

IIH Task Force Conference Call January 28, 2015

Attendees:

Chrysler: Haiying Tang, Jeff Betz

Intertek: Addison Schweitzer, Charlie Leverett

Lubrizol: George Szappanos

Afton: Ed Altman

SwRI: Karin Haumann, Sid Clark, Pat Lang

Ashland: Amol Savant

Infineum: Mike McMillan, Andy Ritchie, Gordon Farnsworth

Oronite: Kaustav Sinha

IMTS: Dave Passmore

OHT: Jason Bowden

TMC: Rich Grundza

After a little misunderstanding at the start of the conference where Jeff indicated Chrysler engineering recommended the adaptor plate, Jeff corrected himself indicating Chrysler engineering was in favor of using the fixture tooling to locate the thermocouple in the oil gallery just below the production oil cooler adaptor.

The group discussed drilling and tapping the main oil gallery using the fixture tooling being designed at IMTS and where the location will actually be located in the main gallery.

George commented on work at Lubrizol positioning the top of the drilled and tapped hole 8 mm below the top of the main oil gallery. George indicated they actually applied more than 300 in.lb. torque to the fitting without stripping the threads or cracking the housing.

Ed Altman asked about possibly remote mounting the Knock Sensors to gain even more clearance in the valley. Karin commented the Knock Sensor is still in the control algorithm but the timing is fixed, however the sensor needs to be connected and in the loop for proper control.

The group next discussed what sealer to use for the thermocouple fitting, discussing the use of Permatex #2 Pliable non-hardening sealer. Addison mentioned the use of a Loctite 565 PST as a thread sealant but agreed on the use of the Permatex #2 product.

The group discussed Afton changing their plans and running the test without the spacer, positioning the oil gallery thermocouple lower in the main gallery. Ed asked about the proper depth of the tapped threads. Sid mentioned the plans at IMTS were to incorporate a stop for the tap to insure the proper thread engagement. George commented about Lubrizol's concerns that a positive stop may allow technicians to over torque the threads thereby weakening the threads. George suggested possibly using a grooved ring on the shaft to indicate when the proper thread depth has been reached.

The group seemed to agree there needs to be some sort of mark on the tooling to identify the point of proper thread depth rather than a positive type stop.

Lubrizol commented they used a 1/16th NPT Swagelock Fitting for their application.

Ed Altman and Amol discussed additional modifications to the rear oil gallery thermocouple process suggested by Amol, however Jeff commented we need to move forward with minimal changes and we need to move forward with current plans to locate the thermocouple in the main oil gallery below the oil cooler adaptor.

Charlie asked if we could have a data point from Afton by February 5th ? Ed indicated he would probably just complete the test by that time. The group discussed and agreed there were no additional data points required for the decision on the 5th, the decision was to decide on an agreed location for the thermocouple.

The group expressed concern about re-locating the thermocouple as suggested by Amol as that might be considered a major change and any future efforts looking at this suggestion could be performed as an O&H type activity with equivalency presented at a later date after the test is accepted.

Amol questioned coolant temperature control and whether he needed a resistance value in the dyno harness for his shake down testing. Karin agreed to get with Amol off-line to discuss test setup for shake down and prove-out. Karin also suggested Amol not use the rear oil gallery thermocouple setup for any of his prove-out test work.

The group discussed the required depth for the thermocouple for the oil pump inlet temperature at the front of the block. Understanding this is a record only parameter, everyone agreed we should standardize on the depth. Addison went back and looked at the temperatures he recorded with his thermocouple located in the main gallery below the oil cooler adaptor and realized IAR read 149° C at the pump when controlling to 151° C at the gallery below the oil cooler? The group discussed temperatures recorded at other labs and agreed the temperature out of the oil pump should be higher than the control point below the oil cooler.

The group will look closer at positioning of the oil pump supply thermocouple at the front of the block. Karin will make changes to the procedure to reflect recent changes and final decision on thermocouple positioning at the front of the engine.

The group discussed the type of gallery plugs Afton uses with straight thread and Afton agreed to supply the part number to the group.

Summary:

Afton is going to remove the oil cooler spacer and drill and tap their main oil gallery according to the view in Section 4 Sheet 1a of the Engine Assembly Manual for their next test.

The group discussed possible Matrix Start Dates and Reference Oil availability.

Additional discussion continued about possibly holding an additional honing workshop and where the pistons for the round robin were. Karin also commented there are a set of REO3 pistons going around for additional ratings. Afton indicated they had the pistons and would forward to Lubrizol after rating. Amol asked that all labs hold their ratings until everyone completes their ratings for final comparisons.

The group also suggested review of the oil level and oil consumption worksheet. Karin and Sid agreed to review the worksheet and make any needed corrections. Karin and Sid agreed to review the honing procedure and make updates for the ASTM.

Amol asked if it might be OK for Ashland to start their prove-out test prior to lab inspection. With that said Amol indicated Ashland was willing to take the risk starting a prove-out run understanding lab inspection may invalidate that testing.

Karin asked Amol to send out some proposed dates and see what the Task Force might be able to work with.

Adjourn 12:10

This is a compilation from notes recorded during the call, with comments from member participants during the Draft Review. Certain subjects may not necessarily be in exact order; however, they are believed to represent an accurate account of the call. If anyone feels changes or additional content may be necessary, please contact Sid Clark @ 586-873-1255 or Sidney.Clark@swri.org

Thanks, Sid