

Unconfirmed Minutes of seventh meeting of UN ECE, GRRF ad-hoc Group on Global Harmonisation of Tyre Regulations and Tyre Grip – held in Brussels 8/9/10 November 2001

The meeting was chaired by Mr Geoff Harvey of the UK Department for Transport, Local Government and the Regions (DTLR) with the first day devoted to discussion on Tyre Grip. The following two days were devoted to developing possible group responses to expected proposals from the USA in connection with upgrading of the FMVSS standards 109 for car tyres and 119 for truck tyres. The USA proposals will be part of the mandated requirements under the TREAD Act. Delegates attended from the Governments of Canada, Japan, the Netherlands, the United Kingdom and the United States of America and there were representatives of the tyre and vehicle industries of Europe, Japan and the United States of America. The meeting was also attended by Mr Laurent Selles representing the European Union Commission. A list of delegates and addresses is given at the end of this report.

Tyre Grip – Thursday 8 November 2001

1 The following documents were introduced before or during the meeting:

TH 40 Minutes of the sixth meeting held in Ottawa

TH 41 Issue 7 of draft Regulation (GTR)

TG 21 ISO preliminary draft on car tyre grip

TG 22 Presentation from ETRTO on industry round robin testing of tyre grip

2 There were not any comments on the tyre grip part of the minutes of the sixth meeting and these were agreed.

3 European industry introduced the latest draft version of the ISO Working Group proposal for testing car tyres, document TG 21, which may be submitted to ISO in February 2002 for use as an industry standard, that is not a fully adopted ISO Standard, under the ISO accelerated procedure. The proposal covers both vehicle and trailer based testing and does not represent a consensus view as there are some points identified in the document which require clarification by members of the ISO group before submission. There is also concern at the variability of the results of BPN measurement as, in the absence of a single standardised pad, they depend upon what pad is fitted to the BPN test machine. It would appear to be necessary to address this situation. USA industry commented that the use of BPN and the sand patch method of assessing surface texture was not common practice in the USA.

4 There was some discussion of other methods of validating and monitoring the performance of test tracks, rather than using the laborious BPN method that only checks a small part of the track. Continuous monitoring over relatively long portions of the track, using SCRIM for example, is an alternative method and it is known that the European Standards body, CEN, is working on procedures for the determination of skid resistance of pavement surfaces,

5 European industry presented an overview of the results of comparative tests that had been carried out using industry test tracks, including work in Japan using both a vehicle and a trailer method but not on the same track. The vehicle used in the comparative testing was the same model, that is, a 1,6 litre VW Golf IV, but the same sample of vehicle was not used on each track. However, it was claimed that this aspect was not relevant as “best” tyre was always shown to be the “best” and the “worst” the “worst”, although there were rank order changes in between. There had not been any testing in the USA using the trailer method and further work in this area is thought necessary in order to complete the validation of the ISO proposal.

6 The NHTSA representative expressed concern over driver variability and quoted work in the USA that resulted in a requirement to achieve 500N pedal effort within 0,2sec and to ensure that pedal effort was maintained such that the ABS remained in operation throughout the stop. In this context it was noted that the draft ISO proposal allowed a final vehicle speed between 10 and 30 km/h but the UNECE Regulation No 13 allows wheel locking at speeds below 15km/h and it would appear to be sensible to keep above this threshold. The question was raised regarding a requirement for a lateral slope to assist water run off from the track and to help maintain the water depth specified, together with the difficulty of measuring water depth. Japanese industry commented that they used a laser measuring technique.

7 The position regarding the development of a new SRTT was discussed and it was agreed that the first stage was to transpose the present SRTT into an ISO Standard, which could be achieved by the ISO fast track procedure. Development of a replacement (of a different size) is in hand and further details are expected to be available in April/May 2002. However, it is likely that the existing SRTT (ASTM E 1136:1998) will be used for some time as it is specified in the USA UTQGS system.

8 NHTSA stated that UTQGS was being reviewed and confirmed that the work of the Group would be taken into account. UTQGS was for information only to assist consumer choice. NHTSA asked if, in the Group's proposals, minimum values were to be set that were related to accident data. This was thought to be a difficult area as accident causes also include road condition and maintenance. Delegates should be reminded that the object of the tyre grip proposal is to ensure preservation of the current levels of tyre grip in the face of regulatory control on other aspects of tyre performance and that grip levels would be set on the basis of the present state of the art of tyre design and production. It is possible that tyres supplied by major manufacturers for use as original equipment by vehicle manufacturers would be considered as a baseline for setting a minimum state of the art level. Industry and other delegates generally considered UTQGS to be an outmoded approach that was not necessarily in the consumer interest – it was questionable whether it is really understood. The temperature aspect was probably better addressed by the use of the "European style" service description and relevant testing and from the point of view of overall road safety it would be better to set a minimum grip level rather than to leave this to unqualified consumer choice.

9 The Chairman thought that we had reached a stage where it was necessary to have a positive proposal for the Group to discuss and the UK agreed to provide this for the next meeting. European industry confirmed the view that the use of the SRTT was valid as it gave consistent results on any one test track under a range of ambient conditions. The idea of using a "collective" of current production tyres was interesting but had practical difficulties in the control of the consistency in performance and in replacing types of tyres that had ceased production.

Global Harmonisation of Tyre Regulations – Friday/Saturday 9/10 November 2001

1 The following documents were introduced before or during the meeting:

TH 40 Minutes of the sixth meeting held in Ottawa

TH 41 Issue 7 of draft Regulation (GTR)

TH 42 ETRTO comments on Minutes of sixth meeting

TH 43 Presentation by NHTSA on Upgrade of Tyre Standards for Light Vehicles

2 This special meeting had been called to discuss the Group's responses to any possible proposals from the USA to update FMVSS 109 and 119 as required under the TREAD Act. The NHTSA delegate explained that he was not in a position to reveal the content of the initial proposals as these were still being considered by the Secretary of Transportation after which it had to be presented to the Office of Management and Budget accompanied by cost versus benefit analyses. A NPRM was expected to be issued the end of November 2001 and the stipulated date for the Final Rule is June 2002. However, he was able to present ideas which had been discussed and it was agreed that the Group would discuss possible responses on a "what if" basis. The NPRM will likely have a 60 day comment period and responses are viewed more favourably if accompanied by substantiating data rather than being simple comments. Following publication of a Final Rule there is a 45 day period in which there can be petitions for reconsideration and whilst Congress oversees the legislation, its official approval of the final rule is not necessary. Apparently there is also the possibility of affected parties suing the Government through the Federal Court but this is very rare. The Chairman's view was that this Group contained representatives from a good cross section of the World's industry and Governments and that it constituted a responsible forum to respond with informed comment to any proposals.

3 The NHTSA delegate presented a comprehensive outline of issues which had been considered in the preparation of the proposed NPRM (TH 43). These include a new test procedure focussing on high speed and endurance, including a test at the pressure warning levels set by the tyre pressure monitoring system proposals, a revised bead unseating test, a road hazard impact test and an ageing test. The issues were discussed item by item as given below.

4 Possible proposals in NPRM

4.1 High Speed Test

There were two alternatives that had been discussed, one using test speeds based on the tyre speed symbol and one using test speeds representative of speeds slightly higher than road speed limits in the USA irrespective of any tyre speed symbol. The procedure would be very loosely based on that of UNECE Regulation 30 but at a higher ambient temperature of 38°C.

The Group took the view that the test based on the speed symbol of the tyre would be the preferred route. Tyre design and manufacture is a global business and as there are differing national vehicle speed limits in each country, a parochial approach would seem to be a backward step. Evidence of test results previously presented by industry had not shown any problems with tyre performance and the UNECE Regulation 30 test had been proved to be sufficiently rigorous in comparison with high speed test track endurance running on one complete tank of fuel. Industry questioned the basis for extending the time period at each speed step and was not aware of any evidence presented by vehicle manufacturers that the present time was not sufficient. The drum test is an artificial accelerated test that creates tyre contact patch and sidewall deformation that is not representative of real road conditions. There is concern that the lowering of inflation pressures to those associated with flat road running is too severe for the drum test. It was agreed that an ambient test temperature of

38°C was more representative of global conditions although this may result in some laboratories having to be heated.

NHTSA stated that the USA principle is to develop minimum standards, intimating that industry would be expected to exceed these. This appeared to be a logical approach and is one that is followed everywhere else as it is difficult to design and control quality of manufacture to only just meet a test requirement.

In general there seemed to be lack of real evidence of any widespread problems with tyres in use provided that they were correctly chosen and used at appropriate inflation pressures.

4.2 Endurance Test

Three alternatives had been considered, each having three time periods of running at constant speed but various percentages of maximum load. All alternatives were an increase on the present requirements in terms of time and speed and two of the alternatives also included an increase in load to 125% of the stated maximum load capability. The general feeling was that some of the proposals were unnecessarily severe and were almost an arbitrary dismissal of existing, accepted and effective, world wide standards. Industry had accepted that it had a part to play, together with the vehicle manufacturer, in taking into account an element of user abuse and had offered a test speed of 120km/h with three periods of 8hr each at 100%, 110% and 115% load as a reasonable solution. NHTSA commented that it would not normally carry out conformity checks but would expect the tyre manufacturer to supply documentary evidence of the successful completion of the endurance tests.

European industry commented that long term experience of the use of radial ply tyres in Europe had shown that the high speed test was sufficiently rigorous that an endurance test had not been found necessary. If an endurance test was to be proposed then it should also incorporate the ageing aspect in order to reduce the amount of unnecessary test work.

4.3 Low Pressure Performance Test

Details were rather sketchy at present except that the test would be carried out at the end of the endurance test and on the same sample of tyre. The test would be either a short duration high speed test or an endurance test to establish the minimum requirements irrespective of tyre speed rating. The test inflation pressure would be based on the tyre type, that is, P-metric standard load, P-metric extra load, or LT tyre load range C, D or E. It is not based on the vehicle TPMS lamp activation level that is established by the vehicle manufacturer.

The general feeling was that this requirement was a “design for abuse” too far and placed the entire responsibility for tyre performance on the tyre manufacturer rather than have legislation to require the vehicle manufacturer to ensure that tyres and inflation pressures were adequately specified to take an element of abuse into account. The percentage under-inflation or the absolute figure of 140kPa, for example, could, depending on the vehicle manufacturer’s decisions, put the tyre outside the tyre industry’s recommended operating envelope. If the vehicle industry was required to play its part to ensure that the specified tyres and inflation pressure allowed the tyre to remain within the recommended operating envelope at the TPMS threshold level, then tyres would successfully complete a low pressure performance test and there would not really be any need for the test in legislation. USA industry had previously responded on the TPMS consultation that 37% of vehicles did not have sufficient reserve and at the TPMS parameters would fall outside the operating envelope. NHTSA asked for these examples to be spelled out. Delegates are reminded that Annex 4 of the proposed global regulation is an ideal way of placing requirements on vehicle manufacturers for the correct selection of tyres.

Industry was still concerned at the TPMS proposals and considered that an indication of low pressure should be given when this falls below the placard pressure and a more serious warning given when pressure falls to a level where the tyre may sustain damage and where vehicle handling and stability may be affected.

4.4 Bead Unseating Test

NHTSA is still concerned about the influence of bead unseating on incidents of vehicle rollover and is considering an upgraded test that, at this stage, is unlikely to be a dynamic test. The Toyota wedge test was mentioned and industry was able to provide some more detail of this procedure. The test is a static test where a wheel and tyre assembly is inclined at 5° and a 10° wedge is forced between the tyre tread and the test machine table surface. Any test loads proposed by NHTSA are likely to be based on on-going research to determine typical tyre side loading during the “fish hook” test and, unlike the Toyota test, would have to take into account tyre load capability rather than be associated with a specific vehicle load.

European experience concludes that a bead unseating test for radial ply tyres is unnecessary if the tyres are fitted to appropriate rims with the required safety humps. Any new test would have to specify the rim configuration and dimensional tolerances for the test rim in order to give consistent results. Industry questioned whether the Toyota test was a bead unseating test or simply an air pressure loss test and was concerned at being faced with a 60 day response period to a test with which they did not have any experience.

4.5 Road Hazard Impact Test

NHTSA stated that there was evidence of problems arising from damage to tyres caused by impacting roadside kerbs and potholes and it did not consider that the present plunger strength test was satisfactory as, with most radial ply tyres, the plunger caused the underside of the tread area to contact the wheel rim without any sign of failure.

NHTSA was considering a test based on the USA Society of Automotive Engineers (SAE) J1981 wheel rim test but would have to establish appropriate forces. The criterion would be loss of inflation pressure from the tyre.

4.6 Ageing Effects Test

The NPRM may list the following procedures for comment: Oven ageing followed by a short term endurance test, Peel (adhesion) test for bonding or long term durability endurance possibly up to 250hrs. Oven ageing may be carried out at elevated temperature for 7 to 14 days followed by a 24hr endurance test in three 8hr periods at 100%, 110% and 115% load. This may be followed by an analysis technique that may be a material peel test according to ASTM Standard D 413-98.

There was some concern that the tests proposed did not really represent ageing in the sense of tyre life and whilst they were useful as a tyre development tool they were not really applicable to regulatory control. As with all accelerated ageing techniques it is very difficult to relate them to real world conditions which include wide variations in ambient conditions during use or storage.

NHTSA commented that it was trying to assess tyre performance after the completion of around 30 000ml (50 000km) as this was around the life of the tyres that had experienced the problems. In other words the ageing was based on distance rather than time.

This form of test would be difficult to work into the European Third Party Type Approval form of regulatory control but in the event of any in-service problems, the absence of any required testing would not absolve the tyre manufacturer from the responsibility of having taken all reasonable steps to ensure that a tyre would perform adequately throughout its service life.

5 Tyre Pressure Monitoring Systems (TPMS)

The meeting was not specifically intended to discuss TPMS but because of its influence on proposals for testing at low pressures, the subject was touched on.

There was general concern that the entire burden for the performance of tyres at significantly low pressures was being placed upon the tyre industry without any requirement for the vehicle manufacturers to specify tyres and inflation pressures that were suitable for the application. There were examples where the load capability and inflation pressure chosen were such that at 20% or 25% under-inflation or 140kPa the tyre would be operating outside the industry's recommended envelope. It would be an imbalanced burden to expect the tyre industry to take responsibility for this situation and the vehicle manufacturer ought to be required to specify a higher load capability tyre. Industry was also concerned as to precisely what inflation pressure recommendation was to be used for the 20% or 25% under-inflation indication requirement, the placard pressure for maximum load or that for normal load?

Concern was also expressed as to the principle of only warning the driver at the point of minimum pressure and whether this would result in a situation worse than that at present, that is, users would stop checking pressures on a regular basis but would wait until there was a low pressure warning. Industry had suggested an initial indication of pressure below the recommended pressure followed by a warning at the minimum level.

6 ETRTO comments on minutes of sixth meeting – Document TH42

There was insufficient time to discuss the document TH42, submitted by ETRTO, and this was held over until the next meeting.

7 In view of the predicted timing for the NPRM on upgrading the tyre performance standards it was arranged to hold a special meeting in London on 22/23 January 2002 solely to finalise the Group response. It is expected that the NPRM for tyre marking may also be available by this time and a response to this could also be discussed.

Note: The NPRM for upgrading was not published and the January meeting was consequently cancelled. The NPRM for tyre marking was published on 19 December under Docket Reference 11157 and the Group response to this will be dealt with by e mail and at a meeting on the morning of Monday 4 February immediately before GRRF.

NHTSA informed the meeting that all of the information and comments on the various issues raised by the TREAD Act may be found on the NHTSA web site under the Docket Management System. The relevant docket numbers are:

Upgrading of Standards – 8011

TPMS – 8572

Tyre Marking (labeling) – 8296 (Now issued as an NPRM under Docket 11157)

The date of the next full meeting has yet to be agreed but it is hoped to take up the kind invitation of Japan and have a further meeting in Tokyo in Spring.

GRRF Ad-hoc meeting - Global Harmonisation of Tyre Regulations and Tyre Grip

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