Pandhora®

MADE FOR YOUR HEALTH

Service Manual

Rev.1_28/02/2025

Devices

Pandora EP3



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General warnings

ANY ADJUSTMENT MUST BE MADE EXCLUSIVELY BY QUALIFIED AND AUTHORIZED PERSONNEL FROM PANDHORA SRL-Benefit Company (hereinafter referred to for brevity as: Pandhora s.r.l.) It is forbidden to make any modifications to the EP3.

Any adjustments and/or modifications made by unauthorized personnel will cause decay.

of the product warranty. Relieving Pandhora s.r.l. from any liability for any malfunctions and/or damages due to such adjustments/modifications.

Always refer to Pandhora s.r.l. and its technicians for any needs or modifications.

Any adjustment of the Ep3 could seriously compromise the safety of use and pairing with the wheelchair, causing damage to both the user and the wheelchair itself.

After each adjustment made on the Ep3, carefully check that all parts are properly secured. Check that all screws and nuts are tightened and that all moving parts are functioning correctly.

After each adjustment, always test the Ep3 paired with the wheelchair before delivering the product to the user.

Pandhora s.r.l. declines all responsibility for damage to the product, to anything and/or persons, due to any modification not correctly carried out or that, in any case, does not guarantee safety for the user.

The Ep3 device is compatible with most manual wheelchairs on the market, however it is always advisable to consult Pandhora s.r.l. and/or the wheelchair manufacturer to know the actual compatibility or any instructions to follow.

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1 Description of the parts











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- 1. Handlebar
- 2. Battery
- 3. Complete electric propeller
- 4. Lighthouse
- 5. Mudguard
- 6. Electric motor
- 7. Tire
- 8. Disc brake
- 9. Brake caliper
- 10. Connection system
- 11. Easel
- 12. Arm with Depth Regulator
- 13. Stroller
- 14. Brake
- 15. Cruise Control

- 16. Multifunction Button
- 17. Unlock Lever
- 18. Display
- 19. Reverse gear
- 20. RBS Regenerative Static Brake
- 21. Accelerator
- 22. 8" Engine
- 23. 10" Engine
- 24. 10" FAT Engine
- 25. 12" Engine
- 26. 14" Spoked Engine
- 27. 14" full engine
- 28. 14.5" FAT Off Road Engine
- 29. 16" Engine

1.1 Tools needed for assembly

Tools needed for assembly and disassembly of the parts referred to in the following manual.



- A) Hex keys of 6-5-4-3-2.5 mm.
- B) Star screwdriver.
- C) 10mm wrench.
- D) 18mm wrench
- E) Bubble level.

2 General Information

The clamps must be mounted on the fixed part of the frame and never on removable components (e.g. pullout platforms, movable parts). Moreover, their positioning depends on the wheelchair frame model. The assembly procedure remains the same, but with the necessary adjustments.



Fixed platform with straight, inclined or closed frame (TYPE B connection)

Extendable platform (TYPE C connection)

3 Types of Connection

3.1 Type B Connection

This connection is suitable for most wheelchairs with a straight, inclined, closed or foldable fixed frame, and with fixed or elevating footrests.



Below is a list of the most common wheelchairs compatible with type B connection:

Progeo	Ego	Kushall	K Series
	Joker / Joker V		Compact/Compact 2.0
	Joker Energy		Champion
	Joker R2	Aria	2.0
	Tekna Advance		Speciale
	Yoga		Ultra
OffCarr	Fenice	Panthera	S/U/X
	Althea	Ki Mobility	Tzunami
	Diva		Rogue
	Venus	Moretti	Atmos
	Eos	Vermeiren	Trigo
	Halley	Per4Max	Skye
	Quasar	Vassilli	Evolution Activa Compact
	Vega	RGK	Sub 4
	Themis	Talart JT	JT Ultimate
Ottobock	Avantgarde DV	Bodytech	Aero X
	Zenit	Permobil	Ti Lite Zr
Quikie	Xenon2		
	Argon		
	Helium		
	Nitrum		

Note: The list is continuously updated.

TECHNICAL SUPPORT: Eng. Alexander Troncone +39 3282177608

Supplied material

CODICE	IMMAGINE	QUANTITA'	NOTE
Morsetto Universale 1012-26-007		2	
Adattatori per morsetti universali		2	La dimensione varia a seconda della forma del tubolare della carrozzina
Spina conica RTE-1006(56)	•••••••	2	
Vite M6		6	La lunghezza varia a seconda della dimensione del tubolare della carrozzina
Dadi M6 autobloccanti flangiati		2	
Copri dadi		2	



Assembly instructions

Dimensione ruota	Codice braccetti	Foto	Altezza installazione asse spina conica (H)	Tipologia cavalletto	Foto
EP3 12"/10"	Rialtazi 1012-128-000		33^{+0}_{-1} cm	Fisso	
EP3 14"/14,5"	Dritti 1012-147-000		$33^{+0}_{-1}{ m cm}$	Fisso	
EP3 16"	Ribassati 1012-147-000		$33^{+0}_{-1}\mathrm{cm}$	Fisso	

• For an optimal configuration: adjust the handlebar tilt making it parallel to the ground (Fig 1)



• Insert the parking brakes of the wheelchair and position the propeller in front of the wheelchair with the wheel in the center of the wheelchair (Fig 2)



• Insert each arm into the shaft, facing upwards or downwards depending on the EP3 model, temporarily adjusting the width of the arms to the width of the wheelchair without tightening the screws on the shaft.



CAUTION PROCEED WITH THE OPERATIONS BELOW ONE SIDE AT A TIME

SIDE 1

• Place the Universal Clamp with any Universal Clamp Adapters on the point of the frame indicated in figure 3 (detailed view in Fig 4)



• Install the Conical Pin only in the first hole (Fig. 5a) so that the tip is at the height H indicated in the previous table; correct the tolerance of the height H by perfectly aligning the Conical Pin with the Depth Regulator (Fig. 5b).



• Slightly block the Conical Pin by acting on the Side Clamping Lever (Fig. 6a). Slightly tighten the locking screws of the arms present on the shaft (Fig. 6b); the tightening will slightly tilt the arms upwards and consequently the Conical Pin will vary its inclination, positioning itself in the optimal condition (Fig. 6c).



 Check that the axis of the conical spine is parallel to the ground plane (Fig. 7a), then insert the second screw into the hole corresponding to the resulting inclination (Fig. 7b). Note that a small tolerance of +/- 1 cm is allowed. CAUTION In the absence of parallelism, the best compromise is the tip slightly pointed downwards.



• Unscrew the side clamping lever and check that the Tapered Plug enters and exits freely from the depth regulator by moving the propeller away and towards it, as illustrated in figures 8a and 8b





• Add the third screw in correspondence with the hole opposite to the one where the second screw was inserted (Fig. 9a), adding the supplied flanged nut (Fig. 9b). In case the second screw is inserted in the central hole, insert the third screw in the last bottom hole (Fig. 9c).



• **SIDE 2** Perform the steps from No.4 for the opposite side.

SIDES 1 and 2

• Check that the width of the arms is equal on each side. Then tighten the screws (Fig 10) of the shaft with a torque of 12Nm.



• Unscrew the side clamping levers and check that both Conical Pins enter and exit freely from their respective depth regulators by moving the propeller away and towards it (Fig. 11a-11b). Then tighten the clamp screws with consideration (5-12 Nm), taking care not to damage the tubular of the wheelchair. Finally, insert the supplied hubcaps (Fig. 12).



• Possibly act on the grains of the depth regulator to adjust the distance of the handlebar from the user, bringing or moving the regulator along the arm (Fig 13), then tighten with a torque of 12 Nm.



3.2 Type C Connection

This connection is suitable for most wheelchairs with removable platforms.



Below is a list of the most common wheelchairs compatible with type C connection:

Progeo	Exelle Vario
	Basic Light
	Tekna Advance Swing
OffCarr	Alhena
	Ministar
	Vega
Ottobock	Avantgarde
	Start M2S
	Motus CV
Kushall	Compact
Moretti	Ardea One
Vermeiren	D200V
	V500
	Trigo
	Jazz
Gialdi	Ultralight
	Adaptive

Note: The list is constantly being updated.

TECHNICAL SUPPORT: Eng. Alexander Troncone +39 3282177608

Supplied material

CODICE	IMMAGINE	QUANTITA'	NOTE
Morsetto Universale 1012-26-007		2	
Adattatori per morsetti universali		2	La dimensione varia a seconda della forma del tubolare della carrozzina
Piastra N. 4 1012- 126-020		2	
Spina conica RTE-1006(56)	•••••	2	
Vite M6		6	La lunghezza varia a seconda della dimensione del tubolare della carrozzina
Vite M6x20		4	
Dadi M6 autobloccanti flangiati		6	
Copri dadi		6	
Distanziali Inox 10mm		8	In dotazione solo nei casi in cui vi è interferenza (vedi pag.5 Fig. 6c)



*Universal clamp adapters can always be used, except in cases where there are nuts or screws on the wheelchair frame that may

cause interference



Assembly instructions

Dimensione ruota	Codice braccetti	Foto	Altezza installazione asse spina conica (H)	Tipologia cavalletto	Foto
EP3 12"/10"	Rialzati L 1012-147-000	i i i i i i i i i i i i i i i i i i i	$29^{+1}_{-1}\mathrm{cm}$	Retraibile	
EP3 14"/14,5"	Dritti L 1012-128-000		$29^{+1}_{-1}\mathrm{cm}$	Retraibile	
EP3 16"	Ribassati L 1012-147-000		33^{+0}_{-1} cm	Retraibile	

• For optimal configuration: adjust the handlebar tilt making it parallel to the ground plane (Fig 1)



• Insert the parking brakes of the wheelchair and position the propeller in front of the wheelchair with the wheel in the center of the wheelchair (Fig. 2).



• Insert each arm into the shaft, facing upwards or downwards depending on the EP3 model, temporarily adjusting the width of the arms to the width of the wheelchair without tightening the screws on the shaft.



WARNING PROCEED WITH THE OPERATIONS BELOW ONE SIDE AT A TIME

SIDE 1

• Pre-assemble the Conical Plug onto Plate No. 4 by only mounting the front screw in order to leave its inclination free as shown in figures 3 and 4.



• Place the Universal Clamp with any Adapters on the point of the frame indicated in the figure. (Fig. 5a) (view in more detail Fig. 5b)



• Mount Plate No. 4 on the clamp by slightly tightening the No. 3 screws (Fig. 6a), one on top and the two lower ones placed in a mirror-like manner (Fig. 6b), selecting the best mounting hole for Plate No. 4 so that the tip of the Conical Pin is at the height H indicated in the previous table; correct the tolerance of height H by perfectly aligning the Conical Pin with the Depth Regulator.

Note: In some models of wheelchairs, it may be necessary to tilt the plate (Fig. 6c)



• Insert the Conical Pin into the depth regulator and slightly lock it by acting on the Side Clamping Lever (Fig. 7a). Slightly tighten the locking screws of the arms present on the shaft (Fig. 7b); the tightening will slightly tilt the arms upwards and consequently the Conical Pin will vary its inclination, positioning itself in the optimal condition (Fig. 7c).



• Check that the axis of the conical spine is parallel to the ground plane (Fig. 8a), then insert the second screw into the hole corresponding to the resulting inclination (Fig. 8b). Please note a small tolerance of +/- 1 cm is allowed. CAUTION If there is no parallelism, the best compromise is the tip pointing slightly downwards.



• Unscrew the side clamping lever and check that the Tapered Plug enters and exits freely from the depth regulator by freely moving the propeller away and towards it (as shown in figures 9 and 10).





• SIDE 2 Perform the same steps for the opposite side.

LATI 1 and 2

Check that the width of the arms is equal on each side. Then tighten the shaft screws (Fig. 11) with a torque of 12 Nm.



• Unscrew the side clamping levers and check that both Conical Pins enter and exit freely from their respective depth regulators by moving the propeller away and towards it (Fig. 12a-12c). Then tighten the clamp screws with consideration (5-12 Nm), taking care not to damage the tubular part of the wheelchair. Finally, insert the supplied nut covers (Fig. 13).



• Potentially act on the grains of the depth regulator to adjust the distance of the handlebar from the user, bringing or moving the regulator along the arm (Fig. 14), then tighten with a torque of 12 Nm.



3.3 Central Attack

This type of attack is an alternative to the side attack; they serve the same function but in a different way.



Figure 1 shows a steering tube for the central attachment, while figure 2 shows a steering tube for the side attachment.

The assembly of the latter will occur in the same way as the other, for the procedure follow chapter 6.2 Steering Tube.

Obviously, the tree will also be different, as it will have to fit with its "forks" on the appropriate dowels. The procedure and settings are similar, the difference lies in the method of connection between the wheelchair and the engine.



The tree for the central attack is shown in Figure 3, the one for the side attack is shown in Figure 4.

The hole A in figure 3 is the hole that allows the housing of the lock/unlock piston (Fig 5). The hole B in figure 3 is the hole that allows the fitting with the small piston operated by the release lever.



4 Unpacking

Remove all items from the packaging with great caution, to avoid damaging them. If scissors or cutters are used, be careful not to scratch the components.

• The product, once the top packaging is removed, appears as follows (Fig. 1).

Loosen the screw that adjusts the tilt of the handlebar (or the lever as in photo 1) and lift the handlebar upwards, so as not to have any obstacles in the removal of the two boxes underneath. Once the procedure is completed, the steering should appear as in figure 2.



• Remove the two cardboard boxes (a-b, Fig. 2), in which you will find: in one, the battery with its key; in the other, the connection system (B or C depending on the wheelchair model indicated), battery charger, documents and any accessories.





• Remove the cardboard components necessary to secure the Ep3 inside the packaging (Fig. 3-4), then proceed to lift the propeller with great care; lift by gripping the handlebar attachment and the fork, the points are indicated in the following photo (Fig. 5) by the arrows.

• The engine, just removed from the packaging, looks like this:



• Loosen the 2 screws of the handlebar attachment (Fig. 6) with a 5mm hexagonal key, rotate the handlebar counterclockwise until the handlebar is perfectly aligned with the wheel (Fig. 7), then tighten the previously loosened screws to a torque of 7Nm.



NB: for transportation, some commands have been rotated (Fig. 8-9). Reposition them as shown below or according to the user's preference.



Loosen the screws with a 3mm hexagonal wrench that lock the clamps of the respective buttons, position them so that they are ergonomic for the user by rotating them as in figures 10-11, then tighten the previously loosened screws to 1.5Nm (the red arrows indicate the positioning of the screws).



The final result appears as in figures 12-13.



• On the bottom of the packaging, you will find the small arms (Fig 14). Remove them from the box and proceed with the assembly following the "type b/c connections" instructions, depending on the model of the wheelchair indicated on the order form.



5 CONTROL UNITS

5.1 Battery Support

The battery support, integrated with the control unit, is connected to the steering column using 3 M5 x 10 screws.



- a. Red-black cable: REVERSE.
- b. Black cable: ENGINE.
- c. Yellow-black cable: RBS.
- d. Red-black double cable: FARO.
- e. Blue-black cable: CRUISE CONTROL.
- f. Black cable: 1T4.
- g. Control unit code (for traceability purposes)

NB. All cables have pins, respect their orientation. The arrows drawn on the connectors must be facing each other, as shown in the picture. Damage to the pins could cause the component to malfunction (photo A).



• Before assembly, apply high-strength thread locker on the M3 screw threads (Fig. 2), then proceed to tighten the 3 stainless steel screws with a 4mm hexagonal key, to a torque of 3.5Nm, in the appropriate threads (Fig. 3), starting from the screw placed highest, driving it to the stop on the battery door slot (Fig. 4).



5.2 Cable 1T4



The connection of the main controls to the control unit is made possible by the 1T4 cable; each color, as previously mentioned, represents a function (Fig.1).

- Green: display and multifunction button.
- Orange: accelerator.
- Red: brake/s.

5.3 Control Tools Standard handlebar



Buttons and levers can be adjusted and arranged in the most convenient way for the user. Some commands can be moved from right to left and vice versa. The clamps are fixed using a cross screw or a hexagonal one.

The handlebar, devoid of any accessory, is presented as such (Fig. 1), to be assembled on the handlebar attachment it requires the following flange (Fig. 2).





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• After correctly positioning the handlebar and stem, tighten the 4 M5 screws with a 6Nm hex key to secure the handlebar to the rest of the frame (Fig. 3).



Based on the configuration of the engine, buttons and/or levers will be added.

The display (Fig. 4) is fixed in place thanks to the bracket (Fig. 5), and it is possible to make adjustments to improve its visibility.



• Before mounting the display with its bracket, the multifunction button must be installed. It should be inserted by sliding the handlebar tube inside the clamp and then secured in position by tightening a cross screw (Fig 6). Ensure that the cable is not excessively strained during steering.



The display should be attached to the bracket using two more M3 screws with a 2.5mm hexagonal key at a torque of 1Nm (Fig 8), with the most comfortable tilt for the user. The bracket should be attached to the handlebar using 2 M4 screws with a 3mm hexagonal key at a torque of 1.5Nm (Fig 7).





After fixing, the display appears like this (Fig 9); by adjusting the two M4 screws, it is possible to adjust the tilt of the display to make it more visible to the user even after assembly.



• Finally, it is necessary to connect the green cable with its corresponding one coming from the branch of the 1T4 cable, taking care to position it correctly in the only allowed position, indicated by the groove (Fig. 10). The two arrows must match (Fig. 11).




• To install the brake lever, slide the handlebar tube inside the clamp, then tighten the M6 screw with a 5mm hexagonal key to 5Nm (Fig. 12).



NB: for the correct assembly direction, the electronic brake cable must be located on the bottom side. (Fig. 12.1). Upper positioned tank (b), lower electrical connection cable (a) In case of brake cable replacement, respect the tightening torques with extreme precision (excessive tightening could cause the component to break). Make sure that the brake light appears on the display when braking.

• To install the reverse gear button, insert it from one side of the handlebar, depending on the configuration chosen by the user (Fig. 13), fix it in an ergonomic position by tightening the M4 screw with a 3mm hexagonal key to 1.5Nm (Fig. 14), then connect the cable with the corresponding red-black one coming from the control unit. The same procedure also applies to the other buttons, only the type of wire to be connected will change.





• To install the accelerator, follow the same procedure as for the assembly of the reverse gear button, inserting the knob (Fig. 15), then connect the orange cable with the one coming from the 1T4 cable, always paying attention to the groove (Fig. 16), align the arrows (Fig. 17). Lock the knob in position by tightening the M5 screw with a 4mm hexagonal key to a torque of 3Nm (Fig. 18).





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• For the installation of the knob(s), it will be necessary to have lacquer (Fig. 19), as it will facilitate the assembly operation, apply it both on the handlebar and inside the knob (Fig. 20-21).



• Forcefully thread the knob onto the handlebar until it stops as shown in figure 22.



5.3.1 Mirrors





• The mirror is shown in Figure 1. For assembly, it is necessary to unscrew the 2 M8 screws with a 13mm socket wrench in order to allow the 2 clamps to disconnect. Be careful, only one of the two has threading, an incorrect coupling will not allow the clamps to tighten. Follow the diagram shown in Figures 2-3.



• Place the clamps around the handlebar, which in most cases is on the left side (Fig 4), then with a socket wrench (or alternatively an adjustable wrench) tighten the 13mm screws indicated by the arrows in figure 5 to 9 Nm, ensuring their positioning on the handlebar and taking care to position the part with internal threading, where the mirror will be screwed in, upwards. Screw the mirror into the appropriate threading with a 17mm adjustable wrench (Fig 6), adjust it to the correct position and tighten it to lock the mirror in place.



5.4 Lighthouse

• To facilitate the disassembly of the headlight, remove the battery (Fig. 1) and remove the two M5 screws (Fig. 2) with the 3mm hexagonal key that hold the rear cover in position, then remove it.





• Remove the spiral sheath that collects the headlight and brake cables (Fig. 3), then cut the cable tie (Fig. 4a) that joins the cables, finally remove the cotton insulating tape (Fig. 4b) in order to free the connection, at this point disconnect it, by pressing on the tab indicated in figure 5.



• Finally, remove the M5 screw that secures the headlight to the fork (Fig. 6), using a 4mm hexagonal wrench and a 10mm spanner.



• For reassembly, follow the procedure in reverse, tightening the screw with a hexagonal socket and nut to 3Nm.

6 POSITIONING UNITS

6.1 Unlocking System

The necessary components for the assembly of the positioning piston are as follows, shown in the photo: cable (Fig. 4), pin and spring (Fig. 5).



• Then insert the head into the appropriate hole on the lever (Fig. 6), then rotate it 90° so that it fits perfectly into its seat (Fig. 7), finally thread the end of the sheath into the hole as shown in figure 8.



• Take the cable and completely unscrew the lower nut with a 10mm wrench (Fig. 4), so that you can thread it into the designated space housed on the steering tube (Fig. 9 position "a"), proceed to place the terminal part of the cable in position (Fig. 10), then tighten the nuts so that they lock onto the flange (Fig. 10.1), with a torque of 8Nm.



• Insert the dowel, previously assembled together with the spring (Fig. 11), from the bottom (Fig. 12). Align the holes that are located on the two components (Fig 13).



• Insert a coupling between the coinciding holes (Fig 14), and lock it in position with a clamp to make the connection secure.





• At this point, where necessary, adjustments can be made using the register (Fig 15/A). By unscrewing component 'A' (moving it away from the nut), the tension of the wire is increased; screwing component 'A' will have the opposite effect. Do not overly tighten the wire, as this could cause it to break or cause the head to come out of its seat.

6.2 Steering tube

To assemble the steering tube, the components in the photo will be necessary: the fork (Fig. 1), steering tube.

(Fig. 2), steering kit series (Fig. 3).

NB: During the procedure of replacing the steering tube, the steering series kit will not be provided as the one already installed should be reused.



1. Arrange the components that need to be placed on the bottom, until they reach the end stop with the lower plate (Fig 4), then insert the fork stem into the steering tube, until it reaches the end stop (Fig 5).



• Arrange the components to be placed at the other end of the steering tube (Fig. 6-7), making sure they are in their place, then insert the thickness bushing (Fig. 8).



• Place the stem above the bushing (Fig. 9), apply the cover and tighten the 5mm hexagonal screw that secures the "spider", to a torque of 12Nm (Fig. 10), finally tighten the 2 M6 screws with a 5mm hexagonal wrench to 7Nm as indicated by the arrows (Fig. 11).



6.3 Tree

• Unscrew the two M8 screws located on the left side with a 6mm hexagonal wrench, in order to allow the insertion of the shaft into its housing (Fig. 1).



• Insert the shaft into its housing, push the unlock lever in the direction of the arrow (Fig. 2.1) or pull the "comfort" lever towards you (Fig. 2.2), depending on the model purchased, in order to allow the shaft to fit into its correct position. Take care to align the pin with the first hole indicated by the red arrow (Fig. 3) (the other two are for the 'comfort' and 'sport' positions).



• Once the shaft is locked in position, it will appear as in figure 4, insert the circlip and with the appropriate pliers, lock it into the appropriate groove (Fig. 5-6) (to ensure that it is correctly mounted, try to rotate it slightly, it should rotate with little effort while remaining in its place)



• At this point, proceed with the assembly of the brackets, loosen the 4 M8 screws, so that the brackets (Fig. 7) can be inserted into position without obstacles (Fig. 8).



• Proceed to tighten the screws to keep the arms in position using a 6mm hexagonal key (Fig. 9) with a tightening torque of 12Nm (they will then be adjusted according to the width of the wheelchair with which the propeller will be paired).



For a correct insertion of the arms, see the section "Type B connection" or "Type C connection".

6.4 Assembling cover



Cover, 2 M5 screws

• Place the cover in the position indicated by the photo (Fig. 1.1).



• Ensure that the holes match with the threaded part located on the steering tube (Fig. 2), then proceed to tighten the M5 screws with a 3mm hexagonal wrench (Fig. 3) up to a torque of 3.5Nm. The final result should correspond to photo 4.



• To disassemble, follow the reverse procedure.

6.5 Mudguard

The mudguard's aim is to protect the user from water and/or debris that are kicked up during movement.

• To replace it, simply unscrew the bolt in figure 1, using a 10mm wrench for the nut and a 5mm hex key for the screw. Removing the wheel makes access to the nut, located at the bottom, much easier. However, the operation can also be performed with the wheel mounted.





• Should there be a need to also replace the mounting plate, the two bolts indicated in figure 2 must be disassembled, using the same keys that were previously used.



7 DRIVE UNIT

7.1 Wheel assembly/ disassembly

Remove the protective cap, so as to expose the 18mm nut that will subsequently need to be unscrewed (Fig. 1).



• LATO1 Remove the 2 screws with a 5mm hexagonal wrench that secure the brake caliper (Fig. 2), (In the plus models, there are two brakes, the procedure is the same, it must be carried out for each caliper), then remove the caliper following the direction of the blue arrow (Fig. 2).

Remove the other 2 screws that secure the anti-extraction plate using both a hexagonal wrench and a 10mm wrench, to keep the nut behind the plate locked (Fig. 3).





• Unscrew the M12 nut with an 18mm wrench (Fig. 4).



• Repeat the procedure on the other side: remove the screws with the aid of the hexagonal key and wrench (Fig. 5), then the main nut with an 18mm key (Fig. 6). Both the nut and the anti-extraction

plate should be removed gently, as they are traversed by the cable that connects to the motor. At this point, it is possible to remove the wheel (Fig. 7).



For reassembly, insert the wheel with the just screwed pins, into the grooves of the fork (Fig. 7), perform the reverse procedure, tightening the nut with the 18mm wrench to 35Nm and the hexagonal screws to 5Nm. (The Plus and Enduro models instead have an M14 nut to be tightened with a 21mm wrench to 40Nm).

7.2 Tire Replacement

• Unscrew the rubber cap from the tire valve, then release the air inside it. To do this, you can use the function of the pressure gauge: after connecting it to the tire valve, press the side button (Fig. 1), or gently press on the small cylinder that controls the air release (Fig. 2).



• For the disassembly of the tire with attached inner tube, the following tools will be needed (Fig. 3).



• Insert the tire levers under the tire, being careful not to damage the inner tube and the inflation valve, then proceed to disassembly by leveraging first with one and then with the other, and advancing progressively, until the entire tire has come off the rim (Fig. 4-5).





• After removing the tire from the rim, slide it off, always paying close attention to the inflation valve, which must pass through the appropriate hole (Fig. 6).



• Insert the inner tube into the new tire, then grease part of the latter's shoulder so that it fits more easily into its housing on the rim (blue arrow, Fig. 7). Also during this procedure, pay attention to the inflation valve. Insert the tire onto the rim, making sure that the direction of rotation, indicated by the arrow, is correct (Fig. 8). Proceed again with the help of the tools (Fig. 9); levering with great care. Once the tire is correctly positioned, proceed to inflate it to the pressure indicated by the manufacturer.



7.3 Brake Disc Replacement

Disassembly:

After removing the wheel as illustrated in paragraph 7.2, proceed with the disassembly of the brake disc.

• Unscrew the 6 screws with a 4mm hexagonal wrench, which hold the brake disc and the underlying spacer in place (Fig. 1), then proceed with the assembly.



Assembly:

• Center the spacer on the disc, paying close attention to align the holes perfectly (Fig. 2), then center the disc on the latter, always taking care to verify the correct centering and that the arrow on the disc follows the direction of rotation of the wheel (Fig. 3).



• For the assembly of the disk on the rim, 6 screws are needed (M5x12- for 12" and 14" rims with standard wheel, M5x20 for the 14" plus model rim and 16" which also requires a different spacer).

• Apply strong thread lock on the screws before assembly and proceed with tightening using a "star" sequence. Tighten the screws to a torque of 5Nm, the sequence is shown in the figures below.



7.4 Brake Pad Replacement

• The braking system is shown in Figure 1. Remove the 2 screws with a 5mm hexagonal wrench that secure the brake caliper, then slide out the caliper following the direction of the blue arrow in Figure 2.





• Once the brake caliper has been removed from its housing, the cotter pin that holds the brake pads in place must be removed. To do this, you need to straighten the end with pliers (Fig 3), then slide it out (Fig 4).

At this point, it will be possible to remove the pads (Fig 5).



• Insert the new pads well into their slot (Fig. 6) and carefully place them in the caliper (Fig. 7), check that the holes on the caliper align with those of the new pads (Fig. 8).





• Insert the cotter pin previously removed into the aligned holes (Fig 9) and lock it back into place (Fig 10).





• Reposition the clamp on the disc and tighten the two screws to 5 Nm as shown in figure 11.



NB: After replacing the brake pads, it is recommended that the initial braking is gentle and progressive, so as not to overstrain them and complete the break-in period. During the first uses, you may notice a slight whistling sound that is typical of the break-in phase.

7.5 Brake Bleeding

Before proceeding with the brake bleeding operation, remove the wheel, thus freeing the brake caliper, allowing us to push the pistons into their seats, thanks to a fixed screwdriver, gently leveraging on the pads this operation will avoid an excessive topping up of the system.



• Position the Ep3 so that the tank containing the brake fluid is parallel to the ground, to facilitate the following operations; with a T4 torx wrench, remove the oil cap along with its o-ring (if the latter remains in its seat, gently extract it with a small flathead screwdriver), the cap is indicated by the arrow in figure 1.



• Gently screw the funnel (or the reservoir included in the bleed kit) into the threading from where the cap was removed (Fig. 2).



- Equip yourself with a syringe to which you can attach a rubber tube, so that the latter can then be hooked into the appropriate valve located at the top of the brake clamp. Draw about 25 ml of mineral oil, paying particular attention to remove all the air inside the syringe and the tube, as even a small air bubble could jeopardize the success of the operation.
- Remove the T4 torx screw located on the top of the clamp (Fig.3), then attach the tube connected to the aforementioned syringe, then inject the oil by acting on the plunger of the syringe.

The plunger of the syringe will be quite difficult to press, however, be careful not to break the syringe, nor to detach the tube from the valve, to avoid nullifying the operation.



• The old oil (typically dark in color) will start to leak into the upper syringe along with any air bubbles (Fig. 4). Once the new oil starts to appear in the tank (at least 10ml), disconnect the tube where the oil was inserted and quickly reposition the screw, being very careful not to let air enter the system.

During this operation, a bit of oil might leak out once the tube is detached, so have some rags ready for cleaning.



• Once the valve on the clamp is closed, pull and release the lever in quick succession, in order to bring any remaining air bubbles between the piston and the tank to the surface, near the lever. The procedure can be considered correct when, after a few operations, the lever becomes rigid and with limited travel, as shown in figure 5.



• Remove the oil present in the syringe screwed onto the oil tank and unscrew it (Fig. 6), make sure to leave a drop of oil at the mouth of the bleed hole but also not to dirty the various components.



• Screw the cap of the oil tank that was previously removed back on, along with its corresponding o-ring. Wipe up any oil spills with a cloth lightly soaked in alcohol (Fig. 7).



• Remount the wheel.

7.6 Brake Replacement

Disassembly

- With a 5mm hexagonal key, unscrew the two M6 screws that keep the brake caliper in place (A and B in figure 1).
- Therefore, slide the clamp following the direction of the blue arrow, always depicted in figure 1, to "release" it and let it pass through the red circle indicated in photo 1.1.



• Once removed, place the pliers on the workbench, then remove, if present, the spiral that wraps the brake and headlight cable, finally, with the help of a wire cutter, cut the cable ties (indicated with the red arrow) that secure the brake cable to the frame or to other cables.



- Next, disassemble the cover as illustrated in paragraph 6.4, by unscrewing the two screws with a 3mm hexagonal wrench that secures it, and then slide it off. At this point, the propeller will appear as in figure 3.
- Following the brake cable, cut the cable ties that secure the latter to the steering tube (Fig.3).



• At this point, if the brake is located on the side of a simple knob, remove the knob, with the help of compressed air; by inserting the tip of the 'gun' (Fig. 4) between the handlebar and the knob, injecting compressed air, the knob should detach much more easily and consequently slide off the handlebar more smoothly (Fig. 5).

NB. If there should be any other accessories that interfere between the knob and the brake, remove them as well.



• If instead the brake is located on the side of the accelerator, unscrew with a 4mm hexagonal key the screw that secures the accelerator knob (Fig. 6), disconnect the connection cable (Fig.7) and remove the knob (Fig. 8).



• At this point, with a 5mm hexagonal key, unscrew the screw that secures the brake lever to the handlebar and slide it towards the outside of the handlebar (Fig 9).



Assembly

• Perform the disassembly operations in reverse sequence, with the new components.

7.7 Easel

Disassembly

 Loosen the 3 M6 screws with a 5mm hex key (Fig 1-2). Lock the rear nut with a 10mm wrench and unscrew. Once the 3 screws on the left are removed, repeat the same procedure on the other side (be sure to place the thruster in a position suitable for the disassembly of the stand to prevent it from falling).




- Once all the screws are removed, slide out the stand.
- For the reassembly process, proceed in reverse, tightening the M6 screws to a torque of 5Nm.

7.8 Retractable stand

Its main objective is to remove the interference that could occur when pairing the wheelchair's propeller with removable platforms. The retractable stand can position itself under the platform, allowing the propeller to get closer to the wheelchair, greatly enhancing the user's comfort.

The standard easel is represented in figure 1, the retractable one in figure 2.



The system that characterizes the retractable easel is connected to the 'fixed' part of the easel thanks to a bolt composed of a 13mm M8 nut and a 5mm M6 hexagonal screw. In addition, two bushings are positioned, one under the head of the screws as visible in Figure 3 and another that is positioned between the movable and fixed part (Fig. 4). The 5mm M6 hexagonal stainless steel screw allows various adjustments, it is also fixed by a bolt and under the head it has a plastic thickness, the one placed above, serves as a 'stop end'.

For disassembly, it is enough to remove the underlying spring and then unscrew the bolt with the aid of a 13mm wrench (wheel side) and a 5mm hex key (Fig. 3), it is necessary to repeat the procedure on both sides.

For reassembly, simply follow the reverse procedure.

