

VAUXHALL/OPEL

Brava Pick-up & CAT

1988 to 1995

Engine & Cooling

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Automotive Technical
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Engine and cooling system

Brava Pick-up & CAT

1988 to 1995

Type		4ZD1 SOHC 81kW (Cat: 69kW)
Capacity (cm ³) / number of cylinders		2254 / 4
Compression ratio / pressure	bar	8.0 / 11.8
Oil pressure	bar	[3.9 to 4.9]
Oil temperature	°C	80
Valve clearance - inlet	mm	0.15
Valve clearance - exhaust	mm	0.25
Firing order		1-3-4-2
No 1 cylinder position		TBE
Thermostat opening temperature	°C	82
Radiator cap pressure	bar	0.9 to 1.2

Fuel system

Brava Pick-up & CAT

1988 to 1995

Idle speed - manual [auto]	rpm	800
Fast idle speed - manual [auto]	rpm	2800 to 3200
CO @ idle speed [3000 rpm] - see page VI	%	CAT: ≤0.5 [≤0.3]
HC @ idle speed [3000 rpm] - see page VI	ppm	≤1200. CAT: ≤300
CO2 @ idle speed [3000 rpm] - see page VI	%	—
O2 @ idle speed [3000 rpm] - see page VI	%	—
Carburettor / fuel injection		Nippon Kikaki/Hitachi
Type / ref		NK: 21E324. H: DCR384
Main jet / needle		NK: 126, 165. H: 112, 165 ¹
Injection pressure	bar	—
Pump pressure	bar	0.25
Octane rating	RON	91[E 91 RON] ²

Ignition system

Brava Pick-up & CAT

1988 to 1995

Type		HEI
Ignition coil		—
Primary resistance	ohms	1.1 to 1.5
Ballast resistor	ohms	—
Voltage - Tmnl 15(+) to earth	V	—
Distributor		—
Points gap (air gap)	mm	[0.20 to 0.40]
Dwell angle	° (%)	—
Condenser capacity	µF	—
Rotation		Clockwise
Ignition timing - basic [static	° Crankshaft @ rpm	6 BTDC @ 800
V = Vacuum NV = No Vacuum		—
Total ignition advance	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Centrifugal check.	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
	° Crankshaft @ rpm	—
Vacuum range check	mbar	—
Maximum vacuum advance	° Crankshaft	—
Spark plugs		NGK/Champion
Type		BPR6ES11 / RN7YC
Electrode gap	mm	1.00 to 1.10

Electrical system

Brava Pick-up & CAT

1988 to 1995

Battery	V / CC / RC	12 / 60Ah
Alternator voltage / full load current / engine rpm		14.2 to 14.8 / 45 / 3000
Starter motor current / voltage - cranking	A / V	280 / 8.0
- locked	A / V	—

Running gear

Brava Pick-up & CAT

1988 to 1995

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

Tyres		
Saloon	Size	—
Estate / Van	Size	185x14: 205x16
Pressure - front / rear - Saloon	bar	—
- Estate / Van	bar	1.8 / 4.5 ³

Front suspension / wheel alignment		
Toe-in (+) / Toe-out (–)	mm [°]	+2.0±2.0
Camber		+30'±1°
Castor		SWB: +1°35'±45' ⁴
King pin inclination		+10°±1°

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

Torque wrench settings

Brava Pick-up & CAT

1988 to 1995

Cylinder head - stage 1	Nm	78 oiled
- stage 2	Nm	88 to 108
Cylinder head - stage 3	Nm	—
- stage 4	Nm	—
Big-end bearings	Nm	57 to 61 oiled
Main bearings	Nm	83 to 113 oiled
Clutch cover	Nm	14 to 24
Flywheel [driveplate]	Nm	54 to 64
Front hubs	Nm	WSM
Rear hubs	Nm	—
Wheel nuts / bolts	Nm	Steel: 88. Alloy: 118
Spark plugs	Nm	14 to 24

Capacities

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1988 to 1995

Engine oil & filter	litres	4.9
Gearbox - 4-speed [5-speed]	litres	1.6. 4x4: 4.4
Automatic transmission - refill	litres	—
Final drive	litres	1.5 ⁵
Cooling system	litres	9.0
Fuel tank	litres	75

Notes and Illustrations

¹NK 21E324-351: 121, 155

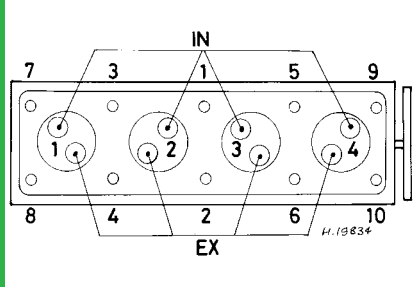
²CAT: 91 [U]

³4x4: 205x16: 2.0 / 2.7

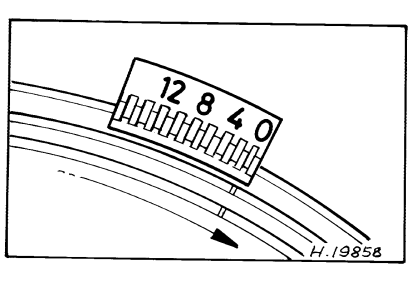
⁴4x4: +1°55'±45'. LWB: +1°50'±45'. 4x4: +2°10'±45'. Flat deck: +1°10'±45'

⁵4x4 front: 1.0

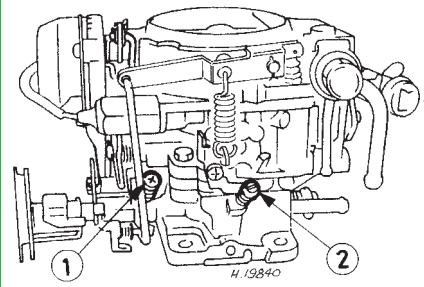
1: Idle speed 2: CO / Mixture



2254 cm³



2254 cm³



Nippon Kikaki / Hitachi