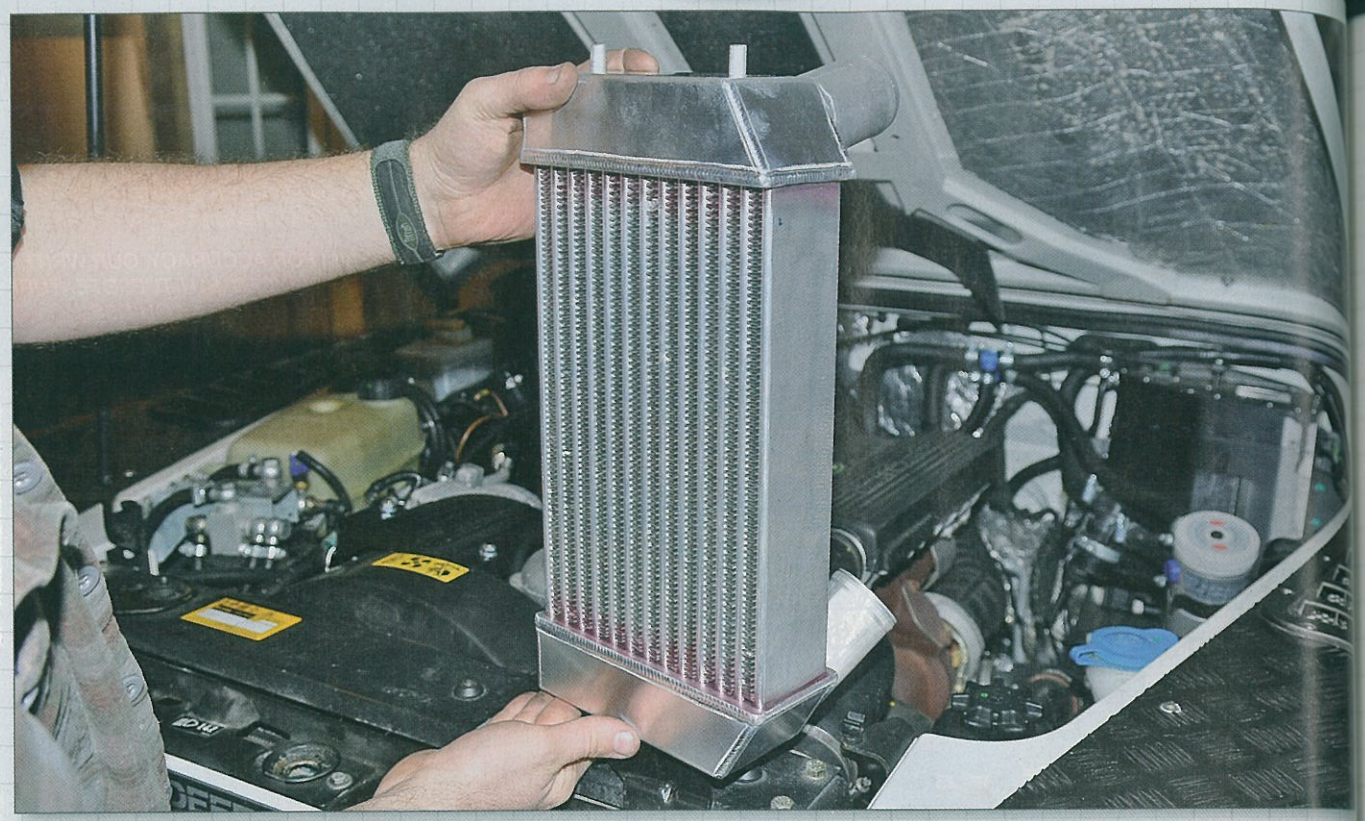


COOLER POWER SOURCE

If you've ever wanted a bit more power from your turbo diesel, Allisport's aluminium intercooler could be just the thing

IN THIS month's Tech section of the magazine you'll see our 300Tdi Defender being converted to automatic transmission. A downside is that the relatively weedy power output of the 300Tdi engine is diminished further by the power losses in the automatic transmission – perhaps by around ten percent.

It has always been part of the Porter Plan to fit a full-sized intercooler across the front of the radiator and to carry out a number of other tuning mods to overcome the automatic system's power loss and perhaps to go a little further. However, there was always going to be a gap of a few months between installing the automatic gearbox at Ashcroft Transmissions and tuning the engine so, in the meantime, I was offered the chance of fitting an Allisport standard-size intercooler as a temporary measure.

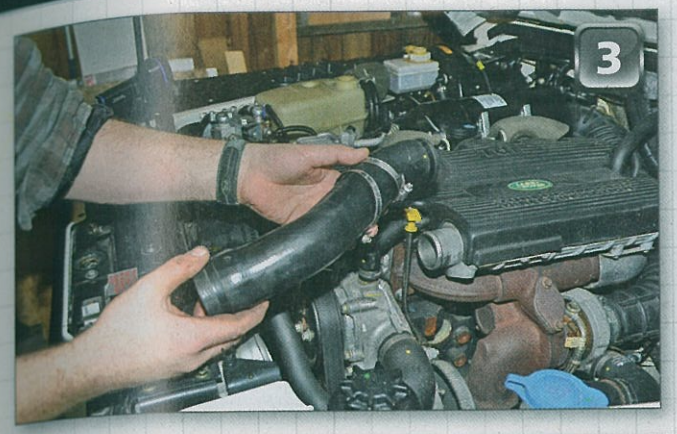
I can only say that the results are quick and easy to obtain and far better than I expected. After all, you might think, how can something as simple as changing an intercooler for another one that looks very much like it provide an increase in power of almost one fifth?

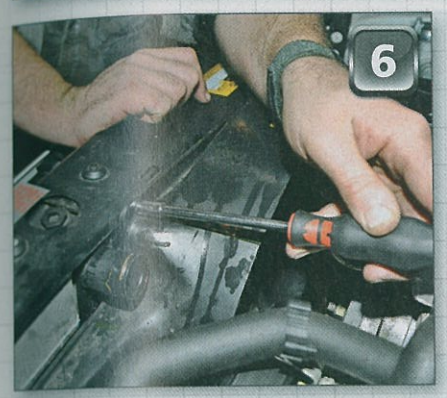
Well, according to Allisport's boss Andrew Graham, there are three main reasons why this £300+ conversion ticks all the boxes:

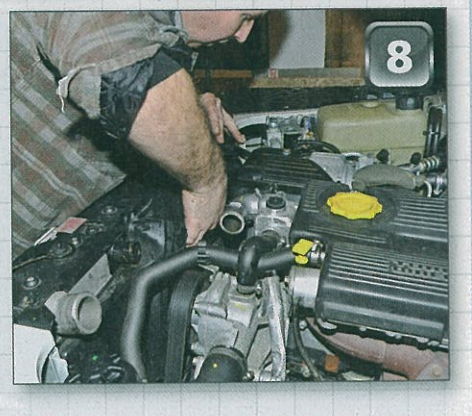
- Like the standard one, it's made of aluminium. But while the original unit uses very heavy cast alloy end tanks, which have the effect of retaining heat, the Allisport units are made from lighter aluminium sheet and radiate heat much more effectively.
- Allisport make the end tanks smaller, allowing the core to be larger, giving over 50 percent more cooling capacity.
- Not all of the tubes in the standard unit are complete – some of them are blanked off, says Andrew.

PICTURE 1 To get at the intercooler, you need to remove the heater shroud and to remove the heater shroud you have to drain some of the coolant and remove the top hose. Dave used the Pela Extractor (see Pic 23) to draw fluid out without having to messily drain coolant at the bottom-end.

PICTURE 2 This is a relatively new engine so we were confident that the hoses would come free. If your hoses are at risk of being well stuck in position, you might want to leave this end of the hose in place and hope to get away with freeing the radiator and fold the hose back on itself. If all else fails, you'll have to cut the hose off and fit a new one. Dave removed the reusable hose from the scene of the crime.







PICTURE 3 While in the vicinity, Dave detached and removed the top intercooler air hose. It's always easier to remove because it won't have been heat-welded into place.

PICTURE 4 Using the correct spanner for freeing the fan makes life so much easier. I bought mine secondhand for just a few quid on eBay – probably the most cost-effective way to go since, as a home user, you won't be using them anything like as regularly as a professional workshop.

PICTURE 5 The fan nut (arrowed) is reached behind the cowl, as shown in the previous photograph. It's important to note that it has a left-hand thread. You fit the spanner then shock the nut free by hitting the spanner with a hammer, turning it the 'wrong' way, of course. After spinning the nut free, the fan is carefully left inside the shroud.

PICTURE 6 Dave removed the screws holding the top of the shroud in place.

PICTURE 7 Note that the hoses positioned in these hose clips have to be detached by reaching down into the depths.

PICTURE 8 As you lift the shroud out, it's important to reach down and hold the fan, taking great care not to damage the radiator.

PICTURE 9 Dave lifted out the shroud and fan as a complete unit and placed them to one side. Here again you can see the fan retaining nut (arrowed).

PICTURE 10 It's perhaps not completely essential but it makes access to the bottom of the intercooler a lot easier if you remove the radiator grille.