



Supported by
NB-Rail Association

QUESTION / CLARIFICATION

NB-RAIL COORDINATION GROUP

INTEROPERABILITY DIRECTIVE OF THE RAIL SYSTEM WITHIN
THE EUROPEAN UNION



Co-funded by
the European Union

QC-RST-023

Issue 01
Date 09/11/2020

TITLE

WRONG DEFINITION OF FREE SPACE ABOVE DRAW HOOK

ORIGINATOR

TÜV SÜD Nederland

SUBJECT RELATED TO

TSI LOC&PAS 1302/2014, amended
by Regulation (EU) 2019/776 and/or
Regulation (EU) 2020/387

AMENDMENT RECORD:

DESCRIPTION AND BACKGROUND EXPLANATION

An important issue came up for manufacturers of locomotives (most probably also some EMU/DMUs are affected) by implementation of EN 16839:2017 into the TSI LOC&PAS starting from amendment 2019/776. This standard defines requirements for the free space above the draw hook to install the screw coupler, but also to mount the IC “rescue adapter for type 10 couplers” (5.3.3).

Background:

References: [1] EN 16839:2017

LOC&PAS TSI 4.2.2.2.3 (b-2) Compatibility between units:

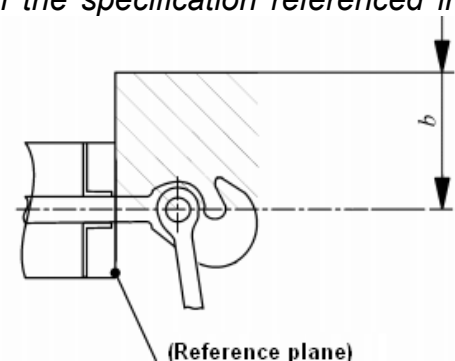
“On units equipped with manual coupling system of UIC type (as described in clause 5.3.2) and pneumatic brake system compatible with UIC type (as described in clause 4.2.4.3), the following requirements apply:

(1) The buffers and the screw coupling shall be installed according to clauses 5 and 6 of the specification referenced in Appendix J-1, index 110 [1].

(2) The dimensions and layout of brake pipes and hoses, couplings and cocks shall meet the requirements set out in clauses 7 and 8 of the specification referenced in Appendix J-1, index 110 [1].”

Description of the situation:

The definition of the requirement “free space” in chapter 6 of [1] is wrong because it uses a reference plane that fits to standard freight wagons (origin UIC 521 for freight wagons) and also, the definition of the free height is extremely simplified (≥ 395 mm, which is far away from existing locomotives) as represented in fig. 7 of [1], recalled opposite:



with $b \geq 395$ mm for locomotives



Supported by
NB-Rail Association

QUESTION / CLARIFICATION

NB-RAIL COORDINATION GROUP

INTEROPERABILITY DIRECTIVE OF THE RAIL SYSTEM WITHIN
THE EUROPEAN UNION



Co-funded by
the European Union

QC-RST-023

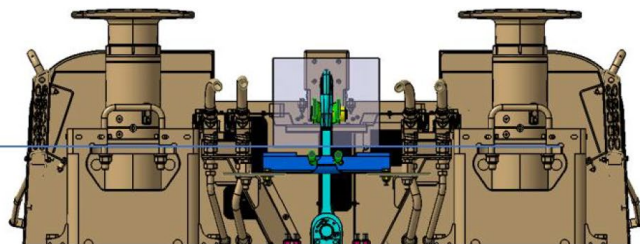
Issue 01
Date 09/11/2020

This reference plane (buffer fixing plane), derived from freight wagons, does not make sense for locomotives or EMUs/DMUs – which have to be equipped with crash buffers instead of standard UIC freight wagon buffers. See the following examples of different buffer fixing planes in locomotives (pictures by courtesy of Bombardier).

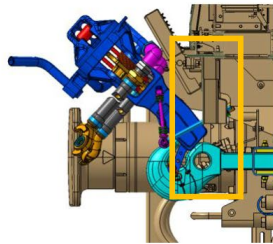
Example 1:

→ Existing rolling stock does not comply with these clearance requirements !

buffer fixing plane

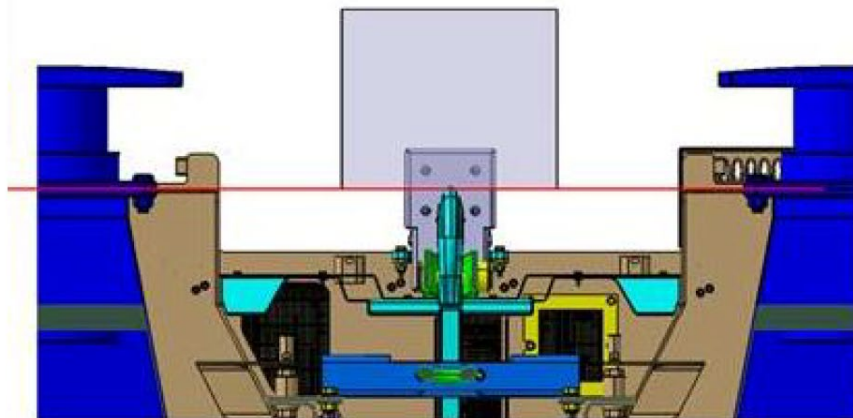


→ Required clearance in depth is not necessary in operation / for plugging in type 10 adapter !



Example 2:

buffer fixing plane



The issue is already known by the CEN working group 33, that already begun to fix this issue for the next version of EN 16839. However, the first official draft will be published in the second half of 2020 and the final version may be published not before of mid-2021.



Supported by
NB-Rail Association

QUESTION / CLARIFICATION

NB-RAIL COORDINATION GROUP

INTEROPERABILITY DIRECTIVE OF THE RAIL SYSTEM WITHIN
THE EUROPEAN UNION



Co-funded by
the European Union

QC-RST-023

Issue 01
Date 09/11/2020

In the meantime, the wrong reference plane is still enforced by the current TSI LOC&PAS and several types of locos to be homologated in 2020 are on hold. All those projects will be stopped for one year (as a minimum); not because they wouldn't fulfil the TSI requirement "type10 adapter must be mounted" – they all are compatible to that adapter – but because they all cannot fulfil the (wrong and unprecise) requirement.

Besides the action from CEN working group to correct the EN 16839, the railway sector needs urgently a solution to the reference plane issue. How can this be achieved?

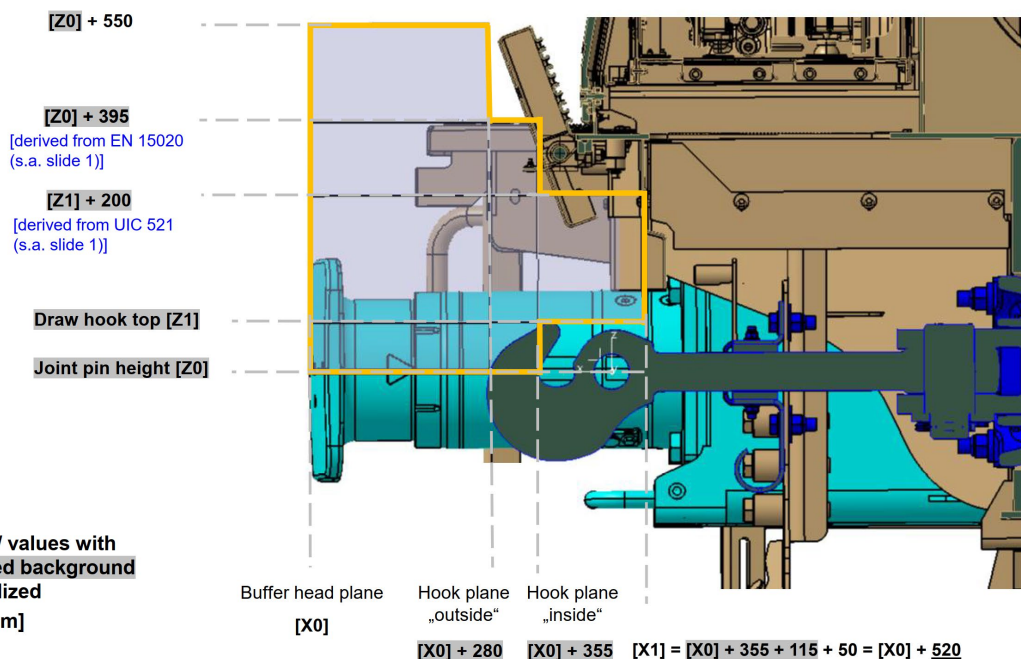
SUGGESTED RESOLUTION / INTERPRETATION

The easiest technical solution would be:

- using the buffer plate (which is the same for all type of rolling stock) instead of the buffer flange plane (which is different depending on the type of the crash-box to crash-buffer interface or the different crash systems on the market) and
- defining the free space where it is really needed.

The following picture describes the free space that is really needed – with reference plane at the buffer plate and adapted height requirements (picture by courtesy of Bombardier):

Clearance definition:



Notes:

- Parameters / values with grey coloured background are standardized
- Values in [mm]



Supported by
NB-Rail Association

QUESTION / CLARIFICATION

NB-RAIL COORDINATION GROUP

INTEROPERABILITY DIRECTIVE OF THE RAIL SYSTEM WITHIN
THE EUROPEAN UNION



Co-funded by
the European Union

QC-RST-023

Issue 01
Date 09/11/2020

ORGANISATION(S) REQUESTED TO RESPOND (E.G. TSI GROUP, RISC, ERA ETC.)

DGMOVE

DATE OF AGREEMENT AT NB RAIL PLENARY MEETING

PLE 060 – 04/11/2020

RESPONSE FROM ORGANISATION ABOVE

Disclaimer: ERA TO always supersedes NB-Rail suggested solution in case of difference.