

**REPORT of the 3rd MEETING of the INFORMAL PASSENGER VEHICLE GTR WORKING GROUP
taking place at the UNECE in Geneva on 23 and 24 September 2004**

Chairman, Mr Ian Yarnold, opened the meeting and welcomed new delegates from Japan.
(For attendance see PVGTR 2004-15)

The minutes of the second meeting Doc. PCGTR 2004/8 were approved without change.

Timing Issues.

Completion of the GTR had been declared of increased urgency and we were asked to improve the target date of late 2006.

A challenging timing chart, PVGTR 2004-14, showing the GTR completion in April 2006 was declared as the best plan which could be offered and this would require conceding some ready agreement on the contentious issues. Japan agreed this time was the minimum which could be called realistic and Germany believed that no change of fundamentals could be considered in this timescale.

NL suggested increasing the number of meetings which was seen as a possibility but one which we had hoped to avoid.

The Chair wanted the really difficult issues put to AC3 early but the thought was expressed that AC3 could only help with the quasi-political issues and not in technical matters. To have an effective means of working, the Informal Group should try and make proposals which could then be addressed by AC3 leading fairly rapidly to an appropriate solution.

In response to a direct question from the Chair, the Group agreed to commit to the shorter timing plan but it will mean that decisions from Government bodies need to be made fairly quickly to allow the Sub-working Group to continue making progress.

GTR Layout proposal.

The Secretary presented a suggested layout based on taking the best points from FMVSS 135 and Reg.13-H and explained that, given the complication of braking rules, the layout does not exactly follow the structure set out in TRANS/WP29/883 Format II.

Mr Gaupp asked that the paragraph numbering be reorganised to avoid such large numbers and targeted 4 groups of digits as ideal. This will be so adjusted.

USA asked about the complication and detail in the equipment and operation section and considered that text devised by engineers would need to have some revision by NHTSA legal department.. USA was approving of the braking test section which is closely based on the FMVSS 135 pattern.

The question of Annexes was raised and, in particular, should an Annex deal with the approval process.

The chair believed that there was a general agreement with the layout and the main task was to agree and set down the requirements only. This would allow the North American GTR to be delivered in a Self Certification wrapper whilst other areas would have a version delivered in a Type Approval wrapper.

Mr Soodoo agreed that the Type Approval Annex would contain the special requirements for Annex CEL and other similar issues which cover the administration processes needed for Type Approval.

Contentious Issues.

Dr Bräuninger reported the progress being made by the Sub-working Group using the table PVGTR2004-11b and asked for those decisions made in this group to be ratified by the Informal Group. These and issues which were identified as to be directly decided by the Informal Group were as follows:"

1. Test procedures were to be integrated into the Regulation.

AGREED

2. Park brake dynamic requirement proposed to be deleted.

NOT AGREED

Discussion as below was prompted on this subject.

This issue was questioned including the non-friction solutions. Many Governments did not want to lose the 'third brake' and some wanted to keep the dynamic performance requirement.

The danger of applying the parking brake at speed was recognised and the improvement with EPB was accepted where the EPB can be inhibited, reduced in the force level or protected by ABS.

The Chair conceded that there were occasions when braking being applied from a second (hand) control would be useful.

Japan thought that the park brake should not be considered as a 'third brake' but the use during motion was valuable although the performance prescription should be lifted.

USA insisted that the parking brake does not need to be applied during motion and saw resistance to any such introduction in North America.

This issue is not solved and must be considered further at the next Informal Group meeting.

3. Test Surface Specification.

NO AGREEMENT

For many tests the PFC is specified as 0.9 but this can, in practice, only be approximate because of the many factors which cause variation. It was agreed that tests should not require an adhesion level of $PFC > 0.9$ to meet any requirement.

For tests required in the GTR, the precise surface adhesion level is not highly critical. The Type O test of braking performance requires a deceleration of 7.0m/s^2 which has to be achieved without wheel locking on a surface with PFC in the range 0.85 – 0.9 which is quite practical.

This issue needs further consideration but agreement should not be a problem.

4. ABS Performance testing.

NO AGREEMENT

The proposed stability and transition requirements of Reg.13-H are to be retained and for a stopping distance/deceleration performance which is being demanded, 3 possible options are on the table:

- (i) Low adhesion ABS vs locked wheel comparison.
- (ii) A high pedal force Type O max performance test which invokes ABS operation on a high adhesion surface, should still meet the normal Type O performance of 6.4m/s^2
- (ii) Compare a high pedal force Type O stop with ABS operating on the high adhesion surface, against the locked wheel performance on the same surface.

If these options the preferred solution (ii) would be easiest to do and would cause less tyre damage. The comparison with locked wheels is regarded as unreliable since it depends on the nature of the surface and the shape of the μ /slip curve, particularly the peak/locked ratio of the friction coefficients.

Germany agreed with Industry that a 4 sensor – 3 modulator ABS provision was a good standard and needs to be combined, as a requirement, with a simple performance test.

The request was made that this test should show up the stopping distance achieved under ABS cycling. This might be test (ii) combined with the transition testing but the 2 second response to a low-high adhesion change was considered too long.

USA clearly believe that the most important feature of an ABS is the stability improvement and that too much concentration on stopping distance could be at the detriment of stability. Japan agreed that there was a careful balance to be maintained between stopping distance and stability.

Germany suggested a wet asphalt test to ensure wheel locking occurred if ABS was disabled, but this would be difficult to measure against without the k-factor being known so this was not pursued.

There was also some difficulty anticipated in split adhesion testing if the surface k-factors are not measured. (currently done by k testing which is of doubtful accuracy).

The German Government wants to have ABS as a mandatory requirement in the GTR but this could not be accepted in USA as the justification for such a mandate could not be made since ABS had been determined as a zero-net-benefit system in an earlier study.

European Governments felt that there was still a need for ABS performance evaluation and further investigation was needed.

5. Burnish Procedure.

AGREED

The burnish procedure of FMVSS 135, would be included in the GTR but it was agreed that this could be bypassed in the case of vehicles submitted by the manufacturer as conditioned ready for testing.

6. EMC.

AGREED

The requirement for EMC certification was seen as essential in vehicles with electronic control of vital functions such as braking, to show that the system had tested satisfactorily when subjected to EM fields.

After much discussion, it became clear that the requirement for Reg.10/2 approval was stated in the Framework Directive and it was not necessary to state this again within the text of the GTR.

Japan will introduce Reg.10 in September 05 and will administer this in a similar manner to Europe with a separate requirement for the vehicle overall where electronic control systems are installed.

Japan asked USA if they could accept Reg.10 for general use. USA said they could if a simple test could satisfy the requirement but really this is very doubtful as testing is generally complex and time consuming.

The decision was taken not to include, in the text of the GTR, a specific EMC requirement but to include a paragraph in the Introduction which indicates a need for EMC testing and certification.

Eg.

[For vehicles with electronic braking controls, EMC is an important factor and those applying this GTR should ensure that measures are taken to provide braking systems which are not affected by EM radiation to which the vehicle may be exposed. The system must meet the requirements of the EMC Regulation which is active in the region in which they may be used. UNECE Regulation 10 is an example of a regulation against which vehicles can be certified]

7.Braking distribution calculations and Annex CEL.

AGREED

As noted above a 2-tier approach was suggested and it was proposed that a Type Approval process follows the main body of the GTR + Annex I.

Annex I will include any special requirements or special derogation from the GTR clauses.

Thus Annex CEL requirements would appear in this Annex which would also allow the Technical Services to examine the braking distribution calculations/diagrams and use judgement as to whether the 'wheel locking order' tests would be required.

This was favourably received and it was decided that the requirement for the 'adhesion utilisation curves' derived from Torque Wheel tests would be simplified to that required in FMVSS 135 (ie. Diagram 2) which is the level required for production vehicles.

8. Parking brake with Electrical Transmission.

NO AGREEMENT

USA would accept the EPB failure warning requirements but did not want to include any 'secondary' performance to be achieved in the event of a failure. (This may result from a misunderstanding.)

Germany was relaxed about some of the failure detection detail being removed but agreed with France that the proposals should be considered further.

9. Electronic Braking Systems.

NO AGREEMENT

USA wanted to know if there were any test requirements associated with EBS and was informed that the only additional tests were electrical and connected with power and low voltage.

USA does not want the design requirements included but it was pointed out that 135 already makes mention of braking systems with electrical transmission. (in the part system failure test S7.10.3(f). USA would further study the text of the EBS section in Reg.13-H with a view to reconsidering their position and it was agreed that the details would be worked out in the Sub-working Group meetings.

10. Periodic Technical Provisions.

NO AGREEMENT

USA accepts the inclusion of some PTI provisions and, like Canada, has regular vehicle inspections but these are State based and seemingly divorced from FMVSS135. The GTR will include some design requirements which allow for inspections but do not define the procedure or specific requirements. USA agreed to examine the latest PTI clauses in Reg.13-H with a view to updating the text of 135.

11. Warning Lamp Check

AGREED

It was agreed that the manual switch check would not be allowed in the GTR.

12. Foot Control for Service Braking.

NO AGREEMENT

FMVSS requires a foot control and Reg.13-H implies this by requiring hands not to be removed from the steering control.

USA wants the foot control wording included and a decision was deferred until Jan 2005.

13. Stop lamp illumination.

NO AGREEMENT

Discussion postponed until Jan.2005.

14. Single circuit braking systems.

AGREED

It was decided that single circuit systems would not be permitted in the GTR but the text still has to be discussed.

NOTE There are single energy supply provisions in full power systems and these have special energy storage requirements imposed. These are expected to remain.

Progress will be reported in the following additional documents:

PVGTR2004-11c Table of decisions pending and already taken.

Work-in-progress GTR documents updated to PVGTRbraking-wipd and PVGTRtests-wipe.

These will be updated as items are agreed.