

ENGINE TECHNICAL DATA

A6E931001001E01

Item				Engine	
				L8	LF
Cylinder head					
Cylinder head gasket contact surfaces distortion	(mm {in})	Maximum	0.10 {0.004}		
Manifold contact surfaces distortion	(mm {in})	Maximum	0.10 {0.004}		
		Maximum grinding	0.15 {0.006}		
Valve clearance [Engine cold]	(mm {in})	IN	0.22-0.28 {0.0087-0.0110}		
		EX	0.27-0.33 {0.0106-0.0130}		
Valve and valve guide					
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	5.440 {0.2142}	
			EX	5.435 {0.2140}	
Valve stem to guide clearance	(mm {in})	Standard	IN	0.024-0.069 {0.0009-0.0027}	
			EX	0.029-0.074 {0.0012-0.0029}	
		Maximum	IN	0.10 {0.004}	
			EX	0.10 {0.004}	
Valve length	(mm {in})	Standard	IN	102.99-103.79 {4.055-4.086}	
			EX	104.25-105.05 {4.105-4.135}	
		Minimum	IN	102.99 {4.055}	
			EX	103.79 {4.086}	
Valve guide inner diameter	(mm {in})	Standard	IN	5.509-5.539 {0.2169-0.2180}	
			EX	5.509-5.539 {0.2169-0.2180}	
Valve guide protrusion height	(mm {in})	IN	12.2-12.8 {0.481-0.503}		
		EX	12.2-12.8 {0.481-0.503}		
Valve head margin thickness	(mm {in})	Minimum	IN	1.62 {0.0637}	
			EX	1.82 {0.0716}	
Valve seat					
Valve seat contact width	(mm {in})	Standard	IN	1.2-1.6 {0.048-0.062}	
			EX	1.2-1.6 {0.048-0.062}	
Valve seat angle	(°)	IN	45		
		EX	45		
Valve seat sinking (Valve protrusion height)	(mm {in})	Standard	IN	40.64-42.24 {1.600-1.662}	
			EX	40.50-42.10{1.595-1.657}	
Valve spring					
Out-of-square	(mm {in})	Maximum	1% (2.10 {0.082})		

Pressing force at valve spring height H	(N {kgf, lbf})	H: 27.8 mm {1.094 in}	494.9 {50.47,111.2}			
OCV (Oil control valve)						
Coil resistance [20° C{68° F}]	(ohm)	Standard	-		6.9-7.9 *	
Camshaft						
Camshaft runout	(mm {in})	Maximum	0.03 {0.0012}			
Cam lobe height	(mm {in})	Standard	IN	40.79 {1.606}	42.12 {1.659}	42.12 {1.659}
						42.44{1.671}*
			EX	41.08 {1.618}	41.08 {1.618}	41.08 {1.618}
						41.18 {1.622}*
		Minimum	IN	40.692 {1.603}	42.022 {1.655}	42.022{1.655}
						42.342 {1.667}*
			EX	40.982 {1.614}	40.982 {1.614}	40.982 {1.614}
						41.082 {1.618}*
Journal diameter	(mm {in})	Standard	24.96-24.98 {0.9827-0.9834}			
		Minimum	24.95 {0.982}			
Journal oil clearance	(mm {in})	Standard	0.04-0.08 {0.002-0.003}			
		Maximum	0.09 {0.0035}			
End play	(mm {in})	Standard	0.09-0.24 {0.0035-0.0094}			
		Maximum	0.25 {0.009}			
Tappet						
Tappet bore diameter	(mm {in})	Standard	31.000-31.030 {1.2205-1.2216}			
Tappet diameter	(mm {in})	Standard	30.970-30.980 {1.2193-1.2196}			
Tappet-to-Tappet bore oil clearance	(mm {in})	Standard	0.02-0.06{0.0008-0.0023}			
		Maximum	0.15 {0.006}			
Cylinder block						
Cylinder head gasket contact surfaces distortion	(mm {in})	Maximum	0.10 {0.004}			
Cylinder bore diameter [Measure the cylinder bore at 42 mm {1.65 in} below the top surface]	(mm {in})	Standard	83.000-83.030 {3.2677-3.2689}	87.500-87.530 {3.4449-3.4460}		
Minimum / maximum bore diameter Limit	(mm {in})		82.940-83.090 {3.2653-3.2712}	87.440-87.590 {3.4425-3.4484}		
Piston						
Piston diameter	(mm {in})	Standard	82.965-82.995 {3.2664-3.2675}	87.465-87.495 {3.4435-3.4446}		

Piston-to-cylinder clearance	(mm {in})	Standard	0.025-0.045 {0.0010-0.0017}	
		Maximum	0.11 {0.0043}	
Piston ring				
Piston ring-to-ring groove clearance	(mm {in})	Standard	Top	0.03-0.08 {0.0012-0.0031}
			Second	0.03-0.07 {0.0012-0.0027}
			Oil (rail)	0.03-0.07 {0.0012-0.0027}
		Maximum	Top	0.17 {0.0067}
			Second	0.15 {0.0059}
			Oil (rail)	0.15 {0.0059}
End gap (measured in cylinder)	(mm {in})	Standard	Top	0.16-0.31 {0.0063-0.0122}
			Second	0.33-0.48 {0.0130-0.0189}
			Oil (rail)	0.20-0.70 {0.0079-0.0275}
		Maximum	Top	1.0 {0.0393}
			Second	1.0 {0.0393}
			Oil (rail)	1.0 {0.0393}
Connecting rod and connecting rod bearing				
Connecting rod side clearance	(mm {in})	Standard	0.14-0.36 {0.0056-0.0141}	
		Maximum	0.435 {0.0172}	
Connecting rod bearing size	(mm {in})	Standard	1.496-1.502 {0.0589-0.0591}	
		0.25 {0.01} Oversize	1.623-1.629 {0.0639-0.0641}	
		0.50 {0.02} Oversize	1.748-1.754 {0.0688-0.0690}	
Connecting rod bearing oil clearance	(mm {in})	Standard	0.026-0.052{0.0011-0.0020}	
		Maximum	0.10{0.0039}	
Crankshaft				
Crankshaft runout	(mm {in})	Maximum	0.05 {0.0019}	
Main journal diameter	(mm {in})	Standard	51.980-52.000 {2.0464-2.0472}	
		0.25 {0.01} undersize	51.730-51.750 {2.0366-2.0373}	
Main journal oil clearance	(mm {in})	Standard	0.019-0.035{0.0007-0.0013}	
		Maximum	0.10 {0.0039}	
Main journal out of round	(mm {in})	Maximum	0.05 {0.0019}	
Main bearing size	(mm {in})	Standard	2.506-2.509 {0.0987-0.0988}	
		0.25 {0.01} Oversize	2.628-2.634 {0.1034-0.1037}	
		0.50 {0.02} Oversize	2.753-2.759 {0.1084-0.1086}	
Crank pin journal diameter	(mm {in})	Standard	49.980-50.000 {1.9677-1.9685}	
		0.25 {0.01} undersize	49.730-49.750 {1.9579-1.9586}	
Crank pin out of round	(mm {in})	Maximum	0.05 {0.022}	
Crankshaft end play	(mm {in})	Standard	0.22-0.45{0.0087-0.0177}	
		Maximum	0.55 {0.0216}	
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}	
Bolt				
Cylinder head bolt length	Standard		149.0-150.0 {5.86-5.90}	
	Maximum		150.5 {5.92}	
Connecting rod bolt length	Standard		44.7-45.3 {1.75-1.78}	
	Maximum		46.0 {1.81}	
Main bearing cap bolt length	Standard		110.0-110.6 {4.33-4.35}	
	Maximum		111.3 {4.38}	
Balance shaft				
Gear backlash	(mm {in})	Maximum	-	0.005-0.101 {0.00019-0.0039}

*: With variable valve timing mechanism