

11th. June, 1975.

Last Monday night, just before our first meeting was closed, Anthony Smith asked - "Why do maximum traction trucks derail?".

A few of the reasons are listed below:--

The pony wheels are the main turning force on the maximum traction trams because the theoretical turning point of the bogie is 6ins. from the centre of the driving axle and 3ft. 6ins. from the pony axle; therefore the turning couple of the pony is the greater.

When running on the straight, the top of the compression spring post fits into a "dished" recess on a plate on the body; when curving, the post must come out of this recess and in doing this, there naturally is a greater compression on the spring, and this force should keep the pony wheels on the rail. Any resistance of readily coming out of the dished recess could tend to stop the bogie turning and thus cause a derailment; therefore, it appears essential that:--

- 1 - Correct weight distribution must be maintained on the driving and pony wheels;
- 2 - too much "coning or O G" must not be allowed on the flanges as this assists in "climbing" the rails;
- 3 - bearings must be kept in good order to eliminate excessive side movement; and
- 4 - body side wearing plates must be well lubricated (Ballarat bogie trams have oilers installed to facilitate this).

If a rear bogie becomes derailed it could well be due to one of the above. This also applies to the front bogie, but mainly to the rear.

We shall have to ascertain which of the ratios - 60/40, 66/33, 70/30 or 75/25 is correct pressure adjustment for these trucks. A hydraulic jack is used for measuring weight, (the pressure for a certain weight is known and this, therefore, is read from the pressure gauge in the jack system.

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Another point was raised regarding the turning of trams to equalise wheel wear. A good question I'm sure you will agree and merits closer examination by the MRC; however, the following must not be overlooked either:--

The differential wear in the diameter of tyres could be minimised somewhat by proper mating and uniform treatment during heating, shrinking and machining operation; this refers to all types of trams as it has been noted that all wheels in some trams tend to wear inwards on one side and outwards on the other side; and the effect on other trams is diametrical-- this is caused by the larger wheel (caused by bad mating) to tend to run ahead of the smaller wheel and forcing the flange against the head of the rail and wearing wheel on the outside, while the larger wheel is worn on the inside by the check rail.