

<b>ADDRESSEES</b>	: Owners and operators
<b>VEHICLE MODEL</b>	: CX35, CX45, TX40, TX45, TDX25US
<b>MANUAL CHAPTER</b>	: 02.46 Engine – Accessory drive
<b>BULLETIN TYPE</b>	: <b>Service information</b>
<b>DATE</b>	: June 02 <sup>nd</sup> , 2020
<b>SUBJECT</b>	: <b>Cooling fan drive alignment</b>
<b>CONDITIONS</b>	: This service bulletin does not entitle to any reimbursement.

## INTRODUCTION

The purpose of this bulletin is to inform you about how to align the cooling fan drive. This should be performed every time components of the fan drive have been removed, and when evidence of contact damage has been noticed on fan or shroud.



Figure 1: Cooling fan drive

## JOB QUALIFICATION:

No special job qualification required.

## PREPARATIONS:

- Park the coach on a level-surfaced service pit.
- Apply the parking brake and shut down the engine.
- Switch off all systems and turn off the battery master switch.
- Turn off the mechanical battery switch.
- Put a “DO NOT OPERATE” tag on the instrument panel.
- Read the entire procedure before beginning to work.

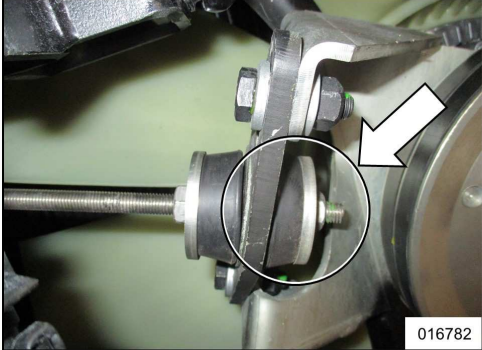


## **WARNING!**

**Observe safe shop practices at all times.**

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**PROCEDURE:**

Step	Action
1	Open the rear engine compartment door.
2	Release the tension on the fan drive belts and remove the belts from the fan pulley. Follow the procedure as described in chapter 2.46 of the maintenance manual.
3	Disconnect the steady rod by removing the outer nut, washer and rubber at the fan pulley side. Back up the inner nut of the steady rod to create space for adjustment. <div style="text-align: right; margin-top: 10px;">  <p data-bbox="1034 734 1398 792"><b>Figure 2: Steady rod fixation at fan pulley side</b></p> </div>
4	Center the cooling fan blades in the fan shroud as explained under “STEP 4 IN DETAIL”.
5	Check the position of the cooling package as explained under “STEP 5 IN DETAIL”.
6	Reconnect the steady rod as follows: <ol style="list-style-type: none"> <li>a. Slide the inner rubber together with the washer against the fan clutch bracket.</li> <li>b. Screw the inner nut against the washer.</li> <li>c. Install the outer rubber, washer and nut.</li> <li>d. Tighten the outer nut with one wrench to a torque of 40 Nm (30 ft.lbf) while holding the inner nut with a second wrench.</li> </ol>
7	Re-install the fan drive belts and set the tension as described in chapter 2.46 of the maintenance manual.
8	Align the idler pulley with the engine pulley as explained under “STEP 8 IN DETAIL”.
9	Reset the tension of the fan drive belts.
10	Align the fan pulley with the idler pulley as explained under “STEP 10 IN DETAIL”.
11	Reset the tension of the fan drive belts.
12	To compensate for possible small position changes as a result of belt tensioning: check the horizontal position of the fan blades within the fan shroud and change, if necessary, with the steady rod.
13	Close the rear engine compartment door.

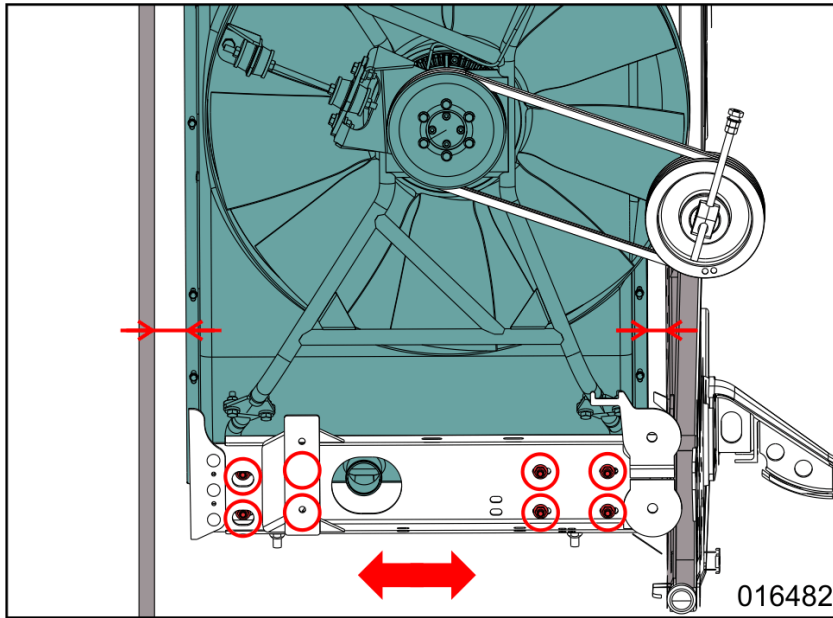
**STEP 4 IN DETAIL: To center fan blades within fan shroud**

- **Horizontal position:** slacken the eight nuts securing the fan clutch carrier to the radiator. Center with the slots in the carrier arms. Tightening torque for nuts: 42 ± 6 Nm (30 ± 4 ft.lbf).
- **Vertical position:** slacken the fourteen screws securing the shroud to the radiator. Center with the slots in the shroud. Tightening torque for screws: 9 ± 1 Nm (7 ± 0.7 ft.lbf)

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**STEP 5 IN DETAIL: To check cooling package position with respect to other nearby components**

Be sure there is enough clearance at both sides of the cooling package to prevent possible interference with other nearby components when the vehicle is in operation. If necessary, slacken the eight fixation bolts and reposition the cooling package with the slots in the cross section (refer to figure 3). Tightening torque of nuts:  $42 \pm 6 \text{ Nm}$  ( $30 \pm 4 \text{ ft.lbf}$ ).



**Figure 3: Slots in cross section to displace cooling package sideways**

**STEP 8 IN DETAIL: To align idler pulley with engine pulley**

Step	Action
8.1	<p>Place a straight edge ruler against the flanges of engine pulley and idler pulley. Check if there is equal distance between the outer belt and the ruler over the full length.</p> <div data-bbox="603 1406 1129 1792" data-label="Image"> <p>A photograph showing a person's hands using a long, straight ruler to align the engine pulley and idler pulley. The ruler is placed against the flanges of both pulleys. Red arrows indicate the distance between the outer belt and the ruler. The part number '016423' is visible in the bottom right corner of the photograph.</p> </div>

**Figure 4**

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**8.2**

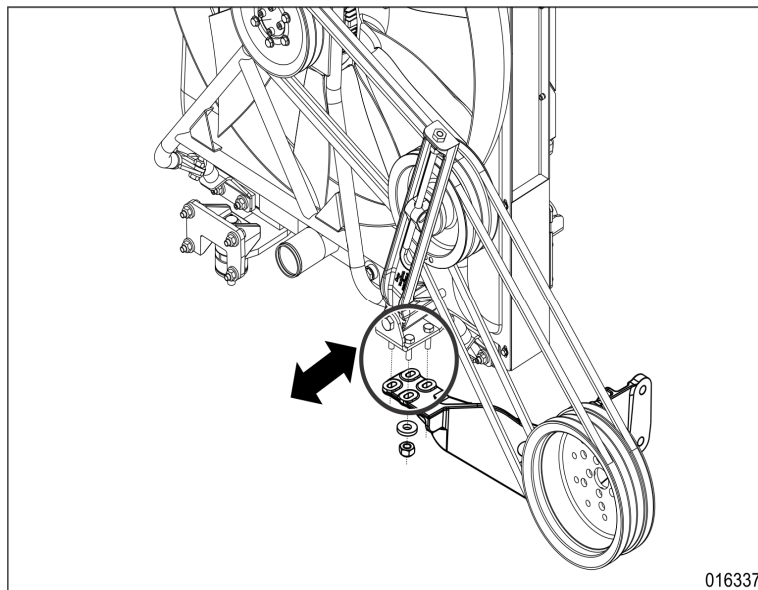
Repeat step 8.1 for the inner belt.



**Figure 5**

**8.3**

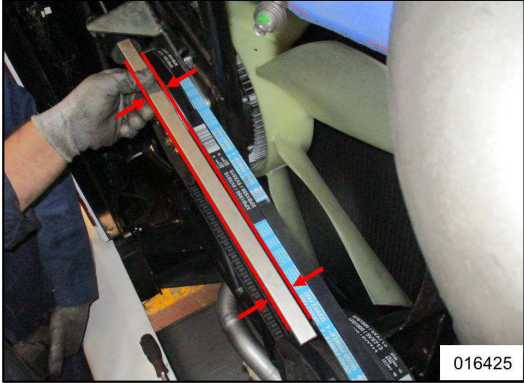

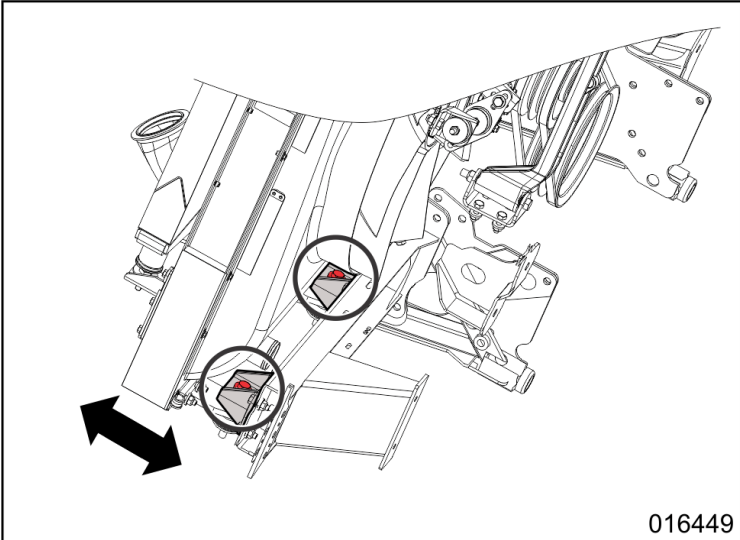
If necessary, release the tension on the fan drive belts and reposition the idler with the slots in the ground bracket. Tightening torque for nuts:  $42 \pm 6$  Nm ( $30 \pm 4$  ft.lbf).



**Figure 6**

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**STEP 10 IN DETAIL: To align fan pulley with idler pulley**

Step	Action
<p><b>10.1</b></p>	<p>Place a straight edge ruler against the flanges of fan pulley and idler pulley. Check if there is equal distance between the outer belt and the ruler over the full length.</p>  <p style="text-align: right;"><b>Figure 7</b></p>
<p><b>10.2</b></p>	<p>Repeat step 10.1 for the inner belt.</p>  <p style="text-align: right;"><b>Figure 8</b></p>
<p><b>10.3</b></p>	<p>If necessary, release the tension on the fan drive belts and reposition the cooling package with the slots in the brackets. Tightening torque for nuts: <math>110 \pm 15 \text{ Nm}</math> (<math>80 \pm 10 \text{ ft.lbf}</math>).</p>  <p style="text-align: right;"><b>Figure 9</b></p>

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## **HELP DESK:**

If there are any questions, 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.

## **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.

## **VAN HOOL CUSTOMER PORTAL:**

Consult the customer portal regularly for the latest service documentation. In addition to 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/service](http://www.vanhool.be/service), and only with a code (password) from Van Hool. If you do not have a password yet, request it by using the above link.

## **INFORMATION HANDLING:**

Important additions and modifications regarding technical information not yet included in the manual will be communicated through Service Bulletins.