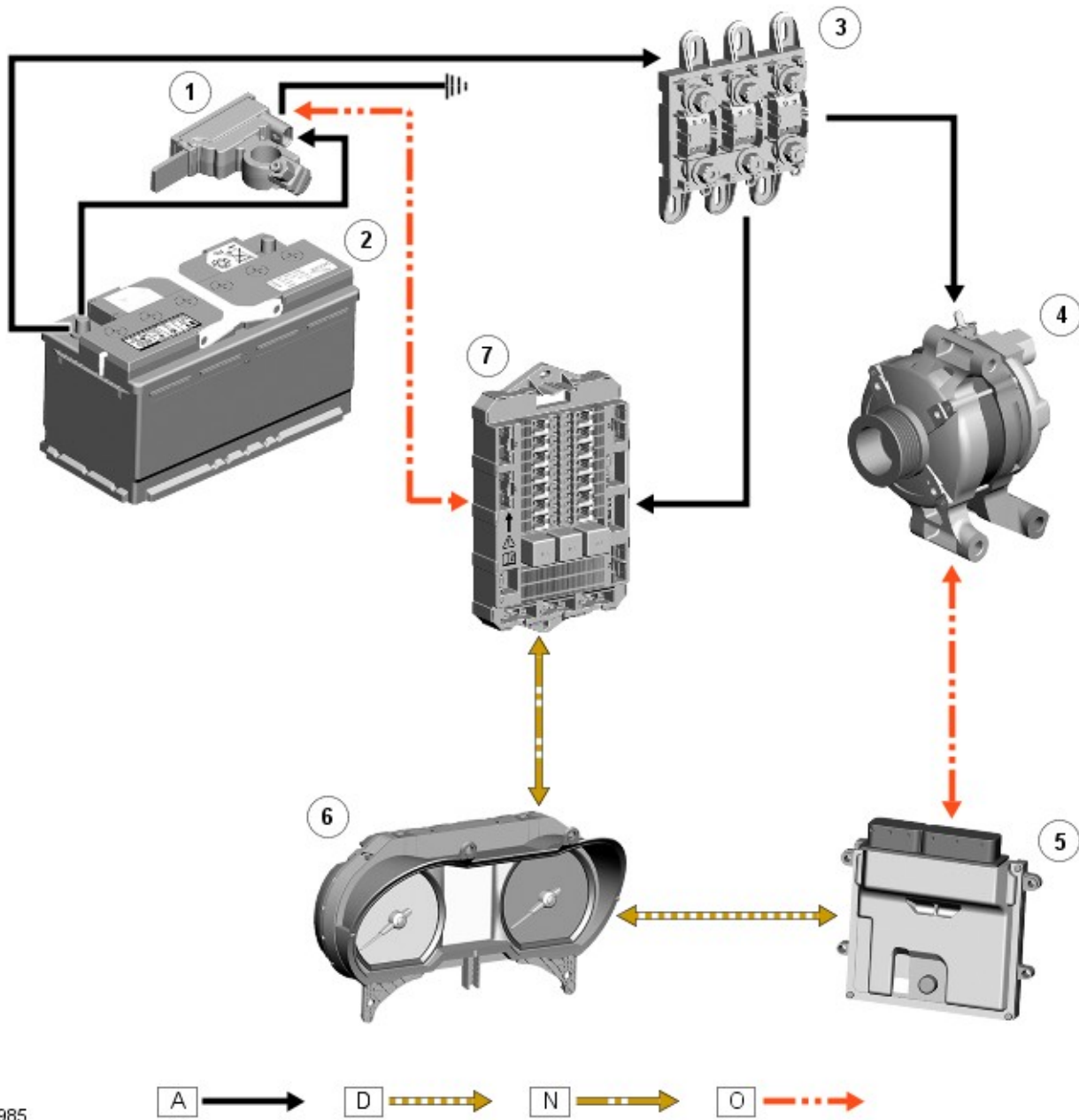


# Battery, Mounting and Cables - Battery and Cables - System Operation and Component Description

Description and Operation

## Control Diagram

• NOTE: **A** = Hardwired; **D** = High speed CAN bus; **N** = Medium speed CAN bus; **O** = LIN bus



### ItemDescription

1	Battery monitoring system module
2	Battery
3	BJB (battery junction box)
4	Generator/regulator
5	ECM (engine control module)
6	Instrument cluster
7	RJB (rear junction box)

## System Operation

## BATTERY MONITORING SYSTEM

Periodically the battery monitoring system module will instigate a self-calibration routine. To self calibrate, the battery monitoring system first charges the battery to its full condition.

- **NOTE:** If the vehicle is only driven for short periods the charging process could take a number of days to complete.

Once the battery is fully charged, the battery monitoring system will discharge the battery to approximately 75% of its full state of charge, but never lower than 12.2 V. The time taken to complete this part of the routine is dependent on the electrical load on the vehicle.

When the second part of the routine has been successfully completed, the battery monitoring system will return the battery to its optimum level of charge. The optimum level of charge will be between 12.6 V and 15 V, depending on battery condition, temperature and loading.

The battery monitoring system module also monitors the battery condition with the engine switched off. If a low voltage condition is detected the module can request the infotainment system is switched off to protect battery voltage. Once the infotainment system has been switched off, the vehicle must be run for at least 5 minutes to charge the battery before the infotainment system can be operated with the engine switched off.

### Component Description

#### BATTERY

The battery is located under the floor in the **RH (right-hand)** side of the luggage compartment.

On new vehicles the battery positive terminal is fitted with a transit relay. The transit relay must removed using the correct process detailed in the PDI manual.

The battery negative terminal is fitted with a battery monitoring system module. The module is integral with the battery negative cable and communicates with the **RJB** via a **LIN (local interconnect network)** bus connection. The battery condition information is passed to the **ECM** which controls the generator output accordingly.



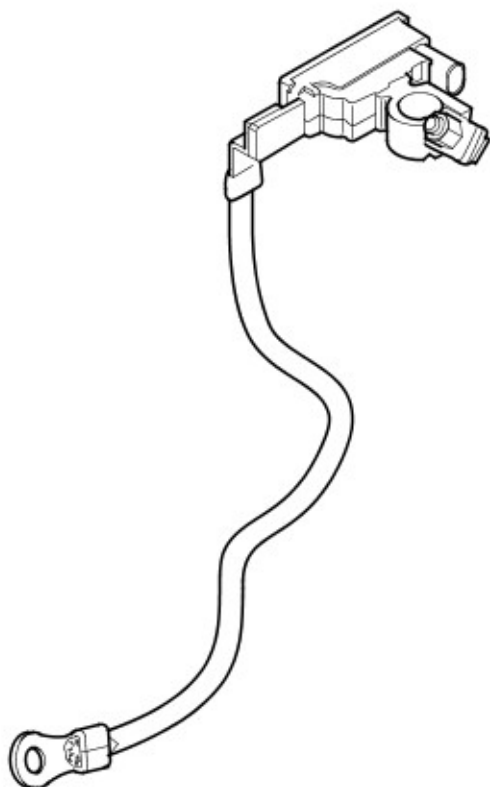
**CAUTION:** To avoid damage to the battery monitoring system module, always use a suitable body ground point rather than the battery negative terminal when connecting a slave power supply. The recommended ground point is the spare wheel securing bracket in the luggage compartment.

Failure to use the recommended ground point will lead to the setting of a **DTC (diagnostic trouble code)**. Incorrect information of battery condition will be retained by the battery monitoring system module due to the unmonitored current flow into the battery. The system will however, recognize and compensate for the change in battery status after a period of time.

If a new battery is fitted, the battery monitoring system module will require re-calibration using a Jaguar approved diagnostic system. Replacement of the battery monitoring system module requires no action as the module will re-calibrate automatically.

## BATTERY MONITORING SYSTEM

Battery Monitoring System Module



E98130

The battery monitoring system module measures battery current and voltage, which it communicates to the **RJB** over a **LIN** bus connection. The **RJB** transmits the battery information to the instrument cluster over the medium speed **CAN (controller area network)** bus. The instrument cluster acts as a gateway between the medium and high speed CAN bus networks, and transmits the battery condition information to the **ECM** over the high speed **CAN** bus. Based on the information received from the battery monitoring system module, the **ECM** will control the output from the generator and request the switching off of electrical loads if necessary. For additional information, refer to:

[Generator](#) (414-02A Generator and Regulator - TDV6 2.7L Diesel, Description and Operation),

[Generator](#) (414-02B Generator and Regulator - V6 3.0L Petrol, Description and Operation),

[Generator](#) (414-02C Generator and Regulator - V8 4.2L Petrol/V8 S/C 4.2L Petrol, Description and Operation).



**CAUTION:** Due to the self-calibration routine, it is recommended that all power supply diagnostic testing is carried out using the Jaguar approved diagnostic system rather than a digital multimeter

The battery monitoring system module is able to generate **DTC's** to help diagnose battery or generator power supply issues. These **DTC's** can be read using the Jaguar approved diagnostic system. The Jaguar approved diagnostic system can also be used to implement a battery and generator self test routine. For additional information, refer to the Diagnosis and Testing section of the workshop manual.

If a fault is detected, the **ECM** will override the battery monitoring system module.

The battery monitoring system module **DTC's** can be used to help diagnose battery or generator power supply faults. The **DTC's** are stored in both the **RJB** and the **ECM**. The Jaguar approved diagnostic system has a process for an automated power supply diagnostic procedure. The procedure provides a menu driven process to locate a fault in a logical sequence. The procedure uses the capability of the battery monitoring system and generator **LIN** bus controlled functions to provide current flow information and will detect if the battery monitoring system or generator are functioning correctly.