

ENGINE TECHNICAL DATA

B3E015001001E01

Item				Engine		
				ZJ	ZY	Z6
Cylinder head						
Cylinder head gasket contact surfaces distortion	(mm {in})	Maximum	0.10 {0.0039}			
Manifold contact surfaces distortion	(mm {in})	Maximum	0.05 {0.002}			
		Maximum grinding	0.20 {0.008}			
Valve clearance [Engine cold]	(mm {in})	IN	0.27-0.33 {0.0107-0.0129}			
		EX				
Valve and valve guide						
Valve head margin thickness	(mm {in})	Standard	IN	1.6-2.0 {0.063-0.078}		
			EX			
Valve length	(mm {in})	Standard	IN	98.01-98.61 {3.859-3.882}	96.80-97.40 {3.812-3.834}	
			EX	98.44-99.04 {3.876-3.899}	96.30-96.90 {3.792-3.814}	
		Minimum	IN	97.79 {3.850}	96.58 {3.802}	
			EX	98.22 {3.867}	96.08 {3.783}	
Valve stem diameter	(mm {in})	Standard	IN	5.470-5.485 {0.2154-0.2159}		
			EX	5.465-5.480 {0.2152-0.2157}		
		Minimum	IN	5.424 {0.2136}		
			EX	5.419 {0.2134}		
Valve guide inner diameter	(mm {in})	Standard	IN	5.510-5.530 {0.2170-0.2177}		
EX						
Valve stem to guide clearance	(mm {in})	Standard	IN	0.025-0.060 {0.0010-0.0023}		
			EX	0.030-0.065 {0.0012-0.0025}		
		Maximum	IN	0.10 {0.04}		
			EX			
Valve guide protrusion height	(mm {in})	IN	12.2-12.8 {0.49-0.50}			
		EX				
Valve seat						
Valve seat contact width	(mm {in})	Standard	IN	0.8-1.4 {0.032-0.055}		
			EX			
Valve seat angle	(°)		IN	45		
			EX			
Valve seat sinking (Valve protrusion height)	(mm {in})	Standard	IN	39.29 {1.5468}		
			EX			
Valve spring						
Pressing force at valve spring height H	(262.8 N {26.8 kgf, 59.0 lbf})	(mm {in})	27.5 {1.08}			
Off-square	(° (mm {in}))	Maximum	2.0 (3.45 {0.136})			

Tappet					
Tappet bore diameter	(mm {in})	Standard	30.0-30.025 {1.1812-1.1820}		
Tappet diameter	(mm {in})	Standard	29.959-29.975 {1.1795-1.1801}		
Tappet-to-tappet bore oil clearance	(mm {in})	Standard	0.025-0.066 {0.0010-0.0025}		
		Maximum	0.180 {0.007}		
Oil control valve (OCV)					
Coil resistance [20° C {68°F}]	(ohm)	Standard	6.9-7.9		
Camshaft					
Camshaft runout	(mm {in})	Maximum	0.03 {0.001}		
Cam lobe height	(mm {in})	Standard	IN	41.373 {1.6289}	
			EX	40.597 {1.5983}	41.495 {1.6337}
		Minimum	IN	41.30 {1.6260}	
			EX	40.53 {1.5957}	41.43 {1.6311}
Journal diameter	(mm {in})	Standard	25.940-25.965 {1.0213-1.0222}		
		Minimum	24.910 {0.9807}		
Journal oil clearance	(mm {in})	Standard	0.035-0.081 {0.0014-0.0031}		
		Maximum	0.09 {0.0035}		
End play	(mm {in})	Standard	0.07-0.19 {0.0027-0.0074}		
		Maximum	0.20 {0.0078}		
Cylinder block					
Cylinder head gasket contact surfaces distortion	(mm {in})	Maximum	0.10 {0.0039}		
Cylinder bore diameter [Measure the cylinder bore at 35 mm {1.38 in} below the top surface]	(mm {in})	Maximum	74.0-74.013 {2.9134-2.9138}	78.0-78.013 {3.0709-3.0713}	
Oil jet valve					
Oil jet valve opening pressure	(kPa {kgf/cm ² , psi})		230 {2.35, 33.4}		
Piston					
Piston outer diameter	(mm {in})	Standard	73.970-73.980 {2.9122-2.9125}	77.970-77.980 {3.0697-3.0700}	
Piston-to-cylinder clearance	(mm {in})	Standard	0.020-0.043 {0.0008-0.0169}		
		Maximum	0.09 {0.0035}		
Piston ring					
Piston ring-to-ring groove clearance	(mm {in})	Standard	Top	0.035-0.065 {0.0014-0.0025}	
			Second	0.03-0.07 {0.0012-0.0027}	
			Oil (rail)	0.06-0.15 {0.0024-0.0059}	
		Maximum	Top	0.15 {0.0059}	
			Second	0.15 {0.0059}	
			Oil (rail)	0.20 {0.0078}	
			Top	0.13-0.23 {0.006-0.009}	0.14-0.24 {0.006-0.009}

End gap [measured in cylinder]	(mm {in})	Standard	Second	0.23-0.38 {0.010-0.014} 0.24-0.39 {0.010-0.015}	
			Oil (rail)	0.20-0.70 {0.008-0.027}	
		Maximum	Top	1.0 {0.039}	
			Second	1.0 {0.039}	
			Oil (rail)	1.0 {0.039}	
Piston pin					
Piston pin bore diameter	(mm {in})	Standard	17.988-18.000 {0.7082-0.7086}		18.988-19.000 {0.7476-0.7480}
Piston pin diameter	(mm {in})	Standard	17.974-17.980 {0.7077-0.7078}		18.974-18.980 {0.7471-0.7472}
Piston pin bore to piston pin clearance	(mm {in})	Standard	0.008-0.026 {0.0004-0.0010}		
Connecting rod and connecting rod bearing					
Connecting rod side clearance	(mm {in})	Standard	0.11-0.262 {0.0044-0.0103}		
		Maximum	0.435 {0.0171}		
Connecting rod bearing size	(mm {in})	Standard	1.504-1.520 {0.0593-0.0598}		1.509-1.524 {0.0594-0.0599}
		0.25 {0.01} Oversize	1.629-1.633 {0.0642-0.0643}		1.629-1.637 {0.0642-0.0644}
		0.50 {0.02} Oversize	1.754-1.758 {0.0691-0.0692}		1.754-1.762 {0.0691-0.0693}
Connecting rod bearing oil clearance	(mm {in})	Standard	0.028-0.048 {0.0012-0.0018}		0.016-0.037 {0.0007-0.0014}
		Maximum	0.10 {0.0039}		
Connecting rod small end bore diameter	(mm {in})	Standard	17.943-17.961 {0.7065-0.7071}		18.943-18.961{0.7458-0.7464}
Connecting rod small end bore diameter to piston pin clearance	(mm {in})	Standard	-0.013- -0.037 {-0.0005- -0.0014}		
Connecting rod bending [Per 50mm {1.97in}]	(mm {in})	Maximum	0.050 {0.0019}		
Connecting rod distortion [Per 50mm {1.97in}]	(mm {in})	Maximum	0.050 {0.0019}	0.075 {0.0029}	0.050{0.0019}
Connecting rod center-to-center distance	(mm {in})	Standard	140.05-140.15 {5.514-5.517}	140.60-140.70 {5.536-5.539}	135.15-135.25 {5.321-5.324}
Crankshaft					
Thrust bearing size	(mm {in})	Standard	2.500-2.550 {0.0985-0.1003}		
		0.25 {0.01} Oversize	2.625-2.675 {0.1034-0.1053}		
		0.50 {0.02} Oversize	2.750-2.800 {0.1083-0.1102}		
		0.75 {0.03} Oversize	2.875-2.925 {0.1132-0.1151}		

Crankshaft end play	(mm {in})	Standard	0.080-0.282 {0.0032-0.0111}	
		Maximum	0.30 {0.0118}	
Crankshaft runout	(mm {in})	Maximum	0.10 {0.0039}	
Main journal diameter	(mm {in})	Standard	49.938-49.956 {1.9661-1.9667}	
		0.25 {0.01} Oversize	49.688-49.706 {1.9562-1.9569}	
		0.50 {0.02} Oversize	49.438-49.456 {1.9463-1.9471}	
Main journal off-round	(mm {in})	Maximum	0.05 {0.0019}	
Crank pin journal diameter	(mm {in})	Standard	39.940- 39.956 {1.5725- 1.5730}	47.940-47.956 {1.8874-1.8880}
		0.25 {0.01} Oversize	39.690- 39.706 {1.5625- 1.5632}	47.690-47.706 {1.8775-1.8782}
		0.50 {0.02} Oversize	39.440- 39.456 {1.5527- 1.5533}	47.440-47.456 {1.8677-1.8683}
Crank pin off-round	(mm {in})	Maximum	0.10 {0.0039}	
Main journal oil clearance	(mm {in})	Standard	0.014-0.038 {0.0006-0.0014}	
		Maximum	0.084 {0.0033}	
Main bearing size	(mm {in})	Standard	2.511-2.529 {0.0989-0.0995}	
		0.25 {0.01} Oversize	2.625-2.635 {0.1034-0.1037}	
		0.50 {0.02} Oversize	2.750-2.760 {0.1083-0.1086}	
Bolt				
Cylinder head bolt length	(mm {in})	Standard	128.9-129.5 {5.075-5.098}	
		Maximum	130.2 {5.125}	
Connecting rod bolt length	(mm {in})	Standard	36.2-36.6 {1.426-1.440}	46.7-47.3 {1.839-1.862}
		Maximum	36.95 {1.454}	48.0 {1.889}
Oil pump				
Inner rotor to outer rotor clearance	(mm {in})	Standard	0.02-0.18 {0.0008-0.0070}	
		Maximum	0.20 {0.0078}	
Outer rotor to oil pump body clearance	(mm {in})	Standard	0.09-0.175 {0.0036-0.0068}	
		Maximum	0.20 {0.0078}	
Side clearance	(mm {in})	Standard	0.03-0.07 {0.0012-0.0027}	
		Maximum	0.09 {0.0035}	
Plunger spring free length	(mm {in})	Standard	45.94 {1.8087}	
Front oil seal				
Pushing distance of the front oil seal [from the edge of the engine front cover]		(mm {in})	0-0.5 {0-0.019}	
Rear oil seal				
Pushing distance of the front oil seal				

[from the edge of the cylinder block]	(mm {in})	0-0.5 {0-0.019}
---------------------------------------	-----------	-----------------