



**Commercial
Vehicles**

Converter guidelines

The Caddy (from model year 2021)



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List of abbreviations

ABH	Converter
CAN	Controller Area Network (standardised vehicle communication system)
CFCs	Chlorofluorocarbons
CFCU	Customer-specific functional control unit
CHCs	Chlorinated hydrocarbons
CoC	Certificate of Conformity, Certificate of Conformity
CS Cybersecurity	
EMC	Electromagnetic compatibility
erWin	Electronic repair and workshop information from Volkswagen
ESC	Electronic Stability Control
ISC	In-service conformity (conformity checks for compliance with emission limits)
NAD	Network access device (telephone module)
NEDC	New European Driving Cycle
NFC	Near field communication
OBD	On-board diagnostics
OEM	Original equipment manufacturer
PDC	Park Distance Control
PHEV	Plug-in Hybrid Electric Vehicle
REACH	EU Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
SCR	Selective catalytic reduction
SoC	State of charge (charge level of the 12-V vehicle battery)
SUMS	Software Update Management System
TPMS	Tyre Pressure Monitoring System
UNECE	United Nations Economic Commission for Europe
VIN	Vehicle identification number
WLTP	Worldwide Harmonised Light-Duty Vehicles Test Procedure

1. General information

1.1 Introduction

These converter guidelines provide converters with important technical information which must be complied with when planning and manufacturing a body for road safety and operational reliability. The add-on, body, installation or conversion work required for this is referred to below as “body activities”.

Due to the large number of individual conversions and body types in the converter industry, it is not possible for Volkswagen AG to foresee all possible changes, e.g. in driving behaviour, stability, weight distribution, centre of gravity of the vehicle and its handling characteristics which can occur as a result of work carried out on the body. Therefore, Volkswagen AG does not accept any liability for accidents or injuries arising from modifications of this kind made to its vehicles, especially if the changes have a negative effect on the vehicle as a whole. As a result, Volkswagen AG only accepts liability for its own design, production and instruction services. The converter itself is obliged to ensure that its body activities are not faulty in themselves, and also that they cannot result in defects or dangers on the vehicle as a whole. The converter must also ensure that the body work complies with the technical vehicle regulations and the applicable laws (in particular approval and registration processes). The converter itself is liable in the event that this obligation is violated.

These converter guidelines are intended for professional converters. As a result, these converter guidelines assume corresponding background knowledge. Note that some work (e.g. welding on load-bearing parts) is only allowed to be performed by appropriately qualified personnel. This requirement exists in order to avoid risks of injury and to achieve the quality needed in the body activities.

1.1.1 Concept of this Owner's Manual

The following converter guidelines are divided into nine chapters so that you can find information rapidly:

1. General information
2. Technical data for planning
3. Modifications to closed bodies
4. Implementations of special bodies
5. Technical data
6. Calculations
7. Weights (masses)
8. Notes on homologation of equipping and conversions
9. Listings

Information

For more information, see [chapter 1.2.1.1 “Contact”](#) and [chapter 1.2.2 “Converter guidelines, consulting”](#).

It is essential that the limit values selected in [chapter 2 “Technical data for planning”](#) are complied with and are used as the basis for planning.

1.1.2 Means of representation

The following means of representation are used in these converter guidelines:

Warning note

A danger note draws your attention to possible accident or injury risks to which you or other persons might be exposed.

Environmental note

An environmental note provides you with information about environmental protection.

Practical note

This note draws your attention to the risk of possible damage to the vehicle, as well as to regulations and provisions to be observed.

Information

This note indicates additional information.

1.1.3 Vehicle safety

Warning note

Before the assembly of third-party bodies or mechanical units, it is essential that you read the chapters in these Converter guidelines that are related to assembly, as well as corresponding chapters in the instructions and information provided by the supplier of mechanical units and in the detailed Owner's Manual for the base vehicle. Otherwise you will not be able to recognise dangers, and might expose yourself or others to danger.

We recommend that you use parts, power units, conversion parts or accessories that have been tested by Volkswagen AG for the corresponding vehicle type.

Have the vehicle's safety checked immediately if non-recommended parts, mechanical units, conversion parts or accessories are used.

Practical note

It is essential that you comply with European vehicle approval or UN R regulations, as well as national registration regulations and also technical vehicle regulations. This is because body activities on the vehicle can alter the vehicle type under registration regulations and the operating permit may be invalidated.

This applies in particular to:

- Modifications which change the vehicle type approved in the operating permit
- modifications which might be expected to endanger road users or
- modifications which impair the exhaust or noise emissions characteristics

1.1.4 Operational safety**Warning note**

Incorrect interventions in electronic components and their software may result in these no longer functioning. Due to the networking of electronics, systems that were not modified can be affected.

Malfunctions to the electronics can significantly impair the operational safety of the vehicle.

Work on or modifications to electronic components must be performed by a qualified specialist workshop with the required specialist knowledge and tools to perform the necessary work.

Volkswagen AG recommends using an authorised repairer for this purpose.

Service by a qualified specialist workshop is essential, in particular for safety-relevant work and work on safety-relevant systems.

Some safety systems only operate when the engine is running. Therefore, do not switch the engine off when driving.

1.1.5 Note on copyright

The texts, pictures and data contained in these converter guidelines are subject to copyright. This also applies to editions on CD-ROM, DVD or other media.

1.2 General information

The following pages contain technical guidelines for converters and equipment fitters engaged in designing and assembling bodies.

The converter guidelines must be strictly adhered to when performing any modifications to the vehicle. The current version of the German edition of the converter guidelines is the exclusive authority for the most up-to-date information.

This also applies to legal claims. Should the converter guidelines include references to legal regulations, then no guarantee can be provided for the completeness and correctness of this content, or that it is up-to-date. Country-specific features can vary.

1.2.1 Product and vehicle information for converters

1.2.1.1 Contact in Germany

If you have questions concerning vehicle models from Volkswagen Commercial Vehicles, you can contact us using the Volkswagen AG portals (<https://www.customized-solution.com>) or one of the following methods:

Free hotline¹⁾	00800 2878 66 49 33 (00800-CUSTOMIZED)
Contact (email)	customizedsolution@volkswagen.de
Personal contacts	https://www.customized-solution.com/de/de/service-informationen/kundenbetreuung

¹⁾ From a German landline

1.2.1.2 International contact

Please contact the converter support staff at the responsible importer for technical advice relating to Volkswagen Commercial Vehicles models and as a point of contact for conversions.

In order to find a responsible contact person, registration on the Volkswagen AG CustomizedSolution portal (<https://www.customized-solution.com>) is required.

Information on how to register can be found under the “Help” menu item.

International hotline	00800 2878 66 49 33 (00800 CUSTOMIZED)
Email	customizedsolution@volkswagen.de
Personal contacts	https://www.customized-solution.com/en/en/service-information/customer-care

1.2.1.3 Electronic repair and workshop information from Volkswagen AG

Converters can access repair and workshop information such as:

- Current flow diagrams
- Workshop manuals
- Maintenance
- Self-study Programmes

via the Volkswagen AG Electronic Repair and Workshop Information system (erWin).

Information

Volkswagen AG repair and workshop information can be downloaded online from erWin:

<https://volkswagen.erwin-store.com/erwin/showHome.do>

Converters with Integrated Partner or Premium Partner status are eligible for discounted annual licences that can be requested via the CustomizedSolution portal under My CustomizedSolution portal/Requirements/Planning and Development. Export converters with Partner status can obtain further information from their importer contact.

erWin is a fee-based information system provided by Volkswagen AG.

1.2.1.4 Genuine Parts online ordering portal

For the purchase of spare parts and for the research of Volkswagen Genuine Parts, our latest parts catalogues are available on the Internet on the “Genuine Parts online ordering portal¹⁾“:

<https://www.partslink24.com>

Converters with Integrated Partner or Premium Partner status have access to discounted conditions.

All further information regarding direct purchasing of genuine parts can be found in the CustomizedSolution portal under My CustomizedSolution portal/Requirements/Delivery and Customer Service. The offer applies exclusively to the German market.

¹⁾Information system from Volkswagen AG, subject to payment

1.2.1.5 Owner's Manual

Detailed information about the functions and operation of the vehicle can be found in the Owner's Manual, which is supplied with the vehicle from the factory. In addition to the hard copy of the Owner's Manual, the following link and the VIN can be used to receive the Owner's Manual for your vehicle in electronic form.

<https://www.volkswagen-nutzfahrzeuge.de/de/besitzer-und-service/hilfreiches/digitales-bordbuch.html>

1.2.1.6 Homologation

Amendments to legislation from 1 January 2022 Regulation (EU) 2018/858 EU and national (Art. 44 and Art. 45)

Affected: all vehicle classes M1, N1 (light duty)

For complete vehicles completed ex works at the OEM, the following applies:

Complete vehicles that have been modified with add-ons/conversions after completion ex works at the OEM and before initial registration must resubmit CO₂ and consumption values for the second stage.

These can be determined using the WLTP calculator in accordance with the available homologations.

Options for calculating weight and/or aerodynamic changes are available.

If individual values are not available for the respective conversion, a type approval can be checked in coordination with the technical service / regulatory authority.

Information

For all vehicles and/or engine-gearbox variants for which no values can currently be generated using the WLTP calculator, please contact your responsible technical service department and check whether individual approval or multi-stage type approval is possible.

Further information on this topic can be found in [chapter 8 “Notes on homologation of equipping and conversions”](#).

1.2.1.7 European Type Approval and EC Certificate of Conformity (CoC)

Regulation (EU) 2018/858 of the European Parliament establishes the standard for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles.

Provisions were also adopted in this directive for the approval of vehicles produced in several stages: the multi-stage approval process.

Accordingly, each manufacturer involved in the construction of a vehicle is itself responsible for the approval of modified or added scopes in its production stage.

The manufacturer may choose one of the four following methods:

- EU type approval
- EU type approval for small series
- National small series type approval
- Individual approval

CoC = Certificate of Conformity. A document that verifies the conformity of certain goods – and therefore also of vehicles and bodies – in accordance with the recognised (international) standards. The purpose of this Certificate of Conformity is to facilitate the approval of goods on international markets. As a result, the document is needed above all in import and export as part of the customs clearance procedure.

The manufacturer, who is the bearer of an EU type approval or EU small series type approval, is obliged to provide a Certificate of Conformity with every vehicle that corresponds to an approved type. If you are planning to apply multi-stage type approval, an agreement must be concluded in accordance with the 2018/858/EU regulation. Please get in touch with us for information on this matter. (see [chapter 1.2.1.1 “Contact in Germany”](#) or [chapter 1.2.1.2 “International contact”](#))

1.2.1.8 Worldwide Harmonised Light-Duty Vehicles Test Procedure (WLTP)

New consumption values/ranges calculated in accordance with the new WLTP standards apply from September 2017 for new passenger cars entering the market and from September 2018 for new light commercial vehicles entering the market.

As of 1 September 2018, certified WLTP measurements must be available for all newly registered passenger cars. For light commercial vehicles (LCV type approval) in accordance with emission standard EU6 according to Regulation EU 2017, these rules apply from 1 September 2019. 28+6 markets in Europe are affected by the WLTP.

WLTP stands for Worldwide Harmonised Light Vehicles Test Procedure. This is a worldwide standardised testing procedure for determining fuel consumption / electric range and exhaust emissions.

It replaces the NEDC (New European Driving Cycle) test procedure in force since 1992.

Unlike the NEDC, the WLTP takes into account individual special equipment and conversion solutions for weight, aerodynamics, electrical system requirements (no-load current) and rolling resistance which have an impact on the fuel consumption / electric range and exhaust emissions. This includes, in particular, modifications resulting in a larger end face, a different radiator inflow area, a higher kerb weight for the vehicle or changes to the tyre size or the rolling resistance. Special equipment that consumes power, such as the air conditioning system or seat heating, still remains switched off for the duration of the test procedure.

Before initial approval, conversions or add-ons where WLTP is relevant can be made if they are approved by way of an individual approval or multi-stage type approval.

The Volkswagen type approval can be used for the multi-stage type approval for vehicles with conversions or add-ons that remain within the ISC parameters / maximum technical specifications for bodies. If the add-on or conversion is outside the ISC parameters defined by the manufacturer / maximum technical specifications for add-on parts, the converter must demonstrate compliance with the exhaust gas emissions requirements / electric range.

Information about the ISC parameters / maximum technical specifications for add-on parts can be found on the Volkswagen CustomizedSolution portal. Please ask your technical service / test centre for advice if you have questions about alternatives.

To determine the consumption values of converted new vehicles in compliance with the WLTP procedure and to obtain a WLTP certification, you can use the "WLTP Conversion Calculator".

You can find more information as a Registered Converter on the Customized Solution portal/WLTP:

Germany/international: <https://www.customized-solution.com>

1.2.1.9 Manufacturer's declaration

We issue a manufacturer's declaration for the basic vehicle for the following scopes:

- Electromagnetic compatibility (EMC)
- Speed/distance signal

To apply for manufacturers' declarations, contact your authorised Volkswagen Commercial Vehicles partner or your importer. The certificates can be ordered there for a fee.

1.2.2 Converter guidelines, consulting

The converter guidelines define the technical requirements for converters and equipment fitters designing and mounting bodies for basic vehicles of the Volkswagen Commercial Vehicles brand.

The converter guidelines must be strictly adhered to when performing any modifications to the vehicle.

The statutory requirements, technical vehicle regulations and guidelines stated in the Directive are not comprehensive. When making modifications to vehicles, all applicable statutory requirements and all technical vehicle regulations and guidelines must be observed. The work safety regulations of the trade association and the Machinery Directive must be observed.

For all modifications, it must be ensured that the functional safety of all parts of the running gear, the body and the electrical system remains unaffected. Modifications must only be performed by qualified specialists and in accordance with the generally acknowledged rules of the automotive industry.

Prerequisites for modifications to used vehicles:

- The vehicle shall be in a good overall condition, i.e. structural parts such as longitudinal and cross members, pillars etc. must not be corroded to such an extent that structural stability might be adversely affected.
- Vehicles whose modifications might affect the validity of the general operating permit must be presented to a relevant authority for approval. It is recommended to clarify in advance with the relevant authority whether approval is required

When inquiring about planned modifications, please enclose two sets of design drawings of the complete scope of the modification, including weights, centre of gravity and dimensions, which also clearly show how the body is attached to the chassis. Please use the online contact form for this (see [chapters 1.2.1.1 “Contact in Germany”](#) and [1.2.1.2 “International contact”](#)).

Please also provide information about the intended operating conditions of the vehicle.

The work safety regulations of the trade association and the EU Machinery Directive apply.

When making modifications to vehicles, all corresponding and applicable legal regulations, rules, laws and directives must be observed.

1.2.2.1 Letter of non-objection

Volkswagen AG does not issue body approvals for non-Volkswagen bodies. It merely provides converters with important information and technical specifications for dealing with the product in these guidelines.

As a result, Volkswagen AG recommends that all work should be carried out on the basic vehicle and the body in accordance with the current Volkswagen converter guidelines applicable to the vehicle in question.

Volkswagen AG does not recommend body activities that:

- are not conducted according to these Volkswagen converter guidelines
- exceed the gross vehicle weight rating
- exceed the gross axle weight rating

Volkswagen AG issues letters of non-objection on a voluntary basis, as follows:

- The assessment conducted by Volkswagen AG is exclusively based on the documents submitted by the converter who is carrying out the modifications. The inspection and safety assessment only relate to the expressly designated scope of work, its basic compatibility with the designated chassis and its interfaces or, in the event of chassis modifications, the fundamental admissibility of the design for the designated chassis

The letter of non-objection relates to the presented whole vehicle, and not:

- To the design of the overall body,
- Its functions or
- The planned use.

Non-objection is only possible if the design, production and assembly are carried out by the converter performing the modifications in accordance with the current technology and in compliance with the applicable converter guidelines of Volkswagen AG – and assuming any deviations from these guidelines have been declared to be technically safe. The letter of non-objection does not release the converter who is performing the modifications from its responsibility for the product, or from its obligation to carry out its own calculations, tests and a trial of the entire vehicle in order to ensure that the operational safety, road safety and driving properties of the overall vehicle it has manufactured are acceptable. Accordingly, it is necessary to ensure that the converter exclusively accepts its responsibility for ensuring that its body activities are compatible with the basic vehicle as well as the operational and road safety of the vehicle.

It is expressly stated that the letter of non-objection from Volkswagen AG does not represent a technical approval for the investigated changes.

As part of the assessment of a submitted vehicle, an assessment report is written for the purpose of obtaining a letter of non-objection (LONO report).

The following assessment results are possible:

- Classified as “safe”
If the whole vehicle is classified as “safe”, the Sales department can subsequently issue the LONO certificate.
- Classified as “not safe”
Classification as “not safe” in the individual categories:
 - + Basic vehicle configuration
 - + Impairment of the basic vehicle and possibly
 - + Sole body item

leads to a corresponding classification of the whole vehicle. This means no LONO certificate can be issued initially.

In order for a not-safe classification to be resolved, the LONO report states the necessary modification for each item in question. In order for the letter of non-objection to be obtained, these points will have to be addressed by the converter and documented in a clearly comprehensible manner in a report along the same lines as the LONO report. On the basis of this detailed report, it is possible for the desk-review assessment to be completed with a positive result.

Depending on the defective points, it may be necessary not only to provide documentation of the defect resolution but also for the vehicle from the first inspection to be presented again. The first report indicates if it will be necessary for a new assessment to be carried out on the vehicle.

The assessment report may also contain “notes/recommendations”.

Notes/recommendations are technical remarks which do not have any effect on the final result of a letter of non-objection. They should be regarded as advice and suggestions for further consideration to support the continuous improvement of the final product for the customer.

In addition, “notes/recommendations solely relating to the conversion” can also be formulated.

The information and recommendations stated as “solely relating to the body/conversion” must be dealt with and documented before the vehicle can be included in the CustomizedSolution portal.

Practical note

Country-specific laws, directives and approval regulations must be observed.

1.2.2.2 Application for the letter of non-objection

In order for the assessment to be carried out for the letter of non-objection, auditable technical documents and drawings shall be submitted to the department responsible before work begins on the vehicle (see [chapter 1.2. “General notes”](#)).

Prompt handling of the request requires:

- Documents preferably in standardised digital formats (e.g. PDF, DXF, STEP)
- Technical data and documentation should be complete

The following details must be included:

- Vehicle type
 - + Vehicle design
 - + Wheelbase
 - + Frame overhang
- Vehicle identification number (if already available)
- Any deviations from these converter guidelines must be indicated on all documentation.
- Axle load calculation
- All data about dimensions, weight and centre of gravity (weighing certificate)
- Special operating conditions (e.g. poor road conditions, extreme dust, high altitude or ambient temperature extremes)
- Certificates (e-registration, seat tensile test)
- Attachment of the body on the vehicle
- Type of fixation for the body or add-ons to the vehicle frame (bolting, bonding, welding)

- Photographic documentation of the conversion
- All documents must clearly correlate with the conversion (e.g. drawings marked with allocated numbers)
- General (functional) description of deviations from the production vehicle, or added components
- Electric wiring diagram
- Details of the consumption of additional electrical equipment

Complete documentation avoids the need for clarification queries and accelerates the processing.

1.2.2.3 Legal entitlements

There is no legal entitlement for a letter of non-objection to be issued.

Due to ongoing technical development and the information derived from this, Volkswagen AG is entitled to refuse a letter of non-objection even if a comparable certificate had been issued formerly.

The letter of non-objection can be restricted to individual vehicles.

The subsequent issue of a letter of non-objection may be refused for vehicles that have already been completed or delivered.

The converter is solely responsible for:

- the function and compatibility of its body activities with the basic vehicle
- road safety and operational reliability
- all body activities and installed parts

1.2.3 Warranty and product liability of the converter

UNECE Regulation No. 155 for vehicle cyber security and UNECE Regulation No. 156 for vehicle software updates apply to all new vehicle types from the middle of 2022 and to all new vehicle registrations from the middle of 2024; these contain new requirements for automotive cybersecurity and updates.

Volkswagen attaches great importance to the security of our digital services and products. We therefore strive to identify and address relevant security vulnerabilities accordingly. We would be pleased to receive any information in this regard. If you have found any indications of a vulnerability, please email us at vulnerability@volkswagen.de so that we can address the vulnerability. After receiving the message, we examine and act upon the information received regarding possible vulnerabilities in our processes.

Insofar as modifications are made to the vehicle, the converter shall also ensure that these regulations are applied and complied with. The converter's or fitter's warranty conditions apply to the converter's or fitter's scope of supply. Therefore, warranty claims associated with complaints to this scope of supply cannot be made under the warranty conditions applicable to Volkswagen Commercial Vehicles.

Defects of bodies, installations and equipping provided by third parties as well as defects of the vehicle caused by the said bodies, installations or conversions are excluded from the Volkswagen warranty and also from the Volkswagen paint and body warranty. This also applies to accessories that were not installed and/or supplied by the vehicle manufacturer.

The converter or equipment fitter is solely responsible for the design and assembly of bodies and the execution of conversions.

All modifications must be documented by the converter or equipment fitter.

The converter is responsible for ensuring that all modifications it performs comply with the technical vehicle regulations, specifications and standards that apply in the countries of registration.

Due to the multitude of modifications and diversity of operating conditions, the information provided by Volkswagen AG is subject to the reservation that modified vehicles are not tested by Volkswagen AG. Modifications may affect the properties of the vehicle.

For reasons of liability, the converters or equipment fitters must provide the following information in writing to their customers:

"Due to the modifications* to your Volkswagen Commercial Vehicles base vehicle, the properties of your base vehicle may have changed. Please understand that Volkswagen AG does not assume any liability for any negative effects resulting from the modifications* to the vehicle."

In individual cases, Volkswagen AG reserves the right to demand evidence of the information being passed on to the customer.

No general legal entitlement for the approval of a body modification exists, even if such approval was previously granted.

If bodies comply with the present guidelines, no additional approval by Volkswagen AG is required for the presentation of the vehicle at the relevant authority examining roadworthiness.

* At this point, the term "modification" may be substituted by a more precise description of the work performed, e.g. by "camping equipment installation" or "wheelbase extension".

1.2.4 Ensuring traceability

Body dangers that are not detected until after delivery may mean that subsequent measures in the market will be necessary (customer information, warning, recall). To make these measures as efficient as possible, it is necessary to be able to trace the product after delivery. For this purpose, and in order to be able to use the central vehicle register (CVR) operated by the Federal Motor Transport Authority or comparable registers abroad in order to trace the affected vehicle owners, we strongly recommend that converter should store the serial number / identification number of their body linked to the vehicle identification number of the base vehicle in their databases. For this purpose, it is also recommended that customers' addresses be saved and that subsequent owners be provided with a means of registration.

1.2.5 Badges

VW badges and emblems are trademarks of Volkswagen AG and may not be removed or attached in a different position without authorisation.

1.2.5.1 Positions on rear of the vehicle

Volkswagen emblems and badges which are enclosed in the delivery must be fitted in the location intended by Volkswagen.

1.2.5.2 Appearance of whole vehicle

If the vehicle does not correspond to the appearance and the quality requirements set by Volkswagen AG, then Volkswagen AG reserves the right to request removal of the Volkswagen AG trademarks.

1.2.5.3 Non-Volkswagen trademarks

Non-Volkswagen badges are not allowed to be attached next to Volkswagen badges.

1.2.6 Recommendation for vehicle storage

Extended storage times cannot always be avoided. The following measures are recommended to ensure that vehicle quality is not affected by long-term storage:

Carry out the following when the vehicle is delivered:

- Check on a weekly basis for aggressive deposits (e.g. bird droppings, industrial deposits) and clean if necessary.
- 12-V vehicle battery: Determine the state of charge (SoC) and, if necessary, complete the battery care programme (see the instructions "Carry out no later than every three months").
- High-voltage battery: Read the state of charge in the instrument cluster.
- If the charging indicator is in the red area. This means: $\leq 10\%$ or $< 1/4$ or < 50 km (depending on the display).
- Charge the high-voltage battery until the charging indicator shows a maximum of half full.
- Set the tyre pressure to 3.4 bar (not the spare wheel).
- Open all front vents in the dash panel, set the blower to maximum and run for one minute.
- Remove any paper and other objects from the storage compartments and surfaces in the vehicle interior (dash panel, seats, luggage space) except for items that serve to protect the surfaces.
- If fitted, roll in the luggage compartment cover and the sun blinds.
- In addition, for new vehicles: Correct the position of the transport protective hoods if necessary.
- Record the date of delivery as a reference for all vehicle care measures.

Carry out after no longer than six weeks:

- For vehicles stored without a solar panel:
- Carry out the battery care programme (see "Carry out after no longer than three months"); do not disconnect the 12-V vehicle battery

Carry out after no longer than three months:

- Carry out braking to remove disc rust.
- If the vehicle is stored without a solar panel: Carry out the battery care programme; do not disconnect the 12-V vehicle battery.
-
- No battery status display in the dash panel insert: Measure the open-circuit voltage of the 12-V vehicle battery two hours after the last electrical equipment was active.
- a) If the open-circuit voltage is between 11.6 V and 12.5 V: Fully charge immediately.
- b) If the open-circuit voltage is <11.6 V: Mark and fully charge the 12-V vehicle battery, then check it.
- The maximum charge voltage may not exceed 14.8 V.
- A totally discharged 12-V vehicle battery must be replaced before the vehicle is handed over to the customer.

Practical note

To determine the exact remaining capacity of the 12-V vehicle battery, follow the test procedure in the Workshop Manual.

Carry out after no longer than six months:

- For vehicles stored with a solar panel:
- Carry out the battery care programme (see “Carry out after no longer than three months”); do not disconnect the 12-V vehicle battery.

Information

You can find further information about vehicle storage in the following documents:

- Owner's Manual
- Vehicle care programme

1.2.7 Compliance with environmental rules and regulations

Environmental note

The following principles of environmentally friendly design and material selection should be followed right from the planning stage of add-ons or bodies, and the statutory requirements in the EG Directive on End-of-Life Vehicles 2000/53/EC should also be taken into account.

The converter is responsible for ensuring that all modifications it performs comply with the environmental regulations, specifications and standards that apply in the countries of registration and sale. These may go beyond the existing prerequisites of the base vehicle and are the responsibility of the converter.

The converter must ensure that add-ons and bodies (conversions) comply with all applicable environmental rules and regulations, especially, but not only, EU directive 2000/53/EC concerning end-of-life vehicles and the REACH Regulation (EC) 1907/2006 relating to restrictions on the marketing and use of certain dangerous substances and preparations ("low flammability" and specific flame-retardant agents).

The registered keeper must keep all assembly documentation concerning the modification and, in the event of the vehicle being scrapped, hand it over together with the vehicle to the dismantler. This ensures that modified vehicles are processed in compliance with environmental rules and regulations at the end of their life cycle.

Materials posing a potential risk, such as halogen additives, heavy metals, asbestos, CFCs and CHCs must be avoided.

Under environmental law, the converter must also comply with the following requirements. Please note that the following list merely contains examples and is not exhaustive:

- EU Directive 2000/53/EC must be adhered to.
- Preferably, materials which allow valuable substance recycling and closed material cycles shall be used.
- The material and production process shall be selected so that only low amounts of easily recyclable waste are generated.
- Plastics shall only be used where these offer advantages in terms of cost, function or weight.
- In the case of plastics, especially composite materials, only mutually compatible substances from one material family may be used.
- With regard to components that are relevant for recycling, the number of plastic types used shall be kept as low as possible.
- It is necessary to check whether a component can be manufactured from recycled material or with recycled additives.
- Care must be taken to ensure that recyclable components can be removed easily, e.g. by means of snap-lock connections, predetermined breaking points, good accessibility, use of standard tools.
- Simple, environmentally friendly removal of the fluids shall be ensured by means of drain plugs etc.
- Wherever possible, the components shall not be painted or coated; instead, dyed plastic parts shall be used.
- Components in areas at risk of accident shall be designed to be tolerant of damage, repairable and easy to exchange.
- All plastic parts shall be identified according to the VDA material sheet 260 ("Components of motor vehicles; Identification of materials"), e.g. "PP-GF30R".

1.2.8 Recommendations for inspection, maintenance and repair

Maintenance instructions or service schedules outlining inspection and servicing work should be provided for the modifications performed by the converter or equipment fitter. These instructions or schedules must include the maintenance and inspection intervals as well as the required operating fluids and materials and the replacement parts. It is also important to specify parts and components with a limited service life which are to be checked at regular intervals in order to ensure service reliability and timely replacement where required. To facilitate this, a Workshop Manual should be available that specified tightening torques, adjustment tolerances and other similar technical specifications. Special tools, including their source of supply, must also be stated.

The manual must also state which tasks may only be performed by the converters and equipment fitters or their authorised workshops. If the converter's scope of supply includes electric, electronic or mechatronic, hydraulic or pneumatic systems, circuit diagrams and diagnosis routines or similar documentation facilitating a systematic search for faults must be provided.

Please observe the Volkswagen AG Owner's Manual for the inspection, maintenance and repair of the base vehicle. Please only use brake fluids and engine oils approved by Volkswagen for your vehicle.

More detailed information on brake fluids and engine oils can be found in the Owner's Manual of your vehicle (see [chapter 1.2.1.5 Owner's Manual](#)).

1.2.9 Accident prevention

Converters must ensure that the bodies comply with applicable laws and regulations, as well as all with occupational safety and accident prevention regulations, safety rules and guidance issued by accident insurance institutions.

All technically feasible measures must be taken to prevent unsafe operation. Country-specific laws, directives and approval regulations must be observed. The converter is responsible for the compliance with these laws, rules and regulations. For further information about commercial freight traffic in the Federal Republic of Germany please contact:

P.O. box address	Employers' liability insurance association Verkehrswirtschaft Post-Logistik Telekommunikation (BG Verkehr) Fachausschuss "Verkehr" Sachgebiet "Fahrzeuge" Ottenser Hauptstrasse 54 D-22765 Hamburg
Telephone	+49 (0) 40 39 80 – 0
Email	info@bg-verkehr.de
Home page	https://www.bg-verkehr.de/

1.2.10 Quality system

Worldwide competition, increased quality requirements placed on the overall product by customers, national and international product liability legislation, new forms of organisation and increasing pressure on costs are demanding effective quality assurance systems in all areas of the automotive industry.

The requirements of a quality management system of this kind are described in DIN EN ISO 9001.

For the reasons stated above, Volkswagen AG strongly recommends that all converters should set up and maintain a quality management system with the following minimum requirements:

- Definition of responsibilities and authorisations including organisation plan
- Description of the processes and procedures
- Appointment of quality management representative
- Performing contract and build feasibility checks
- Performing product checks based on specified instructions
- Regulating the handling of faulty products
- Documentation and archiving of test results
- Ensuring the quality records of employees are up to date
- Systematic monitoring of test equipment
- Systematic material and parts identification
- Performing quality assurance measures at the suppliers
- Ensuring the availability of process, working and test instructions, and that they are up to date, in the departments and in the workplace

1.3 Planning bodies

Practical note

During the planning of bodies, the right choice of materials and thus the observance of corrosion protection measures are important in addition to a user and maintenance friendly design. (See [chapter 2.3.2.10 “Corrosion protection measures”](#)).

1.3.1 Selecting the base vehicle

The base vehicle needs to be selected carefully to ensure safe usage in the respective field.

When planning, please consider the following for the use in question:

- Wheelbase
- Engine/gearbox
- Approval process
- Gross vehicle weight rating
- Centre of gravity
- Seating version (number and arrangement)
- Electrical equipment (e.g. interior lighting, 12-V vehicle battery, electrical interface for special vehicles, customer-specific functional control unit (CFCU*), see [chapter 2.5 “Electrics/electronics”](#)).

Practical note

Before carrying out body building or conversion work, the supplied base vehicle should be checked with regard to the fulfilment of applicable requirements.

Please choose the appropriate electrical interface for the planned use of the vehicle.

See [chapter 2.5.3 “Electrical interface for special vehicles”](#).

To enable a CFCU to be retrofitted, it is essential to also order the IS9 (preparation interface for external use).

You can find more information on the available body versions from the relevant department (see [chapter 1.2.1 “Product and vehicle information for converters”](#))

Information

On the Volkswagen AG homepage you can put your vehicle together using the configurator and view the available optional equipment:

<https://www.volkswagen-nutzfahrzeuge.de/de/modelle.html>

1.3.2 Vehicle modifications

Before starting work on the body, the converter should check whether:

- the vehicle is suitable for the planned body.
- the vehicle type and the equipment also correspond to the operating conditions after the conversion.
- the type of approval is still valid after the changes (weight change or change to aerodynamics). See also [1.2.1.8 Worldwide Harmonised Light-Duty Vehicles Test Procedure \(WLTP\)](#).
- the technical limits for add-ons are complied with for using vehicle high (see information in the table below).

Build dimension drawings, product information and technical data can be obtained from the responsible department or via the communication system for the planning of bodies (see [chapters 1.2.1.1 “Contact in Germany”, 1.2.1.2 “International contact”](#) and [1.2.2 “Converter guidelines, consulting”](#)).

Furthermore, the special equipment available from the factory should be noted (see [chapter 1.4 “Special equipment”](#)).

After the modifications have been made, the vehicles must comply with the regulations valid in the countries of registration.

Technical limits for add-ons for vehicle high registration. Further information can be found on the CustomizedSolution portal.

Add-ons	Max. external dimensions of add-ons (WxLxH) mm *	Position on the vehicle
Fan on the roof	310x310x135	Any position on the roof
Rotating lights	Max. Ø 160 Max. height 205	Any position on the roof
Cooling system on the roof	775x580x180	Position the roof structure at a suitable location on the vehicle roof or on the railing.
Special signal system on the roof railing or bolted directly onto the roof	1,100x415x150	Position the roof structure at a suitable location on the vehicle roof or on the railing.
Roof-mounted turn signals	Max. height 180	Position according to applicable approval regulations
Side fan	50x300x100	Any position on the side panel/sliding door

* B = width (transverse to direction of travel) / L = length (in direction of travel) / H = height (component height)

Warning

Do not modify the steering or brake system.

Modifications to the steering and brake system can result in these systems no longer working correctly and failing.

Furthermore, driver assist system functions could be negatively affected.

This may result in the driver losing control of the vehicle and causing an accident.

Practical note

Sufficient space must be provided in order to guarantee the function and operating safety of the power units.

Practical note

Modifications to the noise encapsulation can have effects which are relevant to registration.

Information

Please note that a majority of the EC directives announced to date have been annulled by Regulation (EC) 661/2009 “General Safety”. The EC directives have been replaced by new EU directives or UN R regulations with the same corresponding content.

1.3.3 Vehicle acceptance

The officially recognised appraiser or tester from the converter must be informed about modifications to the vehicle.

Practical note

Country-specific laws, directives and approval regulations must be observed.

1.4 Optional equipment

We recommend using the optional equipment from Volkswagen AG that can be obtained with a PR number for optimum adaptation of the body to the vehicle.

You can obtain information on optional equipment provided by Volkswagen under PR numbers from your authorised repairer or in your contact options for product and vehicle information for converters (see [chapter 1.2.1 "Product and vehicle information for converters"](#)).

Please also note [chapter 4, "Implementation of special bodies"](#)

Information

You can also put together your vehicle in the configurator on the Volkswagen AG homepage and view the special equipment available:

<https://www.volkswagen-nutzfahrzeuge.de/de/modelle.html>

Retrofitted optional equipment (e.g. reinforced springs, frame reinforcements, anti-roll bars) increase the kerb weight of the vehicle (see also [chapter 4 "Implementations of special bodies"](#)).

Practical note

Permanently installed components increase the kerb weight of the vehicle, as a result of which the suspension compression height on the rear axle is reduced accordingly.

If the additional installation solution weighs more than 180 kg, we recommend converting a specially coordinated spring pack (PR number UC5). See also [chapter 2.2.7.1 "Rear axle running gear for heavy installations"](#).

The actual vehicle weight and the axle loads should be determined by weighing after the body is built.

Not all additional equipment can be installed into every vehicle without problems.

This applies in particular if it is retrofitted.

Warning note

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

2. Technical data for planning

2.1 Base vehicle

2.1.1 Vehicle dimensions

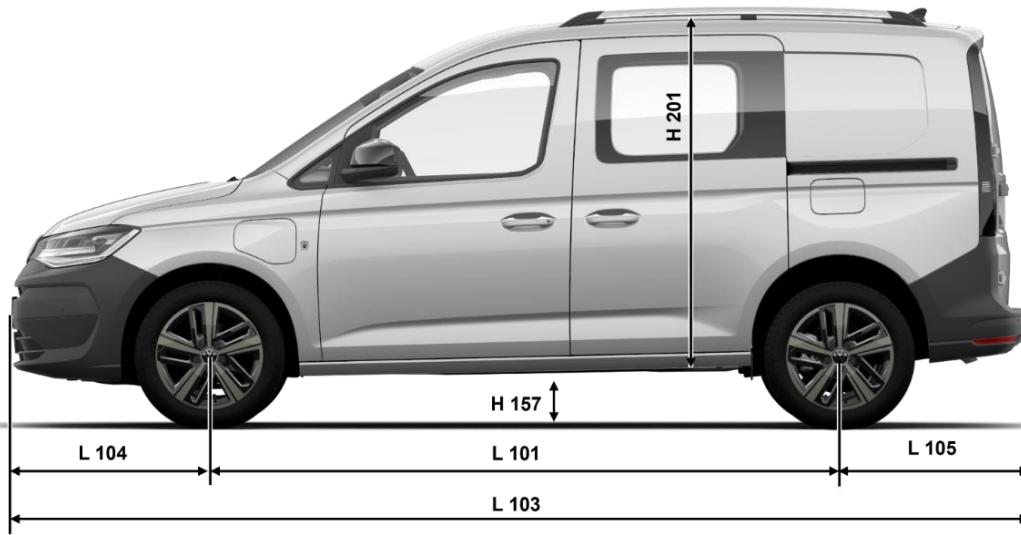


Fig. 1: Caddy vehicle dimensions (acc. to DIN 70020, T1)

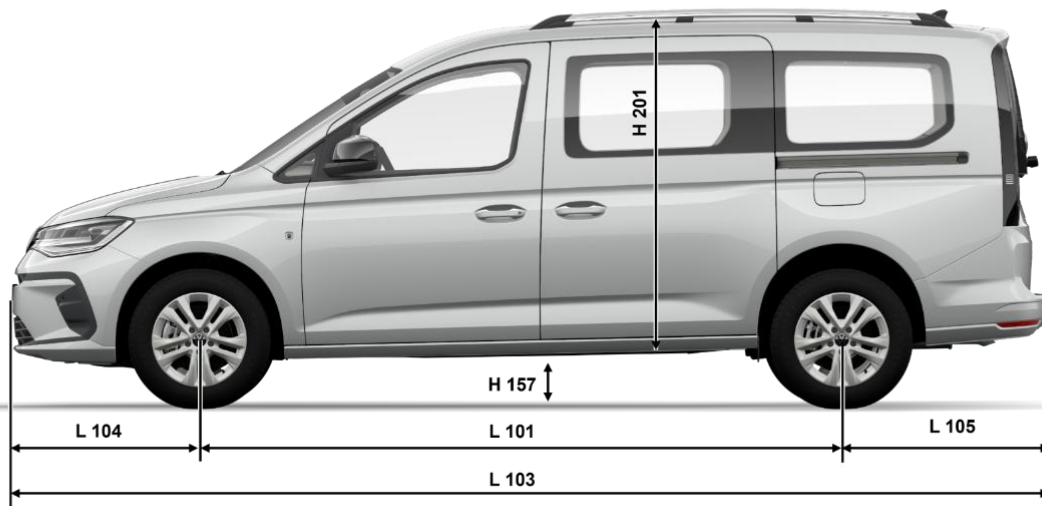


Fig. 2: Caddy Maxi vehicle dimensions (acc. to DIN 70020, T1)



Fig. 3: Caddy vehicle dimensions (acc. to DIN 70020, T1)

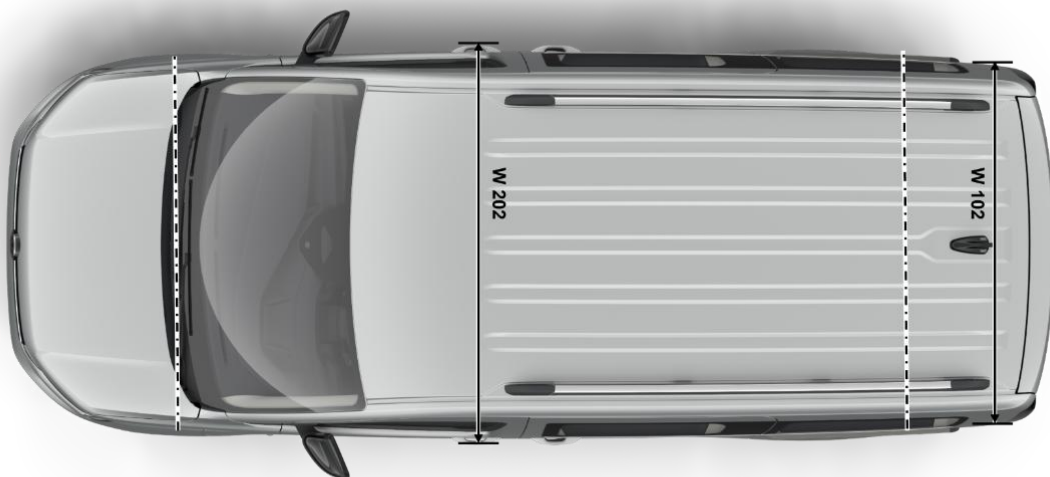


Fig. 4: Caddy Maxi vehicle dimensions (acc. to DIN 70020, T1)

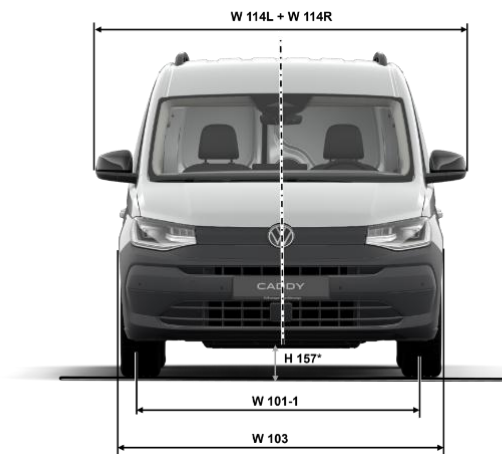


Fig. 5: Caddy / Caddy Maxi vehicle dimensions, front view (acc. to DIN70020, T1)

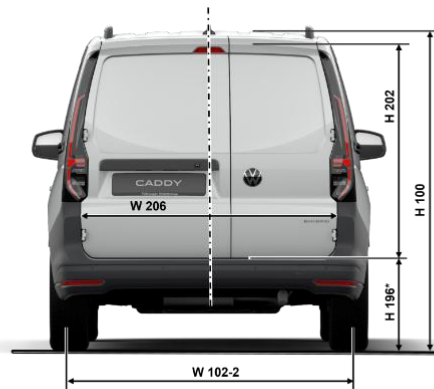


Fig. 6: Caddy / Caddy Maxi vehicle dimensions, rear view (acc. to DIN70020, T1)

* The vehicle dimensions concerning ground clearance and load area differ from one another depending on the engine and equipment variant.

2.1.1.1 Basic data of Caddy Cargo

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
Dimensions	L101/3	Wheelbase at ML3 ³⁾	2,751	2,968
	L103	Vehicle length	4,498	4,851
	L102	Vehicle length with rigid/removable towing bracket	4,598	4,951
	L515	Centre of gravity position, load compartment, behind the front axle	2,605	2,781
	L515.1	Centre of gravity position, load compartment, behind the front axle 5-seater	2,989	3,165
		Centre of gravity position, load compartment, behind the front axle FlexCab	3,004	3,180
	W103	Vehicle width (measuring point: door handle)	1,855	1,855
	H100-B/EG ⁵⁾	Vehicle height body	1,816	1,820
	H100-B	Vehicle height at ML1 ³⁾	1,823	1,827
	H100.2	Vehicle height with aerial base	1,849	1,853
	H100.4	Vehicle height with roof railing	1,846	1,852
	L104	Front overhang length	888	888
	L105	Rear overhang length	856	994
	L105.1	Rear overhang towing bracket	956	1,094
	W101.1	Front track at ML1 ³⁾ /EG ⁵⁾ : with offset 48	1,567	1,567
		With offset 49	1,565	1,565
	W101.2	Rear track at ML1 ³⁾ /EG ⁵⁾ : With offset 48	1,604	1,604
		With offset 49	1,602	1,602

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
	H157/EG ⁵⁾	Ground clearance between the axles	182	182
	H157/ 1 ¹⁾	Ground clearance at ML1 ³⁾	163	163
	A116.1	Front ramp angle at ML3 ⁴⁾	17.3°	15.9°
		Front ramp angle at ML3 ⁴⁾ (PHEV)	16.8°	15.6°
	A116.2	Rear ramp angle at ML3 ⁴⁾	18.8°	16.8°
		Rear ramp angle at ML3 ⁴⁾ (PHEV)	19.8°	17.5°
	A117	Breakover angle	14.3°	13.1°
Turning circle	D102	Minimum turning circle	11.4 m	12.1 m
Wheels/tyres		Basic tyres ²⁾	Smallest tyre 205/60 R16 96 H Largest tyre 215/55 R17 98 H	
Load compartment measurements	L202	Length of load area (Regulation (EU) 2021/535/XIII, 2-seater)	1,648	2,001
		Length of load area (Regulation (EU) 2021/535/XIII, 5-seater)	880	1,233
		Length of load area (Regulation (EU) 2021/535/XIII, FlexCab)	848	1,201
	L301-2	Luggage compartment length 1st row of seats	1,797	2,150
	W200	Largest luggage compartment width (measuring point sliding door)	1,614	1,614
	W201 ¹⁾	Minimum load-through width between the wheel housings	1,230	1,230
	H201 ¹⁾	Loading height	1,259	1,264
		Load height up to cross strut	1,233	1,239
		Loading height with floor covering	1,256	1,261
		Loading height with floor covering up to cross strut	1,230	1,237
	H196 ¹⁾	Load sill height at ML1 ³⁾	589	593
	H508	Clear opening height of sliding door	1,096	1,096
	L902	Clear opening height – front door / front door 4-door	817	817
	L903	Clear opening width of sliding door	695	836
		Clearance opening width of sliding door (without partition)	703	846
	H202	Body opening height with rear lid	1,130	1,130
		Body opening height with wing door	1,122	1,122
	W206	Largest width of rear opening	1,234	1,234

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
Garage dimensions	W120-1	Vehicle width, front doors open	3,689	3,689
	W120-2	Vehicle width - doors in 2nd seat row open	2,128	2,130
	W114-L	Width incl. left exterior mirror	1,050	1,050
	W114-R	Width incl. right exterior mirror	1,050	1,050
Vehicle interior dimensions	H61-1	Headroom – 1st seat row	1,129	1,129

Basic data of Caddy Cargo

¹⁾ The vehicle dimensions relating to ground clearance and load area may vary depending on the engine and equipment variant.

²⁾ The permitted tyre size varies depending on the engine and the gross vehicle weight rating.

³⁾ ML1 = measurement load 1, vehicle empty

⁴⁾ ML3 = measurement load 3, vehicle fully laden

⁵⁾ EG = with driver

2.1.1.2 Basic data of Caddy

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
Dimensions	L101/3	Wheelbase at ML3 ⁴⁾	2,751	2,968
	L103	Vehicle length	4,498	4,851
	L102	Vehicle length with towing bracket (rigid/removable)	4,598	4,951
	L515	Centre of gravity position, load compartment, behind the front axle – 5-seater	2,989	3,165
		Centre of gravity position, load compartment, behind the front axle – 7-seater	3,354	3,550
	W103	Vehicle width (measuring point: door handle)	1,855	1,855
	H100-B/EG ⁵⁾	Vehicle height body	1,791	1,793
		With raised running gear	1,811	1,814
	H100-B	Vehicle height at ML1 ³⁾	1,798	1,800
	H100.2	Vehicle height with aerial base	1,826	1,828
		With raised running gear	1,848	1,850
	H100.4	Vehicle height with roof railing	1,825	1,829
		With raised running gear	1,845	1,850
	L104	Front overhang length	888	888
	L105	Rear overhang length	855	993
		Rear overhang with towing bracket on ML1	956	1,094
	W101-1	Front track at ML1 ³⁾ /EG ⁵⁾ : with offset 48	1,570	1,570
		With offset 48 and raised running gear	1,567	1,567
		With offset 49	1,568	1,568
		With offset 49 and raised running gear	1,565	1,565
	W101-2	Rear track at ML1 ³⁾ /EG ⁵⁾ : With offset 48	1,604	1,604
		With offset 48	1,605	1,605
		With offset 48	1,603	1,603
		With offset 49 and raised running gear	1,603	1,603

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
	H157/EG ⁵⁾	Ground clearance between the axles	153	152
	H157/EGa ⁵⁾	Ground clearance between axles with raised running gear	169	167
	H157/1 ¹⁾	Ground clearance at ML1 ³⁾	144	143
		Ground clearance with-raised running gear	159	158

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
	A116-1	Front ramp angle at ML3 ⁴⁾	14.1°	14.7°
		Front ramp angle at ML3 ⁴⁾ , (PHEV)	14.4°	14.3°
		Front ramp angle at ML3 ⁴⁾ , raised running gear	15.3°	15.7°
		Front ramp angle at ML3 ⁴⁾ , raised running gear, (PHEV)	15.3°	15.2°
	A116-2	Rear ramp angle at ML3 ⁴⁾	19.3°	15.9°
		Rear ramp angle at ML3 ⁴⁾ , (PHEV)	20.1°	17.0°
		Rear ramp angle at ML3 ⁴⁾ , raised running gear	21.2°	17.7°
		Raised running gear, (PHEV)	22.1°	18.5°
	A117	Breakover angle	12.9°	11.8°
		Breakover angle with raised running gear	14.6°	13.5°
Turning circle	D102	Minimum turning circle	11.3m	12.1m
Wheels / tyres		Basic tyres ²⁾	Smallest tyre 205/60 R16 96 H Largest tyre 225/45 R18 95 H	
Load compartment measurements	L202	Length of load area (Regulation (EU) 2021/535/XIII, 5-seater)	880	1,233
		Length of load area (Regulation (EU) 2021/535/XIII, 7-seater)	150	463
	L212-0	Luggage compartment length, front passenger seat folded, 2nd seat row folded, 3rd seat row removed	2,732	3,042
		Luggage compartment length, front passenger seat, 2nd seat row and 3rd seat row folded	2,620	2,973
	L212-1	Luggage compartment length, 2nd seat row folded and 3rd seat row removed	1,780	2,136
		Luggage compartment length, 2nd seat row and 3rd seat row folded	1,779	2,135
		Luggage compartment length, without seats in vehicle interior, measured on floor	1,913	2,265
	L212-2	Luggage compartment floor length, 2nd row of seats	1,100	1,452
	L212-3	Luggage compartment length, 3rd row of seats	317	629
	W200 ¹⁾	Largest luggage compartment width (behind 3rd seat row)	1,185	1,185
	W202 ¹⁾	Width between wheel housings	1,185	1,185
	H201 ¹⁾	Loading height	1,200	1,211
		Load height of roof ventilator moulded headliner	1,185	1,211

Basic data Caddy (all engines)			Caddy [mm]	Caddy Maxi [mm]
	H196 ¹⁾	Load sill height at ML1 ³⁾	562	563
		Load sill height at ML1 ³⁾ with raised running gear	584	585
	L902	Clear opening height – front door (2-door and 4-door)	817	817
	H508	Clear opening height of sliding door	1,072	1,072
	L903	Clear opening width of sliding door	701	844
	H202 ¹⁾	Body opening height with rear lid	1,122	1,122
		Body opening height with wing door	1,098	1,098
	W206	Largest width of rear opening	1,186	1,185
Garage dimensions	W120-1	Vehicle width, front doors open (2-door and 4-door)	3,689	3,689
	W120-2	Vehicle width, rear doors open	2,128	2,130
	W114-L	Width incl. left exterior mirror	1,050	1,050
	W114-R	Width incl. right exterior mirror	1,050	1,050
Vehicle interior dimensions	H61-1	Effective headroom – 1st seat row	1,129	1,129
	H61-2	Effective headroom – 2nd seat row (standard)	1,103	1,107
	H61-3	Effective headroom – 3rd seat row (standard)	952	976

Basic data of Caddy

¹⁾ The vehicle dimensions relating to ground clearance and load area may vary depending on the engine and equipment variant.

²⁾ The permitted tyre size varies depending on the engine and the gross vehicle weight rating.

³⁾ ML1 = measurement load 1, vehicle empty

⁴⁾ ML3 = measurement load 3, vehicle fully laden

⁵⁾ EG = with driver

Information

Additional technical data, in particular dimensional drawings and weight information on the Caddy / Caddy Maxi by engine and equipment variant can be found online.

2.1.2 Ramp angle and breakover angle



Fig. 1:

Overhang and breakover angles, Caddy



Fig. 2: Overhang and breakover angles, Caddy Maxi

Please refer to the basic data tables for the values of the front and rear overhang angles ($A116-1$, $A116-2$) as well as the ramp angle ($A-117$) (see chapter (see [chapters 2.1.1.1](#) and [2.1.1.2](#)).

* The values for the overhang angle $A116$ may differ for petrol and diesel engines due to different exhaust systems.

2.1.3 Vehicle centre of gravity

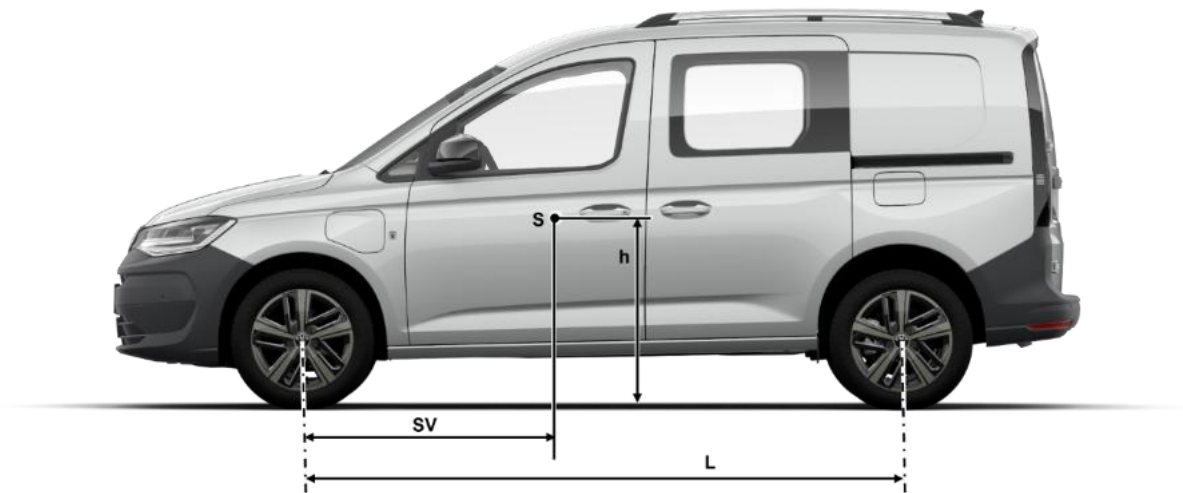


Fig. 1: Caddy centre of gravity

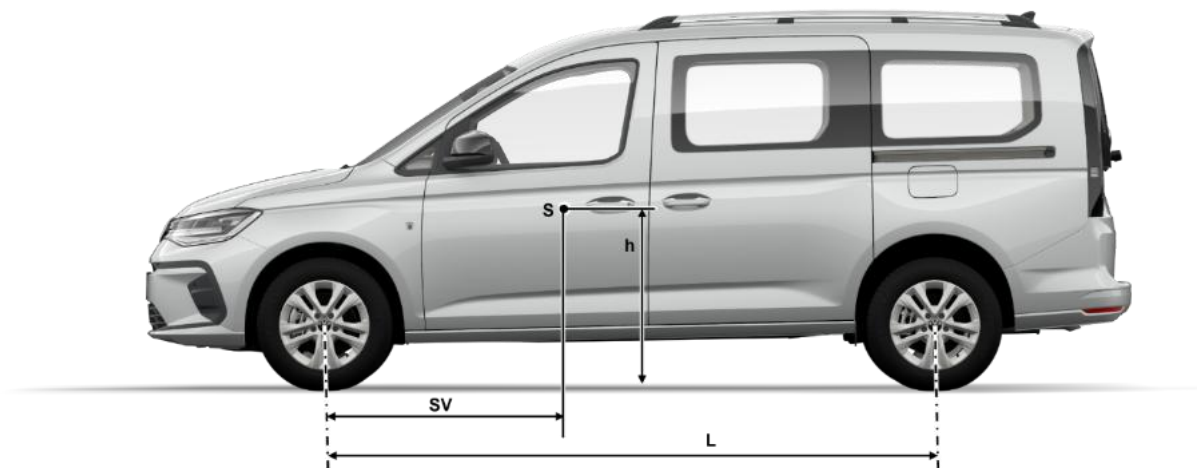


Fig. 2: Caddy Maxi centre of gravity



Fig. 3: Caddy centre of gravity position

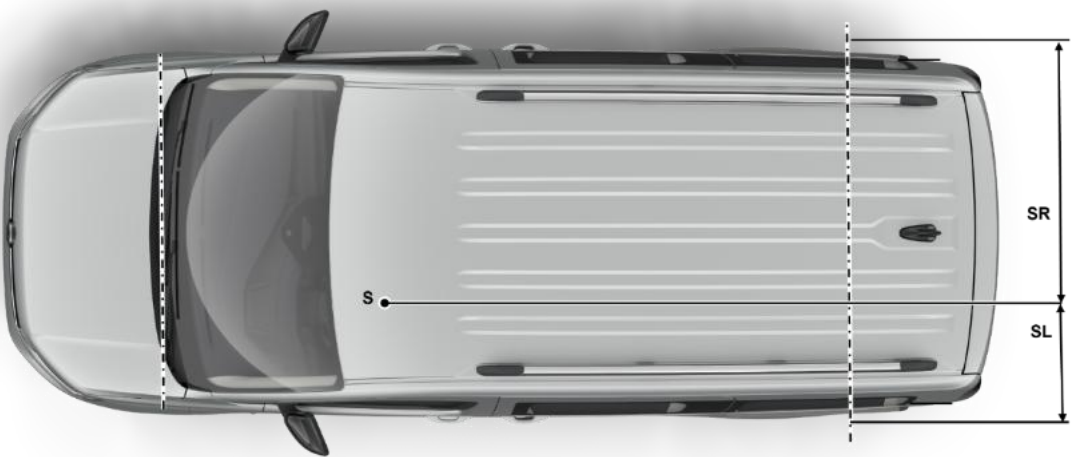


Fig. 4: Caddy Maxi centre of gravity position

Model	L* [mm]	h* [mm]	SV* [mm]	SR* [mm]	SL* [mm]	
Caddy Cargo		2,759	617	1,122	801	779
Caddy Maxi Cargo		2,970	633	1,209	799	783

* Position of centre of gravity measured on the unladen vehicle with driver

2.1.4 Bodies with a high centre of gravity

The driving properties of vehicles with a high body or with an elevated overall centre of gravity can be expected to be restricted (see also [chapter 2.2.6 "Brake system and brake control system ESC"](#)).

2.1.5 Determining the centre of gravity

Volkswagen recommends having the centre of gravity determined by a recognised test institution with experience in this field (e.g. DEKRA, TÜV or others).

For the converter to determine the centre of gravity, we recommend following the procedures described in [chapter 6.1 "Determining the centre of gravity"](#).

2.1.6 Steerability – minimum front axle load

In all load situations, the front axle load must correspond to at least 38 % of the actual gross vehicle weight. The permitted axle loads must be observed in all load situations.

Please also comply with the following chapters:

- [Chapter 2.2.1 "Permitted weights and unladen weights"](#)
- [Chapter 2.2.6 "Brake system and brake control system ESC"](#)

2.2 Running gear

2.2.1 Permitted weights and kerb weights

Warning note

The specified maximum gross axle weight ratings must be observed for conversions which result in an increase in the base vehicle's axle weight (e.g. with add-on loads). If these values are exceeded, the durability of all components (and in particular the wheel hubs) must be checked and safeguarded using suitable measures.

Warning

The weight data relates to the minimum kerb weight, with driver. Ordering standard and special equipment increases the kerb weight and reduces the load rating. The actual kerb weight should be established by weighing.

If the gross axle weight ratings are exceeded, the ESC system in vehicles with ESC will no longer be able to function correctly.

Furthermore, the overload can lead to damage to load bearing parts and to the running gear. This may result in the driver losing control of the vehicle and causing an accident.

Information

Load ratings depend on the engine. Equipment features can influence the payload or load weight by increasing/reducing the kerb weight. The weights specified in the technical data of the sales documents (see [chapter 7](#)) refer to the standard basic vehicle equipment. Weight tolerances of +5 % in production are permitted in accordance with DIN 70020 and must be taken into account if necessary.

Installing special equipment reduces the payload.

The actual payload of a vehicle that is calculated from the difference between the gross vehicle weight rating and kerb weight can only be determined by weighing an individual vehicle.

Practical note

For permanent installations, the running gear must be adjusted afterwards. Otherwise, there can be premature, uneven wear on the front axle tyres.

Once the customer has loaded the vehicle to a normal load level for its purposes, the running gear must be measured again in accordance with the workshop manual, based on the current height of the edge of the wheel housing.

Further information on systems such as the running gear can be found in Volkswagen AG's erWin system (Electronic Repair and Workshop Information)

→ Running gear, axles, steering (chapter 44 Wheels, tyres, wheel alignment, 3-axle measuring):

<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.2.1.1 One-sided weight distribution**Warning note**

The following weights shall not be exceeded under any circumstances:

- Gross vehicle weight rating
- Gross front axle weight rating
- Gross rear axle weight rating

(see chapter 2.2.1 "Permitted weights and kerb weights").

When planning bodies/additions, make sure that one-sided weight distribution is avoided – in particular involving permanently secured add-ons. The maximum permissible wheel loads and tyre load ratings must be observed.

The front axle load is not allowed to be less than the minimum permitted load in order to ensure adequate steerability of the vehicle and satisfactory driving behaviour under all loading conditions.

(see chapter 2.1.6 "Steerability – minimum front axle load")

2.2.2 Turning circle

See chapter 2.1.1 "Vehicle dimensions".

2.2.3 Approved tyre sizes

The Volkswagen Owner's Manual provides information about the wheel/tyre combinations authorised by Volkswagen AG in conjunction with snow chains (for tyre sizes see also chapter 2.1.1 "Vehicle dimensions").

2.2.4 Modifications to axles

Modifications to the axles are not permitted, because they can lead to an impairment in the vehicle handling and unstable vehicle handling.

2.2.5 Modifications to the steering system

Modifications to the steering system are unauthorised.

For exceptions such as conversions to motor vehicles for transporting persons with disabilities, contact us before starting a conversion (see [chapter 1.2.1 “Product and vehicle information for converters”](#)).

2.2.6 Brake system and brake control system ESC*

2.2.6.1 General information

Modifications to the brake system are not authorised under any circumstances:

- If the modification to the brake system goes beyond the scope of the operating permit.
- If the air inflow and outflow to and from disc brakes are modified.

Exceptions shall be approved by Volkswagen AG prior to the conversion, and shall be documented with an independent brake approval report.

Please contact us before starting your conversion (see [chapter 1.2.1, “Product and vehicle information for converters”](#))

Warning note

Work performed improperly on brake hoses, lines and cables can impair their function.

This can lead to a failure of components or safety-relevant parts. Therefore, work on brake hoses, lines and cables should only be performed by a qualified specialist workshop.

Information

Since 1 January 1991, all commercial vehicles have had to comply with the “EC Brake Systems Directive 71/320 EEC”. When this EC Directive was adopted into national legislation (e.g. the Road Traffic Regulations (StVZO) in Germany), the effect was that these technical regulations also had to be complied with for individual acceptance.

*Electronic Stability Control

2.2.6.2 Vehicle stability and ESC*

As part of the acceptance of the assembled vehicle, the height of the centre of gravity of a loaded vehicle must be determined for verification in accordance with UN -R 13 (brake system).

Refer to [chapter 2.1.3 “Vehicle centre of gravity”](#) for the permitted centre of gravity heights.

Volkswagen does not make any statement about:

- Driving behaviour
- Braking behaviour
- Steering response and
- ESC control response

in bodies for loads with an unfavourably positioned centre of gravity (e.g. rear, high and side loads), because these aspects are significantly influenced by body activities and consequently can only be assessed by the converter.

Warning

For both conversions and installations, as well as in ready-to-drive condition, the gross wheel and axle weight ratings as well as the gross vehicle weight ratings (see [chapter 2.2.1 “Permitted weights and kerb weights”](#)) of the vehicle may not be exceeded under any circumstances. If the gross axle weight ratings are exceeded, the ESC system in vehicles with ESC will no longer be able to function correctly. This may result in the driver losing control of the vehicle and causing an accident.

Practical note

From November 2014, ESC will be a requirement for new vehicles registered in Europe. Vehicles can be exempted from this obligation in special, exceptional cases. Please check whether ESC* is required in the intended country of registration for the envisaged type of the completed vehicle.

*Electronic Stability Control

2.2.6.3 Influence of vehicle conversions on the function of ESC* brake regulation system

ESC – subsystems	Modification on the vehicle				
	Wheelbase modification	Extreme centre of gravity increase	Modification of running gear (springs, dampers, anti- roll bars, wheels, tyres, track, steering)	Different rolling circumferences on individual axles	Modification to the brake (callipers, pads, design)
ABS	+	+	+	++ ³	++
Anti-lock brake system					
BAS	--	--	+	++ ³	++
Brake assist system					
EDL	+	+	+	++ ³	+++
Electronic differential lock					
Hill Start Assist	--	--	-	++ ³	++
TCS	++	+	+	++ ³	+
traction control system					
ESC	++	++++ ¹	+++ ¹	+++ ³	+++ ¹
Electronic Stability Control					
Vehicle and trailer stabilisation	++	++	++	++++	+++

1 – In particular, a significantly increased risk of tipping over

2 – Downgrading required

3 – Hardware adaptation of the wheel speed sensors required

-- No effect

- Very little effect

+ Noticeable effect

++ Significant effect

+++ Very significant effect

++++ No technical solution

Warning note

Vehicles with add-ons, bodies, installed components or conversions that do not comply with the limit values of the specific vehicle (such as position of centre of gravity, axle loads, overhangs) are considered problematic and may have an adverse effect on vehicle handling. Therefore, they should not be operated.

*Electronic Stability Control

Exceptions shall be approved by Volkswagen AG prior to the conversion, and shall be documented with an independent brake approval report. Please contact us before starting your conversion (see [chapter 1.2.1, "Product and vehicle information for converters"](#)).

2.2.6.4 Routing additional lines along the brake hoses / brake lines

No other additional lines are allowed to be fastened to brake hoses and brake lines.

Additional lines must remain at a sufficient distance from brake hoses and brake lines under all operating conditions, and must never touch or chafe against brake hoses and lines (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#)).

2.2.7 Modification of springs, suspension mounting, dampers

The spring rates are never allowed to be modified.

We recommend using optimally matching springs from the Volkswagen delivery range for the vehicle with body.

Modifications to the springs must be assessed by a test centre/monitoring organisation/technical service responsible for this function, and can result in invalidation of the operating permit.

2.2.7.1 Rear axle running gear for heavy installations (retrofit kit, PR number UC5)

The alternative coil springs (optional PR number UC5) for the rear axle compensate the static suspension in the event of heavy installations such as workshop facilities.

The additional components (two coil springs) are included as an accessory pack in the box for retrofitting.

To install the alternative springs (UC5), it is essential that the vehicle is equipped with PR no. UC7 (raised running gear). After installation of the additional springs ordered with PR no. UC5, the vehicle has a higher ride height at the rear axle. The ride height is partially reduced again by the installation of stationary fixtures in the load compartment and by the payload.

After installing UC5, the vehicle is higher in the springs because the maximum rear axle load is not utilized. Please note that a towing bracket with a shorter ball coupling is required. If a preparation for towing brackets is ordered ex works, a towing bracket with a shorter ball coupling must be ordered from After Sales in order to comply with the approval regulations.

As this is a safety-relevant conversion/retrofitting, a manufacturer's declaration is required for technical acceptance.

You can obtain this manufacturer's declaration, specifying the vehicle identification number, from:

Nutzfahrzeuge@volkswagen.de

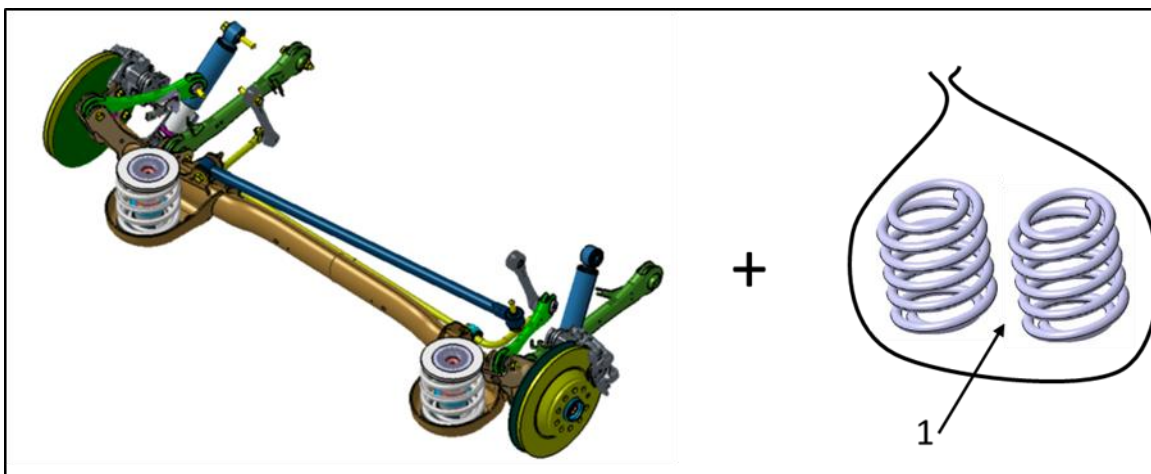


Fig. 1: Rear axle running gear + accessories pack

1 – Body springs as accessory pack

Practical note

A “minimum payload” (e.g. workshop equipment) of 180 kg applies to the rear axle.

The maximum unladen rear-axle load of the base vehicle is 730 kg.

Warning

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

2.2.8 Wheel alignment settings

Changes to wheel alignment parameters are unauthorised!

2.3 Body-in-white

2.3.1 Roof loads/vehicle roof



Fig. 1: Caddy roof load



Fig. 2: Caddy Maxi roof load

2.3.1.1 Dynamic roof loads

Vehicle type	Max. roof load
Caddy	100 kg
Caddy Maxi	100 kg

Risk of accident

Please note that roof loads raise the centre of gravity of the vehicle and lead to a high dynamic axle load shift. Also, there is greater body lean when driving on rough roads and when cornering.

Vehicles handling is significantly impaired by this.

Please also comply with chapters:

- [2.1.4 “Bodies with a high centre of gravity”](#)
- [2.2.6.2 “Vehicle stability and ESC”](#)
- [2.2.6.3 “Influence of vehicle conversions”](#)

2.3.2 Modifications to the body-in-white

Changes to the body are not allowed to impair the function and strength of power units and operating devices of the vehicle, neither may they reduce the strength of weight-bearing parts.

During vehicle conversions and assembly of bodies, no changes may be made which impair the function or freedom of movement of chassis components (e.g. for maintenance and inspection work) or restrict access to them.

2.3.2.1 Bolted connections

If standard bolts/nuts have to be renewed, the bolts/nuts used must have the:

- Same diameter
- Same strength
- Same bolt standard or bolt type
- Same surface coating (corrosion protection, coefficient of friction)
- Same thread pitch

VDI/VDE 2862 sheet 1 (2012-04) must be observed for all installations.

Shortening the free clamping length, changeover to waisted shank and use of bolts with a shorter free thread proportion are not permitted.

Furthermore, take the settling behaviour of bolted connections into account.

Components that are additionally clamped as well shall have the same or a higher strength than the previous clamped combination.

When attaching components to the base vehicle using screws, make sure that no panels or other components of the base vehicle are bent or damaged.

Volkswagen tightening torque specifications assume a total coefficient of friction for the joint components within the range $\mu_{\text{tot}} = 0.08$ to 0.14.

If Volkswagen requires joints to be tightened to a specific torque and then turned by a final tightening angle, no change of design is permitted.

Volkswagen tightening torque specifications assume a total coefficient of friction for the joint components within the range $\mu_{\text{tot}} = 0.08$ to 0.14.

If Volkswagen requires joints to be tightened to a specific torque and then turned by a final tightening angle, no change of design is permitted.

Risk of accident

No safety-relevant bolted connections, e.g. for wheel guidance, steering and brake functions, may be modified. Otherwise the designated function may be impaired. This may result in the driver losing control of the vehicle and causing an accident. The new installation is to be carried out according to the instructions of VW Customer Service, using suitable standard parts. We recommend the use of Volkswagen genuine parts.

Information

Information about Volkswagen customer service instructions can be provided by any authorised repairer.

2.3.2.2 Welding work

Incorrectly undertaken welding work can lead to a failure of safety-relevant components, and thus cause accidents. Therefore, the following safety measures must be complied with when welding work is performed:

- Welding work should only be undertaken by people with appropriate qualifications.
- Before starting welding work, it is necessary to remove components which might contain gases posing a fire or explosion hazard, e.g. fuel system, or else to protect them with a fireproof cover against airborne sparks. Gas containers which could be damaged by airborne sparks during welding work must be removed.
- Welding, soldering and thermal bonding or the use of hot air in the direct vicinity of the high-voltage components, the high-voltage wires and on the high-voltage battery are not permitted. If a sufficient distance cannot be maintained, the components must be removed. The information in the vehicle-specific repair instructions must be observed.
- Work on the high-voltage components may only be performed by qualified personnel.
-
- Before welding work near seat belts, airbag sensors or the airbag control unit, the components must be removed for the duration of the work. For important information on handling, transporting and storing airbag units, see [chapter 2.4 “Interior”](#).
- Before starting welding work, cover the springs and spring bellows to protect them against welding beads. Springs are not allowed to be touched with welding electrodes or welding tongs.
- No welding is allowed on mechanical units such as the engine, gearbox, axles.
- The positive and negative terminal clamps of the 12-V vehicle battery must be disconnected and covered.
- Connect the earth clamp of the welding machine directly to the part to be welded. The earth clamp is not allowed to be connected to power units such as the engine, gearbox, axles.
- The housings of electronic components (e.g. control units) and electrical wiring must not be touched with the welding electrode or earth clamp of the welding unit.
- The electrodes are only allowed to be used with direct current via the positive terminal for welding. Always weld from bottom towards the top.

Warning note

Welding in the area of the restraint systems (airbag or belts) can lead to these systems ceasing to function properly.

Welding in the area of child restraint systems is therefore prohibited.

Warning note

Special safety notes must be observed when working on electric vehicles. Failure to observe safety notes can result in a fatal electric shock.

Warning note

The voltage within the high-voltage vehicle electrics and high-voltage battery is potentially lethal.

Touching damaged orange-coloured high-voltage wires and high-voltage battery may result in a fatal electric shock. The high-voltage system may be active even if the ignition is switched off.

- Never carry out any work on the high-voltage vehicle electrics, orange-coloured high-voltage wires, high-voltage components or high-voltage battery. Work on the high-voltage system may only be performed by qualified specialist companies with appropriate accreditation to perform such work.
- Never modify, damage, dismantle or disconnect from the high-voltage system any of the orange-coloured high-voltage wires, high-voltage components or high-voltage battery.
- Work in the vicinity of high-voltage components, high-voltage wires and on the high-voltage battery may not be carried out until after de-energisation. The high-voltage battery cannot be de-energised. The high-voltage disconnection may only be performed by suitably qualified and trained specialist staff.
- If there is a fault in the high-voltage system, the drive system may be automatically deactivated, and a corresponding indicator may be displayed in the instrument cluster. Should this be the case, the drive will remain deactivated until the fault has been rectified by suitably qualified and trained specialist staff.
- The various Volkswagen policies must be observed when carrying out any work on the high-voltage vehicle electrics, including in particular on the orange-coloured high-voltage wires, high-voltage components or high-voltage battery.

Practical note

Disconnect the 12-V vehicle battery before conducting welding work on the vehicle. Airbags, seat belts, the airbag control unit and airbag sensors must be protected from welding spatter, and removed if necessary.

2.3.2.3 Welded connections

In order to achieve high-quality weld seams, the following basic recommendations are given:

- Thoroughly clean the areas to be welded
- Apply several short weld beads, rather than one long one
- Make symmetrical beads, in order to limit shrinkage
- Avoid making more than three welds at any one point
- Avoid welding in work-hardened areas
- Spot welds or stitch welds should be staggered

2.3.2.4 Selection of welding process

The mechanical properties of weld seams depend on which welding process is selected, and on the geometry of the parts to be connected.

If welding overlapping metal panels, the welding process depends on the accessibility of the sides:

Accessible sides	Welding process
1	Shielding gas plug welding
2	Resistance spot welding

2.3.2.5 Resistance spot welding

Resistance spot welding is used for overlapping parts with access on both sides. Avoid spot welding more than two layers of sheet metal.

Distance between spot welds:

In order to avoid shunt effects, the specified distances between the spot welds must be maintained ($d = 10e + 10 \text{ mm}$).

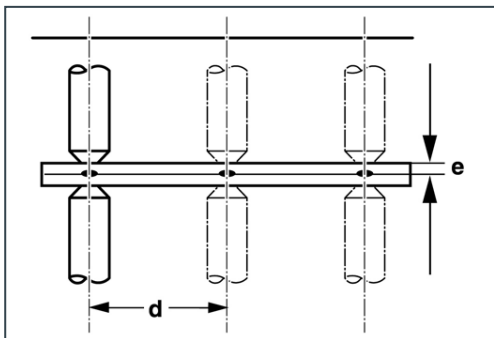


Fig. 1: Ratio between panel thickness and distance between welds

d – Distance between spot welds

e – Panel thickness

Distance from the edge of the panel:

In order to avoid damage to the molten core, the specified distances from the edge of the panel must be maintained ($L = 3e + 2 \text{ mm}$).

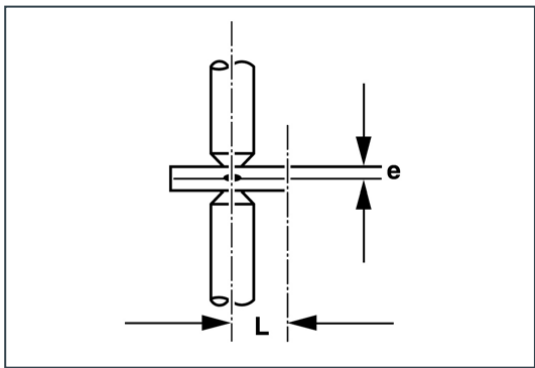


Fig. 2: Ratio between panel thickness and distance from edge
e – Panel thickness
L – Distance to edge of panel

2.3.2.6 Shielding gas plug welding

If overlapping panels can only be welded on one side, it is possible to achieve the connection by shielding gas plug welding or tacking. If the connection is achieved by punching or drilling and then plug welding the hole, the drilling area must be deburred before welding is carried out.

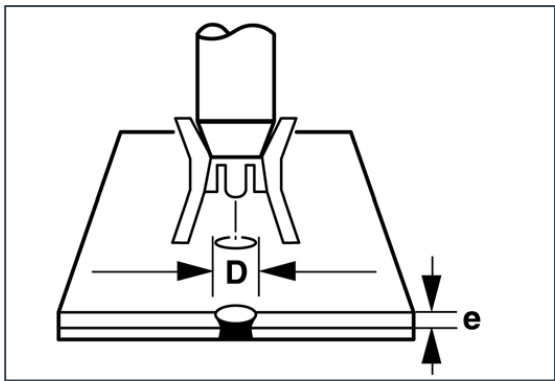


Fig. 1: Ratio between panel thickness and hole diameter

D – hole diameter [mm]	4.5	5	5.5	6	6.5	7
e – panel thickness [mm]	0.6	0.7	1	1.25	1.5	2

The mechanical quality can additionally be improved by using “elongated holes” ($l = 2 \times b$).

The mechanical quality can additionally be improved by using “elongated holes” ($l = 2 \times b$).

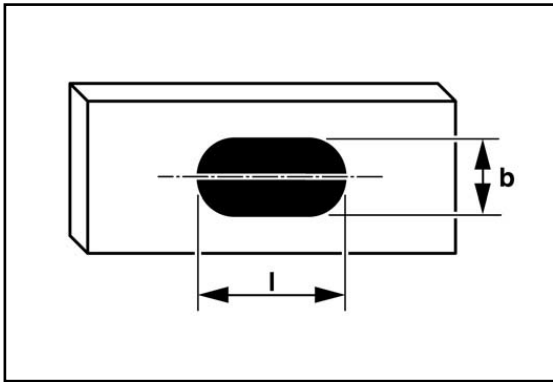


Fig. 2: Ratio between width and length of elongated holes

b – Width of elongated hole

l – Length of elongated hole

2.3.2.7 Tacking

If panels are >2 mm thick, overlapping panels can also be connected by tacking ($30 \text{ mm} < L < 40 \times e$; $d > 2 L$).

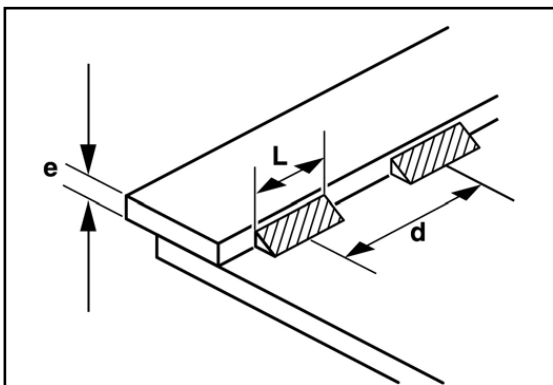


Fig. 1: Ratio between panel thickness and distance between welds

d – Distance between tack welds

e – Panel thickness

L – Length of tack welding

2.3.2.8 Welding is not allowed

Welding is not allowed:

- On mechanical units such as the engine, gearbox, axles etc.
- On the chassis frame except if there is a frame extension
- On the A and B-pillars
- On the upper and lower chords of the frame
- In bend radii
- In the area of airbags
- Hole welding is only permitted in the vertical webs of the frame longitudinal member

2.3.2.9 Corrosion protection after welding

After all welding work on the vehicle, it is necessary to comply with the specified corrosion protection measures (see [chapter 2.3.2.10 “Corrosion protection measures”](#)).

2.3.2.10 Corrosion protection measures

Following conversion and installation work on the vehicle, surface and corrosion protection shall be applied to the affected points.

Practical note

Only the corrosion protection agents tested and approved by Volkswagen are allowed to be used for all corrosion protection measures.

2.3.2.11 Planning measures

Corrosion protection should be taken into account in the planning and design in the form of a suitable material selection and component design.

Information

If two different metallic materials are connected by an electrolyte, such as moisture from the air, a galvanic couple is created. The result will be electrochemical corrosion, and the less noble metal will suffer damage.

The further apart the metals in question are in the electrochemical series, the greater will be the electrochemical corrosion.

Therefore, the components must have a suitable treatment or insulation applied to them in order to prevent electrochemical corrosion, or the corrosion must be reduced to a low level by a suitable choice of materials.

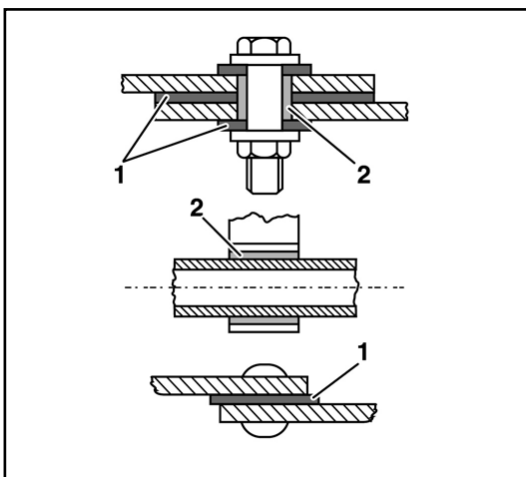
Avoidance of contact corrosion by electrical insulation

Fig. 1: Avoidance of contact corrosion

1 – Insulating washer

2 – Insulating sleeve

Contact corrosion can be avoided by using electrical insulation such as washers, sleeves or tubes. Avoid welding work on inaccessible cavities.

2.3.2.12 Component design measures

Design measures, in particular in the design of connections between the same or different materials, can be used for providing corrosion protection:

- Corners, edges, beads and folds represent locations where dirt and moisture can collect.
- Suitable surfaces, drains and the avoidance of gaps at component connections represent means by which corrosion can be counteracted by design measures.

Gaps at welded connections as a feature of the design, and how to avoid them:

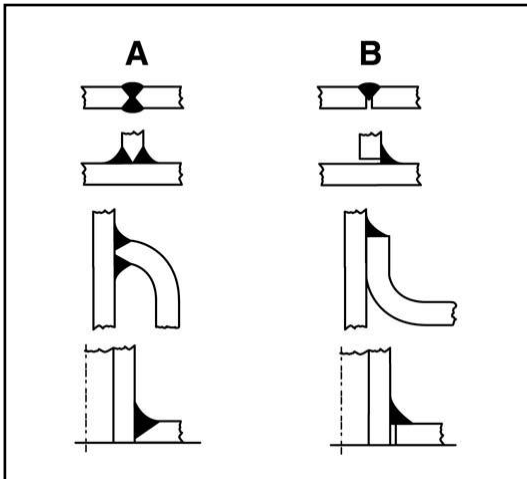


Fig. 1: Application examples of welded connections

A = Favourable

(through-welded)

B = Unfavourable

(gap)

2.3.2.13 Coating measures

The application of protective coatings (e.g. galvanising, painting or high-temperature zinc application) can protect the vehicle against corrosion (see [chapter 2.3.2.10 "Corrosion protection measures"](#)).

2.3.2.14 Work on the vehicle

After all work on the vehicle:

- Remove drilling chips
- Deburr edges
- Remove scorched paint and thoroughly prepare the surfaces for painting
- Apply a primer to all bare metal parts, and paint them
- Apply a wax-based corrosion protection agent to cavities
- Carry out corrosion protection measures on the underbody and frame components

2.3.2.15 Painting/corrosion prevention

Practical note

The permitted object temperature for paint drying is maximum 60°C, and the drying time is 30 minutes. Higher temperatures could cause damage to the control units or other components.

Any damage to paintwork or corrosion protection caused by the converter must be repaired by the converter.

The following shall be noted:

- The quality requirements of Volkswagen for the first paint coat and repair paint shall be observed.
- Only the materials tested and approved by Volkswagen or equivalent suitable materials are allowed to be used for all painting and corrosion protection work.
- The coat thicknesses specified at the factory for the individual paint coats shall be observed by the converter.
- When painting over existing paintwork, the paints shall be compatible.

Information

Any authorised repairer can provide information on the paint materials, coat thicknesses and Volkswagen colour codes used at the factory.

The following areas shall be covered before painting:

- Disc brakes
- Brake hoses
- Transfer unit of the handbrake
- Contact surfaces between the wheel rims and wheel hubs
- Contact surfaces of wheel nuts / wheel bolts
- Brake fluid reservoir
- Bleeder connections on gearbox, axles etc.
- Sealing surfaces
- Windows
- Door locks
- Door arresters in the hinges of the rear pivoting door
- Door arresters and opening stops on the centre guide rails
- Contact surfaces in the guide rails for the sliding doors
- Moving parts of the sliding door carriages
- Airbags and seat belts
- Sensors for area monitoring (see [chapter 2.5.6 “Driver assist systems”](#))

Information

You will find further information on painting and corrosion-protection work in the “Paintwork manual” at <https://volkswagen.erwin-store.com/erwin/showHome.do>.

2.3.2.15.1 Subsequent painting of plastic parts

If it is necessary to subsequently paint unpainted/grained plastic surfaces, the following instructions must be observed.

Requirements for the use of special-colour paint in radar beam areas of Volkswagen Commercial Vehicles:

- Only primed original add-on parts or blanks with adhesion promoter and wet-on-wet primer may be used for painting standard colours. No contour change, modification etc. on the surface of the add-on part is permitted.
- For parts already painted, only an additional one-off paintwork structure with the brand's radar-compatible base coat formulations (see "radar-compatible" symbol in the respective mixing bench) and a maximum of two clear coat applications is permitted (see Fig. 1 "Maximum permissible layer structure for new part and repair paintwork").
- Only plain colours are permitted, no metallic colours.

- Only the respective brand's radar-compatible wet-on-wet primer may be used as a primer
- Layer thicknesses

Primer	max. 60 µm
Basecoat	max. 35 µm
Clear coat	max. 75 µm

Maximum permissible layer structure for new part and repair paintwork

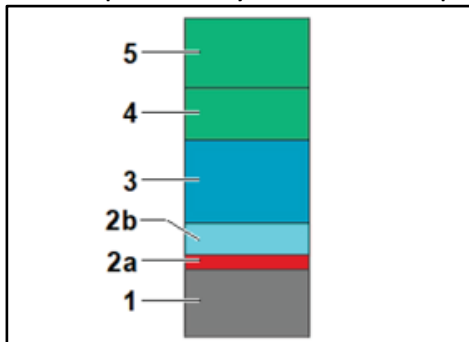


Fig.1: Maximum permissible layer structure for new part and repair paintwork

- 1 – Plastics
- 2a – Plastic adhesive agent / primer
- 2b – Surfacer
- 3 – Basecoat
- 4 – Clear coat
- 5 – Clear coat paintwork (if required)

Practical note

In areas of the plastic surfaces behind which sensors and radars are located, the described requirements for painting must always be complied with in order to avoid radar malfunctions and false error messages.

Information

Any authorised repairer can provide information on the paint materials, coat thicknesses and Volkswagen colour codes used at the factory.

You will find further information on paint work in the "Paintwork manual" at <https://volkswagen.erwin-store.com/erwin/showHome.do>.

2.4 Interior

2.4.1 Modifications in the area of airbags

Modifications to the airbag system and the belt tensioner system as well as to airbag components, the airbag sensors and the airbag control unit or in their vicinity are not permitted.

Please also refer to [chapter 4.1 "Motor vehicles for the transport of persons with disabilities"](#).

The interior must be designed so that the airbag deployment zones remain unobstructed (see also

[chapter 3.2 "Interior"](#)). Information about the deployment zones of the airbags can be found the vehicle Owner's Manual.

Modifications in the cockpit area and above the seat reference line must be conducted in accordance with the criteria for the head impact tests according to UN-R 21.

Warning note

Modifications or incorrectly performed work on seatbelts and seatbelt anchor points, belt tensioners or airbags or their cabling could impair the correct function of these components. They might be activated inadvertently or fail in the event of an accident.

2.4.2 Modifications in the area of seats

- If the existing load compartment does not have standard anchors for seats and seat belts already installed, it is not possible to retrofit it with genuine Volkswagen seats or seats rows.
- When retrofitting genuine Volkswagen seats, the (side) airbags, belt tensioners, seat-occupied recognition system and belt fastening detection system must be recoded.
- The strength data for seats available ex-works is only valid in conjunction with the original attachment elements.
- It is essential not to exceed the height of the centre of gravity (H-point) when retrofitting seats. (See also [chapter 3.2.3 "Seat retrofitting / seats"](#)).
- When the seat belts and seats (including seat box) are re-fitted, the prescribed bolts must be used and tightened to the specified torque.
- When installing seat belts and belt buckles, only Volkswagen genuine parts must be used.

Warning note

Only fit seat covers or protective covers that are expressly approved for use in the vehicle.

The use of non-approved covers may prevent the side airbag from deploying.

Warning note

The attachment of seats to the wheel housing is not permitted. This also applies to wheel housings that are lowered. Otherwise damage could be caused to the vehicle (e.g. wheel housing and tyres) and accidents could result.

Practical note

Modifications to the original series production condition can result in the withdrawal of type approval. Country-specific laws, directives and approval regulations must be observed.

Practical note

According to UN R 16, seat belt warning devices are mandatory for all seats. When retrofitting seat systems, the converter must ensure that this warning device is also installed for the retrofitted seat systems.

Information

Detailed information, including tightening torques, can be found in the Workshop Manuals.

Repair and workshop information can be downloaded online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):

<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.4.2.1 Belt anchors

The converter is solely responsible for fitting additional belt points.

The necessary proof is to be provided by the converter.

The legal specifications and guidelines must be observed, e.g. UN-R 16.

Vehicles in the M and N classes must be equipped with seat belts that comply with the requirements of UN-R 16. The seat belt anchorages must be tested according to UN-R 14.

2.4.3 Forced ventilation vent

A sufficient exchange of air between the driver's compartment and load compartment must be ensured in closed bodies with a retrofitted partition or cab rear wall. If necessary, openings equivalent to the cross-section of the standard version must be provided in the partition / cab rear wall. In enclosed body conversions, the existing ventilation openings may only be closed if new ventilation provisions are made, for example in the cab doors.

This is important for several reasons:

- Closing comfort of the doors
- Possible flow rate of the heating blower
- Pressure equalisation on airbag deployment

Air inlets and outlets are not allowed to be fitted in the immediate vicinity of sources of noise or exhaust gases.

2.4.4 Acoustic insulation

Pay attention to minimising interior noise levels as part of conversions in order to avoid modifying the noise level of the vehicle.

The converted vehicle must comply with the values for external noise given in EC Directive 70/157/EEC.

Specialists such as the manufacturer and suppliers of acoustic material should be contacted for advice on achieving the optimum acoustic protection for bodies.

2.5 Electrics/electronics

General notes:

- Electrical and electronic components shall fulfil the test requirements in accordance with ISO 16750.
- Electrical cables laid near exhaust systems require sleeves that are resistant to high temperatures
- Electrical cables must be routed so that no chafing occurs.
- 12-V vehicle batteries must be disconnected if the vehicle will be out of use for longer periods (>20 days). When returning the vehicle to use, make sure that the 12-V vehicle batteries are sufficiently charged.
- Refer to the Owner's Manual (see [chapter 1.2.1.5 "Owner's Manual"](#)).

Warning

Incorrect interventions in electronic components and their software may result in these no longer functioning as intended. Due to the networking of electronics, systems that were not modified can be affected.

Malfunctions to the electronics can significantly impair the operational safety of your vehicle.

Work on or modifications to electronic components must be performed by a qualified specialist workshop with the required specialist knowledge and tools to perform the necessary work.

Volkswagen recommends using an authorised repairer for this. Service by a qualified specialist workshop is essential, in particular for work on safety-relevant systems.

Some safety systems only operate when the engine is running. Therefore, do not switch the engine off when driving.

Practical note

If additional electrical equipment is installed, a positive overall charging balance must be ensured (see [chapter 2.5.2.3 "Retrofitting electrical devices"](#)).

2.5.1 Lighting

2.5.1.1 Vehicle lighting systems

Comply with the country-specific registration provisions with regard to the complete lighting systems (lighting and turn signal systems).

Practical note

The basic setting for the headlight must be checked and, if necessary, adjusted to the vehicle's modified condition (e.g. due to fixed installations, add-on parts or changes to running gear components).

It must be ensured that the adjustment range of the headlight range control complies with potential load levels.

Information

More information about headlight settings can be found in the Volkswagen AG repair information/Maintenance Manual on the internet:

<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.5.1.2 Mounting special lights

With the use of the customer-specific functional control unit (CFCU), special lights can be installed (e.g. additional turn signals or roof sign for taxi).

Installing special lights increases the end face (see [chapter 1.2.1.8 "Worldwide Harmonised Light-Duty Vehicles Test Procedure \(WLTP\)"](#)).

Please ask your technical service / test centre for advice if you have questions about alternatives. Comply with the country-specific registration provisions when installing special lights.

Observe the following chapters during the conversion:

- [1.2.1.8 "Worldwide Harmonised Light Vehicles Test Procedure \(WLTP\)"](#)
- [8.2.2 "Permissible aerodynamic changes and max. dimensions"](#)
- [3.1 "Body-in-white/Body"](#)
- [3.1.4 "Modifications to the roof of the Caddy Cargo/Caddy"](#)
- [2.5.2.3 "Retrofitting electrical devices"](#)

2.5.1.3 Additional luggage compartment light

If an additional luggage compartment light is required, we recommend installing an additional switch as well as a separate electrical cable (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#); [chapter 2.5.2.2 "Additional electrical circuits"](#) and [chapter 2.5.2.3 "Retrofitting electrical devices"](#)). A solution using a relay with the original lighting wiring is not recommended because the interior lighting is dimmed and switched off by means of PWM (pulse-width modulation signal).

No additional wires may be connected to the existing lighting wiring fitted by Volkswagen AG.

2.5.2 Electrical system

2.5.2.1 Electrical wiring / fuses

The following points shall be complied with if routing modifications are required:

- Specifications according to DIN 72551 or ISO 6722-3 must be complied with.
- Avoid routing over sharp edges.
- Avoid routing inside excessively narrow cavities and close to moving parts.
- No additional lines are allowed to be fastened to brake hoses and brake lines.
- Additional lines must remain at a sufficient distance from brake hoses and brake lines under all operating conditions, and are not allowed to touch or chafe against such brake hoses/lines under any circumstances.
- Only lead-free PVC jacketed cables with an insulation limit temperature above 105°C may be used.
- Connections must be made professionally and must be water-tight.
- The cable shall be dimensioned according to the current drawn and protected by fuses.

Max. continuous current [A]	Rated current of fuse [A]	Wire cross-section [mm²]
0 – 4	5*	0.35
4.1 – 8	10*	0.5
8.1 – 12	15*	1
12.1 – 16	20*	1.5
16.1 – 24	30*	2.5
24.1 – 32	40**	4
32.1 – 40	50**	6
40.1 – 80	100	10
80.1 – 100	125	16
100.1 – 140	175	25
140.1 – 180	225	35
180.1 – 240	300	50

* Shape C; DIN 72581 flat connector

** Shape E; DIN 72581 flat connector

Warning note

Additional electrical cables or other lines may not be secured to existing lines such as brake lines, fuel lines or cables, as this may overload the standard holders. An independent attachment solution must be found.

Warning note

Improper modifications or installations in the vehicle's electrical and electronic systems may impair their function. This can lead to a failure of components or safety-relevant parts/functions (S) and consequently to accidents or damage to the vehicle.

2.5.2.2 Additional circuits

If additional circuits are installed, they shall be safeguarded against the main circuit by means of suitable fuses.

The cables used shall be dimensioned according to the load, and protected against pulling off and the effects of impacts and heat.

For bodies with electromagnetic switching devices (such as relays, solenoid switches, contactors and solenoid valves), these components must be equipped with integrated protective diodes (free-wheeling diodes) to prevent voltage peaks from affecting the vehicle electrical system and control units. If no protective diodes are integrated, these must be retrofitted antiparallel to the switch coil.

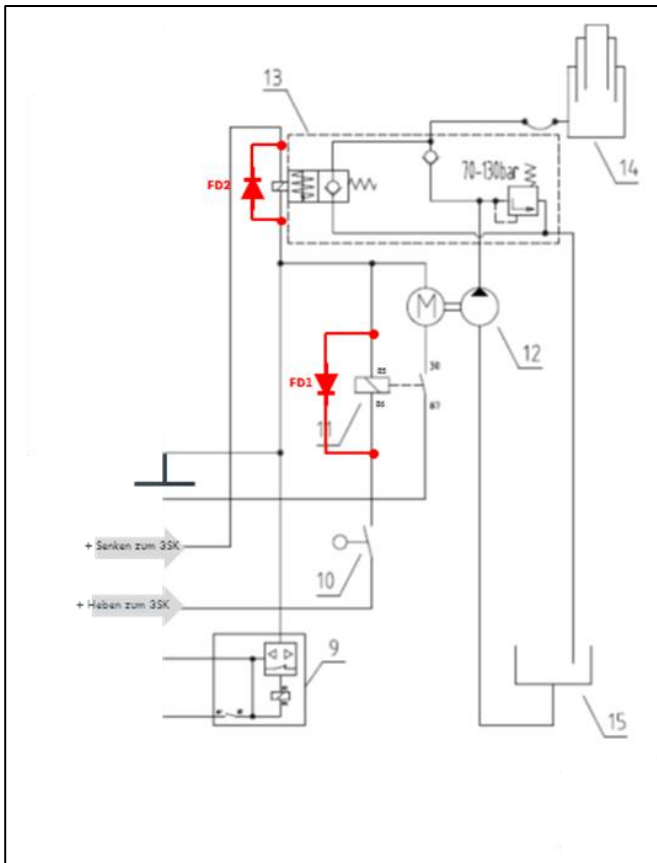


Fig. 1: Tipping control circuit

11 – Electro-hydraulic tipping valve

12 – Hydraulic pump with motor

13 – Motor relay (lifting tipper bed)

FD1 – Free-wheeling diode for motor relay

FD2 – Free-wheeling diode tipping valve

Practical note

For superstructures and modifications to vehicles, it is essential to ensure that no voltage spikes exceeding 150 V occur in the vehicle electrical system. Suitable measures must be taken during conversions to ensure this (e.g. by using protective diodes).

2.5.2.3 Retrofitting electrical devices

Note the following for retrofitting additional electrical equipment:

- The no-load current of the base vehicle is optimised at approx. 20 mA. Additional electrical equipment (e.g. data loggers) that is permanently connected to the permanent positive terminal 30 shortens the time after which the vehicle engine can be reliably started, as they discharge the starter battery. Even 100 mA of additional no-load current draws 2.4 Ah per day from the starter battery.

It is advisable to power this additional electrical equipment with permanent no-load current from the second battery, as this is not connected to the starter battery when the vehicle is parked, see [chapter 2.5.4.1 "Installation of additional battery"](#).

- If the electrical power requirement is higher, the alternators approved by Volkswagen for the vehicle must be used.
- No further electrical equipment is allowed to be connected to assigned fuses.
- Additional cables must not be connected to existing cables (e.g. with insulation-piercing terminals).
- Fuse electrical equipment adequately by means of additional fuses.
- All installed electrical devices will be checked acc. to UNECE-R10 and will bear the "E" mark.

Depending on the vehicle equipment, electrical auxiliary consumers can be connected to designated unoccupied slots in fuse holder C; see [chapter 2.5.2.7 "Current and signal consumption of vehicle electrical system potentials"](#).

Please also note [chapter 4.9 "Plug-in hybrid electric vehicle \(PHEV\)"](#) on the topic of retrofitting electrical devices, especially for hybrid vehicles.

Warning note

Improper modifications or installations in the vehicle's electrical and electronic systems can impair their function. This can lead to a failure of components or safety-relevant parts and consequently to accidents or damage to the vehicle.

Practical note

The negative terminal of electrical consumers must always be located at the intended body earth and not at the negative battery terminal, as this can lead to falsification of the battery status detection by the on-board electronics.

Information

Interventions in the vehicle electrical system / vehicle electronics can result in invalidation of the warranty / operating permit.

2.5.2.4 Electromagnetic compatibility

Electromagnetic compatibility (EMC) is the property of an electrical system to remain neutral whilst maintaining full functions in the presence of other systems. Active systems in the surrounding area are not disrupted nor is the system itself impaired.

Electrical interference in motor vehicle electrical systems is caused by the different consumers. At Volkswagen, the factory-fitted electric and electronic components have been checked for their electromagnetic compatibility in the vehicle. If subsequent modifications are made, reductions in comfort (e.g. radio reception interference) can occur in some cases.

When electrical or electronic systems are retrofitted, their electromagnetic compatibility needs to be checked and certified.

Volkswagen does not issue a manufacturer's declaration for electromagnetic compatibility when additional devices are subsequently installed by converters.

The devices must have type approval in accordance with the current version of UNECE-R10, and must bear the "e" mark.

Should you have any questions, please contact Volkswagen AG. Refer to [chapter 1.2.1 "Product and vehicle information for converters"](#).

The following standards/regulations provide information on this:

- CISPR 12
- CISPR 25
- DIN EN 55012
- DIN EN 55025
- ISO 7637
- ISO 10605
- ISO 11451
- ISO 11452
- MBN 10284

2.5.2.5 Mobile communication systems

1. Mobile phones

Commercially available mobile phones may be operated in the vehicle interior. Observe the respective national regulations for the transmission powers during use. Information about the radio bands can be found in the current vehicle-related manufacturer's declaration. For optimum transmission and reception quality and to connect to wireless networks outside of the vehicle, an installation kit with an external aerial is recommended. The appropriate interface is available for the mobile phone ex-works as optional equipment.

2. Mobile phones for authorities and organisations with security tasks

Two-way radios complying with the technical guidelines of authorities and organisations with security tasks may be installed and operated in the vehicle with the appropriate installation set (according to the vehicle-specific manufacturer's declaration).

Information

More information on the operation of mobile telephones can be found under Additional technical information* in the Volkswagen AG CustomizedSolution portal.

*Registration required.

2.5.2.6 Data buses

Warning

Modifications to the data buses and connected components are not permitted.

Due to the networking and internal monitoring of electrical equipment, data buses must not be altered (e.g. by interrupting, extending, tapping into them, reading and writing). Any modification to the wiring harness in terms of length, cross-section or resistance could cause failure of safety-relevant components or result in a loss of comfort.

Internal and external vehicle diagnosis is possible via the OBD diagnostic connection (SAE 1962). Each control unit is self-diagnosis capable and has an event memory.

Communication with the control unit can be carried out using a suitable diagnostic system (e.g. Offboard Diagnostic Information System).

Practical note

The converter can use the open CAN bus interfaces (converter CAN) on the CFCU to exchange predefined data with the data bus of the base vehicle (CIA 447 or J1939).

Outside of these interfaces and predefined data strings, no data may be exchanged with the internal data bus of the base vehicle. Furthermore, no online interfaces may be connected to the above CAN bus interfaces (an online interface is an interface that can potentially be connected to the internet, such as *Wi-Fi, Bluetooth, NFC, NAD etc.).

In the event of non-compliance, the converter must commission a new system test in accordance with UNECE R155.

To prevent unauthorised access to the vehicle control system, vehicle manufacturers (OEM) continuously implement the UNECE regulations on cybersecurity (CS) and the Software Update Management System (SUMS).

If vehicles are modified or supplemented by converters following delivery by the vehicle manufacturer, the specifications from the UNECE regulations must also be observed and implemented.

*WLAN = Wireless Local Area Network,

Information

Your authorised repairer can provide you with further information.

2.5.2.7 Current and signal take-off of vehicle electrical system potentials

If an electrical interface is not available or, if it is not yet available, a current take-off may take place on a limited basis, taking into account the conditions specified in [chapter 2.5.2.2 "Additional circuits"](#).

Depending on the equipment of the vehicle, the current take-off can take place at designated unassigned positions in fuse holder C (see fig. 1).

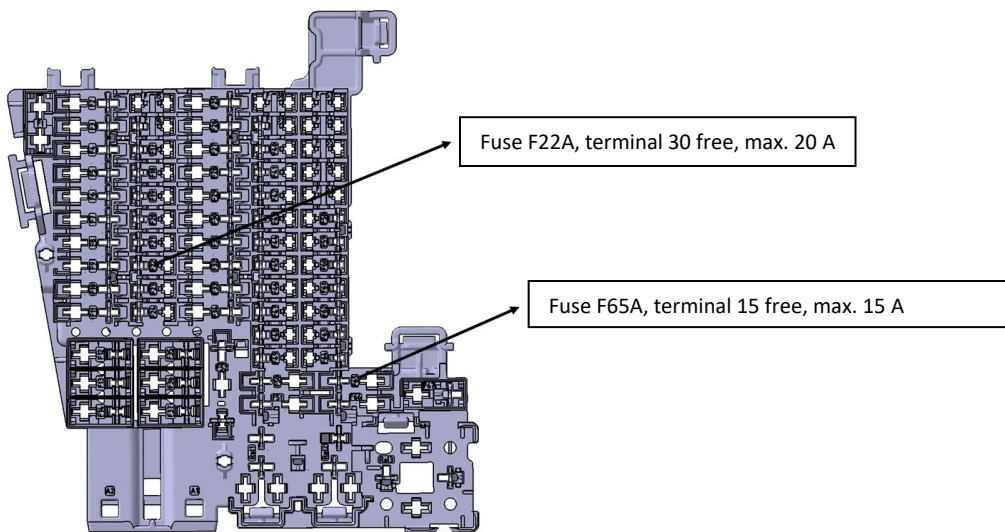


Fig. 1: Fuse holder C left of dash panel

Fuse holder C is located in the bottom left of the dash panel.

- Next to the steering wheel on left-hand drive models
- Behind the glove compartment on right-hand drive models

The exact position and description can be found in the Owner's Manual of your vehicle.

2.5.3 Electrical interface for special vehicles

In principle, there is one interface for external use in special vehicles and by converters:

- Customer-specific functional control unit (CFCU): control unit with access to the vehicle's CAN network

The interfaces can be ordered using the following equipment numbers (PR numbers).

See the note in the information field below.

PR number	Description
IS0	Without an interface for external use (without an electrical terminal strip), fitted as standard
IS2	Interface for external use (CFCU with converter programming, without an electrical terminal strip – without preparation for telematics)
IS4	Interface for external use (CFCU without converter programming, without an electrical terminal strip – without preparation for telematics). The parameterised CFCU IS4 ensures operation and energy management of a retrofitted second battery. The preparation for a second battery can be ordered via 8FV. The CFCU installed here cannot be programmed. If necessary the programming option can be retrofitted; this involves additional costs.
IS9	Without an interface preparation for external use (without an electrical terminal strip)
IP1	Interface for external use; CFCU with converter programming for taxi / private hire car (without electrical terminal strip – without preparation for telematics). For a function description, see chapter 4.5 Preparation for taxis and private hire cars

2.5.3.1 General notes on the interfaces

Basic requirements for using the interface:

- These interfaces are only allowed to be used by authorised specialist personnel.
- Inappropriate interventions can result in damage to the vehicle and breakdowns, and may also invalidate the operating permit.
- The parameters of the special vehicle control unit are only allowed to be set in consultation with Volkswagen.
- Connections must be made properly (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#)).
- Subject to technical modifications.

The following points must be observed at all times:

- VDE guidelines for configuration and fitting of electrical wiring and components (cable cross sections, fuses etc.). Only components approved by Volkswagen are allowed to be used for adapting to the vehicle electrical system. When using additional electrical equipment, the converter must ensure a balanced current supply.
- EMC safety for connections behind the interface is the responsibility of the company fitting out the vehicle.
- The cable cross sections of the interfaces must be maintained throughout the entire circuit, i.e. no cross-section reductions are permitted after the interface.
- Energy must only be supplied to the vehicle electrical system at potentials expressly provided for this purpose and will be fused externally in accordance with VDE guidelines.
- All electrical wiring connected to the vehicle electrical system shall be reliably and durably protected against overload to battery "+".
- Earth potential: The specified potentials always refer to the vehicle body earth.

Information

Workshop manuals and current flow diagrams can be downloaded online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<http://erwin.volkswagen.de/erwin/showHome.do>

Location of the interfaces

The interfaces are located on the right-hand side of the vehicle above the wheel housing in the area of the rear gate.

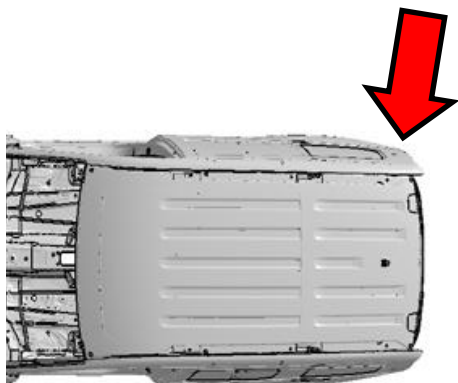


Fig. 1: Coupling point position, viewed from above

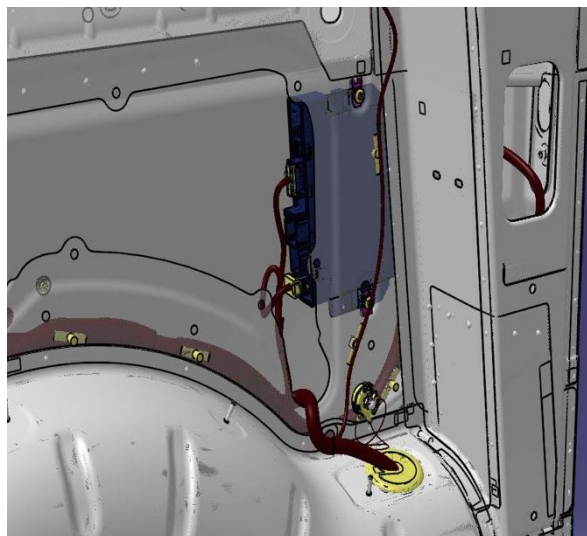


Fig. 2: Coupling point on right side panel

2.5.3.2 230-V DC/AC converter (PR no. 9Z3, 9Z6)

The DC/AC converter is always installed on the floor of the left seat box (in the direction of travel).

The 230-V socket is located on the partition in the Caddy Cargo (installation position without partition identical) and on the Caddy on the rear centre console. (See figures).

Installation position on the Caddy Cargo

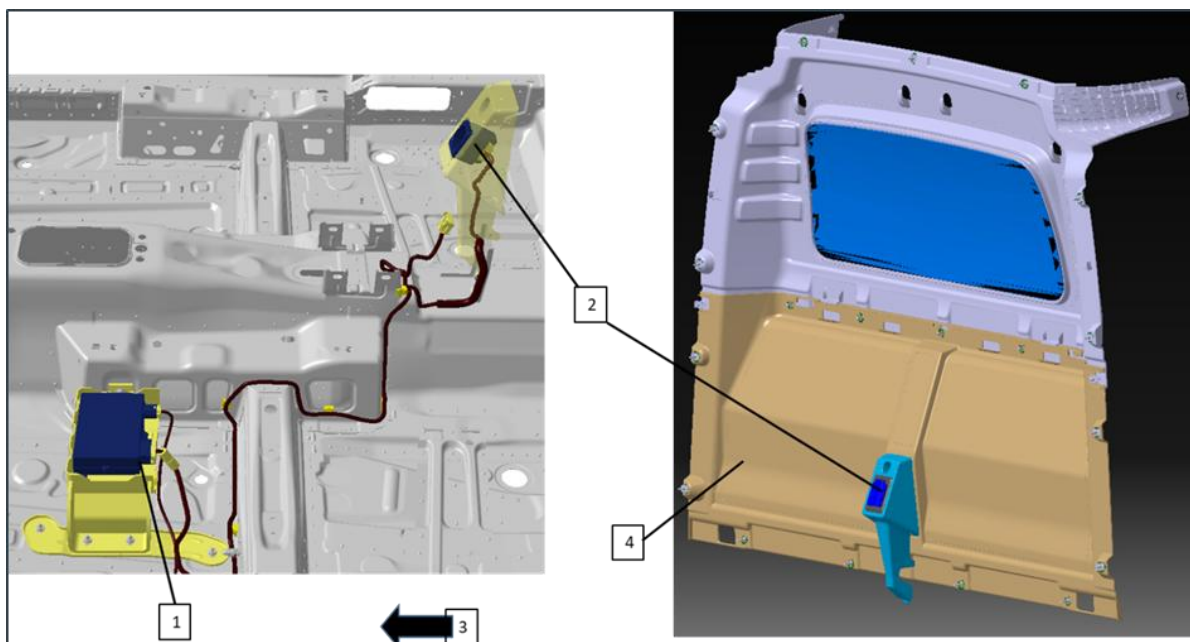


Fig. 1: Installation position of DC/AC converter

- 1 – DC/AC converter, left seat box
- 2 – Installation position of socket
- 3 – Direction of travel
- 4 – Partition

Installation position on the Caddy

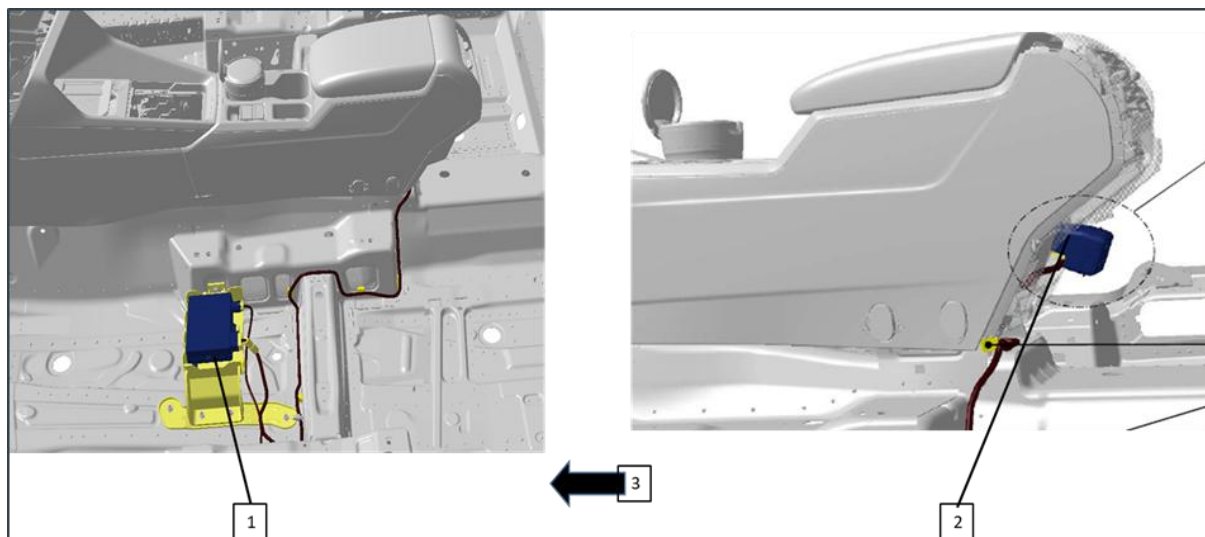


Fig. 2: Installation position of DC/AC converter

1 – DC/AC converter, left seat box

2 – Installation position of socket

3 – Direction of travel

230-V earthed socket (PR no. 9Z3)

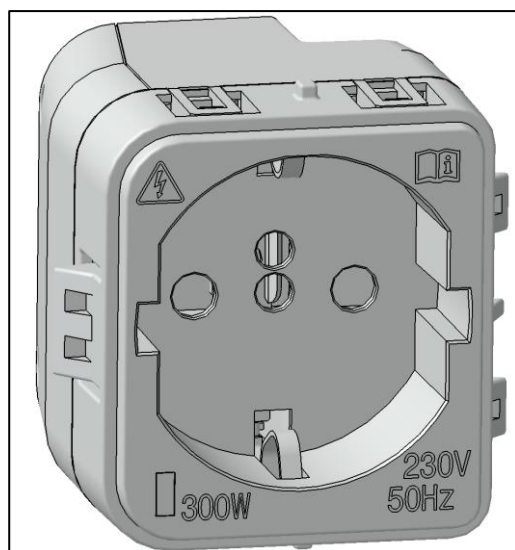


Fig. 3: 230-V socket

230-V earthed socket for UK and India (PR no. 9Z6)

Fig. 4: 230-V socket

Functions and features:

Devices with standard household plugs can be operated in the vehicle. In particular, these include battery chargers,

- 3-pin socket
- 230 V, 50 Hz.
- Peak power 450 W.
- Continuous power 300 W
- Installed in the rear centre console (centre armrest) in the Caddy
- Installed in the cab on the partition in the Caddy Cargo
- The voltage on the socket is switched on by a mechanism integrated in the socket which only switches on the DC/AC converter when a plug is inserted
- When the engine is switched off, the 230 V socket remains active for up to 10 minutes

2.5.3.3 Customer-specific functional control unit (CFCU)

The customer-specific function control unit enables communication between the base vehicle and the body conversion.

It makes it possible to provide almost 3,000 different signals from the base vehicle that, when required, are used to activate the body functions or are also connected in logic blocks (freely configurable).

By individually configuring the CFCU (through a custom CFCU configuration order), signals can be provided for a telematics system for fleet management via the converter CAN bus (J1939) using CFCU connector 4, pins 3 and 4

To adapt the functional control unit to the specific requirements of converters and customers, refer to the following description and the additional documents and instructions in the login area of the CustomizedSolution portal under Technical Information/The Caddy/Functional Control Unit.

- The CFCU contains:
- Programmable and configurable inputs and outputs (e.g. engine speed control)
- ASIL-B Ready (functional safety ISO 26262)
- Display of vehicle information as well as control of the converter functions
- Ex works functions
- Second battery monitoring for the second battery preparation [except PHEV vehicles (PR no. 0K3), where no second battery preparation (PR no. 8FV) is available]

Digital inputs	16
Analogue inputs	8
Outputs	24

Information

All inputs and outputs can be loaded up to the respective specified rated values.

Corresponding technical rated values can be found in the technical customer documentation for the CFCU.

Overloading may damage the control unit, possibly irreparably.

Practical note

If additional electrical consumers are installed, in particular factory-fitted optional equipment that use the second battery preparation, a positive overall charging balance shall be ensured by the converter.

Practical note

The converter can use what is known as the converter CAN* (also called J1939 or FMS** CAN) and the CANopen CAN (also called CIA 447) of the CFCU as an external CAN bus to communicate with the base vehicle (for read access to the CAN and in some cases write access as well).

To prevent unauthorised interference with vehicle control systems, vehicle manufacturers (OEMs) have implemented the UNECE Cybersecurity (CS) and Software Update Management System (SUMS) regulations. If vehicles are modified or supplemented by converters following delivery by the vehicle manufacturer, the specifications from the UNECE regulations must also be observed and implemented.

In the future, it must therefore be technically ensured that no unauthorised messages are written to the respective vehicle CAN via external interfaces or online. External messages on the CAN can affect the base vehicle's vehicle control system.

The converter must ensure that no online control units may be connected to the CFCU, in order to minimise this risk.

CAN* Controller Area Network

FMS** Fleet Management System

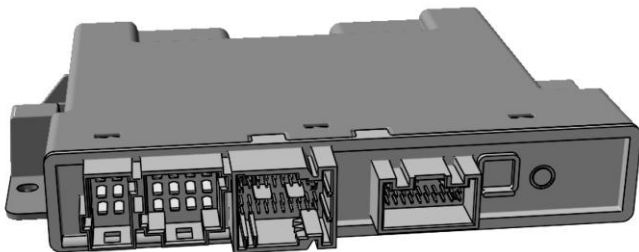


Fig. 1: View of customer-specific functional control unit

Interfaces

CIA447

J1939

Practical note

The basic functions listed may already be factory-configured, which may limit the available configuration options and the use of unassigned inputs and outputs.

Before configuring additional CFCU functions, check if they are already available and can be used.

Information

If you have any questions about the configuration of the functional control unit (CFCU), contact the following email address:

: config-cs@volkswagen.de

Information

Technical documentation on the CFCU and further information on the request and processing procedure can be found on the CustomizedSolution portal at:

<https://www.customized-solution.com/de/de/technische-produktinformationen/kfg/technische-information>

You must register on the CustomizedSolution portal in order to access this. The configuration of the customer-specific functional control unit (CFCU) can be ordered via the CustomizedSolution portal.

2.5.3.4 Overview of Generation 2 CFCU

Overview of Generation 2 CFCU pin assignment, part numbers of connectors and contacts

Gen. 2 CFCU – pin assignment / part numbers of connectors and contacts

Inputs			
Connectors	Pin	Signal	Description
3	27	MFE_1	Low_Side active with earth wakeup-capable analogue
3	37	MFE_2	
3	28	MFE_3	
3	38	MFE_4	
3	29	MFE_5	
3	39	MFE_6	
3	30	MFE_7	
3	40	MFE_8	
3	23	MFE_9	Low_Side active with earth wakeup-capable digital
3	33	MFE_10	
3	24	MFE_11	
3	34	MFE_12	
3	25	MFE_13	
3	35	MFE_14	
3	26	MFE_15	
3	36	MFE_16	
3	7	MFE_17	High side active with 12 V wakeup-capable digital
3	17	MFE_18	
3	8	MFE_19	
3	18	MFE_20	
3	9	MFE_21	
3	19	MFE_22	
3	10	MFE_23	
3	20	MFE_24	

Voltage supply			
Connectors	Pin	Signal	Description
1	3	KL30_1	
1	6	KL30_1	
1	2	KL30_2	
1	5	KL30_2	
1	1	Terminal_31_1	
1	4	Terminal_31_2	
4	8	KL15	
4	15	GND_A	Ground reference potential (0.5 A max.)
4	16	GND_B	Ground reference potential (0.5 A max.)

Outputs			
Connectors	Pin	Signal	Description
2	6	MFA_1	High-side, 5 A, terminal 30_1
2	12	MFA_2	High-side, 10A, terminal 30_1
2	7	MFA_3	High-side, 5 A, terminal 30_2
2	5	MFA_4	High-side, 10A, terminal 30_2
2	2	MFA_5	High-side, 5 A, terminal 30_1
2	3	MFA_6	High-side, 5 A, terminal 30_1
2	1	MFA_7	High-side, 5 A, terminal 30_2
2	4	MFA_8	High-side, 5 A, terminal 30_2
3	31	MFA_9	High-side, 300 Hz PWM, 0.5 A, terminal 30_1
3	32	MFA_10	High-side, 300 Hz PWM, 0.5 A, terminal 30_1
3	21	MFA_11	High-side, 300 Hz PWM, 0.5 A, terminal 30_2
3	22	MFA_12	High-side, 300 Hz PWM, 0.5 A, terminal 30_2
3	3	MFA_13	Low-side, 5kHz PWM, 1A
3	13	MFA_14	Low-side, 5kHz PWM, 1A
3	1	MFA_15	Low-side, 300 Hz PWM, 0.5 A
3	2	MFA_16	Low-side, 300 Hz PWM, 0.5 A
3	11	MFA_17	Low-side, 300 Hz PWM, 0.5 A
3	12	MFA_18	Low-side, 300 Hz PWM, 0.5 A
2	9	MFA_19	Half bridge 1, 5 A, terminal 30_1
2	8	MFA_20	Half bridge 2, 5 A, terminal 30_1
2	11	MFA_21	Half bridge 1, 5 A, terminal 30_2
2	10	MFA_22	Half bridge 2, 5 A, terminal 30_2
3	4	Relay 1	NO contact
3	5		Common
3	6		NC contact
3	14	Relay 2	NO contact
3	15		Common
3	16		NC contact

CAN			
Connectors	Pin	Signal	Description
4	1	CAN_H:	Convenience CAN bus High
4	2	CAN_L:	Convenience CAN bus low
4	3	CAN_H:	Converter CAN bus High
4	4	CAN_L:	Converter CAN bus Low
4	11	CAN_H:	CANopen High
4	12	CAN_L:	CANopen Low
4	7	LIN-1	Energy LIN (2nd batt.)
4	17	LIN-2	Energy LIN (3rd batt.)
4	18	LIN-3	Camper control

Connector designation	A / T6y / Con.1	B / T12k / Con.2	C / T40a / Con.3	D / T20d / Con.4
Connector part number	4F0.972.706	New white: 7C0.973.712 Old green: 7F0.973.714	4H0.906.231	8W0.972.420
Contact part number	N 105 114 01 Lear: 28272.306.185 TE: 0-1241388-1 Yazaki: 7196-0079-02	N 105 114 01 Lear: 28272.306.185 TE: 0-1241388-1 Yazaki: 7196-0079-02	N 907 649 01 Lear: 28038.201.178 or 28053.201.178 TE: 5-0963715-1 Yazaki: 7216-7773-02	N 907 649 01 Lear: 28038.201.178 or 28053.201.178 TE: 5-0963715-1 Yazaki: 7216-7773-02

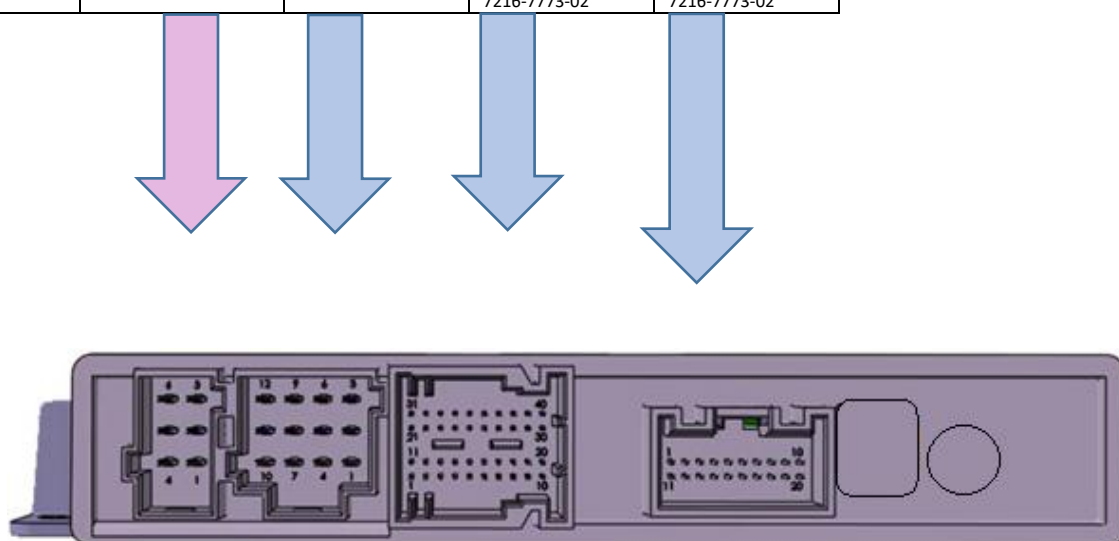


Fig. 1: Connector mounting of customer-specific functional control unit

Connector 1 CFCU		
6	KL30_1	KL30_1
5	KL30_2	KL30_2
4	GND	GND

3
2
1

Connector 2 CFCU			
12	MFA_2	MFA_19	MFA_1
11	MFA_21	MFA_20	MFA_4
10	MFA_22	MFA_3	MFA_8

3
2
1

Connector 3 CFCU									
31	MFA_9	MFA_10	MFE_10	MFE_12	MFE_14	MFE_16	MFE_2	MFE_4	MFE_6
21	MFA_11	MFA_12	MFE_9	MFE_11	MFE_13	MFE_15	MFE_1	MFE_3	MFE_5
11	MFA_17	MFA_18	MFA_14	REL2_NO	REL2_COM	REL2_NC	MFE_18	MFE_20	MFE_22
1	MFA_15	MFA_16	MFA_13	REL1_NO	REL1_COM	REL1_NC	MFE_17	MFE_19	MFE_21

40
30
20
10

Connector 4 CFCU									
1	K-CAN-H	K-CAN_L	ABH-CAN-H	ABH-CAN-L			LIN-1	KL15	
11	CANopen-H	CANopen-L			GND_A	GND_B	LIN-2	LIN-3	

10
20

Information

The contacts designated by the part number can be obtained from the suppliers listed at Volkswagen with the assigned part number. Purchase from other suppliers is possible if the technical specifications are complied with.

2.5.4 Vehicle battery

If a vehicle is not operated for a long time, its 12-V vehicle battery gradually loses charge due to the electrical loads (clock, tachograph, cigarette lighter or radio) and can suffer permanent damage (see [chapter 1.2.6 "Recommendations for vehicle storage"](#)).

To prevent this damage, check the battery open-circuit voltage in accordance with the maintenance cycle and charge the battery (see [chapter 1.2.6 "Recommendations for vehicle storage"](#)).

Practical note

Avoid deep discharge of the 12-V vehicle battery.

Otherwise, the 12-V vehicle battery may suffer permanent damage.

Under load, a maximum of 80 A can be drawn from the 12-V vehicle battery.

When not under load, the battery voltage must exceed 12.25 V.

When loaded with a maximum of 80 A, the battery voltage must not drop below 11.9 V. If necessary, an open-circuit voltage (electrical equipment off) must be engaged until the open-circuit voltage increases to 12.25 V.

If more power is required when the engine is running, a higher-output alternator and an upgraded 12-V vehicle battery must be used. If more power is required when the engine is not running or very high power demands are expected, an upgraded 12-V vehicle battery must be used.

An uprated 12-V vehicle battery and a higher-output alternator are available as factory-fitted optional equipment when more power is required for additional loads:

Order number (PR number)	Designation
NY1	More powerful battery (68 Ah, 380 A AGM battery) and more powerful alternator (180 A)
NY2	Uprated battery (68 Ah, 380 A AGM)
NY3	Increased alternator capacity (180 A)
NY6	Battery for special requirements for battery/generator capacities Only for Singapore and Taiwan
NY7	Increased alternator capacity/battery for special applications-> Expected launch date CW28/2025 Only for Singapore and Taiwan
J2D	380-A battery (68 Ah AGM)
JOH	340-A starter battery (58 Ah) Only for plug-in hybrid vehicles (PHEV)*
J0N	330-A battery (61 Ah)
J0V	420-A battery (70 Ah)
J4J	380-A battery (59 Ah) EFB+

* Please also observe chapter 4.9 "Plug-in hybrid electric vehicle (PHEV)", especially for hybrid vehicles.

2.5.4.1 Installation of a second battery

A second battery is not currently available as a factory-fitted option.

If a second battery is required, it can only be installed by a converter.

The position is defined by the converter. The converter bears sole responsibility for installation. The second battery must be securely mounted and covered. In addition, sufficient ventilation must be provided.

Information

A factory-fitted second battery preparation including energy management can be ordered for the Caddy under PR no.

8FV.

(Not available for PHEV vehicles)

This is a “monitored preparation for second battery” with the following functions:

- The control of the supply / second battery charge depends on the second battery charge state (alternator voltage, engine start/stop veto)
- Intelligent external charging control (both batteries can be charged with one battery charger by closing the battery isolation relay)
- Transfer of starter and second battery charge level data to converter system (warning and shutdown thresholds in the CFCU signal pool)
- Retrofitting a charging rate selector button allows the customer to influence battery charging (maximum alternator voltage can be selected for a driving cycle)
- EM-P* default configuration
- Automatic recharging of the starter battery from the second battery via the isolation relay if the starter battery has a very low charge level (up to three times per stationary period)

The preparation is designed for AGM second batteries with the following capacities:

a) 68 Ah	b) 75 Ah	c) 92 Ah
----------	----------	----------

Preparation:

- Is designed for AGM batteries
- Uses energy management
- Includes:
 - + Coupling point for a second battery data module (BDM) together with 150 A isolation relay and starter box.
 - + A positive cable and LIN connector installed and fused; the fuse is not installed.
 - + Transfer point near the left seat in the 1st row
 - + Isolation relay installed as a transfer point, together with the LIN line
 - + One cable end coiled and fitted with anti-rattle protection
 - + 200-A fuse as protection between the second battery and the vehicle

CFCU or CFCU preparation required

Activation of the customer-specific functional control unit can be requested after the conversion from the Volkswagen Commercial Vehicles Partner for the following battery capacities using the Aftersales PR numbers:

- a) **O2D** for 68 Ah AGM
- b) **O1N** for 75 Ah AGM
- c) **O1G** for 92 Ah AGM

EM-P¹⁾ – Standard configuration of the CFCU, available ex works for PR no.: 8FV "Preparation for second battery"

CFCU inputs/outputs	Connector/pin	CFCU standard configuration	Functional description
Input MFE 9 Digital Low active (Connect earth)	3 / 23	EM-P charging button (touch button)	Control of the supply / second battery charge depends on the charge level of the second battery (max. alternator voltage and engine start/stop veto)
Input MFE 19 Digital High active (Connect +12 V)	3 / 8	Internal battery charger active (switch)	With intelligent external charging control with low-power charging sources, the isolation relay remains closed. When active, the instrument cluster displays the message "Charging connector inserted" for terminal 15
Output MFA_07 plus switching 5 A from terminal 30_2	2 / 1	Function check of EMP charging rate selector button active	Display of the active charging button function

*Energy management parallel for second battery control

Practical note

For vehicles with the EU6 emission standard, the second battery (from PR no.: 8FV "Preparation of second battery") is operated in an optimum state of charge for reasons of efficiency. This is why the full charge capacity is not always available.

Avoid totally discharging the battery. Totally discharging the battery may cause permanent damage to the battery.

The battery voltage must be higher than 12.25 V.

The battery voltage under load must never fall below 11.9 V. If necessary, allow the battery to rest (all electrical equipment off) until the open-circuit voltage rises to 12.25 V.

Practical note

The CFCU and its programmable interface make it technically possible to temporarily deactivate the engine start/stop system and to limit brake energy recuperation. Permanent deactivation of the start/stop functions and brake energy recuperation is not permitted.

Connections to the second battery preparation

The coupling point is located on the inside of the left seat frame in the first seat row.

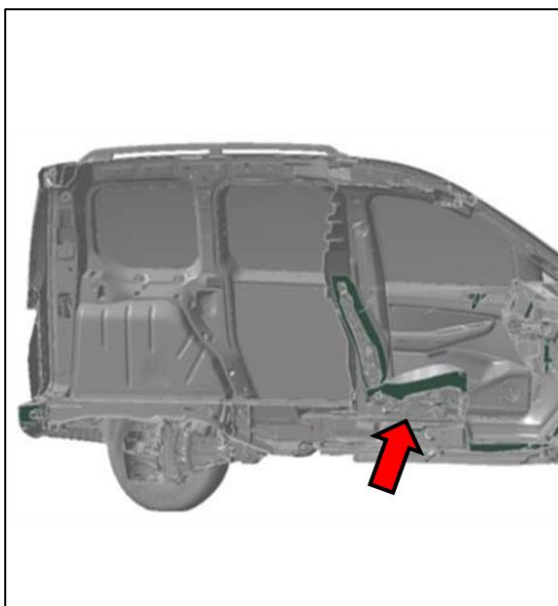


Fig. 1: Location of the coupling point of the preparation

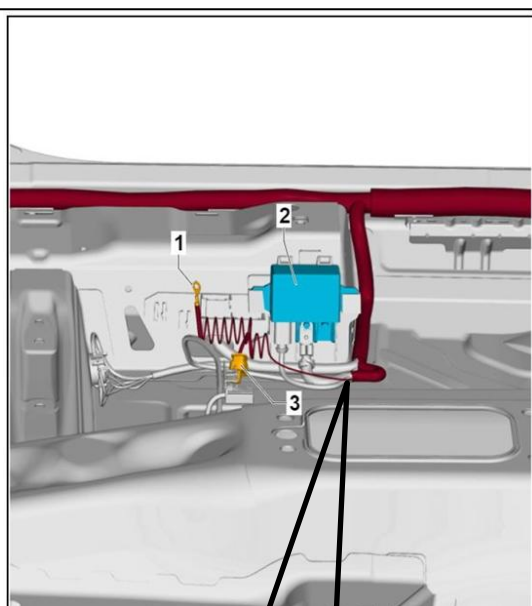


Fig. 2: Seat frame on the left side

For Fig. 2:
 1 – Supply line to second battery to be retrofitted
 2 – Relay and fuse carrier
 3 – Connector for battery monitor

A 50-cm long cable (coming from the control unit) is placed in a wound condition in this area. The converter can make the connection here. Connector 4F0.973.702 for connecting to the battery data module (BDM).

Practical note

Installing an additional battery is only allowed in conjunction with a battery isolation relay. It must also be ensured that the second battery supplying power is protected against reaching the damage threshold/total discharge (for example by installing a voltage monitor).

Warning note

When work is performed on the vehicle electrical system, the earth cables should always be disconnected from the battery and the additional battery. Only then should you disconnect the positive cables.

Short-circuits could occur if this is not observed.

Connection of the second battery preparation to the main fuse box

Vehicles with a plastic tab (arrow) on the main fuse box (1).

The plastic tab (arrow) has predetermined breaking points and must be removed by the converter to connect the second battery.



Fig. 3: Location of the second battery preparation on the main fuse box

2.5.4.2 Intelligent external charging control

Note: Only for retrofitted second battery from the second battery preparation (PR no. 8FV)

If a battery charger (3) is connected to the second battery (2) when the engine is off, the energy management system in the CFCU detects external charging and, after a verification period, closes the isolation relay (4). The isolation relay does not close when the charge level of the second battery is very low, unless the starter battery cannot be started. In this case, the relay does close and both batteries are charged in parallel.

The relay opens immediately when the ignition is switched on (terminal 15) or an engine start is requested (terminal 50), preventing starter current from being drawn from the second battery.

If the ignition remains on without engine start, with a connected charging device, the isolation relay closes again after a new qualification period.

Note that the charger used must be able to charge two batteries simultaneously. A capacity of at least 30 A is recommended. When using a charger that is not powerful enough or in the event of prolonged trickle charging, automatic external charging detection may be deactivated for the current stationary period. We therefore recommend the “Battery charger active” +12-V control input* on the CFCU for a permanently installed battery charger.

*See [chapter 2.5.3.3 Customer-specific functional control unit \(CFCU\)](#)

Information

When a permanently installed battery charger is connected to the “Internal battery charger active” control input on the CFCU, the isolating relay to the first battery is opened after one week during a continuous charging process if no further vehicle activities are detected. Vehicle activities may include opening the door, CFCU activity or power consumption from the second battery. If the charge level of the first battery is too low, or if an activity is detected, the opened relay is automatically closed again.

Practical note

If a solar panel is retrofitted to the second battery, automatic external charging detection must be deactivated. If this is not done, the isolation relay may prematurely fail. Solar panels must not be connected to the first battery.

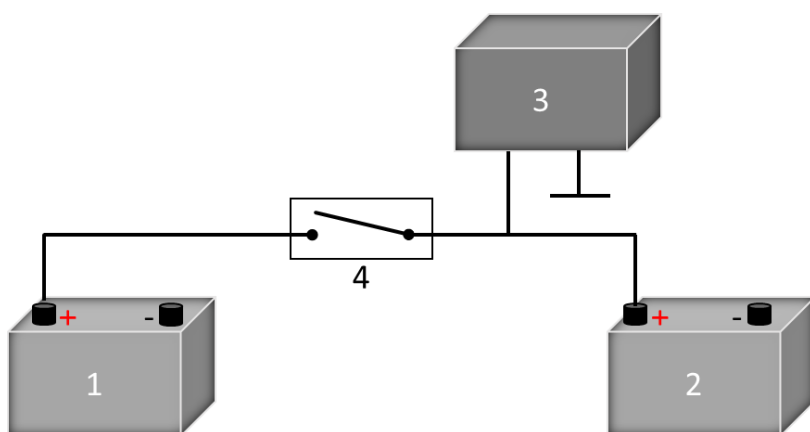


Fig. 1: Schematic diagram of external charging control

- 1 - 12-V vehicle battery
- 2 - Second battery
- 3 - Battery charger
- 4 - Isolation relay

Practical note

The earth connection on a battery charger must always be connected to an earth point on the vehicle.

2.5.4.3 Parameterised* reactions on reaching certain second battery charge levels with second battery monitoring

Note: Only for retrofitted second battery from the second battery preparation (PR no. 8FV)

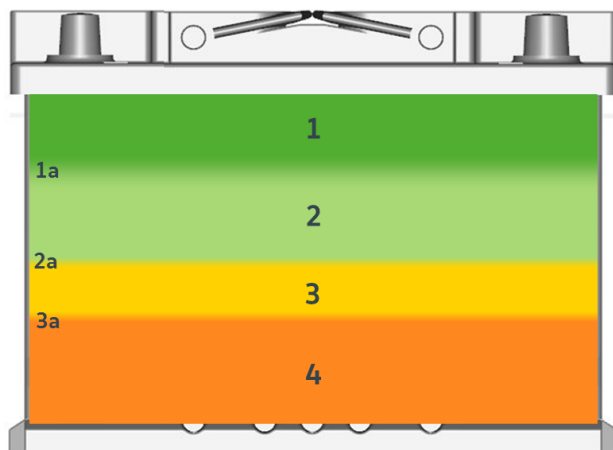


Fig. 1: Charge levels of the second battery

Second battery with continuous load up to 130 A

Charge level		Second battery charge condition	CFCU** signal pool	Vehicle reaction
1	Optimal charge level			
1a	Boundary between charge levels (1) and (2)	Slight recharge required		Alternator voltage 14 V
2	Diminished charge level	Recharge required		Engine start/stop prohibited and Max. alternator voltage**
2a	Boundary between charge levels (1) and (2)		1. warning level	
3	Low charge level		2. warning level	Message on the display: "Second battery charge level too low"
3a	Boundary between charge levels (3) and (4)		Shut-off stage	
4	Charge level too low	Only limited battery use possible		

* Parameters can be adjusted according to customer's wish.

** Maximum alternator voltage can be requested by the driver at any time if a charging button is retrofitted for the CFCU

Practical note

The warning and shutdown thresholds of the second battery do not affect the base vehicle. It must be made available for the connected additional electrical equipment using customised calibration of the CFCU.

2.5.5 Retrofitting of alternators

If additional electrical equipment is retrofitted, the increased power requirement can be met by using more powerful alternators. The following special equipment is available from the factory for this purpose:

Order number (PR number)	Designation
NY1	More powerful battery (68 Ah, 380 A AGM battery) and more powerful alternator (180 A)
NY3	More powerful alternator (180 A)

When using additional units, please refer to [chapter 2.7. "Power take-off system for engine"](#).

Use the PR number ordered to find out which alternator was installed in your vehicle at the factory. The installed alternator version depends on the equipment ordered for the base vehicle.

In hybrid vehicles, a DC/DC converter (PR no. 8GJ) is fitted; a different alternator is **not** possible.

If other alternators are to be retrofitted, the following points should be observed:

- Vehicle parts and their function should not be impaired by the installation of a generator.
- The capacity of the 12-V vehicle battery and the power supplied by the alternator must be adequate for the intended load.
- The alternator circuit must be protected with an additional fuse (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#)).
- The cable cross-section must be selected according to the current drawn (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#)).
- Increased power demand may require replacement of the starter/alternator wiring harness. We recommend Volkswagen genuine parts for this.
- Ensure that electrical wiring is routed correctly (see [chapter 2.5.2.1 "Electrical wiring / fuses"](#)).
- The accessibility of the ancillaries installed and simple maintenance possibilities may not be impaired.
- The necessary air supply and the engine cooling may not be impaired.
- The guidelines of the equipment manufacturer for the compatibility with the base vehicle should be observed.
- The Owner's Manual and the maintenance manual for the ancillaries should be handed over when the vehicle is delivered.

2.5.6 Driver assist systems

Warning

Improper modifications or installations in vehicle systems, safety-relevant components or driver assist systems can impair their function. This can result in failure or malfunctions of components or safety-relevant parts. Accidents or damage to the vehicle may occur as a result. For driver assist systems that form part of the type approval, any intervention in these systems will invalidate the type approval.

To ensure the correct function of the driver assist systems, the physical limits vehicle specified in [chapter 2.1 "Base vehicle"](#) must be strictly observed.

Practical note

If any of the following modifications are made to vehicles, recalibration is required:

- Raising or lowering the ride height
- Raising or lowering the vehicle weight
- Removing and reinstalling sensors
- Removing and reinstalling assemblies in which sensors are integrated.

To ensure the correct operation of all driver assistance systems, recalibration must be carried out by an authorised workshop. After conversions, Volkswagen Commercial Vehicles recommends having an authorised workshop check the correct operation of all driver assist systems by means of recalibration.

If the axle loads and permissible gross weight specified in the CoC are maintained, recalibration is not required.

The wheelbase must not be modified.

Information

Further information on the installation and removal of driver assist systems such as radar systems and the front camera for driver assist systems can be found in the workshop manuals (repair groups 98 Driver assist systems and 96 Electrical system) using Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://erwin.volkswagen.de/erwin/showHome.do>

2.5.6.1 General overview

A variety of active and passive driver assist systems and safety systems are available ex-works. Some driver assist systems can also be ordered as optional equipment.

The driver assist systems are based on sensors that monitor the surroundings.

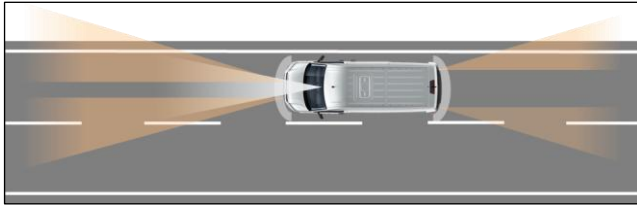


Fig. 1: Schematic diagram

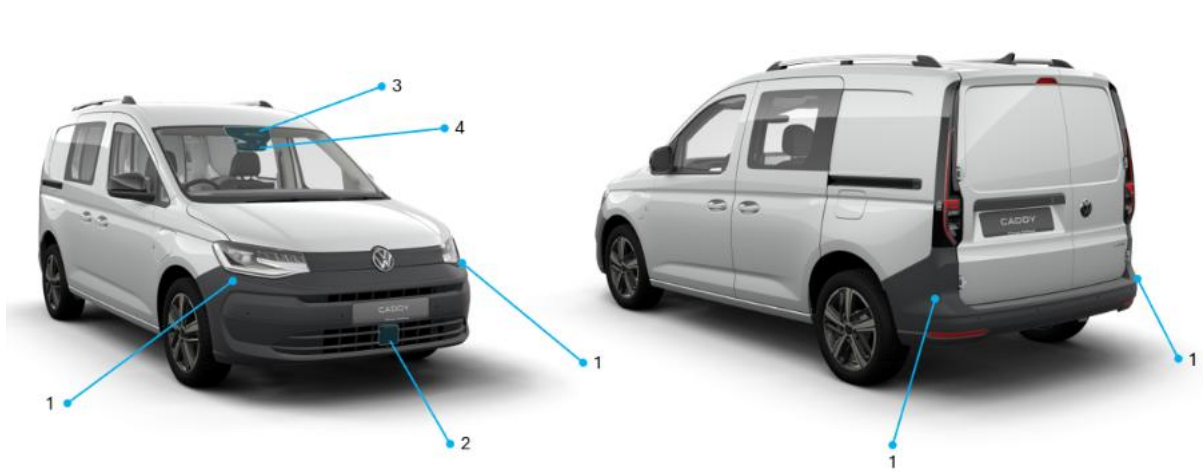


Fig. 2: Locations of radar sensors

- 1 – Nano radar (front and optional rear)
- 2 – MRR5 mid-range radar (new generation, geometrically larger)
- 3 – Front camera for driver assist systems 120° (extended angle of view)
- 4 – Multifunction interior camera (MIC) (driver monitoring camera in interior mirror assembly)

The Caddy has several radar and camera sensors that record the surroundings and analyse and interpret these using intelligent algorithms:

- Front and rear radar sensors (optional in the rear)

The vehicle is equipped with sensors in the front and rear (optional in the front PR no. 7X2).

The sensor in the middle of the front is used for adaptive cruise control (ACC) and for the “Front Assist”.

Further optional radar sensors at the rear record the traffic situation behind. They form the basis of the lane change system “Side Assist” incl. “Blind Spot Monitor”, whose signals are also used by ACC and Front Assist
- The multifunctional front camera is located in the area of the interior mirror and is used:
 - + For vehicle detection (redundancy for radar)
 - + During standstill for monitoring the area in front of the vehicle (automatic restarting of ACC)
 - + For lane information for the lane departure warning “Lane Assist”
 - + For detecting vehicles and other illuminated objects at night for the advanced main-beam control (Dynamic Light Assist)
- Rear camera

The optional reversing camera (PR no. KA2) improves the view to the rear when reversing and delivers a real video image of the area behind the vehicle. The reversing camera can be combined with the radio or navigation devices
- Ultrasonic sensors

For parking assistance, the vehicle is fitted with up to 12 ultrasonic sensors. The information from the ultrasonic sensors is also included in the ACC regulation

Practical note

To ensure that the radar sensors function properly, the bumper covers must be kept free of snow and ice and must not be taped over or covered in the detection areas of the sensors.

The MRR5 mid-range radar must not be painted, taped over or covered.

The sensors may be displaced or damaged by collisions, e.g. when driving into or out of a parking space. This can result in the system switching itself off or becoming impaired.

Practical note

Adhesive films, particularly reflective ones, can negatively impact the function of the sensors installed in the vehicle. If it is necessary to wrap the vehicle with film, care must be taken to ensure that the functions of the driver assist systems are not affected by this.

Practical note

The driver assist systems are calibrated at the factory for the parameters specified in the Certificate of Conformity. If a vehicle is converted within these parameters, calibration is not mandatory.

To ensure that the driver assist system functions properly, the installation position of the radar and camera sensors must not be changed. The cover of the radar and camera sensors must not be changed. The detection range of the radar and camera sensors must be kept free of attachments. The E/E network (CAN, Ethernet) must not be changed. No additional radars may be installed in the 76–77 GHz frequency range.

Driver assist systems at a glance

Depending on the chosen equipment and sales specifications, the following driver assist systems are available in the vehicle:

Driver assist systems	PR number
Lane Assist lane keeping system	6I1
Travel Assist driver assist system including Lane Assist lane departure warning	6I2
Travel Assist driver assist system including Lane Assist and Emergency Assist	6I6
Light Assist main-beam control	8G1
Dynamic Road Sign Display	QR9
Front Assist (ACC) with warnings and brakes on vehicles	8J1
Front Assist with warnings and braking on detection of vehicles and pedestrians	8J2
Front Assist with warnings and braking on detection of vehicles, pedestrians and cyclists	8J3
Swerve Support without Turn Assist	4G1
Swerve Support and Turn Assist	4G3
Side Assist lane change system incl. Blind Spot Monitor, Rear Traffic Alert and exit warning system	7Y1
Rear Traffic Alert and Lane Change Assist and Exit Warning System	79H
Front Cross Traffic Assist	JX1
Electronic Cruise Control System (CCS)	8T2
Adaptive Cruise Control ACC with Stop & Go	8T3
Speed limiter	LT1
Speed limiter and Intelligent Speed Assist	LT2
Park Assist park assist steering and Park Distance Control at the front and rear	7X5
Park Distance Control at the front and rear	7X2
Park Distance Control	7X1
Distraction and fatigue detection system	EM2
Driver attention monitor	EM3
Tyre Pressure Monitoring System	7K1 7K3

Key

2.5.6.2 Electromechanical steering

The electromechanical power steering has many advantages compared with a hydraulic steering system. It assists the driver and relieves the physical and mental burden for the driver. It works on demand, i.e. only when the driver requires steering assistance. The power steering depends on the vehicle speed, the steering torque and the steering angle which are recorded by sensors and evaluated in the power steering control unit.

In addition, electromechanical power steering enables numerous driver assist systems in which a steering intervention is performed, such as Lane Assist, Park Assist and Trailer Assist.

Warning

No modifications may be made to the steering rack, the associated components or the control units.

Modifications can result in these systems no longer working correctly and failing. This may result in the driver losing control of the vehicle and causing an accident.

2.5.6.3 Electronic Stability Control (ESC)

ESC is a driving dynamics regulation system that actively regulates both the longitudinal and lateral dynamics.

An extensive system of sensors that constantly compare the actual course of the vehicle with the target course set by the driver allows greater driving stability with ESC.

In all driving situations, ESC contributes to the stability of the vehicle – during acceleration, braking, coasting, driving straight ahead and in corners.

In conjunction with the signals from the other sensors, a computer checks that the vehicle is following the course set by the driver.

If the vehicle deviates from the target course (understeer or oversteer), a stabilising counter force is applied by braking an individual wheel.

Warning note

The following modifications are not permitted on vehicles with ESC:

- Changing the gross vehicle weight rating
- Modifications to the sensors (steering angle sensor, yaw rate sensor, wheel speed sensor)
- Changing the vibration behaviour at the installation location in the area of the yaw rate sensor by modifying the body
- Modifying the position of components
- Modifications to the chassis
- Modifications to the wheels and tyres
- Modifications to the engine
- Modifications to the steering system
- Modifications to the brake system

The location, position and fastenings of the ESC sensors cannot be modified. Modifications to wiring and ESC components are not permitted. Otherwise the ESC system may no longer function correctly.

Modifications can lead to this system no longer working correctly and to system shut-down and incorrect regulation. This may result in the driver losing control of the vehicle and causing an accident.

2.5.6.4 Tyre Pressure Monitoring System (TPMS)

There are two types of Tyre Pressure Monitoring Systems (TPMS):

1) Indirect Tyre Pressure Loss Indicator (TPLI+)

This standard system (7K1) uses the existing ABS wheel speed sensors to monitor the rotation speed of the tyres. A possible loss of pressure is detected by changes in the rolling circumference and the vibration frequency of the tyres. TPLI+ is a software module that is integrated into the brake control unit and applied to the vehicle. The driver is warned if the tyre pressure falls below the set tyre pressure. The tyre warning light appears in the instrument cluster.

2) Direct measuring tyre pressure monitoring (TPM)

This optional system (7K3) uses additional tyre pressure sensors that are mounted directly on the valves in the tyres and measure the actual absolute tyre pressure of the tyres. The sensors send the data to the TPM control unit in the vehicle. The driver receives information about the exact tyre pressure of each individual tyre in the infotainment system and warns the driver if the vehicle-specific set target pressure value is not reached. The tyre warning light appears in the instrument cluster.

If the functions of both systems are restricted, the driver is informed of the malfunction. In this case, the tyre warning light flashes for 65 seconds each time the ignition is turned on and off.

The TPMS (7K3) consists of the following main components:

- Four tyre pressure sensors with direction of rotation detection
- TPMS control unit with built-in aerial, installed in an optimal location on the vehicle for reception
- Display in the instrument cluster and operation in the infotainment system

The Tyre Pressure Monitoring System control unit J502 with the Tyre Pressure Monitoring System aerial R175 is located on the cross panel of the body.

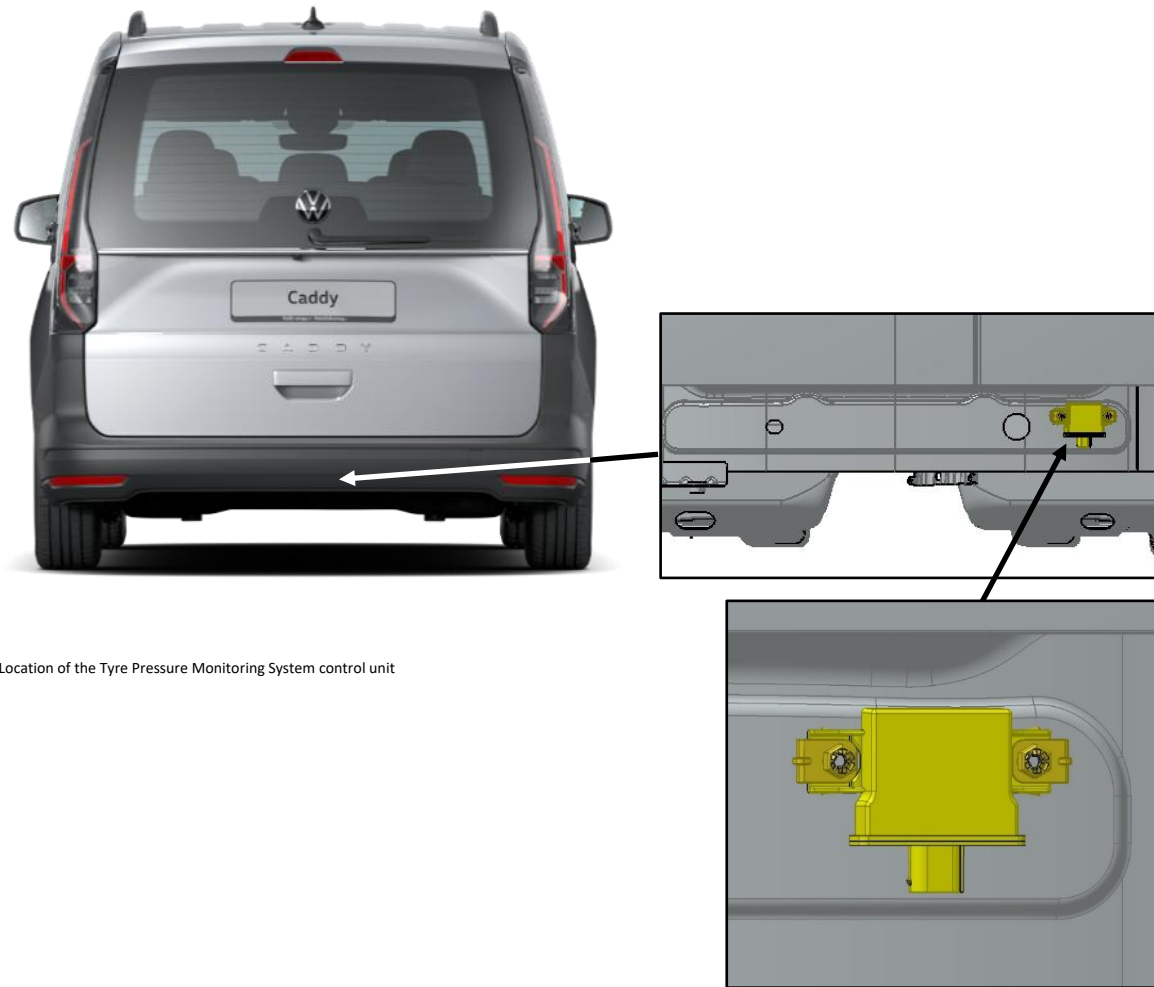


Fig. 1: Location of the Tyre Pressure Monitoring System control unit

Warning

The position of the TPMS control unit must not be modified. Otherwise there could be a malfunction. As a result the driver may not recognise a loss of tyre pressure and cause an accident. Furthermore the vehicle can in some cases no longer meet the registration requirements.

Warning note

The values published by the vehicle manufacturer in the tyre pressure table must be observed. Refer to the Owner's Manual for your vehicle. The values for the permissible tyre pressures for the different tyre combinations are also shown on a plate on the body. The maximum cold tyre pressure of 5.1 bar must not be exceeded for certain wheel/tyre combinations in conjunction with the Tyre Pressure Monitoring System (TPMS).

If tyre dimensions that differ from the series production dimensions are fitted as part of a vehicle conversion, the converter is responsible for informing the customer about the corresponding tyre pressures.

2.5.6.5 Front camera for driver assist systems

The multifunction front camera is built into the mirror base.

The front camera for driver assist systems is installed on the windscreen. It provides information for the Light Assist, Sign Assist, Lane Assist and Adaptive Cruise Control systems.

The camera operates multiple interfaces in the vehicle. It provides image information with different ranges for the following driving assist systems:

- Front Assist (with Pedestrian and Cyclist Monitoring)
- Lane Assist lane keeping system
- Light Assist main-beam control
- Dynamic Road Sign Display

Practical note

The camera's field of vision must not be obscured. Please observe the notes in [chapter 2.5.6](#).

Warning note

No modifications may be made to the position of the camera and the area around it (e.g. replacing the standard windscreen, altering its angle or installing add-on parts in the camera's field of view). Otherwise the camera can no longer function correctly and may fail.

2.5.6.6 Multifunction interior camera (MIC)

Depending on equipment, vehicles may be equipped with a multifunction interior camera (MIC) (PR no. EM3). The multifunction interior camera is integrated into the interior mirror unit. It monitors the driver and detects signs of fatigue and lapses in attention. Further information can be found in the vehicle Owner's Manual.



Fig. 1: Multifunction interior camera

Information

The multifunction interior camera (MIC) is a measure in line with the specifications of the -GSR2C (General Safety Regulation 2c) and is part of EU Regulation 2019/2144. The aim is to increase the safety of vehicles and reduce the number of road traffic accidents.

Practical note

The multifunction interior camera requires an unobstructed view of the driver. This field of view must not be obscured by installed components or cables. Stickers or films must not be applied. Shading, reflections and other optical interference must be avoided. The converter must ensure that the functionality of the multifunction interior camera is fully intact after the conversion. The information about the multifunction interior camera in the Owner's Manual must be observed.

2.5.6.7 Rain and light sensor

The rain and light sensor is installed at the top edge of the windscreen, above the rear-view mirror.

Practical note

Vehicles with bodies that project into or cover the detection zone of the rain/light sensor may impair its function. The requirements of UNECE-R48 must be observed.

Practical note

The position of the rain/light sensor and its surroundings may not be modified. Otherwise the rain/light sensor can no longer function correctly.

The light and rain sensor may only be installed with the standard or approved optional windscreens, otherwise malfunctions may occur.

2.5.6.8 Parking aids

The following optional driver assist systems are available as to help with parking:

- Park Distance Control at the rear PR no. 7X1
- Park Distance Control at the front and rear PR no. 7X2
- Park Assist park assist steering and Park Distance Control at the front and rear PR no. 7X5

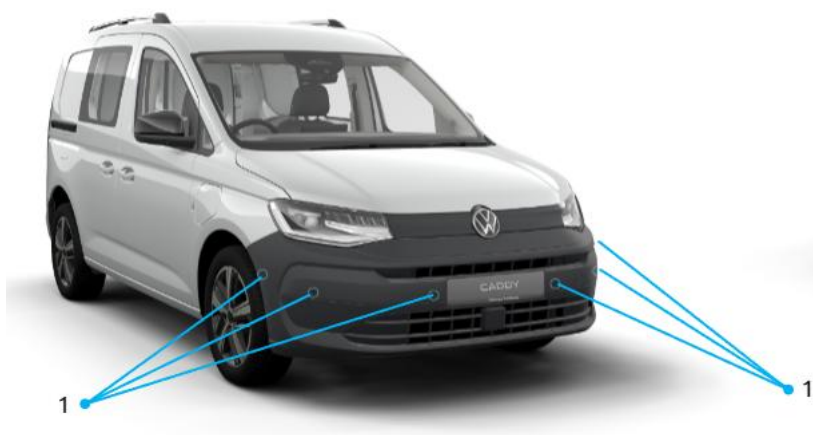


Fig. 1: Locations of the front ultrasonic sensors

1 – Ultrasonic sensors for the front parking aid (Park Distance Control)

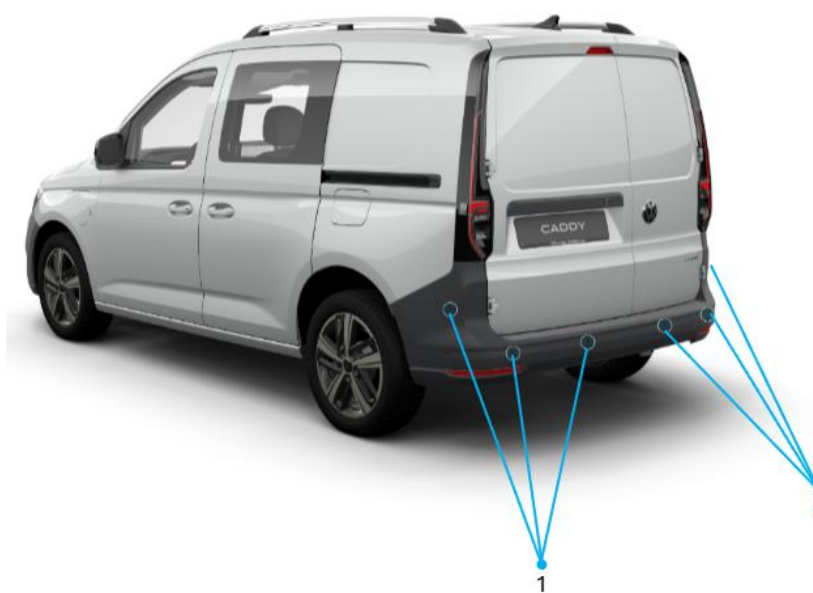


Fig. 2: Locations of the rear ultrasonic sensors

1 – Ultrasonic sensors for the rear parking aid (Park Distance Control)

At Volkswagen, the parking aid ensures compliance with UNECE-R158 (reverse travel equipment). For this reason, each vehicle is always fitted with Rear Park Distance Control ex works.

These systems monitor their surroundings using up to 12 ultrasonic sensors, known as PDC sensors.

These are mounted on the rear and front of the vehicle (see Figs. 1 and 2 in this chapter).

Practical note

In the event of superstructures and modifications:

- Add-on parts in the detecting range of the ultrasonic sensors can impair the function of the parking aids
(e.g. towing bracket, overhanging parts of bodies, hub carrier, steps or bumper guard).
In the event of superstructures and modifications, make sure that the ultrasonic sensors are not covered by the add-on parts
- The bumper may not be painted over if ultrasonic sensors are installed.
The coat of paint will impair the transmission and reception of the ultrasonic signals
- If approved add-on parts are retrofitted, the parameter set suitable for the ParkPilot must be coded by your authorised repairer

Information

Various ultrasonic sensors are available for the bumper covers.

- Non-paintable ultrasonic sensors for textured or black-painted bumper covers
- Ultrasonic sensors prepared for painting in the vehicle colour
- Ultrasonic sensors already painted in the vehicle colours

Practical note

Ultrasonic sensors that are already painted must not be repainted.

Ultrasonic sensors prepared for painting must be painted before installation to ensure that they function throughout their service life.

Ultrasonic sensors prepared for painting or already painted in various colours are available from your authorised repairer. Non-paintable ultrasonic sensors for textured bumper covers must not be painted.

The total coating thickness on the sensor membrane must not exceed 125 µm, otherwise sensor performance may be impaired. This also applies to multiple paint systems and the cathodic dip coating (CDP coating). The thickness of the cathodic dip coating is between 14 µm and 22 µm.

To ensure that the ultrasonic sensors function correctly, the coat thickness must therefore be checked on random samples.

During painting, make sure that not only the membrane, but also the cylindrical sensor membrane edge is coated evenly with paint at least 2 mm all-round.

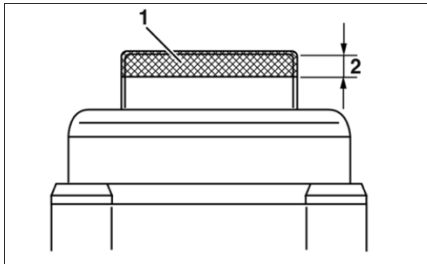


Fig. 1: Painting area of cylindrical sensor membrane edge

- 1 – Painting area
- 2 – Coating thickness

Practical note

The paint coat is not allowed to be sanded off mechanically. This could damage the chrome or CDP coat or the sensor membrane.

During the CDP primer process, the paint is not allowed to be removed chemically. This could damage the CDP coat and it can no longer be applied later on. Chemical or mechanical reworking is also not permitted.

2.5.6.9 Lane departure warning “Lane Assist”

The “Lane Assist” lane departure warning uses a camera in the vicinity of the interior mirror to record the lane markings. If there is at least one lane marking, the function is automatically activated from 65 km/h, even in darkness and fog. As soon as the vehicle seems to be leaving the lane, the system emits a visual and haptic (vibration) warning and actively performs compensating steering manoeuvres, within its technical possibilities.

Practical note

Please observe the notes in [chapter 2.5.6](#) and [chapter 2.5.6.5](#)

Information

For more information calibrating the camera for the Lane Assist system, refer to Volkswagen AG’s Electronic Repair and Workshop Information system (erWin):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.5.6.10 Front Assist / ACC

The “Front Assist” area monitoring system monitors the distance to the vehicle in front by means of a radar sensor installed on the front of the vehicle, and it detects critical distance situations.

If an impending collision with a vehicle or a static object is detected, a visual and acoustic warning is given and a short brake jolt triggered.

In addition, the brake system may be primed and the parameters of the hydraulic brake assist system reprogrammed.

The function effects automatic braking if an unavoidable risk of collision is detected and there is no brake response by the driver. If the driver brakes heavily when a danger is detected, they are supported in the avoidance of the collision by the brake request being reinforced so far that rear-end collision is, if possible, avoided.

The following must be observed for superstructures and modifications:

- The connection for the radar sensor must not be modified.
- The area in front of, around and behind the sensor must never be modified.
- Changes to the running gear (brake, wheelbase, track, springs/shock absorbers) can impair the function.
- Do not modify the holder or front apron.
- If the bumper cover is subsequently painted, the existing sensors as well as the front radar and its holder must not also be painted.
- The permitted axle loads may not be exceeded.
- The control units required for the correct functioning of Front Assist or ACC may not be removed, nor may their function be impaired in any way.

Warning

Please note: improper interference or installations in vehicle systems, safety-relevant components or driver assistance systems (e.g. brakes, wheelbase, track width, springs and shock absorbers, engine management system and ESC) could have an adverse effect on their function and could void system approval. This can also result in failure or malfunctions of components or safety-relevant parts. Accidents or damage to the vehicle may occur as a result.

Information

If, for example, a mounting plate for additional devices is to be installed in front of the radar sensor, please contact Volkswagen Customer Care in the planning phase (see [chapter 1.2.1. “Product and vehicle information for converters”](#)). The road traffic regulations in the countries of registration must be observed and coordinated with the responsible test centre or technical service.

2.5.7 Earth points

Use the earth points provided by Volkswagen for subsequent electrical add-ons or installations to ensure an optimum earth connection to the basic vehicle.

Warning note

The use of other earth points can lead to malfunctions in safety systems. This can lead to a failure of components or safety-relevant parts and to fault messages in the instrument cluster.

No more than four terminals may be screwed to any single earth point.
The earth points of the safety systems are not allowed to be used for bodies.

Information

A general overview and more detailed information about earth points can be found in the current wiring diagram.

Repair and workshop information can be downloaded online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

In the case of further requirements, please contact us (see [chapter 1.2.1 "Product and vehicle information for converters"](#)).

2.6 Engine peripherals / drive train

Any modifications to noise-relevant components such as the engine, exhaust system, tyres and air intake system require noise testing in accordance with EC Directives. The permitted values must not be exceeded.

The national regulations and directives apply.

Components for noise insulation which are installed as standard are not allowed to be modified or removed (see also [chapter 2.4.4 "Acoustic insulation"](#)).

2.6.1 Engine / drive train components

No modifications to the engine air intake system are permitted.

Subsequent solutions regarding engine speed control are not possible.

Modifications to the cooling system (radiator, radiator grille, air ducts etc.) are not permitted.

Keep cooling air intake areas clear.

2.6.2 Drive shafts

The correct configuration and implementation of a modified powertrain prevents noise and vibration, and should only be performed by a company which is qualified to build drive shafts.

Only genuine Volkswagen parts should be used.

2.6.3 Fuel system

Modifications to the fuel system should be avoided, as they may invalidate the vehicle's operating permit. If it is necessary to modify the fuel system for the conversion, the converter is solely responsible for ensuring a proper design, for proper functioning of the system, including all components used, and for the materials used.

Sufficient clearance to all adjacent components must be ensured. The ground clearance must not be restricted compared to the standard production vehicle. Particular attention must be paid to the effect of heat from the exhaust system and the modified tank. If thermal protection components of the production vehicle are removed, they must be replaced in a suitable manner. A new operating permit must be applied for from the regulatory authority.

Practical note

If the fill level indicator does not function properly, the components in the fuel system and the engine may be damaged.

Information

Volkswagen Commercial Vehicles does not support adaptation of the fuel gauge to the modified fuel system.

Comply with the following points if making any modifications to the fuel system:

- The whole system must be permanently leak-proof in all operating conditions.
- If modifications are made to the tank filler pipe, effective refuelling must be ensured and fuel traps in the pipe routing must be avoided.
- All components that come into contact with fuel must be suitable for the type of fuel used (e.g. petrol, diesel, fuels containing ethanol) and for the conditions at the installation location.
- Hoses must retain sufficient dimensional stability throughout their service life to prevent any reduction in cross section (e.g. four-ply hoses compliant with DIN 73379-1).
- Multi-ply hoses should be preferred.
- Install reinforcing support sleeves at the connections between hose sections so as to prevent any constriction at the clip connection and to guarantee air-tightness.
- At the connections, use spring-type clips which automatically compensate for possible settling behaviour of the material and to maintain the preload. Hose clips with worm threads must be avoided.
- All parts of the fuel filler system must be routed at a sufficient distance from moving parts, sharp edges and components at high temperature, in order to avoid damage.
- In vehicles with a petrol engine (also applies to hybrid vehicles), there is an activated charcoal filter in the area of the rear left wheel housing. The location of the activated charcoal container and its purge line to the engine must not be changed. The same applies to the location of the fresh air intake.
- In hybrid vehicles, a shut-off valve (FTIV fuel tank isolation valve) is also fitted to the activated charcoal filter and a pressure sensor is fitted on the fuel tank.
- **Caution:** In a hybrid vehicle, the internal tank pressure may reach 400 mbar.
- The entire ventilation concept for the fuel tank must be left unmodified.
- In hybrid vehicles, a special requirement is placed on the function of the ventilation system. If changes cannot be avoided, special care must be taken during the conversions.
- Do not attach heat-conducting components or components that restrict the installation space.
- Modifications to the fuel pump, fuel line length and fuel line routing are not permitted. Modifications to these mutually matched components can impair the function of the engine.
- Modifications to the body in the area of the fuel tank require the fuel tank to be removed first.
- If the converter replaces the standard tank with a different fuel tank, it must be ensured that the ground clearance with the new tank is not less than that with the standard tank.
- If the converter changes the position of the standard tank, the fuel gauge sender and the fuel gauge must be recalibrated. Exceptions are possible when using a fuel tank that differs from the production version, for example for vehicles for special applications (e.g. wheelchair-accessible vehicles). Please contact us (see [chapters 1.2.1.1 “Contact in Germany”](#) and [1.2.1.2 “International contact”](#)).

Comply with the workshop manuals of Volkswagen AG.

Information

Repair and workshop information can be downloaded online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.6.4 Exhaust system

Modifications to the exhaust system upstream of the main silencer and to exhaust gas treatment components, such as the diesel particulate filter, catalytic converter and lambda probe, are not generally permitted.

If a modification to the exhaust system due to body design, removal or conversion is nevertheless required, this can have consequences relevant to registration. Please contact us in advance regarding the scope of your conversion so that we can advise you.

We recommend that you use Volkswagen genuine parts and follow the Volkswagen AG workshop manuals.

Information

Further information about installation and removal of the exhaust system is available online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

Information

Country-related regulations and guidelines shall be complied with.

Exceptions require the approval of Volkswagen AG before the conversion, and shall be documented in a registration report detailing the modifications and adjustments made.

Please contact us before starting a conversion (see [chapter 1.2.1, "Product and vehicle information for converters"](#)).

Warning note

Attention! Danger of fire!

The lengths and routings of the exhaust system have been configured optimally with regard to their temperature properties. Modifications may result in relatively high to extreme heating of the exhaust system and the surrounding components (drive shafts, fuel tank, floor panel etc.).

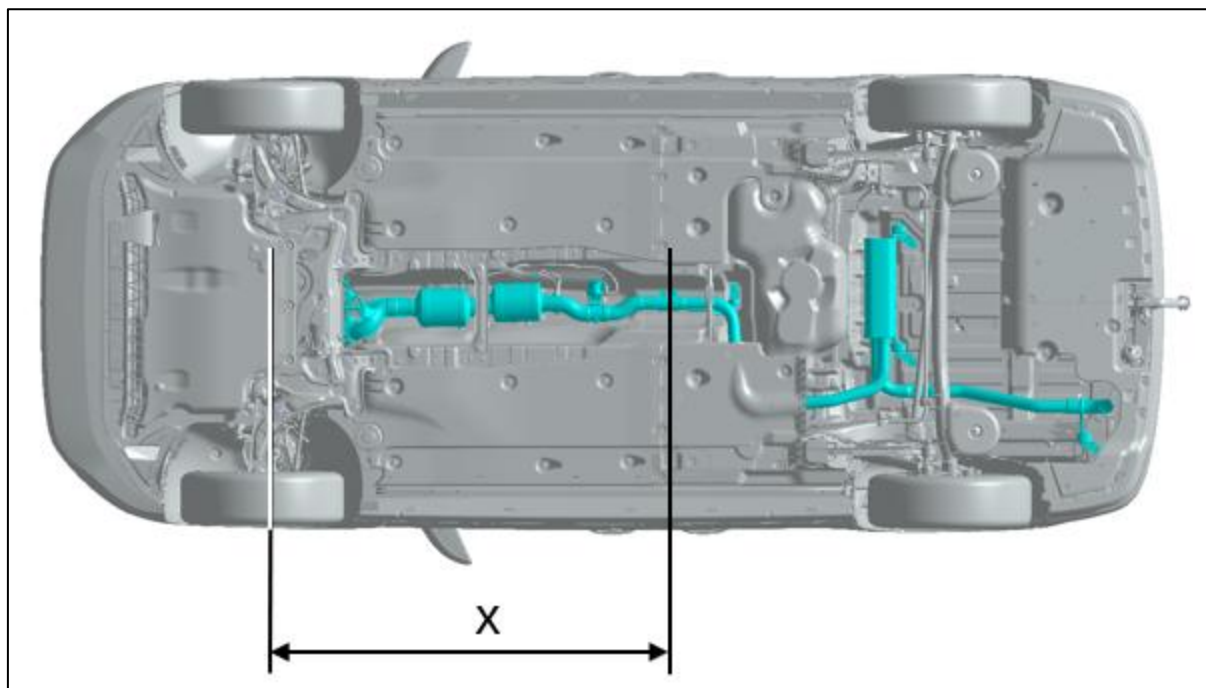


Fig. 1: Caddy (panel van) exhaust system with SCR system

X – Area in which modifications are not permitted

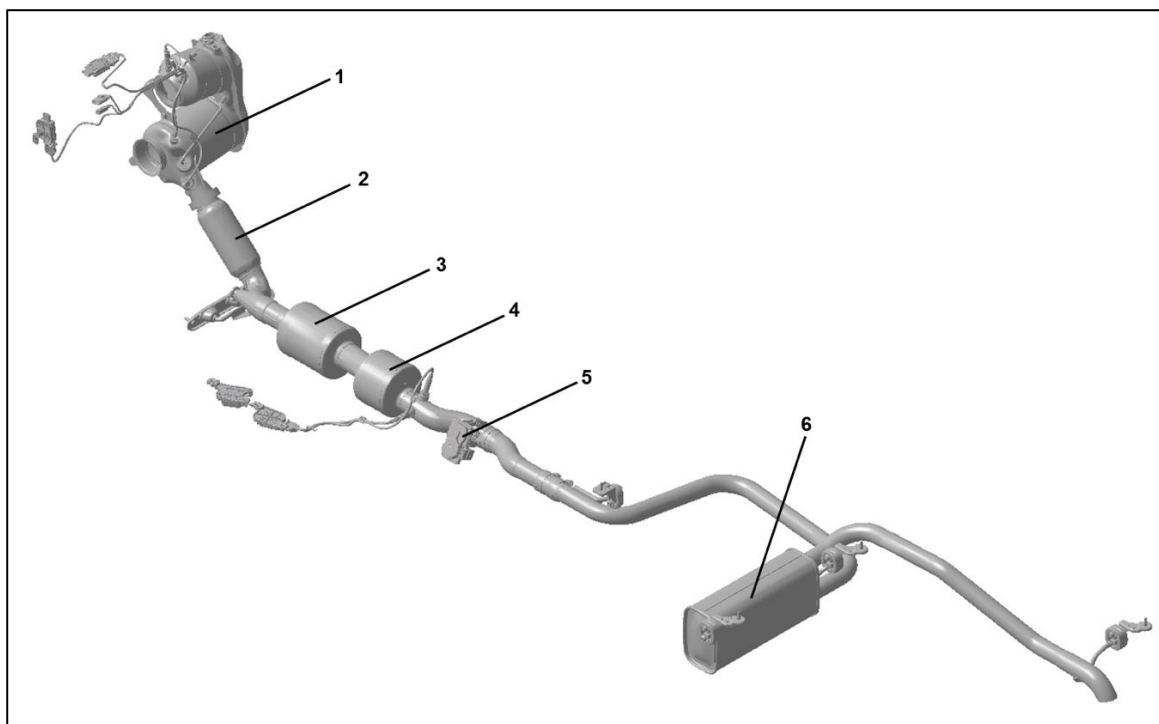


Fig. 2: Emission control with SCR system

- 1 – Emission control
- 2 – Damper element
- 3 – Converter
- 4 – Converter
- 5 – Exhaust control flap
- 6 – Front and rear silencers

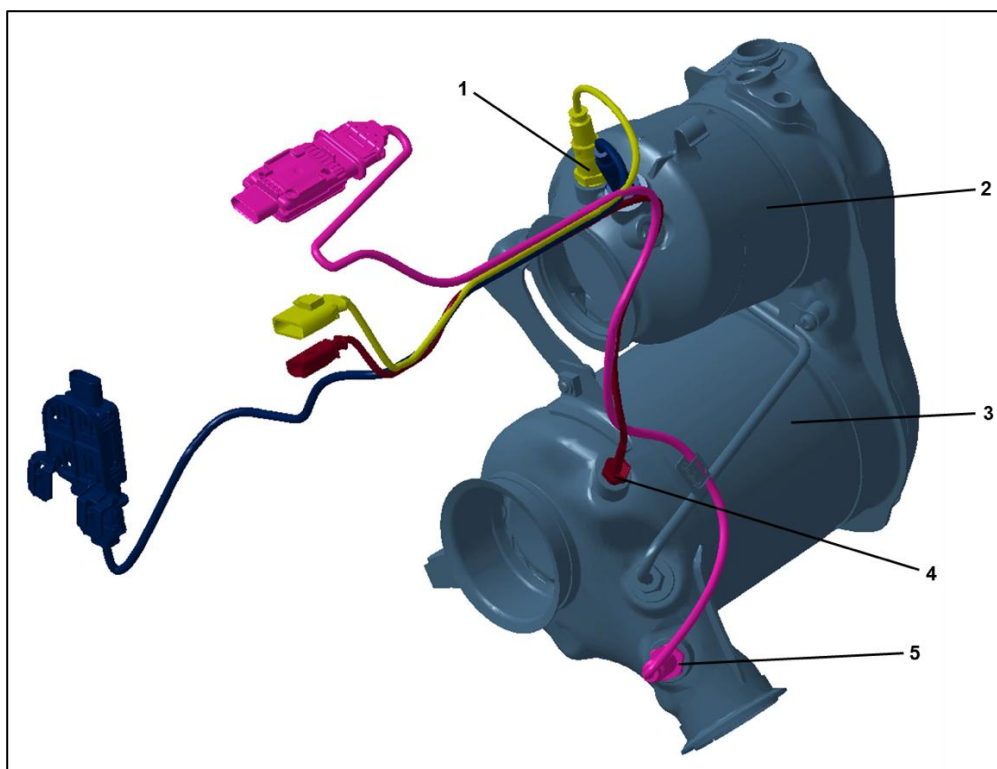


Fig. 3: Emission control

- 1 – Lambda probe
- 2 – Pre-converter
- 3 – Particulate filter
- 4 – Temperature sensor
- 5 – NOx sender

Modifications to exhaust systems with an SCR system are not authorised under any circumstances. Neither the geometry nor the position of the sensors are allowed to be changed.

If a modification is required to the exhaust system for the add-on/removal/conversion nevertheless, this can have effects which are relevant to registration. Please contact us in advance regarding the scope of your conversion so that we can advise you.

Modifications as part of a body conversion may only be carried out outside the area of the SCR system marked with an X (see Fig. 1 Exhaust system with SCR system).

Practical note

When working on lines carrying AdBlue®, comply with the workshop manuals from Volkswagen AG. Otherwise, AdBlue® could crystallise and lead to damage to system components.

2.6.4.1 Hybrid drive exhaust system (PHEV)

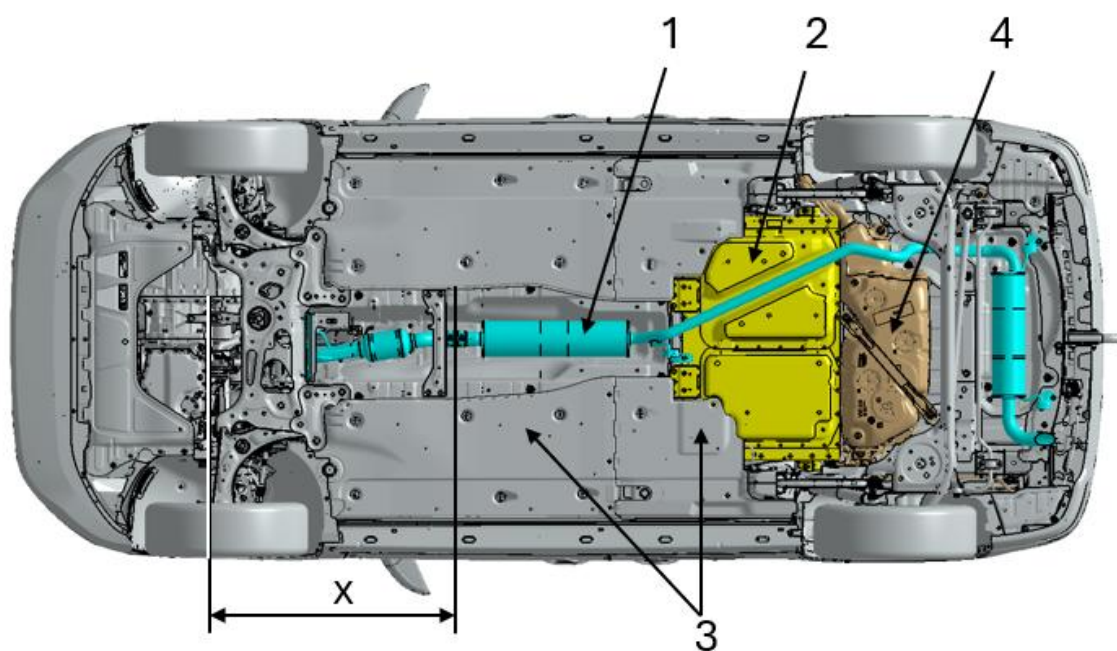


Fig. 1: PHEV exhaust system, short wheelbase (illustration: 4x2 drive type, 85KW TSI)

- 1 – Exhaust system
- 2 – Battery
- 3 – Trim
- 4 – Fuel tank
- X – Area in which modifications are not permitted

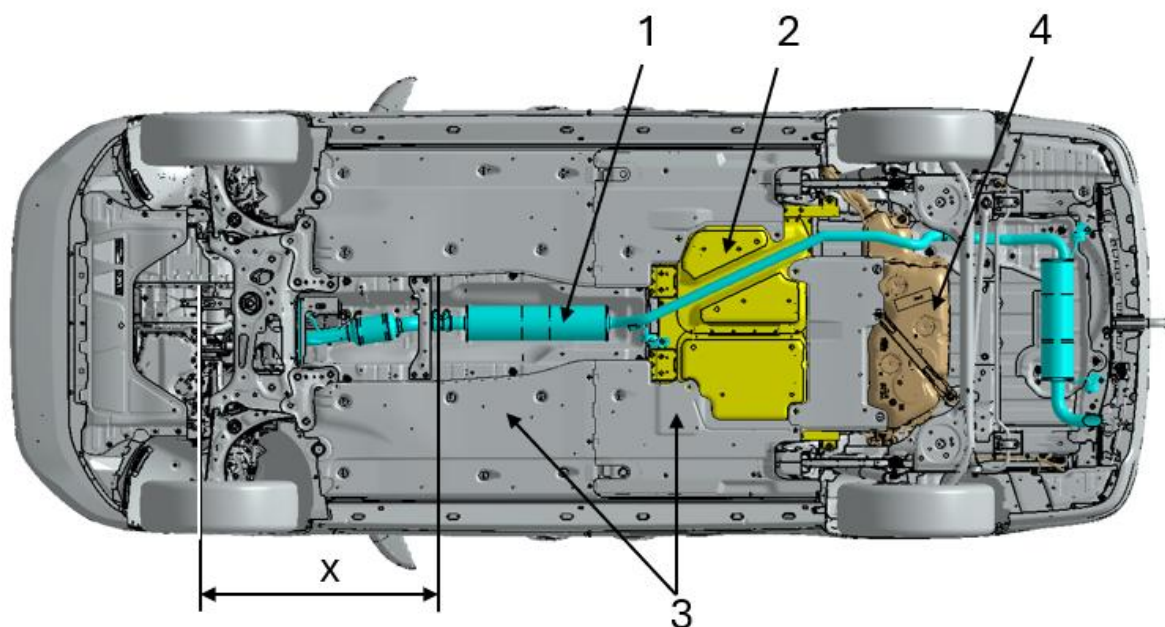


Fig. 2: PHEV exhaust system, long wheelbase (illustration: drive type 4x2, 85KW TSI)

- 1 – Exhaust system
- 2 – Battery
- 3 – Trim
- 4 – Fuel tank
- X – Area in which modifications are not permitted

2.6.5 SCR system (EU6)

To meet EU6 emissions regulations for diesel engines, engines are available ex-works with different performance levels with the SCR system.

Selective Catalytic Reduction (SCR) is a process used in automotive engineering for diesel vehicles to reduce emissions.

The SCR catalytic converter selectively converts the nitrogen oxide (NOx) exhaust component into nitrogen and water. This conversion is undertaken using AdBlue®, a synthetically manufactured, aqueous reducing agent. AdBlue® is a solution containing 32.5% high-purity urea and demineralised water. The AdBlue® solution is not mixed with the fuel, but carried in a separate tank.

From here, the AdBlue® is injected continuously into the exhaust gas line in front of the SCR catalytic converter. The AdBlue® reacts with the nitrogen oxides in the SCR catalytic converter and is split into nitrogen and water. The dosing is determined by the exhaust mass flow. The engine management system is informed by an NOx sender after the SCR catalytic converter and ensures exact dosing. The AdBlue® reducing agent is non-poisonous, odourless and water-soluble.

2.6.5.1 Installation position of the AdBlue® tank in the vehicle

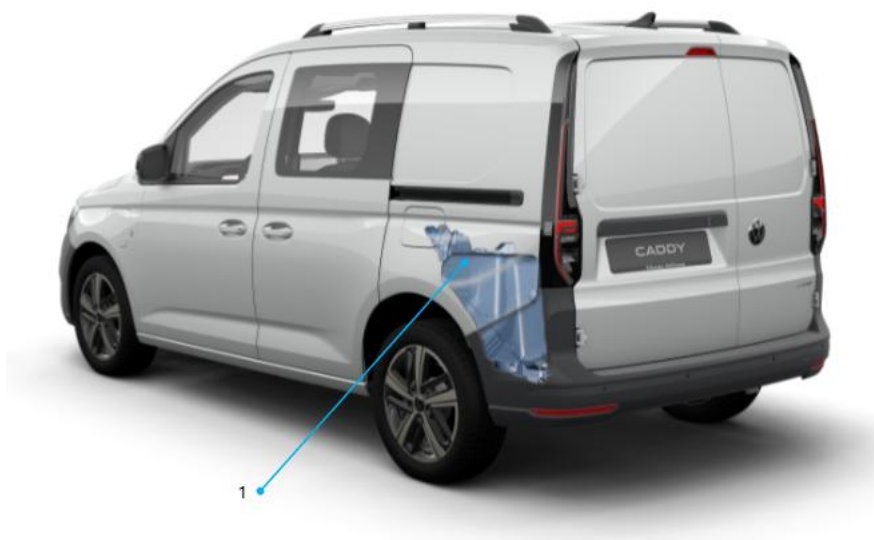


Fig. 1: Installation position of the AdBlue tank in the vehicle

1 – AdBlue tank

The SCR system consists of the AdBlue tank, hose and metering valves and forms an optimised electrical-hydraulic unit. The location of the reducing agent tank, the heated metering line and their relative position to the vehicle shall not be changed (see [chapter 2.6.4 “Exhaust system”](#)).

2.6.5.2 Filling the AdBlue tank

The filling opening of the AdBlue tank is located behind the tank flap.

The capacity of the AdBlue tank is approx. 15 litres.

Practical note

Once a particular remaining range is reached, the display on the instrument cluster displays a reminder to top up the AdBlue®.

AdBlue® consumption depends on the individual driving style, and can be up to 1.5% of fuel consumption.

When the AdBlue® tank is empty, the vehicle can only be driven at reduced power and lower engine torque.

When topping up AdBlue® while a remaining range warning is displayed, at least the minimum refill quantity indicated in the instrument cluster must be added. AdBlue® must be refilled in sufficient quantity when the remaining range reaches approximately 1,000 km, at the latest.

Never run the AdBlue® tank empty.

Practical note

AdBlue® attacks surfaces such as painted surfaces, aluminium, plastics, clothing and carpets. If AdBlue® is spilled, wipe it up as quickly as possible with a damp cloth and plenty of cold water. Remove crystallised AdBlue® with warm water and a sponge. More information about AdBlue® is available in ISO standards ISO 22241-1 to 4.

Practical note

To ensure the purity of AdBlue®, never reuse AdBlue® that has been extracted from the reducing agent tank.

Comply with the laws and regulations of the country in question regarding correct storage and disposal.

Information

More information and safety instructions for the SCR system can be found in the Owner's Manual for your vehicle and the Workshop Manuals of Volkswagen AG on the Internet:

<https://volkswagen.erwin-store.com/erwin/showHome.do>

2.7 Power take-off system for engine

When planning a special vehicle, the equipment of the base vehicle should be selected to meet the requirements of the intended application (see [chapter 1.3.1 "Selecting the base vehicle"](#)).

You can optimise your base vehicle for the conversion in advance by selecting the following special equipment items:

- More powerful alternator (see [chapter 2.5.5 "Retrofitting of alternators"](#))
- More powerful 12-V vehicle battery (see [chapter 2.5.4, "Vehicle battery"](#))
- Electrical interface for special vehicles (see [chapter 2.5.3 "Electrical interface for special vehicles"](#))

Practical note

In vehicles with a high proportion of engine running times with the vehicle stationary (working mode), the normal maintenance intervals specified by Volkswagen AG for the belt drive (poly V-belt, tensioning pulley, idler roller etc.) shall be reduced according to the application and customer profile.

Hybrid vehicles do not have an engine power take-off system (belt drive). It is therefore not possible to retrofit alternative air conditioning compressors or generators.

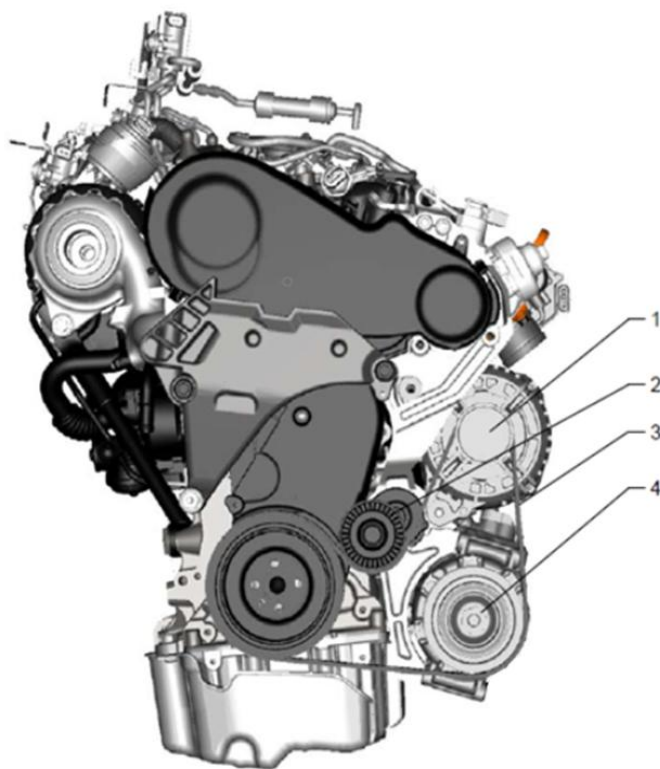


Fig. 2: Schematic diagram: poly V-belt drive

- 1 – Alternator
- 2 – Belt tensioner
- 3 – Poly V-belt
- 4 – Air conditioner compressor

2.7.1 Compatibility with base vehicle

If retrofitting or renewing ancillaries such as the refrigerant compressor, ensure that these are compatible with the base vehicle.

It is also essential to comply with the following points:

- Vehicle parts and their function should not be impaired by the installation of an air conditioning system.
- The capacity of the 12-V vehicle battery and the power supplied by the alternator must be adequate for the intended load.
- Additional protection of the air-conditioning system circuit must be provided (see [chapter 2.5.2.1 “Electrical wiring / fuses”](#)).
- The air conditioner compressors must be mounted on the subframes provided.
- The weight of the ancillary unit must not exceed that of the original air conditioner compressor (see [chapter 2.7.4.2, “Weight of the refrigerant compressor”](#)).
- The drive pulley of the ancillary unit must have the same diameter and position as that of the original air conditioner compressor. (See table in [chapter 2.7.4.2](#)).
- There must be adequate space for operating the ancillary.
- The track position of the poly V-belt must be identical to the original and the poly V-belt specifications must be observed (see [chapter 2.7.4.4, “Specification of the poly V-belt”](#)).
- The specifications for the pulleys must match the specifications for the poly V-belt exactly (identical width and number of grooves, e.g. 6PK)
- To ensure proper guidance of the poly V-belt, flanged pulleys (with guide flanges) must be used.
- Ensure that all lines (brake hoses and cables) are routed correctly.
- The accessibility of the ancillaries installed and simple maintenance possibilities may not be impaired.
- The Owner’s Manual and the maintenance manual for the ancillaries must be handed over when the vehicle is delivered.
- The necessary air supply and the engine cooling must not be impaired.
- When compact systems (evaporator, condenser and blower) are mounted on the cab roof, the permitted roof loads may not be exceeded (see [chapter 2.3.1 “Roof loads / vehicle roof”](#)).
- Any roof-mounted attachments require a letter of non-objection (LONO) from the responsible department (see [chapter 1.2.1, “Product and vehicle information for converters”](#)).
- If the standard refrigerant system is modified, the filling quantities of refrigerant and refrigerant oil must be redefined and indicated accordingly on a plate in the vehicle.
- For a LONO to be issued, documentation of the design of the auxiliary drives, stating the position tolerances, must be submitted to Volkswagen AG.
- Standard dynamic belt tensioners with spring/shock absorber systems must be used. Rigid belt tensioning elements may not be used.
- It is strongly advisable to assess the dynamic properties of the belt drive during operation and, ideally, perform a belt dynamics measurement.

Practical note

In vehicles without an air conditioning system, conversion using the measures code is also required when an additional unit is retrofitted.

Practical note

Please note that subsequent modifications to the factory-fitted air conditioning system by the converter are solely the responsibility of the converter. In such cases, Volkswagen is unable to make any statement about the lubrication of the compressor and the effects on its service life.

As a result, Volkswagen AG does not offer any warranty for the compressor in this case.

In order for the warranty to be retained, it would be necessary for an extensive measurement of the oil circulation in the refrigerant circuit to be carried out.

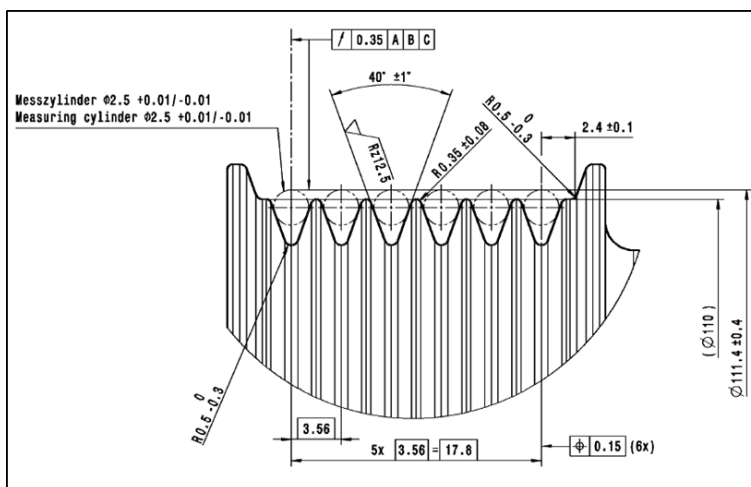


Fig. 1: Detail U – Drive pulley for refrigerant compressor (example DENSO 7SAS17)

Please observe the installation and removal regulations from Volkswagen AG when performing conversions.

Information

Detailed instructions on the installation and removal of parts such as the poly V-belt can be found online via Volkswagen AG's erWin system (Electronic Repair and Workshop Information):

<http://erwin.volkswagen.de/erwin/showHome.do>

2.7.2 Retrofitting air conditioning system

When retrofitting air conditioning systems, we recommend the manual air conditioning system (PR no. KH6) or the Climatronic air conditioning system (PR no. 9AK). Both are available as factory-fitted optional equipment and allow the use of the original air conditioner compressor:

Engine designation		Air-conditioned area	Refrigerant compressor type	Refrigerant	Capacity [cm³]	Component no.
EA288evo TDI 2.0 I	2.0 I TDI	Cab and vehicle interior	DENSO-6SAS14 with magnetic clutch	R1234yf	140	3Q0 816 803 D
EA211evo TSI 1.5 I	1.5 I TSI		MAHLE-6CVC140e with magnetic clutch	R1234yf		3Q0 816 803 B
EU 6 Plus						
EA288 TDI 2.0 I	2.0 I TDI	Cab and vehicle interior	DENSO- 6SES14 without magnetic clutch	R1234yf	140	5Q0 816 803 H
EA211 MPI 1.6 I	1.6 I MPI		MAHLE- 6CVC140c without magnetic clutch	R1234yf		5Q0 816 803 J
EU 4 / EU 5						
PHEV	—	Cab and vehicle interior	Hanon Gen3.8.4EU	R1234yf	27	5QE.816.803 H

If other air conditioning systems are to be retrofitted, the guidelines from the equipment manufacturer, and those for the system components, should be observed. The converter is then solely responsible for operating and road safety.

Ancillaries such as the refrigerant compressor may only be retrofitted or replaced in the position of the original refrigerant compressor in the main belt track. (See [chapters 2.7.1 “Compatibility with base vehicle”](#) and [2.7.4. “Specifications of genuine refrigerant compressor”](#))

2.7.3 Retrofitted load compartment cooling system

Ancillaries (such as the refrigerant compressor, pumps etc.) may only be retrofitted or replaced in the position of the original component. For retrofitted load compartment cooling, we recommend using the original refrigerant compressor (see table and [chapter 2.7.4 “Specifications of genuine refrigerant compressor”](#)):

Engine designation	Refrigerant compressor type	Component no.	Weight [g]
EA288evo TDI 2.0 I	DENSO 6SAS14	3Q0 816 803 D	5,130
EA211evo TSI 1.5 I EU 6 Plus	MAHLE 6CVC140e	3Q0 816 803 B	5,365
EA288 TDI 2.0 I	DENSO 6SES14	5Q0 816 803 H	4,360
EA211 MPI 1.6 I EU 4 / EU 5	MAHLE 6CVC140c	5Q0 816 803 J	4,418
PHEV	Hanon Gen3.8.4EU	5QE.816.803 H	5,976

If an alternative air conditioner compressor is used, the manufacturer's instructions and guidelines for system components must be followed. The converter is then solely responsible for the operating and road safety of the refrigerant compressor and the air conditioning system.

Compatibility with the base vehicle must be observed without fail (see [chapters 2.7.1 "Compatibility with base vehicle"](#) and [2.7.4 "Specifications of genuine refrigerant compressor"](#)).

Practical note

In vehicles without an air conditioning system, please note that it is necessary to recode the engine/motor control unit when an ancillary is retrofitted.

2.7.4. Specifications of genuine refrigerant compressor

2.7.4.1 Maximum cooling output

Engine designation	Refrigerant compressor type	Component no.	Output "L" [kW]*	Cooling output "Q" [kW]*
EA288evo TDI 2.0 l	DENSO 6SAS14	3Q0 816 803 D	2.7*	5.3*
EA211evo TSI 1.5 l EU 6 Plus	MAHLE 6CVC140e	3Q0 816 803 B	2.9*	5.3*
EA288 TDI 2.0 l	DENSO 6SES14	5Q0 816 803 H	2.7*	5.3*
EA211 MPI 1.6 l EU 4 / EU 5	MAHLE 6CVC140c	5Q0 816 803 J	2.9*	5.3*
PHEV	Hanon Gen 3.8.4EU	5QE.816.803 H	1.8**	3.6**

*) Values at refrigerant compressor with high pressure Pd=16 bar, suction pressure Ps=2.8 bar and speed N=2,000 rpm, refrigerant R134a

**) Values at refrigerant compressor with high pressure Pd=15 bar, suction pressure Ps=3.0 bar and speed N=5,000 rpm, refrigerant R134a

2.7.4.2 Weight of the refrigerant compressor

Engine designation	Refrigerant compressor type	Component no.	Weight [g]
EA288evo TDI 2.0 l	DENSO 6SAS14	3Q0 816 803 D	5,130
EA211evo TSI 1.5 l EU 6 Plus	MAHLE 6CVC140e	3Q0 816 803 B	5,365
EA288 TDI 2.0 l	DENSO 6SES14	5Q0 816 803 H	4,360
EA211 MPI 1.6 l EU 4 / EU 5	MAHLE 6CVC140c	5Q0 816 803 J	4,418
PHEV	Hanon Gen3.8.4EU	5QE.816.803 H	5,976

2.7.4.3 Pulley diameter of the refrigerant compressor

Engine designation	Refrigerant compressor type	Pulley diameter d [mm]	Diameter of crankshaft drive wheel [mm]	Transmission ratio "i" (Crankshaft/air conditioner compressor)
EA288evo TDI 2.0 I	DENSO 6SAS14	Ø110	TDI Ø143	TDI 1.3
			TSI Ø130	TSI 1.18
EA211evo TSI 1.5 I EU 6 Plus	MAHLE 6CVC140e	Ø110	TDI Ø143	TDI 1.3
			TSI Ø130	TSI 1.18
EA288 TDI 2.0 I	DENSO 6SES14	Ø110	TDI/MPI Ø138	TDI/MPI 1.25
EA211 MPI 1.6 I EU 4 / EU 5	MAHLE 6CVC140c	Ø110	TDI/MPI Ø138	TDI/MPI 1.25
PHEV	Hanon Gen3.8.4EU	*	*	*

* No poly V-belt, electric compressor

2.7.4.4 Specification of the poly V-belt

Engine designation		Refrigerant compressor type	Belt specification	Part no.
EA288evo TDI 2.0 I	2.0 I TD	DENSO 6SAS14	6PK1031	04L 260 849 G
		MAHLE 6CVC140e		04L 206 849 M
EA211evo TSI 1.5 I EU 6 Plus	1.5 I TSI	DENSO 6SAS14	6PK1005	04E 145 933 AL
		MAHLE 6CVC140e		
EA288 TDI 2.0 I	2.0 I TDI	DENSO 6SES14	6PK1033	04L 260 849 S
		MAHLE 6CVC140c	6PK1033	04L 260 849 S
EA211 MPI 1.6 I EU 4 / EU 5	1.6 I MPI	DENSO 6SES14	6PKD1000	04E 145 933 A
		MAHLE 6CVC140c	6PKD1000	04E 145 933 L
PHEV	-	Hanon Gen3.8.4EU	*	*

* No poly V-belt, electric compressor

2.7.4.5 Connection dimensions of original refrigerant compressor

Information

The exterior and connection dimensions of the ancillaries can be found in the manufacturer's data sheets.

2.8 Add-ons/units

2.8.1 Roof carriers

Roof loads raise the centre of gravity of the vehicle and lead to a high dynamic axle load shift. Also, there is greater body lean when driving on rough roads and when cornering. The vehicle handling is significantly impaired.

For this reason, roof loads should be avoided if at all possible.

The fixed points on the roof should be used for attaching racks. For vehicles with a roof railing, carry bars must only be positioned in the marked areas. The assembly instructions of the carrier manufacturer must be observed.

At least two roof bars are required to secure the roof load safely.

The Caddy is equipped as standard with three roof mounting points on each side (see Fig. 1).

The Caddy Maxi is equipped as standard with four roof mounting points on each side (see Fig. 2).

Various roof carriers are available ex-works as optional equipment.

For more information, refer to the sales documents of Volkswagen AG.



Fig. 1: Caddy mounting points



Fig. 2 Caddy Maxi mounting points

On request, converters can be provided with drawings and CAD data. Please contact us before starting your conversion (see [chapter 1.2.1. "Product and vehicle information for converters"](#)).

2.8.2 Rear luggage carrier / rear ladders

The rear member must be configured so that no static or dynamic loads are exerted on the bumpers after it has been fitted.

2.8.3 Towing brackets

Only equipment approved for the vehicle may be used as towing brackets.

2.8.3.1 Maximum trailer weights

Vehicle type	Motor type	Braked [kg]	Unbraked [kg]
All	By engine/gearbox combination	1,100–1,500	750

With 12% maximum gradient depending on engine.

The maximum permitted draw bar weight for the Caddy is 75 kg.

The max. permitted gross combination weight specified in the papers must not be exceeded. The actual weight of the trailer weight is not allowed to exceed the permitted gross weight of the towing vehicle.

2.8.3.2 Retrofitting a towing bracket

When retrofitting a towing bracket, the regulations of the respective country and the current version of UNECE-R55 must be observed. The vehicle shall be presented to a motor vehicle test centre with responsibility for this matter.

Information

If an original Volkswagen ball coupling is fitted on the towing bracket preparation (PR no. 1D7), or an alternative towing bracket is retrofitted, trailer stabilisation can be activated in the vehicle. Please contact your Volkswagen Commercial Vehicles partner. The lighting unit on the trailer or carrier also works without activation.

2.8.3.3 Clearance according to UN-R 55

When fitting a ball coupling in the EU, the installation dimensions and clearances specified in UN-R 55 must be observed.

Any other applicable national regulations must be taken into account.

When the vehicle is loaded with the permitted total mass, the middle of the coupling ball is permitted to hang between 350 mm and 420 mm above the road surface. This applies to vehicles with a permitted total mass $\leq 3,500$ kg. Off-road vehicles are excepted. Unspecified details shall be selected in a reasonable manner.

The dimensions and angles must be verified using suitable length and angle measuring instruments.

Ball hitch

The specified clearances shall be observed.

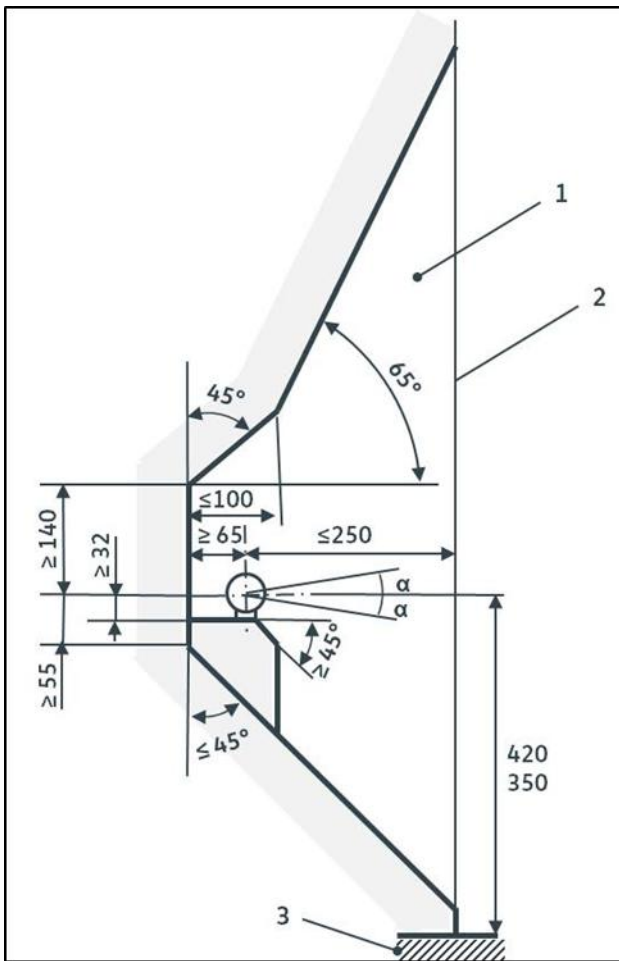


Fig. 1: Clearance of coupling ball as per UN-R 55 (side view)

- 1 – Clearance
- 2 – Vertical plane through end points of the total length of the vehicle
- 3 – Floor

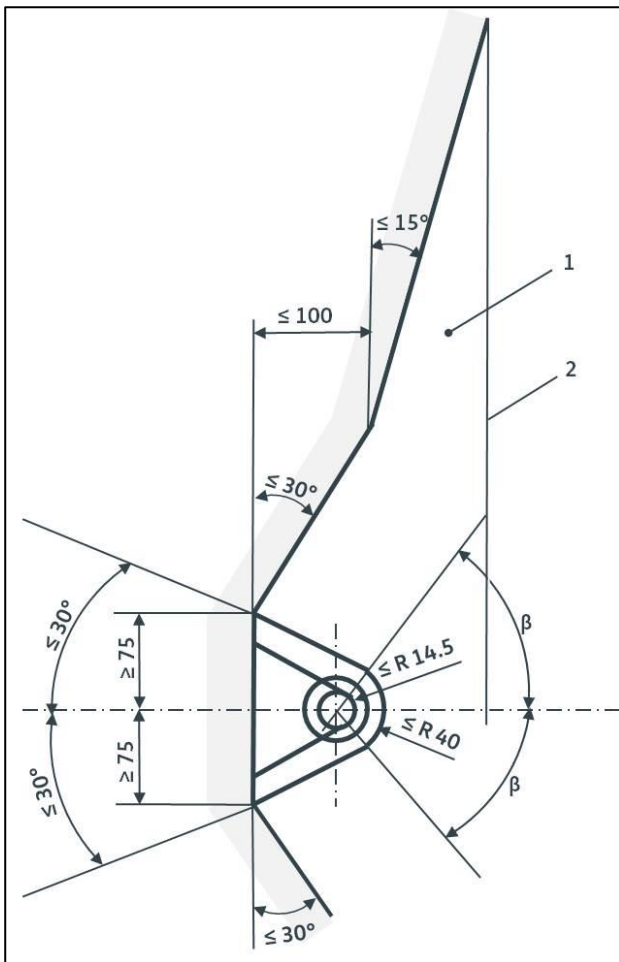


Fig. 2: Clearance of coupling ball as per UN R 55 (top view)

1 – Clearance

2 – Vertical plane through end points of the total length of the vehicle

2.8.3.4 Preparing towing bracket (PR no. 1D8) in conjunction with running gear for heavy installations (PR no. UC5)

The PR no. 1D8 (towing bracket preparation) is only for vehicles with heavy installations and therefore can be ordered only in conjunction with the PR no. UC5 (running gear for heavy installations). The preparation for towing bracket (1D8) consists of a wiring harness, socket and control unit, and fitted towing hitch.

The ball coupling is not fitted. The ball coupling 2K7.803.882.J, two screws and the assembly instructions are supplied in the load carrier of the vehicle along with the stronger rear axle springs.

Practical note

The ball coupling may only be fitted after converting to the stronger springs on the rear axle and installing heavy equipment (min. 180 kg). Only then does the height of the ball head comply with the approval regulations. The vehicle can also be operated without fitting the ball coupling.

2.9 Raising the vehicle

1. With lifting platforms

The vehicle is only allowed to be raised at the lifting points provided. Refer to the corresponding repair manual for information about the lifting points.

2. With a jack

See the Owner's Manual for the procedure and jacking points on all vehicle variants.

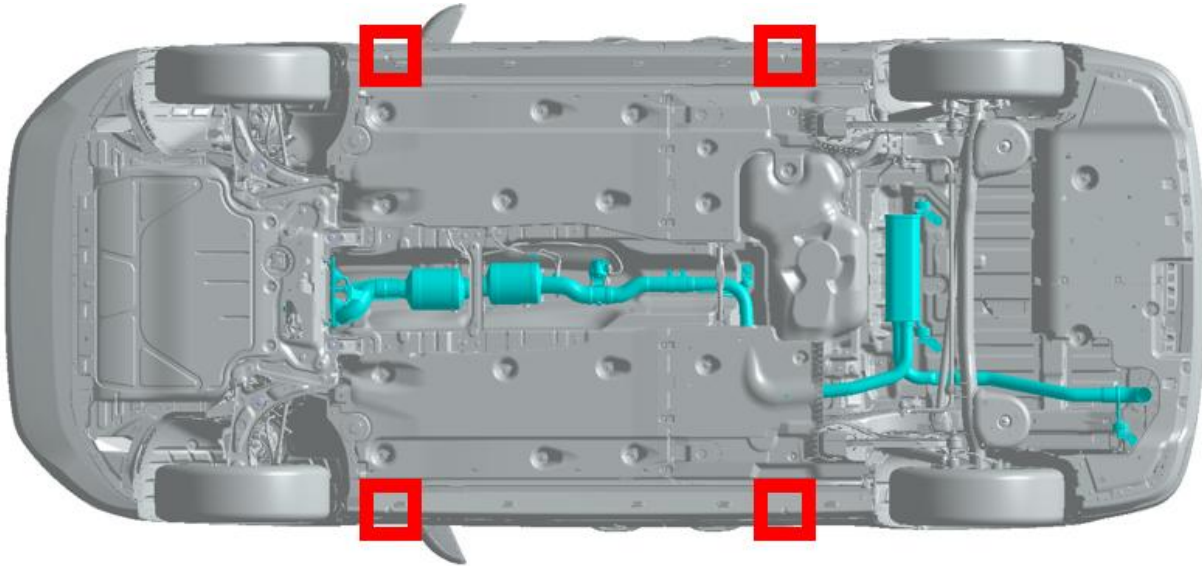


Fig. 1: Positions for jack (schematic diagram)

3. Modifications to closed bodies

3.1 Body-in-white/body

Comply with the following instructions with regard to mounting bodies and making conversions on the vehicle:

Changes to the body are not allowed to impair the function and strength of power units and operating devices of the vehicle, neither may they reduce the strength of weight-bearing parts.

During vehicle conversions and assembly of bodies, no changes may be made which impair the function or freedom of movement of chassis components (e.g. for maintenance and inspection work) or restrict access to them. Interventions in the cross-member structure from the front end to the rear of the B-pillar are not allowed.

Modifications in the roof area and on the rear gate are not allowed.

The clearance for the fuel filler neck as well as for the fuel tank lines and fuel lines shall be maintained.

Avoid corners with sharp edges. The standard tank cap must not be removed or covered with a part which creates a block.

Neither drilling nor welding is permitted on the A and B-pillars.

If cutting is performed on the C and D-pillars (rear gate), including the corresponding roof cross struts, then rigidity shall be restored by means of additional components. The gross axle weight ratings must not be exceeded.

Holes in the frame longitudinal member are the result of the production process and are not suitable for attaching add-ons, bodies, installations and conversions; otherwise, the frame may be damaged.

3.1.1 Side wall cut-outs

The body and floor panel form a self-supporting unit. Weight-bearing parts of this self-supporting unit are not allowed to be removed without replacement. On the Caddy Cargo, the body and floor panel form a self-supporting unit.

Windows, roof hatches and breather and ventilation openings must be surrounded by a stable frame.

This frame shall be connected to other body elements by means of a force-locking connection.

Warning note

It is not permitted for the outer roof frame to be machined on vehicles with side head airbags!

Information

Further information about general body repairs can be found online via Volkswagen AG's erWin system (Electronic Repair and Workshop Information):

<https://volkswagen.erwin-store.com/erwin/showHome.do>

3.1.2 Subsequent installation of windows

Retrofitting windows is complicated and costly. Therefore Volkswagen Commercial Vehicles recommends ordering the required windows ex-works.

If windows are to be retrofitted, proceed in accordance with the Workshop Manual for Caddy 2011> (body assembly instructions, exterior, section 64 – Glazing/subsection 5.10 Side window, sliding door, Caddy Cargo, postal and courier vehicles).

Information

Detailed instructions on installing and removing windows are available online via Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

Comply with the following points if smaller windows are to be installed:

The cut-out must only be made between the pillars, the roof frame and the sill.

No weight-bearing parts are allowed to be cut into or weakened.

The cut-out must be provided with a continuous frame which has a force-locking connection to the adjacent weight-bearing parts.

3.1.3 Roof cut-outs

Roof cut-outs are only possible between the roof bows and the side roof frames. For details, see Figs. 1 and 2 below.

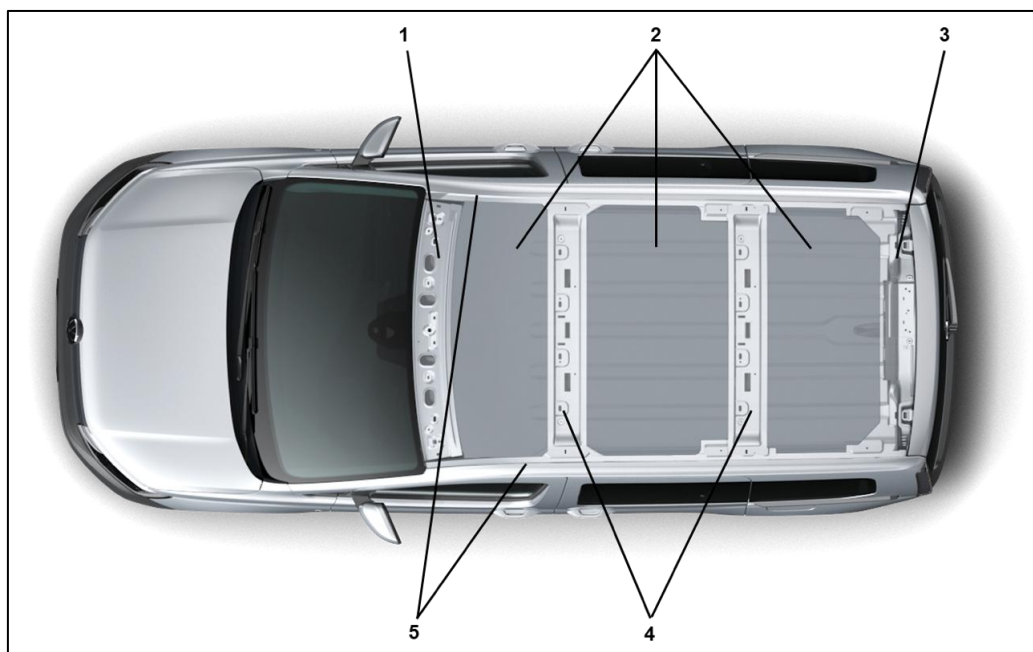


Fig. 1: Caddy

- 1 – Front roof frame
- 2 – Areas for roof cut-outs
- 3 – Rear roof frame
- 4 – Roof cross strut
- 5 – Roof frame right/left

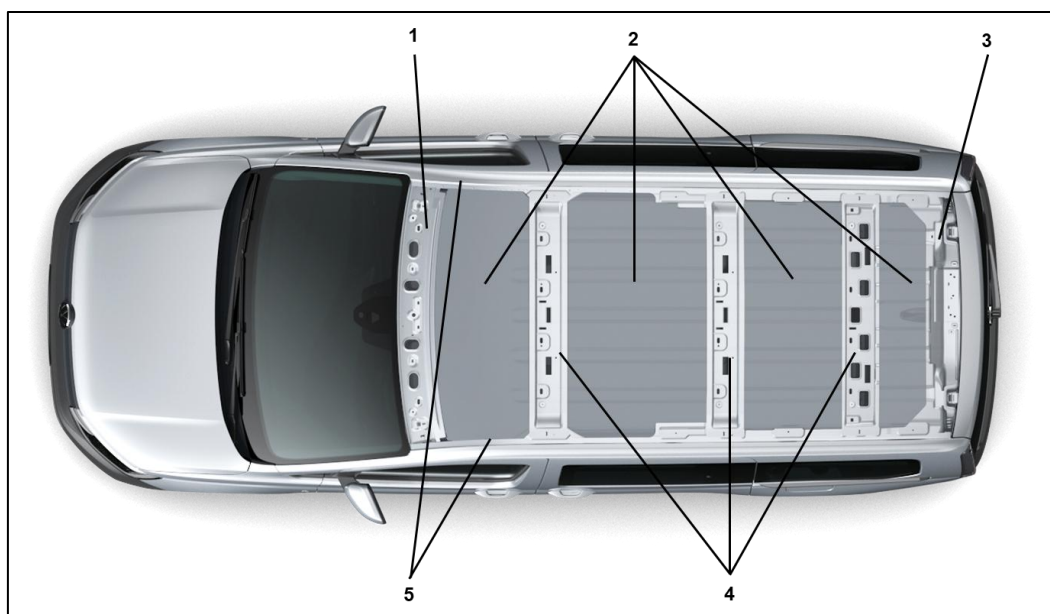


Fig. 2: Caddy Maxi

- 1 – Front roof frame
- 2 – Areas for roof cut-outs
- 3 – Rear roof frame
- 4 – Roof cross strut
- 5 – Roof frame right/left

Practical note

The roof cut-out must be provided with an all-round frame having a force-locking connection with the adjacent weight-bearing parts (cross strut and windscreen frame).

Information

Further information about general body repairs can be found online via Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

3.1.4 Modifications to the roof of the Caddy Cargo / Caddy

The following points must be observed when making modifications to the roof structure of a Caddy Cargo / Caddy:

- The all-round concept shall be retained, and adequate replacement rigidity shall be guaranteed.
- Impairments to the function of the rain/light sensor shall be avoided.
- Attachments similar to the roof rack are possible for subsequent attachment of add-ons.
- The vehicle constraints (strength, overall vehicle dimensions, registration etc.) shall be considered with regard to attachments on the roof panel.
- The replacement rigidity of the new roof structure shall correspond to that of the standard roof.
- Following all conversion and installation work on the vehicle, surface and corrosion protection shall be applied to the affected points.

Information

Further information about general body repairs can be found online via Volkswagen AG's erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

3.1.5 Modifying the partition / forced ventilation vent

Partitions do not have any weight-bearing function. Partitions in the Caddy Cargo can be complete or partial. The following partitions are available ex works as special equipment for the Caddy Cargo:

PR number	Description
3CA	Without partition (preparation for partition)*
3CF	Partition wall without window*
3CG	Partition with fixed window*
5WC	Partition wall with grille*

* With N1 approval



Fig. 1: Schematic diagram of panel van without partition

When ordering/purchasing a Caddy Cargo ex works without partition (3CA), please note:

- The vehicle is incomplete and has the factory label 1EV (EC certification as N1 commercial vehicle) and also 5ET: AFZ (COC paper as incomplete vehicle**)

** In the EU, individual certification is required.

Information

For further approval options, please contact your importer or technical service.

When installing non-factory partitions, make sure that there is no complete seal to the body. Air permeability must be ensured between the driver's compartment and the load compartment.

You can obtain more information on special equipment depending on the vehicle model from your Volkswagen customer service and from the website.

This is important for several reasons:

- Closing comfort of the doors
- Possible flow rate of the heating blower
- Pressure equalisation on airbag deployment

The installed partition should have a factory label for clear identification.

If the partition is located behind the first seat row (driver's compartment), the potential seat adjustment range should be considered.

If the partition is located behind the first seat row (driver's compartment), the standard bolt-on points should be used if possible. (See [chapter 3.1.6 "Partition connection points"](#)).

Note that some equipment variants of the Caddy may be equipped as standard with side curtain airbags for the driver, front passenger and rear passengers in the second and third seat rows. Refer to the Owner's Manual for a view of the airbag deployment zones.

With regard to acoustic comfort, the partition should be adequately stable and have a noise insulating effect.

When retrofitting a partition, make sure that the specification complies with the vehicle's type approval as a passenger car (M1) or Caddy Cargo (N1). The converter is responsible for ensuring that the partition complies with the applicable regulations in the countries of registration and, where necessary, the specifications of professional associations and regulations of the country in which the vehicle is marketed.

Warning note

In vehicles with side head-protection airbags on the roof side member, no add-ons or modifications can be carried out in the area of deployment of the airbags (e. g. dividing walls).

The series-production position of the elements may not be changed. Otherwise, the passengers on the outer seats are no longer protected in the event of a side impact.

Information

You will find further information on the standard contact points as well as assembling and removing the standard partition in the Volkswagen AG Workshop Manuals.

Repair and workshop information can be downloaded online from Volkswagen AG's erWin system (Electronic Repair and Workshop Information):

<https://volkswagen.erwin-store.com/erwin/showHome.do>

3.1.6 Partition connection points

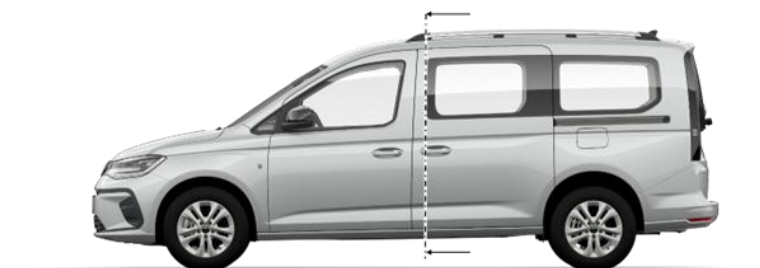


Fig. 1: Caddy series partition (section A-A)

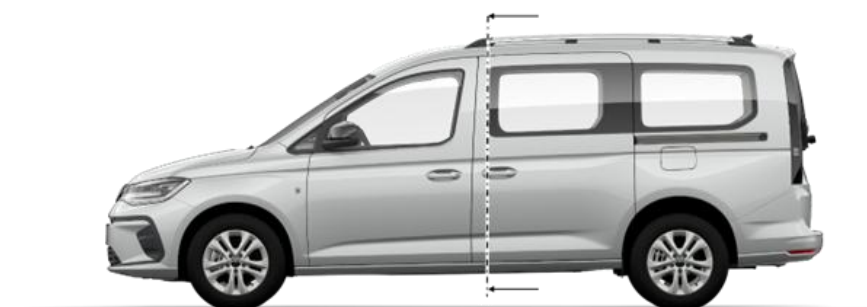


Fig. 2: Caddy Maxi series partition (section A-A)

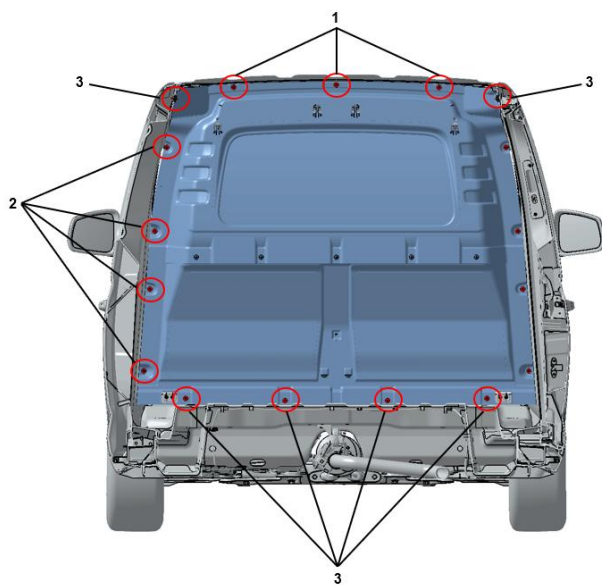


Fig. 3: Mounting points for the standard partition (section A-A)

Mounting points on the vehicle for the standard partition:

- 1 – 3x M6 pop rivet nut
- 2 – Side panel, on left and right: 4x speed nuts M6x23.8x16 mm
- 3 – 6x M6 round weld nuts

Installation sequence:

- Partition bracket
- Partition bottom part
- Partition top part

3.2 Interior

The following points must be observed for conversions:

- The driver and front passenger airbag units, the airbags and the belt tensioners are pyrotechnic devices. Their handling and storage are subject to legislation on potentially explosive substances, and the competent local regulatory authority must therefore be notified. Purchase, transport, storage, installation, removal and disposal may only be carried out by trained staff in accordance with the relevant safety regulations.
- Modifications in the cockpit area and above the shoulder line must meet the criteria of the head impact tests according to UN-R21. This applies in particular to the deployment zones of airbags (wooden trim, additional installations, mobile telephone retainers, bottle holders etc.).
- Painting or surface treatment of the dash panel, steering wheel impact absorber and the tear seams of the airbags is not permitted.
- The permitted centre of gravity position and axle loads are not allowed to be exceeded.
- The interior fitting-out shall be configured with soft edges and surfaces.
- Installations shall be manufactured from flame-retardant materials, and be firmly installed.
- Unhindered access to the seats shall be guaranteed.
- No projecting parts, corners or edges that could cause injuries are allowed to be located in the area of the seats.

3.2.1 Safety features

Warning note

In case of interventions by the converter in the structure of the vehicle, such as

- Modifications to the seats and consequently altered kinematics of the occupants in case of a crash
- Modifications to the front body
- Installations of parts in the vicinity of the exit openings and the deployment range of the airbags. (see Owner's Manual)
- Installation of third-party seats
- Modifications to the doors
- the safe function of the front airbag, side airbag and belt tensioners is no longer guaranteed. This could result in personal injuries.

Vehicle components that generate vibration must not be mounted near the airbag control unit or the sensors.

Modifications to the floor structure in the area of the airbag control unit or the satellite sensors are also unauthorised. Information about the deployment zones of the airbags can be found the vehicle Owner's Manual.

3.2.2 eCall Emergency System

In the event of an accident, the EU eCall Emergency System can help to reduce the time it takes until emergency services arrive at the scene of the accident. Data is transmitted to the emergency response coordination centre via the OCU communication model. Therefore, the emergency call function is independent of the operational readiness of a mobile phone. However, it requires a mobile phone connection as well as the ability to locate the vehicle via GPS or Galileo. It is automatically triggered by the crash sensors or manually by the driver using the SOS button. The emergency call automatically goes to the nearest emergency response coordination centre.

General conditions:

The eCall Emergency System consists of the following components:

- Communication module (OCU)
- Emergency call button
- Microphone
- Emergency call loudspeaker
- Aerials for mobile network
- Global satellite navigation system
- and their connections and cables.

As this is a certified system, no changes to components of the ecall Emergency System are permitted.

It should also be ensured in particular that the acoustic properties of the ecall Emergency System system (emergency call loudspeakers and microphone) are not

changed by alterations to the vehicle construction. By retrofitting or removing a partition, for example. Should you have any more questions, please contact us (see [chapter 1.2.1 "Product and vehicle information for converters"](#)).

Information

The ecall Emergency System comes as standard with the Caddy 5.

3.2.3 Seat retrofitting / seating with standard seats

Retrofitting the third row with standard seats in the Caddy is only possible if the vehicle was ordered with the seat preparation PR no. 3NR. Please refer to [chapter 1.3.1 "Selecting the base vehicle"](#) in this regard.

3.2.4 Installing aftermarket seats or using standard seats outside the standard seating configuration

As an alternative to the instructions in chapter 3.2.3, seats can also be installed with the following prerequisites:

- The strength data for seats available ex works is only valid in conjunction with the series attachment system.
- Any seat system deviating from the standard seating must be equipped with three-point seat belts. Seat systems without seat belts, or with two-point belts, are not permitted.
- Seats, seat belts and their fastenings must be tested and approved in accordance with the laws, regulations and approval requirements that apply in the countries of registration.
- It is essential to observe the H-point when retrofitting seats. Refer to the build dimension drawings for more information and current documentation regarding the position of the H-point.
- If seat belts and belt buckles other than those available ex works are installed, ensure that all registration-related regulations are observed. (Please also refer to [chapter 2.4.2.1 "Belt anchors"](#).)

Warning note

Seats must not be attached to the wheel housing. This also applies to wheel housings that are lowered. Otherwise, damage could be caused to the vehicle

(e.g. wheel housing and tyres) and accidents could result.

- If seats other than those available from the factory are installed with factory seat belts, only belt locks that fit with the buckles on the factory seat belts may be used. Otherwise the seat belt cannot be locked in the belt lock as intended and persons could be injured in the event of an accident.

Practical note

Modifications to the original series production condition can result in the withdrawal of type approval. Country-specific laws, directives and approval regulations must be observed.

Practical note

According to UN R 16, seat belt warning devices are mandatory for all seats. When retrofitting seat systems, the converter must ensure that this warning device is also installed for the retrofitted seat systems.

3.3 Add-ons

3.3.1 Accessories

An extensive range of accessories for the Caddy/Caddy Maxi can be obtained from Volkswagen Accessories.

Information

For more information about this topic, refer to:
<http://www.volkswagen-zubehoer.de/>

4. Implementations of special bodies

4.1 Motor vehicles for the transport of persons with disabilities (KMP)

A wide range of driving aids for disabled persons, catering to persons with various disabilities, is available as optional equipment from Volkswagen AG. For more information, please contact your authorised repairer.

Information

For more information about this topic, refer to:

<https://www.volkswagen-nutzfahrzeuge.de/de/fahrzeugkauf/umbauten-und-individualisierung/menschen-mit-behinderung.html>

4.1.1 Basic vehicle equipment

When planning the special vehicle, select the equipment of the base vehicle according to the requirements of the future application (see also [chapter 1.3.1 “Selecting the base vehicle”](#)).

Please note that certain conversions are only allowed to be used by people with corresponding entries in their driving licence.

You can optimise your basic vehicle for the conversion in advance by selecting the following special equipment items:

- More powerful alternator and 12-V vehicle battery
- Sector-specific preparations

Warning

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

Practical note

Permanently installed components increase the kerb weight of the vehicle, as a result of which the suspension compression height on the rear axle is reduced accordingly. If the additional installation solution weighs more than 180 kg, we recommend converting a specially coordinated spring pack (PR number UC5). See also [chapter 2.2.7.1 “Rear axle running gear for heavy installations”](#).

For more information, please contact your authorised repairer.

4.1.2 Selection of steering rack for conversions for people with disabilities

In the Caddy, Volkswagen offers you power steering with mobility aid (PR no. 1N5) as special equipment.

The power steering is given a lower steering torque by setting a different mobility characteristic. This has an effect at relatively slow driving speeds (parking, urban driving) in particular.

4.1.3 Notes on conversion solutions for the wheelchair transporter

- There must be sufficient clearance between the running gear parts and the body, even during dynamic testing on undulating tarmac roads at the maximum gross vehicle weight rating and rear axle load.
- If the routing of the exhaust system is modified or if sections of the pipe are cut out, there must be adequate clearance to other components, even when the exhaust system expands at operating temperature, and that contact is prevented.
- As a rule, modifications to the exhaust system will invalidate the vehicle's approval for use. The wheelchair transporter is classified as a "special purpose" vehicle, which means the approval for the whole vehicle is retained. If a modified rear silencer is used, evidence of the vehicle's noise emissions during the accelerated pass-by noise test must be provided.
- If modifications are made to the exhaust system and the fuel system, it is necessary to ensure adequate protection of the surroundings by fitting heat shields.
- When modifying the rear end to create a loading ramp for easier wheelchair access, sufficient ground clearance at the rear must be ensured to provide an adequate ramp angle (e.g. for ferries or multi-storey car parks) at the gross rear axle weight rating.
- Any existing PDC sensors must remain in their original position and must function as they do in the production vehicle.
- After conversion, the bolts of the rear shock absorbers must still be accessible to allow removal of the shock absorbers.

The new axle concept of the Caddy makes it possible to fit the vehicle with a rear ramp. A rear axle kit (PR no. P4W) is offered ex-works for this. This creates space in which the lowered pan can be installed by moving the Panhard rod and using a new stabiliser as well as other vibration dampers and coil springs. This rear axle kit cannot be combined with a towing bracket.

Except for 4Motion and PHEV models, the Caddy can be retrofitted with the KMP¹⁾ chassis kit without a preparation package (PR no. P4W). Because this is a conversion/retrofit that is relevant to safety, a manufacturer's declaration is required. The manufacturer's declaration specifies the components (including part numbers) that are necessary for a conversion or retrofit. This manufacturer's declaration can be obtained from the responsible importer or Volkswagen Commercial Vehicles partner by specifying the quoting the vehicle identification number.

The responsible importer or Volkswagen Commercial Vehicle partner can assist with the ordering process and will then send the manufacturer's declaration and the completed order form for the KMP chassis retrofit to the NSC²⁾.

Note:

On the body side, the converter must connect the Panhard rod to the track rod using a bracket of its own design because the bracket (body component) cannot be ordered via the ETKA³⁾.

Practical note

If the driver does not leave the vehicle through the driver or passenger door, fault messages may occur after several driving cycles due to the safety concept. For this reason, Volkswagen recommends briefly opening and closing the driver door after unbuckling the seat belt when leaving the vehicle to avoid event memory entries.

Before using the vehicle, familiarise yourself with all functions and special features of the vehicle by carefully reading the Owner's Manual. If you have any questions, please contact your authorised repairer.

Information

We will be happy to assist you with the design of the required bracket on the track rod. Send a technical query to: customizedsolution@volkswagen.de or via our free hotline: 00800 2878 66 49 33 (00800-customized)

Practical note

Please note that no special exhaust systems are offered ex works for conversions for persons with disabilities. Modifications to the exhaust system may only be made after the exhaust gas treatment-relevant area within the scope of possible vehicle modifications for the transport of persons with impaired mobility for the country of registration (see [chapter 2.6.4 "Exhaust system"](#))

¹⁾ KMP: motor vehicle for persons with disabilities

²⁾ NSC: Commercial Vehicles service centre

³⁾ ETKA: electronic parts catalogue for after sales

4.1.4 Notes on installing manual operating devices for the foot brake

- Do not modify the brake pedal when installing manual operating devices. Select a clamped solution for connecting the manual operating device.
- The operating travel of the manual operating device must also be sufficient for a blocking braking, with reserve travel for a circuit failure.
- If a manual operating device is used for the accelerator and brake, the standard pedals must be covered by suitable means.

4.1.5 Deactivating the airbag / belt tensioner system

In exceptional cases, the airbag, belt tensioner and/or seat belt warning systems can be deactivated by the customer service workshop. For more information, contact your authorised repairer.

4.2 Refrigerated vehicles

When planning the special vehicle, select the equipment of the base vehicle according to the requirements of the future application. (See also [chapter 1.3.1 "Selecting the base vehicle"](#)).

You can optimise your basic vehicle for the conversion in advance by selecting the following special equipment items:

- Up-rated alternator
- More powerful 12-V vehicle battery
- Use of the refrigerant compressor provided ex-works for the base vehicle

Notes on the Caddy Cargo:

- To facilitate repair, accessibility to the components of the door mechanism (e.g. guide rails and hinges) must be ensured.
- Please note that the insulation in the Caddy Cargo increases the weight of the doors, and therefore also the load on the hinges, carriage and lock systems.

Please also comply with the following chapters as part of the conversion:

- [1.3.1 "Selecting the basic vehicle"](#)
- [2.2.1 "Permitted weights and kerb weights"](#)
- [2.3.2 "Modifications to the body-in-white"](#)
- [2.5.2.1 "Electrical wiring/fuses"](#)
- [2.5.2.3 "Retrofitting electrical devices"](#)
- [2.5.3 "Electrical interface for special vehicles"](#)
- [2.5.4 "Vehicle battery"](#)
- [2.5.5 "Retrofitting of alternators"](#)
- [2.7. "Engine auxiliary drives"](#)
- [3.1 "Body-in-white/Body"](#)
- [3.1.4 "Modifications to the roof of the Caddy Cargo/Caddy"](#)

4.3 Shelf installation/workshop vehicles

4.3.1 Shelf and workshop installations

For shelf and workshop installations, the following points must be observed:

1. Select a suitable base vehicle (GVWR, running gear, equipment).
2. Driver's compartment and load compartment should be separated by means of a retaining device (partition, load guard) according to DIN ISO 27956.
3. The maximum permitted weights and axle loads of the base vehicle must be observed (see [chapters 2.2.1 "Permitted weights and kerb weights"](#) and [6.1 "Determining the centre of gravity"](#)).
4. The installation should take place in a way that ensures that the forces induced are evenly distributed.
5. The suitability of the available fastening rings should be checked before they are used to secure items.
6. Assembly and maintenance instructions and the Owner's Manual, with details of the load limits, must be supplied with the converted vehicle.
7. The maximum load of drawers and storage compartments (taking dynamic forces into account) must be clearly marked and also indicated in the Owner's Manual. The Owner's Manual must be provided with the vehicle.
8. The vehicle structure must not be weakened by the installations in the event of an accident.
9. The regulations and standards for load securing must be observed:
 - + DIN ISO 27956 (securing of cargo in delivery vans)
 - + VDI 2700 ff
 - + StVO or country-specific laws and regulations
10. The installation must be designed to be safe in the event of a crash (e.g. UNECE-R 44-3 City Crash):
 - + All items in the vehicle should be secured, installed or stowed in such a way that they cannot move in an uncontrolled manner in the event of acceleration/deceleration in a forwards, backwards, left, right or vertical direction.
 - + All tested compartments, rails, installations intended for storage or storage equipment must be marked with the highest permitted weight loads.
11. Edges that may come into contact with the hands, legs, head etc. of a vehicle occupant during normal operation must not have a radius of less than 2.5 mm.
12. Following all work to the body, drilling chips should be removed and corrosion protection measures should be performed. (See [chapter 2.3.2 "Modifications to the body-in-white"](#)).
13. The requirements of the converter guidelines for electrical wiring and fuses must be observed:
 - + Chapter 2.5.2.1 "Electrical wiring / fuses"
 - + Chapter 2.5.2.2 "Additional circuits"
 - + Chapter 2.5.3 "Electrical interface for special vehicles"
14. No electrical wires or other components of the base vehicle (e.g. electrical wiring, fuel tank, brake lines) may be damaged during installation and conversion work.
15. Conversion may only be performed by trained specialist staff.
16. Ensure "sufficient ventilation" in vehicles intended for the transportation of gas cylinders. The so-called diagonal ventilation is deemed "sufficient". Usually from the front and above (roof) to the rear bottom (floor, side panel at bottom).

Warning note

All applicable safety regulations for handling gas cylinders must be complied with.

Warning

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

Practical note

Permanently installed components increase the kerb weight of the vehicle, as a result of which the suspension compression height on the rear axle is reduced accordingly. If the additional installation solution weighs more than 180 kg, we recommend converting a specially coordinated spring pack (PR number UC5). See also [chapter 2.2.7.1 "Rear axle running gear for heavy installations"](#).

4.4 Emergency vehicles

Please also comply with the following chapters as part of the conversion:

- [1.3.1 “Selecting the base vehicle”](#)
- [2.2.1 “Permitted weights and kerb weights”](#)
- [2.3.2 “Modifications to the body-in-white”](#)
- [2.5.2.1 “Electrical wiring/fuses”](#)
- [2.5.2.3 “Retrofitting electrical devices”](#)
- [2.5.3 “Electrical interface for special vehicles”](#)
- [2.5.4 “Vehicle battery”](#)
- [2.5.5 “Retrofitting of alternators”](#)
- [2.7 “Engine auxiliary drives”](#)
- [3.1 “Body-in-white/Body”](#)
- [3.1.4 “Modifications to the roof of the Caddy Cargo/Caddy”](#)
- [3.2.1 “Safety features”](#)

Warning

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

Practical note

Permanently installed components increase the kerb weight of the vehicle, as a result of which the suspension compression height on the rear axle is reduced accordingly. If the additional installation solution weighs more than 180 kg, we recommend converting a specially coordinated spring pack (PR number UC5). See also [chapter 2.2.7.1 “Rear axle running gear for heavy installations”](#).

Information

For more information on this topic, visit:
[http://www.Industry solutions and conversions | Volkswagen Commercial Vehicles \(volkswagen-nutzfahrzeuge.de\)](http://www.Industry solutions and conversions | Volkswagen Commercial Vehicles (volkswagen-nutzfahrzeuge.de))

4.5 Preparation for taxis and private hire cars

4.5.1 Preparation for taxis and private hire cars ex works

The following preparations are available ex works with PR numbers:

The functions described below are available for vehicles produced from week 36 of 2026 onwards.

- Taxi preparation (F4E)
- Private hire car preparation (F5P)

This includes the sub-functions:

- Taxi roof sign control system (only for taxi preparation PR number F4E)
- Emergency alarm control system for taxis and rental cars
- Interior lighting control
- Connected power supply for two-way radios and peripherals
- Provision of data for the taximeter (e.g. output of a distance signal)

4.5.2 Pin assignment on the CFCU (input and output assignment / pins on CFCU)

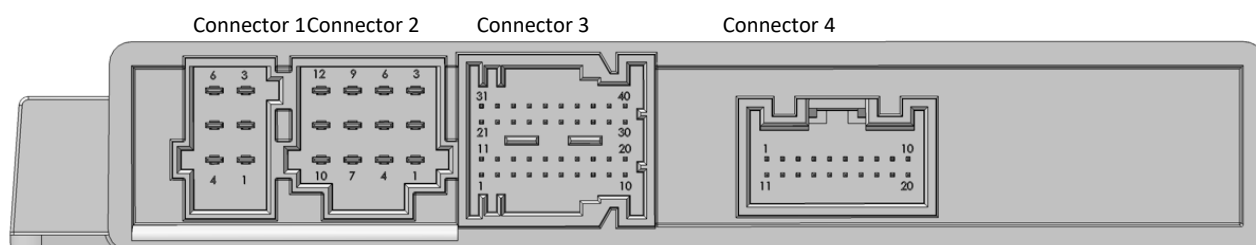


Fig. 1: View of customer-specific functional control unit

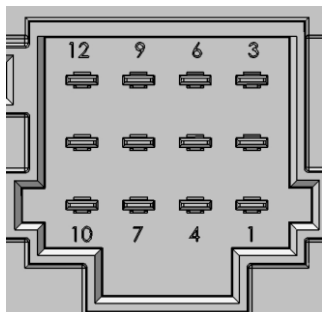


Fig. 2: Connector 2

Plug 2				
Pin no.	12	9	6	3
Signal	MFA_2	MFA_19	MFA_1	MFA_6
Pin no.	11	8	5	2
Signal	MFA_21	MFA_20	MFA_4	MFA_5
Pin no.	10	7	4	1
Signal	MFA_22	MFA_3	MFA_8	MFA_7

CFCU pin assignment: Taxis and private hire cars

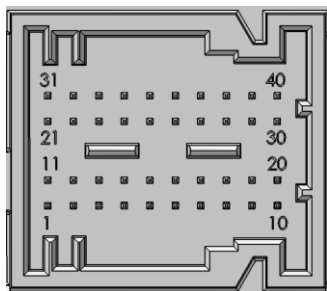


Fig. 3: Connector 3

Plug 3										
Pin no.	31	32	33	34	35	36	37	38	39	40
Signal	MFA_9	MFA_10	MFE_10	MFE_12	MFE_14	MFE_16	MFE_2	MFE_4	MFE_6	MFE_8
Pin no.	21	22	23	24	25	26	27	28	29	30
Signal	MFA_11	MFA_12	MFE_9	MFE_11	MFE_13	MFE_15	MFE_1	MFE_3	MFE_5	MFE_7
Pin no.	11	12	13	14	15	16	17	18	19	20
Signal	MFA_17	MFA_18	MFA_14	Rel2_no	Rel2_com	REL2_nc	MFE_18	MFE_20	MFE_22	MFE_24
Pin no.	1	2	3	4	5	6	7	8	9	10
Signal	MFA_15	MFA_16	MFA_13	Rel1_no	Rel1_com	REL1_nc	MFE_17	MFE_19	MFE_21	MFE_23

CFCU pin assignment: Taxis and private hire cars

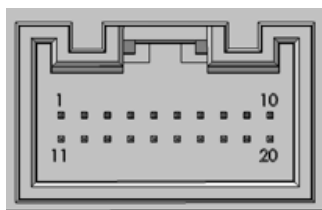


Fig. 4: Connector 4

Plug 4										
Pin no.	1	2	3	4	5	6	7	8	9	10
Signal										
Pin no.	11	12	13	14	15	16	17	18	19	20
Signal	CAN_H:	CAN_L:								

CFCU pin assignment: Taxis and private hire cars

Inputs:

- MFE_02 Signal input (earth) for alarm activation button (audible/silent)
- MFE_03 Signal input (earth) for alarm deactivation button
- MFE_04 Signal input (earth) for interior lighting button
- MFE_05 Signal input (earth) for roof sign button (F4E only)
- MFE_06 Pull-up connection for distance signal (must be integrated in the signal path of the distance sensor from MFA_14, if not already implemented at the factory)
-
- MFE_07 Signal input (earth) for controlling the switched power supply
- MFE_08 Signal input (earth) for controlling the switched power supply
- MFE_12 Signal input (earth) for radio alarm
- MFE_13 Signal input (earth) for charging button (*EMP only)
- MFE_21 Signal input (12 V) for roof sign (F4E only)
- MFE_22 Signal input (12 V) for “Available” status
- MFE_23 Signal input (12 V) for “Fare” status

Outputs:

- MFA_01 Output (12 V 5 A) for alarm status LED
- MFA_02 Switched power supply (12 V 10 A) for peripheral devices
- MFA_04 Switched power supply (12 V 10 A) for two-way radio equipment with radio preparation (9D1)
- MFA_05 Isolation relay (12 V 5 A) (for EMP)
- MFA_06 Terminal 15 signal (12 V 5 A)
- MFA_07 Terminal 58 signal (12 V 5 A)
- MFA_09 Output (12 V 0.5 A) for EMP function LED (for EMP)
- MFA_10 Signal (12 V 0.5 A) for front passenger seat and rear bench seat occupancy
- MFA_11 Output (12 V 0.5 A) for roof sign button status LED (F4E only)
- MFA_12 Output (12 V 0.5 A) interior lighting button status LED
- MFA_13 Signal (earth) for driver's seat contact
- MFA_14: Distance signal (PWM)
- MFA_15: Signal (earth) for controlling the power-off delay period
- MFA_16 Signal (earth) for front passenger seat and rear bench seat occupancy
- MFA_19 Roof sign control output
- MFA_20 Roof sign control output
- MFA_21 Alarm signal, 3s (12 V 5 A)
- MFA_22 Alarm signal, 3s (earth)

Information

Technical documentation on the CFCU and further information on the request and processing procedure can be found on the CustomizedSolution portal at:

<https://www.customized-solution.com/de/de/technische-produktinformationen/kfg/technische-information>

You must register on the CustomizedSolution portal in order to access this. The configuration of the customer-specific functional control unit can be ordered via the CustomizedSolution portal.

Manufacturer information on the conformity assessment is available from your direct contact partner or the converter support team (see [chapters 1.2.1.1 “Contact in Germany”](#) and [1.2.1.2 “International contact”](#)). Further information is available in the vehicle Owner’s Manual, on the Volkswagen Commercial Vehicles homepage under “Industry Solutions and Commercial Customers/Industry Solutions/Commercial Vehicles Passenger Transport/Taxi” or from your Volkswagen Commercial Vehicles partner.

4.5.3 Function description

Taxi roof sign (only for taxi preparation PR number F4E)

- MFE_05 for deactivating/activating the taxi roof sign (additional information on switching the automatic roof sign control function and further details can be found in the vehicle Owner's Manual).
- MFA_19 (CFCU half bridge) roof sign control
- MFA_20 (CFCU half bridge) roof sign control
- MFA_11 for feedback to the driver on the roof sign status
- MFE_21 for the device to signal whether the roof sign can be activated via the button (if the taximeter is switched off, the roof sign cannot be switched on)

Interior lighting

- The interior lighting is activated automatically while the fare is being paid (depending on the taximeter signal, reset when the status changes to "Available"), via MFE_23 signal input from the external device (12 V) "Fare"
- MFE_04 for activating/deactivating the interior lighting when the doors are closed – signal input (earth) for interior light button
- Activation of MFA_12 for feedback to the driver via the interior lighting button – control output (12 V 0.5 A) for interior light button status LED

Information

When leaving the vehicle with the vehicle key, any interior light that has been switched on is switched off after no more than 30 minutes to reduce power consumption.

When leaving the vehicle with the vehicle key, any illuminated roof sign is switched off after no more than 30 minutes to reduce power consumption.

Note on controlling the delay period:

The power-off delay period for the two-way radio and peripheral equipment coupling stations can be adjusted. The delay period begins when terminal S (radio terminal) is deactivated upon leaving the vehicle.

To set the required delay period, connect the output at connector 3 pin 1 (MFA_15) to the inputs on connector 3 pin 30 (MFE_7) / pin 40 (MFE_8) using one or two wires.

The table shows the combination options and the resulting delay periods:

Output	Connected to input	Delay period
Connector 3 pin 1 (MFA_15)	No connection	30 minutes (default setting)
Connector 3 pin 1 (MFA_15)	Connector 3 pin 30 (MFE_07)	60 minutes
Connector 3 pin 1 (MFA_15)	Connector 3 pin 40 (MFE_08)	120 minutes
Connector 3 pin 1 (MFA_15)	Connector 3 pin 30 (MFE_07) and pin 40 (MFE_08)	240 minutes

The delay period can be changed at any time and is then adopted by the control unit when the ignition is turned off and on again. The vehicle's energy management system may switch off the power supply outputs before the configured delay period. If an alarm is activated (silent or audible), the power supply outputs are activated regardless of the configured delay period and the status of the energy management system.

Emergency alarm (silent alarm)

- MFE_02 activates the silent alarm when pressed once
- Activation of MFA_19 and MFA_20 for red warning LEDs in the taxi roof sign or to make the roof sign flash (this function depends on the design of the roof sign system)
- Activation of MFA_01 (12 V 5 A) for the alarm status LED, activation of MFA_21 and MFA_22 for 3-second signal pulses (12 V and earth), for example to make a radio help call (if a suitable device is connected).

Emergency alarm (audible alarm)

- MFE_02 activates the audible alarm when pressed twice briefly or held for 2 seconds
- Activation of intermittent headlight flasher
- Activation of hazard warning lights
- Activation of interior lighting
- Activation of intermittent vehicle horn
- Activation of MFA_19 and MFA_20 for red warning LEDs in the taxi roof sign or to make the roof sign flash (this function depends on the design of the roof sign system)
- MFA_01 output (12 V 5 A) for alarm status LED
- Activation of MFA_21 and MFA_22 for 3-second signal pulses (12 V and earth), for example to make a radio help call (if a suitable device is connected).

Deactivation of the emergency alarm

- MFE_03 deactivates the emergency alarm (e.g. button installed in the engine compartment)

Voltage supply for taximeter and two-way radio

- MFA_02 Switched power supply (10 A) for connecting peripheral devices / two-way radio
- MFA_04 Switched power supply (10 A) for connecting peripheral devices / two-way radio
- The power supplies are switched off after a configurable delay and when the battery charge level is low. Refer to the information on configuring the delay period

Provision of data for the taximeter

- Output of a distance signal via the MFA 14 output
- Seat occupancy signals for front passenger seat and rear bench seat via MFA_10 (12 V) and MFA_16 (earth)
- Seat occupied recognition system for driver's seat via MFA_13 (earth)
- Terminal 15 and terminal 30
- 3-second alarm signal via MFA_21 (12 V) and MFA_22 (earth)

4.5.4 Programming according to customer requirements

In addition, the programmable CFCU* provides an option for subsequently adjusting the configuration. (Example: adding supplementary signals).

Information

Technical documentation on the CFCU and further information on the request and processing procedure can be found on the CustomizedSolution portal at:

<https://www.customized-solution.com/de/de/technische-produktinformationen/kfg/technische-information>

You must register on the CustomizedSolution portal in order to access this. The configuration of the customer-specific functional control unit (CFCU) can be ordered via the CustomizedSolution portal.

*CFCU: customer-specific functional control unit, see also [chapter 2.5.3.3](#)

* EMP: parallel energy management

4.6 Leisure vehicles

The new Caddy and Caddy Maxi can be ordered directly ex works as leisure vehicles with the California equipment package. For more information, please contact your Volkswagen dealership.

Please also comply with the following chapters as part of the conversion:

- 1.3.1 “Selecting the base vehicle”
- 2.2.1 “Permitted weights and kerb weights”
- 2.3.2 “Modifications to the body-in-white”
- 2.5.2.1 “Electrical wiring/fuses”
- 2.5.2.3 “Retrofitting electrical devices”
- 2.5.3 “Electrical interface for special vehicles”
- 2.5.4 “Vehicle battery”
- 2.5.5 “Retrofitting of alternators”
- 2.6.3 “Fuel system”
- 2.6.4 “Exhaust system”
- 3.2.1 “Safety features”

Practical note

Permanently installed components increase the kerb weight of the vehicle, as a result of which the suspension compression height on the rear axle is reduced accordingly. If the additional installation solution weighs more than 180 kg, we recommend retrofitting a specially configured spring assembly (PR no. UC5). See also [chapter 2.2.7.1 “Rear axle running gear for heavy installations”](#).

Warning note

Please bear in mind that if the permanently installed components are removed then the spring pack, PR number UC5, must be replaced by standard equipment. Otherwise, the driving properties might be negatively impaired.

Information

For more information about this topic, refer to the Volkswagen Commercial Vehicles website at:
<https://www.volkswagen-nutzfahrzeuge.de/de/modelle/nutzfahrzeugkategorien-im-ueberblick/california-reisemobile.html>

4.7 Vehicles for local and public authorities

Please also comply with the following chapters as part of the conversion:

- 1.3.1 “Selecting the base vehicle”
- 2.2.1 “Permitted weights and kerb weights”
- 2.3.2 “Modifications to the body-in-white”
- 2.5.2.1 “Electrical wiring/fuses”
- 2.5.2.3 “Retrofitting electrical devices”
- 2.5.3 “Electrical interface for special vehicles”
- 2.5.4 “Vehicle battery”
- 2.5.5 “Retrofitting of alternators”
- 3.2.1 “Safety features”

Information

Further information on this topic can be found on the Volkswagen Commercial Vehicles website at:
[http://www.Local and public authorities | Volkswagen Commercial Vehicles \(volkswagen-nutzfahrzeuge.de\)](http://www.Local and public authorities | Volkswagen Commercial Vehicles (volkswagen-nutzfahrzeuge.de))

4.8 Vehicles for couriers and logistics

Using vehicles for delivery services (e.g. postal or parcel delivery) increases the load on the door arresters. To reduce the forces on the door arrester, we recommend ordering the version with additional buffer for the driver / front passenger door with the following PR number.

- OD2 Additional buffer on the driver and front passenger sides
- OD3 Additional buffer on the driver side

If the door arrester has an additional buffer, the opening angle of the doors is reduced by around 6°. The third position is not reached.

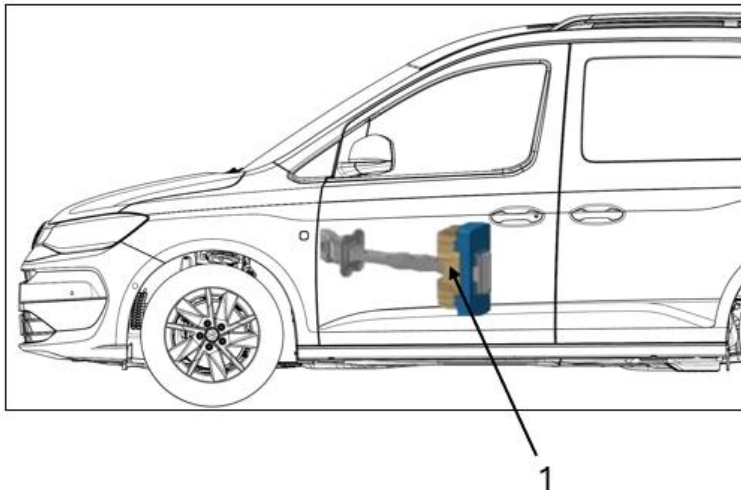


Fig. 1: Schematic diagram, door with buffered door arrester

1 – Additional buffer

4.9 Plug-in hybrid electric vehicle (PHEV)



Fig. 1: Vehicle with plug-in hybrid drive

4.9.1 High-voltage system

The high-voltage system consists of the following components:

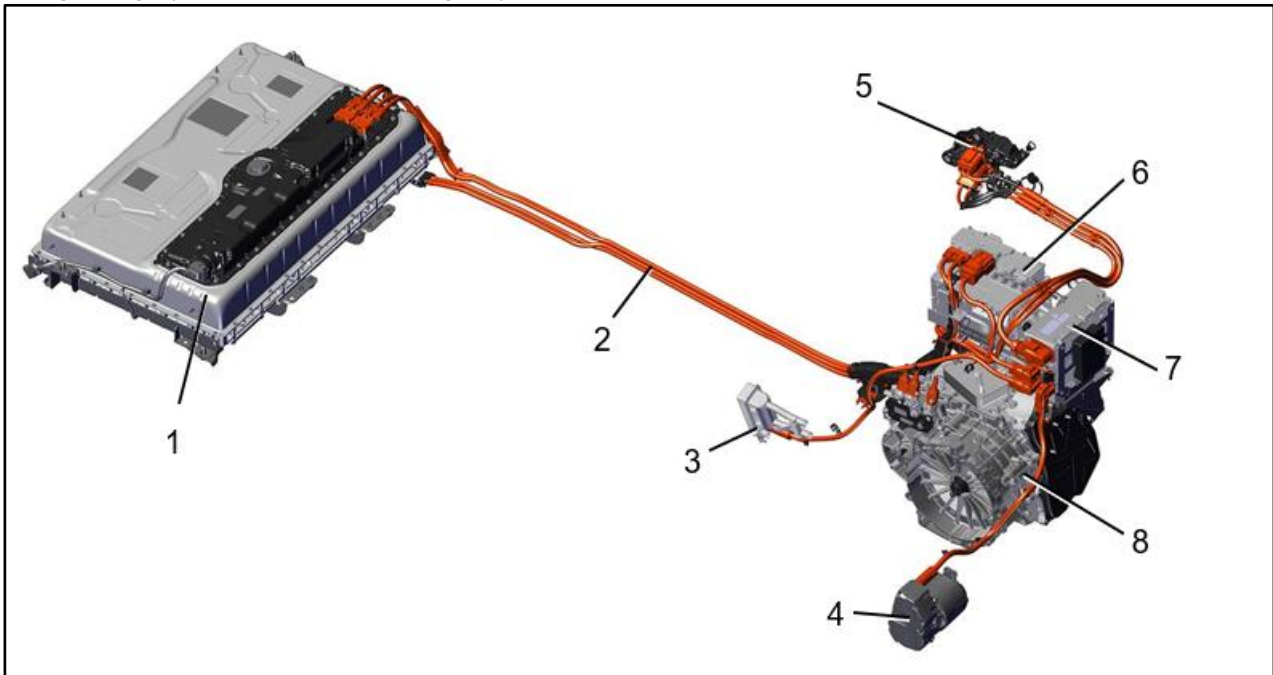


Fig. 1: The most important components of the electric drive

- 1 – High-voltage battery 1
- 2 – Orange-coloured high-voltage wires and connectors
- 3 – High-voltage heater (PTC)
- 4 – Electrical air conditioner compressor
- 5 – Charging socket 1 for high-voltage battery charging
- 6 – Power and control electronics for electric drive
- 7 – Charging unit 1 for high-voltage battery
- 8 – Three-phase current drive

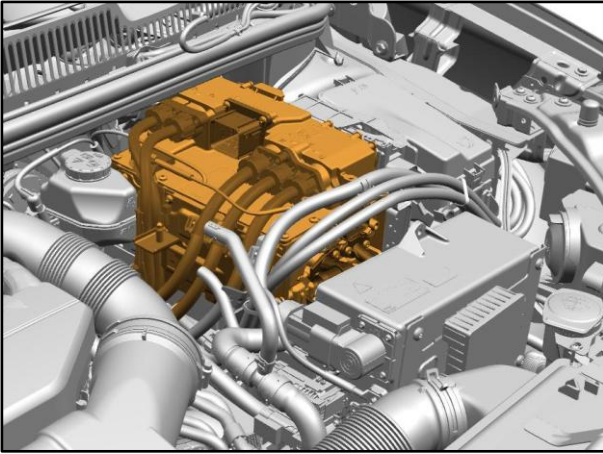


Fig. 2: Power and control electronics for electric drive

4.9.1.1 Power and control electronics for electric drive

The component is installed on the left side in the engine compartment.

It controls the three-phase current drive, charging of the 12-volt battery and the vehicle electrical system supply. Furthermore it forms the connection between the charging unit for high-voltage battery and the high-voltage battery. Cooling is performed via the low-temperature cooling circuit.

Practical note

All work carried out on the high-voltage system must be performed exclusively by a qualified workshop deploying suitably qualified and trained staff in accordance with Volkswagen's policies.

4.9.1.2 Modifications to the underbody area of the high-voltage battery and the drive

The components for the high-voltage battery system, including the assembly frame, crash elements and powertrain, must not be modified or reworked. No welding or processes that could produce sparks may be used in the underbody area, near the high-voltage components and the high-voltage battery.

The following work must be avoided in the underbody area:

- Work in the direct vicinity of the high-voltage components, high-voltage wires and high-voltage battery using cutting, deforming or sharp-edged tools.
- If drilling is necessary in the floor area, the greatest care is required. Before inserting the holes in the vehicle, check that no vehicle components, particularly high-voltage components, cables and wires are damaged.
- Fastenings on the vehicle floor that protrude into the area of the high-voltage battery or permanently restrict accessibility to the battery
- Exterior conversions that project into the area of the high-voltage battery or permanently restrict accessibility to the battery.

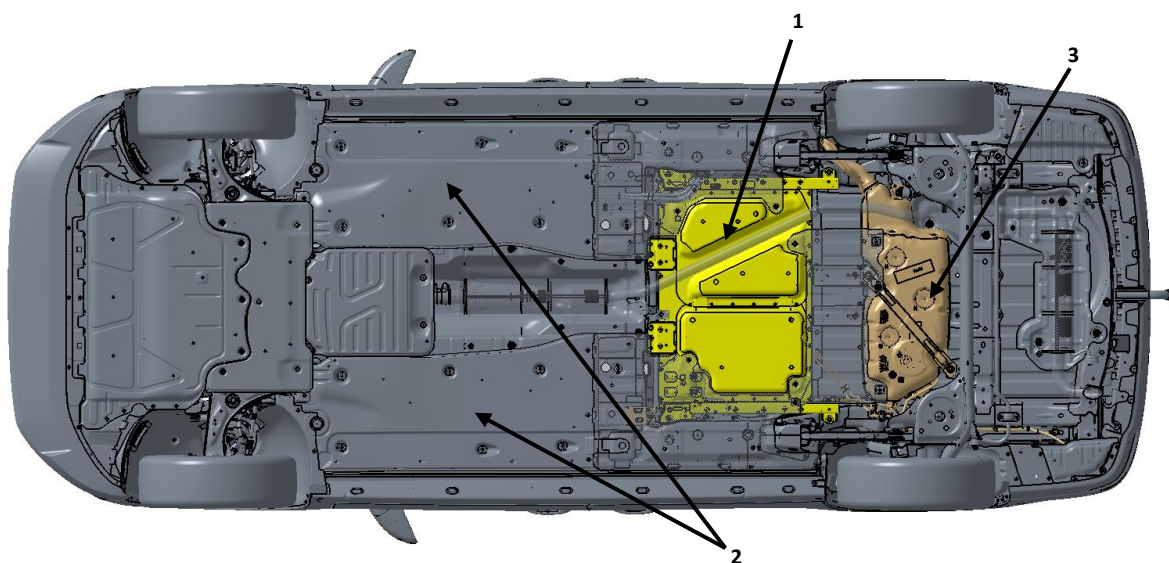


Fig. 1: Bottom view of high-voltage battery location, long wheelbase

- 1 – lithium-ion high-voltage battery
- 2 – underbody cladding
- 3 – Fuel tank

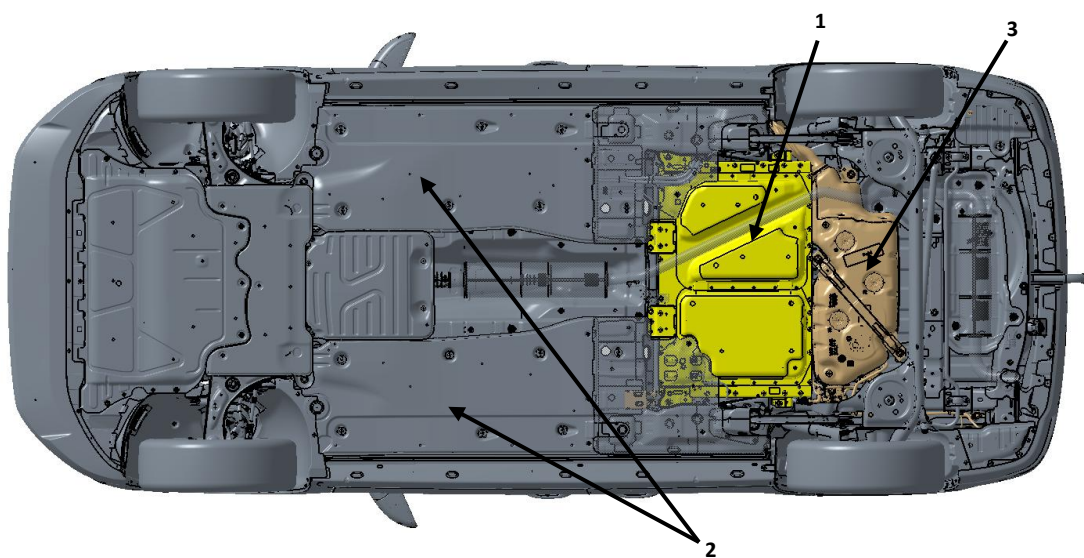


Fig. 2: Bottom view of high-voltage battery location, short wheelbase

- 1 – lithium-ion high-voltage battery
- 2 – underbody cladding
- 3 – Fuel tank

Practical note

Modifications to the electric drive system are not permitted. Solutions regarding engine speed control are not possible. Modifications to the cooling system (radiator, air intake, air ducts etc.) are not permitted. Cooling air inlet surfaces must be kept clear.

Warning note

Special safety notes must be observed when working on electric vehicles. Failure to observe safety notes can result in a fatal electric shock.

Warning note

Modifications to the electrical drive system can lead to the system ceasing to function properly. Control of the vehicle may be lost.

Warning note

The voltage within the high-voltage vehicle electrics and high-voltage battery is potentially lethal.

Touching damaged orange-coloured high-voltage wires and high-voltage battery may result in a fatal electric shock. The high-voltage system may remain active even when the ignition is switched off.

Never carry out any work on the high-voltage vehicle electrics, orange-coloured high-voltage wires, high-voltage components or high-voltage battery. Work on the high-voltage system may only be performed by qualified specialist companies with appropriate accreditation to perform such work.

Never modify, damage, dismantle or disconnect from the high-voltage system any of the orange-coloured high-voltage wires, high-voltage components or high-voltage battery.

Work in close proximity to high-voltage components, high-voltage wires or high-voltage battery using machining, deforming or sharp-edged tools or heat sources, such as welding, soldering, hot-air or thermal bonding, may only be carried out if the voltage has been disconnected beforehand. The high-voltage battery cannot be de-energised. The high-voltage disconnection may only be performed by suitably qualified and trained specialist staff.

If there is a fault in the high-voltage system, the drive is automatically deactivated where necessary, and a corresponding indicator may be displayed in the instrument cluster. Should this be the case, the drive will remain deactivated until the fault has been rectified by suitably qualified and trained specialist staff.

The various Volkswagen policies must be observed when carrying out any work on the high-voltage system, including in particular on the orange-coloured high-voltage wires, the high-voltage components or the high-voltage battery.

Information

The required safety notes can be requested. Please contact us (see [chapter 1.2.1 "Product and vehicle information for converters"](#)).

4.9.2 12-V vehicle electrical system

A DC/DC converter is installed in the PHEV instead of the three-phase alternator installed in diesel and petrol-driven vehicles to supply the 12-V electrical system. This converts the voltage from the high-voltage battery to 12 V so that the onboard supply battery is recharged. Due to the installation of the high-voltage components in the engine compartment, the 12-V vehicle battery is installed on the right rear wheel housing in the PHEV. The installation of a stronger battery is not planned at the factory. There is also no option of a second battery preparation ex works.

The PHEV uses an electric air conditioning compressor. Changes to the compressor are unauthorised.

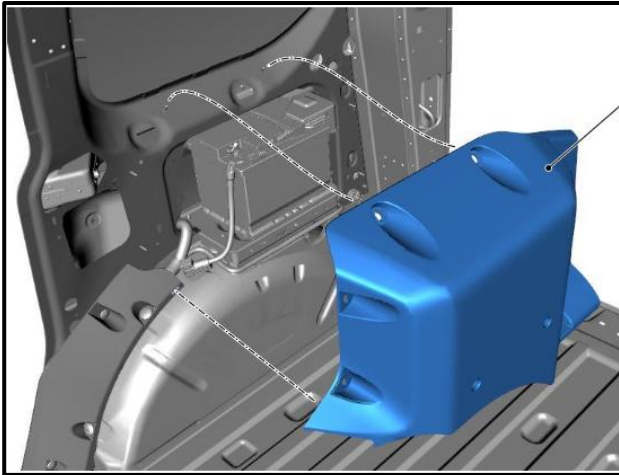


Fig. 1: Starter battery with cover in the rear right luggage compartment, above the wheel arch

A sound generator is mounted on the front right longitudinal member to generate driving noises during electric vehicle operation.

5. Technical data

5.1 Dimension drawings

Please refer to our build dimension drawings for the dimensions of the new Caddy and Caddy Maxi.

They are available for download in DXF, TIFF and PDF format at the CustomizedSolution portal of Volkswagen AG. All files (except PDFs) are packed as ZIP archives. The files can be unpacked using WinZip (PC) or Ziplt (Mac).

Information

Current build dimension drawings are available for downloading from the CustomizedSolution portal of Volkswagen AG under the “Technical drawings” menu item.

5.2 Diagrams (foil templates)

Vehicle views of the Caddy and Caddy Maxi in 1:25 scale are available for download in TIF, DXF and EPS format to help you create diagrams. All files are packed as ZIP archives. The files can be unpacked using WinZip (PC) or Ziplt (Mac).

Information

Current diagrams are available to download from the CustomizedSolution portal of Volkswagen AG under the “Foil templates” menu item.

5.3 Current flow diagrams

For detailed information about this topic, refer to the workshop manuals and current flow diagrams of Volkswagen AG.

Information

Workshop manuals and current flow diagrams can be downloaded online from Volkswagen AG’s erWin system (Electronic Repair and Workshop Information):
<https://volkswagen.erwin-store.com/erwin/showHome.do>

5.4 CAD models

On request, converters can receive 3D data models in the CATIA V.5 and STEP formats for design purposes.

Information

The available 3D data can be found on the CustomizedSolution portal of Volkswagen AG under “Technical information/CAD data”*.

6. Calculations

6.1 Determining the centre of gravity

The overall centre of gravity (vehicle with add-ons or complete body without load) should be kept as low as possible.

The centre of gravity in the vehicle longitudinal direction is given in relation to a vehicle axle. The centre of gravity height is related to the wheel hub or related to the road. Volkswagen recommends having the centre of gravity determined by a recognised test institution with experience in this field (e.g., DEKRA, TÜV or others).

For the converter to determine the centre of gravity, we recommend following the procedure described in [chapters 6.1.1 “Determining the centre of gravity in x-direction”](#) and [6.1.2 “Determining the centre of gravity in z-direction”](#) and using personnel with the corresponding qualifications to obtain usable results.

6.1.1 Determining the centre of gravity in x-direction

Procedure:

The vehicle must be weighed unladen with the add-ons or complete body.

Inflate the tyres up to the tyre pressure that is specified for the respective gross axle weight rating.

Completely fill all fluid containers (fuel tank, washer fluid reservoir, if applicable, hydraulic tank, water tank etc.).

Drive the vehicle onto the scales, switch off the engine, shift the gearbox to neutral and release the brakes.

The vehicle must be standing horizontal and level for weighing.

First weigh the individual axle loads (front and rear axle load) and then the gross weight of the vehicle.

The measured values can be used to calculate the position of the centre of gravity in the vehicle longitudinal direction with the equations (3) and (4). Equation (2) should be used to check the results of (3) and (4).

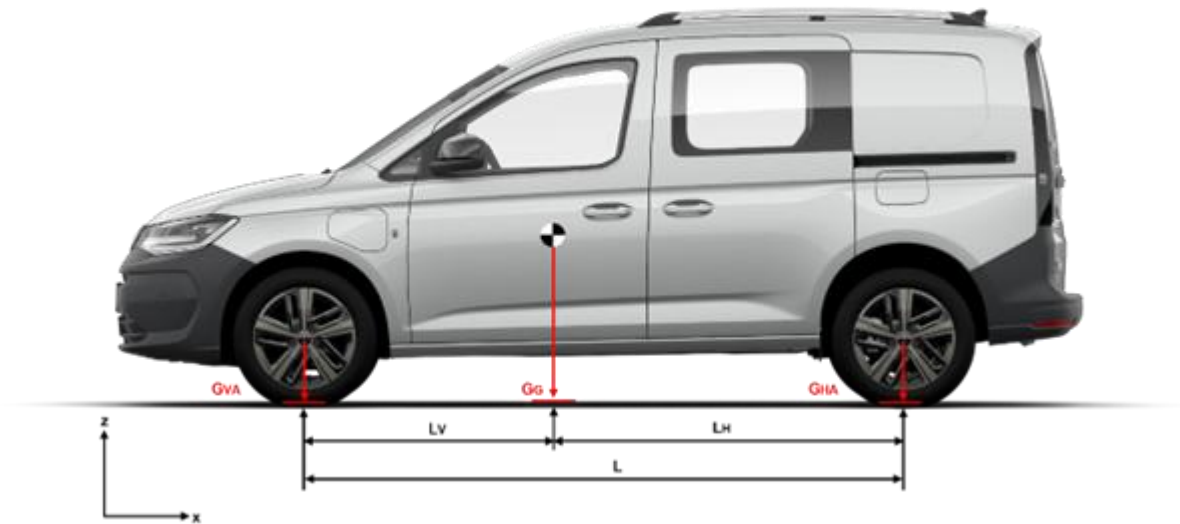


Fig. 1: Determining the position of the vehicle centre of gravity in x-direction

Determining the total weight of the unladen vehicle with add-ons or body:

$$G_G = G_{HA} + G_{VA} \quad (1)$$

Calculating the position of the overall centre of gravity S_G in x-direction

$$L = L_V + L_H \quad (2)$$

$$L_V = \frac{G_{HA}}{G_G} L \quad (3)$$

$$L_H = \frac{G_{VA}}{G_G} L \quad (4)$$

Abbreviations and parameters used:

G_G	-	Total weight of unladen vehicle
G_{VA}	-	Front axle load of unladen vehicle (specification or weighing of respective chassis)
G_{HA}	-	Rear axle load of unladen vehicle (specification or weighing of respective chassis)
S_G	-	Overall vehicle centre of gravity
L	-	Wheelbase
L_V	-	Distance from the overall centre of gravity of the empty vehicle to the front axle
L_H	-	Distance from the overall centre of gravity of the empty vehicle to the rear axle

Practical note

The practical determination of the centre of gravity height may only be performed by appropriately qualified staff with the help of suitable and calibrated scales.

To reduce measuring errors, each measured value must be calculated at least three times and an average value calculated from the three results. This value is then used for calculating in accordance with the equations (3) and (4).

6.1.2 Determining the centre of gravity in z-direction

So that the converter can determine the vehicle total centre of gravity height h_s (see Fig. 1), Volkswagen AG recommends the following procedure after completion of the whole vehicle:

After conversion, the vehicle should be weighed in two successive positions on a platform scale or suitable wheel load scales.

Here, the measured axle loads shall be determined with the vehicle in a level state G_{FA} and G_{RA} (see [chapter 6.1.1 “Determining the centre of gravity in x-direction”](#)) and the axle loads on an axle (Q_{RA} or Q_{FA}) increased by the quantity h' .

The raising height h' should be as high as possible in accordance with the front and rear ramp angles of the vehicle (also known as approach/departure angle). The target value is >600 mm.

To reduce measuring errors when determining the axle load, at least six individual measurements must be taken for each axle: three measurements with the vehicle level and three with a raised axle.

The average values for each axle must be calculated from the three measurements in each state. These average values must then be used for the calculations with equations (5) to (9).

To improve the accuracy of the final result, the axle load modification should be determined with raised rear axle and raised front axle.

Practical note

Observe the following to avoid incorrect measurements:

- The vehicle must be standing perfectly horizontal for weighing in level vehicle state. Height differences between the axles caused by scales should be compensated accordingly.
- When raising to the required lifting height, the axle being weighed must be restrained to prevent suspension compression or rebound.
- When raising to the required lifting height, no part of the vehicle may touch the ground.
- All vehicle wheels must be able to rotate freely: select neutral, release all brakes including handbrake and place chocks at sufficient distance from the wheels, if necessary.
- Move vehicle with own power (to weigh the respective other vehicle axle) to relieve any tension in the vehicle.
- Ensure that no objects inside the vehicle can move during the measurements.

If the vehicle suspension cannot be locked due to the body design or available space, further axle load measurements must be carried out at different levels (for example, 600 mm, 700 mm and 800 mm). This also allows errors to be limited by averaging. The centre of gravity height results from the arithmetic average of the individual centre of gravity heights for each raising height.

Example of procedure:

1. The vehicle must be weighed unladen with the add-ons or complete body.
2. Inflate the tyres up to the tyre pressure that is specified for the respective gross axle weight rating.
3. Completely fill all fluid containers (fuel tank, washer fluid reservoir, if applicable, hydraulic tank, water tank etc.).
4. On the scales, switch off the engine, set gearbox to neutral and release the brakes.
5. Position the vehicle with the rear axle (RA) horizontal and level on the scales and measure the axle load.
6. Raise the front axle by the value h' , at least 600 mm. A greater height h' taking the other vehicle-related conditions into consideration is more favourable for the final result. The value h' must be measured for all individual measurements with raised axle and should be as identical as possible. Alternatively to the raised height h' , the angle α between the wheel hubs can be defined.
7. Determine the axle load displacement QHA that occurs at the rear axle on the scales.
8. Lower and turn the vehicle around and perform the corresponding measurements on the front axle (first GFA with level real axle and then QFA with the rear axle raised by h').
9. Perform steps 4 to 7 a total of three times (with locked suspension).
10. The measured values can be used to calculate the height of the centre of gravity with the equations (5) to (9).
11. In the calculations using the equations (3) to (9), all length measurements are in millimetres (mm) and all weight figures in decanewton (1 daN = 10 N).
12. Raise the raised axle further (by e.g. 100 mm) and measure the height of the centre of gravity again to confirm the measuring result.

Practical note

The practical determination of the centre of gravity height may only be performed by appropriately qualified personnel with the help of suitable and calibrated measuring systems and measuring tools.

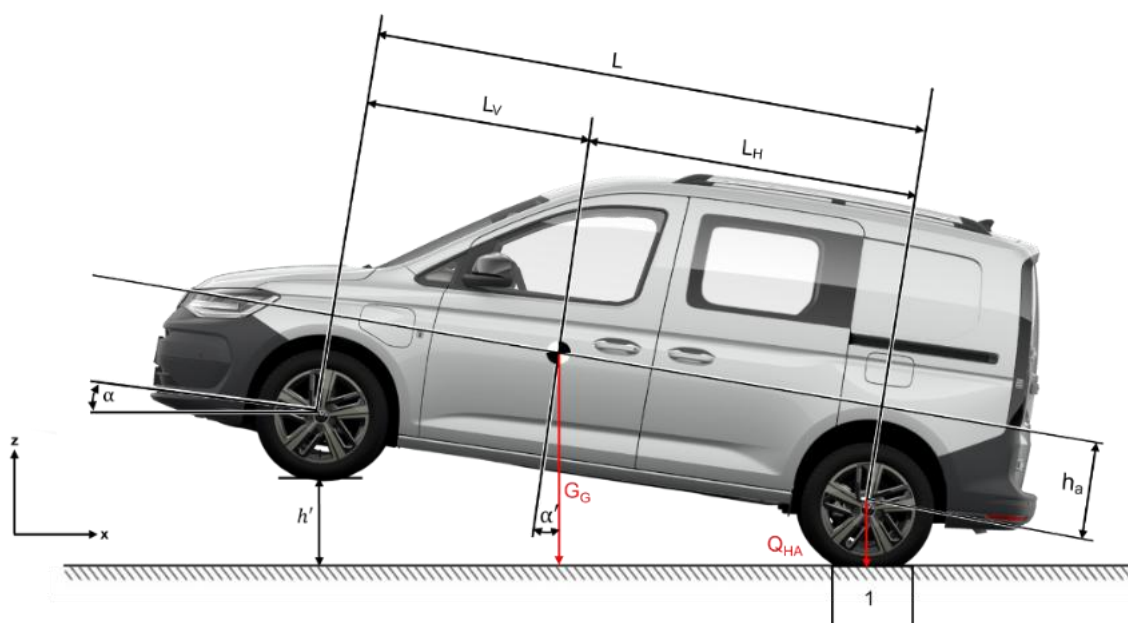


Fig. 1: Determining the location of the vehicle centre of gravity in z-direction

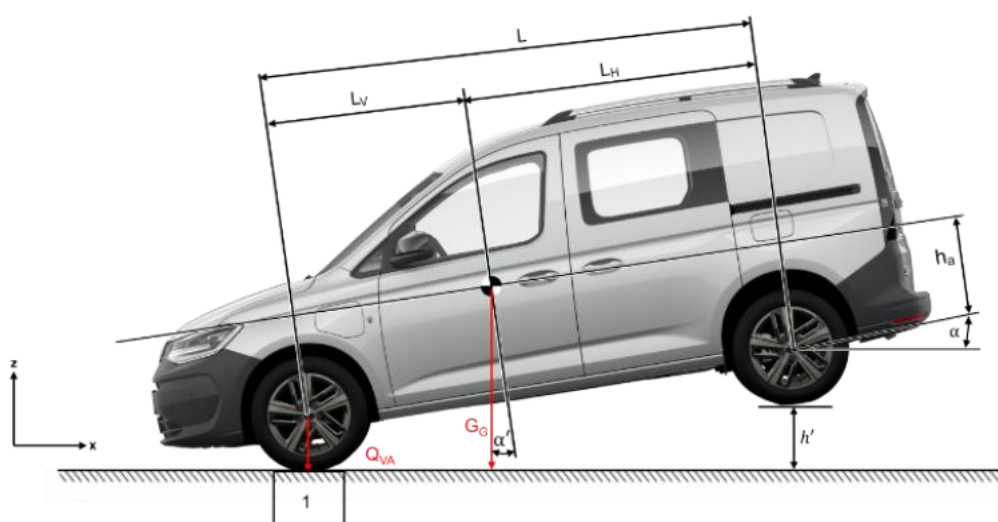


Fig. 2: Determining the location of the vehicle centre of gravity in z-direction

Determining the overall centre of gravity S_G in z-direction:

$$h_S = h_a + r_{stat} \quad (5)$$

Determining the overall centre of gravity S_G in z-direction for the raised front axle:

$$h_S = \left(\frac{Q_{HA} - G_{HA}}{G_G} \times L \times \frac{1}{\tan \alpha} \right) + r_{stat} \quad (6)$$

$$\sin \alpha = \frac{h'}{L} \quad (6a)$$

$$\alpha = \arcsin \left(\frac{h'}{L} \right) \quad (6b)$$

$$\cos \alpha = \frac{\sqrt{L^2 - h'^2}}{L} \quad (6c)$$

$$\tan \alpha = \frac{h'}{\sqrt{L^2 - h'^2}} \quad (6d)$$

$$\frac{1}{\tan \alpha} = \frac{\sqrt{L^2 - h'^2}}{h'} = \frac{1}{h'} \sqrt{L^2 - h'^2} \quad (6e)$$

$$h_S = \left(\frac{1}{h'} \times \frac{Q_{HA} - G_{HA}}{G_G} \times L \times \sqrt{L^2 - h'^2} \right) + r_{stat} \quad (7)$$

Determining the overall centre of gravity S_G in z-direction for the raised rear axle:

$$h_S = \left(\frac{Q_{VA} - G_{VA}}{G_G} \times L \times \frac{1}{\tan \alpha} \right) + r_{stat} \quad (8)$$

$$\sin \alpha = \frac{h'}{L} \quad (8a)$$

$$\alpha = \arcsin \left(\frac{h'}{L} \right) \quad (8b)$$

$$\cos \alpha = \frac{\sqrt{L^2 - h'^2}}{L} \quad (8c)$$

$$\tan \alpha = \frac{h'}{\sqrt{L^2 - h'^2}} \quad (8d)$$

$$\frac{1}{\tan \alpha} = \frac{\sqrt{L^2 - h'^2}}{h'} = \frac{1}{h'} \sqrt{L^2 - h'^2} \quad (8e)$$

$$h_S = \left(\frac{1}{h'} \times \frac{Q_{VA} - G_{VA}}{G_G} \times L \times \sqrt{L^2 - h'^2} \right) + r_{stat} \quad (9)$$

Abbreviations and parameters used:

r_{stat}	-	Static tyre radius
Q_{VA}	-	Front axle load when vehicle raised at rear
Q_{HA}	-	Rear axle load when vehicle raised at front
G_G	-	Total weight of unladen vehicle
G_{VA}	-	Front axle load of unladen vehicle (specification or weighing of respective chassis)
G_{HA}	-	Rear axle load of unladen vehicle (specification or weighing of respective chassis)
L	-	Wheelbase
L_V	-	Distance from the overall centre of gravity of the empty vehicle to the front axle
L_H	-	Distance from the overall centre of gravity of the empty vehicle to the rear axle
h_S	-	Centre of gravity height over road
h_a	-	Centre of gravity height over centre of wheel
h'	-	Height by which the vehicle has been raised
1	-	Weighing equipment

7. Masses (weights)

When ordering your vehicle, please note that the kerb weight increases when additional equipment is selected and the available payload capacity is therefore reduced.

Due to the continual changes to the base vehicle, all vehicle weights must be obtained via the country-specific sales documents online or via the CustomizedSolution portal (www.customized-solution.com).

We recommend determining the definitive kerb weight of the whole vehicle by weighing it before the conversion.

For further questions, please contact your Volkswagen Commercial Vehicles partner, your importer or our Customer Care ([see chapter 1.2.1.1 "Contact in Germany"](#), [1.2.1.2 "International contact"](#)).

Practical note

For vehicle earth/dimensions, the following weight tolerances apply:

- 3 % for vehicle classes M/N (excluding vehicles for special purposes)
- 5 % for vehicles with special intended use

8. Notes on homologation of equipping and conversions

8.1 Availability with a Certificate of Conformity for a complete vehicle ex works – Light Duty WLTP



Applies to

Caddy, Caddy Cargo

Drive type:	Front-wheel
Design:	Caddy, Caddy Cargo
Type of homologation:	Light duty
WLTP calculator:	Calculation of conversions with the WLTP calculator possible
Calculable dimensions:	End face and vehicle mass in ready-to-drive state

Values for max. end face [in cm²] and max. vehicle mass in ready-to-drive state [in kg] [see chapter 8.2.1](#). All of the above information relates to Caddy, Caddy Cargo.
VH (vehicle high) document in compliance with technical maximum values and special conversion applications possible (no recalculation).

Information

Valid for the approved engine-gearbox variants (see offer for countries).

The maximum values depend on the drive/weight combination.

Information

For all vehicle, engine and gearbox variants for which values cannot currently be generated using the WLTP calculator, please contact your responsible technical service department and check whether individual approval or multi-stage type approval is possible.

8.2 Technical specifications

Affected: all engine-gearbox variants (EGV)

Note: For all engine gearbox versions, calculation for conversions with weight changes is possible in the CustomizedSolution portal (WLTP calculator).

For the engine/gearbox variants listed below, conversions with end face change and weight change are possible; a document for stage 2 can be called up in the WLTP calculation tool for this purpose. The specifications for max. weights and end faces must be observed.

8.2.1 Permissible aerodynamic changes and min./max. weights apply to the following variants:

Caddy Cargo / Caddy

EGV	M1 VH converter weight in kg* (1)				N1 VH converter weight in kg*			
	Short wheelbase		Long wheelbase		Short wheelbase		Long wheelbase	
	5 seats	7 seats	5 seats	7 seats	2 seats (Caddy Cargo)	5 seats (Caddy/com mercial)	2 seats (Caddy Cargo)	5 seats (Caddy/com mercial)
90 kW TDI DQ	1,403– 2,220	1,376– 2,206	1,394– 2,220	1,367– 2,197	1,268– 2,220	1,200–2,180	1,229–2,209	1,190–2,170
75 kW TDI MQ	1,368– 2,201	1,345– 2,193	1,354– 2,201	1,327– 2,175	1,232– 2,201	1,162–2,163	1,201–2,201	1,152–2,143
85 kW TSI MQ	1,307– 2,114	1,281– 2,099	1,295– 2,113	1,272– 2,090	1,173– 2,114	1,115–2,081	1,134–2,100	1,115–2,081
85 kW TSI DQ	1,332– 2,149	1,306– 2,140	1,320– 2,149	1,297– 2,131	1,202– 2,149	1,125–2,110	1,164–2,149	1,125–2,110
85 kW PHEV DQ	1,657– 2,076	--	1,643– 2,063	1,643– 2,052	1,545– 2,041	1,536–2,031	1,507–2,002	1,507–2,002

* Converter max. kerb weight = perm. max. kerb weight ready to drive incl. conversion/body by the converter (without driver)

(1) does not apply to the Caddy California variant

The specified kerb weight range for a variant/version is calculated from the specific gross vehicle weight rating. A change in seating does result in any changes to the range.

Information

For all vehicle, engine and gearbox variants for which values cannot currently be generated using the WLTP calculator, please contact your responsible technical service department and check whether individual approval or multi-stage type approval is possible.

8.2.2 Permissible aerodynamic changes and max. dimensions

Affected: All engine and gearbox variants

Notes: Technical description of aerodynamic bodies

Conversions with end face change **and** weight change are possible. For this, a document for the 2nd stage can be retrieved in the WLTP calculator (specification for maximum weight and area must be observed).

Scope	Max. installation space WxLxH	Example	Notes
Roof ventilator	WxLxH 310x310x135 mm		The maximum dimensions of the variants must not be exceeded. The new second stage exhaust document is not valid for other bodies. More information can be found in these Converter guidelines, which must be observed.
Rotating lights	D=160 mm H=205 mm		
Refrigerated vehicles	WxLxH 775x580x180 mm		
Special signal system	WxLxH 1,100x415x150 mm		
Special signal system	WxLxH 1,100x415x150 mm	 	
Roof-mounted turn signals	D=180 mm		
Ventilation grate	WxLxH 50x300x100 mm		

Information

For all vehicle, engine and gearbox variants for which values cannot currently be generated using the WLTP calculator, please contact your responsible technical service department and check whether individual approval or multi-stage type approval is possible.

9. List of changes

Modifications to the converter guidelines compared to the data status of November 2025

Chapter no.	Chapter heading	Scope of change
1	General information	
1.1	Introduction	
1.1.1	Concept of this owner's manual	
1.1.2	Means of representation	
1.1.3	Vehicle safety	Chapter updated
1.1.4	Operational reliability	
1.1.5	Note on copyright	
1.2	General information	
1.2.1	Product and vehicle information for converters	
1.2.1.1	Contact in Germany	
1.2.1.2	International contact	
1.2.1.3	Electronic Repair and Workshop Information from Volkswagen AG (erWin)	
1.2.1.4	Genuine Parts online ordering portal	Chapter updated
1.2.1.5	Owner's Manual	Chapter updated
1.2.1.6	Homologation	
1.2.1.7	European Type Approval and EC Certificate of Conformity (CoC)	
1.2.1.8	Worldwide Harmonised Light Vehicles Test Procedure (WLTP)	
1.2.1.9	Manufacturer's declaration	Chapter updated
1.2.2	Converter guidelines, consulting	Chapter updated
1.2.2.1	Letter of non-objection	
1.2.2.2	Application for the letter of non-objection	
1.2.2.3	Legal entitlements	
1.2.3	Warranty and product liability of the converter	Chapter updated
1.2.4	Ensuring traceability	
1.2.5	Badges	
1.2.5.1	Positions on rear of the vehicle	
1.2.5.2	Appearance of whole vehicle	
1.2.5.3	Non-Volkswagen badge	
1.2.6	Recommendation for vehicle storage	Chapter updated
1.2.7	Compliance with environmental rules and regulations	
1.2.8	Recommendations for inspection, maintenance and repair	Chapter updated
1.2.9	Accident prevention	Table updated
1.2.10	Quality system	
1.3	Planning bodies	
1.3.1	Selecting the basic vehicle	
1.3.2	Vehicle modifications	
1.3.3	Vehicle acceptance	
1.4	Special equipment	
2	Technical data for planning	
2.1	Basic vehicle	
2.1.1	Vehicle dimensions	Chapter updated
2.1.1.1	Basic data of Caddy Cargo	Chapter updated
2.1.1.2	Basic data of Caddy	Chapter updated
2.1.2	Ramp angle and breakover angle	Chapter updated

Chapter no.	Chapter heading	Scope of change
2.1.3	Vehicle centre of gravity	Chapter updated
2.1.4	Bodies with a high centre of gravity	
2.1.5	Determining centre of gravity	
2.1.6	Steerability – minimum front axle load	
2.2	Running gear	
2.2.1	Permitted weights and kerb weights	
2.2.1.1	One-sided weight distribution	
2.2.2	Turning circle	
2.2.3	Approved tyre sizes	Chapter updated
2.2.4	Modifications to axles	
2.2.5	Modifications to the steering system	
2.2.6	Brake system and brake control system ESC*	
2.2.6.1	General information	
2.2.6.2	Vehicle stability and ESC*	
2.2.6.3	Influence of vehicle conversions on the function of ESC* brake regulation system	
2.2.6.4	Routing additional lines along the brake hoses/brake lines	
2.2.7	Modification of springs, suspension mounting, dampers	
2.2.7.1	Rear axle running gear for heavy installations (retrofit kit, PR number UC5)	
2.2.8	Wheel alignment settings	
2.3	Body-in-white	Chapter updated
2.3.1	Roof loads/vehicle roof	Chapter updated
2.3.1.1	Dynamic roof loads	
2.3.2	Modifications to the body-in-white	
2.3.2.1	Bolted connections	
2.3.2.2	Welding work	Chapter updated
2.3.2.3	Welded connections	
2.3.2.4	Selection of welding process	
2.3.2.5	Resistance spot welding	
2.3.2.6	Shielding gas plug welding	
2.3.2.7	Tacking	
2.3.2.8	Welding is not allowed	
2.3.2.9	Corrosion protection after welding	
2.3.2.10	Corrosion protection measures	
2.3.2.11	Planning measures	
2.3.2.12	Component design measures	
2.3.2.13	Coating measures	
2.3.2.14	Work on the vehicle	
2.3.2.15	Painting/corrosion prevention	Chapter added
2.3.2.15.1	Subsequent painting of plastic parts	Chapter added
2.4	Interior	Chapter updated
2.4.1	Modifications in the area of airbags	
2.4.2	Modifications in the area of seats	
2.4.2.1	Belt anchors	
2.4.3	Forced ventilation vent	
2.4.4	Acoustic insulation	
2.5	Electrics/electronics	Chapter updated
2.5.1	Lighting	
2.5.1.1	Vehicle lighting systems	

Chapter no.	Chapter heading	Scope of change
2.5.1.2	Mounting special lights	
2.5.1.3	Additional luggage compartment light	
2.5.2	Electrical system	Chapter updated
2.5.2.1	Electrical wiring/fuses	Chapter updated
2.5.2.2	Additional circuits	Chapter updated
2.5.2.3	Retrofitting electrical devices	Chapter updated
2.5.2.4	Electromagnetic compatibility	Chapter updated
2.5.2.5	Mobile communication systems	
2.5.2.6	Data buses	Chapter updated
2.5.2.7	Current and signal take-off of vehicle electrical system potentials	Chapter updated
2.5.3	Electrical interface for special vehicles	Chapter updated
2.5.3.1	General notes on the interfaces	
2.5.3.2	230-V DC/AC converter (PR no. 9Z3, 9Z6)	
2.5.3.3	Customer-specific functional control unit (CFCU)	Chapter updated
2.5.3.4	Overview of Generation 2 CFCU	Chapter added
2.5.4	Vehicle battery	Table updated
2.5.4.1	Installation of a second battery	Chapter updated
2.5.4.2	Intelligent external charging control	
2.5.4.3	Parameterised* reactions on reaching certain second battery charge levels with second battery monitoring	
2.5.5	Retrofitting of alternators	Chapter updated
2.5.6	Driving assist systems	
2.5.6.1	General overview	Chapter updated
2.5.6.2	Electromechanical steering	
2.5.6.3	Electronic Stability Control (ESC)	
2.5.6.4	Tyre pressure monitoring system (TPMS)	Chapter updated
2.5.6.5	Front camera for driver assist systems	
2.5.6.6	Multifunction interior camera (MIC)	Heading updated Chapter updated
2.5.6.7	Rain and light sensor	
2.5.6.8	Parking aids	Chapter updated
2.5.6.9	Lane Assist lane keeping system	
2.5.6.10	Front Assist / ACC	
2.5.7	Earth points	
2.6	Engine peripherals / drive train	
2.6.1	Engine / drive train components	
2.6.2	Drive shafts	
2.6.3	Fuel system	
2.6.4	Exhaust system	Figures updated
2.6.4.1	Hybrid drive exhaust system (PHEV)	Figures updated
2.6.5	SCR system (EU6)	
2.6.5.1	Installation position of the AdBlue tank in the vehicle	Figures updated
2.6.5.2	Filling the AdBlue tank	Chapter updated
2.7	Power take-off system for engine	
2.7.1	Compatibility with base vehicle	Chapter updated
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2.7.4	Specifications of genuine refrigerant compressor	

Chapter no.	Chapter heading	Scope of change
2.7.4.1	Maximum cooling output	
2.7.4.2	Weight of the refrigerant compressor	
2.7.4.3	Pulley diameter of the refrigerant compressor	
2.7.4.4	Specification of the poly V-belt	
2.7.4.5	Connection dimensions of genuine refrigerant compressor	
2.8	Add-ons/units	
2.8.1	Roof carriers	Chapter updated
2.8.2	Rear luggage carrier/rear ladders	
2.8.3	Towing brackets	
2.8.3.1	Maximum trailer weights	
2.8.3.2	Retrofitting a towing bracket	
2.8.3.3	Clearance according to UN-R 55	
2.8.3.4	Preparing towing bracket (PR no. 1D8) in conjunction with running gear for heavy installations (PR no. UC5)	
2.9	Raising the vehicle	Chapter updated
3	Modifications to closed bodies	
3.1	Body-in-white/body	
3.1.1	Side wall cut-outs	
3.1.2	Subsequent installation of windows	
3.1.3	Roof cut-outs	
3.1.4	Modifications to the roof of the Caddy Cargo / Caddy	
3.1.5	Modifying the partition / forced ventilation vent	Chapter updated
3.1.6	Partition connection points	Chapter updated
3.2	Interior	
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3.2.2	eCall Emergency System	
3.2.3	Seat retrofitting / seating with standard seats	
3.2.4	Installation of aftermarket product seats or use of standard seats deviating from the standard seating	
3.3	Add-ons	
3.3.1	Accessories	
4	Implementations of special bodies	
4.1	Motor vehicles for the transport of persons with disabilities (KMP)	
4.1.1	Basic vehicle equipment	
4.1.2	Selection of steering rack for conversions for people with disabilities	
4.1.3	Notes on conversion solutions for the wheelchair transporter	Chapter updated
4.1.4	Notes on installing manual operating devices for the foot brake	
4.1.5	Deactivating the airbag/belt tensioner system	Chapter updated
4.2	Refrigerated vehicles	
4.3	Shelf installation/workshop vehicles	
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4.4	Emergency service vehicles	
4.5	Preparation for taxis and private hire cars	Chapter updated
4.5.1	Preparation for taxis and private hire cars ex works	
4.5.2	Pin assignment on CFCU* (input and output assignment / pins on CFCU*)	
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4.7	Vehicles for local and public authorities	
4.8	Vehicles for couriers and logistics	Figures updated
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4.9.1	High-voltage system	
4.9.1.1	Power and control electronics for electric drive	
4.9.1.2	Modifications to the underbody area of the high-voltage battery and the drive	
4.9.2	12-V vehicle electrical system	
5	Technical data	
5.1	Build dimension drawings	
5.2	Diagrams (foil templates)	
5.3	Current flow diagrams	
5.4	CAD models	
6	Calculations	
6.1	Determining centre of gravity	
6.1.1	Determining the centre of gravity in x-direction	Figures updated
6.1.2	Determining the centre of gravity in z-direction	Figures updated
7	Masses (weights)	Heading updated
8	Notes on homologation of equipping and conversions	
8.1	Availability with a Certificate of Conformity for a complete vehicle ex works – Light Duty WLTP	Chapter updated
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8.2.1	Permissible aerodynamic changes and min./max. weights apply to the following variants:	Table updated
8.2.2	Permissible aerodynamic changes and max. dimensions	
9	List of changes	References added
Last page	Title, Brieffach, issue date	

Converter guidelines

The Caddy

Converter guidelines

Subject to change without notice

September 2026 edition

Websites:

<https://www.volkswagen-nutzfahrzeuge.de>

<https://www.customized-solution.com>

Consulting for converters in Germany is available from the listed address.

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