

DAILY VEHICLE 4x4 RANGE BODYBUILDER INSTRUCTIONS

L I G H T R A N G E



IVECO

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SECTION 5**Specific information and instructions**

	Page
5.1 Electronic system	5-3
5.2 Bodybuilder connectors	5-4
5.2.1 Inside the cab	5-4
5.2.2 Conector instaladores (61071) 20 pin	5-5
5.2.3 12 pin bodybuilders connector (72068)	5-8
5.2.4 12 pin connector for Minibus	5-10
5.3 Electronic control units	5-17
5.3.1 Precautions to be taken with the installed electronic control units	5-17
5.3.2 Modificación de la posición de las centralitas electrónicas	5-20
5.3.3 Desconexión de las centralitas electrónicas	5-20





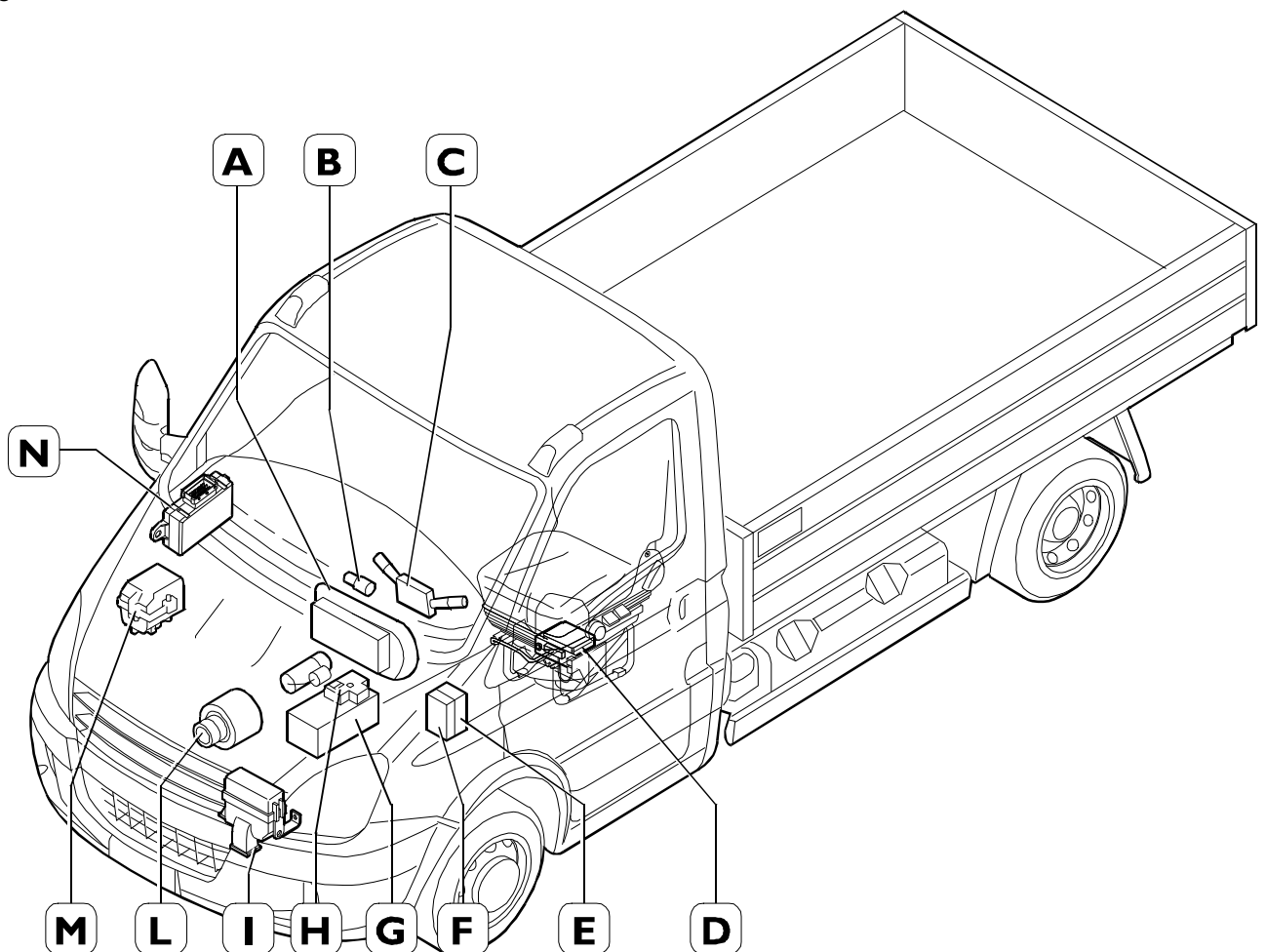
5.1 Electronic system

The following shows the location of the electronic control units and connectors that can be installed on the vehicle.



Devices or electrical circuits must not be connected directly to the control units described below. It is only possible to use the connectors listed in the following paragraphs.

Figure 5.1



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A. Instrument panel - B. Ignition key - C. Steering wheel interface - D. Door Management differential and PTO - E. CPL interconnection control unit - F. Body Computer - G. Battery - H. Positive distribution control unit CBA (+30) - I. Fuse box OPT - L. Alternator - M. Interconnection control unit (engine) CVM - N. CGP (Door Management Unit).



5.2 Bodybuilder connectors

The various connectors that can be used by the fitter are described in detail in the following paragraphs. To use the fitter connectors, you must request spare part kit comprising the female connectors, cable terminals and protective pads.



Any interface between the body building and the vehicle shall take place through diodes and relays (clean contacts), unless otherwise specified in the manual.

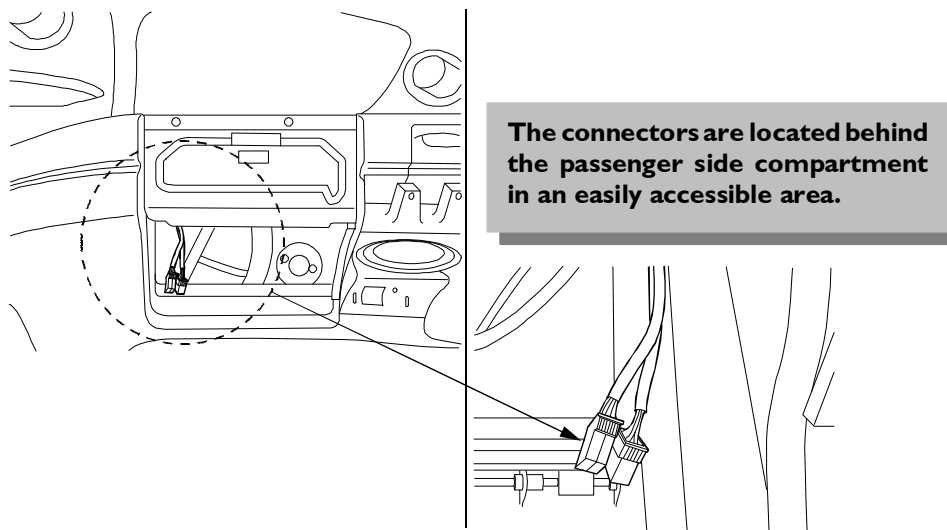


DIRECT CONNECTION TO THE BODY BUILDER CONNECTOR IS STRICTLY PROHIBITED. FAILURE TO COMPLY WITH THIS PRESCRIPTION WILL CAUSE THE WARRANTY TO IMMEDIATELY BECOME NULL AND VOID.

5.2.1 Inside the cab

The new Daily is fitted with two connectors to be used by body builders to interface with the vehicle electrical system.

Figure 5.2



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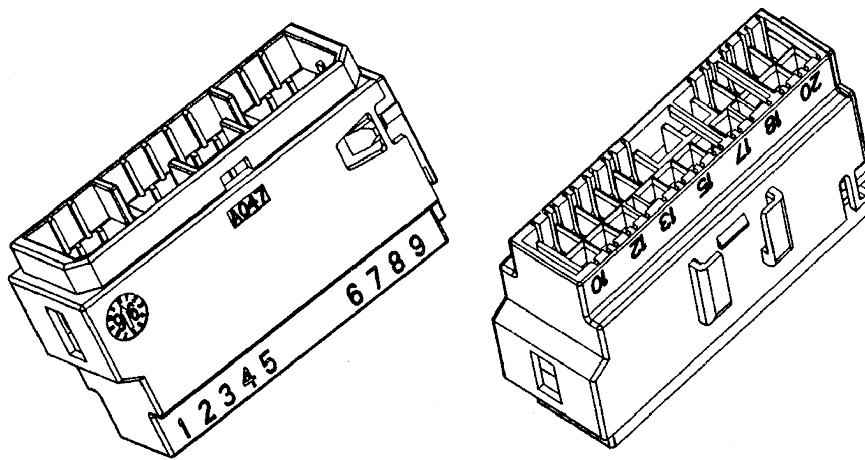
5.2.2 Conector instaladores (61071) 20 pin

To allow body builders to achieve an effective, accurate interface with the system on DAILY range vehicles. IVECO have provided for specific connection points to be used with the auxiliary systems.

Such provision is necessary to avoid tampering with and interfering in the basic system, in order to guarantee functional intactness and, therefore, the validity of the contractual warranty itself.

20-way connector

Figure 5.3



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Counterpart to be coupled onto the vehicle

Table 5.1

Code number	Description
500314817	20-way male holder joint
500314820	Male contact for 0.3 to 0.5 mm ² cable
500314821	Male contact for 1 to 1.5 mm ² cable



Table 5.2 - Basic functions of 20 pin connector

Pin conn.	Description	Signal	Remarks
1	Engine start-up	Input Max. 20 A	When an ignition-operated positive is supplied, the starter motor is powered and starts the vehicle engine. Operation takes place only when the panel key is turned. When starting the vehicle, NO SAFETY CHECKS OF ANY TYPE ARE CARRIED OUT e.g. gear engaged etc. +12V = engine start signal Open circuit = no action
2	Engine shut-down	Input Max. 10 mA	When a pulse is sent to the pin, the vehicle engine is shut down +12V = Engine shut-down Open circuit = no action
3	Service brake	Max Output 500 mA (interface with uncoupling diode)	When the brake pedal is pressed, a positive signal is generated. +12V = Service brake active Open circuit = Service brake inactive
4	Vehicle stationary	Output Max. 500 mA	When the vehicle is off, an earth signal is supplied Earth = vehicle shut down Open circuit = vehicle in motion
5	Handbrake	Max Output 500 mA (interface with uncoupling diode)	When the handbrake is operated, an earth signal is present Earth = handbrake engaged Open circuit = service brake released
6	Battery positive	Output Max. 15 A	Positive protected by fuse present on dashboard node F32.
7	Exterior lights	Output Max. 500 mA	A positive signal is supplied if the vehicle side lights are on Open circuit = exterior lights off +12V = exterior lights on
8	Alternator in operation	Max Output 500 mA (interface with uncoupling diode)	A signal is supplied when the vehicle alternator is in operation. Earth = Battery not charged +12V = Battery charged
9	Clutch pedal	Max Output 500 mA (interface with uncoupling diode)	When the clutch pedal is pressed, the circuit is open. Open circuit = pedal pressed +12V = pedal released
10	Reverse	Max Output 500 mA (interface with uncoupling diode)	When reverse is engaged, a positive signal is present Open circuit = Reverse not engaged +12V = reverse engaged



Table 5.2 - (continues) Basic functions of 20 pin connector

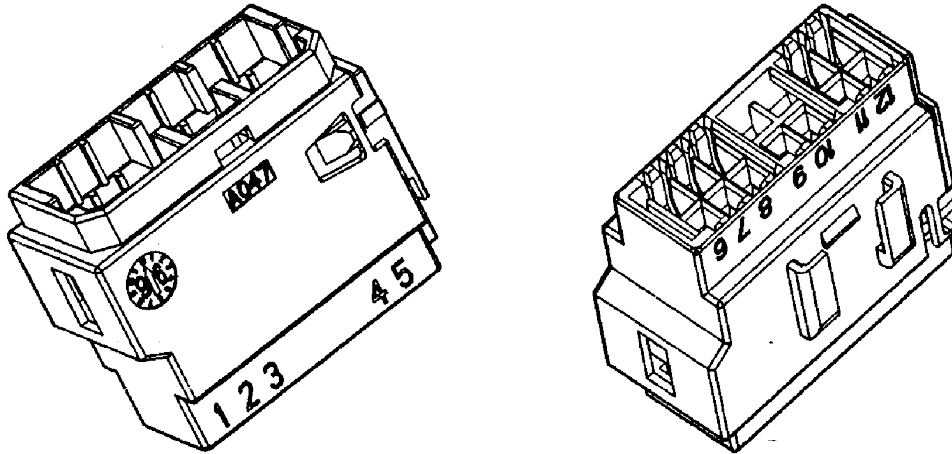
Pin conn.	Description	Signal	Remarks
11	Key-controlled positive	Max Output 5 A	Ignition-operated positive protected by fuse present on dashboard node F49.
12	Cruise control set +	Max input 10 mA	With the vehicle stationary, the engine rpm number is increased at each pulse (50 engine rpm per pulse). When the vehicle is travelling faster than 30 km/h, the vehicle speed can be adjusted. Wire open = Set + is inactive +12V = Set + active
13	Cruise control set -	Max input 10 mA	With the vehicle stationary, the engine rpm number is decreased at each pulse (50 engine rpm per pulse). When the vehicle is travelling faster than 30 km/h, the vehicle speed can be adjusted. Wire open = Set - is inactive +12V = Set - active
14	Cruise Control OFF (enable by connecting to teleservices)	Max input 10 mA	Only for vehicles without Cruise Control on the steering wheel interface. As soon as the key has been moved to the first position, a positive signal must be given to simulate the presence of the Cruise Control and then the remote controls may be used. When the positive signal is removed, the Cruise Control OFF operation is carried out. Once the OFF control has been used, the pulse must be supplied twice to re-enable the control. (first pulse Cruise Control ON, second pulse control). Wire open = Cruise control inactive +12V = Cruise Control active
15	Cruise control RESUME	Max input 10 mA	With the vehicle stationary, the positive signal adjusts the rpm to the stored number When the vehicle is travelling faster than 30 km/h, the vehicle speed can be adjusted to the stored speed. Wire open = Res is inactive +12V = Res active
16	Not connected		
17	EARTH	Max Output 15 A	
18	Not connected		
19	Not connected		
20	Not connected		



5.2.3 12 pin bodybuilders connector (72068)

12-way connector

Figure 5.4



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Counterpart to be coupled onto the vehicle

Table 5.3

Code number	Description
500314815	12-way male holder joint
500314820	Male contact for 0.3 to 0.5 mm ² cable
500314821	Male contact for 1 to 1.5 mm ² cable



Table 5.4 - Basic functions of 12 pin connector

Pin conn.	Description	Signal	Remarks
1	Speed limiter	Input Max. 10 mA	The vehicle speed will be limited to 30 k.p.h. when a ground is supplied. Open circuit = speed limiter OFF. Ground = speed limiter ON.
2	Programmable speed limiter	Input Max. 10 mA	Limitation to the current speed will be turned ON/OFF when a ground is supplied. Open circuit = no action. Ground = speed limiter ON/OFF.
3	Multiple switch	See Specification 1 - Chapter 4 - Power take-off	
4	Speed signal (B7)	See Specification 2	
5	Automatic key	Input Max. 500 mA	Positive signal supplied to simulate initial key rotation (key ON position). Only the main loads are powered, the vehicle cannot be started from outside: vehicle key is not recognised. +12V = key ON. Open circuit = key OFF.
6	Power take-off engaged	Output Max. 500 mA	When the power take-off is engaged, an earth signal is present Open circuit = no action Earth = power take-off engaged
7	Warning horn	Output Max. 10 mA	Additional horns (to be interfaced with the relay). Ground = warning horn ON. Open circuit = warning horn OFF.
8	Multiple switch	See Specification 1 - Chapter 4 - Power take-off	
9	Not connected		
10	Engine revs (r.p.m.)	See Specification 3	
11	Not connected		
12	Not connected		

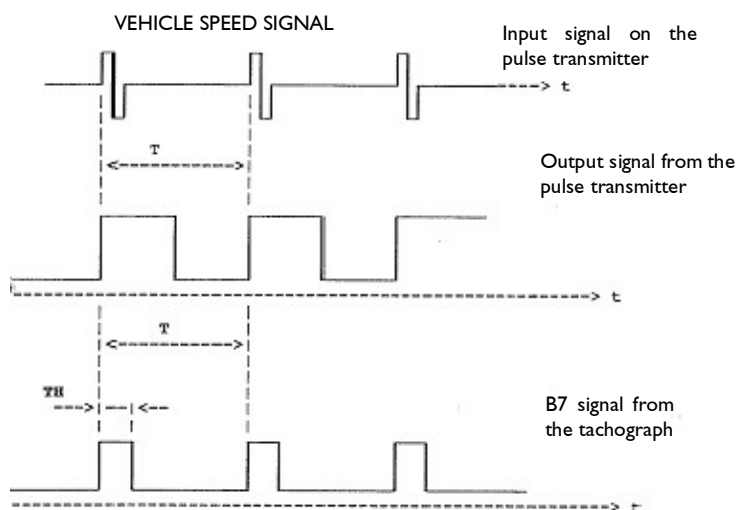


Specification 2

Vehicle speed signal

B7 is a square-wave signal having the same frequency as the input signal (from the pulse generator) and a variable duty-cycle, due to the vehicle's tachometric constant.

Figure 5.6



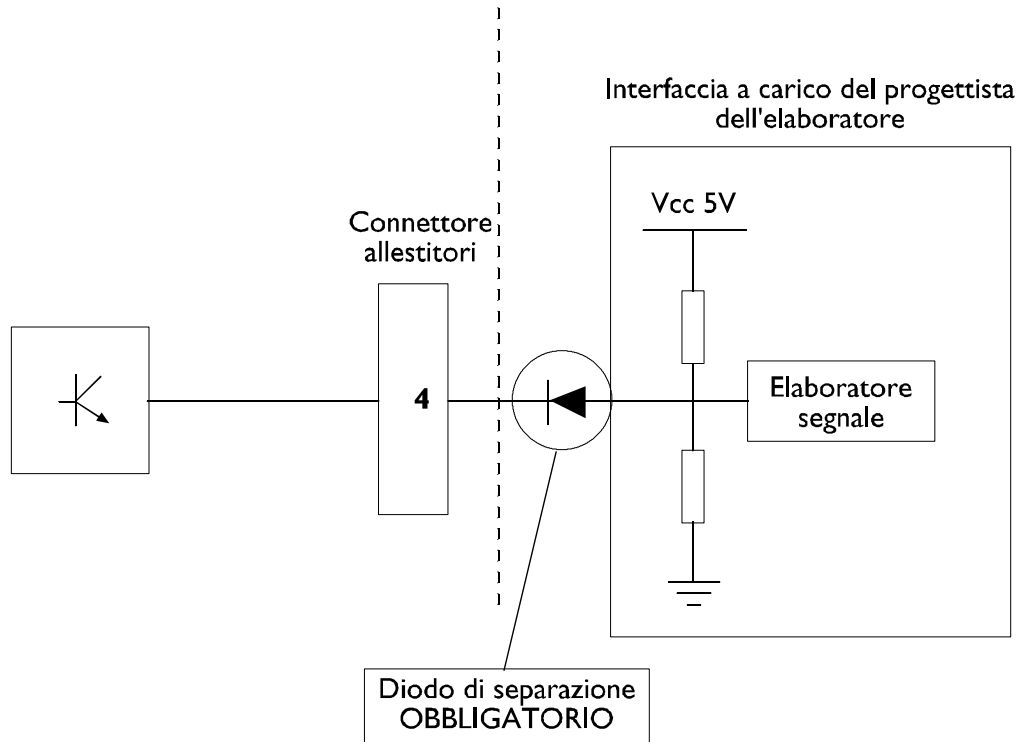
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Below are the electric features of the signal:

- Minimum voltage level < 1.5 V
- Maximum voltage level > 5.5 V
- Max. frequency 1.5 KHz
- Pulse duration (Th) $0.67 \div 6.7$ ms
- Pulse duration tolerance 1%
- Load impedance minimum value 5.5 K Ω
- Load impedance typical value 15 K Ω



Figure 5.7



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The body builder must fit a separation diode so that the VON voltage is not lowered.

The signal processing designer must ensure an input interface equal to that shown with a max Vdc of 5 volts and pull-up/pull-down in order not to lower the VON voltage and increase the response time set by the vehicle interface.

Speed calculation, following signal B7 reading, involves controlling both the frequency and the duty-cycle of the signal itself, since the frequency is a function of the vehicle whereas the duty-cycle is a function of the tachometric constant.

Below is the formula used to calculate the vehicle speed from signal B7:

$$\text{Vehicle_speed} - 225 \cdot \frac{T_{hi}}{T}$$

where the speed is expressed in km/h and Thi and T are in thousandths of a second.



Specification 3

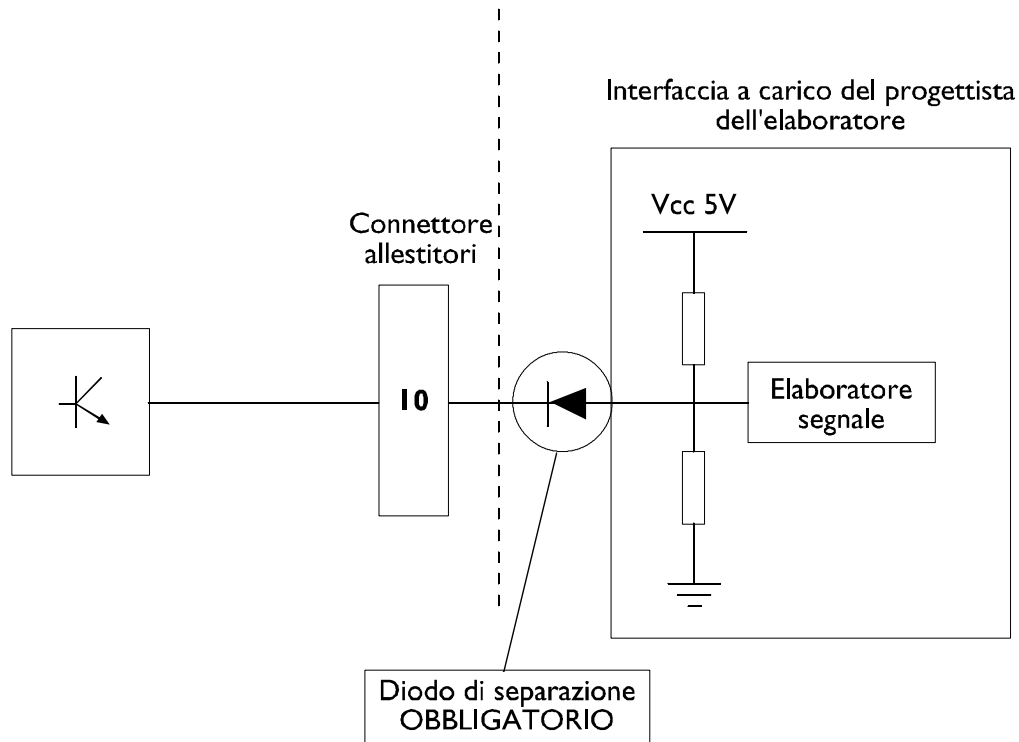
Engine revs signal

The engine revs signal is represented by a square wave.
Below are the features of the engine revs signal:

Table 5.7

Features	Condition	Minimum	Typical	Maximum	Unit
C_IO	To case / UBat-	1.2		1.85	nF
R_IO	To UBat+	2.57		2.65	k Ω
I_Out				50	mA
t_Rise	Signal rise time of 10% to 90%			10.5	μ s
R_ON	Iout < 0,05A			33.8	Ω
VI		5.4	13.5	15.7	V
Pulses per rev (r.p.m.)			4		

Figure 5.8



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The body builder must fit a separation diode so that the VON voltage is not lowered.

The signal processing designer must ensure an input interface equal to that shown with a max Vdc of 5 volts and pull-up/pull-down in order not to lower the VON voltage and increase the response time set by the vehicle interface.



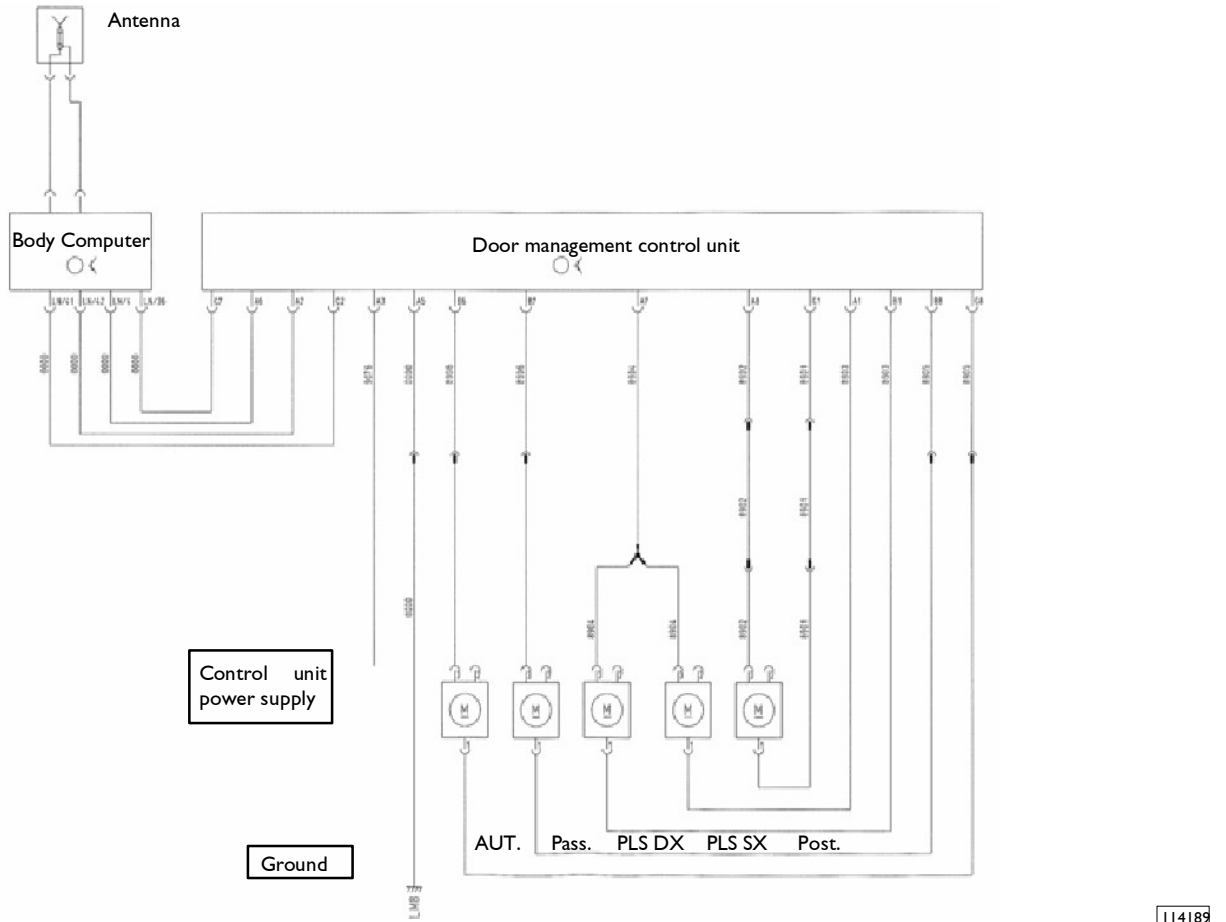
Central locking control unit connections (optional item)

The door management control unit is an electromechanic component used to drive door opening and closing under the control of the body computer, when the vehicle is equipped with central locking.

The component is made up of four exchange relays used to drive the front doors, rear door and PLS (Sliding side doors).

The control unit is installed in the cab left-side panel, by making use of a special fastening bracket.

Figure 5.9



WIRING DIAGRAM

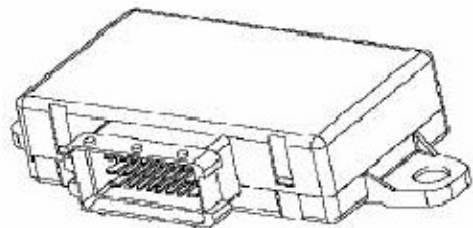
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Figure 5.10



CONNECTOR DETAIL

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DOOR MANAGEMENT CONTROL UNIT

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Operation with 2-button key. Briefly press button 1 built into the key: the indicator lights will blink once to indicate that all the front door locks have been locked. To unlock the door locks, press button 2, by pointing the key towards the vehicle all the time: the indicator lights will blink twice to indicate that all the front door locks have been unlocked.

- Central locking can be actuated only by means of the remote control.
- Opening or closing the doors by means of the key will not involve central locking actuation.
- If the vehicle is equipped with central locking with electronic alarm, overall vehicle monitoring will be implemented, which will signal whether the engine bonnet or any vehicle door is opened.

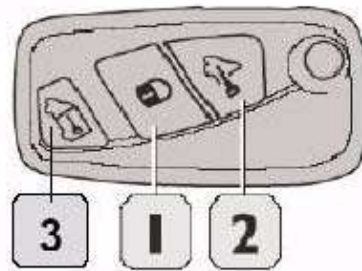
When the system is turned ON, the electronic alarm will be triggered when either the bonnet or any of the doors is opened. A microswitch placed on each of the vehicle doors as well as on the engine bonnet signals whether any of the same is opened.

Operation with 3-button key. Briefly press button 1 built into the key: the indicator lights will blink once to indicate that all the front door locks have been locked. To unlock the front door locks, press button 2, by pointing the key towards the vehicle all the time: the indicator lights will blink twice to indicate that all the front door locks have been unlocked. To unlock the rear door locks, press button 3, by pointing the key towards the vehicle all the time: the indicator lights will blink twice to indicate that all the rear and side door locks have been unlocked (PLS).

- Central locking can be actuated only by means of the remote control.
- Opening or closing the doors by means of the key will not involve central locking actuation.
- If the vehicle is equipped with central locking with electronic alarm, overall vehicle monitoring will be implemented, which will signal whether the engine bonnet, the rear or side doors, or any vehicle door is opened.

When the system is turned ON, the electronic alarm will be triggered when either the bonnet or the rear and side door(s) or any of the doors is opened. A microswitch placed on each of the vehicle doors as well as on the engine bonnet signals whether any of the same is opened.

Figure 5.11



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If the vehicle is built as a truck, the body computer is not designed to manage the rear doors.

To control the rear doors, the wiring shall be laid as illustrated in the diagram. Moreover, the vehicle shall be delivered to an IVECO workshop in order to have its operation enabled.

