

Engine & Cooling

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Automotive Technical
DATA BOOK

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Engine and cooling systemSJ 413 & Samurai1986 to 1992

Type		G13BA OHC 48kW
Capacity (cm ³) / number of cylinders		1324 / 4
Compression ratio / pressure	bar	8.9 / ≥11.7
Oil pressure	bar	[3.0 to 4.1]
Oil temperature	°C	85
Valve clearance - inlet	mm	0.13 to 0.18
- exhaust	mm	0.16 to 0.20
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	82 or 88
Radiator cap pressure	bar	0.90

Fuel systemSJ 413 & Samurai1986 to 1992

Idle speed - manual [auto]	rpm	850±50
Fast idle speed - manual [auto]	rpm	1500 to 2500
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		Aisan
Type / ref		2V Downdraught
Main jet / needle		95, 108
Injection pressure	bar	—
Pump pressure	bar	0.20 to 0.30
Octane rating	RON	91[E 91 RON]

Ignition systemSJ 413 & Samurai1986 to 1992

Type		Electronic
Ignition coil		Nippon Denso
Primary resistance	ohms	1.35 to 1.65
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Nippon 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 @ 850±50
V = Vacuum NV = No Vacuum		—
Total ignition advance	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	0 @ 1200
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	16 to 20 @ 5500
Vacuum range check	mbar	130 to 270
Maximum vacuum advance	° Crankshaft	11 to 15
Spark plugs		NGK/Champion
Type		BPR5ES / RN9YC
Electrode gap	mm	0.70 to 0.80

Electrical systemSJ 413 & Samurai1986 to 1992

Battery	V / CC / RC	12 / 190 / 65
Alternator voltage / full load current / engine rpm		14.2 to 14.8 / 45 / 3000
Starter motor current / voltage - cranking	A / V	150 / 9.0
- locked	A / V	380 to 500 / 5.0

Running gearSJ 413 & Samurai1986 to 1992

Brakes -		
Front (min. friction material thickness)	mm	6.0 with backing
Rear (min. friction material thickness)	mm	3.0

Tyres		
Saloon	Size	—
Estate / Van	Size	195x15: 205/70x15
Pressure - front / rear - Saloon	bar	—
- Estate / Van	bar	1.4 / 1.4

Front suspension / wheel alignment

Toe-in (+) / Toe-out (–)	mm [°]	+2.0 to 6.0
Camber		+1°
Castor		+3°30'
King pin inclination		+9°

Rear suspension / wheel alignment

Toe-in (+) / Toe-out (–)	mm [°]	—
Camber		—

Torque wrench settingsSJ 413 & Samurai1986 to 1992

Cylinder head - stage 1	Nm	63 to 70
- stage 2	Nm	—
- stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	33 to 37
Main bearings	Nm	50 to 57
Clutch cover	Nm	18 to 28
Flywheel [driveplate]	Nm	57 to 65
Front hubs	Nm	150 to 270
Rear hubs	Nm	80 to 120
Wheel nuts / bolts	Nm	50 to 80
Spark plugs	Nm	20 to 30

CapacitiesSJ 413 & Samurai1986 to 1992

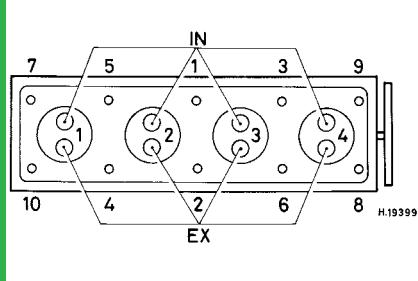
Engine oil & filter	litres	3.7
Gearbox - 4-speed [5-speed]	litres	1.3 ¹
Automatic transmission - refill	litres	—
Final drive	litres	Rear: 1.5 ²
Cooling system	litres	5.0
Fuel tank	litres	40

Notes and Illustrations

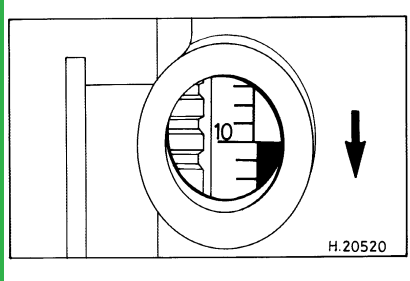
¹Transfer box: 0.8

²Front: 2.0

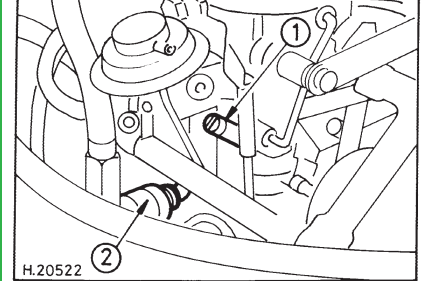
1: Idle speed 2: CO / Mixture



1324 cm³



1324 cm³



Aisan 2V