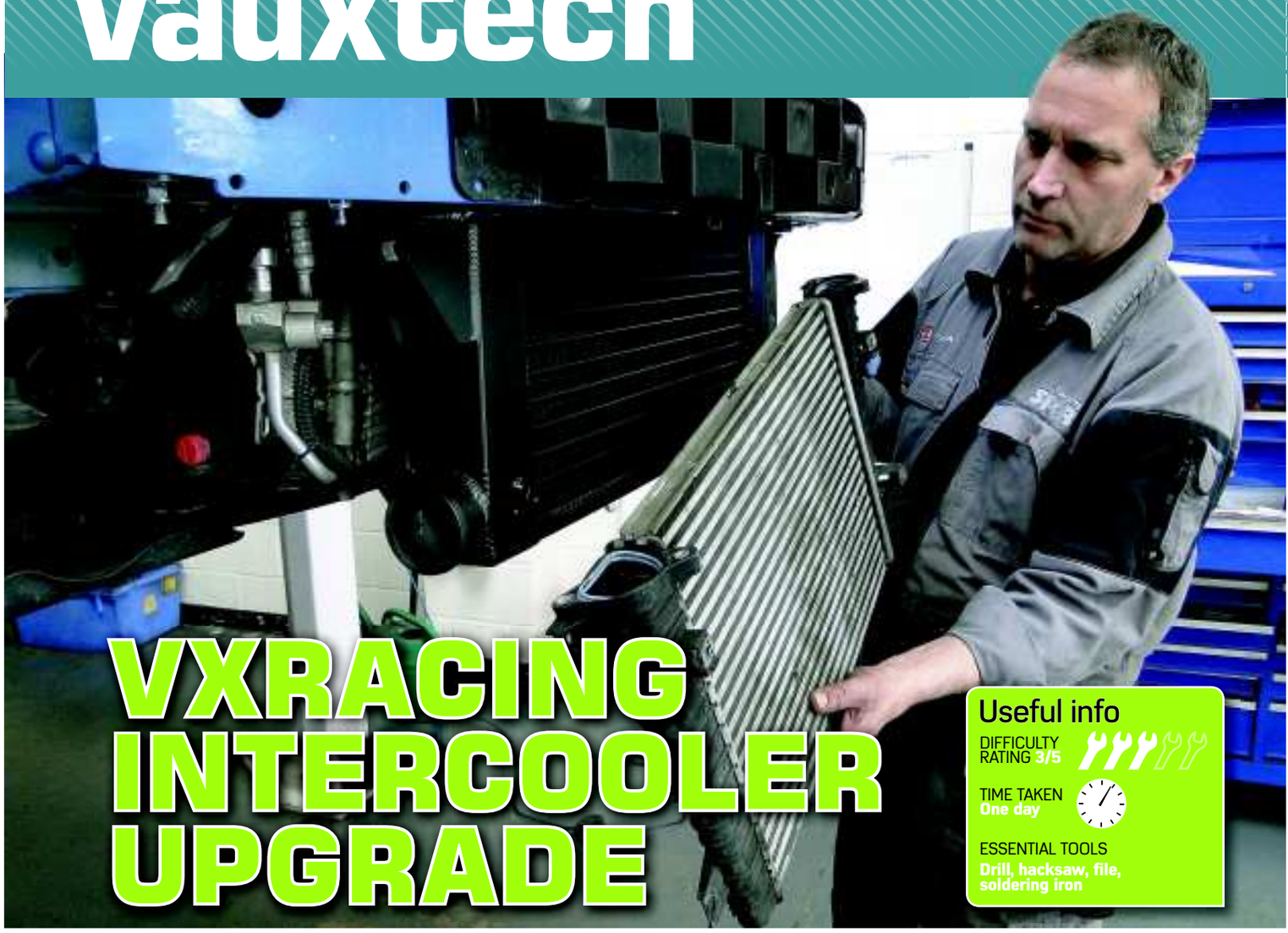


VXRACING INTERCOOLER UPGRADE

Useful info

DIFFICULTY RATING **3/5**

TIME TAKEN **One day**

ESSENTIAL TOOLS **Drill, hacksaw, file, soldering iron**

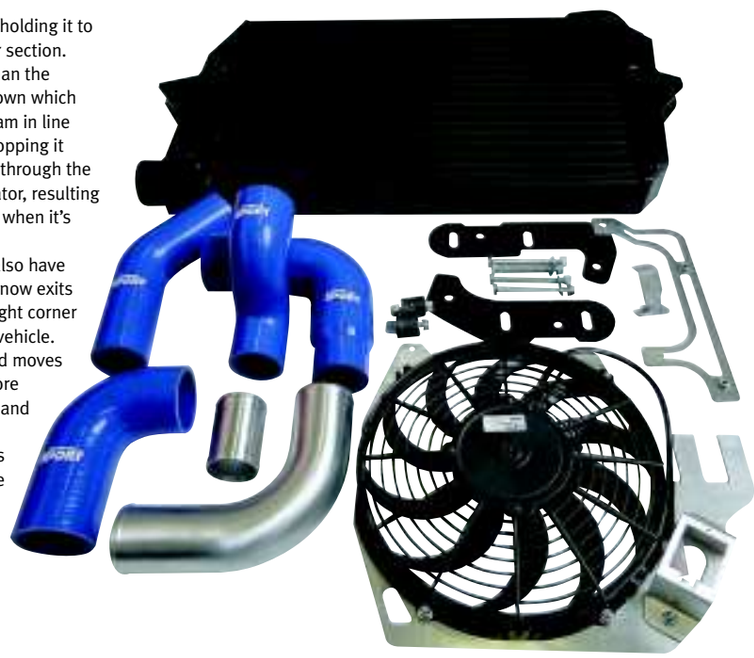
A Stage 1 Astra VXR can benefit from up to 30 bhp and increased reliability with Courtenay's big intercooler kit.

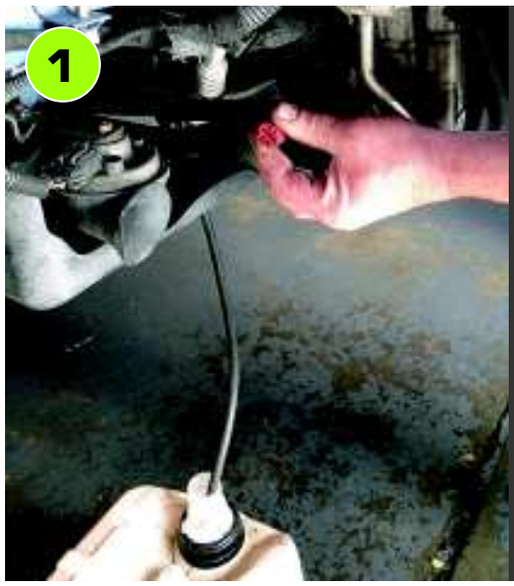
Words and photos: Martyn Williams

The Astra VXR with its neatly-stacked radiator, air con condenser and turbo intercooler ticks all the boxes at its rated power, but just a small tweak of the ECU leaves it wanting more airflow. A larger 76 mm cat-back exhaust system with a downpipe replacing the pre-cat is a sensible first stage, raising the power with ECU remapping to 270+ bhp, but for a boost in efficiency as well as more airflow, the VXRacing intercooler kit developed by Courtenay Sport and Triple Eight Race Engineering will see the power nudging towards 300 bhp.

The kit from Courtenay retails at £750.00 and is a fairly straightforward job to fit - the only minor complication is drilling a couple of holes plus a bit of cutting and filing. In all, it's a job which should take less than a day, but for those who don't fancy it, Courtenay will do it for a little over £200.00. The mounting of the intercooler is really neat with only two bolts holding it to strong brackets on the bumper section. Apart from being a lot larger than the original unit, it's fitted lower down which moves it more into the air stream in line with the lower intake grille. Dropping it down also allows extra airflow through the hottest top section of the radiator, resulting in better engine cooling - ideal when it's kicking out more power.

The new intercooler hoses also have revised routing; the charge air now exits more efficiently from the top right corner as you look at the front of the vehicle. This shortens the pipe runs and moves the air diagonally across the core instead of through the bottom and top. A remap for an Astra VXR fitted with the big intercooler is essential to take full advantage of the increased flow and cooling. Courtenay charge £550.00 for this stage, which includes dyno optimisation.



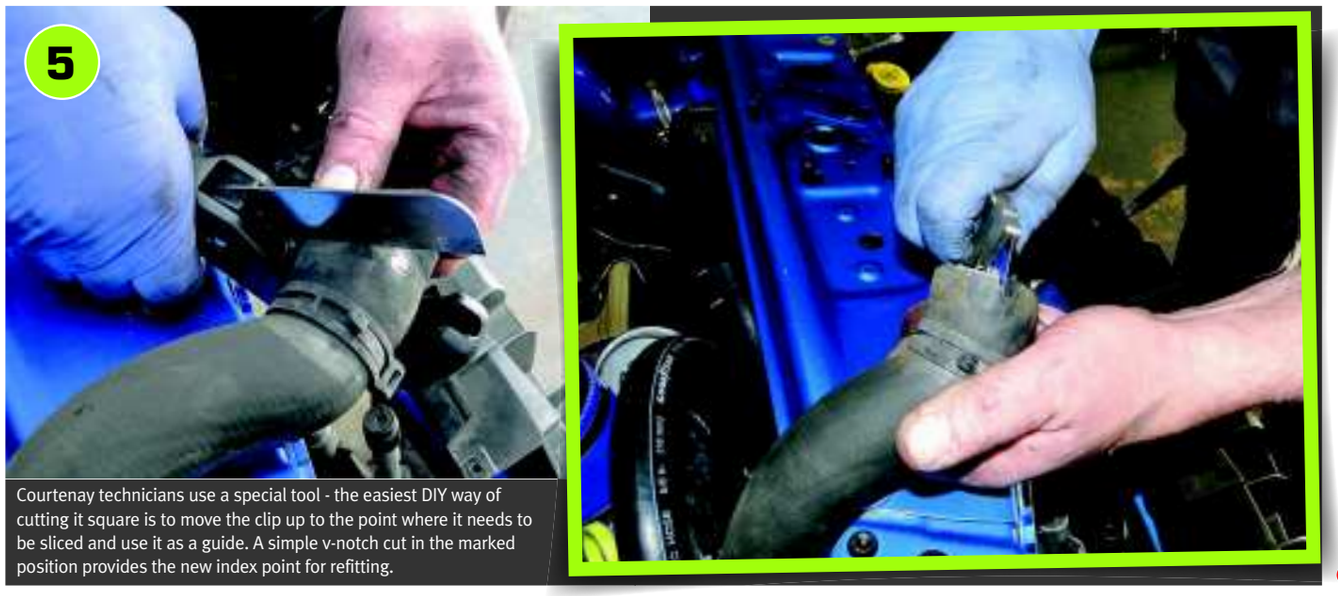


The grille/bumper section ideally needs two people for the job to avoid damage during removal. Use a clean container (at least 4-litres capacity) to catch the drained coolant so that it can be re-used.

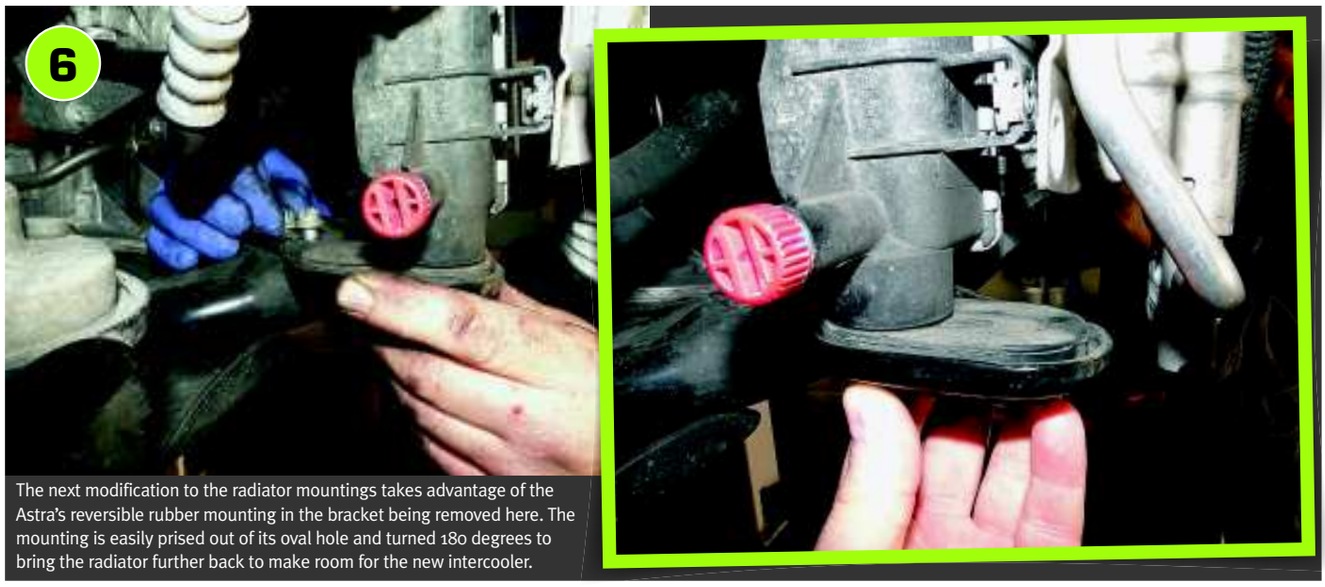
The right hand side of the condenser is bolted into the existing intercooler end housing. Once it's free, damage can be avoided by carefully strapping it out of the way during the strip-down.

The improved direction of flow through the VXRacing intercooler means that this standard interconnection pipe is no longer required.

The radiator doesn't need to be removed but will be re-sited closer to the engine by about 25 mm. Cutting off the 'clean' part of the hose which was covered by the clip will shorten it by the correct amount. A marker pen is used to indicate where the small location notch needs to be cut once the hose has been shortened.



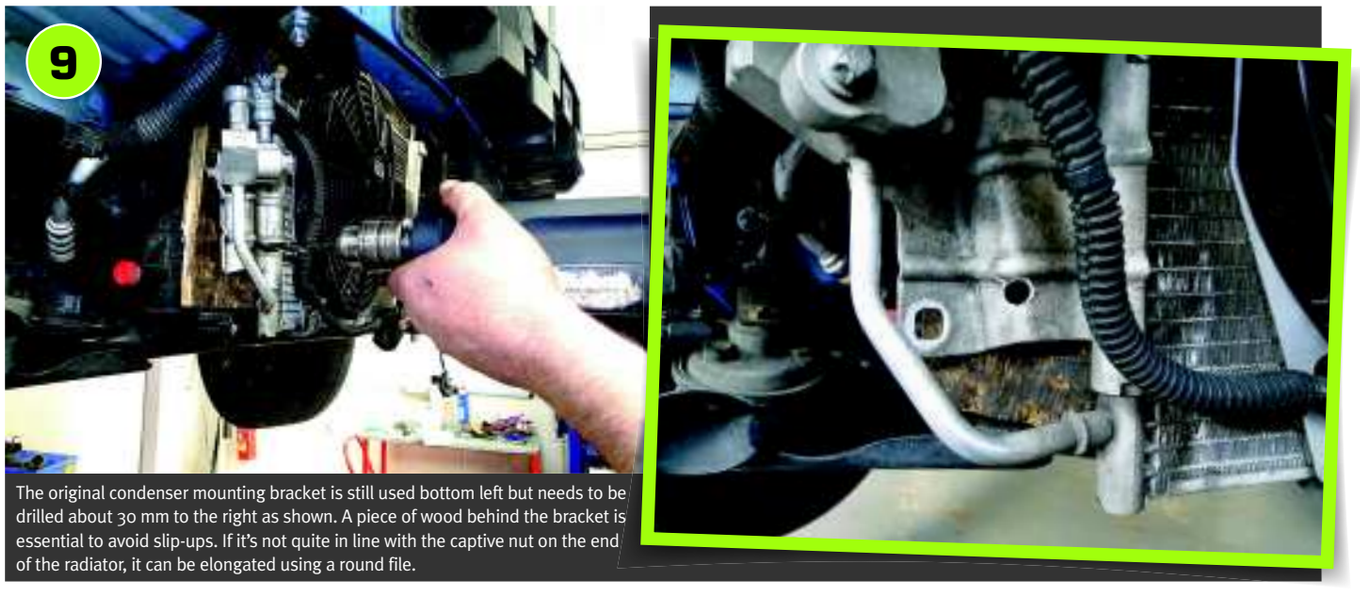
Courtenay technicians use a special tool - the easiest DIY way of cutting it square is to move the clip up to the point where it needs to be sliced and use it as a guide. A simple v-notch cut in the marked position provides the new index point for refitting.



The next modification to the radiator mountings takes advantage of the Astra's reversible rubber mounting in the bracket being removed here. The mounting is easily prised out of its oval hole and turned 180 degrees to bring the radiator further back to make room for the new intercooler.

New brackets for the condenser come with the kit. Both brackets use existing captive nuts on the radiator, apart from the hook section holding the lower part of the right hand bracket.

Extra security in retaining the bracket in the hook is achieved by using a 4 mm drill bit and a self-tapping screw. A piece of hacksaw blade can be pushed down behind the bracket to make sure the bit doesn't pierce the end of the radiator.



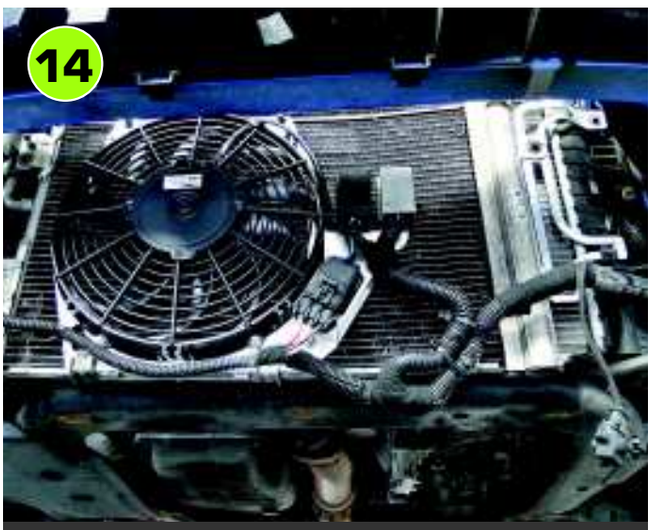
The original condenser mounting bracket is still used bottom left but needs to be drilled about 30 mm to the right as shown. A piece of wood behind the bracket is essential to avoid slip-ups. If it's not quite in line with the captive nut on the end of the radiator, it can be elongated using a round file.

The original mounting bolt can be used through the new hole - bear in mind that the captive nut is mounted in plastic so care is needed not to over-tighten as it bites down on the curve of the bracket.

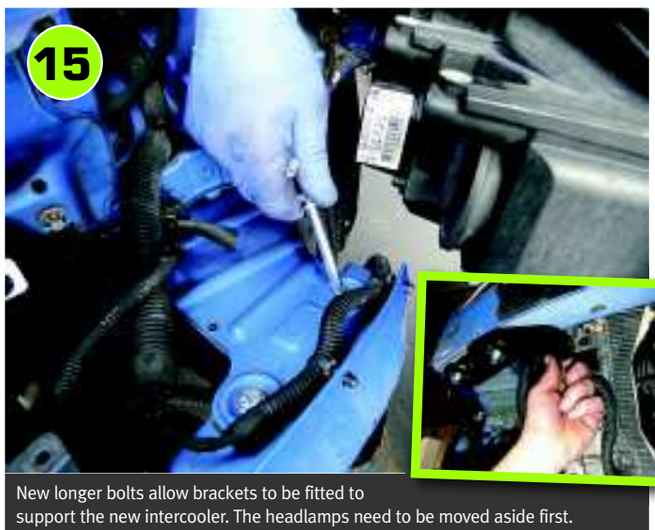
With the condenser in its new position, make sure that the tube (shown) clears the radiator and the valve plumbing is clear of bumper support. Touching in this area could eventually cause an expensive leak.

The original fan is too bulky to fit between the intercooler and the condenser but savings are made by robbing the connector/resistor block from the old one to fit to the new. De-solder the two wires and note where the red wire is attached.

The new slimmer fan assembly has brackets to take the connector block and relays. The blue wire from the new fan is soldered on to where the red (positive) wire went.

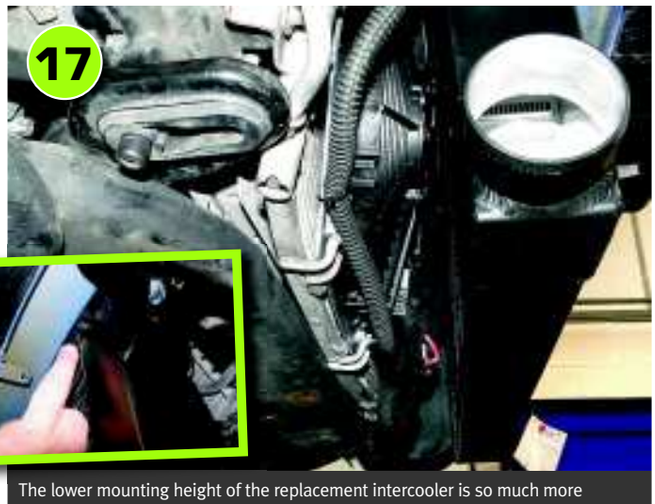


The fan adaptor plate allows the new fan assembly to bolt straight on to the original mounting points on the condenser.



New longer bolts allow brackets to be fitted to support the new intercooler. The headlamps need to be moved aside first. A spacer inside the intercooler-to-bracket bolts means they can be tightened normally with no risk of crushing the rubber mounting bushes.

The inner horn needs to be moved to allow space for the intercooler plumbing. Unbolt the horn complete with bracket and mount it on the same bolt as the outer horn so that it sits just above it.

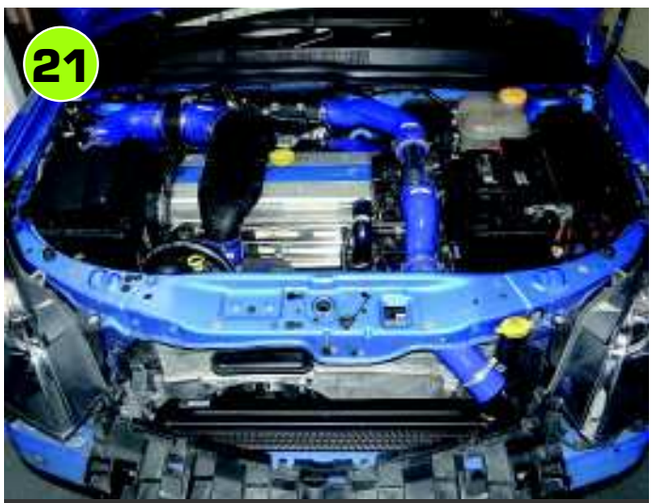


The lower mounting height of the replacement intercooler is so much more efficient - make sure that the fan and its wiring is not rubbing in this tight spot. The same goes for the boss on the front of the intercooler which must have a gap between it and the inside of the bumper support section.

Larger bore pipe runs are a massive improvement over standard. Pressures in excess of 1.3 bar means that the worm drive clips need to be good and tight. It's worth making sure that everything is grease-free before assembly.

The larger bore pipe on its way to the intake goes across the top of the radiator which means a hacksaw and a file has to be taken to the U section. Make sure the pipe has no ragged edges where it's been cut.

The hose might need a squirt of silicone lubricant as it has to be pushed a long way over the Courtenay MAP sensor pipe shown here, which had already been installed by the owner. The hose also fits over the original plastic pipe.



The finished job is so much neater than the standard plumbing. It's worth giving all the clips a small final tweak and everything a clearance check before refitting the front panel.