



Date	31 March 2017
Bulletin No.	MSB 213
Distribution:	Sales & Service Managers   X

Mercedes-Benz Trucks Sales

# Mercedes-Benz Trucks Bulletin

## Auxiliary Electrical Consumers

### INTRODUCTION

The fitment of auxiliary electrical consumers occurs on almost every new Mercedes-Benz Truck. To deliver on our promise to the customer of efficiency, reliability and comfort, all aspects of vehicle preparation must be done in accordance with Mercedes-Benz recommendations, and the fitting of electrical equipment is no exception.

Adhering to the recommendations made by Mercedes-Benz ensures the customer will have the experience they expect from their Mercedes-Benz Truck product and return to purchase more.

Not adhering to these recommendations could result in the reduction of vehicle safety, performance, reliability, and durability.

If you have any suggestions for product or accessory kit improvements, please relay this through your Field Service Manager, Business Development Manager, or Sales Engineer.

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### WARRANTY

Any additional expenses arising from the body or additional equipment in connection with warranty, maintenance or repair will not be borne by Daimler AG.

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### RESOURCES AVAILABLE

There are many resources available to provide you with the information you need. These include:

- 1) **Mercedes-Benz Bodybuilder Portal** <https://bb-portal.mercedes-benz.com/portal/>
  - **Refer Bulletin MSB 190**
- 2) **Body/Equipment Mounting Directives**

Choose the appropriate book for the Mercedes-Benz truck model you are working on. There are books available for [Actros 3](#), [New Actros](#), [Antos](#), [Arocs](#), [Econic](#), [Unimog](#), and [Zetros](#). Always ensure you are using the latest version.



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- **Refer Bulletin MSB 194**

Typical information contained in the directives includes:

- Safety and damage prevention notes
- Vehicle ground
- Power tap for auxiliary consumers up to 10A
- Power tap for auxiliary consumers over 10A
- Installation of lighting
- Electrical lines (guidelines for cross-section, fuse protection etc.)
- PSM (Parameterizable Special Module)
- Electrical circuit diagrams (recommended connections for common applications)

**3) Workshop Information System (WIS)** – available only to authorised Mercedes-Benz dealerships

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## **GENERAL NOTES**

The following should always be observed when performing electrical work on a vehicle:

### **1) Use the Correct Parts**

- Always where available, use genuine components (switches, relays, terminals, plugs, fuses etc.).

### **2) Standard of Wiring**

- All components such as fuse holders, connectors, cable lugs, and connections must be designed for respective maximum current.
- The fuse should be positioned as close as possible to the power tapping point.
- The continuous current load should not exceed 70% of the rated fuse value.

### **3) Routing/Securing Cables**

Route cables in such a way that chafing cannot occur, particularly at crossover points and sharp edges. If necessary, use cable ducts or guide pipes.

### **4) Measurements**

Do not carry out measurements at connector terminals using unsuitable tools (test probes, wire ends, etc.). This may lead to contact damage and subsequent problems. Use suitable test lines.



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#### 5) Tapping of lines to Control Units

It is prohibited to tap lines to control units. The control unit could malfunction. Required information, such as a tachograph signal, can be retrieved using the Parameterizable Special Module or dedicated bodybuilder connection points (such as X187 on 956 Econic).

**UNDER NO CIRCUMSTANCES SHOULD THE VEHICLE CAN WIRES BE TAPPED!**

#### 6) Additional Inductive Resistors (e.g. solenoid valves)

If additional inductive resistors are retrofitted to tractor and trailer vehicles (e.g. solenoid valves), the freewheeling current when switching off must be conducted along a defined route, otherwise voltage spikes in excess of -150 V can cause damage to the vehicle's electronics. **Relays with freewheeling diodes or freewheeling resistors must be used.** When using inductive resistors with a diode as the freewheeling path, it must be ensured that polarity reversal of the operating voltage (e.g. reversed polarity when jump-starting) does not cause irreparable damage to the freewheeling path or to other components.

#### 7) Pre-installation of bodybuilder options

Make use of existing pre-installation of wiring, switches, plugs E.g. for additional lighting

#### 8) Design of Power Tap

When the body manufacturer is designing the power tap, the charging capacity of the batteries and alternator must always be taken into account, according to which the amperage tapped by the body manufacturer must be dimensioned.



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## **POWER TAP FOR AUXILLIARY CONSUMERS**

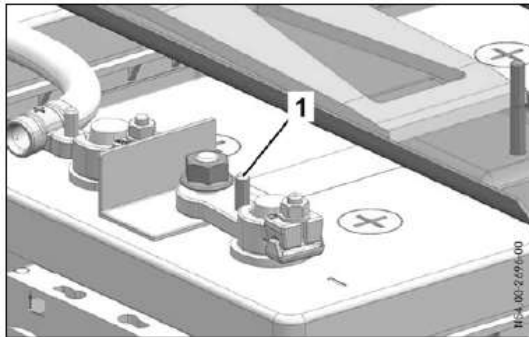
### **Ground**

The ground return for auxiliary consumers is not via the vehicle frame (potential-free frame) but through wiring specific ground points.

Routing the ground return via the vehicle frame can cause damage to the engine and transmission components and to the ground line.

Refer to the relevant book for the correct ground connection point for your vehicle model. This also includes information on the necessary hardware required, including nuts and washers.

Example (963 Actros/Antos, 964 Arocs, 956 Econic):



1 ground connection for body manufacturers

### **For Econic 956:**

Currents higher than 10A can be earthed at several points:

1. Earth connection at equipment socket X187
2. Knurled pin (M6) at battery earth terminal: 35 mm<sup>2</sup>, max. 150 A □Section 25.2.3.2

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### **Positive**

How power may be tapped for auxiliary consumers depends on the current requirement. Typically, this can be grouped into consumers up to 10A and consumers over 10A, however 956 Econic has additional connection points for consumers up to 15A.

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## **Power consumers up to 10A**

### **956 Econic**

The connectors (X71-74) in the electrical compartment can be used for the power supply to retrofitted consumers □ Section 25.2.2 of the relevant book contains further information, including wiring diagrams.

### **Actros 96X, Atego 967**

The cable connector X7 in the SAM-Cab or sSAM in the electrical compartment can be used for the power supply to retrofitted consumers under 10A. Refer to Section 7.3.2 (7.2.1 for Atego 967) of the relevant book for further information.



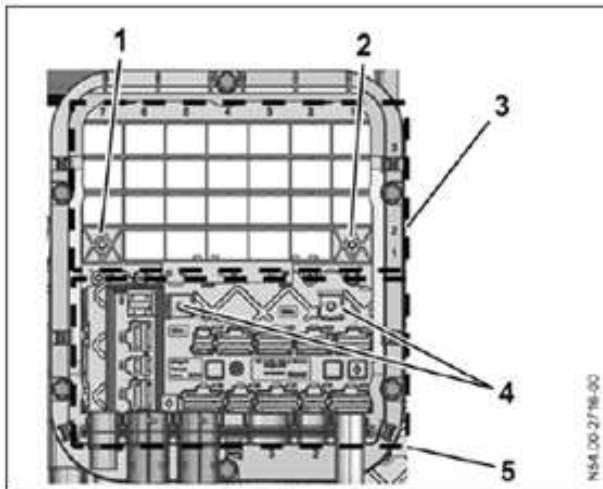
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## Power Consumers Over 10A

- The terminal studs on the SAM MUST NOT BE USED for power tapping, unless equipped with dedicated terminal studs with optional sales code E9G (described below).
- None of the existing electrical connections may be separated for connections by the body manufacturer.

## Actros/Arocs Up to 80A with Optional E9G

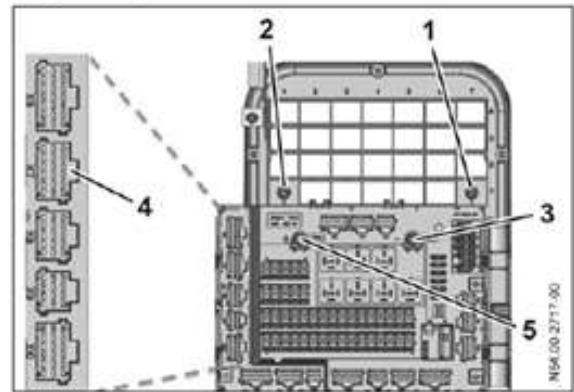
Single SAM, view from outside



Additional positive and negative studs at cab connecting point (FF), Vehicle exterior - with sales code E9G, Preinstallation for electrical equipment.

- 1 Negative terminal
- 2 Positive terminal
- 3 FF interface
- 4 SAM positive and negative supply connections  
- Additional tapping of positive and negative not permissible - Slackening of threaded connections (except for repair purposes) not permissible
- 5 Single SAM

Single SAM, view from inside



- 1 Negative terminal
- 2 Positive terminal
- 3 Additional negative tapping not permissible
- 4 Cable connector X7 (details in following section)
- 5 Additional positive tapping not permissible

Sales code E9G provides an option for connecting auxiliary consumers up to 80A in the cab. This is especially useful for accessories such as additional air conditioners and additional lighting.



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## Actros/Arocs/Econic 956 Over 10A

Auxiliary consumers over 10A can be connected need to be connected at the Power Distributor, which is located either on the LHS at the rear of the cab (96X prime movers), or in the battery box for other models.

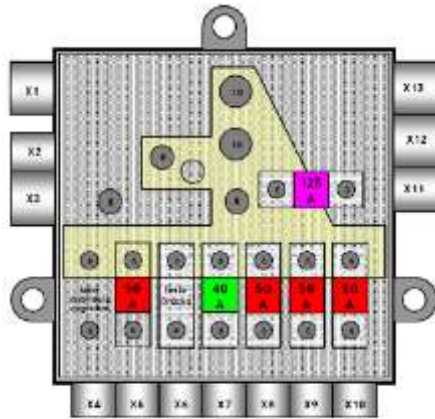
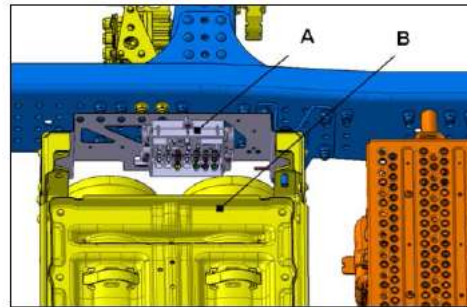


Diagram of Econic power distributor

Outputs X2, X8 and X4 are reserved for the body manufacturer.



Position of power distributor in battery and equipment carrier

A Power distributor

B Battery and equipment carrier (behind AGN box, right side of vehicle)

Connection X3 is a dedicated supply for the bodybuilder. X9 and X10 may also be used if they are not already in use. Correct tightening torques, fasteners, fuse links, cable seals, and cable seal clips should be used. Information on these can be found in the relevant book and section.

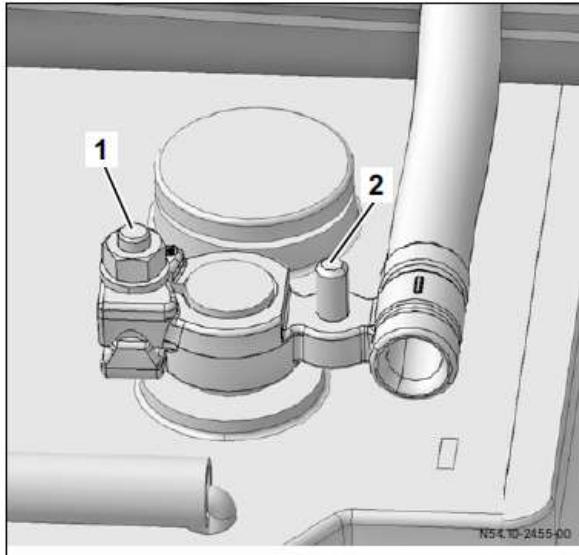


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## Atego 967

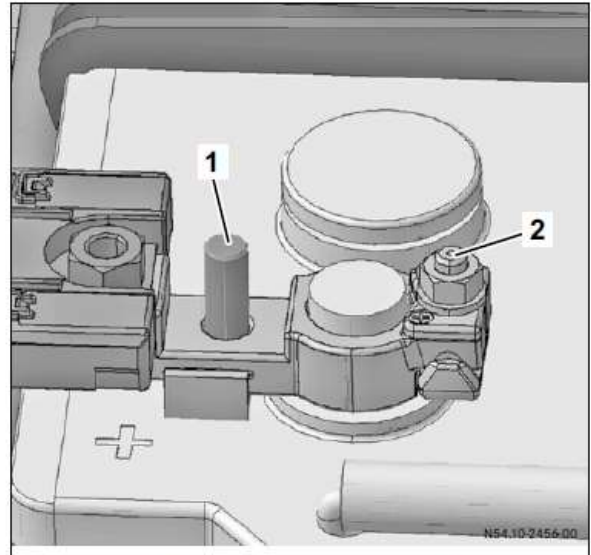
The dedicated studs on the battery terminals are to be used to supply power to electrical consumers with a high current draw. Additional power taps at the power distributor are not permissible.

### Negative battery terminal



- 1 Negative battery terminal, conical bolt  
No clamping of other wires and no additional taps permitted
- 2 Negative battery terminal, additional M6 stud for tapping negative voltage up to total of max. 200 A permitted with adequately designed cable lugs and cross sections

### Positive battery terminal



- 1 Positive battery terminal, additional M8 stud for tapping positive voltage up to total of max. 200 A permitted with adequately designed cable lugs and cross sections

Kind regards,

John Allen  
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Mercedes-Benz Trucks