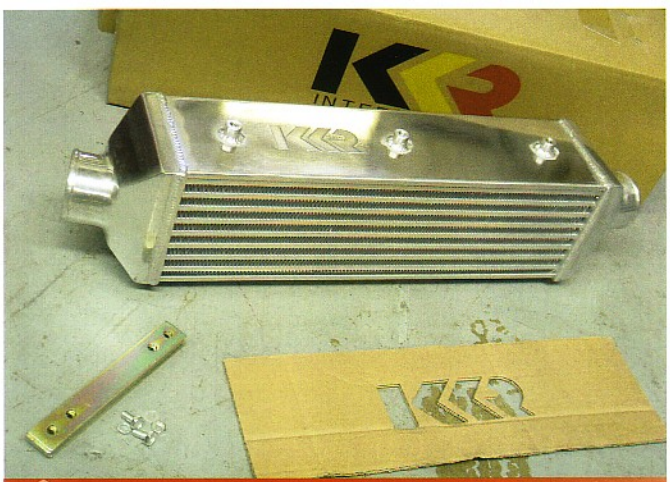
ARISTO MANIFESTO PT5

Like most Japanese turbo cars from the nineties, the Aristo comes with a smaller-than-ideal intercooler

Story and photos by Ben Ellis drag image by www.cacklingpipes.com



The KKR PI-1 core measures 520mm long, 160mm high and a fat 127mm thick. By comparison, the stock core is 210x270x98mm, or around half the overall volume

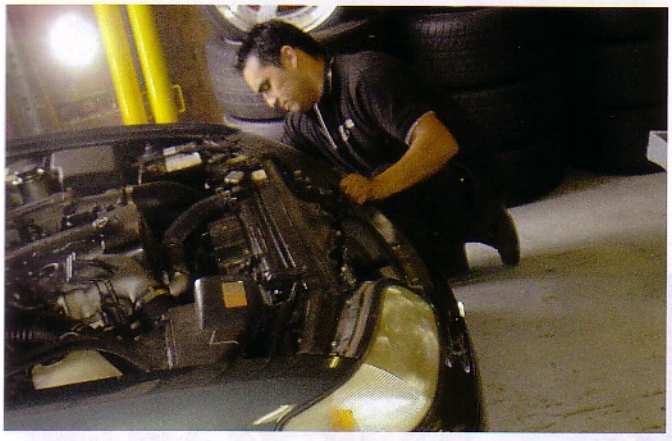
Not only is it a bit small, it's tucked in front of the driver's side front wheel, with only a small duct feeding it fresh air. We wanted a front-mount intercooler, but didn't see the point in fitting a high core that would be half-hidden by the bumper and require a lot of metal to be cut out. As the new KKR 127mm intercoolers had just arrived at Otomoto, it seemed like a good opportunity to develop a new kit.

Our Aristo became the donor car for development for the kit, which is now available for $549 complete. The obvious choice for a core was the squat PI-1 core, which is only 160mm high. This makes it small enough to fit under the bumper support without cutting any metal, so our frontal impact safety is not affected. As it can sit well forward the power steering cooler doesn't need to be replaced either, just pushed back a bit by hand. The kit goes on with three metal straps holding the intercooler in place, two new silicone hoses and two new 2.5-inch mandrel-bent pipes. These will be aluminium in the final version, but are stainless steel on our car.

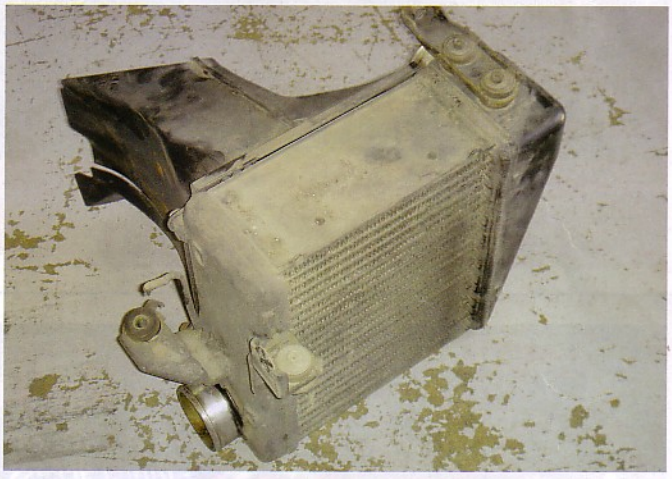
The main thing we were interested in was how the new intercooler would affect our boost levels. On a standard JZS147 the boost drops off markedly in the higher revs, which

We used the supplied template to spray a KKR logo onto the core

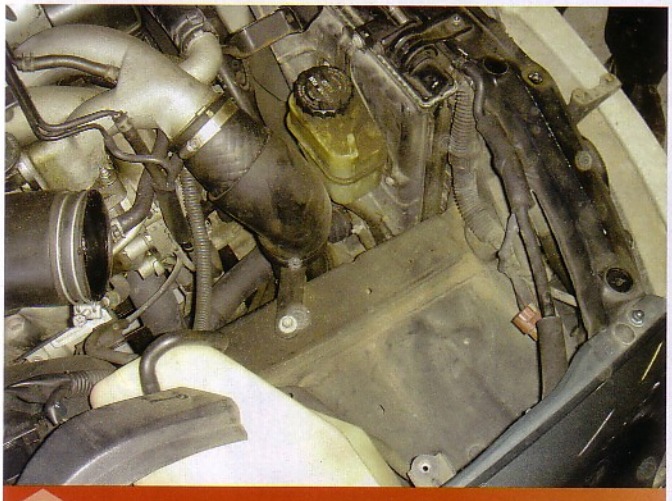
The standard intercooler is in front of the right wheel, with a small duct feeding air from the bumper to the core



Getting the bumper off takes a while. We removed the headlights, but you don't actually have to



The core is quite thick, but has small runners and a tiny inlet tank



The airbox has to come out to get at some of the mounting bolts for the stock intercooler

The top half of this air duct is also removed

The factory power steering cooler is moved back slightly, simply by bending the mounts. The vertical support in the middle is also twisted 90° with pliers, so the cooling pipes can move back further. This allows the KKR core to sit well back, while a strap attached to the middle mount on the cooler can be attached to the vertical support using an existing bolt

The core sits flush with the bumper support, so no metal needs to be cut

most people attribute to a restrictive exhaust. While the exhaust is no doubt restrictive we suspected that pressure drop through the small standard intercooler might be just as big a culprit. Sure enough the new intercooler saw boost rise by 1-2psi across the rev range, also holding steady in the top end.

To see if this actually made a difference to the car's top end power on the street, we headed to WSID to take it down the quarter mile again. Back in issue 73 we ran 14.595 at 95.31mph, with a 60-foot time of 2.286. Our best this time was 14.589 at 96.06, with a 60-foot time of 2.184. Our mph was consistently higher, with a best of 96.28, despite the higher ambient temperatures (22 degrees compared to 15 degrees last time). Considering that this was still with the standard exhaust system, it's impressive that the intercooler alone made a measurable improvement.

Next thing to try, then, was the exhaust system. After considering all of our options we decided to buy a used system from Japan. We still have no idea which company made it, but it is one of the companies in the JASMA association and appears to be designed for a reasonably quiet exhaust note. What we like about the design is the neat split from a single pipe to two smaller pipes, with all mandrel bends used and low-profile oval resonators and mufflers for good ground clearance. It is mostly mild steel, with stainless rear mufflers and four-inch tips. To make something similar locally would cost up to $1500. By the time our used system arrives it should owe us about half that amount. We also picked up an HKS Fcon S, which may give us the best power increase yet.

On the driver's side, it is a 180° bend around to the intercooler inlet

This plastic pipe normally runs through the space you see next to the intercooler outlet pipe

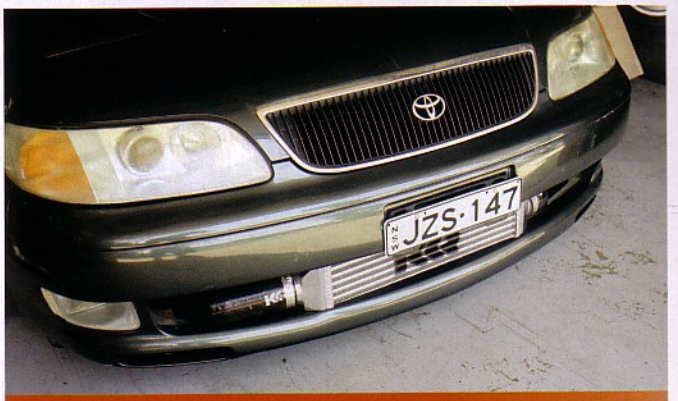
A KKR 90° bend takes care of the first part, also dropping down from the 3in intercooler inlet size to the 2.5in standard piping size

This grille insert has to be removed if you are keeping a standard bumper

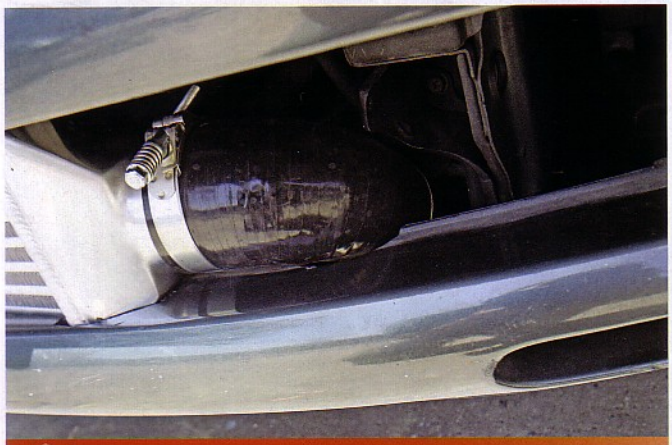
Next, we mark out the section of the plastic bumper that needs to be cut out

When we were putting the airbox back in, we noticed the inlet pipe was cracked due to years of radiated heat from the turbos, so we cut another KKR 90° bend to replace it

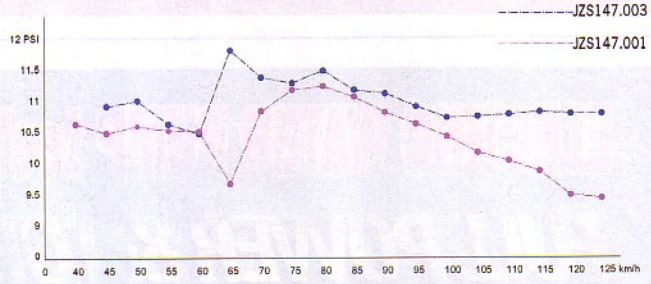
There are various ways you can cut the bumper, such as an airsaw or tin snips, but we used a small cutting wheel on a Dremel



The finished installation is quite neat, even without the grille



You also need to cut a small section to clear the outlet hose



The reduced pressure drop of the new intercooler made a big difference to the boost readings, especially at the top end, with up to 2psi more boost at the inlet manifold

As the plastic under-tray sits about 1cm lower now, it is easiest to secure it with cable ties

Otomoto now offers the JZS147 kit as a bolt-on package for $549