

Specifications

Engine

Item	Specification
Displacement	3.3L (4V) (201 CID)
No. of cylinders	6
Bore/stroke	90.41/86.7 mm (3.641/3.413 in)
Firing order	1-4-2-5-3-6
Spark plug	12405
Spark plug gap	1.25-1.35 mm (0.049-0.053 in)
Compression ratio	12:1
Engine weight (without accessory drive components)	354.9 lb (161 kg)

Lubricants

Item	Specification
Motorcraft® SAE 5W-20 Premium Synthetic Blend Motor Oil (US); Motorcraft® SAE 5W-20 Super Premium Motor Oil (Canada)	XO-5W20-QSP (US); CXO-5W20-LSP12 (Canada)

Engine Oil Capacity

Item	Specification
Service fill including oil filter	6.0 qt (5.68 L)

Oil Pressure

Item	Specification
Oil pressure @ 1,500 rpm with engine oil temperature between 121.9 –175.9 °F (50 –80 ° C)	20.3 –29.0 psi (140 –200 kPa)

Cylinder Head and Valve Train

Item	Specification
Cylinder head gasket surface flatness	Flat within 0.08 mm (0.003 in) length end to end, area 150 mm (5.9 in) x 150 mm (5.9 in) (or full width) should be less than 0.05 mm (0.002 in)
Valve tappet clearance - RH intake	0.0059 –0.0098 in (.15 –.25 mm)
Valve tappet clearance - LH intake	0.0071 –0.0110 in (.18 –.28 mm)
Valve tappet clearance - exhaust - Engine must be at room temperature before measuring	0.0142 –0.0181 in (.36 –.46 mm)
Valve guide bore inner diameter	0.217 –0.218 in (5.519 –5.549 mm)
Valve stem diameter - intake	0.2157 –0.2164 in (5.479 –5.497 mm)
Valve stem diameter - exhaust	0.2152 –0.2159 in (5.466 –5.484 mm)
Valve stem-to-guide clearance - intake	0.0009 –0.0028 in (.022 –.07 mm)
Valve stem-to-guide clearance - exhaust	0.0014 –0.0033 in (.035 –.083 mm)
Valve head diameter - intake	1.46 in (37 mm)
Valve head diameter - exhaust	1.22 in (31 mm)
Valve face runout	0.002 in (.05 mm)
Valve face angle	45.25 –45.75 °
Valve seat width - intake	0.051 –0.063 in (1.3 –1.6 mm)
Valve seat width - exhaust	0.067 –0.079 in (1.7 –2 mm)
Valve seat circularity	0.001 in (.02 mm)
Valve seat angle	44.5 –45.5 °
Valve spring free length (approx.)	1.890 in (48 mm)
Valve spring compression pressure (N @ spec. length)	525 N @ 27.0 mm (118 lbf @ 1.06 in)
Valve spring installed height	1.457 in (37 mm)
Valve spring installed height pressure (N @ spec. length)	235 N @ 37.0 mm (53 lb @ 1.45 in)
Valve spring installed pressure — service limit	5% force loss @ specified height

Camshaft

Item	Specification
Theoretical valve lift (intake) @ 0 lash	0.394 in (10 mm)
Theoretical valve lift (exhaust) @ 0 lash	0.394 in (10 mm)
Lobe lift - intake	0.394 in (10 mm)
Lobe lift - exhaust	0.394 in (10 mm)
Allowable lobe lift loss	0.0024 in (.062 mm)
Camshaft journal bore inside diameter — 1st journal	1.537 –1.538 in (39.0375 –39.0625 mm)
Camshaft journal bore inside diameter — intermediate journals	1.023 –1.024 in (25.9875 –26.0125 mm)
Camshaft bearing outside diameter — 1st journal	1.535 –1.536 in (38.99 –39.01 mm)
Camshaft bearing outside diameter — intermediate journals	1.021 –1.022 in (25.937 –25.963 mm)
Camshaft journal-to-bearing clearance, 1st journal — service limit	0.0029 in (.0725 mm)
Camshaft journal-to-bearing clearance, intermediate journals — service limit	0.0030 in (.0755 mm)
Runout	0.0016 in (.04 mm)

End play - standard	0.0030 –0.0065 in (.075 –.165 mm)
End play - service limit	0.0075 in (.19 mm)

Cylinder Block

Item	Specification
Cylinder bore diameter	3.559 –3.560 in (90.4 –90.42 mm)
Cylinder bore roundness	0.0005 in (.013 mm)
Cylinder bore taper	0.0004 in (.01 mm)
Block main bore roundness	0.0003 in (.008 mm)
Main bearing bore inside diameter	2.850 –2.851 in (72.4 –72.424 mm)
Head gasket surface flatness	Flat within 0.150 mm (0.005 in) overall 0.050 mm (0.001 in) per 150 mm (5.905 in) x 150 mm (5.905 in) 0.025 mm (0.0009 in) per 25 mm (0.98 in) x 25 mm (0.98 in)

Crankshaft

Item	Specification
Main bearing journal diameter	2.657 –2.658 in (67.483 –67.503 mm)
Main bearing journal maximum taper	0.3150 in (.008 m)
Main bearing journal maximum out-of-round	0.0002 in (.006 mm)
Main bearing journal-to-main bearing clearance	0.0011 –0.0017 in (.028 –.043 mm)
Connecting rod journal diameter	2.204 –2.205 in (55.983 –56.003 mm)
Connecting rod journal maximum taper	0.0003 in (.008 mm)
Connecting rod journal maximum out-of-round	0.0002 in (.006 mm)
Crankshaft end play	0.0041 –0.0124 in (.105 –.315 mm)

Piston and Connecting Rod

Item	Specification
Piston diameter - single grade	3.5569 –3.5575 in (90.346 –90.36 mm)
Piston-to-cylinder bore clearance	0.0016 –0.0029 in (.04 –.074 mm)
Piston ring end gap - compression (top, gauge diameter)	0.0091 –0.0130 in (.23 –.33 mm)
Piston ring end gap - compression (bottom, gauge diameter)	0.0157 –0.0236 in (.4 –.6 mm)
Piston ring end gap — oil ring (steel rail, gauge diameter)	0.0059 –0.0177 in (.15 –.45 mm)
Piston ring groove width - compression (top)	0.0406 –0.0413 in (1.03 –1.05 mm)
Piston ring groove width — compression (bottom)	0.0406 –0.0413 in (1.03 –1.05 mm)

Piston ring groove width - oil ring	0.0799 –0.0807 in (2.03 –2.05 mm)
Piston ring width - upper compression ring	0.0382 –0.0390 in (.97 –.99 mm)
Piston ring width - lower compression ring	0.0382 –0.0390 in (.97 –.99 mm)
Piston ring-to-groove clearance (upper and lower compression rings)	0.0016 –0.0031 in (.04 –.08 mm)
Piston pin bore diameter	0.9057 –0.9058 in (23.004 –23.007 mm)
Piston pin diameter	0.9054 –0.9055 in (22.997 –23 mm)
Piston diameter (DN) height from top of the piston	1.398 in (35.5 mm)
Piston pin length	2.1654 –2.1772 in (55 –55.3 mm)
Piston pin-to-piston fit	0.0000 –0.0005 in (.0004 –.012 mm)
Connecting rod-to-pin clearance - standard	0.0001 –0.0007 in (.003 –.018 mm)
Connecting rod pin bore diameter	0.9056 –0.9061 in (23.003 –23.015 mm)
Connecting rod length (center-to-center)	6.01 in (152.68 mm)
Connecting rod maximum allowed bend	0.0015 in (.038 mm)
Connecting rod maximum allowed twist	0.0020 in (.05 mm)
Connecting rod bearing bore diameter - single grade	2.3570 –2.3576 in (59.869 –59.883 mm)
Connecting rod bearing-to-crankshaft clearance	0.0012 –0.0031 in (.031 –.078 mm)
Connecting rod side clearance (assembled to crank) - standard	0.0118 in (.3 mm)
Connecting rod side clearance (assembled to crank) - service limit (max play)	0.0167 in (.425 mm)

Torque Specifications
Engine oil pan drain plug - 26 Nm (19 lb-ft)
Engine oil filter - Stage 1: Install to initial gasket contact
Engine oil filter - Stage 2: Tighten 3/4 to 1 turn