

Elise Water Pump R&R by moremonkey's Stan

My water pump is going...and my warranty already expired so I will remove and replace my water pump on my own.

* I noticed about 1-2 tablespoons of coolant being lost per week. Safe to drive but the writing is on the wall and you need to keep an eye on things. There are some coolant dribbles on the under-engine sheet metal on passenger side under the serpentine belt zone. Nothing on the ground under the car at cold or hot idle. So it must be coming out at higher road RPMs.

* I backed up onto my ramps (don't know why so many are frightened to do so....) and removed the panel to take a peek. Ayup...pink/orange fluid on the underside of the pump...quick taste test...mmm that delicious toxic coolant flavor (spit it out). Don't let kids or pets near coolant...it's very tasty yet toxic stuff to ingest. Cats and dogs will gleefully lap it up...and then be "late for dinner".

* There is plenty of working room, about 4 inches or so. This may be more room than on a Celica! From above it looks impossible but its fine from below.

* The pump and all other driven items are served by one serpentine belt. This is removed by easing tension at the detensioner lug. (It looks like the engine would need to be jacked up to allow clearance for changing out the belt tensioner assembly BTW....cuz the pivot bolt is pretty long and it lives in the upper area where space gets tight. Were I to need a tensioner I might try changing out only the spring/shock "E3" gizmo.)

* Goodyear's Gatorback belt runs about \$35 and is quieter and longer lasting than OE at a 10 dollar premium. It has non-continuous ribs, which is the big secret. They look like offset dashes or a tire tread. The dashes vary in length. The cut outs increase belt flexibility which helps cut heat hence this helps rubber life. My stock belt looks fine but it's a good idea to change it out since the labor is the same anyway. The Goodyear is raved about by many Toyota folks as the low-hassle, quiet, no-squeak option. Goodyear claims that belt to pulley noise near the belt is cut by 15 dB which is huge. It's length is 1695 mm versus the Celica's 1880 mm. Lotus runs an idler pulley versus the Yotas which run a power steering pump. If you'd like to do the Goodyear Gatorback stronger & quieter belt mod then use that length on a stock Elise.



* The pump pulley is retained by 4 bolts with 10 mm hex heads. The pump with 6 of the same. You reuse the bolts and pulley. Normally you remove the pulley to improve access to the pump bolts.

* The back side of the pump is sealed via a rubber o-ring. Load and go with no glop apparently. I may stay genuine Toyota for the pump as I am not familiar with the merits of the various water pump suppliers. With BMWs, OE and one alternate brand were good, the others would die fast as they were inferior quality although

they looked fine. My pump appears to have suffered a shaft seal failure. The bearings seem fine. Locally from Toyota a water pump runs \$122. From Autozone an aftermarket unit runs \$49 with 2-3 cheaper or remanufactured options about 5-10 bucks less.

* I may add a coolant filter once I look things over further. That will filter the coolant as you drive, like an oil filter. I had my radiator replaced a year ago when the shop dented it up during my heater fan replacement repair. Maybe some abrasive crap got in there with all of those efforts? This seems like a premature water pump job, but looking at Toyota forums I see all sorts of similar R&Rs.

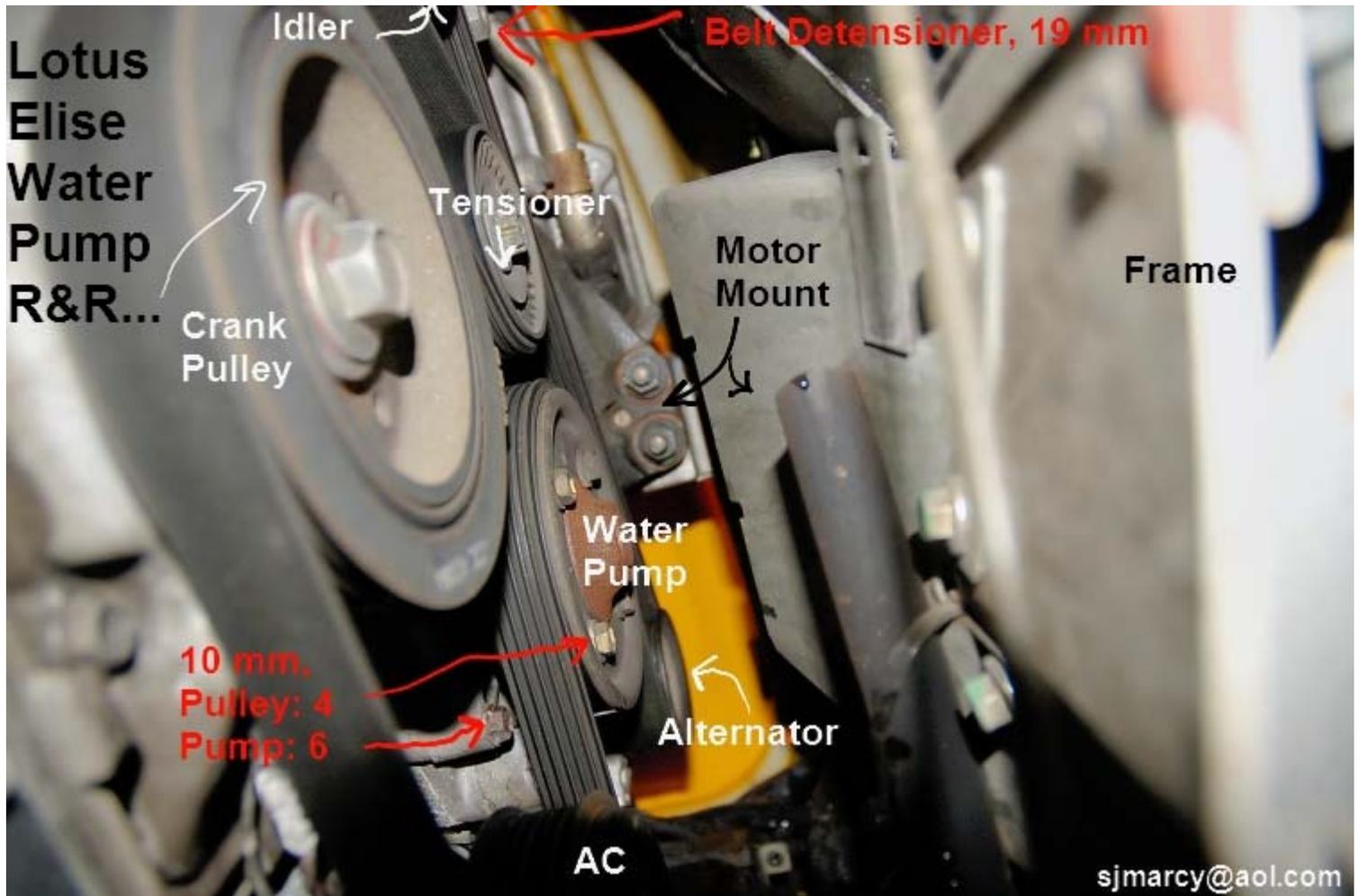
* TOOLWISE it appears that for the actual pump job you need a 6 point 19 mm socket, thin breaker bar or torque wrench or long ose end wrench to relieve belt tension (so you can yank / reinstall) the belt (a 12 point socket would likely damage or mar the cast-in 19 mm hex on the belt tensioner which is used to relax the tensioner). A 10 mm socket and ratchet with short extension for the pulley and pump. Plus ramps, panel tools, and replacement coolant. Many stores such as Autozone will lend you the belt tensioner tool if you buy the belt thru them. Such tools are thinner than most normal tools to gain working room.

* I'll update when I do the deed. So far it looks very straightforward.

* While I was under the car looking things over with the panel off, I adjusted my e-brake. This is done near the driver's side. An adjustable wrench made quick work of it. Very simple. Like 3 minutes.

* From the picture you can get an idea of what an underdrive pulley swap project would involve. Candidates include the water pump and alternator. Leave the crank pulley alone so the motor internals live - the stock pulley damps crank torsion harmonics / vibrations. A different belt length would be needed.

Picture looking up from below:



So I ordered a water pump from Autozone for 50 bucks/lifetime warranty..it shows up...wrong pump. They sent a 1ZZ water pump, which is similar - the charts were wrong. It uses a one-inch-smaller-diameter pressed-on pulley. The 2ZZ uses a bolt-on underdrive pulley (due to the RPMs). And a nicer impeller. Use the "Y" VIN code for a Toyota Celica cross reference to Cardone PN 55-43149. Or about \$120 from your Toyota dealer. When I yank the stocker I'll look that over too.

Finally the proper pump showed up...my son painted the tip where they rust. Some pics:

