

# Shifting times



Jaguar never built a production XK8 with a manual gearbox, but Elite and Performance Jags believes there is a market out there for a conversion – and it's very close to finishing the job. We try its development car...

Words: Matt Skelton Pictures: Adam Tait

It's a crisp autumnal day and I'm approaching a roundabout in a very standard looking 1997 XK8. Nothing remarkable about that then, except that on reaching the roundabout, I change down to second using a clutch pedal and gearlever and then, accompanied by a delicious V8 howl, accelerate away and up through the gears on exit. And that's very remarkable indeed; the XK8 I'm driving has a six-speed manual gearbox.

Throughout its production life, the XK8 and its supercharged XKR sibling were only ever offered with an auto box which, in the case of the early 4.0-litre models, was either a five-speed ZF (XK8) or Mercedes (XKR) unit. Jaguar's Special Vehicle Operations team did build a manual XKR for evaluative purposes, but a self-shifting model was never available to buy.

Why? The main reason would have been lack of customer demand; despite grumbles from more 'enthusiastic' drivers, Jaguar knew that when the XK8 was launched in 1996 the vast majority of customers would want an auto, which made the costs involved in offering a manual gearbox untenable from a business point of view. That was a situation that remained unchanged throughout the XK8's long production life – as did the grumbles from enthusiastic Jaguar drivers about the lack of a manual option.

Today, more than two years on from the last 'old' XKR leaving the production line, Elite and Performance Jags, based in Derby, believes that there is still a demand for a manual gearbox conversion for the XK8 and XKR – so it's gone ahead and developed one.



## Mechanical challenges

The first job for Danny Carpenter – the man at Elite who has engineered the conversion – was to choose a base car and, as we’ve already mentioned, it’s an early XK8. It’s a sensible choice as these early cars are in plentiful supply, many have had replacement engines under warranty due to the Nikasil issue (as has this one), and they are becoming ever-more affordable.

The next job was to source a suitable gearbox, and the one that’s been chosen is a US-built Tremec six-speed unit. Crucially, though, Danny has used a version of the gearbox that’s installed

in the Aston Martin Vanquish S, as that means it can be readily sourced in the UK, thus avoiding delays due to long delivery times.

Bolting the box on is relatively simple; the standard ZF bellhousing is retained, but with a custom-made adaptor plate between it and the gearbox. A custom made propshaft is also fitted. A variety of clutches can be used, but at present this car is fitted with a 7-in twin-plate sintered brass unit designed for fast road and track use. The standard 3.06:1 rear diff is also retained (more of which later). The pedal box is an XJ-S unit from a manual, non-ABS, car that’s been



At first glance, the interior of this early XK8 appears to be entirely standard – which it is, almost...



The non-standard gearlever gives the game away. The installation is tidy, and the button set into the surround needs to be flicked on to select reverse



If you’re still in any doubt – a look down into the footwell reveals all. This is most definitely a manual!



## Conversion questions

So, you own an XK8 and you want to order the Elite and Performance Jags' manual gearbox conversion. How much is it going to cost you? Well, given that the final negotiations regarding the supply of the 4.09:1 rear differentials were still in progress as we closed for press, it's understandably impossible for Elite to put a final figure on the conversion. However, it is aiming to be able to complete the work – including all parts and labour – for around £7,000. That's not cheap, but then you are effectively buying a complete new transmission system for your XK8, and a whole lot more driving reward to boot. As a result, it's well worth bearing in mind if you're an 'enthusiastic' driver, or if the original auto-box in your car has reached the end of its days. If you'd prefer to fit the conversion yourself, Elite is aiming for a supply price of £6,000. The 'kit' will comprise: the gearbox and mountings, clutch, pedal box, new proshaft, new rear diff and all necessary electronics. As you'll be reading this at least a month after it was written, I'd advise calling for an update if you're interested.

And what of the 4.0-litre XKR? Well, as the supercharged car has a different gearbox – a Mercedes unit – the electronic 'box of tricks' also has to be different, but the complete article is very nearly finished and the rest of the conversion is the same. Given how much quicker the standard car felt, a manual gearbox-equipped XKR should be very impressive indeed. At present, there are no plans to tackle the later 4.2-litre XK8s/XKRs, all of which were supplied with six-speed automatic gearboxes.

adapted to fit, although a bespoke pedal box is on the way. The mechanical changes, though, were the simple part of the process...

It may have launched in 1996, but even back then the XK8 was packed full of complex electronic systems – and a huge number of those systems relied on signals from sensors in the auto-gearbox. Unplug those sensors and you'll lose functions such as ABS, traction control and all the dash instruments – to name just a few.

The solution is a clever box of tricks, plugged into the car's ECU, which makes it 'think' the auto-box is still there. All of the signals that the

original auto unit would have sent to the ECU are still fed through, which means that everything functions as it should, including traction control. It also means the car can still be plugged into a diagnostic computer come service time (in fact the computer will even think the auto 'box is in place!), and that the conversion is relatively simple to do.

Elite and Performance Jags has always intended that, as well as converting cars itself, the conversion could be bought as a 'kit' for the DIY home mechanic or independent garage to fit, which meant that specialist electronic re-wiring

was off the agenda. So, other than rejoining a circuit that's broken when the J-gate is removed, the by-passing of a couple of switches and plugging in that 'box of tricks' (with the gearbox wiring harness re-routed, it mounts alongside the ECU), there's no electronic wizardry involved when it comes to fitting.

## On the road

Before setting off, we take a good look around the car for external clues as to the conversion that lays beneath, but there are none. The only non-standard exterior bits are a set of smoked rear





light lenses, and slightly larger bore rear exhaust pipes. The latter are in place not because the originals no longer fit, but because Danny had taken the gearbox in and out so many times in the process of sorting the conversion that the OE system was a little the worse for wear.

Pop the bonnet and all looks standard too, bar a small patch just below the off-side wiper

spindle. Lift the plastic cover immediately ahead of this and it's clear why. A clutch fluid reservoir and XJ-S brake master cylinder lay beneath mated to the corresponding pedal box below and a little ingenuity has been required to fit them, hence the small patch. The bespoke pedal box that's on its way will solve that minor packaging problem. Inside, all looks completely standard too, aside

from the three pedals in the footwell and a very neatly installed gear lever and surround in place of the original J-Gate. It looks like it's supposed to be there.

Danny drives the early part of the test route while I fire questions about the conversion at him. There's some bearing noise immediately apparent, but Danny tells me this is due to the



All looks standard here – as with many early XK8s, this car has had a replacement AJV8 under warranty...



...remove the plastic cover on the off-side, however, and there's an XJ-S brake master cylinder and clutch fluid reservoir. A bespoke pedal box is on the way so final versions will not need the small hole cutting by the wiper blade – covered by the silver tape here



## XK8s for racing?

As well as designing the conversion for road use, Elite and Performance also have the racing market in mind – the ultimate goal being a one-make series, just as there is for the XJ-S at present. If that sounds ambitious, then consider that early, tidy, XK8 Coupes can be easily be sourced for considerably less than £10,000. Scruffy examples are cheaper still, and repairable salvage cars even less again – and, of course, if a car is going on the race track, any untidy bits are likely to be stripped out and thrown away during preparation in any case!

On the day of our photoshoot at Mallory Park, *JMM* contributor and competition licence holder, Adam Tait, put the car through its paces on the track, and he came away very impressed. Given that the car is completely standard aside from the gearbox conversion and the replacement exhaust, that bodes well for the performance of a similarly converted car once it has been lightened, stiffened by the addition of a roll cage, and the handling improved via uprated suspension – and there are already plenty of bits out there to do that.

In short, now that a manual gearbox conversion is available, the XK8 is a car with a lot of competition potential, and Elite and Performance are happy to discuss the preparation and maintenance of any car for racing. Arrive and drive packages are also in the pipeline.



Danny Carpenter at Elite and Performance Jags is the man who has engineered the conversion – and it looks like he's done a very good job!

For details, contact Elite and Performance Jags:

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**Note** – this car will be on display on the Kelsey Publishing stand at the Pistonheads Show (entry to which is part of the Admission to the Autosport International Show) at the NEC from January 11-13. Details from:

- [www.pistonheadsshow.com](http://www.pistonheadsshow.com)
- [www.autosport-international.com](http://www.autosport-international.com)

specific Tremec 'box installed in this car (several variations are available and were tried) having an input shaft that is too short, necessitating the use of a brass bush in order for it to meet the crank. This, he assures me, won't be an issue with the finished conversion as the box will simply be mounted slightly further forward.

That aside, from the passenger seat it's easy to tell that there is one fundamental problem with the conversion as it stands – that original 3.06:1 differential. It's a problem that Danny doesn't try to hide and which he readily agrees needs sorting. With the internal ratios of the gearbox as they are, in sixth with its existing differential, the XK8's geared to do close to 300mph! Obviously that's not ideal – front-end lift may be a problem at such speeds – plus it means that pulling away requires deft clutch control and that fifth and sixth gears are almost irrelevant.

Unfortunately, the 4.3:1 diff from the Aston Martin Vanquish S doesn't fit, but Danny is very close to securing a supply of 4.09:1 Jaguar limited-slip differentials that would fit and which would solve the gearing issue – the only problem remaining to be sorted before the conversion is ready to go.

Needless to say, I'm keen to get behind the wheel for myself and, once there, everything feels well placed. The pedal layout will be familiar to anyone who has driven a manual XJ-S, and the gearlever is positioned perfectly – it's less that a hand-span away from the wheel.

Twisting the key has the V8 immediately thrumming into life, and a quick scan off the dash instruments shows no warning lights illuminated.

Which means its time to depress the clutch, select first, tickle the throttle and feed in the power ever-so gently...

In fact, getting the car underway is not too difficult, although it's fair to say that the combination of that fast road/race clutch (with its very short travel and relatively sharp bite) plus the high gearing is not ideal. Hill starts certainly require a little concentration, but it's important to remember this is a development car. The finished conversion, with a lower final drive and a more road friendly clutch (several will fit) will be far easier to get off the line and, even in its current form, the transformation in character from the standard car is simply stunning.

Once underway, power delivery is very impressive. This is a quick car and – tall gearing notwithstanding – it easily feels the match of a standard automatic 4.0-litre XKR, such is the change in its character. The box feels very good too. Throw between ratios is minimal, which requires a little getting used to, but once familiar with that characteristic it's very rewarding to use. Incidentally, the box is rubber mounted, but it's a V12 engine mount that is used which means its location, though insulated, is very solid indeed. Those 'enthusiastic' XK8 owners that have always bemoaned the lack of a full manual should certainly be impressed – I know I am.

The XK8 has long been looked upon as a capable sporting GT – and a very fine machine it is too – but with this manual gearbox it is moved far closer to being a true sports car. We're looking forward to trying the final conversion very much indeed.