

ADDRESSEES	: ABC Customer Care and Parts Source Owners and operators of coaches listed under 'Application'
VEHICLE MODEL	: CX35, CX45, TX40, TX45, TDX25US, TD925US
MANUAL SECTION	: 12.10 Drive axle
BULLETIN TYPE	: Product Improvement
DATE	: February 5th, 2019
SUBJECT	: Introduction of new generation DANA G171 drive axles
TERMS & CONDITIONS	: No claims will be accepted with reference to this Bulletin.

APPLICATION

The new drive axles, subject of this Bulletin, have been cut into production as from following units:

Model	VIN
CX35	48775 → ...
CX45	48961 → 48966, 48983 → ...
TX40	41217 → ...
TX45	41422 → 41453, 41462 → ...
TDX25US	42898 → ...
TD925US	42888, 42920 → ...

DESCRIPTION

Dana Corporation have changed the wheel end bearing of the G171 drive axle from "unitized" to "compact" bearings. In line with this change associated components such as spindle, hub, hub nut & washer locking system and axle half shafts are also changed. The track of the new drive axle has maintained but the overall length is increased with 0.5 inch (12 mm). The purpose of this bulletin is to inform you about this change.

PART NUMBERS

	VH reference of G171 axle with "unitized" wheel bearings (=previous generation)	VH reference of G171 axle with "compact" wheel bearings (=new generation)
Drive axle complete, speed ratio 3.07	11370222	11436375
Drive axle complete, speed ratio 3.42	11370307	11436372
Drive axle complete, speed ratio 4.10	11370313	11436370
"Unitized" wheel bearing kit	11262052	-
"Compact" wheel bearing kit	-	11472203

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VISUAL IDENTIFICATION

G171 drive axle with “unitized” wheel bearings
(= previous generation)



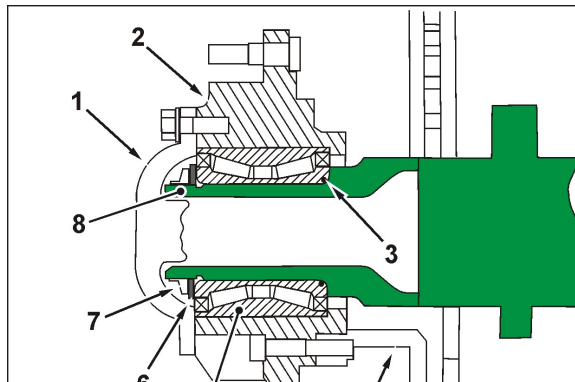
Figure 1

G171 drive axle with “compact” wheel bearings
(= new generation)



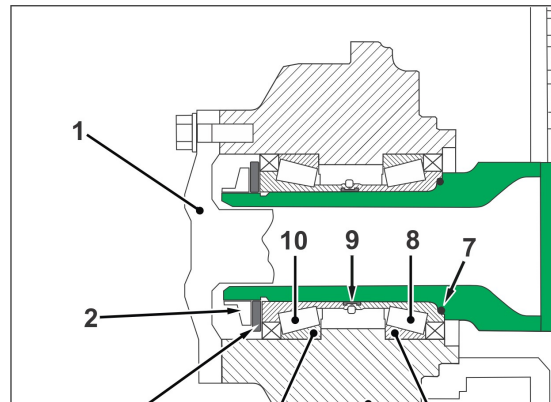
Figure 2

SECTION THROUGH AXLE END



**Figure 3: Axle end with “unitized wheel bearing
(= previous generation)**

1. Axle shaft
2. Hub
3. Sealing ring (part of wheel bearing)
4. Brake disc
5. Wheel bearing
6. Thrust washer
7. Hub nut



**Figure 4: Axle end with “compact” wheel bearing
(= new generation)**

1. Axle shaft
2. Hub nut
3. Thrust washer
4. Outer ring of outer roller bearing
5. Hub
6. Outer ring of inner roller bearing
7. O-ring
8. Inner roller bearing
9. Clamp spring
10. Outer roller bearing

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TO CHECK WHEEL BEARING END-PLAY OF NEW AXLE GENERATION

1. Interval

- Vehicles covering less than 50 000 miles (80 000 km) a year: once a year
- Vehicles covering more than 50 000 miles (80 000 km) a year: every 50 000 miles (80 000 km) or every 6 months, what first comes

Also carry out this check after working on the brakes or any other component of the axle end.

2. Admissible wheel bearing end-play

Admissible end-play in case of new bearings	
End-play	Action
0 inch (0 mm)	End-play OK. No further action required.
more than 0 inch (0 mm)	Tighten the hub nut to the prescribed torque. Then check the wheel bearing end-play once again. If the wheel bearing end-play is still more than 0 inch (0 mm), this means that the hub is damaged and that you have to change the hub together with the wheel bearing.

Admissible end-play in case of used bearings	
End-play	Action
between 0 and 0.002 inch (between 0 and 0.05 mm)	End-play OK. No further action required.
between 0.002 and 0.008 inch (between 0.05 and 0.2 mm)	Tighten the hub nut to the prescribed torque. Then check the wheel bearing end-play once again. If the wheel bearing end-play is still more than 0.002 inch (0.05 mm), you have to change the wheel bearing.
more than 0.008 inch (more than 0.2 mm)	Change the wheel bearing.

3. Preparation

- Park the vehicle over a flat inspection pit, with the front wheels in the straight-ahead position. Apply the parking brake. Stop the engine. Switch off all systems and turn off the battery isolation switch on the dashboard. When using mobile column lifts (for vehicles with 3 axles: always use six mobile column lifts) instead of an inspection pit, always lower the suspension first.
- Open the mechanical battery isolation switch.
- Put a "DO NOT START" warning message on the instrument panel before starting the checks or repairs.
- Put chocks in front of and behind the wheels.
- Read the entire procedure before starting to work.




WARNING!

Observe safe shop practices at all times.


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4. Procedure to check wheel bearing end-play

Step	Action
1	Release the parking brake.
2	Jack up the axle until the wheels clear the ground.
3	Give the wheel a couple of turns in both directions to allow the wheel bearings to settle.
4	<div> CAUTION! Once the dial indicator gauge has been set to zero, it is no longer permitted to turn the wheel. Neither should you touch the stylus of the dial indicator gauge anymore.</div> <p>Place a dial indicator gauge with a magnetic stand on the axle housing. Position the stylus of the dial indicator gauge against the inside of the brake disc. Now set the dial indicator gauge to zero.</p>
5	Grab the wheel halfway its height and push it straight inwards as far as possible. Have an assistant simultaneously make a note of the displacement of the dial indicator gauge.
6	Hands still halfway its height, now pull the wheel outwards as far as possible. Have an assistant simultaneously make a note of the displacement of the dial indicator gauge. The difference between the two measured displacements represents the wheel bearing end-play at that side.
7	Repeat steps 5 and 6 until two consecutive reliable measurements are obtained.
8	Compare the measured end-play with the maximum permissible value.
9	Repeat this procedure for the other side of the vehicle.

5. Procedure to tighten hub nut

Special tools: Hub nut wrench: Van Hool no. 11491994

Step	Action
1	Remove the axle shaft.
2	<div> CAUTION! Not fully undoing the staking of the hub nut can cause damage to the axle spindle thread when the hub nut is tightened.</div> <p>With a pointed tool, fully undo the staking of the hub nut.</p>
3	Tighten the hub nut to a torque of 730 ± 7 ft.lbf (985 ± 10 Nm).
4	Recheck the wheel bearing end-play.
5	Lock the hub nut by staking its collar in the groove of the axle spindle.
6	Clean the contact surfaces between the axle shaft and the hub.
7	Apply Loctite 518 to the contact surfaces between the axle shaft and the hub.
8	Slide the axle shaft into the axle housing. Install the axle shaft fixing screws and tighten the screws to a torque of 235 ± 10 ft.lbf (320 ± 15 Nm).

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TO REMOVE/INSTALL WHEEL BEARING OF NEW AXLE GENERATION

1. Preparation

- Park the vehicle over a flat inspection pit, with the front wheels in the straight-ahead position. Apply the parking brake. Stop the engine. Switch off all systems and turn off the battery isolation switch on the dashboard. When using mobile column lifts (for vehicles with 3 axles: always use six mobile column lifts) instead of an inspection pit, always lower the suspension first.
- Open the mechanical battery isolation switch.
- Put a "DO NOT START" warning message on the instrument panel before starting the checks or repairs.
- Put chocks in front of and behind the wheels.
- Read the entire procedure before starting to work.



WARNING!

Observe safe shop practices at all times.

2. Procedure to remove wheel bearing- Figure 5

Special tools:

Hub nut wrench: Van Hool No. 11491994

Drift to remove wheel-bearing outer ring: Van Hool No. 11484272

Distance piece for drift 11484272: Van Hool 11484279

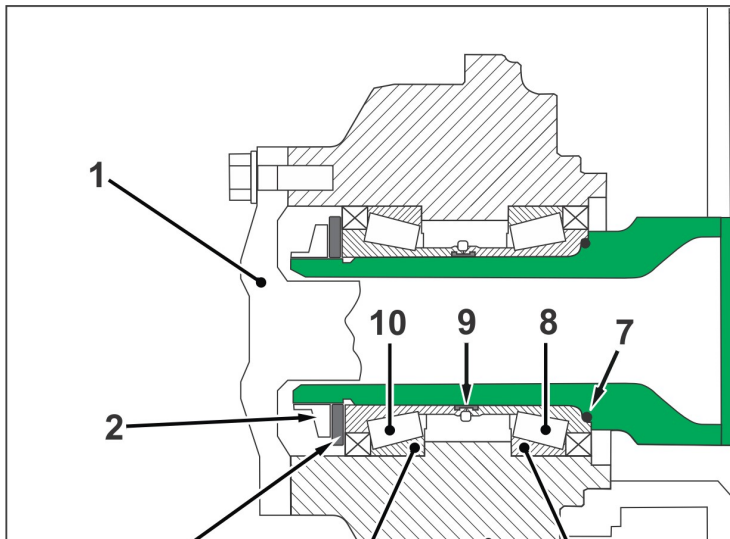


Figure 5: Axle end with "compact" wheel bearing (= new generation)

1. Axle shaft
2. Hub nut
3. Thrust washer
4. Outer ring of outer roller bearing
5. Hub
6. Outer ring of inner roller bearing
7. O-ring
8. Inner roller bearing
9. Clamp spring
10. Outer roller bearing

Step	Action
1	Release the parking brake by means of the mechanical emergency release device at the back of the brake chamber.
2	Remove the brake caliper/brake carrier assembly as explained in the maintenance manual of your vehicle.

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3	Remove the axle shaft.
4	 CAUTION! Not fully undoing the staking of the hub nut can cause damage to the axle spindle thread when the hub nut is removed. With a pointed tool, fully undo the staking of the hub nut.
5	Remove the hub nut using the special hub nut wrench. Remove the thrust washer.
6	 WARNING! The hub/brake disc assembly is heavy. Support it well before removing it. Pull the hub/brake disc assembly from the axle spindle.
7	Remove the brake disc from the hub.
8	Place the hub on a flat surface.
9	Remove the clamp spring located between the wheel bearings by using a flat blade screwdriver. 
10	By using a hammer and a punch, drift the inner roller bearing together with the O-ring from the hub.
11	Turn the hub round and remove the other roller bearing in the same way.

Figure 6

Continued on next page

12	<div> </div> <div> <h3>CAUTION!</h3> </div> <div> <p>Check the pressing force necessary to remove the outer ring. Is the force less than 2250 lbf, than it is not allowed to reuse the hub. Change the hub by a complete new hub/wheel bearing assembly.</p> </div> <div> <p>Press the outer ring of the roller bearing from the hub by using the special drift.</p> </div> <div> </div> <div> <p>Figure 7</p> </div> <div> </div> <div> <p>Figure 8</p> </div>
13	<p>Turn the hub round and remove the other outer ring in the same way. Check here also the pressing force necessary to remove the outer ring.</p>

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3. Procedure to install wheel bearing

Special tools: Hub nut wrench: Van Hool No. 11491994
 Pressure disc for drift to press wheel bearing in hub: Van Hool No. 11484292
 Guiding tool to slide hub onto axle spindle: Van Hool No. 11633789

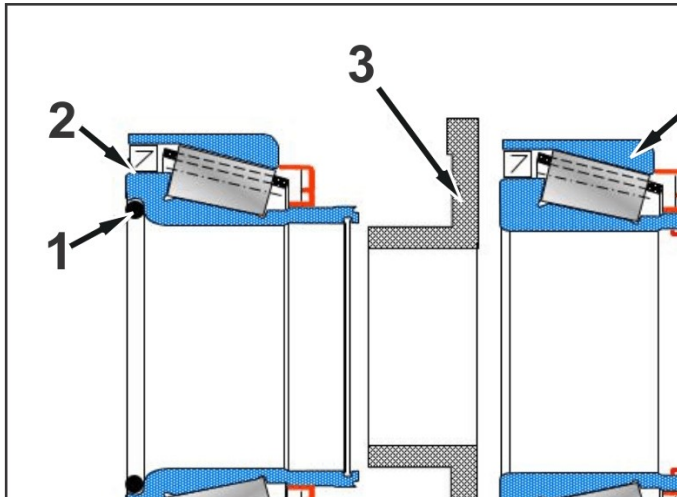


Figure 9: Parts of wheel bearing kit

1. O-ring
2. Inner roller bearing
3. Drift to press roller bearing in
4. Outer roller bearing
5. Central sealing ring
6. Clamp spring


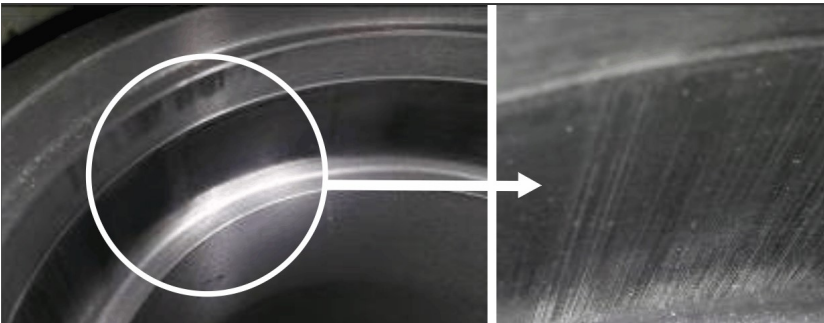
Step	Action
1	<p>Check the condition of the hub:</p> <ol style="list-style-type: none"> a. Thoroughly clean the inside of the hub. b. Carefully check the seats for the roller bearings in the hub. <p> CAUTION! Change the hub by a new hub/wheel bearing assembly if circumferential scratches, grooves, notches, gradual wear or pitting are visible. Such wear indicates that the outer ring of the roller bearing has rotated in the hub. Longitudinal marks (refer to figure 10) due to removal/installation of the outer ring are allowed.</p> 

Figure 10


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2	<p>NOTE: The steps below should only be performed when the hub can be reused. Otherwise the installation of a complete new hub/wheel bearing assembly is required.</p> <p>Clean the seats for the roller bearings in the hub.</p>
3	<p>Position the hub on a flat supporting face under the pressing tool, the contact surface for the axle shaft resting on this face.</p>
4	<p>Remove the O-ring from the inner roller bearing to prevent it from being damaged.</p>
5	<div> </div> <p>CAUTION! Make sure that the hub, the roller bearing and the pressing tool are aligned. Use pressure disc 11484292 to make sure that the pressing force applies to the outer ring of the roller bearing. Never apply pressing force to the inner ring, otherwise the roller bearing will be damaged!</p> <p>Place the special drift from the kit in the inner roller bearing and position the assembly above the aperture in the hub.</p> <p>The force during pressing is ranged from 6750 to 11250 lbf. If the bearing doesn't move with a pressing force of 11250 lbf, first check the alignment of the components. Press the bearing home with a force of 22500 lbf.</p> <div> </div> <p style="text-align: right;">Figure 11</p>

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6	<div> </div> <div> <h3>CAUTION!</h3> </div> <div> <p>Check if the central sealing ring is positioned correctly. This will avoid damage to the sealing ring and ensure proper sealing after installation.</p> </div> <div> <p>Turn the hub round and use the same procedure for the outer roller bearing.</p> </div> <div> </div> <div> <p>Figure 12</p> </div>
7	<div> <p>Push the clamp ring in position by using a soft tool. The clamp ring is properly located when you hear a click and it can rotate freely.</p> </div> <div> </div> <div> <p>Figure 13</p> </div>
8	Place the brake disc on the hub. Install the fixing screws and tighten them to a torque of 215 ± 10 ft.lbf (290 ± 15 Nm)
9	Place the O-ring in the inner roller bearing again.
10	Clean the axle spindle.
11	Check the thread of the axle spindle for damage. If necessary, repair thread.
12	Apply a thin film of "Never-Seez" to the axle spindle.
13	Slide the special guiding tool into the axle spindle.

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14	 WARNING! The hub/brake disc assembly is heavy. Slide the hub/brake disc assembly on the axle spindle.
15	Install the thrust washer.
16	Install a new hub nut on the axle spindle. Tighten the hub nut to a torque of 280 ± 15 ft.lbf (380 ± 20 Nm)
17	Turn the hub ten turns in direction of travel so that wheel bearings can set.
18	Tighten the hub nut to a torque of 730 ± 7 ft.lbf (985 ± 10 Nm).
19	Lock hub nut by staking its collar into the groove of the axle spindle.
20	Clean the contact surfaces between the axle spindle and the hub.
21	Apply Loctite 518 on the contact surfaces between the axle shaft and the hub.
22	Slide the axle shaft into the axle housing. Install the fixing screws and tighten to a torque of 235 ± 10 ft.lbf (320 ± 15 Nm).
23	Install the brake caliper/brake carrier assembly, refer to "To install brake caliper/brake carrier" in chapter 5.10 of the maintenance manual.
24	Restore parking brake operation by screwing home the release bolt as far possible and tighten to a torque of 23 to 26 ft.lbf (30 to 36 Nm).

DISCLAIMER:

The procedures contained herein are not exclusive. Van Hool cannot possibly know, evaluate, or advise the transportation industry of all conceivable ways in which a procedure may be undertaken or of the possible consequences of each such procedure. Other procedures may be as good, or better, depending upon the particular circumstances involved. Each carrier who uses the procedures herein must first satisfy itself thoroughly that neither the safety of its employees or agents, nor the safety or usefulness of any products, will be jeopardized by any procedure selected.

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.

REVISION RECORD	
Description	Date
Initial release	2016-05-26
Edition A: <ul style="list-style-type: none"> Page 8: guiding tool 11633789 added Page 10: step 13 added 	2018-09-07
Edition B: Page 1: cut-in for TDX25US changed from 42899 to 42898 Page 1: TD925US added under heading "Application"	2019-02-05