

# Cerbera



**T**VR's Cerbera represents a fresh and exciting step forward in the history of TVR. Named after the mythical three headed dog that guards the gate to Hades, the Cerbera is a completely new car and like its namesake, can boast three major new features. These make it a very different TVR indeed. It will be the first model ever to emerge from the Blackpool factory offering more than two seats. A completely new body clothes a chassis which is longer than either of its sisters - the Griffith and the Chimaera - and although the new car's sleek lines bear a strong family resemblance to its forbears, the roof is fixed. This is the first TVR to be built without a removable top since 1989.

**T**he third and biggest difference is perhaps the most exciting of all. This is after all, a TVR, and it had to offer the kind of performance for which the company is now renowned. Under the Cerbera's long, sculptured bonnet is TVR's very own, compact, lightweight, hand-built 4.2 litre V8 engine. This dramatic and exclusive new power unit has been designed without compromise as a thoroughbred racing engine, then refined and suited for the Cerbera and the public roads. The moment you press the unique, electronically activated starter button, and hear the insistent, crisp bark that comes from the engine's unusual firing sequence, you can be in no doubt that this engine is something special. This is the first of a new breed of TVR, designed to offer



space for four together with the traditional TVR values of muscular rear-driven performance and race bred precision handling.

#### THE AJP ENGINE

The new engine - named AJP - has been designed to fulfil a number of specific criteria, and it is typical of TVR's philosophy that these requirements pay no heed to current fashion; TVR has always preferred to set its own agenda in that area. The AJP is an all aluminium 4.2 litre V8 with one overhead camshaft per bank operating just two valves per cylinder, and it develops 350bhp at 6500 rpm with 320lb ft of torque at 4500 rpm.



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A two valve layout is perhaps controversial in a high performance engine - especially in a market dominated by four valve power units - but after much dynamometer testing, TVR decided on one valve for the exhaust and one for the inlet. Massive midrange torque had been one of the original criteria, and a desire to ensure that equally large horsepower numbers could be developed at low rpm. TVRs have always been muscular, with effortless, stress-free delivery of large amounts of power and the new engine needed to enhance this successful formula rather than signal a departure.

A large inlet valve guarantees high gas speed through the inlet ports and is the preferred route for high power at low rpm, and a smooth, seamlessly potent torque delivery. Two valves also allows the designers to position the inlet and exhaust ports exactly where they need to be for similar reasons. No expense was spared in material choice; the valves are made from high quality stainless steel and the seats onto which they close and seal are fashioned from aluminium bronze.

A compact layout was another requirement, and two valves can be operated neatly by a single camshaft. This reduces the height of the engine considerably, and the chassis designers later concluded that had the engine men opted for the multivalve layout, the engine simply wouldn't have fit-



ted in the optimum position. A look under the bonnet readily shows how far back in the chassis the AJP is mounted, and this virtual mid-mounting of the engine was deemed essential for good chassis balance. The camshafts are driven by chains rather than belts - another precision refinement and there is of course multi-point electronic fuel injection and engine management to feed the engine with an optimum fuel/air mix.

This requirement for a neat and small engine also led to the adoption of a 75 degree angle between the engine's vee, rather than the more usual 90. The resultant complex harmonics of engine vibration from eight cylinders and a 75 degree angle dictated an unconventional firing order, and the AJP's sparking impulses take place at 75 and 105 degree positions in the crankshaft's rotation. This additional and unusual arrangement allows the exhaust manifolds on the engine to be easily-configured such that one cylinder helps exhaust another, thus helping efficiency and aiding clean emissions. One more unusual by product of the vee's angle is a crankshaft with all its big end journals at 180 degrees to each other - known as a flat plane crank because all the bearing journals lie in



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the same plane. A straight line can also be drawn through the centre point of the big end throws for each bank. This so called flat plane crank is stronger, lighter and more compact, and easier to manufacture to strict tolerances. The AJP's is made from high quality steel, as are the connecting rods.

The external appearance of the engine is extremely tidy. The design team were determined to avoid the unsightly and space consuming morass of ancillaries that normally surround a V8, and accordingly, the water and power steering pumps are neatly stowed just above the sump and under the cylinder head's overhang. They are driven by gears rather than belts. In fact, the only belt anywhere on the engine is a short, wide item to drive the alternator which is hidden within the vee between the fuel injection manifolds. A belt was employed here only because it absorbs any harmonic pulsing from the generator which could feed through to the engine's internals. Otherwise, existing service experience suggested that the elimination of rubber belts would be a considerable contribution to reliability and long service.

Drive from the AJP is through a race type twin plate clutch - the two plates allowing a smaller diameter unit with more friction area and hence lower pedal pressures - and the compact dimensions allow it to fit within a small, stiff bellhousing with a concentric slave cylinder for the clutch. This layout is stronger and keeps all the clutch operating levers inside and protected from the weather. The gearbox which transmits the power is the latest Borg Warner T55 unit and the short and compact engine allows the box to be positioned such that the gearlever will operate directly, rather than via a linkage.



The benefits in precision are immediately obvious as soon as you take hold of the gearlever.

The AJP power unit alone weighs about the same as the legendary Cosworth DFV - another engine designed entirely without compromise, and one which makes much use of exotic lightweight alloys. This is a comparison of which the designers are extremely proud. They have continually sought elegant and if necessary, expensive, mechanical solutions to their design goals, and it is true to say that these have been possible only because the engine is hand built in relatively small numbers. The TVR owner will enjoy the benefits of the kind of design and assembly exclusivity, normally reserved for the buyers of dedicated race engines, but without having to pay an exotic premium for the privilege. And, there are additional incidental pleasures for the owner, because the engine's voice is as different as its design. Instead of the traditional off-beat rumble of an American designed V8 there's a crisp and urgent bark like a bevy of multicylinder motorcycles revving in unison.

The final proof of the performance pudding is the performance figures. The best and most muscular support for such vocal promise. The compact AJP power unit propels the TVR four seater to 60mph from rest in a shattering 4.2 seconds, and will go on to top 160 mph where the laws allow. Proof indeed.

## THE CERBERA CHASSIS

A new engine, designed without compromise and which produces more power than almost anything else in its class deserved a chassis to match, and despite the family resemblance in the Cerbera's styling, the steel tube chassis underneath is much more than a stretched Griffith or Chimaera spaceframe. The Cerbera's chassis is six inches longer than its two seat brothers and its longer and larger dimensions demanded a different design approach in order to maintain the stiffness essential in a high performance car. If the chassis flexes, the mounting points for the suspension will move, and carefully designed suspension geometry is immediately compromised. While the new chassis was at the drawing board stage, TVR's engineers took full advantage of the opportunity provided by the fixed roof and built in an integral roll cage. In addition to the extra rollover protection, the cage also provides strong attachment points for the rear seat belts.

TVR's new engine guarantees an exclusive level of performance, and the suspension and brakes have been designed to cope with the potential for greater speed, and to cope with the extra load carrying capacity. TVR believe that double wishbones are still the best possible way to ensure that the contact patch

of a wide tyre enjoys maximum contact with the road at all times. The Cerbera's basic design layout is therefore similar to that already extensively proven at both ends of the Griffith and Chimaera and in the racing Tuscans. Gas-filled Bilstein shock absorbers once again ensure excellent ride quality with the stamina to maintain control over the body at all times, while dual rate Eibach springs offer compliance at low speeds but provide strength when the driver wants to exploit the Cerbera's road-holding.



Wishbones and dual rate springing demands a greater number of components and is relatively expensive to produce. They are also ideally suited for installation on a backbone chassis. Both are good reasons why you won't generally find them on mass produced cars and it is yet further proof of TVR's commitment to dynamic excellence. Once you have experienced the degree of precision the layout provides, you won't want to settle for anything else.

Cockpit drill complete, lay back in the comfortable, figure-hugging leather faced seat. See how your legs are nicely aligned, straight out to meet the adjustable pedals - there's no uncomfortable need to bend an ankle, either to push the clutch or squeeze the brakes. Ensure that the multiple adjustment offered by the steering column has neatly positioned the wheel

#### ON THE ROAD

Experiencing the Cerbera's command of the road is a treat to be savoured, so let us take you with us for a drive. But before we do, take a look round the cockpit. It's light and airy and the view is good in all directions, so parking and manoeuvring will be easy when the journey is over. Now, take a moment to understand the special controls. They are as unique and as specially designed for the purpose as those in an aircraft's cockpit, and the new Cerbera owner will enjoy the few minutes necessary to discover their operation. Your thumbs will easily find the four buttons on the steering wheel which operate wiper and wash, horn and headlight dip, while beneath the steering wheel are two more. One to start the engine, the other to stop it.



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clear of your knees. Check out the uninterrupted view over the bonnet's seductive curves. Take in the clear view of the instruments through the wheel's three leather covered spokes. Take a gentle grip of the firm thick rim with one hand and with the other, press the ignition button beneath the wheel and hold it. The displays ahead of you will light up, the needles within the specially styled gauges will flick towards optimum, and the starter motor will cut in just a brief few seconds later, without your having to touch another control.

The urgent, instant rasp of the AJP beckons. Snick the short aluminium gearknob into the waiting first gear slot, ease the clutch up, and you're away. You already know how fast this car can go, because you have read the performance figures, but you will be surprised how docile the engine feels. There are no uncomfortable surges in the engine's low speed performance - the kind which can lead to embarrassing moments when trying to accelerate on a greasy road - just a continual outpour-

ing of power which seems seamlessly to grow ever larger as the tachometer winds its way round the dial. When you lift off the accelerator and declutch, the revs die away as urgently as they rise, and the sheer pleasure of snicking the gearlever swiftly about its neat and closely spaced gate will surely bring out the racer in you.

The wheel's chunky rim meanwhile lays obediently still in your hands. The optional power steering waits ready to help you turn a pair of wide low profile front tyres, but until you initiate the command, the car tracks uncannily straight and true. White lines and changes in the road surface won't deflect the steering's aim, and the Cerbera maintains a straight and narrow course on motorway or B-road with equal ease. Just the merest easing of the rim however, and the nose will eagerly respond. The movement is immediate and confidence inspiring and it happens without a trace of nervousness. This uncanny willingness to attack a corner

from the front without any worrying or contrived looseness from the tail is an ideal combination. Such a degree of natural stability with such electric responses when you need them, is perfect endorsement of the light and compact mid mounted engine position and the sophisticated multi wishbone suspension layout.

Independent suspension at the rear via double wishbones guarantees ride quality with the kind of traction necessary to handle a large power output, and it also means that the keen driver can savour the independence of another control - the pedal under the right foot. Gently adjusting the car's attitude through a corner is a delight in any TVR, and can be done safely without recourse to dramatic and potentially dangerous tail wagging. Such an option is not available to front wheel drivers.

The Cerbera is a formidable performer and yet it is docile until called upon to respond. It is also stylish both inside and out, and it offers a superb level of equipment. Electric windows, central remotely operated microwave locking and alarm system, tinted glass and a high quality radio/cassette player are all offered as standard equipment. Air conditioning is available as an extra along with a range of pearlescent paints, heated seats and an ice detector. Power steering is also on the extras list, but the factory's experience with the Griffith and Chimaera suggests that many enthusiasts prefer their controls untroubled by any form of assistance.

The new car would hardly be complete without the little stylistic touches which so distinguish the modern TVR's interior. The switches for the electric windows are fashioned from polished aluminium and sit either side of the radio, the heater controls are also







brightly polished, as is the indicator stalk. The central instrument pod with its bold, metal rimmed collection of dials extends below the steering column, and contains a vent to direct cool air towards the driver. The doors have no handles - either inside or out - instead they are controlled by buttons in the door pocket, or on the key fob. The latter also controls the remote alarm and engine immobiliser. There are no keys for the ignition either. Once the immobiliser has been commanded to activate the engine's management, the black button below the steering wheel switches on the ignition, and

also activates the starter in sequence. The red button to the left, stops the engine and cuts the ignition.

**T**he new Cerbera preserves and enhances all the attributes for which TVR is famous. It offers new levels of performance from a dramatic new power unit, while maintaining standards of roadholding and handling already set by the Griffith and Chimaera. It also offers a host of distinctive new features, all of them designed to make the new car more enjoyable, distinctive and exciting.

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## Specifications

### DIMENSIONS

Overall Length	4280 mm
Overall Width	1865 mm
Overall Height	1220 mm
Wheelbase	2566 mm
Front Track	1464 mm
Rear Track	1470 mm
Ground Clearance	130 mm
Fuel Capacity	65 litres
Weight	1100 kg

### ENGINE

Configuration	4.2 litre 75 degree V8 with aluminium block and wet cylinder liners
Capacity	4185 cc
Max rpm	7000
Max power	350 bhp (DIN) at 6500 rpm
Max torque	320 ft/lbs at 4500 rpm
Exhaust	Catalytic Converters

**Fuel and ignition system.** Fully mapped electronic engine management with twin three way catalytic converters and closed loop control strategy.

### TRANSMISSION

5 speed manual gearbox with hydraulically operated clutch.  
Gear ratios - 1st 2.95:1, 2nd 1.95:1, 3rd 1.34:1, 4th 1.00:1, 5th 0.73:1  
Final drive ratio 3.45:1  
Limited slip differential, Hydratrak optional

### SUSPENSION

Front - Independent with unequal length fabricated wishbones, coil springs over gas filled telescopic shock absorbers with anti roll bar.  
Rear - Independent with unequal length fabricated wishbones, coil springs over gas filled telescopic shock absorbers with anti roll bar. Constant velocity sliding driveshafts.

### BRAKING

Front 294 mm ventilated discs  
Rear 294 mm ventilated discs  
Four piston aluminium callipers on front, two piston calipers on rear. Servo assistance with separate front and rear circuits. Cable operated drum hand-brake operating on rear wheels.

### STEERING

Rack and pinion with adjustable steering column and optional power assistance.

### WHEELS

Size	7.5x16in
Construction	six spoke aluminium alloy

### TYRES

Type	Bridgestone
Size	225/45 ZRx16in (front) 235/50 ZRx16in (rear)

### BODY

2 door, 4 seat coupe laid up by hand in glass reinforced polyester resin. Integral roll cage. Four priming coats and a minimum of five top coats of two pack paint. Laminated front windscreen with semi-frameless door windows. Fixed roof.

### CHASSIS

Jig formed, multi-tubular steel frame backbone chassis with outriggers and roll over protection front and rear. Etch primed and powder coated for corrosion resistance.

### PERFORMANCE

0-60mph	4.2 seconds
0-100mph	9.9 seconds
Maximum speed	in excess of 160 mph

### EQUIPMENT

Electric boot release  
Electric mirrors  
Electric windows  
Electrically heated rear screen  
Electronic alarm and engine immobiliser  
Hydratrak limited slip differential  
Individual tailoring of seats, instruments, dashboard and interior  
Optional power steering  
Reclining seats with adjustable head restraints trimmed in half hide (optional full hide)  
Remote central locking  
Stereo radio cassette with twin door speakers and integral aerial is fitted as standard, uprated systems are available on request  
TVR keyless electronic ignition with engine start buttons beneath the steering wheel  
Walnut veneer dashboard

