

## Vehicle Dynamic Suspension - Front Air Spring

Removal and Installation

### Special Tool(s)

 <p>204-538</p> <p>E51385</p>	Air spring tester 204-538
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### Removal

1.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

Raise and support the vehicle.

2. For additional information, refer to: [Shock Absorber and Spring Assembly](#) (204-01 Front Suspension, Removal and Installation).

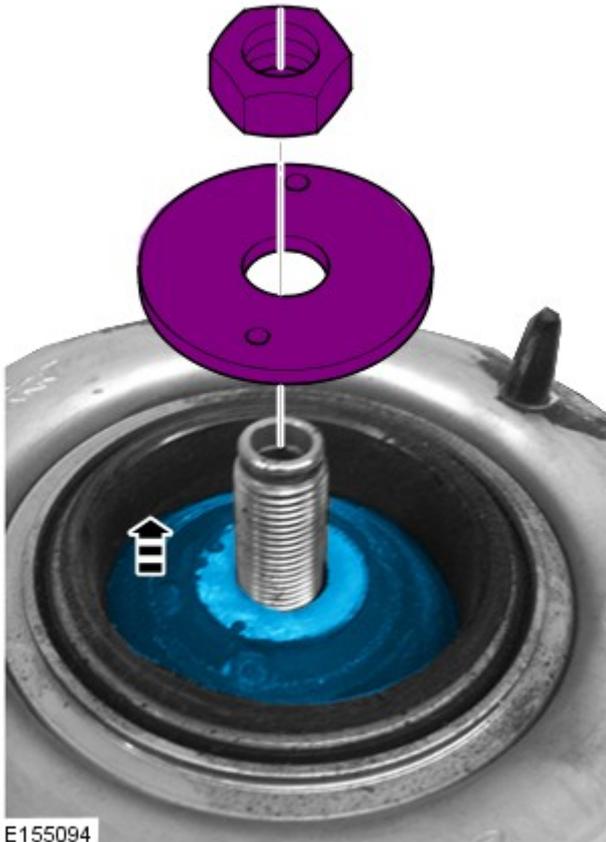
3.  **NOTE:** Mount the assembly in a vertical position.

Using a 8mm allen key and a suitable tool remove the top nut.

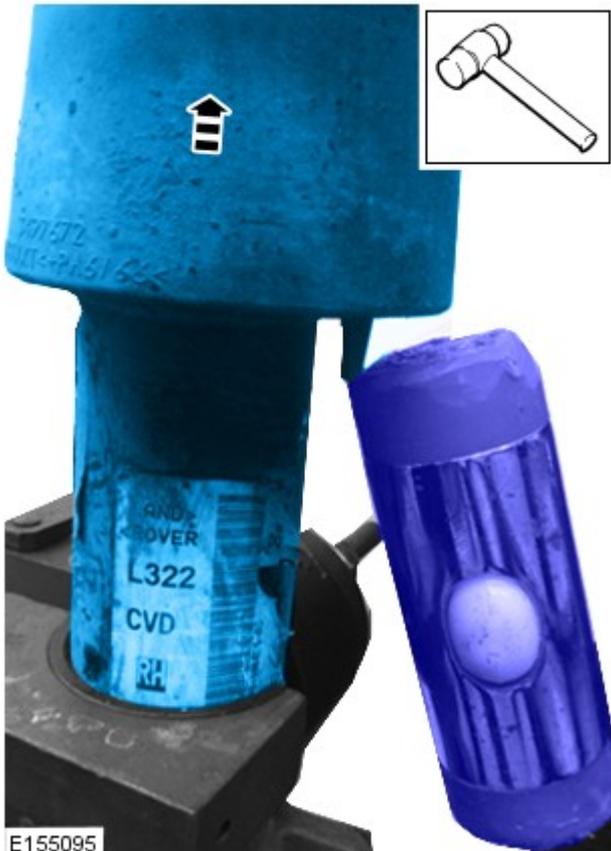


4.  **NOTE:** Retain the washer for further use.

Remove the upper bush.



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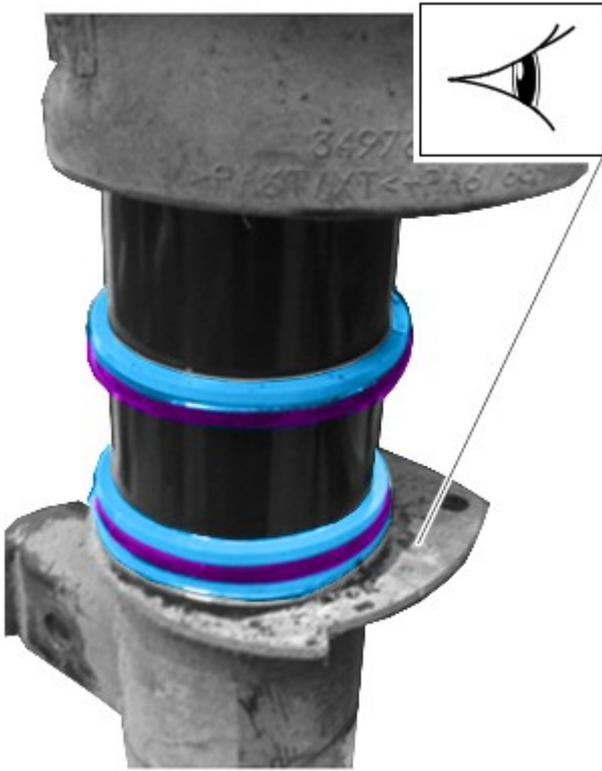


E155095

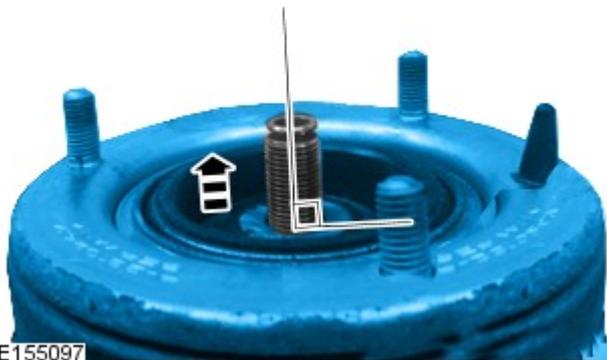
5. Using a suitable soft hammer tap the plastic piston in the vertical direction to raise it off the spring seat and remove it from the O-rings.

6.  **CAUTION:** Remove any dirt from this area before installing.

Raise the piston off the spring seat.



E155096



E155097

7.  **CAUTION:** Before pushing the top mount off the damper rod make sure you have squared up the top mount to the vertical axis as it will be force tilted due to the air spring.

Lift off the top mount from the damper rod, push up in a vertical direction.

## Installation

1.  **CAUTION:** Make sure this area is clean from any dirt.

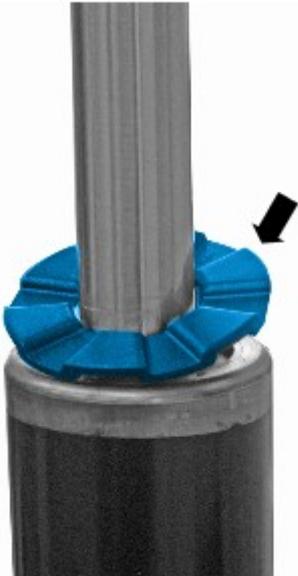
 **NOTE:** When the air spring is removed the spring aid, bump washer, O-rings and spacer from the damper rod will be displaced.



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2.  NOTE: Make sure the plastic washer is installed flat to the base prior to installing the spring aid

Install new plastic washer as shown.

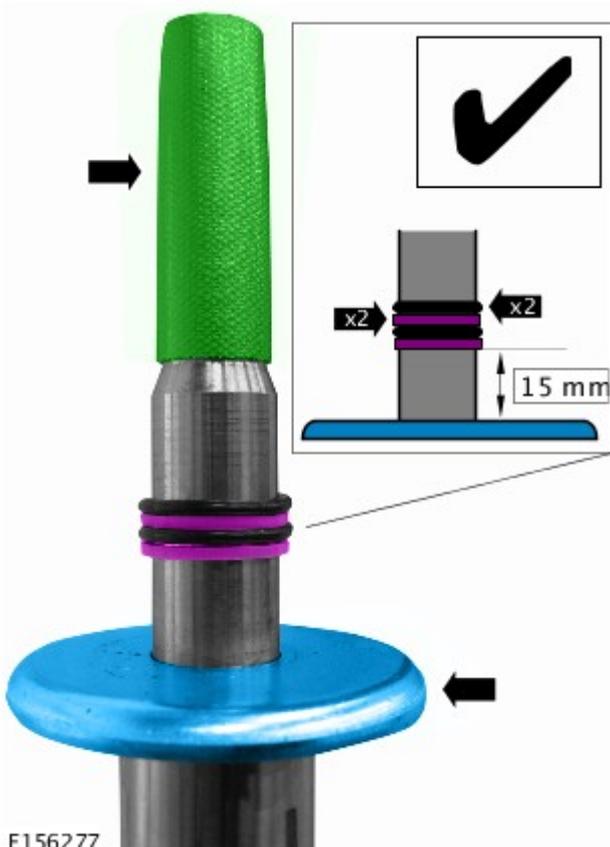


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3. Install the new spring aid.



E155099



E156277

4.  NOTE: Use a suitable protective tape as protection and then pass the spacers and O-rings over the thread, remove the tape after the O-rings are installed.

Place the O-rings and spacers in the following order, spacer, O-ring, spacer and O-ring. Place the new bump washer on damper tenon prior to installing the seals.

5.  CAUTION: Make sure the location washer is installed in the correct orientation with the outer lip facing downwards.

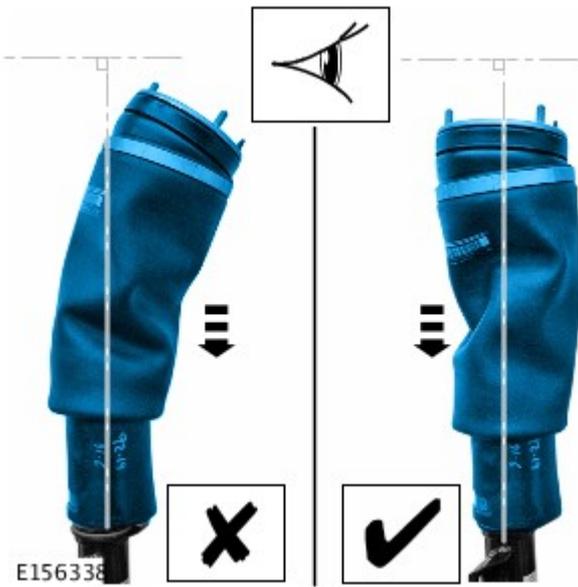


6. Install the lower O-rings and spacers as follows, spacer, O-ring, spacer, O-ring and spacer.



7.  NOTE: Before pushing the top mount home on the damper tenon and O-rings, check the correct handed markings on the air sleeve, and then square up the top mount to be at 90 degrees with the axis of the damper

Place the new air spring over the damper rod, entering the damper tenon through the top mount. Lower the piston on the O-rings and push down on the spring seat.



8.  NOTE: Make sure the protective tape is removed prior to installing the air sleeve and the locating tab on the piston enters the hole in the spring seat.

Install the new air sleeve.

9. Install the upper rubber bush onto the damper tenon.



10. Install the rebound washer.



11. Torque 90 Nm



12. CAUTIONS:

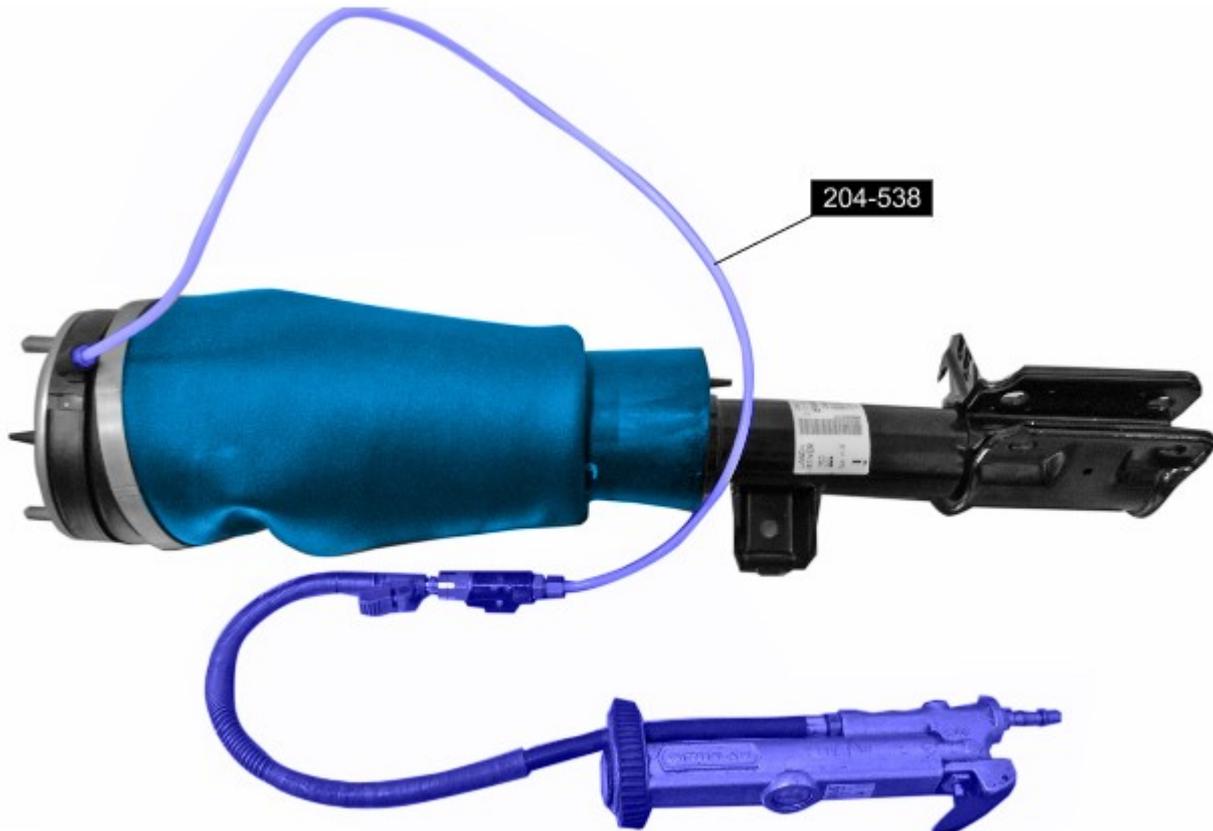


Keep hands and fingers away from the area during inflation.

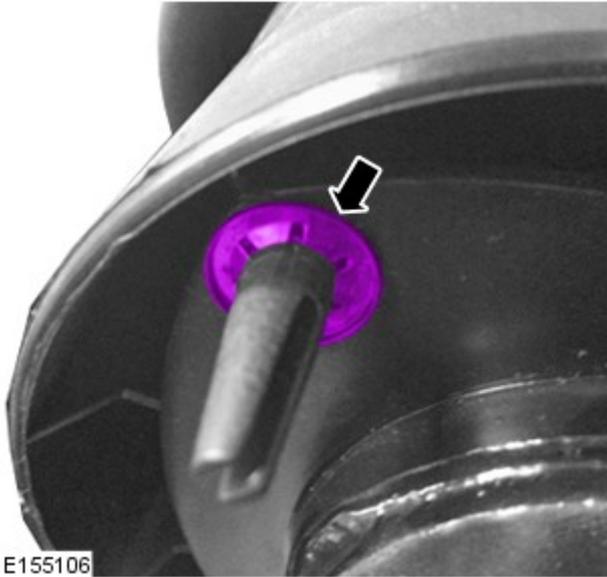


The shock absorber must be securely mounted in a suitable clamp before carrying out this step.

Using the special tool coupled to a tire inflator with a gauge, apply approximately 5 bar of air pressure to the air spring to fully seat the piston over the O-rings.



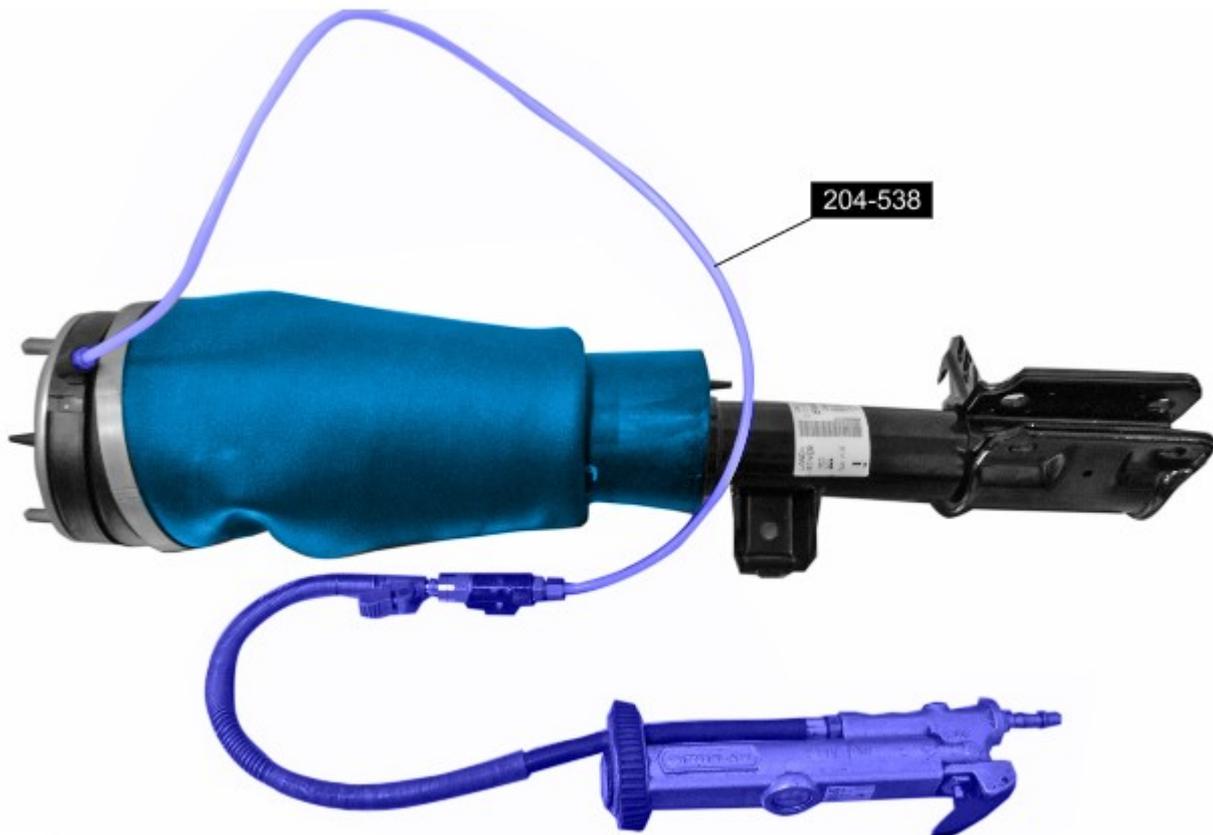
13. Install the spring clip onto the piston peg below the spring seat using a suitable tool.



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14. Carry out an air leak test using a suitable water bath.

15. Using the special tool deflate the air spring.



E159309

16. For additional information, refer to: [Shock Absorber and Spring Assembly](#) (204-01 Front Suspension, Removal and Installation).

Published: 20-Oct-2016

## Front Suspension - Shock Absorber and Spring Assembly

Removal and Installation

## Removal

1.  **WARNING:** Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.

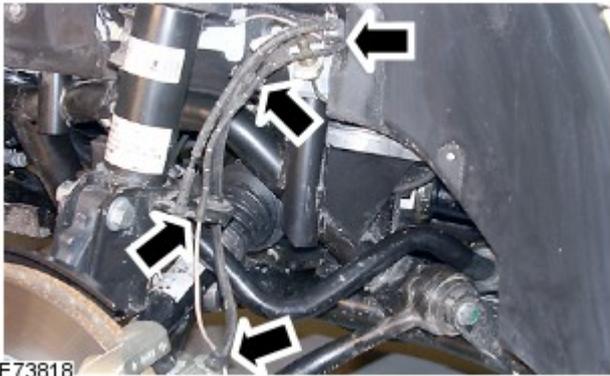
Raise and support the vehicle.

2. Remove the front road wheel.

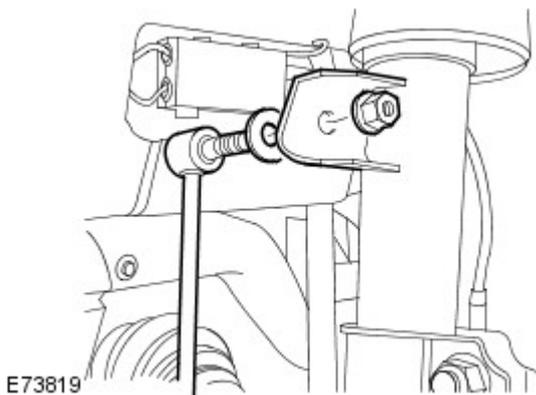
3. Using the Land Rover approved diagnostic system, depressurize the air suspension.

For additional information, refer to: [Air Suspension System Depressurize and Pressurize](#) (204-05 Vehicle Dynamic Suspension, General Procedures).

4. Release the ABS sensor lead and brake line.
  - Release from the 3 clips.



5. LH side: Release the brake pad wear sensor lead.
  - Release from the clip.



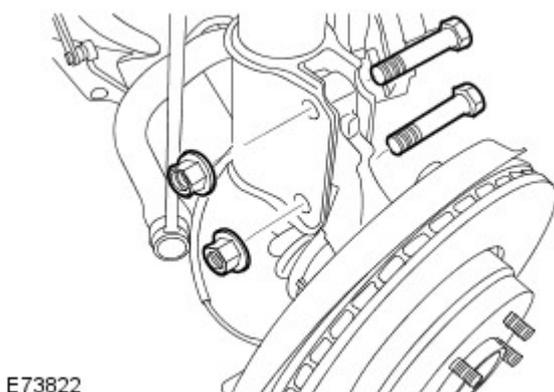
6.  **CAUTION:** Note the fitted position of the special washer.



- NOTE:** Use an additional wrench to prevent the ball joint rotating.

Release the stabilizer bar link.

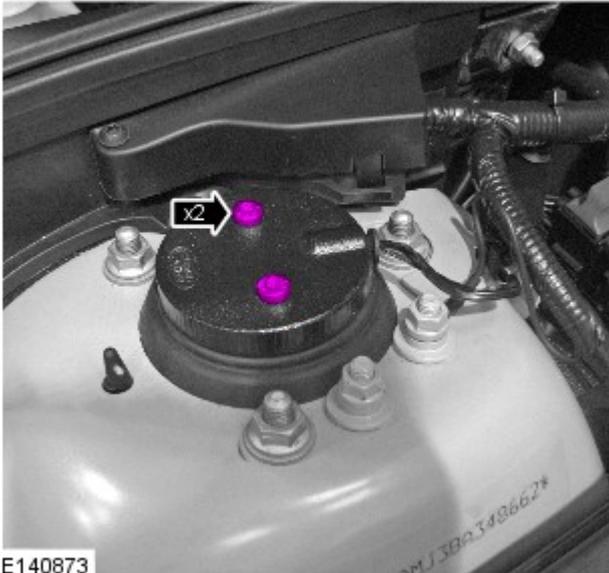
- Remove and discard the nut.



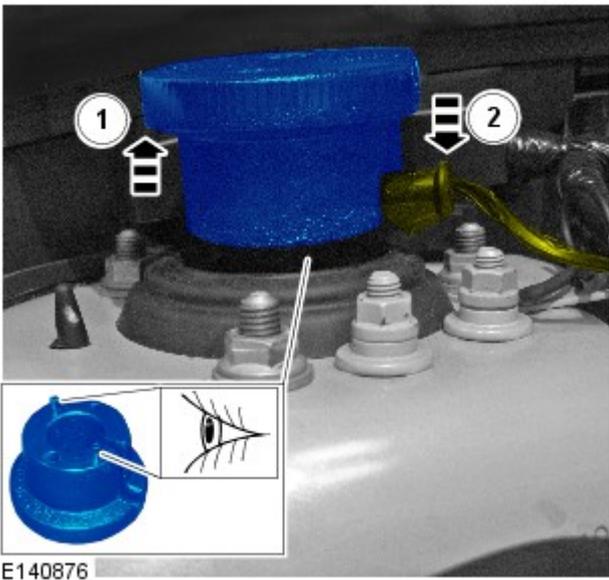
7.  **WARNING:** Use a jack to support the hub and lower arm.

Release the hub from the air suspension spring.

- Remove the 2 nuts and 2 bolts.
- Lower the jack.

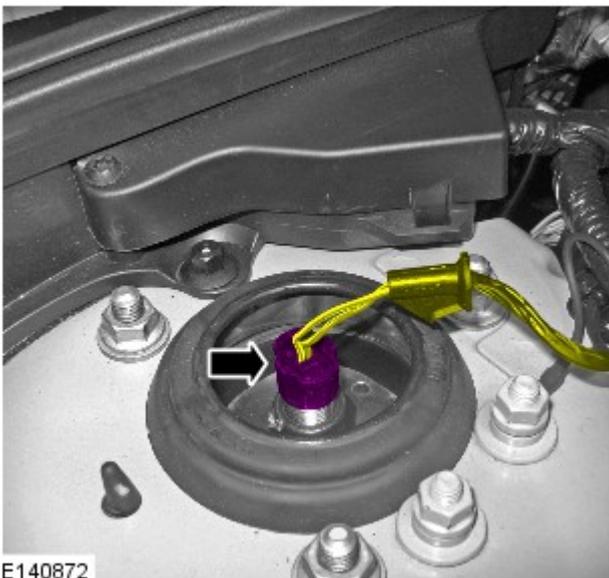


8. Remove damper retaining bolts.

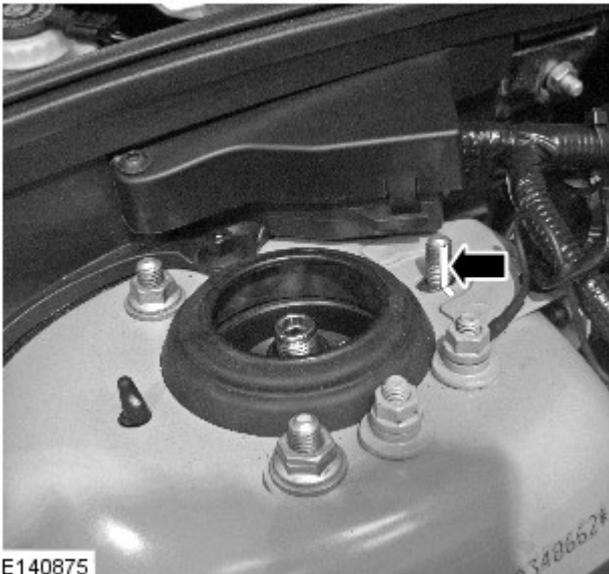


9.  **NOTE:** Note the orientation of the damper.

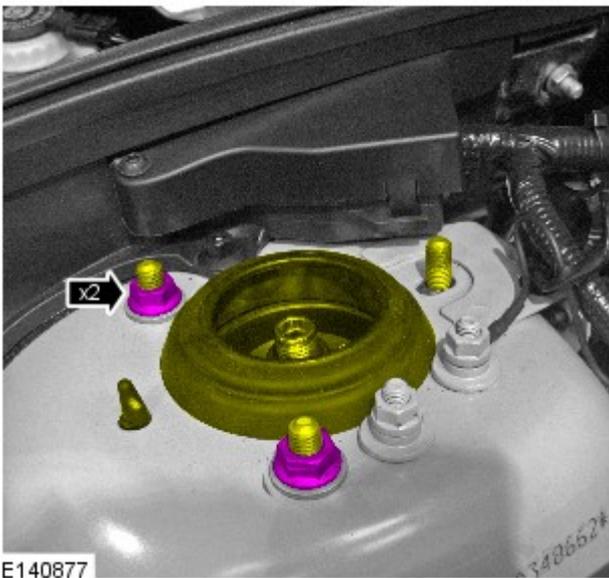
- Remove the damper.
- Lift the damper.
  - Release the wiring harness and remove the damper.



10. Remove the electrical connector.



11. Mark the fitted position of the stud to aid assembly.
  - Remove the nut.



12. CAUTIONS:

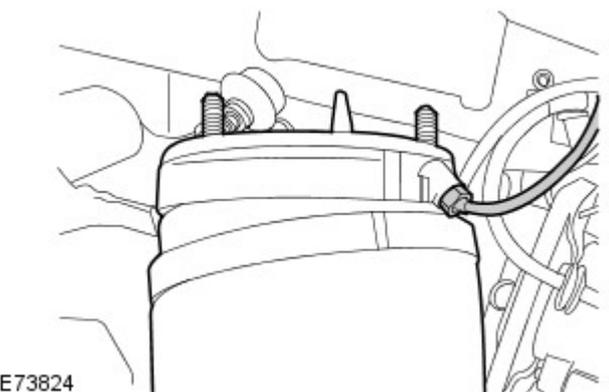
 Lower the air suspension spring sufficiently to release the air line connection.

 Do not allow the brake caliper to hang on the brake hose.

 NOTE: Models with standard brakes shown, models with high performance brakes similar.

Release the air suspension spring.

- Remove the cap.
- Remove the 2 remaining nuts.



13.  CAUTION: Before disconnecting or removing the components, make sure the area around the joint faces and connections are clean and dry. Plug open connections to prevent contamination.

Remove the air suspension spring.

- Disconnect the air line.
- Remove and discard the gasket.

## Installation

1. CAUTIONS:

 Make sure the tag on the gasket is visible.



The final tightening of the shock absorber and spring assembly retaining nuts must be carried out with the vehicle on its wheels.

NOTES:



If installing a new air suspension spring, remove the air line union.



Align stud to mark made on removal.



Models with standard brakes shown, models with high performance brakes similar.

Install the air suspension spring.

- Clean the component mating faces.
- Install a new gasket.
- Install the air line but do not tighten the union fully at this stage.
- Tighten the nuts to 56 Nm (41 lb.ft).

2. Tighten the air line union to 3.5 Nm (2.6 lb.ft).

3. Connect the active suspension damper electrical connector.

4.



NOTE: Make sure that the damper is installed in the correct orientation.

Install the damper.

- Tighten the bolts to 10 Nm.

5. Connect the hub to the air suspension spring.

- Clean the component mating faces.
- Tighten the nuts and bolts to 250 Nm (184 lb.ft).

6.



CAUTION: The washer is hardened and must be fitted in the correct position.



NOTE: Use an additional wrench to prevent the component from rotating.

Connect the stabilizer link.

- Install the special washer.
- Install a new locknut.
- Tighten the nut to 100 Nm (74 lb.ft).

7. Secure ABS sensor lead and brake line.

- Secure into the 3 clips.

8. LH side: Secure the brake pad wear sensor lead.

- Secure in the clip.

9.



CAUTION: The air springs must be fully pressurised before the weight of the vehicle is applied to them.

Using the Land Rover approved diagnostic system, pressurize the air suspension.

For additional information, refer to: [Air Suspension System](#)

[Depressurize and Pressurize](#) (204-05 Vehicle Dynamic Suspension, General Procedures).

10. Install the road wheel.

- Tighten nuts to 140 Nm (103 lb.ft).

11. Check, and if necessary, adjust the wheel alignment.

For additional information, refer to: [Four-Wheel Alignment](#) (204-00 Suspension System - General Information, General Procedures).