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## Restoring Glacier White 0199

Following the purchase of his 1973 MGB GT V8 in 1992, Gavin Bailey enjoyed over 12 years of relatively cheap and trouble-free motoring. Apart from the usual maintenance and wear-related items, the biggest expenditure was on a set of stainless steel tubular manifolds, new front discs and pads and a new radiator when his trolley jack slipped off the front cross member and through the bottom of the radiator!

Before his purchase the car had been 'restored' with new inner and outer sills, front wings and rear quarter panels, however the owner had run out of money part way through and the car had been hastily finished and put up for sale by the restorer to cover their costs. As a result panel gaps were poor, the re-spray was of low quality and 12 years on the car was looking decidedly tired. Here Gavin tells the tale.

As I had enjoyed the car for a number of years coupled with the fact that it was not only an early V8 but had been an exhibition car at Longbridge when new, I decided to embark on a full restoration. The best base for such an exercise would normally be an original car that had not been previously restored, as sub-standard work is often costly to rectify. Nevertheless given the cars history I was determined to press ahead.

I entrusted the job to Buskell Engineering, a restorer in Happisburgh, Norfolk that had done work for me before – not one of the mainstream MG specialists but skilled in the restoration of cars including Bristols and Austin Healeys. From the start I was clear that I wanted the bodywork and panel gaps to be as near perfect as it was possible to achieve. As I was to find out later this added significant time and cost to the build as the panels I had purchased needed extensive work and reshaping to achieve the standards required. On the mechanical side I wanted all components to be either refurbished or renewed, and where appropriate improved in performance whilst retaining the character of the car and keeping its appearance largely standard. Finally I intended for this to be a long-term restoration. Having purchased an RV8 there was no deadline for the car to be finished. This also suited from a budgetary perspective as it helped to spread costs over a longer period.

Prior to delivering the car to the restorer I stripped out as much of the interior and fittings as possible. Two weeks later major surgery had taken place with the rear quarter, sills, front wings and bonnet removed. It quickly became apparent that there was extensive corrosion in many panels, much of it not previously visible. To achieve the quality of fit many of the panels required extensive fettling. For example the curvature of the offside outer sill was incorrect, and the front wings needed significant work to ensure the gaps around the grille, bumper and doors were acceptable. I figured that much of this was down to a combination of worn press tools and the need to contain costs and hit a level that the market can afford. As luck would have it I managed to source an original new-old-stock honeycomb grille which coupled with original Leyland bumper blades formed reference points around which the wings and bonnet were made to fit.

On the mechanical side the approach was equally thorough. The engine was fully rebuilt, and as the bores and pistons were in good condition a light hone was all that was needed along with new rings, bearings, ARP studs, smooth idle fast road camshaft, tappets and a set of 'Econotune' gas flowed heads from Peter Burgess.

All ancillaries including carburettors, water pump, alternator, servo, brake and clutch cylinders were either reconditioned or replaced, and a brand new loom from Autosparks connected all electricals together. In terms of the drive train the gearbox and rear axle were found to be in good condition and required little work before being repainted and refitted. The front suspension was completely rebuilt with new components and new lever arm shock absorbers all round.

As assembly commenced the library of photographs taken at past V8 Register events proved invaluable in ensuring components were refinished and refitted correctly. The rebuild was also helped by the many parts, some no longer available, that I had managed to acquire over the years preceding the restoration. One comment I would make is that once one gets into restoring the engine bay to a decent standard one must be prepared for the work involved to explode. Many components may need reconditioning to a high standard or replacement as a good paint job will only act to show up any deficiencies. If one is not prepared to go this far an 'honest used' engine bay is in my opinion more preferable to one that looks like it's been 'tarted up'.

The car is now in the final stages of paint finishing prior to the doors, tailgate and bonnet being refitted. Once all external trim is complete, then it is on to the interior trim after which a long and extensive restoration will be complete! I just hope I still enjoy driving the car! Photos: Gavin Bailey

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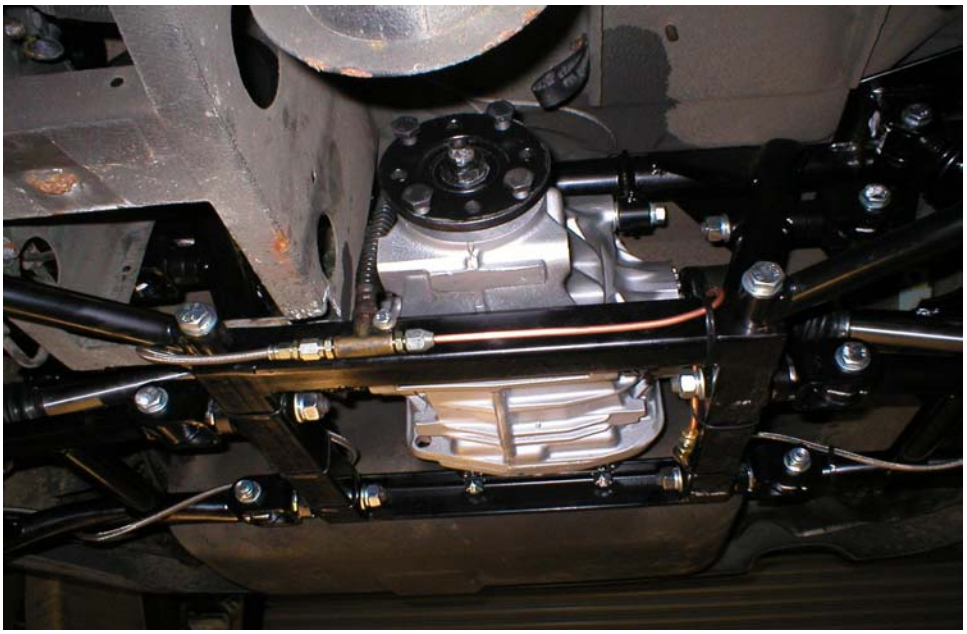

## Fitting a Hoyle independent rear suspension upgrade on an RV8

Steve Newton at Clive Wheatley mgv8parts has fitted a number of Hoyle rear suspension upgrade kits and provides an outline of what is involved.

The key feature of the ingenious Hoyle independent rear suspension upgrade, designed and supplied by John Hoyle, is it bolts directly on to existing mounting points on an RV8 or MGB bodyshell. Hoyle supplies the subframe assembly, special short half shafts and drive flanges with the MG stud pattern. He can also supply the Sierra differential, hubs, CV joints and disc brakes with new alloy callipers. As the Factory specification for the RV8 included a Quaife differential most enthusiasts go for a Ford Sierra limited slip differential. Most of the Ford parts are supplied new and the differentials are re-built to "as new" condition. Clive Wheatley says "if you decide to find your own differential then do doublecheck the diff ratio before buying a Sierra unit although it is safer if John Hoyle supplies it." The subsequent sale of the original RV8 back axle as a complete unit can generate a useful sum which can partly offset the cost of the Hoyle upgrade.

The first stage of the installation is the removal of the exhaust system and then the existing back axle, springs, shock absorbers and their mounts to the chassis. This involves disconnecting the two flexible brake hoses connecting to the brass T union over the back axle. The handbrake linkage is removed right back to the connection at the bottom of the handbrake lever. The flow and return fuel lines have to be cut at a point above the axle.

The next stage sees the Hoyle subframe offered up and bolted on to the existing damper and leaf spring eye fixing points. With an RV8 installation Steve Newton notes you have to "ding" the battery box in a couple of places, or make some small cut-outs, as the box interferes with the heads of some of the bolts fixing the Hoyle suspension frame. At this stage the subframe will need to be centralised and may need shims to do that. Hoyle supply shims with their kit. The fuel pipes have to be reconnected below the top tube of the subframe assembly.

Also included in the Hoyle kit are new flexible brake lines with metric connectors, new handbrake cables and linkages to the callipers and new Gaz shock absorbers. Steve makes up copper brake lines with the necessary compatible connectors. The handbrake linkage is refixed using the new cable provided in the Hoyle kit and Steve notes you will have to make a small hole in the transmission tunnel for a bolt fixing a brake cable clip.

The original RV8 propshaft needs to be modified – first carefully measure from the flange on the new differential in the Hoyle subframe to the flange at the back of the gearbox – some 30 inches or so. Then the existing propshaft has to be cut and a new UJ flange welded on, following which the whole unit has to be balanced. It is then refitted with the universal joint attached to the flange. Refitting the exhaust system needs a slight modification to the pipework to provide sufficient clearance from part of the Hoyle subframe.

John Taylor notes that as one of the first RV8 enthusiasts to fit a Hoyle upgrade he recalls the installation, which he carried out himself, involves many small adjustments for which particular equipment and skills are needed. He adds "the nuts on the hubs also need a high torque and many enthusiasts may find their equipment does not enable them to measure and check such high values". Guessing the nuts are torqued up enough is not good enough.

Steve likes the Hoyle upgrade and says the beauty of the set up is you have both camber and ride height adjustment. Removing the back axle and changing to the Hoyle upgrade does remove a great deal of unsprung weight. Geoff King noted in a V8 bulletin board posting in November 2008 that "the total weight of the MGB axle assembly, springs and dampers is approximately 100 kgs, the unsprung weight is 85 kgs. The total weight of the Hoyle is 105 kgs and unsprung is 45.5 kgs." Steve likes the improvement in both ride and handling provided by the Hoyle rear suspension upgrade and thinks it gives the RV8 a feel more like a modern car. You can put the power down and the rear dips down and grips rather than squirming or hopping like an RV8 with a live rear axle. The Hoyle upgrade also absorbs the road bumps better and with the IRS one bump from a pothole or manhole cover on say the offside rear wheel does not transfer through the live axle to the other side.

Deciding on whether to go for a Hoyle upgrade on an RV8 needs careful consideration as it is quite an investment – including the kit, new Ford parts and just over two days labour it is probably just under £5,000 but offsetting the proceeds of selling the original RV8 axle as a complete item could reduce the investment to just under £4,000. So it likely to appeal to RV8

enthusiasts who tour with the car in the UK and in Mainland Europe. With a reasonable annual mileage and the pleasure derived from the improved comfort with the installation, it is this type of enthusiast who will seriously consider taking the plunge and "going for a Hoyle".

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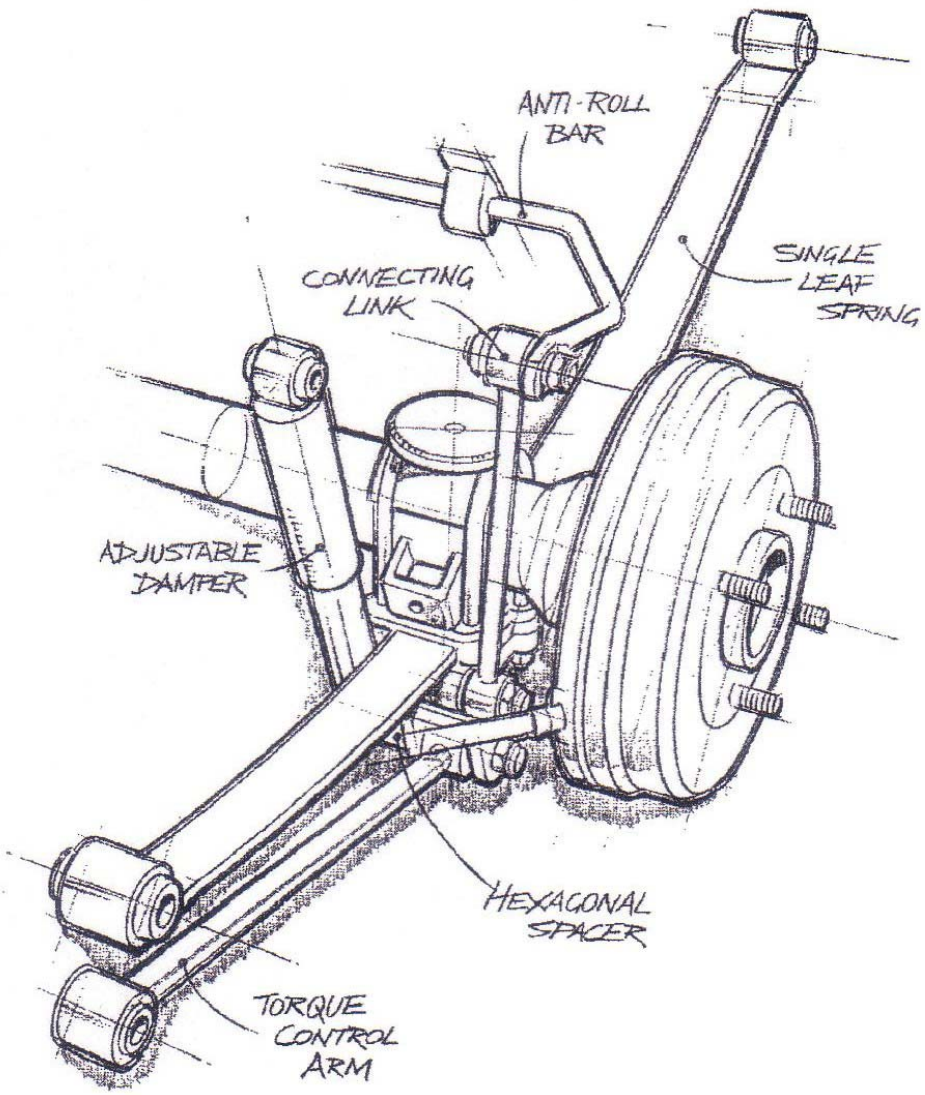


## Not all suspension modifications on an RV8 are a good idea

The release from the traffic of Norwich to the open A146 is a joy. The morning is dry and bright and the long gentle left curve simply beckons the RV8. The big V8 laughs lazily at my puny attempt at acceleration. Ahead the traffic moves into my lane, the outside lane. No need to brake, just lift off quickly. "Expletive!" – the right front wing dips and the right front wheel bites, tucks in and I swerve across towards the nearest lane.

Snap oversteer when lifting off the throttle mid-corner. This scenario is also known as: lift off oversteer, snap-oversteer, trailing-throttle oversteer, throttle-off oversteer and lift-throttle oversteer. Take your pick, it's frightening. I like to think that I did the right thing. I think I had steered in the direction I had originally intended with a firm foot on the accelerator again. In truth, I was not sure but of two things I am very certain – had the road been wet I would have spun with a horrible result and secondly, this car has to be sorted out! Here Angus Munro explains what he found and decided to do.

When I was looking for an RV8 I sought the advice of owners, all of whom confirmed that the ride and handling of the car was good but inevitably wasn't comparable to that of a modern car with respect to the suspension. Eventually I found a car that was advertised with various suspension modifications supplied by a reputable company. I test drove the car at modest speeds on local roads near the owner's house and agreed to purchase the RV8. During the drive home at motorway speeds the nature of this particular beast became apparent. It was terrifying. A drive the following day through the bumpy lanes of north Norfolk was equally worrying with the rear axle crashing about noisily. What had I done? Surely an MG RV8 was not this bad?

After I had raised many questions by email and on the bulletin board I finally came to the conclusion that the castor angle on my RV8 was wrong. The MGB was designed with 7 degrees of positive castor and the aluminium castor reduction wedges that are available as simple kit simply rotate the front crossmember to reduce the castor angle by 3 degrees. The effect is to lighten the steering effort required. While this may work on the MGB, the crossmember designed by Rover for RV8 has only 4 degrees of positive castor – well, 3 degrees 48 mins plus or minus 54 mins if you want to be picky. By having my RV8 fitted earlier with these wedges they had removed 3 degrees of castor. So with less than one degree, and possibly zero degrees of positive castor angle, I was driving a 3.9 litre supermarket trolley. I had the wedges removed, as did several other RV8 enthusiasts with whom I was in contact, and the result was a dramatic improvement. But my car was still awful.

At the time of my purchase the previous owner offered me two rusty tubes of steel, each with a bush at each end, saying "these are no longer required because the Panhard rod now does the job". I nearly said I didn't want them but then thought, "hey they might be something I should have . . ." Later I discovered they were in fact torque control arms and they were fitted to the RV8 as original equipment! For quite a while my chums suggested that I should refit those arms to my RV8, I resisted because the Panhard rod was doing their job - well wasn't it?

I wanted some clarification on this matter so I telephoned the firm which had supplied the modified suspension equipment that had been fitted to my RV8 for the previous owner and spoke at length to one of their specialists. He confirmed, quite clearly, that the torque control arms were redundant and no longer needed to be fitted to my RV8. My chums insisted however that was not right

*Differential with the impact marks from the Panhard rod: a long mark to the right and a spot mark which was shiny two months earlier. (Photo: Angus Munro)*

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**Torque control arms**
These days most people refer to torque control arms as anti-tramp bars. They were fitted as standard equipment on the RV8 to prevent the leaf springs winding up during acceleration. Due to torque it is always the right hand spring that shortens in an "S" shape in front of the rear axle. The righthand side suffers more because the torque reaction in the propshaft applies force to lift the righthand rear wheel off the ground. So unless a limited slip differential is fitted, the righthand wheel always spins first. The RV8 has a type of LSD fitted - a Quaife - which is known as a torque biasing unit and it will only work when both wheels are in contact with the ground. As soon as one wheel is in the air it loses the opportunity to bias the torque.
Without torque control arms fitted, what are the effects on the handling of an RV8? Well under acceleration the shortened 'S' shape of the spring results in fore and aft movement of the back axle which tries to try to steer the rear of the car to the left. A sudden lift off would have the opposite effect, causing the rear of the car to try to steer to the right and causing the car to swerve to the left of track. That is the effect Angus Munro describes above as his experience when driving with the suspension modifications fitted to the RV8 he had bought. With the combined effect of no torque control arms and only minimal positive castor angle worth speaking of, he is thankful the results were not more calamitous!

**Panhard rod**
A Panhard rod as a component of the suspension system which provides lateral location of the axle and stops the springs deflecting sideways under cornering forces. It is a simple device, consisting of a rigid bar running sideways in the same plane as the axle, connecting one end of the axle to the car body or chassis on the opposite side of the vehicle. The bar is attached on either end with pivots that permit it to swivel upwards and downwards only, so that the axle is, in turn, allowed to move in the vertical plane only. This does not effectively locate the axle longitudinally, therefore it is usually used in conjunction with trailing arms which locate the axle in the longitudinal direction. This arrangement is usually used with coil spring suspension set up rather than with a leaf spring suspension, where the springs themselves supply enough lateral rigidity.

*Panhard rod polished from friction contact with the diff casing. (Photo: Angus Munro)*

and that they should be put back on the car. So as it was only four bolts after all I eventually gave in and refitted them. The car was, as they say, "transformed" and I had to submit to a lot of "I told you so" comments – even to this day.

However, that is not the end of the story. With peace and quiet from the now restrained rear axle, a "donk" became audible and the car also "chuntered" around the area of the rear axle at low speeds. An unexpected revelation occurred a few weeks ago when I went to a local garage for an estimate to have the RV8 professionally cleaned and Waxoyled underneath. "Have you seen this?" inquired my mechanic pointing out a bright and shiny spot on the rear differential case. "And this?" pointing out a bright and shiny flat on the inside of the Panhard rod. Clearly the Panhard rod was in contact with the differential casing. So as there is no position adjustment possible, I got my eagle eyed mechanic to remove the Panhard rod.

At this point I will confess that I had secretly hoped that the rear axle might be about to fail as then I would then have had the opportunity to go for the wonderful Hoyle IRS upgrade that I have long thought about. But the story has a happy ending for my bank balance as I am now left with a car that is a delight to drive. No "donk", no "chuntering" and in fact an RV8 that is as it had left the factory with none of the strange and very unwelcome characteristics I had inherited when I bought the car fitted with those two suspension modifications and with the torque control arms removed.
Contributed by Angus Munro
*Note: RV8 rear suspension sketch is from the Technical Reveal for the RV8: Rover.*

## V8 Curry 2010

An annual V8 Curry Night has been a tradition of the V8 Register from its formation in 1978. It is usually held in February and starts the programme of V8 Gatherings for the year! This year it is on Saturday 20th February at the Pan Asia Dining Room in the centre of Cambridge. The following day is the Stoneleigh MG Show so many members stop overnight in or near Cambridge and then drive over to Stoneleigh the following morning. All Club members are very welcome to join the evening. Advanced booking is essential and you can do so online now via a link on the V8 website. You can check the location of the restaurant on Multimap using the postcode CB2 1DP.

## V8 Derbyshire Tour

The annual V8 Tours have always proved popular and this year an enthusiastic group met at the Palace Hotel in the spa town of Buxton. The programme for the weekend included visits to Chatsworth House and Haddon Hall with convivial dinners at the hotel. Saturday was beset by strong winds but the driving routes around the Peak District were enjoyable. The event was organized by Mike and Maria Taylor and saw two new enthusiastic members, Carol Fletcher and Ken Clayton from Nottinghamshire, join the event with their recently acquired RV8. Mike has taken on the task of forwarding planning the tours and for 2010, David and Barbara Allen have volunteered to arrange a V8 Cambridgeshire Tour in September – more information will be announced next month. The date will avoid a clash with the popular Goodwood Revival.

### Active Autumn for MGV8 sales

The number of sales of MGBGTV8s and RV8s over the last three to four months has been exceptional with signs of a strong demand from the Eurozone. Registrations from new members in Germany, Holland, Ireland and Denmark underline that for Euro buyers, classic cars are around 25% cheaper in the UK than a year ago.

## Get your V8 servo checked

The campaign promoted by the V8 Register earlier this year, with the support of leading MGV8 specialists like Halls, Brown & Gammons, Beech Hill Garage, Clive Wheatley and Tamar Valley Motoring Centre, seems to have encouraged many MGV8 enthusiasts to get their brake servo unit checked or replaced. The check has also been highlighted as a prudent safety measure for new owners of Factory MGBGTV8s joining the V8 Register.

## Helpline for V8 buyers

Following the launch of the useful help pages on "Buying or Selling and MGV8" with comprehensive guides, the feedback from new members is they have found the model guides, checklists and price guides very useful. The new Helpline for V8 Buyers

inspired by John Bolt has had many calls and in several cases volunteers like Ian Quarrington have helped prospective buyers by demonstrating their V8s and providing help.