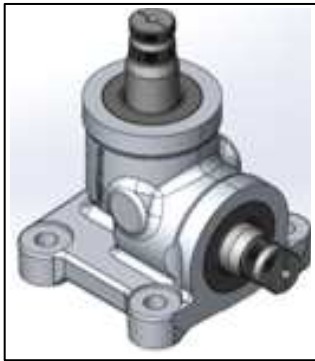



ADDRESSEES	: ABC Customer Care and Parts Source Owners and users of vehicles mentioned under "Application"
VEHICLE TYPE	: T2100, C2045, CX..., TX..., TD925US
CONFIGURATION GROUP	: 7.06 Steering – front-axle steering
BULLETIN TYPE	: Safety Recall NHTSA 17V-064/TC 2017-064
DATE	: February 15 th , 2017
SUBJECT	: Replacement of front axle steering system bevel gear
TERMS & CONDITIONS	: Refer to the warranty section further in this Bulletin.

APPLICATION

The safety recall, subject of this Bulletin, is applicable to the following coach models equipped with the first generation Pailton bevel gear in the front steering system:

T2140, T2145, TX40, TX45, C2045, CX45, TD925US
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First generation Pailton bevel gear	Second generation Pailton bevel gear (additional dust cover at input and output shafts) (*)
	

(*) The additional dust covers are colored in green in order to clarify, in reality they are black.

DESCRIPTION:

- Van Hool NV noticed a defect related to safety in the first generation Pailton bevel gears.
- The grease in the bevel gear could affect performance at very low temperatures (below -20°C/-4°F). If the grease in the bevel gear becomes hard enough to affect drivability, additional manual force could be required to turn the steering wheel. This would be especially noticeable when the steering wheel is turned the first times after an initial start-up. The phenomenon could disappear later as a matter of course due to the warming up of the grease in the bevel gear.

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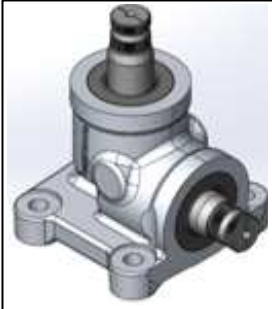

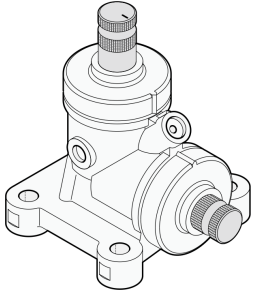
Additionally it has been determined that in some cases water has penetrated the bevel gear via the sealing thereby contaminating the grease. The penetrating water will start corrosion of the bearings. This problem shows a gradual, but continual increase of the steering forces and will not disappear at higher ambient temperatures or when the bevel gear is in use.

- Owners and operators of coaches equipped with a Pailton bevel gear should first identify their bevel gear. If the vehicle is equipped with a first generation Pailton bevel gear, it must be replaced by a corresponding ZF bevel gear. **The Pailton bevel gears of the second generation are not affected!**

Refer to the procedures in this Service bulletin for instructions. The terms and conditions of the campaign have been detailed in the warranty section.

Pailton and ZF bevel gears are interchangeable, but note that the ZF bevel gear has a mid-position which should be taken into account during the installation of the bevel gear.

IDENTIFICATION

First generation Pailton bevel gear	Second generation Pailton bevel gear (additional dust cover at input and output shafts)	ZF bevel gear
		

PARTS AND PRODUCTS:

Old parts

VH reference	Description
VH 11153766	Pailton bevel gear, with long input shaft (first generation and second generation have the same part number)

New parts

VH reference	Description
VH 10598332	ZF bevel gear, with long input shaft
VH 660226801 (4x)	Fixing screw of bevel gear (M12x1.75; length 45 mm)
VH 660207406 (4x)	Self-locking nut (M12x1,75)
VH Z368030121 (2x)	Clamping screw of elastic coupling (M10x1.25; length 45 mm)
VH 10513551 (2x)	Self-locking nut (M10x1.25)
VH Z368030126 (1x)	Clamping screw of universal joint (M10x1.25; length 56 mm)
VH 10513551 (1x)	Self-locking nut (M10x1.25)

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PROCEDURE

Step	Action
1	Identify the bevel gear of the front axle steering system by using the illustration under "Visual identification".
2	<p>Is your vehicle equipped with a first generation bevel gear?</p> <ul style="list-style-type: none"> • If yes, change the bevel gear by a ZF bevel gear as described under "STEP 2 IN DETAIL". Register the replacement of the bevel gear through the registration button located behind the Service Bulletin on the Van Hool customer portal. Write the text "Replaced with ZF" in the field "Remark". Labour allowance will only be awarded after Van Hool has received the affected bevel gear, properly labelled with the vehicle construction number. • If not, register the type of bevel gear mounted on your vehicle by means of the registration button behind the Service Bulletin on the customer portal. Write the text "Original: Pailton 2" or "Original: ZF" in the field "Remark". Further actions are not required with regard to this Service Bulletin.

STEP 2 IN DETAIL: To remove/install bevel gear

1. Preparations

- Park the vehicle on a level-surfaced inspection pit with the front wheels straight. Apply the parking brake, stop the engine, switch off all systems and turn off the battery master switch on the dashboard.
- Turn off the mechanical battery switch.
- Put a "DO NOT OPERATE" tag on the instrument panel before beginning any inspection or performing any repair.
- Place chocks in front of and behind the drive axle wheels.
- Read the entire procedure before beginning to work.



WARNING!

Observe safe shop practices at all times.

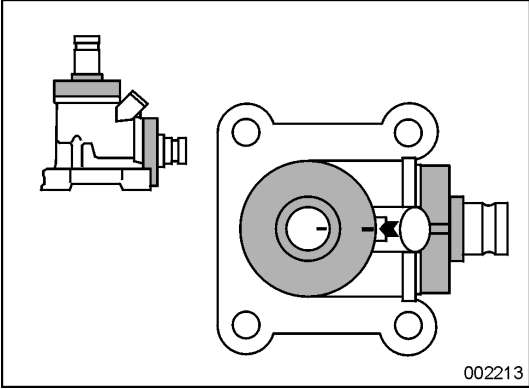
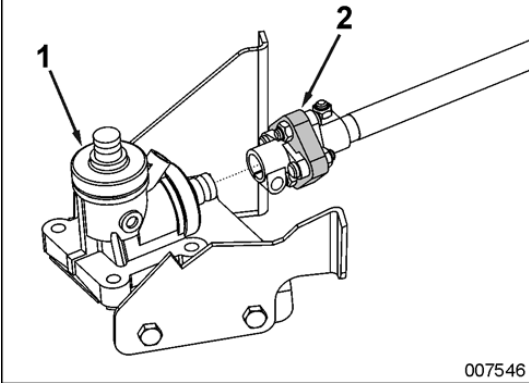
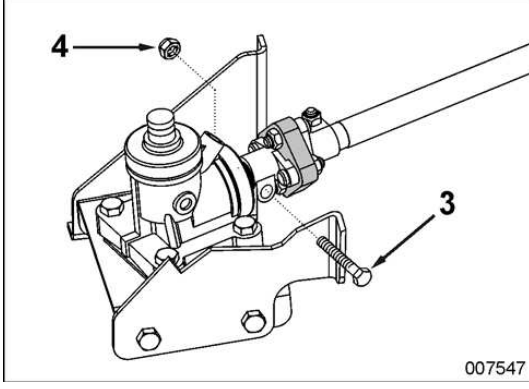
2. To remove the bevel gear

Step	Action
1	Make sure that the front wheels are in the straight-ahead position.
2	Remove the bolt of the steering column universal joint at the bevel gear.
3	Remove the bolt of the intermediate shaft elastic coupling at the bevel gear.
4	Remove the four bolts securing the bevel gear to the chassis and take away the bevel gear.

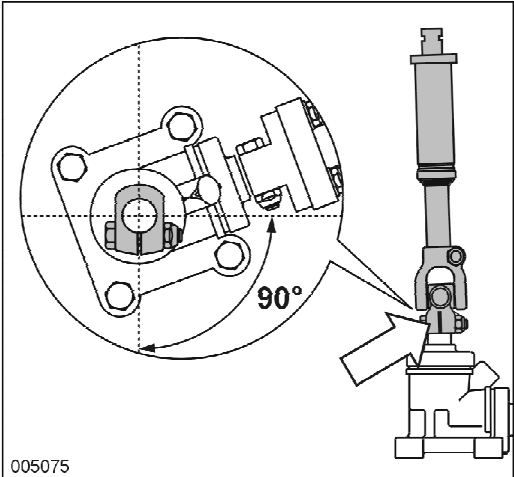
3. To install the new bevel gear

Step	Action
1	Make sure that the front wheels are still in the straight-ahead position.

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<p>2</p>	<p>Rotate the bevel gear input shaft to align the marks on the dust cap and on the input shaft itself with the ridge on the housing. This is the “zero backlash” position of the bevel gear.</p> 
<p>3</p>	<p>Slide the output shaft of bevel gear (1) into elastic coupling (2) of the intermediate shaft. Make sure that the bevel gear remains in the “zero backlash” position during this step (refer to step 2).</p> 
<p>4</p>	<p>Secure the bevel gear to the chassis by using four new M12 screws provided with new self-locking nuts. If there are any shims found under the bevel gear on your vehicle, re-install them. Tighten the nuts to a torque of 70 ± 10 Nm (52 ± 7 ft.lbf).</p>
<p>5</p>	<p>Install a new clamping screw (3) provided with a new self-locking nut (4).</p> <p><i>NOTE: If necessary, slacken the nut of the elastic coupling clamping screw at the intermediate shaft side to ease installation of screw (3). Install in this case afterwards here also a new clamping screw provided with a new self-locking nut.</i></p> 

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6	Tighten the nut(s) of the elastic coupling clamping screw(s) to a torque of 48+5 Nm (35+3 ft.lbf).
7	<p>Secure the universal joint of the steering column to the bevel gear with a new screw provided with a new self-locking nut. Ensure that the clamping slot of the universal joint is perpendicular to the longitudinal vehicle axis (as shown in the figure).</p> <p>Tighten the nut of the universal joint clamping screw to a torque of 48+5 Nm (35+3 ft.lbf).</p> <div data-bbox="671 506 1187 981"><p>005075</p></div>

End of procedure.

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WARRANTY:

1. Application:

The safety recall, subject of this Bulletin, is applicable to the following coach models equipped with the first generation Pailton bevel gear in the front steering system:

T2140, T2145, TX40, TX45, C2045, CX45, TD925US
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2. Terms and conditions:

Van Hool/ABC-Companies will accept warranty claims for this repair as follows:

Parts:

- Parts supply: parts will be supplied through regular channels, free of charge.
- Parts disposal: return the affected bevel gear to ABC properly labeled with VIN ID tag.

Labor allowance: 2 (two) hours will be awarded for replacement of bevel gear

Campaign target date: Service Bulletin issue date + 0,5 year

3. Claim references:

- Job code for replacement of bevel gear: O10130V

Claim submission: If there are any questions regarding this campaign, please call ABC Customer Care & Parts Source toll-free for guidance on 1-877-427-7278. Listen for the prompts for warranty and select that option.

INFORMATION HANDLING:

Important supplements and modifications of technical information not yet included in the manual are communicated by means of Service Bulletins.

VAN HOOL CUSTOMER PORTAL:

Consult the Van Hool customer portal for the latest service documentation. Beside the maintenance manual, you will also find the operating manual and the spare parts catalogue of your vehicle on the customer portal. The customer portal is accessible through www.vanhool.be, and only with a code (password) from Van Hool. If you do not have a password yet, request it by using the link on the Van Hool website.