SERVICE BULLETIN

SB1228

ADDRESSEES	**:** ABC Customer Care and Parts Source/Laidlaw
COACH/BUS MODEL	**:** A300L and AG300
BULLETIN TYPE	**:** Field Change Program
SECTION	**:** Section 3 – Drive train: Air intake system
DATE	**:** June 03, 2009
SUBJECT	**: Air intake elbow replacement**
TERMS & CONDITIONS	**:** Refer to the warranty section further in this Bulletin.

APPLICATION:

Model	Engine	Transmission	VIN	Owner	Units affected
A300L	Cummins ISL07	Voith 864.5	64693	ABC	1
			64649 → 64660	Laidlaw	12
AG300			62842 → 62845		4

DESCRIPTION:

1. In order to ensure the performance of the air intake system it is necessary to replace the OE fitted elbow that connects the charge air cooler piping to the engine (1, Figure 1).
   The currently fitted elbow is prone to cracking at the engine side mounting flange (2, Figure 1).
   To address the issue the elbow has been redesigned and now features a much thicker flange (Figure 2 on next page).

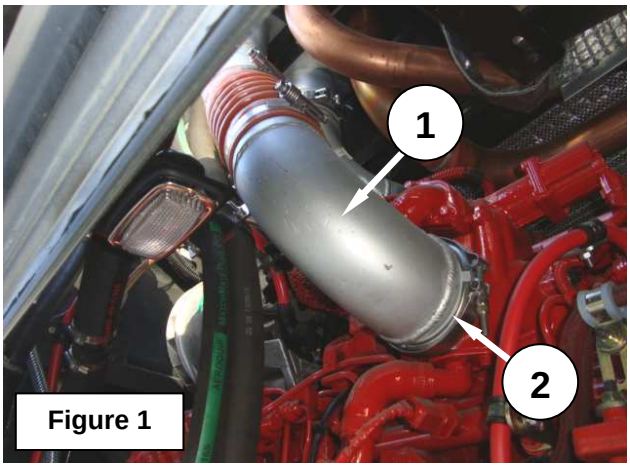

Figure 1

2. Please replace the OE elbow by the reinforced version referring to the step-by-step instructions further in this Bulletin.

MATERIAL:

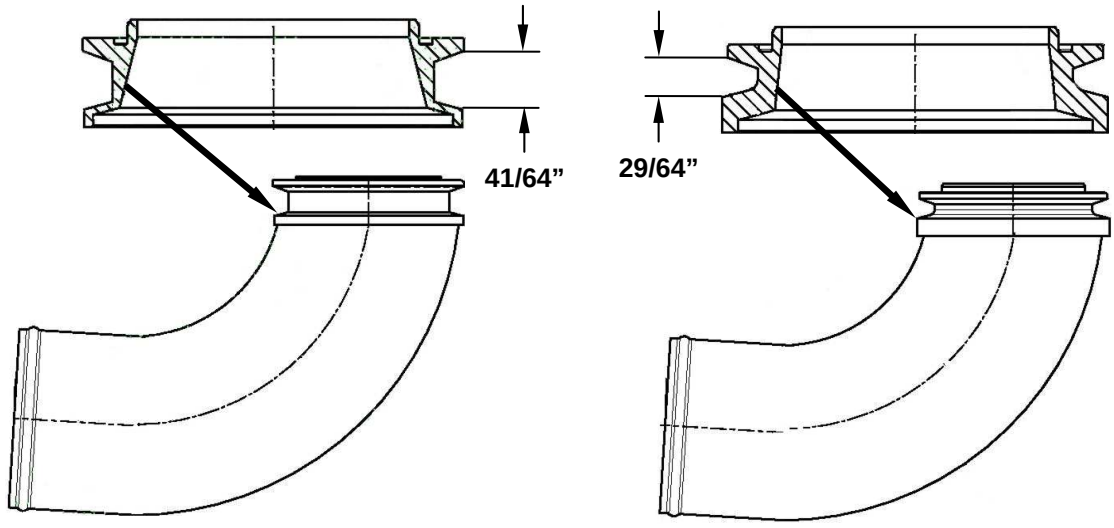

Figure 2

VH reference	Description	Qty.
11164405	Elbow, air intake, reinforced	1
11106808	O-ring	1
11085406	Clamp, V-band	1
10617357	Clamp, constant torque hose	2

- Old and new parts are not interchangeable, and only the new will be offered for service replacement.
- Material may be purchased through regular channels.
- Waste disposal: discard old material according to applicable environmental regulations.

PROCEDURE:

To replace the air intake elbow

1. General:

- Executing technician’s qualifications/experience: general automotive, truck, coach and bus.
- For more information refer to the Maintenance Manual, the Spare Parts Manual, and the Operating Manual.
- Also refer to Van Hool Instruction Sheet IS2009-002 “To install silicone charge air cooler (CAC) hoses” that has been attached to this procedure.

2. Special tools, equipment or services:

- This job requires the use of a 3/8’ drive torque wrench ranging from 20 to 200 in.lbf.

3. Preparations:

- Park the bus 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.
- Install a “DO NOT OPERATE” tag on the instrument panel.
- Read the entire procedure before beginning to work.

HAZARD ALERT MESSAGES:

Read and observe all CAUTIONS and NOTES in this publication.
They provide information that can help prevent serious personal injury, damage to components, or both.

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.

CAUTION: Observe safe shop practices at all times.

4. To remove OE fitted air intake elbow #11082497:

1) On the left-hand side of the bus, open the doors giving access to the engine and to the piping running to and from the roof (Figure 3).

Figure 3

2) Locate the affected elbow (1, Figure 4) and the interconnecting flex hose (2, Figure 4).

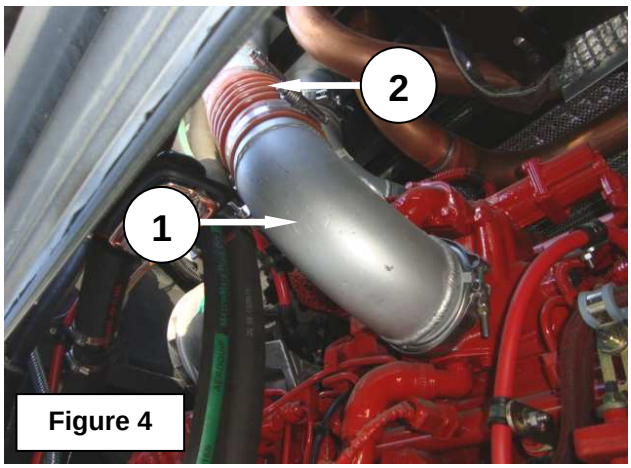

Figure 4

3) Working in the chimney, slacken the flex hose upper CT clamp (Figure 5).

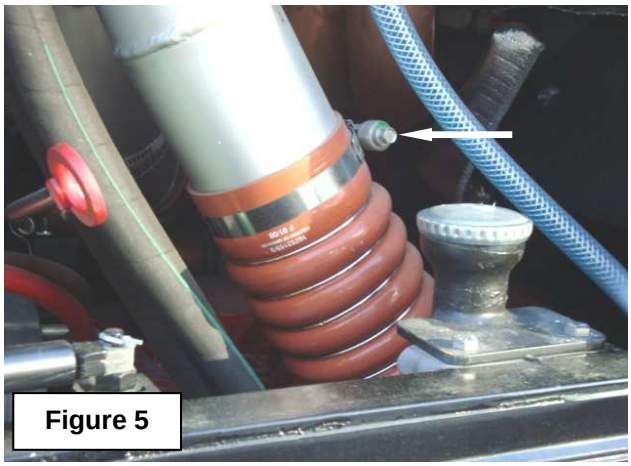

Figure 5

4) Working in the engine compartment slacken the elbow V-band clamp (Figure 6) so it can be lifted over the elbow.
Detach the elbow and flex hose assembly from the intake manifold and the charge air cooler pipe and remove it from the vehicle.

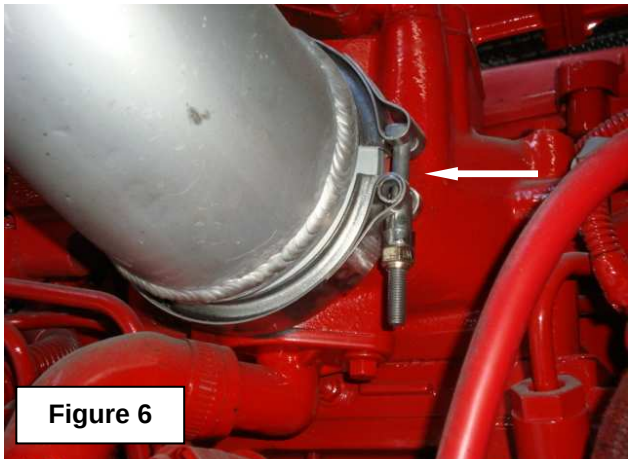

Figure 6

5) Slacken the lower flex hose CT clamp and detach and discard the elbow.
Reclaim CT clamps 10617357, V-band clamp 11085406 and O-ring 11106808 if they are serviceable.
If unserviceable, these parts should be replaced by new.

5. <u>To install reinforced air intake elbow #11164405</u>:

1) Installation of the new elbow is the reverse to removal of the old one.
Assemble the new elbow and the flex hose for a loose fit using a CT clamp 10617357.
Attach and temporarily secure the assembly to the charge air cooler pipe in the chimney with the second CT clamp.
Attach the elbow to the air intake manifold using O-ring 11106808 and V-band clamp 11085406.
Make sure the fit allows adjustment.

2) Refer to Van Hool Instruction Sheet IS2009-002 for flex hose fitting guidelines.
Make adjustments to the different parts as required to obtain a strain and stress-free fit.
Installed hose length: 8-7/8” (Figure 7).

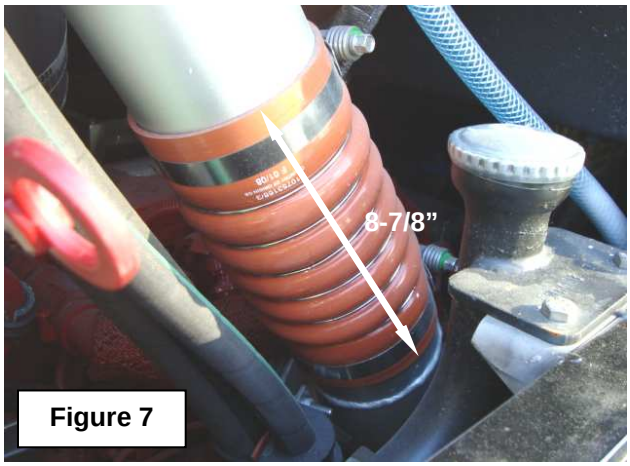

Figure 7

3) When everything is fitting properly, make sure the elbow O-ring and V-band clamp are fully seated before the V-band clamp is tightened to 75 in.lbf.
   Tighten the CT clamps to a torque of 80 to 88 in.lbf.

4) Run the engine and check the ductwork for leaks.
   Correct as necessary.

5) Close the access doors.

Procedure complete.

ATTACHMENTS:

IS2009-002 “To install silicone charge air cooler (CAC) hoses

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.

WARRANTY:

Terms and conditions:

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

- Material will be supplied through regular channels, free of charge.
- Labor allocation: 0.5 (one half) hour of labor will be awarded per transit bus repaired.
- Target date conversion completed: date material and procedure received + 1 month.
- Claim references:

  Causal part VH 11082497
  Job code A25380V

- Claim submission: contact Van Hool After-sales Technical Services 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.

Subject: To install silicone charge air cooler (CAC) hoses

Application: All VIN

Description:

When installing silicone charge air cooler hoses, following installation guidelines should be observed:

- Hoses should be installed free of stress or strain.
- Always install silicone hoses dry i.e. without using silicone spray.
- Check that the pipes being connected have beaded ends (Figure 3).
- Make sure the pipe ends have been de-burred and show no sharp edges.
- The pipes should be properly aligned, i.e.
  centerline parallel offset maximum 3/16” (Figure 1)
  centerline angular offset maximum 3/16” (Figure 2).

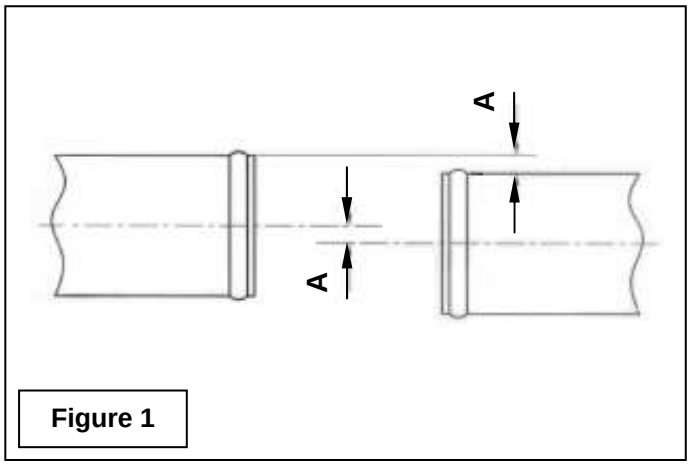

Figure 1

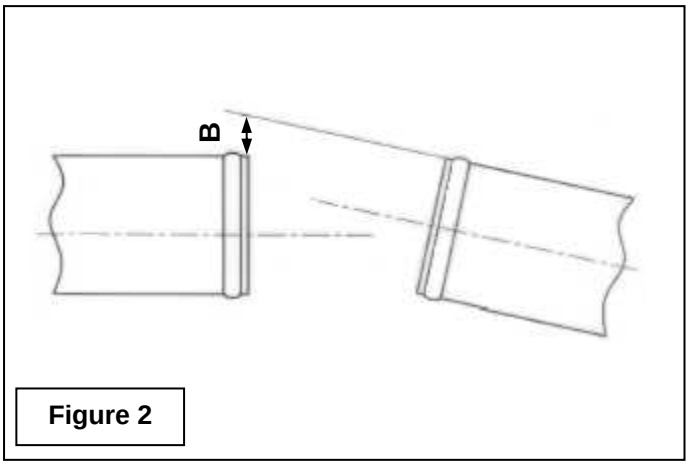

Figure 2

- In order to avoid chafing of the silicone liner, the pipe ends should not butt the reinforcing rings. A minimum clearance of 1/8” is required (Figure 3).

Continued on next page.

- Hose clamps should be installed parallel to the pipe bead, and least 1/8” mm separated from it (Figure 3).
- Before tightening the hose clamps, make sure the installed hose length complies with the technical data.
- Constant torque (CT) hose clamps with 5 conical spring washers should be tightened to a torque of: 80 to 88 lb.in

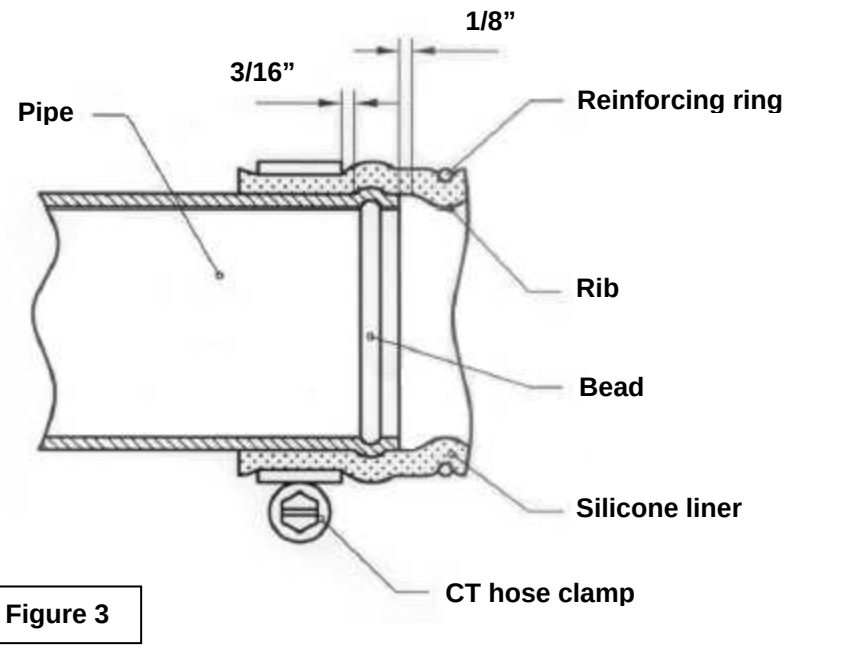

Figure 3

Instruction Sheet complete.