JNS Urgent Procedure Task Force 2019/01
“Great Belt Accident”

Action Plan
Brussels, 26.04.2019
Background and timeline

- **02/01/2019** at 7:30, a passenger train collided with a semi-trailer from a pocket wagon. The collision occurred on the Great Belt bridge. National Safety Authority Denmark supervised reactions of involved Railway Undertakings and Infrastructure Manager involved. National Investigation Body Denmark started the accident investigations.

- **15/02/2019** NSA DK submits urgent procedure notification to JNS Panel

- **28/02/2019** JNS Panel issues an advice to launch a JNS Urgent Procedure

- **13/03/2019** Kick off meeting of the JNS UP task force. Members:
  - National Safety Authorities from Germany, Denmark, Netherlands, Sweden
  - National Investigation Body from Denmark
  - Representative Bodies (see slide 3)

- **27 & 28/03/2019, 12/04/2019 and 26/04/2019** further task force meetings (see next slides)
# Meetings overview

<table>
<thead>
<tr>
<th>Date</th>
<th>Main topics discussed</th>
<th>Attendance Representative Bodies ¹)</th>
</tr>
</thead>
</table>
| 13/03/2019 – kick off meeting | • participants introduction and roles and responsibilities;  
                               • general understanding accident                               | 3 2 1 4 3 - 1 -                     |
| 27&28/03/2019 – first working meeting | • identification of risks  
                               • similar occurrences and relevant information  
                               • establishment of 3 sub groups to prepare draft action plan | 1 2 1 2 3 - 1 -                     |
| 12/04/2019 – second working meeting | • discussion of action plan  
                               • activities and statements from task force members             | 1 3 1 4 3 2 1 -                     |
| 26/04/2019 – concluding meeting | • finalization of action plan  
                               • final conclusions and next steps                               | 1 3 1 2 4 2 1 1                     |

¹) [https://www.era.europa.eu/agency/stakeholder-relations/representative-bodies_en](https://www.era.europa.eu/agency/stakeholder-relations/representative-bodies_en)

²) SAF Holland (manufacturer of hitch type FW6170)
Outcomes of JNS Urgent Procedure

Based on the NIB interim findings, the task force analysed several scenarios and identified the following risk which requires urgent mitigation measures:

**Semi-trailers unsecured on pocket wagons with hitch type FW6170 might go outside the gauge during transport**

Task force agreed on an action plan (see next pages) which contains short-term risk mitigation measures addressed to RUs, keepers, ECM and terminals.

The actors that carry safety-related responsibilities in the transport of semi-trailers shall evaluate and – if needed – integrate the recommended measures by the JNS UP task force in their safety management system, contracts and instructions.
# Final Action Plan - JNS UP task force on the Great Belt Accident

## Short term risk mitigation measures for pocket wagons equipped with hitch type FW6170.

<table>
<thead>
<tr>
<th>When</th>
<th>Who</th>
<th>Action and tools</th>
<th>Consequences</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0) Maintenance</td>
<td>ECM</td>
<td>All ECMs (note 1) in charge of pocket wagons shall check whether their hitch maintenance (including lubrication (note 2)) intervals related to the king-pin locking match the instruction of the manufacturer and are optimized to the use of the wagons.</td>
<td>Necessary changes identified shall be assessed and implemented without delay.</td>
<td>Conclusions shall be duly justified (based on a risk analysis in accordance with CSM RA) and documented.</td>
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<td>The next hitch maintenance date shall be indicated on both sides of the pocket wagon (note 4) or shall be made available by the keeper by other means.</td>
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<tr>
<td>1) Optional:</td>
<td>Terminal *</td>
<td>Visual checks in the terminal that...</td>
<td>If any of the checks I., II. or III. returns a negative result</td>
<td>Traceability of checks I. to III. shall be assured.</td>
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<tr>
<td></td>
<td></td>
<td>I.  ...the handles on both sides are in their end position;</td>
<td>• red tape shall be affixed on the hitch handles on both sides;</td>
<td>Documentation by email from the terminal to the RU.</td>
</tr>
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<td>II.  ...the hitch is free of damages, and</td>
<td>• pocket wagon shall not be used for the transport of semi-trailers, and</td>
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<td></td>
<td>III.  ...the wagon is not marked with a K-label (note 3).</td>
<td>• RU shall be informed.</td>
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<td>Tools:</td>
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<td>- appropriate lighting.</td>
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<td></td>
<td></td>
<td>- red tape.</td>
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<td>- K-label (if terminal is contracted by the RU accordingly)</td>
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</table>

*note 1:* All ECMs in charge of pocket wagons shall check whether their hitch maintenance intervals related to the king-pin locking match the instruction of the manufacturer and are optimized to the use of the wagons.

*note 2:* ECMs (note 1) shall check whether they are aligning with the manufacturer’s instruction for lubrication intervals.

*note 3:* The next hitch maintenance date shall be indicated on both sides of the pocket wagon (note 4) or shall be made available by the keeper by other means.

*note 4:* Red tape shall be affixed on the hitch handles on both sides; pocket wagon shall not be used for the transport of semi-trailers, and RU shall be informed.
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</table>
| 2) Before placing the semi-trailer on to the pocket wagon (loading) | Terminal * | Checks in the terminal that...:  
  a) ...either the hitch maintenance label (note 4) or other means indicate that the date for next periodical maintenance has not expired;  
  b) ...the hitch is free of damages (visually);  
  c) ...all visible moving parts of the hitch are lubricated (visually) as described in SAF Holland maintenance and operating manual (note 2 contains the relevant excerpt of this manual);  
  d) ...the handles on both sides can be pulled out and released (functional test) (note 5);  
  e) ...the handles on both sides cannot be pushed further into the hitch (after they have been released – see previous check d)) (functional test) (note 5);  
  f) ...the “notch” on both sides is not visible (note 6) (visually), and  
  g) ...the hitch height is correctly adjusted to the semi-trailer to be placed on the pocket wagon.  
Example for checks a) to g) is given in note 5.  
Tools:  
- appropriate lighting.  
- hand light.  
- red tape.  
- K-label (if terminal is contracted by the RU accordingly) | If any of the checks a) to g) returns a negative result  
- red tape (terminal) shall be affixed on the hitch handles on both sides;  
- K label (RU) shall be affixed on both sides of the wagon;  
- pocket wagon shall not be used for the transport of semi-trailers, and  
- RU shall be informed.  
RU after becoming aware of negative results regarding checks a) to g) shall report to the ECM and to the Keeper if required by contract (e.g. GCU Appendix 4). | Traceability of checks a) to g) shall be assured.  
Documentation by email from the terminal to the RU. |
<table>
<thead>
<tr>
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<th>Consequences</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3) During placing the semi-trailer onto the pocket wagon (loading).</td>
<td>Terminal *</td>
<td>A dedicated staff member, standing next to the pocket wagon, shall direct the crane driver or reach stacker operator. Therefore this dedicated staff member, standing next to the pocket wagon, in addition to the crane driver or reach stacker operator shall assure that the kingpin is placed <strong>into the guiding ring of the hitch</strong> and that there are no gaps between the hitch top plate and the semi-trailer plate (note 7).</td>
<td></td>
<td></td>
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</tbody>
</table>
| 4) Immediately after placing the semi-trailer onto the pocket wagon (loading) | Terminal * | **Checks in the terminal that...:**
   - h) the king pin is placed into the guiding ring of the hitch and that there are no gaps between the hitch top plate and the semi-trailer plate (note 7);
   - i) the retaining notch of the handle is not visible on the loading side of the wagon (note 6), and
   - j) the king pin locking works correctly, by trying to push the handle back to its end position.

**Tools:**
- hand light.
- red tape.
- K-label (if terminal is contracted by the RU accordingly)

| **Consequences** | **If** any of the checks h) to j) returns a negative result
   - red tape (terminal) shall be affixed on the hitch handles on both sides;
   - K label (RU) shall be affixed on both sides of the wagon;
   - pocket wagon shall not be used for the transport of semi-trailers, and
   - RU shall be informed.

**RU after becoming aware of negative results regarding checks h) to j) shall report to the ECM and to the Keeper if required by contract (e.g. GCU Appendix 4).** |
| **Documentation** | **Traceability of checks h) to j) shall be assured.**

**Documentation by email from the terminal to the RU.** |
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<tr>
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<th>Consequences</th>
<th>Documentation</th>
</tr>
</thead>
</table>
| 5) Before train departure | RU | Checks pocket wagons loaded with semi-trailers that...:  
  i. ... the check performed by the terminal returned no negative results;  
  ii. ... no hitches are marked with red tape  
  iii. ...no wagons are marked with a K-label (note 3)  
  iv. ...the king-pin is correctly placed and locked, by trying to push the handle back to locked position on both sides of the wagon.  
  v. ...that the retaining notch of the handle is not visible on both sides of the wagon (note 6) | If any of the checks i. to v. returns a negative result...  
  • ...the semi-trailer shall be removed from the pocket wagon concerned or if not possible;  
  • ...the pocket wagon concerned shall be shunted out from the train consist;  
  • In both cases, a K Label (note 3) shall be affixed on both sides of the pocket wagon concerned, if not yet present. | Traceability of checks i. to v. shall be assured. |

| Tools:  
  - hand light  
  - K-label |  

* A contract between the RU and the terminal operator must be present, if these checks are done by the terminal operator. The checks must be controlled within the scope of the RU’s safety management system, especially in regards of procedures to be applied, and qualifications of staff involved.
Note 1: ECM functions and their relations according to:


According to Section 4 of the Regulation 445/2011/EU, the maintenance system shall be composed of the following functions:

(a/ aka ECM1) the management function, which supervises and coordinates the maintenance functions referred to in points (b) to (d) and ensures the safe state of the freight wagon in the railway system; The certified ECM is the one who performs this function and is responsible for the others through its SMS.

(b/ aka ECM2) the maintenance development function, which is responsible for the management of the maintenance documentation, including the configuration management, based on design and operational data as well as on performance and return on experience;

(c/ aka ECM3) the fleet maintenance management function, which manages the freight wagon’s removal for maintenance and its return to operation after maintenance; and

(d/ aka ECM4) the maintenance delivery function, which delivers the required technical maintenance of a freight wagon or parts of it, including the release to service documentation.

These 3 last functions are integrated in the maintenance system through a MANAGEMENT PROCESS (see the figure to the right).

Note: The ECM4 functions shall be under the control of ECM 1, even if it is outsourced and certified. ECM4 to deliver “records on maintenance performed” to ECM3 who report further to ECM2.

ECM1 is responsible and certified for the entire process.
Note 2: Lubrication

Periodic lubrication of the railcar hitch FW6170 is to be conducted at least every four months by using a water resistant, lithium based grease. We recommend a long-term pressure grease NLGI class 2 with MoS2 or, e.g. MOTOREX. The lubrication intervals must be adapted to the respective operating conditions, shorter and longer intervals are possible. Make sure that all moving parts are clean and adequately lubricated. Attention should be paid especially to the following lubrication points:

1. All parts of the locking mechanism
2. Bevel gear (every 8 months or if required)
3. Spindle
4. Outer surface of the lifting arms
5. Contact surface of sliding frame guide shaft

Notes:
When cleaning the railcar hitch, environmentally harmful substances may be used. We point out that the corresponding current waste regulations of each country must be observed when disposing of this waste. We recommend the wearing of protective gloves when working with lubricant.

MAKE SURE ALSO LUBRICATE ALL MOVING PARTS UNDER THE HITCH PLATE, NOT SHOWN ON THE PICTURE
Note 3: GCU Label K shall be applied to the wagon, indicating that the wagon may not be reloaded:

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**GENERAL CONTRACT OF USE FOR WAGONS**

**LABEL K**

- **RU's symbol**: 
- **Wagon Number**: 
- **Label**: K

**Do not reload / To be repaired following unload**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running Gear</td>
<td>Suspension</td>
<td>Brake</td>
<td>Wagon underframe and bogie</td>
<td>Buffing and draw gear</td>
<td>Wagon body</td>
<td>Loads and load units</td>
<td>Miscellaneous</td>
</tr>
</tbody>
</table>

**Other details**

- **Stamp of issuing office**
- **Date of stamping**
- **Signature**

**For issuing RU's use**

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K labels serve to indicate that there is a problem with the wagon or load unit, but that these can—for the time being—continue to be operated. However, the problems must be resolved prior to reloading; any reloading of the wagon will lead to its withdrawal.

The defect code must be filled out completely in accordance with GCU Appendix 9, Annex 1:

1. Circle or tick the number of the defect group/category
2. Enter the exact defect number in the empty boxes

K labels are to be affixed to both sides of the wagon in a clearly visible position, close to the labelholder or on the inscription plates. The printed version of the K label must contain the data provided for by this annex.
<table>
<thead>
<tr>
<th>Component</th>
<th>Code no.</th>
<th>Irregularities/Criteria/Notes</th>
<th>Action to be taken</th>
<th>Category</th>
</tr>
</thead>
</table>
| Gear for securing load units (LU) on container wagons | 6.7 6.7.1 6.7.1.1 | Trestle or spigot distorted or defective  
- trestle not in use | K | 3 |
| | 6.7.1.2 | trestle in use | Rectify +K. If not possible, detach wagon | 5 |
| | 6.7.1.3 | spigot not in use | K | 3 |
| | 6.7.1.4 | spigot in use | Rectify +K. If not possible, detach wagon | 5 |
| | 6.7.2 | Coupling pin of trailer not locked into trestle | Lock. If not possible, detach wagon | 5 |

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GENERAL CONTRACT OF USE FOR WAGONS
APPENDIX 9, ANNEX 1

Trestle not in use and not locked
Place trestle in its end position and lock. If not possible, secure temporarily + K

Trestle adjustment device unlocked and potentially fouling the gauge
Push in and secure trestle adjustment device. If not possible, detach wagon

Moving parts not properly secured (e.g. retractable spigots, handrails for shunters, etc.)
Rectify. If not possible, secure provisionally

No risk of fouling the gauge
Rectify. If not possible, detach wagon

Risk of fouling the gauge
Rectify. If not possible, detach wagon

Anti-crash system of trestle triggered, damaged elements
Detach wagon

K, close emergency stop cock
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VERSION: 1st OF JANUARY, 2019

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Note 4: Check the hitch maintenance label if present:

It is possible to affix a “Hitch maintenance label” to both sides of the wagon, adjacent to each hitch.

Example by VTG:
Before Loading

1) Check when the last maintenance was carried out for the wagon hitch, see period grid at the wagon. Is the interval since the last maintenance exceeded, do not load a trailer on the wagon and inform railway undertaking or VTG accordingly (see keeper contact details at the wagon).

2) Check the wagon hitch for visual defects or damages. If there are defects or damages do not load a trailer on the wagon and inform VTG accordingly (see keeper contact details at the wagon).

3) Check the wagon hitch for correct locking function in the cone. The locking bar must be able to be pulled out by the operating handle and after release of the handle be able to be fully pulled back by the springs into the hitch.

Notes

1) See the previous page for an example.
2) Visual damages could be e.g. a bent handle or a missing spring.
3) Check from both sides: The handle must be easy to pull out, and it must go back to its end position without problems. The retaining notch must not be visible. See note 6.
4) It is recommended to lift the hitch during this check, as it is not feasible to inspect under the plate in this position in lower position.
Examples of period grids:

<table>
<thead>
<tr>
<th>Hitch / Stützbock</th>
<th>6 Month / 6M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sema</td>
<td>01.2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
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<tbody>
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</table>

A = Workshop, shortcut
B = last check

<table>
<thead>
<tr>
<th>Hitch / Stützbock</th>
<th>4 Month / 4M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sema</td>
<td>01.2019</td>
</tr>
</tbody>
</table>

<table>
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<th>A</th>
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</table>

A = Workshop, shortcut
B = last check

Workshop function: If the handle has not reached the end position by itself, check if dirt or grease hinders the movement or if there is a damage to the locking mechanism.

4) The wagon hitch should be well greased, by all visible moving parts.

5) The height adjustment of the wagon hitch should be positioned in the desired height for the next loading and must be locked (Indicator fully under the square block - for a detailed description see separate manual).
Note 6: Visually check that the handle is not in its open position

Illustrations

The operating handle shall be retracted and the retaining notch must not be visible.

Pictures of a modified handle in open position.
Note 7: Visually check that the semitrailer is loaded correctly and the kingpin is in the right position inserted into the guide ring

A. The kingpin must be fully inserted into the guide ring and there must be no gaps between the trailer plate and the railcar hitch top plate.

- **CORRECT**

  - TRAILER
  - NO GAP
  - RAILCAR HITCH
  - TOP PLATE

  Kingpin is properly engaged.

- **WRONG**

  - Kingpin is in front of, behind, or to the side.

- **WRONG**

  - GAP
  - VISIBLE

  Kingpin is on the top.