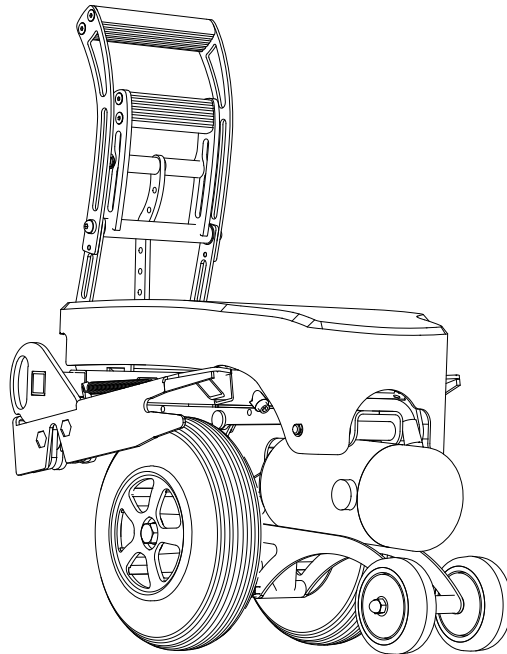




E-Walk Service Manual



This manual provides guidelines for assembly and maintenance services performed by dealers and assistive technology centers. It is recommended to read this manual in conjunction with the User Manual.

2024-10
Rev1
EN



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Foreword

This service manual contains instructions for adjustment, assembly, inspection, maintenance, and repair of the E-Walk.

Manual Content and Usage

The content and specifications in this manual are subject to change without prior notice due to improvements. Images and descriptions may, in some cases, differ from the actual products due to changed specifications or other factors.

The manual is intended for individuals with basic knowledge and professional expertise. Persons without this knowledge and expertise should not carry out inspections, adjustments, disassembly, assembly, or other actions based solely on the manual, as this may lead to service issues, damage to the equipment, or other complications.

Symbols

The following symbols are used in the manual to highlight important points necessary for the correct handling of the product, as well as to indicate inspections and service actions.



Warning! Indicates that misuse can lead to death or serious injury.



NOTE! Indicates that misuse can lead to personal injury or property damage.



Notera! Marks particularly useful information in the respective context.



NOTE! This symbol indicates that the product must not be disposed of with household waste. Instead, it should be taken to a collection point for the recycling of electronic waste in accordance with the WEEE Directive 2002/96/EC.

Maintenance

To ensure optimal performance and long life for the E-Walk, the design has been developed to minimize the need for regular maintenance. However, there are certain service and maintenance actions that are necessary to ensure continued operation.

The maintenance routines are divided between the user and assistive technology centers to ensure that the correct actions are taken by the appropriate party.

Cleaning

To ensure optimal performance of the drive unit, cleaning should be performed as needed according to the following instructions:

1. Turn off the drive unit and remove it from the wheelchair.
2. Clean the drive unit with compressed air or a dry brush.
3. Avoid using corrosive or abrasive cleaning agents.
4. Wipe the drive unit and control unit with a slightly damp cloth.
5. Use a mild cleaning detergent.
6. The control unit can be disinfected with standard surface disinfectants.
7. Wipe with a soft cloth and let it air dry.
8. After cleaning, lubricate the joints with appropriate grease to maintain mobility and function.



NOTE!

Do not use corrosive or abrasive cleaning agents.

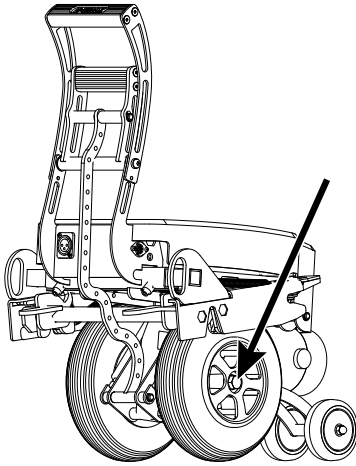
Never spray water directly onto the E-Walk unit or control unit. Electrical and electronic components must not come into contact with water. Do not use high-pressure or steam cleaners during cleaning.

Time Interval	Check	User	Technician
Daily / Weekly	Charge the battery after each use or according to individual usage patterns.	X	
Once a month	Drive wheels - Wear (contact a technician for replacement)	X	
Once a year	Drive unit - Fastenings, screws, & nuts		X
Once a year	Drive wheels - Wear / Defects		X
Once a year	Battery status		X
Once a year	Electrical wiring, connectors, control units, chargers (loose connections and wear)		X
Once a year	Lubrication - Arms / joints, check for cracks / looseness		X
Once a year	Functional check (drive unit and control unit)		X

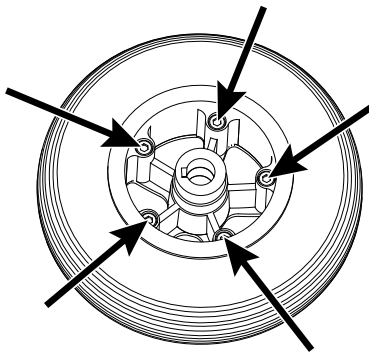
Replacing the Drive Wheels

The following tools are required for replacing the drive wheels:

- 17mm wrench
- Puller
- 5mm Allen key



1. Start by loosening the central bolt using a 17mm wrench.
2. Use a puller to remove the wheel from the motor axle.
3. Carefully remove the key, which will be reused.
4. Place the wheel with the outer side facing down on the work surface.



5. Loosen the 5 Allen bolts.
6. Split the rim to release the tire.
7. Replace the tire and then reassemble all parts in reverse order.

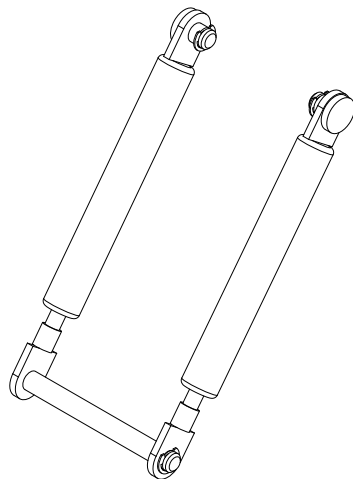


NOTE!

Don't forget to reinstall the key. Loctite 243 or equivalent must be applied to the wheel bolt. Tightening torque 50 Nm.

Gas Springs

The purpose of the gas springs is to create ground pressure, thereby ensuring traction for the drive wheels. It is therefore essential that they are in good condition.

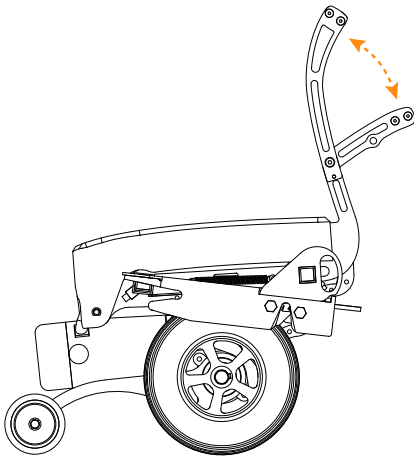


NOTE!

Always install the correct type of gas spring, as incorrect installation can lead to damage to components or improper functioning of the E-Walk.

Always refer to the spare parts catalog for accurate information.

Lift Handle / Disengagement



Be mindful of the risk of pinching during any work involving the Lift Handle / Disengagement.

Inspection

Regularly check that the lift handle does not have any play in the joints or bushings. If any looseness is detected, replace worn components.

The joints should be lubricated with vegetable grease to ensure optimal function and durability.

Side Panel

Choosing the Side Panel

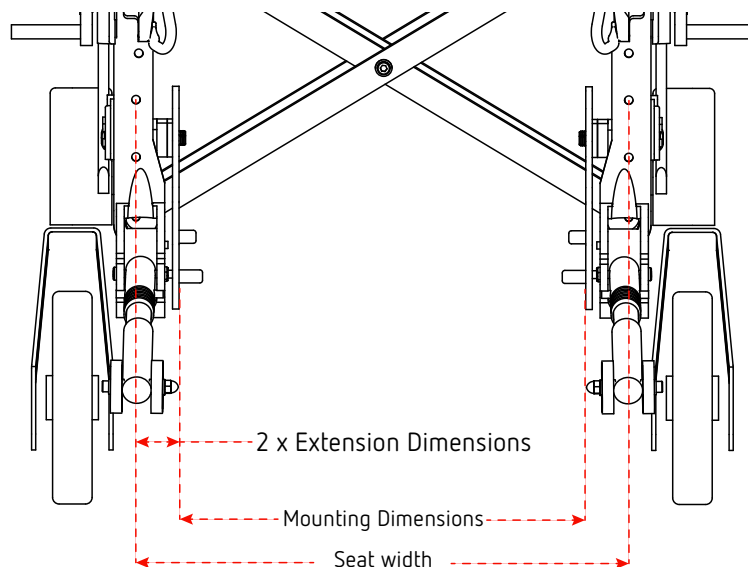
The side panel is available in four versions.

The seat width of the chair determines which side panels should be selected.

For example, wheelchair seat width SB45 (SB45 = 450 mm):

- $450 - 40 = 410$ mm
- $450 - 50 = 400$ mm

Choose 350165A.



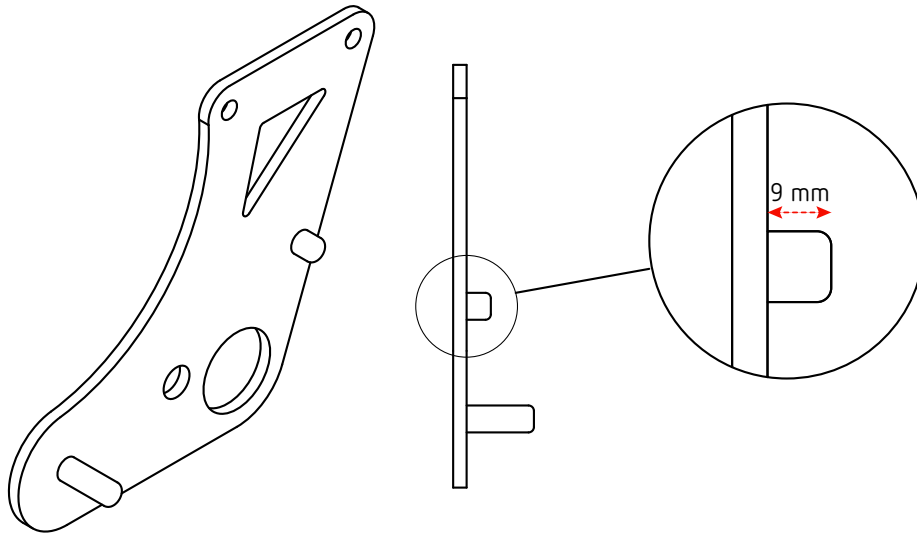


Wheelchair Seat Width minus the Extension Dimensions of the Adapter Plates (approx. 40–50 mm) = Wheelchair Mounting Dimensions. In other words, the mounting dimension is the distance between the adapter plates.

The following side panels are available:

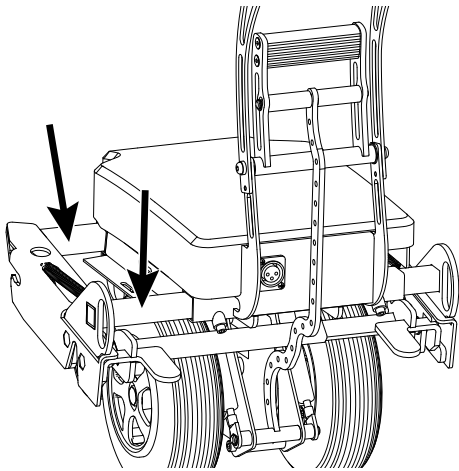
Designation	Mounting Dimensions	Art.nr
Side panel	292-440 mm	350165A
Side panel	407-560 mm	350165B
Side panel	527-680 mm	350165C
Side panel Special	254*-416 mm	391165
Side panel Special	256,5-416 mm	391165

*To achieve the minimum mounting dimension of 254 mm, the front mounting pin must not extend more than 9 mm beyond the adapter plate. See the image below.



E-Walk fits seat widths ranging from SB35 to SB60, provided that the minimum mounting dimension of 254 mm is achieved.

Assembly / Adjustment



Before assembly, the side panels should be lubricated with vegetable grease.

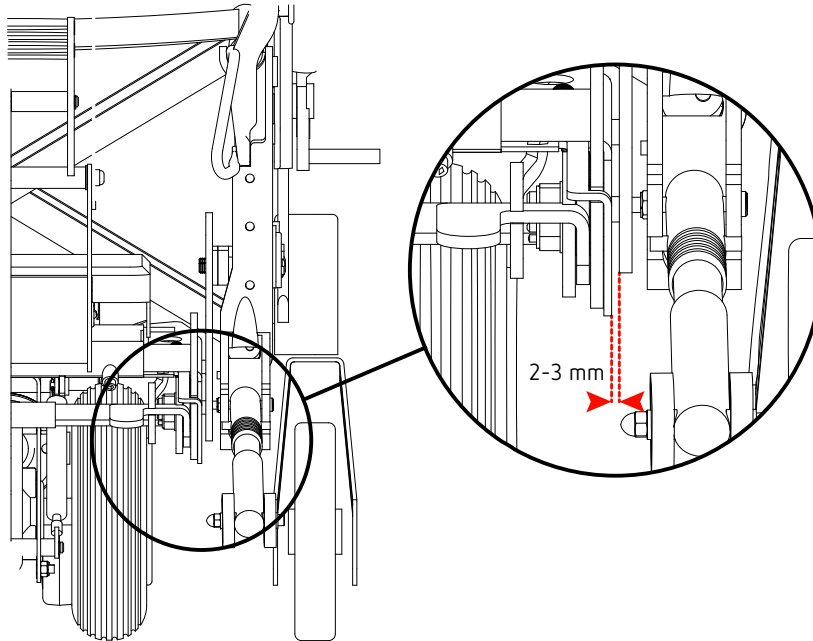
Now, attach both side panels to the frame. Ensure that you have the correct chair mount before installing them.



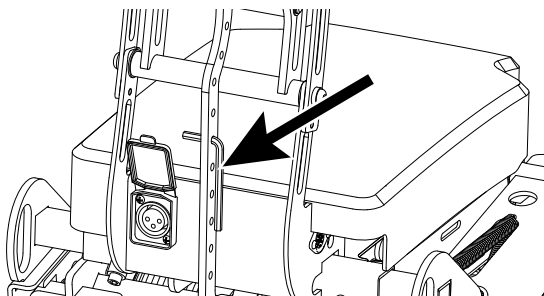
Keep in mind that these mounts may be unique to each wheelchair model.

NOTE!

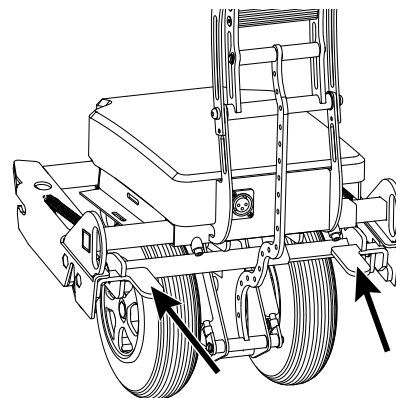
When the wheelchair mount and side panels are installed, adjust the side panels so that there is a small gap of approximately 2-3 mm between the side panel and the chair mount on each side.



The necessary tool for raising and lowering the drive is mounted on the E-Walk.



Then, secure the side panel with the four locking screws located on the frame.



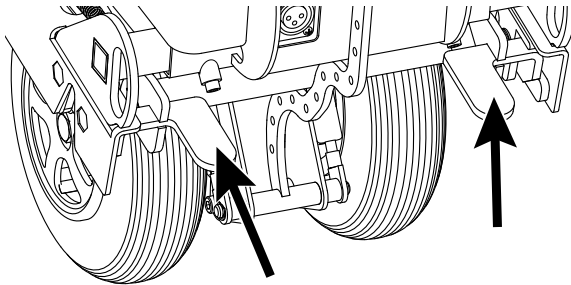
Locking Mechanism

Inspection / Adjustment

To ensure optimal function and safety, the locking mechanism should be regularly lubricated and adjusted. The following steps describe how to inspect and maintain the mechanism:

Inspection of Locking Mechanism:

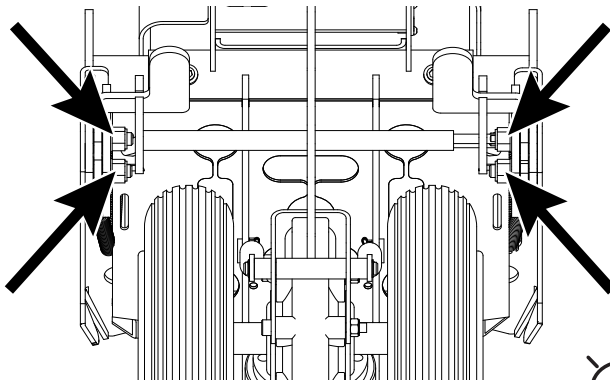
1. Mount the E-Walk into its wheelchair bracket and securely fasten the unit.
2. Check that the E-Walk locks in place effortlessly and that the foot pedals spring back properly.



If the locking mechanism does not function properly, lubrication and adjustment are required.

Adjustment and Lubrication of Locking Mechanism:

- Loosen the nuts on the locking mechanism slightly using a 13 mm wrench, as shown in the image below.



- Apply lubricant to the locking mechanism and between the plates.
- Tighten the nuts again, then turn them back approximately $\frac{3}{8}$ of a turn.



Keep in mind that turning the nuts back $\frac{3}{8}$ of a turn is only a basic setting; some fine-tuning adjustments will be needed.

Final Inspection:

Repeat the procedure for both side panels.

Check once again that the E-Walk locks securely into the wheelchair mount after the adjustment.

Perform these maintenance actions regularly to ensure the locking mechanism functions properly and to extend the lifespan of your equipment.

Battery

Handle the battery with care. Do not attempt to open, disassemble, modify, or solder the battery unit.

Never short-circuit the negative (-) and positive (+) terminals with a wire or any metal object.



Warning!

Avoid dropping, striking, or exposing the battery to significant physical impact.

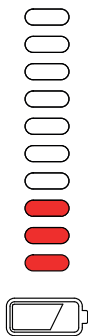
If the battery starts leaking, do not use it. Immediately wash off any fluid that comes into contact with skin or clothing.

If battery fluid comes into contact with the eyes, rinse immediately with water and seek medical attention.

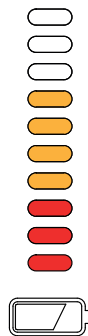
Lead-Acid Battery

The E-Walk comes standard with two maintenance-free 12V/12Ah gel batteries. The battery charge level is monitored through the control unit. When the LED indicator shows green (+), the batteries have sufficient capacity for continued use. If the indicator shows red (-), the batteries should be charged immediately.

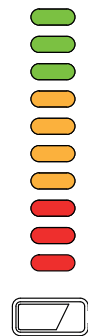
Almost Empty



Partially Discharged



Fully Charged



Avoid fully discharging the battery and always charge it after each use.

The batteries lose charge during extended periods of inactivity and may lose capacity.

After several charge and discharge cycles, the battery will regain its full capacity.

LiFePO₄ Battery

The E-Walk equipped with a Lithium Iron Phosphate (LiFePO₄) battery comes with a 24V/15Ah battery. This is a high-efficiency battery that maintains a stable voltage over extended periods, but when the power starts to run low, the voltage drops quickly. Therefore, the LED indicator may not always provide an accurate representation of the remaining battery capacity.

Charge the battery after each use.

Battery Replacement



Battery replacement should only be performed by authorized dealers.

Contact your dealer when you need to replace the batteries.



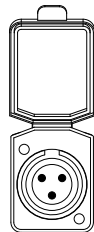
The battery charger is classified as electronic waste according to the EU directive (WEEE 2002/96/EC) and is accepted free of charge at all recycling centers.

This product may contain substances that, if improperly disposed of, can cause environmental damage.

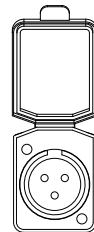
Protect the environment by taking the discarded product and its batteries to a recycling center.

Charging

The charging connectors vary depending on the type of battery installed in the E-Walk unit. Different battery types also require different chargers.



Lead-Acid



LiFePO⁴

Avoid fully discharging the battery and recharge the batteries after each use. The batteries will discharge during extended inactivity and lose capacity. After a few charge/discharge cycles, full capacity will be restored.

Before Charging

When you want to charge the battery, choose a location that is:

- Indoors and well-ventilated
- Between 5-30°C
- On a flat and stable surface

To ensure safe use of the charger:

Keep the temperature between 5 and 30°C. Avoid placing the charger near heat sources such as stoves or in direct sunlight. The charger will not function properly if the temperature is too high or too low.



Warning!

Do not use the charger in areas where it may become wet or damp, as there is a risk of short circuits and electric shocks.











Ensure nothing is placed on or near the charger during charging, as it may overheat and stop functioning.

Keep the charger out of reach of children and pets to avoid the risk of electric shock or damage to the equipment.

Use only the provided charger. Other chargers may damage the battery or the unit.

S-Drive

Error codes

	<p>The battery needs to be charged, or the connection to the battery is poor. Check the battery connection. If it is secure, try charging the battery.</p>
	<p>The connection to the motor is poor. Check all connections between the motor and the control unit.</p>
	<p>There has been a short circuit between the motor and the battery. Contact a service representative.</p>
	<p>Not in use.</p>
	<p>Not in use.</p>
	<p>The control unit is being prevented from operating the E-Walk. This could be due to the battery charger being connected.</p>
	<p>There is an issue with the throttle. Make sure the throttle is in the neutral position before starting the E-Walk.</p>
	<p>There is an issue with the throttle. Ensure that all connections are secure.</p>
	<p>The parking brake is poorly connected. Check the connection between the parking brake and the motor, and ensure that the connections to the control unit are secure.</p>
	<p>The control unit has been exposed to excessive voltage. This is usually caused by a poor battery connection. Check the battery connections. The control unit is not in its "neutral position" when the power switch is turned on.</p>

If the system is completely without power:

- Check that the batteries are charged.
- Check the fuse.
- Check for loose connections in the wiring and connectors.

Programming the Control Unit

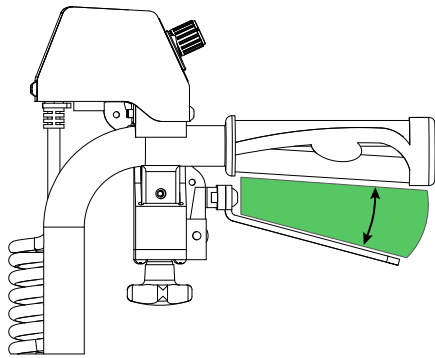
(Applicable only to control units manufactured after September 2024)

To perform speed programming, the following tools are required:

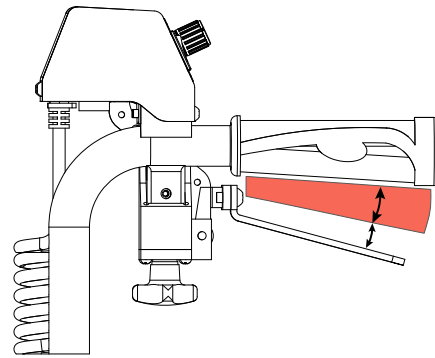
- 2mm Allen key
- Flathead screwdriver
- PC with S-Drive software
- Reflective tape
- Tachometer (RPM)

Optimal Control

Start by ensuring that optimal control is available, as outlined below.

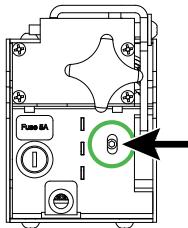


Optimal Control



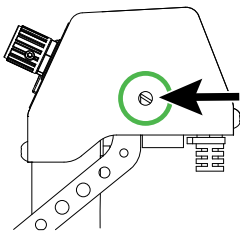
Bad Control

Adjustment of the potentiometer's control pin



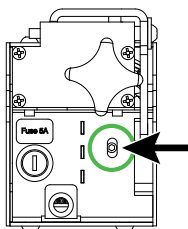
Underside

- Use the 2mm Allen key
- The throttle must be in the "neutral position"
- Loosen the screw slightly (do not remove the screw completely)



Right Side

- Use a flathead screwdriver
- Turn slightly until the potentiometer is in its starting position and hold it.
- Now turn the potentiometer's control pin toward the throttle control pin.

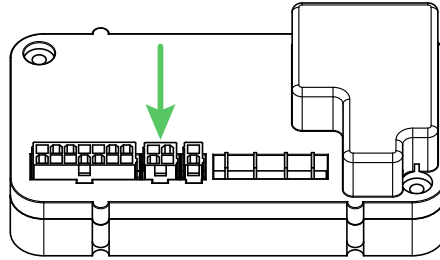


Underside

- Use the 2mm Allen key
- Tighten the Allen screw

Connect the programming cable

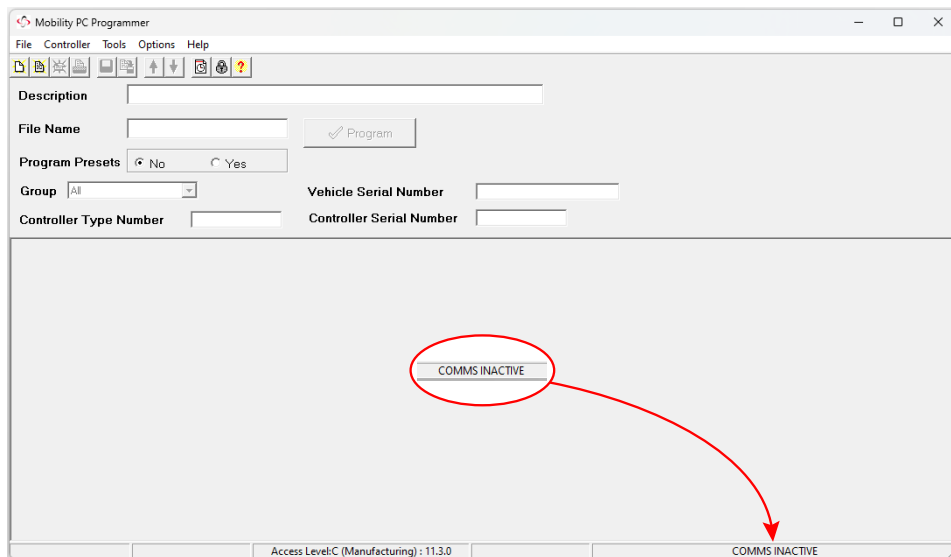
Now connect the programming cable to the S-Drive (see image below).



Program Start

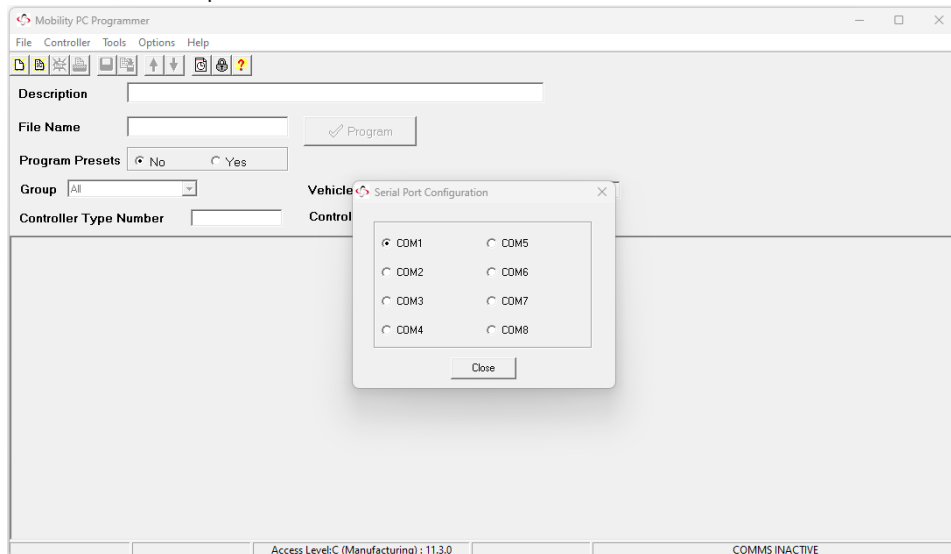
Launch the software for reprogramming the S-Drive.

As you can see, the program is not yet connected to the E-Walk.



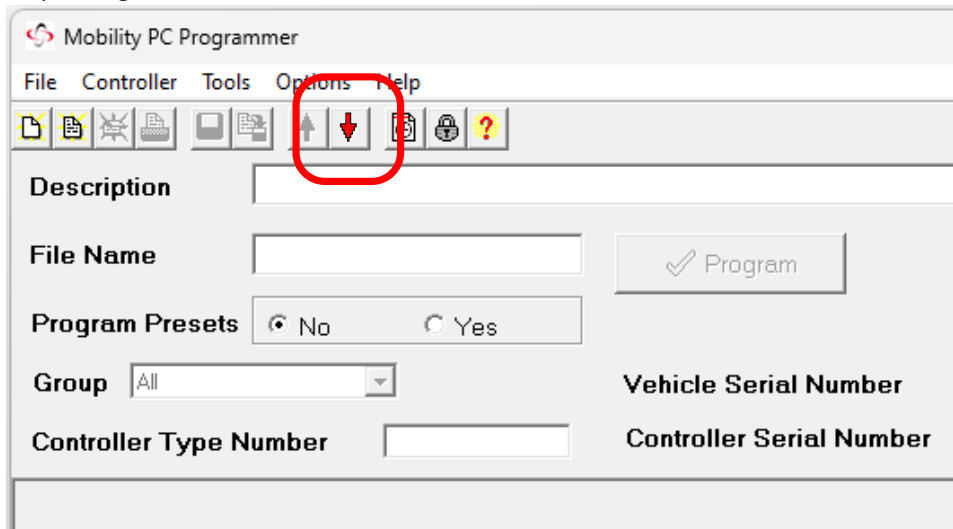
Connection between PC and S-Drive

Connect the software by selecting the communication port where the programming cable is connected to the computer.



Downloading the Existing Program

Now download the program that is currently in the S-Drive. This is done by clicking on the red arrow pointing downward.

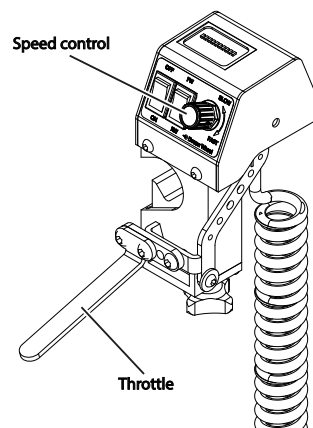


Existing Parameters

- Speed settings
- Operation settings
- Battery settings
- Inhibit settings
- General settings
- Motor settings
- Factory settings
- Throttle settings
- Throttle type
- Throttle deadband
- Throttle gain
- Throttle Operated Power up
- Throttle reference Test
- ISO Test Resistor

Speed Check

To check the speed, first apply reflective tape to the side of the tire of the E-Walk. Then, disengage the drive unit so that the drive wheels are lifted and hang freely in the air.



Check of Speed Settings

Maximum Speed:

Ensure that the speed control on the control unit is set to "Max. speed."

The throttle should be in the "full throttle" position.

Check that the maximum speed is between "155-163 RPM."

Minimum Speed:

Turn down the speed control on the control unit to “minimum speed.”

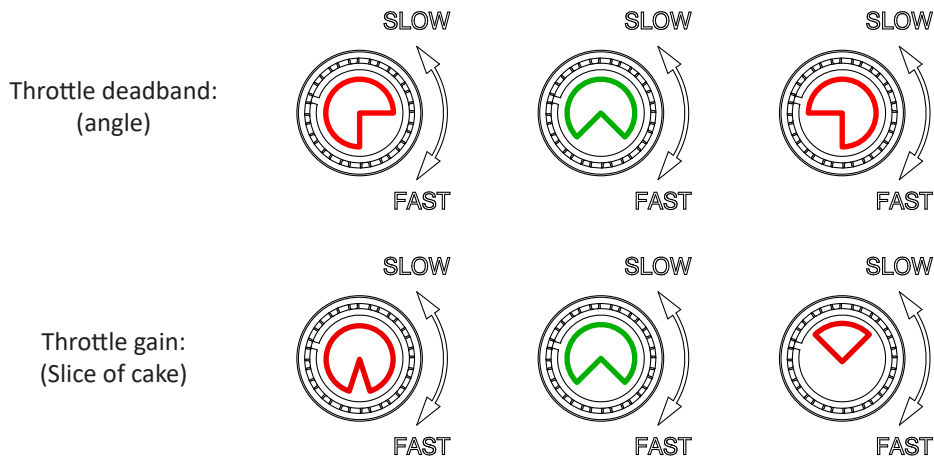
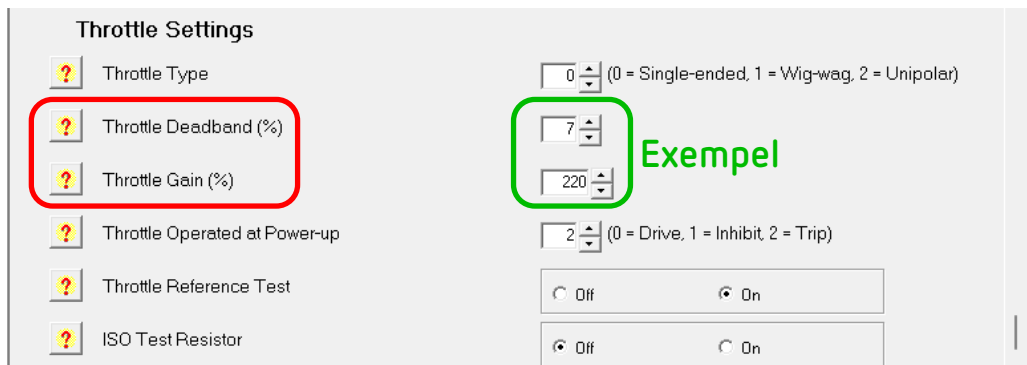
The throttle should still be in the “full throttle” position.

Check that the minimum speed is between “95-105 RPM.”

If the RPM values do not match these ranges, reprogramming of the E-Walk may be required. However, it is very rare for the “Speed settings” to need adjustment. Usually, it is sufficient to calibrate two parameters, which are described in detail in the images below.



Note that the values displayed are only examples and may vary.



Calibration

Adjust the values to calibrate the S-Drive and the control unit of the E-Walk.

Click the upward arrow to upload the new program into the S-Drive.

Wait until the program is complete, then click the OK button.

Power off the E-Walk for about 1–2 seconds.

Restart the E-Walk and measure the RPM values.

Check that the speed control corresponds with both the throttle deadband and gain:

- If the values match: Exit the programming.
- If the values do not match: Start over from step 1.

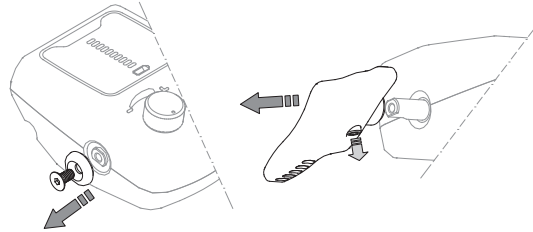
Installation of Left Throttle Control

(For control units manufactured from October 2024)

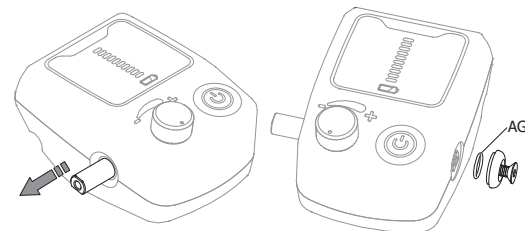
The throttle control can be changed from right to left. The standard-installed throttle control will be replaced with a left throttle control according to the following steps:

1. Turn off and detach the control unit from the wheelchair.

2. Start by loosening and removing the screw and cover plate on the left side of the control unit. Then, loosen the stop screw on the underside of the throttle control and remove the throttle control along with the stop screw.

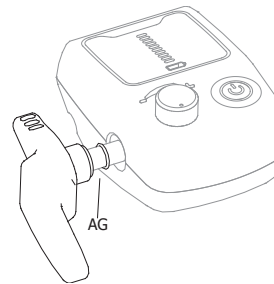


3. Slide the axle all the way over to the left side. Reattach the screw, cover plate, and O-ring [AG] on the right side of the control unit. Ensure that the axle is pushed as far to the left as possible.

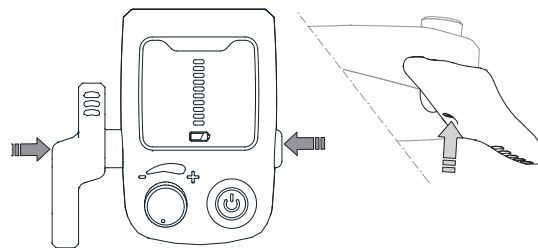


4. Attach the O-ring [AG] and left throttle control onto the axle.

5. Press the throttle control and cover plate together with your fingers to compress the O-rings. Tighten the stop screw in the throttle control.



6. Reattach the control unit to the wheelchair, connect it to the base unit, and perform a functionality test.



To install the right throttle control, follow the above instructions but in reverse order.

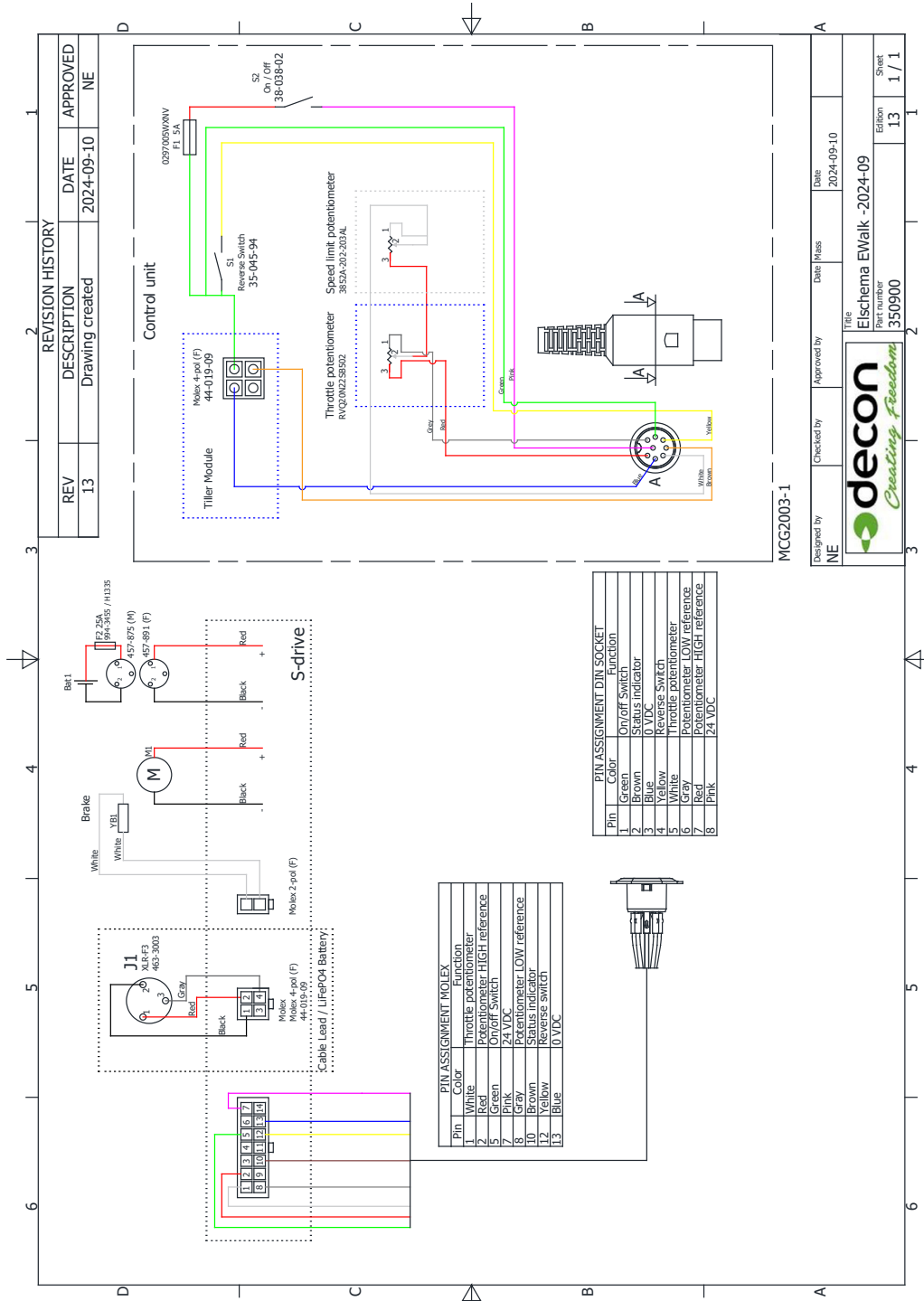


Warning!

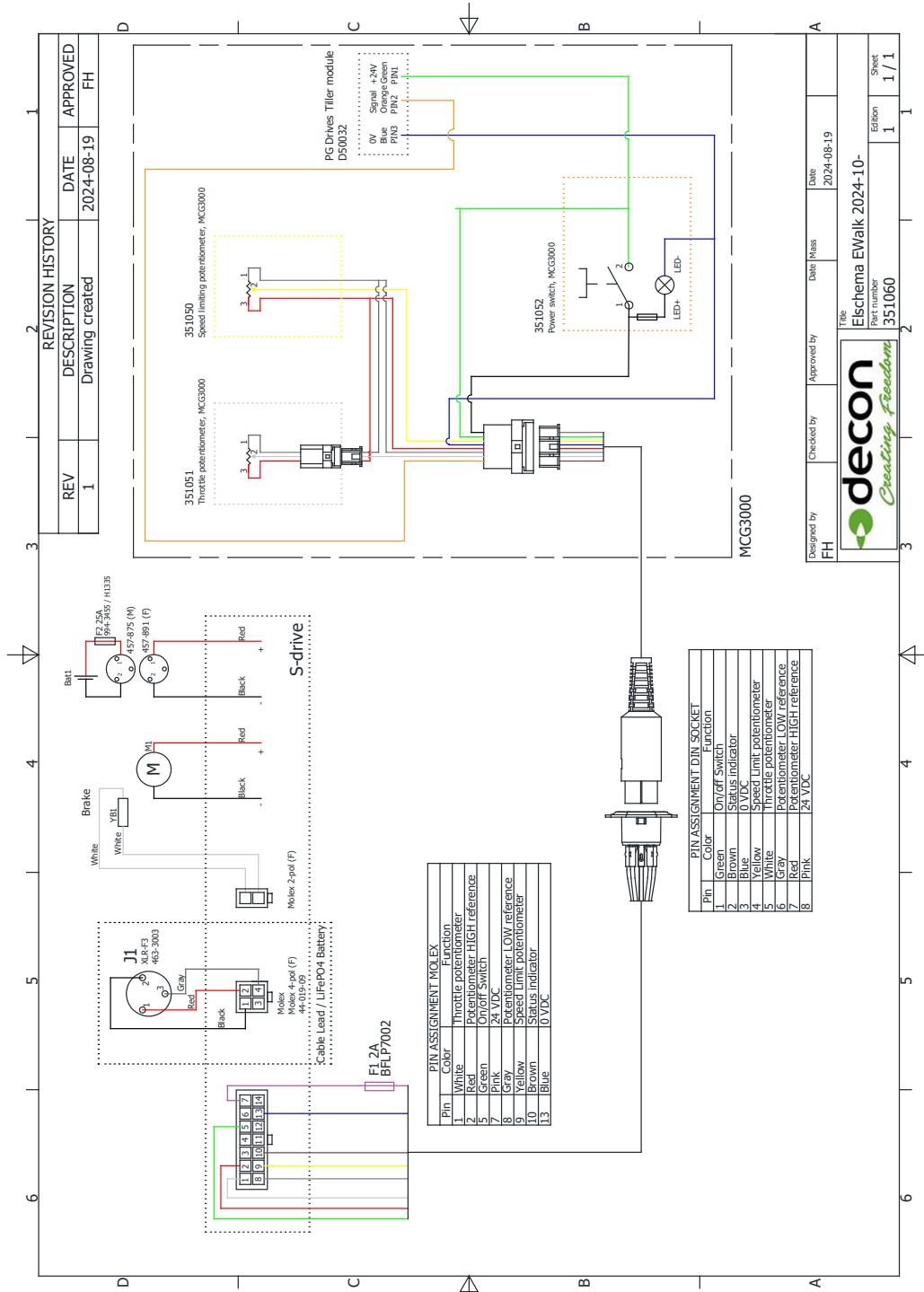
After replacing the throttle control, ensure that it moves freely and returns to its neutral position. If the throttle control does not move freely, it may lead to malfunction and an accident could occur.

Wiring Diagram

(For E-Walks manufactured until 2024-09)



(For E-Walks manufactured from 2024-10)



REV	DESCRIPTION	DATE	APPROVED
1	Drawing created	2024-08-19	FH

Designed by	Checked by	Approved by	Date	Mass	Date
FH			2024-08-19		2024-08-19
Title: E-Walk 2024-10- Part number: 351060					
					Sheet
					1 / 1

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