

Engine & Cooling

Fuel

Ignition

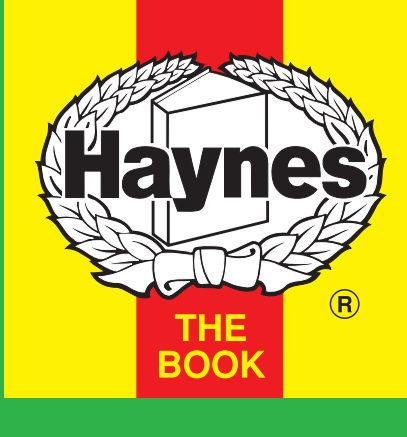
Electrical

Running gear

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Automotive Technical  
DATA BOOK

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HELP

Engine and cooling system

M5 (E28)

1986 to 1988

|                                                   |     |                |
|---------------------------------------------------|-----|----------------|
| Type                                              |     | S38/B35 191kW  |
| Capacity (cm <sup>3</sup> ) / number of cylinders |     | 3453 / 6       |
| Compression ratio / pressure                      | bar | 9.8 / 10 to 11 |
| Oil pressure                                      | bar | 0.5 [4.0]      |
| Oil temperature                                   | °C  | —              |
| Valve clearance - inlet                           | mm  | 0.30 to 0.35   |
| Valve clearance - exhaust                         | mm  | 0.30 to 0.35   |
| Firing order                                      |     | 1-5-3-6-2-4    |
| No 1 cylinder position                            |     | TCE            |
| Thermostat opening temperature                    | °C  | 80             |
| Radiator cap pressure                             | bar | 1.4±0.1        |

Fuel system

M5 (E28)

1986 to 1988

|                                           |     |               |
|-------------------------------------------|-----|---------------|
| Idle speed - manual [auto]                | rpm | 850±50        |
| Fast idle speed - manual [auto]           | rpm | —             |
| CO @ idle speed [3000 rpm] - see page VI  | %   | 0.3 to 1.5    |
| HC @ idle speed [3000 rpm] - see page VI  | ppm | ≤1200         |
| CO2 @ idle speed [3000 rpm] - see page VI | %   | —             |
| O2 @ idle speed [3000 rpm] - see page VI  | %   | —             |
| Carburettor / fuel injection              |     | Bosch         |
| Type / ref                                |     | M3.3-Motronic |
| Main jet / needle                         |     | —             |
| Injection pressure                        | bar | 3.0           |
| Pump pressure                             | bar | 2.5 to 3.0    |
| Octane rating                             | RON | 98[R]         |

Ignition system

M5 (E28)

1986 to 1988

|                                 |                    |                     |
|---------------------------------|--------------------|---------------------|
| Type                            |                    | DME Motronic        |
| Ignition coil                   |                    | Bosch 0 221 118 335 |
| Primary resistance              | ohms               | 0.5 or 0.37         |
| Ballast resistor                | ohms               | —                   |
| Voltage - Tmnl 15(+) to earth   | V                  | ≥10.8               |
| Distributor                     |                    | Bosch               |
| Points gap (air gap)            | mm                 | [0.30 to 0.70]      |
| Dwell angle                     | ° (%)              | —                   |
| Condenser capacity              | µF                 | —                   |
| Rotation                        |                    | Clockwise           |
| Ignition timing - basic [static | ° Crankshaft @ rpm | Computer control    |
| V = Vacuum NV = No Vacuum       |                    | NV                  |
| Total ignition advance          | ° Crankshaft @ rpm | Computer control    |
|                                 | ° 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                     |                    | Bosch/Champion      |
| Type                            |                    | X5DC / A6G          |
| Electrode gap                   | mm                 | 0.60+0.10           |

Electrical system

M5 (E28)

1986 to 1988

|                                                     |             |                         |
|-----------------------------------------------------|-------------|-------------------------|
| Battery                                             | V / CC / RC | 12 / 90Ah               |
| Alternator voltage / full load current / engine rpm |             | 13.5 to 14.2 / _ / 1500 |
| Starter motor current / voltage - cranking          | A / V       | 200 / 9.0               |
| - locked                                            | A / V       | —                       |

Running gear

M5 (E28)

1986 to 1988

|                                          |    |     |
|------------------------------------------|----|-----|
| Brakes -                                 |    |     |
| Front (min. friction material thickness) | mm | 2.0 |
| Rear (min. friction material thickness)  | mm | 2.0 |

|                                  |      |            |
|----------------------------------|------|------------|
| Tyres                            |      |            |
| Saloon                           | Size | 220/55x390 |
| Estate / Van                     | Size | —          |
| Pressure - front / rear - Saloon | bar  | 2.3 / 2.5  |
| - Estate / Van                   | bar  | —          |

Front suspension / wheel alignment

|                          |        |                        |
|--------------------------|--------|------------------------|
| Toe-in (+) / Toe-out (–) | mm [°] | +1.4±0.6               |
| Camber                   |        | -27'±30'               |
| Castor                   |        | +8°8'±30' (10° lock)   |
| King pin inclination     |        | +12°15'±30' (10° lock) |

Rear suspension / wheel alignment

|                          |        |            |
|--------------------------|--------|------------|
| Toe-in (+) / Toe-out (–) | mm [°] | +3.4±0.8   |
| Camber                   |        | -2°32'±30' |

Torque wrench settings

M5 (E28)

1986 to 1988

|                         |    |                      |
|-------------------------|----|----------------------|
| Cylinder head - stage 1 | Nm | 50±2                 |
| - stage 2               | Nm | 80±2                 |
| Cylinder head - stage 3 | Nm | Wait 15 mins.        |
| - stage 4               | Nm | 100±2                |
| Big-end bearings        | Nm | 10, 30 + 60+2°       |
| Main bearings           | Nm | 23±3 + 50±3°         |
| Clutch cover            | Nm | 24. 10.9 hex: 35     |
| Flywheel [driveplate]   | Nm | 105±7 locked threads |
| Front hubs              | Nm | WSM                  |
| Rear hubs               | Nm | 234 to 260           |
| Wheel nuts / bolts      | Nm | 100±10               |
| Spark plugs             | Nm | 20±5                 |

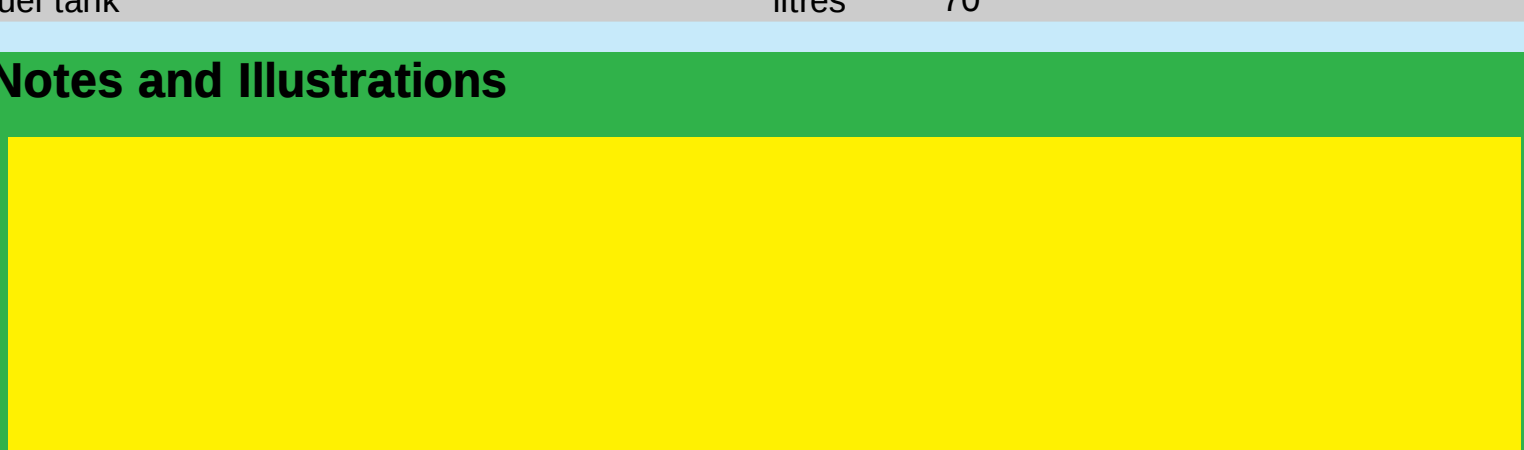
Capacities

M5 (E28)

1986 to 1988

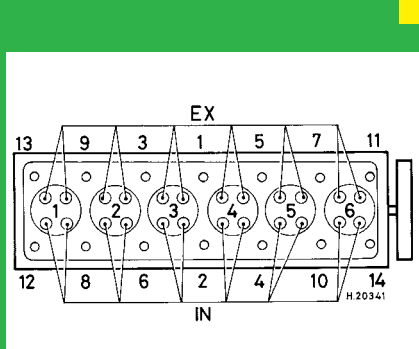
|                                 |        |      |
|---------------------------------|--------|------|
| Engine oil & filter             | litres | 5.75 |
| Gearbox - 4-speed [5-speed]     | litres | 1.3  |
| Automatic transmission - refill | litres | —    |
| Final drive                     | litres | 1.9  |
| Cooling system                  | litres | 10.5 |
| Fuel tank                       | litres | 70   |

Notes and Illustrations

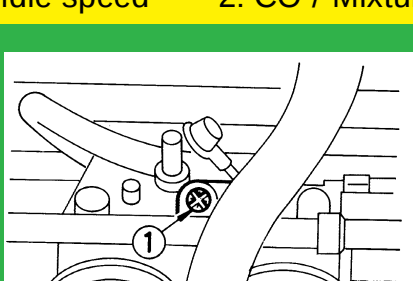


1: Idle speed

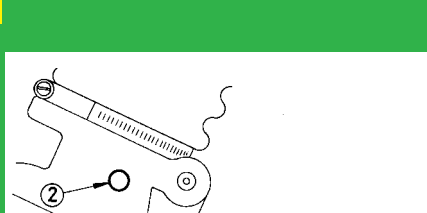
2: CO / Mixture



3453 cm<sup>3</sup>, S38



M3.3-Motronic



M3.3-Motronic