SERVICE BULLETIN

SB1206

ADDRESSEES	: ABC Customer Care and Parts Source Owners and operators of coaches listed under 'Application'
COACH/BUS MODEL	: C2045 and T2145
BULLETIN TYPE	: Service Information
SECTION/CHAPTER	: Section 9 - Electrical system Chapter 14.10 - Wiring
DATE	: June 18, 2007
SUBJECT	**: Caterpillar C13 OEM wire harness routing**
TERMS & CONDITIONS	: No claims will be accepted with reference to this Bulletin.

APPLICATION:

This procedure is applicable to VIN 47001 → 47489 (C2045) and VIN 44801 → 44846 (T2145).

DESCRIPTION:

1. The OEM wire harness in the engine compartment of he above-mentioned units hooks up at one end to the engine ECU and connects at the other end to remote peripheral equipment such as the SAE J1939 data link, the batteries, the accelerator pedal position sensor, the cruise control switches, etc.

2. When, during the 12,000-mile maintenance interval, possible chafing of wires is determined at the multi-connector that plugs into the engine ECU (Figures 1 and 2), some detail installation changes should be made to ensure the OEM harness service life.
   These changes include wire retention, and harness routing to the chassis.

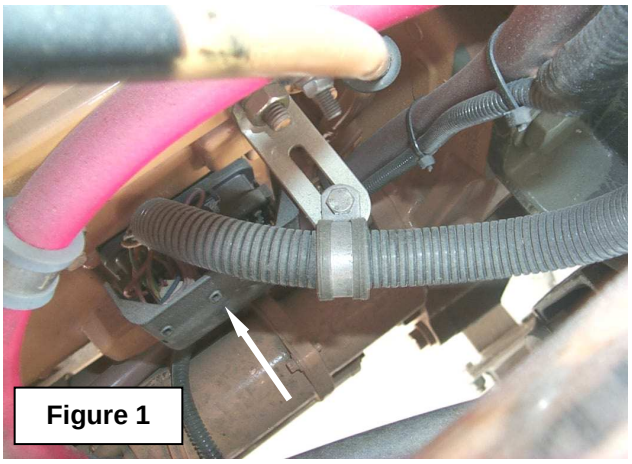

Figure 1

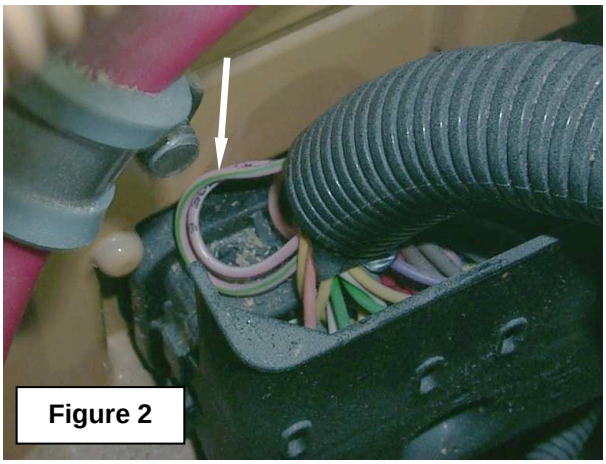

Figure 2

3. Applying the procedure further in this Bulletin will address the above-mentioned issue.

PARTS AND PRODUCTS:

To make the installation changes following parts and products are required:

VH reference	Description	Qty.
Local purchase	Cable ties, various sizes	#
Local purchase	Tape, adhesive	#

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

PROCEDURE:

To change the OEM wire harness routing on units with Caterpillar C13 engine

1. General:

- This job should be executed by an experienced automotive technician.

- For more information refer to:

  the Electrical Wiring Diagram Booklet that comes with the coach,
  the Maintenance Manual,
  the Spare Parts Manual,
  the Operating Manual.

2. Special tools, equipment or services:

- This job requires the use of a ¼" drive torque wrench ranging from 30 to 200 in.lbf with 1 in.lbf increments

3. Preparations:

- Park the coach on a level surface with the front wheels straight.
  Apply the parking brake and shut down the engine.
- Switch off all systems and turn off the battery master switch.
- When not working in the driver's area, 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 change the OEM wire harness installation in the engine compartment (C2045):

Job time estimate: 0.5 hours.

CAUTION: When working in the engine compartment, turn the starter motor inhibitor switch to "starter motor disabled" for the steps, which do not require engine operation. Observe safe shop practices at all times.

1) On the right-hand side of the coach, behind the tag axle, open the rear most luggage compartment door.

2) At the back of the compartment, undo and remove the bolts securing the service door giving access to the engine.
Remove the door.

3) Locate the OEM wire harness connector on the engine ECU (Figure 3).

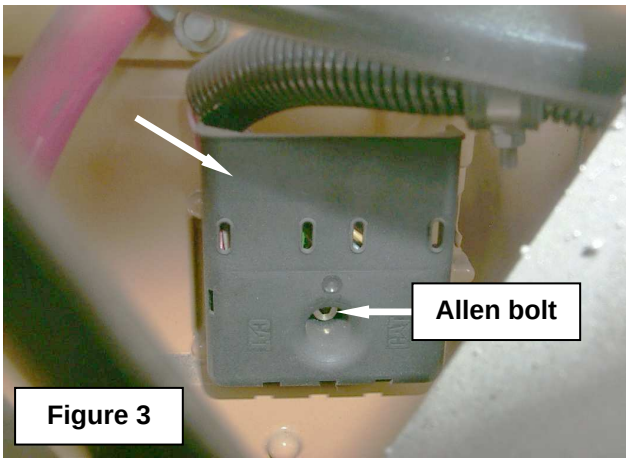

Figure 3

4) Undo and remove the fasteners securing the harness P-clamp to the engine-mounted elbow bracket (1, Figure 4).
Slacken the elbow bracket nut (2, Figure 4).

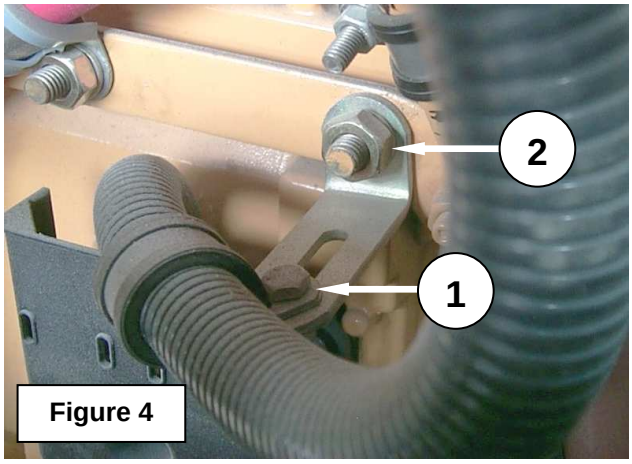

Figure 4

5) Using a blow gun, remove all dirt and grime from and around the ECU multi-connector.
Fully undo the Allen bolt securing the connector (Figure 3).
Carefully detach the connector and connector shield assembly from the ECU.

6) Cut loose the harness by removing cable ties and/or P-clamps up to the chassis tubes.

7) At the harness side of the connector, proceed as follows:

Disentangle the wires and distribute them evenly into the flexible convoluted tubing.
Pull the spare wires (pink-white, pink-blue, pink-yellow, and pink-green) from the tubing.
Pull back the tubing and tape the wires so that they are protected when the tubing returns to its former position (1, Figures 5 and 6).
Tie the spare wires together with a small size cable tie.
Insert the spare wires back into the tubing (2, Figures 5 and 6).
Squeeze the remaining wires together and attach them as a bundle to the connector shield with a cable tie (3, Figure 6).

Do not attach the convoluted tubing to the shield.
Make sure no wires can rub against the ECU housing (Figure 7).

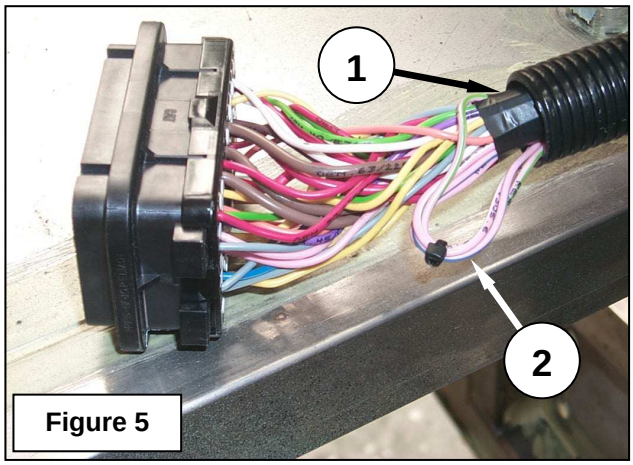

Figure 5

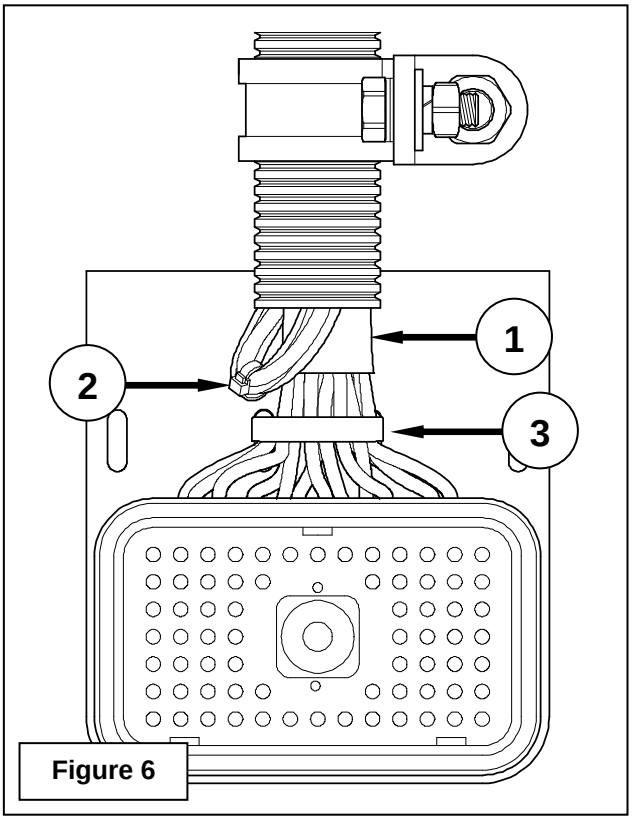

Figure 6

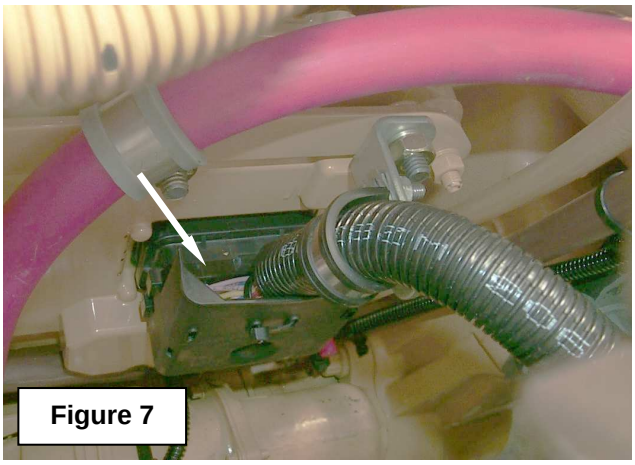
Figure 7

8) Carefully reinstall the multi connector and shield.
Tighten the Allen bolt to a torque of 44 to 62 in.lbf (5 to 7 Nm).
Figure 8 shows the installation completed.

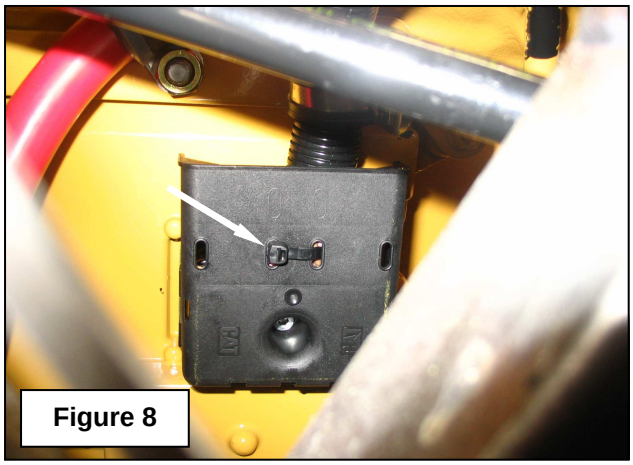

Figure 8

9) Rotate the lower P-clamp mounting bracket through 90°to the vertical position (Figure 9).
Tighten the nut to a torque of 30 ft.lbf (42 Nm)

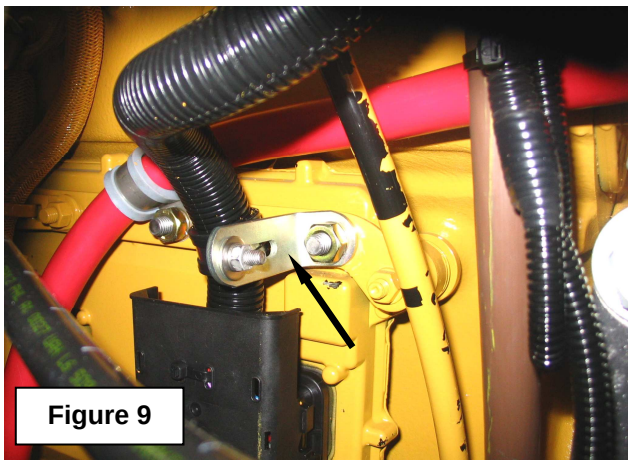

Figure 9

10) Attach the harness P-clamp to the bracket as shown in Figure 10.
Route the harness straight up from the connector and tighten the P-clamp mounting bolt and nut to a torque of 80 in.lbf (9 Nm).

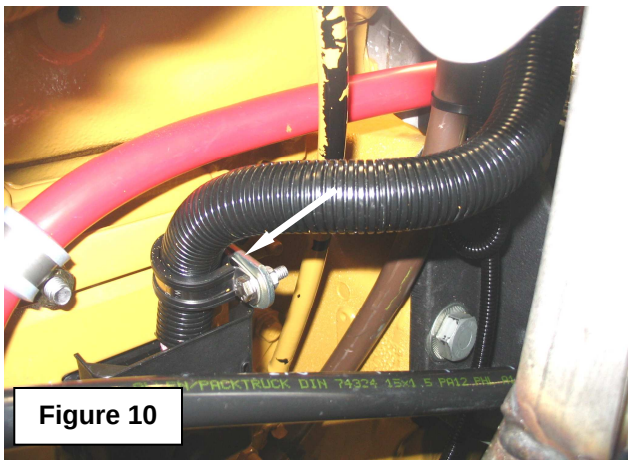

Figure 10

11) Check that the harness routing towards the chassis triangulated tubing is similar to that shown in Figures 11 and 12.
If the installation is different from the one shown, detach the harness and re-route as necessary using P-clamps and cable ties.

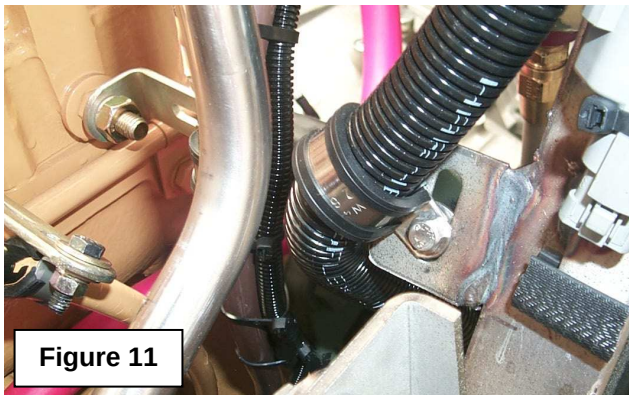

Figure 11

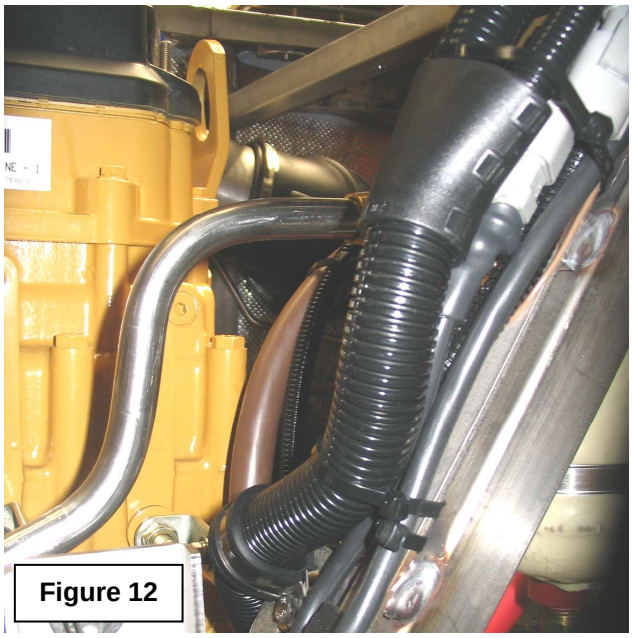

Figure 12

12) Reinstall the engine compartment service door.
Close the rear most luggage compartment door.

5. <u>To change the OEM wire harness installation in the engine compartment (T2145)</u>:

1) Access the engine compartment and locate the engine ECU and the OEM wire harness multi-connector as described in “To change the OEM wire harness installation in the engine compartment (C2045)”, steps 1, 2, and 3.

2) Referring to steps 4 through 9 of the same procedure, disconnect the multi-connector and shield assembly from the ECU and correct the wiring retention.
Reinstall the assembly and change the P-clamp mounting bracket installation.

3) Attach the harness P-clamp to the bracket as shown in Figure 13.
Route the harness straight up from the connector and tighten the P-clamp mounting bolt and nut to a torque of 80 in.lbf (9 Nm).

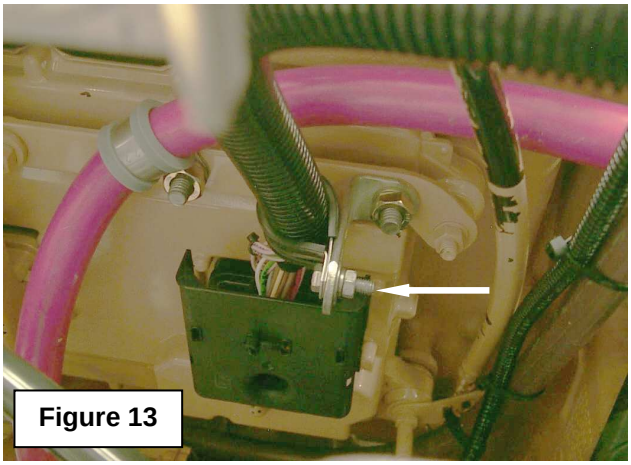

Figure 13

4) Check that the harness routing towards the chassis triangulated tubing is similar to that shown in Figures 14 and 15.
If the installation is different from the one shown, detach the harness and re-route as necessary using P-clamps and cable ties.

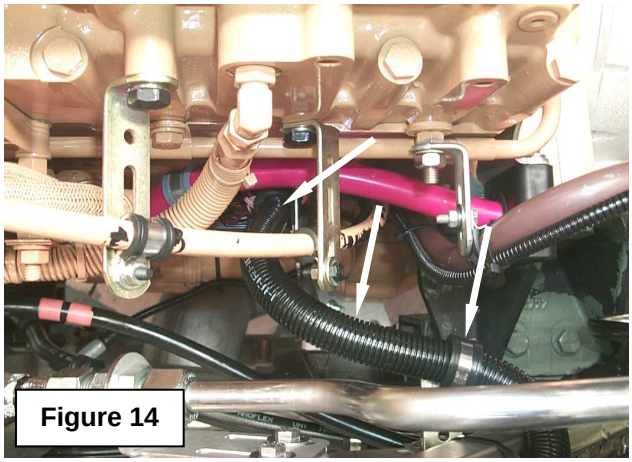

Figure 14

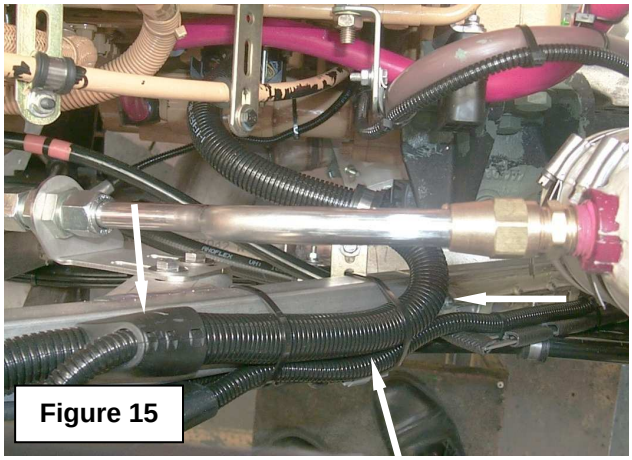

Figure 15

5) Reinstall the engine compartment service door.
Close the rear most luggage compartment door.

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.