

Timing belts, Tasmania and Trouble

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The story starts with my search for a sports car, I was on the lookout for something to keep me busy in retirement.

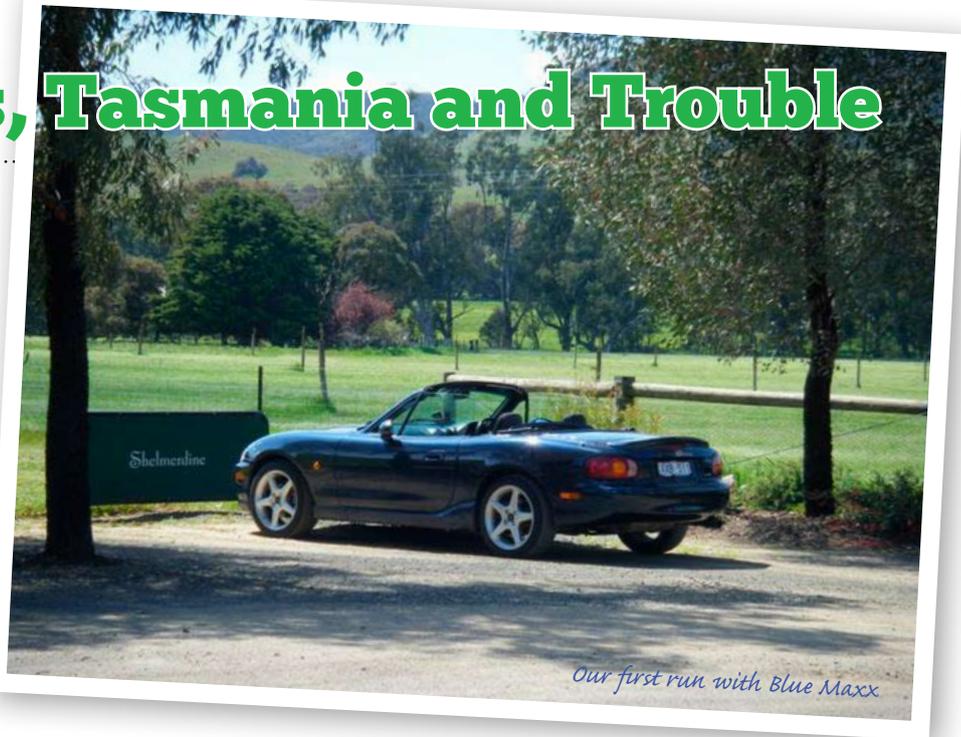
Triumph? MG? Alfa? All possible. Morgan? Lotus? Ford GT40? Ferrari 250 LM? Keep dreaming ... how are those Lotto numbers looking?

I also needed something that Debbie would possibly like that is not old, ugly or smelly and also reasonably comfortable, unlike some of the motoring icons we have owned. If you read Ron Macdonald's article in January's *mxtra* you will have seen the "Gem of Wisdom" from the internet which also inspired me.

So after a long search and too many test drives in cars that were not quite there and some that were nowhere near there, I spotted one that sounded good at a reasonable price and in a colour that was approved. The only minus was that it was in Echuca. Not such a big issue, as in my lease car days I have driven there for a coffee, just to get up the right number of kilometres for the year. Having phoned the dealer and heard the right salesman-type noises, a time for a look and a test drive was agreed.

Black Bob, the Mitsubishi Colt, and I set off bright and early for Echuca. (If you are Tasmanian you will understand the name. If you are not so lucky look up Black Bobs on the internet.) I arrived at Echuca Mazda after a relaxing drive on the new freeway, only to find no car in sight. No problem though as it was parked in a shed at the back. It all looked good and it drove well except for a little hesitation with the gear change. Luckily I thought I knew what the problem was, as I had done lots of internet research. So the deal was done. On the way home I thought of some things that I would need for the new acquisition, so I dropped in to Bendigo Mazda to order a tensioner spring for the timing belt.

A week later the car was ready. After some debate Debbie and I decided to take the train from Sunbury to Echuca. We had a very comfortable trip to Bendigo, then swapped to a coach which runs more-or-less parallel with the train line for the last leg to Echuca. Someone will know



Our first run with Blue Maxx

the logical reason for that. The times worked out well, as we arrived around the arranged afternoon pick-up time.

So we welcomed *Blue Maxx*, a 1998 Twilight Blue NB with 112,000 kilometres on the clock, and set off for an easy cruise home down the freeway. We arrived in Bendigo a few minutes after 5pm, hoping that the spare parts area would be open and so save us a couple of hours' round trip later. Luckily the spare parts people were still there 10 minutes after their closing time, and kindly re-started their computers to process my part. Excellent service.

The first and best thing we did was to join the Mazda MX-5 Club of Victoria. Over the next few weeks we did a few cruises following the old Club run guides around the Lancefield area and as a bonus found some nice wineries near Tooborac. *Great fun!*

Then the work began. Gearbox and differential oil change plus Nulon G70 additive. Change the top gearbox, gear-change seal. Change the clutch fluid. All of which was supposed to smooth the gear change, but did not totally solve the problem so that's still a work in progress ... hopefully a more thorough bleed of the clutch fluid will do the trick. Further internet research, which is totally infallible, revealed that the gear changes are a little notchy anyway so I may be being too fussy. The next job was to order all the parts for a timing belt, water pump, coolant and engine oil change. All of which the history showed as done, but I had some doubts – so for peace of mind I decided to do it all again.

To fill in the time waiting for the bits we adjourned to Tassie for Christmas. We had a great time – boating, a bit of fishing, a lot of drinking, socialising with all the rellos, golf at the Murraville golf



Blue Maxx's first Club run

club and dinner at the Dunalley pub, but no MX-5 which was a terrible waste of some brilliant roads. During all that fun we had a family trip to Fortescue Bay, a great spot on the Tasman Peninsula near Port Arthur. The kids had a ball swimming in water which had come straight from Antarctica and remained fluid only through the salt content. Needless to say older and wiser people dipped a big toe in, adjourned to the barbecue and left them to it ...

Returning home in a Renault Scenic owned by our daughter and her husband, we were lucky to have a bonus three-hour scenic interlude in the bush, as the car stopped on the Fortescue road. It is the road where Mark Webber had the accident which broke his leg, which must explain why I drive like him! It is a fairly rough dirt road so we looked for a loose connector or something simple. Peering into the cam cover revealed no ills, as the cam was turning.

Oh well, call the RAC. The problem was that we had minimal telephone reception and also did not have the Tassie RAC number. We eventually contacted the RACV and, through a broken conversation, made them aware of our trouble. Everybody who drove past stopped to offer assistance which we all appreciated – another of the nice things about Tassie. Eventually the best RAC breakdown person that I have ever seen arrived to assist – a great local bloke, Richard Briggs, well into his 70s with a ripper white beard and a mechanic for 58 years. He eventually diagnosed zero compression, so a tow truck was required. Thanks Richard and RAC.

We decided to get the car taken to *Forcett Auto Repairs* in Forcett, as it was close to where we were staying and we had heard good reports about the mechanic there.

(This was an excellent decision as Peter Howell did a great job fixing the car and was more than helpful. The phone number there is 6265 9474 / 0409 191 159 in case you ever need it!)

We then had the problem of getting my daughter and her husband to the *Spirit of Tasmania* in Devonport without the car. They had to return to Melbourne for work and the car repairs would take a couple of weeks! Rental cars in Tassie at that time are difficult to get at short notice and of course only the most expensive was available, so it was Uncle Steve and Redline coaches to the rescue.

So what was the problem with the Renault and where is the MX-5 connection? One possibility was a broken timing belt, but one cam was turning. This car has twin cams, like an MX-5, so while the inlet cam was behaving the exhaust cam had jammed. The timing belt skipped over the stationary cam gear. The cause was a broken valve spring. The collets eventually parted company and locked up the exhaust cam, neatly allowing the pistons to bend all the exhaust valves. Fortunately this did not damage the pistons so the head was rebuilt and everything put back together for a tad under \$3,000. Much better than some of the other mainland cars which had also come to grief. How about a new engine and auto gearbox, because the radiator had failed, allowing coolant into the automatic gearbox, which then

expired? Then the engine over-revved and expired as well. Some \$7,000 later all fixed. Holiday heaven? Ouch.

This of course was food for thought. Even though a broken MX-5 timing belt will not damage an NA or NB engine (the NC uses a chain, I think), being stranded a long way from home is a major pain. So as soon as we had arrived home *Blue Maxx* was up onto jack stands and the timing belt

change started. There are lots of websites that explain the procedure; *Mike The King Of Miatas* has some really good videos on *youtube*. Search for *Miata king* on the internet or the *youtube* site.

There are also lots of sites with step-by-step photo guides: mx5unleashed.com/tech/timing-belt-mx5.html is one. www.jeff-tech.com/blog/?p=104 is another.

Mikes Ebay store is also a good source of parts. There are others, but do your research and get quality parts. Genuine of course would be the best, but cost is an issue for most people. Through bitter experience and, on advice from a work colleague who does a lot of diagnostic work, the only genuine parts I always buy now are spark plug leads. The majority of after-market leads are, despite all the hype, rubbish. The argument clinic is two doors down, on the left ...

My big tip is to drain the coolant and remove the radiator. The *mx5unleashed* web site said this is difficult, however I found that if you disconnect the fan plugs, remove the hoses from the radiator and remove the two upper mount bolts, the whole assembly lifts out easily. Please do not pour the old coolant or anything else down the sink or into the gutter; catch it and dispose of it properly at a recycle place, or if you are lucky you can take it to a local garage or workshop. Ask first; some will help you, some won't.

With the radiator out and carefully placed aside, you have plenty of room to work and no chance of damaging it. You also need to release the anti-roll bar mounts so it can drop down out of the way.

You should also change the water pump, otherwise you will be doing the job again before the next belt change is due. I found you have to remove the dust shield that sits over the top of the pump (NBs at least) otherwise it won't come off.

With everything removed, change the front crankshaft seal, both the front cam seals, the idler and tensioner bearings and the tensioner spring. The spring is a genuine part only. The "O" ring on the water pump should be replaced too. Lubricate it with coolant or a very light smear of petroleum jelly, snow white parmo or Vaseline (all the same stuff) when you fit the new pump. A great tool I found for the seals is a seal remover. It looks kind of like a hatchet, but makes a difficult job easy.



Hirsute Richard diagnoses the problem



One guide recommends holding the cams (once you have the engine on #1 cylinder top dead centre) with two spanners on the cam flats, held together with vice grips. This sort of works but will slip when you undo the cam pulleys, which are removed to change the camshaft seals, so hold each cam individually when undoing the nuts. Loosen the cam pulley nuts off a little, recheck top dead centre and then use the spanner/vice grip holding trick. Now remove the nuts and cam gears. I found the alternator and air conditioning belts were a bit sad, so replaced them too.

Following a fight with the oil filter, because of the limited access, it was changed and the oil refilled.

OK so once you have everything back together you will need to fill the coolant. This is when the fun started for me. To circulate the coolant properly you fill the radiator very slowly, start the engine, run it at the specified revs for a few minutes then run it a little higher for five seconds and repeat. As I got to the high rev bit there was an alarming high pitched scream from the engine bay. I smartly turned the engine off and went looking. The new alternator belt had ridden up onto the crank pulley flange and was way too tight. The front alternator pulley was unbelievably hot.

"Oh dear," I said quietly, or something equivalent. One reason polite young ladies should not frequent workshops or sheds.

I removed the alternator, first removing the inlet manifold support to allow the pivot bolt to be removed, then pulled the alternator apart to find the front bearing was in very poor shape. To change the bearings you need a press, which I don't have. So, off to the auto electrician, *MJ Auto*, in Sunbury. They said that if they had the bearings they would have it done later that afternoon. By the time I had picked up a couple of bits and pieces and driven home they had already phoned with the job done. Fantastic service. Straight back to them and \$50 later one

happy customer departed. Back home to reassemble and refit the alternator etcetera and all was good.

I think the bearing was on the way out and the extra tension with the new belt caused it to fail, however I was super careful installing the belt the second time. I finished the coolant fill and went off for a road test. There were no problems this time.

Next day we were heading off to Geelong. Into *Blue Maxx* (better throw in some spanners) and off through the Brisbane Ranges where we hoped to find some good MX-5 roads ... but didn't. As we were driving slowly through the bush on a dirt road with the air conditioner on we were entertained by the occasional chirping of the birds ... or was it? Out on to the tarmac and a bit more speed, no bush but the birds became louder and more regular. Turned off the air conditioner and no more noise. "No worries, it's the air conditioner belt." Luckily I put the spanners in, will tighten that belt tonight.

We arrived at Geelong and checked into our hotel. Straight to the pool for a swim, met some very pleasant American boys who were staying there, but could not work because of the previous week's rain. Being country boys from the mid-west helped them cope nicely with that adversity. They worked for John Deere so Deb had a nice chat to them about her favourite subject ... tractors!

Out for dinner then back to the hotel TV so Deb could see all about Australia from an American point of view. I excused myself and went to adjust the air conditioner belt. It felt about right but must have been a little loose. I tightened it a little and tried it with air on and off a few times. All good. We drove home the next day on the freeway, turned the air conditioner on and the noise was back! Bother. Home and did some more checks. With the air conditioner turned on the extra cooling fan starts. This loads up the alternator and the belt chirps. I tightened that belt a little more and no more noise.

Following the drama with the alternator bearing I was very wary of over-tightening the belts. The manual gives the deflection and load figures, but how to measure these was a problem. A spring scale could measure the load but most are too big, as access is restricted.



I found a spring scale for weighing your luggage, shown in the picture, in an import shop. It was cheap, small and does the job nicely. It is OK for occasional use and way more accurate than a push with a thumb. Now to the deflection. I have a tyre depth indicator that is ideal as it has enough friction to hold a reading when moved. I found a piece of building bracing which is strong enough to place on the pulleys and hold the tyre indicator near the centre of the belt run. It could be glued in place but *Blu-Tack* works well enough and allows everything to go back to its original use.



Using these devices requires two people at the moment but does work well. A bit more modification would allow for a one person operation. Depending on how much skin you would like to retain, some thin mechanic's gloves are good when doing any of these jobs. I used not to like gloves as I found it difficult to feel what you were doing. The new ones are very good with the great bonus of clean hands and fingernails when you have finished.

With all the major work done *Blue Maxx* has been out and about searching for good roads and on a couple of club runs. She is performing very nicely and should only need routine maintenance.

So what would happen now if the lotto numbers came up? I think the answer would be ... **build a bigger shed and buy more MX-5s.**