

MEETING: Rolling Stock Standards Committee (RST SC)
Plant Standards Committee (PLT SC)

DATE: 9 September 2022 (RST SC)
15 September 2022 (PLT SC)

SUBJECT: Review of Rail Industry Standard (RIS) RIS-2701-RST issue one – ‘Rail Industry Standard for NDT Processes on Rail Vehicles’

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1. Purpose of the paper

- 1.1 This paper sets out the assessment of the ten-year (second five-year) review of RIS-2701-RST issue one – ‘Rail Industry Standard for NDT Processes on Rail Vehicles’. It seeks Standards Committee approval on the recommendation and way forward.
- 1.2 This paper replicates the content submitted to the RST SC in February 2022 and PLT SC in March 2022, with additional description of the outcome of the consultation added as section 4.2 and revision of the recommendations in section 5 to reflect the current status. This revised content is indicated with a black bar to the left of the relevant paragraph.

2. Background

- 2.1 RIS-2701-RST was created from the removal of the clauses which did not form National Technical Rules (NTRs) from GMRT2005 issue three (Certification Processes for NDT Operatives, Equipment and Facilities Used for Inspecting Rail Vehicles). NTRs from that standard were incorporated into Railway Group Standard (RGS) GMRT2004 issue four (Rail Vehicle Maintenance), along with those formerly in GMRT2030 issue two (Axle Bearing Maintenance) and GMRT2455 issue one (Freight Vehicle In-Service Inspections). These standards were all withdrawn on issue of GMRT2004 issue four.
- 2.2 Requirements identified as good industry practice in the withdrawn standards, but not within the scope of NTRs, were transferred to new Rail Industry Standards (RISs) at this time. RIS-2701-RST issue one accommodated those formerly in GMRT2005 issue three.
- 2.3 Since issuing, RIS-2701-RST issue one has been reviewed for fitness for purpose at both twelve-month and the initial five-year review. The initial five-year review concluded that ‘The content of RIS-2701-RST is still relevant and valid but some referenced external documents have changed and this needs to be reflected in the document’. The recommendation in that review was that the document was to be revised to reflect updates and current versions. This was not undertaken at the time. The changes to external reference documents to current versions is thus included in section 3.1j in this review.

3. Impacts of the document(s) following publication/entering into force

- 3.1 Consideration has been given to the following during the assessment:
 - a Business case for change – The objective of maintaining good industry practice

within the RGS suite, outside of the scope of NTRs, has been maintained by provision of the standard as a RIS. It continues to support implementation of Non-Destructive Testing (NDT) processes on rail vehicles.

- b Deviations – No deviations were raised or associated with RIS-2701-RST as of the time of submission of this review (22 December 2021). As a RIS, deviations do not require approval from the standards committee.
- c Current projects or proposals being processed – There are no active projects or proposals relating to NDT on rail vehicles that could influence the content of this standard.
- d Limited change release – No limited change release has been issued against RIS-2701-RST issue one.
- e Amendments and clarifications – No amendments or clarifications have been issued against RIS-2701-RST.
- f Enquiries – As recorded in the initial 5 year review, five enquiries were raised in the period 2 March 2014 to 17 July 2017 against RIS-2701-RST. Of these, one was non-technical, two were on the topic of updating references to a superseded document (BS EN 473:2008) and the remaining two queries were regarding competencies. Since then, only one further enquiry is recorded in Customer Relationship Management (CRM), case CAS-03047-S2L7T8. This enquiry is on the subject of assessment of compliance to the standard. The only consequential changes relating to these enquiries (updating references) are recorded under sub-section j.
- g Research projects – Two research projects have been identified which are relevant to the topic of rail vehicle NDT:
 - T060c (2002), Review of techniques for rail axle inspection
 - T774 (2014 onwards), Research investigating the value, reliability and effectiveness of axle inspection techniques

T060c pre-dates the initial issue of RIS-2701-RST, and reviews specific techniques for axle end NDT, an investigation into the various techniques having been performed by The Welding Institute (TWI). It has the potential to provide useful supporting evidence for the guidance in RIS-2701-RST that 'Any limitations of the methods to be used should also be identified' (GN03).

T774 provides guidance on the application of Human Factors to axle end NDT processes, and (as an extension) optimisation of NDT regimes in the context of Common Safety Method (CSM) assessment. It has the potential to provide useful supporting evidence for the guidance in RIS-2701-RST that 'The application of the process and analysis of outputs should take into consideration human factors' (GN55).

- h Changes in regulations – There have been no changes to regulations directly affecting NDT in rail vehicles since issue of RIS-2701-RST.
- i Changes in technology – There have only been evolutionary changes to the technology used to perform NDT in rail vehicles since RIS-2701-RST was issued, mainly around the increased performance of machine inference systems to detect early onset of defects. Such improvements may affect the level of assurance required of a semi-automated process, and may drive reduction in inspection frequency. However, both of these changes are transparent to the standard, since they do not directly affect the process; assurance of equipment and scheduling of maintenance are covered by their own standards.

- j National Technical Specification Notices (NTSNs) and European standards – For convenience RGSs / RISs are dealt with within this sub-section.

RIS-2701-RST issue one references the following documents listed below. Changes or updates to the documents are noted as follows:

- GMRT2004 (Rail Vehicle Maintenance) – superseded by RIS-2004-RST (Rail Industry Standard for Rail Vehicle Maintenance). Reference made to clause 3.2.1 of GMRT2004. The equivalent of this clause in RIS-2004-RST is also 3.2.1. The content is still relevant.

References to the other documents that were made in RIS-2701-RST issue one with no specific clauses cited are as follows:

- GMRT2466 (Railway Wheelsets) – The portions of this standard referring to NDT have been transferred to RIS-2766-RST (Rail Industry Standard for Wheelsets), having been assessed as not being NTRs. The content is still relevant.
- BS EN 473:2008 – This document has been withdrawn and superseded. Replaced by BS EN ISO 9712:2012. The content is still relevant.
- BS EN 12668 series – This series of documents is still live and current. No change is required.
- BS EN ISO / IEC 17021:2006 – This document has been withdrawn and replaced by BS EN ISO / IEC 17021-1:2015. The content is still relevant.
- BS EN ISO / IEC 17024:2003 – This document has been cancelled and superseded by BS EN ISO / IEC 17024:2012.
- SNT-TC-1A:2006 – This document is reviewed by ASNT nominally every 4 years. The latest edition is SNT-TC-1A:2020.

- k Published list of NTRs – RIS-2701-RST is a RIS, and as such does not contain any National Technical Rules.

- l Any other observations – RIS-2701-RST does not conform to the current style guide. For example, there is a mixed layout of requirements, rationale and guidance within each section, and the title includes the type of standard. Critically, guidance is written with clauses that ‘should’ be followed, reflecting the original sources of these clauses as requirements. It needs to be rewritten to reflect its purpose of assisting users of the standard to conform with the requirements.

RIS-2701-RST is not currently contained within the Requirements Management Database (RMDB). This is the repository for all information on standards documents and captures the lifecycle of each requirement to support corporate memory. Import of the standard into the system will improve traceability and maintainability of the standard going forward.

4. Discussion

4.1 Review assessment

The technical content of the standard has been found to remain fit for purpose. The review has identified (section 3.1j) the following amendments to references:

- a References to GMRT2004 to be amended to RIS-2004-RST throughout.
- b References to GMRT2466 to be amended to RIS-2766-RST throughout.

- c References to BS EN 473:2008 to be amended to BS EN ISO 9712:2012 throughout.
- d References to BS EN ISO / IEC 17021:2006 to be amended to BS EN ISO / IEC 17021-1:2015 throughout.
- e References to BS EN ISO / IEC 17024:2003 to be amended to BS EN ISO / IEC 17024:2012 throughout.
- f References to SNT-TC-1A:2006 to be amended to SNT-TC-1A:2020 throughout.

In all cases these amendments reflect the current versions of documents to which those applying the standard should be working to, the relevant issuing bodies indicating that the latter versions supersede the former in all instances.

Relevant research has been identified in the review (section 3.1g). As these research projects are wheelset specific, they will be reviewed to determine if the outputs are more generally applicable to rail vehicle NDT, and thus support this standard, or if instead they would be better referenced directly from RIS-2766-RST (Wheelsets).

It has also been observed (section 3.1l) that this standard is not drafted in the current house style, nor is it within RMDB.

For these reasons, it is proposed to prepare a new release of the standard within RMDB, this being RIS-2701-RST issue two. Changes to the requirements clauses will be limited to the amendments identified above. Rationale will be developed for the requirements. The document will be rewritten to conform to current style guidelines.

4.2 Consultation

- 4.2.1 The ten-year review of RIS-2701-RST was presented to RST SC on 11 February 2022 and PLT SC on 3 March 2022. The recommendations of the assessment and the action to consult with industry on the findings was approved and supported by these standards committees respectively.
- 4.2.2 Consultation with industry took place during May and June 2022. One response was received against the consultation. The comment and the proposed response are appended to this report. No change to the scope of the content is proposed as a result of the comment.

5. Recommendations

- 5.1 The Rolling Stock Standards Committee is asked to:
- a DISCUSS the outcome of the review consultation and response, with the proposed recommendation:
 - i Initiate a change project to update RIS-2701-RST in accordance with current style guidelines on RMDB, amending the reference documents as proposed.
 - b APPROVE the above recommendation.
- 5.2 The Plant Standards Committee is asked to:
- a DISCUSS the outcome of the review consultation and response, with the proposed recommendation:
 - i Initiate a change project to update RIS-2701-RST in accordance with current style guidelines on RMDB, amending the reference documents as proposed.
 - b SUPPORT the above recommendation.

RSSB completion: [do not delete]

<i>Lead Standards Committee</i>	<i>Meeting date</i>	<i>Recommendation approved</i>	<i>Minute numbers</i>		<i>Next review date</i>
			<i>Pre-consultation review</i>	<i>Post-consultation review</i>	
Rolling Stock	09/09/2022				

Appendix A Disposition table for document(s) recommended for withdrawal

No documents are recommended for withdrawal under this proposal. All clauses in RIS-2701-RST issue one will be retained in issue two.

Appendix B Associated information to support the review

The information in this appendix is provided by the industry groups information manager to assist with the review. This appendix should be deleted prior to submitting the review form to the SCs.

Deviations	List current deviations: Nil	List deviations in progress: Nil
Request for Help	Nil.	
Proposals	List approved proposals: Nil.	List proposals not yet approved by the standards committee: Nil.
7. RSSB Standards Programme	This document is currently not on the RSP.	
Amendments or clarifications	Nil.	
Limited change releases	Nil.	
Enquiries	CAS-03047-S2L7T8 on 06/04/2021 from Testex to understand more about the standard.	
Business case for change	<u>11-IA03</u>	
Information from RMDB Note: update RMDB to reflect action/decision	Nil. (This document is not listed in the RMDB RST sub-system)	

Related documents:

Process procedure for the twelve-month and five-year review of Railway Group Standards and other documents