To: Australian Live Steamers Safety Committee

Chairman Allan Wallace

Secretary Alf Grigg

2016 Consultation Process

I refer to the proposal from Castledare Miniature Railway regarding couplings and other items and wish to respond as below:

1. Yoke Buffers:

There is no objection to a drag link as shown as this is certainly a more secure coupling for passenger operations. It is not clear whether safety chains should be retained in the proposal.

I suggest that a principle that any coupling used in public passenger carrying service needs to be designed with a backup arrangement, either a) designed such that the likelihood of it breaking is extremely low, or b) provided with an double securing arrangement which a provision of safety chains would provide.

Additionally any removable component shall have a securing device.

Such principles could be applied generally. In some cases those aspects of the coupling that need additional security could be specifically addressed without the need for a safety chain. For example a clevis pin can be retained by a spring clip.

It is not common for 5 inch gauge to have safety chains so a clear understanding of when they are required could make the requirements clearer.

The drawings have dimensional differences to the current standards which were also Castledare couplings. Will the two types of couplings work together? Is the drag link compatible. Is it really necessary to vary the critical dimensions? What would be expected of existing users?

I recommend the mandatory elements be separated from the coupling design which should be described as a recommended standardised arrangement.

2. Fitment of Couplers to Bogies.

I have no objection to a clause prohibiting couplings being attached to bogies.

3. Centre Plate on Bogies

Many bogies on miniature passenger rolling stock do not have centre bearings. This in itself is not unsafe in any way providing the carriage mass is transferred to the bolster between the wheels. In

fact such an arrangement where the carriage rides on the side bolster bearings can be more stable and less liable to rocking than a centre bearing type.

I would endorse including a clause that states that the carriage mass shall be transferred to bogies by side bolster bearings located within the gauge . However it is necessary for it to be inside the gauge by a certain amount to ensure the wheel forces exceed the flange lifting forces. This could perhaps be calculated, but possibly a fixed percentage could be considered (ie > 7.5% and < 20% of gauge)?

This is to avoid people thinking that they can be at gauge. I attach an article from AME Issue 95 which has a paper entitled "Track and Train Dynamics on a 5 inch Gauge Railway" which discusses this issue.

One purpose of this is to ensure that when a carriage rocks, the forces still act downwards between the rails. Such can also be caused by track twist, and in such circumstances the wheels need to remain on the rails. This can be tested by a twist test, i.e. causing one wheel to ride up on a bar, and ensuring all wheels still remain on the rails. A suggested test should be a minimum of 1.4% of the wheelbase of the carriage.

Such a test should be done for new bogie carriages, or when any significant change is made to the vehicle, such as a bogie change.

Regards

Warwick Allison

24 August 2016