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Translation

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Catalogue of harmonised train procedures for cross-border freight operations

*Catalogue des procédures passe-frontières harmonisées liées à la composition des trains de
marchandises*

Katalog harmonisierter Zugbetriebsabläufe für den grenzüberschreitenden Güterverkehr



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Summary

The new *UIC Leaflet 474* was drafted by the UIC group on "Infrastructure leaflet modernisation". The group's work was based on that done by "Rail Net Europe - Operational Standards", namely compiling an inventory and a set of procedures to be followed by railway undertakings to reduce formalities and inspections at handover points and eliminate all checking of the train consist at these points.

1 - Introduction

1.1 - Purpose of the leaflet

Under the terms of the present document, a freight train is considered "interoperable" when the administrative formalities and technical inspections associated with its consist can be:

- dispensed with when crossing a border between two railway infrastructure managers (IM);
- dispensed with or limited to a few basic tasks (e.g. transfer of the original braking sheet during a changeover of traction) at the handover point between two partner railway undertakings (RU).

In the present document, UIC provides RUs with a catalogue of the tools that will help make their trains interoperable on all freight corridors and other international routes.

The catalogue has been designed to offer a set of harmonised procedures for international freight operations covering the following train consist parameters:

- train formation,
- braking rules and brake tests,
- acceptance of certain types of shipment, such as dangerous goods, special consignments, etc.,
- permissible lengths and loads,
- tightening of couplers,
- loading conditions,
- technical inspection of wagons and loads,
- braking sheet and consist list,
- tail signals,
- train numbering,
- advance consist message.

These procedures were drawn up with reference to:

- the Rail Net Europe Package that the working group "RNE - Operational Standards" issued for the needs of Rail Net Europe and UIC,
- international standards enjoying widespread and long-established acceptance (*RIV-CUU/AAV/SUC, UIC leaflets 400 series, etc.*),
- the TSI (Technical Specifications of Interoperability) for the "Traffic Operation and Management" sub-system of the trans-European conventional rail system, in accordance to the *Directive 2001/16/EC* (see [Bibliography - page 23](#)).

This catalogue should therefore be sufficient to enable any RU, either alone or in partnership with others, to put together its trains in accordance with harmonised criteria and thus limit technical stoppages on the allocated train path to traction changeovers only.

Its use as a reference document is also recommended for the train consist section of any operational or commercial agreement between RUs.

1.2 - Summary flow chart

As required by certain procedures the IM, through their OSS (One-Stop-Shop), must provide the RUs with information of a technical or regulatory nature about specific conditions applicable to the train consist, braking or speed that are imposed by one or more IMs on the allocated train path.

NB : Where there is no OSS, the IM shall define in a protocol how data shall be exchanged.

It is emphasised that the role of the OSS is to facilitate the exchange of this information by acting as a link between IM and RU.

The OSS is not involved in the decision-making processes of the IMs, but is instrumental in coordinating and speeding up the exchange of the necessary data.

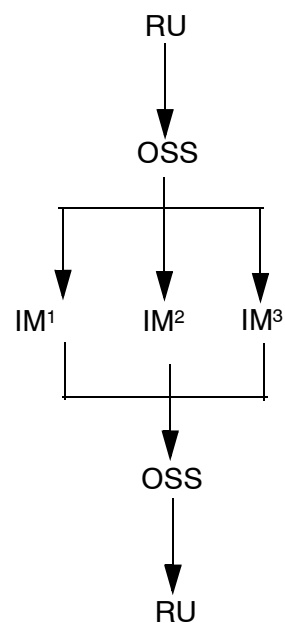
The flow of information is represented in the following diagram:

Request for a train path

Determination of the train path (preconstructed or tailor-made)

Information from the IMs on their specific technical and regulatory requirements

Allocation of the train path with indication of the specific technical and regulatory requirements



2 - Train formation procedures

2.1 - Maximum number of hauled vehicles or axles

There is no set limit, provided the maximum permissible loads and lengths are not exceeded on the allocated train path.

The OSS must inform the RUs of any applicable restrictions on the number of vehicles or axles.

2.2 - Train consist based on the maximum permissible train speed

Wagons and other hauled vehicles must be suitable for running at the maximum permissible speed of the train along the whole route.

Application of *UIC Leaflet 421* (see [Bibliography - page 23](#)) is sufficient in this regard.

The acceptance of wagons that are suitable for running at the maximum train speed but do not comply fully with the provisions of *UIC Leaflet 421* shall be covered in an operational agreement between the RUs. These arrangements must not however lead to changes to the train consist at borders or handover points.

2.3 - Maximum permissible load per wagon or per axle

Application of *Appendix II to RIV-Loading Conditions (sections 1 to 3)* (see [Bibliography - page 23](#)) shall be sufficient.

Where the route to be worked and the technical characteristics of the wagon permit, more generous load limits than those of the general RIV load table may be used provided that:

- they feature as derogations on a load table painted on the wagon,
- they are authorised by operational agreement,
- they do not lead to stoppages to alter the train consist at borders or handover points.

2.4 - D4 loads

There are no set restrictions.

The OSS must inform the RUs of any speed restrictions applicable to these consignments on the allocated train path.

2.5 - Dangerous goods

The provisions of the *RID* shall apply.

Depending on the country in question, national legislation may impose additional procedures for explosives and radioactive materials (special insurance, transport or transit authorisations to be obtained from a control body or agency, etc.).

The inclusion of such goods in an interoperable train shall be governed by an operational agreement, the aim being to avoid any train consist changes or inspections at borders or handover points.

2.6 - Badly damaged wagons

A badly damaged wagon is a wagon whose braking, buffing or coupling gear has sustained damage such that:

- either it cannot be connected up to the main brake pipe,
- or it can only be coupled to another vehicle at one end.

Badly damaged wagons must not be included in an interoperable train. They shall be forwarded under the terms of operational agreements and on the basis of suitably constructed train paths.

2.7 - Special consignments

2.7.1 - Preamble

It is unrealistic to attempt to find a single, harmonised definition of the constraints associated with special consignments in that each IM has its own definition of a restriction and this can be totally different from that of another IM for geographical, regulatory or historical reasons.

The OSS is thus asked to act as an intermediary between RUs and IMs in a bid to simplify, facilitate and speed up the formalities surrounding the inclusion of special consignments in trains.

2.7.2 - Procedural flow-chart

See Appendix [A - page 20](#).

2.7.3 - Application

The definition of a special consignment as given in the RIV/SUC and in the series of *UIC Leaflet 502 series* (see [Bibliography - page 23](#)) is sufficient.

The appropriate IM shall decide whether or not to regard combined transport as special consignments.

The RU must supply the OSS with all the technical data it can obtain following initial contact with the customer (loading conditions, type of wagon to be used, speed restrictions applicable to wagons and their loads, etc.).

The OSS shall ensure that the RU is informed of the technical constraints stipulated by all the IMs concerned in reasonable time.

An IM may or may not accept the inclusion of a special consignment in an interoperable train.

If a special consignment is accepted in an interoperable train:

- the RU shall set the date(s) when the train is to run with its customer;
- the RU shall pass on this information to the departure IM and the partner RUs if required within their agreed timescale;
- the same information shall be relayed between successive IMs along the route.

When an IM authorises the inclusion of a special consignment in an interoperable train, it shall be free to impose certain speed restrictions on one or more limited sections of the route, providing this does not detract from the quality of the train path. If such restrictions are imposed:

- the IM shall indicate on which sections of the route they apply when giving its authorisation number;
- the OSS shall pass on this information to the RU;
- the RU shall then ensure that information about the speed restrictions in force along the route is duly issued to:
 - the driver prior to train departure;
 - its staff (in stations, etc.) along the route;
 - partner RUs at handover points (under the terms of an operational agreement).

If the special consignment is only accepted on a specially designed train path:

- the OSS and the IMs shall confirm, in consultation with the RU, the train and the date it is to run when the special consignment authorisation numbers are sent out.

The RUs shall decide in an operational agreement whether or not to use the blue "Form U" labels of *UIC Leaflet 502 series* (see [Bibliography - page 23](#)).

2.8 - Maximum number of working locomotives

Two (2) working locomotives per train is the generally accepted limit. This number may be exceeded by operational agreement as long as it does not lead to stoppages at borders or handover points to remove one or more locomotives from the train.

The use of working coupled locomotive(s) other than at the front of the train shall be defined in an operational agreement in accordance with the allocated path.

2.9 - Maximum number of hauled locomotives

Two (2) hauled locomotives per train is the generally accepted limit. This number may be exceeded by operational agreement as long as it does not lead to stoppages at borders or handover points to adjust the train consist.

3 - Braking rules

3.1 - Braking performance

All vehicles in the train must be coupled to the main brake pipe.

The first and last vehicles of the train must be braked, including the working locomotive(s).

The braking performance necessary is expressed as a percentage of the braked weight needed for the train, based on the maximum authorised speed and the train's braking regime (G-braked or P-braked).

If the performance required varies from one IM to another, only the higher braked weight percentage shall be used.

The OSS shall inform the RUs of:

- the braking performance required by the successive IMs along the allocated train path, expressed in the braked weight percentages needed,
- the conditions applicable to braking regimes for mountainous routes or steep gradients.

In addition to the above requirements it is highly recommended that the following be determined in operational agreements between the RUs:

- the maximum permissible number of unbraked hauled vehicles,
- the maximum permissible number of hauled vehicles braked using a different regime from that of the train,
- the maximum permissible number of unbraked axles,
- the braking of the front part of the rake of hauled vehicles (e.g. to speed up operations involving only a change in the train's direction at an intermediate station),
- the minimum number of hauled vehicles required to be fitted with handbrakes,
- whether or not the working locomotive(s) can be included in the calculation of the train's braking performance.

These arrangements must not however lead to stoppages at borders or handover points for altering the train consist.

3.2 - Brake tests

Before train departure or whenever the train consist is changed during the journey, brake tests shall be carried out in accordance with *UIC Leaflet 453* (see [Bibliography - page 23](#)).

4 - Maximum permissible train length

The OSS shall inform the RUs of the maximum train lengths (in metres) stipulated by the different IMs along the allocated path.

If these requirements vary from one IM to another, only the shortest length shall be taken.

5 - Maximum permissible weight of hauled rake

5.1 - P-braked trains

UIC Leaflet 421 shall be applied for trains with a maximum speed of:

- either 120 km/h,
- or 100 km/h.

The limits set out in *UIC Leaflet 421* may be exceeded under the terms of an operational agreement, as long as they do not lead to stoppages at borders or handover points to change the train consist.

5.2 - G-braked trains

The OSS shall inform the RUs of the maximum weights authorised by the different IMs along the allocated path, based on the maximum permissible speed(s).

If these requirements vary from one IM to another, only the smallest weight shall be taken, to avoid stoppages at borders or handover points to change the train consist.

6 - Tightening of couplers

Application of *UIC Leaflet 421* shall be sufficient.

7 - Loading conditions

Regulations governing loading conditions must be observed along the entire route of the train.

Application of *Appendix II to RIV-Loading Conditions (sections 1 to 3)*/UIC Loading Guidelines shall be sufficient on this point.

8 - Technical inspection of wagons and their loads

Application of *Appendix XII to RIV/Appendix 9 to the UIC/ERFA/UIP General Contract of Use for Wagons* (see [Bibliography - page 23](#)) shall be sufficient along the entire route of the train.

Under the terms of an operational agreement, RUs shall be free to require that an interoperable train be subject to a technical inspection, either under way or on arrival. Such arrangements must not however lead to stoppages at borders or handover points to change the train consist.

Consequently, at the request of the RUs, any technical inspections to be conducted during the journey shall be taken into account by the OSS when the train path is allocated (be it preconstructed or tailor-made).

9 - Braking sheet and train consist list

Application of *UIC Leaflet 472* (see [Bibliography - page 23](#)) shall be sufficient.

10 - Tail signals

An interoperable train must carry the same tail signals along its entire route. Tail signals are designed to provide confirmation at any time that the train is complete, and to ensure that it is clearly visible from the rear.

The OSS shall indicate to the RU the required type and number of tail signals to be used on the allocated train path.

If the type and number of tail signals required are different from one IM to another, the RU shall make arrangements to ensure that the tail signal used is acceptable to all the IMs concerned.

Application of *UIC Leaflet 452* (see [Bibliography - page 23](#)) shall be sufficient as far as the technical requirements (light output, dimensions, etc.) are concerned.

If necessary, the RU may set out arrangements for the joint management of these signals (removal, storage, repair, etc.) in an operational agreement.

These arrangements must not however lead to stoppages at borders or handover points to change the tail signals.

11 - Train numbering

Application of *UIC Leaflet 419-2* (see [Bibliography - page 23](#)) shall be sufficient as regards:

- the five digit-structure of the train number,
- the "uniqueness" of the number along the entire route of the train.

RUs shall determine in an operational agreement, the organisation needed to provide mutual information on the train service number to be interchanged.

These arrangements must not however lead to stoppages at borders or handover points for identification purposes.

12 - Advance consist message to be sent to IM

According to the procedure shown below the RU shall send an advance consist message to any IM that needs it, based on the conditions of access to its network.

Before its train leaves the departure station or enters a new infrastructure network, the RU is responsible for sending the train advance consist message to the IM in charge of controlling the traffic at:

- the departure station,
- any intermediate station where the train consist is altered,
- border stations where the train moves onto a different infrastructure network.

Transmission of the data listed in Appendix B - page 21 shall be sufficient in this regard. The IM and RU may define in an agreement which data is required.

The RUs shall together decide on the transmission process in liaison with the successive IMs. These arrangements must not however lead to delays or inspections at borders or handover points.

13 - Carriage documents (CIM consignment notes)

The RUs shall determine in an operational agreement how they will carry or transmit the carriage documents. These arrangements must not however lead to inspections at borders or handover points.

Appendix A - Acceptance of a special consignment in an interoperable train (flow chart)

RU is informed of the technical characteristics of a potential special consignment

This information is passed on to the different IMs.

In accordance with the series of *UIC Leaflet 502*, each IM determines:

- the conditions under which it can accept the special consignment on its infrastructure (gauge, height, speed, checks, etc.);
- whether or not the consignment can be accepted in an interoperable train.

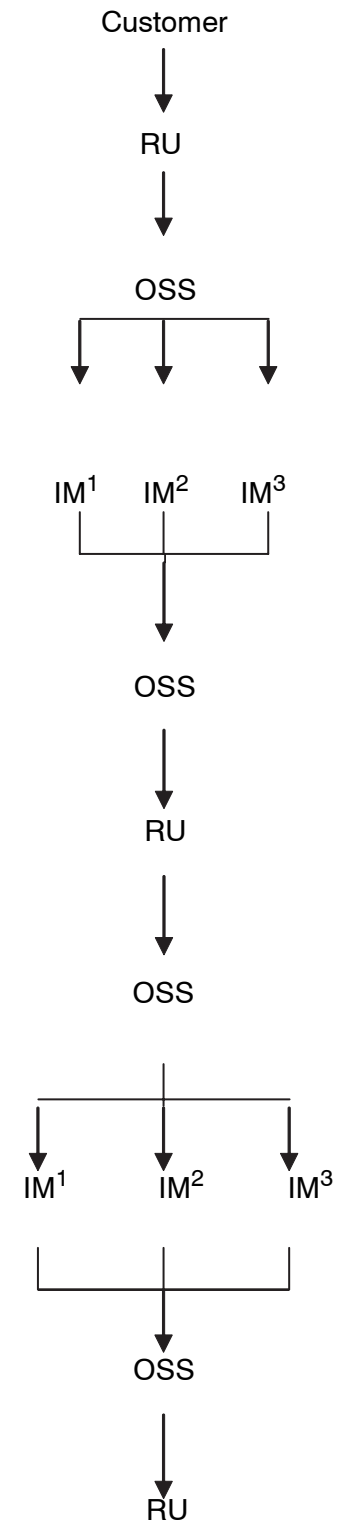
Each IM sends this information to the OSS, which passes it on to the RU.

The RU indicates whether or not it accepts the constraints associated with the consignment.

If the RU accepts the constraints:

- an authorisation number (see *UIC Leaflet 502 series*) is required of the IMs via the OSS;
- a train path is determined, either preconstructed or tailor-made (e.g. if inspections are necessary at borders).

The RU is informed of the train path and the special consignment authorisation number.



Appendix B - Data to be included in the advance consist message sent to the IM

1) Train data

- Train number in accordance with *UIC Leaflet 419-2*,
- Date of initial departure,
- Maximal speed,
- Length of the rake of hauled vehicles,
- Length (working locomotives included),
- Weight (working locomotives included),
- Maximum speed,
- Number of hauled vehicles,
- Number of hauled axles,
- Indication of vehicle(s) occupied by livestock or persons,
- Braking system ("G" or "P"),
- Type of working locomotive(s).

2) Data on each hauled vehicle

- vehicle number¹,
- position in the train,
- indication of "empty" or "loaded" status,
- gross weight in kg (or in tonnes as required by the IM),
- Weight of load in kg (or in tonnes as required by the IM),
- RID data (hazard code and UN number),
- overall length,

1. either the 12-digit UIC number (for wagons and coaches) or the national number (for locomotives)

- indication of a special consignment, expressed as:
 - either a gauge coding,
 - or the authorisation number(s) issued by the IM(s),
- Indication of the actual speed if lower than the maximum permissible train speed¹.

1. provided that the IM has authorised the train to run at the speed of that vehicle

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