

Lagondaforum: V12 timing gears

V12 timing gears

Written by Charlie at Feb 28, 2018 11:24 am

I am new to the club and this is the first post on the forum. I have a 1940 V12 SWB saloon with an S2 engine. I have posted photos on the gallery under Charles Milne Atkinson.

The engine is now completely dismantled and we have found it was previously fitted with liners and glacier type shells in the big ends. Nothing horrendous has been discovered but there are questions on the front timing gears.

The large idler gear was aluminium and had to be destroyed to dismantle the spigot it is mounted on as the whole thing had sized up and the gear had been rotating on the bushes rather than the bushes rotating on the spigot.

The spigot is cracked so I need to source or make a new one. (Any thoughts?) The S1 spigot is different and has the thrust face riveted on with Aluminium rivets. It is also thicker. I believe the S1 engine had a bronze idler gear as I have one to compare.

The rotation of the idler gear we need viewed from the front of the engine is anti-clockwise.

I had originally thought the square on the stud that retains the front thrust face would mate with a corresponding square hole in the removable front thrust face. This is not the case and as the stud has a normal right hand thread there is an anti-clockwise force on this thrust face when the engine is running. Although the gears are helical cut and the driving force from the crankshaft will tend to force the idler gear back; under the load of driving the cam shafts it could force it forwards. I am aware these engines suffer from failure at the front end but haven't established exactly what this failure mode is. I suggest modifying the washer so it is held with a key or dowel to take any rotational load so that the rotational load is not applied the the retaining nut.

Any information as to sourcing of parts and prevention of failure gratefully received.

I have tried to upload a couple of photos showing S1 & S2 spigot but I am not sure if they will appear.

Kind regards

Charles

Attachments:

[image.jpeg](#) (filesize: 45.46 KB)

[image.jpeg](#) (filesize: 40.45 KB)

Re: V12 timing gears

Written by h14 at Feb 28, 2018 4:53 pm

Hi Charles,

Welcome to the Forum, Club and V12 ownership.

This spigot is the odd sort of part that club spares might have, possibly unidentified; so worth a call to Robin if you haven't already done so.

My car is the next later chassis number to yours, and I am in the process of getting it running again. I last drove it in 1983!

Mine had the original factory idler gear, which was in fact made of "Celeron", a similar material to Tufnol. The aluminium (or possibly duralumin) one you have discovered would have been a later replacement. Beware replacing with another metal one. As you state, the earlier engines had bronze idler gears. Those engines also had oil jet pipes spraying oil onto the gear teeth. If your engine is like mine, you will not have those. Presumably Lagonda felt that the additional oil spray was not necessary for a fibre gear. I had a new gear made up by Freedom Engineering. I can email you details if you would like more info.

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I had only owned my car a month, and only driven 100 miles, when this gear stripped. This was back in 1976, and the London firm I took it to averred that it had stripped because of oil starvation. Many years later, I discovered that this starvation was because my engine was missing the vibration damper. Believe it or not, the damper is deliberately designed to also act as an oil thrower for these gears.

Your issue however appears to be more likely a restriction in the oil feed to this spigot. Unfortunately after 40 years I cannot recall the oil feed, but Lagonda favoured restricting oil flow by the size of drilling, so there is likely to be a pinhole type hole that you need to attend to.

Now. The Celeron gear had a steel centre, with a pair of bronze open top hat bearings riding on that spigot. When my gear stripped, I found those bearings were a fairly loose fit in the Celeron gear boss. Were the bushes intended to be a tight press fit in the Celeron steel centre, or were they supposed to rotate separately? The gearmakers making the new gear were unable to advise either way, so I went with how I found it, and they made the bushes up to be a loose engineering fit to the spigot and the steel centre.

Wrong decision. The new fibre gear worked loose on its new steel centre. That firm kindly made up a new steel centre, this time with bronze bushes pressed into place. So...the bushes must rotate with the gear, not separately to it.

I have to say that I noted no tendency for the retaining nut to self loosen. My engine is perhaps unusual in that just about every bolt and stud is drilled for locking wire or split pin, so I can be pretty certain the central stud is drilled and the nut split-pinned. I did take a few photos of the engine dismantled at that time; if I can find them and have one relevant I'll scan and email it to you.

Do take care to clean out all oilways. The V12's oil filtration was weirdly basic given the advanced engine design. Hence there is an enhanced possibility of sludge having built up and blocking or partially blocking oil feeds.

As you're probably aware, originally, the duralumin rods bore directly on the crankshaft. In my case, Dodge racing bearing shells were fitted at a later date, and these appeared to have worked well.

Right, now I'm off to continue removing the nearside front wing. As you will doubtless have discovered already, there are few V12 jobs that are straightforward. This one is typical. Removal is easy...if it wasn't for the headlamp mounting bar. The wing design means that needs to be removed completely. As it sits between cut-outs in the radiator shell, it can't be lifted up...and it can't be moved back because the fan is in the way. So...the radiator and bonnet also need to be removed. Just as well I was thinking of removing those items anyway!

Laurence

Re: V12 timing gears

Written by Charlie at Feb 28, 2018 7:02 pm

Dear Laurence

Thanks for your reply and useful info. I plan to go and see Robin as there are one or two parts listed which I also need to see. The spigot has an oil feed behind it which feeds the idler gear bush and if the new gear was drilled from the outside teeth to the centre this could supply oil directly onto the teeth but I need to look into this in a bit more detail. I have the luxury of also having an S1 engine in pieces so can easily compare the two in terms of design change. We are stripping the engine completely and are looking how to remove the plugs in the crankshaft to clear out the hollow areas. The water cover plates are off and all loose sludge has been removed. The block will be dipped before reassembly to clear any lime scale and sludge deposits in the oil ways.

I am interested your car is close to mine. I'll look it up in the members list.

Kind regards

Charles

Re: V12 timing gears

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Written by h14 at Feb 28, 2018 7:40 pm

Hi Charles,

I understand that V12 cranks often prove to be cracked, so do check. I opted for a new crank for mine; safe to 7000rpm a major appeal. Expensive, but then at around £100 in 1939, they were expensive when these cars were new. In fact arguably if you consider £100 could almost buy you a new basic car in the late thirties, a new one is relatively less expensive today.

If you opt for a fibre gear, do check the source if buying ready made. One I bought many years ago from an American source proved to have had the teeth cut to that commonly used for such gears. Indeed it looked right...but the teeth did not engage. It transpired that Lagonda had chosen to use a slightly different tooth angle.

Laurence

Re: V12 timing gears

Written by davidbracey at Feb 28, 2018 11:32 pm

Hi Charles,

Welcome to the club. I've had a look at the photos of your car on the gallery. What a stunning car it is.

I notice that it has a correct wheel disc on the spare. Having had these made for my LG45 I've experience of these so if you decide you want some for the rest of the wheels I may be able to save you some time.

Good luck and please keep us posted on your progress. You'll find a wealth of valuable support and knowledge on this forum.

The incidentally, the LG6 and V12's are our featured models for our annual gathering later this year. I hope you can make it.

David

Re: V12 timing gears

Written by Charlie at Mar 01, 2018 1:10 pm

David

Thanks for your email yesterday on alternative subject.

Luckily all the missing wheel discs were in the boot which will be re-fitted at some point. Just a couple of the special nuts to mount the remote inflator pipes were missing which I sourced from Steve Maggs.

info@maggsvintage.com.

We will try and bring the car in September in whatever state its in by then.

KR

Charles

Re: V12 timing gears

Written by davidbracey at Mar 01, 2018 1:33 pm

Hi Charles,

Glad you've got the discs. I hope you've also got the back plates and all the other bits and pieces as well because they are quite hard to find. Amazing really when you consider how many have been removed over the years. I always expect the auto-jumbles to be overflowing with the things!

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Would be good to see the car in September if you can make it.

Best wishes,

David

Re: V12 timing gears

Written by h14 at Mar 22, 2018 4:36 pm

Hi Charles,

I've now found those engine photos I mentioned earlier, so will email these to you later today or tomorrow.

Amazingly, I've also found part of the instruction notes I gave to the engineer machining the idler gear spigot for me in 1977. Quoting from that, "Copper plated retainer is removed by holding it and undoing nut. The stud in main housing has a LEFT hand thread, but should not need to be removed. When reassembling, note that the retainer has a vertical line which is in line with the stud hole which does not have a small hole drilled near it. The retainer is a tight fit, and should be rotated backwards and forwards as it is pushed in, to ensure that it is fully home."

So, it looks like Lagonda dealt with the anticlockwise rotation of the gear by making the stud left-hand threaded where it screws into the spigot itself. So, as opined previously, it seems that self-unscrewing of the nut on this stud would be dealt with by using a castellated nut and split pin. Unfortunately I don't think I've got any photos showing this detail. If your stud is undrilled, Loctite with an ordinary nut should do the job just as well.

Incidentally, the firm that made the new gear for me back then was Schofield & Samson Ltd, in north London. Unfortunately it seems they no longer exist. Their invoice does detail the gear specs so if that might be helpful, let me know.

Laurence

Re: V12 timing gears

Written by Charlie at Mar 26, 2018 8:36 pm

Dear Laurence

Apologies I have only just seen your latest post. Another couple of forums I am a member of send an email when responses are posted which is very helpful. Do you have my email address? It is in the latest members list. I would be most interested in any photos and info on the timing gear as I have started discussions to get a new spigot and idler gear made. My spigot stud is drilled and did have a castellated nut but I will make a modification such that the front thrust washer can't rotate. I have a 1994 Jaguar XJR which has an anti clock rotating idler gear on the timing chain run. The bolt that retained it I extracted from the sump!

KR

Charles

Re: V12 timing gears

Written by h14 at Mar 27, 2018 11:03 am

Hi Charles,

I did send you an email on 23rd March; it included photos so may have gone to your "junk" folder. Take it the member list email address is correctly stated, with capital "A" in Atkinson?

I'll reply later today re the idler gear by email to you; let me know if you'd like me to re-send the 23rd March one.

You refer to a front thrust washer, do you literally intend "washer"? Mine had a shaped and if I recall correctly, beveled edge copper plated retainer, with a locating ridge on the inner face that made it a pretty tight fit in the spigot.

Doesn't say much for recent Jaguar design! It amazes me the errors (often foolhardy cost-saving related) that modern manufacturers make, given

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over 100 years of automobile manufacturing lessons learnt.

Laurence
