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Bulletin No.	MSB 245	
Distribution:	DPs, Sales Managers, Service Managers	X

Mercedes-Benz Trucks Wheelbase Modifications

INTRODUCTION

Ensuring the customer has an efficient, reliable, and comfortable product with which to work is vitally important. The Mercedes-Benz Trucks range is highly engineered, and has undergone millions of kilometres of rigorous testing. However, it is when the vehicle is being prepared for work that problems can arise.

This guide aims to raise awareness and provide guidance to assist vehicle modifiers to ensure a safe and durable end product, and ensure the customer takes delivery of a vehicle that's representative of Mercedes-Benz quality.

RESOURCES

There are many sources of information, including:

- **Mercedes-Benz Bodybuilder Portal** (<http://bb-portal.mercedes-benz.com>), which includes:
 - o **Mercedes-Benz Parts Catalogue**
Items including frame rail material, fasteners, cross-members, extension harnesses, airline, fittings, and more can be found here.
 - o **Mercedes-Benz Body/Equipment Mounting Directives***
 - Book I – General Information
 - Book II – Technical Description
 - Book III – Implementation Quality
 - Additional supplementary books on specific topics
 - o **Chassis drawings**
 - o **Circuit diagrams**
- **Mercedes-Benz Workshop Information System (WIS)**, for Mercedes-Benz dealers
- **Australian Design Rules**
- **Vehicle Standards Bulletin 6 (VSB6)**
- **State and Territory Axle Mass and Dimension Limits**

* While the Body/Equipment Mounting Directives cover technical matters, mass, dimension, and other regulatory topics may not be relevant to the Australian market.



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CONTACTS

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- **Mercedes-Benz Trucks Bodybuilder Support Team (Germany):**
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UNDERSTANDING WHEELBASE MODIFICATIONS

Many topics require consideration when planning a wheelbase modification. These include, but are not limited to:

- **Frame strength and rigidity**
Reinforcement, cross-member spacing, frame rail material, welding, corrosion protection, and existing factory frame modifications must be considered. The body and/or equipment to be mounted to the chassis should also be taken into consideration in the planning stage.
- **Electronic Stability Control (ESP)**
Mercedes-Benz Trucks use Electronic Brake Systems, and in many cases Electronic Stability Control Assist (ESP). Where ESP is fitted, the Body/Equipment Mounting Directives must be observed. At a minimum, parameter changes will be required by a trained and authorised person to take into account the revised wheelbase, and centre of gravity height once a body has been fitted. Care must also be taken when working around the ESP sensor/control unit to avoid damage or incorrect operation.
- **Steering/steer-ability**
Turning circle, steering force and steering wheel diameter, and minimum front axle weights may be affected and must be considered.
- **Vehicle/Combination Stability**
Wheelbase, lateral weight balance, axle mass distribution, and ESP all have an influence on vehicle stability and therefore must be considered.
- **Electrical**
Control unit and sensor location and mounting, and wiring harness extension and routing are amongst the relevant electrical topics.
- **Pneumatics**
Airline extension and routing, and valve/modulator location and mounting are amongst the pneumatic topics that must be considered.
- **Propeller shafts**
Propeller shaft design, modification, support, and balancing must be considered.
- **Fasteners**
Tightening torques and limitations on the re-use of fasteners must be observed.
- **Pre-existing wheelbase modification on new vehicle**



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In some cases vehicles have undergone optional frame modifications at the factory. It is critical this be identified in the planning process and advice sought.

- **Vehicle documentation**

To assist the customer and future owners, it is important details of all modifications are documented in the Daimler ICC and VeDoc systems.

- **Selection of parts**

Genuine parts should always be used where available. These parts have been tested and validated by Mercedes-Benz and ensure safe and reliable vehicle performance.

Further guidance can be found in the Mercedes-Benz Body/Equipment Mounting Directives for the relevant model series.

Wheelbase modifications fall into two categories:

1. A new wheelbase that lies within the factory wheelbase range

In this case, the Body/Equipment Mounting Directives are wholly relevant

2. A new wheelbase that lies outside the factory wheelbase range

A certificate of non-objection (CNO) is required (Book I, Section 1.4). The CNO application is assessed by the German Bodybuilder Support Team on an individual case basis, as the guidance in the Body/Equipment Mounting Directives may not be relevant to such extreme wheelbases.

It is important this process is started early to quickly identify any problems or specific requirements.

The wheelbase range for a specific model range can be found in Book II of the Body/Equipment Mounting Directives. The vehicle model is identified by the first six numeric digits of the VIN (e.g. WDB963424#####).

SUGGESTED PROCESS FOR WHEELBASE MODIFICATIONS

Before committing to the modification

1. Determine scope of customer requirements and expectations, including body and equipment to be fitted.
2. Check whether a factory frame modification exists
3. Determine category of wheelbase modification
 - a. Within factory wheelbase range
 - b. Outside factory wheelbase range (if yes, apply for certificate of non-objection)

If the modification falls into category b, contact the Sales Engineering team for assistance with applying for a Certificate of Non Objection.



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Before beginning the modification

4. Weigh cab/chassis and ensure state/territory axle mass limits can be achieved
5. Read relevant sections of the relevant Body/Equipment Mounting Directives
6. Choose and order genuine Mercedes-Benz parts

During the modification

1. Undertake work, follow the Mercedes-Benz Body/Equipment Mounting Directives and liaising with Mercedes-Benz dealership and/or Mercedes-Benz Sales Engineering/Bodybuilder Support Teams as required
2. Ensure ESP parameters are set as required

Once modification has been completed

3. Inspect vehicle, ensuring all modifications have been completed according to the Body/Equipment Mounting Directives and the vehicle continues to comply with relevant Australian Design Rules and state/territory regulations
4. Obtain Certificate of Non Objection if required
5. Obtain Automotive Vehicle Examiner (AVE) Approval and Modification Plate for modification
6. Ensure modification detail is documented in ICC and VeDoc by submitting a Vehicle Modification Report (VMR) to the Sales Engineering Team.

In every case where a Mercedes-Benz Truck is modified it is important that all modifications are carried out correctly, and to Mercedes-Benz guidelines wherever they exist.

Kind regards,

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