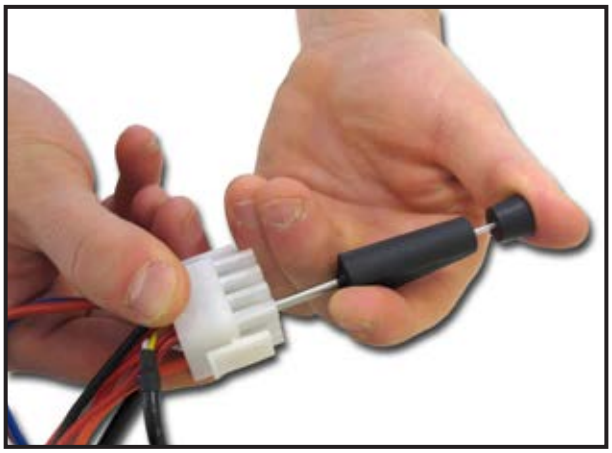
WITHOUT MOTOR BRAKE (MB) OPTION

-Disconnect the 12-pin connector from the main board.

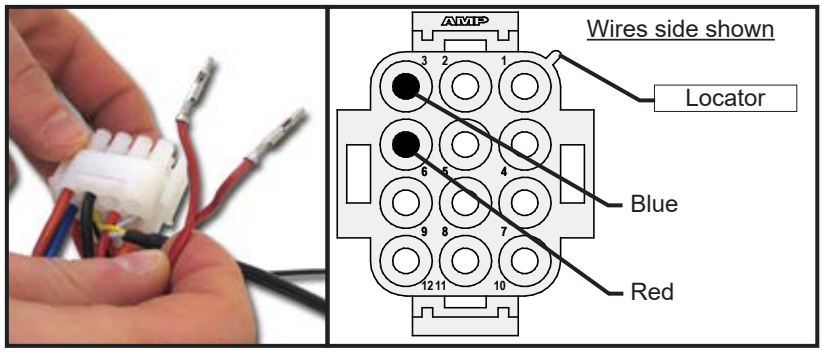


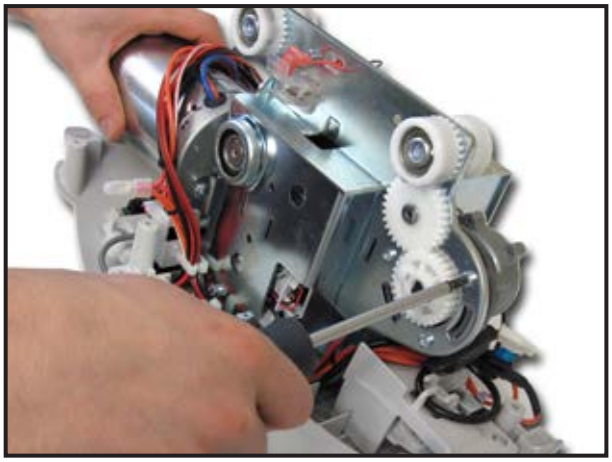
WITH MOTOR BRAKE (MB) OPTION

-Disconnect the 12-pin connector from the brake board.

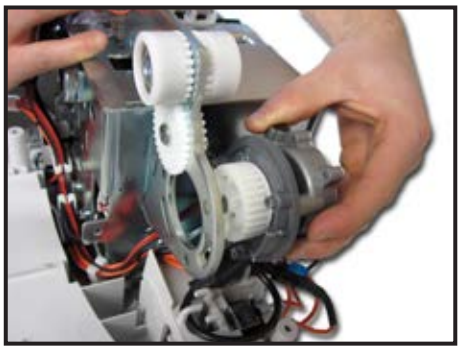


-Using a pin extractor, remove the pin at position 3 and 6.





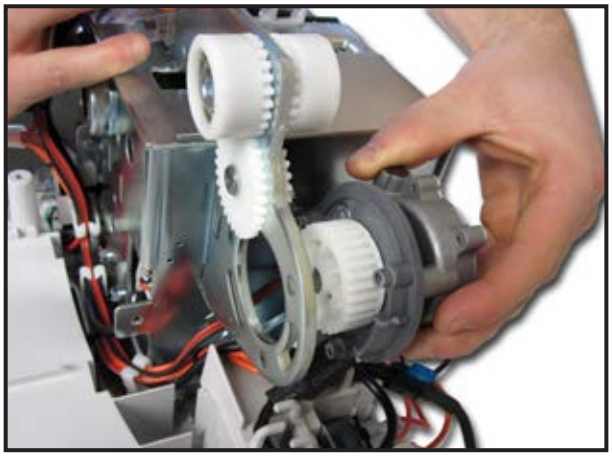
-Unscrew the three Torx T20 screws.
-Remove L/R Motor.
-Undo the wires from their path.



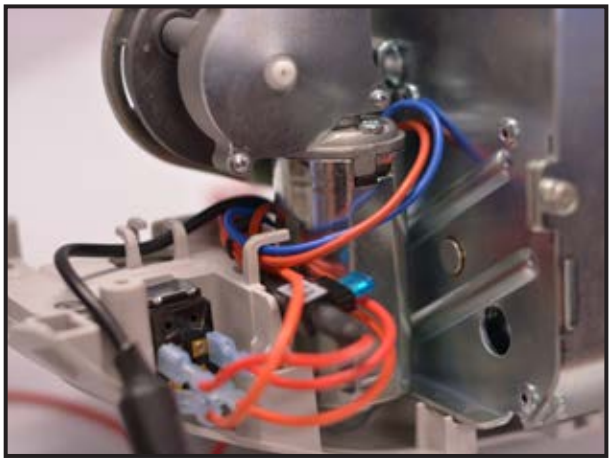
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE LEFT/RIGHT MOTOR

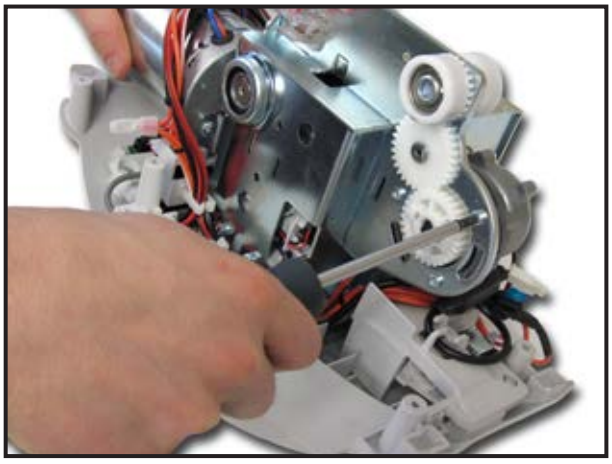


-Mount the new Left/Right motor and make sure both gears are aligned together properly.



NOTE

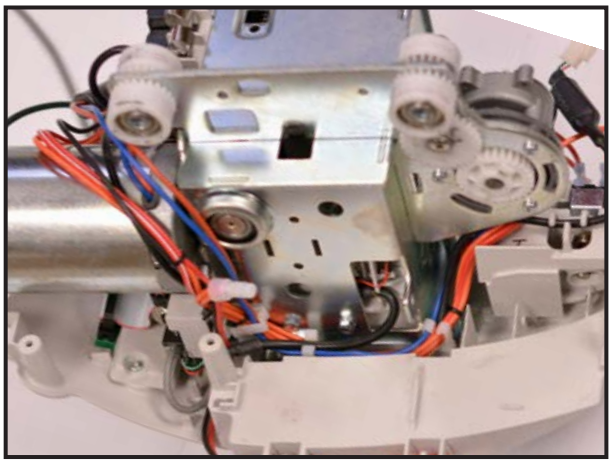
CONSIDER CABLE PLACEMENT TO AVOID PINCHING THE CABLE BETWEEN THE FRAME AND THE LEFT/RIGHT MOTOR



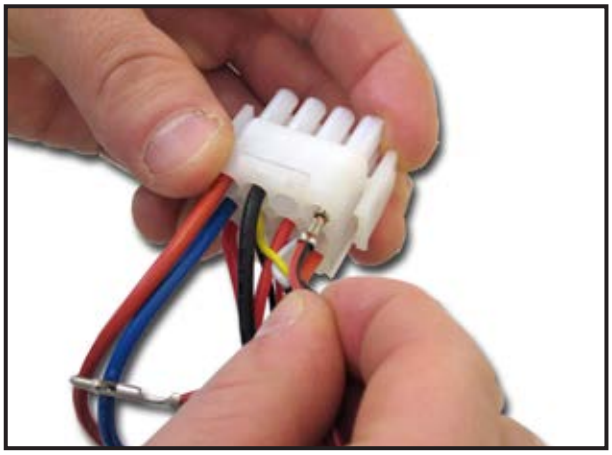
-Install the three Torx T20 screws.

NOTE

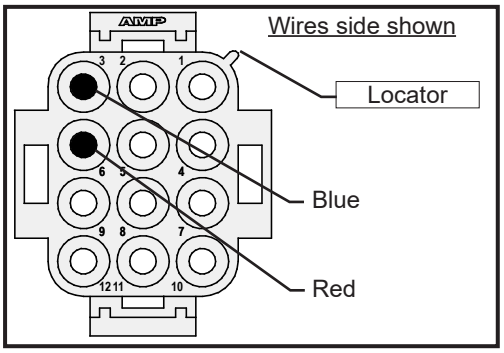
DO NOT OVER TORQUE THE SCREW, THE PLASTIC HOLE COULD STRIP

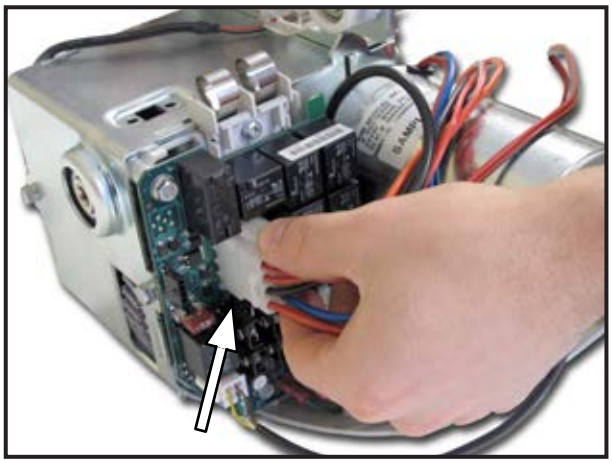


-Pass the wires along their path.



-Insert the blue wire into the position 3 and the red wire into the position 6.





WITHOUT MOTOR BRAKE (MB) OPTION

-Connect the 12-pin connector to the main board.

WITH MOTOR BRAKE (MB) OPTION

-Connect the 12-pin connector to the brake board.

Refer to section “INSTALLING THE TOP CABIN”, page 6-38

-Turn the lift ON by pushing on the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - Item 2 for procedure).

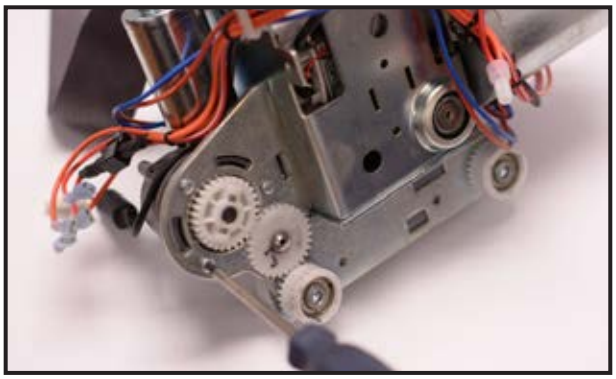
REMOVING THE LIMIT KIT FOR THE WOVEN STRAP

Refer to section “REMOVING THE TOP CABIN”, page 6-36.

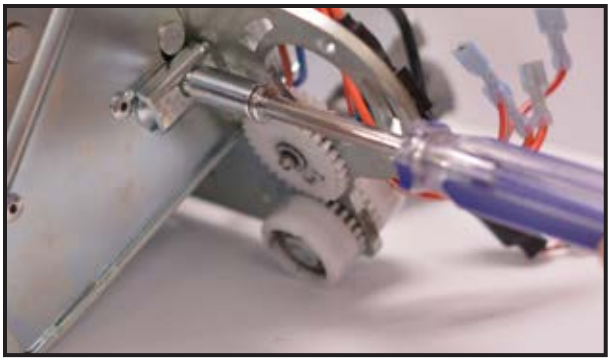
Refer to section “REMOVING THE STRAP INLET”, page 6-40.

NOTE

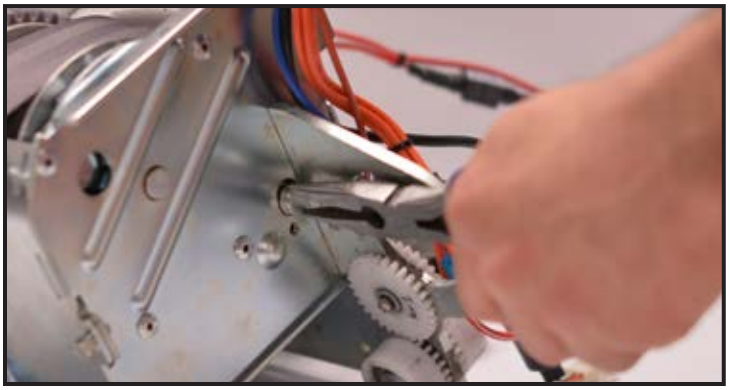
IF THE LIFT IS EQUIPPED WITH A COATED STRAP, REFER TO PAGE 6-63



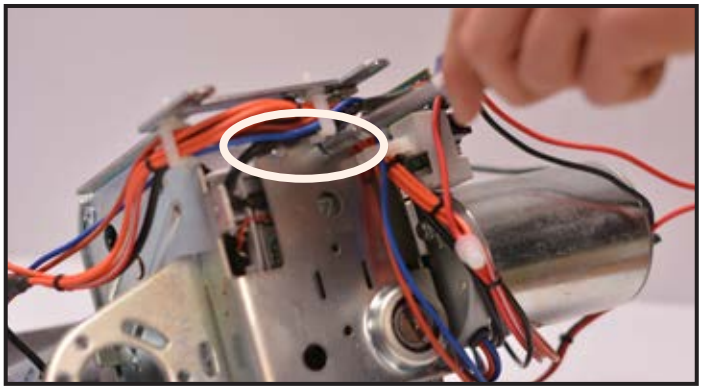
-If applicable (4-function unit), remove the Left/Right motor from the trolley (three Torx T20 screws).



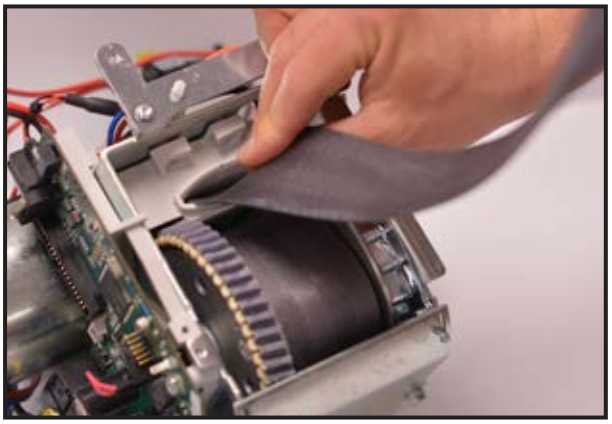
-Unscrew the M5 screw of the trolley locker.



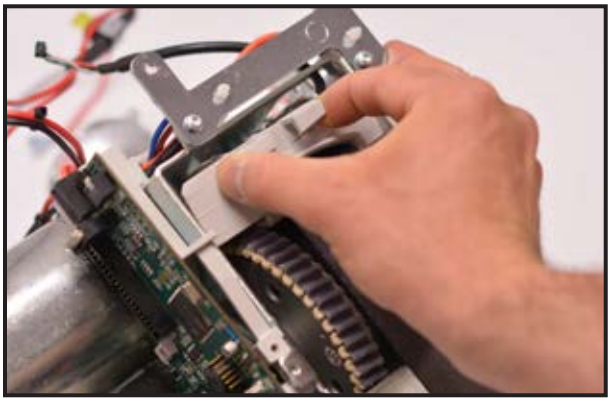
-Using long nose pliers, remove the 12mm shaft from the assembly.



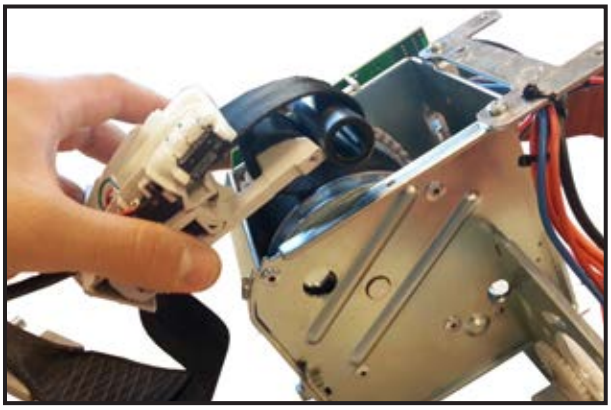
-Unscrew the two M5 screws retaining the Limit Kit assembly.



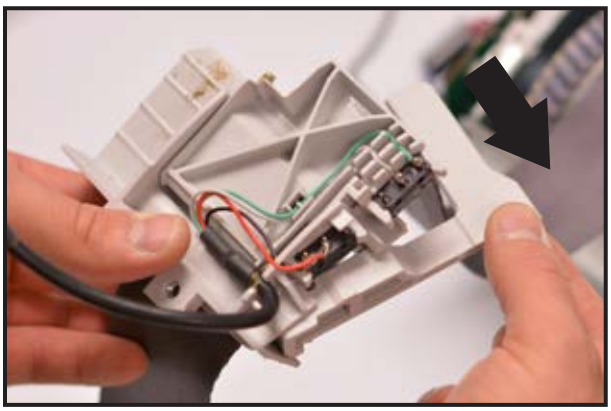
-Push the strap inside the frame around 70mm (3 in). This step will help to remove the strap roller.



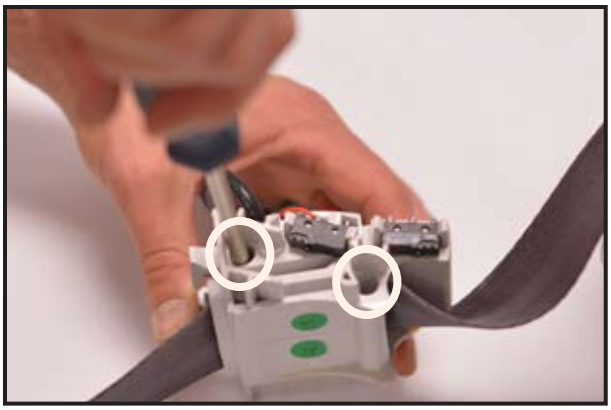
-Keep pushing the strap through the Limit Kit while pulling on it.
-Be careful not to pinch the wires.



-Remove Strap roller from inside the frame by pulling on the strap..



-Remove the Lower limit arm from the Limit Kit.

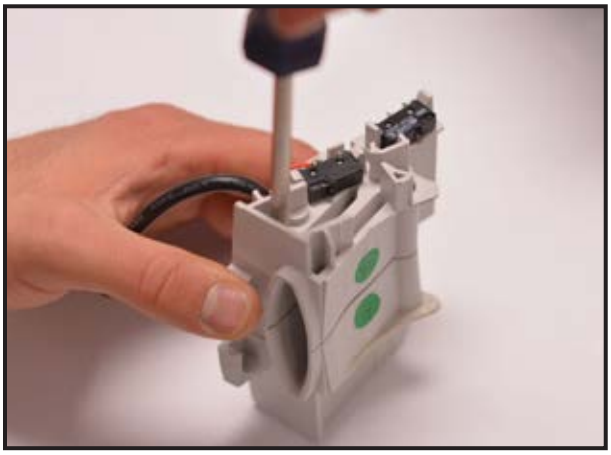


-Unscrew the two Torx T20 screws and separate the Limit Kit into two pieces.
-Remove strap.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE LIMIT KIT FOR THE WOVEN STRAP



NOTE

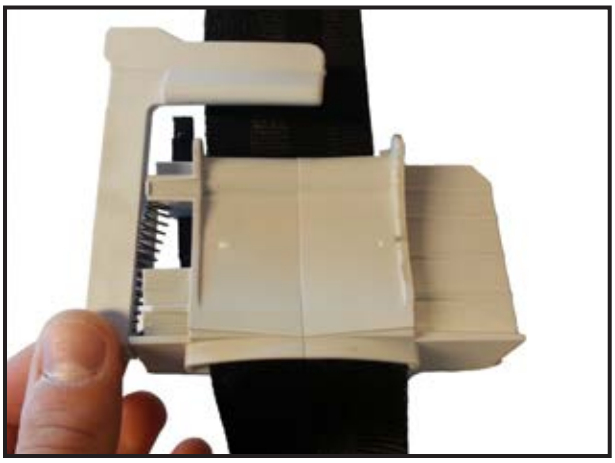
IF THE LIFT IS EQUIPPED WITH A COATED STRAP, REFER TO “INSTALLING THE LIMIT KIT FOR COATED STRAP”, PAGE 6-64.

NOTE

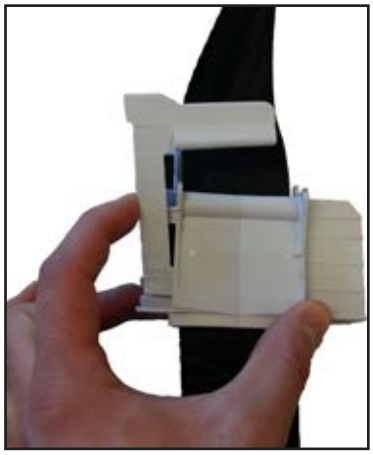
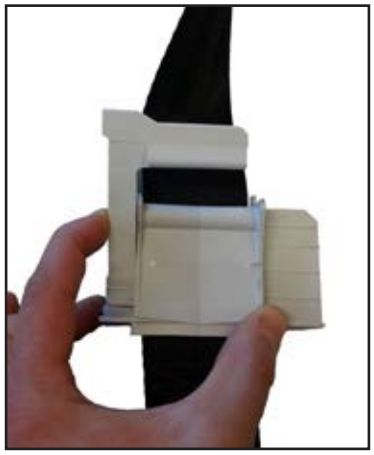
IF THE LIMIT KIT IS NEW, UNSCREW THE TWO TORX T20 SCREWS AND SEPARATE THE LIMIT KIT.

-Place strap inside the Limit Kit assembly
-Mount and tighten the two Torx T20 screw.

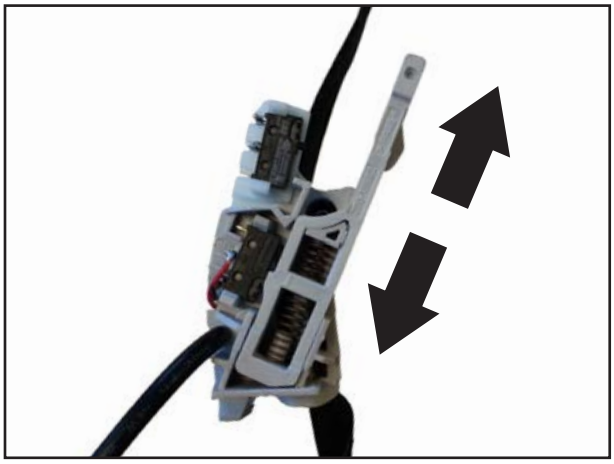
-Pop out the extremity of the spring lower limit.



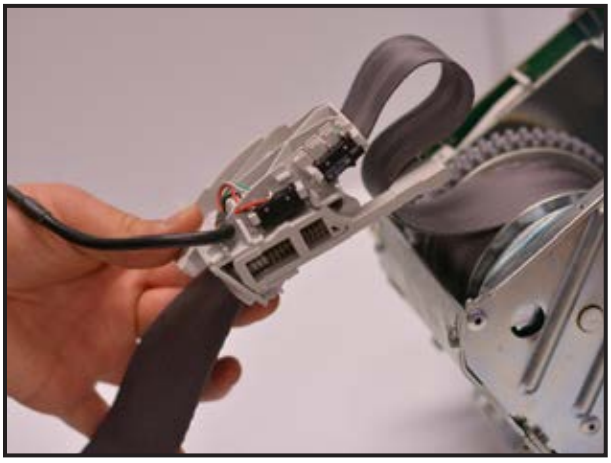
-Approach the Lower limit arm to place the spring so it will press on the wall.

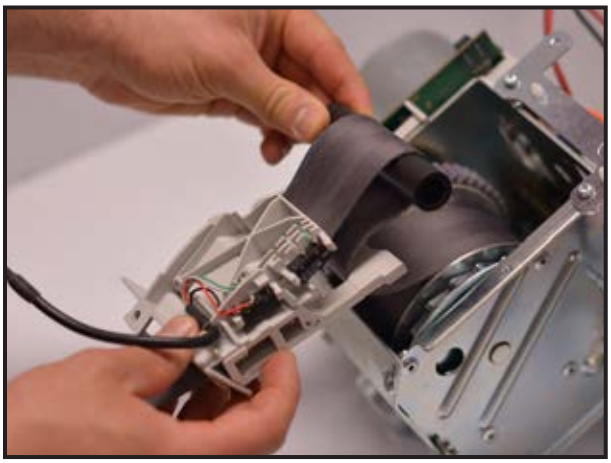
-Push the Lower limit arm in place starting with the bottom.



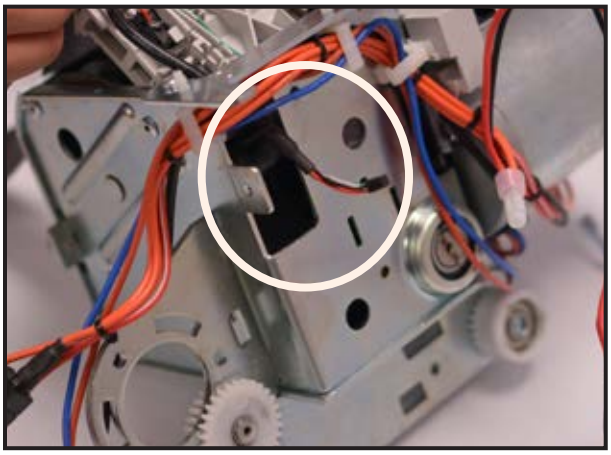
-Once the Lower limit arm is installed, verify if it moves freely. Pull on the arm and the spring shall return in its initial position without restriction.



-Push strap inside the Limit Kit assembly to be able to insert the strap roller.

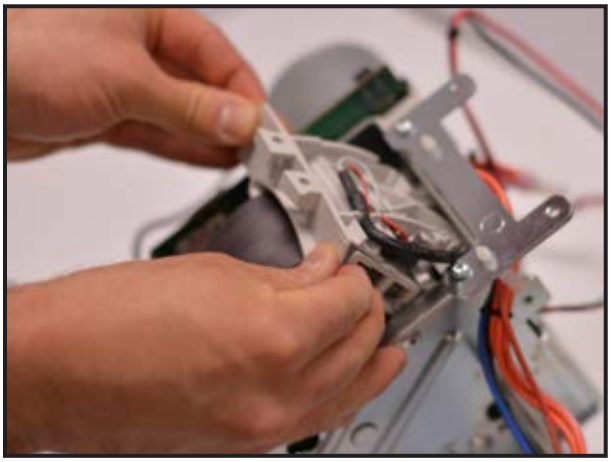


-Insert the strap roller into the assembly.

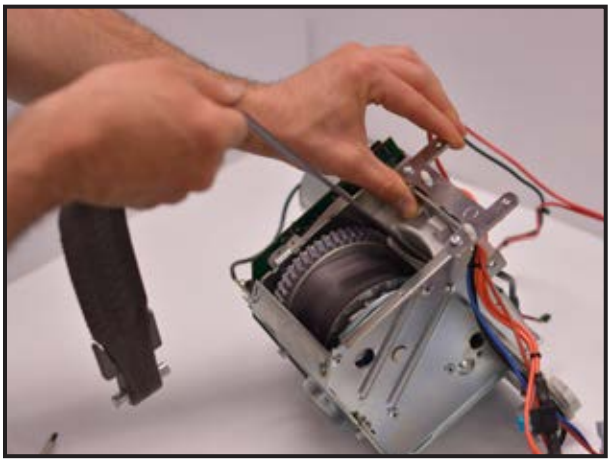


NOTE

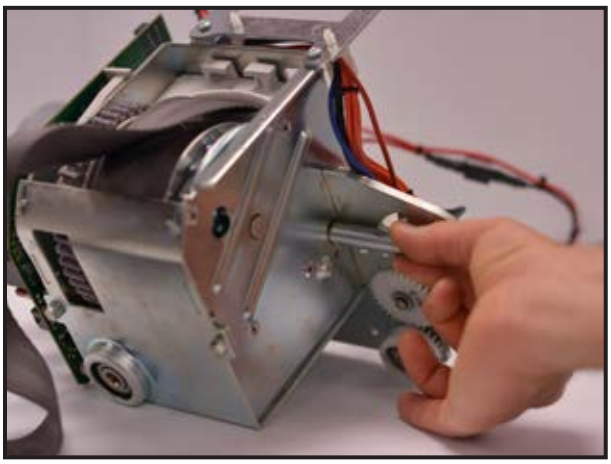
MAKE SURE THAT THE LIMIT KIT'S CABLE PASSES THROUGH THE FRAME'S OPENING.



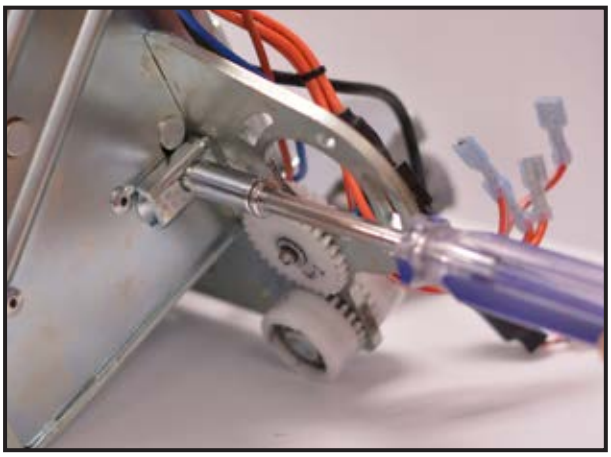
-Insert Limit kit assembly inside the Frame and make sure that the strap roller passes into the frame first and not at the same time as the Limit Kit.



-Once inside the frame, pull on the strap, while holding the Limit kit assembly. This will remove slack and tighten the strap around the drum.



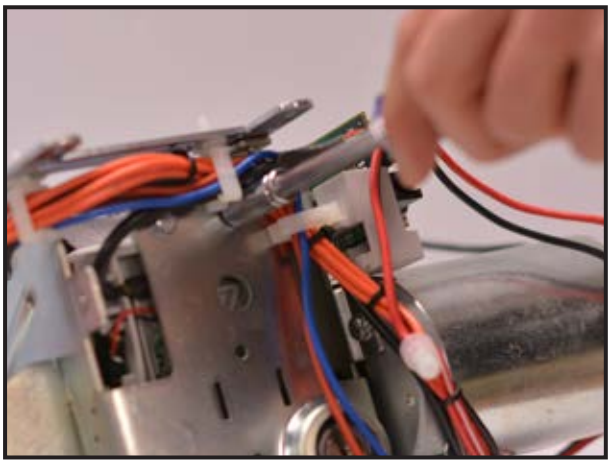
-Insert the 12mm shaft through the frame into the strap roller.



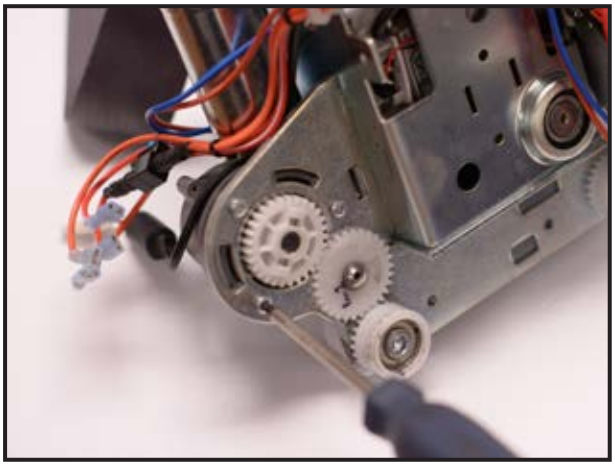
NOTE

PULL ON THE STRAP TO INSERT THE TROLLEY LOCKER.

-Mount trolley locker with M5 screw.



-Mount the Limit kit assembly with the two M5 screws.



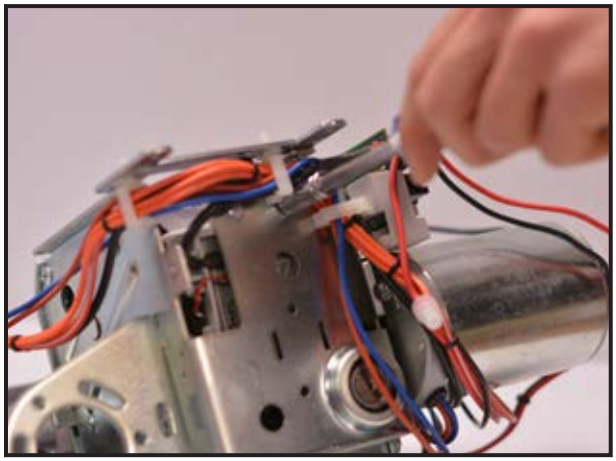
-If necessary, install the left/right motor and screw the three Torx T20 screws.

Refer to section “INSTALLING THE STRAP INLET”, page 6-42.

Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

-Turn the lift ON by pushing on the red button and perform a functional test (refer to section “FULL FEATURE TEST”, page 4-4 - item 5 for procedure).

REMOVING THE LIMIT KIT FOR COATED STRAP

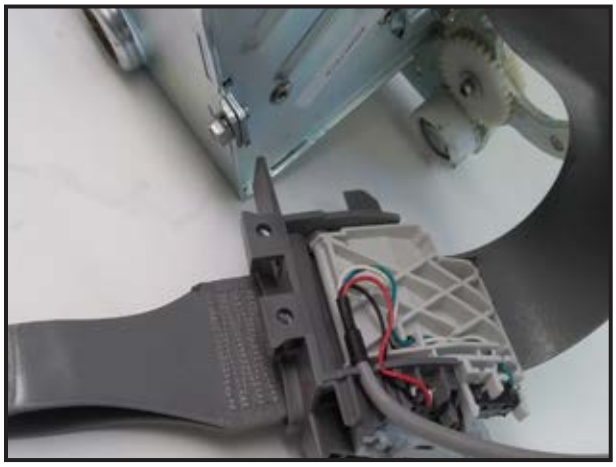


Refer to section “REMOVING THE TOP CABIN”, page 6-36.

Refer to section “REMOVING THE STRAP INLET”, page 6-40.

-Undo the two M5 screws retaining the LIMIT KIT assembly.

-Using the tool with a small hook at the end, pull around 20mm on the LOW LIMIT ARM and then remove the Limit Kit IC assembly from the frame.
-Be careful not to pinch the wires.



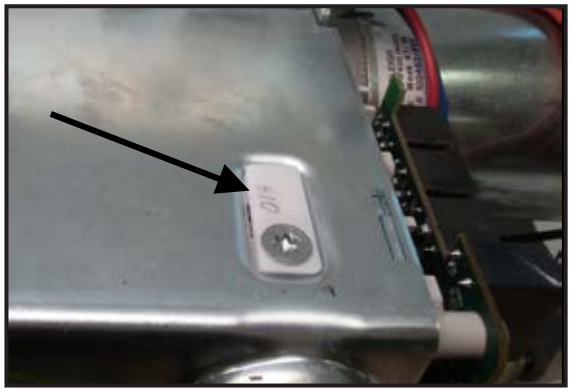
-The strap can pass through the LIMIT KIT IC as long as the strap interface has been removed.

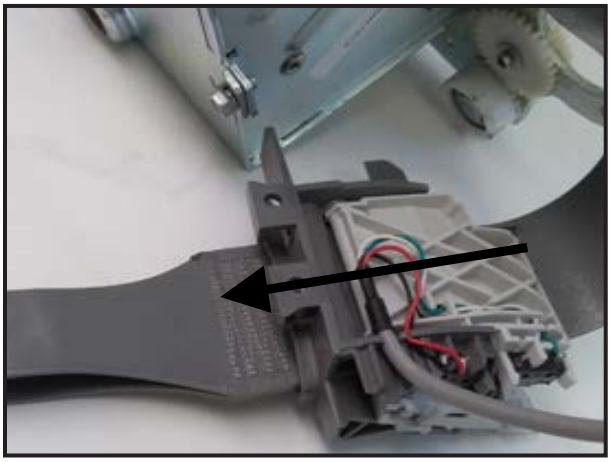
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

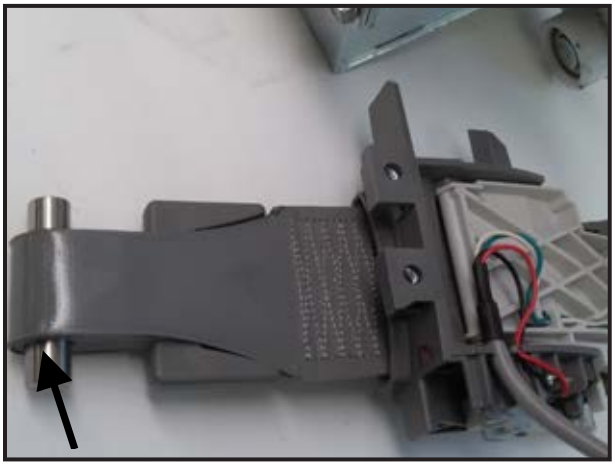
INSTALLING THE LIMIT KIT FOR COATED STRAP

Make sure that the WORM PROTECTOR is present into the frame, if not, install it with the M6 self threading screw.

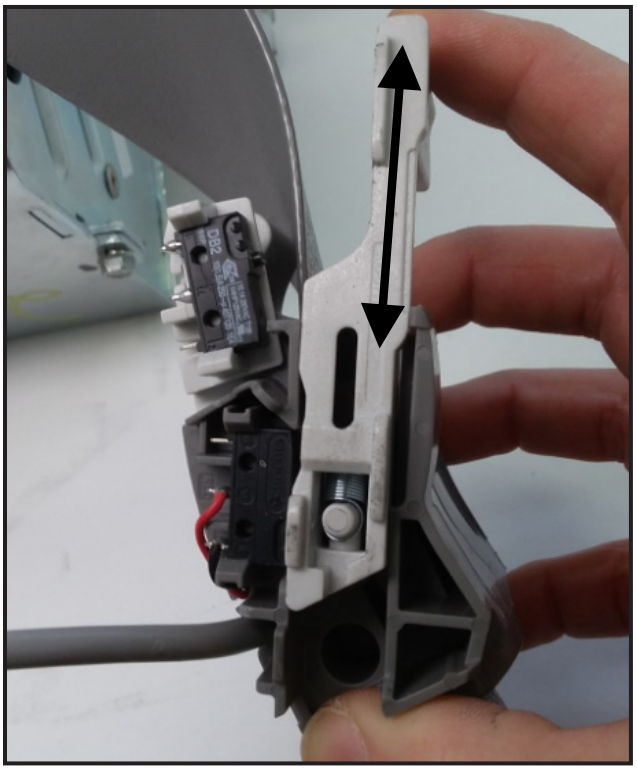




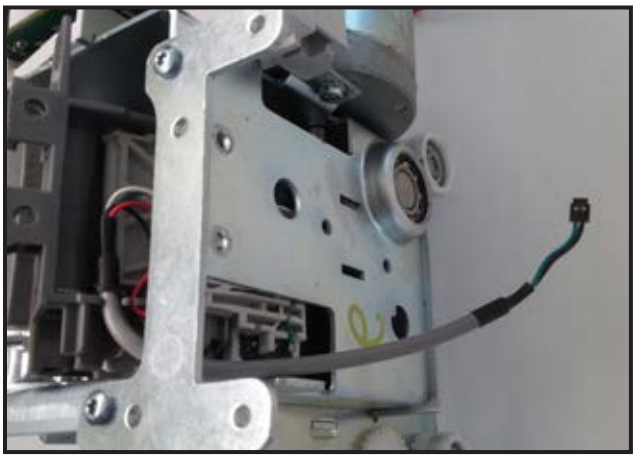
-Route the strap buckle into the LIMIT KIT IC.



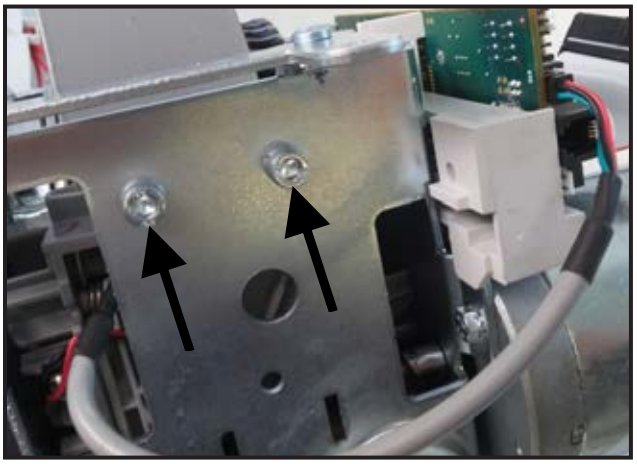
-Install the STRAP INTERFACE back into the strap buckle.



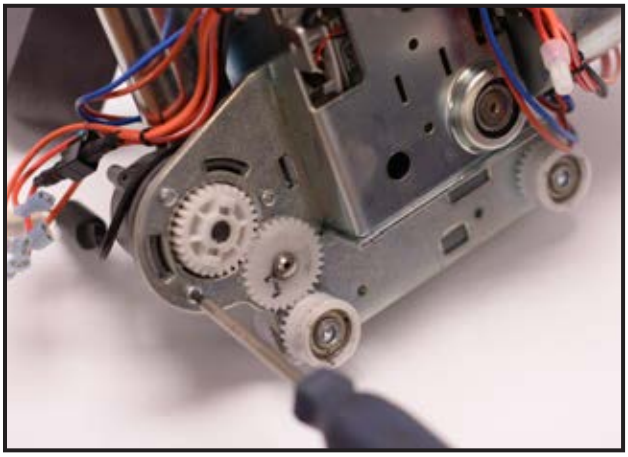
-Inspect the LOW LIMIT CONTACT SPRING that is in place and verify that the LOW LIMIT ARM moves freely.



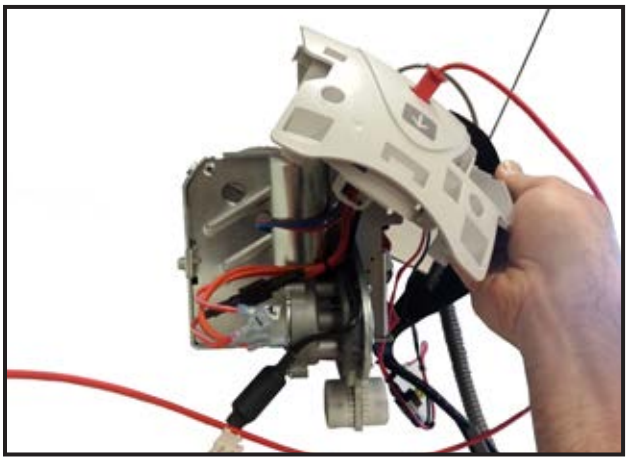
-Insert the new LIMIT KIT IC, assuring that the harness passes through the frame's opening. Pay special attention to the LOW LIMIT ARM and wires.



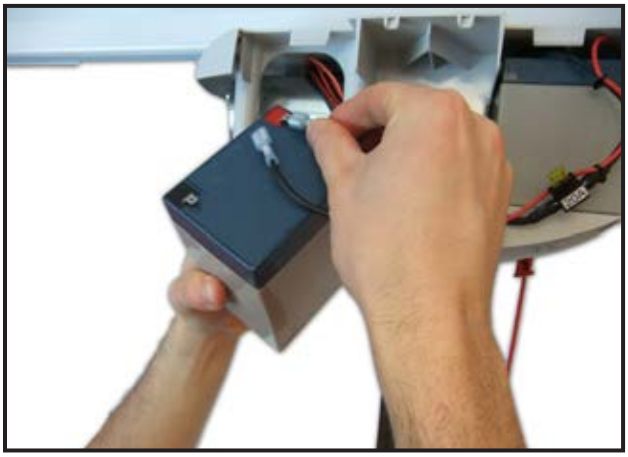
-Secure the LIMIT KIT IC with the two M5 screws.
-Plug the connector to the Main PCB.
-Lightly move strap back and forth until the switch clicking sound is heard. If the clicking sound doesn't happen, the LOW LIMIT ARM spring may have become unhooked.
-Re-install the L/R motor with 3 Torx T20 screws, if applicable (4 function unit).



-Re-install the L/R motor with 3 Torx T20 screws, if applicable (4 function unit).



-Installing the strap inlet (page 6-42).
-Installing the top cabin (page 6-38).



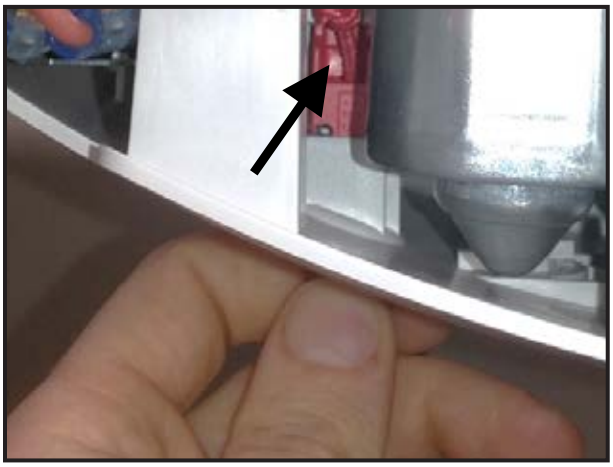
-Installing the batteries (page 6-21).
-Re-install the bottom cover.

-Installing the lift on the rail (page 6-5).
-Re-install the carry bar. Refer to “ACCESSORIES INSTALLATION”, page 6-2.
-Turn the lift ON by pushing the red button and perform a functional test (refer to “FULL FEATURE TEST”, page 4-4 - item 5 for procedure).

REMOVING THE EMERGENCY STOP CORD

-Check that the red button is pushed in (Lift “on”).

-Remove the bottom cover.



-Push the old cord in and cut the knot using scissors.
-Pull the old cord out and dispose.

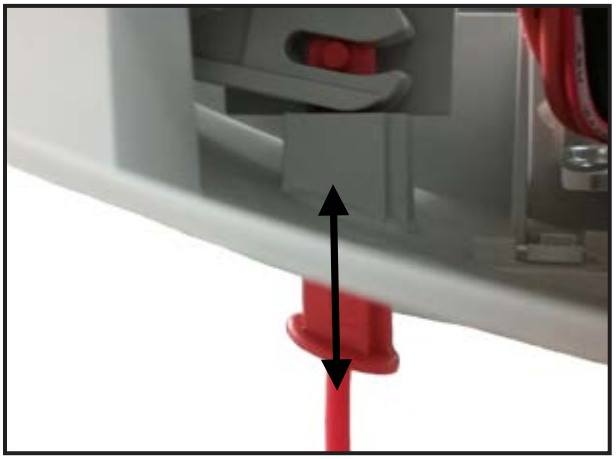
NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE EMERGENCY STOP CORD

-Feed the new cord into the red plastic insert (cut end tapered to ease insertion).

-Make a knot and tie it firmly.
-Cut exceeding length from the knot, leaving 3 mm leftover.
-Pull down on the cord to place the knot in its seat.

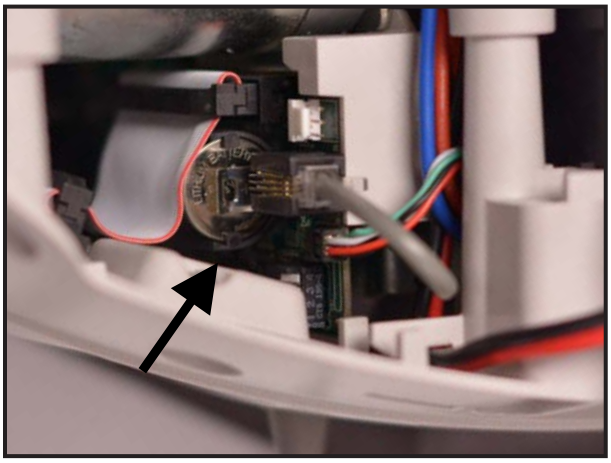


-Assure that the knot does not interfere in the up/down motion of the red plastic insert.

-Replace the bottom cover.
-Perform a “Push & Pull” test for the on/off system.

REAL TIME CLOCK BATTERY REPLACEMENT

-Pull on the red emergency stop cord.
-Remove the bottom cover.
-Locate the battery on the main circuit board.
-Pull out the battery with long nose pliers.

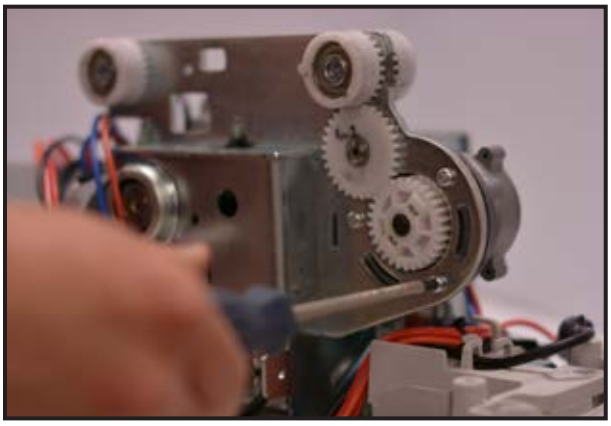


-Install the new battery (assure that the polarity is correct, with the “+” facing the handset connector.
-Re-install the bottom cover.
-Adjust date and time (see page 5-2).
-Reset the PM code “C” (see Reset Maintenance Code section).
-Without any weight, press up until the spreader bar reaches the high limit.

NOTE

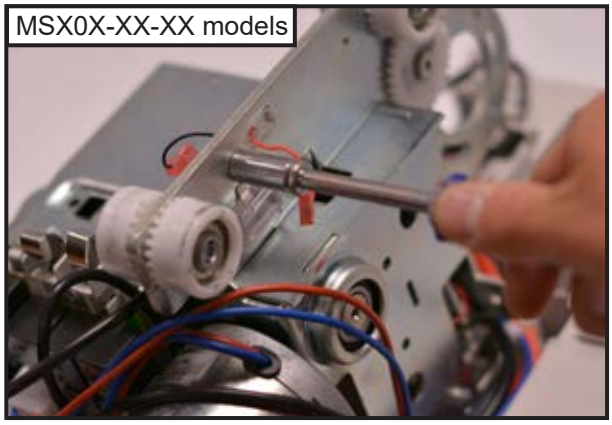
DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

REMOVING THE TROLLEY



Refer to section “REMOVING THE TOP CABIN”, page 6-36.

-If applicable (4-function unit), remove the Left/Right motor from the actual trolley (three Torx T20 screws).

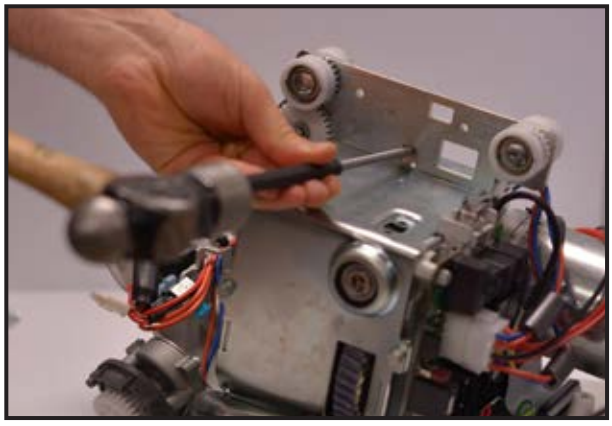


ECS MSX0X-XX-XX models only:
- Remove the ECS components, including the ECS contact box and plastic support. These will be reinstalled on the trolley later.

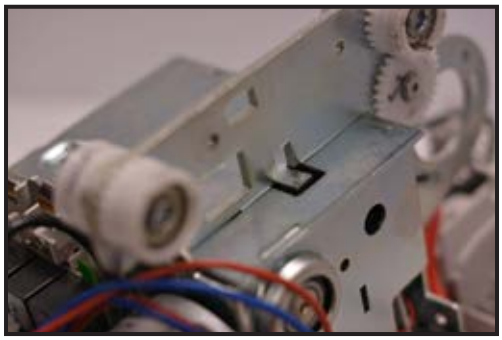
NOTE

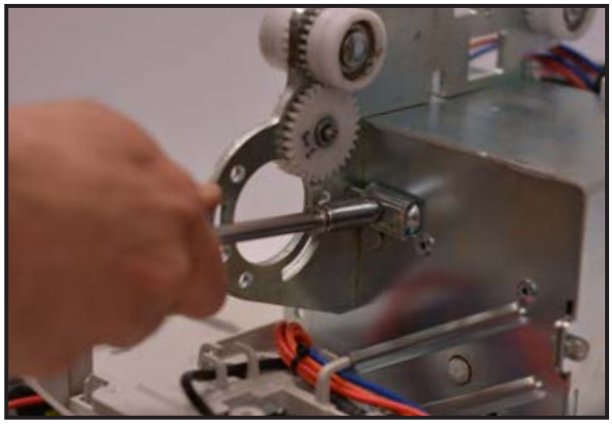
BE CAREFUL NOT TO DAMAGE THE ECS CONTACT BOX WHEN DISCONNECTING THE WIRING.

MSX3X-XX-XX models only:
-Refer to section “REMOVING THE ECS GATE CONTACT KIT (MSX3X-XX-XX MODELS)”, page 6-32.

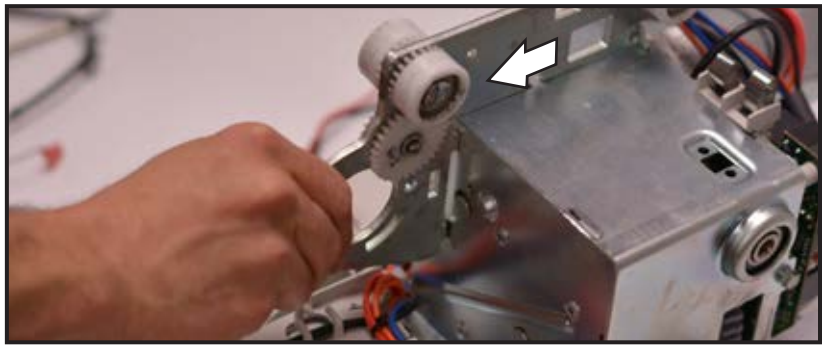


-Unbend the tab securing the trolley.





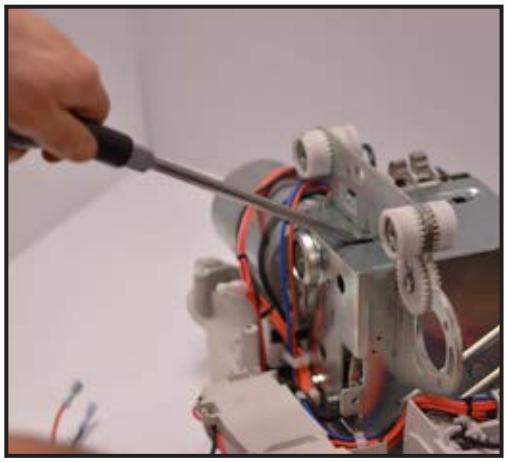
-Remove the trolley locker.
-Remove the trolley.

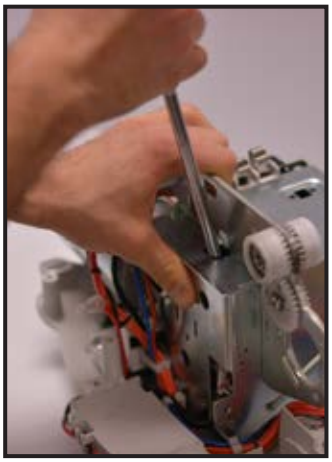


NOTE

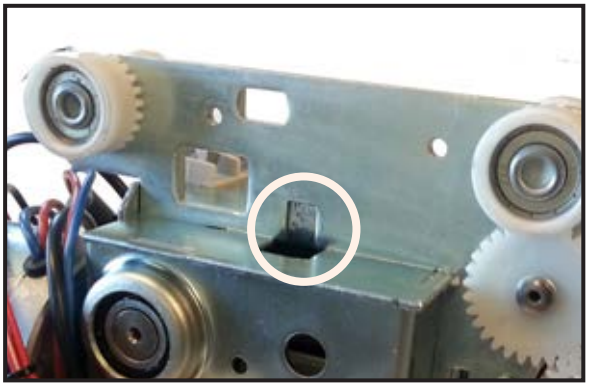
DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS GOOD ENVIRONMENTAL PRACTICES.

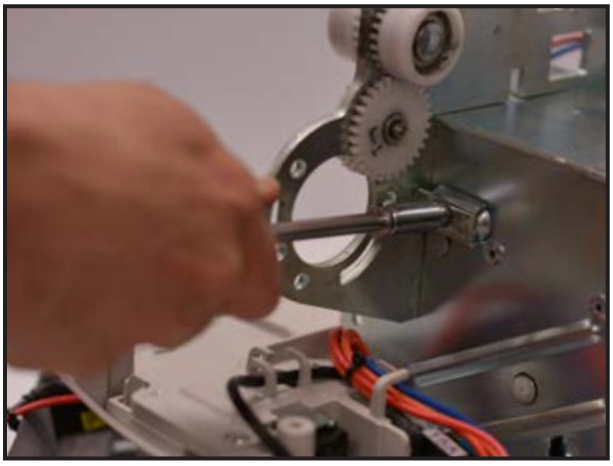
INSTALLING THE TROLLEY





-Install the new trolley onto the transmission and bend the locking tab back as it was before.





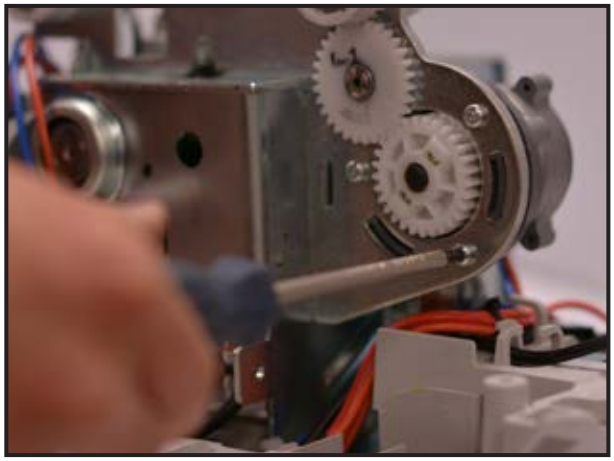
-Reinstall the trolley locker using the M5 screw.

WARNING

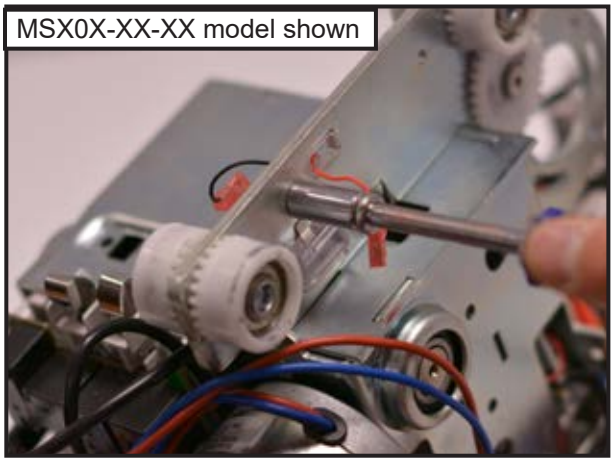
FAILURE TO USE THE TROLLEY LOCKER AND THE LOCKING TAB TO SECURE THE TROLLEY CAN LEAD TO A PATIENT FALL

WARNING

IT IS IMPORTANT TO REMEMBER TO DO THIS STEP TO AVOID ANY DAMAGE TO THE PRODUCT, RESULTING IN INJURY TO YOURSELF OR OTHERS. ONLY FOUR TIMES PER CHASSIS IS ALLOWED FOR THIS OPERATION.



-If applicable (4 functions unit), re-install the Left/Right motor.



MSX0X-XX-XX model shown

-If applicable (ECS unit), re-install ECS contact kit. Refer to “INSTALLING THE ECS GATE CONTACT KIT (MSX3X-XX-XX MODELS)”, page 6-33, or “INSTALLING THE ECS (MSX0X-XX-XX MODELS)”, page 6-30.

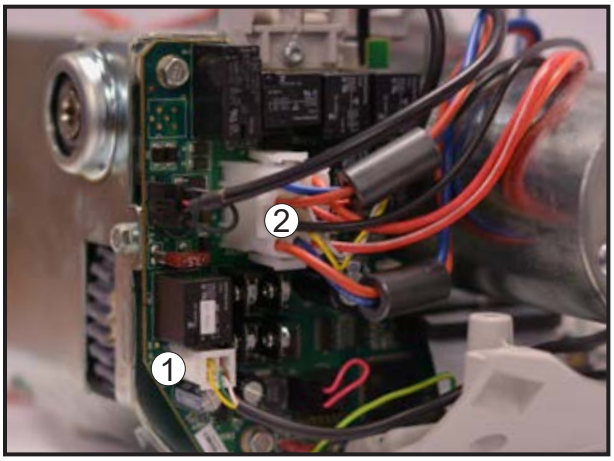
Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

WARNING

WHEN HANDLING 4 FUNCTIONS MODEL ASSEMBLY, PAY ATTENTION TO PINCHING POINTS BETWEEN GEARS TO PREVENT INJURIES.

-Turn the lift ON by pushing on the red button and perform a functional test (refer to section “FULL FEATURE TEST”, page 4-4 for procedure).
-Perform a safe working load test.

REMOVING THE UP/DOWN MOTOR



Refer to section “REMOVING THE TOP CABIN”, page 6-36.

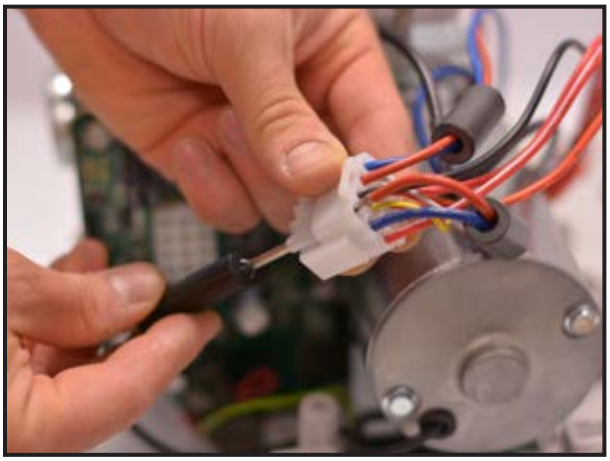
-Disconnect the motor encoder 4-pin connector from the main board (1).

WITHOUT MOTOR BRAKE (MB) OPTION

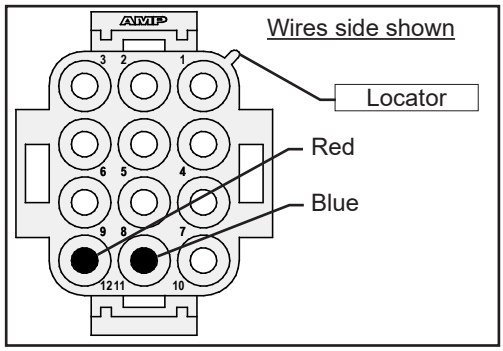
-Disconnect the 12-pin connector from the main board (2)

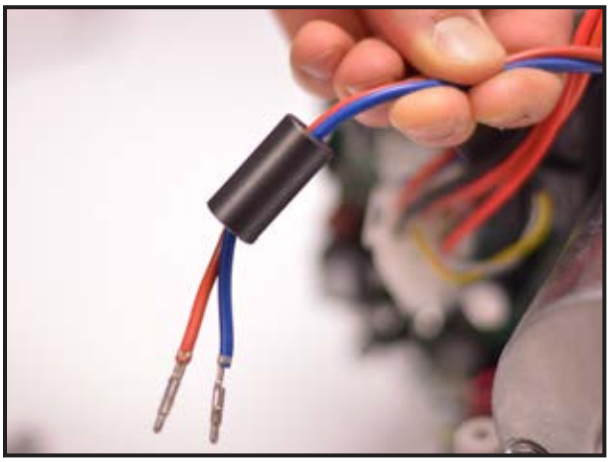
WITH MOTOR BRAKE (MB) OPTION

-Disconnect the 12-pin connector from the brake board (2).
-Disconnect the motor brake (MB) connector from the brake board (3).

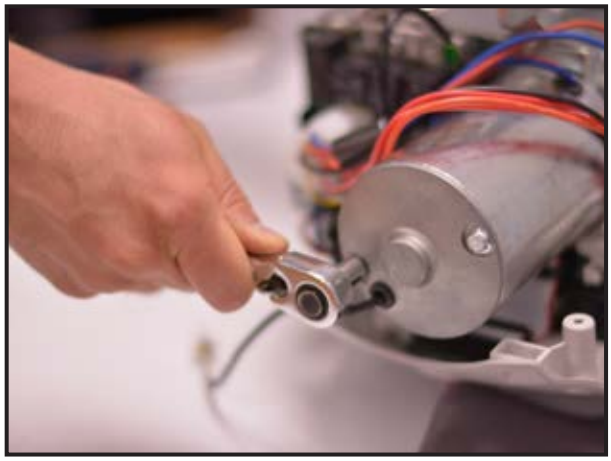


-Using a pin extractor, remove the pins at position 11 and 12.

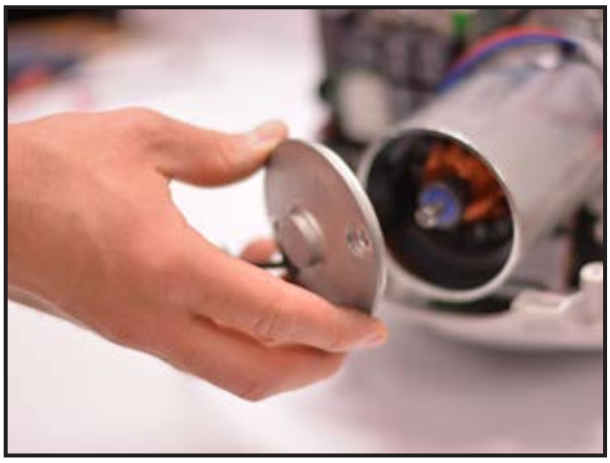




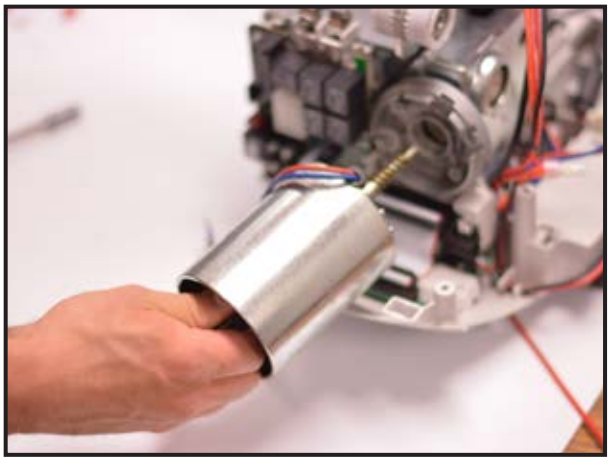
-Remove the ferrite and keep it for the new motor.



-Using an 8mm key, undo the two hex screws at the end of the Up/ Down motor.



-Remove the back cover of the motor.



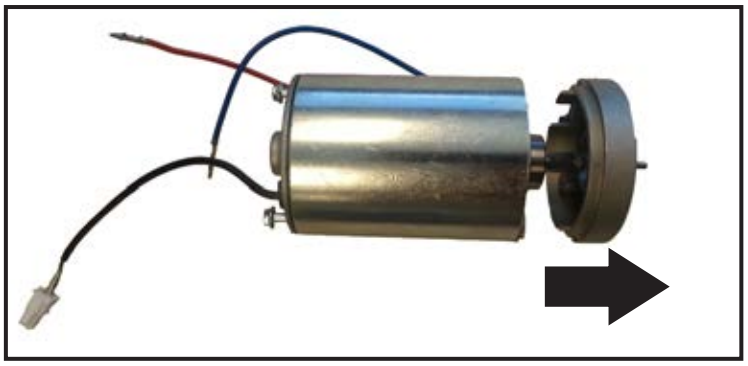
-Pull on the shaft to remove the motor from the lift. Only the aluminium flange will remain on the frame.

NOTE

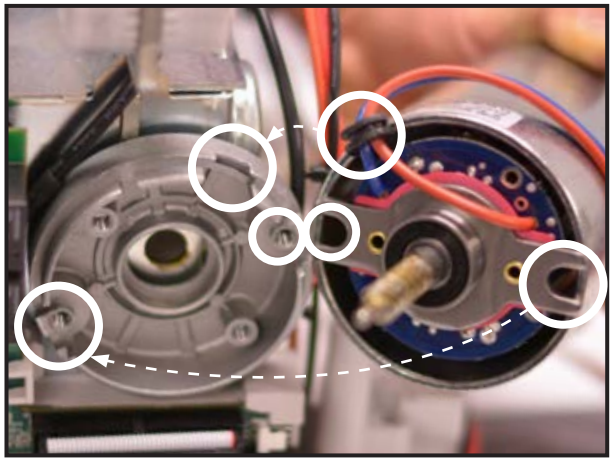
DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

INSTALLING THE UP/DOWN MOTOR

-Unscrew the two hex screws at the end of the new Up/Down motor and remove the front flange.



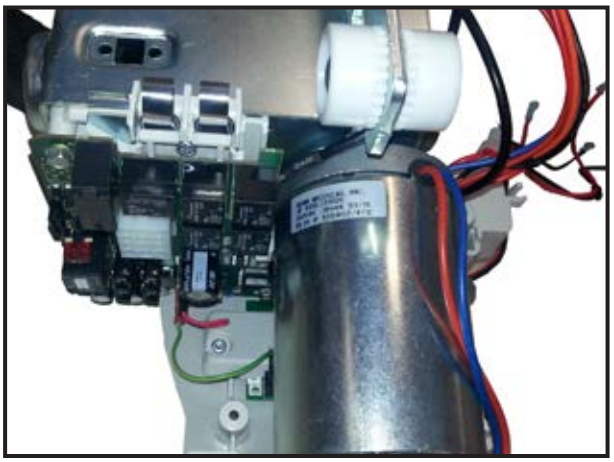
-Slightly apply grease (P8190) to the motor shaft.



-Insert the new Up/Down motor into the old flange on the frame.

NOTE

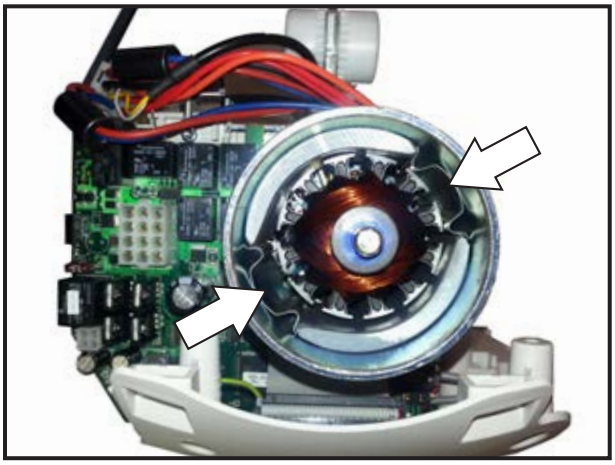
BE CAREFUL TO NOT PINCH THE WIRES BETWEEN THE FLANGE AND THE MOTOR.



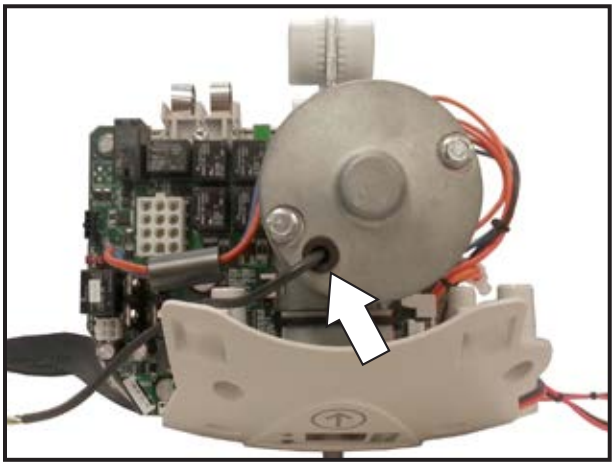
-Make sure to align the motor casing correctly.

NOTE

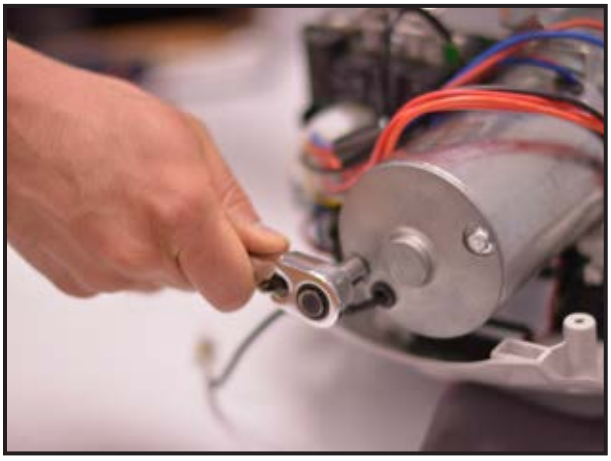
IF THE MOTOR CASING IS ROTATED BY 180°, THE UP/DOWN FUNCTIONS WILL BE INVERTED.



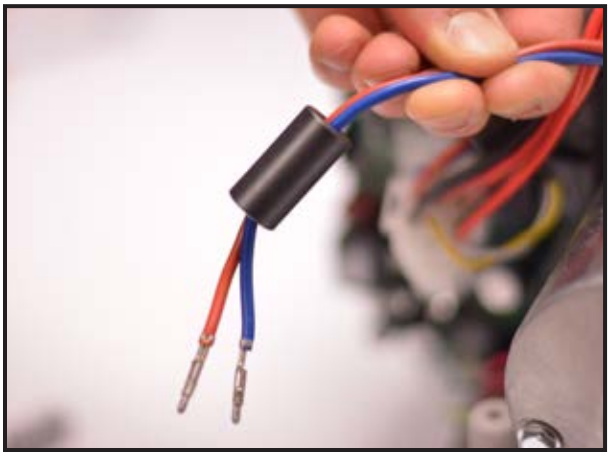
-The two screws of the back cover must pass in the area pointed by the arrows.



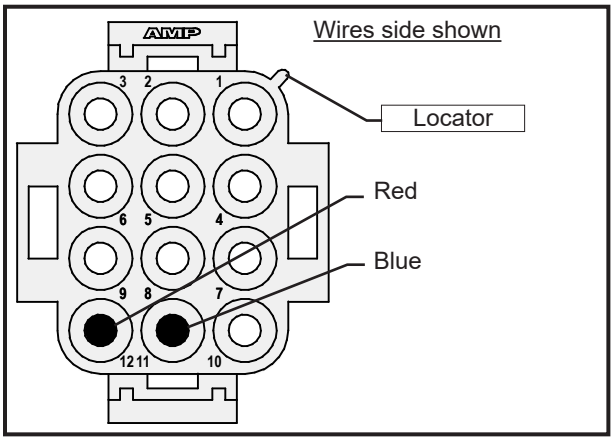
-Install the back cover of the motor with the two hex screws.
-The encoder wire shall be in the lower portion of the motor.



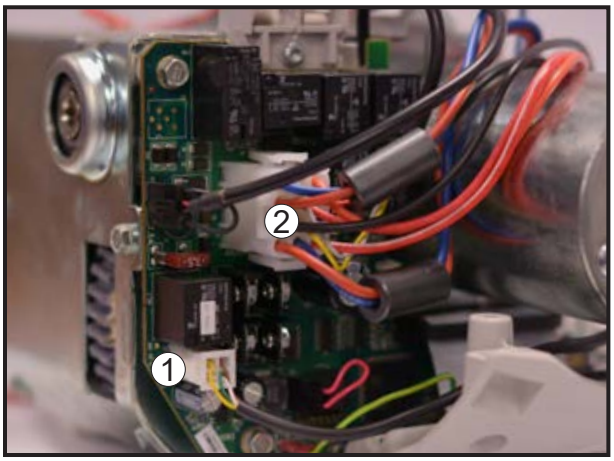
-Using an 8mm key, screw the two hex screws that pass through the Up/Down motor.



-Install the ferrite from the old motor.



-Insert the blue wire into position 11 and the red wire into position 12 of the 12-pin connector.



-Connect the motor encoder 4-pin connector to the main board (1).

WITHOUT MOTOR BRAKE (MB) OPTION

-Connect the 12-pin connector to the main board (2)

WITH MOTOR BRAKE (MB) OPTION

-Connect the 12-pin connector to the brake board (2).
-Connect the motor brake (MB) connector to the brake board (3).

Refer to section “INSTALLING THE TOP CABIN”, page 6-38.

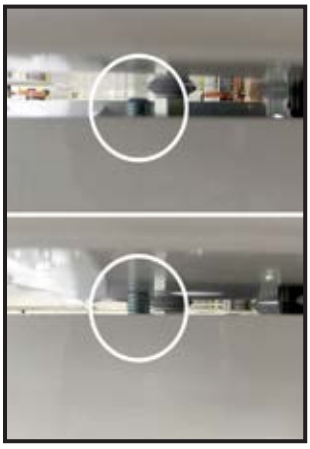
-Turn the lift ON by pushing on the red button and perform a functional test (refer to section “FULL FEATURE TEST”, page 4-4 - Item 3 and 5 procedures need to be followed).
-Perform a safe working load test.

WARNING

Before performing any type of maintenance on the *Maxi Sky 2* Plus, user shall lock the rotation of the bottom plate of the MS2 Plus trolley by tightening the set screw with a 6 mm Allen key. This set screw is located above one of the ceiling lifts. Tilt the ceiling lifts to locate it. Once the maintenance is completed, do not forget to unlock the bottom plate by unscrewing the screw.

-The key hole is hidden above one of the ceiling lifts. Tilt the ceiling lift to locate it.

- Insert a 6 mm Allen key into the hole in the trolley and turn set screw clockwise to lock it.



-Tighten the set screw so that the bottom plate of the trolley will not swivel.

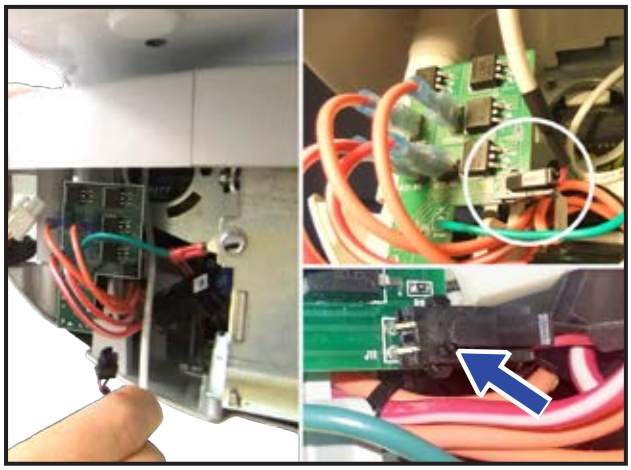
REPLACING ONE OF THE MS2 PLUS CEILING LIFTS

First of all, ensure that the software revision of the new lift that will be inserted in the *Maxi Sky 2* Plus is equal or higher than 3.0.41. If the revision is lower, the software will not be compatible with the *Maxi Sky 2* Plus configuration. Refer to section 4-7 of this document for software version determination.

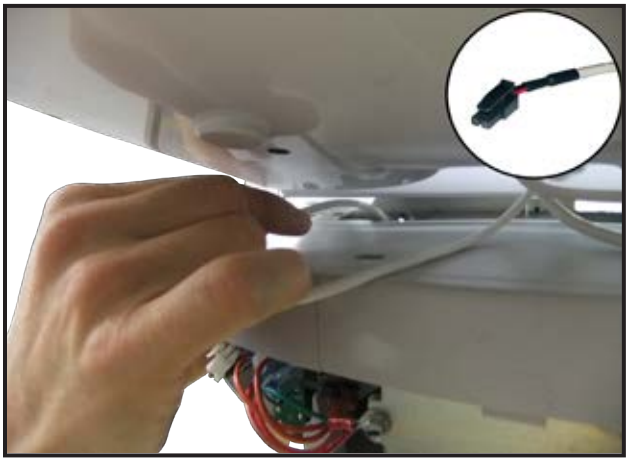
Pull on one of the emergency stop cords to shut down both ceiling lifts.

Remove the spreader bar, refer to “ACCESSORIES REMOVAL”, page 6-3.

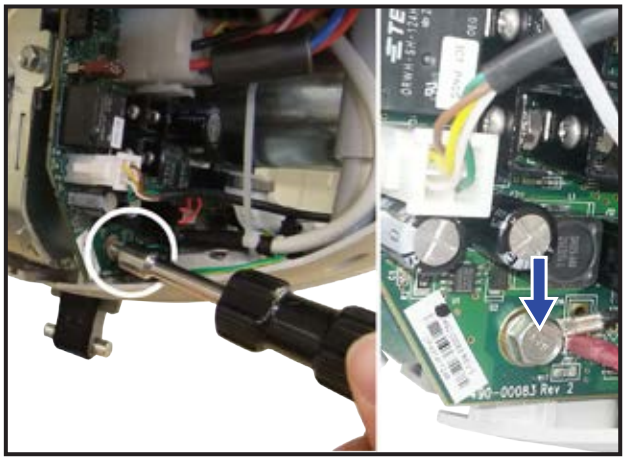
Remove the bottom cover.



-Unplug the emergency stop harness from the circuit board.



-Pull out the emergency stop harness from the ceiling lift enclosure.



-Using a 8 mm wrench unscrew the M5 bolt that holds the ring terminal of the serial communication cable.

-Cut the cable tie that holds the serial communication cable and unplug it.

Unplug the swivel connection cable. Depending if the *Maxi Sky 2 Plus* is ECS or C-Stat, the cable can be unplugged from two different locations.

C-STAT Configuration

-Unplug the swivel connection cable from the 12 pin connector using the pin extractor. Refer to “REMOVING THE CONTACT BLADE KIT”, page 6-44.

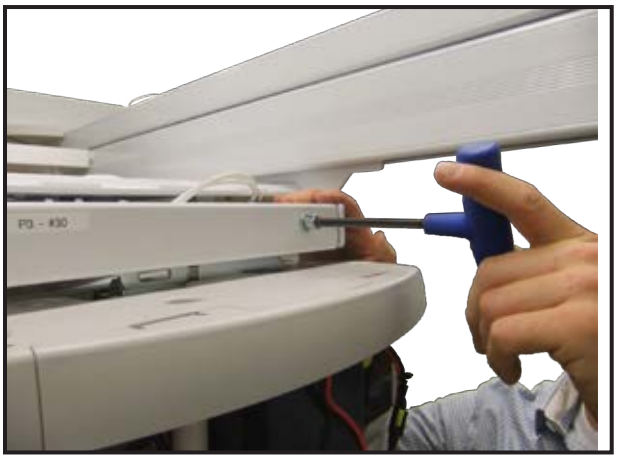
ECS Configuration (MSX0X-XX-XX models)

-Unplug the cable from the connector J2 on main board.

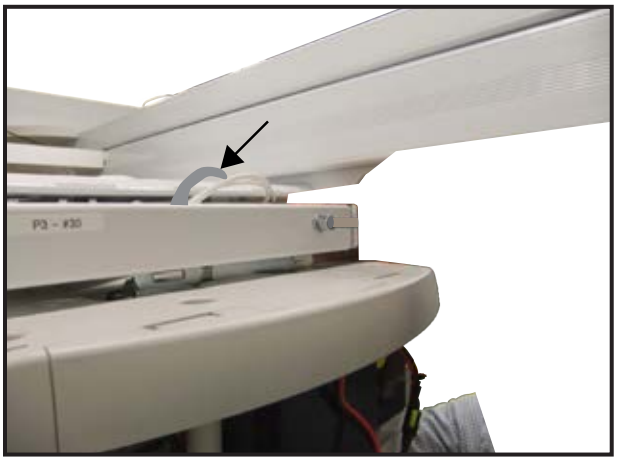
-Pull out both the serial communication cable and swivel connection cable from the ceiling lift enclosure.

ECS GATE Configuration (MSX3X-XX-XX models)

-Follow the two procedures presented above for C-STAT and ECS configurations.



-Remove the screw that locks the ceiling lift in place using a 6mm Allen key.



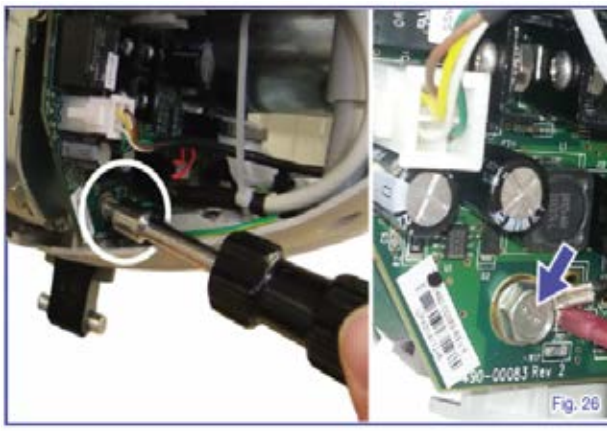
-Pull up on the lock located on the top of the trolley. The lock is unlocked when it is in its full upright, vertical position.

Remove the ceiling lift by sliding it towards your right. Be careful and grip the ceiling lift firmly with both hands because after about one inch (25 mm) of travel the lift will fall out of the trolley.

To install the new ceiling lift, reverse the above procedures. Refer also to 001-31229-EN “Initial Start Up” beginning at section 5.

INVERTING THE LEADING HOIST WITH THE DRIVEN HOIST

This procedure inverts the role of the ceiling lifts within the *Maxi Sky 2* Plus, but does not implicate to physically invert the ceiling lift. The leading will become the driven, and the driven will become the leading. This is recommended when the *Maxi Sky 2* Plus was mainly used in single mode which causes more wear on the leading lift than on the driven ceiling lift.



Using a 8mm wrench, unscrew the M5 bolt that holds the ring terminal of the serial communication cable.

Cut the cable tie that holds the communication cable and unplug it.

Make sure that the two lifts are on by pushing in both emergency stop buttons. An error code “24” will appear on screen, ignore this error.

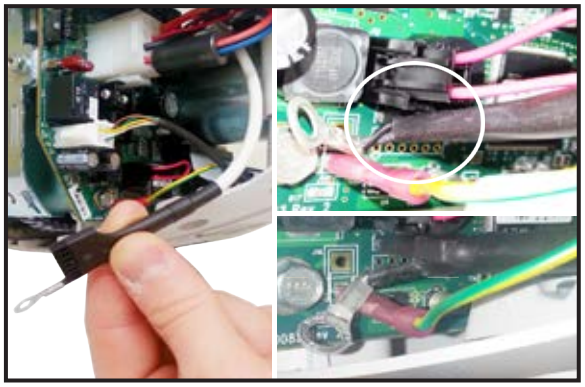
Set the leading ceiling lift in single mode. To do this, access the customizing menu by pressing and holding the button for five seconds.

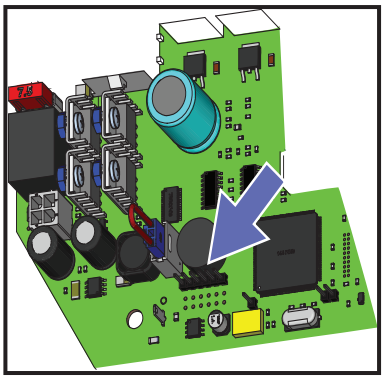
Using the and buttons to navigate through the menu. Select the “Dual / Single Mode” menu and press the button. Select “Single” and confirm by pressing the button.

To confirm that this step has worked, exit and go back to customizing menu, “Dual / Single Mode” will no longer appear in the list of customizing menu. This means the former leading ceiling lift now behaves like a standalone MS2.

Pull on one of the emergency stop cables to shut down both ceiling lifts.

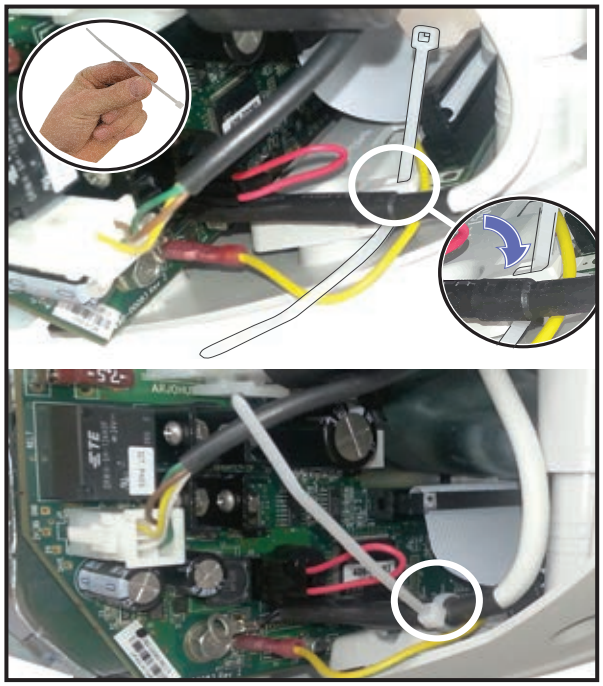
Unplug the hand control from the former leading ceiling lift and plug it into the other ceiling lift. Refer to the “Wired hand control removal” and “Wired hand control installation” sections of this manual.





Plug the communication cable back in that was unplugged earlier in these procedures.

Gently pull the cable towards the bottom of the ceiling lift and plug the cable into the main board as shown.



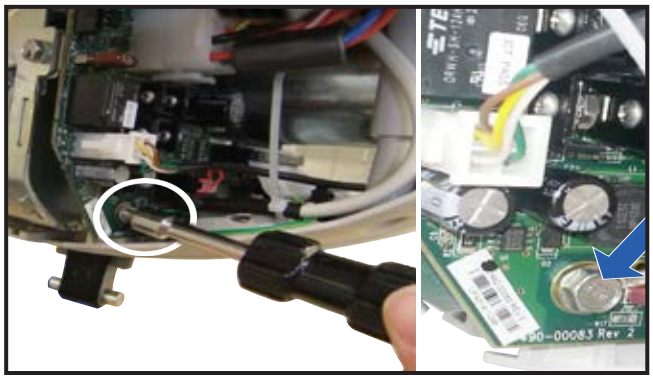
Secure the cable with a new plastic cable tie.

-First insert the tie-wrap in the slot shown in the picture at left.

-Firmly plug in the connector.

-Tighten tie-wrap and trip off excess.

NOTE: When inserting the tie-wrap do not include the yellow ground wire as well. See picture at left.



-Remove the nearby bottom screw that secures the circuit board using a 8 mm socket.

-Insert the ring terminal onto the screw and reinstall to the frame. Tighten screw and ensure orientation is as shown in picture at left.

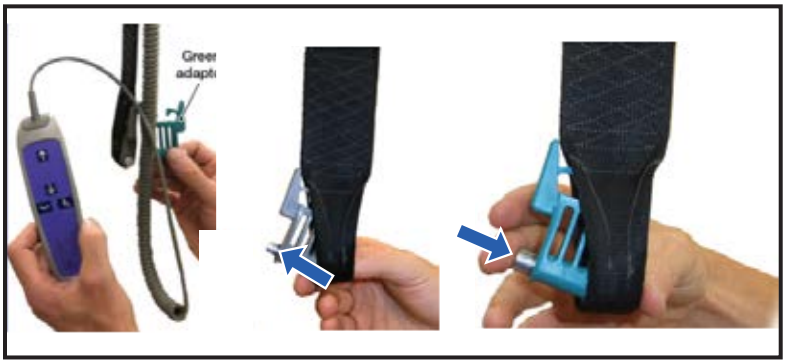
NOTE

HOLD THE GROUND WIRE RING TERMINAL IN PLACE WHILE TIGHTENING THE SCREW.
MAKE SURE THAT THE TWO LIFTS ARE ON BY PUSHING IN BOTH EMERGENCY STOP BUTTONS.

Set MS2 Plus in dual mode. To do so, access the customizing menu by pressing and holding the button for three sections.

Using the and buttons to navigate through the menu. Select the “Dual / Single Mode” menu and press the button. Select “Dual” and confirm by pressing the button. Select “back” and press the button to exit menu.

Remove the spreader bar.



On the new leading ceiling lift (the one with the hand control) remove the grey strap interface and install the green strap interface taken from the other ceiling lift. The green strap interface needs to be on the leading ceiling lift.

Reinstall the spreader bar taking care of matching the green strap interface with the spreader side that has the green dots.

Reference 001-31229-EN MS2 Plus “Initial Start Up” and perform “Testing the MS2 Plus system” section 13.

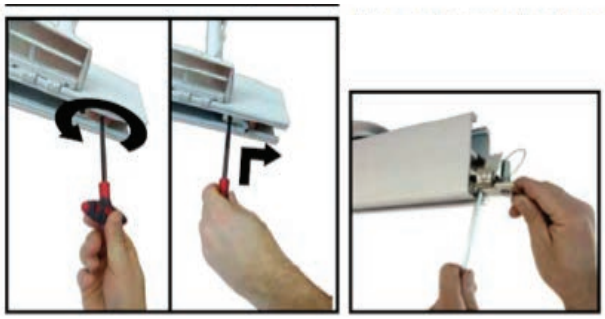
REPLACING THE MS2 PLUS ECS CONTACT BOXES

The MS2 PLUS can stay supported by tracks when servicing the ECS.

The MS2 PLUS will have to be partially extracted from the tracks in order to gain access to the ECS contact boxes.

-Pull one of the emergency stop cords to shut down both ceiling lifts.

Remove the ECS end caps from both tracks.
-Unscrew the set screw using a 6mm Allen key.
-Remove the ECS end of track contact box.



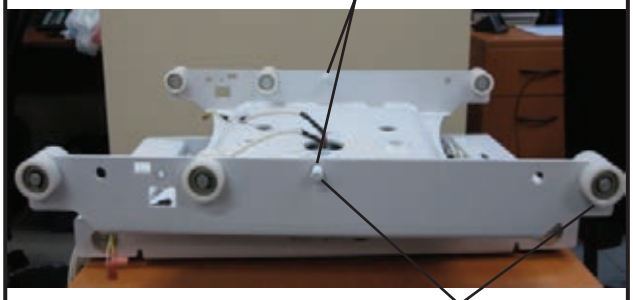
Remove end stopper at the end of both tracks.

-Unscrew the end stopper on the rail using a 6 mm Allen key.
-Press inside the hole to remove end stopper.

You must choose the correct end of the track, the one that is on the same side as the ECS contact boxes. This makes it possible to rest the trolley on one set of wheels and the middle pins.

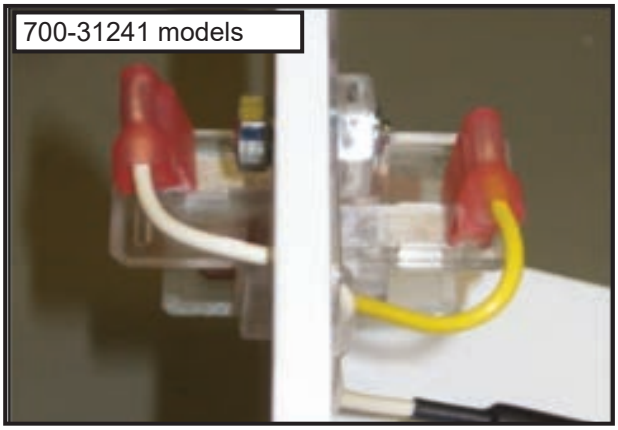
Mobile plate must be locked in the position shown at left.

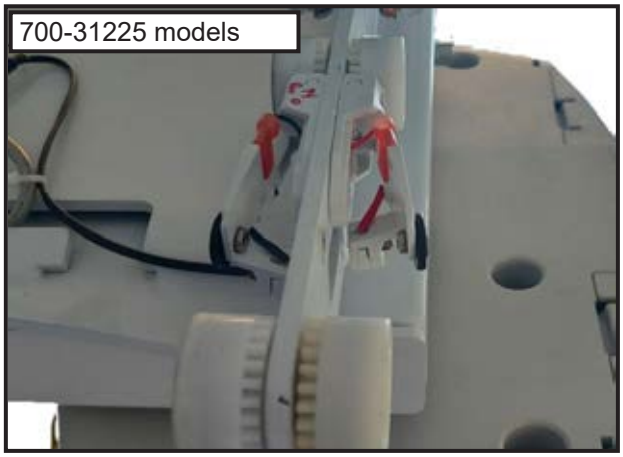
Middle pins



Resting points on tracks when servicing ECS contact boxes

-Bring the *Maxi Sky 2* PLUS to the end of the tracks and slowly extract it. Once the front sets of wheels (the two sets of wheels closest together) of the ECS trolley are free of the tracks, the *Maxi Sky 2* PLUS will drop down a few inches but will still be supported by the middle pins and the back set of wheels.





Once both ECS contact boxes are accessible, unplug all cables connected to the box.

Replace the ECS contact box. When connecting the yellow and white wires, locations are not critical, the wires may be connected on either side.

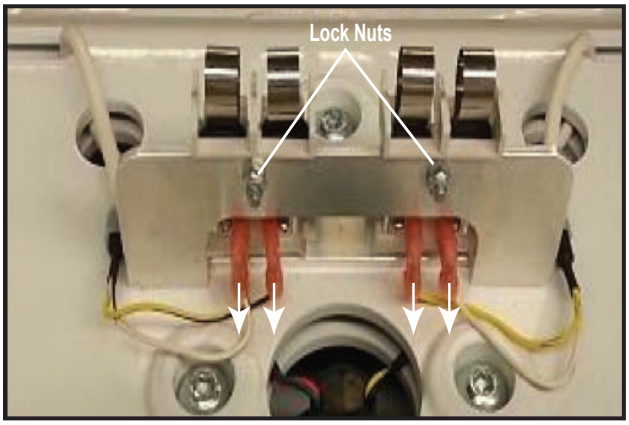
Once the new ECS contact box electrical cables are connected, reinsert the MS2 PLUS back into the tracks. Be very careful to align the ECS brushes with their respective copper strips.

Ensure both track stoppers are reinstalled and torqued to 20 Nm.

Make sure the two ceiling lifts are “On” by pushing in both emergency stop buttons.

Perform the test #10 B of section 13 “Testing the *Maxi Sky 2* PLUS system” of 001-31229-EN MS2 PLUS Initial Start Up.

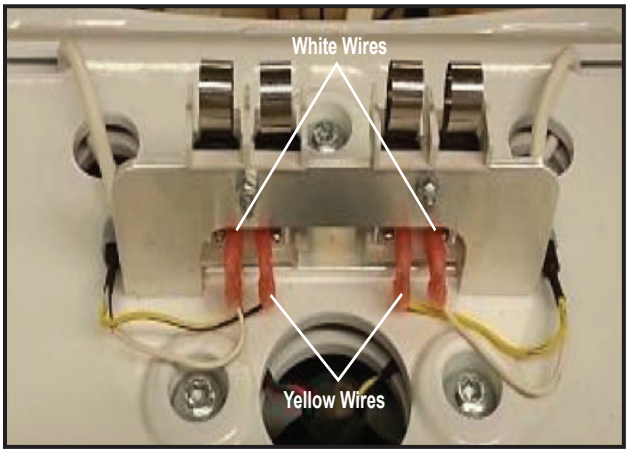
REPLACING THE MS2 PLUS CONTACT BLADES



Pull on one of the emergency stop cord to shut down both lifts. Unplug all four wires connected to the contact blade.

A pair of needle nose pliers may help to unplug the connectors.

Using a 7 mm wrench, unscrew the two lock nuts.



Remove the two M4 screws and the two contact blades.

-Install the two new contact blades kit with the supplied M4 screws. Slightly torque the new lock nuts. Do not over tighten the lock nuts because damage could occur to the plastic of the contact blades.

-Connect the wires to the contact blades with the yellow wires connecting to the inside terminals and white wires connected to the outside connectors.

Make sure the two ceiling lifts are “On” by pushing in both emergency stop buttons.

Perform test #10 A from section 13 “Testing the *Maxi Sky 2* PLUS system” of 001-31229-EN MS2 PLUS Initial Start Up manual.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

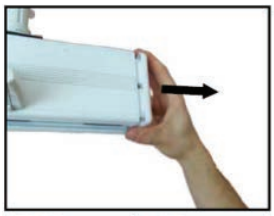
REPLACING THE MS2 PLUS CABLES

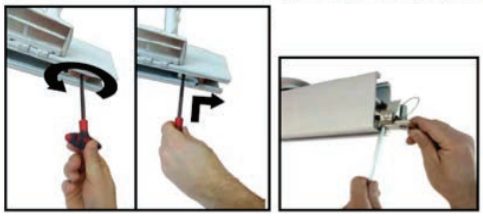
This procedure applies for the replacement of the Serial cable and the Swivel Connector cable.
Remove both ceiling lifts from the *Maxi Sky 2* Plus trolley. Refer to section “How to Replace Ceiling Lift in Trolley”.

Lock the bottom trolley rotation before beginning the procedure. Refer to”Introduction to Maintenance and Repair for Maxi Sky 2 Plus”, page 6-77.

Remove the ECS end caps.
-Unscrew the set screw using a 6mm Allen key.

Remove the ECS end of track contact box, if applicable.



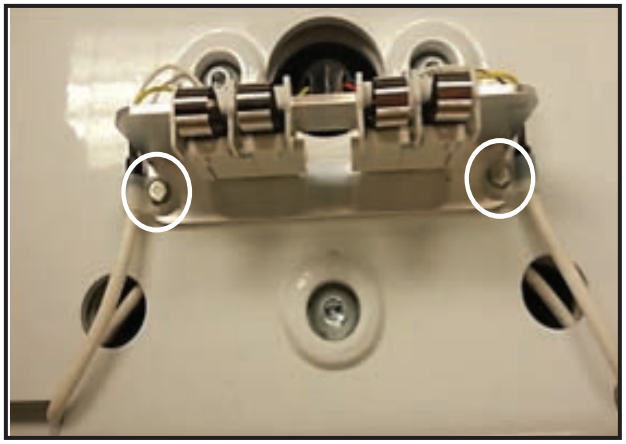


Remove the end stopper at the end of both tracks.
-Unscrew the end stopper on the rail using a 6 mm Allen key.
-Press inside the hole to remove end stopper.

WARNING

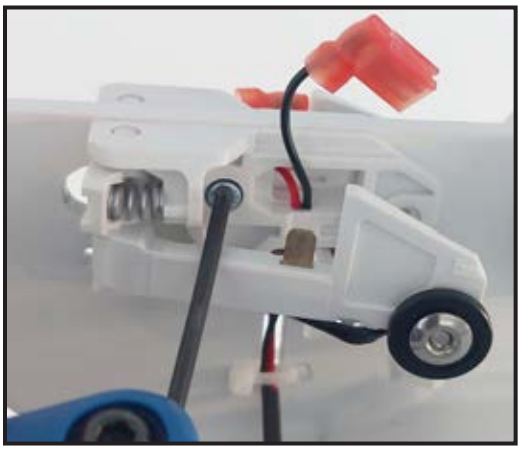
Carefully remove the *Maxi Sky 2* Plus trolley from the rail and place it on a flat surface.

The MS2 Plus trolley is heavy, weighing 27 kg (60 lb). Therefore it is recommended that two people perform this step.



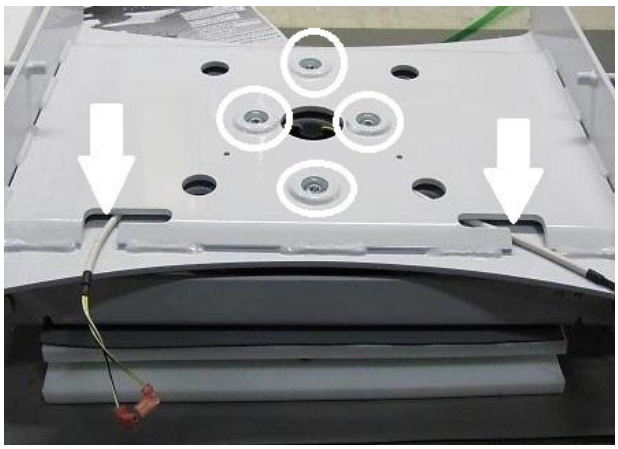
Unplug the wires from the contact blades and unscrew the cable holder.

Undo the cables from the top plate. Take care not to damage the connectors on the harness. They will be kept for reassembly.



Only for model 700-31225:

-Cut the cable ties that are holding the cables.
-Undo the M3 screw to free the cables from the ECS Gate contact kits using a 2.5mm Allen key. Hold the M3 locknut on the other side to make sure that you do not lose it.



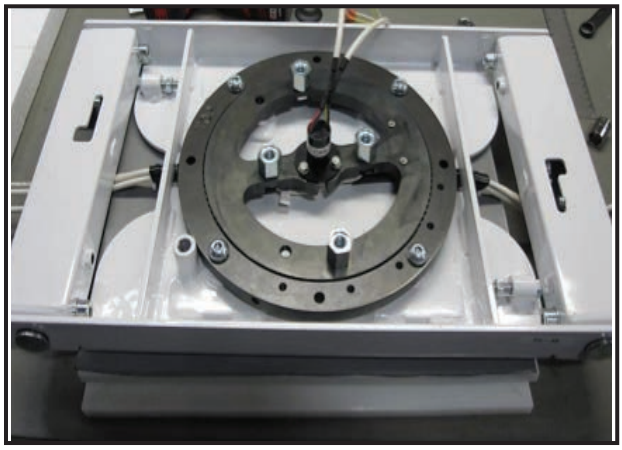
Using a 6 mm Allen key, undo the four screws that hold the top plate.

WARNING

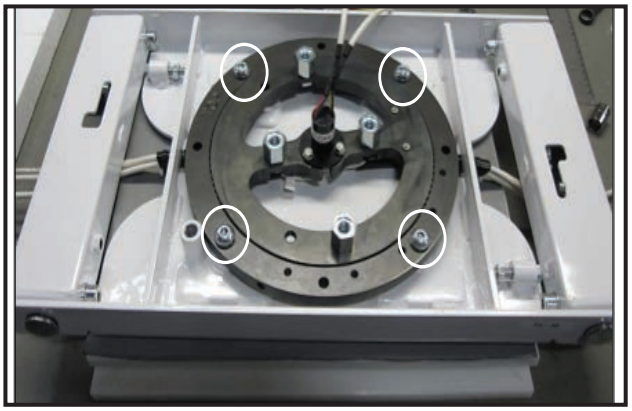
FOR REASSEMBLY: TORQUE TO 34-38 N•m

NOTE

FOR REASSEMBLY: MAKE SURE THAT THE FLAG CONNECTOR CABLES COME OUT OF THE OPENINGS INDICATED BY THE ARROWS.



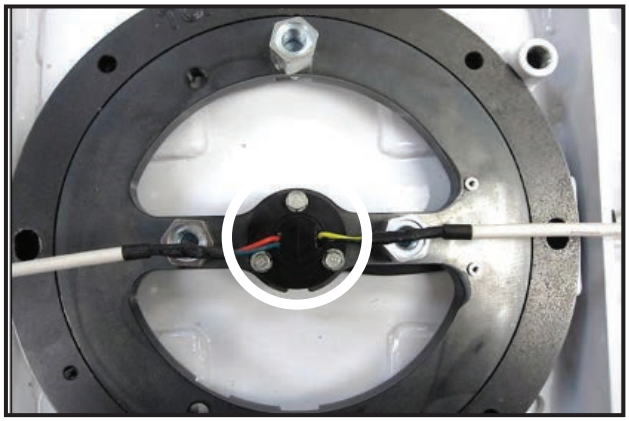
Remove the top plate. Be careful since the wires are still attached to the bottom plate.



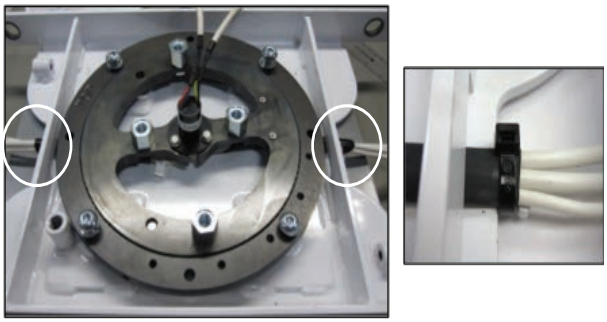
Using a 6 mm Allen key, undo the four screws that hold the bearing in place.

WARNING

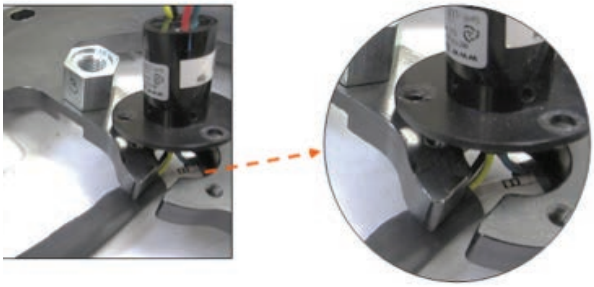
FOR REASSEMBLY: TORQUE TO 34-38 N•m



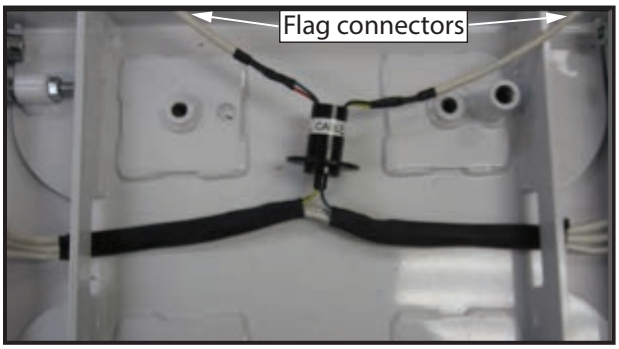
Using a 8 mm hex socket,undo the three screws that hold the swivel connector to the bearing.



Cut the two cable ties that hold the cables at the extremity of the bottom plate.



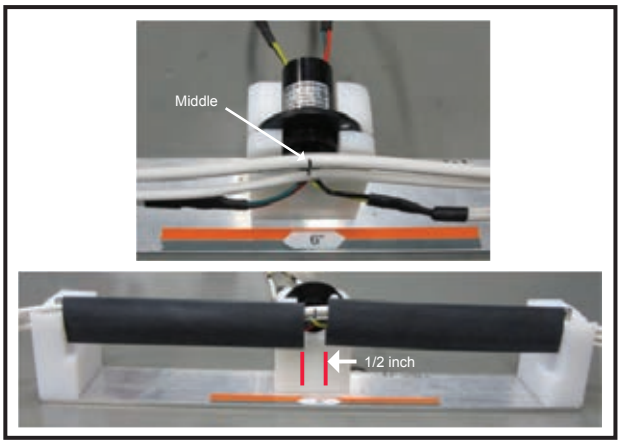
Slide the swivel connector out of the bearing.



Remove the bearing.

Remove all cables from the assembly.

Carefully remove the heat shrink tube if you need to keep one of the two cables for reassembly.



Take the new cables and place them side by side. Identify the middle of each cable and align the middle point with the center of the swivel connector. Slide the heat shrink tubes over the cables from each end and slide the heat shrink tubes to where they meet at the middle of the cables. Then slide the heat shrink tubes back from center just enough to allow 1/2 in (13 mm) gap between the tubes.

Heat the heat shrink tubes.

Follow the instructions in reverse order to reassemble.

Only for model 700-31225:
-Install cable ties (4x) and cut the excess length.

-Position the cables in the slot and channel of the plastic part and tighten the M3 screw on the ECS gate contact kit. Repeat on the other side.

NOTE

DISPOSE OF THE OLD PARTS ACCORDING TO LOCAL REGULATIONS AND GOOD ENVIRONMENTAL PRACTICES.

Load test at SWL on lift and track.

As stated in the *Maxi Sky 2* and *Maxi Sky 2* Plus *Instructions for Use*, it is recommended to perform a load test on the ceiling lift and track at its safe working load (SWL). This annual verification should verify the following aspects:

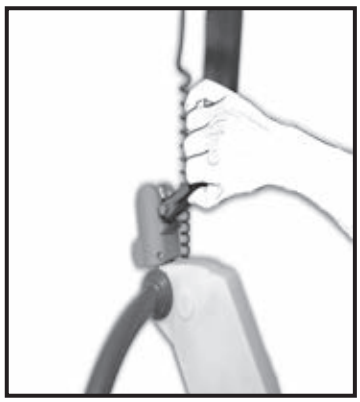
- The track system, including its anchors, are still performing as intended and are secure.
- The unit is able to mechanically raise the SWL.
- The batteries are still in good condition and are able to raise the SWL.

This test should be performed as per 001-11760-EN, Functional Load Test section. MS2 Plus, for load distribution on leading and driven ceiling lift, refer to MS2 Plus IFU 001-31228 or 001-31249, Preventative Maintenance Schedule section.

Load test on track with deflection measurement when under load.

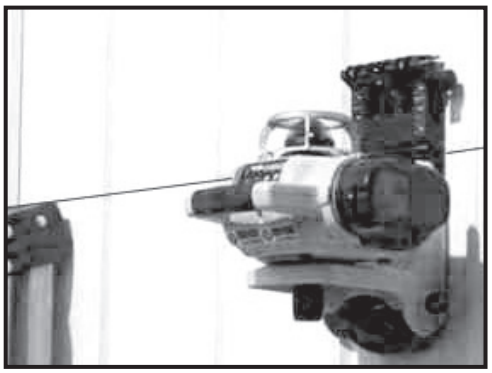
This test should be performed per 001-11760-EN “Certified Load Test” section.

-Prepare the weight load test trolley (WLT) and make sure it is going to be able to bear the weight load once it is suspended.If using the ceiling lift to conduct the test:



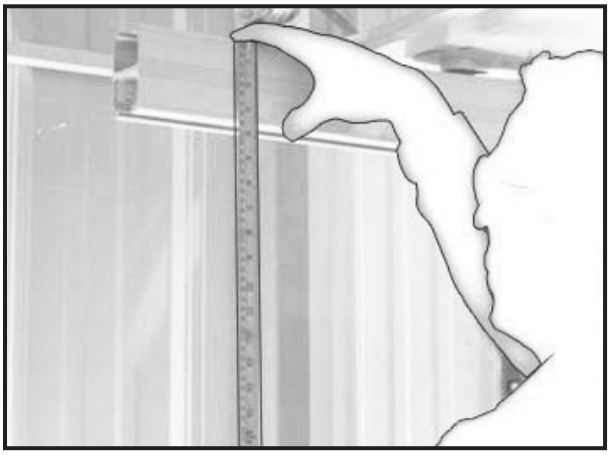
-Remove the spreader bar from the ceiling lift.

-Remove the spreader bar quick connect adaptor from the strap.



-Install a rotating laser on a stable location 15 cm (6 in) - 30 cm (12 in) lower than the bottom of the tracks.

Make sure that the reference line is level.



-Using a measuring tape, measure between the track and the laser line at every load test point, always taking the same reference point (either the top or the bottom of the track).

NOTE

BE SURE TO USE THE SAME MEASURING TAPE THROUGHOUT, AS DIFFERENT MEASURING TAPES MAY HAVE VARYING LOOSENESS IN THEIR TAPE END HOOKS.

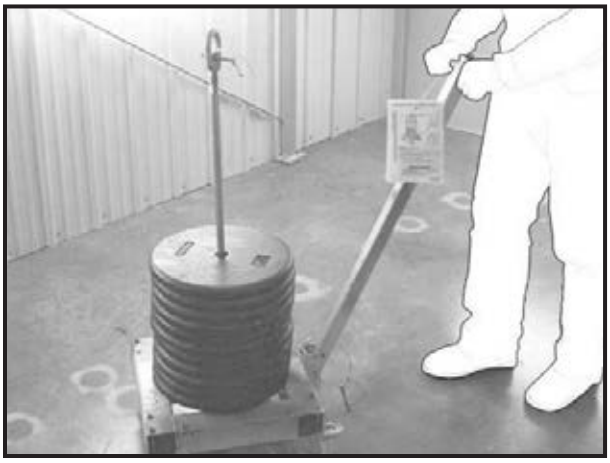
-With the measurements mentioned above, fill the corresponding column (height unloaded) in the weight load test form (001-11760-EN).

NOTE

REGULATORY AUTHORITIES REQUIRE THE ARCHIVING OF WEIGHT LOAD TEST DOCUMENTS FOR FUTURE CONSULTATION.

If using the ceiling lift:

-Connect the ceiling lift strap to the WLT trolley using a carabiner.



-DO NOT MOVE YOUR LASER.

LIFT the WLT trolley no more than 50 mm (2 in) from the floor to make sure it no longer touches it.

WARNING

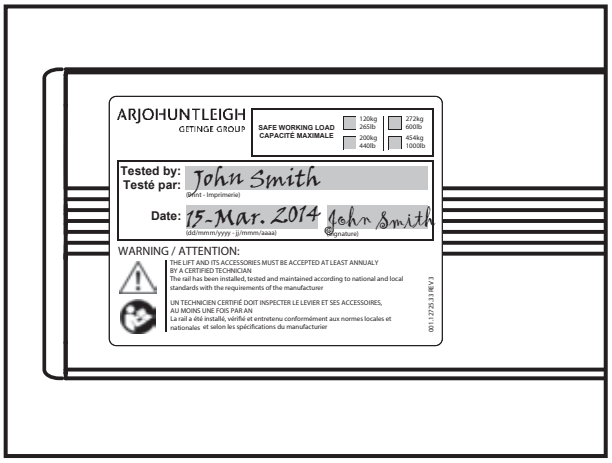
NEVER STAND WITH YOUR FEET UNDER THE TROLLEY DURING THE WEIGHT LOAD TEST.

-Take measurements of the height of the track verses the laser line as you pass under each load test point.

-With the measurements mentioned above, fill the corresponding column (height loaded) in the weight load test form.

-Compare the measurements of the track height when loaded and unloaded. Calculate the difference (deflection) and complete the appropriate column in the form.

Keep the completed form in order to archive it with the project file.



-Fill out the weight load test sticker (#001.12725.33) and apply it properly on the most visible side of the track, nearest to the transfer location

VERIFYING THE SOFT START AND STOP FEATURES

Testing the Ceiling Lift

Without Load:

-Press the **DOWN** button on the hand control. Observe as the vertical motor unravels the strap. The motor should not reach its top speed instantly. Top speed should be achieved only after approximately 1 second of time has elapsed.

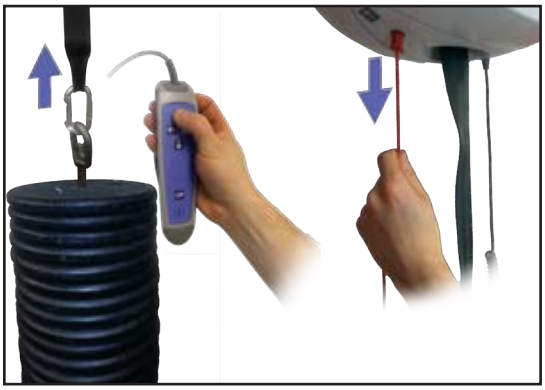
With Load:

-Attach the WLT trolley to the ceiling lift (see “PERFORMING A WEIGHT LOAD TEST”, page 6-90)

-Press the **UP** button on the hand control. Observe as the vertical motor winds up the strap. The motor should not reach its top speed instantly. Top speed should be achieved only after approximately 1 second of time has elapsed.

-If the soft start and stop feature does not operate as described, replace the circuit board (please refer to the “REMOVING THE USER INTERFACE BOARD”, page 6-50).

VERIFYING THE EMERGENCY STOP FEATURE



-Attach the WLT trolley to the ceiling lift (see “PERFORMING A WEIGHT LOAD TEST”, page 6-90)

-Raise the WLT trolley up to no more than 30 cm (1 ft) with the **UP** button on the hand control.

-While keeping the **UP** button pressed, pull on the red emergency stop cord. The ceiling lift should shut down and the raising action should cease.

VERIFYING THE LIFTING CAPACITY OF THE CEILING LIFT

Raise the SWL trolley roughly 30 cm (1 ft) off the floor and wait 5 seconds.

• If you hear the current limiter signal, then the current limiter needs adjusting. Refer to “ADJUSTMENT OF THE CURRENT LIMITER ON MS2”, page 5-5

• If you hear the low battery signal, then ensure that the batteries are fully charged and repeat the test to determine if the batteries need replacing.

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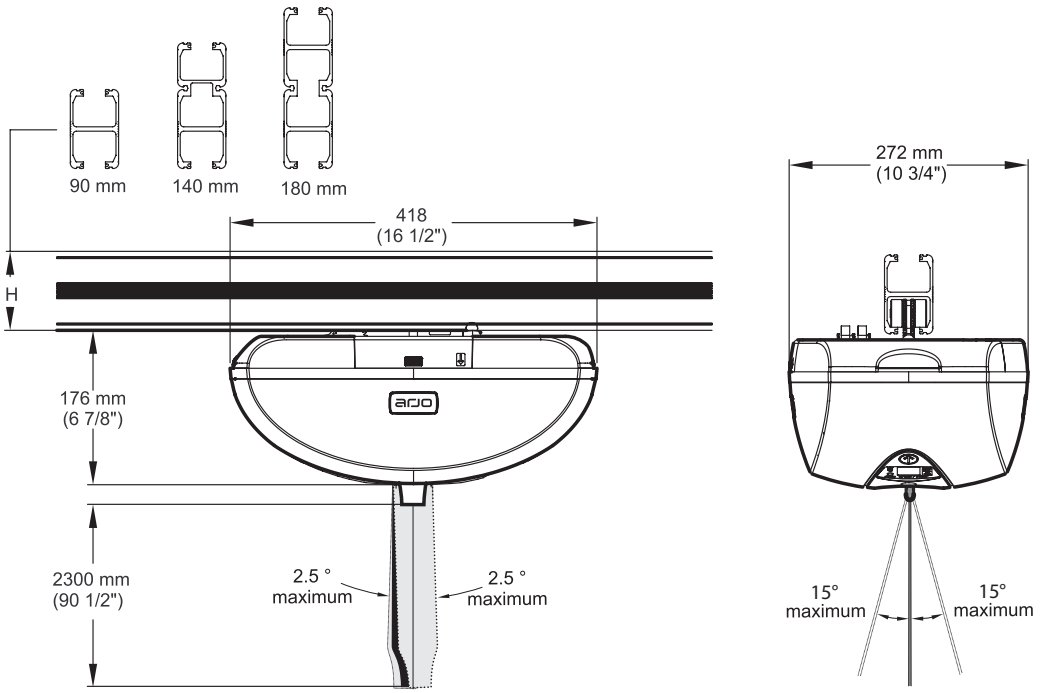
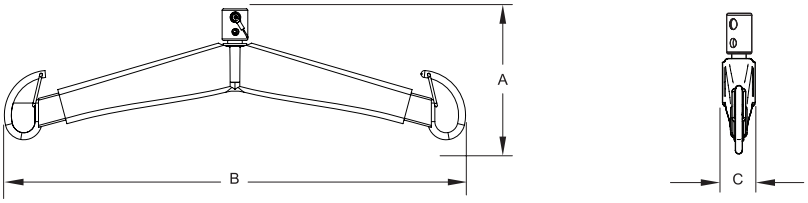
TECHNICAL SPECIFICATIONS 7

TECHNICAL DIMENSION AND SPECIFICATION

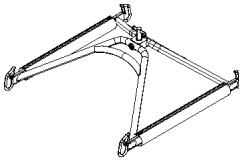
THE *MAXI SKY* 2 LIFT



LOOP SLING SPEADER BARS (Basic Ceiling Lifter model only)



700-05461			
Two hooks spreader bar used to perform transfer using Arjo loop sling. Intended to be used with Arjo clevis pin attachment system.			
		mm	in
	A	206	8 1/8
	B	628	24 3/4
	C	45	1 3/4
1.5 kg / 3.3 lb			

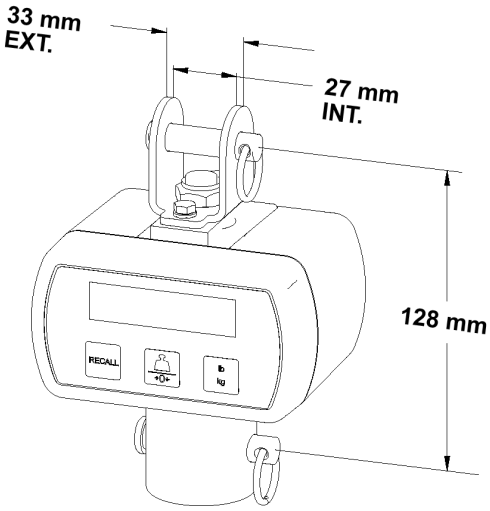
700-05443			
Four hooks spreader bar designed for bariatric use. Used to perform transfer using Arjo loop sling. Intended to be used with Arjo clevis pin attachment system.			
		mm	in
	A	244	9 5/8
	B	709	27 7/48
	C	692	27 1/4
6 kg / 13 lb			

700-19522			
Stretcher frame used for supine transfer. Intended to be used with Arjo clevis pin attachment system.			
		mm	in
	A	282	11 1/8
	B	1443	56
	C	635	25
10 kg / 22.2 lb			

700.05380 & 700.05385			
Morgue stretcher for supine transfer. Intended to be used with Arjo clevis pin attachment.			
		mm	in
	A	1525	8 1/8
	B	265	24 3/4
	Standard band Long band	1195/1450 1830/1195	47/57 72/47
8.9 kg/19.5 lb			

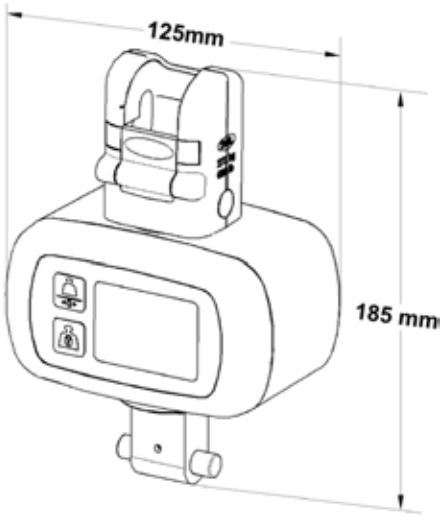
Scale

Basic Ceiling Lifter model



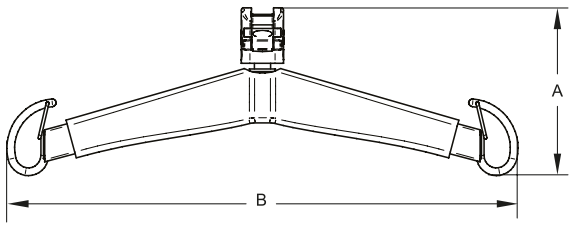
Model	700-00511	700-00531
Type	Standard	Class III
Weight	0.7 kg/1.5 lb	

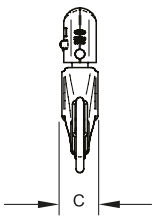
Maxi Sky 2 Celing Lifter & Infection Control models

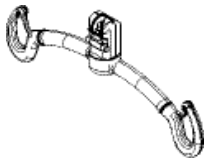


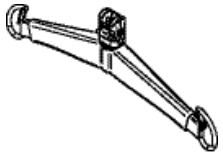
Model	700-19485	700-19490
Type	Standard	Class III
Weight	0.7 kg/1.5 lb	

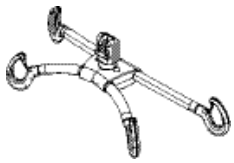
LOOP SLING SPEADER BARS (not for Basic Ceiling Lifter model)





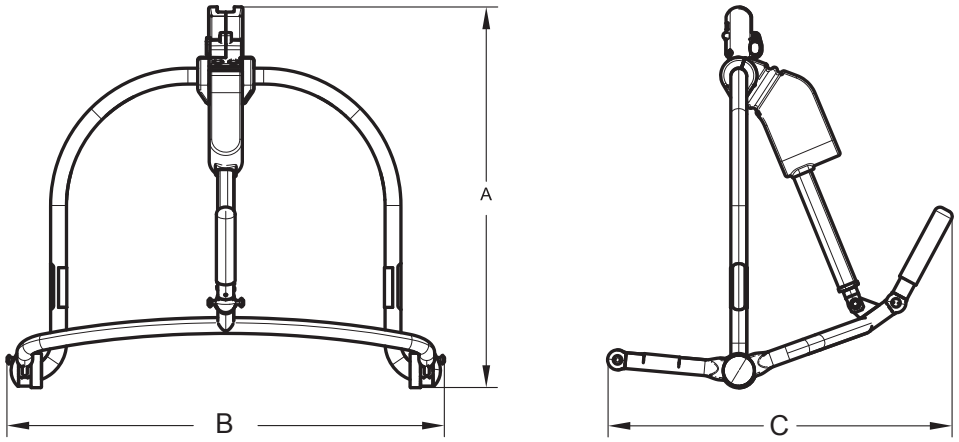
700-19420			
Two hooks spreader bar used to perform transfer using Arjo loop sling. Intended to be used with Arjo Quick Connect system.			
		mm	in
	A	187	7 3/8
	B	474	18 11/16
	C	57	2 1/4
2.5 kg / 5.5 lb			

700-19415, 700-19470, 700-19435 or 700-19465			
Two hooks spreader bar used to perform transfer using Arjo loop sling. Intended to be used with Arjo Quick Connect system.			
		mm	in
	A	206	8 1/8
	B	628	24 3/4
	C	45	1 3/4
1.5 kg / 3.3 lb			

700-19430			
Four hooks spreader bar used to perform transfer using Arjo loop sling. Intended to be used with Arjo Quick Connect system.			
		mm	in
	A	200	7 7/8
	B	650	25 9/16
	C	254	10
4.4 kg / 9.7 lb			

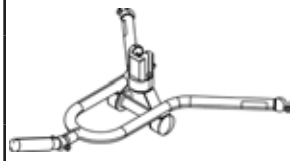
700-15695			
Stretcher frame used for supine transfer. Intended to be used with Arjo Quick Connect system.			
		mm	in
	A	282	11 1/8
	B	1443	56
	C	635	25
10 kg / 22.2 lb			

DYNAMIC POSITIONING SPREADER BARS



700-19475
(not for Basic Ceiling Lifter model)

Four points carry bar used to perform a transfer from various positions with an Arjo clip sling. Intended to be used with Arjo Quick Connect system.



	mm	in
A	194	7 5/8
B	552	21 11/16
C	638	25 3/16
3.4 kg / 7.5 lb		

700-19480
(not for Basic Ceiling Lifter model)

Four points carry bar used for lifting a patient from sitting position to laying position with an Arjo clip sling. Intended to be used with Arjo Quick Connect system.

	mm	in
A	604	23 3/4
B	582	22 15/16
C	503	19
5.7 kg / 12.5 lb		

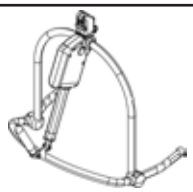
700-19340
(Basic Ceiling Lifter model only)

Four points carry bar used for lifting a patient from sitting position to laying position with an Arjo clip sling. Intended to be used with Arjo clevis pin attachment system.

	mm	in
A	604	23 3/4
B	582	22 15/16
C	503	19
5.7 kg / 12.5 lb		

700-19350
(not for Basic Ceiling Lifter model)

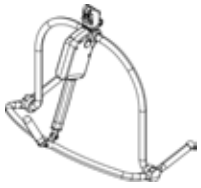
Four points powered carry bar used for lifting a patient from sitting position to laying position with an Arjo clip sling. Intended to be used with Arjo Quick Connect system.



	mm	in
A	610	24
B	620	24 3/8
C	547	21 1/2
7.9 kg / 17.4 lb		

700-19355
(not for Basic Ceiling Lifter model)

Four points powered carry bar used for lifting a patient from sitting position to laying position with an Arjo clip sling. Intended to be used with Arjo Quick Connect system.



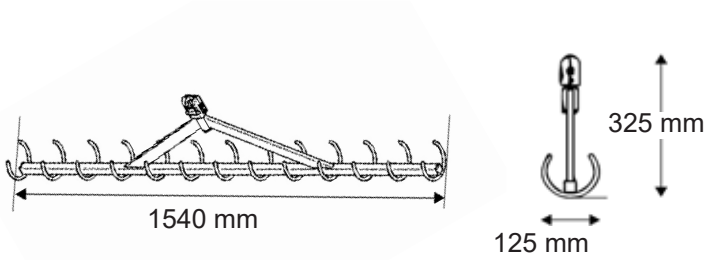
	mm	in
A	610	24
B	700	27 1/2
C	547	21 1/2
8.4 kg / 18.5 lb		

700-19200
(Basic Ceiling Lifter model only)

Four points carry bar used to perform a transfer from various positions with an Arjo clip sling. Intended to be used with Arjo clevis pin attachment system.

	mm	in
A	194	7 5/8
B	552	21 11/16
C	638	25 3/16
8.4 kg / 18.5 lb		

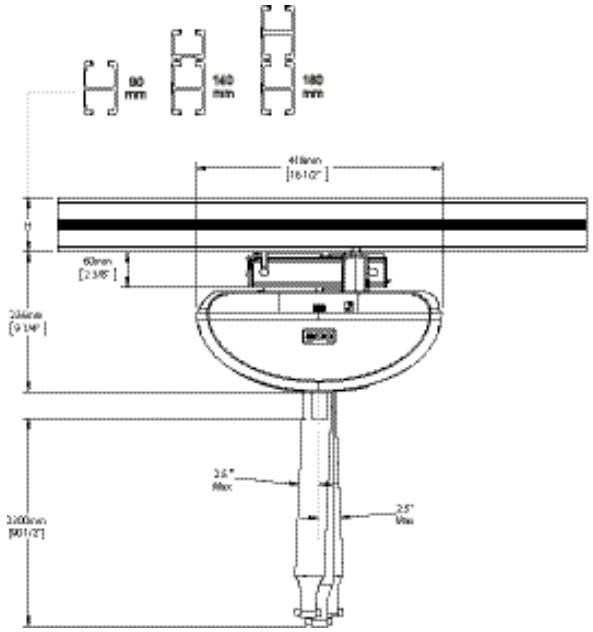
MORGUE STRETCHER



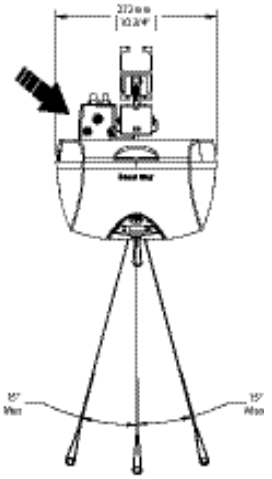
Model	700-05382	700-05387
Type	Standard Bands	Large Bands
Weight	8.9 kg/19.5 lb	

MAXI SKY 2 TRANSPORTABLE

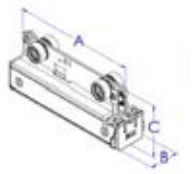
Receiving module that is intended to allow relocation of a Maxi Sky 2 ceiling lift from one KwikTrak to another without having to remove the track end stopper and without the need of using tools.

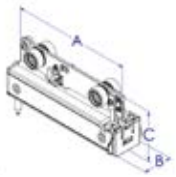


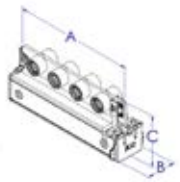
Charging Station version show



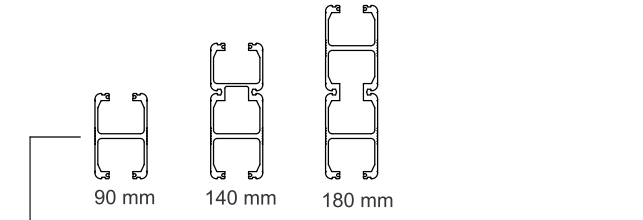
RECEIVING MODULES

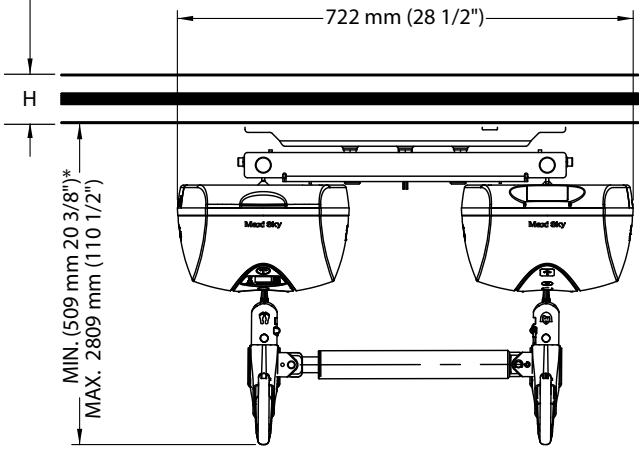
700-31400 (Charging Station)			
		mm	in
	A	243	9 5/8
	B	72	2 7/8
	C	102	4
0.89 kg / 1.96 lb			

700-31401 (ECS)			
		mm	in
	A	243	9 5/8
	B	72	2 7/8
	C	102	4
0.92 kg / 2.03 lb			

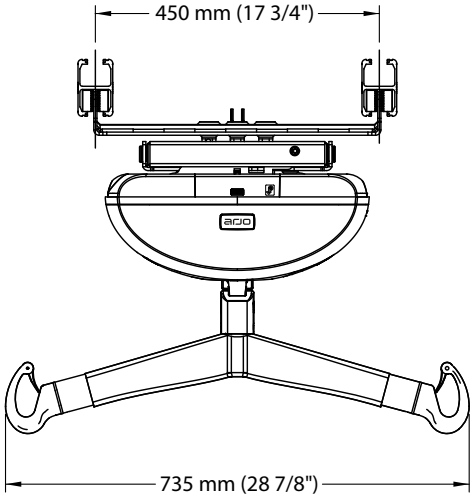
700-31421 (Curtain gap)			
		mm	in
	A	243	9 5/8
	B	72	2 7/8
	C	96	3 3/4
0.98 kg / 2.15 lb			

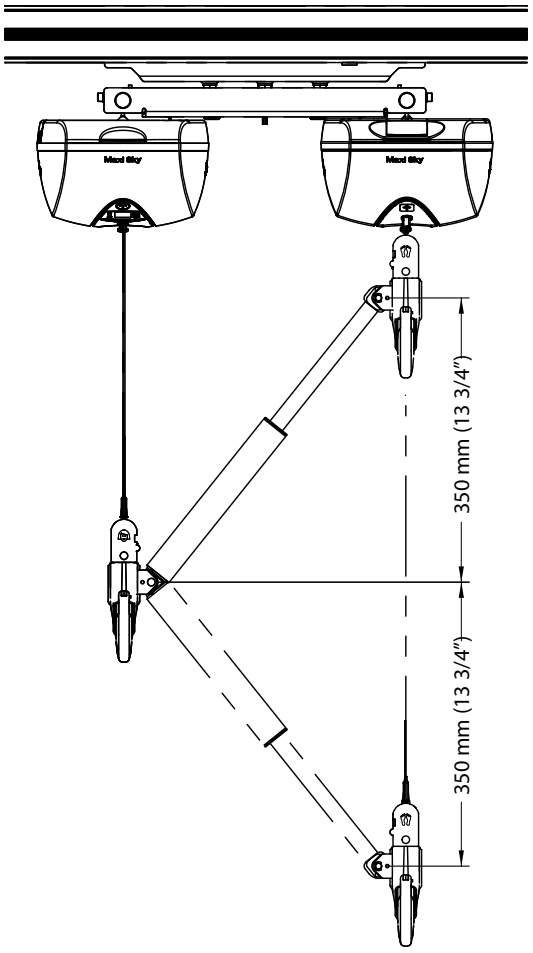
THE *MAXI SKY* 2 PLUS LIFT

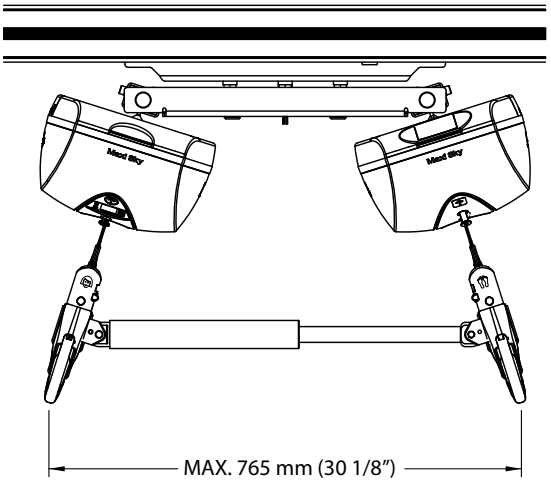


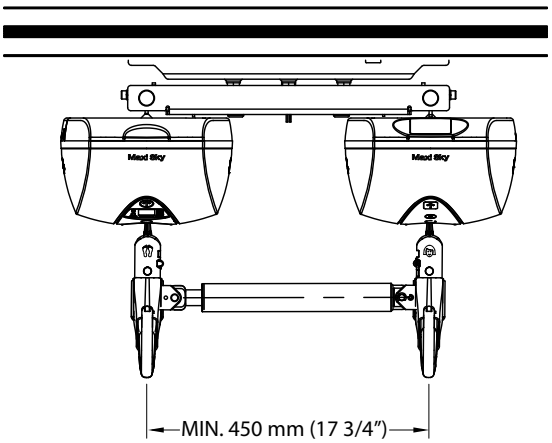


* When using a scale, add 156 mm to this dimension.









TECHNICAL DATA

MAXI SKY 2

GENERAL

Weight, complete (Four-function model)	12.3 kg (27 lb)
Weight, complete (Two-function model)	11.6 kg (26 lb)
Lifting capacity	120 kg (265 lb), 200 kg (440 lb), 272 kg (600 lb)
Strap length	2500 mm (98.4 in)
Lifting speed	5.1 cm/s (2.0 in/s) without load 4.2 cm/s (1.7 in/s) at 120 kg (265 lb) 3.8 cm/s (1.5 in/s) at 200 kg (440 lb) 3.3 cm/s (1.3 in/s) at 272 kg (600 lb)
Maximum stroke (from ceiling)	2300 mm (90.6 in)
Horizontal displacement speeds	10, 15 and 20 cm/s (4, 6 and 8 in/s)
Operating force of control	< 5 N

ELECTRICAL

Duty cycle	Up/Down Motor: Max 10%, 2 minute continuously Left/Right Motor: Max 20%, 5 minutes continuously Sit/Reclined Motor: Max 10%, 2 minutes continuously
Horizontal axis motor	24 VDC, 62 watts
Vertical axis motor	24 VDC, 360 watts for 2 minutes max.
Rating	24 VDC, 15 A max.
Noise level for either raising or lowering	61 dBA max. (with or without load)
Medical equipment	Type BF protection against electrical shock in accordance with IEC 60601-1
WARNING: Wireless communications equipment such as wireless home network devices, mobile phones, cordless telephones and their base stations, walkie-talkies, etc. can affect the *Maxi Sky* 2 and should be kept at least 2.3 m away from it. Cables from potentially strong sources of electromagnetic fields should not be placed near the unit.	
Battery type	12 V, 5 Ah, sealed rechargeable valve regulated lead acid battery
Battery capacity	Provides up to 120 transfers with a load of 100 kg (220 lb), up to 70 transfers with a load of 200 kg (440 lb)
Degree of protection - Hand control	IPX7
Degree of protection - *Maxi Sky* 2	IP24
Lift - protection class - shock prevention	Internally powered equipment
Battery Charger input	100-240 VAC, 50-60 Hz, 57 - 70 VA.
Battery Charger output	28.1 VDC, 1 A max, 28.1 VA
Battery Charger safety protection	Class 2, double insulated

OPERATION, TRANSPORT AND STORAGE CONDITIONS

Normal Operation	Ambient temperature range: 5°C to 40°C (41°F to 104°F) Relative humidity range: 15% to 93%, non-condensing Atmospheric pressure range: 700 hPa to 1060 hPa
Storage	Ambient temperature range: -40°C to 70°C (14°F to 158°F) Relative humidity range: 0% to 93%, non condensing Atmospheric pressure range: 500 hPa to 1060 hPa
WARNING: This equipment is not suitable in the presence of flammable anesthetic mixtures with air or oxygen, or with nitrous oxide.	

MAXI SKY 2 PLUS

GENERAL

Weight, complete (incl. trolley and two ceiling lifts)	51.6 kg (113.5 lb)
Weight, spreader bar	6.6 kg (14.5 lb)
Lifting capacity	Dual Mode 454 kg (1000 lb), Single Mode 272 kg (600 lb)
Strap length	2500 mm (98.4 in)
Lifting speed (Dual Mode)	4.3 cm/s (1.7 in/s) without load 3.4 cm/s (1.3 in/s) at 240 kg (528 lb) 3.0 cm/s (1.2 in/s) at 400 kg (880 lb) 2.9 cm/s (1.1 in/s) at 454 kg (1000 lb)
Maximum stroke (from ceiling)	2300 mm (90.6 in)
Horizontal displacement speeds	N/A, Manually operated
Operating force of control	< 5 N
Push and pull forces at 454 kg (1000 lb) Horizontal Movement and Rotation	< 60 N

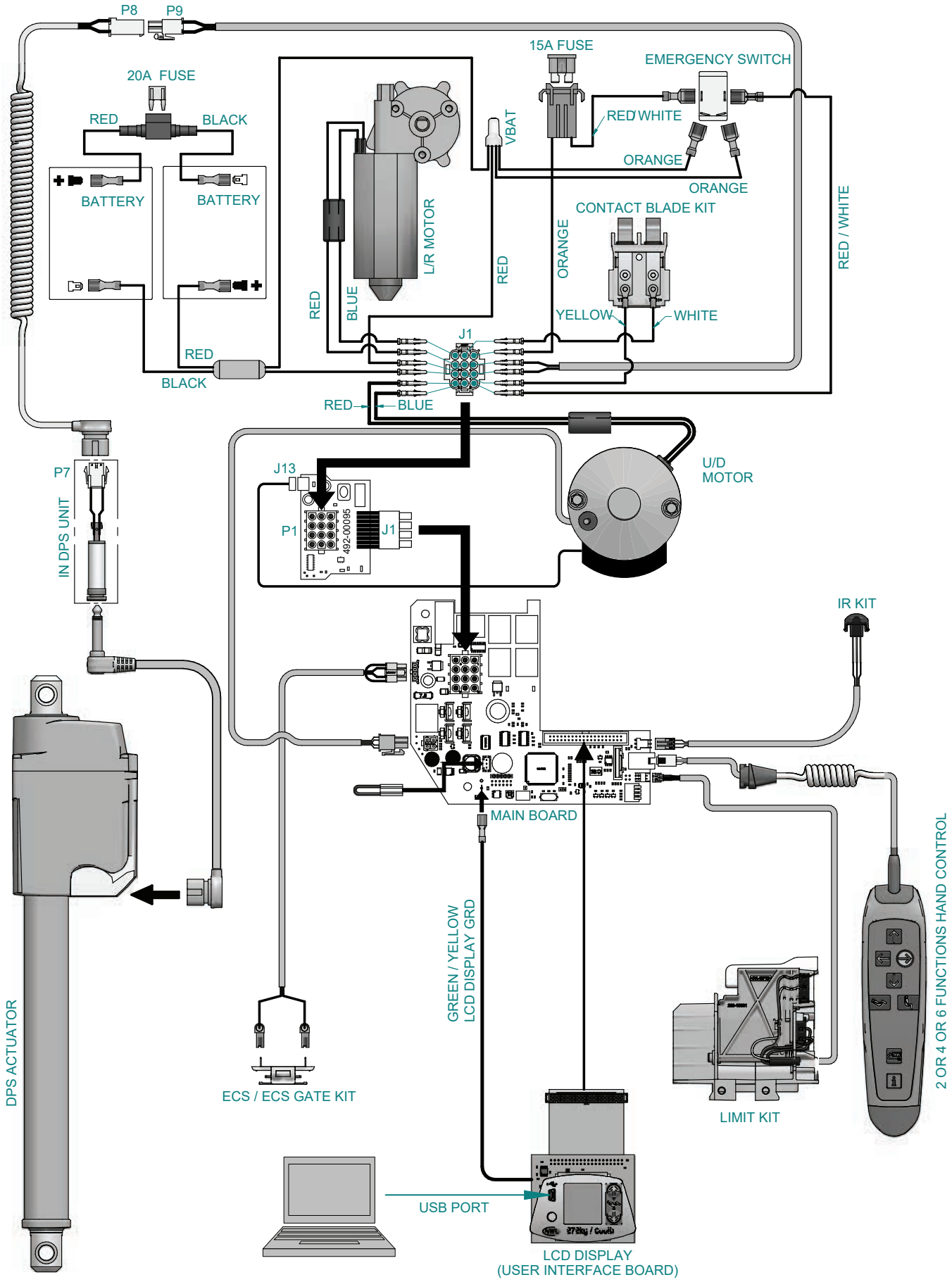
ELECTRICAL

Duty cycle	Up/Down Motor: Max 10%, 2 minutes continuously Sit/Reclined Motor (Single Mode): Max 10%, 2 minutes continuously
Horizontal displacement speeds	N/A
Vertical axis motor	24 VDC, 360 watts for 2 minutes max.
Rating	24 VDC, 15 A max
Noise level for either raising or lowering, with or without load	58.2 dBA with no load, 65.3 dBA at 454 kg (1000 lb)
Medical equipment	Type BF protection against electrical shock in accordance with IEC 60601-1
WARNING: Wireless communications equipment such as wireless home network devices, mobile phones, cordless telephones and their base stations, walkie-talkies, etc. can affect the *Maxi Sky* 2 Plus and should be kept at least 2.3 m away from it. Cables from potentially strong sources of electromagnetic fields should not be placed near the unit.	
Battery type	12 V, 5 Ah, sealed rechargeable valve regulated lead acid battery
Battery capacity	Provides up to 110 transfers with a load of 200 kg (440 lb), up to 50 transfers with a load of 400 kg (880 lb) and up to 34 transfers with a load of 454 kg (1000 lb)
Degree of protection - hand control	IPX7
Degree of protection - Maxi Sky 2 Plus	IP24
Ceiling lift - protection class - shock prevention	Internally powered equipment
Battery charger input	100-240 VAC, 50-60 Hz, 57 – 70 VA
Battery charger output	28.1 VDC, 1 A max, 28.1 VA
Battery Charger safety protection	Class 2, double insulated

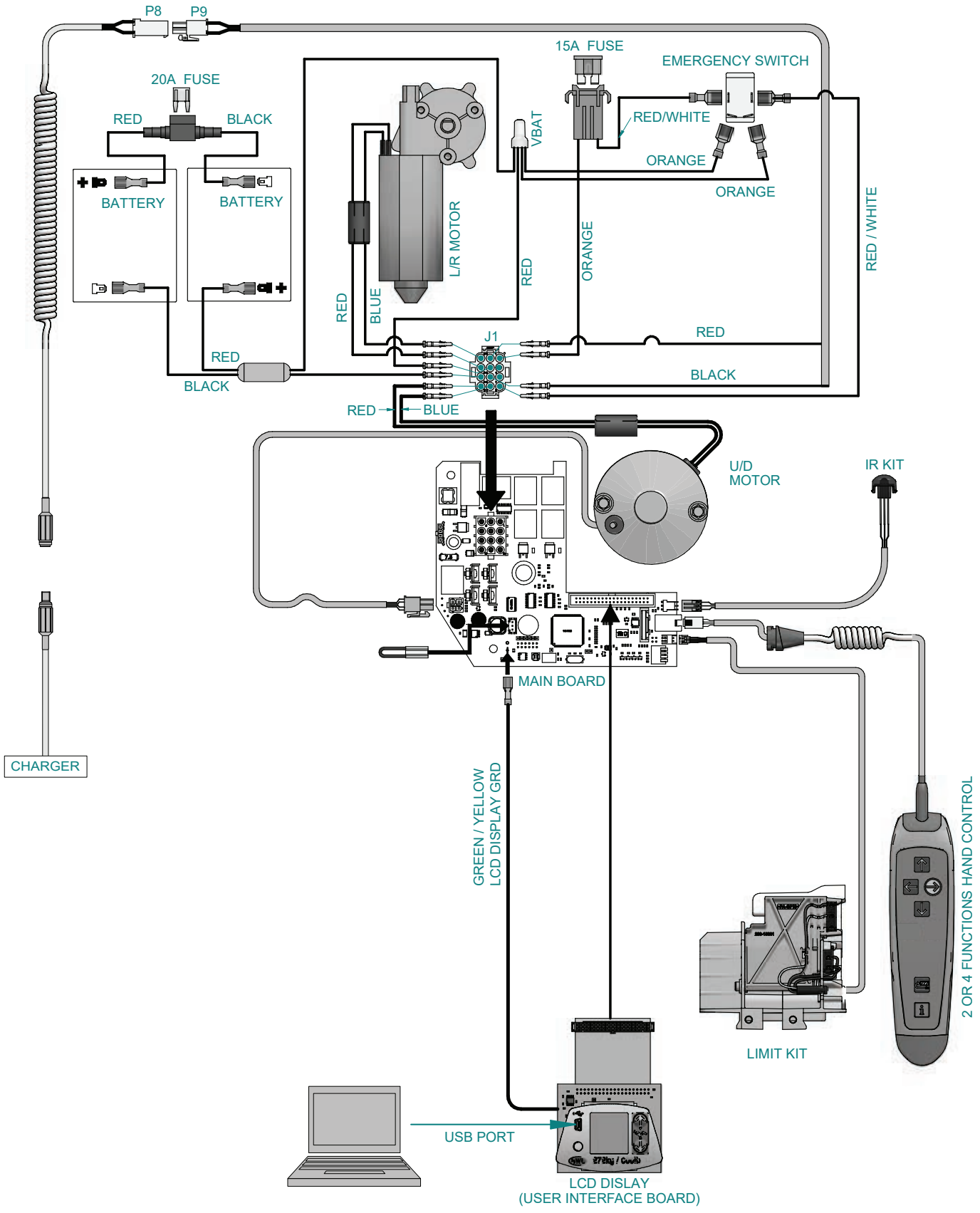
OPERATION, TRANSPORT AND STORAGE CONDITIONS

Normal Operation	Ambient temperature range: 5°C to 40°C (41°F to 104°F) Relative humidity range: 15% to 93% Atmospheric pressure range: 700 hPa to 1060 hPa
Transport / Storage	Ambient temperature range: -40°C to 70°C (-40°F to 158°F) Relative humidity range: 10% to 93% non-condensing Atmospheric pressure range: 500 hPa to 1060 hPa
WARNING: This equipment is not suitable in the presence of flammable anesthetic mixtures with air or oxygen, or with nitrous oxide.	

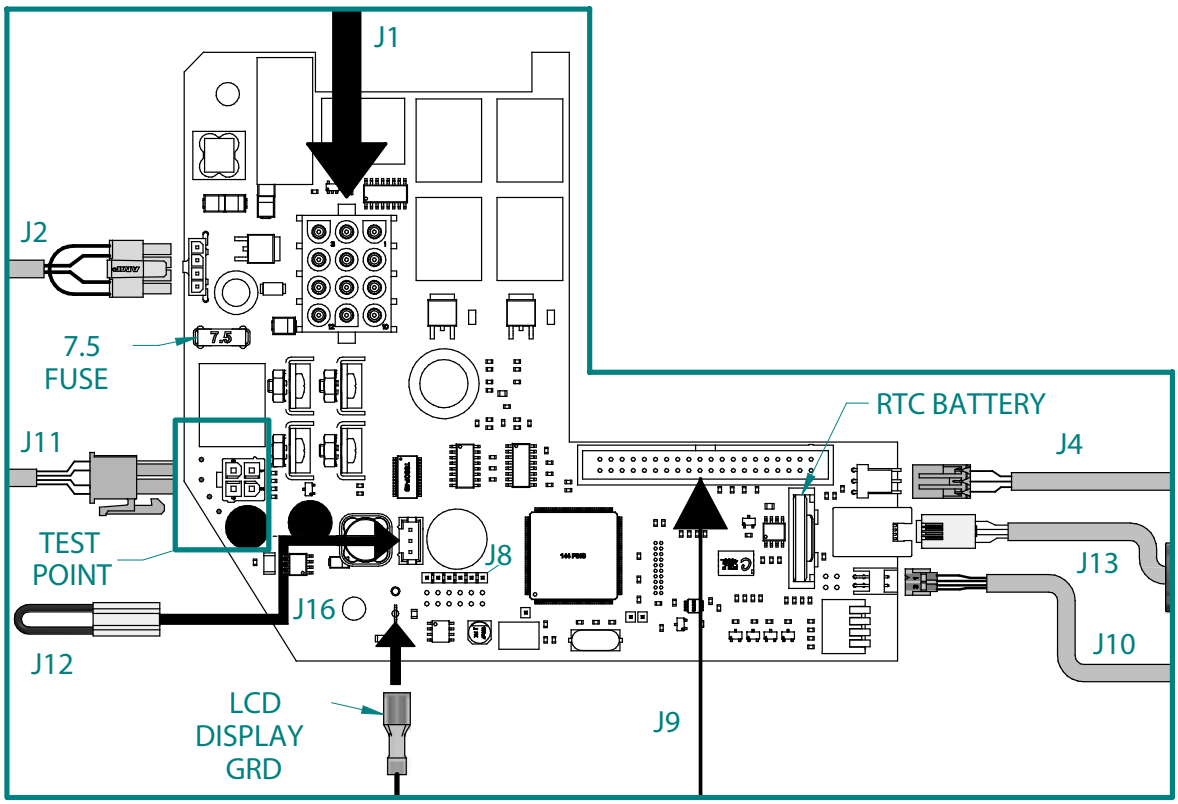
MAXI SKY 2 C-STAT/ECS/PDPS/BRAKE BOARD DIAGRAM



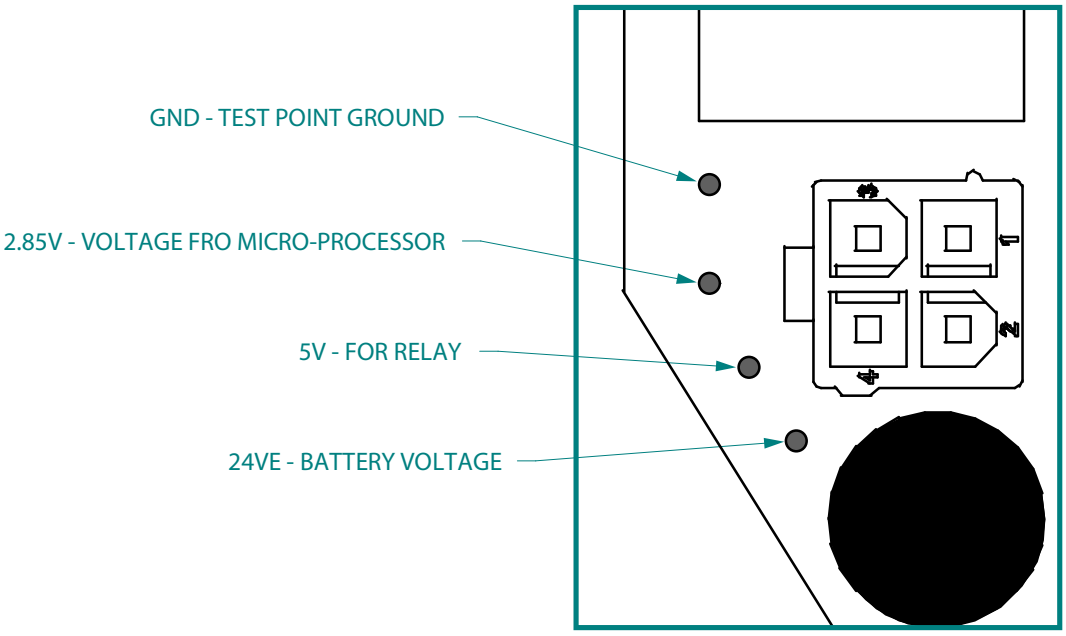
MAXI SKY 2 WCS DIAGRAM



MAIN PCB



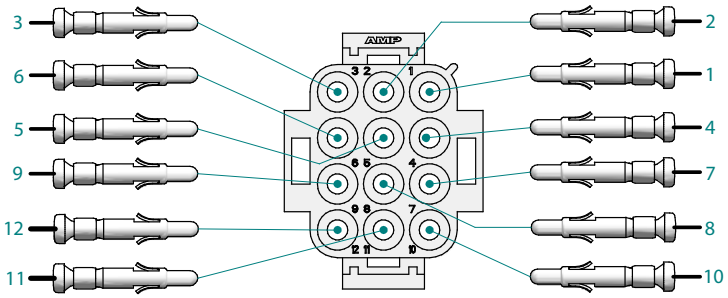
TEST POINTS



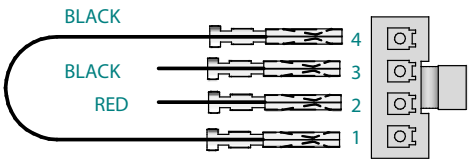
CONNECTION DETAILS

3 - BLUE - L/R MOTOR
6 - RED - L/R MOTOR
5 - RED - VBAT
9 - BLACK - NEG. BATTERY
12 - RED - U/D MOTOR
11 - BLUE - U/D MOTOR

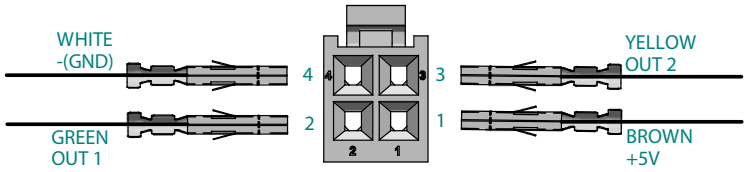
2 - WHITE - POS. CONTACT BLADE
OR RED - POS. MS2 WCS
1 - ORANGE - 15A FUSE
4 - RED - DPS
7 - BLACK - DPS
8 - YELLOW - NEG. CONTACT BLADE
OR BLACK - NEG. MS2 WCS
10 - RED / WHITE - SWITCH



J1 CONNECTION DETAIL

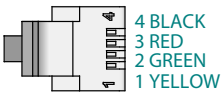


J2 REAR VIEW (ECS)

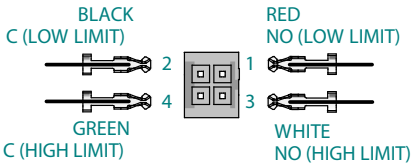


J11 REAR VIEW (U/D MOTOR ENCODER)

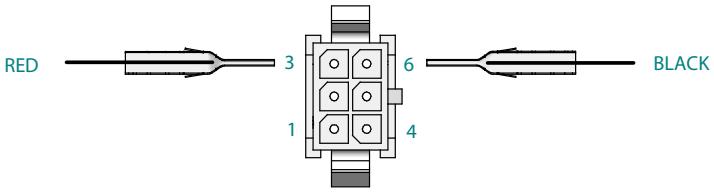
J4 REAR VIEW (IR KIT)



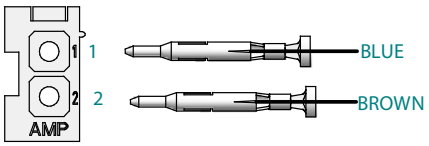
J13 FRONT VIEW (HANDSET)



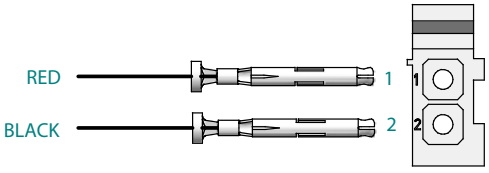
J10 REAR VIEW (LIMIT KIT)



P7 REAR VIEW (JACK CONN. IN DPS)

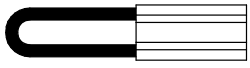


P8 REAR VIEW (DPS WIRE OR WCS CABLE)



P9 REAR VIEW (WIRE FROM LIFT UNIT)

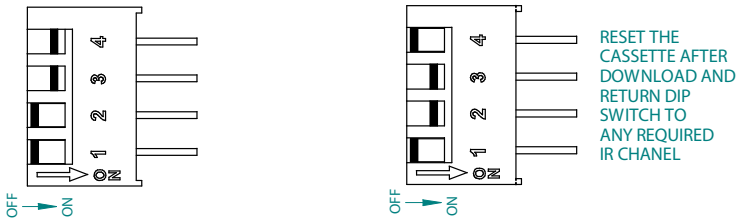
RED WIRE = 272 kg (600 lb)
ORANGE WIRE = 200 kg (440 lb)
NO JUMPER = 120 kg (265 lb)



J12 - NOTE 1 (SWL WIRE JUMPER)

MANUFACTURING CHANNEL 1

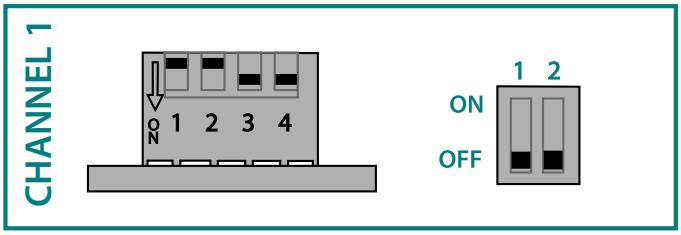
SOFTWARE UPDATE CHANNEL

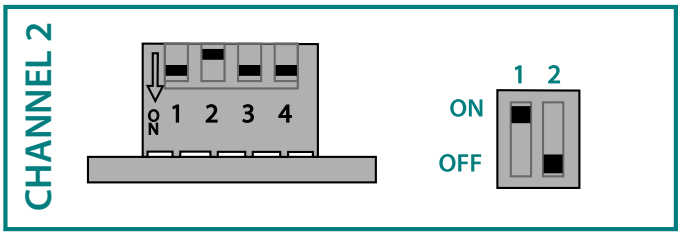


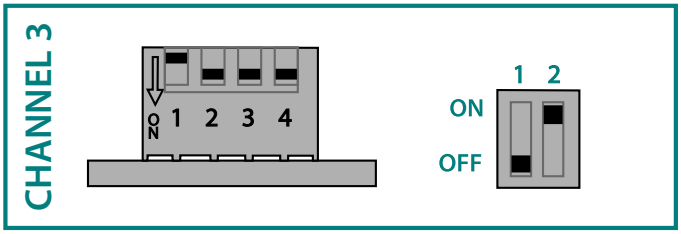
SW1 - NOTE 2 (DIP SWITCH SETTING)

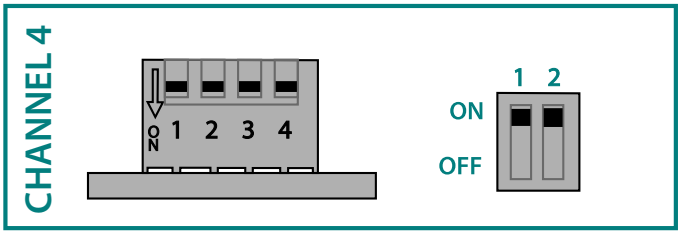
MS2 CASSETTE
DIP SWITCH
SW1 ON PCB

IR HAND CONTROL
DIP SWITCH
SW1 ON PCB

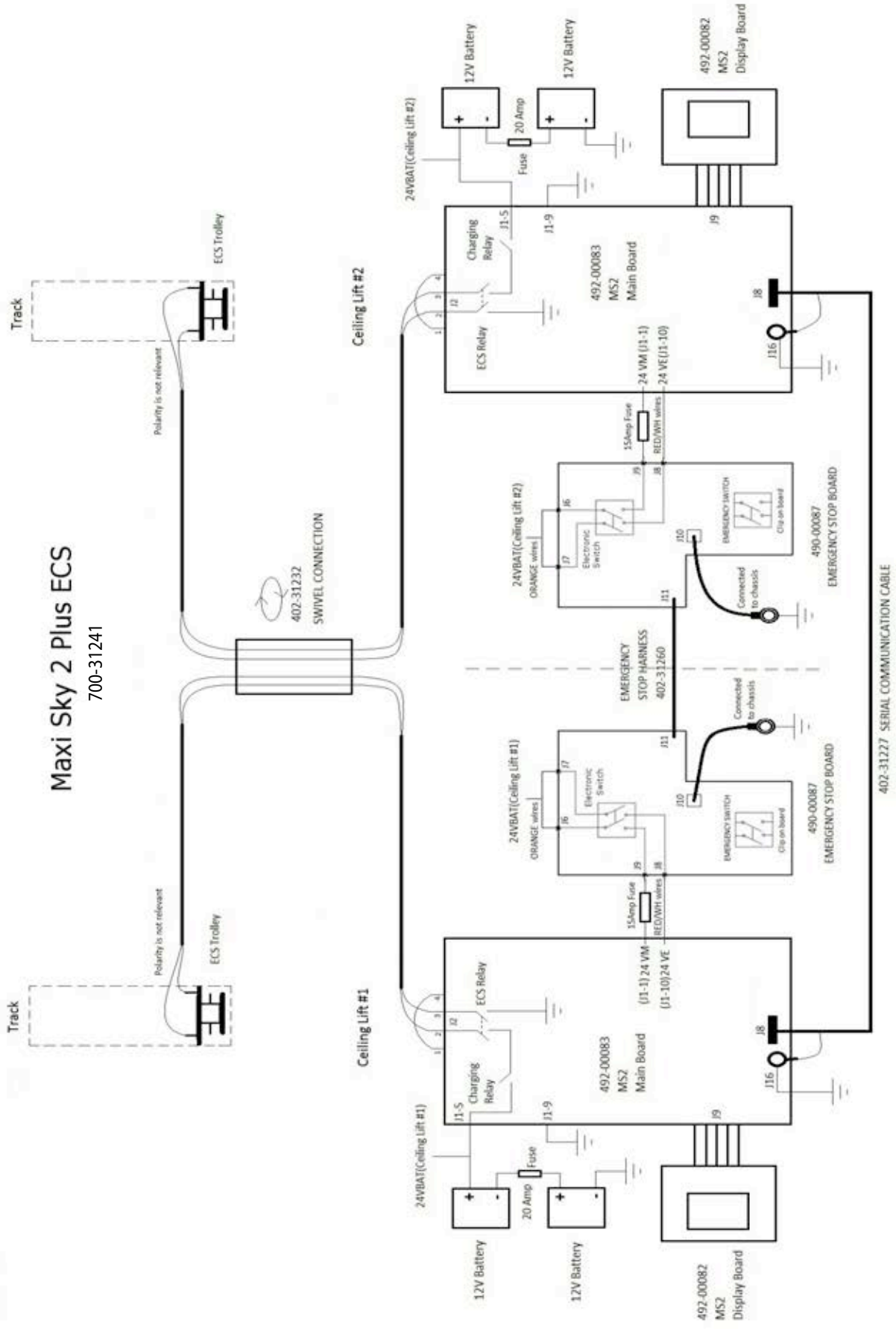




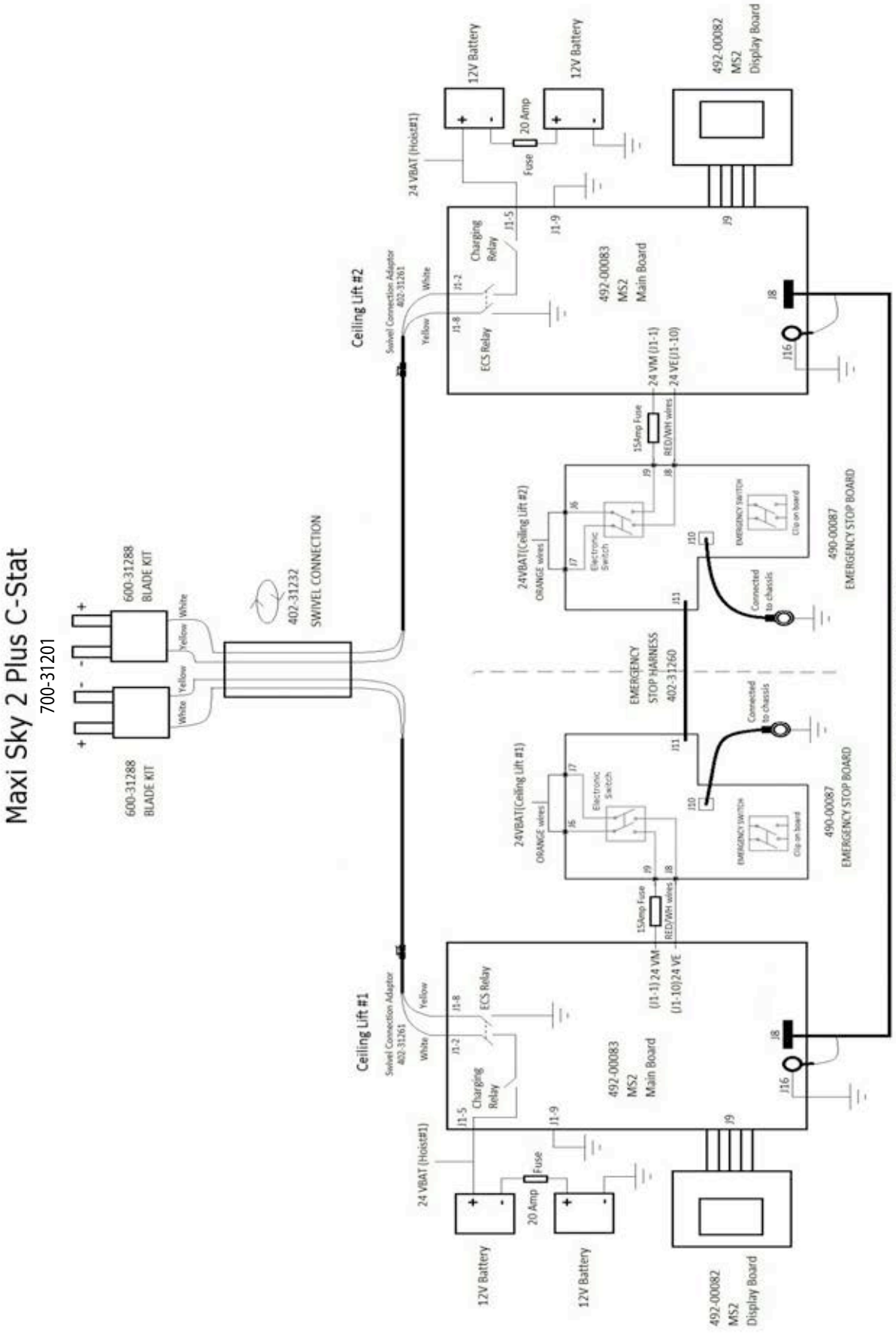




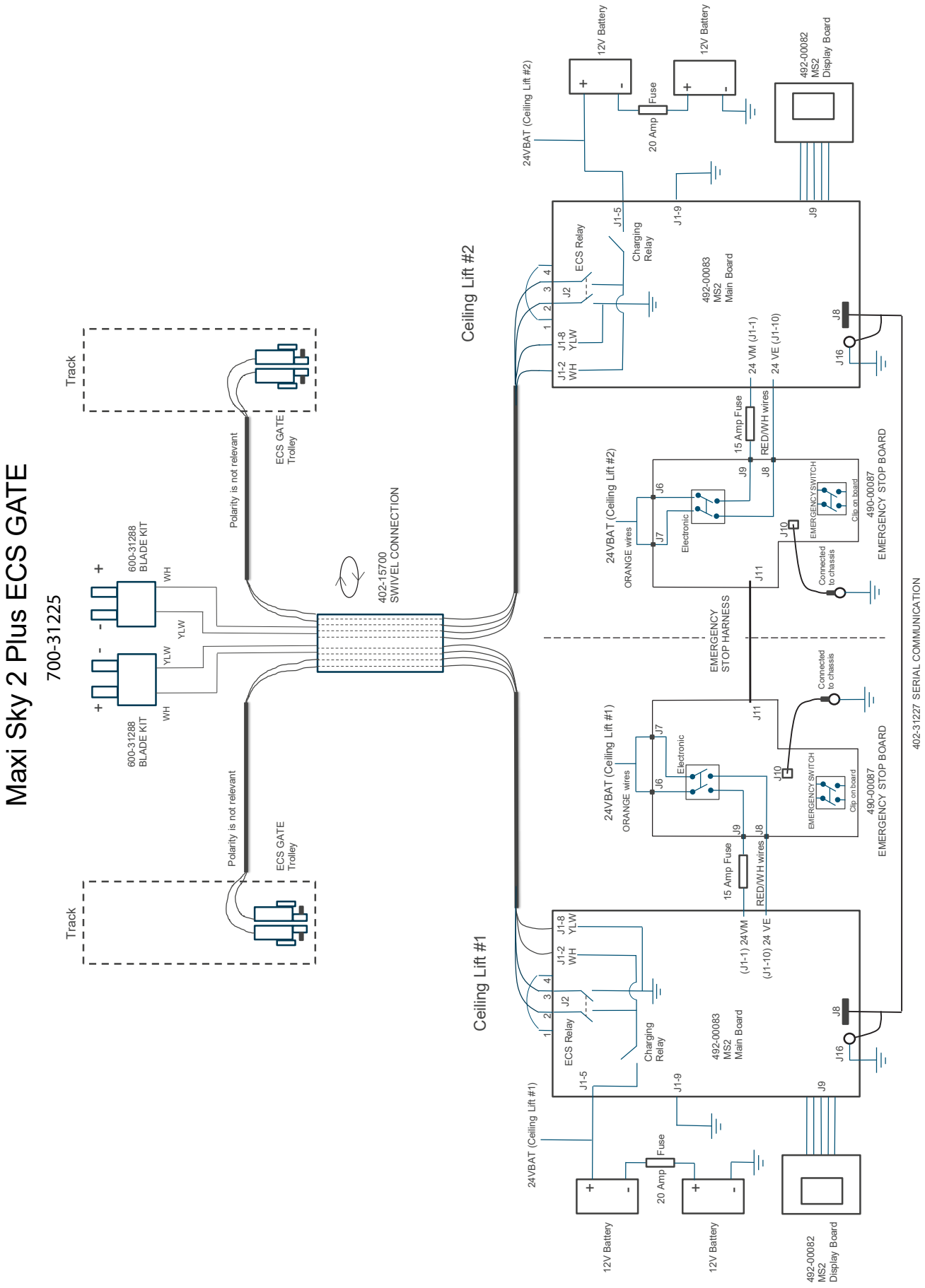
MAXI SKY 2 PLUS (ECS) WIRING DIAGRAM



MAXI SKY 2 PLUS (C-STAT) WIRING DIAGRAM



MAXI SKY 2 PLUS (ECS GATE) WIRING DIAGRAM



MAINTENANCE & MALFUNCTION CODES 8

HOW TO USE THIS SECTION

The *Maxi Sky* 2 is equipped with a self-diagnosis system which displays either malfunction or maintenance code.

The malfunction code  appears instantly when a problem occurs with the lift. After resetting the lift or when coming out from sleep mode, the malfunction will be converted into a maintenance code  . Refer to ‘‘Malfunction codes table’’ for the malfunction codes list.

The maintenance code can be called in two different ways:

- Malfunction code as mentioned above
- Cycles or days (Preventive maintenance)

For MS2 Plus, each ceiling lift (leading or driven) will call independently its malfunction or maintenance codes.

For the maintenance codes list and the procedure, refer to the section ‘‘HOW TO PERFORM MAINTENANCE’’.

After completion of a maintenance, refer to the section ‘‘RESET THE MAINTENANCE CODE’’.

If there is no malfunction nor maintenance code, refer to section ‘‘TROUBLESHOOTING’’.

NOTE

AFTER COMPLETING MAINTENANCE , RESET THE MAINTENANCE CODE;
REFER TO “RESET MAINTENANCE CODE”, PAGE 8-16

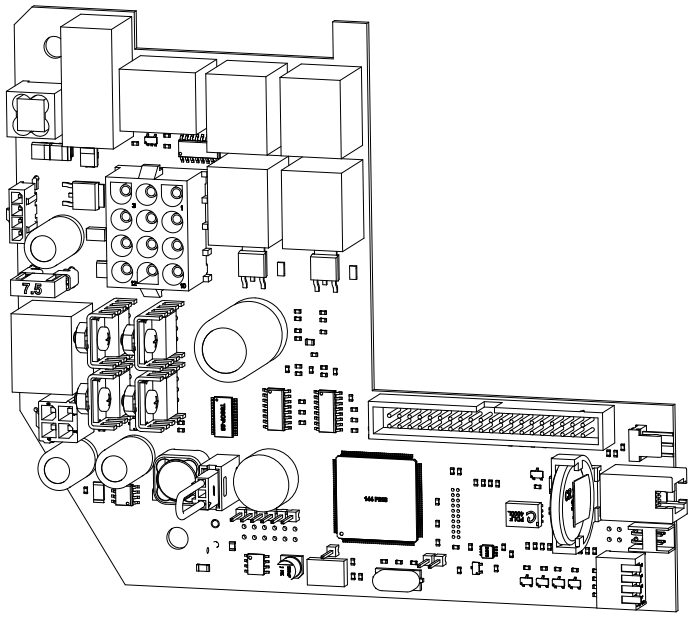
NOTE

UNLESS OTHERWISE SPECIFIED THE FOLLOWING MAINTENANCE AND INSPECTION INSTRUCTIONS ARE APPLICABLE FOR BOTH MS2 AND MS2 PLUS.

MAINTENANCE CODE TABLE

PM Code	Maintenance Description	Trigger	Default Value
A	Replace the strap	Cycles	5000
B*	Replace the 12V batteries	Cycles	32000
C	Replace real time clock lithium battery on the main board	Days	1825
D	Annual inspection of the lift	Days	365
E	Annual inspection of spreader bar	Days	365
F	Annual inspection of the rail installation	Days	365
G	Check KWIKtrak accessory	Malfunction #19 Rail accessory over-current	-
H	Check upper limit switch	Malfunction #2 High limit switch fault	-
I	Main board or user interface board have a memory problem	Malfunction #0: Memory fault	-
J	Replace main board	Malfunction #6 Brake relay fault Malfunction #12 Main board oscillator fault Malfunction #13 Unexpected current on Up/Down motor Malfunction #14 Unexpected current on Left/Right motor Malfunction #15 Unexpected current on Sit/Reclined motor Malfunction #17 Accessories or charging defect Malfunction #20 ECS relay fault	-
L	Encoder Problem	Malfunction #1 Up/Down motor encoder fault	-
M	Problem with Up/Down motor	Malfunction #3 Up/Down motor drive fault Malfunction #4 Holding system not functional Malfunction #5 Motor Up/Down wiring fault Malfunction #7 Over-current on Up action Malfunction #8 Over-current on Down action	-
N	Problem with Left/Right motor	Malfunction #9 Over-current on Left/Right action	-
O	Problem with Sit/Reclined motor	Malfunction #10 Over-current on Sit/Reclined action	-

* : B PM code is displayed on 2.0 and 2.1 only.

PM code	Description	What to do/What to check
PM code A-B-C		
A	1. Replace the strap	Refer to section “REMOVING THE STRAP INLET”, page 6-40.
B	1. Replace the 12V batteries	Refer to section “REMOVING THE BATTERIES”, page 6-20 and “INSTALLING THE BATTERIES”, page 6-21.
C	1. Replace real time clock lithium battery	Replace the lithium battery CR2032 3V (403.02032) on the main board (positive polarity should be oriented on the same side of the hand control connector). 

<table>
<tr><th>PM code</th><th>Description</th><th>What to do/What to check</th></tr>
<tr><td colspan="3">PM code D: Annual inspection of the lift</td></tr>
<tr><td rowspan="2">D</td><td colspan="2">Charging system</td></tr>
<tr><td>Charging station
or WCS equipped lift.</td><td>Charging Station

1. Bring the lift under a charging station.
2. Wait 3 seconds, the display will cycle through charge level icons according to actual battery charge level to show charging progress.
3. The LED will blink green until batteries are fully charge.
4. Inspect, clean or change the contact blades if any cracks are visible. For MS2 refer to “Removing the Contact Blade Kit”, section 6-31 and “Installing the Contact Blade Kit” section 6-32. For MS2 Plus, change both sets of contact blades, refer to “Replacement of MS2 Plus Contact Blades” section 6-65.

For MS2 Plus only, inspect the charging station protective white sticker to detect wear exposing the metallic casing of the contact station. If any wear is detected replace the white sticker.

Wall Charging System (WCS)

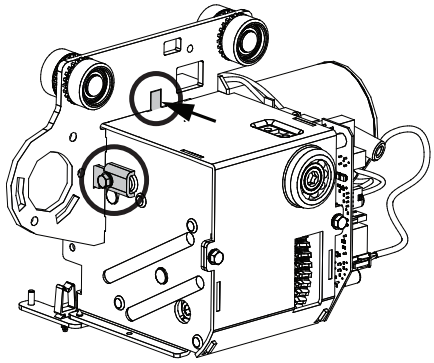
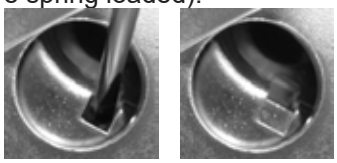
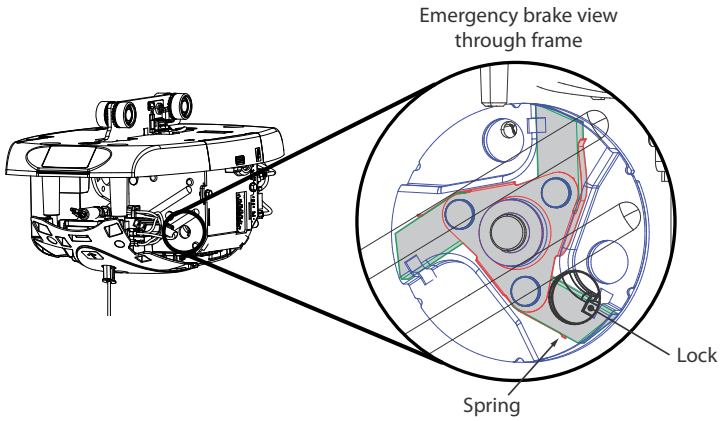
1. Plug charger’s cable to the WCS connector.
2. Wait 3 seconds, the display will cycle through charge level icons according to actual battery charge level to show charging progress.
3. The LED will blink green until batteries are fully charged.
4. Inspect, clean or replace the WCS cable assembly if heavy corrosion is present on the 2.5DC connector or if the lift does not charge even if it is plugged.

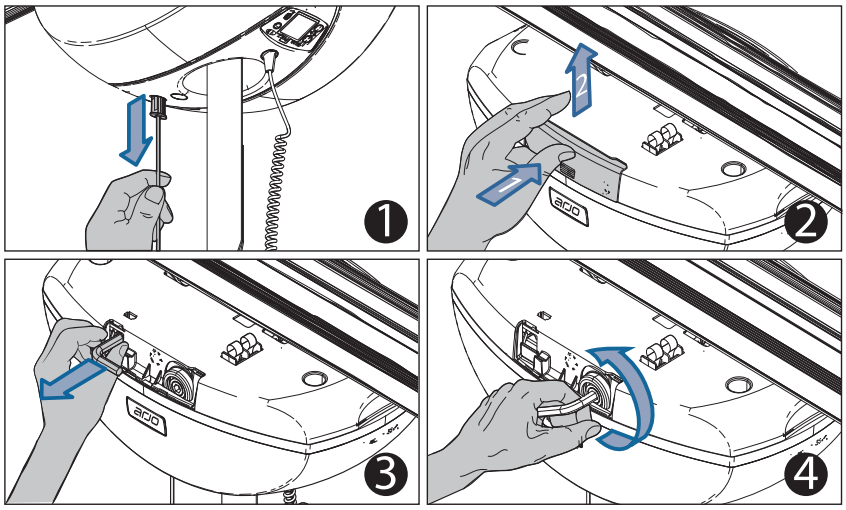
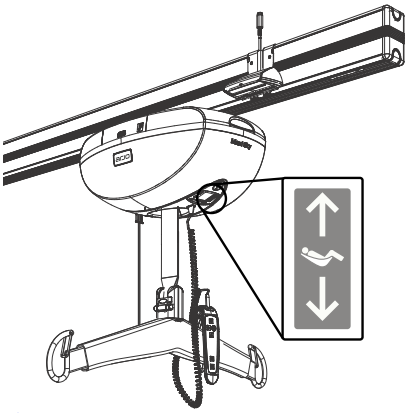
NOTE
THE GREEN LED MAY BE DISABLED. IN THIS CASE, IT WILL NOT BLINK

NOTE
IF THE BATTERIES HAVE BEEN COMPLETELY DRAINED IT COULD TAKE UP TO 8 HOURS TO COMPLETELY RECHARGE THEM.</td></tr>
<tr><td></td><td>ECS System</td><td>1. Unit must be positionned in a rail section with powered ECS strips.
2. Wait 15 seconds after the last activation of the lift, ECS symbol should appear on the screen only if batteries are lower than 80%. Otherwise it may take up to three hours before the ECS symbol appears.

NOTE
THE GREEN LED MAY BE DISABLE. IN THIS CASE, IT WILL NOT BLINK

NOTE
IF THE BATTERIES HAVE BEEN COMPLETELY DRAINED IT COULD TAKE UP TO 8 HOURS TO COMPLETELY RECHARGE THEM.</td></tr>
</table>

PM code	Description	What to do/What to check
D	**Emergency stop system**	
	Verify functionality of the Emergency Stop system	1. Pull on the Red Cord to shut the power off. 2. Ensure that no other action can be made. The display and the LED shall be turned off. 3. Inspect general condition of the Red Cord. For MS2 Plus only: 4. Pull the red emergency cord on the leading ceiling lift, both ceiling lifts will shut down. 5. Push it back upward, both ceiling lifts turn back on and are now functional. 6. Pull the red emergency cord on the driven ceiling lift, both ceiling lifts will shut down. 7. Push it back upward, both ceiling lifts turn back on and are now functional.
	Frame Interlock	
	Verify the presence of the interlock tab on the frame assembly	
	Verify trolley locker on the frame	
	Emergency Brake	
	Verify the functionality of the emergency break	1. Remove bottom cover. 2. Rotate drum (using Up/Down button on hand control) and align the emergency brake latch with the frame hole. 3. Push on the latch, using a flat screwdriver or the like, and it should return to its initial position (latches are spring loaded).  4. Rotate the drum again (using hand control) and align the next emergency brake latch with the frame hole. There are three different latches to test. 

PM code	Description	What to do/What to check
D	**Emergency Lowering Device**	
	Verify functionality of the emergency lowering device **NOTE** THE EMERGENCY LOWERING DEVICE CAN BE VERIFIED WITH OR WITHOUT ATTACHING A LOAD.	1. Pull the red emergency cord to turn off power. 2. Open the small side door to access the lowering mechanism. 3. Remove the 8 mm hex key on the top of the ceiling lift. Insert the hex key deep into the socket. 4. Turn the hex key counter-clockwise to slowly lower the spreader bar.  **WARNING** DO NOT USE THE UP/DOWN FUNCTIONS WHEN THE HEX KEY IS INSERTED INTO THE SOCKET AS IS CAN LEAD TO INJURIES.
	Auxiliary Up/Down Button	
	Verify functionality of the alternate Up/Down buttons	1. Press and hold each button (Up and Down).  **NOTE** WITH THE DOWN FUNCTION, ALWAYS KEEP TENSION (AT LEAST THE WEIGHT OF THE 2 HOOKS SPREADER BAR) ON THE STRAP. THIS WILL PREVENT THE DOWN FUNCTION FROM STOPPING.

<table>
<tr><th>PM code</th><th>Description</th><th>What to do/What to check</th></tr>
<tr><td rowspan="8">D</td><td colspan="2">Limit switch</td></tr>
<tr><td>Verify functionality</td><td>1. Press and hold the Up button until the lift stops at the top of its stroke.
2. Press and hold the Down button until the stops at the end of its stroke of the lift (lower limit).

NOTE
WITH THE DOWN FUNCTION, ALWAYS KEEP TENSION (AT LEAST THE WEIGHT OF THE 2 HOOKS SPREADER BAR) ON THE STRAP. THIS WILL PREVENT THE DOWN FUNCTION FROM STOPPING.

For MS2 Plus only
Set the product in dual then perform step 1 and 2 during which both sides of the spreader bar (leg end and foot end) should raise at the same speed.

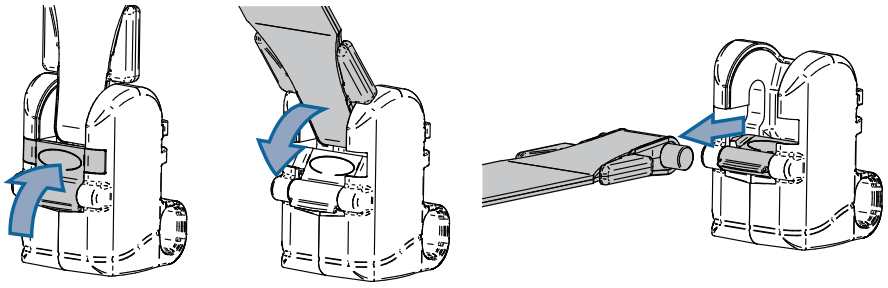
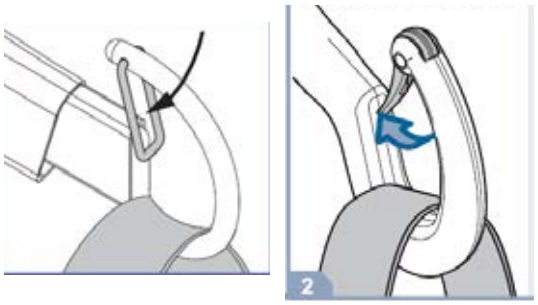
3. Remove tension on the leading ceiling lift strap and press the DOWN button: down motion stops for both straps.
4. Remove tension on the driven ceiling lift strap and press DOWN button: down motion stops for both straps.</td></tr>
<tr><td colspan="2">Sit / Recline (For MS2 Plus Only)</td></tr>
<tr><td>Verify functionality</td><td>1. Press and hold RECLINE button: The end of the spreader bar, with the feet logo, moves up. If it doesn’t spreader bar installation is inverted.
2. Press and hold SIT button: The end of the spreader bar, with the feet logo, moves down. If it doesn’t spreader bar installation is inverted.
3. Ensure that the stroke of the spreader bar end, with feet logo, (which is limited by software) is symetrical in regards to the spreader bar end with head logo and is in the range of 350 mm (+/-25).

Vibration noise from spreader may occur during test.</td></tr>
<tr><td colspan="2">Trolley and Left/Right transmission</td></tr>
<tr><td>Verify general functionality of the trolley</td><td>1. Check trolley and wheels for damage, rust or cracks.
2. Wheels shall rotate freely.

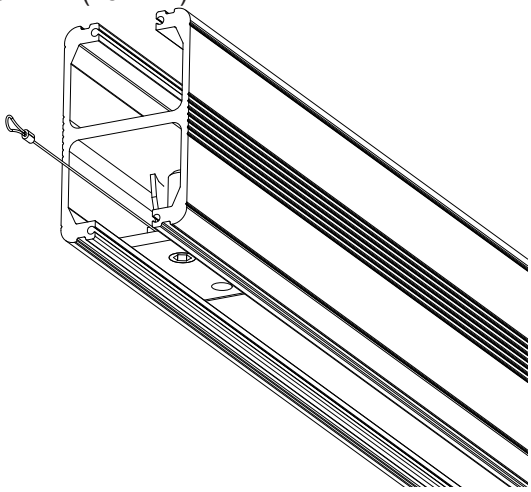
For MS2
4 functions only:
• Press and hold the left/right button and pay attention for any abnormal noise along the rail path.

For MS2 Plus only:
3. Ensure system rotates 360° in both directions without restriction.
4. Ensure both MS2 ceiling lifts:
- are secured to the trolley with lock and bolt.
- can swivel freely.</td></tr>
<tr><td colspan="2">Up/Down transmission</td></tr>
<tr><td>Inspect and grease transmission</td><td>1. Check gear for excessive wear.
2. Using Lubriplate grease (P/N: P8180), make sure the second stage gear has enough grease.
3. Remove excessive grease on the side of the gear to avoid getting any on the strap.</td></tr>
</table>

PM code	Description	What to do/What to check
D	**Plastic covers**	
	Verify general condition of the plastic covers	1. Check for cracks on the plastic parts. a. Strap Inlet b. Bottom cover c. Top Cover 2. Verify the presence of the tool door and the battery door.
	Weight load test	
	Perform a Load Test at SWL on Lift and Track	Refer to section “Performing a Weight Load Test”, page 6-69, and sub-section “Load Test at SWL on Lift and Track”. 1. Make sure the adjusted SWL setting of the lift (at startup on the display and on the sticker) is equal to or lower than the SWL of the installation. 2. Perform one lift with the SWL. **NOTE** IF THE LIFT CANNOT RAISE THE WEIGHT; REFER TO SECTION “ADJUSTMENT OF THE CURRENT LIMITER”, PAGE 5-4, TO INCREASE THE OVERWEIGHT LIMIT

PM code	Description	What to do/What to check
PM code E: Annual inspection of the spreader bar		
E	**Quick Connect**	
	Verify general assembly and functionality of the Safe Connect	1. Open the latch that locks the strap in place by pushing it inward. 2. Rotate the strap towards the latch. 3. Pull the strap out of the attachment. Pay attention to: • Missing parts • General condition 
	Spreader Bar	
	Loop Spreader Bar Verify functionality of the latch	1. Verify general condition of the spreader bar for damage or cracks. 2. Verify presence and functionality of each latch. 
	MS2 Plus Spreader Bar	
	Verify general condition	1. Ensure that the green strap aligns with the green dots on the spreader bar and quick connect cover. 2. Ensure that all labels are readable. 3. Ensure that the link between the spreader bar can extend and retract freely. 4. Vibration noise may be heard during test operation.

PM code	Description	What to do/What to check
E	Manual DPS (flat & open)  Verify functionality of the Friction disk	1. Verify general condition of the DPS for damage or crack. 2. Rotate the bottom frame using the handle. 3. Make sure the frame keeps its position.
	Powered DPS  Verify functionality of the actuator	1. Verify general condition of the spreader bar for damage or cracks. 2. Press and hold the  and  on the hand control. 3. Pay attention to abnormal noise.

PM code	Description	What to do/What to check
PM code F: Annual inspection of the rail installation		
F	**Annual inspection of the installation**	
	Verify presence of End Stopper	1. End stopper shall be present at each extremity of the rail path and they shall be torque to 20 N··m (15 lbf·ft). 
	General condition of the rail	1. Verify the general condition of the ceiling (damage, cracks) 2. Make sure the rail is level when it is not loaded. 3. Make sure that attachments (ceiling brackets, wall posts, wall brackets, rail brackets) have not been displaced, damaged or removed. 4. Make sure rail joints are closed and that the spring pins are centered. 5. Check that the accessories (X-Y system, Gate, Exchanger, Turntable, Charging station and PPP station) are complete and correctly maintained.
	(Optional) Perform a load test on track with deflection measurement when under load	1. Refer to section “Performing a Weight Load Test” (6-69), sub-section - Load Test on Track with Deflection Measurment when Under Load. 2. Select the load at which the test shall be done: 100%, 125% or 150% of SWL. 3. Refer to weight load test form 001-11760-EN for acceptance criteria.

PM code	Description	What to do/What to check
PM code G-H-I-J-L-M-N-O		
G	KWIKtrak accessory has a short circuit problem.	1. Reset the preventive maintenance. 2. Try to find which accessory is at fault. a. The rail accessory is not working. b. The preventive maintenance is displayed when the MS-2 is moved under the defective accessory.
H	The high limit circuit still open after a downward traveling of at least two inches. **Associated to Malfunction 2:** High limit switch fault	1. Check if the connector J10 (high limit) is connected to the main board. 2. Check that the wires and the terminals at the connector J10 are in good condition. 3. Check the electric contact of the limit switches : a. Disconnect the connector J10 from the main board. b. Check the conductivity between the white and the green wire. (The continuity status is short circuit when the strap end is out of the strap inlet, and is open circuit when the strap end is in the strap inlet.) c. Check the continuity between the red and the black wires. (The conductivity status is short circuit when there is no tension on the strap, and is open circuit when there is tension on the strap.) 4. Without any weight, press the Up button until the strap reaches the high limit switch. If the high limit is not detected, inspect the limit kit. 5. Without any weight, press the Down button until the no tension limit stops the action. If the down action is not stopped after 2 sec., inspect the limit kit. 6. Replace the appropriate limit kit if necessary (refer to relevant removal and installation procedures sections in chapter CHAPTER 6 of this manual.
I	Statistics are no longer updated. (Total lifts, lifts last day, lifts last week, average lifts/day) **Associated to Malfunction 0**: Memory fault	1. Replace the main board; refer to section “REMOVING THE MAIN BOARD”, page 6-46 and “INSTALLING THE MAIN BOARD”, page 6-48. 2. If the problem is not fixed, reinstall the original main board and replace the user interface board. (refer to section “REMOVING THE USER INTERFACE BOARD”, page 6-50 and “INSTALLING THE USER INTERFACE BOARD”, page 6-52 for procedure). 3. Return the defect board to Arjo for inspection, accompanying with a short description of the problem. **NOTE** NEVER CHANGE THE MAIN BOARD AND THE USER INTERFACE BOARD SIMULTANEOUSLY. THE LIFT MAY NOT BE USABLE (E.G. DISPLAY IS BLACK, RED LED AND LIFT REMAINS IN STARTING MODE).

PM code	Description	What to do/What to check
J	Replace main board. **Associated to:** **Malfunction 6:** Brake relay fault (The brake relay doesn't short the Up/Down motor. When the emergency stop is pulled, the capacity of maintaining a patient is compromised, patient can go down slowly or fast) **Malfunction 12:** Main board oscillator fault (All functions activation such as Up, Down, Left, Right starts slowly and progresses slowly too. **Malfunction 13:** Unexpected current on Up/ Down motor (driver or MOSFET's problem). **Malfunction 14:** Unexpected current on Left/ Right motor (MOSFET is short) **Malfunction 15:** Unexpected current on Sit/ Reclined motor (MOSFET is short) **Malfunction 17:** Accessories or charging defect (The MOSFET that power the accessory is short or the charging relay stays ON) **Malfunction 20:** ECS relay fault (The ECS relay stays ON)	1. Replace the main board (refer to section "REMOVING THE MAIN BOARD", page 6-46 and "INSTALLING THE MAIN BOARD", page 6-48 for procedure). 2. When problem is solved, reset the preventive maintenance.
L	Up/Down motor does not rotate or the encoder does not read the motor speed. **Associated to Malfunction 1:** Up/Down motor encoder fault	1. Check if the encoder J11 is connected. 2. Check if the encoder wire and the contact are correct at J11. 3. Press Up or Down and check if the strap moves and if a malfunction is displayed. 4. Connect an external Up/Down motor (don't forget to connect the encoder) and test if the Up and the Down action work. If it works with the external motor, replace the motor; refer to "REMOVING THE UP/DOWN MOTOR", page 6-72 and "INSTALLING THE UP/DOWN MOTOR", page 6-74.

<table>
<tr><th>PM code</th><th>Description</th><th>What to do/What to check</th></tr>
<tr><td>M</td><td>Up/Down Motor is not functional.

Associated to:

Malfunction 3: Up/Down motor drive fault (Malfunction from the motor driver caused by a short circuit of the motor or the driver is not powered)
Malfunction 4: Holding system not functional (wiring of the motor is broken)
Malfunction 5: Motor Up/Down wiring fault (The wiring path of the Up/Down motor is opened)
Malfunction 7: Over current on Up action
Malfunction 8: Over-current on Down action</td><td>1. If malfunction 8 is displayed, verify that the Up/Down action are not inverted. If so, check limit kit (lower limit). If not, continue the following troubleshooting.
2. Try to reproduce the malfunction with the Up/Down motor.
3. Check if the 15A motor fuse is blown up (near the emergency stop). Replace it and test again.
4. Power off the MS-2. Disconnect the power connector J1. Check the conductivity of the Up/Down motor (Blue wire pin 11 and Red wire pin 12). If the Up/Down motor is short (lower than 2 ohms) or open, replace it and test again.
5. Connect an external Up/Down motor (don’t forget to connect the encoder) and test if the Up and the Down action work. If it works with the external motor, replace the motor; refer to section “REMOVING THE UP/DOWN MOTOR”, page 6-72 and “INSTALLING THE UP/DOWN MOTOR”, page 6-74.
6. If the malfunction appears again, replace the main board; refer to section “INSTALLING THE WCS CABLE”, page 6-27 and “INSTALLING THE MAIN BOARD”, page 6-48.
7. When problem is solved, reset the preventive maintenance.

NOTE
WHEN THE UP/DOWN MOTOR IS REPLACED, DON’T FORGET TO INSTALL THE MOTOR MAGNET IN THE SAME POSITION. A 180 DEGREES TURN OF THE MAGNET WILL CAUSE THE MOTOR TO TURN IN THE WRONG WAY</td></tr>
<tr><td>N</td><td>Left/Right Motor is not functional.

Associated to Malfunction 9: Over-current on Left/Right action</td><td>1. Try to reproduce the malfunction with the Left/Right motor.
2. Check if the 15A motor fuse is blown (near the emergency stop). Replace it and test again.
3. Power off the MS-2. Disconnect the power connector J1. Check the conductivity of the Left/Right motor (Blue wire pin 3 and the Red wire pin 6). If the Left/Right motor is short (lower than 2 ohms), replace it and test again; refer to section “REMOVING THE LEFT/RIGHT MOTOR”, page 6-54 and “INSTALLING THE LEFT/RIGHT MOTOR”, page 6-55.
4. Connect an external Left/Right motor and test if the Left and the Right actions work. If the external motor works, replace the motor.
5. If the malfunction appears again, replace the main board; refer to section “REMOVING THE MAIN BOARD”, page 6-46 and “INSTALLING THE MAIN BOARD”, page 6-48.
6. When problem is solved, reset the preventive maintenance.</td></tr>
<tr><td>O</td><td>Sit/Reclined Motor is not functional.

Associated to Malfunction 10: Over-current on Sit/Reclined action</td><td>1. Try to reproduce the malfunction with the Sit/Reclined motor.
2. Check if the 15A motor fuse is blown (near the emergency stop). Replace it and test again.
3. Power off the MS-2. Disconnect the power connector J1. Check the conductivity of the Sit/Reclined motor (Black wire pin 4 and the Red wire pin 7). If the Sit/Reclined motor is short, replace it and test again.
4. Connect another PDPS and test if the Sit/Reclined actions work. If it‘s not working, replace the PDPS.
5. If the malfunction appears again, replace the main board.
6. When problem is solved, reset the preventive maintenance.</td></tr>
</table>

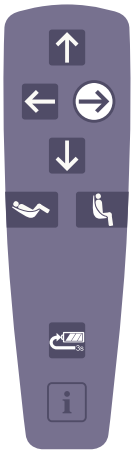
RESET MAINTENANCE CODE

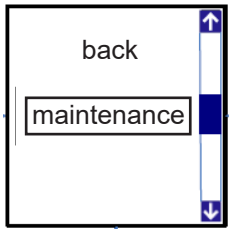
The maintenance code is displayed when the system is waking up from sleep mode or when the unit is turned on. The icon, accompanied with the red LED, shows up for 7 seconds then blinks every 5 seconds.

Once you have done a required maintenance, you need to erase its corresponding code to indicate it has been completed.

-Shut OFF the Power by pulling on the red emergency stop cord.

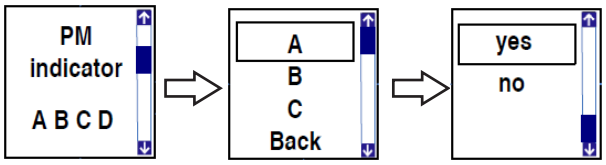
-Turn the lift ON by pushing on the red button.
-When the loading display appears on the screen, press ↑ + ↑ + i on the hand control.





-Press ↓ button to select “maintenance” menu
-Confirm your selection by pressing on the i button

For software version 2.0 and 2.1



-Press ↓ button to select PM indicator.
-Confirm your selection by pressing on the i button.
-Select maintenance letter that has been performed by pressing the i button.
-Select “yes” and press i button, then the letter associated to this maintenance will disappear from the list.

According to the preventive maintenance table on the next page, the maintenance will appear with the specified frequency.

For software version 2.2.X and up

There are 2 ways to reset a maintenance code

1. When maintenance has been performed, follow the steps described on page 8-16 to access the maintenance menu.

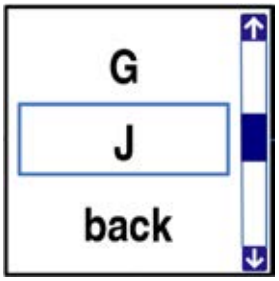
- Press ↓ button to select ‘‘maintenance required’’.

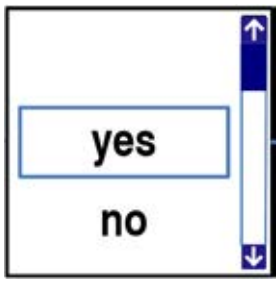
- Confirm you selection by pressing on the i button.

- Select a maintenance letter that has been performed by pressing on the i button.

- Select ‘‘yes’ and press i button, then the letter associated to this maintenance will disappear from the list.

- Repeat the same sequence for each maintenance action performed.





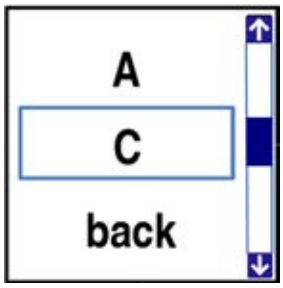
2. To reset the letter of a maintenance performed before it is due and pops up on the screen, follow the steps described on page 8-16 to access the maintenance menu.

- Press ↓ button to select ‘‘preventive maintenance scheduled’’.

- Confirm your selection by pressing on the i button

- Select a maintenance letter to be reset by pressing on the i button

- Select ‘‘yes’’ and press i button, then the letter associated to this maintenance will disappear from the list.



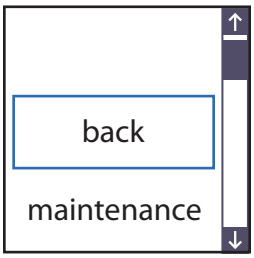
For MS2 Plus

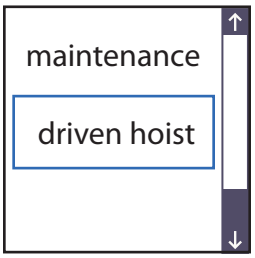
To reset the maintenance code on the leading ceiling lift, follow the instruction on the previous page.

To reset the maintenance code on the driven ceiling lift, follow the instructions below.

First access the maintenance menu as explained on page 8-13

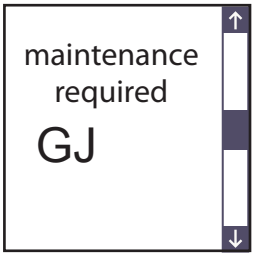
On The Leading Ceiling Lift Display, Select Driven Hoist

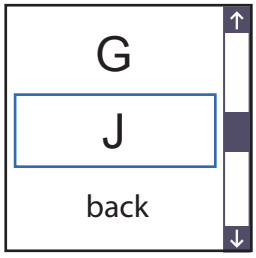


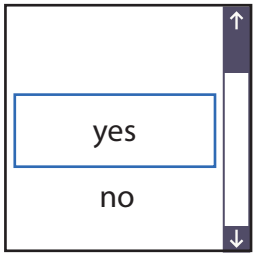


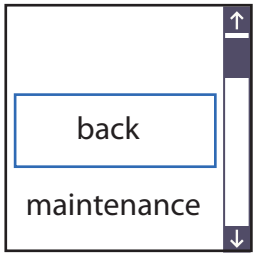
Once driven hoist has been selected, look at the driven ceiling lift display for the next steps.

When maintenance has been performed:

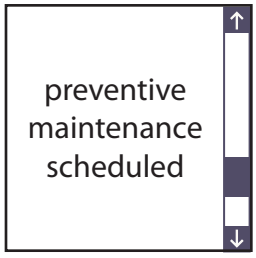


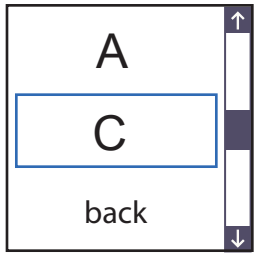


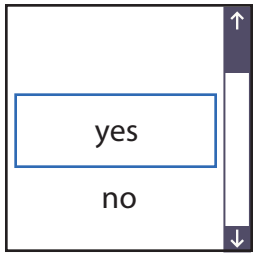


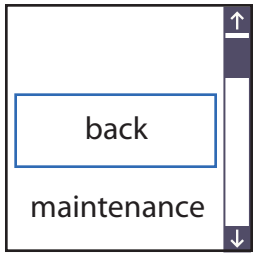


To reset the letter of maintenance performed before it is due and pops up on screen:







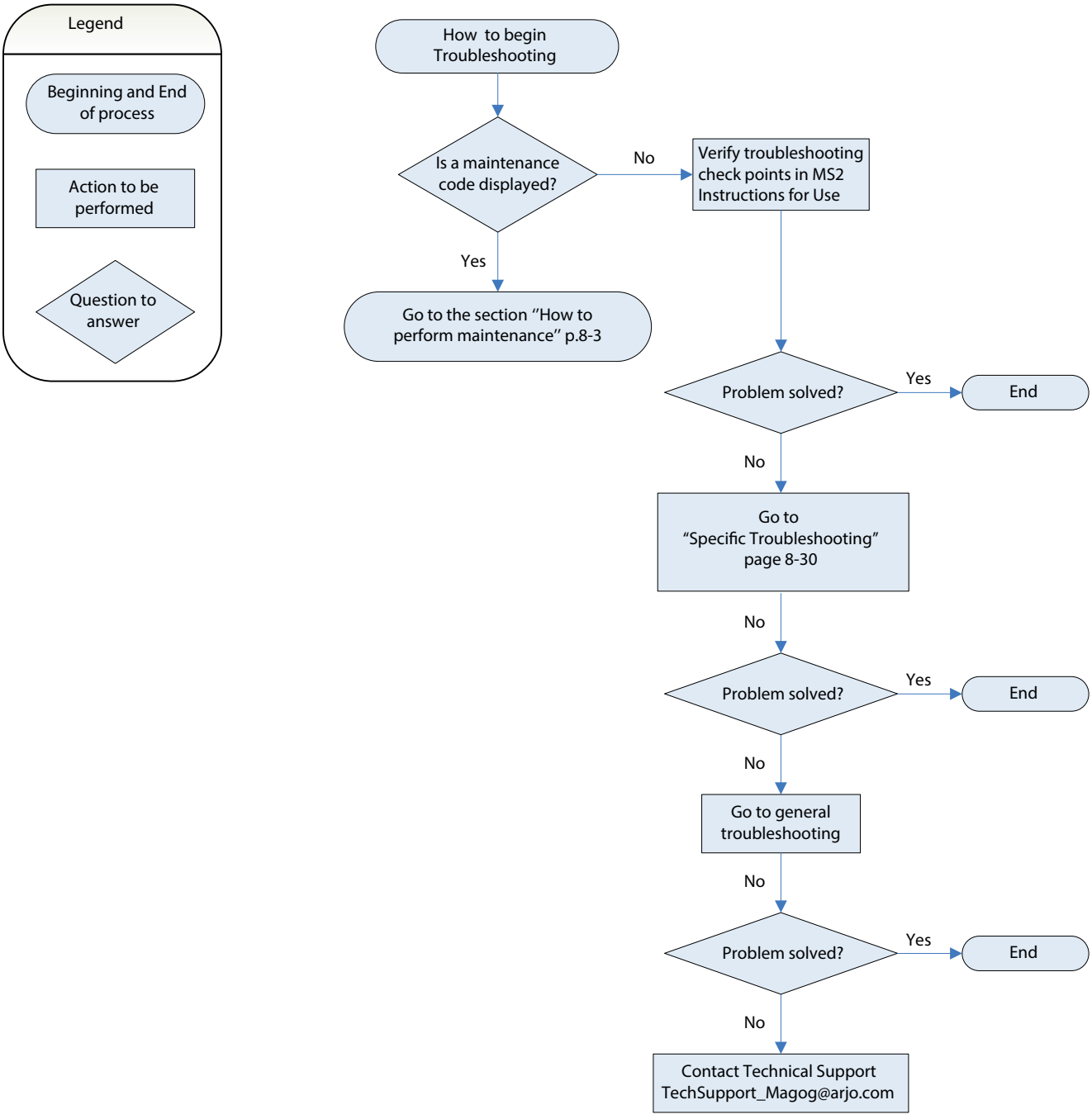


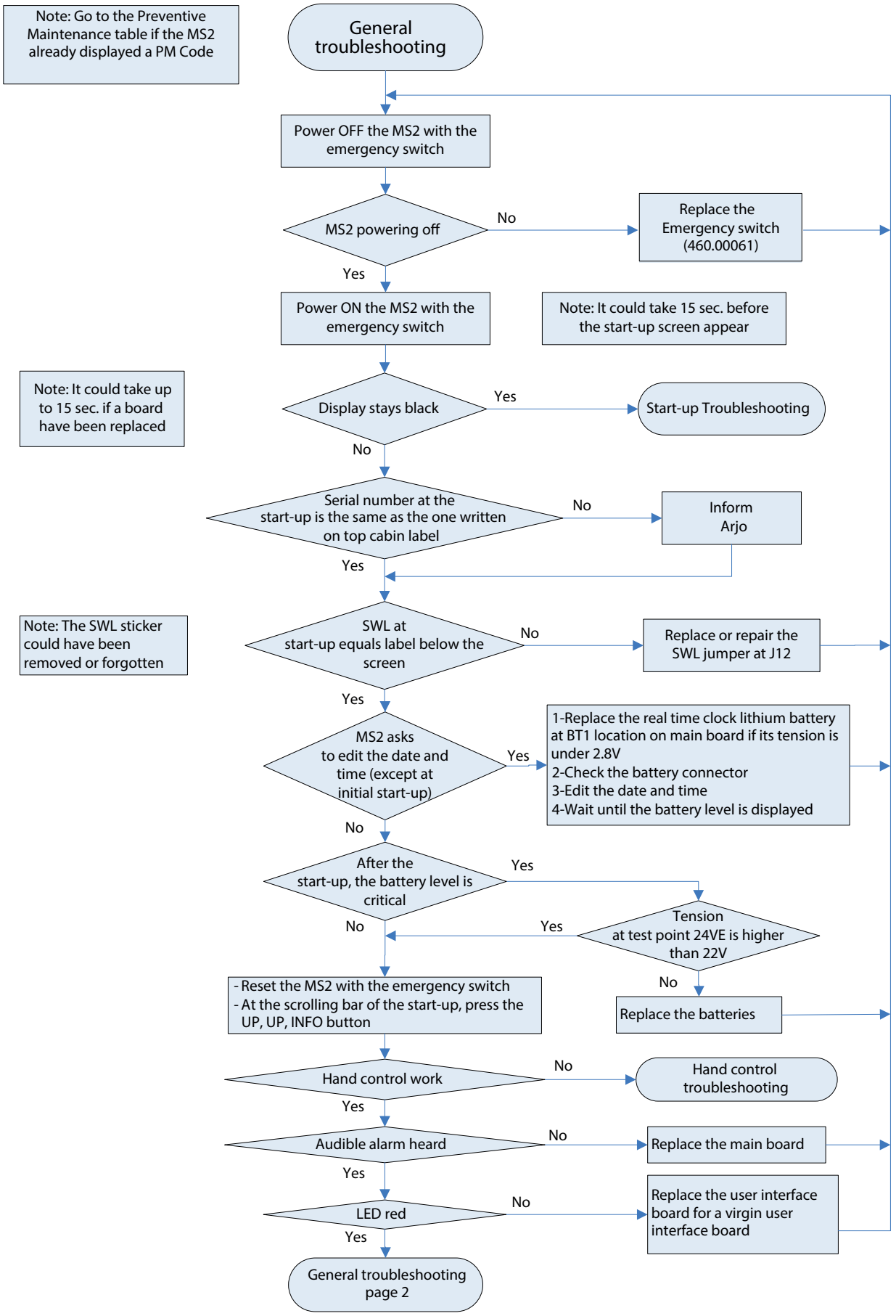
MALFUNCTION CODES TABLE

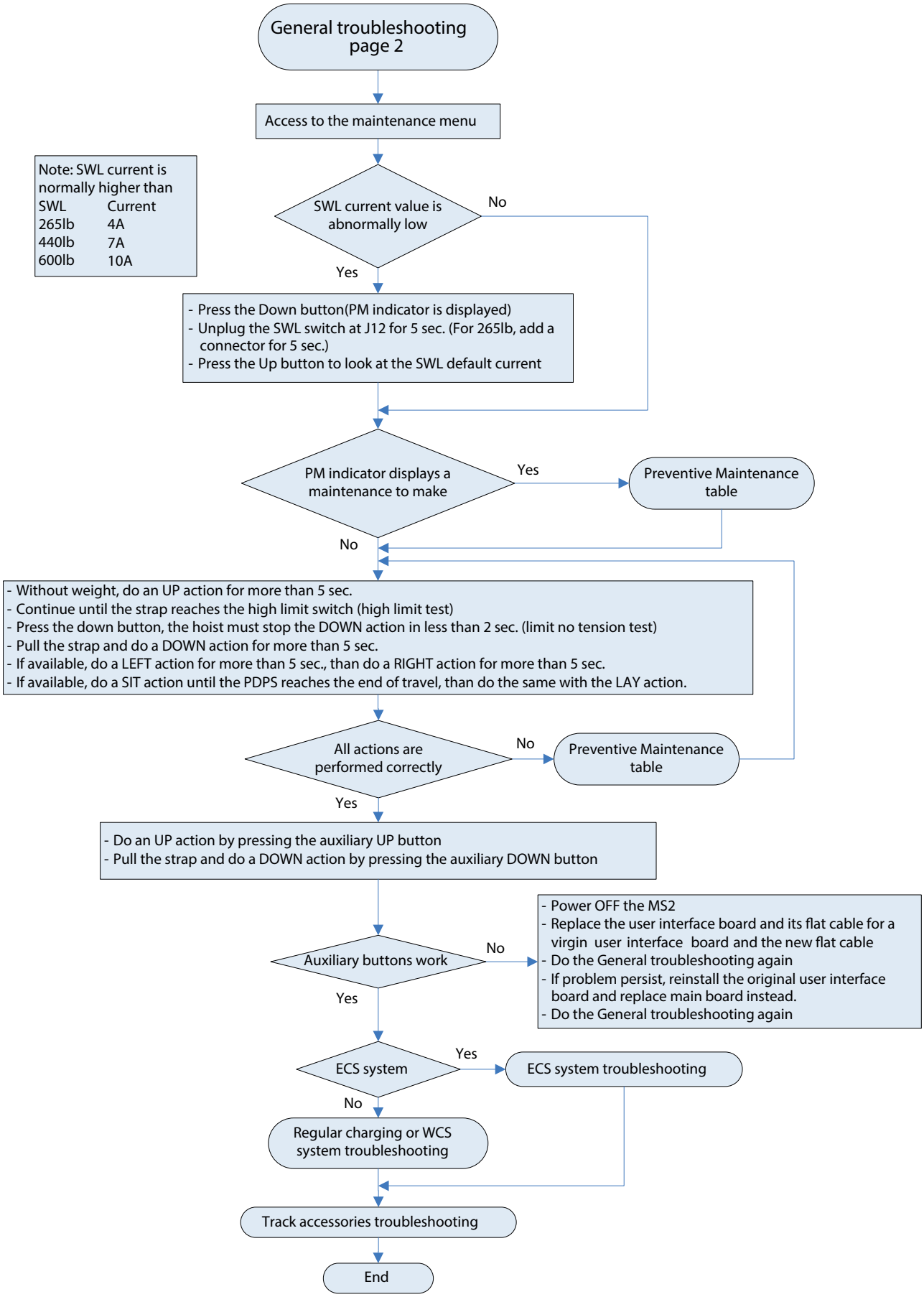
Code	Malfunction description	Up	Down	Holding system	Left/ Right	Sit/ Reclined
0	Memory fault	enable	enable	enable	enable	enable
1	Up/Down motor encoder fault	disable	enable	disable	enable	enable
2	High limit switch fault	disable	enable	enable	enable	enable
3	Up/Down motor drive fault	disable	disable	disable	enable	enable
4	Holding system* not functional	enable	enable	disable	enable	enable
5	Motor Up/Down wiring fault	disable	enable	enable	enable	enable
6	Up/down motor brake relay fault	enable	enable	enable	enable	enable
7	Over-current on Up action	disable	enable	disable	enable	enable
8	Over-current on Down action	disable	disable	disable	enable	enable
9	Over-current on Left/Right action	enable	enable	enable	disable	enable
10	Over-current on Sit/Lay action	enable	enable	enable	enable	disable
11	Real time clock fault	enable	enable	enable	enable	enable
12	Main board oscillator fault	enable	enable	enable	enable	enable
13	Unexpected current on Up/Down motor	disable	disable	disable	enable	enable
14	Unexpected current on Left/Right motor	enable	enable	enable	disable	enable
15	Unexpected current on Sit/Lay motor	enable	enable	enable	enable	disable
16	Battery charging overvoltage	enable	enable	enable	enable	enable
17	Supply of accessory is defect	enable	enable	enable	enable	enable
18	Abnormal tension detected during charging	enable	enable	enable	enable	enable
19	Rail accessory Over-current	enable	enable	enable	enable	enable
20	ECS relay fault	enable	enable	enable	enable	enable
21	Power fail low voltage	stop	stop	stop	stop	stop
22	Power fail high voltage	stop	stop	stop	stop	stop
23	Unable to reach the station	enable	enable	enable	enable	enable
24	In Dual MS-2 Configuration, serial communication is interrupted Refer to Troubleshooting section	disable	enable	enable	enable	enable
25	In Dual MS-2 Configuration, the two hoists don't have the same SW version	disable	disable	disable	disable	disable
26	In Dual MS-2 Configuration, SWL jumpers of both hoist shall be 272 kg Refer to Troubleshooting section	disable	enable	enable	enable	enable

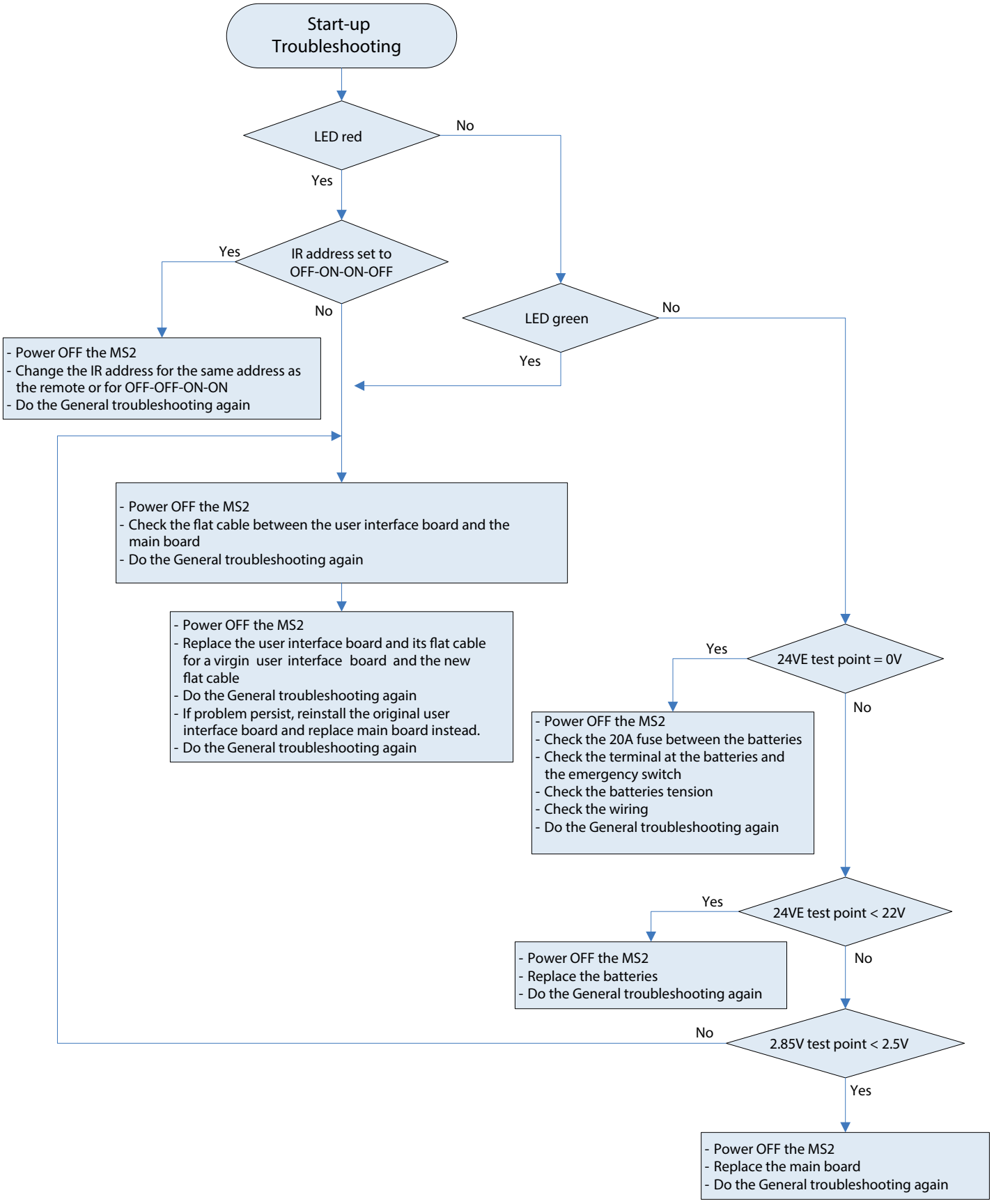
***** Electrical brake that keeps the patient at the same height when the Up/Down is not activated

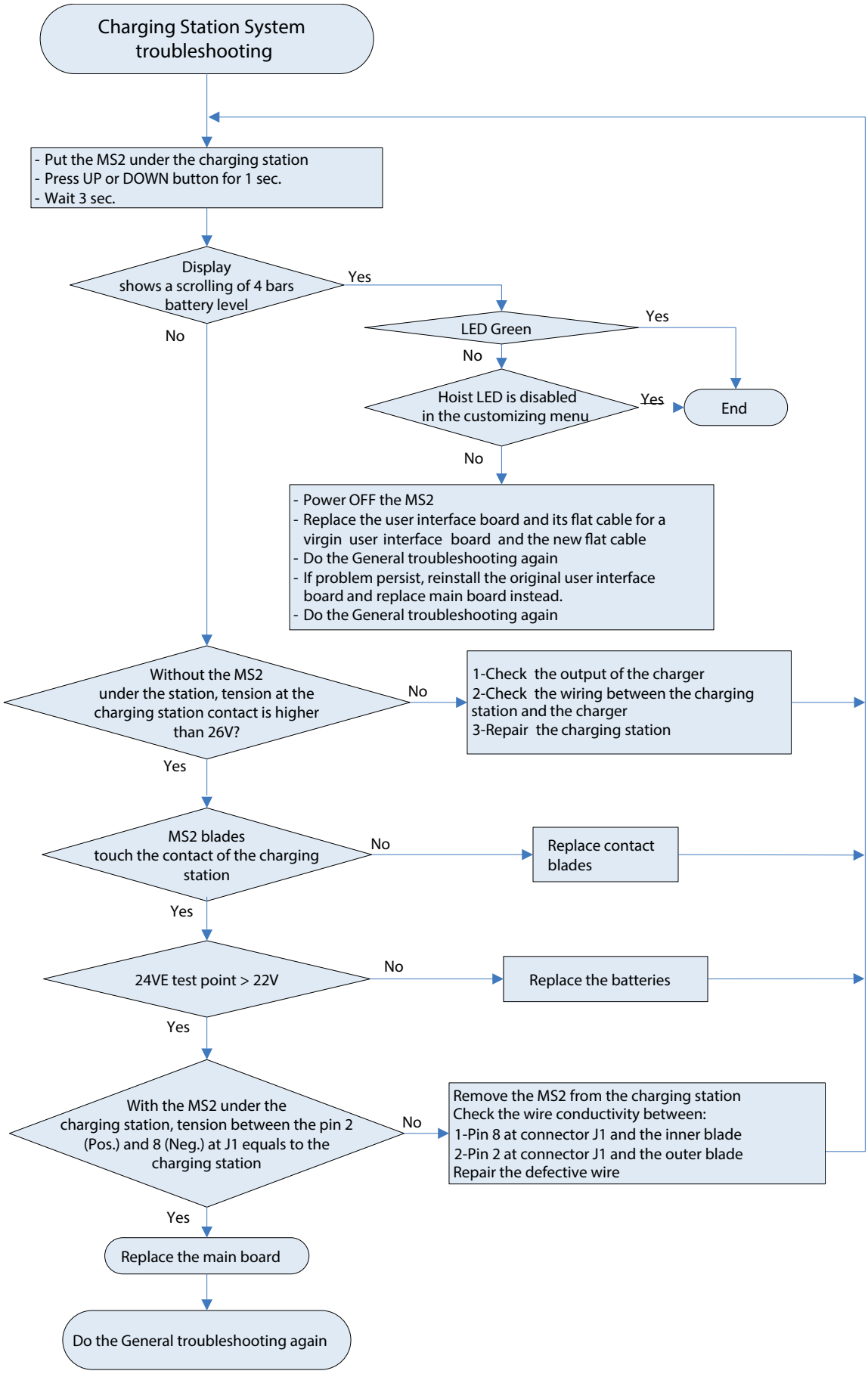
Authorization vs action
Enable: The function associated is allowed
Disable: The function associated is not allowed
Stop: The motor associated stops immediately until the fault disappear

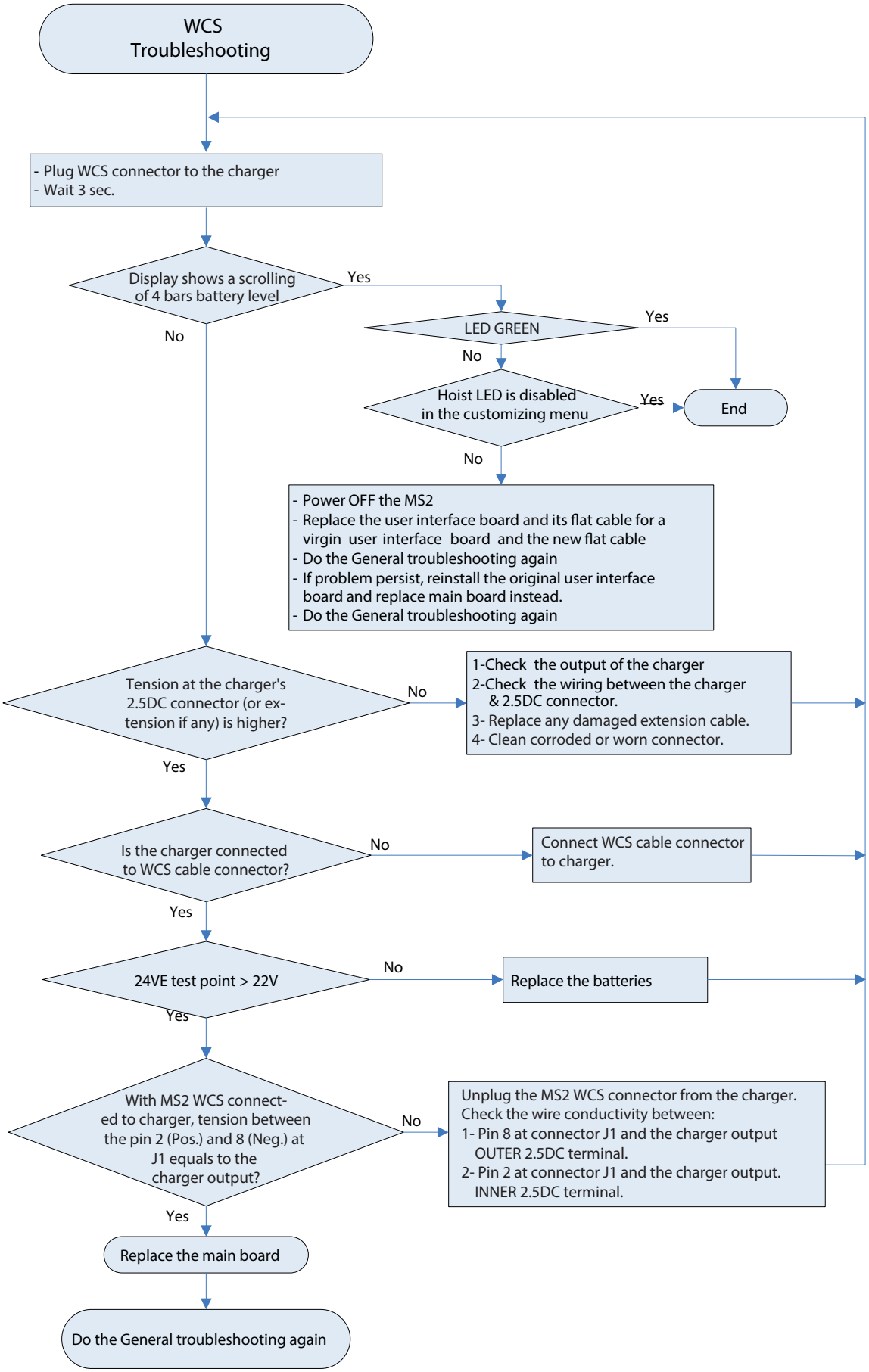

Legend
Beginning and End of process
Action to be performed
Question to answer
How to begin Troubleshooting
Is a maintenance code displayed?
No
Verify troubleshooting check points in MS2 Instructions for Use
Yes
Go to the section "How to perform maintenance" p.8-3
Problem solved?
Yes
End
No
Go to "Specific Troubleshooting" page 8-30
No
Problem solved?
Yes
End
No
Go to general troubleshooting
No
Problem solved?
Yes
End
No
Contact Technical Support TechSupport_Magog@arjo.com

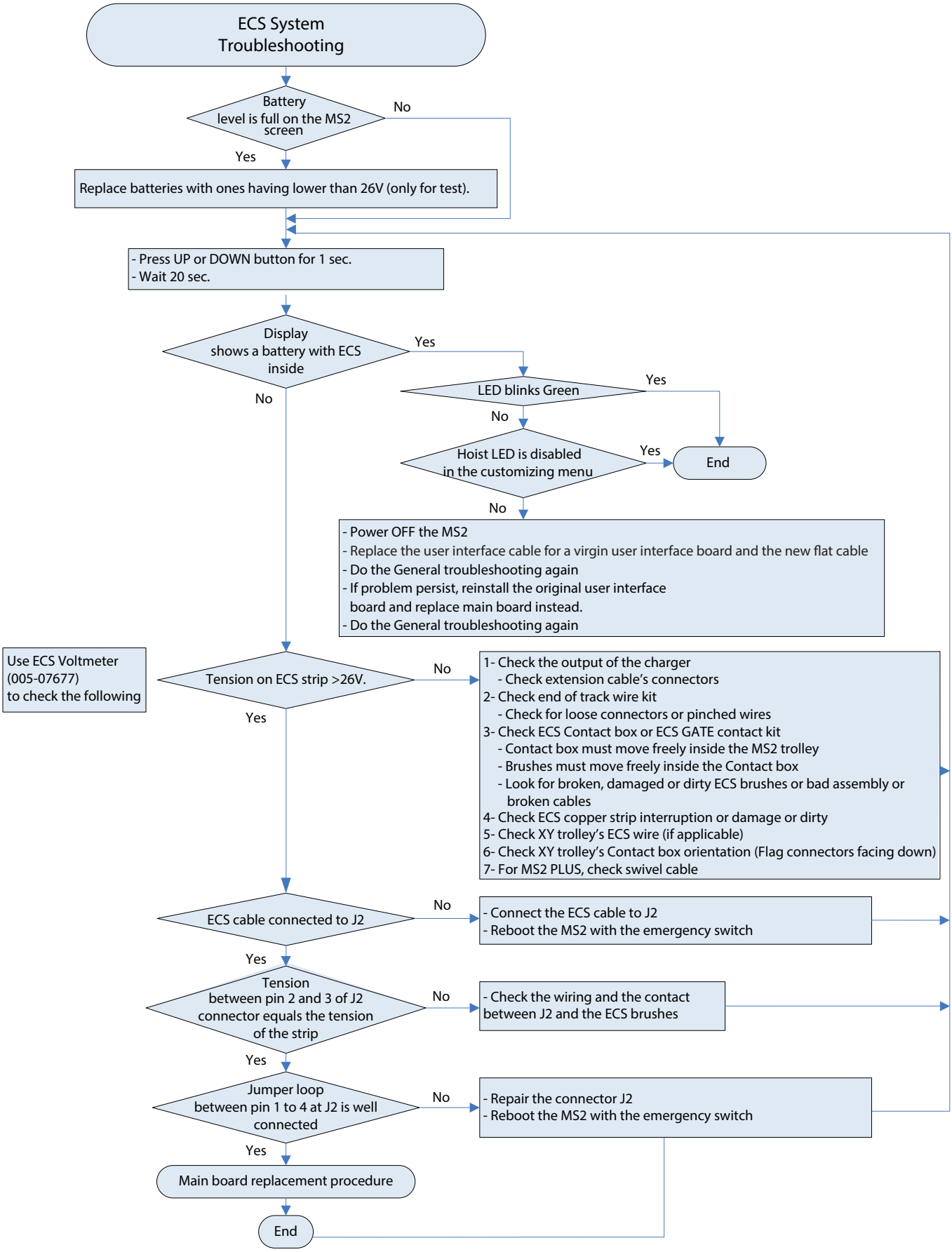

Note: Go to the Preventive Maintenance table if the MS2 already displayed a PM Code
General troubleshooting
Power OFF the MS2 with the emergency switch
MS2 powering off
No
Replace the Emergency switch (460.00061)
Yes
Power ON the MS2 with the emergency switch
Note: It could take 15 sec. before the start-up screen appear
Note: It could take up to 15 sec. if a board have been replaced
Display stays black
Yes
Start-up Troubleshooting
No
Serial number at the start-up is the same as the one written on top cabin label
No
Inform Arjo
Yes
Note: The SWL sticker could have been removed or forgotten
SWL at start-up equals label below the screen
No
Replace or repair the SWL jumper at J12
Yes
MS2 asks to edit the date and time (except at initial start-up)
Yes
1-Replace the real time clock lithium battery at BT1 location on main board if its tension is under 2.8V
2-Check the battery connector
3-Edit the date and time
4-Wait until the battery level is displayed
No
After the start-up, the battery level is critical
Yes
No
Yes
Tension at test point 24VE is higher than 22V
No
Replace the batteries
- Reset the MS2 with the emergency switch
- At the scrolling bar of the start-up, press the UP, UP, INFO button
Hand control work
No
Hand control troubleshooting
Yes
Audible alarm heard
No
Replace the main board
Yes
LED red
No
Replace the user interface board for a virgin user interface board
Yes
General troubleshooting page 2


General troubleshooting page 2
Access to the maintenance menu
Note: SWL current is normally higher than
SWL Current
265lb 4A
440lb 7A
600lb 10A
SWL current value is abnormally low
No
Yes
- Press the Down button(PM indicator is displayed)
- Unplug the SWL switch at J12 for 5 sec. (For 265lb, add a connector for 5 sec.)
- Press the Up button to look at the SWL default current
PM indicator displays a maintenance to make
Yes
Preventive Maintenance table
No
- Without weight, do an UP action for more than 5 sec.
- Continue until the strap reaches the high limit switch (high limit test)
- Press the down button, the hoist must stop the DOWN action in less than 2 sec. (limit no tension test)
- Pull the strap and do a DOWN action for more than 5 sec.
- If available, do a LEFT action for more than 5 sec., than do a RIGHT action for more than 5 sec.
- If available, do a SIT action until the PDPS reaches the end of travel, than do the same with the LAY action.
All actions are performed correctly
No
Preventive Maintenance table
Yes
- Do an UP action by pressing the auxiliary UP button
- Pull the strap and do a DOWN action by pressing the auxiliary DOWN button
Auxiliary buttons work
No
- Power OFF the MS2
- Replace the user interface board and its flat cable for a virgin user interface board and the new flat cable
- Do the General troubleshooting again
- If problem persist, reinstall the original user interface board and replace main board instead.
- Do the General troubleshooting again
Yes
ECS system
Yes
ECS system troubleshooting
No
Regular charging or WCS system troubleshooting
Track accessories troubleshooting
End

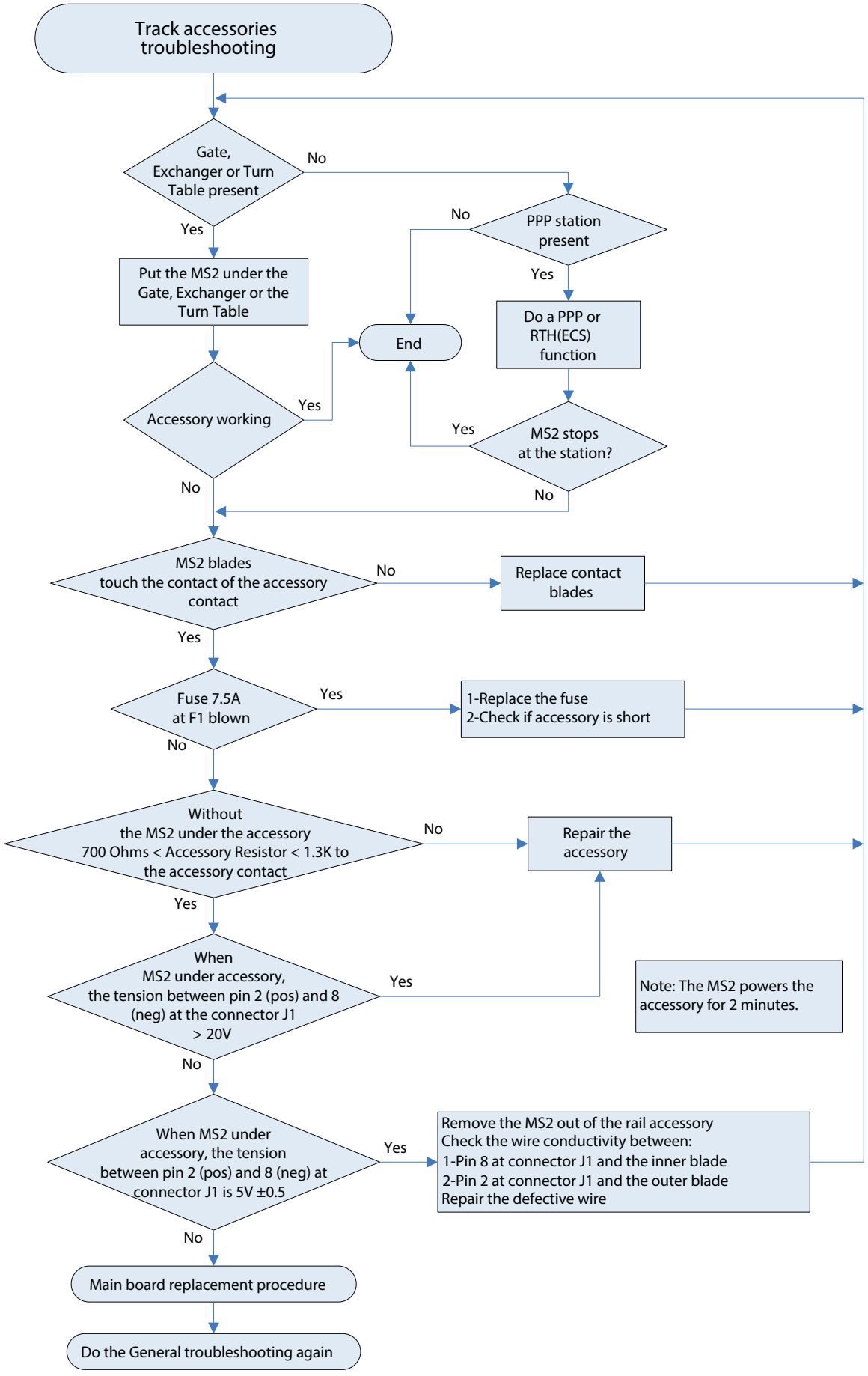

Start-up
Troubleshooting
LED red
No
Yes
IR address set to
OFF-ON-ON-OFF
Yes
No
LED green
No
Yes
- Power OFF the MS2
- Change the IR address for the same address as the remote or for OFF-OFF-ON-ON
- Do the General troubleshooting again
- Power OFF the MS2
- Check the flat cable between the user interface board and the main board
- Do the General troubleshooting again
- Power OFF the MS2
- Replace the user interface board and its flat cable for a virgin user interface board and the new flat cable
- Do the General troubleshooting again
- If problem persist, reinstall the original user interface board and replace main board instead.
- Do the General troubleshooting again
24VE test point = 0V
Yes
No
- Power OFF the MS2
- Check the 20A fuse between the batteries
- Check the terminal at the batteries and the emergency switch
- Check the batteries tension
- Check the wiring
- Do the General troubleshooting again
24VE test point < 22V
Yes
No
- Power OFF the MS2
- Replace the batteries
- Do the General troubleshooting again
2.85V test point < 2.5V
No
Yes
- Power OFF the MS2
- Replace the main board
- Do the General troubleshooting again

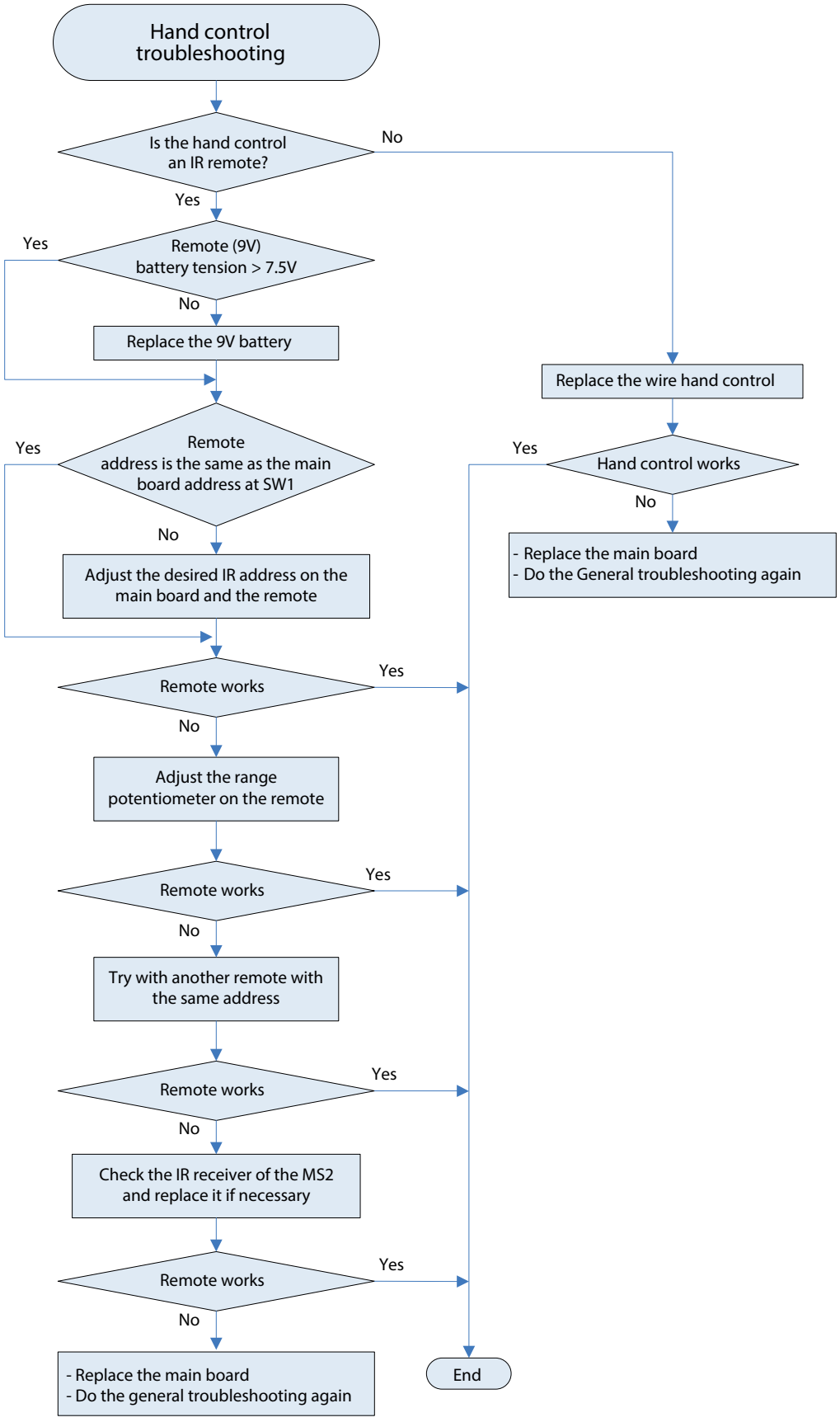

Charging Station System troubleshooting
- Put the MS2 under the charging station
- Press UP or DOWN button for 1 sec.
- Wait 3 sec.
Display shows a scrolling of 4 bars battery level
Yes
No
LED Green
Yes
No
Hoist LED is disabled in the customizing menu
Yes
End
No
- Power OFF the MS2
- Replace the user interface board and its flat cable for a virgin user interface board and the new flat cable
- Do the General troubleshooting again
- If problem persist, reinstall the original user interface board and replace main board instead.
- Do the General troubleshooting again
Without the MS2 under the station, tension at the charging station contact is higher than 26V?
No
1-Check the output of the charger
2-Check the wiring between the charging station and the charger
3-Repair the charging station
Yes
MS2 blades touch the contact of the charging station
No
Replace contact blades
Yes
24VE test point > 22V
No
Replace the batteries
Yes
With the MS2 under the charging station, tension between the pin 2 (Pos.) and 8 (Neg.) at J1 equals to the charging station
No
Remove the MS2 from the charging station
Check the wire conductivity between:
1-Pin 8 at connector J1 and the inner blade
2-Pin 2 at connector J1 and the outer blade
Repair the defective wire
Yes
Replace the main board
Do the General troubleshooting again


WCS
Troubleshooting
- Plug WCS connector to the charger
- Wait 3 sec.
Display shows a scrolling of 4 bars battery level
Yes
No
LED GREEN
Yes
No
Hoist LED is disabled in the customizing menu
Yes
End
No
- Power OFF the MS2
- Replace the user interface board and its flat cable for a virgin user interface board and the new flat cable
- Do the General troubleshooting again
- If problem persist, reinstall the original user interface board and replace main board instead.
- Do the General troubleshooting again
Tension at the charger's 2.5DC connector (or extension if any) is higher?
No
1-Check the output of the charger
2-Check the wiring between the charger & 2.5DC connector.
3- Replace any damaged extension cable.
4- Clean corroded or worn connector.
Yes
Is the charger connected to WCS cable connector?
No
Connect WCS cable connector to charger.
Yes
24VE test point > 22V
No
Replace the batteries
Yes
With MS2 WCS connected to charger, tension between the pin 2 (Pos.) and 8 (Neg.) at J1 equals to the charger output?
No
Unplug the MS2 WCS connector from the charger.
Check the wire conductivity between:
1- Pin 8 at connector J1 and the charger output OUTER 2.5DC terminal.
2- Pin 2 at connector J1 and the charger output. INNER 2.5DC terminal.
Yes
Replace the main board
Do the General troubleshooting again


ECS System Troubleshooting
Battery level is full on the MS2 screen
No
Yes
Replace batteries with ones having lower than 26V (only for test).
- Press UP or DOWN button for 1 sec.
- Wait 20 sec.
Display shows a battery with ECS inside
Yes
No
LED blinks Green
Yes
No
Hoist LED is disabled in the customizing menu
Yes
End
No
- Power OFF the MS2
- Replace the user interface cable for a virgin user interface board and the new flat cable
- Do the General troubleshooting again
- If problem persist, reinstall the original user interface board and replace main board instead.
- Do the General troubleshooting again
Use ECS Voltmeter (005-07677) to check the following
Tension on ECS strip >26V.
No
Yes
1- Check the output of the charger
- Check extension cable's connectors
2- Check end of track wire kit
- Check for loose connectors or pinched wires
3- Check ECS Contact box or ECS GATE contact kit
- Contact box must move freely inside the MS2 trolley
- Brushes must move freely inside the Contact box
- Look for broken, damaged or dirty ECS brushes or bad assembly or broken cables
4- Check ECS copper strip interruption or damage or dirty
5- Check XY trolley's ECS wire (if applicable)
6- Check XY trolley's Contact box orientation (Flag connectors facing down)
7- For MS2 PLUS, check swivel cable
ECS cable connected to J2
No
Yes
- Connect the ECS cable to J2
- Reboot the MS2 with the emergency switch
Tension between pin 2 and 3 of J2 connector equals the tension of the strip
No
Yes
- Check the wiring and the contact between J2 and the ECS brushes
Jumper loop between pin 1 to 4 at J2 is well connected
No
Yes
- Repair the connector J2
- Reboot the MS2 with the emergency switch
Main board replacement procedure
End

List of potential problems	What to do/What to check
Noisy device while rolling in rails.	- Thoroughly clean rails and/or ECS Strips with a damp cloth. - Clean ECS Strips with ECS Cleaner. - Apply dry silicon lube on ECS GATE contact kit wheel hubs. - Replace ECS GATE contact kit and/or ECS strip if necessary.
Noisy device while crossing a KWIKtrak Gate.	- Thoroughly clean ECS Ramps and ECS Strips with a damp cloth. - Thoroughly clean ECS GATE contact kit with a damp cloth. - Apply dry silicon lube on ECS GATE ramps, surface in contact with ECS GATE contact kit. - Replace ECS GATE contact kit and ramps if necessary.


Track accessories troubleshooting
Gate, Exchanger or Turn Table present
No
Yes
PPP station present
No
Yes
Put the MS2 under the Gate, Exchanger or the Turn Table
Do a PPP or RTH(ECS) function
End
Accessory working
Yes
MS2 stops at the station?
Yes
No
No
MS2 blades touch the contact of the accessory contact
No
Replace contact blades
Yes
Fuse 7.5A at F1 blown
Yes
1-Replace the fuse
2-Check if accessory is short
No
Without the MS2 under the accessory 700 Ohms < Accessory Resistor < 1.3K to the accessory contact
No
Repair the accessory
Yes
When MS2 under accessory, the tension between pin 2 (pos) and 8 (neg) at the connector J1 > 20V
Yes
Note: The MS2 powers the accessory for 2 minutes.
No
When MS2 under accessory, the tension between pin 2 (pos) and 8 (neg) at connector J1 is 5V ±0.5
Yes
Remove the MS2 out of the rail accessory
Check the wire conductivity between:
1-Pin 8 at connector J1 and the inner blade
2-Pin 2 at connector J1 and the outer blade
Repair the defective wire
No
Main board replacement procedure
Do the General troubleshooting again


Hand control troubleshooting
Is the hand control an IR remote?
No
Yes
Remote (9V) battery tension > 7.5V
Yes
No
Replace the 9V battery
Replace the wire hand control
Remote address is the same as the main board address at SW1
Yes
Hand control works
Yes
No
No
- Replace the main board
- Do the General troubleshooting again
Adjust the desired IR address on the main board and the remote
Remote works
Yes
No
Adjust the range potentiometer on the remote
Remote works
Yes
No
Try with another remote with the same address
Remote works
Yes
No
Check the IR receiver of the MS2 and replace it if necessary
Remote works
Yes
No
- Replace the main board
- Do the general troubleshooting again
End

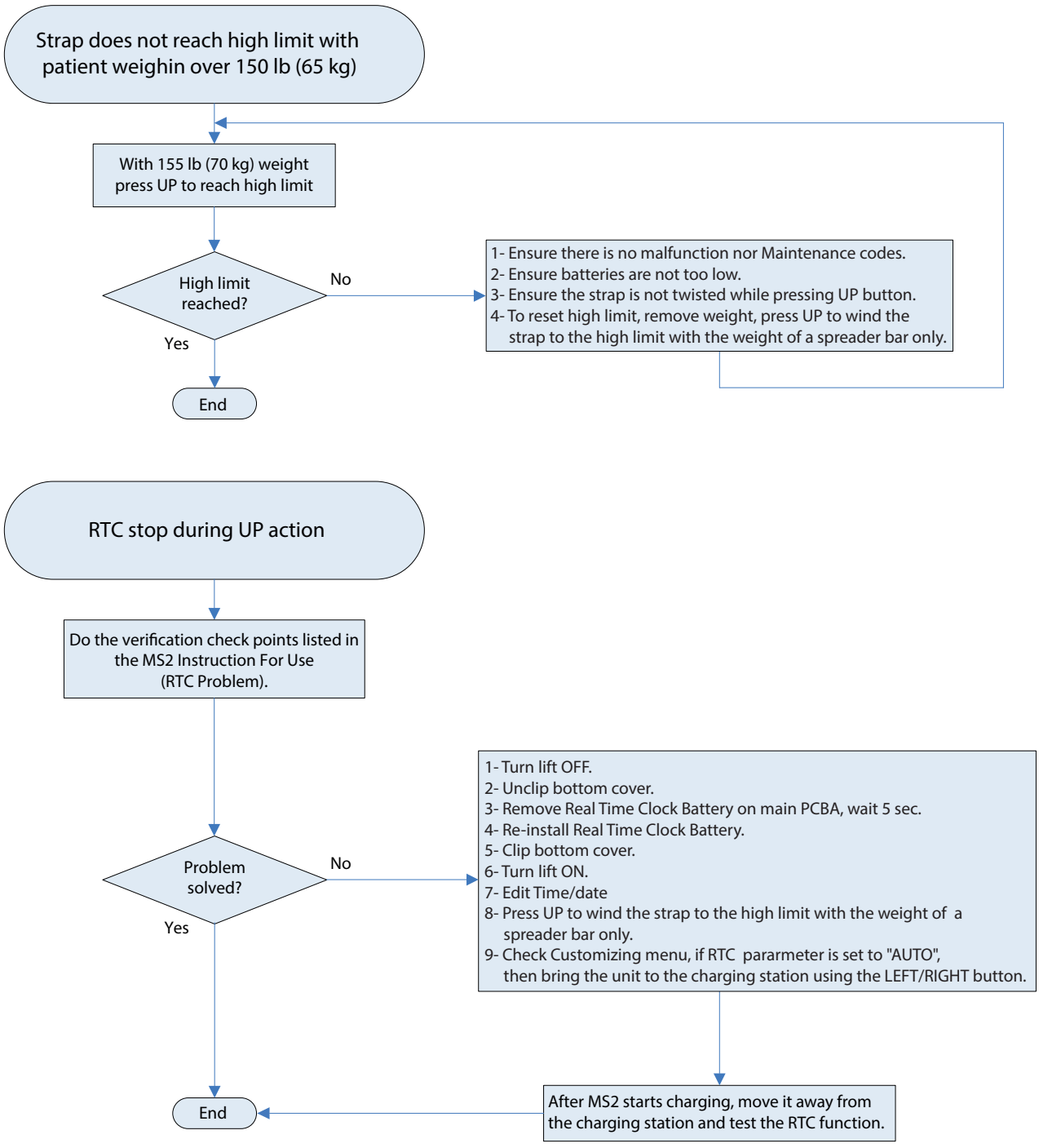
Specific Troubleshooting for Maxi Sky 2 Plus

For MS2 Plus a good reference for troubleshooting can be found in MS2 Plus Initial Start Up 001-31229-EN Troubleshooting section.

For Malfunction 24:
- Ensure serial communications cable is properly connected to J8 and J16 of both ceiling lifts.
- If problem persists, replace serial communication cable.

For Malfunction 26:
- Ensure that SWL red jumper (272 kg) of both ceiling lifts are properly connected to connector J12.

Specific Troubleshooting for Software version 3.3.3



MS2 TRANSPORTABLE TROUBLESHOOTING (Receiving Module)

List of potential problems	What to do/What to check
The Rivet does not come down once both sets of wheels are inserted.	- Inspect plastic slider for evidence of deformation or abnormal friction with aluminum receiving module or in between slider and door if door remains in opened position - Inspect plastic slider in fork area, fork should be straight and parallel - replace slider if needed (# 200-31406) see chapter 6 for slider replacement - Inspect receiving module slots where rivet is sliding up & down. If the receiving module has been drop on floor, it is possible that the aluminum is bent and the slot opening is reduced causing obstruction for the rivet movement, - If receiving module is damaged, replace the whole receiving module assembly. - Inspect door pivot point to ensure that the spring pin is still there and it is not exceeding from the Receiving module in slider area. If there is a problem with the spring pin, replace the whole receiving module assembly
The Receiving Module does not lock in place when the door is open.	- Inspect both door braking tabs, if one is broken, the door is not replaceable, so the whole receiving module has to be replaced
The Receiving Module's door does not clip when it is closed.	- Inspect slider to ensure it is in place and not damaged - Replace slider (200-31406) if needed see chapter 6 for slider replacement
The slider is broken or missing.	- Refer to chapter 6 for detailed instruction to replace slider
The Rivet is broken or missing.	- Replace the whole receiving module Report that using common service box in order to return the receiving module to Arjo Magog (Canada) for investigation.
The lift does not work when pressing buttons on the hand control.	1. If the emergency stop is activated, gently push up the Emergency Stop to turn the unit back ON and look for the green light LED indicator to light up; 2. a) Check if the batteries are charged, if not: If you have a C-Stat system, make sure the contact blades are in contact with the charging station located on the side of the Kwiktrak; b) If you have an ECS system, make sure the ECS cable of the receiving module is plugged into the ECS interface of the Maxi Sky 2 Transportable, check if the LED green light located on the ECS interface is lit and lastly, check if the ECS interface is correctly connected inside the Maxi Sky 2 Transportable. 3. Let the Maxi Sky 2 Transportable charge for 8 hours. If still not charging properly, refer to chapter 8, troubleshooting decision tree
The lift does not charge when plugged to the charger (storage or inside the track).	1. Verify charger is plugged to the wall; 2. For the ECS model --- verify that the LED located on the conversion kit is lit; 3. Check to see if the Emergency Stop is pushed in or pulled out. It should be pushed in; 4. If all of the instructions above are done correctly and the unit still does not charge, refer to chapter 8, troubleshooting decision tree

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TRANSMISSION INSTALLATION PROCEDURE 9

Transmission (700-15726) Installation Procedure

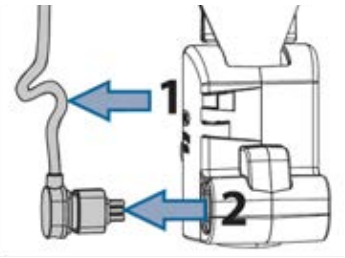
WARNING

THE TRANSMISSION KIT INSTALLATION PROCEDURE MUST BE PERFORMED BY A QUALIFIED TECHNICIAN ONLY.

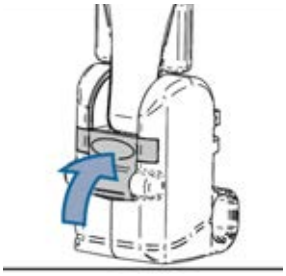
NOTE

ALL THE PICTURES AND DIAGRAMS IN THE FOLLOWING PROCEDURE ARE FOR REFERENCE ONLY.

1. Removing accessories



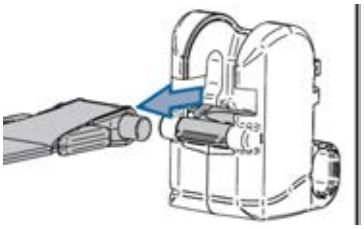
- If using a PDPS, detach the cable from the back of the housing and then disconnect the connector.



- Open the latch that locks the strap in place by pushing it inward.

- Rotate the strap towards the latch.

- Pull the strap out of the attachment.



- Remove the grey plastic strap interface (200-15692) from strap.

2. Removing lift from rail

- Remove plastic cap at the end of the rail.

- Unscrew end stopper on the rail using a 6mm Allen key.

- Press inside the hole to remove the end stopper.

- Remove the lift from rail.

3. Removing the top cabin

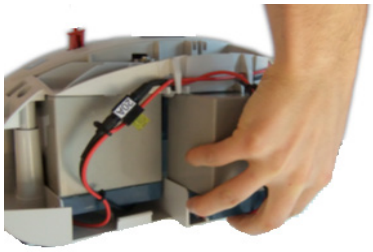
NOTE
BEFORE DISASSEMBLING, LOWER STRAP AROUND 60CM (24 IN)

DANGER
SHUT OFF THE POWER BEFORE SERVICING BY PULLING ON THE RED EMERGENCY STOP CORD

- Remove bottom cover and put the lift on a table, trolley side down.

- Remove Battery door to access batteries. Slide by pulling on plastic tab inside the battery door.

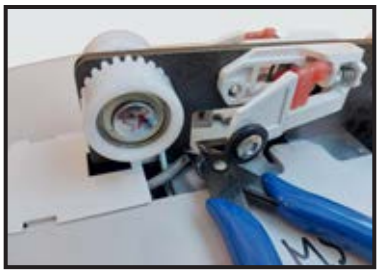
- Remove the two batteries and disconnect the cables.

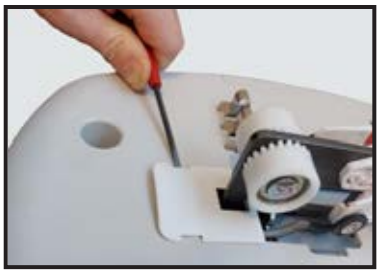


- Unscrew the five Torx T20 screws.

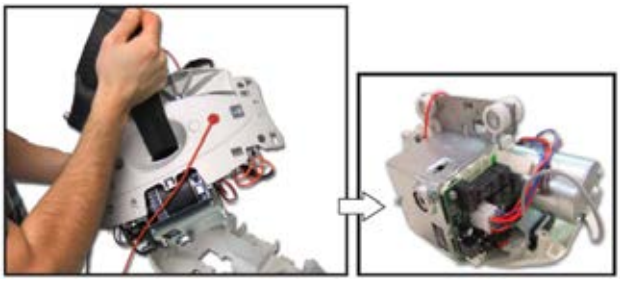
Only for MSX3X-XX-XX models:

- Cut the cable tie securing the small cover, then pop it out using a flat screwdriver.



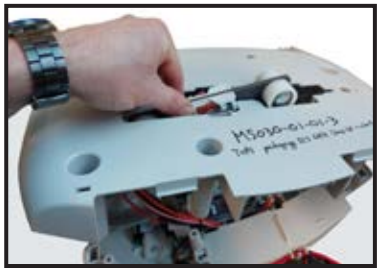


- Using the strap, pull the lift up and remove the top cabin.



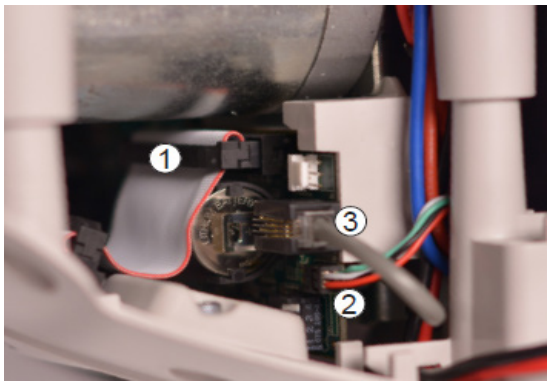
Only for MSX3X-XX-XX models:

- Compress the ECS module, then lift the top cabin up and sideways.



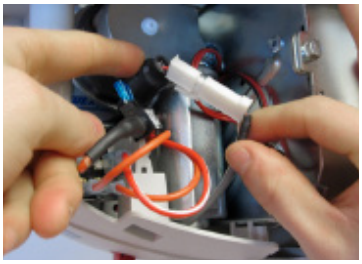
4. Removing the strap inlet

- Disconnect flat cable (1)
- Disconnect Limit kit connector (2)
- Disconnect the handset connector (3)



- Disconnect the green ESD discharge wire.

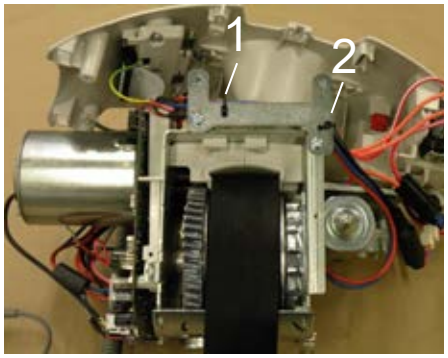
- Disconnect PDPS cable if necessary.

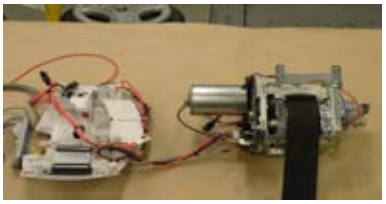


- Turn the lift on the trolley side and unscrew the three Torx T20 screws (1 to 3).

- Slide the strap inlet aside and remove the strap from the strap opening.

- Cut the cable tie (1) and (2) and put the strap inlet further away from the transmission. This will provide enough room for easier access the components during the rest of the procedure.





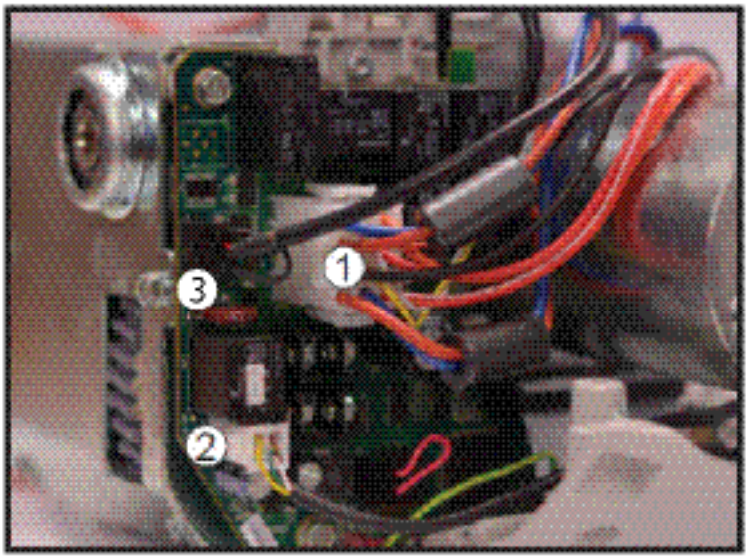
- Disassemble the cabin bracket and reserve for reassembly on the new transmission kit.

5. Removing the main board

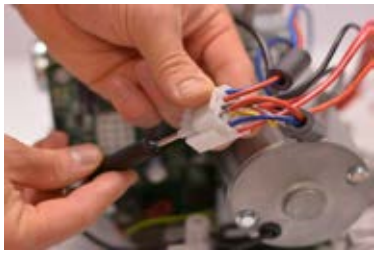
CAUTION

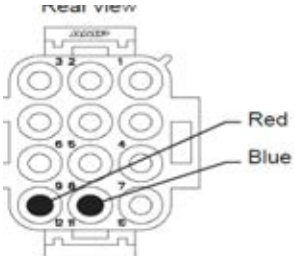
WHEN HANDLING THE ELECTRONICS OF THE LIFT, YOU MUST BE ESD PROTECTED. NON-COMPLIANCE WITH THESE INSTRUCTIONS CAN LEAD TO AN ELECTROSTATIC DISCHARGE CAUSING FAILURE.

- Disconnect the 12 pins connector (1).
- Disconnect the 4 pin connector (Motor encoder) (2).
- Disconnect the ECS (3) (if applicable).

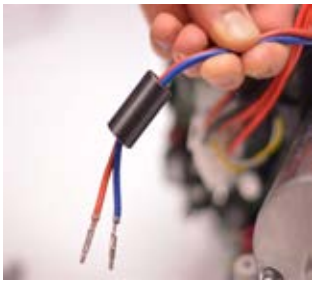


- Using a pin extractor, remove the pins at position 11 and 12 in order to disconnect the motor.

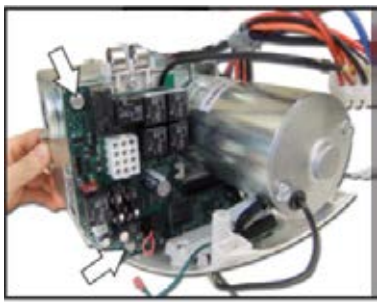




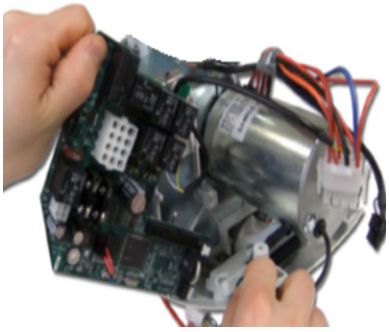
- Remove the ferrite and reassemble it on the new transmission kit.



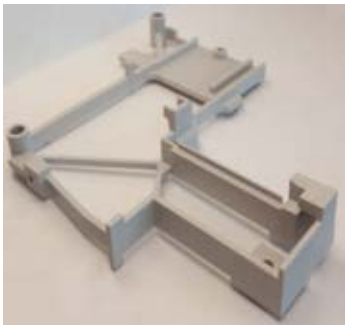
- Using an 8mm socket, unscrew the two M5 screws on the main board.



- Slide out the main board.

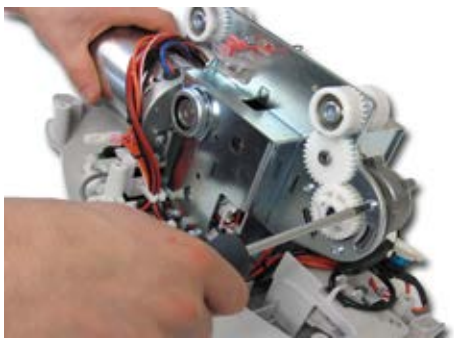


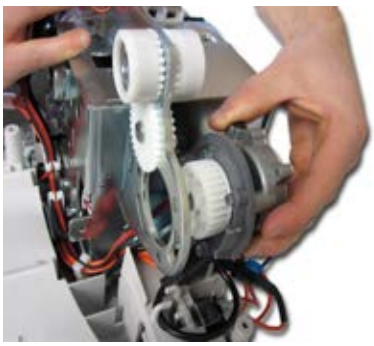
- Make sure to put aside the PCB support for reassembly.



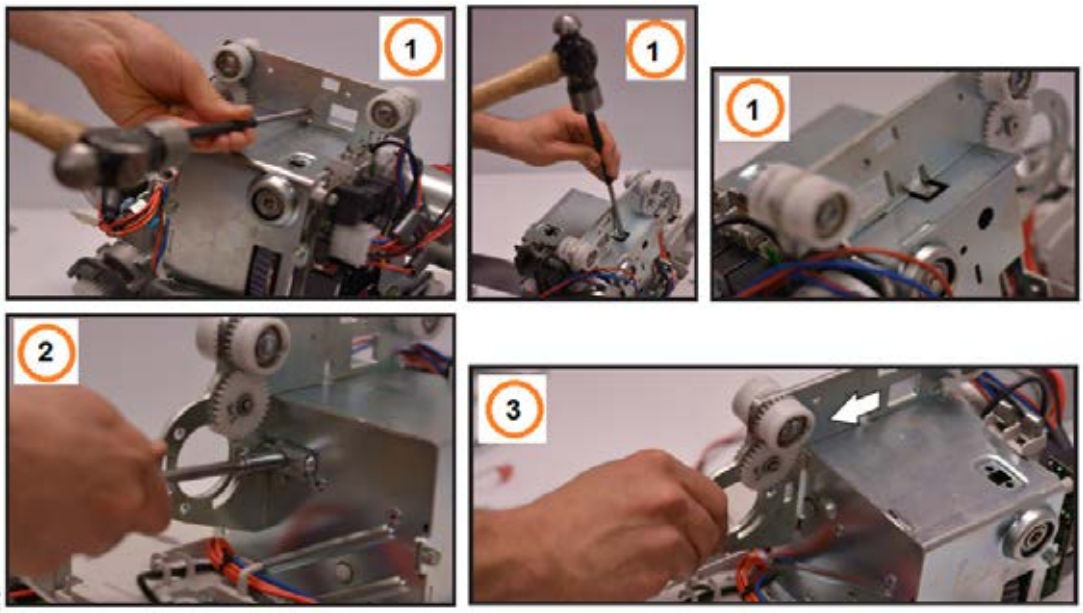
6. Removing the trolley

- Disassemble the left/right motor (for 4 functions lifts only).
  - Unscrew the three Torx T20 screws.
  - Undo the wires from their path.
  - Leave the motor connected to the main board and put aside.





- Unbend the tab securing the trolley (1).
- Remove the trolley locker (2).
- Remove the trolley(3).



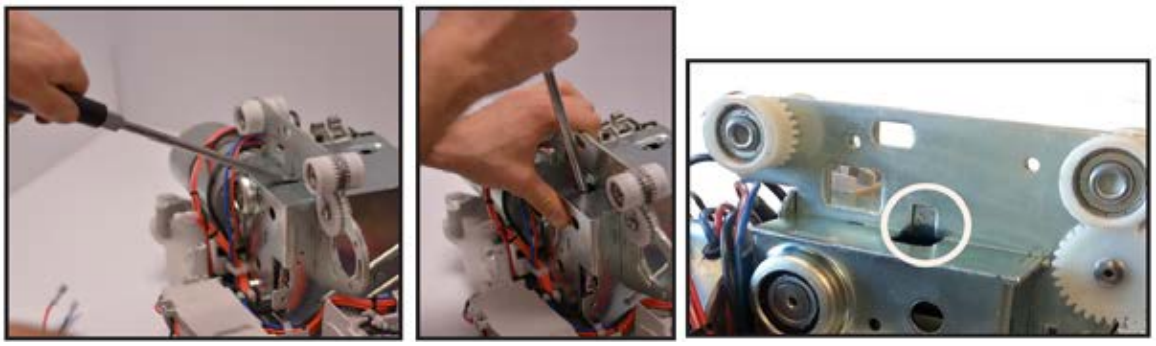
7. Reassembly

NOTE
AS A GENERAL RULE FOR THE REASSEMBLY PROCEDURE. FOLLOW THE PREVIOUS SECTIONS IN REVERSE ORDER. THE FOLLOWING REASSEMBLY STEPS INCLUDE IMPORTANT INFORMATION AND WARNINGS THAT ARE NOT INCLUDED IN THE DISASSEMBLY PROCEDURE.

8. Installing the trolley

WARNING
IT IS IMPERATIVE TO FOLD THE LOCKING TAB BACK TO ITS ORIGINAL POSITION TO AVOID INJURIES OR DAMAGING THE PRODUCT. THIS OPERATION CAN BE REPEATED A MAXIMUM OF FOUR TIMES.

- Install the new trolley onto the transmission and bend the locking tab back as it was before.



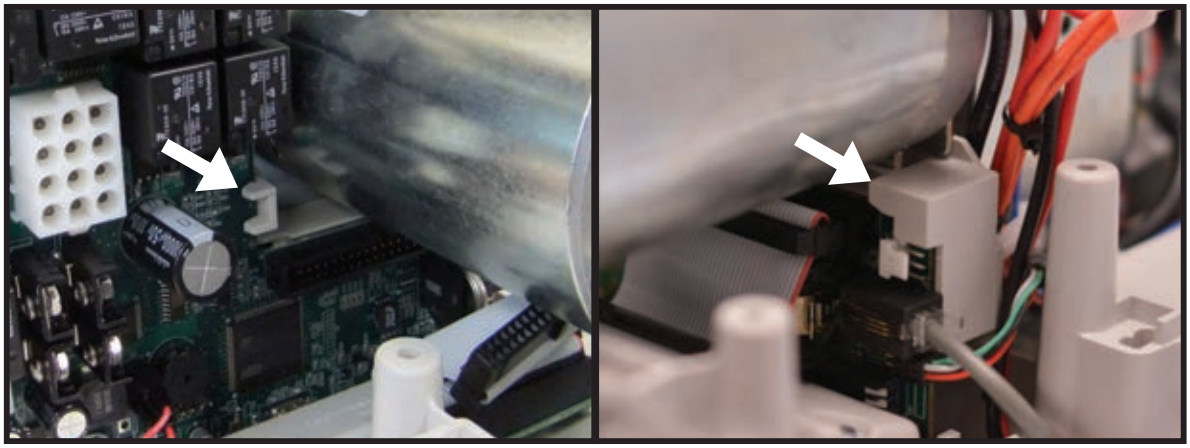
- Reinstall the trolley locker using the M5 screw.

WARNING
FAILURE TO USE THE TROLLEY LOCKER AND THE LOCKING TAB TO SECURE THE TROLLEY CAN LEAD TO A PATIENT FALL

- For a 4 functions lift, reinstall the left/right motor.

9. Assembling the main board

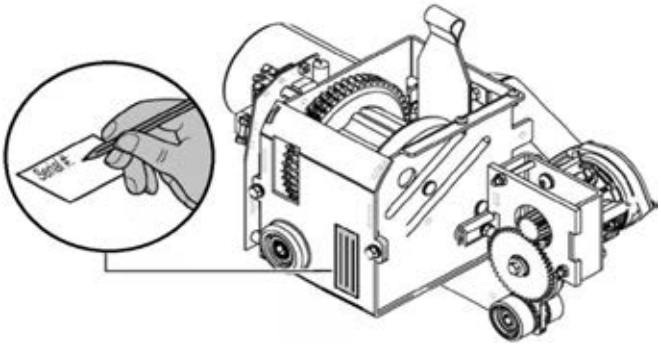
NOTE
MAKE SURE THE BOARD IS CORRECTLY INSTALLED ON ITS SUPPORT.



NOTE
DO NOT OVERTIGHTEN THE SCREWS TO AVOID ANY DAMAGE TO THE MAIN BOARD.

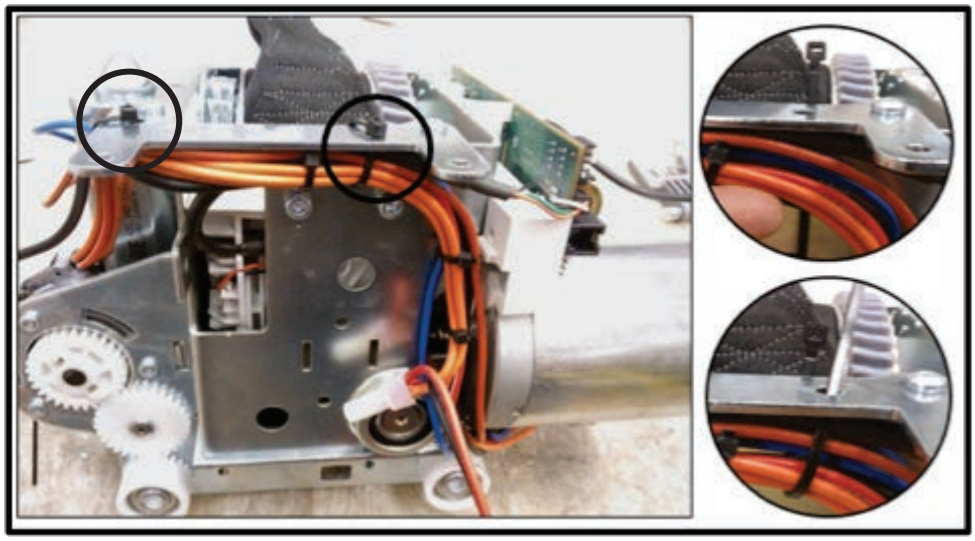
10. Filling out the label

- Copy the serial number of the unit in the blank area on the label already applied on the new transmission.

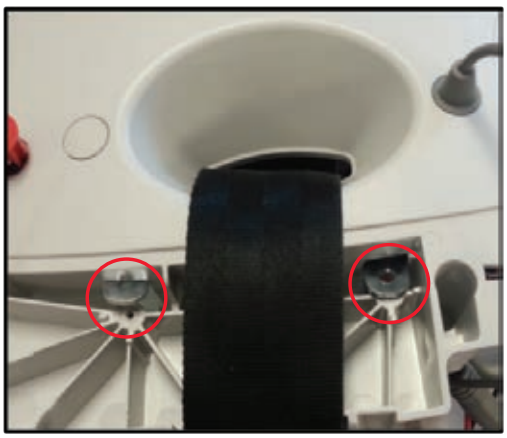


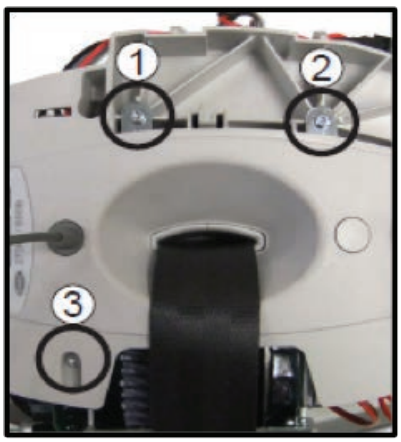
11. Installing the strap inlet

- Assemble the cabin bracket and reattach all the cables together (including the cable of the new limit kit) with two tie wraps. Make sure the lock of the tie wrap is located on the upper part of the frame. Cut the exceeding length of the tie wrap when secured in place.



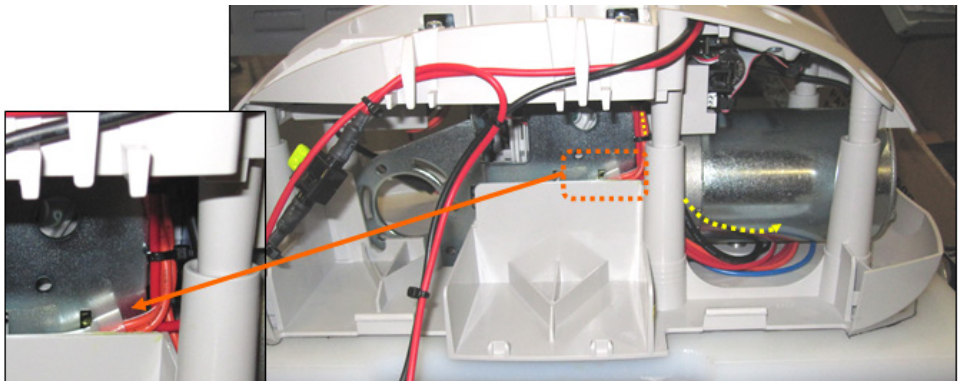
- Pass the strap into the strap inlet opening and assemble to the new transmission. Make sure the metal bracket passes through as shown below. Fasten the three Torx T20 screws.





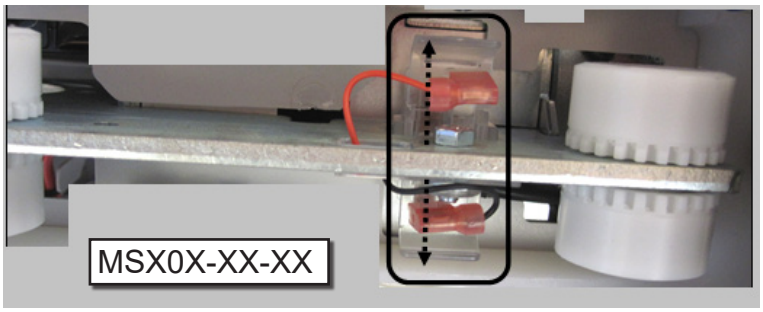
12. Installing the Top cabin

WARNING
MAKE SURE NOT TO PINCH ANY WIRE WHILE REASSEMBLING THE TOP CABIN.



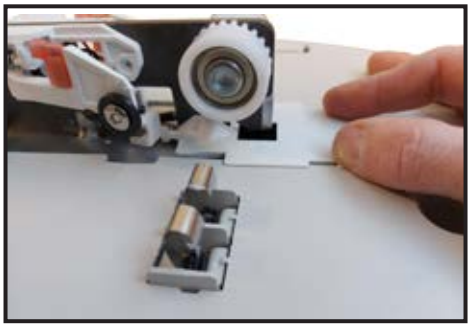
NOTE
DO NOT OVER TORQUE THE SCREWS, THE PLASTIC HOLE COULD STRIP.

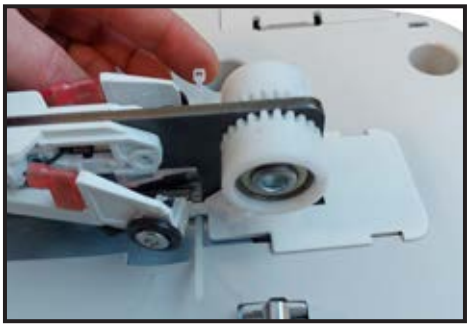
- If the unit is equipped with ECS. Make sure the ECS moves freely laterally and that the wires are not pinched.

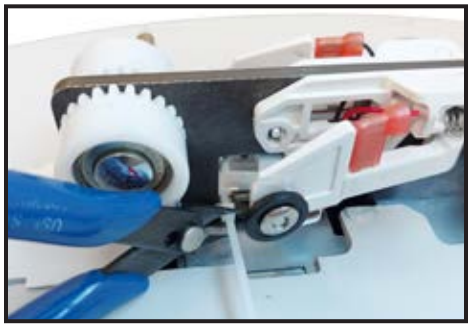


Only for MSX3X-XX-XX models:

- Install the small cover, then tighten the cable tie and cut the excess length.



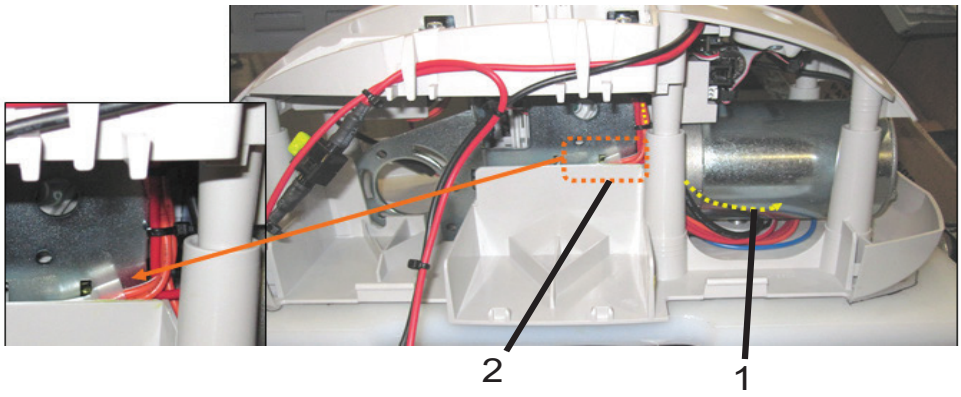




13. Installing the batteries

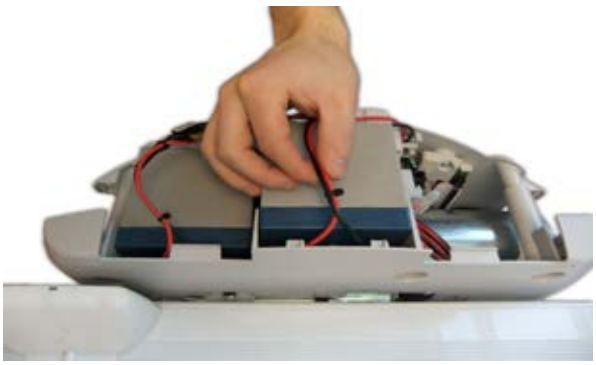
NOTE
POSITIVE POLE (+) IS RED NEGATIVE POLE (-) IS BLACK

- All the wires from the main PCB must pass around the motor (1).
- Make sure the wire connector is behind the partition (2).

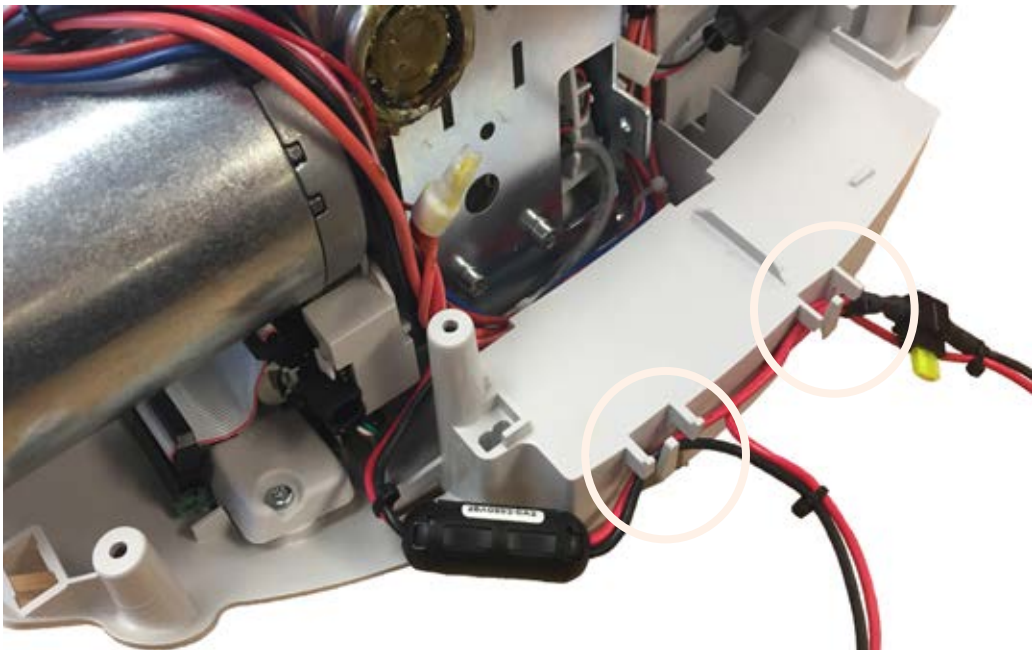


- Make sure the motor encoder cable passes behind the pillar.

- Make sure to place wire harness in the middle of the battery door.



- Make sure that the wire harness is correctly passed through the clips.

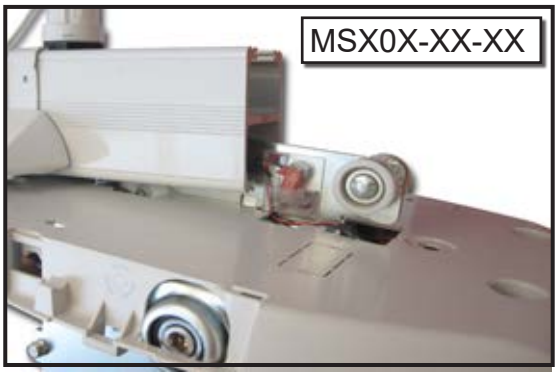


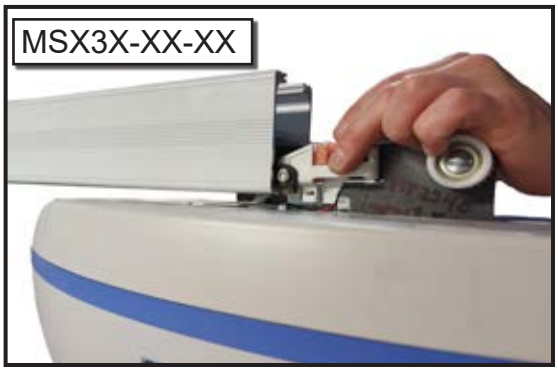
14. Testing prior to Installation of the lift on the rail

- Before installing the lift test the main functions:
  - UP – DOWN
  - LEFT –RIGHT (For 4 functions lifts)

15. Installing lift on the rail

- Make sure to align the ECS trolley, if applicable.





- Place the end stopper into the rail
- Screw the stopper on the rail using a 6mm Allen key and torque to 20Nm (15 lb▪ft)

WARNING

MAKE SURE THE END STOPPERS ARE CORRECTLY INSTALLED AND TIGHTENED AT ALL RAIL ENDS.

16. Testing

- Before putting the lift back into service perform the following tests as described in the *Maxi Sky* 2 Maintenance and repair Manual:
  - Full feature test.
  - Weight load test

At Arjo, we are committed to improving the everyday lives of people affected by reduced mobility and age-related health challenges. With products and solutions that ensure ergonomic patient handling, personal hygiene, disinfection, diagnostics, and the effective prevention of pressure ulcers and venous thromboembolism, we help professionals across care environments to continually raise the standard of safe and dignified care. Everything we do, we do with people in mind.

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