



Ford Workshop Service and Repair Manuals

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Transit 1995 (08.1994-07.2000)

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General Specifications		Transit 1995 (08/1994-07/2000)
Specifications		Print
Engine Data		
General		
Engine management		EEC V/SFI
Emission standard, vehicles up to 2,8 t		96 EEC
Emission standard, LDT (light commercial vehicles)		95 EEC
Emission standard, EFTA countries		A14
Identification code, vehicles up to 2,8 t		NSG
Identification code, LDT (light commercial vehicles)		NSF
Firing order		1-3-4-2
Bore	mm	86,0
Stroke	mm	86,0
Cubic Capacity	cm ³	1998
Compression ratio		9,8:1
Power output (EEC)	kW	84
Power output (EEC)	(PS)	114
Power output (EEC)	at rev/min	5000
Torque (EEC)	Nm	170
Torque (EEC)	at rev/min	2700
Idle speed	rev/min	850 ± 50
Max. permissible engine speed	Continuous rev/min	5950

Cylinder bore Ø		
	Standard class 1 mm	86,000 - 86,010
	Standard class 2 mm	86,010 - 86,020
	Oversize 0,15 mm	86,160 - 86,170
	Oversize 0,5 mm	86,500 - 86,510
Number of main bearings		5
Centre main bearing width (excl. thrust half rings)		21,17 - 21,23
Installed main bearing shells, vertical inner Ø	Service standard (yellow)	54,983 - 55,020
	Standard	55,003 - 55,030
	1st undersize 0,05 mm	54,953 - 54,980
	2nd undersize 0,25 mm	54,753 - 54,780
	3rd undersize 0,50 mm	55,503 - 54,530
Main bearing parent bore Ø	Standard	59,287 - 59,300
	Oversize 0,40 (black)	59,687 - 59,700

Dimensions

Crankshaft		Dimensions (mm)
End float		0,093 - 0,303
Main bearing journal Ø	Standard (yellow)	54,98 - 54,99
	Standard (red)	54,99 - 55,00
	Undersize 0,25 (green)	54,73 - 54,75
Main bearing journal to shell clearance		0,020 - 0,039
Big-end bearing journal Ø	Standard	50,89 - 50,91
	Undersize 0,25 (green)	50,64 - 50,66
Thickness of thrust half rings	Standard	2,301 - 2,351
	Oversize width 0,38 (yellow)	2,491 - 2,541
Width of centre main bearing journal	Standard	26,025 - 26,075
	Oversize 0,38 (yellow)	26,405 - 26,455

Dimensions

Connecting rods		
Bore diameters	Big-end	53,890 - 53,910
	Small end	20,589 - 20,609
Fitted big-end bearing shells		
Vertical inner Ø	Standard	50,916 - 50,950
	1st undersize 0,25 mm	50,666 - 50,700
	2nd undersize 0,50 mm	50,416 - 50,150
Big-end bearing shell clearance		0,006 - 0,060
Big-end bearing end float		0,09 - 0,31

Dimensions

Camshafts		
Number of camshaft bearings		2 x 5
Drive		Single roller chain, hydraulic chain tensioner

Dimensions

Camshafts (cont.)		Dimensions (mm)
Camshaft end float		0,02 - 0,26
Cam lift	Inlet	10,83
	Exhaust	10,83
Cam length (between heel and toe)	Inlet	52,71 - 52,94
Valve timings	Exhaust	52,71 - 52,94
	Inlet valve opens before TDC	9°
	Inlet valve closes after BDC	51°
	Exhaust valve opens before BDC	51°
	Exhaust valve closes after TDC	9°
Camshaft bearing journal diameter		25,96 - 25,98

Piston clearance in bore (unused)	Production	0,02 - 0,04
	Service	0,01 - 0,04
Piston pin length		63,4
Piston pin Ø	White	20,622 - 20,625
	Red	20,625 - 20,628
	Blue	20,628 - 20,631
Clearance in piston (colour match)		0,008 - 0,014
Interference fit in small end bore		0,018 - 0,039
Piston ring gaps (fitted)	Top	0,30 - 0,60
	Middle	0,50 - 0,80
	Oil control ring (three part)	0,40 - 1,50
Ring gap positions		Piston ring gaps should be distributed evenly around the piston circumference; this also applies to the gaps of the intermediate oil control rings in relation to the expander gap.

Dimensions

Valves		Dimensions (mm)
Valve timings	DOHC	
Valve clearances		Hydraulic tappets
Hydraulic tappet Ø		42
Hydraulic tappet clearance in housing		0,025 - 0,080
Valve length	Exhaust	108,24 - 108,70
	Inlet	108,68 - 109,20
Valve head Ø	Inlet	42,5 - 42,7
	Exhaust	37,9 - 38,1
Valve stem Ø, standard	Inlet	7,025 - 7,043
	Exhaust	6,999 - 7,017
Valve stem Ø, oversize 0,2	Inlet	7,225 - 7,043
Valve stem Ø, oversize 0,2	Exhaust	7,199 - 7,217
Valve stem Ø, oversize 0,4	Inlet	7,425 - 7,443
Valve stem Ø, oversize 0,4	Exhaust	7,399 - 7,417
Valve stem clearance in guide	Inlet	0,020 - 0,069
	Exhaust	0,046 - 0,095
Colour code	Outer and inner springs	Green/Blue
Free valve spring height	Outer spring	48,2
-	Inner spring	49,2

Dimensions

Valves (cont.)		Values (N)
Spring force: two valve springs per valve, inlet and exhaust are identical	Valve open, outer spring	830
	Inner spring	245
	Outer spring and inner spring	1075
	Valve closed, outer spring	285
	Inner spring	115
	Outer spring and inner spring	400

Dimensions

Valves (cont.)		Dimensions (mm)
Spring height	Valve open, outer spring	28,67
	Valve open, inner spring	23,67
	Valve closed, outer spring	39,5
	Valve closed, inner spring	34,5
Valve spring inner Ø	Outer spring	24
	Inner spring	17,5
Valve spring wire (oval profile)	Outer spring	4,1 x 4,95
Valve spring wire Ø	Inner spring	2,6

Oil pressure (SAE 10W/30 and 80° oil temperature)	at 2000 rev/min	3,10 bar
Oil pump, rotor to housing clearance		0,154 - 0,304 mm
Pressure relief valve opens at		3,70 - 4,60 mm
Oil warning light comes on at		0,30 - 0,50 mm
Gap, inner to outer rotor		0,05 - 0,20 mm
Rotor end float at sealing face		0,014 - 0,079 mm

Dimensions

Cylinder head with valve seat inserts*		
Cast mark		20
Upper correction angle (production)	Inlet/exhaust	70°
Lower correction angle (production)	Inlet/exhaust	25°
Valve seat angle		44°30' - 45°
Valve seat width	Inlet	1,33 - 2,19 mm
	Exhaust	1,68 - 2,54 mm
Valve guide inner bore (inlet/exhaust)	Standard	7,063 - 7,094 mm
Camshaft bearing parent bore Ø	all	26,00 - 26,03 mm
Allowable distortion - cylinder head mating face, across		0,050
Allowable distortion - cylinder head mating face, lengthways/diagonally		0,100 mm
Allowable cylinder head mating face roughness (Rz)		13,5 mm
Maximum amount of material to be removed when machining cylinder head mating face		0,2 mm
Cylinder head height (dimension "a")		16,35 mm
Combustion chamber height (dimension "b")		147,25 mm

* The valve seat angle locations are explained in the section 'Description and Operation'.

Sump Shims

Range of adjustment	Available shims	Colour coding
0 - 0,25 mm	No adjustment	
0,26 - 0,29 mm	0,15 mm	Silver
0,30 - 0,44 mm	0,30 mm	Pale blue
0,45 - 0,59 mm	0,45 mm	Red
0,60 - 0,75 mm	0,60 mm	Black

Lubricants, Adhesives and Sealers

Description	Ford Specification
Transmission fluid	ESDM-2C186-A
Coolant	ESD-M97B-49A
Sealer, crankshaft front oil seal housing; crankshaft rear main bearing cap, Loctite 518	WSK-M2G348-A5
Sealer for sump, Hylosil 502	WSK-M4G320-A
Adhesive sealer for water pump angle connector, Loctite 243	WSK-M2G349-A7
Adhesive sealer for temperature gauge sender unit, Loctite 243	WSK-M2G349-A7
Lubricant, crankshaft position sensor (CKP) O-ring	SM1C-115-A
High temperature grease, clutch release bearing guide sleeve	ESD-M1C-220-A
High temperature grease, transmission input shaft splines	ESD-M1C-220-A
Hypoid oil - valve stems	SQM-2C9002-AA
Power steering fluid	SQM 2C-9010-A
Thread-locking compound, Loctite 270	SDM-M4G9107-A
Spark plug threads, Never Seez	ESE-M1244-A
Silicone grease	A960-M1C171-AA

Capacity

Description	Litres
Engine oil - first fill with filter (EFL-90)	5,10
Engine oil - oil change with filter change (EFL-90) (with air conditioning)	4,50
Engine oil - oil change with filter change (EFL-90) (without air conditioning)	4,25

SAE 5W30 / below -20 to above 40°C	Ford Formula E Economy Engine Oil	ACEA A1-96/B1-96 and WSS-M2C912-A1
Alternative engine oils:		
SAE 10W30 / -20 to above 40°C	Ford Super Multigrade Engine Oil	ACEA A1-96/B1-96 or A2-96/B2-96 or API/SH/CD EC
SAE 5W40 / below -20 to above 40°C	Ford Formula S Synthetic Engine Oil	ACEA A3-96/B3-96 or API/SH/CD EC
SAE 10W40 / -20 to above 40°C	Ford XR+ High-performance High-lubricity Engine Oil	ACEA A3-96/B3-96 or API/SH/CD EC
If these engine oils are not available, other engine oils may be used, provided they meet the API SH/CD EC specification or exceed it.		
Torques		
General	Nm	lbf.ft
Radiator grille	11	8
Torques		
Exhaust manifold	Nm	lbf.ft
Front exhaust pipe to exhaust manifold	40	30
Torques		
Transmission and driveshaft	Nm	lbf.ft
Flange bolts - engine to transmission	35	26
Starter motor	35	26
Bracket - front exhaust pipe to transmission mounting	24	18
Front to rear exhaust pipe	38	28
Transmission mounting to transmission	84	62
Transmission crossmember to side members	50	37
Driveshaft to transmission	84	62
Centre bearing - driveshaft to floor pan	33	24
Shift lever to transmission	25	18
Torques		
Coolant circuit	Nm	lbf.ft
Coolant pump	23	17
Radiator mount (upper)	10	7
Torques		
Engine mountings	Nm	lbf.ft
Upper half shell to bracket	50	37
Torques		
Oil circuit	Nm	lbf.ft
Oil drain plug	25	18
Oil pressure switch	27	20
Oil filter mounting	18	13
Oil filter	14	10
Oil cooler mounting	58	43
Oil baffle to cylinder block	19	14
Oil pump	10	7
Oil intake pipe to cylinder block	12	9
Sump to cylinder block (bolts and nuts)	11	8
Sump studs in cylinder block	9	7
Oil pump sprocket	18	13
Torques		
Power steering	Nm	lbf.ft
Power steering fluid pump to bracket	25	18
Power steering pump pulley	25	18
Torques		
Cylinder block	Nm	lbf.ft
Timing chain lower cover	10	7
Oil seal carrier, rear	13	10
Oil seal carrier, front	26	19
Front support bracket to cylinder block	26	19
Crankshaft position sensor (CKP)	4	3
Timing chain guide, M6	12	9
Timing chain guide, M8	26	19
Crankshaft main bearing caps	97	72
Big-end bearing caps, 1st stage	7	5
Big-end bearing caps, 2nd stage	16	12
Big-end bearing caps - 3rd stage	90°	90°
Positive crankcase ventilation (PCV) tube	9	7
Crankshaft belt pulley/vibration damper, 1st stage	52	38

Cylinder head to cylinder block, 1st stage	10	7
Cylinder head to cylinder block, 2nd stage	35	26
Cylinder head to cylinder block, 3rd stage	90°	90°
Cylinder head to cylinder block, 4th stage	90°	90°
Cylinder head auxiliary bolts	38	28
Cylinder head cover, 1st stage	3	2
Cylinder head cover, 2nd stage	9	7
Timing chain upper cover	10	7
Camshaft bearing caps	24	17
Camshaft sprockets	59	44
Engine lifting eyes	25	18
Spark plugs	18	13
EI coils	10	7

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