

Item	Specification
Lobe lift - intake	0.2067 in (5.25 mm)
Lobe lift - exhaust	0.1870 in (4.75 mm)
Camshaft cap bore inside diameter â€” 1st journal	0.0011 â€”0.0028 in (.027 â€” .072 mm)
Camshaft cap bore inside diameter â€” intermediate journals	0.0011 â€”0.0028 in (.027 â€” .072 mm)
Camshaft bearing outside diameter â€” 1st journal	1.3764 â€”1.3772 in (34.96 â€”34.98 mm)
Camshaft bearing outside diameter â€” intermediate journals	1.1263 â€”1.1273 in (28.607 â€”28.633 mm)
End play	0.0010 â€”0.0059 in (.025 â€” .15 mm)

Cylinder Block

Item	Specification
Cylinder bore diameter	3.268 â€”3.268 in (83 â€”83.018 mm)
Cylinder bore roundness	0.0004 in (.01 mm)
Cylinder bore taper	0.0005 in (.013 mm)
Block main bore roundness	0.0003 in (.007 mm)
Main bearing bore inside diameter	2.850 â€”2.851 in (72.402 â€”72.422 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	2.6568 â€”2.6576 in (67.483 â€”67.503 mm)
Main bearing journal-to-main bearing clearance	0.0020 â€”0.0024 in (.05 â€” .062 mm)
Connecting rod journal diameter	2.2037 â€”2.2044 in (55.973 â€”55.993 mm)
Crankshaft end play	0.0020 â€”0.0115 in (.051 â€” .291 mm)

Piston and Connecting Rod

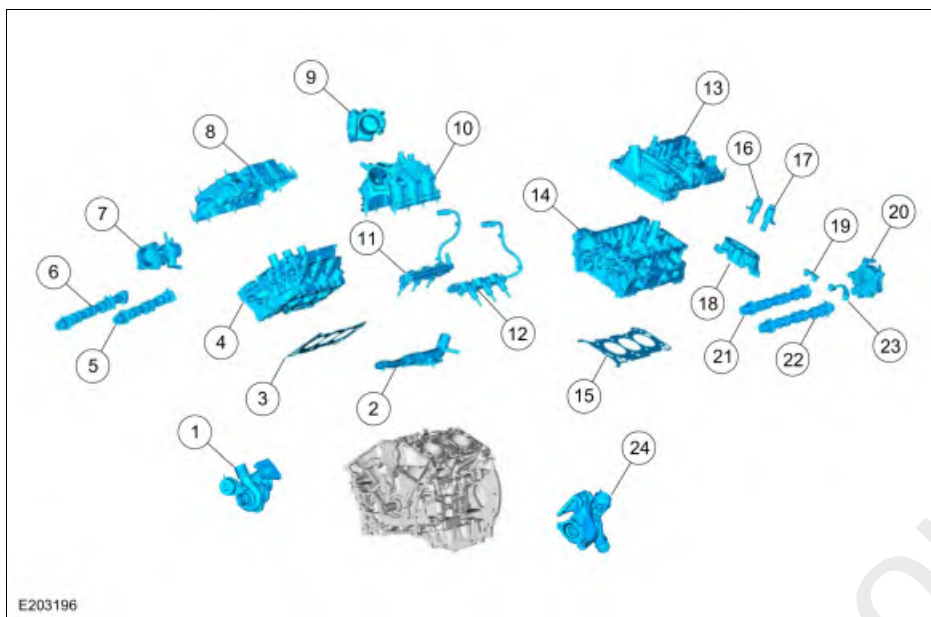
Item	Specification
Piston diameter - single grade	3.2656 â€”3.2661 in (82.946 â€”82.96 mm)
Piston-to-cylinder bore clearance	0.0016 â€”0.0028 in (.04 â€” .072 mm)
Piston ring end gap - compression (top, gauge diameter)	0.0079 â€”0.0118 in (.2 â€” .3 mm)
Piston ring end gap - compression (bottom, gauge diameter)	0.0157 â€”0.0236 in (.4 â€” .6 mm)
Piston ring end gap â€” oil ring (steel rail, gauge diameter)	0.0079 â€”0.0197 in (.2 â€” .5 mm)
Piston ring groove width - compression (top)	0.0484 â€”0.0492 in (1.23 â€”1.25 mm)

Item	Specification
Piston ring groove width â€” compression (bottom)	0.0484 â€”0.0492 in (1.23 â€”1.25 mm)
Piston ring groove width - oil ring	0.0799 â€”0.0807 in (2.03 â€”2.05 mm)
Piston ring width - upper compression ring	0.0461 â€”0.0469 in (1.17 â€”1.19 mm)
Piston ring width - lower compression ring	0.0461 â€”0.0470 in (1.17 â€”1.195 mm)
Piston ring-to-groove clearance (upper and lower compression rings)	0.0016 â€”0.0031 in (.04 â€”0.08 mm)
Piston pin bore diameter	0.8663 â€”0.8665 in (22.004 â€”22.009 mm)
Piston pin diameter	0.8660 â€”0.8661 in (21.997 â€”22 mm)
Piston pin length	1.9587 â€”1.9783 in (49.75 â€”50.25 mm)
Piston pin-to-piston fit	0.0002 â€”0.0005 in (.004 â€”0.012 mm)
Piston-to-connecting rod clearance	0.1181 in (3 mm)
Connecting rod-to-pin clearance - standard	0.0006 â€”0.0011 in (.015 â€”0.028 mm)
Connecting rod pin bore diameter	0.8667 â€”0.8671 in (22.015 â€”22.025 mm)
Connecting rod length (center-to-center)	5.7465 â€”5.7496 in (145.96 â€”146.04 mm)
Connecting rod maximum allowed bend	0.0008 in (.02 mm)
Connecting rod maximum allowed twist	0.0016 in (.04 mm)
Connecting rod bearing bore diameter	2.3397 â€”2.3402 in (59.428 â€”59.442 mm)
Connecting rod bearing-to-crankshaft clearance	0.0017 â€”0.0035 in (.042 â€”0.088 mm)
Connecting rod side clearance (assembled to crank) - standard	0.0049 â€”0.0148 in (.125 â€”.375 mm)
Connecting rod side clearance (assembled to crank) - service limit	0.0049 â€”0.0148 in (.125 â€”.375 mm)

Description and Operation

Engine Component View

Engine " Upper Components



Item	Part Number	Description
1	6K682	RH turbocharger
2	8592	Coolant outlet connector pipe
3	6051	RH cylinder head gasket
4	6049	RH cylinder head
5	6250	RH intake camshaft
6	6250	RH exhaust camshaft
7	9D376	High pressure fuel pump
8	6582	RH valve cover
9	9F991	Throttle body
10	9424	Intake manifold
11	9F792	RH Fuel rail
12	9F792	LH Fuel rail
13	6582	LH valve cover
14	6049	LH cylinder head
15	6051	LH cylinder head gasket
16	6B297	Intake variable Camshaft Timing (VCT) solenoid (2 required)
17	6B297	Exhaust variable Camshaft Timing (VCT) solenoid (2 required)
18	"	Camshaft bearing cap (part of 6049) (2 required)
19	"	Camshaft bearing cap (part of 6049) (12 required)
20	2A451	Vacuum pump
21	6250	LH intake camshaft
22	6250	LH exhaust camshaft
23	"	Camshaft bearing cap (part of 6049) (2 required)
24	6C879	LH turbocharger