

# How to change a head gasket on a Jaguar X300 Non Supercharged Engine

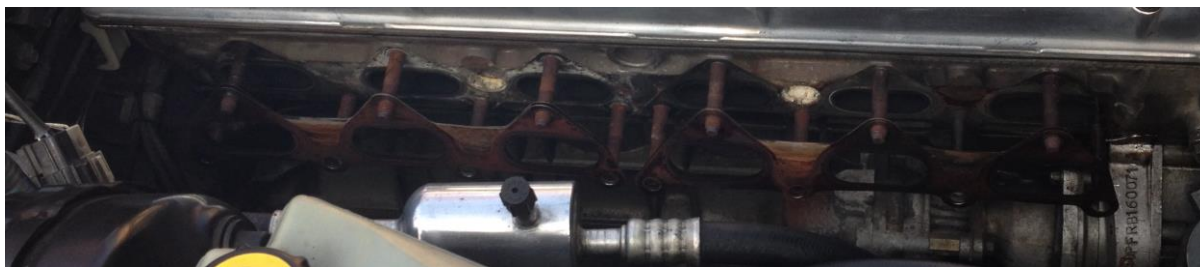
I had a "little" oil leak from the front right hand side of the gasket, there is a high pressure oil seal very close to the edge of the gasket (as you will see later), which has a tendency to seep through and down the engine. Not liking "advisories" on my MOT's I thought I'd get it fixed (seems to have been on the last SEVEN old MOT's!)



Remove Headshield, I ended up having to cut mine off as the bolts were totally knackered and rounded



Remove exhaust manifolds



Undo all bolts holding each manifold to the head and the two on each manifold that connect the downpipe, I cleaned mine up and gave them a lick of paint



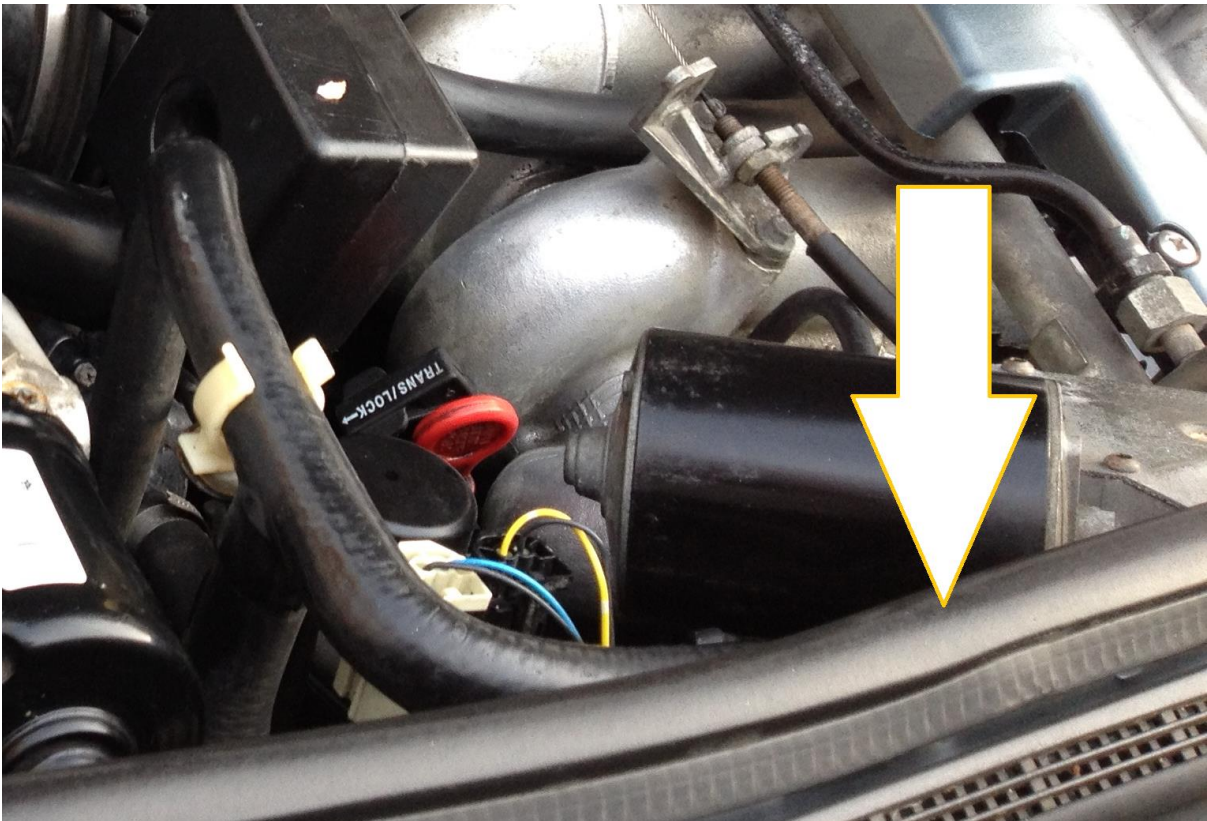
Undo inlet manifold bolt and nuts



Couldn't really get a picture when head was still on so here is one showing position of bolts / nuts

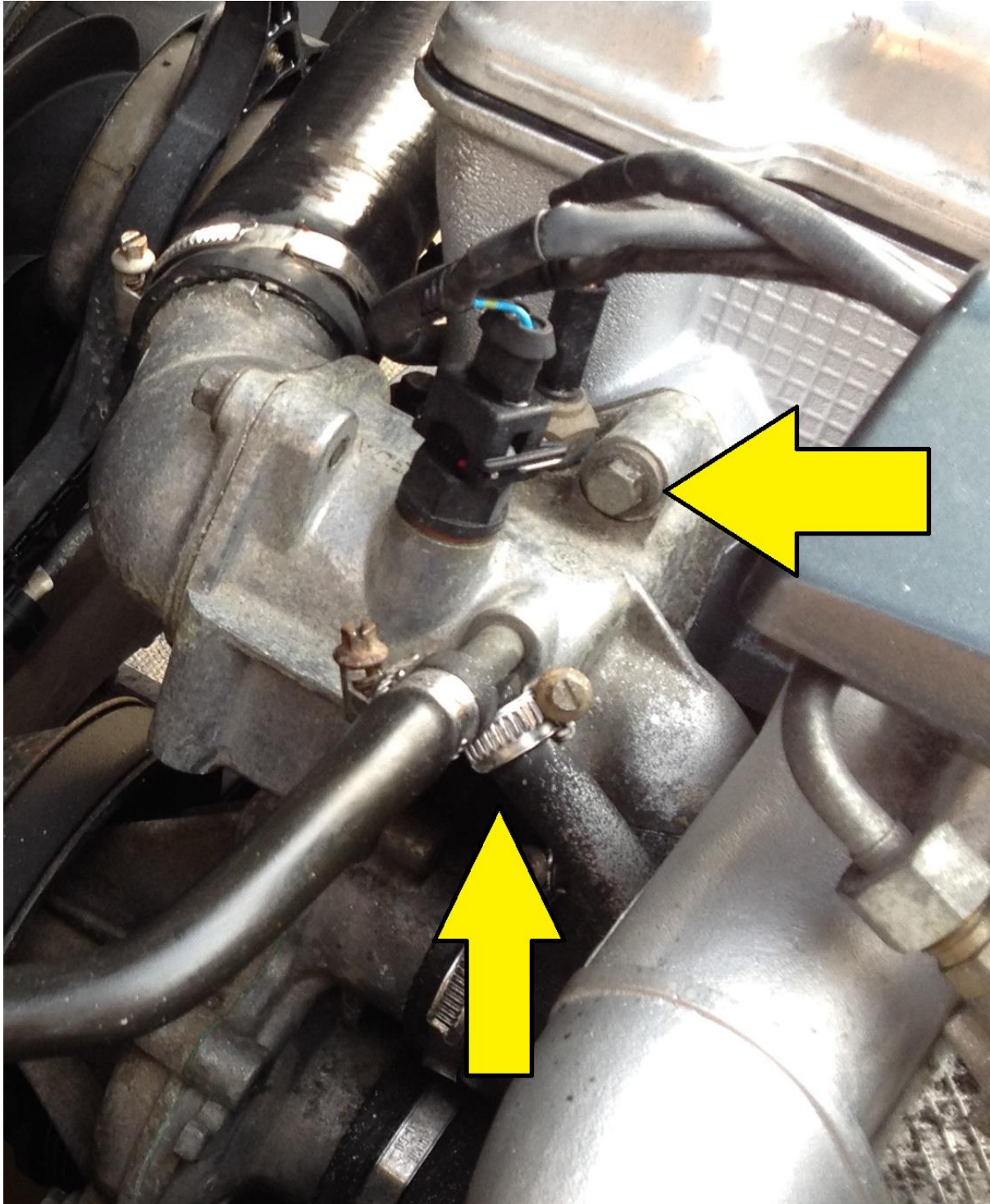
Top ones are nuts, bottom are bolts. The one on the bottom left (of picture) also has a bracket holding the o2 sensors cables and a third one.

Also while on that side of car, undo pipe clip from bottom of head pipe as you will never get the pipe off near the engine itself.



Drain the coolant, there is a screw on the bottom right of radiator, undo and drain into a "big" container"

Now undo the thermostat to head bolts, two of - there is a metal gasket there, **MAKE SURE YOU HAVE A SPARE** or use some instant gasket on refit as mine broke on removal. Undo top of radiator pipe clip as well as it allows you to move this out of the way a bit better. Unclip wires.



Remove coils and cam cover

Two bolts hold each coil in place then unclip wire, mark wires with position and pull out. (You will be fighting with the wiring as it gets in the way a bit, so labeling them up will be useful later)

Three screws on top, 10 round edges of cam cover and three down centre under plastic trim, and you now get a look at the top of your engine. Check condition of cams for wear.

Remove spark plugs aswell.



Using a 33mm spanner rotate engine to top dead centre, you will see a little "blob" in the window on the cam sensor, rotate till it is in the middle of the window. DO NOT ROTATE AGAIN



Undo Timing Chain tensioner. Undo bolt with flappy thing under it enough to drop the flap off the centre blob, this is the valve. With a pair of plyers pull the valve out, it will be quite hard to do, so don't worry and give it a good yank. Stick a 3mm allen key in the hole, push hard to press the spring and turn clockwise until it "clunks" and locks. Then remove other bolt and ease it out a little bit. You will not be able to remove it as the cam sensor is in the way. If you need / want to remove it then just unbolt the one bolt holding down the cam sensor (mark position of holding bolt and use a screwdriver to prise up the sensor will you can pull it out. Take a picture of its location / mark it with a permanent pen etc so you know what orientation it is in for refitting otherwise your car will not start properly.



Unclip wires and get out of the way.

Remove top tensioner guide – two bolts under it



Now remove four bolts on each sprocket and remove from chain

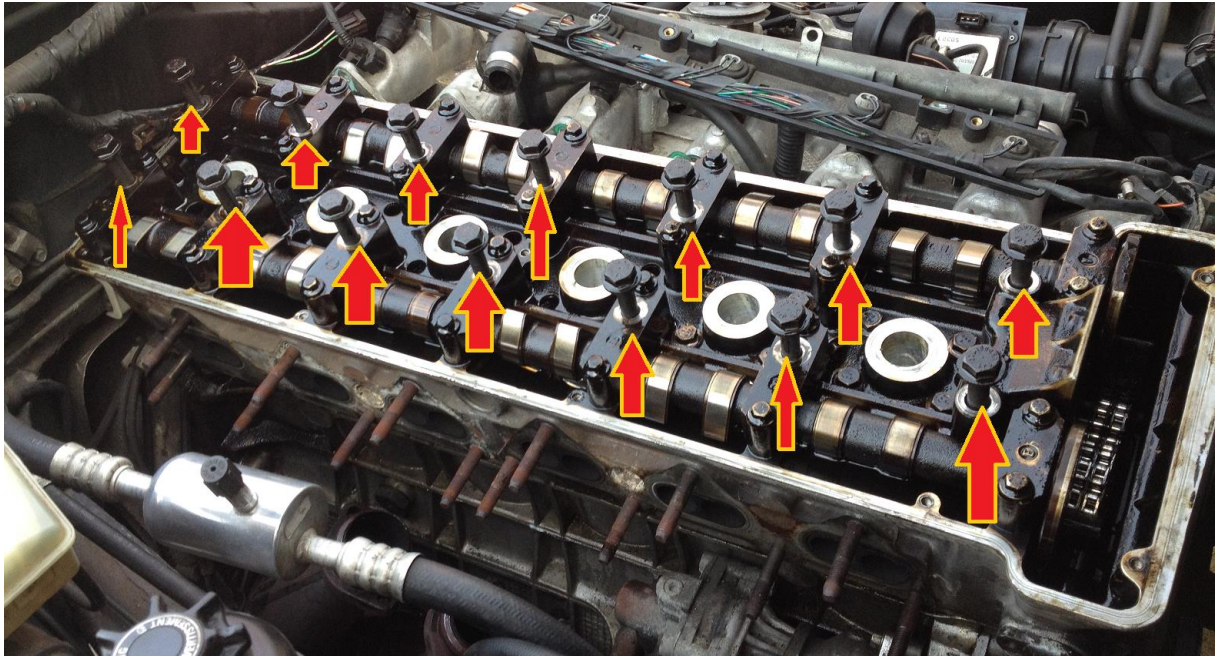


Put a laggy band (or 3) round the guides to hold the chain and everything together and out of the way





## Undo head bolts



Check for "marks" on bolts to see if they have been refitted before as they can only be used three times, one mark means fitted a second time, two marks mean they have been used three times and you should buy a new set. REMEMBER TO MARK THEM WHEN YOU HAVE FINISHED

N.B. There are three additional bolts on the front of the head which can be reused

With assistance (as its damn heavy, a long reach and a bit awkward) remove head



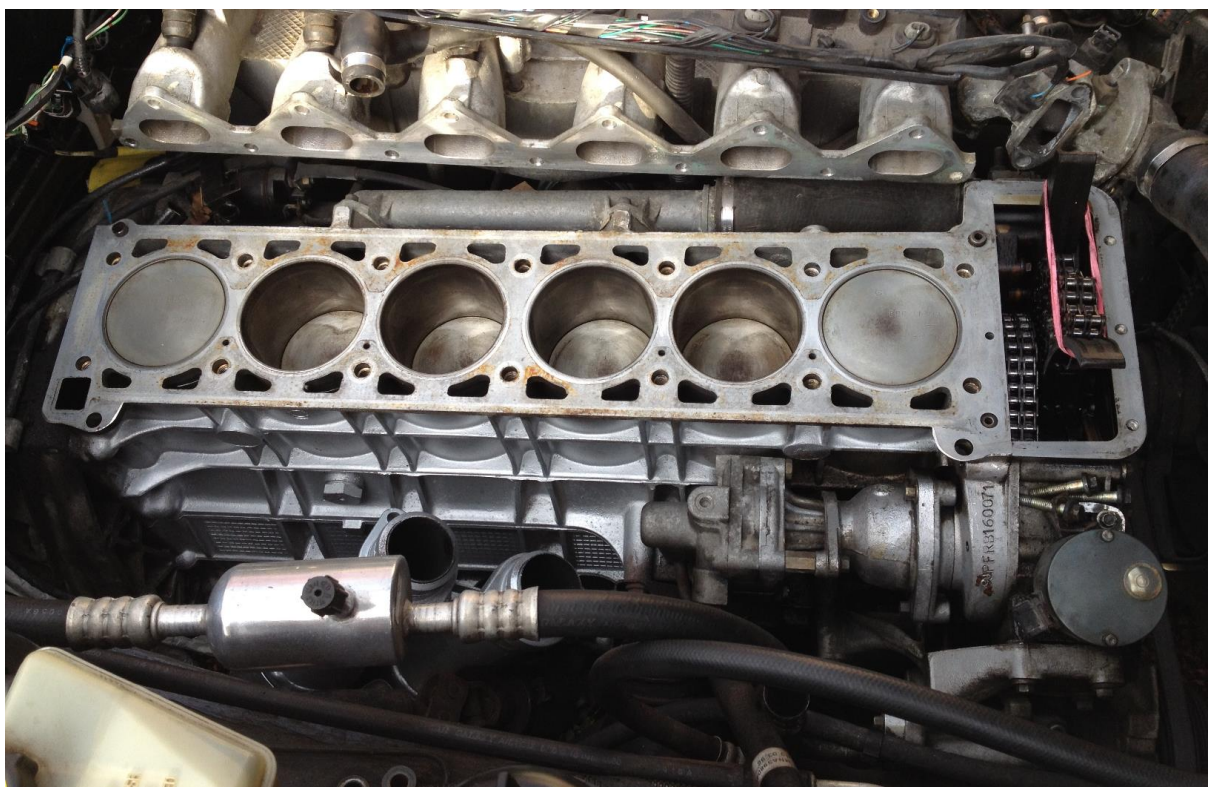
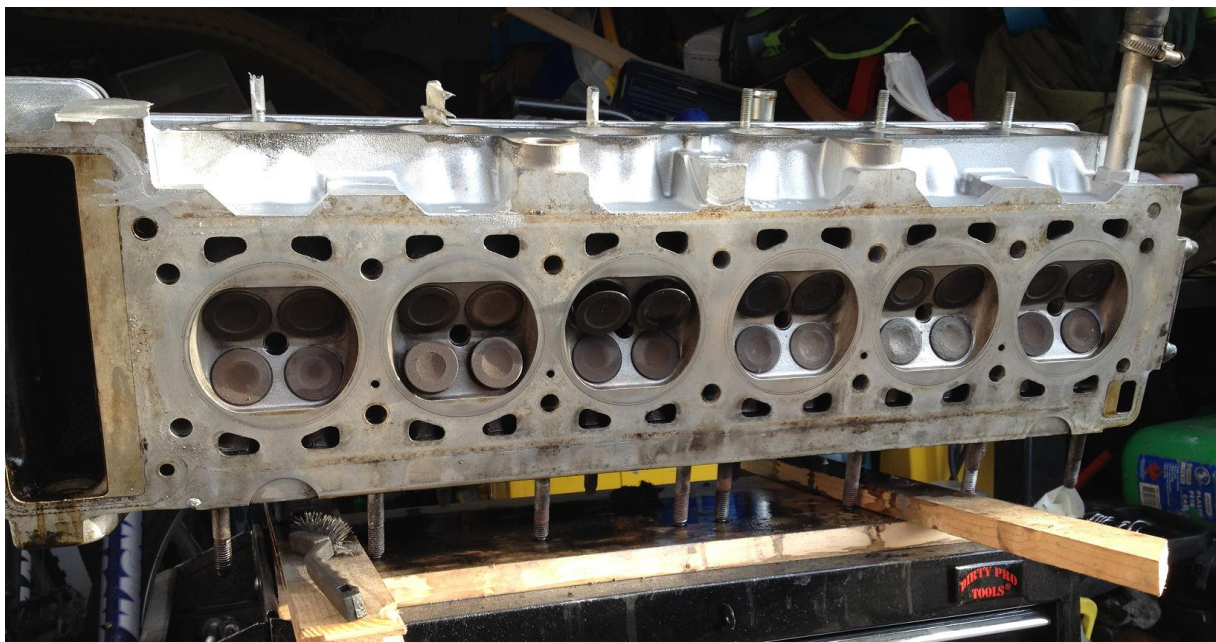
That pipe on the right of the head needs a bit of a wiggle to get out! Remember to put head on slats and NOT put flat on a surface as valves are sticking down.

"My" reason for changing the head was this...



Daft place for an oil feed!

Clean head and block to remove carbon deposits.



Carb cleaner and an old toothbrush worked wonders. (and yes I painted a few more things)

Clean ALL the old gaskets from inlet, exhaust and water inlet.

Make sure the cams are still in TDC position with one of these, there is a slot in the top of the cam head chain end – you'll work it out...



Fit new gaskets and refit in reverse. Just be careful when you refit the tensioner into the hole (bottom right) and make sure the two prongs are vertical and line up with slots in guide. You do not need to release tensioner as it does it when engine starts.

**N.B. Torque setting for head bolts is 45Nm > 60Nm, I did it in increments of 5Nm from centre out in a spiral.**

All back together...



New headshield, new cam cover bolts etc