



Cures for a notchy gear change

New RV8 member, Michael Burnside, posted a query on the V8 Bulletin Board saying "I don't know if all RV8s are the same, but with my car when changing into 2nd from 1st or 3rd it is a tad notchy. It is not crunching, it just is not smooth going in. My car is chassis 951 so has the later R380 gearbox with reverse to the right and back. Are there any adjustments or cures I could try?" The comments that followed on the V8BB thread produced some useful views and advice.

Dominic Scott in New Zealand responded "my RV8 Woodcote Green 1837 had a similar issue when I first got the car - particularly in the cold weather we have here in New Zealand. I changed the gearbox oil and added a tube of gearbox additive for manual transmissions made by Wurth. Looking on the Wurth NZ site Dominic said "it is simply called "Manual Transmission Additive and the listed part number for the product is 0893 552. Pop this number into the search box on the Wurth UK site and you should get all the details." It made a noticeable difference straight away and has got better the more the car has been driven - now about 6,000 kms since the change. Additives aren't my first choice but in this instance it seems to have improved the situation. Might be of some help perhaps?"

Peter Garton replied saying "I feel that the RV8 gearbox is inherently susceptible to a slightly notchy change from 1st to 2nd. I also changed the gearbox oil but there is little or no difference I could observe, meaning that judicious feeling when changing gear is advisable. A lot depends on the revolutions and the ambient temperature. I do not use the gear lever with a hasty or hard touch quite frankly and tend to ease the change up

relatively slowly. I recall that Jaguar also had this problem in the late 60s and so when I was taking one in part exchange, I always tested the synchromesh on a drive up the A40 which was often quite weak (the syncro. not the drive on the M40!), to put it mildly.

Geoff King with an MGB V8 Roadster conversion in France added "if you change the gearbox lubricant to **Castrol Syntrans Multivehicle 75W-90 Fully Synthetic MTF** the gear-change quality should be more acceptable. It's available from Opie Oils and other suppliers. ATF was a recommended for the R380 (and the earlier LT77 when traditional gear oil didn't work) but it's not a good lubricant in a manual gearbox and the recommendation changed in 1998 (well after the end of RV8 production) to Texaco-Chevron MTF94. However there are now better alternatives to MTF94 such as Castrol Syntrans, Redline MTL, Royal Purple Syncromax and other lubricants."

Later in the thread **Geoff King** added "the specification of MTF is very similar to Syntrans, with Syntrans having a slightly extended range, both are GL-4 and either is suitable for the R380 and LT77. I fitted a LT77 gearbox when I converted my car because that was what was bolted to the back of the V8 Rover engine, but knowing what I do now I would have searched for a T5 gearbox, as fitted to some TVRs for instance. The R380 is a reworked version of the LT77 with larger bearings and modified synchromesh but it still isn't a good gearbox and I agree with Peter Garton when he says the RV8 gearbox is inherently susceptible to a notchy change. Whilst he doesn't mention whether his car has the LT77 or R380 box, the same problem applies to both anyway. Luckily we don't need to change gear very

often with the Rover V8 engine providing a very wide power band."

Geoff King continued "if you look at the history of the LT77 gearbox you'll find the original lubricant recommendation was EP gear oil - but not for long - the 2nd gear synchromesh in particular didn't work well and the gear-change was heavy and slow. As a 'fix' Leyland Transmissions changed to an automatic transmission fluid to improve the gear-change. I have heard, although have no evidence that the bearing suppliers withdrew their warranty when ATF was specified and any failures became Leyland Transmissions responsibility, nevertheless ATF remained the recommended lubricant throughout the life of the LT77 (and the early R380). In my opinion as engine power, vehicle weights and loads increased (in the main Range Rover market for the R380 gearbox) a more suitable gearbox lubricant had to be found. Of course oil technology had greatly improved over the years since the introduction of the LT77 and the recommendation for the R380 changed to a fully synthetic GL-4; Texaco-Chevron MTF94. The specifications of Texaco-Chevron MTF94, Castrol Syntrans, Redline MTL, Royal Purple Syncromax and Difflock Revolution 1 are very similar; all are suitable for the LT77 and R380 gearboxes. I chose Castrol SMX-S (now Syntrans) because it was off the shelf in my local Halfords but I would have been quite happy to use any of the others mentioned knowing that they were all more suitable for a manual transmission than ATF. My car is used in very cold (-15C) and very hot (+35C) conditions and my experience with Castrol SMX-S (replaced by Syntrans) over the last 10 years has been positive with a good gear-change from cold - I will never use an additive or ATF. A GL-4 lubricant will not degrade any bronze components in the gearbox, a GL-5 will. And one of the reasons I won't use an additive is you usually don't know what's in it".

Peter Garton responded saying "I do have the R380 gearbox and I used the Castrol SMX S Fully Synthetic Transmission Oil SAE 75W-85 API GL1-4. See also RV8NOTE271 and also the sequel RV8NOTE272."

Simon Austin, an RV8 enthusiast in Canada, commented "the issue Michael Burnside describes is common with the LT77 (pre-runner to your R380) gearbox. I suspect the R380 is also susceptible to a notchy 2nd gear, particularly when cold. I have the LT77 in my car, Woodcote Green 0590, as well as another in my MGBV8 conversion. Both have this issue but as mentioned by others, you can minimize the

problem with a fluid change and/or additives. I find this gearbox is a very "mechanical" unit in that it does not shift like a modern "smooth as butter" gear box. That's just something that adds to the fun."

Victor Smith recalled "there had been a TechTorque article in Safety Fast! on gearbox/overdrive additives and traced it as the article had been added to the V8NOTES series as V8NOTE461. The article responded to a member's question – "is it wise to use additives for the V8 overdrive and back axle?" The TechTorque reply had a caution over the use of additives in the Factory MGBGV8 gearbox saying "some additives may be useful but you should avoid any additives that attack bronze because the differential thrust washers are made of bronze."

Mike Howlett with an MGBGV8 conversion added "I have the R380 box and from the start, following the recommendation of TM Transmissions who rebuilt it, I have used Difflock's Evolution 1 fully synthetic lubricant. Now 17,000 miles on and I have no complaints. The change is notchy between first and second, but otherwise is fine, and the gearbox makes no discernible noise. Difflock are only a few miles from me here in west Scotland, so I was able to go over, talk to them and buy it directly. Unfortunately, Difflock's online shop is out of action at present being rebuilt, but this is what they say about the product:

Difflock's comments on EVOLUTION

If you are fed up with the notchy and hesitant gearshift on your manual 5 speed Land Rover, Discovery or Range Rover then this state of the art lubricant is exactly what you've been waiting for. It transforms the ease and speed of those gear changes as well as reducing wear, lowering transmission temperatures and improving fuel consumption. If you are still using ATF, Dexron II or MTF 94 in your LT77, R380 or other 5 speed manual box then you should think again because they are poor at preventing wear, shears down under the action of the gears and thickens as temperatures drop. This leads to shorter gearbox life and poor, notchy gear changes, especially 2nd Gear on cold mornings. Fully synthetic gear oil can solve these problems but it must be specially formulated to give the best possible results.

Our EVOLUTION 1 is specially created for Land Rover Transmissions. It has the perfect viscosity required and its high film strength prevents metal to metal wear whilst reducing gear and bearing noise. Most importantly, it is highly shear stable, maintains it optimum viscosity span hot or

cold and it has an ideal coefficient of friction for the gearbox synchro hubs. These exceptional qualities ensure that you'll get far superior gearshifting from your 5 speed box as many of our delighted customers have already found. Even better, EVOLUTION 1 is also perfect for Automatic gearboxes (where ATF type DII or DIII is specified) and can be used in Freelander manual 5 speed gearboxes.

It is fully compatible with ATF or MTF fluids however its full benefits will only be achieved if as much as possible of the existing transmission oil is drained out and replaced with EVOLUTION 1. Fully Synthetic EVOLUTION 1 outlasts ordinary ATF type fluids by 2 to 3 times, therefore drain intervals can be doubled to up to 48,000 miles if required.

The **V8BB thread then drifted off on to the topic of power steering** on an RV8 which is covered by a number of articles on the dedicated Information Gateway webpage on the V8 website – see: <http://www.v8register.net/subpages/gateway/PASindex1.htm>

Solving crunching gears with an RV8 gearbox

An earlier V8BB thread in February 2012 covered another cause of gear selection difficulties with an RV8 gearbox. **Peter Varley** said "my RV8 started crunching gears when I changed gears, especially on the down shifts. The problem got gradually worse over a couple of days. At first I thought that I had a damaged gearbox but as the RV8 has now done only 30,000kms I

thought that maybe I had lost oil from a small leak over time. I drove the car to my local mechanic who said that he would "evaluate the situation" and let me know the outcome. Well to cut a long story short the problem was that the four rubber bushes (see below) that hold the gear stick assembly to the side of the gearbox had perished thus putting the shift gate out of alignment (crunching gears) and was also touching the prop shaft. He machined up a new set out of neoprene suspension bushes and I was back on the road the same day - now for a good night's sleep not having to worry about removing and repairing the gearbox".

Geoff King responded saying "wear or disintegration of the remote gear change to gearbox bushes is a common problem.

UKC854 is the bush that Peter Varley has had machined – possibly cheaper than buying new ones but at least replacement bushes (you need 8 of them) are available from Rimmer Bros if our favourite parts suppliers have no stock. Geoff says "I believe the remote gearchange arrangement for both the LT77 and the R380 is the same and they use the same bushes."

UKC854 Standard Plastic at £2.30 including VAT)

UKC854POLY Polyurethane at £3.20 including VAT)

www.rimmerbros.co.uk/Item--i-GRID008967

See our more detailed illustrated note on these rubber bushes UKC854:

<http://www.v8register.net/subpages/RV8NOTE381.htm>

