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DIY Petrol engine repairs – mostly not recommended

If you think you can save money by rebuilding your own engine – good luck! Unless you have a) done this before and/or have fairly extensive mechanical experience b) comprehensive variety of workshop tools, c) a workshop manual and d) heaps of patience, you will soon come to realise that what seems like too much money to pay a professional workshop is actually the cheapest and most efficient solution.



One major reason the professional cost seems high is that the work is warranted, meaning if the job is botched, it will be redone at the shop's expense. Second hand or after-market parts will also not be used unless they are from a known and proven source. Also, even existing components will be inspected by someone who knows what to look for and anything suspect will be replaced or repaired. Here are some examples:

- Cylinder heads may be warped or have gone soft from heat over a long period. Unless they are tested and if necessary straightened at a cost of up to \$1500 a pair, they are effectively worthless.
- Stripped threads will prevent bolts being refitted to the specified torque, so coolant, oil and/or compression leakage is inevitable. The professional shop may be able to fit helicoils or re-tap the threads – not something most home mechanics can do.
- Reuse of gaskets is false economy – replacements may add a few hundred dollars to the price of the job but this is unavoidable for a successful result
- The same applies to many of the hoses, especially those that are hard to access.

Of course, the DIY mechanic DID photograph everything as it was removed? Even then, the identification of parts, where everything fits and the best sequence of reassembly is rarely as simple as it sounds, even with a workshop manual for guidance. Surely too, those special tools you had to buy will be of use again? Like the \$150 torque wrench, the \$40 articulated ½" drive and high-impact short sockets needed to remove that B%*tard bolt wedged between the head and the firewall, (You think it was hard getting it out – wit until you have to replace it!)

The professionals are doing this work routinely and rarely need to consult a manual, whereas the home mechanic can be easily confused by parts of similar appearance. Again, here are some examples:

- Not all head bolts are the same length and it is critical they are replaced in the correct locations AND torqued to the correct settings AND in the correct sequence – of course, you carefully laid out all bolts with descriptions so you knew precisely where they came from. Yes?
- Refitting exhaust manifold gaskets can be surprisingly difficult – especially the old single types, because it is easy to misalign the holes resulting in exhaust leaks. Again, stripping threads is a common problem for the unwary. A bit of LOCTITE will fix that surely, yes? Well, maybe not.
- A valley gasket replacement looks simple. However, getting the end-gaskets to seal, fitting the end plates, then aligning the manifold is easy when this is a routine job – not so for a first-timer,
- A tin full of bolts is just that – a tin full of bolts – Selecting the right one for each component is rarely easy.
- Replacing heater and water pump hoses can be one of the most frustrating parts of the job. These short, fairly rigid items defy most attempts to get them over the pipes.
- Of course the plug leads are put back in the correct sequence- because each was carefully marked prior to removal – or were they?

And so – now everything is back together again, Oh dear, where is all that coolant coming from? Why does the accelerator not move smoothly? Did I retighten the sump plug?

By now, it may be clear that the professional suggestion to change the engine for a recycled one from a Classic Range Rover or Discovery makes sense and could be cheaper too

The best solution all round is to engage in a serious dialogue with a workshop with proven practical experience in modification and upgrade work, rarely found in the dealerships, but certainly available from the specialists at Graeme Cooper Automotive.

Here is a picture of the GCA service manager who will shortly provide professional advice

