

IMPLEMENTATION GUIDE

FOR THE

EUROPEAN VISUAL INSPECTION CATALOGUE (EVIC) FOR FREIGHT WAGON AXLES

Joint Sector Group for ERA Task Force on wagon/axle maintenance



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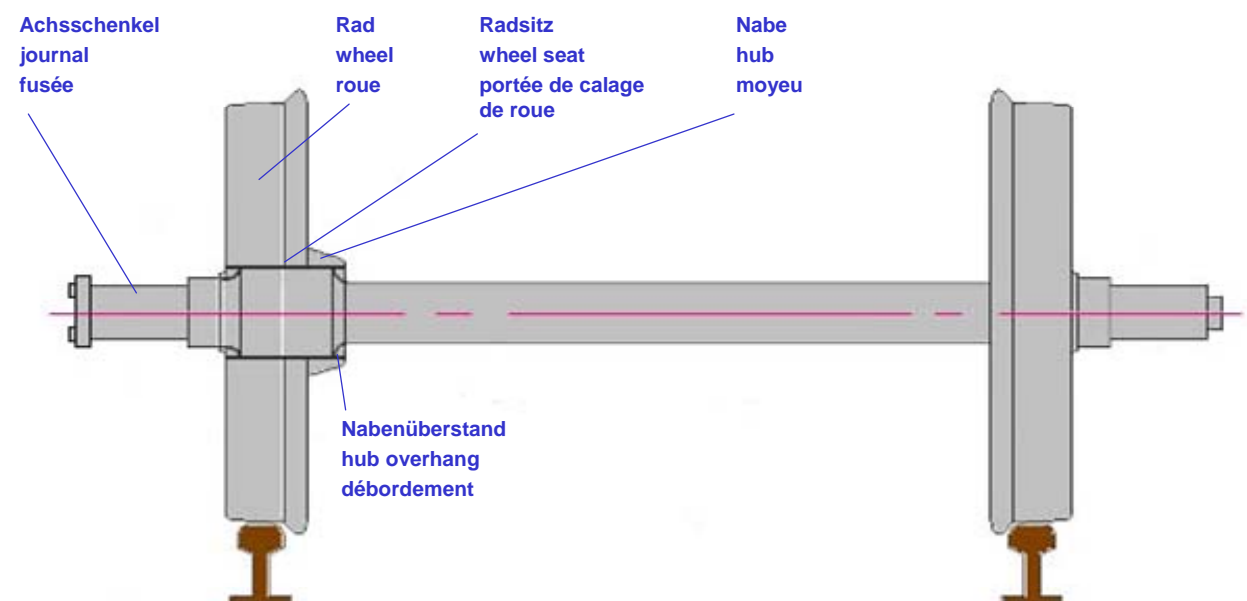
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2.3 all EVIC mail addresses updated as per 31.07.2010

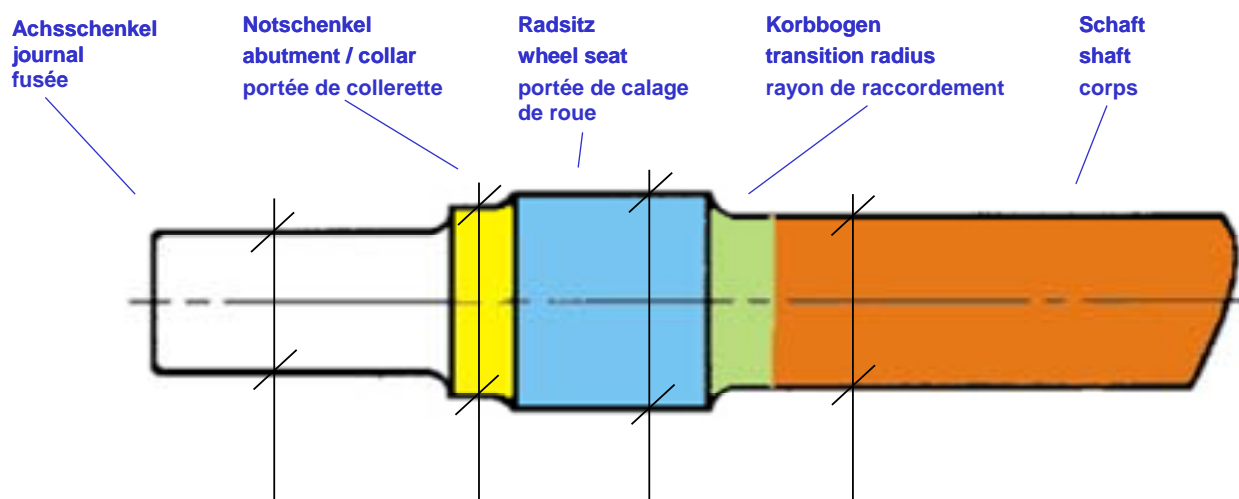
This version replaces all previous versions of the EVIC Implementation Guide

Brussels, 31.07.2010

1. Definitions



Radsatz
Wheelset
Essieu monté



Radsatzwelle
Axle
Essieu-axe

In the EVIC procedure instructions, the meaning of several expressions is as follows:

Replace = take the wheelset out of the wagon (and repair it in a suitably competent workshop, if possible)

Repair = repair the damage in situ (wheelset mounted) according to the relevant rules

Remove from service = replace or repair (in situ if possible) according to the criteria

2. Basics and preparing inspections

2.1 Reasons for the EVIC program

European wagons keepers have developed since many decades a maintenance system assuring a safety which allowed to become the safest land freight transport.

However, after the tragic accident in Viareggio,

- the European Railway Agency
- the European NSAs and
- the Joint Rail Freight Sector (CER, ERFA, UIP, UIRR, UNIFE)

agreed to investigate in the frame of the ERA Task Force the possibilities for a European approach for harmonised criteria and immediate and mid-term measures ascertaining an even enhanced railway safety in an appropriate way.

The Joint Sector Program worked out in the ERA Task Force was fully adopted in Viareggio in december 2009. The European Action Program consists of a:

- **Visual Inspection of the European wheelset/axle population (according to EVIC)**
- more in-depth investigation of samples of wheelsets from defined operating areas
- European-wide implementation of systematic traceability of wheelset maintenance (for the EVIC campaign and for general wheelset maintenance)

The Joint Sector program was approved by all EU authorities and NSAs. It is up to the Sector to implement now what has been decided. The implementation of the program (especially EVIC) is done as a self-commitment in the Sector Association's companies in fulfillment of the Sector's Safety responsibility. There is no legal obligation but a clear commitment of the Sector to the European and National Authorities to implement the Action program. On the Sector level, the EVIC program is currently being integrated in the GCU.

The European NSAs are invited to audit the execution of the decided measures.

2.2 Objectives of the EVIC program

In execution of the first element of the European Action program, the **Visual Inspection of the European wheelset/axle population**, the European freight wagon fleet will be subject to a Visual Inspection of the axle status with the objectives

- to judge the axle status according the criteria in the European Visual Inspection Catalogue (EVIC)
- to remove from service axles in a not admissible state (immediately / after unloading)
- to record a set of minimum data for the inspected axles
- to hand over removed axles to heavy maintenance with appropriate treatment and NDT

2.3 Timeframes for the EVIC inspection

The EVIC program starts in Europe **from 01.04.2010 onwards**.

From then on,

- **all wagons**
 - for dangerous goods (only RID tank wagons) and
 - operating under corrosive conditions

will be checked under EVIC conditions to **100% in a 4 years period**

- **all standard wagons** will be checked under EVIC conditions to **100% in a 6 years period**

In case of removal of the wheelset, the wheelset must be handed over by the keeper to regular heavy maintenance with NDT in accordance to the relevant maintenance systems.

After having checked the fleet to 100%, the EVIC will be applied continuously and/or amended depending on the return of experience (to be discussed in the Task Force).

Recommended priorities for standard wagons are:

- high loading factor (e. g. 50%, F-, T-wagons)
- impact due to drop loading (e. g. some E-types)

2.4 The tasks of the Joint EVIC body per country

The Joint EVIC body consists of members nominated by the Railway Associations UIP, CER and ERFA per European country (see table) and is responsible for the EVIC implementation in its respective Member State (plus Switzerland).

The Joint EVIC body will:

- organize the translation in the national language and the issuing of the EVIC
- organize joint central training session(s) per country for all associations, all keepers, all related workshops (and Railway Undertakings for information)
- manage all information of all concerned parties (workshops, keepers,...)
- collect the traceability of EVIC from the keepers
- condense the collected data from the keepers (per country) for the Joint Sector Group
- monitor the implementation of EVIC in the respective companies (e.g. by a checklist)

The collected results will be exploited and monitored by the Joint Sector Group for survey of the implementation process and for report in the ERA Task Force.

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Greece	GR			
Estonia	EST			

as per end July 2010

2.5 Preparing the working documents

The conditions for the EVIC program are laid down in this **EVIC Implementation Guide 2.3**.

The criteria for inspections, illustrations and required actions are laid down in the **EVIC 2.11 document**

The reference is the English language version. All documents (english and translated) will also be published officially on **xxx website** (to be defined by the Joint Sector Group)

The Joint EVIC body per country delivers the EVIC documents in the national language

The Joint EVIC body per country issues the EVIC documents to the country's keepers (and, for information, to the RUs)

The keepers (ordering the Visual Inspection from the workshops) hand over the documents to the executing workshops.

The executing workshop adds the required national and local working rules as well as all supporting further instructions on/for application on the workshop level.

2.6 Mandating and invoicing the EVIC inspection

The implementation of the EVIC in the GCU (including traceability) has already started (annex 10, new appendix 3)

The EVIC execution must be mandated to the contracted workshops by the keepers (in the meantime until the full EVIC implementation in GCU)

The keeper must take over the costs for executing the EVIC program (inspection and tracing) and potentially for a required change of the wheelset (future amendment in GCU annex 12)

In a first step, the workshops must not execute the EVIC inspections in a wagon GCU repair if not specifically ordered by the keeper (implementation in GCU is in progress). **This point is under urgent clarification in the GCU technical committees.**

The workshops must give the results of the EVIC tracing to the **keeper**
- with the corresponding invoice (maximum after one month) or
- separately with the monthly separate summary sending

The workshops must register the wheelset IDs/number(s) **of the new mounted wheelset(s)** (replacement for "EVIC failed" wheelset) **in the invoices/reporting document to the keeper** (normally already done in the maintenance documentation)

2.7 Staff qualifications

The inspections have to be conducted by staff qualified in application of this Visual Inspection Catalogue.

It is not necessary for the operatives conducting such visual inspections to be qualified as NDT visual inspectors pursuant to EN 473.

The staff involved in this inspection **should be trained one day** for the correct use of this procedure.

It is under the responsibility of the workshop to update a list of trained workers for the use of the present procedure.

3. Conducting the Visual Inspections

3.1 Execution of the Visual Inspections

The Visual Inspection of the freight wagon's axle shafts for damage to material and coating (if existing) is mandatory

- during light maintenance
- each time the wagon is in a workshop (not mobile team)

and if one of the following conditions is fulfilled:

- the wagon is on a pit or
- the wagon is lifted

In case of non judgeable defects (not sufficiently detailed by the descriptions in the EVIC), the executor of the EVIC inspection must contact the keeper for further instructions.

A replacing wheelset for a sorted out axle must be in an “EVIC ok” status.

The EVIC doesn't replace existing maintenance rules. First, existing maintenance rules must be applied, then the EVIC check. If an axle is sorted out with current maintenance rules, it is not necessary to apply the EVIC

(Remark: the visual axle inspection is also mandatory in case of wagon heavy maintenance events)

The visual inspection **covers the complete area of the axle-shaft surface between the wheels**. See special instructions for the **abutment area** in the EVIC 2.11.

The inspection area is to be examined for

- **mechanical damage** (fluting, pitting and notching, cracks)
- **surface damage** (areas eaten away, corrosion scars)
- **coating damage** (with and without corrosion) *if coating system existing*

Reference images in EVIC 2.11 (typical damage features) are used for identifying inadmissible forms of damage.

It is not foreseen to clean the axle. In case of doubt, clean axle (locally) to allow examination

If natural light intensity is too poor, a supplementary white light source must be used in order to obtain an adequate visibility on the axle.

Axle shafts with inadmissible forms of damage are to be repaired according to the prescriptions, if possible. Otherwise, the axles must be replaced.

An example for an adequate position for the staff conducting the visual inspection is given in the figure below.

If the wheelset cannot rotate (if the wagon is not lifted up), the visibility of the full surface of the axle must be assured in a different way.

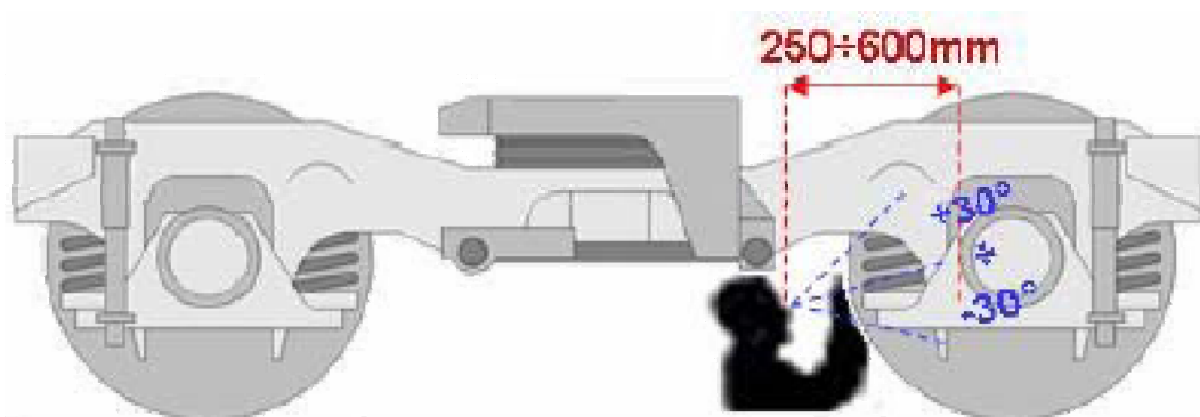


Figure 2 – Inspection angle and distance

3.2 Actions to be taken after inspection (cases)

The following **cases** describe the actions to be taken after a Visual Inspection of the axle:

- A Remove the wheelset from service without delay
- B Remove the wheelset from service after unloading the wagon and/or sending back to home workshop
- C Leave wheelset in service until the next revision/overhaul of the wagon or repair the damage in situ on the wheelset.
In the next revision/overhaul, the remove from service is mandatory

Remove from service = replace or repair (in situ if possible) according to the criteria

For wheelsets operated in wagons under heavy corrosive conditions, only the cases A and B are allowed.

4. Recording the Visual Inspections

The results of the Visual Inspection program must be recorded / traced after the inspection in the workshop.

4.1 Overview on EVIC categories and logging

Painted and unpainted axles			Category for EVIC logging	
30	No defects		ok	
40	No defects		ok	
Painted axles				
31	Mechanical damage	sharp edged circumferential fluting	X	(not ok)
32	Mechanical damage	smooth edged circumferential groove	X	(not ok)
33	Mechanical damage	sharp edged notching	X	(not ok)
34	Mechanical damage	Cracks	X	(not ok)
35	Surface damage	large and heavily corroded areas	X	(not ok)
36	Surface damage	single, deeply pitted corrosion scars	X	(not ok)
37	Coating damage	with or without corrosion	C	
Unpainted axles				
41	Mechanical damage	sharp edged circumferential fluting	X	(not ok)
42	Mechanical damage	smooth edged circumferential groove	X	(not ok)
43	Mechanical damage	sharp edged notching	X	(not ok)
44	Mechanical damage	Cracks	X	(not ok)
45	Surface damage	very heavy, deep and large corrosion	X	(not ok)
46	Surface damage	single, deeply pitted corrosion scars	X	(not ok)
47	---			
All axles				
50	Abutment area		X	(not ok)

The roles and TO DOs of the several parties involved are as follows:

4.2 Workshops tasks

The workshops must

- record the results of the Visual Inspection
- **for each keeper**
- **in paper or**
- **in electronic file format**

according to the “EVIC keeper traceability 2.2” format (xls file):

DATA ARE ONLY EXAMPLES:

Workshop Year

Country Month

of the workshop

Keeper (as written on the wagon)

wagon number (set wagon number only once for all axles)	Date	wheelset N°	wheelset type	enter only 1 result per wheelset			
				Other check result	EVIC check result		
				e. g. GCU check	enter 1 where appropriate		
				enter 1 where appropriate	"ok"	"X"	"C"
338712345689	02.05.10	12345	9056		1		
		12312	9052		1		
		345621	9052			1	
		41414	9056				1
338700000002	12.05.10	19	9076		1		
		287	9076		1		
		NI	NI	1			
		294	9076		1		
338700000123	12.05.10	13213213	9076			1	
		1232131414	NA	1			
338701231123	13.05.10	34562133	9052				1
		34562132	9056				1

“EVIC keeper traceability 2.2”

4.3 Keepers tasks

The keepers must

- collect the monthly results from the contracted workshop (per country)
1st week of next month
- keep the records
- condense the received monthly results from all workshops (per country) in electronic file format according to the **“EVIC monthly keeper report 2.2”** format,

Nota: the name of the keeper has to be set according to VKM or registration in NVR.

- report monthly electronically the condensed “EVIC monthly keeper report” to the Joint EVIC bodies (details to be defined by the Joint EVIC bodies themselves):

(Example Germany: **evic.germany@vpihamburg.de**)

DATA ARE ONLY EXAMPLES:

Country

FRANCE

ID of the keeper to be formatted according to VKM or NVR registration

keeper	Month	Year	No of wagons checked	No of axles sorted out for other reasons	No of EVIC axles „ok“	No of EVIC axles „X“	No of EVIC axles „C“
XYZ	5	2010	400	100	1000	80	120

“EVIC monthly keeper report 2.2”

4.4 Joint EVIC bodies tasks

The Joint EVIC bodies must

- collect the “EVIC monthly keeper reports” from the different keepers
- summarize electronically the monthly results of all keepers per country according to the “EVIC monthly country report 2.2” format

2nd week of next month

- send this report monthly electronically to the JSG: evic.europe@deutschebahn.com

DATA ARE ONLY EXAMPLES:

Country

FRANCE

ID of the keeper to be formatted according to VKM or NVR registration

keeper	Month	Year	No of wagons checked	No of axles sorted out for other reasons	No of EVIC axles „ok“	No of EVIC axles „X“	No of EVIC axles „C“
UVW	5	2010					
XYZ	5	2010					
Sum			700	90	1800	120	200

Only summarized data are reported in the ERA Task Force

“EVIC monthly country report 2.2”