

Suspension Kits With Dampers



# Adjustable Damper Suspension Kit

The following damper and adjustable suspension kits all contain the famous original HILO RAC homologated kit but are available with the budget kit C-STR644 except for the lowered Damper types. The reason for this is that the C-STR644 kit does not lower as much as the HILOs making these particular kits impractical.

To order kits with the C-STR644 instead of the HILO, add the suffix A

to the end of the part number.

# Non Adjustable Damper Type Kit

| 8. | Kayaba Self adjusting Gas standard height dampers. |            |  |  |  |
|----|--|------------|--|--|--|
|    | a. Kit with HILOs                                  | . MSSK3004 |  |  |  |
|    | b. Kit with budget C-STR644                        | MSSK3004A  |  |  |  |
| 9. | Kayaba Gas upgrade standard height dampers.        |            |  |  |  |
|    | a. Kit with HILOs                                  | . MSSK3003 |  |  |  |
|    | b. Kit with budget C-STR644                        | MSSK3003A  |  |  |  |



Complete camber and tracking kit with AGX Evolution dampers.

a. Kit with HILOs . . . MSSK3012 b. Kit with budget C-STR644 ..... MSSK3012A

2. AGX Evolution dampers kits. a. Kit with HILOs . . . MSSK3011 b. Kit with budget C-STR644. .....MSSK3011A

3. Gaz adjustable dampers kit. a. Standard height with HILOs kit . . . . . . . . . . MSSK3000 b. Standard height with budget C-STR644 kit

c. Lowered height with HILOs kit . . . . . . . . . . . MSSK3001 d. Lowered height with budget C-STR644 kit.

..... MSSK3001A

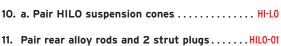
4. 50th Anniversary Mini Spares Spax adjustable dampers. a. Standard height with HILOs kit ..... MSSK3005 b. Standard height with budget C-STR644 kit .... MSSK3005A c. Lowered height with HILOs kit ..... MSSK3006



Known as a budget adjustable suspension cone these are a compromise for the real original Hilos.

Made by Mini Spares in the UK to their usual high standards these are superior to the copies found elsewhere that do not adjust as low and have poor threads.

In machined alloy to a basic shape with a flat base for the suspension cone spring rubber they will oxidise with time. Supplied as a full kit of 4 adjustable cones and 2 rear struts The original Hilo being cast has a specific shape where the suspension cone spring rubber sits to improve road holding .Mini Spares true Hilos are the only type ever homologated for motor sport use.



12. Adjusting hexagonal rod (if required). 

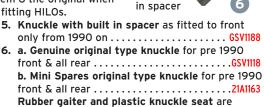
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a. Four budget cones with a pair of rear 



# Suspension Knuckles

Vehicles from 1990 on, have a knuckle joint GSV1264 fitted to the front only which raises the suspension for extra clearance. The knuckle joint (item 5) has a built in spacer as shown and should be replaced by item 6 the original when



available individually.

a. Rubber Gaiter ........................21A425 b. Plastic knuckle seat......21A423

with built







Suspension Dampers & Cones

# **Evo Performance Dampers**

1. New Eight Point Twin Tube Adjustable Dampers. Redesigned AGX Evolution easy to set up eightpoint adjustable twin type gas-filled dampers. The eight-point dial feature makes for both easy and extremely accurate on-car adjustment. Suitable for standard height cars, the dampers can also be used on cars which have been lowered by up to 35mm from original suspension height.

a. Front. Sold individually . . . . . . . . 743039

b. Rear. Sold individually........743040

# Spax Performance Dampers

2. 50th Anniversary Mini Spares / Spax Performance Dual Adjustable Damper. Now Krypton gas filled for better low speed ride and improved high speed performance over traditional oil emulsion dampers. For standard height and lowered cars. Recommended to be fitted in pairs but sold individually. Adjustable while on the car. All sold individually.

a. Front standard height . . . . . . . . . 158-M1GAS b. Front lowered height ......158-M11GAS c. Rear standard height.....158-M2GAS d. Rear Lowered height . . . . . . . . . 158-M12GAS 

Motorsport Clubman range damper

4. Special Softer Fitting (standard height) Spax knob adjustable for softer setting on standard cars. The lowest setting is equivalent to standard dampers.

a. Front Spax ......NGM1A b. Rear Spax ......NGM2A

# Gaz Performance Dampers

Gaz performance dampers as used by the Mini Spares sponsored Mighty Mini Race Series. Adjustable on the car.



c. Front lowered height. Sold individually .....C-STN236 d. Rear lowered height. Sold individually . . . . . . C-STN237

### Standard Dampers



a. Kayaba front. Sold individually....... 442001 b. Unipart front. Sold individually .......GSA388

c. Kayaba front gas upgrade. Sold individually 342001

d. Kayaba rear. Sold individually......442002 e. Unipart rear. Sold individually......GSA389

Kayaba rear gas upgrade. Sold individually

Kayaba gas pressurised, self-adjusting dampers. Very effective and cost efficient slim body upgrade offering all weather, all temperature consistency for road cars. We recommend fitting in pairs

| recommend members.                     |        |
|--|--------|
| a. Gas a-just front. Sold individually | 552018 |
| b. Gas a-just rear. Sold individually  | 552019 |



### Rubber Suspension Cones

🔼 In the past, there were two alternative rubber cones to the standard one - (which were red or blue spot). The first was produced at the request of BL's ST Department. These were considerably harder than standard and were developed to cope with the extra weight carried by the rally cars. The second was slightly uprated, but a more progressive cone, originally fitted to the Hatchback Innocenti 90/120. Proven to give a superior handling characteristic, Mini Spares have enhanced it further using a selective consistent balanced rubber mix and cooling procedure to get far more consistent spring rates. This provides better working rubber to help reduce body roll as the ultimate cone spring for road and race.

Used on Keith Dodd's twin point for the last 7 years. Improved manufacturing makes these more expensive than standard cones.

14. This shaped cone has a progressive balanced spring rate and when fitted initially sits higher than the standard original cones, HILO's will be required. 

b. Tarmac race only - yellow spot...........C-STR688 15. Standard cone spring ...... FAM3968

16. Bump stop to fit nut on rear cone, only required on late subframe 1992 on when rear wheels foul or ERA cars..... ERA1190

# **Bump Stops**



19. Rear hydrolastic large dome bump stop

20. Rear hydrolastic flat dome rebound 

21. Front hydrolastic bump stop . . . . 21A1598 22. Front dry bump stop pre 1976

23. Front bump stop 1976 on (single bolt)

...... FAM2764 24. Front bump stop 1976 on (made in poly

with lower flat top) . . . . . . FAM2764MS 25. The rearward pitch under hard acceleration can be minimised by fitting a progressive bump

stop kit. Improves handling when fully laden. Developed for hydrolastic cars but often modified to fit dry suspension. Front bump stop kitC-AJJ4007

26. Rear progressive bump stop kit. Originally developed for hydrolastic cars but often modified by customers to fit dry suspension. 

27. Rubbers to fit either kit are available separately. Same as the MGB . . . . . . . . . . . . AHH7074





Suspension

### Coil Over Kits

SPAX coil over kit parts are available separately, dampers, springs or front brackets. The cheapest way to purchase the SPAX complete car set is by ordering as RSX519 or RSX520 kits, for road/competition.

Mini Spares Spax dampers/coil spring sets are for road use and limited tarmac competition events. If used for off road or rough terrain, strengthening modifications will need to be made. Fits most standard 10", 12" and 13" wheels but wide tires must be checked for clearance and spacers added when required. Full fitting instructions with complete kits.

1. a. Standard height kit. Full car set.

| b. Rear damper/coil set standard. 2 x rear    | CK23   |
|---|--------|
| c. Front bracketry kit. 2 x brackets          |        |
| d. Front damper/coil standard. kit. 2 x front |        |
| e. Cars 1" (25mm) lowered kit. Full car set   | RSX520 |
| f. Rear damper/coil set lowered. 2 x rear     |        |
| g. Front bracketry kit. 2 x brackets          | CK25   |
| h. Front damper/coil lowered kit. 2 x front   | CK27   |
| •   |        |

2. When the Mini suspension was designed over 50 years ago with rubber cones it was innovative and successful but not very suitable for today's driving. Softer cones in different shapes have proven to give a more comfortable ride but at detriment to the handling. Within the confines of the Mini suspension the Mini Spares full coil over kit eliminates the rubber cones and provides a good alternative. Another alternative is the coil spring cone conversion, which is a direct replacement for the rubber cone. Made out of top quality spring wire to eliminate compressing after a few years usage they have been used on the road in Japan and



the USA for some time, however Mini Spares offer them only for Race use on tarmac where the suspension must be professionally set up. Not suitable for undulating tarmac (rough roads)

Coil spring cone conversion. Available in three spring rates.

- a. For softer rate (Blue)....C-SRP100
- b. For firm rate (Red)......C-SRP200
- c. For competition spec rate.(orange or green) . . . . . . . C-SRP250

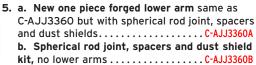
### Tie Rods & Joints

3. Lower arms.

b. Standard right hand arm only.

c. Standard left hand arm only.

21A1881
4. New one piece forged lower arm makes nearly every other arm produced redundant. It is the correct H section shape as the originals for strength, and is fully adjustable to obtain the



- 6. Uprated adjustable tie rod, 5/8" thick, is essential when setting up castor/camber angles correctly. Have been successfully used on road/race cars since late 1970's. Sold as pair . 21A1091
- 7. Spherical jointed rod-end adjustable tie rods are for race use to allow fine castor adjustment and eradicate weaving effect when braking or accelerating hard. Sold with joints and in pairs.
- B. Tie rod supplied with all std nuts, bolts and



# Tie Bar & Arm Geometry Set

13. To get the best handling from your car it is imperative to equalise any setting side to side.

Adjustable heavy duty tie rods are for getting castor angles correct and lower adjustable arms will correct or change camber angles. There is no point fitting rear alignment brackets unless the front geometry as stated is corrected.

|                                |                      |                        | etry Kits   |          |          |  |
|--------------------------------|----------------------|------------------------|---|----------|----------|--|
| Order Front<br>Geometry Kit as | Forged lower<br>arms | Adjustable<br>tie rods | Adjustable camber<br>and tracking brackets<br>See page 6 for more details | Bushes   | Bushes   | Extra fitting items  |
| 21A1092                        | n/a                  | 21A1091                | n/a   | n/a      | C-STR627 | All nuts & washer required<br>53K1031 PWZ207 2A4328<br>GFK3224 GFK3212 GFK1125 |
| MSSK3008                       | C-AJJ3360            | 21A1091                | n/a   | C-STR632 | C-STR627 | n/a  |
| MSSK3013                       | C-AJJ3360            | 21A1091                | MS73  | C-STR632 | C-STR627 | n/a  |
| MSSK3007                       | C-AJJ3360            | 21A1091                | MS73  | n/a      | n/a      | n/a 👔  |
| MSSK3013A                      | C-AJJ3360            | 21A1091                | MS73  | n/a      | C-STR627 | Spherical joint MSRJM Dust cover C-AJJ3368 Rose joint spacer AN1372            |
| MSSK3014                       | C-AJJ3360            | 21A1091                | MS70  | C-STR632 | C-STR627 | Shims CK18   |

Steering

# Upper Arm Rebuild Kit



1. Upper arm rebuild kit for front suspension contains shaft, bearings, seals, thrust washers as shown, per arm. Order each side separately . . . . . . . MSK1



# Track Rod Ends



3. Longer track rod ends are for use on lowered cars or cars with negative camber where the original has insufficient thread for the standard rod end to screw safely onto steering rack. Also fits Midget and Sprite.

Sold individually............GSJ158 4. a. Track rod end for steering rack. Genuine. Sold individually ... GSJ612 b. Track rod end for steering rack. Non genuine.

Sold individually...........GSJ100

# **Steering Racks**



a. NEW Quick rack 2.2 turns lock to lock as (opposed to 2.7) for competition, MK2 on.

| R/H/D  |                                 | GSR626 |
|--------|---------------------------------|--------|
|        |                                 |        |
| b. New | standard steering rack, MK2 on. |        |
| R/H/D  | FFA                             | AM7306 |
| L/H/D  |                                 | 7307MS |

# Steering Rack Gaiter Kits

Over the last 50 years there has been significant changes in manufacturers of steering racks, which have used these three common types of gaiter kits.

- 6. a. 41/2" long approx. Genuine with b. 41/2" long approx. Non Genuine with clips . . . . . . . . . . . . BHM7113
- 61/2" long approx. Where the two rack ends are different diameters
- Upper steering column plastic bush. to 1996. Genuine..........FAM2406
- Lower steering felt bush. 1959 -1985 . . . . . . . . . . . . . . . . . . 21A998
- 10. Lower steering column plastic bush. 1985 - 1996 ..... NAM8563



Bottom Arm Bushes - Pretty Poly vs Rubber

Whilst it is true that polyurethane is harder wearing, brighter colored and longer lasting than rubber, in many applications it is not necessarily the best material. Polyurethane has greater abrasion resistance and is stiffer for a similar hardness, is much cheaper to produce - and therefore sells at a lower cost - and can be produced in a wide variety of colors. However it does not possess the elasticity, vibration absorbency or deflection tolerance of rubber, pretty much why manufacturers use rubber on production cars instead of the cheaper polyurethane.

A case in point is the lower arm bush used in competition where spherical rod end joints are not allowed. Increasing the castor angle to improve handling distorts the inner lower arm bush dramatically. The more castor angle used, the more dramatic the distortion. Whilst a rubber bush will tolerate this, a polyurethane bush will deform and stay deformed, gradually disintegrating affecting the bushes performance. Ideally a rubber bush with a metal sleeve in it to reduce the quantity of rubber in the installation to improve stability and control is the way to go. Mini Spares - after protracted investigation into materials, suitability and performance - have produced a rubber bush with consistent performance manufactured with a special angled bush to compensate for the increased leverage applied when adjusting (increasing) castor angle. The new offset performance bushes are available in 80 or 90 IRHD rubber for fast road/



competition and race use respectively. Although being a little more costly than the plastic alternatives they do a far superior job.

- 12. a. Where the geometry has been changed the new road/competition bush with a moulded metal sleeve, with an angle to compensate for increased castor angles to prevent bush distortion, for all uses. Yellow b. As above but in harder material 90IRHD. Race only. White dot. Set of four.... C-STR631
- 13. Standard production sleeved rubber bush. Sold individually . . . . . . . . . . . . . . . . 21A1882
- 14. A collared rubber bush in upgraded rubber is for cars where no geometry change has been made. Sold individually ..... 21A1882MS

# Tie Bar Bushes



The same research program has encompassed the tie bar bushes. A well known fact amongst competition car drivers is that the outer bush needs to be hard to stop weaving when braking, increasing car stability.

a. Our new kit therefore contains 2 hard outers and 2 softer inners. If too hard a material is used it can result in the threaded end of the tie bar (which is narrower) breaking off. This car set kit will suit b. The standard rubber tie rod bush as also used on all our engine stabiliser kits. Sold individually.......31G1155

# Steering Arms



Standard steering arms fit all MK2 Minis from 1967 on and the thicker style were fitted to Copper 'S' MK2, MK3 and 1275GT models. The thicker type can be fitted as an alternative in pairs.

16. a. Standard steering arm R/H ..... BTA896 b. Standard steering arm L/H ..... BTA897 17. a. Upgraded steering arm R/H ...... BTA894

b. Upgraded steering arm L/H ......BTA895

Easy on-line ordering at www.minimania.com



### Suspension

ania



### Radius Arms

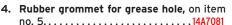


Radius arm for vehicles with dampers (known as dry suspension shock absorbers). Complete with pins and necessary parts ready to fit

(Kit No. 3 GSV1125)

| a. | New | R/H | arm | only |      | <br>.21A392  |
|----|-----|-----|-----|------|------|--------------|
| b. | New | L/H | arm | only | <br> | <br>. 21A393 |





 Rear protection shroud to cover radius arm grease nipple area. (grommet not included).





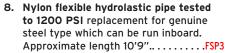
# **Alloy Rear Subframe Section**

 This rear subframe replacement box section is manufactured from an extruded aluminum alloy for inherent strength and consistency of dimensions,



necessary to modify the inner wheel arch. This product is suitable

# **Hydrolastic Pipes**





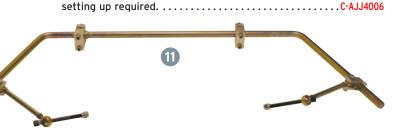
### Anti Roll Bars

Anti-roll (sway) bars are effectively a length of either solid steel rod or tube mounted across the car in mountings generally fixed to the chassis at either front or rear, and sometimes both. An arm at each end links the bar to each wheel, so when the car rolls in a corner, the bar has to be twisted before one wheel can rise and the other fall. The resistance offered by the bar controls weight transfer and reduces body roll, thus improving cornering speed by altering under or over-steer. A very powerful instrument, it can have more beneficial effects than simply fitting stronger cone springs, because the Mini has very limited options.

A few years back Mini Spares undertook a re-development programme to improve the bars performance as well as improve fitability irrespective of handbrake actuating lever length, damper size or exhaust type used. By replacing the simple bent bar with a more compact bar and blade design, it provided a lighter unit with reduced lever arm deflection. Further enhanced by shorter drop links.

The fixed rear bar uses a 0.50"(12.7mm) diameter steel rod with 3mm plate blades. To maximise efficiency, the only rubber bushes used are metalastic bushes in the drop links - unlike other kits that rubber mount the bar also. The adjustable rear bar uses a 0.75" (19mm) diameter steel rod with 4mm plate blades with spherical rod end drop links to give ultimate efficiency. Adjustment is via a series of holes along the blades. Both kits come complete with all

11. Adjustable front anti roll bar, 3/4" race only specialist suspension



12. Since 1990, all production Minis were fitted with slightly softer rubber suspension springs. Although giving a slightly more comfortable ride in a straight line, they allow more body roll when cornering. To combat this and regain the status quo, we have developed this product to mount simply to the subframe and tie-rods without fouling on any under-pinnings. It's also serviceable on earlier cars, further enhancing the Mini's great handling. We do, however, highly recommend using it in conjunction with the C-AJJ4009 fixed rear anti-roll bar for maximum effect and balance. It's also advisable to correct any







Subframes and **Fixings** 

# Front Subframes

All the genuine subframes are assembled on the original jigs to ensure correct fit and alignment of parts to the car body to provide correct castor and camber angle. It has the correct amount and positioning of welds. They are finished

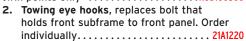
All Front Subframes are only available as aenuine

in black electrocoat paint which is the only method of ensuring every internal and external part gets protection to provide longevity.

1. a. Front subframe - dry suspension cars 1959-76 ......21A2570

b. Front subframe for 1275cc cars 1990 on 21A2774

c. Front subframe for front mounted radiator, twin points only ......KGB100500







# Subframe Mountings

4. Rear of front subframe mounting. a. Genuine. Sold individually.....21A2599



5. Front tear drop mounting on front subframe.

a. Genuine. Sold individually . . . . . . . 21A2624 b. Non genuine. Sold individually 21A2624MS

6. Lower front subframe tower mount rubber center bolt seal.....

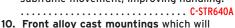
Upper front subframe tower mount rubber center bolt seal.....

# Front Subframe Solid Mountings

8. Budget poly kit for tower and front of front subframe only ...... C-STR643

a. The set of four alloy top front subframe mountings are to replace the standard rubbers fitted (to reduce noise) on vehicles from 1976 to 2000. These alloy pads eliminate subframe movement, which is detrimental to handling ..... C-STR640

b. Super road subframe mounting kit. Car set of 2 alloy top and 2 poly lower to quieten the road noise but still reduce subframe movement, improving handling.





not break and also enhance road holding. These replace those troublesome front rubber mountings and compliment the top alloy mountings. These are also for vehicles built

from 1976, and sold in pairs. When fitted with the top kit there is usually a small increase in noise level, but leave the rear rubber mounting as standard, or there 

11. Rear solid brackets for front subframe. Cars 1976 on, ideal for racing or road if increased noise is not 

### Rear Subframe

14. Rear subframes, Genuine are stamped MOWOG

a. Dry suspension rear 

b. Dry suspension rear subframe which uses rubber hanging straps 1992 on. Non genuine ................. MS45LATE c. Dry suspension rear subframe genuine ...... FAM6292

d. Dry suspension rear subframe with exhaust hangers 1992 on ..... MS45LATE e. Dry suspension rear subframe powder coated for longevity

and looks ...... FAM6292MS f. Subframe with fixing trunnions, standard bushes and metal exhaust hangers for rubber exhaust straps as per 1992 cars on.

(items 16b, 17b-22 fitted)....................... KHB10024MS g Hydrolastic suspension rear subframe genuine ......21A2160

Exhaust hanger rod. For early cars to fit 1992 on exhaust.

a. Front of rear subframe .....C-ARA670

b. Rear of rear subframe . . . . . C-ARA671

### Rear Subframe Fixings



16. a. Poly bush for rear subframe, small type sold as a set of four, competition only...... C-STR638 b. Original rubber bush. Sold individually... 2A5818

17. a. Poly bush for rear subframe, large single bush type 1976 on, competition only.

Sold as a pair............ C-STR639 b. Standard rubber bush, sold individually ......21A2560

18. Bracket for small bushes.

19. Short bolt . . . . . . . . . . . . . . . . GHF120 20. Long bolt..... SH605181

21. Bracket for large bush, fitted to front 

22. Rear support pin. a. Genuine. Sold individually ..... 21A1440

23. Essential Bolt and Bush Kit.

a. 8 small rubber bush and bolt kit for pre 1976......MS44 b. 4 small and 2 large rubber bushes and bolt kit for 1976 on.

c. As above b. but includes 2 each of no. 18 and 21 to fit all years.... MS41



### Camber Brackets







24. Pair of rear camber brackets to give extra 11/2° negative camber over the standard setting ......MS69

25. Pair of adjustable rear camber brackets to adjust camber on rear suspension to suit individual requirements ......MS70

26. Pair of adjustable rear camber and tracking brackets. The ultimate for correcting suspension geometry giving infinite camber adjustment......MS73

27. Rear tracking shims. An alternative to MS73 is to use MS70

adjustable brackets, camber only and use these specially manufactured 0.028" stainless steel shim washers to alter the tracking. They insert between the vertical face of the outer radius arm bracket and the subframe giving permanent settings and ultimate strength for road use, yet can easily be added / removed in the workshop to predetermine settings for racers to give ease of use at the track. Sold individually ..... CK18



