

**NUMERISATION DANS
L'ETAT DU DOCUMENT**

INTERNATIONAL



UNION OF RAILWAYS

U.I.C. CODE

535-1



Leaflet to be classified in Volumes:

IV - OPERATING

V - ROLLING STOCK

5th edition, 1-1-72
Brought up-to-date on
1-1-73
A7-86

To be stuck on page 1, Leaflet No. 535 (1-1-73)

STANDARDISATION OF STEPS

AND HANDRAILS ON WAGONS (1)

In order to ensure maximum protection for staff, the provisions in this leaflet shall be obligatory with regard to the following conditions:

For the types of wagons below,

- covered wagons Appendix I
- open high-sided wagons Appendix II
- flat wagons with flaps (2) Appendix III
- flat wagons without superstructure and
transcontainer wagons Appendix IV

all the provisions in the leaflet shall be applicable.

(1) With effect from 1-1-73, the provisions of this leaflet shall only apply to wagons which will not be fitted with the automatic coupler.
(2) Flat wagons with flaps of less than 400 mm high shall be treated as flat wagons without superstructure.

For other types of wagons accepted on international services, the provisions in Section A shall be applicable ; those in Sections B and C shall also be applicable insofar as the wagon construction allows.

NOTE : The provisions in Section B and in point 12 of Section C do not take into account the conditions required by the application of automatic coupling.
The study is in progress.

A. - General provisions

1. The end steps must be placed in such a way that the shunter may remain within the TU gauge during running (taking into account the reduction formula). The shunter must be able to go up and down the step, whilst running at walking speed, without risking his personal safety.

The wagons shall be provided with at least two end steps, arranged diagonally, and with corresponding handrails.

When the wagon is equipped with a screw brake operated from the ground, it must be provided with crossing steps and two end steps, at the same end.

In the latter case and also when the wagon is equipped with a screw brake with a platform accessible from both sides, it is recommended that a step should be fitted at the other end.

2. The steps, handrails and handles must be fixed by means of rivets or bolts fitted with a locked nut. In the latter case, castellated nuts fitted with split pins, or nuts locked in position by a welded lug, must be used, to the exclusion of any other locking method.

Fixing to the wagons by welding is allowed, however, in the case of intercommunicating gangways and their corresponding handles.

Fixing to the wagons by welding is only allowed under the following conditions :

- each Railway may only weld equipment on to its own wagons,
- the weld must be carried out in accordance with all regulations imposed by the Railway for safe welding (qualified staff, supervision of methods and materials used and of the work itself).

3. The clearance between the handrails and the nearest obstruction shall be at least 120 mm, except in the following two cases :

- a) handrails for shunters (number 21), for which the unobstructed space can be reduced to 100 mm ;
- b) handrails on the sliding doors of covered wagons (number 23), and handrails only used for gaining access to the floor, for which an unobstructed space of 50 mm only shall be allowed ;
- c) handrails of flat wagons without superstructure and of transcontainer wagons, for which a clearance of 100 mm only in relation to the load shall be allowed.

4. A system of perforated metal strips shall be used for the steps. However, the steps placed by the doors of covered wagons may be made of wood. Wooden steps must be provided with a stop at the sides of the rung.

5. The stirrup-shaped step shall only be used for gaining access to the floor (number 14) ; an angle-piece may be used.

6. Handrails shall be of round bar steel 20 mm in diameter.

B - Dimensions and position of steps

7. The steps at the ends of the wagons shall be 225 mm wide and 350 mm long, and shall be placed at a height of 590 mm above rail level (1). They shall be placed outside the end walls (number 11), as far as possible from the longitudinal centre line of the wagon.

In order to avoid the risk of injuring the shunter, a protective screen must be provided to cover any gaps opening up between the frame and the sliding underframe member on wagons fitted with shock absorbers (Appendix V) (2).

(1) This height is calculated on a buffer height of 1060 mm.

(2) To be published later on.

8. In the case of steps placed by the doors of covered wagons, the three alternatives given below may be used ; these regulations also apply to refrigerator, insulated and mechanically refrigerated wagons :

- a) steps 225 mm wide, 2 200 mm long and placed at a height of 615 mm above rail level (1) (number 12) ;
- b) steps 110 mm wide, at least 500 mm long and placed at a height of 615 mm above rail level (1) (number 13) ;
- c) stirrup-shaped steps \geq 50 mm wide, at least 500 mm long and placed at a height of 550 mm above rail level (1) (number 14) ;

In all three cases, the step must project 100 mm beyond the nearest side of the door opening.

9. The steps for gaining access to the brake platform shall be provided with two rungs staggered by 80 mm. They shall be 160 mm wide, with a length equivalent to the width of the access to the platform and increased, wherever possible, by 100 mm on each side, the lower rung being placed at a height of 615 mm (1) above rail level (number 15).

10. The crossing steps, three of which shall be provided, shall be 175 mm wide and 250 mm long in the case of the two side steps, with a minimum of 750 mm for the centre step.

The two side steps shall be placed at a maximum height of 1 330 mm above rail level (1) ; the centre step shall be placed 1650 mm above rail level (1).

They shall be fixed to the end wall nearest to the screw brake control (number 18).

In order to walk over wagons without superstructure, the loading surface must be provided with a non-slip floor (for example, non-slip paint) at least 500 mm wide.

(1) This height is calculated on a buffer height of 1060 mm.

11. To allow checking of the load, a step 175 mm wide and 250 mm long shall be provided on one of the hinged ends of open high-sided wagons not fitted with a brake platform or crossing steps (number 16).

This step shall be in the form of a simple stirrup.

C - Dimensions and position of handrails

12. The shunters' handrails (1) beneath the headstocks shall have a minimum width of 500 mm and shall be between 500 and 600 mm from the centre line of the wagon (number 21).

13. The handrails on the left hand door uprights of covered wagons (sliding doors), and on the corner uprights, shall be 1000 mm long. They shall be placed at a height of 1400 mm above rail level (2) (number 22).

14. In the case of handrails above end steps (numbers 11, 16, 18), the following regulations must be applied:

a) Covered and open high-sided wagons:

- two handrails placed respectively:

- one on the corner upright (number 22)
- the other on the end wall, approximately 650 mm from the corner upright (number 25).

The first handrail shall be 1000 mm long and shall be placed at a height of 1400 mm above rail level (2) (number 22); the second shall be 200 mm long and shall be placed at a height of 2200 mm above rail level (2) (number 25).

(1) See Technical Unity.

(2) This height is calculated on a buffer height of 1060 mm.

On the end walls fitted with crossing steps, the second handrail shall be replaced by three handrails at least 500 mm long and placed at a height of 1100 mm above each of the corresponding rungs (number 27).

b) Flat wagons with flaps (1) *

- one handrail, situated at the upper edge of the end flap (number 26).

The handrail must be 200 mm long and remain absolutely clear of the buffer when the flap is dropped in an outwards direction.

c) Flat wagons without superstructure and transcontainer wagons:

- a folding or retractable handrail (numbers 28 and 29). Both types of handrail shall have an unobstructed length of at least 300 mm; the upper end must be placed at a height of at least 1640 mm above rail level for the folding handrail and at least 1840 mm for the retractable handrail.

15. In the case of wagons fitted with brake platforms, the handrails on the upright of the guard rail shall be 500 mm long and placed at a height of 1400 mm above rail level (2) (number 24).

When the upright of the guard rail is of tubular section with a diameter not exceeding 35 mm, it may take the place of a handrail.

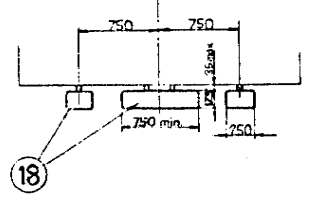
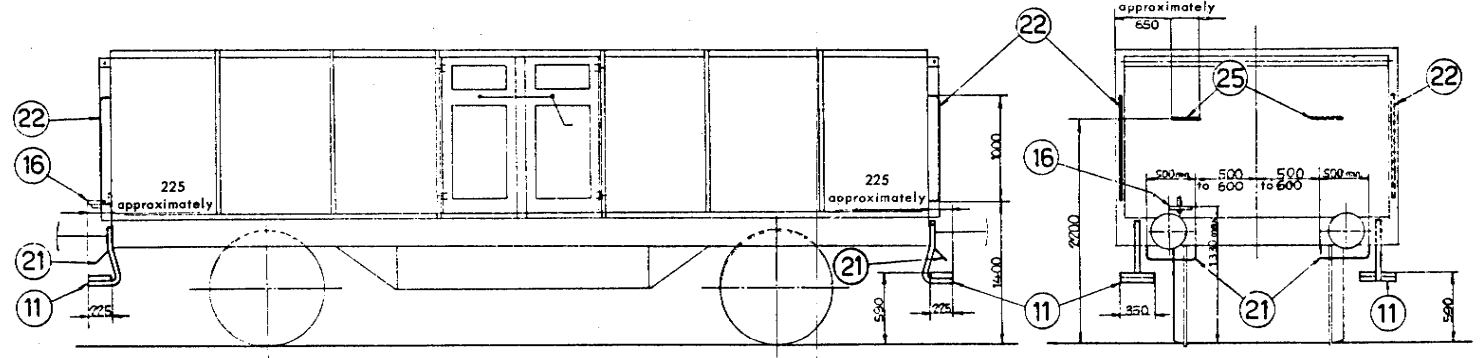
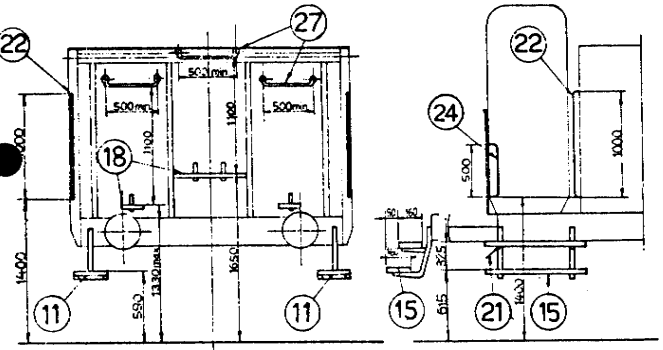
16. The handrails on the sliding doors of covered wagons shall consist of two operating handles 200 mm long, placed along the same vertical axis. The lower handle shall be 1400 mm above rail level (2) and a space of 600 mm shall be left between the two handrails (number 23).

(1) Flat wagons with flaps less than 400 mm high shall be treated as flat wagons without superstructure.

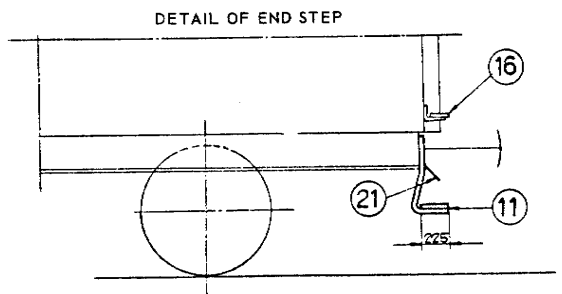
(2) This height is calculated on a buffer height of 1060 mm.

OPEN HIGH-SIDED WAGONS
STEPS AND HANDRAILS

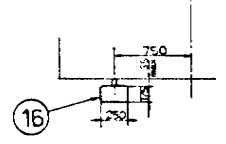
VARIANT FOR WAGONS FITTED WITH A SCREW BRAKE



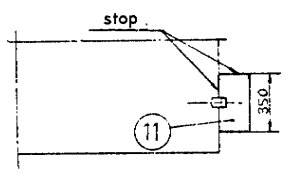
Operated from the platform



DETAIL OF END STEP



Operated from the ground

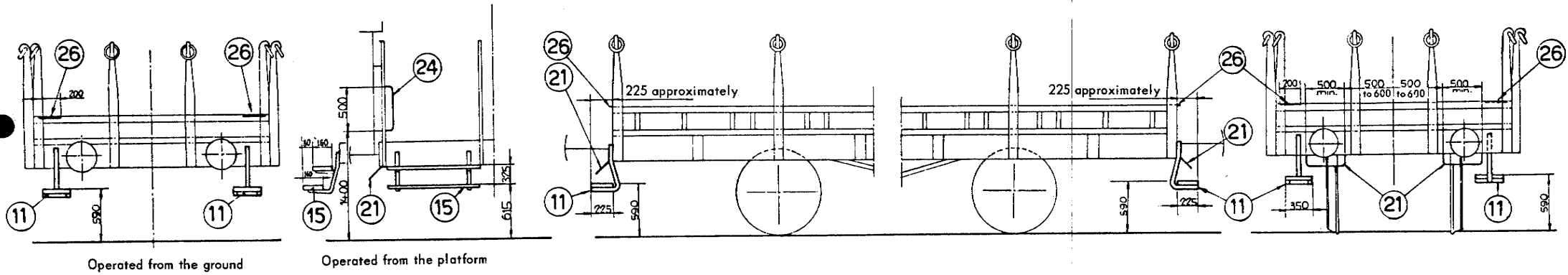


Runged step

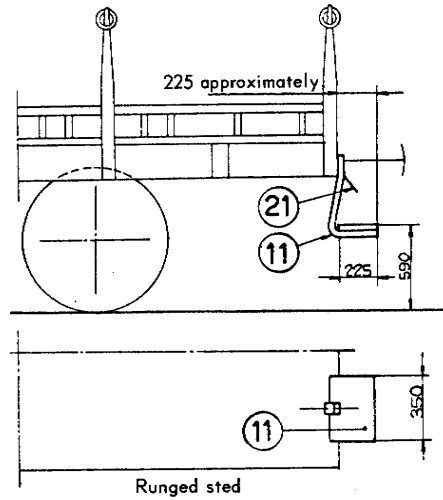
Note : The end step is placed to the left as seen when facing the end wall.

FLAT WAGONS WITH FLAPS
STEPS AND HANDRAILS

VARIANT FOR WAGONS FITTED WITH A SCREW BRAKE

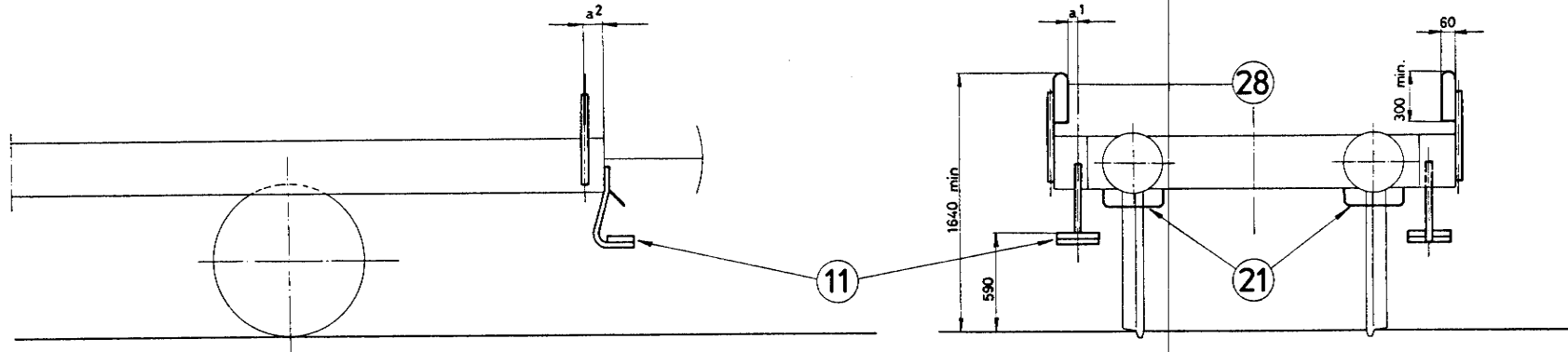


DETAIL OF END STEP



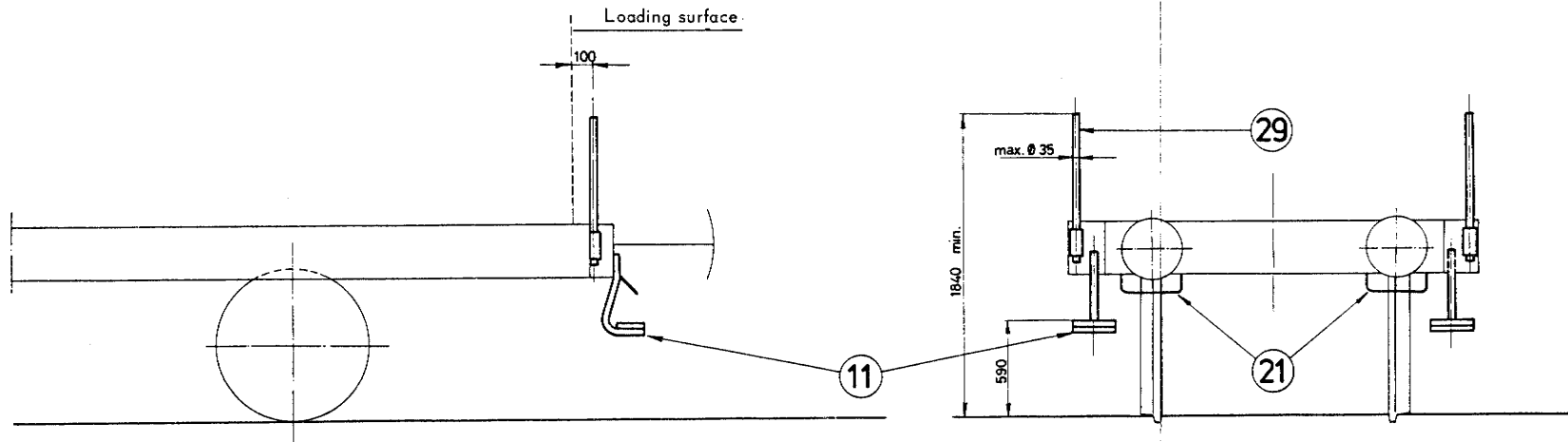
Note : The end step is placed to the left
as seen when facing the end wall.

FLAT WAGONS WITHOUT SUPERSTRUCTURE AND CONTAINER WAGONS
STEPS AND HANDRAILS.



Folding handrail

$a_1 = 0 - 200$
 $a_2 = 0 - 300$



Retractable handrail

APPLICATION

For stock to be built from 1 January 1972:

All the regulations in this leaflet shall be obligatory.

All Railways in the Union. However, a temporary derogation shall be granted to the NSB and SJ, concerning the application of point 1, paragraph 2, and of point 5.

For existing stock, built between 1 January 1958 and 1 January 1972:

- the regulations of this leaflet shall be obligatory, with the exception of the regulations mentioned below which shall only be applicable to stock built since the dates indicated opposite, or shall only be recommended:

- point 1, paragraph 1 recommended
- point 1, paragraph 3 1-1-63
- point 2 1-4-68
- point 5 recommended
- point 7, dimension of 590 mm 1-1-63
- point 7, paragraph 2 recommended
- point 10 1-1-63
- point 10, paragraph 3 recommended
- point 11, dimensions of 175 mm and 250 mm 1-1-63
- point 14a, last paragraph 1-1-63
- point 14c recommended

All Railways in the Union. However, a derogation shall be granted to the NSB and SJ concerning the application of point 1, paragraph 2.

For existing stock, built before 1 January 1958:

- the regulations in point 4 concerning steps shall be obligatory as from 1-1-1991,
- the regulations in point 14, relative to the handrails placed on the end walls or flaps above the end steps, shall be obligatory as from 1-1-75,
- other regulations shall be recommended.

All Railways in the Union.

1-7-86

RECORD REFERENCES

Headings under which the question has been dealt with :

- Standardisation of running boards and handrails on wagons. Preparation of a leaflet.
(4th-5th Committees -R.S.-: Copenhagen, May 1956).
- Standardisation of running boards and handrails on wagons.
(4th-5th Committees -R.S.- : Paris, June 1957).
- Adjustment of the conditions of Leaflet No. 535 "Standardisation of running boards and handrails on wagons", insofar as stirrup-shaped footboards are concerned.
(4th-5th Committees : Prague, June 1959).
- Likelihood of resuming the studies relating to the equipping of wagons with crossing platforms.
(4th Committee : Stuttgart, May 1960).
- Advisability of providing crossing platforms on wagons with a screw brake operated from the ground.
(4th-5th Committees : Paris, May 1961 ; Portsmouth, May 1962).
- Advisability of authorising the welding of footboards and handrails on wagons.
(5th Committee - C.W.- ; Stockholm, May 1967).
- Amendment of Leaflet No. 535 in connection with the handrail on the end wall, and of Leaflet No. 536 as regards the draw hook.
(Joint Meeting of the "Operating" and "Rolling Stock and Motive Power" Committees : Sofia, May 1970).
- Revision of Leaflet No. 535 to make it applicable to certain types of special purpose wagons and of Leaflet No. 536 as regards the towing hook.
(Joint Meeting of the "Operating" and "Rolling Stock and Motive Power" Committees : Split, June 1971).

RECORD REFERENCES

This leaflet published in 1972 under No. 535, is re-numbered "535-1" from 1-1-73 as a result of the publication of the new leaflet No. 535-2 on the same date.

To be stuck on p. 11
Leaflet No. 535 (1-1-73)

- Revision of Leaflet No. 535 to make it applicable to certain types of special purpose wagons.

- Preparation of a leaflet covering the form and position of accessory devices and fittings located at the ends of wagons, taking into account the future introduction of automatic coupling.

(Joint Meeting of the "Operating and Traction and Rolling Stock Committees" : Graz, June 1972).

- Standardisation of steps and handrails on wagons -
Modification of the item "Application" of Leaflet 535-1.
(Joint Sub-Committee for Wagons, Paris, January 1986).

1-7-86

To be stuck on p. 12,
Leaflet No. 535 (1-1-73)