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 fitting HILOs.

5. Knuckle with built in spacer as fitted to front only from 1990 on .......................... GSV1188
6. a. Genuine original type knuckle for pre 1990 front & all rear ...................... GSV1118
   b. Mini Spares original type knuckle for pre 1990 front & all rear .......... ZIA163
Rubber gaiter and plastic knuckle seat are available individually.
   a. Rubber Gaiter .......................... 21A425
   b. Plastic knuckle seat .................. 21A423

1. Complete camber and tracking kit with AGX Evolution dampers.
   a. Kit with HILOs .......................... MSSK3002
   b. Kit with budget C-STR644 ............... MSSK3012A
2. AGX Evolution dampers kits.
   a. Kit with HILOs .......................... MSSK3001
   b. Kit with budget C-STR644 ............... MSSK3011A
3. Gaz adjustable dampers kits.
   a. Standard height with HILOs kit .... MSSK3000
   b. Standard height with budget C-STR644 kit ............................ MSSK3000A
   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

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 instead of the HILO, 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.

   a. Kit with HILOs .......................... MSSK3004
   b. Kit with budget C-STR644 ............... MSSK3004A
   a. Kit with HILOs .......................... MSSK3003
   b. Kit with budget C-STR644 ............... MSSK3003A

Non Adjustable Damper Type Kit

10. a. Pair HILO suspension cones ..................... HI-LO
11. Pair rear alloy rods and 2 strut plugs ................. HILO-01
12. Adjusting hexagonal rod (if required).
   a. Front 40cm long ........................ HIL0-02
   b. Rear 50.5cm long ...................... HIL0-03

Adjustable Suspension Cones

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.

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a. Four budget cones with a pair of rear alloy rods ................ C-STR644

Call to Order or Questions at 800-946-2642
Evo Performance Dampers
1. New Eight Point Twin Tube Adjustable Dampers. Redesigned AGX Evolution easy to set up eight-point 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-M1G4S
   b. Front lowered height 158-M1G6S
   c. Rear standard height 158-M2G6S
   d. Rear Lowered height 158-M1G2G4S
   e. Rear std height for van 158-M3
3. Motorsport Clubman range damper

Gaz Performance Dampers
Gaz performance dampers as used by the Mini Spares sponsored Mighty Mini Race Series. Adjustable on the car.
5. a. Front std height. Sold individually C-STN231
   b. Rear std height. Sold individually C-STN233
   c. Front lowered height. Sold individually C-STN236
   d. Rear lowered height. Sold individually C-STN237

Standard Dampers
6. Standard replacement dampers, either Unipart or Kayaba premium upgrade. Kayaba are the largest and probably best suppliers of original equipment to car manufacturers in the world. It is recommended to fit dampers in pairs.
   a. Kayaba front. Sold individually 442001
   b. Unipart front. Sold individually 65A388
   c. Kayaba front gas upgrade. Sold individually 342001
   d. Kayaba rear. Sold individually 442002
   e. Unipart rear. Sold individually 65A389
   f. Kayaba rear gas upgrade. Sold individually 342002
7. 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.
   a. Gas a-just front. Sold individually 552018
   b. Gas a-just rear. Sold individually 552019
   c. Gas a-just. Sold as car set 552015

Damper Fittings
8. Damper eyelet bush for Spax / Gaz. Sold individually SPAX-BUSH
9. Rear damper upper bush kit. Sold individually C2542
10. Rear damper top thread protection. Sold individually 21A640
   a. R/H top bracket. 21A471
   b. L/H top bracket. 21A474
12. Top damper bracket for cars with lowered suspension. Maintains near upright position required for retaining maximum efficiency. Available in pairs only. C-AJJ3359
13. Upgraded EN8 lower damper pin. C-AJJ3361

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.
   a. Road and rally - red spot C-STRE67
   b. Tarmac race only - yellow spot C-STRE68
15. Standard cone spring FAM9368
16. Bump stop to fit nut on rear cone, only required on late subframe 1992 on when rear wheels foul or ERA cars. ERA1990

Bump Stops
18. Bump stop fits on subframe under upper arm 2A4267
19. Rear hydrolastic large dome bump stop 21A520
20. Rear hydrolastic flat dome rebound buffer 21A157
21. Front hydrolastic bump stop 21A598
22. Front dry bump stop pre 1976 (twin bolt) 2A4332
23. Front bump stop 1976 on (made in poly with lower flat top) FAM2764MS
24. Front bump stop 1976 on (single bolt) FAM2764
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 kit C-AJJ3407
26. Rear progressive bump stop kit. Originally developed for hydrolastic cars but often modified by customers to fit dry suspension. C-AJJ3313
27. Rubbers to fit either kit are available separately. Same as the MGB. AHH7074

Easy on-line ordering at www.minimania.com
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.

   
   b. Rear damper/coil set standard. 2 x rear.

   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.

   f. Rear damper/coil set lowered. 2 x rear.

   g. Front bracketry kit. 2 x brackets.

   h. Front damper/coil lowered. 2 x front.

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 conversion, which is a direct replacement for the rubber cone.

   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.
   a. Negative Camber, fixed 1.5º. Sold in pairs. C-AJJ3364
   b. Standard right hand arm only. 21A079
   c. Standard left hand arm only. 21A0881

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 camber setting required whilst fitted on the car. If you wish to fit spherical or rose joint ends then you just discard the eyelet end which holds the rubber bushes. C-AJJ3360

5. a. New one piece forged lower arm same as C-AJJ3360 but with spherical rod joint, spacers and dust shields. C-AJJ3360A

6. Uprated adjustable tie rod, 1/8" 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 . 21A091

7. Spherical jointed rod-end adjustable tie rods are for race use to allow fine castor adjustment and eradicate weeping effect when braking or accelerating hard. Sold with joints and in pairs. C-AJJ3365

8. Tie rod supplied with all std nuts, bolts and bushes. 864249

9. Female spherical joints are available as a spare part as per those fitted to tie rods. Sold individually. C-STR627

10. Male spherical joints are available as a spare part as per those fitted to bottom arms. Sold individually. C-STR627

11. Small dust cover that fits over all rod end joints. 2 x required per joint. Sold as pair . C-STR627

12. Original large boot to protect rod ends from foreign bodies. Sold individually. C-STR627

Call to Order or Questions at 800-946-2642

<table>
<thead>
<tr>
<th>Order Front Geometry Kit as</th>
<th>Forged lower arms</th>
<th>Adjustable tie rods</th>
<th>Adjustable camber and tracking brackets</th>
<th>Bushes</th>
<th>Bushes</th>
<th>Extra fitting items</th>
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<td>21A091</td>
<td>n/a</td>
<td>C-STR627</td>
<td>C-STR627</td>
<td>All nuts &amp; washer required S3K0031 PW2207 4A4328 GFK3224 GFK3212 GFK1125</td>
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<td>C-AJJ3360</td>
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<td>C-AJJ3360</td>
<td>21A091</td>
<td>MS3</td>
<td>C-STR632</td>
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<td>21A091</td>
<td>MS70</td>
<td>C-STR632</td>
<td>C-STR627</td>
<td>Spherical joint MSRJ1M Dust cover C-AJJ3368 Rose joint spacer AN1372 Shims CK18</td>
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</table>

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.

Contents of Front Geometry Kits

- See page 6 for more details
- All nuts & washer required S3K0031 PW2207 4A4328 GFK3224 GFK3212 GFK1125
- Spherical joint MSRJ1M
- Dust cover C-AJJ3368
- Rose joint spacer AN1372
- Shims CK18
9. Lower steering felt bush. 1959 - 1985 21A998
10. Lower steering column plastic bush. 1985 - 1996 NAM8653

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**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 GSJ58
4. Track rod end for steering rack. Genuine. Sold individually GSJ602
b. Track rod end for steering rack. Non genuine. Sold individually GSJ000

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**Steering Racks**

5. a. NEW Quick rack 2.2 turns lock to lock for competition, MK2 on.
R/H/D ........................................... C-GSR626
L/H/D ........................................... C-FAM7307
b. New standard steering rack, MK2 on.
R/H/D ........................................... FAM7306
L/H/D ........................................... FAM7307MS

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**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 clips GSV1153
b. 41/2” long approx. Non Genuine with clips BHM713
7. 61/2” long approx. Where the two rack ends are different diameters (as shown) GSV1004
8. Upper steering column plastic bush. to 1996. Genuine ......... FAM2406
9. Lower steering felt bush. 1959 - 1985 21A998
10. Lower steering column plastic bush. 1985 - 1996 NAM8653

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**Lower Arm Pin and Bushes**

11. a. Lower arm pin genuine ............... HMP441037
b. Lower arm pin non genuine ............. Z1A1889

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 dot. Set of four ......... C-STRE632
b. As above but in harder material 90IRHD. Race only. White dot. Set of four ... C-STRE631
13. Standard production sleeved rubber bush. Sold individually ......... Z1A1882
14. A collared rubber bush in upgraded rubber is for cars where no geometry change has been made. Sold individually ......... Z1A1882MS

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**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 any Mini for any pursuit from road to race ......... C-STRE627
b. The standard rubber tie rod bush as also used on all our engine stabiliser kits. Sold individually ......... Z16155

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**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

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Easy on-line ordering at www.minimania.com
### Alloy Rear Subframe Section

6. This rear subframe replacement box section is manufactured from an extruded aluminum alloy for inherent strength and consistency of dimensions, whilst being as light as possible. Its design also allows easy alterations to both camber and tracking. Supplied in its natural finish, it is possible to paint it or plastic coat it if desired. Using coil-over dampers specifically designed for the Mini with the offset-pin top mount, body modifications are generally not needed as this positions the damper body and coil away from the inner wheel arch. If conventional coil-over dampers are used, it will be necessary to modify the inner wheel arch. This product is suitable for road, rally, and race use.

7. Rear tracking shims for above CK22. These 0.020” thick stainless steel shims are slotted to go either side of the bolts between the radius arm brackets and box section. (See also CK17, No.27 on page 6). Sold individually.

### Hydrolastic Pipes

8. Nylon flexible hydrolastic pipe tested to 1200 PSI replacement for genuine steel type which can be run inboard. Approximate length 10’9”.

9. a. Original shape metal hydrolastic pipe. for R/H
   b. Easy bend in metal, but split into two parts for easy fitment.

### 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 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 fitness 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 necessary components for easy fitment.

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 suspension geometry discrepancies.
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 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 ...
   b. Front subframe for 1275cc cars 1990 on
   c. Front subframe for front mounted radiator, twin points only

2. Towing eye hooks, replaces bolt that holds front subframe to front panel. Order individually.

3. Towing eye hooks latest type.

Front Subframe Solid Mountings

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

9. 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.
   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.

10. Front alloy cast mountings which will 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 will be a noticeable increase.

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

Rear Subframe

14. Rear subframes, Genuine are stamped MOWOG
   a. Dry suspension rear subframe non genuine.
   b. Dry suspension rear subframe which uses rubber hanging straps 1992 on. Non genuine
   c. Dry suspension rear subframe genuine
   d. Dry suspension rear subframe with exhaust hangers 1992 on.
   e. Dry suspension rear subframe powder coated for longevity and looks
   f. Subframe with fixing trunnions, standard bushes and metal exhaust hangers for rubber exhaust straps as per 1992 cars on.

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

Subframe Mountings

4. Rear of front subframe mounting.

5. Front tear drop mounting on front subframe.


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

Rear Subframe Fixings

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

17. a. Poly bush for rear subframe, large single bush type 1976 on, competition only.
   b. Standard rubber bush, sold individually.

18. Bracket for small bushes.

19. Short bolt

20. Long bolt


22. Rear support pin.

23. Essential Bolt and Bush Kit.
   a. 8 small rubber bush and bolt kit for pre 1976.
   b. 4 small and 2 large rubber bushes and bolt kit for 1976 on.

24. Pair of rear camber brackets to give extra 1½° negative camber over the standard setting.

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

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

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.