

Engine & Cooling

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Automotive Technical
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Engine and cooling system

500SL (107.046)

1980 to 1989

Type		117.964 KE
Capacity (cm ³) / number of cylinders		4973 / 8
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		1-5-4-8-6-3-7-2
No 1 cylinder position		FR
Thermostat opening temperature	°C	80±2
Radiator cap pressure	bar	1.2±0.1

Fuel system

500SL (107.046)

1980 to 1989

Idle speed - manual [auto]	rpm	600 to 750
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	1.5±0.5 [0.1 to 0.8]
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
Pump pressure	bar	6.2 to 6.4
Octane rating	RON	95[RA]

Ignition system

500SL (107.046)

1980 to 1989

Type		EZL
Ignition coil		Bosch
Primary resistance	ohms	0.2 to 0.4
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	Battery
Distributor		Bosch
Points gap (air gap)	mm	—
Dwell angle	° (%)	1 to 18 @ starter speed
Condenser capacity	µF	—
Rotation		—
Ignition timing - basic [static	° Crankshaft @ rpm	27 to 31 BTDC @ 3200
V = Vacuum NV = No Vacuum		NV
Total ignition advance	° Crankshaft @ rpm	14 to 18 BTDC @ idle
	° Crankshaft @ rpm	41 to 45 BTDC @ 3500
	° 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		W7DC / N9YC
Electrode gap	mm	0.80

Electrical system

500SL (107.046)

1980 to 1989

Battery	V / CC / RC	12 / 200 / 66Ah
Alternator voltage / full load current / engine rpm		13.0 to 14.5 / _ / 3000
Starter motor current / voltage - cranking	A / V	—
- locked	A / V	560 to 780 / 5.0

Running gear

500SL (107.046)

1980 to 1989

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

Tyres		
Saloon	Size	205/65x15
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	2.0 / 2.4
- Estate / Van	bar	—

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

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	[+10' to 35']
Camber		-1°45'±30'

Torque wrench settings

500SL (107.046)

1980 to 1989

Cylinder head - stage 1	Nm	30 ¹
- stage 2	Nm	60
Cylinder head - stage 3	Nm	Wait 10 min.
- stage 4	Nm	60
Big-end bearings	Nm	45 + 90 to 100°
Main bearings	Nm	M10: 50. M11: ²
Clutch cover	Nm	—
Flywheel [driveplate]	Nm	35 + 90 to 100°
Front hubs	Nm	WSM
Rear hubs	Nm	—
Wheel nuts / bolts	Nm	110
Spark plugs	Nm	25 to 30

Capacities

500SL (107.046)

1980 to 1989

Engine oil & filter	litres	8.0
Gearbox - 4-speed [5-speed]	litres	—
Automatic transmission - refill	litres	7.7
Final drive	litres	1.3
Cooling system	litres	13.0
Fuel tank	litres	85

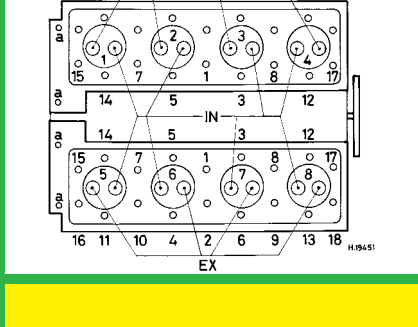
Notes and Illustrations

¹Bolts marked “a” on diagram, 25

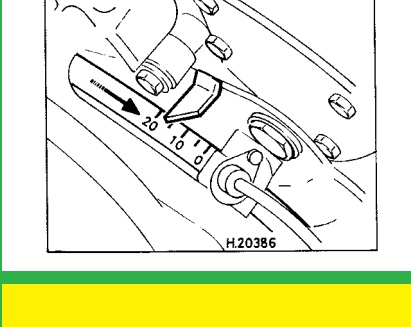
²M11: 55 + 90 to 100°

1: Idle speed

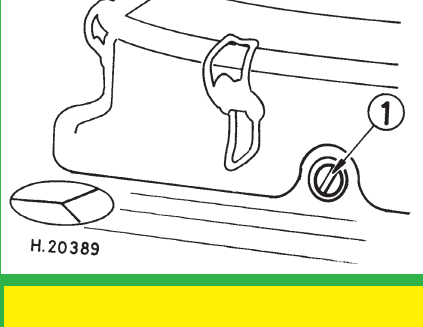
2: CO / Mixture



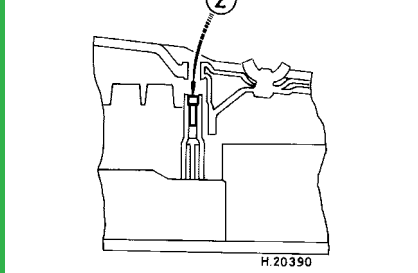
4973 cm³



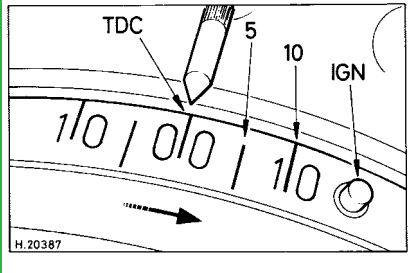
4973 cm³



KE-Jetronic



KE-Jetronic



4973 cm³, alternative