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2020.0 DEFENDER (LE), 204-05

VEHICLE DYNAMIC SUSPENSION (G2400929)

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DIAGNOSIS AND TESTING

PRINCIPLES OF OPERATION

For additional information on the operation of the air suspension system, refer to the relevant section of the workshop manual. REFER to: [Vehicle Dynamic Suspension](#) (204-05 Vehicle Dynamic Suspension, 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
■ Air leakage ■ Air springs ■ Reservoir ■ Suspension air supply unit ■ Suspension air supply unit air filter ■ Pipework and unions ■ Expansion chamber ■ Front and rear height sensor installation ■ Front and rear accelerometer installation ■ Valve block(s)	■ Battery ■ Fuse(s) ■ Wiring harness physical damage or water ingress ■ Loose or corroded electrical connectors ■ Air suspension control switch ■ CAN circuits ■ FlexRay circuits ■ Height sensors ■ Accelerometers ■ Valve block(s) ■ Chassis Control Module (CHCM)

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. Use the approved diagnostic system or a scan tool to retrieve any diagnostic trouble codes (DTCs) before moving onto the symptom chart or DTC index

- Make sure that all DTCs are cleared following rectification

SYMPTOM CHART

SYMPTOM	POSSIBLE MESSAGE	POSSIBLE CAUSES	ACTION
System detects extended mode unnecessarily when lowering	■ -	■ Crossed gallery and air spring pipes ■ Incorrect valve block installed to front or rear ■ Damage or blockage in air harness ■ Faulty height sensor	■ Check air harness, valves and air springs for blockages and/or leaks ■ Check operation of height sensors ■ Where possible, refer to the guided diagnostic routine on the approved diagnostic system REFER to: (204-05 Vehicle Dynamic Suspension) Air Suspension System Depressurize and Pressurize (General Procedures), Air Suspension - Manual Control Procedure (General Procedures). REFER to: Ride Height Adjustments (204-05 Vehicle Dynamic Suspension, General Procedures).

SYMPTOM	POSSIBLE MESSAGE	POSSIBLE CAUSES	ACTION
Vehicle leans/tilts after being left over-night or for some days	-	- Leaking air spring (s) - Leak from corner valve to gallery - Exhaust valve stuck open	- Check air harness, valves and air springs for blockages and/or leaks - Check operation of height sensors - Where possible, refer to the guided diagnostic routine on the approved diagnostic system REFER to:(204-05 Vehicle Dynamic Suspension) Air Suspension System Depressurize and Pressurize (General Procedures), Air Suspension - Manual Control Procedure (General Procedures). REFER to: Ride Height Adjustments (204-05 Vehicle Dynamic Suspension, General Procedures).
After vehicle left over-night or for some days system regularly indicates "Suspension vehicle raising slowly" when first driving off	Suspension vehicle raising slowly	- Leaking air spring (s) - Leaking reservoir	- Check air harness, valves and air springs for blockages and/or leaks - Check operation of height sensors - Where possible, refer to the guided diagnostic routine on the approved diagnostic system REFER to:(204-05 Vehicle Dynamic Suspension) Air Suspension System Depressurize and Pressurize (General Procedures), Air Suspension - Manual Control Procedure (General Procedures). REFER to: Ride Height Adjustments (204-05 Vehicle Dynamic Suspension, General Procedures).
Changes between different ride-heights are not smooth	-	Faulty height sensor(s)	- Check air harness, valves and air springs for blockages and/or leaks - Check operation of height sensors - Where possible, refer to the guided diagnostic routine on the approved diagnostic system REFER to:(204-05 Vehicle Dynamic Suspension) Air Suspension System Depressurize and Pressurize (General Procedures), Air Suspension - Manual Control Procedure (General Procedures). REFER to: Ride Height Adjustments (204-05 Vehicle Dynamic Suspension, General Procedures).
Vehicle air suspension will not raise the vehicle when requested	Suspension fault message displayed on the Instrument Cluster (IC)	Expansion chamber air leak	- Using the Jaguar Land Rover approved diagnostic equipment, check for air suspension related DTCs and repair as necessary - Check the suspension air supply unit expansion chamber for leaks. If a leak is identified, install a new expansion chamber as required. REFER to: (204-05 - Vehicle Dynamic Suspension - Removal and Installation - Suspension Air Supply Unit Expansion Chamber)

For a list of diagnostic trouble codes (DTCs) that could be logged on this vehicle, please refer to Section 100-00. REFER to: [Diagnostic Trouble Code Index - DTC: Chassis Control Module \(CHCM\)](#) (100-00 General Information, Description and Operation).

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