

ADDRESSEES	: Owners and operators of vehicles mentioned under "Application"
VEHICLE MODEL	: CX45E and TDX25E
MANUAL CHAPTER	: 02.13H Traction system – traction battery
BULLETIN TYPE	: Service information
DATE	: December 13th, 2021
SUBJECT	: Periodic inspection/replacement of snake-shaped desiccant bag
CONDITIONS	: This service bulletin does not entitle to any reimbursement.

APPLICATION

This service information applies to CX45E and TDX25E vehicles with Proterra traction batteries.

DESCRIPTION

Every Proterra traction battery contains a snake-shaped desiccant bag filled with silica gel (moisture-absorbing crystals). The task of the bag is to keep the air in the traction battery housing dry. The service life of the desiccant in the bag depends on the climatic operating conditions.

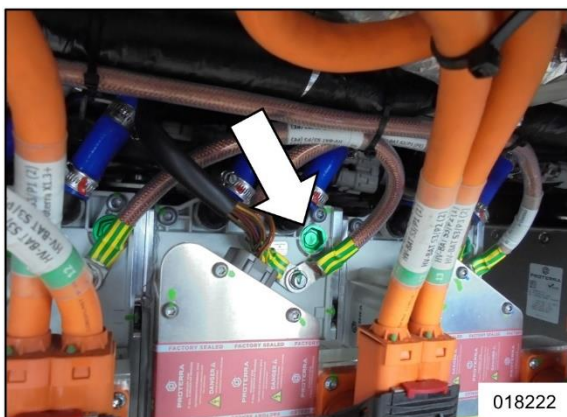


Figure 1: Desiccant condition indicator
(photo shows type 2170 traction batteries)



Figure 2: Desiccant bag

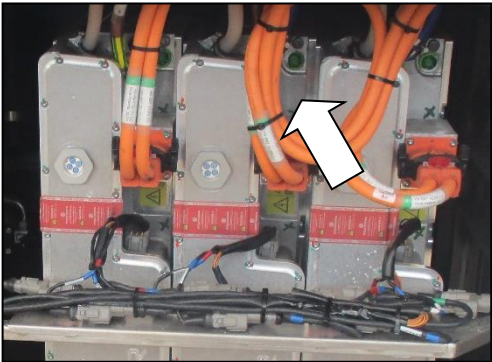
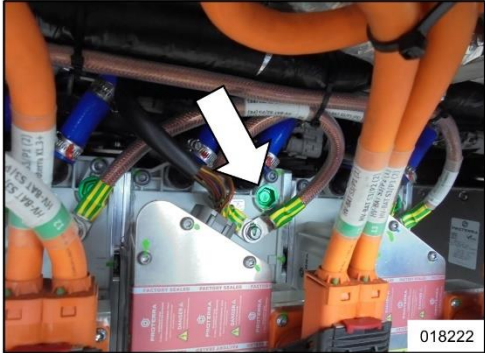
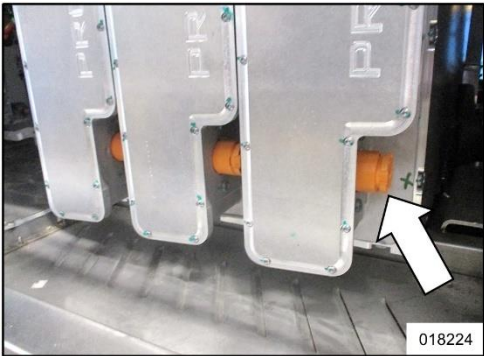
INTERVAL FOR INSPECTION OF DESICCANT BAG

Every 3 months

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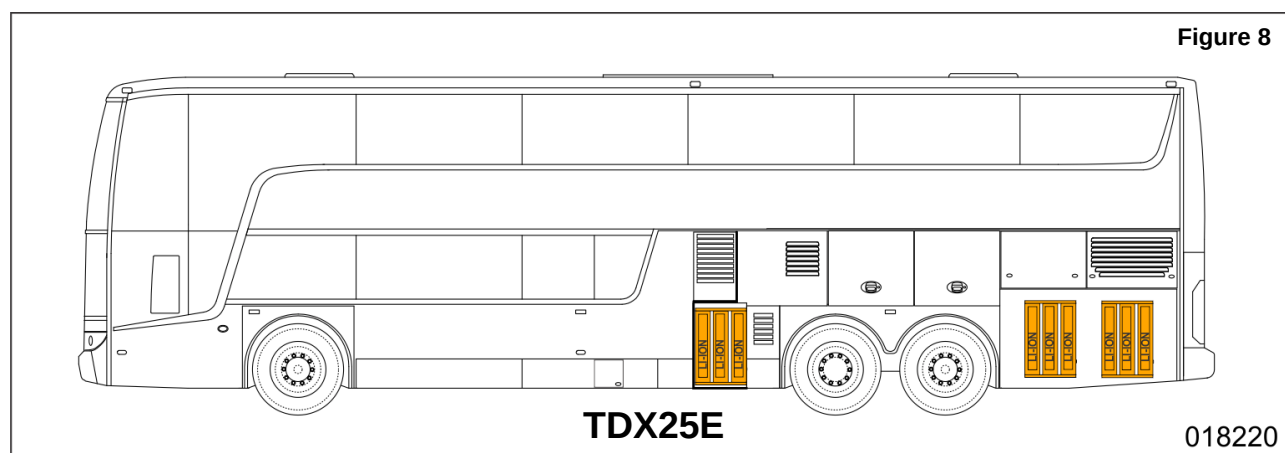
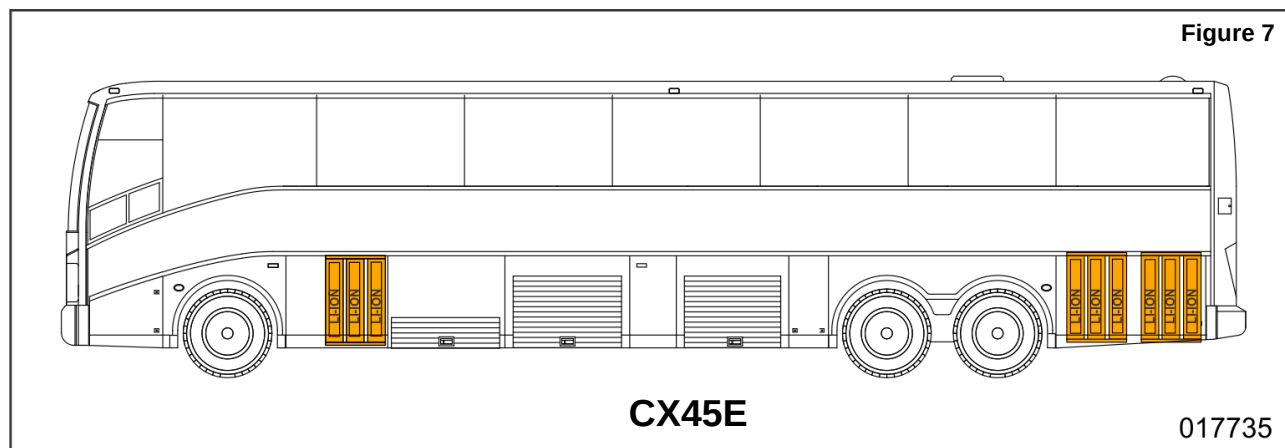
HOW TO IDENTIFY THE DIFFERENT TRACTION BATTERY TYPES?

Up to now two types of Proterra traction batteries have been installed on E-coaches. The table below gives you an overview of the main external differences.

Type 18650 (first generation)	Type 2170 (second generation)
Desiccant saturation window unit  Figure 3	No desiccant saturation window unit
Green desiccant condition indicator plug (one indicator at both sides of each battery pack)  Figure 4	Green desiccant condition indicator plug (one indicator at both sides of each battery pack)  Figure 5
Manual service disconnect (MSD, Hirose EM30MSD) (one on each battery pack)  Figure 6	Manual service disconnect (MSD, Amphenol Excel Mate XL) (one on each battery pack)  Figure 7

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LOCATION OF TRACTION BATTERIES



ORDERING NUMBERS OF CONSUMABLES

- Desiccant saturation window unit (only on first generation): Proterra 032950 (VH11784164)
- Snake-shaped desiccant bag: Proterra 031088 (VH11776340)
- Green desiccant condition indicator plug: Proterra 022385 (VH11788720)

PREPARATIONS

- Park the vehicle on a level floor. Apply the parking brake. Switch off the traction system. Switch off all systems and turn off the battery isolation switch on the dashboard.
- Put a "DO NOT START" warning message on the instrument panel before starting the checks or repairs.
- Put chocks in front of and behind the drive axle wheels.
- **Read the entire procedure before starting the operations.**



WARNING!

Observe safe shop practices at all times.



WARNING!

The traction batteries contain a life-threatening electric charge that cannot be switched off.

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WARNING!

Only personnel who are trained and authorised to do so may carry out maintenance work on the traction batteries.

HOW TO REPLACE DESICCANT SATURATION WINDOW UNIT (ONLY ON FIRST GENERATION)?

Visually check the desiccant saturation window unit at each battery pack ancillary bay. Replace if the color for 40% saturation has changed from blue to pink.



Figure 9: Desiccant saturation window unit shows an uncontaminated pack

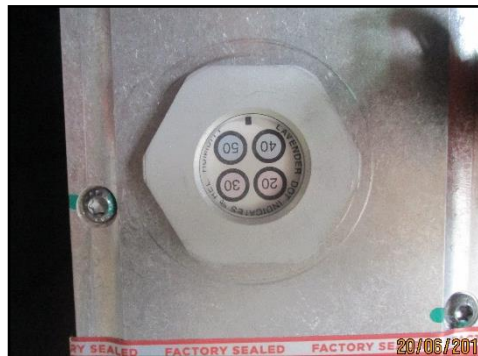
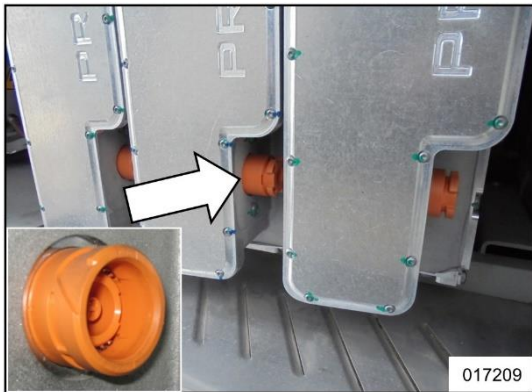
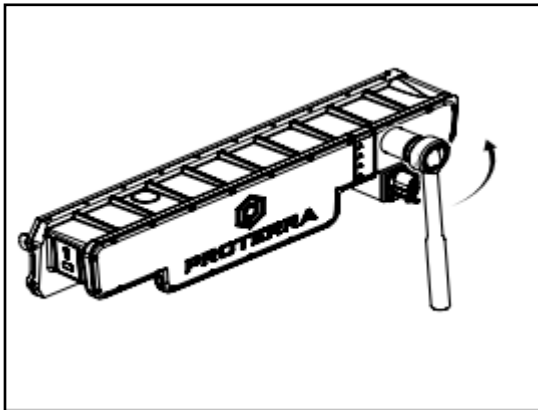


Figure 10: Desiccant window shows a 30% contaminated pack

Step	Action
1.1	Remove the manual service disconnect (MSD) by turning the cap counterclockwise.  Figure 11: Location of manual service disconnect (MSD) (one on each of the nine battery packs)
1.2	Using a 1-3/8 inch socket/ratchet, remove the old desiccant saturation window unit.  Figure 12

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1.3	Check the replacement desiccant saturation window unit to ensure that the sealing O-Ring is properly installed to prevent leakage. Insert the new desiccant saturation window unit into the ancillary bay and tighten it by hand.
1.4	Using a calibrated torque wrench and a 1-3/8-Inch socket, torque the desiccant saturation window unit to 4 Nm (35 in.lbf). The desiccant condition indicator unit replacement is complete. Figure 13

HOW TO REPLACE SNAKE-SHAPED DESICCANT BAG?

The desiccant bag may be replaced based on time in service or in case of an indication that moisture has entered the pack. The desiccant condition indicator plugs have a built-in device for moisture contamination. The picture below shows an uncontaminated plug on top and one that is indicating pack moisture contamination on the bottom. If a plug has been exposed to moisture it will be necessary to override spring tension when inserting an Allen wrench for removal. If a pack has internal leakage, contact Proterra Service for assistance.



Figure 14

Step	Action
2.1	• First generation traction batteries: remove the manual service disconnect (MSD) as explained in step 1.1. • Second generation traction batteries: remove the manual service disconnect (MSD) as explained in “STEP 2.1 IN DETAIL”.

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2.2	Using a 17mm Allen socket/ratchet, remove the green desiccant condition indicator plug at both sides of the battery pack.  Figure 15
2.3	Locate the reinforcing brass ring on the end of the desiccant bag near the cooling loop. Grab the ring with the hook end of a Jameson Glow rod (or equivalent) and pull the old desiccant bag out of the battery pack.  Figure 16
2.4	Attach the hooked end of the Jameson Glow Rod to a straight section of the rod.  Figure 17
2.5	Starting at the end of the battery pack with the coolant loop, push the hooked end of the glow rod all the way through the pack until it exits the other side.

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2.6	Attach the hook of the glow rod to the ring of the desiccant bag.  Figure 18
2.7	Using a second associate, pull the glow rod to place the desiccant bag into the pack while carefully feeding the desiccant snake into the battery. <i>NOTE: Use caution to prevent the desiccant bag casing to be cut or torn during the installation process.</i>   Figure 19 Figure 20
2.8	Tuck both ends of the desiccant bag securely into the pack.  Figure 21

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2.9	Apply Vibra-Tite 42050 thread sealant as needed to the desiccant condition indicator plug that you removed earlier. Figure 22
2.10	Using a calibrated torque wrench and a 17 mm Allen socket, torque the desiccant condition indicator plug to 30 Nm (22 ft.lbf). Figure 23

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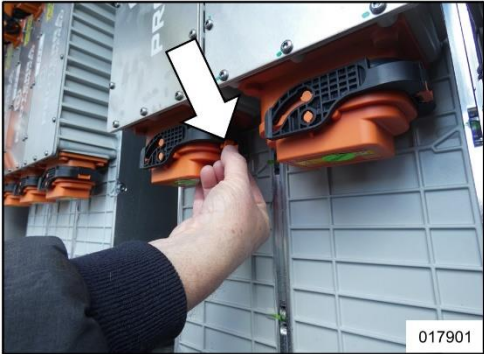
STEP 2.1 IN DETAIL: Remove manual service disconnect (MSD) on second generation traction batteries



Figure 24: Location of manual service disconnect (MSD) (one on each of the nine batteries)



Figure 25: Manual service disconnect

Step	Action
2.1.1	Push the small locking tab to unlock the lever of the MSD.  017901 Figure 26
2.1.2	Turn the lever of the MSD down.  017902 Figure 27

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2.1.3	Turn further until stop.  Figure 28
2.1.4	Remove the MSD.  Figure 29

DISPOSAL OF THE OLD DESICCANT BAG

An old (removed) desiccant bag must not be reused and must be disposed of in accordance with the environmental laws in force in your country or region.

HELP DESK

If you still have any questions, address your regular contact person at After-Sales Department or your local Van Hool Service Point.

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.

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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. In addition to 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, but 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.