

**TF223: AIR TO COIL CONVERSION – RANGE ROVER P38****STANDARD RIDE HEIGHT & STANDARD TRAVEL ALL TERRAIN SHOCK ABSORBERS****FITTING INSTRUCTIONS**

This Terrafirma TF223 kit is designed to convert the original air spring suspension system on all P38 Range Rovers built between 1995 and 2002 to coil springs. It is recommended that new Terrafirma shocks are also fitted for best results. The new ride height and quality on coils will be similar to the standard ride height when originally fitted with air springs.

Before you begin:

This job requires skills that can relate directly to the safe operation of your vehicle. If you are uncomfortable with this kind of work, we recommend you to take it to your local Land Rover Specialist for installation.

We use Terrafirma coil springs; TF030 for the front and TF031 for the rear. The springs are handed and marked DS (driver's side) and PS (passenger's side). It is important that the longer springs are fitted to the driver's side of the vehicle.

Terrafirma shock absorbers are an upgrade from the standard Land Rover shock; TF125 for the front and TF126 for the rear. Fitting Terrafirma shocks will improve handling and ride quality both on and off road.

Fitting Instructions:

Park the vehicle on level ground and chock the wheels. Lower the air suspension to 'access height' (lowest, if not already there) and then switch off the engine and disconnect the negative battery terminal.

Starting at the front with the bonnet open, locate the plastic air pipe on each front air spring. Using caution, remove the pipe from each air spring by depressing the brass collar and pulling on the pipe. If there is any air left in the system, be careful as the body may move.

Jack up the chassis so that the body sits just above its normal ride height and secure it. Raise the front axle enough so that the front wheels can be removed. Remove the two metal clips that retain the top of each air spring. The bottom is secured with a pin retained by a bolt; remove the bolt and then the pin, saving them for later.

Unbolt and remove both front shock absorbers while the jack is supporting the axle. Carefully and slowly lower the axle making sure not to damage the flexible brake hoses and the ABS cables. You may need to remove a pipe clamp to lower the axle sufficiently. Remove the air springs from the vehicle.

Select an aluminium spring perch and place a spring mounting plate over the studs. Place the coil on the plate and rotate it so that the spring retainer plate lies flat (or close to it). Add the Nyloc nuts and tighten. This basic procedure is used for all four springs.

The front bump stops are longer for the air suspension than they need to be for coils. We recommend simply cutting the rubber in half at the 'pinch', using a saw blade or suitable tool. If they are damaged or missing they should be replaced.

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Fit the RBC100111 coil spring isolators by placing the isolator up into the chassis where the top of the spring goes and bolt it in place.

Now offer up the spring assemblies: make sure you have the right ones for each corner. The shorter spring of each pair goes to the passenger side.

TF030 springs on the front and TF031 on the rear.

Place the top of the coil in first then locate the D shaped peg in the spring perch into the axle mounting plate. Slowly raise the axle and guide the springs into place, until the spring perch can be bolted and pinned at the bottom, the reverse of how the air spring was removed.

Take care that the brake hoses and ABS cables are going back to where they were when raising the car.

If new Terrafirma shocks TF125 are being fitted bolt them in while the jack is supporting the axle and the chassis jack stands are still in place.

Inspect the brake pads and discs for wear. Refit the wheels and tighten the wheel nuts to the correct torque.

Now remove the jack stands and lower the front of the vehicle.

The upper coils may pop as they settle and locate, that's normal. Make sure the vehicle is sitting level and that all brake hoses, cables and clips are in the correct position.

The rear coil springs TF031 are even easier to fit. Use the same procedure for supporting the chassis and jacking the rear axle. Remove the wheels and the air pipes, and remove the pins top and bottom. Save two of the pins for re use. Remove the old shocks and lower the axle housing taking care of the brake hoses, clips, and ABS cables.

This time the ANR2938 rubber spring isolators go on top, as you can see they have no bolts, you have to guide them in place while positioning the spring into the D shaped hole on the axle. It's easier than it sounds.

Raise the axle enough to get the pins in the bottom, and make sure they're properly placed. Fit the new TF126 shocks and the wheels and then lower the vehicle in the same manner as the front end.

BECM Module:

The next step is to convince the BECM (Body Electrical Control Module) that all is well so that it doesn't flash any codes or lights at you.

The BECM controls all electrical functions on your P38 and it is located under the right front seat. Undo the trim panel by removing 3 clips and 1 screw and you'll see a row of multi wire plugs. Locate and disconnect the green plug (second left) from the BECM and connect it to the corresponding end of the GEASR2 Bypass loom, then plug the vehicle's loom into the other end and make sure the plugs clip together securely.

On the right side of the fuse box there is a thick brown main feed wire. Remove the 10mm nut and connect the fused wire from the Bypass loom and carefully re-tighten the nut.

To the left of the fuse box is another nut, this time retaining a large black earth wire. Attached the other wire from the Bypass loom and again tighten the nut carefully.



Under the left front seat having removed the trim panel you will find the air suspension ECU, it is the lower one which must be disconnected to prevent any new faults from being recorded by the BECM. Replace the trim panel.

In the centre of the dash is the Air Suspension height selector switch which needs to be unplugged. Carefully slide a thin blade top and bottom of the switch to compress the tabs to aid removal. Replace the switch.

Reconnect the battery and enter the radio code.

On start up the display panel will show "EAS MANUAL" this will go out when the engine starts, and reappear on initial engine run. It will then be replaced by trip mileage figures. This will happen on every start up. The height indication lights on the dash switch will no longer operate.

The windows and sunroof will need to be reset, this is done by fully opening and closing them in turn.

Road test and check over.

Please note that fitting this may alter the handling characteristics of the vehicle. It is the responsibility of the vehicle owner to ensure this kit complies with any motoring legislation.



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P38 R/R**