

DE135282

Sequence IVA Test

(ASTM D 6891)

SPECIFICATIONS

Valvetrain wear test method for API Category SL/SM and ILSAC GF-3/GF-4. Replacement test for Sequence VE (ASTM D 5302) wear.

OBJECTIVE

To evaluate a lubricant's performance in preventing camshaft lobe wear in an overhead camshaft engine.

FIELD SERVICE SIMULATED

Taxicab, light-delivery truck, or commuter service.

TEST FIXTURE

The test fixture is a 1994 Nissan KA 24E 2.4-liter, water-cooled, fuel-injected engine, four-cylinder in-line, overhead camshaft with two intake valves and one exhaust valve per cylinder.

TEST PARAMETERS

This is a 100-hour test involving 100 hourly cycles, each cycle consisting of two operating modes (stages). Unleaded ☐Haltermann KA24E Green☐ fuel is used.

	Stage 1	Stage 2
Time, minutes	50	10
Engine Speed, rpm	800	1500
Engine Torque, N-m	25	25
Oil Cylinder Head Temp, °C	49	59
Coolant Temp, °C	50	55

TEST PARTS EVALUATION

The twelve cam lobes are each measured at 7 locations, using a surface profilometer for the measurement of maximum depth of wear. The wear on all 7 positions of each lobe are added, then all twelve lobes are averaged for the wear result. This result is the primary evaluation for the test.

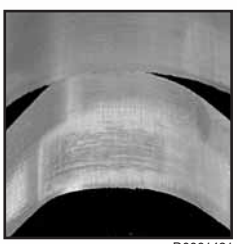
USED LUBRICANT ANALYSIS

The used oil at 100 hours is evaluated for kinematic viscosity, fuel dilution, and wear metals (Fe, Cu).

PASS/FAIL CRITERIA

PARAMETER		PASS LIMIT
GF-3	Average cam wear, (µm) maximum	120
GF-4	Average cam wear, (µm) maximum	90

PASS



D0061421



D00614210

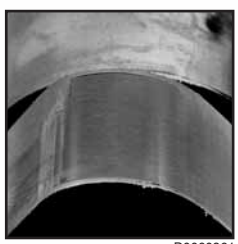


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D0061423

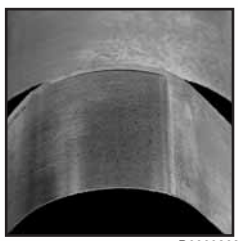
FAIL



D0060961



D00609610



D0060962



D0060963

