Installation instructions C-Tronic® SUSPENSION AIR-2 for *ML-Class W164, GL-Class X164, E-Class W/S211 from 06-2005, CLS-Class C219 from 06-2005, S-Class W/V221 and R-Class W/V251* with Airmatic

Universal chapter

Parts supplied

- Supplementary control unit
- Adapter
- Cable harness
- Bracket
- Installation instructions
- Fitting confirmation

General information

The Carlsson C-Tronic® SUSPENSION is an electronic lowering for Mercedes-Benz vehicles with the suspension systems AIRMATIC (part number 31001001) and ACTIVE BODY CONTROL (part number 31002001). The vehicle level can be lowered up to 30 mm with this lowering.
The suspension systems AIRMATIC and ACTIVE BODY CONTROL are using a speed dependant height regulation. This regulation adjusts different vehicle levels depending on the vehicle type and the velocity.

Functionality

The C-Tronic® SUSPENSION is plugged between the level sensors of the wheels and the ABC/Airmatic control unit. The sensor signals are modified with an offset. That is to say that a voltage is added or subtracted to the sensor signals. With this offset, the difference of the level between C-Tronic® and series production is defined.

The lowering is speed dependent in order to integrate the series lowering in case of high velocity. This speed dependency is separately adapted to each vehicle type. The characteristic diagrams are vehicle specific, in order to adapt ideal to the respective vehicle. This is done to optimize the driving behaviour, prevent safety critical vehicle levels and minimize abrasion at the inner shoulder of the tires.

The device has furthermore a bad street detection, which reduces the lowering for a period of time, if the downward deflection exceeds a certain limit.

The manual settings „comfort“, „sport1“, sport2“ and „high level“ in case of AIRMATIC DC and „sport“, „high level1“ and „high level2“ in case of ACTIVE BODY CONTROL remain fully functional. Consequently the level of the vehicle composes of the lowering and the manual settings.

Fitting

In this installation instruction there is for each vehicle type one specific part. In this part the location of the control unit AIRMATIC or ABC and how to get to it, is described. After the specific part has been finished, the rest of the installation is done as described in the last chapter “Fitting for all cars”.

Coding via DIP-switch

The vehicle type has to be adjusted via the integrated dip switches to chose the correct characteristic diagram.

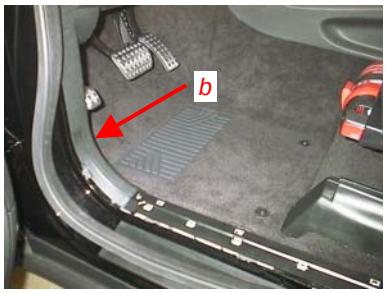
The lowering can be adjusted individually between 0 mm and 30 mm via the integrated dip switches. It is possible to make settings for front axle and rear axle that are independent among each other.

Technical questions: service@carlsson.de

Fitting for
ML-Class W164 and
GL-Class X164

Move back the driver's seat. Switch off the ignition. The control unit AIRMATIC is located under the floor plate in the driver's foot well.
Pull up the entrance panel by hand out of the holding brackets (a) and pull off the entrance panel.

Pull off the edge protection in the region of the covering.



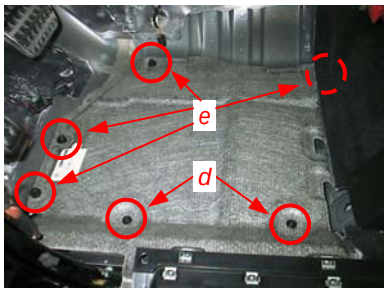
Carefully pry the holding brackets with an wedge or with a wide slot-head screwdriver out of the lateral covering in the foot well (*b*). The covering is locked into a holding bracket at the car body in the region of the fixing brake. Remove the covering.

Unscrew the screw of the engine hood release (*c*). Unscrew the 3 screws of the lower cockpit covering in the driver's foot well.

Take down the cockpit covering. Hang out the cable winch of the engine hood release. Unlock the diagnosis coupler and push it upwards to remove it. Remove the connector of the foot well light and remove the air pipe. Take out the cockpit covering.

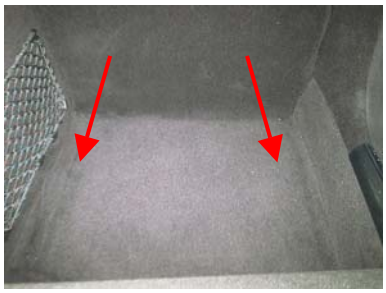
Unscrew the nuts of the accelerator. Lift out the accelerator and pull off the connectors.

Take out the floor covering carefully by pulling it upwards and towards the door. (when reinstalling, lift up the centre console with a wedge).
Unscrew screws (*d*) and nuts (*e*) of the floor plate. Take out the floor plate.

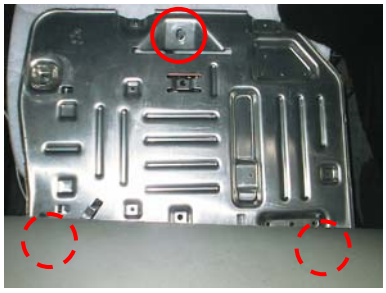


Fitting for
E-Class W/S211,
CLS-Class C219 and
S-Class W/V221

Switch off the ignition, open the required doors. The control unit AIRMATIC is located behind the foot rest in the front-passenger footwell. Flap the carpet in the direction of the passengers seat to uncover the foot rest.



Unscrew the three screws from the fastening plate.

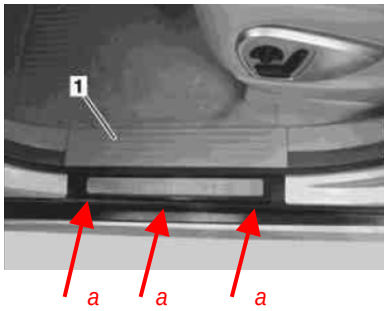


Flap the fastening plate in the direction of the passengers seat to get to the control unit AIRMATIC.

Fitting for
R-Class W/V251

Move back the driver's seat. Switch off the ignition. Remove the car key. In case of cars with „Keyless Go", keep the key out of the range (>2m). Open the required doors. The control unit AIRMATIC (*3*) is located under the floor plate in the passenger's foot well.

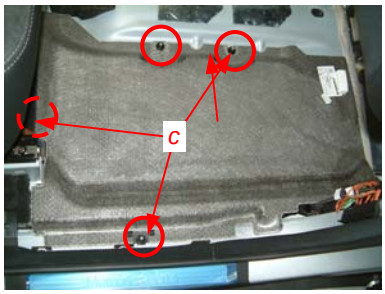
Pull up the entrance panel (*1*) by hand out of the holding brackets (a) and pull off the entrance panel.



Pull off the edge protection in the region of the covering.
Carefully pry the holding brackets with an wedge or with a wide slot-head screwdriver out of the lateral covering in the foot well. Remove the covering.

Pull off the covering of the slide rails (*b*) by inserting an adequate tool into the slot to release the covering.

Remove the bounce protector. Take out the floor covering carefully by pulling it upwards and towards the door. (when reinstalling, lift up the centre console with a wedge).
Unscrew nuts (*c*) of the floor plate. Take out the floor plate.



FITTING

Fitting for all cars

1. Unscrew the nuts that fix the control unit AIRMATIC. Disconnect plug 1 (30 pole, small), plug 2 (48 pole, big) and the CAN-bus-plug (2-pole) of the control unit AIRMATIC. Take out the control unit AIRMATIC.

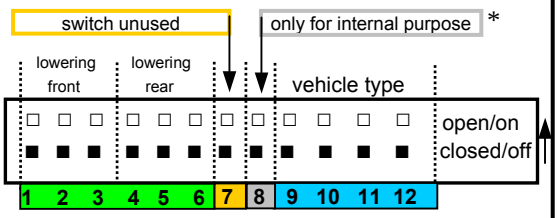
2. Open the two locking devices of the C-Tronic® adapter and hold the adapter in front of the ECU so that the connection blocks fit to each other. Plug the adapter on the ECU by pushing both adapter locks at the same time.

3. Insert the connectors of the C-Tronic® cable harness into both sides of the adapter. Ensure that the fastening locks are inserted.

4. Insert the three original plugs (removed in section 1) into the C-Tronic® adapter.

5. Adjust the coding for the degree of lowering desired as well as the vehicle type in hand on the C-Tronic® SUSPENSION supplementary control unit. It is possible to make settings for front axle and rear axle that are independent among each other.
   Ensure the sufficient clearance of the wheels!
   Based on the series ride height (measured from the middle of the axle to the edge of the fender), the level has to be adjusted in such a way, that normal Mercedes models are not lowered more than 30 mm and AMG models not more than 15 mm.
   After the installation of the lowering we recommend to prove, that the geometry setting values are within the series tolerances.

Codings



lowering front	switch position	lowering rear
0 mm	□□□ ■■■	0 mm
10 mm	□□■ ■■□	5 mm
15 mm	□■□ ■□■	8 mm
18 mm	□■■ ■□□	11 mm
22 mm	■□□ □■■	14 mm
25 mm	■□■ □■□	18 mm
28 mm	■■□ □□■	21 mm
30 mm	■■■ □□□	25 mm

vehicle type	switch position
default setting / lowering off	□□□□ ■■■■
ML-Class W164 and GL-Class X164	□□■■ ■■□□
E-Class W/S211 Europe	□■□□ ■□■■
E-Class W/S211 United States	□■□■ ■□■□
CLS-Class C219 Europe	□■■□ ■□□■
CLS-Class C219 United States	□■■■ ■□□□
S-Class W/V221	■□□□ □■■■
R-Class W/V251 Europe	■□□■ □■■□
R-Class W/V251 United States	■□■□ □■□■

*** Position 8 has to be closed/off !!!**

After every change of coding the power supply of the C-TRONIC® SUSPENSION has to be interrupted for its immediately recognizing. To do this, switch off the ignition and disconnect the C-TRONIC® SUSPENSION of the cable harness for a short time. After that, proceed as described in section 8 (Raise and lower the car).

6. Insert the 24-pole connector of the C-Tronic® cable harness into the C-Tronic® SUSPENSION supplementary control unit.

7. Fasten the C-Tronic® SUSPENSION supplementary control unit with the bracket to the AIRMATIC control unit, as shown on the photo. In some cases it could be necessary to remove the fixing of the series cable harness to get enough space for the C-Tronic® adapter.

8. Start the engine, raise the vehicle to 'Raised' and then lower it to 'Normal'. The normal level is now lower than standard. Measure the vehicle height and compare it with the height before beginning work.

   Due to tolerances in the series height regulation, differences of up to 5 millimetres from the values set (per coding) are possible.

9. Refit all parts removed during the installation. Ensure that no cables are squashed.

10. To *check*, carry out a test drive. In this test drive no error code should appear in the display. The sufficient clearance of the wheels has to be finally checked.