Automotive Technical DATA BOOK

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MENU HELP

Engine and cooling system — M3 & CAT — 1987 to 1991

Type		S14 B23 4EA/4S2[1]
Capacity (cm³) / number of cylinders		2302 / 4
Compression ratio / pressure	bar	10.5 (E2: 11.0) / ≥10.0
Oil pressure	bar	0.5 [4.0]
Oil temperature	ºC	80
Valve clearance - inlet	mm	0.26 to 0.35
Valve clearance - exhaust	mm	0.26 to 0.35
Firing order		1-3-4-2
No 1 cylinder position		TCE
Thermostat opening temperature	ºC	80
Radiator cap pressure	bar	1.5±0.1

Fuel system — M3 & CAT — 1987 to 1991

Idle speed - manual [auto]	rpm	880±50
Fast idle speed - manual [auto]	rpm	_
CO @ idle speed [3000 rpm] - see page VI	%	1.0±0.5. CAT: 0.8±0.4
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		DME-Motronic
Main jet / needle		_
Injection pressure	bar	_
Pump pressure	bar	3.0±0.06
Octane rating	RON	98[R]²

Ignition system — M3 & CAT — 1987 to 1991

Type		DME Motronic
Ignition coil		Bosch 0 221 118 335
Primary resistance	ohms	0.82
Ballast resistor	ohms	_
Voltage - Tmnl 15(+) to earth	V	_
Distributor		Bosch
Points gap (air gap)	mm	[0.30 to 0.70]
Dwell angle	º (%)	_
Condenser capacity	µF	_
Rotation		_
Ignition timing - basic [static	º Crankshaft @ rpm	Computer control
V = Vacuum NV = No Vacuum		_
Total ignition advance	º Crankshaft @ rpm	Computer control
	º Crankshaft @ rpm	_
	º Crankshaft @ rpm	_
Centrifugal check.	º Crankshaft @ rpm	Computer control
	º Crankshaft @ rpm	_
	º Crankshaft @ rpm	_
Vacuum range check	mbar	Computer control
Maximum vacuum advance	º Crankshaft	_
Spark plugs		Bosch/Champion
Type		X5DTC / A6G
Electrode gap	mm	0.60 to 0.70

Electrical system — M3 & CAT — 1987 to 1991

Battery	V / CC / RC	12 / 66Ah
Alternator voltage / full load current / engine rpm		13.5 to 14.2 / _ / 1500
Starter motor current / voltage - cranking	A / V	160 / 9.0
- locked	A / V	_

Running gear — M3 & CAT — 1987 to 1991

Brakes -		
Front (min. friction material thickness)	mm	2.0
Rear (min. friction material thickness)	mm	2.0
Tyres		
Saloon	Size	205/55x15
Estate / Van	Size	_
Pressure - front / rear - Saloon	bar	2.1 / 2.3
- Estate / Van	bar	_
Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [º]	[+17'±5']
Camber		-42'±30'. E2: -55'±30'
Castor		+9°8'±30'. E2: +9°18'±30'
King pin inclination		+14°11'±30'. E2: +14°24'±30'
Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [º]	[+24'±7']. 90 ▸: [+28'±7']
Camber		-2°20'±30'

Torque wrench settings — M3 & CAT — 1987 to 1991

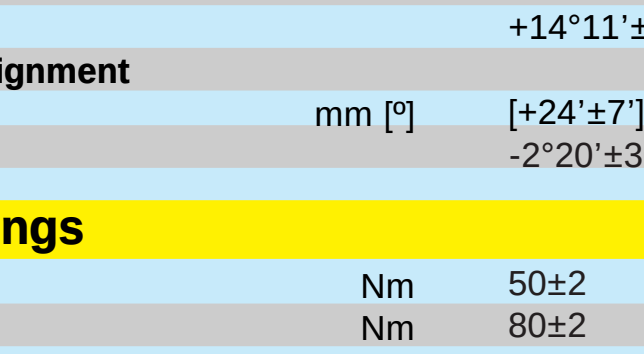
Cylinder head - stage 1	Nm	50±2
- stage 2	Nm	80±2
Cylinder head - stage 3	Nm	Wait 15 mins.
- stage 4	Nm	100±2
Big-end bearings	Nm	10, 30 + 60+2° N
Main bearings	Nm	22.5±2.5 + 50±3°
Clutch cover	Nm	24. 10.9 hex: 35
Flywheel [driveplate]	Nm	113 to 130 N
Front hubs	Nm	290
Rear hubs	Nm	195 to 210
Wheel nuts / bolts	Nm	81 to 90
Spark plugs	Nm	24 to 28

Capacities — M3 & CAT — 1987 to 1991

Engine oil & filter	litres	4.4
Gearbox - 4-speed [5-speed]	litres	1.5
Automatic transmission - refill	litres	_
Final drive	litres	1.7
Cooling system	litres	9.0
Fuel tank	litres	55 or 70

Notes and Illustrations

[1]**147kW. CAT: 143kW. E2 Evolution: 162kW**
[2]**CAT: 95 [U]**



2302 cm³, 16V