

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

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General: an article with valuable results

Specific: p. 1, line 16: with a load dependency by the power of 3.3 for line contact rollers one would expect a live increase of about 2.1 at load reduction of 0.8

p. 2, line 5ff: one should also take into consideration the researches applied on planetary gear set load sharing back in 1990ies and 2000ff years at Ruhr University Bochum (e.g. Vriesen, Lamparski, Winkelmann, etc.)

p. 7, line 12ff: area of Downwind and Upwind is nearly the same, area can be seen as total bearing load. Further on, measured values are 20% greater than measured (upwind) and 10% smaller (downwind)

p. 7, line 21: Romax model obviously matches measurements better than Transmission 3D model

p. 8, line 13: probably it is meant: planet carrier bearing clearance leads to misalignment due to gravity force on planet carrier

p. 8, line 19: it is not clear how the interference fit influences the bearing loads. Physical effect should be described

p. 9, line 5: the individual bearing load is practical relevant, the relevance of the total measured bearing load is not clear.

p. 10, line 18f: for the sake of clarity the formulas with which the curves have been computed should be shown. It would for instance be logic to put the individual bearing loads in relation only.

p. 10, line 20f: practical experience shows significant lower values, values far above 1.1 are implausible. The physical effect should be described. At a three-planetary system the self-aligning functionality leads to the assumption that K_{γ} should be nearby one.

p. 10, line 22ff: extreme values of greater than 1.2 are implausible, also values lower than 1.0

figure 11: unstetic behaviour of CRB at +/-100 kNm Needs Explanation, dito for upwind load at Zero pitch Moment. Model achitecture should be explained via sketch and text.

p. 13, line 7ff: fits to practical experience. Should be shown where t_{sump} is measured.

p. 16, figure 17: increased bearing load for upwind bearings at pure torque condition not plausible, physical phenomenon should be explained.

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Discussion paper

