

Meat&Doria **58047**
Hoffer Products **H58047**



FOCUS

Air Suspension Compressors



Our Premium Quality

A superior quality range, guaranteed by direct control of the entire process.

Design and production are supervised by the Group's engineers, in compliance with the original equipment specifications. Subsequently, each component undergoes end-of-line validation testing by the Quality team, with the aim of offering a product that always stands out for its quality, reliability, and durability.



Design



Fleet Coverage



Testing



After-Sales Support

What are they?

Air suspension compressors are devices that **generate and maintain the air pressure** required for the operation of a vehicle's air suspension.

FOCUS

Air Suspension Compressors



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How do they work?

The operating principle of an air compressor system for air suspension is based on the **production, treatment, storage and distribution of compressed air** to regulate the height and stiffness of the suspension.

An air suspension system generally includes:

Compressor

Compresses the air.

Air tank (not always)

Stores compressed air.

Air springs

Replace or supplement traditional springs.

Valves and electronic control unit

Regulate the pressure in the air springs.

When the vehicle is heavily loaded or the ride height needs to be increased, the control unit activates the compressor, which sends air to the air springs. If, on the other hand, the ride height needs to be lowered, some of the air is released to the outside through dedicated valves.

What are they used for?

Air suspension allows you to:

Maintain a constant vehicle height regardless of the load

Improve driving comfort

Adjust the ride height

Increase stability and safety

They are widely used on high-end SUVs and off-road vehicles (Range Rover, Audi Q7, Mercedes GLS, etc.), premium sedans (Mercedes S-Class, Audi A8, BMW 7 Series), buses and trucks.

Main components

Air compressor

- Draws ambient air through a filter.
- Compresses the air to a pressure generally between 8 and 15 bar.
- Is electrically driven or driven by the vehicle's engine.

Dryer

- Removes moisture contained in the compressed air.
- Prevents corrosion, freezing and damage to the pneumatic valves.

Air tank

- Stores compressed air to ensure a rapid system response.
- Reduces the number of compressor start-ups.

Electropneumatic valves

- Regulate the airflow towards the suspension.
- Allow the air springs to be inflated and deflated.



Electronic control unit

- Receives signals from the height and pressure sensors.
- Controls the compressor and valves to maintain the desired ride height.

Sensors

- Chassis height sensors.
- Pneumatic circuit pressure sensors.
- Sometimes speed and acceleration sensors.

Operating cycle

Raising the vehicle

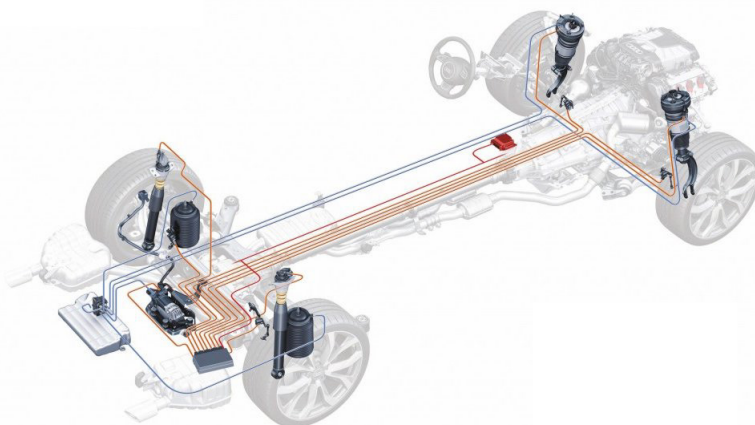
- The control unit detects that the vehicle is too low, so it activates the compressor.
- Compressed air is sent to the air springs through the valves.
- The air springs expand and the vehicle rises to the set height.

Lowering the vehicle

- The control unit detects that the vehicle is too high, so it opens the exhaust valves.
- Part of the air contained in the air springs is released into the atmosphere.
- The vehicle lowers to the required level.

Maintaining the level

- During driving or loading/unloading of the vehicle, the sensors continuously monitor the height. The control unit automatically corrects the pressure in the air springs to maintain a constant ride height.



Symptoms of a faulty compressor

If the compressor deteriorates, the following may occur:

Vehicle lowering on one or more sides

Error messages relating to the suspension

Compressor running continuously

Unusual noises from the compressor

Difficulty reaching the vehicle's normal height

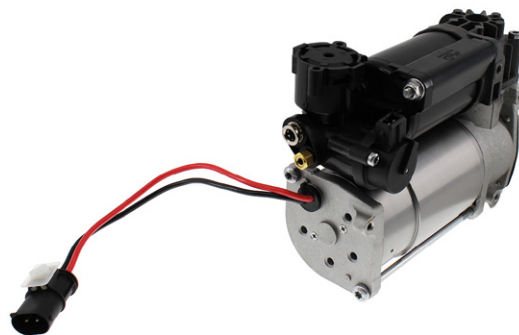
Often, however, the compressor fails because there are air leaks in the air springs or pipes, forcing it to work excessively.



Replacement Procedure

Required equipment

Appropriate wrenches and sockets	Vehicle lift
Pliers for plastic clips/panels	1/4" and 3/8" ratchets
PPE: gloves and safety glasses	New compressor (and, if necessary, relay, filter and dryer)
Metric socket set, approximately 8-18 mm	E-Torx set (E8-E14)
Torx set (T20-T50)	Torque wrench
Extensions and universal joint	Penetrating spray
Flat-head and Phillips screwdrivers	
Flashlight	
Multimeter or test lamp to check the power supply	
Soapy water in a spray bottle to look for any leaks	
Compatible diagnostic tool or scanner, to check or clear EHC errors	



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Procedure

1 Secure the vehicle

Park on a level surface, then apply the parking brake. Subsequently, disconnect the negative battery terminal (if necessary, support the vehicle with suitable jack stands).

2 Release system pressure

Deactivate the air suspension system and completely release the residual pressure following the manufacturer's instructions.

3 Access the compressor

Remove guards, bulkheads or coverings that prevent access. Then identify the electrical and pneumatic connections.

4 Remove the compressor

Disconnect the electrical connector and pneumatic lines, marking their positions. Remove the mounting bolts and brackets and extract the compressor.



5 Install the new compressor

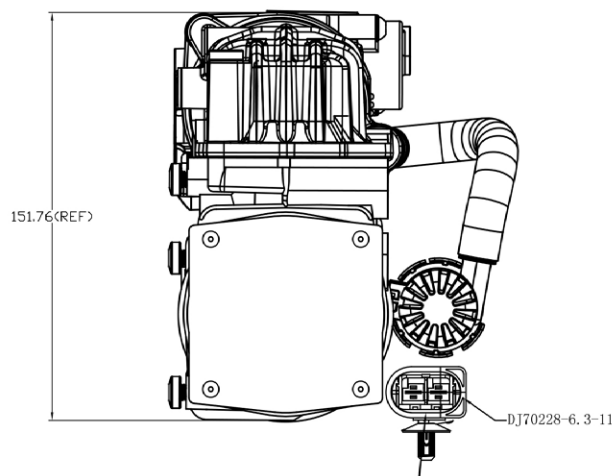
Position the new component and tighten the fasteners according to the torque specifications provided by the manufacturer. Subsequently, connect the pneumatic lines and reconnect the electrical connector. Replace the air filter and dryer, if required.

7 Final checks

Check for any air leaks and verify that the vehicle reaches (and maintains) the correct height. Clear any fault codes present in the control unit and, finally, perform a functional test.

6 Reactivate the system

Reconnect the battery and start the vehicle, allowing the compressor to pressurize the circuit.



Important note

The **inspection of the electrical wiring** is a fundamental activity when replacing an air suspension compressor, because an **electrical fault may be the actual cause of the compressor's malfunction**.

Why is it important?

✓ Prevents unnecessary compressor replacement

A fuse, relay, oxidized connector or damaged wire can prevent the compressor from operating, **simulating a compressor failure**.

✓ Protects the new compressor

An unstable power supply, faulty ground or short circuit can cause **overheating and premature damage** to the newly installed compressor.

✓ Ensures correct system operation

The suspension control module monitors current draw, temperatures and operating times. Wiring anomalies can generate **diagnostic errors** and suspend system operation.

✓ Reduces downtime and maintenance costs

Identifying and correcting the electrical problem at its source **avoids repeated repairs**.



Recommended checks

- 1** Check the integrity of the wiring between the control unit and compressor.
- 2** Visual inspection of loose connectors, oxidized pins, water ingress and crushed or abraded wires.
- 3** Measure the supply voltage under load.
- 4** Check cable continuity and resistance.
- 5** Check the vehicle grounds.
- 6** Check dedicated fuses and relays.
- 7** Read fault codes using electronic diagnostics.

Risks of failing to perform the check

- Burning out the new compressor
- Intermittent suspension operation
- Incorrect vehicle ride height
- Recurring warning lights and error codes
- Additional costs for further replacements and diagnostics

In summary: before and after replacing the air suspension compressor, the **wiring check** is essential to ensure that the new component receives the correct power supply and that the fault is not caused by the vehicle's electrical system.

Recommended checks after replacement

- Tightness of the lines
- Condition of the air springs
- Compressor relay operation
- Electrical current draw of the new compressor
- Suspension height sensors

Related products

Pneumatic components

- Dryer/desiccant cartridge
- Air tank
- Distribution electric fan (e.g. 58219)
- Non-return valve
- Exhaust valve
- Pneumatic pipes and fittings

Suspension components

- Air springs
- Air suspension struts
- Height sensors (e.g. 38000)
- Sensor arms and level sensor linkages (integrated 38098)



Electrical components

- Compressor relay (e.g. 732330066)
- Dedicated fuses
- Wiring harnesses and connectors (e.g. 25109)
- Suspension control unit (ECU)

Consumables

- Compressor air filter
- Gasket and O-ring kit
- Clamps and anti-vibration mounts
- Cleaner for locating pneumatic leaks

Parts often replaced together with the compressor

- Desiccant cartridge
- Compressor anti-vibration mounts
- Damaged or worn pipes
- Compressor relay
- Intake filter

Error code list

- C1516:** Suspension compressor relay faulty
- C1518:** Compressor blocked or excessive current draw
- C1525:** System pressure too low
- C1530:** Faulty circuit pressure sensor
- C1561:** Overheated compressor
- C1770:** Insufficient compressor performance
- C1831:** Insufficient tank pressure
- C1840:** No compressor power supply
- C1517:** Suspension compressor faulty
- C1520:** Compressor cannot be activated
- C1526:** System pressure too high
- C1556:** Maximum filling time exceeded
- C1562:** Compressor thermal protection activated
- C1172:** Compressor malfunction
- C1832:** Leak in the pneumatic circuit
- C1841:** Compressor short circuit

Associated symptoms

- Vehicle lowered
- Compressor does not start
- Uneven ride height
- Compressor always running
- "Air Suspension Fault" message
- Fuse or relay frequently blowing



Checks to be performed

Fuses check	Compressor relay check
12V/24V power supply check	Measure compressor current draw
Dryer check	Check for leaks in air springs and fittings
Pressure sensor check	Compressor temperature check

Vehicles known for frequent compressor failures

Range Rover L322 and Sport (first generation)	Mercedes S-Class W220
Mercedes E-Class W211	Audi Allroad C6
Audi A8 D3	Volkswagen Tuareg - first generation

Official recalls from vehicle manufacturers

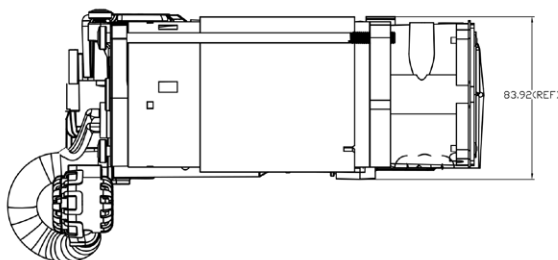
<p>Mercedes-Benz</p> <p>Several recalls and technical campaigns have affected AIRMATIC systems, especially on E-Class, CLS, GL and S-Class. The most frequent problems involved:</p> <ul style="list-style-type: none"> • Compressor relay that could remain stuck. • Compressor continuing to run with the engine switched off. • Risk of overheating of the electrical circuit. 	<p>Audi / Volkswagen / Porsche</p> <p>Vehicles sharing the same architecture (Audi Q7, Volkswagen Touareg, Porsche Cayenne) have had various technical campaigns related to:</p> <ul style="list-style-type: none"> • Permanent compressor wear. • Moisture ingress into the dryer. • Excessive operation due to system leaks. • Suspension control unit software updates.
<p>Land Rover / Range Rover</p> <p>Range Rovers with electronic air suspension have had several bulletins and campaigns for:</p> <ul style="list-style-type: none"> • Compressors. • Replacement of the compressor with updated versions. • Software update to modify the operating logic. 	<p>Volvo</p> <p>For XC90, XC60, S90 and V90, technical bulletins have been issued relating to:</p> <ul style="list-style-type: none"> • Compressor fuses blowing. • Faulty relays. • Compressor replacement only after checking for leaks and wiring.



BMW

On X5 E53, 5 Series E39 and 7 Series E65/E66, the following problem was

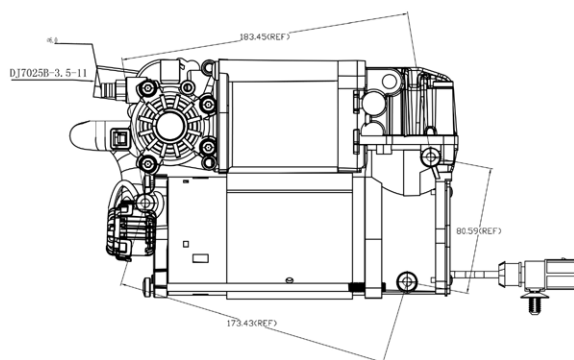
- Stuck compressor relay.
- Compressor remaining powered.
- Overheating and premature failure of the unit.



Jaguar

Jaguar XJ (X350/X358) models with air suspension have had campaigns and TSBs relating to:

- Compressor relay.
- Compressor overload due to air spring leaks.



The most famous recall

Probably the best-known case in the air suspension sector is the one involving **relays that keep the compressor powered**, a problem that has affected several **premium manufacturers** (Mercedes, BMW, Audi, Land Rover, Jaguar) over time. For this reason, many after-market manufacturers require the relay to be replaced together with the compressor.

Production testing

For an air suspension compressor, the main production tests (End Of Line - EOL) and quality tests are:

1 Electrical test

Continuity and resistance of the motor windings, current draw and insulation are tested.

Abnormal values indicate a short circuit, an open winding or a faulty motor.

2 Functional test

The compressor is started, and the time required to reach the nominal pressure and the operating stability are measured. A test is also performed to check whether the compressor stops correctly.

3 Pressure test

The maximum pressure developed, the air flow rate (l/min) and the pressure-holding capacity are tested.

4 Pneumatic leak test

The presence of leaks at the compressor head, fittings, dryer and non-return valve is checked.



5 Noise and vibration test

Sound level (dBA), motor unit vibrations and mechanical balance are measured.

7 Dryer test

Correct filtration and the condition of the desiccant cartridge are checked. Finally, the residual humidity is measured.

6 Thermal test

The temperature of the motor and compressor head is measured. Subsequently, the operation of the thermal protection is tested.



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