

Cummins ISB Engine Test

(ASTM D7484)

Specifications

- API CJ-4

Objective

- Evaluate the ability of a heavy-duty crankcase lubricant to reduce valve train wear under operating conditions selected to accelerate soot production.

Field Service Simulated

- Turbocharged and aftercooled diesel engines using sliding tappet cam followers and exhaust gas recirculation (EGR).

Test Fixture

- Cummins ISB common rail fuel system engine equipped with EGR.

Test Parameters

- The test duration is 350 hours using diesel fuel containing nominally 15 ppm sulfur.
- Following an initial 100 hours of steady-state operation at 1600 rpm to accumulate 3.25% soot in the lubricant, the engine is operated for 250 hours on a multi-step 28-second cycle.

Test Parts Evaluation

- Camshaft
- Mushroom-style slider tappets
- Crosshead

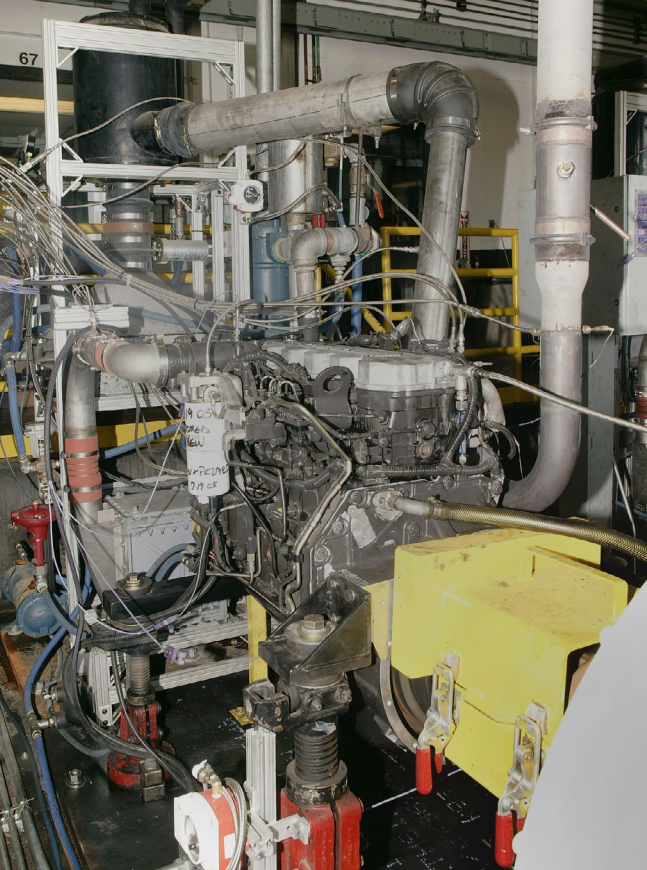
Used Lubricant Analysis

- Wear metals (ASTM D5185)
- Viscosity (ASTM D445)
- TAN (ASTM D664)
- TBN (ASTM D4739)
- Soot by TGA

Pass/Fail Criteria

Parameter	MTAC		
	1	2	3
ACSW 55	55	59	61
ATWL 100	100	108	112





DOI4967_0040

◆ We welcome your inquiries.

For additional information,
please contact:

Jim Carroll

Sr. Research Engineer

(210) 522-5015

jim.carroll@swri.org

Fuels and Lubricants Research Division

Southwest Research Institute

6220 Culebra Road • P.O. Drawer 28510

San Antonio, Texas 78228-0510



swri.org

lubricanttesting.swri.org

Southwest Research Institute is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides more than 2 million square feet of laboratories, test facilities, workshops and offices for nearly 3,000 employees who perform contract work for industry and government clients.



Benefiting government,
industry and the public through
innovative science and technology

An Equal Employment Opportunity/Affirmative Action Employer • Race/
Color/Religion/Sex/Sexual Orientation/Gender Identity/National Origin/
Disabled/Veteran • Committed to Diversity in the Workplace

Find us on

