MGBGTV8 engine mountings

Since the launch of the V8NOTES series in early 1979, the topic of engine mountings has often come up, often with the offside mounting knocking the steering column. This article brings together the various notes on engine mountings published in the V8NOTES series over the years. An easy way of checking whether the series covers a topic is to check with the detailed Index to the series – a copy comes with each set of V8NOTES and a copy is also available on the V8 website where it can be accessed and a copy easily downloaded via the link below. 150223
www.v8register.net/subpages/V8notesindex2.htm

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Engine mountings & engine removal

This brief and useful tip comes from Geoff Allen who owns the first rubber bumpered MGBGTV8. (Aug 79)

Clutch replacement and engine removal is a daunting task for many of us but Geoff Allen has a useful tip. Using a pulley block and rope slings he never removes the steering rack (as recommended in the workshop manual) but instead takes out the two 5/16 inch engine mounting bolts on the column side, leaving the mounting rubber on the body. Geoff also mentioned his clutch needed changing as the clutch had been dragging when cold, causing a heavy gear change. On dismantling, he found the front gearbox oil seal was damaged, resulting from a missing locating dowel from the clutch bell-housing flange. This had allowed the gearbox to drop on the bolts.

11a)

Right hand engine mounting

Jim Gibson (Flamenco Red 2435) sets out a useful sequel to Geoff Allen's recent note (Jan 80)

It is possible to take off the right hand engine mounting rubber without removing the steering column. A thin flat open ended spanner can be eased between the mounting bracket and the column to release the fixing nut, if it is not badly rusted on. Try plenty of penetrating oil first!

When replacing the rubber, attach the nut and washer to the spanner with insulating tape or adhesive. The locating plate, washer and nut can then be held in position and the rubber is turned to engage the stud in the nut. If the engine has been removed this is quite easy and the engine can be lowered onto the rubber to the engine bracket replaced. If the engine has not been removed but the mounting rubbers are being changed, the above procedure is still possible as there is just enough clearance between the engine and the body bracket, with the packing plate out of the way and the engine swung to the left hand side. Make sure the rubbers are the correct way up as described in the manual, and that the engine is level in the body before finally tightening the nuts.

Tail End Tip, Volume 1

Packing sheet with the offside engine mounting

A Factory tip from Geoff Allen which came from his experience with the hard driven police MGBGTV8s. (Dec 79)

Put a 3mm steel packing sheet (with a slot cut out for ease of fitting around the mounting bolt) under the offside engine mounting. This can eliminate the steering column knock.

Note: the late Geoff Allen was foreman in the Rectifications Department where he had worked for 27 years – he contributed a Tail End Tip in V8NOTES Volume 1.

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Engine mounting brackets round the right way

Steve Thorning (Blaze 1890) from Hampshire runs the Shoulder of Mutton with his father and is our host for the annual V8 Gathering there. In this note he provides a very useful doublecheck if you work on the engine mountings. (Mar 84)

Should you have cause to remove the front engine mounting brackets (BHH991 LHS and BHH992 RHS) you will of course mark them "LHS" and "RHS" for replacement. In the event you do not mark them or they become mixed up, how do you tell which is which? They are not symmetrical. One side protrudes more than the other. There is a simple reminder – we all know how tight the exhaust manifolds are in the engine bay so we ought to give them as much room as possible. So point the protrusion of the bracket to the front of the car. Failure to place the bracket in its correct side will mean on installation of the engine it will not fit back far enough. It is much simpler with the engine out, so get it right first time – I didn't!

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Engine stabiliser bars

This note is prepared from the various postings on the bulletin board, part of the V8 Register website, with the initial query from Brian Marshall (Teal Blue 4180) from Surrey and then contributions from Mike Barnfather from Lancashire, John Bourke from London N, Daniel Heyer from Germany, Keith Rowson from Hertfordshire and Dave Wellings from Yorkshire. (Aug02)

Brian Marshall from Surrey posted a message "has anyone any experience or advice on fitting an engine stabiliser bar to an MGBV8. I hear it helps prevent the lump moving around and cracking the exhaust manifolds. Any help or recommendations would be welcome". Well the response to this seemingly simple enquiry produced many postings with comments and views from V8 Register members. In chronological order the responses posted on the bulletin board were:

Keith Rowson, a longstanding member from Hertfordshire responded that his 1975 MGBGTV8 had a bar fitted when he bought it ten years ago but it did not stop the manifolds cracking. He removed the bar quite soon after he bought the car as he felt it hindered the engine and might have affected the handling. His conclusion was the bar was a waste of time. With the cast iron manifolds, he feels the best advice is to use the correct torque setting on the bolts – it's not very much and he feels the stresses on the manifolds are increased by over torqueing. He recommended contacting either Geoff Allen (V8 Historian who was in Rectifications Department at Abingdon for over 27 years) or Clive Wheatley the V8 spares specialist for best advice.

Mike Barnfather with an MGBGTV8 conversion from Lancashire posted a comment he had fitted a bar to his V8 Roadster conversion which has tubular manifolds and found it "held the engine much steadier" and that "it is not a difficult modification as the P5 (or is it P6) tie bar fits between the nearside rear head and the corner where a LHD master cylinder would fit".

Dave Wellings from Yorkshire expressed the bold view "the bar will transmit more noise and vibration to the shell and is not likely to reduce the incidence of cracked manifolds". He felt it would be better spending money on renewing the engine and gearbox mountings. Mike Barnfather response was clearly based on his experience of the stabiliser bar fitted to his car. "The Rover bar has substantial hard rubber bushes at each end, presumably to cushion noise and vibration. My engine, which moved considerably before fitting the bar and has had new mountings, is now held steady. I do not know what the cause of the cracked manifolds is but I suspect a reduction in engine movement has got to be beneficial to the exhaust system". Dave Wellings was back in a matter of days – "the cracking of exhaust manifold flanges and

downpipe flanges is thought to be where the cast manifold and downpipe flanges do not exactly match up, creating tension. Progressive thermal shock finds the weakest point – the flimsy manifold flange". This probably cause is mentioned in the footnote to this note.

Paul Wiley with a V8 Roadster conversion from Surrey posted a brief comment that his "problem with engine movement has been the gasket, now solved by using a high temperature silicone but also fitting a steady bar".

Daniel Heyer from Germany posted a comment saying he had just stumbled over the bulletin board on the new V8 Register website "so these comments come a little late I am afraid. I cannot say anything to the manifold cracking problem as this is not my main concern, but the steady bar I fitted to my 1974 MGBGTV8 certainly solved another problem. I went through two sets of engine mountings in two years, although I must confess I tend to stress the car a little more than under daily driving conditions – during track days on the Nuerburgring Nordscleife or elsewhere. When the gearbox packed up and the engine had to come out, I first had the idea of changing the standard engine mountings to Jaguar XJ6 ones as they are roughly the same size and a little more sturdy but they proved too high. So I decided to fit the stabiliser bar and have not had a problem since – travelling to north of Scotland, Sicily and Spa-Francorchamps included".

John Bourke with an V8 conversion posted a comment that he has designed his own steady bar which can be seen on www.mgcars.org.uk/v8_conversions and "my opinion is that it is worth fitting as it will reduce the stress on the engine mountings. You only have to fit slightly higher compression ratio pistons and an improved cam during a rebuild to put even more stress on the mountings". He added that "another important point if you are running with cast iron exhaust manifolds or the tubular equivalent, a steady bar reduces the chance of contact with the steering shaft as the engine rotates under load. There is even a risk of contact with the bonnet as the engine/bonnet clearance on the original MGBGTV8 installation is very tight. In my view a bar at the rear of the block will also help reduce the load on the gearbox mountings". John feels that cracked manifolds might not be helped much by a steady bar unless the mountings are already weak and thereby allow excessive engine movement and strain on the exhaust system. The "cast iron manifolds must be free to expand on the block and not bind sideways on their mounting holes because we are talking of a design with inbuilt weaknesses and 25 plus year old cast iron cycling through 400oC".

Footnote from the Editor: The subject of the cast iron exhaust manifolds cracking is well covered by the early volumes of the V8 Workshop Notes series produced back in the late 1970s and mid 1980s – see V8NOTE33 (Peter Laidler) in Volume 1 and V8NOTE95 in Volume 3 provided by Jerry Bright with probably the key to the exhaust cracking topic. In essence he suggests a major cause of exhaust flange cracking is that when new exhaust systems are fitted, the front ends of the pipes of the system have to be very carefully adjusted using cramps or jacks to ensure they mate exactly with the cast iron manifold tails. They must not be forced to fit and most certainly you should not pull up any mismatch by forcing the pipes onto the manifold tails and tightening up! If you take your MGBGTV8 to a garage or exhaust replacement depot not familiar with this car, you must ensure the fitter is fully briefed and understands that the pipe and cast iron manifolds must fit perfectly before tightening up. This will ensure the fitter is aware of the risk of flange fracture ruining your cast iron manifolds. If that does happen then at best it will leave you with the problem of getting them welded up - if that is possible.

Finding a replacement cast iron manifold is not easy and certainly costly if you can find one! A later note, Note 158 in Volume 4 from Ken Dodds in Australia from their "Pieces of Eight" journal, also stresses the need to use the correct torque on the exhaust manifold bolts of 18ft/lbs maximum plus the use of an anti-seize compound on all threads.

Daniel Heyer (Damask 0987) from Germany at speed in his V8 on the banking at Nuerburgring. (Photo: Daniel Heyer)

Footnotes from Roger Parker:

- **Cast iron manifolds**
  My experience is limited to the times which have involved the removal and refitting of the exhaust system in connection with other work, such as a starter motor replacement. The issue that has cropped up repeatedly is that I have seen the poor alignment of the exhaust system to the manifolds and how the systems have to be bent slightly to ensure the flanges of the manifolds and the pipes on the system align. I feel this has, and probably still has, been overcome by levering the system to get it into alignment which then leaves tensions and stress on the connection and components.
- **Fitting a steady bar**
  I have found when doing the first V8 conversion 20 years ago that the torque twist on the more powerful engines was a significant problem for the mountings and with contact between the engine and the steering. It made no difference how new or firm the engine mountings were. A simple steady bar was made between the left chassis rail and a bracket attached to the front of the left cylinder head and the result was control of that excess movement. That set up is still in place today on that first GTV8 conversion.

On my own car (a V8 Roadster conversion) I created a similar arrangement from day one and in the same position. I also had a rose jointed threaded stabiliser bar from a competition application that was to hand and this was fitted directly between the head and the double mounting lugs welded to the chassis rail. It was my intention to create a bracket at the head onto which the bar would mount via a more compliant bush as fitted to the first conversion.

- **Vibration from a steady bar**
  I was expecting the degree of engine vibration and harshness being transmitted through this solid link to be excessive and demand an early modification, but now some 17 years on I still have the same arrangement fitted. In use I was very surprised that I could detect no noise or vibration that could be attributed to this connection. It is no different to the GTV8 conversion and as a quick rough and ready test, I unbolted it and drove a few miles to compare. I felt there was no gain in noise or vibration terms from the removal of the bar, but I did get some steering to exhaust contact as the torque twist was very much greater and plainly visible even by just blipping the throttle. It is interesting that I have not seen any fatigue or other damage from the solid mounting.
- **Engine mountings**
  Both cars I have referred to are 3.5 litre conversions with fairly mild modifications both of which are confirmed as giving well in excess of 200bhp. Here we are seeing the effect of torque but both these engines, whilst better than the original 3.5 carburetted engines, do fall short of now more common 3.9 or 4.6 litre engines. The torque from these engines, especially the 4.6 can best be described as "stump pulling" and as such there is no way the standard engine mountings fitted to the original MGBGTV8 can be expected to provide adequate control of that extra torque. The RV8 saw some changes, not least the thinner engine mounting rubber which, with the composition of the material, sees less compliance and better control. As the 3.9 litre engine in the RV8 is a fairly low performance specification, it will almost certainly be hard pushed to live with a modified engine and will almost certainly fall short when a 4.6 litre engine is fitted.

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Early signs of engine mount failure

Bob Smith from Gloucestershire has a Sebring bodied MGBGT built as dual purpose road legal and track day car with a 300bhp V8 engine. Here he relates how he traced a problem to weak engine mounts - a useful reminder for RV8 members and a few MGBGTV8 owners with inner wing cut-outs for the exhaust. (Dec 14)

A recurring problem which I had never been able to figure out was a strange rumbling noise when pulling away. After fitting the new 300mm vented/grooved 4 pot caliper brakes and "run" them in, I was out on a Sunday morning joy drive with a friend in his "Red Sports Car". He was giving it some stick and not to be out done I followed suit and at one particular bend I noticed I was going a little too fast and applied the brakes in a very forceful manner, probably the hardest I had used these new brakes. The car slowed brilliantly but made a noise which sounded like someone had thrown an anchor out at the back and ripped off my front suspension. This was something needing urgent attention and after driving home very carefully and being unable to find any brake or suspension problem I started looking for other causes when I got home.

I noticed that the offside exhaust manifold was rubbing against the holes let into the inner wing, to the extent that the exhaust had chipped paint of the edge of the body where the manifold passes through into the wing. Then during a closer inspection I found the engine mounting rubber bonding had become detached from its mounting plate. This was difficult to spot but from underneath the car with a tyre lever on the block it was obvious.

I felt this engine mount failure was likely to have been caused by the high torque and probably it had been made worse because I had been supplied standard V8 engine mounts and not uprated ones. So these were changed and hey presto the exhaust was no longer rubbing and the strange noise when pulling away stopped - so RV8 and V8 owners take note, if you hear this sort of rumbling noise when pulling away fast and or see the paint around the body where the manifold passes through on the inner wing on the driver's side has evidence of rubbing and or paint chipping, then check the engine mounts.

However while I was looking around the car to solve this problem I came to be looking at the front engine pulley clearance to the front anti roll bar. This was always tight at about ½ inch because there were six lugs sticking proud of the crank pulley and with the engine mount gone on one side it would not have taken much for the engine to move forward and for the lugs on the pulley to make contact with the antiroll bar. This proved to be the case because after using some gaffer tape on the roll bar adjacent to the pulley it showed after a trial run there was still a little movement as the gaffer tape was showing signs of chaffing.

So when the water radiator was removed I took the opportunity to remove the engine pulley and cut down the lugs that protrude farther out than the bolt heads. These lugs are for the Rover SD1 air conditioning drive and are not needed in my application, so they were duly cut off and more care was taken with the location of the antiroll bar and clamps before the securing bolts were tightened and hey presto the clearance is fine and again and no more strange noises under braking.

To make this even more secure in terms of engine movement from the torque, I also fitted a Clive Wheatley front engine steady bar. This, together with up rated V8 engine mounts, has prevented any movement in this respect, so it should not happen in the future.