

Engine & Cooling

Fuel

Ignition

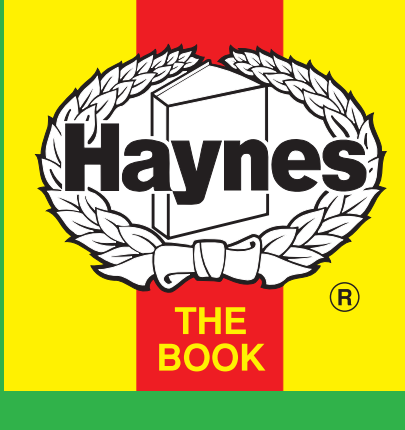
Electrical

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Automotive Technical
DATA BOOK

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HELP

Engine and cooling system

Sapphire Cosworth 4x4

1990 to 1992

Type		N5A (DOHC 16V Turbo) 15.04 ¹
Capacity (cm ³) / number of cylinders		1993 / 4
Compression ratio / pressure	bar	8.0 / 8.5
Oil pressure	bar	1.8 [2.4]
Oil temperature	°C	80
Valve clearance - inlet	mm	0: Hyd.
Valve clearance - exhaust	mm	0: Hyd.
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	82. CAT: 76 to 88
Radiator cap pressure	bar	0.85 to 1.10

Fuel system

Sapphire Cosworth 4x4

1990 to 1992

Idle speed - manual [auto]	rpm	850±50. CAT: 900±50
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	≤0.5
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		Weber-Marelli
Type / ref		Electronic injection /ignition
Main jet / needle		—
Injection pressure	bar	3.5
Pump pressure	bar	≥5.0
Octane rating	RON	97[E 95 RON] ²

Ignition system

Sapphire Cosworth 4x4

1990 to 1992

Type		Computerized
Ignition coil		Motorcraft
Primary resistance	ohms	0.72 to 0.88
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Marelli
Points gap (air gap)	mm	[0.20 to 0.30]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		Clockwise
Ignition timing - basic [static	° Crankshaft @ rpm	16 BTDC @ idle
V = Vacuum NV = No Vacuum		NV
Total ignition advance	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	Computer control
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Vacuum range check	mbar	Computer control
Maximum vacuum advance	° Crankshaft	—
Spark plugs		Motorcraft/Champion
Type		AGPR12PP / C59C
Electrode gap	mm	1.00

Electrical system

Sapphire Cosworth 4x4

1990 to 1992

Battery	V / CC / RC	12 / 500 / 70, 590 / 90
Alternator voltage / full load current / engine rpm		13.7 to 14.6 / _ / 4000
Starter motor current / voltage - cranking	A / V	—
- locked	A / V	—

Running gear

Sapphire Cosworth 4x4

1990 to 1992

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

Tyres		
Saloon	Size	205/50x15: 195/55x15
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	2.1 / 2.3
- Estate / Van	bar	—

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	0±1.0
Camber		-1°17'±1°
Castor		+2°58'+1°30'-1°
King pin inclination		—

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	—
Camber		—

Torque wrench settings

Sapphire Cosworth 4x4

1990 to 1992

Cylinder head - stage 1	Nm	45 to 50 N
- stage 2	Nm	+ 180±10°
Cylinder head - stage 3	Nm	110
- stage 4	Nm	—
Big-end bearings	Nm	55 to 60
Main bearings	Nm	88 to 102
Clutch cover	Nm	19 to 22
Flywheel [driveplate]	Nm	64 to 70
Front hubs	Nm	315 to 350
Rear hubs	Nm	250 to 290
Wheel nuts / bolts	Nm	100
Spark plugs	Nm	28 to 33

Capacities

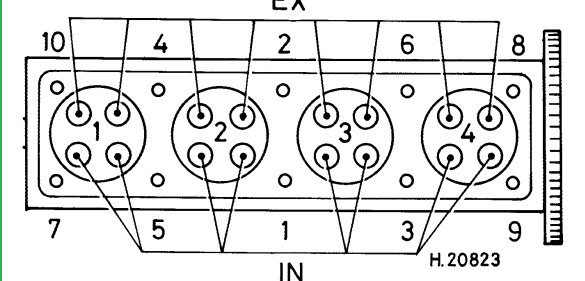
Sapphire Cosworth 4x4

1990 to 1992

Engine oil & filter	litres	3.4
Gearbox - 4-speed [5-speed]	litres	1.2 ³
Automatic transmission - refill	litres	—
Final drive	litres	Front: 1.0. Rear: ⁴
Cooling system	litres	7.5
Fuel tank	litres	60

Notes and Illustrations

¹CAT: US83
²CAT: 95 [U]
³Transfer box: 0.5
⁴1.0



1993 cm³, 16V