



FITTING INSTRUCTIONS

UNDER RING ACCELERATOR



PRODUCT CODE → HT-SPEED DOWN



We just remind you that you're installing a driving device for disable people, so this device will be essential for a life as normal as possible in full autonomy.

Sure of your comprehension, we're certain that you'll install our device with the maximum attention in order to guarantee a trustable and lasting use.

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DEVICE PRESENTATION

A traction towards the steering wheel allows accelerating gradually.

The upper part of the steering wheel is completely free, because the device is placed on the lower part, so to facilitate the transfer from the wheelchair to the driver seat, the use by drivers without disabilities and the wheelchair loading inside the vehicle.

The innovative design of the device, the four available colors of the leather coatings combined with the black matt and the two possible colorations (Silver or Black) of the finishing plates, allow its integration with the more and more modern and technological vehicles 'interiors.

The functional unit has been developed with the same care for the design and for the electronic part, allowing preserving the original vehicle safety features (air bag, steering wheel settings, additional steering wheel controls).

The installation of the device is possible on different marketed vehicles, thanks to its different setting possibilities.

The electrical part of the device is activated by a push button and has an interface for the different vehicles' electrical plants, keeping unaltered the original accelerator and Cruise Control working, if present.

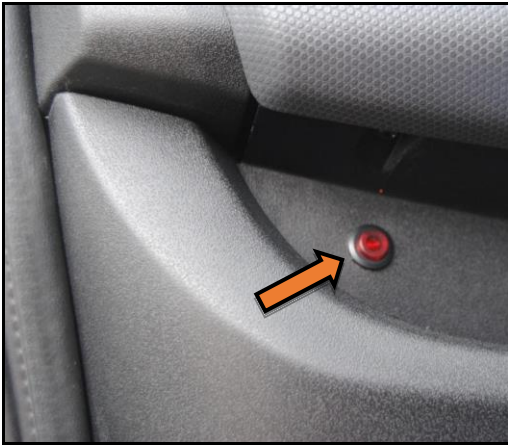
The parking assist switch and the automatic activation of the original kick down, pressing completely the ring, makes the system unique, complying the needs of any driver.

In comparison with similar marketed devices, its distinctive feature is that the control unit data must be entered by the manufacturer and they are not automatically loaded from the system after installing on the vehicle. All this assures absence of malfunctioning to the original electronic components of the vehicles.



Picture 1

An electronic push button with red Led switches on the device within 30 second after the vehicle's ignition.



Picture 2

The device can be installed on vehicles with original electronic pedal accelerator, with automatic or mechanical transmission.
The device is combined with a manual brake.

HT-SPEED DOWN INSTALLATION

Ring installation

- Disconnect the vehicle's battery.
- Wait at least 20 minutes before removing the air bag from the steering wheel, following the instructions of the vehicle's manufacturer.
- Disconnect any wirings inside the steering wheel from the connector of the air bag spiral.
- Unscrew the bolt or the screw that restrains the steering wheel to the steering column.
- Mark by a felt-pen the alignment between steering wheel and column, if there is not an obligatory clutch or an original sign.
- Remove and overturn the steering wheel laying it on a flat surface.
- Insert asymmetrically on the right and left side of the steering wheel the ring support brackets (Picture 3). The two curved parts of the bracket must perfectly cling to the steering wheel. Otherwise, it is possible to increase their diameter by rib joint pliers covered by fabric or other material, to avoid damaging the bracket painting.



Picture 3

- Place the support bracket of the accelerator sliding system on the two brackets already positioned (Picture 4), tightening provisionally the supplied M6 screws (Picture 5).

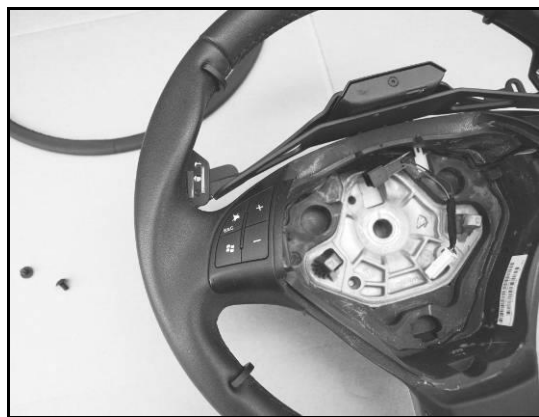


Picture 4



Picture 5

The bracket must be as adherent as possible to the steering wheel upper part so to not compromise the visibility of the controls panel. (Picture 6-7).



Picture 6



Picture 7

- Push sideways by a plastic lever for clips extraction between the support brackets fixed to the steering wheel and the support bracket of the sliding system (Picture 8-9) to increase the pressure of the brackets on the inner edge of the steering wheel.



Picture 8



Picture 9

At the same time tighten the M6 screws. Repeat this operation twice or three times for each part so to obtain a firm clamping and to align perfectly the device to the steering wheel.

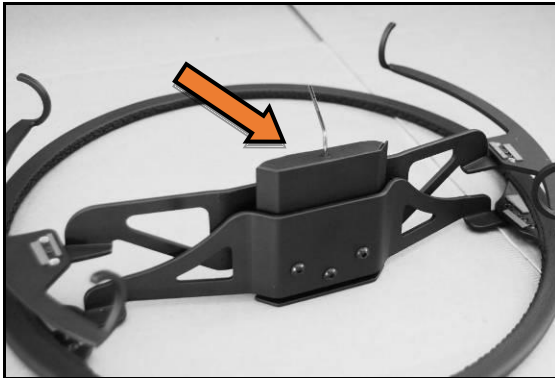
- Place the leather-covered ring in the upper part of the sliding support with the “soft” part of the ring towards the driver.
After aligning concentrically the ring with the steering wheel, tighten it to the sliding support by the supplied M6 screws (Picture 10).



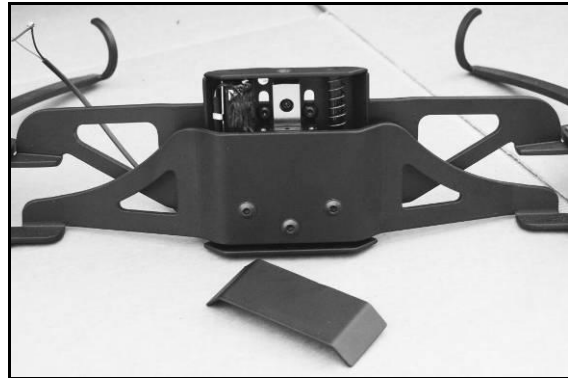
Picture 10

- Verify the correct parallelism between the ring and steering wheel (the lower part must be some degrees more open than the upper part to compensate the bend during the use). Verify the correct sliding of the device.

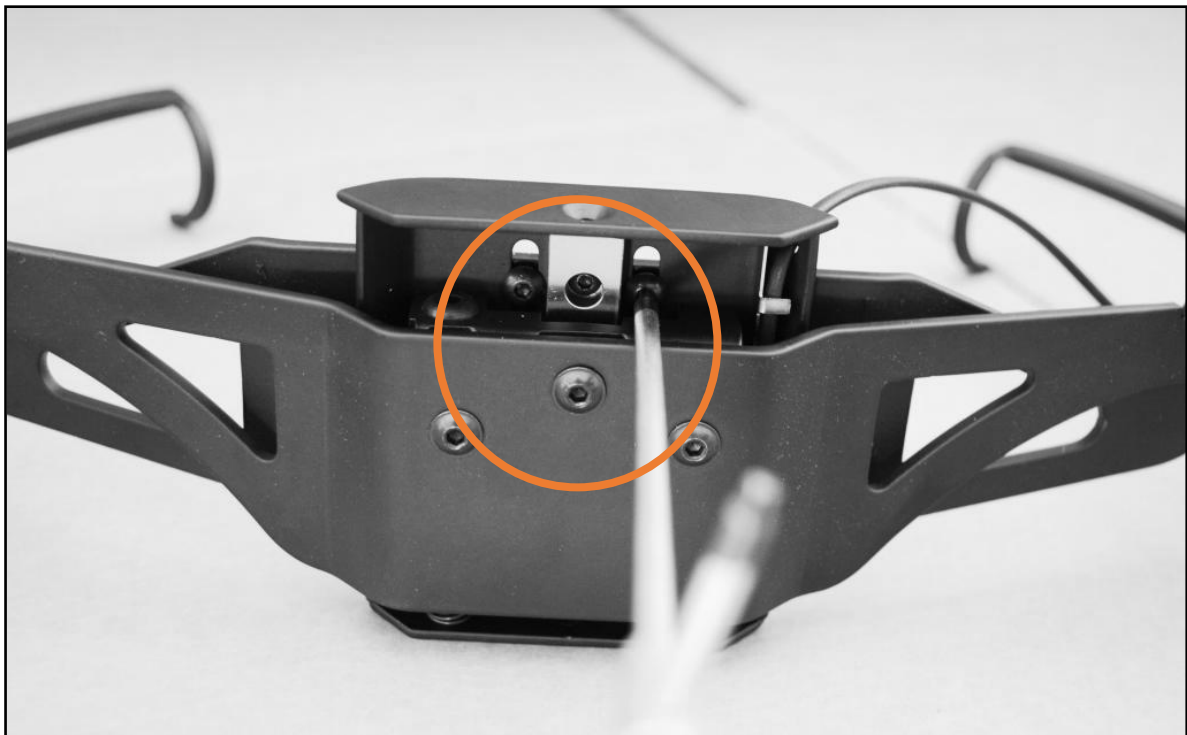
- With full pressed ring (against the steering wheel spokes) the sliding system must cover about 22mm (its maximum stroke). Otherwise, disassemble the lower case of the sliding system (Picture 11-12) losing the M3 hexagon socket head screw, to loosen the four M4 screws that restrain the sliding system to the support bracket and set (Picture 13)



Picture 11



Picture 12



Picture 13

Assembly and tighten all before disassembled and loosened.

- Place the steering wheel with the ring on the steering column, verifying that there is enough space for the fingers between the ring and the original controls (Picture 14-15).

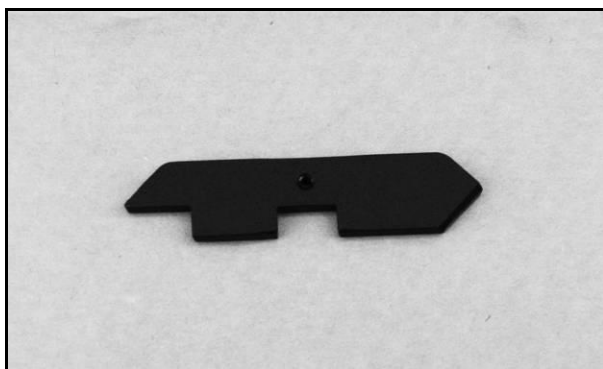


Picture 14

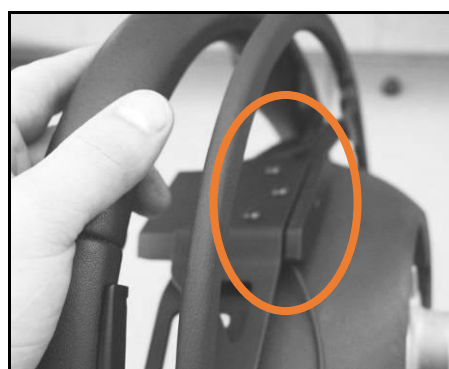


Picture 15

If there is no adequate space, insert the 5mm supplied thickness (Picture 16) to reduce the device's stroke.



Picture 16



Picture 17

The thickness must be placed on the sliding system in the contact area when at rest (Picture 17) and fixed by the supplied M3 countersunk screw.

- Make the electrical connections as showed in the wiring diagrams pages 13-14-15 in accordance with the cases.

- Re-insert the original wirings, tighten the steering wheel and reassemble the air bag.
- Verify the several parts clamping and fix the finishing plates (clean carefully) after removing the protective film of the double-sided adhesive tape of the device. (Picture 18-19).



Picture 18



Picture 19

Activation push button and PARK switch installation

The activation push button of the device must be placed in a visible area of the user, avoid the reflection of the red Led on the front windscreen during the night use. Locate the right position, drill a 17mm diameter hole and insert the button with the wiring (Picture 20).



Picture 20

The PARK switch must be placed in a user easily accessible location (Picture 21-22).



Picture 21

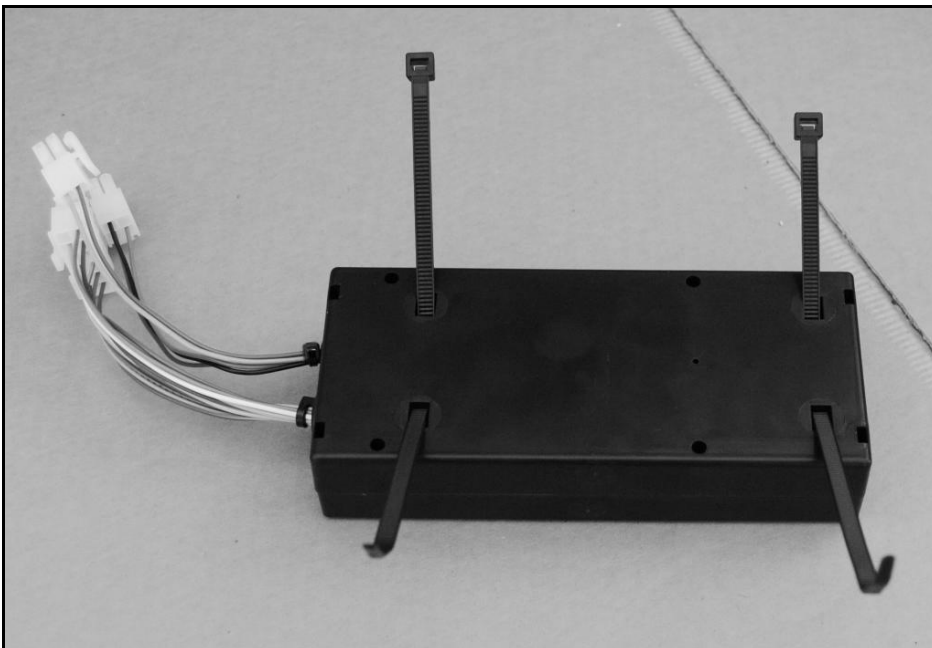


Picture 22

Drill a 13mm diameter hole, insert the switch with the finishing plate and screw the thread nut on the switch back.

Electronic control unit installation

The device electronic control unit must be placed in the area under the dash board, considering the inspection or verification need of the quick visual diagnosis system. Fix by plastic straps in the slot of the control unit box (Picture 23), tighten on wirings or supports of the vehicle in the located area.



Picture 23

Electrical connections

Wiring diagram A page 13.

Note:

- *: (when the device is not combined with a brake lever or when combined with the Handytech manual brake HT-FRO) connect the brown cable to the +12Vdc of the STOP power switch and the brown/red cable to the power cable on the STOP power switch (+12Vdc with pressed pedal).

Some vehicles are equipped by STOP LED lights, that switch on by a tension of 5Vdc instead of 12Vdc.

In this case, please contact CARROZZERIA 71 SRL for the connections that involve a micro switch.

- **: (when the device is combined with the Handytech brake lever HT-PUSH) connect the brown cable to the cable on the HT-PUSH wiring and the brown/red cable to the green cable on the HT-PUSH wiring.
- ***: Way 1 (white cable on control unit side and grey cable on pedal side) and Way 2 (blue wire on control unit and violet wire on pedal side) are analogical ways, parameterizable from 0 to 5V.
Connect the Way 1 to the accelerator pedal original wiring on the cable with a bigger tension variation during the acceleration. Therefore connect the way 2 to the cable with inferior tension variation (normally the Way 1 tension values are twice compared to Way 2).
Connect the red-yellow cable to the earth cable on the pedal accelerator wiring.
Do not take the earth from the body.

It the vehicle's signals are not analogical or linear and they are not included between 0V and 5V, please contact CARROZZERIA 71 SRL.

- ****: in the device there is one parameterized contact (pink and green wires) as *Kick Down* contact (it closes at full acceleration).
This allow activating the Kick Down contact if unconnected and separate from the original pedal accelerator potentiometer.

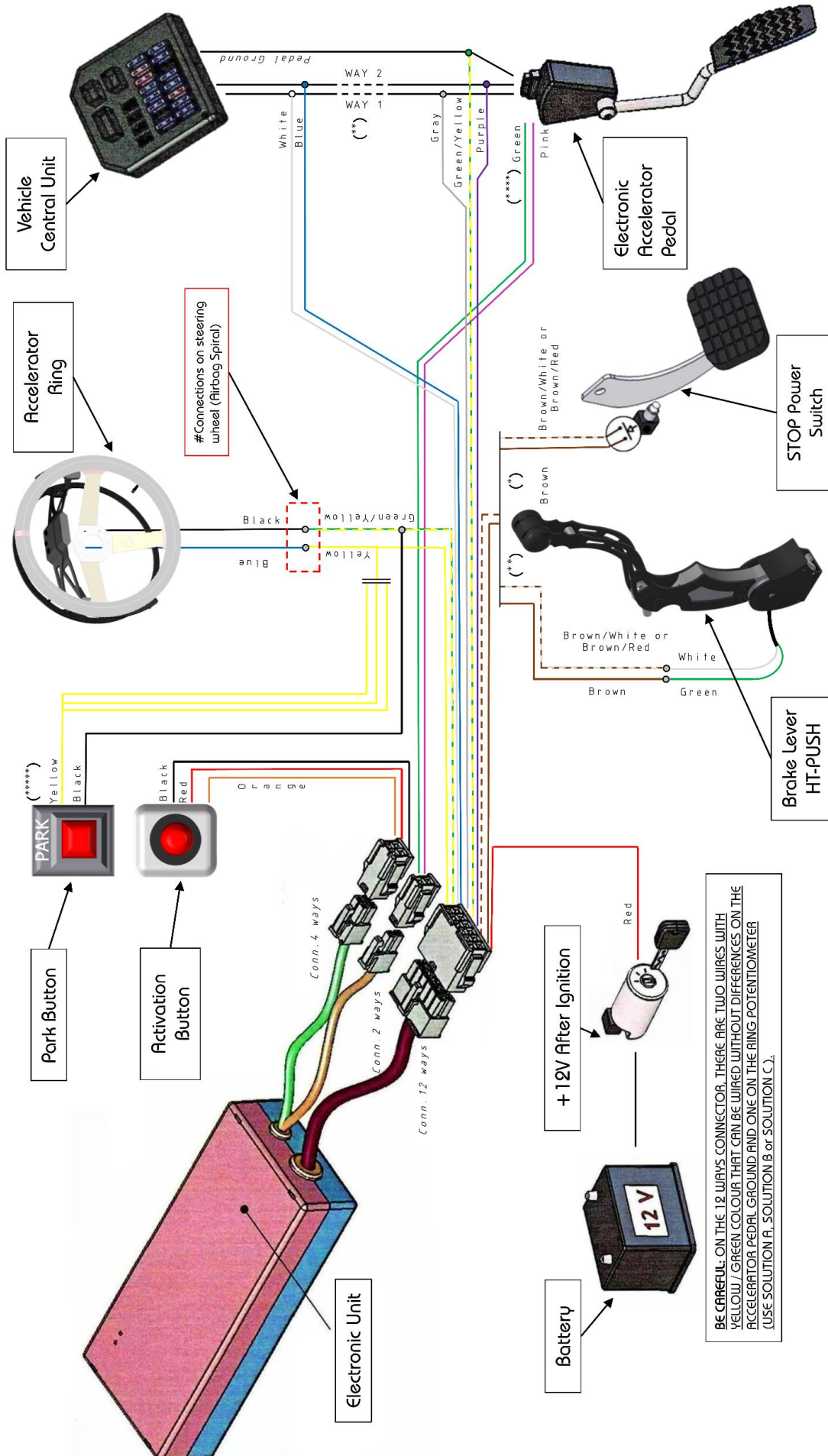
*****: there is a PARK switch that limits the acceleration for an easier parking or a more fluid use of the device.
Connect in parallel the black cable of the PARK switch to the yellow/green cable of the device main control unit.
The PARK switch has four possible connections to reduce the device acceleration of several percentages. Connect the chosen connection to the yellow cable of the device main control unit.
 - **red/black – about 65% reduction**
 - **white/red – about 50% reduction**
 - **red/blue – about 35% reduction**
 - **blue – about 45% reduction (just for Speed Down with spacer installed)**

 ***PAY ATTENTION:***

**Make every electrical connection with the maximum care
Tinplate the cables and do not use any cable clamp; cover the tinned part by heat shrinkable sheath or by insulating tape.**

Keep the wiring away from heat sources, mechanical moving parts and chemical agents.

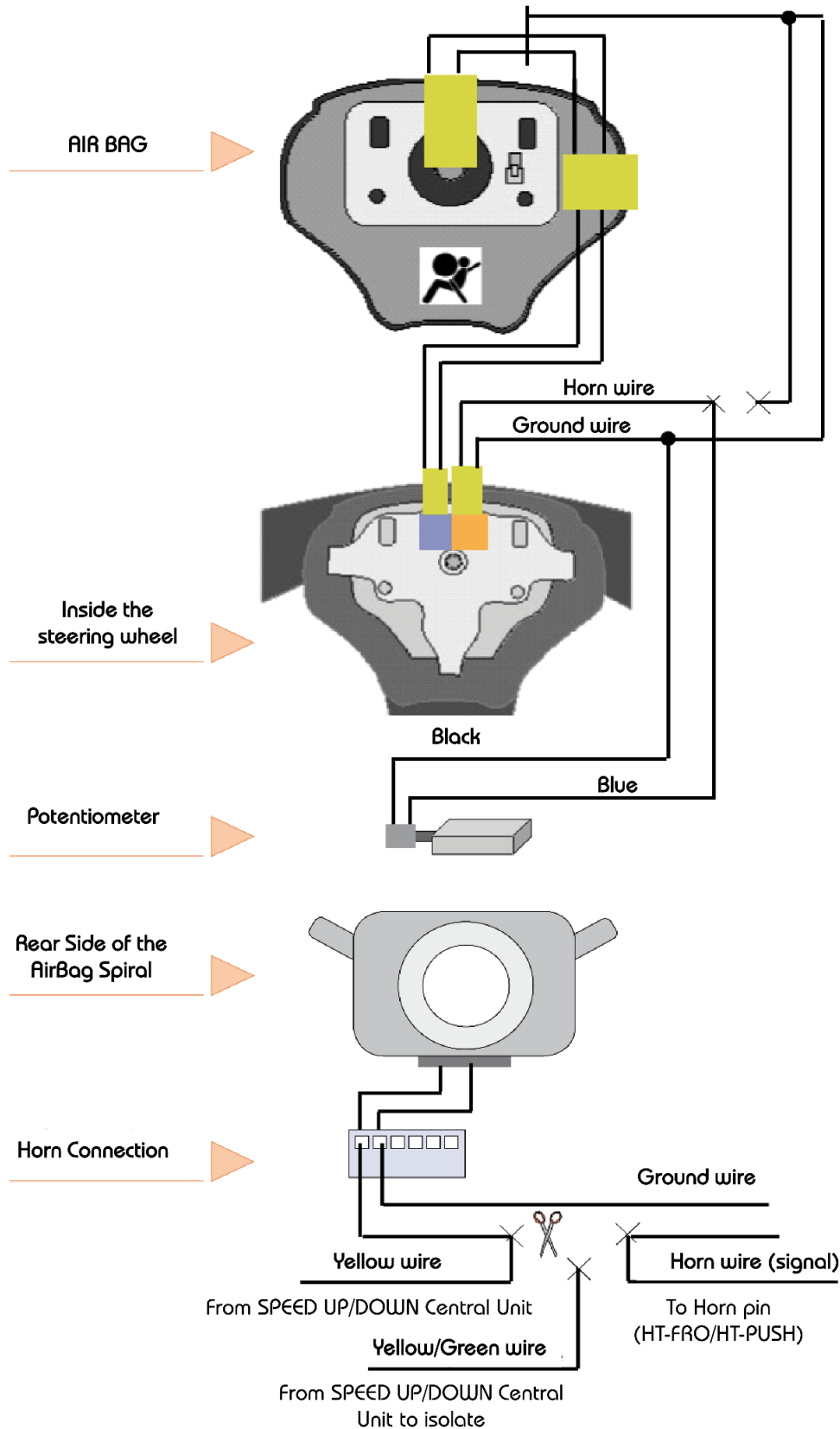
 ***Please verify during the installation that the values Way 1 and Way 2 on the label of the control unit are the same of the vehicles.***



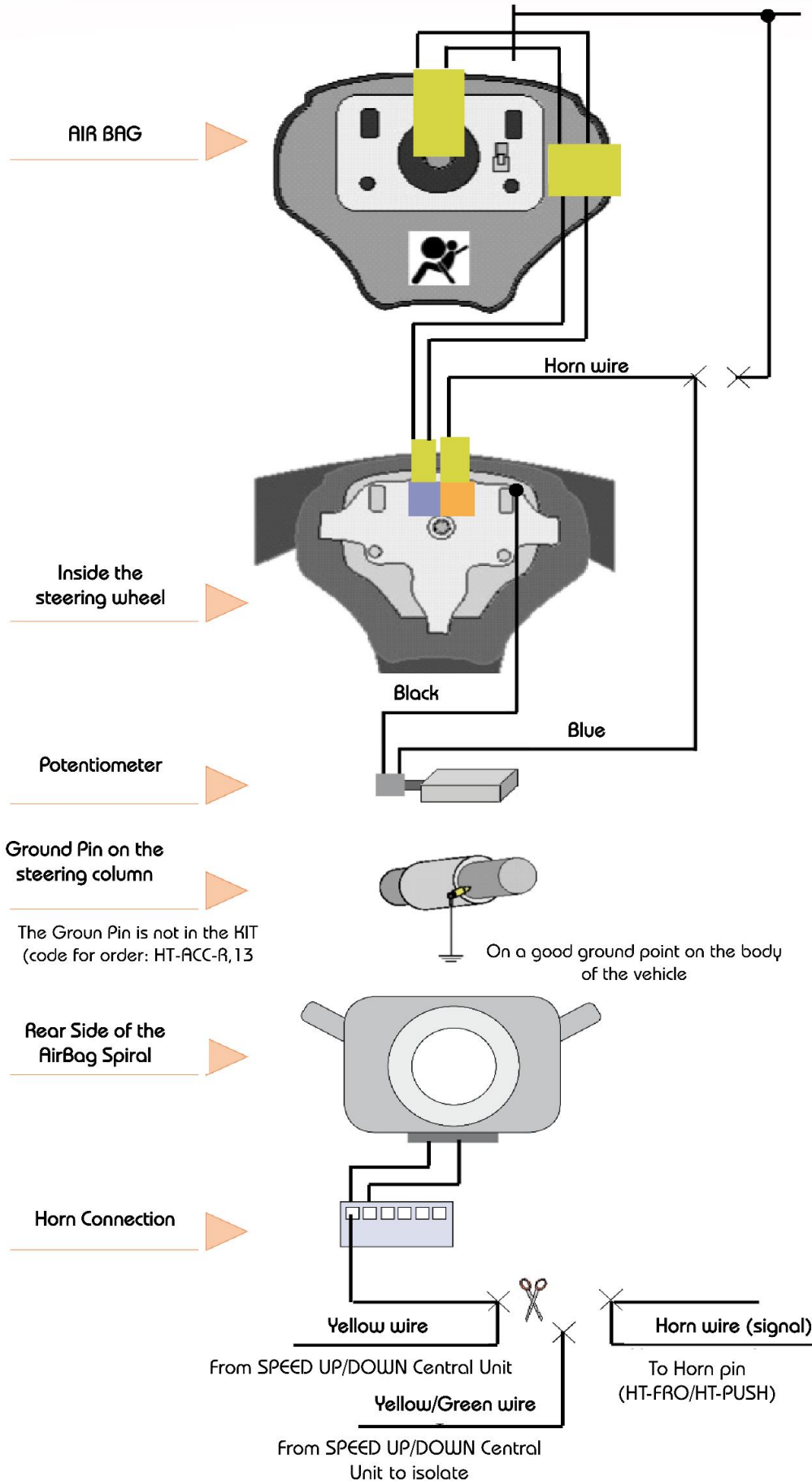
"A" SOLUTION

Wiring Diagram on AIR BAG spiral (Horn and ground signals are independent)

The aim of this operation, is to create a connection between the Blue wire of the potentiometer and the Yellow wire of the Speed Up/ Speed Down electronic unit. If it wouldn't be possible to use an internal steering wheel ground, create a connection between the Yellow/Green wire of the Speed Up/ Speed Down electronic unit and the Black wire of the potentiometer.



"B" SOLUTION
Wiring Diagram on AIR BAG spiral
(Horn and ground wires on Steering Column)

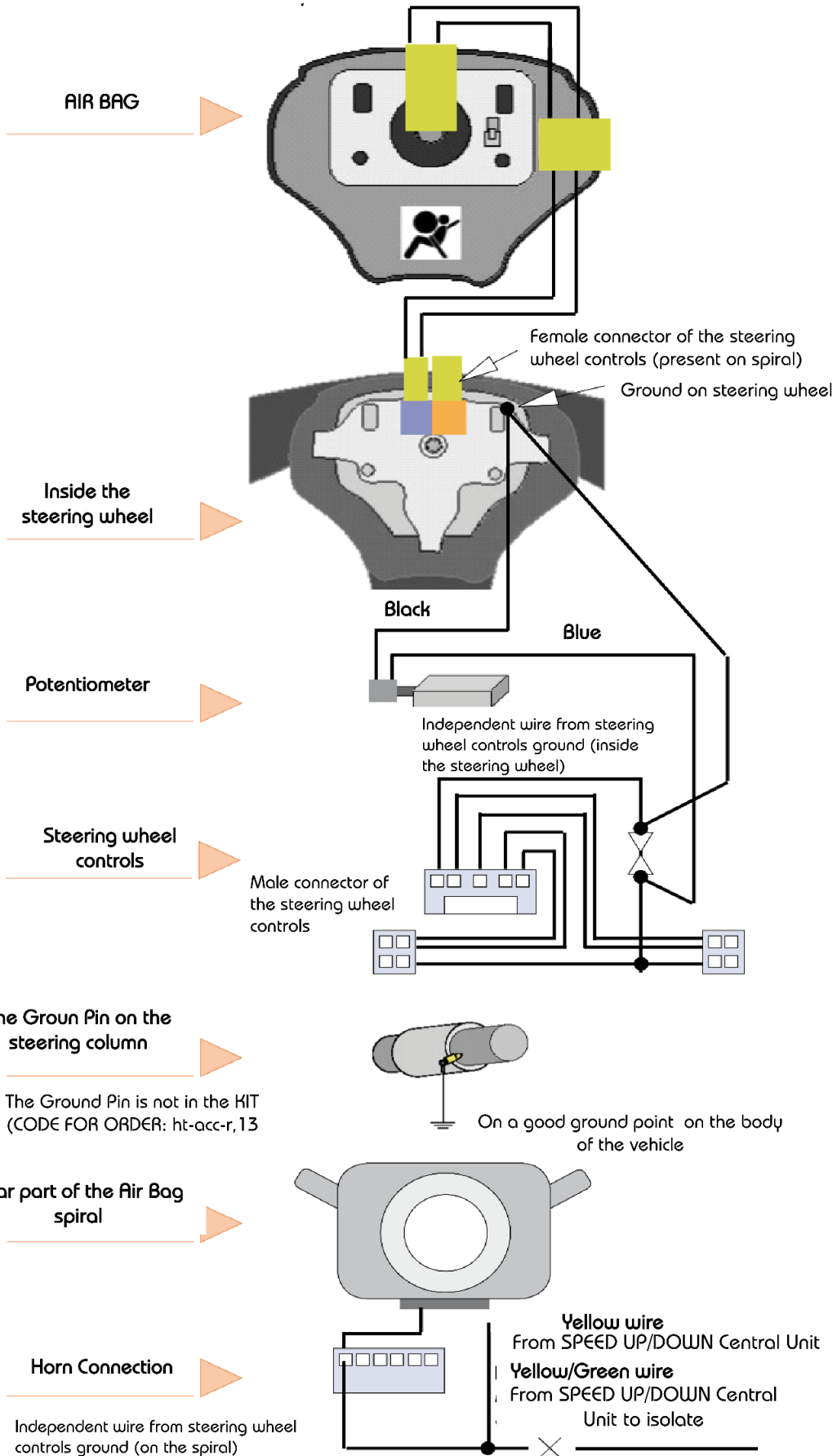


"C" SOLUTION

Wiring Diagram on AIR BAG spiral

(In case of vehicle with steering wheel controls)

If the ground wire is not independent, it will be necessary to modify the Air Bag spiral

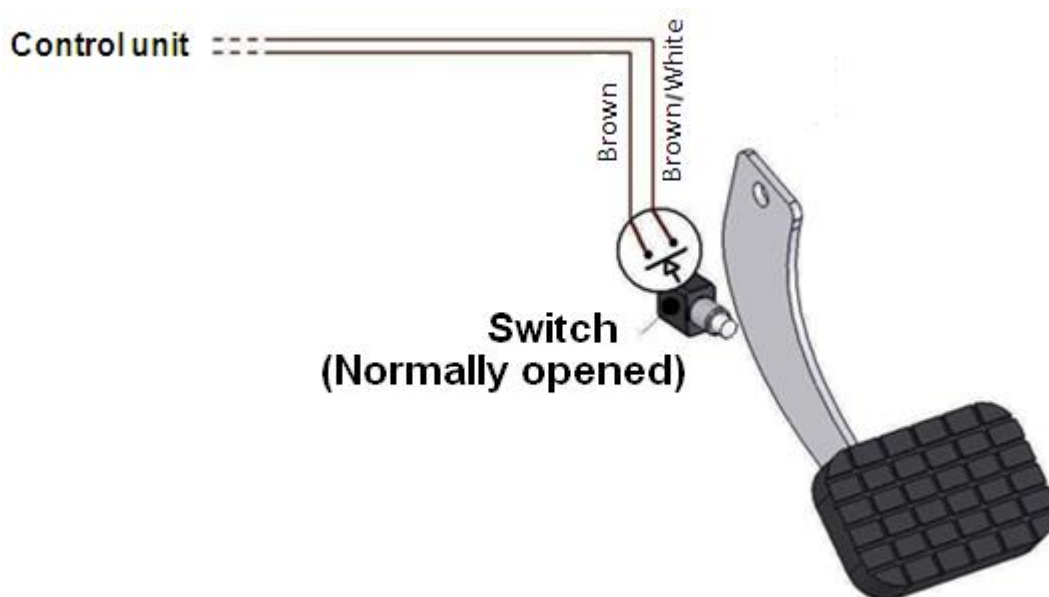


Stop and start switch electric connections:

Using the original switch:

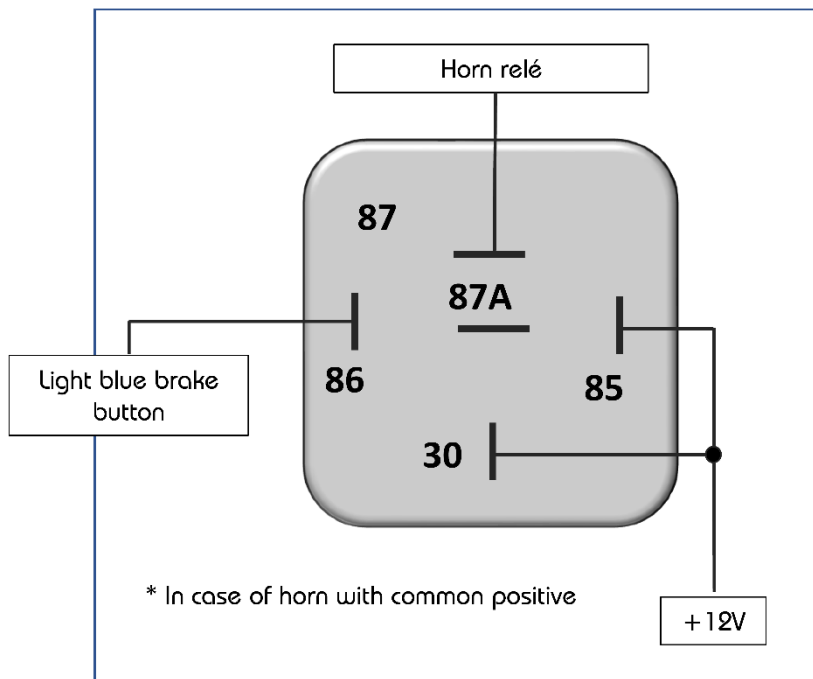
(make this connection when the device is not combined with a brake lever or when combined with an HT-FRO brake lever)

If the vehicle has a normally open switch and does not have LED stop indicators, connect the 2 wires indifferently to each side of the +12 VDC switch (connect to the brown cable in the control unit) and +12 VDC with the pedal pressed (connect to the brown/red wire).



Combining with the HT-PUSH brake:

(connection to be made when the device is combined with an HT-PUSH brake lever)
 Connect the brown wire to the white wire of the HT-PUSH wiring, and the brown/red wire to the green wire of the HT-PUSH wiring.

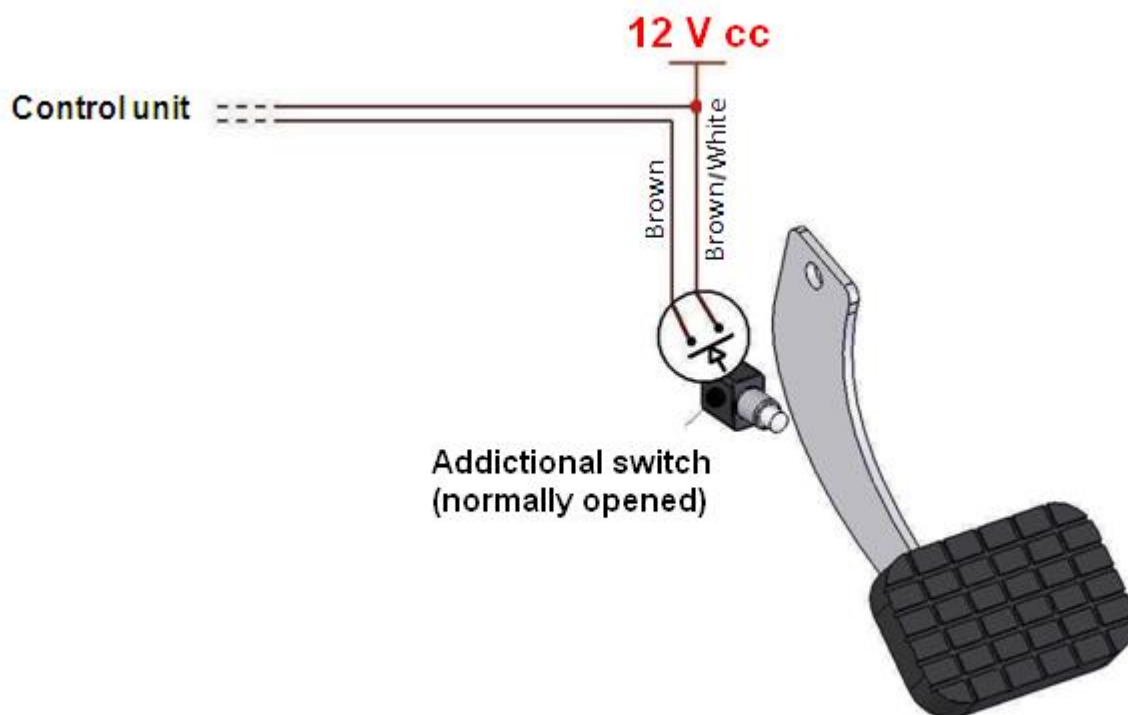


Using an additional switch:

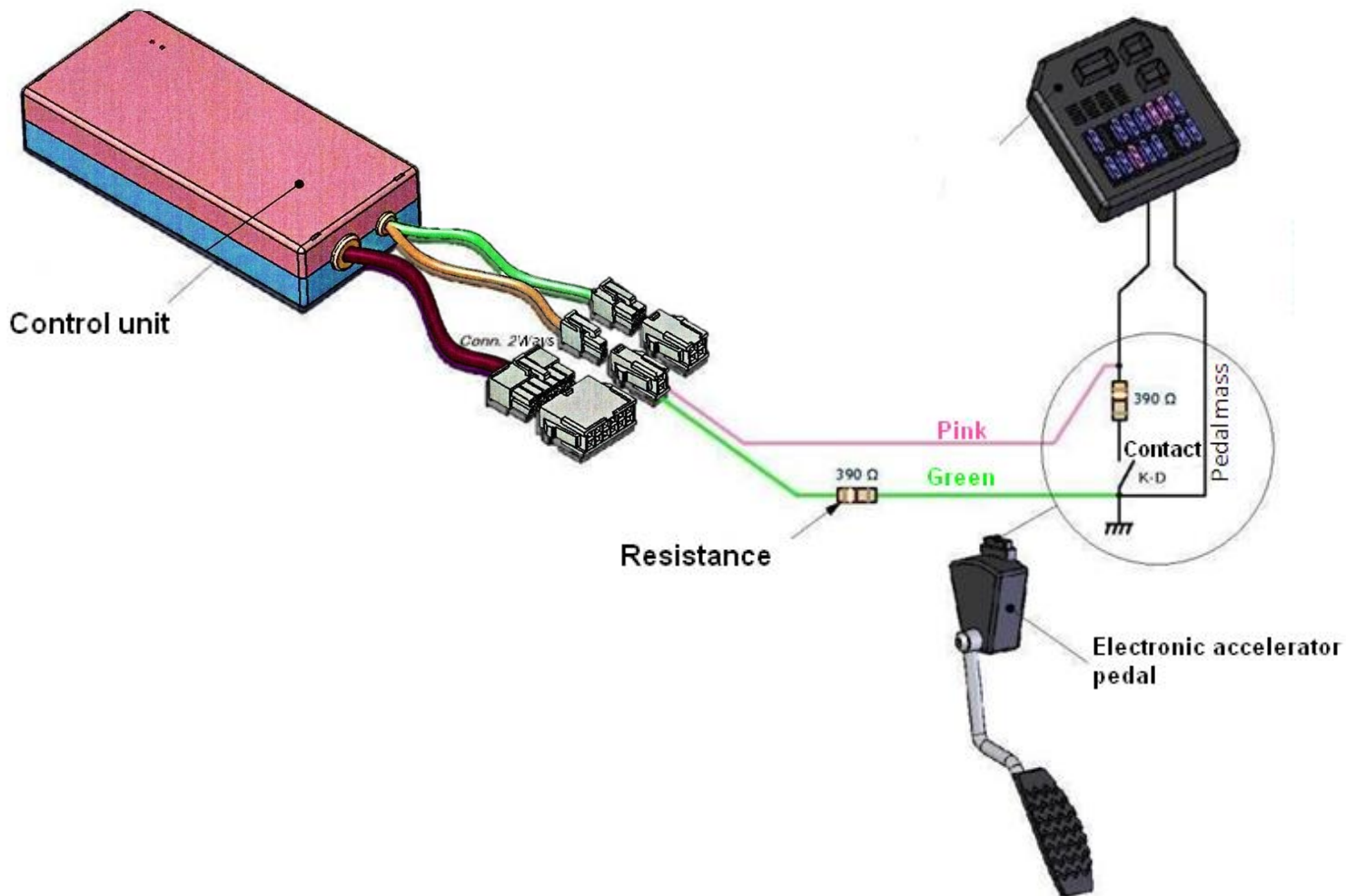
(to be done if the original stops of the vehicle are activated by 5 VDC voltage or a voltage that is not 12 VDC)

If the original switch of the vehicle cannot be used, connect as shown below after having positioned an additional switch that is activated by the original brake pedal.

We recommend using a switch that is guaranteed for one million movements.



Example of the Kick Down connection in PEUGEOT and CITROEN vehicles:



The Kick-Down contactor of the vehicle closes when the accelerator pedal reaches the end of its run. This allows the driver to disable the speed limiter whenever necessary (e.g. when overtaking)
 With the Kick-Down contact enabled and the 390Ω resistor wired as indicated above, pressing the round accelerator to maximum disables the speed limiter and enables the accelerator control.

Device fast diagnosis

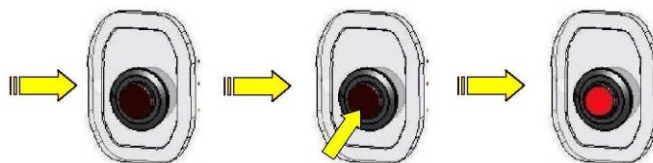
The red and green LEDs on the control unit make system diagnosis fast and easy.



Powering the system:



- When the vehicle is started, the green and red LEDs flash alternately.
- The device can be activated (by pressing the push button) during the 30 seconds that follow vehicle starting.



- After activation, the red LED of the activation push button switches on.
- If the device is not activated within the mentioned 30 seconds, the engine must be switched off and started again to activate the device.

Device diagnosis:

Function	Led	Led switch
Interrupted contact		
Active contact - first 30 seconds Waiting for device to be activated		
Active contact - after 30 seconds Device activation impossible		
Brake applied (with the device activated)		
Accelerator at rest (with the device activated - brake not applied)		
Accelerator pressed (with the device activated - brake not applied)		
Accelerator pressed at end of run (with the device activated - brake not applied)		

MAINTENANCE ONLY TO BE CARRIED OUT IN AUTHORISED HANDYTECH CENTRES

First check: Km. 1,500

Check the tightness of the +12 VDC power supply and mass.

Make sure the wiring has not been cut or worn because in contact with moving parts.

Make sure the connectors are correctly coupled with the control unit and the black junction box of the control.

Check connection to the STOP switch or the HT-PUSH brake lever.

Make sure the signal sent by the control to the control unit arrives without any interruptions (to do this just accelerate and make sure that the system replies correctly).

Make sure the PARK switch is operating correctly. Make sure the command moves smoothly, without obstructions. Remove any impurities and lubricate with silicon spray.

Make sure the parts that make up the device command, the finger fixing system and the forearm cuff are correctly tightened.

Subsequent checks

KM. 25,000 (or after 8 months)

Repeat the checks carried out at 1500 km.

KM. 50,000 (or after 16 months)

Repeat the checks carried out at 1500 km.

It is advisable to replace the finger fixing system if necessary

KM. 75,000 (or after 24 months)

Repeat the checks carried out at 1500 km.

KM. 100,00 - 125,000 (or at least once a year)

Repeat the checks carried out at 1500 km.

It is advisable to replace the finger fixing system if necessary

KM. 150,000

Repeat the checks carried out at 1500 km.

It is advisable to replace the finger fixing system if necessary

PAY ATTENTION:

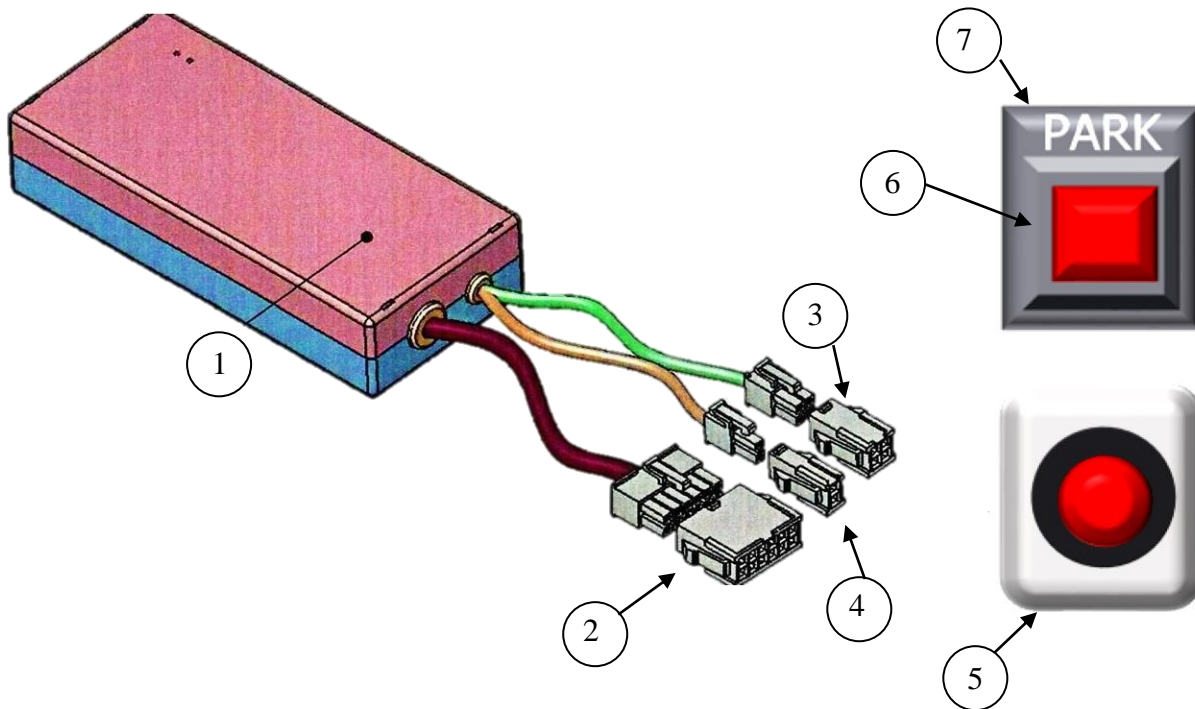
After 2 years it is advisable, together with CARROZZERIA 71 S.r.l., to check the system state and substitute any parts that need to be replaced.

Unfortunately, when the guarantee ends the maintenance programme is at the discretion of the client, but our advice is to follow it scrupulously because neglect can cause system faults, problems and create dangerous situations while driving.

The device maintenance interventions, both when covered by guarantee and not, are at the full charge of the client as specified in the user and maintenance manual and in the guarantee book.

WARRANTY: 24 MONTHS OR 80.000 KM

SPARE PARTS



Ref.	Code	Description	Q.ty
1	HT-SPEED DOWN_UP/R/E-01	Electronic control unit	1
2	HT-SPEED DOWN_UP/R/E-02	12-ways wiring	1
3	HT-SPEED DOWN_UP/R/E-03	4-ways wiring	1
4	HT-SPEED DOWN_UP/R/E-04	2-ways wiring	1
5	HT-SPEED DOWN_UP/R/E-05	Activation push button with LED	1
6	HT-SPEED DOWN_UP/R/E-06	PARK with switch including wiring	1
*	HT-SPEED DOWN_UP/R/E-07	Accelerator potentiometer	1
*	HT-SPEED DOWN_UP/R/M-01	Guida di scorrimento lineare	1
*	HT-SPEED UP/R/M-01	Cerchio concentrico rivestito in pelle colore NERO Ø297 mm	1
*	HT-SPEED UP/R/M-02	Cerchio concentrico rivestito in pelle colore BEIGE Ø297 mm	1
*	HT-SPEED UP/R/M-03	Cerchio concentrico rivestito in pelle colore GRIGIO Ø297 mm	1
*	HT-SPEED UP/R/M-04	Cerchio concentrico rivestito in pelle colore GRIGIO SCURO Ø297 mm	1
*	HT-SPEED UP/R/M-05	Kit piastrine di finizione (N°5) colore SILVER	1
*	HT-SPEED UP/R/M-06	Kit piastrine di finizione (N°5) colore BLACK	1
7	HT-SPEED DOWN_UP/R/M-02	Piastrina di finizione interruttore PARK colore BLACK	1

GENERAL TECHNICAL CHARACTERISTICS

Usage temperature:

- Between - 40°C and + 85°C

Power supply:

- 12 V (between 10 and 16 V)

Complies with the directive 95/54/CE

INSTRUCTIONS FOR IDENTIFYING TIGHTNESS CHANGES IN THE ACCELERATOR PEDAL

N.B. The voltage values must be identified with the accelerator pedal fully released and also fully pressed (including the Kick-down surge if present). Obviously, the vehicle panel must be on and the motor off.

5, 6, 7 or 8 wires can be found on the accelerator pedal.

- If there are 5 wires, measuring with a tester you will find:
 1. one mass wire, two positive voltages that do not exceed 5 V and two voltage variations of between 0 V and 5 V.
 2. two mass wires, one positive voltage that does not exceed 5 V and two voltage variations of between 0 V and 5 V.
- If there are 6 wires, measuring with a tester you will find:
 1. two mass wires, two positive voltages that do not exceed 5 V and two voltage variations of between 0 V and 5 V.
- If there are 7 wires, measuring with a tester you will find:
 1. one mass wire, two positive voltages that do not exceed 5 V, two voltage variations of between 0 V and 5 V, and two wires for the kick-down contact;
 2. two mass wires, one positive voltage that does not exceed 5 V, two voltage variations of between 0 V and 5 V, and two wires for the kick-down contact;
- If there are 8 wires, measuring with a tester you will find:
 1. two mass wires, two positive voltages that do not exceed 5 V, two voltage variations of between 0V and 5 V, and two wires for the kick-down contact.

The voltage variations must be measured between the wire, or one of the two mass wires, on the accelerator pedal and the two wires that vary the voltage.

The voltage variations from the released pedal and the pressed pedal must be gradual and constant. Any measurement that is not within the examples given above must be communicated to Carrozzeria 71 S.r.l.

If the Kick-down electric contact is present on the accelerator pedal, check if it is normally closed, normally open or if it works with resistance variation.

EXAMPLE

Values found for the Renault New Clio Dynamic 1.2 automatic gears: no. 6 wires present on the accelerator pedal.

- Two ground wires.
- Two 5 V fixed voltage wires.
- One wire that gives a value of 0.72 V when the pedal is released and 4.30 V when the pedal is fully pressed.
- One wire that gives a value of 0.35 V when the pedal is released and 2.13 V when the pedal is fully pressed.

The wire that gives the greater variation (from 0.72 V to 4.30 V) is always called "**Way 1**".

The wire that gives the lesser variation (from 0.35 V to 2.13 V) is always called "**Way 2**".

Please fill in the table below and send it back to us if the vehicle in question is not in the list given in the reserved area.

	With pedal released	With pedal pressed
Way 1	Volts	Volts
Way 2	Volts	Volts
Kick-down contact		