INTERNATIONAL UNION OF RAILWAYS

U I C CODE
Leaflet to be classified in Volumes : IV - OPERATING V - TRANSPORT STOCK

567-4 OR

1st Edition, 1-1-69

UDC : 629.454

STANDARD OPEN BOGIE VAN

ADAPTED FOR THE CONVEYANCE OF MOTOR CARS (1)

CHARACTERISTICS

(1) Obligatory regulations are preceded by an asterisk thus : *

Print of 1-1-80

REVISIONS

Leaflet 567-4, 1st edition 1-1-69			
Amendment		Amendment	
No.	Date	No.	Date
1	1-1-70		
2	1-1-71		
3	1-1-77		
4	1-1-80		
5	01.01.81		
6	01-01-84		

1 - INTRODUCTION

The purpose of this leaflet is to define the characteristics of a purpose-built bogie van for the transport of motor cars on passenger trains (accompanied motor cars).

* In addition to the stipulations set out below, this van must comply with the other conditions laid down in the UIC Code for rolling stock used on passenger trains, also with the regulations of the Technical Unity of Railways.

* In particular, the dimensions of the transverse section of the van and its load must comply with Article III of Technical Unity ; in order to meet technical requirements, however, the conditions of UIC Leaflet 505-2 may be applied to parts situated between 130 mm and 430 mm above rail level when static, under load, and at the limit of wear.

* The van must be constructed of interchangeable parts defined in the UIC Code, and components conforming to UIC qualitative and dimensional standardisation (Volume VIII), with no derogations other than those made necessary by technical requirements.

2 - CONDITIONS OF OPERATION AND USE

* **2.1** - Normally, the van shall be worked in passenger trains, with no reservations or restrictions as to composition.

It may be used on international services for the conveyance of motor cars for industrial purposes, subject to agreement between the Railways concerned.

* **2.2.** - The van must be suitable for running without difficulty, irrespective of the state of the load :

- when coupled, over gravity humps, the section of which is defined in the appendix to UIC Leaflet 522 ;
- when coupled, with the buffers in contact, over 150 m radius curves, and over curves and reverse curves of 150 m radius separated by a straight section of track 6 m long, with the buffers situated on the inside of the curve depressed to the fullest extent (110 mm each) ;
- individually, over 75 m radius curves, without it being necessary for any part to be removed.

* **2.3.** - The van must be suitable for running at a speed of 140 km/h.

* **2.4.** - The underframe of the van must be designed so that the buffing and draw automatic coupler as defined in the UIC Code may be fitted at a later date without the need for any strengthening or extensive alterations.

3 - Construction characteristics

* **3.1** - The bogie van, as adapted for the conveyance of motor cars on 2 rigid decks, one above the other, must be capable of supporting a maximum load of 15 tonnes, made up of motor cars arranged in single file on each deck.

★ **3.2** - The bogies of the van, both from the point of view of the running gear and the brake equipment, must allow for satisfactory running at a speed of 140 km/h.

★ **3.3** - The design of the upper (1) and lower rigid decks must provide for the passage (running tracks) and securing (full or half chocking bars) (Plate II, figure 1) of the motor cars.

★ They must be strong enough to support a moving motor car weighing up to 2.5 t.

★ The chocking bars for the motor cars must be able to withstand a deceleration of at least 1g.

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(1) By derogation from this condition and for those Railways which so desire, it is permissible for the two ends of the upper deck to be moveable. In this case, the articulation points shall be approximately 3.60 m from the bogie pivot, towards the centre of the van. Various systems (screw, electric, hydraulic, etc.), may be used for operating the moveable ends but manual operation must be possible in all cases.

It must be possible to lock the moveable ends of the deck in various clearly marked positions, one of which corresponds to the level of the upper deck of the van with rigid decks.

Attention is drawn to the fact that when the moveable deck is lowered for the loading or unloading of motor cars on the upper deck of the van, the ground clearance necessary for cars is greater than that of the theoretical vehicle shown in figure 2 of Plate II. Special arrangements must therefore be made by Railways using this facility.

For the transport of motor cars on international passenger trains, the moveable deck must remain immobilised at the level corresponding to the upper deck of the van with rigid decks, and use of the moveable deck for loading or unloading operations shall be prohibited.

★ The longitudinal axis of each deck must be marked with an unbroken light-coloured line.

★ **3.4** - Articulated ramps shall be provided over the whole width of the decks, so that cars and passengers may be ensured through access.

★ It must be possible for these ramps to remain in a lowered position between two vans during running.

★ **3.5** - The loading decks must allow for the passage, between two adjacent vans, of motor cars loaded up to the maximum authorised by the manufacturer (1), even where there is a difference in buffer height of 65 mm.

★ **3.6** - The brake equipment of the van must be of the compressed air type, automatic, and with graduated release. for «goods» running conditions, the brake equipment must correspond to category S or SS. For «passengen» running conditions, it must be of the high-power category.

★ **3.7** - The van shall be fitted with a screw brake operated from the lower deck by a wheel situated at one end of the vehicle.

★ 3.8 - The van must be fitted with :

- the electric train cable, in accordance with UIC Leaflet 552;
- the 12-wire loudspeaker system, in accordance with UIC Leaflet 568;
- the 2nd air pipe (main pipe).

(1.1.81) 3.8.1 - The van may also be provided with a steam-heating through pipe.

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(1) especially the theoretical vehicle defined in Figure 2 of Plate II.

★ 3.9 - Simple ladder and step arrangements shall be provided for staff on duty to gain access to the lower and upper decks, on each side of the van.

★ 3.10 - When vans are stationary, it must be possible for passengers to move about quite safely on both decks.

★ 3.11 - In order to prevent passengers from falling over the side, railings must be provided on both sides of the loading decks, i.e. :

- on vans built prior to 1-1-1980 : on the upper loading deck,
- on vans built from 1-1-1980 : on the upper and lower loading decks.

3.11.1 - As regards vans built prior to 1-1-1980, it is recommended that the lower loading deck be also fitted with railings.

★ 3.12 - The railings provided on vans built from 1-1-1980 must comply with the provisions of Point 3.13 of this leaflet.

3.12.1 - It is recommended that these provisions be also applied for vans built prior to 1-1-1980.

3.13 - Provisions concerning the design of railings.

★ 3.13.1 - The railings must afford protection in the particular area of the van where passengers may move about during loading and unloading operations.

Example of railing design : see Plates III a and III b.

★ 3.13.2 - The railing height above the loading deck shall be 800 mm on the upper deck and 1000 mm on the lower deck.

★ 3.13.3 - To prevent the paintwork of motor cars from being damaged, all protruding elements - e.g. cable securing devices shall be coated with elastic material. These elements shall be painted bright yellow.

These pages replace the old pages 7/8, Leaflet 567-4 (1-1-81)

★ 3.13.4 - A door shall be provided in the centre of the upper-deck railings so that passengers may have access to the upper deck by means of movable stairways which might be placed at their disposal at stations.

3.13.5 - It is admitted that a door be also provided in more or less the centre of the lower-deck railings.

4 - Static test loads

See UIC 566

★ The van shall be capable of bearing, without permanent distortion or overstressing :

- a static compressive load of :
  200 tf minimum at buffer level (applied symmetrically),
  50 tf minimum diagonally, at buffer level,
  200 tf minimum on the centre buffer stops of automatic couplers.

- a static tractive load of :
  150 tf on the whole of the drawgear stops,
  70 tf on the rear drawgear stops,
  100 tf on the front drawgear stops.

- a uniformly distributed vertical load of $P = k (P1 + P2)$ where :
  $P1$ = weight of the body in running order,
  $P2$ = maximum load of the van = 15 t, with the possibility of a maximum load of 10 t per deck.
  k = 1.3 = coefficient to take into account dynamic forces.

5 - Main dimensions

★ Plate I gives a diagram of the van.

- length over buffers . . . . . 26.400 m + 0.010
- length of underframe . . . . . 25.100 m

- overall length of upper deck, excluding ramps (min.) 26.000 m
- overall length of lower deck, excluding ramps (min.) 25.400 m
- inside width (min.) ..... 2.600 m
- distance between guide rails (see Plate II, fig. 1) .... 1.850 m ± 0.005
- distance between bogie pivots ..... 19.000 m
- wheel-base of bogies (recommended) ..... 2.300 m
- diameter of wheels ..... 0.840 m
- buffing and drawgear height of automatic coupler (empty vehicle in new condition) ..... $1.015\ \text{m}\ {}^{0}_{-0.005}$
- buffer stroke ..... 0.110 m
- height of running tracks on the lower deck above the running surface, over the greatest possible length (empty van, in new condition) (max.) ..... 0.850 m
- available height between the running tracks of the lower deck, and the upper deck, over the whole length of the van and over a width of 1.850 m (1) (min.) ..... 1.580 ± 0.005 m
- available height between the running tracks of the upper deck and the TU Gauge, along the longitudinal axis and over the greatest possible length (empty vehicle, in new condition) (min.) ..... 1.800 m

(1) The profile of the «tunnel» of the lower deck must be outside the dimensional outline obtained from a theoretical vehicle as defined in Plate II, figure 2, running along the whole length of the lower deck and between two coupled vans with a difference of 65 mm in buffer heights.

The profile recommended for the ends of the van and the ramps is shown in Plate II, figure 3.

- maximum tare ..... 26.5 t (1)
- maximum load :
  - on passenger trains ..... 15 t
  - on freight trains (all types) ..... 15 t

(1) In the case of vans with mobile upper-deck ends, the tare may reach 28 t.

BOGIE VAN ADAPTED FOR THE CONVEYANCE OF MOTOR CARS

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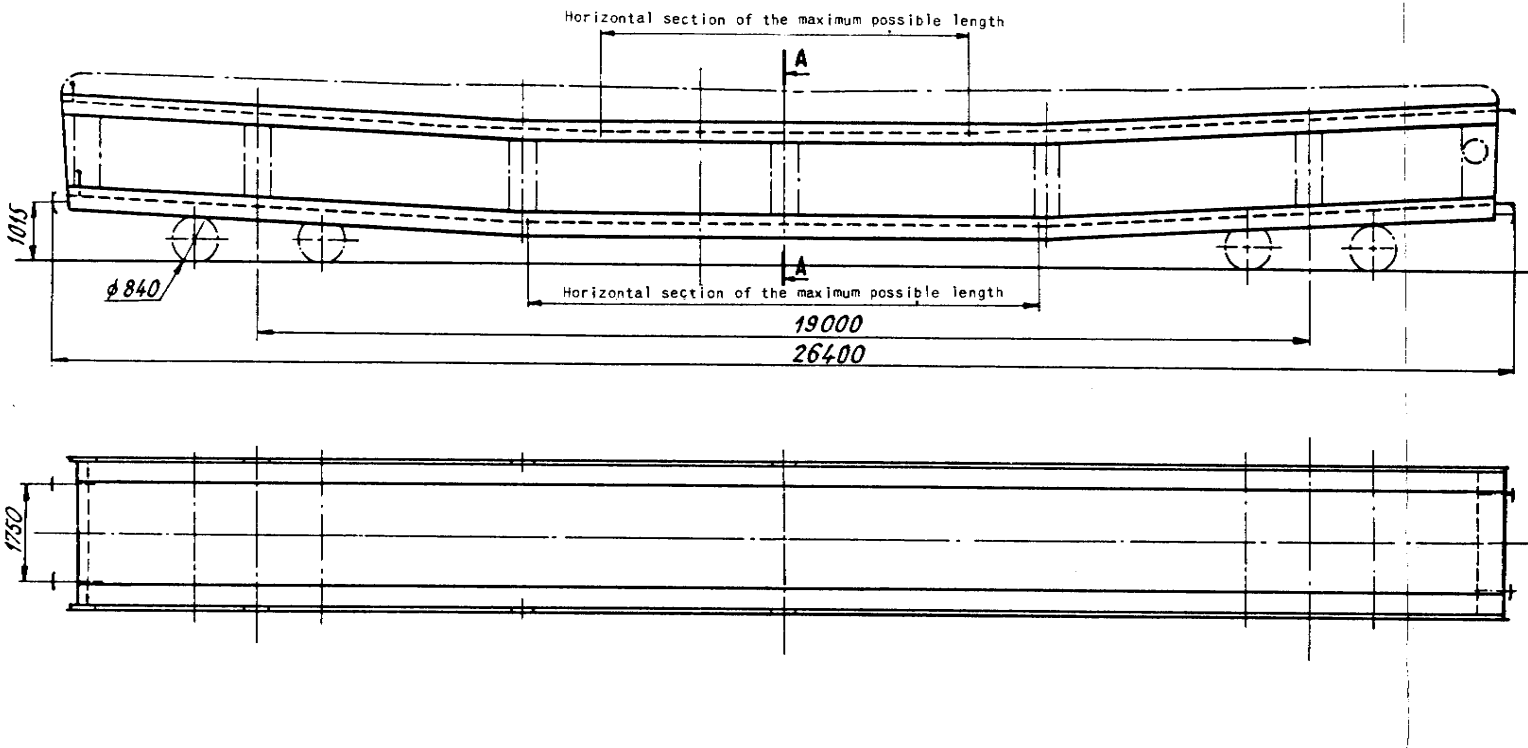
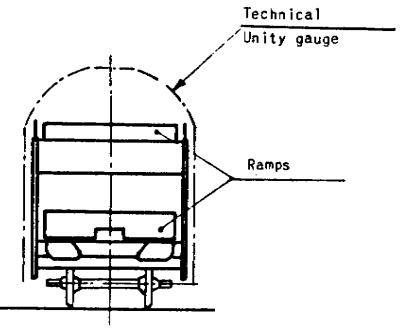
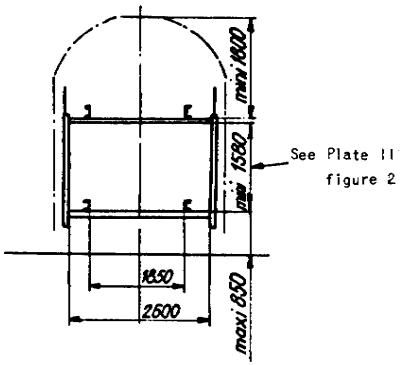
PLATE I





Section A-A



See Plate II
figure 2

BOGIE VAN ADAPTED FOR THE CONVEYANCE OF MOTOR CARS

Figure 2

Theoretical vehicle for defining the lower tunnel space and the ground clearance to be observed when passing from one van to another.

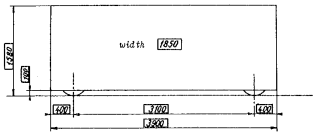
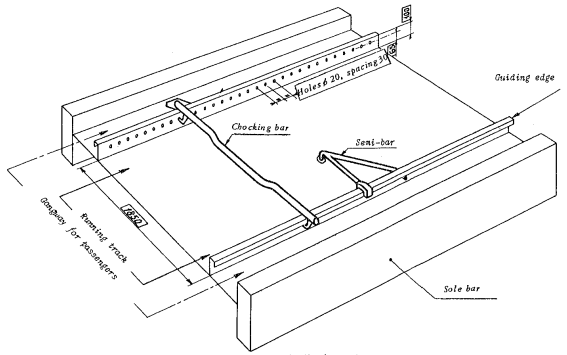


Figure 1

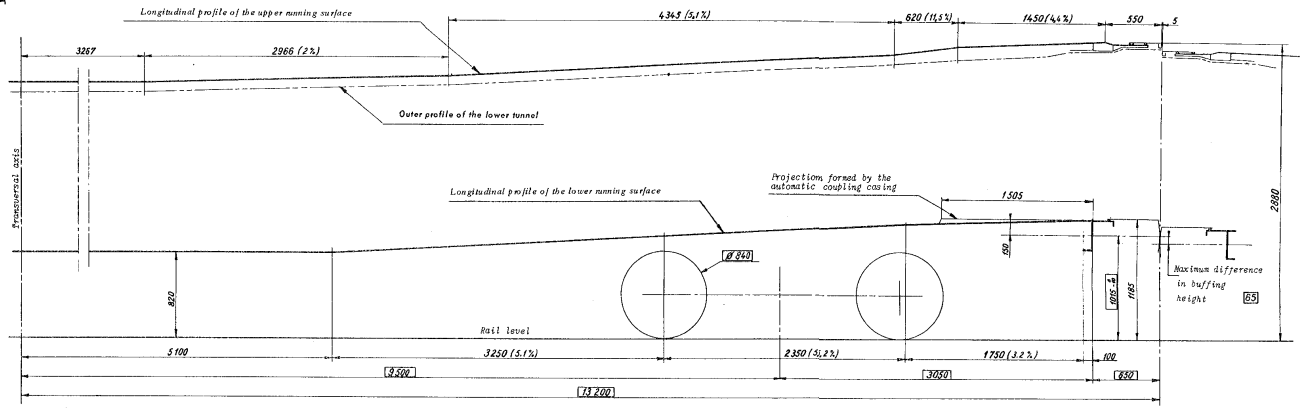
Guiding and chocking of the cars



NOTE. – *The projection of the chocking bars into the passenger gangways must be as small as possible.*

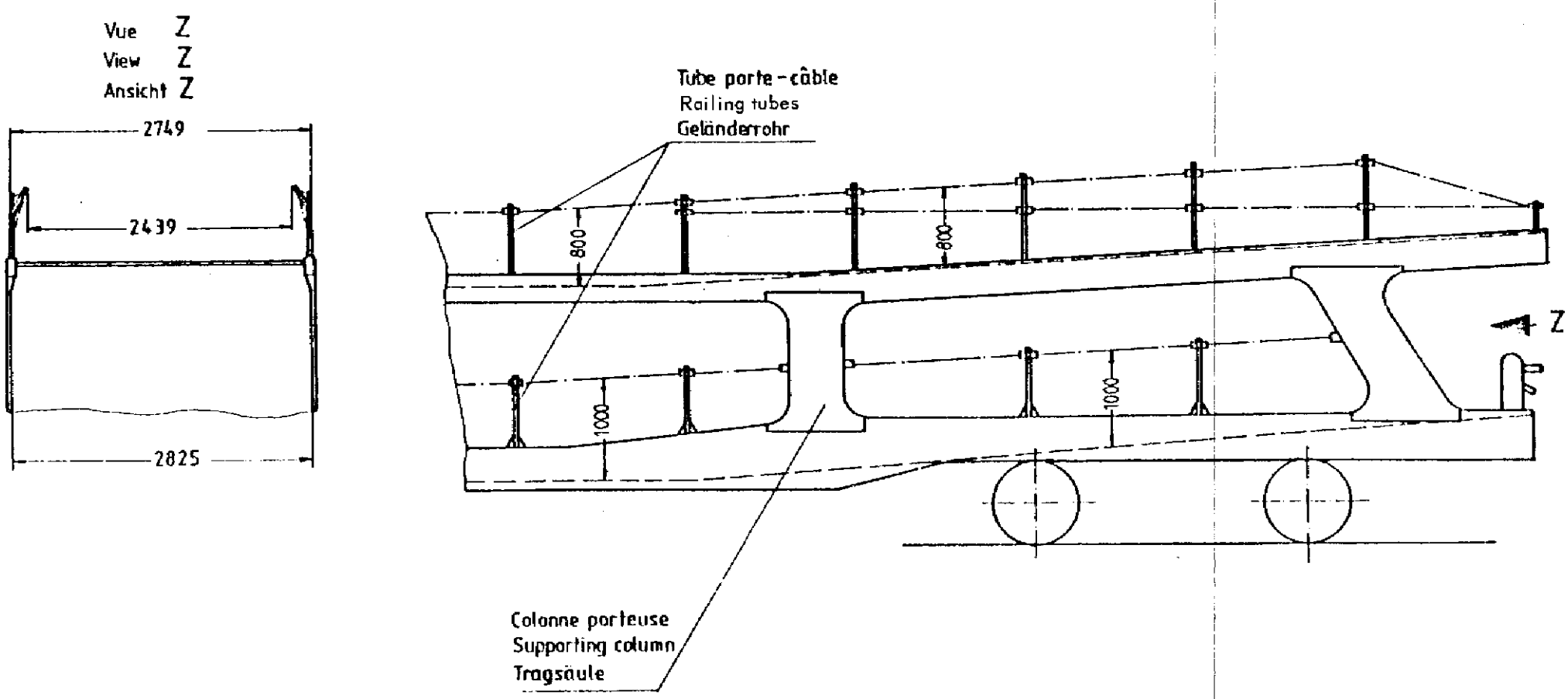
Figure 3

Recommended profile



▭ *Obligatory dimensions*

FOURGON A BOGIES AMENAGE POUR LE TRANSPORT D'AUTOMOBILES - EXEMPLE POUR LA REALISATION DU GARDE-CORPS
BOGIE VAN ADAPTED FOR THE CONVEYANCE OF MOTOR CARS - EXAMPLE OF RAILING DESIGN
DREHGESTELL-GEPÄCKWAGEN FÜR DIE KRAFTFAHRZEUGBEFÖRDERUNG - AUSFÜHRUNGSBEISPIEL FÜR GELANDER



FOURGON A BOGIES AMENAGE POUR LE TRANSPORT D'AUTOMOBILES - EXEMPLE POUR LA REALISATION DU GARDE-CORPS
BOGIE VAN ADAPTED FOR THE CONVEYANCE OF MOTOR CARS - EXAMPLE OF RAILING DESIGN
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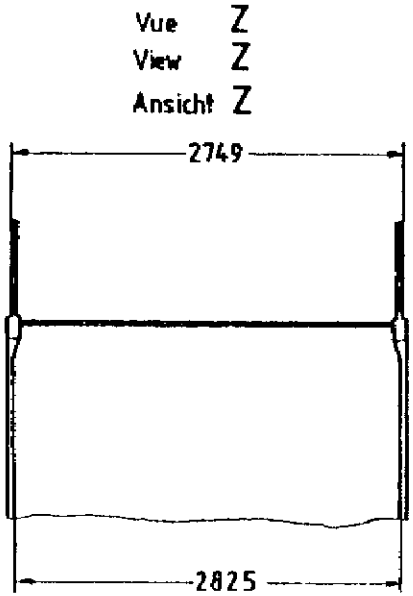

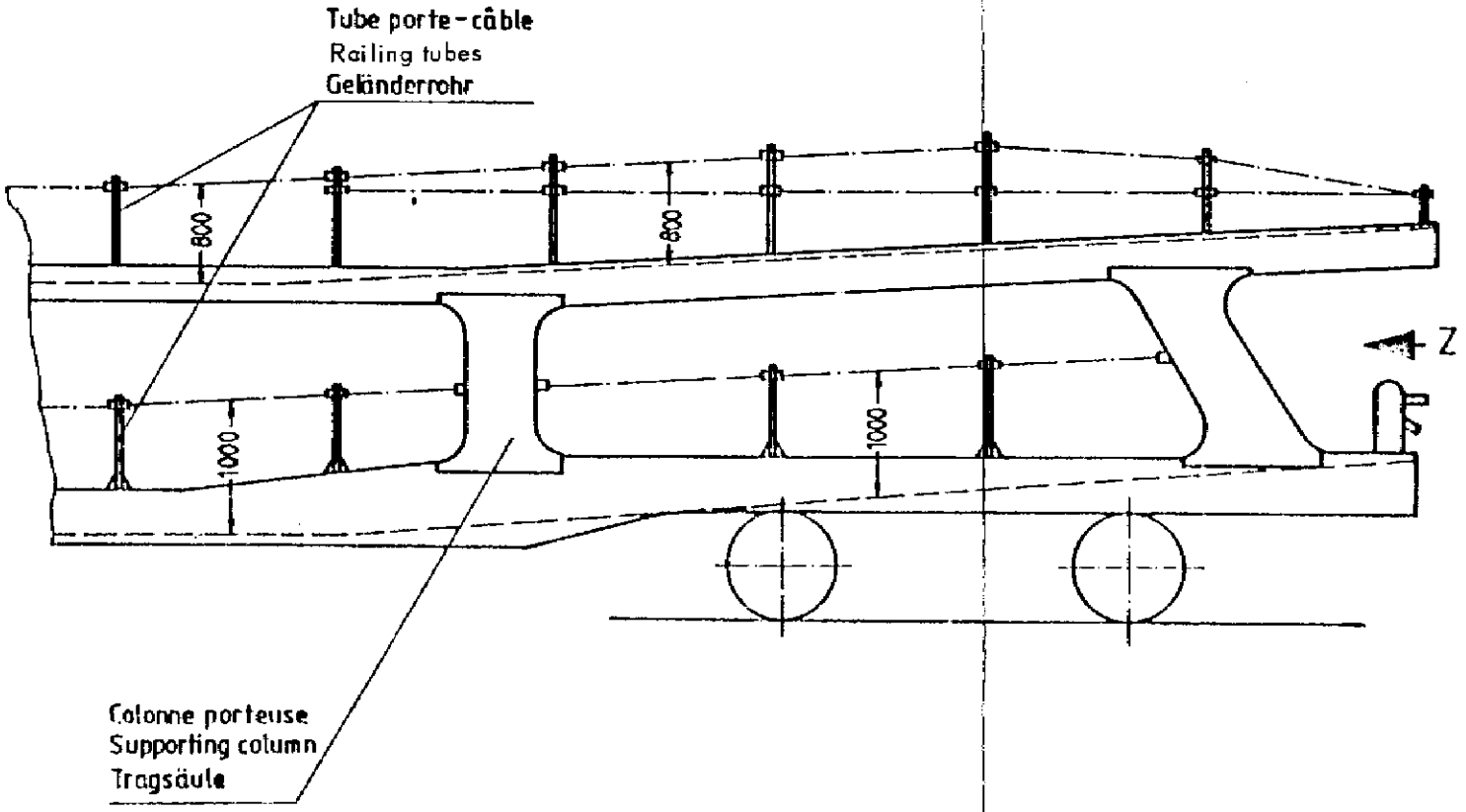

APPLICATION

As from 1 January 1969 for obligatory provisions, except as regards:

- Point 5 (provision concerning the maximum tare 1-1-70
- Point 3.8 ..... 1-1-81 (for vehicles to be built in the future) / 1-1-85 (for existing vehicles)
- Points 3.10, 3.13.1, 3.13.2, 3.13.3, 3.13.4 ..... 1-1-80 (for vehicles to be built in the future
- Point 3.11 ..... 1-1-81 (for vehicles to be built in the future) / 1-1-85 (for existing vehicles)

All Railways in the Union.

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- *Question 45/ A/ FIC.* - Revision of and amendments to leaflets managed by the Joint Sub-Committee for Coaches.

(Joint Meeting of the Operating and Traction and Rolling Stock Committees : Oslo, June 1980).

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Paste on p. 19, Leaflet 567-4 (1-1-81)

Paste on p. 20, Leaflet 567-4 (1-1-81)

APPLICATION

With effect from 1st January, 1969 for obligatory provisions except as regards :

- point 5 (provision concerning the maximum tare) 1-1-70
- points 3.10, 3.10.2, 3.10.3, 3.10.4, 3.10.5 ..... 1-1-80 (for vehicles to be built)

All Railways in the Union.

RECORD REFERENCES

Headings under which the question has been dealt with :

- Study of the standardisation of a single type of two-tier wagon for the transport of motor cars.

(4th-5th Committees : Leipzig, May 1965 ; Lisbon, May 1966 ; Stockholm, May 1967 ; Florence, May 1968).

- Standard open bogie van equipped for the conveyance of motor-cars. Examination of a variant with the upper floor fitted with 2 movable ends.

(Joint Meeting of the Operating and Traction and Rolling Stock Committees Nürnberg, June 1969 ; Sofia, May 1970).

- Revision of the UIC leaflets under the jurisdiction of the Joint Sub-Committee for Coaches.

(Joint Meeting of the Operating and Traction and Rolling Stock Committees : Madrid, June 1976).

- *Question 45/A/FIC* - Revision and adaptation of leaflets managed by the Joint Sub-Committee for Coaches.

3.5 - Approval of modifications to Leaflet 567-4 «Open bogie van for the conveyance of motorcars - Characteristics, safety devices.

(Joint Meeting of the Operating and Traction and Rolling Stock Committees : Paris, June 1979).

1-1-84

- *Question additional to the programme.* - Revision of Point 4 of Leaflet 567-4.

(Traction and Rolling Stock Committee : Zurich, June 1983).