

November 6th, 2008

L42 Hardware TF conference call

Attendees:

C. Koglin
C. Barker
D. Lind
R. Graziano
K. Miller
D. Bartlett
L. Pappedemos
Bob Sullivan
Dale Smith
Mark Bassett
Derek Ottley

Current processing status of pinion and rings (Ft. Wayne)

- Pinions and rings are blanked
- Second fire check on ring good, so release of cutting parts on rings possible today.
- 2nd Pinion fire check to complete today and possible cutting after.
- Total number of rings ~800pcs each
- Total number of pinions ~800 pcs each
- 7 days of cutting needed for both ring and pinion, 80pcs/shift, 2 shifts running on each ring and pinion
- Are the 'NO Tempering' quality checks in place at Ft. Wayne?-Yes-Quality alerts sent to supervisor and manager of department

Status of carrier measurements and contingency plan (Ft. Wayne/Ken Miller/Lugoff, labs)

Kenny Miller sent out carrier audit spreadsheet via email (included at the end of this document)

Kenny proposes accounting for the slight out of tolerance carrier (.0005") by adjusting cutting of ring/pinion.

1. Koglin: Do you adjust cutting of pinion, ring or both? They would adjust the cutting of the pinion at Ft. Wayne to compensate for the offset.
2. Bartlett: How did they pull the 20 carriers at lugoff? K. Miller: Lugoff was instructed to pull at random, but wants to hear from Derek. Derek instructed technician to pull carriers randomly.
3. Bartlett: Would like to see this brought to the surveillance panel and discussed, but feels a little uneasy because we keep making small changes that may add up to inconsistent test results.

4. D. Smith: If measured parts represent random sample, and the correction will work, then Dale believes we can move forward with the change.
5. 2006 audited carriers showed larger range, maybe .002", .003" out than the current .0006". This was much higher than the current carriers. The 2006 batch, P4L806/B6L544, had a matched carrier to the pinion cutting. In this lot however; Dana is suggesting to match the pinion to the carrier.
6. Don Lind asked if Dana is confident in this process, can they guarantee the performance of the gear sets in the L42 test. Kenny Miller: They will meet the contact pattern requirements with these parts or they will be starting over.
7. Don Bartlett: We trust/believe what Kenny is saying, we're close enough, but if the hardware doesn't respond in the L42 test, then the suggested pinion cutting change is what we must point to as the issue.
8. Don Bartlett: Let's play this Scenario, Now that the pinions are cut to 1.5005" offset and we make a pilot build, what are the next steps if the L42 testing does not provide the right answers. Kenny Miller feels that everything will come out similar to the 2006 batch.
9. Don Lind: If 100% of the carriers were out of spec, would Dana recommend the same thing, i.e. cutting the pinions to meet carriers. Yes.

Options

1. Alternative 1: Cut pinions to 1.500 offset, and have danaven remake carriers to new proposed offset (1.500). Unlikely Danaven will respond to this request, since they are to specification.
2. Alternative 2: Cut pinions to 1.5000 and use the carriers as they are. Stated this is probably not the best alternative.
3. Alternative 3: Cut pinions to 1.5005 offset and use the current carriers as is.

Discussion

Kenny Miller: Why the remake of the carriers worked so well in 2006 was due to Danaven narrowing the range of tolerance, not so much the fact they shifted the hi/lo offset dimension.

Ft. Wayne needs to know when to commence ring and pinion cutting

Lou Pappedemos will not release the parts for cutting unless everyone is comfortable with this change and has written authorization from internal Dana personnel.

Dale Smith: Does us delaying the process, have an effect on the fire checks that have already performed. Lou feels this would not affect the process.

The machines are setup to the master gears, which means the machines can be setup 2 wks, 2 months or 2years from now the same.

Lou Pappedemos suggestion: I have good fire check rings and good fire checks pinions, should we use the current carriers and assemble the 6pcs to ensure contact pattern build-out and to run on L42 test stands?

Can lugoff build off the 6 axles by breaking into the line? Derek responded by saying it shouldn't be an issue, but will need to check on timing.

Lubrizol would not have an issue having SWRI run off 6 tests to boost confidence in changing the pinion. The pinions would have the alternate offset proposal of 1.5005 and Kenny would like to pull the worst offset carriers.

Fire check ring and pinion assembly discussion

1. All carriers are marked in paint 1-20 corresponding to the audit sheet Kenny sent out via email. Lou will inform supervisor to get carriers to Lugoff ASAP, attention Derek Ottley.
2. Lugoff will build 6 axle assemblies using the measured carriers (#19 and #1) per spreadsheet for 2 pieces and pick 4 others randomly.
3. The 6 fire check pieces need to go through final machine, thread draw, and lap prior to shipment. Estimate Tuesday November 11th to ship to Lugoff.
4. Derek to discuss with Gene Lawrence about breaking into the line and ensuring that all the other pieces available for assembly.

Chris Barker: How does this effect reference sequence at SWRI?

Don Lind: They will have to count against reference.

Don Bartlett: What oils, how many tests? All the labs agreed-3 pass oils, 1 fail oil. 3 runs on TMC 116 and 1 run on TMC 112.

Corrections would be made on the lapping machine (.0005), not on the cutting machine. AS long as the 6 parts would be representative of the production run labs are Ok.

Ring/Pinion Timing

- If parts were released today for cutting, anticipated Ring/Pinion ship date to Lugoff Ship Dec 8th. This date will be pushed back based on the labs preference to run 4 tests at SWRI. Once the 4 axles are run, assuming data is sufficient, then the remaining rings/pinions will be released for cutting.
- FYI-Ft. Wayne plant will be shutdown cold December 22nd-January 4th, no exceptions.

Drawing Updates

- Drawing update timing-50% finished with drawing updates, anticipated drawings to be sent to drafting Week of November 10th, drafting to take 1 week in order to make changes. Total time ~3 weeks.

New/Open items

Do the Labs still plan to travel to Lugoff? Lz-Yes, SWRI-Not sure on travel, Afton-Yes.Meeting adjourned 10:40am.

