VPI-EMG

Maintenance of wagons

Introductory remarks

Edition 5.0

Published: 09/2025

For the publishers:

In cooperation with:

Edition: 01/09/2025
Translation: 15/09/2025

Table of contents

Modules of the European Maintenance Guide (VPI-EMG)

Module	Name
VPI-EMG	Introductory remarks
VPI-EMG 01	General part
VPI-EMG 02	Underframes, bogies
VPI-EMG 03	Vehicle superstructures and tanks
VPI-EMG 04	Wheelsets
VPI-EMG 05	Springs
VPI-EMG 06A	Draw gear
VPI-EMG 06B	Buffing gear
VPI-EMG 07	Brakes
VPI-EMG 09	Non-destructive testing
VPI-EMG 10	mobile repair
VPI-EMG 11	Work Safety

Module changes and publications

Seq. no.	Content summary	Published	Comments
1	First version	01/01/2013	Removed from module 01
2	Change	01/06/2013	
3	New edition	15/09/2019	Switch from VPI to VERS, first VERS edition 4.0
4	Revision	10/09/2020	Edition 4.1
5	Revision	11/2020	Edition 4.2
6	Change	12/2022	Change Notification 4/2022 (4.21)
7	New edition	09/2025	Edition 5.0

Changes from the last edition

Section	Change
History	Newly added
Explanation of the VPI-EMG edition number	Adapted to edition 5.0
Structure of the VPI-EMG as of edition 5.0	Newly added
Inclusion of new components, supplies and auxiliaries	Procedure standardised (see Annex 1)
Delineation of the application areas of the VPI-EMG and the GCU	Newly added
Annex 1	Newly added
Annex 1-1	Newly added

Standards and regulations

In preparing the module, the following regulations were taken into account or were used for reference and citations:

Regulations used when creating the module.

Regulation	Title

Regulations referred to in this module.
These regulations must be available in order to apply the VPI-EMG.

Regulation	Title
UIP/VPI Technical Guidelines “Safety Critical Components”	Safety critical components – Application of the definition of safety critical components to wagons
Regulation (EC) No. 2019/779	Detailed provisions for a system of certification of entities in charge of maintenance of vehicles (ECM Regulation)
AVV / GCU / CUU	General Contract of Use for Wagons

Regulations cited in this module.

Regulation	Title
JNS report	Result of the Joint Network Secretariat standard procedure ‘Accident in Gotthard Base Tunnel – broken wheels’ Version 3

Foreword

To offer the ECMs (previously: keepers) of wagons reliable and largely standardized as well as technically meaningful maintenance rules and to ensure the continued development of these rules, VPI Germany, V.P.I. Austria and VAP Switzerland decided to produce and maintain guidelines for the maintenance of wagons based on the maintenance regulations developed jointly by VPI Germany and Deutsche Bahn over the course of decades.

The VPI-EMG (previously: VPI Maintenance Guide) is reviewed at regular intervals by experts in the area of freight and tank wagon maintenance and revised and expanded, if necessary. This takes place based on the experiences of the ECM, among other factors (see also: Article 5, (3) of EU Implementing Regulation 2019/779). The aim is to define the generally applicable rules of engineering for the maintenance of freight wagons and their components.

Insofar as known and possible, the VPI-EMG takes into account binding, special national regulations on maintenance.

The requirements of the VPI-EMG may be insufficient or inapplicable for the respective application situation in individual cases. It should therefore fundamentally be viewed only as a recommendation by VPI European Rail Service GmbH and not as all-encompassing. Every user of the VPI-EMG must therefore evaluate for the specific use case whether and to what extent the information in the VPI-EMG applies.

The requirements for maintenance and documentation of safety critical components are taken into account during revision of the modules. The basis for the corresponding selection of the safety-critical components is the technical guideline of UIP/VPI: Safety critical components, Application of the definition of safety critical components to wagons.

History

The first edition of the VPI Maintenance Guide was published in June 2007. Various adaptations and extensions were made in the subsequent years. The group of publishers initially included only VPI Germany, V.P.I. Austria and VAP Switzerland.

In 2019, the further editing and maintenance of the VPI Maintenance Guide was handed off to the newly founded VPI European Rail Service GmbH (VERS). At the same time, in addition to VPI, V.P.I. and VAP, the group of publishers was expanded to include AFWP, France and UIP as representatives of all other UIP membership associations. The VPI Maintenance Guide was renamed the VPI-European Maintenance Guide (VPI-EMG).

In the course of the necessary revisions and expansions, the existing VPI modules were also adapted step by step. To clearly indicate the revision history, all modules published for the first time by VERS received the edition 4.0. Until then, the previously published edition retained its full validity.

Within the framework of a digitalisation project, the VPI-EMG was transitioned in 2024 to a modern editorial tool and re-published in edition 5.0.

There were only minor content changes; only the results of the JNS Report ‘Accident in the Gotthard Base Tunnel’ were incorporated. All modules were linked and assembled into a single document. It is now possible for users to jump to the referenced points in the VPI-EMG using links. In addition, the VPI-EMG can be accessed online in a web browser in an HTML version.

VPI-EMG modules 08A and 08B were separated from the VPI-EMG. They are now provided separately on the website of VERS under Electronic Data Interchange and VERS Tool User Manual.

Important development steps:

07/2007	First edition of the VPI Maintenance Guide (VPI-LF)
02/2008	Publication of the second edition of the VPI-LF
01/2013	Publication of the third edition of the VPI-LF with nine languages
12/2019	Renaming of the VPI-LF as VPI-EMG and publication of edition 4.0: • Group of publishers expanded to include AFWP and UIP • VERS takes over maintenance and editing of the VPI-EMG
12/2024	The VPI-EMG is transferred to an editorial tool and published as edition 5.0.

Remarks on application

For better differentiation of the ECM functions, the following terms are used in the modules:

- ECMs with the functions:
  Management (ECM I)
  Maintenance development (ECM II)
  Fleet maintenance management (ECM III)

- Workshops and maintenance service providers with the function of maintenance delivery (ECM IV)

Upon the announcement of changes or revisions, the most recent edition of the VPI-EMG is valid (see also: Explanation of the VPI-EMG edition numbers).

The ECMs must check the applicability of the modules within the scope of integrating the modules of the VPI-EMG into their maintenance programme. VERS recommends that ECMs define an implementation transition period upon publication of new editions. The precise regulations concerning deadlines, validity, deviations and additions must therefore be stipulated by the respective ECMs.

Application of the modules relieves no one of the responsibility for their own actions.

As with standards and other rules and regulations, the VPI-EMG is not retrospective. The specifications in individual modules, if no concrete instructions are in place, need not be applied until carrying out the relevant work. For work performed in the past in line with the then relevant applicable set of rules and regulations, there is strictly no obligation to upgrade or convert to the current best available technology. If an accelerated implementation is recommended upon introduction of a new maintenance task, VERS will indicate this in a separate notice.

Anyone discovering mistakes or incorrect interpretations that could result in incorrect application are requested to inform VERS immediately (see VPI-EMG 01, Annex 18) in order that any defects can be remedied.

Date of publication, edition and implementation

The VPI-EMG modules are created according to internally defined policies of VERS.

1. Publication

The publishing date of the VPI-EMG given on the cover sheet indicates the month and year of the publication of the base German version.

This date is also given in the section ‘Changes and publications of the VPI-EMG’.

The German version forms the basis for every translation of the VPI-EMG. A new edition of the VPI-EMG will only be published by VERS once both the French and English versions are available in addition to the German version.

2. Edition

The edition date given in the page footers is the date of the last content revision prior to publication.

The publication of other language versions is sometimes delayed by several weeks, or even months in individual cases. The date of publication is not changed here; however, an additional date is given in the footer to indicate when the corresponding translation was completed and published.

3. Implementation

The implementation of each new VPI-EMG edition is the responsibility of each ECM according to the rules of the EU Implementing Regulation 2019/779, ‘ECM Regulation’. Each ECM establishes its own date for this.

Weeks or even months may pass between publication by VERS and implementation by an ECM. Each ECM is obligated to initially assess the applicability of the new and revised edition to the wagons it manages. The time of implementation by an ECM may be influenced by factors such as modifications to processes, contracting, maintenance procedures, checks, area of application and tests. The respective ECM has the option of implementing only parts of the VPI-EMG and/or establishing deviations or additions. As a result, the date of implementation may differ from ECM to ECM.

Among other reasons, this can also occur because new or revised sections of the VPI-EMG may not indicate maintenance tasks or technical inspections that can be quickly implemented from a safety perspective.

Measures to be implemented at short notice by the ECM as the result of investigations into safety incidents are announced either by the national safety authorities (NSA), the member associations of various organisations, such as the publishers of the VPI-EMG, or by the respectively affected ECM within the framework of the exchange of experiences called for in Article 5(3) of the EU Implementing Regulation 2019/779.

If these measures or tests to be implemented at short notice result in lasting changes to the maintenance recommendations, they will be integrated as soon as possible into the VPI-EMG.

Explanation of the VPI-EMG edition number

New edition

In the event of a new edition, the edition number changes as follows:

Edition 5.0 ➡ Edition 6.0

As of edition 5.0, the edition number applies to the entire VPI-EMG.

Revision

Issues and technical relationships are modified and there are technical and/or structural changes without changing the basis of the VPI-EMG overall. A version of the VPI-EMG with marked changes will be published on the VERS website. This serves to highlight changes relative to the previous edition. The VPI-EMG recipients are officially informed of the revision by email. The edition number changes as follows:

Edition 5.0 ➡ Edition 5.1

Structure of the VPI-EMG as of edition 5.0

The VPI-EMG begins with information that applies across modules:

- Table of contents
- List of figures
- List of tables
- List of the modules, including dates for the most recent edition of the module
- Changes to and publications of the VPI-EMG as of edition 5.0
- Changes relative to the last edition as of edition 5.0, including description of changes
- Table of the standards and regulations in connection with the VPI-EMG, excluding module 09 (listed separately)

In VPI-EMG module 01, fundamental requirements as well as specific manufacturing processes are considered. On this basis, maintenance requirements for individual vehicle components as well as aspects for mobile repair and work safety are listed in the further modules.

The modules of the VPI-EMG are structured according to a standard template.
First, the history of the individual module is listed.

The main part of the module generally begins with the sections:

1. General information and scope of application
2. Principles
3. As of this section, module-specific topics are addressed

Additional specific information and requirements are provided in the annexes of the respective module.

The required forms / templates / reports are also found in the annexes of the modules.

These can also be downloaded separately in all languages from the VERS homepage as writable and form-fillable PDF documents.

Inclusion of new components, supplies and auxiliaries

At least one of the following criteria must be satisfied for the inclusion of new components, supplies and auxiliaries:

- Fulfilment of legal requirements (e.g. TSI wagon)
- Application by an ECM with more than 10,000 wagons serviced by it
- Joint application by at least 2 ECMs, each with at least 2,000 wagons serviced between them
- Proposal of the respective technical authors of a VPI-EMG module
- Specification from the technical management of VERS

Components or products that are once-off special technical solutions and that will be used infrequently in the European wagon fleet, or that are expected to be decommissioned for good or to the largest extent in the foreseeable future after the application is made, will not be included in the VPI-EMG.

The inclusion takes place pending an evaluation of the submitted documents by VERS.

Any exemptions are at the discretion of the technical management of VERS.

Annex 1 is the form for the application to be submitted to VERS for the inclusion of new components. The application must be submitted together with form VPI-EMG 01, Annex 18.

As an example, Annex 1-1 contains a prefilled version of the form for requesting the inclusion of a new wheelset type.

Legal remarks

The VPI-EMG does not relieve the ECMs of their obligation to give special consideration to specific usage conditions and special equipment/features of their freight wagons with regard to maintenance. The VPI-EMG encompasses only the most important and most common wagon types and components. The ECM always issues its maintenance instructions to the repair company under its own responsibility. In particular, it must ensure that its wagons that were maintained in the past according to other maintenance policies are appropriately transitioned to the new maintenance system.

Despite all the care taken, no liability can be accepted for the accuracy, currency and completeness of the VPI-EMG maintenance guidelines. Liability for damages arising through use of the VPI-EMG shall therefore be limited only to gross negligence and wilful intent.

The VPI-EMG is published and developed in German. The additionally published localised editions are derived from the German edition. In case of doubt, the German version shall take precedence.

The VPI-EMG can only be purchased via the website of VPI European Rail Service GmbH (as downloadable PDF and html version).

The VPI-EMG may not be shared with third parties or published without the permission of VPI European Rail Service GmbH.

Violations will be prosecuted under civil and criminal law.

Delineation of the application areas of the VPI-EMG and the GCU

The VPI-EMG is a recommendation for the maintenance of freight wagons if this work is assigned by an ECM to a repair company for the performance of repairs and overhauls. As described in the section ‘Implementation’ (section 3), every ECM must evaluate and approve the VPI-EMG.

In this respect, the VPI-EMG differs markedly from the operational and technical requirements of the General Contract of Use for Wagons (GCU). In the GCU, the signatories of this contract establish uniform requirements for evaluating the condition of a wagon in operation. It is further defined which repair work must be performed in which scope on the wagon of a keeper on behalf of and under the supervision of the operating railway undertaking. The work may only be performed by a repair company that has at least an ECM IV certificate. If a repair measure is commissioned by a railway undertaking, this RU is acting on the basis of the GCU as a subcontractor of the responsible ECM for the area III, fleet management. It is entitled to do this based on the rules of the GCU, which it has signed. Its qualifications to do this will be evaluated by the competent authorities in the course of its safety certification.

The application of the technical requirements of the GCU therefore depends on which maintenance regulation the ECM uses for the wagons it manages. It is even possible for different repair requirements to exist in the GCU and the VPI-EMG and other maintenance regulations. This arises, among other reasons, due to the fact that the VPI-EMG contains many technical specifications intended to make it possible for a wagon to be operated under normal conditions between two overhaul dates without a safety risk. In contrast, the specifications of the GCU are aimed at prompt rectification of damage that occurs in a way that is standardised for all signatories of the GCU.

Every wagon keeper that has signed the GCU must ensure that its ECMs integrate into their maintenance systems the maintenance regulations of the GCU for restoration of good running order and usability and fulfil all of their obligatory tasks.

Annex 1

Application for inclusion of a new component / supply or auxiliary

Applicant/Company:	VERS customer number: (if available)
ECM with more than 10,000 wagons / two ECMs with more than 2,000 wagons:	**Created on:**
☐ / ☐	

Component	Supply / auxiliary	Manufacturer:	Part designation:	Type / substance designation:
☐	☐			

The component / supply or auxiliary corresponds to the following standards:
Can be used under the following usage conditions:

Was certified by a NoBo as a TSI component:		
Yes ☐	If yes, by the following NoBo:	
No ☐	Certificate number:	

Description of the operating experience with the component / supply / auxiliary:			
Usage period:			
Mileage:			
Number / quantity:			
Failures:			
Observations / abnormalities:			
Analysis:			
☐ No safety-related damage during operation		☐ Other defect:	

Requirements for use / maintenance / non-destructive testing:

Change proposal in VPI-EMG:			
Module:	**Annex:**	**Section, sub-item:**	**Text position with marked change:**

The proposed changes are based on:		
☐	Application of the following standards and regulations for maintenance:	
☐	Comparable maintenance rules:	
☐	An explicit risk assessment (as attachment to application):	
☐	Other:	

The applicant agrees to inform VPI European Rail Service GmbH immediately if unusual or frequent damage patterns arise in the course of operation or regular maintenance.

Drawings and other documents concerning the component / supply or auxiliary must be attached to this application (e.g. drawings / technical specifications / laboratory reports / TSI certificate).

Supplemental attachments to the application:

Date of the application:	Name (applicant):

Annex 1-1

Application for inclusion of a new component / supply or auxiliary

Applicant/Company:	VERS customer number: (if available)
Organisation A, Organisation B	123
ECM with more than 10,000 wagons / two ECMs with more than 2,000 wagons:	**Created on:**
☒ / ☐	21/09/2025

Component	Supply / auxiliary	Manufacturer:	Part designation:	Type / substance designation:
☒	☐	Producer	Wheelset	BA 0815

The component / supply or auxiliary corresponds to the following standards:

DIN EN 13103 - Design method for axles with external journals
DIN EN 13260 - Wheelsets

Can be used under the following usage conditions:

Use throughout Europe on standard gauge tracks, storage outdoors possible

Was certified by a NoBo as a TSI component:			
Yes	☒	If yes, by the following NoBo:	International NoBo
No	☐	Certificate number:	123

Description of the operating experience with the component / supply / auxiliary:	
Usage period:	For 5 years
Mileage:	About 7 x 10^6 km
Number / quantity:	40 wheelsets
Failures:	Yes, but only typical wear damage
Observations / abnormalities:	Have proven themselves in operation. Have been maintained as per the requirements of the VPI-EMG since introduction.
Analysis:	We request the incorporation of this wheelset type in the VPI-EMG because only wear damage typical of wheelsets arose during operation.
☒ No safety-related damage during operation	☐ Other defect:

Requirements for use / maintenance / non-destructive testing:

Maintain as per the requirements of the VPI-EMG.

Change proposal in VPI-EMG:

Module:	Annex:	Section, sub-item:	Text position with marked change:
04	01	Table 70	No. 83, 1: BA 0815, 2: 12345, 3: 850-740 mm, etc.

The proposed changes are based on:		
☒	Application of the following standards and regulations for maintenance:	DIN EN 15313 - In-service and off-vehicle wheelset maintenance DIN EN 16910 - Non-destructive testing on running gear in railway maintenance - Part 1: Wheelsets
☒	Comparable maintenance rules:	VPI-EMG
☐	An explicit risk assessment (as attachment to application):	
☐	Other:	

The applicant agrees to inform VPI European Rail Service GmbH immediately if unusual or frequent damage patterns arise in the course of operation or regular maintenance.

Drawings and other documents concerning the component / supply or auxiliary must be attached to this application (e.g. drawings / technical specifications / laboratory reports / TSI certificate).

Supplemental attachments to the application:
TSI certificate, Technical drawing

Date of the application:	Name (applicant):
01/09/2025	Joe Bloggs

There are no attachments to this example.