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BATTERY AND CHARGING SYSTEM - GENERAL INFORMATION

CHARGING SYSTEM (G2401002)

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DIAGNOSIS AND TESTING

PRINCIPLE OF OPERATION

For a detailed description of the charging system and operation, refer to the relevant description and operation section of the workshop manual. REFER to:(414-00 Battery and Charging System - General Information)

[Battery Care Requirements](#) (Description and Operation),
Quiescent Drain (Description and Operation).

PRINCIPLE OF OPERATION

For a detailed description of the generator and regulator system and operation, refer to the relevant description and operation section of the workshop manual. **Generator and Regulator**

INSPECTION AND VERIFICATION

CAUTION:

Diagnosis by substitution from a donor vehicle is **NOT** acceptable. Substitution of control modules does not guarantee confirmation of a fault and may also cause additional faults in the vehicle being checked and/or the donor vehicle

NOTE:

Check and rectify basic faults before beginning diagnostic routines involving pinpoint tests

1. Verify the customer concern
2. Visually inspect for obvious signs of mechanical or electrical damage

Visual Inspection

MECHANICAL

ELECTRICAL

MECHANICAL	ELECTRICAL
■ Generator ■ Drive belt ■ Drive belt tensioner ■ Generator pulley ■ Check the security of the generator fittings	■ Generator ■ Battery/battery connections ■ Starter motor ■ Harnesses and connectors ■ Fuses ■ Starter motor megafuse ■ Charge warning indicator function ■ Instrument Cluster (IC) ■ Gateway module (GWM)

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step

4. If the cause is not visually evident, verify the symptom and refer to the symptom chart, alternatively check for diagnostic trouble codes (DTCs) and refer to the DTC index

SYMPTOM CHART

SYMPTOM	POSSIBLE CAUSES	ACTION
Charge warning indicator does not illuminate	■ Instrument cluster fault ■ Gateway Module fault	■ Using the Jaguar Land Rover Approved Diagnostic Equipment, check the Instrument Cluster (IC) for related DTCs and refer to the relevant DTC index ■ Using the Jaguar Land Rover Approved Diagnostic Equipment, check the Gateway Module (GWM) for related DTCs and refer to the relevant DTC index
Charge warning indicator stays on /battery discharges	■ Accessory drive belt broken ■ Generator pulley slipping on shaft ■ Generator fault ■ Battery cable fault ■ LIN bus circuit fault ■ Gateway module fault	■ Check the accessory drive belt condition and tension ■ Check that the pulley does not rotate independently of the generator ■ Refer to the electrical circuit diagrams and test the generator circuit for short circuit to ground, short circuit to power, open circuit, high resistance ■ Using the Jaguar Land Rover Approved Diagnostic Equipment, check the Gateway Module (GWM) for related DTCs and refer to the relevant DTC index

SYMPTOM	POSSIBLE CAUSES	ACTION
Charge warning indicator intermittent	- Accessory drive belt slipping - Battery cable fault - Generator wiring fault - Generator fault - LIN bus circuit fault	Check the accessory drive belt condition and tension. Check the battery and generator cables. Refer to the electrical guides. Check for DTCs indicating a generator or LIN bus circuit fault. Note that the use of a power pack or boost charger may bring the warning lamp on until disconnected
Battery discharges without the charge warning indicator staying on	- Battery fault - Battery quiescent drain - Intermittent generator fault	- Refer to the relevant section of the workshop manual and check the battery - Refer to the relevant section of the workshop manual and check the battery quiescent drain - Check for DTCs indicating a generator fault
Noise (mechanical)	- Accessory drive belt slipping - Generator fault	- Check the integrity of the accessory drive belt - Remove the accessory drive belt and check that the generator rotates freely

DTC INDEX

For a list of Diagnostic Trouble Codes (DTCs) that could be set on this vehicle, please refer to Section 100-00.

REFER to: [Diagnostic Trouble Code Index: Gateway Module \(GWM\)](#) (100-00 General Information, Description and Operation).