

<b>ADDRESSEES</b>	: ABC Customer Care and Parts Source Owners and operators of coaches listed under "Application"
<b>VEHICLE TYPE</b>	: CX35
<b>CONFIGURATION GROUP</b>	: 02.46 Engine – Accessory drive systems
<b>BULLETIN TYPE</b>	: Field Change Program
<b>DATE</b>	: November 17th, 2017
<b>SUBJECT</b>	: <b>Removal of crankshaft pull relief device</b>
<b>TERMS &amp; CONDITIONS</b>	: Refer to the warranty section further in this Bulletin.

### APPLICATION:

The Field Change Program, which is subject of this Service Bulletin, applies to CX35 vehicles with a Cummins ISL9 engine and a pull relief device on the engine crankshaft.

### DESCRIPTION:

- Van Hool has been informed by Cummins that the pull relief device mounted at the engine crankshaft does not affect the durability of the engine. For that reason, Van Hool is conducting a field change program to remove this crankshaft pull relief device.
- Two crankshaft pull relief designs have been installed during production of these vehicles: a two spring design (refer to figure 1) and a one spring/tie rod design (refer to figure 2). The removal procedure is identical for both designs.
- Follow the step-by-step instructions in this bulletin to remove this crankshaft pull relief device.



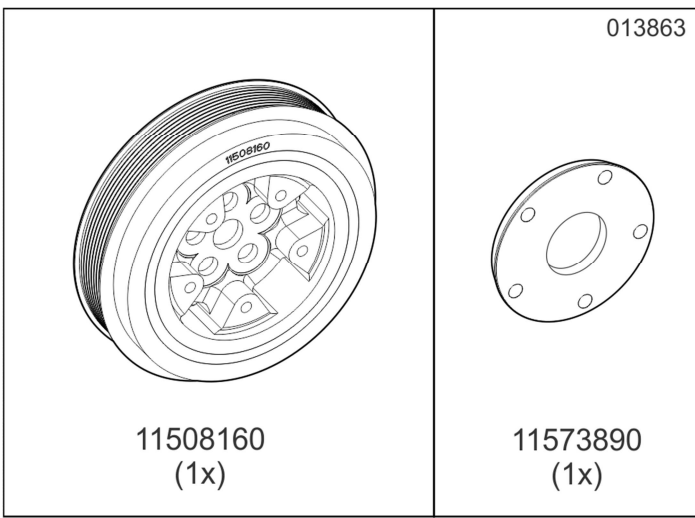
**Figure 1: Crankshaft pull relief device design with two springs**



**Figure 2: Crankshaft pull relief device design with one spring/tie rod**

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## **COMPONENTS AND PRODUCTS:**

Components		
		Figure 3
	11508160 (1x)	11573890 (1x)
VH Reference	Description	Qty.
11508160 (*)	Vibration damper with machined contact surface	1
11573890	Spacer	1

(\*) Only when machined vibration damper has to be replaced (refer to Step 5 of procedure).

## **JOB QUALIFICATION:**

No special job qualification required.

## **SPECIAL TOOLS, EQUIPMENT OR SERVICES:**

Dial indicator.

## **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.**

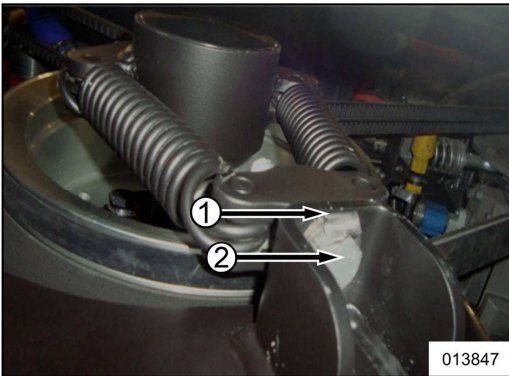

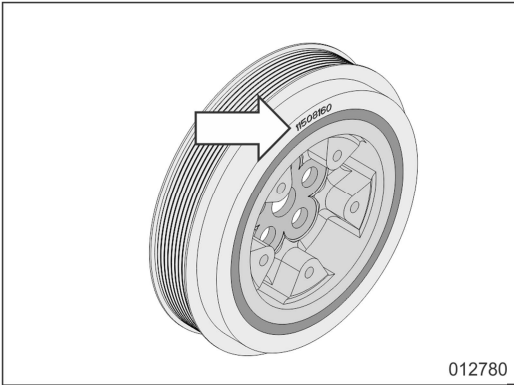


## **WARNING!**


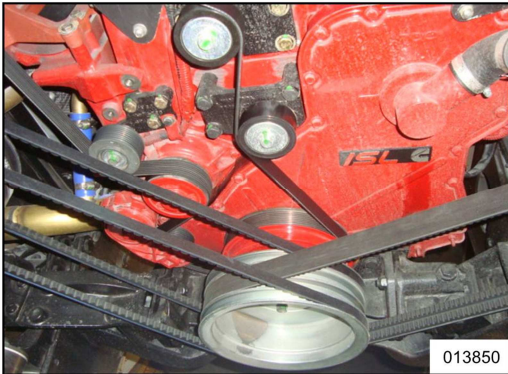
Observe safe shop practices at all times.

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## PROCEDURE:

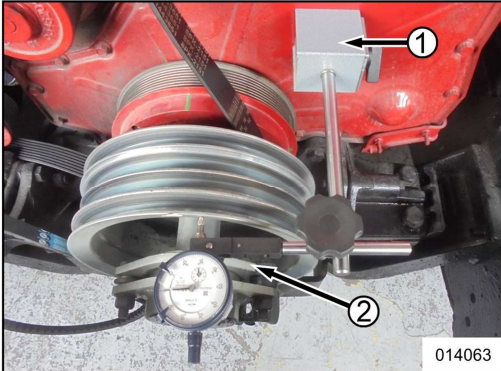
Step	Action
1	Ensure chocks are placed in front of and behind the drive axle wheels.
2	Open the rear engine compartment door.
3	Unbend the tab of locking plate (1) and remove screw (2).
	 <p>013847 <b>Figure 4</b></p>
4	Remove the belts of the fan drive and the climate-compressor drive. Follow the procedure as described in chapter 2.46 of the maintenance manual.
	 <p>013848 <b>Figure 5</b></p>
5	<p>Is a machined vibration damper (identification number 11508160) already installed?</p> <ul style="list-style-type: none"> <li>• If so, proceed with next step.</li> <li>• If not, verify the crankshaft pulley for runout as described under “STEP 5 IN DETAIL”.</li> </ul>
	 <p>012780 <b>Figure 6</b></p>

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6	<p>Is the runout of the crankshaft pulley higher than 0,35 mm (0.014 inch)?</p> <ul style="list-style-type: none"> <li>• If so, replace the vibration damper as described under “STEP 6 IN DETAIL” and proceed afterwards with Step 8.</li> <li>• If not, proceed with next step.</li> </ul>
7	<p>Remove the five screws and lock washers securing the pull relieve device to the crankshaft. Keep them apart for later use. Take away the pull relief device together with the crankshaft pulley.</p>  <p>013849</p>
8	<p><i>NOTE: Ensure that the contact surfaces are well cleaned from paint and impurities.</i></p> <p>Secure the crankshaft pulley together with spacer 11573890 to the vibration damper as follows:</p> <ol style="list-style-type: none"> <li>Install spacer 11573890 at the inside of the crankshaft pulley.</li> <li>Secure crankshaft pulley together with the spacer with the screws and lock washers removed in the previous step. Lubricate the screws with some engine oil and tighten crosswise to a torque of 65 Nm (48 ft.lbf).</li> </ol>
9	<p>Install the belts of the fan drive and climate-control compressor drive as described in chapter 2.46 of the maintenance manual.</p>  <p>013850</p>
10	Close the rear engine compartment door.
11	Claim the removal to ABC Warranty department.
12	<p><b>For ABC Companies only:</b> register the removal through the registration button (<i>only available for ABC companies</i>) located behind Service Bulletin SB1448 on the Van Hool customer portal. Depending the job executed write the text "Device removed" or "Device removed + vibration damper replaced" in the field "Remark". Labor allowance will only be awarded after Van Hool has received this registration.</p>

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## **STEP 5 IN DETAIL: Check the crankshaft pulley for runout**

<b>5.1</b>	<p>Install a dial indicator:</p> <p><i>NOTE: Pay attention that the tracer pin of the dial indicator is positioned at the right angle to the engine.</i></p> <ul style="list-style-type: none"><li>• Install the dial indicator holder on the timing case of the cover (1).</li><li>• Insert the dial indicator into the dial indicator holder (2).</li></ul>  <p>014063 <b>Figure 9</b></p>
<b>5.2</b>	<p>Mesure the axial runout of the crankshaft pulley:</p> <ol style="list-style-type: none"><li>a. Position the tracer pin of the dial indicator at the measuring point.</li><li>b. Turn the engine by hand and notice the axial runout (Refer to the Cummins instructions for turning the engine correctly).</li><li>c. Note down the indicated value.</li><li>d. Repeat this action twice.</li></ol>

## **STEP 6 IN DETAIL: Replace the vibration damper**

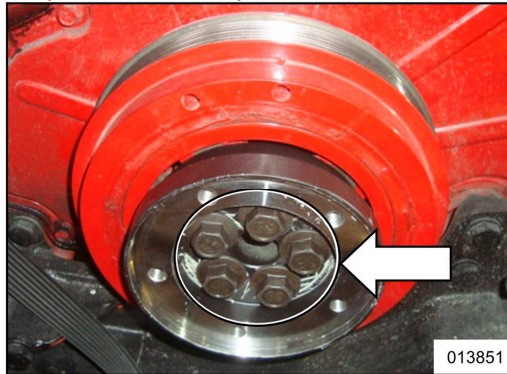
<b>6.1</b>	<p>Remove the five screws and lock washers securing the pull relieve device to the crankshaft. Keep them apart for later use. Take away the pull relief device together with the crankshaft pulley.</p>  <p>013849 <b>Figure 10</b></p>
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**6.2**

Remove the adapter together with vibration damper from the crankshaft as follows:

- a. Remove the alternator belt as explained in chapter 2.46 of the maintenance manual.
- b. Remove the 5 screws of the vibration damper and remove the damper together with the adapter. Keep the screws apart for later use.



**Figure 11**

**6.3**

Fit vibration damper 11508160 to the crankshaft as follows:

- a. Verify thoroughly if the machined contact surface of the vibration damper is free of impurities (refer to figure 12).
- b. Secure the vibration damper to the crankshaft by using the five screws removed in step 6.1. Lubricate the screws with some engine oil and tighten them crosswise to a torque of 200 Nm (150 ft.lbf).



**Figure 12**

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## **WARRANTY:**

### **1. Terms and conditions:**

Van Hool will accept warranty claims for this repair as follows:

**Parts:** The parts removed must be returned to ABC, properly labeled with the vehicle identification number (VIN).

**Labor allowance:**

- 30 minutes without vibration damper replacement
- 60 minutes including vibration damper replacement

**Campaign expiration date:** Service Bulletin issue date + 1 year.

### **2. Claim references:**

Job code: **O61448N** (in case of crankshaft pull relief device removal only)

**O61448V** (in case of crankshaft pull relief device removal **and** vibration damper replacement)

**Claim submission:** Contact ABC Customer Care Warranty Department for guidance.

**Monitoring and performance:** The claim records pertaining to this Bulletin will be used to determine that the remedy has been executed in accordance with the manufacturer's instructions and to evaluate the status of this Field Change Program.

## **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](http://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	2017-11-17