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# Automotive Technical DATA BOOK

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HELP

## Engine and cooling system 850i (E31) 1991 to 1994

Type	M70/B50 50 12A 220kW
Capacity (cm <sup>3</sup> ) / 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 850i (E31) 1991 to 1994

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
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		M1.7-Motronic
Main jet / needle		—
Injection pressure	bar	—
Pump pressure	bar	3.0±0.06
Octane rating	RON	95[U]

## Ignition system 850i (E31) 1991 to 1994

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
Centrifugal check.	° Crankshaft @ rpm	Computer control
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 850i (E31) 1991 to 1994

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 850i (E31) 1991 to 1994

<b>Brakes -</b>		
Front (min. friction material thickness)	mm	2.0
Rear (min. friction material thickness)	mm	2.0
<b>Tyres</b>		
Saloon	Size	235/50x16
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	2.5 / 2.5
- Estate / Van	bar	—
<b>Front suspension / wheel alignment</b>		
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'
<b>Rear suspension / wheel alignment</b>		
Toe-in (+) / Toe-out (-)	mm [°]	[+18'±6']
Camber		-1°10'±15'. Sport: -1°23'±15'

## Torque wrench settings 850i (E31) 1991 to 1994

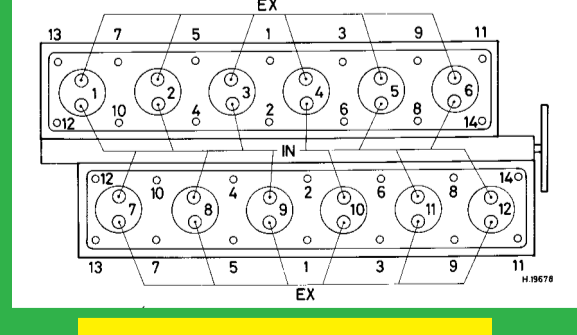
Cylinder head - stage 1	Nm	TORX: 30±2
- stage 2	Nm	+ 120°
Cylinder head - stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	23 + 70° N
Main bearings	Nm	20 + 70°
Clutch cover	Nm	25
Flywheel [driveplate]	Nm	105±5
Front hubs	Nm	290
Rear hubs	Nm	300
Wheel nuts / bolts	Nm	100±10
Spark plugs	Nm	30 to 33

## Capacities 850i (E31) 1991 to 1994

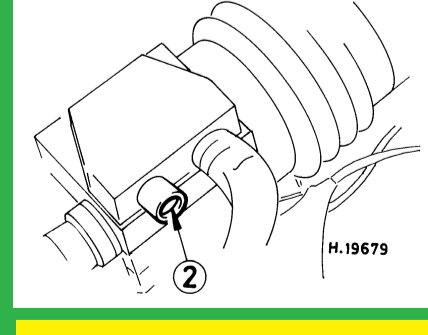
Engine oil & filter	litres	7.5
Gearbox - 4-speed [5-speed]	litres	2.5
Automatic transmission - refill	litres	3.5
Final drive	litres	1.9
Cooling system	litres	13.0
Fuel tank	litres	91

## Notes and Illustrations

1: Idle speed 2: CO / Mixture



4988 cm<sup>3</sup>, M70



M1.7-Motronic