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Interconnecting gangways for coaches

International Union of Railways

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V - Transport stock

Amendments

N° 1	01-7-95/01-1-96		

Obligatory provisions are preceded by an asterisk: *

Code UIC Volume V

Amendment 1 1-7-95/1-1-96

Leaflet 561

8th edition 1.1.91

Interconnecting gangways for coaches

Page 2 - Insert "No **1 -01-7-95/1-1-96**".

Pages 7/8, 13/14 - Replace these pages with the corresponding new sheets.

Page 29 - Paste the slip below at the end of the Record Reference:

International Union of Railways

Note

This leaflet is part of a set which also includes:

- Leaflet 505-2 : Kinematic gauge for coaches and vans used on international services.
- Leaflet 520 : Wagons, coaches and vans - Draw gear.
- Leaflet 521 : Coaches and vans, wagons, tractive stock - Clearances to be provided at vehicle extremities.
- Leaflet 522 : Technical conditions to be fulfilled by the automatic coupler of the UIC and OSJD Member Railways.
- Leaflet 527-1 : Coaches, vans and wagons - Dimensions of buffer heads - Track layout on S-curves.
- Leaflet 528 : Buffer gear for coaches.
- Leaflet 532 : Trailing stock. Signal lamp brackets - Coaches - Fixed electric signal lamps.
- Leaflet 560 : Doors, entrance platforms, windows, steps, handles and handrails of coaches and luggage vans.
- Leaflet 564-2 : Regulations relating to fire protection and firefighting measures in passenger-carrying railway vehicles or assimilated vehicles used on international services.

- Leaflet 565-1 : Special comfort and constructional characteristics for sleeping-cars accepted in international traffic.

- Leaflet 565-2 : Special comfort and constructional characteristics and rules of hygiene for restaurant-cars accepted in international traffic.

- Leaflet 566 : Loadings of coach bodies and their components.

- Leaflet 567-1 : Standard X- and Y-type coaches accepted for running on international services - Characteristics.

- Leaflet 567-2 : Standard Z-type coaches accepted for running in international traffic - Characteristics.

- Leaflet 567-3 : Constructional arrangements on coaches with a view to the application of the automatic coupler on the member railways of the UIC and on the member railways of the OSJD.

- Leaflet 568 : Loudspeaker and telephone systems in RIC coaches - Standard technical characteristics.

- Leaflet 569 : Regulations to be observed in the construction of coaches and vans suitable for conveyance by train ferry.

- Leaflet 845 : Technical specification for the supply of elastomer flange connections for intercommunicating gangways.

Contents

0 - General

***0.1** - Coaches and vans must be equipped with interconnecting gangways that comply with the provisions of this and other relevant leaflets.

***0.2** - The floors of such interconnecting gangways must be as flat as possible. Any steps between the entry vestibule and gangway must be well-lit. Protrusions on which passengers are liable to catch or dirty themselves should be avoided.

0.3 - Coaches built prior to 1963 may be fitted with bellows in accordance with Plate 4.

0.3.1 - In the event of appreciable coach modernisation operations, it is recommended that bellows be replaced by flange connections.

0.4 - Coaches built from 1988 may be fitted with enhanced-comfort or pressure-tight interconnecting devices, compatible with the interconnecting devices defined in Chapter 1. These enhanced-comfort and pressure-tight interconnecting gangways are described in Chapter 4.

***0.5** - Interconnecting devices must be compatible with vehicles equipped with screw couplings as per Leaflet 520.

***0.6** - Interconnecting devices must be compatible with vehicles fitted with the automatic coupler as per Leaflets 522 and 567-3.

***0.7** - The provisions concerning shunter clearance laid down in Leaflet 521 must be respected.

***0.8** - The 85 mm maximum static vertical out-of-level prescribed in Leaflet 528 must be taken into consideration.

***0.9** - The maximum transversal displacement permitted by Leaflet 527-1 must be taken into consideration.

1 - Flange connections

***1.1** - Flange connections must comply with Plate 1.

1.1.1 - Link elements as per section 2 can be dispensed with the bellow-flange connection.

***1.2** - The upper flanges must be provided with upper and lower water ducts, and the method by which they are fixed to the end wall must preclude rain water penetration.

***1.3** - The flanges and lips (waterproof flaps) must comply with Plate 1, Figures 3 and 4.

***1.4** - In order to ensure that the gangway has the required free-play in the case of major transversal displacement between coaches, when the buffers are compressed, the lower extremity of the end uprights must include the clearances shown in the plate 1, Figures 2 and 2a.

***1.5** - The vertical flanges must be bevelled at their lower end as shown in Plate 1, Figure 2, in order to prevent them from being damaged by the buffers heads.

***1.6** - Elastic plates preventing any excessive transversal displacement of these flanges in the direction of the interconnecting gangway must be placed at the lower part of the vertical flanges. See Plate 1, Figures 2 and 4.

1.7 - It is recommended that the entire interconnecting gangway:

- be as impervious to dirt, dust, water and snow as possible,
- be as devoid as possible of surfaces comprising bumps or hollows,
- allow level and unimpeded transfer.

2 - Coupling of bellows and flange connections

2.1 - In order to ensure the coupling of bellows and flange connections two coupling devices as per Plate 1, Figure 2 and Plate 2, Figures 2 and 2a may be mounted on the flange connection.

2.2 - In order to improve the tightness of the flange-bellow connection , the vertical flanges may be fitted with watertight flaps as per Plate 1, Figures 2 and 4.

3 - Gangway for coaches fitted with flange connections

***3.1** - The gangways must be of the retractable type and designed as per Plate 3, Figures 1 and 2.

***3.2** - Other types of gangway may be permissible for coaches built before 01.01.1963.

***3.3** - The gaps remaining on both sides on account of the lie of the gangway plate must be concealed by covers made of resilient material bolted to the coach underframe.

3.3.1 - It is recommended that these side covers be constructed in accordance with Plate 3, Figure 3.

***3.4** - The gangway must protrude 75 mm over the contact plane of the buffers when non-compressed, and must be retractable over a distance of 150 mm, this retracting movement being non-symmetrical, if necessary. The gangway must automatically return to its forward position when the cause of its displacement has ceased to exist.

***3.5** - Gangways should include no items likely to become distorted when in service and to impede the free movement of the gangway.

***3.6** -The connection between the gangway plate and the floor must be as flush as possible; it must be effected as shown in Plate 3.

***3.7** - The gangway must be easy to raise, and once raised, must not be able to drop back accidentally, the device used for securing it being visible from the inside of the coach and always placed on the left-hand side of the gangway.

***3.8** - The front corners of the gangway plates must be bevelled in accordance with Plate 3, Figure 1.

3.9 - It is recommended that the angles in front of the gangways be reinforced, as shown in Plate 3, Figure 1a.

4 - Enhanced-comfort and pressure-tight interconnecting gangways

4.0 - General

4.0.1 - The provisions of this chapter apply to coaches in international traffic fitted with types of interconnection other than those covered in Chapter 1 of this leaflet:

- either on the grounds of comfort (for example, soundproofing),

or

- on account of the additional requirements needed for traffic circulating on high-speed lines with tunnels, where there is a likelihood of crossing high-speed trains (for example, pressure-tightness).

These two types of interconnection shall henceforth be referred to as:

- enhanced-**comfort** gangways,

- enhanced-comfort and **pressure-tight** gangways.

4.0.2 - The dimensions stated apply to vehicles having the same external dimensions as standard UIC coaches in accordance with Leaflets 565-1, 565-2, 567-1 and 567-2.

4.1 - Conditions of compatibility of interconnecting gangways

4.1.1 - Coupling capacity

***4.1.1.1** - The interconnecting devices to which this chapter applies must be compatible in terms of coupling with the flange-type connections described in Chapter 1.

***4.1.1.2** - The devices to which this chapter applies must be mutually compatible in terms of coupling (1).

***4.1.1.3** - The devices to which this chapter applies must, when coupled together or to the flange-type connection described in Chapter 1 of this leaflet, present no impediment to normal use and guarantee passengers a level of safety and protection against bad weather at least equal to that guaranteed by flange connections.

***4.1.1.4** - The requirements listed in Paragraph 4.2 concerning in particular improved pressure tightness, soundproofing and heat insulation also apply to the interconnecting devices referred to in this chapter when coupled together.

4.1.1.5 - When the interconnecting devices to which this chapter applies are coupled with the flange-type connections described in Chapter 1 of this leaflet, it is recommended that the requirements listed in Paragraph 4.2 concerning improved pressure tightness, soundproofing and heat insulation be respected.

***4.1.1.6** - The additional requirements listed in Paragraph 4.3 concerning, in particular, pressure-tightness apply to the devices referred to in this chapter in the case of coaches running on high-speed lines with tunnels and coupled together.

4.1.1.7 - In the case of enhanced-comfort connections coupled either together or with enhanced-comfort and pressure-tight gangways, it is recommended that the requirements listed in Chapter 4.3 concerning, in particular, pressure-tightness be respected.

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(1) The necessary conditions remain pending.

4.1.2 - Ability to negotiate bends, ramps, etc.

***4.1.2.1** - In the case of the coupling conditions described in Paragraph 4.1.1 of this Chapter, it must be possible to negotiate the following track layouts, in accordance with the UIC Code.

***4.1.2.1.1** - Curves in the track and S curves of a minimum radius with/without intermediate straight section in accordance with Leaflets 527-1 and 567-2.

***4.1.2.1.2** - Passage on ferry-boats in accordance with Leaflet 569.

***4.1.2.1.3** - Connections on inclines (including marshalling yard humps) as described in the appendix to Leaflet 505-2.

***4.1.2.2** - In their uncoupled state coaches must be able to clear, separately, travelling platforms and their access ramps having a gradient of 140 mm over 1.1 m.

4.1.3 - General construction requirements.

***4.1.3.1** - Interconnecting gangways must comply with the clearance gauge stipulated in Leaflet 505-2.

4.1.3.2 - It is recommended that the join between interconnecting gangways, either together or with the floor of the coach, be level.

***4.1.3.2.1** - Where the requirements of Paragraph 4.1.3.2 are not fulfilled, the ramp or step must be as shallow as possible, in particular so that disabled passengers and the mini-bar are able to negotiate interconnecting gangways (cf. Appendix 4, Leaflet 565-3).

4.1.3.3 - It is recommended that the entire interconnection:

- be as impervious to dirt, dust, water and snow as possible,
- be as free of bumps and hollows as possible,
- provide unimpeded level transfer.
- should have for these constructional elements (located outside the inner part) exposed to bad weather - and more specially the intercommunicating gangways - an aerodynamic shape to prevent ice and snow from settling on their surface and stop any water collecting on it.

4.2 - Conditions imposed on enhanced-comfort interconnecting gangways for coaches travelling at speeds of up to 200 km/h.

4.2.1 - Dimensions and layout of gangway connections.

4.2.1.1 - The minimum recommended clearance width is 990 mm.

***4.2.1.1.1** - Clearance width must at no point fall below 750 mm.

4.2.1.1.2 - It is recommended that this uniform clearance width be maintained in the case of curves or reverse curves described in Paragraph 4.1.2.1.1.

4.2.1.2 - The minimum recommended clearance height is 1950 mm.

***4.2.1.3** - The design of the interior lining of gangway connections must be attractive, particularly where interconnecting doors remain open.

4.2.1.4 - It is recommended that interconnecting gangways be fitted with an interior handle in order to facilitate transit.

4.2.2 - Soundproofing and heat insulation conditions.

4.2.2.1 - Efforts should be taken in order to prevent internal noise levels in the interconnection zone from exceeding 80 dB(A) at maximum speed. Readings should be recorded half-way between the two interconnecting doors at the height of 1.60 m above floor level.

4.2.2.2 - Efforts should be taken to ensure good heat insulation in the interconnection zone.

4.2.3 - Coupling conditions.

4.2.3.1 - It is recommended that interconnections be designed in such a way that they may be coupled automatically.

***4.2.3.1.1** - In the case of manual shunting, it must be possible for coupling and uncoupling to be carried out by one person.

4.2.3.2 - Where necessary, a visual mechanism may be used to check the gangways are properly connected.

4.2.4 - Requirements imposed on uncoupled interconnections.

***4.2.4.1** - In their uncoupled state (at rest), the mobile or resilient parts of interconnecting devices should not protrude lengthwise beyond the contact face of buffers by more than 50 mm.

***4.2.4.2** - Where necessary, body fastenings and means of protection against bad weather may be provided for the parts essential to operational efficiency when the interconnecting gangways are not in use.

***4.2.4.3** - In their uncoupled state, the opening of interconnecting doors must be prevented.

4.2.5 - Conditions of use in service and easy maintenance.

***4.2.5.1** - The interconnections to which this chapter refers must be well adapted to winter conditions. In particular, all control and connection parts must be able to operate in such conditions.

***4.2.5.2** - Means must be provided to ensure the drainage of water from condensation, washing, etc.

***4.2.5.3** - The design of interconnecting gangways must favour easy and minimal maintenance as well as easy assembly. Special efforts should be made to guarantee good accessibility and rapid interchangeability.

***4.2.5.4** - Materials used must be able to stand up to wear and tear, any detergents used inside and outside, UV and lubricants.

***4.2.5.5** - Interconnecting gangways and their linings must be easy to clean.

4.2.5.5.1 - The use of dust-resistant materials inside interconnecting gangways is recommended.

4.3 - Further conditions imposed on interconnecting gangways in UIC-compatible coaches travelling at speeds of up to 200 km/h on high-speed lines with tunnel sections.

4.3.1 - General requirements.

4.3.1.1 - The following features apply as a supplement to Paragraph 4.2.

4.3.2 - Pressure-tightness and dynamic load requirements.

***4.3.2.1** - In the case of high-speed trains crossing in tunnels, the following external pressure conditions should be respected as regards dynamic loads and pressure-tightness:

Reserved (1)

***4.3.2.2** - On lines comprising more than (2) tunnels per 100 km, the following conditions should be respected:

***4.3.2.2.1** - With the sliding doors closed the following pressure variations must not be exceeded in the interconnecting gangway:

- maximum pressure variation inside the interconnection (reserved) (3),

- maximum pressure variation per time unit: (reserved) (3).

(1) These values are reserved pending the results of work carried out by ORE B106-3. For example, where a high-speed train travelling at 280 km/h crosses a train consisting of standard UIC coaches and travelling at 200 km/h in a tunnel with a gap-size ratio of $\frac{S_{train}}{S_{tunnel}} = \frac{10.3}{82} = 0.13$ and 3000 m long, the DB applies external pressure variations of:
+3200 Pa
-4900 Pa
With S_{train} = train cross section
S_{tunnel} = tunnel cross section.

(2) The exact number has yet to be decided.

(3) These values are reserved pending the results of the work carried out by ORE B 106-3. For example, maximum pressure variation values of 3500 Pa and of 300 Pa/s per time unit are good approximations.

***4.3.2.3** - Interconnecting gangways must be protected against any tendency to rise when one train crosses another.

4.3.3 - Acoustics requirements.

***4.3.3.1** - In tunnels, sound levels inside the interconnection area may be a maximum of 5 dB(A) higher than those stipulated in Paragraph 4.2.2.1.

4.3.4 - Further conditions concerning fire precautions.

***4.3.4.1** - Measures should be taken to prevent rapid spread of fire in the event of an outbreak. Interconnecting gangways must be such as to enable fire, smoke and heat radiation to be contained, over a period of 15 minutes (1), with the end doors closed and under uniform temperature conditions (cf. ISO 834) so as to prevent the fire from spreading to the next coach and thereby endangering passengers' lives.

***4.3.4.2** - Provision should be made for rapid uncoupling of gangway connections.

***4.3.4.3** - Materials used must comply with smoke opacity and toxicity requirements (2).

4.4 - Plate 5 shows an example of a pressure-tight interconnection.

(1) This time limit is calculated on the basis of 15 km long tunnels passed through at speed. These requirements will be more closely defined in the light of the work carried out by ORE B 106.2.

(2) These requirements will be defined in the light of work carried out by ORE B 106.2. For example, the SNCF tolerates smoke levels of at least F4 according to SNCF document 100 3000 960.

Raccord d'intercirculation à bourrelets conçu pour une largeur de passage de 1060 mm
Wulstübergang mit 1060 mm Durchgangsbreite
Flange intercommunication connection designed to afford a passage 1060 mm wide

Fig. 1

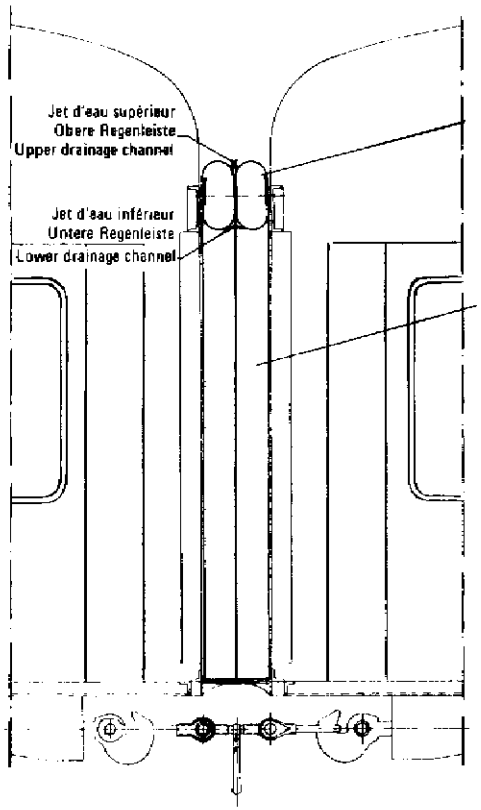


Fig. 2

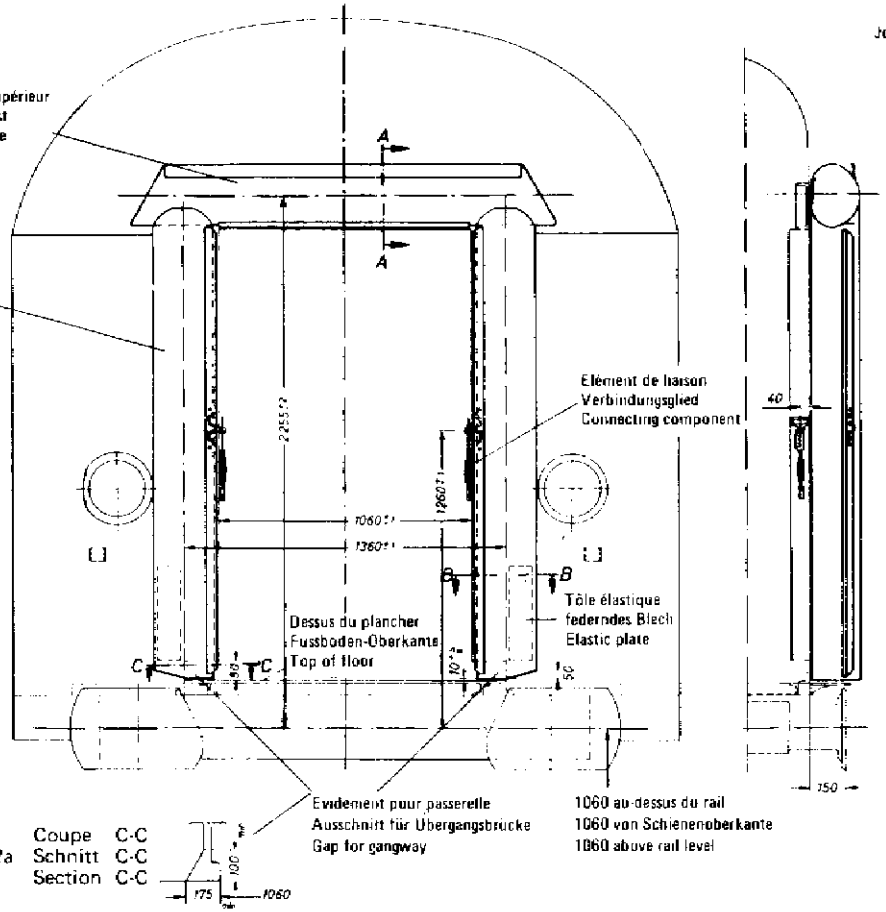


Fig. 2a Coupe C-C / Schnitt C-C / Section C-C

Fig. 3 Coupe A-A / Schnitt A-A / Section A-A

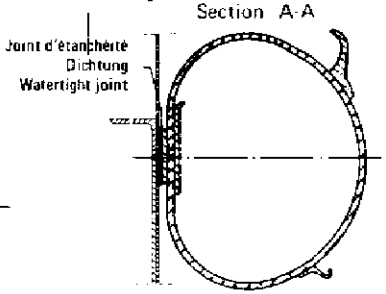
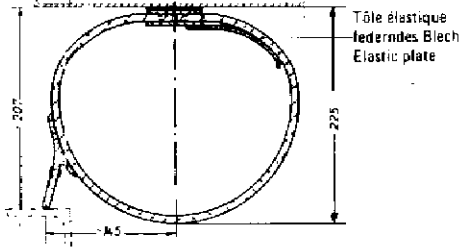
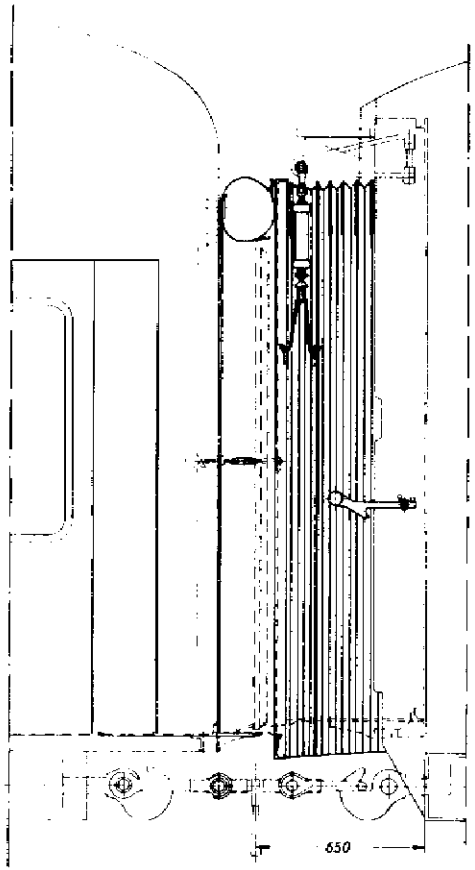


Fig. 4 Coupe B-B / Schnitt B-B / Section B-B



Liaison bourrelets/soufflet
Verbindung Wulst-Faltenbalg
Flange/bellows connection

Fig. 1



Élément de liaison
Verbindungsglied
Connecting component

Fig. 2

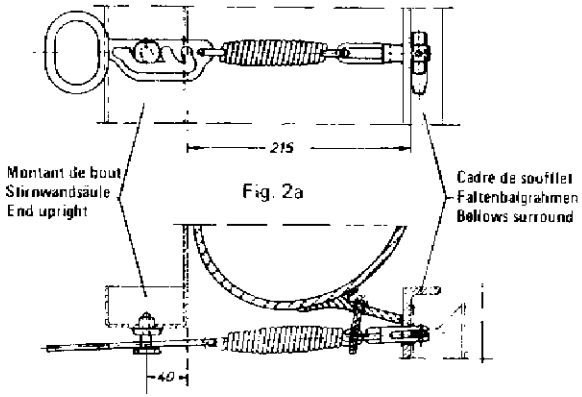
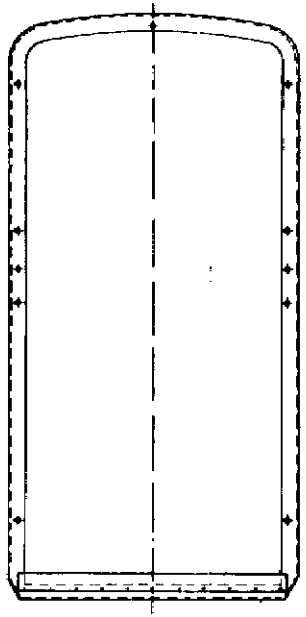


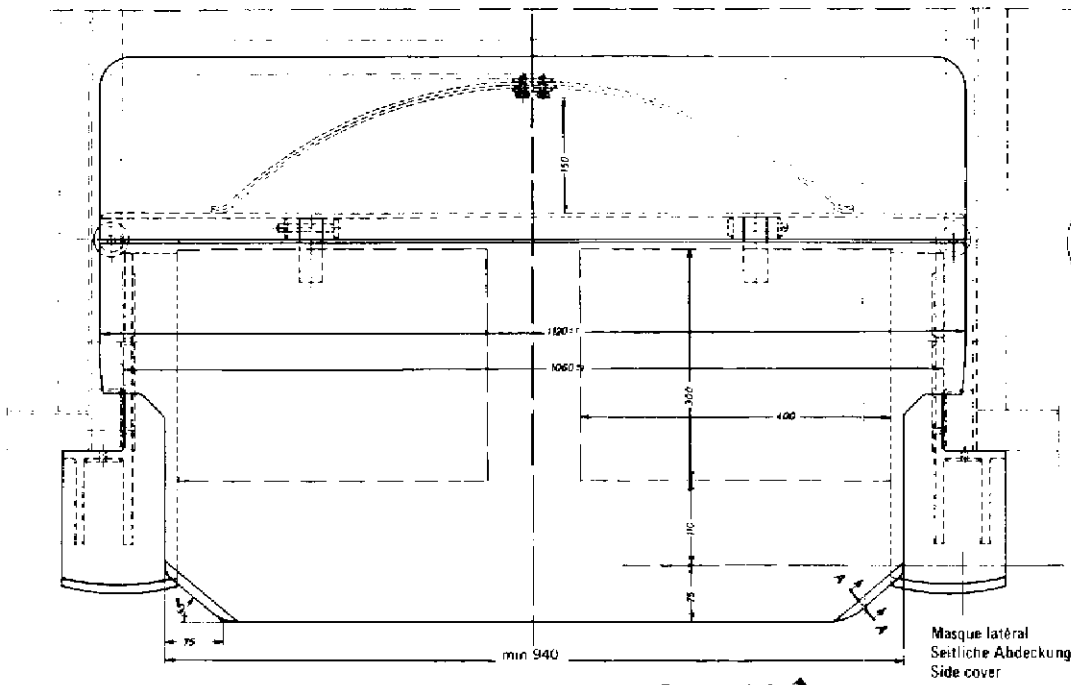
Fig. 2a

Fig. 3



Passerelle pour raccord d'intercirculation à bourrelets
Übergangsbrücke für Wulsteinrichtung
Gangway for flange intercommunication connection

Fig. 1



Coupe A-A
Schnitt A-A
Section A-A

Fig. 1a

Fig. 2

A — à appliquer dans le cas des trains circulant avec les portes d'intercirculation ouvertes
anzuwenden, wenn Züge mit offenen Stirnwandtüren fahren
to be used in the case of trains running with the intercommunicating doors open

B — à appliquer dans le cas des trains circulant avec les portes d'intercirculation fermées
anzuwenden, wenn Züge mit geschlossenen Stirnwandtüren fahren
to be used in the case of trains running with the intercommunicating doors closed

Fig. 2a

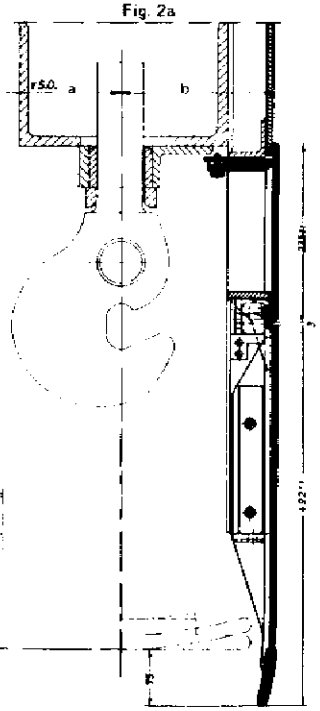
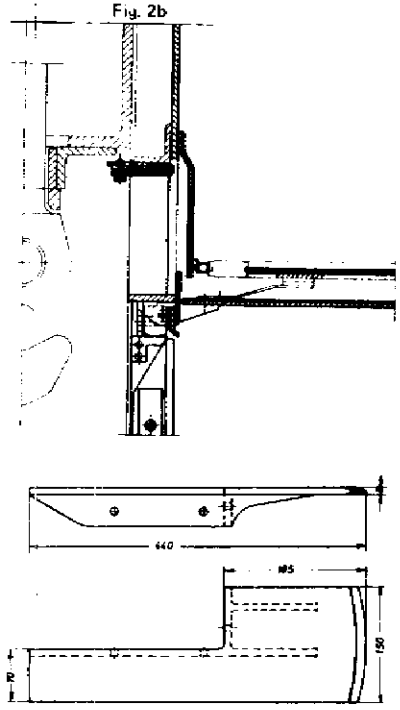


Fig. 2b



Masque latéral
Seitliche Abdeckung
Side cover

Fig. 3

a = 1060. Sur les voitures préparées en vue du montage de l'attelage automatique, la cote 1060 peut être ramenée à 1040.

b = 196 ± 5. Sur les voitures préparées en vue du montage de l'attelage automatique, la cote b doit être modifiée en fonction de la cote a.

a = 1060 Bei Wagen, die auf AK vorbereitet sind, kann das Mass 1060 auf 1040 reduziert werden.

b = 195 ± 5 Bei Wagen, die auf AK vorbereitet sind, muss das Mass b in Abhängigkeit vom Mass a geändert werden.

a = 1060. On coaches that have been adapted to take the automatic coupler, this can be reduced to 1040.

b = 195 ± 5. On coaches that have been adapted to take the automatic coupler, dimension "b" must be correspondingly altered in relation to dimension "a".

Soufflet d'intercirculation avec ouverture de 1 000 mm
Faltenbalg mit 1 000 mm Öffnung
Communicating bellows 1 000 mm opening

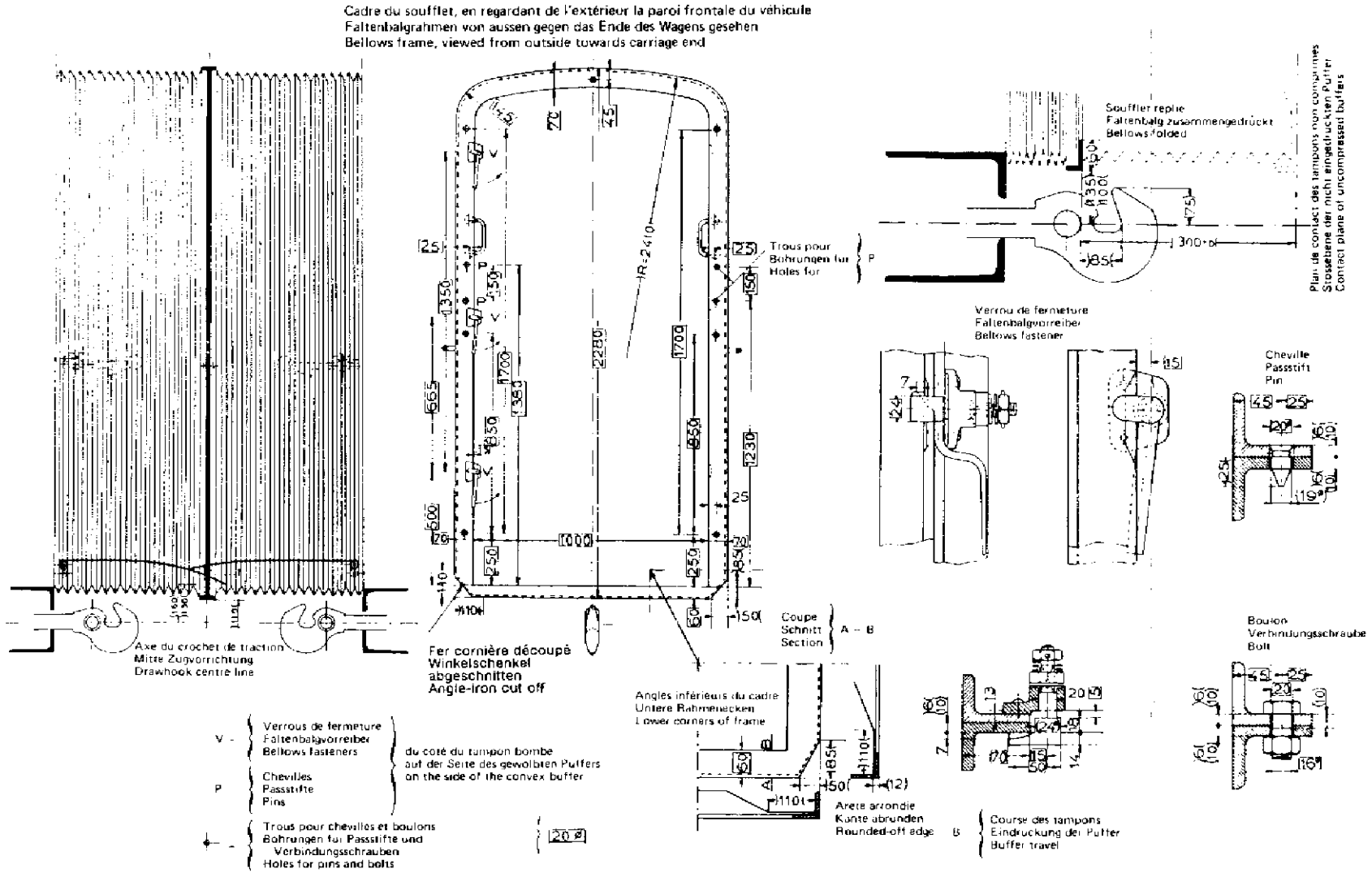
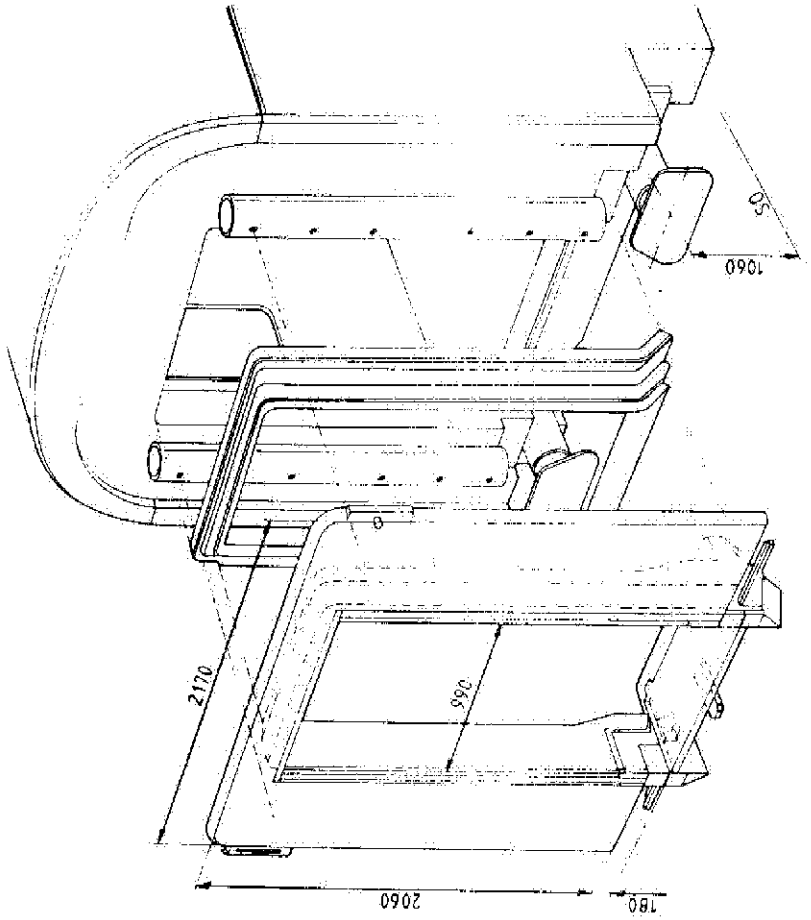


PLANCHE 5
TAFEL 5
PLATE 5

Intercirculation en exécution étanche - Exemple d'exécution
Übergang in druckertüchtigter Ausführung - Ausführungsbeispiel
Pressure-tight intercommunication - Design example



Application

As from 1 January 1991.

All UIC railways.

Record References

Latest headings under which the subject has been examined:

- *Question 45/A/FIC* - Revision of leaflets.
6.3 - Means of intercommunication for coaches.
Withdrawal of connecting parts linking bellows and flanges.
(Sub-Committee 45/A "Coaches" : Paris, January 1987).

- *Question 45/A/24 - Coach pressure-tightness.*
("Traction & Rolling Stock" Committee: Paris, June 1990).

- *Question 45/A/FIC* - Revision of leaflets.
Amendments to Leaflet 561 following publication of the new Leaflet 567.
("Traction & Rolling Stock" Committee: Paris, June 1990).

- *Question 45AFIC* - Revision of UIC leaflets.
Point 9.6 - Modifications proposed by ÖBB.
(Rolling Stock Committee" : Berlin, May 1995).

- *Question 45AFIC* - Revision of UIC leaflets.
Question 45AFICb - Operating difficulties during wintry weather conditions: Proposals from ERRI SC B 106 for modifications to UIC leaflets.
(Sub-Committee 45A "Coaches" : Paris, September 1995).

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- *Question 45/A/24* - Coach pressure-tightness.
("Traction & Rolling Stock" Committee: Paris, June 1990).

- *Question 45/A/FIC* - Revision of leaflets.
Amendments to Leaflet 561 following publication of the new Leaflet 567.
("Traction & Rolling Stock" Committee: Paris, June 1990).

- *Question 45AFIC* - Revision of leaflets.
Point 9.6 - Amendments proposed by ÖBB.
(Rolling Stock Committee": Berlin, May 1995).

- *Question 45AFIC* - Revision of UIC leaflets.
Question 45AFICb - Difficulties in winter operations: amendments to UIC Leaflets proposed by ERRI SC B106.
(Sub-Committee 45A "Coaches": Paris, September 1995).