

# SOUTHWEST RESEARCH INSTITUTE®

## Fuels and Lubricants Research Division

### Cummins ISB Engine Test (ASTM D7484)

#### Specifications

- API CJ-4, CK-4, FA-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

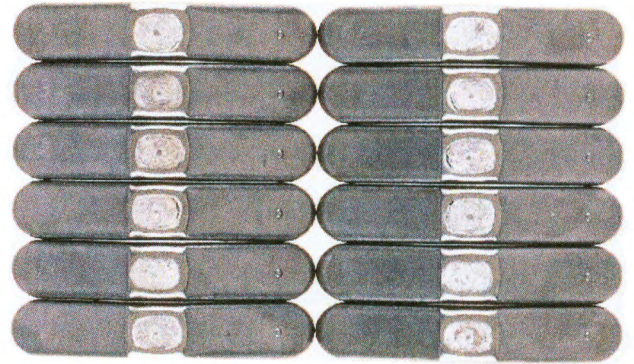
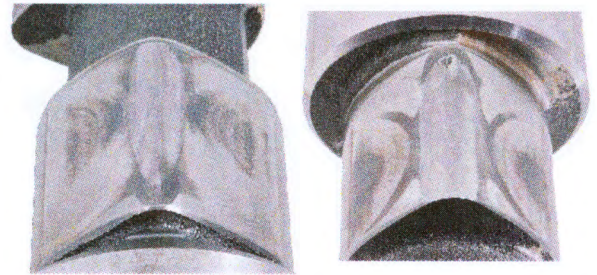
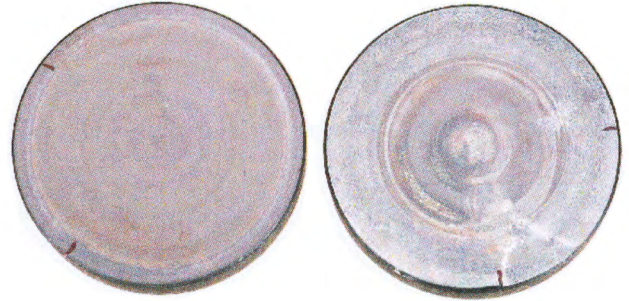
- The test duration is 350 hours using diesel fuel containing nominally 15 ppm sulfur.
- Following an initial 100 hours of steady-state operation at 1600 rpm to accumulate 3.25% soot in the lubricant, the engine is operated for 250 hours on a multi-step 28-second cycle.

#### Test Parts Evaluation

- Camshaft
- Mushroom-style slider tappets
- Crosshead

#### Used Lubricant Analysis

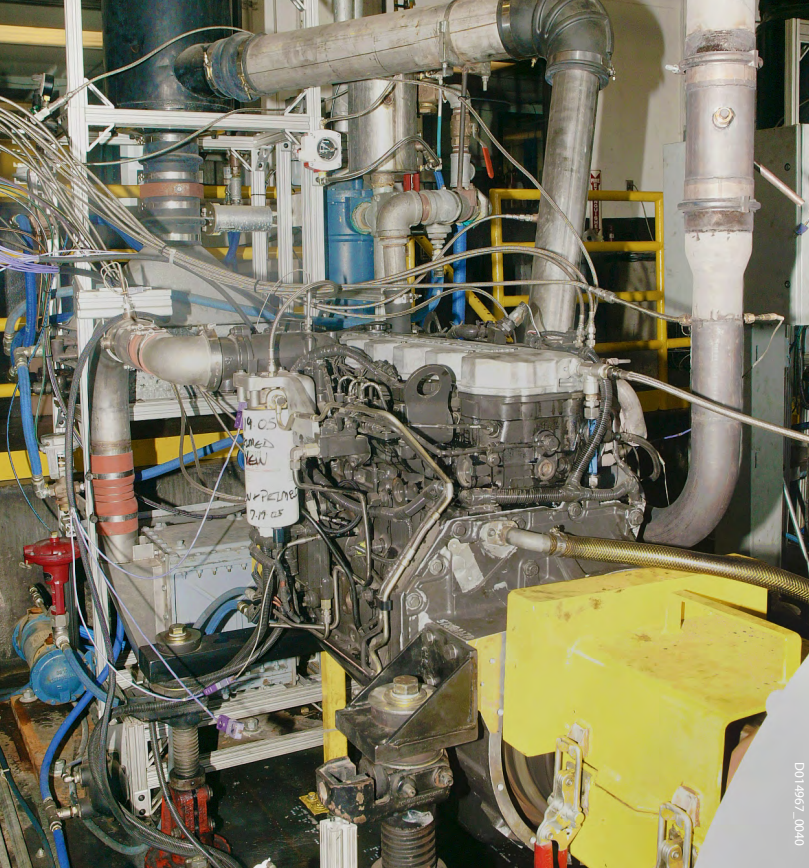
- Wear metals (ASTM D5185)
- Viscosity (ASTM D445)
- TAN (ASTM D664)
- TBN (ASTM D4739)
- Soot by TGA



#### Pass/Fail Criteria

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





**We welcome your inquiries.  
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