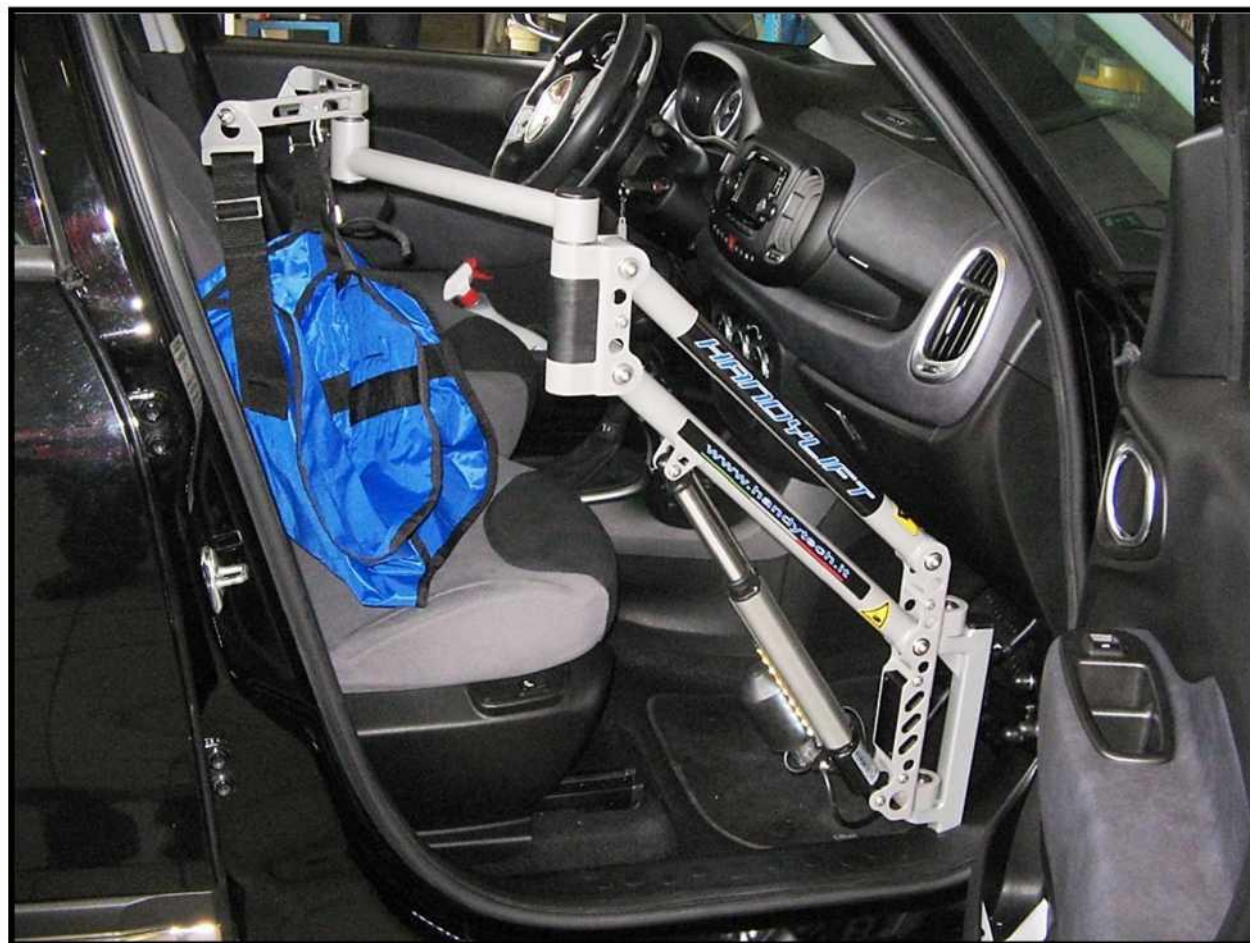


## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### *SPGHSV (for SPGH EVO)*

## MOUNTING BRACKET ON VEHICLE FOR A HOIST FOR PEOPLE



Code SPGHSV

***Remember that you are about to install a device in a vehicle to transport a disabled person. The device is therefore essential for making that person's life as normal and independent as possible.***

***We rely on your understanding, and we are certain you will carry out the work taking maximum care in order to guarantee reliable and long-lasting use.***

## CONTENTS

Technical characteristics.....	3
Preparing the vehicle .....	5
Installing the hoist .....	5
Electrical connections .....	13
Finishes .....	13
Wiring diagram.....	16
What to do if .....	17
Maintenance .....	19
Spare parts .....	20

## TECHNICAL CHARACTERISTICS

### A) GENERAL CHARACTERISTICS “SPGH EVO”

- System fitted with 3 rotation points to facilitate access to the vehicle
- Manual rotation and electric lifting system
- Electric motor fitted with an anti-crushing system
- Remote control
- Buttons for manual up and down movement

### B) MECHANICAL CHARACTERISTICS “SPGH EVO”

- Weight: 10.9 kg
- Lifting capacity: 110 kg
- Excursion: 400 mm standard

### C) ELECTRICAL CHARACTERISTICS “SPGH EVO”

- 12 Vdc power supply
- Maximum absorption 15A
- Limit switch integrated with the electric actuator

## COMPONENTS SUPPLIED

- 1 bag containing the SPGH EVO Hoist together with:
  - electric actuator
  - remote control
  - harness supporting bracket
  - standard harness
- 1 SPGHSV vehicle mounting bracket together with:
  - 1 Pack including the ferrous material to set up the mounting brackets:
    - 29 cm round profile Ø24mm
    - 49 cm boxed profile 30x20x3mm
    - 49 cm flat profile 20x8mm
    - 29 cm flat profile 50x5mm
    - 29 cm flat profile 80x5mm
  - 1 Bag including electrical equipment:
    - 2.5 m red cable with a 2.5 mm sec.
    - 1 m black cable with a 2.5 mm sec.
    - 0.5 m sheath Ø12mm
    - 1 x 2-way watertight male connector complete with a cable retaining plate
    - 2 female tips
    - 2 sealing gaskets for the connector
    - 1 modular fuse box (fixing plate, fuse holder and transparent cover)
    - 1 x 15A lamella fuse
    - 2 blue female isolated faston

- 2 blue isolated eyelet terminals Ø6
- 1 Bag including the fastening bolts
  - 4 Washers Ø8x32mm
  - 8 Washers Ø8mm
  - 2 Washers Ø6x24mm
  - 6 Washers Ø6mm
  - 4 Grower washers Ø8mm
  - 4 Grower washers Ø6mm
  - 8 Hex head screws M8x40mm R8.8
  - 2 Hex head screws M6x20mm R8.8
  - 2 Hex head screws M6x16mm R8.8
  - 2 Hex head screws M6x40mm R8.8
  - 1 Internal hex cylindrical head screw M6x10mm
  - 4 Self-locking nuts M8
  - 2 self-locking nuts M6
  - 4 Self-tapping bushes M8

## INSTALLATION

### PREPARING THE VEHICLE

- 1) Deactivate the battery of the vehicle and push the passenger seat backward.
- 2) Remove the bottom plastic of the door profile and the front upright cover (lower part), then lift the carpet and the sound-absorbing material towards the centre of the vehicle.
- 3) Use tape or other material to protect the vehicle's door profile during installation.

### INSTALLING THE HOIST MOUNTING BRACKET

- 1) Before setting up the supporting bracket of the hoist, the exact position of the bracket must be identified, considering the following points:
  - The support must be positioned in such a way that the hoist can be inserted and disconnected without interfering with the vehicle dashboard
  - The hoist must rotate freely on the support without interfering with the dashboard
  - During outward rotation, the lower part of the hoist must not interfere with the plastic cover of the door profile (lower part)
  - The support must not interfere with the front right door with the door closed and the hoist disengaged
  - The positioning of the support must allow the glove compartment to be fully or partially opened if it is positioned in line (photo A - A1)



Photo A



Photo A1



- While considering the above points, the support must be positioned as close as possible to the front upright so as to guarantee a rigid mounting and a large gap around the passenger seat (essential for the user's legs to pass correctly)
- 2) Considering the recommendations in point 1, we can now start setting up the lower bracket of the hoist support. This bracket must be set up with the ferrous material supplied and must always engage the support to the vehicle floor.  
Make an L-shaped bracket, as shown in photos B - B1 - B2, which, in addition to engaging the support to the floor, also engages it to the door profile.



Photo B

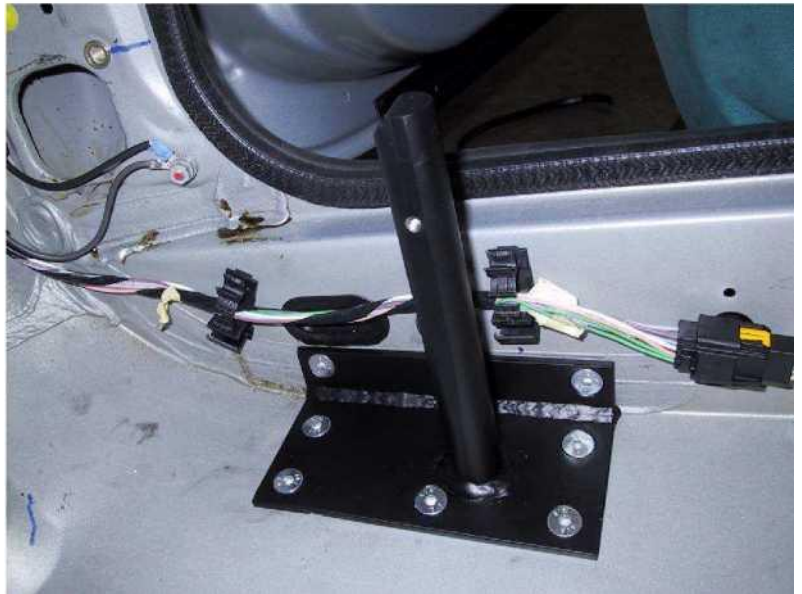


Photo B1



Photo B2

The bracket must be secured with at least four points which may be through-bolts or threaded rivets; as highlighted in the photos, the Ø24mm round profile will be welded on to the bracket where the supporting bracket will be inserted. The inclination of the latter will be established by levelling it with regard to the direction of travel and with a slight gradient toward the centre of the vehicle (to compensate for full load flexion).

- 3) Insert the supporting bracket into the lower bracket by grinding the Ø24mm round profile in two parts of its circumference so that it can be inserted freely as shown in photo C.

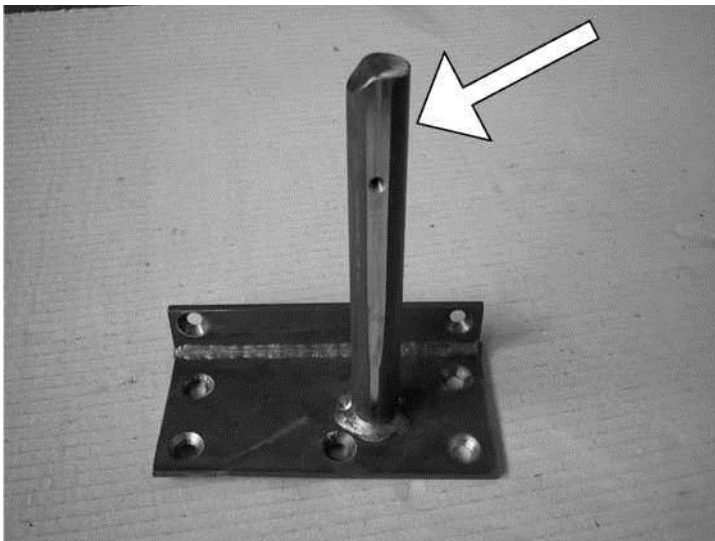


Photo C

- 4) After inserting the supporting bracket into the lower bracket, secure it with a clamp at the desired height so that the hoist can rotate freely without interfering with the lower plastic of the door profile. At this point, the upper mounting bracket can be set up while considering the preliminary instructions.

The supporting bracket is usually positioned parallel to the door profile of the vehicle, even if in some cases, due to particular vehicle features or user requirements, it can be oriented sideways (by a few degrees), towards the outside of the vehicle (photo D - D1).



Photo D



Photo D1

- 5) The upper mounting bracket is used to fasten the supporting bracket to the front upright and to the front wheel arch; this bracket supports about 90% of the weight to be lifted, therefore it must be set up in a robust manner, and be secured to the front upright (using studs, existing threaded holes or placing threaded rivets inside the existing holes) and to the front wheel arch by drilling the latter and, if necessary, placing a counter-plate on the outside of the wheel arch. Here are some examples of brackets and mountings (photo E-E1\_bracket, *F mounted to the upright*, G-G1\_bracket with counter-plate, H-H1\_mounted to the upright - next page, I-I1\_counter-plate - following pages). Use the supplied M8 bolts for the mounting on the wheel arch; as specified above, when mounting on the upright, secure to existing threaded holes, studs or threaded rivets inserted into existing holes, whereas, when mounting the upper bracket to the supporting bracket, use at least four M6 bolts, clearly threading the supporting bracket.





Photo E (bracket)



Photo E1 (bracket)



Photo F (mounted to the upright)



Photo G (bracket with counter-plate)



Photo G1 (bracket with counter-plate)



Photo H (mounted to the upright)



Photo H1 (mounted to the upright)



Photo I (counter-plate)



Photo I1 (counter-plate)

**N.B. While setting up the lower and upper brackets, it is very important to consider the path of the original wiring and the dimensions of the plastic covering of the door profile and the front upright so as to avoid interference with the wiring path , as much as possible, and to avoid excessive alterations to the plastic covering.**

- 6) After positioning the supporting bracket and securing it to the two supports (lower and upper), in turn secured to the vehicle, a hole must be made on the lower part of the supporting bracket with a  $\varnothing 4.8$  mm diameter and thread it M6 deep about 15 mm where an M6x10 mm bolt (supplied) will be tightened, which eliminates any clearance between the supporting bracket and the round profile  $\varnothing 24$  mm (photo L - L1).

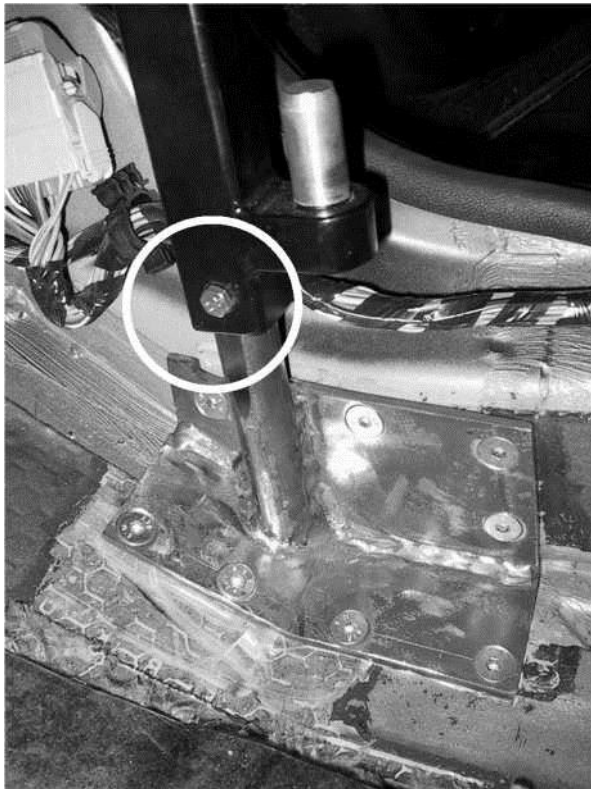


Photo L



Photo L1

- 7) At this point, a load test must be executed, therefore, insert the hoist on the supporting bracket and load about 100 kg (the simplest solution is to lift a person with a similar weight). This step checks the flexion of the upper mounting which varies according to the robustness of the front upright (different between the various models of vehicles) and the length of the upper mounting bracket. If the flexion is minimal, the set up bracket is sufficient for the hoist to be used correctly, whereas if the flexion is excessive, a tie-rod is required, which acts in the opposite direction to the applied load.



- 8) The tie-rod must be secured to the upper bracket (as close as possible to the supporting bracket) and to the dividing bulkhead between the passenger area and the motor compartment, as close as possible to the lower part of the dashboard so as not to interfere with the feet of the passenger. The mounting to the upper bracket will be executed by means of two M6 bolts screwed to the threads made on it, whereas the mounting to the vehicle will be executed with M6 or M8 bolts boring the sheet metal while paying attention for any wiring, the braking system and various pipes in the motor compartment (use existing holes, studs or M8 threaded rivets) (photo M *tie-rod*, photo M1\_ *tie-rod upper mounting*, M2\_ *mounted to the floor*, M3\_ *tie-rod*).



Photo M (tie-rod)



Photo M1 (tie-rod upper mounting)

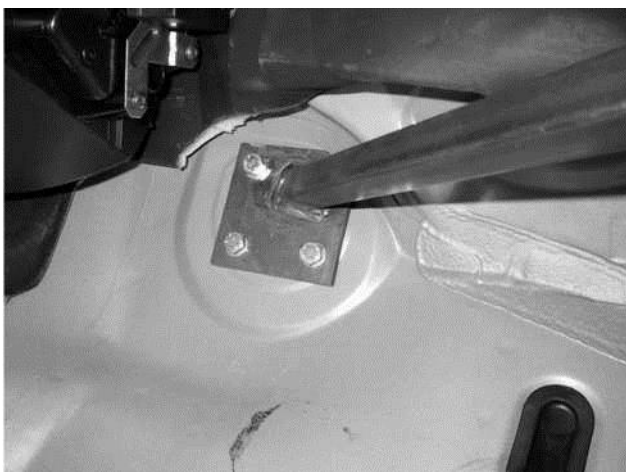


Photo M2 (mounted to the floor)



Photo M3 (tie-rod)

- 9) Perform the load test again with the tie-rod installed to verify its usefulness. Then dismantle the set up brackets, smoothen the sharp edges, grind the welds and paint with anti-rust and finishing paint.



## ELECTRICAL CONNECTIONS

It is advisable to implement the electrical installation before reassembling the supporting bracket.

The supplied red or blue cable with Ø2.5 mm cross-section must be connected to the positive pole of the battery, interrupting it with a fuse box for the supplied 15A lamella fuse (photo N). This cable must be sheathed and clamped to the original wiring in the motor compartment to reach near the supporting bracket of the hoist (the passage between the motor compartment and the passenger area will be implemented by using an original cable gland or by drilling and then fitting a cable gland).

The black cable with Ø2.5 mm cross-section must be secured to a mass point of the vehicle (almost always found near the front upright) by means of an isolated eyelet terminal. Then sheath it with the red or blue cable and tighten the ends of both terminals to insert it into the supplied connector (do not forget to insert the green grommets for waterproofing).

Black cable in position A and red or blue cable in position B on the connector (photo O).



Photo N



Photo O

## FINISHES

- 1) Refit the set up and painted brackets required to secure the supporting bracket by tightening the various bolts with particular attention and treating the holes with protective products (before tightening). Furthermore, the bolts or counter-plates that come out of the floor, the wheel arch and in the motor compartment must be sealed with body sealant to prevent any water infiltration; the cable gland in which the power cable passes, must also be sealed.

- 2) Cut out the insulating mat on the floor (if necessary) and the floor covering (if necessary), reposition the original wiring if previously removed, and cut and shape the lower plastic of the door profile and the front upright. This last step must be carried out with particular attention so as to achieve a good aesthetic result, increasing customer satisfaction (photo P, P1, P2, P3 and P4).



Photo P



Photo P1



Photo P2



Photo P3



Photo P4

- 3) Permanently install the plastics and remount all previously disassembled parts, secure the male connector on the vehicle so that the female part on the hoist can easily be inserted and does not restrict its movements (photo Q - Q1).



Photo Q



Photo Q1

- 4) Perform a functional test of the device, paying particular attention to the ease of rotation of the various pivot points of the hoist. Furthermore, adjust the mountings on the four buckles of the harness (this adjustment must be made according to the user's characteristics).

**N.B. On some types of vehicles or for special user requirements the opening of the right front door might need to be increased so as to increase the operating space.** To increase the opening, you can thicken the mounting of the tie-rod to the upright or extend the tie-rod naturally after disassembling it from the vehicle.

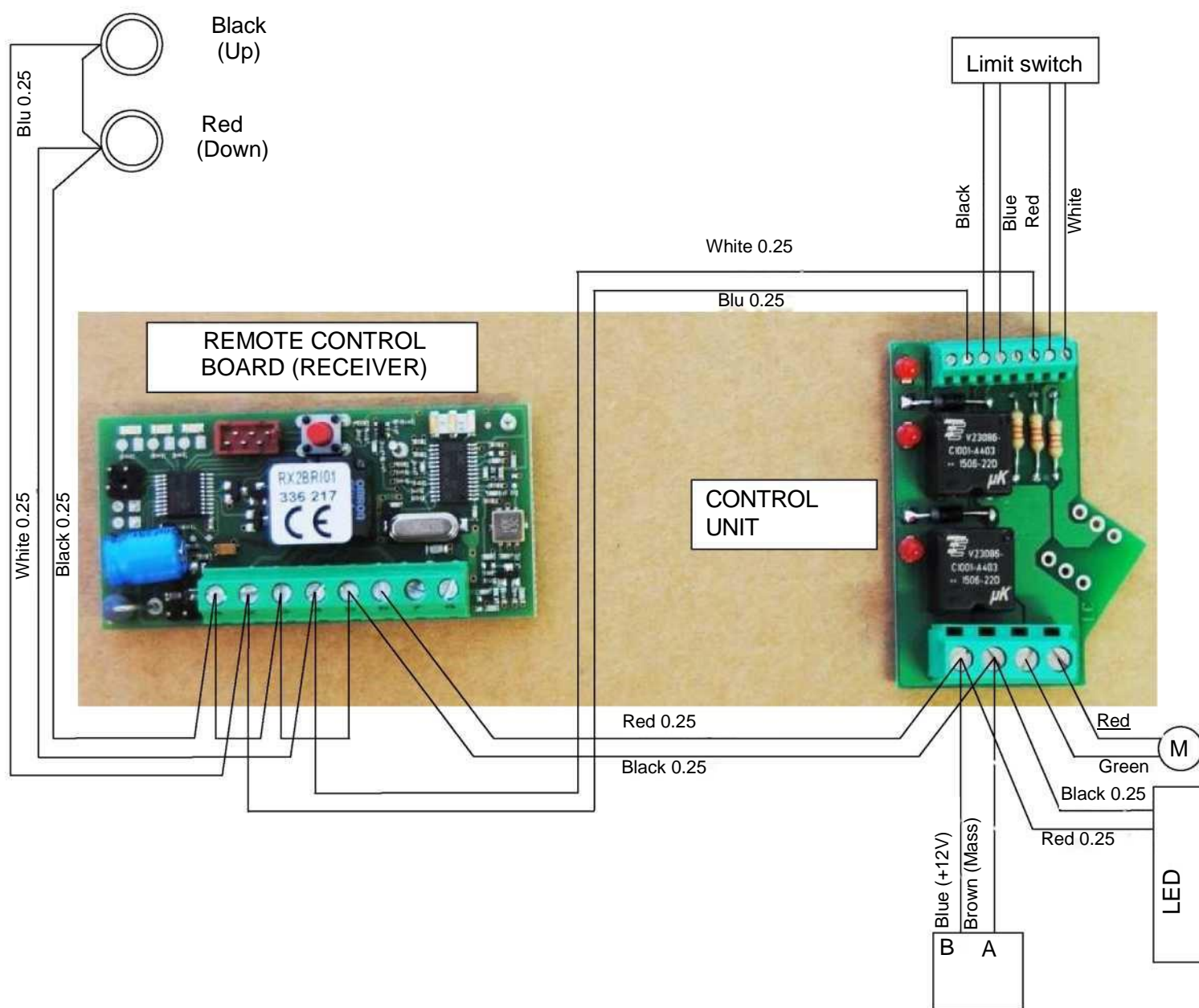
**It may also be useful to increase the travel of the front right seat toward the back part of the vehicle to increase the useful space for the user's legs (photo R).** Increase the excursion of the seat by modifying or staggering the original guides. This must be assessed according to the model of the vehicle.



Photo R



## WIRING DIAGRAM





## What to do if ...

1. After inserting the power connector of the hoist, it does not work after pressing the activation buttons
  - Check that the connector is inserted correctly and the cables inside it are positioned correctly.
  - Check that operation is correct by using the two manual control buttons. If operation is correct, check the charge of the battery inside the remote control.
  - Check the 15A fuse that protects the power cable.
  - Check the point where you connected the mass.
2. During the up and/or down movements of the hoist, the motor does not stop automatically but is pressurised
  - Check that the limit switches inside the aluminium profile under the rubber cover work properly (photo S); otherwise, they must be adjusted.
  - Check that the actuating rod of the limit switches is securely attached to the support that moves it (photo T).

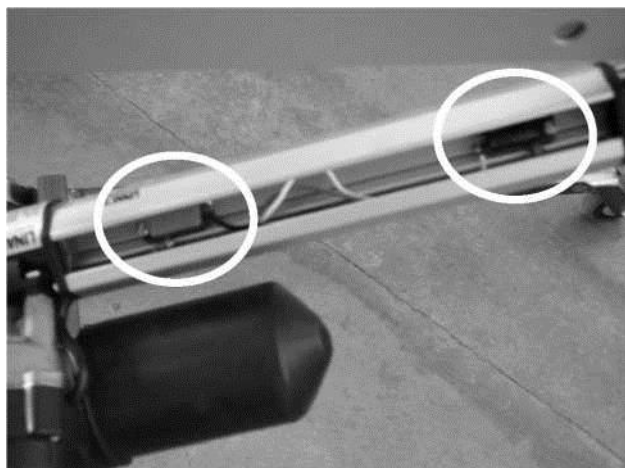


Photo S

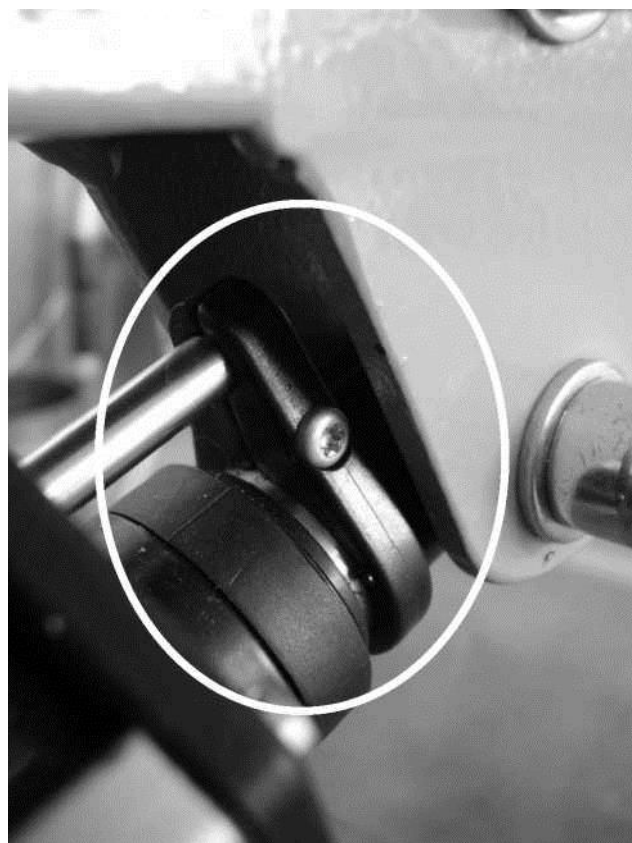


Photo T

3. Inserting the various parts of the hoist on to the rotating pins is particularly difficult and the rotation is not smooth.

- Lubricate the plastic bushings with Teflon spray.
- If the lubrication does not resolve the problem, clean inside the bushing with 150 grit sandpaper.

**If the hoist has a problem that is not listed, you must contact CARROZZERIA 71 s.r.l.**

## **MAINTENANCE**

### **First check: 1,500 km or 3 months**

1. Check the tightening of the fastening bolts of the hoist supporting bracket to the vehicle
2. Check lubrication of the rotation points
3. Visually inspect the electrical connection between the battery and the hoist, verifying that there is no oxidation on the electrical contacts
4. Check the charge of the battery inside the remote control
5. Check the operation of the hoist and that the limit switches that limit the operations work correctly
6. Check that the anti-crushing system works properly
7. Visually inspect for mechanical faults
8. Check for any abnormal clearance or noise during operation
9. Check the integrity of the buckles that are part of the harness.
10. Check that the emergency controls work properly.

### **Checks to be made at 12 and 24 months**

Repeat the inspections carried out at 1,500 km or 3 months

Check the integrity of the harness and all its parts (if necessary, replace it)

### **NOTE:**

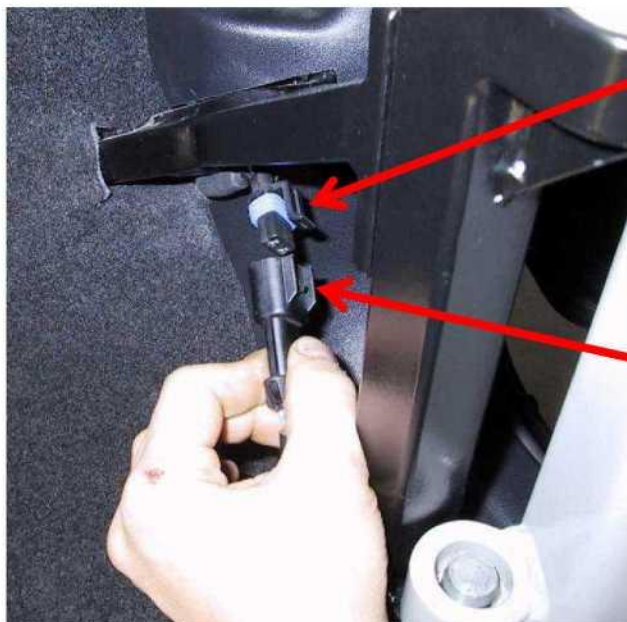
**After 2 years it is advisable, together with Carrozzeria 71 s.r.l., to check the system condition and substitute any parts that need to be replaced.**

**We remind you that outside the warranty period the maintenance program is at your discretion, but we recommend following it scrupulously because neglecting it could cause system anomalies and disadvantages in addition to creating danger while driving.**

**Any maintenance work on the device shall be fully borne by the customer both when the device is covered by warranty and not.**

## **WARRANTY: 24 MONTHS**

## SPARE PARTS



**Code: SPGH/R/E-01 :**  
Male connector

**Code:**  
**SPGH/R/E-02:**  
Female connector

**Code:**  
**SPGH/R/E-03:**  
Up limit switch

**Code:**  
**SPGH/R/E-04:**  
Down limit switch

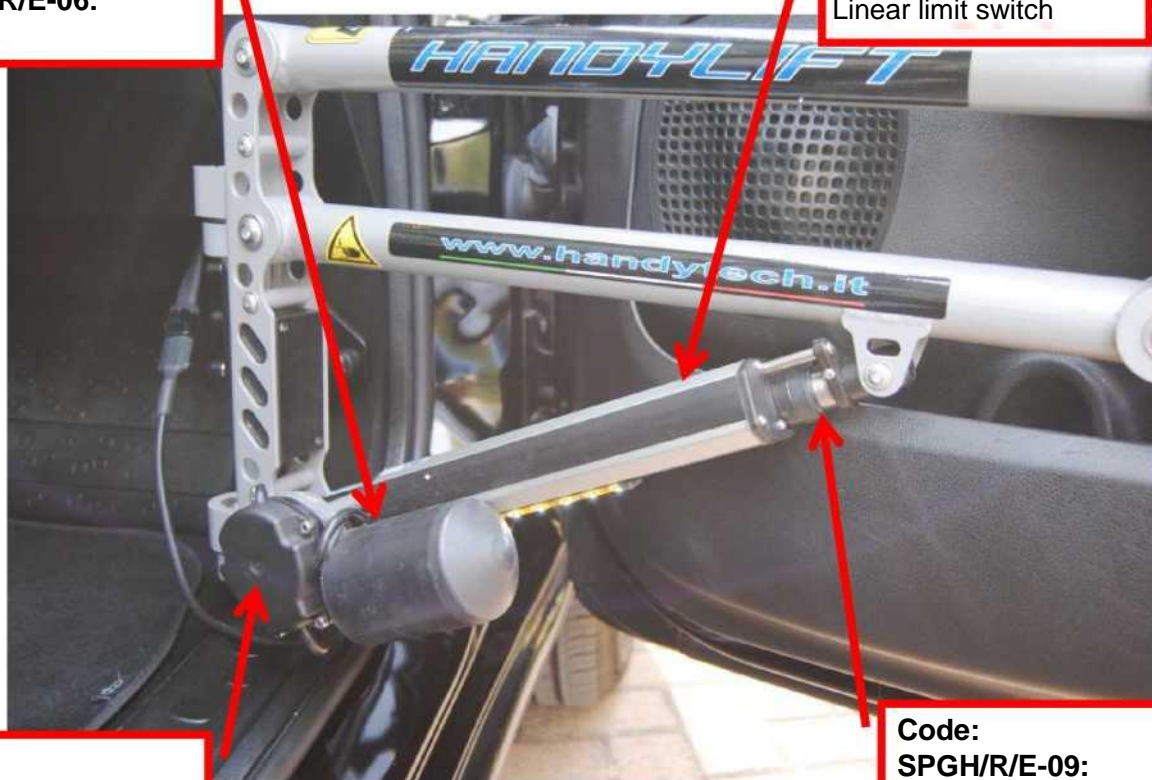


**Code:**  
**SPGH EVO/R/E-12:**  
Transmitter



**Code:**  
**SPGH/R/E-06:**  
Motor

**Code:**  
**SPGH/R/E-07:**  
Linear limit switch

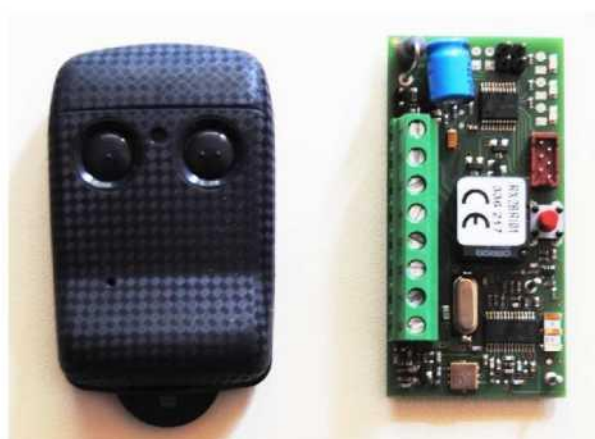
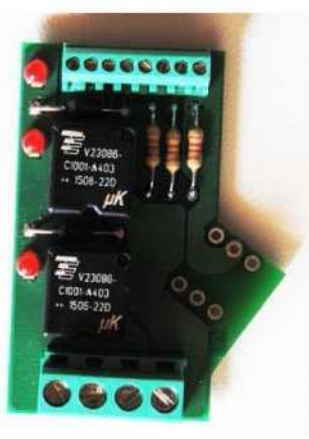


**Code:**  
**SPGH/R/E-08:**  
Motor cover

**Code:**  
**SPGH/R/E-09:**  
Actuator stem

**Code SPGH EVO/R/E-14:**  
Control unit

**Code SPGH EVO/R/E-15:**  
Complete remote control



**Code SPGH EVO/R/E-13:**

Complete servomotor unit including: SPGH/R/E-06/07/08/09 + SPGH EVO/R/E-14

**Code:**

**SPGH EVO/R/M-12:**

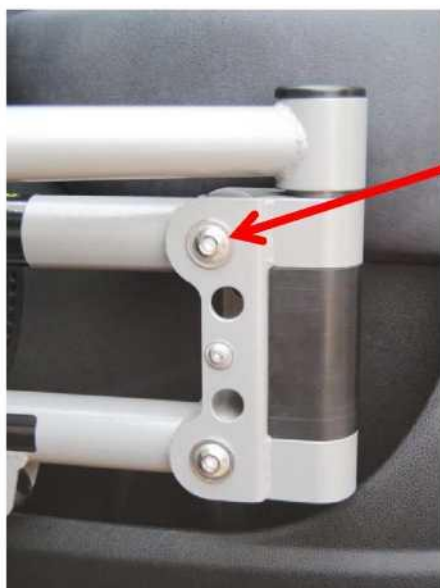
Self-lubricating bushing



**Code:**

**SPGH EVO/R/M-11 :**

Plastic bushing



**Code:**

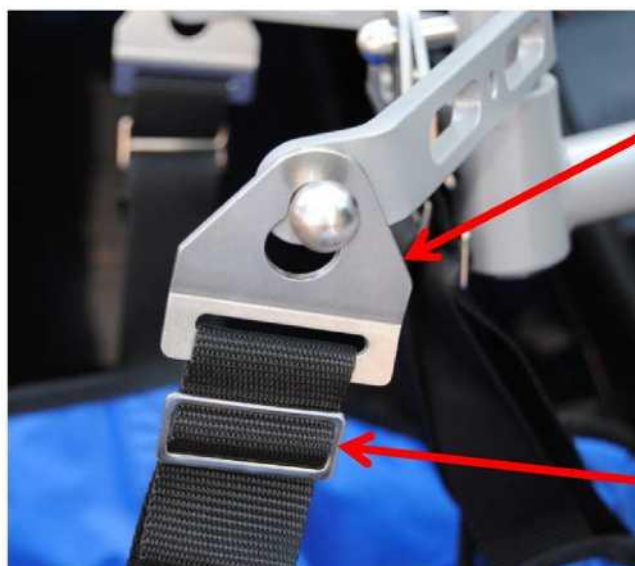
**SPGH EVO/R/M-13:**

Pin + fixing screws



**Code:**  
**SPGH EVO/R/M-14:**  
Harness support

**Code:**  
**SPGH EVO/R/M-15:**  
Bracket



**Code:**  
**SPGH/R/M-06:**  
Buckle

**Code:**  
**SPGH/R/M-07:**  
Buckle

**Code SPGH EVO/R/M-16:**  
Small harness

**Code SPGH EVO/R/M-17:**  
Large harness



**Code SPGHSV:**

Supporting bracket for vehicle, complete with components for the electrical system and ferrous material to set up the clamping brackets to the vehicle.