

Gents,

Regarding the Consultation Paper on Motor Vehicle Standards Act 1989 I put to you this submission:-

I believe Trailing Units and Towers braking calculations have always been done by methods set by Rupert Limpert in his Brake Design and Safety books where the calculation is done on the combined rig. If I am wrong with this assumption (that the calculations are performed on the combined rig) then please advise.

Coming from a Mechanical Engineering background I now do my calculations by using Free Body Diagram approaches and after my hours of calculations I eventually refined my method to give the same results as a similar calculation done by using Limpert's approach. My method allows me to individually calculate each vehicle and only look at the forces applied to it.

By separately calculating each vehicle I soon found that I could add ball load to the Tower, and if the Tower had excess braking capability this approach allowed me to thus increase the braking force of the Tower. If this iterative approach is not new then also please advise me.

Adding this ball load (a force) to the Tower increased the reaction at the tyres, and thus enabled the Tower to brake harder for a given tyre to road μ , until the maximum practical use of the available braking force was exhausted.

The result of this form of calculation is that a much higher combined deceleration is achieved, and higher vertical and horizontal longitudinal ball forces are achieved. It is an iterative approach and very suitable for Excel style calculations provided one constantly checks that the assumed μ for the non-ABS Trailing Unit is not exceeded and similarly for the μ capability of the ABS equipped Tower.

I am advising you of the above approach which if unique then I feel that the current ADR allowances for Tower Capability to haul Trailing Units may need to be revisited.

If you believe my approach is unique then please contact me and I will forward the details of the calculation method and some typical calculations.

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