

Guides - Fitting a Suspension Kit

DISCLAIMER: The information in these documents are a collection from experience (friends or myself), magazine articles, mailing lists and Internet web sites etc. So don't take these as 100% correct gospel, hence I don't take any responsibility for any of these guides.



Difficulty Rating: 3/5 - Easier than it looks.



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Click on any of the pictures for a larger view.

Front:



Before...



...and after.

Rear:



Before...



...and after.

This is a step-by-step guide on fitting a suspension kit to a Vauxhall Nova GTE. The kit in question (GMax) also lowered the car -30mm all round and came complete with matching springs. The change over is easier than I thought, if I done it again, it would take me no longer than an hour, as this was my first attempt, it took me 3 hours. **Please note that this modification WILL effect your insurance, in fact some insurance companies will not accept your car because it has been lowered.** Don't take this as a total deterrent, the handling will be improved, with this kit, the ride quality wasn't affected too much either.

This guide will show you how to do both the front and rear shock absorbers. Plus what torque settings you need (very important) and the size spanners or sockets you will use. The size, or rather the width or your tyre will be an important factor in this modification. In that once lowered, the tyres may rub with the spring or the arches (because it has been lowered). This modification was carried out on 15" x 5.5" wheels (not shown) with 195/45/15 tyres on. There is no rubbing on the arches, even with the car fully loaded.

Separate lowering springs can also be purchased afterwards if you really want to go any lower, but by personal experience, -30mm is low enough. Anything lower and you will start to have problems with speed bumps, you need to go real slow, otherwise you really do feel it once you've 'bounced' over it.

The rear shocks are the easiest to change because the spring and shock absorber are separate. The rear springs are only held in place with the rear axle, once the car is down off it's stands. Otherwise they can fall out. The front shocks aren't that difficult, you just have a few more nuts and bolts to contend with. When using the spring compression tool, please make sure you have the hooks on a secure spot on the spring, you don't want it to slip and spring off (possible towards your face !!).

PARTS (both front & rear)

Spring Compression Kit

Torque wrench

19mm socket (1/2")

Ratchet with 1/2" bit

Long extending bar

19mm cranked ring

(1/2")	WD40	spanner	Adjustable spanner
Large pliers	Rubber mallet	Copper grease	Haynes book
Trolley Jack	Axle stands (pair)	13mm socket	Extra pair of hands

COST

GMax Nova GTE suspension (-30mm)	£220	• The spring compression kit can be obtained from a local Halfords store.
Copper grease	£3+	• A torque wrench can be brought from any local DIY or car accessory store. Note: there are different size and ranges available. Try and get one that would suit your car (i.e. one that has a big range).
Spring compression kit.	£15+	
Torque Wrench.	£40+	

General Notes:

Just before you start, make sure you note the following:

- If you don't have one, buy a Haynes manual for your car and have this in front of you. You'll need it on how to remove the front and rear shock absorbers plus the torque settings etc.
- When fitting bolts or nuts, or when metal components are touching other surfaces, use a bit of copper grease on there. This will stop the nuts and bolts from rusting together, and make it easier for removal in the future.
- When using the spring compression tool, make sure the hooks are on a secure spot on the springs. You don't want this slipping and bouncing off somewhere and causing injury.
- When the springs have been fitted, and the car lowered, remember it takes a few weeks for the springs to settle into place and for the weight of the car to take effect. In other words, the car will be a little lower than in the near future.

OK, got all the above? Then follow the steps below (remember to click on the pics for a bigger view):

▀ Fitting Front Suspension: ▾

Size & Torque settings:-

- Upper mounting retaining nut (2 off - 13mm) = 30 Nm or 22 lbf ft.
- Piston rod retaining nut (1 off - 19mm) = 55 Nm or 41 lbf ft.
- Piston rod top, use 10mm socket.
- Strut-to-steering knuckle retaining bolt (2 off - 19mm) = 110 Nm or 81 lbf ft.
- Road wheel bolts (4 off) = 90 Nm or 66 lbf ft.

Please note:

- Your suspension kit usually supplies new nylon inserted nuts. This is because it is considered unsafe to use the old nuts because they have been used.
- Take note of the small identification hole in the top spring plate (the round circular discs on the front shock absorber). When fitting the new springs, the hole should be pointing the opposite direction of that of the lower strut mountings (i.e. pointing towards the engine bay).
- Take care when removing the upper mounting assembly components to transfer them to the new shock absorber, take note of the order of the parts, as they can fall apart easily.
- Take note of the orientation of the strut-to-steering nut and bolts. When they are put back, bolt head is pointing towards the rear of the car.
- The suspension kit should come with fitting instructions, it should also mention the orientation of the springs, as this is important and will affect the ride quality if the springs are inserted upside down.
- Do NOT undo the piston retaining nut while the shock absorber is still on the car. This will

make it very difficult, if not impossible, to remove the shock absorber. This is because the spring is released and wedges itself inside the turret.

Step 1



Remove wheel trim, slacken wheel bolts, jack up the car and support it on axle stands. Take both wheels off as you need to gain access to the front suspension.

Step 2



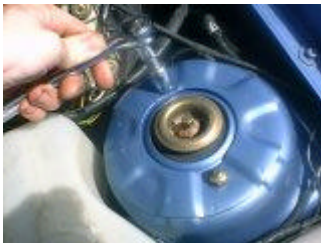
Open the box and check that ALL the parts are there. You don't want to be half way fitting it and find something is missing.

Step 3



Soak all nuts and bolts with WD40 before you begin. Using a 19mm socket/spanner, undo the two 'Strut-to-Steering knuckle retaining bolts'.

Step 4



Pop the bonnet up and remove the two upper mounting retaining nuts (13mm). Do NOT touch the 19mm piston rod nut yet.

Step 5



With all the bolts removed, take out the shock absorber (use a rubber mallet if it's stubborn). You need to transfer the upper assembly mountings.

Step 6



Use a spring compression tool to compress the spring. Undo the 19mm piston rod nut using a crank spanner and socket. Remove the spring.

Step 7



Then transfer the rubber bump stop and gaiter to the new shock absorber. Remember the order that the upper strut mounting assembly components came out.

Step 8



Then slide the new spring on and fit the upper strut mounting assembly back in the correct order (you may not have to use the spring compressor - because they are lowering springs).

Step 9



Slide the top half of the shock absorber back in and do up the upper mounting retaining nuts by hand. Ensure the upper mounting assembly identification hole is pointing towards the engine bay.

Step 10

Step 11

Step 12



On the bottom half of the shock, replace the strut-to-steering knuckle bolts. Do them up to 110 Nm. Place copper grease on the mating surfaces and the thread of the bolts.



Tighten the new piston rod retaining nut to 55 Nm. Also tighten both the upper mounting retaining nuts to 30 Nm. Again use copper grease on the threads.



With all bolts done up, lower the car down slowly. Look to see if your wheel fouls with the front wing. It will be a week or two before the springs settle down.

▣ Fitting Rear Suspension: ▣

Size & Torque settings:-

- Shock absorber upper mounting nut (1 off) = so there is a gap of 9mm (0.35 in) from the flat of the nut and the top of the shaft.
- Shock absorber lower mounting bolt (1 off) = 60 Nm or 44 lbf ft.
- Road wheel bolts (4 off) = 90 Nm or 66 lbf ft.

Please note:

- Your suspension kit usually supplies new nylon inserted nuts. This is because it is considered unsafe to use the old nuts because they have been used.
- When jacking up the rear of the car, do NOT put any stands on the rear axle, as you need to operate the rear axle to get the rear springs out.
- Use a pair of pliers or similar on the shaft of the piston, when undoing the nut from inside the boot. Otherwise the shaft rotates and the nut will not become loose.
- Use a long metal bar or pole to pry the rear axle down to remove the rear springs.
- The suspension kit should come with fitting instructions, it should also mention the orientation of the springs, as this is important and will affect the ride quality if the springs are inserted upside down.

Step 1



Remove wheel trim, slacken wheel bolts, jack up the car and support it on axle stands. Take both rear wheels off to gain access.

Step 2



Spray WD40 on all bolts and allow to soak. Use a 19mm socket and undo the (1 off) shock absorber lower mounting bolt.

Step 3



Open the boot, and use a 19mm spanner to undo the shock absorber upper mounting nut (use a pair of pliers, not shown, to stop the shaft from rotating).

Step 4

Step 5

Step 6



The rear shock shall slide out. Use a rod to press down the rear axle far enough to simply remove the rear spring from the damper rings.



Fit the new shock absorber in, do the upper nut first by hand and then tighten the lower bolt (60 Nm). Pries down the axle again and insert the new spring.



With all bolts done up, lower the car down slowly. Look to see if your wheel fouls with the rear arch. It will be a week or two before the springs settle down

