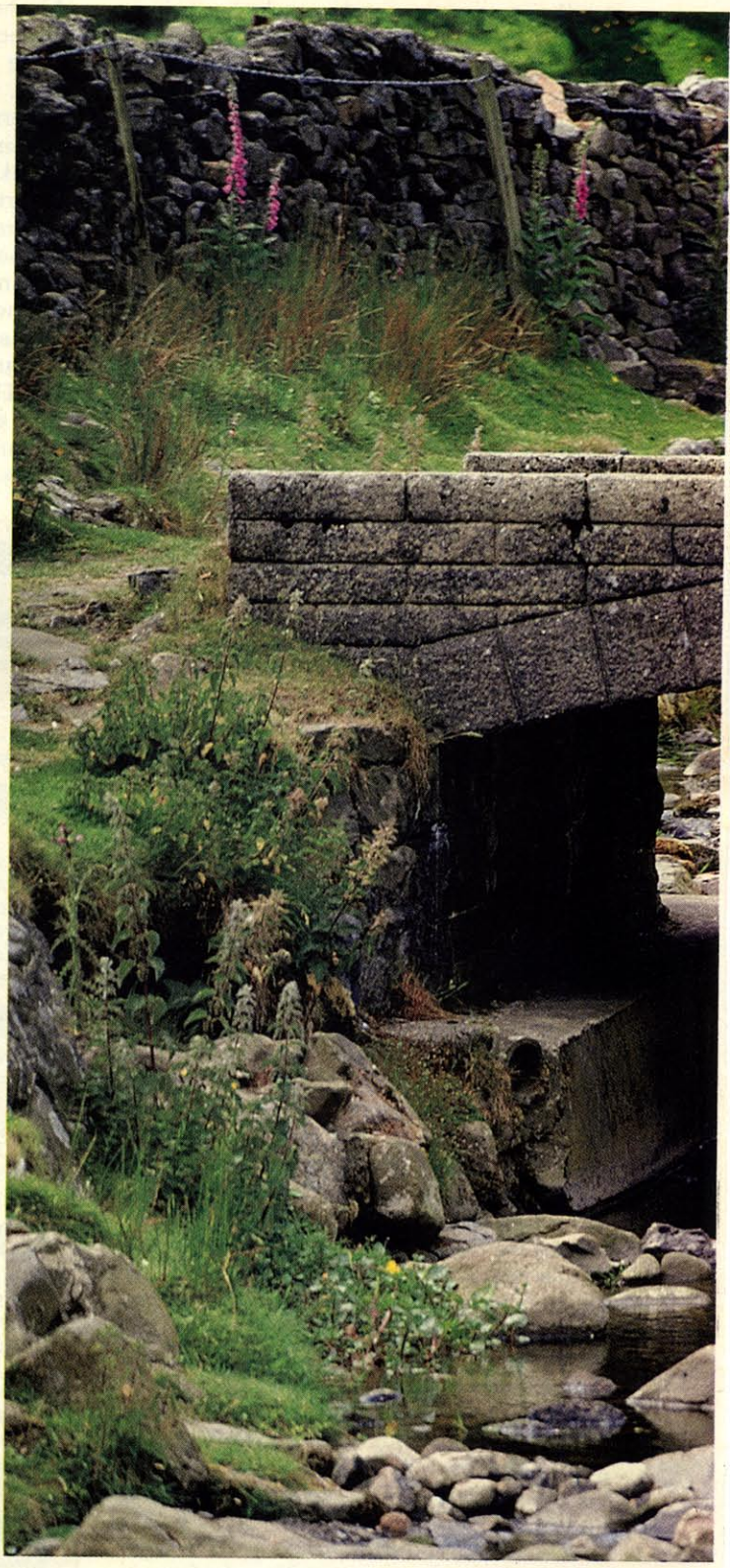
TVR

420 SE AC

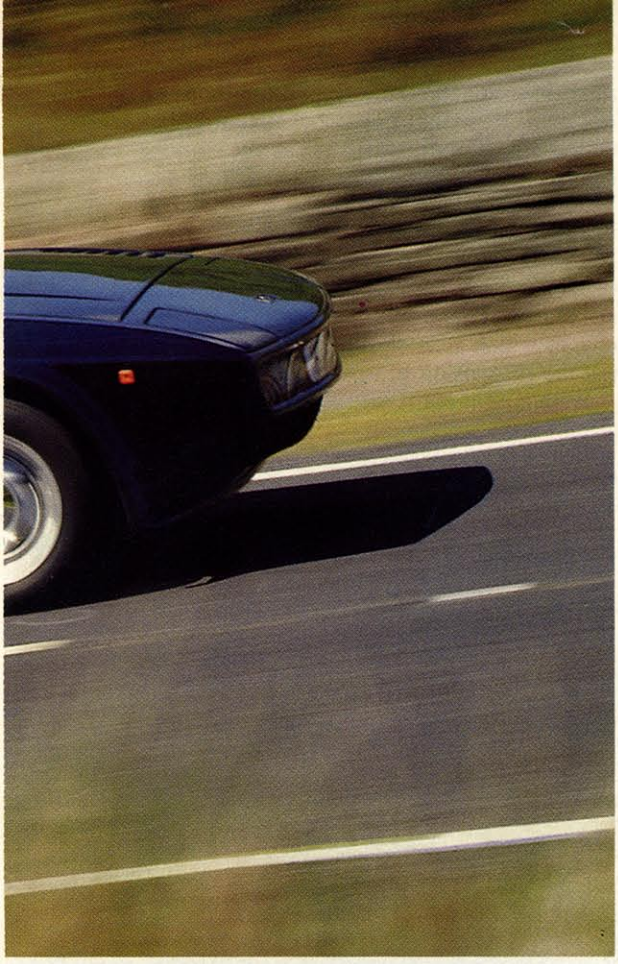
It's handbuilt for hard chargers

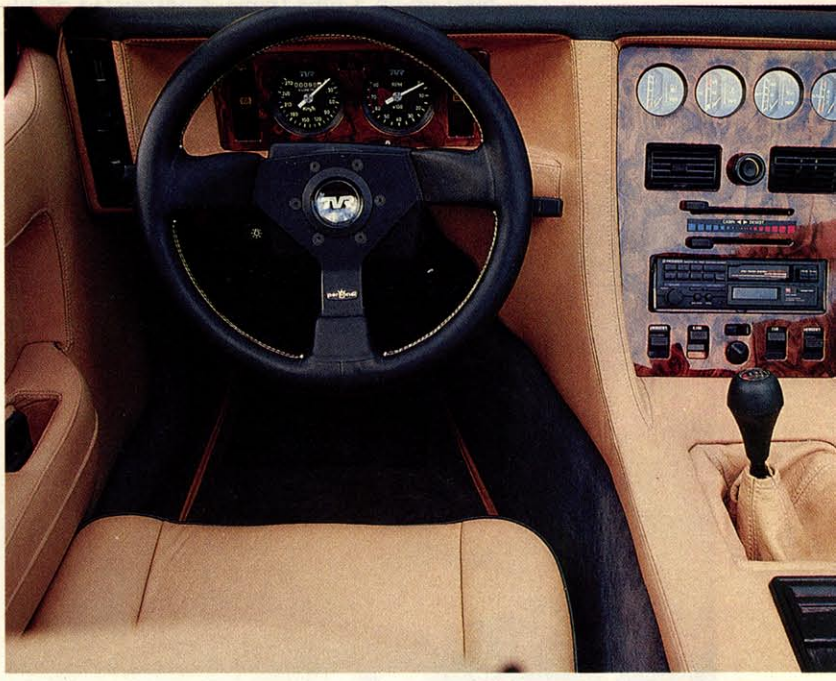
BY GARRETT LAI
PHOTOS BY RON PERRY



QUICK, WHAT WEIGHS more than a Ford Festiva, less than a Volkwagen GTI and packs more horsepower than a Corvette (245 bhp)? Or, for that matter, more ponies than a Ferrari 328 (260 bhp) or even a Porsche 911 Turbo (282 bhp)? A TVR. Built in very limited numbers in Blackpool, England, with lightweight construction and power to spare, it runs like a bat outta hell. No, it's not some V-8-powered kit car built on a VW chassis, but a genuine English sports car, from a company more than 40 years old.


420SEAC
SAUDI ARABIA
3295222





Gauges sweep from two to ten o'clock, to avoid being hidden by the steering wheel rim.

First, a little history lesson. In 1947, a 23-year-old former mechanic's apprentice named Trevor Wilkinson started a company. By deleting the letters R, E and O from his christian name, he came up with the title of TVR Engineering. Trevor, who had left school at 14 to become a mechanic's apprentice, worked evenings and weekends on his car, an Alvis Firebird. This was the extent of automotive engineering at TVR for the next two years. Efforts to raise money for the design of the first TVR involved general engineering work of all types, including the design and manufacture of a harmonica! Finally, in 1949, the first TVR-engineered car was born. Constructed in spare time so as not to disrupt the flow of general engineering work which was TVR's stock in trade, the car featured a tubular chassis with a trailing arm front suspension and leaf springs at the rear. Though sporty in character, the car set no records for styling or performance.

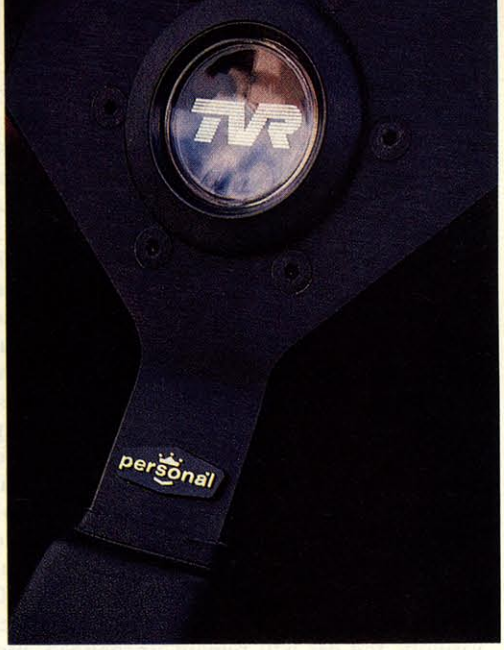
So why is this important? It all has to do with the spirit of TVR Engineering, and the cars which it produces. The original TVR was built by Trevor and his collaborator, Jack Pickard, in their free time. Neither had formal training in engineering, both having left school at 14. Guided by their intuitive as well as practical knowledge, the TVR was more of a quest for driving excitement than engineering perfection. It was a car built and designed by true enthusiasts, and intended to be consumed by the same. And although Mr Wilkinson resigned in 1962, the company continues to build exciting enthusiast cars capable of fostering sporting desires.

Which brings us to the present day. Today's TVR Engineering is a stable company concentrating on the design and construction of sports cars. All TVRs share the same basic construction, varying mainly in powerplant and styling. Still handbuilt by a small staff, TVRs are turned out at the rate of 15 per week. Not the kind of production which will set Austin Rover on its ear.

AT THE top of the TVR heap rests the 420 SE AC, a car which is set apart from the rest of the model line for two reasons. The 420 refers to the engine displacement which, in this case, is 4228 cc. This is the largest and most powerful of all the engines installed by TVR. The second half of the name, SE AC, refers to the car's construction. Standing for Special Edition Aramid Composite, SE AC denotes the fact that this TVR's bodywork is made not of the customary fiber-

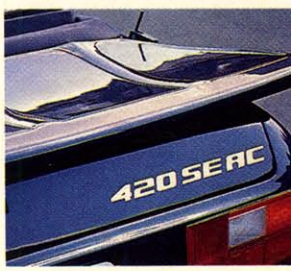
the TVR, wheel motion is confined to movement of the suspension members. In theory, this is how all cars should work, but in reality, all cars suffer from some degree of chassis flex. This is undesirable, as it is uncontrolled movement. When tuning a suspension, wheel motion needs to be controlled by careful selection of spring rates, shock damping, roll stiffness and the like. With a flexing chassis, suspension tuning has less effect, as there is always that bit of uncontrolled motion from the chassis.

Front suspension on the 420 consists of upper and lower A-arms or, as they say in England, unequal-length wishbones. Carrying 15 x 8J alloy wheels with Bridgestone Potenza RE71s, the front suspension is nothing unusual. At the rear the same unequal-length A-arm suspension geometry is used, but it is achieved by rather unconventional means. A conventional lower A-arm is used, but instead of a regular upper link, the axle halfshaft is used. A trailing arm gives longitudinal support, and takes the torque applied by the wheel. Previous TVRs used a different arrangement consisting of a single semi-trailing arm with a lateral link. But with the introduction of the 390 and 420 series engines, TVR engineers (and drivers) found that this suspension couldn't handle the engine torque.



Which brings us to motive power. The first TVRs, though nimble handlers, were never big on power. As was the norm in England, they relied on 4-cylinder engines of modest displacement. Engines such as the 1200-cc Austin and 1500-cc MG were common powerplants for TVRs. In 1962, as the result of a mechanic's joke, a Ford 289 V-8 found its way into a TVR Mk 3. Intended to be funny, this produced some very rough, but equally serious performance. In testing with this combination, Mark Donohue was able to beat the lap times he'd set in his 289 Cobra by a healthy margin! This was the inspiration behind Jack Griffith's famous Griffith automobiles, which were TVRs with Ford power, and 0–60 mph times of 5.0 seconds. That first V-8 powered TVR started an evolutionary trend, which reaches its peak with the 420.

Although modern TVRs are no longer Ford-motivated, they still pack an American V-8, in a way. The 8-cylinder TVRs use engines derived from the Rover 3500 which is the old



TVR claims the spoiler gives an aerodynamic advantage, but one staffer echoed popular opinion, calling it a snow shovel.

Buick/Oldsmobile aluminum V-8. Racing experience brought about the first changes to the 3500, which were bore and stroke increases, the use of Cosworth pistons which raised compression to 10.5:1, an aggressive camshaft and modified cylinder heads. The result was 275 bhp and 270 lb-ft of torque to power the 390-series TVR, and a displacement increase to 3905 cc, giving rise to the 390 moniker. For the 4228-cc engine of the 420, the 390 powerplant was stroked with a new crank, and given more valve-train development, in the form of revised cylinder heads with a new camshaft using solid lifters. The engines are handbuilt and dyno-tested by TVR, and give a healthy output of 300 bhp at 5500 rpm, and 290 lb-ft of torque at 4500 rpm. For 1989, the 420 engine will be replaced by a larger and more powerful engine. The new car will be dubbed the 450 SE AC, reflecting the displacement increase. Visually, the car will remain unchanged, but will feature 20 more horses under the bonnet.

All this power passes through a 5-speed manual gearbox to the differential. Built by Jaguar, this is the same unit used in Jaguar XJ-series sedans, complete with inboard disc brakes. On the TVR, they measure 10.9 in., and coupled with the 10.6-in. vented discs at the front, the oversized brakes should provide more than adequate stopping power for such a lightweight automobile.

All these mechanicals are cloaked by an aggressively styled, but rather dated, wedge-type body. With the steeply raked windshield, large rocker-panel extensions and extremely (some would say exceedingly) large rear spoiler, there is no doubt about the sporting intentions of the car. With rumbling exhaust and go-fast styling, the TVR is a head-turner. Built up of hand-laid resin, Kevlar and carbon fiber, with honeycomb reinforcing sections in the nose, decklid and bulkheads, a 420 body takes two to three weeks to complete. The finished shell is light and strong, and possesses admirable fit and finish for a fiberglass car.

INSIDE, THE car lives up to high quality standards which typify British luxury automobiles. Like everything else, the interior is handcrafted. The leather is hand cut, of course, from the finest Connolly hides. Customers may specify any color interior, and the lads at Blackpool will happily provide it. An array of Stewart-Warner gauges faces the driver, with tach and speedometer mounted above the steering column. Fuel level, oil pressure, coolant temperature and battery voltage are handled by gauges in the center console. The tach and speedometer needles sweep clockwise, but the range of travel is unusual, extending from two to ten o'clock, so that their sweep isn't obscured by the thick rim of the Momo steering wheel. It looks a bit strange, but works surpris-

Lightweight tubular frame is stiff and rigid, providing good anchor points for the suspension and drivetrain components. A big improvement from unit-body designs, but time-consuming.

ingly well. This is a very narrow car, as evidenced by the fact that the driver's left foot, when not employed in pushing the clutch pedal, must rest behind the pedal because of lack of room in the footwell.

With 300 bhp on tap and a curb weight of only 2200 lb, the 420 SE AC has a test loading of only 7.8 lb/bhp. Compare this to a loading of 10.4 lb/bhp for the Ferrari Testarossa and 11.4 lb/bhp for Porsche's 911 Turbo, and one can see that the TVR should be able to run in some pretty fast company. Or outrun them entirely. Only Lamborghini's legendary Countach (at 7.6 lb/bhp) comes close to the TVR's highly potent combination of high horsepower and diminutive weight. We weren't able to instrument the 420, but our driver reports that it was FAST. The factory claims the 420 capable of 5.0-second 0–60 mph times. When compared with the Lamborghini's 4.7-second 0–60 mph run and nearly identical horsepower loading, the TVR should live up to these claims.

With oversize tires and such low weight, the TVR possesses the necessary formula for straight line acceleration, as well as good handling. And with a short wheelbase and torque aplenty, the tail is easily encouraged to drift outward. But much to the credit of TVR, it is caught just as easily, without the drama of white knuckles and bulging eyeballs.

With a small production output and such heady performance, it is no surprise to learn that the TVR factory is backlogged on orders. To get your 420, you pay £31,000, and wait about six months. You could go and work at the factory, and contribute toward the 600 man-hours necessary for completion of your 420. Or you might settle for one of the lesser models and wait as little as three months; but then you wouldn't have the Kevlar body and heart-stopping engine. There's a good side to this, however. As your 420 SE AC is literally built to order, you may specify exactly what "flavor" you want. If you're a hardcore enthusiast, you could go for the Heim-jointed suspension, the 16-in. wheels and the race-tuned engine. Or, if you prefer, you might choose to go with the standard rubber bushings in the suspension, the soft-riding 15-in. wheels and hydraulic-lifter engine, eliminating the need for valve adjustments. The interior as well as exterior coloring is up to you too. In any case, the resulting car will be fast, furious and essentially custom-built, at little or no extra cost.

Before you go for the checkbook, be warned. TVR no longer exports its wares to the United States. There are several reasons for this, the common denominator among them being compromise. To meet Federal regulations, the TVR's wonderful engine would become relatively anemic, its light platform hobbled with heavy safety equipment. These modifications, coupled with a weak dollar, would drive up TVR prices. And with the performance compromise, the powers that be at TVR decided that the car wouldn't be worth the cost to the consumer.

Light and fleet, the 420 SE AC is a Shelby Cobra for the Eighties. In fact, more than one staffer drew that exact analogy. Though rough, the TVR is an exciting car, capable of holding its own against the likes of Porsche, Corvette and Ferrari. What it can't defend by brute horsepower and speed, it can fight with price and uniqueness. It's a far cry from the original TVR which rolled out from the wheelwright's shop in 1949, but it is undoubtedly an enthusiast car. And although Trevor Wilkinson is no longer with the company, the 420 SE AC is a car I'm sure he'd approve of.

EUROPEAN SPECIFICATIONS

Price	£31,000 (approximately $57,000)
Curb weight, lb	2200
Wheelbase, in.	94.0
Track, front/rear	57.1/58.3
Length	158.0
Width	68.0
Height	47.4
Fuel capacity, U.S. gal.	16.1

ENGINE

Type	ohv V-8
Bore x stroke, in./mm	3.68 x 3.03/93.5 x 77.0
Displacement, cu in./cc	258/4228
Compression ratio	10.5:1
Bhp @ rpm	300 @ 5500
Torque @ rpm, lb-ft	290 @ 4500
Fuel injection	elect. port

DRIVETRAIN

Transmission	5-sp manual
Gear ratios: 5th (0.97)	3.21:1
4th (1.00)	3.31:1
3rd (1.40)	4.63:1
2nd (2.09)	6.92:1
1st (3.32)	10.99:1
Final-drive ratio	3.31:1

CHASSIS & BODY

Layout	front engine/rear drive
Brake system, front/rear	10.6-in. vented discs/10.9-in. inboard discs, vacuum assist
Wheels	cast alloy, 15 x 8J
Tires	Bridgestone Potenza RE71, 225/50VR-15
Steering type	rack & pinion, power assist
Turns, lock-to-lock	3.7
Suspension, front/rear: upper A-arms, lateral links with compliance struts, coil springs, tube shocks, anti-roll bar/lower A-arms, trailing arms, coil springs, tube shocks	

PERFORMANCE[1]

0–60 mph, sec	5.0
Standing ¼ mile, sec @ mph	na
Top speed, mph	165

[1]Factory claims

na means information not availabie