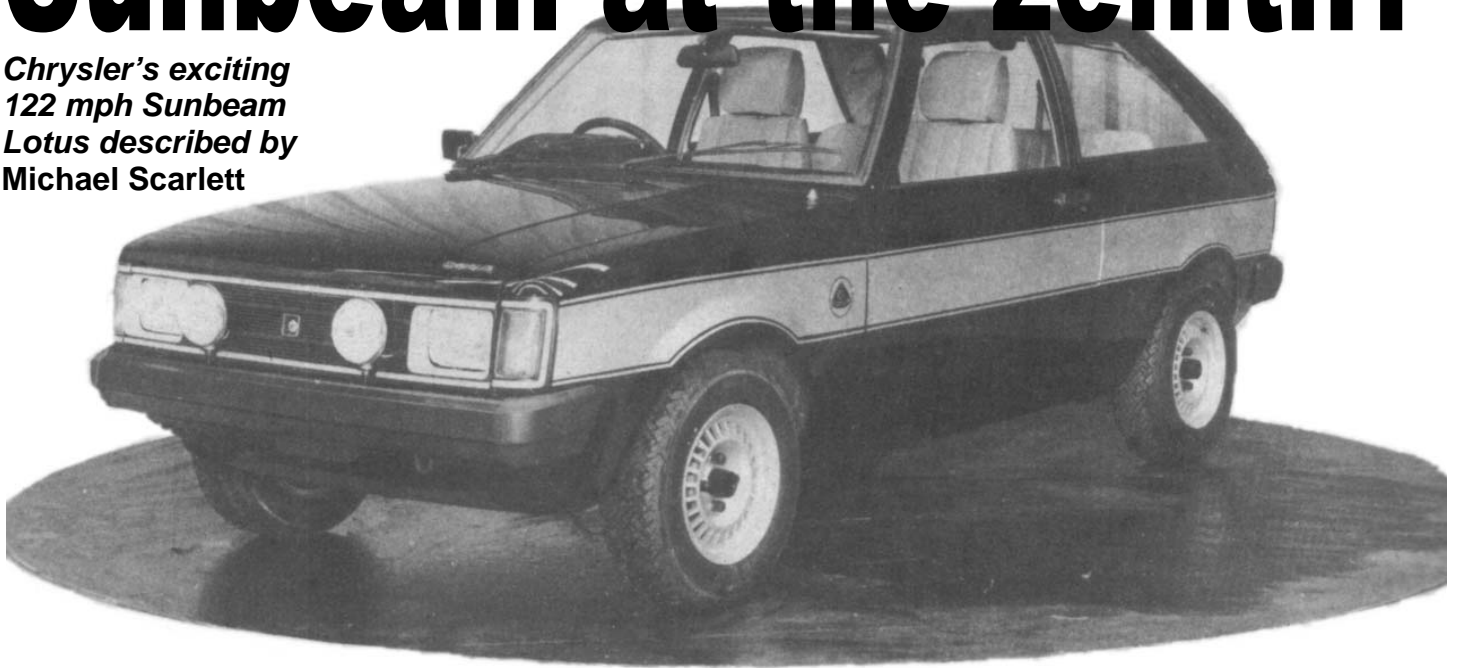


Sunbeam at the zenith?

**Chrysler's exciting
122 mph Sunbeam
Lotus described by
Michael Scarlett**



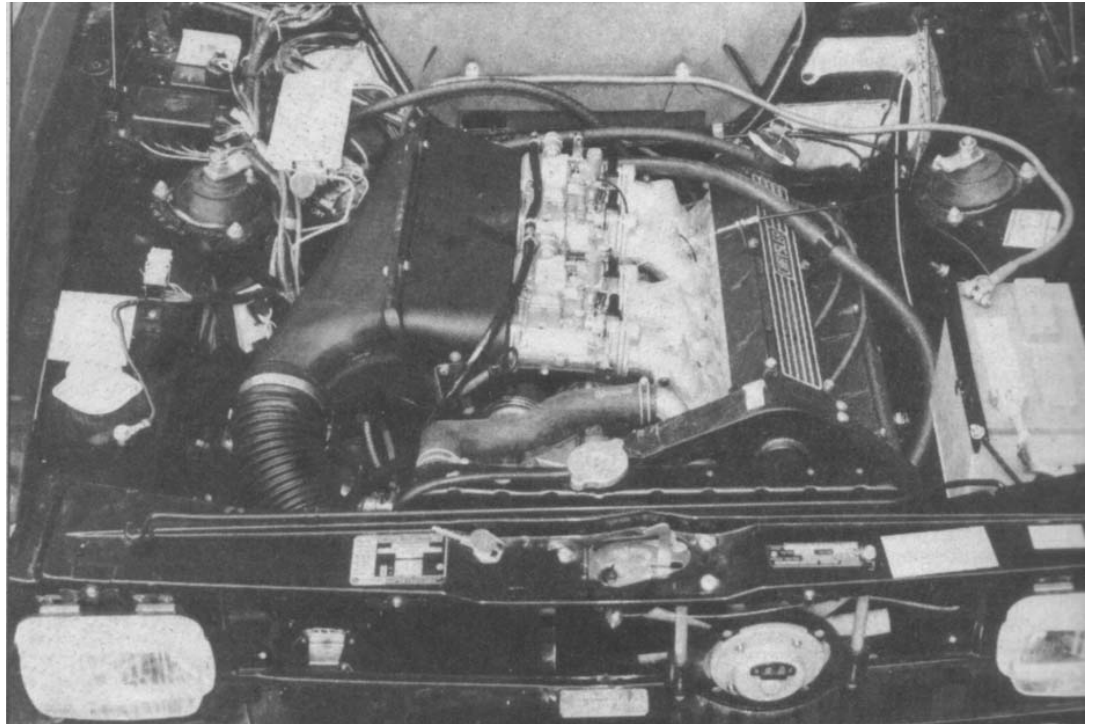
"LOTUS – the plant yielding the fruit eaten by the Lotophagi, represented by Homer as producing a state of dreamy forgetfulness and loss of all desire to return home" (Shorter Oxford English Dictionary).

From that, the unkind might suggest the suffix Lotus as mildly appropriate for a new sports saloon whose manufacturer has forgotten how to make a suitable engine for it – not at all just, since there wasn't really anything in the Chrysler / Rootes inheritance in the way of a high-output sports engine to remember more recent than perhaps the Roesch Talbots (circa 1932) or the great Sunbeam Tiger Land Speed Record blown V12 (1925). It would be kinder to say that the specification of the Sunbeam Lotus implies a car in which the enthusiastic owner once out on the open road will certainly lose all desire to return home.

As far as the first implication goes, there are plenty of good precedents for big manufacturers going to a small firm for a hot engine. Ford did it a while back with the unforgettably hooligan Escort RS1600, which used a Cosworth BDA 16-valve power unit, though at least that originally had a Ford basis. That car, like this exciting little bomb from Chrysler, was a "homologation special" but a sincere one in that around 6,000 were produced for sale – as sincere as this

Chrysler if one is to believe the makers who say that "more than 4,000" will be made, adding unofficially that this will mean production up to 1981. Sales start in June, at somewhere around £5,500 and £6,000 (compared with Ford's Escort RS1800 which cost £4,275 when it finished its short production run in September 1977).

The Sunbeam Lotus production car was launched officially at this



Top: Chrysler's hot Sunbeam has business-like no-nonsense looks – which means none of the Sunbeam Ti's impressive-looking spoiler front or back

Above: The length of the Lotus slant four forces the electric fan (hidden) to be placed in front of the radiator; battery and washer bottle have to be removed too

month's Geneva Show, but its appearance was heralded, if not immediately made certain, by the prototype rally car of last year. The latter has already shown some promise in competition long dominated by others, notably Ford; on his first drive in the Sunbeam after leaving the TR8, Tony Pond took it to second place overall in last July's *Mille Pistes* Rally in France.

With French driver Jean-Pierre Nicholas Pond will form a Chrysler rally team due to contest 10 International events this year, including three World Rally Championship dates (the San Remo, the Tour de Course and the Lombard RAC).

Enlarged engine

Heart of the car – its *raison d'être* – is a specially developed version of Lotus's type 907 twin overhead camshaft, 16-valve, all-alloy, inclined 2-litre four. Installed in Lotus machines (Esprit, Eclat and Elite) it has a 9.5-to-1 compression ratio, and on 98-octane fuel develops a claimed 160 bhp (DIN) at 6,500 rpm, with 140 lb.ft. of maximum torque at 5,000 rpm. In commissioning Lotus

to develop a unit suitable for their needs, Chrysler asked for as much capacity and thereby specifically mid-range power as could reasonably be extracted.

Lotus replied by stretching it from 1,973 c.c. (95.2X69.2mm bore and stroke) to 2,172 c.c., achieved with a new crankshaft giving a bigger stroke (76.2mm). Dubbed the type 911, the 45-deg slant engine has a very slightly lower compression ratio (9.44-to-1), different camshaft timing and an exhaust system – four-branch manifold into a single pipe to primary and secondary silencers – to suit the Sunbeam installation. It produces slightly less (6 per cent) peak power at 11 ½ per cent lower rpm – 150 bhp (DIN) at 5,750 rpm – but 7 per cent more torque at a 10 per cent lower speed – 150 lb.ft. at 4,500 rpm, which should mean that the tractability of the original 2-litre engine (much better than its performance claims suggest) will be correspondingly improved. Chrysler breakerless electronic ignition replaces the usual conventional system, reducing maintenance and theoretically improving reliability.

Main features of the power unit are unchanged. Camshaft drive is by toothed belt. It has wet iron liners. Valves have sintered seats and cast iron guides. Sparking plugs are 14mm NGK BP6ES type. Carburettors are a pair of horizontal twin-choke Dellorto DHLA 45E on the mouths of a die-cast aluminium alloy inlet manifold.

The great advantage of the Lotus engine in a car like the Sunbeam is of course its combination of light weight (for its size) and power. Less the clutch, it weights only 18lb more than the original iron Avenger engine, but provides 87 ½ per cent more horsepower than the 80 bhp GLS (50 per cent more than the simultaneously announced twin Weber Sunbeam Ti unit which is based on the same humble origin). The small weight increase reduces the usual balance problems of engine swaps to a negligible degree. The torque advantages are even better – 150 lb.ft. compared with 86 for the GLS and 96 for the Ti.

Transmission

The normal Avenger gearbox would clearly not be up to these amounts of power, and nor would the final drive. A ZF close-ratio, sports type, five-speed gearbox has been adopted whose gears in conjunction with a 3.89-to-1 final drive correspond to peak engine power speeds of 29, 51, 71, 100 and 124 mph. Fourth is direct. The makers claim a top speed of "around 122 mph" which implies that the 21.65 mph per 1,000 rpm overall gearing in top is a virtually ideal absolute maximum speed arrangement. This is achieved on larger tyres – Pirelli CN 36 185/70 HR 13in. – on 6in. rims. The added power and potentially better grip have recommended an inch-larger 8½in. dia Borg and Beck single plate diaphragm clutch which is cable operated. The one-piece propeller

shaft is shorter to suit the installation, the differential pinions are cut from higher-specification steel, and the axle itself is stronger.

To fit the new engine into the Sunbeam without changing the bonnet, minor power unit compartment modifications have been made to body shell panels. In addition the electric cooling fan now sits in front of the radiator instead of behind, and battery and washer bottle have been moved suitably. In place of the mechanical petrol pump

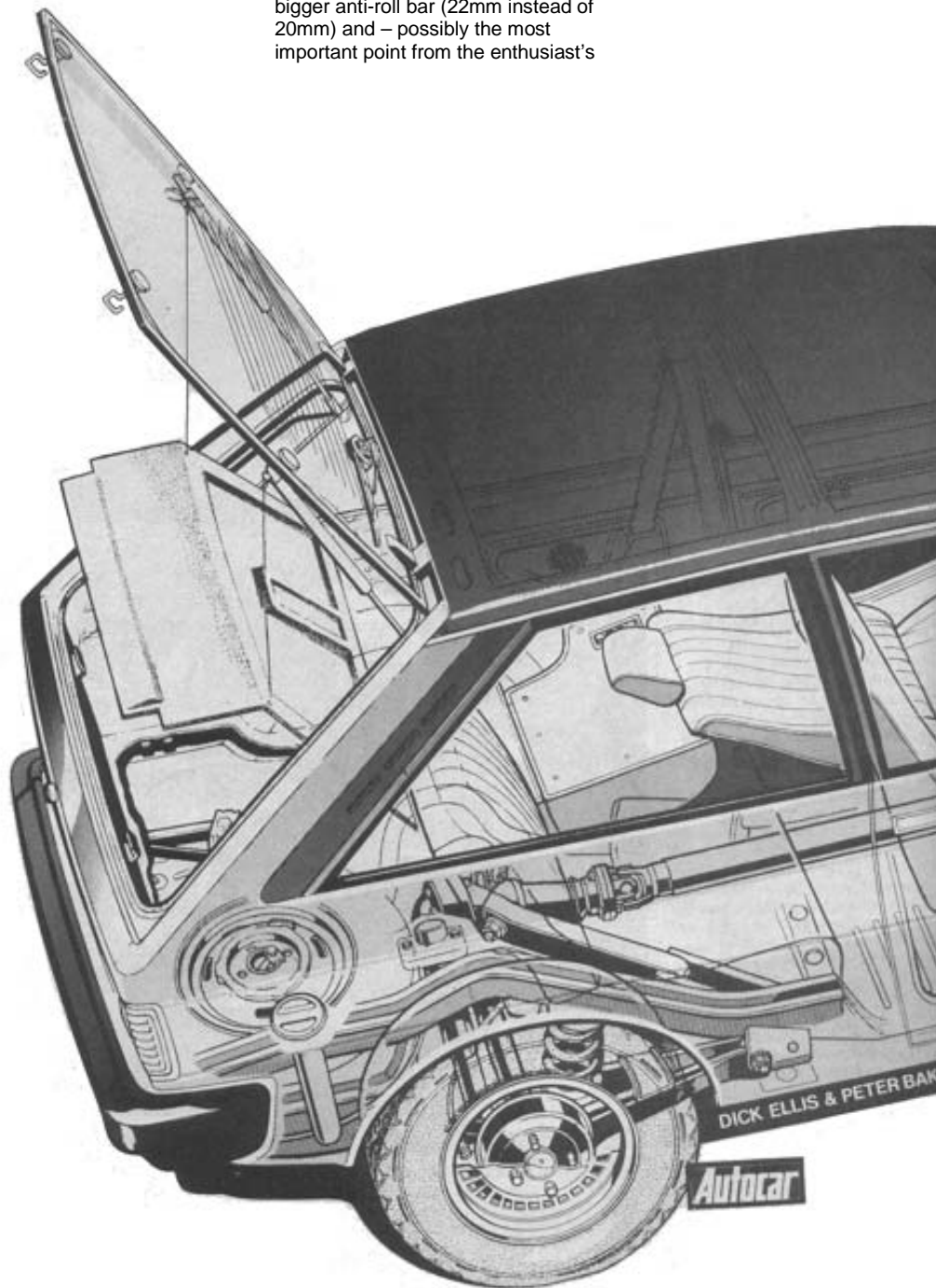
used in the Elite family, the Sunbeam Lotus has an electric one.

Suspension, steering and brakes

Chrysler have their own stiffer-sprung heavy duty options for Sunbeam suspension, and this is further changed in the Sunbeam Lotus application, with different damper settings, a 10 per cent bigger anti-roll bar (22mm instead of 20mm) and – possibly the most important point from the enthusiast's

therefore very slightly increasing the claimed turning circle, from 31ft 6in. to 32ft.

The wider wheels are cast aluminium alloy Exacton ones, pierced for brake ventilation. At the time of writing incidentally, we gather that the spare wheel has to use the old Sunbeam size tyre (155-13in.) in order to have it stowed in the usual place.



point of view – stiffer mounting bushes for crisper steering response. There are no changes to the rack and pinion steering other than different lock stops preventing fouling with the new tyres and

Brakes remain a servo-assisted disc-drum set-up with front-rear split circuits, but with thicker (½in.) disk of the same 9½in. diameter and bigger callipers in front, and bigger ¾in. cylinders for the same-size (8in.) rear drums behind.

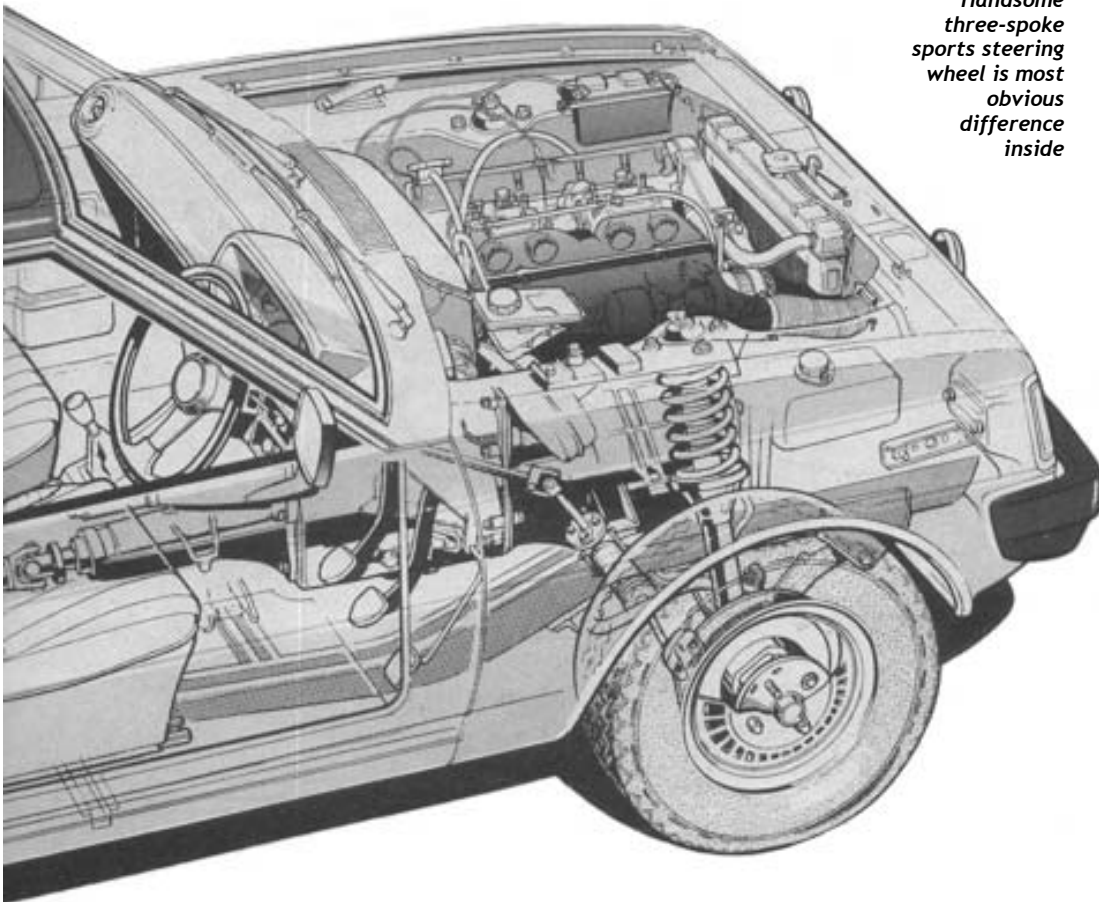
Typically, the Sunbeam Lotus has the same suspension as its humbler older brothers, though with stiffer springs and bushes, a stronger back axle and final drive. Tyre and wheel sizes are increased, front discs are thicker and there are more powerful callipers and rear brake cylinders. Engine fits in snugly; extra length of power unit plus ZF five-speed gearbox means that the propeller shaft is shorter



Body

Structurally, apart from the minor underbonnet changes mentioned, the new Sunbeam uses the existing shell which is assembled sans drive unit at Linwood in Scotland alongside all other Sunbeams, taken South-East to the Lotus plant at Hethel for engine and gearbox installation, then West to Stoke for final checking and inspection. It has a distinctive Hobson's choice colour scheme – black, with a broad silver side stripe which incorporates the cachet so familiar on another mass-production saloon (the Lotus Cortina) of the CAB Lotus motif (the normal Chrysler and Sunbeam badges remaining on bonnet and back panel as before). The fashionable black theme is sustained for bumpers, all glass surrounds, drip rail mouldings and door handles. Tinted glass and a laminated screen are standard, as are rear wash-wipe (essential on all Sunbeams because of the shape which quickly makes the back window dirty on a messy day), auxiliary lamps and a driver's door mirror. High-backed sports-type seats are provided in front with sideways support, and the centre console is different. Rear seats have the GLS split back. Interior trim is grey vinyl with grey knitted cloth pattern seat facings.

Above:
Handsome three-spoke sports steering wheel is most obvious difference inside



Instruments comprise trip speedometer, revcounter, voltmeter, and gauges dealing with fuel, temperature and oil pressure. A clock and a radio are also part of the deal, as are halogen headlamps. The overall weight claimed is 2,116lb which is 65lb more than the figure given for the Ti and 120lb more than that for the GLS. Very interestingly, Sunbeam Lotus owners are not presented with either of the apparent aerodynamic aids found on the Ti – "it doesn't need them" in spite of its much greater speed, according to one Chrysler man – which clearly suggests that the less powerful car's impressive-looking air dam front and spoiler back are simply cosmetic.

There seems to be no doubt about the Sunbeam Lotus character however. It looks convincingly businesslike and should provide a welcome piece of prestige for the Coventry hatchback. Sales are due to begin in June, of both right and left-hand-drive cars. We look forward to testing one. □

SPECIFICATION

| | |
|---------------------------------|--|
| ENGINE | Front, rear drive |
| Head/block | Al. alloy |
| Cylinders | 4, in line |
| Main bearings | 5 |
| Cooling | Water |
| Fan | Electric |
| Bore, mm (in.) | 95.2 (3.75) |
| Stroke, mm (in.) | 76.2 (3.0) |
| Capacity, cc (in ³) | 2,172 (132.5) |
| Valve gear | Ohc |
| Camshaft drive | Toothed belt |
| Compression ratio | 1.44-to-1 |
| Ignition | Chrysler breakerless electronic |
| Carburettor | Two Dellorto DHLA 4.5E twin-choke side-draught |
| Max power | 150 bhp (DIN) at 5,750 rpm |
| Max torque | 150 lb ft at 4,500 rpm |

TRANSMISSION

| | | |
|-------------------------------|------------------------------------|----------------------|
| Type | ZF five-speed | |
| Clutch | Borg and Beck 8½in. | |
| Gear | Ratio | mph/1,000 rpm |
| Top | 0.795 | 21.65 |
| 4th | 1.00 | 17.22 |
| 3rd | 1.39 | 12.39 |
| 2nd | 1.94 | 8.87 |
| 1st | 3.42 | 5.05 |
| Final drive gear | Hypoid bevel | |
| Ratio | 3.89 | |
| SUSPENSION | | |
| Front — location | MacPherson struts, | |
| lower links | Coil springs dampers anti-roll bar | |
| Rear — location | Live axle, four-link | |
| springs dampers anti-roll bar | Coil Telescopic No | |

STEERING

| | |
|------------------|-----------------|
| Type | Rack and pinion |
| Power assistance | None |

BRAKES

| | |
|-----------|------------------------------|
| Circuits | Twin split front/rear |
| Front | 9½in. dia x ½in. thick discs |
| Rear | 8in. dia. drum |
| Servo | Vacuum |
| Handbrake | Centre lever, rear drum |

WHEELS

| | |
|--------------|------------------------------------|
| Type | Exacton cast alum. alloy |
| Rim Width | 6in. |
| Tyres — make | Pirelli |
| — type | Cinturato CN36 steel-braced radial |
| — size | 185/70 HR 13in. |

EQUIPMENT

| | |
|----------------------|-----------------------------|
| Battery | 12V 40Ah |
| Alternator | 40A |
| Headlamps | Halogen 120/110-watt |
| Reversing lamp | Standard |
| Hazard warning | Standard |
| Electric fuses | 12 |
| Screen wipers | 2-speed + flick-wipe |
| Screen washer | Electric |
| Interior heater | Water valve |
| Air conditioning | Not available |
| Interior trim | Cloth seats, pvc headlining |
| Floor covering | Carpet |
| Jack | Screw scissor |
| Jacking points | Two each side, under sills |
| Windscreen | Laminated |
| Underbody protection | Bitumastic overall |
| Fuel tank | 9 Imp gal (41 litres) |