



# SERVICE BULLETIN No.1150

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<b>COACH MODEL</b>	: C2045 w/ D-ELSA brakes
<b>BULLETIN TYPE</b>	: Product Improvement
<b>MANUAL SECTION</b>	: Section 8 - Suspension
<b>DATE</b>	: July 19, 2006
<b>SUBJECT</b>	: <b>Kneeling sensor installation</b>
<b>TERMS &amp; CONDITIONS</b>	: Refer to the Parts and Products section in this Bulletin.

## APPLICATION:

Kneeling sensor installation VH 10948706 supersedes installations VH 10874969 and VH 10725990. The new installation has been cut into production as from the units mentioned below:

Model	Engine	New VH 10948706***	Previous 2 VH 10874969**	Previous 1 VH 10725990*
C2045	Cummins	46043 →	45458 → 46042	45001 → 45457
	Detroit Diesel	46673 →	46531 → 46672	45501 → 46530
	Caterpillar	47179 →	47001 → 47178	N/A

\* VH 10725990: original location + original brackets + inductive sensor

\*\* VH 10874969: original location + revised trigger bracket and air spring base plate + magnetic sensor

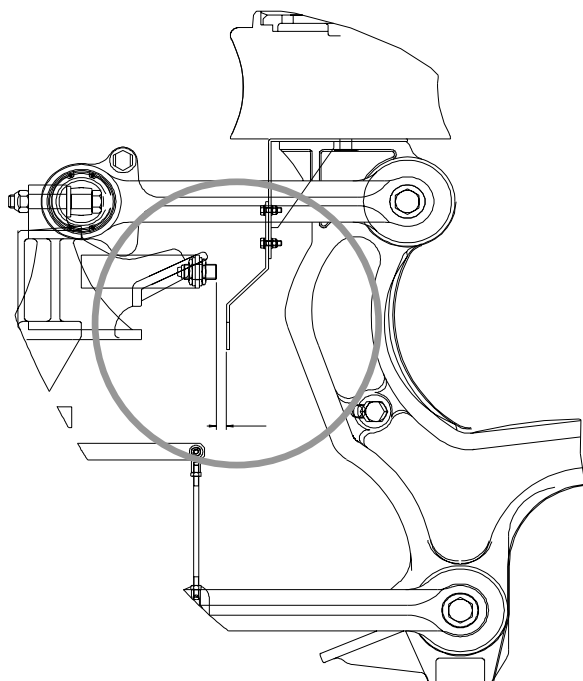
\*\*\* VH 10948706: relocated + new brackets + magnetic sensor

## DESCRIPTION:

1. In the previous installations, the kneeling sensor assembly, which is located on the front axle near the upper right hand wishbone, comprises an inductive or magnetic sensor, a mounting bracket for the sensor, and a bracket, which bolts to the air spring base plate (Figure 1.1). During the final stage of the kneeling process this bracket triggers the sensor and cuts the kneeling action, in order to maintain a residual pressure in the front axle air springs.
2. For protection purposes and to ensure reliable kneeling sensor operation, the afore-mentioned installations of the sensor and associated trigger have been revised. A new sensor bracket has been designed relocating the assembly to a position 2 inches (50 mm) higher in the chassis. The new trigger bracket bolts to the suspension upright (Figure 1.2).
3. To bring field coaches up to the new specification, a retrofit kit has been developed which fits all previous installations and which will be made available through regular channels. Refer to the parts section and the procedure in this Bulletin for more information.

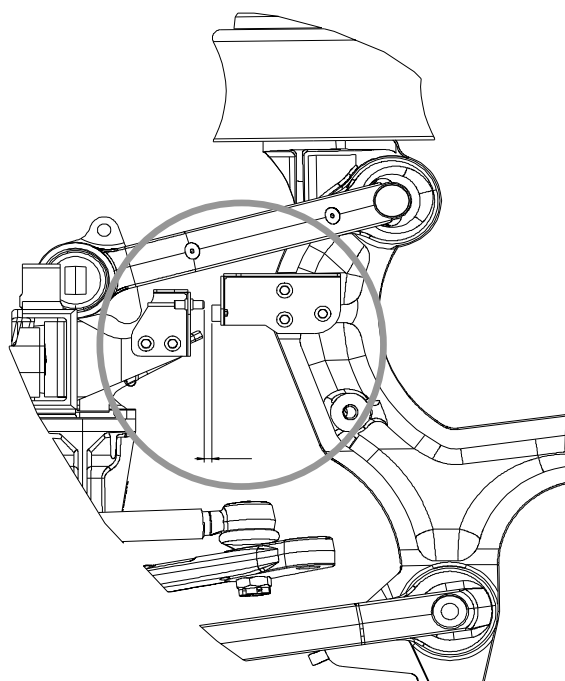
*Service personnel: please read, initial and circulate.*

Service Manager	Parts Manager	Warranty Administrator	Workshop Foreman	Service Technician



**Figure 1.1: Previous installations**

- **VH 10725990 (shown)**
  - inductive sensor
  - L-shaped sensor mounting bracket
  - trigger bracket bolted to air spring base plate
- **VH 10874969**
  - magnetic sensor
  - L-shaped sensor mounting bracket
  - trigger bracket with magnet bolted to revised air spring base plate



**Figure 1.2: New installation**

- **VH 10948706**
  - magnetic sensor
  - revised brackets relocating the assembly two inches (50 mm) higher
  - trigger bracket with magnet bolted to upright

## **PARTS AND PRODUCTS:**

### **New parts (VH 10948706)**

<b>Part reference</b>	<b>Description</b>	<b>Qty.</b>
VH 10948568	Bracket, mounting, for sensor	1
VH 10948451	Bracket, mounting, for magnet	1
VH 660229751	Bolt, M6 x 10 mm, stainless	5
VH 660623508	Washer, flat, M6	5
VH 660636302	Washer, lock, M6	5
VH 10856415	Sensor, reed switch	1
VH 10720431	Magnet	1
VH 10714367	Screw, flat head, M4 x 25 mm, stainless	1
VH 660621205	Washer, flat, M4, stainless	1
VH 660636102	Washer, lock, M4	1
VH 660209902	Nut, M4, stainless	1

## Retrofit parts (VH 10977070)

- Order one kit VH 10977070 for one coach to modify. The kit is suited for C2045 units (with VH 10725990 and VH 10874969 installation) and contains the following parts:

Part No.	Description*	Qty.
VH 10952940	Bracket, trigger	1
VH 660229754	Bolt, M6 x 1 x 20 mm	2
VH 660623507	Washer, flat, M6 (6.4 x 12.5 x 1.6 mm)	4
VH 660209935	Nut, self-locking, M6 x 1 mm	2
VH 10977074	Bracket, sensor mtg	1
VH 10977073	Adapter ring, 18,5 x 11 x 3 mm	1
VH 660229911	Bolt, M10 x 1.5 x 25 mm	1
VH 660627922	Washer, flat, M10 (10.5 x 21 x 2 mm)	4
VH 660209916	Nut, self-locking, M10 x 1.5 mm	1
VH 10714367	Screw, flat head, Allen, M4 x 0.7 x 25 mm	1
VH 660621205	Washer, flat, M4 (4.3 x 12 x 1 mm)	1
VH 660636102	Washer, spring, M4 (4.1 x 7.6 x 0.9 mm)	1
VH 660209902	Nut, M4 x 0.7 mm	1

\* All parts stainless steel

- Parts may be purchased from your nearest ABC Customer Care & Parts Source dealership.
- Parts and products disposition: discard according to applicable environmental regulations.

## **PROCEDURE:**

If you do not have the expertise to perform the present procedure, do not hesitate to go to your nearest ABC Customer Care & Parts Source dealership.

### **1. General:**

- This job should be executed by a technician experienced in suspension system repair.

### **2. Special tools, equipment or services:**

- No special tools, equipment or services are required.

### **3. Preparations:**

- Park the coach on a level-surfaced service pit with the front wheels straight. Lower the suspension. Apply the parking brake and shut down the engine.
- Switch off all systems and turn off the battery master switch.
- Put a "DO NOT OPERATE" tag on the instrument panel.
- Read the entire procedure before beginning to work.

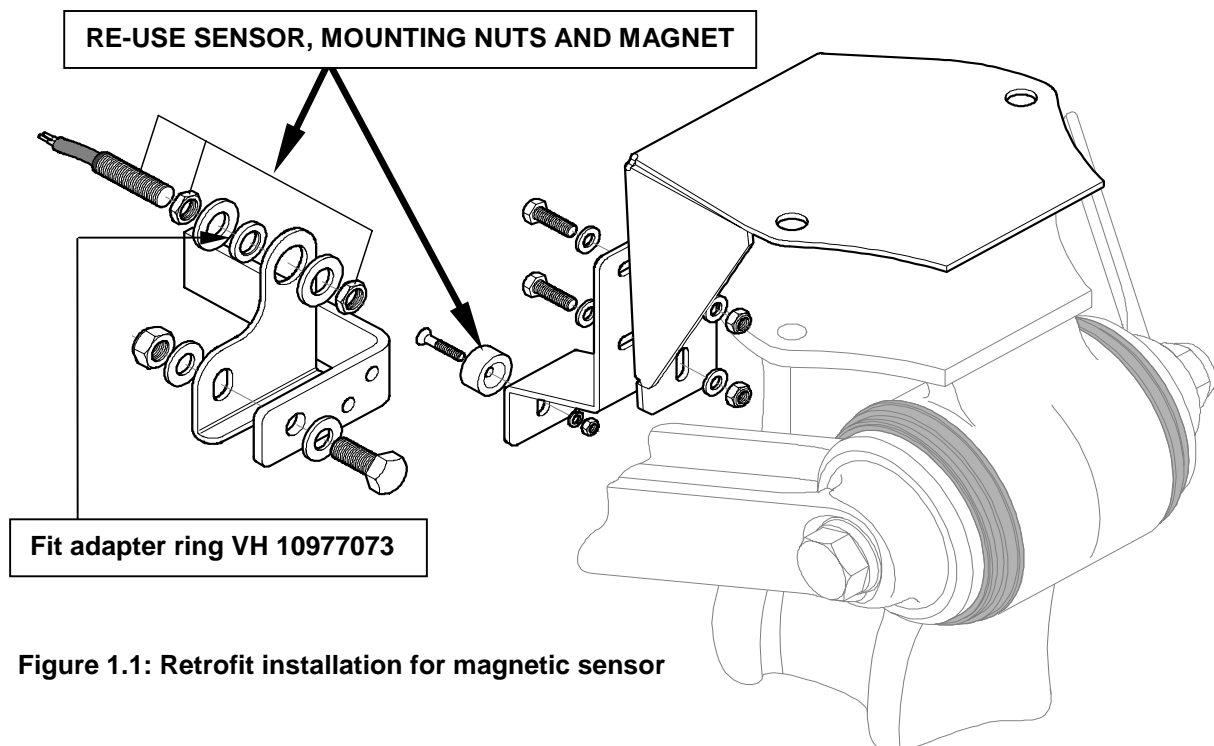
**CAUTION: Observe safe shop practices at all times.**

### **4. To install kneeling sensor retrofit kit VH 10977070 (see Figure 2):**

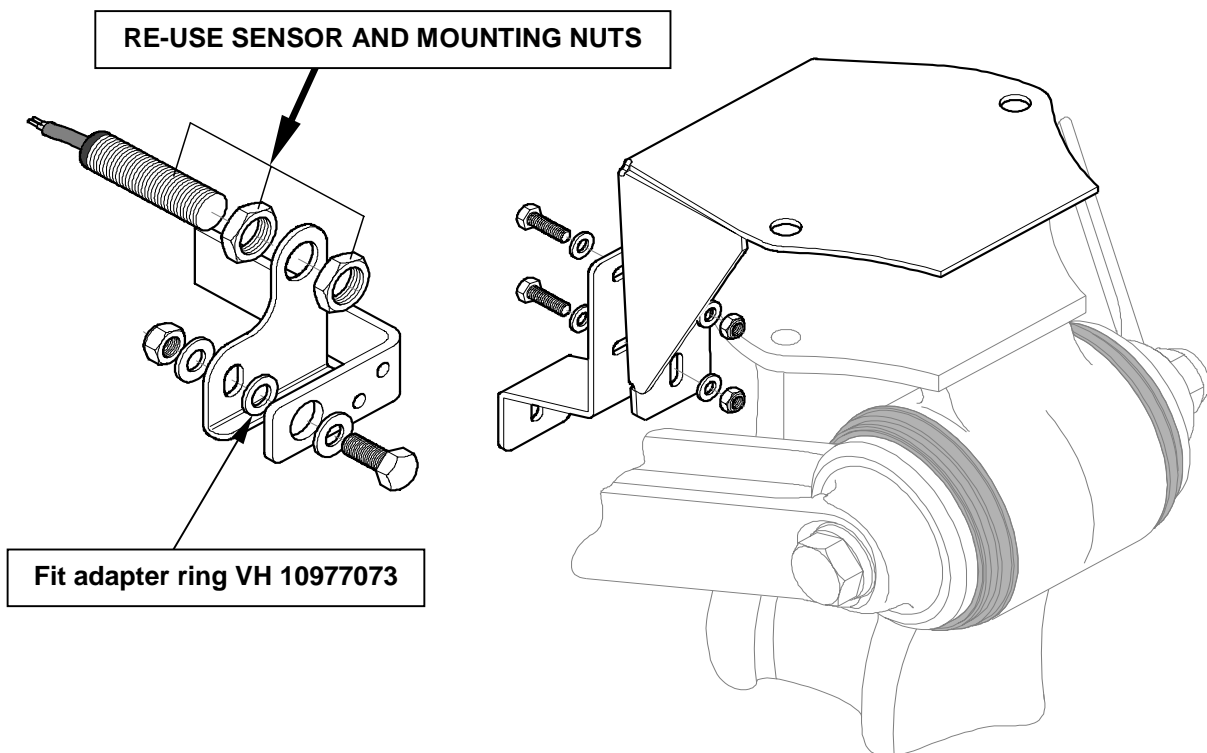
Job time estimate: the time required to install kit VH 10977070 is approximately 0.5 hours.

**NOTE:** The magnetic sensor has a diameter of approximately 25/64 inch (10 mm).  
The inductive sensor has a diameter of approximately 45/64 inch (18 mm)

**Figure 1: Kneeling sensor retrofit installation**



**Figure 1.1: Retrofit installation for magnetic sensor**



**Figure 1.2: Retrofit installation for inductive sensor (no magnet)**

- 1) At the front axle, near the RH upper wishbone, locate and identify the kneeling sensor, the L-shaped sensor mounting bracket (which has been welded to the chassis) and the trigger bracket (which has been bolted to the air spring base plate).
- 2) Undo and remove the outer nut securing the sensor to the L-shaped bracket. Withdraw the sensor and attached wiring from the bracket.
- 3) Undo and remove the bolts, nuts and washers securing the trigger bracket to the air spring base plate.  
Remove the trigger bracket.
- 4) Magnetic sensor only: undo and remove the flat head screw and nut securing the magnet to the old trigger bracket.  
Recover the magnet.
- 5) Inductive sensor only: install adapter ring VH 10977073 in the sensor mounting hole of the L-shaped bracket.
- 6) Assemble retrofit sensor mounting bracket VH 10977074, M10 bolt, nut and washers as shown in Figure 2.  
Secure to the L-shaped bracket.  
Tightening torque 30 ft.lbf (40 Nm).
- 7) Magnetic sensor only: install adapter ring VH 10977073 in the sensor mounting hole of retrofit bracket VH 10977074.
- 8) Install the sensor loosely in the top hole of the retrofit bracket. Magnetic sensors will require two M10 flat washers for a proper fit.
- 9) Magnetic sensors only, attach the magnet to the bottom lip of retrofit trigger bracket VH 10952940, using M4 mounting hardware.  
Tightening torque 25 in.lbf.
- 10) Fit the new trigger bracket to the air spring base plate using M6 bolts, flat washers and nuts as shown.  
Tightening torque: 90 in.lbf (10 Nm).
- 11) With the front suspension lowered, adjust the air gap between the trigger and the kneeling proximity switch by moving the sensor closer to or further away from the trigger.  
  
Air gap:           inductive sensor : 5/32 inch (4 mm).  
                      magnetic sensor: 5/16 to 25/64 inch (8 to 10 mm)  
  
With the gap correctly set, run the sensor nuts up to the bracket and secure hand tight.
- 12) Cycle the kneeling system and check its operation.  
Re-check the air gap.  
Adjust as necessary by altering the sensor position.

*Procedure complete.*

**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.

**SERVICE INFORMATION:**

Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.