

BMW

850i (E31)

1991 to 1994

Engine & Cooling

Fuel

Ignition

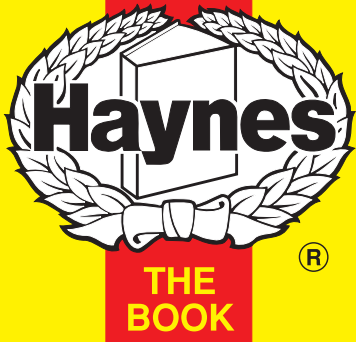
Electrical

Running gear

Torque settings

Capacities

Notes & Illustrations



Automotive Technical
DATA BOOK

Click on one of the buttons above to view data for this car. To return to this screen and make another choice, click anywhere on the data screen.

MENU

HELP

Engine and cooling system

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Type		M70/B50 50 12A 220kW
Capacity (cm ³) / number of cylinders		4988 / 12
Compression ratio / pressure	bar	8.8 / 10 to 12
Oil pressure	bar	0.5 [≤4.0]
Oil temperature	°C	80
Valve clearance - inlet	mm	0: Hyd.
Valve clearance - exhaust	mm	0: Hyd.
Firing order		1-7-5-11-3-9-6-12-2-8-4-10
No 1 cylinder position		PER
Thermostat opening temperature	°C	80
Radiator cap pressure	bar	2.0±0.1

Fuel system

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Idle speed - manual [auto]	rpm	700±50
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	0.7±0.5 N/A
HC @ idle speed [3000 rpm] - see page VI	ppm	≤200
CO2 @ idle speed [3000 rpm] - see page VI	%	—
O2 @ idle speed [3000 rpm] - see page VI	%	—
Carburettor / fuel injection		Bosch
Type / ref		M1.7-Motronic
Main jet / needle		—
Injection pressure	bar	—
Pump pressure	bar	3.0±0.06
Octane rating	RON	95[U]

Ignition system

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Type		DME Motronic
Ignition coil		Bosch 0 221 118 335
Primary resistance	ohms	a: 0.50. b: 0.37
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Bosch
Points gap (air gap)	mm	[0.30 to 0.70]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		—
Ignition timing - basic [static	° Crankshaft @ rpm	Computer control
V = Vacuum NV = No Vacuum		—
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		F8LCR / C9YCC
Electrode gap	mm	0.70 to 0.80

Electrical system

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Battery	V / CC / RC	12 / 65Ah
Alternator voltage / full load current / engine rpm		13.5 to 14.2 / 140 / 3000
Starter motor current / voltage - cranking	A / V	—
- locked	A / V	—

Running gear

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

Tyres		
Saloon	Size	235/50x16
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	2.5 / 2.5
- Estate / Van	bar	—

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	[+18'±5']
Camber		-11'±30'. Sport: -25'±30'
Castor		+8°14'±30'. Sport: +8°53'±30'
King pin inclination		+12°4'±30'. Sport: +13°4'±30'

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	[+18'±6']
Camber		-1°10'±15'. Sport: -1°23'±15'

Torque wrench settings

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Cylinder head - stage 1	Nm	TORX: 30±2
- stage 2	Nm	+ 120°
Cylinder head - stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	23 + 70° N
Main bearings	Nm	20 + 70°
Clutch cover	Nm	25
Flywheel [driveplate]	Nm	105±5
Front hubs	Nm	290
Rear hubs	Nm	300
Wheel nuts / bolts	Nm	100±10
Spark plugs	Nm	30 to 33

Capacities

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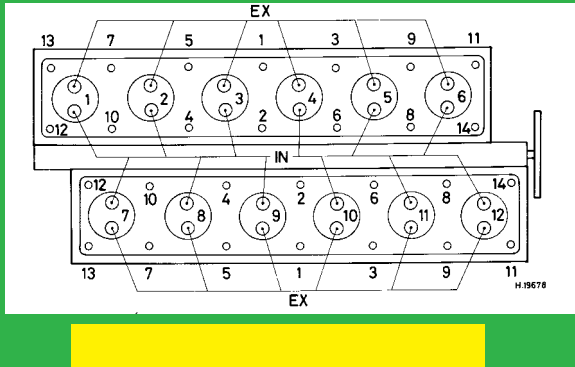
Engine oil & filter	litres	7.5
Gearbox - 4-speed [5-speed]	litres	2.5
Automatic transmission - refill	litres	3.5
Final drive	litres	1.9
Cooling system	litres	13.0
Fuel tank	litres	91

Notes and Illustrations

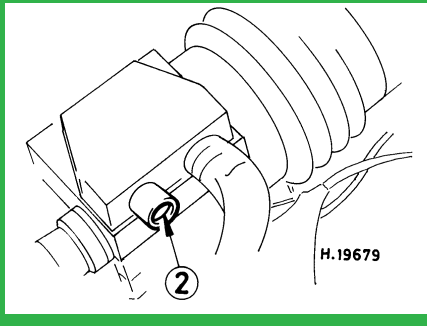


1: Idle speed

2: CO / Mixture



4988 cm³, M70



M1.7-Motronic