

# **MGB & MGA COIL OVER FRONT SUSPENSION - ASSEMBLY INSTRUCTIONS**

## **Introduction**

This new double wishbone, coil over front suspension system has been specially designed to overcome some of the criticism of the original or other alternative options.

The kit replaces some of the components normally fitted, these are:

- ◆ The four front wishbone arms
- ◆ The two spring pans
- ◆ The lever arm shock absorber
- ◆ The bolts and nuts from shock absorber mount, top and bottom kingpin assembly
- ◆ The front coil springs
- ◆ The bump stop and spacers
- ◆ The anti-roll bar link arms

The coil over shocks are specially made 'click' adjustable, rebuildable units with adjustable spring seats to enable you to change the ride height of your car. The springs supplied are a standard 2 ¼" I/D which are used on a variety of special and race cars. These can be obtained in a wide variety of poundages and lengths. In order to be able to fit a full size spring shocker of this type it is necessary to modify the front crossmember (chassis outriggers on MGA) in order to give clearance. We can do this for you by supplying a ready modified unit on exchange (not MGA). If you wish to carry out the modification yourself it is necessary to cut a curved section from each end of your crossmember and weld in a gusset, this is supplied in the kit. The advantage of using your original crossmember is that it can be modified in situ. For further info see supplementary notes. If MGA we recommend using the MGB stub axle assembly (various upgrade brakes options can then be used), otherwise the top trunnion requires modification.



## Assembly sequence

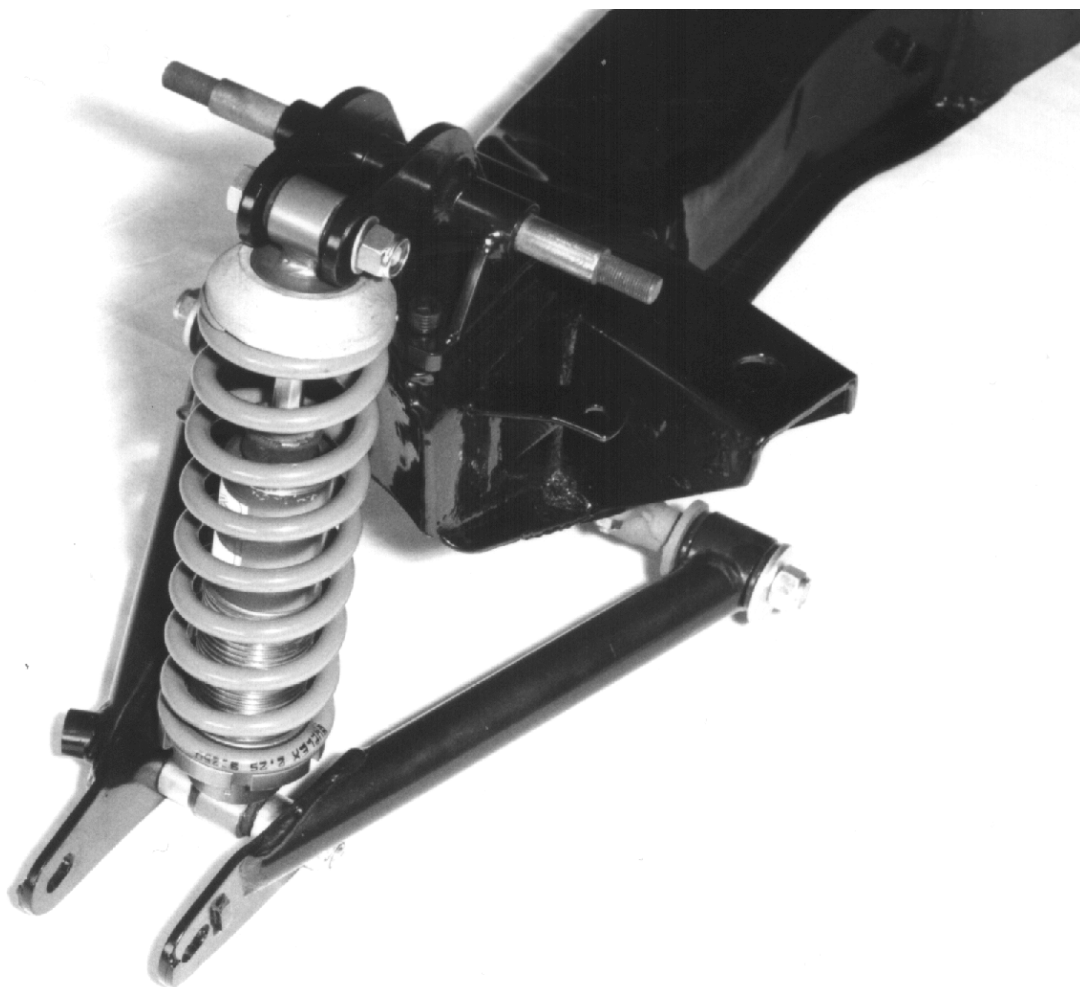
The special mounting brackets supplied have to be fitted to the crossmember in place of the original lever arm shock absorber.

It is essential to make sure that the threads in your crossmember are in a sound condition (for MGA remove the studs). The brackets are secured using special high tensile allen bolts torqued to the correct setting as in the owners manual. We recommend you use "loctite" for these. NB Spacer plates are supplied for MGA to raise the mounting brackets to provide clearance.

The original lower wishbone pivots are retained, make sure that these are straight and in good condition.

The lower wishbones (straight ones) attach to the wishbone pivots using either MBG V8 rubber bushes or if you prefer we can supply special polyurethane bushes (which are of a special high grade material). Notice that two of the wishbone arms have threaded bosses to accept the anti-roll bar link arms, these go to the front of the car.

**Important: Look at the photo to make sure that you have these the correct way up.**



NOTE: the bushes on the inner ends of the wishbones will last longer if their retaining nuts are tightened when the vehicle is at ride height

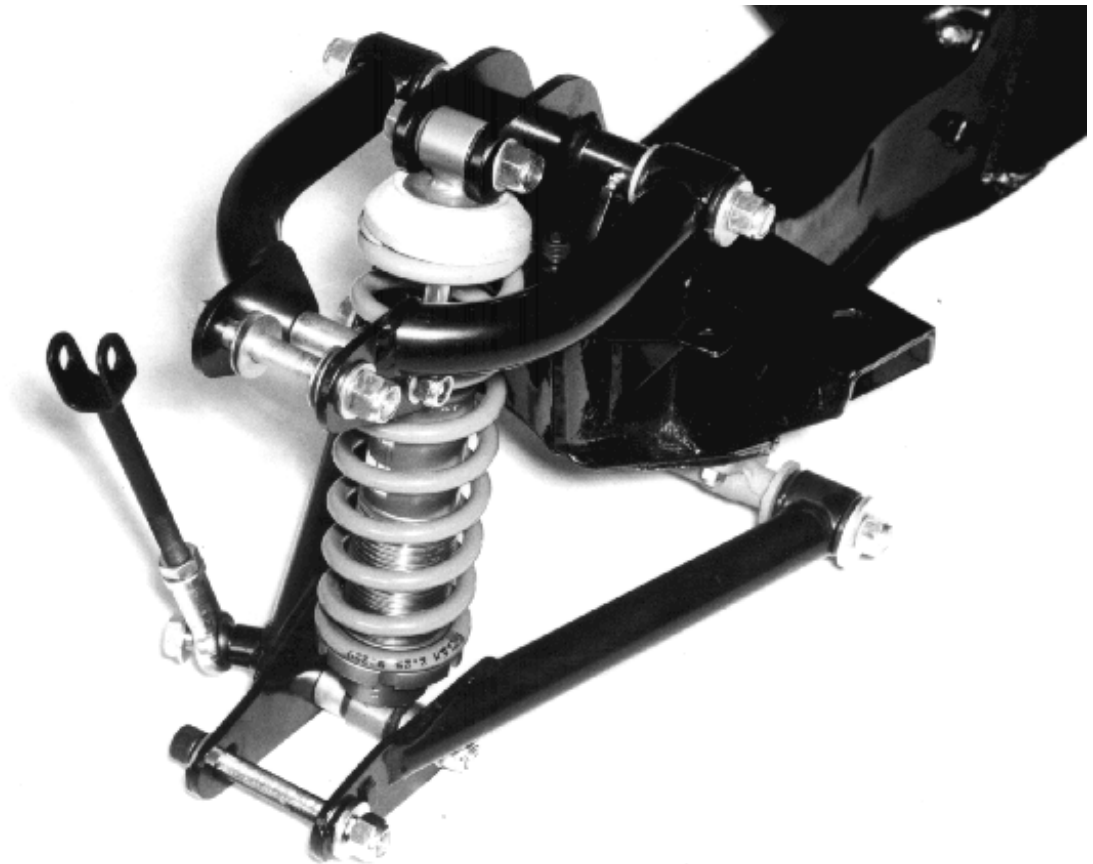
Assemble the springs onto the shock absorber after first unscrewing the adjustable seat (to its lowest position). We always recommend the use of a coil spring compressor when handling these components. It is a good idea to put 'copperslip' on the threads and collars.

The spring shockers are assembled to the suspension with the adjuster facing the engine and using the special 12mm bolts and spacers supplied.

We suggest that you start with the springs wound fairly high to start with and if you wish to lower the car then make sure you don't go too low and have problems with 'sleeping policemen' etc

The upper wishbones are curved and these are attached to the special mounting brackets in the same way as the lower wishbones and use the same wishbone bushes. You will therefore need a total of eight new wishbone bushes altogether.

Once again look at the photo to make sure you have these the correct way up.



A new bolt is supplied for the top wishbone to stub axle the standard tapered bushes (or polyurethane) are used here. Please note that two special shim washers are used each side of these bushes at the top, these are to enable the castor angle to be adjusted should you wish. There is also a special spacer that is fitted slightly inboard of this which increases the rigidity of the top wishbone assembly.

The bottom stub axle retains the original seals, thrust washers and spacer tubes etc., but a special bolt replaces the original item. The special high tensile bolt has a small flat machined on it which carries two snail cams, one under the bolt head and one under the nut. This enables the camber angle to be adjusted simply by slackening the nut and then rotating the bolt with an allen key. When you have set the desired camber you must tighten the nut securely without letting the bolt rotate. Make sure that your bottom link parts are in good condition and kept well greased. If in doubt replace them – refer to owners manual if you need guidance on these parts.

The anti-roll bar link arms are replaced with our type, which are threaded to accept a special spherical joint. The spherical joints can be screwed up or down in order to set the anti-roll bar evenly and without bias. It is important to make sure that the joints are locked in place with a lock nut and that they are positioned carefully not to interfere or foul during operation. This can be checked with the shock absorber in place, with the spring removed, by checking clearance through the full suspension and steering lock travels.

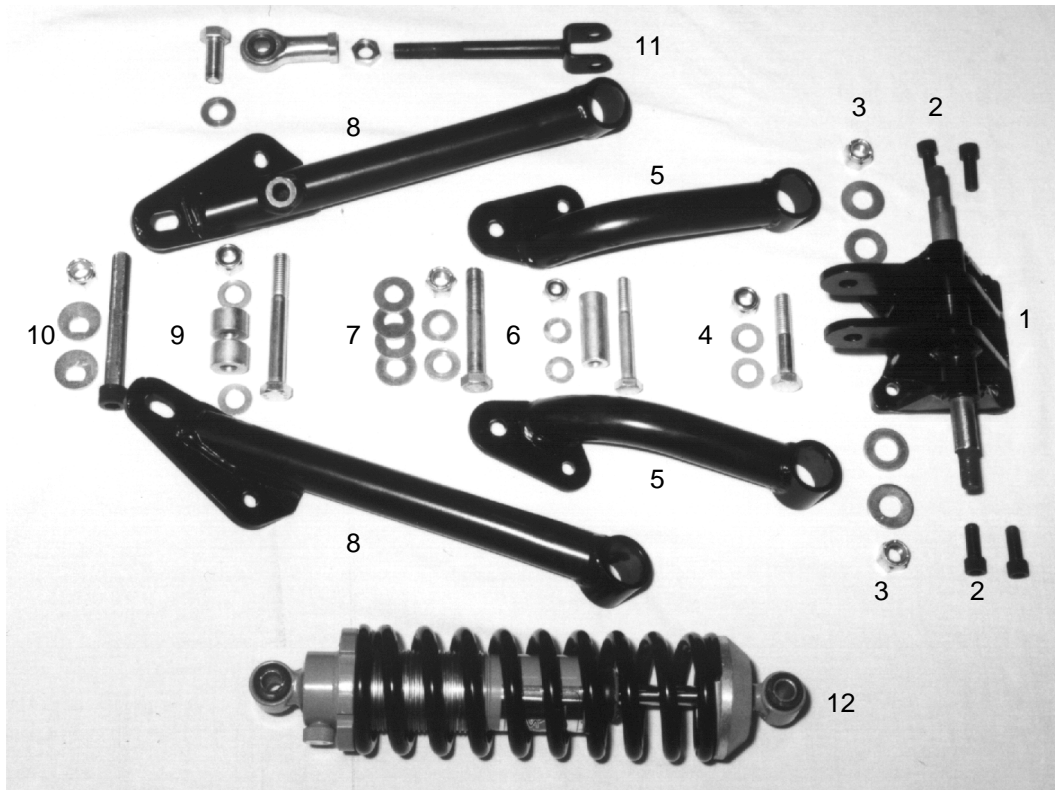
## **Adjustments**

To set up your suspension the car needs to have the full weight on the wheels. First adjust the ride height (easier to do if the car is jacked up and the wheel removed – yes I know we said have it on its wheels!!!!) so that the bottom wishbones are horizontal (parallel to the ground), this will give you the standard ride height. This can be lowered if you wish, but the amount by which it is lowered will also reduce the bump (upward) travel by the same amount. Secondly the camber should be adjusted, for road use  $\frac{1}{2}$  - 1 degree negative is suggested. Finally the tracking can be set up to standard MGB spec – 1/16" toe in. A good starting point with the shocker adjustment is 'two clicks' in and see how the car feels on the road. Increasing (turning knob clockwise) the number of clicks will make the shocker harder and visa versa. Keep increasing the damper setting until you feel the ride is too firm then drop it back a couple of clicks.

**This system was designed and is manufactured by Hawk Cars and Hoyle Engineering Ltd – all queries to Hoyle Engineering - Tel:+44.(0)20 8393 2555 Email: john@hoyle-engineering.co.uk**

## MGA & MGB COIL OVER FRONT SUSPENSION PARTS LIST

|   |  |                  |  |                       |
|---|--|------------------|--|-----------------------|
| 1 | <b>TOP MOUNT</b>   | 2                |  | 4                     |
| 2 | <b>MOUNT TO CROSS MEMBER FIXINGS</b><br>3/8" UNF x 1" CAP HEAD BOLT<br>SPACER PLATE (MGA ONLY)                             | 8<br>2           | <b>8 <u>BOTTOM WISHBONES</u></b>   |                       |
| 3 | <b>TOP WISHBONE FIXINGS</b><br>1/2" UNF NYLOC NUT<br>5/8" I/D X 1 1/4" O/D WASHER<br>1/2" I/D X 1 1/4" O/D WASHER          | 4<br>4<br>4      | <b>9 DAMPER FIXINGS</b><br>12mm x 100 BOLT<br>12mm NYLOC NUT<br>12mm FLAT WASHER<br>SPECIAL SPACER   | 2<br>2<br>4<br>4      |
| 4 | <b>DAMPER FIXINGS</b><br>12mm x 65 BOLT<br>12mm NYLOC NUT<br>12mm WASHER   | 2<br>2<br>4      | <b>10 BOTTOM KINGPIN FIXINGS</b><br>1/2" UNF x 4" SPECIAL CAP<br>HEAD BOLT<br>1/2" UNF NYLOC NUT<br>SPECIAL 'SNAIL CAM'                        | 2<br>2<br>4<br>4      |
| 5 | <b>TOP WISHBONES</b>   | 4                | <b>11 ANTI ROLL BAR DROP LINK</b><br>1/2" UNF x 1 1/4" BOLT<br>1/2" SPRING WASHER<br>1/2" UNF LOCK NUT<br>1/2" ROD END BEARING<br>BEARING BOOT | 2<br>2<br>2<br>2<br>2 |
| 6 | <b>SPACER ASSEMBLY</b><br>10mm x 80 BOLT<br>10mm NYLOC NUT<br>10mm WASHER<br>SPECIAL SPACER                                | 2<br>2<br>4<br>2 | <b>12 SPRING/DAMPER UNIT</b>   |                       |
| 7 | <b>TOP KINGPIN FIXINGS</b><br>1/2" UNF x 3 1/4" BOLT<br>1/2" UNF NYLOC NUT<br>1/2" FLAT WASHER<br>1/2" CASTER SHIM WASHERS | 2<br>2<br>4<br>8 | <b>13 MODIFIED CROSS MEMBER PLATES</b><br>(not shown)  | 2                     |



NEAR SIDE COMPONENTS ONLY

### Supplementary notes for modifying cross member (chassis outrigger on MGA)

Cut arc shape on top mount plate as shown, use photo as template if unsure. This can be achieved by drilling a series of small holes then finishing with a file or power tool. On MGA top mount hole spacing is reversed i.e. inboard pair become outboard. The other 2 cuts are vertical. Curvature of plate may have to be modified slightly to fit snugly, tack in position, ensure that it does not protrude forward of the cut. Then carry out trial assembly to check clearance of spring, should be 6mm min.

