

Engine & Cooling

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Automotive Technical
DATA BOOK

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Engine and cooling systemSunny 1.6 (B12, N13)1986 to 1989

Type		E16S SOHC
Capacity (cm³) / number of cylinders		1597 / 4
Compression ratio / pressure	bar	9.6 / ≥10.8
Oil pressure	bar	2.0 [3.9]
Oil temperature	°C	—
Valve clearance - inlet	mm	0.25 H
Valve clearance - exhaust	mm	0.30 H
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	82
Radiator cap pressure	bar	0.78 to 0.98

Fuel systemSunny 1.6 (B12, N13)1986 to 1989

Idle speed - manual [auto]	rpm	800±50 [850 (950 PAS)±50]
Fast idle speed - manual [auto]	rpm	2400±200 [2800±200]
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		Hitachi
Type / ref		DCZ328-31 [-32 AT]
Main jet / needle		98, 135
Injection pressure	bar	—
Pump pressure	bar	0.20 to 0.27
Octane rating	RON	97[RA] ¹

Ignition systemSunny 1.6 (B12, N13)1986 to 1989

Type		Electronic
Ignition coil		Hanshin STC-143
Primary resistance	ohms	1.0 to 1.3
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Hitachi
Points gap (air gap)	mm	[0.30 to 0.50]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		Anticlockwise
Ignition timing - basic [static	° Crankshaft @ rpm	4±2 BTDC @ idle ¹
V = Vacuum NV = No Vacuum		NV
Total ignition advance	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	0 @ 1360
	° Crankshaft @ rpm	12 @ 2800
	° Crankshaft @ rpm	25 @ 5400
Vacuum range check	mbar	147 to 333 ²
Maximum vacuum advance	° Crankshaft	10
Spark plugs		NGK/Champion
Type		BPR6ES / RN9YC
Electrode gap	mm	0.80 to 0.90

Electrical systemSunny 1.6 (B12, N13)1986 to 1989

Battery	V / CC / RC	12 / 60Ah
Alternator voltage / full load current / engine rpm		14.1 to 14.7 / _ / 2500
Starter motor current / voltage - cranking	A / V	60 / 11.5 (no load)
- locked	A / V	—

Running gearSunny 1.6 (B12, N13)1986 to 1989

Brakes -		
Front (min. friction material thickness)	mm	2.0
Rear (min. friction material thickness)	mm	1.5

Tyres		
Saloon	Size	155x13: 175/70x13: 185/60x14
Estate / Van	Size	155x13: 175/70x13
Pressure - front / rear - Saloon	bar	2.1 / 2.1
- Estate / Van	bar	2.1 / 2.1

Front suspension / wheel alignment

Toe-in (+) / Toe-out (–)	mm [°]	-0.5 to +1.5
Camber		-50' to +40' ³
Castor		+35' to 2°5' ⁴
King pin inclination		+13°5' to 14°35' ⁵

Rear suspension / wheel alignment

Toe-in (+) / Toe-out (–)	mm [°]	0 to -4.0 ⁶
Camber		-1°45' to -15' ⁷

Torque wrench settingsSunny 1.6 (B12, N13)1986 to 1989

Cylinder head - stage 1	Nm	29
- stage 2	Nm	69
Cylinder head - stage 3	Nm	Loosen, then 29
- stage 4	Nm	69 to 74
Big-end bearings	Nm	31 to 37
Main bearings	Nm	49 to 59
Clutch cover	Nm	22 to 29
Flywheel [driveplate]	Nm	78 to 88 ⁸
Front hubs	Nm	196 to 275
Rear hubs	Nm	186 to 255 ⁹
Wheel nuts / bolts	Nm	98 to 118
Spark plugs	Nm	20 to 29

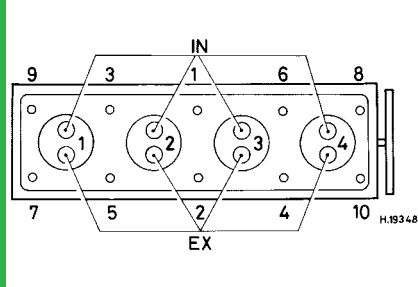
CapacitiesSunny 1.6 (B12, N13)1986 to 1989

Engine oil & filter	litres	3.2
Gearbox - 4-speed [5-speed]	litres	2.7. Transfer: 1.1
Automatic transmission - refill	litres	6.3
Final drive	litres	WT. 4x4: 1.0
Cooling system	litres	4.3 [Copper: 4.9]
Fuel tank	litres	B12: 52. N13: 50

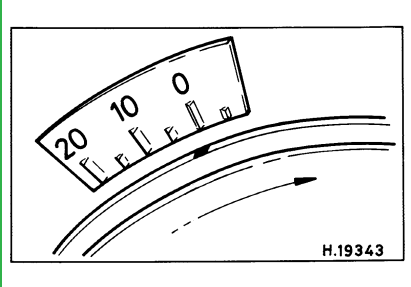
Notes and Illustrations

- ¹[E 95 RON]: 2±2 BTDC @ idle
- ²[AT: 267 to 453]
- ³Coupé: -1°5' to +25'
- ⁴Coupé: +45' to 2°15'. 4x4: +10' to 1°40'
- ⁵Coupé: +13°25' to 14°55'. 4x4: +12°50' to 14°15'
- ⁶Coupé: +0.5 to -3.5.4x4: 0 to 4
- ⁷Coupé: -1°55' to -25'. 4x4: -55' to +35'
- ⁸Driveplate: [93 to 103]
- ⁹4x4: 235 to 314

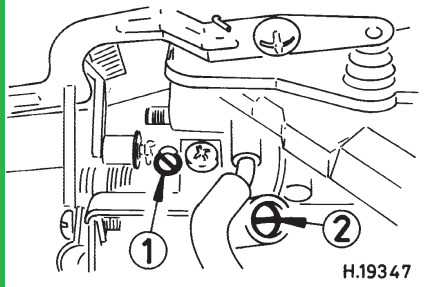
1: Idle speed 2: CO / Mixture



1597 cm³, 8V



1597 cm³, 8V



Hitachi DCZ