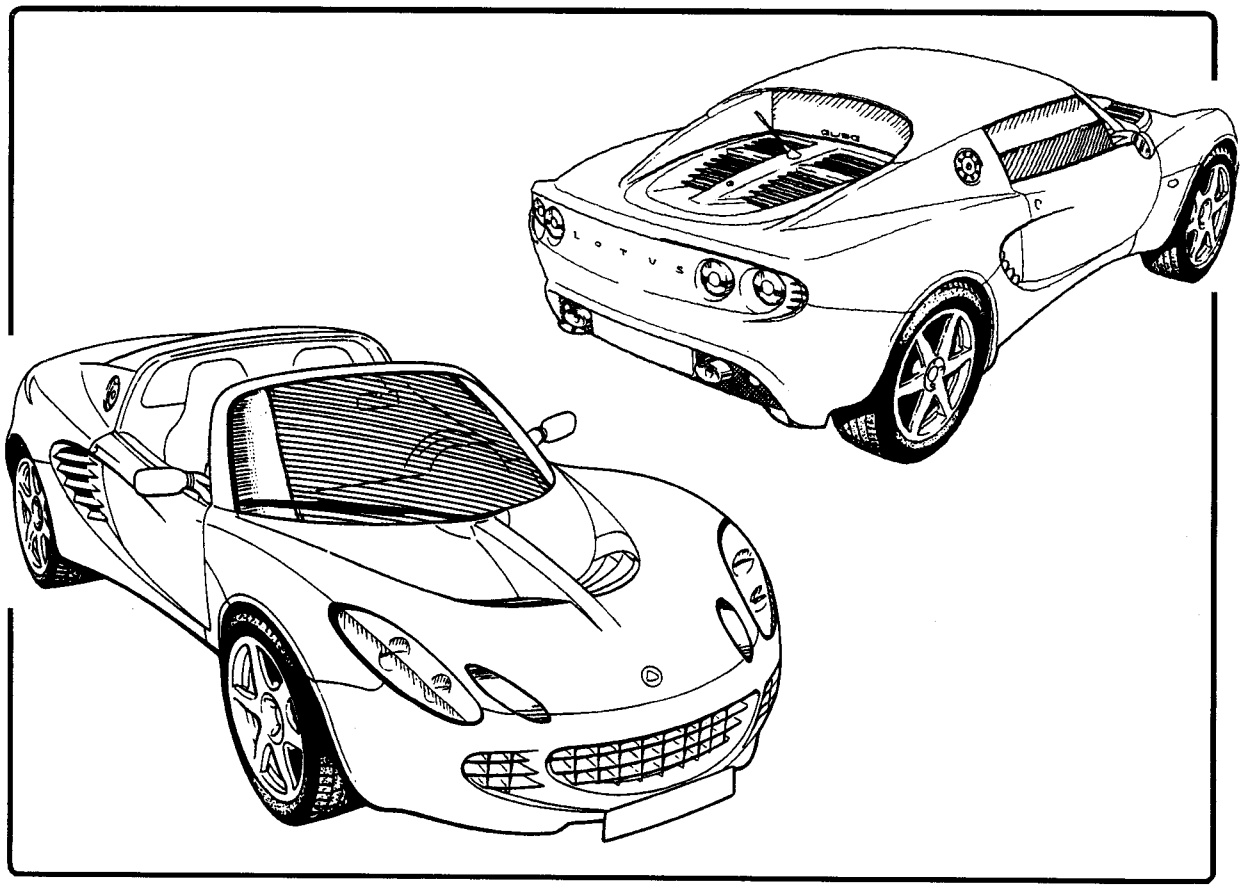
# SERVICE NOTES

# ELISE

## 2001 Model Year Onwards



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Part Number A117T0327J

Publication Part Number A117T0327J 

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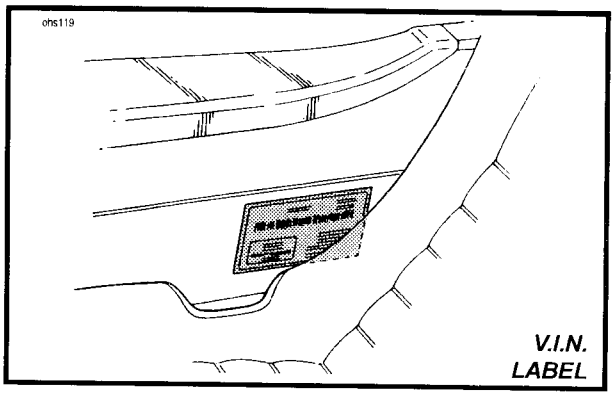
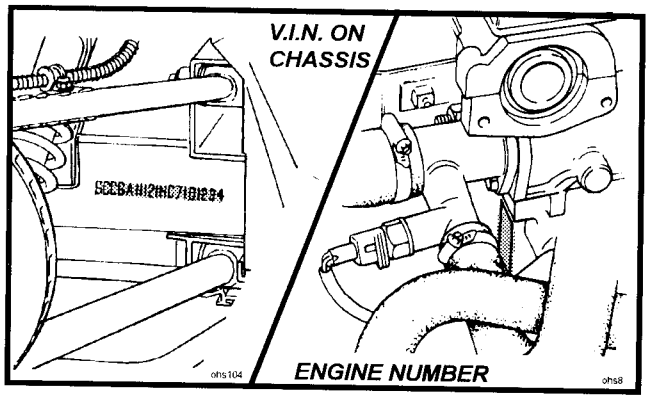
ELISE 2001 M.Y. Onwards

## VEHICLE IDENTIFICATION NUMBER & ENGINE NUMBER

The Vehicle Identification Number (V.I.N.) is stamped on the chassis in the right hand front wheelarch area, viewable with the front wheels turned to right full lock, and is also printed on a label stuck to the inside of the chassis sideframe alongside the driver's seat. The engine number is marked on a vertical patch at the left hand end of the forward face of the cylinder block, and is most easily viewed using a mirror.

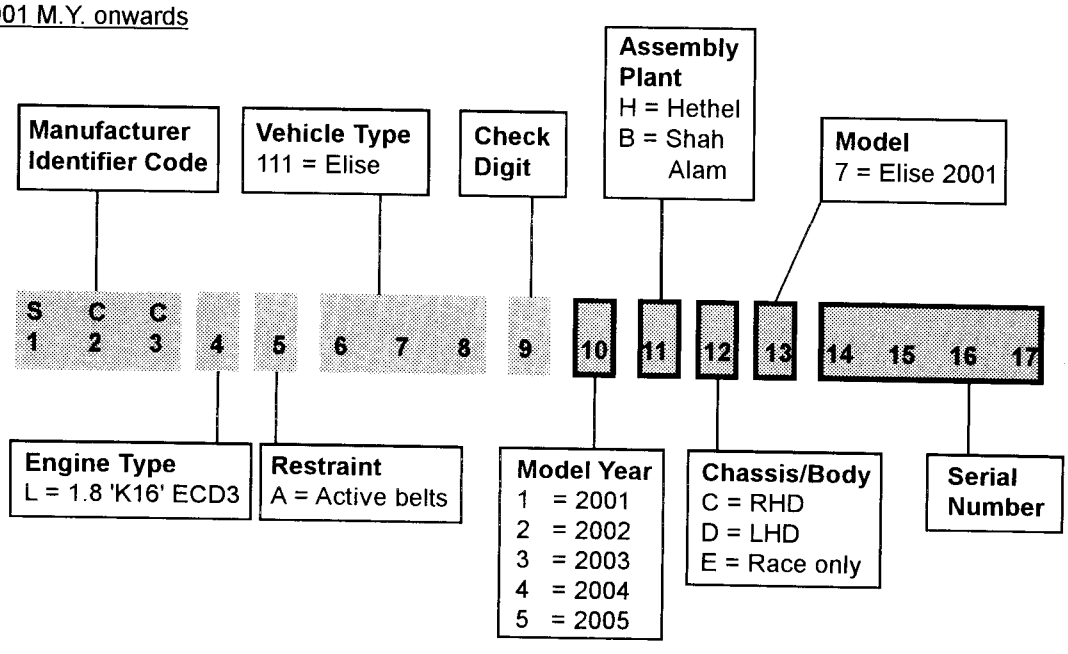
Both numbers should always be quoted with any vehicle enquiries, as Factory records are filed against V.I.N., and specification change points are identified by V.I.N. or engine number. The vehicle licence number may not accurately reflect vehicle age, may also be changed during the car's life, and is an unreliable method of vehicle identification.




The V.I.N. comprises 17 characters, coded in accordance with European Economic Community (EEC) directives. For change point identification in Service Notes, Service Bulletins and Service Parts Lists, normally, only characters 10 to 17 will be quoted.

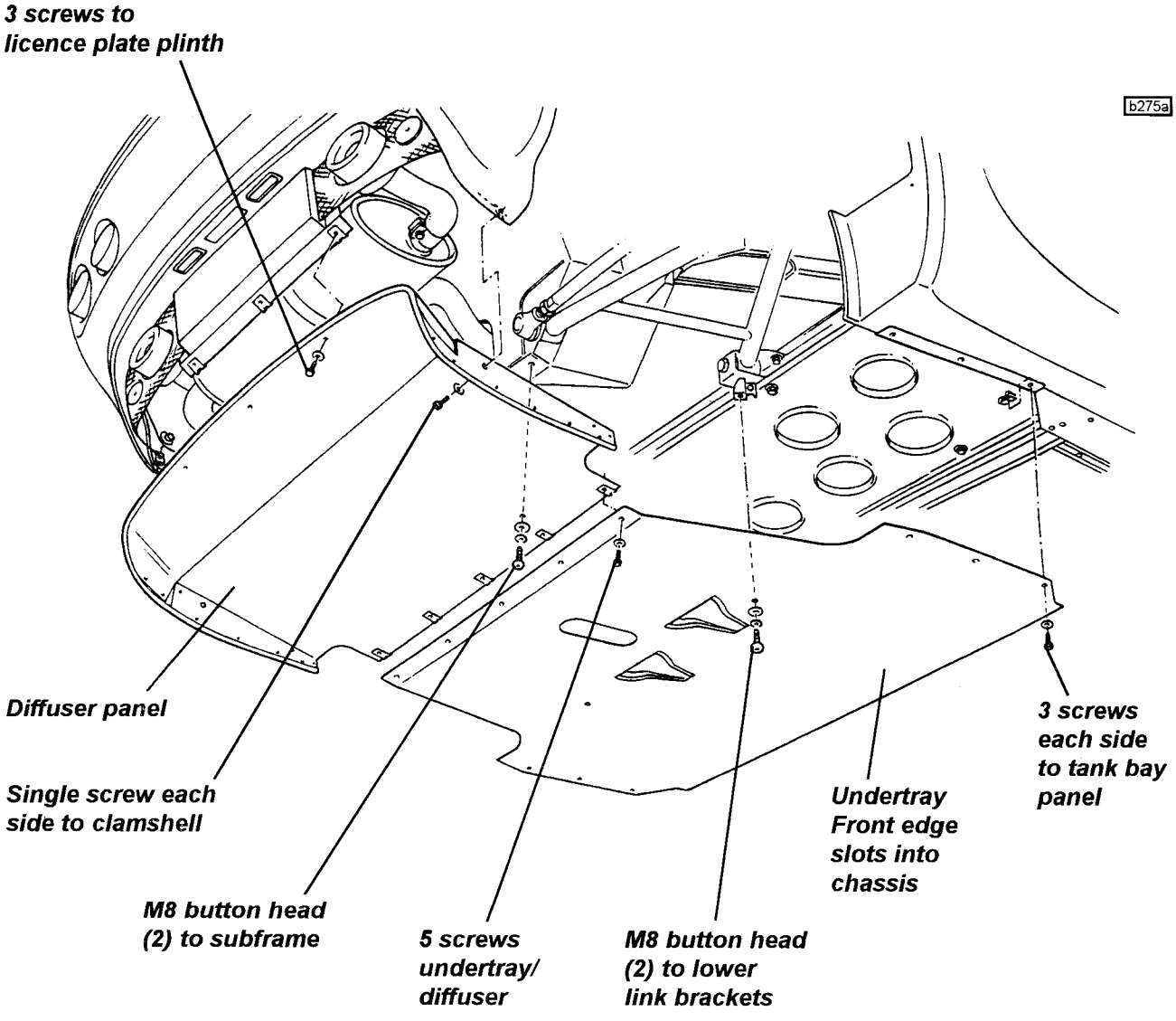
'2001 M.Y. onwards



## ENGINE BAY UNDERTRAY/DIFFUSER

For certain service operations, it may by necessary to remove the engine bay undertray and/or diffuser panel. The panels are retained by:

- Four M8 button head fixings needing a 5mm hexagonal key;
- Sixteen hex. head screws.



## JACKING POINTS

Care must be taken when using a lifting jack or hoist only to position the device in one of the the areas shown in the illustration, with a suitable rubber or timber pad protecting the chassis from surface damage. If a 4-point lift is to be used, the engine bay undertray/diffuser panel (if fitted) must first be removed. When using a 4-point lift, it is strongly recommended that for optimum stability and safety, positions B and D are used.

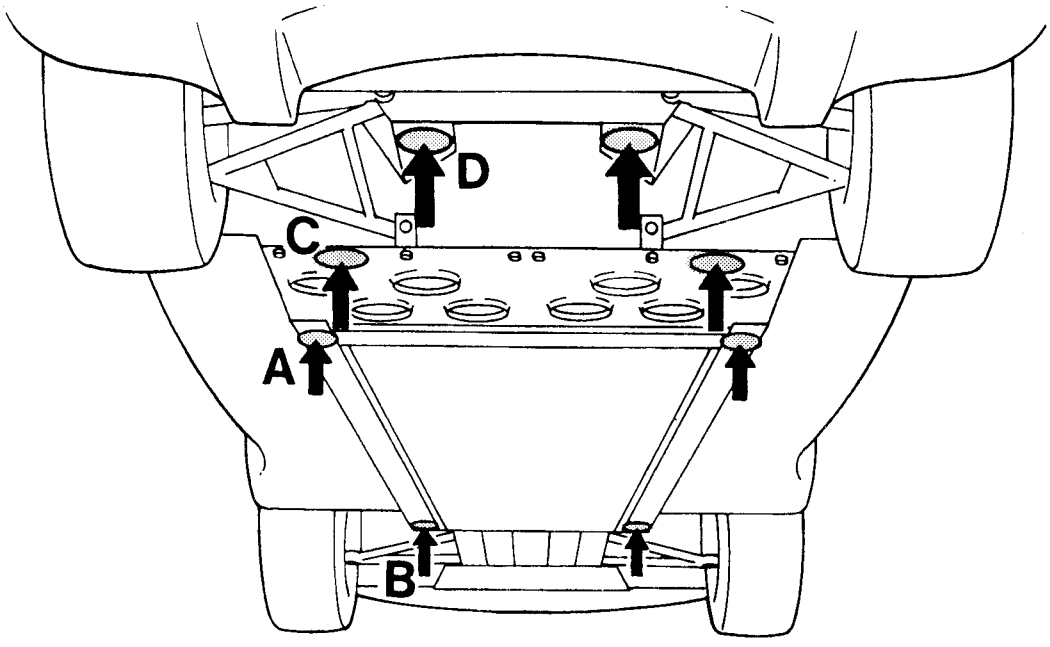
A; Identified by a blue sticker. Beneath crossmember ahead of fuel tank bay. To be used one side at a time for wheel changing - lifts both wheels on one side. *Do not use with a four point garage lift.*

B; Beneath the front end of the right or left hand main chassis rail, behind the front wheelarch. Garage use with 4-point lift in conjunction with (C).

C; *The engine undertray/diffuser panel must first be removed.* Beneath the outboard end of the chassis crossmember ahead of the rear wheelarches. Take care to position the jack between the fixing screws for the fuel tank bay perforated undershield. Garage use with 4-point lift in conjuction with (B).

D; *The engine undertray/diffuser panel must first be removed.* Beneath the rear subframe, close to the lower wishbone rearmost mountings.

***Jacking at any other point may damage the chassis or body structure and/or jeopardise safety.***

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# TECHNICAL DATA - ENGINE

## SECTION TDL - ELISE 2001 M.Y. Onwards

## GENERAL

| | | |
|---|---|---|
| Type designation | | K16 (18K4FL70) |
| Configuration & no. of cylinders | | in-line 4 |
| Capacity | | 1796 $cm^3$ |
| Bore | | 80.00 mm |
| Stroke | | 89.30 mm |
| Valve actuation | | Belt driven twin overhead camshafts with hydraulic tappets |
| Compression ratio | | 10.5:1 ± 0.5 |
| Firing order | | 1,3,4,2 |
| Spark plugs | | Unipart GSP 66527 |
| Spark plug gap | | 1.0 ± 0.5 mm |
| Maximum engine speed | | 6950 rpm |
| Idle speed | | 825 ± 50 rpm |
| Ignition system | | Direct ignition using two double ended coils and 'wasted spark' principle |
| Fuel system | | Fully sequential indirect fuel injection. |
| Fuel requirement | | Unleaded 95 RON minimum |
| Max. net power (EEC) | | 89.7 kW (120 bhp; 122 PS) @ 5,600 rpm |
| Max. net torque (EEC) | | 168 Nm (124 lbf.ft) @ 4,500 rpm |
| Exhaust emissions | - CO | 0.4089 |
| | - HC | 0.0776 |
| | - NOX | 0.0411 |
| | - HC+NOX | 0.1186 |

## CYLINDER HEAD

| | | |
|---|---|---|
| Material | | Aluminium alloy |
| Head face maximum warpage | | 0.05 mm |
| Cylinder head height | - new | 118.95 to 119.05 mm |
| | - reface limit | 0.20 mm |

## CAMSHAFTS & VALVE TIMING

| | |
|---|---|
| Open duration | 244° (at crankshaft) |
| Inlet valve opens | 12° BTDC |
| Inlet valve closes | 52° ABDC |
| Exhaust valve opens | 52° BBDC |
| Exhaust valve closes | 12° ATDC |
| Valve overlap | 24° |
| Valve lift - inlet | 8.8 mm |
| - exhaust | 8.8 mm |

## VALVES

| | | | |
|---|---|---|---|
| Angle of valve seats and faces | | | 45° |
| Stem diameter | - inlet | | 5.952 - 5.967 mm |
| | - exhaust | | 5.947 - 5.962 mm |
| Stem clearance in guide | - inlet | - new | 0.033 - 0.063 mm |
| | | - service limit | 0.070 mm |
| | - exhaust | - new | 0.038 - 0.078 mm |
| | | - service limit | 0.110 mm |
| Valve clearance | | | Hydraulically controlled. |
| Valve stem fitted height | - new | | 38.93 - 39.84 mm |
| | - service limit | | 40.10 mm |

| | | |
|---|---|---|
| **VALVE GUIDES** | | |
| Inside diameter | | 6.000 - 6.025 mm |
| Fitted height | | 6.0 mm |
| **VALVE SEATS** | | |
| Seat face angle | | 45° |
| **VALVE SPRINGS** | | |
| Free length | | 50.0 mm |
| Fitted length | | 37.0 mm |
| Load at fitted length | | 250 ± 12 N |
| Load at full lift | | 450 ± 18 N |
| **CRANKSHAFT** | | |
| Crankshaft endfloat | - new | 0.10 - 0.25 mm |
| | - service limit | 0.34 mm |
| Thrust washer thickness | | 2.61 - 2.65 mm |
| Main journal diameter | | 47.979 - 48.007 mm (for grading see Section EE) |
| Maximum out of round | | 0.010 mm |
| Big end journal diameter | | 47.986 - 48.007 mm (for grading see Section EE) |
| Maximum out of round | | 0.010 mm |
| Big end clearance | | 0.021 - 0.049 mm |
| **PISTON RINGS** | | |
| New ring to groove clearance | - top compression | 0.040 - 0.072 mm |
| | - second compression | 0.030 - 0.062 mm |
| | - oil control | 0.010 - 0.180 mm |
| New ring gap, 20mm from bore top | - top compression | 0.20 - 0.35 mm |
| | - second compression | 0.28 - 0.48 mm |
| | - oil control | 0.15 - 0.40 mm |
| **PISTON** | | |
| Piston diameter (8mm from bottom, 90° to pin) | - grade A | 79.975 - 79.990 mm |
| | - grade B | 79.991 - 80.005 mm |
| Clearance in bore (20mm from bottom of bore) | | 0.01 - 0.04 mm |
| **CYLINDER BLOCK** | | |
| Cylinder liner bore (65mm from top) | - red grade A | 80.000 - 80.015 mm |
| | - blue grade B | 80.016 - 80.030 mm |
| **OIL PUMP** | | |
| Outer rotor to housing clearance | | 0.28 - 0.36 mm |
| Inner rotor tip clearance | | 0.05 - 0.13 mm |
| Rotor end float | | 0.02 - 0.06 mm |
| **COOLANT THERMOSTAT** | | |
| Nominal setting | | 85 - 91°C |
| Thermostat starts opening | | 88°C |
| Thermostat fully open | | 100°C |

# TECHNICAL DATA - VEHICLE

SECTION TDO - ELISE 2001 M.Y. Onwards

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DIMENSIONS

| | | |
|---|---|---|
| Overall length | | 3785 mm |
| Overall width | - exc. mirrors | 1719 mm |
| | - inc. mirrors | 1850 mm (approx.) |
| Overall height (at kerb weight) | | 1117 mm |
| Wheelbase | | 2300 mm |
| Track | - front | 1457 mm |
| | - rear | 1503 mm |
| Ground clearance (mid-laden) | | 130 mm |
| Front overhang | | 783 mm |
| Rear overhang | | 702 mm |
| Approach angle (at kerb) | | 13.5° |
| Departure angle (at kerb) | | 23° |
| Unladen weight | - total | 774 kg > |
| | - front | 294 kg > inc.full fuel tank |
| | - rear | 480 kg > |
| Max. weight | - total | 1044 kg } |
| | - front | 406 kg } inc. occupants & luggage |
| | - rear | 638 kg } |
| Trailer towing | | Not permissible |

CAPACITIES

| | | |
|---|---|---|
| Engine oil | - dry | 5.0 litre (8.8 imp. pt) |
| | - refill inc. filter | 4.5 litre (7.9 imp. pt) |
| High/low dipstick mark difference | | 1.0 litre (1.8 imp. pt) |
| Transmission oil | - dry | 2.4 litre (4.2 imp. pt) |
| | - refill | 2.1 litre (3.7 imp. pt) |
| Fuel tank | | 32 litre (7.0 imp.gall) |
| Coolant | | 8.0 litre (14.1 imp. pt) |

WHEELS & TYRES (normal use)

| | | |
|---|---|---|
| Wheel type | | Rimstock alloy, 4-bolt fixing |
| Wheel size | - front | 5.5J x 16 ET 31.3 |
| | - rear | 7.5J x 17 ET 17.75 |
| Wheel bolt torque | | 105 Nm (77 lbf.ft) |
| Tyre type | | Bridgestone Potenza RE040 |
| Size | - front | 175/55 R16 |
| | - rear | 225/45 R17 |
| Pressure (cold) | - front | 1.8 bar (26 lb/in²) |
| | - rear | 1.9 bar (27.5 lb/in²) |

WINTER WHEELS & TYRES

| | | |
|---|---|---|
| Wheel type | | Rimstock alloy 6-spoke. 4-bolt fixing |
| Wheel size | - front | 5.5J x 15 ET 31.3 |
| | - rear | 7J x 16 ET 17.75 |
| Wheel bolt torque | | 105 Nm (77 lbf.ft) |
| Tyre type | | Bridgestone LM22 |
| Size | - front | 185/55 R15 |
| | - rear | 205/55 R16 |
| Pressure (cold) | - front | TBA |
| | - rear | TBA |
| Studding | | Not permitted |
| Tyre chains | | Pewag Neon X3-NX369 |
| | | fitted only on rear winter wheels/tyres |

FRONT SUSPENSION

| | |
|---|---|
| Type | Independent. Upper and lower wishbone; co-axial coil spring/telescopic damper unit; anti-roll bar. |
| Geometry check ride height (2 persons, ½ tank fuel) | |
| - front | 130 mm below front end of chassis siderail |
| - rear | 130 mm below rear end of chassis siderail |
| Alignment | 0.2 mm toe-out overall; + 0.2, - 0 mm<br>(0.03° toe-out overall; + 0.03°, - 0°) |
| Camber | - 0.1°; + 0.1°, - 0.2°. Max side/side; 0.2° |
| Castor | + 3.8°; ± 0.2°. Max. side/side; 0.2° |
| Steering axis inclination | 12° nominal |

REAR SUSPENSION

| | |
|---|---|
| Type | Independent. Upper and lower wishbone; co-axial coil spring/telescopic damper. |
| Geometry check ride height (2 persons, ½ tank fuel) | |
| - front | 130 mm below front end of chassis siderail |
| - rear | 130 mm below rear end of chassis siderail |
| Alignment | 1.2 mm toe-in each side; + 0.2, - 0 mm<br>(0.18° toe-in each side; + 0.03°, - 0°)<br>Max. difference side/side; 0.2 mm (0.03°) |
| Camber | - 1.8°; ± 0.2°. Max. side/side; 0.2° |

ELECTRICAL

| *Light Bulbs* | *Wattage* | *Type* |
|---|---|---|
| Headlamps | 55 | H1 & H7 |
| Driving lamps | 55 | H3 |
| Front side/parking lamps | 5 | W5W |
| Side repeater lamps | 5 | W5W amber |
| Front turn indicators | 21 | PY21w amber |
| Rear turn indicators | 21 | H21 |
| Stop/Tail lamps | 4/21 | P21/4w |
| Tail lamps | 5 | R5W |
| High mounted stop lamp | 2.5 | 16 x LED |
| Fog/Tail lamps | 4/21 | P21/4w |
| Reversing lamp | 21 | H21 |
| Licence plate lamps | 5 | C5W |
| Interior lamp | 5 | W5W |

| | |
|---|---|
| System voltage/polarity | 12V negative earth |
| Alternator | 85A |
| Battery - type | Tungstone 006 |
| - cranking power | 300A (SAE) |
| - reserve capacity | 50 minutes |

TRANSMISSION

Type: 5 speed manual transaxle. Bevel gear differential.

| *Gear* | *Ratio* | *Final Drive* | *mph(km/h)/1000 rpm* |
|---|---|---|---|
| First | 2.92 : 1 | ) | 5.8 (9.3) |
| Second | 1.75 : 1 | ) | 9.9 (15.9) |
| Third | 1.31 : 1 | ) 4.20 : 1 | 13.1 (21.1) |
| Fourth | 1.03 : 1 | ) | 16.7 (25.7) |
| Fifth | 0.85 : 1 | ) | 19.4 (31.2) |
| Reverse | 3.00 : 1 | ) | |

CLUTCH

| | | |
|---|---|---|
| Type | | Single dry plate. Diaphragm spring cover. Hydraulic release. |
| Friction plate diameter | | 215 mm |
| Diaphragm finger clearance | | 1.00 mm |
| Diaphragm finger height | - new | 37.5 - 32.1 mm |
| | - service limit | 42.75 mm |
| Friction plate thickness | - new | 7.4 - 6.9 mm |
| | - service limit | 5.6 mm |
| Rivet depth | - new | 1.00 mm |
| | - service limit | 0.20 mm |
| Friction plate run-out | - new | 0.80 mm |
| | - service limit | 1.00 mm |
| Pressure plate warp | - service limit | 0.15 mm |

BRAKES

| | |
|---|---|
| Type | Ventilated front & rear discs. Opposed piston alloy front calipers. Single piston sliding rear calipers. |
| Disc type | Cast iron, curved vane ventilated. Cross-drilled option. |
| Disc size - front & rear | 288 mm |
| Operation | Tandem master cylinder |
| Parking brake | Cable operation of rear calipers, self adjusting for pad wear. |

STEERING

| | |
|---|---|
| Type | Rack and pinion |
| Turns, lock to lock | 2.8 |
| Gear ratio | 15.8:1 |
| Rack height plate | 7 notch |

FUEL CONSUMPTION

| | | | |
|---|---|---|---|
| 93/116/EC | - std | - urban | 10.1 l/100 km (28.0 mpg) |
| | | - extra urban | 6.2 l/100 km (45.6 mpg) |
| | | - combined | 7.7 l/100 km (36.7 mpg) |
| | | - $CO_2$ | 183 g/km |