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HGV Compatibility Ad-hoc Working Group Meeting Report to GRRF

Since the last session of GRRF, September 2002, there have been two meetings of the ad-hoc working group on HGV Compatibility. The purpose of these meetings was to discuss the proposals prepared by the Joint Industry Working Group and agree documents to be submitted to GRRF.

A fourth ad-hoc working group meeting was held on 30 October. Five proposals were presented by the Joint Industry Working Group.

Proposal 1 introduces a requirement for the operation of a Coupling Force Control device to be checked during the type approval process. The procedure for checking the device would be agreed between the vehicle manufacturer and the technical service. The amendment also clarifies that the Coupling Force Control device shall only control forces generated by the service braking system not those produced by an endurance brake.

Proposal 2 ensures that trailers fitted with electronically controlled brake force distribution are uniformly verified in their normal mode of operation. The amendment also removes a reference to “power-driven” vehicles thus clarifying that the requirement applies to all vehicle types.

Proposal 3 amends the vehicle brake performance corridors by removing the non-shaded areas. Previously the reference notes to the non-shaded areas were deleted but with the diagrams not being amended confusion existed over the actual requirement. Amendment of the diagrams reflects what is generally accepted as being correct and to remove any misunderstanding that the current diagrams may cause.

Proposal 4 introduced a procedure for verifying the on-set of braking.

Proposal 5 clarified that that the performance of an endurance brake would not be taken into consideration when determining the brake force between axles. The proposal also introduced a requirement that an integrated endurance braking system must be controlled by the anti-lock braking system.

Discussions on proposals 1, 2 and 3 were straightforward. After limited discussion with government representatives and representatives from the type approval authorities it was agreed to submit these three proposal as formal documents that have full support of the ad-hoc working group for discussion and approval by GRRF in February 2003.

Discussion on proposal 5 centred on the removal of footnotes number 1 and 2 because it was considered inappropriate to have a requirement stated in a footnote. These footnotes were incomplete and therefore caused confusion in determining their meaning. There was prolonged discussion regarding the inclusion of the performance of the endurance brake in determining the service brake system performance. Views differed as to whether or how the performance should be determined. Finally it was decided to ask the Joint Industry Working Group editorial sub group to re-examine the issue.

Proposal 4 was intended to introduce a procedure to verify at type approval that the vehicle complied with the brake performance corridors. Industry was in agreement that a test was necessary, they were able to agree the method by which the test should be performed. However there was no agreement on criteria to be judged. Again it was decided to ask the Joint Industry Working Group editorial sub group to re-examine the issue.

A fifth ad-hoc working group meeting was held on 19 December after an Industry meeting where the outstanding two proposals were being discussed to see if progress could be made. The ad-hoc working group then considered these two proposals and an additional proposal from the UK.

During discussion on Proposal 5 it was established that service brake performance (Type “O” test and brake force distribution) had to be achieved by the friction brake components. Endurance braking systems are an additional feature designed to reduce the load on the friction brakes to ensure that the driver could still stop the vehicle at the end of a long hill decent. It was concluded that the proposal by the Joint Industry Working Group was correct and gave clarity to the testing procedure. A new paragraph was also added to Annex 13 stating that the anti-lock braking system must control an integrated endurance brake.

It was agreed that Proposal 5 should be submitted to GRRF as an informal document that had full support of the ad-hoc working group. Consequently it should be discussed and approved with Proposals 1 to 3.

Progress was made with Proposal 4. The UK preferred to see a vehicle test to be carried out to confirm compliance with the compatibility corridors. Representatives of the motor vehicle manufacturers explained that is was impractical to perform a physical test. There is a big difference between the Type “O” test and the compatibility corridor. Representatives from CLCCR and the German type approval authority considered that a Type “O” test performed over a range of pressures would give an “indication/trend” of a vehicle’s ability to comply with the compatibility corridor.

Representatives of the motor industry explained to generate a compatibility curve a calculation is included to allow for the dynamic weight transfer. This would not be possible in a practical test. The motor industry estimated that 50% of vehicle production could fail a practical test, as in the unladen condition, the curve for most vehicles is close to the lower limit of the corridor. A tolerance would need to be introduced to allow for vehicles with a curve that was very close to the lower limit.

The representative from CLCCR informed the meeting that in Belgium there is a nation requirement for trailers to be tested to confirm compliance. Representatives from the motor industry questioned the criteria being applied to the results to determine whether the vehicle passed or failed. Full details were not available but these could be obtained if desired.

There was agreement that a procedure was necessary but this should be a static check. The current requirement is for a brake force to be generated by one axle between 0.2 and 1.0 bar coupling head pressure, but Industry was adamant that this could not be applied to all axles. In some cases vehicles use very large actuator chambers on one axle which require higher initial operation pressures. The introduction of a 1 bar requirement for all axles could lead to problems with brake force distribution resulting in premature brake lock-up or early ABS activation on a rear axle. As wheel lock during the Type “O” test is prohibited this change could cause many vehicles to fail the approval test.

It was agreed that this current requirement should be verified at the type approval test and the requirement applied to vehicles in the laden and unladen conditions.

In discussion it was agreed that a requirement for the on-set of braking could be included for a second axle on a different independent circuit. This would be measured in the laden condition only. A nominal maximum figure of 1.2 bar was included in the proposal but this figure would have to be determined by industry after full discussion. It was agreed to submit a revised Proposal 4 to GRRF as an informal document. This would contain the 1.2 bar pressure in square brackets. The representatives of the motor vehicle manufacturers agreed to consult other manufacturers to determine if 1.2 bar was an acceptable figure or alternatively to provide a final figure for the proposal so that it could be agreed at the October session of GRRF.

A proposal from the UK was discussed. This was made with the intention of helping UK trailer manufacturers who potentially could find their vehicles failing their first annual test. Information provided to the UK delegate indicated that if the compatibility curve for the unladen trailer was below the lower limit of the corridor the vehicle may not produced sufficient brake force to pass the annual test. Representatives from the brake system manufacturers informed the meeting that unladen vehicles with ABS do not have to comply with the compatibility corridors. However the curve for a conventional trailer with ABS and a load sensing valve would have to be above the lower limit or it would not comply with the 13.5% efficiency required if the load sensing valve failed. An EBS equipped trailer should always be capable of providing maximum brake performance in the static condition and therefore either pass the annual test on performance efficiency or on the number of “wheel locks” achieved.

It was considered that this proposal was not helpful to or needed by industry.

A representative from CLCCR considered that the proposals agreed did not meet the objectives of the ad-hoc working group to achieve combination

compatibility. He circulated a proposal that introduced criteria for the vehicle braking rate to be achieved for a set coupling head pressure. The requirement would only be checked at lower coupling head pressures (up to 3 bar) as these covers the majority of the vehicle braking demands.

The proposal was not given full consideration because representatives from the motor industry considered this was repeating discussions previously concluded. The proposal from CLCCR would not be taken forward by the ad-hoc working group but could be submitted to GRRF by CLCCR or by individual governments.

The meeting was concluded with agreement that the ad-hoc working group would recommend to GRRF the adoption of proposals 1, 2, 3 and 5. Proposal 4 would be supported in principle and finalised at the October session of GRRF after completion of discussions within the motor vehicle industry.

Unless there was a request from GRRF to continue discussions on this subject no further meetings were planned.