



Caterpillar

Service Manual

D337 Engine

S/n 37B1 & Up

38B1 & Up



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Service Manual

CT-S-D337 ENG

ENGINE

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Specifications

These specifications contain dimensions for new parts and a suggested guide for the amount of wear that might normally be considered a reasonable figure to use in determining when to replace parts. These wear dimensions are shown after the description, "permissible clearance". These specifications are provided to help determine when new parts should be installed. This information should not be regarded as the only factor in determining when to replace parts. Past performance should be the governing factor for parts replacement. Even though parts are worn they may still be satisfactory. The remaining service life of these parts must be considered when deciding if parts should be replaced. If a machine is disassembled for reconditioning, it is well to replace parts not completely worn out if the remaining service life is deemed short.

Number of cylinders	6
Bore and stroke	5 $\frac{1}{8}$ " x 6 $\frac{1}{2}$ "
Firing order	1-5-3-6-2-4

Camshaft

Bearing journal diameter	2.369 - 2.370 in.
Bearing clearance	.003 - .0075 in.
Permissible bearing clearance	.011 in.
End clearance	.009 - .014 in.
Permissible end clearance	.025 in.
Camshaft retaining nut torque	200 lb. ft.

Camshaft Idler Gear

Backlash	.006 in.
Shaft diameter	1.997 - 1.998 in.
Bushing clearance	.002 - .004 in.
Permissible bushing clearance	.008 in.

Crankshaft

Main journal diameter	4.249 - 4.250 in.
Permissible main journal wear	.009 in.
Main bearing clearance	.0054 - .008 in.
Permissible bearing clearance	.018 in.
End clearance	.012 - .019 in.
Permissible end clearance	.035 in.
Main bearing stud nuts, torque	170 lb. ft.
Connecting rod, journal diameter	3.374 - 3.375 in.
Permissible journal wear	.009 in.
Permissible out-of roundness (journal)	.007 in.
Thrower location (tight against gear on crankshaft)	
Permissible run-out on thrower ring groove face	.006 in.

Connecting Rod

Connecting rod bearing clearance	.0042 - .0067 in.
Permissible bearing clearance	.013 in.
Connecting rod bolt nuts, torque	120 lb. ft.
Center-to-center distance	10.749 - 10.750 in.
Bore in piston pin bushing	1.751 - 1.7515 in.

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Group 40.1

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Valves Lifters

Lifter diameter	.8095 - .810 in.
Bore diameter	.8115 - .8125 in.
Permissible clearance	.008 in.

Rocker Arm Bushings

Clearance between shaft and bushing	.002 - .004 in.
Permissible clearance	.010 in.

Oil Pump

Clearance between gears and end covers	.002 - .004 in.
Shaft diameter	.8745 - .875 in.
Bushing bore	.8765 - .8775 in.
Permissible bushing clearance	.005 in.

Fuel Injection Equipment

Fuel injection pump timing	10° BTC
Fuel injection pump lifter setting (with Piston at top center)	1.739 - 1.741 in.
Fuel pump plunger length	2.6575 - 2.6577 in.
Permissible wear (decrease in length of plunger)	.005 in.
Injection nozzle orifice	.0325 - .033 in.
Injection valve retaining nut torque	100 - 110 lb. ft.

Fuel Injection Pump and Governor Drive Shaft

Gear backlash	.005 in.
End clearance	.002 - .004 in.
Permissible end clearance	.010 in.
Gear retaining nut torque	200 lb. ft.

Governor

Drive gear backlash	.004 in.
Bushing bore diameter	.484 - .486 in.
Permissible bushing wear	.008 in.

Service Meter

Drive gear backlash	.004 in.
Permissible bushing wear	.012 in.

Timing Gear Housing

Bolt torque	60 - 70 lb. ft.
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Flywheel

Run-out:	
Permissible at pilot bearing bore	.005 in.
Permissible at face	.006 in.
Retaining bolt torque	130 lb. ft.

Flywheel Housing

Permissible bore run-out	.008 in.
Permissible face run-out	.008 in.
Bolt torque	230 lb. ft.