

Caterpillar 1M-PC Test Method

SPECIFICATIONS

This test is part of API categories CF & CF-2.

OBJECTIVE

The objective of this test is to evaluate the performance of crankcase lubricants with respect to piston deposits, ring sticking, piston, ring and liner scuffing.

FIELD SERVICE SIMULATED

High-speed, supercharged off-highway heavy-duty diesel engine service is simulated.

TEST FIXTURE

A Caterpillar 1Y73 single cylinder indirect injection diesel engine with a two-valve arrangement having a 5.125 in. bore and a 6.5 in. stroke resulting in a displacement of 134.1 cubic inches is used. The compression ratio is 16.4:1 and this engine uses rectangular rings.

TEST PARAMETERS

Test parameters are: 1800 rpm, 42 bhp, 141 bmep, 5850 btu/min fuel input, 190°F coolant temperature, 205°F oil temperature, 255°F inlet air temperature at 53" hg and 125 grains/lb, 23.5:1 air-fuel ratio for 120 hours

TEST PARTS

Test parts include: Liner (1Y3995), piston (1Y3589) and ring set (1Y3588) — all meeting Caterpillar's "3L" quality specifications.

LUBRICANT ANALYSIS

Lubricant analysis includes new oil viscosity only.

PASS/FAIL CRITERIA

Pass/fail criteria are no ring sticking, no piston, ring, or liner scuffing. Weighted total demerits ≤ 240 , top groove fill $\leq 70\%$, and loss of side clearance $\leq 0.0005"$

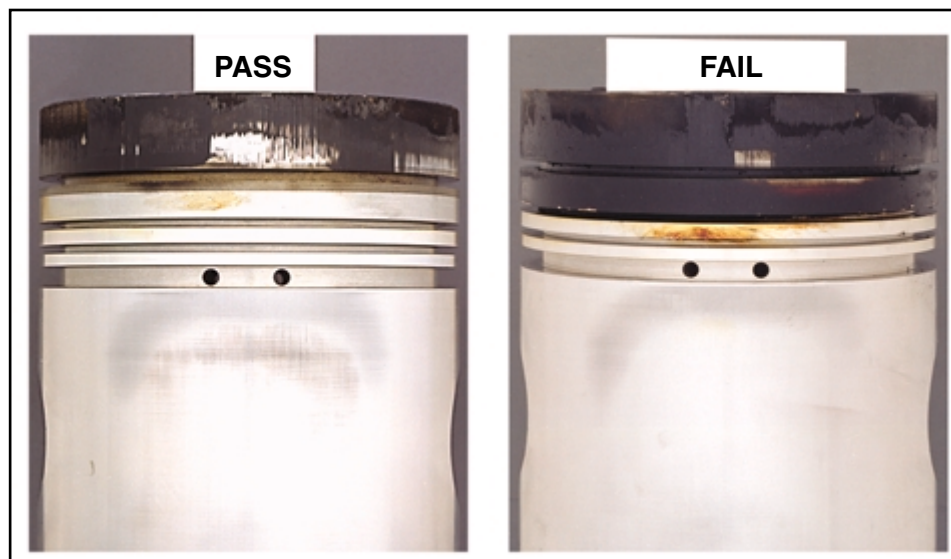
CF-2

Only the WTD rating applies using the following location factors.

RING GROOVES	LOCATION FACTOR
1	1.0
2	0.5
3	0
4	0

LANDS	LOCATION FACTOR
2	0.75
3	0
4	0

Limit for WTD is 100.



DE109375

