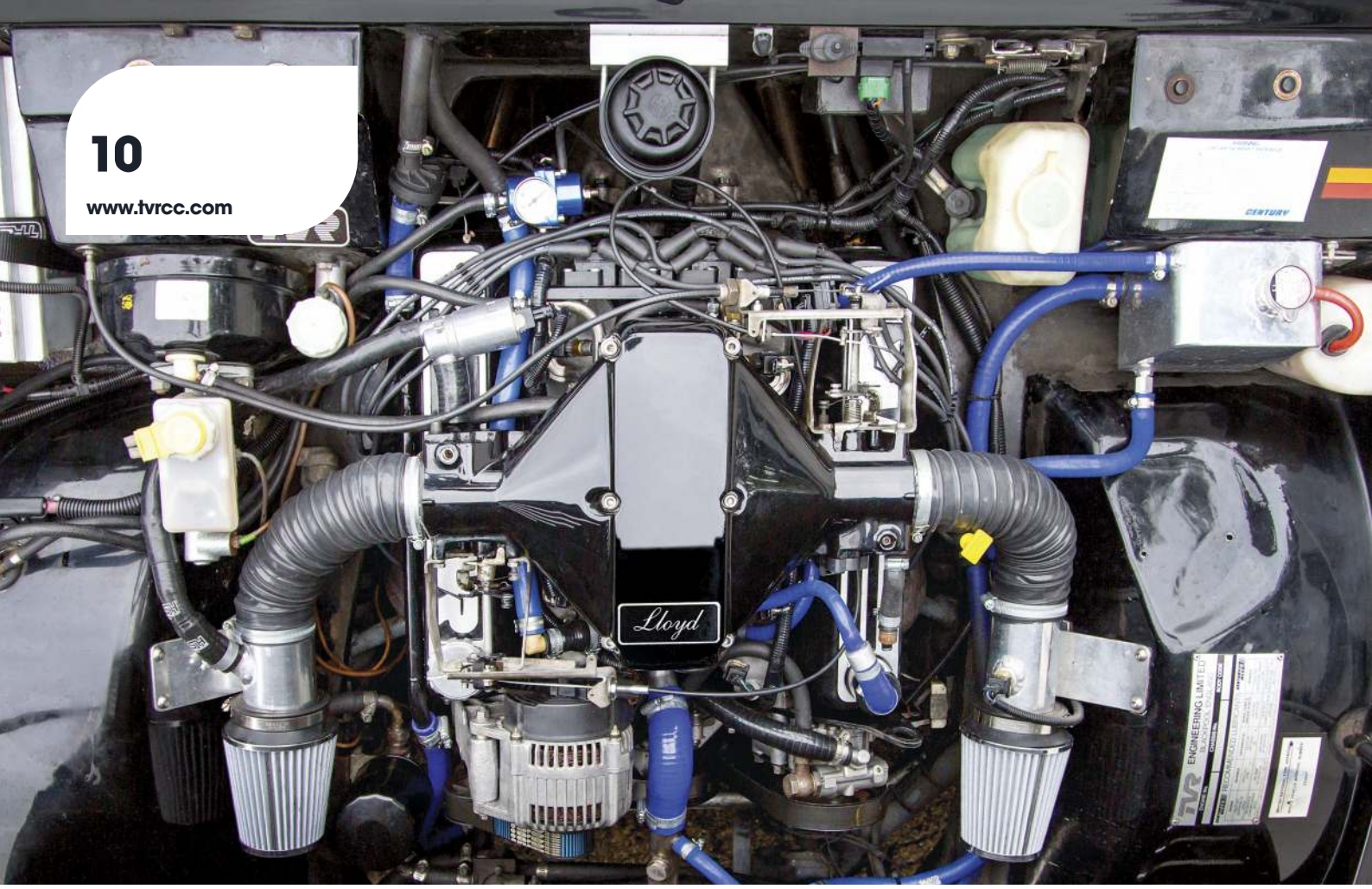
Big BAD

With only 35 ever produced, the **TVR 450SE** is a rare car

First sold in 1989, and with a claimed 320bhp, it had a fearsome reputation. In reality the cars sold to the public probably had noticeably less than the claimed power output but, like many high performance sports cars or super-cars of the 1980's, was still an intimidating car to drive. As well as the raucous V8, a lot of this was down to the sub-standard handling, brakes and steering - making driving these cars an experience one was unlikely to forget!

Wedge



"the wheels span furiously and the car started to accelerate like a demon!"


Custom Intake


Canems ECU

When Matt first purchased this particular TVR 450SE he knew that he wanted to improve the car, so he took the car to us at Lloyd Specialist Developments in Wiltshire, England. Matt had previously had our Canems engine management conversion on his TVR V8S, so this was first on his wish list - along with a thorough service and repair work where required.

With the Canems engine management, service and repair work all complete, Matt was interested in tuning the engine to obtain closer to the original claimed 320bhp, so sensibly decided to put the car on the rolling road to find out its current state of tune. Producing a very respectable 284bhp at 5900rpm, this engine appeared to give a good base from which to obtain over 300bhp. As the existing camshaft was worn out anyway, Matt decided to upgrade the valve-train with a new high-lift camshaft, hi-rev hydraulic followers and Yella-Terra roller rockers.

The use of Chevy hi-rev hydraulic followers, hollow push-rods and roller rockers enabled the change to the Chevy type oiling system. For those that do not know, this type of oiling system transfers oil to the rocker gear at the top of the engine via the followers, hollow push-rods and the roller rockers.

This means that the original Rover V8 oil-ways in the cylinder heads are tapped and fitted with grub-screws, to stop the bottom end being starved of oil. This method greatly improves the oil supply to the valve-train at the top of the engine.

As part of the top-end rebuild, the cylinder heads were removed to measure and balance the combustion chamber volumes and re-lap the valve seats for better sealing. Once the cylinder heads were removed it was clear that the engine required more than a top-end rebuild - the cylinder bores showed signs of significant wear and further inspection showed that the bottom end bearings were also well past their best. After lengthy discussion Matt decided to bite the bullet and commission a full custom engine build, based around one of ACR's 4.8-litre short engines - including custom forged pistons with cut-outs for valve clearance.

By painstakingly measuring all of the engine components, as well as measuring the cylinder-head flow using our in-house digital flow-bench, we designed a custom camshaft using our engine simulation software. This camshaft design was then checked and manufactured by Kent Cams.

The engine simulation work also indicated that the horse-power potential would be capped at about 300bhp by the use of the original 72mm throttle. A cost effective solution to this issue was sought, so two standard plenums with 65mm throttles were cut and welded together with a partial divider plate in between. With a 45mm carbon trumpet base, the engine simulation software indicated that over 320bhp was achievable with this combination of parts.

Big BAD Wedge 450SE

Stage 4 Big Valve Heads

Conclusion

With our work complete, Matt collected his 450SE and drove it back to his home in Cornwall. Matt's verdict? The engine is awesome but now we need to upgrade the gearbox to a Tremec T5 to improve the gear-shift quality and re-position the steering rack to virtually eliminate bump-steer. Increasing the performance has further highlighted the existing weaknesses in these particular areas.

So is the car less intimidating to drive? Emphatically no! Has the car retained its fearsome character? Yes - with over 330bhp and a redline of 6600rpm, this is one Wedge that will really put hairs on your chest!

Daniel Lloyd

Engine Build Spec. Sheet

Engine Capacity: 4748cc **Bore:** 96mm **Stroke:** 82mm

Short Engine: Top-hat linered with forged pistons, built by ACR.

Cylinder Heads: Stage 4 with 43mm intake valves & 38mm exhaust valves.

Compression Ratio: 10.0:1

Camshaft: Custom camshaft designed by Lloyd Specialist Developments Ltd and made by Kent Cams.

Valve-train: Chevy Hi-Rev hydraulic followers, Chevy hollow push-rods, Yella Terra roller rockers, J.E. rocker end posts, double valve springs.

Intake System: Modified twin 65mm throttle EFI intake with 45mm trumpet base. Modified intake base.

Engine Management & Fuel System: Canems Fully Programmable ECU with distributor-less ignition. Bosch EV6 fuel injectors and adjustable fuel pressure regulator.

Other: Lightened flywheel, heavy duty AP clutch

You can find out further details about Lloyd's at:
www.lloydspecialistdevelopments.co.uk