

The photos at the start and end of this article show the engine as currently configured

### V8 Conversion: Crank and Water Pump Pulleys - is this the Holy Grail?

Chris Bound is carrying out a V8 Conversion on his recently acquired MGBGT. The car is a low-mileage example from 1977, originally a rubber bumper model but already converted to chrome bumper at some stage in its life.

The 1991 Range Rover "Classic" engine that he has sourced is as close as they come to MG RV8 specification but has multiple pulleys bolted onto the crankshaft damper, all of which make the engine much too long to fit in the MGB. Separate belts were used to drive the water pump, alternator, power steering pump and, where fitted, the aircon compressor. Chris knew that changes would be needed and tells his story here.

#### Alternator

I decided to deal with the alternator first, simply because I thought it would be the easiest to resolve. On the Range Rover, the alternator is huge and is mounted high above the left hand cylinder bank.

I already knew that the tried and tested solution is to fit a smaller item onto the right hand side of the engine and so I ordered an original BV8 cast aluminium bracket from Brown & Gammons. A suitable (65 amp) Magnetti Morrelli alternator, similar to the RV8 unit, was found on eBay for the grand sum of £20.

The alternator tucks neatly just in front of the right hand rocker cover and I adapted the Range Rover adjusting mechanism to suit its revised position.

#### Crankshaft Damper

The damper assembly is bolted to the front of the crankshaft and carries a number of pulleys for the drive belt(s). The flexibly mounted mass is used to dampen torsional oscillations along the crankshaft to prevent them increasing in amplitude to where the forces might damage the crankshaft, as well as making the engine vibrate less.

The original MGBGT V8 appears to have used a damper very similar to (or possibly the same as) the Rover P5B and P6B, with a V-groove in the main casting for the drive belt and a balancing rim bolted on the front. Initially I thought I should try to find one of these, but they seem to be like the proverbial hen's teeth.

I then read in Roger Williams' excellent book "How to Give Your MGB V8 Power" that the recognised solution is to use a later SD1 item, chuck out the pulleys that are bolted to it and have a V-groove machined into the rim of the damper itself. Using eBay

again, I therefore got hold of an SD1 assembly with the intention of doing just that.



Planned position of new V groove for drive belt

Early crankshaft damper believed to be from an SD1



"Castellated" front of an SD1 damper

Now came something of a surprise. I found that the newly acquired SD1 damper was actually significantly longer than the one that had come with my Range Rover engine. In fact, the Range Rover damper is only 3.25 inches long (from the back face to the front of the flange), whereas the SD1 damper is 4.75 inches long.

A study of the ever-useful Rimmer's Parts Catalogue indicated that my version of the Range Rover engine has a damper assembly which was only used between 1986 and 1991 (VIN CA to HA). The part number is **ERC5462**

Further research (with more help from Rimmer), suggested that the slightly later RR Classics (VIN JA to LA) used a longer castellated assembly (**ETC7339**), similar to the earlier SD1 item, and that this part was the one used on the RV8 and some Defenders.

So the big question was whether I could retain the damper that came with my engine and just change the pulleys.



Range Rover damper **ERC5462**, showing flat front



Rear view of Range Rover Classic damper, **ERC5462**

**Crankshaft Pulleys**

Having got hold of the SD1 damper assembly, I now had no fewer than four pulleys to play with. I figured that, being mounted on an original MGBGTV8 bracket, my alternator pulley was in the right place and that I should use that as a reference point.

I found that, by combining my (short) Range Rover damper with the pulley that came on the SD1 damper, I could align the crank pulley pretty well with the alternator. That, however, left the groove in the water pump pulley way too far forward.

**Water Pump**

I then turned my attention to the water pump and its pulley. As is well-known, the water pumps used on the RR and the RV8 are very similar to each other, but quite different from the original SD1 and MGBGTV8 ones)

For the RV8, the shaft was apparently shortened slightly so that the flange to which the pulley is bolted is closer to the block.



**Groove in the SD1 crankshaft pulley**

Crank pulley - believed to be ex SD1



Standard Range Rover Classic water pump

The depth of my Range Rover water pump is about 4 inches (100mm) from the back of the casting to the front of pulley flange - with the nose projecting another inch or so beyond that

Given the cost of the bespoke RV8 pump, I was keen to retain the standard Range Rover item if at all possible. I was also advised by Clive Wheatley that, although RV8 pumps are available, the pulley used with it is now hard to find.



**Groove in the water pump pulley**

Water pump pulley **ETC5499** used on RR Classics **without** aircon



Deeper water pump pulley **ETC5422** used on RR Classics **with** air-con

Referring once again to the Rimmer's catalogue, I found that two different water pump pulleys were fitted to the RR engines according to whether they had air conditioning or not.

Mine had not had aircon and was fitted with a shallow pulley. I thought that if I could get hold of a deeper pulley, I would be able to move the V groove closer to the timing cover and have some chance of lining up with the crank and alternator pulleys.

At this stage, I took a gamble and ordered a "new old-stock" **ETC5422**, as fitted to the aircon equipped RR Classics.

#### The Adopted Solution

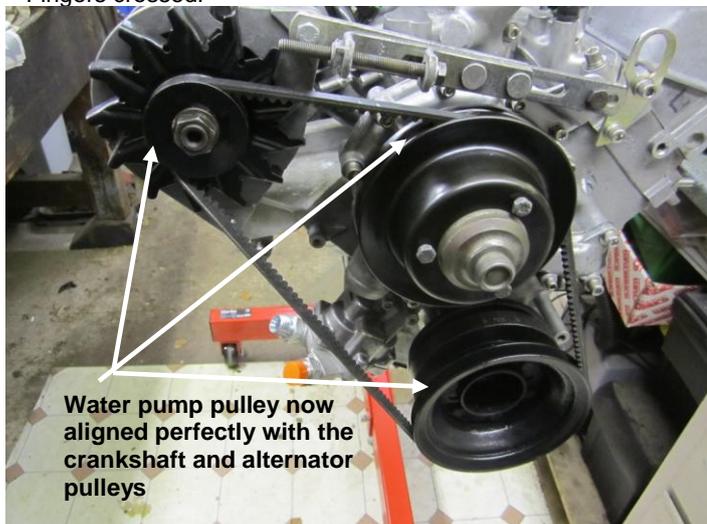
The gamble paid off and I was excited to find that the water pump pulley now aligned perfectly with the crankshaft and alternator pulleys.

All I now need is for it all to fit into the car without fouling the radiator or anti-roll bar.

Since an SD1 Crankshaft damper, without any pulleys attached, is about 4.75 inches long and my Range Rover damper, with the SD1 pulley bolted to it, is about the same (3.25 + 1.50), I'm reasonably confident I'll be OK.

I'm very aware that the water pump still projects a couple inches in front of the crankshaft pulley and could foul the radiator but I'm hoping that I can overcome this. If I find I need another half an inch, I can presumably cut the threaded portion off (where the viscous fan used to be attached). Failing that, I still might have to resort to a RV8 water pump.

Fingers crossed!



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