
Draft, will be proposed to CEN WG

**European Common Criteria for Maintenance (ECCM) (“essentials”)
of freight wagon axles + possible references to EN 15 313**
to be applied in wheelset axle maintenance

*Joint Sector Group for ERA Task Force on wagon/axle maintenance
Bruxelles
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ECCM results summary (1)

EU-wide harmonised requirements for...

Light Wagon Maintenance

- Visual checks of the axle surface (EU-harmonised) according to EN 13715-1
- Corrosive environments: EVIC „short“ (4y) and more severe EVIC criteria (only cases A, B)

**EN chapter 6.2.1
(only after EVIC evaluation)**

Heavy Wagon Maintenance (revision, major overhaul)

- Remove all axles with EVIC defect cases A, B, handover to wheelset maintenance (medium or heavy)
- Remove all axles with EVIC defect cases C (replace or repair)

**EN new chapter 8.5
+ EVIC pictures + description**

Higher axle maintenance levels (1)

• Axle surface status

- Treatment of local and severe defects (according UIC category 4)
- Treatment of large and heavily corroded areas, strongly and uniformly pitted

**EN new chapter 8.5
or normative Annex**

• Non-Destructive Testing (NDT)

- Complete NDT on all axle sections in the „medium maintenance“ level (off-vehicle maintenance level w/o changing wheels). Required migration is ongoing
- Complete MT on the total axle surface in the highest maintenance level

EN new chapter 6.5

ECCM results summary (2)

EU-wide harmonised requirements for...

Higher axle maintenance levels (2)

- **Wear limits**

- Min. wheel seat diameter (all UIC Type A axles) limited to 182 mm when operated at 200

**EN new chapter 8.5
or normative Annex**

Operation

- Continued operation of painted and unpainted axles under today's existing conditions and appropriate maintenance conditions (including Task Force results)

**EN new chapter 5.3.4.1.
merge text ???**

Traceability

- European EVIC logging
- European Wheelset Traceability + measures resulting from lack of traceability

**EN chapter 4.2.3.2
+ normative Annex J**

Continued high performance operation (increased load limit)

Limit for high performance operation	Limited mileage between medium or heavy maintenance (with and w/o changing wheels)	Corresponding maintenance Action
type A-I; A-II; A-III(1) 20 t	> 20 t not permitted	
Axle load exceeding design load <= 5% type A-III (2) > 20,6 t up to 21 t	- 400.000 km - ECM task is to define the equivalent time limit	NDT with mounted wheels - UT at wheel seat - UT or MT at transition radii
Parc SUR Axle load exceeding design load >5% ->10% type A-III (2) > 21 t up to 22 t	- 200.000 km - ECM task is to define the equivalent time limit	
For type A axles operated at 21t axle load in standard maintenance plan and re-classified back to 20t operation:	EN new chapter 8.6 re-integrate axle in standard maintenance plan with UT of the wheel seat at the next reprofiling, medium or heavy maintenance level of the wheelset	
type B > 22,5 t up to 23,5 t	Inside design limits but use to be checked case by case in accordance with wagon parameters and permitted infrastructure axle load	no special
type B > 23,5 t	not applied	

Surface status to be treated in medium and heavy maintenance: references

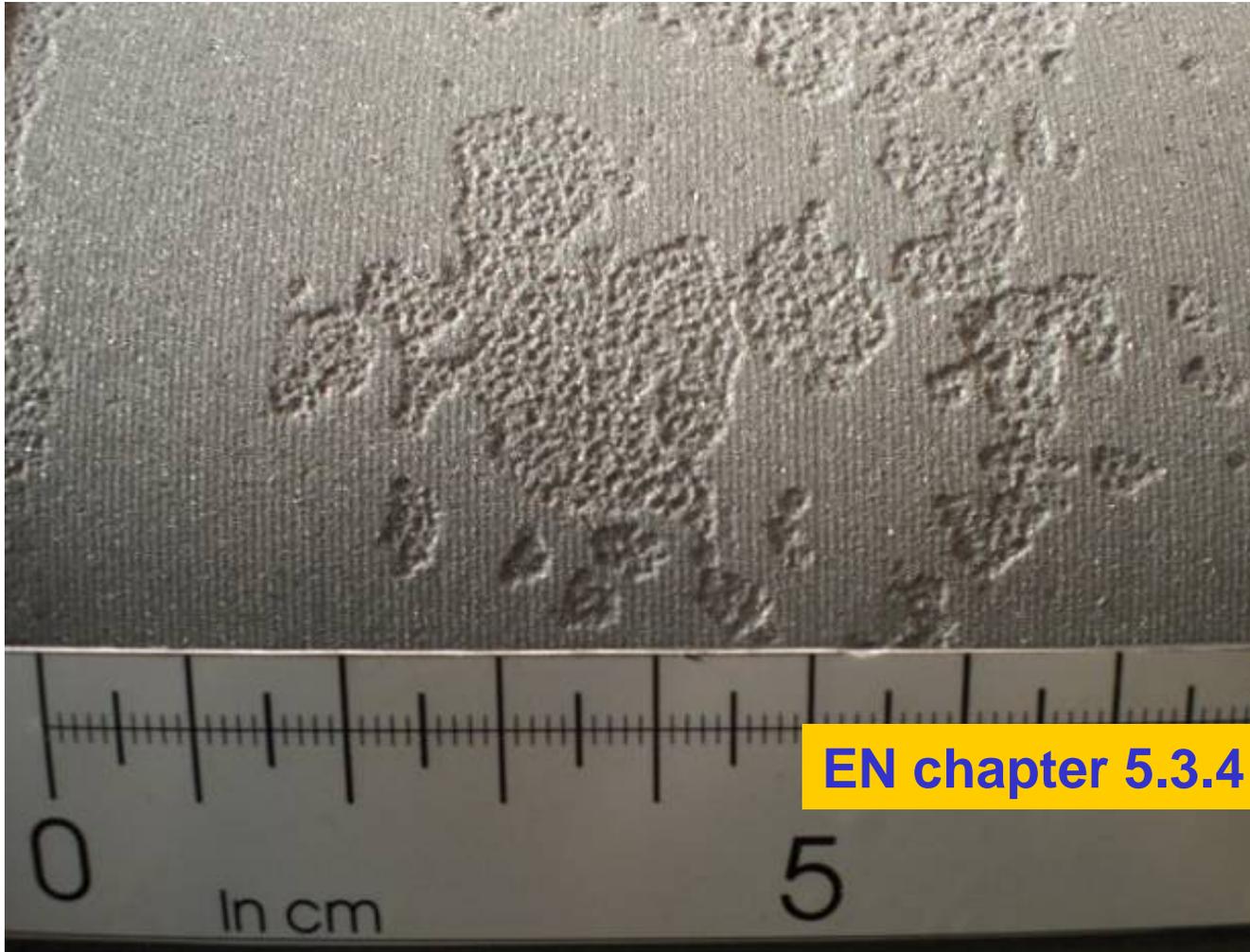
1) Local and severe defects (according UIC category 4)



EN chapter 5.3.4

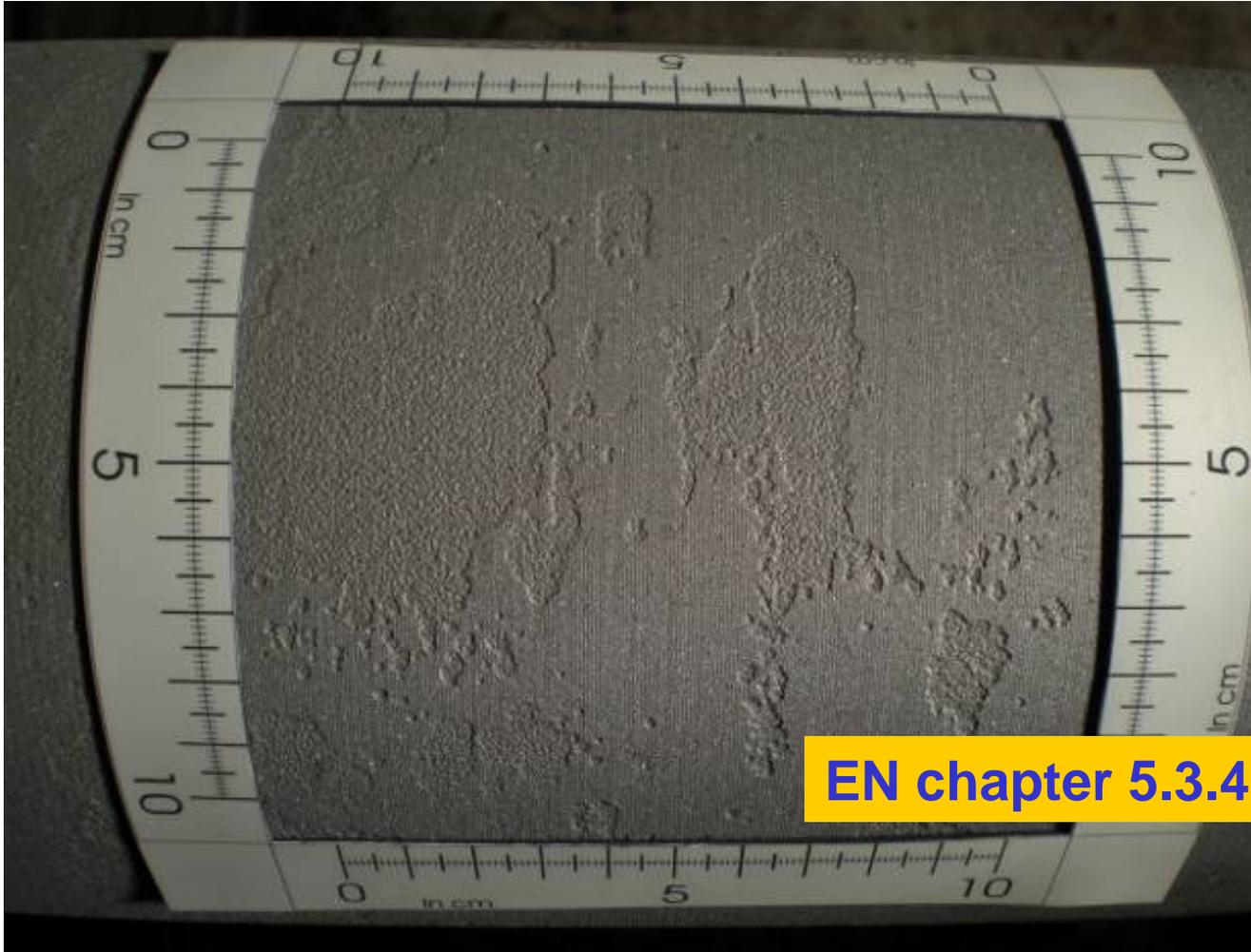
Surface status to be treated in medium and heavy maintenance: references

1) Local and severe defects (according UIC category 4)



Surface status to be treated in medium and heavy maintenance: references

1) Local and severe defects (according UIC category 4)



Surface status to be treated in medium and heavy maintenance: references

2) Large and heavily corroded areas, strongly and uniformly pitted surface



(link to prescriptions in EVIC:
“to be treated in next heavy maintenance”)

Surface status to be treated in medium and heavy maintenance: references

2) Large and heavily corroded areas, strongly and uniformly pitted surface



Surface status to be treated in medium and heavy maintenance: references

2) Large and heavily corroded areas, strongly and uniformly pitted surface



EN chapter 5.3.4

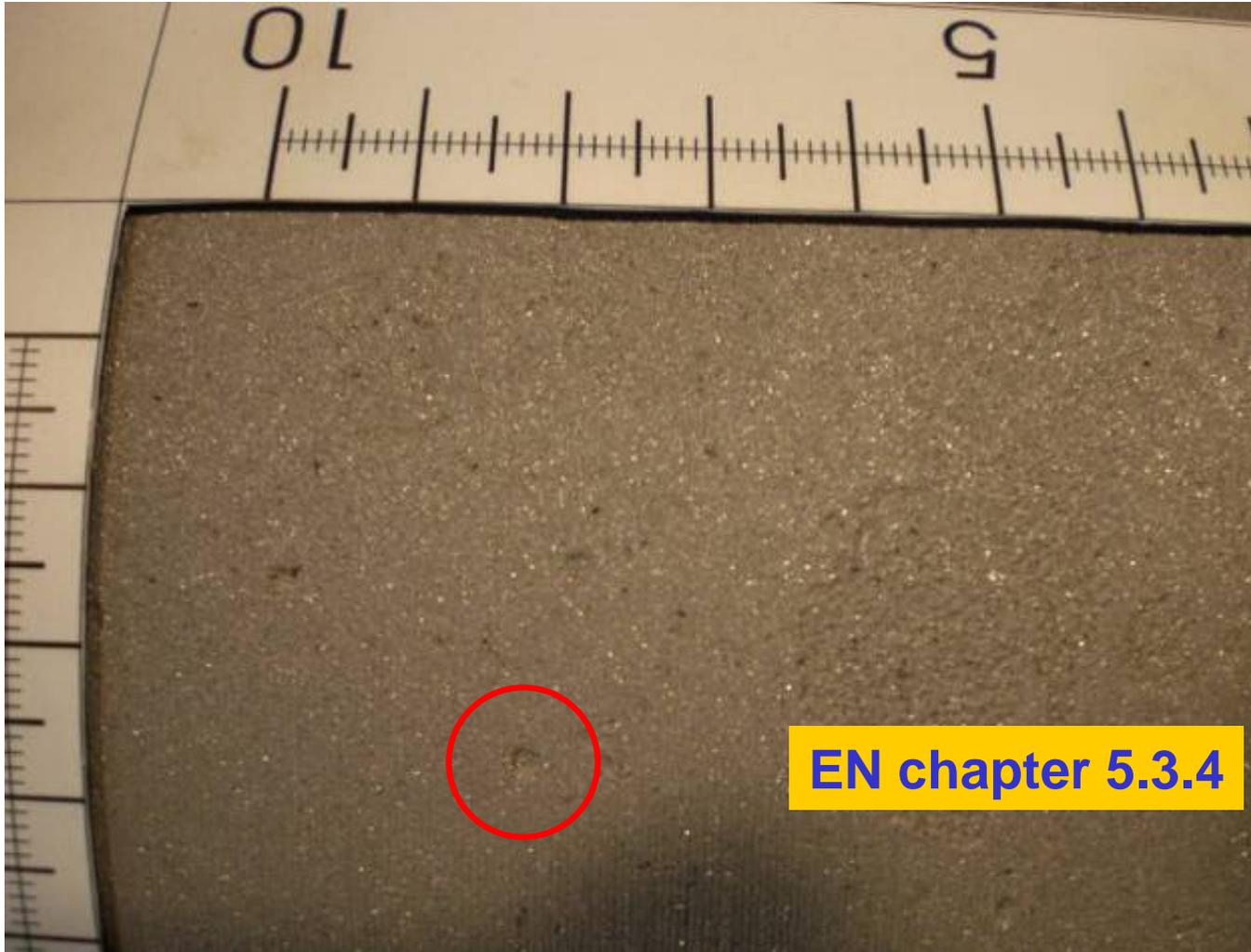
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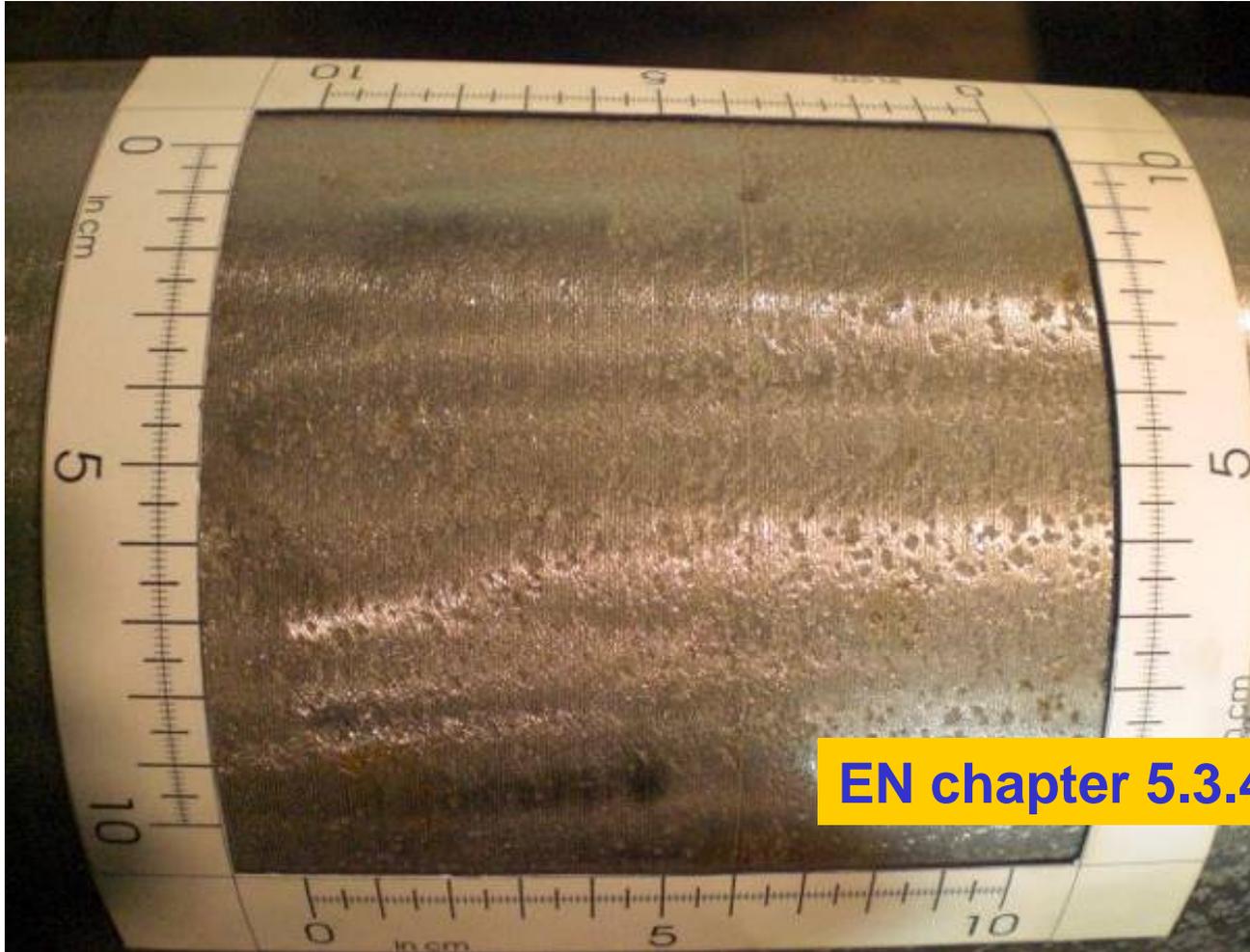
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Surface status to be treated in medium and heavy maintenance: references

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Surface status to be treated in medium and heavy maintenance: references

2) Status to be treated in transition radii and abutment area (examples)



abutment



EN chapter 5.3.4

abutment

Surface status to be treated in medium and heavy maintenance: procedure

For “medium maintenance” levels (without changing wheels, combined with bearing overhaul):

- If the surface status under coating of the axle is not clear: remove coating as far as necessary
- The surface status according to the given reference pictures must be treated or withdrawn in order to prevent potential cracks from propagation:
 - 1) Local and severe defects (according UIC category 4)
 - 2) Large and heavily corroded areas, strongly and uniformly pitted surface
- The treatment can be turning, grinding, blasting,... with subsequent NDT (according to ECCM)

The same criteria have to be applied also in the level with dismantled wheels

**EN new chapter 8.5
or normative Annex**

Measures resulting from lack of traceability

1. If in a wheelset maintenance level (with axle boxes opened) one or two of the following informations for an individual wheelset is/are missing:

- manufacturer
- manufacturing date
- manufacturing standard

the ECM has to decide according to its experience with its axle population about the measures to be applied. At minimum, the axle has to be subject to immediate NDT (only once).
(The timeframe is in accordance with the European Wheelset Traceability solution).

If no indication at all is given, the axle must be scrapped.

2. If the existence of the following data for an individual wheelset cannot be proven on paper, databases, data band,.. (detected during the acquisition according to the European Wheelset Traceability scheme or on special request):

- Workshop of last maintenance activity
- date of last maintenance activity
- type of last maintenance activity

then the axle has to be subject to immediate NDT (only once).

**EN chapter 4.2.3.2
+ normative Annex J**

NDT for the axle must be performed in all cases 1. and 2. according to ECCM criteria.

Measures resulting from lack of traceability

3. The ECM/keeper has to decide according to its experience with the operational conditions of the axles if the non traceable axle has been used in accordance with its design or with high performance parameters.

If this is not identifiable, the most severe NDT conditions according to the “ECCM Continued High Performance Operation” rules must be applied in the future maintenance of the axle (see this document – *high performance operation*).

EN chapter 4.2.3.2
+ normative Annex J

Thank you for your attention!

