

MERCEDES-BENZ

230E, TE, CE CAT¹

1989 to 1993

Engine & Cooling

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Automotive Technical

DATA BOOK

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Engine and cooling system

230E, TE, CE CAT¹

1989 to 1993

Type		102.982 97kW
Capacity (cm ³) / number of cylinders		2299 / 4
Compression ratio / pressure	bar	9.0 / ≥8.5
Oil pressure	bar	0.3 [3.0]
Oil temperature	°C	—
Valve clearance - inlet	mm	0: Hyd.
Valve clearance - exhaust	mm	0: Hyd.
Firing order		1-3-4-2
No 1 cylinder position		F
Thermostat opening temperature	°C	87±2
Radiator cap pressure	bar	1.4±0.1

Fuel system

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1989 to 1993

Idle speed - manual [auto]	rpm	720 to 820
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	≤0.5. [1.5 to 5.0]
HC @ idle speed [3000 rpm] - see page VI	ppm	≤1200
CO ₂ @ idle speed [3000 rpm] - see page VI	%	—
O ₂ @ idle speed [3000 rpm] - see page VI	%	—
Carburettor / fuel injection		Bosch
Type / ref		CIS-E (KE-Jetronic)
Main jet / needle		—
Injection pressure	bar	3.7 to 4.3
Pump pressure	bar	5.3 to 5.5
Octane rating	RON	95[U]

Ignition system

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Type		EZL
Ignition coil		Bosch
Primary resistance	ohms	0.3 to 0.6
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	Battery
Distributor		Bosch
Points gap (air gap)	mm	—
Dwell angle	° (%)	7 to 49 @ starter speed
Condenser capacity	µF	—
Rotation		—
Ignition timing - basic [static	° Crankshaft @ rpm	22 to 26 BTDC @ 3200
V = Vacuum NV = No Vacuum		NV
Total ignition advance	° Crankshaft @ rpm	8 to 12 BTDC @ idle
	° Crankshaft @ rpm	39 to 43 BTDC @ 3200
	° 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		H7DCO / S9YCC
Electrode gap	mm	0.80

Electrical system

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Battery	V / CC / RC	12 / 190 / 62Ah
Alternator voltage / full load current / engine rpm		14.0 / 70 / 2480
Starter motor current / voltage - cranking	A / V	75 / 11.5 (no load)
- locked	A / V	430 to 550 / 3.2

Running gear

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1989 to 1993

Brakes -		
Front (min. friction material thickness)	mm	3.5
Rear (min. friction material thickness)	mm	2.0

Tyres		
Saloon	Size	195/65x15: 205/60x15
Estate / Van	Size	195/65x15: 205/60x15
Pressure - front / rear - Saloon	bar	2.0 / 2.2 ²
- Estate / Van	bar	2.0 / 2.5

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	[+20'±10']
Camber		-25'+10'-20' ³
Castor		+10°25'±30' ⁴
King pin inclination		—

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	[+20' to 35']
Camber		-1°30'±30'

Torque wrench settings

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1989 to 1993

Cylinder head - stage 1	Nm	55 ⁵
- stage 2	Nm	+ 90°
Cylinder head - stage 3	Nm	+ 90°
- stage 4	Nm	—
Big-end bearings	Nm	30 + 90 to 100°
Main bearings	Nm	M12: 90°
Clutch cover	Nm	25
Flywheel [driveplate]	Nm	40 + 90 to 100°
Front hubs	Nm	WSM
Rear hubs	Nm	200 to 240
Wheel nuts / bolts	Nm	110
Spark plugs	Nm	20

Capacities

230E, TE, CE CAT¹

1989 to 1993

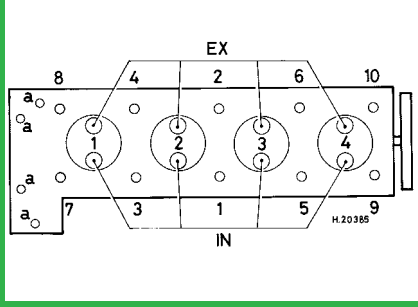
Engine oil & filter	litres	5.0
Gearbox - 4-speed [5-speed]	litres	1.3 [1.5]
Automatic transmission - refill	litres	6.0
Final drive	litres	1.1
Cooling system	litres	8.5. A/c: 9.5
Fuel tank	litres	70 . TE: 72

Notes and Illustrations

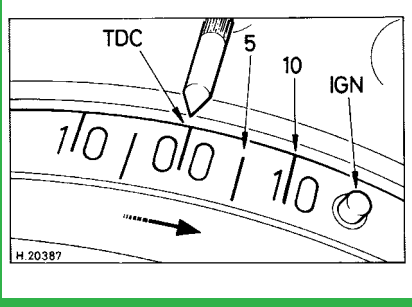
- ¹(124.023/083/043/003/004)
- ²CE: 2.0 / 2.0
- ³230TE: -5'+10'-20'. Sport: -50'+10'-20'
- ⁴230TE: +10°10'±30'. Sport: +10°40'±30'
- ⁵Bolts marked “a” on diagram: 21
- ⁶M11: 55 + 90 to 100°

1: Idle speed

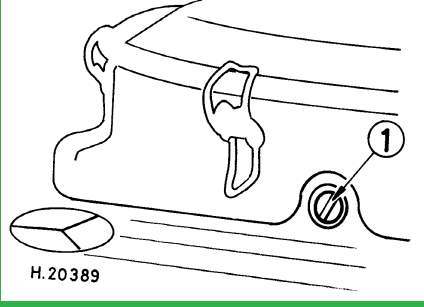
2: CO / Mixture



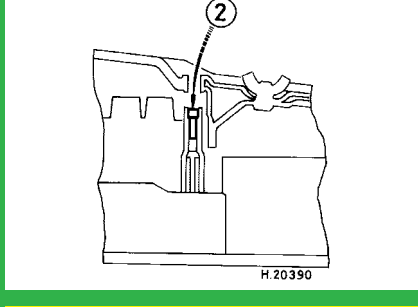
2299 cm³



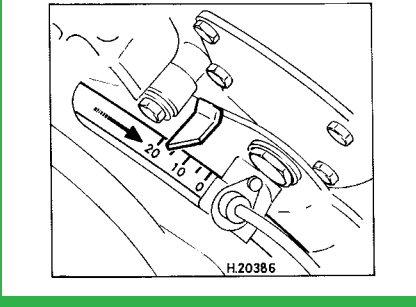
2299 cm³, alternative



KE-Jetronic



KE-Jetronic



2299 cm³