
On Board Charger change

Repair instruction

LOW CAB



Translation of the original document

Legal notice

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	NOTICE
	Read this document
	Read this document carefully and follow the information contained in it.
	Failure to comply with this instruction may result in death, injury, damage to the product and the environment. Always use the latest document version.

Validity

This manual only applies to the units listed in the following table:

Model	Code 1	Code 2
E-Truck	LOW CAB	V2.2

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1 Foreword

The Designwerk E-Truck, an immensely powerful and versatile product. Since it is a high-performance electronics product with dangerous voltages and currents, specific technical skills are required for the use and handling of the unit.

Please read this manual carefully – particularly the chapter Safety Notices and Warnings – before using or working on the product.

1.1 General information

This document includes instructions for the safe change of the on board charger by trained professionals. Additional information on the vehicle can be found in the operating manual.

The E-Truck version can be found in the display under “settings”.

1.2 List of abbreviations

Abbreviation	Meaning
OBC	On Board Charger
HV	High Voltage
LV	Low Voltage

2 Safety Notices and Warnings

This chapter contains safety notices for this unit. These pertain to initial use and ongoing use in the vehicle. Please read and always observe these notices for safety reasons and to prevent loss of life and unit damage.

2.1 Symbols and their meaning

Various symbols are used throughout this document. An overview and their meaning can be found in the following tables:

2.1.1 Warning signs

Symbol	Designation	Symbol	Designation
	General warning of a danger zone		Warning of electrical voltage
	Warning of slipping hazard on wet surfaces		

2.1.2 Commandment signs

Symbol	Designation	Symbol	Designation
	Important information to avoid potential property damage		Read the manual
	Wear protective shoes		Use antistatic footwear
	Important information		

2.2 Safety notices and risk levels

	DANGER Danger To indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	WARNING Warning To indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION Caution To indicate a potentially hazardous situation which, if not avoided, could result in a minor or moderate injury.
	NOTICE Notice To indicate important information to avoid possible damage to property.
	INFORMATION Information To indicate important information for the reader.

2.3 General safety information

	DANGER Danger caused by electrical discharge The incorrect handling of the high voltage system can cause electrical shocks and electric arcs, which may result in severe burns or death. • The process may only be conducted by authorized professionals. • Carefully read the safety instructions • Wear Personal Protective Equipment according to the instructions.
	NOTICE Required qualification for the change The work described in this document may only be carried out in instructed workshops and by trained personnel.
 	NOTICE Wear protective shoes Wear safety shoes that meet the following requirements during the work described: • Protective cap • Antistatic insole and oil- and petrol-resistant outsole with non-slip tread pattern • Safety class S3, as per European Standard EN ISO 20345
	INFORMATION Marking of high-voltage components • All high-voltage cables are orange in colour. • All high-voltage components are marked with an appropriate warning label.
	INFORMATION The figures may slightly deviate from the vehicle being serviced. However, the key components listed in this informational document are illustrated as accurately as possible.
	INFORMATION The OBCs are pre-parameterised depending on which side they are installed on.

2.4 Introduction

This replacement is carried out when it has been diagnosed by Designwerk that one of the On Board Chargers is no longer functional.

2.5 Material

The material listed in the spare parts list is required for the repair. This material must be obtained from Designwerk.

Material that is not listed, such as cables and hoses, can be reused. If screws or brackets are no longer usable due to corrosion, they must be replaced.

2.6 Preparation

	WARNING
	Slipping hazard If the coolant is not collected, there is a risk of slipping through wet surfaces. Depending on the intensity of the fall, slight or severe injuries may result.

Additional material required:

	Oil pan for collecting the coolant
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	DANGER
	High voltage / Danger of life The next work steps are carried out on high-voltage components. Failure to observe work step 1 - Decommissioning - can result in fatal injuries or serious product damage. Before working on these components, the E-Truck must be decommissioned.

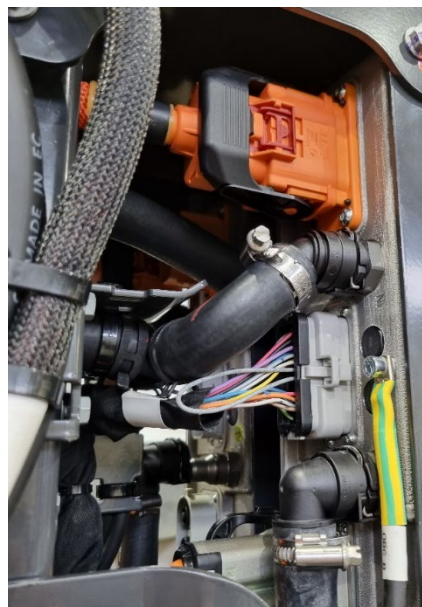
- 1 First decommission the vehicle according to the latest available version of the instruction document «DW_LOC_V2.2_Decommissioning_EN».

On Board Charger built in

The On Board Charger is located behind the driver's cab on the passenger side.

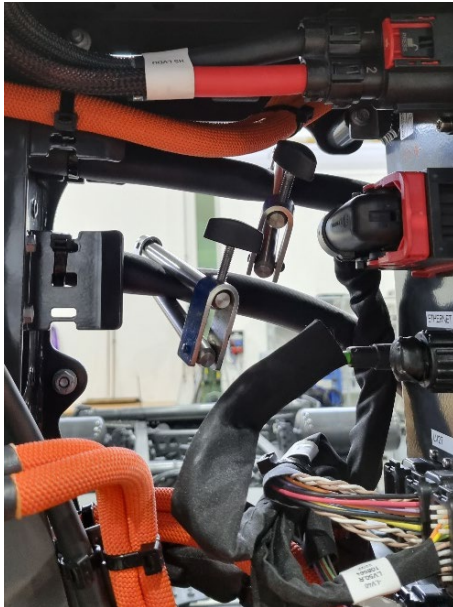


Connections OBC right and left

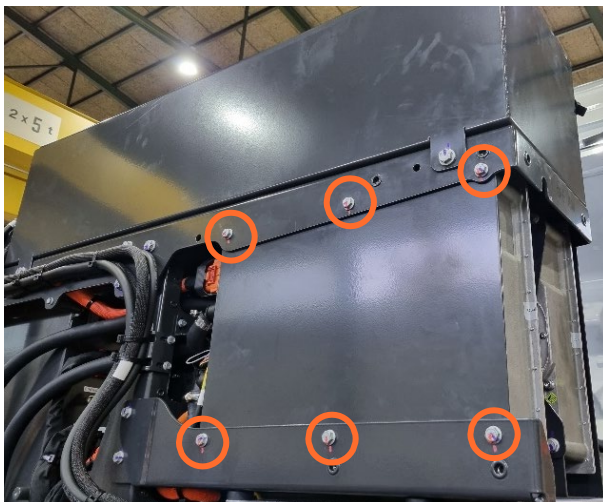


2.7 Removal

- 1 Disconnect the two cooling hoses at the inlet and outlet by means of hose clamp pliers (see figure).



- 2 Disconnect the two cooling hoses from the On Board Charger and drain them as follows:
 - Drain fluids from the hoses.
 - Collect the coolant in the oil pan.
- 3 Disconnect the two cooling water hoses from the in- and outlet.
- 4 Unplug the HV-cable.
- 5 Loosen and unplug the ground cable (potential equalisation).
- 6 Unplug the two LV-cables.
- 7 Protect all plugs from dirt using protective caps or masking tape.
- 8 Loosen the six hexagonal screws of the two retaining plates at the top and bottom of the OBC and remove the OBC (see figure below).



	INFORMATION
	If the OBC on the driver's side has to be replaced, also remove the second retaining plate by loosening the four hexagonal screws (see figure below).



2.8 Installation

Prior to installation:

- Unscrew the retaining plates from the old OBC and attach them to the new OBC.
- The installation is done in reverse order.

	NOTICE
	Torque Tighten the hexagonal screws with a torque of 20 Nm.

2.9 Final work

- 1 Recommission the vehicle according to the instructions.
Document «DW_LOC_V2.2_Commissioning_EN» in the latest available version.
- 2 After a successful test drive check the coolant level.
- 3 Carry out a functional test (see chapter 2.10).

2.10 Functional test

The following processes are checked during the functional test:

- The vehicle can be charged properly.
- The interlock during the charging process works.
- The LED lights up.
- A charge interruption can be carried out.

For this purpose:

- 1** Plug in the Juice Booster with max. 32 A.
- 2** Lock the charging socket.
- 3** Carry out the charging process.
- 4** Stop charging using the ignition key.
- 5** Unlock the charging socket.