



Econogy

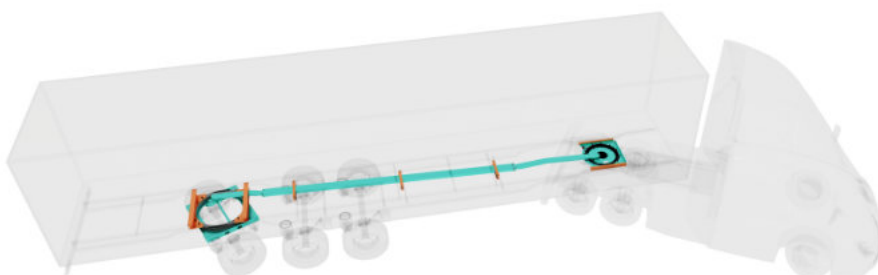
driving tomorrow



ySteer

yS1

User manual



This manual is written for drivers and other users of the Econogy ySteer mechanical steering system for semi-trailers. It contains essential information about using vehicles equipped with ySteer.

Any modifications to the steering system will void the warranty and vehicle homologation.

Incorrect use of the steering system will void the warranty.

Before putting the steering system into operation, ensure that the semi-trailer, on which the system is installed, complies with any applicable road traffic regulations.

The system should only be put into operation in accordance with other manuals that apply to the truck-trailer combination.

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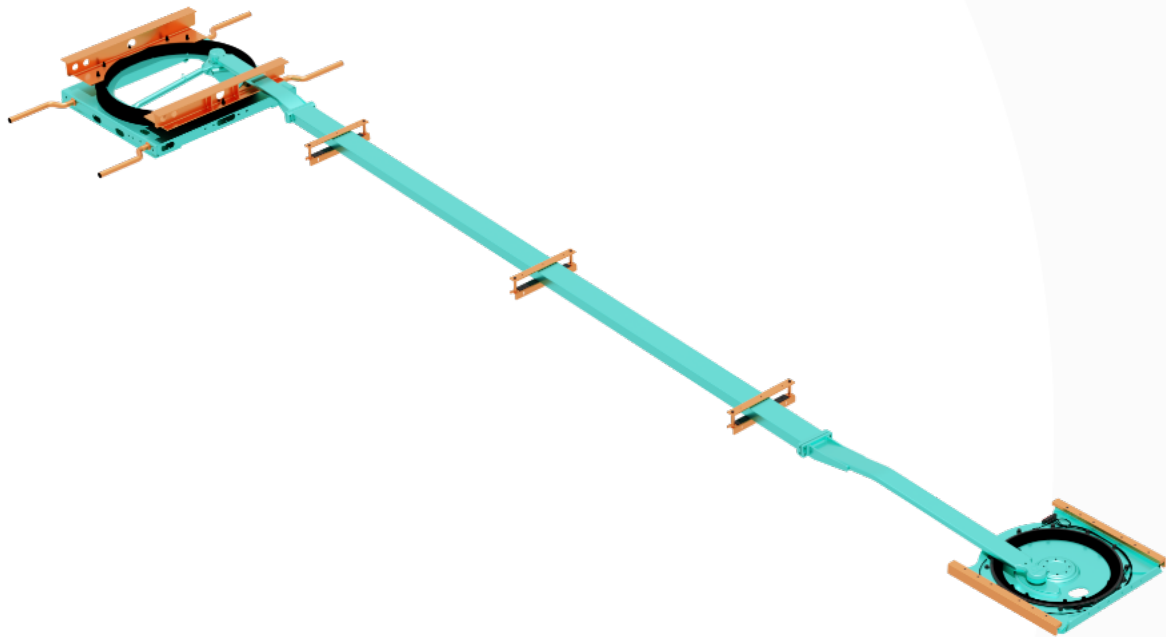
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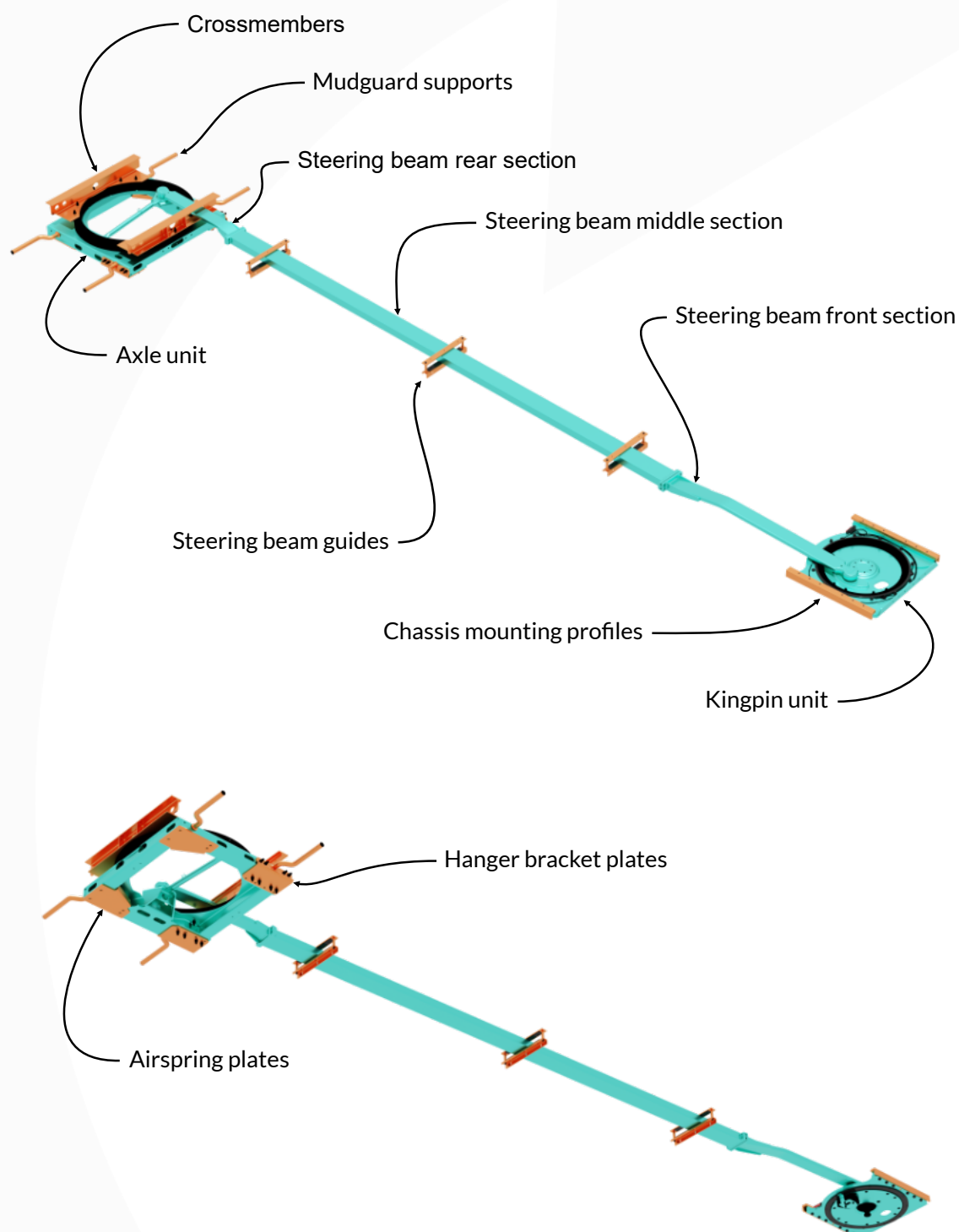
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1. Description

1.1 yS1 Steering system

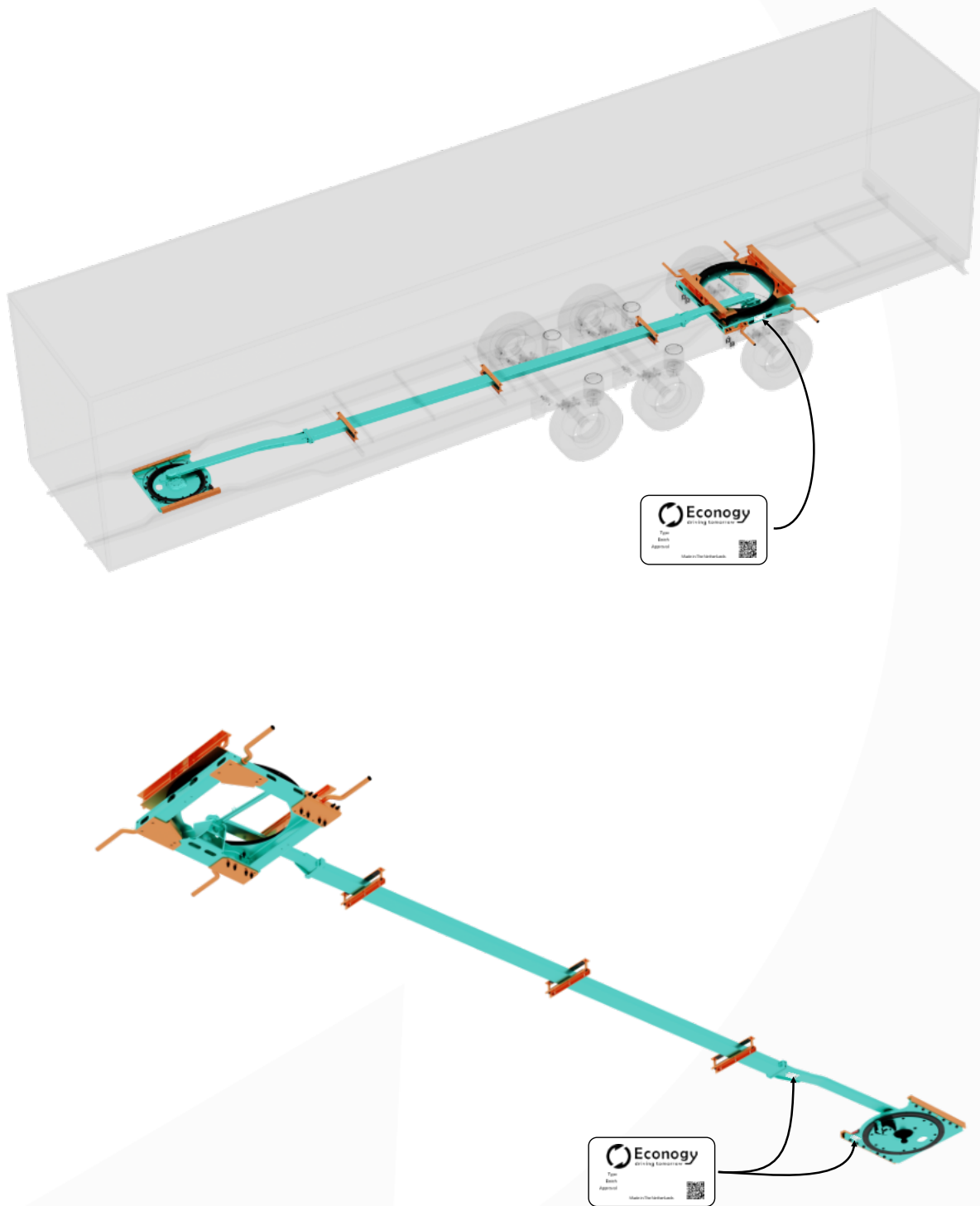


1.2 ySteer Modules



For more information about ySteer system composition refer to the system overview in appendix 6.1 and 6.2.

1.3 Type shield locations



For information about the ySteer type code system refer to the type code system table in appendix 6.3.

2. Safety

Econogy disclaims any responsibility for damages resulting from the use of the steering system in a manner that is in violation of the guidelines outlined in this manual.

2.1 Operating a ySteer equipped semi-trailer

Semi-trailers equipped with ySteer exhibit different driving characteristics compared to vehicles with rigid axles only. While navigating corners, it should be considered that a trailer with steering behaves differently than one without steering. Most notably, the back end of a steered trailer exhibits a more pronounced outward swing compared to an unsteered one.

2.2 Maintaining the ySteer system

- The ySteer mechanical steering system is a crucial safety component, and any maintenance procedures should be executed with utmost care. Negligent maintenance can lead to damage and/or accidents.
- When performing tasks beneath the trailer, it is necessary to position wheel chocks (wedges) in front of and/or behind the wheels to prevent any unintentional rolling. If the wheels have to be removed, the trailer should be supported by jacks.
- When mounting or unmounting heavy components, use suitable lifting equipment.
- Minimize unnecessary exposure to any fluids and lubricants and ensure that exposed parts of the body do not come into contact with lubricated surfaces.
- When replacing any part of the steering system be sure to only use original replacement parts, supplied or approved by Econogy.

2.3 Maintaining the environment

Refrain from disposing of old lubricants and fluids into drains, sewers, or soil. Such actions constitute a punishable offense and cause severe environmental harm. Never mix used fluids and/or lubricants as this could potentially cause serious harm. Deliver them separately to suitable disposal yards or recycling centres for processing.

3. Warranty

3.1 Coverage

Econogy warrants all its ySteer systems against malfunctions or manufacturing errors, providing comprehensive repair and maintenance coverage.

Duration

From the vehicle registration or entry into service, but no later than 6 months after the production date.

- On-road use: 36 months or 500,000 km (whichever comes first)
- Off-road use: 12 months with unlimited mileage
- Wear parts: 12 months with unlimited mileage (excluding normal wear and tear)

Note: On-road is a sealed surface, e.g. asphalt or concrete. Off-road is when a sealed surface is left only for a short period, e.g., soil, gravel, or dirt.

Conditions

- Vehicle equipped with EBS, and Econogy granted access to on-board data
- No earthmoving, racing, or military applications
- Genuine Econogy (spare) parts used for equipment, repairs, and maintenance
- Adherence to Econogy maintenance instructions

Exclusions

- Normal wear of (slewing) bearings, seals, steering wedges, and guides
- Damage from accidents, extreme force, improper use, overloading, unauthorized modifications, or failure to follow instructions
- Consequential damage or secondary costs e.g. lost profit or towing costs

3.2 Procedures

- Notify vehicle builder first, following their guidelines
- Notify Econogy within 5 working days of discovery
- Provide opportunity for inspection
- Send parts for repair/replacement as directed by Econogy (transportation not covered)

3.3 Terms

Econogy is responsible for repairing or replacing damaged parts at a location designated by Econogy. Terms may change without notice.

3.4 Repair time allowances

Warranty is limited to the Econogy gross price list and repair time allowances:

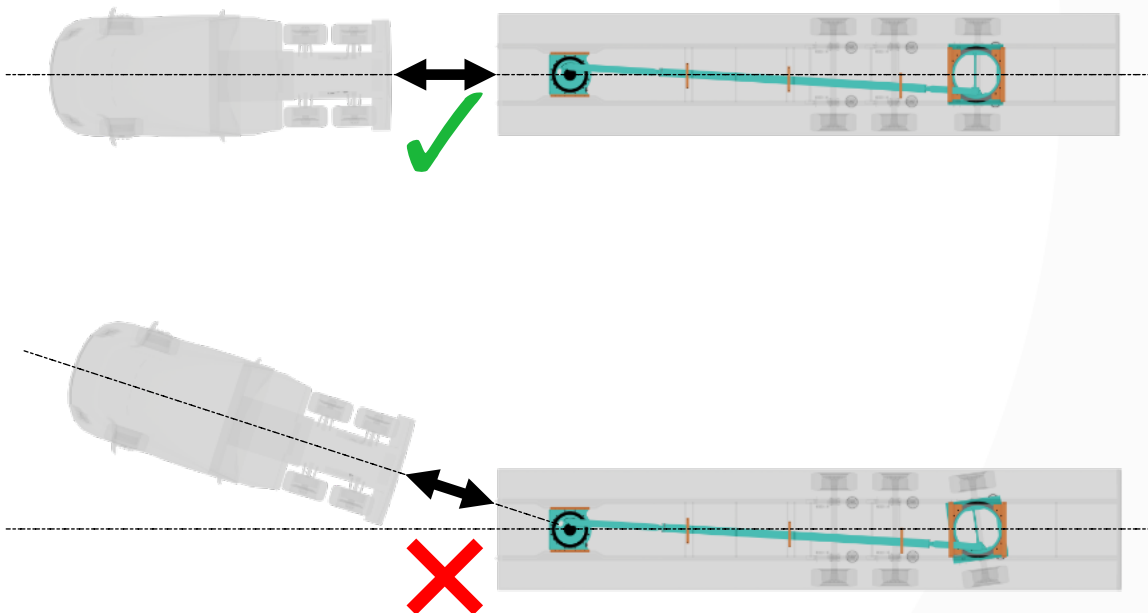
- Setting up vehicle and administration: 30 minutes
- Replacing kingpin or steering wedge: 20 minutes
- Replacing slewing bearing : 180 minutes
- Replacing steering beam bearing: 60 minutes

3.5 Choice of Law and Jurisdiction

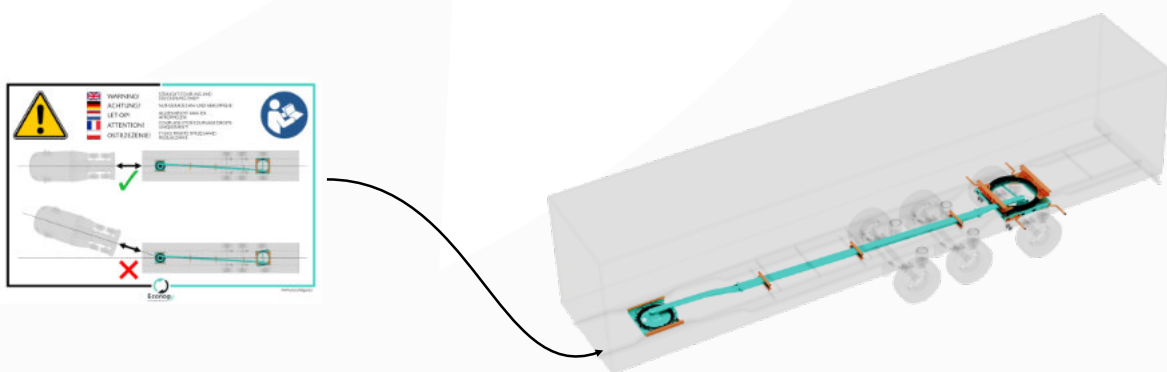
Subject to Dutch law and exclusive jurisdiction in Lelystad, governed by the Econogy general terms and conditions, unless explicitly specified otherwise.

4. Hitching and unhitching the trailer

- When hitching, make sure that the fifth wheel and the skidplate are at the same height.
- **The truck and trailer should be aligned in a straight line during the hitching and unhitching process!** Hitching or unhitching the trailer at an angle is not allowed, as it may lead to misalignment or damage to the forced steering system.
- The truck-trailer combination is to be on a flat and leveled surface during the hitching and unhitching process.
- Extend the landing legs of the trailer so it maintains its height after being disconnected from the truck.
- **The truck is to be driven out from under the trailer in a straight line!** Unhitching at an angle is not permitted.



- The hitching and unhitching warning sticker should be present on the left front of every ySteer equipped trailer.



5. Maintenance

5.1 Intervals

Upon delivery

- If no central greasing system is installed, lubricate the slewing bearings through the central lubrication manifold located on the kingpin unit and axle unit.

After 10,000km of two months (whichever comes first)

- Check if the bolted connections are seated firmly and retighten where necessary.
- If no central greasing system is installed, lubricate the bearings through the lubrication points located on the kingpinunit and axle unit.
- Inspect the steering system components for any visual signs of damage.

Every 25,000km or every three months (whichever comes first)

- Check if the bolted connections are seated firmly and retighten where necessary.
- Check kingpinunit turntable for play (Permissible values acc. to 6.4).
- Check axleunit turntable for play (Permissible values acc. to 6.4).
- Check the steeringbeam bearings for play (Permissible values acc. to 6.4).
- Check if the steeringwedge behind the kingpin is able to move and check the rubber block for any signs of wear. (Permissible values acc. to 6.4).
- Check the sliding surfaces on the guides and measure the remaining thickness of the polymer wearplate (Permissible values acc. to 6.4).
- If no central greasing system is installed, lubricate the bearings through the lubrication points located on the kingpinunit and axle unit.
- Inspect the steering system components for any visual signs of damage.

Maintenance work is to be carried out every 10,000km or every two months (whichever comes first) when driving in extreme conditions

- Areas with large amounts of rainfall.
- Areas where large amounts of salt are used for de-icing road surfaces.
- Areas where high amounts of dust and/or dirt accumulate on the vehicle (Desert, beaches, off-road trails etc.).
- Poor road quality (poorly maintained roads, construction sites etc.).
- Regular chemical cleaning (livestock vehicles etc.).
- Check kingpin bolts (M14) and kingpinunit bolts (M16) acc. to 6.4.

You will find a summary of the bolts that are used, their tightening and test torques, and other inspection data in appendix 6.4.

5.2 Lubrication

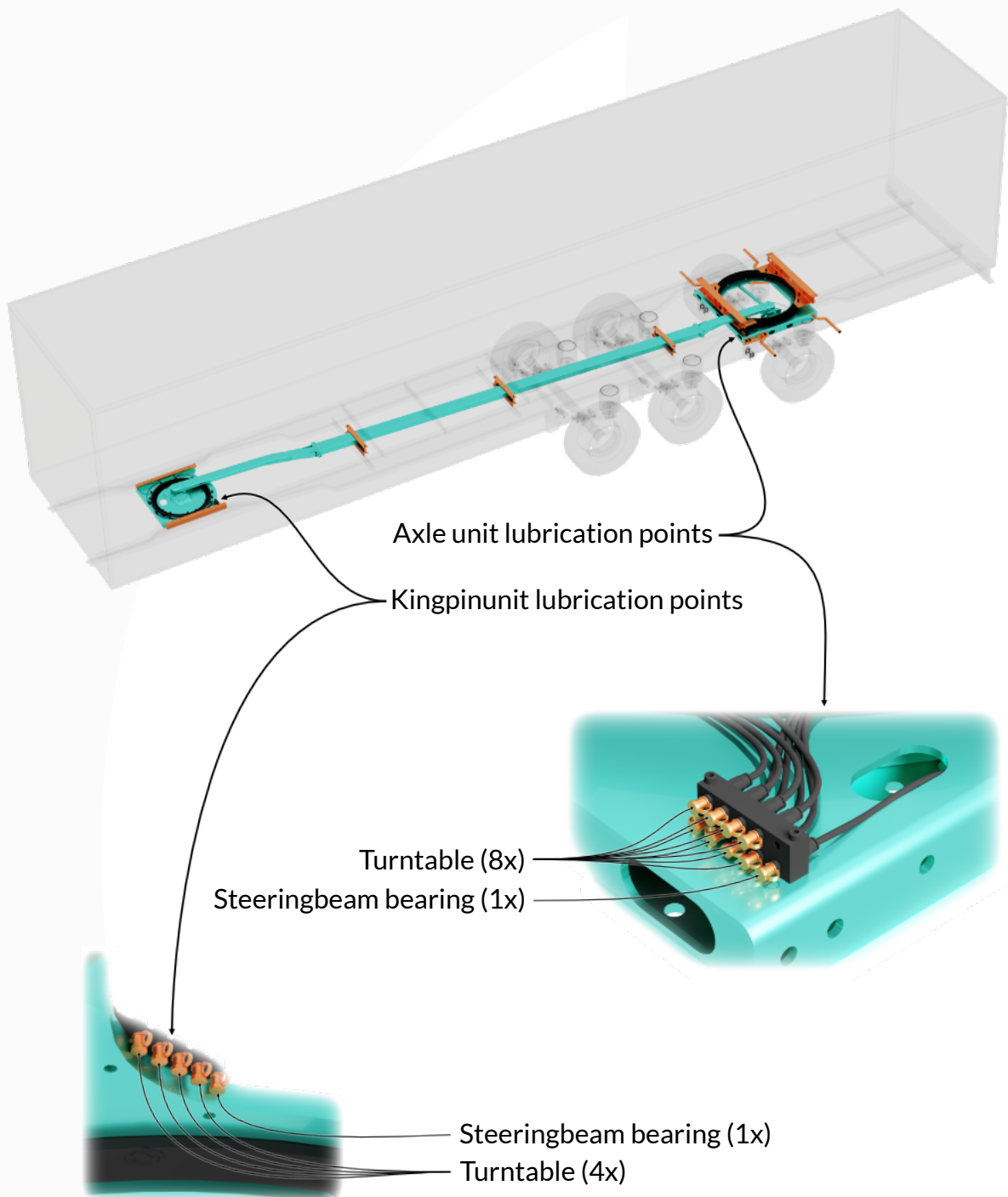
The most commonly used grease is lithium based (Ep) and corresponds to the following standard:

- DIN 51825 K2K – 20 ed ISO L-X-BCHA2.

It is also possible to use equivalent greases. The operating temperatures are between -20° C and +120° C. For low temperature applications, special greases must be used. The greasing must be completed as per the slewing rings application. Listed below are some of the equivalent greases recommended:

- ESSO EP2
- Beacon EP2
- MOBIL EP2
- Mobilux EP2
- AGIP EP2
- GRMU EP2
- SHELL EP2
- Calithia EP2

5.3 Lubrication point locations



5.4 Cleaning

- When cleaning the vehicle with a high pressure water jet, ensure that the jet is never aimed at any of the bearings, seals, or lubrication points.
- Lubricate the bearings through the lubrication points located on the kingpinunit and axle unit after cleaning.

Yster

6.3 Inspection data

Kingpinunit				
Dimensions	Minimum	Maximum		
Steering Wedge vertical play	1 mm (new)	3 mm (replace)		
Turntable axial play	1 mm (new)	3 mm (replace)		
Bolts	Size	Tool	Tighten. Torque	Test Torque
Turntable bolts	M16	SW22	300 Nm	205 Nm
Chassis bolts	M16	SW22	300 Nm	205 Nm
Kingpin	M14	SW22	190 Nm	170 Nm
Steering Wedge	M10	SW17	55 Nm	45 Nm

Steering beam				
Dimensions	Minimum	Maximum		
Guide Wearplate thickness	3 mm (replace)	5 mm (new)		
Steering beam bearing radial play	0 mm (new)	1 mm (replace)		
Bolts	Size	Tool	Tightened	Test Torque
Steering beam flange bolts	M16	SW22	300 Nm	205 Nm
Steering beam bearing bolts	M16	SW22	300 Nm	205 Nm
Guide bolts	M12	SW19	95 Nm	85 Nm

Axle unit				
Dimensions	Minimum	Maximum		
Turntable axial play	1 mm (new)	3 mm (replace)		
Bolts	Size	Tool	Tightened	Test Torque
Turntable bolts	M16	SW22	300 Nm	205 Nm
Chassis bolts	M16	SW22	300 Nm	205 Nm

7. Notes

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