Interactive comment on "Comparison of Planetary Bearing Load-Sharing Characteristics in Wind Turbine Gearboxes" *by* Jonathan Keller et al.

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1) Page 2, lines 1-4; One sentence states that "wind turbine gearboxes are not achieving their expected design life" and the next sentence seems to negate this by stating "Although planet gear and bearing failures are not predominant...". Re-phrase by stating specifically what is the problem that is being addressed here.

2) Page 2, lines 15-16, "Rotor moments and gravity result in once-per-revolution effects...". Are rotor moments only 1P in frequency? Don't you have any higher frequency components from the rotor passed to the main shaft?

3)Page 5, Line 2, "Representative rotor pitch and yaw moments up to ±300 kNm....". Under what situations is this a representative load? Are these for normal operating

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conditions under turbulence?

4)Page 6, Line 7, "The entire drivetrain is represented as deformable bodies...". Is this really required? Provide some explanation on what role do the housing stiffness, ring gear stiffness etc. play on the loads on the bearing?

5)Page 7, Line 10, "load zones for the pure torque condition are compared to those for extreme positive and negative pitch moments". Where do you get the extreme pitch moments from? I don't think ± 300 kNm are extreme moments, if that is what is referred to here.

6)Page 9, Figure 7: Why should the loads on the upwind and downwind bearing be out of phase for a pure torque condition that is shown here? The explanation given is due to clearances, but possibly there is additional loading than pure torque?

7)Page 10, Figure 9, What about the main bearing load? Does the main bearing hold a part of this pitch moment load?

8)Page 11, line 11: "The upwind carrier CRB does not carry any load regardless of the pitch moment and neither does the downwind carrier CRB for pitch moments within ± 100 kNm because of their clearances". This is not clear.

9)Paqe15. Effect of bearing clearances: Overall all load effects shown are explained through the effect of clearances. If this is indeed the case, then the initial sections of this manuscript should explain the clearances over the different parts of the gearbox and discuss their modeling in the software.

10)Page 16, line 5: 15 μm tangential pin position error is investigated. How is this done in practice? Is this simulated or measured? Why are the load results in Fig. 17 said to negligible? They seem significant for such a small error.

11)Page 18, Line 3: The conclusions state that "resulted in a modified L10 life 3.5 times greater for the gearbox" . I don't think the cases simulated here are representative enough to compute the L10 life directly. If they are claimed to be so, then that

should be substantiated with some load simulations of normal operation. Otherwise the conclusions should just focus on the effects of clearances and gravity on loads and not extrapolate to the L10 life.

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