

Operating instructions

Turbo Charger (charging station)



Company information

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General information

The German version of the operating instructions is the original. Every non-German edition is a translation of the original operating instructions. The operating instructions are an integral part of the Turbo Charger.

Minor changes to the shape and design as well as variations in the color of the Turbo Charger parts are reserved if these changes or variations are reasonable for the operator.



The contents of these operating instructions must be treated as confidential. Disclosure or reproduction without prior written consent is prohibited.

Contracting parties receive these operating instructions from the responsible sales department.



Exclusion of liability

The operating instructions have been compiled in compliance with the applicable standards and directives and reflects the technical status of the Turbo Charger at the editorial deadline on 08/26/2022.

The manufacturer accepts no liability for damage or accidents due to:

- Failure to observe the operating instructions
- Failure to observe the safety regulations
- Impermissible use of the Turbo Charger



The warning and safety instructions and the specified rules of conduct in these operating instructions must be observed and followed.



Other applicable documents

Document type	Description	
Operating instructions*	Cooling unit	
	Charging cable	
	Lightning protection elements	
	Media converter	
	DC energy meter (optional)	

^{*} Supplied with the relevant product

Table 1: Enclosed operating instructions

Document type	Description	
Operating instructions	Charge box, overall system commissioning section	
	Charging hub, Technotrans, Hydac cooling unit commissioning section	
Table 2: High-performance charging infrastructure operating instructions		

Document type	Description
Foundation plan	Turbo Charger foundations
Drawing set	Turbo Charger
Circuit diagram	

Table 3: Drawings, diagrams

Document type	Description	
Data sheet	Turbo Charger data sheet	
Declaration of Conformity	EU Declaration of Conformity	
	Declaration of conformity for measuring instruments (optional)	
	DoC simplified	
Operator information on the German Measurement and Calibration Act	Information on technically compliant use of the charging equipment (optional)	

Table 4: Additional documents



Document type	Description
Safety data sheet	GLYSANTIN® G40® coolant
	Novec 7500 charging cable coolant

Table 5: Safety data sheets



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2. Notes to the operating instructions

2.1. General information

The operating instructions contain important information on correct and safe operation of the Turbo Charger.

The content of the operating instructions must be read and understood before starting any work on the Turbo Charger.

The operating instructions are an integral part of the Turbo Charger and must be kept accessible to personnel at all times.

The manufacturer accepts no liability for damage caused by non-compliance with the content of these operating instructions.

- Familiarize yourself with the contents of these operating instructions.
- Observe the safety and warning notices in these operating instructions.

The laws and regulations applicable at the place of use must be observed for operation of the Turbo Charger. This is the responsibility of the operator. In addition, the operator must continuously keep up to date on the development of the applicable laws and regulations.

2.2. EU Declaration of Conformity

SIMPLIFIED EU DECLARATION OF CONFORMITY

Porsche Engineering Services GmbH hereby declares that the radio equipment type HPD 2020/ HPD 2420/ HPD 2120 complies with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following Internet address:

https://www.porscheengineering.com/peg/en/services/chargingsolutions/dow nloads/customer

2.3. NRTL certificate

Turbo Charger HPD 2010, HPD 2110, HPD 2210, HPD 2310, HPD 2410, and HPD 2510 versions comply with the UL standard CAN/CSA-C22.2 No. 107.1:2016.

The full text of the NRTL certificate is available at the following Internet address: https://sce.tuv-sud.com/sce?id=8CU1E

2.4. Target Group

The operating instructions are aimed at the operator of the Turbo Charger and to the persons engaged by the operator to install, maintain, repair or uninstall the Turbo Charger.



2.5. Representation Used

In these operating instructions, texts with particular significance are indicated according to the information they contain, e.g. instructions for actions, lists, internal references.

The following forms of representation are used in this document:

- This symbol indicates instructions for actions. The sequence of actions (chronological sequence) is based on the order of the individual steps.
- Lists are marked with this symbol. They can contain both individual words and entire text passages.



This symbol indicates important further information about the preceding text.



The illustrations in this document may differ from the actual as-delivered condition in some details that are not relevant to the user (e.g. color, surface). In this case, they are marked as "example".



Directional information in these operating instructions, such as "upper/lower" and "left/right" refer to the front view of the Turbo Charger.



Screw connections that have to be tightened to a specific tightening torque are marked with this symbol in the pictures accompanying the instructions.

PORSCHE

3. For your safety

Knowledge of the basic safety instructions and the applicable safety regulations is a prerequisite for correct and safe operation of the Turbo Charger. In addition, the accident prevention rules and regulations applicable at the place of use must be observed and complied with.



The operating instructions contain important information on correct and safe operation of the Turbo Charger. The contents must be read carefully and understood before starting any work on the Turbo Charger. Keep the operating instructions in a safe place and make them available to all persons working on the Turbo Charger.

Porsche Engineering Services GmbH accepts no liability for damages caused by non-compliance with the contents of the operating instructions.

Observe the following instructions:

- Read and observe the contents of these operating instructions before working on the Turbo Charger.
- Take the safety and warning notices seriously and follow the measures set out to prevent the hazard.
- Take care to avoid possible personal injury, material damage and accidents.

3.1. Structure and meaning of warning notices

Operating the Turbo Charger involves actions during which hazards can occur.

These actions are preceded by warning notices.

The warning notices used in this document are structured as follows:



SIGNAL WORD



Nature and source of the danger

Possible consequence(s) due to failure to recognize the hazard.

➤ Measure(s) to prevent/avoid danger.



3.2. Color marking

The warning notices in this document are marked in color as follows:

A

DANGER

• The signal word **DANGER** indicates a hazard with a high risk that results in death or serious injury if it is not avoided.

<u>^</u>

WARNING

• The signal word **WARNING** indicates a hazard with a moderate risk that may result in death or serious injury if it is not avoided.

<u>^!\</u>

CAUTION

 The signal word **CAUTION** indicates a hazard with a low risk that may result in minor or moderate injury if it is not avoided.

NOTICE

• The signal word **NOTICE** indicates possible material damage due to failure to observe instructions.

Example of a warning notice:



WARNING



Risk of injury due to falling loads.

Falling loads can cause severe injuries that can result in death.

- > Wear a safety helmet.
- Never stand under raised loads.
- > Use suitable lifting gear, load attachments, and slings.
- Only lift the load using the transport eyelets and sling points provided.



3.3. Safety instructions



Danger to life due to electric current

If the Turbo Charger or supply lines are damaged during installation, maintenance, and repair of the Turbo Charger, there is a risk of death due to electric shock.

Observe the following safety instructions:

- The Turbo Charger may only be installed, maintained, and repaired by qualified and trained personnel.
- Work on the electrical system may only be carried out by qualified electricians with equipment-specific training, not independently, and only with insulated tools.
- The Turbo Charger may not be modified. Modifications can reduce or eliminate the effectiveness of the safety equipment.
- Repairs to the Turbo Charger may only be carried out using genuine spare parts.
- Do not disable or bypass the safety equipment on the Turbo Charger (e.g. for diagnostic purposes). Modifying safety equipment can result in serious injury or even death.
- The Turbo Charger must be connected to a properly grounded power supply.

- Make sure that the electrical cables are not trapped and do not rub against sharp edges.
- Protect the electrical cables against kinks, crushing, sharp edges, and solvents.
- Have damaged electrical cables replaced immediately. Damaged electrical cables increase the risk of electric shock. A damaged electrical cable can cause short circuits.
- Switch off the power supply to the electrical system before maintenance and cleaning work, settings, or repairs are carried out on the Turbo Charger.
- Check all electrical cables and connections at regular intervals.
- Pay attention to fault messages during operation of the Turbo Charger.





Risk of injury due to slipping, tripping or falling

During installation, maintenance, and repair of the Turbo Charger, there is a risk of injury from slipping or tripping over installed supply lines and surrounding installation material and tools.

Observe the following safety instructions:

- Observe the applicable local accident prevention regulations.
- Install the supply lines in such a way that nobody can slip on it or trip over it and fall.
- Remove tools that are not required from the working area.



General safety instructions

Observe the following safety instructions to prevent personal injury and material damage:

- Children are not permitted to operate the Turbo Charger.
- Children are not allowed to play with the Turbo Charger.
- Do not perform any work on the Turbo Charger while under the influence of alcohol or drugs.
- Wear protective gloves and use suitable tools when working inside the Turbo Charger. Loosening screwed connections with a high release torque can cause injuries due to the confined space.
- Disconnect the Turbo Charger from the power supply if it will be unsupervised for a long period of time.



3.4. Operator responsibilities

All work on the Turbo Charger may only be assigned to persons who are familiar with the basic industrial safety and accident prevention regulations. The appointed personnel must be at least 18 years old. The personnel's responsibilities must be clearly defined. Regular checks must be conducted by the operator or a personal authorized by the operator to ensure that personnel are working with due awareness of safety and hazards, and in compliance with the applicable local safety regulations.

These operating instructions may need to be supplemented with instructions to include monitoring and reporting obligations relating to specific operational conditions, e.g. work organization, workflows, personnel deployed, and applicable national or local regulations.



The operator must observe the applicable local safety regulations during all work on the Turbo Charger.

After installing the Turbo Charger and before commissioning, a check must be made to ascertain whether prohibition and information signs indicating hazards need to be set up and attached. If so, the operator must have these prohibition and information signs produced and attached.



3.5. Personnel qualifications

All work on the Turbo Charger requires knowledge of mechatronics and electrical engineering in order to be able to carry out the actions and work steps described.

Electrician

Electrical installation, uninstallation, maintenance, and repair may only be carried out by persons with a sound knowledge of electrical engineering. They must demonstrate the required specialist knowledge required for working on electrical systems and the associated components (e.g. by a certificate or qualification on file) and complete a product-specific training course.

Requirements for the electrician:

- Ability to evaluate measured results
- Knowledge of IP protection types (NEMA codes) and their application
- Knowledge of installation of electrical installation material
- Knowledge of the applicable electrical engineering and national regulations
- Knowledge of fire protection measures and the general and specific safety and accident prevention regulations
- Ability to select suitable tools, measuring instruments and, if necessary, personal protective equipment, as well as the appropriate electrical installation material to meet the switch-off conditions
- Knowledge of the type of supply network (TN and IT networks) and the resulting connection conditions (classic zeroing, protective grounding, necessary additional measures)



Activity	Responsible	Qualification	
Transportation	Manufacturer/shipping company/operator	Specialist personnel qualified to operate the transportation equipment used	
Setup/installation*	Fitter/operator	Electrician with equipment-specific training (installation of the electrical system)	
		Qualified specialist personnel with specialist training and equipment-specific training (installation of coolant lines)	
Initial commissioning	Commissioning engineer/operator	Electrician with equipment-specific training	
Maintenance	Manufacturer/operator	Electrician with equipment-specific training	
Repairs	Manufacturer/operator	Electrician with equipment-specific training	
Germany only Activities relevant to official calibration regulations (e.g. removal of charging cables or DC energy meters) The components concerned are sealed	Manufacturer/operator	Repair company with the authority to carry out activities relevant to the legal calibration requirements (Section 37 par. 5 MessEG and § 54 MessEV)	
Shutdown/disconnection	Manufacturer/operator	Electrician with equipment-specific training (disconnection of the electrical system)	
		Qualified specialist personnel with specialist training and equipment-specific training (disconnection of coolant lines)	
	Specialist disposal company	Expert, specially trained personnel from a specialist disposal company	

Table 6: Personnel qualifications



3.6. Personal protective equipment

For their own protection and to protect against material damage, all persons who work on the Turbo Charger must perform all activities with the highest level concentration and care. All necessary activities on the Turbo Charger are carried out in the vicinity of grounded or live system components. Tools that are in perfect condition, insulated, and voltage-resistant are to be used at all times. In exceptional cases, contact with live parts may occur. For this reason, it is necessary to wear protective clothing suitable for the installation of electrical systems.

The following protective equipment is recommended:

- Close-fitting protective clothing suitable for the installation of electrical systems
- Safety shoes
- Safety gloves
- Eye protection
- Safety helmet (during crane work)

Observe the following safety instructions:

- Do not wear jewelry.
- Wear long hair in a hair net.
- Always make sure the protective clothing is in perfect condition before use.

3.7. Safety for special activities



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



The term "special activities" describes activities that are carried out with the high-performance charging infrastructure completely or partially switched off. This includes cleaning, maintenance, troubleshooting, and repairs both during installation and during operation.

The personnel must be informed of any special activities before starting work and a supervisor must be appointed. The personnel are obliged to wear personal protective equipment (PPE) while performing the special activities.

3.8. Protective measures in the event of fire

To avoid errors in firefighting due to incorrect behavior or the use of unsuitable extinguishing equipment, observe the following rules for smoke or fire:

- Keep calm and act carefully.
- · Report the fire.
- Call the fire brigade.
- Warn people at risk in the area.
- Get injured and stranded people to safety.
 When doing this, pay attention to your own safety.
- Leave the danger area immediately.
 Use the designated escape and rescue routes.
- Try to switch off the high-performance charging infrastructure.
- Try to extinguish the fire using suitable extinguishing equipment.
 When doing this, pay attention to your own safety.



<u>Do not</u> attempt to fight electrical fires and operating material fires with a water extinguisher.

Powder or CO₂ must be used to combat fires in electrical components and operating materials in the high-performance charging infrastructure.



3.9. Protective and safety equipment

The housing of the Turbo Charger acts as a protective and safety device.

In addition, each Turbo Charger has a button to stop the direct charging process and, as a structural measure, a break-off sensor that shuts off the DC supply to the Turbo Charger if the Turbo Charger has been knocked over. Stop thresholds are provided as additional protective measures.

The Turbo Charger may only be operated when all protective and safety equipment is fully installed and functional in accordance with the applicable local regulations.



The design of protective and safety equipment, such as pictograms on the housing, is influenced by the applicable local regulations.

Equipment for shutting down or interrupting the power circuit in an emergency, as well as the existing main and contact switches, must be tested individually and separately at least once a year.

3.10. Information and warning signs

The following hazard indicators are attached in the Turbo Charger.

Symbol	Meaning
4	Warning: Electricity
<u>\(\)\</u>	Warning: Hot surface

Table 7: Hazard warning signs

Information is also provided on the inside of the service flap and the door, on the busbar duct and on the mounting plate, which draw attention to particular hazards.



Turbo Charger USA/CDN version

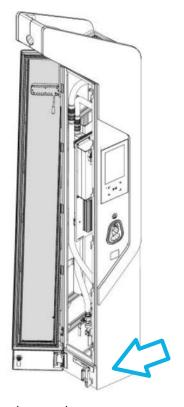


Fig. 1: Notice next to the type plate

WARNING	AVERTISSMENT
FOR USE WITH ELECTRIC VEHICLES ONLY. HAVE DEFECTIVE CORDS OR WIRES REPLACED BY	À UTILISER UNIQUEMENT AVEC DES VÉHICULES ÉLECTRIQUES.
QUALIFIED SERVICE PESONAL ONLY. THIS EQUPMENT IS INTENDED ONLY FOR CHARGING VEHICLES NOT REQUIRING	FAIRE REMPLACER LES CORDONS OU LES FILS DÉFECTUEUX PAR DU PERSONNEL DE SERVICE QUALIFIÉ UNIQUEMENT:
VENTILATION DURING CHARGING. DO NOT USE THIS EQUIPMENT IF DAMAGED.	CET ÉQUIPEMENT EST DESTINÉ UNIQUEMENT À CHARGER LES VÉHICULES NE NÉCESSITANT PAS DE VENTILATION PENDANT LA CHARGE.
	NE PAS UTILISER CET ÉQUIPEMENT S'IL EST ENDOMMAGÉ.



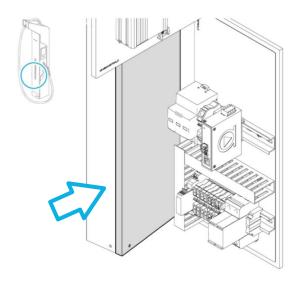


Fig. 2: Notice on the side of the busbar duct

WARNING

RISK OF ELECTRIC SHOCK.DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE.

AVERTISSMENT

RISQUE DE CHOC ÉLECTRIQUE. NE PAS ENLEVER LE COUVERCLE. AUCUNE PIÈCE RÉPARABLE PAR L'UTILISATEUR À L'INTÉRIEUR.

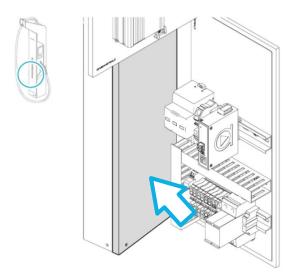


Fig. 3: Notice on the front of the busbar duct

DANGER	DANGER	
HIGH VOLTAGE.	HAUTE TENSION	



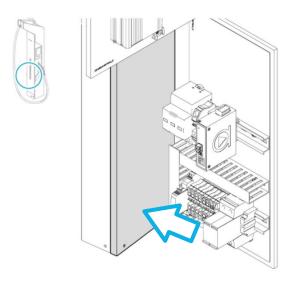
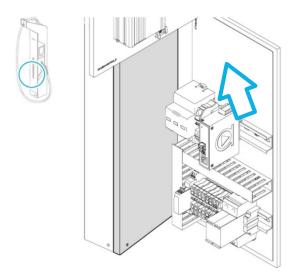


Fig. 4: Notice on the front of the busbar duct

WARNING	AVERTISSEMENT
FOR USE WITH COPPER CONDUCTORS ONLY.	À UTILISER UNIQUEMENT AVEC DES CONDUCTEURS EN CUIVRE.
BASE THE CONDUCTOR AMPACITY ON A MAXIMUM TERMINATION TEMPERATURE OF 60 °C.	BASER LE COURANT ADMISSIBLE DU CONDUCTEUR SUR UNE TEMPÉRATURE DE TERMINAISON MAXIMALE DE 60°C.



WARNING	AVERTISSEMENT
BASE THE CONDUCTOR AMPACITY ON A MAXIMUM TERMINATION TEMPERATURE OF 60 °C.	BASER LE COURANT ADMISSIBLE DU CONDUCTEUR SUR UNE TEMPÉRATURE DE TERMINAISON MAXIMALE DE 60°C.



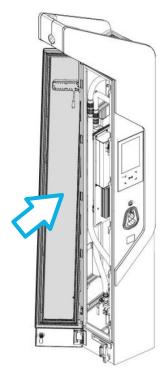


Fig. 5: Notice on the inside of the door

WARNING	AVERTISSEMENT
BONDING BETWEEN CONDUIT CONNECTIONS IS NOT AUTOMATIC	LA MISE À LA MASSE ENTRE LES RACCORDS DE CONDUITS N'EST
AND MUST BE PROVIDED AS A PART OF THE INSTALLATION.	PAS AUTOMATIQUE ET DOIT ÊTRE FOURNIE DANS LE CADRE DE L'INSTALLATION

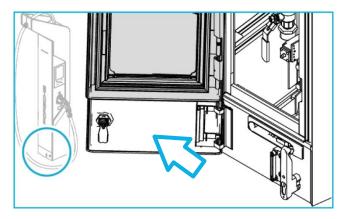


Fig. 6: Notice on the inside of the service flap

WARNING	AVERTISSEMENT
DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING.	DÉBRANCHER TOUTES LES SOURCES D'ALIMENTATION AVANT D'EFFECTUER L'ENTRETIEN.



4. Product description

4.1. Intended use

The Turbo Charger is a high-performance charging infrastructure component. It provides the charging current for charging the high-voltage battery in hybrid and electric vehicles.

The Turbo Charger is only to be operated in conjunction with the Charge Box (product code 1012, 1042) and as part of a charging hub (PowerBox, ComboBox, CoolingBox and control server).

On a Charge Box (product code: 1012, 1042) you can connect up to two Turbo Chargers (product code: HPD 2020, HPD 2110, HPD 2120, HPD 2310 or HPD 2420).

In a charging hub (PowerBox, ComboBox, CoolingBox and control server) up to 8 Turbo Chargers (product code: HPD 1020, HPD 1110, HPD 1120, HPD 1410) can be operated, depending on the configuration.

The charging process is represented by a display on the Turbo Charger, where operation is also carried out. The Turbo Charger and the charging cable are liquid-cooled.

The charging cable can be equipped with a type 1 (CCS1) or type 2 (CCS2) charging plug. Hybrid and electric vehicles that are connected to the Turbo Charger must have the corresponding charging socket. The use of an adapter (e.g. CCS2 adapter for vehicles with manufacturer-specific plug system) is not permitted.

The Turbo Charger is designed and constructed to be state of the art and in accordance with the generally recognized safety regulations. Nevertheless, improper use can result in hazards for the user or third parties, or adverse effects on the high-performance charging infrastructure and other assets.

Proper use of the Turbo Charger includes:

- Operation of the Turbo Charger in perfect condition without damage
- Operation of the Turbo Charger in the manner described in this document
- Operation of the Turbo Charger within the power limits set out in the specifications



Commissioning information

For commissioning, the charge control (Turbo Charger) and control server (charging hub) or charge management server (Charge Box) software must have the same joint release status.





Proof of conformity in accordance with FCC 15b

The Turbo Charger complies with the limit values for class A digital devices in accordance with Part 15 of the FCC regulations.

The limit values provide appropriate protection against harmful interference during operation in a commercial environment.

The Turbo Charger generates, uses, and potentially emits high-frequency energy. If it is not installed and used in accordance with the operating instructions, radio interference may occur.

Operation in residential areas can cause harmful disruptions. In this case, the operator must rectify these faults at their own expense.



Electromagnetic compatibility

The Turbo Charger is a class A device and is intended for use in an industrial environment.

Due to the conducted and radiated interference occurring, there may be difficulties in ensuring electromagnetic compatibility in other environments.

4.2. Reasonably foreseeable misuse

Operation of the Turbo Charger that goes beyond its proper use is considered to be improper use or misuse.

The following are classed as improper use or misuse:

- Operation of the Turbo Charger in potentially explosive atmospheres or in their vicinity or sphere of action
- Operation of the Turbo Charger with unauthorized attachments and modifications
- Operation of the Turbo Charger with protective or safety equipment that is defective, manipulated or bypassed
- Repair and maintenance work on the Turbo Charger, which is not explicitly defined as duties of the operator
- Operation of the Turbo Charger with transport damage
- Operation of the Turbo Charger in non-compliance with environmental conditions
- Operation of the Turbo Charger if the requirements for the installation location are not adhered to
- Use of an adapter between the charging plug and the charging socket on the hybrid or electric vehicle
- Connection of the Turbo Charger in residential areas or to a low-voltage distribution network that (also) supplies residential buildings



The Turbo Charger must be shut down:

- If conditions on site become disadvantageous
- In case of damage due to improper handling

If used improperly or misused, the operating permit for the Turbo Charger will be voided.

Operation of the Turbo Charger without an operating permit is punishable by law.

4.3. Versions

There are 2 versions of the Turbo Charger for operation of the high-performance charging infrastructure. The main feature of the two Turbo Chargers is the different cooling of the charging cable via the secondary cooling circuit.

Turbo Charger with open secondary cooling circuit

The secondary cooling circuit is open to the atmosphere. A 230 V (110 V) submersible pump conveys the coolant from a tank through the charging cable and the heat exchanger back into the tank. The heat exchanger equalizes the temperature between the primary and secondary cooling circuits. The cooling system is depressurized and is not filled when delivered. A canister of coolant is included with the Turbo Charger. The Turbo Charger with open secondary cooling circuit is only used in a charging hub.

Turbo Charger with closed secondary cooling circuit

The secondary cooling circuit is closed to the atmosphere. A 24 V pump conveys the coolant through the charging cable and the heat exchanger. The heat exchanger also equalizes the temperature between the primary and secondary cooling circuits. The cooling system is filled and subjected to a static pressure of 1 to 2 bar (14.50 to 29.01 psi). An expansion vessel ensures pressure equalization.

Filling is not necessary. The cooling system remains closed even when the charging cable is replaced. The Turbo Charger with closed secondary cooling circuit is used both in conjunction with the Charge Box and in a charging hub.



4.4. User interfaces

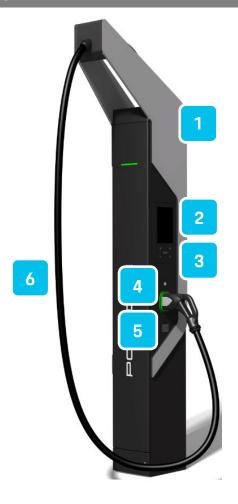


Fig. 7: Turbo Charger, CCS2 version main components

Item	Description
1	Housing with cable guide and connector holder
2	Charge control unit with display
3	RFID field for authentication
4	Charge stop button for interrupting the charging process
5	DC energy meter with viewing window (optional)
6	Charging cable with internal cooling

Table 8: Turbo Charger main components



4.5. Versions overview

Product code	Color	Charging cable	PAG part number	PEG part number	Use
HPD 2110	Black with	Harting CCS1	V04.016.001.G	PEG.B05.600.275.02	CCS1
HPD 2310	lettering		V04.016.001.L	PEG.B05.600.285.03	CCS1 ADA
HPD 2120		Harting CCS2	V04.016.001.H V04.016.001.AN	PEG.B05.600.325.02 PEG.B05.600.325.03	CCS2 without DC energy meter
HPD 2120			V04.016.001.J V04.016.001.AM	PEG.B05.600.475.02 PEG.B05.600.475.03	CCS2 with DC energy meter
HPD 2120			V04.016.002.HL V04.016.001.AP	PEG.B05.600.480.02 PEG.B05.600.480.03	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations
HPD 2020	White		-	PEG.B05.600.400.xx	CCS2 without DC energy meter
HPD 2020	without lettering	-	PEG.B05.600.400.xx DCM	CCS2 with DC energy meter	
HPD 2020			-	PEG.B05.600.400.xx DME	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations

Table 9: Turbo Charger versions for use with the Charge Box



Product code	Color	Charging cable	PAG part number	PEG part number	Use
HPD 1110	Black with lettering	H+S CCS1	-	PEG.A86.600.250.xx POR	CCS1
HPD 1120		Harting CCS1	-	PEG.A86.600.350.xx POR	CCS1 ADA
		H+S CCS2	-	PEG.A86.600.300.xx POR	CCS2 without DC energy meter
			-	PEG.A86.600.300.xx POR DCP	CCS2 prepared for retrofitting a DC energy meter
			-	PEG.A86.600.300.xx POR DCM	CCS2 with DC energy meter
			-	PEG.A86.600.300.xx POR DME	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations
		Harting CCS2	-	PEG.A86.600.400.xx POR	CCS2 without DC energy meter
			_	PEG.A86.600.400.xx POR DCP	CCS2 prepared for retrofitting a DC energy meter
			-	PEG.A86.600.400.xx POR DCM	CCS2 with DC energy meter
			-	PEG.A86.600.400.xx POR DME	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations

Table 10: Turbo Charger versions for use in charging hub (black)



Product code	Color	Charging cable	PAG part number	PEG part number	Use
HPD 1020	White without	H+S CCS2	-	PEG.A86.600.300.xx	CCS2 without DC energy meter
	lettering		-	PEG.A86.600.300.xx DCP	CCS2 prepared for retrofitting a DC energy meter
			-	PEG.A86.600.300.xx DCM	CCS2 with DC energy meter
			-	PEG.A86.600.300.xx DME	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations
		Harting CCS2	-	PEG.A86.600.400.xx	CCS2 without DC energy meter
			-	PEG.A86.600.400.xx DCP	CCS2 prepared for retrofitting a DC energy meter
			-	PEG.A86.600.400.xx DCM	CCS2 with DC energy meter
			-	PEG.A86.600.400.xx DME	CCS2 with DC energy meter and conformity assessment for the Turbo Charger in accordance with German measurement and calibration regulations

Table 11: Turbo Charger versions for use in charging hub (white)



4.6. Type plate

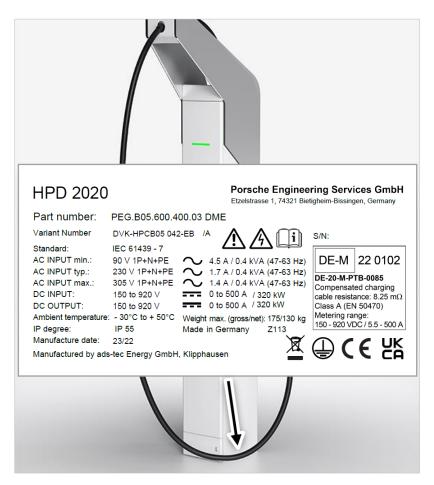


Fig. 8: Example: Turbo Charger type plate (version with closed secondary cooling circuit)



4.7. Technical data

Description	Value	Remarks
Display	1280 x 800 pixels, IPS panel	10" touch-screen display (suitable for outdoor light)
Authentication	-	ISO15118 Plug & Charge, RFID (ISO 14443 A and B, MIFARE Classic / Desfire)
Lighting	-	Active ambient lighting, illuminated connector holder
Status display	-	LED display for charging status
Charge stop	-	Charge stop button for immediate termination of the charging process
Energy measurement	-	Calibrated DC energy meter (optional)
Charging cable	-	Internal liquid cooling
Charging plug	-	CCS1 (US), CCS2 (EU)
Cable length	3.8 m (12.47 ft)	Without ground contact when connected
Communication	-	Pilot function for charging mode 4 / Power line communication (PLC)
Safety	-	Break-sensor (for shutting down if the Turbo Charger is knocked over) / charge stop button
Degree of protection	IP55 (NEMA 3R)	-
Impact resistance	IK08	IEC 62262
Noise emissions	-	Minimum noise, no outlet of cooling air

Table 12: Technical data Version



	Turbo Charger with closed secondary cooling circuit	Turbo Charger with open secondary cooling circuit	
Description	V	'alue	Remarks
AC input minimum	90 V 1P+N+PE ~ 4.5 A (47 – 63 Hz)	-	-
AC input typical	277 V 1P+N+PE ~ 1.5 A (47 – 63 Hz)	110 V 1P+N+PE ~ 12 A (60 Hz)	CCS1
	230 V 1P+N+PE ~ 1.7 A (47 – 63 Hz)	230 V 1P+N+PE ~ 6 A (50 Hz)	CCS2
AC input maximum	305 V 1P+N+PE ~ 1.4 A (47 – 63 Hz)	-	-
DC input	150 – 950 V		-
DC output	150 – 950 V		-
Maximum charging current	500 A		-
Additional supply	110/230/277 V *	-	* Switchover not required due to wide range input 90 – 305 V
		110 V	CCS1
		230 V	CCS2
Lightning protection modules	Combined lightning current and surge arrester type I, type II for DC, AC and communication cables (EN 61643-11) or class 1 (IEC 61643-11)		-

Table 13: Electrical technical data



RFID reader	Description	Value	Remarks
ELATEC TWN4 MultiTech	Frequency band, bandwidth	13.56 MHz, 1.7 MHz	
Hardware; software: T4DO-F; E/B1.06/CKF1.64/STD1.07	Maximum transmission power	-	Not applicable (no electromagnetic transmission).
HPD 2310: T4BT-FB2BEL2;	Maximum antenna output power	13.9 mW, 11.4 dBm	Rout 20 Ω , RL 50 Ω , U0pp = 3.3 V
B/B1.08/NKE3.08/STD2.01		HPD 2310: 55.6 mW, 17.4 dBm	Rout 20 Ohm, RL 50 Ohm, U0pp = 6.6 V
	User authentication	-	Integrated RFID reader with MIFARE NFC chip complying with ISO / IEC 14443A / B, ISO / IEC 15693, ISO / IEC 18092

Table 14: Technical data for RFID reader



Description	Value	Remarks
Maximum installation height	2000 m above sea level (6562 ft amsl)	-
Ambient atmospheric pressure	860 – 1060 hPa (12.47 – 15.37 psi)	_
Ambient temperature	Storage: -40 – +158 °F	US version with CCS1 charging plug
	Operation: -22 – +122 °F	
	Storage: -40 – +70 °C	EU version with CCS2 charging plug
	Operation: -30 - +50 °C	
Installation	Outdoor installation	Shading of the Turbo Charger and the parking area is recommended.
Option	Calibrated with DC energy meter	-
	With DC energy meter and conformity assessment in accordance with German Measurement and Calibration Act	-
Colors	Signal white RAL 9003	-
	Jet black RAL 9005	-

Table 15: Technical data for Turbo Charger



4.8. Information on financial electricity billing in Germany (Germany only)

No measured values may be used for official or commercial transactions without an assessment of conformity with calibration regulations or without a measurement marking on the Turbo Charger.

You can obtain further information from the national supervisory authority in your country.

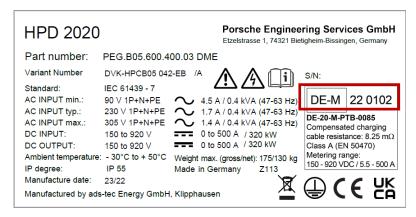


Fig. 9: Example: Turbo Charger type plate with metrology classification



5. Installing the Turbo Charger

5.1. Requirements for the location of the Turbo Charger

The Turbo Charger may not be installed in:

- Areas with risk of explosion
- Areas at risk of flooding
- Areas at risk of sandstorms
- · Permanently or provisionally secured flooding areas
- Enclosed spaces without ventilation



Enclosed spaces must be adequately ventilated to enable dissipation of the waste heat generated when charging the high-voltage batteries in hybrid and electric vehicles.

To keep the thermal load on the Turbo Charger low, a location with low sunlight is recommended.

The Turbo Charger may only be installed in locations that satisfy the following environmental conditions:

- Biological environmental conditions: Up to class 3B1
 - Operating locations with no particular risk of biological environmental influences.
 - Protective measures such as special product design and appropriate measures at the operating location to counteract mold growth or the influence of animal pests.
- Chemically active substances: Up to class 3C2
 - Operating locations where air pollution is currently common, as occurs
 in densely populated areas where industrial facilities are distributed
 across the entire area, or with a high traffic density.
- Mechanically active substances: Up to class 3S2
 - Operating locations without special measures to reduce the amount of sand or dust. However, these operating locations are not situated close to sand or dust sources.
- Mechanical environmental conditions: Up to class 3M1
 - The class is intended for operating locations where no effective vibrations or impacts occur.

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The environmental conditions are classified in the IEC 60721-3-3:2019 standard.

The installation locations for the individual components of the high-performance charging infrastructure are defined in an installation plan. The location Turbo Charger must satisfy the following conditions:

- Escape routes must be kept clear at all times.
- The installation location must be freely accessible at all times.
- For transport routes, minimum clearances of 1.20 m (3.94 ft) (or statutory specifications applicable on site) must be complied with.

During installation of the Turbo Charger, sufficient height clearance must also be ensured depending on the lifting gear used.



5.2. General installation instructions



Observe the following instructions for installation of the Turbo Charger:

- Electrically conductive connections and cables must be installed so they are contact-proof.
- No open/accessible wires/lines may be left behind.
- No loose components, tools or materials may be left behind.

The Turbo Charger must be connected to a grounding network. It must be ensured that work on grounding systems is at least supervised and accepted by an electrician and lightning protection specialist with appropriate training.

Transmission of overvoltages through the ground can result in active charging processes being aborted. In this case, the charging process must be restarted.

5.3. Tools and equipment

The standard tools listed below are required to install the Turbo Charger.

Tool, equipment	Specification
Screwdriver set	-
Socket set	-
Set of ring and open-ended wrenches	-
Set of Allen keys	-
Set of Torx keys	-
Long nose pliers	-
2 water pump pliers	2"
2 parallel pliers	-
2 torque wrenches	For tightening torques of 0.5 – 120 Nm (4.43 – 1062.10 in.lb)
Tool for installing electrical cables	-

Table 16: Standard tools



The tools and equipment listed below are required for assembly and installation of the Turbo Charger.

Tool, equipment	For activity	Specification
Spirit level	Checking the condition of the Turbo Charger	-
Step ladder	Installing the Turbo Charger	-
Crane incl. slings and slack	Lifting the Turbo Charger on a crane	Required load capacity: see section 5.4.1
Special tools for installing electrical cables	Electrical installation	Up to cable cross-section 300 mm² (500 kcmil)
Pressing tool for tube crimping lugs (for ultrafine-wire cables)	Electrical installation	For mandrel pressing
Pressing tool for wire end sleeves (for fine-wire cables)	Electrical installation	_
Collet for grounding straps	Electrical installation	-
Multimeter, voltage and phase tester, impedance meter	Electrical installation	-
Laser pointer	Electrical installation, testing fiber optic cables	-
Notebook, commissioning software	Commissioning	-

Table 17: Installation tools and equipment



The tools and equipment listed below are required for the pressure test after installation of the cooling system.

Tool, equipment	Specification
Safety goggles and safety gloves	-
Tools and equipment for Charge Box pressure test	
Test connection for pressure test	1/4" connection
Air compressor for pressure testing and cleaning	1/4" connection
Digital manometer for pressure test	-

Table 18: Special tools and equipment for cooling system pressure test

High-performance charging infrastructure for charging hub

The CoolingBox indicates the pressure in the cooling system using a manometer. On devices manufactured by Technotrans, the pressure can also be read off on the start screen.

To mix the coolant and fill the cooling system, you will require the tools, equipment, and operating materials listed below.

Tools, equipment, operating materials	Specification
Safety goggles and safety gloves	-
Coolant	GLYSANTIN® G40®
	Distilled water
Pump	With flow meter
Mixing vessel for coolant	Plastic drum of sufficient size
Agitator with stirring attachment	For fluid, aqueous solutions
Refractometer for testing the pH value	-

Table 19: Tools, equipment, and operating materials for filling the cooling system



5.4. Transporting the Turbo Charger

5.4.1. Dimensions and weights

Dimensions with packaging	Value
Outer width	620 mm (24.41 in)
Outer height	1070 mm (42.13 in)
Outer length	2840 mm (111.81 in)

Table 20: Dimensions

Weight	Turbo Charger with open secondary cooling circuit	Turbo Charger with closed secondary cooling circuit
Turbo Charger without packaging	125 kg (275.58 lb)	135 kg (297.62 lb)
Packaging	50 kg (110.23 lb)	55 kg (121.25 lb)

Table 21: Charge Box version weights

5.4.2. Storage and transportation information

NOTICE

Damage to property due to improper storage and transportation.

The Turbo Charger is packed in a heavy-duty cardboard box. It must be transported horizontally using a lift truck or forklift.

- Only transport the heavy-duty cardboard box containing the Turbo Charger horizontally.
- > Do not place the heavy-duty cardboard box containing the Turbo Charger vertically. The heavy-duty cardboard box is not designed for this.
- Only store the heavy-duty cardboard box containing the Turbo Charger in dry conditions. Pay attention to the instructions on the heavy-duty cardboard box.
- ➤ Protect the heavy-duty cardboard box from rain and moisture. The heavy-duty cardboard box is not water resistant.
- ➤ Do not store more than 2 heavy-duty cardboard boxes containing Turbo Chargers lying on top of one other.



5.4.3. Transportation with lift truck/forklift



CAUTION



Risk of injury due to trapping, crushing.

The heavy-duty cardboard box and Turbo Charger can slip off or tip over during transportation, trapping or crushing fingers, hands, or feet.

- > Wear safety shoes and protective gloves.
- ➤ Ensure that the heavy-duty cardboard box is standing securely on the means of transport.
- > Do not reach or step under the raised heavy-duty cardboard box.
- ➤ During transportation, carefully guide the heavy-duty cardboard box along with 2 other people.

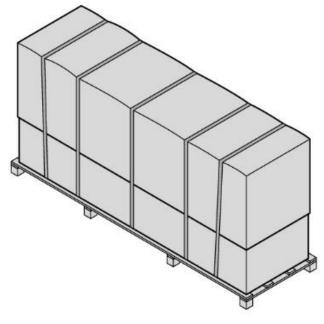


Fig. 10: Turbo Charger in heavy-duty cardboard box

- Only transport the heavy-duty cardboard box containing the Turbo Charger horizontally.
- Use a lift truck or forklift.
- ➤ Observe the minimum lifting capacity of the lifting gear (see section 5.4.1).



5.5. Unpacking the Turbo Charger and checking the contents

- Cut through the tensioning straps.
- > Remove the edge protectors.
- Open the heavy-duty cardboard box and lift off the lid with another person.
- > Remove the box of small parts from the heavy-duty cardboard box.
- ➤ Leave the transport supports for the charging cable on the Turbo Charger.
- If the charging cable is not supported, the seal on the charging cable can be pulled out on the boom and then would have to be positioned again, which is a complex procedure.



To protect the environment, dispose of all packaging materials properly, in accordance with the applicable local environmental regulations. Hand over any residual materials to a certified specialist disposal company.

The Turbo Charger is supplied with the following components:

- Turbo Charger
- 1 triangular wrench for the service flap
- 2 screw plugs with sealing rings
- 4 M16x40 metric screws with washers for attaching the Turbo Charger to the foundation
- Ground terminal
- 1 canister with 4 I (1.06 gal) coolant (Turbo Charger with open secondary cooling circuit)
- Maintenance and service instructions
- Electrical circuit diagram
- > Check that the items supplied are complete and in perfect condition.
- Do not use the Turbo Charger if you notice that parts are missing or damaged.



The Turbo Charger for a charging hub is not supplied with a locking cylinder and keys for the door. The locking cylinder has to be retrofitted. Because of the wide range of configuration options, locking systems cannot be kept in stock.



5.6. Preparing for installation

5.6.1. Checking requirements at the installation location

- ➤ Use the spirit level to check whether the installation area for the Turbo Charger is level and horizontal.
- Make sure that the following requirements for the Turbo Charger installation location are met:
 - The height difference between the installation location of the Charge Box and that of the Turbo Charger is not more than 8 m (26.25 ft).
 - The Turbo Charger installation location is a maximum of 1.5 m (4.92 ft) higher or 2.0 m (6.56 ft) lower than the cooling unit installation location.
 - The foundation has the required dimensions according to the layout plan.
 - The threaded inserts in the foundation are clean.
 - The rubber compression seal is installed in the correct position in the foundation, or the Turbo Charger has been protected against ingress of moisture by other means.
 - The DC cables have been routed through the rubber compression seal or the seal created by other means in the correct order (DC+ front, DC- rear).

- The intended installation area is horizontal, clean, and dry.
- A ground connection installed and tested in compliance with the regulations is provided (observe national regulations).
- The stop threshold for the Turbo Charger has been taken into account/implemented in the necessary way (distance from the Turbo Charger approx. 1.0 m (3.28 ft)).



5.6.2. Checking the supply line installation



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

The supply lines and their underground installation must be designed in accordance with the applicable local laws, standards and directives.

- Disconnect the charging infrastructure from the power supply.
- > Check that it is disconnected to prevent residual voltages.
- Check whether the following requirements for the supply lines to the Turbo Charger are met:
 - All required supply lines are provided.
 - The supply lines are installed in the required manner.
 - The supply lines are positioned in the correct order.
 - The supply lines have the necessary length for routing to or into the Turbo Charger housing.
 - The supply lines are undamaged and clean.
- If you identify any damage or variation from the requirements in the installation, ensure that they are rectified.



Line	Description
DC cable	Single cable with cable lug M16 Maximum 300 mm² (500 kcmil) cross-section
AC power supply	L/N/PE 2.5 – 6 mm² (AWG 14 – 10) cross-section (fine-wire cables with wire end sleeve)
Equipotential bonding	Single cable Maximum 16 mm² (AWG 6) cross-section
PE ground rod	Ground rod 20 mm (0.79 in) diameter
Pilot cable	Shielded PVC control cable 2 x 1.5 - 2.5 mm² (2 x AWG 16 - AWG 14) cross- section (fine-wire cables with wire end sleeves)
Ethernet connection cable (communication cable)	Fiber optic Ethernet ground cable with LC connector OM3 50/125 μm, 850 nm LC/LC

Table 22: Specifications for supply lines to Turbo Charger

Line	Description
Charge Box version coolant lines	The connections for the coolant lines in the Turbo Charger have external threads. The coolant lines to the Turbo Charger must be installed with R1" connections (thread sealing), inner thread with union nut in stainless steel or brass.
Charging park version coolant lines	The connections for the coolant lines in the Turbo Charger have external threads. The coolant lines to the Turbo Charger must be installed with R1¼" connections (thread sealing), inner thread with union unit in stainless steel, nickel plated brass or bare brass (maximum pressure: 6 bar (87 psi)).

Table 23: Specifications for coolant lines to the Turbo Charger



5.6.3. Checking the ambient conditions on site

- ➤ Make sure that the following environmental conditions for installing the Turbo Charger are met:
 - There is no wind or only weak wind up to wind strength 3 (up to 15 km/h (9.3 mph)).
 - The foundation is dust-free, smooth and dry.
 - No precipitation is to be expected for the entire duration of all work.
 Alternatively, you can provide weather protection in bad weather conditions.
 - The ambient temperature is -20 to +40 °C (-4 to +104 °F).

5.7. Turbo Charger setup

5.7.1. Setting up the safety area

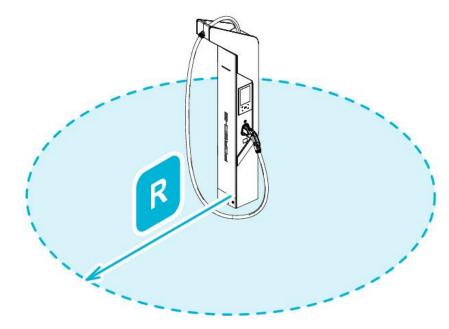


Fig. 11: Safety area for installing the Turbo Charger

➤ Cordon off a safety area with a radius (R) of around 3 m (9.84 ft) around the Turbo Charger installation location.



5.7.2. Standing up and lifting the Turbo Charger



WARNING



Risk of injury due to falling loads.

Falling loads can cause severe injuries that can result in death.

- > Wear a safety helmet.
- Never stand under raised loads.
- > Use suitable lifting gear, load attachments, and slings.
- > Only lift the load using the transport eyelets and sling points provided.



WARNING



Risk of injury from tipping Turbo Charger.

As long as the Turbo Charger is not securely connected to the foundation, it can tip over.

Tipping of the Turbo Charger can cause severe injuries that can lead to death.

Keep the Turbo Charger attached to the lifting gear until the base plate is securely bolted to the foundation.

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CAUTION



Risk of injury due to trapping, crushing.

When standing up the Turbo Charger out of the heavyduty cardboard box, fingers, hands, or feet can become trapped between the Turbo Charger and the floor.

- Wear safety shoes and protective gloves.
- > Do not reach or step under the Turbo Charger.
- ➤ When moving the Turbo Charger using a crane, carefully guide it with 2 other people.

NOTICE

Damage to property due to unsuitable slings.

The eyelets in the roof of the Turbo Charger are designed for vertical tensile forces. Very short slings forms a triangle of forces, which causes the eyelets to be pulled together excessively.

> Observe the minimum sling lengths of 1 m (3.28 ft).

NOTICE

Damage to property due to kinking or twisting of the charging cable.

The charging cable is liquid-cooled. It contains the high-voltage cables for energy transmission and the coolant lines.

Rotation of the charging cable about its own axis must not exceed $\pm 50^{\circ}$. The bending radius of the charging cable must not fall below the minimum of 200 mm (7.87 in). Otherwise, the charging cable may be damaged.

- ➤ Make sure that the charging cable is not kinked or twisted during installation of the Turbo Charger.
- Avoid tensile loads on the charging cable.





Only use textile slings in conjunction with shackles for transporting using a crane. The slings are very flexible and can adjust to the contours of the load to be lifted.

Observe the nominal load capacity of the slings and select them based on the total weight to be lifted.

Pay attention to the maximum slinging angle of 45° when transporting using a crane and using the slings. With larger slinging angles, there is a risk that the eyelets will be pulled together, causing damage to the roof of the Turbo Charger.

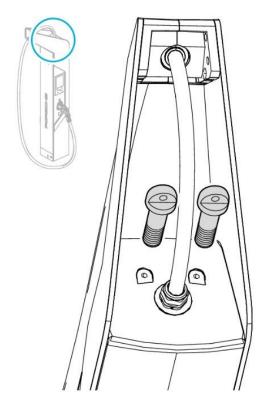


Fig. 12: Installing the eyelets

➤ If necessary, replace the sealing plugs (including seal) in the roof of the Turbo Charger with the eyelets supplied.



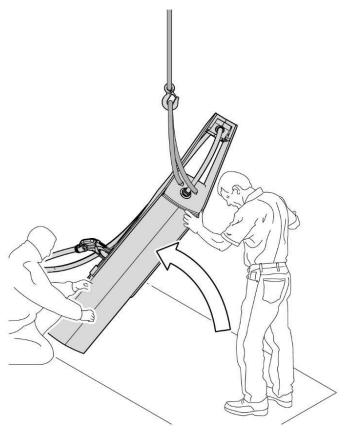


Fig. 13: Lifting the Turbo Charger on a crane

- Attach suitable slings to the eyelets.
- Protect the charging cable bracket against scratching by the slings with a suitable protective element (e.g. edge protection).
- Wear non-abrasive gloves to protect the surface of the Turbo Charger.
- Lift the Turbo Charger slowly and carefully out of the heavy-duty cardboard box using the lifting gear.
- Ensure that the charging cable is held by another person.
- ➤ Have another person open the heavy-duty cardboard box at the base of the Turbo Charger, and then secure the Turbo Charger on the base plate to prevent slipping during lifting.
- > Raise the Turbo Charger slowly and carefully with the lifting gear.
- > Transport the Turbo Charger to the installation location.
- > Remove the protective mat from the Turbo Charger.
- Guide the charging cable under the bracket and set it down.



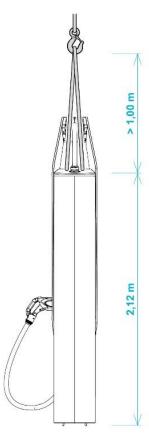


Fig. 14: Turbo Charger on lifting gear

> Suspend the Turbo Charger above the foundation.

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5.7.3. Opening the Turbo Charger service flap



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger service flap, fingers or hands can be trapped between the service flap and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the service flap and the housing of the Turbo Charger.

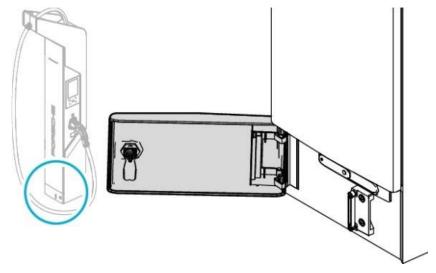


Fig. 15: Opening the Turbo Charger service flap

- Unlock the Turbo Charger service flap using the triangular wrench.
- Open the Turbo Charger service flap.



5.7.4. Opening the Turbo Charger door



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.

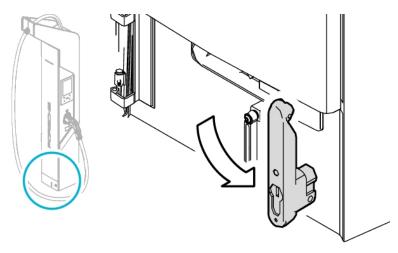


Fig. 16: Unlocking the Turbo Charger door

- Press against the door with one hand at the height of the connector holder to compress the door seal and ease the strain on the closing hooks.
- > Pull out the swivel handle.
- Carefully turn the swivel handle down.
- The Turbo Charger door is unlocked.



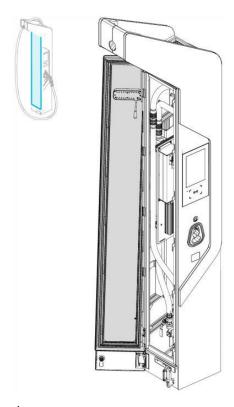


Fig. 17: Opening the door

Open the Turbo Charger door.



5.7.5. Sealing and positioning the Turbo Charger



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.

> Guide the supply lines through the base plate of the Turbo Charger to the connections and connection points.

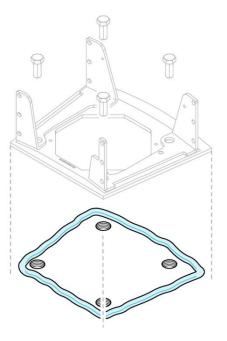


Fig. 18: Sealing the Turbo Charger

- > Apply the polysulfite sealant to the foundation.
- The polysulfite permanently seals the base plate of the Turbo Charger against the foundation. The sealing bead must be closed and incorporate the attachment points.

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CAUTION



Risk of injury due to trapping, crushing.

When setting down the Turbo Charger on the foundation, fingers, hands, and feet can be trapped between the Turbo Charger and the floor.

- > Wear safety shoes and protective gloves.
- > Do not reach or step between the Turbo Charger and the foundation.
- ➤ Carefully guide the Turbo Charger onto the foundation along with 2 other people.

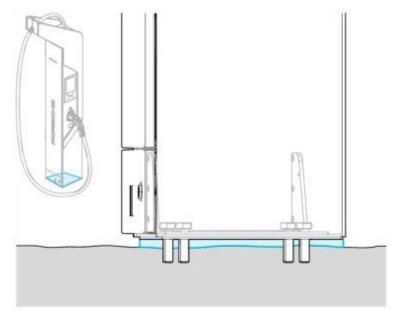


Fig. 19: Sealing the Turbo Charger

> Carefully set down the Turbo Charger on the foundation.



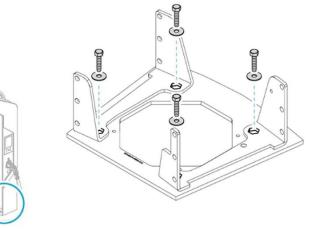
CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



Bolting Turbo Charger onto foundation Fig. 20:

- > Attach the Turbo Charger to the foundation with the metric M16x40 screws and washers.
- The Turbo Charger must still be able to move. The bolts are tightened to the final tightening torque later.



5.7.6. Aligning the Turbo Charger



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

NOTICE

Escaped coolant can harm the environment.

In the event of damage to the cooling system inside the Turbo Charger, the coolant can escape. Severe environmental damage is possible if the coolant enters the sewer system, surface or ground water.

- ➤ Make sure that the Turbo Charger has a water-tight seal to the foundation.
- ➤ After aligning the Turbo Charger on the foundation, check the condition of the seal and, if necessary, repair it.

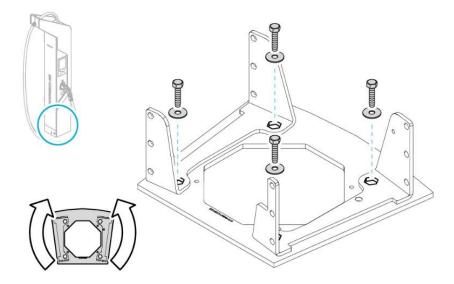


Fig. 21: Horizontal alignment of the Turbo Charger

- > Align the Turbo Charger horizontally by moving it.
- Wear non-abrasive gloves to protect the surface of the Turbo Charger.



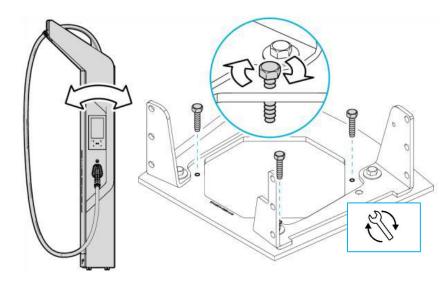


Fig. 22: Aligning the Turbo Charger vertically

- Align the Turbo Charger vertically by screwing in or unscrewing the metric
 M8 screws in the Turbo Charger base plate.
- The metric M8 screws are not included.
- Check the alignment of the Turbo Charger using a spirit level.
- Place stainless steel washers between the base plate of the Turbo Charger and the foundation to secure the alignment.
- > Tighten the 4 metric M16x40 screws to 40 Nm (354.03 in.lb).



5.7.7. Removing the eyelets on the Turbo Charger



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- ➤ Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- Ensure that the ladder and platform are standing securely.



The seals of the screw plugs must always be replaced after unscrewing the screw plugs.

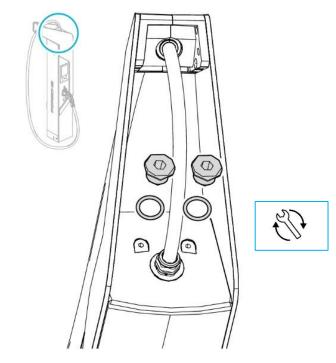


Fig. 23: Removing the eyelets on the Turbo Charger

- Remove the eyelets from the roof of the Turbo Charger and replace them with the screw plugs supplied (tightening torque: 3 Nm (26.55 in.lb).
- Keep the eyelets in a safe place.



5.8. Installing the Turbo Charger locking system

The individual components of the high-performance charging infrastructure are not supplied with a locking system, as the items supplied depend on their configuration. The locking system must comply with DIN 18252/EN 1303 and must be installed later.

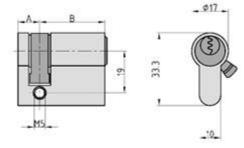


Fig. 24: Lock cylinder

- Remove the swivel handle, see section: 9.14.
- Insert the key into the short side of the lock cylinder.
- Turn the key in the lock cylinder until the bar is aligned with the locking cylinder.
- Insert the lock cylinder into the key hole in the swivel handle from the outside (with the long side).
- Align the lock cylinder with the hole in the swivel handle.
- Screw the M5 screw into the lock cylinder.
- Turn the key and pull it off.

Dimension	Value
А	10 mm (0.39 in)
В	30 mm (1.18 in)

Table 24: Lock cylinder dimensions



5.9. Electrically connecting the Turbo Charger



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.
- Before carrying out any work on the electrical system, check that it is deenergized.
- > If necessary, switch off the power to the electrical system.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



5.9.1. Connecting the grounding point to the Turbo Charger

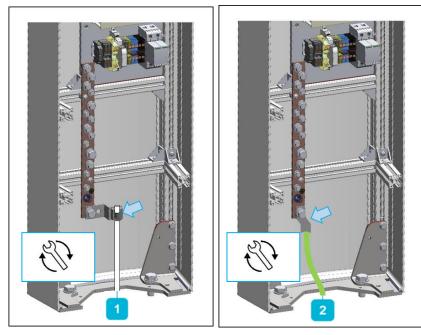


Fig. 25: Turbo Charger grounding point / equipotential bonding

Depending on the grounding concept used, the Turbo Charger can be grounded using a ground rod (1) (diameter 20 mm (0.79 in)) or a equipotential bonding cable (2) (cross-section 16 mm² (AWG 6)).

Connecting the ground rod (1)

- ➤ Position the ground rod (1) on the ground rod clamp on the lower equipotential bonding bar.
- Attach the ground rod clamp to the lower equipotential bonding bar using the M10 metric screw.
- > Tighten the M10 metric screw on the lower equipotential bonding bar to a tightening torque of 30 Nm (265.52 in.lb).

Connecting the equipotential bonding cable (2)

- Route the equipotential bonding cable (2) to the grounding point on the lower equipotential bonding bar.
- > Trim the equipotential bonding cable (2) as required.
- > Strip the cable end.
- Press a tube cable lug (hole diameter 10.5 mm (0.42 in)) onto the cable end.
- Position the equipotential bonding cable (2) on the lower equipotential bonding bar.
- Attach the equipotential bonding cable (2) to the lower equipotential bonding bar using the M10 metric screw.
- > Tighten the M10 metric screw on the lower equipotential bonding bar to a tightening torque of 30 Nm (265.52 in.lb).



5.9.2. Connecting the AC power supply

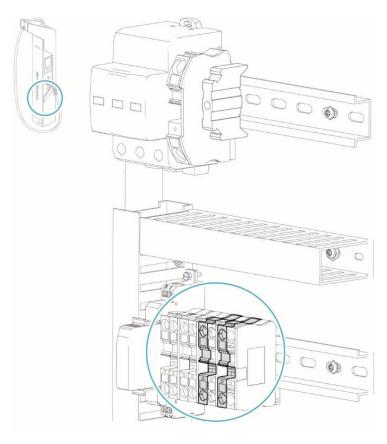


Fig. 26: Installing the AC power supply

- > Route the AC power supply to the connection point and trim as required.
- > Fit fine-wire cables with wire end sleeves.



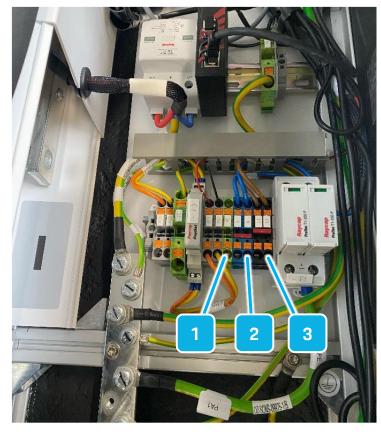


Fig. 27: Connecting the AC power supply

- Connect the PE cable.
- > Connect the N cable.
- Connect the L1 cable

Item	Description
1	PE cable connection
2	N cable connection
3	L1 cable connection

Table 25: AC power supply assignment



5.9.3. Connecting the communication cable

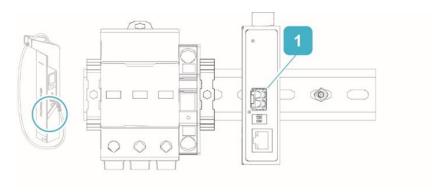


Fig. 28: Connecting the communication cable



Handle fiber optic cables with the utmost care.

Observe the maximum bending radius of 35 mm (1.38 in).

- Connect the communication cable to the media converter.
 - Upper LC port: Tx
 - Lower LC port: Rx

ltem	Description
1	Communication cable connection

Table 26: Connecting the communication cable



5.9.4. Connecting the pilot cable

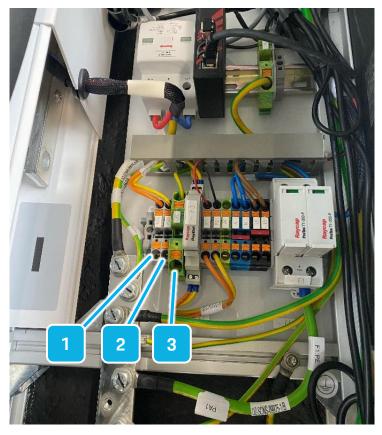


Fig. 29: Connecting the pilot cable

- Position the ground terminal next to the overvoltage protection switch on the DIN rail.
- > Route the pilot cable to the connection point.
- > Trim the pilot cable as required.
- Strip the ends of the pilot cable.
- Fit fine-wire cables with wire end sleeves.
- Disconnect the shielding from the single conductors.
- Insulate the shielding with a heat shrink tube.
- > Connect the pilot cable.
- Connect the shielding to the ground terminal.

Item	Description
1	Pilot 1 to Pi10 connection
2	Pilot 2 to Pi20 connection
3	Ground terminal connection

Table 27: Connecting the pilot cable

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5.9.5. Connecting DC cables

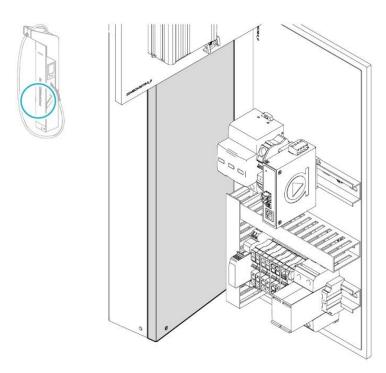


Fig. 30: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.



On Turbo Chargers with a DC energy meter and conformity assessment in accordance with German measurement and calibration regulations, every busbar duct cover must be secured with a cable tie. In addition, seals are applied to the center and upper covers.

The seals are destroyed when removing the covers from the busbar duct and must be replaced by the maintenance company engaged.



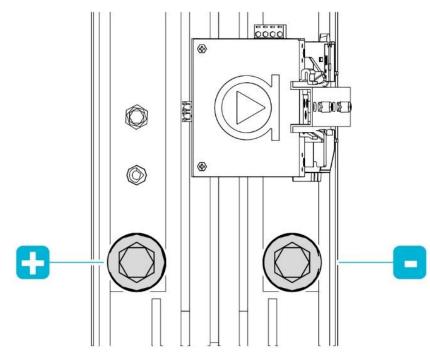


Fig. 31: DC rail polarity



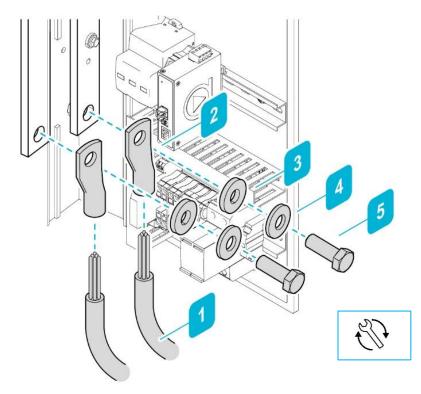


Fig. 32: Connecting the lower DC cables

- Unscrew the screws and remove them along with the spring washers and washers.
- \triangleright Apply MoS₂grease to the screw threads.
- > Route the DC cables to the connection points.

- > Trim the DC cables as required.
- > Strip the ends of the cable.
- > Press the cable lugs onto the cable ends.
- Insulate each of the connecting points with a heat shrink tube.
- Clean the contact surfaces of the DC cables on the busbars.
- Position the DC cables at the cable connections and secure them with the screws.
- Make sure that the cable lugs on the DC cables have direct contact with the busbar.
- > Tighten the screws to a tightening torque of 120 Nm (1062.10 in.lb).

Item	Description
1	DC cable
2	Cable lug
3	Washer
4	Spring washer
5	Screw

Table 28: Connecting DC cables



> Check the tightening torques of the live screw connections on the busbars.

Description	Tightening torque
Power cable connection M8	15 Nm (132.76 in.lb)
Power cable connection M10	30 Nm (265.52 in.lb)
Copper bridge M8	15 Nm (132.76 in.lb)
DC cable to busbar M16	120 Nm (1062.10 in.lb)
DC energy meter M4 (optional)	2 Nm (17.70 in.lb)

Table 29: Busbar tightening torques

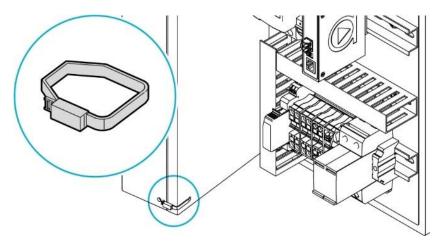


Fig. 33: Attaching the busbar duct cover

- > Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- > Secure the lower cover with a cable tie.



5.10. Setting up the cooling circuit



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention.
 - Present the packaging or label.
- > Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.

Protective equipment	Specification
Safety goggles and safety gloves	-

Table 30: Protective equipment

5.10.1. Cleaning the coolant lines

NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Carefully clean the coolant lines in the system.

Perform each of the following steps individually for each connection:

- ➤ Carefully clean the protective cap and the hose over the entire accessible length before removing the protective cap.
- > Detach the protective cap from the hose.
- Repeat the cleaning at the end of the hose (outside and inside).
- > Connect the hose immediately without setting it down.
- > Repeat the steps on each additional hose.



5.10.2. Connecting the coolant lines

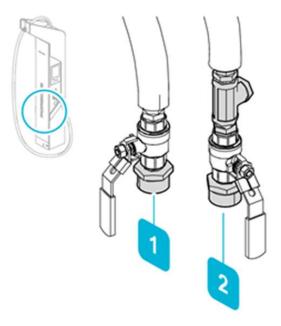


Fig. 34: Coolant lines (Charge Box Turbo Charger)

Item	Description
1	Coolant feed line
2	Coolant return line

Table 31: Coolant lines (Charge Box Turbo Charger)

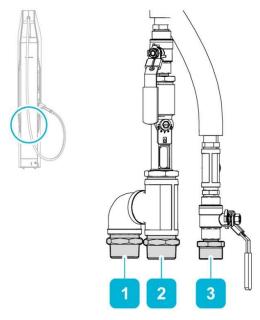


Fig. 35: Coolant lines (charging hub Turbo Charger)

Item	Description
1	Coolant feed line (bypass for adjacent Turbo Charger)
2	Coolant feed line
3	Coolant return line

Table 32: Coolant lines (charging hub Turbo Charger)



- Position the coolant lines at the connection points.
- > Trim the coolant lines accordingly.
- > Seal the thread with a suitable sealant.
- Connect the coolant lines.
- Open the ball valves.
- Perform a leak test on the cooling system in accordance with the manufacturer's specifications.

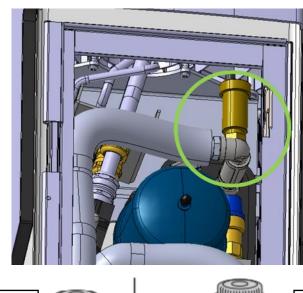
5.10.3. Leak test information

In the Turbo Charger, a quick bleed valve is fitted on the upper return line for bleeding the primary cooling circuit.

For the leak test with air, the black cap on the quick bleed valve must be screwed in. The quick bleed valve is then closed. Air can no longer escape.

After the leak test with air, the black cap on the quick bleed valve on a Turbo Charger for the charging park must be unscrewed again by 2 to 3 turns. Automatic bleeding is then active again.

For Turbo Chargers that are connected to the Charge Box, the black cap on the quick bleed valve can remain closed. The open cooling system does not need to be bled.



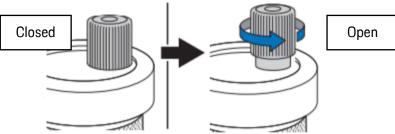


Fig. 36: Quick bleed valve

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6. Commissioning the Turbo Charger

The Turbo Charger is a high-performance charging infrastructure component. Commissioning and the functional test can only be carried out as part of the overall concept and the system provider is responsible for complying with all the specifications for the individual components.

Prerequisites for commissioning:

- All electrical cables are connected to the Turbo Charger.
- All communication cables are connected to the Turbo Charger.
- All coolant lines are connected to the Turbo Charger.

Perform commissioning of the high-performance charging infrastructure in accordance with the system provider's instructions once all requirements are met (see documentation: Charge Box or charging park).



Fig. 37: Silica gel bag 500 g

- Only unpack the silica gel bag from its packaging shortly before commissioning the Turbo Charger.
- Place the silica gel bag at the top between the charging cable cooling unit and the mounting plate.
- The white side must point towards the cooling unit.



- ➤ Check the flow of coolant through the Turbo Charger (charging park (see section 8.12).
- Contamination in the coolant lines impairs the flow rate of coolant and thus the cooling capacity.



Cleaning and care

NOTICE

Damage due to ingress of water.

Ingress of water damages the electronics inside the Turbo Charger.

In the event of water ingress, the Turbo Charger switches off automatically.

> Do not clean the Turbo Charger using a high-pressure cleaner.

NOTICE

Damage to the display due to unsuitable cleaning agents.

Abrasive, acidic, or alkaline cleaning agents can damage the surface of the display.

- > Clean the display with a soft fleece cloth.
- ➤ Use suitable cleaning agents, e.g. a mixture of 80 % alcohol and 20 % water, glass cleaner, or diluted spirit.

Light contamination:

- Clean the housing of the Turbo Charger from outside with water and a non-abrasive neutral cleaner or a suitable cleaning agent for hard painted surfaces.
- Polish the housing of the Turbo Charger with high gloss polish.

Coarse contamination of bracket:

- ➤ Clean the housing of the Turbo Charger from outside several times as required with water and a non-abrasive neutral cleaner or a suitable cleaning agent for hard painted surfaces.
- > Polish the housing of the Turbo Charger with high gloss polish.
- Polish the brackets on the Turbo Charger with matting paste.



Replace the seals every 3 to 6 months, depending on environmental and weather influences.



8. Maintenance

Various testing, cleaning, and maintenance work must be carried out at regular intervals. These activities may only be carried out by qualified specialist personnel with specialist training and equipment-specific training.

Many of the testing, cleaning, and maintenance tasks must be carried out with the door and service flap open. During all activities inside the Turbo Charger, there is a risk of death due to electric shock if the power supply is not switched off and live parts are touched.

To test the sensors in the Turbo Charger, it may be necessary to switch on the power supply.

8.1. Information on official calibration regulations (Germany only)

The information in this chapter describes the legal situation in Germany in accordance with the German Measurement and Calibration Act (MessEG) dated 11/20/2019 and the Measurement and Calibration Regulations (MessEV) dated 4/28/2020.

Please also observe the information provided by your national authority.

Some of the activities described in the following chapters relate to assemblies that are essential for the measurement features of the Turbo Charger. One or more safety marks (seals) are attached at the corresponding points, which have to be destroyed to enable the activities described to be performed. Intervention can thus be verified. As defined in Section 37 (2) of the German Measurement and Calibration Act, these activities may influence the measurement properties of the Turbo Charger.

To ensure that the calibration interval does not end prematurely as a result of these activities, which would mean that the Turbo Charger (not calibrated) could not be used as a measuring instrument, the manufacturer recommends that these activities are carried out in accordance with Section 37, Para. 5 of the German Measurement and Calibration Act, by an authorized repair company as set out in Section 54 of the German Measurement and Calibration Regulations.

The manufacturer is responsible for making contact with these repair companies.



8.2. Disconnecting, contacting the electrical system

In order to operate safely, the primary energy source to which the Turbo Charger is connected must be switched off.

DANGER!



Danger to life due to electrical voltage!

Severe injuries due to electric shock or burns are possible, which can result directly in death. When working on the electrical system, the relevant areas of the high-power charging infrastructure must be disconnected from the power supply.

- Make sure that the system is always disconnected from the power supply, voltage-free and secured against inadvertently being switched on during all work.
- Disconnect all poles of live supply lines and secure them against being switched on again.
- ➤ Wait approx. 5 minutes after switching off the power supply before working on the electrical system.
- Determine the absence of voltage on the supply lines through measurements.
- Earth the supply lines and short them.
- Cover or shield adjacent live parts.

8.2.1. Opening, closing the Charge Box hood

Remove the service cover.

CAUTION!



Danger of injury due to pinching or crushing!

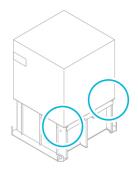
When opening and closing the hood of the Charge Box, fingers or hands may be pinched between the hood and the Charge Box.

- Only open and close the hood when there is no wind or in light wind without gusts (up to wind force 2 (up to 12 km/h)).
- Only open and close the hood together with another person.
- Observe the instructions for opening and closing the hood.



These instructions contain a description of the procedure for opening the cover of the Charge Box. Closing must be carried out in the reverse order.





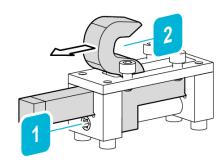


Fig. 38: Turn the spindle of the hood latch

Left and right side of the Charge Box:

- ➤ Use an Allen key (long, size 7) to unscrew the spindle (1) of the hood latch anticlockwise until it stops.
- This will release the hood latch (2).

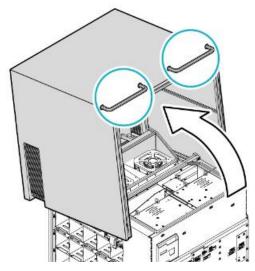


Fig. 39: Folding the hood of the Charge Box upward

Left and right side of the Charge Box:

➤ Using the handle, carefully fold up the hood of the Charge Box together with another person until the retaining bars of the hood latch are accessible.

PORSCHE

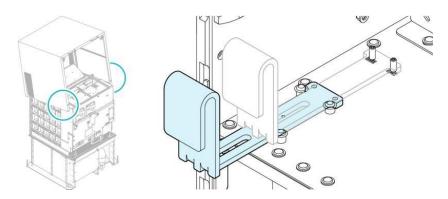
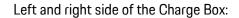


Fig. 40: Pulling out the retaining bars of the hood latch



> Pull out the retaining bars of the hood latch to the side.

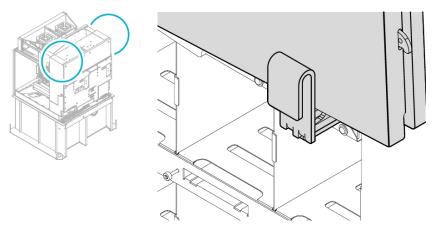


Fig. 41: Placing the hood of the Charge Box on the retaining bar

Left and right side of the Charge Box:

- > Carefully lower the hood until it rests on the retaining bar.
- The hood is now held in this position.



8.2.2. Turning the Charge Box main switch to the OFF position

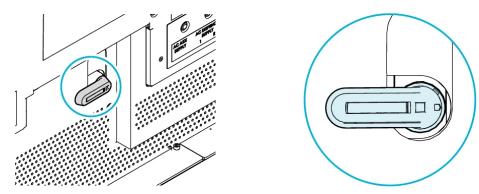


Fig. 42: Turning the Charge Box main switch to the OFF position

- > Turn the Charge Box main switch to the OFF position.
- Secure the switch against being switched on again.

8.2.3. Disconnecting, contacting the DC circuit of battery modules



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

In case of failure the contactors of the Charge Box may be welded and there might be high voltage from the battery on the DC lines to the Turbo Charger.

- ➤ Wait 5 min after switching off to eliminate residual voltages.
- ➤ Determine the absence of voltage on all poles of the Turbo Charger (AC and DC) through measurements.



8.3. Maintenance schedule

ltem	Component/assembly	Activity	Interval (manufacturer recommendation)	Tools or equipment
1	Housing	Check the Turbo Charger housing for contamination and visible damage.	Annually	-
2	Service flap and door	 Check the function of the locking elements (lock and swivel handle). Check the movement of the service flap and door when opening and closing. 	Annually	-
3	Interior	 Open the door and check the interior of the Turbo Charger for contamination, dust, and moisture (e.g. condensate). Check all seals for cracks and brittleness. 	Annually	_
4	Door contact switch	 Perform a functional test on the door contact switch (see section 8.5). 	Annually	-
5	User interfaces	Check the function of ambient lighting, LED door light bar, charge stop button, connector holder, and DC energy meter with viewing window (optional) (see section 8.6).	Annually	-



Item	Component/assembly	Activity	Interval (manufacturer recommendation)	Tools or equipment
6	Lightning protection	> Test the lightning protection installation.	Annually	_
7	Grounding	Perform a ground resistance measurement on all electrically conductive components (including the housing).	Annually	-
8	Charging cable	Check the charging cable for visible damage (material abrasion and cracks, kinks in the cable sheath, foreign particles in the connector).	Annually	-
9	Electrical cables	Check all electrical cables and plug connections for visible damage, contamination, and kinks.	Annually	_
10	Charging cable	 Measure the insulation resistance of the charging cable (see section 8.8). This activity is an action relevant to official calibration regulations in Germany. 	Annually	Insulation tester
11	Screw connections for electrical cables and components	 Check the tightening torques of the screw connections for the charging cable, the sensor unit of the optional DC energy meter, the DC connections, and the PE cables (see section 8.9). This activity is an action relevant to official calibration regulations in Germany. 	Annually	Torque wrench



Item	Component/assembly	Activity	Interval (manufacturer recommendation)	Tools or equipment		
12	Cooling system	 Check all components of the coolant circuit in the Turbo Charger for visible damage and escaping coolant. Check the pressure of the secondary cooling circuit and refill the coolant with the filling unit of manufacturer Technotrans. Follow the instructions of the service manual of the manufacturer. (See Service_Manual_Charging_cable_90001306267-01-EN.pdf in the applicable documents.) 	Annually	Refill set of manufacturer Technotrans: Filling unit with filling hose and a plug-in connector Gas cartridge with a refill kit Pre-pressure tester (pressure gauge) Thermometer		
		Check the flow of coolant through the Turbo charger (charging park version only) (see section 8.12).	Annually	-		
		> Bleed the cooling system (primary cooling circuit).	Annually	_		
	Crash sensor and float unit	Check the function of the float switch by triggering manually.	Annually	_		

Table 33: Maintenance schedule



8.4. Cleaning busbars and lubricating threads



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.

If cables on the busbars are disconnected for maintenance work, the corresponding contact surfaces must be checked and, if necessary, the surfaces cleaned and the threads lubricated.

To ensure a permanent good contact, the contact surfaces on the busbars must be level and free of oxides, sulfides, grease, and other contaminants.

- Remove coarse impurities from the contact surfaces (e.g. oxide layer with a wire brush).
- > Degrease the contact surfaces with isopropanol.
- The contact surfaces must not then be touched with the fingers.

PORSCHE

Live screw connections must be designed in such a way that they maintain the required contact pressure (e.g. using suitable securing elements) (DIN 43673 (Germany) or NFPA 70 (National Electrical Code) (USA)).

To protect against corrosion, the threads of live screw connections must be coated with an MoS_2 grease (e.g. DZ-MECH-00895-0/A, OKS 200).

- ➤ Observe the information on the safety data sheet when using the MoS₂ grease.
- Wear safety gloves.
- ➤ Use a suitable brush to apply the MoS₂ grease.
- ➤ Avoid the MoS₂ grease coming into contact with the contact surfaces on the busbars.
- ➤ Lightly coat the thread of the screw or screw bolt with MoS₂ grease.
- ➤ Lightly coat the contact surface of the screw head or nut with MoS₂ grease.



8.5. Checking the door contact switch function



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

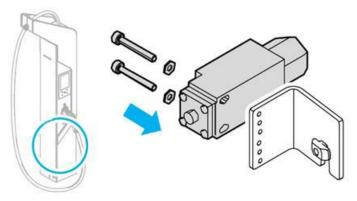


Fig. 43: Door contact switch

The door contact switch is located at the center right of the Turbo Charger housing.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Press the door contact switch.
- The LED door light bar lights up green when the door contact switch is pressed and red when it is not pressed.

PORSCHE

8.6. Checking the function of user interfaces

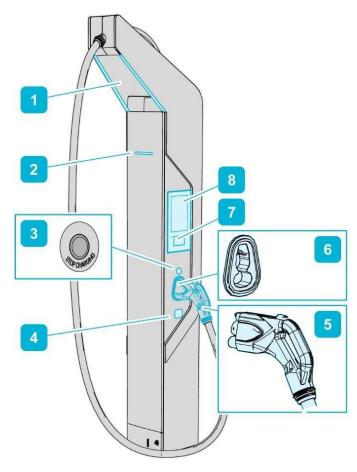


Fig. 44: Turbo Charger main components

Item	Description
1	Ambient lighting
2	LED door light bar
3	Charge stop button for interrupting the charging process
4	DC energy meter with viewing window (optional)
5	Charging plug
6	Connector holder
7	RFID field for authentication
8	Touch-screen display

Table 34: Turbo Charger main components



Ambient lighting

- Connect the service laptop to the service interface.
- > Start the HTML tester or the Charge Park Configurator (CPC).
- Read off the number of operating hours.
- > Check the function of the ambient lighting.

LED door light bar

- > Connect the service laptop to the service interface.
- Start the HTML tester or the Charge Park Configurator (CPC).
- > Check the function of the LED door light bar.

Charge stop button

- > Check the charge stop button for visible damage.
- > Check the mechanical function of the charge stop button.



The service interface for the service laptop is located on the Charge Box or the Power Box, or on the charging management server (LMS) for the charging park.

Connector holder

- Check the connector holder for visible damage.
- > Remove dirt and foreign particles from the charging plug.
- Check whether the charging plug can be inserted cleanly and is held in place.
- Check the connector holder lighting.

DC energy meter with viewing window (optional)

> Check the viewing window on the DC energy meter for visible damage.



8.7. Checking the electrical cables

lack

DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.
- Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

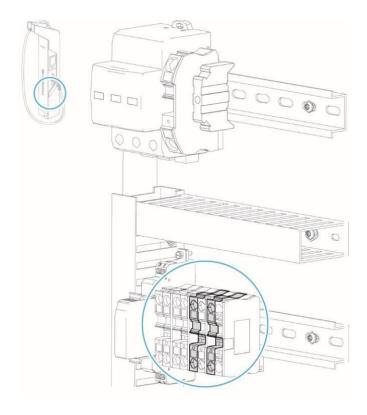


Fig. 45: Checking the electrical cables

Check the connected electrical cables and plug connections for damage, kinks, and impurities.



8.8. Measuring the insulation resistance of the charging cable



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1.

PORSCHE



The insulation resistance measurement must be performed annually. During the insulation resistance measurement, record the resistance and thus the quality of the insulation between the DC+ and DC- high-voltage cables.

The insulation resistance measurement enables any tendency of the charging plug to short circuit to be identified in good time.

- > Open the Turbo Charger service flap (see section 5.7.3).
- ➤ Open the door of the Turbo Charger (see section 5.7.4).

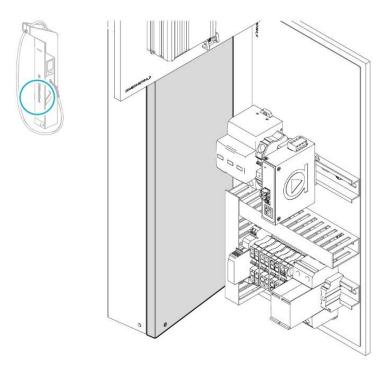


Fig. 46: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.



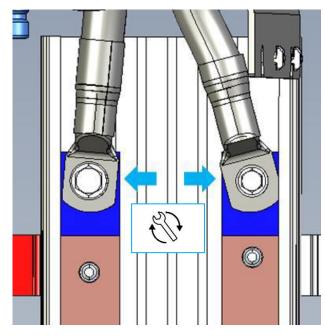


Fig. 47: Upper high-voltage cables

- > Unscrew the screws on the cable connections for the high-voltage cables.
- Detach the high-voltage cables from the busbars.
- Position the high-voltage cables so they are safely isolated from other components.
- Remove the charging cable from the connector holder and store it in a safe and dry location.
- > Perform the insulation resistance measurement on the charging plug.

Parameter	Value
Measuring voltage	1000 V
Measuring time	1 min
Measured result	> 550 MΩ

Table 35: Charging cable insulation resistance measurement test values

- Pick up the charging cable and insert the charging plug into the connector socket.
- Position the high-voltage cables on the busbars and screw the cable connection screws into the busbars.
 - Metric M8 screw tightening torque: 15 Nm (132.76 in.lb)
 - Metric M10 screw tightening torque: 30 Nm 265.52 in.lb)
- Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- > Secure the lower cover with a cable tie.
- Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.



8.9. Testing tightening torques



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1.





The tightening torques must be checked annually. Setting of the screw connections can increase the resistance in the power path. This can lead to heat build-up and inaccurate measurements.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

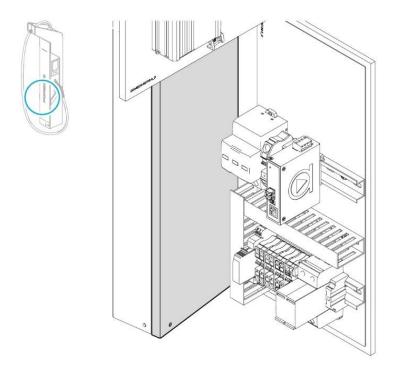


Fig. 48: Busbar duct cover

- Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.



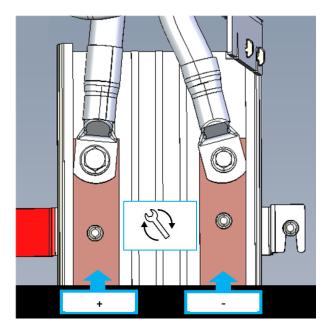


Fig. 49: Charging cable connection

- > Check the tightening torques of the DC cables and charging cables.
 - Metric M8 screw tightening torque: 15 Nm (132.76 in.lb)
 - Metric M10 screw tightening torque: 30 Nm 265.52 in.lb)

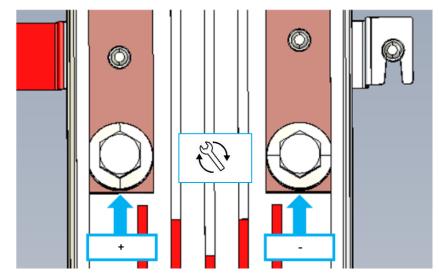


Fig. 50: DC cable connection

- > Check the tightening torques of the DC cables.
 - Metric M16 screw tightening torque: 120 Nm (1062.10 in.lb)



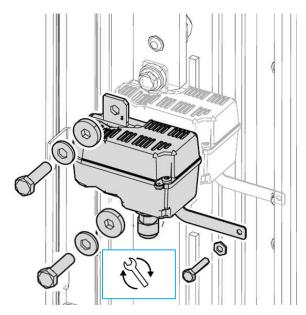


Fig. 51: Sensor

- > Check the tightening torques of the screw connections for the sensor.
 - Metric M8 screw tightening torque: 15 Nm (132.76 in.lb)
 - Metric M4 screw tightening torque: 2 Nm (17.70 in.lb)

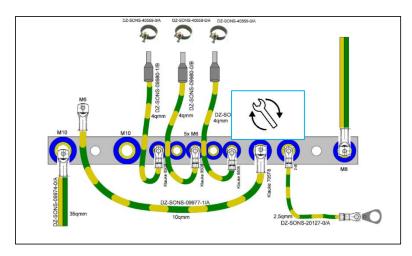


Fig. 52: Example PE screw connections on upper PE rail

- > Check the tightening torques of the PE cables on the PE rails:
 - Metric M6 screw/nut tightening torque: 10 Nm (88.51 in.lb)
 - Metric M8 screw/nut tightening torque: 15 Nm (132.76 in.lb)
 - Metric M10 screw/nut tightening torque: 30 Nm (265.52 in.lb)



- > Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- > Secure the lower cover with a cable tie.
- > Close the door of the Turbo Charger and lock it.
- > Close the Turbo Charger service flap and lock it.



8.10. Checking the coolant line connections



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact:
 Rinse the eyes and affected areas of the skin
 thoroughly with water. In the event of eye contact,
 seek immediate medical attention.
 - Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



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CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.
- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Check all connections and connection points for the coolant lines for leaks.
- Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.



8.11. Checking and refilling the secondary circuit of the charging cable

8.11.1. Checking system pressure in the secondary circuit

Check the system pressure in the secondary circuit via the backend interface. See value "CablePressure".

If the pressure is **below** the values in the table, perform the refill as described in the following chapters.

If the pressure is **above** the values in the table, log the value and skip the refill.

Ambient temperature	°C	70	60	50	40	30	20	10	0	-10	-20	-30
	°F	158	140	122	104	86	68	50	32	14	-4	-22
Pressure in the secondary circuit	bar	1,7	1,6	1,5	1,4	1,2	1,1	0,9	0,7	0,6	0,5	0,4
	psi	24.7	23.2	21.8	20.3	17.4	16.0	13.1	10.2	8.7	7.3	5.8

8.11.2. Manufacturer specifications and safety for refilling

Notice

Injuries and damages due to failure to observe instructions!

Every person who is ordered to work on the unit/system must have read and understood the safety instructions of the associated operating or service instructions and, in particular, the "Safety" chapter.

If necessary, in-house instruction should be provided, taking into account the technical qualifications of the personnel concerned.

Please read the instruction manual or the service manual of the units: Service_Manual_Charging_cable_90001306267-01-EN.pdf in the applicable documents under:

\Applicable documents\Charging cable\Harting\.

This document is mandatory. The following instructions are extracted from the original instructions. No liability can be accepted for transcription errors.

For this service the checklist of the manufacturer must be filled out.
Service_Check_List_ML_90001366170-00-EN_e_cool.pdf in the can be found in the applicable documents.

\Applicable documents\Charging cable\Harting\.



8.11.3. Description / Overview

The filling unit is intended for the start-up/maintenance of the existing e.cool cooling unit. The system pressure in the secondary circuit of the e.cool unit must be checked in accordance with the maintenance plan.

To do so, the e.cool unit must be connected to the filling unit. The necessary steps are described on the next pages.

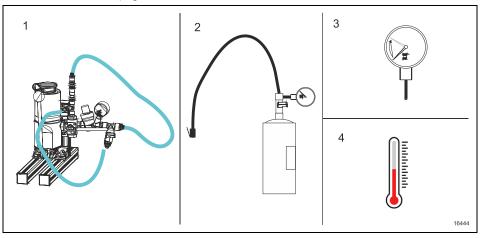


Fig. 53: Scope of supply (example)

Scope of supply

- 1 Filling unit with filling hose and a plug-in connector
- 2 Gas cartridge with a refill kit
- 3 Pre-pressure tester (pressure gauge)
- 4 Thermometer



8.11.4. Filling

The following must be observed in order to avoid injuries and damage to property:

- > Only qualified personnel are authorized to perform these tasks.
- Comply with the information given in the "Safety" section.



CAUTION



Danger due to incorrect installation/start-up!

There is an increased risk of injury for persons who perform tasks for which they are neither qualified nor trained!

- Only persons who are familiar with the tasks, who have been informed about the associated hazards and who have the necessary qualifications are authorised to install/start the unit.
- All technical safety conditions must be fulfilled prior to the installation/start-up.

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DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

There is in increased risk of injury when using unsuitable media or when filling/connecting the unit in an improper manner. Live parts have direct contact with a non-conducting medium. Ensure that the medium is not contaminated (conductivity greater than 0) or mixed with other substances.

- Use only clean, suitable tools/connecting materials/protective clothing.
- Comply with the information in the "Technical data" section.
- > Observe the safety data sheet.





CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention. Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- Dispose of coolant and packaging as problematic materials in accordance with local regulations.
- ➤ When handling chemicals, always wear protective gloves, eyewear, and clothing.
- > Observe the safety data sheets.
- Use clean tools when refilling and wear protective clothing (safety goggles and gloves) when handling "Novec 7500".



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized. The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.





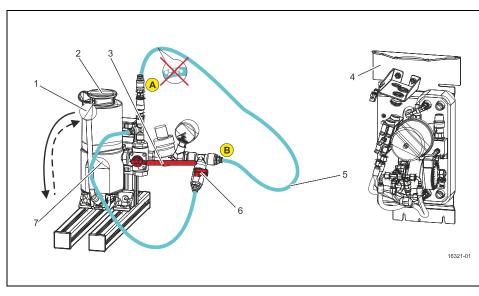


Fig. 54: Preparation (example)

Preparation:

- 1. Have the checklist ready. See 8.11.2 Manufacturer specifications and safety for refilling
- 2. Check the pressure in the secondary circuit via the control panel.
- 3. Switch the e.cool unit (4) off via the superordinate system.
- 4. Perform a visual inspection of the charging cable and e.cool unit (4) to ensure that it is free from leaks and other defects.
- 5. Adjust the working height of the filling unit to the working height of the e.cool unit (4).
 - Use a side table if necessary
 - Observe the maximum height difference to the e.cool unit according to chapter 8.11.5 "Technical data".
- 6. Position the filling unit on a stable, level surface.

- 7. Open the cap (2) of the tank (7).
- 8. Check the strainer of the tank (7) for soiling. If necessary, clean the strainer.

NOTICE

Damage to the unit!

If the tank (7) is soiled or the cooling medium is contaminated, the unit will be damaged.

- Ensure that the tank is clean and absolutely free from soiling. If necessary, clean the tank with some of the cooling medium.
- > Ensure that the cooling medium that is filled into the tank is of one type only.
- 9. Fill in the cooling medium "Novec 7500" up to a level above the "minimum" mark. Quantity: approx. 200 ml / 0.0528gal). Use a funnel for filling.
- 10. Close the cap (2) of the cooling medium tank (7).
- 11. Close the ball valve (3) (horizontal position of the lever).
- 12. Close the bypass valve (6).



- 13. Check whether the hose is properly connected to the connectors "A" and "B". If necessary, reconnect it properly.
- 14. Operate the manual pump (1) several times evenly without interruption until there is no more air in the hose (5).



CAUTION



Risk of injury if the filling unit tips over!

The abrupt actuation of the manual pump can cause the filling unit to tip over, thereby causing injuries.

> Do not actuate the manual pump abruptly .

NOTICE

Damage to the unit!

Air trapped in the system will damage the e.cool unit (4).

- Do not fill the charging cable as long as there is air in the hose.
- > Ensure that there is no air in the hose.
- Check the hose for signs of trapped air.
- Actuate the manual pump until it is ensured that there is absolutely no air left in the hose.



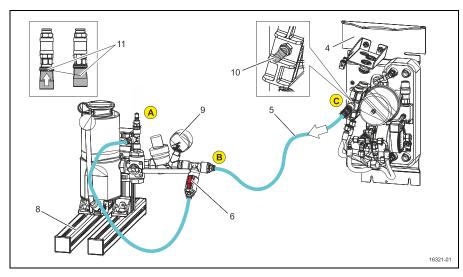


Fig. 55: Depressurizing the system (example)

Depressurizing the e.cool unit:

- 15. Remove the protective cap (10) from connector "C" of the e.cool unit (4).
- 16. Disconnect the filling hose (5) from connector "A" of the filling unit (8). To do so, push the locking element (11) of the quick coupling upwards.
- 17. Connect the filling hose (5) to connector "C" of the e.cool unit (4).

NOTICE

Damage to the unit!

If a connector is soiled or the cooling medium is contaminated, the unit will be damaged.

- > Ensure that the connector is clean and absolutely free from soiling.
- 18. Attach the protective cap (10) to connector "A" of the filling unit (8).
- 19. Slowly open the bypass valve (6) to avoid pressure surges. Open the bypass valve completely. Opening the bypass valve depressurizes the charging cable system. The cooling medium "Novec 7500" flows out of the e.cool unit and into the filling unit.
- 20. Observe the pressure drop by way of the pressure gauge (9).
- 21. After the pressure on the pressure gauge has fallen to "0" bar, wait 5 seconds. Leave the bypass valve (6) open.

PORSCHE

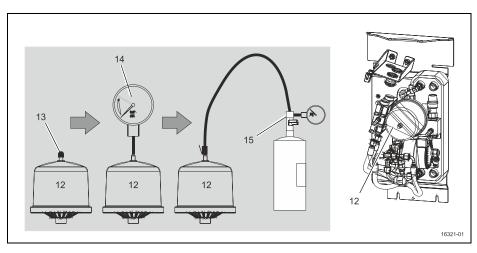


Fig. 56: Expansion vessel (example)

Checking the pressure in the expansion vessel (MAG):

- 22. Remove the cap (13) from the connector of the expansion vessel (12).
- 23. Connect the pre-pressure tester (14) to the connector of the expansion vessel (12).
- 24. Measure the pressure in the expansion vessel (12). Then, remove the inlet pressure gauge (14).
- 25. If the pressure is too low, fill the expansion vessel.
- 26. Increase the pressure in the expansion vessel (12) depending on the ambient temperature using the gas cartridge (15) (example), described as follows.
 - Observe temperature table.
 - Determine the ambient temperature using the thermometer.

NOTE

- Take a temperature measurement inside the charging pole at a height of approx. 1.5 m (near the expansion vessel).
- The duration of temperature measurement is 5 minutes.
- Observe the table, round intermediate values up/down accordingly.
 - Slowly open the valve on the gas cartridge refill set (15).

NOTE

- The pressure in the expansion tank (12) rises very quickly during filling. If necessary, briefly open the valve on the refilling set (15) several times so that the expansion vessel is not overfilled.
 - Close the bypass valve (6).

Ambient temperature	°C	70	60	50	40	30	20	10	0	-10	-20	-30
	°F	158	140	122	104	86	68	50	32	14	-4	-22
Pressure in the expansion vessel	bar	0,75	0,7	0,65	0,6	0,55	0,5	0,45	0,4	0,35	0,3	0,25
	psi	10.9	10.2	9.43	8.70	7.98	7.25	6.53	5.80	5.08	4.35	3.63

NOTE

If necessary, release any excess pressure by pressing in the valve core.

- 24. Replace the sealing mark on the expansion tank (re-use the old position).
- 25. Screw the cap (13) back onto the connector of the expansion vessel (12) and tighten it by hand.



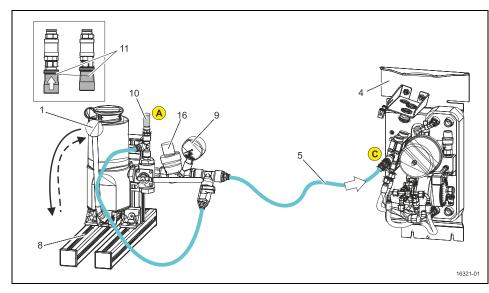


Fig. 57: Filling (example)

Filling the system:

26. Actuate the manual pump (1) until the pressure gauge (9) indicates a constant pressure in the secondary circuit. If necessary, adjust the pressure by way of the pressure reducer (16). To this end, measure the ambient temperature with the thermometer (see the table, round the values up or down accordingly)



CAUTION



Risk of injury if the filling unit tips over!

The abrupt actuation of the manual pump can cause the filling unit to tip over, thereby causing injuries..

> Do not actuate the manual pump abruptly.

Ambient temperature	°C	70	60	50	40	30	20	10	0	-10	-20	-30
	°F	158	140	122	104	86	68	50	32	14	-4	-22
Pressure in the	bar	1,9	1,8	1,7	1,6	1,4	1,3	1,1	0,9	0,8	0,7	0,5
secondary circuit	psi	27.5	26.1	24.7	23.2	20.3	18.9	16.0	13.1	11.6	10.2	7.3

- 30. Visually check the e.cool unit (4) for leaks (e.g. drops).
- 31. Remove the protective cap (10) from connector "A" of the filling unit (8).
- 32. Disconnect the filling hose (5) from connector "C" of the e.cool unit (4). To do so, push the locking element (11) of the quick coupling upwards.
- 33. Connect the filling hose (5) to connector "A" of the filling unit (8).

NOTICE

Damage to the unit!

If a connector is soiled or the cooling medium is contaminated, the unit will be damaged.

- > Ensure that the connector is clean and absolutely free from soiling.
- 34. Attach the protective cap (10) to connector "C" of the e.cool unit (4).

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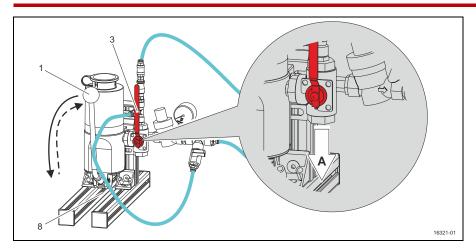


Fig. 58: Draining (example)

Draining the filling unit:

NOTE

Keep the Novec vessel, which has been used for filling, ready for draining the filling unit. Use a funnel to fill the Novec vessel.

- 35. Position the Novec vessel under the ball valve (3).
- 36. Open the ball valve (3) (vertical position of the lever).
- 37. Actuate the manual pump (1).

NOTE

The cooling medium will be pumped out of the pump, hoses and tank and into the Novec vessel (see the arrow "A").

- 38. Close the ball valve (3) (horizontal position of the lever).
- 39. Check the strainer for soiling. If necessary, clean the strainer.
- 40. Store the filling unit (8) as specified (dry, clean).
- 41. Then, confirm the checklist by dating and signing it.



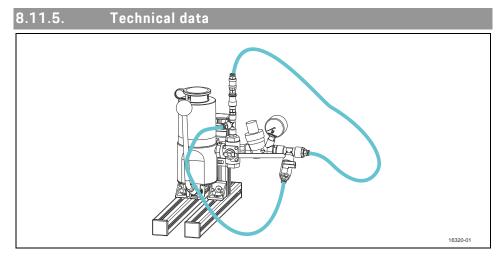


Fig. 59: Filling unit

NOTE

The "Novec 7500" cooling medium is available from technotrans (ref. no. 1007 8593).

Ambient conditions for transport, storage and when	°C	0+60
completely empty	°F	32 +140
Noise emission	dB(A)	≤ 70
Max. system pressure (at an ambient temperature of	bar	1,3
20°C/68°F)	psi	18.9
Maximum hose length to the e.cool unit	mm	2500
	inch	98.4
Maximum height difference with regard to the e.cool unit	mm	500
	inch	19.7
Dimensions (height x width x depth)	mm	460 x 350 x 410
	inch	18.1 x 13.8 x 16.1
		•
Tank capacity	I	1,0
	gal	0.26
Empty weight	kg	≈ 10,0
	lb	≈ 22.0
Operating weight	kg	≈ 11,0

≈ 24.3



8.12. Checking the coolant flow (charging park)



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention.
 - Present the packaging or label.
- > Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



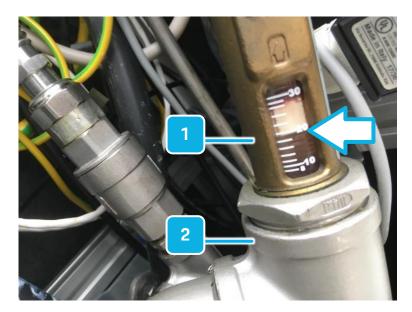


Fig. 60: Flow meter

Each Turbo Charger in the charging park is equipped with a flow meter (1) in the feed line (2). The flow meter (1) records the flow rate of coolant through the Turbo Charger. The flow rate can be read by through a viewing window (arrow).

The flow of coolant through the Turbo Charger can only be read during operation. For this reason, the Turbo Charger must not be disconnected from the power supply, even though the door is open.

- > Open the Turbo Charger service flap (see section 5.7.3).
- Open the door of the Turbo Charger (see section 5.7.4).



The flow of coolant through the Turbo Charger must be more than 18 I/min. The flow value has to be read at the lower edge of the white float (see arrows Fig. 60:).

A flow rate of less than 10 l/min (2.64 gal/min) is an indication of clogged filters in the cooling circuit for the associated power electronics.



Fig. 61: Flow rate below 10 I/min

In the example in Fig. 61: there is hardly any flow of coolant. To avoid major damage, the cause must be identified and remedied.

. Repairs



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

If repair work involves disconnecting cables from the busbars, the contact surfaces must be checked and cleaned, and the threads lubricated (see section 8.4).

Tools and equipment (see section: 5.3).



9.1. Component positions

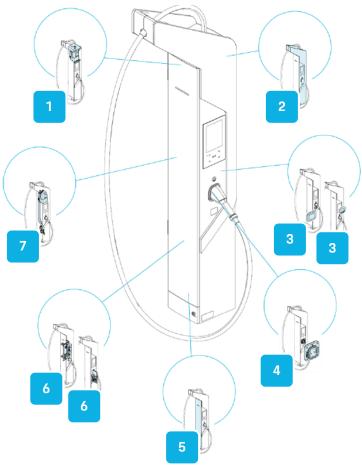


Fig. 62: Component position overview

Item	Description
1	Roof assembly
2	Housing sections
3	Operator interfaces
4	Charging plug mount
5	Front door
6	Component carrier
7	Coolant circuit

Table 36: Turbo Charger main components



9.2. Repair sets

9.2.1. Paint repair

Designation	Reference	Item number
White paint spray RAL9003	PAG	-
	PEG	PEG.A86.637.961.00
Supplier	ads-tec	DE-HPCSP106 001-AA

Designation	Reference	Item number
Black paint spray RAL9005	PAG	-
	PEG	PEG.A86.637.960.00
Supplier	ads-tec	DE-HPCSP107 001-AA

Designation		Item number
Silver paint spray	PAG	-
	PEG	PEG.A86.637.965.00
Supplier	ads-tec	DE-HPCSP108 001-AA

The repair set with paint spray contains tools and materials for repairing the painted surface.



9.2.2. Transport packaging

Designation	Reference	Item number
Transport packaging	PAG	V04.016.002.CC
	PEG	PEG.A86.698.100.00
Supplier	ads-tec	DE-HPCSP060 001-AA



The Turbo Charger and its housing sections may only be stored and transported in a complete transport package including a pallet.



9.3. Bill of materials

	Article number				
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Cable holder (black)	V04.016.002.BC	PEG.A86.662.366.00	DE-HPCSP047 001-AA	1	Demoving and installing the school holder
Cable holder (white)	-	PEG.A86.662.365.00	DE-HPCSP082 001-AA		Removing and installing the cable holder
Ambient lighting	V04.016.002.BT	PEG.A86.665.290.00	DE-HPCSP042 001-AA	2	Removing and installing the ambient lighting
Energy meter display acrylic plate	V04.016.002.Q	PEG.A86.637.920.00	DE-HPCSP068 001-AA	1	Replacing the energy meter display acrylic plate
Bracket with cable holder (black)	V04.016.002.K	PEG.A86.662.461.00	DE-HPCSP041 001-AA	2	Removing and installing the bracket
Bracket with cable holder (white)	-	PEG.A86.662.460.00	DE-HPCSP040 001-AA		
Door (black with LOGO)	V04.016.002	PEG.A86.637.291.01	DE-HPCSP118 001-AA		
Door (black with LOGO) (6 closing hooks)	-	PEG.A86.637.291.00	DE-HPCSP003 001-AA	1	Dameying and installing the days
Door (white) (6 closing hooks)	-	PEG.A86.637.290.00	DE-HPCSP002 001-AA	I	Removing and installing the door
Door (white) (11 closing hooks)	-	PEG.A86.637.290.01	DE-HPCSP116 001-AA		
Door seal	V04.016.002.CA	PEG.A86.637.413.01	DE-HPCSP005 001-AA	1	Removing and installing the door seal



	Article number				
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
LED door light bar	V04.016.002.T	PEG.A86.665.710.00	DE-HPCSP004 001-AA	1	Removing and installing the LED door light bar
LED door light bar cable	V04.016.002.BJ	PEG.A86.670.799.00	DE-HPCSP102 001-AA	1	For circuit diagram, see Table 3:
Door contact switch	V04.016.002.AA	PEG.A86.665.863.00	DE-HPCSP034 001-AA	1	Removing and installing the door contact switch
Door contact switch cable	V04.016.002.BQ	PEG.A86.670.227.00	DE-HPCSP098 001-AA	1	For circuit diagram, see Table 3:
Service flap (black)	V04.016.002.F	PEG.A86.650.791.01	DE-HPCSP119 001-AA		
Service flap (black)	-	PEG.A86.650.791.00	DE-HPCSP007 001-AA	1	
Service flap (white)	-	PEG.A86.650.790.00	DE-HPCSP006 001-AA	I	Removing and installing the service flap
Service flap (white)	-	PEG.A86.650.790.01	DE-HPCSP141 001-AA		
Service flap stop	V04.016.002.S	PEG.A86.662.480.00	DE-HPCSP086 001-AA	1	-
Swivel handle	V04.016.002.HK	PEG.A86.662.479.00	DE-HPCSP114 001-AA	1	Demoving and installing the autical bandle
Swivel handle, reinforced	V04.016.002.JC	PEG.A86.662.479.01	DE-HPCSP114 001-AB	1	Removing and installing the swivel handle



Designation	Article number					
	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference	
Door lock mechanism	V04.016.002.R	PEG.A86.662.279.01	DE-HPCSP120 001-AA			
Door lock mechanism, reinforced	V04.016.002.JB	PEG.A86.662.279.02	DE-HPCSP120 001-AB	1	Removing and installing the door and service flap lock mechanism	
Door lock mechanism (6 closing hooks)		PEG.A86.662.279.00	DE-HPCSP008 001-AA			
Connector holder CCS1 (black)	V04.016.002.CQ	PEG.A86.647.416.00	DE-HPCSP057 001-AA			
Connector holder CCS2 (black)	V04.016.002.D	PEG.A86.647.516.00	DE-HPCSP010 001-AA	1	Removing and installing the connector holder	
Connector holder CCS2 (white)	-	PEG.A86.647.515.00	DE-HPCSP009 001-AA			



	Article number						
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference		
Roof Huber + Suhner CCS1 (black)	-	PEG.A86.637.416.00	DE-HPCSP140 001-AA				
Doof Hasting COS1 (blook)	V04.016.002.AD	PEG.A86.637.426.00	DE-HPCSP062 001-AA				
Roof Harting CCS1 (black)	V04.016.002.HS	PEG.A86.637.426.01	PEG.A86.637.426.01 DE-HPCSP062 001-AB				
Roof Huber + Suhner CCS2 (white)	-	PEG.A86.637.515.00	DE-HPCSP014 001-AA	1	Removing and installing the roof assembly		
Roof Huber + Suhner CCS2 (black)	-	PEG.A86.637.516.00	DE-HPCSP015 001-AA	I			
Roof Harting CCS2 (white)	-	PEG.A86.637.525.00	DE-HPCSP052 001-AA				
Roof Harting CCS2 (black)	V04.016.002.A	PEG.A86.637.526.01	DE-HPCSP053 001-AA				
	V04.016.002.HR	PEG.A86.637.526.02	DE-HPCSP053 001-AB				



Designation	Article number				
	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Closed system upper food. Hosting	V04.016.002.P	PEG.A86.630.285.01	DE-HPCSP084 001-AA	1	
Closed system upper feed, Harting	V04.016.002.JA	PEG.A86.630.285.02	DE-HPCSP084 001-AB	I .	
	V04.016.002.N	PEG.A86.630.280.01	DE-HPCSP085 001-AA		
Closed system upper return, Harting	V04.016.002.HT	PEG.A86.630.280.02	DE-HPCSP085 001-AB	1	Removing and installing the upper feed/return parts
Open system upper feed Huber + Suhner	-	PEG.A86.630.295.00	DE-HPCSP043 001-AA	1	
Open system upper return Huber + Suhner	-	PEG.A86.630.290.00	DE-HPCSP045 001-AA	1	
Lavora for al 111 Observa Dece	V04.016.002.L	PEG.B05.630.327.01	DE-HPCSP054 001-AA	1	Removing and installing the lower feed/return parts
Lower feed 1", Charge Box	V04.016.002.JL	PEG.B05.630.327.02	DE-HPCSP054 001-AA	1	
1, 1, 0,	V04.016.002.M	PEG.B05.630.713.01	DE-HPCSP055 001-AA		
Lower return 1", Charge box	V04.016.002.JD	PEG.B05.630.713.02	DE-HPCSP055 001-AB	1	
Lower feed 1¼", charging park	-	PEG.A86.630.830.00	DE-HPCSP044 001-AA	1	
Lower return 1¼", charging park	-	PEG.A86.630.264.00	DE-HPCSP046 001-AA	1	



Designation	Article number				
	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Cooling circuit temperature sensor	V04.016.002.CB	PEG.A86.685.669.00	DE-HPCSP071 001-AA	1	Removing and installing the return temperature sensor
Closed system upper mounting plate, CCS	V04.016.002.E	PEG.A86.647.544.00	DE-HPCSP019 001-AA		
Closed system upper mounting plate, CCS ADA	V04.016.002.CR	PEG.A86.647.524.00	DE-HPCSP134 001-AA	1	Removing and installing the upper mounting plate
Open system upper mounting plate, CCS	-	PEG.A86.647.534.00	DE-HPCSP110 001-AA		
Power supply unit 24 V, 150 W	-	PEG.A86.665.815.00	DE-HPCSP020 001-AA	1	Removing and installing the 24 V power
Power supply unit 24 V, 320 W	V04.016.002.BE	PEG.A86.665.810.00	DE-HPCSP076 001-AA	1	supply unit
Pump actuation contactor 230 V (110 V)	-	PEG.A86.676.525.00	DE-HPCSP021 001-AA	1	Removing and installing the pump actuation contactor (Turbo Charger with open secondary cooling circuit)
Charge monitoring CCS D	V04.016.002.AK	PEG.A86.640.436.00	314,000,193,003	1	Removing and installing the charging
Charge monitoring CCS ADA	V04.016.002.AG	PEG.A86.640.536.00	314,000,193,006		controller



	Article number				
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Interior temperature sensor	V04.016.002.BF	PEG.A86.685.503.00	DE-HPCSP025 001-AA	1	Removing and installing the interior temperature sensor
Telescopic rail	V04.016.002.BG	PEG.A86.662.514.00	DE-HPCSP026 001-AA	1	Removing and installing the telescopic rail
Upper mounting plate terminal set	V04.016.002.CJ	PEG.A86.665.700.00	DE-HPCSP137 001-AA	1	Removing and installing the upper terminal set
Lower mounting plate fiber optic cable Raycap	V04.016.002.C	PEG.A86.647.365.01	DE-HPCSP027 001-AA	1	Removing and installing the lower mounting plate
Lower mounting plate CCS1 fiber optic cable Raycap	V04.016.002.CS	PEG.A86.647.623.00	DE-HPCSP066 001-AA	I	
Lightning protection set CCS2 fiber optic cable Raycap	V04.016.002.AH	PEG.A86.675.100.00	PEG.A86.675.100.00	. 1	Removing and installing the fiber optic cable / Raycap lightning protection set
Lightning protection set CCS1 fiber optic cable Raycap	V04.016.002.AJ	PEG.A86.675.101.00	PEG.A86.675.101.00	I	
Media converter with SFP module	V04.016.002.B	PEG.A86.645.405.00	PEG.A86.645.405.00	1	Removing and installing the media converter
SFP module	V04.016.002.AT	PEG.B07.445.562.00	PEG.B07.445.562.00	1	Removing and installing the SFP module



Designation	Article number				
	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Lower mounting plate terminal set	V04.016.002.CK	PEG.A86.665.701.00	DE-HPCSP138 001-AA	1	Removing and installing the lower terminal set
Crash sensor and float unit	V04.016.002.AB	PEG.A86.685.156.00	DE-HPCSP035 001-AA	1	Removing and installing the crash sensor and float unit
Crash sensor 1 cable	V04.016.002.BS	PEG.A86.670.244.00	DE-HPCSP100 001-AA	1	For circuit diagram, see Table 3:
Crash sensor 2 cable	V04.016.002.BR	PEG.A86.670.696.00	DE-HPCSP099 001-AA	1	For circuit diagram, see Table 3:
Closed system grounding rail	V04.016.002.G	PEG.A86.660.155.00	DE-HPCSP065 001-AA	1	Removing and installing the upper
Open system grounding rail	-	PEG.A86.660.165.00	DE-HPCSP123 001-AA	I	equipotential bonding bar
Equipotential bonding bar	V04.016.002.H	PEG.A86.660.244.01	DE-HPCSP061 001-AA	1	Removing and installing the lower equipotential bonding bar
High-voltage rails	V04.016.002.J	PEG.A86.660.490.01	DE-HPCSP039 001-AA	1	Removing and installing the high-voltage assembly



	Article number				
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Display 10 inch (white)	-	PEG.A86.710.000.00	DE-HPCSP011 001-AA		
Display ADA 10 inch (white)	-	PEG.A86.710.200.00	DE-HPCSP115 001-AA	1	Demoving and installing the display
Display 10 inch (black)	V04.016.002.AL	PEG.A86.710.010.00	DE-HPCSP012 001-AA	I	Removing and installing the display
Display ADA 10 inch (black)	V04.016.002.AM	PEG.A86.710.210.00	DE-HPCSP078 001-AA		
Display power supply cable	V04.016.002.BM	PEG.A86.670.775.00	DE-HPCSP081 001-AA	1	Removing and installing the display power supply cable
RFID reader ADA	V04.016.002.DA	PEG.A86.645.627.00	DE-HPCSP147 001-AA	1	Removing and installing the RFID reader (Turbo Charger ADA version)
Charge stop button with cable set	V04.016.002.BD	PEG.A86.665.469.00	DE-HPCSP013 001-AA	1	Removing and installing the charge stop button with grounding plate
Connector face CCS1 HUBER + SUHNER		PEG.A86.850.485.00	85097222	1	Replacing the connector face on the Huber + Suhner charging cable
Connector face CCS2 HUBER + SUHNER	_	PEG.A86.850.585.00	85097503		
Connector face CCS1 HARTING	V04.016.002.AE	PEG.A86.850.285.00		1	Replacing the Harting charging cable
Connector face CCS2 HARTING	V04.016.002.AF	PEG.A86.850.385.00	1	connector face	



Designation	Article number				
	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
DC counter system with compensation	V04.016.002.AC	PEG.A86.674.100.01	245244	1	Retrofitting a DC energy meter in the Turbo Charger
DC energy meter cable	V04.016.002.BN	PEG.A86.670.761.00	DE-HPCSP096 001-AA	1	For circuit diagram, see Table 3:
Charge monitoring cable 24 V	V04.016.002.BP	PEG.A86.670.695.00	DE-HPCSP097 001-AA	1	For circuit diagram, see Table 3:
Connector holder lighting cable CCS2	V04.016.002.BH	PEG.A86.670.534.00	DE-HPCSP101 001-AA	1	For circuit diagram, see Table 3:
Charging cable control cable CCS2	V04.016.002.BK	PEG.A86.670.285.00	DE-HPCSP103 001-AA	1	For circuit diagram, see Table 3:
Charging cable sensor cable CCS2	V04.016.002.BL	PEG.A86.670.383.00	DE-HPCSP104 001-AA	1	For circuit diagram, see Table 3:
DC energy meter retrofit set	V04.016.002.CF	PEG.A86.660.800.00	DE-HPCSP088 001-AA	1	Retrofitting a Turbo Charger with a DC energy meter
DC energy meter retrofit set	V04.016.002.CG	PEG.A86.674.800.00	DE-HPCSP089 001-AA	1	Retrofitting a DC energy meter in the Turbo Charger
Coolant pump cable 24 V	V04.016.002.CM	PEG.A86.665.650.00	DE-HPCSP139 001-AA	1	For circuit diagram, see Table 3:
Roof screw plug set with seals	V04.016.002.CL	PEG.A86.646.000.00	DE-HPCSP132 001-AA	1	-
Stainless steel strip earth band set	V04.016.002.HM	PEG.A86.660.175.00	DE-HPCSP150 001-AA	1	Replacing the strip earth bands



	Article number				
Designation	Porsche AG (PAG)	Porsche Engineering (PEG)	Supplier	Quantity	Reference
Acrylic glass plate connection block	V04.016.002.HP	PEG.A86.647.920.00	DE-HPCSP148 001-AA	1	Removing and installing the acrylic glass plate connection block (Turbo Charger with closed secondary cooling circuit)
Silica gel bag	V04.016.002.HN	PEG.A86.698.150.00	-	1	-
Turbo Charger packaging set	V04.016.002.CC	PEG.A86.698.100.00	DE-HPCSP060 001-AA	1	_



9.4. Retrofitting a DC energy meter in the Turbo Charger



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1.



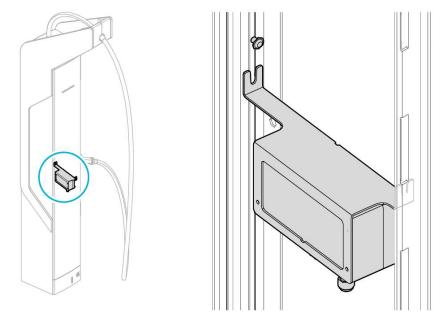


Fig. 63: Installing the DC energy meter in Turbo Charger

The DC energy meter determines the amount of energy delivered during a charging process. It records various parameters, e.g. voltage, current, power, and energy. The recorded data can be retrieved later. A display shows the time, charging time, and energy consumption. The display can be seen on the outside of the Turbo Charger below the connector holder.

The DC energy meter must be ordered separately from the manufacturer of the Turbo Charger.

Designation	Reference	Item number
DC counter system with compensation	PAG	V04.016.002.AC
	PEG	PEG.A86.674.100.01

Designation	Reference	Item number
DC energy meter retrofit set	PAG	V04.016.002.CG
	PEG	PEG.A86.674.800.00
Supplier	ads-tec	DE-HPCSP089 001-AA



9.4.1. Specifications

Description	Value
Input voltage (DC)	10 – 29 V (±5 %)
Accuracy class	A (EN 50470-3)
Interfaces	RS485 and optical data communication in accordance with IEC 62056-21
Compensation factor	8.25 mΩ
Display	Energy consumption, duration, units, time, software version during start-up
Communication baud rate	19 200 Bd (standard)
Protection class	IP 54 (without sensor)
Temperature ranges	Storage: -40 - +85 °C (-40 - +185 °F) Operation: -40 - +70 °C (-40 - +158 °F)
Voltage measurement	150 – 950 V
Current measurement	1.5 – 550 A
Current consumption	I _{typ} 0.05 A, I _{max} 0.5 A (24 V DC)

Table 37: DC energy meter specification part 1

Description	Value
Sensor dimensions (D x W x H)	130 x 104 x 59 mm (5.12 x 4.09 x 2.32 in)
DC energy meter dimensions (D x W x H)	162 x 82 x 55 mm (6.38 x 3.23 x 2.17 in)
Weight	Approx. 530 g (1.17 lb)

Table 38: DC energy meter specification part 2

PORSCHE

9.4.2. Checking the delivered items



To protect the environment, dispose of all packaging materials properly, in accordance with the applicable local environmental regulations. Hand over any residual materials to a certified specialist disposal company.

The DC energy meter is supplied with the following components, which make up an indivisible unit:

- DC energy meter display unit (sealed)
- Sensor with permanently connected connecting cable
- > Check that the items supplied are complete and in perfect condition.
- Do not use the DC energy meter if you notice that parts are missing or damaged.



9.4.3. Installing the sensor

The sensor is screwed directly to the DC rail.

The quality of the measurements with the sensor depends on the quality of the connection between the DC rail and the sensor shunt rail.

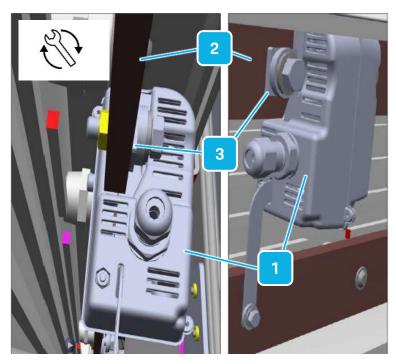


Fig. 64: Sensor, DC rails with insert nuts shown

No washers may be placed between the DC rail and the shunt rail for the sensor during assembly. The change in the contact area would have a negative influence on the sensor measurement results.



On the first generation Turbo Charger, the DC rail is drilled. The sensor is connected to the DC rail using nuts and bolts.

On subsequent generation Turbo Chargers, the DC rail is fitted with insert nuts. The sensor is connected to the DC rail using bolts, which are screwed into the insert nuts

	Description
1	Sensor
2	DC rail
3	Sensor shunt rail

Table 39: Sensor



- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

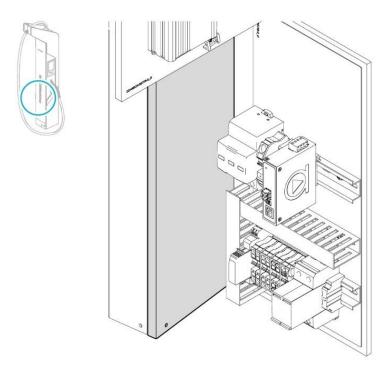


Fig. 65: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- Detach all covers from the busbar duct.



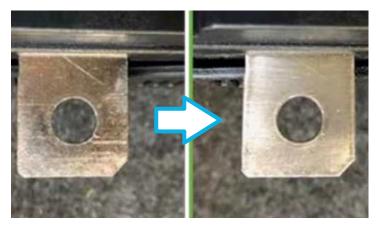


Fig. 66: Contact area on left before cleaning and on right after cleaning

- Grind the entire contact surfaces on the sensor with an abrasive sponge (grain 220).
- The contact surfaces must be bright, clean, and free from grease. The grinding marks must be clearly visible over the entire surface.
- Then clean the contact surfaces with isopropanol.



The contact surfaces must be ground to break the oxide layer and thus prevent excessive heating of the sensor. Excessive heating of the sensor would lead to charging being aborted and rapid aging of the component.

- Position the sensor on the DC rail and secure it with the metric M8 screws.
- > Tighten the metric M8 screws to a tightening torque of 15 Nm (132.76 in.lb).
- Use the washers and spring washers supplied. Screws with a smaller diameter than M8 must not be used.
- > Tighten the metric M4 screws to a tightening torque of 2 Nm (17.70 in.lb).
- Use the washers and spring washers supplied.
- > Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- > Secure the lower cover with a cable tie.

PORSCHE

9.4.4. Installing the DC energy meter display unit

The DC energy meter display unit is installed below the connector holder in the Turbo Charger.

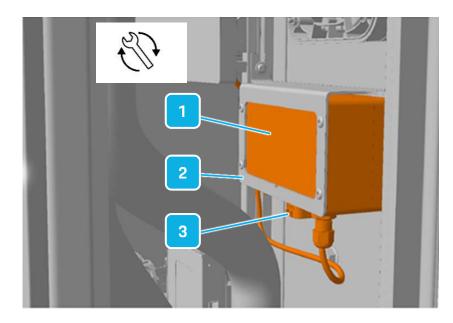


Fig. 67: DC energy meter

- Align the retaining plate (2) on the DC energy meter (1).
- > Rivet the retaining plate (2) to the DC energy meter (1).

- ➤ Position the retaining plate (2) with the DC energy meter (1) on the profile rails in the Turbo Charger.
- The display on the DC energy meter (1), the QR code, and the calibration seal must be visible through the cutout in the Turbo Charger housing.
- Secure the retaining plate (2) with the DC energy meter (1) to the profile rail using the screws and sliding blocks.
- > Tighten the screws to a tightening torque of 5.5 Nm (48.68 in.lb).
- Create the contact between the Turbo Charger electrical cable set and the DC energy meter (1) using the equipment connection (3).
- > Route the Turbo Charger electrical cable set to the connection points.
- Contact the Turbo Charger electrical cable set as shown in the circuit diagram.



Information on setting and operating the DC energy meter can be found in the separate operating instructions (see Table 1:).

- Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.



9.5. Removing and installing the cable holder



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.

Designation		Item number
Z Cable holder (white)	PAG	-
	PEG	PEG.A86.662.365.00
Supplier	ads-tec	DE-HPCSP082 001-AA

Designation	Reference	Item number
Z Cable holder (black)	PAG	V04.016.002.BC
	PEG	PEG.A86.662.366.00
Supplier	ads-tec	DE-HPCSP047 001-AA



This instruction contains a description of the procedure for removing the cable holder. Installation must be performed in reverse order.



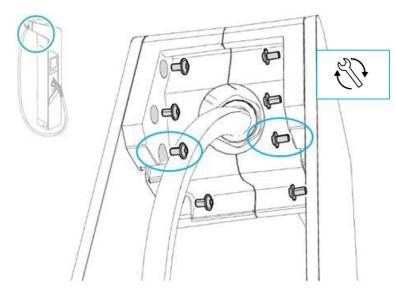


Fig. 68: Cable holder

- > Loosen the 2 screws (marked in blue).
- Unscrew the remaining screws.
- > Lift up the cable holder and guide it over the bracket.

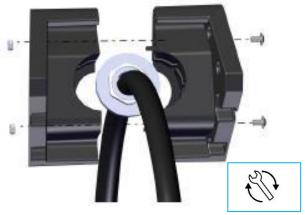


Fig. 69: Disassembling and assembling the cable holder

- > Unscrew the 2 screws from the cable holder.
- > Detach the two parts of the cable holder from one another.
- Make sure that the nuts are not lost.



Installation instructions

Make sure the grommet is correctly seated on the charging cable in the groove in the cable holder.

<u>Tightening torques</u>

- Cable holder section screw: 5 Nm (44.25 in.lb)
- Cable holder to bracket screw: 2 Nm (17.70 in.lb)



9.6. Removing and installing the ambient lighting



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.

Designation	Reference	Item number
Ambient lighting	PAG	V04.016.002.BT
	PEG	PEG.A86.665.290.00
Supplier	ads-tec	DE-HPCSP042 001-AA



The ambient lighting consists of 2 LED strips in the brackets. The spare part includes 1 LED strip.



This instruction contains a description of the procedure for removing the ambient lighting. Installation must be performed in reverse order.



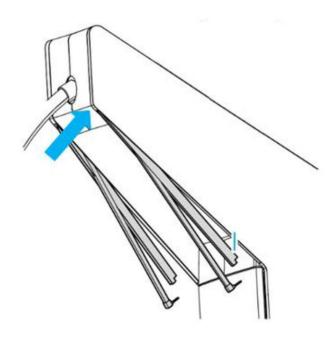


Fig. 70: Removing the ambient lighting

- Carefully lever the ambient lighting out of the profile at the upper end (arrow).
- > Completely detach the ambient lighting from the profile.

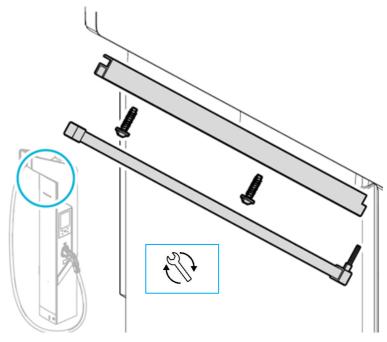


Fig. 71: Ambient lighting profile

- > Unscrew the screws for attaching the profile to the bracket.
- > Remove the profile.



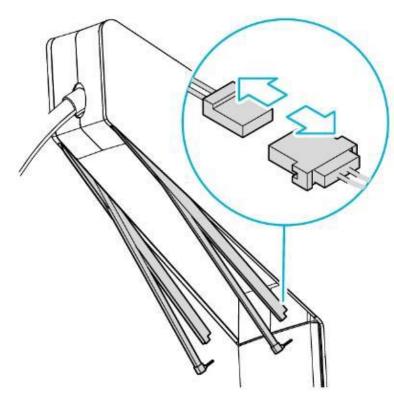


Fig. 72: Ambient lighting connector

- Disconnect the connector for the ambient lighting.
- > Remove the ambient lighting.



Installation instructions

Make sure that the electrical cables for the ambient lighting are not crimped.

Align the 2 screws for attaching the profile to the bracket.

Make sure the ambient lighting is correctly positioned in the profile.

Check the function of the ambient lighting while restarting the Turbo Charger.

Tightening torque

• Profile to bracket screw: 0.5 Nm (4.43 in.lb)



9.7. Replacing the energy meter display acrylic plate



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1:



Designation	Reference	Item number
Energy meter display acrylic plate	PAG	V04.016.002.Q
	PEG	PEG.A86.637.920.00
Supplier	ads-tec	DE-HPCSP068 001-AA

9.7.1. Removing the energy meter display acrylic plate

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

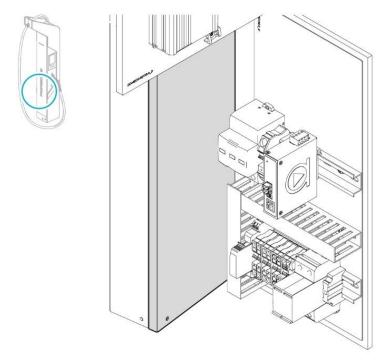


Fig. 73: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.

PORSCHE

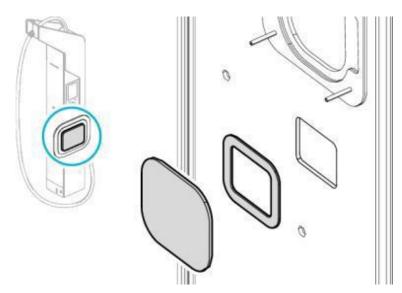


Fig. 74: Energy meter display acrylic plate

- Mark the installation position of the DC energy meter on the profile rails.
- ➤ Detach the DC energy meter and place it in the Turbo Charger with the electrical cable connected.
- Observe the content of the operating instructions for the DC energy meter (see Table 1:).
- This action destroys seals, which have to be replaced by an authorized repair company.

- > Cut the seal on the energy meter display acrylic plate at a single point with a sharp knife.
- Press on the energy meter display acrylic plate from the outside.
- Continue to cut the seal with the knife.
- Detach the energy meter display acrylic plate.
- Remove the remainder of the seal from the inside of the Turbo Charger.



9.7.2. Installing the energy meter display acrylic plate

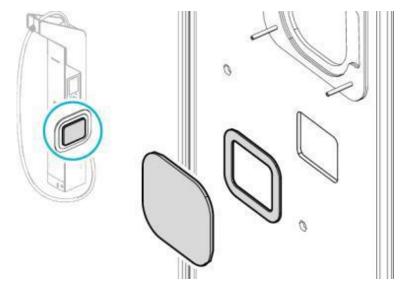


Fig. 75: Energy meter display acrylic plate

- ➤ Clean the adhesive surface on the inside of the Turbo Charger with isopropanol.
- > Remove the protective film from one side of the seal.
- Align the seal using the cutout on the inside of the Turbo Charger and press it on firmly.
- > Remove the protective film from the seal.
- Remove the protective film on one side of the new energy meter display acrylic plate.
- Align the energy meter display acrylic plate on the seal and press it on firmly.
- Remove the protective film from the new energy meter display acrylic plate.
- Install the DC energy meter.
- Observe the content of the operating instructions for the DC energy meter (see Table 1:).
- Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- > Secure the lower cover with a cable tie.
- > Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.



9.8. Removing and installing the bracket



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- > Ensure that the ladder and platform are standing securely.

Designation	Reference	Item number	
Z Bracket with cable holder (white)	PAG	-	
	PEG	PEG.A86.662.460.00	
Supplier	ads-tec	DE-HPCSP040 001-AA	

Designation	Reference Item number	
Z Bracket with cable holder (black)	able holder (black) PAG VO	
	PEG	PEG.A86.662.461.00
Supplier	ads-tec	DE-HPCSP041 001-AA



9.8.1. Removing the bracket

- Remove the upper mounting plate and set aside with the electrical cables connected (see section 9.23).
- > Remove the high-voltage assembly (see section 0).
- > Remove the roof assembly (see section 9.18).

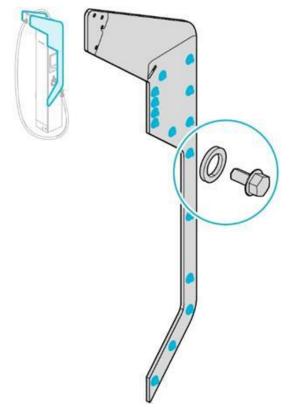


Fig. 76: Bracket

- > Unscrew the screws on the bracket.
- > Detach the bracket from the Turbo Charger housing.



9.8.2. Installing the bracket

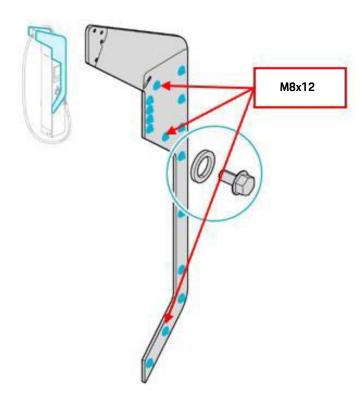


Fig. 77: Installing the bracket

NOTICE

Damage to property due to incorrect screw dimensions.

The screws for attaching the brackets to the Turbo Charger housing have different dimensions. If long screws are used instead of the short ones, they press against the outer plate of the bracket and deform it.

- > Use the correct screw dimensions.
- Position the bracket on the Turbo Charger housing.
- Attach the bracket to the Turbo Charger housing using the 3 short metric screws (M8x12).



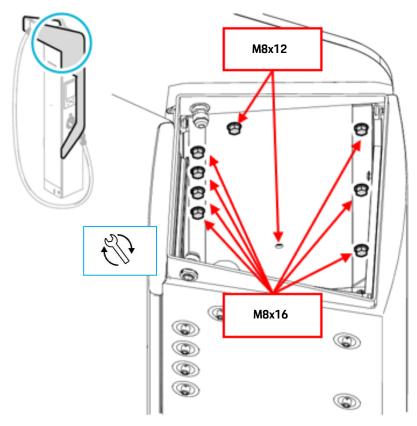


Fig. 78: Installing the bracket on the inside

- Screw in the 12 long metric screws (M8x16).
- > Align the bracket on the Turbo Charger housing.
- > Tighten all screws to a tightening torque of 2 Nm (17.70 in.lb).



No gap must be visible between the bracket and the Turbo Charger housing.

- Position the cable holder on the brackets.
- Screw the screws for attaching the cable holder into the brackets.
- > Tighten the screws to a tightening torque of 5 Nm (44.25 in.lb).
- ➤ Install the roof assembly (see section 9.18).
- Install the high-voltage assembly (see section 0).
- Install the upper mounting plate (see section 9.23).



9.9. Removing and installing the door



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION

W st

Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- > Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.

The door is supplied complete with assembly material and the adhesive warning notice set.

Designation	Reference	Item number	
Z Door (white) (6 closing hooks)	PAG	-	
	PEG	PEG.A86.637.290.00	
Supplier	ads-tec	DE-HPCSP002 001-AA	

Designation	Reference	Item number
Z Door (white) (11 closing hooks)	PAG	-
	PEG	PEG.A86.637.290.01
Supplier	ads-tec	DE-HPCSP116 001-AA

Designation	Reference	Item number
Z Door (black with LOGO) (6 closing hooks)	PAG	-
	PEG	PEG.A86.637.291.00
Supplier	ads-tec	DE-HPCSP003 001-AA



Designation	Reference	Item number
Z Door (black with LOGO) (11 closing hooks)	PAG	V04.016.002
	PEG	PEG.A86.637.291.01
Supplier	ads-tec	DE-HPCSP118 001-AA



This instruction contains a description of the procedure for removing the door. Installation must be performed in reverse order.



There are 3 versions of the door for the Turbo Charger. They differ in terms of the design of the hinge bolts and the associated locking mechanism.



An additional person is required to assist when removing and installing the door.

- Remove the service flap (see section 9.13).
- > Open the door of the Turbo Charger (see section 5.7.4).



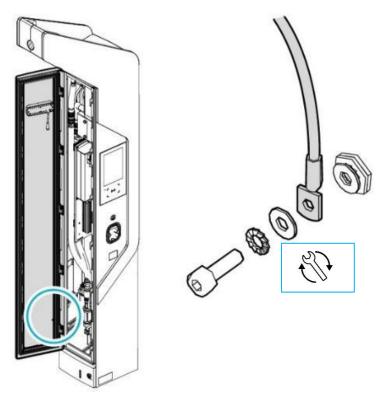


Fig. 79: Door ground cable

- > Unscrew the screw for the ground cable.
- > Detach the ground cable.

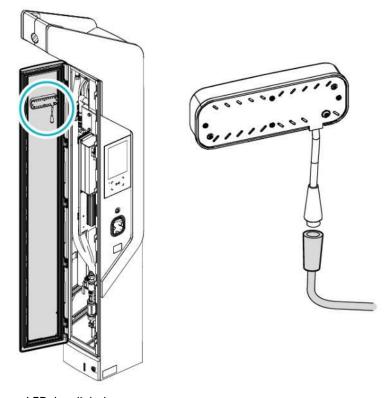


Fig. 80: LED door light bar connector

> Disconnect the LED door light bar connector.



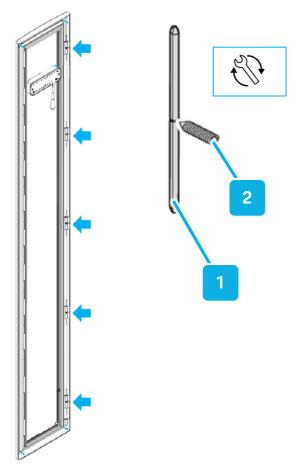


Fig. 81: Door version 1: Hinge bolts (1) secured with set screws (2)

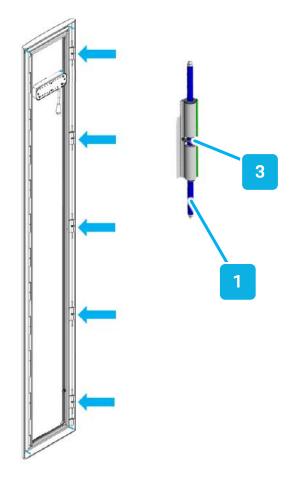


Fig. 82: Door version 2: Hinge bolts (1) secured with circlips (3)



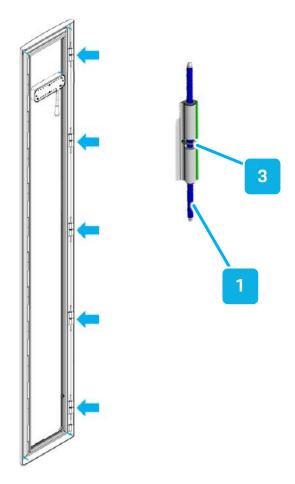


Fig. 83: Door version 3: Short hinge bolts (1) secured with circlips (3)

Door version 1

➤ Unscrew the set screws (2) (grub screws) on the 2nd, 3rd, and 4th hinge bolts (1) from above.

Door version 2, 3

Remove the circlips (3) on the 2nd, 3rd, and 4th hinge bolts (1) from above.

All door versions

- > Detach the hinge bolts (1) and remove them downwards.
- If a hinge bolt (1) cannot be loosened, pull it out downwards using pliers.



Door version 1, 2

The lower hinge bolt (1) cannot be removed downwards. To do this, a hole has to be drilled in the door first.



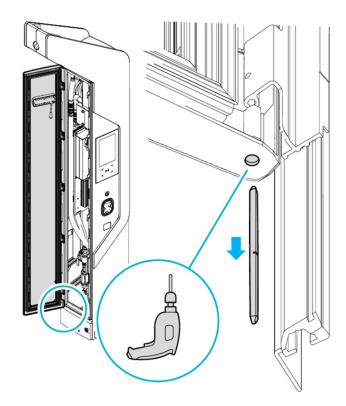


Fig. 84: Door version 1, 2: Removing the lower hinge bolt

Door version 1, 2

- Mark the point for the hole on the inside of the lower edge of the door aligned with the hinge bolt.
- > Drill a hole with a diameter of 10 mm (0.39 in) in the lower edge of the door.

All door versions

> Have another person hold the door.

Door version 1

- Unscrew the set screws (grub screws) on the upper and lower hinge bolts.
- Loosen the hinge bolts and detach them downwards (arrow).

Door version 2

- Remove the circlips on the upper and lower hinge bolts.
- > Loosen the hinge bolts and detach them downwards (arrow).

Door version 3

- Remove the circlips on the upper and lower hinge bolts.
- > Loosen the upper hinge bolt and detach it downwards.
- > Loosen the lower hinge bolt and detach it upwards.

All door versions

Detach the door with a 2nd person.





Installation instructions

Have the door held by a 2nd person.

First install the upper hinge bolt and secure it. Then install the lower hinge bolt and secure it.

Tightening torques

- Set screw on hinge (door version 1): 1.5 Nm (13.28 in.lb)
- Ground cable to door cable: 5 Nm (44.25 in.lb)



9.10. Removing and installing the door seal



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.



CAUTION

Cuts due to sharp edges.



When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.

Designation		Item number	
Door seal	PAG	V04.016.002.CA	
	PEG	PEG.A86.637.413.01	
Supplier	ads-tec	DE-HPCSP005 001-AA	



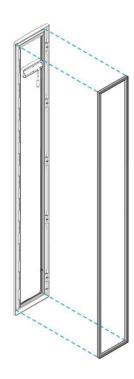


Fig. 85: Door seal

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- > Pull the door seal out of the groove running around the door.



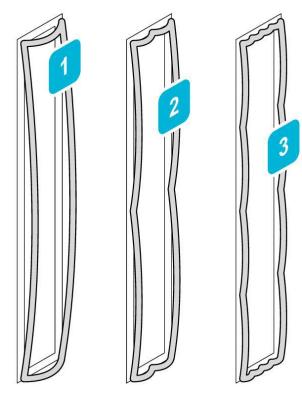


Fig. 86: Installing the door seal

- First place the door seal at all 4 corners in the surrounding groove in the door and press it (Fig. 1).
- Then place the door seal in the center of the groove running around the door and press it (Figures 2, 3).
- > Press the full face of the door seal into the groove running around the door.
- Make sure the door seal is evenly seated in the groove running around the door. Avoid corrugation.
- > Close the door of the Turbo Charger and lock it.
- > Close the Turbo Charger service flap and lock it.



9.11. Removing and installing the LED door light bar



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.



CAUTION

Cuts due to sharp edges.



When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

Designation	Reference	Item number
LED door light bar	PAG	V04.016.002.T
	PEG	PEG.A86.665.710.00
Supplier	ads-tec	DE-HPCSP004 001-AA

PORSCHE

9.11.1. Removing the LED door light bar

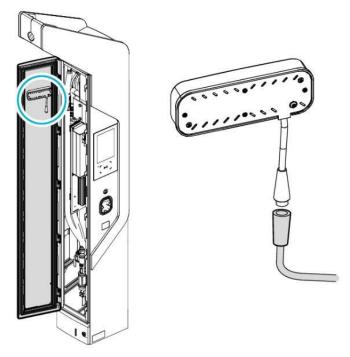


Fig. 87: LED door light bar connector

- > Open the Turbo Charger service flap (see section 5.7.3).
- Open the door of the Turbo Charger (see section 5.7.4).
- > Disconnect the LED door light bar connector.

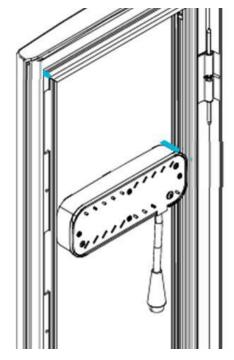


Fig. 88: Removing the LED door light bar

- > Cut the seal in a single place with a sharp knife.
- > Pull the LED door light bar off the door.
- > Continue to cut the seal with the knife.
- Remove the LED door light bar from the door.
- Remove the remainder of the seal from the inside of the door.



9.11.2. Installing the LED door light bar

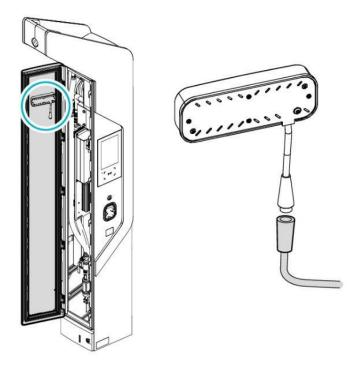


Fig. 89: LED door light bar connector

- Clean the adhesive surface on the door with isopropanol.
- Remove the protective film from the seal on the LED door light bar.
- Align the LED door light bar in the recess in the door and press it firmly.
- > Connect the LED door light bar connector.
- > Close the door of the Turbo Charger and lock it.
- > Close the Turbo Charger service flap and lock it.



9.12. Removing and installing the door contact switch



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION

Cuts due to sharp edges.



When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.

Designation	Reference	Item number
Door contact switch	PAG	V04.016.002.AA
	PEG	PEG.A86.665.863.00
Supplier	ads-tec	DE-HPCSP034 001-AA



9.12.1. Removing the door contact switch

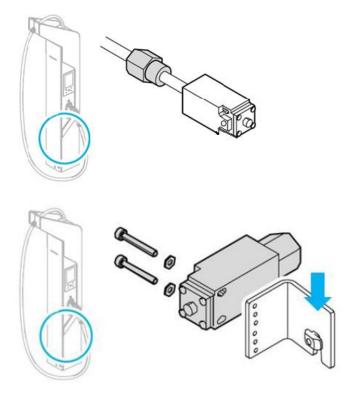


Fig. 90: Removing the door contact switch

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



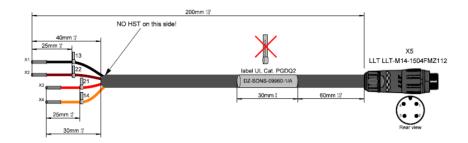
- Mark the installation position of the door contact switch on the profile rail.
- ➤ Unscrew the screw on the flap on the housing of the door contact switch and open the flap.
- > Disconnect the electrical cable on the door contact switch.
- > Tighten the PG connection.
- > Pull the electrical cable through the PG connection.
- > Loosen the screw for the holder of the door contact switch on the profile rail.
- Detach the door contact switch and holder.

Replacing the door contact switch or holder

- > Unscrew the screws for the door contact switch on the holder.
- > Detach the door contact switch from the holder.
- > Replace the door contact switch or holder.
- Attach the door contact switch to the holder with the bolts and nuts.



9.12.2. Installing the door contact switch



Connection diagram:						
Connection1	Connection2	wire color	wire label/print	Remark crash sensor	Remark door switch	
X1	X5/1	black	13	Pilot1.01 In	+24VDC	
X2	X5/2	brown	22	Pilot1.01 Out	Check line out = check_line_tür	
X3	X5/3	red	21	check line_crash sensor_n	+24VDC	
X4	X5/4	orange	14	+24V	Sensor n = Tür_UE1_n	

Fig. 91: Door contact switch assignment

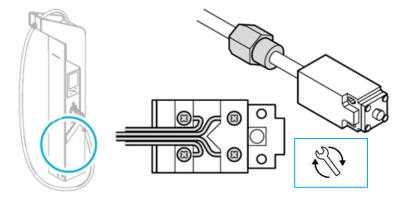


Fig. 92: Connecting the door contact switch electrical cable

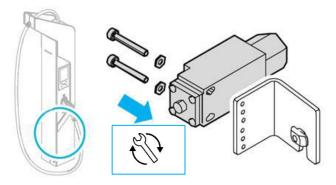


Fig. 93: Installing the door contact switch

- > Guide the electrical cable through the PG connection.
- Close the flap on the housing of the door contact switch.
- > Connect the electrical cable to the door contact switch.
- Firmly tighten the PG connection.
- Position the door contact switch and holder at the previously marked position on the profile rail.
- > Screw the screw for the door contact switch holder into the profile rail (tightening torque: 5 Nm (44.25 in.lb)).
- Close the flap on the housing of the door contact switch.
- > Secure the flap on the housing of the door contact switch with the associated screw (tightening torque: 0.8 Nm (7.08 in.lb)).
- Close the door of the Turbo Charger and lock it.
- > Close the Turbo Charger service flap and lock it.



9.13. Removing and installing the service flap



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger service flap, fingers or hands can be trapped between the service flap and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- > Do not reach into the gap between the service flap and the housing of the Turbo Charger.

Designation	Reference	Item number
Z Service flap (white)	PAG	-
	PEG	PEG.A86.650.790.00
Supplier	ads-tec	DE-HPCSP006 001-AA

Designation	Reference	Item number
Z Service flap (painted white)	PAG	-
	PEG	PEG.A86.650.790.01
Supplier	ads-tec	DE-HPCSP141 001-AA

Designation		Item number
Z Service flap (black)	PAG	-
	PEG	PEG.A86.650.791.00
Supplier	ads-tec	DE-HPCSP007 001-AA

Designation		Item number
Z Service flap (black)	PAG	V04.016.002.F
	PEG	PEG.A86.650.791.01
Supplier	ads-tec	DE-HPCSP119 001-AA





This instruction contains a description of the procedure for removing the service flap. Installation must be performed in reverse order.

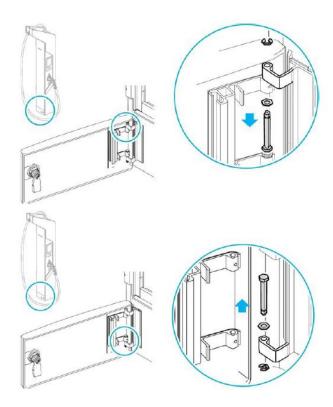


Fig. 94: Service flap suspension: Hinge bolts secured with circlips

- > Open the service flap with the triangular wrench.
- > Remove the circlips on the upper and lower hinge bolts.
- Loosen the upper hinge bolt and detach it downwards.
- Loosen the lower hinge bolt and detach it upwards.
- > Detach the service flap.



9.14. Removing and installing the swivel handle



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

Designation	Reference	Item number
Swivel handle	PAG	V04.016.002.HK
	PEG	PEG.A86.662.479.00
Supplier	ads-tec	DE-HPCSP114 001-AA

Designation	Reference	Item number
Swivel handle (reinforced)	PAG	V04.016.002.JC
	PEG	PEG.A86.662.479.01
Supplier	ads-tec	DE-HPCSP114 001-AB



This instruction contains a description of the procedure for removing the swivel handle. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



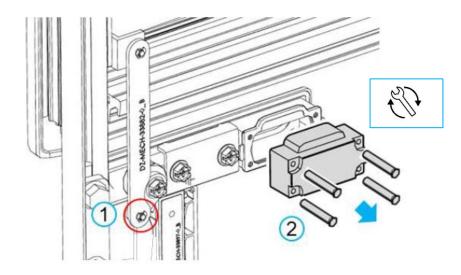


Fig. 95: Removing the swivel handle

- > Remove the circlip on the swivel handle connecting rod locking mechanism (item 1).
- > Release the connecting rod from the swivel handle.
- > Unscrew the screws on the lock cylinder box (item 2).
- > Detach the lock cylinder box.

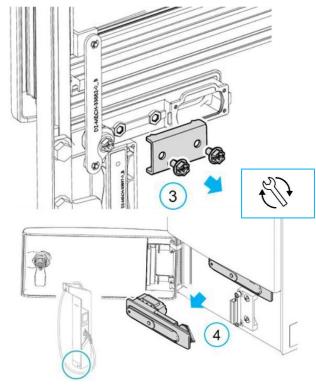


Fig. 96: Removing the swivel handle

- > Unscrew the screws on the retaining plate (item 3).
- Remove the retaining plate.
- > Remove the swivel handle (item 4).



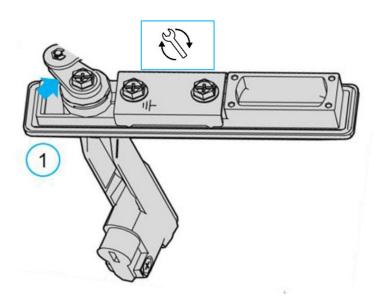


Fig. 97: Swivel handle

- Remove the lock cylinder from the swivel handle when replacing the swivel handle or the lock cylinder.
- ➤ Unscrew the screw on the connecting rod drive when replacing the swivel handle (item 1).



Installation instructions

Tightening torques

- Connecting rod drive to swivel handle screw: 5 Nm (44.25 in.lb)
- Retaining plate to swivel handle screw: 5 Nm (44.25 in.lb)
- Lock cylinder box to swivel handle screw: 2.5 Nm (22.13 in.lb)



9.15. Removing and installing the door and service flap lock mechanism



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.



CAUTION

Risk of falling.



You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- ➤ Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- > Ensure that the ladder and platform are standing securely.

Designation		Item number
Z Door lock mechanism	PAG	V04.016.002.R
	PEG	PEG.A86.662.279.01
Supplier	ads-tec	DE-HPCSP120 001-AA



Designation	Reference	Item number
Z Door lock mechanism (reinforced)	PAG	V04.016.002.JB
	PEG	PEG.A86.662.279.02
Supplier	ads-tec	DE-HPCSP120 001-AB

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

9.15.1. Removing the door and service flap locking mechanism

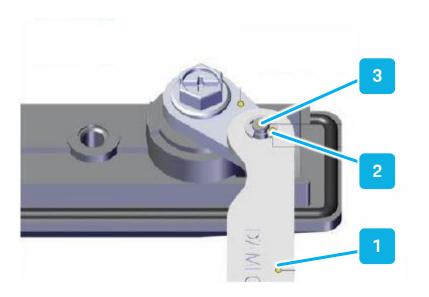


Fig. 98: Lock mechanism

- > Remove the circlip on the connecting rod (1).
- > Detach the circlip (2) and the bolt (3).
- > Remove the swivel handle (see section 9.14).





The door lock mechanism parts set contains a swivel handle. If the swivel handle does not need to be replaced, it can remain installed.

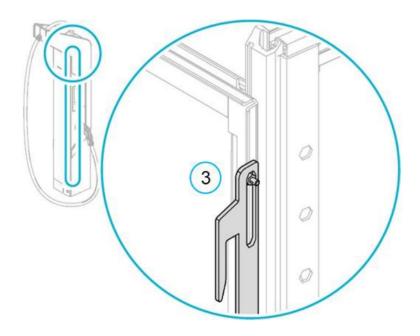


Fig. 99: Locking rail

- > Unscrew the screws on the locking rail and remove them along with the spacer sleeves (item 3).
- Detach the locking rail.

9.15.2. Installing the door and service flap lock mechanism

- Position the locking rail.
- Secure the locking rail with the screws and spacer sleeves.
- > Tighten the screws hand tight.
- \triangleright With a feeler gage, check whether there is a lateral clearance of ± 0.5 mm (0.02 in).
- The clearance can be adjusted by screwing the fastening screws in or out.
- Check that the locking rail moves freely.
- If necessary, lubricate the moving parts with lubricating grease.

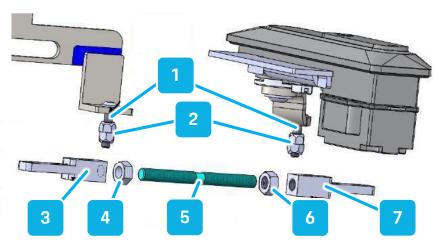


Fig. 100: Lock mechanism connecting rod

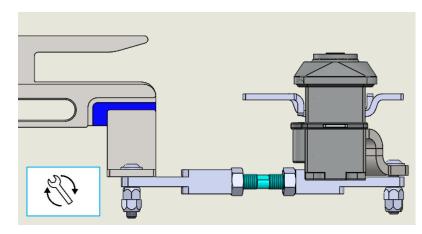


Fig. 101: Lock mechanism connecting rod assembled

- > Loosen the secured self-locking nuts (2).
- > Unscrew the self-locking nuts (2) from the screws (1).
- Insert one screw (1) through the hole in the linkage (7) on the swivel handle and one in the hole in the linkage (3) on the locking rail.
- Position the linkages (3, 7) on the threaded rod (5) on the screws (1).
- If necessary, unscrew the nuts (4, 6) on the threaded rod and adjust the distance between the linkages (3, 7) by turning the threaded rod (5).



- > Screw a self-locking nut (2) onto the screws (1) with the self-locking side first.
- Do not tighten the self-locking nuts (2) securely. The linkages (3, 7) on the threaded rod (5) must have sufficient clearance.
- > Screw the 2nd self-locking nut (2) onto the screws (1).
- ➤ Hold the 1st self-locking nut (2) in place and secure the screw connection with the 2nd self-locking nut (2) (tightening torque: 2 Nm (17.70 in.lb)).

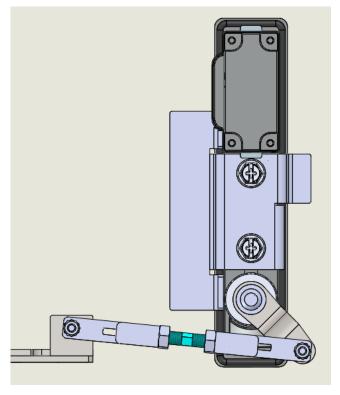


Fig. 102: Lock mechanism connecting rod assembled



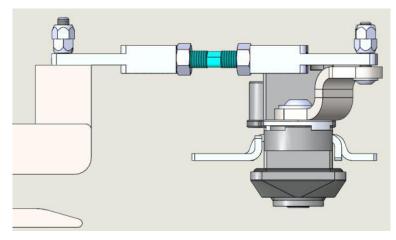


Fig. 103: Lock mechanism connecting rod assembled

- > Unscrew the nuts (4, 6) on the threaded rod (5).
- Adjust the distance between the swivel handle and the locking rail by turning the threaded rod (5).
- > Screw the nuts (4, 6) on the threaded rod (5) against the linkages (3, 7).



9.16. Removing and installing the connector holder



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.

Designation	Reference	Item number
Z Connector holder CCS1 (black)	PAG	V04.016.002.CQ
	PEG	PEG.A86.647.416.00
Supplier	ads-tec	DE-HPCSP057 001-AA



Designation	Reference	
Z Connector holder CCS2 (white)	PAG	-
	PEG	PEG.A86.647.515.00
Supplier	ads-tec	DE-HPCSP009 001-AA

Designation	Reference	Item number
Z Connector holder CCS2 (black)	PAG	V04.016.002.D
	PEG	PEG.A86.647.516.00
Supplier	ads-tec	DE-HPCSP010 001-AA



This instruction contains a description of the procedure for removing the connector holder. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

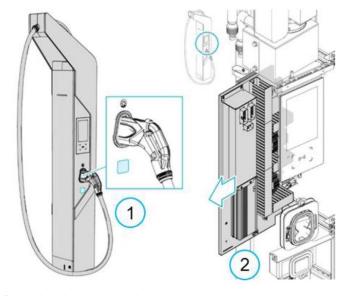


Fig. 104: Removing the connector holder

- Remove the charging plug from the connector holder and place it safely on one side (item 1).
- > Unlock the upper mounting plate by pressing it and pull it out (item 2).



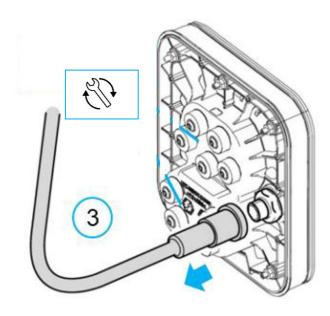


Fig. 105: Connector holder

- > Disconnect the connector on the rear of the connector holder (item 3).
- > Unscrew the screws for attaching the front section of the connector holder to the rear section.

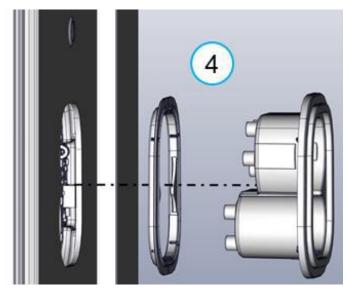


Fig. 106: Connector holder front section

> Remove the front section along with the seal from the outside (item 4).



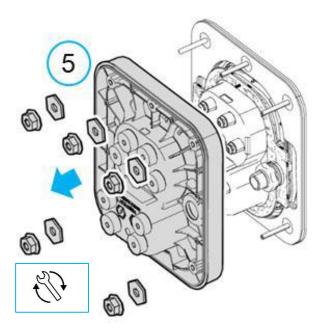


Fig. 107: Connector holder rear section

- > Unscrew the nuts on the rear section of the connector holder.
- Detach the washers.
- Detach the rear section of the connector holder along with the circuit board (item 5).



On the Turbo Charger ADA version, the holder for the RFID reader is attached to the connector holder with the lower two screws.



Installation instructions

Touch the equipotential bonding before installation to prevent damage to the circuit board due to electrostatic charge.

Tightening torques

- Connector holder rear section to Turbo Charger nut:
 2.5 Nm (22.13 in.lb)
- Front section to connector holder rear section screw: 1.4 Nm (12.39 in.lb)



9.17. Replacing the strip earth bands



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- Ensure that the ladder and platform are standing securely.

Designation	Reference	Item number
Stainless steel strip earth band set	PAG	V04.016.002.HM
	PEG	PEG.A86.660.175.00
Supplier	ads-tec	DE-HPCSP150 001-AA

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



First generation Turbo Chargers were supplied with galvanized strip earth bands. These can corrode due to climatic conditions. Replace corroded galvanized strip earth bands with stainless steel strip earth bands.



Charge Box Turbo Charger

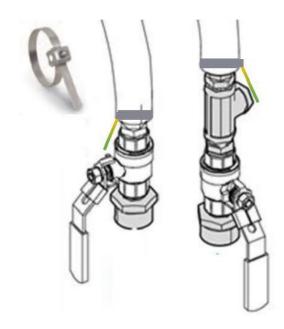


Fig. 108: Lower feed/return line strip earth band

Charging park Turbo Charger

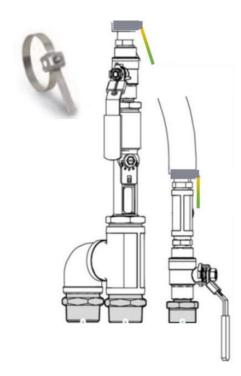


Fig. 109: Lower feed/return line strip earth band

- > Disconnect the ground cable from the strip earth band.
- > Fully open the strip earth band and remove it.
- > Install the new strip earth band.
- > Contact the earth cable with the strip earth band.



9.18. Removing and installing the roof assembly



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- > Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- ➤ Ensure that the ladder or platform is securely positioned.
- > Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention. Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.

NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.



NOTICE

Damage to property due to kinking or twisting of the charging cable.

The charging cable is liquid-cooled. It contains the high-voltage cables for energy transmission and the coolant lines.

Rotation of the charging cable about its own axis must not exceed $\pm 50^{\circ}$. The bending radius of the charging cable must not fall below the minimum of 200 mm (7.87 in). Otherwise, the charging cable may be damaged.

- ➤ Make sure that the charging cable is not kinked or twisted during removal and installation of the roof assembly.
- > Avoid tensile loads on the charging cable.
- ➤ When installing the roof assembly, make sure that the charging cable is not twisted between the roof and the cable bushing.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1.



Designation	Reference	Item number
Z Roof Huber + Suhner CCS1 (black)	PAG	-
	PEG	PEG.A86.637.416.00
Supplier	ads-tec	DE-HPCSP140 001-AA

Designation	Reference	Item number
Z Roof Huber + Suhner CCS2 (white)	PAG	-
	PEG	PEG.A86.637.515.00
Supplier	ads-tec	DE-HPCSP014 001-AA

Designation	Reference	Item number
Z Roof Huber + Suhner CCS2 (black)	PAG	-
	PEG	PEG.A86.637.516.00
Supplier	ads-tec	DE-HPCSP015 001-AA

Designation	Reference	Item number
Z Roof Harting CCS1 (black) PAG	PAG	V04.016.002.AD
		V04.016.002.HS
	PEG	PEG.A86.637.426.00
		PEG.A86.637.426.01
Supplier ads-tec	ads-tec	DE-HPCSP062 001-AA
		DE-HPCSP062 001-AB

Designation	Reference	Item number
Z Roof Harting CCS2 (white)	PAG	-
	PEG	PEG.A86.637.525.00
Supplier	ads-tec	DE-HPCSP052 001-AA



Designation	Reference	Item number
Z Roof Harting CCS2 (black)	Z Roof Harting CCS2 (black) PAG	V04.016.002.A
		V04.016.002.HR
	PEG	PEG.A86.637.526.01
		PEG.A86.637.526.02
Supplier ads-tec	ads-tec	DE-HPCSP053 001-AA
		DE-HPCSP053 001-AB



Some of the spare parts tables contain several item numbers under one entry. These components differ in the design of the strip earth bands (galvanized or stainless steel). The last 2 digits describe the change index. The first component specified is supplied with galvanized strip earth bands. The component specified subsequently has stainless steel strip earth bands.



This instruction contains a description of the procedure for removing the roof assembly. Installation must be performed in reverse order.



If a roof assembly manufactured by Huber + Suhner is removed due to a defect, it must be replaced with one from Harting. Roof assemblies made by Huber + Suhner are no longer supplied.



An additional person is required to assist when removing and installing the roof assembly.

- Make sure that the following environmental conditions for removing and installing the roof assembly are met:
 - There is no wind or only weak wind up to wind strength 3 (up to 15 km/h (9.32 mph)).
 - No precipitation is to be expected for the entire duration of all work.
- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



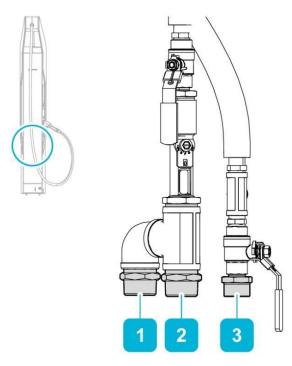


Fig. 110: Turbo Charger coolant lines, charging park Turbo Charger shown

Close the ball valves for the coolant lines at the base of the Turbo Charger.

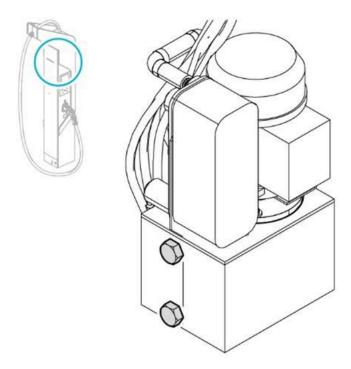


Fig. 111: Turbo Charger cooling unit

- > Position a collecting trough under the cooling unit in the Turbo Charger.
- Drain the coolant from the secondary circuit out of the cooling unit.
- Observe the information in the cooling unit operating instructions.



Turbo Charger with closed secondary cooling circuit

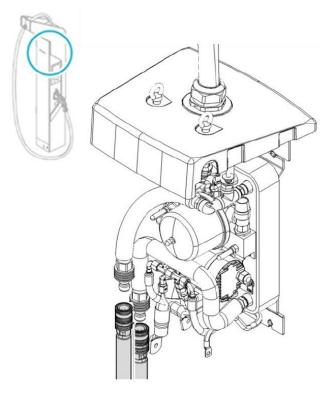


Fig. 112: Turbo Charger cooling unit, connection

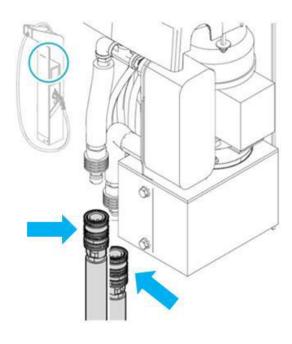


Fig. 113: Turbo Charger cooling unit, connection

- > Wrap cloths around the upper quick-release couplings to collect escaping coolant.
- > Disconnect the quick-release couplings.
- > Seal the coolant lines with dummy plugs with pull-off tabs (used for DZ-MECH-33992-0/B connection).

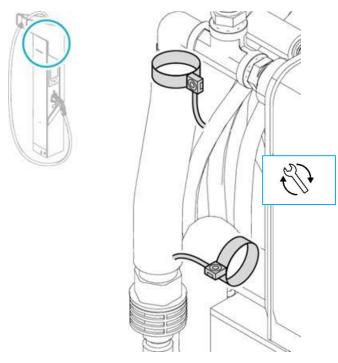


Fig. 114: Disconnecting the ground cables at the hose clamps

- > Loosen the screws for the ground cables at the hose clamps.
- > Detach the ground cables.

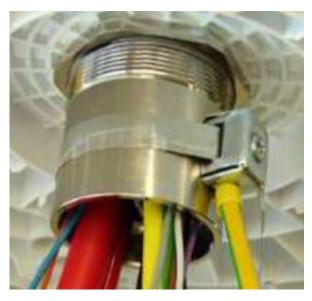


Fig. 115: Roof ground cable feed through

- > Loosen the screw for the ground cable on the roof feed through.
- > Detach the ground cable.



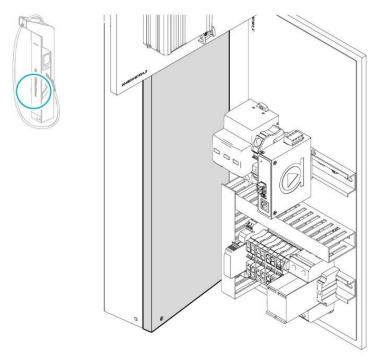


Fig. 116: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.

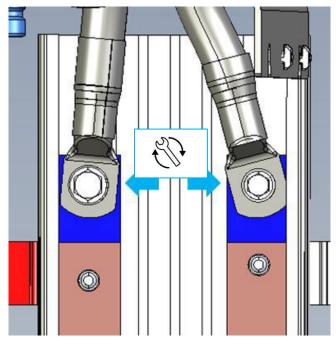


Fig. 117: Upper high-voltage cables

- > Unscrew the screws on the cable connections for the high-voltage cables.
- > Detach the high-voltage cables from the busbars.

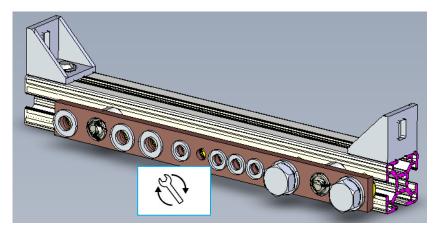


Fig. 118: Upper equipotential bonding bar, on right above display

- > Unscrew the screw for the ground cable to the pump support on the upper equipotential bonding bar.
- > Unscrew the screw for the ground cable to the charging cable on the upper equipotential bonding bar.
- > Remove the ground cables from the upper equipotential bonding bar.

Turbo Charger with closed secondary cooling circuit

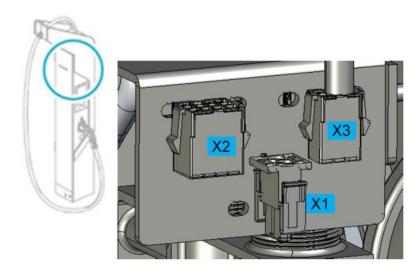


Fig. 119: Connection block

> Disconnect the connectors X1, X2, and X3.

Connector	Designation
X1	Coolant pump supply line
X2	Coolant pump sensor line (12-pole)
ХЗ	Charging cable sensor cable (6-pole)



Turbo Charger with open secondary cooling circuit

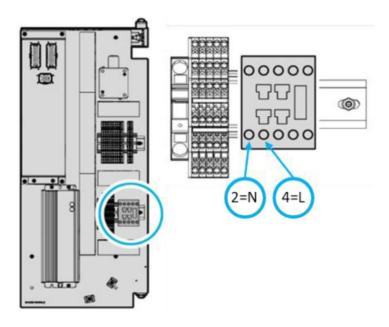


Fig. 120: Pump electrical cable

➤ Disconnect the electrical cable for the coolant pump at the pump actuation contactor terminal 2 (N) and terminal 4 (L).

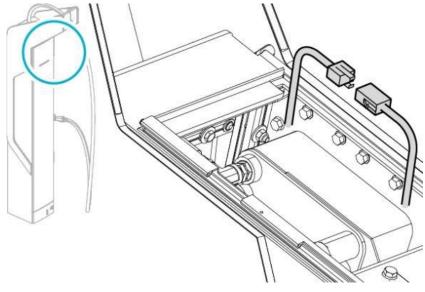


Fig. 121: Ambient lighting connector

Disconnect the two connectors for the ambient lighting and the two connectors for the pump unit sensors and the charging cable to the right of the heat exchanger.



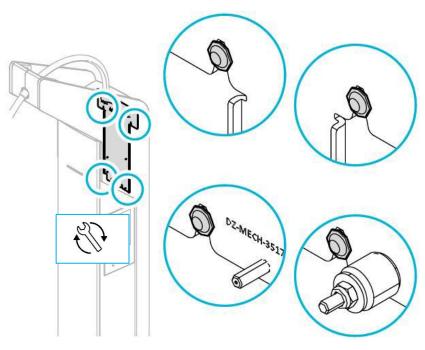


Fig. 122: Rear support plate screw connection

- ➤ Loosen the 4 screw connections on the rear support plate.
- > Push the upper 2 screw connections outwards.

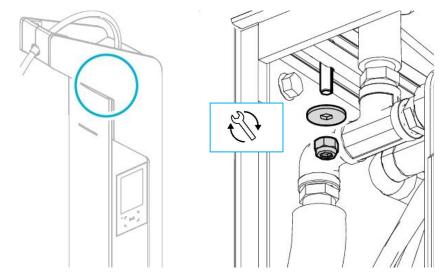


Fig. 123: Roof assembly screw connection

- > Unscrew the 2 nuts for securing the roof assembly on the profile rail.
- Remove the nuts and washers from the stud bolts.



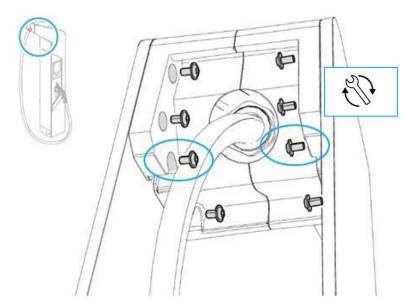


Fig. 124: Cable holder

- Loosen the 2 screws (marked in blue).
- Unscrew the remaining screws.
- > Lift up the cable holder and guide it over the bracket.

! WARNING



Risk of injury due to falling loads.

Falling loads can cause severe injuries that can result in death.

- > Wear a safety helmet.
- > Never stand under raised loads.
- > Use suitable lifting gear, load attachments, and slings.
- Only lift the load using the transport eyelets and sling points provided.

NOTICE

Damage to property due to unsuitable slings.

The eyelets in the roof of the Turbo Charger are designed for vertical tensile forces. Very short slings form a triangle of forces, which causes the eyelets to be pulled together excessively.

> Observe the minimum sling lengths of 1 m (3.28 ft).



Only use textile slings in conjunction with shackles for transporting using a crane. The slings are very flexible and can adjust to the contours of the load to be lifted.

Observe the nominal load capacity of the slings and select them based on the total weight to be lifted.

Pay attention to the maximum slinging angle of 45° when transporting using a crane and using the slings. With larger slinging angles, there is a risk that the eyelets will be pulled together, causing damage to the roof of the Turbo Charger.

The lifting height of the crane must be at least 3.6 m (11.81 ft).

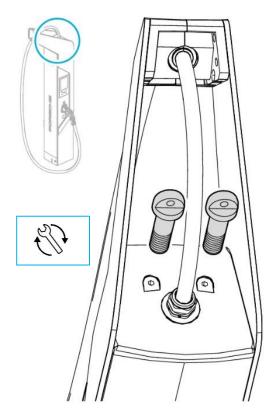


Fig. 125: Installing the eyelets

- > Unscrew the screw plugs in the roof of the Turbo Charger.
- > Screw the eyelets into the roof of the Turbo Charger.



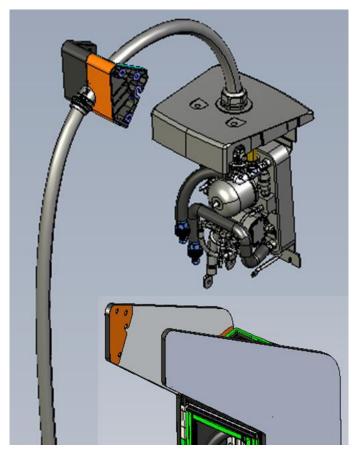


Fig. 126: Roof assembly, Turbo Charger with closed secondary cooling circuit shown

➤ Lift the roof assembly and carefully pull it out of the Turbo Charger with another person.

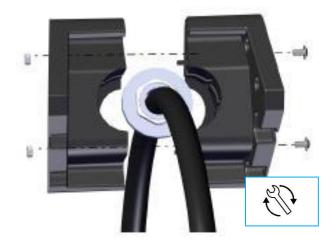


Fig. 127: Disassembling and assembling the cable holder

- Unscrew the 2 screws from the cable holder.
- > Detach the two parts of the cable holder from one another.
- Make sure that the nuts are not lost.

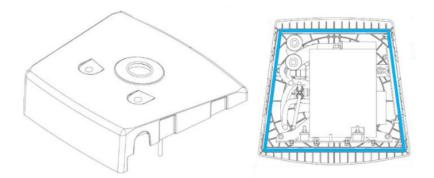


Fig. 128: Roof assembly seal



Installation instructions

Check the condition and fit of the seal in the roof of the Turbo Charger.

Make sure that the electrical cables and hoses are not crimped when inserting the roof assembly.

Use new seals for the screw plugs in the roof of the Turbo Charger.

Check the contact surfaces of the HV cables on the busbars (see section 8.4).

Measure the resistance between the DC+ and DC- HV connections.

Fill the secondary cooling circuit with coolant.





Installation instructions:

Position of the sliding blocks for the roof assembly screw connection.

Turbo Charger with closed secondary cooling circuit:

- Upper left, 15 mm (0.59 in) distance to left profile end
- Upper right, 50 mm (1.97 in) distance to right profile end
- Lower left, 98 mm (3.86 in) distance to left profile end
- Lower right, 58 mm (2.28 in) distance to right profile end

Turbo Charger with open secondary cooling circuit:

- Upper left, 40 mm (1.57 in) distance to left profile end
- Upper right, 15 mm (0.59 in) distance to right profile end
- Lower left, 103 mm (4.06 in) distance to left profile end
- Lower right, 113 mm (4.45 in) distance to right profile end



Before fully lowering the roof assembly, screw the screws for securing it into the sliding blocks by a few turns.



Installation instructions

<u>Tightening torques</u>

- Rear mounting plate screw: 16 Nm (141.61 in.lb)
- Roof assembly to profile rail nut: 5 Nm (44.25 in.lb)
- Roof screw plug: 3 Nm (26.55 in.lb)
- Cable holder section screw: 5 Nm (44.25 in.lb)
- Cable holder to bracket screw: 2 Nm 17.70 in.lb)
- HV cable M8 metric screw to busbar: 15 Nm (132.76 in.lb)
- HV cable M10 metric screw to busbar: 30 Nm (265.52 in.lb)
- Ground cable to hose clamp: 2.5 Nm (22.13 in.lb)
- Ground cable to equipotential bonding bar: 5 Nm (44.25 in.lb)



9.19. Removing and installing the upper feed/return parts



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- ➤ Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention. Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.

NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.



This instruction contains a description of the procedure for removing the upper feed/return parts. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- Open the door of the Turbo Charger (see section 5.7.4).



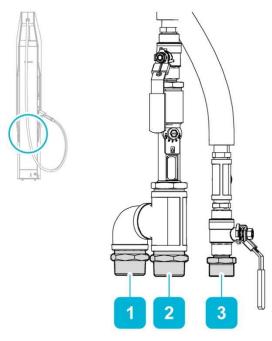


Fig. 129: Turbo Charger coolant lines, charging park Turbo Charger shown

Close the ball valves for the coolant lines at the base of the Turbo Charger.

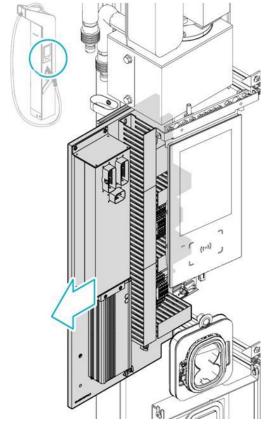


Fig. 130: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.

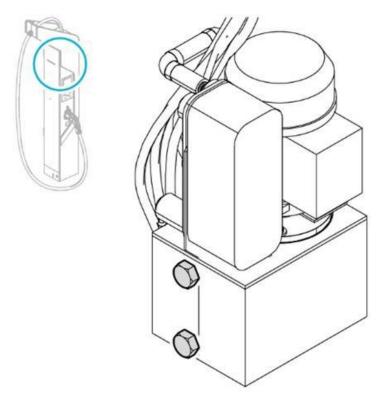


Fig. 131: Turbo Charger cooling unit

- Position a collecting trough under the cooling unit in the Turbo Charger.
- Drain the coolant from the secondary circuit out of the cooling unit.
- Observe the information in the cooling unit operating instructions.



9.19.1. Removing and installing the upper feed/return



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- > Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- Ensure that the ladder and platform are standing securely.



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- > Open the cooling system slowly and allow the pressure to escape.



\triangle

CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention. Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.

NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.



Designation	Reference	Item number
Closed system upper return, Harting	per return, Harting PAG	V04.016.002.N
		V04.016.002.HT
	PEG	PEG.A86.630.280.01
		PEG.A86.630.280.02
Supplier	ads-tec	DE-HPCSP085 001-AA
		DE-HPCSP085 001-AB

Designation	Reference	Item number
Closed system upper feed, Harting	PAG	V04.016.002.P
		V04.016.002.JA
	PEG	PEG.A86.630.285.01
		PEG.A86.630.285.02
Supplier	ads-tec	DE-HPCSP084 001-AA
		DE-HPCSP084 001-AB

Designation	Reference	Item number
Open system upper return Huber + Suhner	PAG	-
	PEG	PEG.A86.630.290.00
Supplier	ads-tec	DE-HPCSP045 001-AA

Designation	Reference	Item number
Open system upper feed Huber + Suhner	PAG	-
	PEG	PEG.A86.630.295.00
Supplier	ads-tec	DE-HPCSP043 001-AA





Some of the spare parts tables contain several item numbers under one entry. The components differ in the design of the strip earth bands (galvanized or stainless steel). The last 2 digits describe the change index. The first component specified is supplied with a galvanized strip earth band. The component specified subsequently has a stainless steel strip earth band.



This instruction contains a description of the procedure for removing the upper feed/return. Installation must be performed in reverse order.



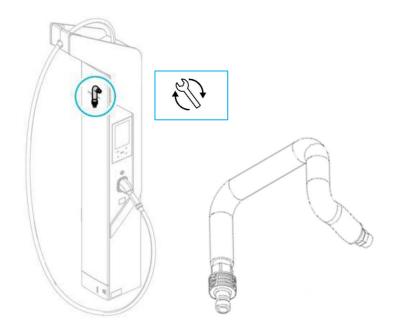


Fig. 132: Upper feed



Fig. 133: Upper return, Turbo Charger with closed secondary cooling circuit shown

- > Disconnect the quick-release coupling.
- > Unscrew the union nut at the cooling unit line connection.
- Detach the feed/return line.





After the quick bleed valve, the return line in a Turbo Charger with an open secondary cooling circuit is angled downwards, not to the side.



Under certain circumstances, the union nut may be covered by the Armaflex insulation.



Installation instructions

Install a new seal between the union nut and the cooling unit line connection.

Secure the feed/return line with Velcro tape.

Check the tightness of the connection points.

Tightening torque

 Union nut at cooling unit line connection: 25 Nm (221.27 in.lb)



9.20. Removing and installing the lower feed/return parts



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.





CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- ➤ Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- > Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention.
 - Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.

Designation	Reference	Item number
Z Lower return 1¼" charging park	PAG	-
	PEG	PEG.A86.630.264.00
Supplier	ads-tec	DE-HPCSP046 001-AA

Designation	Reference	Item number
Lower feed 1¼", charging park	PAG	-
	PEG	PEG.A86.630.830.00
Supplier	ads-tec	DE-HPCSP044 001-AA

Designation	Reference	Item number
Lower feed 1", Charge Box	PAG	V04.016.002.L
		V04.016.002.JL
	PEG	PEG.B05.630.327.01
		PEG.B05.630.327.02
Supplier	ads-tec	DE-HPCSP054 001-AA
		DE-HPCSP054 001-AA



Designation	Reference	Item number
Z Lower return 1" Charge Box	PAG	V04.016.002.M
		V04.016.002.JD
	PEG	PEG.B05.630.713.01
		PEG.B05.630.713.02
Supplier ads-t	ads-tec	DE-HPCSP055 001-AA
		DE-HPCSP055 001-AB



This instruction contains a description of the procedure for removing the lower feed/return parts. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



Some of the spare parts tables contain several item numbers under one entry. The components differ in the design of the strip earth bands (galvanized or stainless steel). The last 2 digits describe the change index. The first component specified is supplied with a galvanized strip earth band. The component specified subsequently has a stainless steel strip earth band.



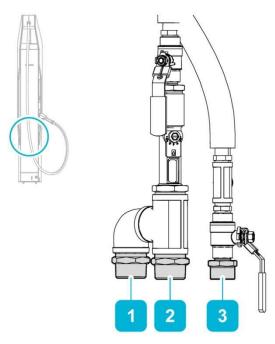


Fig. 134: Turbo Charger coolant lines, charging park Turbo Charger shown

Close the ball valves for the coolant lines at the base of the Turbo Charger.

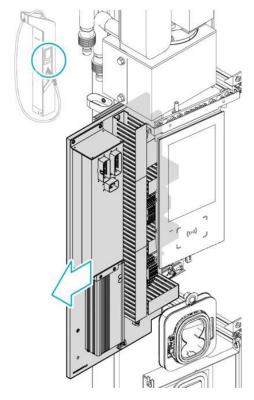


Fig. 135: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



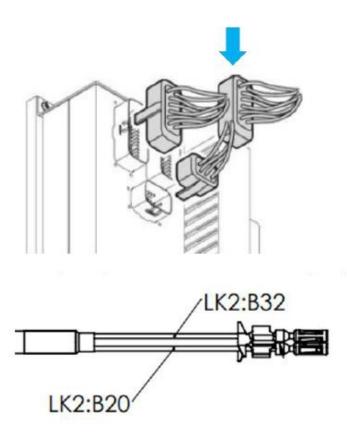


Fig. 136: Temperature sensor electrical cable

- > Unlock the plug LK2: B and detach it from the upper mounting plate.
- ➤ Press in the side locks on the plug LK2: B with a small slotted screwdriver and pull apart the red and black parts of the plug LK2: B.
- ➤ Disconnect the electrical cable of the return temperature sensor (pin 20 and pin 32) from the plug LK2: B.
- > Expose the electrical cable for the return temperature sensor in the cable duct.



Charge Box Turbo Charger

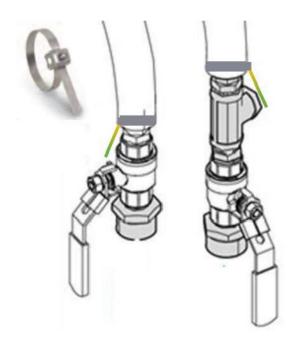


Fig. 137: Lower feed/return line strip earth band

Charging park Turbo Charger

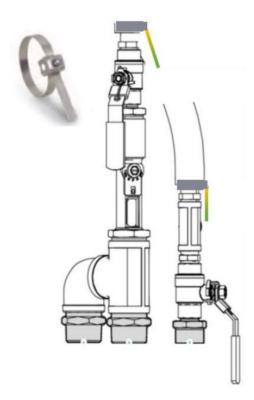


Fig. 138: Lower feed/return line strip earth band

- > Remove the strip earth band and ground cable from the feed/return line.
- > Expose the feed/return line.



Fig. 139: Quick-release coupling

> Disconnect the quick-release coupling on the upper feed/return line.

Charge Box Turbo Charger

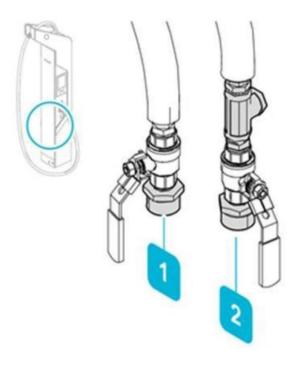


Fig. 140: Lower feed/return line

- ➤ Disconnect the screw connection for the feed line (1) or the return line (2) using 2 parallel pliers.
- > Remove the feed line (1) or return line (2) from the Turbo Charger.



Charging park Turbo Charger

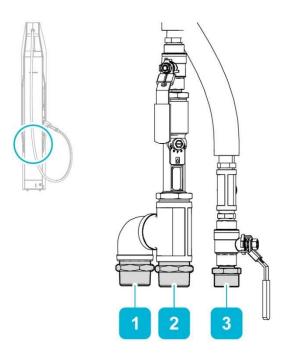


Fig. 141: Lower feed/return line

- Disconnect the screw connection for the feed line (1) and for the feed line (2) (bypass for adjacent Turbo Chargers) or the return line (3) using 2 parallel pliers.
- Remove the feed line (1, 2) or the return line (3) from the Turbo Charger.



Charge Box Turbo Charger

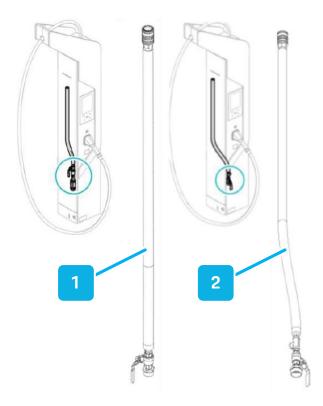


Fig. 142: Lower feed/return line

Charging park Turbo Charger

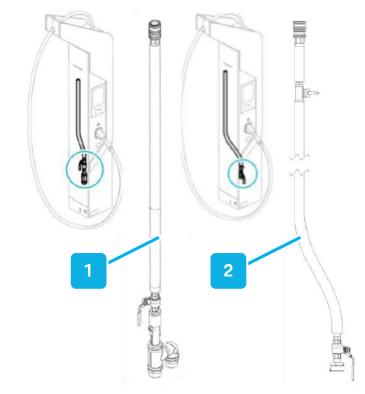


Fig. 143: Lower feed/return line





Installation instructions

Pay attention to the tightening torques for the screwed connections for the feed/return line (technical data sheet for on site interface).

Check the tightness of the connection points.



9.21. Removing and installing the return temperature sensor



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.





CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- Health hazard in the event of skin and eye contact:
 Rinse the eyes and affected areas of the skin
 thoroughly with water. In the event of eye contact,
 seek immediate medical attention.
 - Present the packaging or label.
- > Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.

Designation	Reference	Item number
Cooling circuit temperature sensor	PAG	V04.016.002.CB
	PEG	PEG.A86.685.669.00
Supplier	ads-tec	DE-HPCSP071 001-AA



This instruction contains a description of the procedure for removing the return temperature sensor. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



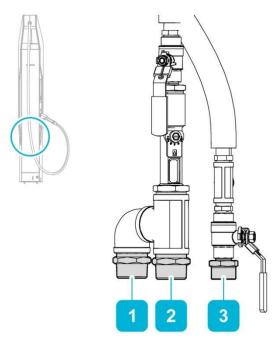


Fig. 144: Turbo Charger coolant lines, charging park Turbo Charger shown

Close the ball valves for the coolant lines at the base of the Turbo Charger.

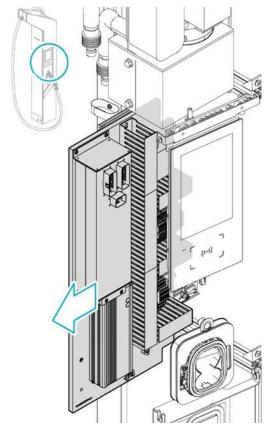


Fig. 145: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



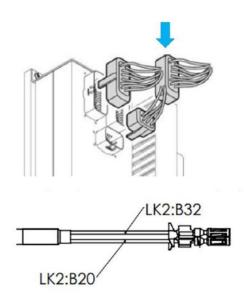


Fig. 146: Temperature sensor electrical cable

- ➤ Unlock the plug LK2: B and detach it from the upper mounting plate.
- ➤ Press in the side locks on the plug LK2: B with a small slotted screwdriver and pull apart the red and black parts of the plug LK2: B.
- ➤ Disconnect the electrical cable of the return temperature sensor (pin 20 and pin 32) from the plug LK2: B.
- > Expose the electrical cable for the return temperature sensor in the cable duct.

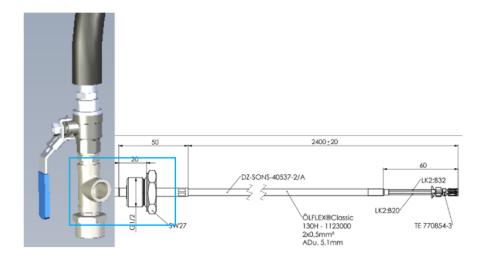


Fig. 147: Return temperature sensor

- > Unscrew the return temperature sensor from the connection on the return line using a pipe wrench.
- > Detach the return temperature sensor.





Installation instructions

Clean the sealing surface at the connection on the return line and on the return temperature sensor.

Spray the threads at the connection on the return line and on the return temperature sensor with activator.

Apply the sealant to the thread at the return temperature sensor.

Screw the return temperature sensor into the connection on the return line.

Wipe off excess sealant.

Allow the sealing surface to dry and harden for approx. 5 min.

Check the tightness of the connection points.



9.22. Topping up and replacing the coolant (Turbo Charger with open secondary cooling circuit)



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION

Risk of falling.



You can slip and fall when working on a ladder or a platform.

- Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- > Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- Ensure that the ladder and platform are standing securely.





CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention.
 - Present the packaging or label.
- > Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



NOTICE

Damage to property due to contaminated coolant.

There is a risk of malfunctions and damage to equipment when operating the high-performance charging infrastructure with contaminated coolant.

- > Prevent ingress of dirt particles.
- > Close open coolant lines immediately after disconnecting connections.
- > Clean the coolant lines carefully before joining the connections.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

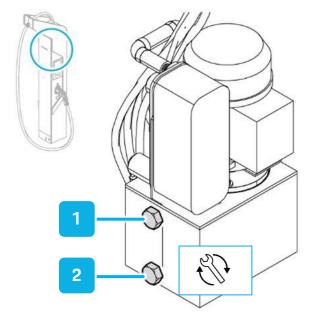


Fig. 148: Turbo Charger cooling unit

- > Position a collecting trough under the cooling unit in the Turbo Charger.
- ➤ Unscrew the screw plugs (1, 2) from the coolant tank.
- Completely drain the coolant from the secondary circuit out of the cooling unit.
- Observe the information in the cooling unit operating instructions.



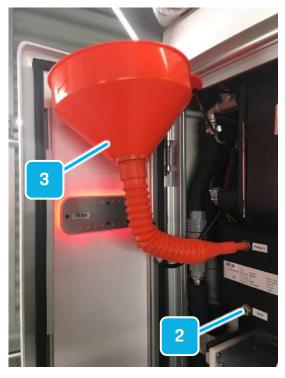


Fig. 149: Adding coolant

- > Screw the lower screw plug (2) into the coolant tank (tightening torque: $8 \pm 1 \text{ Nm} (70.81 \pm 8.85 \text{ in.lb})$).
- > Fill the secondary cooling circuit with coolant through the threaded hole in the upper screw plug and a funnel (3) until it flows out of the threaded hole.
- > Remove the funnel (3).

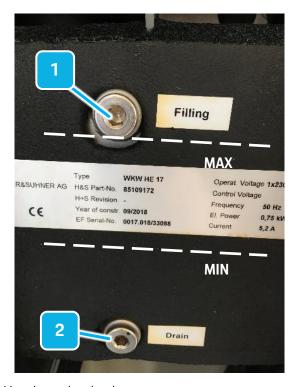


Fig. 150: Checking the coolant level

> Check the coolant level.



The level must be well above MIN. During operation of the pump, the level falls due to the suction effect.



- > Screw the upper screw plug into the coolant tank (tightening torque: $8 \pm 1 \text{ Nm} (70.81 \pm 8.85 \text{ in.lb})$).
- > Turn on the Turbo Charger.
- > Check the coolant level with the HTML tester or the Charge Park Configurator (CPC).



9.23. Removing and installing the upper mounting plate



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Z Closed system upper mounting plate, CCS ADA	PAG	V04.016.002.CR
	PEG	PEG.A86.647.524.00
Supplier	ads-tec	DE-HPCSP134 001-AA

Designation	Reference	Item number
Z Open system upper mounting plate, CCS	PAG	-
	PEG	PEG.A86.647.534.00
Supplier	ads-tec	DE-HPCSP110 001-AA

Designation	Reference	Item number
Z Closed system upper mounting plate, CCS	PAG	V04.016.002.E
	PEG	PEG.A86.647.544.00
Supplier	ads-tec	DE-HPCSP019 001-AA



This instruction contains a description of the procedure for removing the upper mounting plate. Installation must be performed in reverse order.



An additional person is required to assist when removing and installing the mounting plate. Alternatively, you can also secure the upper mounting plate to prevent it slipping off.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



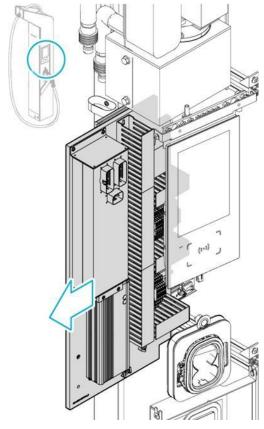


Fig. 151: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.

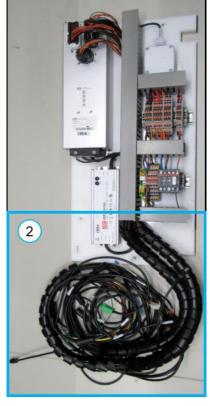


Fig. 152: Upper mounting plate removed



Document the routing of the electrical cables to the upper mounting plate. Use the electrical circuit diagram.



- > Expose all electrical cables to the upper mounting plate.
- Disconnect the connectors on the electrical cables to the upper mounting plate:
 - Connector holder cable
 - Charge stop button cable
 - LED door light bar cable
 - Display power supply cable
 - USB cable power supply cable
 - FPD link power supply cable
 - Ethernet cable power supply cable
 - Pump unit control cable
 - Sensor cable to charging cable
 - Ambient lighting cable
 - Coolant pump cable
 - Door contact switch cable
 - Pilot line cable
 - Crash sensor cable
 - Float switch cable

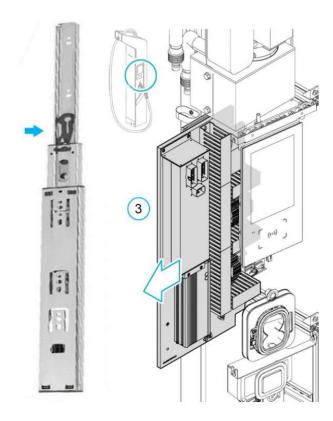


Fig. 153: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).



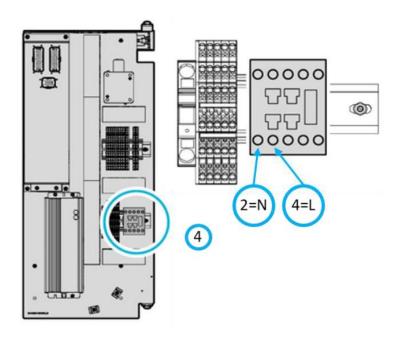


Fig. 154: Coolant pump power supply

- ➤ Disconnect the electrical cable for the coolant pump at the pump control contactor terminal 2 (N) and terminal 4 (L) (4).
- Expose the electrical cable for the coolant pump.
- > Remove the upper mounting plate from the guide.

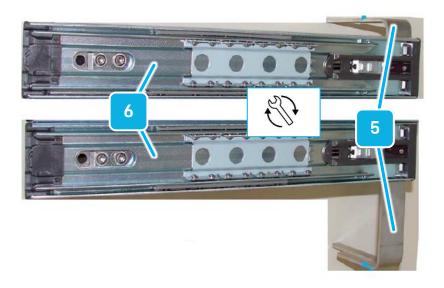


Fig. 155: Retaining bracket and guide rail

- Mark the installation position of the upper and lower retaining bracket (5).
- > Unscrew the screws for attaching the retaining bracket (5).
- Remove the retaining bracket (5) along with the guide rails (6).





Installation instructions

The new upper mounting plate is supplied with telescopic rails.

Install the two guide rails with a spacing of 540 mm (21.26 in).

Pay attention to the routing of the electrical cables.

Tightening torque

• Retaining bracket on profile rail: 5.5 Nm (48.68 in.lb)



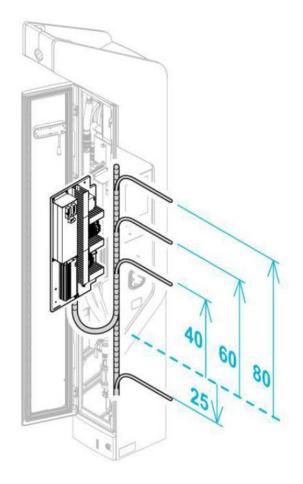


Fig. 156: Routing of electrical cables

Exit branches from protective hose after approx. 25 cm (9.84 in):

- Door contact switch cable
- Pilot line cable
- Crash sensor cable
- Float switch cable

Exit branches from protective hose after approx. 40 cm (15.75 in):

- Connector holder cable
- Charge stop button cable

Exit branches from protective hose after approx. 60 cm (23.62 in):

- USB cable power supply cable
- FPD link power supply cable
- Ethernet cable power supply cable

Exit branches from protective hose after approx. 80 cm (31.50 in):

- Display power supply cable
- LED door light bar cable
- Pump unit control cable
- Sensor cable to charging cable
- Ambient lighting cable



9.24. Removing and installing the 24 V power supply unit



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Power supply unit, 24 V, 320 W (Turbo Charger with closed secondary cooling circuit)	PAG	V04.016.002.BE
	PEG	PEG.A86.665.810.00
Supplier	ads-tec	DE-HPCSP076 001-AA

Designation	Reference	Item number
Power supply unit, 24 V, 150 W (Turbo Charger with open secondary cooling circuit)	PAG	-
	PEG	PEG.A86.665.815.00
Supplier	ads-tec	DE-HPCSP020 001-AA



This instruction contains a description of the procedure for removing the 24 V power supply unit. Installation must be performed in reverse order.

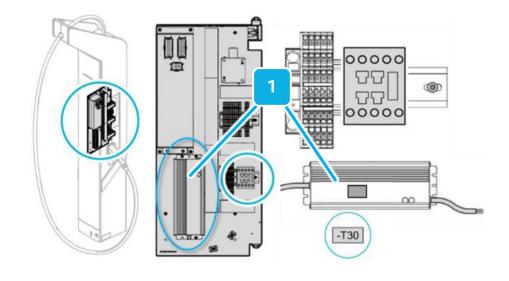


Fig. 157: 24 V power supply unit (reference marking -T30) on upper mounting plate

The 24 V power supply unit (1) is attached to the upper mounting plate.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



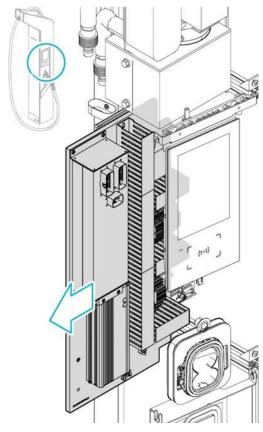


Fig. 158: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.

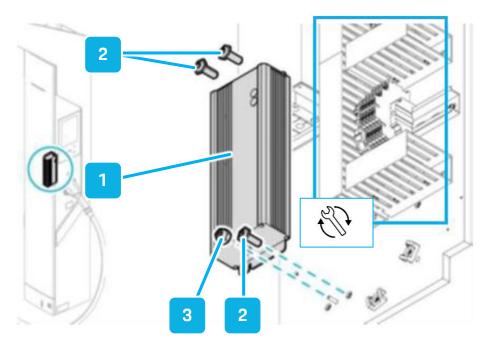


Fig. 159: 24 V power supply unit

- Open the cable duct to the right of the 24 V power supply unit (1).
- ➤ Disconnect the cables at the terminals (X1L and X24L).
- Unscrew the screws (2).
- Unscrew the nuts (3).
- > Detach the 24 V power supply unit (1) from the upper mounting plate.

PORSCHE

Preparing the 24 V power supply unit (1) for installation

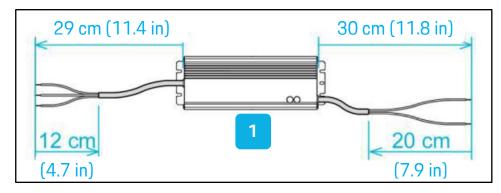


Fig. 160: Preparing the 24 V power supply unit for installation

- > Trim the electrical cables for the 24 V power supply unit (1) as shown in Fig. 160:.
- > Fit wire end sleeves on the ends of the cable.
- Tin-plated cable ends are not permitted due to potential corrosion.

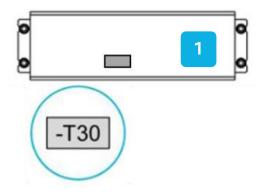


Fig. 161: Component reference marking



Installation instructions

Pay attention to the routing of the electrical cables.

Attach the component reference marking -T30 to the housing of the 24 V power supply unit (1).

Finally, check that the plug-in and clamp connections are correctly positioned.

Tightening torques

- 24 V power supply unit (1) to upper mounting plate screw: 1.7 Nm (15.05 in.lb)
- 24 V power supply unit (1) to upper mounting plate nut: 1.7 Nm (15.05 in.lb)



9.25. Removing and installing the pump actuation contactor (Turbo Charger with open secondary cooling circuit)



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Pump actuation contactor 230 V	PAG	-
	PEG	PEG.A86.676.525.00
Supplier	ads-tec	DE-HPCSP021 001-AA

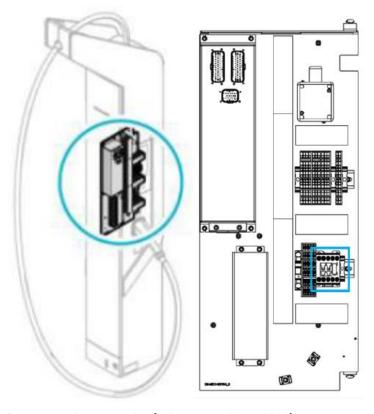


Fig. 162: Pump actuation contacting (reference marking: -KM1) on upper mounting plate



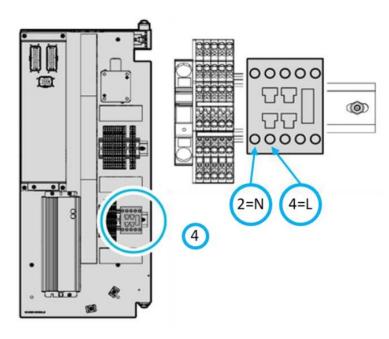


Fig. 163: Coolant pump power supply

➤ Disconnect the electrical cable for the coolant pump at the pump actuation contactor terminal 2 (N) and terminal 4 (L).

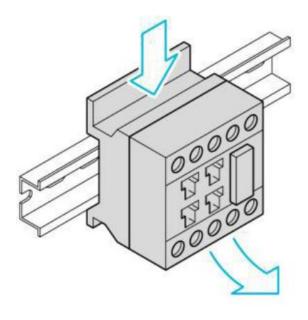


Fig. 164: Pump actuation contactor

- > Unlock the pump actuation contactor on the DIN rail.
- > Detach the pump actuation contactor from the DIN rail.



9.26. Removing and installing the charging controller



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	ltem number
Charge monitoring CCS D	PAG	V04.016.002.AK
	PEG	PEG.A86.640.436.00
Supplier	KSE	314,000,193,003

Designation		Item number
Charge monitoring CCS ADA	PAG	V04.016.002.AG
	PEG	PEG.A86.640.536.00
Supplier	KSE	314,000,193,006



This instruction contains a description of the procedure for removing the charging controller. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

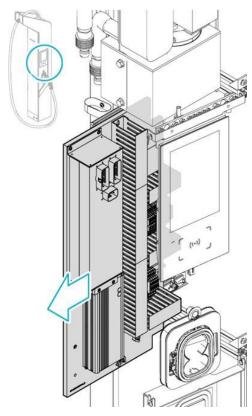


Fig. 165: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



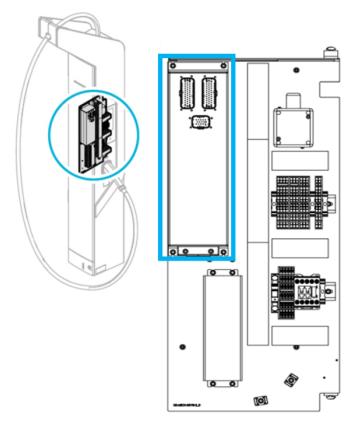


Fig. 166: Charging controller position

The charging controller is fitted to the upper left of the mounting plate.

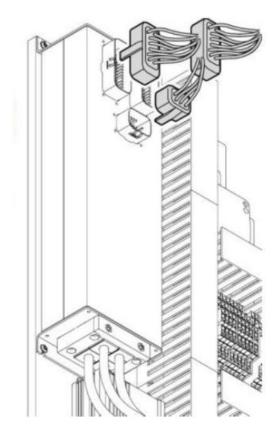


Fig. 167: Charging controller connectors

> Disconnect the electrical connectors on the rear of the charging controller.



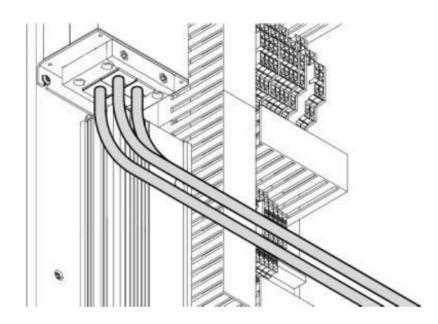


Fig. 168: Charging controller electrical cables

> Expose the electrical cables for the charging controller.

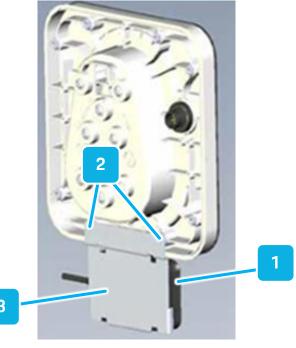


Fig. 169: RFID reader holder

- Unscrew the nuts (2) on the holder (3) for the RFID reader (1) on the connector holder.
- > Detach the holder (3) and the RFID reader (1).
- > Cut the cable ties securing the RFID reader (1) to the holder (3).
- > Detach the RFID reader (1) from the holder (3).



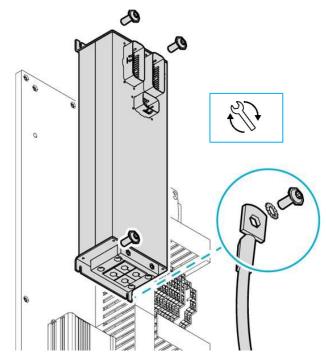


Fig. 170: Charging controller attachment

- > Unscrew the screw for the ground cable on the upper mounting plate.
- > Detach the ground cable.
- > Unscrew the screws for attaching the charging controller to the upper mounting plate.
- Detach the charging controller from the upper mounting plate.





Installation instructions

Place a toothed washer under the screw for the ground cable and securely tighten the screw.

Attach the component marking "-LK2" to the charging controller housing if a marking is not yet attached.

Tightening torque

Charging controller to upper mounting plate screw:
 5 Nm (44.25 in.lb)



Installation instructions

Tightening torque

• RFID reader holder to connector holder nut: 2.5 Nm (22.13 in.lb)

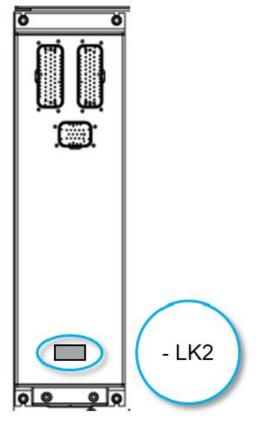


Fig. 171: Charging controller component marking

PORSCHE

9.27. Removing and installing the interior temperature sensor



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Interior temperature sensor	PAG	V04.016.002.BF
	PEG	PEG.A86.685.503.00
Supplier	ads-tec	DE-HPCSP025 001-AA



This instruction contains a description of the procedure for removing the interior temperature sensor. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

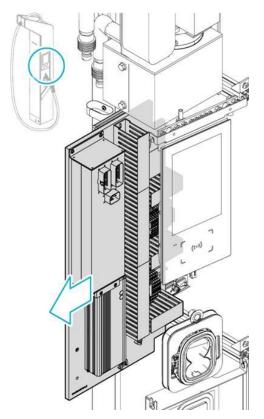
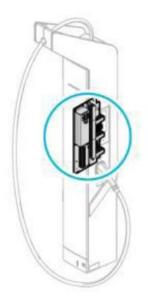


Fig. 172: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.





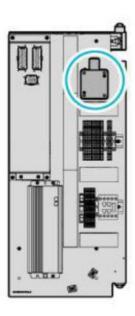


Fig. 173: Interior temperature sensor position

The interior temperature sensor is fitted to the upper right of the upper mounting plate.

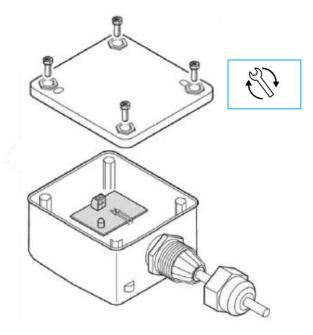


Fig. 174: Interior temperature sensor cover

- > Unscrew the screws from the housing cover of the interior temperature sensor.
- > Remove the housing cover.



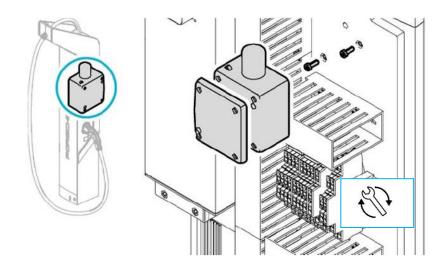


Fig. 175: Interior temperature sensor housing

- Unscrew the screws for attaching the housing of the interior temperature sensor to the upper mounting plate.
- Detach the housing of the interior temperature sensor to the upper mounting plate.

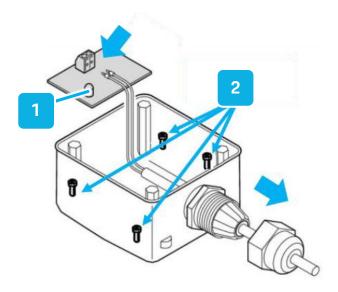


Fig. 176: Interior temperature sensor

- Loosen the screws at the screw terminals.
- > Disconnecting the electrical cable at the screw terminals
- > Loosen the PG connection.
- Pull the electrical cable out of the housing of the interior temperature sensor (1).
- ➤ Unscrew the screws (2) for attaching the interior temperature sensor circuit board (1).
- > Remove the circuit board and the interior temperature sensor (1) from the housing.





Installation instructions

Attach the component marking "-TS2" to the interior temperature sensor housing if a marking is not yet attached.

Tightening torques

- Interior temperature sensor housing to upper mounting plate screw: 5 Nm (44.25 in.lb)
- Housing cover to interior temperature sensor housing screw: 2.5 Nm (22.13 in.lb)

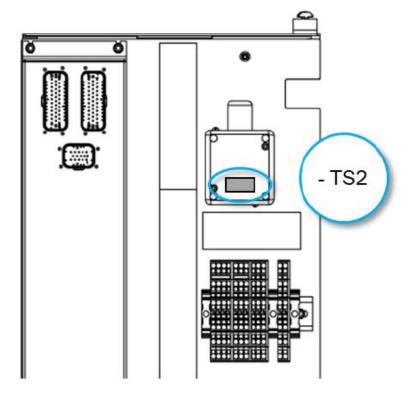


Fig. 177: Interior temperature sensor component marking



9.28. Removing and installing the telescopic rail



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Telescopic rail	PAG	V04.016.002.BG
	PEG	PEG.A86.662.514.00
Supplier	ads-tec	DE-HPCSP026 001-AA



This instruction contains a description of the procedure for removing the telescopic rail. Installation must be performed in reverse order.



An additional person is required to assist when removing and installing the mounting plate. Alternatively, you can also secure the upper mounting plate to prevent it slipping off.

- Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

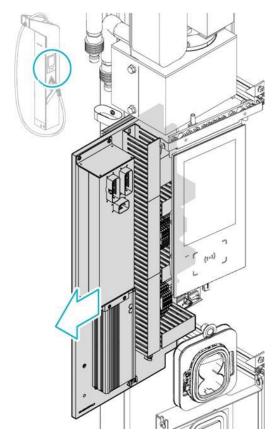


Fig. 178: Upper mounting plate

Unlock the upper mounting plate by pressing it and pull it out.



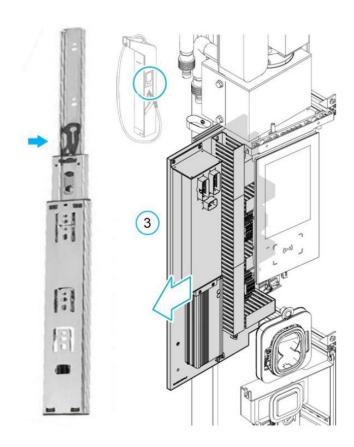


Fig. 179: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.



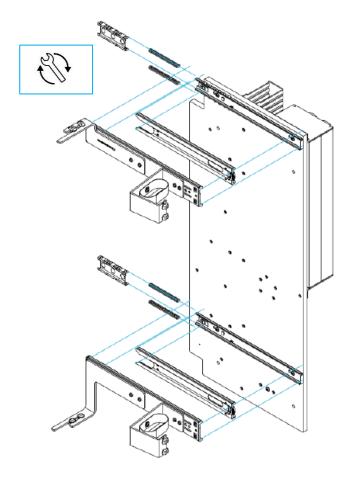


Fig. 180: Telescopic rails

- Unscrew the screws for attaching the guide rails to the rear of the upper mounting plate.
- Detach the guide rails.
- Unscrew the screws for attaching the telescopic rails to the retaining brackets.
- > Detach the telescopic rails.



Installation instructions

Tightening torques

- Telescopic rail to retaining bracket screw: 5 Nm (44.25 in.lb)
- Guide rail to upper mounting plate screw: 5 Nm (44.25 in.lb)



9.29. Removing and installing the upper terminal set



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Upper mounting plate terminal set	PAG	V04.016.002.CJ
	PEG	PEG.A86.665.700.00
Supplier	ads-tec	DE-HPCSP137 001-AA



This instruction contains a description of the procedure for removing the upper terminal set. Installation must be performed in reverse order.



An additional person is required to assist when removing and installing the mounting plate. Alternatively, you can also secure the upper mounting plate to prevent it slipping off.

- Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

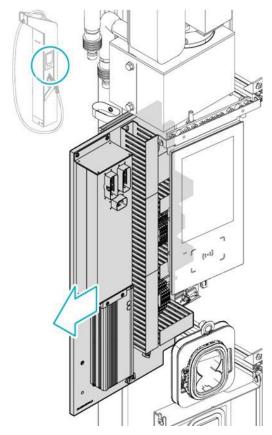


Fig. 181: Upper mounting plate

Unlock the upper mounting plate by pressing it and pull it out.



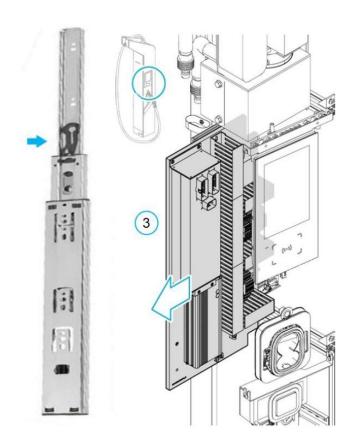


Fig. 182: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.



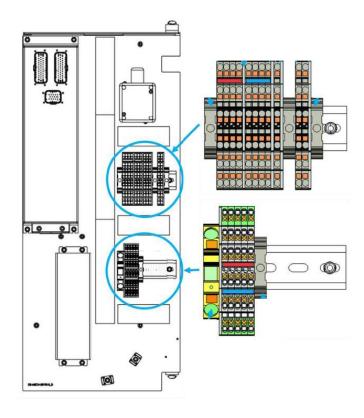


Fig. 183: Upper terminal set

- > Disconnect the electrical cables from the individual components.
- > Unlock the individual components on the DIN rail.
- Detach the individual components from the DIN rail.



Installation instructions

Terminal set upper row:

- End holder
- 4 x 3-level terminal block
- Separating plate
- 4 x 3-level terminal block
- Separating plate
- 1 x 3-level terminal block
- End holder
- 2 x 3-level terminal block
- Separating plate
- End holder

Terminal set lower row:

- Ground terminal
- Separating plate
- 5 x 3-level terminal block for PE, N and L
- End holder



9.30. Removing and installing the lower mounting plate



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Z Lower mounting plate fiber optic cable Raycap	PAG	V04.016.002.C
	PEG	PEG.A86.647.365.01
Supplier	ads-tec	DE-HPCSP027 001-AA

Designation	Reference	Item number
Lower mounting plate CCS1 fiber optic cable Raycap	PAG	V04.016.002.CS
	PEG	PEG.A86.647.623.00
Supplier	ads-tec	DE-HPCSP066 001-AA



This instruction contains a description of the procedure for removing the mounting plate. Installation must be performed in reverse order.

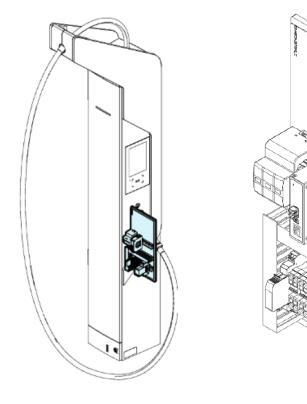


Fig. 184: Lower mounting plate

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



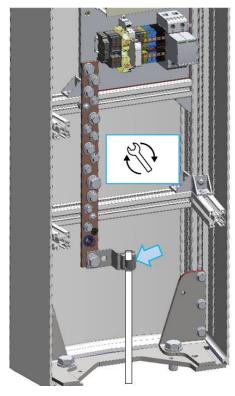


Fig. 185: Lower equipotential bonding bar



Document the assignment of the equipotential bonding bar. Use the electrical circuit diagram.

- Unscrew the screws for the ground cables on the equipotential bonding bar.
- > Unscrew the screws for attaching the equipotential bonding bar to the profile rail.
- > Detach the equipotential bonding bar.

Equipotential bonding bar assignment:

- Ground cable for upper mounting plate
- Ground cable for lower mounting plate
- Ground cable for lightning protection FO
- Ground cable for lightning protection F1
- Ground cable for lightning protection F3



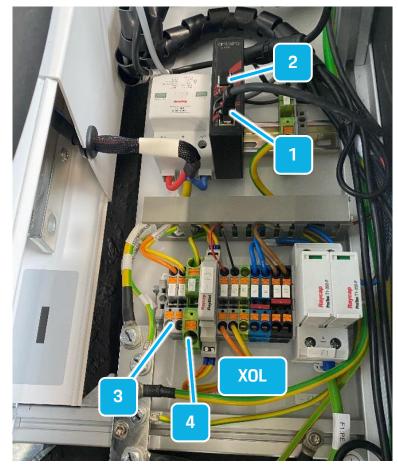


Fig. 186: Lower mounting plate assignment

- ➤ Disconnect the cables at the 230 V connection (XOL) (L1/N/PE).
- > Disconnect the Ethernet connector (1).
- Disconnect the fiber optic cable connector (2) on the media converter.
- Disconnect pilot cables 1 and 3 (Pi10/Pi20) at the connection (3).
- Disconnect the shielding at the PE terminal (4).



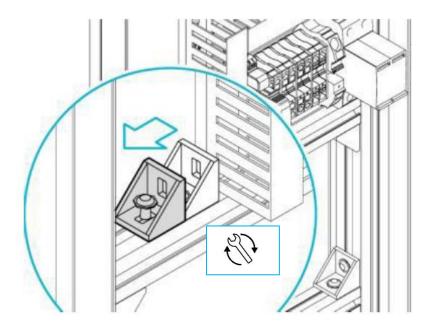


Fig. 187: Lower mounting plate retaining bracket

- > Loosen the screw for securing the retaining bracket.
- > Push the retaining bracket slightly to the left.

PORSCHE

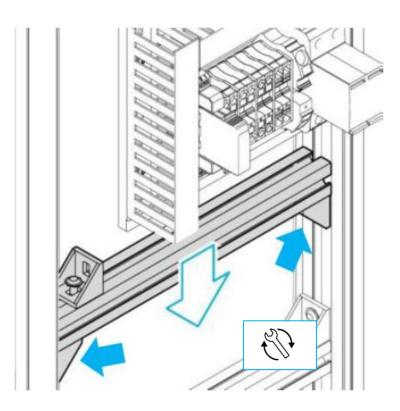


Fig. 188: Lower mounting plate profile rail

- > Loosen the screws for the lower profile rail (arrows).
- Push the profile rail downwards slightly.
- Push the lower mounting plate to the left and detach it downwards.



Installation instructions

Make sure the lower mounting plate is correctly seated in the profile rails.

<u>Tightening torques</u>

- Profile rail to frame screw: 5 Nm (44.25 in.lb)
- Retaining bracket to profile rail screw: 9.5 Nm (84.08 in.lb)
- Ground cable to equipotential bonding bar screw:
 - M6 screw: 10 Nm (88.51 in.lb)
 - M8 screw: 24 Nm (212.42 in.lb)
 - M10 screw: 49 Nm (433.69 in.lb)



9.31. Removing and installing the fiber optic cable / Raycap lightning protection set

DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation	Reference	Item number
Lightning protection set CCS2 fiber optic cable / Raycap	PAG	V04.016.002.AH
	PEG	PEG.A86.675.100.00
Supplier	LDB	PEG.A86.675.100.00

Designation	Reference	Item number
Lightning protection set CCS1 fiber optic cable / Raycap	PAG	V04.016.002.AJ
	PEG	PEG.A86.675.101.00
Supplier	LDB	PEG.A86.675.101.00



This instruction contains a description of the procedure for removing the fiber optic cable/Raycap lightning protection set. Installation must be performed in reverse order.



The lightning protection set contains the following lightning protection elements:

- Raycap lightning protection element PB B 1000 VDC (F0)
- Raycap lighting protection element PT T1 350 VAC (F1) (USA only, CCS1)
- Raycap lighting protection element RD SLH 2 x 30 VDC (F3)

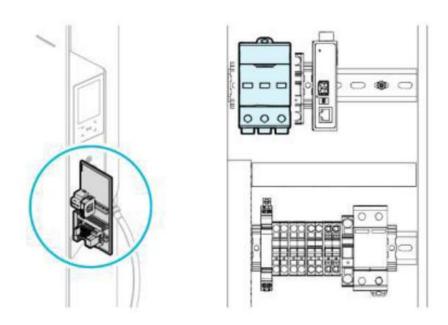


Fig. 189: Raycap lightning protection element PB B 1000 VDC

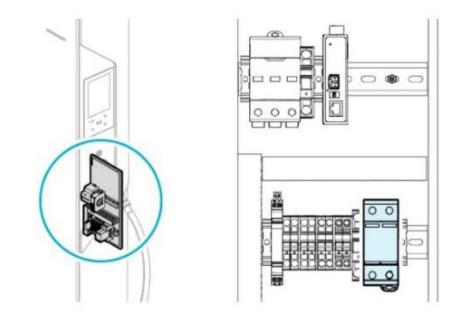


Fig. 190: Raycap lightning protection element PT T1 300 VAC



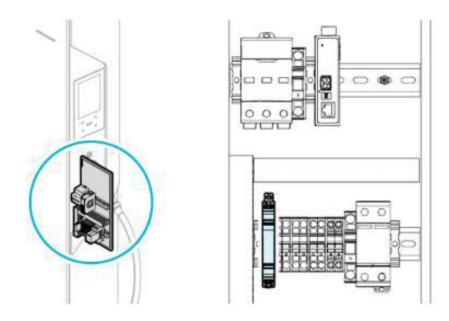


Fig. 191: Raycap lighting protection element RD SLH 2 x 30 VDC



The Raycap lighting protection element PB B 1000 VDC (F0) has a viewing window through which the condition of the lightning protection element can be tested.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Loosen the screws at the connection terminals.
- Disconnect the electrical cables.
- Unlock the lightning protection element on the DIN rail.
- Remove the lightning protection element from the DIN rail.



9.32. Removing and installing the media converter



DANGER

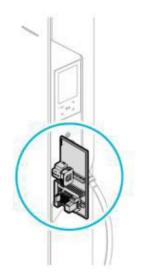


Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation	Reference	Item number
Z Media converter with SFP module	PAG	V04.016.002.B
	PEG	PEG.A86.645.405.00
Supplier	LDB	PEG.A86.645.405.00



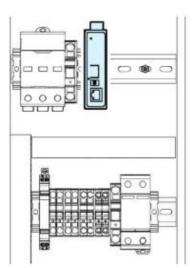


Fig. 192: Media converter





This instruction contains a description of the procedure for removing the media converter. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

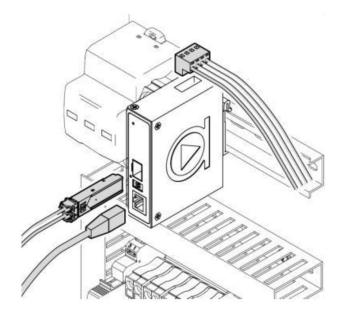


Fig. 193: Media converter connectors



Handle fiber optic cables with the utmost care.

Observe the maximum bending radius of 35 mm (1.38 in).

- > Disconnect the power supply connector from the media converter.
- > Disconnect the USB cable from the media converter.
- Unlock the SFP module on the media converter
- Detach the SFP module from the media converter.
- Unlock the media converter on the DIN rail.
- Detach the media converter from the DIN rail.



9.33. Removing and installing the SFP module



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation		Item number
SFP module	PAG	V04.016.002.AT
	PEG	PEG.B07.445.562.00
Supplier	LDB	PEG.B07.445.562.00



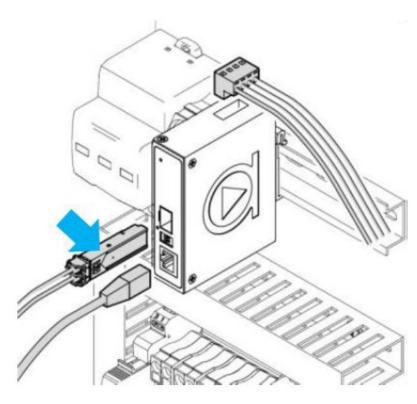


Fig. 194: SFP module

The SFP module is plugged into the media converter between the fiber optic cable and the connection for the fiber optic cable.



This instruction contains a description of the procedure for removing the SFP module. Installation must be performed in reverse order.



Handle fiber optic cables with the utmost care.

Observe the maximum bending radius of 35 mm (1.38 in).

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Disconnect the fiber optic cable from the SFP module.
- Unlock the SFP module on the media converter.
- Detach the SFP module from the media converter.



9.34. Removing and installing the lower terminal set



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation	Reference	Item number
Lower mounting plate terminal set	PAG	V04.016.002.CK
	PEG	PEG.A86.665.701.00
Supplier	ads-tec	DE-HPCSP138 001-AA



This instruction contains a description of the procedure for removing the lower terminal set. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



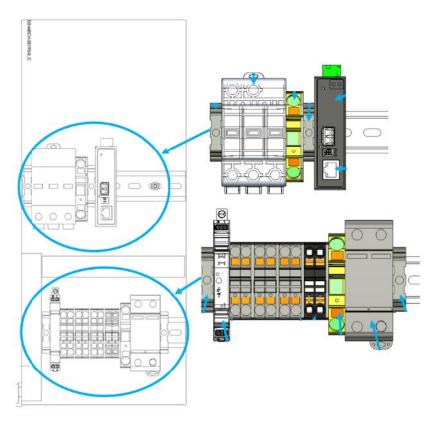


Fig. 195: Lower terminal set



Document the assignment of the terminal strip. Use the electrical circuit diagram.

- > Disconnect the electrical cables on the individual components.
- > Unlock the individual components on the DIN rail.
- Detach the individual components from the DIN rail.



9.35. Removing and installing the crash sensor and float unit



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation	Reference	
Crash sensor and float unit	PAG	V04.016.002.AB
	PEG	PEG.A86.685.156.00
Supplier	ads-tec	DE-HPCSP035 001-AA



This instruction contains a description of the procedure for removing the crash sensor and float unit. Installation must be performed in reverse order.



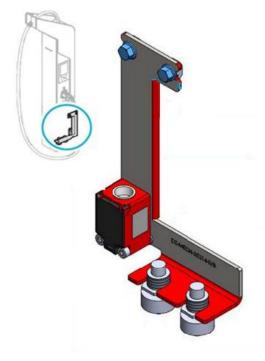


Fig. 196: Crash sensor and float unit

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

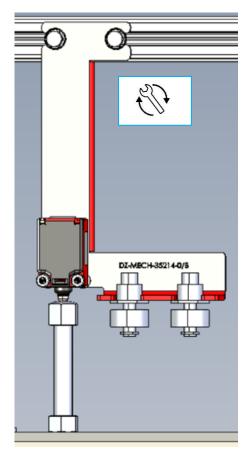


Fig. 197: Crash sensor



- Disconnect the connector on the crash sensor.
- > Disconnect the connector on the float switch.
- Loosen the lock nut on the stud in the base plate.
- Screw the stud into the base plate until the contact switch on the crash sensor is no longer pressed.
- > Unscrew the screws for attaching the retaining plate to the profile rail.
- Detach the retaining plate from the profile rail along with the crash sensor and float unit.



Installation instructions

Unscrew the stud from the base plate until the contact switch on the crash sensor is pressed.

Secure the stud with the lock nut.

<u>Tightening torque</u>

 Retaining plate to profile rail screw: 5.5 Nm (48.68 in.lb)



9.36. Removing and installing the upper equipotential bonding bar



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation	Reference	Item number
Closed system grounding rail	PAG	V04.016.002.G
	PEG	PEG.A86.660.155.00
Supplier	ads-tec	DE-HPCSP065 001-AA

Designation	Reference	Item number
Open system ground rail	PAG	-
	PEG	PEG.A86.660.165.00
Supplier	ads-tec	DE-HPCSP123 001-AA



This instruction contains a description of the procedure for removing the upper equipotential bonding bar. Installation must be performed in reverse order.

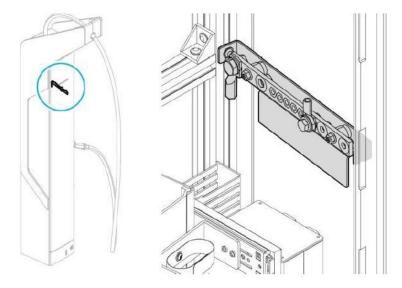


Fig. 198: Position of upper equipotential bonding bar, Turbo Charger with open secondary cooling circuit shown

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



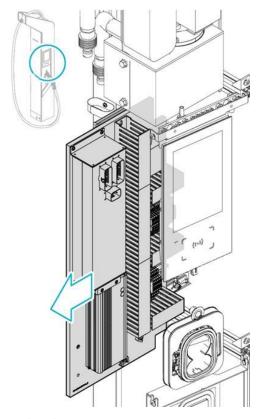


Fig. 199: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.

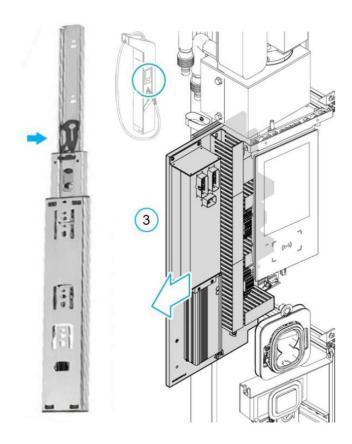


Fig. 200: Removing the upper mounting plate



- Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).
- > Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.

Turbo Charger with closed secondary cooling circuit

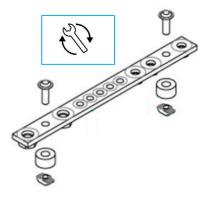


Fig. 201: Upper equipotential bonding bar

Turbo Charger with open secondary cooling circuit

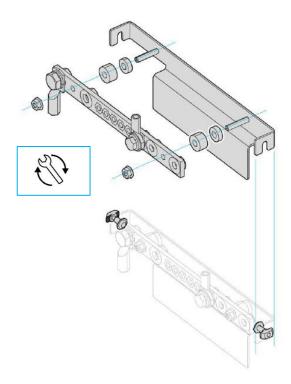


Fig. 202: Upper equipotential bonding bar



Document the assignment of the upper equipotential bonding bar. Use the electrical circuit diagram.



- > Remove the permanent marker from the screw heads with spirit.
- Unscrew the screws for the ground cables on the upper equipotential bonding bar.
- > Remove the ground cables from the upper equipotential bonding bar.
- > Unscrew the screws for attaching the upper equipotential bonding bar to the profile rail.
- > Detach the upper equipotential bonding bar along with the screws and spacers from the profile rail.



Installation instructions

Mark the screw connections with a permanent marker.

<u>Tightening torques</u>

- Upper equipotential bonding bar to profile rail screw: 5.5 Nm (48.68 in.lb)
- Ground cable to upper equipotential bonding bar screw:

• M6 screw: 10 Nm (88.51 in.lb)

• M8 screw: 24 Nm (212.42 in.lb)

• M10 screw: 49 Nm (433.69 in.lb)



9.37. Removing and installing the lower equipotential bonding bar



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.

Designation	Reference	Item number
Equipotential bonding bar	PAG	V04.016.002.H
	PEG	PEG.A86.660.244.01
Supplier	ads-tec	DE-HPCSP061 001-AA



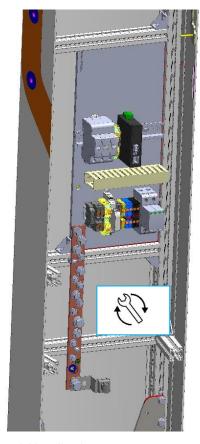


Fig. 203: Lower equipotential bonding bar



This instruction contains a description of the procedure for removing the lower equipotential bonding bar. Installation must be performed in reverse order.



Document the assignment of the lower equipotential bonding bar. Use the electrical circuit diagram.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Remove the permanent marker from the screw heads with spirit.
- Unscrew the screws for the ground cables on the lower equipotential bonding bar.
- > Unscrew the screws for attaching the lower equipotential bonding bar to the profile rail.
- > Detach the lower equipotential bonding bar.



Assignment of lower equipotential bonding bar:

- Ground cable for upper mounting rail
- Ground cable for lower mounting rail
- Ground cable for lightning protection FO
- Ground cable for lightning protection F1
- Ground cable for lightning protection F3



Installation instructions

Mark the screw connections with a permanent marker.

Tightening torques

- Lower equipotential bonding bar to profile rail screw:
 5 Nm 44.25 in.lb)
- Ground cable to lower equipotential bonding bar screw:

• M6 screw: 10 Nm (88.51 in.lb)

M8 screw: 24 Nm (212.42 in.lb)

• M10 screw: 49 Nm (433.69 in.lb)



Removing and installing the high-voltage assembly



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.





CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- > Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- ➤ Ensure that the ladder and platform are standing securely.

Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1.

Designation	Reference	Item number
Z High-voltage rails	PAG	V04.016.002.J
	PEG	PEG.A86.660.490.01
Supplier	ads-tec	DE-HPCSP039 001-AA



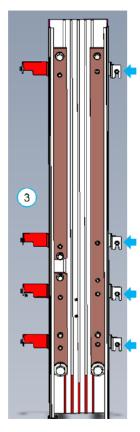


Fig. 204: High-voltage assembly



This instruction contains a description of the procedure for removing the high-voltage assembly. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



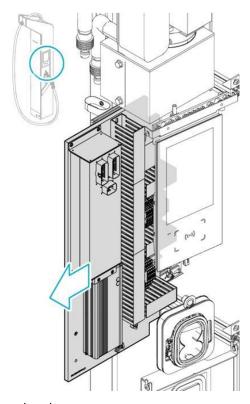


Fig. 205: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



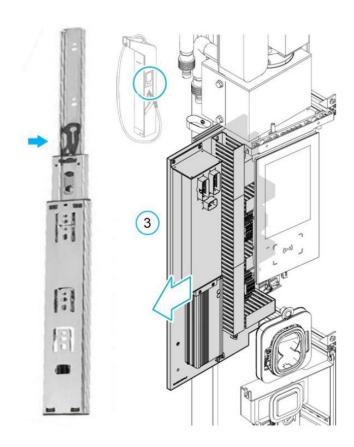


Fig. 206: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.
- > Remove the supply and return lines (see section 9.19).
- Remove the lower mounting plate (see section 9.30).

PORSCHE

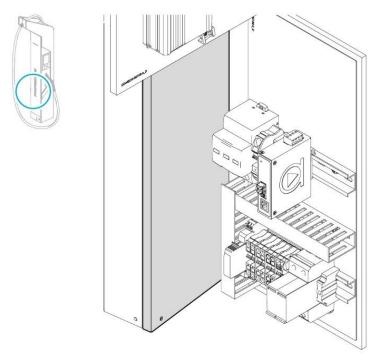


Fig. 207: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- > Detach all covers from the busbar duct.

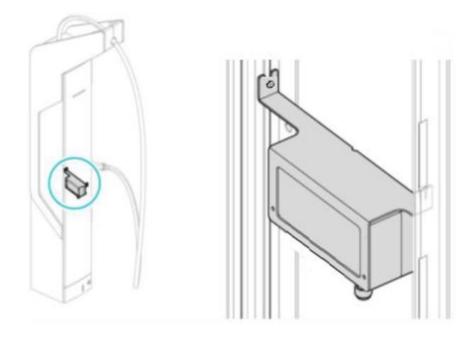


Fig. 208: DC energy meter

- ➤ Mark the installation position of the DC energy meter.
- ➤ Loosen the screws for attaching the DC energy meter and detach the DC energy meter.
- This action destroys seals, which have to be replaced by an authorized repair company.





Observe the content of the operating instructions for the DC energy meter (see Table 1:). The electrical cable to the DC energy meter does not have to be disconnected.

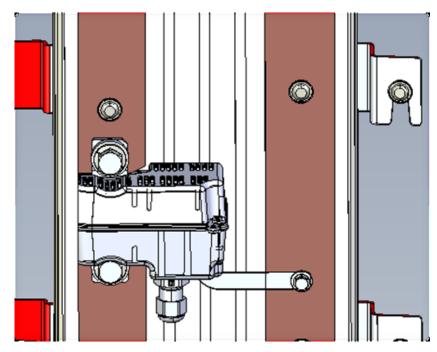


Fig. 209: Sensor



The sensor is mounted on the busbars.

On busbars with insert nuts, it is attached with screws On busbars without insert nuts, it is fastened with screws and nuts.



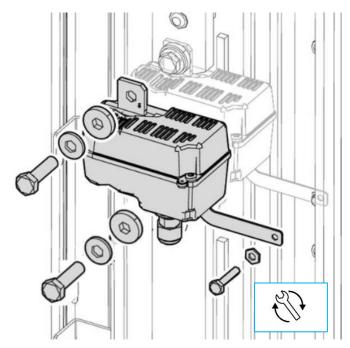


Fig. 210: Sensor assembly

- > Unscrew the screws for attaching the sensor to the busbars.
- > Detach the sensor from the busbars.



Observe the content of the operating instructions for the DC energy meter (see Table 1:). The electrical cable to the sensor does not have to be disconnected.



Removal of the busbars is described for the version with insert nuts.

On the version without insert nuts, screws are pushed through the busbars from the rear instead of the insert nuts.



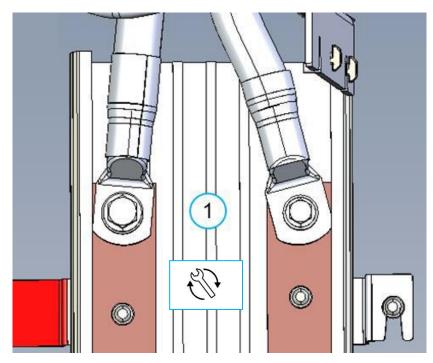


Fig. 211: Upper high-voltage cable connections

- Unscrew the screws on the cable connections for the high-voltage cables (1).
- > Detach the high-voltage cables from the busbars.

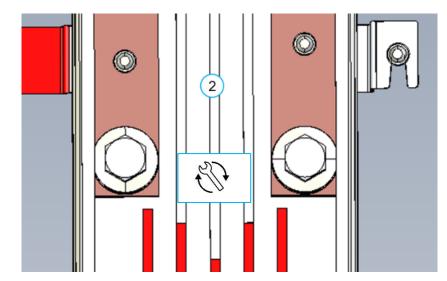


Fig. 212: Lower high-voltage cable connections

- Unscrew the screws on the cable connections for the high-voltage cables (2).
- > Detach the high-voltage cables from the busbars.



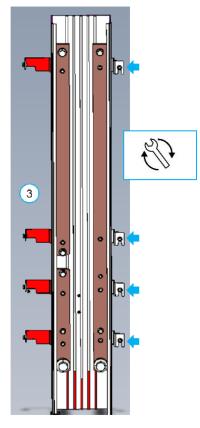


Fig. 213: Cable duct with busbars

- Mark the position of the retaining plates (arrows).
- ➤ Loosen the nuts for attaching the retaining plates to the profile rail.
- Remove the busbar duct and busbars from the Turbo Charger.



Installation instructions

Ensure correct assignment of the busbars.

Clean the contact surfaces on the sensor, see section 9.4.3).

Tightening torques

- Retaining plate to profile rail nut: 10 Nm (88.51 in.lb)
- High-voltage cable to lower busbar screw: 120 Nm (1062.10 in.lb)
- High-voltage cable to upper busbar M8 metric screw: 15 Nm (132.76 in.lb)
- High-voltage cable to upper busbar M10 metric screw: 30 Nm (265.52 in.lb)
- Sensor to busbar M4 metric screw: 2 Nm (17.70 in.lb)
- Sensor to busbar M8 metric screw: 15 Nm (132.76 in.lb)



9.38. Removing and installing the display



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.



Designation		Item number
Display 10 inch (white)	PAG	-
	PEG	PEG.A86.710.000.00
Supplier		DE-HPCSP011 001-AA

Designation	Reference	Item number
Display 10 inch (black)	PAG	V04.016.002.AL
	PEG	PEG.A86.710.010.00
Supplier	ads-tec IIT	DE-HPCSP012 001-AA

Designation		Item number
Display ADA 10 inch (white)	PAG	-
	PEG	PEG.A86.710.200.00
Supplier		DE-HPCSP115 001-AA

Designation	Reference	Item number
Display ADA 10 inch (black)	PAG	V04.016.002.AM
	PEG	PEG.A86.710.210.00
Supplier	ads-tec IIT	DE-HPCSP078 001-AA / REV.A





This instruction contains a description of the procedure for removing the display. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

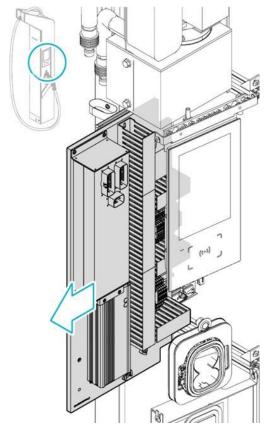


Fig. 214: Upper mounting plate

 $\,igspace$ Unlock the upper mounting plate by pressing it and pull it out.



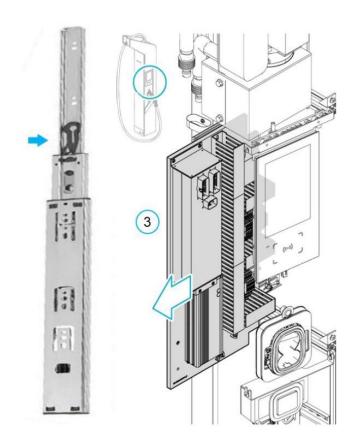


Fig. 215: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.



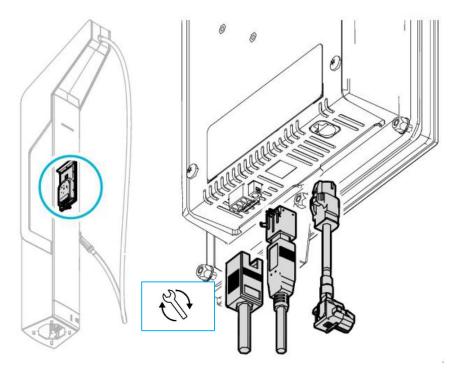


Fig. 216: Display connectors

- > Loosen the screw on the DC In plug.
- Expose the USB cable.
- > Disconnect all electrical plug connections on the display.

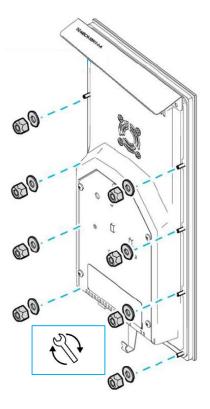


Fig. 217: Display rear

- > Remove the drip plate on the display.
- ➤ Hold the display in place from the outside.
- Unscrew the nuts for attaching the display.
- > Remove the display from the outside.





Installation instructions

Clean the sealing surface on the Turbo Charger thoroughly with isopropanol.

Make sure that the display is not tensioned during installation.

Tightening torques

- Display to Turbo Charger nut: 2 Nm (17.70 in.lb)
- Screw on DC In plug: 2 Nm (17.70 in.lb)



Installation instructions

On the Turbo charger ADA version, the display has to be installed rotated by 180 $^{\circ}$.



9.39. Removing and installing the display power supply cable

A

DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Display power supply cable	PAG	V04.016.002.BM
	PEG	PEG.A86.670.775.00
Supplier	ads-tec	DE-HPCSP081 001-AA



This instruction contains a description of the procedure for removing the display power supply cable. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

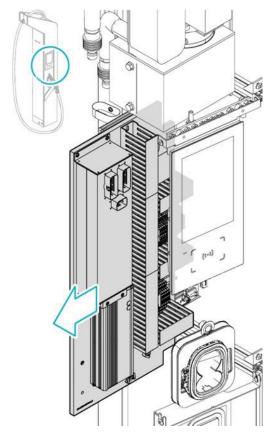


Fig. 218: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



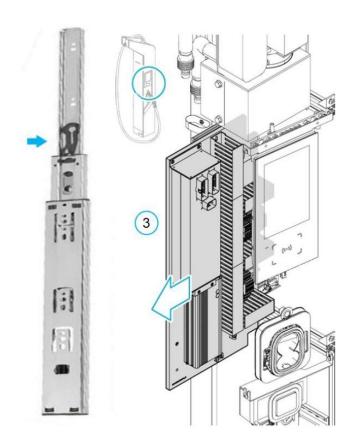


Fig. 219: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- > Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.



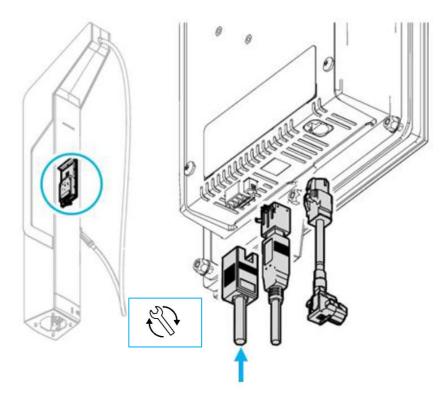


Fig. 220: Display supply line connector

- > Loosen the screw on the DC In plug.
- > Pull the DC In plug out of the connection on the display.

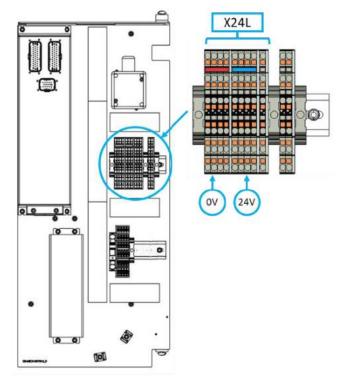


Fig. 221: Display contacting supply cable

- > Expose the display power supply cable to the upper mounting plate.
- Disconnect the display power supply cable from terminal X24L, 0 V and 24 V contacts.
- > Detach the display power supply cable.





Installation instructions

Ensure correct routing of the display power supply cable from terminal X24L to the display.

Tightening torque

• Screw on DC In plug: 2 Nm (17.70 in.lb)



9.40. Removing and installing the RFID reader (Turbo Charger ADA version)



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- > Do not reach into the gap between the door and the housing of the Turbo Charger.





CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

Designation	Reference	Item number
RFID reader	PAG	V04.016.002.DA
	PEG	PEG.A86.645.627.00
Supplier	ads-tec	DE-HPCSP147 001-AA



This instruction contains a description of the procedure for removing the RFID reader. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



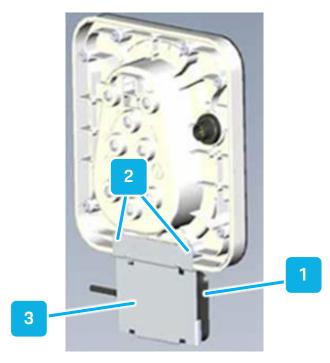


Fig. 222: RFID reader holder

- > Unscrew the nuts (2) on the holder (3) for the RFID reader (1) on the connector holder.
- > Detach the holder (3) and the RFID reader (1).
- Cut the cable ties securing the RFID reader (1) to the holder (3).
- > Detach the RFID reader (1) from the holder (3).

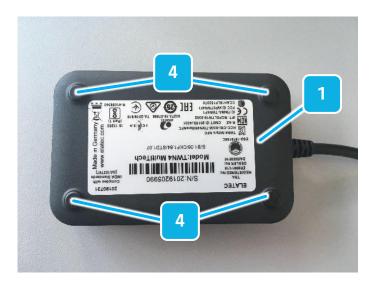


Fig. 223: RFID reader rubber damper

> Detach the rubber dampers (4) on the rear of the RFID reader (1).



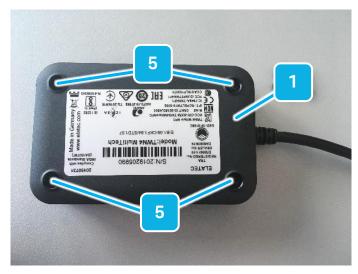


Fig. 224: RFID reader screws

- > Unscrew the screws (5) on the rear of the RFID reader (1).
- > Remove the cover from the RFID reader (1).

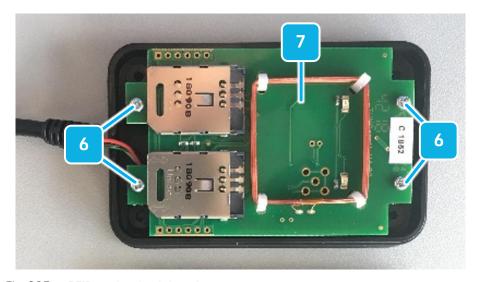


Fig. 225: RFID reader circuit board

- > Unscrew the screws (6) from the circuit board (7).
- > Remove the circuit board (7) from the housing.



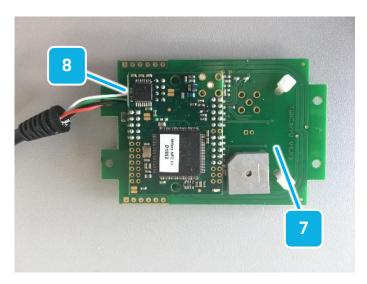


Fig. 226: RFID reader electrical cable

> Detach the plug (8) for the electrical cable from the circuit board (7).



Installation instructions

Tightening torque

Connector holder rear section to Turbo Charger nut:
 2.5 Nm (22.13 in.lb)



9.41. Removing and installing the charge stop button with grounding plate



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- > Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Charge stop button with cable set	PAG	V04.016.002.BD
	PEG	PEG.A86.665.469.00
Supplier	ads-tec	DE-HPCSP013 001-AA



This instruction contains a description of the procedure for removing the charge stop button. Installation must be performed in reverse order.



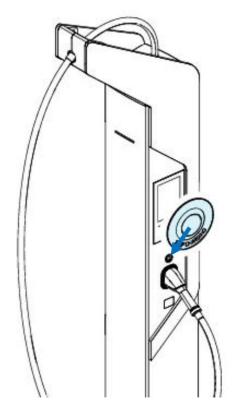


Fig. 227: Position of charge stop button

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

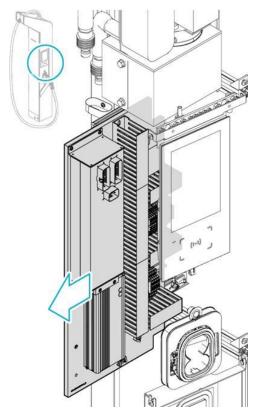


Fig. 228: Upper mounting plate

> Unlock the upper mounting plate by pressing it and pull it out.



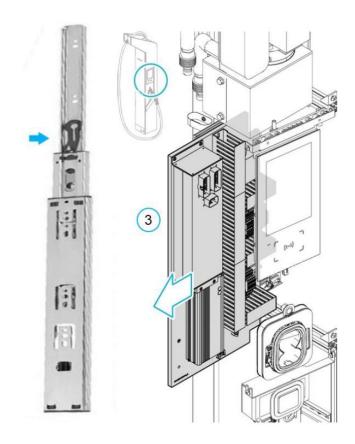


Fig. 229: Removing the upper mounting plate

- > Press in the locks on the telescopic rails (arrow).
- Pull the upper mounting plate further out of the guide (item 3).
- Place the upper mounting plate on a suitable surface.
- Make sure that the electrical cables and connectors are not damaged.



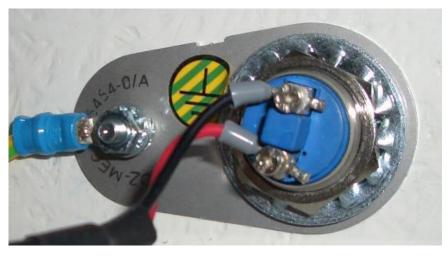


Fig. 230: Rear of charge stop button

- > Unscrew the nut for the ground cable.
- > Detach the ground cable from the grounding plate.
- > Disconnect the electrical cable on the charge stop button.
- > Hold the charge stop button from outside.
- Unscrew the nut for attaching the charge stop button to the Turbo Charger.
- > Detach the toothed washer from the charge stop button.
- > Detach the grounding plate.
- > Detach the charge stop button with seal from the outside.



Fig. 231: Charge stop button fixing elements

PORSCHE

9.42. Replacing the connector face on the Huber + Suhner charging cable



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working on the charging plug, you can cut yourself on the plastic parts.

- Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Connector face CCS1 HUBER + SUHNER	PAG	-
	PEG	PEG.A86.850.485.00
Supplier	HUBER+SUHNER	85097222

Designation	Reference	Item number
Connector face CCS2 HUBER + SUHNER	PAG	-
	PEG	PEG.A86.850.585.00
Supplier	HUBER+SUHNER	85097503

PORSCHE

Huber + Suhner charging plug connector face CCS1



Fig. 232: Huber + Suhner charging plug connector face CCS1

Item	Description
1	Connector face
2	Screws
3	Washer (3x)
4	Sealing ring

Table 40: HUBER + SUHNER charging plug connector face CCS1



Compared to the CCS2 charging plug version, the CCS1 charging plug version has a locking mechanism consisting of a spring-loaded lever and a release button. The lever locks the charging plug in the charging socket on the vehicle when plugged in. Pressing the release button presses the lever and releases the charging plug in the charging socket on the vehicle. The charging plug can then be removed from the charging socket on the vehicle.



Huber + Suhner charging plug connector face CCS2



Fig. 233: HUBER + SUHNER charging plug connector face CCS2

Item	Description
1	Connector face
2	Screws
3	Washer (5x)
4	Sealing ring

Table 41: HUBER + SUHNER charging plug connector face CCS2

PORSCHE



Replacement of the connector face is described for the Huber + Suhner charging plug CCS1 version. The repair method for both versions is similar.

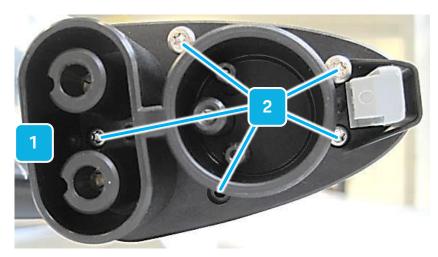


Fig. 234: Huber + Suhner charging plug connector face CCS1, screws

- > Remove the charging plug from the connector holder.
- Unscrew the screws (2) from the charging plug.

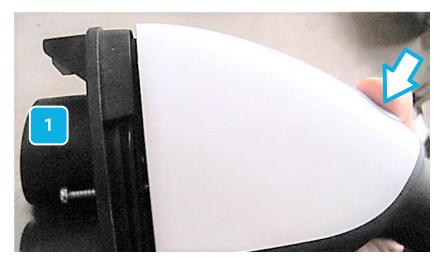


Fig. 235: Huber + Suhner charging plug connector face CCS1, cover

- Press the button (arrow) to unlock the charging plug on the rear.
- > Release the connector face (1) from the charging plug and detach it.
- To loosen a tightly fitted connector face (1), use a slotted screwdriver.



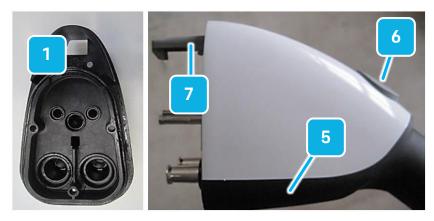


Fig. 236: Huber + Suhner charging plug connector face CCS1, removal

> Check the function of the button (6) and the lever (7) on the charging plug (5).



On the CCS1 charging plug version, the cover and locking mechanism can be replaced.

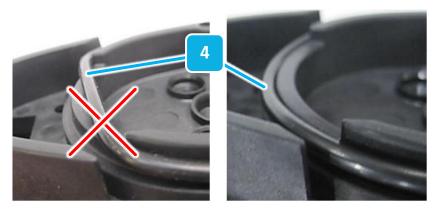


Fig. 237: Huber + Suhner charging plug connector face CCS1, sealing ring

- > Insert a new sealing ring (4) in the groove on the rear of the new connector face.
- Make sure that the sealing ring (4) is not twisted.

PORSCHE





Fig. 238: Connector face

- Press the button (arrow) on the rear of the charging plug.
- > Push the new connector face (1) onto the charging plug.
- Fit the 3 lower screws with the washers.
- Screw the screws into the charging plug (tightening torque: 2.5 ±0.2 Nm (22.13 ±1.77 in.lb)).
- > Insert the charging plug in the connector holder.



9.43. Replacing the Harting charging cable connector face



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- > Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Cuts due to sharp edges.

When working on the charging plug, you can cut yourself on the plastic parts.

- Wear tight-fitting protective clothing.
- Wear protective gloves.



Designation	Reference	Item number
Harting CCS1 connector face	PAG	V04.016.002.AE
	PEG	PEG.A86.850.285.00
Supplier	Harting	08935/ 010200 A000

Designation	Reference	Item number
Harting connector face CCS2	PAG	V04.016.002.AF
	PEG	PEG.A86.850.385.00
Supplier	Harting	08934/010200 A000



Harting charging plug CCS1 connector face

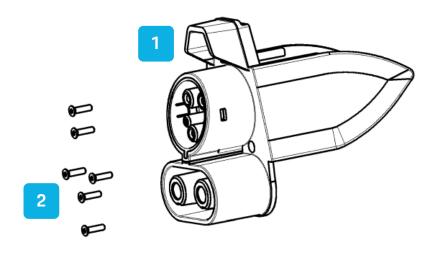


Fig. 239: Harting charging plug CCS1 connector face

Item	Description
1	Connector face
2	Screws

Table 42: Harting charging plug CCS1 connector face

Harting CCS2 charging plug connector face

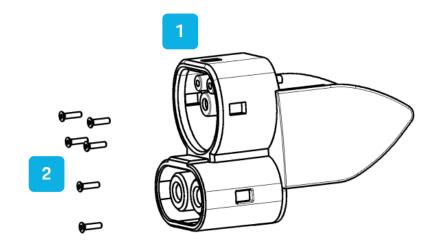


Fig. 240: Harting CCS2 charging plug connector face

Item	Description
1	Connector face
2	Screws

Table 43: Harting CCS2 charging plug connector face





Compared to the CCS2 charging plug version, the CCS1 charging plug version has a locking mechanism consisting of a spring-loaded lever and a release button. The lever locks the charging plug in the charging socket on the vehicle when plugged in. Pressing the release button presses the lever and releases the charging plug in the charging socket on the vehicle. The charging plug can then be removed from the charging socket on the vehicle.



Replacement of the connector face is described for the Harting charging plug CCS2 version. The repair method for the two versions is almost identical.

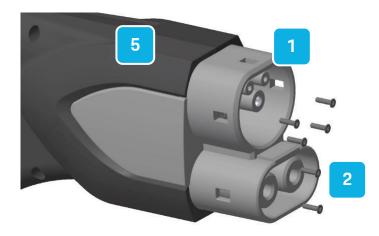


Fig. 241: Harting CCS2 charging plug connector face, screws

- > Remove the charging plug (5) from the connector holder.
- > Unscrew the screws (2) from the charging plug (5).



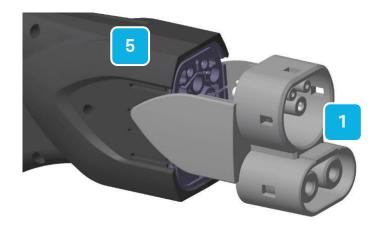


Fig. 242: Harting CCS2 charging plug connector face

- > Release the connector face (1) from the charging plug (5) and detach it.
- To loosen a tightly fitted connector face (1), use a slotted screwdriver.



For the Harting CCS1 charging plug version, you must hold down the release button.

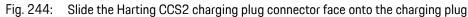


Fig. 243: Harting CCS2 charging plug, without connector face

- Check the threaded inserts (7) in the charging plug (5) for damage.
- The threaded inserts (7) must be flush or slightly recessed in the hole provided.

PORSCHE





- > Push the new connector face (1) into the guides on the charging plug (5).
- The connector face (3) must be flush with the charging plug (1).
- Screw the new screws into the charging plug (1) (tightening torque: $1.2 \pm 0.1 \text{ Nm} (10.62 \pm 0.88 \text{ in.lb})$).
- > Insert the charging plug (1) in the connector holder.



For the Harting CCS1 charging plug version, you must hold down the release button.



9.44. Removing and installing the acrylic glass plate connection block (Turbo Charger with closed secondary cooling circuit)



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- > Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.





CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.

Designation	Reference	
Acrylic glass plate connection block	PAG	V04.016.002.HP
	PEG	PEG.A86.647.920.00
Supplier	ads-tec	DE-HPCSP148 001-AA



This instruction contains a description of the procedure for removing the acrylic glass plate connection block. Installation must be performed in reverse order.

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).



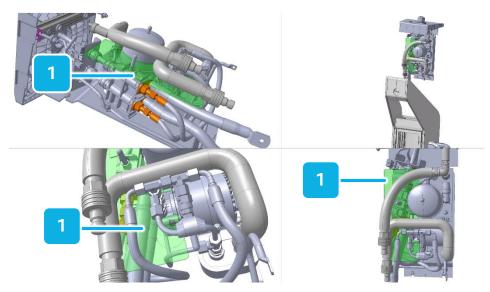


Fig. 245: Acrylic glass plate connection block

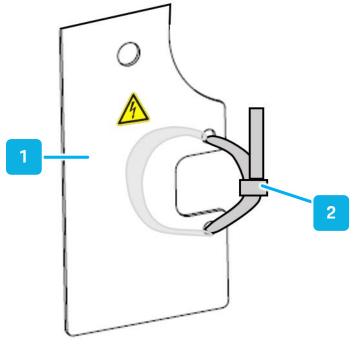


Fig. 246: Acrylic glass plate connection block detail

- > Cut through the cable tie (2) holding the acrylic glass plate connection block (1) in place.
- > Remove the acrylic glass plate connection block (1).



9.45. Retrofitting a Turbo Charger with a DC energy meter



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- Wear protective gloves.



Official calibration regulations (Germany only)

As defined in Section 37 (2) of the German Measurement and Calibration Act, this activity may have an influence on the measurement properties of the Turbo Charger.

Further information can be found in chapter 8.1:

Designation	Reference	Item number
DC energy meter retrofit set	PAG	V04.016.002.CF
	PEG	PEG.A86.660.800.00
Supplier	ads-tec	DE-HPCSP088 001-AA

- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).

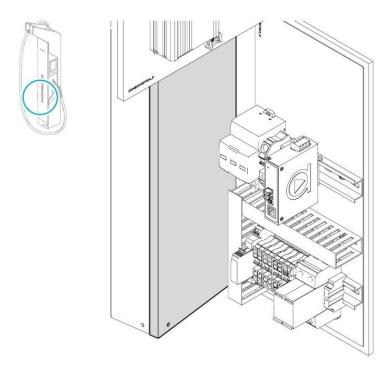


Fig. 247: Busbar duct cover

- > Cut the cable tie on the lower cover of the busbar duct.
- Detach all covers from the busbar duct.



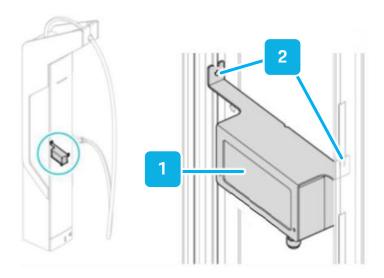


Fig. 248: DC energy meter

- > Loosen the screws (2) for attaching the DC energy meter (1).
- > Detach the DC energy meter (1) downwards.



Observe the content of the operating instructions for the DC energy meter (1) (see Table 1:). The electrical cable to the DC energy meter (1) does not have to be disconnected.

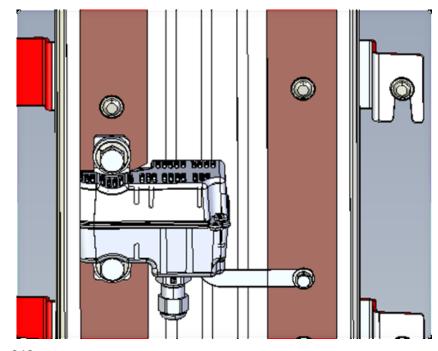


Fig. 249: Sensor



The sensor is mounted on the busbars.

On busbars with insert nuts, it is attached with screws On busbars without insert nuts, it is fastened with screws and nuts.





Removal of the busbars is described for the version with insert nuts.

On the version without insert nuts, screws are pushed through the busbars from the rear instead of the insert nuts.

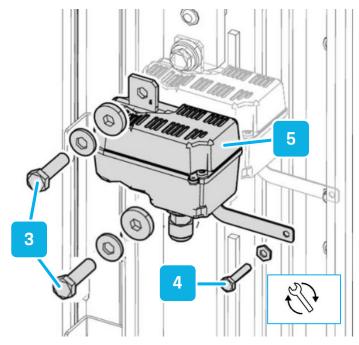


Fig. 250: Sensor assembly

- ➤ Hold the insert nuts on the rear of the busbars and unscrew the screws (3, 4).
- > Detach the sensor (5) from the busbars.

PORSCHE

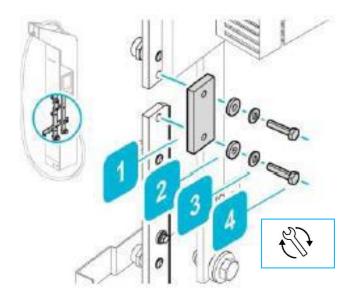


Fig. 251: Busbar copper bridge

- Clean the connection points on the DC rails and the copper bridge (1) with an abrasive sludge.
- The connection points must be bright, clean, and free from grease.
- > Then clean the connection points with isopropanol.

- Position the copper bridge (1) on the busbars.
- > Place the spring washers (3) and washers (2) on the screws (4).
- > Screw the screws (4) into the insert nuts on the busbars (tightening torque: metric M8 screw: 15 Nm (132.76 in.lb)).
- Re-attach the busbar duct covers (sequence from top to bottom: short, long, long).
- Secure the lower cover with a cable tie.
- > Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.



If the DC energy meter has been removed, the Turbo Charger is no longer approved for energy billing in Germany.



10. Shutting down and dismantling the Turbo Charger

10.1. Factory Reset (for VR16 and higher)

This chapter describes the process of the factory reset. The charging controller (LK) will be set to the state of delivery (end of line state).

The following data will be **deleted** after factory reset:

- All configurations and coding parameters
- Clustering
- Log files
- Via backend installed certificates and keys, e.g. Leaf certificate and V2Groot certificate in the charging controller (LK), PnC root certificate in the charging management server (LMS).

The following data will **not** be **deleted** after factory reset:

- Certificates which were installed before delivery e.g., charging management server provisioning certificate
- PSK (Pre-shared-Key) for TLS communication between charging controller and charging management server (LMS)
- Calibration data for the sensor evaluation, e.g., temperature sensors.
- Click on the tab Other.
- Click on the tab Factory Reset.
- Choose under Controllers on the left side the charging controller (LK) which should be reset.
- > Click on the button **Factory Reset**.

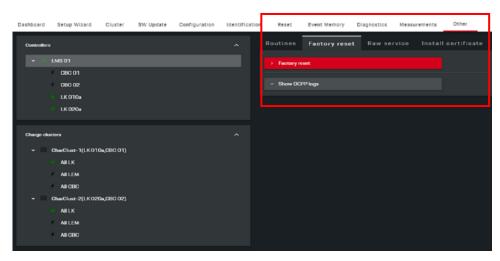


Fig. 252: Factory Reset

After factory reset all entries of the charging controller (LK) under **Controllers** on the left side will be deleted.



10.2. Shutting down the Turbo Charger



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- ➤ Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- > Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- Wear tight-fitting protective clothing.
- > Wear protective gloves.

The Turbo Charger is a high-performance charging infrastructure component. The order of shutting down the entire high-performance charging infrastructure depends on the overall concept and is defined by the system provider.



10.3. Dismantling the Turbo Charger



DANGER



Danger to life due to electric shock.

Contact with live parts can cause electric shock. Severe injuries or burns can directly result in death.

- > Wear protective clothing.
- Use voltage-resistant tools.
- > Disconnect the Turbo Charger from the power supply.
- Secure the voltage source against being switched back on.
- Wait 5 min after switching off to eliminate residual voltages.
- > Check that there is no voltage.



CAUTION



Risk of injury due to trapping, crushing.

When opening and closing the Turbo Charger door, fingers or hands can be trapped between the door and the housing of the Turbo Charger.

- Wear safety shoes and protective gloves.
- ➤ Do not reach into the gap between the door and the housing of the Turbo Charger.



CAUTION



Cuts due to sharp edges.

When working inside the Turbo Charger, cuts can occur on sharp-edged and pointed parts due to the tight space.

- > Wear tight-fitting protective clothing.
- > Wear protective gloves.



- > Open the Turbo Charger service flap (see section 5.7.3).
- > Open the door of the Turbo Charger (see section 5.7.4).
- Mark all electrical cables (function, polarity).



Handle fiber optic cables with the utmost care.

Observe the maximum bending radius of 35 mm (1.38 in).

- > Disconnect all electrical cables on the Turbo charger (see section 5.9):
 - Equipotential bonding cable
 - AC power supply
 - Communication cable
 - Fiber optic cable
 - Pilot cable
 - DC cables



10.3.1. Detaching the coolant lines on the Turbo Charger



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION



Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- ➤ Health hazard in the event of skin and eye contact:
 Rinse the eyes and affected areas of the skin
 thoroughly with water. In the event of eye contact,
 seek immediate medical attention.

 Present the poskering or label.
 - Present the packaging or label.
- > Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.



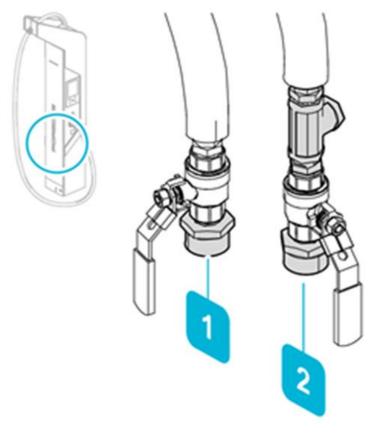


Fig. 253: Charge Box Turbo Charger coolant lines

- Close the ball valves on the feed line (1) and the return line (2).
- > Disconnect the feed line (1) at the connecting point.
- ➤ Disconnect the feed line (1) from the Turbo Charger to the adjacent Turbo Charger (charging park Turbo Charger).
- > Disconnect the return line (2) at the connection point.
- > Collect escaping coolant in a suitable container.

Item	Description
1	Feed line
2	Return line

Table 44: Removing the coolant lines



10.3.2. Draining the coolant



CAUTION



Risk of falling.

You can slip and fall when working on a ladder or a platform.

- > Wear safety shoes and protective gloves.
- ➤ Ensure that the ladder or platform is securely positioned.
- Remove dirt and moisture on the steps of the ladder and on the platform to prevent slipping.
- Ensure that the ladder and platform are standing securely.



CAUTION



Risk of injury due to scalding.

The cooling system may be pressurized.

The coolant can have high temperatures.

When the cooling system is opened, the hot coolant may escape in an uncontrolled way.

- Make sure that the coolant supply is switched off before performing any work on the cooling system.
- > Allow the cooling system to cool down.
- ➤ Open the cooling system slowly and allow the pressure to escape.



CAUTION

Health hazard due to coolant.

Contact with coolant can result in health hazards, especially if swallowed. Observe the information in the coolant manufacturer's data sheet.

- ➤ Health hazard when swallowing coolant: Seek medical attention immediately. Present the packaging or label.
- Health hazard in the event of skin and eye contact: Rinse the eyes and affected areas of the skin thoroughly with water. In the event of eye contact, seek immediate medical attention. Present the packaging or label.
- ➤ Do not breathe in any vapors produced. Always ensure adequate ventilation in the working area.
- ➤ Dispose of coolant and packaging as problematic materials in accordance with local regulations.

- Open the Turbo Charger service flap (see section 5.7.3).
- Open the door of the Turbo Charger (see section 5.7.4).

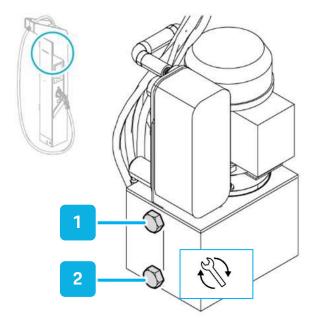


Fig. 254: Turbo Charger cooling unit

- > Position a collecting trough under the cooling unit in the Turbo Charger.
- ➤ Unscrew the screw plugs (1, 2) from the coolant tank.
- Completely drain the coolant from the secondary circuit out of the cooling unit.



10.4. Transporting and packaging the Turbo Charger



WARNING



Risk of injury due to falling loads.

Falling loads can cause severe injuries that can result in death.

- > Wear a safety helmet.
- Never stand under raised loads.
- > Use suitable lifting gear, load attachments, and slings.
- Only lift the load using the transport eyelets and sling points provided.



WARNING

Risk of injury from tipping Turbo Charger.



As long as the Turbo Charger is not securely connected to the foundation, it can tip over.

Tipping of the Turbo Charger can cause severe injuries that can lead to death.

Keep the Turbo Charger attached to the lifting gear until the base plate is securely bolted to the foundation.





CAUTION



Risk of injury due to trapping, crushing.

When standing up the Turbo Charger out of the heavyduty cardboard box, fingers, hands, or feet can become trapped between the Turbo Charger and the floor.

- Wear safety shoes and protective gloves.
- > Do not reach or step under the Turbo Charger.
- ➤ When moving the Turbo Charger using a crane, carefully guide it with 2 other people.

NOTICE

Damage to property due to unsuitable slings.

The eyelets in the roof of the Turbo Charger are designed for vertical tensile forces. Very short slings forms a triangle of forces, which causes the eyelets to be pulled together excessively.

> Observe the minimum sling lengths of 1 m (3.28 ft).

NOTICE

Damage to property due to kinking or twisting of the charging cable.

The charging cable is liquid-cooled. It contains the high-voltage cables for energy transmission and the coolant lines.

Rotation of the charging cable about its own axis must not exceed $\pm 50^{\circ}$. The bending radius of the charging cable must not fall below the minimum of 200 mm (7.87 in). Otherwise, the charging cable may be damaged.

- ➤ Make sure that the charging cable is not kinked or twisted during installation of the Turbo Charger.
- > Avoid tensile loads on the charging cable.

Designation	Reference	Item number
Packaging material	PEG	PEG.A86.698.100.00

PORSCHE



Only use textile slings in conjunction with shackles for transporting using a crane. The slings are very flexible and can adjust to the contours of the load to be lifted.

Observe the nominal load capacity of the slings and select them based on the total weight to be lifted.

Pay attention to the maximum slinging angle of 45° when transporting using a crane and using the slings. With larger slinging angles, there is a risk that the eyelets will be pulled together, causing damage to the roof of the Turbo Charger.

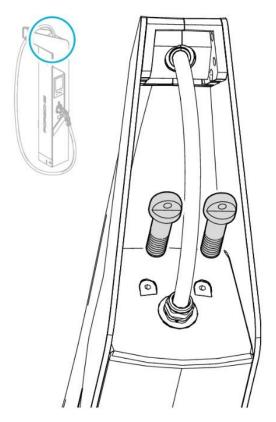


Fig. 255: Installing the eyelets

➤ Replace the screw plugs (including seal) in the roof of the Turbo Charger with the eyelets.





Wear non-abrasive gloves to protect the surface of the Turbo Charger.

- Attach suitable slings to the eyelets in the roof of the Turbo Charger (see section 5.7.2).
- ➤ Protect the charging cable bracket against scratching by the slings with a suitable protective element (e.g. edge protection).
- > Extend the crane boom until the slings are tensioned. Keep the slings under tension.
- Unscrew the screws in the base plate of the Turbo Charger. (see Fig. 20:).
- Slowly raise the Turbo Charger slightly with the lifting gear.
- > Cut through the polysulfite sealant between the foundation and the base plate of the Turbo Charger with a sharp cutter.
- Continue to raise the Turbo Charger.
- Route all supply lines downwards out of the Turbo Charger.
- Close the door of the Turbo Charger and lock it.
- Close the Turbo Charger service flap and lock it.

- Place the Turbo Charger and the base plate in the transport box.
- ➤ Have another person secure the Turbo Charger on the base plate to prevent it from slipping when lowering.
- ➤ Lower the Turbo Charger further and tilt it up to a meter into the transport box with the assistance of two other people.
- Ensure that the charging cable is held by another person.
- > Lower the Turbo Charger further into the transport box.
- Remove the slings from the transport eyelets in the roof of the Turbo Charger.



10.5. Transporting and storing the Turbo Charger

NOTICE

Damage to property due to improper storage and transportation.

The Turbo Charger must be packed in a heavy-duty cardboard box. It must be transported horizontally using a lift truck or forklift.

- Only transport the Turbo Charger horizontally.
- ➤ Do not stand the Turbo Charger vertically in the heavy-duty cardboard box. The heavy-duty cardboard box is not designed for this.
- ➤ Only store the Turbo Charger in dry conditions. Pay attention to the instructions on the packaging.
- ➤ Protect the packaging against rain and moisture ingress. The packaging is not water-resistant.
- ➤ Do not store more than 2 Turbo Chargers lying on top of each other in heavy-duty cardboard boxes.

10.6. Disposing of the Turbo Charger



The Turbo Charger must not be disposed of as domestic waste. It must be handed over for environmentally friendly recycling.

Dispose of the coolant properly. Do not dispose of coolants with waste water.

Observe the applicable local environmental protection regulations.

As waste electrical and electronic equipment the Turbo Charger must be brought to a separated collection and handled properly. Contact your local waste management company. If there is no option to dispose the waste electrical and electronic equipment properly you can contact our waste disposal service provider. Contact information to be found under:

https://www.porscheengineering.com/peg/de/legal-notice/

The operator is responsible for the erasure of personal data.

The process of the factory resets to erase the data on the charging controller (LK) is described in chapter 10.1.



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