

Engine & Cooling

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Automotive Technical
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Engine and cooling system

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

Type		AJ-6 DOHC 24V 175kW CAT: 166kW
Capacity (cm ³) / number of cylinders		3980 / 6
Compression ratio / pressure	bar	9.5 / ≥10.9
Oil pressure	bar	2.1
Oil temperature	°C	80
Valve clearance - inlet	mm	0.30 to 0.36
Valve clearance - exhaust	mm	0.30 to 0.36
Firing order		1-5-3-6-2-4
No 1 cylinder position		TCE
Thermostat opening temperature	°C	88
Radiator cap pressure	bar	1.0

Fuel system

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

Idle speed - manual [auto]	rpm	800±50 [700±50]
Fast idle speed - manual [auto]	rpm	—
CO @ idle speed [3000 rpm] - see page VI	%	1.0 to 2.0. CAT: ≤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		Lucas
Type / ref		15CU Digital
Main jet / needle		—
Injection pressure	bar	3.0 above manifold pres.
Pump pressure	bar	2.5. 90 ►: 3.0
Octane rating	RON	97[E 95 RON] ¹

Ignition system

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

Type		Computerized
Ignition coil		Bosch yellow label
Primary resistance	ohms	0.45 to 0.55
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		Lucas
Points gap (air gap)	mm	[0.8±0.4]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		Clockwise
Ignition timing - basic [static	° Crankshaft @ rpm	Computer control N/A
V = Vacuum NV = No Vacuum		—
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		Champion
Type		RC9YCC
Electrode gap	mm	0.90

Electrical system

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

Battery	V / CC / RC	12 / 52, 65, 72Ah
Alternator voltage / full load current / engine rpm		13.8 to 15.0 / 120 / 3000
Starter motor current / voltage - cranking	A / V	—
- locked	A / V	365 / 12

Running gear

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

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

Tyres		
Saloon	Size	220/65x390:225/65x15:225/55x16
Estate / Van	Size	—
Pressure - front / rear - Saloon	bar	2.2 / 2.3
- Estate / Van	bar	—

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	0 to +1.6
Camber		0 to -30’
Castor		+3°30’ to 4°30’
King pin inclination		+8°30’

Rear suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	0 to +1.6
Camber		-30’ to -1°

Torque wrench settings

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

Cylinder head - stage 1	Nm	59 to 61
- stage 2	Nm	+ 90°
Cylinder head - stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	52 to 55
Main bearings	Nm	136 to 142
Clutch cover	Nm	23 to 27
Flywheel [driveplate]	Nm	136 [59 to 72]
Front hubs	Nm	WSM
Rear hubs	Nm	—
Wheel nuts / bolts	Nm	82. Alloy: 102
Spark plugs	Nm	27

Capacities

XJ6 & Sovereign 4.0 & CAT

1989 to 1994

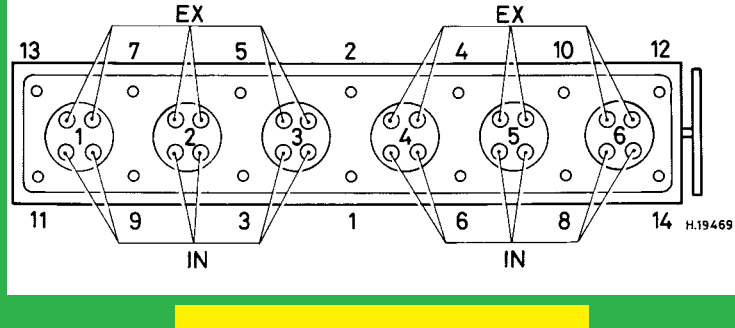
Engine oil & filter	litres	8.0
Gearbox - 4-speed [5-speed]	litres	1.4
Automatic transmission - refill	litres	4.3. ZF4: 3.0
Final drive	litres	2.1
Cooling system	litres	12.3
Fuel tank	litres	86.4

Notes and Illustrations

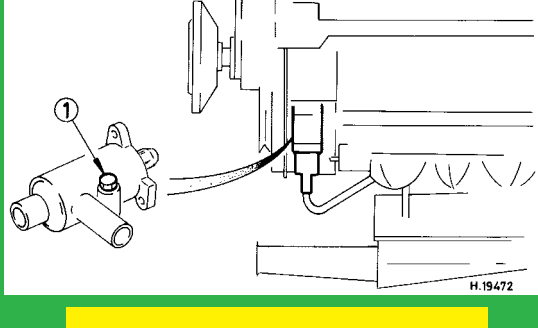
¹CAT: [U]

1: Idle speed

2: CO / Mixture



3980 cm³



Lucas 15CU