

Engine & Cooling

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Automotive Technical
DATA BOOK

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Engine and cooling systemBertone X1 / 91978 to 1989

Type		138 AS.000
Capacity (cm³) / number of cylinders		1498 / 4
Compression ratio / pressure	bar	9.2 /
Oil pressure	bar	[3.4 to 4.9]
Oil temperature	°C	100
Valve clearance - inlet	mm	0.45
Valve clearance - exhaust	mm	0.60
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	73 to 77
Radiator cap pressure	bar	0.78

Fuel systemBertone X1 / 91978 to 1989

Idle speed - manual [auto]	rpm	850±50
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	1.5±0.5
HC @ idle speed [3000 rpm] - see page VI	ppm	≤1200
CO2 @ idle speed [3000 rpm] - see page VI	%	—
O2 @ idle speed [3000 rpm] - see page VI	%	—
Carburettor / fuel injection		Weber
Type / ref		34 DATR 7/250
Main jet / needle		107, 130
Injection pressure	bar	—
Pump pressure	bar	0.18
Octane rating	RON	98[R]

Ignition systemBertone X1 / 91978 to 1989

Type		Contact breaker - CIS
Ignition coil		Various
Primary resistance	ohms	2.6 to 3.4 (typical)
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Ducellier/Marelli
Points gap (air gap)	mm	0.40±0.03
Dwell angle	° (%)	55±3
Condenser capacity	µF	0.25±0.025
Rotation		Clockwise
Ignition timing - basic [static	° Crankshaft @ rpm	5 BTDC @ idle
V = Vacuum NV = No Vacuum		—
Total ignition advance	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	0 @ 600 to 1000
	° Crankshaft @ rpm	14 to 18 @ 3000
	° Crankshaft @ rpm	21 to 25 @ 4500
Vacuum range check	mbar	—
Maximum vacuum advance	° Crankshaft	—
Spark plugs		Marelli/Champion
Type		CW78LPR / RN7YC
Electrode gap	mm	0.70 to 0.80

Electrical systemBertone X1 / 91978 to 1989

Battery	V / CC / RC	12 / 210 / 65
Alternator voltage / full load current / engine rpm		13.65 to 14.0 / _ / 3000
Starter motor current / voltage - cranking	A / V	200 / 10
- locked	A / V	440 to 460 / 7.5

Running gearBertone X1 / 91978 to 1989

Brakes -		
Front (min. friction material thickness)	mm	1.5
Rear (min. friction material thickness)	mm	1.5

Tyres		
Saloon	Size	165/70x13
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	1.8 / 2.0
- Estate / Van	bar	—

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	+2.0 to 6.0
Camber		0 to -1°
Castor		+6°20' to 7°20'
King pin inclination		—

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	+5.0 to 9.0
Camber		-45' to -1°45'

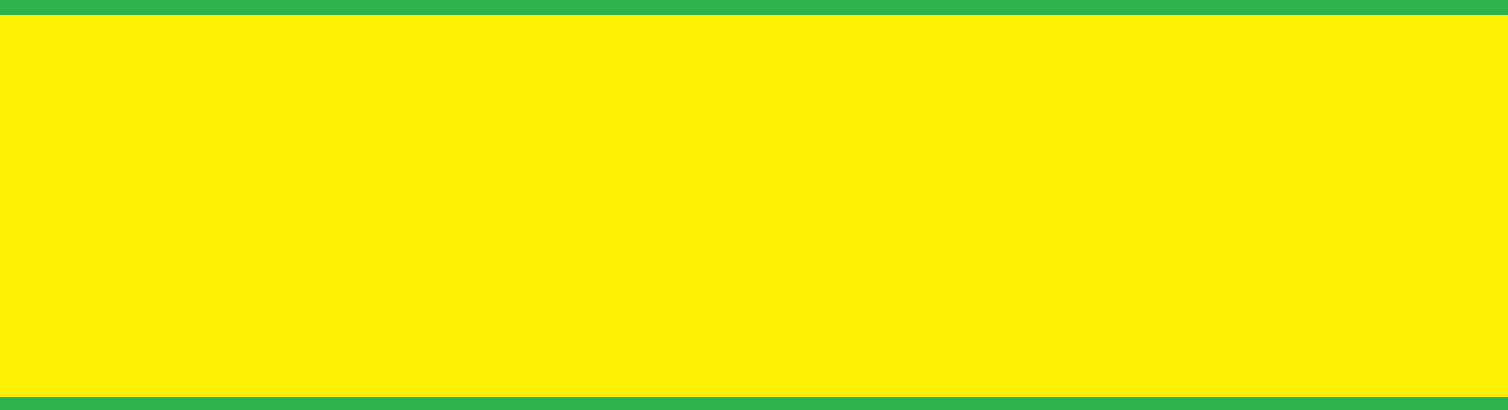
Torque wrench settingsBertone X1 / 91978 to 1989

Cylinder head - stage 1	Nm	93
- stage 2	Nm	—
Cylinder head - stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	51
Main bearings	Nm	80
Clutch cover	Nm	16
Flywheel [driveplate]	Nm	83
Front hubs	Nm	216
Rear hubs	Nm	216
Wheel nuts / bolts	Nm	86
Spark plugs	Nm	25 to 30

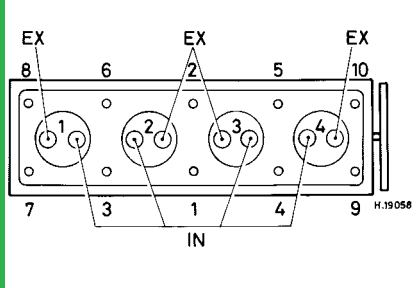
CapacitiesBertone X1 / 91978 to 1989

Engine oil & filter	litres	4.5
Gearbox - 4-speed [5-speed]	litres	3.0
Automatic transmission - refill	litres	—
Final drive	litres	WT
Cooling system	litres	11.6
Fuel tank	litres	49

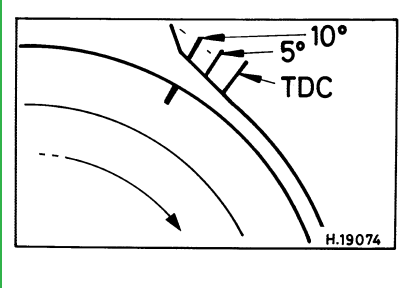
Notes and Illustrations



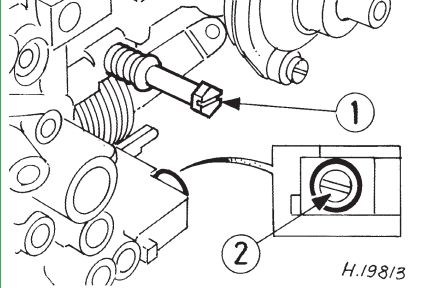
1: Idle speed 2: CO / Mixture



1498 cm³



1498 cm³



Weber DATR