

ENGINE SPECIFICATIONS– Td5

Type	2.5 litre in-line direct injection Diesel, turbocharged and intercooled
Number of cylinders	5in-line, No. 1 cylinder at front of engine
Bore	84.450 mm (3.3248 in)
Stroke	88.950 mm (3.5020 in)
Capacity	2498 cm ³ (152.5 in ³)
Firing order.....	1 - 2 - 4 - 5 - 3
Compression ratio.....	19.5:1
Direction of rotation	Clockwise viewed from the front of the engine.
Dimensions	
Length	766 mm (30.1 in)
Width	708 mm (27.8 in)
Height.....	788 mm (31.0 in)
Emissions standard :-	
Engine Serial No. Prefixes 10P to 14P - EU2 Model.....	ECD 2
Engine Serial No. Prefixes 15P to 19P - EU3 Model.....	ECD 3
Injection timing.....	Controlled by ECM
Maximum governed speed	4850 rev/min
Maximum overrun speed	5460 rev/min
Idle speed	740 + 50 rev/min

HEATER PLUGS - Td5

Make & type	Beru 12 V.
Number of plugs.....	Four plugs only, in cylinders 1, 2, 3 and 4

INJECTORS - Td5

Injectors	
Make/Type	Lucas EV1
Nominal operating pressure	
EU2 models	1500 bar (21750 lbf.in ²)
EU3 models	1750 bar (25380 lbf.in ²)

TURBOCHARGER-Td5

MakeS type	GarrettGT20
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Lubrication

Type	Wet sump, pressure fed
Pump type	Eccentric rotor, crankshaft driven integral with stiffener plate.
Filter type:	
Primary.....	Centrifuge filter
Secondary.....	Disposable canister with full flow by-pass
Pressure at idle (cold).....	3.0 bar (43.5 lbf.in ²)
Pressure at 3500 rev/min (hot).....	1.5 - 3.0 bar (21.75 - 43.5 lbf.in ²)
Relief valve opening pressure.....	4.0 bar (58 lbf.in ²)
Low oil pressure switch opening pressure	0.2 - 0.6 bar (3.0 - 8.8 lbf.in ²)

Crankshaft

Main bearing journal diameter.....	61.9875 - 62.0125 mm
Crankpin journal diameter.....	53.99 - 54.01 mm
Crankshaft end float.....	0.020 - 0.250 mm

Main bearings

Number and type.....	6 half shells (5 main, 1 thrust)
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Pistons

Type.....	Graphite compound skirt with combustion chamber in crown. Clearance in cylinder bore	0.172 - 0.206 mm (measured at bottom of skirt, 90° to gudgeon pin) Diameter	84.270 - 85.254 mm (measured 90° to gudgeon pin and 40.00 mm from bottom of skirt.)
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Gudgeon pins

Type Fully floating, offset towards piston thrust side.

Piston rings

Type

Upper compression Barrel edge, chrome plated
Lower compression Taper faced
Oil control Bevelled ring with spring

New ring to groove clearance

Upper compression Not measured
Lower compression 0.050 - 0.082 mm (0.002 - 0.003 in)
Oil control 0.050 - 0.082 mm (0.002 - 0.003 in)

Piston ring fitted gap in cylinder bore

Upper compression 0.30 - 0.45 mm (0.0118 - 0.0177 in)
Lower compression 0.40 - 0.60 mm (0.0157 - 0.0236 in)
Oil control 0.25 - 0.40 mm (0.0098 - 0.0157 in)

Camshaft

Drive Duplex chain
End float 0.6 - 0.16 mm
Number of bearings 6

Tappets

Type Hydraulic lash adjusters with followers

Valves

Stem diameter

Exhaust 6.905 ± 0.008 mm (0.271 ± 0.0003 in)
Inlet 6.915 ± 0.008 mm (0.272 ± 0.0003 in)

Head diameter

Exhaust 31.7 mm (1.25 in)
Inlet 34.7 mm (1.37 in)

Seat face angle

Exhaust 45°
Inlet 30°

Valve face angle

Exhaust 44°48' ± 12'
Inlet 29°48' ± 12'

Valve springs

Type Parallel, single coil

FUEL SYSTEM-Td5

Type Direct injection from pressure regulated supply with cooled return flow
Pressure regulator setting 4 bar (58 lbf.in²)
Pump Electric two stage submersible
Pump output
Low pressure 30 l/h (6.6 gal/h) at 0.5 bar (7.25 lbf.in²)
High pressure 180 l/h (39.6 gal/h) at 4 bar (58 lbf.in²)
Max consumption 30 l/h (6.6 gal/h)
Injectors Electronic unit injectors
Injector normal operating pressure
EU2 models 1500 bar (21750 lbf.in²)
EU3 models 1750 bar (25380 lbf.in²)
Filter In-line canister filter/water separator with water detection

COOLING SYSTEM - Td5

Type Pressurised spill return partial flow, thermostatically controlled

Cooling fans 11 blade axial flow on viscous coupling and 11 blade axial flow

Electric cooling fan switching points

On Vehicle speeds of 50 mph (80 km/h) and below while ambient temperature is 28°C (82°F) or above

Off.....vehicle speeds of 62.5 mph (100 km/h) and above or ambient temperatures of 25°C (77°F) and below

Coolant pump..... Centrifugal impeller, belt driven from crankshaft

Thermostat..... Waxstat with pressure relief valve

Thermostat opening temperature

Initial opening 82°C (179°F)

Fully open 96°C (204°F)

Expansion tank cap relief valve operating pressure..... 1.4 bar (20.3 lbf.in²)

CLUTCH - Td5

Type Diaphragm spring, hydraulically operated with self-centering pre-loaded release bearing Drive plate

diameter..... 267 mm

Pressure plate diameter..... 270 mm

TRANSMISSION - Td5

Main gearbox

Type R380 Single helical constant mesh

Speeds 5 forward, 1 reverse, all synchromesh

Transfer box

Type LT230TE Two speed reduction on main gearbox output. Front and rear drive permanently engaged via a lockable differential

Rear axle

Type Spiral bevel, fully floating shafts

Ratio..... 3.54:1

Front axle

Type Spiral bevel, enclosed constant velocity joints, fully floating shafts, 32° angularity of universal joint on full lock

Ratio..... 3.54:1

Propeller shafts

Type, front and rear..... Tubular 51 mm dia.

Universal joints..... Open type Hookes O3EHD

STEERING

Power steering box

Make/typeAdwest Varamatic - worm and roller box

Ratio.....Variable: straight ahead 19.3:1 on lock 14.3:1

Steering wheel turns, lock-to-lock 3.375

Steering pump

Make/type Hobourn-Eaton series 500

Steering geometry

Steering wheel diameter.....	412 mm (16.22 in)
Front wheel alignment.....	-10' ± 10' toe out
Rear wheel alignment.....	+5' ± 15' toe in
Camber angle-Front.....	-10' ±45'
Camber angle- Rear.....	-10' ±45'
Castor angle.....	3° 15' ±45'
Cross caster.....	1 "Maximum
Cross camber - Front.....	1°Maximum
Cross camber- Rear.....	1 "Maximum
Swivel pin inclination static.....	7°

Check with vehicle on level ground, at EEC kerb weight. Rock the front of the vehicle up and down to allow it to take up a normal static position.

Turning circle between kerbs

90 models:

265/75x16 tyres.....	12,65 m (41.5ft)
All other tyres	11,70 m (38.4 ft)

110 models:

750x16 tyres	13,41 m(44ft)
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130 models:

750 x 16 tyres	15,24 m (50 ft)
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SUSPENSION

Coil springs controlled by telescopic dampers front and rear.

Transverse location of axle by Panhard rod, and fore and aft location by two radius arms. Anti-roll bar fitted as standard on 90 models with 265/75 tyres, 110 Japanese and 130 models.

Fore and aft movement inhibited by two tubular trailing links. Lateral location of axle by a centrally positioned 'A' frame, upperlink assembly, bolted at the apex to a ball joint mounting. Anti-roll bar fitted as standard on 90 models with 265/75 tyres, 110 models with self levelling unit, 110 Japanese, and 130 models.

ROAD SPRING DATA

90 (2400 Kg)

	Part No.
Front - Driver's side	NRC 9446
Front - Passenger side	NRC 9447
Rear - Driver's side	NRC 9448
Rear - Passenger side	NRC 9449

90 (2550 Kg)

Front - Driver's side	NRC 9446
Front - Passenger side	NRC 9447
Rear - Driver's side	NRC 9462
Rear - Passenger side	NRC 9463

110(3050 Kg)

Front - Both sides	NRC 8045
Rear - Both sides	NRC 6904

110 Levelled (2950 Kg)

Front - Both sides	NRC 8045
Rear - Both sides	NRC 7000

110 (3400 Kg)

Front - Both sides	NRC 8045
Rear - Both sides	NRC 6904
Rear helper springs - Both sides	RRC 3266

110 Japanese specification (3295 Kg)

Front - Driver's side	NRC 9448
Front - Passenger side	NRC 9449
Rear - Driver's side	NRC 6389
Rear - Passenger side	NRC 6904
Front/rear helper springs - Both sides	NRC 3266

110 (3600 Kg)

Front - Driver's side	NRC 9448
Front - Passenger side	NRC 9449

Rear - Both sides	NRC 6904
Rear helper springs - Both sides	RRC3226
130 (3500 Kg)	
Front - Driver's side	NRC 9448
Front - Passenger side	NRC 9449
Rear - Driver's side	NRC 6389
Rear - Passenger side	NRC 6904
Front/rear helper springs - Both sides	RRC 3266

SHOCK ABSORBERS

Type Telescopic, double-acting non-adjustable
 Bore diameter..... 35.47mm

AIR CONDITIONING

SystemCFC free, expansion valve system
 CompressorNippon Denso
 Refrigerant.....R134a CFC free
 Charge quantity..... 750 g ±50 g
 Refrigerant oil.....ND-OIL8

WIPER MOTORS

Tailgate wiper motor

Make/type IMOS (non-serviceable)
 Running current, wet screen at 20°C ambient1.0 to 2.8 amps
 Wiper speed, wet screen at 20°C ambient..... 37 to 43 cycles per minute

Windscreen wiper motor

Make/type Lucas 14W uprated two speed
 Armature end float..... 0,1 to 0,2 mm
 Brush length, minimum 4,8 mm
 Brush spring tension 140 to 200 g
 Resistance of armature winding
 at 16°C (69T) measured between adjacent
 commutator segments..... 0.23 to 0.35 ohms
 Light running, rack disconnected: current at 13.5 V 2.0 amps
 Wiper speed, wet screen, 60 seconds from cold..... Low speed - 45 ± 3 rev/min, High speed - 65 ± 5
 rev/min

ELECTRICAL

System 12 volt, negative ground

Battery

Make/type Delphi GP31

Alternator

Type Nippon Denso

Fuses

Type Autofuse (blade type) blow ratings to suit individual
 circuits

Horns

Make/type Mixo TR99

Starter motor

Make and type Bosch 12v

BRAKES Front brake

Caliper..... AP Lockheed, four opposed pistons
Operation Hydraulic, self adjusting
Disc 90- Solid, outboard, 110/130- Ventilated, outboard
Disc diameter..... 298 mm (11.73 in)
Disc thickness 90-14,1 mm (0.56in), 110/130-24mm (0.95 in)
Wear limit..... 1 mm (0.04in) per side of disc
Disc run-out maximum 0,15mm (0.006 in)
Pad area 58 cm² (9.0 in²)
Total swept area..... 801,3cm² (124.2 in²)
Pad material..... Ferodo 3440 non asbestos
Pad minimum thickness 3 mm (0.12in)

Rear brake

Caliper..... AP Lockheed opposed piston
Operation Hydraulic, self adjusting
Disc Solid, outboard
Disc diameter..... 90 - 290 mm (11.42 in), 110/130 - 298 mm (11.73)
Disc thickness 90- 12,5mm (0.49 in), 110/130-14,1 mm (0.56 in)
Wear limit..... 90 - 0,38 mm (0.015 in), 110/130 -1,0 mm (0.04 in) per side of disc
Disc run-out maximum 0,15 mm (0.006 in)
Pad area 90 - 30,5 cm² (4.37 in²), 110/130 - 36,2 cm² (5.61 in²)
Total swept area..... 90 - 694 cm² (106.98 in²)
Pad material..... Ferodo 3440 non asbestos
Pad minimum thickness UP TO 02MY - 3 mm (0.12 in)
Pad minimum thickness From 02MY - 2 mm (0.08 in)

Parking brake

Type Mechanical, cable operated drum brake on the rear of
the transfer gearbox output shaft Drum internal
diameter..... 254 mm (10.0 in)
Width..... 70 mm (2.75 in)
Pad material..... Ferodo 3611 non asbestos

Servo/master cylinder

Manufacturer..... Lucas
Servo type LSC 80
Master cylinder type 25,4mm (1.0 in) diameter, tandem
Pressure reducing valve, failure conscious..... Cut-in pressure, 90 - 24 bar (360 lbf/in²) ratio 4.0:1,
110 - 43 bar (645 lbf/in²) ratio 2.9:1'

NOTE: * Pressure reducing valves are not fitted to all 110 specifications.

BULBS

REPLACEMENT BULBS	TYPE		
Headlamps	12V	60/55W	Halogen
Front side lamps	12V	5W	
Side repeater lamps	12V	5W	
Tail lamps	12V	21W	
Center High Mounted Stop Lamp	12V	21W	
Direction indicator lamps	12V	21W	
Number plate lamp	12V	4W	
Reverse lamp	12V	21 W	
Rear fog guard lamp	12V	21W	
Interior roof lamps	12V	10W	
Instrument illumination	12V	1.2W	
Warning light panel	12V	1.2W	
Hazard warning switch	12V	1.2W	

CAUTION: The fitting of new bulbs with wattages in excess of those specified will result in damage to vehicle wiring and switches.

VEHICLE WEIGHTS AND PAYLOAD

When loading a vehicle to its maximum (Gross Vehicle Weight), consideration must be taken of the unladen vehicle weight and the distribution of the payload to ensure that axle loadings do not exceed the permitted maximum values.

It is the customer's responsibility to limit the vehicle's payload in an appropriate manner such that neither maximum axle loads nor Gross Vehicle Weight are exceeded.

Maximum EEC kerb weight and distribution - all optional equipment VEHICLE AXLE WEIGHTS

90 models	Station Wagon	Utility	
Front axle	1200 Kg (2645 lb)		1200 Kg (2645 lb)
Rear axle.....	1500 kg (3307 lb)		1500 Kg (3307 lb)
Gross vehicle weight.....	2550 Kg (5291 lb)		2400 Kg (5622 lb)
110 models - non Japanese specification	Station Wagon	Utility	
Front axle	1200 Kg (2645 lb)		1200 Kg (2645 lb)
Rear axle.....	1750 Kg (3858 lb)		1850 Kg (4078 lb)
Gross vehicle weight.....	2950 Kg (6503 lb)		3050 Kg (6724 lb)
110 models - Japanese specification		Utility	
Front axle			1115 Kg (2457 lb)
Rear axle.....			2180 Kg (4805 lb)
Gross vehicle weight.....			3295 Kg (7262 lb)
130 models		Utility	
Front axle			1580 Kg (3483 lb)
Rear axle.....			2200 Kg (4850 lb)
Gross vehicle weight.....			3500 Kg (7716 lb)

NOTE: Axle weights are not accumulative. The individual maximum axle weights and gross vehicle weight must not be exceeded.

EEC VEHICLE KERB WEIGHTS

90 models	Standard.	Heavy Duty
Soft top:.....	1770 Kg (3402 lb)	1993 Kg (4393 lb)
Pick-up:	1770 Kg (3402 lb)	1993 Kg (4393 lb)
Hard top:	1815 Kg (4001 lb)	1987 Kg (4380 lb)
Station wagon:	1870 Kg -1885 Kg	1989 Kg -1998 Kg
	(4122 lb - 4155 lb)	(4385 lb - 4404 lb)
110 models		
Soft top:.....	1885 Kg - 2080 Kg	(4155 lb - 4585 lb)
High capacity pick-up:.....	1920 Kg - 2122 Kg	(4232 lb - 4678 lb)
Hardtop:	1920 Kg - 2110 Kg	(4232 lb - 4651 lb)
Station wagon:	2055 Kg - 2229 Kg	(4530 lb - 4914 lb)
130 models		
Crew cab and high capacity pick-up:	2177 Kg - 2286 Kg	(4667 lb - 5039 lb)

EEC kerb weight = Unladen weight + Full fuel tank + 75 Kg (165 lb).

TOWING WEIGHTS

	On-road	Off-road
Unbraked trailers.....	750 Kg (1653 lb)	500 Kg (1102 lb)
Trailers with overrun brakes.....	3500 Kg (7716 lb)	1000 Kg (2204 lb)
4 wheel trailers with coupled brakes *.....	4000 Kg (8818 lb)	1000 Kg (2204 lb)

- **NOTE: * Only applies to vehicles modified to accept coupled brakes.**

- **NOTE: All weight figures are subject to local restrictions.**

OFF-ROAD PERFORMANCE

90 models

Max. gradient (EEC kerb weight) 45°

Approach angle:

Soft top and Pick-up (EEC kerb weight)..... 48°

Hard top and station wagon (EEC kerb weight) 51.5°

Departure angle

Soft top and Pick-up (EEC kerb weight)..... 49°

Hard top and Station wagon (EEC kerb weight)..... 53°

Wading depth 500 mm (20 in)

Min. ground clearance (unladen):

Soft top and pick-up..... 191 mm (7.5 in)

Hard top and station wagon..... 229 mm (9.0 in)

- **NOTE: Departure angles do not account for the addition of a tow hitch.**

110 and 130 models

Max. gradient (EEC kerb weight) 45°

Approach angle (EEC kerb weight)..... 50°

Departure angle (EEC kerb weight)

110 models 35°

130 models 34°

Wading depth 500 mm (20 in)

Min. ground clearance (Unladen)..... 215 mm (8.5 in)

- **NOTE: Departure angles do not account for the addition of a tow hitch.**

WHEELS

90 models

Steel wheel size:

Heavy duty - UK and Western Europe 6.5F X 16

Other markets 5.5F X 16

Alloy wheel size..... 7J X 16

110 models

Steel wheel size:

Heavy duty - UK and Western Europe 6.5F X 16

Other markets - except Japanese specification 5.5F X 16

Japanese specification..... 6.5J X 16

130 models

Steel wheel size:

Heavy duty- UK and Western Europe 6.5F X 16

Other markets 5.5FX 16

WARNING: Always use the same make and type of radial-ply tyres, front and rear. DO NOT use cross-ply tyres, or interchange tyres from front to rear.

- If the wheel is marked 'TUBED', an inner tube MUST be fitted, even with a tubeless tyre.
- If the wheel is marked 'TUBELESS', an inner tube must NOT be fitted.

VEHICLE DIMENSIONS

90 models

Overall length:

Soft top and Pick-up 3722 mm (146.5 in)

Hard top and Station wagon 3883 mm (152.9 in)

Overall width: 1790 mm (70.5 in)

Overall height:

Soft top 1965 mm (77.4 in)

Pick-up and Station wagon..... 1963 mm (77.3 in)

Hardtop..... 1972mm (77.6 in)

Wheelbase 2360 mm (92.9 in)

Track front/rear..... 1486 mm (58.5 in)

Width between wheel boxes 925 mm (36.4 in)

110 models

Overall length:

Soft top and Pick-up 4438 mm (175 in)

High capacity pick-up 4631 mm (182 in)

Hard top/Station and County 4599 mm (181 in)

Overall width: 1790 mm (70.5 in)

Overall height - non Japanese specification: 2035 mm (80.1 in)

Overall height - Japanese specification: 2060 mm (81.1 in)

Wheelbase 2794 mm (110 in)

Track front/rear..... 1486 mm (58.5 in)

Width between wheel boxes:

High capacity pick-up 1090 mm (43 in)

all other models 925 mm (36.4 in)

130 models

Overall length 5132 mm (202 in)

Overall width 1790 mm (70.5 in)

Overall height..... 2035 mm (80.1 in)

Wheelbase 3226 mm (127 in)

Track front/rear..... 1486 mm (58.5 in)

Width between wheel boxes 1090 mm (43 in)