

APPENDIX 9

to the General Contract of Use (GCU)

Conditions for the technical transfer inspection of wagons

Applicable with effect from 16 June 2009

Former Appendix XII to the RIV, which entered force on 1 November 2002, [was](#) brought up to date and re-published as Appendix 9 to the CUU. Three new annexes (9, 10 and 11) [were](#) also added at this point.

A vertical line in the margin denotes amended provisions taking effect on the date shown at the foot of the page, for the benefit of users of the two previous editions (supplements). Pages that have been altered or added in the new edition are dated [31.01.2008](#).

This Appendix 9 enters force with the GCU (see date on title page). Appendix XII to the RIV is withdrawn on the same date.

Amendments			
Supplement		Supplement	
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1 General

1.1 **Annex 1** of this appendix sets out **binding** provisions governing the technical condition of wagons exchanged between two or more railway undertakings (RU), as established during a technical transfer inspection.

1.2 It also describes (in point 4 and Annexes 5, 6 and 7) the quality assurance procedure to be applied by RUs that have signed agreements in compliance with **UIC Leaflet 471-2**¹. Where this is the case, the quality management system constitutes a legally binding part of such agreements.

2 Technical transfer inspection (TTI)

2.1 Definition

For the purposes of this appendix, the term technical transfer inspection shall refer to a technical inspection carried out when a vehicle is handed over and/or accepted in accordance with **UIC Leaflet 471-2**.

2.2 Procedure

The technical transfer inspection shall be carried out by inspectors at a place agreed upon by the RUs involved.

The inspection shall involve assessing the operating safety and railworthiness of wagons, identifying any of the irregularities listed in **Annex 1** (Catalogue of irregularities) and taking appropriate steps. To identify any irregularities, the inspector(s) shall walk the full length of the train on both sides and carefully examine each wagon.

2.3 Minimum requirements of inspectors

Inspectors must be conversant in:

- the knowledge dispensed through training in a mechanical or electrical trade,
- wagon maintenance,
- wagon design and operation,
- brake design and operation,
- the expert appraisal of damage and defects on wagons and loads as well as the implications for operations,
- the securing of loads, in accordance with the Loading Guidelines,
- the agreements applicable to wagon exchanges between railway undertakings (RUs).

Inspectors should regularly be sent on further training courses.

¹ Technical conditions governing the exchange of freight wagons between RUs

3 Catalogue of irregularities (Annex 1)

3.1 Presentation

Annex 1 contains five columns:

- (1) Part of the wagon to be examined
- (2) Code number
- (3) Irregularities, where appropriate with criteria and indications to facilitate detection. Possible means of recognising irregularities are marked "•" without this being a requirement to execute the measures
- (4) Action to be taken
- (5) Irregularity category (only relevant where agreements have been signed in accordance with **UIC Leaflet 471-2**).

3.2 Comments on the catalogue of irregularities

3.2.1 All the dimensions (values) quoted should be measured in cases of doubt.

3.2.2 The provisions of the Loading Guidelines (published separately) remain fully applicable.

In this connection, inspectors shall particularly look out for the irregularities listed under section 7 of the catalogue (**Annex 1**), column 3 of which contains cross-references in brackets to the relevant points of Volume 1 of the Loading Guidelines. Inspectors shall also watch out for other visible signs that the load or load securing equipment is compromising operating safety and shall take appropriate action.

3.2.3 To help locate irregularities and defects, inspectors shall use stick-on labels (see specimens in Annex 11) and shall, in written correspondence, quote the code number specified in column 2 of **Annex 1**.

3.2.4 This appendix is not an exhaustive catalogue of all the irregularities which might occur. Where there are other irregularities not listed in this document but which might well compromise operating safety or the wagon's railworthiness, inspectors shall take whatever action they deem necessary.

4 Quality Management System (QMS)

4.1 General definitions

Use of a quality management system (QMS) provides a guarantee of quality for wagon exchanges between RUs. Their aim is to determine a set standard of technical quality by taking samples in accordance with ISO standard 2859. This technical quality must be formally set out in writing and the RUs must take all necessary action to maintain or improve it.

4.2 Planning of quality

Quality requirements and characteristics are defined during the planning phase and are set out in detail in the catalogue of inspections. The quality target agreed between RUs is to obtain a [cumulative defect value \(CDV\)](#) of $\leq 1\%$ for each class of irregularity.

4.3 Irregularities and catalogue of irregularities

4.3.1 An irregularity is defined as any deviation from the quality criteria defined in the catalogue if as a consequence of this deviation the equipment or train in question does not conform to the set requirements. Equipment on which irregularities have been noted must be dealt with in accordance with the catalogue of irregularities (Appendix 9 to the GCU, **Annex 1**).

4.3.2 Description of irregularities

Irregularities are classified as minor, major or critical, according to their seriousness. [Annex 2 contains a more detailed definition of these classes.](#)

4.3.3 In addition to listing the various kinds of damage / irregularity and the corresponding action to be taken, the catalogue of irregularities (**Annex 1**) also indicates the category to which each irregularity belongs.

4.4 Planning of tests

The number of wagons to be inspected, referred to as the inspection batch, shall be determined from the overall batch, which includes all wagons handed over by one RU to another RU ([including via one or more transit RUs](#)) in a given calendar year. The overall batch may be divided into partial batches, for example according to specific routes or handover points. From this overall batch (or corresponding partial batches) is determined an inspection batch, as specified in ISO standard 2859 (**Annex 3**) which is then incorporated into the annual inspection schedule as a theoretical inspection batch. When dividing up into partial inspection batches defined on a monthly basis, account should be taken where possible of annual trends in the changing number of wagons.

When determining the inspection batch, inspection level II should be applied.

4.5 Quality control

The conformity of the technical transfer inspections shall be measured by the transferee RU during the sample inspections. These checks shall be carried out at the latest at the first marshalling yard at which technical inspections are conducted or at the station where the train consist is re-formed by the transferee RU. Quality checks shall be carried out before the train is disconnected or re-formed and in accordance with the procedure described in point 2.2.

4.6 Inspection methods

The inspection methods referred to in the catalogue (**Annex 5**) have the following meanings:

- VC = visual check inspection with naked eye
- M = measurement inspection based on measurement
- HT = hammer test inspection involving hammer blows
- OP = operate operating test
- PM = pull or move actuation of the part in question

4.7 Assessment of irregularities

Defects and irregularities already dealt with by the RU that carried out the transfer inspection by applying the measures indicated in the catalogue of irregularities (**Annex 1**) are not to be taken into account. If a wagon has been labelled by the RU that carried out the technical transfer inspection, only the irregularities that are not mentioned on the label may be taken into account for calculating the CDV value. Identical irregularities that occur on several sub-components (such as stanchions) are considered in principle as one irregularity per wagon or per load unit. The same applies to loading tackle or scotches and/or load securing equipment that has not been removed. Where irregularities on a given component or load have been given different classifications, only the irregularity in the higher class should be taken into account.

4.8 Analysis of results

4.8.1 It is the type of irregularity rather than its frequency of occurrence which is the decisive factor in evaluating the number of irregularities within the context of the quality management system. Each type of irregularity has a serial number in the Catalogue of Irregularities (**Annex 1**).

4.8.2 Cumulative defect value (CDV)

The CDV value, which is used as a means of measuring the defective nature or the inspection batches, is calculated as a percentage of irregularities per hundred control units. To this end, the irregularities are assigned to a class, depending on their impact on fitness for use in service and on operating safety, as follows:

- Class 3 factor of 0.125/1
- Class 4 factor of 0.4/1
- Class 5 factor of 1/1

The CDV value for each class of irregularity is then calculated using the following formula:

$$\text{CDV Class 3 [\%]} = \frac{0.125 \times \Sigma \text{ Class 3 irregularities} \times 100}{\text{Number of units checked}}$$

$$\text{CDV Class 4 [\%]} = \frac{0.4 \times \Sigma \text{ Class 4 irregularities} \times 100}{\text{Number of units checked}}$$

$$\text{CDV Class 5 [\%]} = \frac{1.0 \times \Sigma \text{ Class 5 irregularities} \times 100}{\text{Number of units checked}}$$

- 4.8.3 The irregularities recorded shall be sent each month to the RU that carried out the technical transfer inspection using the lists given in Annexes 6 and 7, indicating the type of overall batch and the quantity of units inspected for each CDV. The information described in Annexes 6 and 7 can be exchanged in a variety of ways and by electronic means in particular.

4.9 Action to be taken

If the quality target specified in point 4.2 above is not achieved by the RU that carried out the technical transfer inspection, corrective action must be taken to improve the standard of quality. The transferee RU shall immediately inform the transit RU(s), where appropriate. The RU that carried out the technical transfer inspection shall notify the transferee RU and where appropriate the transit RU(s) within one month of the action taken.

With effect from the implementation of these measures, a representative sample must be selected each month, in order to show the resulting improvements.

If necessary, the transferee RU may, in agreement with transit RU(s) as appropriate, exclude certain wagons (or wagons with a particular load) when forming the trains in question.

5. Inclusion of a train in an agreement

5.1 General

This procedure is recommended to RUs that are planning to conclude agreements. The procedure does not apply if all the trains exchanged between two RUs are covered by the agreement.

In order to include trains in an agreement, independently of a cumulative defect value, RUs shall apply a procedure based on DIN/ISO 2859 (Sampling procedures for inspection by attributes – Sampling schemes indexed by Acceptance Quality Limit (AQL)).

Trains may only be included in an agreement if acceptability is achieved over a defined period of time for a specific batch (in this case a train).

Table II-A (Simple sampling guidelines for standard inspections, see Annex 3) offers clear criteria for determining the acceptability of inspection batches (in this instance, trains).

Once the acceptability of the train has been established, the investigating RU (i.e. RU inspecting the quality) shall send the participating RUs an inspection report in accordance with Annex 3 for signature.

Following their inclusion in the agreement, these trains must nonetheless meet the agreed quality target of a CDV < 1% for each class of irregularity.

The procedures for the carriage of dangerous goods (RID) shall be dealt with separately.

5.2 Principles, planning, execution

In this procedure, the following principles apply:

- Irregularity classes 5 and 4 shall be considered separately (class 3 shall not be considered initially).
- An AQL defined in accordance with DIN/ISO 2859 as the "Number of defects per 100 control units" shall be applied.

For a K defect (Class 5) which is evaluated on a 1:1 basis, an AQL of 1.0 is equivalent to one defect per 100 control units and for an H defect (Class 4) which is evaluated on a 0.4:1 basis, an AQL of 2.5 is equivalent to one defect per 100 control units.

- The inspection period for a given train should be at least three months.
- Each month at the interface between RUs, the quality of the transfer shall be calculated randomly with the required sample size as part of the survey and the results documented in a test protocol.
- The inclusion of a given train shall only be accepted if, over the inspection period / inspection period, the acceptance value specified in Table II-A (Annex 3) for Classes 5 and 4 is not exceeded.

This procedure is shown in Overview I, Annex 3.

5.2.1 Example

Train	12345
Days of operation	7
Average number of wagons	32
Wagons per year	11648
Wagons over the inspection period	2912
Batch size as per Annex 3, Table I, Inspection level II	1201 – 3000
Code letter calculated	K
Sample size as per Annex 3, Table II-A	125
Inspections per month	42
Acceptance value for Class 5 (AQL 1.0) as per Annex 3, Table II-A	3
Acceptance value for Class 4 (AQL 2.5) as per Annex 3, Table II-A	7

5.2.2 Results of the inspection

a) After 125 inspections the following was observed:

1 defect in Class 5, 9 defects in Class 4

Train 12345 cannot be included in an agreement, since the acceptance value for Class 4 was exceeded during the inspection period.

The inspection period is extended by at least one more month.

b) After 125 inspections the following was observed:

4 defects in Class 5, 3 defects in Class 4

Train 12345 cannot be included in an agreement, since the acceptance value for Class 5 was exceeded during the inspection period.

The inspection period is extended by at least one more month.

If the acceptance values for Classes 5 or 4 are exceeded by a substantial amount, a new 3-month inspection period is recommended.

5.2.3 Exclusion of trains from an agreement

The procedure is set out in Overview II, Annex 3.