SERVICE BULLETIN
SB2128

ADDRESSEES	: Owners and operators of coaches listed under “Application” ABC Customer Care and Parts Source
VEHICLE MODEL	: Coaches with Cummins EPA13/16 engine
MANUAL CHAPTER	: 2.30 Traction engine – exhaust system
BULLETIN TYPE	: **Service information**
DATE	: March 01st, 2022
SUBJECT	: **Removal and installation of Shaw DEF tank sensor unit**
TERMS & CONDITIONS	: This service bulletin does not entitle to any reimbursement.

APPLICATION

This service information bulletin applies to:

Vehicle type	Cummins engine
CX35	ISL EPA13, ISL EPA16, L9 EPA16
CX45/TX40/TX45	ISX EPA13, ISX EPA16, X12 EPA16
TD925	ISX EPA13, ISX EPA16
TDX25	ISX EPA13, ISX EPA16, X12 EPA16

DESCRIPTION:

The purpose of this service information bulletin is to inform you about the removal and installation of a Shaw DEF tank sensor unit. On most of the vehicle types this is an easy to do job, only on the CX35 you do not have enough space to remove/install the sensor unit as a whole.

NOTE: In case you have to order a new sensor unit, consult SB2094 “Introduction of new generation DEF tank level sensor units” to know the replacement.

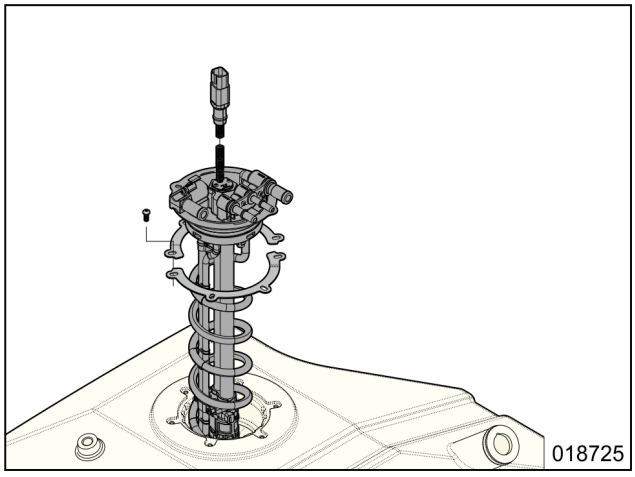


Figure 1: DEF tank sensor unit (unit of the fifth generation shown)

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MORE ABOUT DIESEL EXHAUST FLUID (DEF)

The text below does not aim at being complete; for more information, read the technical and safety information sheets that you can order from your DEF supplier.



WARNING!

DEF is not toxic; in extreme cases, it can cause irritation of the bronchial tubes, skin, eyes and mucous membranes. In the event of contact with the eyes, rinse immediately with ample water for at least 15 minutes. Avoid prolonged contact with the skin; in case of contact with the skin, wash it with soap and ample water. In case of ingestion, rinse the mouth with ample water; do not induce vomiting and call for medical assistance immediately.

Fresh DEF spilled on the floor is slippery; danger of slipping and falling.



CAUTION!

If dirt ends up in the DEF tank, this can cause damage to the exhaust gas aftertreatment system of your vehicle. Therefore clean the surface of the tank around the DEF level sensor very well before starting the job. In case of CX/TX vehicles, the additional sealing rubber under the DEF tank sensor unit avoids dirt ending up in the tank.

Tap water or substances – of whatever nature – added to the DEF can cause irreparable damage to the exhaust gas aftertreatment system of your vehicle. If damage is due to the use of additives or tap water, the warranty for faults in material voids.

DEF attacks some materials and corrodes most metals, especially aluminum and brass (except stainless steel). It also affects body lacquer if the spilled product is left to dry up on the lacquer.

Do not discharge DEF freely into the environment.

Spilt DEF

Remove the spilled product with absorbent material as soon as possible. Rinse with water to finish off.

Crystallization

When exposed to the air, the urea in the DEF crystallizes due to evaporation of the water in the solution.

JOB QUALIFICATION:

The task has to be carried out by an automotive technician.

SPECIAL TOOLS, EQUIPMENT OR SERVICES:

No special tools, equipment or services are required.

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PREPARATIONS:

- Park the vehicle over a flat inspection pit, with the front wheels in the straight-ahead position. Apply the parking brake. Stop the engine. Switch off all systems and turn off the battery isolation switch on the dashboard.
- Install a "DO NOT OPERATE" warning message on the steering wheel.
- Put chocks in front of and behind the front-axle wheels.
- **Read the entire procedure before starting to work.**

WARNING!

Observe safe shop practices at all times.

PROCEDURE:

Step	Action
1	Get access to the DEF tank sensor unit.
2	Remove the DEF tank sensor unit as explained in STEP 2 IN DETAIL.
3	Install the DEF tank sensor unit as explained in STEP 3 IN DETAIL.

End of procedure

STEP 2 IN DETAIL: To remove DEF tank sensor unit

Step	Action
2.1	Disconnect the hoses as follows: a. Mark the position of the hoses. b. Disconnect both DEF hoses (refer to figure 2). c. Pinch off both coolant hoses (refer to figure 3). d. Disconnect both the coolant hoses.

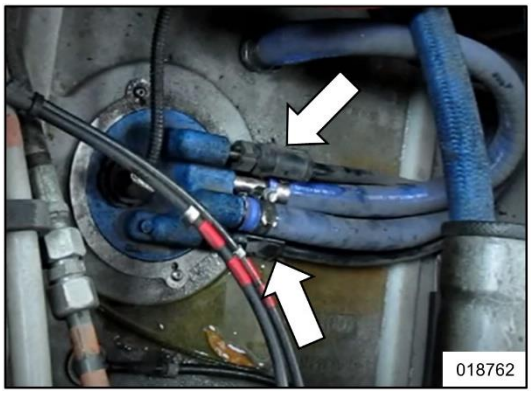


Figure 2

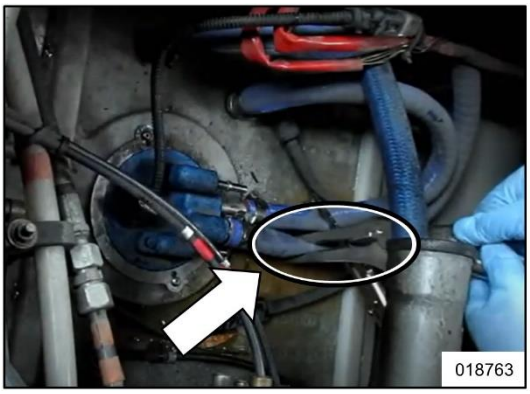
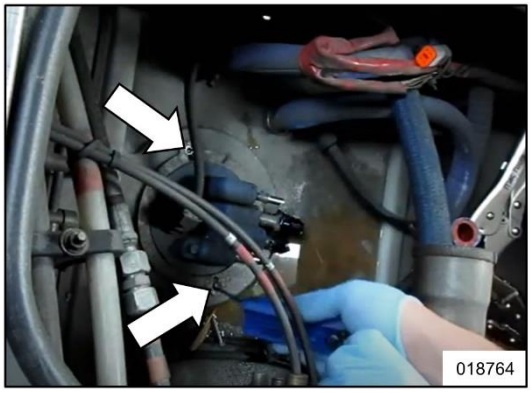
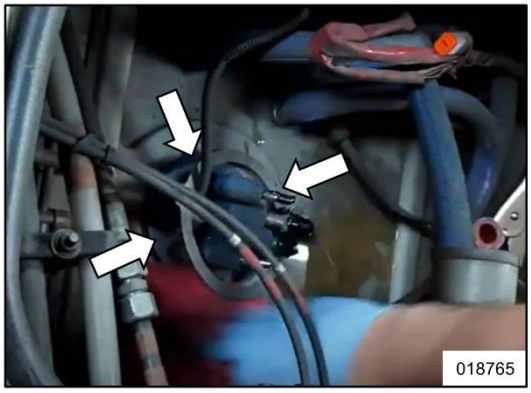


Figure 3

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2.2	Remove the mounting screws (refer to figure 4) and clean the surface under the mounting ring (or mounting ring halves) (refer to figure 5).  **Figure 4**  **Figure 5**
2.3	Disconnect the DEF tank sensor unit electrically.  **Figure 6**
2.4	Is there enough space to remove the DEF tank level sensor? • If so, proceed with step 2.6. • If not, proceed with the next step.

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2.5 Remove the DEF quality sensor from the unit:

a. Unscrew the clamping ring on top of the quality sensor (figure 7).
b. Remove the cable binders securing the quality sensor to the unit (figure 8).
c. Separate the DEF quality sensor and the spacer from the unit (figure 9).

NOTE: Pay attention that the spacer doesn't fall into the DEF tank during removal.

d. Remove the DEF quality sensor (figure 10).



Figure 7



Figure 8



Figure 9



Figure 10

2.6 Remove the DEF sensor unit and, if present, the sealing rubber.

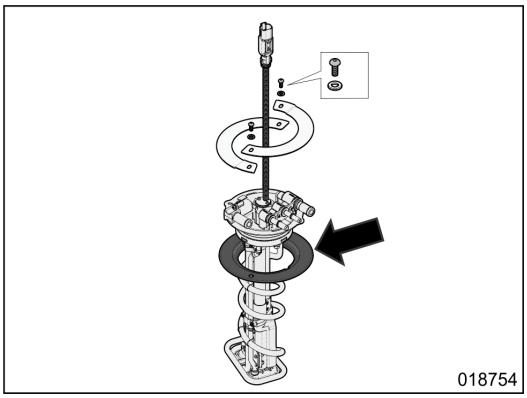
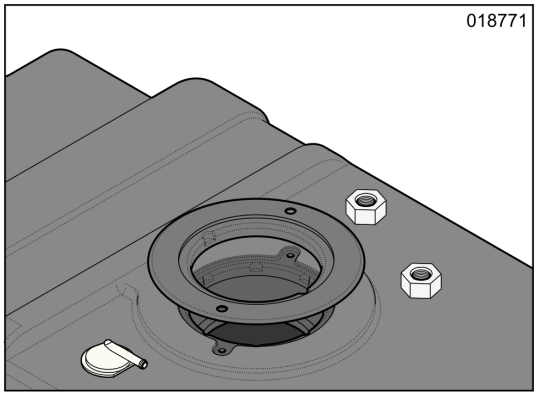
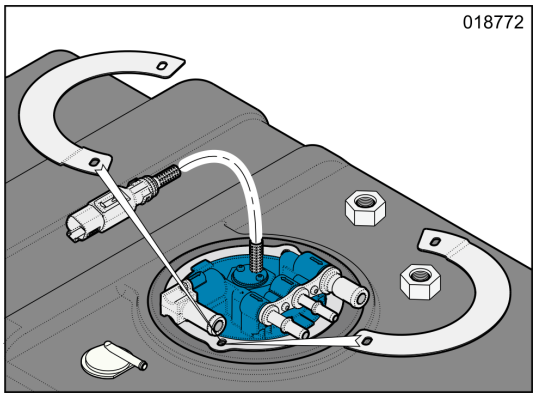


Figure 11

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STEP 3 IN DETAIL: To install DEF tank sensor unit

Step	Action
3.1	**Only for CX35, CX45, TX40 and TX45:** Is the sealing rubber present? • If so, reinstall (after checking for damage) the sealing rubber. • If not, order this sealing ring (VH11630913) and install it.  **Figure 12**
3.2	Did you separate the quality sensor from the level sensor unit during removal? • If not, proceed with step 3.4. • If so, continue with next step.
3.3	Bring the lower part of the sensor unit into the DEF tank together with spacer (figure 9) and the quality sensor. Pay attention that the spacer is well placed between both parts. Use cable binders to secure the quality sensor to the unit.
3.4	Enter the assembled unit into the DEF tank and fix it with two mounting rings (2x VH91082482).  **Figure 13**
3.5	Reconnect the sensor unit electrically.
3.6	Reconnect the hoses and remove the pinch pliers.
3.7	Check the coolant lines to the DEF sensor unit for leaks.

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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.

INFORMATION HANDLING:

Important supplements to and modifications of technical information not yet included in the manual, are communicated by means of Service Bulletins.

VAN HOOL CUSTOMER PORTAL:

Consult the customer portal regularly 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, 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.