

YARIS CLUB UK KNOWLEDGE BASE



Manifold Installation

N.B This is intended as a guide only, if unsure please seek professional assistance. Yaris Club uk accepts no liability, all work is carried out at the owners own risk. This how-to was constructed while working on an echo, as a result there is the possibility of differences in some of the photos

This is an installation of the El prototypes headers for the echo. Also usable for scion's / yaris with 1nz-fe engine.

Estimated time spent: 2 hours

You will need:

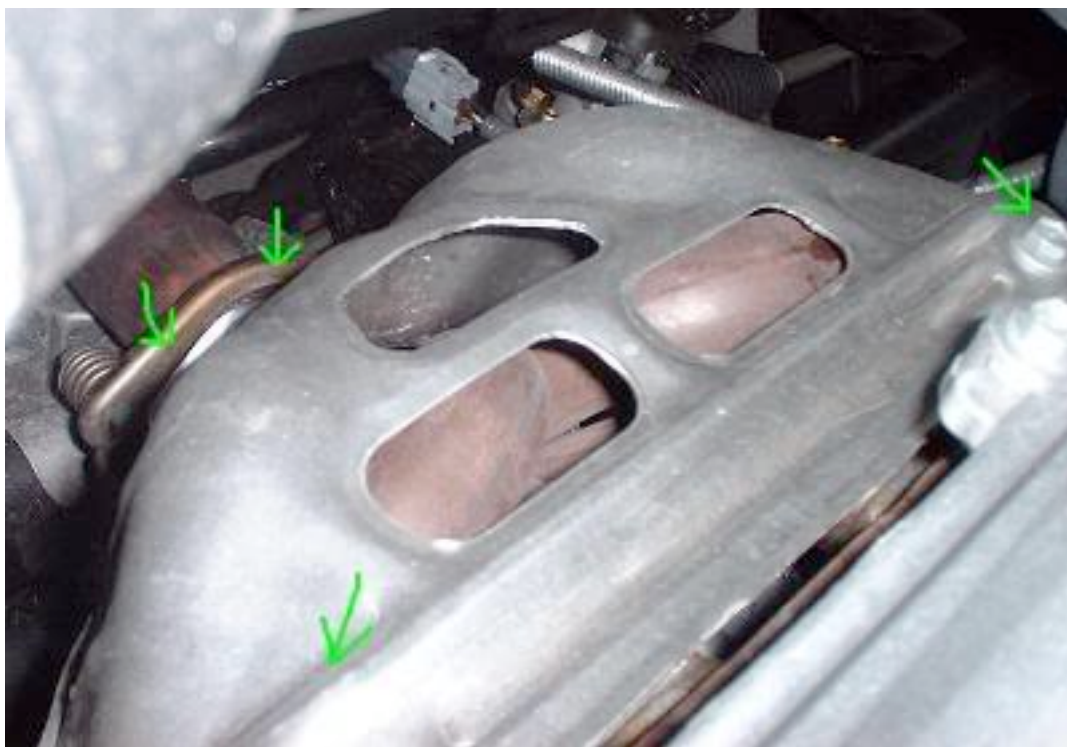
a socket wrench w/ 10mm 12mm and 14mm, socket extensions (3" ,2 x 6" and/or 10"), and a way to get under the car (a lift, jack stands, ramps,,,,), Header, El prototypes, Megan Racing etc, and a new gasket to go between the head and the header.



First you'll have to remove the engine cover with the socket wrench and 10mm socket



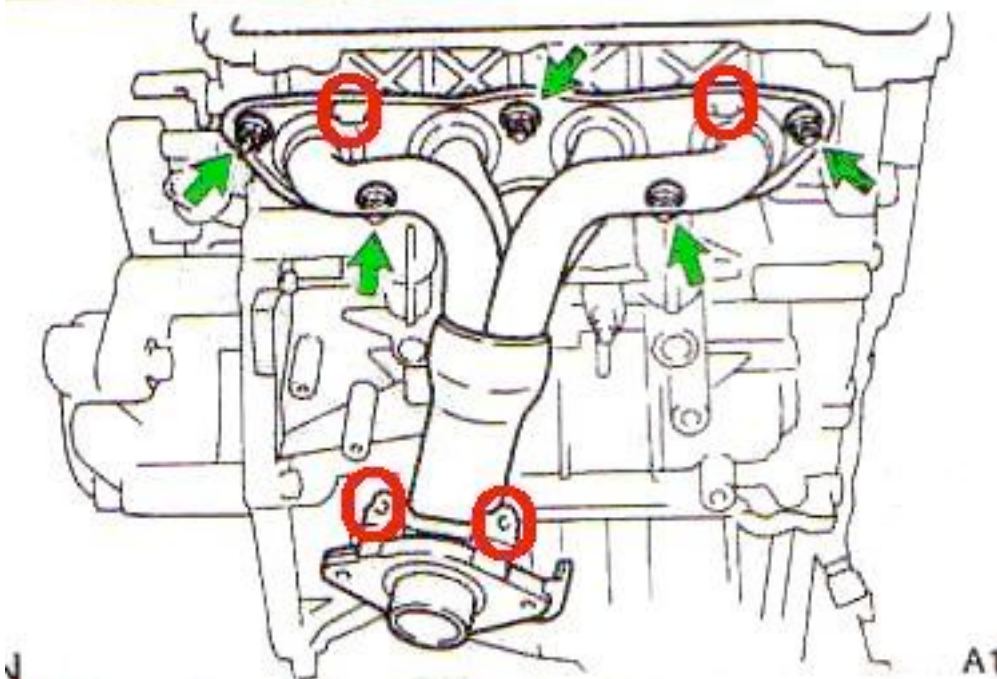
Then remove the 4 bolts that hold the heat shield on the exhaust manifold. They can be reached from the top.



Then remove the heat shield.



Remove the 5 bolts/nuts on the top of the manifold. 2 of the 5 bolts/nuts (the ones on the bottom) that hold the manifold to the engine will need to be reached by using the socket extensions- the 3" extension and 12mm socket. They are torqued pretty well so use some penetrating oil (like wd-40) on the threads. (Heat shield brackets.)

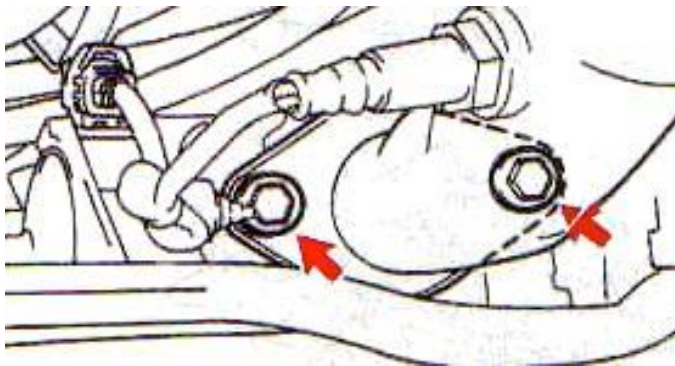


Once the top is unbolted, Jack up the car and use jack stands for safety (please!)

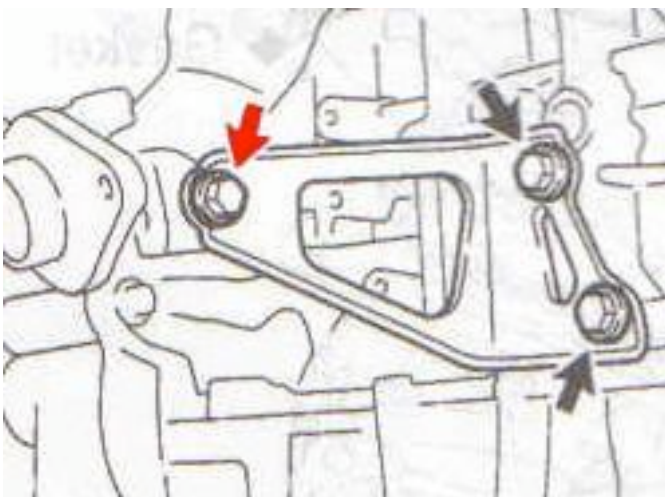


and crawl under the car and unbolt the 2 spring loaded bolts holding the manifold to the cat.(catalytic converter) using socket extensions if you can't reach.

Be careful not to damage the wires of the O2 sensor. These bolts have spring tensioners so it might take some crank'n, bang'n, wd-40 but they'll come out. If they are tough use a torque wrench or breaker bar.

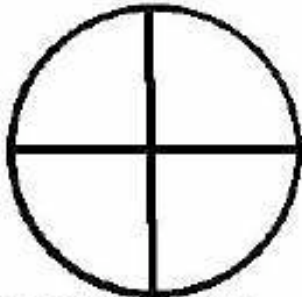


Now the only thing holding on to the manifold is the support bracket. Unbolt that 14mm bolt and remove the manifold.



Be careful not to damage the gasket on the cyl. head end if you're re-using it.

Let's take a look at the old manifold. The pipe's diameter's are squished at the collector into 4 pie shaped openings. Yuck!



The collector



Check out the exhaust ports. Looks like a good candidate for a port and polish



You'll need the donut gasket from the old manifold (or buy a new one) for the new headers to seal with the catalytic converter.



The installation is the opposite of the removal. Put the gaskets on: Hard donut gasket to the catalytic converter on the new headers collector

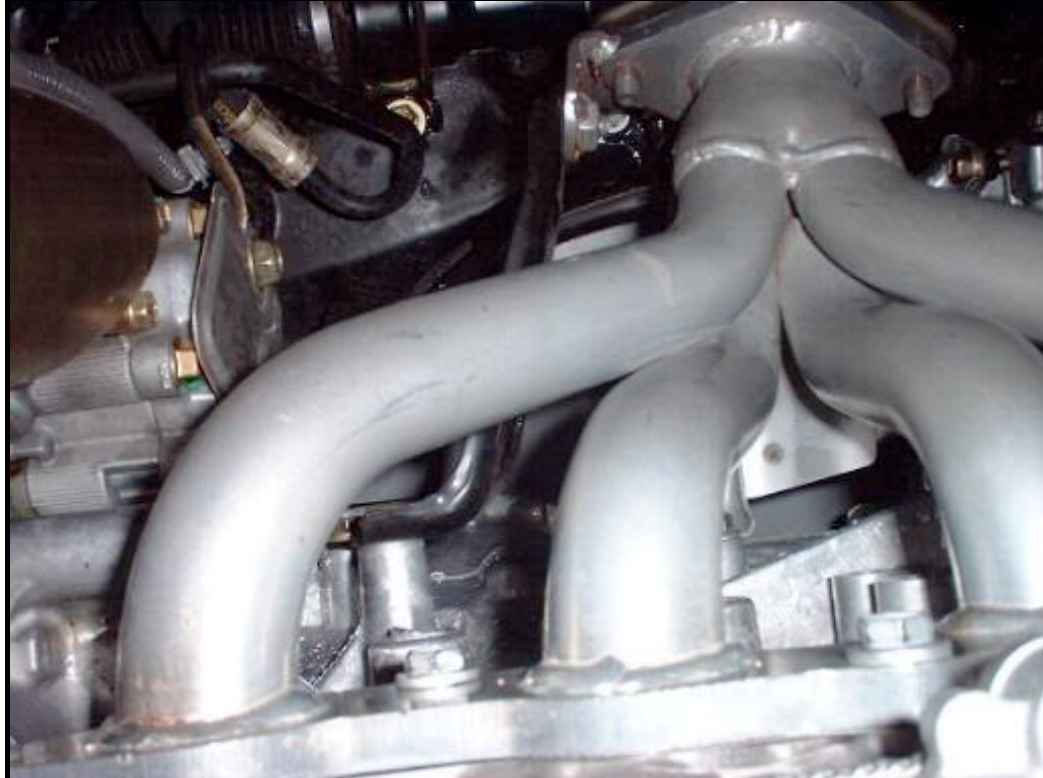


and the new flat gasket on the cylinder head bolts. Move the headers down in place on the cat.



and onto the cyl. head bolts. Put the 2 outer nuts

on to keep them from sliding off, but leave them loose so you can put the 14mm support bracket bolt through to hold the headers in place.



Next add the rest of the bolts to the top of the header. Tighten hand tight while jiggling the headers a little to get a flat seat on the gasket. It's easier to put the spring bolts back in from above while pulling the cat. towards the headers, then crawl under and tighten them evenly.



It is important you alternate and tighten evenly so you squeeze the donut gasket in right. You're time should be rewarded with an absence of exhaust leaks. They need 46ft lbs torque.

Don't expect the cat flange and collector to touch. There will be a gap and you'll see the gasket. Just make sure it's even.



Lastly, Tighten the top header bolts. Use several passes and tighten them evenly as well. 20 ft lbs torque.

I left my car on jack stands and fired it up then I checked for leaks. The wd-40 will smoke off, so you have to run the engine a little before checking for leaks. Found none. If there are leaks re-adjustments will have to wait for the engine to cool a bit.