

AALS Safety Committee Consultation process on braking.
Draft Guidance note re AALS Interoperability Code of Practice (2019) section 4 on braking requirements.
Draft for discussion dated 12/8/2018. Coordinator: Allan Wallace

This AALS Guidance Note provides supplementary, non-binding, information relevant to the AALS Interoperability Code of Practice (2019) section 4 on braking requirements.

The AALS Interoperability Code of Practice (2019) mandates that braking systems on trains used for public running must meet certain minimum requirements. These include that light engines and trains must be capable of stopping in compliance with the Society's Braking Policy. This implies that all member societies must have a written policy specifying stopping performance appropriate for the society's track and public operation. It is the responsibility of the executive of each society (or "policy authors") to identify what is adequately safe for their operation and record how a light engine or train braking system is to be assessed for compliance with their policy.

Policy authors may stipulate local requirements exceeding the minimum AALS requirements if they consider it necessary for the safety of their operation. Obviously, the effect on visiting operators on public field days should be considered.

It will be recognised that safe train operation requires more than a braking system that can pass a given test, such as meeting a defined stopping distance from a certain speed. An experienced and aware driver can easily compensate for a low-performing braking system, but not the other way around: the best braking system cannot compensate for an inexperienced or inattentive driver. Braking incidences due to technical reasons are extremely rare. Almost always the cause is a human factor, such as inattention, excessive speed or misjudgement. Braking policy authors should acknowledge the importance of operator training in relation to braking. Key training aspects may include:

- (1) Operators must be satisfied that all required brakes are in operational condition before entering service.
- (2) Operators bringing a train into service, or taking over an unfamiliar train, should at the earliest opportunity conduct a running brake test (i.e. a brake application, not necessarily to a complete halt) in order to get a "feel" for the braking capabilities of their train. This is especially important when the train is heavily laden since stopping distances are significantly extended.
- (3) Operators and safety officers need to have ready access to information on the minimum brake system requirements when preparing a train for service. It would be appropriate to have these prominently displayed in the track workshop or rolling stock sheds. Some societies offer handy "pocket" guides, which are especially useful for visiting operators.
- (4) Training manuals should contain information on how to stop a train if there's a brake system failure.
- (5) New operators need to be made keenly aware of the extremely strong influence of speed, gradient and loading on the stopping distance.

In addition to recognising the importance of driver training, track managers can limit stopping distances by strategic setting of track speed limits.

Policy authors may consider establishing a stopping distance test site at some suitable location on their track. It is common to require trains under test to apply brakes at a set target speed, and to stop within a set distance. In miniature rail operations there appears to be little justification for making this distance dependant on the train length. This guideline suggests that a fixed maximum stopping distance is appropriate for all trains on a given track. In most societies there is a wide variety of trains and it may be necessary for different speed limits to be applied to different types of trains, according to the speed at which they can achieve the same stopping distance. This is common practice in full size railways.

This guideline does not imply that all societies should implement stopping distance assessments. Some societies may choose alternative approaches more suited to their operation. If a society has a demonstrated good safety record using well-established and workable (but perhaps undocumented) procedures then the revised Code implies that those procedures should be formally documented.

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