

Terms of Reference

For the Task Force on

Freight Wagon Maintenance

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Change Control

Version No	Changed Section	Description of Change
0.2	Chapter 3, 1§	Change of reimbursements rules for TF participants. Interpretation services (FR, DE, EN) now provided by the Agency.

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1 Introduction

Following the accident in Viareggio (Italy) and the Agency's Preparatory Meeting on 20th August for the EC Conference on "*Railway Safety: the way forward*" held on 8th September in Brussels, the Agency proposed to set up a Task Force (TF) made up of experts in the field of freight wagon maintenance and railway axles and coming from all stakeholders (RUs, keepers, ECMs, suppliers, NSAs, etc.). The idea was supported and accepted by the NSAs and representatives of the sector organisations (CER, ERFA, ETF, UIP, UNIFE).

2 Scope and objectives of the Task Force

The objectives of the Task Force are to (this list may not be exhaustive):

- discuss relevant actions/information resulting from the EC Conference;
- exchange and analyse information relating problems with broken axles/fatigue and relevant testing methods;
- assist the sector and NSAs to establish sound evidence and advice on the causes of the problems with broken axles;
- propose/develop appropriate controls and monitoring tools;
- propose measures to review the different maintenance regimes existing across Europe and draw up a programme for further harmonization;
- evaluate the role of standards for wheel-sets in the different countries.

3 Working methods, resources and work programme

This Task Force is not set under the provisions of Article 3 of the Agency Regulation, setting the legal basis for Working Parties, and its activities are not part of the Agency's agreed work programme. As a general rule the Agency does not reimburse participants in these cases, however, to ensure the widest participation possible of relevant experts and in consideration of the importance of the activities to be carried out by the TF, the Agency will reimburse expert's expenses in accordance to its rules of reimbursement and provide, for each TF meeting, translation services for English, French and German.

The Agency will chair the meetings and have a role of coordinator and facilitator of the work to be carried out by the TF. To best carry out its activities and to ensure that the TF meets the objectives and deadlines set in the work programme, sub-task force groups may be established to carry out parallel work-streams; these sub-task force groups may be chaired by a sector representative approved by the other participants to the TF.

As a means of collecting relevant information, the Agency may develop and use surveys or questionnaires to be addressed to the NSAs or other interested parties.

A dedicated web space will be available (by mid October 2009 at the latest) on the Agency's EXTRANET, under the activities of the Safety Unit – Safety Certification Sector, where

information and documentation relating the TF meetings will be available to the members having an authorised access (LOGIN and PASSWORD).

In consideration of the relevance of the subject and of the scope of the Task Force, which cross-cuts different areas of the Agency's work, the Agency will ensure the participation of experts its other Units (Cross Acceptance, Interoperability and Safety).

Vital interest in this work is assumed to come from the National Safety Authorities, as being part of the SMS and ECM certification system, and from the mainly concerned sector associations, as:

- Community of European Railway and Infrastructure Companies (CER),
- European Infrastructure Managers (EIM),
- European Rail Freight Association (ERFA),
- International Union of Private Wagons (UIP),
- International Union of combined Road-Rail transport companies (UIRR),
- International Association of Public Transport (UITP)
- Association of the European Rail Industry (UNIFE)

There shall be two phases in the work carried out by the TF with a final report delivered to the Agency by July 2010. The two phases shall address the following issues:

- 1. Urgent measures as a follow-up to information on problems with broken axles (cases in AT, DE, IT)**
- 2. Further measures to review the different maintenance regimes existing across Europe and draw up a programme for further harmonization**

Step 1 (September 2009 to December 2009)

- Investigate further and with urgency the width and character of the problem with broken axles, based on information from NSAs and the operators and study the need to reduce the maximum permitted axle load for wagons with certain types of axles that may have been overloaded without adequate maintenance supervision
- Review the relevant actions in the sector action plan and develop the necessary accompanying measures (European Visual Inspection Catalogue – EVIC, etc.)
- Based on information (collected by the NSAs through the NVR) from all relevant ECM:s across Europe assess whether further immediate actions need to be taken and, in such case, recommend a European action plan with clear deliverables, requirements and time frames
- Review ongoing standardization activities and identify further areas for standardization and/or the need for review of standards

Step 2 (January 2010 to July 2010):

- Propose a programme for development of a minimum maintenance criteria catalogue, starting with axle and wheel set criteria
- Assess effectiveness of different NDT methods used for axle inspections and, in case it is judged necessary, take the initiative for development of a harmonized standard

- Review the different main maintenance regimes for freight wagons established in Europe and identify, where necessary, areas for further harmonization
- Assess the need and feasibility of a European sector system for traceability of critical components
- Assess the feasibility of organizing exchange of information and return of experience on the use of freight wagons

WORK PLAN TIMETABLE

Seven meetings have been planned altogether, 4 in 2009 and 3 in 2010. The complete schedule, submitted for approval of the participants at the 1st meeting on 18 September, is presented below:

Because of the detail and amount of work envisaged, it is necessary that the TF meets on a monthly basis in 2009 and have 3 meetings in 2010: the provisional dates for 2009 and 2010 have been sent out to the nominated experts for approval at the first meeting.

2009		2010	
1 st meeting:	18/09	5th meeting:	02/02
2 nd meeting:	27/10	6th meeting:	20/04
3 rd meeting:	24/11	7th meeting:	22/06
4 th meeting:	17/12		

REPORTS

An intermediate report on the outcome of the activities carried out by the TF in the first phase (Step 1 – Sept. – Dec. 2009) will be finalized by the Agency, in cooperation with the TF, by December 2010.

A final report will be delivered by the Agency to the Commission (DG TREN) by July 2010, i.e. after the end of the second phase of activities.

The final report shall focus, amongst others, on the:

- findings of the TF in relation to the relevant issues outlined in step 1 and 2 of its activities, as well as those emerged during the meetings;
- deliverables of the activities of the TF (European Visual Inspection Catalogue, Minimum Maintenance Criteria Catalogue, etc.);
- measures/proposals to address other relevant issues/problems, and
- conclusions and the way forward.

Survey on broken axles

1. The purpose of the survey

The purpose of the survey was to collect information on:

- cases on broken axles and broken wheels in freight/ passenger/locomotives (DMUs/EMUs);
- the axle design specification regime throughout Europe;
- causes of axle failures on freight wagons;
- measures that have been implemented by the member states to monitor:
 - o relevant maintenance information;
 - o precursors to accidents;
- identify possible correlations between axle failures and operational/design/maintenance regimes.

2. Methodology

In order to receive this information the Agency made a survey last November through a Questionnaire¹. The Questionnaire was sent to all NSAs (27 NSAs) on the 26/11/2010. The NSAs were requested to provide information from the period: 2006-2009. After receiving feedback from the NSAs the submitted data were processed within the Safety Certification Sector in order to reach conclusions. The Agency requested additional information wherever it was necessary.

3. Presentation of the results

Of the 27 member states in which the Questionnaire was sent, 24 member states replied. The Agency did not receive data from the following member states: Bulgaria, Spain, Finland, while from the Netherlands only partial information has been made available.

Presentation of results regarding cases on broken axles and broken wheels in freight/ passenger/locomotives

The Agency requested information regarding the number of cases on broken axles and broken wheels in freight, passenger & locomotives for the years 2006-2008

The received data were checked against the data the member states had submit to the Agency in their Annual Reports.

Inconsistency of data has been identified in more that 50% of the cases. The Agency believes that this inconsistency is due to:

- lack of harmonization in the definitions of precursors to accidents (National versus EU definitions);
- different interpretations in the Agency's definitions between the member states.

Presentation of results regarding the axle design specification regime

The Agency requested from the member states to report which standard for the design on broken axles they apply, information regarding the maximum permissible stresses and the security coefficient value S

- the Standard EN 13103/4 seems to apply in most of the member states throughout Europe. More specifically, this standard applies in: Austria, Belgium, Channel Tunnel, Czech Republic, Germany, France, Hungary, Ireland, Italy, Luxembourg, Norway, Portugal, Romania, Slovenia, Slovak Republic;
- the GOST series apply in: Latvia, Lithuania, Estonia (the 1520 track gauge exist in these countries);
- national standards apply in Poland;
- the standard UIC810-1 in combination with SJF 436.360.1 apply in Sweden;
- the Railway Group Standard GMRT2466 apply in the United Kingdom.

¹ The Questionnaire is provided in the attachments

Note: The Agency did not receive feedback regarding this question from: Spain, Greece, Bulgaria

The Security Coefficient values S by which the fatigue limits have to be divided to obtain the maximum permissible stresses is the following:

S=1,2 in: Austria, Belgium, Czech Republic, Germany, France, Italy, Norway, Portugal, Slovenia;
S=1,33 in Ireland.

Note: The Agency did not receive feedback regarding this question from: Chanel Tunnel, Greece, Luxembourg, Romania, Sweden, , Slovak Republic, Latvia, Lithuania, Estonia.

The maximum permissible stresses that apply are the following:

Zone 1: 166Mpa/ Zone 2: 100Mpa : in Austria, Belgium, Czech Republic, Germany, France, Norway;

Zone 1: 180Mpa/ Zone 2: 110Mpa : in Ireland (S=1,33);

Zone 1:700Pma/ Zone 2:550Mpa : in Poland.

Presentation of measures that have been implemented by the member states to monitor relevant maintenance information & information regarding precursors to accidents

In the question regarding the existence of a centralized database for wheel-set maintenance information, the Agency received the following answer:

Yes in: Belgium, Chanel Tunnel, Czech Republic, Hungary, Ireland, Latvia, Luxembourg, Portugal & Slovenia.

No in: Austria, Germany, Estonia, France, Lithuania, Latvia, Norway, Poland, Sweden & Slovak Republic.

In the question regarding the existence of a centralized database for wheel-set maintenance information, the Agency received the following answer:

Yes in: Chanel Tunnel, Czech Republic, France, Hungary, Ireland, Luxembourg, Portugal, Slovenia

No in: Austria, Belgium, Germany, Estonia, Italy, Latvia, Lithuania, Norway, Poland, Sweden, Slovak Republic.

Presentation on the causes of axle failures on freight wagons

The Agency asked the member states to define for the years 2006-2009 the number of broken axles on freight wagons which were attributed to: (a) Hot Axle Boxes, (b) overheating, (c) corrosion, (d) fatigue and (e) other.

In total 38 cases were reported, which are distributed to the categories (a-e) as follows:

Causes	%	Number of cases
Hot Axle Boxes	79%	30/38
Fatigue & corrosion	5%	2/38
Fatigue & metallurgic fault	8%	3/38
Fatigue (with no further information)	8%	3/38

According to the results:

- Hot axle boxes seems to be the most important cause of failure (appears in 79% of the cases);
- Fatigue seems to be important causes of axle failures but always in conjunction with others;
- Corrosion is very often present factor in accidents and it could be linked with other causes;
- Maintenance is only one of the factors that need to be taken into account. The technical design and the safe use are the others. For instance unsafe situations (like overloading, unsafe weight distribution during loading and transportation, etc) are also important.

2nd Phase of the survey

After the analysis of the first results the members of the Task Force, taking into account that corrosion can be an important factor to broken axles, proposed to continue the survey. More specifically, the members of the Task Force proposed the following:

- to further analyze the information of accidents by asking from the member states additional information regarding accidents on broken axles from 1990-2005;
- to further investigate how corrosion is connected to broken axles;
- to contribute to the analysis of data in order to consult experts.

In connection to the JSG's proposal, the Agency asked the member states last Mai (18/05/2010) the following:

(a) to provide the Agency with further information, regarding accidents on broken axles connected to causes other than hot axle boxes (like corrosion, fatigue or metallurgical fault) and investigation reports from 1990 until 2005;

(b) their approval to address the JSG the information they have submitted for the purpose of the survey.

So far the Task Force has studied information provided by: Austria, Czech Republic, Germany, the Netherlands, Sweden & United Kingdom.

According to the first results:

- 29 cases have been reported so far;
- corrosion clearly appears in 10 of the cases so far;
- there are still unclear conditions of how corrosion has contributed in 11 cases.

At this point the members of the Task Force study the submitted information, trying to discover the mechanism of the contribution of corrosion to broken axles. The first results will be provided to the Agency after the completion of the investigation.

Note: During the 2nd phase of the survey only cases connected to causes other than hot axle boxes (like corrosion, fatigue or metallurgical fault) are investigated.

Attachments

(1) Questionnaire