

**L42 Surveillance Panel Meeting minutes**  
**PRI Apollo Room, Warrendale, PA**  
**September 6<sup>th</sup>, 2006**

Attendees:

Cory Koglin  
Don Bell  
Don Bartlett  
Chris Schenkenberger  
Jerry Gropp  
Brian Koehler  
Don Lind  
Dale Smith  
Salvatore Rea  
Harold Chambers  
John Dharte  
Chris Prengaman

**Agenda**

Call to Order/Membership review

Meeting minute approvals

    June 2006

    September 2006

2006 hardware Timeline/review

2006 Industry Hardware Order Update

- Pilot batch matrix data review
- [ftp://ftp.astmtmc.cmu.edu/refdata/gear/l42/data/Pilot\\_Matrix/pilot\\_matrix\\_results.xls](ftp://ftp.astmtmc.cmu.edu/refdata/gear/l42/data/Pilot_Matrix/pilot_matrix_results.xls)

Procedure updates

- Section 8.2.3 Backlash
- Section A5.2 Unscheduled shutdowns
- Section 12.1.5.3/12.1.4.3

Industry improvements

- Throttle actuation
- Throttle calibration

2006 Hardware matrix

- TMC 113
- Low Temp

New/Open issues

Adjournment

**Meeting minute approvals**

A motion was passed unanimously to approve the previous 2006 L-42 meeting minutes, June & September 2006, available on the TMC website.

**2006 Hardware Update**

SWRI and Parc do not have sufficient gear sets to conduct full reference runs. Afton and Lz are also very low on L42 gear sets.

## **L-42 Pilot Matrix Review**

Dana suggested a new drive side gear design to the L-42 gears that is easier to produce, less sensitive to variation “stack-up”, and better distribution of maximum contact stress. No coast side change to gears. Preliminary feedback from Ft. Wayne is that new gear design is easier to work with and is very good. Ft. Wayne produced 40 gear sets on 9/6/06, and Lugoff, SC site built pilot batch in 9/2006. A pilot gear batch matrix (4 passing oils/1 discriminating oil) was conducted at all 4 labs to determine if drive side gear design has any adverse effect on test performance. The L42 matrix results and gear sets were reviewed by the panel and considered acceptable. Don Krienbring of DANA was teleconferenced in on the meeting, and he commented that new L42 gears are cut and heat treated and the build can be initiated on 12/1 at Fort Wayne, IN.

The matrix data can be found at the end of these minutes or on the TMC website.

**Motion:** DANA to produce the 959 axles that were ordered as per the pilot batch design.-Brian Koehler

2<sup>nd</sup>: Don Bartlett

(7 approved/0 opposed/0 abstentions)—motion passed, so DANA to proceed with building the 959 axles. L42 SP to visit Lugoff, SC on 12/7 to monitor the L42 build.

Harold Chambers would like TMC to monitor discrimination oil for large quantities of 100% score.

## **L42 Procedural Revisions**

12.1.4.3: For these time calculations, ignore the first drive side segment **and last coast side segment** since zero crossings are not well defined.

12.1.5.3: For these time calculations, ignore the first drive side segment **and last coast side segment** since zero crossings are not well defined.

**Motion:** Make changes as shown above to 12.1.4.3 and 12.1.5.3 in bold to these procedure sections-Don Bartlett

2<sup>nd</sup>: Dale Smith

(7 approved/0 opposed/0 abstentions) –motion passed

A5.2: The shutdown can only occur during conditioning 1, conditioning 3 or anytime the driveline is **disengaged as allowed or required by the procedure**.

**Motion:** Make changes as shown above to A5.2 in bold-Jerry Gropp

2<sup>nd</sup>: Don Lind

(7 approved/0 opposed/0 abstentions) –motion pass

8.2.3: Record as received backlash from manufacturer and the reading shall be between 0.004 and 0.009 inches.

8.2.3.1: Measure and record backlash in four equally spaced locations. Report the average and the four readings. No backlash reading shall be higher than 0.011 inches.

**Motion:** Approve the 8.2.3 procedure change above and add section 8.2.3.1 to the procedure, effective 30 days after information letter date  
2<sup>nd</sup>: Brian Koehler  
(6 approved/0 opposed/0 abstentions)

8.2.8: Measure and record backlash in four equally spaced locations. Report the average and the four readings. No backlash reading shall be higher than 0.011 inches.

Don Lind of Test Monitoring Center will update L42 data dictionary and report form changes and send to all 4 labs for approval.

### **Improved throttle calibration**

1. Engine must be warmed up with coolant temperature >150degF
2. Connect multimeter to read TPS voltage sent to engine ECM
3. Adjust "closed" throttle position until  $675 \pm 75$  engine RPM is achieved.
4. Record TPS voltage in step 3
5. With the throttle controller outputting full voltage, adjust throttle position until the observed TPS voltage is  $1.3 \pm .1$  volts higher than the voltage recorded in step 4.

**Motion:** Insert above throttle calibration into L42 procedure starting with next laboratory reference period-Dale Smith

2<sup>nd</sup>: Don Bartlett

(7 approved/0 opposed/0 abstentions)-motion passed.

### Task Force Issues:

Reduce variability in throttle control by adding high resolution potentiometer to improve throttle control. Afton to purchase 3 Jordan high resolution potentiometers and labs to send Afton their throttle bodies (TB) so that Afton can manually modify each TB to that of the current Afton TB.

### L-42 Hardware Matrix when new gear sets are available:

- Run 4 reference oil TMC 116 per lab & target 22% score on TMC 116.
- Run 1 reference oil TMC 112 per lab.
- Run 2 reference oil TMC 113 per lab.

### Low temperature tests:

- Low temp oil 1, 1 run at each lab @ std. temp
- Low temp oil 1, 1 run at each lab @ low temp

Motion: All 4 labs to conduct L42 hardware matrix as outlined above (3 approved/0 opposed/2 abstentions)-motion passed.