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RIDE AND HANDLING OPTIMIZATION (G2400930)

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PRINCIPLES OF OPERATION

Ride and handling optimization incorporates the terrain response system which links a number of modules around the vehicle to give the best combination of settings in the different systems

For a detailed description of the ride and handling system and operation, refer to the relevant description and operation section of the workshop manual. REFER to: [Ride and Handling Optimization](#) (204-06 Ride and Handling Optimization, Description and Operation).

INSPECTION AND VERIFICATION

**WARNING:**

Before carrying out a road test, make sure the vehicle is safe to do so. Failure to follow this instruction may result in personal injury

**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
■ Tire condition, pressures, etc ■ Driveline components (correct installation, damage, etc) ■ Engine components (correct installation, damage, etc) ■ Transmission components (correct installation, damage, etc) ■ Suspension components (correct installation, damage, etc) ■ Accelerometers (correct installation, etc)	■ Fuses ■ Harnesses/Connectors ■ Chassis Control Module (CHCM) ■ Powertrain Control Module (PCM) ■ Transmission Control Module (TCM) ■ Transfer Case Control Module (TCCM) ■ Anti-lock Brake System (ABS) control module ■ Rear Differential Control Module (RDCM) ■ Steering Angle Sensor Module (SASM) ■ CAN circuits ■ FlexRay circuits ■ Accelerometers

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 DTCs and refer to the DTC index

SYMPTOM CHART

Because the overall function of the system is dependent on sub-systems, it is possible to misinterpret displays in the message centre as being terrain response faults when they are actually a result of a fault in one of the sub-systems

Refer to the table below for help in deciding when to investigate terrain response faults and when the fault is likely to be in a sub-system

SYMPTOM	DESCRIPTION	POSSIBLE CAUSES	ACTION
Message centre display indicating a sub-system fault	The message centre indicates to the driver that a fault has occurred and in which sub-system	■ Any sub-system fault supported by the message centre	■ For details of the available messages, refer to the relevant section of the workshop manual ■ Using the Jaguar Land Rover approved diagnostic equipment perform a complete vehicle DTC read. Follow the diagnostic routine (s0 indicated)

SYMPTOM	DESCRIPTION	POSSIBLE CAUSES	ACTION
Message centre display: Terrain Response Special Programs Not Available, when the driver attempts to select a different terrain response program	This message will display when a sub-system fault has occurred if the driver attempts to change the special program, and at each ignition on cycle for 5 seconds until the fault is rectified	Any sub-system fault supported by the message centre	- For details of the available messages, refer to the relevant section of the workshop manual - Using the Jaguar Land Rover approved diagnostic equipment perform a complete vehicle DTC read. Follow the diagnostic routine (s0 indicated)
Message centre display: Terrain Response Special Programs Not Available, ALL terrain response switch LEDs illuminated	- CAN circuit errors - FlexRay circuit errors	- CAN circuit short circuit to ground, short circuit to power, open circuit, high resistance - FlexRay circuit short circuit to ground, short circuit to power, open circuit, high resistance	 NOTE: The FlexRay wiring harness must not be repaired by making a localised wiring repair. A new wiring harness should be installed. - Refer to the electrical circuit diagrams and check the CAN bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance. Repair the circuit as necessary - Refer to the electrical circuit diagrams and check the FlexRay bus circuit for short circuit to ground, short circuit to power, open circuit, high resistance. Replace the circuit as necessary - If the fault persists, using the Jaguar Land Rover approved diagnostic equipment perform a complete vehicle DTC read. Follow the diagnostic routine(s) indicated in the relevant DTCs and repair as necessary

SYMPTOM	DESCRIPTION	POSSIBLE CAUSES	ACTION
Special program changes not available	User error	■ Engine not running ■ Special program change attempted with ABS or dynamic stability control active ■ Special program change attempted with an overheat condition present in the centre or rear differential	Refer to the relevant section of the workshop manual. Make sure that the driver is familiar with the correct operation of the system

SYMPTOM CHART

SYMPTOM	POSSIBLE CAUSES	ACTION
Poor on-center response	■ Front stabilizer bar bushes incorrectly installed, worn or damaged ■ Rear stabilizer bar bushes incorrectly installed, worn or damaged ■ Steering angle sensor offset	■ Check the front stabilizer bar bushes for correct installation, wear or damage ■ Check the rear stabilizer bar bushes for correct installation, wear or damage ■ Using the Jaguar Land Rover approved diagnostic equipment, check for any Steering Angle Sensor Module (SASM) DTCs. Re-align the SASM as necessary
Asymmetrical response	■ Steering angle sensor offset ■ Accelerometer calibration	■ Using the Jaguar Land Rover approved diagnostic equipment, check for any Steering Angle Sensor Module (SASM) DTCs. Re-align the SASM as necessary ■ Using the Jaguar Land Rover approved diagnostic equipment re-calibrate the acceleration sensors as necessary

SYMPTOM	POSSIBLE CAUSES	ACTION
Excessive roll	■ Front stabilizer bar bushes incorrectly installed, worn or damaged ■ Rear stabilizer bar bushes incorrectly installed, worn or damaged ■ Front stabilization links incorrectly installed, worn or damaged ■ Rear stabilization links incorrectly installed, worn or damaged	■ Check the front stabilizer bar bushes for correct installation, wear or damage ■ Check the rear stabilizer bar bushes for correct installation, wear or damage ■ Check the front stabilization links for correct installation, wear or damage ■ Check the rear stabilization links for correct installation, wear or damage
Oversteer or understeer	■ Front stabilization links incorrectly installed, worn or damaged ■ Rear stabilization links incorrectly installed, worn or damaged	■ Check the front stabilization links for correct installation, wear or damage ■ Check the rear stabilization links for correct installation, wear or damage

DTC INDEX

For a list of diagnostic trouble codes (DTCs) that could be logged on this vehicle, please refer to section 100-00.
 REFER to:(100-00 General Information)

[Diagnostic Trouble Code Index - DTC: Chassis Control Module \(CHCM\)](#) (Description and Operation),

[Diagnostic Trouble Code Index - DTC: Steering Angle Sensor Module \(SASM\)](#) (Description and Operation).

cmjjaGFyZG1vcnRvbjsyMDIwLTA5LTEzVDA3OjA1OjMwLjEzN1o7OTAuMTk5LjEyMS4xMTc7