

Coil Spring Conversion Kit

Land Rover Discovery 3

INTRODUCTION



Thank you for your purchase of a coil spring conversion kit from *Dunlop Systems and Components Limited*, suitable for the Land Rover Discovery 3 vehicle (Model years 2004 – 2009). Please follow the instructions in this manual carefully in order to ensure correct and safe installation.

*** SAFETY PRECAUTIONS ***



NEVER work beneath a vehicle supported only by a jack. **ALWAYS** use axle stands. Wear eye protection and gloves throughout the installation process.

YOUR KIT

Your kit comprises of the following items...



Front Strut

Part No. 03139A-AA

Quantity: 2

Rear Strut

Part No. 03140A-AA

Quantity: 2

Disarm Kit and Instructions

Part No. 03296A-EA

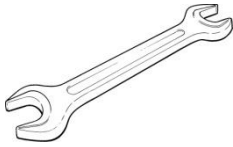
Quantity: 1

FITTING INSTRUCTIONS

Installation of the coil spring kit is a three-stage process...

1. Removal of Standard Air Struts
2. Fitting of Coil Spring Struts
3. Preparation of the vehicle for use with coil struts via a 'Disarm Module'

The following tools are required...



| | |
|---------------|-------------------------------|
| 15mm Spanner | Top Mounting Nuts, All Struts |
| 12mm Spanner | Air Supply Fitting Nut |
| 21mm Spanner | Bottom Bolt Head, All Struts |
| 24mm Socket | Bottom Bolt Nut, All Struts |
| 18mm Socket | Toe Link Bolt Head |
| Torque Wrench | Tighten to specified torque |

Each installation stage is detailed in the following subsections. *Except where indicated otherwise, follow the same procedure for both the front struts and the rear struts.*

STAGE 1: REMOVAL OF STANDARD AIR STRUTS

1. Raise the vehicle and support the axle on stands
2. Remove the road wheel at the 'corner' from which the first strut is to be removed



3. If an official *Land Rover* air suspension diagnostic system is available, use it at this point to depressurize the air suspension system. If the diagnostic system is not available, invoke vehicle 'Access Mode' (i.e. lower the vehicle) via the 'Air Suspension Switch' located on the centre console: Switch-on the ignition (there is no need to start the engine) and press the left-side switch downwards. This action will release most of the compressed air from within the system.



4. Disconnect the air strut assembly at the lower end from the vehicle suspension arm by unscrewing and removing the long bolt

5. **(Rear of Vehicle Only)** A 'Toe Link Arm' extends across the strut near the bottom end. This presents an obstruction to removal of the strut and therefore it is necessary to move it clear temporarily. Unscrew and remove the bolt **A**, and push the rod away from the base of the strut.





CAUTION!

*** Potential for Violent Decompression ***

The air suspension system contains compressed air...

... Wear gloves and eye protection

... Use a full-face visor if available

6. Remove the three nuts that attach the top of the strut to the bracket on the chassis. This will free the strut and so take care to support the weight until the air line is disconnected.

7. Manual Depressurization...

SLOWLY AND CAREFULLY loosen the nut that secures the air tube to the strut. As an additional precaution, do this with the face as far as possible from the site of the nut. Stop loosening the nut as soon as air is heard to escape and wait until all of the air has been released from the strut before proceeding further.

8. Fully disconnect the air fitting from the strut. If the air tubes are to be left in place on the vehicle, close-off their exposed ends in order to prevent ingress of water and/or contaminants



STAGE 2: FITTING OF COIL SPRING STRUTS

1. Hold the strut at the fitting site and find the correct orientation, in which...
 - a. the three threaded pins in the top plate align with the holes through which they are to pass and
 - b. the shock absorber 'eye' housing aligns with the slot on the lower suspension arm vacated by removal of the air strut



2. Manoeuvre the strut upwards until the three pins in the top plate pass through the corresponding holes in the chassis housing, at the same time ensuring that the shock absorber eye housing lines-up with its fastening location in the lower arm. Secure the strut loosely at the top via 3-off M10 x 1.5mm nuts.
3. Manoeuvre the damper 'eye' housing into position against the lower arm bracket, align the holes, slide the bolt through, affix the nut and tighten to torque 300Nm (221lbf.ft)



4. Tighten the three nuts at the top of the strut to torque $63\text{Nm} \pm 10\%$ (46.5lbf.ft $\pm 10\%$) in order to secure it to the chassis housing
5. **(Rear of Vehicle Only)** Reattach the Toe Link Arm via bolt **A**. Tighten to torque 175Nm (129lbf.ft).
6. Refit the road wheel and tighten the wheel nuts to torque 140Nm (103lbf.ft)

**** VERY IMPORTANT NOTE – RIDE HEIGHT AFTER STRUT FITTING ****

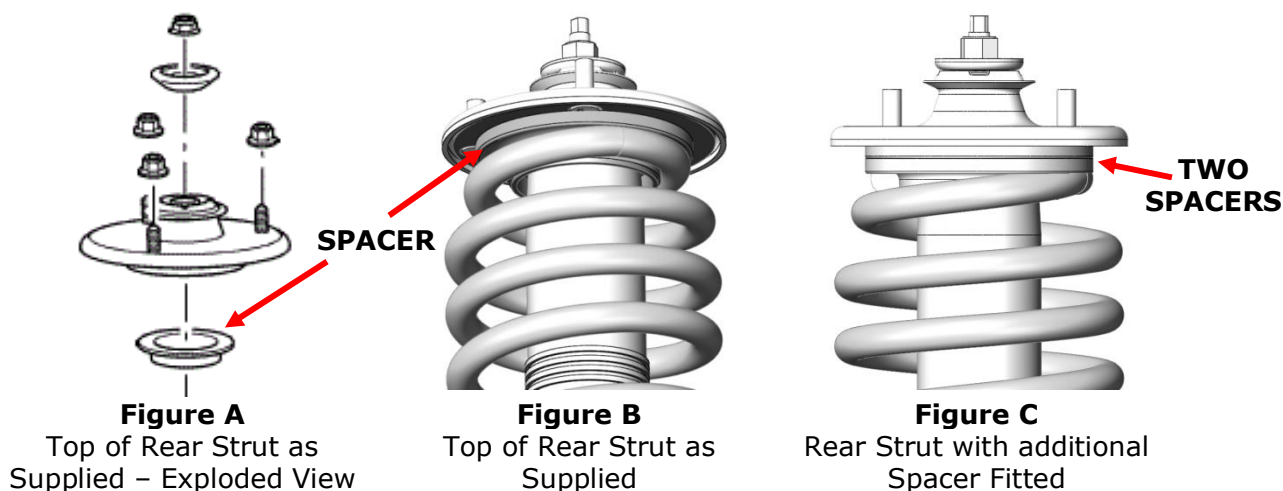
After fitting the coil spring struts, the vehicle should ride slightly higher than when fitted with standard air struts. This maintains the load-carrying capacity of the vehicle. However, in certain isolated cases, the ride height will be lower at the rear compared to when fitted with air struts. The photograph below shows an example...



In such cases it is necessary to remove the rear struts in order to fit an additional part (spacer) to each of them and then to refit the struts. The following standard Land Rover parts are required...

| Part Number | Decription | Quantity |
|-------------|----------------|----------|
| RNG500060 | SPACER, 13.5mm | 2 |

The rear strut assembly includes an existing spacer, located as indicated by Figures A and B below...



The additional spacer must be fitted **alongside** the existing one, as shown by Figure C.

**** CAUTION ****



The coil spring is placed under load when the strut is manufactured. Use of appropriate tooling is required during disassembly in order to ensure that this load is released in a safe and efficient manner. In addition, the spring will need to be re-loaded when the strut is reassembled.

It is strongly recommended that both disassembly and reassembly of each strut is carried out by a qualified vehicle technician equipped with suitable tools.

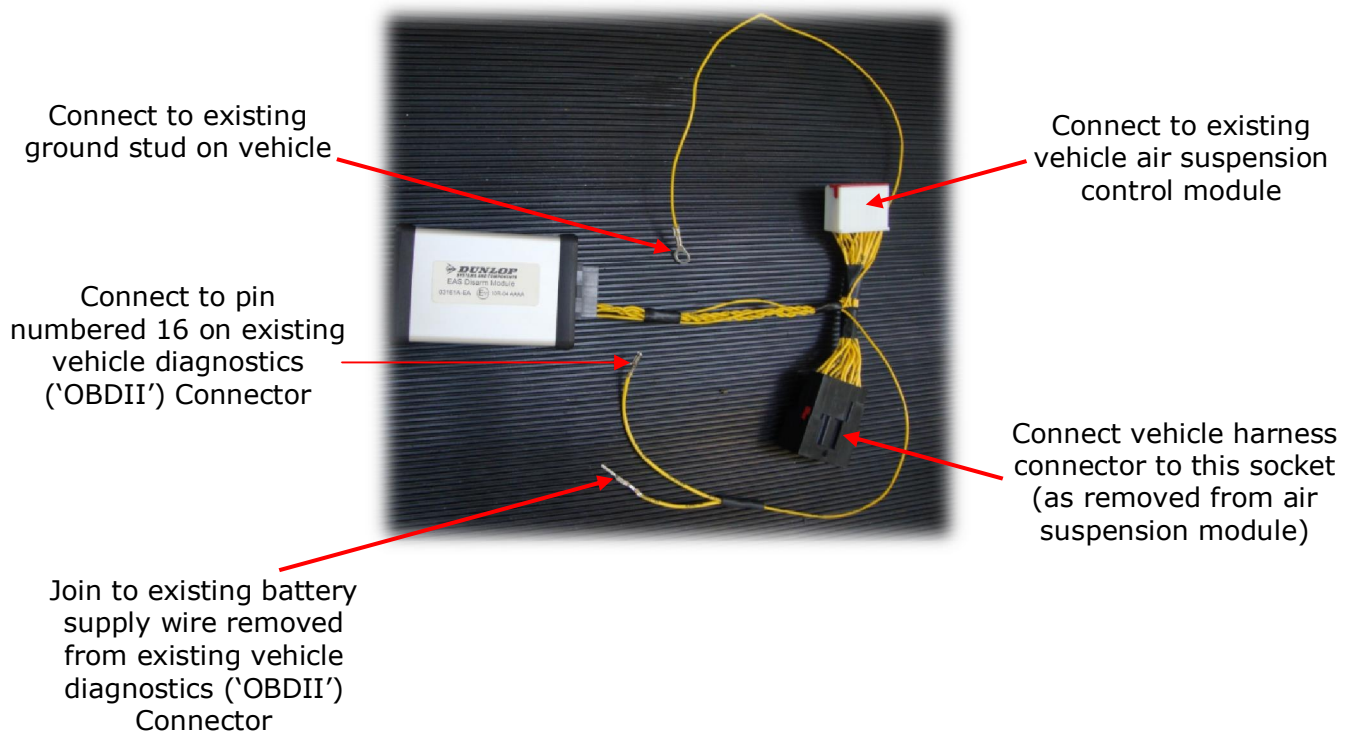
STAGE 3: 'DISARM MODULE'



'Disarm Module'

With the coil spring struts in place, the final stage is to suspend the activity of the air suspension system control unit using the 'Disarm Module' (illustrated above) and electrical harness provided. This module must be permanently connected into the vehicle harness, as described in this section.

The photograph below shows the electrical harness and module, and indicates the connections to be made...



Procedure

Note that the following procedure refers to right hand drive vehicles – the procedure is mirrored for left hand drive models.

1. **!! VERY IMPORTANT !!** Disconnect the vehicle battery...



2. Remove panelling from the footwell at the right hand side of the vehicle, as shown below. This will provide for access to the air suspension system control unit.

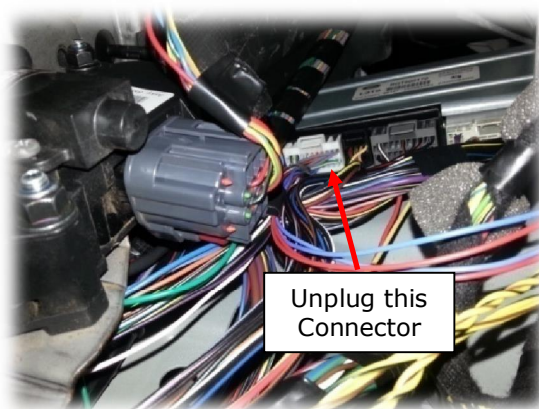


Vehicle Footwell, Right-hand Side

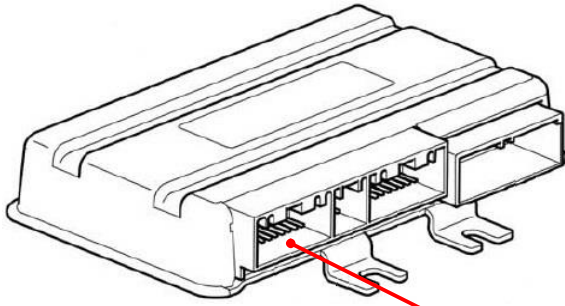


*Vehicle Footwell, Right-hand Side,
Panelling Removed*

3. The control unit is positioned against the inside wall of the vehicle, as indicated in the photograph below. Unplug the white connector from the underside of the unit, as shown on this photograph and overleaf.



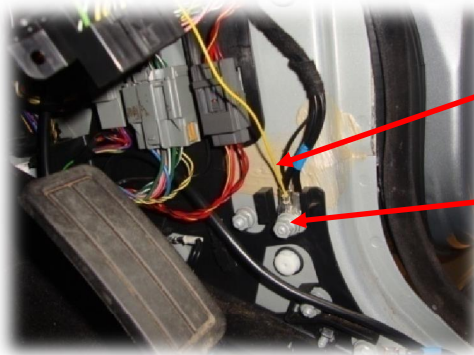
Unplug this
Connector



Remove 20-pin white connector
from position indicated



4. Plug the white connector of the coil spring kit harness into the air suspension control module socket vacated in the previous step
5. Locate the white connector of the vehicle harness unplugged in step 2 and plug this into the black socket of the coil spring kit harness
6. Connect the coil spring kit harness wire with a ring termination to an existing vehicle ground stud, for example as shown here...



*Coil Kit Harness
Wire with Ring
Terminal*

*Existing Vehicle
Ground Stud*

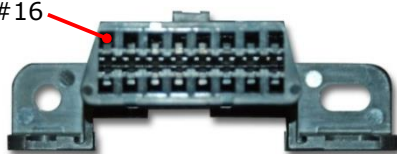
7. Unscrew and temporarily remove the existing vehicle diagnostics ('OBDII') connector...



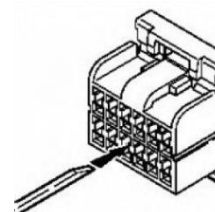
Existing vehicle
diagnostics ('OBDII')
connector, shown
temporarily disconnected
from seat

8. Locate pin #16 of the diagnostics connector. Using a fine screwdriver or similar fine-ended implement, lift the tab associated with this pin and pull out the (green-coloured) wire from it.

Pin #16

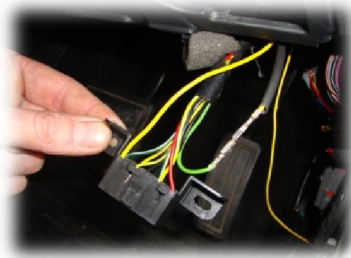


Pin #16 is located top left when the
connector is viewed as shown

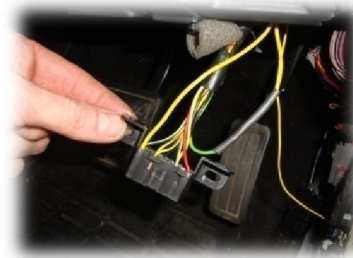


To remove a wire from the connector, lift
the tab associated with it as indicated here

9. Locate the wire of the coil spring kit harness that terminates with a small socket. Attach this socket to the pin (#16) of the vehicle diagnostics connector vacated in the previous step.
10. Slide heat shrink over the remaining loose wire of the coil spring kit harness, which terminates with a pin. Attach this wire to the existing (green-coloured) wire of the vehicle harness which was pulled-out of the diagnostics connector in step 8. Slide the heat shrink to cover the exposed metal parts of the new connection and apply heat to establish it in position...

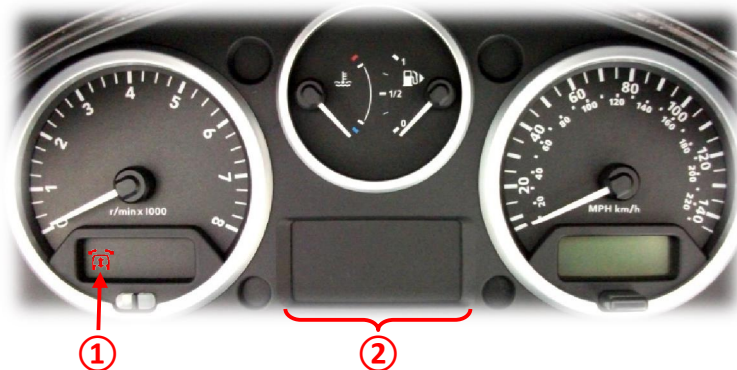


Coil spring harness wire attached to (green) vehicle harness wire previously removed from diagnostics connector



Heat shrink applied to connected wires as shown left

11. Re-fit the vehicle diagnostics ('OBDII') connector
12. Using the cable zip ties provided, secure the coil spring kit module in a suitable place close to the vehicle air suspension module.
13. Re-fit all of the panelling removed in step 2
14. Reconnect the vehicle battery
15. Insert the vehicle ignition key and select position II / ON – **Do not start the engine.** Confirm that the air suspension warning lamp (at position ① below) has extinguished and that there are no error messages / warning symbols displayed on the centre console liquid crystal display (②). Wait for a minimum of 10 seconds.



(Symbol shown as it would appear if warning lamp were illuminated)



The vehicle is now ready to be operated with coil spring suspension