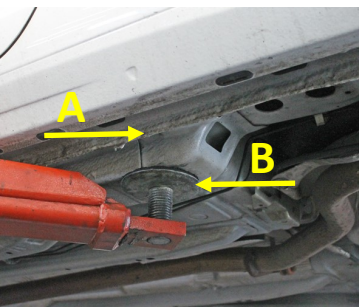


MiTo Suspension/Spring Change

Removing and replacing springs on the MiTo is not a hugely complex task, but it is much easier with the car up on a ramp. I fitted Eibach Pro springs to my Graffiti Grey MiTo (now the race car) on my drive using jacks and I have to confess it took me about four hours and wasn't something I wanted to repeat. But it was achievable.

This guide includes pictures of the process being done professionally by my favoured expert technician, Jack Ealey, at Autolusso Bournemouth, and I am grateful to Jack and Laurence at Autolusso.

Remember, when jacking your MiTo always jack either in the correctly arrowed positions (point A in the image below) or if using a trolley jack or ramp, use the chassis legs identified by point B below.



We will start with the front springs as these are more complicated, and it gives you the rear springs to look forward to which are mercifully much simpler.

FRONT SPRINGS

Part 1 – Remove Scuttle

To gain access to the top mounts, you first need to remove the plastic scuttle. Do not be tempted to simply part-detach a few of the screws and prise the corners of the scuttle up – this risks damaging the scuttle (do so at your peril).

1.1. Remove windscreen wipers

Make a note of the position of your windscreen wipers (taking a photo with your

phone is a good idea) – this helps you double-check the position later when you re-fit them. Now gently prise off the plastic bolt covers on both windscreen wipers then undo and retain the bolts holding on each wiper (see pic. 1.1). Gently lift the wipers straight up and set them aside. Note, if your wipers are firmly stuck on, you can use a pull tool, but be very gentle not to damage the wiper arms. Do not be tempted to twist or angle the wiper arms to release them – they sit on a splined mount which could be damaged.

1.2. Remove scuttle rubbers

At the front corners of the scuttle, there are protective rubber pieces which are held on with a swivel mount. Gently prise both sides off and out and swivel them out of the way towards the windscreen.

The right-hand side also has a small cable clip attached (see pic. 1.2) which you need to carefully remove.

Now gently prise away the rubber seal that runs the length of the bottom of the scuttle (see below).



1.3. Unscrew and remove scuttle

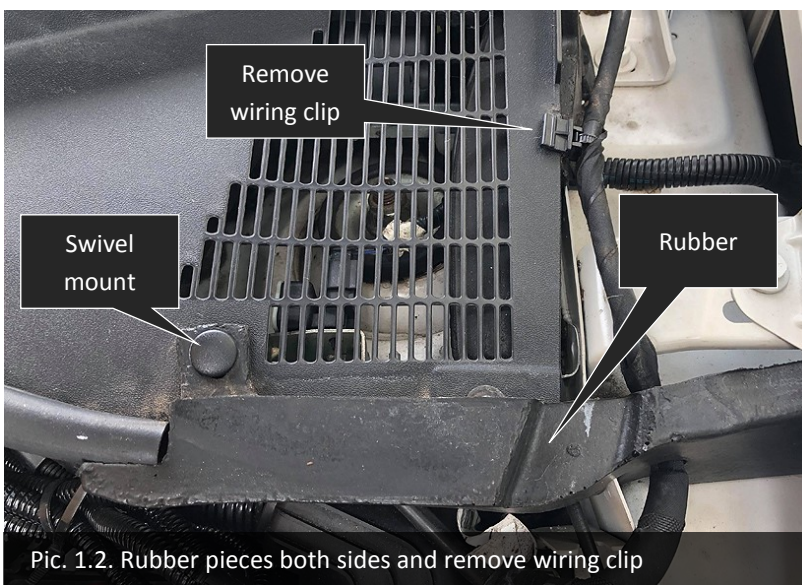
Undo the three screws which hold the scuttle in place (one where each of the side rubbers were and one in the centre), then you can gently lift the scuttle away to gain access below (see pic. 1.3).

Ensure you place the scuttle and the screws safely for refitting later.

With this first part done, you are ready to move on to the front spring removal.



Pic. 1.1. Remove windscreen wipers



Pic. 1.2. Rubber pieces both sides and remove wiring clip



Pic. 1.3. With the 3 screws removed, carefully lift scuttle away

MiTo Suspension/Spring Change

Part 2 - Spring Replacement

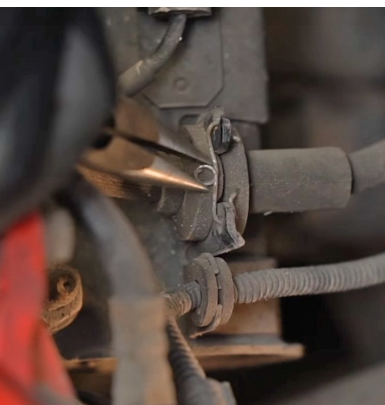
2.1. Jack up car and remove wheel

Fairly obviously, you need to lift the corner of the car you are working on first. If the car is not on a ramp, it needs to be raised higher than you would typically jack it so there is approximately six inches below the front wheel.

2.2. Release brake hose and wiring

Depending on your MiTo, you need to release the brake hose, brake wires and adaptive suspension plug if fitted. The aim is simply to remove them from their mounts so you can work around them, though you will have to disconnect the adaptive suspension connector.

The brake hose is likely held in with a strange little safety clip which you release by squeezing the coiled circle of the wire with pliers (see image below).



Ensure all cables and hoses are clear of the strut and retain the brake hose clip for refitting.

2.3. Release the top of the drop link

Using a 17mm spanner on the rear and a 16mm socket on the front, release the top of the drop link from the shock absorber and rotate it so it is out of the way (see pic. 2.3).

2.4. Undo the shock absorber bolts

Using an 18mm socket, undo

and release the bolts which secure the shock absorber to the steering knuckle (see Pic. 2.4). These are likely held on very well, so you may need to lubricate them with WD40 first.

Once the bolts are removed, you can gently ease the steering knuckle (with the disc and brake calliper attached) down so the knuckle becomes detached from the shock absorber (see image below).



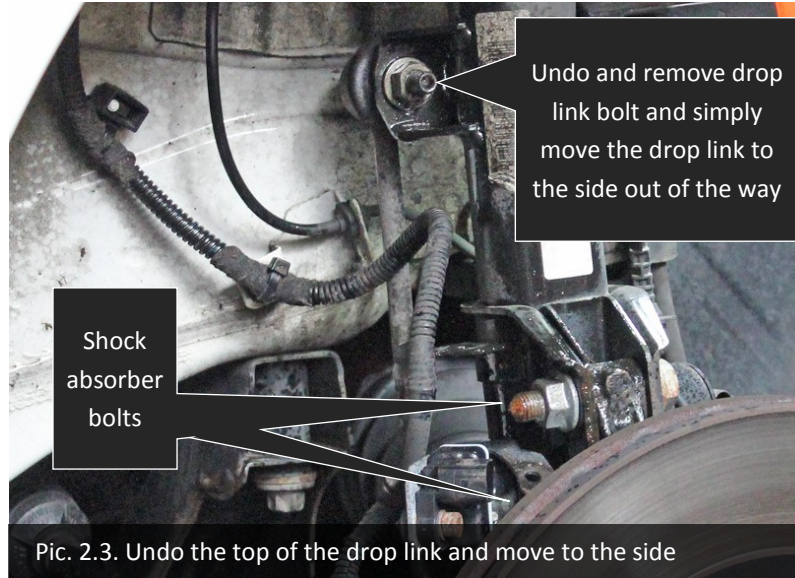
Take care to ensure none of the hoses and wires get caught.

2.5. Undo top mounts and remove shock

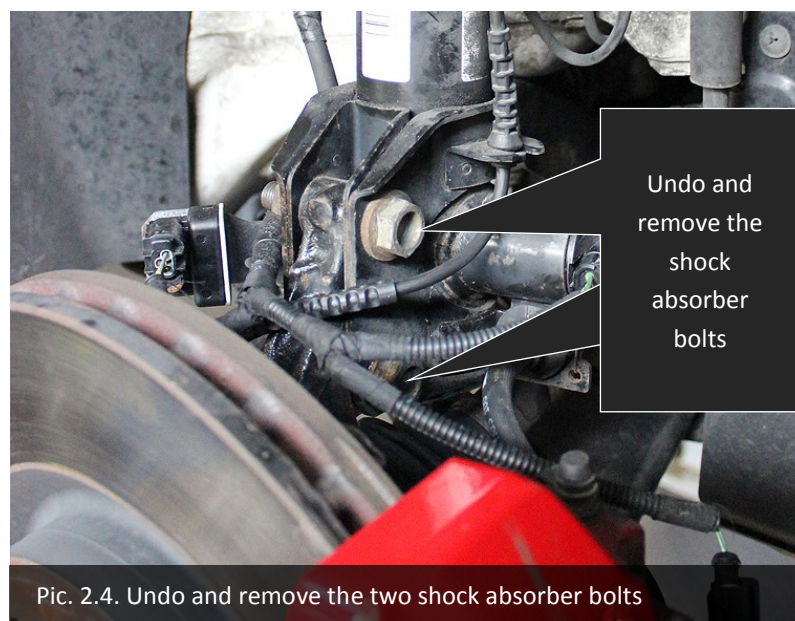
There are two types of top mount bolt configurations on the MiTo. The first (image below) requires a 6mm allen key bit in the top of the shock absorber to hold it in position whilst undoing the nut with an 18mm spanner.



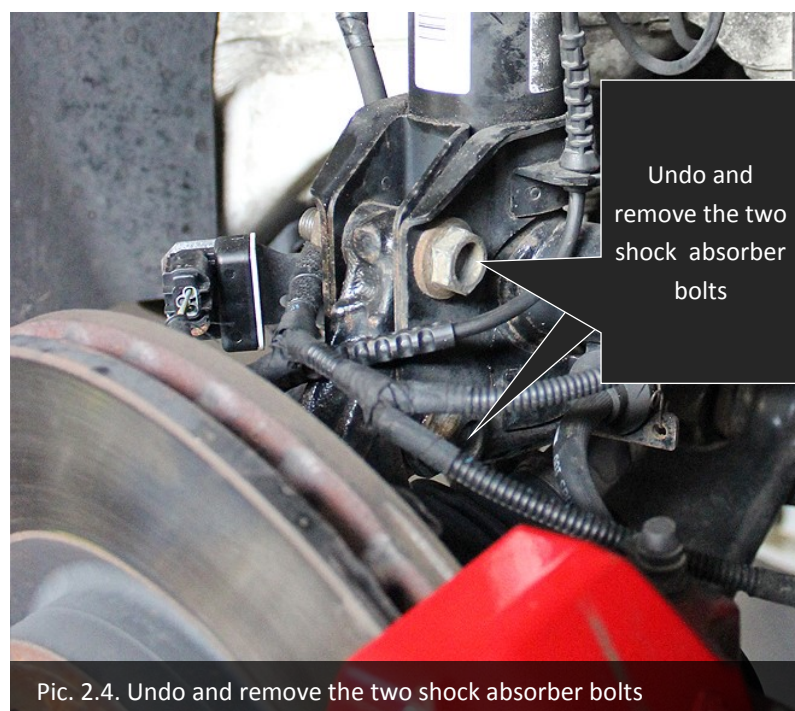
But there is a second type which has no allen key fitment, just the big nut. I *think* this is the adaptive suspension shocks but I am not able to confirm 100% without checking other cars (I obviously don't have enough!).



Pic. 2.3. Undo the top of the drop link and move to the side



Pic. 2.4. Undo and remove the two shock absorber bolts



Pic. 2.4. Undo and remove the two shock absorber bolts

MiTo Suspension/Spring Change

So using either a combination of the 6mm allen key and spanner, or just the single socket or spanner, start to loosen (but do not remove) the top mount bolt.

This is a slightly tricky bit as you need to finally remove the top mount bolt whilst reaching down and holding the shock absorber with your other arm.

So loosen the top mount bolt until it is almost free, then hold the shock absorber whilst you remove the nut by hand (as shown by Jack in the image below).

the constituent parts without first safely compressing the spring. And only compress the spring with a device specifically designed for that purpose!

Manual spring compressors are relatively straightforward - you need two per spring and they act as clamps each side. They tighten from the top compressing the spring, but you must alternate the tightening of each side so the spring is compressed evenly. Compressing a spring unevenly will begin to create a curve of the spring and greatly increases the level of danger.

Once the spring is compressed, there is a tremendous amount of stored energy in the spring which can be extremely hazardous, so take this process very seriously to avoid injury.

In any event, never point the compressed spring at yourself, anybody or anything of any value!

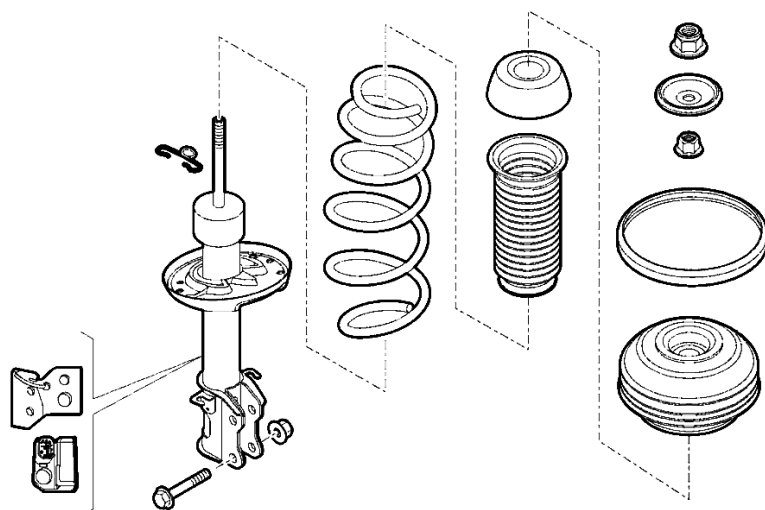
2.8. Remove spring

Once the spring is compressed, the top nut can be undone and the constituent parts removed one by one from the top. It is then possible to remove the shock absorber from below (see pic. 2.8).

You can now carefully uncompress the spring, releasing each side a little slowly to ensure it is uncompressed in a controlled and safe way.

2.9. Replace top mounts and re-fit shock absorber parts

Now is the perfect time to replace the top mounts. The image below shows my top mount after just 10,000 miles. Not ruined, but not great. So



Pic. 2.6. Front shock absorber constituent parts



2.6. Compress Spring

As the diagram in pic. 2.6. shows, the constituent parts of the shock absorber need to be removed to replace the spring. However, to do this the spring must be safely compressed.

For this exercise, we used a mechanical compressor, but manual compressors are available and that is how I have previously done it.

But do not attempt to undo



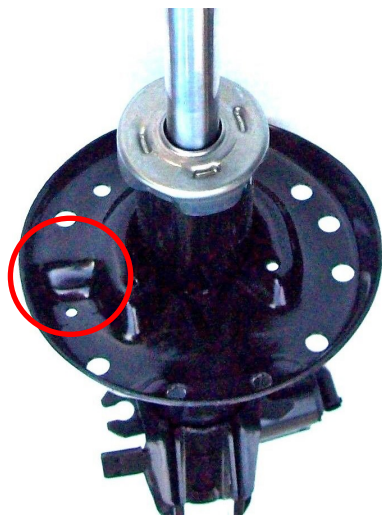
Pic. 2.8. With the top nut undone and the constituent parts removed, simply remove the shock absorber from below

MiTo Suspension/Spring Change

whilst the parts are unassembled now is the time to replace them as they are pretty cheap.

To refit the parts together with the new spring, you must first compress the new spring in exactly the same, careful way that you compressed the original one.

Refitting the constituent parts is simply the reverse of taking them apart (see pic. 2.9) but with one very important point: the spring must be correctly seated into the base of the shock absorber. As the image below shows, there is a lip (circled in red) into which you need to rotate the end of the spring so that it is flush with the lip.



As you rotate the spring into position you will see that it is fairly obvious, if a little difficult to describe here.

Once all the parts are back together (including the new top mount) torque the top bolt to 52 to 57 Nm.

You can now carefully and slowly uncompress the spring, slowly alternating the releasing of each side a step at a time.

2.10. Refit shock absorber to car

You are almost ready to refit the shock absorber back in the car. But before you do, spray some silicone lubricant on the top of the new top mount to help prevent any friction that

leads to noise, but only use silicone lubricant, not WD40 or similar penetrating oil.



In reverse of removal, you need to feed the re-assembled shock absorber and spring up through the top of the wheel arch whilst carefully attaching the mounting plate and nut to the top, doing it up by hand initially.

Once the mounting plate and top bolt is hand-tight, you can then tighten the bolt fully to a torque of 47 to 52 Nm.

2.11. Connect shock absorber bolts

Firstly, apply some copper grease to the shock absorber bolts, then lift the steering knuckle (with the disc and brake calliper attached) until it aligns with the shock absorber for you to feed the bolts through the holes (see pic. 2.11).

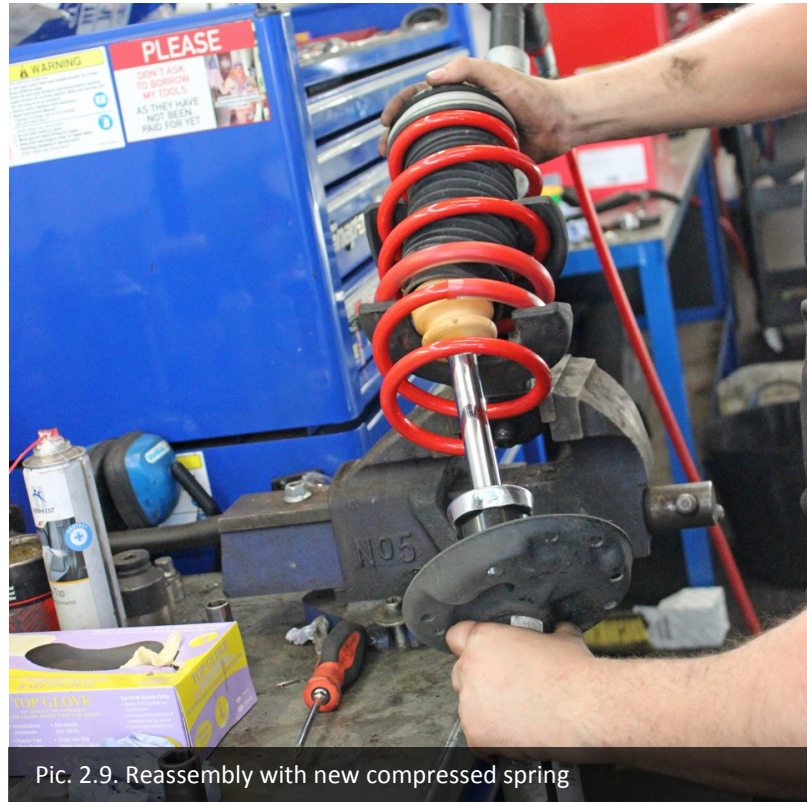
Once in place, tighten the bolts to 103 to 126 Nm

2.12. Re-attach the top of the drop link

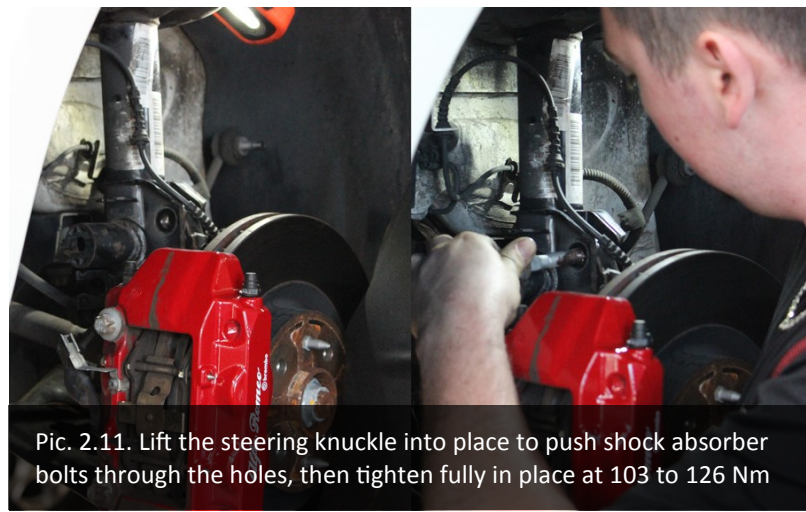
Apply copper grease to the bolt then using a 17mm spanner on the rear and a 16mm socket on the front (or just the socket on newer cars), re-attach the top of the drop link to the shock absorber (see pic. 2.12).

2.13. Re-attach brake hose and wiring

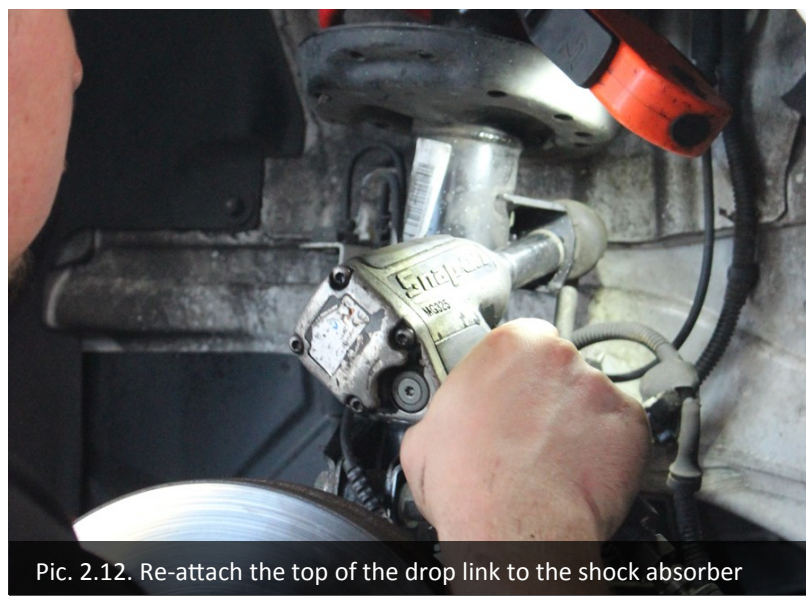
Carefully re-attach the brake hose and all wiring, re-connecting the adaptive suspension connection if present. Check all is back where it should be before re-fitting the wheel.



Pic. 2.9. Reassembly with new compressed spring



Pic. 2.11. Lift the steering knuckle into place to push shock absorber bolts through the holes, then tighten fully in place at 103 to 126 Nm



Pic. 2.12. Re-attach the top of the drop link to the shock absorber

MiTo Suspension/Spring Change

2.14. Repeat for the other shock absorber

You should never just replace or upgrade only one side of the vehicle - always replace both sides together (whether that is just replacing springs, shock absorbers or top mounts).

So, fairly obviously, you need to repeat steps 2.1 through 2.13 for both front shock absorbers.

Part 3 – Replace Scuttle

Once both front corners are re-fitted and the top bolts have been correctly torqued, you can now re-fit the scuttle.

3.1. Clean

You will see that where the scuttle meets the bottom of the windscreen there will be plenty of road dirt and mess, so this is a good time to clean everything so the scuttle makes a nice seal with the windscreen.

3.2. Re-fit scuttle

Re-fitting the scuttle is relatively simple and is the reverse of the removal.

Position the scuttle so it aligns correctly (see pic. 3.2a) then screw in the three screws (one either side and one in the middle).

You can now re-position the side rubbers and re-attach the wiring clip on the right hand side (see pic 3.2b) and carefully re-apply the rubber seal along the bottom edge (see below).



Check everything is present and correct and that the scuttle is firmly attached and all rubbers are correctly in place.

3.3. Re-fit windscreen wipers

It is important to ensure you carefully re-attach the windscreen wipers in exactly the same position as they originally were, so you may want to refer to your photo to check the alignment.

The wipers simply push down firmly, but take care to ensure the splines are lined up and you are not going to damage them. Simply align the wiper to where you think the correct position should be on the windscreen, then gently wiggle the wiper connection until it finds the correct alignment, then push down until they are firmly engaged.

Now do up the wiper bolts (see pic 3.3) and switch on your ignition and ensure your wipers operate correctly, then close the bonnet and double-check the wipers operate without touching the top of the bonnet.

If you need to make small adjustments, simply loosen the nuts, lift the wiper and turn slightly to the next spline before pushing back down and trying again.

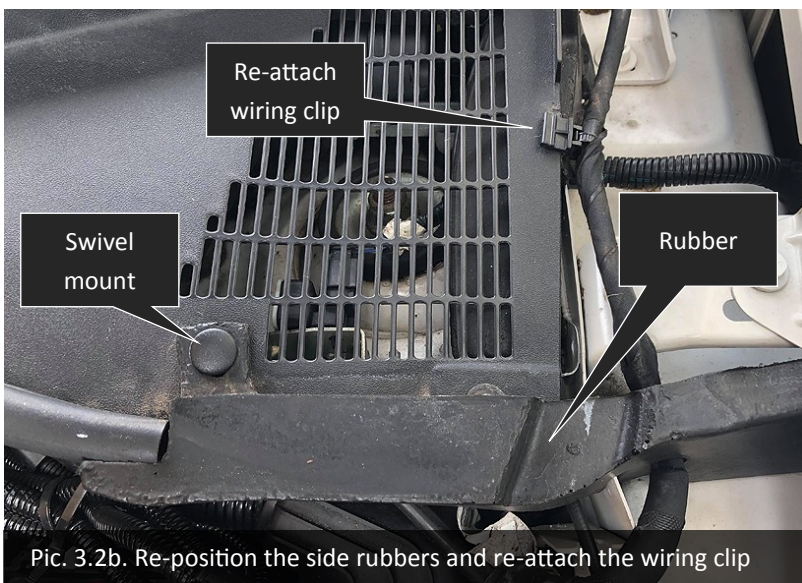
Once you are happy that the wipers are correctly operating, push the bolt caps in place to finish the job.

You have now completed the front springs and can move on to the rear springs which, thankfully, are a much simpler job.

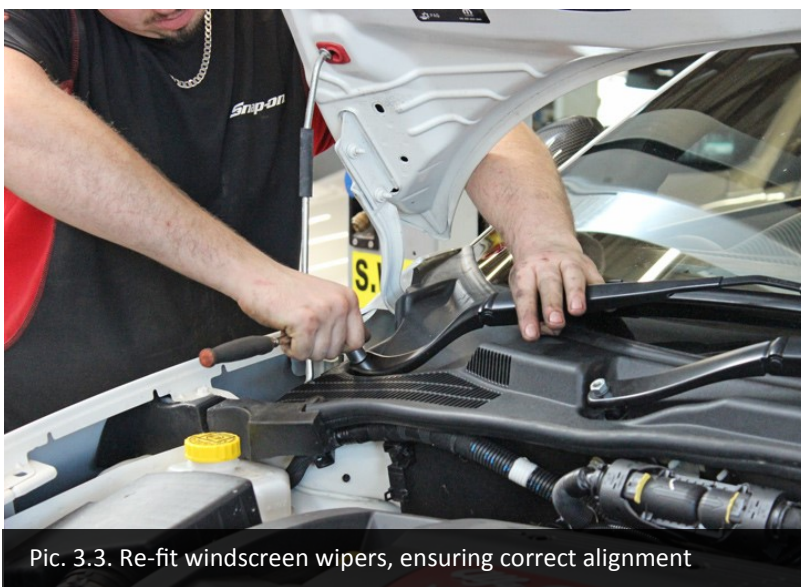
Onward...



Pic. 3.2a. Carefully re-position the scuttle ready for fitting



Pic. 3.2b. Re-position the side rubbers and re-attach the wiring clip



Pic. 3.3. Re-fit windscreen wipers, ensuring correct alignment

MiTo Suspension/Spring Change

REAR SPRINGS

Part 4 – Spring replacement

As you can see from the image at the top of this page (pic. 4) the MiTo suspension setup at the rear is much simpler than the front, with the springs being mounted separately from the shock absorbers.

4.1. Jack up car and remove wheel

Fairly obviously, you need to lift the rear corner of the car you working on first. If the car is not on a ramp, it needs to be raised higher than you would typically jack it so there is approximately six inches below the wheel.

If the car is up on a ramp, you need a gearbox jack to take the weight of the first rear wheel you are addressing.



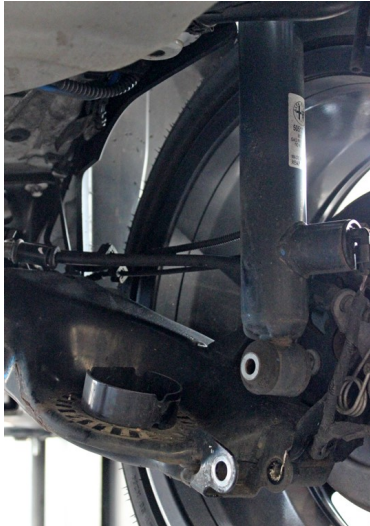
4.2. Remove lower shock absorber bolt

Undo and release the bolt at the bottom of the shock absorber (see pic. 4.2a). It is a long bolt so be patient!

Once the bolt is out, you will see (pic 4.2b) that it allows you to lower the axle slightly to free up enough space to remove the spring.

4.3. Remove spring

With the room created by releasing the lower shock absorber bolt, you can ease out the spring (including the top and bottom rubber pads) from the axle. As you can see from the image below, the spring with pads is simply removed by hand leaving the space ready for the new springs.



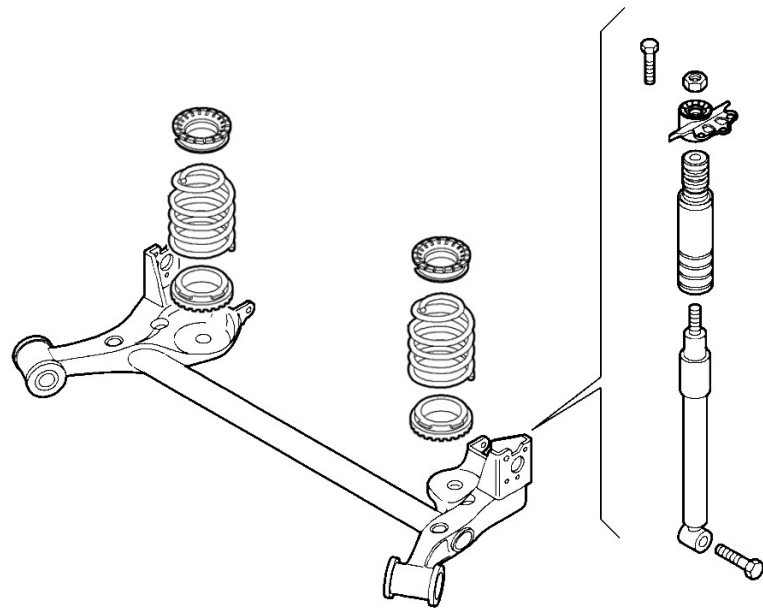
4.4. Transfer rubber pads

The rear springs are fitted with top and bottom rubber pads. These typically wear well and should be serviceable, but replace them if they are badly worn. Remove the pads from the top and bottom of the existing springs and twist on to the new springs - removal and fitment is fairly obvious - simply feed the spring into them and turn like a thread until they are fitted (see below).



4.5. Lubricate rubber pads

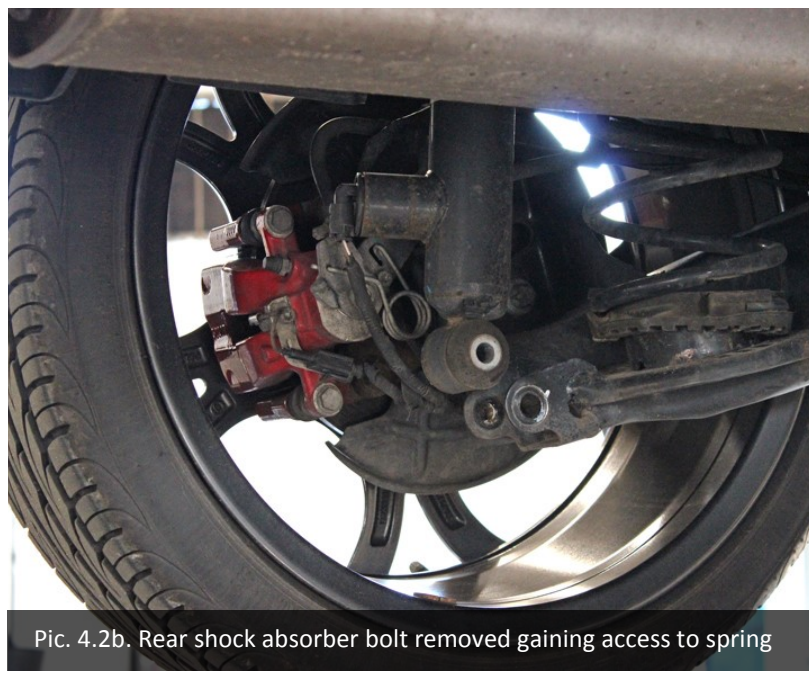
Lubricate the top and bottom rubber pads with silicone lubricant only (not penetrating oil).



Pic. 4. Rear suspension is much simpler than the front



Pic. 4.2a. Remove rear shock absorber bolt



Pic. 4.2b. Rear shock absorber bolt removed gaining access to spring

4.6. Refit springs/pads

Re-fit the springs with the lubricated pads into place by hand, ensuring that the top and bottom are securely on the mounting plates.

4.7. Refit shock absorber bolt

Firstly, apply copper grease to the shock absorber bolts, then refit the bolt into the bottom of the shock absorber (see below).



Note: You may need to raise the wheel (or lower the car if jacked), particularly if the springs are lower than before, to ensure the spring is securely mounted under the weight of

the car).

Torque the bolt to between 117 and 143 Nm.

4.8. Repeat for the other shock absorber

You should never just replace or upgrade only one side of the vehicle - always replace both sides together (whether that is just replacing springs, shock absorbers or top mounts).

So, fairly obviously, you need to repeat steps 4.1 through 4.7 for both rear springs.

REAR SHOCK ABSORBERS

If you are replacing the rear shock absorbers, you will see after removing each spring that the rear shock absorber is attached at the top with two bolts, so removal is relatively easy.

As always, ensure you apply copper grease to the bolts before replacing them, and you should torque the top bolts to between 72 to 88 Nm.

Summary

Hopefully this guide, long though it is, demonstrates that replacing both front and rear



Pic. 4.6. Re-fit new rear springs/pads into place

springs (and shock absorbers) with either direct replacements or coilovers, is a task that can be done at home if you have the right tools and patience, or alternatively can be done within a few hours of labour at your local Alfa Romeo specialist.

Having done both methods (at home on the drive and at my local specialist, Autolusso Bournemouth, I would recommend hav-

ing a specialist do the work as it really is much easier!

As always, I am extremely grateful to Autolusso Bournemouth for allowing me to photograph this and other processes, and particularly grateful to Jack Ealey at Autolusso who has enough patience to cope with me every time I visit. This is just one of many reasons why I only trust specialists with my Alfa Romeos.



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