



Address 100 Barr Harbor Drive
PO BOX C700
W. Conshohocken, PA
19428-2959 | USA

Phone 610.832.9500
Fax 610.832.9555
e-mail service@astm.org
Web www.astm.org

Unapproved minutes of the ASTM Cummins ISB Test Development Task Force Teleconference call on April 14th, 2004

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Call to Order: Mark Sarlo called the meeting to order at 3:00 PM EST.

Meeting Minutes: The minutes, as circulated, from the March 30th teleconference were approved by general consensus.

Review of Agenda: *Attachment 1* shows a copy of the meeting agenda.

Review of Membership: The current official membership list for the ISB Test Development Task Force is as follows:

NAME	COMPANY
Mark K Sarlo – Chairman	Southwest Research Institute
Joseph Huang – Secretary	Valvoline
Warren Totten	Cummins
Riccardo Conti	ExxonMobil
Jim Matasic	Lubrizol
Jeff Clark	TMC
Greg Shank	Mack/Volvo
Jim Moritz	PerkinElmer
Bob Campbell	Ethyl
Mark Cooper	Chevron Oronite
Ron Buck	TEI

The following members were present at the conference call: Mark Sarlo, Joseph Huang, Warren Totten, Riccardo Conti, Jim Matasic, Jeff Clark, Jim Moritz, Bob Campbell, and Ron Buck.

Old Business

Status of Engine Installation:

Mark Sarlo suggested that all engine mounts have some sort of cushioning, approved by general consensus. In addition, Mark heavily suggested that all Schenck dynamometers run the proper bearing break-in procedure.

SwRI – The engine is installed in the cell, and the ECM is fully wired. In the process of installing peripherals.

PerkinElmer – In the process of installing rear engine mounts.

Exxon Mobil – Started upgrading the test cell, with new low inertia dynamometer, Schenck WT470 1.9 kg-m² inertia, on order. Expected completion date of late June to early July.

Ethyl – Completion date is still uncertain.

Lubrizol – Started installation of test stand. An AVL Digalog AE400 1.1 kg-m² dynamometer is on order. Expected completion in June.

Valvoline – Same status as SwRI.

Decision on air compressor coolant line – Warren Totten:

Warren decided there shouldn't be a problem with plugging the coolant line previously used for the air compressor.

External oil cooling system – Jim Moritz:

Jim Moritz suggested a filter adapter, http://www.lofa.net/RemoteOil_Backpage.html. A 3" x 8" tube-shell heat exchanger was recommended, with the oil flowing thru the tube to facilitate cleaning. A vote of 4 for and 0 against, with 5 abstain.

Status of oil cooler bypass plates – Ron Buck:

Ron is getting bids for the oil cooler bypass. A prototype will be ready soon. Warren suggested that a leak test at 80 psi be performed to ensure no coolant and oil mix.

Update on oil consumption measurement system – Jim Moritz:

Use of an external oil leveling device from a single cylinder test was recommended. No one was against the use of an oil adder system, but no definite proposal was agreed upon.

Tappet weight gain – Mark Sarlo:

All brand new tappets lost weight after first initial wash and dry with pentane. The tappets were then soaked in either Premium Blue or EF 411 for one hour. After soaking, the tappets were washed with pentane and dried. Those soaked in Premium Blue gained on average, approximately 6 milligrams, but there were significant

deviations. Cummins acknowledges the need to presoak tappets prior to initial weight measurement. Mark Sarlo suggested pre-soaking all tappets in standardized rebuild oil, instead of waiting for the actual test oil. Others suggested either baking the tappets to burn off the additives, or use another solvent, such as N-Solve (sp???).

300 HP/600 lbf-ft cams to labs – Ron Buck:

Cams sent to SwRI and PE.

Alternate cam profile measurement method – All:

It was suggested that some type of volumetric measurement be tried. Cummins will distribute more used cams to labs to investigate.

Flywheel and housing update with starter – Mark Sarlo and Jim Moritz:

SwRI has a 127 tooth 8/10 pitch flywheel, while PE has a 159 tooth 10/12 pitch flywheel.

Update on oil addition methodology during first 100 hours – Warren Totten:

Warren will investigate oil consumption with various different viscosity grades. No decision was made on either forced add or fill up.

Update on pre-test flushing methodology – All:

Basic idea as before. After test, drain old oil, remove test parts, presoak and install new parts, pressure fill w/ candidate, run for 30 minutes, drain oil and change filter, pressure fill w/ candidate, run for 30 minutes, drain oil and change filter, and then charge for test. Concern was raised about running new test parts with potentially contaminated oil. Also some concern about needing to use solvents to remove sludge. Warren noted that prior tests showed only small increases in oil viscosity.

Use of Modine-type aftercooler – Mark Sarlo and Jim Moritz:

Concern about the size of the cooler was raised.

Brief update on data gathering – All:

Warren requested 10 Hz data be gathered during the test. The compromise suggested was 10 Hz (or possibly 5 Hz) be used intermittently during test, and a much lower data recording frequency be used for the rest. Many other proposals were mentioned. No decision was made.

New Business

Location of pressure taps and thermocouples – Mark Sarlo and Jim Moritz:

SwRI and PE will determine the standard locations, and distribute the locations with pictures.

Deutsche plugs and which input/outputs for ECM – All:

SwRI and Valvoline verified connectors obtained are correct. A complete list of all part numbers will be generated to assist future labs.

Future Meetings: The next meeting will be held on April 27th, at 1 PM CST/2 PM EST at 812-377-1133.

Adjournment: The meeting was adjourned at 4:25 PM EST.

For comments or questions regarding the minutes, please feel free to contact:

Joseph Huang
The Valvoline Company
PO BOX 14000
Lexington, KY 40512
Phone: 859-357-3518
Email: jhuang@ashland.com

ATTACHMENT 1

Cummins 5.9L ISB Valvetrain Wear Test
Conference Call, April 14, 2004
2-3:00 p.m., CST, 3-4:00 EST
812-377-6156

Proposed Topics

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Review and approval of minutes from 30 Mar 04 conference call

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Old Business:

Update status of installation at each lab

Review Action Items:

Decision on connecting or plugging coolant previously used for air compressor (Cummins)

External oil cooling system components (PE)

Status of oil cooler bypass plates (TEI)

Update on oil consumption measurement system, possibly calibrated dipstick (PE)

Weight gain research on tappets (SwRI)

300HP/600 lbf-ft cams to labs (TEI)

Alternate cam profile measurement method to replace Adcole (All)

Dynamometer inertia information (Cummins)

Flywheel and housing update with starter (SwRI and PE)

Update on batch of premeasured camshafts

Update on batch of oil filters

Update on oil add methodology during first 100 hours

Update on pre-test flushing methodology

SwRI and PE to use Modine-type aftercooler

Brief update on data gathering during cyclic conditions

New Business

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Location of pressure taps and thermocouples

Deutsche plugs and which input/outputs

Reminder that this ECM requires fairly stable DC power

Next call, April 27 at 1 pm CST, 2 pm EST????