

## Lagondaforum: G9 gearbox

### Re: G9 gearbox

*Written by Julian at Jul 12, 2011 11:30 am*

Hi Peter,

Sounds like you have been lucky with your finds!

3rd gear problem

This is a usual problem and it is generally incurable without considerable expense but do as follows.

The problem is usually caused by the dog teeth that engage into 3rd to make it engage wearing at an angle, this angle then forces it out of gear harder and harder with the more power you feed in! Quite often this is caused initially by worn bronze bearings but as the teeth wear also the problem is compounded!

The only thing (simple) to do to cure this is to re-make all the bronze bushes for the sliding gears in the box and make sure all shafts etc are in tip top condition and then re-assemble as carefully as possible. Set the detent springs a little harder but don't over do it! and make sure that the gears are going fully into engagement! the selector rods and detent grooves are often not correctly set and often need re-making!

Good luck.

Julian

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### Re: G9 gearbox

*Written by bill at Jul 13, 2011 9:31 am*

Dear Julian

Many thanks with the information about the total G9 internals.

Yes, it is a very painful cost but at least we all know there is a complete solution. That was not the case 20 -25 years ago ! Thank you LMB.

Did over 100 miles yesterday in the Lagonda with no problems from the gearbox -touch wood ! However only time will really tell.

However now I have a vibration which wasnt there before! It is the engine/clutch/shaft not gearbox or propshaft. I lined up the gearbox extremely carefully to the engine so I am a little mystified. Will have to investigate further ...

Many thanks again.

Bill

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### Re: G9 gearbox

*Written by peter weir at Jul 15, 2011 1:21 am*

Thanks Julian. If the dogs are badly worn, have you heard of anyone building back up by electric arc welding with hardfacing rods - stellite or similar - and then machining back to size?

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### Re: G9 gearbox

*Written by Julian at Jul 18, 2011 11:51 am*

Hi Bill,

Test,

Drive along and press and keep down clutch with car in neutral. No gears selected, Is vibration less?

If yes, re-align gearbox. This is important to align as if you have one line from entire length of crank centre line through gearbox entire length.

If no change then maybe propshaft.

Peter,

Yes, I used to do it myself many years ago and even fixed one on a rally like that and used a hand file! however it's not easy and very costly to re-machine! even then you are only going to have a temporary repair as the other teeth usually fail shortly after.

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### Re: G9 gearbox

## Lagondaforum: G9 gearbox

*Written by bill at Aug 08, 2011 7:49 pm*

Hello Julian

Only just picked up your reply about the vibration. Many thanks.

I am mystified as I made up a shaft which went from the inside of the flwheel bush to the centre of the gearbox input shaft (the shaft was pointed at this end and nudged inside the centre of the input shaft). The diameter of the shaft was a nice fit inside the centre of the thrust bearing in the centre of the clutch. I then trued up the gearbox top face with a spirit level - having first of all made certain that the engine was completely horizontal to the ground.

I will have to go back and check everything all over again - unless of course I have missed something with my system...!

Many thanks again.

Bill

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### Re: G9 gearbox

*Written by Julian at Aug 10, 2011 9:02 am*

Hi Bill,

Sounds like you were trying fairly hard!

We made up an apparatus that bolted to the flywheel, had a shaft that located inside the spigot bearing and then another large square bar / frame going over the gearbox and dropping down to 2 bushes in front and behind the box, that were exactly in line with the spigot bearing, a 3/4" steel pin was then inserted into the front and rear bushes and the pointed end of each lined up with the front and rear of the gearbox shafts. This was the only way we could get consistent results without a lot of trial and error. You could of course do it with little Lasers now though!

The main thing is to get the box to align in every plain, from up and down to side to side and not twisted either and this is not east with the strange way the mounts are arranged!

A real pain in the bum job we find!

Good luck and hope the vibes stop!

Best regards,

Julian

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### Re: G9 gearbox

*Written by peter weir at Aug 11, 2011 1:28 am*

Hi Bill

Glad you got the gearbox back together. The problem with the front propshaft are those almost rigid canvas/rubber couplings which are so stiff that they require quite precise alignment. Similar problem to my boat which has its propshaft connected to the engine by two rigid flange half couplings with no flexible coupling and alignment is critical. When lining up my propshaft I use a magmount stand and dial indicator (scriber to start with until it gets near) mounted onto one half coupling and then rotate it round the o/d of the other. This measurement then allows the adjustment of the engine up/down and side/side. The angular alignment is then checked with feeler gauges between the coupling faces but adjusting the angular alignment then requires further up/down and/or the side/side adjustment so the two measurements have to be adjusted together. The problem with the Lagonda in using this method is that the drive flanges are triangular not round and the engine/gearbox are 6" apart. If you had a lathe you could turn up two flanges and drill three holes in each to mount onto the clutch shaft flange and gearbox input flange. You could mount onto the clutchshaft and turn the o/d after drilling the holes to make sure they're true. The clutchshaft would have to be located in some way to stop it moving in and out. Mount a magmount and dial gauge on the gearbox flange and locate the dial gauge pointer on the clutchshaft flange outer diameter and rotate round and hey presto the up/down and side/side misalignments should be determined and the gearbox mounts adjusted to get closer. You could then use an internal micrometer, vernier calipers or a short bar with feeler gauges and measure the distance between the top/bottom and side/side which will show angular misalignment which would then require further gearbox mounting adjustments. Each adjustment will get it closer. On the boat with a rigid coupling they ecommend about 0.003" max outrun but with the car having flexible couplings I think that's a bit fine. Have a look at 'Boat propshaft alignment' on Google and it might give a few more tips. It could of course be that the alignment might be OK but the fibre discs or propshaft may be out of balance and a change round to a different position might improve things. My M45 special has an Alvis gearbox and I was missing the front driveshaft so I had a short propshaft made up using two Hardy Spicer joints with a rigid tube. I had to make two converter flanges for the triangular to

## Lagondaforum: G9 gearbox

round and these allowed me to line the engine/gearbox alignment up as above. I relied on the clutch shaft splines for any longitudinal movement, as indeed does the fibre couplings. Having a bit more movement in the Hardy Splacers than the fibre discs I am sure puts less load on the clutchshaft bush and gearbox bearings when misalignment is present and chassis twisting takes place. It works great and has been raced, hillclimbed and had road use with no vibration or problem.

A bit of a chore to get it right but how much smoother when it's right

Hope you get the problem sorted

Regards

Peter.

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### Re: G9 gearbox

*Written by Colin M34 at Aug 11, 2011 8:47 am*

Julian,

Can I ask for your comments on another source of the vibration? This came from a non-Lagonda owning vintage agent who had been involved professionally in large diesel engines. Looking at the Meadows engine vibration damper, he suggested that if a car had not been used for some time, it can seize up and thus fail to operate. When we went for a ride in my LG45 he reckoned that it only started working properly on the return journey after everything had got nice and hot and oily.

Do you or anyone else have any views on this idea?

Colin

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### Re: G9 gearbox

*Written by h14 at Aug 11, 2011 11:29 am*

Hi Colin,

My LG6 engine was "rebuilt" by bozos (perhaps they retained the stripped threads in the name of originality!). I stripped the front of the engine down soon after getting the car, and of course the vibration damper had to come off to remove the timing cover. Needless to say, it had received no attention whatsoever, & was seized solid. It was pretty easy to dismantle, clean & lubricate...think I sprayed it with WD40...doubtless someone will tell me that was wrong.

Anyway...now I get a fair amount of vibration between 60 & 70mph, so freeing it off in my case perhaps was the wrong thing to do...ho hum.

Your friend's logic makes sense, especially if the oil used was a heavier grade, or it hasn't been apart & lubricated for years. Thinking about it, could you not use a stroboscopic timing light to check operation? A white mark on the damper rim (anywhere) should appear stationary at a steady rpm, but move whilst the engine is accelerated.

Laurence

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### Re: G9 gearbox

*Written by Julian at Aug 11, 2011 12:05 pm*

Hi Collin and Laurence,

We have a very good "Fix" for the original type harmonic damper fitted to Lagondas,

1. Remove it from the engine,
2. Practice Discuss throwing and see how far you can get it.
3. Leave it there! 🤪

The reason for this.

M45s and LG45s and especially the early M45s all have a "harmonic period" at about 2500 rpm, this is where you really feel the engine being quite

## Lagondaforum: G9 gearbox

"harsh" and if kept here can damage the bearings etc. Some engines suffer worse than others for many reasons but all have it to some degree.

When we looked into a remedy for this we obviously looked at the damper. Making it tighter or looser did have an effect but it only seemed change the frequency range up or down by about 100 rpm or so, therefore sometimes taking it away from our regular cruising speed and so making it feel less of a problem. But not getting rid of the problem.

So, we made and fitted some modern dampers and after experimenting with diameters etc we had great success! When fitting a modern Rubber bonded damper we found that the problem was completely gone up to 3500 rpm and never surfaced again! We found that the engine would seem to have it back again a little at about 3750 on a standard M45 engine and about 4000 on an LG, but as these are speeds that we should not be using on standard cranks and rods then it's immaterial.

On the big performance type engines we build we use a more expensive "Fluid filled" damper and then all is well for any rpm you care to imagine!

This is what we do with every engine we build now without fail and even do it on the V12s as the standard damper on those is a joke and although you don't feel it through the car much due to better mounts etc, has more of a problem then the 4.5s!

Modern measuring equipment picks it up easily!

Regards,

Julian

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