

**Introduction**

This manual was prepared by **Fantic Motor** for use by **Fantic Motor** dealers and their specialized personnel. It is assumed that those who use this documentation for repair and maintenance of **Fantic Motor** vehicles have a basic knowledge of the principles and mechanical procedures regarding vehicle repair techniques. In the absence of these notions, repair or maintenance may be inadequate or dangerous.

**Fantic Motor** is constantly committed in improving its production. Any significant modifications and changes introduced with regard to vehicle characteristics and repair procedures will be brought to the attention of all **Fantic Motor** dealers and will be published in future editions of the manual.

 **Fantic Motor reserves the right to modify and make changes, at any time and without notice, to the models described, specifications and design data, guaranteeing the essential characteristics described and illustrated in this manual.**

 **Operators have the obligation to read the manual and to scrupulously follow the instructions given. The manufacturer is not responsible for damages caused to people and/or things and is not responsible for damages to the product, if the instructions given in this manual are not observed.**

 **This publication, or part of it, cannot be reduced or translated without the Fantic Motor's approval. Reproduction of the contents used in this manual without the Manufacturer's permission is prohibited. Fantic Motor assumes no responsibility for printing errors and omissions. All rights reserved.**

**DATA OF THE MANUFACTURER AND EDITION****Fantic Motor**

Via Tarantelli, 7

31030 - Dosson di Casier (TV) Italy

Tel. +39 0422 634192

Fax +39 0422 1830124

E-mail: [info@fanticmotor.it](mailto:info@fanticmotor.it)[www.fantic.com](http://www.fantic.com)

Edition: 00/2022.

Code: TX102001.

**Symbols used in the manual**

Within this manual there will be technical warnings and annotations preceded by the following symbols according to the reference topic:

-  **Warning regarding the procedure described and the specific safety rules: indicates procedures that must be followed to prevent damage to the vehicle or possible injuries to vehicle repairers.**
-  **Information note on the procedure described and on the characteristics of the vehicle: it provides useful information to make the procedure easier and clearer.**
-  **Tightening torque: note showing one or more tightening torques values referred to the procedure described.**
-  **Measurement data: note showing the values of one or more measurements to be complied with or verified for the procedure described.**
-  **Equipment: note that informs the user of the need to use particular tools for the procedure described.**
-  **Consumable: note that illustrates the names, types and/or quantities of consumables (such as oil, fuel, sealants, additives, etc.) to be used for the procedure described.**

All left or right indications refer to the direction of travel of the e-Scooter.

Within this manual there are other symbols used to identify the characteristics of the type of intervention.

 **Apply a threadlocker (LOCTITE®).**

|                                                 |           |
|-------------------------------------------------|-----------|
| <b>1. Informazioni generali.....</b>            | <b>6</b>  |
| 1.1 safety information .....                    | 6         |
| 1.2 legal regulations.....                      | 6         |
| 1.3 MAINTENANCE.....                            | 7         |
| Scheduled maintenance intervals.....            | 7         |
| <b>2. Descrizione e dati tecnici .....</b>      | <b>8</b>  |
| 2.1 IDENTIFICATION PLATE.....                   | 8         |
| 2.2 technical data.....                         | 8         |
| E-scooter technical data.....                   | 8         |
| Battery technical data .....                    | 8         |
| 2.3 controls and components .....               | 9         |
| 2.4 packaging and accessories.....              | 10        |
| 2.5 Tightening Torques.....                     | 11        |
| <b>3. Diagnosis and electrical system.....</b>  | <b>12</b> |
| 3.1 Error codes.....                            | 12        |
| 3.2 Main components and connections .....       | 14        |
| General wiring diagram .....                    | 14        |
| e-Scooter control unit connection diagrams..... | 15        |
| 3.3 Checks and tests .....                      | 16        |
| Motor internal resistances check .....          | 16        |
| Temperature sensor resistance check.....        | 16        |
| <b>4. Main assemblies .....</b>                 | <b>18</b> |
| 4.0 Identification of main assemblies .....     | 18        |
| <b>5. Handlebar assembly .....</b>              | <b>19</b> |
| 5.1 Complete handlebar .....                    | 19        |
| Complete handlebar removal.....                 | 19        |
| Complete handlebar reassembly .....             | 19        |
| 5.2 Handlebar components disassembly.....       | 20        |
| Dashboard removal .....                         | 20        |
| Throttle control removal .....                  | 22        |
| Throttle board removal .....                    | 22        |
| Function control removal .....                  | 23        |
| Electronic brake control removal .....          | 23        |
| Electronic brake board removal .....            | 24        |
| Horn control removal .....                      | 24        |
| Headlight removal .....                         | 25        |
| Horn removal .....                              | 25        |
| Grips replacement .....                         | 26        |
| Handlebar frame replacement .....               | 26        |
| 5.3 Handlebar components assembly.....          | 27        |
| Horn reassembly .....                           | 27        |
| Headlight reassembly.....                       | 27        |
| Horn control reassembly.....                    | 27        |
| Electronic brake board reassembly .....         | 28        |
| Electronic brake control reassembly.....        | 28        |
| Functions control reassembly.....               | 28        |

|                                                                  |           |
|------------------------------------------------------------------|-----------|
| Throttle board reassembly .....                                  | 29        |
| Throttle control reassembly .....                                | 29        |
| Dashboard reassembly .....                                       | 30        |
| <b>6. Steering head assembly .....</b>                           | <b>32</b> |
| 6.1 Steering head .....                                          | 32        |
| Removing the steering head .....                                 | 32        |
| Steering head reassembly .....                                   | 33        |
| <b>7. Traction assembly .....</b>                                | <b>35</b> |
| 7.1 Front wheel .....                                            | 35        |
| Front wheel removal (with motor) [only for TX2 version] .....    | 35        |
| Front wheel reassembly (with motor) [only for TX2 version] ..... | 37        |
| Normal front wheel removal [only for TX1 version] .....          | 39        |
| Normal front wheel reassembly [only for TX1 version] .....       | 40        |
| 7.2 Rear wheel .....                                             | 41        |
| Rear wheel removal (with motor) .....                            | 41        |
| Rear wheel reassembly (with motor) .....                         | 44        |
| 7.3 Changing the tyre .....                                      | 46        |
| <b>8. Deck assembly .....</b>                                    | <b>48</b> |
| 8.1 e-Scooter control unit cover .....                           | 48        |
| Removal of e-scooter control unit cover .....                    | 48        |
| Replacement of welcome lights .....                              | 48        |
| Control unit cover reassembly .....                              | 48        |
| 8.2 Deck cover .....                                             | 50        |
| Side kickstand replacement .....                                 | 50        |
| Deck cover removal .....                                         | 50        |
| Deck cover reassembly .....                                      | 50        |
| 8.3 Steering head joint .....                                    | 51        |
| Front mudguard removal .....                                     | 51        |
| e-Scooter fork removal .....                                     | 51        |
| Complete steering head joint removal .....                       | 52        |
| Steering bearing replacement .....                               | 52        |
| Steering head joint components disassembly .....                 | 53        |
| Assembly of steering head joint components .....                 | 56        |
| Complete steering head joint reassembly .....                    | 58        |
| e-Scooter fork reassembly .....                                  | 59        |
| Front mudguard reassembly .....                                  | 59        |
| 8.4 Rear mechanical brake .....                                  | 60        |
| Mechanical rear brake removal .....                              | 60        |
| Tail light removal .....                                         | 61        |
| Rear mudguard replacement .....                                  | 62        |
| Tail light reassembly .....                                      | 62        |
| Rear mechanical brake reassembly .....                           | 63        |
| 8.5 Deck .....                                                   | 65        |
| Deck mat replacement .....                                       | 65        |
| Deck frame replacement .....                                     | 65        |
| <b>9. Power supply assembly .....</b>                            | <b>66</b> |



|                                                      |    |
|------------------------------------------------------|----|
| 9.1 Dashboard connection wiring harness.....         | 66 |
| Dashboard connection wiring harness replacement..... | 66 |
| 9.2 e-Scooter control unit.....                      | 67 |
| e-Scooter control unit removal.....                  | 67 |
| e-Scooter control unit reassembly .....              | 70 |
| 9.3 Battery charging socket.....                     | 72 |
| Battery charging socket removal.....                 | 72 |
| Battery charging socket reassembly .....             | 73 |
| 9.4 Battery .....                                    | 73 |
| Battery removal.....                                 | 73 |
| Battery reassembly .....                             | 74 |

## 1.1 SAFETY INFORMATION

All safety information regarding the use of the e-Scooter is contained in the user and maintenance booklet and the safety warnings booklet sold with the e-Scooter.

- This user and maintenance booklet contains all the information you need to familiarise yourself with the e-Scooter, to know its main components and technology, and to learn all the tips necessary for its correct and absolutely safe use.
- Read the safety warnings booklet carefully: knowledge of and compliance with the warnings prevents the risk of accidents to yourself, other people, animals or property and allows you to use your e-Scooter in an environmentally friendly manner.
- The documentation (the Use and Maintenance Booklet, the Safety Warnings Booklet, EC Declaration of Conformity, etc.) is an integral part of the e-Scooter and must be kept for the entire duration of its use. Check that the owner is always in possession of it.
- In the event of loss or damage of the user and maintenance booklet, inform the owner who may request a new copy from his dealer at any time.

## 1.2 LEGAL REGULATIONS

-  **Refer to the table “Road surface suitability table” in the Use and Maintenance booklet to check whether your e-Scooter is suitable for road use.**
-  **Use the e-scooter in accordance with its intended purpose.**
-  **Strictly follow the rules of the Highway Code which apply to the use of conventional, electric or EPAC bicycles as well as to the use of e-scooters.**
-  **Underage drivers must wear a crash helmet.**
-  **It is strictly forbidden to exceed a speed of 25 km/h (15.5 mph).**
-  **Travelling with two or more people is strictly prohibited.**
-  **It is never permitted to ride on pavements or anywhere where bicycles are not allowed to circulate freely.**
-  **Driving on cycle paths, cycle lanes and pedestrian areas is permitted at a maximum speed of 6 km/h (3.7 mph).**
-  **Do not use lanes reserved for motor traffic.**

### 1.3 MAINTENANCE

-  Always use original Fantic spare parts. Non-original spare parts may damage the e-Scooter.
-  Use only the specific tools designed for this e-Scooter.
-  Always use new gaskets during assembling.
-  After disassembling, clean the components with non-flammable thinners.
-  Use only metric measuring tools for disassembling, overhaul and assembling operations. Metric screws, nuts and pins are not interchangeable with coupling parts having english units of measurement.
-  After assembling, check that all components have been correctly installed and are working perfectly.
-  In case of interventions involving the electric and electronic elements of the scooter, check the correct assembly of the electrical connections and, in particular, the ground and battery connections.

#### Scheduled maintenance intervals

| Operation                                             | 200 km<br>(125 mi) | 500 km<br>(300 mi) | 1.000 km<br>(600 mi) |
|-------------------------------------------------------|--------------------|--------------------|----------------------|
| Wheel lock nuts tightness check                       | √                  | √                  | √                    |
| Handlebar and column fastening screws tightness check | √                  | √                  | √                    |
| Side kickstand screws tightness check                 | √                  | √                  | √                    |
| Rear mechanical brake screws tightness check          | √                  | √                  | √                    |
| e-Scooter fork axle column pin tightness check        | √                  | √                  | √                    |



## 2.1 IDENTIFICATION PLATE

Each e-scooter is fitted with an identification plate under the footrest. Communicate the serial number indicated on the plate at every request for service or to order spare parts.

## 2.2 TECHNICAL DATA

### E-scooter technical data

| Technical data                             | TX1 (250W)                                    | TX2 (500W)                                    |
|--------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| Autonomy                                   | 25 km (15.53 mi) <sup>(1)</sup>               | 20 km (12.43 mi) <sup>(1)</sup>               |
| Maximum power                              | 250 Watt                                      | 500 Watt                                      |
| Maximum speed                              | 25 km/h (15.5 mph)                            | 25 km/h (15.5 mph)                            |
| Seats (standing)                           | 1                                             | 1                                             |
| Minimum age                                | (2)                                           | (2)                                           |
| Minimum height                             | 120 cm (3.94 ft)                              | 120 cm (3.94 ft)                              |
| Maximum permissible weight                 | 100 kg (220.5 lb)                             | 100 kg (220.5 lb)                             |
| Maximum permissible road slope             | 17% (10 degrees)                              | 21% (12 degrees)                              |
| Battery                                    | Ioni di Litio, 28.8 Vdc, 369 Wh               | Ioni di Litio, 28.8 Vdc, 369 Wh               |
| Operating temperature                      | -10°C – +40°C (14°F – 104°F)                  | -10°C – +40°C (14°F – 104°F)                  |
| Traction                                   | Rear (Single Motor)                           | Front + Rear (Dual Motor)                     |
| Dimensions of folded e-scooter (W x D x H) | 1100 x 180 x 480 mm<br>(43.3 x 7.1 x 18.9 in) | 1100 x 180 x 480 mm<br>(43.3 x 7.1 x 18.9 in) |
| Scooter weight                             | 12.9 kg (28.4 lb)                             | 14.2 kg (31.3 lb)                             |
| Degree of water resistance                 | IP54                                          | IP54                                          |

**i Battery autonomy can vary greatly depending on the conditions of use and the age of the e-scooter.**

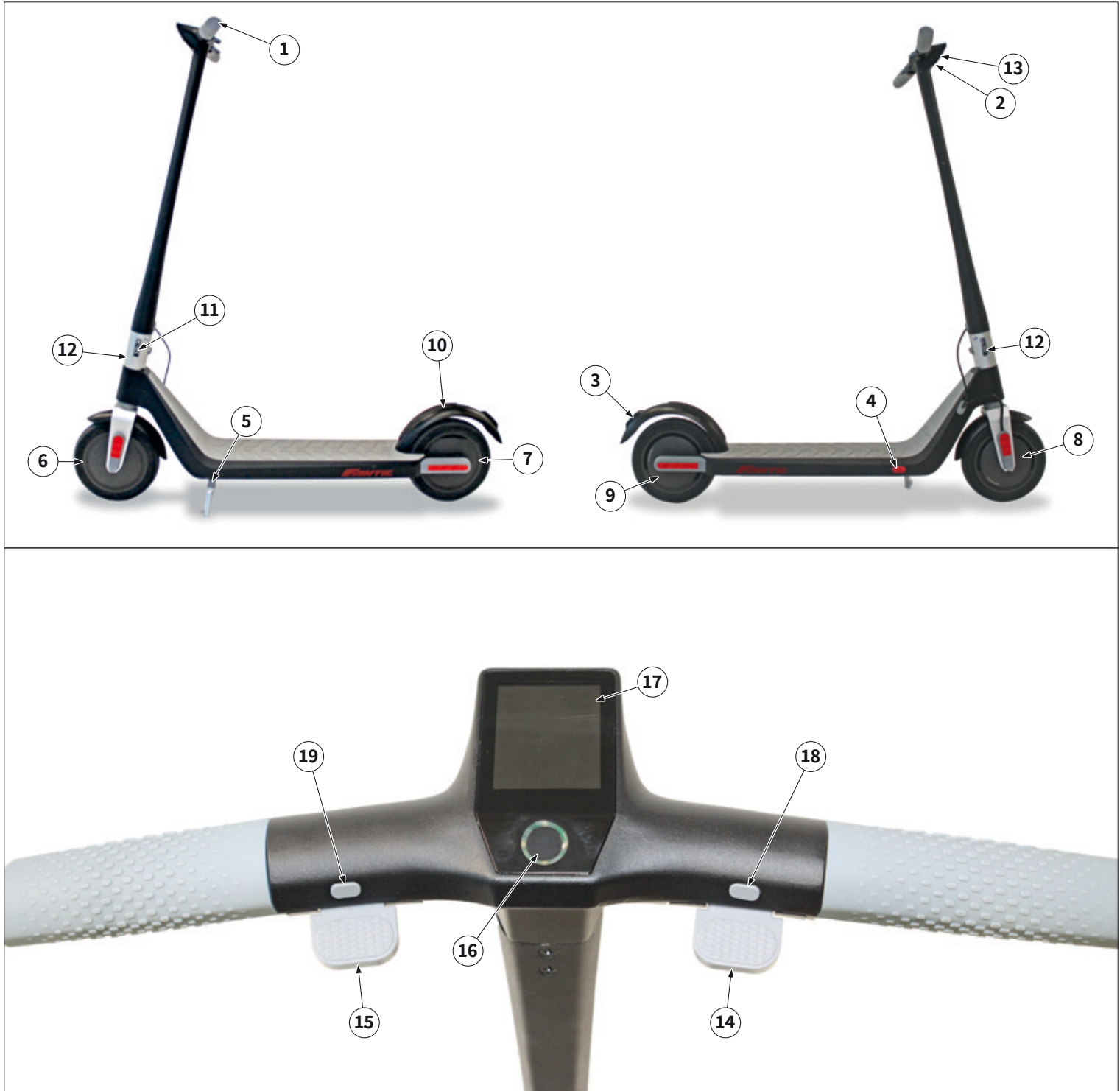
(1) This value was obtained with a driver weight of 75 kg (165.4) and an average speed of 15 km/h (9.32 mph).

(2) Check the legislation in force in the place where the e-Scooter is used.

### Battery technical data

| Technical data                                      | TX1 (250W) | TX2 (500W) |
|-----------------------------------------------------|------------|------------|
| Charging current                                    | 2 A        | 2 A        |
| Rated voltage                                       | 42-42.4 V  | 42-42.4 V  |
| Internal resistance                                 | 125 mΩ     | 125 mΩ     |
| End-of-charge voltage                               | 41-41.5 V  | 41-41.5 V  |
| Discharge protection voltage                        | 27±0.5 V   | 27±0.5 V   |
| Discharge overcurrent protection                    | 40-60 A    | 40-60 A    |
| Maximum continuous discharge current                | 15 A       | 15 A       |
| Maximum instantaneous discharge current             | 25 A       | 25 A       |
| Over-temperature protection temperature limit (BMS) | 70±5°C     | 75±5°C     |
| Capacity                                            | 9.6 Ah     | 9.6 Ah     |

## 2.3 CONTROLS AND COMPONENTS



1. Handlebars
2. Front light
3. Rear light
4. Charging socket
5. Side kickstand
6. Front wheel
7. Rear wheel
8. Front motor (TX2 version only)
9. Rear motor
10. Rear foot brake
11. Folding system

12. Hook release buttons
13. Horn
14. Accelerator lever
15. Electronic brake lever
16. Fingerprint button (display control)
17. Display screen
18. Mode button
19. Horn button

## 2.4 PACKAGING AND ACCESSORIES

The following components and accessories are included in the packaging of the e-scooter:



1. E-scooter
2. Handlebars
3. Battery charger
4. Power cable
5. Handlebar fixing screws
6. User and maintenance booklet

## 2.5 TIGHTENING TORQUES

| Component                                  | Quantity | Screw | Tightening torque | Remarks |
|--------------------------------------------|----------|-------|-------------------|---------|
| Locking screw for electronic brake control | 2        | M3    | 1.5 Nm            |         |
| Throttle control locking screw             | 2        | M3    | 1.5 Nm            |         |
| Steering column pivot pin screw            | 2        | M4    | 3.25 Nm           |         |
| Front wheel nut                            | 2        | M10   | 45 Nm             |         |
| Front reflector support screw              | 4        | M3    | 1.5 Nm            |         |
| e-Scooter control unit cover screw         | 7        | M3    | 1.5 Nm            |         |
| Rear wheel nut                             | 2        | M10   | 45 Nm             |         |
| Rear reflector support screw               | 6        | M3    | 1.5 Nm            |         |
| e-Scooter deck cover screw                 | 15       | M3    | 1.5 Nm            |         |
| Side kickstand screw                       | 2        | M5    | 1.5 Nm            |         |
| Steering head pin stud bolt                | 1        | M10   | 45 Nm             |         |
| Steering head pin fastening screw          | 1        | M10   | 45 Nm             |         |
| Joint hook reference plate screw           | 2        | M3    | 1.5 Nm            |         |
| Joint drive pin plate screw                | 2        | M3    | 1.5 Nm            |         |
| Steering head joint ring-nut               | 1        | M29   | 5-8 Nm            |         |
| e-Scooter fork fastening nut               | 1        | M10   | 45 Nm             |         |
| Front mudguard fastening screw             | 4        | M3    | 1.5 Nm            | -       |
| Rear mechanical brake fastening screw      | 2        | M3    | 1.5 Nm            |         |
| Rear mudguard overall fastening screw      | 3        | M3    | 1.5 Nm            |         |
| e-Scooter control unit screw               | 4        | M3    | 1.5 Nm            |         |
| Battery charging socket screw              | 2        | M3    | 1.5 Nm            | -       |
| Battery fastening screw                    | 4        | M5    | 6.4 Nm            |         |

### 3.1 ERROR CODES

-  If a "triangle" symbol appears on the display, an error has been detected.
-  The "triangle" symbol appears at the position corresponding to the part or command on which the error occurred.
-  If an error is detected, stop using your e-scooter and contact your dealer or an authorised workshop.

Check the following table to see if the error code shown on the display is present and report it to the relevant workshop if necessary.

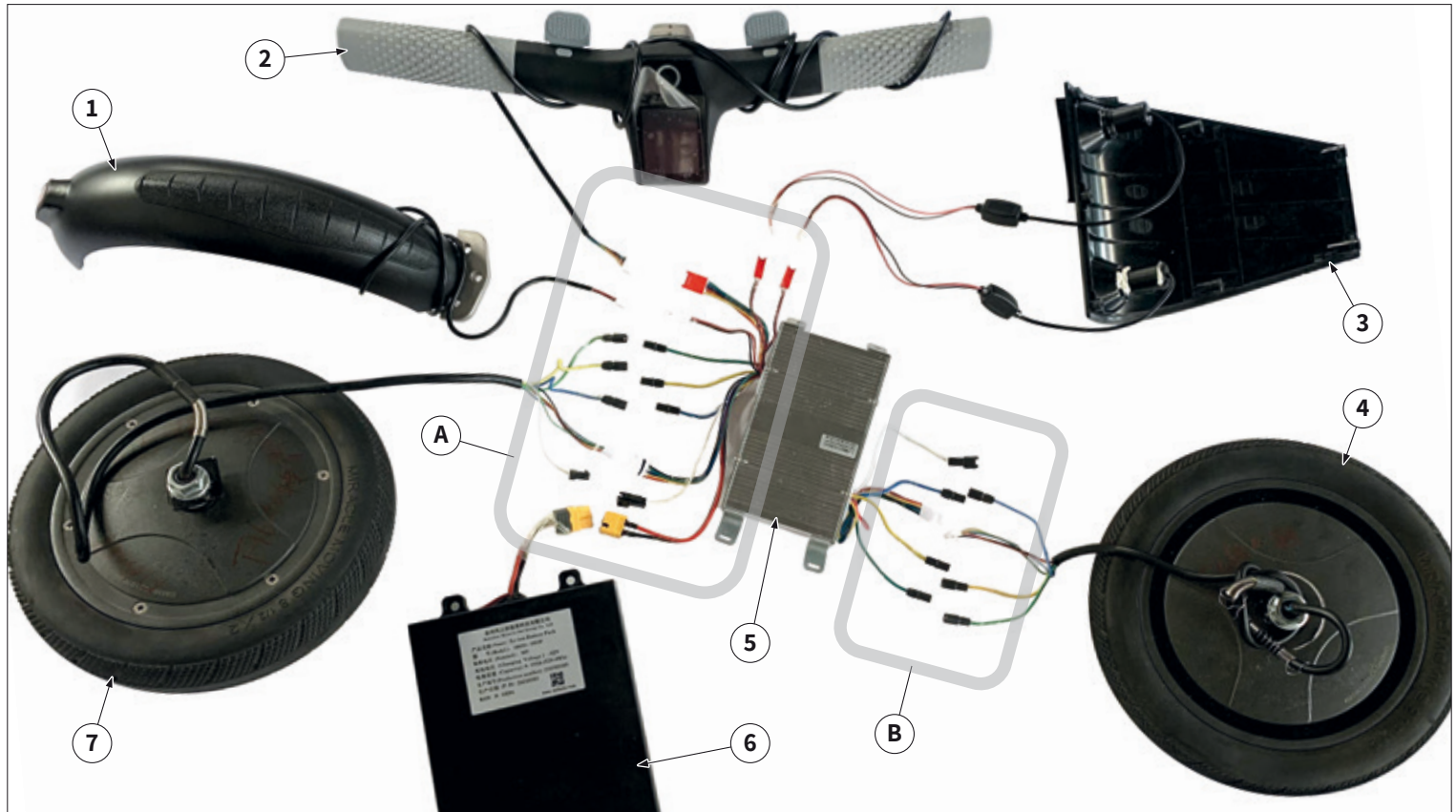
| Error code | Error description                                                         | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E1         | Acceleration error                                                        | <ol style="list-style-type: none"> <li>1. Check whether the throttle control is correctly in the neutral position (no acceleration).</li> <li>2. Replace the throttle control.</li> <li>3. If the error persists after replacement (of the throttle control), replace the dashboard or the e-Scooter control unit.</li> </ol>                                                                                                                                                                                 |
| E2         | Braking error                                                             | <ol style="list-style-type: none"> <li>1. Check whether the electronic brake control is correctly in the neutral position (no braking).</li> <li>2. Replace the electronic brake control.</li> <li>3. If the error persists after replacement (of the electronic brake control), replace the e-Scooter dashboard or control unit.</li> </ol>                                                                                                                                                                  |
| E3         | Rear motor error (Hall)                                                   | <ol style="list-style-type: none"> <li>1. Check whether the rear motor wiring harness is correctly connected.</li> <li>2. Replace the rear motor.</li> <li>3. Replace the e-Scooter's control unit.</li> </ol>                                                                                                                                                                                                                                                                                                |
| E4         | Serial port communication error (e-Scooter control unit)                  | <ol style="list-style-type: none"> <li>1. Restart the e-Scooter dashboard and check if the error persists.</li> <li>2. Disconnect the communication port and reconnect it.</li> <li>3. Disconnect the power port (the port connected to the battery discharge port) and reconnect it.</li> <li>4. Replace the e-Scooter dashboard or control unit.</li> </ol>                                                                                                                                                 |
| E6         | Motor phase loss error                                                    | <ol style="list-style-type: none"> <li>1. Restart the e-Scooter dashboard and check if the error persists.</li> <li>2. Replace the e-Scooter's control unit.</li> <li>3. Replace the front motor.</li> <li>4. Replace the rear motor.</li> </ol>                                                                                                                                                                                                                                                              |
| E7         | Low voltage error                                                         | <ol style="list-style-type: none"> <li>1. If the battery pack voltage is lower than the voltage value set in the specifications, the e-Scooter will emit an alarm signal (during normal driving).</li> <li>2. If the battery pack voltage is normal, replace the e-Scooter control unit.</li> <li>3. If the battery pack voltage cannot be charged normally (cannot be charged) and the battery pack voltage is higher than the voltage value set in the specifications, replace the battery pack.</li> </ol> |
| E8         | Overvoltage error                                                         | <ol style="list-style-type: none"> <li>1. If the battery pack voltage is higher than the voltage value set in the specifications, it will emit an alarm signal (overload).</li> <li>2. If the battery pack voltage is normal, replace the e-Scooter control unit.</li> <li>3. If the battery pack voltage is higher than the full charge voltage during normal charging (exceeding the value set in the specifications), replace the battery pack.</li> </ol>                                                 |
| E9         | Front motor / rear motor power supply error (from e-Scooter control unit) | <ol style="list-style-type: none"> <li>1. Restart the e-Scooter dashboard and check if the error persists.</li> <li>2. Replace the e-Scooter's control unit.</li> <li>3. Replace the front motor.</li> <li>4. Replace the rear motor.</li> </ol>                                                                                                                                                                                                                                                              |



| Error code | Error description                                     | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E10        | Warning of high temperature of e-Scooter control unit | <ol style="list-style-type: none"> <li>1. If the ambient temperature is normal (below 50°C), the e-Scooter is being driven on a flat road and error E10 persists, replace the e-Scooter control unit.</li> <li>2. If the ambient temperature is normal (below 50°C), if the e-Scooter is being driven on a road with steep slopes and the E10 error persists, stop driving and switch off the e-Scooter.</li> <li>3. Restart the e-Scooter after at least 10 minutes.</li> </ol> |
| E13        | Short-circuit failure                                 | <ol style="list-style-type: none"> <li>1. Restart the e-Scooter dashboard and check if the error persists.</li> <li>2. Replace the e-Scooter's control unit.</li> </ol>                                                                                                                                                                                                                                                                                                          |
| E57        | High motor temperature warning                        | <p>If the ambient temperature is normal (below 50°C), the e-Scooter is being driven on a flat road and error E57 persists, replace the e-Scooter control unit.</p> <p>If the ambient temperature is normal (below 50°C), if the e-Scooter is being driven on a road with steep slopes and error E57 persists, stop driving and switch off the e-Scooter.</p> <p>Restart the e-Scooter after at least 10 minutes.</p>                                                             |

### 3.2 MAIN COMPONENTS AND CONNECTIONS

#### General wiring diagram

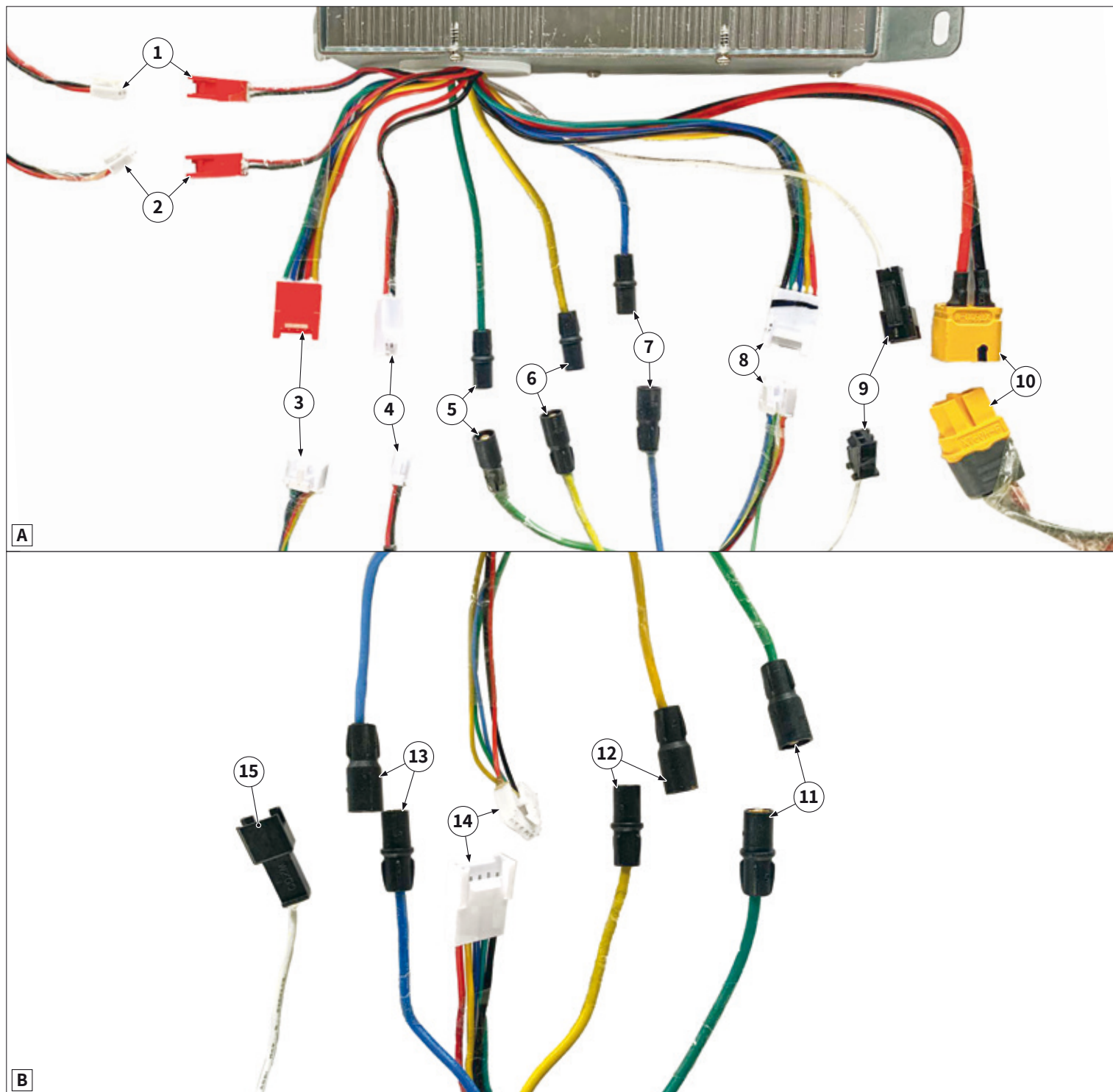


- i** This picture shows all the electrical components in the e-Scooter.
- i** The grey boxes "A" and "B" indicate the interconnections between the various components, which are described later.

List of electrical components of the e-Scooter:

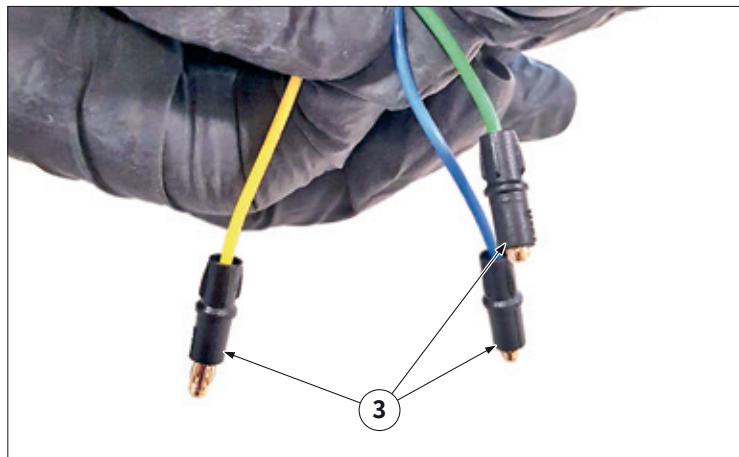
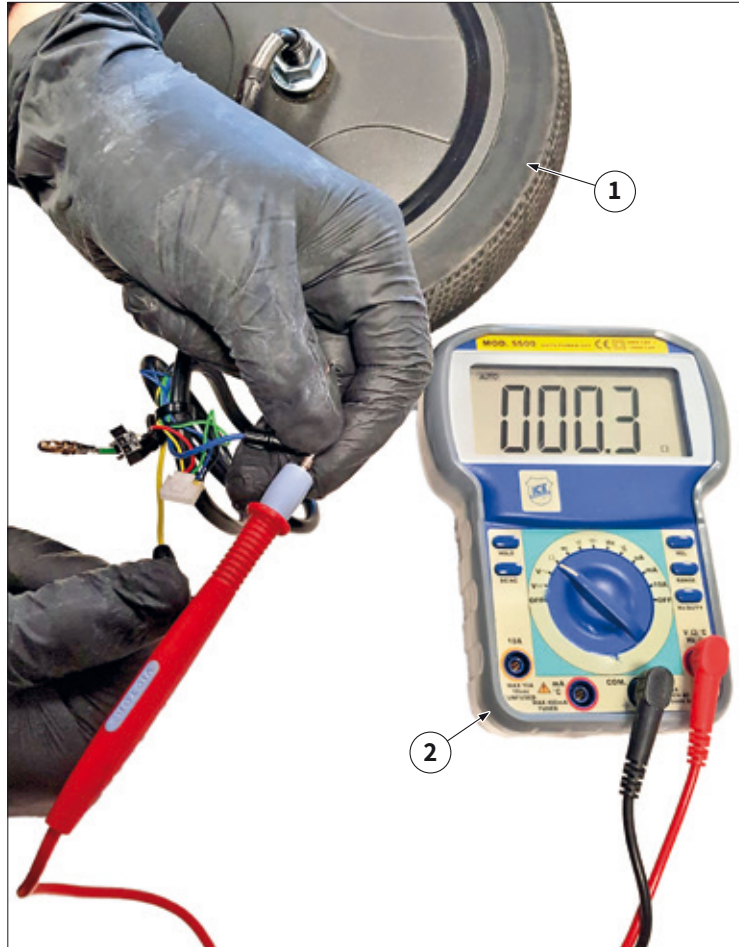
3. Rear mudguard and tail light;
4. Complete handlebar;
5. Scooter control unit cover;
6. Front wheel (drive) [only on TX2 version];
7. E-scooter electronic control unit;
8. Battery;
9. Rear wheel (drive).

## e-Scooter control unit connection diagrams



1. Right welcome light
2. Left welcome light
3. Handlebar interconnection
4. Tail light
5. Rear motor phase (green)
6. Rear motor phase (yellow)
7. Rear motor phase (blue)
8. Rear motor position sensor (Hall type)
9. Rear motor temperature sensor
10. Battery

11. Front motor phase (green)
12. Front motor phase (yellow)
13. Front motor phase (blue)
14. Front motor position sensor (Hall type)
15. Front motor temperature sensor



### 3.3 CHECKS AND TESTS

**i** A standard digital multimeter is required to perform electrical and electronic tests.

#### Motor internal resistances check

This test is used to check the internal resistance value of the e-Scooter's motor windings.

**i** This test can be carried out on either the front or rear motor.

Preliminary operations:

- "Front wheel removal (with motor)
- [only for TX2 version]" on page 35;
- "Rear wheel removal (with motor)" on page 41.

Proceed as follows:

- Switch on the tester/multimeter "2" and set the resistance reading to the ohm (" $\Omega$ ") scale;
- Prepare the drive wheel "1";

- Check the resistance values between connectors "3":
  - blue and yellow;
  - blue and green;
  - yellow and green.

**✂ Resistance value:  $\sim 0.23 \Omega$**

**⚠ An electric motor in good condition has very similar resistance values between measurements. If the differences are large, we recommend replacing the motor.**

Subsequent operations:

- "Front wheel reassembly (with motor)
- [only for TX2 version]" on page 37;
- "Rear wheel reassembly (with motor)" on page 44.

#### Temperature sensor resistance check

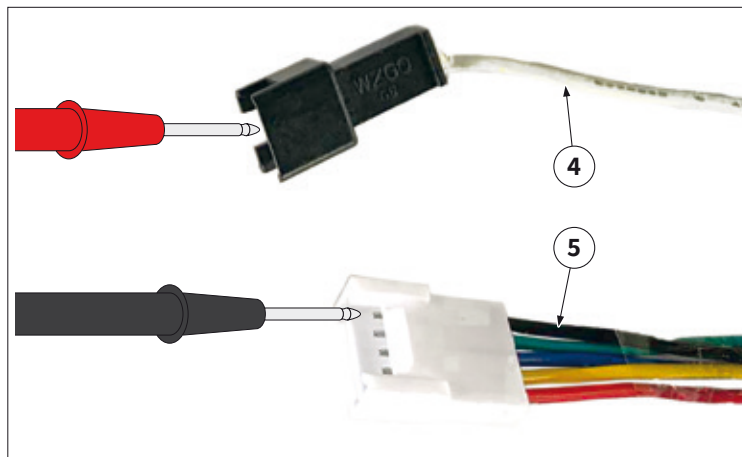
This test is used to check the correct operation of the internal temperature sensor of the e-Scooter motors.

**i** This test can be carried out on either the front or rear motor.

**⚠ A malfunction of the temperature sensor may cause the motor to overheat and break down and/or be damaged.**

Preliminary operations:

- "Front wheel reassembly (with motor)
- [only for TX2 version]" on page 37;
- "Rear wheel reassembly (with motor)" on page 44.



Proceed as follows:

- Switch on the tester/multimeter "2" and set the resistance reading to the kilohm ("kΩ") scale;
- Prepare the drive wheel "1";
- To take a correct reading, place the Red positive "+" lead on the contact of the White "4" wire of the motor temperature sensor connector;
- Next, place the negative Black "-" test lead on the Black "5" wire contact of the motor position sensor;



**Temperature sensor resistance value range:**  
**10 kΩ – 80 kΩ**



**If the measured value is not within the correct range, it is recommended to replace the motor.**

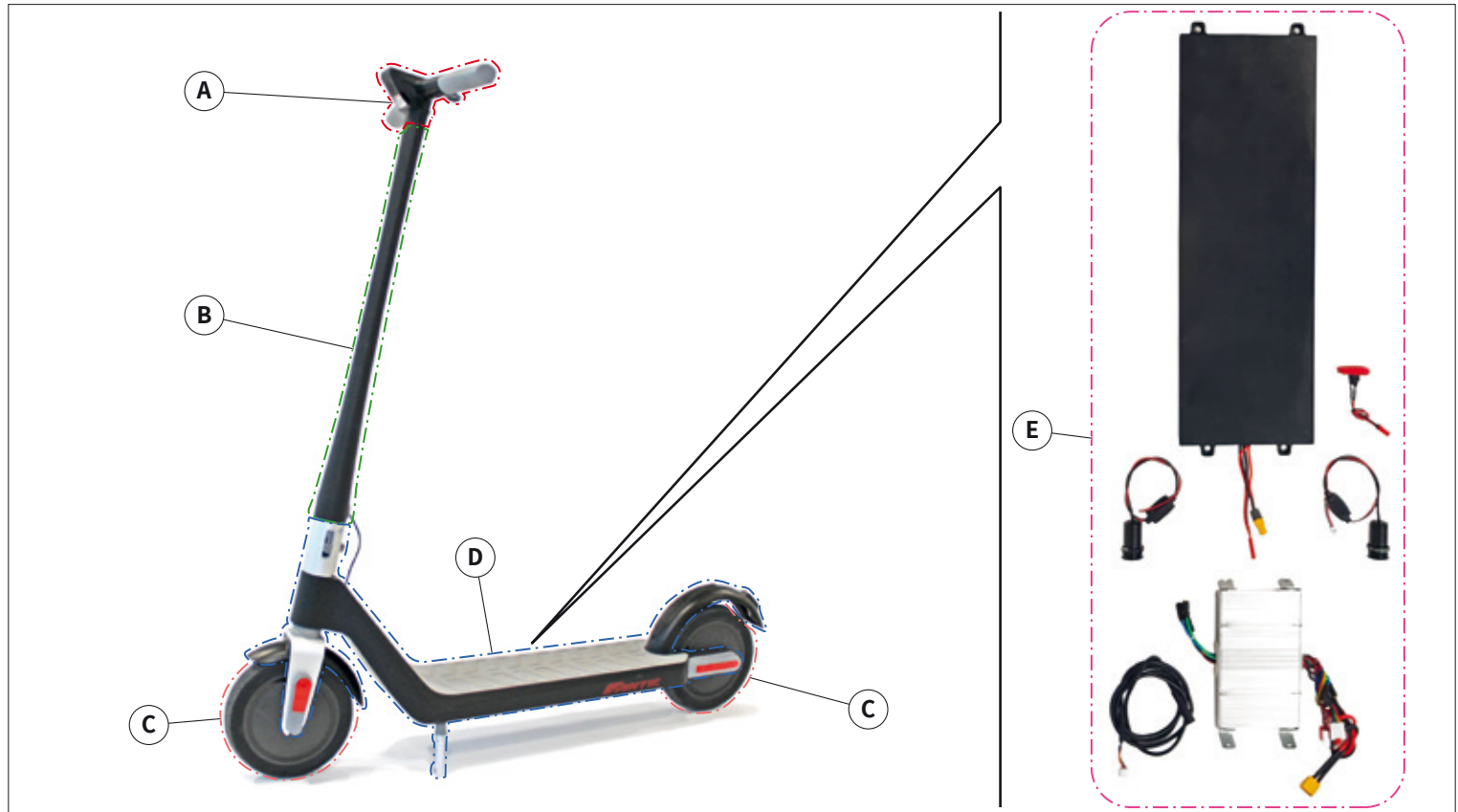
Subsequent operations:

- "Front wheel reassembly (with motor)
- [only for TX2 version]" on page 37;
- "Rear wheel reassembly (with motor)" on page 44.



## 4.0 IDENTIFICATION OF MAIN ASSEMBLIES

This section presents the main assemblies that make up the e-Scooter.



### A. Handlebar assembly (Chapter 5 on page 19)

- Handlebar
- Dashboard
- Controls
- Headlight
- Horn
- Grips

### B. Steering head assembly (Chapter 6 on page 32)

- Steering head

### C. Traction unit (Chapter 7 on page 35)

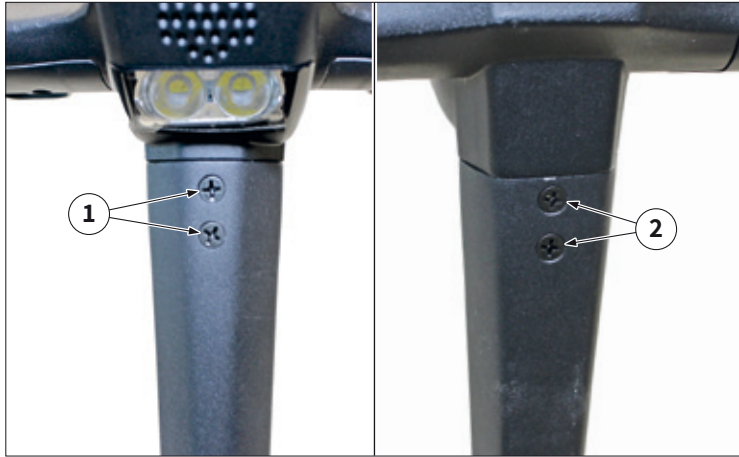
- Front wheel
- Rear wheel

### D. Deck assembly (Chapter 8 on page 48)

- Control unit cover
- Deck cover
- Steering head joint
- Rear mechanical brake
- Deck mat and frame

### E. Power supply unit (Chapter 9 on page 66)

- Battery
- Control unit
- Battery/control unit cables
- Charging socket

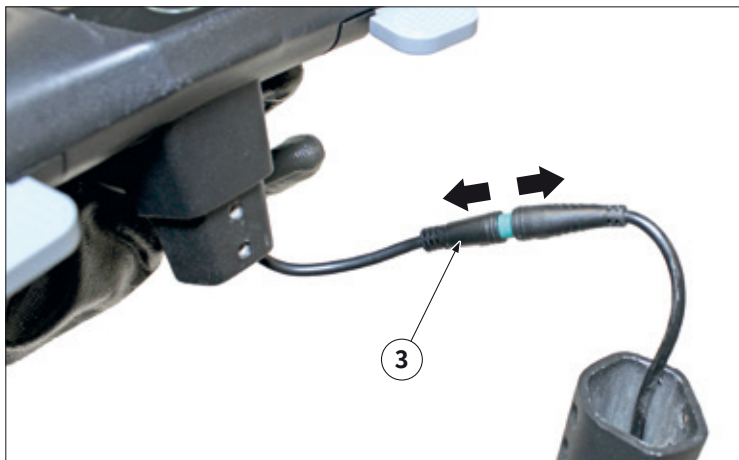


## 5.1 COMPLETE HANDLEBAR

### Complete handlebar removal

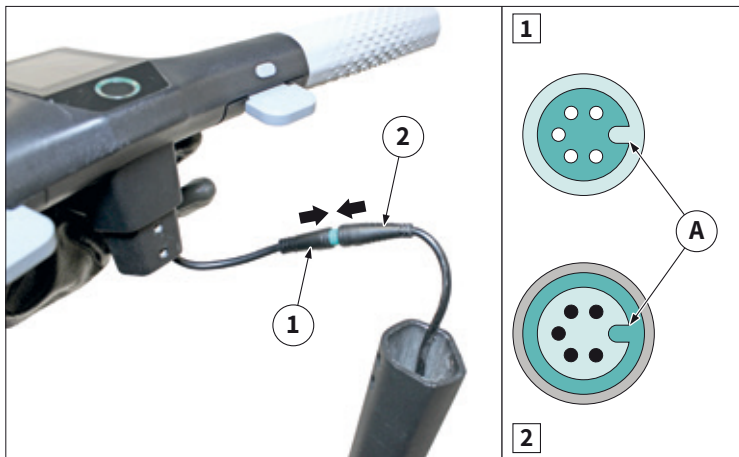
**i** First place the e-Scooter in an upright position, with the handlebar raised.

- Remove the two screws "1" located on the front side of the handlebar;
- Remove the two screws "2" located on the rear side of the handlebar;



- Raise the handlebars;
- Disconnect the display connector "3".

**!** Do not pull or drop the handlebars to avoid breaking the wires and connectors of the display.



### Complete handlebar reassembly

- Connect the display connector "1" to the socket "2";

**!** Observe the assembly direction of the connectors and their direction notches "A".

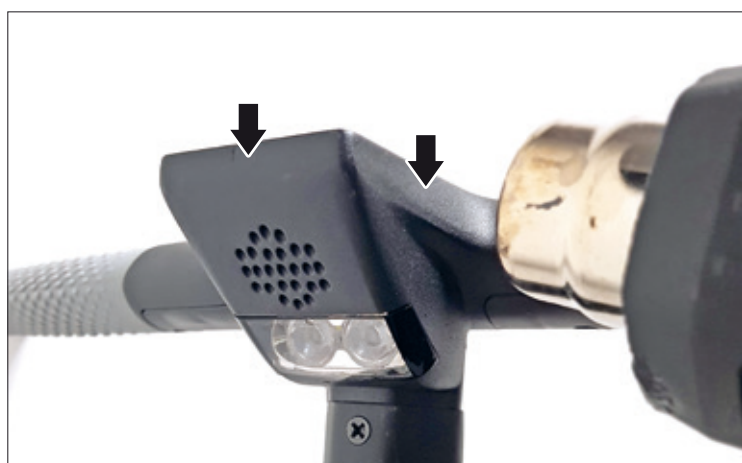


- Insert the handlebar into the housing on the steering head;

**!** Take care when inserting the display wiring harness into the recess of the steering head, to prevent breakage and/or crushing of the wires and connectors of the device.



- Check that the holes in the stem and handlebars match;
- Secure the handlebar with the four fastening screws "3" (front side) and "4" (rear side).



## 5.2 HANDLEBAR COMPONENTS DISASSEMBLY

Preliminary operations:

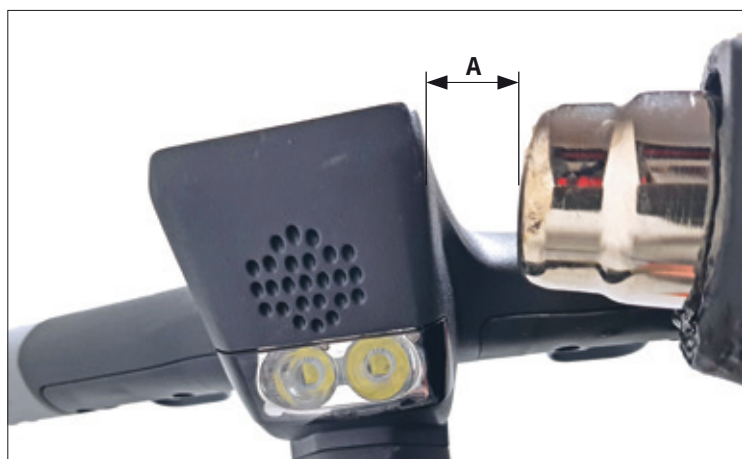
- "Complete handlebar removal" on page 19.

### **Dashboard removal**

- Use a heat gun to heat the part of the handlebar frame around the display.

 **Use the heat gun at an appropriate temperature.**

 **Do not direct the jet of hot air directly at the glass of the dashboard or headlight: they could be deformed or damaged.**



- Maintain a minimum distance "A" between the heat gun and the handlebar frame.

 **Minimum distance "A": ~ 20 mm.**



- Continue heating the area around the dashboard until the display glass starts detaching from the handlebars.





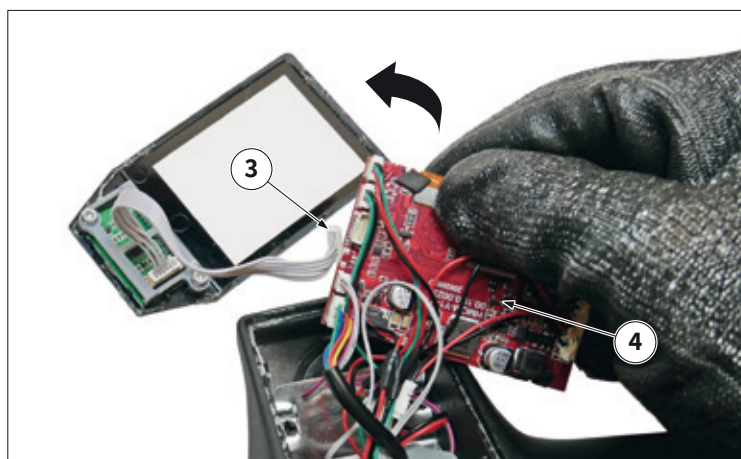
- Position the complete handlebar with the display facing downwards;

**i** Use supports coated with a protective material with a non-abrasive surface that are sufficiently rigid to withstand the load of disassembly operations.

- Using a "1" punch (made of wood, plastic or Teflon), act on the seal of the display connection wiring harness until it is pushed in;  
- Apply suction cup "2" to the glass of the dashboard display;  
- Gently operate the punch "1" on the back of the dashboard and simultaneously pull the suction cup "2" until the display is completely detached from the handlebar frame;

**!** Take care not to apply excessive pressure to the back of the display, as this may damage the electronic parts of the handlebar.

- Remove suction cup "2" from the dashboard display glass;

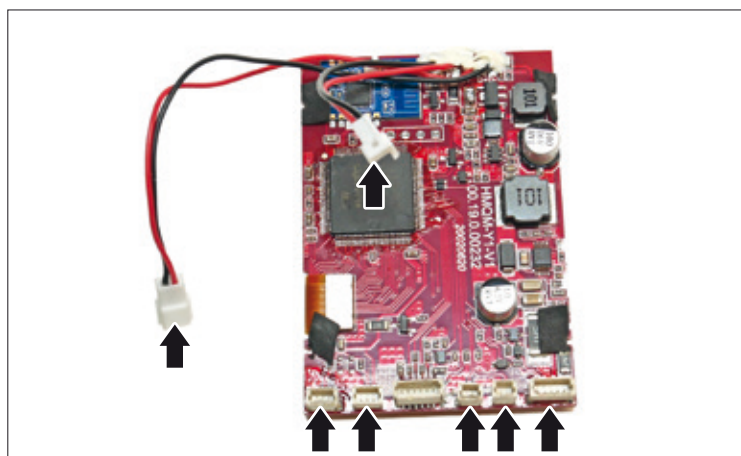


- Gently rotate the display;

**!** Handle the cables and connectors of electronic devices inside the handlebar with extreme caution.

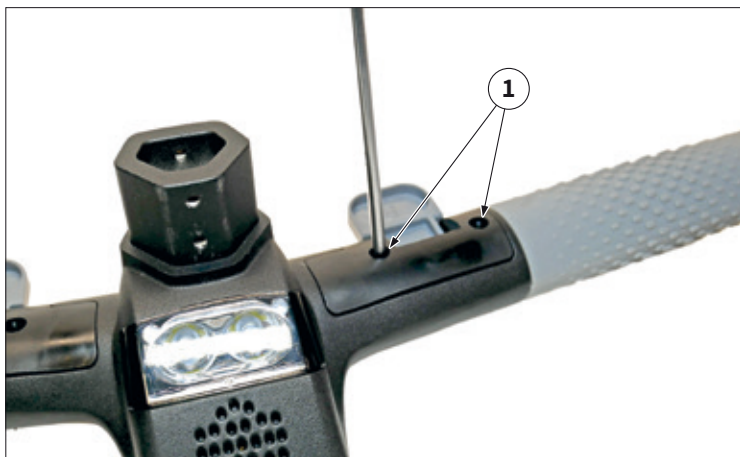
- Unhook the fingerprint button connector "3" from the dashboard board "4", and remove the protective glass;

**!** Use a small flat-blade screwdriver to help release the connectors from the back of the dashboard.



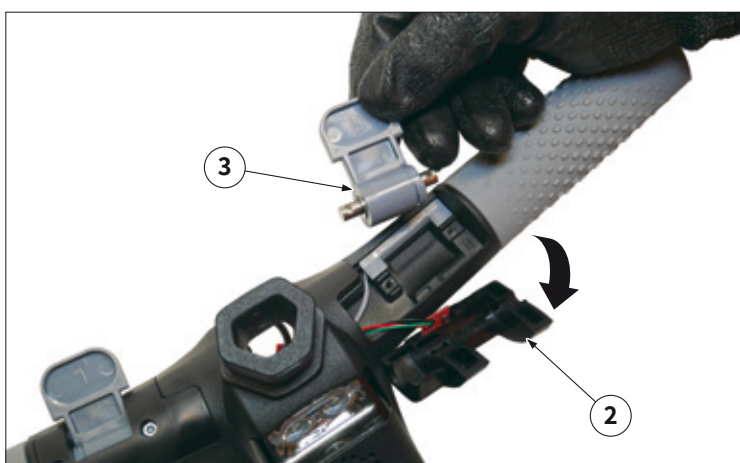
- Disconnect the remaining 7 connectors from the dashboard board;

**!** The screen and the printed circuit board must not be separated.

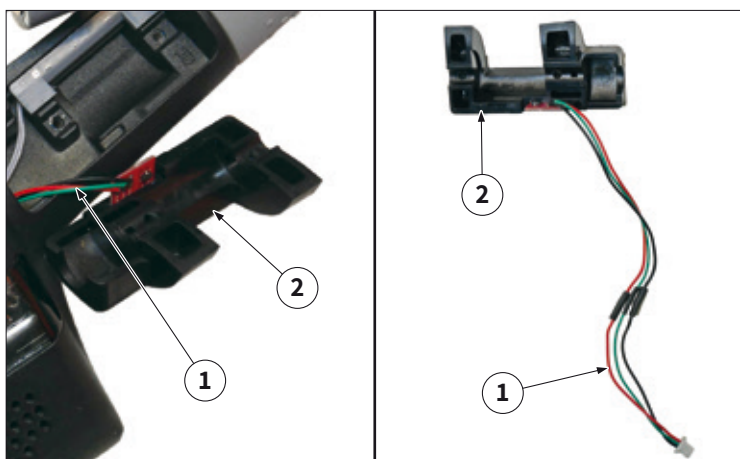


### Throttle control removal

- Position the handlebar with the dashboard compartment facing downwards;
- Remove the two screws "1";

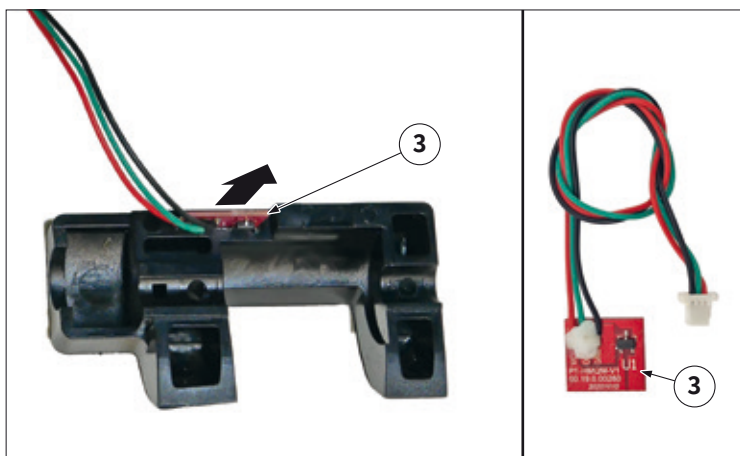


- Lift the throttle control lock "2" and remove it;
- Remove the throttle control "3";

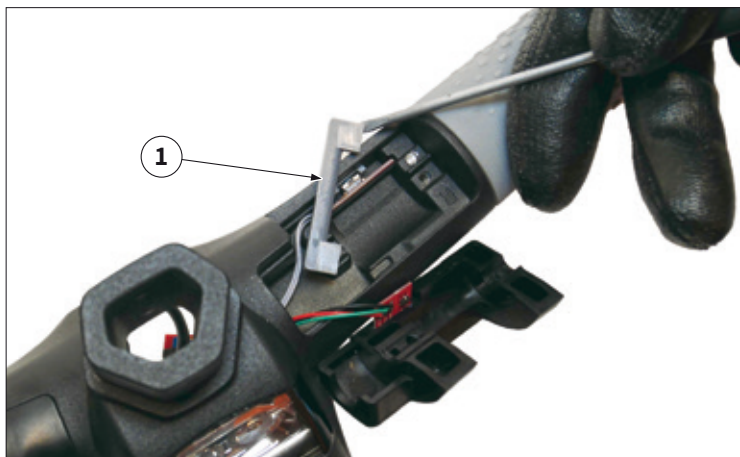


### Throttle board removal

- Remove the wiring harness "1" and remove the throttle control lock "2";

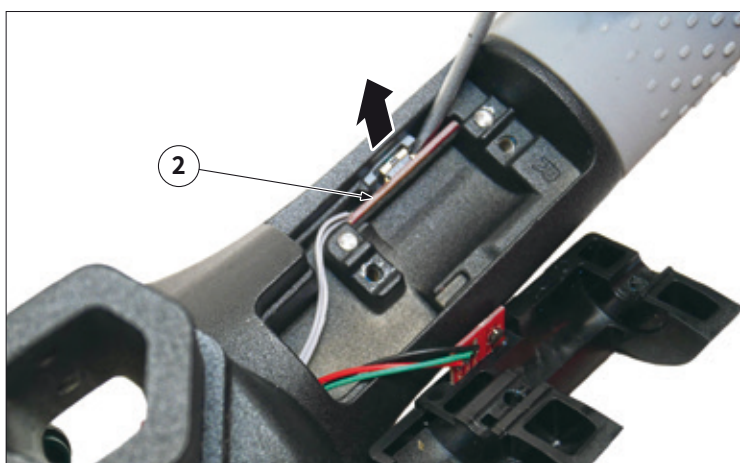


- Remove the throttle board "3" from the lock;

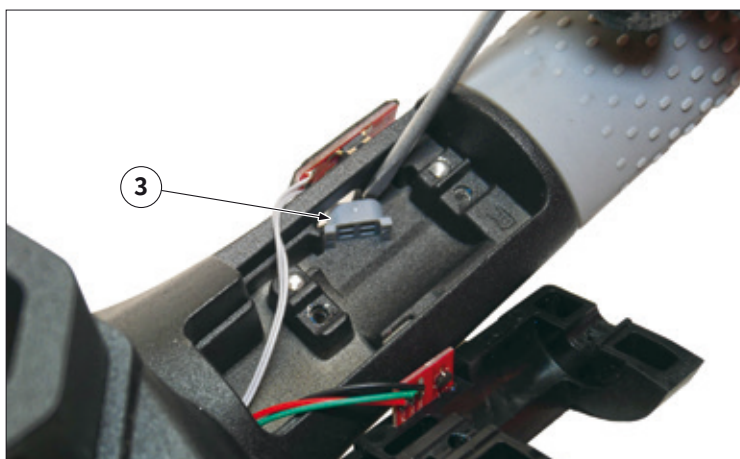


### Function control removal

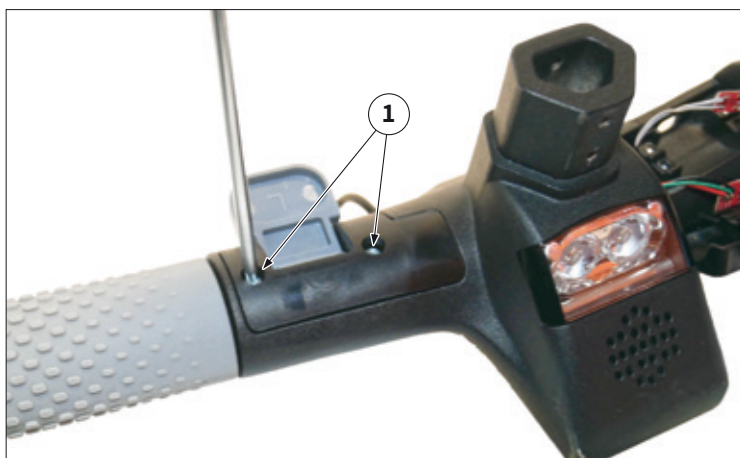
- Lift the pin "1" of the function control and remove it;



- Remove the function control board "2";



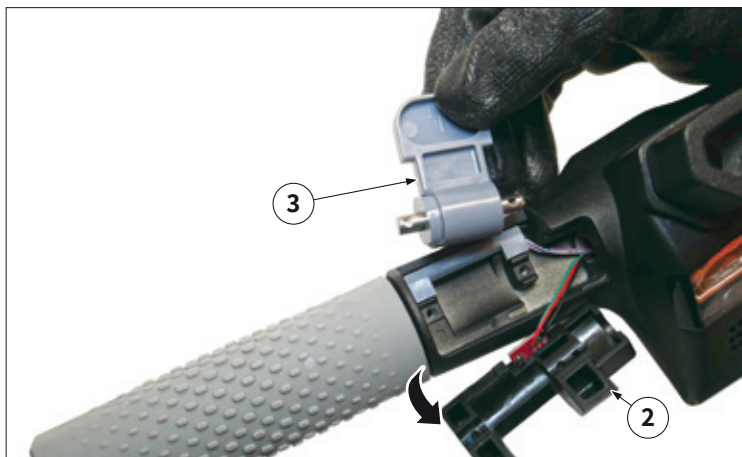
- Slide off and remove the function control key "3";



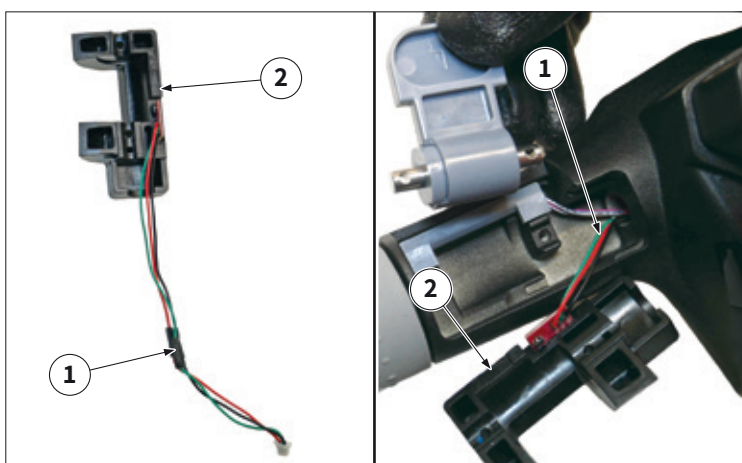
### Electronic brake control removal

- Remove the two screws "1";



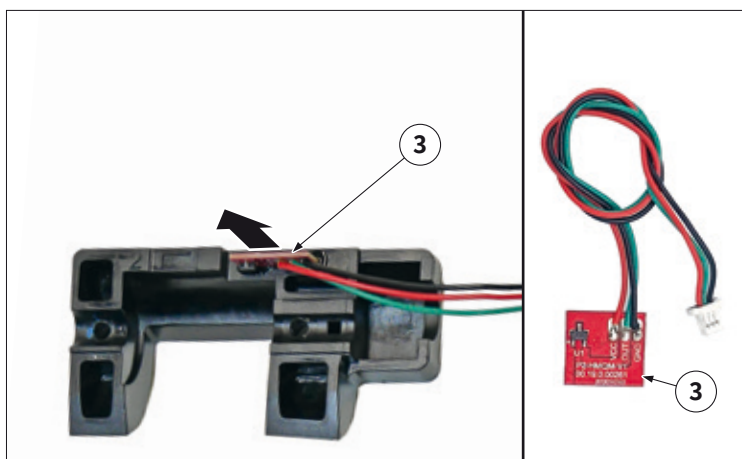


- Lift the brake control lock "2" and remove it;
- Remove the electronic brake control "3";

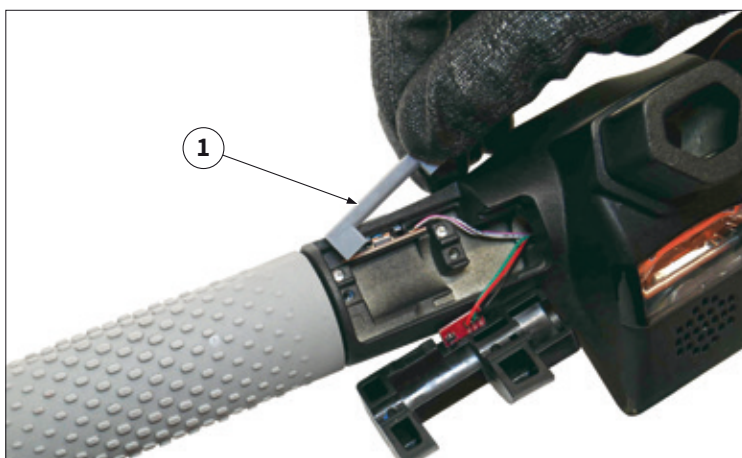


### Electronic brake board removal

- Pull out the wiring harness "1" and remove the brake control lock "2";

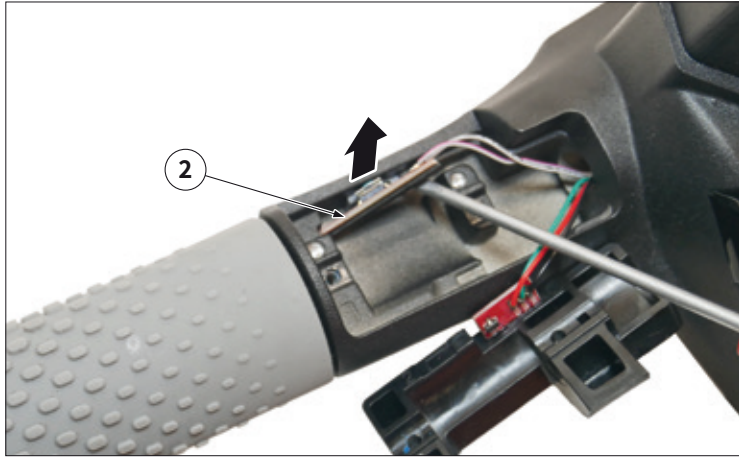


- Remove the electronic brake board "3" from the lock;

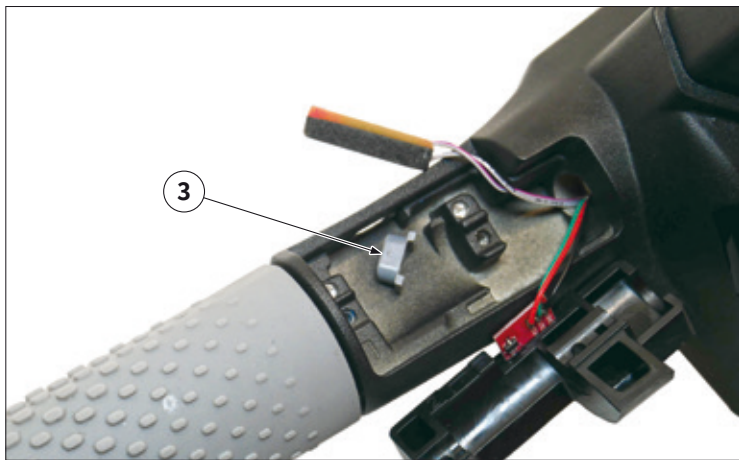


### Horn control removal

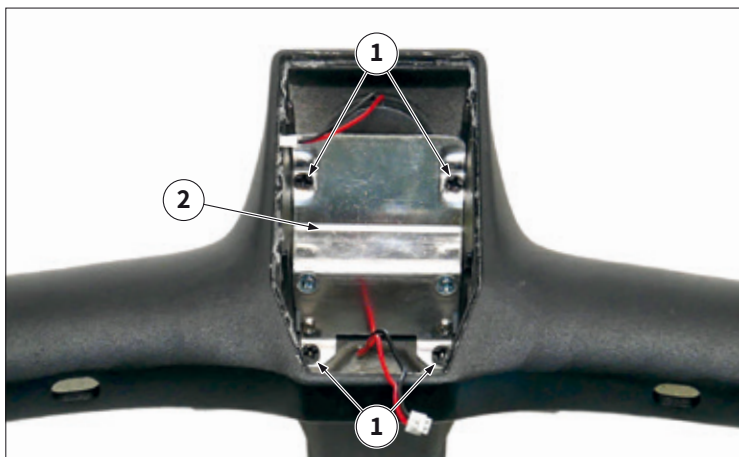
- Lift the horn control pin "1" and remove it;



- Remove board "2" of the horn switch;



- Slide off and remove the horn control key "3";



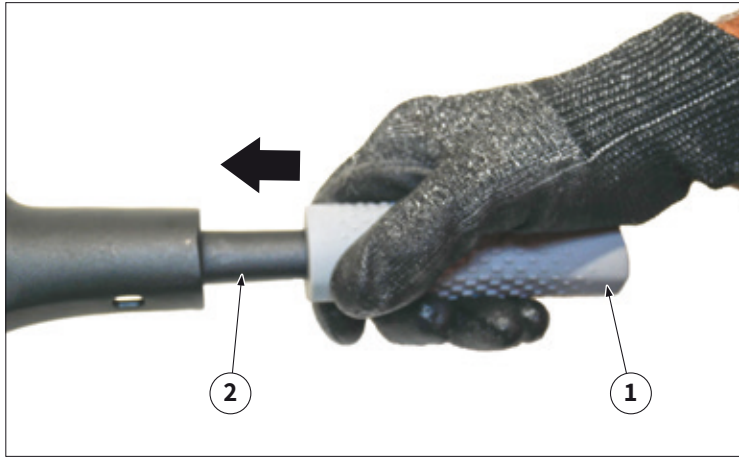
#### **Headlight removal**

- Remove the four screws "1" securing the headlight;
- Remove the headlight "2";



#### **Horn removal**

- Remove the horn "1" from its raised housing on the inside of the handlebar frame;



### Grips replacement

**i** This procedure can also be carried out with the e-Scooter fully assembled.

**⚠** The procedure for replacing grips is destructive.

- Remove grip "1" by cutting it lengthwise;
- Clean acrylic glue residues from the housing "2";
- Apply new sealant;

**♻** Grip fastening:  
Acrylic sealant

- Install a new grip, making sure to position it correctly all the way in.



### Handlebar frame replacement

- Remove the protective glass "1" from the headlight;

**i** Use Teflon levers or a small screwdriver to facilitate removal of the protective glass.



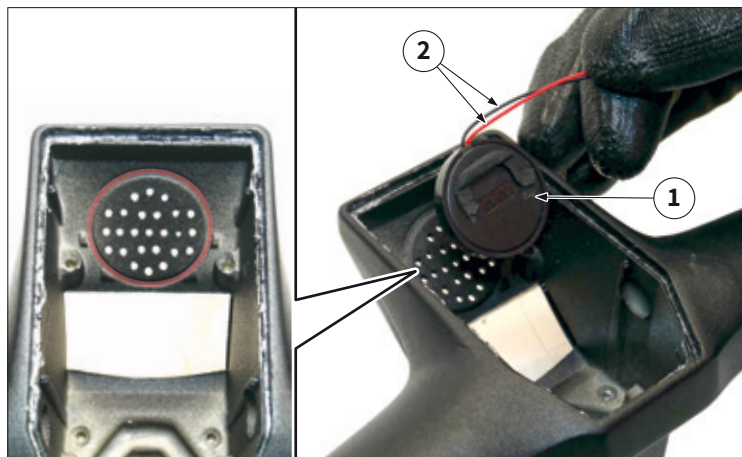
- Slide the cable gland "2" out of the passage hole in the handlebar and remove the dashboard wiring harness "3".

**i** Proceed in the reverse order for reassembly.

When reassembling, apply two drops of sealant to the two supporting surfaces of the glass to secure it.

**♻** Headlight glass fastening:  
Silicone sealant





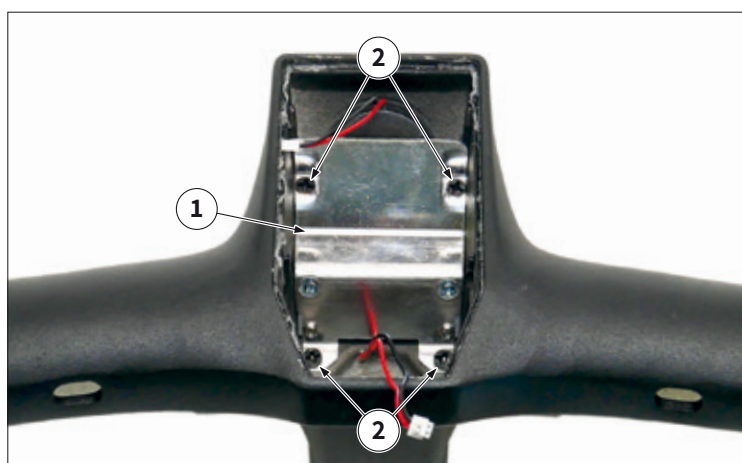
### 5.3 HANDLEBAR COMPONENTS ASSEMBLY

Preliminary operations:

- Refit the grips to the handlebars (as described on page 26);
- Install the headlight glass (as described in paragraph "Handlebar frame replacement" on page 26).

#### Horn reassembly

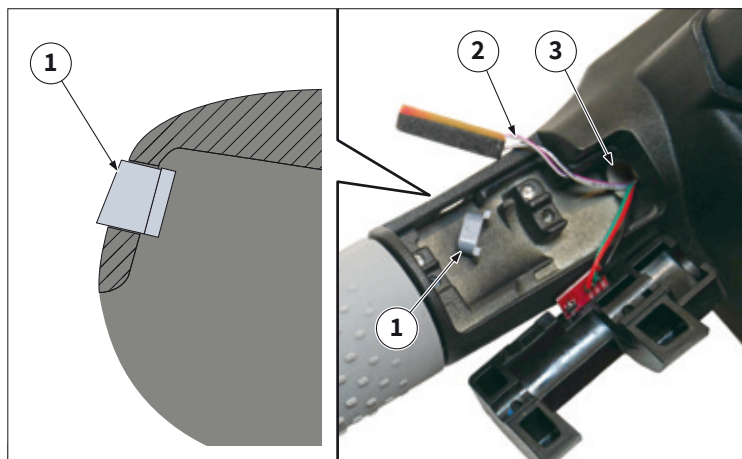
- Position the horn in housing "1" so that the wires of connector "2" are pointing towards the front edge of the display compartment.



#### Headlight reassembly

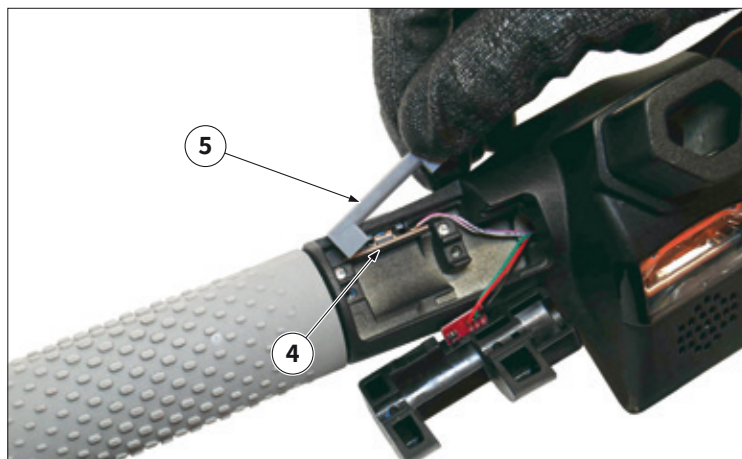
- Position the light "1" inside the display compartment of the handlebar and secure it with the four screws "2";

**⚠ Check that the horn is correctly fitted and that it does not move within its housing.**



#### Horn control reassembly

- Correctly position the horn control key "1" inside the hole on the left-hand side of the handlebar;
- Insert wiring harness "2" of the horn switch board into the passage hole "3";

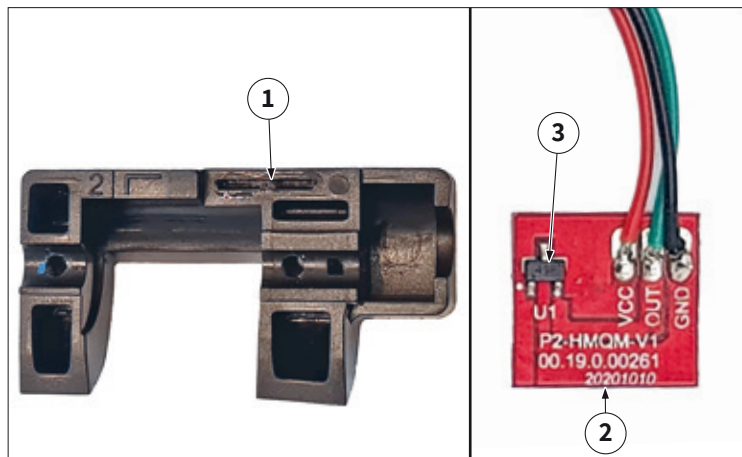


- Insert board "4" into the housing;

**⚠ Check that the horn button microswitch moves correctly.**

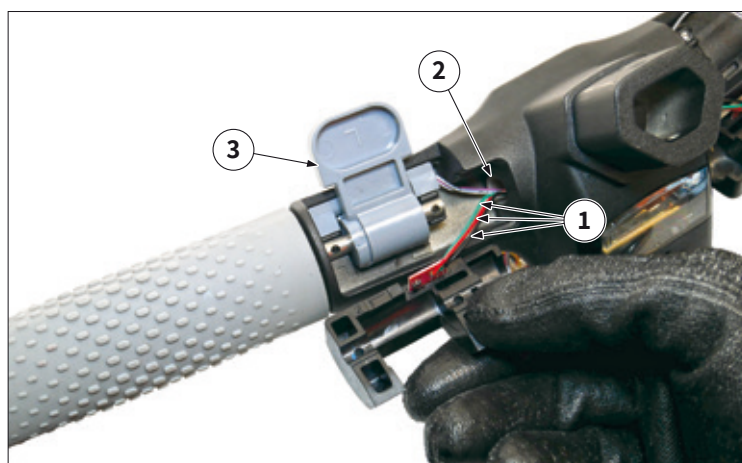
- Position pin "5" of the horn control so that it fits completely inside the housing;





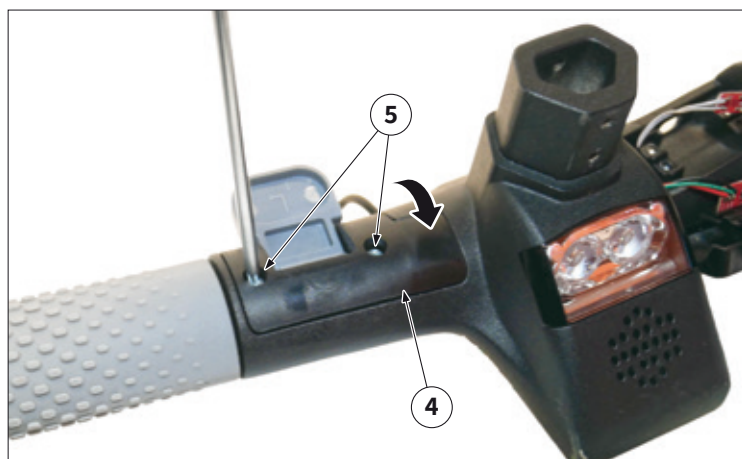
### Electronic brake board reassembly

- ⚠ **Clean the silicone residues, if any, from the electronic brake control lock.**
- Apply a small amount of silicone sealant in slot "1" of the electronic brake control lock;
- ♻ **Electronic brake board fastening/sealing:**  
**Silicone sealant**
- Install electronic brake board "2" on the lock, with sensor "3" facing the inside of the lock;
- ⚠ **Wait until the sealant applied is completely dry before reassembling the electronic brake control lock to the handlebar.**

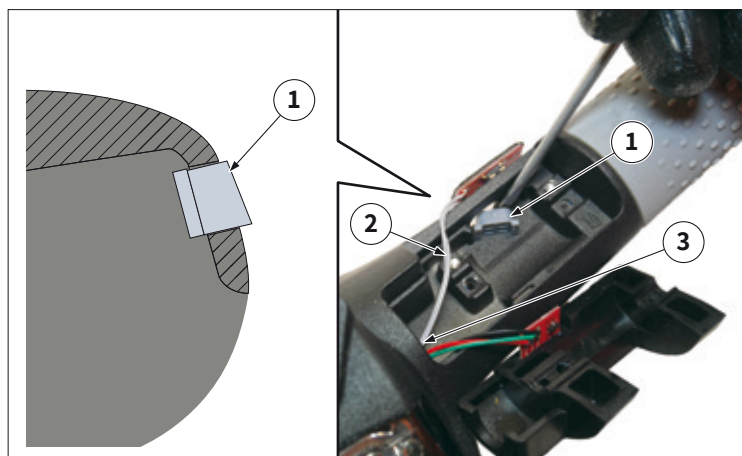


### Electronic brake control reassembly

- Insert the wiring harness "1" of the electronic brake control board into the passage hole "2";
- Position the electronic brake control "3" correctly;
- ⓘ **The electronic brake control is located on the left-hand side of the handlebar and has the letter "L" stamped on the back.**
- ⚠ **The holes in the electronic brake control must be aligned with the holes in the handlebar frame.**

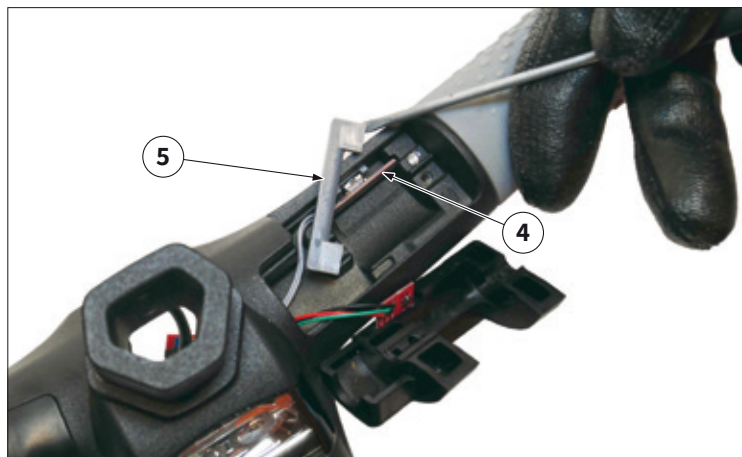


- Bend the lock "4" over the electronic brake control;
- ⚠ **The holes in the fastener must be aligned with the holes in the handlebar frame.**
- Secure the fastener with the two fastening screws "5";
- ♻ **Electronic brake control locking screw:**  
**Apply medium threadlocker.**
- 🔧 **Tightening torque**  
**Electronic brake control locking screw: 1.5 Nm.**



### Functions control reassembly

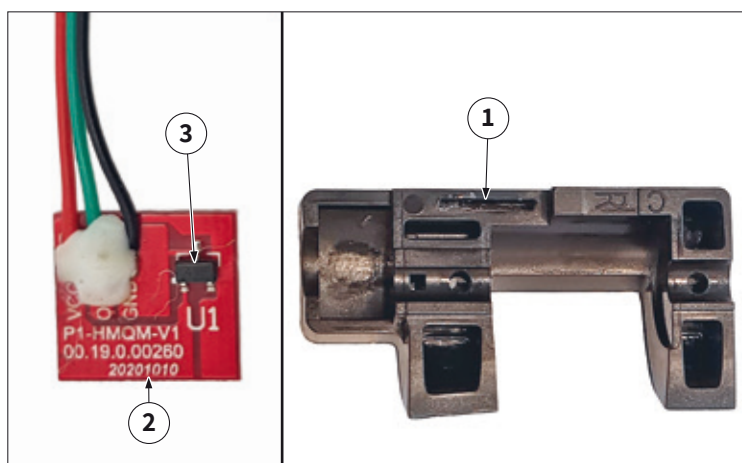
- Correctly position the function control key "1" inside the hole on the right-hand side of the handlebar;
- Insert the wiring harness "2" of the function board into the passage hole "3";



- Insert board "4" into the housing;

**⚠ Check the correct movement of the key on the microswitch of the function board.**

- Position pin "5" of the function control so that it is fully seated in the housing;



### Throttle board reassembly

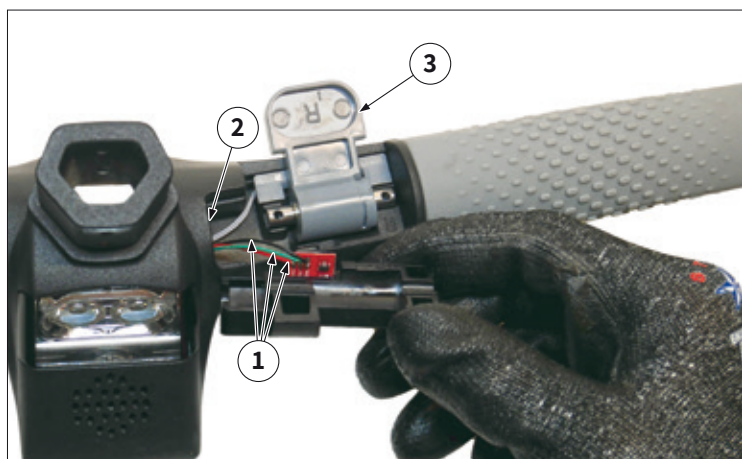
**⚠ Clean silicone residue, if any, from the throttle lock.**

- Apply a small amount of silicone sealant in slot "1" of the throttle control lock;

**♻ Throttle board fastening/sealing:  
Silicone sealant**

- Install the throttle board "2" on the lock, with the sensor "3" facing the inside of the lock;

**⚠ Wait until the sealant applied is completely dry before reassembling the throttle lock on the handlebar.**

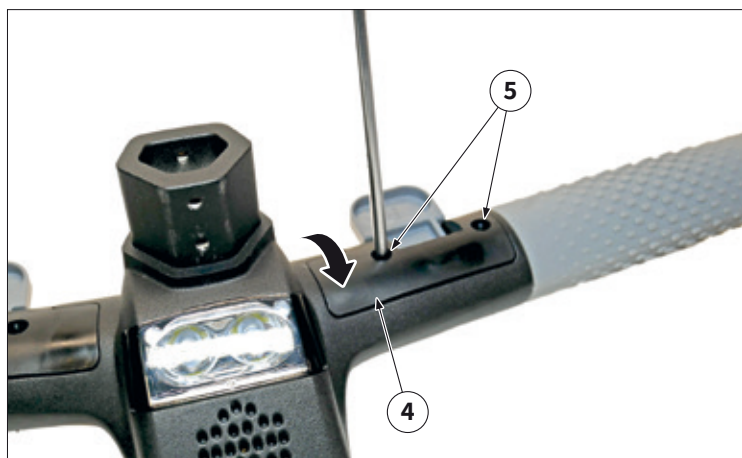


### Throttle control reassembly

- Insert the wiring harness "1" of the throttle control into the passage hole "2";
- Position the throttle control "3" correctly;

**i The throttle control is located on the right-hand side of the handlebar and has the letter "R" stamped on the back.**

**⚠ The holes in the throttle control must be aligned with the holes in the handlebar frame.**



- Fold the lock "4" over the throttle control;

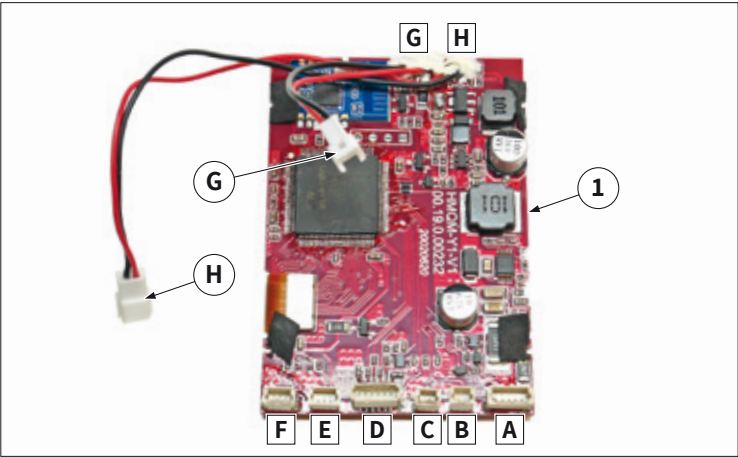
**⚠ The holes in the fastener must be aligned with the holes in the handlebar frame.**

- Secure the plate with the two fastening screws "5";

**♻ Throttle control locking screw:  
Apply medium threadlocker.**

**🔧 Tightening torque  
Throttle control locking screw: 1.5 Nm.**

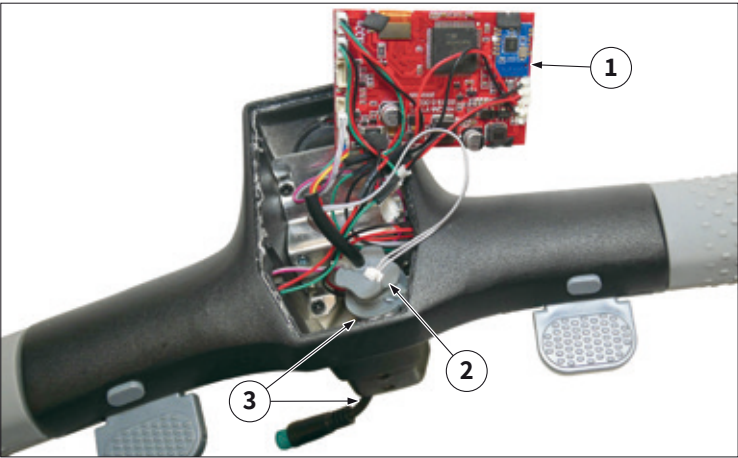




**Dashboard reassembly**

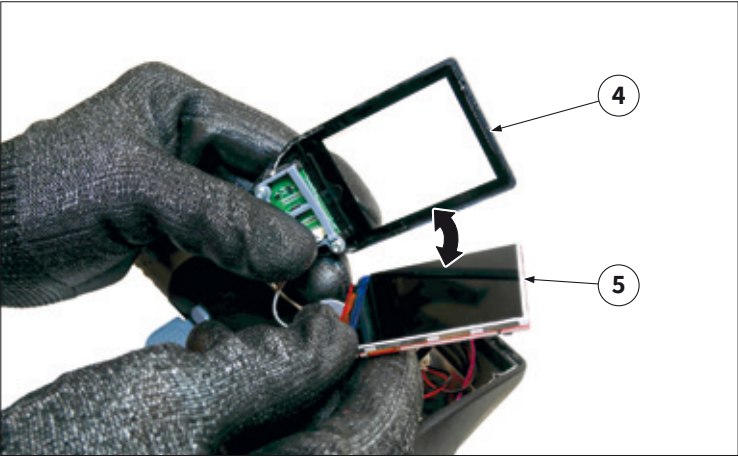
- Restore the connections to the dashboard board "1";

| Ref. | Connection                           |
|------|--------------------------------------|
| A    | Controller / power supply            |
| B    | Horn button microswitch              |
| C    | Mode button microswitch              |
| D    | Fingerprint button (display control) |
| E    | Sensor on electronic brake lever     |
| F    | Sensor on throttle lever             |
| G    | Horn connection                      |
| H    | Headlight connection                 |



**⚠ Do not apply too much pressure when inserting the connectors on the electronic board.**

- Restore the passage of the dashboard wiring harness "3", through the lower hole of the compartment, taking care to correctly close the cable gland "2";

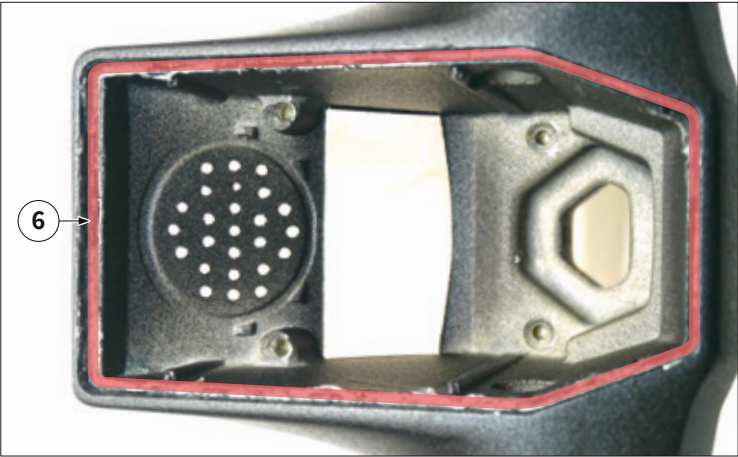


**i Test the dashboard before sealing.**

- Position the protective glass "4" so that it adheres perfectly to the display "5" on the dashboard;

**⚠ Check that the display surface is perfectly visible through the protective glass.**

- Insert all wires into the handlebar dashboard compartment and check that the compartment can be closed.

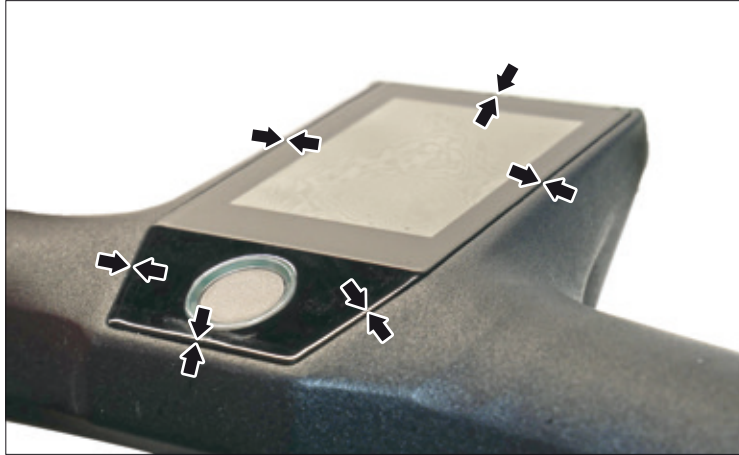


- Apply sealant along groove "6" of the edge of the dashboard compartment.

**♻ Headlight glass fastening:  
Silicone sealant**

**⚠ Apply a minimum amount of sealant.**

**⚠ Apply the sealant so that there is complete sealing of the compartment, without interruption.**

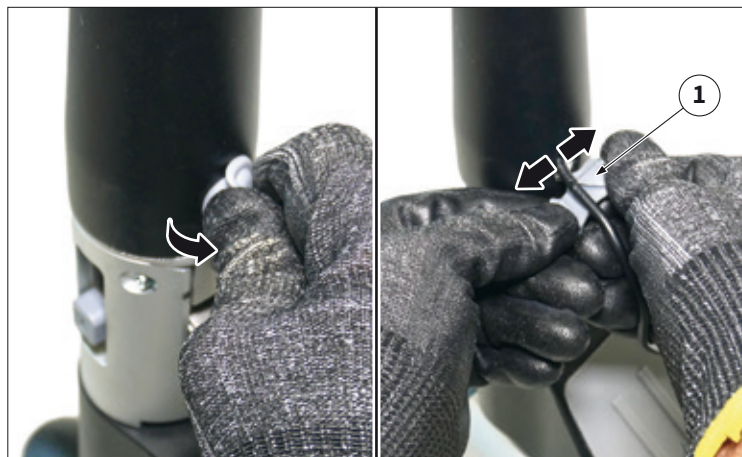


– Place the display glass on the handlebar, so that the dashboard compartment is perfectly closed.

**⚠ Use adhesive tape to hold the display glass in place until the sealant dries completely.**

**⚠ Keep the handlebar in a dry place and not exposed to heat sources.**

**⚠ Wait at least 12 hours before removing the adhesive tape and installing the complete handlebar.**



## 6.1 STEERING HEAD

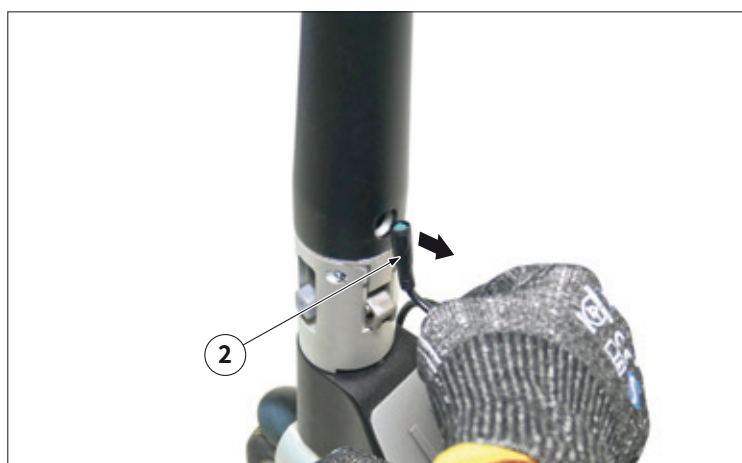
### Removing the steering head

Preliminary operations:

- "Complete handlebar removal" on page 19.

Proceed as follows:

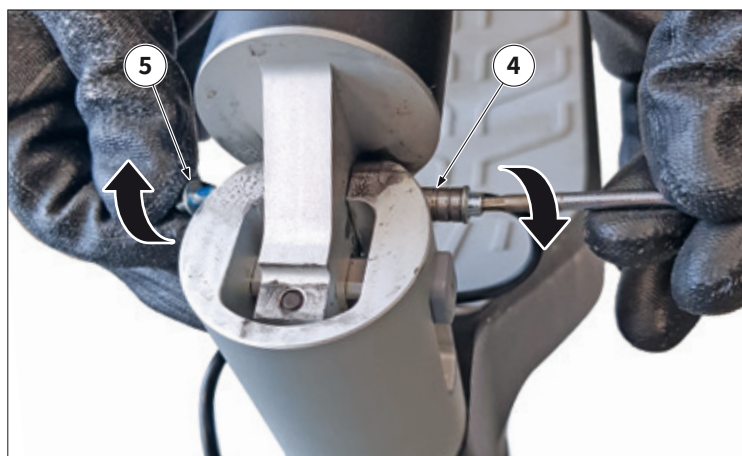
- Remove the cable gland "1";



- Completely remove the dashboard connection wiring harness "2";

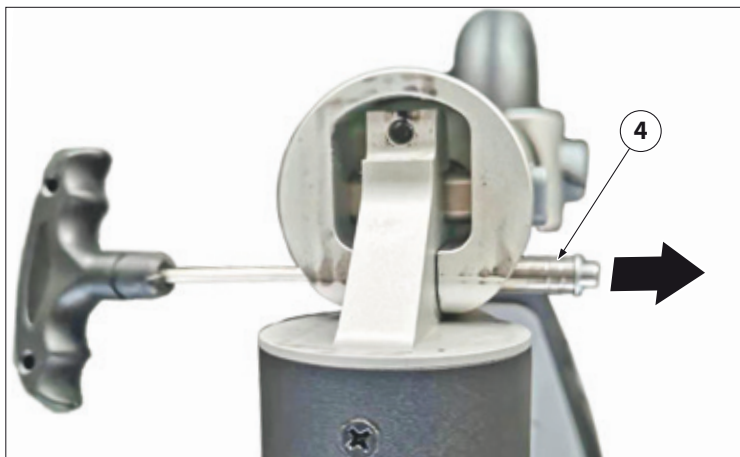


- Press joint release button "3" and lower the steering stem;

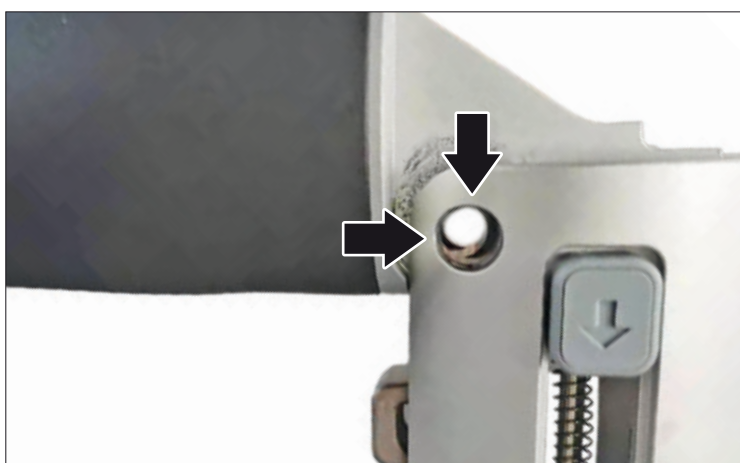


- Simultaneously unscrew the pivot pin "4" and the retaining screw "5";





- Slide off and remove pin "4" of the steering head;
- Remove the steering head from the joint.



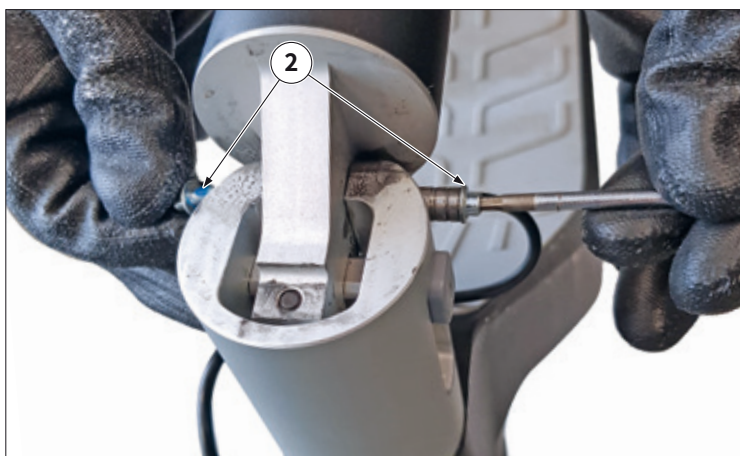
### Steering head reassembly

- Position the steering head on the joint in a horizontal position;

**⚠ The steering head must be positioned so that the passage hole is perfectly aligned with the holes in the e-Scooter articulation.**



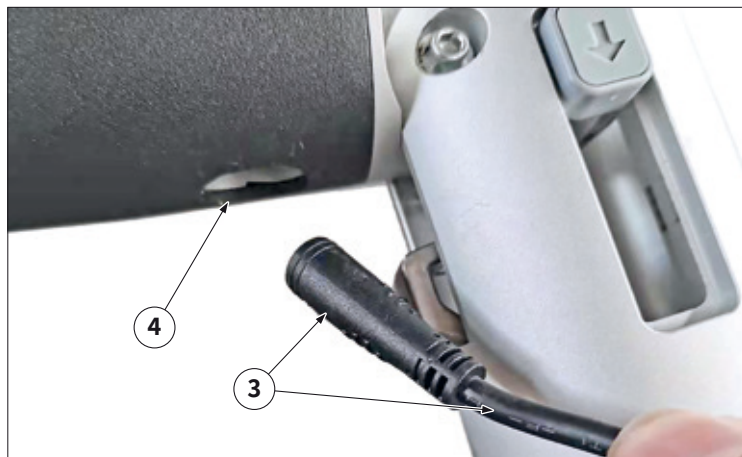
- Insert pivot pin "1" through a hole in the joint through the steering column to the other end;



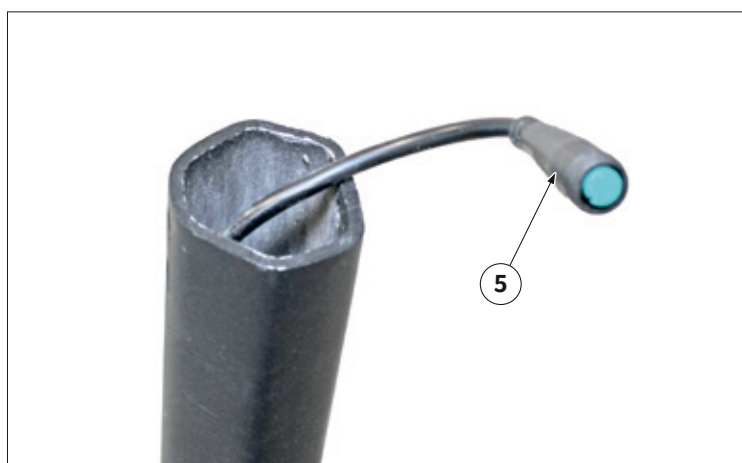
- Insert and tighten screw "2" into pivot pin "1".

**♻ Steering column pivot pin screw ("2"):  
Apply medium threadlocker.**

**🔧 Tightening torque  
Steering column pivot pin screw ("2"): 3.25 Nm.**



- Insert the dashboard connection wiring harness "3" inside the steering head, through the passage hole "4";



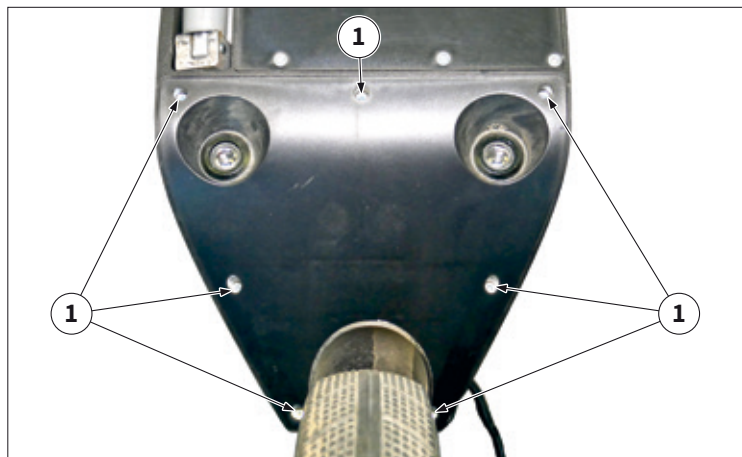
- Slide the wiring harness fully into the steering head;
- ⚠ Take care to slide the wire of the dashboard connection wiring harness completely inside the steering head, so that connector "5" is easily accessible.**



- Refit the cable gland "6".

Subsequent operations:

- "Complete handlebar reassembly" on page 19.

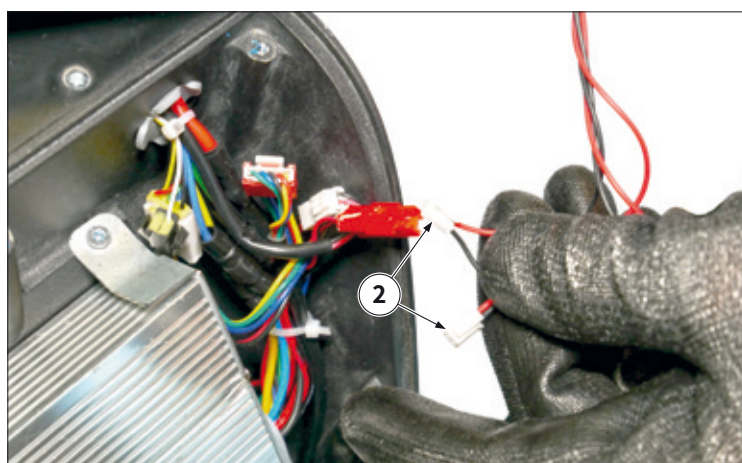


## 7.1 FRONT WHEEL

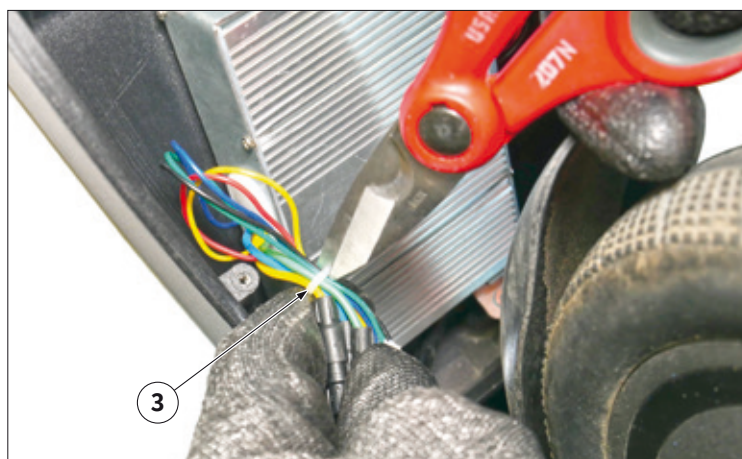
### Front wheel removal (with motor) [only for TX2 version]

**i** The front wheel covered in this section is a drive wheel, which is only available with the 500 Watt TX2 model.

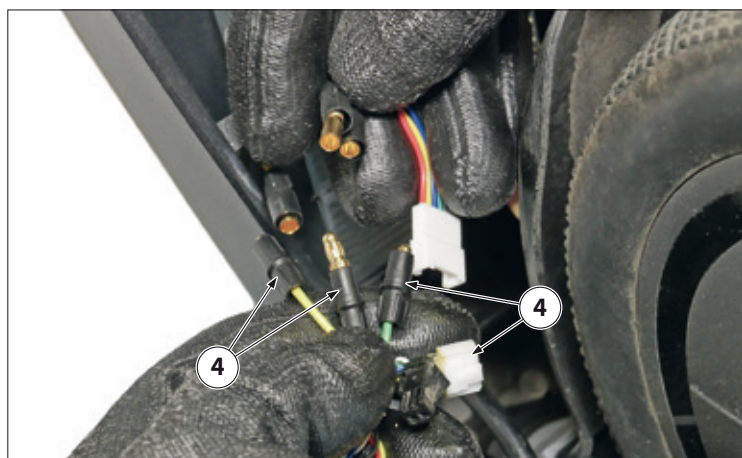
- Close the e-Scooter;
- Turn the e-Scooter over with the wheels facing upwards;
- Remove the seven control unit cover fastening screws "1" of the e-Scooter;



- Disconnect the two connectors "2" of the welcome lights and remove the cover of the control unit;



- Cut the clamp "3" that collect the connections between the control unit and the front wheel motor;



- Disconnect the four electrical connections "4" of the front wheel motor;

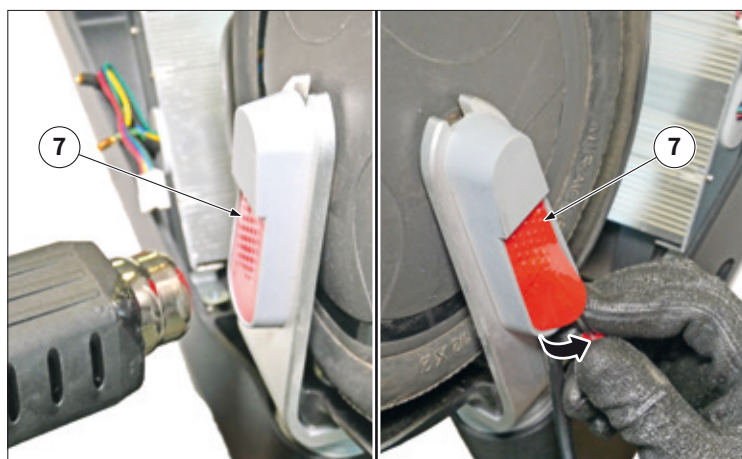




- Remove cable gland "5" on the right-hand side of the front compartment of the deck;



- Slide and remove the four front wheel connections out of the passage hole "6";

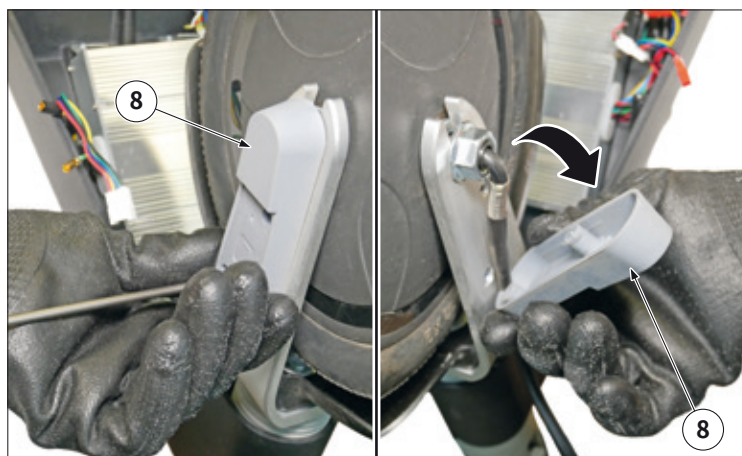


- Use a heat gun to heat the adhesive glue of the two reflective stickers "7" at the ends of the fork;

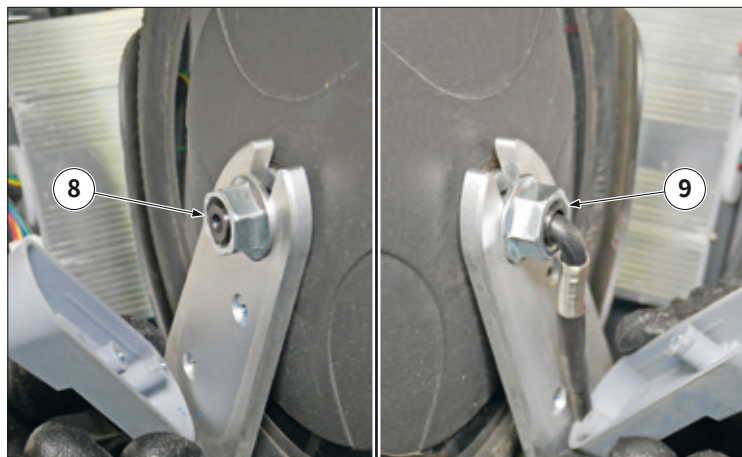
**⚠ Wear protective gloves before using the heat gun to avoid burns.**

**⚠ Use the heat gun at a minimum distance of a few centimetres and keep it on for a few seconds to avoid damaging the parts of the e-Scooter.**

- Use a small slotted screwdriver to remove the two reflective stickers "7";

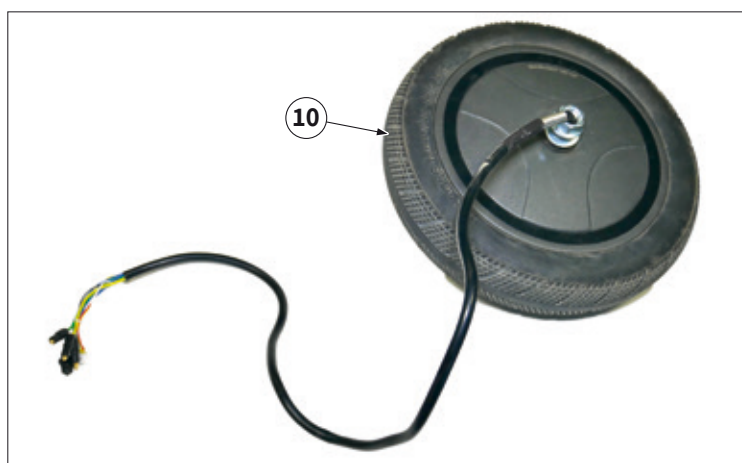


- Remove the two front reflector supports "8", secured with two screws each;

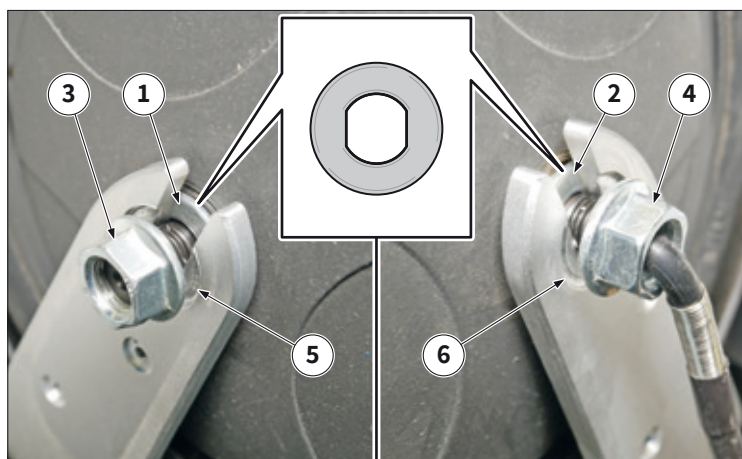


- Remove the two nuts "8" and "9" fastening the front wheel;

**⚠ The fastening nut "9" on the right-hand side, secures and protects the passage of the front motor connection wiring harness: take care not to twist, scratch or cut the cables.**



- Remove front drive wheel "10" from the fork.



### Front wheel reassembly (with motor) [only for TX2 version]

- Position the front wheel on the front fork;

**⚠ Position spacers "1" and "2" on the inner sides of the fork in contact with the wheel;**

- Fasten the front wheel using the two fastening nuts "3" and "4";

**⚠ The fastening nut "4" on the right-hand side, secures and protects the passage of the front motor connection wiring harness: take care not to twist, scratch or cut the cables.**

**⚠ Nuts "3" and "4" must be tightened inside slots "5" and "6" on the sides of the fork.**

**🔧 Tightening torque Front wheel nut: 45 Nm.**



- Refit the reflector supports "7" of the wheel fasteners (two screws each);

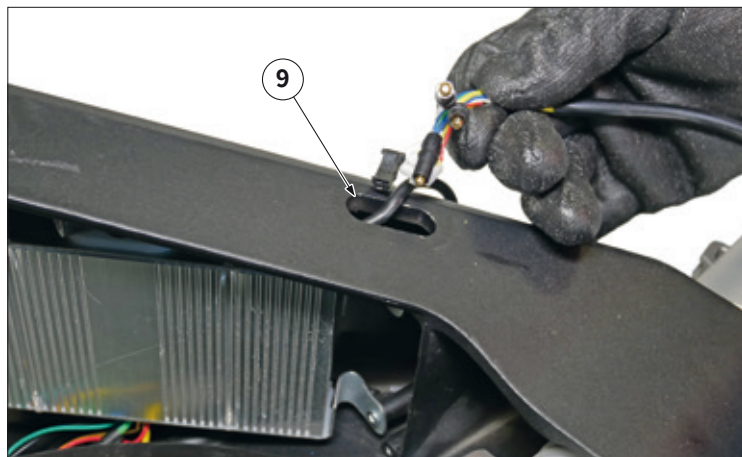
**🔧 Front reflector support screw:  
Apply medium threadlocker.**

**🔧 Tightening torque  
Front reflector support screw: 1.5 Nm.**

**ℹ "L" is stamped on the cover to identify the left-hand cover and "R" to identify the right-hand cover.**

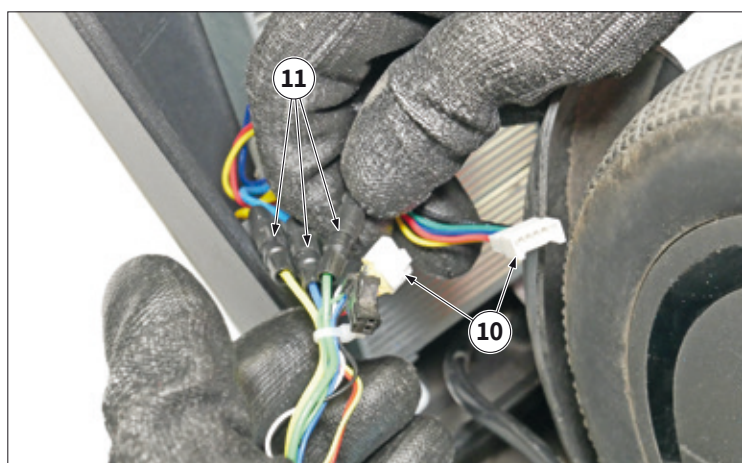
- Install two new reflector stickers "8";





- Slide the four connections of the front motor, inside the front compartment of the deck, through the passage hole "9" on the right side of the deck.

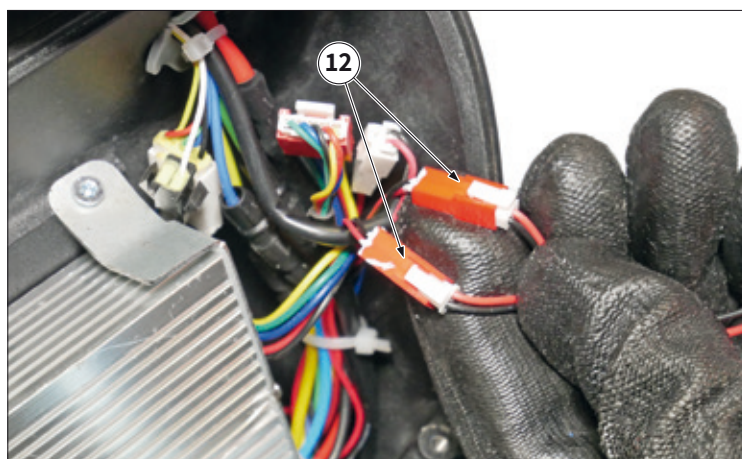
**⚠ The wiring harness must be positioned so that it does not obstruct the fastening of the control unit cover on the deck.**



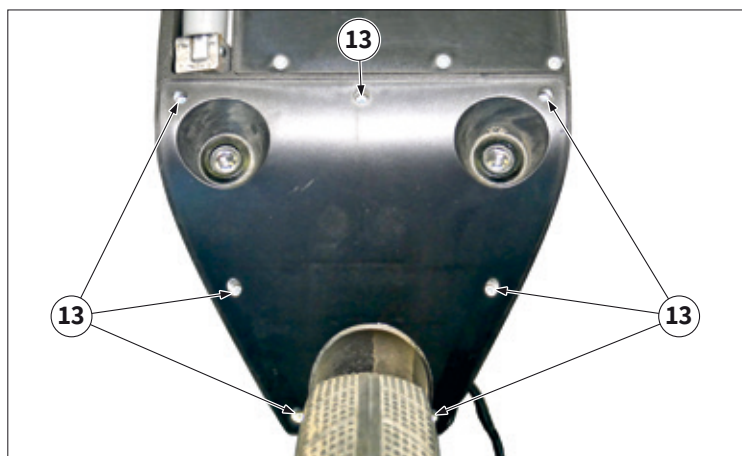
- Restore the four connections "10" and "11" to the e-Scooter's control unit;

**⚠ To connect the three cylindrical connectors "11" of the motor correctly, respect the continuity of the wire colours.**

**i Re-attach cable ties to neatly group together cables and connectors.**



- Restore the "12" connections of the welcome lights, assembled on the cover of the control unit.



- Position the control unit cover correctly on the deck and secure it with the seven screws "13".

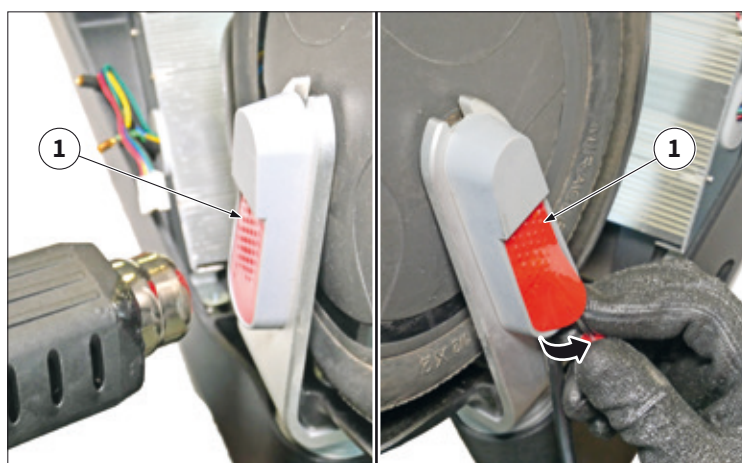
**🔧 e-Scooter control unit cover screw:  
Apply medium threadlocker.**

**🔧 Tightening torque  
e-Scooter control unit cover screw: 1.5 Nm.**

## Normal front wheel removal [only for TX1 version]

**i** The front wheel covered in this section is a normal wheel, without motor, only available with the 250 Watt TX1 model.

– Close the e-Scooter;

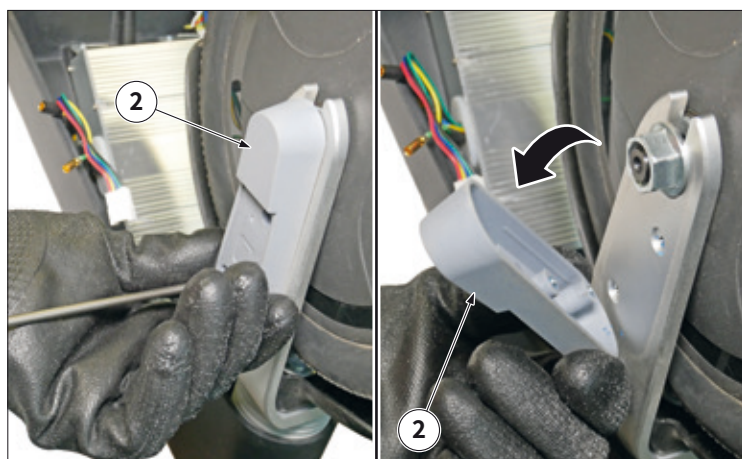


– Use a heat gun to heat the adhesive glue of the two reflective stickers "1" at the ends of the fork;

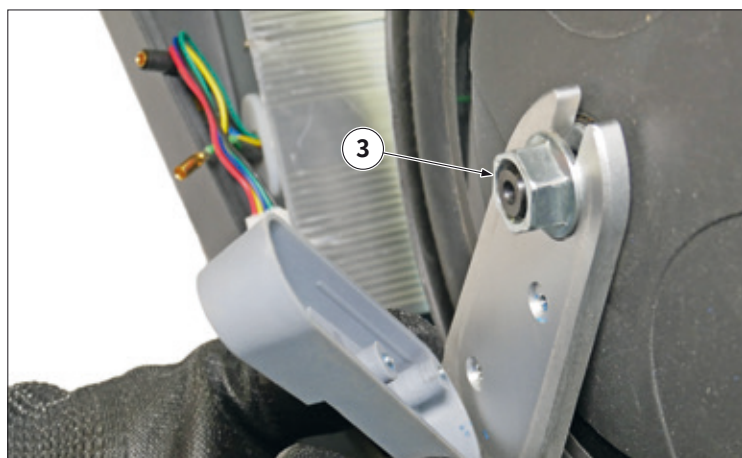
**!** Wear protective gloves before using the heat gun to avoid burns.

**!** Use the heat gun at a minimum distance of a few centimetres and keep it on for a few seconds to avoid damaging the parts of the e-Scooter.

– Use a small slotted screwdriver to remove the two reflective stickers "1";

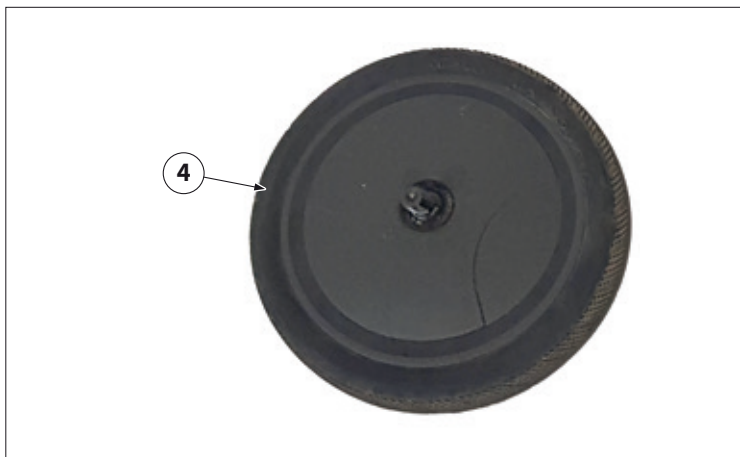


– Remove the two front reflector supports "2", secured with two screws each;

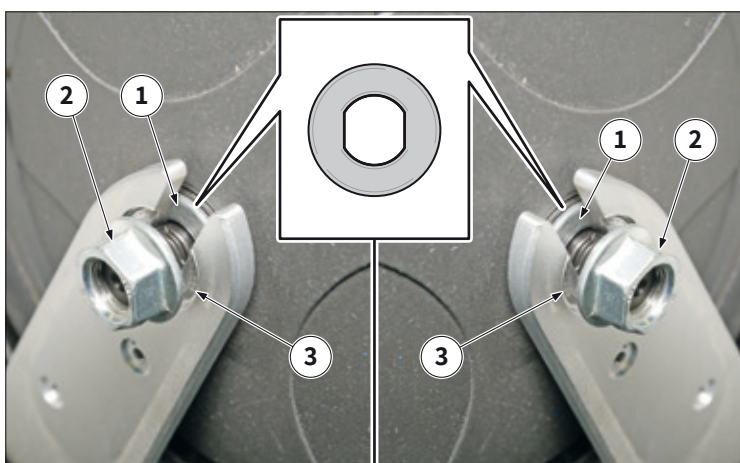


– Remove the two nuts "3" fastening the front wheel;





- Remove the front wheel "4" from the fork.

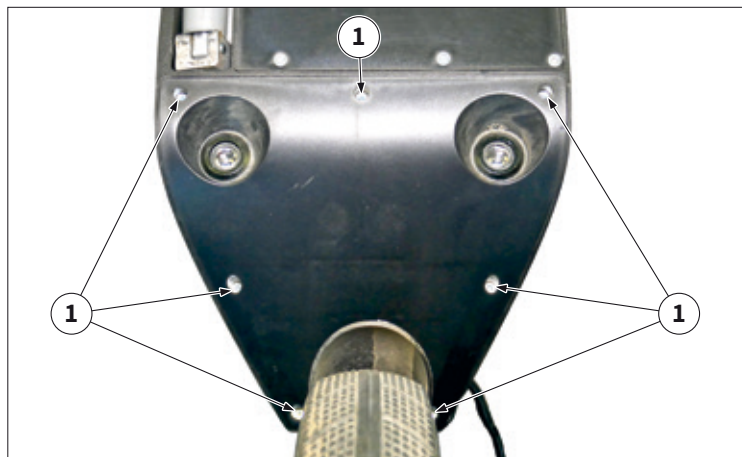


### Normal front wheel reassembly [only for TX1 version]

- Position the front wheel on the front fork;
- ⚠ **Position spacers "1" on the inner sides of the fork in contact with the wheel;**
- Fasten the front wheel with the two fastening nuts "2";
- ⚠ **The nuts "2" must be tightened inside the grooves "3" on the sides of the fork.**
- 🔧 **Tightening torque Front wheel nut: 45 Nm.**



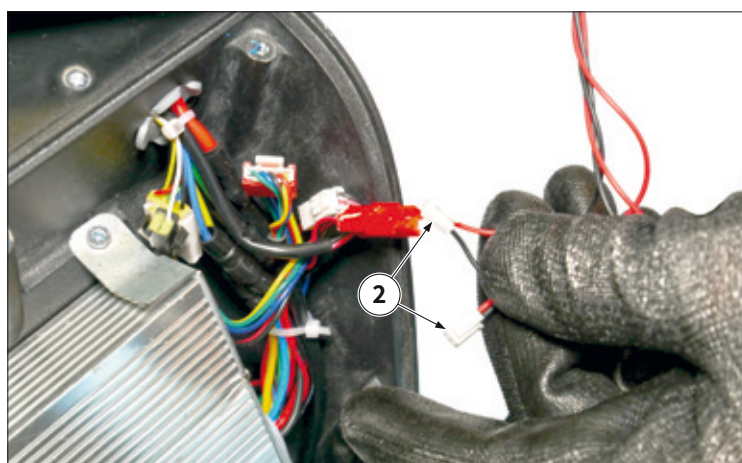
- Refit the reflector supports "4" of the wheel fasteners (two screws each);
- ♻ **Front reflector support screw:**  
**Apply medium threadlocker.**
- 🔧 **Tightening torque**  
**Front reflector support screw: 1.5 Nm.**
- ⓘ **"L" is stamped on the cover to identify the left-hand cover and "R" to identify the right-hand cover.**
- Install two new reflector stickers "5";



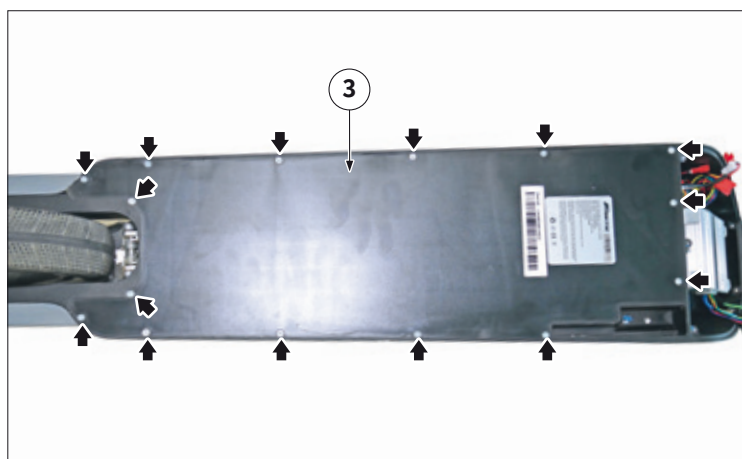
## 7.2 REAR WHEEL

### Rear wheel removal (with motor)

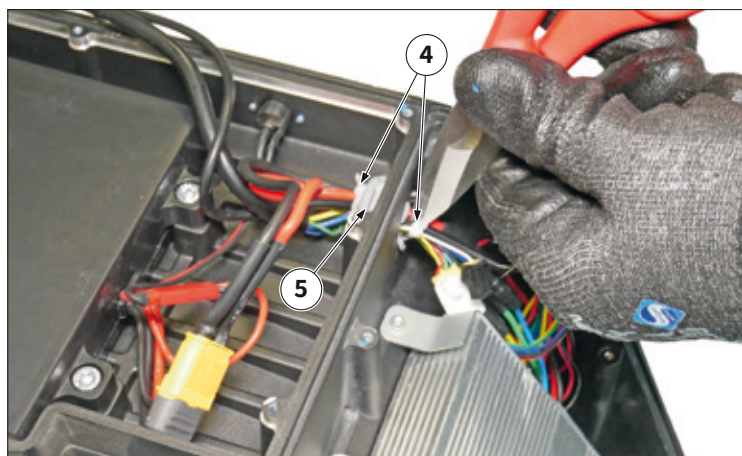
- Close the e-Scooter;
- Turn the e-Scooter over with the wheels facing upwards;
- Remove the seven control unit cover fastening screws "1" of the e-Scooter;



- Disconnect the two connectors "2" of the welcome lights and remove the control unit cover;

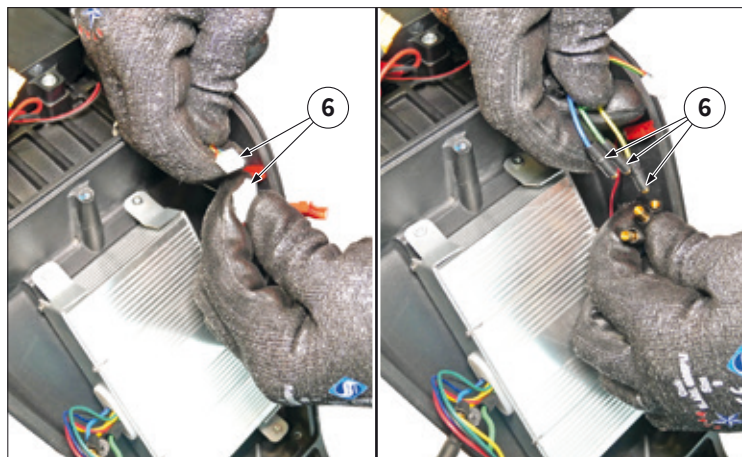


- Remove the deck cover "3" of the e-Scooter (15 fastening screws);

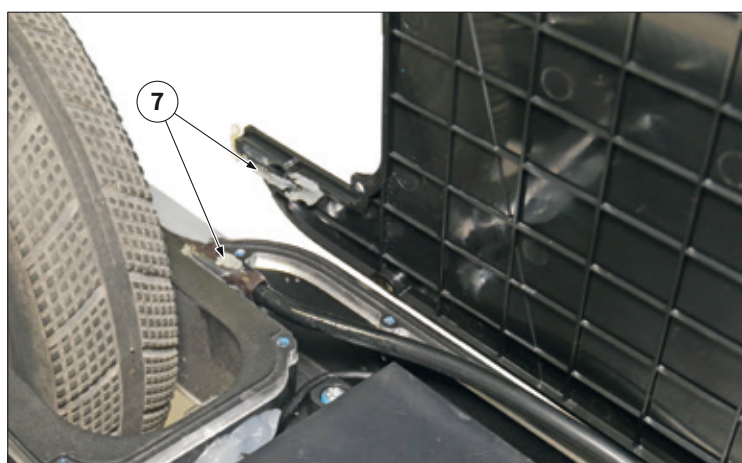


- Remove the two clamps "4";
- Remove cable gland "5" from the passage hole between the control unit compartment and the battery compartment;

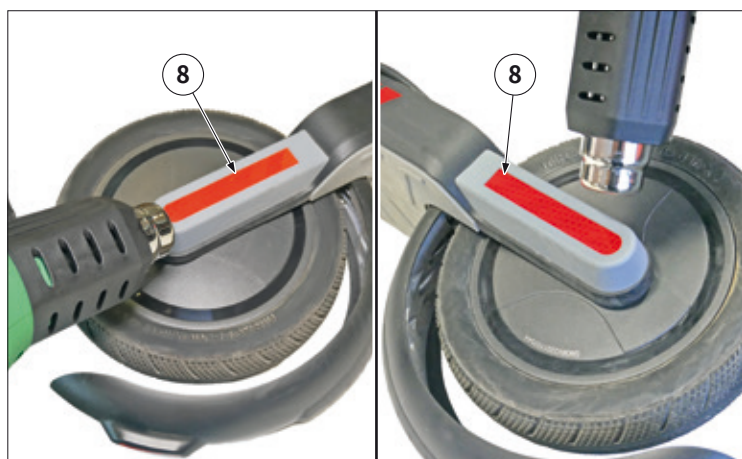




- Disconnect the four connectors "6" of the rear motor;



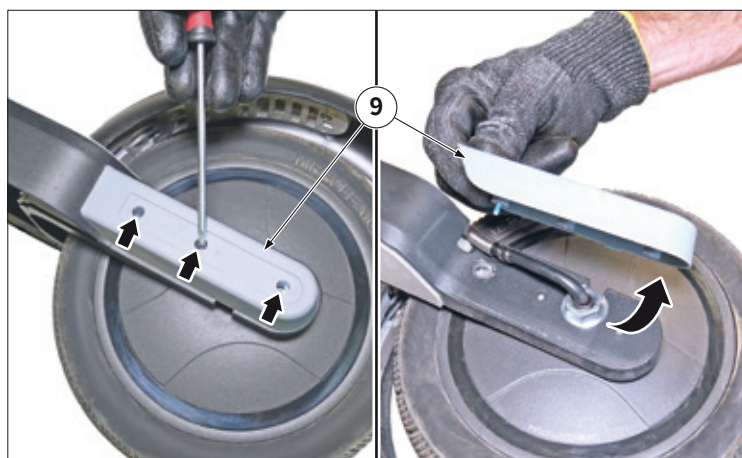
- Slide the connections through the passage hole;
- Disconnect the rear wheel electrical wiring harness from the passage hole "7" and clean it of silicone residue;



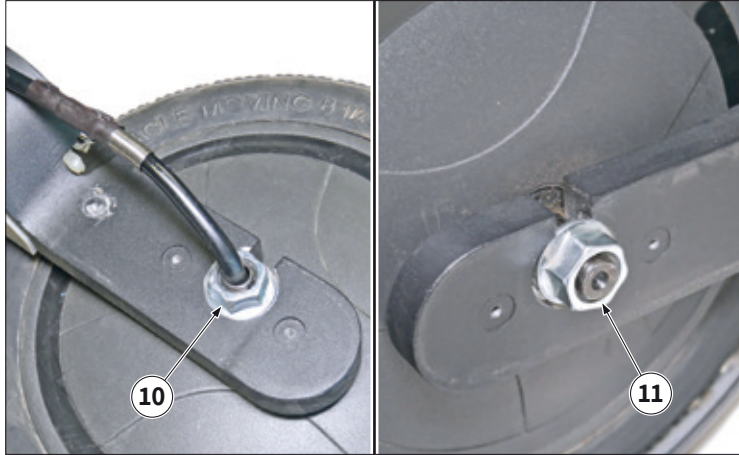
- Use a heat gun to heat the adhesive glue of the two reflector stickers "8" on the sides of the rear wheel;
- ⚠ Wear protective gloves before using the heat gun to avoid burns.**

- ⚠ Use the heat gun at a minimum distance of a few centimetres and keep it on for a few seconds to avoid damaging the parts of the e-Scooter.**

- Use a small slotted screwdriver to remove the two rear reflector stickers "8";

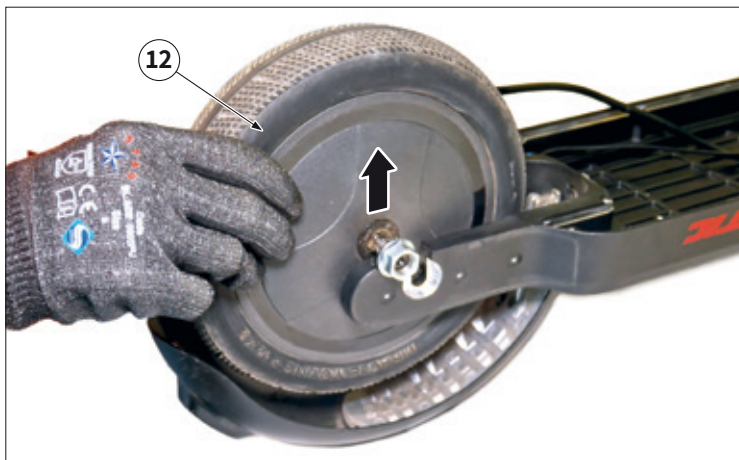


- Remove the two reflector supports "9", each secured with three screws;



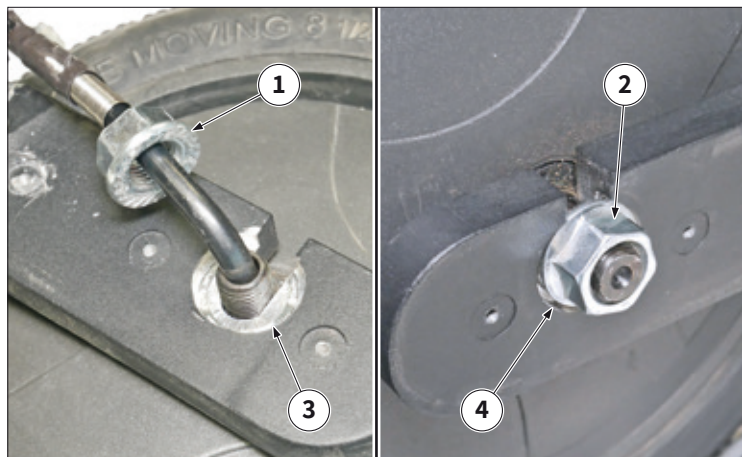
- Remove the two nuts "10" and "11" securing the rear wheel;

**⚠ The fastening nut "10" located on the right-hand side, secures and protects the passage of the rear motor connection wiring harness: take care not to twist, scratch or cut the cables.**



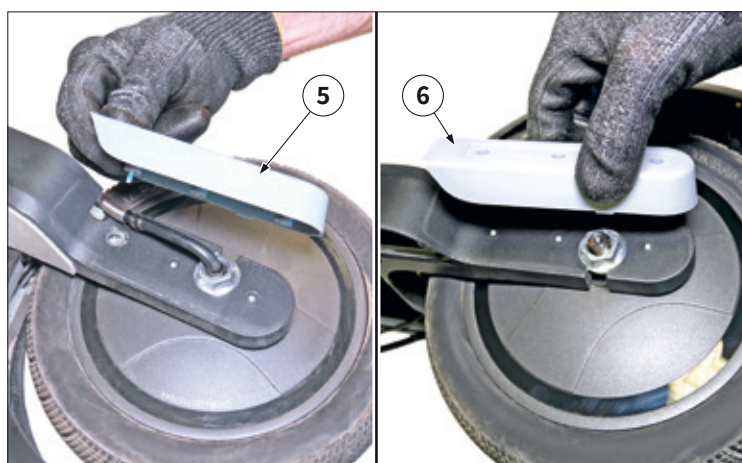
- Remove the rear drive wheel "12" from the hub.



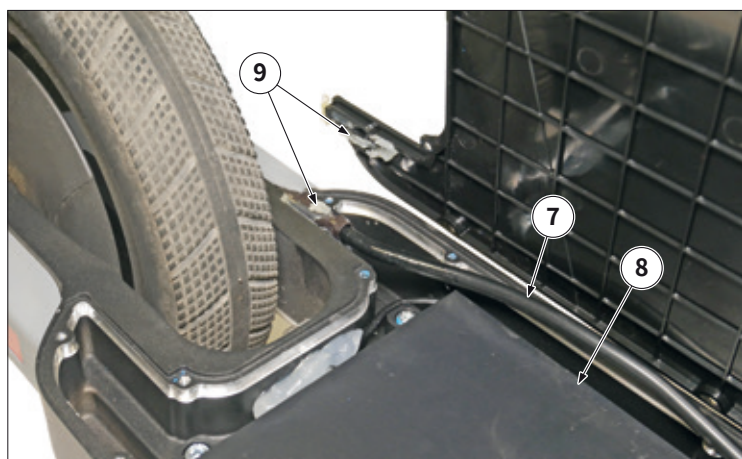


### Rear wheel reassembly (with motor)

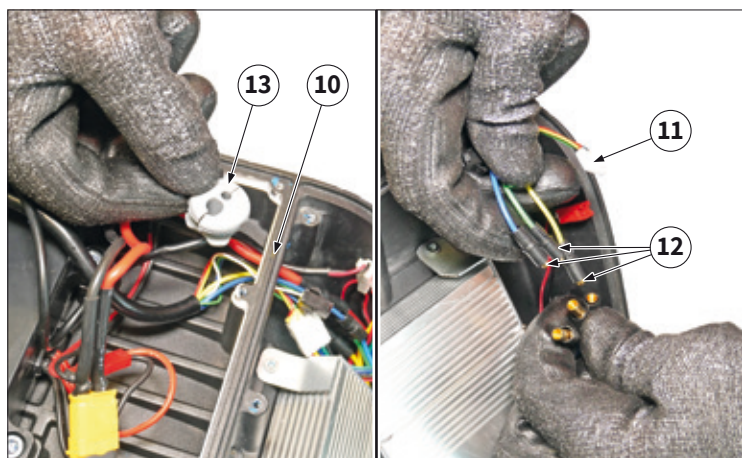
- Position the rear wheel on the rear hub;
- Secure the rear wheel with the two fastening nuts "1" and "2";
- ⚠ **The fastening nut "1" located on the right-hand side, secures and protects the passage of the rear motor connection wiring harness: take care not to twist, scratch or cut the cables.**
- ⚠ **Nuts "1" and "2" must be tightened inside slots "3" and "4" on the sides of the hub.**
- 🔧 **Tightening torque**  
**Rear wheel nut: 45 Nm.**



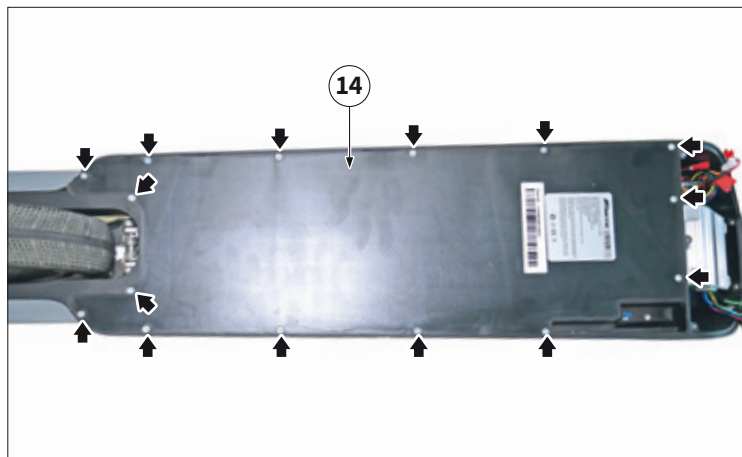
- Refit reflector supports "5" and "6" to the sides of the wheel hub (three screws each);
- ♻ **Rear reflector support screw:**  
**Apply medium threadlocker.**
- 🔧 **Tightening torque**  
**Rear reflector support screw: 1.5 Nm.**
- Install two new reflective stickers on the supports;



- Reposition the rear motor connection wiring harness "7" along the entire right side of the deck battery compartment next to battery "8";
- Apply silicone sealant around the cable at the passage hole "9" in order to seal the battery compartment;
- ⚠ **Clean the passage hole and the corresponding area on the deck cover before applying new sealant.**
- ♻ **Rear wheel wiring harness sealing (drive wheel):**  
**Silicone sealant**



- Reinsert the cable through the passage hole "10" between the battery compartment and the control unit compartment;
- Restore the four connections "11" and "12" of the rear motor;
- ⚠ **To connect the three cylindrical connectors "12" of the motor correctly, respect the continuity of the wire colours.**
- Refit the cable gland "13";
- Secure the cable gland and wiring harness with new plastic clamps;



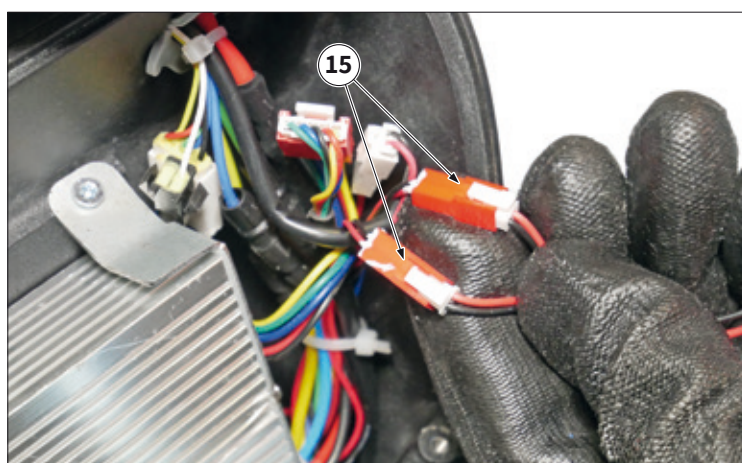
- Close the battery compartment and secure the deck cover "14" with the fifteen screws.



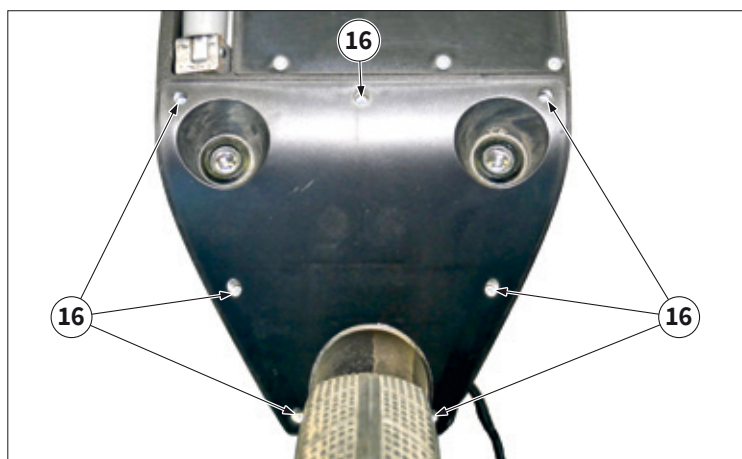
**e-Scooter deck cover screw:**  
**Apply medium threadlocker.**



**Tightening torque**  
**e-Scooter deck cover screw: 1.5 Nm.**



- Restore the connections "15" of the welcome lights, assembled on the control unit cover.



- Position the control unit cover correctly on the deck and secure it with the seven screws "16".



**e-Scooter control unit cover screw:**  
**Apply medium threadlocker.**



**Tightening torque**  
**e-Scooter control unit cover screw: 1.5 Nm.**





### 7.3 CHANGING THE TYRE

Preliminary operations:

- "Front wheel removal (with motor) [only for TX2 version]" on page 35;
- "Normal front wheel removal [only for TX1 version]" on page 39;
- "Rear wheel removal (with motor)" on page 41.

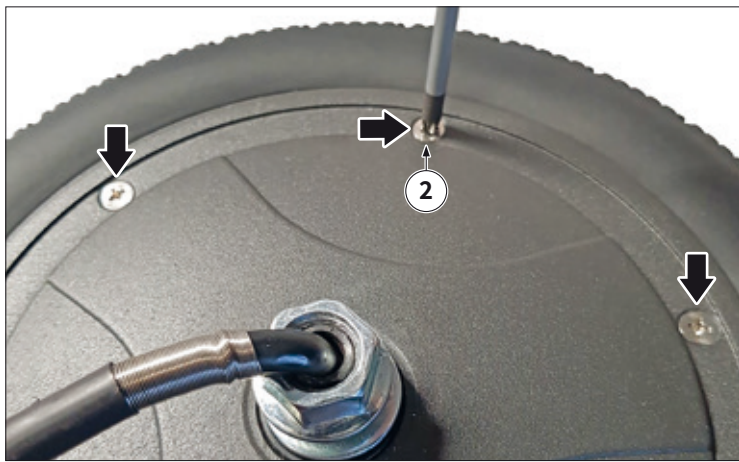
Proceed as follows:

- Secure the wheel on the axle to a vice with protective jaws;
- Use a heat gun to heat up the circular sticker "1" on the side of the wheel from which the motor connection cable comes out;

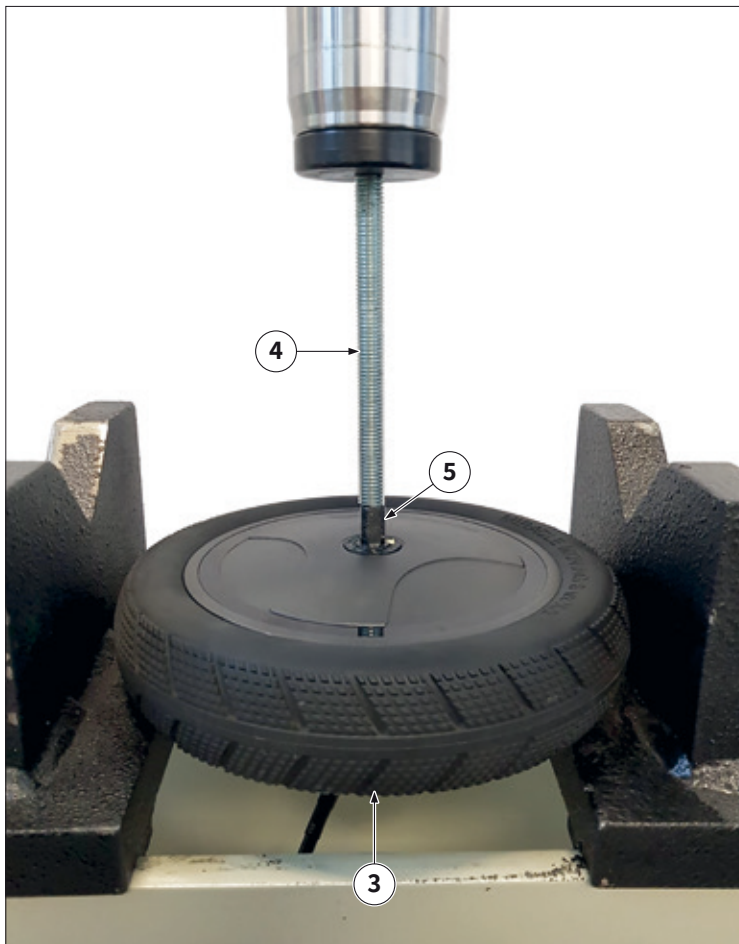
**⚠ Wear protective gloves before using the heat gun to avoid burns.**

**⚠ Use the heat gun at a minimum distance of a few centimetres and keep it on for a few seconds to avoid damaging the parts of the e-Scooter.**

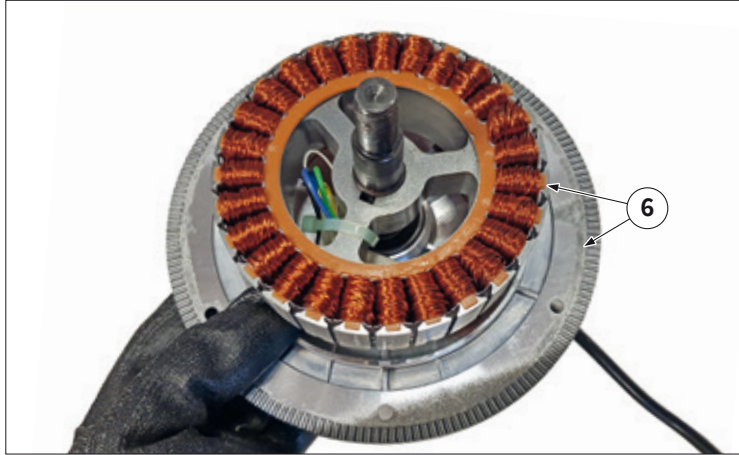
- Remove the six retaining screws "2" from the stator;



- Place the wheel "3" on the base of a press, protecting it from knocks;
- Position the wheel with the motor connection cable pointing downwards;



- Install a push pin "4" of the same diameter as the wheel pin "5";



- Push the stator "6" out of the wheel rim;



- With light pressure, pull tyre "7" off wheel rim "8" (or rotor).

**i** To fit the tire, proceed in reverse order.

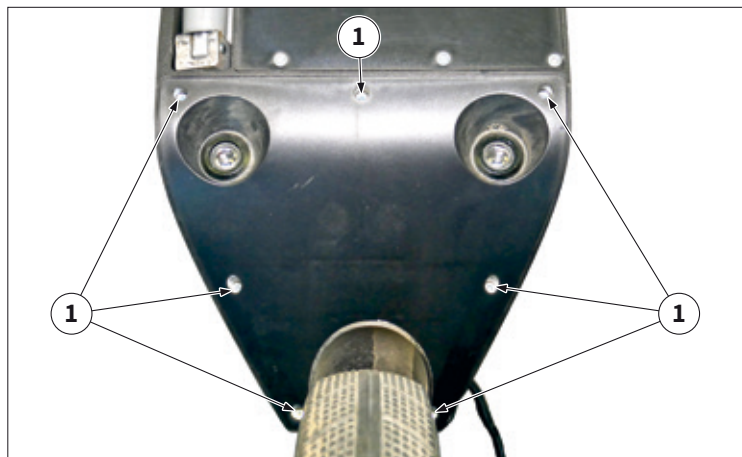
**♻️** If it is difficult to insert the tyre into the rim, use a special tyre mounting paste.

**⚠️** When reassembling the drive wheel, pay particular attention to the strong magnetism between the rotor and stator.

Subsequent operations:

- "Front wheel removal (with motor) [only for TX2 version]" on page 37;
- "Normal front wheel removal [only for TX1 version]" on page 40;
- "Rear wheel reassembly (with motor)" on page 44.

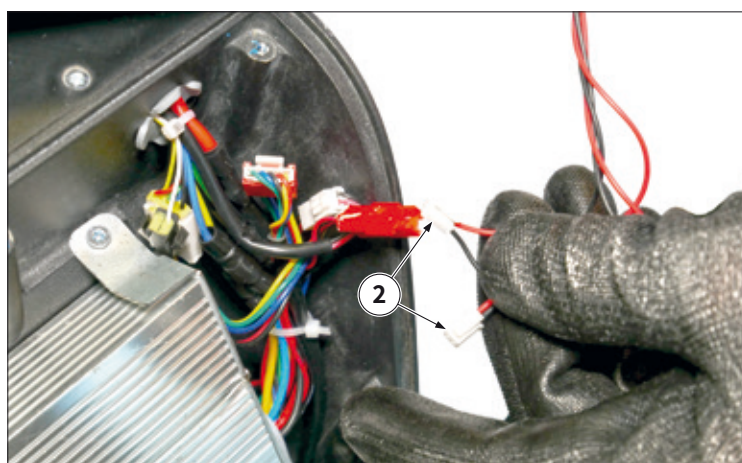




## 8.1 E-SCOOTER CONTROL UNIT COVER

### Removal of e-scooter control unit cover

- Close the e-Scooter;
- Turn the e-Scooter over with the wheels facing upwards;
- Remove the seven control unit cover fastening screws "1";



- Disconnect the two connectors "2" of the welcome lights and remove the control unit cover;
- To replace the cover, proceed to "Replacement of welcome lights" on page 48.



### Replacement of welcome lights

Preliminary operations:

- "Removal of e-scooter control unit cover" on page 48.

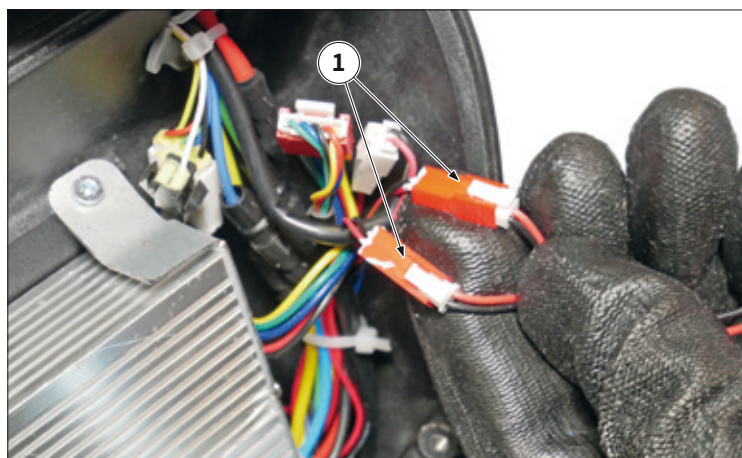
- Unscrew the ring nut "1" and remove the welcome light "2" from the cover;
- Proceed in the same way for the other light;

**(i) Proceed in the reverse order for reassembly or replacement.**

**Welcome light fastening/sealing:  
Silicone sealant**

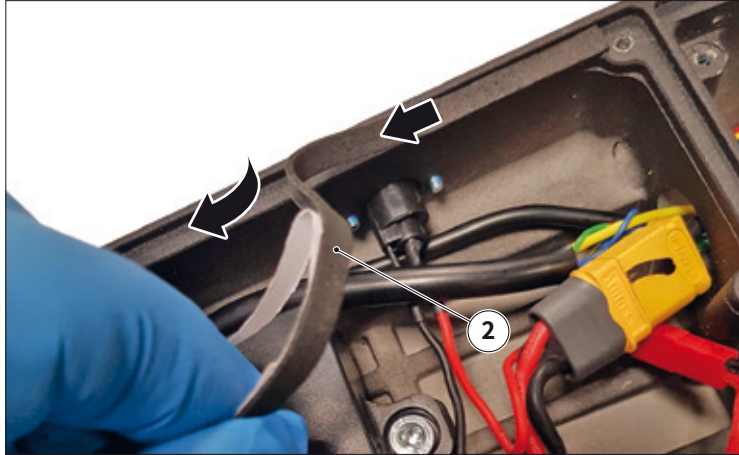
Subsequent operations:

- "Control unit cover reassembly" on page 48.



### Control unit cover reassembly

- Restore the connections "1" of the welcome lights, assembled on the e-Scooter control unit cover.

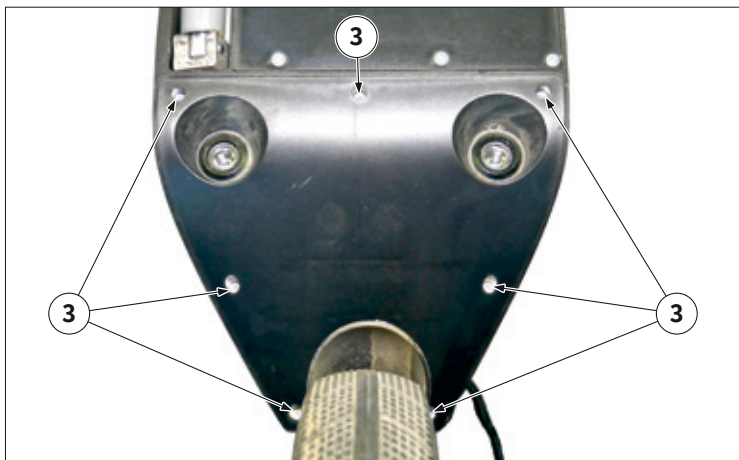


- Remove the adhesive neoprene placed along the stop profile of the control unit cover;

**⚠ Properly clean the stop profile of the control unit cover from glue residues.**

- Apply new strips of adhesive neoprene "2" along all edges of the control unit compartment;

**♻ e-Scooter control unit cover stop:**  
**Install adhesive neoprene, code TX103001.**

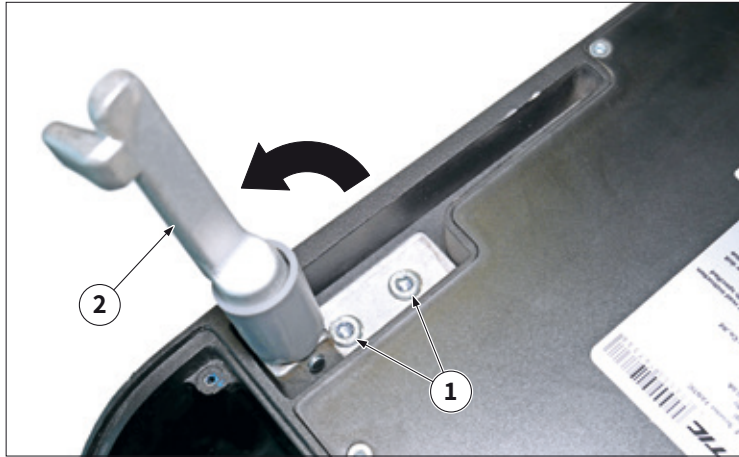


- Position the control unit cover correctly and secure it with the seven screws "3".

**♻ e-Scooter control unit cover screw:**  
**Apply medium threadlocker.**

**🔧 Tightening torque**  
**e-Scooter control unit cover screw: 1.5 Nm.**





## 8.2 DECK COVER

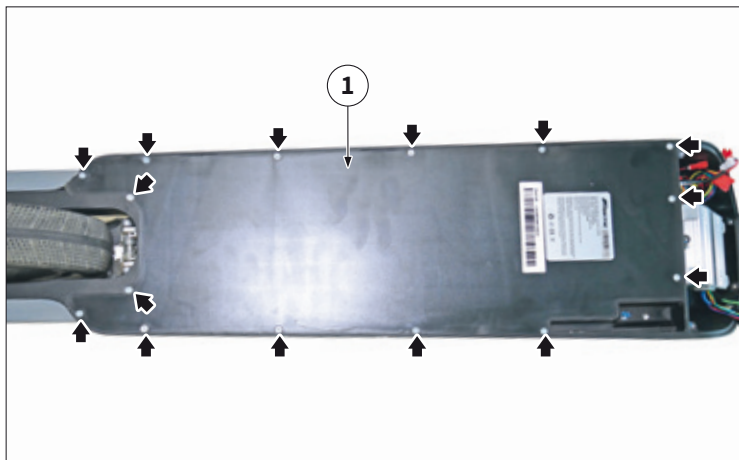
### Side kickstand replacement

- Close the e-Scooter;
- Turn the e-Scooter over with the wheels facing upwards;
- Open the side kickstand;
- Remove the two screws "1" and the side kickstand "2".

**i** Proceed in the reverse order for reassembly or replacement.

Side kickstand screw:  
Apply medium threadlocker.

Tightening torque  
Side kickstand screw: 1.5 Nm.



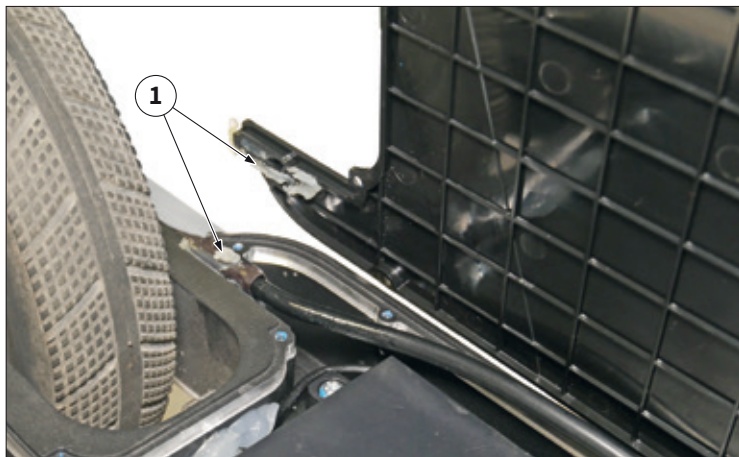
### Deck cover removal

Preliminary operations:

- “Removal of e-scooter control unit cover” on page 48.

**i** It is not necessary to remove the side kickstand to remove the deck cover.

- Remove the deck cover "1" of the e-Scooter (15 fastening screws);

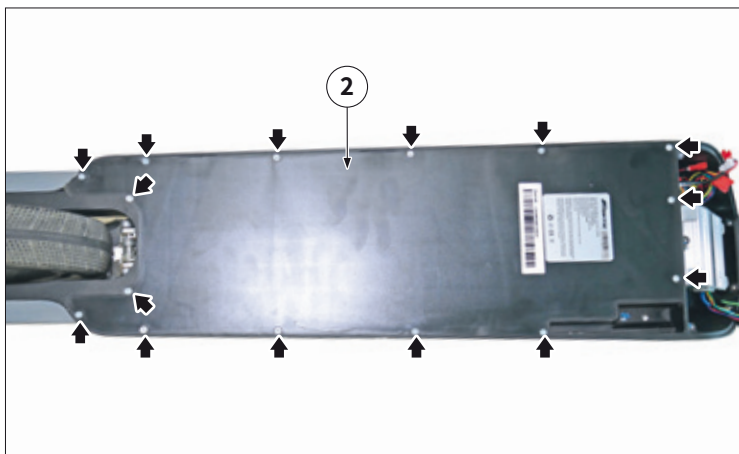


### Deck cover reassembly

- Before refitting the cover, it is necessary to check the condition and, if necessary, reapply the silicone sealant located in the passage hole "1", which has the function of sealing the battery compartment of the deck;

Clean the passage hole and the corresponding area on the deck cover before applying new sealant.

Rear wheel wiring harness fastening (drive wheel):  
Silicone sealant



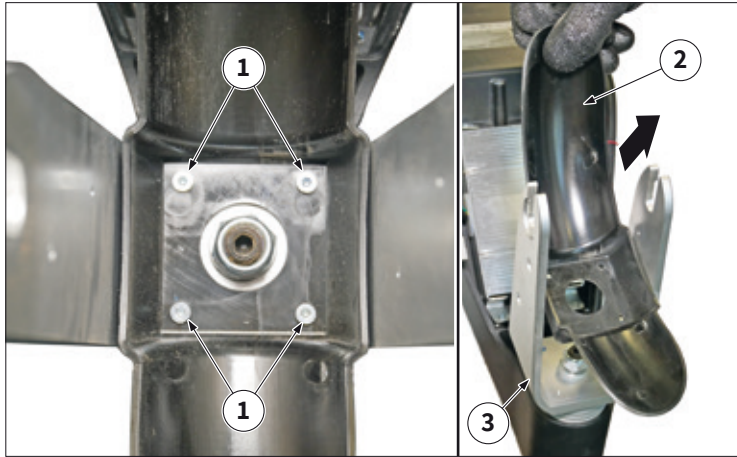
- Close the battery compartment and secure the deck cover "2" with the fifteen screws.

e-Scooter deck cover screw:  
Apply medium threadlocker.

Tightening torque  
e-Scooter deck cover screw: 1.5 Nm.

Subsequent operations:

- “Control unit cover reassembly” on page 48.



## 8.3 STEERING HEAD JOINT

### Front mudguard removal

Preliminary operations:

- "Front wheel removal (with motor) [only for TX2 version]" on page 35.
- "Normal front wheel removal [only for TX1 version]" on page 39.

**i** Avoid removing the control unit cover from the deck and any electrical connections if you only wish to remove or replace the front mudguard and do not proceed further.

- Remove the four fastening screws "1" and pull the front mudguard "2" off the fork "3".



### e-Scooter fork removal

Preliminary operations:

- "Front mudguard removal" on page 51.
- Remove the self-locking nut "1" and fork "2";



- Remove bellows "3" and damping spring "4".



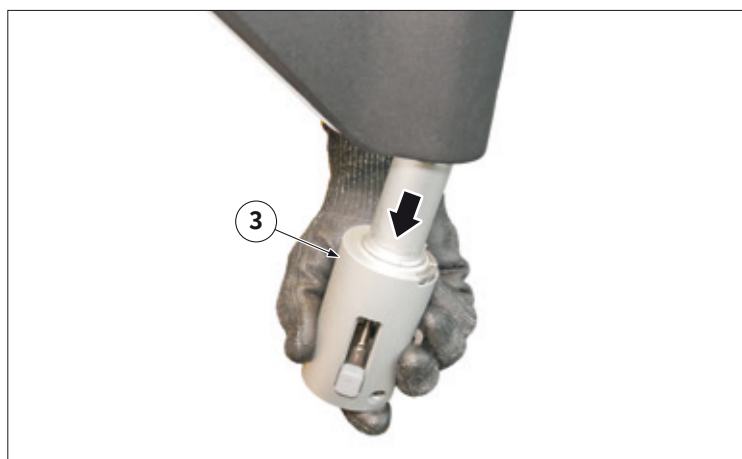
### Complete steering head joint removal

Preliminary operations:

- "Complete handlebar removal" on page 19;
- "Removing the steering head" on page 32;
- "Front mudguard removal" on page 51;
- "e-Scooter fork removal" on page 51.
- Remove the steering head joint fastening ring nut "1" using the specific tool "2";



 Specific tool "2" for steering head joint ring nut:  
Code TX101001.



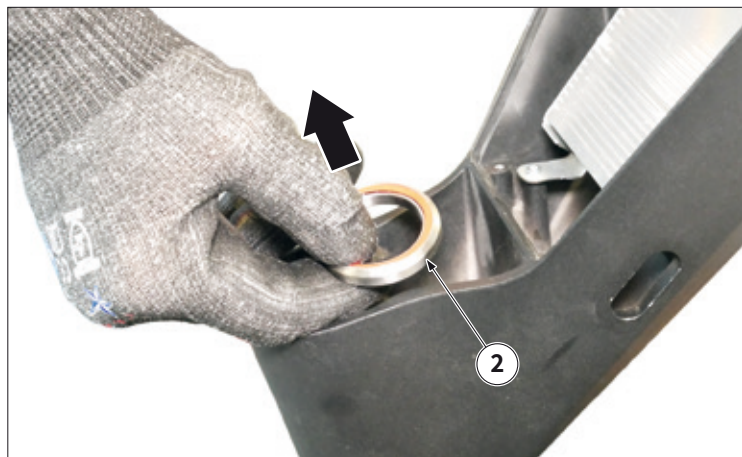
- Remove the complete steering head joint "3".



### Steering bearing replacement

- Prepare a suitable inner bearing extractor "1";





- Remove bearing "2" from the frame of the e-Scooter deck;

**⚠ Never refit the same bearing, but always replace it with a new one.**

**🔧 Steering head joint bearing installation ring:**  
Inside diameter = 30 mm  
Outside diameter = 41 mm

- Using a punch with a suitable diameter, install the new bearing as far as it will go.



### Steering head joint components disassembly

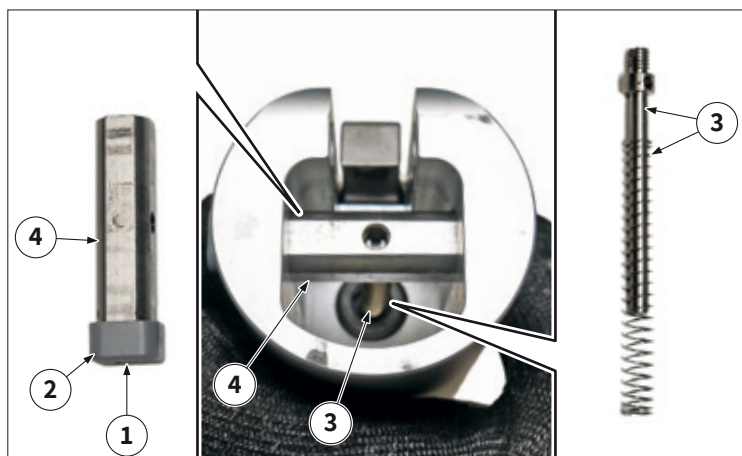
Preliminary operations:

- "Complete steering head joint removal" on page 52.

- Remove the "1" covers on the button plates that release the steering head tilt mechanism;



- Remove the two release plates "2" (one screw each);

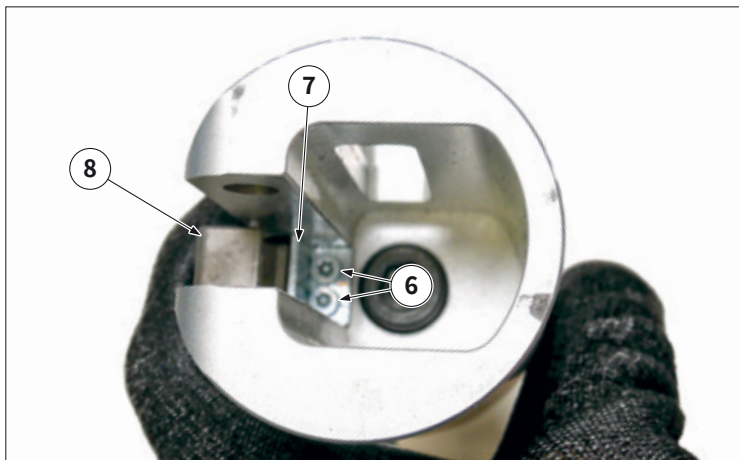


- Remove drive pin "3" by unscrewing it from guide pin "4";





- Remove drive pin "5" from the steering head body;



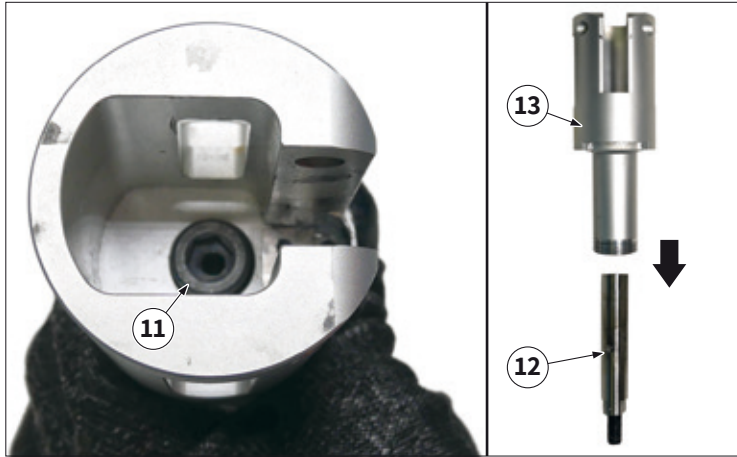
- Remove the two screws "6" that secure the reference plate "7" for the joint hook "8";



- Remove the joint hook "8" of the steering head, disconnecting it from the folding latch "9";



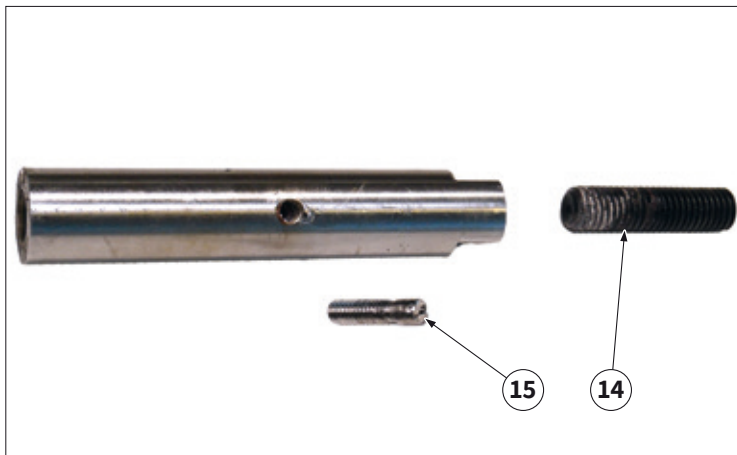
- Remove the folding latch "9" from the joint and recover the two return springs "10";



- Remove the screw "11" and separate the steering head pin "12" from the body "13" of the joint;



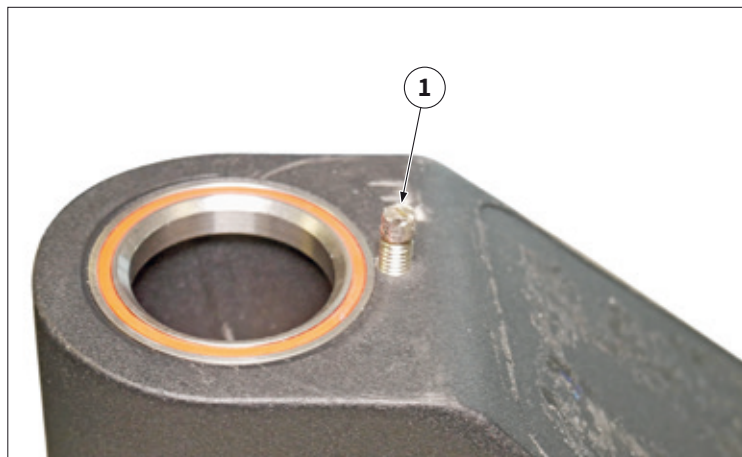
- Use a heat gun to heat the stud bolt "14" and guide pin "15";
- ⚠ Wear protective gloves before using the heat gun to avoid burns.**
- ⚠ Use the heat gun at a minimum distance of a few centimetres and keep it on for a few seconds to avoid damaging the parts of the e-Scooter.**



- Remove the stud bolt "14" and guide pin "15" from the steering head pin;



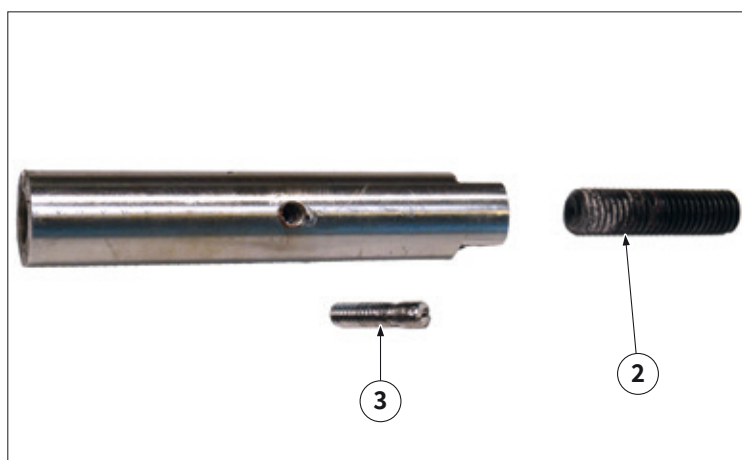
- Use a heat gun to heat and remove the steering head lock screw "16".
- i The steering head lock screw is located on the deck frame at the top at the joint coupling hole.**



### Assembly of steering head joint components

- Refit the steering lock screw "1" on the deck.

**Standard height of steering retainer "1": 0.5 mm**



- Refit the stud bolt "2" to the steering head pin;

**Steering head pin stud bolt**  
**Apply medium threadlocker.**

**Tightening torque**  
**Steering head pin stud bolt: 45 Nm.**

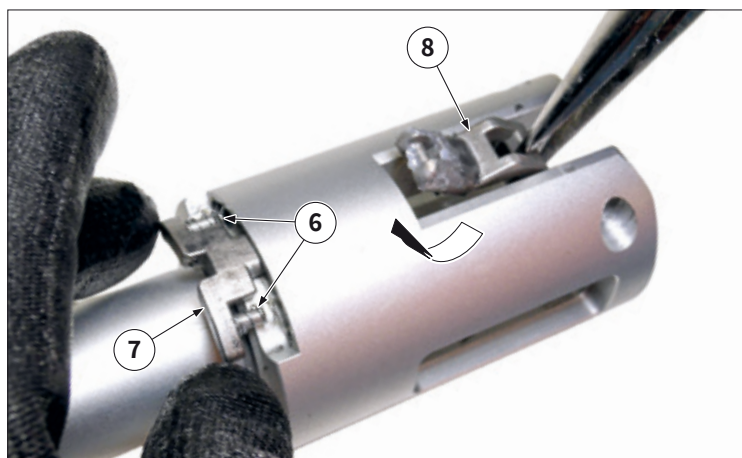
- Refit the guide pin "3" to the steering head pin;



- Replace spring washers "4" and refit pin "5" on the steering head joint;

**Steering head pin fastening screw:**  
**Apply medium threadlocker.**

**Tightening torque**  
**Steering head pin fastening screw: 45 Nm.**



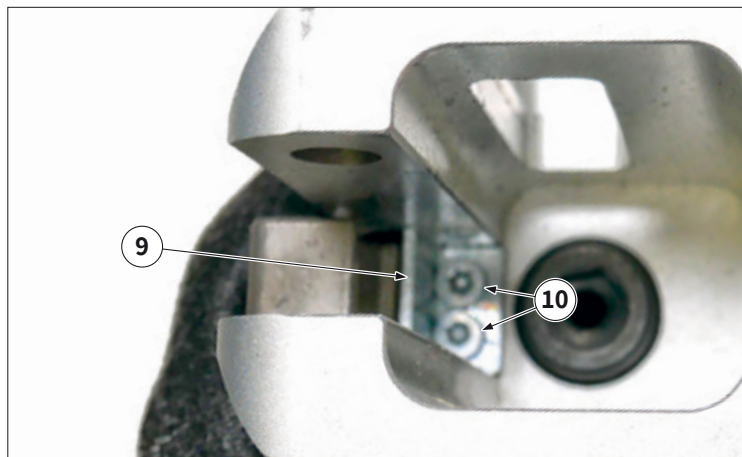
- Insert the two return springs "6" on folding latch "7";

**Joint hook folding latch:**  
**Apply molybdenum disulphide grease.**

- Insert the steering head joint hook "8" and connect it to the folding latch "7";

**Steering head joint hook**  
**Apply molybdenum disulphide grease.**





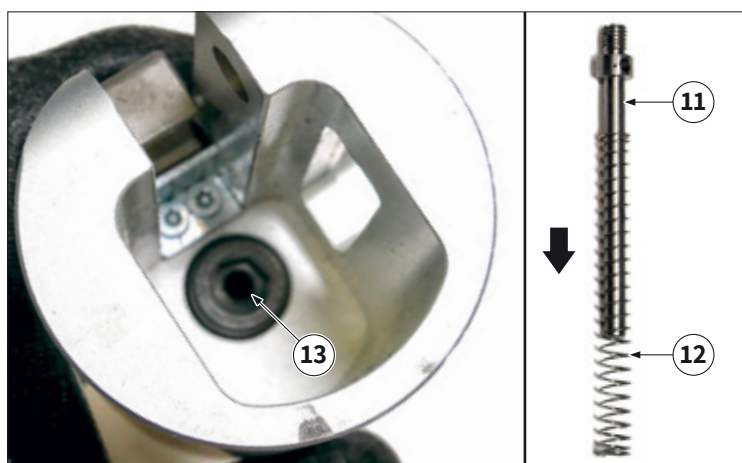
- Install the reference plate "9" and secure it with the two screws "10";



**Joint hook reference plate screw:**  
Apply medium threadlocker.



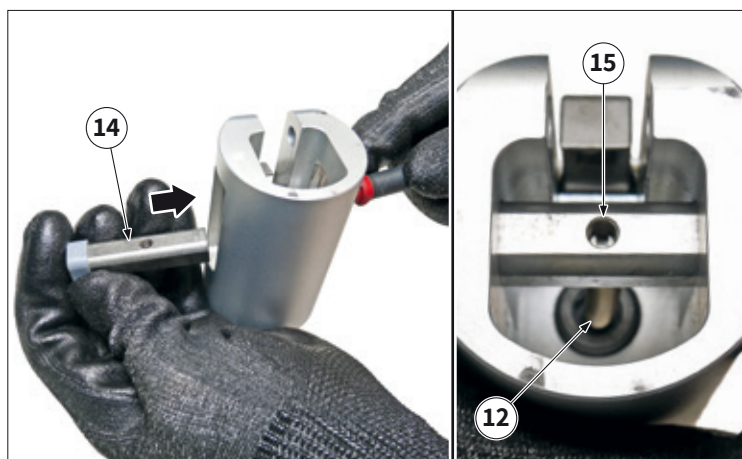
**Tightening torque**  
Joint hook reference plate screw: 1.5 Nm.



- Refit the guide pin "11" of the steering head stem tilting mechanism and return spring "12";



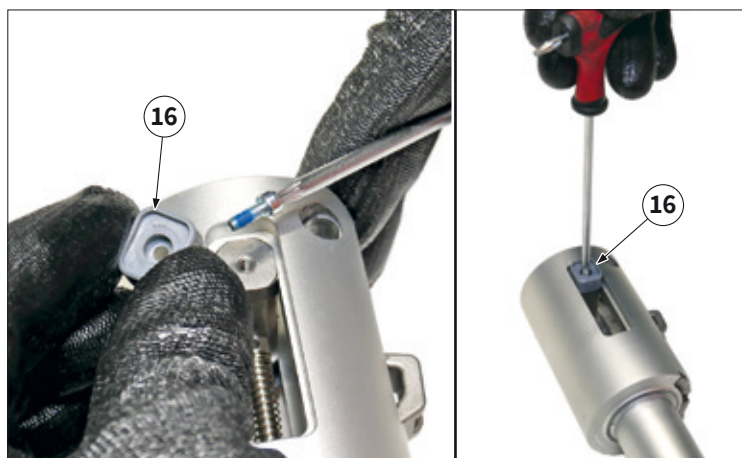
**The unthreaded end of the guide pin and the spring must be positioned in the recess of the steering head pin "13" fastening screw.**



- Insert drive pin "14" of the mechanism laterally;
- Screw the guide pin into the centre hole "15" of the drive pin;



**Check that the drive pin, when at rest, rests correctly in the upper ends of the steering head joint guides: if this is not the case, replace the return spring "12".**



- Refit the two release plates "16" (one screw each) on both sides of the joint drive pin;



**Joint drive pin plate screw:**  
Apply medium threadlocker.



**Tightening torque**  
Joint drive pin plate screw: 1.5 Nm.

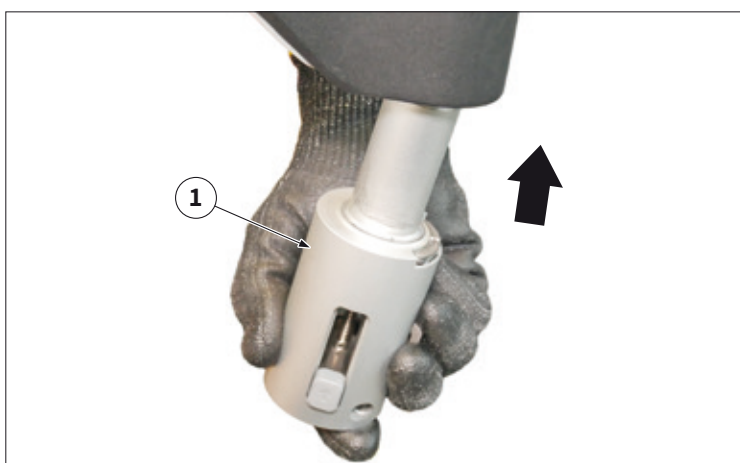




- Refit the covers "17" on the two drive pin plates.

Subsequent operations:

- "Complete steering head joint reassembly" on page 58.



### Complete steering head joint reassembly

- Insert the complete steering head joint "1" inside the front hole of the e-Scooter deck;



- Insert the fastening ring nut "2" of the joint;
- Tighten the ring nut by hand, keeping the steering head joint in the central position;

**i** Check that the steering head joint is positioned with the hook facing the steering lock and the deck of the e-Scooter.



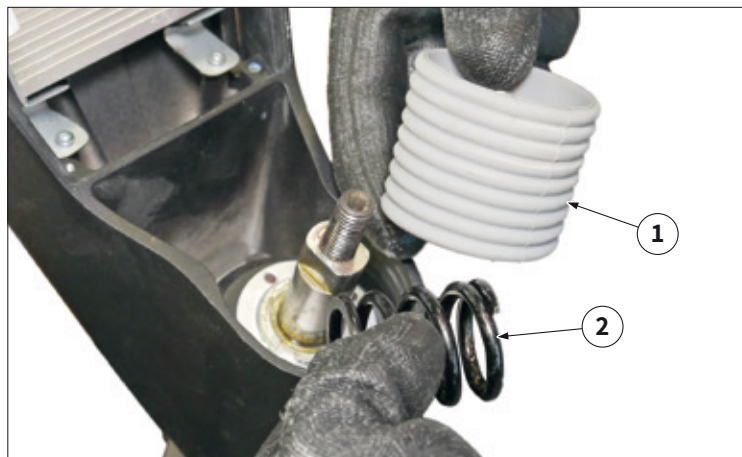
- Tighten the ring nut "2" with the specific tool "3".

**✖ Specific tool for steering head joint ring nut:  
Code TX101001.**

**🔧 Tightening torque  
Steering head joint ring nut: 5-8 Nm.**

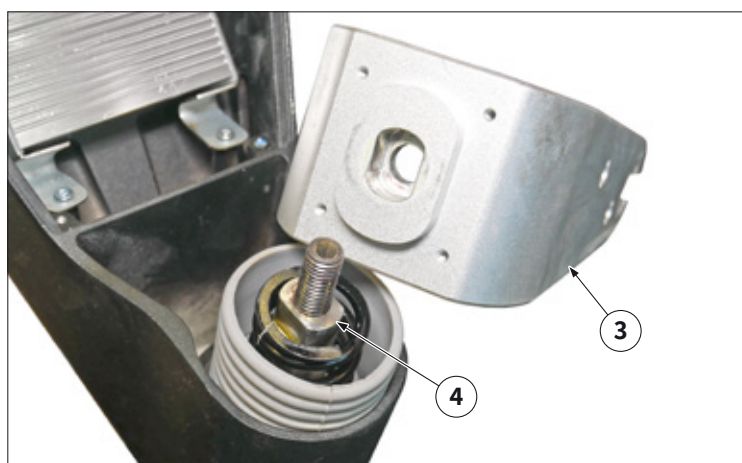
Subsequent operations:

- "e-Scooter fork reassembly" on page 59;
- "Front mudguard reassembly" on page 59;
- "Steering head reassembly" on page 33;
- "Complete handlebar reassembly" on page 19.

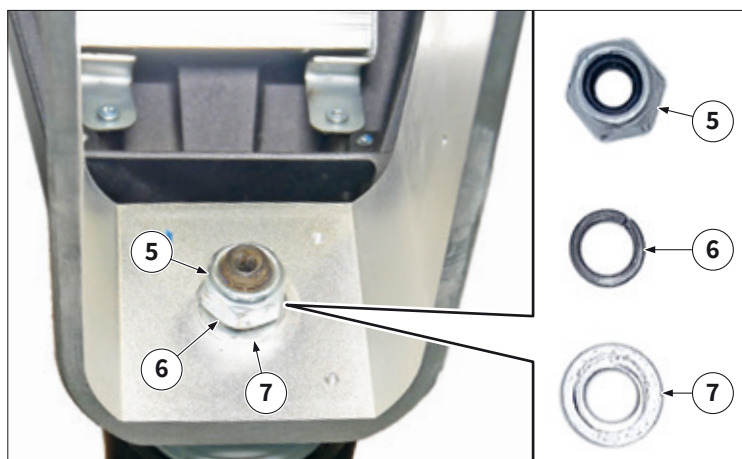


### e-Scooter fork reassembly

- Refit the bellows "1" and damping spring "2";



- Position fork "3" so that it engages correctly on fork pin "4";



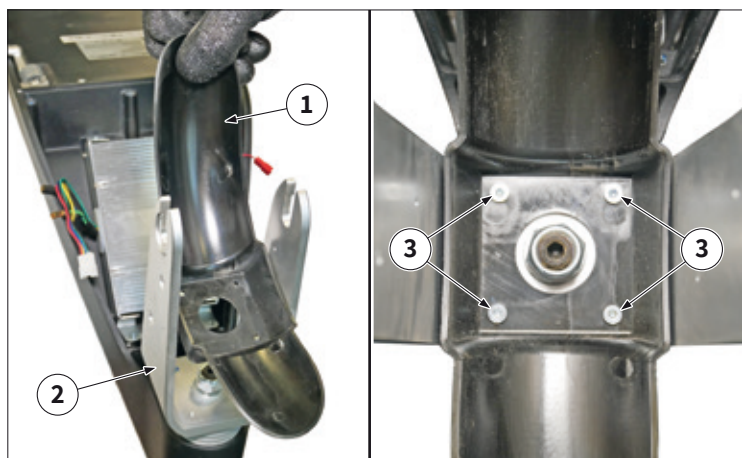
- Tighten the self-locking nut "5" and the two washers "6" and "7" in the correct sequence.

 **e-Scooter fork fastening nut:**  
Apply medium threadlocker.

 **Tightening torque**  
Scooter fork fastening nut: 45 Nm.

Subsequent operations:

- "Front mudguard reassembly" on page 59.



### Front mudguard reassembly

- Refit the front mudguard "1", inserting it into the fork "2" and securing it with the four screws "3".

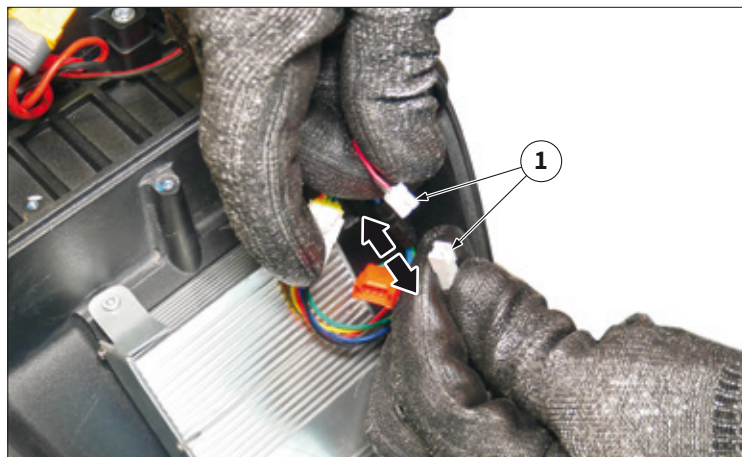
 **Front mudguard fastening screw:**  
Apply medium threadlocker.

 **Tightening torque**  
Front mudguard fastening screw: 1.5 Nm.

Subsequent operations:

- "Front wheel reassembly (with motor) [only for TX2 version]" on page 37.
- "Normal front wheel reassembly [only for TX1 version]" on page 40.





## 8.4 REAR MECHANICAL BRAKE

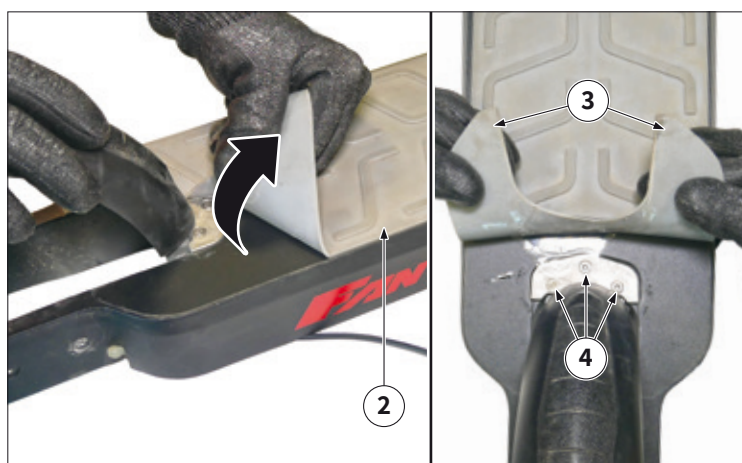
### Mechanical rear brake removal

Preliminary operations:

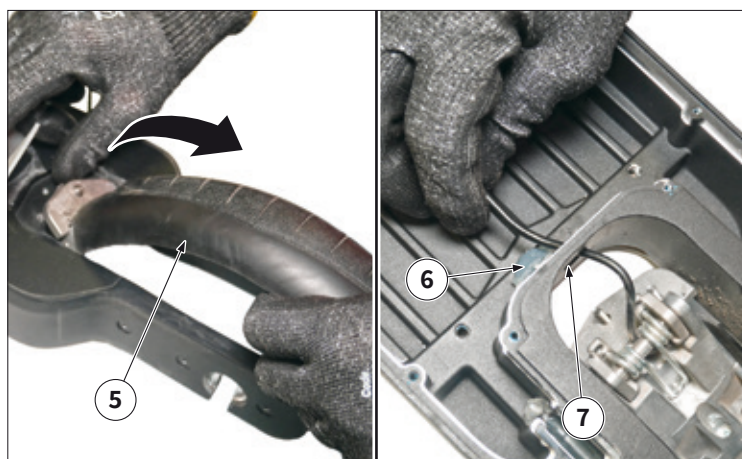
- "Rear wheel removal (with motor)" on page 41;
- "Battery removal" on page 73.

Proceed as follows:

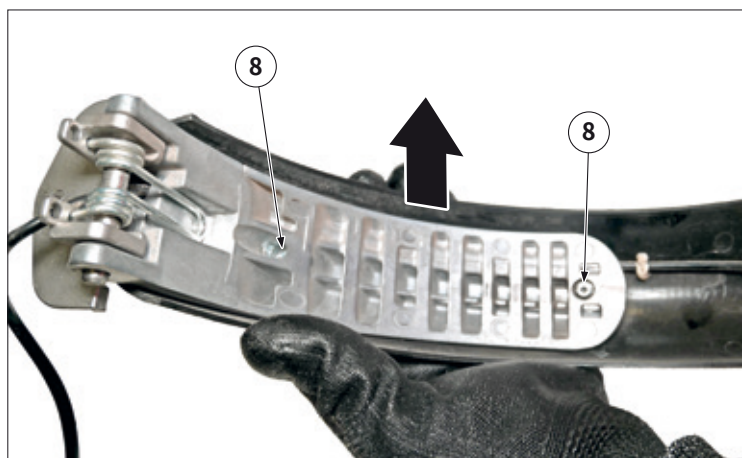
- Disconnect connection "1" of the tail light to the control unit;



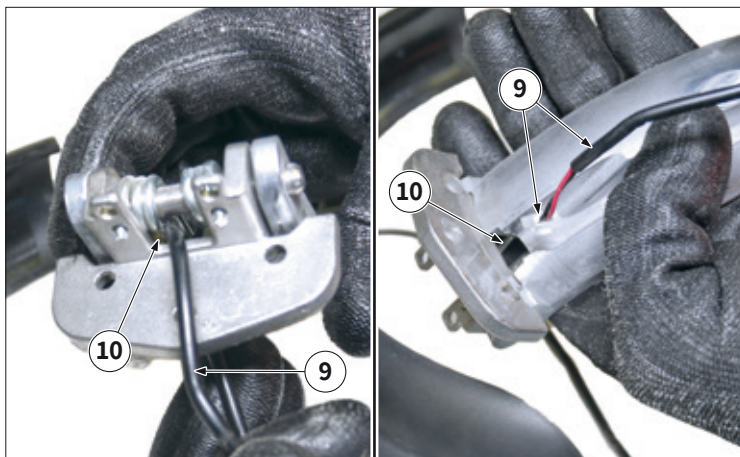
- Place the deck with mat "2" facing upwards;
- Partially lift the rear flaps "3" of the deck mat until the mechanical rear brake fastenings are exposed;
- Remove the three rear brake fastening screws "4";



- Unhook the rear mudguard assembly "5" from the frame;
- Reposition the deck with the mat facing downwards;
- Remove the silicone sealant "6" from the wiring harness passage hole "7" of the tail light to facilitate removal;



- Remove the rear mudguard assembly from the deck;
- Remove the two rear mechanical brake fastening screws "8" and pull it out;



- Slide and pull out the wiring harness and connector "9" of the tail light, passage hole "10" of the mechanical rear brake hinge.

**⚠ Use caution when removing the tail light connector from the rear brake hinge, as this could tear the wires and/or damage the connector.**



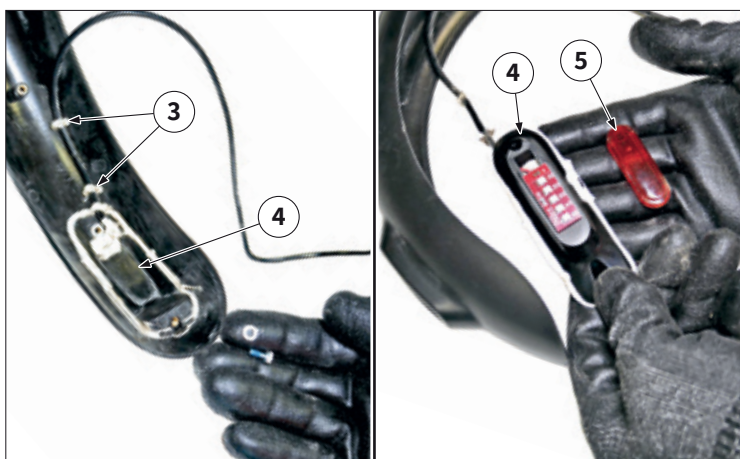
### Tail light removal

Preliminary operations:

- "Mechanical rear brake removal" on page 60.

Proceed as follows:

- Take the rear mudguard, just removed from the rear brake;
- On the underside the tail light "1" is visible, assembled and sealed to the mudguard;
- Remove the two fastening screws "2";



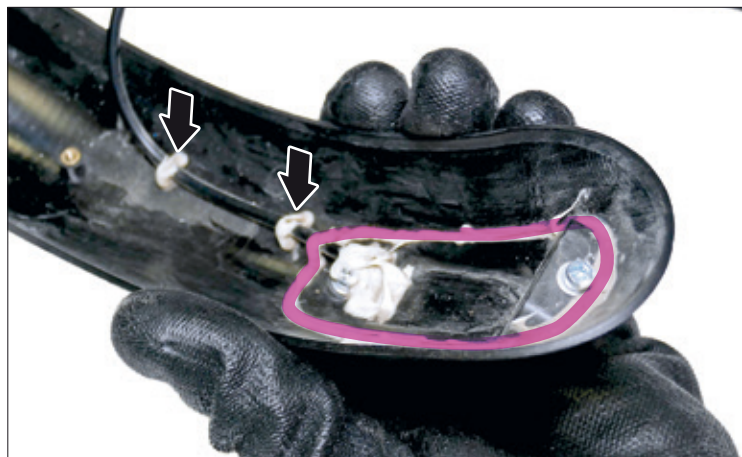
- Disconnect the tail light wire from the silicone "3" fastening points at the rear of the mudguard;
- Remove the tail light support "4" and tail light glass "5";



- Remove the complete led tail light "6" with its wiring harness from the support.

**⚠ Clean the electronic circuit board of the light and its wiring harness of any silicone residue.**





## Rear mudguard replacement

Preliminary operations:

- "Tail light removal" on page 61.

**(i) The rear mudguard is completely removed as soon as the tail light and its support are removed.**

**⚠ Clean silicone residue from the rear mudguard, particularly in the area of the tail light coupling.**

Subsequent operations:

- "Tail light reassembly" on page 62.

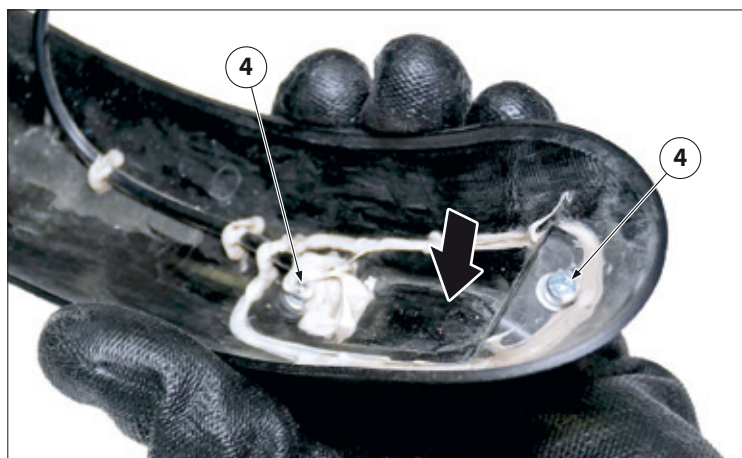


## Tail light reassembly

**⚠ Carefully clean the circuit board, wiring harness and tail light support of any silicone residue before reassembly.**



- Position the tail light "1" on the support;
- Apply a layer of silicone sealant to the outer edge "2" of the tail light support;
- Place glass "3" of the tail light over the light board;



- Install the support with the tail light and glass on the rear mudguard;

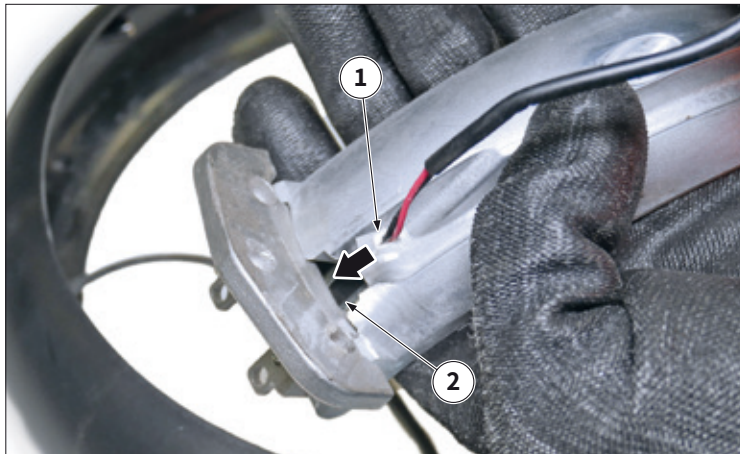
**⚠ Take care that the area is not excessively soiled by the newly applied silicone sealant.**

- Secure the complete tail light with the two screws "4" and the two washers provided;

**⚠ The anchor points for the light wire must only be restored after refitting the mechanical brake on the rear mudguard (see page 63.)**

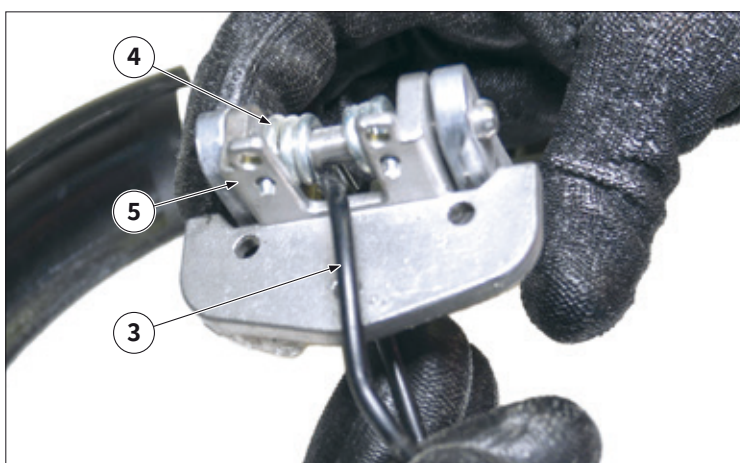
Subsequent operations:

- "Rear mechanical brake reassembly" on page 63.



### Rear mechanical brake reassembly

- Insert connector "1" of the tail light wiring harness into hole "2" of the mechanical rear brake hinge;



- Slide the wiring harness "3" so that it is not crushed by spring "4" or hinge bracket "5";



- Slide the wiring harness until the mechanical brake "6" is positioned at the fastening holes on the rear mudguard;

**⚠ Check that the wiring harness of the tail light is correctly positioned between the brake and the mudguard so that it does not obstruct the tightening of the brake.**

- Apply a small layer of silicone sealant to create one or more "8" anchor points on the light wiring harness;

**⚠ If the wiring harness "7" of the tail light is not sufficiently firm and secure, create additional anchor points "8" with silicone sealant.**

**⚠ If the anchor point created with the silicone sealant is unstable, use acrylic sealant.**

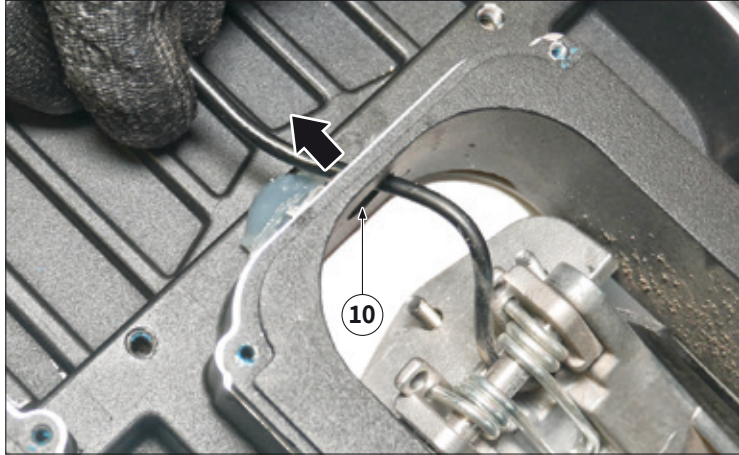


- Secure the rear brake with the two screws "9";

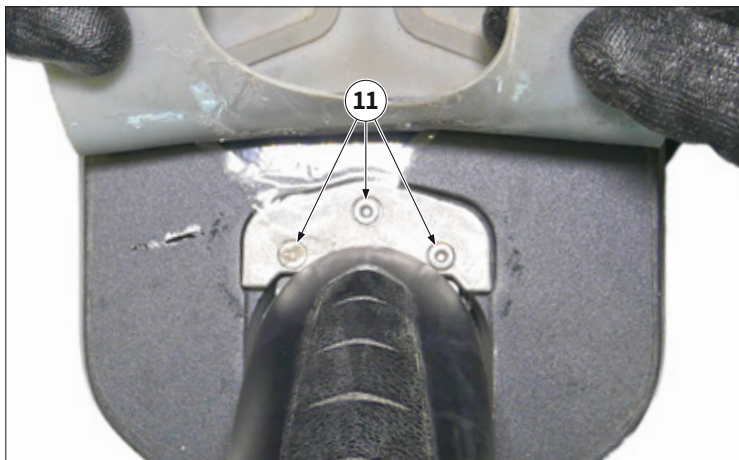
**🔧 Rear mechanical brake fastening screw:  
Apply medium threadlocker.**

**🔧 Tightening torque  
Rear mechanical brake fastening screw: 1.5 Nm.**





- Slide the wiring harness of the tail light passage hole "10" in the deck of the e-Scooter;



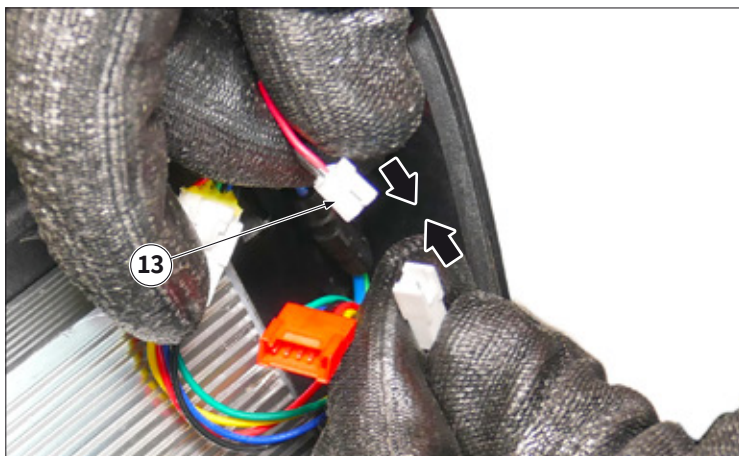
- Reposition the deck with the mat facing upwards;
- Position the rear brake assembly and mudguard;
- Secure it with the three screws "11";

-  **Rear mudguard assembly fastening screw:**  
**Apply medium threadlocker.**
-  **Tightening torque**  
**Rear mudguard assembly fastening screw: 1.5 Nm.**



- Reposition the deck with the mat facing downwards;
- Apply a layer of silicone sealant ("12") along the inside wall of the wiring harness passage hole until it is completely sealed.

-  **Do not over-apply the silicone sealant in order to avoid soiling and/or sticking the battery or the edge of the deck where the cover is attached.**



- Restore connection "13" of the tail light to the control unit.

Subsequent operations:

- "Battery reassembly" on page 74;
- "Rear wheel reassembly (with motor)" on page 44.





## 8.5 DECK

### Deck mat replacement

- Start by removing deck mat "1" from the rear;

⚠ If it is difficult to detach the mat edges from the deck, use the heat gun for a few seconds and Teflon or plastic levers.

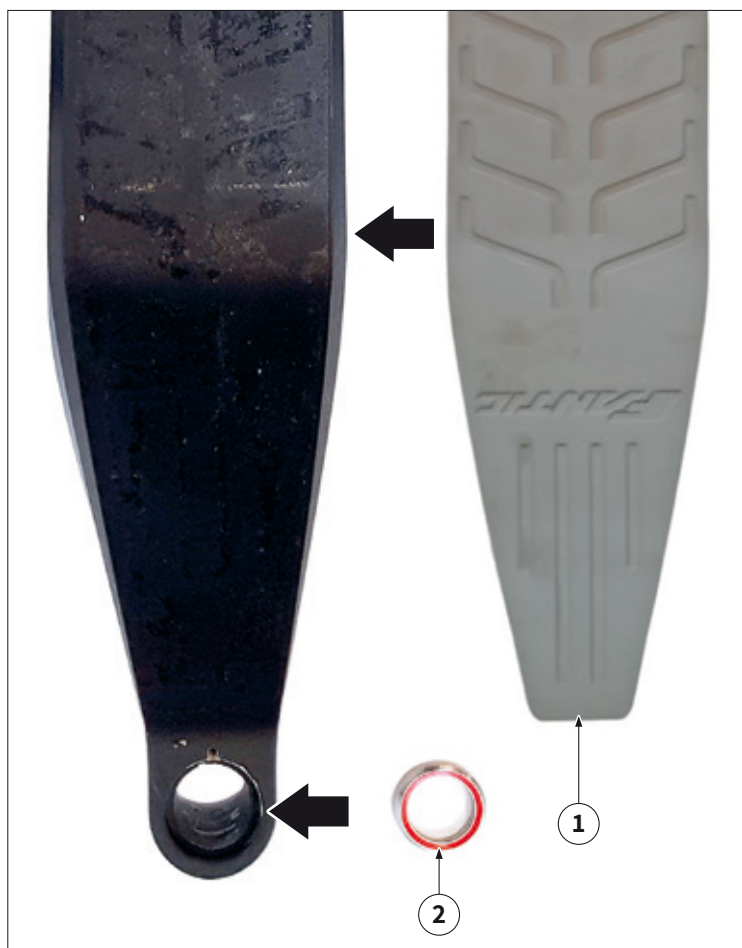
⚠ Wear protective gloves before using the heat gun to avoid burns.

- Completely remove mat "1" from the deck of the e-Scooter;



- Thoroughly clean the entire upper surface "2" of the deck frame.
- Install a new adhesive mat "3" on the deck of the e-Scooter.

⚠ The rear of the mat must cover the mechanical rear brake fastenings.



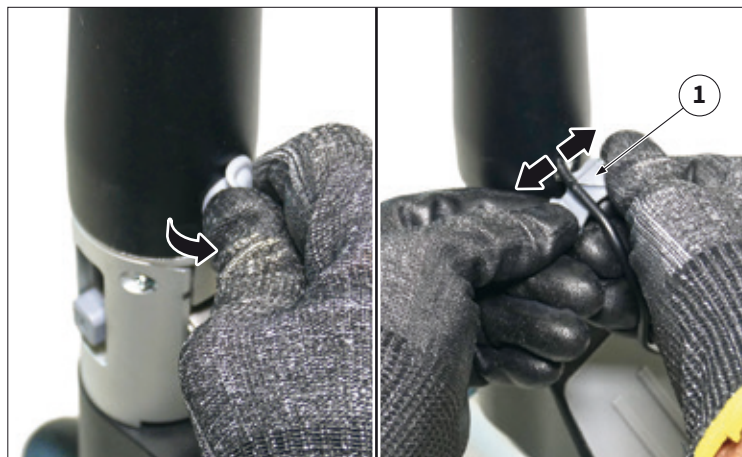
### Deck frame replacement

Preliminary operations:

- "Complete handlebar removal" on page 19;
- "Removing the steering head" on page 32;
- "Front wheel removal (with motor)" [only for TX2 version] on page 35 or "Normal front wheel removal [only for TX1 version]" on page 39;
- "Rear wheel removal (with motor)" on page 41;
- "Mechanical rear brake removal" on page 60;
- "e-Scooter control unit removal" on page 67;
- "Battery removal" on page 73;
- "Battery charging socket removal" on page 72;
- "Complete steering head joint removal" on page 52.
- Install a new deck mat "1": refer to "Deck mat replacement" on page 65;
- Install a new steering bearing "2": refer to "Steering bearing replacement" on page 52.

Subsequent operations:

- "Complete steering head joint reassembly" on page 58;
- "Battery charging socket reassembly" on page 73;
- "Battery reassembly" on page 74;
- "e-Scooter control unit reassembly" on page 70;
- "Rear mechanical brake reassembly" on page 63;
- "Rear wheel reassembly (with motor)" on page 44;
- "Front wheel reassembly (with motor)" [only for TX2 version] on page 37 or "Normal front wheel reassembly [only for TX1 version]" on page 40;
- "Steering head reassembly" on page 33;
- "Complete handlebar reassembly" on page 19.



## 9.1 DASHBOARD CONNECTION WIRING HARNESS

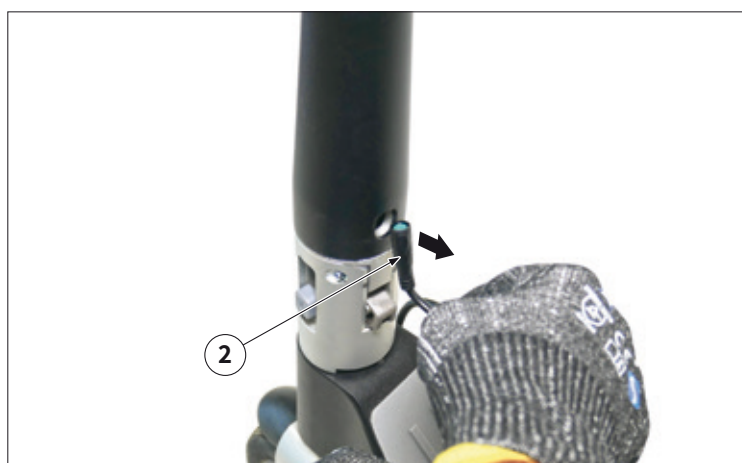
### Dashboard connection wiring harness replacement

Preliminary operations:

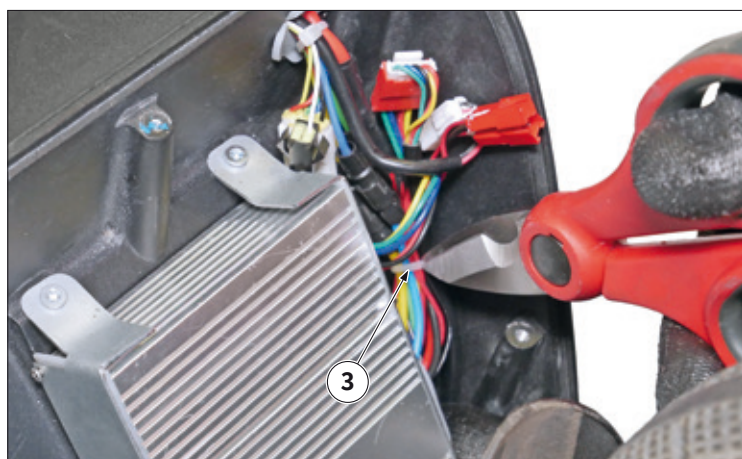
- "Complete handlebar removal" on page 19;
- "Removal of e-scooter control unit cover" on page 48.

Proceed as follows:

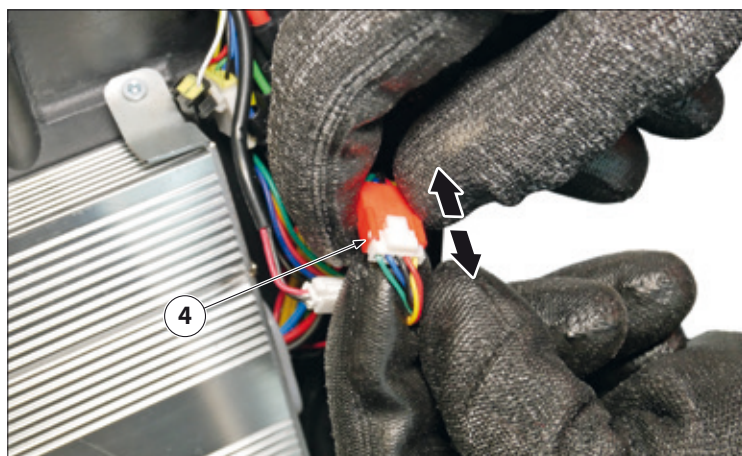
- Remove the cable gland "1";



- Completely remove the dashboard connection wiring harness "2";



- Cut the clamp "3" retaining the power cables on the right side of the control unit;

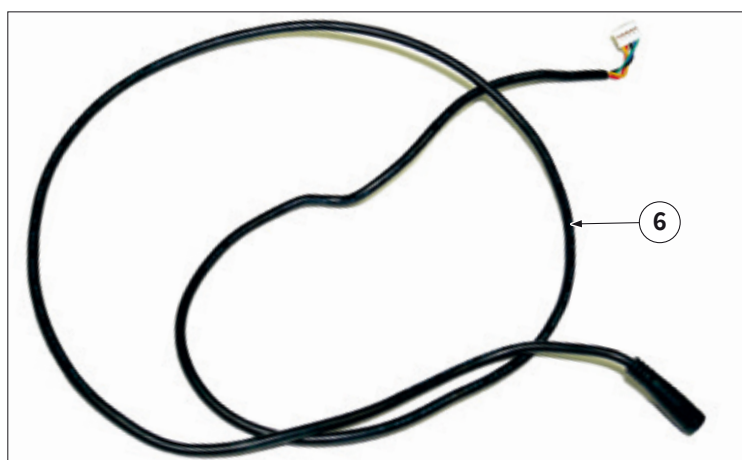


- Disconnect connection "4" of the wiring harness connecting the dashboard to the e-Scooter control unit;





- Remove the cable gland "5";

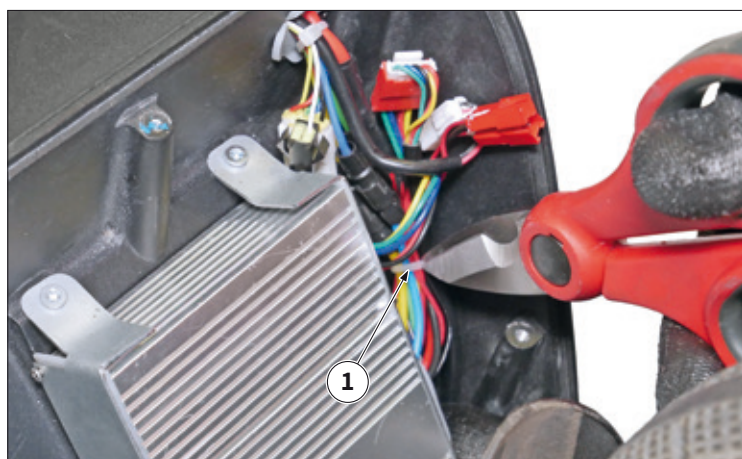


- Remove and replace the dashboard connection wiring harness "6".

**i** Proceed in the reverse order for reassembly or replacement.

Subsequent operations:

- "Control unit cover reassembly" on page 48;
- "Complete handlebar reassembly" on page 19.



## 9.2 E-SCOOTER CONTROL UNIT

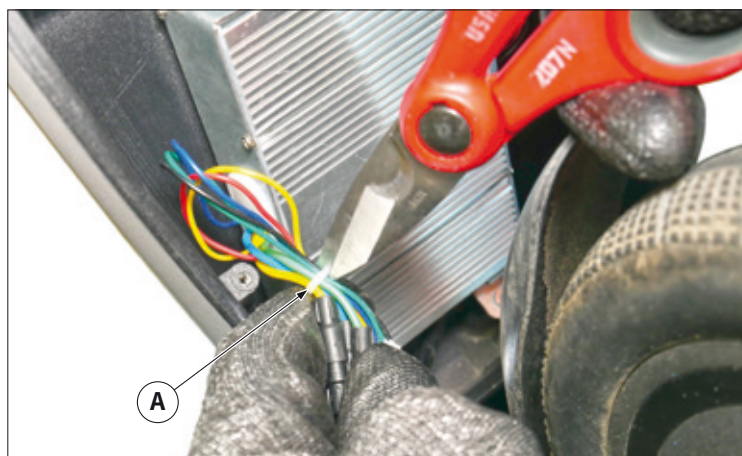
### e-Scooter control unit removal

Preliminary operations:

- "Removal of e-scooter control unit cover" on page 48;
- "Deck cover removal" on page 50.

Proceed as follows:

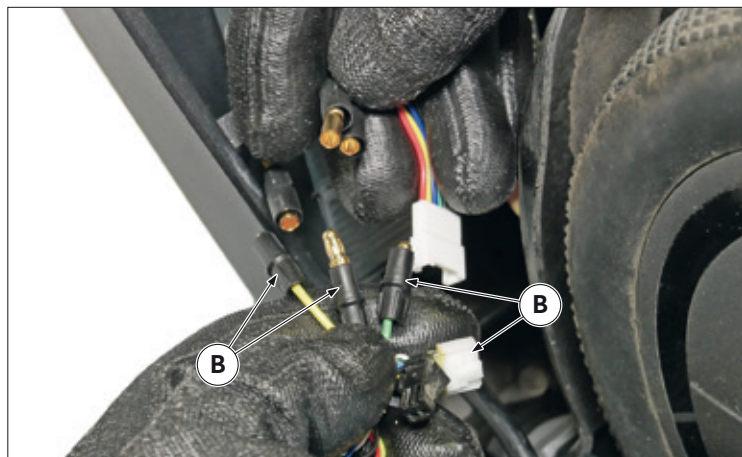
- Cut the clamp "1";



(Only for TX2 version)

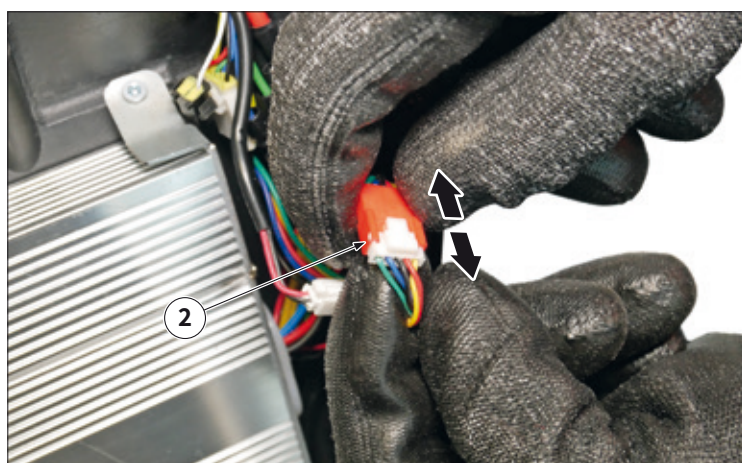
- Cut the clamp "A";



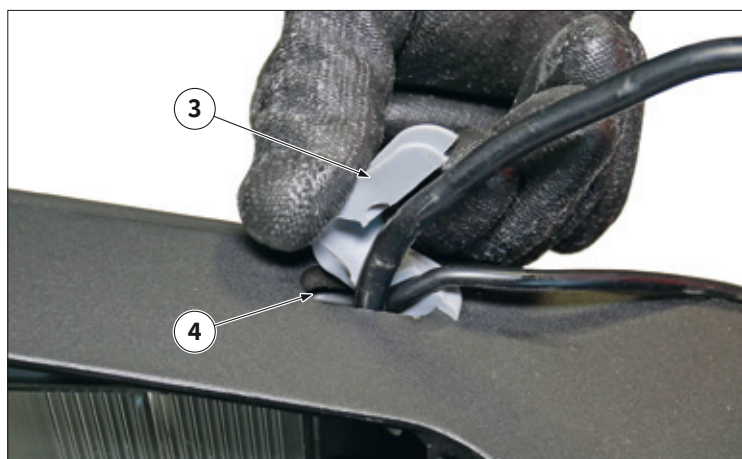


(Only for TX2 version)

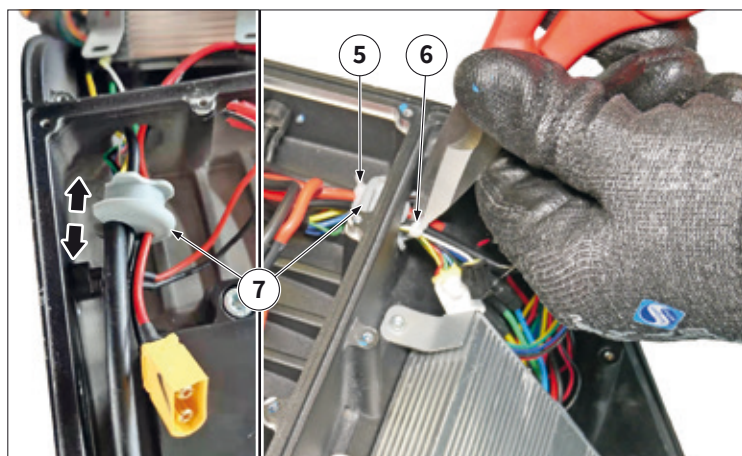
- Disconnect all connections "B" to the front electric motor;



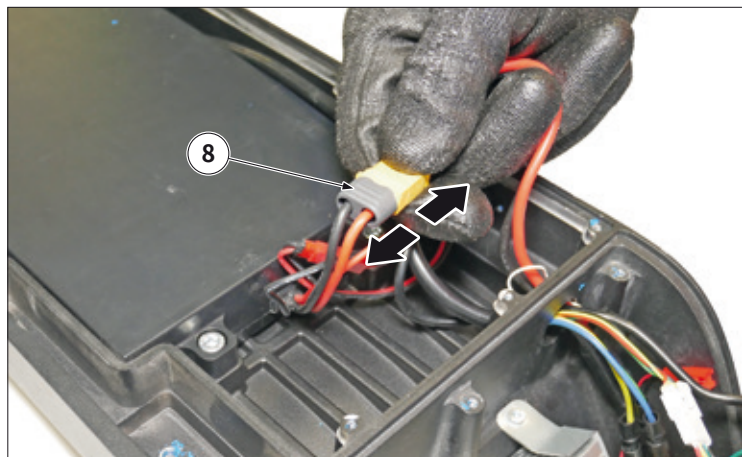
- Disconnect the wiring harness "2" connecting to the dashboard;



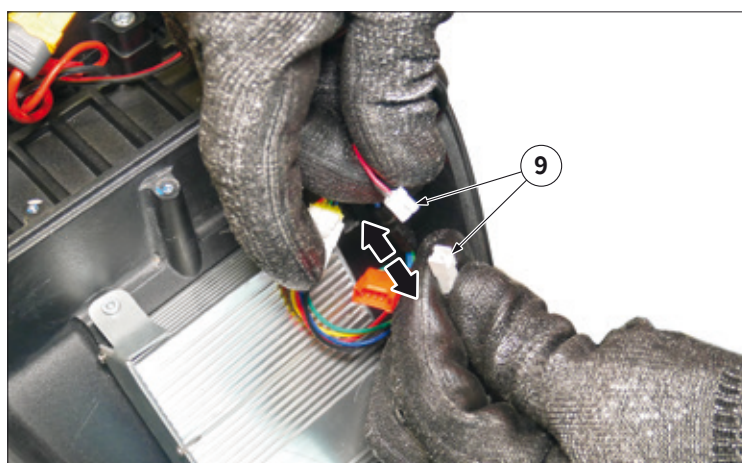
- Remove the cable gland "3";
- Remove the wiring harnesses from hole "4" on the right side of the deck;



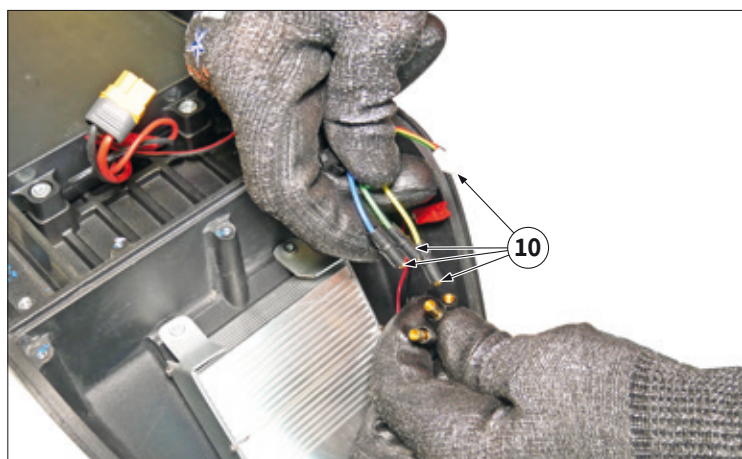
- Cut the clamps "5" and "6";
- Remove the cable gland "7";



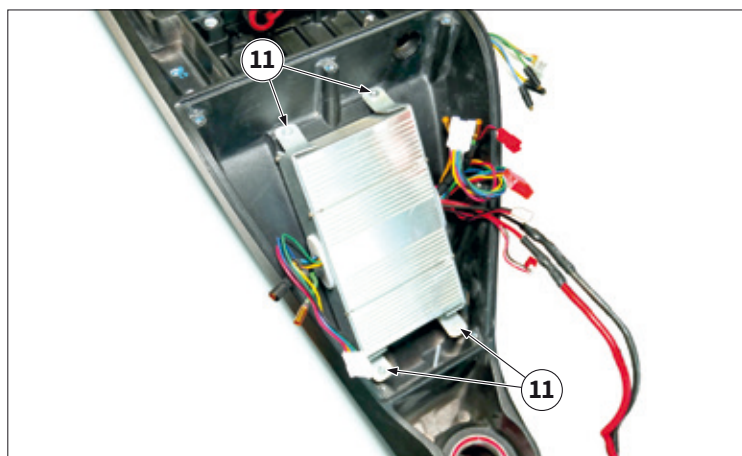
- Disconnect the control unit connector "8" from the battery;



- Disconnect connector "9" of the tail light;

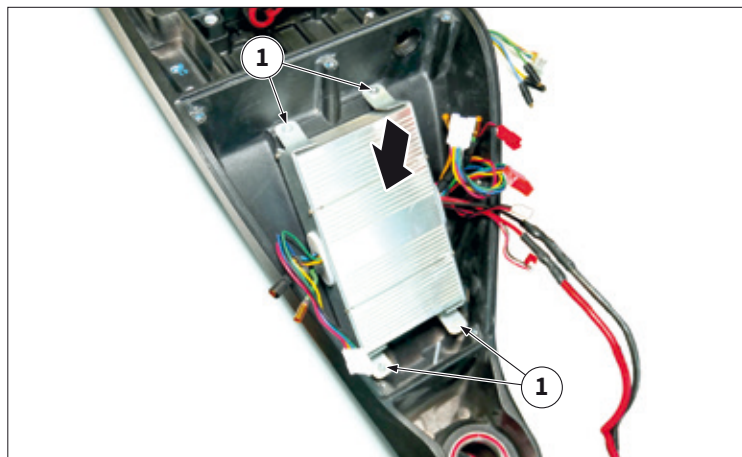


- Disconnect all connections "10" to the rear electric motor;



- Remove the four screws "11" from the e-Scooter control unit and remove it from the deck.



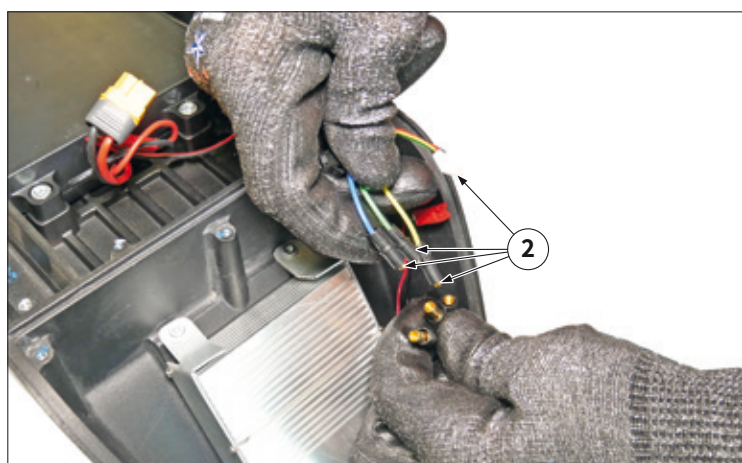


### e-Scooter control unit reassembly

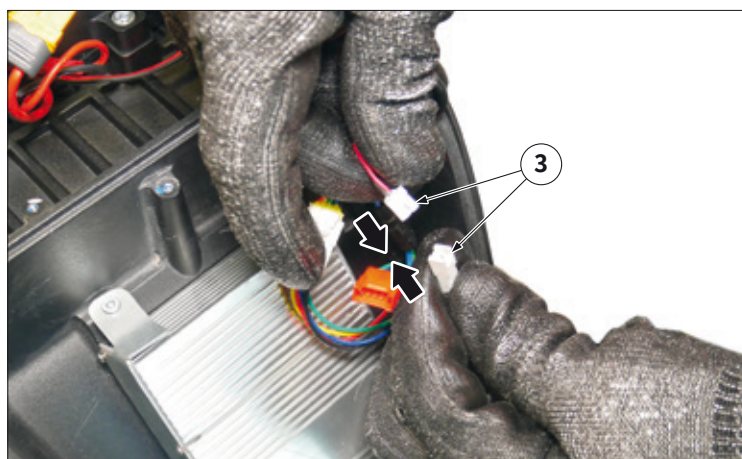
- Insert the control unit into the deck and secure it with the four screws "1";

 **e-Scooter control unit screw:**  
Apply medium threadlocker.

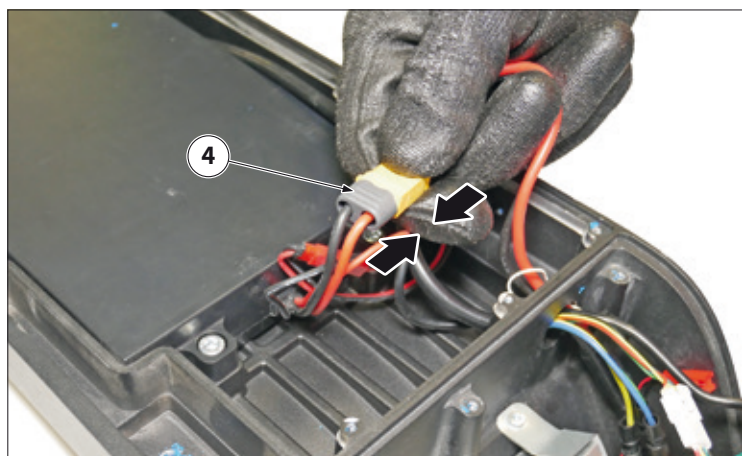
 **Tightening torque**  
E-scooter control unit screw: 1.5 Nm.



- Restore all connections "2" to the rear electric motor;

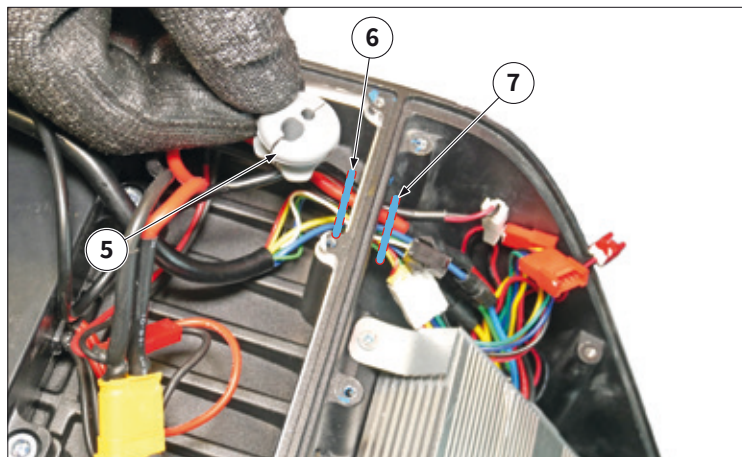


- Restore the tail light connection "3";

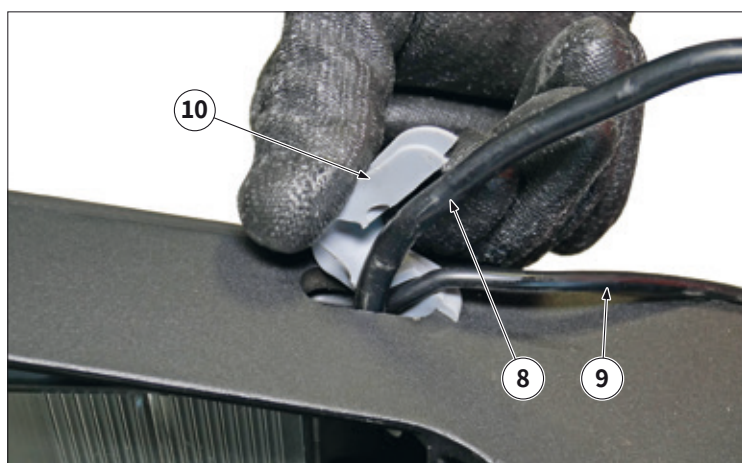


- Restore connection "4" to the battery;



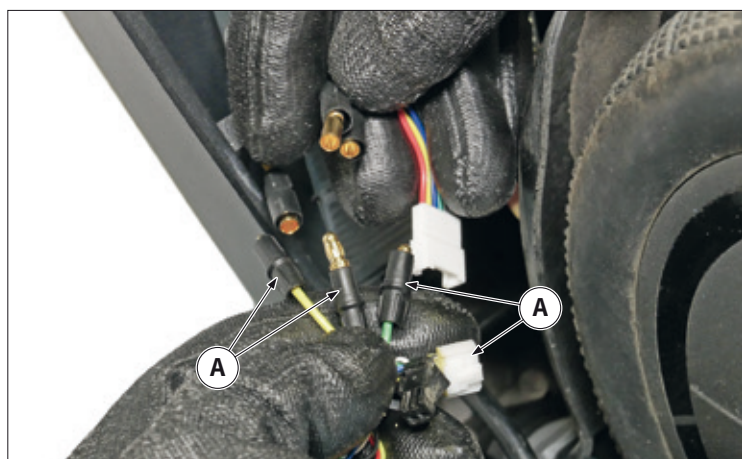


- Refit the cable gland "5";
- Install two new clamps at points "6" and "7";



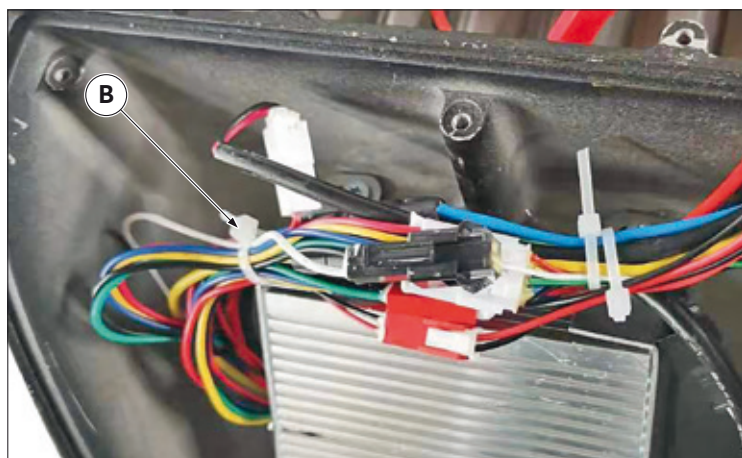
- Restore the passage of wiring harnesses "8" and "9" inside the control unit compartment;
- Refit the cable gland "10";

**⚠ Check that the external parts of the wiring harness are sufficient to allow rotation of the e-Scooter's steering.**



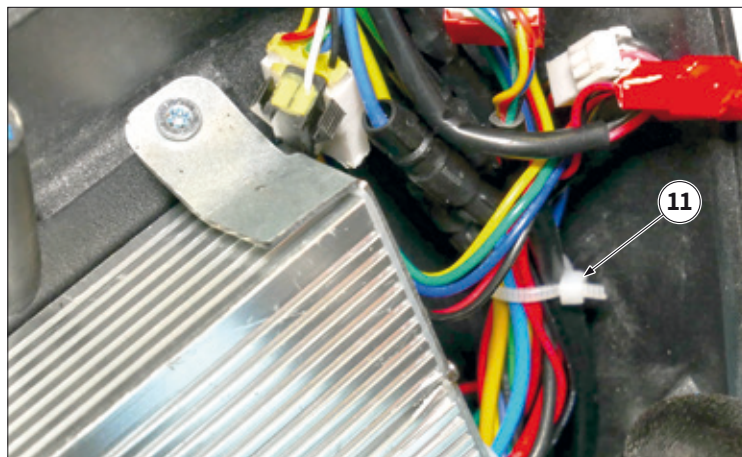
**(Only for TX2 version)**

- Restore all connections "A" to the front electric motor;



**(Only for TX2 version)**

- Install a new clamp "B";

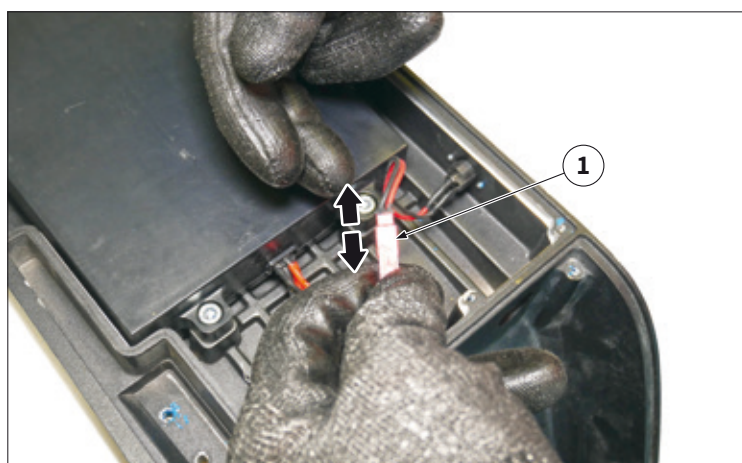


- Install a new clamp "11".

Subsequent operations:

- "Deck cover reassembly" on page 50;
- "Control unit cover reassembly" on page 48.

**i** Perform a complete test of the dashboard and electric motors functions.



### 9.3 BATTERY CHARGING SOCKET

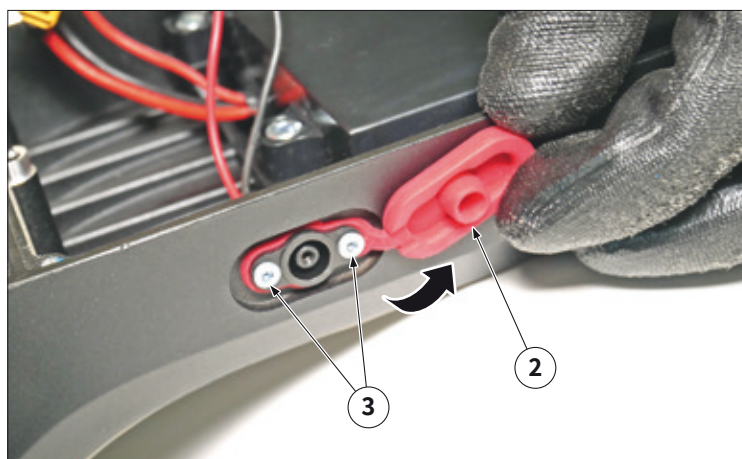
#### Battery charging socket removal

Preliminary operations:

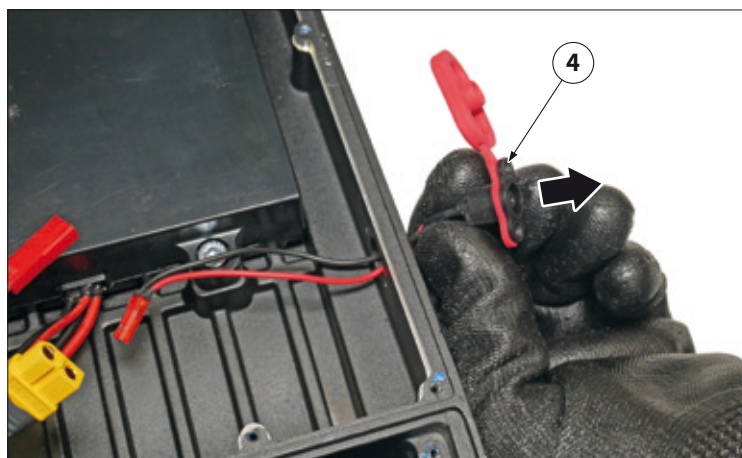
- "Deck cover removal" on page 50.

Proceed as follows:

- Disconnect charging socket "1" from the e-Scooter battery;

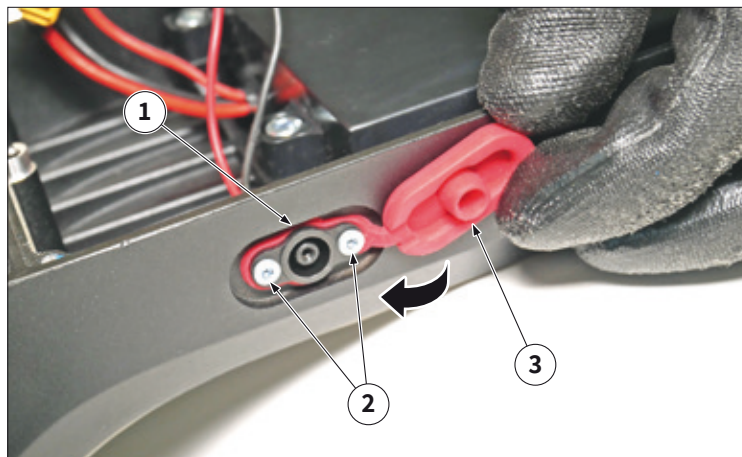


- Open the protective cover "2" of the socket and remove the two fastening screws "3";



- Pull out the battery charging socket "4".





### Battery charging socket reassembly

- Insert the charging socket passage hole "1" on the right-hand side of the deck;
- Secure the charging socket with the two screws "2";

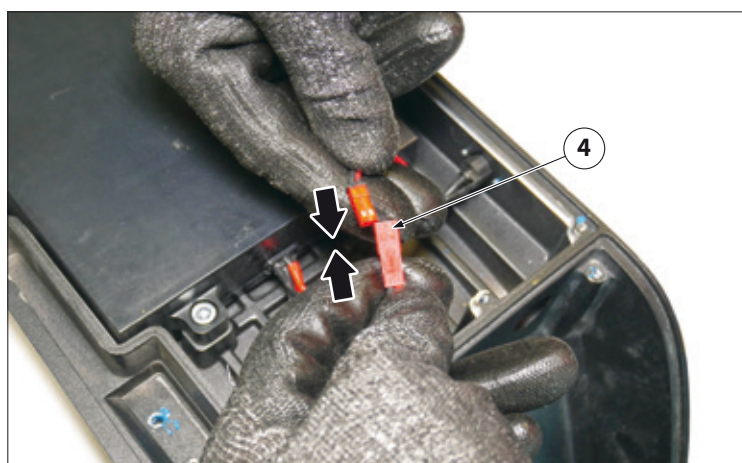


**Battery charging socket screw:**  
Apply medium threadlocker.



**Tightening torque**  
Battery charging socket screw: 1.5 Nm.

- Close the protective cap "3" of the charging socket;



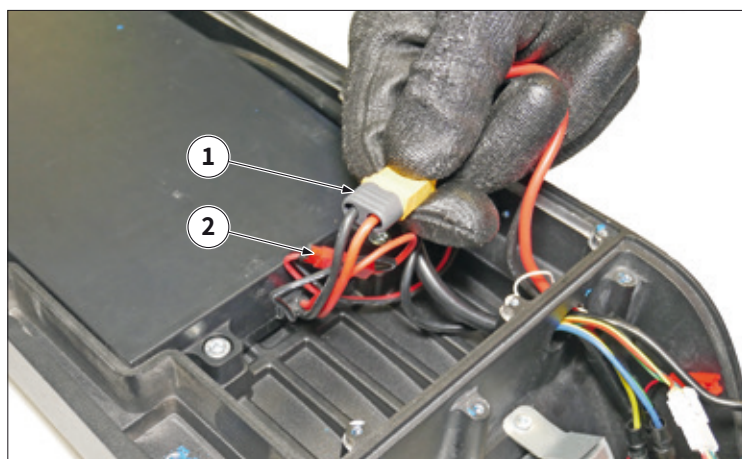
- Restore connection "4" of the charging socket to the battery of the e-Scooter.

Subsequent operations:

- "Deck cover reassembly" on page 50.



**Carry out a functional test of the charging socket by connecting a charger to the e-Scooter and checking that the battery is correctly charged.**



## 9.4 BATTERY

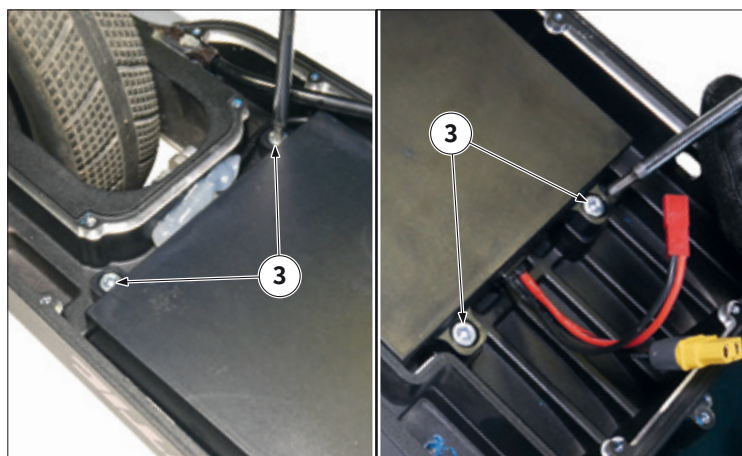
### Battery removal

Preliminary operations:

- "Deck cover removal" on page 50.

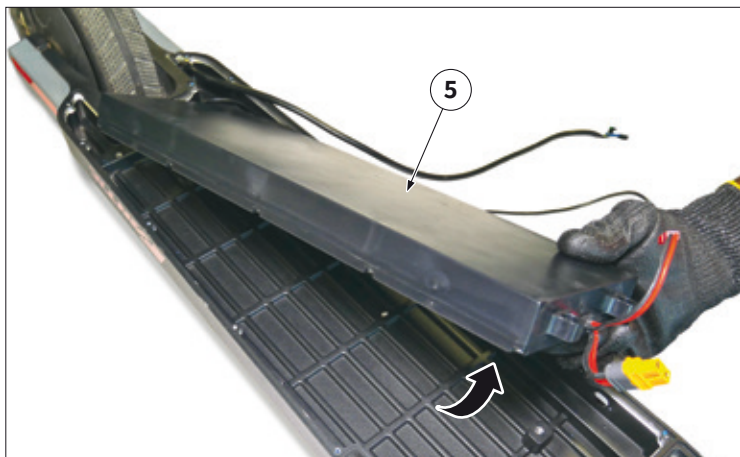
Proceed as follows:

- Disconnect the battery connection "1" to the control unit;
- Disconnect the battery connection "2" to the charging socket;

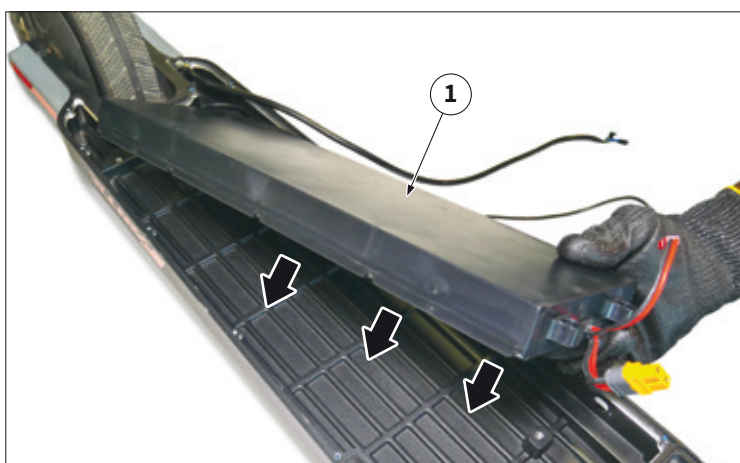


- Remove the four battery fastening screws "3";



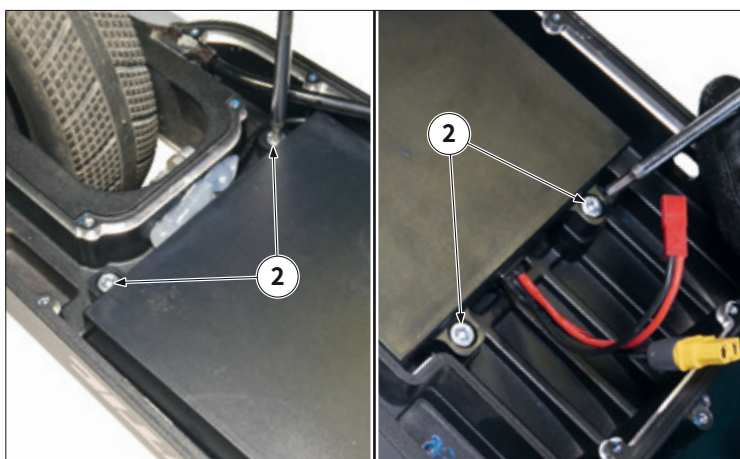


- Remove battery "5" from the main compartment of the deck.



### Battery reassembly

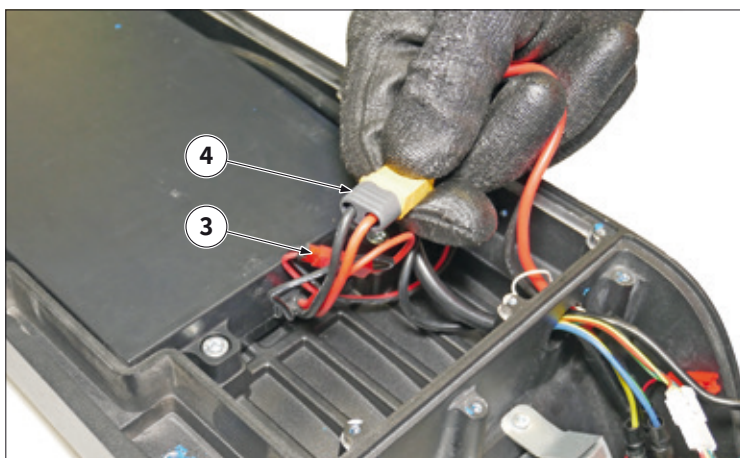
- Insert battery "1" into the main compartment of the deck;



- Fasten the four screws "2" on the battery;

 **Battery fastening screw:**  
Apply medium threadlocker.

 **Tightening torque**  
Battery fastening screw: 6.4 Nm.



- Restore battery connection "3" to the charging socket;
- Restore battery connection "4" to the control unit.

Subsequent operations:

- “Deck cover reassembly” on page 50.

**i** Perform a full functional test of the e-Scooter.