

Engine & Cooling

Fuel

Ignition

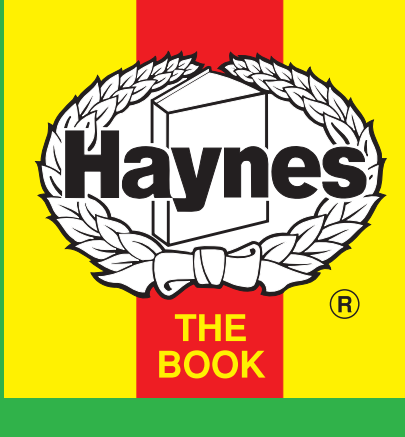
Electrical

Running gear

Torque settings

Capacities

Notes & Illustrations



Automotive Technical
DATA BOOK

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HELP

Engine and cooling systemCarina 2.0i & CAT (ST171)1988 to 1992

Type		3S-FE
Capacity (cm ³) / number of cylinders		1998 / 4
Compression ratio / pressure	bar	9.8 / ≥10.8
Oil pressure	bar	0.3 [3.0]
Oil temperature	°C	80
Valve clearance - inlet	mm	0.19 to 0.29
- exhaust	mm	0.28 to 0.38
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	80 to 84
Radiator cap pressure	bar	0.75 to 1.00

Fuel systemCarina 2.0i & CAT (ST171)1988 to 1992

Idle speed - manual [auto]	rpm	700±50
Fast idle speed - manual [auto]	rpm	3000
CO @ idle speed [3000 rpm] - see page VI	%	1.5±0.5. CAT: 0 to 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		Toyota
Type / ref		D-Jetronic
Main jet / needle		—
Injection pressure	bar	—
Pump pressure	bar	2.7 to 3.0
Octane rating	RON	98[E 95 RON] ¹

Ignition systemCarina 2.0i & CAT (ST171)1988 to 1992

Type		Electronic
Ignition coil		Denso
Primary resistance	ohms	0.38 to 0.46
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Toyo Denso
Points gap (air gap)	mm	[0.20 to 0.40]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		Clockwise
Ignition timing - basic [static	° Crankshaft @ rpm	10 BTDC @ idle ¹
V = Vacuum NV = No Vacuum		NV
Total ignition advance	° Crankshaft @ rpm	14 to 19 BTDC @ idle
	° Crankshaft @ rpm	CAT: 13 to 22 BTDC @ idle
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	Electronic control
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Vacuum range check	mbar	Electronic control
Maximum vacuum advance	° Crankshaft	—
Spark plugs		NGK/Champion
Type		BCPR6EY11 / RC9YC
Electrode gap	mm	1.10

Electrical systemCarina 2.0i & CAT (ST171)1988 to 1992

Battery	V / CC / RC	—
Alternator voltage / full load current / engine rpm		13.5 to 15.1 / _ / 3000
Starter motor current / voltage - cranking	A / V	90 / 11.5 (no load)
- locked	A / V	—

Running gearCarina 2.0i & CAT (ST171)1988 to 1992

Brakes -		
Front (min. friction material thickness)	mm	1.0
Rear (min. friction material thickness)	mm	1.0

Tyres		
Saloon	Size	185/70x13: 185/65x14
Estate / Van	Size	185/70x13
Pressure - front / rear - Saloon	bar	1.9 / 1.9 ³
- Estate / Van	bar	1.9 / 1.9

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	0±1.0
Camber		0±30'
Castor		-5'±30'. PAS: +20'±30' ⁴
King pin inclination		+13°15'±30'

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	+5.0±1.0
Camber		-30'±30'. Estate: -15'±30'

Torque wrench settingsCarina 2.0i & CAT (ST171)1988 to 1992

Cylinder head - stage 1	Nm	20 ⁵
- stage 2	Nm	40 ⁵
- stage 3	Nm	64 ⁵
- stage 4	Nm	—
Big-end bearings	Nm	49
Main bearings	Nm	59
Clutch cover	Nm	19
Flywheel [driveplate]	Nm	83 N
Front hubs	Nm	186 ⁶
Rear hubs	Nm	WSM
Wheel nuts / bolts	Nm	103
Spark plugs	Nm	18

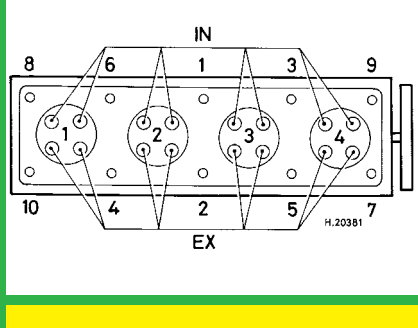
CapacitiesCarina 2.0i & CAT (ST171)1988 to 1992

Engine oil & filter	litres	4.1. Cooler: 4.2
Gearbox - 4-speed [5-speed]	litres	2.6
Automatic transmission - refill	litres	2.5
Final drive	litres	AT: 1.6
Cooling system	litres	6.5 [6.3]
Fuel tank	litres	60

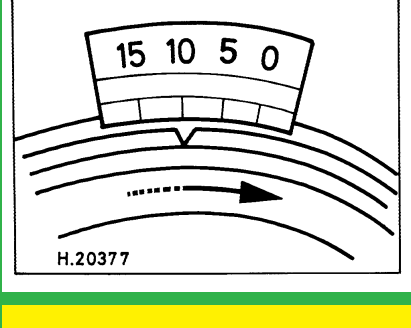
Notes and Illustrations

- ¹CAT: 95 [U]
- ²Terminals TE1 & E1 shorted
- ³185/70x13: 1.8 / 1.8
- ⁴Estate: 0±30'
- ⁵Engine no.6212539 ►: 29 oiled, 49 + 90°
- ⁶If noisy, retighten to 273

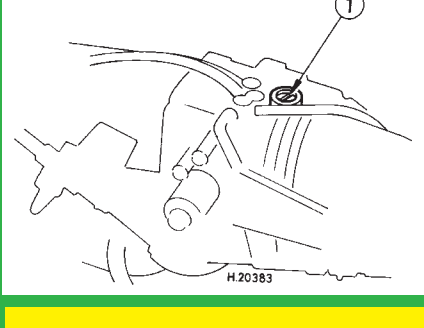
1: Idle speed 2: CO / Mixture



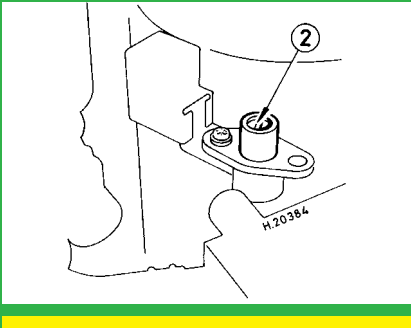
1998 cm³



1998 cm³, 3S-FE



D-Jetronic



D-Jetronic