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# Automotive Technical DATA BOOK

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HELP

## Engine and cooling system Carlton/Omega-A 2.0i 1986 to 1994

|   |     |                                     |
|---|-----|-------------------------------------|
| Type  |     | 20SE SOHC. 90kW. 15.04 <sup>1</sup> |
| Capacity (cm <sup>3</sup> ) / number of cylinders |     | 1998 / 4                            |
| Compression ratio / pressure                      | bar | 10.0 / _                            |
| Oil pressure                                      | bar | 1.5                                 |
| Oil temperature                                   | °C  | ≥80                                 |
| Valve clearance - inlet                           | mm  | 0: Hyd.                             |
| Valve clearance - exhaust                         | mm  | 0: Hyd.                             |
| Firing order                                      |     | 1-3-4-2                             |
| No 1 cylinder position                            |     | TBE                                 |
| Thermostat opening temperature                    | °C  | 92 to 107                           |
| Radiator cap pressure                             | bar | 1.2 to 1.3                          |

## Fuel system Carlton/Omega-A 2.0i 1986 to 1994

|   |     |                            |
|---|-----|----------------------------|
| Idle speed - manual [auto]                            | rpm | 720 to 880                 |
| Fast idle speed - manual [auto]                       | rpm | _                          |
| CO @ idle speed [3000 rpm] - see page VI              | %   | 0.5 to 1.0                 |
| HC @ idle speed [3000 rpm] - see page VI              | ppm | ≤1200                      |
| CO <sub>2</sub> @ idle speed [3000 rpm] - see page VI | %   | _                          |
| O <sub>2</sub> @ idle speed [3000 rpm] - see page VI  | %   | _                          |
| Carburettor / fuel injection                          |     | Bosch                      |
| Type / ref  |     | ML4.1-Motronic. 90 ▶: M1.5 |
| Main jet / needle                                     |     | _                          |
| Injection pressure                                    | bar | 2.5±0.2 <sup>2</sup>       |
| Pump pressure   | bar | 3.0±0.1 <sup>3</sup>       |
| Octane rating   | RON | 98[E 95 RON] <sup>4</sup>  |

## Ignition system Carlton/Omega-A 2.0i 1986 to 1994

|                                 |                    |                         |
|---------------------------------|--------------------|-------------------------|
| Type                            |                    | DME Motronic            |
| Ignition coil                   |                    | Bosch 0 221 122 369     |
| Primary resistance              | ohms               | 0.72±0.04               |
| Ballast resistor                | ohms               | _                       |
| Voltage - Tmnl 15(+) to earth   | V                  | _                       |
| Distributor                     |                    | Bosch                   |
| Points gap (air gap)            | mm                 | _                       |
| Dwell angle                     | ° (%)              | Electronic control      |
| Condenser capacity              | µF                 | _                       |
| Rotation                        |                    | Anticlockwise           |
| Ignition timing - basic [static | ° Crankshaft @ rpm | 8 to 12 BTDC @ idle N/A |
| V = Vacuum NV = No Vacuum       |                    | NV                      |
| Total ignition advance          | ° Crankshaft @ rpm | _                       |
|                                 | ° Crankshaft @ rpm | _                       |
|                                 | ° Crankshaft @ rpm | _                       |
| Centrifugal check.              | ° Crankshaft @ rpm | Computer control        |
|                                 | ° Crankshaft @ rpm | _                       |
|                                 | ° Crankshaft @ rpm | _                       |
| Vacuum range check              | mbar               | Computer control        |
| Maximum vacuum advance          | ° Crankshaft       | _                       |
| Spark plugs                     |                    | AC/Champion             |
| Type                            |                    | CR42CXLS / RN7YC        |
| Electrode gap                   | mm                 | 0.70 to 0.80            |

## Electrical system Carlton/Omega-A 2.0i 1986 to 1994

|   |             |                          |
|---|-------------|--------------------------|
| Battery   | V / CC / RC | 12 / 44Ah                |
| Alternator voltage / full load current / engine rpm |             | 13.8 to 14.8 / 90 / 2000 |
| Starter motor current / voltage - cranking          | A / V       | 75 / 11.5 (no load)      |
| - locked  | A / V       | 475 to 600 / 12          |

## Running gear Carlton/Omega-A 2.0i 1986 to 1994

|   |        |                                    |
|---|--------|------------------------------------|
| <b>Brakes -</b>                           |        |                                    |
| Front (min. friction material thickness)  | mm     | 7.0 with backing                   |
| Rear (min. friction material thickness)   | mm     | 7.0 with backing                   |
| <b>Tyres</b>                              |        |                                    |
| Saloon                                    | Size   | 185/70x14: 195/65x15               |
| Estate / Van                              | Size   | 175x14: 185/70x14: 195/65x15       |
| Pressure - front / rear - Saloon          | bar    | 2.2 / 2.2                          |
| - Estate / Van                            | bar    | 2.0 / 2.2                          |
| <b>Front suspension / wheel alignment</b> |        |                                    |
| Toe-in (+) / Toe-out (-)                  | mm [°] | [0 to +20'] L                      |
| Camber                                    |        | -1°55' to -15'                     |
| Castor                                    |        | <sup>5</sup>                       |
| King pin inclination                      |        | _                                  |
| <b>Rear suspension / wheel alignment</b>  |        |                                    |
| Toe-in (+) / Toe-out (-)                  | mm [°] | -0.5 to +5.5 <sup>6</sup>          |
| Camber                                    |        | 4D: -2°20' to -1°. 5D <sup>7</sup> |

## Torque wrench settings Carlton/Omega-A 2.0i 1986 to 1994

|                         |    |                              |
|-------------------------|----|------------------------------|
| Cylinder head - stage 1 | Nm | 25 N                         |
| - stage 2               | Nm | +90°                         |
| Cylinder head - stage 3 | Nm | +90°                         |
| - stage 4               | Nm | +90°                         |
| Big-end bearings        | Nm | 35 + 45° to 60° N            |
| Main bearings           | Nm | 50 + 40° to 50° N            |
| Clutch cover            | Nm | 15                           |
| Flywheel [driveplate]   | Nm | 65 + 30° to 45° <sup>8</sup> |
| Front hubs              | Nm | 320                          |
| Rear hubs               | Nm | WSM                          |
| Wheel nuts / bolts      | Nm | 90                           |
| Spark plugs             | Nm | 25                           |

## Capacities Carlton/Omega-A 2.0i 1986 to 1994

|                                 |        |                  |
|---------------------------------|--------|------------------|
| Engine oil & filter             | litres | 4.5              |
| Gearbox - 4-speed [5-speed]     | litres | 1.9              |
| Automatic transmission - refill | litres | 5.5. AR25: 2.6   |
| Final drive                     | litres | 4D: 0.9. 5D: 1.1 |
| Cooling system                  | litres | 6.4              |
| Fuel tank                       | litres | 4D: 75. 5D: 70   |

## Notes and Illustrations

<sup>1</sup>94 ▶: ECE R 83A

<sup>2</sup>M1.5-Motronic: 1.8 to 2.2

<sup>3</sup>M1.5-Motronic: 2.5 to 3.0

<sup>4</sup>Octane rating plug = 95 RON. 89 ▶: [E 95 RON]

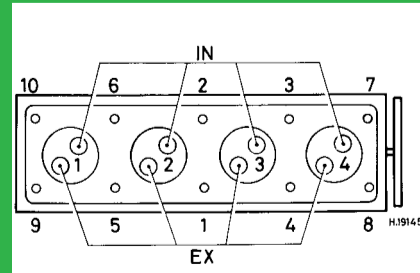
<sup>5</sup>4D manual steering: +2° to 4°. PAS: +4°30' to 6°30'. 5D manual steering: +1°30' to 3°30'. PAS: +4° to 6°

<sup>6</sup>5D: 0 to +6.0

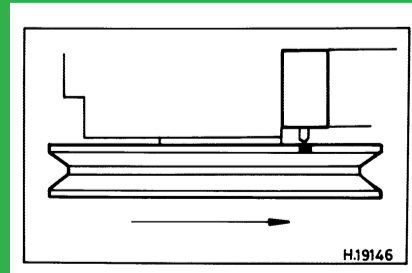
<sup>7</sup>-2°5' to -45'

<sup>8</sup>Use locking compound

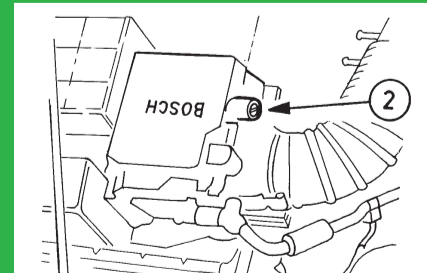
1: Idle speed 2: CO / Mixture



1998cm<sup>3</sup>, 8V



1998 cm<sup>3</sup>, 8V, 20SE



Motronic