Minutes of the January 9, 2013 meeting of the Mack Test Surveillance Panel

Attendance

The meeting was called to order at 8:00 am by the chairman, Mark Cooper. Mark asked all attendees to introduce themselves and give their company affiliation, and an attendance list was circulated. The attendance list is shown in Attachment 1.

T-11 reference oil

3 of 4 runs using the TMC 822 reference oil failed to reach 15 cSt by EOT, and the oil batch was "tweaked" by the supplier to decrease the oil's performance and increase the severity of the T-11 results. One run on the modified oil gave a result of 5.89% soot at 15 cSt viscosity increase.

Following significant discussion regarding the best path forward, Greg Shank moved that 1000 gallons of the current batch of TMC 822 should be modified by the TMC to attempt to reproduce the more severe result seen with the "tweaked" oil. (If successful, this will allow over one year's worth of T-11 testing and give time to modify the remaining oil for a multi-year supply.) As soon as the oil is available, each lab must run one test using the modified oil to verify it is at the proper severity. Pat Fetterman seconded the motion.

Following a few questions regarding timing (as quickly as possible) and the use of this result for calibration (will depend on the actual results), the motion carried with (8) yes, (0) no and (2) waive.
After the passing vote, Jeff Clark received information that the 700 gallon blender at the TMC was their best blend kettle, the blend size was reduced to 700 gallons with the approval of both the motion maker and the seconder.

Action item – the TMC will work with the oil supplier to get the necessary materials and make the 700 gallon blend, and the TMC will sort out naming logistics.

T-12 issues

TEI report – no copy for minutes. Liner batch T – looks good via TEI inspection, piston crown & skirt also look good – (5) year supply of all. Top ring batch S is out, and batch U measures OK – (5) year supply. Rod bearing batch X and main bearing batch O – (5) year supply.

TEI is running short of engine blocks, but they have found a few cranks and low swirl heads. Ken Goshorn noted that cranks should be available, but camshafts could be a problem.

TEI has only 9 small T-11 turbos on hand, and they will need to start rebuilding existing units, as the current production outlet housing is not usable in the T-11 configuration. Bob Campbell suggested we need a revised critical parts list.

Action item - Mark Cooper agreed to form a group outside today's meeting to develop new critical parts lists.

Jason (?) from Mahle, the piston ring supplier, joined the meeting via conference call at this point to review data on the various ring sets. TEI had sent rings from batches R, S, T and U to Mahle for inspection/comparison data.

Top ring gaps and tension were noted as all the same and in spec, and visual profiles are similar. In addition, the outgoing inspection Q.C. data looks very good. The same applies to second and oil control rings.

Ken Goshorn asked Jason to look at oil ring tension/expander length and top ring face porosity, and he agreed.

Jason also noted that batch U rings were run in one set-up and should be consistent. However, rings are not FIFO controlled, and are not in any particular order when packaged, but the only possible change with time is rust. Zack Bishop noted that TEI has never seen rust. Batch U shipped in June 2012, Batch T in August 2010 and batch S in January 2009…each batch takes 8-10 weeks to manufacture.

Jason committed to supplying 2nd and oil ring measurements by 1/18/13. But he requested any available data – including break-in effects be sent to him. Mark Cooper and Jim Rutherford will prepare and send package to Jason.

Jim Matasic gave a review of operational data from the T-12 runs using TUXO hardware – Jim's presentation is shown here:

ftp://ftp.astmtmc.cmu.edu/docs/diesel/mack/minutes/2013/Mack.2013-01-09.Meeting/

Action item – Labs to look at Rvk, Rpk and Vo below ring travel on all TUXO runs at 3, 6, 9 and 12 o'clock positions looking at all six cylinders for all five runs – data to be reported by 1/18/13.

Jim Rutherford reviewed the data presented in Attachment 2 looking at oil consumption before correction, liner wear and ring weight loss for the reference tests from 2005 through 2012.

Jason noted that this particular top ring coating is only used on two applications, and this is the only HD engine application. Mahle will complete all measurements by 1/18, and Jim Matasic will send all Lubrizol inspection data to Jason.

Jason asked all labs to visually rate their used rings and send one low, one high and one typical set to him.

Test labs are virtually out of STWN hardware, and all outstanding data is to be submitted by 1/18/13 in preparation for a teleconference at 10:30 am EST on Monday 1/21/13. Send all liner Rvk, Rpk and Vo data to Jim Matasic for compilation.

Mark Cooper asked if we should conduct a series of round robin tests to compare lab measurements, and the consensus is yes.

Action item – TMC to organize round robins to look at soot / lead / liner wear step / oxidation / wear metals – EOT sample only, Jeff Clark and Sean Moyer will pick samples.

There being no other business, the meeting was adjourned at 1:27 pm.

Respectfully submitted,
Pat Fetterman