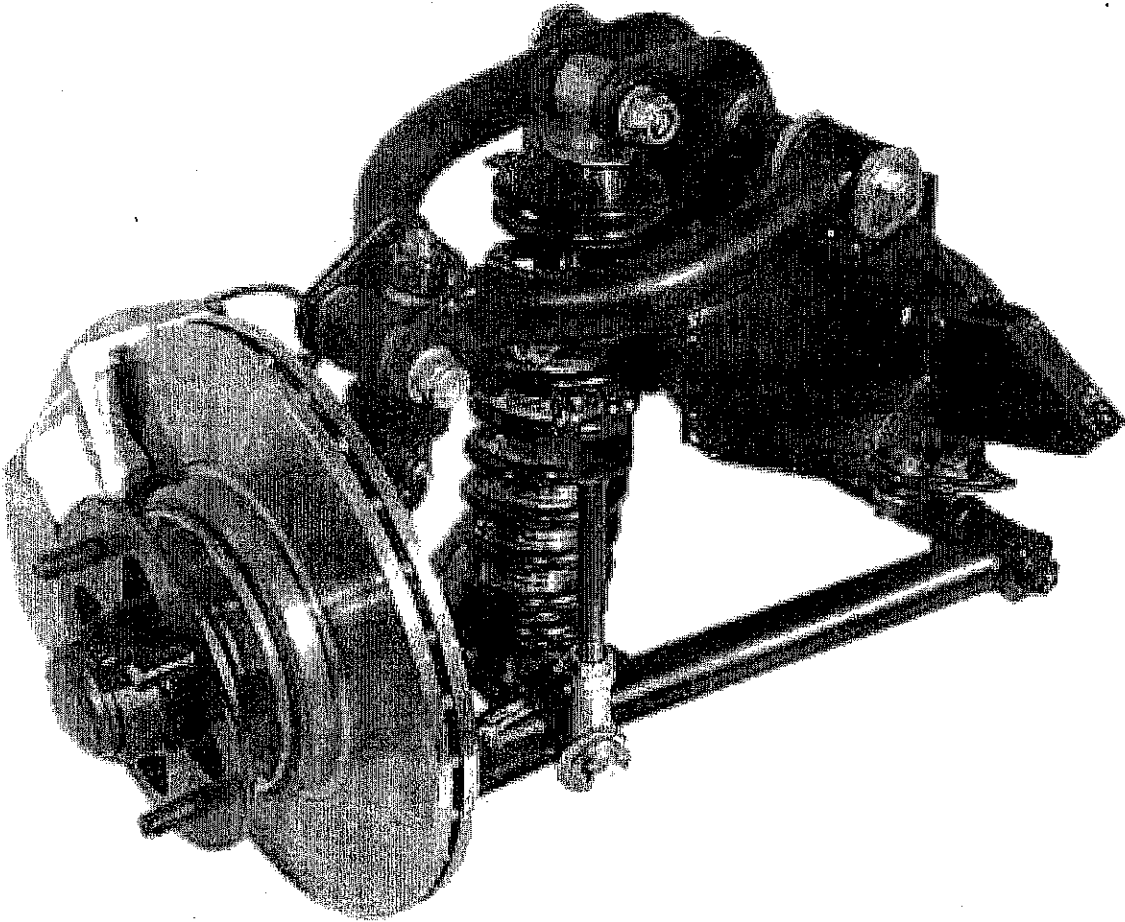


## COIL-OVER SUSPENSION UNIT



### RIGHT HAND SIDE VIEW

British Automotive introduces to the MGB owner Hawk Cars and Hoyle Engineering's front suspension coil-over unit. A modern day design which, should be considered when rebuilding your old front suspension unit.

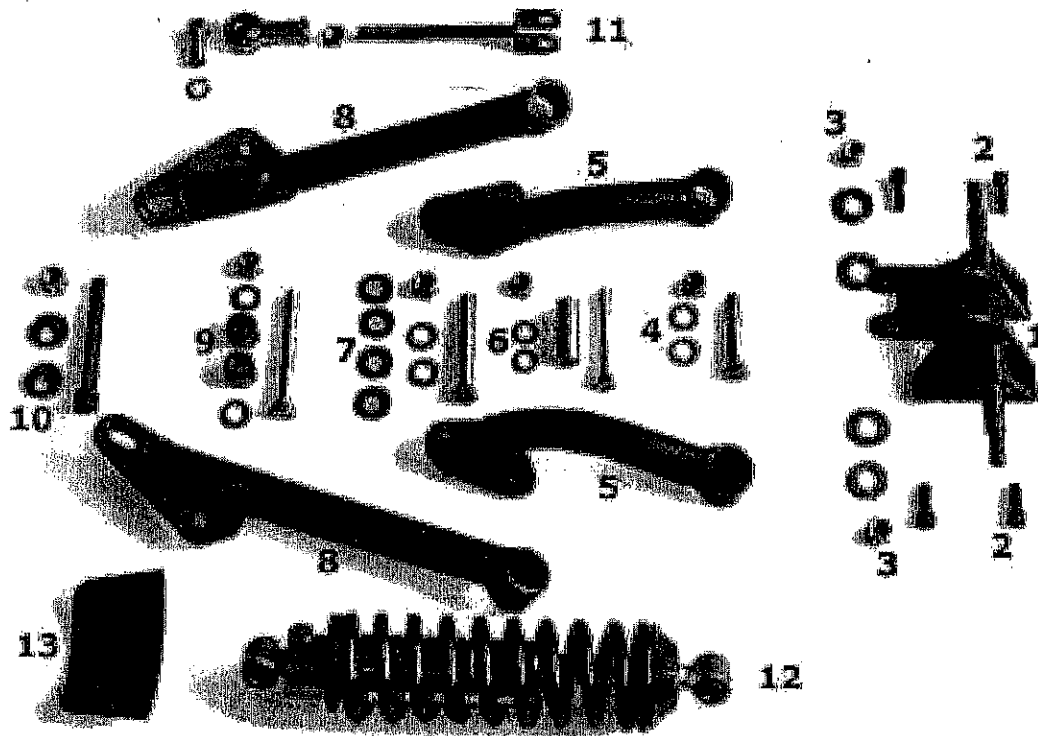
Cross-member modifications are required to install this unit, to this end British Automotive supplies, within the "Upgraded Kit", a template that allows the MGB owner to remove the necessary material from the cross-member without resorting to "cutting torch" techniques.

Suspension components that are retained are as follows:

1. Complete Front Swivel Assemblies. (2)
2. Lower Inner Wishbone Pivots. (2)

## COIL-OVER SUSPENSION KIT

The standard coil-over suspension kit is shown immediately below. However, British Automotive has upgraded and expanded this kit to include additional components. In order to understand these additions and changes please refer to following images and accompanying text.



### STANDARD KIT (LEFT HAND SIDE SHOWN)

- |                                                                                                                                  |                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1. TOP MOUNT (2)                                                                                                                 | 8. LOWER WISHBONES (4)                                                                                                                  |
| 2. TOP MOUNT FIXINGS<br>*(3/8" SAE X 1" CAP SCREW) (8)                                                                           | 9. DAMPER FIXINGS (LOWER)<br>(12mm X 100mm BOLT) (2)<br>(12mm NYLOC NUT) (2)<br>(12mm FLAT WASHER) (4)<br>(SPECIAL SPACER) (4)          |
| 3. UPPER WISHBONE FIXINGS<br>*(1/2" SAE NYLOC NUT) (4)<br>*(5/8" ID X 1.250" OD WASHER) (4)<br>*(1/2" ID X 1.250" OD WASHER) (4) | 10. LOWER KINGPIN FIXINGS<br>(1/2" SAE X 4" SPECIAL BOLT) (2)<br>(1/2" SAE NYLOC NUT) (2)<br>(SPECIAL 'SNAIL CAM') (4)                  |
| 4. DAMPER FIXINGS (UPPER)<br>(12mm X 65mm BOLT) (2)<br>(12mm NYLOC NUT) (2)<br>(12mm WASHER) (3)                                 | 11. SWAY BAR LINK (2)<br>(1/2" SAE X 1.250" BOLT) (2)<br>(1/2" LOCKWASHER) (2)<br>(1/2" SAE LOCK NUT) (2)<br>(1/2" ROD END BEARING) (2) |
| 5. UPPER WISHBONE ASSEMBLIES (4)                                                                                                 |                                                                                                                                         |
| 6. SPACER ASSEMBLY<br>(10mm X 80 mm BOLT) (2)<br>(10mm NYLOC NUT) (2)                                                            |                                                                                                                                         |

- \* (5/8" ID X 1.625" OD WASHER) (4)
- \* (1/2" ID X 1.625" OD WASHER) (4)
- 4. DAMPER FIXINGS (UPPER)
  - (12mm X 65mm BOLT) (2)
  - (12mm NYLOC NUT) (2)
  - (12mm WASHER) (4)
- 5. UPPER WISHBONE ASSEMBLIES (4)
- 5A POLYURETHANE BUSHINGS) (8)~  
(WITH SPACER TUBES)
- 6. SPACER ASSEMBLY
  - (10mm X 80mm BOLT) (2)
  - (10mm NYLOC NUT) (2)
  - (10mm WASHER) (4)
  - \*(SPECIAL SPACER 2.023" LONG) (2)
- 7. UPPER KINGPIN FIXINGS
  - (1/2" SAE X 3.250" BOLT) (2)
  - (1/2" SAE NYLOC NUT) (2)
  - (1/2" FLAT WASHER) (4)
  - (1/2" CASTER SHIM WASHER) (8)
  - (POLYURETHANE BUSHINGS) (4)
  - (WITH SPACER TUBES)
- 8. LOWER WISHBONES (4)
  - (1/2" SAE NLNTE NYLOC NUT) (4)
- (1/2" SAE X 4" SPECIAL BOLT) (2)
- (1/2" SAE NYLOC NUT) (2)
- (SPECIAL 'SNAIL CAM') (4)
- 11. SWAY BAR LINK (2)
  - (1/2" SAE X 1.250" BOLT) (2)
  - (1/2" LOCKWASHER) (2)
  - (1/2" SAE LOCK NUT) (2)
  - (1/2" ROD END BEARING) (2)
- 12. SPRING/DAMPER (2)  
(300#)
- 13. MODIFIED CROSS MEMBER PLATE (2)
- 14. TEMPLATE (1)  
(FOR MODIFYING CROSS MEMBER)
- 15. ADJUSTING WRENCH (1)  
(LOWER SPRING COLLAR)
- 16. 3mm ALLEN WRENCH

**NOTE:**

ITEMS DENOTED \* ARE REPLACEMENTS  
FOR COMPONENTS MARKED \* IN  
"STANDARD KIT"

## COMPONENT SUMMARY

Items that are supplied by British Automotive are as follows:

| QTY | DESCRIPTION                                                    |
|-----|----------------------------------------------------------------|
| 8   | 3/8" SAE X 1" GRADE 8 HEX HEAD BOLT                            |
| 8   | 3/8" HI-COLLAR LOCKWASHER                                      |
| 8   | 1/2" SAE NLNTE NYLOC NUT                                       |
| 8   | 3/8" SAE X 1.250" GRADE 8 HEX HEAD BOLT *                      |
| 8   | 3/8" LOCKWASHER *                                              |
| 4   | 3/8" SAE NUT *                                                 |
| 4   | 3/8" SAE NYLOC NUT *                                           |
| 4   | 5/8" ID X 1.625" OD WASHER                                     |
| 4   | 1/2" ID X 1.625" OD WASHER                                     |
| 8   | UPPER WISHBONE ARM POLYURETHANE BUSHING<br>(WITH SPACER TUBES) |
| 2   | UPPER WISHBONE ARM SPACER (2.023")                             |

- 4 UPPER TRUNNION POLYURETHANE BUSHING  
(WITH 1.797" SPACER TUBE)
- 8 LOWER WISHBONE POLYURETHANE BUSHING
- 4 1/2" ID X 1.626" OD WASHER \*
- 1 "C" SPANNER
- 1 3mm ALLEN WRENCH
- 1 TEMPLATE (SEE IMAGE BELOW)

**NOTE:** ITEMS DENOTED \* ARE NOT SHOWN IN ABOVE IMAGE



### ADDITIONAL INSTRUCTIONS

The following instructions are over and above those found within the coil-over suspension kit. Also, we recommend following the appropriate instructions, which can be found within various MGB workshop manual publications.

In order to carry out this suspension modification, it is recommended that the crossmember be removed from the vehicle. Be sure to order new crossmember to body polyurethane mounting pads. Part # 264-906.

When removing the crossmember be sure to tighten the upper 1/2" nyloc mounting nuts (4) first. Remember that it is only necessary to remove the lower nuts for crossmember removal.

Once the crossmember is removed and dismantled, attach and position the provided template (see image above) to the outer shock absorber mounting. Using a 1/8" drill bit, drill through the template and through the crossmember material. Change the drill bit to 1/4", then remove template and drill out all the 1/8" holes. Make 2 vertical hacksaw cuts through the crossmember, intersecting at the outer two holes. Grind away crossmember material to accommodate plate (13), plate can now be welded into position.

**NOTE:** Please be reminded that British Automotive **CAN NOT** provide you with the above service.

The lower "A" control arm castle nuts (4) must be substituted with the 1/2" SAE NLNTE low collar nuts.

All polyurethane bushing installation must be "clean fit". Upper trunnion and lower wishbone pivots must be free of rust and scale.

Polyurethane bushings must be inserted in the upper wishbones, lower wishbones and upper trunnions dry. Only the inner portion of the bushings, along with the end faces of these bushings, should be lubricated with the supplied lubricant. Assembly in this manner will ensure that the bushing and the suspension component assembly will rotate around the center pivot as one unit, as they should.

British Automotive can supply you with all your additional suspension component needs.

## MGB COIL OVER FRONT SUSPENSION ASSEMBLY INSTRUCTIONS

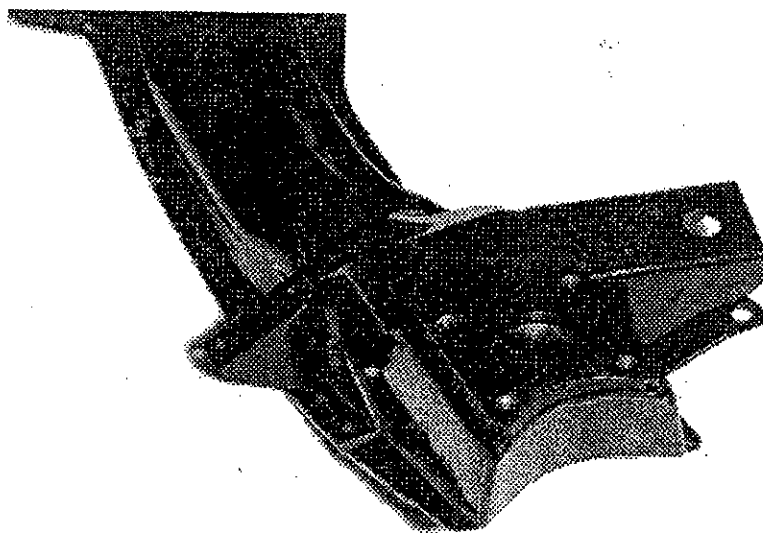
### Introduction

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 'rubber bush' part of the anti-roll bar link arms

The coil over shocker units 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 1/4" 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 in order to give clearance. We can do this for you or supply a ready modified unit on exchange. If you wish to carry out the modification yourself then use the top mounting as a template to cut a curved section from each end of your crossmember and weld in a gusset. (These can be supplied – contact number below)



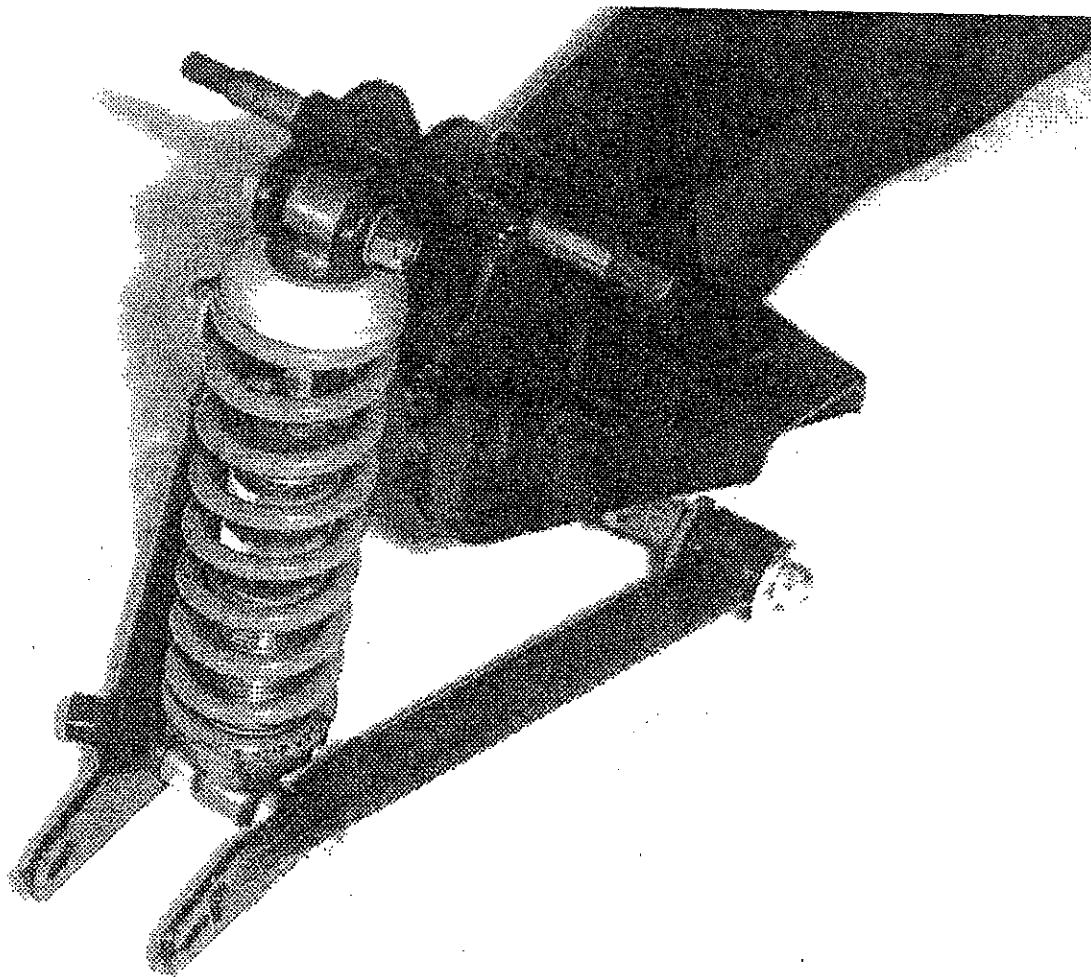
The special mounting brackets supplied have to be fitted to the crossmember in place of the original lever arm shock absorber.

It is essential to make sure that the threads in your crossmember are in a sound condition. 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.

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.

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

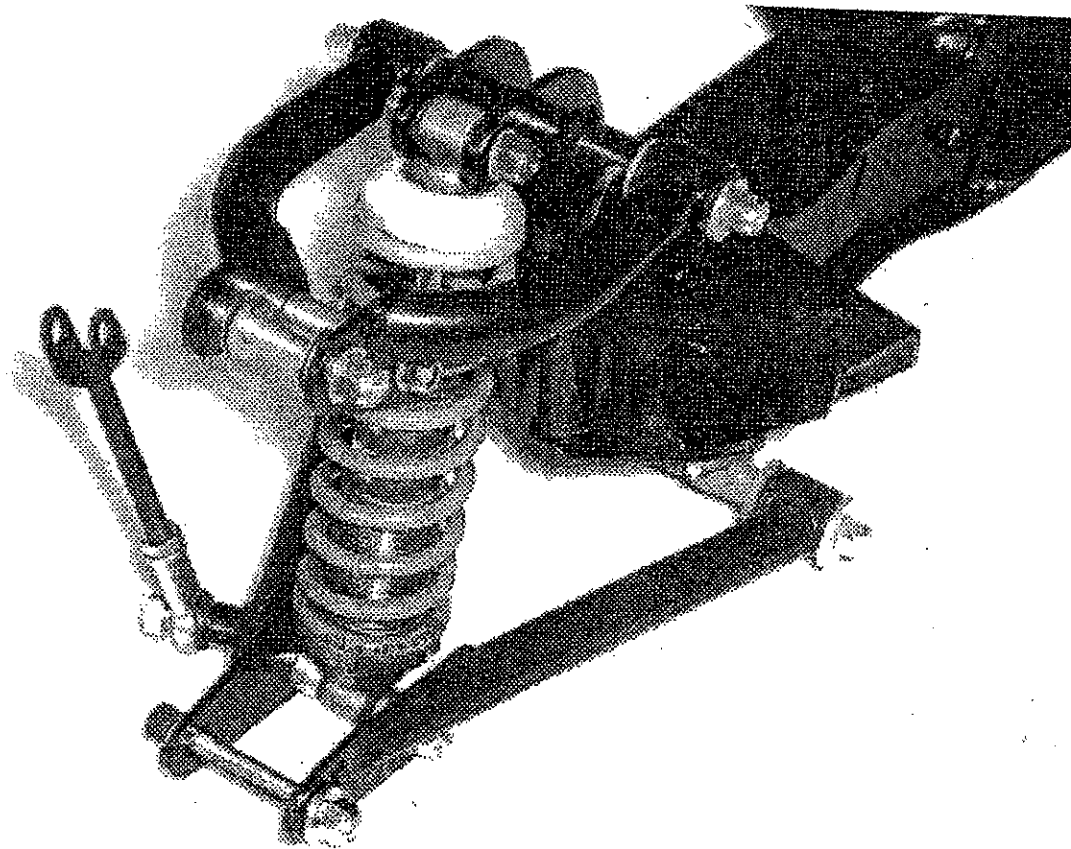
Assemble the springs onto the shock absorber after first unscrewing the adjustable seat (to its lowest position). We always recommend the use of a coil spring compressor when handling these components. It is a good idea to put 'copaslip' on the threads and collars.

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. A good starting point with the shocker adjustment is 'two clicks' in and see how the car feels on the road. Increasing the number of clicks will make the shocker harder and visa versa.

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 bushed (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 enables two snail cams on it, 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 the desired camber then 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.

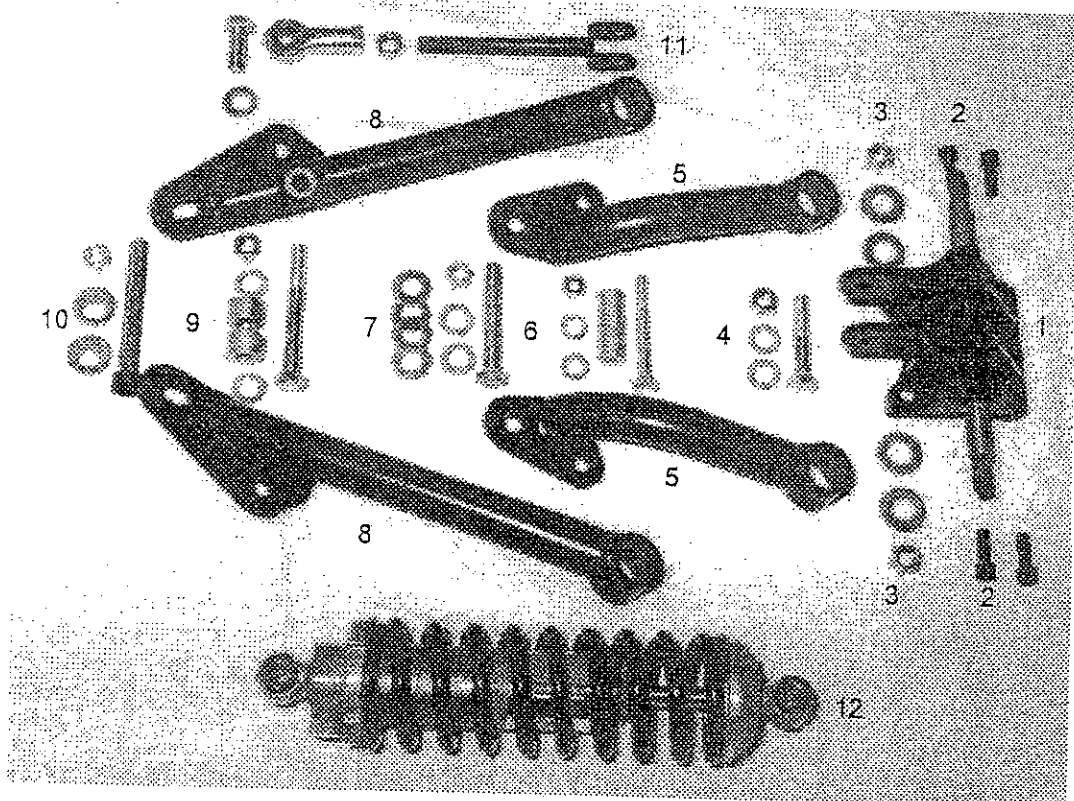
\*\* We do not recommend too much negative camber for road use as this will weather the insides of the tyres.

The anti-roll bar link arms are modified by cutting off the rubber joint at the bottom and threading to accept a special spherical joint. These we supply on exchange but please make sure the 'upper' ends are in good condition. 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 system was designed and manufactured by Hawk and NG Cars Ltd –  
all queries to 01372 748666

## MGB COIL OVER FRONT SUSPENSION PARTS LIST

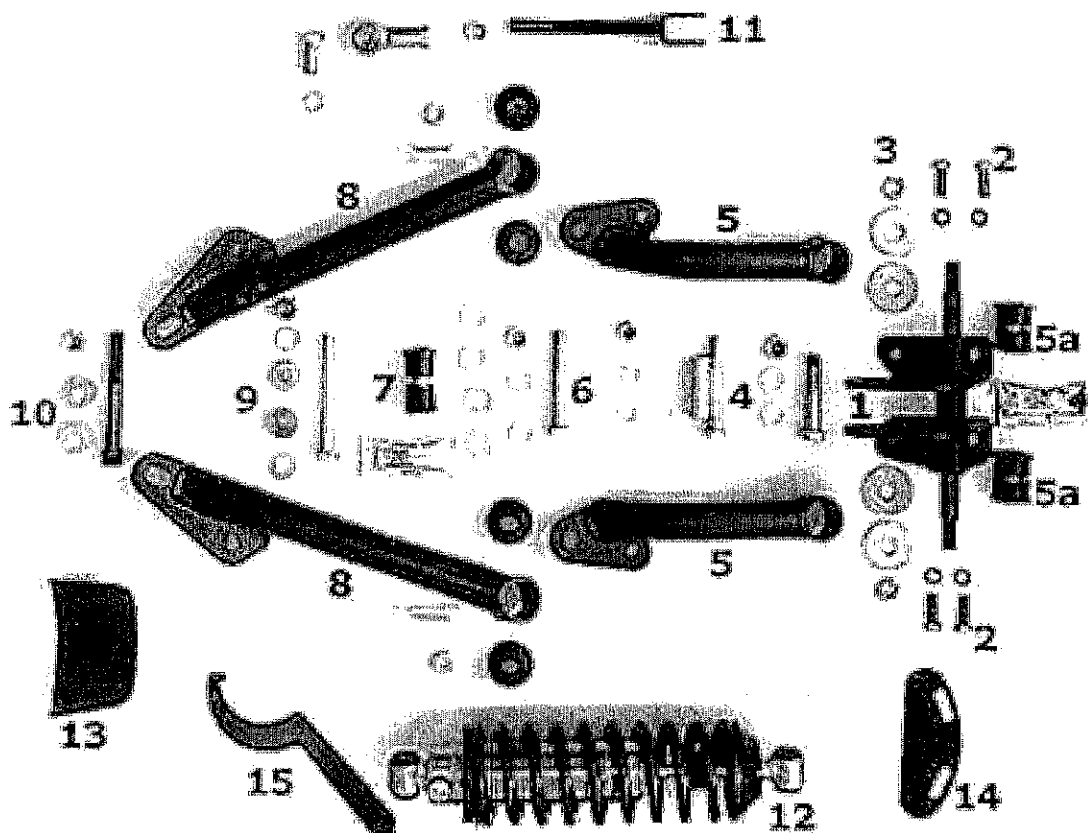
|   |                               |   |    |                                |   |
|---|-------------------------------|---|----|--------------------------------|---|
| 1 | <b>TOP MOUNT</b>              |   |    |                                |   |
| 2 | MOUNT TO CROSS MEMBER FIXINGS | 2 | 8  | <b>BOTTOM WISHBONES</b>        | 4 |
|   | 3/8" UNF x 1" CAP HEAD BOLT   | 8 | 9  | DAMPER FIXINGS                 |   |
|   |                               |   |    | 12mm x 100 BOLT                | 2 |
|   |                               |   |    | 12mm NYLOC NUT                 | 2 |
|   |                               |   |    | 12mm FLAT WASHER               | 4 |
|   |                               |   |    | SPECIAL SPACER                 | 4 |
| 3 | <b>TOP WISHBONE FIXINGS</b>   |   | 10 | <b>BOTTOM KINGPIN FIXINGS</b>  |   |
|   | 1/2" UNF NYLOC NUT            | 4 |    | 1/2" UNF x 4" SPECIAL CAP      | 2 |
|   | 5/8" I/D X 1 1/4" O/D WASHER  | 4 |    | HEAD BOLT                      |   |
|   | 1/2" I/D X 1 1/4" O/D WASHER  | 4 |    | 1/2" UNF NYLOC NUT             | 2 |
|   |                               |   |    | SPECIAL 'SNAIL CAM'            | 4 |
| 4 | <b>DAMPER FIXINGS</b>         |   | 11 | <b>ANTI ROLL BAR DROP LINK</b> |   |
|   | 12mm x 85 BOLT                | 2 |    | 1/2" UNF x 1 1/4" BOLT         | 2 |
|   | 12mm NYLOC NUT                | 2 |    | 1/2" SPRING WASHER             | 2 |
|   | 12mm WASHER                   | 2 |    | 1/2" UNF LOCK NUT              | 2 |
|   |                               |   |    | 1/2" ROD END BEARING           | 2 |
| 5 | <b>TOP WISHBONES</b>          | 4 | 12 | <b>SPRING/DAMPER UNIT</b>      | 2 |
| 6 | SPACER ASSEMBLY               |   | 13 | MODIFIED CROSS MEMBER          | 1 |
|   | 10mm x 80 BOLT                | 2 |    | (not shown)                    |   |
|   | 10mm NYLOC NUT                | 2 |    |                                |   |
|   | 10mm WASHER                   | 4 |    |                                |   |
|   | SPECIAL SPACER                | 2 |    |                                |   |
| 7 | <b>TOP KINGPIN FIXINGS</b>    |   |    |                                |   |
|   | 1/2" UNF x 3 1/4" BOLT        | 2 |    |                                |   |
|   | 1/2" UNF NYLOC                | 2 |    |                                |   |
|   | 1/2" FLAT WASHER              | 4 |    |                                |   |
|   | 1/2" CASTER SHIM WASHERS      | 8 |    |                                |   |



NEAR SIDE COMPONENTS ONLY

- (10mm WASHER) (4)  
 \*(SPECIAL SPACER) (2)
7. UPPER KINGPIN FIXINGS  
 (1/2" SAE X 3.250" BOLT) (2)  
 (1/2" SAE NYLOC NUT) (2)  
 (1/2" FLAT WASHER) (4)  
 (1/2" CASTER SHIM WASHER) (8)
12. SPRING/DAMPER UNIT (2)  
 (300#)
13. MODIFIED CROSS MEMBER PLATE (2)

NOTE: ITEMS DENOTED \* ARE REPLACED WITH COMPONENTS MARKED \* IN THE FOLLOWING UPGRADED KIT



UPGRADED KIT (LEFT HAND SIDE SHOWN)

1. TOP MOUNT (2)  
 2. TOP MOUNT FIXINGS  
 \*(3/8" SAE X 1" HEX HEAD BOLTS) (8)  
 \*(3/8" HI-COLLAR LOCKWASHERS) (8)
3. UPPER WISHBONE FIXINGS  
 \*(1/2" SAE NYLOC NUT) (4)
9. DAMPER FIXINGS (LOWER)  
 (12mm X 100mm BOLT) (2)  
 (12mm NYLOC NUT) (2)  
 (12mm FLAT WASHER) (4)  
 (SPECIAL SPACER) (4)
10. LOWER KINGPIN FIXINGS