

Generator and Regulator - TDV6 3.0L Diesel -

Description	Nm	lb-ft	lb-in
Generator retaining bolts	47	35	-
Battery positive cable retaining nut	12	9	-

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Generator and Regulator - TDV6 3.0L Diesel - Generator - Component

Location

Description and Operation



E117288

Generator and Regulator - TDV6 3.0L Diesel - Generator - Overview

Description and Operation

OVERVIEW

The charging system consists of a 180 Amp output generator and regulator assembly. The generator and regulator assembly generates electrical power for the vehicle electrical system and maintains the battery in a charged state. When the engine is running the generator produces an alternating current, which is converted to a direct current internally. The output from the generator is controlled by the voltage regulator (located inside the generator) and then supplied to the battery through the main battery positive cable.

The generator is mounted on the front right side of the engine and driven at approximately 3 times engine speed by the accessory drive belt.

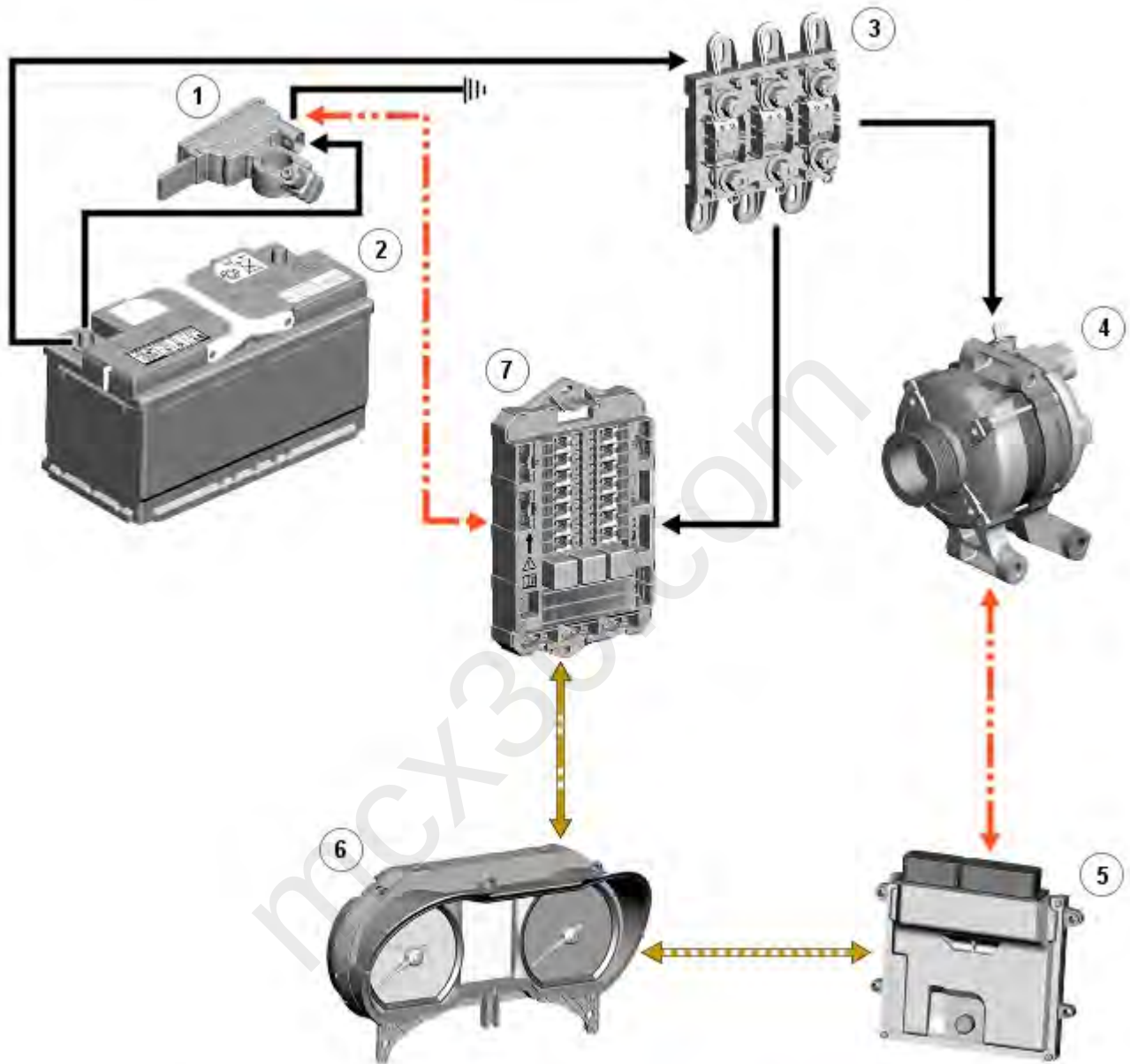
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Generator and Regulator - TDV6 3.0L Diesel - Generator - System Operation and Component Description

Description and Operation

Control Diagram

• NOTE: **A** = Hardwired; **D** = High speed CAN (controller area network) bus; **N** = Medium speed CAN bus; **O** = LIN (local interconnect network) bus.



E96985



ItemDescription

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

System Operation

OPERATION

The output voltage required from the generator and regulator is calculated by the battery monitoring system. Refer to: Battery and Cables (414-01, Description and Operation).

The battery monitoring system signals the calculated voltage to the [ECM](#) via the [RJB](#) and the instrument cluster. The [ECM](#) then transmits the calculated voltage to the generator and regulator on the [LIN \(local interconnect network\)](#) bus connection.

The [ECM](#) will over-ride the voltage value requested by the battery monitoring system if it detects a fault in the generator and regulator. The [ECM](#) also signals the instrument cluster to display a warning message if it detects a fault with the generator and regulator.

Refer to: Instrument Cluster (413-01, Description and Operation).

Component Description

DESCRIPTION

The regulator provides a controlled variable voltage output from the generator. Two electrical terminals are provided on the outer casing of the generator. One terminal supplies the [DC \(direct current\)](#) voltage output from the generator to the battery positive terminal. The second terminal provides the [LIN](#) bus connection between the regulator and the [ECM](#).

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Diagnosis and Testing

For further information,

REFER to: [Charging System](#) (414-00 Battery and Charging System - General Information, Diagnosis and Testing).

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Removal and Installation

Removal

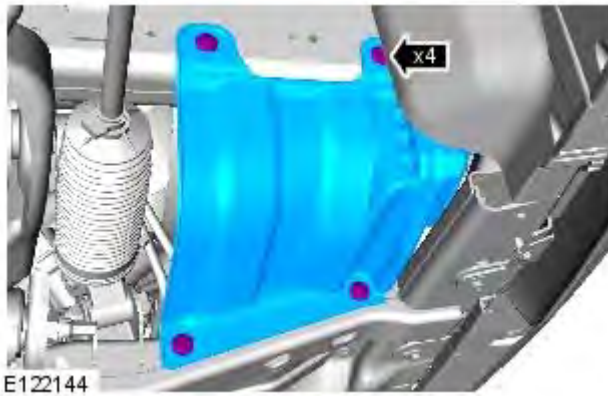
1. Disconnect the battery ground cable.

Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

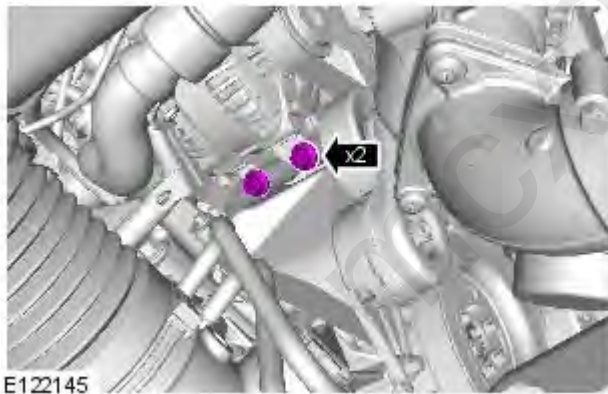
2.  **WARNING:** Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

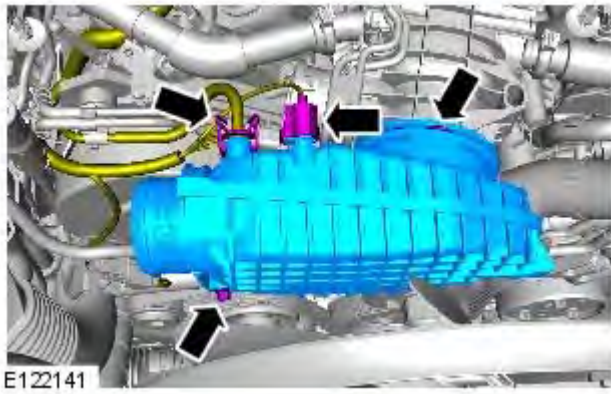
- 3.



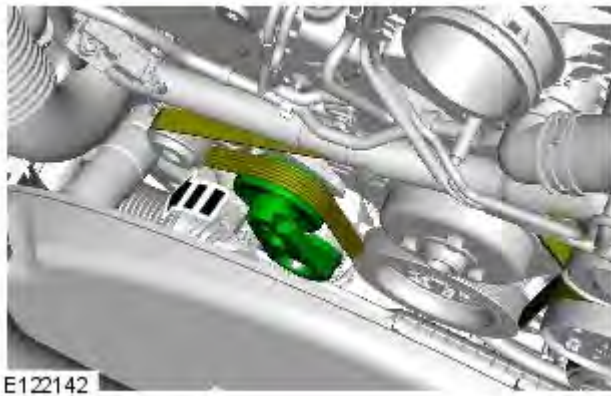
4. Torque: 47 Nm



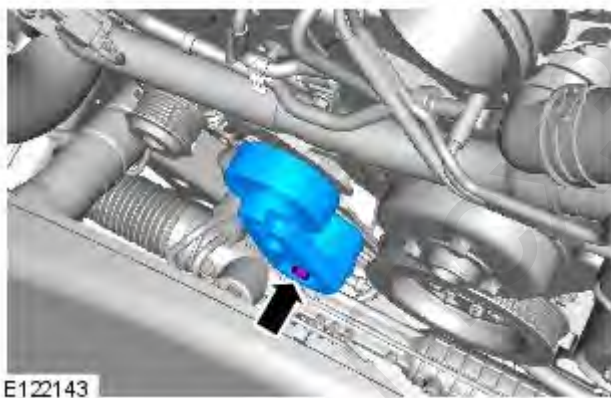
5. Lower the vehicle.
6. Refer to: [Engine Cover - TDV6 3.0L Diesel](#) (501-05 Interior Trim and Ornammentation, Removal and Installation).
7. Refer to: [Cooling Fan](#) (303-03B Engine Cooling - TDV6 3.0L Diesel, Removal and Installation).



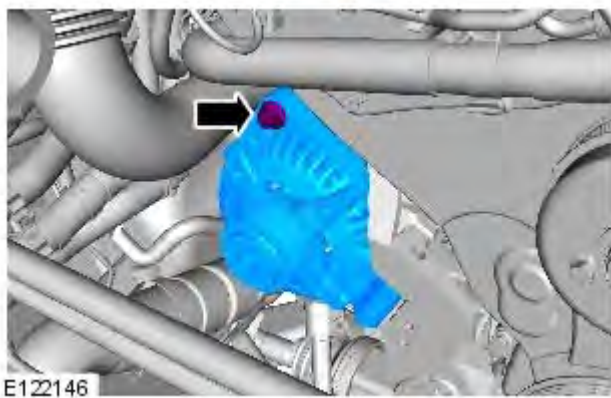
8. Torque: 10 Nm



9.



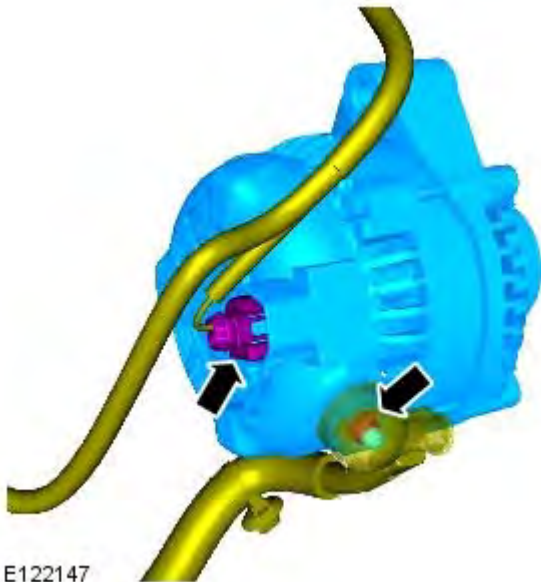
10. Torque: 47 Nm



11. **11.**  **CAUTION:** Take extra care not to damage the wiring harnesses.

Torque: 47 Nm

12. Torque: 12 Nm



Installation

1. To install, reverse the removal procedure.